

TECHNICAL MANUAL

**AVIATION UNIT AND  
AVIATION INTERMEDIATE  
TROUBLESHOOTING MANUAL  
CH-47D HELICOPTER**

This copy is a reprint which includes current  
pages from Changes 1 through 10.

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**10 MAY 1983**

CHANGE  
NO. 17

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 15 July 2000

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual  
CH-47D HELICOPTER

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A through C/(D blank)  
i through iii/(iv blank)  
vii and viii  
1-3 through 1-12  
-----  
1-13 and 1-14  
1-19 through 1-64  
1-64.1/(1-64.2 blank) and  
1-64.3/(1-64.4 blank)  
1-65 through 1-78  
1-79 through 1-86  
1-87 and 1-88  
4-2.1 through 4-2.7/(4-2.8 blank)  
-----  
4-2.9 and 4-2.10  
4-5 and 4-6  
4-9 through 4-12  
4-15 through 4-28  
4-31 through 4-40  
4-43 through 4-48  
4-51 through 4-74  
4-77 through 4-84  
4-87 and 4-88  
4-91 through 4-96  
4-99 through 4-104  
4-105 through 4-110  
4-111 and 4-112  
4-115 through 4-118  
4-118.1/(4-118.2 blank)  
4-119 and 4-120  
4-123 and 4-124  
4-127 through 4-130  
4-133 and 4-134  
4-137 through 4-140  
4-143 and 4-144  
4-149 and 4-150  
4-153 and 4-154  
4-159 and 4-160  
4-163 through 4-176  
4-176.1 and 4-176.2  
4-177 through 4-192  
-----  
6-2.1 through 6-2.4

**Insert pages**

A through C/(D blank)  
i through iii/(iv blank)  
vii and viii  
1-3 through 1-12  
1-12.1/(1-12.2 blank)  
1-13 and 1-14  
1-19 through 1-64  
1-64.1 through 1-64.12  
  
1-65 through 1-78  
1-79 through 1-86  
1-87 and 1-88  
4-2.1 through 4-2.8  
4-2.8.1 and 4-2.8.2  
4-2.9 and 4-2.10  
4-5 and 4-6  
4-9 through 4-12  
4-15 through 4-28  
4-31 through 4-40  
4-43 through 4-48  
4-51 through 4-74  
4-77 through 4-84  
4-87 and 4-88  
4-91 through 4-96  
4-99 through 4-104  
4-105 through 4-110  
4-111 and 4-112  
4-115 through 4-118  
4-118.1/(4-118.2 blank)  
4-119 and 4-120  
4-123 and 4-124  
4-127 through 4-130  
4-133 and 4-134  
4-137 through 4-140  
4-143 and 4-144  
4-149 and 4-150  
4-153 and 4-154  
4-159 and 4-160  
4-163 through 4-176  
4-176.1 and 4-176.2  
4-177 through 4-192  
4-195 through 4-329/(4-330 blank)  
6-2.1 through 6-2.4

**Remove pages**

6-3 through 6-6  
blank/6-10  
6-25 through 6-56  
blank/6-66 through 6-74  
6-77 through 6-83/(6-84 blank)  
7-2.1 and 7-2.2  
7-2.5 through 7-2.8  
7-3 and 7-4  
blank/7-14 through 7-20  
blank/7-42 through 7-44  
blank/7-62 through 7-68  
7-73 and 7-74  
7-79 and 7-80  
7-80.1 and 7-80.2  
7-81 and 7-82  
7-87 through 7-92  
blank/7-104 through 7-108  
7-117 and 7-118  
7-118.1 and 7-118.2  
7-153 through 7-156  
7-159 through 7-162  
7-169 through 7-172  
7-175 and 7-176  
7-179 through 7-184  
-----  
7-191 and 7-192  
Index-1 through Index-9/(10 blank)

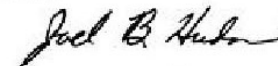
**Insert pages**

6-3 through 6-6  
blank/6-10  
6-25 through 6-56  
blank/6-66 through 6-74  
6-77 through 6-83/(6-84 blank)  
7-2.1 and 7-2.2  
7-2.5 through 7-2.8  
7-3 and 7-4  
blank/7-14 through 7-20  
blank/7-42 through 7-44  
blank/7-62 through 7-68  
7-73 and 7-74  
7-79 and 7-80  
7-80.1 and 7-80.2  
7-81 and 7-82  
7-87 through 7-92  
blank/7-104 through 7-108  
blank/7-118  
7-118.1 and 7-118.2  
7-153 through 7-156  
7-159 through 7-162  
7-169 through 7-172  
7-175 and 7-176  
7-179 through 7-184  
7-190.1/(7-190.2 blank)  
7-191 and 7-192  
Index-1 through Index-9/(10 blank)

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**NO. 16**

**Aviation Unit and Aviation Intermediate  
Troubleshooting Manual**

**CH-47D HELICOPTER**

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vii and viii  
1-15 and 1-16  
-----  
-----  
-----  
1-86.1/(1-86.2 blank)  
Index-5 and Index-6

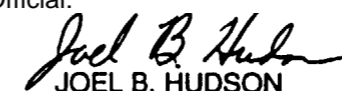
**Insert pages**

A-C/(D blank)  
a/(b blank)  
iii/(iv blank)  
vii and viii  
1-15 and 1-16  
1-16.A/(1-16.B blank)  
1-64.3/(1-64.4 blank)  
1-78.3/(1-78.4 blank)  
1-86.1 and 1-86.2  
Index-5 and Index-6

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CH-47 HELICOPTER

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iii/(iv blank)  
vii and viii  
1-15 and 1-16  
1-78.1/(1-78.2 blank)  
1-88.1/(1-86.2 blank)  
1-87 and 1-88  
Index-3 and Index-4  
-----

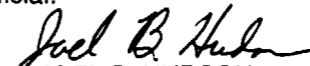
Insert Pages

iii/(iv blank)  
vii and viii  
1-15 and 1-16  
1-78.1 and 1-78.2  
1-86.1/(1-86.2 blank)  
1-87 and 1-88  
Index-3 and Index-4  
Index-4.1/(Index-4.2 blank)

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**CH-47D HELICOPTER**

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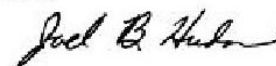
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Remove pages	Insert pages
vii and viii	vii and viii
1-5 through 1-8	1-5 through 1-8
1-19 and 1-20	1-19 and 1-20
1-37 and 1-38	1-37 and 1-38
1-49 through 1-52	1-49 through 1-52
1-57 and 1-58	1-57 and 1-58
1-79 and 1-80	1-79 and 1-80
1-85 and 1-86	1-85 and 1-86
7-2.1 and 7-2.2	7-2.1 and 7-2.2
7-2.5 and 7-2.6	7-2.5 and 7-2.6
7-119 and 7-120	7-119 and 7-120
-----	7-120.1 and 7-120.2
7-121 through 7-124	7-121 through 7-124
-----	7-124.1 and 7-124.2
7-125 and 7-126	7-125 and 7-126
7-138.1/(7-138.2 blank)	7-138.1 through 7-138.8

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TM 55-1520-240-T-1

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**Aviation Unit and Aviation Intermediate  
Troubleshooting Manual  
CH47D HELICOPTER**

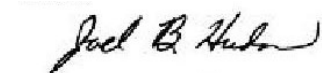
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iii/(iv blank)	iii/(iv blank)
vii and viii	vii and viii
1-15 and 1-16	1-15 and 1-16
.-.-.-	1-16.1/(1-16.2 blank)
1-19 through 1-22	1-19 through 1-22
1-39 and 1-40	1-39 and 1-40
1-63 and 1-64	1-63 and 1-64
.-.-.-	1-64.1/(1-64.2 blank)
1-65 and 1-66	1-65 and 1-66
1-77 and 1-78	1-77 and 1-78
.-.-.-	1-78.1/(1-78.2 blank)
1-85 and 1-86	1-85 and 1-86
.-.-.-	1-86.1/(1-86.2 blank)
1-87/(1/88 blank)	1-87 and 1-88
Index-i through Index-8	Index-1 through Index-8
.-.-.-	Index-9/(Index-10 blank)

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Troubleshooting Manual  
For  
CH-47D HELICOPTER

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Remove Pages

4-119 through 4-122

6-87 and 6-88

7-15 and 7-16

Insert Pages

4-119 through 4-122

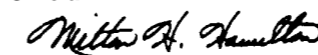
6-87 and 6-88

7-15 and 7-16

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CHANGE

NO. 11

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47 HELICOPTER

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vii/(viii blank)  
3-3 and 3-4  
4-145 and 4-146  
6-2.3 and 6-2.4  
7-155 and 7-156

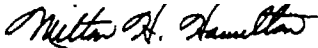
Insert pages

vii and vii  
3-3 and 3-4  
4-145 and 4-146  
6-2.3 and 6-2.4  
7-155 and 7-156

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CHANGE }  
NO. 10 }

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47D HELICOPTER

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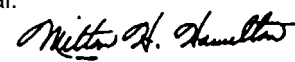
1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
vii and viii	vii/viii
1-3 through 1-10	1-3 through 1-10
2-2.1 and 2-2.2	2-2.1 and 2-2.2
2-13 and 2-14	2-13 through 2-18
-----	2-18.1 through 2-18.3/2-18.4
3-7 and 3-8	3-7 and 3-8
4-117 and 4-118	4-117 and 4-118
4-118.1/4-118.2	4-118.1/4-118.2
5-2.1 and 5-2.2	5-2.1 and 5-2.2
5-5 through 5-8	5-5 through 5-8
-----	5-8.1/5-8.2
5-9 through 5-17/5-18	5-9 through 5-18
6-29 and 6-30	6-29 and 6-30
6-32.2	-----
7-2.1 and 7-2.2	7-2.1 and 7-2.2
7-91 and 7-92	7-91 and 7-92
7-125 and 7-126	7-125 and 7-126
-----	7-138.1/7-138.2

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Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47D HELICOPTER

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Remove pages	Insert pages
i and ii	i and ii
4-177 and 4-178	4-177 and 4-178
4-183 and 4-184	4-183 and 4-184
6-25 through 6-32	6-25 through 6-32
6-37 through 6-42	6-37 through 6-42
6-45 and 6-46	6-45 and 6-46
6-67 and 6-68	6-67 and 6-68
6-71 and 6-72	6-71 and 6-72
6-79 through 6-83/6-84	6-79 through 6-89/6-90

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NO. 8 }

AVIATION UNIT AND AVIATION INTERMEDIATE  
TROUBLESHOOTING MANUAL

CH-47D HELICOPTER

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Remove pages

vii and viii  
4-31 through 4-40  
4-53 and 4-54  
4-119 through 4-122  
4-177 and 4-178  
4-183 and 4-184  
6-25 through 6-32  
- - - - -  
6-39 through 6-42  
6-45 and 6-46  
6-66  
6-67 and 6-68  
6-70  
6-71 and 6-72  
6-77 through 6-83/6-84  
7-69 and 7-70  
7-115 and 7-116  
7-125 and 7-126  
2028's and Envelopes

Insert pages

vii and viii  
4-31 through 4-40  
4-53 and 4-54  
4-119 through 4-122  
4-177 and 4-178  
4-183 and 4-184  
6-25 through 6-32  
6-32.2  
6-39 through 6-42  
6-45 and 6-46  
6-66  
6-67 and 6-68  
6-70  
6-71 and 6-72  
6-77 through 6-83/6-84  
7-69 and 7-70  
7-115 and 7-116  
7-125 and 7-126  
2028's and Envelopes

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NO. 7 }

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47D HELICOPTER

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v through viii	v through viii
1-15 and 1-16	1-15 and 1-16
1-85 and 1-86	1-85 and 1-86
3-5/3-6	3-5/3-6
4-2.5 and 4-2.6	4-2.5 and 4-2.6
4-118.1/4-118.2	4-118.1/4-118.2
4-121 and 4-122	4-121 and 4-122
6-17 and 6-18	6-17 and 6-18
6-39 and 6-40	6-39 and 6-40
7-2.7 and 7-2.8	7-2.7 and 7-2.8
7-15 and 7-16	7-15 and 7-16
7-73 and 7-74	7-73 and 7-74
7-99 and 7-100	7-99 and 7-100
7-161 and 7-162	7-161 and 7-162

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Troubleshooting Manual

CH-47D HELICOPTER

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Remove pages	Insert pages
i through iii/iv	i through iii/iv
v and vi	v and vi
1-14.1/1-14.2	1-14.1/1-14.2
1-15 and 1-16	1-15 and 1-16
1-19 and 1-20	1-19 and 1-20
1-33 through 1-36	1-33 through 1-36
1-51 through 1-54	1-51 through 1-54
1-57 and 1-58	1-57 and 1-58
1-61 and 1-62	1-61 and 1-62
1-65 and 1-66	1-65 and 1-66
1-81 and 1-82	1-81 and 1-82
7-1/7-2	7-1/7-2
7-2.1 through 7-2.4	7-2.1 through 7-2.4
7-79 and 7-80	7-79 and 7-80
7-99 through 7-102	7-99 through 7-102
7-199 and 7-200	7-1~9/7-2c)()
7-201 through 7-206	-----
7-207 and 7-208	7-207/7-208
7-209 through 7-219/7-220	-----

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*Chief of Staff*

Official:

**WILLIAMJ.MEEHAN II**  
*Brigadier General, United States Army*  
*The Adjutant General*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31, AVUM and AVIM Maintenance requirements for CH-47D Helicopter, Cargo Transport.

CHANGE }  
NO. 5 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON D.C., 1 May 1988

AVIATION UNIT AND AVIATION INTERMEDIATE  
TROUBLESHOOTING MANUAL

CH-47D HELICOPTER

TM 55-1520-240-T-1, 10 May 1983, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
vii/viii	vii and viii
1-3 and 1-4	1-3 and 1-4
1-13 and 1-14	1-13 and 1-14
---	1-14.1/1-14.2
2-2.1 and 2-2.2	2-2.1 and 2-2.2
2-2.5 and 2-2.6	2-2.5 and 2-2.6
2-4	2-4
---	2-4.1 through 2-4.8
2-5 and 2-6	2-5/2-6
2-7 through 2-17/2-18	2-7 through 2-14
4-65 and 4-66	4-65 and 4-66
---	4-104.1/4-104.2
4-105 and 4-106	4-105 and 4-106
---	4-110.1/4-110.2
4-111 and 4-112	4-111 and 4-112
4-135 and 4-136	4-135 and 4-136
4-145 and 4-146	4-145 and 4-146
4-169 and 4-170	4-169 and 4-170
4-183 and 4-184	4-183 and 4-184
4-189 and 4-190	4-189 and 4-190
5-15 and 5-16	5-15 and 5-16
6-10	6-10
6-11 and 6-12	6-11 and 6-12
6-45 and 6-46	6-45 and 6-46
6-49 and 6-50	6-49 and 6-50
6-53 and 6-54	6-53 and 6-54
6-61 and 6-62	6-61 and 6-62
6-79 and 6-80	6-79 and 6-80
7-3 and 7-4	7-3 and 7-4
7-5 and 7-6	7-5 and 7-6
7-35 and 7-36	7-35 and 7-36
7-43 through 7-48	7-43 through 7-48
7-59 and 7-60	7-59 and 7-60
7-67 and 7-68	7-67 and 7-68

Remove pages

7-75 and 7-76  
7-81 and 7-82  
7-115 and 7-116  
7-118.3/7-118.4  
7-131 and 7-132  
7-165 and 7-166  
7-169 and 7-170  
Index 1 through Index 8

Insert pages

7-75 and 7-76  
7-81 and 7-82  
7-115 and 7-116  
7-118.3/7-118.4  
7-131 and 7-132  
7-165 and 7-166  
7-169 and 7-170  
---

2. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

Official:

R.L.DILWORTH  
*Brigadier General, United States Army*  
*The Adjutant General*

CARL E. VUONO  
*General, United States Army*  
*Chief of Staff*

DISTRIBUTION:

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DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 8 December 1987

CHANGE }  
NO. 4 }

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47D HELICOPTER

TM 55-1520-240-T-1, 10 May 1983, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages

vii/viii  
1-5 and 1-6  
1-15 and 1-16  
2-15 through 2-17/2-18  
2-41 and 2-42  
4-93 and 4-94  
4-97 through 4-100  
5-17/5-18  
6-2.3 and 6-2.4  
6-33 through 6-40  
6-43 and 6-44  
6-57 and 6-58  
6-73 through 6-76  
7-2.3 and 7-2.4  
7-63 and 7-64  
7-69/7-70  
7-85 through 7-90  
7-99 through 7-102  
7-141 through 7-144  
7-158 through 7-160  
7-173/7-174  
7-191 and 7-192  
7-227 and 7-228

Insert pages

vii/viii  
1-5 and 1-6  
1-15 and 1-16  
2-15 through 2-17/2-18  
2-41 and 2-42  
4-93 and 4-94  
4-97 through 4-100  
5-17/5-18  
6-2.3 and 6-2.4  
6-33 through 6-40  
6-43 and 6-44  
6-57 and 6-58  
6-73 through 6-76  
7-2.3 and 7-2.4  
7-63 and 7-64  
7-69/7-70  
7-85 through 7-90  
7-99 through 7-102  
7-141 through 7-144  
7-158 through 7-160  
7-173 and 7-174  
7-191 and 7-192  
7-227 and 7-228

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**Official:**

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*Brigadier General, United States Army*  
*The Adjutant General*

**CARL E. VUONO**  
*General, United States Army*  
*Chief of Staff*

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# URGENT

**TM 55-1520-240-T-1**

C 3

CHANGE }  
NO. 3 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D. C., 1 May 1987

## Aviation Unit and Aviation Intermediate Troubleshooting Manual

CH-47D HELICOPTER

TM 55-1520-240-T-1, 10 May 1983, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages

vii/viii

1-3 and 1-4

3-1 through 3-20

7-155 and 7-156

Index 5 and Index 6

Insert pages

vii/viii

1-3 and 1-4

3-1 through 3-20

7-155 and 7-156

Index 5 and Index 6

2. Retain this sheet in front of manual for reference purposes.

**By Order of the Secretary of the Army:**

**JOHN A. WICKHAM, JR.**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**R. L. DILWORTH**  
*Brigadier General, United States Army*  
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# URGENT



CHANGE }  
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DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 25 September 1986

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47D HELICOPTER

TM 55-1520-240-T-1, 10 May 1983, is changed as follows:

1. Remove **and insert pages as indicated** below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages

i through iii/iv  
v and vi  
---  
1-3 through 1-17/1-18  
---  
2-2.1 and 2-2.2  
2-21 and 2-22  
2-27 through 2-34  
2-39 and 2-40  
2-45 and 2-46  
3-1/3-2  
4-2.1 through 4-2.6  
4-3 and 4-4  
4-7 and 4-8  
4-13 and 4-14  
---  
4-53 and 4-54  
4-57 through 4-66  
4-69 and 4-70  
4-75 and 4-76  
4-85 and 4-86  
4-91 through 4-96  
4-115 through 4-118  
---  
4-121 and 4-122  
4-125 and 4-126  
4-129 and 4-130  
4-135 and 4-136  
5-2.1 and 5-2.2  
6-2.1 through 6-2.4  
6-5 through 6-8

Insert pages

i through iii/iv  
v and vi  
vii/viii  
1-3 through 1-18  
1-19 through 1-87/1-88  
2-2.1 and 2-2.2  
2-21 and 2-22  
2-27 through 2-34  
2-39 and 2-40  
2-45 and 2-46  
3-1 through 3-5/3-6  
4-2.1 through 4-2.6  
4-3 and 4-4  
4-7 and 4-8  
4-13 and 4-14  
4-14.1/4-14.2  
4-53 and 4-54  
4-57 through 4-66  
4-69 and 4-70  
4-75/4-76  
4-85/4-86  
4-91 through 4-96  
4-115 through 4-118  
4-118.1/4-118.2  
4-121 and 4-122  
4-125 and 4-126  
4-129 and 4-130  
4-135 and 4-136  
5-2.1 and 5-2.2  
6-2.1 through 6-2.4  
6-5 through 6-8

Remove pages

6-19 and 6-20  
6-49 and 6-50  
6-79 through 6-82  
7-2.1 through 7-2.6  
7-2.9 and 7-2.10  
7-5 and 7-6  
7-25 and 7-26  
7-33 through 7-36  
7-53 and 7-54  
7-93 and 7-94  
7-97 and 7-98  
7-165 and 7-166  
7-223 and 7-224

Insert pages

6-19 and 6-20  
6-49 and 6-50  
6-79 through 6-82  
7-2.1 through 7-2.6  
7-2.9 and 7-2.10  
7-5 and 7-6  
7-25 and 7-26  
7-33 through 7-36  
7-53/7-54  
7-93 and 7-94  
7-97 and 7-98  
7-165 and 7-166  
7-223 and 7-224

2. Retain this sheet in front of manual for reference purposes.

**By Order of the Secretary of the Army:**

**JOHN A. WICKHAM, JR.**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**R. L. DILWORTH**  
*Brigadier General, United States Army*  
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CHANGE }  
No. 1 }

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DEPARTMENT OF THE ARMY  
WASHINGTON, DC., 18 April 1985

Aviation Unit and Aviation Intermediate  
Troubleshooting Manual

CH-47D HELICOPTER

TM 55-1520-240-T-1, 10 May 1983, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
v and vi	v and vi
1-2.1 and 1-2.2	1-2.1 and 1-2.2
	1-2.3/1-2.4
1-3 and 1-4	1-3 and 1-4
1-7 through 1-16	1-7 through 1-16
2-4 through 2-12	2-4 through 2-12
2-19 through 2-22	2-19 through 2-22
2-25 through 2-28	2-25 through 2-28
2-31 through 2-36	2-31 through 2-36
2-39 and 2-40	2-39 and 2-40
2-45 through 2-48	2-45 through 2-48
4-2.1 through 4-2.4	4-2.1 through 4-2.4
4-2.9 and 4-2.10	4-2.9 and 4-2.10
4-3 and 4-4	4-3 and 4-4
4-6	4-5 and 4-6
4-7 through 4-29/4-30	4-7 through 4-29/4-30
4-35 through 4-46	4-35 through 4-46
4-53 through 4-58	4-53 through 4-58
4-61 and 4-62	4-61 and 4-62
4-65 and 4-66	4-65 and 4-66
4-69 through 4-76	4-69 through 4-76
4-81 through 4-86	4-81 through 4-86
4-91 through 4-94	4-91 through 4-94
4-96	4-95 and 4-96
4-97 through 4-126	4-97 through 4-126
4-129 through 4-132	4-129 through 4-132
4-139 through 4-142	4-139 through 4-142
4-145 through 4-148	4-145 through 4-148
	4-148.1 and 4-148.2
4-149 through 4-158	4-149 through 4-158
	4-158.1 and 4-158.2
4-159 through 4-162	4-159 through 4-162
4-173 and 4-174	4-173 and 4-174
4-175/4-176	4-175 and 4-176
	4-176.1 through 4-176.3/4-176.4

Remove pages	Insert pages
4-183 and 4-184	4-183 and 4-184
6-27 and 6-28	6-27 and 6-28
6-61 and 6-62	6-61 and 6-62
7-2.1 and 7-2.2	7-2.1 and 7-2.2
7-5 and 7-6	7-5 and 7-6
7-9 through 7-12	7-9 through 7-12
7-15 and 7-16	7-15 and 7-16
7-33 through 7-36	7-33 through 7-36
7-71 through 7-76	7-71 through 7-76
7-79 and 7-80	7-79 and 7-80
	7-80.1 and 7-80.2
7-81 and 7-82	7-81 and 7-82
7-85 and 7-86	7-85 and 7-86
7-89 through 7-92	7-89 through 7-92
7-105 and 7-106	7-105 and 7-106
7-115 through 7-118	7-115 through 7-118
	7-118.1 through 7-118.3/7-118.4
7-121 and 7-122	7-121 and 7-122
7-131 and 7-132	7-131 and 7-132
7-137 and 7-138	7-137 and 7-138
7-141 through 7-144	7-141 through 7-144
7-149 and 7-150	7-149 and 7-150
7-153 through 7-156	7-153 through 7-156
7-159 through 7-166	7-159 through 7-166
7-181 through 7-184	7-181 through 7-184
7-193 and 7-194	7-193 and 7-194
7-211 through 7-219/7-220	7-211 through 7-219/7-220

2. Retain these sheets in front of manual for reference purposes.

**By Order of the Secretary of the Army:**

**JOHN A. WICKHAM, JR.**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**DONALD J. DELANDRO**  
*Brigadier General, United States Army*  
*The Adjutant General*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31, Organizational Maintenance requirements for CH-47D aircraft.

**WARNING AND FIRST AID DATA.**

Warnings, cautions, and notes emphasize important critical instructions. They are defined as follows:

**WARNING**

An operating procedure or practice which, if not correctly followed, will result in personnel injury or loss of life.

**CAUTION**

An operating procedure or practice which, if not strictly observed, will result in damage or destruction of equipment.

**NOTE**

An operating procedure or condition which it is essential to highlight.

Personnel performing instructions involving operations, procedures, materials, and practices which are included or implied in this technical manual shall observe the following instructions. Disregard of these warnings and precautionary information can cause serious injury or death. Refer to FM 21-11 for first aid data to treat injuries resulting from working on the helicopter.

**Dangerous Static Charges.** Ground the helicopter during parking, fueling, or defueling.

**Dangerous Voltages Exist in the Electronic Equipment.** Be careful when working on the 150- and 300-volt dc circuits and on the ac generator 115- and 200 volt ac outputs.

**Dangerous Voltages may Exist at Antenna Terminals.** Be careful when working near the antenna or the antenna terminals. Radio-frequency (rf) high voltages exist at these points when transmitters are operating. Contact with radiating antennas can cause serious rf burns.

**Poisonous Carbon Monoxide Fumes.** Toxic carbon monoxide fumes may be present inside the helicopter whenever the apu or engines are operating with the cargo ramp open. Ventilate the cockpit.

**Dangerous Fuel Handling. Incorrect fuel handling causes fire hazards.** Ground the helicopter when fueling or defueling.

**Corrosive Battery Electrolyte (Potassium Hydroxide).** Wear rubber gloves, apron, and face shield when handling leaking batteries. If potassium hydroxide is spilled on clothing, or other material wash immediately with clean water. If personnel contact is made, immediately start flushing the affected area with clean water. Continue washing until medical assistance arrives.

**Acids and Alkalines.** Do not add water to acids. A violent action will result. Acids should be added to water in small quantities. Ruststripper is an alkaline solution. Avoid contact with the skin. Wear protective clothing. Wash thoroughly after using.

**Solvent and Warning Solutions.** These materials are generally toxic and many (toluene, benzene, xylene, methyl-ethyl-ketone, perchlorethylene, naphtha, trichloroethylene) are highly flammable. Work in a well ventilated area away from open flames. Avoid inhaling fumes and prolonged contact with the skin. Wear protective clothing and goggles. Wash thoroughly after using.

**Windshield Repellant.** Do not let windshield rain repellant contact open flame. Deadly hydrogen fluoride gas could be generated. Wash hands with soap and water after handling repellant.

**Antiseize Compounds.** Some antiseize compounds are irritants. Avoid inhaling fumes and contact with the skin. Wear protective clothing. Wash thoroughly after using.

**Paints, Varnishes, Dopes, Thinners, Lubricants, and Fuels.** These materials are generally highly flammable and may be irritants. Work in a well ventilated area away from open flames. Avoid inhaling fumes and prolonged contact with the skin. Wash thoroughly after using.

**Epoxy Resins, Cements, and Adhesives.** These materials may contain toxic or irritating substances. They may also be flammable. Work in a well ventilated area away from open flames. Wear protective clothing. Avoid contact with the skin. Wash thoroughly after using.

**Radiation Hazard.** Some instruments contain radioactive material. (See TB 55-1500-3 14-25.) Do not try to disassemble these instruments. They present no radiation hazard unless seal is broken. If you think seal is broken, do not remove instrument from aircraft until you consult Base Radioactive Protection Officer (AR 40-15). Use a beta-gamma radiac meter AN/PDR-27 or equivalent to determine if instrument contains radioactive material (radium).

**Fire Extinguishing Agents.** Avoid repeated or prolonged exposure to high concentration of bromochloromethane (CB) or decomposition products. CB is a narcotic agent of moderate intensity but prolonged duration. It is less toxic than carbon tetrachloride, methylbromide, or products of combustion. Take normal precautions while using bromochloromethane. Use oxygen masks when available.

Monobromotrifluoromethane (CF<sub>3</sub>Br) is highly volatile but is not easily detected by its odor. Although nontoxic, it is about the same as other freons and carbon dioxide, causing danger to personnel primarily by reduction of oxygen available for proper breathing. Do not allow the liquid to come into contact with your skin. It may cause frostbite or low temperature burns.

**Noise.** Sound pressure levels in this aircraft during some operating conditions exceed the Surgeon General's hearing conservation criteria, as defined in TB MED 251. Hearing protection devices, such as the aviator helmet or ear plugs, are required to be worn by all personnel in and around the aircraft during its operation.

**FOD.** Make sure area is clear of foreign objects before closing access doors, panels, and fairings. If the area is not cleared, damage to components and systems could result in personal injury or death.

**Hydraulic Pressures.** High pressures used in testing hydraulic components can cause line rupture or component failure. Only Qualified personnel shall operate, service and maintain hydraulic test equipment. Use heavy plastic shielding, 1/2-inch thickness or more, when applying pressures over 250 psi, to prevent injury to personnel.

**Compressed Air.** Do not use more than 30 psi compressed air for cleaning purposes. Debris trajected under pressure can cause injury to eyes. Use source of compressed air under 30 psi and eye protection to prevent injury to personnel.

**Flare Dispenser.** Remove all power from helicopter before installing loaded payload module on dispenser assembly. Keep hands and face away from end of payload module during installation. Flares can accidentally fire, sometimes from stray voltage, resulting in injury or death.

**LIST OF EFFECTIVE PAGES**

Insert latest changed pages; dispose of superseded pages in accordance with regulations.

**NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line in the outer margin of the page. Changes to illustrations are indicated by miniature pointing hands.**

Dates of issue for original and changed pages are:

Original	10 May 1983
Change 1	18 April 1985
Change 2	25 September 1986
Change 3	1 May 1987
Change 4	8 December 1987
Change 5	1 May 1988
Change 6	22 June 1989
Change 7	1 November 1989
Change 8	19 October 1990
Change 9	5 July 1991

Change 10	30 April 1992
Change 11	29 April 1994
Change 12	31 January 1995
Change 13	30 September 1996
Change 14	15 June 1997
Change 15	14 November 1997
Change 16	30 April 1999
Change 17	15 July 2000

Page No.	*Change No.
Title	0
A-C/D blank	17
a/b blank	16
i-iii/iv blank	17
v	6
vi	7
vii	14
viii	17
1-1/1-2 blank	0
1-2.1 and 1-2.2	1
1-2.3/1-2.4 blank	1
1-3-1-12	17
1-12.1/1-12.2 blank	17
1-13-1-14	17
1-14.1/1-142 blank	6
1-15	13
1-16	16
1-16A/1-168 blank	16
1-16.1/1-162 blank	13
1-17 and 1-18	2
1-19- 1-64	17
1-64.1-1-64.12	17
1-65-1-71	17
1-72- 1-73	2
1-74- 1-38	17
1-78	13
1-78.1/1-73.2 blank	15
1-78.3/1-78.4 blank	16
1-79	2

Page No.	*Change No.
1-80	14
1-81	2
1-82	6
1-83-1-85	2
1-86	14
1-86.1/1-86.2 blank	16
1-87	13
1-88	5
2-1/2-2 blank	0
2-2.1	10
2-2.2	2
2-2.3/2-2.4 blank	0
2-2.5	0
2-2.6	5
2-3 blank	0
2-4	5
2-4.1-2-4.8	5
2-5/2-6 blank	5
2-7-2-10 blank	5
2-11-2-13	5
2-14	10
2-15 blank	10
2-16-2-18	10
2-18.1-2-18.4 blank	10
2-19	0
2-20	1
2-21	2
2-22- 2-24	0
2-25	1

Page No.	*Change No.
2-26	0
2-27	2
2-28	0
2-29	2
2-30	0
2-31	2
2-32	0
2-33	2
2-34	1
2-35	0
2-36	1
2-37 blank	0
2-38	0
2-39	2
2-40	1
2-41	0
2-42	4
2-43 blank	0
2-44	0
2-45	2
2-46	1
2-47	0
2-48	1
3-1/3-2 blank	3
3-3	3
3-4	11
3-5/3-6 blank	7
3-7	3
3-8	10
3-9-3-20	3
4-1/4-2 blank	0
4-2.1-4-2.8	17
4-2.8.1 -4-2.8.2	17
4-2.9-4-2.10	17
4-3	1
4-4	2
4-5	0
4-6	17
4-7 and 4-8	2
4-9	0
4-10	17
4-11	1
4-12	17
4-14	2
4-14.1/4-14.2 blank	2
4-15	0
4-16	17
4-17	1
4-18	17
4-19	1
4-20	17
4-21	1
4-22	17
4-23	1
4-24	17

Page No.	*Change No.
4-25	1
4-26	17
4-27 blank	0
4-28	17
4-29/4-30 blank	1
4-31 -4-36	17
4-37	1
4-38	17
4-39	1
4-40	17
4-41/4-42 blank	1
4-43-4-46	17
4-47	0
4-48	17
4-49-4-50	0
4-51-4-54	17
4-55	0
4-56	17
4-57	2
4-58	17
4-59	2
4-60	17
4-61	2
4-62	17
4-63	2
4-64	17
4-65	5
4-66	17
4-67	0
4-68	17
4-69	2
4-70	17
4-71	1
4-72	17
4-73	0
4-74	17
4-75/4-76 blank	2
4-77	0
4-78	17
4-79	0
4-80	17
4-81	1
4-82	17
4-83	1
4-84	17
4-85/4-86 blank	2
4-87	0
4-88	17
4-89/4-90 blank	0
4-91-4-96	17
4-97-4-99	4
4-100	17
4-101	1
4-102	17
4-103	1

\*Zero in this column indicates an original page.

\*Zero in this column indicates an original page.

LIST OF EFFECTIVE PAGES (Continued)

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
4-104	17	4-169	5	6-12-6-16	0	7-20	0
4-104.1/4-104.2 blank	5	4-170	17	6-17	7	7-21-7-25	0
4-105	5	4-171	0	6-18 and 6-19	0	7-26	2
4-106	17	4-172	17	6-20	2	7-27 blank	0
4-107	1	4-173	1	6-21	0	7-28-7-32	0
4-108	17	4-174	17	6-22-6-25	0	7-33	2
4-109	0	4-175	1	6-26-6-29	17	7-34	1
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4-111	5	4-176.2	17	6-32-6-51	17	7-42-7-43	17
4-112	17	4-176.3/4-176.4 blank	1	6-52	0	7-44	0
4-113/4-114 blank	1	4-177-4-180	17	6-53	5	7-45 and 7-46	5
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4-127	0	4-191	0	6-70-6-73	17	7-62 -7-67	17
4-128	17	4-192	17	6-74	0	7-68	0
4-129	2	4-193/4-194 blank	0	6-75	4	7-69 and 7-70	8
4-130	17	4-195-4-330 blank	17	6-76 and 6-77	0	7-71	0
4-131 and 4-132	1	5-1/5-2 blank	0	6-78-6-82	17	7-72	1
4-133	0	5-2.1	10	6-83/6-84 blank	17	7-73	17
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4-135 and 4-136	5	5-2.3/5-2.4 blank	0	6-80	8	7-75	5
4-137	0	5-2.5 and 5-2.6	0	6-81	9	7-76-7-79	0
4-138	17	5-3-5-5	0	6-82	8	7-80	17
4-139	1	5-6-5-8	10	6-83/6-84 blank	9	7-80.1 and 7-80.2	17
4-140	17	5-8.1/5-8.2 blank	10	6-85- 6-87	9	7-81	17
4-141 and 4-142	1	5-9 and 5-10	10	6-88	12	7-82	5
4-143	0	5-11	0	6-89/6-90 blank	9	7-83 blank	0
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4-147 and 4-148	1	5-14	10	7-2.3	6	7-86 and 7-87	0
4-148.1 and 4-148.2	1	5-15	5	7-2.4	2	7-88-7-91	17
4-149	1	5-16	10	7-2.5	14	7-92	1
4-150	17	5-17	4	7-2.6-7-2.7	17	7-93	2
4-151 and 4-152	2	5-18	10	7-2.8	7	7-94	0
4-153	0	6-1/6-2 blank	0	7-2.9	0	7-95 blank	0
4-154	17	6-2.1 -6-2.4	17	7-2.10	2	7-96	0
4-155-4-158	1	6-2.5/6-2.6 blank	0	7-2.11 and 7-2.12	0	7-97	2
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4-159	1	6-3 -6-5	17	7-4	17	7-99	7
4-160	17	6-6-6-8	0	7-5	2	7-100 and 7-101	6
4-161 and 4-162	1	6-9 blank	5	7-6	5	7-102	4
4-163	0	6-10	17	7-7 blank	0	7-103 blank	0
4-164 -4-168	17	6-11	5	7-8 and 7-9	0	7-104-7-107	17
				7-10-7-12	1	7-108-7-114	0
				7-13 blank	0	7-115	5
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7-118.2.....	1	7-167 and 7-168 .....	0
7-118.3/7-118.4 blank .....	5	7-169 .....	5
7-119 .....	0	7-170-7-172 .....	17
7-120 .....	14	7-173 and 7-174 .....	4
7-120.1 and 7-120.2.....	14	7-175 .....	0
7-121-7-124.....	14	7-176 .....	17
7-124.1 and 7-124.2 .....	14	7-177- 7-179 .....	0
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7-149 .....	1	7-207-7-208 blank .....	6
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7-157 blank .....	4	7-228 .....	4
7-158 and 7-159 .....	4	7-229-7-244 blank .....	0
7-160 .....	17	Index-1 - Index-8 .....	17
7-161 .....	7	Index-9/ Index-10 blank .....	17
7-162 .....	17		

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Aviation Unit and Aviation Intermediate  
Troubleshooting Manual  
CH-47D HELICOPTER

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-LS-LP, Redstone Arsenal, AL 35898-5230. A reply will be furnished to you. You may also send your comments electronically to our e-mail address: Is-lp@redstone.army.mil or by fax 205-842-6546/DSN 788-6546. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028

TABLE OF CONTENTS

	<i>Page</i>		<i>Page</i>
<b>HOW TO USE THIS MANUAL</b> .....	v	<b>CHAPTER 4. Powerplant Systems Troubleshooting (Continued)</b>	
<b>CHAPTER 1. Troubleshooting Terminology</b> .....	1-1	4-8. Engine Performance Check (With 74) .....	4-195
1-1. Failure Symptoms List .....	1-3	4-9. Engine Low Oil Level Warning System (With 74) .....	4-213
1-2. Electrical Symbols.....	1-16	4-10. Engine Start and Ignition System (With 74) .....	4-221
1-2.1. Mechanical Symbols.....	1-17	4-11. Gas Producer Control System (With 74).....	4-247
1-3. Station, Water, and Butt Lines .....	1-18	4-12. Full Authority Digital Engine Control (FADEC) (With 74) .....	4-255
1-4. 300 Series Connector Plug and Receptacle Wiring Data .....	1-19	4-13. Engine Accessory Gearbox Chip Detectors (With 74).....	4-313
1-5. Terminal Board Wiring Data.....	1-65	<b>CHAPTER 5. Rotor Blade Tracking and Balancing System Troubleshooting</b> .....	5-1
1-6. Ground Devices Wiring Data.....	1-79	Chapter Overview.....	5-2.1
1-7. Glossary .....	1-87	5-1. Centrifugal Droop Stop .....	5-2.5
<b>CHAPTER 2. Vibration Analysis and Dynamic Absorber System Troubleshooting</b> .....	2-1	5-2. Rotor Blade Tracking and Balancing System.....	5-5
Chapter Overview.....	2-2.1	<b>CHAPTER 6. Drive System Troubleshooting</b> .....	6-1
2-1. Vibration Analysis.....	2-2.5	Chapter Overview.....	6-2.1
2-2. Dynamic Absorber System.....	2-19	6-1. Transmission Lubrication Systems .....	6-2.7
<b>CHAPTER 3. Alighting Gear</b> .....	3-1	6-2. Transmission Chip Detectors and Debris Screen .....	6-25
Chapter Overview.....	3-2	6-3. Transmission Chip Detector Fuzz Burn Off Module.....	6-85
3-1. Proximity Switch.....	3-3	<b>CHAPTER 7. Hydraulic "AIRFRAME" Systems Troubleshooting</b> .....	7-1
<b>CHAPTER 4. Powerplant Systems Troubleshooting</b> .....	4-1	Chapter Overview.....	7-2.1
Chapter Overview.....	4-2.1	7-1. Flight Control Hydraulic System .....	7-2.11
4-1. Engine Performance Check (Without 74).....	4-2.9	7-2. Utility Hydraulic System .....	7-71
4-2. Engine Anti-Icing System (Without 74) .....	4-31	7-3. Cargo Ramp and Door.....	7-119
4-3. Engine Low Oil Level Warning System (Without 74).....	4-43	7-4. Swivel Locks System.....	7-139
4-4. Engine Start and Ignition System (Without 74) .....	4-51	7-5. Power Steering System .....	7-153
4-5. Gas Producer Control System (N1) (Without 74) .....	4-91	7-6. Wheel Brakes System .....	7-175
4-6. Power Turbine Control System (N2) (Without 74) .....	4-115	7-7. Engine Hydraulic Starting System .....	7-199
4-7. Engine Accessory Gearbox Chip Detectors (Without 74).....	4-177	7-8. APU Hydraulic Starting System .....	7-207
		7-9. Integrated Lower Control Actuator (ILCA).....	7-221

	<i>Page</i>
<b>CHAPTER 7. Hydraulic "AIRFRAME" Systems Troubleshooting (Continued)</b>	
7-10. Hydraulic Hand Pump.....	7-235
<b>INDEX.....</b>	<b>Index-1</b>
<b>CHAPTER 8. Instrument Systems Troubleshooting.....</b>	<b>8-1</b>
Chapter Overview.....	8-2.1
8-1. Pitot Static System.....	8-2.11
8-2. Gas Producer Tachometer System.....	8-29
8-3. Engine Oil Pressure Indicating System.....	8-43
8-4. Engine Oil Temperature Indicating System.....	8-61
8-5. Power Turbine Inlet Temperature System.....	8-73
8-6. Torque Indicating System.....	8-101
8-7. Hydraulic Pressure Indicating System.....	8-121
8-8. Hydraulic Oil Temperature Indicating System.....	8-135
8-9. Transmission Oil Pressure Indicating and Warning System.....	8-149
8-10. Transmission Oil Temperature Indicating and Warning System.....	8-213
8-11. Fuel Quantity Indicating System.....	8-259
8-12. Cruise Guide Indicating System.....	8-295
8-13. Turn and Slip Indicators.....	8-309
8-14. Maintenance Panel Power Distribution.....	8-319
8-15. Rotor Tachometer.....	8-333
8-16. Engine Fuel Flow Indicating System.....	8-343
<b>CHAPTER 9. Electrical System Troubleshooting.....</b>	<b>9-1</b>
Chapter Overview.....	9-2.1
9-1. DC Power System.....	9-2.17
9-2. AC Power System.....	9-53
9-3. Position Lights.....	9-99
9-4. Landing Lights (Search Lights).....	9-107
9-5. Formation Lights.....	9-139
9-6. Anticollision Lights.....	9-151
9-7. Forward Transmission Oil Level Check Light.....	9-159
9-8. Pilot Flight Instrument Panel Lights.....	9-167
9-9. Center Flight Instrument Panel Lights.....	9-179
9-10. Copilot Flight Instrument Panel Lights.....	9-187
9-11. Overhead Panel Lights.....	9-199
9-12. Console Panel Lights.....	9-213
9-13. Secondary Cockpit Light.....	9-229
9-14. Cockpit Dome and Utility Lights.....	9-247

	<i>Page</i>
<b>CHAPTER 9. Electrical System Troubleshooting (Continued)</b>	
9-15. Cabin and Ramp Lights.....	9-259
9-16. Troop Warning System.....	9-277
9-17. Utility Receptacles.....	9-303
9-18. Master Caution Lights.....	9-321
9-19. Avionics Cooling Fan.....	9-341
9-20. Anticollision Light (AVIM).....	9-351
9-21. Master Caution Panel (AVIM).....	9-359
9-22. Clock.....	9-365
9-23. Cargo Hook Lights.....	9-375
<b>INDEX.....</b>	<b>Index-1</b>
<b>CHAPTER 10. Fuel System Troubleshooting.....</b>	<b>10-1</b>
Chapter Overview.....	10-2.1
10-1. Engine Fuel Shutoff and Cross-feed Valves.....	10-2.9
10-2. Fuel Boost Pumps.....	10-35
10-3. Single Point Pressure Refueling System.....	10-123
10-4. Extended Range Fuel System (ERFS II) (With 84).....	10-179
<b>CHAPTER 11. Flight Control Systems Troubleshooting.....</b>	<b>11-1</b>
Chapter Overview.....	11-2.1
11-1. Flight Control System.....	11-2.9
11-2. Artificial Feel-Magnetic Brakes.....	11-9
11-3. AFCS.....	11-35
11-4. AFCS Control Panel.....	11-191
11-5. AFCS Computer.....	11-203
11-6. Cockpit Control Drive Actuator (CCDA).....	11-229
<b>CHAPTER 12. Utility System Troubleshooting.....</b>	<b>12-1</b>
Chapter Overview.....	12-2.1
12-1. Windshield Anti-Icing System.....	12-2.7
12-2. Fire Detection System.....	12-29
12-3. Fire Extinguisher System.....	12-53
12-4. Windshield Wipers.....	12-71
<b>CHAPTER 13. Environmental Control System Troubleshooting.....</b>	<b>13-1</b>
Chapter Overview.....	13-2.1
13-1. Heating and Ventilating System.....	13-2.7
<b>CHAPTER 14. Hoist and Winch Troubleshooting.....</b>	<b>14-1</b>
Chapter Overview.....	14-2.1
14-1. Cargo/Rescue Winch System.....	14-2.5



	<i>Page</i>
<b>CHAPTER 15. Auxiliary Power Unit Troubleshooting</b> .....	15-1
Chapter Overview.....	15-3
15-1. APU to Airframe Interface.....	15-5
15-2. APU Electrical System.....	15-19
15-3. APU Fuel System.....	15-49
15-4. APU Hydraulic System.....	15-65
15-5. APU/Engine Hydraulic Starter System.....	15-89
15-6. APU Microprocessor Electronic Sequence Unit (ESU).....	15-103
15-7. APU Tester.....	15-139
<b>CHAPTER 16. Mission Equipment Troubleshooting</b> .....	16-1
Chapter Overview.....	16-2.1
16-1. External Cargo Hook System.....	16-2.7
16-2. Flare Dispenser System.....	16-75

	<i>Page</i>
<b>CHAPTER 16. Mission Equipment Troubleshooting (Continued)</b>	
16-3. Engine Air Particle Separator System.....	16-109
16-4. Heads Up Display System.....	16-143
<b>CHAPTER 17. Emergency Equipment Troubleshooting</b> .....	17-1
Chapter Overview.....	17-2.1
17-1. Emergency Exit Lights.....	17-2.5
<b>CHAPTER 18. Installed Avionics Equipment</b> .....	18-1
Chapter Overview.....	18-3
18-1. Global Positioning System.....	18-7
18-2. Audio Voice Warning System (Radar Altimeter).....	18-47
18-3. Doppler/GPS Navigation System.....	18-61
18-4. HF Liaison Facility.....	18-97
<b>INDEX</b> .....	Index-1

## HOW TO USE THIS MANUAL (TM 55-1520-240-T)

This manual has 17 Chapters that have instructions for troubleshooting 72 CH-47 Helicopter Systems.

Chapter 1 has:

- The Complete List of Troubleshooting Symptoms you will find in this manual, This list outlines each chapter by system and symptom.
- Complete wiring for 300 Series Connectors and Receptacles, Terminal Boards, and Ground Devices,

Chapters 2 thru 17 have sets of troubleshooting instructions that include:

- **A Chapter outline** of all systems and symptoms found in the beginning of each Chapter.
- **Connector part numbers and pin patterns** for each connector and receptacle in systems contained in chapter. Also included are **relay termination views** and **ground termination types** and **location**.
- **System Component Diagrams**
- **System Block Diagrams**
- **System Schematics, Ladder Schematics and Wiring Diagrams**
- **Fuel Piping Diagrams**
- **Hydraulic Piping Diagrams**
- **Tables**
- **Visual Checks** with locator figures and step by step procedures.
- **Operational Checks** with locator figures and step by step procedures.
- **Fault Isolation Procedures** with locator figures and troubleshooting logic for specific system faults.

## HOW TO FIND WHAT YOU NEED

**Maintenance** — Refer to TM 55-1520-240-23.

**Troubleshooting** — Use the index in Chapter 1 or in the beginning of each chapter. This is where you will find the system troubleshooting procedures (visual checks, operational checks and fault isolation procedures).

1. The troubleshooting procedures are listed under the name of the system that the component or system belongs to.
2. Each system has a number:

**Example:**

System No.	System
9-15	Cabin and Ramp Lights

3. Each item in your set of troubleshooting instructions has a task number. The system number is prefixed to each of the item task numbers.

**Example:**

System No.	System Symptom	Task No.
9-15	Cabin and Ramp Lights	
	Wiring Diagram	9-15.1
	Visual Check	9-15.2
	Operational Check	9-15.3
	Cabin and Ramp Circuit Breaker Does not Stay Closed	9-15.4

## TASK PREPARATION

Each Troubleshooting procedure begins with INITIAL SETUP information. Read it carefully before starting. It tells you what you need and what you have to know before you begin the job.

1. **Applicable Configurations.** Tells you what configurations or effectivity the task applies to.
2. **Tools.** If any tools from your tool kit are needed, just the kit is listed. Tools needed that are not in the kit are called for by name. Special ground support tools, containers, and test equipment are listed by tool number (Txx). Find these Items in TM 55-1520-240-23.
3. **Materials.** Materials needed are listed by expendable number (EXX). Find these items in TM 55-1520-240-23.
4. **Parts.** New parts required, such as gaskets, packings, and washers, are listed by name only. If parts are not needed, you will not see this heading.
5. **Personnel Required.** Each MOS needed to do the task is listed. When more than one of any MOS is needed, the number is shown in parentheses.
6. **References.** Lists references such as TM 55-1520-240-23. These references will provide where information can be found when you need to repair or replace a part or component. When more than one reference is listed, the Fault Isolation Procedure blocks will contain a refer to statement for all references other than TM 55-1520-240-23.
7. **Equipment Condition.** Procedures which must be done before starting the task are listed and task or TM number is given. Tasks that are not indented under a TM manual can be found in this manual. Refer to the TM manual listed above the indented tasks.
8. **General Safety Instructions.** These are safety precautions that must be observed throughout task. Warnings include basic first aid instructions.
9. **Locator Figure.** The area of the helicopter where the task will be performed is shown, with components to be worked on called out.

## TASK PERFORMANCE

1. Visual Checks are performed to determine if the cause of the system fault is visually apparent.
2. Operational Checks are performed step by step on the system to determine the system fault. Continue the operational check TASK until the symptom is confirmed in the RESULT column.
3. Fault Isolation Procedures are performed to identify the specific trouble in the system. Start with the first block. Read it through and answer the question. The questions will always have a YES or NO answer. If you answer the question YES, follow the direction of the YES arrow to the next block. If you answer the question NO, follow the direction of the NO arrow to the next block. Continue troubleshooting until the symptom cause is identified.
4. Use the integrated schematic during troubleshooting for a view of system component connections and system interfaces.
5. Use the wiring diagram when the troubleshooting instructions require wire tests to isolate the symptom cause.

**TM 55-1520-240-T-1**

6. Before starting, read the entire task. Familiarize yourself with the entire procedure before beginning the task.
7. As you read, pay attention to **WARNINGS, CAUTIONS,** and **NOTES.**
8. **When the word INSPECT** is in your procedures, an inspector must ok the completed step(s).
9. Major steps and key words are printed in **boldface** for experienced repairers.
10. A glossary is on page 1-87. It lists the abbreviations, special words and terms used in this manual and gives their meaning.
11. When a special tool is used or a common tool is used in an unusual way, the use of the tool will be shown.
12. When a block states, "Repair or replace wire as required.", refer to TM 55-1500-323-24 for recommended maintenance practices.
13. Voltages specified in blocks are nominal values unless a range is given. These nominal values and their acceptable ranges are as follows:

<b>Nominal voltage</b>	<b>Range</b>
28 VDC	24 to 30
26 VAC	24 to 28
24 VDC (Battery)	20 to 24
5 VAC	4 to 6
115 VAC	110 to 120

14. In the event of the necessity to add or replace electrical wiring, the colors of wire received from supply may not be the same as the original wire colors. Use wire numbers only for identification of wires. Tag or identify wires by proper number when disconnecting or replacing.

**AIRCRAFT MODIFICATION (ECP/MWO) RETROFIT INFORMATION**

Throughout this manual, black squares containing white numerals are used to distinguish information relating to helicopters modified by an MWO or ECP. Refer to Helicopter Configuration Legend on the following pages for specific modification and effectivities relating to each numeral. A list of delivered helicopters serial numbers is included with the legend.

Information pertaining only to unmodified helicopters is identified by the appropriate effectivity symbol preceded by WITHOUT. For example, WITHOUT **4** indicates that the information that follows is applicable only to helicopters **not** modified by ECP D018. Information pertaining only to helicopters that have been modified by ECP D018 is preceded by WITH **4**. All information not preceded by an effectivity symbol is common to all helicopters.

The following helicopter Designation Legend pages are solely for user convenience. They have no official status.

**DELIVERED HELICOPTER SERIAL NUMBERS**

81-23382	82-23762	83-24102	84-24152	85-24322
through	through	through	through	through
81-23389	82-23780	83-24125	84-24187	85-24336

HELICOPTER CONFIGURATION LEGEND.

CODE	ECP/MWO NO.	TITLE	PRODUCTION (Serial Number)	EFFECTIVITY
				RETROFIT
1	ECP DO03R1	Improved Synch Shaft Vibration Mount	84-24108 and on	Attrition
2	ECP DO10R2C1	Fuel Cell Manifold Control Bracket	82-23389 and on	Attrition
3	ECP DO08	Rotor Hub Protective Cover Enlargement	85-24322 and on	Attrition
4	ECP DO18R2	Composite Fuel Pods	84-24162 and on	Attrition
5	ECP DO06	Removable Support Structure Pylon Hyd. Module	81-23385 and on	By Kit all D
6	ECP DO37R2	Shorter 114C1014 Yaw Connecting Link	85-24322 and on	Attrition
7	ECP DO34	Pilot and Co-Pilot Seat Armor	81-23386 and on	Attrition
8	ECP DO42	Redesign Unk Assy for Increased Parked Blade Loads	83-24105 and on	Attrition
9	ECP DO48C1	Flare Dispenser Blanket Mod and Stowage Provision	83-24107 and on	None
10	ECP DO61R	Floor Former/Fuselage Bilge Paint (Special paint for 14 aircraft)	83-24107 and on (Interior) 83-24105 thru 83-24118 (Exterior)	None
11	ECP DO65	Second Source 114PS494 Fuel Shutoff Valve (Motorized)	82-23776 and on	Attrition
12	ECP DO71	2-Inch Dia. Fuel Breakaway Fittings	83-24110 and on	Attrition
13	ECP DO74C1	Install Steel Control Rods Aft Pylon	83-24103 and on	81-23381 thru 83-24102 by Tech Bulletin
14	ECP DO15C2	Install Bubble Windows	85-24322 and on	Attrition
15	ECP DO51C1	Rainshield Redesign	84-24158 and on	Attrition
16	ECP DO75	Heater Modification	85-24322 and on	Attrition
17	ECP DO27R1C1	Night Vision Goggles (NVG)	85-24322 and on	MWO
18	ECP DO36R1	Improved N1 System	85-24322 and on	Attrition
19	ECP DO69R4	Ferry Fuel Provisions	85-24322 and on	MWO
20	ECP DO64R1	Aft Pylon Work Platform Redesign	85-24322 and on	Attrition
21	ECP DO29C1	ILCA Actuator and Manifold Seal	85-24322 and on	Attrition
22	ECP DO60R1	Ramp Skin and Ramp End Former	85-24322 and on	Attrition

HELICOPTER CONFIGURATION LEGEND (Continued)

CODE	ECP/MWO NO.	TITLE	PRODUCTION (Serial Number)	EFFECTIVITY
				RETROFIT
23	ECP DO01R1	Improved N2 Control Box	84-24156 and on	Attrition
24	ECP DO56R2	Redesign Droop Stop Arm to Increase Clearance With Shroud; Modify Spring Limiter	85-24322 and on	Contractor Kit
25	ECP DO81R2	Ground Contact Annunciator	87-0069 and on	MWO
26	ECP D118C1	Improved Heat Resistance of Flight Control System Bellcranks and Connecting Rods	85-24353 and on	MWO
27	ECP DO54R1	Combining Transmission Support Fitting Redesign	84-24154 and on	Attrition
28	ECP D126C1	Accumulator, APU/Flight Control Modules	86-1635 and on	Attrition
29	ECP DO85C1	Reduced Length Servo-Cylinder Safety Blocks	GSE	MWO
30	ECP 712R7	Portable Calculator and Hardware for Vibrex	OBSOLETE	—
31	ECP D108	Aft Transmission Torque Reactor Improvement	GSE	MWO
32	ECP D111	Deletion of KY-28 Secure Voice Control Panel	87-0069 and on	AVSCOM MSG.
33	ECP D133	UH60/CH47D Common APU	86-1650 and on	MWO
34	ECP D122	Change Droop Stop Shroud From Installed to Flyaway Equipment	85-24361 and on	N/A
35	ECP DO16R1	Single Handle Cargo Hook Release System	88-0079 and on	MWO
36	ECP D113	Hook Release Button Ring Guard on Cyclic Grip	88-0085 and on	MWO
37	ECP D115	Transmission and Engine Chip Bum-Off System	89-0139 and on	MWO
38	ECP D154R1 (Phase 1)	Installation of Stainless Steel Flight Control Connecting Links	88-0091 and on	MWO
39	ECP DO69R4	Ramp Extension/Center Skid Pad Modification for Compatibility With HICHS	90-0180 and on	Attrition
40	ECP D121R2	Fine Mesh Inlet Screen	88-0095 and on	Retrofit

HELICOPTER CONFIGURATION LEGEND.

CODE	ECP/MWO NO.	TITLE	PRODUCTION (Serial Number)	EFFECTIVITY
				RETROFIT
50	ECP D145R1C1	Bolt/Bushing Assembly Improvements	90-0180 and on	MWO 1-1520-240-50-37
51	ECP D157R1	One Piece Engine Drive Shaft	90-0180 and on	MWO 55-1520-240-50-43
52	ECP D190R1	Improved Clamshell Door Latch	92-0282 and on	MWO 1-1520-240-50-62
53	ECP D164	Incorporation of Dome Light Positive Locking Lever Switch	91-0252 and on	MWO 55-1520-240-50-50
54	ECP D154R1	Control System Hardening and (Phase 2) Smoke Containment	81-23381 thru 89-0177	MWO 1-1520-250-50-40
55	ECP D185R1	Separate Fuel Control Relay Box Ground Connections	90-0202 and on	MWO 1-1520-240-50-58
56	ECP D183	Helicopter Internal Cargo Handling System (HICHS) Ramp Centerline Attachment	81-23381 thru 91-0227	MWO 1-1520-240-50-59
57	ECP D175	Engine Aft Mount Adjustable Link	81-23381 thru 92-0302	MWO 1-1520-240-50-60
58	ECP D145R2	Improved Bolt/Bushing Connection	N/A	MWO 1-1520-240-50-69
59	ECP D198A1	Polyurethane Paint for CH-47D Aircraft	—	Attrition
60	ECP A098	Heads Up Display System (HUD) AN/AVS-7	81-23381 thru 91-0271	MWO 1-1520-240-50-56
61	ECP A0027	Global Positioning System (GPS) AN/ASN-149(V) 1	81-23381 thru 92-0302	MWO 1-1520-240-50-68
62	ECP AEEMH-03009	Altitude Voice Warning System Radar Altimeter, AN/APN-209(V)	81-23381 thru 93-0934	MWO 1-1520-240-50-61
63	ECP D200 (Phase 2)	Replace Lower Pitch Link Elastomeric Bearing	90-0180 and on	MWO 1-1520-240-50-64 and MWO 1-1520-240-50-63
64	ECP D194R1	Stainless Steel Bellcranks in Combining Transmission Area	81-23381 and on	MWO 1-1520-240-50-65

HELICOPTER CONFIGURATION LEGEND.

CODE	ECP/MWO NO.	TITLE	PRODUCTION (Serial Number)	EFFECTIVITY
				RETROFIT
65	ECP D168R1	Cockpit Remote Emergency Ramp Extension System	81-23381 thru 92-0309	MWO 1-1520-240-50-48
66	ECP D199	Non-Metallic Spline Adapters for Combining Transmission Cooling Fan Drive Shaft	76-18479 and 81-23381 thru 93-00934	MWO 1-1520-240-50-67
67	ECP D214R1	Aft Position Lights Switch	76-18479 and 81-23381 thru 93-00934	MWO 1-1520-240-50-75
68	ECP D216	Pressure Refueling Vacuum Relief Valve	76-18479 and 81-23381 thru 93-00934	MWO 1-1520-240-50-81
69	ECP D215	NVG Bezel	76-18479 and 81-23381 thru 93-00934	MWO 1-1520-240-50-71
70	ECP D210R1	Easily Replaceable Cabin Escape Hatch	76-18479 and 81-23381 thru 93-00934	TB 1-1520-240-30-02
71	ECP END HO30015	Installation of AN/ASN-128B Doppler GPS Navigation System	76-18479 and on	MWO 1-1520-240-50-73
72	ECP D209	Installation of Radar Altimeter in Center Hook Compartment	76-18479 and 81-23381 thru 93-00934	MWO 1-1520-240-50-72
73	ECP EJCH 007016	Installation of AN/ARC-220 and TSEC/KY-100 HF Liaison Facility	81-23381 thru 93-00934	MWO 1-1520-240-50-74
74	ECP D218	714/FADEC	76-18479 and 81-23381 thru 93-00934	MWO 1-1520-240-50-83
82	ECP D230	ERFS II Wiring	81-23385 and on	MWO 1-1520-240-50-84

# CHAPTER 1

## TROUBLESHOOTING TERMINOLOGY

1-1 FAILURE SYMPTOM LIST

The following list contains the titles of all Failure Symptoms in this manual. The titles are alphabetically arranged beneath the system and chapter where they are found.

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 2</b>				<b>ENGINE ANTI-ICE SYSTEM</b>	
<b>VIBRATION ANALYSIS</b>					
ROTOR BLADE SHOCK ABSORBER ISOLATION PROCEDURE	2-1.1	TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT LEFT	2-2.4	ENG NO. 1 OR NO. 2 ANTI-ICE CIRCUIT BREAKER WILL NOT STAY CLOSED	4-2.4
VIBRATION FREQUENCY IDENTIFIED AS 375 CYCLES PER SECOND (1/REV)	2-1.1	TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT RIGHT	2-2.4	NO. 1 ENGINE ANTI-ICING VALVE DOES NOT OPERATE (CLICK NOT HEARD)	4-2.4
VIBRATION FREQUENCY TOO RAPID TO COUNT BUT A FREQUENCY BEAT NOTICEABLE PRIMARILY BY PILOT AND/OR COPILOT	2-1.1			NO. 2 ENGINE ANTI-ICING VALVE DOES NOT OPERATE (CLICK NOT HEARD)	
VIBRATION FREQUENCY TOO RAPID TO COUNT, VIBRATION FELT IN PEDALS OR STRUCTURE, VIBRATION SENSED BY HEARING HIGH PITCHED TONE, OR PILOTS COMPLAINED OF DOUBLE VISION	2-1.1	<b>CHAPTER 4</b>		<b>ENGINE LOW OIL LEVEL WARNING</b>	
		<b>ENGINE PERFORMANCE CHECK</b>			
		DUAL ENGINE BEEP TRIM IS LOW, ROTOR RPM IS LESS THAN 96 PERCENT WITH ECL AT FLIGHT	4-1.1	NO. 1 OR NO. 2, ENGINE OIL LOW CAUTION LIGHTS DO NOT COME ON	4-3.3
		NO. 1 ENG HIGH PTIT READING DURING START OR HOT START	4-1.1	<b>ENGINE START AND IGNITION</b>	
		NO. 1 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM	4-1.1	ENGINE NO. 1 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
		NO. 1 OR NO. 2 ENGINE HIGH PTIT	4-1.1	ENGINE NO. 1 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
		NO. 1 OR NO. 2 ENGINE N2 OVERSPEED OCCURS WHEN ECL IS MOVED FROM GROUND IDLE TO FLIGHT	4-1.1	ENGINE NO. 2 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
		NO. 1 OR NO. 2 ENGINE OIL TEMP HIGH	4-1.1	ENGINE NO. 2 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
		NO. 1 OR NO. 2 ENGINE ROUGH OR SURGING ACCELERATION FROM GROUND IDLE TO FLIGHT	4-1.1	ENGINE 1 STARTER ON LIGHT DOES NOT COME ON	4-4.4
		NO. 2 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM	4-1.1	ENGINE 2 STARTER ON LIGHT DOES NOT COME ON	4-4.4
		NO. 2 ENGINE HIGH PTIT READING DURING START OR HOT START	4-1.1	NO. 1 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)	4-4.4
		ROTOR RPM CHANGES MORE THAN +0 OR -2 PERCENT OR ENGINE TORQUE SPLIT EXCEEDS 6 PERCENT DURING HOVER	4-1.1	NO. 1 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-4.4
				NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-4.4
				NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-4.4

GO TO NEXT PAGE

SYMPTOM	TASK
CHAPTER 4 (Continued)	
ENGINE START AND IGNITION (Continued)	
NO. 2 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)	4-4.4
NO. 2 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-4.4
NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-4.4
NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-4.4
<b>GAS PRODUCER CONTROL SYSTEM (N1)</b>	
ENGINE NO. 1 OR NO. 2 COND CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-5.3
NO. 1 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND	4-5.3
NO. 1 ENGINE CONT CAPSULE DOES NOT COME ON	4-5.3
NO. 1 ENGINE OR NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MAKE CONTACT WITH STOP OR BROWN BAND IS NOT PARTIALLY COVERED	4-5.3
NO. 1 OR NO. 2 ENG N1 CONT CAPSULE IS LIT	4-5.3
NO. 2 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND	4-5.3
NO. 2 ENGINE N1 CONT CAPSULE DOES NOT COME ON	4-5.3
<b>POWER TURBINE CONTROL SYSTEM — (N2)</b>	
NO. 1 EM ERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 1 ENGINE TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 1 ENGINE TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3

SYMPTOM	TASK
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED)	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 ENGINE BEEP TRIM SWITCH SET TO RPM DECREASE	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO DEC	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO INC	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK	4-6.3
NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP	4-6.3
NO. 2 EMERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 2 ENGINE TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 2 ENGINE TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED)	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 AND 2 ENGINE BEEP TRIM SWITCH SET TO RPM DECREASE	4-6.3

SYMPTOM	TASK
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 AND 2 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO DEC	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO INC	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 210 ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK	4-6.3
NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED)	4-6.3
<b>ENGINE ACCESSORY GEARBOX CHIP DETECTORS</b>	
ENG CHIP DET CAPSULE DOES NOT COME ON AND ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED	4-7.3
NO. 1 AND NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS ALL BLACK WHEN GND SWITCH SET TO TEST	4-7.3
NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-7.3
NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND WHITE FAN, ENG CHIP DET CAPSULE OUT	4-7.3
NO. 1 OR NO. 2 ENG CHIP DET CAPSULE IS LIT	4-7.3
NO. 2 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-7.3
CHAPTER 5	
<b>ROTOR BLADE TRACKING AND BALANCING SYSTEM</b>	
NO FWD LATERAL OR AFT LATERAL INDICATION ON IPS INDICATOR	5-2.3

GO TO NEXT PAGE



1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
CHAPTER 5 (Continued)					
<b>ROTOR BLADE TRACKING AND BALANCING SYSTEM (Continued)</b>					
NO FWD VERTICAL OR AFT VERTICAL INDICATION ON IPS INDICATOR	5-2.3	XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW	6-1.3	RH COMB TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
PHAZOR CLOCK ANGLE INDICATOR LIGHTS DO NOT COME ON	5-2.3	XMSN OIL PRESS CAPSULE ON, TRANSMISSION OIL PRESSURE INDICATIONS NORMAL	6-1.3	RIGHT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
ROTOR BLADE CIRCUIT BREAKER WILL NOT STAY CLOSED	5-2.3	<b>TRANSMISSION CHIP DETECTORS AND INDICATING SCREENS</b>			
TRACKING TARGETS NOT VISIBLE OR STROBEX TUBE LAMP DOES NOT FLASH	5-2.3	AFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3	LEFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
CHAPTER 6					
<b>TRANSMISSION LUBRICATION SYSTEMS</b>					
XMSN AUX OIL PRESS CAPSULE ON WITH ROTORS TURNING	6-1.3	FWD TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3		
XMSN OIL HOT CAPSULE ON, ONE TRANSMISSION OIL TEMPERATURE INDICATION HIGH	6-1.3				

1-1 FAILURE SYMPTOM LIST

The following list contains the titles of all Failure Symptoms in this manual. The titles are alphabetically arranged beneath the system and chapter where they are found.

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 2</b>		<b>CHAPTER 3</b>		NO. 2 ENGINE ANTI-ICING VALVE DOES NOT OPERATE (CLICK NOT HEARD)	
<b>VIBRATION ANALYSIS</b>		<b>PROXIMITY SWITCH</b>		<b>ENGINE LOW OIL LEVEL WARNING SYSTEM (WITHOUT 74)</b>	
HIGH FREQUENCY VIBRATION ISOLATION PROCEDURE	2-1.1	LEFT GROUND CONTACT LIGHT IS NOT LIT WHEN LEFT AFT WHEEL IS ON THE GROUND	3-1.4	NO. 1 OR NO. 2 ENGINE LOW OIL CAUTION LIGHTS DO NOT COME ON	4-3.3
LOW FREQUENCY VIBRATION ISOLATION PROCEDURE	2-1.1	LEFT GROUND CONTACT LIGHT STAYS LIT WHEN LEFT AFT WHEEL IS OFF THE GROUND	3-1.4	<b>ENGINE START AND IGNITION SYSTEM (WITHOUT 74)</b>	
ROTOR BLADE SHOCK ABSORBER ISOLATION PROCEDURE	2-1.1	RIGHT GROUND CONTACT LIGHT IS NOT LIT WHEN RIGHT AFT WHEEL IS ON THE GROUND	3-1.4	ENGINE NO. 1 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
VIBRATION FREQUENCY IDENTIFIED AS 225 RPM (1/REV)	2-1.1	RIGHT GROUND CONTACT LIGHT STAYS LIT WHEN RIGHT AFT WHEEL IS OFF THE GROUND	3-1.4	ENGINE NO. 1 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
VIBRATION FREQUENCY IDENTIFIED AS 675 CYCLES/MIN (3/REV)	2-1.1	<b>CHAPTER 4</b>		ENGINE NO. 2 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
VIBRATION FREQUENCY TOO RAPID TO COUNT, VIBRATION FELT IN STRUCTURE	2-1.1	<b>ENGINE PERFORMANCE CHECK (WITHOUT 74)</b>		ENGINE NO. 2 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
LATERAL BALANCE IS 1 IPS OR GREATER DURING GROUND TRACKING	2-1.7	DUAL ENGINE BEEP TRIM INCORRECT, ROTOR RPM BETWEEN 94-96 PERCENT WITH ECLAT FLIGHT	4-1.1	ENGINE 1 STARTER ON LIGHT DOES NOT COME ON	4-4.4
TRACKING IS ERRATIC AFTER SEVERAL ATTEMPTS	2-1.8	NO. 1 ENGINE HIGH PTIT READING DURING START OR HOT START	4-1.1	ENGINE 2 STARTER ON LIGHT DOES NOT COME ON	4-4.4
BLADE CHANGES MORE THAN 1 INCH BETWEEN GROUND AND HOVER	2-1.9	NO. 1 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM	4-1.1	NO. 1 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)	4-4.4
<b>DYNAMIC ABSORBER</b>		NO. 1 OR NO. 2 ENGINE HIGH PTIT	4-1.1	NO. 1 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-4.4
CTR VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED	2-2.4	NO. 1 OR NO. 2 ENGINE N2 OVERSPEED OCCURS WHEN ECL IS MOVED FROM GROUND IDLE TO FLIGHT	4-1.1	NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-4.4
LH VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED	2-2.4	NO. 1 OR NO. 2 ENGINE OIL TEMP HIGH	4-1.1	NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-4.4
NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT CENTER	2-2.4	NO. 1 OR NO. 2 ENGINE ROUGH OR SURGING ACCELERATION FROM GROUND IDLE TO FLIGHT	4-1.1	NO. 2 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)	4-4.4
NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT LEFT	2-2.4	NO. 2 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM	4-1.1	NO. 2 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-4.4
NO INDICATION ON TEST BOX WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT RIGHT	2-2.4	NO. 2 ENGINE HIGH PTIT READING DURING START OR HOT START	4-1.1	NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-4.4
RH VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED	2-2.4	ROTOR RPM CHANGES MORE THAN +0 OR -2 PERCENT OR ENGINE TORQUE SPLIT EXCEEDS 6 PERCENT DURING HOVER	4-1.1	NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-4.4
TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT CENTER	2-2.4	<b>ENGINE ANTI-ICE SYSTEM (WITHOUT 74)</b>		<b>GAS PRODUCER CONTROL SYSTEM (N1) (WITHOUT 74)</b>	
TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT LEFT	2-2.4	ENG NO. 1 OR NO. 2 ANTI-ICE CIRCUIT BREAKER WILL NOT STAY CLOSED	4-2.4	ENGINE NO. 1 OR NO. 2 COND CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-5.3
TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT RIGHT	2-2.4	NO. 1 ENGINE ANTI-ICING VALVE DOES NOT OPERATE (CLICK NOT HEARD)	4-2.4	NO. 1 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND	4-5.3

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 4 (Continued)</b>					
NO. 1 ENG CONT CAPSULE DOES NOT COME ON	4-5.3	NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 130 TO 210 ON PROTRACTOR (DECREASE SELECTED)	4-6.3	TORQUES NOT MATCHED WITH LOAD SHARE SWITCH AT TRQ	4-8.1
NO. 1 ENGINE OR NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MAKE CONTACT WITH STOP OR BROWN BAND IS NOT PARTIALLY COVERED	4-5.3	NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 AND 2 ENGINE BEEP TRIM SWITCH SET TO RPM DECREASE	4-6.3	ENGINE OVERSPEED TEST FAILS	4-8.1
NO. 1 ENG OR NO. 2 ENG N1 CONT CAPSULE IS LIT	4-5.3	NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 AND 2 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE	4-6.3	PTIT'S NOT MATCHED WITH LOAD SHARE SWITCH SET TO PTIT	4-8.1
NO. 2 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND.	4-5.3	NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO DEC	4-6.3	<b>ENGINE LOW OIL WARNING SYSTEM (WITH 74)</b>	
NO. 2 ENG N1 CONT CAPSULE DOES NOT COME ON	4-5.3	NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO INC	4-6.3	ENG 1 OIL LVL LOW LIGHTS DO NOT COME ON	4-9.3
<b>POWER TURBINE CONTROL SYSTEM (N2) (WITHOUT 74)</b>		NO. 2 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK	4-6.3	ENG 2 OIL LVL LOW LIGHTS DO NOT COME ON	4-9.3
ENGINE NO. 1 TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3	NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED)	4-6.3	<b>ENGINE START AND IGNITION SYSTEM (WITH 74)</b>	
ENGINE NO. 1 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3	<b>ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITH OUT 74)</b>		FADEC NO. 1 START & IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-10.4
ENGINE NO. 2 TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3	ENG CHIP DET CAPSULE DOES NOT COME ON AND ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED	4-7.3	FADEC NO. 2 START & IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-10.4
ENGINE NO. 2 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3	NO. 1 AND NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS ALL BLACK WHEN GND SWITCH SET TO TEST	4-7.3	NO. 1 ENGINE DOES NOT MOTOR OR N1 GAUGE DOES NOT REACH 10%	4-10.4
NO. 1 EMERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3	NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-7.3	NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-10.4
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED)	4-6.3	NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN, ENG CHIP DET CAPSULE OUT	4-7.3	NO. 1 ENGINE DOES NOT START (FUEL SYSTEM FAILURE)	4-10.4
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 ENGINE BEEP TRIM SWITCH SET TO RPM DECREASE	4-6.3	NO. 1 OR NO. 2 ENG CHIP DET CAPSULE IS LIT	4-7.3	NO. 1 ENGINE DOES NOT START (IGNITION SYSTEM FAILURE)	4-10.4
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE	4-6.3	NO. 2 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-7.3	NO. 2 ENGINE DOES NOT MOTOR OR N1 GAUGE DOES NOT REACH 10%	4-10.4
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO DEC	4-6.3	<b>ENGINE PERFORMANCE CHECK (WITH 74)</b>		NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-10.4
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO INC	4-6.3	ENGINE FAIL WARNING NOT SHOWN (12 SECONDS ON) DURING ENGINE SHUTDOWN OR WHEN ENG PRI REV SWITCH SET TO PRI	4-8.1	NO. 2 ENGINE DOES NOT START (FUEL SYSTEM FAILURE)	4-10.4
NO. 1 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK	4-6.3	ENG FAIL WARNING STAYS ON	4-8.1	NO. 2 ENGINE DOES NOT START (IGNITION SYSTEM FAILURE)	4-10.4
NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP	4-6.3	FADEC REV MODE INOPERATIVE	4-8.1	<b>GAS PRODUCER CONTROL SYSTEM (N1) (WITH 74)</b>	
NO. 2 EMERG ENGINE TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3	DECU CODE F AFTER POWER ASSURANCE TEST	4-8.1	DECU CODE IS A5 AND/OR B6	4-11.3
		FADEC TOGGLES BETWEEN PRIMARY AND REVERSIONARY MODE	4-8.1	<b>FULL AUTHORITY DIGITAL ENGINE CONTROL (FADEC) (WITH 74)</b>	
				ENGINE NO. 1 OR NO. 2 PRI CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-12.4
				ENGINE NO. 1 OR NO. 2 REV CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-12.4
				FADEC 1 OR FADEC 2 CAPSULE ON MASTER CAUTION PANEL ILLUMINATES (ENGINE RUNNING IN PRI MODE)	4-12.4
				DECU CODE A1	4-12.4
				DECU CODE A2	4-12.4
				DECU CODE A3 AND/OR B5	4-12.4

SYMPTOM	TASK
<b>CHAPTER 4 (Continued)</b>	
DECU CODE A4	4-12.4
DECU CODE A5	4-12.4
DECU CODE A6	4-12.4
DECU CODE A7	4-12.4
DECU NO. 1 CODE C1, C2, C3, C4, C5, C6, C7, C8 OR CF	4-12.4
DECU NO. 2 CODE C1, C2, C3, C4, C5, C6, C7, C8 OR CF	4-12.4
DECU NO. 1 CODE C9	4-12.4
DECU NO. 2 CODE C9	4-12.4
DECU CODE B4 OR E1	4-12.4
DECU CODE E2	4-12.4
DECU CODE E3	4-12.4
DECU CODE B3 OR E4	4-12.4
DECU CODE F1	4-12.4
DECU CODE B2 OR F2	4-12.4
DECU CODE F4	4-12.4
DECU CODE F5	4-12.4
DECU CODE B7 OR F6	4-12.4
DECU CODE F7	4-12.4
DECU CODE F8	4-12.4
DECU CODE F9	4-12.4
DECU CODE FA	4-12.4
DECU CODE FB	4-12.4
DECU CODE D1	4-12.4
DECU CODE D2	4-12.4
DECU CODE DE	4-12.4
<b>ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITH 74)</b>	
ENG 1 OR ENG 2 CHIP DETR CAPSULE IS LIT	4-13.3
NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK AND WHITE FAN, ENG 1 OR ENG 2 CHIP DETR CAPSULE IS OUT	4-13.3
ENG 1 CHIP DETR CAPSULE DOES NOT COME ON WHEN GND SWITCH IS SET TO TEST	4-13.3

SYMPTOM	TASK
ENG 2 CHIP DETR CAPSULE DOES NOT COME ON WHEN GND SWITCH IS SET TO TEST	4-13.3
NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST	4-13.3
ENG CHIP DETR CAPSULE DOES NOT COME ON AND ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR IS SHORTED	4-13.3
<b>CHAPTER 5</b>	
<b>ROTOR BLADE TRACKING AND BALANCING SYSTEM</b>	
GREEN POWER STATUS LIGHTS DO NOT COME ON WHEN HELITUNE UNIT IS TURNED ON	5-2.3
NO FWD LATERAL OR AFT LATERAL INDICATION ON IPS INDICATOR	5-2.3
NO FWD VERTICAL OR AFT VERTICAL INDICATION ON IPS INDICATOR	5-2.3
PHAZOR CLOCK ANGLE INDICATOR LIGHTS DO NOT COME ON	5-2.3
ROTOR BLADE CIRCUIT BREAKER WILL NOT STAY CLOSED	5-2.3
TRACKING TARGETS NOT VISIBLE OR STROBEX TUBE LAMP DOES NOT FLASH	5-2.3
<b>CHAPTER 6</b>	
<b>TRANSMISSION LUBRICATION SYSTEMS</b>	
XMSN AUX OIL PRESS CAPSULE ON WITH ROTORS TURNING	6-1.3
XMSN OIL HOT CAPSULE ON, ONE TRANSMISSION OIL TEMPERATURE INDICATION HIGH	6-1.3
XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW	6-1.3
XMSN OIL PRESS CAPSULE ON, TRANSMISSION OIL PRESSURE INDICATIONS NORMAL	6-1.3
<b>TRANSMISSION CHIP DETECTORS AND INDICATING SCREENS</b>	
AFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
FWD TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
LEFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3

SYMPTOM	TASK
LH COMB TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN NO. 1 ENGINE TRANSMISSION CHIP DETECTOR SHORTED	6-2.3
NO. 1 OR NO. 2 ENG CHIP DET (WITHOUT 74) ENG 1 OR ENG 2 CHIP DETR (WITH 74) CAPSULE LIT TRANSMISSION OR ENGINE CHIP DETECTOR INDICATOR BLACK-AND-WHITE	6-2.3
NO. 2 CHIP DET (WITHOUT 74) ENG 2 CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN NO. 2 ENGINE TRANSMISSION CHIP DETECTOR SHORTED	6-2.3
RH COMB TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
RIGHT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
TRANSMISSION CHIP DETECTOR INDICATOR DISPLAY, BLACK-AND-WHITE FAN, XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE OUT	6-2.3
TRANSMISSION CHIP DETECTOR INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST	6-2.3
TRANSMISSION DEBRIS SCREEN INDICATOR DISPLAYS BLACK-AND-WHITE FAN	6-2.3
TRANSMISSION DEBRIS SCREEN INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST	6-2.3
XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN AFT SHAFT CHIP DETECTOR SHORTED	6-2.3
XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN AFT TRANSMISSION CHIP DETECTOR SHORTED	6-2.3
XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN COMBINING TRANSMISSION CHIP DETECTOR SHORTED	6-2.3
XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN FORWARD TRANSMISSION CHIP DETECTOR SHORTED	6-2.3
XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	6-2.3

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK
<b>CHAPTER 6 (Continued)</b>	
XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE LIT, ONE TRANSMISSION CHIP DETECTOR INDICATOR BLACK-AND-WHITE	6-2.3
<b>CHAPTER 7</b>	
<b>FLIGHT CONTROL HYDRAULIC SYSTEM</b>	
FLIGHT CONTROL NO. 1 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON	7-1.4
FLIGHT CONTROL NO. 2 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON	7-1.4
FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER DOES NOT MOVE WITH FLIGHT CONT SWITCH AT NO. 1 OR NO.2	7-1.4
HYDRAULICS FLIGHT CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4
HYDRAULICS FLIGHT CONT NO. 1 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C	7-1.4
HYDRAULICS FLIGHT CONT NO. 2 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C	7-1.4
HYDRAULICS NO. 1 BLOWER CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4
HYDRAULICS NO. 2 BLOWER CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4
ILCA JAM SENSOR BUTTON EXTENDED	7-1.4
INDICATING BUTTON ON FLIGHT CONTROL HYDRAULIC PRESSURE OR RETURN FILTER IS EXTENDED	7-1.4
NO. 1 FLIGHT CONTROL (WITHOUT 74) OR HYD 1 (WITH 74) CAPSULE DOES NOT COME ON-WHEN FLIGHT CONTROL SWITCH SET TO NO. 2 ON	7-1.4
NO. 1 HYDRAULIC COOLING BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4
NO. 1 HYD FLT CONTR (WITHOUT 74) OR HYD 1 (WITH 74) CAPSULE COMES ON WHEN N.2 SYSTEM DEPRESSED THEN SELECTED	7-1.4
NO. 1 OR NO. 2 HYDRAULIC FLIGHT CONTROL (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE IS OUT WREN SYSTEM NOT PRESSURIZE	7-1.4
NO. 1 OR NO. 2 PUMP FAULT LIGHT IS ON	7-1.4
NO. 1 OR NO. 2 PUMP FAULT OR FILTER CHANGE LIGHTS DO NOT COME ON WHEN PRESSED	7-1.4
NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 2 (WITH 74) CAPSULE DOES NOT COME O01-HEN FLIGHT CONTROL SWITCH SET TO NO. 1 ON	7-1.4

SYMPTOM	TASK
NO. 2 HYDRAULIC COOLING BLOWER CIRCUIT BREAKER DOES NOT STAY CLOSED	7-1.4
NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 2 (WITH 74) CAPSULE COMES ON WHEN NO 1 SYSTEM DEPRESSED THEN SELECTED	7-1.4
PIVOTING OR SWIVELING SERVO CYLINDER JAM SENSOR BUTTON EXTENDED	7-1.4
<b>UTILITY HYDRAULIC SYSTEM</b>	
APU OR UT PUMP FAULT LIGHT IS ON	7-2.4
HYDRAULICS OIL LEVEL CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
HYDRAULICS PWR XFR CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
HYDRAULICS UTILITY BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
NO. 1 AND NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 AND HYD 2 (WITH 74) CAPSULES ON WITH POWER XFR SWITCHES ON	7-2.4
NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE IS ON, SYSTEM PRESSURIZED	7-2.4
NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE COMES ON WHEN COCKPIT CONTROLS A-MOVED	7-2.4
NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE IS ON WITH-POWER XFR SWITCHES ON	7-2.4
PTU PRESSURE LINE PRESSURIZED WHEN ITS SYSTEM CONTROLS ARE TURNED OFF	7-2.4
UTIL HYDRAULIC COOLING BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
UTILITY HYDRAULIC SYSTEM CAPSULE DOES NOT GO OUT OR PRESSURE INDICATION IS NOT BETWEEN 3200 AND 3500 PSI WITH APU RUNNING	7-2.4
UTIL HYDRAULIC SYSTEM CAPSULE OUT WHEN SYSTEM NOT PRESSURIZED	7-2.4
UTILITY HYDRAULICS TEMPERATURE INDICATOR POINTER EXCEEDS 95°C	7-2.4
UTILITY PRESS FILTER, UTILITY RTN FILTER, APU PUMP FAULT OR UT PUMP FAULT LIGHT DOES NOT COME ON WHEN PRESSED	7-2.4
UTILITY PRESS OR UTILITY RTN FILTER CHANGE LIGHT IS ON	7-2.4

SYMPTOM	TASK
UTILITY RESERVOIR LEVEL INDICATOR POINTER DOES NOT INDICATE FLUID LEVEL	7-2.4
<b>CARGO RAMP AND DOOR</b>	
CARGO DOOR DOES NOT EXTEND	7-3.4
CARGO DOOR DOES NOT RETRACT	7-3.4
RAMP CONTINUES TO CLOSE AS CARGO DOOR IS EXTENDING	7-3.4
RAMP CREEPS WITH RAMP CONTROL VALVE HANDLE AT STOP	7-3.4
RAMP DOES NOT MOVE DOWN (RAMP IN CLOSED POSITION)	7-3.4
RAMP DOES NOT MOVE UP	7-3.4
RAMP MOVES WITH RAMP SWITCH AT OFF	7-3.4
UTIL SYS CONT CIRCUIT BREAKER DOES NOT STAY CLOSED	7-3.4
<b>EMERGENCY CARGO RAMP AND DOOR EXTENSION SYSTEM (WITH 65)</b>	
RAMP CONTROL VALVE DOES NOT OPERATE AS SELECTED FROM RAMP EMER SWITCH	7-3.4.1
RAMP CONTROL VALVE SOLENOIDS DO NOT ENGAGE AND RAMP CONTROL VALVE HANDLE IS NOT RESTRICTED IN STOP POSITION WHEN RAMP EMER SWITCH IS SET TO EMER	7-3.4.1
RAMP EMER CONT CIRCUIT BREAKER DOES NOT STAY CLOSED	7-3.4.1
<b>SWIVEL LOCKS SYSTEM</b>	
BRAKE STEER CIRCUIT BREAKER DOES NOT STAY CLOSED	7-4.4
LEFT, RIGHT, OR BOTH AFT LANDING GEAR NOT LOCKED	7-4.4
SWIVEL LOCKS, POWER STEERING, AND WHEEL BRAKES CANNOT BE ISOLATED FROM UTILITY SYSTEM	7-4.4
<b>POWER STEERING SYSTEM</b>	
AFT RIGHT WHEEL DOES NOT MOVE WHEN STEERING CONTROL KNOB IS ROTATED IN EITHER DIRECTION	7-5.4
AFT RIGHT WHEEL DOES NOT RETURN TO NEUTRAL	7-5.4
POWER STEERING CAUTION LIGHT DOES NOT COME ON	7-5.4
POWER STEERING CAUTION LIGHT WILL NOT GO OUT	7-5.4

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 7 (Continued)</b>		<b>INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 8 (STABILITY TEST (SPARE))</b>		<b>NO. 1 GAS PRODUCER TACHOMETER READS 0 PERCENT RPM WHEN NO. 1 ENGINE IS MOTORED</b>	
POWER STEERING/SWIVEL LOCK MODULE DOES NOT MAINTAIN PRESSURE WITH APU OFF	7-5.4	<b>INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 9 (EXTENSIBLE LINK CENTERING SPRINGS TEST (SPARE))</b>	7-9.2	<b>NO. 2 GAS PRODUCER TACHOMETER READS 0 PERCENT RPM WHEN NO. 2 ENGINE IS MOTORED</b>	8-2.3
<b>WHEEL BRAKES SYSTEM</b>		<b>INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 10 (PROOF PRESSURE TEST (ALL))</b>	7-9.2	<b>ENGINE OIL PRESSURE INDICATING SYSTEM</b>	
BRAKE PRESSURE BLEEDS DOWN WITHIN 8 HOURS WITH PARKING BRAKE ON	7-6.3	<b>INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 12 (VALVE JAM INDICATOR TEST (ALL))</b>	7-9.2	ENGINE OIL PRESS CIRCUIT BREAKER DOES NOT STAY CLOSED	8-3.3
BRAKES WILL NOT RELEASE	7-6.3	<b>INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 14 (RELIEF VALVE TEST (ALL))</b>	7-9.2	ENGINE OIL PRESSURE INDICATOR DOES NOT INDICATE 0	8-3.3
ONE OR MORE WHEEL BRAKES WILL NOT RELEASE, WHEELS DO NOT TURN FREELY	7-6.3	<b>INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 15 OR TEST 16</b>	7-9.2	NO. 1 ENGINE OIL PRESS INDICATOR DOES NOT INDICATE 20 PSI MINIMUM OR POINTER FLUCTUATES MORE THAN 5 PSI	8-3.3
PARK BRAKE ON CAUTION LIGHT DOES NOT COME ON	7-6.3	<b>HYDRAULIC HANDPUMP</b>		NO. 2 ENGINE OIL PRESS INDICATOR DOES NOT INDICATE 20 PSI MINIMUM OR POINTER FLUCTUATES MORE THAN 5 PSI	8-3.3
PARK BRAKE ON CAUTION LIGHT WILL NOT GO OUT	7-6.3	HYDRAULIC HANDPUMP FAILS FLUID DISPLACEMENT TEST	7-10.5	<b>ENGINE OIL TEMPERATURE INDICATING SYSTEM</b>	
PARKING BRAKE HANDLE WILL NOT LOCK	7-6.3	HYDRAULIC HANDPUMP FAILS HANDLE FORCE TEST	7-10.4	ENGINE OIL TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	8-4.3
RIGHT OR LEFT BRAKES DO NOT COME ON WHEN COPILOT'S BRAKE PEDALS ARE PRESSED	7-6.3	HYDRAULIC HANDPUMP FAILS INTEGRITY PRESSURE TEST OR INTERNAL LEAKAGE TEST	7-10.2	NO. 1 ENGINE OIL TEMPERATURE INDICATOR INDICATION IS NOT WITHIN 10°C OF FAT INDICATOR	8-4.3
RIGHT OR LEFT BRAKES DO NOT COME ON WHEN PILOT'S BRAKE PEDALS ARE PRESSED	7-6.3	HYDRAULIC HANDPUMP FAILS PRESSURE ADJUSTMENT TEST	7-10.3	NO. 2 ENGINE OIL TEMPERATURE INDICATOR INDICATION IS NOT WITHIN 10°C OF FAT INDICATOR	8-4.3
UNABLE TO APPLY BRAKES THREE TIMES ON BRAKE ACCUMULATOR PRESSURE	7-6.3	<b>CHAPTER 8</b>		<b>PTIT AND EMERGENCY POWER INDICATING SYSTEM</b>	
<b>ENGINE HYDRAULIC STARTING SYSTEM</b>		<b>PITOT STATIC SYSTEM</b>		NO. 1 ENGINE EMERGENCY POWER TIMER DOES NOT OPERATE WHEN NO. ENGINE PTIT INDICATION IS 890°C TO 910°C (WITHOUT 74)	8-5.3
NO. 1 OR NO. 2 ENGINE DOES NOT MOTOR (HYDRAULIC SYSTEM)	7-7.3	AIMS ALT CIRCUIT BREAKER WILL NOT STAY CLOSED	8-1.4	NO. 1 ENGINE PTIT INDICATOR DOES NOT INDICATE IN GREEN BAND (WITHOUT 74)	8-5.3
NO. 1 OR NO. 2 ENGINE KEEPS MOTORING WHEN ENGINE START SWITCH SET TO OFF	7-7.3	NO HEAT FELT ON LEFT OR RIGHT PITOT TUBE, PITOT SWITCH AT ON	8-1.4	NO. 1 OR NO. 2 ENGINE EMERGENCY POWER FLAG INDICATOR REMAINS BLACK WHEN NO. 1 OR NO. 2 ENGINE PTIT INDICATION IS 890°C TO 910°C (WITHOUT 74)	8-5.3
<b>APU HYDRAULIC STARTING SYSTEM</b>		NO HEAT FELT ON LOWER RIGHT OR LOWER LEFT SIDESLIP PORTS	8-1.4	NO. 1 OR NO. 2 ENGINE EMERGENCY POWER FLAG INDICATOR WILL NOT RESET TO BLACK, FLAG RESET SWITCH AT RESET (WITHOUT 74)	8-5.3
APU DOES NOT MOTOR	7-8.3	NO HEAT FELT ON UPPER RIGHT OR UPPER LEFT SIDESLIP PORTS	8-1.4	NO. 1 OR NO. 2 ENGINE EMERGENCY POWER LIGHTS WILL NOT COME ON WHEN PRESSED TO TEST (WITHOUT 74)	8-5.3
APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○ ● ● ○ OR ○ ○ ● ● THEN ● ○ ○ ● (HYDRAULIC FAULT)	7-8.3	NO. 1 OR NO. 2 PITOT SYSTEM LEAKS	8-1.4	NO. 2 ENGINE EMERGENCY POWER TIMER DOES NOT OPERATE WHEN NO. 2 ENGINE PTIT INDICATION IS 890°C TO 910°C (WITHOUT 74)	8-5.3
APU START ACCUMULATOR GAGE DOES NOT INDICATE AT LEAST 3000 PSI	7-8.3	NO. 1 OR NO. 2 SIDESLIP SYSTEM LEAKS	8-1.4	NO. 2 ENGINE PTIT INDICATOR DOES NOT INDICATE IN GREEN BAND (WITHOUT 74)	8-5.3
<b>INTEGRATED LOWER CONTROL ACTUATOR</b>		PILOT'S OR COPILOT'S ALTIMETER VIBRATOR DOES NOT OPERATE	8-1.4	PILOT'S AND COPILOT'S EMERGENCY POWER LIGHTS DO NOT COME ON WHEN NO. 1 OR NO 2 ENGINE PTIT INDICATION IS 890°C TO 910°C (WITHOUT 74)	
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 1 OR TEST 2 (EXTENSIBLE LINK TRANSDUCER NULL VOLTAGE TEST (SPARE))	7-9.2	PITOT HEAT CIRCUIT BREAKER WILL NOT STAY CLOSED	8-1.4		
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 3 (CROSS EXTENSIBLE LINK TRANSDUCER NULL VOLTAGE TEST (SPARE))	7-9.2	PITOT STATIC SYSTEM LEAKS	8-1.4		
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 4, 5, 7, 11, 13	7-9.2	YAW PORT HEAT CIRCUIT BREAKER WILL NOT STAY CLOSED	8-1.4		
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 6 (EXTENSIBLE LINK AUTHORITY TEST (SPARE))	7-9.2	<b>GAS PRODUCER TACHOMETER SYSTEM</b>			

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 8 (Continued)</b>		UTILITY HYDRAULICS PRESSURE INDICATOR DOES NOT INDICATE 2500 TO 3500 PSI OR POINTER FLUCTUATES MORE THAN 50 PSI		XMSN OIL PRESS INDICATOR DOES NOT READ IN NORMAL RANGE FOR ONE XMSN OIL PRESS SWITCH POSITION	
PILOT'S AND COPILOT'S EMERGENCY POWER LIGHTS ON, ROTOR AT 100 PERCENT ROTOR RPM, BOTH ENGINES OPERATING (WITHOUT 74)	8-5.3	<b>HYDRAULIC OIL TEMPERATURE INDICATING SYSTEM</b>	8-7.3	XMSN OIL PRESS INDICATOR DOES NOT READ IN NORMAL RANGE WHEN XMSN OIL PRESS SWITCH IS AT SCAN	8-9.3
NO. 1 ENGINE PTIT INDICATOR DOES NOT INDICATE IN GREEN BAND (WITH 74)	8-5.5.1	HYDRAULIC FLUID TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	8-8.3	<b>TRANSMISSION OIL TEMPERATURE INDICATING AND WARNING SYSTEM</b>	
NO. 2 ENGINE PTIT INDICATOR DOES NOT INDICATE IN GREEN BAND (WITH 74)	8-5.6.1	NO. 1 FLT CONT HYDRAULICS TEMPERATURE INDICATOR POINTER DOES NOT MOVE UP SCALE OR EXCEEDS 120°C (PEGS)	8-8.3	ENG XMSN HOT CAPSULE LIT	8-10.3
<b>TORQUE INDICATING SYSTEM</b>		NO. 2 FLT CONT HYDRAULICS TEMPERATURE INDICATOR POINTER DOES NOT MOVE UP SCALE OR EXCEEDS 120°C (PEGS)	8-8.3	NO. 1 OR NO. 2 ENG XMSN HOT CAPSULE DOES NOT COME ON DURING TEST	8-10.3
NO. 1 OR NO. 2 ENGINE TORQUE DC CIRCUIT BREAKERS WILL NOT STAY CLOSED (WITHOUT 74)	8-6.3	UTILITY HYDRAULICS TEMPERATURE INDICATOR POINTER DOES NOT MOVE UP SCALE OR EXCEEDS 120°C (PEGS)	8-8.3	TRANSMISSION OVERTEMP INDICATORS DO NOT RESET	8-10.3
NO. 1 OR NO. 2 ENGINE TORQUE DC CIRCUIT BREAKERS WILL NOT STAY CLOSED (WITH 74)	8-6.3.1	<b>TRANSMISSION OIL PRESSURE INDICATING AND WARNING SYSTEM</b>		XMSN OIL HOT CAPSULE LIT	8-10.3
NO. 1 OR NO. 2 ENGINE TORQUE AC CIRCUIT BREAKER WILL NOT STAY CLOSED	8-6.3 or 8-6.3.1	FWD, COMB, AFT, AFT SHAFT, LEFT, OR RIGHT TRANSMISSION MAIN OIL PRESS LIGHT DOES NOT COME ON WHEN PRESSED	8-9.3	XMSN OIL HOT CAPSULE LIT OR AFT TRANSMISSION OVERTEMP INDICATOR IS BLACK DURING TEST	8-10.3
NO. 1 POINTER ON PILOT'S OR COPILOT'S INDICATOR DOES NOT INDICATE TORQUE (WITHOUT 74)	8-6.3	FWD, COMB, AFT SHAFT, LEFT, RIGHT, OR AFT TRANSMISSION MAIN OIL PRESS LIGHT IS OUT	8-9.3	XMSN OIL HOT CAPSULE LIT OR COMB TRANSMISSION OVERTEMP INDICATOR IS BLACK DURING TEST	8-10.3
NO. 1 POINTER ON PILOT'S OR COPILOT'S INDICATOR DOES NOT INDICATE TORQUE (WITH 74)	8-6.3.1	FWD, COMB, AFT, AFT SHAFT, LEFT, OR RIGHT TRANSMISSION MAIN OIL PRESS LIGHT STILL ON WHEN ITS PRESSURE SWITCH DISCONNECTED	8-9.3	XMSN OIL HOT CAPSULE LIT OR FWD TRANSMISSION OVERTEMP INDICATOR IS BLACK DURING TEST	8-10.3
NO. 1 POINTER ON PILOT'S OR COPILOT'S TORQUE INDICATOR DOES NOT INDICATE PROPER TORQUE USING TORQUE SIGNAL SIMULATOR (WITHOUT 74)	8-6.3	FWD, COMB, OR AFT TRANSMISSION AUX OIL PRESS LIGHT DOES NOT COME ON WHEN PRESSED	8-9.3	XMSN OIL HOT CAPSULE LIT OR LEFT TRANSMISSION OVERTEMP INDICATOR IS BLACK DURING TEST	8-10.3
NO. 1 POINTER ON PILOT'S OR COPILOT'S TORQUE INDICATOR OPERATES ERRATICALLY	8-6.3 or 8-6.3.1	FWD, COMB, OR AFT TRANSMISSION AUX OIL PRESS LIGHT IS OUT	8-9.3	XMSN OIL HOT CAPSULE LIT OR RIGHT TRANSMISSION OVERTEMP INDICATOR IS BLACK DURING TEST	8-10.3
NO. 2 POINTER ON PILOT'S OR COPILOT'S INDICATOR DOES NOT INDICATE TORQUE (WITHOUT 74)	8-6.3	FWD, COMB, OR AFT TRANSMISSION AUX OIL PRESS LIGHT IS STILL ON WHEN ITS PRESSURE SWITCH IS DISCONNECTED	8-9.3	XMSN OIL TEMP CIRCUIT BREAKER WILL NOT STAY CLOSED	8-10.3
NO. 2 POINTER ON PILOT'S OR COPILOT'S INDICATOR DOES NOT INDICATE TORQUE (WITH 74)	8-6.3.1	XMSN AUX OIL PRESS CAPSULE DOES NOT COME ON DURING TEST	8-9.3	XMSN TEMP INDICATOR POINTER DOES NOT INDICATE AMBIENT TEMPERATURE AT SCAN	8-10.3
NO. 2 POINTER ON PILOT'S OR COPILOT'S TORQUE INDICATOR DOES NOT INDICATE PROPER TORQUE USING TORQUE SIGNAL SIMULATOR (WITHOUT 74)	8-6.3	XMSN AUX OIL PRESS CAPSULE NOT LIT	8-9.3	XMSN TEMP INDICATOR POINTER DOES NOT MOVE BELOW -700C DURING TEST	8-10.3
NO. 2 POINTER ON PILOT'S OR COPILOT'S TORQUE INDICATOR OPERATES ERRATICALLY	8-6.3 or 8-6.3.1	XMSN AUX OIL PRESS CAPSULE ON WHEN ALL PRESSURE SWITCHES ARE DISCONNECTED	8-9.3	XMSN TEMP INDICATOR DOES NOT READ AMBIENT TEMPERATURE AT SELECTED SWITCH POSITION	8-10.3
<b>HYDRAULIC PRESSURE INDICATING SYSTEM</b>		<b>FUEL QUANTITY INDICATING SYSTEM</b>		<b>FUEL QUANTITY INDICATING SYSTEM</b>	
HYDRAULICS PRESS IND CIRCUIT BREAKER DOES NOT STAY CLOSED	8-7.3	XMSN OIL PRESS CAPSULE DOES NOT COME ON DURING TEST	8-9.3	FUEL QUANTITY AC CIRCUIT BREAKER WILL NOT STAY CLOSED	8-11.3
NO. 1 FLT CONT HYDRAULICS PRESSURE INDICATOR DOES NOT INDICATE 2500 TO 3500 PSI OR POINTER FLUCTUATES MORE THAN 50 PSI	8-7.3	XMSN OIL PRESS CAPSULE NOT LIT	8-9.3	FUEL QUANTITY DC CIRCUIT BREAKER WILL NOT STAY CLOSED	8-11.3
NO. 2 FLT CONT HYDRAULICS PRESSURE INDICATOR DOES NOT INDICATE 2500 TO 3500 PSI OR POINTER FLUCTUATES MORE THAN 50 PSI	8-7.3	XMSN OIL PRESS CAPSULE STILL ON WHEN ALL MAIN OIL PRESS SWITCHES ARE DISCONNECTED	8-9.3	FUEL QUANTITY INDICATOR DIGITAL READOUT DOES NOT SHOW TOTAL FUEL QUANTITY WHEN FUEL QUANTITY SELECT SWITCH IS SET TO TOTAL	8-11.3
		XMSN OIL PRESS CIRCUIT BREAKER DOES NOT STAY CLOSED	8-9.3	FUEL QUANTITY INDICATOR POINTER SPINS CONTINUOUSLY WHEN FUEL QUANTITY SELECT SWITCH IS SET TO ANY POSITION	8-11.3

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 8 (Continued)</b>		<b>HYDRAULICS MAINT PNL CIRCUIT BREAKER WILL NOT STAY CLOSED</b>		<b>ANTICOLLISION LIGHTS DO NOT FLASH, NO. 2 DC SYSTEM TURNED OFF</b>	
FUEL QUANTITY INDICATION WRONG WHEN FUEL QUANTITY SELECT SWITCH IS SET TO L AFT	8-11.3	HYDRAULICS MAINT PNL LTS CIRCUIT BREAKER WILL NOT STAY CLOSED	8-14.3	BATTERY CHARGING AND CHARGE COMPLETE LIGHTS OUT	9-1.4
FUEL QUANTITY INDICATION WRONG WHEN FUEL QUANTITY SELECT SWITCH IS SET TO L FWD	8-11.3	INDICATORS DO NOT TURN BLACK AND WHITE WITH GND TEST SWITCH AT TEST	8-14.3	BATTERY CHARGING OR CHARGE COMPLETE LIGHT DOES NOT COME ON WHEN PRESSED	9-1.4
FUEL QUANTITY INDICATION WRONG WHEN FUEL QUANTITY SELECT SWITCH IS SET TO L MAIN	8-11.3	INDICATORS WILL NOT TURN ALL BLACK WITH GND TEST SWITCH AT RESET	8-14.3	BATTERY SYSTEM MAL (WITHOUT 74) OR MALF (WITH 74) CAPSULE ON	9-1.4
FUEL QUANTITY INDICATION WRONG WHEN FUEL QUANTITY SELECT SWITCH IS SET TO R AFT	8-11.3	MAINTENANCE PANEL UTILITY LIGHT WILL NOT COME ON	8-14.3	CABIN AND RAMP LIGHTS NOT POWERED FROM SWITCHED BATTERY BUS	9-1.4
FUEL QUANTITY INDICATION WRONG WHEN FUEL QUANTITY SELECT SWITCH IS SET TO R FWD	8-11.3	<b>ROTOR TACHOMETER</b>		EXTERNAL DC SUPPLY DOES NOT POWER DC BUSES	9-1.4
FUEL QUANTITY INDICATION WRONG WHEN FUEL QUANTITY SELECT SWITCH IS SET TO R MAIN	8-11.3	COPILOT'S ROTOR TACHOMETER DOES NOT INDICATE 98 TO 101 PERCENT WHEN ROTOR TACH CIRCUIT BREAKER OPEN	8-15.3	EXTERNAL POWER CAPSULE OUT WHEN EXTERNAL DC SUPPLY CONNECTED	9-1.4
L FUEL LOW (WITHOUT 74), L FUEL LVL (WITH 74) WARNING CAPSULE DOES NOT COME ON WHEN L MAIN TANK FUEL LEVEL IS BELOW 320 TO 420 POUNDS	8-11.3	COPILOT'S ROTOR TACHOMETER DOES NOT READ 98 TO 101 PERCENT	8-15.3	EXT PWR CONT CIRCUIT BREAKER WILL NOT STAY CLOSED WITH EXTERNAL POWER APPLIED	9-1.4
L FUEL LOW (WITHOUT 74), L FUEL LVL (WITH 74) WARNING CAPSULE ON WHEN E-MAIN FUEL TANK IS FULL	8-11.3	PILOT'S OR COPILOT'S ROTOR TACHOMETER DOES NOT INDICATE 98 TO 101 PERCENT WHEN BATT SWITCH SET TO OFF	8-15.3	MASTER CAUTION LIGHTS DO NOT COME ON WHEN BATTERY SWITCH SET TO ON	9-1.4
REFUEL PANEL FUEL QUANTITY INDICATOR DOES NOT INDICATE FUEL LEVEL AT ANY SWITCH POSITION	8-11.3	PILOT'S ROTOR TACHOMETER DOES NOT INDICATE 98 TO 101 PERCENT WHEN ROTOR TACH CIRCUIT BREAKER OPEN	8-15.3	NO. 1 AND NO. 2 RECT OFF CAPSULE OUT WHEN EXTERNAL DC SUPPLY CONNECTED	9-1.4
REFUEL PANEL FUEL QUANTITY INDICATOR INDICATES FUEL LEVEL FOR ALL BUT ONE SWITCH POSITION	8-11.3	PILOT'S ROTOR TACHOMETER DOES NOT READ 98 TO 101 PERCENT	8-15.3	NO. 1 OR NO. 2 RECT OFF CAPSULE NOT ON (WITHOUT 74)	9-1.4
R FUEL LOW (WITHOUT 74), R FUEL LVL (WITH 74) WARNING CAPSULE DOES NOT COME ON WHEN R MAIN TANK FUEL LEVEL IS BELOW 320 TO 420 POUNDS	8-11.3	ROTOR TACH CIRCUIT BREAKER WILL NOT STAY CLOSED	8-15.3	RECT 1 OR RECT 2 CAPSULE NOT ON (WITH 74)	9-1.4
R FUEL LOW (WITHOUT 74), R FUEL LVL (WITH 74) WARNING CAPSULE ON WHEN R MAIN FUEL TANK IS FULL	8-11.3	<b>FUEL FLOW</b>		NO. 1 RECT OFF CAPSULE ON WHEN APU RUNNING (WITHOUT 74)	9-1.4
<b>CRUISE GUIDE INDICATING SYSTEM</b>		ENGINE NO. 1 FUEL FLOW CIRCUIT BREAKER WILL NOT STAY CLOSED	8-16.3	RECT 1 CAPSULE ON WHEN APU IS RUNNING (WITH 74)	9-1.4
CRUISE GUIDE CIRCUIT BREAKER DOES NOT STAY CLOSED	8-12.3	ENGINE NO. 2 FUEL FLOW CIRCUIT BREAKER WILL NOT STAY CLOSED	8-16.3	NO. 2 RECT OFF CAPSULE ON WHEN APU RUNNING (WITHOUT 74)	9-1.4
CRUISE GUIDE INDICATOR POINTER NOT IN TEST BAND WITH CGI TEST SWITCH AT AFT	8-12.3	FUEL FLOW INDICATOR NO. 1 DOES NOT INDICATE FUEL FLOW	8-16.3	RECT 2 CAPSULE ON WHEN APU IS RUNNING (WITH 74)	9-1.4
CRUISE GUIDE INDICATOR POINTER NOT IN TEST BAND WITH CGI TEST SWITCH AT FWD	8-12.3	FUEL FLOW INDICATOR NO. 1 POINTER DOES NOT INDICATE APPROXIMATE FUEL FLOW	8-16.3	OVERHEAD PANEL LIGHTS DO NOT COME ON, NO. 1 DC SYSTEM TURNED OFF	9-1.4
<b>TURN AND SLIP INDICATORS</b>		FUEL FLOW INDICATOR NO. 2 POINTER DOES NOT INDICATE APPROXIMATE FUEL FLOW	8-16.3	OVERHEAD PANEL LIGHTS DO NOT COME ON, NO. 1 DC SYSTEM TURNED ON	9-1.4
TURN AND SLIP CIRCUIT BREAKER DOES NOT STAY CLOSED	8-13.3	FUEL FLOW INDICATOR NO. 2 POINTER DOES NOT INDICATE FUEL FLOW	8-16.3	SWITCHED BATTERY BUS OR ESSENTIAL BUS NOT POWERED BY NO. 1 DC BUS	9-1.4
TURN AND SLIP INDICATOR POINTER DOES NOT MOVE IN DIRECTION OF TURN	8-13.3	<b>CHAPTER 9</b>		<b>AC POWER SYSTEM</b>	
<b>MAINTENANCE PANEL POWER DISTRIBUTION</b>		<b>DC POWER SYSTEM</b>		EXTERNAL POWER CAPSULE NOT ON (EXTERNAL POWER APPLIED),	
FILTER CHANGE AND PUMP CHANGE LIGHTS DO NOT COME ON WHEN PRESSED	8-14.3	ANTICOLLISION LIGHTS DO NOT FLASH, NO. 1 DC SYSTEM TURNED OFF	9-1.4	NO. 1 AND NO. 2 RECT OFF CAPSULES ON (EXTERNAL POWER ON) (WITHOUT 74)	9-2.4
				RECT 1 AND RECT 2 CAPSULES ON (EXTERNAL POWER ON) (WITH 74)	9-2.4



1-1 FAILURE SYMPTOM LIST (Continued)

Chapter 9 (Continued)	SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
	NO. 1 AND NO. 2 RECT OFF CAPSULES ON (NO. 1 GENERATOR SELECTED) (WITHOUT 74)	9-2.4	COPILOT'S LANDING LIGHT DOES NOT EXTEND OR DOES NOT FULLY EXTEND	9-4.4	FORWARD TRANSMISSION OIL LEVEL CHECK LIGHT NOT LIT	9-7.3
	RECT 1 AND RECT 2 CAPSULES ON (NO. 1 GENERATOR SELECTED) (WITH 74)	9-2.4	COPILOT'S LANDING LIGHT WILL NOT RETRACT WITH COPLT SLT CONT SWITCH	9-4.4	OIL LEVEL CHECK CIRCUIT BREAKER DOES NOT STAY CLOSED	9-7.3
	NO. 1 AND NO. 2 RECT OFF CAPSULES ON (NO. 2 GENERATOR SELECTED) (WITHOUT 74)	9-2.4	LANDING LIGHT DOES NOT RETRACT OR DOES NOT FULLY RETRACT INTO HOUSING	9-4.4	<b>PILOT'S FLIGHT INSTRUMENT PANEL LIGHTS (WITHOUT 17)</b>	
	RECT 1 AND RECT 2 CAPSULES ON (NO. 2 GENERATOR SELECTED) (WITH 74)	9-2.4	PILOT'S LANDING LIGHT DOES NOT COME ON	9-4.4	PILOT INSTR CIRCUIT BREAKER DOES NOT STAY CLOSED	9-8.3
	NO. 1 AND NO. 2 RECT OFF CAUTION LIGHTS ON (WITHOUT 74)	9-2.4	PILOT'S LANDING LIGHT DOES NOT EXTEND OR DOES NOT FULLY EXTEND	9-4.4	PILOT'S FLIGHT INSTRUMENT PANEL LIGHT OR LIGHTS NOT LIT	9-8.3
	NO. 1 GENERATOR OFF CAPSULE IS ON (GENERATOR SWITCH ON) (WITHOUT 74)	9-2.4	PILOT'S LANDING LIGHT WILL NOT RETRACT WITH PLT SLT CONT SWITCH	9-4.4	<b>PILOT'S FLIGHT INSTRUMENT PANEL LIGHTS (WITH 17)</b>	
	GEN 1 CAPSULE IS ON (GENERATOR SWITCH ON) (WITH 74)	9-2.4	PILOT'S OR COPILOT'S LANDING LIGHT WILL NOT ROTATE CLOCKWISE OR COUNTER-CLOCKWISE	9-4.4	PILOT INSTR CIRCUIT BREAKER DOES NOT STAY CLOSED	9-8.8
	NO. 1 GENERATOR OFF CAPSULE STAYS ON (GENERATOR SWITCH IN TEST) (WITHOUT 74)	9-2.4	SLT CONT CIRCUIT BREAKER (CO-PILOT'S) DOES NOT STAY CLOSED	9-4.4	PILOT'S FLIGHT INSTRUMENT PANEL LIGHT OR LIGHTS NOT LIT	9-8.8
	GEN 1 CAPSULE STAYS ON (GENERATOR SWITCH IN TEST) (WITH 74)	9-2.4	SLT CONT CIRCUIT BREAKER (PILOT'S) DOES NOT STAY CLOSED	9-4.4	<b>CENTER FLIGHT INSTRUMENT PANEL LIGHTS (WITHOUT 17)</b>	
	NO. 1 OR NO. 2 GENERATOR OFF CAPSULE OUT (WITHOUT 74)	9-2.4	SLT FIL CIRCUIT BREAKER DOES NOT STAY CLOSED	9-4.4	CENTER FLIGHT INSTRUMENT PANEL LIGHT OR LIGHTS NOT LIT	9-9.3
	GEN 1 AND GEN 2 CAPSULES OUT (WITH 74)	9-2.4	<b>FORMATION LIGHTS (WITHOUT 17)</b>		CTR INSTR CIRCUIT BREAKER DOES NOT STAY CLOSED	9-9.3
	NO. 1 OR NO. 2 RECT OFF CAPSULE ON WHEN GEN NO. 1 OR NO. 2 SWITCH TURNED OFF (WITHOUT 74)	9-2.4	FORM CIRCUIT BREAKER DOES NOT STAY CLOSED	9-5.3	<b>CENTER FLIGHT INSTRUMENT PANEL LIGHTS (WITH 17)</b>	
	RECT 1 OR RECT 2 CAPSULE ON WHEN GEN NO. 1 OR NO. 2 SWITCH TURNED OFF (WITH 74)	9-2.4	FORMATION LIGHT OR LIGHTS NOT ON AT DIM	9-5.3	CENTER FLIGHT INSTRUMENT PANEL LIGHT OR LIGHTS NOT LIT	9-9.8
	NO. 2 GENERATOR OFF CAPSULE IS ON (GENERATOR SWITCH ON) (WITHOUT 74)	9-2.4	FORMATION LIGHTS OUT OR DO NOT GET BRIGHTER AT INTERMEDIATE OR BRT POSITIONS	9-5.3	CTR INSTR CIRCUIT BREAKER DOES NOT STAY CLOSED	9-9.8
	GEN 2 CAPSULE IS ON (GENERATOR SWITCH ON) (WITH 74)	9-2.4	<b>FORMATION LIGHTS (WITH 17)</b>		<b>COPILOT'S FLIGHT INSTRUMENT PANEL LIGHTS (WITHOUT 17)</b>	
	NO. 2 GENERATOR OFF CAPSULE STAYS ON (GENERATOR SWITCH IN TEST) (WITHOUT 74)	9-2.4	NORMAL FORM CIRCUIT BREAKER DOES NOT STAY CLOSED	9-5.9	COPILOT'S FLIGHT INSTRUMENT PANEL LIGHT OR LIGHTS NOT LIT	9-10.3
	GEN 2 CAPSULE STAYS ON (GENERATOR SWITCH IN TEST) (WITH 74)	9-2.4	NORMAL FORMATION LIGHT OR LIGHTS NOT ON AT DIM	9-5.9	COPLT INST CIRCUIT BREAKER DOES NOT STAY CLOSED	9-10.3
	<b>POSITION LIGHTS</b>		NORMAL FORMATION LIGHTS OUT OR DO NOT GET BRIGHTER AT INTERMEDIATE OR BRT POSITIONS	9-5.9	<b>COPILOT'S FLIGHT INSTRUMENT PANEL LIGHTS (WITH 17)</b>	
	POS CIRCUIT BREAKER DOES NOT STAY CLOSED	9-3.3	NVG FORM CIRCUIT BREAKER DOES NOT STAY CLOSED	9-5.9	COPILOT'S FLIGHT INSTRUMENT PANEL LIGHT OR LIGHTS NOT LIT	9-10.8
	POSITION LIGHT OR LIGHTS NOT LIT AT BRT	9-3.3	NVG FORMATION LIGHT OR LIGHTS NOT ON AT DIM	9-5.9	COPLT INST CIRCUIT BREAKER DOES NOT STAY CLOSED	9-10.8
	POSITION LIGHT OR LIGHTS NOT LIT AT DIM	9-3.3	NVG FORMATION LIGHTS OUT OR DO NOT GET BRIGHTER AT INTERMEDIATE OR BRT POSITION	9-5.9	<b>OVERHEAD PANEL LIGHTS (WITHOUT 17)</b>	
	<b>LANDING LIGHTS (SEARCHLIGHTS)</b>		<b>ANTICOLLISION LIGHTS</b>		OVERHEAD PANEL LIGHT OR LIGHTS NOT LIT	9-11.3
	COPILOT'S LANDING LIGHT DOES NOT COME ON	9-4.4	ANTI-COL BOT OR TOP CIRCUIT BREAKER DOES NOT STAY CLOSED	9-6.3	OVHD PNL CIRCUIT BREAKER DOES NOT STAY CLOSED	9-11.3
			ANTI COLLISION LIGHT, TOP OR BOTTOM, DOES NOT FLASH OR DOES NOT FLASH 40-60 TIMES/MINUTE	9-6.3	<b>OVERHEAD PANEL LIGHTS (WITH 17)</b>	
			<b>FORWARD TRANSMISSION OIL LEVEL CHECK LIGHT</b>		OVERHEAD PANEL LIGHT OR LIGHTS NOT LIT	9-11.8
					OVHD PNL CIRCUIT BREAKER DOES NOT STAY CLOSED	9-11.8
					<b>CONSOLE PANEL LIGHTS (WITHOUT 17)</b>	
					CONSOLE CIRCUIT BREAKER DOES NOT STAY CLOSED	9-12.3
					CONSOLE PANEL LIGHT OR LIGHTS NOT LIT	9-12.3

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 9 (Continued)</b>		UTILITY LIGHT OR LIGHTS DO NOT COME ON		RED TROOP JUMP LT LIGHT DOES NOT GO DIM (WITH 17)	
<b>CONSOLE PANEL LIGHTS (WITH 17)</b>		<b>COCKPIT DOME AND UTILITY LIGHTS (WITH 17)</b>		RED TROOP JUMP LTS LIGHT DOES NOT GO DIM (WITHOUT 17)	
BARO ALT SWITCH CAPTION DOES NOT LIGHT BRIGHT WHEN PRESSED	9-12.8	COCKPIT DOME CIRCUIT BREAKER DOES NOT STAY CLOSED	9-14.10	TROOP ALARM BELL ON FWD OR AFT TROOP WARNING BOX DO NOT SOUND WHEN TROOP ALARM SWITCH IS SET TO ON	9-16.3
CONSOLE CIRCUIT BREAKER WILL NOT STAY CLOSED	9-12.8	COCKPIT DOME NVG LIGHT OR LIGHTS DO NOT COME ON	9-14.10	TROOP ALARM BELL CIRCUIT BREAKER WILL NOT STAY CLOSED	9-16.3
CONSOLE PANEL LIGHT OR LIGHTS NOT LIT	9-12.8	COCKPIT DOME WHITE LIGHT OR LIGHTS DO NOT COME ON	9-14.10	TROOP ALARM JUMP LTS CIRCUIT BREAKER WILL NOT STAY CLOSED	9-16.3
ILLUM SW PWR CIRCUIT BREAKER WILL NOT STAY CLOSED	9-12.8	UTILITY LIGHT OR LIGHTS DO NOT COME ON	9-14.10	<b>UTILITY RECEPTACLES</b>	
LONGITUDINAL STICK INDICATOR NOT LIT	9-12.8	<b>CABIN AND RAMP LIGHTS (WITHOUT 17)</b>		CABIN AC RECEPTACLE CIRCUIT BREAKER WILL NOT STAY CLOSED	9-17.3
RAD ALT SWITCH CAPTION DOES NOT LIGHT DIM WHEN PRESSED	9-12.8	CABIN & RAMP CIRCUIT BREAKER DOES NOT STAY CLOSED	9-15.3	NO ELECTRICAL POWER AT UTILITY AC RECEPTACLE ON LEFT SIDE OF AIRCRAFT	9-17.3
<b>SECONDARY COCKPIT LIGHTS (WITHOUT 17)</b>		CABIN AND RAMP DOME RED LIGHTS DO NOT COME ON WHEN CABIN & RAMP LIGHTS SWITCH SET TO RED ON	9-15.3	NO ELECTRICAL POWER AT UTILITY AC RECEPTACLE ON RIGHT SIDE OF AIRCRAFT	9-17.3
FLOOD LIGHTS ON INSTR PANEL AND OVERHEAD PANEL AND LIGHTS ON PILOT AND COPILOT'S TURN AND SLIP INDICATORS DO NOT COME ON	9-13.3	CABIN AND RAMP DOME RED LIGHT OR LIGHTS NOT LIT	9-15.3	NO ELECTRICAL POWER AT UTILITY DC RECEPTACLES ON LEFT SIDE OF AIRCRAFT	9-17.3
INSTR FLOOD LIGHTING CIRCUIT BREAKER WILL NOT STAY CLOSED	9-13.3	CABIN AND RAMP DOME WHITE LIGHTS DO NOT GO OUT WHEN CAB & RAMP LT SWITCH SET TO ALL OFF	9-15.3	NO ELECTRICAL POWER AT UTILITY DC RECEPTACLES ON RIGHT SIDE OF AIRCRAFT	9-17.3
INSTR PANEL, CONSOLE, OR OVERHEAD PANEL FLOOD LIGHTS WILL NOT COME ON	9-13.3	CABIN AND RAMP WHITE LIGHT OR LIGHTS NOT LIT	9-15.3	UTILITY RECEPTACLE CIRCUIT BREAKERS WILL NOT STAY CLOSED	9-17.3
NO. 1 DC BUS CONTROL CIRCUIT BREAKER WILL NOT STAY CLOSED	9-13.3	CABIN AND RAMP DOME WHITE LIGHTS STAY ON WHEN CABIN & RAMP LIGHTS SWITCH SET TO ALL OFF	9-15.3	<b>MASTER CAUTION SYSTEM</b>	
PILOT AND COPILOT'S TURN AND SLIP INDICATOR LIGHTS VARY IN BRIGHTNESS	9-13.3	<b>CABIN AND RAMP LIGHTS (WITH 17)</b>		BOTH MASTER CAUTION LIGHTS ARE ON BUT ONE IS BRIGHT AND ONE IS DIM	9-18.3
PILOT OR COPILOT'S TURN AND SLIP INDICATOR LIGHTS OR OVERHEAD PANEL FLOOD LIGHTS DO NOT COME ON	9-13.3	CABIN & RAMP CIRCUIT BREAKER DOES NOT STAY CLOSED	9-15.11	CAUTION PNL CIRCUIT BREAKER WILL NOT STAY CLOSED	9-18.3
<b>SECONDARY COCKPIT LIGHTS (WITH 17)</b>		CABIN AND RAMP DOME BLUE LIGHT OR LIGHTS NOT LIT	9-15.11	LIGHTS DO NOT COME ON WHEN CAUTION LIGHTS TEST SWITCH IS AT TEST	9-18.3
ALL FLOOD LIGHTS DO NOT COME ON WHEN PLT INST LIGHT CONTROL SET TO ON	9-13.12	CABIN AND RAMP DOME RED LIGHT OR LIGHTS NOT LIT	9-15.11	MASTER CAUTION PANEL CAPSULES AND MASTER CAUTION LIGHTS ARE DIM WHEN ELECTRICAL POWER APPLIED OR WHEN CAUTION LIGHT SWITCH SET TO BRIGHT	9-18.3
CKPT DIM CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	9-13.12	<b>TROOP WARNING SYSTEM</b>		MASTER CAUTION PANEL LIGHTS DO NOT COME ON WHEN BATTERY SWITCH SET TO ON	9-18.3
INSTR FLOOD LIGHTING CIRCUIT BREAKER WILL NOT STAY CLOSED	9-13.12	GREEN LIGHTS ON FWD AND AFT TROOP WARNING BOXES DO NOT GO DIM	9-16.3	MASTER CAUTION PANEL LIGHTS DO NOT GO BRIGHT WHEN DOME SELECT SWITCH SET TO WHITE	9-18.3
INSTR PANEL OR OVERHEAD PANEL FLOOD LIGHTS WILL NOT COME ON	9-13.12	GREEN LIGHT ON FWD OR AFT TROOP WARNING BOX OR GREEN TROOP JUMP LTS LIGHT DO NOT COME ON BRIGHT	9-16.3	MASTER CAUTION PANEL LIGHTS OR MASTER CAUTION LIGHTS WILL NOT DIM	9-18.3
<b>COCKPIT DOME AND UTILITY LIGHTS (WITHOUT 17)</b>		GREEN TROOP JUMP LTS LIGHT DOES NOT GO DIM LEFT TROOP JUMP LTS LIGHT DOES NOT COME ON WHEN PRESSED	9-16.3	PILOT'S AND COPILOT'S MASTER CAUTION LIGHT WILL NOT GO OUT	9-18.3
COCKPIT DOME CIRCUIT BREAKER DOES NOT STAY CLOSED	9-14.3	RED LIGHTS ON FWD AND AFT TROOP WARNING BOXES DO NOT GO DIM	9-16.3		
COCKPIT DOME RED LIGHT OR LIGHTS DO NOT COME ON	9-14.3	RED LIGHT ON FWD OR AFT TROOP WARNING BOX OR RED TROOP JUMP LTS LIGHT DO NOT COME ON BRIGHT	9-16.3		
COCKPIT DOME WHITE LIGHT OR LIGHTS DO NOT COME ON	9-14.3	RIGHT TROOP JUMP LTS LIGHT DOES NOT COME ON WHEN PRESSED	9-16.3		

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 9 (Continued)</b>		<b>FUEL XFEED CONT CIRCUIT BREAKER DOES NOT STAY CLOSED</b>		<b>R FUEL PRESS CAPSULE DOES NOT GO OUT WHEN RIGHT SIDE MAIN FWD FUEL PUMP SWITCH IS SET TO ON</b>	
PILOT'S OR COPILOT'S MASTER CAUTION LIGHTS DO NOT COME ON WHEN ELECTRICAL POWER IS APPLIED	9-18.3	LEFT CROSSFEED FUEL VALVE LIGHT DOES NOT COME ON DURING PRESS-TO-TEST	10-1.4	RH FUEL PUMPS AUX AFT CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3
<b>AVIONICS COOLING FAN</b>		<b>NO. 1 ENGINE FUEL VALVE LIGHT DOES NOT COME ON DURING PRESS-TO-TEST</b>		<b>RH FUEL PUMP CONT AUX AFT CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
AVIONIC COOLING FAN DC CIRCUIT BREAKER WILL NOT STAY CLOSED	9-19.3	NO. 2 ENGINE FUEL VALVE LIGHT DOES NOT COME ON DURING PRESS-TO-TEST	10-1.4	RH FUEL PUMP CONT AUX FWD CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3
AVIONIC COOLING AC CIRCUIT BREAKER WILL NOT STAY CLOSED	9-19.3	RIGHT CROSSFEED FUEL VALVE LIGHT DOES NOT COME ON DURING PRESS-TO-TEST	10-1.4	<b>RH FUEL PUMPS AUX FWD CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
WEAK OR NO AIR FLOW IS FELT FROM AVIONIC COOLING FAN	9-19.3	<b>FUEL BOOST PUMPS</b>		<b>RH FUEL PUMPS MAIN AFT CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
<b>ANTICOLLISION LIGHT (AVIM)</b>		LH FUEL PUMP AUX AFT CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3	<b>RH FUEL PUMPS MAIN FWD CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
ANTICOLLISION LIGHT FAILS AVIM TEST	9-20.3	LH FUEL PUMPS CONT AUX FWD CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3	<b>RH FUEL PUMP CONT MAIN AFT CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
<b>MASTER CAUTION PANEL</b>		LH FUEL PUMPS CONT MAIN FWD CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3	<b>RH FUEL PUMP CONT MAIN FWD CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
MASTER CAUTION PANEL FAILS AVIM TEST (WITHOUT 74)	9-21.3	LH FUEL PUMPS MAIN AFT CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3	<b>SINGLE POINT PRESSURE REFUELING</b>	
MASTER CAUTION PANEL FAILS AVIM TEST (WITH 74)	9-21.6	LH FUEL PUMPS MAIN FWD CIRCUIT BREAKER WILL NOT STAY CLOSED	10-2.3	<b>FUEL DOES NOT STOP FLOWING WITHIN 4 SECONDS WITH ALL TEST SWITCH AT SEC OFF</b>	
<b>CLOCK (WITH 77)</b>		L FUEL PRESS CAPSULE DOES NOT GO OUT WHEN LEFT SIDE MAIN AFT FUEL PUMP SWITCH IS SET TO ON	10-2.3	<b>FUEL DOES NOT STOP FLOWING WITHIN 4 SECONDS WITH ALL TEST SWITCH AT PRI OFF</b>	
COPILLOT CLOCK CIRCUIT BREAKER DOES NOT STAY CLOSED	9-22.3	L FUEL PRESS CAPSULE DOES NOT GO OUT WHEN LEFT SIDE MAIN FWD FUEL PUMP SWITCH IS SET TO ON	10-2.3	<b>FUEL REFUEL CIRCUIT BREAKER WILL NOT STAY CLOSED</b>	
COPILLOT'S CLOCK DISPLAY DOES NOT INDICATE 88:88 WHEN SELECT BUTTON PRESSED	9-22.3	L OR R FUEL PRESS CAPSULE IS NOT ON	10-2.3	<b>LH OR RH REFUEL VALVE POSN LIGHT DOES NOT COME ON OR COMES ON AND STAYS ON</b>	
PILOT CLOCK CIRCUIT BREAKER DOES NOT STAY CLOSED	9-22.3	LEFT OR RIGHT SIDE AUX PRESS LIGHT DOES COME ON WHEN PRESSED TO TEST	10-2.3	<b>LH OR RH REFUEL VALVE POSN LIGHT DOES NOT COME ON WHEN PRESSED</b>	
PILOT'S CLOCK DISPLAY DOES NOT INDICATE 88:88 WHEN SELECT BUTTON PRESSED	9-22.3	LEFT SIDE AUX PRESS LIGHT COMES ON WHEN LEFT SIDE AUX AFT FUEL PUMP SWITCH IS SET TO ON	10-2.3	<b>LH OR RH REFUEL VALVE POSN LIGHT IS ON</b>	
<b>CHAPTER 10</b>		LEFT SIDE AUX PRESS LIGHT COMES ON WHEN LEFT SIDE AUX FWD FUEL PUMP SWITCH IS SET TO ON	10-2.3	<b>PWR LIGHT DOES NOT COME ON</b>	
<b>ENGINE FUEL SHUTOFF AND CROSSFEED VALVES</b>		R FUEL PRESS CAPSULE DOES NOT GO OUT WHEN RIGHT SIDE MAIN AFT FUEL PUMP SWITCH IS SET TO ON	10-2.3	<b>REFUEL PANEL LIGHT DOES NOT COME ON</b>	
CROSSFEED FUEL VALVE HANDLE IS NOT AT CLSD WITH CROSSFEED FUEL VALVES SWITCH AT CLOSE	10-1.4			<b>TANK WILL NOT ACCEPT FUEL WHILE PRESSURE REFUELING</b>	
CROSSFEED FUEL VALVE HANDLE IS NOT AT OPEN WITH CROSSFEED VALVES SWITCH AT OPEN	10-1.4				
CROSSFEED FUEL VALVE LIGHT DOES NOT COME ON, VALVE OPERATION NORMAL	10-1.4				
ENGINE FUEL SHUTOFF CIRCUIT BREAKER DOES NOT STAY CLOSED	10-1.4				
ENGINE FUEL VALVE HANDLE IS NOT AT OPEN WITH FIRE HANDLE IN	10-1.4				
ENGINE FUEL VALVE LIGHT DOES NOT COME ON, VALVE OPERATION NORMAL	10-1.4				
ENGINE FUEL VALVE HANDLE IS NOT AT CLSD WITH FIRE HANDLE PULLED	10-1.4				

1-1 FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK
<b>EXTENDED RANGE FUEL SYSTEM (ERFS II) (WITH 32)</b>	
ERFS II REFUEL VALVE HANDLE NOT AT CLSD WHEN CONTROL PANEL REFUEL VALVE SWITCH SET TO CLOSE	10-4.4
ERFS II REFUEL VALVE HANDLE NOT AT OPEN POSITION AND CONTROL PANEL REFUEL VALVE IN TRANSIT LIGHT STAYS ON	10-4.4
ERFS II REFUEL VALVE HANDLE NOT AT OPEN POSITION WITH CONTROL PANEL REFUEL VALVE SWITCH SET TO OPEN	10-4.4
ERFS II CONTROL PANEL REFUEL VALVE IN TRANSIT LIGHT DOES NOT COME ON WITH ERFS II REFUEL VALVE OPERATION NORMAL	10-4.4
FUEL REFUEL CIRCUIT BREAKER WILL NOT STAY CLOSED WHEN ERFS II FUEL CONTROL PANEL IS CONNECTED	10-4.4
<b>CHAPTER 11</b>	
<b>ARTIFICIAL FEEL-MAGNETIC BRAKES</b>	
CONT CENTER CIRCUIT BREAKER DOES NOT STAY CLOSED	11-2.3
CONTROL STICK AND PEDALS WILL NOT STAY CENTERED AFTER PILOT'S CENTERING DEVICE RELEASE SWITCH RELEASED	11-2.3
CONTROL STICK DOES NOT REMAIN AT SELECTED POSITION	11-2.3
CONTROL STICK WILL NOT REMAIN AT SELECTED POSITION AFTER COPILOT'S CENTERING DEVICE RELEASE SWITCH RELEASED	11-2.3

SYMPTOM	TASK
COPILOT'S THRUST CONTROL DOES NOT EASILY MOVE OR DOES NOT REMAIN AT SELECTED POSITION	11-2.3
PEDALS DO NOT REMAIN AT SELECTED POSITION	11-2.3
PILOT'S THRUST CONTROL DOES NOT EASILY MOVE OR DOES NOT REMAIN AT SELECTED POSITION	11-2.3
THRUST BRAKE CIRCUIT BREAKER DOES NOT STAY CLOSED	11-2.3
<b>ADVANCED FLIGHT CONTROL SYSTEM</b>	
AFCS BITE OPERATES WITH ENGINE CONDITION LEVER IN FLIGHT POSITION	11-3.3
AFCS COMPUTER BITE INDICATES 48	11-3.3
AFCS COMPUTER BITE INDICATES 6, 9, OR 18	11-3.3
AFCS COMPUTER BITE INDICATES 70-74	11-3.3
AFCS COMPUTER BITE INDICATES 95	11-3.3
AFCS HEADING HOLD WEAK OR INOPERATIVE	11-3.3
AFCS LONGITUDINAL CONTROL POSITION OUT OF TRIM	11-3.3
AFT LCT INDICATOR DOES NOT SHOW EXTENSION OR RETRACTION IN MANUAL CONTROL	11-3.3
AFT LCT INDICATOR NOT IN GND POSITION	11-3.3
AFCS LATERAL STICK ONLY TURNS NOT COORDINATED	11-3.3
AFCS NO. 1 DC CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
AFCS NO. 2 DC CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3

SYMPTOM	TASK
AFCS PITCH STABILIZATION ERRATIC OR OSCILLATORY	11-3.3
AFCS ROLL STABILIZATION ERRATIC/OSCILLATORY OR ROLL ATTITUDE HOLD WEAK OR INOPERATIVE	11-3.3
BAROMETRIC ALTITUDE HOLD INOPERATIVE OR RESPONSE ERRATIC (RADAR ALTITUDE HOLD OKAY)	11-3.3
BAROMETRIC AND RADAR ALTITUDE HOLD INOPERATIVE OR RESPONSE ERRATIC	11-3.3
BOTH LCT INDICATORS NOT IN GROUND POSITION	11-3.3
CLTV DRIVER ACTR AC CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
CLTV DRIVER ACTR CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
CYCLIC TRIM AFT ACTR CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
CYCLIC TRIM FWD ACTR CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
CYCLIC TRIM MNL CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
FORWARD LCT INDICATOR DOES NOT INDICATE EXTEND OR RETRACT DURING MANUAL CONTROL	11-3.3

SYMPTOM	TASK
<b>CHAPTER 11 (Continued)</b>	
FORWARD LCT INDICATOR NOT IN GND POSITION	11-3.3
HDG SWITCH ENGAGE CAPTION DOES NOT LIGHT	11-3.3
HEADING SELECT MODE RESPONSE WEAK OR INOPERATIVE (BOTH SYSTEMS)	
NO. 1 AFCS AC CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
NO. 1 AFCS COMPUTER BITE INDICATES 85 OR 86	11-3.3
NO. 1 AFCS COMPUTER BITE INDICATES 87	11-3.3
NO. 1 AFCS COMPUTER BITE INDICATES 89	11-3.3
NO. 1 AFCS COMPUTER BITE SWITCH DOES NOT LIGHT AND COUNTER DOES NOT STOP WHEN BITE SWITCH PRESSED AND RELEASED	11-3.3
NO. 1 AFCS HEADING SELECT MODE RESPONSE WEAK OR INOPERATIVE	11-3.3
NO. 1 AFCS OFF CAPSULE DOES NOT GO OUT WHEN SYSTEM SELECTED	11-3.3
NO. 1 AFCS OFF (WITHOUT 74) OR AFCS 1 (WITH 74) CAPSULE IS OUT WITH SYSTEM SELECTED OFF	11-3.3
NO. 1 AFCS PITCH ATTITUDE/AIR SPEED HOLD WEAK OR INOPERATIVE	11-3.3
NO. 1 AFCS YAW STABILITY ERRATIC/OSCILLATORY	11-3.3
NO. 1 PITCH ILCA HAS ENGAGE TRANSIENT	11-3.3
NO. 1 ROLL ILCA DOES NOT EXTEND OR RETRACT WITH LATERAL STICK MOTION	11-3.3
NO. 1 ROLL ILCA DOES NOT MOVE WHEN PILOT'S PITCH AND ROLL TRIM SWITCH MOVED RIGHT OR LEFT	11-3.3
NO. 1 ROLL ILCA HAS ENGAGE TRANSIENT	11-3.3
NO. 1 YAW ILCA DOES NOT EXTEND OR RETRACT WHEN PEDALS ARE MOVED	11-3.3
NO. 1 YAW ILCA HAS ENGAGE TRANSIENT	11-3.3
NO. 2 AFCS AC CIRCUIT BREAKER WILL NOT STAY CLOSED	11-3.3
NO. 2 AFCS COMPUTER BITE INDICATES 85 OR 86	11-3.3
NO. 2 AFCS COMPUTER BITE INDICATES 89	11-3.3
NO. 2 AFCS COMPUTER BITE SWITCH DOES NOT LIGHT AND COUNTER DOES NOT STEP WHEN BITE SWITCH IS PRESSED AND RELEASED	11-3.3

SYMPTOM	TASK
NO. 2 AFCS HEADING SELECT MODE RESPONSE WEAK OR INOPERATIVE	11-3.3
NO. 2 AFCS OFF (WITHOUT 74) OR AFCS 2 (WITH 74) CAPSULE DOES NOT GO OUT-WHEN SYSTEM SELECTED	11-3.3
NO. 2 AFCS OFF CAPSULE IS OUT WITH SYSTEM SELECTED OFF	11-3.3
NO. 2 AFCS PITCH ATTITUDE/AIR SPEED HOLD WEAK OR INOPERATIVE	11-3.3
NO. 2 AFCS YAW STABILITY ERRATIC/OSCILLATORY	11-3.3
NO. 2 PITCH ILCA HAS ENGAGE TRANSIENT	11-3.3
NO. 2 ROLL ILCA DOES NOT EXTEND OR RETRACT WITH LATERAL STICK MOTION	11-3.3
NO. 2 ROLL ILCA DOES NOT MOVE WHEN PILOT'S OR COPILOT'S PITCH AND ROLL TRIM SWITCH MOVE RIGHT OR LEFT	11-3.3
NO. 2 ROLL ILCA HAS ENGAGE TRANSIENT	11-3.3
NO. 2 YAW ILCA DOES NOT EXTEND OR RETRACT WHEN PEDALS ARE MOVED	11-3.3
NO. 2 YAW ILCA HAS ENGAGE TRANSIENT	11-3.3
PITCH AND ROLL CONTROL STICK DOES NOT MOVE FORWARD OR AFT WHEN PILOT'S OR COPILOT'S PITCH AND ROLL TRIM SWITCH IS MOVED FORWARD AND AFT	11-3.3
RADAR ALTITUDE HOLD INOPERATIVE OR RESPONSE ERRATIC (BAROMETRIC ALTITUDE HOLD OKAY)	11-3.3
RADAR OR BARO ALT ENGAGED CAPTIONS DO NOT COME ON WHEN PRESSED	11-3.3
<b>AFCS CONTROL PANEL</b>	
AFCS CONTROL PANEL FAILS BAROMETRIC ALTITUDE TESTS	11-4.2
AFCS CONTROL PANEL FAILS CYCLIC TRIM-AUTOMATIC TEST	11-4.2
AFCS CONTROL PANEL FAILS CYCLIC TRIM MANUAL TEST	11-4.2
AFCS CONTROL PANEL FAILS DIODE TEST	11-4.2
AFCS CONTROL PANEL FAILS HEADING TEST	11-4.2
AFCS CONTROL PANEL FAILS PANEL ILLUMINATION TEST	11-4.2
AFCS CONTROL PANEL FAILS RADAR ALTITUDE TESTS	11-4.2
AFCS CONTROL PANEL FAILS SYSTEMS SELECT TEST	11-4.2

SYMPTOM	TASK
<b>AFCS COMPUTER</b>	
AFCS COMPUTER FAILS TEST 1 (CONTINUITY TEST)	11-5.2
AFCS COMPUTER FAILS TEST 2 (POWER SUPPLY TEST)	11-5.2
AFCS COMPUTER FAILS TEST 3 (LOGIC TEST)	11-5.2
AFCS COMPUTER FAILS TEST 4 (PITCH AXIS TEST)	11-5.2
AFCS COMPUTER FAILS TEST 5 (ROLL AXIS TEST)	11-5.2
AFCS COMPUTER FAILS TEST 6 (YAW AXIS TEST)	11-5.2
AFCS COMPUTER FAILS TEST 7 (DASH TEST)	11-5.2
AFCS COMPUTER FAILS TEST 8 (LONGITUDINAL CYCLIC TRIM (LCT) TEST)	11-5.2
AFCS COMPUTER FAILS TEST 9 (COLLECTIVE CONTROL DRIVER ACTUATOR (CCDA) TEST)	11-5.2
AFCS COMPUTER FAILS TEST 10 (YAW RATE TEST)	11-5.2
AFCS COMPUTER FAILS TEST 11 (NORMAL ACCELERATION TEST)	11-5.2
AFCS COMPUTER FAILS TEST 12 (PRESSURE TRANSDUCERS TEST)	11-5.2
AFCS COMPUTER FAILS TEST 13 (BITE TEST)	11-5.2
<b>COCKPIT CONTROL DRIVE ACTUATOR (CCDA)</b>	
PITCH COCKPIT CONTROL DRIVE ACTUATOR FAILS BRAKE FUNCTION TEST	11-6.2
PITCH COCKPIT CONTROL DRIVE ACTUATOR FAILS CIRCUIT RESISTANCE TEST	11-6.2
PITCH COCKPIT CONTROL DRIVE ACTUATOR FAILS TRIM MOTOR TEST	11-6.2
THRUST COCKPIT CONTROL DRIVE ACTUATOR FAILS BRAKE FUNCTION TEST	11-6.2
THRUST COCKPIT CONTROL DRIVE ACTUATOR FAILS CIRCUIT RESISTANCE TEST	11-6.2
THRUST COCKPIT CONTROL DRIVE ACTUATOR FAILS NULL VOLTAGE AND PHASING TEST	11-6.2

1-1 FAILURE SYMPTOM LIST (Continued)

1-1

SYMPTOM	TASK
<b>CHAPTER 12</b>	
<b>WINDSHIELD ANTI-ICING</b>	
CTR WSHLD ANTI-ICE CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-1.3
CTR WSHLD ANTI-ICE HEAT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-1.3
CENTER WINDSHIELD CONTINUES TO HEAT WHEN CTR WINDSHIELD SWITCH IS AT OFF	12-1.3
CENTER WINDSHIELD DOES NOT GET WARM	12-1.3
COPLT WSHLD CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-1.3
COPILOT'S WINDSHIELD CONTINUES TO HEAT WHEN CPLT WINDSHIELD ANTI-ICE SWITCH IS AT OFF	12-1.3
COPILOT'S WINDSHIELD DOES NOT GET WARM	12-1.3
COPLT WSHLD HEAT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-1.3
PILOT WSHLD ANTI-ICE CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-1.3
PILOT WSHLD ANTI-ICE HEAT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-1.3
PILOT'S WINDSHIELD CONTINUES TO HEAT WHEN PLT WINDSHIELD SWITCH IS AT OFF	12-1.3
PILOT'S WINDSHIELD DOES NOT GET WARM	12-1.3
<b>FIRE DETECTION</b>	
FIRE DET CIRCUIT BREAKER WILL NOT STAY CLOSED	12-2.4
NO. 1 ENGINE AND NO. 2 ENGINE FIRE HANDLE FIRE PULL/FUEL SHUTOFF CAPTIONS DO NOT LIGHT DURING TEST	12-2.4
NO. 1 ENGINE FIRE HANDLE FIRE PULL/FUEL SHUTOFF CAPTION DOES NOT LIGHT DURING TEST	12-2.4
NO. 1 ENGINE FIRE HANDLE FIRE PULL/FUEL SHUTOFF CAPTION LIT	12-2.4
NO. 2 ENGINE FIRE HANDLE FIRE PULL/FUEL SHUTOFF CAPTION DOES NOT LIGHT DURING TEST	12-2.4

SYMPTOM	TASK
NO. 2 ENGINE FIRE HANDLE FIRE PULL/FUEL SHUTOFF CAPTION LIT	12-2.4
<b>FIRE EXTINGUISHING</b>	
FIRE EXT CIRCUIT BREAKER WILL NOT STAY CLOSED	12-3.4
MULTIMETER DOES NOT INDICATE 28 VDC WITH NO. 1 ENGINE FIRE HANDLE OUT AND FIRE EXT AGENT SWITCH AT BOTTLE NO. 1	12-3.4
MULTIMETER DOES NOT INDICATE 28 VDC WITH NO. 1 ENGINE FIRE HANDLE OUT AND FIRE EXT AGENT SWITCH AT BOTTLE NO. 2	12-3.4
MULTIMETER DOES NOT INDICATE 28 VDC WITH NO. 2 ENGINE FIRE HANDLE OUT AND FIRE EXT AGENT SWITCH AT BOTTLE NO. 1	12-3.4
MULTIMETER DOES NOT INDICATE 28 VDC WITH NO. 2 ENGINE FIRE HANDLE OUT AND FIRE EXT AGENT SWITCH AT BOTTLE NO. 2	12-3.4
<b>WINDSHIELD WIPERS</b>	
WINDSHIELD WIPERS ARE NOISY	12-4.3
WINDSHIELD WIPER CIRCUIT BREAKER WILL NOT STAY CLOSED	12-4.3
WINDSHIELD WIPERS DO NOT RETURN TO PARK POSITION	12-4.3
WINDSHIELD WIPER OR WIPERS DO NOT OPERATE AT ONE SWITCH POSITION OR ANY SWITCH POSITION	12-4.3
<b>CHAPTER 13</b>	
<b>HEATING AND VENTILATION</b>	
AIR FLOW NOT FELT AT CABIN VENTS	13-1.4
AIR FLOW NOT FELT AT JETTISONABLE DOOR DEFROSTER DUCTS OR NOSE BUBBLE VENTS	13-1.4
AIR FLOW NOT FELT AT PILOT OR COPILOT AIR OUTLET	13-1.4
CABIN HEATER BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	13-1.4
CABIN HEATER CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	13-1.4
HEATER DOES NOT PROVIDE WARM AIR	13-1.4

SYMPTOM	TASK
HEATER FAN CANNOT BE HEARD RUNNING	13-1.4
HEATER FAN CANNOT BE HEARD RUNNING AFTER HEATER START SWITCH PRESSED AND RELEASED	13-1.4
HEATER FAN STOPS RUNNING IMMEDIATELY AFTER HEATER FAN SWITCH SET TO OFF	13-1.4
HEATER HOT (WITHOUT 74) HTR HOT (WITH 74) LIGHT COMES ON	13-1.4
SYSTEM DOES NOT RESPOND TO CHANGES IN CABIN TEMP SELECTOR SETTING	13-1.4
<b>CHAPTER 14</b>	
<b>HOIST AND WINCH</b>	
CABLE DOES NOT REEL IN WHEN WINCH IS CONTROLLED AT HOIST/CARGO HOOK PANEL	14-1.4
CABLE DOES NOT REEL IN WHEN WINCH IS CONTROLLED BY WINCH GRIP AT STA 95 AUXILIARY PANEL	14-1.4
CABLE DOES NOT REEL IN WHEN WINCH IS CONTROLLED BY WINCH GRIP AT STA 502 RECEPTACLE	14-1.4
CABLE DOES NOT REEL OUT WHEN WINCH IS CONTROLLED AT HOIST/CARGO HOOK PANEL	14-1.4
CABLE DOES NOT REEL OUT WHEN WINCH IS CONTROLLED BY WINCH CONTROL GRIP AT STA 95 AUXILIARY PANEL	14-1.4
CABLE DOES NOT REEL OUT WHEN WINCH IS CONTROLLED BY WINCH GRIP AT HOIST OPERATORS STATION	14-1.4
HOIST CABLE CUTTER CIRCUIT BREAKER DOES NOT STAY CLOSED	14-1.4
HOIST CONT CIRCUIT BREAKER DOES NOT STAY CLOSED	14-1.4
28 VDC NOT MEASURED AT STA 340 CABLE CUTTER RECEPTACLE WHEN HOIST/CARGO HOOK PANEL CABLE CUTTER SWITCH IS SET TO ON	14-1.4
28 VDC NOT MEASURED AT STA 340 CABLE CUTTER RECEPTACLE WHEN WINCH GRIP CABLE CUTTER SWITCH PRESSED AT HOIST OPERATOR OR AUXILIARY PANEL	14-1.4

GO TO NEXT PAGE

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
<b>CHAPTER 15</b>					
<b>AUXILIARY POWER UNIT</b>					
APU SHUTS DOWN WHEN APU GEN SWITCH IS SET TO OFF. ESU BITE INDICATES ●●●●		APU SHUTS DOWN WHEN APU GEN SWITCH IS SET TO OFF. ESU BITE INDICATES ●●●●	15-2.15	APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○●○○ (NO SPEED DATA)	15-6.11
APU CONT NORM OR APU CONT EM ERG CIRCUIT BREAKER DOES NOT STAY CLOSED	15-2.7	APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○○●● THEN ●○○● (FAILURE TO START)	15-3.6	APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○●●● OR ○○●● THEN ●○○● (FAILURE TO START)	15-6.12
ESU BITE INDICATORS DO NOT CYCLE AFTER APU SWITCH SET TO RUN	15-2.8	APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○○○● THEN ●○○● (FAILURE TO START)	15-3.7	APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○○○● THEN ●○○● (FAILURE TO START)	15-6.13
APU FUEL BOOST PUMP CANNOT BE HEARD OPERATING BEFORE APU SWITCH SET TO START	15-2.9	APU START ACCUMULATOR GAGE DOES NOT INDICATE AT LEAST 2850 PSI	15-4.9	APU STARTS BUT SHUTS DOWN, ESU BITE INDICATES ●●○● (OVERSPEED)	15-6.14
APU DOES NOT MOTOR WHEN APU SWITCH SET TO START	15-2.10	APU DOES NOT MOTOR	15-4.10	APU STARTS BUT SHUTS DOWN, ESU BITE INDICATES ○●○● (UNDERSPEED)	15-6.15
APU ON CAPSULE GOES OUT (APU SHUTS DOWN) WHEN APU CONT CIRCUIT BREAKER OPENED	15-2.11	APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○●●● OR ○○●● THEN ●○○● (HYDRAULIC FAULT)	15-4.11	APU STARTS BUT SHUTS DOWN, ESU BITE INDICATES ○○●● (OVERTEMPERATURE)	15-6.16
APU DOES NOT STOP. ESU BITE INDICATES ●●●●	15-2.12	APU PUMP FAULT LIGHT IS ON	15-4.12	APU STARTS AND RUNS THEN SHUTS DOWN, ESU BITE INDICATES ○○●● (OVERTEMPERATURE) (HOT START)	15-6.17
APU ON CAPSULE OUT WHEN APU OPERATING NORMALLY	15-2.13	NO. 1 OR NO. 2 ENGINE DOES NOT MOTOR (HYDRAULIC SYSTEM)	15-5.6	APU STARTS BUT SHUTS DOWN, ESU BITE INDICATES ●●○● (OPEN THERMOCOUPLE)	15-6.18
APU SHUTS DOWN WHEN GEN APU SWITCH PLACED TO ON. ESU BITE INDICATES ●●●●	15-2.14	NO. 1 OR NO. 2 ENGINE KEEPS MOTORING WHEN ENGINE START SWITCH SET TO OFF	15-5.7	APU STARTS AND RUNS BUT ESU BITE INDICATES ●○●○ (SHORTED THERMO PROBE) (WARNING)	15-6.19

I-I FAILURE SYMPTOM LIST (Continued)

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
		CARGO HOOK PWR NORM RLSE CIRCUIT BREAKER DOES NOT STAY CLOSED	16-1.4	<b>FLARE DISPENSER SYSTEM</b>	
		CENTER CARGO HOOK DOES NOT OPEN	16-1.4	ARM LIGHT DOES NOT COME ON WHEN ARM SAFE SWITCH SET TO ARM	16-2.3
		CENTER CARGO HOOK DOES NOT STAY OPEN FOR 10 TO 14 SECONDS AFTER EMERG SWITCH RELEASED FROM REL ALL	16-1.4	CHAFF CIRCUIT BREAKER WILL NOT STAY CLOSED	16-2.3
		DUAL HOOK FAULT CAPSULE LIT	16-1.4	<b>FLARE COUNTER DOES NOT INDICATE 00 WHEN RIPPLE FIRE SWITCHES HELD UP</b>	16-2.3
		DUAL HOOK FAULT LIGHT DOES NOT COME ON WITH HOOK DISCONNECTED	16-1.4	<b>FLARE COUNTER OR TEST SET LIGHTS DO NOT CHANGE WHEN A CABIN FIRING SWITCH PRESSED AND RELEASED</b>	16-2.3
		DUAL HOOK RELAY BOX LIGHT(S) DO NOT COME ON WHEN PRESSED	16-1.4	FLARE- COUNTER OR TEST SET LIGHTS DO NOT CHANGE WHEN PILOT OR COPILOT <b>FLARE DISP</b> SWITCH PRESSED AND RELEASED	16-2.3
		FORWARD CARGO HOOK DOES NOT OPEN	16-1.4	FLARE COUNTER SEQUENCES FROM <b>30 TO 00</b> WHEN <b>DIST CONT</b> PANEL <b>ARM SAFE</b> SWITCH SET TO <b>ARM</b>	16-2.3
		FWD HOOK OPEN CAPSULE DOES NOT COME ON WHEN FORWARD CARGO HOOK OPENS	16-1.4	LDG GR SW STATUS LIGHT DOES NOT COME ON	16-2.3
		FWD HOOK OPEN CAPSULE LIT WHEN FORWARD CARGO HOOK CLOSED	16-1.4	LDG GR SW STATUS LIGHT IS ON	16-2.3
		FORWARD OR AFT CARGO HOOK DOES NOT OPEN WHEN TANDEM HOOK RELEASE LEVER IS PULLED	16-1.4	LDG GR SW STATUS, READY TO FIRE, AND LDG GR SW BYPASS LIGHTS DO NOT COME ON	16-2.3
		FWD OR AFT HOOK LOADED LIGHT IS LIT WHEN CARGO HOOK IS UNLOADED	16-1.4	LDG GR SW STATUS, READY TO FIRE, OR LDG GR SW BYPASS LIGHTS DO NOT COME ON WHEN PRESSED	16-2.3
		FWD OR AFT HOOK LOADED LIGHT DOES NOT COME ON WHEN PRESSED	16-1.4	READY TO FIRE LIGHT DOES NOT COME ON	16-2.3
		HOOK LOADED LIGHT DOES NOT COME ON WHEN FORWARD OR AFT CARGO HOOK IS LOADED	16-1.4	<b>HEADS-UP DISPLAY SYSTEM</b>	
		MID HOOK OPEN CAPSULE DOES NOT COME ON WHEN CENTER CARGO HOOK OPENS	16-1.4	CCU PANEL WILL NOT ILLUMINATE	16-4.4
		MID HOOK OPEN CAPSULE LIT WHEN CENTER CARGO HOOK CLOSED	16-1.4	FAIL LAMP ON CCU IS ON	16-4.5
		RELEASE SW FAIL LIGHT OR GROUND RELAY ACTIVATE LIGHT NOT ON WHEN COPILOT'S CARGO HOOK RELEASE SWITCH PRESSED	16-1.4	<b>ON AND/OR FAIL LAMPS WILL NOT ILLUMINATE</b>	16-4.6
		RELEASE SW FAIL LIGHT OR GROUND RELAY ACTIVATE LIGHT NOT ON WHEN HOIST OPERATOR'S CARGO HOOK RELEASE SWITCH PRESSED	16-1.4	PILOT'S AND/OR COPILOT'S DISPLAY HAS NO DISPLAY	16-4.7
		RELEASE SW FAIL LIGHT OR GROUND RELAY ACTIVATE LIGHT NOT ON WHEN PILOT'S CARGO HOOK RELEASE SWITCH PRESSED	16-1.4	PILOT'S AND/OR COPILOT'S DISPLAY REMAINS AT MAXIMUM INTENSITY	16-4.8
				PDU AND CPDU TEST DISPLAY INDICATES INCORRECT TYPE AIRCRAFT	16-4.9
				SYMBOL DOES NOT STOP BLINKING	16-4.10
				PILOT CANNOT SELECT DECLUTTER ON CCU	16-4.11
<b>CHAPTER 16</b>					
<b>EXTERNAL CARGO HOOK SYSTEM</b>					
AFT CARGO HOOK DOES NOT OPEN	16-1.4				
AFT HOOK OPEN CAPSULE DOES NOT COME ON WHEN AFT CARGO HOOK OPENS	16-1.4				
AFT HOOK OPEN CAPSULE LIT WHEN AFT CARGO HOOK CLOSED	16-1.4				
ARMED SW FAIL LIGHT DOES NOT COME ON WITH MASTER SWITCH AT ARM	16-1.4				
CARGO HOOK CONT EMER REL CIRCUIT BREAKER DOES NOT STAY CLOSED	16-1.4				
CARGO HOOK NORM RLSE CIRCUIT BREAKER DOES NOT STAY CLOSED	16-1.4				
CARGO HOOK OR HOOKS DO NOT RELEASE WHEN EMERG SWITCH SET TO REL ALL	16-1.4				
CARGO HOOK PWR EMER REL CIRCUIT BREAKER DOES NOT STAY CLOSED	16-1.4				



1-1 FAILURE SYMPTOM LIST (CONTINUED)				1-1	
SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
COPILOT'S CANNOT SELECT DECLUTTER ON CCU	16-4.12	CANNOT CYCLE THROUGH COPILOT'S DECLUTTER AT CCU OR COPILOT'S THRUSTER CRIP HUD CONTROL SWITCH	16-4.28	NO MOVEMENT OF GPS RCVR TIME TOTALIZING METER	18-1.5
CANNOT CYCLE THROUGH MODES AT PILOT'S THRUSTER GRIP	16-4.13			GPS CDU DISPLAYS "FAIL" MESSAGE	18-1.6
CANNOT CYCLE THROUGH DECLUTTER AT PILOT'S THRUSTER GRIP	16-4.14	NO OR IMPROPER ALTITUDE (MSL) OR AIRSPEED DISPLAYED	16-4.29	GPS SYSTEM TRACKS LESS THAN FOUR SATELLITES AND ESTIMATED POSITION ERROR (EPE) IS NOT WITHIN LIMITS OF THE SYSTEMS FIGURE OF MERIT (FM)	18-1.7
PILOT'S BRT CONTROL ON THRUSTER DOES NOT VARY DISPLAY INTENSITY	16-4.15	NO OR IMPROPER TRIM (SLIDE BALL) DISPLAYED	16-4.30		
PILOT'S DIM CONTROL ON THRUSTER DOES NOT VARY DISPLAY INTENSITY	16-4.16			DATA LOADER MODULE INFORMATION DOES NOT LOAD INTO GPS SYSTEM BUT NO ERROR MESSAGE APPEARS ON CDU	18-1.8
CANNOT CYCLE THROUGH MODES AT COPILOTS THRUSTER GRIP	16-4.17	<b>CHAPTER 17</b>		KYK-13 KEY LOADING DISCREPANCIES	18-1.9
CANNOT CYCLE THROUGH DECLUTTER AT COPILOT'S THRUSTER GRIP	16-4.18	<b>EMERGENCY EXIT LIGHTS</b>		GPS ALERT INDICATOR DISCREPANCIES	18-1.10
COPILOT'S BRT CONTROL ON THRUSTER DOES NOT VARY DISPLAY INTENSITY	16-4.19	CHARGE INDICATOR LAMPS ON ONE OR MORE EMERGENCY EXIT LIGHTS DO NOT COME ON WHEN SWITCH IS SET TO ALARM	17-1.3	PILOT/COPILOT HSI DISCREPANCIES	18-1.11
COPILOT'S DIM CONTROL ON THRUSTER DOES NOT VARY DISPLAY INTENSITY	16-4.20	CHARGE INDICATOR LAMPS ON ONE OR MORE EMERGENCY EXIT LIGHTS DO NOT COME ON WHEN SWITCH IS AT DISARM	17-3.3	GPS SYSTEM WILL NOT ZEROIZE	18-1.12
CANNOT VARY PILOT'S DISPLAY LEFT/RIGHT	16-4.21	EMERGENCY EXIT LIGHT MAIN LAMPS COME ON WHEN SWITCH IS AT ARM	17-1.3	GPS SYSTEM WILL NOT RETAIN LOADED DATA AFTER AIRCRAFT POWER IS REMOVED	18-1.13
CANNOT VARY PILOT'S DISPLAY UP/DOWN	16-4.22			<b>ALTITUDE VOICE WARNING SYSTEM (RADAR ALTIMETER)</b>	
CANNOT VARY COPILOT'S DISPLAY LEFT/RIGHT	16-4.23	EMERGENCY EXIT LIGHT MAIN LAMPS DO NOT COME ON WHEN SWITCH IS AT TEST	17-1.3	ALTITUDE VOICE WARNING MESSAGE NOT AUDIBLE IN PILOT, COPILOT, OR AFT STATION/HOIST OPERATOR'S HEADSET WHEN PILOT'S RADAR ALTIMETER POINTER IS BELOW OR ABOVE PRESET ALTITUDE LIMITS	18-2.4
CANNOT VARY COPILOT'S DISPLAY UP/DOWN	16-4.24	ONE OR MORE EMERGENCY EXIT LIGHTS WILL NOT GO OUT WHEN SWITCH IS SET TO DISARM	17-1.3		
CANNOT CYCLE THROUGH PILOT'S MODE SELECTION AT CCU OR PILOT THRUSTER GRIP HUD CONTROL SWITCH	16-4.25	<b>CHAPTER 18</b>		ALTITUDE VOICE WARNING MESSAGE VOLUME DOES NOT FLUCTUATE WHEN PRESS-TO-TEST KNOB IS MOMENTARILY DEPRESSED	18-2.5
CANNOT CYCLE THROUGH PILOT'S DECLUTTER AT CCU OR PILOT'S THRUSTER GRIP HUD CONTROL SWITCH	16-4.26	<b>GLOBAL POSITIONING SYSTEM</b>		ALTITUDE VOICE WARNING MESSAGE IS AUDIBLE WHEN ALTITUDE POINTER IS WITHIN THE HI/LO SET INDEX ENVELOPE	18-2.6
CANNOT CYCLE THROUGH COPILOT'S MODE SELECTION AT CCU OR COPILOT'S THRUSTER GRIP HUD CONTROL SWITCH	16-4.27	GPS DISPLAY DOES NOT TURN OR VARY WITH CDU BRT CONTROL	18-1.4		

1-1 FAILURE SYMPTOM LIST (CONTINUED)

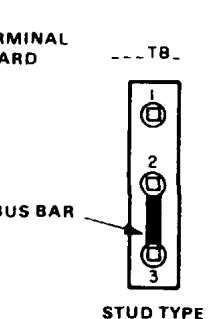
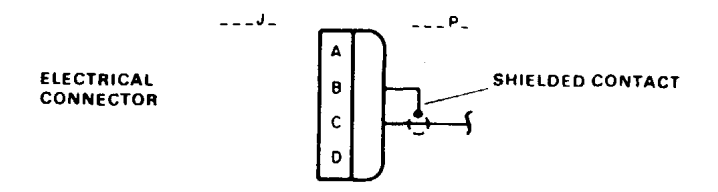
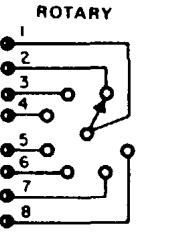
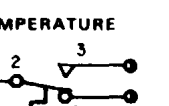
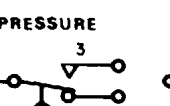
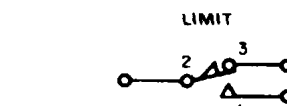
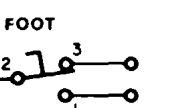
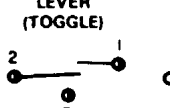
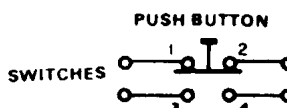
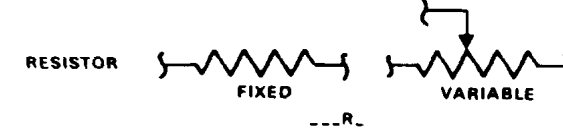
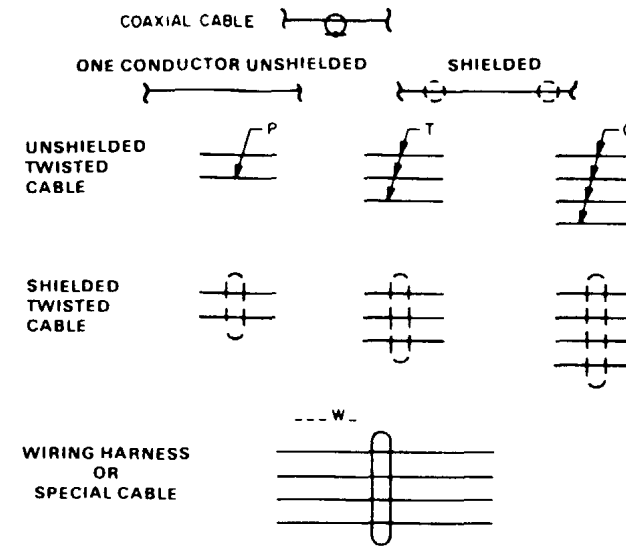
1-1

SYMPTOM	TASK	SYMPTOM	TASK
DOPPLER/GPS NAVIGATION SYSTEM (DGNS)		HF LIAISON FACILITY-"LINKED" IS NOT DISPLAYED ON HF CONTROL WHEN PLACING ALE OR ECCM CALL	18-4.14
EDGE LIT PANEL DOES NOT LIGHT OR VARY	18-3.4	HF LIAISON FACILITY-HEADSET AUDIO IS NOT RESTORED AFTER LINK ESTABLISHED WHEN PLACING ALE OR ECCM CALL	18-4.15
CDU MAL LAMP AND ALL LED SEGMENTS ARE NOT ILLUMINATED	18-3.5	HF LIAISON FACILITY-"RCVING PREAMBLE" NOT DISPLAYED BEFORE AN ECCM CALL IS RECEIVED	18-4.16
CDU DISPLAY NOT GO ALL	18-3.6	HF LIAISON FACILITY-PREPROGRAMMED INFORMATION CANNOT BE ZEROED	18-4.17
GPS ALERT INDICATOR DOES NOT ILLUMINATE	18-3.7	TSEC/KY 100 CONTROL RCU CANNOT KEY FILL FROM KEY FILL DEVICE	18-4.18
PRESENT POSITION NOT DISPLAYED ON CDU	18-3.8	TSEC/KY-100 CONTROL RCU-KEYS CANNOT BE ZEROED	18-4.19
CDU DOES NOT DISPLAY DOWNLOAD WAYPTS DURING WAYPOINT LOADING	18-3.9	SECURE VOICE OPERATION - WITH KY-100 CONTROL SET TO CT MODE AND PLAINTEXT TRANSMITTED TO RADIO UNDER TEST, COMMUNICATION NOT HEARD	18-4.20
INDICATIONS ON THE FOUR-LINE DISPLAY AND HSI ARE NOT THE SAME	18-3.10	SECURE VOICE OPERATION - WITH KY-100 CONTROL SET TO VARIOUS POSITIONS AND BOTH CIPHERTEXT AND PLAINTEXT TRANSMITTED TO RADIO UNDER TEST ABNORMAL COMMUNICATIONS AND ANNUNCIATOR OCCUR	18-4.21
GPS DOES NOT ZEROIZE	18-3.11		
GPS HAVEQUICK TIMING NOT WORKING	18-3.12		
HF LIAISON FACILITY			
AN/ARC-220 CONTROL-DISPLAY SCREEN INTENSITY LEVEL DOES NOT VARY WITH BRIGHTNESS SWITCHES	18-4.4		
AN/ARC-220 CONTROL-NO DISPLAY VISIBLE	18-4.5		
TSEC/KY-100 CONTROL RCU-NO DISPLAY	18-4.6		
AN/ARC-220 CONTROL-DISPLAYS "SYSTEM-NOGO" AFTER POWER -UP BIT (P-BIT) TEST	18-4.7		
AN/ARC-220 CONTROL-DISPLAYS "SYSTEM-NOGO RT-CDU COMM FAIL" DURING RCV OR XMT BIT	18-4.8		
AN/ARC-220 CONTROL-DISPLAYS "LOAD-FAIL" DURING DATA/KEY FILL	18-4.9		
AN/ARC-220 RECEIVER-TRANSMITTER - RECEPTION/TRANSMISSION NOT CLEAR OR MISSING IN ALL MODES	18-4.10		
HF LIAISON FACILITY-"CALL FAIL" DISPLAYED WHEN PLACING ALE OR ECCM CALL	18-4.11		
HF LIAISON FACILITY-SYSTEM CANNOT BE TUNED OR SYNCHED DURING ECCM OPERATION	18-4.12		
HF LIAISON FACILITY-PREAMBLE TONES NOT HEARD WHEN PLACING A CALL IN ECCM MODE	18-4.13		

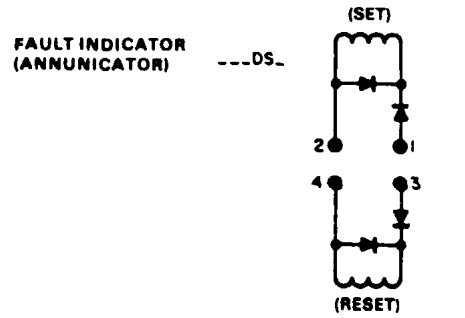
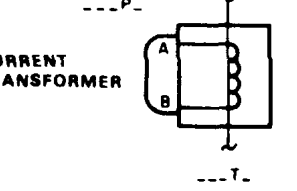
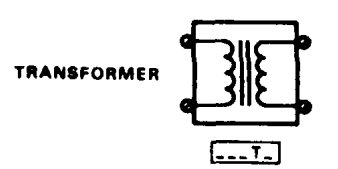
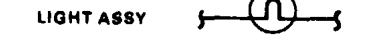
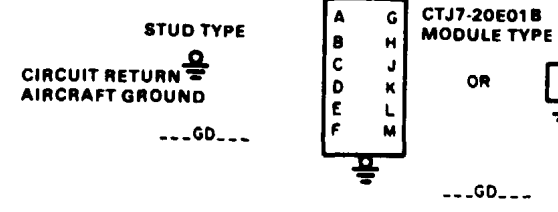
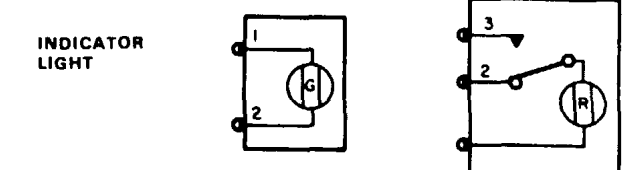
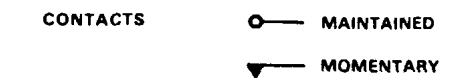
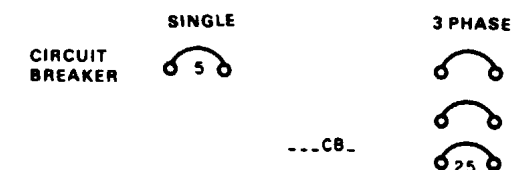
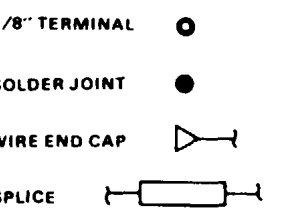
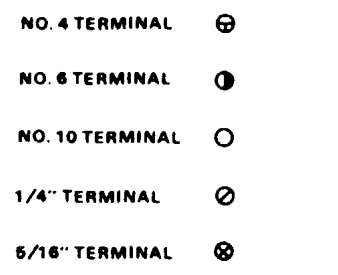
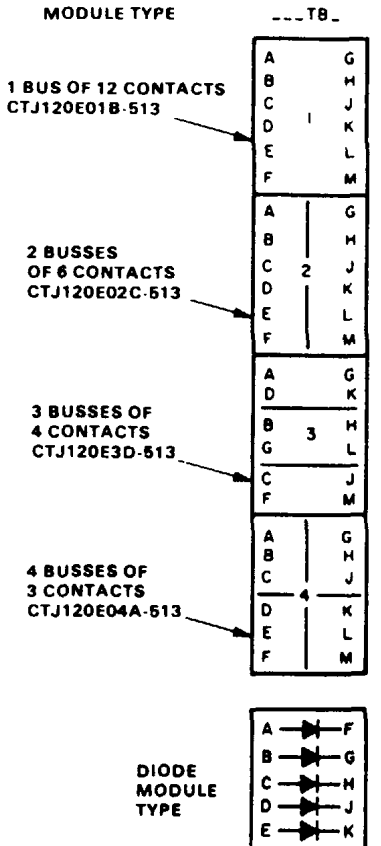
REFERENCE DESIGNATIONS FOR EQUIPMENT

- A ASSEMBLY
- B BLOWER, FAN, MOTOR, PUMP
- BT BATTERY
- C CAPACITOR
- CB CIRCUIT BREAKER
- CR DIODE, RECTIFIER
- DS LAMP, LIGHT
- G GENERATOR
- HR HEATER
- J JACK, RECEPTACLE
- JACK ELECTRICAL CONNECTOR
- K RELAY
- L COIL, SOLENOID, INDUCTOR
- M METER, INSTRUMENT
- MT TRANSDUCER, INSTRUMENT
- P PLUG, ELECTRICAL CONNECTOR
- PS POWER SUPPLY
- R RESISTOR, POTENTIOMETER
- RHEOSTAT
- S SWITCH
- T TRANSFORMER
- TB TERMINAL BOARD
- TC THERMOCOUPLE
- TR TRANSFORMER RECTIFIER
- Q TRANSISTOR
- XK SOCKET, RELAY

PATH, TRANSMISSION (WIRE, CABLE, WIRING HARNESS)



MODULAR TERMINAL BOARD IDENTIFICATION





BREAKAWAY FITTING



CHECK VALVE



ENGINE FEED BOOST PUMP



PRESSURE FUELING SHUTOFF VALVE



LEVEL CONTROL PILOT VALVE



TWO WAY CHECK VALVE

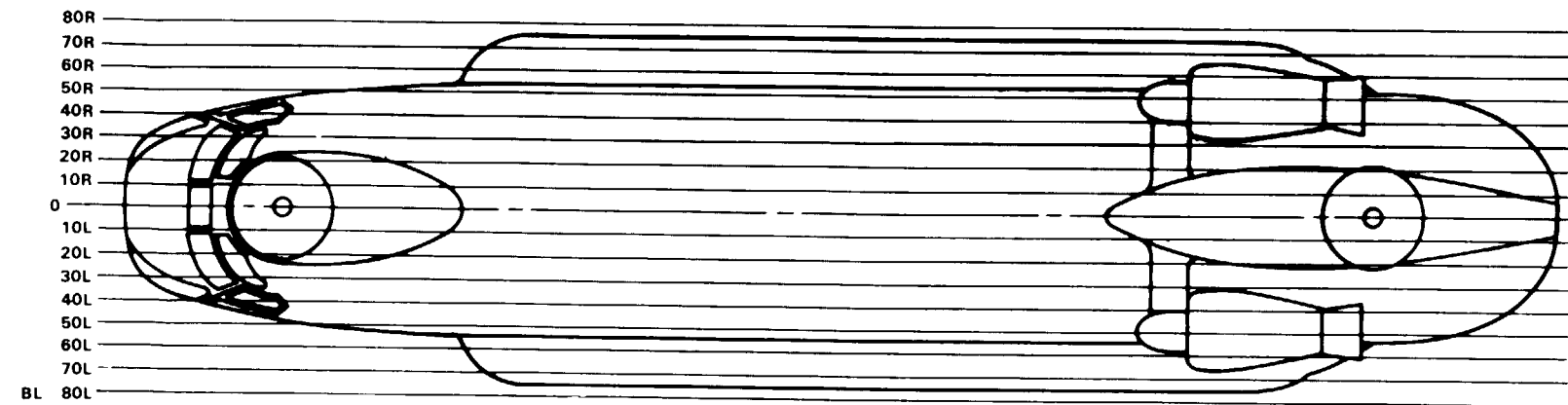


JET PUMP (REFUELING MANIFOLD EVACUATION)

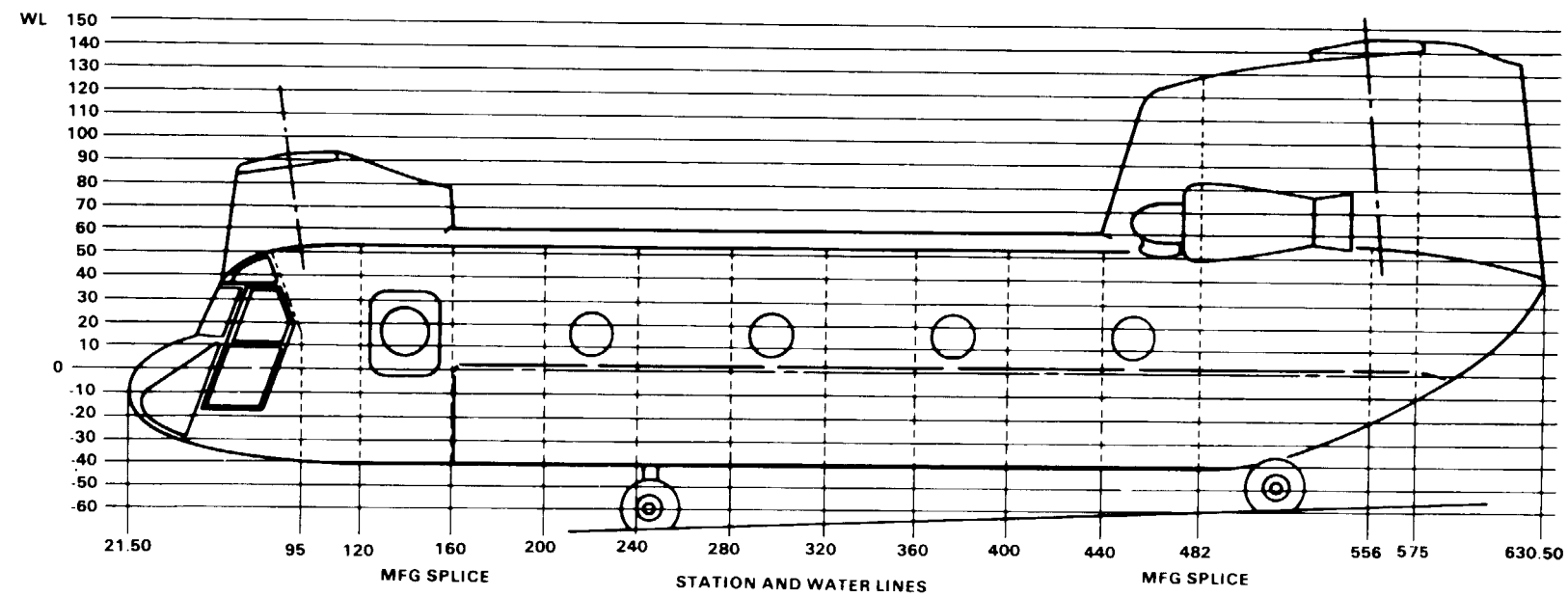


MOTOR OPERATED GATE VALVE

10209



BUTT LINES



**HELICOPTER DIMENSIONS AND DETAILS.**

10210

The locations of primary fuselage stations, water lines, and butt lines are shown. Station numbers in inches are marked at four places on the aft side of cabin frames. Water line 0.0 is marked at each side of the cabin along a beam below windows.

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA

This section provides wiring connections to each 300 series connector plug and receptacle in the CH-47D aircraft. The wire no, where the other end of the wire is connected, and the diagram in this manual where the wire is shown connected is contained below. NOTE 1 in the DIAG REF column means that the wire is shown terminated in TM 11-1520-240-20.

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J1	1		W645-8-20	300J19	1	9-5.1	300P1	1		W550-1-20	113CB1		9-5.1
300J1	2		W645-43-20 (WITHOUT 74 )	300J19	2	8-5.1	300P1	2		W550-11-20 (WITHOUT 74 )	103CB1		8-5.1
300J1	2		W591-2008-22 (WITH 74 )	300J42	1	8-6.1	300P1	2		W591-2006-22 (WITH 74 )	051CB1	2	8-6.1
300J1	3		W645-54-22	300J19	3	4-2.2	300P1	3		W550-15-22	081CB1		4-2.2
300J1	4		W645-57-20	300J19	4	9-4.2	300P1	4		W550-17-20	112CB2		9-4.2
300J1	5		W645-59-20	300J19	5	9-11.1	300P1	5		W550-19-20	125CB1		9-11.1
300J1	6		W645-60-20	300J19	6	17-1.1	300P1	6		W550-21-20	128CB1		17-1.1
300J1	7		W645-62-22	300J19	7	12-1.1	300P1	7		W550-23-22	083CB2		12-1.1
300J1	8		W645-63-20	300J19	8	14-1.2	300P1	8		W550-30-20	132CB1		14-1.2
300J1	9		W645-64-20	300J19	9	14-1.2	300P1	9		W550-31-20	132CB2		14-1.2
300J1	10		W645-89-20	300J19	10	10-2.1	300P1	10		W550-38-20	171CB6		10-2.1
300J1	11		W645-90-20	300J19	11	10-2.1	300P1	11		W550-39-20	171CB5		10-2.1
300J1	12		W645-103-20	300J19	12	10-1.2	300P1	12		W550-47-20	173CB1		10-1.2
300J1	13		W645-110-20	300J19	14	10-2.1	300P1	13		W550-48-20	174CB3		10-2.1
300J1	14		W645-111-20	300J19	13	10-2.1	300P1	14		W550-49-20	174CB4		10-2.1
300J1	15		W645-139-20	300J19	15	16-1.2	300P1	15		W550-59-20	134CB2		16-1.2
300J1	16		W645-144-22	300J19	16	9-2.2	300P1	16		W550-61-22	241P3	A	9-2.2
300J1	17		W645-204-20 (WITHOUT 74 )	300J19	17	4-2.2	300P1	17		W550-82-20 (WITHOUT 74 )	101CB1		4-4.2
300J1	17		W591-2015-22 (WITH 74 )	300J61	17	8-3.1	300P1	17		W591-1885-22 (WITH 74 )	053CB1	2	8-3.1
300J1	18		W645-249-22	300J19	18	7-2.2	300P1	18		W550-105-22	135CB1		7-2.2
300J1	19		W645-279-22	300J19	19	9-12.1	300P1	19		W550-182-22	124CB1		9-12.1
300J1	20		W645-277-22	300J19	20	9-10.1	300P1	20		W550-133-22	122CB1		9-10.1
300J1	21		W645-171-22	300J19	21	9-13.2	300P1	21		W550-122-22	161CB5		9-13.1
300J1	22		W645-172-22	300J19	22	9-13.1	300P1	22		W550-123-22	042CB1		9-13.1
300J1	23		W645-287-20	300J19	23	8-11.1	300P1	23		W550-134-20	057CB3		8-11.1
300J1	24		W645-300-22	300J19	24	15-2.6	300P1	24		W550-173-22	TB3	2	15-1.2
300J1	25		W645-252-22	300J19	25	7-4.2	300P1	25		W550-176-22	137CB1		7-4.2
300J1	26		W645-205-20 (WITHOUT 74 )	101XK1	A1	4-2.2	300P1	26		W550-83-20 (WITHOUT 74 )	101CB2		4-4.2
300J1	26		W591-2007-22 (WITH 74 )	300J61	4	8-6.1	300P1	26		W591-2005-22 (WITH 74 )	051CB3	2	8-6.1
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300J1	29		W645-400-20	300J19	29	9-5.1	300P1	29		W550-274-20	113CB2		9-5.1
300J1	30		W645-403-20 (WITH 65 )	300J1 9	27	7-3.2	300P1	30		W550-278-20 (WITH 65 )	153CB1		7-3.2
300J1	34		W591-1935-20 (WITH 74 )	SPLICE		4-12.1	300P1	34		W591-2061-20 (WITH 74 )	102CB1	2	4-12.1
300J1	35		W591-2062-20 (WITH 74 )	300J85	N	4-12.1	300P1	35		W591-2060-20 (WITH 74 )	103CB2	2	4-12.1
300J1	36		W591-2010-20 (WITH 74 )	300J61	11	8-4.1	300P1	36		W591-2009-20 (WITH 74 )	052CB2	2	8-4.1
300J1	37		W591-2066-20 RED (WITH 74 )	300J55	47	4-12.1	300P1	37		W591-1856-20 RED (WITH 74 )	101CB1	2	4-12.1
300J1	38		W591-2067-20 BLU (WITH 74 )	300J55	46	4-12.1	300P1	38		W591-1857-20NBLU (WITH 74 )	GDO45	L	4-12.1
300J1	39		W591-2066/7 SHLD (WITH 74 )	300CJ55		4-12.1	300P1	39		W591-1856/7 SHLD (WITH 74 )			4-12.1
300J2	1		W645-21-22	300J58	1	8-10.1	300P2	1		W550-4-22	042CB1		8-10.1
300J2	2		W645-23-22 (WITHOUT 74 )	300J58	2	8-6.1	300P2	2		W550-5-22 (WITHOUT 74 )	051CB3		8-6.1
300J2	3		W645-24-22 (WITHOUT 74 )	300J58	3	8-6.1	300P2	3		W550-6-22 (WITHOUT 74 )	051CB1		8-6.1
300J2	4		W645-30-22 (WITHOUT 74 )	300J58	4	8-4.1	300P2	4		W550-7-22 (WITHOUT 74 )	052CB2		8-4.1
300J2	5		W645-33-22 (WITHOUT 74 )	300J58	18	8-3.1	300P2	5		W550-8-22 (WITHOUT 74 )	053CB1		8-3.1
300J2	6		W645-39-22	300J58	5	8-15.2	300P2	6		W550-263-22	TB57	3M	8-15.2
300J2	7		W645-42-22	300J58	6	8-5.1	300P2	7		W550-12-20	101CB1		8-5.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J2	8		W645-44-22	300J58	7	8-11.1	300P2	8		W550-13-22	057CB2		8-11.1
300J2	9		W645-402-22	300J58	20	9-21.1	300P2	9		W550-277-22	044CB1		9-21.1
300J2	10		W645-58-20	TB10	8	9-4.2	300P2	10		W550-18-20	112CB2		9-4.2
300J2	11		W645-100-20	300J58	9	10-1.2	300P2	11		W550-46-20	172CB1		10-1.2
300J2	12		W645-121-20	300J58	10	12-3.2	300P2	12		W550-57-20	233CB2		12-3.2
300J2	13		W645-138-20	300J58	11	9-18.1	300P2	13		W550-58-20	232CB1		9-18.1
300J2	14		W645-159-22	300J58	12	9-2.2	300P2	14		W550-60-22	241P3	Y	9-2.2
300J2	15		W645-163-22	300J58	13	8-13.1	300P2	15		W550-78-22	061CB2		8-13.1
300J2	16		W645-177-22	300J58	19	NOTE 1	300P2	16		W550-86-22	181CB1		NOTE 1
300J2	18	WA	W645-182-22-RED	300J58	16	NOTE 1	300P2	18		W550-89-22	192CB1		NOTE 1
300J2	19		W645-208-22	300J58	21	NOTE 1	300P2	19		W550-104-22	201CB1		NOTE 1
300J2	21		W645-165-20	300J58	36	11-3.1.1	300P2	21		W550-109-22	031CB3		11-3.1.1
300J2	22		W645-166-20	300J58	37	11-3.1.1	300P2	22		W550-110-20	031CB3		11-3.1.1
300J2	23		W645-266-22	300J58	22	8-9.1	300P2	23		W550-119-20	043CB1		8-9.1
300J2	24	WA	W645-274-22-RED	300J58	14	NOTE 1	300P2	24		W550-120-22	187CB1		NOTE 1
300J2	25	WA	W645-81-22-RED	300J58	25	NOTE 1	300P2	25		W550-132-22	066CB2		NOTE 1
300J2	26		W645-298-20	300J58	31	9-1.2	300P2	26		W550-1 57-22	SM0001		9-1.2
300J2	27		W645-297-20	300J58	30	9-1.2	300P2	27		W550-158-22	161K5	A3	9-1.2
300J2	28		W645-304-22 (WITHOUT 74)	TB18	3	4-6.1	300P2	28		W550-177-22 (WITHOUT 74)	103CB2		4-6.1
300J2	29		W645-305-22 (WITHOUT 74)	300J58	26	4-6.1	300P2	29		W550-178-22 (WITHOUT 74)	103CB1		4-6.1
300J2	30		W645-306-22 (WITHOUT 74)	300J58	27	4-6.1	300P2	30		W550-179-22 (WITHOUT 74)	103CB3		4-6.1
300J2	31		W645-253-22	300J58	28	7-4.2	300P2	31		W550-175-22	137CB1		7-4.2
300J2	32		W645-278-22	300J58	23	9-12.1	300P2	32		W550-183-22	124CB2		9-12.1
300J2	33		W645-127-22	300J58	32	8-16.1	300P2	33		W550-180-22	175CB1		8-16.1
300J2	34	WA	W645-258-22-RED	300J58	33	NOTE 1	300P2	34		W550-129-22	066CB4		NOTE 1
300J2	35	WA	W645-269-22-RED	300J58	34	NOTE 1	300P2	35		W550-130-22	066CB6		NOTE 1
300J2	36		W645-387-20	300J58	35	NOTE 1	300P2	36		W550-250-20	182CB1		NOTE 1
300J2	47		M9002B20	P2000R	A	16-4.1	300P2	47		M9002A20	200CB1		9-1.2
300J3	1		W645-149-22	300J48	32	9-2.2	300P3	1		W550-62-22	241P3	X	9-2.2
300J3	2		W645-150-22A	300J48	33	9-2.2	300P3	2		W550-63-22A	241P3	C	9-2.2
300J3	3		W645-151-22B	300J48	34	9-2.2	300P3	3		W550-64-22B	241P3	D	9-2.2
300J3	4		W645-152-22C	300J48	35	9-2.2	300P3	4		W550-65-22C	241P3	Z	9-2.2
300J3	5		W645-153-22	300J48	36	9-2.2	300P4	5		W550-66-22	241P6	A	9-2.2
300J3	6		W645-154-22	300J48	37	9-2.2	300P3	6		W550-67-22	241P6	B	9-2.2
300J3	7		W645-155-22	300J48	38	9-2.2	300P3	7		W550-68-22	241P6	C	9-2.2
300J3	8		W645-156-22	300J48	39	9-2.2	300P3	8		W550-69-22	241P6	D	9-2.2
300J3	9		W645-157-22	300J48	40	9-2.2	300P3	9		W550-70-22	241P6	E	9-2.2
300J3	10		W645-158-22	300J48	41	9-2.2	300P3	10		W550-71 -22	241P6	F	9-2.2
300J3	11		W645-161-22	300J7	2	9-2.2	300P3	11		W550-79-22	241CB1		9-2.2
300J3	12		W645-160-22	300J7	1	9-2.2	300P3	12		W550-80-22	241P3	S	9-2.2
300J3	13		W645-164-22	300J7	4	9-2.2	300P3	13		W550-81-22	241P3	R	9-2.2
300J3	14		W645-190-22	300J7	14	9-2.2	300P3	14		W550-91-22	241CB1		9-2.2
300J3	15		W645-189-22	300J7	13	9-2.2	300P3	15		W550-94-22	241P3	K	9-2.2
300J3	16		W645-186-22	300J7	10	9-2.2	300P3	i6		W550-95-22	241P3	V	9-2.2
300J3	17		W645-191-22	SP0109		9-2.2	300P3	17		W550-93-22	241P3	U	9-2.2
300J3	18		W645-188-22	300J7	12	9-2.2	300P3	18		W550-96-22	241P11	X	9-2.2
300J3	19		W645-187-22	300J7	11	9-2.2	300P3	19		W550-97-22	241P11	K	9-2.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J3	20		W645-162-22	300J7	3	9-2.2	300P3	20		W550-98-22	241P11	L	9-2.2
300J3	21		W645-184-22	300J7	8	9-2.2	300P3	21		W550-100-22	241P11	A	9-2.2
300J3	22		W645-275-22	300J48	48	NOTE 1	300P3	22		W550-121-22	187CB1		NOTE 1
300J3	23		W645-292-20A	300J48	49	9-1.2	300P3	23		W550-136-20A	161CB10	A2	9-1.2
300J3	24		W645-293-20B	300J48	50	9-1.2	300P3	24		W550-137-20B	161C8B10	B2	9-1.2
300J3	25		W645-294-20C	300J48	51	9-1.2	300P3	25		W550-138-20C	161CB10	C2	9-1.2
300J3	26		W645-288-20	300J7	28	9-1.2	300P3	26		W550-156-20	161CB5		9-1.2
300J3	27		W645-289-20	300J7	29	9-1.2	300P3	27		W550-155-20	161K5	3	9-1.2
300J3	28		W645-312-20	300J7	26	9-1.2	300P3	28		W550-150-20	161K5	B2	9-1.2
300J3	29		W645-291-20	300J7	27	9-1.2	300P3	29		W550-154-20	161K5	A1	9-1.2
300J3	30		W645-295-20	300J48	52	9-1.2	300P3	30		W550-148-20	161CB4		9-1.2
300J3	31		W645-367-22	TB18	10	11-2.1	300P3	31		W550-248-22	031CB4		11-2.1
300J3	33		W645-309-20	197P2	T	NOTE 1	300P3	33		W550-166-22	197CB1		NOTE 1
300J3	34		W645-82-20	300J7	40	9-2.2	300P3	34		W550-106-20	242CB4		9-2.2
300J3	35		W645-398-22	300J7	41	8-15.1	00P3	35		W550-267-22	TB57	2J	8-15.1
300J3	36		W645-399-22	300J7	42	8-15.1	300P3	36		W550-264-22	TB57	3G	8-15.1
300J3	47		M9000B20	P2000R	C	16-4.1	300P3	47		M9000A20	200CB2		9-2.2
300J4	1		W645-9-20	TB17	6K	9-7.1	300P4	1		W550-2-20	114CB2		9-7.1
300J4	2		W645-19-22	300J50	2	8-14.1	300P4	2		W550-3-22	145CB1		8-14.1
300J4	3		W645-34-22 (WITHOUT 74)	300J42	15	8-3.1	300P4	3		W550-9-22 (WITHOUT 74)	053CB1		8-3.1
300J4	4		W645-56-20	TB17	7A	13-1.2	300P4	4		W550-16-20	232CB1		13-1.2
300J4	5		W645-61-20	SP0245		9-15.1	300P4	5		W550-20-20	128CB1		9-15.1
300J4	6		W645-65-20	TB17	6E	14-1.2	300P4	6		W550-29-20	132CB1		14-1.2
300J4	7		W645-71-20A	140XK1	A2	7-1.2	300P4	7		W550-32-20A	140CB3	A2	7-1.2
300J4	8		W645-72-20B	140XK1	B2	7-1.2	300P4	8		W550-33-20B	140CB3	B2	7-1.2
300J4	9		W645-73-20C	140XK1	C2	7-1.2	300P4	9		W550-34-20C	140CB3	C2	7-1.2
300J4	10		W645-74-20	SP0070		7-1.2	300P4	10		W550-35-20	140CB4		7-1.2
300J4	11		W645-75-20	300J50	11	7-2.2	300P4	11		W550-36-20	140CB2		7-2.2
300J4	12		W645-80-22	300J50	12	7-2.2	300P4	12		W550-37-20	141CB1		7-2.2
300J4	13		W645-93-20A	300J55	15	10-2.1	300P4	13		W550-40-20A	171CB2	A2	10-2.1
300J4	14		W645-94-20B	300J55	16	10-2.1	300P4	14		W550-41-20B	171CB2	B2	10-2.1
300J4	15		W645-95-20C	300J55	17	10-2.1	300P4	15		W550-42-20C	171CB2	C2	10-2.1
300J4	16		W645-96-20A	300J55	18	10-2.1	300P4	16		W550-43-20A	171CB1	A2	10-2.1
300J4	17		W645-97-20B	300J55	19	10-2.1	300P4	17		W550-44-20B	171CB1	62	10-2.1
300J4	18		W645-98-20C	300J55	20	10-2.1	300P4	18		W550-45-20C	171CB1	C2	10-2.1
300J4	19		W645-112-20A	300J55	25	10-2.1	300P4	19		W550-50-20A	174CB1	A2	10-2.1
300J4	20		W645-113-20B	300J55	26	10-2.1	300P4	20		W550-51-20B	174CB1	B2	10-2.1
300J4	21		W645-114-20C	300J55	27	10-2.1	300P4	21		W550-52-20C	174CB1	C2	10-2.1
300J4	22		W645-115-20A	300J55	28	10-2.1	300P4	22		W550-53-20A	174CB2	A2	10-2.1
300J4	23		W645-116-20B	300J55	29	10-2.1	300P4	23		W550-54-20B	174CB2	B2	10-2.1
300J4	24		W645-117-20C	300J55	30	10-2.1	300P4	24		W550-55-20C	174CB2	C2	10-2.1
300J4	25		W645-118-20	300J48	15	12-2.2	300P4	25		W550-56-20	231CB2		12-2.2
300J4	26		W645-313-20	300J48	61	16-2.1	300P4	26		W550-249-20	147CB1		16-2.1
300J4	27		W645-173-22	TB15	2A	NOTE 1	300P4	27		W550-85-22	062CB2		NOTE 1
300J4	28		W645-255-20	TB52	4A	11-3.1.1	300P4	28		W550-167-20	031CB8		11-3.1.1
300J4	29		W645-179-22	TB11	1D	NOTE 1	300P4	29		W550-87-22	191CB2		NOTE 1
300J4	30		W645-180-22	TB11	1K	NOTE 1	300P4	30		W550-88-22	191CB1		NOTE 1



1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J4	31		W645-181-20	TB11	3B	NOTE 1	300P4	31		W550-90-22	192CB2		NOTE 1
300J4	32		W645-256-20	TB18	5	11-3.1.1	300P4	32		W550-111-22	031CB11		11-3.1.1
300J4	33		W645-257-20	300J50	35	11-3.1.1	300P4	33		W550-116-20	031CB5		11-3.1.1
300J4	34		W664-238-20	031P27	B	11-3.1.1	300P4	34		W550-113-22	031CB7		11-3.1.1
300J4	35		W664-198-20	031P22	B	11-3.1.1	300P4	35		W550-114-22	031CB7		11-3.1.1
300J4	36		W664-199-20	031P22	A	11-3.1.1	300P4	36		W550-112-22	031CB6		11-3.1.1
300J4	37		W664-46-20	031P8	E	11-3.1.1	300P4	37		W550-115-20	031CB2		11-3.1.1
300J4	38		W645-143-20	TB52	3G	11-3.1.1	300P4	38		W550-117-20	031CB5		11-3.1.1
300J4	39		W645-267-22	TB17	10D	8-9.1	300P4	39		W550-118-20	043CB1		8-9.1
300J4	40		W645-285-22	300J55	32	10-2.1	300P4	40		W550-124-22	174CB3		10-2.1
300J4	41		W645-286-22	300J55	31	10-2.1	300P4	41		W550-125-22	174CB4		10-2.1
300J4	42		W645-45-22	300J55	6	8-11.1	300P4	42		W550-14-22	057CB1		8-11.1
300J4	43		W645-321-22 (WITHOUT 74)	300J42	31	4-5.1	300P4	43		W550-181-22 (WITHOUT 74)	102CB1		4-5.1
300J4	48		W645-280-22	063P1	C	NOTE 1	300P4	48		W550-107-22	063CB1		NOTE 1
300J5	1		W639-5-22	300J18	1	8-1.1	300P5	1		W552-1-20	064CB1		8-1.1
300J5	2		W639-7-20	300J18	2	8-1.1	300P5	2		W552-2-20	065CB1		8-1.1
300J5	3		W639-263-20	300J18	3	9-3.1	300P5	3		W552-3-20	111CB1		9-3.1
300J5	4		W639-264-20	300J18	4	9-6.1	300P5	4		W552-4-20	111CB3		9-6.1
300J5	5		W639-265-20	300J18	5	9-6.1	300P5	5		W552-5-20	111CB2		9-6.1
300J5	6		W639-16-20	300J18	6	12-4.1	300P5	6		W552-6-20	133CB1		12-4.1
300J5	7		W639-20-20	300J18	7	7-1.2	300P5	7		W552-8-20	033CB1		7-1.2
300J5	8		W639-66-22 (WITHOUT 74)	300J18	8	8-5.1	300P5	8		W552-17-20 (WITHOUT 74)	103CB4		8-5.1
300J5	9		W639-76-22	300J18	9	4-2.2	300P5	9		W552-18-22	081CB2		4-2.2
300J5	10		W639-81-20	SM0003		13-1.2	300P5	10		W552-19-20	082CB2		13-1.2
300J5	11		W639-82-20	SM0004		13-1.2	300P5	11		W552-23-20	082K1	X1	13-1.2
300J5	12		W639-109-20	300J18	11	9-4.2	300P5	12		W552-25-20	112CB1		9-4.2
300J5	13		W639-115-20	300J18	12	9-9.1	300P5	13		W552-26-20	123CB1		9-9.1
300J5	14		W639-137-22	300J18	13	12-1.1	300P5	14		W552-28-22	083CB1		12-1.1
300J5	15		W639-138-22	300J18	14	12-1.1	300P5	15		W552-29-22	083CB3		12-1.1
300J5	16		W639-181-20	300J18	15	10-2.1	300P5	16		W552-48-20	171CB7		10-2.1
300J5	17		W639-182-20	300J18	16	10-2.1	300P5	17		W552-49-20	171CB8		10-2.1
300J5	18		W639-193-20	300J18	18	10-2.1	300P5	18		W552-51-20	174CB7		10-2.1
300J5	19		W639-194-20	300J18	17	10-2.1	300P5	19		W552-52-20	174CB8		10-2.1
300J5	20		W639-208-22	300J18	19	9-16.1	300P5	20		W552-61-20	234CB1		9-16.1
300J5	21		W639-207-22	300J18	20	9-16.1	300P5	21		W552-62-20	234CB2		9-16.1
300J5	22		W639-227-20	300J18	21	16-1.2	300P5	22		W552-63-20	134CB1		16-1.2
300J5	23		W639-228-22	300J18	22	9-9.2	300P5	23		W552-65-22	241P4	A	9-2.2
300J5	24		W639-244-22	300J18	23	9-2.2	300P5	24		W552-106-22	SM0002		9-2.2
300J5	25		W639-245-22	300J18	24	9-2.2	300P5	25		W552-84-22	241P5	L	9-2.2
300J5	26		W639-246-22	300J18	25	9-2.2	300P5	26		W552-86-22	241K4	A2	9-2.2
300J5	27		W639-280-20 (WITHOUT 74)	300J18	26	4-4.2	300P5	27		W552-126-20 (WITHOUT 74)	101CB3		4-4.2
300J5	28		W639-288-22	300J18	27	7-2.2	300P5	28		W552-109-22	135CB2		7-2.2
300J5	29		W639-305-22	300J18	28	9-8.1	300P5	29		W552-142-22	121CB1		9-8.1
300J5	30		W639-309-22	300J18	29	9-13.1	300P5	30		W552-138-22	127CB1		9-13.1
300J5	31		W639-163-22	300J18	30	9-14.1	300P5	31		W552-139-22	126CB1		9-14.1
300J5	32		W639-281-20 (WITHOUT 74)	101XK2	A2	4-4.2	300P5	32		W552-127-20 (WITHOUT 74)	101CB4		4-4.2
300J5	33		W639-433-22	300J18	31	9-13.10	300P5	33		W552-274-22	127CB2		9-13.10

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J5	34		W639-438-22	300J18	34	9-13.10	300P5	34		W552-276-22	127CB1		9-13.10
300J6	1		W639-43-22 (WITHOUT 74)	300J11	1	8-6.1	300P6	1		W552-10-22 (WITHOUT 74)	051CB4		8-6.1
00J6	1		W592-2064-20 RED (WITH 74)	300J43	13	4-12.1	300P6	1		W592-1833-20 RED (WITH 74)	101CB3	2	4-12.1
300J6	2		W639-44-22 (WITHOUT 74)	300J11	2	8-6.1	300P6	2		W552-11-22 (WITHOUT 74)	051CB2		8-6.1
300J6	2		W592-2003-22 (WITH 74)	300J17	4	8-6.1	300P6	2		W592-2002-22 (WITH 74)	051CB4	2	8-6.1
300J6	3		W639-50-22 (WITHOUT 74)	300J11	3	8-4.1	300P6	3		W552-12-22 (WITHOUT 74)	052CB1		8-4.1
300J6	3		W592-2008-22 (WITH 74)	300J43	53	8-6.1	300P6	3		W592-2001-22 (WITH 74)	051CB2	2	8-6.1
300J6	4		W639-53-22 (WITHOUT 74)	300J11	4	8-3.1	300P6	4		W552-14-22 (WITHOUT 74)	0530B2		8-3.1
300J6	4		W592-2010-20 (WITH 74)	300J17	5	8-4.1	300P6	4		W592-2009-20 (WITH 74)	052CB1	2	8-4.1
300J6	5		W639-57-22	300J11	5	8-15.1	300P6	5		W552-266-22	300P7	42	8-15.1
300J6	6		W639-60-22	300J11	6	8-5.1	300P6	6		W552-16-20	101CB3		8-5.1
300J6	7		W639-110-20	TB9	8	9-4.2	300P6	7		W552-24-20	112CB1		9-4.2
300J6	8		W639-184-20	300J11	7	10-1.2	300P6	8		W552-50-20	172CB2		10-1.2
300J6	9		W639-204-20	300J11	8	12-3.2	300P6	9		W552-60-20	233CB1		12-3.2
300J6	10		W639-232-22	300J11	9	9-2.2	300P6	10		W552-64-22	241P4	Y	9-2.2
300J6	11		W639-258-22	300J11	10	8-13.1	300P6	11		W552-107-22	0610B1		8-13.1
300J6	12		W639-437-22	300J11	11	9-21.1	300P6	12		W552-275-22	044CB2		9-21.1
300J6	13		W639-261-22	300J11	12	11-3.1.1	300P6	13		W552-111-22	062CB1		11-3.1.1
300J6	14	WA	W639-266-22-RED	300J11	13	8-1.2	300P6	14		W552-114-22	185CB1		8-1.2
300J6	15		W639-269-22	300J11	15	NOTE 1	300P6	15		W552-115-22	195CB1		NOTE 1
300J6	16		W592-2065-20 BLU (WITH 74)	300J43	14	4-12.1	300P6	16		W592-1834-20NBLU (WITH 74)	GDO46		4-12.1
300J6	17		W639-356-22	300J11	29	NOTE 1	300P6	17		W552-241-22	182CB2		NOTE 1
300J6	17		W592-2064/5 SHLD (WITH 74)	300CJ43		4-12.1	300P6	17		W592-1833/4-SHLD (WITH 74)			4-12.1
300J6	18		W639-302-22-RED	300J11	18	NOTE 1	300P6	18		W552-135-22	187CB2		NOTE 1
300J6	19		W639-308-22	300J11	20	8-1.2	300P6	19		W552-162-22	196CB1		8-1.2
300J6	20		W639-315-22	300J11	21	9-1.2	300P6	20		W552-153-22	161K6	A3	9-1.2
300J6	21		W639-316-22 (WITHOUT 74)	TB18	6	4-6.1	300P6	21		W552-163-22 (WITHOUT 74)	103CB5		4-6.1
300J6	21		W592-2043-20 (WITH 74)	SPLICE		4-12.1	300P6	21		W592-1935-20 (WITH 74)	102CB2	2	4-12.1
300J6	22		W639-317-22 (WITHOUT 74)	300J11	22	4-6.1	300P6	22		W552-164-22 (WITHOUT 74)	103CB4		4-6.1
300J6	22		W592-2044-20 (WITH 74)	300P84	A	4-12.1	300P6	22		W592-2042-20 (WITH 74)	103CB5	2	4-12.1
300J6	23		W639-343-22 (WITHOUT 74)	300J11	23	4-6.1	300P6	23		W552-167-22 (WITHOUT 74)	103CB6		4-6.1
300J6	23		W592-2015-22 (WITH 74)	300J17	14	8-3.1	300P6	23		W592-1885-22 (WITH 74)	053CB2	2	8-3.1
300J6	24		W639-168-22	300J11	25	8-16.1	300P6	24		W552-237-22	175CB2		8-16.1
300J6	25	WA	W639-319-22-RED	300J11	26	NOTE 1	300P6	25		W552-236-22	066CB1		NOTE 1
300J6	26		W639-320-22	300J11	27	NOTE 1	300P6	26		W552-238-22	197CB2		NOTE 1
300J6	27		W639-333-22-RED	300J11	28	NOTE 1	300P6	27		W552-227-22	066CB3		NOTE 1
300J6	28		W639-260-22-RED	300J11	24	NOTE 1	300P6	28		W552-228-22	066CB5		NOTE 1
300J6	29		W639-409-20	SM0007		NOTE 1	300P6	29		W552-246-22	182CB4		NOTE 1
300J6	31		W639-413-22	300J11	32	NOTE 1	300P6	31		W552-248-22	182CB5		NOTE 1
300J7		FA	SHLD GRD G20	GD306		NOTE 1	300P7	1		W552-100-22	241P4	R	9-2.2
300J7	1		W645-160-22	300J3	12	9-2.2	300P7	2		W552-101-22	241P4	J	9-2.2
300J7	2		W645-161-22	300J3	11	9-2.2	300P7	3		W552-102-22	SM0001		9-2.2
300J7	3		W645-162-22	300J3	20	9-2.2	300P7	4		W552-108-22	300P8	40	9-2.2
300J7	4		W645-164-22	300J3	13	9-2.2	300P7	5		W552-110-22	062CB3		NOTE 1
300J7	5		W645-174-22	TB15	1A	NOTE 1	300P7	6		W552-112-22	184CB1		NOTE 1
300J7	6		W645-175-22	TB11	2D	NOTE 1	300P7	7		W552-113-22	184CB3		NOTE 1
300J7	7		W645-176-22	TB11	2A	NOTE 1							

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J7	8		W645-184-22	300J3	21	9-2.2	300P7	8		W552-116-22	241P5	F	9-2.2
300J7	9		W645-185-22	300J48	24	9-2.2	300P7	9		W552-117-22	241P5	C	9-2.2
300J7	10		W645-186-22	300J3	16	9-2.2	300P7	10		W552-118-22	241P4	U	9-2.2
300J7	11		W645-187-22	300J3	19	9-2.2	300P7	11		W552-119-22	241K4	B3	9-2.2
300J7	12		W645-188-22	300J3	18	9-2.2	300P7	12		W552-120-22	241K4	B1	9-2.2
300J7	13		W645-189-22	300J3	15	9-2.2	300P7	13		W552-121-22	241K4	B1	9-2.2
300J7	14		W645-190-22	300J3	14	9-2.2	300P7	14		W552-122-22	241K4	B2	9-2.2
300J7	15		W645-197-20	300J48	3	8-12.1	300P7	15		W552-124-20	036CB1		8-12.1
300J7	16		W645-198-20A	300J48	44	7-1.2	300P7	16		W552-36-20A	140CB5	A2	7-1.2
300J7	17		W645-199-20B	300J48	45	7-1.2	300P7	17		W552-37-20B	140CB5	B2	7-1.2
300J7	18		W645-200-20C	300J48	46	7-1.2	300P7	18		W552-38-20C	140CB5	C2	7-1.2
300J7	19		W645-201-20	300J48	47	7-1.2	300P7	19		W552-39-20	140CB6		7-1.2
300J7	20		W645-140-20	TB17	3G	11-3.1.1	300P7	20		W552-130-20	031CB1		11-3.1.1
300J7	21		W645-141-20	TB17	3K	11-3.1.1	300P7	21		W552-131-20	031CB10		11-3.1.1
300J7	23		W645-273-22	TB11	5A	NOTE 1	300P7	23		W552-129-22	062CB1		NOTE 1
300J7	25		W645-276-22	300J48	25	NOTE 1	300P7	25		W552-137-22	187CB2		NOTE 1
300J7	26		W645-312-20	300J3	28	9-1.2	300P7	26		W552-151-20	161CB7		9-1.2
300J7	27		W645-291-20	300J3	29	9-1.2	300P7	27		W552-152-20	161K6	A1	9-1.2
300J7	28		W645-288-20	300J3	26	9-1.2	300P7	28		W552-149-20	161K6	B3	9-1.2
300J17	29		W645-289-20	300J3	27	9-1.2	300P7	29		W552-150-20	161K6	B1	9-1.2
300J7	30		W645-310-22	197P2	W	NOTE 1	300P7	30		W552-240-22	197CB2		NOTE 1
300J7	31		W645-388-20	182P20	D	NOTE 1	300P7	31		W552-249-22	182CB3		NOTE 1
300J7	32		W645-380-20A	084XK1	A2	9-19.1	300P7	32		W552-242-20A	084CB1	A2	9-19.1
300J7	33		W645-381-20B	084XK1	B2	9-19.1	300P7	33		W552-243-20B	084CB1	B2	9-19.1
300J7	34		W645-382-20C	084XK1	C2	9-19.1	300P7	34		W552-244-20C	084CB1	C2	9-19.1
300J7	35		W645-383-20	084XK1	X1	9-19.1	300P7	35		W552-245-20	084CB2		9-19.1
300J7	36		W645-397-22	202P1	J	NOTE 1	300P7	36		W552-251-22	202CB2		NOTE 1
300J7	37		W645-394-22A-RED	202P1	A	NOTE 1	300P7	37		W552-252-22A	202CB1	A2	NOTE 1
300J7	38		W645-395-22B-BLU	202P1	B	NOTE 1	300P7	38		W552-253-22B	202CB1	B2	NOTE 1
300J7	39		W645-396-22C-YEL	202P1	C	NOTE 1	300P7	39		W552-254-22C	202CB1	C2	NOTE 1
300J7	40		W645-82-20	300J3	34	9-2.2	300P7	40		W552-235-20	242T2	HV	9-2.2
300J7	41		W645-398-22	300J3	35	8-15.1	300P7	41		W552-15-22	054CB2		8-15.1
300J7	42		W645-399-22	300J3	36	8-15.1	300P7	42		W552-266-22	300P6	5	8-15.1
300J8	1		W639-17-20	300J47	3	5-2.1	300P8	1		W552-7-20	138CB1		5-2.1
300J8	2		W639-25-22	SM0001		8-7.1	300P8	2		W552-9-22	041CB1		8-7.1
300J8	3		W639-54-22 (WITHOUT 74)	300J43	15	8-3.1	300P8	3		W552-13-22 (WITHOUT 74)	053CB2		8-3.1
300J8	4		W639-311-22	300J56	31	10-2.1	300P8	4		W552-141-22	174CB8		10-2.1
300J8	5		W639-310-22	300J56	30	10-2.1	300P8	5		W552-140-22	174CB7		10-2.1
300J8	8		W639-171-22	300J45	28	8-8.1	300P8	8		W552-40-20	142CB1		8-8.1
300J8	9		W639-172-22	300J45	29	8-14.1	300P8	9		W552-41-20	143CB1		8-14.1
300J8	10		W639-173-20A	300J56	12	10-2.1	300P8	10		W552-42-20A	171CB3	A2	10-2.1
300J8	11		W639-174-20B	300J56	13	10-2.1	300P8	11		W552-43-20B	171CB3	B2	10-2.1
300J8	12		W639-175-20C	300J56	14	10-2.1	300P8	12		W552-44-20C	171CB3	C2	10-2.1
300J8	13		W639-176-20A	300J56	15	10-2.1	300P8	13		W552-45-20A	171CB4	A2	10-2.1
300J8	14		W639-177-20B	300J56	16	10-2.1	300P8	14		W552-46-20B	171CB4	B2	10-2.1
300J8	15		W639-178-20C	300J56	17	10-2.1	300P8	15		W552-47-20C	171CB4	C2	10-2.1
300J8	16		W639-195-20A	300J56	24	10-2.1	300P8	16		W552-53-20A	174CB5	A2	10-2.1

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J8	17		W639-196-20B	300J56	25	10-2.1	300P8	17		W552-54-20B	174CB5	B2	10-2.1
300J8	18		W639-197-20C	300J56	26	10-2.1	300P8	18		W552-55-20C	174CB5	C2	10-2.1
300J8	19		W639-198-20A	300J56	27	10-2.1	300P8	19		W552-56-20A	174CB6	A2	10-2.1
300J8	20		W639-199-20B	300J56	28	10-2.1	300P8	20		W552-57-20B	174CB6	B2	10-2.1
300J8	21		W639-200-20C	300J56	29	10-2.1	300P8	21		W552-58-20C	174CB6	C2	10-2.1
300J8	22		W639-201-20	300J45	35	12-2.2	300P8	22		W552-59-20	231CB1		12-2.2
300J8	23		W639-233-22	300J47	30	9-2.2	300P8	23		W552-81-22	241P4	X	9-2.2
300J8	24		W639-234-22A	300J47	31	9-2.2	300P8	24		W552-66-22A	241P4	C	9-2.2
300J8	25		W639-235-22B	300J47	32	9-2.2	300P8	25		W552-67-22B	241P4	D	9-2.2
300J8	26		W639-236-22C	300J47	33	9-2.2	300P8	26		W552-68-22C	241P4	Z	9-2.2
300J8	27		W639-237-22	300J47	34	9-2.2	300P8	27		W552-69-22	241P7	A	9-2.2
300J8	28		W639-238-22	300J47	35	9-2.2	300P8	28		W552-70-22	241P7	B	9-2.2
300J8	29		W639-239-22	300J47	36	9-2.2	300P8	29		W552-71-22	241P7	C	9-2.2
300J8	30		W639-240-22	300J47	37	9-2.2	300P8	30		W552-72-22	241P7	D	9-2.2
300J8	31		W639-241-22	300J47	38	9-2.2	300P8	31		W552-73-22	241P7	E	9-2.2
300J8	32		W639-242-22	300J47	39	9-2.2	300P8	32		W552-74-22	241P7	F	9-2.2
300J8	33		W639-248-22A	300J47	42	9-2.2	300P8	33		W552-87-22A	241K3	A1	9-2.2
300J8	34		W639-249-22B	300J47	43	9-2.2	300P8	34		W552-88-22B	241K3	B1	9-2.2
300J8	35		W639-250-22C	300J47	44	9-2.2	300P8	35		W552-89-22C	241K3	C1	9-2.2
300J8	36		W639-251-22	300J47	45	9-2.2	300P8	36		W552-90-22	241T3	X1	9-2.2
300J8	37		W639-252-22	300J47	46	9-2.2	300P8	37		W552-91-22	241T3	X2	9-2.2
300J8	38		W639-253-22	300J47	47	9-2.2	300P8	38		W552-92-22	241T4	X1	9-2.2
300J8	39		W639-254-22	300J47	48	9-2.2	300P8	39		W552-93-22	241T5	X1	9-2.2
300J8	40		W639-259-22	300J47	49	9-2.2	300P8	40		W552-108-22	300P7	4	9-2.2
300J8	41		W639-268-20	300J45	46	11-3.1.1	300P8	41		W552-132-20	031CB9		11-3.1.1
300J8	42		W639-144-20	TB17	1 C	11-3.1.1	300P8	42		W552-133-20	031CB9		11-3.1.1
300J8	43		W639-303-22	300J45	61	NOTE 1	300P8	43		W552-136-22	187CB2		NOTE 1
300J8	44		W639-334-22 (WITHOUT 74)	300J43	36	4-5.1	300P8	44		W552-166-22 (WITHOUT 74)	102CB2		4-5.1
300J8	46		W639-359-20A	139P4	A	2-2.2	300P8	46		W552-229-22	139CB1		2-2.2
300J8	47		W639-360-20B	139P4	B	2-2.2	300P8	47		W552-230-22	139CB2		2-2.2
300J8	48		W639-361-20C	139P4	C	2-2.2	300P8	48		W552-231-22	139CB3		2-2.2
300J8	49		W639-410-22	300J47	60	NOTE 1	300P8	49		W552-247-22	182CB4		NOTE 1
300J9	FA		SHLD GRDA22	300J9	3	NOTE 1	300P9	FG		SHLD GRD BH22	300P9	3	NOTE 1
300J9	FB		SHLD GRD C22	300J9	8	NOTE 1	300P9	FA		SHLD GRD D22	300P9	8	NOTE 1
300J9	FC		SHLD GRD E22	300J9	14	NOTE 1	300P9	FB		SHLD GRD BK22	300P9	14	NOTE 1
300J9	FD		SHLD GRD G22	300J9	19	NOTE 1	300P9	FC		SHLD GRD BM22	300P9	19	NOTE 1
300J9	FE		SHLD GRD J22	300J9	24	NOTE 1	300P9	FD		SHLD GRD BP22	300P9	24	NOTE 1
300J9	FF		SHLD GRD L22	300J9	38	NOTE 1	300P9	FE		SHLD GRD BR22	300P9	38	NOTE 1
300J9	FG		SHLD GRD AG22	300J9	26	NOTE 1	300P9	FF		SHLD GRD CT22	300P9	26	NOTE 1
300J9	1		W690-90-22	TB13	5	NOTE 1	300P9	1		W557-307-22	184P5	K-	NOTE 1
300J9	2		W690-91-22	TB13	9	NOTE 1	300P9	2		W557-308-22	184P5	Q-	NOTE 1
300J9	3		SHLD GRD A22	300J9		NOTE 1	300P9	3		SHLD GRD BH22	300P9		NOTE 1
300J9	4		W690-92-22	184P3	24	NOTE 1	300P9	4		W557-309-22	184P5	I-	NOTE 1
300J9	5		W690-93-22	184P3	25	NOTE 1	300P9	5		W557-310-22	184P5	V	NOTE 1
300J9	6		W690-94-22	184P3	30	NOTE 1	300P9	6		W557-311-22	184P5	Z	NOTE 1
300J9	7		W690-95-22	184P3	31	NOTE 1	300P9	7		W557-312-22	184P5	P-	NOTE 1
300J9	8		SHLD GRD C22	300J9		NOTE 1	300P9	8		SHLD GRD D22	300P9		NOTE 1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J9	9		W690-96-22	184P3	32	NOTE 1	300P9	9		W557-313-22	184P5	A	NOTE 1
300J9	10		W690-97-22	184P3	33	NOTE 1	300P9	10		W557-314-22	184P5	B	NOTE 1
300J9	11		W690-98-22	184P3	34	NOTE 1	300P9	11		W557-315-22	184P5	C	NOTE 1
300J9	12		W690-99-22	184P3	35	NOTE 1	300P9	12		W557-316-22	184P5	D	NOTE 1
300J9	13		W690-100-22	184P3	36	NOTE 1	300P9	13		W557-317-22	184P5	E	NOTE 1
300J9	14		SHLD GRD E22	300J9		NOTE 1	300P9	14		SHLD GRD BK22	300P9		NOTE 1
300J9	15		W690-101-22	184P3	38	NOTE 1	300P9	15		W557-318-22	184P5	F	NOTE 1
300J9	16		W690-102-22	184P3	39	NOTE 1	300P9	16		W557-319-22	184P5	G	NOTE 1
300J9	17		W690-103-22	184P3	40	NOTE 1	300P9	17		W557-320-22	184P5	H	NOTE 1
300J9	18		W690-104-22	184P3	41	NOTE 1	300P9	18		W557-321-22	184P5	J	NOTE 1
300J9	19		SHLD GND G22	300J9		NOTE 1	300P9	19		SHLD GRD BM22	300P9		NOTE 1
300J9	20		W690-105-22	184P3	45	NOTE 1	300P9	20		W557-322-22	184P5	K	NOTE 1
300J9	21		W690-106-22	184P3	46	NOTE 1	300P9	21		W557-323-22	184P5	L	NOTE 1
300J9	22		W690-107-22	184P3	47	NOTE 1	300P9	22		W557-324-22	184P5	M	NOTE 1
300J9	23		W690-108-22	184P3	48	NOTE 1	300P9	23		W557-325-22	184P5	N	NOTE 1
300J9	24		SHLD GRD J22	300J9		NOTE 1	300P9	24		SHLD GRD BP22	300P9		NOTE 1
300J9	25		W690-144-22	188P2	H-	NOTE 1	300P9	25		W557-331-22	1840P5	M-	NOTE 1
300J9	26		SHLD GRD AG22	300J9		NOTE 1	300P9	26		SHLD GRD CT22	300P9		NOTE 1
300J9	33		W690-109-22	184P3	49	NOTE 1	300P9	33		W557-326-22	184P5	P	NOTE 1
300J9	34		W690-110-22	184P3	50	NOTE 1	300P9	34		W557-327-22	184P5	R	NOTE 1
300J9	35		W690-111-22	184P3	51	NOTE 1	300P9	35		W557-328-22	184P5	S	NOTE 1
300J9	36		W690-112-22	184P3	52	NOTE 1	300P9	36		W557-329-22	184P5	T	NOTE 1
300J9	37		W690-113-22	184P3	59	NOTE 1	300P9	37		W557-330-22	184P5	U	NOTE 1
300J9	38		SHLD GRD L22	300J9		NOTE 1	300P9	38		SHLD GRD BR22	300P9		NOTE 1
300J9	42		W690-414-22	182P15	A	NOTE 1	300P9	42		W557-991-22	182S1	3	NOTE 1
300J10	FD		SHLD GRD BW22	300J10	53	NOTE 1	300P10	FB		SHLD GRD EG22	300P10	53	NOTE 1
300J10	FF		SHLD GRD BX22	300J10	9	NOTE 1	300P10	FC		SHLD GRD AH22	300P10	9	NOTE 1
300J10	FA		SHLD GRD CL22	300J10	1	NOTE 1	300P10	FE		SHLD GRD CY22	300P10	1	NOTE 1
300J10	FB		SHLD GRD CM22	300J10	7	NOTE 1	300P10	FF		SHLD GRD DA22	300P10	7	NOTE 1
300J10	FC		SHLD GRD CN22	300J10	52	NOTE 1	300P10	FG		SHLD GRD DB22	300P10	52	NOTE 1
300J10	FG		SHLD GRD CP22	300J10	45	NOTE 1	300P10	FA		SHLD GRD AF22	300P10	45	NOTE 1
300J10	FE		SHLD GRD CR22	300J10	20	NOTE 1	300P10	FD		SHLD GRD CA22	300P10	20	NOTE 1
300J10	1		SHLD GRD CL22	300J10		NOTE 1	300P10	1		SHLD GRD CY22	300P10		NOTE 1
300J10	2		W690-202-22-RED	192P10	9	NOTE 1	300P10	2		W557-447-22-RED	SM0037		NOTE 1
300J10	3		W690-203-22-BLU	192P10	32	NOTE 1	300P10	3		W557-448-22-BLU	SM0038		NOTE 1
300J10	4		W690-204-22-YEL	192P10	23	NOTE 1	300P10	4		W557-449-22-YEL	SM0039		NOTE 1
300J10	5		W690-205-22-RED	192P10	8	NOTE 1	300P10	5		W557-450-22-RED	SM0040		NOTE 1
300J10	6		W690-206-22-BLU	192P10	33	NOTE 1	300P10	6		W557-451-22-BLU	SM0041		NOTE 1
300J10	7		SHLD GRD CM22	300J10		NOTE 1	300P10	7		SHLD GRD DA22	300P10		NOTE 1
300J10	9		SHLD GRD BX22	300J10		NOTE 1	300P10	9		SHLD GRD AH22	300P10		NOTE 1
300J10	10		W690-164-22	185P8	28	NOTE 1	300P10	10		W557-364-22	185P1	51	NOTE 1
300J10	11		W690-165-22	185P8	17	NOTE 1	300P10	11		W557-365-22	185P1	52	NOTE 1
300J10	12		W690-166-22	185P8	9	NOTE 1	300P10	12		W557-366-22	185P1	53	NOTE 1
300J10	13		W690-167-22	185P8	14	NOTE 1	300P10	13		W557-367-22	185P1	54	NOTE 1
300J10	14		W690-168-22	185P8	33	NOTE 1	300P10	14		W557-368-22	185P1	55	NOTE 1
300J10	15		W690-169-22	185P8	37	NOTE 1	300P10	15		W557-369-22	185P1	56	NOTE 1
300J10	16		W690-170-22	185P8	19	NOTE 1	300P10	16		W557-370-22	185P1	57	NOTE 1

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J10	17		W690-171-22	185P8	31	NOTE 1	300P10	17		W557-371-22	185P1	40	NOTE 1
300J10	18		W690-172-22-RED	187P7	1	NOTE 1	300P10	18		W557-373-22-RED	185P1	21	NOTE 1
300J10	19		W690-173-22-BLU	187P7	2	NOTE 1	300P10	19		W557-374-22-BLU	185P1	23	NOTE 1
300J10	20		SHLD GRD CR22	300J10		NOTE 1	300P10	20		SHLD GRD CA22	300P10		NOTE 1
300J10	21		W690-174-22	185P8	30	NOTE 1	300P10	21		W557-381-22	185DS1	2	NOTE 1
300J10	22		W690-316-22	188P2	G	NOTE 1	300P10	22		W557-338-22	181P1	H-	NOTE 1
300J10	23		W690-1-22-RED	192P11	19	NOTE 1	300P10	23		W557-591-22-RED	SM0002		NOTE 1
300J10	24		W690-2-22-BLU	192P11	24	NOTE 1	300P10	24		W557-592-22-BLU	SM0003		NOTE 1
300J10	25		W690-3-22-RED	192P11	11	NOTE 1	300P10	25		W557-593-22-RED	SM0004		NOTE 1
300J10	26		W690-4-22-BLU	192P11	20	NOTE 1	300P10	26		W557-594-22-BLU	SM0005		NOTE 1
300J10	27		W690-5-22-RED	192P11	12	NOTE 1	300P10	27		W557-595-20-RED	SM0006		NOTE 1
300J10	28		W690-6-22-BLU	192P11	13	NOTE 1	300P10	28		W557-596-20-BLU	SM0007		NOTE 1
300J10	29		W690-7-22-YEL	192P11	25	NOTE 1	300P10	29		W557-597-20-YEL	SM0008		NOTE 1
300J10	30		W690-8-22-RED	192P10	37	NOTE 1	300P10	30		W557-605-22-RED	SM0009		NOTE 1
300J10	31		W690-9-22-BLU	192P10	29	NOTE 1	300P10	31		W557-606-22-BLU	SM0010		NOTE 1
300J10	32		W690-10-22-RED	192P10	12	NOTE 1	300P10	32		W557-607-22-RED	SM0011		NOTE 1
300J10	33		W690-11-22-BLU	192P10	30	NOTE 1	300P10	33		W557-608-22-BLU	SM0012		NOTE 1
300J10	34		W690-12-22-RED	192P10	31	NOTE 1	300P10	34		W557-609-22-RED	SM0013		NOTE 1
300J10	35		W690-13-22-BLU	192P10	14	NOTE 1	300P10	35		W557-610-22-BLU	SM0014		NOTE 1
300J10	36		W690-14-22-RED	182P20	U	NOTE 1	300P10	36		W557-617-22-RED	SM0015		NOTE 1
300J10	37		W690-15-22-BLU	182P20	T	NOTE 1	300P10	37		W557-618-22-BLU	SM0016		NOTE 1
300J10	38		W690-16-22-RED	182P20	B	NOTE 1	300P10	38		W557-619-22-RED	SM0017		NOTE 1
300J10	39		W690-17-22-BLU	182P20	V	NOTE 1	300P10	39		W557-620-22-BLU	SM0018		NOTE 1
300J10	40		W690-18-22-RED	182P20	A	NOTE 1	300P10	40		W557-621-22-RED	SM0019		NOTE 1
300J10	41		W690-19-22-BLU	182P20	P	NOTE 1	300P10	41		W557-622-22-BLU	SM0020		NOTE 1
300J10	42		W690-20-22-RED	SM0006		NOTE 1	300P10	42		W557-629-22-RED	SM0021		NOTE 1
300J10	43		W690-21-22-BLU	191P1	K	NOTE 1	300P10	43		W557-630-22-BLU	SM0022		NOTE 1
300J10	44		W690-22-22-YEL	191P1	R	NOTE 1	300P10	44		W557-631-22-YEL	SM0023		NOTE 1
300J10	45		SHLD GRD CP22	300J10		NOTE 1	300P10	45		SHLD GRD AF22	300P10		NOTE 1
300J10	47		W690-23-22	192P10	1	NOTE 1	300P10	47		W557-651-22	SM0024		NOTE 1
300J10	48		W690-24-22	192P10	20	NOTE 1	300P10	48		W557-652-22	SM0025		NOTE 1
300J10	49		W690-25-22	192P10	25	NOTE 1	300P10	49		W557-653-22	SM0026		NOTE 1
300J10	50		W690-207-22-RED	192P10	36	NOTE 1	300P10	50		W557-452-22-RED	SM0042		NOTE 1
300J10	51		W690-208-22-BLU	192P10	34	NOTE 1	300P10	51		W557-453-22-BLU	SM0043		NOTE 1
300J10	52		SHLD GRD CN22	300J10		NOTE 1	300P10	52		SHLD GRD DB22	300P10		NOTE 1
300J10	53		SHLD GRD BW22	300J10		NOTE 1	300P10	53		SHLD GRD EG22	300P10		NOTE 1
300J11	1		W639-43-22 (WITHOUT 74)	300J6	1	8-6.1	300P11	1		W557-43-22 (WITHOUT 74)	051P2	A	8-6.1
300J11	2		W639-44-22 (WITHOUT 74)	300J6	2	8-6.1	300P11	2		W557-68-22 (WITHOUT 74)	051P6	A	8-6.1
300J11	3		W639-50-22 (WITHOUT 74)	300J6	3	8-4.1	300P11	3		W557-71-22 (WITHOUT 74)	052P2	A	8-4.1
300J11	4		W639-53-22 (WITHOUT 74)	300J6	4	8-3.1	300P11	4		W557-77-22-RED (WITHOUT 74)	053P2	B	8-3.1
300J11	5		W639-57-22	300J6	5	8-15.1	300P11	5		W557-85-22	054P2	J	8-15.1
300J11	6		W639-60-22	300J6	6	8-5.1	300P11	6		W557-98-20	TB8	6A	8-5.1
300J11	7		W639-184-20	300J6	8	10-1.2	300P11	7		W557-169-20	233S2		10-1.2
300J11	8		W639-204-20	300J6	9	12-3.2	300P11	8		W557-180-20	233S3	2	12-3.1
300J11	9		W639-232-22	300J6	10	9-2.2	300P11	9		W557-222-22 (WITHOUT 74)	232P1	Z	9-2.2
300J11	9		W639-232-22	300J6	10	9-2.2	300P11	9		W557-222-22 (WITH 74)	232P2	Z	9-2.2
300J11	10		W639-258-22	300J6	11	8-13.1	300P11	10		W557-223-22	061P2	A	8-13.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J11	11		W639-437-22	300J6	12	9-22.1	300P11	11		W557-1116-22	044P2	1	9-22.1
300J11	12		W639-261-22	300J6	13	NOTE 1	300P11	12		W557-306-22	TB8	5J	NOTE 1
300J11	13		W639-266-22-RED	300J6	14	8-1.2	300P11	13		W557-377-22-RED	SP0122		8-1.2
300J11	14		W639-GD007A22N-BLU	GD007	A	8-1.2	300P11	14		W557-380-22-BLU	SP0123		8-1.2
300J11	15		W639-269-22	300J6	15	11-3.1	300P11	15		W557-454-22	TB6	1A	11-3.1
300J11	18		W639-302-22-RED	300J6	18	NOTE 1	300P11	18		W557-735-22-RED	TB4	6D	NOTE 1
300J11	19		W639-GD007B22N-BLU	GD007	B	NOTE 1	300P11	19		W557-736-22-BLU	TB4	5M	NOTE 1
300J11	20		W639-308-22	300J6	19	8-1.2	300P11	20		W557-788-22	TB1	5M	8-1.2
300J11	21		W639-315-22	300J6	20	9-1.2	300P11	21		W557-803-22 (WITHOUT 74)	232P1	E	9-1.2
300J11	21		W639-315-22	300J6	20	9-1.2	300P11	21		W557-803-22 (WITH 74)	232P2	c	9-1.1
300J11	22		W639-317-22 (WITHOUT 74)	300J6	22	4-6.1	300P11	22		W557-825-22 (WITHOUT 74)	103S2	2	4-6.1
300J11	23		W639-343-22 (WITHOUT 74)	300J6	23	4-6.1	300P11	23		W557-827-22 (WITHOUT 74)	103S4	5	4-6.1
300J11	24		W639-260-22-RED	300J6	28	NOTE 1	300P11	24		W557-266-22-RED	066P4	47	NOTE 1
300J11	25		W639-168-22	300J6	24	8-16.1	300P11	25		W557-576-22	175P1	9	8-16.1
300J11	26		W639-319-22-RED	300J6	25	NOTE 1	300P11	26		W557-412-22-RED	066P1	68	NOTE 1
300J11	27		W639-320-22	300J6	26	NOTE 1	300P11	27		W557-442-22	SP0215		NOTE 1
300J11	28		W639-333-22-RED	300J6	27	NOTE 1	300P11	28		W557-444-22-RED	066P1	65	NOTE 1
300J11	29		W639-356-22	300J6	17	NOTE 1	300P11	29		W557-541-22	182P4	D	NOTE 1
300J11	31		W639-432-22	SM0007		NOTE 1	300P11	31		W557-911-22	TB6	5C	NOTE 1
300J11	32		W639-413-22	300J6	31	NOTE 1	300P11	32		W557-900-22	182S1	2	NOTE 1
300J11	43		W639-GD007C22N-BLU	GD007	C	NOTE 1	300P11	43		W557-906-22-BLU	066P4	48	NOTE 1
300J11	44		W639-GD243A22N-BLU	GD243		NOTE 1	300P11	44		W557-904-22-BLU	066P1	69	NOTE 1
300J11	46		W639-GD108B22N-BLU	GD108		NOTE 1	300P11	46		W557-905-22-BLU	066P1	64	NOTE 1
300J12		FA	SHLD GRD AJ22	300J12	11	NOTE 1	300P12		FB	SHLD GRD H22	300P12	11	NOTE 1
300J12		FB	SHLD GRD AK22	300J12	15	NOTE 1	300P12		FC	SHLD GRD K22	300P12	15	NOTE 1
300J12		FC	SHLD GRD AM22	300J12	17	NOTE 1	300P12		FD	SHLD GRD M22	300P12	17	NOTE 1
300J12		FD	SHLD GRD AN22	300J12	18	NOTE 1	300P12		FA	SHLD GRD F22	300P12	18	NOTE 1
300J12		FE	SHLD GRD CG22	300J12	5	NOTE 1	300P12		FE	SHLD GRD BF22	300P12	5	NOTE 1
300J12		FF	SHLD GRD CY22	300J12	8	NOTE 1	300P12		FF	SHLD GRD DY22	300P12	8	NOTE 1
300J12		FG	SHLD GRD DN22	300J12	37	NOTE 1	300P12		FG	SHLD GRD DS22	300P12	37	NOTE 1
300J12		FJ	SHLD GRD DS22	300J12	12	NOTE 1	300P12		FH	SHLD GRD DV22	300P12	12	NOTE 1
300J12		FL	SHLD GRD DV22	300J12	16	NOTE 1	300P12		FJ	SHLD GRD EC22	300P12	16	NOTE 1
300J12		FK	SHLD GRD EP22	300J12	42	NOTE 1	300P12		FK	SHLD GRDEK22	300P12	42	NOTE 1
300J12	1		W690-292-20	TB17	8K	NOTE 1	300P12	1		W557-579-22	066P1	16	NOTE 1
300J12	2		W690-293-20-RED	TB11	6A	NOTE 1	300P12	2		W557-588-20-RED	SM0032		NOTE 1
300J12	3		W690-294-20-BLU	TB11	6G	NOTE 1	300P12	3		W557-589-20-BLU	SM0033		NOTE 1
300J12	4		W690-295-20-YEL	TB11	7A	NOTE 1	300P12	4		W557-590-20-YEL	SM0034		NOTE 1
300J12	5		SHLD GRD CG22	300J12		NOTE 1	300P12	5		SHLD GRD BF22	300P12		NOTE 1
300J12	6		W690-180-22-RED	187P7	6	NOTE 1	300P12	6		W557-334-22-RED	181P1	D-	NOTE 1
300J12	7		W690-181-22-BLU	187P7	5	NOTE 1	300P12	7		W557-335-22-BLU	181P1	E-	NOTE 1
300J12	8		SHLD GRD CY22	300J12		NOTE 1	300P12	8		SHLD GRD DY22	300P12		NOTE 1
300J12	9		W690-378-22	SM0004		NOTE 1	300P12	9		W557-884-22	182P4	H-	NOTE 1
300J12	10		W690-379-22	182P18	D	NOTE 1	300P12	10		W557-883-22	182P4	C-	NOTE 1
300J12	11		SHLD GRD AJ22	300J12		NOTE 1	300P12	11		SHLD GRD H22	300P12		NOTE 1
300J12	12		SHLD GRD DS22	300J12		NOTE 1	300P12	12		SHLD GRD DV22	300P12		NOTE 1
300J12	13		W690-380-22	182P18	G	NOTE 1	300P12	13		W557-887-22	TB7	4F	NOTE 1
300J12	14		W690-383-22	182P17	H	NOTE 1	300P12	14		W557-888-22	TB7	2C	NOTE 1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J12	15		SHLD GRD AK22	300J12		NOTE 1	300P12	15		SHLD GRD K22	300P12		NOTE 1
300J12	16		SHLD GRD DV22	300J12		NOTE 1	300P12	16		SHLD GRD EC22	300P12		NOTE 1
300J12	17		SHLD GRD AM22	300J12		NOTE 1	300P12	17		SHLD GRD M22	300P12		NOTE 1
300J12	18		SHLD GRD AN22	300J12		NOTE 1	300P12	18		SHLD GRD F22	300P12		NOTE 1
300J12	19		W690-40-22-RED	062P6	13	NOTE 1	300P12	19		W557-280-22-RED	062P2	F	NOTE 1
300J12	20		W690-41-22-BLU	062P6	12	NOTE 1	300P12	20		W557-281-22-BLU	062P2	D	NOTE 1
300J12	21		W690-42-22-YEL	062P6	11	NOTE 1	300P12	21		W557-282-22-YEL	062P2	E	NOTE 1
300J12	22		W690-39-22	062P6	14	NOTE 1	300P12	22		W557-283-22	062P2	J	NOTE 1
300J12	23		W690-26-22-RED	062P6	8	NOTE 1	300P12	23		W557-284-22-RED	062P2	H	NOTE 1
300J12	24		W690-27-22-BLU	062P6	10	NOTE 1	300P12	24		W557-285-22-BLU	062P2	R	NOTE 1
300J12	25		W690-28-22	062P6	9	NOTE 1	300P12	25		W557-286-22-YEL	062P2	P	NOTE 1
300J12	26		W690-43-22	062P6	23	NOTE 1	300P12	26		W557-288-22	062S2	5	NOTE 1
300J12	27		W690-29-22	TB15	2C	NOTE 1	300P12	27		W557-292-22	TB8	5A	NOTE 1
300J12	28		W690-30-22	TB15	1C	NOTE 1	300P12	28		W557-293-22	TB8	4K	NOTE 1
300J12	29		W690-38-22	062P5	23	NOTE 1	300P12	29		W557-298-22	062S1	5	NOTE 1
300J12	30		W690-31-22-RED	062P5	8	NOTE 1	300P12	30		W557-299-22-RED	062P1	H	NOTE 1
300J12	31		W690-32-22-BLU	062P5	10	NOTE 1	300P12	31		W557-300-22-BLU	062P1	R	NOTE 1
300J12	32		W690-33-22-YEL	062P5	9	NOTE 1	300P12	32		W557-301-22-YEL	062P1	P	NOTE 1
300J12	33		W690-34-22	062P5	14	NOTE 1	300P12	33		W557-302-22	062P1	J	NOTE 1
300J12	34		W690-35-22-RED	062P5	11	NOTE 1	300P12	34		W557-303-22-RED	062P1	E	NOTE 1
300J12	35		W690-36-22-BLU	062P5	12	NOTE 1	300P12	35		W557-304-22-BLU	062P1	D	NOTE 1
300J12	36		W690-37-22-YEL	062P5	13	NOTE 1	300P12	36		W557-305-22-YEL	062P1	F	NOTE 1
300J12	37		SHLD GRD DN22	300J12		NOTE 1	300P12	37		SHLD GRD DS22	300P12		NOTE 1
300J12	38		W690-372-22-RED	188P1	G	NOTE 1	300P12	38		W557-535-22-RED	182P1	K	NOTE 1
300J12	39		W690-373-22-BLU	188P1	Z	NOTE 1	300P12	39		W557-536-22-BLU	182P1	L	NOTE 1
300J12	40		W690-374-22	188P2	E	NOTE 1	300P12	40		W557-537-22	182P1	H-	NOTE 1
300J12	41		W690-346-22	TB52	10E	NOTE 1	300P12	41		W557-958-22	TB7	2D	NOTE 1
300J12	42		SHLD GRD EP22	300J12		NOTE 1	300P12	42		SHLD GRD EK22	300P12		NOTE 1
300J12	43		W690-393-22	182P16	X	NOTE 1	300P12	43		W557-914-22	182P4	F	NOTE 1
300J12	44		W690-394-22	182P16	Z	NOTE 1	300P12	44		W557-915-22	182P4	H	NOTE 1
300J12	45		W690-395-20	TB17	8G	NOTE 1	300P12	45		W557-580-22	066P2	16	NOTE 1
300J13		FA	SHLD GRD CB22	300J13	5	NOTE 1	300P13		FA	SHLD GRD CE22	300P13	5	NOTE 1
300J13		FB	SHLD GRD CC22	300J13	6	NOTE 1	300P13		FB	SHLD GRD CJ22	300P13	6	NOTE 1
300J13		FC	SHLD GRD CD22	300J13	7	NOTE 1	300P13		FC	SHLD GRD OK22	300P13	7	NOTE 1
300J13		FE	SHLD GRD DB22	300J13	21	NOTE 1	300P13		FD	SHLD GRD EA22	300P13	21	NOTE 1
300J13		FF	SHLD GRD DF22	300J13	39	NOTE 1	300P13		FE	SHLD GRD CG22	300P13	39	NOTE 1
300J13		FG	SHLD GRD DJ22	300J13	36	NOTE 1	300P13		FF	SHLD GRD CH22	300P13	36	NOTE 1
300J13		FH	SHLD GRD DL22	300J13	27	NOTE 1	300P13		FG	SHLD GRD CS22	300P13	27	NOTE 1
300J13		FD	SHLD GRD DQ22	300J13	47	NOTE 1	300P13		FH	SHLD GRD DX22	300P13	47	NOTE 1
300J13		FJ	SHLD GRD DR22	300J13	44	NOTE 1	300P13		FJ	SHLD GRD DW22	300P13	44	NOTE 1
300J13		FK	SHLD GRD EA22	300J13	11	NOTE 1	300P13		FK	SHLD GRD ED22	300P13	11	NOTE 1
300J13	1		W690-176-22	192P10	21	NOTE 1	300P13	1		W557-382-22	192P1	8	NOTE 1
300J13	4		W690-240-22	201P12	1	NOTE 1	300P13	4		W557-504-22	201P1	1	NOTE 1
300J13	5		SHLD GRD CB22	300J13		NOTE 1	300P13	5		SHLD GRD CE22	300P13		NOTE 1
300J13	6		SHLD GRD CC22	300J13		NOTE 1	300P13	6		SHLD GRD CJ22	300P13		NOTE 1
300J13	7		SHLD GRD CD22	300J13		NOTE 1	300P13	7		SHLD GRD CK22	300P13		NOTE 1
300J13	8		W690-182-22-RED	188P1	U	NOTE 1	300P13	8		W557-332-22-RED	181P1	K	NOTE 1



1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J13	9		W690-183-22-BLU	188P1	A	NOTE 1	300P13	9		W557-333-22-BLU	181P1	L	NOTE 1
300J13	11		SHLD GRD EA22	300J13		NOTE 1	300P13	11		SHLD GRD ED22	300P13		NOTE 1
300J13	12		W690-241-22	201P12	2	NOTE 1	300P13	12		W557-503-22	201P1	2	NOTE 1
300J13	13		W690-370-22-RED	187P7	24	NOTE 1	300P13	13		W557-498-22-RED	201P2	14	NOTE 1
300J13	14		W690-371-22-BLU	187P7	23	NOTE 1	300P13	14		W557-499-22-BLU	201P2	11	NOTE 1
300J13	15		W690-189-22	192P11	1	NOTE 1	300P13	15		W557-392-22	192P1	25	NOTE 1
300J13	16		W690-190-22	192P11	8	NOTE 1	300P13	16		W557-393-22	192P1	26	NOTE 1
300J13	17		W690-191-22	192P11	3	NOTE 1	300P13	17		W557-394-22	192P1	30	NOTE 1
300J13	18		W690-192-22	192P11	4	NOTE 1	300P13	18		W557-395-22	192P1	31	NOTE 1
300J13	19		W690-193-22	192P11	5	NOTE 1	300P13	19		W557-396-22	192P1	32	NOTE 1
300J13	20		W690-194-22	192P11	6	NOTE 1	300P13	20		W557-397-22	192P1	33	NOTE 1
300J13	21		SHLD GRD DB22	300J13		NOTE 1	300P13	21		SHLD GRD EA22	300P13		NOTE 1
300J13	24		W690-381-22	182P18	V	NOTE 1	300P13	24		W557-885-22	182P4	K	NOTE 1
300J13	25		W690-382-22	182P18	P	NOTE 1	300P13	25		W557-886-22	182P4	J	NOTE 1
300J13	26		W690-392-22	182P16	N	NOTE 1	300P13	26		W557-896-22	182P4	U	NOTE 1
300J13	27		SHLD GRD DL22	300J13		NOTE 1	300P13	27		SHLD GRD CS22	300P13		NOTE 1
300J13	28		W690-243-22	201P12	4	NOTE 1	300P13	28		W557-501-22	201P1	4	NOTE 1
300J13	29		W690-242-22	201P12	3	NOTE 1	300P13	29		W557-502-22	201P1	3	NOTE 1
300J13	30		W690-177-22	192P10	22	NOTE 1	300P13	30		W557-383-22	192P1	16	NOTE 1
300J13	31		W690-178-22	192P10	5	NOTE 1	300P13	31		W557-384-22	192P1	12	NOTE 1
300J13	32		W690-366-22-RED	192P10	11	NOTE 1	300P13	32		W557-405-22-RED	192P1		NOTE 1
300J13	33		W690-367-22-BLU	192P10	15	NOTE 1	300P13	33		W557-406-22-BLU	192P1	3	NOTE 1
300J13	34		W690-368-22-RED	192P10	2	NOTE 1	300P13	34		W557-407-22-RED	192P1		NOTE 1
300J13	35		W690-369-22-BLU	192P10	4	NOTE 1	300P13	35		W557-408-22-BLU	192P1	19	NOTE 1
300J13	36		SHLD GRD DJ22	300J13		NOTE 1	300P13	36		SHLD GRD CH22	300P13		NOTE 1
300J13	37		W690-362-22-RED	187P7	15	NOTE 1	300P13	37		W557-860-22-RED	192P1		NOTE 1
300J13	38		W690-363-22-BLU	187P7	14	NOTE 1	300P13	38		W557-861-22-BLU	192P1	2	NOTE 1
300J13	39		SHLD GRD DF22	300J13		NOTE 1	300P13	39		SHLD GRD CG22	300P13		NOTE 1
300J13	43		W690-377-22	182P17	K	NOTE 1	300P13	43		W557-555-22	182P4	L	NOTE 1
300J13	44		SHLD GRD DR22	300J13		NOTE 1	300P13	44		SHLD GRD DW22	300P13		NOTE 1
300J13	45		W690-375-22-RED	187P7	9	NOTE 1	300P13	45		W557-538-22-RED	182P1	D-	NOTE 1
300J13	46		W690-376-22-BLU	187P7	8	NOTE 1	300P13	46		W557-539-22-BLU	182P1	E-	NOTE 1
300J13	47		SHLD GRD DQ22	300J13		NOTE 1	300P13	47		SHLD GRD DX22	300P13		NOTE 1
300J13	48		W690-247-22	201P12	15	NOTE 1	300P13	48		W557-497-22	201P2	5	NOTE 1
300J13	49		W690-244-22	201P12	12	NOTE 1	300P13	49		W557-494-22	201P2	2	NOTE 1
300J13	50		W690-245-22	201P12	13	NOTE 1	300P13	50		W557-495-22	201P2	3	NOTE 1
300J13	51		W690-246-22	201P12	14	NOTE 1	300P13	51		W557-496-22	201P2	4	NOTE 1
300J13	52		W690-179-22	192P10	26	NOTE 1	300P13	52		W557-385-22	192P1	14	NOTE 1
300J13	53		W690-185-22	SM0003		NOTE 1	300P13	53		W557-388-22	192P1	15	NOTE 1
300J13	54		W690-186-22	192P11	14	NOTE 1	300P13	54		W557-389-22	192P1	22	NOTE 1
300J13	55		W690-187-22	192P11	2	NOTE 1	300P13	55		W557-390-22	192P1	23	NOTE 1
300J13	56		W690-188-22	192P11	15	NOTE 1	300P13	56		W557-391-22	192P1	24	NOTE 1
300J13	57		W690-195-22	192P11	7	NOTE 1	300P13	57		W557-398-22	192P1	29	NOTE 1
300J13	58		W690-196-22	192P11	9	NOTE 1	300P13	58		W557-399-22	192P1	28	NOTE 1
300J13	59		W690-197-22	192P11	21	NOTE 1	300P13	59		W557-400-22	192P1	27	NOTE 1
300J13	60		W690-364-22-RED	187P7	18	NOTE 1	300P13	60		W557-858-22-RED	192P1		NOTE 1
300J13	61		W690-365-22-BLU	187P7	17	NOTE 1	300P13	61		W557-859-22-BLU	192P1	18	NOTE 1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J15		FA	SHLD GRD B22	300J15	13	8-10.1	300P15		FA	SHLD GRD B22	300P15	13	8-10.1
300J15		FB	SHLD GRD D22	300J15	20	8-6.1	300P15		FB	SHLD GRD D22	300P15	20	8-6.1
300J15		FC	SHLD GRD E22	300J15	23	8-6.1	300P15		FC	SHLD GRD J22	300P15	23	8-6.1
300J15		FD	SHLD GRD F22	300J15	30	8-15.1	300P15		FD	SHLD GRD K22	300P15	30	8-15.1
300J15		FE	SHLD GRD J22	300J15	52	8-9.1	300P15		FE	SHLD GRD R22	300P15	52	8-9.1
300J15		FF	SHLD GRD Q22	300J15	7	16-2.1	300P15		FF	SHLD GRD AF22	300P15	7	16-2.1
300J15	1		W639-1-22 (WITHOUT 74)	300J43	1	8-2.1	300P15	1		W557-1-22 (WITHOUT 74)	055P2	A	8-2.1
300J15	2		W639-2-22 (WITHOUT 74)	300J43	2	8-2.1	300P15	2		W557-2-22 (WITHOUT 74)	055P2	B	8-2.1
300J15	3		W639-3-22 (WITHOUT 74)	300J43	3	8-2.1	300P15	3		W557-3-22 (WITHOUT 74)	055P2	C	8-2.1
300J15	4		W639-4-22 (WITHOUT 74)	300J43	4	4-3.1	300P15	4		W557-7-22 (WITHOUT 74)	232P1	B-	4-3.1
300J15	5		W639-147-22	300J45	4	8-9.1	300P15	5		W557-522-22	043P7	F	8-9.1
300J15	6		W639-326-22	300J68	40	16-2.1	300P15	6		W557-877-20	147P1	M	16-2.1
300J15	7		SHLD GRD Q22	300J15		16-2.1	300P15	7		SHLD GRD AF22	300P15		16-2.1
300J15	8		W639-32-22	300J45	8	8-10.1	300P15	8		W557-27-22	042P2	R	8-10.1
300J15	9		W639-33-22	300J45	9	8-10.1	300P15	9		W557-28-22	042P2	G	8-10.1
300J15	10		W639-34-22	300J45	10	8-10.1	300P15	10		W557-29-22	042P2	F	8-10.1
300J15	11		W639-35-22	300J45	11	8-10.1	300P15	11		W557-30-22	042P2	S	8-10.1
300J15	12		W639-36-20	042P3	4	8-10.1	300P15	12		W557-31-22	042P2	H	8-10.1
300J15	13		SHLD GRD B22	300J15		8-10.1	300P15	13		SHLD GRD B22	300P15		8-10.1
300J15	14		W639-37-22	SM0002		8-10.1	300P15	14		W557-32-22	042P2	L	8-10.1
300J15	15		W639-38-22	300J45	13	8-10.1	300P15	15		W557-41-22 (WITHOUT 74)	232P1	H	8-10.1
300J15	15		W639-38-22	300J45	13	8-10.1	300P15	15		W557-41-22 (WITH 74)	232P2	P	8-10.1
300J15	16		W639-39-22	300J45	14	8-10.1	300P15	16		W557-42-22 (WITHOUT 74)	232P1	A	8-10.1
300J15	16		W639-39-22	300J45	14	8-10.1	300P15	16		W557-42-22 (WITH 74)	232P1	K	8-10.1
300J15	17		W639-45-22-RED (WITHOUT 74)	300J43	5	8-6.1	300P15	17		W557-45-22-RED (WITHOUT 74)	051P4	E	8-6.1
300J15	18		W639-46-22-BLU (WITHOUT 74)	300J43	6	8-6.1	300P15	18		W557-46-22-BLU (WITHOUT 74)	051P4	D	8-6.1
300J15	19		W639-47-22-YEL (WITHOUT 74)	300J43	7	8-6.1	300P15	19		W557-47-22-YEL (WITHOUT 74)	051P4	C	8-6.1
300J15	20		SHLD GRD D22 (WITHOUT 74)	300J43	10	8-6.1	300P15	20		SHLD GRD D22 (WITHOUT 74)	300P15		8-6.1
300J15	21		W639-48-22-RED (WITHOUT 74)	300J43	8	8-6.1	300P15	21		W557-69-22-RED (WITHOUT 74)	051P6	D	8-6.1
300J15	22		W639-49-22-BLU (WITHOUT 74)	300J43	9	8-6.1	300P15	22		W557-70-22-BLU (WITHOUT 74)	051P6	C	8-6.1
300J15	23		SHLD GRD E22 (WITHOUT 74)	300J15		8-6.1	300P15	23		SHLD GRD J22 (WITHOUT 74)	300P15		8-6.1
300J15	24		W639-51-22 (WITHOUT 74)	300J43	11	8-4.1	300P15	24		W557-72-22 (WITHOUT 74)	052P2	B	8-4.1
300J15	25		W639-52-22 (WITHOUT 74)	300J43	12	8-4.1	300P15	25		W557-73-22 (WITHOUT 74)	052P2	C	8-4.1
300J15	26		W639-55-22 (WITHOUT 74)	300J43	13	8-3.1	300P15	26		W557-78-22 (WITHOUT 74)	053P2	D	8-3.1
300J15	27		W639-56-22 (WITHOUT 74)	300J43	14	8-3.1	300P15	27		W557-79-22 (WITHOUT 74)	053P2	C	8-3.1
300J15	28		W639-58-22-RED	300J45	17	8-15.1	300P15	28		W557-83-22-RED	054P2	F	8-15.1
300J15	29		W639-59-22-BLU	300J45	18	8-15.1	300P15	29		W557-84-22-BLU	054P2	E	8-15.1
300J15	30		SHLD GRD F22	300J15		8-15.1	300P15	30		SHLD GRD K22	300P15		8-15.1
300J15	31		W639-62-20-BLU (WITHOUT 74)	300J43	16	8-5.1	300P15	31		W557-92-20-BLU (WITHOUT 74)	056P2	1	8-5.1
300J15	32		W639-61-20-RED (WITHOUT 74)	300J43	17	8-5.1	300P15	32		W557-91-20-RED	056PZ	2	8-5.1
300J15	33		W639-91-20	082P7	R	13-1.2	300P15	33		W557-137-20 (WITHOUT 74)	232P2	B-	13-1.2
300J15	33		W639-91-20	082P7	R	13-1.2	300P15	33		W557-137-20 (WITH 74)	232P1	b	13-1.1
300J15	34		W639-183-20	300J45	30	10-2.1	300P15	34		W557-166-22 (WITHOUT 74)	232P1	N	10-2.1
300J15	34		W639-183-20	300J45	30	10-2.1	300P15	34		W557-166-22 (WITH 74)	232P2	b	10-2.1
300J15	35		W639-185-20	300J45	31	10-1.2	300P15	35		W557-172-20	233S2	12	10-1.2
300J15	36		W639-186-20	300J45	32	10-1.2	300P15	36		W557-173-20	233S2	11	10-1.2
300J15	37		W639-202-20	300J45	36	12-2.2	300P15	37		W557-176-20	231S1	1	12-2.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J15	38		W639-203-20	300J45	37	12-2.2	300P15	38		W557-177-20	SP0095		12-2.2
300J15	39		W639-205-20	300J45	38	12-3.2	300P15	39		W557-186-20	233S2	9	12-3.2
300J15	40		W639-206-20	300J45	39	12-3.2	300P15	40		W557-187-20	233S2	6	12-3.2
300J15	41		W639-209-20 (WITHOUT 74)	300J45	40	4-7.1	300P15	41		W557-191-20 (WITHOUT 74)	232P2	B	4-7.1
300J15	41		W639-209-20 (WITH 74)	300J45	40	4-13.1	300P15	41		W557-191-20 (WITH 74)	232P2	N	4-13.1
300J15	42		W639-210-20	300J45	41	6-2.1	300P15	42		W557-192-20 (WITHOUT 74)	232P2	C	6-2.1
300J15	42		W639-210-20	300J45	41	6-2.1	300P15	42		W557-192-20 (WITH 74)	232P1	W	4-13.1
300J15	43		W639-214-20	300J68	10	16-1.2	300P15	43		W557-219-20 (WITHOUT 74)	232P1	U	16-1.2
300J15	43		W639-214-20	300J68	10	16-1.2	300P15	43		W557-219-20 (WITH 74)	232P2	E	16-1.1
300J15	44		W639-215-20	300J68	11	16-1.2	300P15	44		W557-220-20 (WITHOUT 74)	232P2	A-	16-1.2
300J15	44		W639-215-20	300J68	11	16-1.2	300P15	44		W557-220-20 (WITH 74)	232P2	G	16-1.1
300J15	45		W639-276-20	300J68	12	16-1.2	300P15	45		W557-217-20 (WITHOUT 74)	232P1	V	16-1.2
300J15	45		W639-276-20	300J68	12	16-1.2	300P15	45		W557-217-20 (WITH 74)	232P2	F	16-1.1
300J15	46		W639-277-20	300J68	13	16-1.2	300P15	46		W557-218-20 (WITHOUT 74)	232P2	W	16-1.2
300J15	46		W639-277-20	300J68	13	16-1.2	300P15	46		W557-218-20 (WITH 74)	232P2	C	16-1.1
300J15	48		W639-294-22	300J45	52	8-9.1	300P15	48		W557-532-22 (WITHOUT 74)	232P1	C	8-9.1
300J15	48		W639-294-22	300J45	52	8-9.1	300P15	48		W557-532-22 (WITH 74)	232P1	d	8-9.1
300J15	49		W639-295-22	300J45	53	8-9.1	300P15	49		W557-533-22 (WITHOUT 74)	232P1	K	8-9.1
300J15	49		W639-295-22	300J45	53	8-9.1	300P15	49		W557-533-22 (WITH 74)	232P1	c	8-9.1
300J15	50		W639-290-22	300J45	47	8-9.1	300P15	50		W557-520-22	043P7	T	8-9.1
300J15	51		W639-293-22	300J45	51	8-9.1	300P15	51		W557-521-22	043P7	G	8-9.1
300J15	52		SHLD GRD J22	300J15		8-9.1	300P15	52		SHLD GRD R22	300P15		8-9.1
300J15	53		W639-318-22 (WITHOUT 74)	300J43	29	4-6.1	300P15	53		W557-824-22 (WITHOUT 74)	103S2	3	4-6.1
300J15	54		W639-324-22 (WITHOUT 74)	300J43	35	4-6.1	300P15	54		W557-839-22 (WITHOUT 74)	103S2	1	4-6.1
300J15	55		W639-322-22 (WITHOUT 74)	300J43	33	4-6.1	300P15	55		W557-837-22 (WITHOUT 74)	103S4	6	4-6.1
300J15	56		W639-321-22 (WITHOUT 74)	300J43	32	4-6.1	300P15	56		W557-836-22 (WITHOUT 74)	103S4	4	4-6.1
300J15	57		W639-335-22 (WITHOUT 74)	300J43	37	4-5.1	300P15	57		W557-404-22 (WITHOUT 74)	232P2	X	4-5.1
300J15	58		W639-164-22	300J47	56	8-16.1	300P15	58		W557-572-22	175P1	10	8-16.1
300J15	59		W639-165-22	300J47	57	8-16.1	300P15	59		W557-573-22	175P1	11	8-16.1
300J15	60		W639-166-22-RED	300J47	58	8-16.1	300P15	60		W557-574-22-RED	175P1	12	8-16.1
300J15	61		W639-167-22-BLU	300J47	59	8-16.1	300P15	61		W557-575-22-BLU	175P1	13	8-16.1
300J16		FA	SHLD GRD BG22	300J16	3	NOTE 1	300P16		FA	SHLD GRD CB22	300P16	3	NOTE 1
300J16		FB	SHLD GRD BH22	300J16	12	NOTE 1	300P16		FB	SHLD GRD CD22	300P16	12	NOTE 1
300J16	1		W690-154-20	191P2	A	NOTE 1	300P16	1		W557-339-22	191P7	A	NOTE 1
300J16	2		W690-155-20	191P2	B	NOTE 1	300P16	2		W557-340-22	191P7	B	NOTE 1
300J16	3		SHLD GRD BG22	300J16		NOTE 1	300P16	3		SHLD GRD CB22	300P16		NOTE 1
300J16	4		W690-156-20	191P2	D	NOTE 1	300P16	4		W557-341-22	191P7	D	NOTE 1
300J16	5		W690-157-20	191P2	E	NOTE 1	300P16	5		W557-342-22	191P7	E	NOTE 1
300J16	6		W690-158-20	191P2	F	NOTE 1	300P16	6		W557-343-22	191P7	F	NOTE 1
300J16	7		W690-159-20	191P2	G	NOTE 1	300P16	7		W557-344-22	191P7	G	NOTE 1
300J16	8		W690-160-20	191P2	L	NOTE 1	300P16	8		W557-345-22	191P7	L	NOTE 1
300J16	9		W690-161-20	191P2	M	NOTE 1	300P16	9		W557-346-22	191P7	M	NOTE 1
300J16	10		W690-162-20	191P2	P	NOTE 1	300P16	10		W557-347-22	191P7	P	NOTE 1
300J16	11		W690-163-20	191P2	S	NOTE 1	300P16	11		W557-348-22	191P7	S	NOTE 1
300J16	12		SHLD GRD BH22	300J16		NOTE 1	300P16	12		SHLD GRD CD22	300P16		NOTE 1
300J16	13		W690-314-20	SM0002		NOTE 1	300P16	13		W557-731-20	SM0035		NOTE 1
300J16	15		W690-345-22	SM0005		NOTE 1	300P16	15		W557-903-22	SM0046		NOTE 1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J16	16		W690-384-22	TB13	7	NOTE 1	300P16	16		W557-882-22	182P4	A-	NOTE 1
300J16	17		W690-361-22	TB17	7G	NOTE 1	300P16	17		W557-902-22	TB6	2D	NOTE 1
300J16	18		W690-347-22	182P18	J	NOTE 1	300P16	18		W557-565-22	TB7	4C	NOTE 1
300J16	19		W690-GD178D22N	GD178		NOTE 1	300P16	19		W557-685-22	182P19	F	NOTE 1
300J16	20		W690-343-22	182P18	Y	NOTE 1	300P16	20		W557-682-22	182P19	K	NOTE 1
300J16	21		W690-342-22	182P18	H	NOTE 1	300P16	21		W557-683-22	182P19	C	NOTE 1
300J16	34		W690-341-22	182P18	Z	NOTE 1	300P16	34		W557-563-22	TB8	6E	NOTE 1
300J16	35		W690-356-22	182P16	U	NOTE 1	300P16	35		W557-898-22	182P5	B	NOTE 1
300J16	36		W690-391-22	182P16	R	NOTE 1	300P16	36		W557-897-22	182P4	R	NOTE 1
300J16	37		W690-357-22	182P16	D	NOTE 1	300P16	37		W557-557-22	182P5	H	NOTE 1
300J16	38		W690-358-22	182P16	F	NOTE 1	300P16	38		W557-899-22	182P5	P	NOTE 1
300J16	39		W690-359-22	182P16	V	NOTE 1	300P16	39		W557-558-22	182P5	R	NOTE 1
300J16	40		W690-360-22	182P16	W	NOTE 1	300P16	40		W557-559-22	182P5	T	NOTE 1
300J16	46		W690-401-22	TB13	6	NOTE 1	300P16	46		W557-881-22	182P19	D	NOTE 1
300J17		FA	SHLD GRD L22	300J17	11	8-9.1	300P17		FA	SHLD GRD T22	300P17	11	8-9.1
300J17	1		W639-298-20 (WITHOUT 74)	300J23	19	8-5.1	300P17	1		W557-106-20 (WITHOUT 74)	SM0007		8-5.1
300J17	1		W592-2005-22 BLU (WITH 74)	300J43	55	8-6.1	300P17	1		W592-1900-22 BLU (WITH 74)	051P2	7	8-6.1
300J17	2		W639-299-20 (WITHOUT 74)	300J23	20	8-5.1	300P17	2		W557-108-20 (WITHOUT 74)	SM0008		8-5.1
300J17	2		W592-2004-22 RED (WITH 74)	300J43	54	8-6.1	300P17	2		W592-1899-22 RED (WITH 74)	051P2	8	8-6.1
300J17	3		W639-297-20 (WITHOUT 74)	300J23	21	8-5.1	300P17	3		W557-101-20 (WITHOUT 74)	056S2	2	8-1
300J17	3		W592-2080-20 (WITH 74)	300J43	1	8-6.1	300P17	3		W592-2083-20 (WITH 74)	232P2	M	8-6.1
300J17	4		W639-425-20 (WITHOUT 74)	300J23	16	4-4.2	300P17	4		W557-511-20 (WITHOUT 74)	101S7	C1	4-4.2
300J17	4		W592-2003-22 (WITH 74)	30016	2	8-6.1	300P17	4		W592-1901-22 (WITH 74)	051P2	3	8-6.1
300J17	5		W639-285-20 (WITHOUT 74)	300J23	23	4-4.2	300P17	5		W557-505-20 (WITHOUT 74)	101S7	12	4-4.2
300J17	5		W592-2010-20 (WITH 74)	300J6	4	8-4.1	300P17	5		W592-1881-20 (WITH 74)	052P2	A	8-4.1
300J17	6		W639-6-20	300J23	1	8-1.1	300P17	6		W557-9-20	SP0177		8-1.1
300J17	7		W639-8-20	300J23	2	8-1.1	300P17	7		W557-12-20	SM0010		8-1.1
300J17	10		W639-150-20	043P5	B	8-9.1	300P17	10		W557-525-22	043P7	J	8-9.1
300J17	11		SHLD GRD L22	300J17		8-9.1	300P17	11		SHLD GRD T22	300P17		8-9.1
300J17	12		W639-63-20 (WITHOUT 74)	300J23	3	8-5.1	300P17	12		W557-94-20 (WITHOUT 74)	SM0005		8-5.1
300J17	12		W592-2011-20 (WITH 74)	300J43	8	84.1	300P17	12		W592-1882-20 (WITH 74)	052P2	B	8-4.1
300J17	13		W639-64-20 (WITHOUT 74)	300J23	4	8-5.1	300P17	13		W557-96-20 (WITHOUT 74)	SM0006		8-5.1
300J17	13		W592-2012-20 (WITH 74)	300J43	4	84.1	300P17	13		W592-1883-20 (WITH 74)	052P2	C	8-4.1
300J17	14		W639-65-20 (WITHOUT 74)	300J23	5	8-5.1	300P17	14		W557-100-22 (WITHOUT 74)	056S2	2	8-5.1
300J17	14		W592-2015-22 (WITH 74)	300J6	23	8-3.1	300P17	14		W592-2014-22 (WITH 74)	SPLICE		8-3.1
300J17	15		W639-286-20 (WITHOUT 74)	300J23	17	4-4.2	300P17	15		W557-506-20 (WITHOUT 74)	101S7	22	4-4.2
300J17	15		W592-2016-22 (WITH 74)	300J43	5	8-3.1	300P17	15		W592-1890-22 (WITH 74)	SPLICE		8-3.1
300J17	16		W639-426-20 (WITHOUT 74)	101XK2	A1	4-4.2	300P17	16		W557-507-20 (WITHOUT 74)	101S7	C2	4-4.2
300J17	16		W592-2017-22 (WITH 74)	300J43	6	8-3.1	300P17	16		W592-1887-20 (WITH 74)	053P2	C	8-3.1
300J17	17		W639-116-20	300J23	8	9-9.1	300P17	17		W557-138-20	TB8	1A	9-9.1
300J17	18		W639-213-20	300J23	12	9-18.1	300P17	18		W557-195-20	232K1	1	9-18.1
300J17	19		W639-247-22	300J23	15	9-16.1	300P17	19		W557-190-20	TB7	4J	9-16.1
300J17	20		W639-306-22	300J23	27	9-10.1	300P17	20		W557-779-22	TB2	2A	9-10.1
300J17	21		W639-304-22	300J23	28	9-8.1	300P17	21		W557-767-20	TB1	2A	9-8.1
300J17	22		W639-307-22	300J23	26	9-12.1	300P17	22		W557-750-22	TB4	1A	9-12.1
300J17	23		W639-23-20	033P1	3	7-1.2	300P17	23		W557-19-22 (WITHOUT 74)	232P1	W	7-1.2
300J17	23		W639-23-20	033P1	3	7-1.2	300P17	23		W557-19-22 (WITH 74)	232P1	y	7-1.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J17	24		W639-159-22	300J23	30	9-13.1	300P17	24		W557-796-22	TB2	3G	9-13.1
300J17	25		W639-160-22	300J23	31	9-13.1	300P17	25		W557-797-22	TB2	4M	9-13.1
300J17	26		W639-161-22	300J23	32	9-13.1	300P17	26		W557-798-22	TB1	3E	9-13.1
300J17	27		W639-162-22	300J23	33	9-13.1	300P17	27		W557-799-22	TB1	5D	9-13.1
300J17	28		W639-1000-22	300J23	38	9-13.10	300P17	28		W557-1100-22	231K1	16	9-13.10
300J17	29		W639-1002-22	300J23	43	9-13.1	300P17	29		W557-1104-22	SM0013		9-13.1
300J17	30		W639-1003-22	300J23	39	9-13.1	300P17	30		W557-1107-22	232XK2	E3	9-13.1
300J17	31		W639-1004-22	300J23	40	9-13.1	300P17	31		W557-203-20 (WITHOUT 74)	232P1	p-	9-13.1
300J17	31		W639-1004-22	300J23	40	9-13.1	300P17	31		W557-203-20 (WITH 74)	232P3	C	9-13.1
300J17	32		W639-1005-22	300J23	41	9-13.1	300P17	32		W557-1108-22	232XK2	A3	9-13.1
300J17	33		W639-1006-22	300J23	42	9-13.1	300P17	33		W557-204-20 (WITHOUT 74)	232P1	N-	9-13.1
300J17	34		W639-1007-22	300J23	44	9-18.1	300P17	34		W557-1109-22	SM0014		9-18.1
300J17	35		W639-434-20	300J23	45	9-12.1	300P17	35		W557-1111-22	TB4	4K	9-12.1
300J17	37		W592-2014-22 BLU (WITH 74)	300J43	18	8-2.1	300P17	37		W592-1912-22 BLU (WITH 74)	055P2	1	8-2.1
300J17	38		W592-2015-22 RED (WITH 74)	300J43	17	8-2.1	300P17	38		W592-1911-22 RED (WITH 74)	055P2	3	8-2.1
300J17	40		W592-2062-20 (WITH 74)	300J43	3	4-12.1	300P17	40		W592-2060-20 (WITH 74)	232P2	H	4-12.1
300J17	41		W592-2018-22 (WITH 74)	300J43	7	8-3.1	300P17	41		W592-1888-20 (WITH 74)	053P2	D	8-3.1
300J17	42		W592-2063-20 (WITH 74)	300J43	2	4-12.1	300P17	42		W592-2061-20 (WITH 74)	232P1	e	4-12.1
300J17	53		W592-2066-AL20 RED (WITH 74)	300J43	15	4-12.1	300P17	53		W592-1835-AL20 RED (WITH 74)	056P2	2	4-12.1
300J17	54		W592-2067-CR2 YEL (WITH 74)	300J43	16	4-12.1	300P17	54		W592-1836-CR20 YEL (WITH 74)	056P2	1	4-12.1
300J17	55		W592-206617 SHLD (WITH 74)	300J43	19	4-12.1	300P17	55		W592-1835/6 SHLD (WITH 74)			4-12.1
300CJ17			W592-2004/5 SHLD (WITH 74)	300CJ43		8-6.1	300CP17			W592-1899/00-SHLD (WITH 74)	051CP2		8-6.1
300CJ17			W592-2014/5 SHLD (WITH 74)	300CJ43		8-2.1	300CP17			W592-1911-2 SHLD (WITH 74)			8-2.1
300CJ17			W592-2066/7 OSHLD (WITH 74)	300CJ43		4-12.1	300CP17			W592-1835/6 OSHLD (WITH 74)			4-12.1
300J18	1		W639-5-22	300J5	1	8-1.1	300P18	1		W559-1-20	064S1	2	8-1.1
300J18	2		W639-7-20	300J5	2	8-1.1	300P18	2		W559-3-20	064S1	5	8-1.1
300J18	3		W639-263-20	300J5	3	9-3.1	300P18	3		W559-13-20	111S1	2	9-3.1
300J18	4		W639-264-20	300J5	4	9-6.1	300P18	4		W559-14-20	111S3	2	9-6.1
300J18	5		W639-265-20	300J5	5	9-6.1	300P18	5		W559-15-20	111S2	2	9-6.1
300J18	6		W639-16-20	300J5	6	12-4.1	300P18	6		W559-25-20	133S1	21	12-4.1
300J18	7		W639-20-20	300J5	7	7-1.2	300P18	7		W559-33-22	033S1	2	7-1.2
300J18	8		W639-66-22 (WITHOUT 74)	300J5	8	8-5.1	300P18	8		W559-39-20 (WITHOUT 74)	056P3	5	8-5.1
300J18	9		W639-76-22	300J5	9	4-2.2	300P18	9		W559-44-22	081S1	2	4-2.2
300J18	10		W639-83-20	SM0003		13-1.2	300P18	10		W559-48-20	082S2	5	13-1.2
300J18	11		W639-109-20	300J5	12	9-4.2	300P18	11		W559-60-20	112S1	2	9-4.2
300J18	12		W639-115-20	300J5	13	9-9.1	300P18	12		W559-1002-20	123T1	HV	9-9.1
300J18	13		W639-137-22	300J5	14	12-1.1	300P18	13		W559-108-22	083S1	2	12-1.1
300J18	14		W639-138-22	300J5	15	12-1.1	300P18	14		W559-109-22	083S3	2	12-1.1
300J18	15		W639-181-20	300J5	16	10-2.1	300P18	15		W559-131-20	171S3	2	10-2.1
300J18	16		W639-182-20	300J5	17	10-2.1	300P18	16		W559-130-20	171S4	2	10-2.1
300J18	17		W639-194-20	300J5	19	10-2.1	300P18	17		W559-154-20	174S6	2	10-2.1
300J18	18		W639-193-20	300J5	18	10-2.1	300P18	18		W559-155-20	174S5	2	10-2.1
300J18	19		W639-208-22	300J5	20	9-16.1	300P18	19		W559-163-20	234S1	2	9-16.1
300J18	20		W639-207-22	300J5	21	9-16.1	300P18	20		W559-164-20	234S2	2	9-16.1
300J18	21		W639-227-20	300J5	22	16-1.2	300P18	21		W559-188-20	134P2	C	16-1.2
300J18	22		W639-228-22	300J5	23	9-2.2	300P18	22		W559-193-22	241S2	6	9-2.2
300J18	23		W639-244-22	300J5	24	9-2.2	300P18	23		W559-201-22	241S3	6	9-2.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J18	24		W639-245-22	300J5	25	9-2.2	300P18	24		W559-202-22	241S3	4	9-2.2
300J18	25		W639-246-22	300J5	26	9-2.2	300P18	25		W559-203-22	241S3	5	9-2.2
300J18	26		W639-280-20 (WITHOUT 74)	300J5	27	4-2.2	300P18	26		W559-215-20 (WITHOUT 74)	SM0003		4-2.2
300J18	27		W639-288-22	300J5	28	7-2.2	300P18	27		W559-230-22	TB36	5	7-2.2
300J18	28		W639-305-22	300J5	29	9-8.1	300P18	28		W559-1000-22	121T2	HV	9-8.1
300J18	29		W639-309-22	300J5	30	9-13.1	300P18	29		W559-261-22	127R1	3	9-13.1
300J18	30		W639-163-22	300J5	31	9-14.1	300P18	30		W559-292-22	126S1	2	9-14.1
300J18	31		W639-433-22	300J5	33	9-13.1	300P18	31		W559-267-22	121T2	B	9-13.1
300J18	34		W639-438-22	300J5	34	9-13.1	300P18	34		W559-418-22	127R1	1	9-13.1
300J19	1		W645-8-20	300J1	1	9-5.1	300P19	1		W559-18-20	113S1	11	9-5.1
300J19	2		W645-43-20 (WITHOUT 74)	300J1	2	8-5.1	300P19	2		W559-43-20 (WITHOUT 74)	056P3	9	8-5.1
300J19	3		W645-54-22	300J1	3	4-2.2	300P19	3		W559-45-22	081S1	5	4-2.2
300J19	4		W645-57-20	300J1	4	9-4.2	300P19	4		W559-57-20	112S2	2	9-4.2
300J19	5		W645-59-20	300J1	5	9-11.1	300P19	5		W559-1004-22	125T1	HV	9-11.1
300J19	6		W645-60-20	300J1	6	17-1.1	300P19	6		W559-105-20	129S1	2	17-1.1
300J19	7		W645-62-22	300J1	7	12-1.1	300P19	7		W559-110-22	083S2	2	12-1.1
300J19	8		W645-63-20	300J1	8	14-1.2	300P19	8		W559-114-20	134P1	A	14-1.2
300J19	9		W645-64-20	300J1	9	14-1.2	300P19	9		W559-113-20	134P1	B	14-1.2
300J19	10		W645-89-20	300J1	10	10-2.1	300P19	10		W559-129-20	171S2	2	10-2.1
300J19	11		W645-90-20	300J1	11	10-2.1	300P19	11		W559-128-20	171S1	2	10-2.1
300J19	12		W645-103-20	300J1	12	10-1.2	300P19	12		W559-132-20	173S1	2	10-1.2
300J19	13		W645-111-20	300J1	14	10-2.1	300P19	13		W559-145-20	174S2	2	10-2.1
300J19	14		W645-110-20	300J1	13	10-2.1	300P19	14		W559-146-20	174S1	2	10-2.1
300J19	15		W645-139-20	300J1	15	16-1.2	300P19	15		W559-173-20	134P1	M	16-1.2
300J19	16		W645-144-22	300J1	16	9-2.2	300P19	16		W559-189-22	241S1	6	9-2.2
300J19	17		W645-204-20 (WITHOUT 74)	300J1	17	4-4.2	300P19	17		W559-214-20 (WITHOUT 74)	SM0002		4-4.2
300J19	18		W645-249-22	300J1	18	7-2.2	300P19	18		W559-231-22	TB37	1	7-2.2
300J19	19		W645-279-22	300J1	19	9-12.1	300P19	19		W559-1003-22	127XK4	A2	9-12.1
300J19	20		W645-277-22	300J1	20	9-10.1	300P19	20		W559-1001-22	122T2	HV	9-10.1
300J19	21		W645-171-22	300J1	21	9-13.1	300P19	21		W559-280-22	127K1	6	9-13.1
300J19	22		W645-172-22	300J1	22	9-13.1	300P19	22		W559-281-22	127K1	8	9-13.1
300J19	23		W645-287-20	300J1	23	10-3.2	300P19	23		W559-316-20	057S3	2	10-3.2
300J19	24		W645-300-22	300J1	24	15-2.6	300P19	24		W559-318-22	136S1	5	15-2.6
300J19	25		W645-252-22	300J1	25	7-5.2	300P19	25		W559-321-22	137S3	2	7-5.2
300J19	26		W645-270-22	300J1	27	NOTE 1	300P19	26		W559-380-22	063P2	C-	11-3.1
300J19	29		W645-400-20	300J1	29	9-5.1	300P19	29		W559-391-20	113S2	2	9-5.1
300J20	1		W639-9-20	300J56	3	9-3.1	300P20	1		W559-5-20	111S1	3	9-3.1
300J20	2		W639-10-20	300J68	18	9-6.1	300P20	2		W559-16-20	111S3	3	9-6.1
300J20	3		W639-11-20	300J47	2	9-5.1	300P20	3		W559-24-20	TB38	4	9-5.1
300J20	4		W639-GD034A22N	GD034	A	9-11.1	300P20	4		W559-371-22	063P2	V	9-11.1
300J20	5		W639-77-22 (WITHOUT 43 AND 74)	300J43	18	4-2.2	300P20	5		W559-46-22 (WITHOUT 43 AND 74)	081S1	1	4-2.2
300J20	6		W639-84-20	SM0004		13-1.2	300P20	6		W559-49-20	082S2	1	13-1.2
300J20	7		W639-85-20	082P7	M	13-1.2	300P20	7		W559-50-20	082S2	3	13-1.2
300J20	8		W639-86-20	082A6		13-1.2	300P20	8		W559-51-20	082S2	4	13-1.2
300J20	9		W639-87-20	082P7	B	13-1.2	300P20	9		W559-52-20	082S2	6	13-1.2
300J20	10		W639-88-20	082A5		13-1.2	300P20	10		W559-54-20	082S3	4	13-1.2
300J20	11		W639-89-20	SM0005		13-1.2	300P20	11		W559-55-20	082S1		13-1.2

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J20	12		W639-90-20	082P3	C	13-1.2	300P20	12		W559-56-20	082S1		13-1.2
300J20	13		W639-136-20	300J47	8	17-1.1	300P20	13		W559-106-20	129S1	1	17-1.1
300J20	14		W639-135-20	300J45	23	17-1.1	300P20	14		W559-107-20	129S1	3	17-1.1
300J20	15		W639-179-20	300J56	18	10-2.1	300P20	15		W559-124-20	171S3	3	10-2.1
300J20	16		W639-180-20	300J56	19	10-2.1	300P20	16		W559-125-20	171S4	3	10-2.1
300J20	17		W639-187-20	300J45	33	10-1.2	300P20	17		W559-136-20	173S1	3	10-1.2
300J20	18		W639-188-20	300J45	34	10-1.2	300P20	18		W559-137-20	173S1	1	10-1.2
300J20	19		W639-189-20	300J56	20	10-2.1	300P20	19		W559-150-20	174S5	3	10-2.1
300J20	20		W639-190-20	300J56	21	10-2.1	300P20	20		W559-151-20	174S5	6	10-2.1
300J20	21		W639-191-20	300J56	22	10-2.1	300P20	21		W559-152-20	174S6	6	10-2.1
300J20	22		W639-192-20	300J56	23	10-2.1	300P20	22		W559-153-20	174S6	3	10-2.1
300J20	23		W639-217-20	300J68	8	16-1.2	300P20	23		W559-178-20	134P2	K	16-1.2
300J20	24		W639-218-20	300J68	7	16-1.2	300P20	24		W559-181-20	134P2	F	16-1.2
300J20	25		W639-219-20	300J68	6	16-1.2	300P20	25		W559-182-20	134P2	L	16-1.2
300J20	26		W639-220-20	300J68	5	16-1.2	300P20	26		W559-183-20	134P2	B	16-1.2
300J20	27		W639-221-20	300J68	4	16-1.2	300P20	27		W559-184-20	134P2	M	16-1.2
300J20	28		W639-222-20	300J68	3	16-1.2	300P20	28		W559-185-20	134P2	H	16-1.2
300J20	29		W639-223-20	300J68	2	16-1.2	300P20	29		W559-186-20	134P2	D	16-1.2
300J20	30		W639-224-20	300J68	1	16-1.2	300P20	30		W559-180-20	SM0001		16-1.2
300J20	31		W639-229-22	300J47	26	9-2.2	300P20	31		W559-194-22	241S2	5	9-2.2
300J20	32		W639-230-22	300J47	27	9-2.2	300P20	32		W559-195-22	241S2	2	9-2.2
300J20	33		W639-231-22	300J47	28	9-2.2	300P20	33		W559-196-22	241S2	1	9-2.2
300J20	34		W639-255-22	300J45	44	9-2.2	300P20	34		W559-197-22	241S3	2	9-2.2
300J20	35		W639-256-22	300J47	40	9-2.2	300P20	35		W559-198-22	241S3	2	9-2.2
300J20	36		W639-257-22	300J47	41	9-2.2	300P20	36		W559-199-22	241S3	3	9-2.2
300J20	37		W639-278-20	300J68	14	16-1.2	300P20	37		W559-175-20	134P1	D	16-1.2
300J20	38		W639-279-20	300J68	15	16-1.2	300P20	38		W559-174-20	134P1	J	16-1.2
300J20	39		W639-282-20 (WITHOUT 74)	300J43	19	4-4.2	300P20	39		W559-223-20 (WITHOUT 74)	101S2	1	4-4.2
300J20	40		W639-283-20 (WITHOUT 74)	300J43	20	4-4.2	300P20	40		W559-224-20 (WITHOUT 74)	101S2	10	4-4.2
300J20	41		W639-146-22 (WITHOUT 74)	300J45	26	4-4.2	300P20	41		W559-377-20 (WITHOUT 74)	SM0005		4-4.2
300J20	42		W639-111-20	133P1	A	12-4.1	300P20	42		W559-31-20	133R1		12-4.1
300J20	43		W639-112-20	133P1	B	12-4.1	300P20	43		W559-32-20	133S1	18	12-4.1
300J20	44		W639-GD035G20N	GD035	G	12-4.1	300P20	44		W559-255-20	TB36	14	12-4.1
300J20	45		W639-GD035B22N	GD035	B	9-16.1	300P20	45		W559-260-20	TB36	15	9-16.1
300J20	46		W639-GD034B22N	GD034	B	9-16.1	300P20	46		W559-259-20	TB36	12	9-16.1
300J20	47		W639-GD034H20N	GD034	H	14-1.2	300P20	47		W559-369-22	TB36	10	14-1.2
300J20	48		W639-312-20	300J56	1	10-3.2	300P20	48		W559-314-20	057S3	1	10-3.2
300J20	49		W639-313-20	300J56	2	10-3.2	300P20	49		W559-315-20	057S3	3	10-3.2
300J20	50		W639-358-22	SP0132		9-14.1	300P20	50		W559-297-22	126R1		9-14.1
300J20	51		W639-357-22	SP0133		9-14.1	300P20	51		W559-298-22	126R1		9-14.1
300J20	52		W639-336-22-RED (WITHOUT 74)	30J43	38	4-5.1	300P20	52		W559-333-22-RED (WITHOUT 74)	102P6	B	4-5.1
300J20	53		W639-337-22-BLU (WITHOUT 74)	300J43	39	4-5.1	300P20	53		W559-334-22-BLU (WITHOUT 74)	102P6	A	4-5.1
300J20	54		W639-338-22-RED (WITHOUT 74)	300J43	40	4-5.1	300P20	54		W559-335-22-RED (WITHOUT 74)	102P6	D	4-5.1
300J20	55		W639-339-22-BLU (WITHOUT 74)	300J43	41	4-5.1	300P20	55		W559-336-22-BLU (WITHOUT 74)	102P6	C	4-5.1
300J20	56		W639-340-22 (WITHOUT 74)	300J43	42	4-5.1	300P20	56		W559-337-22 (WITHOUT 74)	102P6	E	4-5.1
300J20	57		W639-341-22-RED (WITHOUT 74)	300J43	43	4-5.1	300P20	57		W559-338-22-RED (WITHOUT 74)	102P6	L	4-5.1
300J20	58		W639-342-22-BLU (WITHOUT 74)	300J43	44	4-5.1	300P20	58		W559-339-22-BLU (WITHOUT 74)	102P6	M	4-5.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J20	59		W639-407-20	132P1	E	14-1.2	300P20	59		W559-116-20	134P1	N	14-1.2
300J20	60		W639-408-20	132P1	A	14-1.2	300P20	60		W559-117-20	134P1	R	14-1.2
300J20	61		W639-327-20	300J56	4	10-3.2	300P20	61		W559-303-20	057S3	2	10-3.2
300J21		FA	SHLD GRD R22	300J21	55	NOTE 1	300P21		FA	SHLD GRD A22	300P21	55	NOTE 1
300J21		FB	SHLD GRD AD22	300J21	50	NOTE 1	300P21		FB	SHLD GRD B22	300P21	50	NOTE 1
300J21	1		W645-5-20	300J55	3	9-3.1	300P21	1		W559-7-20	111R1		9-3.1
300J21	2		W645-6-20	300J48	1	9-3.1	300P21	2		W559-9-20	111S1	6	9-3.1
300J21	3		W645-7-20	300J48	2	9-6.1	300P21	3		W559-17-20	111S2	3	9-6.1
300J21	4		W645-170-20	TB11	8A	11-3.1.1	300P21	4		W559-324-22	102P5	K	11-3.1.1
300J21	5		W645-55-22 (WITHOUT 43 AND 74)	300J42	18	4-2.2	300P21	5		W559-47-22 (WITHOUT 43 AND 74)	081S1	4	4-2.2
300J21	6		W645-91-20	300J55	13	10-2.1	300P21	6		W559-126-20	171S2	3	10-2.1
300J21	7		W645-92-20	300J55	14	10-2.1	300P21	7		W559-127-20	171S1	3	10-2.1
300J21	8		W645-104-20	300J48	13	10-1.2	300P21	8		W559-135-20	173S1	6	10-1.2
300J21	9		W645-105-20	300J48	14	10-1.2	300P21	9		W559-134-20	173S1	4	10-1.2
300J21	10		W645-106-20	300J55	21	10-2.1	300P21	10		W559-141-20	174S1	3	10-2.1
300J21	11		W645-107-20	300J55	22	10-2.1	300P21	11		W559-142-20	174S1	6	10-2.1
300J21	12		W645-108-20	300J55	23	10-2.1	300P21	12		W559-143-20	174S2	6	10-2.1
300J21	13		W645-109-20	300J55	24	10-2.1	300P21	13		W559-144-22	174S2	3	10-2.1
300J21	14		W645-124-22	300J48	20	9-16.1	300P21	14		W559-166-20	234S1		9-16.1
300J21	15		W645-125-22	300J48	21	9-16.1	300P21	15		W559-167-20	234S2		9-16.1
300J21	16		W645-126-22	300J48	22	9-16.1	300P21	16		W559-168-20	234S2		9-16.1
300J21	17		W645-206-20 (WITHOUT 74)	300J42	19	4-4.2	300P21	17		W559-219-20 (WITHOUT 74)	101S1	1	4-4.2
300J21	18		W645-207-20 (WITHOUT 74)	300J42	20	4-4.2	300P21	18		W559-220-20 (WITHOUT 74)	101S1	10	4-4.2
300J21	19		W645-254-22	300J50	43	7-3.2	300P21	19		W559-242-22	135S3	1	7-3.2
300J21	20		W645-145-22	300J48	28	9-2.2	300P21	20		W559-190-22	241S1	5	9-2.2
300J21	21		W645-146-22	300J48	29	9-2.2	300P21	21		W559-191-22	241S1	2	9-2.2
300J21	22		W645-147-22	300J48	30	9-2.2	300P21	22		W559-192-22	241S1	1	9-2.2
300J21	23		W645-290-22	300J50	54	7-2.2	300P21	23		W559-240-22	135S2	3	7-2.2
300J21	24		W645-11-20	300J50	55	7-1.2	300P21	24		W559-35-22	033S1	1	7-1.2
300J21	25		W645-299-20	300J48	54	9-1.2	300P21	25		W559-317-20	161S1	3	9-1.2
300J21	26		W645-301-22	300J50	17	15-2.6	300P21	26		W559-319-22	136S1	4	15-2.6
300J21	27		W645-302-22	300J50	18	15-2.6	300P21	27		W559-320-22	136S1	1	15-2.6
300J21	28		W645-259-22	300J48	26	7-5.2	300P21	28		W559-322-22	137S3	1	7-4.2
300J21	29		W645-322-22-RED (WITHOUT 74)	300J42	33	4-5.1	300P21	29		W559-326-22-RED (WITHOUT 74)	102P5	B	4-5.1
300J21	30		W645-323-22-BLU (WITHOUT 74)	300J42	34	4-5.1	300P21	30		W559-327-22-BLU (WITHOUT 74)	102P5	A	4-5.1
300J21	31		W645-324-22-RED (WITHOUT 74)	300J42	35	4-5.1	300P21	31		W559-328-22-RED (WITHOUT 74)	102P5	D	4-5.1
300J21	32		W645-325-22-BLU (WITHOUT 74)	300J42	36	4-5.1	300P21	32		W559-329-22-BLU (WITHOUT 74)	102P5	C	4-5.1
300J21	33		W645-326-22 (WITHOUT 74)	300J42	37	4-5.1	300P21	33		W559-330-22 (WITHOUT 74)	102P5	E	4-5.1
300J21	34		W645-327-22-RED (WITHOUT 74)	300J42	38	4-5.1	300P21	34		W559-331-22-RED (WITHOUT 74)	102P5	L	4-5.1
300J21	35		W645-328-22-BLU (WITHOUT 74)	300J42	39	4-5.1	300P21	35		W559-332-22-BLU (WITHOUT 74)	102P5-	M	4-5.1
300J21	36		W645-348-22-RED	063P1	W	NOTE1	300P21	36		W559-353-22-RED	063P2	E	NOTE 1
300J21	37		W645-349-22-BLU	063P1	X	NOTE1	300P21	37		W559-354-22-BLU	063P2	F	NOTE 1
300J21	38		W645-350-22-YEL	063P1	Y	NOTE1	300P21	38		W559-355-22-YEL	063P2	D	NOTE 1
300J21	39		W645-169-20 (WITHOUT 74)	300J50	53	4-4.2	300P21	39		W559-374-20 (WITHOUT 74)	SM0004		4-4.2
300J21	40		W645-250-22	300J50	44	7-2.2	300P21	40		W559-379-22	300P23	36	7-2.2
300J21	43		W645-401-20	300J48	43	9-5.1	300P21	43		W559-388-20	113S1	26	9-5.1
300J21	45		W645-281-22	063P1	R	NOTE 1	300P21	45		W559-381-22	063P2	X	NOTE 1

GO TO NEXT PAGE



1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J21	46		W645-GD215A20N	GD215		NOTE 1	300P21	46		W559-382-22	063P2	Y	NOTE 1
300J21	47		W645-361-20-RED	300J50	46	NOTE 1	300P21	47		W559-300-22-RED	063P2	A	NOTE 1
300J21	48		W645-362-20-BLU	300J50	47	NOTE 1	300P21	48		W559-301-22-BLU	063P2	B	NOTE 1
300J21	49		W645-363-20-YEL	300J50	48	NOTE 1	300P21	49		W559-302-22-YEL	063P2	C	NOTE 1
300J21	50		SHLD GRD AD22	300J21		NOTE 1	300P21	50		SHLD GRD B22	300P21		NOTE 1
300J21	51		W645-360-22-YEL	TB15	6C	NOTE 1	300P21	51		W559-365-22-YEL	063P2	H	NOTE 1
300J21	52		W645-356-22	063P1	E	NOTE 1	300P21	52		W559-361-22	063P2	S	NOTE 1
300J21	53		W645-355-22-BLU	063P1	A-	NOTE 1	300P21	53		W559-360-22-BLU	063P2	P	NOTE 1
300J21	54		W645-354-22-RED	063P1	B-	NOTE 1	300P21	54		W559-359-22-RED	063P2	R	NOTE 1
300J21	55		W645-SHLD GRD R22	300J21		NOTE 1	300P21	55		SHLD GRDA22	300P21		NOTE 1
300J21	56		W645-359-22-BLU	TB15	6B	NOTE 1	300P21	56		W559-364-22-BLU	063P2	K	NOTE 1
300J21	57		W645-358-22-RED	TB15	6A	NOTE 1	300P21	57		W559-363-22-RED	063P2	J	NOTE 1
300J21	58		W645-347-22	TB17	8A	NOTE 1	300P21	58		W559-362-22	063P2	T	NOTE 1
300J21	59		W645-353-22-YEL	TB11	7B	NOTE 1	300P21	59		W559-358-22-YEL	063P2	L	NOTE 1
300J21	60		W645-352-22-BLU	TB11	6H	NOTE 1	300P21	60		W559-357-22-BLU	063P2	N	NOTE 1
300J21	61		W645-351-22-RED	TB11	6B	NOTE 1	300P21	61		W559-356-22-RED	063P2	M	NOTE 1
300J22	1		W645-GD328A22N	GD328	E	NOTE 1	300P22	1		W559-367-22	063P2	W	NOTE 1
300J22	2		W645-66-20 (WITHOUT 74)	101XK1	X1	4-4.2	300P22	2		W559-372-20 (WITHOUT 74)	SM0004		4-4.2
300J22	3		W645-67-20 (WITHOUT 74)	101XK1	D3	4-4.2	300P22	3		W559-375-20 (WITHOUT 74)	SM0005		4-4.2
300J22	4		W645-244-20	SP0099	U	9-4.2	300P22	4		W559-58-20	112S2	3	9-4.2
300J22	5		W645-245-20	TB110	7	9-4.2	300P22	5		W559-59-20	112S2	1	9-4.2
300J22	6		W645-68-20 (WITHOUT 74)	101XK1	D2	4-4.2	300P22	6		W559-225-20 (WITHOUT 74)	101S2	4	4-4.2
300J22	7		W645-69-20 (WITHOUT 74)	101XK	A2	4-4.2	300P22	7		W559-378-20 (WITHOUT 74)	300P23	16	4-4.2
300J22	8		W645-212-20	TB17	4G	14-1.2	300P22	8		W559-118-20	134P1	H	14-1.2
300J22	9		W645-213-20	TB17	4C	14-1.2	300P22	9		W559-119-20	134P1	C	14-1.2
300J22	10		W645-214-20	TB17	5A	14-1.2	300P22	10		W559-120-20	134P1	F	14-1.2
300J22	11		W645-215-20	TB17	5B	14-1.2	300P22	11		W559-121-20	134P1	K	14-1.2
300J22	12		W645-216-20	TB17	5C	14-1.2	300P22	12		W559-122-20	134P1	L	14-1.2
300J22	13		W645-131-22	SP0137		9-13.1	300P22	13		W559-285-22	TB36	9	9-13.1
300J22	14		W645-130-22	SP0136		9-13.1	300P22	14		W559-286-22	127S1	3	9-13.1
300J22	15		W645-128-22	SP0135		9-13.1	300P22	15		W559-287-22	TB36	9	9-13.1
300J22	16		W645-129-22	SP0134		9-13.1	300P22	16		W559-284-22	127S3	3	9-13.1
300J22	17		W645-GD036A20N (WITHOUT 74)	GD036		8-5.1	300P22	17		W559-246-20 (WITHOUT 74)	056P3	17	8-5.1
300J22	18		W645-GD037A20N	GD037		8-5.1	300P22	18		W559-245-20	TB37	6	8-5.1
300J22	19		W645-GD037B20N	GD037		9-11.1	300P22	19		W559-409-20	TB64	1M	9-11.1
300J22	20		W645-GD037C20N	GD037		9-11.1	300P22	20		W559-410-20	TB64	2M	9-11.1
300J22	21		W645-GD036B20N	GD036		9-11.1	300P22	21		W559-415-20	TB36	8	9-9.1
300J23	1		W639-6-22	300J17	6	8-1.1	300P23	1		W559-2-20	064S1	3	8-1.1
300J23	2		W639-8-20	300J17	7	8-1.1	300P23	2		W559-4-20	064S1	6	8-1.1
300J23	3		W639-63-20 (WITHOUT 74)	300J17	12	8-5.1	300P23	3		W559-36-20 (WITHOUT 74)	056P3	3	8-5.1
300J23	4		W639-64-20 (WITHOUT 74)	300J17	13	8-5.1	300P23	4		W559-37-20 (WITHOUT 74)	056P3	1	8-5.1
300J23	5		W639-65-20 (WITHOUT 74)	300J17	14	8-5.1	300P23	5		W559-38-20 (WITHOUT 74)	056P3	15	8-5.1
300J23	6		W639-113-20	TB9	7	9-4.2	300P23	6		W559-61-20	112S1	1	9-4.2
300J23	7		W639-114-20	SP0098		9-4.2	300P23	7		W559-62-20	112S1	3	9-4.2
300J23	8		W639-116-20	300J17	17	9-9.1	300P23	8		W559-66-20	123T2	5V	9-9.1
300J23	9		W639-139-20	SP0189		12-1.1	300P23	9		W559-111-22	083S1	3	12-1.1
300J23	10		W639-140-20	SP0188		12-1.1	300P23	10		W559-112-22	083S3	3	12-1.1

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J23	11		W639-141-20	SP0187		12-1.1	300P23	11		W559-205-22	083S2	3	12-1.1
300J23	12		W639-213-20	300J17	18	9-18.1	300P23	12		W559-172-20	126S1	1	9-18.1
300J23	13		W639-225-20	TB18	8	16-1.2	300P23	13		W559-177-20	134P2	A	16-1.2
300J23	14		W639-226-20	TB18	7	16-1.2	300P23	14		W559-179-22	SM0001		16-1.2
300J23	15		W639-247-22	300J17	19	9-16.1	300P23	15		W559-171-20	234K	1	9-16.1
300J23	16		W639-425-20 (WITHOUT 74)	300J17	4	4-4.2	300P23	16		W559-378-20 (WITHOUT 74)	300P22	7	4-4.2
300J23	17		W639-286-20 (WITHOUT 74)	300J17	15	4-4.2	300P23	17		W559-229-20 (WITHOUT 74)	101S2	2	4-4.2
300J23	18		W639-289-20	135P1	1	7-2.2	300P23	18		W559-238-22	135S1	3	7-2.2
300J23	19		W639-298-20 (WITHOUT 74)	300J17	1	8-5.1	300P23	19		W559-41-20 (WITHOUT 74)	056P3	13	8-5.1
300J23	20		W639-299-20 (WITHOUT 74)	300J17	2	8-5.1	300P23	20		W559-42-20 (WITHOUT 74)	056P3	11	8-5.1
300J23	21		W639-297-20 (WITHOUT 74)	300J17	3	8-5.1	300P23	21		W559-40-20 (WITHOUT 74)	056P3	24	8-5.1
300J23	22		W639-284-20 (WITHOUT 74)	101XK2	D2	44.2	300P23	22		W559-228-20 (WITHOUT 74)	101S1	4	4-4.2
300J23	23		W639-285-20 (WITHOUT 74)	300J17	5	44.2	300P23	23		W559-208-20 (WITHOUT 74)	101S1	2	4-4.2
300J23	24		W639-300-22	135XK1	A2	7-2.2	300P23	24		W559-237-22	TB37	2	7-2.2
300J23	25		W639-301-22	135XK1	X1	7-2.2	300P23	25		W559-243-22	TB37	4	7-2.2
300J23	26		W639-307-22	300J17	22	9-12.1	300P23	26		W559-352-22	124T2	LV	9-12.1
300J23	27		W639-306-22	300J17	20	9-10.1	300P23	27		W559-313-22	122R1		9-10.1
300J23	28		W639-304-22	300J17	21	9-8.1	300P23	28		W559-309-22	121R1		9-8.1
300J23	29		W639-21-20	033P4	1	7-1.2	300P23	29		W559-34-22	033S1	3	7-1.2
300J23	30		W639-159-22	300J17	24	9-13.1	300P23	30		W559-278-22	127K2	A1	9-13.1
300J23	31		W639-160-22	300J17	25	9-13.1	300P23	31		W559-277-22	127K2	A2	9-13.1
300J23	32		W639-161-22	300J17	26	9-13.1	300P23	32		W559-276-22	127K2	B1	9-13.1
300J23	33		W639-162-22	300J17	27	9-13.1	300P23	33		W559-275-22	127K2	B2	9-13.1
300J23	34		W639-427-20 (WITHOUT 74)	101XK2	X1	4-4.2	300P23	34		W559-376-20 (WITHOUT 74)	SM0005		4-4.2
300J23	35		W639-428-20 (WITHOUT 74)	101XK2	D3	4-4.2	300P23	35		W559-373-20 (WITHOUT 74)	SM0004		4-4.2
300J23	36		W639-429-22	135XK1	A3	7-2.2	300P23	36		W559-379-22	300P21	40	7-2.2
300J23	37		W639-1001-22	127DS12		9-13.1	300P23	37		W559-1104-22	TB36	8	9-13.1
300J23	38		W639-1000-22	300J17	28	9-13.10	300P23	38		W559-1014-22	127R1	A	9-13.10
300J23	39		W639-1003-22	300J17	30	9-13.1	300P23	39		W559-1016-22	127XK4	C3	9-13.1
300J23	40		W639-1004-22	300J17	31	9-13.1	300P23	40		W559-1017-22	127XK4	C2	9-13.1
300J23	41		W639-1005-22	300J17	32	9-13.1	300P23	41		W559-1019-22	127XK4	D3	9-13.1
300J23	42		W639-1006-22	300J17	33	9-13.1	300P23	42		W559-1020-22	127XK4	D2	9-13.1
300J23	43		W639-1002-22	300J17	29	9-13.1	300P23	43		W559-1015-22	127R1		9-13.1
300J23	44		W639-1007-22	300J17	34	9-13.1	300P23	44		W559-1018-22	127XK4	C1	9-13.1
300J23	45		W639-434-20	300J17	35	9-12.1	300P23	45		W559-421-22	124R1		9-12.1
300J23	46		W639-439-20 (WITH 65)	300J47	61	7-3.2	300P23	46		W559-434-20 (WITH 65)	153XK1	A3	7-3.2
300J23	47		W639-440-20 (WITH 65)	300J47	15	7-3.2	300P23	47		W559-430-20 (WITH 65)	153S1	4	7-3.2
300J24		FA	SHLD GRD M22	300J24	4	7-5.2	300P24		FA	SHLDGRDY22	300P24	4	7-5.2
300J24	1		W639-344-22-RED	137J6	H	7-5.2	300P24	1		W557-805-22-RED	137P2	E	7-5.2
300J24	2		W639-345-22-BLU	137J6	J	7-5.2	300P24	2		W557-806-22-BLU	137P2	F	7-5.2
300J24	3		W639-346-22-YEL	137J6	K	7-5.2	300P24	3		W557-807-22-YEL	137P2	G	7-5.2
300J24	4		SHLD GRD M22	300J24		7-5.2	300P24	4		SHLD GRD Y22	300P24		7-5.2
300J24	5		W639-347-22	137J6	L	7-5.2	300P24	5		W557-808-22	137P2	D	7-5.2
300J24	6		W639-348-22	137J6	M	7-5.2	300P24	6		W557-809-22	137P2	A	7-5.2
300J24	7		W639-349-22	137J6	N	7-5.2	300P24	7		W557-810-22	137P2	B	7-5.2
300J24	8		W639-350-22	137J6	P	7-5.2	300P24	8		W557-811-22	137P2	C	7-5.2
300J24	9		W639-351-22	137J6	R	7-5.2	300P24	9		W557-812-22	137P2	H	7-5.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J24	10		W639-352-22	137J6	S	7-5.2
300J24	11		W639-353-22	300J47	19	7-5.2
300J24	12		W639-354-22	300J47	20	7-5.2
300J24	13		W639-355-22	300J47	21	7-4.2
300J25	A		W696-43-22 (WITHOUT 74)	TB18	12	4-6.1
300J25	A		W591-1859-20 RED (WITH 74)	SPLICE		4-12.1
300J25	B		W696-44-22 (WITHOUT 74)	TB18	13	4-6.1
300J25	B		W591-1860-20 BLU (WITH 74)	SPLICE		4-12.1
300J25	C		W696-45-22 (WITHOUT 74)	TB18	3	4-6.1
300J25	C		W591-1861-20 YEL (WITH 74)	SPLICE		4-12.1
300J25	D		W696-46-22 (WITHOUT 74)	TB18	14	4-6.1
300J25	D		W592-1859-20 RED (WITH 74)	SPLICE		4-12.1
300J25	E		W592-1860-20 BLU (WITH 74)	SPLICE		4-12.1
300J25	F		W696-47-22 (WITHOUT 74)	TB18	6	4-6.1
300J25	F		W592-1861-20 YEL (WITH 74)	SPLICE		4-12.1
300J25	G		W696-29-20	TB9	4	9-4.2
300J25	H		W696-28-20	TB9	6	9-4.2
300J25	J		W696-27-20	TB9	5	9-4.2
300J25	K		W696-26-20	TB9	7	9-4.2
300J25	L		W696-25-20	TB9	8	9-4.2
300J25	N		W696-60-22	TB18	10	11-2.1
300J25	P		F9034B22-WH	P2001R	13	16-4.1
300J25	R		F9037B22-GN	P2001 R	23	16-4.1
300J25	S		F9033822-RD	P2001 R	19	16-4.1
300J25	T		F9035B22-BL	P2001R	7	16-4.1
300J25	U		F9036B22-OR	P2001R	33	16-4.1
300J25	V		W696-58-22	TB18	11	11-2.1
300J25	W		W696-30-20	TB9	2	9-4.2
300J25	X		W696-31-20	SP0098		9-4.2
300J26	A		W696-48-22 (WITHOUT 74)	TB18	12	4-6.1
300J26	A		W591-1862-20 RED (WITH 74)	SPLICE		4-12.1
300J26	B		W696-49-22 (WITHOUT 74)	TB18	13	4-6.1
300J26	B		W591-1863-20 BLU (WITHOUT 74)	SPLICE		4-12.1
300J26	C		W696-50-22 (WITHOUT 74)	TB18	3	4-6.1
300J26	C		W591-1864-20 YEL (WITH 74)	SPLICE		4-12.1
300J26	D		W696-51-22 (WITHOUT 74)	TB18	14	4-6.1
300J26	D		W592-1862-20 RED (WITH 74)	SPLICE		4-12.1
300J26	E		W592-1863-20 BLU (WITH 74)	SPLICE		4-12.1
300J26	F		W696-52-22 (WITHOUT 74)	TB18	6	9-4.2
300J26	F		W592-1864-20 YEL (WITH 74)	SPLICE		4-12.1
300J26	G		W696-36-20	TB10	4	9-4.2
300J26	H		W696-35-20	TB10	6	9-4.2
300J26	J		W696-34-20	TB10	5	9-4.2
300J26	K		W696-37-20	TB10	7	9-4.2
300J26	L		W696-38-20	TB10	8	9-4.2
300J26	N		W696-59-22	TB18	10	11-2.1
300J26	P		F9029B22-WH	P2001R	6	16-4.1

PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300P24	10		W557-813-22	137P2	J	7-5.2
300P24	11		W557-814-22	137P2	P	7-5.2
300P24	12		W557-815-22	137P2	R	7-5.2
300P24	13		W557-821-22	SP0152		7-4.2

NOTE: 300J25 MATES WITH PILOT'S THRUST LEVER PLUG 300P25.

NOTE: 300J26 MATES WITH COPILOT'S THRUST LEVER PLUG 300P25.

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J26	R		F9032B22-GN	P2001R	15	16-4.1
300J26	S		F9033C22-RD	P2001R	19	16-4.1
300J26	T		F9030B22-BL	P2001R	14	16-4.1
300J26	U		F9031B22-OR	P2001R	31	16-4.1
300J26	V		W696-57-22	TB18	11	11-2.1
300J26	W		W696-33-20	TB10	2	9-4.2
300J26	X		W696-32-20	SP0099		9-4.2

NOTE: 300P28 MATES WITH MAINTENANCE PANEL RECEPTACLE J2.

PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
NOTE: 300J26 MATES WITH COPILOT'S THRUST LEVER PLUG 300P25.						
300P28	A		W666-11-22	300J51	6	8-7.1
300P28	A		W666-11-22	300J51	6	8-7.1
300P28	B		W666-12-22	300J51	7	8-7.1
300P28	C		W666-111-20	300J51	56	8-8.1
300P28	D		W666-112-20	300J51	57	8-8.1
300P28	E		W666-103-20	300J51	1	7-1.2
300P28	F		W666-104-20	300J51	24	7-1.2
300P28	G		W666-105-20	300J51	25	7-1.2
300P28	H		W666-106-20	300J51	26	7-1.2
300P28	J		W666-115-22	300J51	58	7-1.2
300P28	K		W666-116-22	300J51	59	7-1.2
300P28	L		W666-119-22	300J51	60	7-1.2
300P28	M		W666-107-22	235P1	1	6-2.1
300P28	N		W666-66-20	300J51	41	6-2.1
300P28	P		W666-110-22	235P5	1	6-2.1
300P28	R		W666-108-22	235P1	4	6-2.1
300P28	S		W666-137-22	043P15	2	8-9.1
300P28	T		W666-65-20	300J51	40	6-2.1
300P28	U		W666-109-22	235P6	1	6-2.1
300P28	V		W666-143-22	235P7	1	6-2.1
300P28	W		W666-118-22	143P6	1	7-2.2
300P28	X		W666-33-22	300J51	3	8-9.1
300P28	Y		W666-120-22	144P3	2	7-1.2
300P28	Z		W666-121-22	144P4	2	7-2.2
300P28	A-		W666-155-22	SP0186		6-1.2
300P28	B-		W666-146-22	235P4	1	6-1.2
300P28	C-		W666-144-22	042P9	1	6-1.2
300P28	D-		W666-90-22	043P16	2	8-9.1
300P28	E-		W666-67-20	300J51	42	6-1.2
300P28	F-		W666-133-22	300J51	55	8-9.1
300P28	G-		W666-132-22	300J51	54	8-9.1
300P28	H-		W666-GD188A22N	GD188		7-1.2
300P28	I-		W666-46-22	300J51	29	7-1.2
300P28	J-		W666-136-22	043P13	2	8-9.1
300P28	K-		W666-135-22	043P12	2	8-9.1
300P28	M-		W666-151-22	235P3	1	6-1.2
300P28	N-		W666-117-22	043P10	2	8-9.1
300P28	P-		W666-134-22	043P9	2	8-9.1
300P28	Q-		W666-44-22	300J51	2	8-9.1
300P28	R-		W666-45-22	300J51	28	8-8.1

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J29	A		W696-42-22	TB18	7	16-1.2
300J29	B		W696-41-22	TB18	8	16-1.2
300J29	C		W696-56-22-BLU	TB18	19	16-2.1
300J29	D		W696-55-22-RED	TB18	20	16-2.1
300J29	E		W696-14-20	TB18	2	11-2.1
300J29	F		W696-15-20	TB18	5	11-2.1
300J29	G		W696-11-20	TB17	2H	NOTE 1
300J29	H		W696-17-20	TB18	17	11-3.1.1
300J29	J		W696-18-20	TB18	18	11-3.1.1
300J29	K		W696-10-20	TB17	2G	NOTE 1
300J29	L		W696-16-20	TB18	16	11-3.1.1
300J29	M		W696-40-22	TB18	15	16-1.2
300J29	P		W696-7-22	SP0145		NOTE 1
300J29	R		W696-8-22	SP0146		NOTE 1
300J29	S		W696-9-22	SP0147		NOTE 1
300J30	A		W696-3-22	TB18	7	16-1.2
300J30	B		W696-2-22	TB18	8	16-1.2
300J30	C		W696-54-22-BLU	TB18	19	16-2.1
300J30	D		W696-53-22-RED	TB18	20	16-2.1
300J30	E		W696-19-20	TB18	2	11-2.1
300J30	F		W696-20-20	TB18	5	11-2.1
300J30	G		W696-13-20	TB17	2L	NOTE 1
300J30	H		W696-22-20	TB18	17	11-3.1.1
300J30	J		W696-23-20	TB18	18	11-3.1.1
300J30	K		W696-12-20	TB17	2K	NOTE 1
300J30	L		W696-21-20	TB18	16	11-3.1.1
300J30	M		W696-1-22	TB18	15	16-1.2
300J30	P		W696-4-22	SPO142		NOTE 1
300J30	R		W696-5-22	SPO143		NOTE 1
300J30	S		W696-6-22	SPO144		NOTE 1

NOTE: 300P31 MATES WITH MAINTENANCE PANEL RECEPTACLE J1.

PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300P28	S-		W666-68-20	300J51	43	6-2.1
300P28	T-		W666-14-22	300J51	15	8-10.1
300P28	U-		W666-29-22	042P4	2	8-10.1
300P28	V-		W666-21-22	042P5	2	8-10.1
300P28	W-		W666-27-22	042P6	2	8-10.1
300P28	X-		W666-25-22	042P8	2	8-10.1
300P28	Y-		W666-15-22	300J51	14	8-10.1

NOTE: 300J29 MATES WITH PILOT'S CYCLIC GRIP PLUG.

NOTE: 300J30 MATES WITH COPILOT'S CYCLIC GRIP PLUG.

300P31	A		W668-123-22	300P44	30	8-7.1
300P31	B		W668-124-22	300P44	31	8-7.1
300P31	C		W668-120-22	041P6	1	8-7.1
300P31	D		W668-119-22	041P6	2	8-7.1
300P31	E		W668-46-22	300P44	40	8-8.1
300P31	F		W668-62-22	300P44	41	8-8.1
300P31	G		W668-44-22	300P44	42	8-8.1
300P31	H		W668-45-22	300P44	43	8-8.1
300P31	J		W668-22-22	300P44	36	7-1.2
300P31	K		W668-23-22	300P44	37	7-1.2

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
NOTE: 300P31 MATES WITH MAINTENANCE PANEL RECEPTACLE J1.						
300J32	FA		SHLD GRD A22 (WITHOUT 74)	300J32	14	8-6.1
300J32	FB		SHLD GRD D22 (WITHOUT 74)	300J32	51	4-6.1
300J32	5		W592-17-22 (WITHOUT 43 AND 74)	300P43	18	4-2.2
300J32	7		W592-65-22-BLU (WITHOUT 74)	102P3	S	4-5.1
300J32	8		W592-64-22-RED (WITHOUT 74)	102P3	R	4-5.1
300J32	9		W592-66-22 (WITHOUT 74)	102P3	E	4-5.1
300J32	10		W592-62-22-RED (WITHOUT 74)	102P3	H	4-5.1
300J32	11		W592-63-22-BLU (WITHOUT 74)	102P3	G	4-5.1
300J32	12		W592-4-22-RED (WITHOUT 74)	300P43	8	8-6.1
300J32	13		W592-5-22-BLU (WITHOUT 74)	300P43	9	8-6.1
300J32	14		SHLD GRD A22 (WITHOUT 74)	300J32		8-6.1
300J32	17		W592-18-22 (WITHOUT 74)	SP0186		8-6.1
300J32	19		W592-1-22-RED (WITHOUT 74)	300P43	5	8-6.1
300J32	20		W592-2-22-BLU (WITHOUT 74)	300P43	6	8-6.1
300J32	21		W592-3-22-YEL (WITHOUT 74)	300P43	7	8-6.1
300J32	22		W592-GD057A22N (WITHOUT 74)	GD057		4-4.2
300J32	23		W592-19-20 (WITHOUT 74)	300P43	19	4-4.2
300J32	24		W592-20-20 (WITHOUT 74)	300P43	20	4-4.2
300J32	25		W592-12-22 (WITHOUT 74)	300P43	2	8-2.1
300J32	26		W592-13-22 (WITHOUT 74)	300P43	3	8-2.1
300J32	27		W592-11-22 (WITHOUT 74)	300P43	1	8-2.1
300J32	28		W592-6-22 (WITHOUT 74)	300P43	11	8-4.1
300J32	29		W592-7-22 (WITHOUT 74)	300P43	12	8-4.1
300J32	30		W592-16-22 (WITHOUT 74)	300P43	4	4-3.1
300J32	32		W592-A D59A20N (WITHOUT 43 AND 74)	GD059		4-2.2
300J32	34		W592-GD057B22N (WITHOUT 74)	GD057		4-4.2
300J32	35		W592-GD023A20N (WITHOUT )	GD023		8-3.1

PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300P31	L		W668-24-22	300P44	38	7-1.2
300P31	M		W668-188-22	SP0185		6-1.2
300P31	N		W668-40-20	300P44	32	7-2.2
300P31	P		W668-41-22	300P44	33	7-2.2
300P31	R		W668-43-22	300P44	35	7-2.2
300P31	S		W668-105-20	300P44	50	6-1.2
300P31	T		W668-47-22	300P44	44	7-1.2
300P31	U		W668-48-22	300P44	45	7-1.2
300P31	V		W668-95-22	143P5	1	7-2.2
300P31	W		W668-28-22	300P44	39	7-2.2
300P31	X		W668-49-22	300P44	46	7-2.2
300P31	Y		W668-42-22	300P44	34	7-2.2
300P31	Z		W668-50-22	300J54	2	8-14.1
300P31	A-		W668-125-22	300P44	47	8-9.1
300P31	B-		W668-110-22	SP0120		6-1.2
300P31	C-		W668-GD188B22N	GD188		8-8.1
300P31	D-		W668-73-20	300J52	9	6-1.2
300P31	E-		W668-GD203A22N	GD203		8-14.1
300P31	F-		W668-39-22	300J54	12	7-1.2

NOTE: 300J32 MATES WITH NO. 2 ENGINE COMPARTMENT CABLE 300W1 (WITHOUT 74).

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J32	36		W592-8-22 (WITHOUT 74)	300P43	15	8-3.1
300J32	37		W592-9-22 (WITHOUT 74)	300P43	13	8-3.1
300J32	38		W592-10-22 (WITHOUT 74)	300P43	14	8-3.1
300J32	39		W592-42-22 (WITHOUT 74)	103P2	G	4-6.1
300J32	40		W592-43-22 (WITHOUT 74)	103P2	H	4-6.1
300J32	41		W592-46-22 (WITHOUT 74)	TB19	3	4-6.1
300J32	42		W592-37-22 (WITHOUT 74)	103K3	B2	4-6.1
300J32	43		W592-36-22 (WITHOUT 74)	103K3	A2	4-6.1
300J32	44		W592-GD061A20N (WITHOUT 74)	GD061		4-6.1
300J32	45		W592-70-22 (WITHOUT 74)	102P3	A	4-5.1
300J32	46		W592-67-22 (WITHOUT 74)	102P3	F	4-5.1
300J32	47		W592-72-22-RED (WITHOUT 74)	102P3	K	4-5.1
300J32	48		W592-73-22-BLU (WITHOUT 74)	102P3	J	4-5.1
300J32	49		W592-69-22-BLU (WITHOUT 74)	102P3	P	4-5.1
300J32	51		SHLD GRD D22 (WITHOUT 74)	300J32		4-6.1
300J32	52		W592-68-22-RED (WITHOUT 74)	102P3	N	4-5.1
300J32	53		W592-71-22 (WITHOUT 74)	102P3	B	4-5.1
300J33		FA	SHLD GRD A22 (WITHOUT 74)	300J33	14	8-6.1
300J33		FB	SHLD GRD D22 (WITHOUT 74)	300J33	51	4-6.1
300J33	5		W591-17-22 (WITHOUT 43 AND 74)	300P42	18	4-2.2
300J33	7		W591-49-22-BLU (WITHOUT 74)	102P1	S	4-5.1
300J33	8		W591-48-22-RED (WITHOUT 74)	102P1	R	4-5.1
300J33	9		W591-50-22 (WITHOUT 74)	102P1	E	4-5.1
300J33	10		W591-46-22-RED (WITHOUT 74)	102P1	H	4-5.1
300J33	11		W591-47-22-BLU (WITHOUT 74)	102P1	G	4-5.1
300J33	12		W591-4-22-RED (WITHOUT 74)	300P42	8	8-6.1
300J33	13		W591-5-22-BLU (WITHOUT 74)	300P42	9	8-6.1
300J33	14		SHLD GRD A22 (WITHOUT 74)	300J42	10	8-6.1
300J33	17		W591-18-22 (WITHOUT 74)	SP0185		6-2.1
300J33	19		W591-1-22-RED (WITHOUT 74)	300P42	5	8-6.1
300J33	20		W591-2-22-BLU (WITHOUT 74)	300P42	6	8-6.1
300J33	21		W591-3-22-YEL (WITHOUT 74)	300P42	7	8-6.1
300J33	22		W591-GD056A22N (WITHOUT 74)	GD056		4-4.2
300J33	23		W591-19-20 (WITHOUT 74)	300P42	19	4-4.2
300J33	24		W591-20-20 (WITHOUT 74)	300P42	20	4-4.2
300J33	25		W591-12-22 (WITHOUT 74)	300P42	2	8-2.1
300J33	26		W591-13-22 (WITHOUT 74)	300P42	3	8-2.1
300J33	27		W591-11-22 (WITHOUT 74)	300P42	1	8-2.1
300J33	28		W591-6-22 (WITHOUT 74)	300P42	11	8-4.1
300J33	29		W591-7-22 (WITHOUT 74)	300P42	12	8-4.1
300J33	30		W591-16-22 (WITHOUT 74)	300P42	4	4-3.1
300J33	32		W591-GD058A20N (WITHOUT 43 AND 74)	GD058		4-2.2
300J33	34		W591-GD056B22N (WITHOUT 74)	GD056		4-4.2
300J33	35		W591-GD024A20N (WITHOUT 74)	GD024		8-3.1
300J33	36		W591-10-22 (WITHOUT 74)	300P42	15	8-3.1
300J33	37		W591-9-22 (WITHOUT 74)	300P42	14	8-3.1

NOTE: 300J32 MATES WITH NO. 2 ENGINE COMPARTMENT CABLE 300W1 (WITHOUT 74).

NOTE: 300J33 MATES WITH NO. 1 ENGINE COMPARTMENT CABLE 300W1 (WITHOUT 74).

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J33	38		W591-8-22 (WITHOUT 74)	300P42	13	8-3.1
300J33	39		W591-22-22 (WITHOUT 74)	103P1	G	4-6.1
300J33	40		W591-21-22 (WITHOUT 74)	103P1	H	4-6.1
300J33	41		W591-27-22 (WITHOUT 74)	TB20	3	4-6.1
300J33	42		W591-32-22 (WITHOUT 74)	103K4	B2	4-6.1
300J33	43		W591-31-22 (WITHOUT 74)	103K4	A2	4-6.1
300J33	44		W591-GD060A20N (WITHOUT 74)	GD060		4-6.1
300J33	45		W591-54-22 (WITHOUT 74)	102P1	A	4-5.1
300J33	46		W591-51-22 (WITHOUT 74)	102P1	F	4-5.1
300J33	47		W591-56-22-RED (WITHOUT 74)	102P1	K	4-5.1
300J33	48		W591-57-22-BLU (WITHOUT 74)	102P1	J	4-5.1
300J33	49		W591-53-22-BLU (WITHOUT 74)	102P1	P	4-5.1
300J33	51		SHLD GRD D22 (WITHOUT 74)	300J33		4-6.1
300J33	52		W591-52-22-RED (WITHOUT 74)	102P1	N	4-5.1
300J33	53		W591-55-22 (WITHOUT 74)	102P1	B	4-5.1
300J34		FA	SHLD GRD B22	SM0003		8-11.1
300J34	A		W625-57-22	171 P3	A	10-2.1
300J34	B		W625-GD147A22N	GD147		10-2.1
300J34	C		W625-59-22	171 P3	C	10-2.1
300J34	D		W625-GD147B22N	GD147		10-2.1
300J34	E		W625-58-22	171P3	B	10-2.1
300J34	H		W625-18-22	SM0006		8-11.1
300J34	J		W625-16-22	SM0003		8-11.1
300J34	K		W625-17-COAX	057P6	14	8-11.1
300J34	L		W625-15-22	SM0003		8-11.1
300J34	M		W625-86-22	SM0004		10-2.1
300J34	N		W625-87-22	SM0004		10-2.1
300J34	P		W625-82-22	174P7	L	10-2.1
300J34	R		W625-81-22	174P7	M	10-2.1
300J34	T		W625-19-22	057P6	1	8-11.1
300J34	U		W625-GD263A20N	GD263		8-11.1
300J34	V		W625-20-22	057P6	4	8-11.1
300J34	W		W625-GD263-B20N	GD263		8-11.1
300J34	Y		W625-14-22	SM0003		8-11.1
300J35		FA	SHLD GRD A22	SM0002		8-11.1
300J35	A		W625-47-22	171P3	U	10-2.1
300J35	B		W625-GD148B22N	GD148		10-2.1
300J35	C		W625-49-22	171P3	S	10-2.1
300J35	D		W625-GD148A22N	GD148		10-2.1
300J35	E		W625-48-22	171 P3	T	10-2.1
300J35	H		W625-9-22	057P6	15	8-11.1
300J35	J		W625-11-22	SM0002		8-11.1
300J35	K		W625-10-COAX	057P6	16	8-11.1
300J35	L		W625-12-22	SM0002		8-11.1
300J35	M		W625-8-22	300P55	9	8-11.1
300J35	N		W625-7-22	300P55	7	8-11.1
300J35	P		W625-6-22	300P55	5	8-11.1

NOTE: 300J33 MATES WITH NO. 1 ENGINE COMPARTMENT CABLE 300W1 (WITHOUT 74).

NOTE: 300J34 MATES WITH LEFT FWD AUX FUEL TANK CABLE 300W2.

NOTE: 300J35 MATES WITH LEFT MAIN FUEL TANK CABLE 300W6.

GO TO NEXT PAGE



1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J35	R		W625-GD152A20N	GD152		8-11.1
300J35	Y		W625-13-22	SM0002		8-11.1
300J36		FA	SHLD GRD A22	SM0001		8-11.1
300J36	A		W629-51-22	171P4	A	10-2.1
300J36	B		W629-GD154A22N	GD154		10-2.1
300J36	C		W629-53-22	171P4	C	10-2.1
300J36	D		W629-GD154B22N	GD154		10-2.1
300J36	E		W629-52-22	171P4	B	10-2.1
300J36	H		W629-15-22	SM0004		8-11.1
300J36	J		W629-14-22	SM0001		8-11.1
300J36	K		W629-7-COAX	057P4	A14	8-11.1
300J36	L		W629-13-22	SM0001		8-11.1
300J36	M		W629-82-22	SM0005		10-2.1
300J36	N		W629-81-22	SM0005		10-2.1
300J36	P		W629-76-22	174P8	L	10-2.1
300J36	R		W629-75-22	174P8	M	10-2.1
300J36	T		W629-27-22	057J8	11	8-11.1
300J36	U		W629-GD221A22N	GD221		8-11.1
300J36	V		W629-26-22	057J8	9	8-11.1
300J36	W		W629-GD221 B22N	GD221		8-11.1
300J36	Y		W629-12-22	SM0001		8-11.1
300J37		FA	SHLD GRD B22	SM0002		8-11.1
300J37	A		W629-41-22	171P4	U	10-2.1
300J37	B		W629-GD156A22N	GD156		10-2.1
300J37	C		W629-43-22	171P4	S	10-2.1
300J37	D		W629-GD156-B22N	GD156		10-2.1
300J37	E		W629-42-22	171P4	T	10-2.1
300J37	H		W629-21-22	057P4	15	8-11.1
300J37	J		W629-22-22	SM0002		8-11.1
300J37	K		W629-8-COAX	057P4	A16	8-11.1
300J37	L		W629-23-22	SM0002		8-11.1
300J37	M		W629-3-22	300P56	9	8-11.1
300J37	N		W629-2-22	300P56	7	8-11.1
300J37	P		W629-1-22	300P56	5	8-11.1
300J37	R		W629-GD157A22N	GD157		8-11.1
300J37	Y		W629-24-22	SM0002		8-11.1
300J38		FA	SHLD GRD C22	SM0001		8-11.1
300J38	A		W625-64-22	171P5	U	10-2.1
300J38	B		W625-GD150B22N	GD150		10-2.1
300J38	C		W625-66-22	171P5	S	10-2.1
300J38	D		W625-GD150A22N	GD150		10-2.1
300J38	E		W625-65-22	171P5	T	10-2.1
300J38	H		W625-27-22	SM0006		8-11.1
300J38	J		W625-29-22	SM0001		8-11.1
300J38	K		W625-28-COAX	057P6	20	8-11.1
300J38	L		W625-30-22	SM0001		8-11.1
300J38	M		W625-88-22	SM0005		10-2.1

NOTE: 300J35 MATES WITH LEFT MAIN FUEL TANK CABLE 300W6.

NOTE: 300J36 MATES WITH RIGHT FWD AUX FUEL TANK CABLE 300W4.

NOTE: 300J37 MATES WITH RIGHT MAIN FUEL TANK CABLE 300W7.

NOTE: 300J38 MATES WITH LEFT AFT AUX FUEL TANK CABLE 300W3.

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J38	N		W625-89-22	SM0005		10-2.1
300J38	P		W625-77-22	174P7	A	10-2.1
300J38	R		W625-78-22	174P7	P	10-2.1
300J38	T		W625-25-22	057P6	5	8-11.1
300J38	U		W625-GD261C22N	GD261		8-11.1
300J38	V		W625-26-22	057P6	7	8-11.1
300J38	W		W625-GD261D22N	GD261		8-11.1
300J38	Y		W625-31-22	SM0001		8-11.1
300J39		FA	SHLD GRD C22	SM0003		8-11.1
300J39	A		W629-58-22	171P6	U	10-2.1
300J39	B		W629-GD159A22N	GD159		10-2.1
300J39	C		W629-60-22	171P6	S	10-2.1
300J39	D		W629-GD159B22N	GD159		10-2.1
300J39	E		W629-59-22	171P6	T	10-2.1
300J39	H		W629-17-22	SM0004		8-11.1
300J39	J		W629-18-22	SM0003		8-11.1
300J39	K		W629-9-COAX	057P4	A20	8-11.1
300J39	L		W629-19-22	SM0003		8-11.1
300J39	M		W629-83-22	SM0006		10-2.1
300J39	N		W629-84-22	SM0006		10-2.1
300J39-	P		W629-71-22	174P8	A	10-2.1
300J39	R		W629-72-22	174P8	P	10-2.1
300J39	T		W629-32-22	057J8	25	8-11.1
300J39	U		W629-GD222C22N	GD222		8-11.1
300J39	V		W629-31-22	057J8	24	8-11.1
300J39	W		W629-GD222D22N	GD222		8-11.1
300J39	Y		W629-20-22	SM0003		8-11.1
300J40	1		W625-74-22	300P55	22	10-2.1
300J40	2		W625-GD151A22N	GD151		10-2.1
300J40	4		W625-83-20	300P55	3	9-3.1
300J41	1		W629-68-22	300P56	21	10-2.1
300J41	2		W629-GD155A20N	GD155		10-2.1
300J41	6		W629-79-22	300P56	3	9-3.1
300J42		FA	SHLD GRD B22 (WITHOUT 74)	300J42	10	8-6.1
300J42		FB	SHLD GRD K22 (WITHOUT 74)	300J42	26	4-6.1
300J42	1		W645-1-22 (WITHOUT 74)	300J61	1	8-2.1
300J42	2		W645-2-22 (WITHOUT 74)	300J61	2	8-2.1
300J42	3		W645-3-22 (WITHOUT 74)	300J61	3	8-2.1
300J42	4		W645-4-22 (WITHOUT 74)	300J61	4	4-3.1
300J42	5		W645-25-22-RED (WITHOUT 74)	300J61	11	8-6.1
300J42	6		W645-26-22-BLU (WITHOUT 74)	300J61	12	8-6.1
300J42	7		W645-27-22-YEL (WITHOUT 74)	300J61	13	8-6.1
300J42	8		W645-28-22-RED (WITHOUT 74)	300J61	15	8-6.1
300J42	9		W645-29-22-BLU (WITHOUT 74)	300J61	16	8-6.1
300J42	10		SHLD GRD B22 (WITHOUT 74)	300J61	17	8-6.1

PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
NOTE: 300J38 MATES WITH LEFT AFT AUX FUEL TANK CABLE 300W3.						
NOTE: 300J39 MATES WITH RIGHT AFT AUX FUEL TANK CABLE 300W5.						
300P40	1		W654-1-22	174P1	A	10-2.1
300P40	2		W654-2-22	174P1	B	10-2.1
300P40	3		W654-3-22	174P1	C	10-2.1
300P40	4		W654-10-20	111DS1		9-3.1
300P41	1		W655-7-22	174P3	A	10-2.1
300P41	2		W655-8-22	174P3	B	10-2.1
300P41	3		W655-9-22	174P3	C	10-2.1
300P41	6		W655-47-20	111DS2		9-3.1
300P42		FA	SHLD GRD B22 (WITHOUT 74)	300P42	10	8-6.1
300P42		FB	SHLD GRD E22 (WITHOUT 74)	300P42	26	4-6.1
300P42	1		W591-11-22 (WITHOUT 74)	300J33	27	8-2.1
300P42	2		W591-12-22 (WITHOUT 74)	300J33	25	8-2.1
300P42	3		W591-13-22 (WITHOUT 74)	300J33	26	8-2.1
300P42	4		W591-16-22 (WITHOUT 74)	300J33	30	4-3.1
300P42	5		W591-1-22-RED (WITHOUT 74)	300J33	19	8-6.1
300P42	6		W591-2-22-BLU (WITHOUT 74)	300J33	20	8-6.1
300P42	7		W591-3-22-YEL (WITHOUT 74)	300J33	21	8-6.1
300P42	8		W591-4-22-RED (WITHOUT 74)	300J33	12	8-6.1
300P42	9		W591-5-22-BLU (WITHOUT 74)	300J33	13	8-6.1
300P42	10		SHLD GRD B22 (WITHOUT 74)	300P33	14	8-6.1

GO TO NEXT PAGE

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J42	11		W645-31-22 (WITHOUT 74)	300J61	18	8-4.1	300P42	11		W591-6-22 (WITHOUT 74)	300J33	28	8-4.1
300J42	12		W645-32-22 (WITHOUT 74)	300J61	19	8-4.1	300P42	12		W591-7-22 (WITHOUT 74)	300J33	29	8-6.1
300J42	13		W645-35-22 (WITHOUT 74)	300J61	20	8-3.1	300P42	13		W591-8-22 (WITHOUT 74)	300J33	38	8-3.1
300J42	14		W645-36-22 (WITHOUT 74)	300J61	21	8-3.1	300P42	14		W591-9-22 (WITHOUT 74)	300J33	37	8-3.1
300J42	15		W645-34-22 (WITHOUT 74)	300J14	3	8-3.1	300P42	15		W591-10-22 (WITHOUT 74)	300J33	36	8-3.1
300J42	16		W645-40-20-RED (WITHOUT 74)	300J61	25	8-5.1	300P42	16		W591-14AL20-RED (WITHOUT 74)	056J4	A36	8-5.1
300J42	17		W645-41-20-BLU (WITHOUT 74)	300J61	26	8-5.1	300P42	17		W591-15CR20-YEL (WITHOUT 74)	056J4	B	8-5.1
300J42	18		W645-55-22 (WITHOUT 43 AND 74)	300J21	5	4-2.2	300P42	18		W591-17-22 (WITHOUT 43 AND 74)	300J33	5	4-2.2
300J42	19		W645-206-20 (WITHOUT 74)	300J21	17	4-4.2	300P42	19		W591-19-20 (WITHOUT 74)	30J33	23	4-4.2
300J42	20		W645-207-20 (WITHOUT 74)	300J21	18	4-4.2	300P42	20		W591-20-20 (WITHOUT 74)	300J33	24	4-4.2
300J42	22		W645-308-22 (WITHOUT 74)	TB24	7	4-6.1	300P42	22		W591-29-22 (WITHOUT 74)	TB20	2	4-6.1
300J42	23		W645-317-22 (WITHOUT 74)	TB24	5	4-6.1	300P42	23		W591-63-22 (WITHOUT 74)	103P1	D	4-6.1
300J42	24		W645-318-22 (WITHOUT 74)	TB24	6	4-6.1	300P42	24		W591-64-22 (WITHOUT 74)	103P1	C	4-6.1
300J42	25		W645-319-22 (WITHOUT 74)	TB24	8	4-6.1	300P42	25		W591-65-22 (WITHOUT 74)	103P1	E	4-6.1
300J42	26		SHLD GRD K22 (WITHOUT 74)	GD201		4-6.1	300P42	26		SHLD GRD E22 (WITHOUT 74)	300P42		4-6.1
300J42	27		W645-320-22 (WITHOUT 74)	300J61	39	4-6.1	300P42	27		W591-66-22 (WITHOUT 74)	103P1	K	4-6.1
300J42	28		W645-314-22 (WITHOUT 74)	TB18	12	4-6.1	300P42	28		W591-26-22 (WITHOUT 74)	103K1	X1	4-6.1
300J42	29		W645-315-22 (WITHOUT 74)	TB18	3	4-6.1	300P42	29		W591-24-22 (WITHOUT 74)	103K1	B3	4-6.1
300J42	30		W645-316-22 (WITHOUT 74)	TB18	14	4-6.1	300P42	30		W591-23-22 (WITHOUT 74)	103K1	B1	4-6.1
300J42	31		W645-321-22 (WITHOUT 74)	300J14	43	4-5.1	300P42	31		W591-37-22 (WITHOUT 74)	102P2	T	4-5.1
300J42	32		W645-329-22 (WITHOUT 74)	300J61	38	4-5.1	300P42	32		W591-38-22 (WITHOUT 74)	102P2	S	4-5.1
300J42	33		W645-322-22-RED (WITHOUT 74)	300J21	29	4-5.1	300P42	33		W591-39-22-RED (WITHOUT 74)	102P2	B	4-5.1
300J42	34		W645-323-22-BLU (WITHOUT 74)	300J21	30	4-5.1	300P42	34		W591-40-22-BLU (WITHOUT 74)	102P2	A	4-5.1
300J42	35		W645-324-22-RED (WITHOUT 74)	300J21	31	4-5.1	300P42	35		W591-41-22-RED (WITHOUT 74)	102P2	D	4-5.1
300J42	36		W645-325-22-BLU (WITHOUT 74)	300J21	32	4-5.1	300P42	36		W591-42-22-BLU (WITHOUT 74)	102P2	C	4-5.1
300J42	37		W645-326-22 (WITHOUT 74)	300J21	33	4-5.1	300P42	37		W591-43-22 (WITHOUT 74)	102P2	E	4-5.1
300J42	38		W645-327-22-RED (WITHOUT 74)	300J21	34	4-5.1	300P42	38		W591-44-22-RED (WITHOUT 74)	102P2	L	4-5.1
300J42	39		W645-328-22-BLU (WITHOUT 74)	300J21	35	4-5.1	300P42	39		W591-45-22-BLU (WITHOUT 74)	102P2	M	4-5.1
300J42	40		W645-330-22 (WITHOUT 74)	300J61	40	4-6.1	300P42	40		W591-62-22 (WITHOUT 74)	103K4	X1	4-6.1
300J42	41		W645-331-22 (WITHOUT 74)	300J61	48	4-6.1	300P42	41		W591-61-22 (WITHOUT 74)	103K4	A1	4-6.1
300J42	42		W645-307-22 (WITHOUT 74)	300J61	41	4-6.1	300P42	42		W591-59-22 (WITHOUT 74)	103K4	B1	4-6.1
300J42	1		W591-2008-22 (WITH 74)	300J1	2	8-6.1	300P42	1		W591-1897-22 (WITH 74)	051 P5	A	8-6.1
300J42	2		W592-2022-20 (WITH 74)	300J61	26	4-10.1	300P42	2		W592-2023-20 (WITH 74)	101K2	X1	4-10.1
300J42	3		W591-2058-20 (WITH 74)	300J61	41	4-12.1	300P42	3		W591-1774-20 (WITH 74)	104P1	DD	4-12.1
300J42	4		W591-2059-20 (WITH 74)	300J61	48	4-12.1	300P42	4		W591-1875-20 (WITH 74)	104P1	P	4-12.1
300J42	5		W592-2024-20 (WITH 74)	300J61	39	4-11.1	300P42	5		W592-2025-20 (WITH 74)	102K2	A2	4-11.1
300J42	6		W591-2024-20 (WITH 74)	300J61	38	4-11.1	300P42	6		W591-2026-20 (WITH 74)	102K1	A2	4-11.1
300J42	7		W591-2080-20 (WITH 74)	300J61	9	4-9.1	300P42	7		W591-1914-20 (WITH 74)	300J81	E	4-9.1
300J42	8		W591-2016-22 (WITH 74)	300J61	16	8-3.1	300P42	8		W591-1963-22 (WITH 74)	300J81	P	8-3.1
300J42	9		W591-1927-20 (WITH 74)	TB17	7E	4-11.1	300P42	9		W591-2025-20 (WITH 74)	SPLICE		4-11.1
300J42	10		W591-2018-22 (WITH 74)	300J61	14	8-3.1	300P42	10		W591-1965-22 (WITH 74)	300J81	R	8-3.1
300J42	11		W591-2017-22 (WITH 74)	300J61	15	8-3.1	300P42	11		W591-1964-22 (WITH 74)	300J81	S	8-3.1
300J42	12		W591-2030-22 (WITH 74)	300J85	W	4-11.1	300P42	12		W591-2037-22 WHT (WITH 74)	104P3	EE	4-11.1
300J42	13		W591-2029-22 BLU (WITH 74)	300J85	V	4-11.1	300P42	13		W591-2036-22 BLU (WITH 74)	104P3	DD	4-11.1
300J42	14		W591-INNER SHLD (WITH 74)	30J85	X	4-11.1	300P42	14		W591-2036/7 SHLD (WITH 74)	104P3	CC	4-11.1
300J42	16		W591-2002-22 RED (WITH 74)	300J61	2	8-6.1	300P42	16		W591-2004-22 RED (WITH 74)	051P3	G	8-6.1
300J42	17		W591-2001-22 BLU (WITH 74)	300J61	1	8-6.1	300P42	17		W591-2003-22 BLU (WITH 74)	051P3	H	8-6.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J42	28		W591-2069-20 YEL (WITH 74)	SPLICE		4-11.1	300P42	28		W591-1849-20 YEL (WITH 74)	104P3	KK	4-11.1
300J42	29		W591-2070-20 BLU (WITH 74)	SPLICE		4-11.1	300P42	29		W591-1848-20 BLU (WITH 74)	104P3	w	4-11.1
300J42	30		W591-2068-20 RED (WITH 74)	SPLICE		4-11.1	300P42	30		W591-1847-20 (WITH 74)	104P3	JJ	4-11.1
300J42	31		W591-2043-20 RED (WITH 74)	300J85	B	4-11.1	300P42	31		W591-1845-20 (WITH 74)	104P3	x	4-11.1
300J42	32		W591-2042-20 BLU (WITH 74)	300J85	A	4-11.1	300P42	32		W591-1846-20 BLU (WITH 74)	104P3	e	4-11.1
300J42	34		W591-2031-22 RED (WITH 74)	300J85	Y	4-11.1	300P42	34		W591-2038-22 RED (WITH 74)	104P3	MM	4-11.1
300J42	35		W591-2032-22 YEL (WITH 74)	300J85	Z	4-11.1	300P42	35		W591-2039-22 YEL (WITH 74)	104P3	LL	4-11.1
300J42	36		W591-2033-22 BLU (WITH 74)	300J85	a	4-11.1	300P42	36		W591-2040-22 BLU (WITH 74)	104P3	f	4-11.1
300J42	36		W591-2033-22 BLU (WITH 74)	300J85	a	4-11.1	300P42	36		W591-2040-22 BLU (WITH 74)	104P3	f	4-11.1
300J42	38		W591-2028-22 RED (WITH 74)	300J85	U	4-11.1	300P42	38		W591-2035-22 RED (WITH 74)	104P3	h	4-11.1
300J42	39		W591-2027-22 BLU (WITH 74)	300J85	T	4-11.1	300P42	39		W591-2034-22 BLU (WITH 74)	104P3	i	4-11.1
300J42	41		W591-2081-22 RED (WITH 74)	300J61	18	8-2.1	300P42	41		W591-1966-22 RED (WITH 74)	300J81	B	8-2.1
300J42	42		W591-2082-22 BLU (WITH 74)	300J61	19	8-2.1	300P42	42		W591-1967-22 BLU (WITH 74)	300J81	A	8-2.1
							300P42			W591-1966/7 SHLD (WITH 74)	300J81	L	8-2.1
300CJ42			W591-OUTER SHLD (WITH 74)	300CJ85		4-11.1	300CP42			W591-OUTER SHLD (WITH 74)	104CP3		4-11.1
300CJ42			W591-2031/3 SHLD (WITH 74)	300CJ85		4-11.1	300CP42			W591-2038/40 SHLD (WITH 74)	104CP3		4-11.1
300CJ42			W591-2027/18 SHLD (WITH 74)	300CJ85		4-11.1	300CP42			W591-2034/5 SHLD (WITH 74)	104CP3		4-11.1
300CJ42			W591-2068/70 SHLD (WITH 74)	SPLICE		4-11.1	300CP42			W591-1845/6 SHLD (WITH 74)	104CP3		
300CJ42			W591-2042/3 SHLD (WITH 74)	300CJ85		4-11.1	300CP42			W591-2036/7 OSHLD (WITH 74)	104CP3		
300CJ42			W591-2001/2 SHLD (WITH 74)	300CJ61		8-6.1	300CP42			W591-2003/4 SHLD (WITH 74)	051CP3		8-6.1
							300CP42			W591-1847/9 SHLD (WITH 74)	104CP3		
300J43		FA	SHLD GRD C22 (WITHOUT 74)	300J43	10	8-6.1	300P43		FA	SHLD GRD B22 (WITHOUT 74)	300P43	10	8-6.1
300J43		FB	SHLD GRD U22 (WITHOUT 74)	300J43	25	4-6.1	300P43		FB	SHLD GRD F22 (WITHOUT 74)	300P43	25	4-6.1
300J43	1		W639-1-22 (WITHOUT 74)	300J15	1	8-2.1	300P43	1		W592-11-22 (WITHOUT 74)	300J32	27	8-2.1
300J43	2		W639-2-22 (WITHOUT 74)	300J15	2	8-2.1	300P43	2		W592-12-22 (WITHOUT 74)	300J32	25	8-2.1
300J43	3		W639-3-22 (WITHOUT 74)	300J15	3	8-2.1	300P43	3		W592-13-22 (WITHOUT 74)	300J32	26	8-2.1
300J43	4		W639-4-22 (WITHOUT 74)	300J15	4	4-3.1	300P43	4		W592-16-22 (WITHOUT 74)	300J32	30	4-3.1
300J43	5		W639-45-22-RED (WITHOUT 74)	300J15	17	8-6.1	300P43	5		W592-1-22-RED (WITHOUT 74)	300J32	19	8-6.1
300J43	6		W639-46-22-BLU (WITHOUT 74)	300J15	18	8-6.1	300P43	6		W592-2-22-BLU (WITHOUT 74)	300J32	20	8-6.1
300J43	7		W639-47-22-YEL (WITHOUT 74)	300J15	19	8-6.1	300P43	7		W592-3-22-YEL (WITHOUT 74)	300J32	21	8-6.1
300J43	8		W639-48-22-RED (WITHOUT 74)	300J15	21	8-6.1	300P43	8		W592-4-22-RED (WITHOUT 74)	300J32	12	8-6.1
300J43	9		W639-49-22-BLU (WITHOUT 74)	300J15	22	8-6.1	300P43	9		W592-5-22-BLU (WITHOUT 74)	300J32	13	8-6.1
300J43	10		SHLD GRD C22 (WITHOUT 74)	300J15	20	8-6.1	300P43	10		SHLD GRD B22 (WITHOUT 74)	300P32	14	8-6.1
300J43	11		W639-51-22 (WITHOUT 74)	300J15	24	8-4.1	300P43	11		W592-6-22 (WITHOUT 74)	300J32	28	8-4.1
300J43	12		W639-52-22 (WITHOUT 74)	300J15	25	8-4.1	300P43	12		W592-7-22 (WITHOUT 74)	300J32	29	8-4.1
300J43	13		W639-55-22 (WITHOUT 74)	300J15	26	8-3.1	300P43	13		W592-9-22 (WITHOUT 74)	300J32	37	8-3.1
300J43	14		W639-56-22 (WITHOUT 74)	300J15	27	8-3.1	300P43	14		W592-10-22 (WITHOUT 74)	300J32	38	8-3.1
300J43	15		W639-54-22 (WITHOUT 74)	300J18	3	8-3.1	300P43	15		W592-8-22 (WITHOUT 74)	300J32	36	8-3.1
300J43	16		W639-62-20-BLU (WITHOUT 74)	300J15	31	8-5.1	300P43	16		W592-15CR20-YEL (WITHOUT 74)	056J5	B	8-5.1
300J43	17		W639-61-20-RED (WITHOUT 74)	300J15	32	8-5.1	300P43	17		W592-14AL20-RED (WITHOUT 74)	056J5	A	8-5.1
300J43	18		W639-77-22 (WITHOUT 43 AND 74)	300J20	5	4-2.2	300P43	18		W592-17-22 (WITHOUT 43 AND 74)	300J32	5	4-2.2
300J43	19		W639-282-20 (WITHOUT 74)	300J20	39	4-4.2	300P43	19		W592-19-20 (WITHOUT 74)	300J32	23	4-4.2
300J43	20		W639-283-20 (WITHOUT 74)	300J20	40	4-4.2	300P43	20		W592-20-20 (WITHOUT 74)	300J32	24	4-4.2
300J43	21		W639-329-22 (WITHOUT 74)	TB24	1	4-6.1	300P43	21		W592-21-22 (WITHOUT 74)	103P2	E	4-6.1
300J43	22		W639-330-22 (WITHOUT 74)	TB24	2	4-6.1	300P43	22		W592-22-22 (WITHOUT 74)	TB19	2	4-6.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J43	23		W639-331-22 (WITHOUT 74)	TB24	3	4-6.1	300P43	23		W592-23-22 (WITHOUT 74)	103P2	C	4-6.1
300J43	24		W639-332-22 (WITHOUT 74)	TB24	4	4-6.1	300P43	24		W592-24-22 (WITHOUT 74)	103P2	D	4-6.1
300J43	25		SHLD GRD U22 (WITHOUT 74)	GD201		4-6.1	300P43	25		SHLD GRD F22 (WITHOUT 74)	300P43		4-6.1
300J43	28		W639-325-22 (WITHOUT 74)	TB18	13	4-6.1	300P43	28		W592-28-22 (WITHOUT 74)	103K2	X1	4-6.1
300J43	29		W639-318-22 (WITHOUT 74)	300J15	53	4-6.1	300P43	29		W592-29-22 (WITHOUT 74)	103P2	K	4-6.1
300J43	32		W639-321-22 (WITHOUT 74)	300J15	56	4-6.1	300P43	32		W592-32-22 (WITHOUT 74)	103K3	A1	4-6.1
300J43	33		W639-322-22 (WITHOUT 74)	300J15	55	4-6.1	300P43	33		W592-33-22 (WITHOUT 74)	103K3	B1	4-6.1
300J43	35		W639-324-22 (WITHOUT 74)	300J15	54	4-6.1	300P43	35		W592-35-22 (WITHOUT 74)	103K3	X1	4-6.1
300J43	36		W639-334-22 (WITHOUT 74)	300J8	44	4-5.1	300P43	36		W592-53-22 (WITHOUT 74)	102P4	T	4-5.1
300J43	37		W639-335-22 (WITHOUT 74)	300J15	57	4-5.1	300P43	37		W592-54-22 (WITHOUT 74)	102P4	S	4-5.1
300J43	38		W639-336-22-RED (WITHOUT 74)	300J20	52	4-5.1	300P43	38		W592-55-22-RED (WITHOUT 74)	102P4	B	4-5.1
300J43	39		W639-337-22-BLU (WITHOUT 74)	300J20	53	4-5.1	300P43	39		W592-56-22-BLU (WITHOUT 74)	102P4	A	4-5.1
300J43	40		W639-338-22-RED (WITHOUT 74)	300J20	54	4-5.1	300P43	40		W592-57-22-RED (WITHOUT 74)	102P4	D	4-5.1
300J43	41		W639-339-22-BLU (WITHOUT 74)	300J20	55	4-5.1	300P43	41		W592-58-22-BLU (WITHOUT 74)	102P4	C	4-5.1
300J43	42		W639-340-22 (WITHOUT 74)	300J20	56	4-5.1	300P43	42		W592-59-22 (WITHOUT 74)	102P4	E	4-5.1
300J43	43		W639-341-22-RED (WITHOUT 74)	300J20	57	4-5.1	300P43	43		W592-60-22-RED (WITHOUT 74)	102P4	L	4-5.1
300J43	44		W639-342-22-BLU (WITHOUT 74)	300J20	58	4-5.1	300P43	44		W592-61-22-BLU (WITHOUT 74)	102P4	M	4-5.1
300J43	1		W592-2080-20 (WITH 74)	300J17	3	4-9.1	300P43	1		W592-1914-20(WITH 74)	300J80	E	4-9.1
300J43	2		W592-2063-20 (WITH 74)	300J17	42	4-12.1	300P43	2		W592-1875-20 (WITH 74)	104P2	P	4-12.1
300J43	3		W592-2062-20 (WITH 74)	300J17	40	4-12.1	300P43	3		W592-1790-20(WITH 74)	104P2	DD	4-12.1
300J43	4		W592-2012-20 (WITH 74)	300J17	13	8-4.1	300P43	4		W592-2013-20(WITH 74)	SPLICE		8-4.1
300J43	5		W592-2016-22 (WITH 74)	300J17	15	8-3.1	300P43	5		W592-1963-22 (WITH 74)	300J80	P	8-3.1
300J43	6		W592-2017-22 (WITH 74)	300J17	16	8-3.1	300P43	6		W592-1964-22 (WITH 74)	300J80	S	8-3.1
300J43	7		W592-2018-22 (WITH 74)	300J17	41	8-3.1	300P43	7		W592-1965-22 (WITH 74)	300J80	R	8-3.1
300J43	8		W592-2011-20 (WITH 74)	300J17	12	8-4.1	300P43	8		W592-1962-22 (WITH 74)	300J80	M	8-4.1
300J43	10		W592-2068-20 RED (WITH 74)	SPLICE		4-12.1	300P43	10		W592-1841-20 RED (WITH 74)	104P4	JJ	4-12.1
300J43	11		W592-2070-20 BLU (WITH 74)	SPLICE		4-12.1	300P43	11		W592-1842-20 BLU (WITH 74)	104P4	w	4-12.1
300J43	12		W592-2069-20 YEL (WITH 74)	SPLICE		4-12.1	300P43	12		W592-1843-20 YEL (WITH 74)	104P4	KK	4-12.1
300J43	13		W592-2064-20 RED (WITH 74)	300J6	1	4-12.1	300P43	13		W592-2071-20 RED (WITH 74)	104P4	N	4-12.1
300J43	14		W592-2065-20 BLU (WITH 74)	300J6	16	4-12.1	300P43	14		W592-2072-20 BLU (WITH 74)	104P4	m	4-12.1
300J43	15		W592-2066-AL20 RED (WITH 74)	300J17	53	4-12.1	300P43	15		W592-2073-AL20 RED (WITH 74)	104P4	a	4-12.1
300J43	16		W592-2067-CR20 YEL (WITH 74)	300J17	54	4-12.1	300P43	16		W592-2074-CR20 YEL (WITH 74)	104P4	u	4-12.1
300J43	17		W592-2015-22 RED (WITH 74)	300J17	38	8-2.1	300P43	17		W592-1966-22 RED (WITH 74)	300J80	B	8-2.1
300J43	18		W592-2014-22 BLU (WITH 74)	300J17	37	8-2.1	300P43	18		W592-1967-22 BLU (WITH 74)	300J80	A	8-2.1
300J43	19		W592-2066/7 SHLD (WITH 74)	300J17	55	4-12.1	300P43	19		W592-2073/4 ISHLD (WITH 74)	104P4	Z	4-12.1
300J43	20		W592-2051-20 RED (WITH 74)	300J84	G	4-12.1	300P43	20		W592-1782-20 RED (WITH 74)	104P2	AA	4-12.1
300J43	21		W592-2050-20 BLU (WITH 74)	300J84	F	4-12.1	300P43	21		W592-1783-20 BLU (WITH 74)	104P2	z	4-12.1
300J43	22		W592-2049-20 YEL (WITH 74)	300J84	E	4-12.1	300P43	22		W592-1784-20 YEL (WITH 74)	104P2	h	4-12.1
300J43	24		W592-2027-22 RED (WITH 74)	300J84	V	4-12.1	300P43	24		W592-2034-22 RED (WITH 74)	104P4	h	4-11.1
300J43	25		W592-2026-22 BLU (WITH 74)	300J84	U	4-12.1	300P43	25		W592-2033-22 BLU (WITH 74)	104P4	1	4-11.1
300J43	27		W592-2030-22 RED (WITH 74)	300J84	Z	4-12.1	300P43	27		W592-2037-22 RED (WITH 74)	104P4	MM	4-11.1
300J43	28		W592-2032-22 BLU (WITH 74)	300J84	b	4-12.1	300P43	28		W592-2039-22 BLU (WITH 74)	104P4	f	4-11.1
300J43	29		W592-2031-22 YEL (WITH 74)	300J84	a	4-12.1	300P43	29		W592-2038-22 YEL (WITH 74)	104P4	LL	4-11.1
300J43	30		W592-1828/29 ISHLD (WITH 74)	300J84	Y	4-12.1	300P43	30		W592-2035/6 ISHLD (WITH 74)	104P4	CC	4-11.1
300J43	31		W592-2052-20 RED (WITH 74)	300J84	H	4-12.1	300P43	31		W592-1785-20 BLU (WITH 74)	104P2	A	4-12.1
300J43	32		W592-2028-22 BLU (WITH 74)	300J84	W	4-12.1	300P43	32		W592-2035-22 BLU (WITH 74)	104P4	DD	4-11.1
300J43	33		W592-2029-22 WHT (WITH 74)	300J84	X	4-12.1	300P43	33		W592-2036-22 WHT (WITH 74)	104P4	EE	4-11.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J43	34		W592-2053-20 BLU (WITH 74)	300J84	J	4-12.1	300P43	34		W592-1786-20 YEL (WITH 74)	104P2	B	4-12.1
300J43	35		W592-2054-20 RED (WITH 74)	300J84	K	4-12.1	300P43	35		W592-1787-20 RED (WITH 74)	104P2	L	4-12.1
300J43	36		W592-2056-20 BLU (WITH 74)	300J84	M	4-12.1	300P43	36		W592-1788-20 BLU (WITH 74)	104P2	M	4-12.1
300J43	37		W592-2055-20 YEL (WITH 74)	300J84	L	4-12.1	300P43	37		W592-1789-20 YEL (WITH 74)	104P2	j	4-12.1
300J43	39		W592-1945/61 SHLD (WITH 74)	104J8		4-12.1	300P43	39		W592-1837/8 ISHLD (WITH 74)	104P4	n	4-12.1
300J43	40		W592-1946-20 BLU (WITH 74)	104J8	4	4-12.1	300P43	40		W592-1838-20 BLU (WITH 74)	104P4	p	4-12.1
300J43	41		W592-1945-20 WHT (WITH 74)	104J8	3	4-12.1	300P43	41		W592-1837-20 WHIT (WITH 74)	104P4	g	4-12.1
300J43	43		W592-1943-20 RED (WITH 74)	104J8	1	4-12.1	300P43	43		W592-1839-20 RED (WITH 74)	104P4	z	4-12.1
300J43	44		W592-1944-20 BLU (WITH 74)	104J8	2	4-12.1	300P43	44		W592-1840-20 BLU (WITH 74)	104P4	AA	4-12.1
300J43	46		W592-2046-20 RED (WITH 74)	300J84	C	4-12.1	300P43	46		W592-1778-20 RED (WITH 74)	SPLICE		4-12.1
300J43	47		W592-2047-20NBLU (WITH 74)	GD035	A	4-12.1	300P43	47		W592-1781-20 BLU (WITH 74)	SPLICE		4-12.1
300J43	49		W592-2058-20 RED (WITH 74)	300J84	P	4-12.1	300P43	49		W592-1844-20 RED (WITH 74)	104P4	x	4-12.1
300J43	50		W592-2057-20 BLU (WITH 74)	300J84	N	4-12.1	300P43	50		W592-1845-20 BLU (WITH 74)	104P4	e	4-12.1
300J43	51		W592-2085-20 (WITH 74)	300J84	T	4-12.1	300P43	51		W592-2021-20 (WITH 74)	101XK3	C2	4-10.1
300J43	52		W592-2084-20 (WITH 74)	300J84	S	4-12.1	300P43	52		W592-2020-20 (WITH 74)	SPLICE		4-10.1
300J43	53		W592-2008-20 (WITH 74)	300J6	3	4-12.1	300P43	53		W592-1897-22 (WITH 74)	051P6	A	4-12.1
300J43	54		W592-2004-22 RED (WITH 74)	300J17	2	8-6.1	300P43	54		W592-2006-22 RED (WITH 74)	051P4	G	8-6.1
300J43	55		W592-2005-22 BLU (WITH 74)	300J17	1	8-6.1	300P43	55		W592-2007-22 BLU (WITH 74)	051P4	H	8-6.1
300CJ43			W592-2044/5 SHLD (WITH 74)	300CJ17		4-12.1	300CP43			W592-1841/3 SHLD (WITH 74)	104CP4		4-12.1
300CJ43			W592-2014/5 SHLD (WITH 74)	300CJ17		8-2.1	300CP43			W592-2071/2 SHLD (WITH 74)	104CP4		4-12.1
300CJ43			W592-2004/5 SHLD (WITH 74)	300CJ17		8-6.1	300CP43			W592-2073/4 OSHLD (WITH 74)	104CP4		4-12.1
300CJ43			W592-2066/7 OSHLD (WITH 74)	300CJ17		4-12.1	300CP43			W592-1966/7 SHLD (WITH 74)	300J80	L	8-2.1
300CJ43			W592-2068/70 SHLD (WITH 74)	SPLICE		4-12.1	300CP43			W592-1782/4 SHLD (WITH 74)	104CP2		4-12.1
300CJ43			W592-1943/4 SHLD (WITH 74)	104J8		4-12.1	300CP43			W592-2033/4 SHLD (WITH 74)	104CP4		4-11.1
300CJ43			W592-1945/6 OSHLD (WITH 74)	104J8		4-12.1	300CP43			W592-2037/9 SHLD (WITH 74)	104CP4		4-11.1
300CJ43			W592-1828/29 OSHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-2035/6 OSHLD (WITH 74)	104CP4		4-11.1
300CJ43			W592-2026/7 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-1785/6 SHLD (WITH 74)	104CP2		4-12.1
300CJ43			W592-2030/2 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-1787/9 SHLD (WITH 74)	104CP2		4-12.1
300CJ43			W592-2057/8 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-1837/8 OSHLD (WITH 74)	104CP4		4-12.1
300CJ43			W592-2049/51 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-1839/40 SHLD (WITH 74)	104CP4		4-12.1
300CJ43			W592-2052/3 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-1778/81 SHLD (WITH 74)	104CP2		4-12.1
300CJ43			W592-2054/6 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-1844/5 SHLD (WITH 74)	104CP4		4-12.1
300CJ43			W592-2046/7 SHLD (WITH 74)	300CJ84		4-12.1	300CP43			W592-2006/7 SHLD (WITH 74)	051CP4		8-6.1
300J44		FA	SHLD GRD A20	300J44	55	5-2.1	300P44		FA	SHLD GRD K22	300P44	55	5-2.1
300J44	1		W528-7-20	033P2	1	7-1.2	300P44	1		W668-115-22	300J54	54	7-1.2
300J44	2		W528-10-20	033P3	2	7-1.2	300P44	2		W668-118-22	300J54	57	7-1.2
300J44	3		W528-9-20	033P3	3	7-1.2	300P44	3		W668-117-22	300J54	56	7-1.2
300J44	4		W528-8-20	033P2	3	7-1.2	300P44	4		W668-116-22	300J54	55	7-1.2
300J44	5		W528-49-20	036P4	10	8-12.1	300P44	5		W668-106-20	SP0208		8-12.1
300J44	6		W528-50-20	036P4	5	8-12.1	300P44	6		W668-107-20	SP0209		8-12.1
300J44	7		W528-51-20	036P4	9	8-12.1	300P44	7		W668-108-22	SP0210		8-12.1
300J44	8		W528-52-20	036P4	11	8-12.1	300P44	8		W668-109-22	SP0211		8-12.1
300J44	9		W528-53-20	036P4	7	8-12.1	300P44	9		W668-111-22	SP0212		8-12.1
300J44	10		W528-54-20	036P3	5	8-12.1	300P44	10		W668-1-20	300J54	6	8-12.1
300J44	11		W528-55-20	036P3	12	8-12.1	300P44	11		W668-2-20	300J54	22	8-12.1
300J44	12		W528-56-20	036P3	11	8-12.1	300P44	12		W668-3-20	300J54	23	8-12.1
300J44	13		W528-57-20	036P3	3	8-12.1	300P44	13		W668-4-20	300J54	24	8-12.1

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J44	14		W528-58-20	036P3	2	8-12.1	300P44	14		W668-5-20	300J54	25	8-12.1
300J44	15		W528-59-20	036P3	9	8-12.1	300P44	15		W668-6-20	300J54	26	8-12.1
300J44	16		W528-15-20	111DS5		9-3.1	300P44	16		W668-14-20	300J52	1	9-3.1
300J44	17		W528-14-20	111P1	B	9-6.1	300P44	17		W668-15-20	300J52	2	9-6.1
300J44	18		W528-20-20	140P4	1	7-2.2	300P44	18		W668-38-20	300J54	11	7-2.2
300J44	19		W528-21-20A	140K3	A2	7-1.2	300P44	19		W668-34-20A	300J52	35	7-1.2
300J44	20		W528-22-20B	140K3	B2	7-1.2	300P44	20		W668-35-20B	300J52	36	7-1.2
300J44	21		W528-23-20C	140K3	C2	7-1.2	300P44	21		W668-36-20C	300J52	37	7-1.2
300J44	22		W528-28-20	140 P6	1	7-1.2	300P44	22		W668-37-20	300J52	38	7-1.2
300J44	23		W528-1-20	031J1	B	11-3.1.1	300P44	23		W668-83-20	300J54	27	11-3.1.1
300J44	24		W528-2-20	031J1	A	11-3.1.1	300P44	24		W668-84-20	300J54	28	11-3.1.1
300J44	25		W528-3-20	031J1	E	11-3.1.1	300P44	25		W668-85-20	300J54	29	11-3.1.1
300J44	26		W528-4-20	031J1	D	11-3.1.1	300P44	26		W668-86-20	300J54	30	11-3.1.1
300J44	27		W528-5-20	031J1	F	11-3.1.1	300P44	27		W668-87-20	300J54	31	11-3.1.1
300J44	28		W528-6-20	031J1	C	11-3.1.1	300P44	28		W668-88-20	300J54	32	11-3.1.1
300J44	29		W528-11-20	041P5	3	8-7.1	300P44	29		W668-122-22	SP0041		8-7.1
300J44	30		W528-12-20	041P5	1	8-7.1	300P44	30		W668-123-22	300P31	A	8-7.1
300J44	31		W528-13-20	041P5	2	8-7.1	300P44	31		W668-124-22	300P31	B	8-7.1
300J44	32		W528-32-20	141P1	1	7-2.2	300P44	32		W668-40-20	300P31	N	7-2.2
300J44	33		W528-33-20	141P1	2	7-2.2	300P44	33		W668-41-22	300P31	P	7-2.2
300J44	34		W528-34-20	141P1	3	7-2.2	300P44	34		W668-42-22	300P31	Y	7-2.2
300J44	35		W528-35-20	141P1	4	7-2.2	300P44	35		W668-43-22	300P31	R	7-2.2
300J44	36		W528-36-20	141P2	1	7-1.2	300P44	36		W668-22-22	300P31	J	7-1.2
300J44	37		W528-37-20	141P2	2	7-1.2	300P44	37		W668-23-22	300P31	K	7-1.2
300J44	38		W528-38-20	141P2	3	7-1.2	300P44	38		W668-24-22	300P31	L	7-1.2
300J44	39		W528-39-20	141P2	4	7-1.2	300P44	39		W668-28-22	300P31	W	7-1.2
300J44	40		W528-40-20	142P2	1	8-8.1	300P44	40		W668-46-22	300P31	E	8-8.1
300J44	41		W528-41-20	142P2	2	8-8.1	300P44	41		W668-62-22	300P31	F	8-8.1
300J44	42		W528-42-20	142P3	1	8-8.1	300P44	42		W668-44-22	300P31	G	8-8.1
300J44	43		W528-43-20	142P3	2	8-8.1	300P44	43		W668-45-22	300P31	H	8-8.1
300J44	44		W528-44-20	143P3	1	7-1.2	300P44	44		W668-47-22	300P31	T	7-1.2
300J44	45		W528-45-20	143P4	1	7-1.2	300P44	45		W668-48-22	300P31	U	7-1.2
300J44	46		W528-46-20	144P2	2	7-1.2	300P44	46		W668-49-22	300P31	X	7-1.2
300J44	47		W528-47-20	043P11	2	8-9.1	300P44	47		W668-125-22	300P31	A-	8-9.1
300J44	48		W528-48-22	135P2	1	7-2.2	300P44	48		W668-114-22	300J54	53	7-2.2
300J44	49		W528-60-20	SM0001		9-5.1	300P44	49		W668-16-20	300J52	39	9-5.1
300J44	50		W528-63-20	235P8	1	6-1.2	300P44	50		W668-105-20	300P31	S	6-1.2
300J44	51		W528-64-20-RED	138P4	A	5-2.1	300P44	51		W668-181-22-RED	300J52	49	5-2.1
300J44	52		W528-65-20-BLU	138P4	B	5-2.1	300P44	52		W668-182-22-BLU	300J52	50	5-2.1
300J44	53		W528-66-20-RED	138P4	C	5-2.1	300P44	53		W668-183-22-RED	300J52	51	5-2.1
300J44	54		W528-67-20-BLU	138P4	D	5-2.1	300P44	54		W668-184-22-BLU	300J52	52	5-2.1
300J44	55		SHLD GRD A20	300J44		5-2.1	300P44	55		SHLD GRD K22	300P44		5-2.1
300J44	56		W528-68-20	SM0002		9-5.1	300P44	56		W668-190-20	SP0235		9-5.1
300J45		FA	SHLD GRD A22	300J45	12	8-10.1	300P45		FA	SHLD GRD A22	300P45	12	8-10.1
300J45		FB	SHLD GRD G22	300J45	19	8-15.1	300P45		FB	SHLD GRD D22	300P45	19	8-15.1
300J45		FC	SHLD GRD K22	300J45	50	8-9.1	300P45		FC	SHLD GRD J22	300P45	50	8-9.1
300J45	1		W639-153-20	141P3	1	7-1.2	300P45	1		W673-1-22	300P51	1	7-1.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J45	2		W639-149-20	043P8	2	8-9.1	300P45	2		W673-41-22	300P51	2	8-9.1
300J45	3		W639-148-20	043P14	2	8-9.1	300P45	3		W673-40-22	300P51	3	8-9.1
300J45	4		W639-147-22	300J15	5	8-9.1	300P45	4		W673-94-22	300P51	4	8-9.1
300J45	5		W639-27-22	SM0001		8-7.1	300P45	5		W673-7-22	300P51	5	8-7.1
300J45	6		W639-28-20	041P4	1	8-7.1	300P45	6		W673-5-22	300P51	6	8-7.1
300J45	7		W639-29-20	041P4	2	8-7.1	300P45	7		W673-6-22	300P51	7	8-7.1
300J45	8		W639-32-22	300J15	8	8-10.1	300P45	8		W673-11-22	300P51	8	8-10.1
300J45	9		W639-33-22	300J15	9	8-10.1	300P45	9		W673-12-22	300P51	9	8-10.1
300J45	10		W639-34-22	300J15	10	8-10.1	300P45	10		W673-13-22	300P51	10	8-10.1
300J45	11		W639-35-22	300J15	11	8-10.1	300P45	11		W673-14-22	300P51	11	8-10.1
300J45	12		SHLD GRD A22	300J45		8-10.1	300P45	12		SHLD GRD A22	300P45		8-10.1
300J45	13		W639-38-22	300J15	15	8-10.1	300P45	13		W673-93-22	300P51	13	8-10.1
300J45	14		W639-39-22	300J15	16	8-10.1	300P45	14		W673-9-22	300P51	14	8-10.1
300J45	15		W639-41-20	042P3	2	8-10.1	300P45	15		W673-8-22	300P51	15	8-10.1
300J45	16		W639-42-22	SM0002		8-10.1	300P45	16		W673-10-22	300P51	16	8-10.1
300J45	17		W639-58-22-RED	300J15	28	8-15.1	300P45	17		W673-187-22-RED	TB56	4	8-15.1
300J45	18		W639-59-22-BLU	300J15	29	8-15.1	300P45	18		W673-188-22-BLU	TB56	1	8-15.1
300J45	19		SHLD GRD G22	300J45		8-15.1	300P45	19		SHLD GRD D22	300P45		8-15.1
300J45	20		W639-117-20	128K1	X2	9-15.1	300P45	20		W673-16-20	300P51	20	9-15.1
300J45	21		W639-118-20	128K1	A1	9-15.1	300P45	21		W673-17-20	300P51	21	9-15.1
300J45	22		W639-119-20	128S1	3	9-15.1	300P45	22		W673-18-20	300P51	22	9-15.1
300J45	23		W639-135-20	300J20	14	17-1.1	300P45	23		W673-19-20	300P51	23	17-1.1
300J45	24		W639-142-20	TB17	1B	11-3.1.1	300P45	24		W673-31-20	300P51	47	11-3.1.1
300J45	25		W639-143-20	TB17	2J	11-3.1.1	300P45	25		W673-32-20	300P51	48	11-3.1.1
300J45	26		W639-146-22 (WITHOUT 74)	300J20	41	4-4.2	300P45	26		W673-148-22 (WITHOUT 74)	300P51	27	4-4.2
300J45	27		W639-154-20	141P3	2	7-1.2	300P45	27		W673-2-22	300P51	24	7-1.2
300J45	28		W639-171-22	300J8	8	8-8.1	300P45	28		W673-44-22	300P51	28	8-8.1
300J45	29		W639-172-22	300J8	9	8-14.1	300P45	29		W673-46-22	300P51	29	8-14.1
300J45	30		W639-183-20	300J15	34	10-2.1	300P45	30		W673-47-20	300P51	30	10-2.1
300J45	31		W639-185-20	300J15	35	10-1.2	300P45	31		W673-48-20	300P51	31	10-1.2
300J45	32		W639-186-20	300J15	36	10-1.2	300P45	32		W673-49-20	300P51	32	10-1.2
300J45	33		W639-187-20	300J20	17	10-1.2	300P45	33		W673-50-20	300P51	45	10-1.2
300J45	34		W639-188-20	300J20	18	10-1.2	300P45	34		W673-51-20	300P51	46	10-1.2
300J45	35		W639-201-20	300J8	22	12-2.2	300P45	35		W673-52-20	300P51	35	12-2.2
300J45	36		W639-202-20	300J15	37	12-2.2	300P45	36		W673-53-20	300P51	36	12-2.2
300J45	37		W639-203-20	300J15	38	12-2.2	300P45	37		W673-54-20	300P51	37	12-2.2
300J45	38		W639-205-20	300J15	39	12-3.2	300P45	38		W673-55-20	300P51	38	12-3.2
300J45	39		W639-206-20	300J15	40	12-3.2	300P45	39		W673-56-20	300P51	39	12-3.2
300J45	40		W639-209-20	300J15	41	6-2.1	300P45	40		W673-89-20	300P51	42	6-2.1
300J45	41		W639-210-20	300J15	42	6-2.1	300P45	41		W673-90-20	300P51	43	6-2.1
300J45	42		W639-211-20	235P2	1	6-2.1	300P45	42		W673-57-20	300P51	40	6-2.1
300J45	43		W639-212-20	235P2	4	6-1.2	300P45	43		W673-58-20	300P51	41	6-2.1
300J45	44		W639-255-22	300J20	34	9-2.2	300P45	44		W673-73-22	300P51	44	9-2.2
300J45	45		W639-267-20	TB17	6H	8-1.2	300P45	45		W673-91-20	300P51	33	8-1.2
300J45	46		W639-268-20	300J8	41	11-3.1.1	300P45	46		W673-92-20	300P51	34	11-3.1.1
300J45	47		W639-290-22	300J15	50	8-9.1	300P45	47		W673-132-22	300P51	49	8-9.1
300J45	48		W639-291-22	TB17	10G	8-9.1	300P45	48		W673-133-22	300P51	50	8-9.1



1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J45	49		W639-292-22	TB17	10B	8-9.1	300P45	49		W673-134-22	300P51	51	8-9.1
300J45	50		SHLD GRD K22	300J45		8-9.1	300P45	50		SHLD GRD J22	300P45		8-9.1
300J45	51		W639-293-22	300J15	51	8-9.1	300P45	51		W673-135-22	300P51	53	8-9.1
300J45	52		W639-294-22	300J15	48	8-9.1	300P45	52		W673-136-22	300P51	54	8-9.1
300J45	53		W639-295-22	300J15	49	8-9.1	300P45	53		W673-137-20	300P51	55	8-9.1
300J45	54		W639-155-20	141P3	3	7-1.2	300P45	54		W673-3-22	300P51	25	7-1.2
300J45	55		W639-156-20	141P3	4	7-1.2	300P45	55		W673-4-22	300P51	26	7-1.2
300J45	56		W639-169-20	142P1	1	8-8.1	300P45	56		W673-42-22	300P51	56	8-8.1
300J45	57		W639-170-20	142P1	2	8-8.1	300P45	57		W673-43-22	300P51	57	8-8.1
300J45	58		W639-157-20	143P1	1	7-1.2	300P45	58		W673-140-22	300P51	58	7-1.2
300J45	59		W639-158-20	143P2	1	7-1.2	300P45	59		W673-141-22	300P51	59	7-1.2
300J45	60		W639-69-20	144P1	2	7-1.2	300P45	60		W673-87-22	300P51	60	7-1.2
300J45	61		W639-303-22	300J8	43	NOTE 1	300P45	61		W673-139-22	SP0159		NOTE 1
300J47		FA	SHLD GRD H20	300J47	16	5-2.1	300P47		FA	SHLD GRD E22	300P47	16	5-2.1
300J47	2		W639-11-20	300J20	3	9-5.1	300P47	2		W673-27-20	SM0001		9-5.1
300J47	3		W639-17-20	300J8	1	5-2.1	300P47	3		W673-39-20	138J1	P	5-2.1
300J47	4		W639-18-20-RED	138P3	A	5-2.1	300P47	4		W673-37-20-RED	SM0009	A	5-2.1
300J47	5		W639-19-20-BLU	138P3	B	5-2.1	300P47	5		W673-38-20-BLU	138J1	E	5-2.1
300J47	6		W639-120-20	128K1	B1	9-15.1	300P47	6		W673-84-20	SP0055		9-15.1
300J47	7		W639-121-20	128K2	B1	9-15.1	300P47	7		W673-85-20	SP0054		9-15.1
300J47	8		W639-136-20	300J20	13	17-1.1	300P47	8		W673-86-20	SM0002		17-1.1
300J47	9		W639-404-20	TB17	6D	14-1.2	300P47	9		W673-20-20	TB27	2D	14-1.2
300J47	10		W639-405-20	TB17	4D	14-1.2	300P47	10		W673-21-20	TB27	1D	14-1.2
300J47	11		W639-401-20	TB17	5K	14-1.2	300P47	11		W673-22-20	TB27	1G	14-1.2
300J47	12		W639-402-20	TB17	5L	14-1.2	300P47	12		W673-23-20	TB27	2A	14-1.2
300J47	13		W639-403-20	TB17	5M	14-1.2	300P47	13		W673-24-20	TB27	1A	14-1.2
300J47	14		W639-400-20	TB17	4K	14-1.2	300P47	14		W673-25-20	TB27	2G	14-1.2
300J47	15		W639-439-20 (WITH 65)	300J23	46	7-3.2	300P47	15		W673-191-20 (WITH 65)	300P53	38	7-3.2
300J47	16		SHLD GRD H20	300J47		5-2.1	300P47	16		SHLD GRD E22	300P47		5-2.1
300J47	17		W639-411-22	132J9	E	NOTE 1	300P47	17		W673-35-22	TB27	7H	NOTE 1
300J47	18		W639-412-22	132J9	D	NOTE 1	300P47	18		W673-36-22	TB27	7E	NOTE 1
300J47	19		W639-353-22	300J24	11	7-5.2	300P47	19		W673-153-22	300P53	33	7-5.2
300J47	20		W639-354-22	300J24	12	7-5.2	300P47	20		W673-154-22	300P53	34	7-5.2
300J47	21		W639-355-22	300J24	13	7-4.2	300P47	21		W673-155-22	300P53	35	7-4.2
300J47	22		W639-415-20-RED	138P2	A	5-2.1	300P47	22		W673-169-22-RED	SP0175		5-2.1
300J47	23		W639-416-20-BLU	138P2	B	5-2.1	300P47	23		W673-170-22-BLU	SP0176		5-2.1
300J47	24		W639-417-20-RED	138P2	C	5-2.1	300P47	24		W673-176-22-RED	138J1	J	5-2.1
300J47	25		W639-418-20-BLU	138P2	D	5-2.1	300P47	25		W673-177-22-BLU	138J1	H	5-2.1
300J47	26		W639-229-22	300J20	31	9-2.2	300P47	26		W673-59-22	241P9	H	9-2.2
300J47	27		W639-230-22	300J20	32	9-2.2	300P47	27		W673-60-22	241P9	D	9-2.2
300J47	28		W639-231-22	300J20	33	9-2.2	300P47	28		W673-61-22	241P9	F	9-2.2
300J47	29		W639-243-22	TB17	7C	9-2.2	300P47	29		W673-62-22	241P9	C	9-2.2
300J47	30		W639-233-22	300J8	23	9-2.2	300P47	30		W673-63-22	241P9	G	9-2.2
300J47	31		W639-234-22A	300J8	24	9-2.2	300P47	31		W673-64-22A	241P9	U	9-2.2
300J47	32		W639-235-22B	300J8	25	9-2.2	300P47	32		W673-65-22B	241P9	V	9-2.2
300J47	33		W639-236-22C	300J8	26	9-2.2	300P47	33		W673-66-22C	241P9	F-	9-2.2
300J47	34		W639-237-22	300J8	27	9-2.2	300P47	34		W673-67-22	241P9	C-	9-2.2

1-4 300 SERIES CONNECTOR PLUG AND RECEPTACLE WIRING DATA (Continued)

1-4

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	PLUG	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J47	35		W639-238-22	300J8	28	9-2.2	300P47	35		W673-68-22	241P9	H	9-2.2
300J47	36		W639-239-22	300J8	29	9-2.2	300P47	36		W673-69-22	241P9	D	9-2.2
300J47	37		W639-240-22	300J8	30	9-2.2	300P47	37		W673-70-22	241 P9	G	9-2.2
300J47	38		W639-241-22	300J8	31	9-2.2	300P47	38		W673-71-22	241 P9	E	9-2.2
300J47	39		W639-242-22	300J8	32	9-2.2	300P47	39		W673-72-22	241 P9	N	9-2.2
300J47	40		W639-256-22	300J20	35	9-2.2	300P47	40		W673-74-22	241 P10	D	9-2.2
300J47	41		W639-257-22	300J20	36	9-2.2	300P47	41		W673-75-22	241P10	C	9-2.2
300J47	42		W639-248-22A	300J8	33	9-2.2	300P47	42		W673-76-22A	241 P10	F	9-2.2
300J47	43		W639-249-22B	300J8	34	9-2.2	300P47	43		W673-77-22B	241 P10	G	9-2.2
300J47	44		W639-250-22C	300J8	35	9-2.2	300P47	44		W673-78-22C	241 P10	H	9-2.2
300J47	45		W639-251-22	300J8	36	9-2.2	300P47	45		W673-79-22	SM0005		9-2.2
300J47	46		W639-252-22	300J8	37	9-2.2	300P47	46		W673-80-22	SM0006		9-2.2
300J47	47		W639-253-22	300J8	38	9-2.2	300P47	47		W673-81-22	SM0007		9-2.2
300J47	48		W639-254-22	300J8	39	9-2.2	300P47	48		W673-82-22	SM0008		9-2.2
300J47	49		W639-259-22	300J8	40	9-2.2	300P47	49		W673-83-22	241 P10	A	9-2.2
300J47	50		W639-406-20	132P1	B	14-1.2	300P47	50		W673-167-20	TB27	8A	14-1.2
300J47	51		W639-271-20	036P5	10	8-12.1	300P47	51		W673-127-20	300P53	12	8-12.1
300J47	52		W639-272-20	036P5	5	8-12.1	300P47	52		W673-128-20	300P53	13	8-12.1
300J47	53		W639-273-20	036P5	12	8-12.1	300P47	53		W673-129-20	300P53	14	8-12.1
300J47	54		W639-274-20	036P5	9	8-12.1	300P47	54		W673-130-20	300P53	15	8-12.1
300J47	55		W639-275-20	036P5	7	8-12.1	300P47	55		W673-131-20	300P53	16	8-12.1
300J47	56		W639-164-22	300J15	58	8-16.1	300P47	56		W673-149-22	300P53	29	8-16.1
300J47	57		W639-165-22	300J15	59	8-16.1	300P47	57		W673-150-22	300P53	30	8-16.1
300J47	58		W639-166-22-RED	300J15	60	8-16.1	300P47	58		W673-151-22-RED	300P53	31	8-16.1
300J47	59		W639-167-22-BLU	300J15	61	8-16.1	300P47	59		W673-152-22-BLU	300P53	32	8-16.1
300J47	60		W639-410-22	300J8	49	NOTE 1	300P47	60		W673-168-22	SP0173		NOTE 1
300J47	61		W639-440-22 (WITH 65)	300J23	47	7-3.2	300P47	61		W673-192-20 (WITH 65)	300P53	39	7-3.2
300J48	1		W645-6-20	300J21	2	9-3.1	300P48	1		W697-6-20	300P52	1	9-3.1
300J48	2		W645-7-20	300J21	3	9-6.1	300P48	2		W697-7-20	300P52	2	9-6.1
300J48	3		W645-197-20	300J7	15	8-12.1	300P48	3		W697-71-20	300P54	6	8-12.1
300J48	4		W645-239-20	TB17	6B	14-1.2	300P48	4		W697-11-20	132J10	B	14-1.2
300J48	5		W645-240-20	TB17	4E	14-1.2	300P48	5		W697-12-20	300P52	5	14-1.2
300J48	6		W645-235-20	TB17	4H	14-1.2	300P48	6		W697-13-20	132J10	A	14-1.2
300J48	7		W645-236-20	TB17	5F	14-1.2	300P48	7		W697-14-20	300P52	6	14-1.2
300J48	8		W645-237-20	TB17	5E	14-1.2	300P48	8		W697-15-20	300P52	7	14-1.2
300J48	9		W645-238-20	TB17	5D	14-1.2	300P48	9		W697-16-20	300P52	8	14-1.2
300J48	10		W645-99-22	300J61	27	10-2.1	300P48	10		W697-33-20	300P52	10	10-2.1
300J48	11		W645-101-20	300J61	28	10-1.2	300P48	11		W697-34-20	300P52	11	10-1.2
300J48	12		W645-102-20	300J61	29	10-1.2	300P48	12		W697-35-20	300P52	12	10-1.2
300J48	13		W645-104-20	300J21	8	10-1.2	300P48	13		W697-36-20	300P52	13	10-1.2
300J48	14		W645-105-20	300J21	9	10-1.2	300P48	14		W697-37-20	300P52	14	10-1.2
300J48	15		W645-118-20	300J4	25	12-2.2	300P48	15		W697-43-20	300P52	15	12-2.2
300J48	16		W645-119-20	300J61	30	12-2.2	300P48	16		W697-44-20	300P52	16	12-2.2
300J48	17		W645-120-20	300J61	31	12-2.2	300P48	17		W697-45-20	300P52	17	12-2.2
300J48	18		W645-122-20	300J61	32	12-3.2	300P48	18		W697-38-20	300P52	18	12-3.2
300J48	19		W645-123-20	300J61	33	12-3.2	300P48	19		W697-39-20	300P52	19	12-3.2
300J48	20		W645-124-22	300J21	14	9-16.1	300P48	20		W697-40-20	SP0023		9-16.1



RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J50	3		W645-192-20	300J61	42	8-12.1	300P50	3		W697-72-20	300P54	22	8-12.1
300J50	4		W645-193-20	300J61	43	8-12.1	300P50	4		W697-73-20	300P54	23	8-12.1
300J50	5		W645-194-20	300J61	44	8-12.1	300P50	5		W697-74-20	300P54	24	8-12.1
300J50	6		W645-195-20	300J61	45	8-12.1	300P50	6		W697-75-20	300P54	25	8-12.1
300J50	7		W645-22-22	300J61	10	8-10.1	300P50	7		W697-3-22	300P54	7	8-10.1
300J50	8		W645-37-22-RED	300J61	22	8-15.1	300P50	8		W697-174-22-RED	TB55	4	8-15.1
300J50	9		W645-38-22-BLU	300J61	23	8-15.1	300P50	9		W697-175-22-BLU	TB55	1	8-15.1
300J50	10		SHLD GRD E22	300J50		8-15.1	300P50	10		SHLD GRD A22	300P50		8-15.1
300J50	11		W645-75-20	300J4	11	7-2.2	300P50	11		W697-21-20	300P54	11	7-2.2
300J50	12		W645-80-22	300J4	12	7-2.2	300P50	12		W697-26-22	300P54	12	7-2.2
300J50	17		W645-301-22	300J21	26	15-2.6	300P50	17		W697-170-22	SM0001		15-2.6
300J50	18		W645-302-22	300J21	27	15-2.6	300P50	18		W697-137-22	300P54	14	15-2.6
300J50	19		W645-368-22-RED	300J64	12	16-2.1	300P50	19		W697-140-22-RED	300P54	15	16-2.1
300J50	20		W645-369-22-BLU	300J64	13	16-2.1	300P50	20		W697-141-22-BLU	300P54	16	16-2.1
300J50	21		W645-370-22-RED	300J64	1	16-2.1	300P50	21		W697-142-22-RED	300P54	17	16-2.1
300J50	22		W645-371-22-BLU	300J64	2	16-2.1	300P50	22		W697-143-22-BLU	300P54	18	16-2.1
300J50	23		W645-372-22	300J64	3	16-2.1	300P50	23		W697-144-22	300P54	19	16-2.1
300J50	24		W645-373-22-RED	300J64	4	16-2.1	300P50	24		W697-145-22-RED	300P54	21	16-2.1
300J50	25		W645-374-22-BLU	300J64	5	16-2.1	300P50	25		W697-146-22-BLU	300P54	36	16-2.1
300J50	26		W645-375-22	300J64	6	16-2.1	300P50	26		W697-147-22	300P54	41	16-2.1
300J50	27		W645-167-20	300J61	52	11-3.1.1	300P50	27		W697-83-20	300P54	27	11-3.1.1
300J50	28		W645-168-20	300J61	53	11-3.1.1	300P50	28		W697-84-20	300P54	28	11-3.1.1
300J50	29		W664-223-20	SM0005		11-3.1.1	300P50	29		W697-85-20	300P54	29	11-3.1.1
300J50	30		W664-194-20	031 P4	C	11-3.1.1	300P50	30		W697-86-20	300P54	30	11-3.1.1
300J50	31		W664-195-20	031 P4	X-	11-3.1.1	300P50	31		W697-87-20	300P54	31	11-3.1.1
300J50	32		W645-GD224B22N	GD224		11-3.1.1	300P50	32		W697-88-20	300P54	32	11-3.1.1
300J50	33		W664-148-20	SM0010		11-3.1.1	300P50	33		W697-89-20	300P54	33	11-3.1.1
300J50	34		W664-146-20	SM0009		11-3.1.1	300P50	34		W697-90-20	300P54	34	11-3.1.1
300J50	35		W645-257-20	300J4	33	11-3.1.1	300P50	35		W697-91-20	300P54	35	11-3.1.1
300J50	36		SHLD GRD V22	300J50		16-2.1	300P50	36		SHLD GRD K22	300P50		16-2.1
300J50	37		SHLD GRD H22	300J50		8-9.1	300P50	37		SHLD GRD H22	300P50		8-9.1
300J50	38		W645-260-22	300J61	49	8-9.1	300P50	38		W697-96-22	300P54	38	8-9.1
300J50	39		W645-261-22	TB17	10C	8-9.1	300P50	39		W697-97-22	300P54	39	8-9.1
300J50	40		W645-262-22	TB17	10H	8-9.1	300P50	40		W697-98-22	300P54	40	8-9.1
300J50	41		W645-376-22	300J64	7	16-2.1	300P50	41		W697-148-22	300P54	42	16-2.1
300J50	42		W645-377-22	300J64	8	16-2.1	300P50	42		W697-149-22	300P54	58	16-2.1
300J50	43		W645-254-22	300J21	19	7-3.2	300P50	43		W697-101-20	300P54	43	7-3.2
300J50	44		W645-250-22	300J21	40	7-2.2	300P50	44		W697-102-20	300P54	44	7-2.2
300J50	45		W645-251-22	300J61	36	7-2.2	300P50	45		W697-103-20	300P54	45	7-2.2
300J50	46		W645-361-20-RED	300J21	47	NOTE 1	300P50	46		W697-104-20-RED	300P54	46	NOTE 1
300J50	47		W645-362-20-BLU	300J21	48	NOTE 1	300P50	47		W697-105-20-BLU	300P54	47	NOTE 1
300J50	48		W645-363-20-YEL	300J21	49	NOTE 1	300P50	48		W697-106-20-YEL	300P54	48	NOTE 1
300J50	50		SHLD GRD T22	300J50		NOTE 1	300P50	50		SHLD GRD F22	300P50		NOTE 1
300J50	51		W645-GD215D20N	GD215		NOTE 1	300P50	51		W697-108-20	300P54	51	NOTE 1
300J50	52		W645-366-20	063P1	M	NOTE 1	300P50	52		W697-109-20	300P54	52	NOTE 1
300J50	53		W645-169-20 (WITHOUT 74)	300J21	39	4-4.2	300P50	53		W697-132-22 (WITHOUT 74)	300P54	20	4-4.2
300J50	54		W645-290-22	300J21	23	7-2.2	300P50	54		W697-115-22	300P54	53	7-2.2

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J50	55		W645-11-20	300J21	24	7-1.2	300P50	55		W697-116-22	300P54	54	7-1.2
300J50	56		W645-14-22	TB17	3A	7-1.2	300P50	56		W697-117-22	300P54	55	7-1.2
300J50	57		W645-13-22	300J61	5	7-1.2	300P50	57		W697-118-22	300P54	56	7-1.2
300J50	58		W645-12-22	TB17	1D	7-1.2	300P50	58		W697-119-22	300P54	57	7-1.2
300J50	60		W645-379-22	300J64	10	16-2.1	300P50	60		W697-151-22	300P54	60	16-2.1
300J50	61		W645-196-20	300J61	46	8-12.1	300P50	61		W697-76-20	300P54	26	8-12.1
300J51		FA	SHLD GRD A22	300J51	12	8-10.1	300P51		FA	SHLD GRD B22	300P51	12	8-10.1
300J51		FB	SHLD GRD B22	300J51	19	8-15.1	300P51		FB	SHLD GRD C22	300P51	19	8-15.1
300J51		FC	SHLD GRD F20	300J51	52	8-9.1	300P51		FC	SHLD GRD K22	300P51	52	8-9.1
300J51	1		W666-103-20	300P28	E	7-1.2	300P51	1		W673-1-22	300P45	1	7-1.2
300J51	2		W666-44-22	300P28	Q-	8-9.1	300P51	2		W673-41-22	300P45	2	8-9.1
300J51	3		W666-33-22	300P28	X	8-9.1	300P51	3		W673-40-22	300P45	3	8-9.1
300J51	4		W666-43-20	043P1	B	8-9.1	300P51	4		W673-94-22	300P45	4	8-9.1
300J51	5		W666-10-22	SP0041		8-7.1	300P51	5		W673-7-22	300P45	5	8-7.1
300J51	6		W666-11-22	300P28	A	8-7.1	300P51	6		W673-5-22	300P45	6	8-7.1
300J51	7		W666-12-22	300P28	B	8-7.1	300P51	7		W673-6-22	300P45	7	8-7.1
300J51	8		W666-17-22	042P4	4	8-10.1	300P51	8		W673-11-22	300P45	8	8-10.1
300J51	9		W666-18-22	042P6	4	8-10.1	300P51	9		W673-12-22	300P45	9	8-10.1
300J51	10		W666-19-22	042P8	4	8-10.1	300P51	10		W673-13-22	300P45	10	8-10.1
300J51	11		W666-20-22	042P5	4	8-10.1	300P51	11		W673-14-22	300P45	11	8-10.1
300J51	12		SHLD GRD A22	300J51		8-10.1	300P51	12		SHLD GRD B22	300P51		8-10.1
300J51	13		W666-13-22	SP0102		8-10.1	300P51	13		W673-93-22	300P45	13	8-10.1
300J51	14		W666-15-22	300P28	Y-	8-10.1	300P51	14		W673-9-22	300P45	14	8-10.1
300J51	15		W666-14-22	300P28	T-	8-10.1	300P51	15		W673-8-22	300P45	15	8-10.1
300J51	16		W666-16-22	SM0001		8-10.1	300P51	16		W673-10-22	300P45	16	8-10.1
300J51	17		W666-35-22-RED	241P2	11	8-15.1	300P51	17		W673-15-22-RED	TB56	4	8-15.1
300J51	18		W666-36-22-BLU	241P2	9	8-15.1	300P51	18		W673-33-22-BLU	TB56	1	8-15.1
300J51	19		SHLD GRD B22	300J51		8-15.1	300P51	19		SHLD GRD C22	300P51		8-15.1
300J51	20		W666-37-20	128S3	3	9-15.1	300P51	20		W673-16-20	300P45	20	9-15.1
300J51	21		W666-38-20	128S3	4	9-15.1	300P51	21		W673-17-20	SP0244		9-15.1
300J51	22		W666-39-20	128S3	5	9-15.1	300P51	22		W673-18-20	300P45	22	9-15.1
300J51	23		W666-40-20	129P1	A	17-1.1	300P51	23		W673-19-20	300P45	23	17-1.1
300J51	24		W666-104-20	300P28	F	7-1.2	300P51	24		W673-2-22	300P45	27	7-1.2
300J51	25		W666-105-20	300P28	G	7-1.2	300P51	25		W673-3-22	300P45	54	7-1.2
300J51	26		W666-106-20	300P28	H	7-1.2	300P51	26		W673-4-22	300P45	55	7-1.2
300J51	27		W666-147-20 (WITHOUT 74)	101P2	1	4-4.2	300P51	27		W673-148-22 (WITHOUT 74)	300P45	27	4-4.2
300J51	28		W666-45-22	300P28	R-	8-8.1	300P51	28		W673-44-22	300P45	28	8-8.1
300J51	29		W666-46-22	300P28	I-	8-14.1	300P51	29		W673-46-22	300P45	29	8-14.1
300J51	30		W666-47-20	171P2	A	10-2.1	300P51	30		W673-47-20	300P45	30	10-2.1
300J51	31		W666-48-20	172P2	B	10-1.2	300P51	31		W673-48-20	300P45	31	10-1.2
300J51	32		W666-49-20	SM0004		10-1.2	300P51	32		W673-49-20	300P45	32	10-1.2
300J51	33		W666-58-20	148XK2	D1	8-1.2	300P51	33		W673-91-20	300P45	45	8-1.2
300J51	34		W666-59-20	SM0009		11-3.1.1	300P51	34		W673-92-20	300P45	46	11-3.1.1
300J51	35		W666-60-20	231P6	B	12-2.2	300P51	35		W673-52-20	300P45	35	12-2.2
300J51	36		W666-61-20	231P6	E	12-2.2	300P51	36		W673-53-20	300P45	36	12-2.2
300J51	37		W666-62-20	231P6	C	12-2.2	300P51	37		W673-54-20	300P45	37	12-2.2
300J51	38		W666-63-20	233A2		12-3.2	300P51	38		W673-55-20	300P45	38	12-3.2

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J51	39		W666-64-20	233A1		12-3.2	300P51	39		W673-56-20	300P45	39	12-3.2
300J51	40		W666-65-20	300P28	T	6-2.1	300P51	40		W673-57-20	300P45	42	6-2.1
300J51	41		W666-66-20	300P28	N	6-2.1	300P51	41		W673-58-20	300P45	43	6-2.1
300J51	42		W666-67-20	300P28	E-	6-2.1	300P51	42		W673-89-20	300P45	40	6-2.1
300J51	43		W666-68-20	300P28	S-	6-2.1	300P51	43		W673-90-20	300P45	41	6-2.1
300J51	44		W666-78-22	241G3	+	9-2.2	300P51	44		W673-73-22	300P45	44	9-2.2
300J51	45		W666-53-20	173P2	A	10-1.2	300P51	45		W673-50-20	300P45	33	10-1.2
300J51	46		W666-57-20	SM0005		10-1.2	300P51	46		W673-51-20	300P45	34	10-1.2
300J51	47		W666-122-20	148XK2	A1	11-3.1.1	300P51	47		W673-31-20	300P45	24	11-3.1.1
300J51	48		W666-123-20	148XK2	A2	11-3.1.1	300P51	48		W673-32-20	300P45	25	11-3.1.1
300J51	49		W666-124-22	043P2	B	8-9.1	300P51	49		W673-132-22	300P45	47	8-9.1
300J51	50		W666-125-22	SM0007		8-9.1	300P51	50		W673-133-22	300P45	48	8-9.1
300J51	51		W666-127-22	SM0006		8-9.1	300P51	51		W673-134-22	300P45	49	8-9.1
300J51	52		SHLD GRD F20	300J51		8-9.1	300P51	52		SHLD GRD K22	300P51		8-9.1
300J51	53		W666-131-22	043P3	B	8-9.1	300P51	53		W673-135-22	300P45	51	8-9.1
300J51	54		W666-132-22	300P28	G-	8-9.1	300P51	54		W673-136-22	300P45	52	8-9.1
300J51	55		W666-133-22	300P28	F-	8-9.1	300P51	55		W673-137-20	300P45	53	8-9.1
300J51	56		W666-111-20	300P28	C	8-8.1	300P51	56		W673-42-22	300P45	56	8-8.1
300J51	57		W666-112-20	300P28	D	8-8.1	300P51	57		W673-43-22	300P45	57	8-8.1
300J51	58		W666-115-22	300P28	J	7-1.2	300P51	58		W673-140-22	300P45	58	7-1.2
300J51	59		W666-116-22	300P28	K	7-1.2	300P51	59		W673-141-22	300P45	59	7-1.2
300J51	60		W666-119-22	300P28	L	7-1.2	300P51	60		W673-87-22	300P45	60	7-1.2
300J52		FA	SHLD GRD B22	300J52	28	9-2.2	300P52		FB	SHLD GRD D22	300P52	28	9-2.2
300J52		FB	SHLD GRD C22	300J52	34	9-2.2	300P52		FC	SHLD GRD C22	300P52	34	9-2.2
300J52		FC	SHLD GRD J22	300J52	53	5-2.1	300P52		FD	SHLD GRD Q22	300P52	53	5-2.1
300J52	1		W668-14-20	300P44	16	9-3.1	300P52	1		W697-6-20	300P48	1	9-3.1
300J52	2		W668-15-20	300P44	17	9-6.1	300P52	2		W697-7-20	300P48	2	9-6.1
300J52	3		W668-17-20	SP0104		9-15.1	300P52	3		W697-8-20	SP0026		9-15.1
300J52	4		W668-18-20	128S3	3	9-15.1	300P52	4		W697-9-20	SP0025		9-15.1
300J52	5		W668-30-20	132J12	K	14-1.2	300P52	5		W697-12-20	300P48	5	14-1.2
300J52	6		W668-31-20	132J12	J	14-1.2	300P52	6		W697-14-20	300P48	7	14-1.2
300J52	7		W668-32-20	132J12	F	14-1.2	300P52	7		W697-15-20	300P48	8	14-1.2
300J52	8		W668-33-20	132J12	H	14-1.2	300P52	8		W697-16-20	300P48	9	14-1.2
300J52	9		W668-73-20	300P31	D-	6-2.1	300P52	9		W697-46-20	300P48	23	6-2.1
300J52	10		W668-51-20	171P1	A	10-2.1	300P52	10		W697-33-20	300P48	10	10-2.1
300J52	11		W668-52-20	SM0001		10-1.2	300P52	11		W697-34-20	300P48	11	10-1.2
300J52	12		W668-53-20	172P1	B	10-1.2	300P52	12		W697-35-20	300P48	12	10-1.2
300J52	13		W668-57-20	173P1	A	10-1.2	300P52	13		W697-36-20	300P48	13	10-1.2
300J52	14		W668-58-20	SM0002		10-1.2	300P52	14		W697-37-20	300P48	14	10-1.2
300J52	15		W668-63-20	231P5	B	12-2.2	300P52	15		W697-43-20	300P48	15	12-2.2
300J52	16		W668-64-20	231P5	E	12-2.2	300P52	16		W697-44-20	300P48	16	12-2.2
300J52	17		W668-65-20	231P5	C	12-2.2	300P52	17		W697-45-20	300P48	17	12-2.2
300J52	18		W668-68-20	233A1		12-3.2	300P52	18		W697-38-20	300P48	18	12-3.2
300J52	19		W668-69-20	233A2		12-3.2	300P52	19		W697-39-20	300P48	19	12-3.2
300J52	20		W668-72-22	SP0126		9-16.1	300P52	20		W697-110-22	SP0002		9-16.1
300J52	21		W668-71-22	SP0127		9-16.1	300P52	21		W697-111-22	SP0124		9-16.1
300J52	22		W668-70-22	SP0128		9-16.1	300P52	22		W697-112-22	SP0125		9-16.1

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J52	23		W668-104-22	137P5	1	7-4.2	300P52	23		W697-24-22	300P48	26	7-4.2
300J52	24		W668-74-22	241P1	7	9-2.2	300P52	24		W697-62-22	241P8	W	9-2.2
300J52	25		W668-75-22	241P1	6	9-2.2	300P52	25		W697-63-22	241P8	J-	9-2.2
300J52	26		W668-76-22	241P1	5	9-2.2	300P52	26		W697-64-22	241P8	B-	9-2.2
300J52	27		W668-77-22	241P1	4	9-2.2	300P52	27		W697-65-22	241P8	M	9-2.2
300J52	28		SHLD GRD B22	300J52		9-2.2	300P52	28		SHLD GRD D22	300P52		9-2.2
300J52	29		W668-78-22-RED	241P1	3	9-2.2	300P52	29		W697-66-22-RED	241P8	Z	9-2.2
300J52	30		W668-79-22-BLU	241P1	2	9-2.2	300P52	30		W697-67-22-BLU	241P8	Y	9-2.2
300J52	31		W668-80-22-YEL	241P1	1	9-2.2	300P52	31		W697-68-22-YEL	241P8	X	9-2.2
300J52	32		W668-81-22-RED	241P1	10	9-2.2	300P52	32		W697-69-22-RED	241P8	A-	9-2.2
300J52	33		W668-82-22-BLU	241P1	8	9-2.2	300P52	33		W697-70-22-BLU	241P8	L	9-2.2
300J52	34		SHLD GRD C22	300J52		9-2.2	300P52	34		SHLD GRD C22	300P52		9-2.2
300J52	35		W668-34-20A	300P44	19	7-1.2	300P52	35		W697-77-20A	300P48	44	7-1.2
300J52	36		W668-35-20B	300P44	20	7-1.2	300P52	3.6		W697-78-20B	300P48	45	7-1.2
300J52	37		W668-36-20C	300P44	21	7-1.2	300P52	37		W697-79-20C	300P48	46	7-1.2
300J52	38		W668-37-20	300P44	22	7-1.2	300P52	38		W697-80-20	300P48	47	7-1.2
300J52	39		W668-16-20	300P44	49	9-5.1	300P52	39		W697-92-20	SP0013		9-5.1
300J52	40		W668-153-22-RED	175P3	1	8-16.1	300P52	40		W697-17-22-RED	300P48	55	8-16.1
300J52	41		W668-154-22-BLU	175P3	2	8-16.1	300P52	41		W697-18-22-BLU	300P48	56	8-16.1
300J52	42		W668-155-22	175P3	3	8-16.1	300P52	42		W697-19-22	300P48	57	8-16.1
300J52	43		W668-156-22	175P3	4	8-16.1	300P52	43		W697-20-22	300P48	58	8-16.1
300J52	44		W668-159-22	175P2	5	8-16.1	300P52	44		W697-22-22	300P48	59	8-16.1
300J52	45		W668-160-22	175P2	1	8-16.1	300P52	45		W697-23-22	300P48	60	8-16.1
300J52	46		W668-177-22	147P4	B	16-2.1	300P52	46		W697-157-20	147K1	A2	16-2.1
300J52	47		W668-180-22	SP0161		16-2.1	300P52	47		W697-160-20	147K1	X1	16-2.1
300J52	48		W668-178-22	147P4	C	16-2.1	300P52	48		W697-161-20	147K1	B1	16-2.1
300J52	49		W668-181-22-RED	300P44	51	5-2.1	300P52	49		W697-163-22-RED	SP0175		5-2.1
300J52	50		W668-182-22-BLU	300P44	52	5-2.1	300P52	50		W697-164-22-BLU	SP0176		5-2.1
300J52	51		W668-183-22-RED	300P44	53	5-2.1	300P52	51		W697-165-22-RED	SP0182		5-2.1
300J52	52		W668-184-22-BLU	300P44	54	5-2.1	300P52	52		W697-166-22-BLU	SP0183		5-2.1
300J52	53		SHLD GRD J22	300J52		5-2.1	300P52	53		SHLD GRD Q22	300P52		5-2.1
300J52	54		W668-189-20	SP0235		9-5.1	300P52	54		W697-180-20	SP0230		9-5.1
300J53		FA	SHLD GRD C22	300J53	5	9-2.2	300P53		FA	SHLD GRD G22	300P53	5	9-2.2
300J53		FB	SHLD GRD D22	300J53	11	9-2.2	300P53		FB	SHLD GRD H22	300P53	11	9-2.2
300J53		FC	SHLD GRD G22	300J53	37	16-2.1	300P53		FC	SHLD GRD L22	300P53	37	16-2.1
300J53		FD	SHLD GRD H22	300J53	26	9-2.2	300P53		FD	SHLD GRD V22	300P53	26	9-2.2
300J53	1		W666-69-22	241P2	7	9-2.2	300P53	1		W673-95-22	241P9	W	9-2.2
300J53	2		W666-70-22	241P2	6	9-2.2	300P53	2		W673-96-22	241P9	J-	9-2.2
300J53	3		W666-71-22	241P2	5	9-2.2	300P53	3		W673-97-22	241P9	B-	9-2.2
300J53	4		W666-72-22	241P2	4	9-2.2	300P53	4		W673-98-22	241P9	M	9-2.2
300J53	5		SHLD GRD C22	300J53		9-2.2	300P53	5		SHLD GRD G22	300P53		9-2.2
300J53	6		W666-73-22-RED	241P2	3	9-2.2	300P53	6		W673-99-22-RED	241P9	Z	9-2.2
300J53	7		W666-74-22-BLU	241P2	2	9-2.2	300P53	7		W673-100-22-BLU	241P9	y	9-2.2
300J53	8		W666-75-22-YEL	241P2	1	9-2.2	300P53	8		W673-101-22-YEL	241P9	X	9-2.2
300J53	9		W666-76-22-RED	241P2	10	9-2.2	300P53	9		W673-102-22-RED	241P9	A-	9-2.2
300J53	10		W666-77-22-BLU	241P2	8	9-2.2	300P53	10		W673-103-22-BLU	241P9	L	9-2.2
300J53	11		SHLD GRD D22	300J53		9-2.2	300P53	11		SHLD GRD H22	300P53		9-2.2

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J53	12		W666-5-20	SP0208		8-12.1	300P53	12		W673-127-20	300P47	51	8-12.1
300J53	13		W666-6-20	SP0209		8-12.1	300P53	13		W673-128-20	300P47	52	8-12.1
300J53	14		W666-7-20	SP0210		8-12.1	300P53	14		W673-129-20	300P47	53	8-12.1
300J53	15		W666-8-20	SP0211		8-12.1	300P53	15		W673-130-20	300P47	54	8-12.1
300J53	16		W666-9-20	SP0212		8-12.1	300P53	16		W673-131-20	300P47	55	8-12.1
300J53	17		W666-79-22-RED	241G3	A+	9-2.2	300P53	17		W673-114-22-RED	241P10	D	9-2.2
300J53	18		W666-80-22-BLU	241G3	A-	9-2.2	300P53	18		W673-115-22-BLU	241P10	M	9-2.2
300J53	19		W666-81-22-RED	241G3	P1	9-2.2	300P53	19		W673-116-22-RED	241P10	U	9-2.2
300J53	20		W666-82-22-BLU	241G3	PN	9-2.2	300P53	20		W673-117-22-BLU	241P10	E-	9-2.2
300J53	21		W666-83-22-YEL	241G3	F	9-2.2	300P53	21		W673-118-22-YEL	241P10	K	9-2.2
300J53	22		W666-84-22	241T6	X1	9-2.2	300P53	22		W673-123-22	SM0005		9-2.2
300J53	23		W666-85-22	241T6	X2	9-2.2	300P53	23		W673-124-22	SM0006		9-2.2
300J53	24		W666-87-22	241T7	X1	9-2.2	300P53	24		W673-125-22	SM0007		9-2.2
300J53	25		W666-88-22	241T8	X1	9-2.2	300P53	25		W673-126-20	SM0008		9-2.2
300J53	26		SHLD GRD H22	300J53		9-2.2	300P53	26		SHLD GRD V22	300P53		9-2.2
300J53	27		W666-91-20	SM0003		17-1.1	300P53	27		W673-105-20	SM0004		17-1.1
300J53	28		W666-93-20	129A2	2	17-1.1	300P53	28		W673-104-20	SM0002		17-1.1
300J53	29		W666-99-22	175P4	3	8-16.1	300P53	29		W673-149-22	300P47	56	8-16.1
300J53	30		W666-100-22	175P4	4	8-16.1	300P53	30		W673-150-22	300P47	57	8-16.1
300J53	31		W666-101-22-RED	175P4	1	8-16.1	300P53	31		W673-151-22-RED	300P47	58	8-16.1
300J53	32		W666-102-22-BLU	175P4	2	8-16.1	300P53	32		W673-152-22-BLU	300P47	59	8-16.1
300J53	33		W666-148-22	137P3	1	7-5.2	300P53	33		W673-153-22	300P47	19	7-5.2
300J53	34		W666-149-22	137P3	3	7-5.2	300P53	34		W673-154-22	300P47	20	7-5.2
300J53	35		W666-150-22	137P4	1	7-5.2	300P53	35		W673-155-22	300P47	21	7-5.2
300J53	36		W666-156-22	SP0072		16-2.1	300P53	36		W673-156-22	147P2	D	16-2.1
300J53	37		SHLD GRD G22	300J53		16-2.1	300P53	37		SHLD GRD L22	300P53		16-2.1
300J53	38		W666-170-20 (WITH 65)	153P1	A	7-3.2	300P53	38		W673-191-20 (WITH 65)	300P47	15	7-3.2
300J53	39		W666-171-20 (WITH 65)	153P1	D	7-3.2	300P53	39		W673-192-20 (WITH 65)	300P47	61	7-3.2
300J54		FA	SHLD GRD A22	300J54	10	8-15.1	300P54		FA	SHLD GRD B22	300P54	10	8-15.1
300J54		FB	SHLD GRD D22	300J54	37	8-9.1	300P54		FC	SHLD GRD G22	300P54	37	8-9.1
300J54		FC	SHLD GRD E22	300J54	50	NOTE 1	300P54		FB	SHLD GRD E22	300P54	50	NOTE 1
300J54		FD	SHLD GRD F22	300J54	61	16-2.1	300P54		FD	SHLD GRD J22	300P54	61	16-2.1
300J54	1		W668-132-22	136P2	11	15-2.6	300P54	1		W697-138-22	300P50	1	15-2.6
300J54	2		W668-50-22	300P31	Z	8-14.1	300P54	2		W697-32-20	300P50	2	8-14.1
300J54	3		W668-135-22	136P2	3	15-2.6	300P54	3		W697-172-22	136K1	X1	15-2.6
300J54	6		W668-1-20	300P44	10	8-12.1	300P54	6		W697-71-20	300P48	3	8-12.1
300J54	7		W668-11-22	SP0103		8-10.1	300P54	7		W697-3-22	300P50	7	8-10.1
300J54	8		W668-12-22-RED	241P1	9	8-15.1	300P54	8		W697-4-22-RED	TB55	4	8-15.1
300J54	9		W668-13-22-BLU	241P1	11	8-15.1	300P54	9		W697-5-22-BLU	TB55	1	8-15.1
300J54	10		SHLD GRD A22	300J54		8-15.1	300P54	10		SHLD GRD B22	300P54		8-15.1
300J54	11		W668-38-20	300P44	18	7-2.2	300P54	11		W697-21-20	300P50	11	7-2.2
300J54	12		W668-39-22	300P31	F-	7-2.2	300P54	12		W697-26-22	300P50	12	7-2.2
300J54	13		W668-130-22	136P2	5	15-2.6	300P54	13		W697-136-22	SM0001		15-2.6
300J54	14		W668-131-22	136P2	1	15-2.6	300P54	14		W697-137-22	300P50	18	15-2.6
300J54	15		W668-163-22-RED	147J3	N	16-2.1	300P54	15		W697-140-22-RED	300P50	19	16-2.1
300J54	16		W668-164-22-BLU	147J3	J	16-2.1	300P54	16		W697-141-22-BLU	300P50	20	16-2.1
300J54	17		W668-165-22-RED	147J3	A	16-2.1	300P54	17		W697-142-22-RED	300P50	21	16-2.1



RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J54	18		W668-166-22-BLU	147J3	B	16-2.1	300P54	18		W697-143-22-BLU	300P50	22	16-2.1
300J54	19		W668-167-22	147J3	S	16-2.1	300P54	19		W697-144-22	300P50	23	16-2.1
300J54	20		W668-126-22 (WITHOUT 74)	101P1	1	4-4.2	300P54	20		W697-132-22 (WITHOUT 74)	300P50	53	4-4.2
300J54	21		W668-168-22-RED	147J3	T	16-2.1	300P54	21		W697-145-22-RED	300P50	24	16-2.1
300J54	22		W668-2-20	300P44	11	8-12.1	300P54	22		W697-72-20	300P50	3	8-12.1
300J54	23		W668-3-20	300P44	12	8-12.1	300P54	23		W697-73-20	300P50	4	8-12.1
300J54	24		W668-4-20	300P44	13	8-12.1	300P54	24		W697-74-20	300P50	5	8-12.1
300J54	25		W668-5-20	300P44	14	8-12.1	300P54	25		W697-75-20	300P50	6	8-12.1
300J54	26		W668-6-20	300 P44	15	8-12.1	300P54	26		W697-76-20	300P50	61	8-12.1
300J54	27		W668-83-20	300P44	23	11-3.1.1	300P54	27		W697-83-20	300P50	27	11-3.1.1
300J54	28		W668-84-20	300P44	24	11-3.1.1	300P54	28		W697-84-20	300P50	28	11-3.1.1
300J54	29		W668-85-20	300P44	25	11-3.1.1	300P54	29		W697-85-20	300P50	29	11-3.1.1
300J54	30		W668-86-20	300P44	26	11-3.1.1	300P54	30		W697-86-20	300P50	30	11-3.1.1
300J54	31		W668-87-20	300P44	27	11-3.1.1	300P54	31		W697-87-20	300P50	31	11-3.1.1
300J54	32		W668-88-20	300P44	28	11-3.1.1	300P54	32		W697-88-20	300P50	32	11-3.1.1
300J54	33		W668-89-20	148XK1	A1	11-3.1.1	300P54	33		W697-89-20	300P50	33	11-3.1.1
300J54	34		W668-90-20	148XK1	A2	11-3.1.1	300P54	34		W697-90-20	300P50	34	11-3.1.1
300J54	35		W668-91-20	SM0003		11-3.1.1	300P54	35		W697-91-20	300P50	35	11-3.1.1
300J54	36		W668-169-22-BLU	147J3	U	16-2.1	300P54	36		W697-146-22-BLU	300P50	25	16-2.1
300J54	37		SHLD GRD D22	300J54		8-9.1	300P54	37		SHLD GRD G22	300P54		8-9.1
300J54	38		W668-25-22	043P4	B	8-9.1	300P54	38		W697-96-22	300P50	38	8-9.1
300J54	39		W668-26-22	043P4	C	8-9.1	300P54	39		W697-97-22	300P50	39	8-9.1
300J54	40		W668-27-22	043P4	A	8-9.1	300P54	40		W697-98-22	300P50	40	8-9.1
300J54	41		W668-173-22	SM0005		16-2.1	300P54	41		W697-147-22	300P50	26	16-2.1
300J54	42		W668-171-22	147J3	P	16-2.1	300P54	42		W697-148-22	300P50	41	16-2.1
300J54	43		W668-97-20	135P3	1	7-3.2	300P54	43		W697-101-20	300P50	43	7-3.2
300J54	44		W668-98-20	135P4	1	7-3.2	300P54	44		W697-102-20	300P50	44	7-3.2
300J54	45		W668-99-20	135P5	3	7-3.2	300P54	45		W697-103-20	300P50	45	7-3.2
300J54	46		W668-100-20-RED	063MT1	A	NOTE 1	300P54	46		W697-104-20-RED	300P50	46	NOTE 1
300J54	47		W668-101-20-BLU	063MT1	B	NOTE 1	300P54	47		W697-105-20-BLU	300P50	47	NOTE 1
300J54	48		W668-102-20-YEL	063MT1	C	NOTE 1	300P54	48		W697-106-20-YEL	300P50	48	NOTE 1
300J54	50		SHLD GRD E22	300J54		NOTE 1	300P54	50		SHLD GRD E22	300P54		NOTE 1
300J54	51		W668-151-20	063MT1	D	NOTE 1	300P54	51		W697-108-20	300P50	51	NOTE 1
300J54	52		W668-152-20	063MT1	E	NOTE 1	300P54	52		W697-109-20	300P50	52	NOTE 1
300J54	53		W668-114-22	300P44	48	7-3.2	300P54	53		W697-115-22	300P50	54	7-3.2
300J54	54		W668-115-22	300P44	1	7-1.2	300P54	54		W697-116-22	300P50	55	7-1.2
300J54	55		W668-116-22	300P44	4	7-1.2	300P54	55		W697-117-22	300P50	56	7-1.2
300J54	56		W668-117-22	300P44	3	7-1.2	300P54	56		W697-118-22	300P50	57	7-1.2
300J54	57		W668-118-22	300P44	2	7-1.2	300P54	57		W697-119-22	300P50	58	7-1.2
300J54	58		W668-172-22	147J3	E	16-2.1	300P54	58		W697-149-22	300P50	42	16-2.1
300J54	60		W668-174-22	147J3	K	16-2.1	300P54	60		W697-151-22	300P50	60	16-2.1
300J54	61		SHLD GRD F22	300J54		16-2.1	300P54	61		SHLD GRD J22	300P54		16-2.1
300J55	1		W591-2044-20 RED (WITH 74)	300J85	C	4-12.1	300P55	1		W591-1760-20 RED (WITH 74)	104P1	L	4-12.1
300J55	2		W591-2046-20 BLU (WITH 74)	300J85	E	4-12.1	300P55	2		W591-1761-20 BLU (WITH 74)	104P1	M	4-12.1
300J55	3		W645-5-20	300J21	1	9-3.1	300P55	3		W625-83-20	300J40	4	9-3.1
300J55	4		W591-2045-20 YEL (WITH 74)	300J85	D	4-12.1	300P55	4		W591-1762-20 YEL (WITH 74)	104P1	J	4-12.1
300J55	5		W645-46-22	300J62	1	8-11.1	300P55	5		W625-6-22	300J35	P	8-11.1





RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J57	6		W690-262-20	197P4	K	NOTE 1	300P57	6		W557-419-22	197P5	N	NOTE 1
300J57	7		W690-263-20	197P4	L	NOTE 1	300P57	7		W557-420-22	197P5	P	NOTE 1
300J57	8		W690-264-20	197P4	M	NOTE 1	300P57	8		W557-421-22	197P5	R	NOTE 1
300J57	9		W690-265-20	197P4	N	NOTE 1	300P57	9		W557-422-22	197P5	S	NOTE 1
300J57	10		W690-266-20	197P4	T	NOTE 1	300P57	10		W557-423-22	197P5	A	NOTE 1
300J57	11		W690-267-20	197P4	Z	NOTE 1	300P57	11		W557-424-22	197P5	B	NOTE 1
300J57	12		W690-268-20	197P4	E	NOTE 1	300P57	12		W557-425-22	197P6	64	NOTE 1
300J57	13		W690-269-20	197P4	R	NOTE 1	300P57	13		W557-426-22	197P6	65	NOTE 1
300J57	14		SHLD GRD EH22	300J57		NOTE 1	300P57	14		SHLD GRD EF22	300P57		NOTE 1
300J57	15		W690-271-20-RED	197P4	X	NOTE 1	300P57	15		W557-428-22-RED	197P6	59	NOTE 1
300J57	16		W690-272-20-BLU	197P4	Y	NOTE 1	300P57	16		W557-429-22-BLU	197P6	60	NOTE 1
300J57	17		W690-273-20	197P4	C-	NOTE 1	300P57	17		W557-430-22	197P6	43	NOTE 1
300J57	18		W690-274-20	197P4	B-	NOTE 1	300P57	18		W557-431-22	197P6	44	NOTE 1
300J57	19		W690-275-20	197P4	F	NOTE 1	300P57	19		W557-432-22	197P6	37	NOTE 1
300J57	20		W690-276-20	197P4	H	NOTE 1	300P57	20		W557-433-22	197P6	38	NOTE 1
300J57	21		W690-277-20	197P4	J	NOTE 1	300P57	21		W557-434-22	197P6	36	NOTE 1
300J57	22		W690-278-20	197P4	F-	NOTE 1	300P57	22		W557-435-22	197P6	21	NOTE 1
300J57	26		W690-270-20	197P4	D-	NOTE 1	300P57	26		W557-427-22	197P6	66	NOTE 1
300J58	1		W645-21-22	300J2	1	8-10.1	300P58	1		W557-39-22	042P1	J	8-10.1
300J58	2		W645-23-22 (WITHOUT 74)	300J2	2	8-6.1	300P58	2		W557-64-22 (WITHOUT 74)	051P1	A	8-6.1
300J58	3		W645-24-22 (WITHOUT 74)	300J2	3	8-6.1	300P58	3		W557-65-22 (WITHOUT 74)	051P5	A	8-6.1
300J58	4		W645-30-22 (WITHOUT 74)	300J2	4	8-4.1	300P58	4		W557-76-22 (WITHOUT 74)	052P1	A	8-4.1
300J58	5		W645-39-22	300J2	6	8-15.1	300P58	5		W557-86-22	054P1	J	8-15.1
300J58	6		W645-42-22	300J2	7	8-5.1	300P58	6		W557-104-20	TB8	8K	8-5.1
300J58	7		W645-44-22	300J2	8	8-11.1	300P58	7		W557-118-22	057P3	D	8-11.1
300J58	9		W645-100-20	300J2	11	10-1.2	300P58	9		W557-168-20	233S1		10-1.2
300J58	10		W645-121-20	300J2	12	12-3.2	300P58	10		W557-181-20	233S3	5	12-3.2
300J58	11		W645-138-20	300J2	13	9-18.1	300P58	11		W557-194-20	232S2	5	9-18.1
300J58	12		W645-159-22	300J2	14	9-2.2	300P58	12		W557-221-22 (WITHOUT 74)	232P1	Y	9-2.2
300J58	13		W645-163-22	300J2	15	8-13.1	300P58	12		W557-221-22 (WITH 74)	232P1	Z	9-2.1
300J58	14		W645-274-22-RED	300J2	24	NOTE 1	300P58	13		W557-224-22	061 P1	A	8-13.1
300J58	15		W645-GD008A22N-BLU	GD008		NOTE 1	300P58	14		W557-733-22-RED	TB4	4C	NOTE 1
300J58	16		W645-182-22-RED	300J2	18	NOTE 1	300P58	15		W557-734-22-BLU	TB4	4E	NOTE 1
300J58	17		W645-GD008D22N-BLU	GD008		NOTE 1	300P58	16		W557-410-22-RED	192P1	6	NOTE 1
300J58	18		W645-33-22 (WITHOUT 74)	300J2	5	8-3.1	300P58	17		W557-411-22-BLU	192P1	10	NOTE 1
300J58	19		W645-177-22	300J2	16	NOTE 1	300P58	18		W557-82-22-RED (WITHOUT 74)	053P1	B	8-3.1
300J58	20		W645-402-22	300J2	9	9-21.1	300P58	19		W557-336-22	181P1	D	NOTE 1
300J58	21		W645-208-22	300J2	19	NOTE 1	300P58	20		W557-1117-22	044P1	1	9-21.1
300J58	22		W645-266-22	300J2	23	8-9.1	300P58	21		W557-490-22	201P2	12	NOTE 1
300J58	23		W645-278-22	300J2	32	9-12.1	300P58	22		W557-531-22	043P6	J	8-9.1
300J58	24		W645-GD356A22N-BLU	GD356		NOTE 1	300P58	23		W557-744-22	124T4	HV	9-12.1
300J58	25		W645-81-22-RED	300J2	25	NOTE 1	300P58	24		W557-908-22-BLU	066P2	69	NOTE 1
300J58	26		W645-305-22 (WITHOUT 74)	300J2	29	4-6.1	300P58	25		W557-413-22-RED	066P2	68	NOTE 1
300J58	27		W645-306-22 (WITHOUT 74)	300J2	30	4-6.1	300P58	26		W557-826-22 (WITHOUT 74)	103S1	2	4-6.1
300J58	28		W645-253-22	300J2	31	7-5.2	300P58	27		W557-828-22 (WITHOUT 74)	103S3	2	4-6.1
300J58	30		W645-297-20	300J2	27	9-1.2	300P58	28		W557-817-22	137P2	V	7-5.2
							300P58	30		W557-801-22 (WITHOUT 74)	232P1	S	9-1.2







RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J62	4		W645-49-22	300J55	11	8-11.1	300P62	4		W557-114-22	057P2	R	8-11.1
300J62	5		W645-50-22	300J55	12	8-11.1	300P62	5		W557-115-22	057P2	K	8-11.1
300J62	15		W645-51-COAX	300J70	1	8-11.1	300P62	15		W557-134-COAX	057P1	C	8-11.1
300J62	19		W645-52-COAX	300J70	A2	8-11.1	300P62	19		W557-135-COAX	057P1	A	8-11.1
300J62	23		W645-53-COAX	300J70	A3	8-11.1	300P62	23		W557-136-COAX	057P1	B	8-11.1
300J63	1		W639-73-COAX	300J69	1	8-11.1	300P63	1		W557-128-COAX	057P1	P	8-11.1
300J63	2		W639-74-COAX	300J69	2	8-11.1	300P63	2		W557-129-COAX	057P1	E	8-11.1
300J63	3		W639-70-22	300J56	5	8-11.1	300P63	3		W557-121-22	057P3	K	8-11.1
300J63	4		W639-75-COAX	300J69	3	8-11.1	300P63	4		W557-130-COAX	057P1	D	8-11.1
300J63	5		W639-71-22	300J56	7	8-11.1	300P63	5		W557-122-22	057P3	L	8-11.1
300J63	7		W639-72-22	300J56	9	8-11.1	300P63	7		W557-123-22	057P3	J	8-11.1
300J63	9		W639-314-22	300J56	32	8-11.1	300P63	9		W557-113-22	057P2	G	8-11.1
300J64		FA	SHLD GRD Y22	300J64	11	16-2.1	300P64		FA	SHLD GRD AB22	300P64	11	16-2.1
300J64	1		W645-370-22-RED	300J50	21	16-2.1	300P64	1		W557-856-20-RED	147P1	A	16-2.1
300J64	2		W645-371-22-BLU	300J50	22	16-2.1	300P64	2		W557-857-20-BLU	147P1	B	16-2.1
300J64	3		W645-372-22	300J50	23	16-2.1	300P64	3		W557-863-20	147P1	S	16-2.1
300J64	4		W645-373-22-RED	300J50	24	16-2.1	300P64	4		W557-864-20-RED	147P1	T	16-2.1
300J64	5		W645-374-22-BLU	300J50	25	16-2.1	300P64	5		W557-865-20-BLU	147P1	U	16-2.1
300J64	6		W645-375-22	300J50	26	16-2.1	300P64	6		W557-866-20	147P1	F	16-2.1
300J64	7		W645-376-22	300J50	41	16-2.1	300P64	7		W557-867-20	147P1	P	16-2.1
300J64	8		W645-377-22	300J50	42	16-2.1	300P64	8		W557-868-20	147P1	E	16-2.1
300J64	10		W645-379-22	300J50	60	16-2.1	300P64	10		W557-870-20	147P1	K	16-2.1
300J64	11		SHLD GRD Y22	300J64		16-2.1	300P64	11		SHLD GRD AB22	300P64		16-2.1
300J64	12		W645-368-22-RED	300J50	19	16-2.1	300P64	12		W557-871-20-RED	TB6	10L	16-2.1
300J64	13		W645-369-22-BLU	300J50	20	16-2.1	300P64	13		W557-872-20-BLU	TB6	10E	16-2.1
300J64	14		W645-311-20	300J48	27	16-2.1	300P64	14		W557-862-20	147P1		16-2.1
300J68		FA	SHLD GRD P22	300J68	22	16-2.1	300P68		FA	SHLD GRD B22	300P68	22	16-2.1
300J68		FB	SHLD GRD R22	300J68	21	16-2.1	300P68		FB	SHLD GRD D22	300P68	21	16-2.1
300J68	1		W639-224-20	300J20	30	16-1.2	300P68	1		W698-1-20	134P4	C-	16-1.2
300J68	2		W639-223-20	300J20	29	16-1.2	300P68	2		W698-2-20	134P4	J	16-1.2
300J68	3		W639-222-20	300J20	28	16-1.2	300P68	3		W698-3-20	134P4	L	16-1.2
300J68	4		W639-221-20	300J20	27	16-1.2	300P68	4		W698-4-20	134P4	N	16-1.2
300J68	5		W639-220-20	300J20	26	16-1.2	300P68	5		W698-5-20	SPLICE		16-1.2
300J68	6		W639-219-20	300J20	25	16-1.2	300P68	6		W698-6-20	134J9	A	16-1.2
300J68	7		W639-218-20	300J20	24	16-1.2	300P68	7		W698-7-20	134J7	A	16-1.2
300J68	8		W639-217-20	300J20	23	16-1.2	300P68	8		W698-8-20	TB27	3D	16-1.2
300J68	9		W639-216-20	TB18	15	16-1.2	300P68	9		W698-9-20	SPLICE		16-1.2
300J68	10		W639-214-20	300J15	43	16-1.2	300P68	10		W698-10-20	134P4	Y	16-1.2
300J68	11		W639-215-20	300J15	44	16-1.2	300P68	11		W698-11-20	134P4	W	16-1.2
300J68	12		W639-276-20	300J15	45	16-1.2	300P68	12		W698-12-20	134J8	C	16-1.2
300J68	13		W639-277-20	300J15	46	16-1.2	300P68	13		W698-13-20	134P5	F	16-1.2
300J68	14		W639-278-20	300J20	37	16-1.2	300P68	14		W698-29-20	134P5	A	16-1.2
300J68	15		W639-279-20	300J20	38	16-1.2	300P68	15		W698-30-20	134P5	B	16-1.2
300J68	16		W639-107-20	082P3	D	13-1.2	300P68	16		W698-43-22	082P2	B	13-1.2
300J68	17		W639-108-20	082P3	F	13-1.2	300P68	17		W698-44-22	082P2	C	13-1.2
300J68	18		W639-10-20	300J20	2	9-6.1	300P68	18		W698-45-20	111P2	B	9-6.1
300J68	21		SHLD GRD R22	300J68		16-2.1	300P68	21		SHLD GRD D22	300P68		16-2.1



RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J68	22		SHLD GRD P22	300J68		16-2.1	300P68	22		SHLD GRD B22	300P68		16-2.1
300J68	23		W639-387-22-BLU	TB18	19	16-2.1	300P68	23		W698-41-22-BLU	TB401	1	16-2.1
300J68	40		W639-326-22	300J15	6	16-2.1	300P68	40		W698-42-22	TB401	4	16-2.1
300J68	41		W639-386-22-RED	TB18	20	16-2.1	300P68	41		W698-40-22-RED	TB401	3	16-2.1
300J69	1		W639-73-COAX	300J63	1	8-11.1	300P69	1		W629-4-COAX	057P4	24	8-11.1
300J69	2		W639-74-COAX	300J63	2	8-11.1	300P69	2		W629-5-COAX	057P4	22	8-11.1
300J69	3		W639-75-COAX	300J63	4	8-11.1	300P69	3		W629-6-COAX	057P4	18	8-11.1
300J70	1		W645-51-COAX	300J62	15	8-11.1	300P70	1		W625-1-COAX	057P6	18	8-11.1
300J70	2		W645-52-COAX	300J62	19	8-11.1	300P70	2		W625-2-COAX	057P6	22	8-11.1
300J70	3		W645-53-COAX	300J62	23	8-11.1	300P70	3		W625-3-COAX	057P6	24	8-11.1
300J71	1		W690-385-COAX	185P8	A4	NOTE 1	300P71	1		W557-360-COAX	185P1	43	NOTE 1
300J71	2		W690-386-COAX	185P8	A2	NOTE 1	300P71	2		W557-361-COAX	185P1	45	NOTE 1
300J71	3		W690-387-COAX	185P8	A3	NOTE 1	300P71	3		W557-362-COAX	185P1	47	NOTE 1
300J71	4		W690-388-COAX	185P8	A1	NOTE 1	300P71	4		W557-363-COAX	185P1	49	NOTE 1
300J71	5		W690-389-COAX	201P12	22	NOTE 1	300P71	5		W557-372-COAX	185P1	19	NOTE 1
300J71	6		W690-390-COAX	201P12	5	NOTE 1	300P71	6		W557-500-COAX	201P1	5	NOTE 1
300J74	A		W592-1772-20 BLU (WITH 74)	104P2	FF	4-12.1	<b>NOTE: 300J74 MATES WITH NO. 2 ENGINE COMPARTMENT HARNESS</b>						
300J74	B		W592-1773-20 RED (WITH 74)	104P2	MM	4-12.1							
300J74	C		W592-1770-20 BLU (WITH 74)	104P2	s	4-12.1							
300J74	D		W592-1771-20 RED (WITH 74)	104P2	r	4-12.1							
300J74	E		W592-1768-20 BLU (WITH 74)	104P2	EE	4-12.1							
300J74	F		W592-1769-20 RED (WITH 74)	104P2	g	4-12.1							
300J74	G		W592-1763-20 RED (WITH 74)	104P2	X	4-12.1							
300J74	H		W592-1764-20 BLU (WITH 74)	104P2	W	4-12.1							
300J74	J		W592-1765-20 YEL (WITH 74)	104P2	V	4-12.1							
300J74	K		W592-1766-20 GRN (WITH 74)	104P2	U	4-12.1							
300J74	L		W592-1767-20 BLK (WITH 74)	104P2	T	4-12.1							
300J74	M		W592-1762-20 YEL (WITH 74)	104P2	KK	4-12.1							
300J74	N		W592-1761-20 BLU (WITH 74)	104P2	y	4-12.1							
300J74	P		W592-1760-20 RED (WITH 74)	104P2	g	4-12.1							
300J74	T		W592-1775-20 BLU (WITH 74)	104P2	m	4-12.1							
300J74	U		W592-1774-20 RED (WITH 74)	104P2	BB	4-12.1							
300J74	V		W592-1917-20 BLU (WITH 74)	SPLICE		4-10.1							
300J74	W		W592-1916-20 RED (WITH 74)	101XK2	A1	4-10.1							
300J74	X		W592-1892-22 RED (WITH 74)	051P4	C	8-6.1							
300J74	Y		W592-1893-22 BLU (WITH 74)	051P4	B	8-6.1							
300J74	Z		W592-1894-22 YEL (WITH 74)	051P4	A	8-6.1							
300J74	a		W592-1895-22 RED (WITH 74)	051P6	D	8-6.1							
300J74	b		W592-1896-22 BLU (WITH 74)	051P6	C	8-6.1							
300J74			W592-1772/3 SHLD (WITH 74)	104CP2		4-12.1							
300CJ74			W592-1770/1 SHLD (WITH 74)	104CP2		4-12.1							
300CJ74			W592-1768/9 SHLD (WITH 74)	104CP2		4-12.1							
300CJ74			W592-1763/67 SHLD (WITH 74)	104CP2		4-12.1							
300CJ74			W592-1760/2 SHLD (WITH 74)	104CP2		4-12.1							
300CJ74			W592-1774/5 SHLD (WITH 74)	104CP2		4-12.1							
300CJ74			W592-1916/7 SHLD (WITH 74)	JUMPER		4-10.1							
300CJ74			W592-1892/4 SHLD (WITH 74)	051CP4		8-6.1							

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300CJ74			W592-1895/6 SHLD (WITH 74)	051CP6		8-6.1
300J75	A		W591-1797-20 RED (WITH 74)	104P1	FF	4-12.1
300J75	B		W591-1798-20 BLU (WITH 74)	104P1	MM	4-12.1
300J75	C		W591-1795-20 RED (WITH 74)	104P1	s	4-12.1
300J75	D		W591-1796-20 BLU (WITH 74)	104P1	r	4-12.1
300J75	E		W591-1793-20 RED (WITH 74)	104P1	EE	4-12.1
300J75	F		W591-1794-20 BLU (WITH 74)	104P1	g	4-12.1
300J75	G		W591-1788-20 RED (WITH 74)	104P1	X	4-12.1
300J75	H		W591-1789-20 BLU (WITH 74)	104P1	W	4-12.1
300J75	J		W591-1790-20 YEL (WITH 74)	104P1	V	4-12.1
300J75	K		W591-1791-20 GRN (WITH 74)	104P1	U	4-12.1
300J75	L		W591-1792-20 BLK (WITH 74)	104P1	T	4-12.1
300J75	M		W591-1787-20 YEL (WITH 74)	104P1	KK	4-12.1
300J75	N		W591-1786-20 BLU (WITH 74)	104P1	y	4-12.1
300J75	P		W591-1785-20 RED (WITH 74)	104P1	9	4-12.1
300J75	T		W591-1800-20 BLU (WITH 74)	104P1	m	4-12.1
300J75	U		W591-1799-20 RED (WITH 74)	104P1	BB	4-12.1
300J75	V		W591-1917-20 BLU (WITH 74)	SPLICE		4-10.1
300J75	W		W591-1916-20 RED (WITH 74)	101XK1	A1	4-10.1
300J75	X		W591-1892-22 RED (WITH 74)	051P3	C	8-6.1
300J75	Y		W591-1893-22 BLU (WITH 74)	051P3	B	8-6.1
300J75	Z		W591-1894-22 YEL (WITH 74)	051P3	A	8-6.1
300J75	a		W591-1895-22 RED (WITH 74)	051P5	D	8-6.1
300J75	b		W591-1896-22 BLU (WITH 74)	051P5	C	8-6.1
300CJ75			W591-1797/8 SHLD (WITH 74)	104CP1		4-12.1
300CJ75			W591-1795/6 SHLD (WITH 74)	104CP1		4-12.1
300CJ75			W591-1793/4 SHLD (WITH 74)	104CP1		4-12.1
300CJ75			W591-1788/91 SHLD (WITH 74)	104CP1		4-12.1
300CJ75			W591-1785/7 SHLD (WITH 74)	104CP1		4-12.1
300CJ75			W591-1799/80 SHLD (WITH 74)	104CP1		4-12.1
300CJ75			W591-1892/4 SHLD (WITH 74)	051CP3		8-6.1
300CJ75			W591-1895/6 SHLD (WITH 74)	051CP5		8-6.1
300CJ75			W591-1916/17 SHIELD (WITH 74)	JUMPER		4-12.1
300J76	A		W592-1828-20 RED (WITH 74)	104P4	S	4-12.1
300J76	B		W592-1829-20 BLU (WITH 74)	104P4	T	4-12.1
300J76	C		W592-1830-20 YEL (WITH 74)	104P4	U	4-12.1
300J76	D		W592-1823-20 RED (WITH 74)	104P4	E	4-12.1
300J76	E		W592-1824-20 BLU (WITH 74)	104P4	J	4-12.1
300J76	F		W592-1825-20 YEL (WITH 74)	104P4	H	4-12.1
300J76	G		W592-1826-20 GRN (WITH 74)	104P4	G	4-12.1
300J76	H		W592-1827-20 BLK (WITH 74)	104P4	F	4-12.1
300J76	J		W592-1820-20 RED (WITH 74)	104P4	M	4-12.1
300J76	K		W592-1821-20 BLU (WITH 74)	104P4	K	4-12.1
300J76	L		W592-1822-20 YEL (WITH 74)	104P4	L	4-12.1
300J76	M		W592-1818-20 RED (WITH 74)	104P4	c	4-12.1
300J76	N		W592-1819-20 BLU (WITH 74)	104P4	A	4-12.1
300J76	P		W592-1812-20 BLU (WITH 74)	104P4	R	4-12.1
300J76	R		W592-1811-20 RED (WITH 74)	104P4	P	4-12.1

NOTE: 300J74 MATES WITH NO. 2 ENGINE COMPARTMENT HARNESS.  
 NOTE: 300J75 MATES WITH NO. 1 ENGINE COMPARTMENT HARNESS.

NOTE: 300J76 MATES WITH NO. 2 ENGINE COMPARTMENT HARNESS.

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J76	W		W592-1817-20 BLU (WITH 74)	104P4	d	4-12.1
300J76	X		W592-1816-20 RED (WITH 74)	104P4	B	4-12.1
300J76	Y		W592-1813/5 ISHLD (WITH 74)	104P4	FF	4-12.1
300J76	Z		W592-1815-20 ORG (WITH 74)	104P4	r	4-12.1
300J76	a		W592-1814-20 BLU (WITH 74)	104P4	s	4-12.1
300J76	b		W592-1813-20 WHT (WITH 74)	104P4	t	4-12.1
300J76	c		W592-1823/7 SHLD (WITH 74)	104CP4		4-12.1
300CJ76			W592-1828/30 SHLD (WITH 74)	104CP4		4-12.1
300CJ76			W592-1820/2 SHLD (WITH 74)	104CP4		4-12.1
300CJ76			W592-1818/9 SHLD (WITH 74)	104CP4		4-12.1
300CJ76			W592-1811/2 SHLD (WITH 74)	104CP4		4-12.1
300CJ76			W592-1816/7 SHLD (WITH 74)	104CP4		4-12.1
300CJ76			W592-1813/5 OSHLD (WITH 74)	104CP4		4-12.1
300J77	A		W591-1834-20 RED (WITH 74)	104P3	S	4-12.1
300J77	B		W591-1835-20 BLU (WITH 74)	104P3	T	4-12.1
300J77	C		W591-1836-20 YEL (WITH 74)	104P3	U	4-12.1
300J77	D		W591-1829-20 RED (WITH 74)	104P3	E	4-12.1
300J77	E		W591-1830-20 BLU (WITH 74)	104P3	J	4-12.1
300J77	F		W591-1831-20 YEL (WITH 74)	104P3	H	4-12.1
300J77	G		W591-1832-20 GRN (WITH 74)	104P3	G	4-12.1
300J77	H		W591-1833-20 BLK (WITH 74)	104P3	F	4-12.1
300J77	J		W591-1826-20 RED (WITH 74)	104P3	M	4-12.1
300J77	K		W591-1827-20 BLU (WITH 74)	104P3	K	4-12.1
300J77	L		W591-1828-20 YEL (WITH 74)	104P3	L	4-12.1
300J77	M		W591-1824-20 RED (WITH 74)	104P3	c	4-12.1
300J77	N		W591-1825-20 BLU (WITH 74)	104P3	A	4-12.1
300J77	P		W591-1818-20 BLU (WITH 74)	104P3	R	4-12.1
300J77	R		W591-1817-20 RED (WITH 74)	104P3	P	4-12.1
300J77	W		W591-1823-20 BLU (WITH 74)	104P3	d	4-12.1
300J77	X		W591-1822-20 RED (WITH 74)	104P3	B	4-12.1
300J77	Y		W591-1819/21 ISHLD (WITH 74)	104P3	FF	4-12.1
300J77	Z		W591-1821-20 ORG (WITH 74)	104P3	r	4-12.1
300J77	a		W591-1820-20 BLU (WITH 74)	104P3	s	4-12.1
300J77	b		W591-1819-20 WHT (WITH 74)	104P3	t	4-12.1
300J77	c		W591-1829/33 SHLD (WITH 74)	104CP3		4-12.1
300CJ77			W591-1826/8 SHLD (WITH 74)	104CP3		4-12.1
300CJ77			W591-1824/5 SHLD (WITH 74)	104CP3		4-12.1
300CJ77			W591-1817/8 SHLD (WITH 74)	104CP3		4-12.1
300CJ77			W591-1822/3 SHLD (WITH 74)	104CP3		4-12.1
300CJ77			W591-1819/21 OSHLD (WITH 74)	104CP3		4-12.1
300CJ77			W591-1834/6 SHLD (WITH 74)	104CP3		4-12.1
300J78	A		W592-1832-CR20 YEL (WITH 74)	104P4	GG	4-12.1
300J78	B		W592-1831-AL20 RED (WITH 74)	104P4	v	4-12.1
300J78	C		W592-1831/2 ISHLD (WITH 74)	104P4	HH	4-12.1
300J78			W591-1831/2 OSHLD (WITH 74)	104CP4		4-12.1
300J79	A		W591-1816CR20 YEL (WITH 74)	104P3	GG	4-12.1
300J79	B		W591-1815AL20 RED (WITH 74)	104P3	v	4-12.1

NOTE: 300J76 MATES WITH NO. 2 ENGINE COMPARTMENT HARNESS.

NOTE: 300J77 MATES WITH NO. 1 ENGINE COMPARTMENT HARNESS.

NOTE: 300J78 MATES WITH NO. 2 ENGINE COMPARTMENT HARNESS.

NOTE: 300J79 MATES WITH NO. 1 ENGINE COMPARTMENT HARNESS.

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J79	C		W591-1815/6 ISHLD (WITH 74)	104P3	HH	4-12.1
300J79			W591-1815/6 OSHLD (WITH 74)	104CP3		4-12.1
300J80	A		W592-1967-22 BLU (WITH 74)	300P43	18	8-2.1
300J80	B		W592-1966-22 RED (WITH 74)	300P43	17	8-2.1
300J80	E		W592-1914-20 (WITH 74)	300P43	1	4-9.1
300J80	F		W592-1915-20N (WITH 74)	GD401		4-9.1
300J80	G		W592-1918-20 (WITH 74)	101XK2	B1	4-10.1
300J80	H		W592-1919-20 (WITH 74)	GD500		4-10.1
300J80	J		W592-1950-20N (WITH 74)	GD401		4-13.1
300J80	K		W592-1949-20N (WITH 74)	SPLICE		4-13.1
300J80	L		W592-1966/7 SHLD (WITH 74)	300CP43		8-2.1
300J80	M		W592-1962-22 (WITH 74)	300P43	8	8-4.1
300J80	N		W592-1884-22 (WITH 74)	SPLICE		8-4.1
300J80	P		W592-1963-22 (WITH 74)	300P43	5	8-3.1
300J80	R		W592-1965-22 (WITH 74)	300P43	7	8-3.1
300J80	S		W592-1964-22 (WITH 74)	300P43	6	8-3.1
300J80	U		W592-1891-20N (WITH 74)	GD401		8-3.1
300J81	A		W591-1967-22 BLU (WITH 74)	300P42	42	8-2.1
300J81	B		W591-1966-22 RED (WITH 74)	300P42	41	8-2.1
300J81	E		W591-1914-20 (WITH 74)	300P42	7	4-9.1
300J81	F		W591-1915-20N (WITH 74)	GD340		4-9.1
300J81	G		W591-1918-20 (WITH 74)	101XK1	B1	4-10.1
300J81	H		W591-1919-20N (WITH 74)	GD340		4-10.1
300J81	J		W591-1950-20N (WITH 74)	GD430		4-13.1
300J81	K		W591-1949-20 (WITH 74)	SPLICE		4-13.1
300J81	L		W591-1966/7 SHLD (WITH 74)	300CP42		8-2.1
300J81	M		W591-1962-22 (WITH 74)	300P55	33	8-4.1
300J81	N		W591-1884-22 (WITH 74)	SPLICE		8-4.1
300J81	P		W591-1963-22 (WITH 74)	300P42	8	8-3.1
300J81	R		W591-1965-22 (WITH 74)	300P42	10	8-3.1
300J81	S		W591-1964-22 (WITH 74)	300P42	11	8-3.1
300J81	U		W591-1891-20N (WITH 74)	GD406		8-3.1
300J84	A		W592-2044-20 (WITH 74)	300J6	22	4-12.1
300J84	B		W592-2045-20 (WITH 74)	SPLICE		4-12.1
300J84	C		W592-2046-20 RED (WITH 74)	300J43	46	4-12.1
300J84	D		W592-2048-20N (WITH 74)	GD021	B	4-12.1
300J84	E		W592-2049-20 YEL (WITH 74)	300J43	22	4-12.1
300J84	F		W592-2050-20 BLU (WITH 74)	300J43	21	4-12.1
300J84	G		W592-2051-20 RED (WITH 74)	300J43	20	4-12.1
300J84	H		W592-2052-20 RED (WITH 74)	300J43	31	4-12.1
300J84	J		W592-2053-20 BLU (WITH 74)	300J43	34	4-12.1
300J84	K		W592-2054-20 RED (WITH 74)	300J43	35	4-12.1
300J84	L		W592-2055-20 YEL (WITH 74)	300J43	37	4-12.1
300J84	M		W592-2056-20 BLU (WITH 74)	300J43	36	4-12.1
300J84	N		W592-2057-20 BLU (WITH 74)	300J43	50	4-12.1
300J84	P		W592-2058-20 RED (WITH 74)	300J43	49	4-12.1

NOTE: 300J79 MATES WITH NO. 1 ENGINE COMPARTMENT HARNESS.

NOTE: 300J80 MATES WITH NO. 2 ENGINE COMPARTMENT HARNESS.

NOTE: 300J81 MATES WITH NO. 1 ENGINE COMPARTMENT HARNESS.

300P84	A		W592-1866-20 (WITH 74)	104P6	F	4-12.1
300P84	B		W592-1865-20 (WITH 74)	104P6	N	4-12.1
300P84	C		W592-1870-20 (WITH 74)	104P6	G	4-12.1
300P84	D		W592-1867-20 (WITH 74)	104P6	M	4-12.1
300P84	E		W592-1985-20 YEL (WITH 74)	104P6	A	4-12.1
300P84	F		W592-1984-20 BLU (WITH 74)	104P6	B	4-12.1
300P84	G		W592-1983-20 RED (WITH 74)	104P6	C	4-12.1
300P84	H		W592-1991-20 RED (WITH 74)	104P6	T	4-12.1
300P84	J		W592-1992-20 BLU (WITH 74)	104P6	S	4-12.1
300P84	K		W592-1988-20 RED (WITH 74)	104P6	H	4-12.1
300P84	L		W592-1990-20 YEL (WITH 74)	104P6	J	4-12.1
300P84	M		W592-1989-20 BLU (WITH 74)	104P6	K	4-12.1
300P84	N		W592-1987-20 BLU (WITH 74)	104P6	D	4-12.1
300P84	P		W592-1986-20 RED (WITH 74)	104P6	E	4-12.1



RECEP- TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	RECEP- TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300CJ85			W591-2031/3 SHLD (WITH 74 )	300CJ42		4-11.1	300CP85			W591-1988-90 SHLD (WITH 74 )	104CP5		4-12.1
300CJ85			W591-2027/8 SHLD (WITH 74 )	300CJ42		4-11.1	300CP85			W591-1983/5 OSHLD (WITH 74 )	104CP5		4-12.1

RECEP-TACLE	PIN NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
300J6	32		ASN149-1B20(WHT)	199P1	A	18-1.1
300J6	33		SHLD TERMN	SHLD OF WIRES ASN149-1 B20/2A20N		18-1.1
300J6	34		ASN149-3B20(WHT)	199J6	1	18-1.1
300J6	35		SHLD TERMN	SHLD OF WIRES ASN149-3B20/4A20N		18-1.1

1-5 TERMINAL BOARD WIRING DATA

This section provides wiring connections to each terminal board in the CH-47D aircraft. The wire no, where the other end of the wire is connected, and the diagram in this manual where the wire is shown connected is contained below.

NOTE 1 in the DIAG REF column means that the wire is shown terminated in TM 11-1520-240-20.

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB1		FA	SHLD GRD W22	GD026		9-8.1
TB1	2A		W557-767-20	300P17	21	9-8.1
TB1	2B		W557-768-20	TB1	3A	9-8.1
TB1	2C		1 121DS15-22	121DS15		9-8.1
TB1	2D		W557-770-22	TB1	4B	9-8.1
TB1	2E		W592-1910-22 (WITH 74)	051P2	12	9-8.1
TB1	2G		W557-776-22	TB1	3L	9-8.1
TB1	2H		1 121DS6-20	121DS6		9-8.1
TB1	2J		W557-766-22	121DS5		9-8.1
TB1	2K		1 121DS11-20	121DS11		9-8.1
TB1	2L		1 121DS12-20	121DS12		9-8.1
TB1	3A		W557-768-20	TB1	2B	9-8.1
TB1	3C		W557-765-20	121P1		9-8.1
TB1	3D		1 121DS1-20	121DS1		9-8.1
TB1	3E		W557-798-22	TB1	5D	9-8.1
TB1	5F		1 121DS9-22	121DS9		9-8.1
TB1	5J		W557-787-22	196P2	C-	8-1.2
TB1	5K		W557-786-22	196P2	P	8-1.2
TB1	5L		W557-789-22	196P1	P	8-1.2
TB1	5M		W557-788-22	300P11	20	8-1.2
TB2	2A		W557-779-22	300P17	20	9-10.1
TB2	2B		W557-780-20	TB2	3A	9-10.1
TB2	2C		W557-781-22	062P1	K	9-10.1
TB2	2D		W557-782-22	122R2		9-10.1
TB2	2E		1 122DS13-20	122DS13		9-10.1
TB2	2F		1 122DS12-20	122DS12		9-10.1
TB2	3A		W557-780-20	TB2	2B	9-10.1
TB2	3B		W591-1910-22 (WITH 74)	051P1	12	9-10.1
TB2	3C		1 122DS2-22	122DS2		9-10.1
TB2	3E		1 122DS6-20	122DS6		9-10.1
TB2	3F		1 122DS1-20	122DS1		9-10.1
TB2	3G		W557-796-22	300P17	24	9-13.1
TB2	3H		1 122DS3-20	122DS3		9-10.1
TB2	3J		1 122DS4-20	122DS4		9-10.1
TB2	3K		1 122DS5-20	122DS5		9-10.1
TB2	3L		1 122DS11-20	122DS11		9-10.1
TB2	3M		W557-778-20	122DS9		9-10.1
TB2	4K		1 122DS2-20	122DS2		9-10.1
TB2	4M (WITH 17)		W557-796-22	TB2	3G	9-10.1
TB2	*4M (W/O 17)		W557-797-22	300JP17	25	9-13.1
TB2	5A		W557-785-22	122T1	LV	9-10.1
TB2	5B		W557-782-22	TB2	2D	9-10.1
TB2	5C		1 122DS14-22	122DS14		9-10.1
TB2	5D		W557-777-22	054P1	G	9-10.1

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB2	5E	1	122DS16-22	122DS16		9-10.1
TB2	5F		W557-402-22-RED	066P7	49	9-10.1
TB3	1		W550-172-22	136CB1		15-2.6
TB3	2		W550-173-22	300P1	24	15-2.6
TB3	3		W550-174-22	136CB2		15-2.6
TB3	4		W550-139-10	161K10	A2	9-1.2
TB3	5		W550-162-20	161XK9	X2	9-1.2
TB3	6		W550-GD045G20N	GD045	G	9-1.2
TB3	7		W550-186-10	241CB1		9-1.2
TB3	8		W550-140-10	161K10	A1	9-1.2
TB3	10		W550-200-10	141CB1		9-1.2
TB3	12		W696-39-12	TB10	3	9-4.2
TB4	1A		W557-750-22	300P17	22	9-12.1
TB4	1B		W557-759-22	124T1	HV	9-12.1
TB4	1C		W557-740-22	201P2	13	9-12.1
TB4	1D		W557-741-22	191P7	C	9-12.1
TB4	1E		W557-742-22	192P1	21	9-12.1
TB4	1F		W557-743-22	184P5	D-	9-12.1
TB4	1G		W557-749-22	182P19	H	9-12.1
TB4	1H		W564-137-22-RED	187P27	U	9-12.1
TB4	1J		W564-136-22-RED	187P26	U	9-12.1
TB4	1K		W564-138-22-RED	187P30	U	9-12.1
TB4	1L		W557-542-22	182P4	C	9-12.1
TB4	1M		W557-751-22	TB4	2G	9-12.1
TB4	2A		W557-540-22	182P1	C	9-12.1
TB4	2B		W557-753-22	181P1	C	9-12.1
TB4	2C		W557-754-22	137P2	T	9-12.1
TB4	2D		W557-755-22	124DS2		9-12.1
TB4	2F		W557-739-22-RED	185P1	14	9-12.1
TB4	2G		W557-751-22	TB4	1M	9-12.1
TB4	2H		1 124A1-20-BLK	124A1		9-12.1
TB4	3A		W557-761-22	124T1	LV	9-12.1
TB4	3B		W557-762-22	031P36	B	9-12.1
TB4	3C		W557-907-22	202P4	D	9-12.1
TB4	3D		W557-443-22-RED	197P5	K	9-12.1
TB4	3E		W557-855-20	147P1	G	9-12.1
TB4	4A		W564-8-22-RED	187P26	S	NOTE 1
TB4	4B		W564-45-22	187K1	X1	NOTE 1
TB4	4C		W557-733-22-RED	300P58	14	NOTE 1
TB4	4D		W564-124-22-BLU	187P26	M	NOTE 1
TB4	4E		W557-734-22-BLU	300P58	15	NOTE 1
TB4	3E		W557-798-22	TB1	5D	9-8.1
TB4	3F		1 121 DS2-20	121DS2		9-8.1
TB4	3G		1 121DS8-20	121DS8		9-8.1



1-5 TERMINAL BOARD WIRING DATA (Continued)

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB4	3H		1 121DS7-20	121DS7		9-8.1	TB6	3L		W557-468-22	195P2	6	NOTE 1
TB4	3J		1 121DS4-20	121DS4		9-8.1	TB6	3M		W557-479-22	300P59	23	NOTE 1
TB4	3L		W557-776-22	TB1	2G	9-8.1	TB6	4A		W557-473-22	195P5	15	NOTE 1
TB4	4A		1 121DS16-22	121DS16		9-8.1	TB6	4B		W557-467-22	195P2	3	NOTE 1
TB4	4B		W557-770-22	TB1	2D	9-8.1	TB6	4C		W557-478-22	300P59	24	NOTE 1
TB4	4C		1 121DS14-22	121DS14		9-8.1	TB6	4D		SHLD GRD CM22	TB6		NOTE 1
TB4	4D		W557-772-22	121T1	LV	9-8.1	TB6	4E		SHLD GRD CN22	TB6		NOTE 1
TB4	4E		1 121DS13-20	121DS13		9-8.1	TB6	4F		SHLD GRD CP22	TB6		NOTE 1
TB4	4F		W557-267-22-RED	066P4	49	9-8.1	TB6	5B		W557-894-22	182DS1	3	NOTE 1
TB4	5D (WITH 17)		W557-798-22	TB1	3E	9-8.1	TB6	5C		W557-911-22	300P11	31	NOTE 1
TB4	*5D (W/O 17)		W557-799-22	300P17	27	9-13.1	TB6	5D		W557-879-22	182P19	A	NOTE 1
TB4	4K		W557-1111-22	300P17	35	9-12.1	TB6	10A		SHLD GRD AA22	TB6		16-2.1
TB4	4L		W557-1115-22	SP0248		9-12.1	TB6	10B		SHLD GRD AC22	TB6		16-2.1
TB4	5K		W564-131-22-BLU	187P30	M	NOTE 1	TB6	10C		SHLD GRD AE22	TB6		16-2.1
TB4	5L		W564-125-22-BLU	187P27	M	NOTE 1	TB6	10E		W557-872-20-BLU	300P64	13	16-2.1
TB4	5M		W557-736-22-BLU	300P11	19	NOTE 1	TB6	10F		W557-876-20-BLU	147P1	J	16-2.1
TB4	6A		W564-96-22-RED	187P30	S	NOTE 1	TB6	10G		W557-875-20-RED	147P1	N	16-2.1
TB4	6B		W564-53-22-RED	187P27	S	NOTE 1	TB6	10H		W557-874-20-BLU	202P4	A	16-2.1
TB4	6C		W564-140-22	187K2	X1	NOTE 1	TB6	10K		W557-873-20-RED	202P4	B	16-2.1
TB4	6D		W557-735-22-RED	300P11	18	NOTE 1	TB6	10L		W557-871-20-RED	300P64	12	16-2.1
TB5	18		W590-1800-20 (WITH 74)	SPLICE		8-2.1	TB7		FA	SHLD GRD DN22	TB7	1A	NOTE 1
TB6		FE	SHLD GRD AA22	TB6	10A	16-2.1	TB7		FB	SHLD GRD DP22	TB7	1G	NOTE 1
TB6		FF	SHLD GRD AC22	TB6	10B	16-2.1	TB7		FC	SHLD GRD DT22	TB7	1B	NOTE 1
TB6		FG	SHLD GRD AE22	TB6	10C	16-2.1	TB7		FD	SHLD GRD DU22	TB7	1H	NOTE 1
TB6		FA	SHLD GRD CM22	TB6	4D	NOTE 1	TB7		FE	SHLD GRD EJ22	TB7	1C	NOTE 1
TB6		FC	SHLD GRD CN22	TB6	4E	NOTE 1	TB7	1A		SHLD GRD DN22	TB7		NOTE 1
TB6		FD	SHLD GRD CP22	TB6	4F	NOTE 1	TB7	18		SHLD GRD DT22	TB7		NOTE 1
TB6	1A		W557-454-22	300P11	15	NOTE 1	TB7	1C		SHLD GRD EJ22	TB7		NOTE 1
TB6	1B		W557-455-22	195P1	9	NOTE 1	TB7	1G		SHLD GRD DP22	TB7		NOTE 1
TB6	1C		W557-458-22	195P5	1	NOTE 1	TB7	1H		SHLD GRD DU22	TB7		NOTE 1
TB6	1D		W557-457-22	195R2		NOTE 1	TB7	2B		W557-553-22	182P4	E-	NOTE 1
TB6	1E		W557-460-22	195R1		NOTE 1	TB7	2C		W557-888-22	300P12	14	NOTE 1
TB6	2B		W557-893-22	182DS1	2	NOTE 1	TB7	2D		W557-958-22	300P12	41	NOTE 1
TB6	2C		W557-880-22	182P19	G	NOTE 1	TB7	4A		W557-564-22	182P19	B	NOTE 1
TB6	2D		W557-902-22	300P16	17	NOTE 1	TB7	4B		W557-561-22	182P5	D	NOTE 1
TB6	3A		W557-477-22	195P5	21	NOTE 1	TB7	4C		W557-565-22	300P16	18	NOTE 1
TB6	3B		W557-471-22	195P2	13	NOTE 1	TB7	4E		W557-552-22	182P4	D-	NOTE 1
TB6	3C		W557-482-22	300P59	27	NOTE 1	TB7	4F		W557-887-22	300P12	13	NOTE 1
TB6	3D		W557-476-22	195P5	16	NOTE 1	TB7	4G		W557-957-20	232XK2	B1	9-18.1
TB6	3E		W557-470-22	195P2	8	NOTE 1	TB7	4H		W557-200-20	232K1	7	9-18.1
TB6	3F		W557-481-22	300P59	26	NOTE 1	TB7	4J		W557-190-20	300P1719		9-16.1
TB6	3G		W557-475-22	195P5	5	NOTE 1	TB7	6B		W557-946-22	232XK2	D3	16-2.1
TB6	3H		W557-472-20	SM0036		NOTE 1	TB7	6C		W557-GD040A20N	GD040	A	16-2.1
TB6	3J		W557-480-22	300P59	25	NOTE 1	TB7	6H		W557-954-22	232XK3	C1	NOTE 1
TB6	3K		W557-474-22	195P5	4	NOTE 1							

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB7	8B		W557-947-22	232XK2	D1	16-2.1	TB8	4F		W557-215-20	SP0091		9-18.1
TB7	8H		W557-952-22	232XK3	C3	NOTE 1	TB8	4G		W557-210-20 (WITHOUT 74)	232P1	B	12-2.2
TB7	8J		W557-953-22	197P5	J	NOTE 1	TB8	4G		W557-210-20 (WITH 74)	SPLICE		
TB7	9A		031T1122	031T1		9-12.1	TB8	4H		W557-213-20	SP0087		12-2.2
TB7	9B		W557-744-22	300P58	23	9-12.1	TB8	4J		W557-214-20	SP0090		12-2.2
TB7	9D		031T1422	031T1		9-12.1	TB8	4K		W557-293-22	300P12	28	NOTE 1
TB7	9E		W557-764-22	232XK2	C1	9-12.1	TB8	4L		W557-289-22	062S2	3	NOTE 1
TB7	9F		W557-961-22	232XK3	A1	NOTE 1	TB8	4M		W557-296-22	062S1	1	NOTE 1
TB7	10A		W557-1113-22	124T4	LV1	9-12.1	TB8	5A		W557-292-22	300P12	27	NOTE 1
TB7	10B		W557-763-22	232XK2	C3	9-12.1	TB8	5B		W557-290-22	062S2	1	NOTE 1
TB7	10C		W557-949-22	232XK3	A3	9-12.1	TB8	50		W557-295-22	062S1	3	NOTE 1
TB7	10D		031T1222	031T1		9-12.1	TB8	5G		W557-291-22	062S2	4	NOTE 1
TB7	10E		W557-GD219A20N	GD219	E	9-12.1	TB8	5H		W557-294-22	062S1	4	NOTE 1
TB7	10F		031T1322	031T1		9-12.1	TB8	5J		W557-306-22	300P11	12	NOTE 1
TB8		FA	SHLD GRD W22	GD026		9-9.1	TB8	6A		W557-98-20	300P11	6	8-5.1
TB8	1A		W557-138-20	300P17	17	9-9.1	TB8	6B		W557-97-20	056P2	3	8-5.1
TB8	1B		W557-139-20	123R2		9-9.1	TB8	6C		W557-99-20 (WITHOUT 74)	056S2	1	8-5.1
TB8	2A		W557-934-22	SP0205		9-9.1	TB8	6C		W592-1876-20 (WITH 74)	055P2	8	8-2.1
TB8	2B		W557-138-20	300P17	17	9-9.1	TB8	6D		W557-560-22	182P5	C	NOTE 1
TB8	2C		W557-935-22	SP0206		9-9.1	TB8	6E		W557-563-22	300P16	34	NOTE 1
TB8	2D		W557-757-22	123DS20		9-9.1	TB8	6F		W557-948-22	TB8	9F	NOTE 1
TB8	2E		W557-927-22	SP0198		9-9.1	TB8	8K		W557-104-20	300P58	6	8-5.1
TB8	2F		W557-895-22	SP0249		9-9.1	TB8	8L		W557-103-22	056P1	3	8-5.1
TB8	2G		W557-922-22	SP0193		9-9.1	TB8	8M		W557-102-20 (WITHOUT 74)	056S1		8-5.1
TB8	2H		W557-142-20	123J1		9-9.1	TB8	8M		W591-1876-20 (WITH 74)	055P1	8	8-2.1
TB8	2J		W557-920-22	SP0191		9-9.1	TB8	9A		W557-562-22	182P19	J	NOTE 1
TB8	2K		W557-141-20	123DS17		9-9.1	TB8	9B		W557-938-20 (WITHOUT 74)	SM0011		8-5.1
TB8	2L		W557-932-22	SP0203		9-9.1	TB8	90		W557-937-20 (WITHOUT 74)	SM0011		8-5.1
TB8	2M		W557-143-20	TB8	3B	9-9.1	TB8	9F		W557-948-22	TB8	6F	NOTE 1
TB8	3A		W557-933-22	SP0204		9-9.1	TB8	9G		W557-939-20 (WITHOUT 74)	SM0006		8-5.1
TB8	3B		W557-143-20	TB8	2M	9-9.1	TB8	9H		W557-936-20 (WITHOUT 74)	SM0007		8-5.1
TB8	3C		W557-926-22	SP0197		9-9.1	TB8	10D		W557-941-22	SP0214		NOTE 1
TB8	3D		W557-765-22-RED	SP0246		9-9.1	TB8	10J		W557-962-22	232S1	6	NOTE 1
TB8	3E		W557-923-22	SP0194		9-9.1	TB9	1		W696-GD089A12N	GD089		9-4.2
TB8	3F		W557-930-22	SP0201		9-9.1	TB9	2		W696-30-20	300J25	W	9-4.2
TB8	3G		W557-921-22	SP0192		9-9.1	TB9	3		W696-24-12	TB62	2	9-4.2
TB8	3H		W557-924-22	SP0195		9-9.1	TB9	4		W696-29-20	300J25	G	9-4.2
TB8	3J		W557-925-22	SP0196		9-9.1	TB9	5		W696-27-20	300J25	J	9-4.2
TB8	3K		W557-929-22	SP0200		9-9.1	TB9	6		W696-28-20	300J25	H	9-4.2
TB8	3L		W557-931-22	SP0202		9-9.1	TB9	7		W639-113-20	30WJ23	6	9-4.2
TB8	3M		W557-928-22	SP0199		9-9.1	TB9	8		W696-25-20	300J25L		9-4.2
TB8	4A		W557-208-20 (WITHOUT 74)	232P1	R	9-18.1	TB10	1		W696-GD090A12N	GDO90		9-4.2
TB8	4A		W557-208-20 (WITH 74)	SPLICE			TB10	2		W696-33-20	300J26	W	9-4.2
TB8	4B		W557-211-20	SP0085		9-18.1	TB10	3		W696-39-12	TB3	12	9-4.2
TB8	4C		W557-216-20	SP0092		9-18.1	TB10	4		W696-36-20	300J26	G	9-4.2
TB8	4D		W557-209-20 (WITHOUT 74)	232P1	M	9-18.1	TB10	5		W696-34-20	300J26	J	9-4.2
TB8	4D		W557-209-20 (WITH 74)	SPLICE			TB10	6		W696-35-20	300J26	H	9-4.2
TB8	4E		W557-212-20	SP0086		9-18.1	TB10	7		W645-245-20	300J22	5	9-4.2

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB10	8		W696-38-20	300J26	L	9-4.2	TB11	9B		SHLD GRD E22	TB11		11-3.1.1
TB11		FA	SHLD GRD X22	TB11	2K	NOTE 1	TB11	9C		SHLD GRD AQ22	TB11		11-3.1.1
TB11		FH	SHLD GRD AE22	TB11	7K	NOTE 1	TB11	9D		W690-57-22-RED	062P6	1	11-3.1.1
TB11		FL	SHLD GRD AQ22	TB11	9C	NOTE 1	TB11	9E		W690-47-22-RED	062P4	P	11-3.1.1
TB11		FJ	SHLD GRD AR22	TB11	9A	NOTE 1	TB11	9F		W664-244-22-RED	031P4	P	11-3.1.1
TB11		FM	SHLD GRD AS22	TB11	10L	NOTE 1	TB11	9G		W690-58-22-BLU	062P6	2	11-3.1.1
TB11		FK	SHLD GRD AT22	TB11	10K	NOTE 1	TB11	9H		W690-48-22-BLU	062P4	N	11-3.1.1
TB11		FB	SHLD GRD BQ22	TB11	1B	NOTE 1	TB11	9J		W664-245-22-BLU	031P4	N	11-3.1.1
TB11		FE	SHLD GRD EG22	TB11	7G	NOTE 1	TB11	9K		W690-59-22-YEL	062P6	3	11-3.1.1
TB11		FG	SHLD GRD EJ22	TB11	7J	NOTE 1	TB11	9L		W690-49-22-YEL	062P4	M	11-3.1.1
TB11	1A		SHLD GRD M22	TB11		NOTE 1	TB11	10A		W690-87-22-RED	062P6	6	11-3.1.1
TB11	1B		SHLD GRD BQ22	TB11		NOTE 1	TB11	10B		W690-51-22-RED	062P4	T	11-3.1.1
TB11	1D		W645-179-22	300J4	29	NOTE 1	TB11	10C		W664-246-22-RED	031P4	T	11-3.1.1
TB11	1E		W690-151-22	191P1	D	NOTE 1	TB11	10D		W690-88-22-BLU	062P6	4	11-3.1.1
TB11	1K		W645-180-22	300J4	30	NOTE 1	TB11	10E		W690-52-22-BLU	062P4	U	11-3.1.1
TB11	1M		W690-152-22	191P1	L	NOTE 1	TB11	10F		W664-247-22-BLU	031P4	U	11-3.1.1
TB11	2A		W645-176-22	300J7	7	NOTE 1	TB11	10G		W690-89-22-YEL	062P6	5	11-3.1.1
TB11	2B		W690-142-22	184P3	6	NOTE 1	TB11	10H		W690-53-22-YEL	062P4	V	11-3.1.1
TB11	2C		W690-122-22	184P3	4	NOTE 1	TB11	10J		W664-248-22-YEL	031P4	V	11-3.1.1
TB11	2D		W645-175-22	300J7	6	NOTE 1	TB11	10K		SHLD GRD AT22	TB11		11-3.1.1
TB11	2E		W690-143-22	184P3	12	NOTE 1	TB11	10L		SHLD GRD AS22	TB11		11-3.1.1
TB11	2K		SHLD GRD X22	TB11		NOTE 1	TB11	10M		SHLD GRD F22	TB11		11-3.1.1
TB11	2L		SHLD GRD F22	TB11		NOTE 1	TB13		FA	SHLD GRD S22	GD092		NOTE 1
TB11	3A		W690-234-22	192P10	18	NOTE 1	TB13	5		W690-90-22	300J9	1	NOTE 1
TB11	3B		W645-181-20	300J4	31	NOTE 1	TB13	6		W690-339-22	182P18	S	NOTE 1
TB11	5A		W645-273-22	300J7	23	11-3.1.1	TB13	7	WA	SHLD GRD DT22	182P18		NOTE 1
TB11	5B		W690-80-20	062XK1	X1	11-3.1.1	TB13	7		W690-384-22	300J16	16	NOTE 1
TB11	5C		W690-81-20	062XK2	X1	11-3.1.1	TB13	9		W690-91-22	300J9	2	NOTE 1
TB11	6A		W690-293-20-RED	300J12	2	NOTE 1	TB15		FC	SHLD GRD A22	TB15	3K	11-3.1.1
TB11	6B		W645-351-22-RED	300J21	61	NOTE 1	TB15		FF	SHLD GRD C22	TB15	5K	11-3.1.1
TB11	6C		W690-302-20-RED	192P10	7	NOTE 1	TB15		FN	SHLD GRD K22	TB15	7D	11-3.1.1
TB11	6D		W645-263-22-RED	197P2	C	NOTE 1	TB15		FM	SHLD GRD L22	TB15	7K	11-3.1.1
TB11	6G		W690-294-20-BLU	300J12	3	NOTE 1	TB15		FA	SHLD GRD W22	TB15	3H	11-3.1.1
TB11	6H		W645-352-22-BLU	300J21	60	NOTE 1	TB15		FB	SHLD GRD X22	TB15	5H	11-3.1.1
TB11	6J		W690-303-20-BLU	192P10	6	NOTE 1	TB15		FR	SHLD GRD AC22	TB15	7G	11-3.1.1
TB11	6K		W645-264-22-BLU	197P2	A	NOTE 1	TB15		FP	SHLD GRD AF22	TB15	7A	11-3.1.1
TB11	7A		W690-295-20-YEL	300J12	4	NOTE 1	TB15		FA	SHLD GRD AW22	TB15	3J	11-3.1.1
TB11	7B		W645-353-22-YEL	300J21	59	NOTE 1	TB15		FH	SHLD GRD AX22	TB15	5J	11-3.1.1
TB11	7C		W690-304-20-YEL	192P10	10	NOTE 1	TB15		FD	SHLD GRD BA22	TB15	3G	11-3.1.1
TB11	7D		W645-265-22-YEL	197P2	B	NOTE 1	TB15		FJ	SHLD GRD BE22	TB15	5G	11-3.1.1
TB11	7G		SHLD GRD EG22	TB11		NOTE 1	TB15	1A		W645-174-22	300J75		NOTE 1
TB11	7H		SHLD GRD Q22	TB11		NOTE 1	TB15	1B		W690-44-22	062P4	L	NOTE 1
TB11	7J		SHLD GRD J22	TB11		NOTE 1	TB15	1C		W690-30-22	300J12	28	NOTE 1
TB11	7K		SHLD GRD AE22	TB11		NOTE 1	TB15	1D		W690-45-22	062P4	B	NOTE 1
TB11	8A		W645-170-20	300J21	4	11-3.1.1	TB15	1E		W690-46-22	062P4	S	NOTE 1
TB11	8B		W664-213-20	031P4	B	11-3.1.1	TB15	1H		W690-76-22-BLU	062P5	2	NOTE 1
TB11	8C		W664-169-20	031P3	B	11-3.1.1	TB15	1J		W690-66-22-BLU	062P3	N	11-3.1.1
TB11	9A		SHLD GRD AR22	TB11		11-3.1.1	TB15	1K		W645-333-22-BLU	197P2	G	NOTE 1

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB15	1L		W664-240-22-BLU	031P3	N	11-3.1.1	TB15	7K		SHLD GRD L22	TB15		11-3.1.1
TB15	2A		W645-173-22	300J4	27	NOTE 1	TB17	1A		W639-22-20	033P4	3	7-1.2
TB15	2B		W690-62-22	062P3	L	NOTE 1	TB17	1B		W639-142-20	300J45	24	NOTE 1
TB15	2C		W690-29-22	300J12	27	NOTE 1	TB17	1C		W639-144-20	300J8	42	11-3.1.1
TB15	2D		W690-63-22	062P3	B	NOTE 1	TB17	1D		W645-12-22	300J50	58	NOTE 1
TB15	2E		W690-64-22	062P3	S	NOTE 1	TB17	1E		W664-191-20	031P4	NN	NOTE 1
TB15	2H		W690-77-22-YEL	062P5	3	NOTE 1	TB17	1F		W664-118-20	031P10	A	11-3.1.1
TB15	2J		W690-67-22-YEL	062P3	M	11-3.1.1	TB17	1G		W664-210-20	031P4	A-	NOTE 1
TB15	2K		W645-334-22-YEL	197P2	H	NOTE 1	TB17	1H		W664-214-20	300J60	18	NOTE 1
TB15	3B		W690-75-22-RED	062P5	1	NOTE 1	TB17	1J		W664-224-20	300J60	3	11-3.1.1
TB15	3C		W690-65-22-RED	062P3	P	11-3.1.1	TB17	1M		W664-226-20	031P34	2	11-3.1.1
TB15	3D		W454-332-22-RED	197P2	J	NOTE 1	TB17	2A		W664-167-20	031P3	GG	NOTE 1
TB15	3E		W664-239-22-RED	031P3	P	11-3.1.1	TB17	2B		W664-168-20	031P3	FF	NOTE 1
TB15	3G		SHLD GRD BA22	TB15		NOTE 1	TB17	2C		W664-215-20	031P3	G	11-3.1.1
TB15	3H		SHLD GRD W22	TB15		NOTE 1	TB17	2D		W664-211-20	031P4	GG	NOTE 1
TB15	3J		SHLD GRD AW22	TB15		NOTE 1	TB17	2E		W664-212-20	031P4	FF	NOTE 1
TB15	3K		SHLD GRD A22	TB15		NOTE 1	TB17	2F		W664-192-20	031 P4	B-	11-3.1.1
TB15	4A		W690-56-22-YEL	062P5	4	NOTE 1	TB17	2G		W696-10-20	300J29	K	NOTE 1
TB15	4C		W690-71-22-YEL	062P3	U	11-3.1.1	TB17	2H		W696-11-20	300J29	G	NOTE 1
TB15	4D		W645-337-22-YEL	197P2	F	NOTE 1	TB17	2J		W639-143-20	300J45	25	11-3.1.1
TB15	4E		W664-243-22-YEL	031P3	U	11-3.1.1	TB17	2K		W696-12-20	300J30	K	NOTE 1
TB15	4H		W690-55-22-BLU	062P5	5	NOTE 1	TB17	2L		W696-13-20	300J30	G	NOTE 1
TB15	4J		W690-70-22-BLU	062P3	V	11-3.1.1	TB17	3A		W645-14-22	300J50	56	NOTE 1
TB15	4K		W645-336-22-BLU	197P2	D	NOTE 1	TB17	3B		W664-158-20	031P3	A-	7-1.2
TB15	4L		W664-242-22-BLU	031P3	V	11-3.1.1	TB17	3C		W639-24-20	033P1	2	7-1.2
TB15	5B		W690-54-22-RED	062P5	6	NOTE 1	TB17	3G		W645-140-20	300J7	20	NOTE 1
TB15	5C		W645-335-22-RED	197P2	E	NOTE 1	TB17	3H		W664-113-20	031 P10	E	NOTE 1
TB15	5D		W664-241-22-RED	031P3	T	11-3.1.1	TB17	3K		W645-141-20	300J7	21	11-3.1.1
TB15	5E		W690-69-22-RED	062P3	T	11-3.1.1	TB17	3L		W664-114-20	031P10	B	11-3.1.1
TB15	5G		SHLD GRD BE22	TB15		11-3.1.1	TB17	4A		W639-393-20	132P3	1	14-1.2
TB15	5H		SHLD GRD X22	TB15		11-3.1.1	TB17	4B		W639-394-20	132J9	K	14-1.2
TB15	5J		SHLD GRD AX22	TB15		11-3.1.1	TB17	4C		W645-213-20	300J22	9	14-1.2
TB15	5K		SHLD GRD C22	TB15		11-3.1.1	TB17	4D		W639-405-20	300J47	10	14-1.2
TB15	6A		W645-358-22-RED	300J21	57	NOTE 1	TB17	4E		W645-240-20	300J48	5	14-1.2
TB15	6B		W645-359-22-BLU	300J21	56	NOTE 1	TB17	4G		W645-212-20	300J22	8	14-1.2
TB15	6C		W645-360-22-YEL	300J21	51	NOTE 1	TB17	4H		W645-235-20	300J48	6	14-1.2
TB15	6D		W664-262-22-RED	031P3	W	NOTE 1	TB17	4J		W639-396-20	132J9	V	14-1.2
TB15	6E		W664-263-22-BLU	031P3	X	NOTE 1	TB17	4K		W639-400-20	300J47	14	14-1.2
TB15	6F		W664-264-22-YEL	031P3	Y	NOTE 1	TB17	5A		W645-214-20	300J22	10	14-1.2
TB15	6G		W645-217-22-RED	063P1	H	NOTE 1	TB17	5B		W645-215-20	300J22	11	14-1.2
TB15	6H		W645-218-22-BLU	063P1	J	NOTE 1	TB17	5C		W645-216-20	300J22	12	14-1.2
TB15	6J		W645-219-22-YEL	063P1	G	NOTE 1	TB17	5D		W645-238-20	300J48	9	14-1.2
TB15	6K		W664-265-22-RED	031P4	W	NOTE 1	TB17	5E		W645-237-20	300J48	8	14-1.2
TB15	6L		W664-266-22-BLU	031P4	X	NOTE 1	TB17	5F		W645-236-20	300J48	7	14-1.2
TB15	6M		W664-267-22-YEL	031P4	Y	NOTE 1	TB17	5G		W639-397-20	132J9	H	14-1.2
TB15	7A		SHLD GRD AF22	TB15		11-3.1.1	TB17	5H		W639-398-20	132J9	F	14-1.2
TB15	7D		SHLD GRD K22	TB15		11-3.1.1	TB17	5J		W639-399-20	132J9	J	14-1.2
TB15	7G		SHLD GRD AC22	TB15		11-3.1.1							

1-5 TERMINAL BOARD WIRING DATA (Continued)

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB17	5K		W639-401-20	300J47	11	14-1.2	TB18	5		W696-15-20	300J29	F	11-2.1
TB17	5L		W639-402-20	300J47	12	14-1.2	TB18	5		W696-20-20	300J30	F	11-2.1
TB17	5M		W639-403-20	300J47	13	14-1.2	TB18	6		W696-52-22 (WITHOUT 74)	300J26	F	4-6.1
TB17	6A		W639-390-20	132J8	C	14-1.2	TB18	6		W639-316-22 (WITHOUT 74)	300J6	21	4-6.1
TB17	6B		W645-239-20	300J48	4	14-1.2	TB18	6		W696-47-22 (WITHOUT 74)	300J25	F	4-6.1
TB17	6C		W639-392-20	132P2	4	14-1.2	TB18	7		W639-226-20	300J23	14	16-1.2
TB17	6D		W639-404-20	300J47	9	14-1.2	TB18	7		W696-3-22	300J30	A	16-1.2
TB17	6E		W645-65-20	300J4	6	14-1.2	TB18	7		W696-42-22	300J29	A	16-1.2
TB17	6F		W639-395-20	132J9	U	14-1.2	TB18	8		W696-41-22	300J29	B	16-1.2
TB17	6G		W690-175-20	185P8	32	8-1.2	TB18	8		W696-2-22	300J30	B	16-1.2
TB17	6H		W639-267-20	300J45	45	8-1.2	TB18	8		W639-225-20	300J23	13	6-1.2
TB17	6K		W645-9-20	300J4	1	9-7.1	TB18	9		W664-201-20	031P22	G	11-2.1
TB17	6L		W639-12-20	114S4	2	9-7.1	TB18	9		W664-268-20	031P8	B-	11-3.1.1
TB17	7A		W645-56-20	300J4	4	13-1.2	TB18	10		W696-60-22	300J25	N	11-2.1
TB17	7B		W639-94-20	082P7	E	13-1.2	TB18	10		W696-59-22	300J26	N	11-2.1
TB17	7C		W639-243-22	300J47	29	9-2.2	TB18	10		W645-367-22	300J3	31	11-2.1
TB17	7D		W645-148-22	300J48	31	9-2.2	TB18	11		W664-23-20	031P8	W-	11-3.1.1
TB17	7E		W591-1927-20 (WITH 74)	300J42	9	4-11.1	TB18	11		W696-57-22	300J26	V	11-2.1
TB17	7G		W690-361-22	300J16	17	NOTE 1	TB18	11		W696-58-22	300J25	V	11-2.1
TB17	7H		W645-389-22	300J48	42	NOTE 1	TB18	12		W696-48-22 (WITHOUT 74)	300J26	A	4-6.1
TB17	7J		W690-222-22	188P2	D	NOTE 1	TB18	12		W696-43-22 (WITHOUT 74)	300J25	A	4-6.1
TB17	7K		W639-430-22	182DS2	2	NOTE 1	TB18	12		W645-314-22 (WITHOUT 74)	300J42	28	4-6.1
TB17	8A		W645-347-22	300J21	58	NOTE 1	TB18	13		W639-325-22 (WITHOUT 74)	300J43	28	4-6.1
TB17	8D		W645-357-22	063P1	P	NOTE 1	TB18	13		W696-44-22 (WITHOUT 74)	300J25	B	4-6.1
TB17	8G		W690-395-20	300J12	45	NOTE 1	TB18	13		W696-49-22 (WITHOUT 74)	300J26	B	4-6.1
TB17	8K		W690-292-20	300J12	1	NOTE 1	TB18	14		W696-51-22 (WITHOUT 74)	300J26	D	4-6.1
TB17	10A		W639-152-20	043P5	C	8-9.1	TB18	14		W645-316-22 (WITHOUT 74)	300J42	30	4-6.1
TB17	10B		W639-292-22	300J45	49	8-9.1	TB18	14		W696-46-22 (WITHOUT 74)	300J25	D	4-6.1
TB17	10C		W645-261-22	300J50	39	8-9.1	TB18	15		W639-216-20	300J68	9	16-1.2
TB17	10D		W645-267-22	300J4	39	8-9.1	TB18	15		W696-1-22	300J30	M	16-1.2
TB17	10G		W639-291-22	300J45	48	8-9.1	TB18	15		W696-40-22	300J29	M	16-1.2
TB17	10H		W645-262-22	300J50	40	8-9.1	TB18	16		W696-21-20	300J30	L	11-3.1.1
TB17	10J		W645-268-22	300J61	51	8-9.1	TB18	16		W664-235-20	031P27	M	11-3.1.1
TB17	10K		W639-151-20	043P5	A	8-9.1	TB18	16		W696-16-20	300J29	L	11-3.1.1
TB18		FB	SHLD GRD A22	SP0179		16-2.1	TB18	17		W664-236-20	031P27	N	11-3.1.1
TB18		FA	SHLD GRD S22	SP0179		16-2.1	TB18	17		W696-17-20	300J29	H	11-3.1.1
TB18	1		W664-230-20	031P8	A-	11-3.1.1	TB18	17		W696-22-20	300J30	H	11-3.1.1
TB18	1		W664-231-20	031P10	A-	11-3.1.1	TB18	18		W696-23-20	300J30	J	11-3.1.1
TB18	1		W664-232-20	031P26	1	11-2.1	TB18	18		W664-237-20	031P27	F	11-3.1.1
TB18	1		W664-233-20	031P28	1	11-2.1	TB18	18		W696-18-20	300J29	J	11-3.1.1
TB18	2		W664-234-20	031P27	G	11-2.1	TB18	19		W639-387-22-BLU	300J68	23	16-2.1
TB18	2		W696-14-20	300J29	E	11-2.1	TB18	19		W696-54-22-RED	300J30	C	16-2.1
TB18	2		W696-19-20	300J30	E	11-2.1	TB18	19		W696-56-22-BLU	300J29	C	16-2.1
TB18	3		W696-45-22 (WITHOUT 74)	300J25	C	4-6.1	TB18	20		W696-55-22-RED	300J29	D	16-2.1
TB18	3		W696-50-22 (WITHOUT 74)	300J26	C	4-6.1	TB18	20		W639-386-22-RED	300J68	41	16-2.1
TB18	3		W645-304-22 (WITHOUT 74)	300J2	28	4-6.1	TB18	20		W696-53-22-RED	300J30	D	16-2.1
TB18	3		W645-315-22 (WITHOUT 74)	300J42	29	4-6.1	TB19	1		W592-45-22 (WITHOUT 74)	103P2	F	4-6.1
TB18	5		W645-256-20	300J4	32	11-2.1	TB19	1		W592-50-22	103R2	3	4-6.1

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB19	2		W592-22-22 (WITHOUT 74)	300P43	22	4-6.1	TB27	1L		W699-2-20	134P10	1	16-1.2
TB19	2		W592-49-22	103R2	2	4-6.1	TB27	2A		W673-23-20	300P47	12	14-1.2
TB19	3		W592-46-22 (WITHOUT 74)	300J32	41	4-6.1	TB27	2B		W508-4-20	132J11	F	14-1.2
TB19	4		W592-47-22	103R2	6	4-6.1	TB27	2D		W673-20-20	300P47	9	14-1.2
TB19	5		W592-44-22 (WITHOUT 74)	103P2	J	4-6.1	TB27	2E		W508-5-20	132J11	U	14-1.2
TB19	5		W592-48-22	103R2	5	4-6.1	TB27	2G		W673-25-20	300P47	14	14-1.2
TB20	1		W591-30-22 (WITHOUT 74)	103P1	F	4-6.1	TB27	2H		W508-6-20	132J11	V	14-1.2
TB20	1		W591-35-22	103R1	3	4-6.1	TB27	2K		W698-39-20	134P3	E	16-1.2
TB20	2		W591-29-22 (WITHOUT 74)	300P42	22	4-6.1	TB27	2L		W699-1-20	134P10	2	16-1.2
TB20	2		W591-34-22	103R1	2	4-6.1	TB27	3A		W698-17-20	134P4	B-	16-1.2
TB20	3		W591-27-22 (WITHOUT 74)	300J33	41	4-6.1	TB27	3B		W508-7-20	134S1	3	16-1.2
TB20	4		W591-36-22	103R1	6	4-6.1	TB27	3D		W698-8-20	300P68	8	16-1.2
TB20	5		W591-28-22 (WITHOUT 74)	103P1	J	4-6.1	TB27	3E		W508-12-20	134S1	11	16-1.2
TB20	5		W591-33-22	103R1	5	4-6.1	TB27	3G		W698-31-20	SM0001		16-1.2
TB24		FA	SHLD GRD L22	GD201		4-6.1	TB27	3H		W508-9-20	132J11	S	16-1.2
TB24		FB	SHLD GRD T22	GD201		4-6.1	TB27	3K		W698-32-20	SM0002		16-1.2
TB24	1		W632-1-22	103R6	5	4-6.1	TB27	3L		W508-10-20	132J11	M	16-1.2
TB24	1		W639-329-22 (WITHOUT 74)	300J43	21	4-6.1	TB27	4A		187W9224-RED	TB29	1F	NOTE 1
TB24	2		W632-2-22	103R6	4	4-6.1	TB27	4B		W508-13-22-RED	187J21	A	NOTE 1
TB24	2		W639-330-22 (WITHOUT 74)	300J43	22	4-6.1	TB27	4C		187W10224-RED	187J27	A	NOTE 1
TB24	3		W632-3-22	103R6	3	4-6.1	TB27	4D		187W11224-RED	187J23	A	NOTE 1
TB24	3		W639-331-22 (WITHOUT 74)	300J43	23	4-6.1	TB27	4G		187W9624-BLU	TB29	1J	NOTE 1
TB24	4		W632-4-22	103R6	2	4-6.1	TB27	4H		W508-14-22-BLU	187J21	G	NOTE 1
TB24	4		W639-332-22 (WITHOUT 74)	300J43	24	4-6.1	TB27	4J		187W10624-BLU	187J27	G	NOTE 1
TB24	5		W632-5-22	103R5	2	4-6.1	TB27	4K		187W11624-BLU	187J23	G	NOTE 1
TB24	5		W645-317-22 (WITHOUT 74)	300J42	23	4-6.1	TB27	5A		SHLD GRD B22	TB27		NOTE 1
TB24	6		W632-6-22	103R5	3	4-6.1	TB27	5B		SHLD GRD H22	TB27		NOTE 1
TB24	6		W645-318-22 (WITHOUT 74)	300J42	24	4-6.1	TB27	5C		SHLD GRD F22	TB27		NOTE 1
TB24	7		W632-7-22	103R5	4	4-6.1	TB27	5D		SHLD GRD D22	TB27		NOTE 1
TB24	7		W645-308-22 (WITHOUT 74)	300J42	22	4-6.1	TB27	5G		SHLD GRD A22	TB27		NOTE 1
TB24	8		W632-8-22	103R5	5	4-6.1	TB27	5H		SHLD GRD C22	TB27		NOTE 1
TB24	8		W645-319-22 (WITHOUT 74)	300J42	25	4-6.1	TB27	5J		SHLD GRD E22	TB27		NOTE 1
TB27		FA	SHLD GRD A22	TB27	5G	NOTE 1	TB27	5K		SHLD GRD G22	TB27		NOTE 1
TB27		FB	SHLD GRD B22	TB27	5A	NOTE 1	TB27	6A		187W9024-BLK	TB29	1M	NOTE 1
TB27		FC	SHLD GRD C22	TB27	5H	NOTE 1	TB27	6B		W508-15-22-RED	187J21	D	NOTE 1
TB27		FH	SHLD GRD D22	TB27	5D	NOTE 1	TB27	6C		187W10024-BLK	187J27	D	NOTE 1
TB27		FD	SHLD GRD E22	TB27	5J	NOTE 1	TB27	6D		187W11024-BLK	187J23	D	NOTE 1
TB27		FG	SHLD GRD F22	TB27	5C	NOTE 1	TB27	6G		187W9424-YEL	TB29	2C	NOTE 1
TB27		FE	SHLD GRD G22	TB27	5K	NOTE 1	TB27	6H		W508-16-22-BLU	187J21	E	NOTE 1
TB27		FF	SHLD GRD H22	TB27	5B	NOTE 1	TB27	6J		187W10424-YEL	187J27	E	NOTE 1
TB27	1A		W673-24-20	300P47	13	14-1.2	TB27	6K		187W11424-YEL	187J23	E	NOTE 1
TB27	1B		W508-1-20	132J11	J	14-1.2	TB27	7A		187W9924-WHT	TB29	2F	NOTE 1
TB27	1D		W673-21-20	300P47	10	14-1.2	TB27	7B		187W10924-WHT	187J27	F	NOTE 1
TB27	1E		W508-2-20	132J11	K	14-1.2	TB27	7C		W508-17-22	187S3	2	NOTE 1
TB27	1G		W673-22-20	300P47	11	14-1.2	TB27	7D		187W11924-WHT	187J23	F	NOTE 1
TB27	1H		W508-3-20	132J11	H	14-1.2	TB27	7E		W673-36-22	300P47	18	NOTE 1
TB27	1K		W698-21-20	134P4	G	16-1.2	TB27	7G		187W9524-GRN	TB29	2J	NOTE 1

1-5 TERMINAL BOARD WIRING DATA (Continued)

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB27	7H		W673-35-22	300P47	17	NOTE 1	TB29	2B		187W12-4-24-YEL	187J19	E	NOTE 1
TB27	7J		187W10524-GRN	187J27	H	NOTE 1	TB29	2C		187W9-4-24-YEL	TB27	6G	NOTE 1
TB27	7K		W508-18-22	187S3	1	NOTE 1	TB29	2D		W701-75-22	187P31	E	NOTE 1
TB27	7L		W508-21-22	132J11	E	NOTE 1	TB29	2E		187W12-9-24-WHT	187J19	F	NOTE 1
TB27	7M		187W11524-GRN	187J23	H	NOTE 1	TB29	2F		187W9-9-24-WHT	TB27	7A	NOTE 1
TB27	8A		W673-167-20	300P47	50	14-1.2	TB29	2G		W701-76-22	187P31	K	NOTE 1
TB27	8B		W697-10-20	132J10	C	14-1.2	TB29	2H		187W12-5-24-GRN	187J19	H	NOTE 1
TB27	8D		W698-46-20	134P4	D	16-1.2	TB29	2J		187W9-5-24-GRN	TB27	7G	NOTE 1
TB27	8E		W508-22-20	134S1	2	16-1.2	TB29	2K		SHLD GRD B22	TB29		NOTE 1
TB27	8G		W698-47-20	134P4	A	16-1.2	TB29	2L		SHLD GRD AY22	TB29		NOTE 1
TB27	8H		W508-23-20	134S1	12	16-1.2	TB29	2M		SHLD GRD D22	TB29		NOTE 1
TB29		FA	SHLD AD	187P6		NOTE 1	TB29	3A		W701-79-22-RED	187P6	1	NOTE 1
TB29		FA	SHLD AE	187P6		NOTE 1	TB29	3B		W701-81-22	187P31	Z	NOTE 1
TB29		FA	SHLD AF	187P6		NOTE 1	TB29	3C		W701-82-22-RED	187P34	25	NOTE 1
TB29		FA	SHLD AG	187P6		NOTE 1	TB29	3D		W701-84-22-RED	187P6	7	NOTE 1
TB29		FA	SHLD AH	187P34		NOTE 1	TB29	3E		W701-86-22-RED	187P6	10	NOTE 1
TB29		FB	SHLD AJ	187P6		NOTE 1	TB29	3F		W701-88-22-RED	187P6	13	NOTE 1
TB29		FB	SHLD AK	187P6		NOTE 1	TB29	3G		W701-90-22-RED	187P6	19	NOTE 1
TB29		FB	SHLD AL	187P6		NOTE 1	TB29	3H		W701-92-22-RED	187P6	23	NOTE 1
TB29		FB	SHLD AM	187P6		NOTE 1	TB29	3J		W701-94-22-RED	187P6	26	NOTE 1
TB29		FB	SHLD AN	187P6		NOTE 1	TB29	3K		W701-96-22-RED	187P6	28	NOTE 1
TB29		FG	SHLD AP	187P31		NOTE 1	TB29	3M		W701-98-22-RED	187P6	31	NOTE 1
TB29		FH	SHLD AQ	187P31		NOTE 1	TB29	4A		W701-80-22-BLU	187P6	2	NOTE 1
TB29		FC	SHLD BQ	187P31		NOTE 1	TB29	4B		W701-128-22	187P31	DD	NOTE 1
TB29		FE	SHLD GRD A22	TB29	1B	NOTE 1	TB29	4D		W701-83-22-BLU	187P34	24	NOTE 1
TB29		FF	SHLD GRD B22	TB29	2K	NOTE 1	TB29	4E		W701-129-22	187P31	KK	NOTE 1
TB29		FJ	SHLD GRD C22	TB29	1C	NOTE 1	TB29	4G		W701-85-22-BLU	187P6	8	NOTE 1
TB29		FK	SHLD GRD D22	TB29	2M	NOTE 1	TB29	4H		W701-130-22	187P31	SS	NOTE 1
TB29		FB	SHLD GRD AW22	TB29	6L	NOTE 1	TB29	4K		W701-87-22-BLU	187P6	11	NOTE 1
TB29		FG	SHLD GRD AY22	TB29	2L	NOTE 1	TB29	4L		W701-131-22	187P31	PP	NOTE 1
TB29		FH	SHLD GRD BA22	TB29	1A	NOTE 1	TB29	5A		W701-89-22-BLU	187P6	14	NOTE 1
TB29		FA	SHLD GRD BM22	TB29	5E	NOTE 1	TB29	5B		W701-132-22	187P31	MM	NOTE 1
TB29		FC	SHLD GRD BN22	TB29	5D	NOTE 1	TB29	5D		SHLD GRD BN22	TB29		NOTE 1
TB29		FD	SHLD GRD BP22	TB29	6K	NOTE 1	TB29	5E		SHLD GRD BM22	TB29		NOTE 1
TB29	1A		SHLD GRD BA22	TB29		NOTE 1	TB29	5F		W701-GD302A22N	GD30		NOTE 1
TB29	1B		SHLD GRD A22	TB29		NOTE 1	TB29	5G		W701-91-22-BLU	187P6	20	NOTE 1
TB29	1C		SHLD GRD C22	TB29		NOTE 1	TB29	5H		W701-133-22	187P31	HH	NOTE 1
TB29	1D		W701-71-22-RED	187P31	C	NOTE 1	TB29	5K		W701-93-22-BLU	187P6	22	NOTE 1
TB29	1E		187W12-2-24-RED	187J19	A	NOTE 1	TB29	5L		W701-134-22	187P31	LL	NOTE 1
TB29	1F		187W9-2-24-RED	TB27	4A	NOTE 1	TB29	6A		W701-95-22-BLU	187P6	25	NOTE 1
TB29	1G		W701-72-22-BLU	187P31	A	NOTE 1	TB29	6B		W701-135-22	187P31	UU	NOTE 1
TB29	1H		187W12-6-24-BLU	187J19	G	NOTE 1	TB29	6D		W701-97-22-BLU	187P6	29	NOTE 1
TB29	1J		187W9-6-24-BLU	TB27	4G	NOTE 1	TB29	6E		W701-136-22	187P31	WW	NOTE 1
TB29	1K		187W12-0-24-BLK	187J19	D	NOTE 1	TB29	6G		W701-99-22-BLU	187P6	32	NOTE 1
TB29	1L		W701-73-22-RED	187P31	TT	NOTE 1	TB29	6H		W701-137-22	187P31	FF	NOTE 1
TB29	1M		187W9-0-24-BLK	TB27	6A	NOTE 1	TB29	6K		SHLD GRD BP22	TB29		NOTE 1
TB29	2A		W701-74-22-BLU	187P31	XX	NOTE 1	TB29	6L		SHLD GRD AW22	TB29		NOTE 1

GO TO NEXT PAGE

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB29	6M		W701-GD303A22N	GD303		NOTE 1	TB30	5D		SHLD GRD BL22	TB30		NOTE 1
TB30		FB	SHLD GRD AF22	TB30	3L	NOTE 1	TB30	5E		SHLD GRD AG22	TB30		NOTE 1
TB30		FC	SHLD GRD AG22	TB30	5E	NOTE 1	TB30	5F		W701-GD301A22N	GD301		NOTE 1
TB30		FA	SHLD GRD BH22	TB30	2E	NOTE 1	TB31		FC	SHLD GRD G22	TB31	3L	NOTE 1
TB30		FD	SHLD GRD BJ22	TB30	2D	NOTE 1	TB31		FD	SHLD GRD S22	TB31	5E	NOTE 1
TB30		FE	SHLD GRD BK22	TB30	3K	NOTE 1	TB31		FB	SHLD GRD BC22	TB31	2E	NOTE 1
TB30		FF	SHLD GRD BL22	TB30	5D	NOTE 1	TB31		FE	SHLD GRD BD22	TB31	3K	NOTE 1
TB30	1A		W701-48-22-RED	187P4	1	NOTE 1	TB31		FA	SHLD GRD BF22	TB31	2D	NOTE 1
TB30	1B		W701-50-22	187P13	Z	NOTE 1	TB31		FF	SHLD GRD BG22	TB31	5D	NOTE 1
TB30	1C		W701-51-22-RED	187P34	19	NOTE 1	TB31	1A		W701-14-22-BLU	187P3	1	NOTE 1
TB30	1D		W701-53-22-RED	187P4	7	NOTE 1	TB31	1B		W701-17-22	187P10	Z	NOTE 1
TB30	1E		W701-55-22-RED	187P4	10	NOTE 1	TB31	1C	WA	W701-16-22-BLU	187P34	16	NOTE 1
TB30	1F		W701-57-22-RED	187P4	13	NOTE 1	TB31	1D		W701-19-22-BLU	187P3	7	NOTE 1
TB30	1G		W701-59-22-RED	187P4	16	NOTE 1	TB31	1E		W701-21-22-BLU	187P3	10	NOTE 1
TB30	1H		W701-61-22-RED	187P4	19	NOTE 1	TB31	1F		W701-23-22-BLU	187P3	13	NOTE 1
TB30	1J		W701-63-22-RED	187P4	23	NOTE 1	TB31	1G		W701-25-22-BLU	187P3	16	NOTE 1
TB30	1K		W701-65-22-RED	187P4	26	NOTE 1	TB31	1H		W701-27-22-BLU	187P3	19	NOTE 1
TB30	1L		W701-67-22-RED	187P4	28	NOTE 1	TB31	1J		W701-29-22-BLU	187P3	23	NOTE 1
TB30	1M		W701-69-22-RED	187P4	31	NOTE 1	TB31	1K		W701-31-22-BLU	187P3	26	NOTE 1
TB30	2A		W701-49-22-BLU	187P4	2	NOTE 1	TB31	1L		W701-33-22-BLU	187P3	28	NOTE 1
TB30	2B		W701-111-22	187P13	DD	NOTE 1	TB31	1M		W701-35-22-BLU	187P3	31	NOTE 1
TB30	2D		SHLD GRD BJ22	TB30		NOTE 1	TB31	2A		W701-13-22-RED	187P3	2	NOTE 1
TB30	2E		SHLD GRD BH22	TB30		NOTE 1	TB31	2B		W701-100-22	187P10	DD	NOTE 1
TB30	2F		W701-GD299A22N	GD299		NOTE 1	TB31	2D		SHLD GRD BF22	TB31		NOTE 1
TB30	2G		W701-52-22-BLU	187P34	18	NOTE 1	TB31	2E		SHLD GRD BC22	TB31		NOTE 1
TB30	2H		W701-112-22	187P13	KK	NOTE 1	TB31	2F		W701-GD294-A22N	GD294		NOTE 1
TB30	2K		W701-54-22-BLU	187P4	8	NOTE 1	TB31	2G	WA	W701-15-22-RED	187P34	15	NOTE 1
TB30	2L		W701-113-22	187P13	SS	NOTE 1	TB31	2H		W701-1'01-22	187P10	KK	NOTE 1
TB30	3A		W701-56-22-BLU	187P4	11	NOTE 1	TB31	2K		W701-18-22-RED	187P3	8	NOTE 1
TB30	3B		W701-114-22	187P13	PP	NOTE 1	TB31	2L		W701-102-22	187P10	SS	NOTE 1
TB30	3D		W701-58-22-BLU	187P4	14	NOTE 1	TB31	3A		W701-20-22-RED	187P3	11	NOTE 1
TB30	3E		W701-121-22	187P13	MM	NOTE 1	TB31	3B		W701-103-22	187P10	PP	NOTE 1
TB30	3G		W701-60-22-BLU	187P4	17	NOTE 1	TB31	3D		W701-22-22-RED	187P3	14	NOTE 1
TB30	3H		W701-122-22	187P13	RR	NOTE 1	TB31	3E		W701-104-22	187P10	MM	NOTE 1
TB30	3K		SHLD GRD BK22	TB30		NOTE 1	TB31	3G		W701-24-22-RED	187P3	17	NOTE 1
TB30	3L		SHLD GRD AF22	TB30		NOTE 1	TB31	3H		W701-105-22	187P10	RR	NOTE 1
TB30	3M		W701-GD300A22N	GD300		NOTE 1	TB31	3K		SHLD GRD BD22	TB31		NOTE 1
TB30	4A		W701-62-22-BLU	187P4	20	NOTE 1	TB31	3L		SHLD GRD G22	TB31		NOTE 1
TB30	4B		W701-123-22	187P13	HH	NOTE 1	TB31	3M		W701-GD295A22N	GD295		NOTE 1
TB30	4D		W701-64-22-BLU	187P4	22	NOTE 1	TB31	4A		W701-26-22-RED	187P3	20	NOTE 1
TB30	4E		W701-124-22	187P13	LL	NOTE 1	TB31	4B		W701-106-22	187P10	HH	NOTE 1
TB30	4G		W701-66-22-BLU	187P4	25	NOTE 1	TB31	4D		W701-28-22-RED	187P3	22	NOTE 1
TB30	4H		W701-125-22	187P13	UU	NOTE 1	TB31	4E		W701-107-22	187P10	LL	NOTE 1
TB30	4K		W701-68-22-BLU	187P4	29	NOTE 1	TB31	4G		W701-30-22-RED	187P3	25	NOTE 1
TB30	4L		W701-126-22	187P13	WW	NOTE 1	TB31	4H		W701-108-22	187P10	UU	NOTE 1
TB30	5A		W701-70-22-BLU	187P4	32	NOTE 1	TB31	4K		W701-32-22-RED	187P3	29	NOTE 1
TB30	5B		W701-127-22	187P13	FF	NOTE 1	TB31	4L		W701-109-22	187P10	WW	NOTE 1





TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB38	1		W559-23-20	113S1	12	9-5.1	TB51	4		W552-200-16B	171CB3	B1	9-2.2
TB38	2		W559-22-20	113S1	13	9-5.1	TB51	4		W552-211-10B	175CB2		9-2.2
TB38	4		W559-24-20	300JP20	3	9-5.1	TB51	5		W552-188-10B	161CB2	B1	9-2.2
TB38	6		W559-19-20	113S1	16	9-5.1	TB51	5		W552-215-10B	139CB1		9-2.2
TB38	9		W559-21-20	113S1	14	9-5.1	TB51	5		W552-233-16B	174CB5	B1	9-2.2
TB38	10		W559-20-20	113S1	15	9-5.1	TB51	6		W552-76-4B	241K2	B2	9-2.2
TB48	1		W558-4-16	083A5		12-1.1	TB51	6		W552-195-10B	082CB1	B1	9-2.2
TB48	1		W558-5-12	083A6		12-1.1	TB51	6		W552-196-10B	131CB10	B1	9-2.2
TB48	2		W558-GD041A12N	GD041		12-1.1	TB51	7		W552-80-4C	241CB2	C2	9-2.2
TB50	1		W550-75-4A	241CB3	A2	9-2.2	TB51	7		W552-192-16C	084CB1	C1	9-2.2
TB50	1		W550-202-16A	171CB1	A1	9-2.2	TB51	7		W552-197-10C	082CB1	C1	9-2.2
TB50	1		W550-225-16A	174CB1	A1	9-2.2	TB51	7		W552-212-10C	031CB10		9-2.2
TB50	1		W550-237-10A	051CB3		9-2.2	TB51	8		W552-189-10C	161CB2	C1	9-2.2
TB50	2		W550-208-16A	161CB10	A1	9-2.2	TB51	8		W552-198-10C	131CB10	C1	9-2.2
TB50	2		W550-220-10A	140CB1	A1	9-2.2	TB51	9		W552-77-6C	241K2	C2	9-2.2
TB50	3		W550-72-6A	241K1	A2	9-2.2	TB51	9		W552-201-16C	171CB3	C1	9-2.2
TB50	3		W550-212-10A	161CB1	A1	9-2.2	TB51	9		W552-234-16C	174CB5	C1	9-2.2
TB50	3		W550-226-16A	131CB7	A1	9-2.2	TB52		FA	SHLD GRD BM22	TB52	8L	NOTE 1
TB50	4		W550-76-4B	241CB3	B2	9-2.2	TB52		FG	SHLD GRD BQ22	TB52	7G	NOTE 1
TB50	4		W550-201-16B	171CB1	B1	9-2.2	TB52		FD WA	SHLD GRD BS22	TB52	8M	NOTE 1
TB50	4		W550-216-16B	131CB7	B1	9-2.2	TB52		FB	SHLD GRD EK22	TB52	8K	NOTE 1
TB50	4		W550-228-10B	231CB2		9-2.2	TB52		FC	SHLD GRD EN22	TB52	8H	NOTE 1
TB50	5		W550-207-16B	161CB10	B1	9-2.2	TB52		FH	SHLD GRD ER22	TB52	7H	NOTE 1
TB50	5		W550-221-10B	140CB1	B1	9-2.2	TB52	1A		W664-59-20	031J2	A	11-3.1.1
TB50	5		W550-234-16B	242CB1		9-2.2	TB52	1B		W664-60-20	031J6	A	11-3.1.1
TB50	6		W550-73-4B	241K1	B2	9-2.2	TB52	1C		W664-62-20	031J11	A	11-3.1.1
TB50	6		W550-213-10B	161CB1	B1	9-2.2	TB52	1D		W664-22-20	031P8	F	11-3.1.1
TB50	6		W550-224-16B	174CB1	B1	9-2.2	TB52	1F		W664-73-20	031P15	11	11-3.1.1
TB50	7		W550-77-4C	241CB3	C2	9-2.2	TB52	1G		W664-69-20	031P17	11	11-3.1.1
TB50	7		W550-203-16C	171CB1	C1	9-2.2	TB52	1J		W664-68-20	031P13	11	11-3.1.1
TB50	7		W550-215-16C	131CB7	C1	9-2.2	TB52	2A		W664-58-20	031J2	B	11-3.1.1
TB50	7		W550-227-10C	031CB7		9-2.2	TB52	2B		W664-61-20	031J6	B	11-3.1.1
TB50	8		W550-209-16C	161CB10	C1	9-2.2	TB52	2C		W664-63-20	031J11	B	11-3.1.1
TB50	8		W550-222-10C	140CB1	C1	9-2.2	TB52	2D		W664-20-20	031P8	G	11-3.1.1
TB50	9		W550-74-6C	241K1	C2	9-2.2	TB52	2E		W664-67-20	031P13	12	11-3.1.1
TB50	9		W550-214-10C	161CB1	C1	9-2.2	TB52	2F		W664-76-20	031P15	12	11-3.1.1
TB50	9		W550-223-16C	174CB1	C1	9-2.2	TB52	2G		W664-70-20	031P17	12	11-3.1.1
TB51	1		W552-78-4A	241CB2	A2	9-2.2	TB52	3A		W664-66-20	031P13	14	11-3.1.1
TB51	1		W552-187-10A	161CB2	A1	9-2.2	TB52	3B		W664-18-20	031P8	L	11-3.1.1
TB51	1		W552-199-16A	171CB3	A1	9-2.2	TB52	3C		W664-19-20	031P8	N	11-3.1.1
TB51	1		W552-213-10A	139CB2		9-2.2	TB52	3G		W645-143-20	300J4	38	11-3.1.1
TB51	2		W552-193-10A	082CB1	A1	9-2.2	TB52	3H		W664-47-20	031P8	A	11-3.1.1
TB51	2		W552-194-10A	131CB10	A1	9-2.2	TB52	3J		W664-49-20	031P35	2	11-3.1.1
TB51	3		W552-75-6A	241K2	A2	9-2.2	TB52	3K		W664-221-20	300J59	4	11-3.1.1
TB51	3		W552-190-16A	084CB1	A1	9-2.2	TB52	3L		W690-80-20	062XK1	X1	NOTE 1
TB51	3		W552-232-16A	174CB5	A1	9-2.2	TB52	4A		W645-255-20	300J4	28	11-3.1.1
TB51	4		W552-79-4B	241CB2	B2	9-2.2	TB52	4D		W664-21-20	031P8	B	11-3.1.1
TB51	4		W552-191-16B	084CB1	B1	9-2.2	TB52	5A		W664-65-20	031P13	1	11-3.1.1

1-5 TERMINAL BOARD WIRING DATA (Continued)

1-5

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB52	5B		W664-17-20	031P8	Y	11-3.1.1	TB53	3B		W664-122-20	031J9	B	11-3.1.1
TB52	5C		W664-75-20	031P15	1	11-3.1.1	TB53	3C		W664-124-20	031J12	B	11-3.1.1
TB52	5D		W664-71-20	031P17	1	11-3.1.1	TB53	3D		W664-87-20	031P10	G	11-3.1.1
TB52	5E		W664-202-20	031P22	P	11-3.1.1	TB53	3E		W664-133-20	031P14	12	11-3.1.1
TB52	6A		W664-64-20	031P13	2	11-3.1.1	TB53	3F		W664-128-20	031P16	12	11-3.1.1
TBS2	6B		W664-24-20	031P8	Z	11-3.1.1	TB53	3G		W664-132-20	031P18	12	11-3.1.1
TB52	6C		W664-74-20	031P15	2	11-3.1.1	TB55		FB	SHLD GRD S22	TB55	3	8-15.1
TB52	6D		W664-72-20	031P17	2	11-3.1.1	TB55	1		W697-5-22-BLU	300P54	9	8-15.1
TB52	7A		W564-158-22-RED	187P35	1	NOTE 1	TB55	1		W697-175-22-BLU	300P50	9	8-15.1
TB52	7B		W690-402-22-RED	188P1	L	NOTE 1	TB55	1		W591-1782-20-BLU (WITH 74)	104P1	N	054.100
TB52	7D		W564-159-22-BLU	187P35	2	NOTE 1	TB5S	3		SHLD GRD R22	TB55		8-15.1
TB52	7E		W690-403-22-BLU	188P1	B-	NOTE 1	TB55	3		SHLD GRD S22	TB55		8-15.1
TB52	7G		SHLD GRD BQ22	TB52		NOTE 1	TB55	3		W591-1781/2 SHLD (WITH 74)	104CP1		054.100
TB52	7H		SHLD GRD ER22	TB52		NOTE 1	TB55	4		W697-4-22-RED	300P54	8	8-15.1
TB52	8G		W564-GD318A22N	GD318ST		NOTE 1	TB55	4		W697-174-22-RED	300P50	8	8-15.1
TB52	8H		SHLD GRD EN22	TB52		NOTE 1	TB56	4		W591-1781-20-RED (WITH 74)	104P1	k	054.100
TB52	8K		SHLD GRD EK22	TB52		NOTE 1	TB56		FA	SHLD GRD W22	TB56	3	8-15.1
TB52	8L		SHLD GRD BM22	TB52		NOTE 1	TB56		FB	SHLD GRD X22	TB56	3	8-15.1
TB52	8M		SHLD GRD BS22	TB52		NOTE 1	TB56	1		W673-33-22-BLU	300P51	18	8-15.1
TB52	9A		W690-397-22	188P2	F-	NOTE 1	TB56	1		W673-188-22BLU	300P45	18	8-15.1
TB52	9B		W564-62-22-RED	187P27	KK	NOTE 1	TB56	1		W592-1798-20-BLU (WITH 74)	104P2	N	054.100
TB52	9D		W690-398-22	188P2	T	NOTE 1	TB56	3		SHLD GRD W22	TB56		8-15.1
TB52	9E		W564-15-22-RED	187P26	KK	NOTE 1	TB56	3		SHLD GRD X22	TB56		8-15.1
TB52	9G		W690-399-22	188P2	U	NOTE 1	TB56	3		W592-1797/8 SHLD (WITH 74)	104CP2		054.100
TB52	9H		W701-138-22-RED	187P34	5	NOTE 1	TB56	4		W673-15-22-RED	300P51	17	8-15.1
TB52	9K		W690-400-22	188P2	V	NOTE 1	TB56	4		W673-187-22-RED	300P45	17	8-15.1
TB52	9L		W564-104-22-RED	187P30	KK	NOTE 1	TB56	4		W592-1797-20-RED (WITH 74)	104P2	k	054.100
TBS2	10A		W564-63-22-BLU	SM0009		NOTE 1	TB57	1A		W550-259-22	TB57	3L	8-15.1
TB52	10B		W564-16-22-BLU	SM0007		NOTE 1	TB57	1B		W550-260-22	TB57	3K	8-15.1
TB52	10C		W701-139-22-BLU	187P34	6	NOTE 1	TB57	1F		W550-10-22	054CB1		8-15.1
TB52	10D		W564-105-22-BLU	SM0016		NOTE 1	TB57	2D		W550-261-22	TB57	3J	8-15.1
TB52	10E		W690-346-22	300J12	41	NOTE 1	TB57	2E		W550-262-22	TB57	3H	8-15.1
TB53	1A		W664-120-20	031J5	A	11-3.1.1	TB57	2J		W550-267-22	300P3	35	8-15.1
TB53	1B		W664-121-20	031J9	A	11-3.1.1	TB57	2K		W550-265-22	TB57	3B	8-15.1
TB53	1C		W664-123-20	031J12	A	11-3.1.1	TB57	3A		W550-266-22	TB57	1G	8-15.1
TB53	1D		W664-88-20	031P10	F	11-3.1.1	TB57	3B		W550-265-22	TB57	2K	8-15.1
TB53	1E		W664-136-20	031P14	11	11-3.1.1	TB57	3C		W550-258-22	161K2	B3	8-15.1
TB53	1F		W664-125-20	031P16	11	11-3.1.1	TB57	3G		W550-264-22	300P3	36	8-15.1
TB53	1G		W664-129-20	031P18	11	11-3.1.1	TB57	3H		W550-262-22	TB57	2E	8-15.1
TBS3	2A		W664-134-20	031P14	1	11-3.1.1	TB57	3J		W550-261-22	TB57	2D	8-15.1
TB53	2B		W664-86-20	031P10	Y	11-3.1.1	TB57	3K		W550-260-22	TB57	1B	8-15.1
TB53	2C		W664-127-20	031P16	1	11-3.1.1	TB57	3L		W550-259-22	TB57	1A	8-15.1
TB53	2D		W664-131-20	031P18	1	11-3.1.1	TB57	3M		W550-263-22	300P2	6	8-15.1
TB53	2G		W664-135-20	031P14	2	11-3.1.1	TB59	1		W550-24-12	083CB5		12-1.1
TB53	2H		W664-91-20	031P10	Z	11-3.1.1	TB59	1	WA	W558-23-12	083K1	A1	12.1.1
TB53	2J		W664-126-20	031P16	2	11-3.1.1	TB59	2		W550-25-26	131CB8		9-17.1
TB53	2K		W664-130-20	031P18	2	11-3.1.1	TB59	2		W679-40-16	140J7	A	9-17.1
TB53	3A		W664-119-20	031J5	B	11-3.1.1	TB59	3		W550-27-16	131CB3		9-17.1

1-5 TERMINAL BOARD WIRING DATA (Continued)

1-5

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF	TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB59	3		W677-1-16	SP0140		9-17.1	TB62	11		W680-5-16A	131J16	A	9-17.1
TB59	4		W550-168-12	134CB4		16-1.2	TB62	12		W552-260-16B	131CB10	B2	9-17.1
TB59	4		W677-11-12	SP0180		16-1.2	TB62	12		W680-6-16B	131J16	B	9-17.1
TB59	5		W550-247-16	161CB3		9-1.2	TB62	13		W552-261-16C	131CB10	C2	9-17.1
TB59	5		W679-30-16	161P3	F	9-1.2	TB62	13		W680-7-16C	131J16	C	9-17.1
TB59	6		W550-26-16	131CB1		9-17.1	TB62	14		W552-262-12A	161CB2	A2	9-1.2
TB59	6		W677-2-16	SP0139		9-17.1	TB62	14		W680-1-12A	161P4	A	9-1.2
TB59	7		W550-169-16A	140CB1	A2	7-2.2	TB62	15		W552-263-12B	161CB2	B2	9-1.2
TB59	7		W679-31-16A	140J7	H	7-2.2	TB62	15		W680-2-12B	161P4	B	9-1.2
TB59	8		W550-170-16B	140CB1	B2	7-2.2	TB62	16		W552-264-12C	161CB2	C2	9-1.2
TB59	8		W679-32-16B	140J7	G	7-2.2	TB62	16		W680-3-12C	161 P4	C	9-1.2
TB59	9		W550-171-16C	140CB1	C2	7-2.2	TB64	1A		W559-407-20	125T1	G	9-11.1
TB59	9		W679-33-16C	140J7	F	7-2.2	TB64	1B		W559-398-20	125J5		9-11.1
TB59	10		W550-251-16A	131CB7	A2	9-17.1	TB64	1C		W559-397-20	125J4		9-11.1
TB59	10		W679-35-16A	140J7	B	9-17.1	TB64	1D		W559-395-20	125J3		9-11.1
TB59	11		W550-252-16B	131CB7	B2	9-17.1	TB64	1E		W559-394-20	125J2		9-11.1
TB59	11		W679-36-16B	140J7	C	9-17.1	TB64	1F		W559-393-20	125J1		9-11.1
TB59	12		W550-253-16C	131CB7	C2	9-17.1	TB64	1G		W559-413-22	122T2	G	9-11.1
TB59	12		W679-37-16C	140J7	D	9-17.1	TB64	1H		W559-423-22	124T2	G	9-11.1
TB59	13		W550-244-12	161CB1	A2	9-1.2	TB64	1L		W559-411-20	TB64	2L	9-11.1
TB59	13		W679-26-12A	161P3	A	9-1.2	TB64	1M		W559-409-20	300P22	19	9-11.1
TB59	14		W550-245-12B	161CB1	B2	9-1.2	TB64	2A		W559-405-20	125J11		9-11.1
TB59	14		W679-27-12B	161P3	B	9-1.2	TB64	2B		W559-404-20	125J10		9-11.1
TB59	15		W550-246-12C	161CB1	C2	9-1.2	TB64	2C		W559-403-20	125J9		9-11.1
TB59	15		W679-28-12C	161P3	C	9-1.2	TB64	2D		W559-402-20	125J8		9-11.1
TB59	16		W550-255-10	162CB1		9-1.2	TB64	2E		W559-399-20	125J6		9-11.1
TB59	16		W682-1-10	TB62	9	9-1.2	TB64	2F		W559-400-20	125J7		9-11.1
TB62	1		W552-125-16	134CB3		16-1.2	TB64	2G		W559-408-20	125T2	0V	9-11.1
TB62	1		W678-6-16	SP0181		16-1.2	TB64	2H		W559-392-20	134P2	S	16-1.2
TB62	2		W552-35-12	112CB3		9-4.2	TB64	2L		W559-411-20	TB64	1L	9-11.1
TB62	2		W696-24-12	TB9	3	9-4.2	TB64	2M		W559-410-20	300P22	20	9-11.1
TB62	3		W552-32-16	131CB2		9-17.1	TB201		FC	SHLD GRD A22	TB201	3	NOTE 1
TB62	3		W678-1-16	SP0138		9-17.1	TB201		FD	SHLD GRD B22	TB201	4	NOTE 1
TB62	4		W552-33-16	131CB4		9-17.1	TB201		FA	SHLD GRD BK22	TB201	3	NOTE 1
TB62	4		W678-2-16	SP0141		9-17.1	TB201		FB	SHLD GRD BN22	TB201	4	NOTE 1
TB62	5		W552-161-16	161K4	APP	9-1.2	TB201	1		W564-90-22-RED	187P30	C	NOTE 1
TB62	5		W682-10-16	161XK9	C3	9-1.2	TB201	1		187W5224-RED	187J18	3	NOTE 1
TB62	6		W552-250-8	184CB2		NOTE 1	TB201	2		W564-91-22-BLU	187P30	A	NOTE 1
TB62	6		W682-11-8	184A3TB2	10	NOTE 1	TB201	2		187W5624-BLU	187J18	1	NOTE 1
TB62	7		W552-31-12	083CB4		12-1.1	TB201	3		SHLD GRD A22	TB201		NOTE 1
TB62	7		W558-1-12	083K3	A1	12-1.1	TB201	3		SHLD GRD BK22	TB201		NOTE 1
TB62	8		W552-30-16	083CB6		12-1.1	TB201	4		SHLD GRD B22	TB201		NOTE 1
TB62	8		W558-3-16	083K2	A1	12-1.1	TB201	4		SHLD GRD BN22	TB201		NOTE 1
TB62	9		W552-169-10	054CB2		9-1.2	TB201	5		W564-92-22-RED	187P30	TT	NOTE 1
TB62	9		W682-1-10	TB59	16	9-1.2	TB201	5		187W5024-BLK	187J18	2	NOTE 1
TB62	10		W552-34-16	131CB9		9-17.1	TB201	6		W564-93-22-BLU	187P30	XX	NOTE 1
TB62	10		W680-9-16	131J15	YEL	9-17.1	TB201	6		187W5424-YEL	187J18	4	NOTE 1
TB62	11		W552-259-16A	131CB10	A2	9-17.1	TB201	7		W564-94-22	187P30	B	NOTE 1

## 1-5 TERMINAL BOARD WIRING DATA (Continued)

1-5

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB201	7		187W5924-WHT	187J18		NOTE 1
TB201	8		W564-95-22	187P30	K	NOTE 1
TB201	8		187W5524-GRN	187J18		NOTE 1
TB401		FF	SHLD GRD A22	TB401	5	16-2.1
TB401		FG	SHLD GRD C22	TB401	6	16-2.1
TB401		FA	SHLD GRD L22	TB401	5	16-2.1
TB401		FB	SHLD GRD M22	TB401	5	16-2.1
TB401		FC	SHLD GRD Q22	TB401	6	16-2.1
TB401		FE	SHLD GRD S22	TB401	6	16-2.1
TB401		FD	SHLD GRD U22	TB401	6	16-2.1
TB401	1		W697-153-22-BLU	147J5	3	16-2.1
TB401	1		W697-155-22-BLU	147J6	3	16-2.1
TB401	1		W698-41-22-BLU	300P68	23	16-2.1
TB401	2		W673-164-22-BLU	147J7	3	16-2.1
TB401	2		W673-166-22-BLU	147J8	3	16-2.1
TB401	2		W673-181-22	147P2	C	16-2.1
TB401	3		W697-152-22-RED	147J5	1	16-2.1
TB401	3		W697-154-22-RED	147J6	1	16-2.1
TB401	3		W698-40-22-RED	300P68	41	16-2.1
TB401	4		W673-163-22-RED	147J7	1	16-2.1
TB401	4		W673-165-22-RED	147J8	1	16-2.1
TB401	4		W673-180-22	147P2	A	16-2.1
TB401	5		SHLD GRD A22	TB401		16-2.1
TB401	5		SHLD GRD L22	TB401		16-2.1
TB401	5		SHLD GRD M22	TB401		16-2.1
TB401	6		SHLD GRD C22	TB401		16-2.1
TB401	6		SHLD GRD Q22	TB401		16-2.1
TB401	6		SHLD GRD S22	TB401		16-2.1
TB401	6		SHLD GRD U22	TB401		16-2.1

END OF TASK

1-5 TERMINAL BOARD WIRING DATA, WITH **61** AND **62** (Continued)

1-5 TERMINAL BOARD WIRING DATA, WITH **71** (Continued)

TERMINAL BOARD	TERM SPL NO.	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB4	9A	APN209-31A22	195P2	7	18-2.1
TB4	9B	APN209-31B22	187P27	RR	18-2.1
TB4	9D	APN209-31C22	187P26	RR	18-2.1
TB4	9E	APN209-31D20	187P31	RR	18-2.1
TB4	9G	SHLD TERMN	SHLD OF WIRE APN209-31A22		18-2.1
TB4	9H	SHLD TERMN	SHLD OF WIRE APN209-31B22		18-2.1
TB4	9J	SHLD TERMN	SHLD OF WIRE APN209-31C22		18-2.1
TB4	9K	SHLD TERMN	SHLD OF WIRE APN209-31D20		18-2.1
TB4	9L	APN-209-32A22N	GROUND		18-2.1
TB6	6A	ASN149-54B22	199P6	26	18-1.1
TB6	6B	ASN149-54C22	185P1	39	18-1.1
TB6	6C	W557-359-22	196P2	L	18-1.1
TB6	6D	ASN149-55B22	199P6	27	18-1.1
TB6	6E	ASN149-55C22	185P1	29	18-1.1
TB6	6F	W557-350-22	196P2	K	18-1.1
TB6	6G	ASN149-56B22	199P6	28	18-1.1
TB6	6H	ASN149-56C22	185P1	30	18-1.1
TB6	6J	W557-351-22	196P2	J	18-1.1
TB6	6K	ASN149-57B22	199P6	29	18-1.1
TB6	6L	ASN149-57C22	185P1	31	18-1.1
TB6	6M	W557-352-22	196P2	H	18-1.1
TB6	8A	ASN149-60B22	199P0	32	18-1.1
TB6	8B	ASN149-60C22	185P1	34	18-1.1
TB6	8C	W557-355-22	196P2	E	18-1.1
TB6	8D	ASN149-61B22	199P6	33	18-1.1
TB6	8E	ASN149-61C22	185P1	35	18-1.1
TB6	8F	W557-356-22	196P2	D	18-1.1
TB6	8G	ASN149-62B22	199P6	34	18-1.1
TB6	8H	ASN149-62C22	185P1	36	18-1.1
TB6	8J	W557-357-22	196P2	C	18-1.1
TB6	8K	ASN149-63B22	199P6	35	18-1.1
TB6	8L	ASN149-63C22	185P1	37	18-1.1
TB6	8M	W557-358-22	196P2	B	18-1.1
TB6	9A	ASN149-58B22	199P6	30	18-1.1
TB6	9B	ASN149-58C22	185P1	32	18-1.1
TB6	9C	W557-353-22	196P2	G	18-1.1
TB6	9G	ASN149-59B22	199P6	31	18-1.1
TB6	9H	ASN149-59C22	185P1	33	18-1.1
TB6	9J	W557-354-22	196P2	F	18-1.1

TERMINAL BOARD	TERM SPL NO.	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB4	8A	ASN128B4C22(WHT)	197P10	1	8-3.1
TB4	8B	ASN128B-4022(WHT)	197P6	52	8-3.1
TB4	8C	W557-4368-22RED	066P2	47	8-3.1
TB4	8C	W557-4368-22RED	06661	47	8-3.1
TB4	8D	ASN128-900A22(VIO)	P2002R	36	8-3.1
TB4	8G	ASN128B-5C22(BLU)	197P10	2	8-3.1
TB4	8H	ASN128B-5022(BLU)	187P6	53	8-3.1
TB4	8J	W557-437B-22BLU	066P1	46	8-3.1
TB4	8J	W557-437B-22BLU	066P2	46	8-3.1
TB4	8K	ASN128-901 A22 (VIO/BLU)2	P2002R	25	8-3.1
TB4	10A	SHLD TERM	SHLD OF WIRE ASN128B-4C22(WHT) AND ASN128B-5C22(BLU)		8-3.1
TB4	10B	SHLD TERM	SHLD OF WIRE ASN128B-4022(WHT) AND ASN128B-5022(BLU)		8-3.1
TB4	10C	SHLD TERM	SHLD OF WIRE W557-436B-22RED AND W557-4378-22BLU		8-3.1
TB4	10D	SHLD TERM	SHLD OF WIRE ASN128-901 A22(VIO/BLU) AND ASN128-900A22(VIO)		8-3.1
TB4	10F	ASN128B-7A20N	GROUND		8-3.1
TB6	5A	ASN128B-50A20	197DS1	1	8-3.1
TB6	6B	ASN128B-31 C22	185P1	39	8-3.1
TB6	6C	W557-359-22	196P2	L	8-3.1
TB6	6D	ASN128B-32B22	197P10	11	8-3.1
TB6	6E	ASN128B-32C22	185P1	29	8-3.1
TB6	6F	W557-350-22	196P2	K	8-3.1

1-5 TERMINAL BOARD WIRING DATA, WITH 71 (Continued)

1-5 TERMINAL BOARD WIRING DATA, WITH (Continued)

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB6	6G		ASN128B-33B22	197P10	12	8-3.1
TB6	6H		ASN128B-33C22	185P1	30	8-3.1
TB6	6J		W557-351-22	196P2	J	8-3.1
TB6	8A		ASN128B-37B22	197P10	16	8-3.1
TB6	8B		ASN28B-37C22	185P1	34	8-3.1
TB6	8C		W557-355-22	196P2	E	8-3.1
TB6	8D		ASN128B-38B22	197P10	17	8-3.1
TB6	8E		ASN128B-38C22	185P1	35	8-3.1
TB6	8F		W557-356-22	196P2	D	8-3.1
TB6	8G		ASN128B-39B22	197P10	18	8-3.1
TB6	8H		ASN128B-39C22	185P1	36	8-3.1
TB6	8J		W557-357-22	196P2	C	8-3.1
TB6	8K		ASN128B-40B22	197P10	10	8-3.1
TB6	8L		ASN128B-40C22	185P1	37	8-3.1
TB6	8M		W557-358-22	196P2	B	8-3.1
TB6	9A		ASN128B-35B22	197P10	14	8-3.1
TB6	9B		ASN128B-35C22	185P1	32	8-3.1
TB6	9C		W557-353-22	196P2	G	8-3.1
TB6	9G		ASN128B-36B22	197P10	15	8-3.1
TB6	9H		ASN128B-36C22	185P1	33	8-3.1
TB6	9J		W557-354-22	196P2	F	8-3.1
TB7	6G			TB7 8	G	8-3.1
TB7	6H		W557954-22	232K3	C1	8-3.1
TB7	8G			TB7 8	G	8-3.1
TB7	8H			232K3	C3	8-3.1
TB7	8J		W557-953-22	197P5	J	8-3.1
TB53	6A		ASN128B-4A22(WHT)	197P9	22	8-3.1
TB53	6B		ASN128B-4822(WHT)	197J10	1	8-3.1
TB53	6C		ARC220-8022(WHT)	186P4	60	8-3.1
TB53	6G		ASN128B-5A22(BLU)	197P9	23	8-3.1
TB53	6H		ASN128B-5822(BLU)	197J10	2	8-3.1
TB53	6J		ARC220-81A22(BLU)	186P4	61	8-3.1
TB53	7A		SHLD TERM	SHLD OF WIRE		8-3.1
				ASN128B-4A		
				22(WHT) AND		
				ASN128B-5A		
				22(BLU)		
TB53	7B		SHLD TERM	SHLD OF WIRE		8-3.1
				ASN128B-4B		
				33(WHT) AND		
				ASN128B-5B		
				22(BLU)		

TERMINAL BOARD	TERM NO.	SPL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB53	7C		SHLD TERM	SHLD OF WIRE		8-3.1
				ARC220-		8-3.1
				80A22(WHT)		
				AND ARC220-		
				81 A22(BLU)		
TB53	7F		ASN128B-6A20	GROUND		8-3.1
TB53	7G		SHLD TERM	SHLD OF WIRE		8-3.1
				ASN128B-		
				26A22(WHT)		
				AND ASN 128B-		
				27A22(BLU)		
TB53	7H		SHLD TERM	SHLD OF WIRE		8-3.1
				ASN128B		
				26B22(WHT)		
				ANDASN128B-		
				27B22(BLU)		
TB53	7J		SHLD TERM	SHLD OF WIRE		8-3.1
				ASN128E		
				26D22(WHT)		
				AND ASN128B-		
				27D22(BLU)		
TB53	7K		SHLD TERM	SHLD OF WIRE		8-3.1
				ARC220-82A22		
TB53	7M		ASN128B-28A20N	GROUND		8-3.1
TB53	8A		ASN128B-26A22(WHT)	197P9	3	8-3.1
TB53	8B		ASN128B-26B22(WHT)	197J10	4	8-3.1
TB53	8C		ASN128B-26D22(WHT)	197J10	7	8-3.1
TB53	8G		ASN128B-27A22(BLU)	197P9	4	8-3.1
TB53	8H		ASN128B-27B22(BLU)	197J10	5	8-3.1
TB53	8J		ASN128B-27D22(BLU)	197J10	8	8-3.1

END OF TASK

1-5 TERMINAL BOARD WIRING DATA WITH **73** (Continued)

1-5 TERMINAL BOARD WIRING DATA WITH **73** (Continued)

1-5

TERMINAL BOARD	TERM NO.	S PL	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
TB4	3G		ARC220-26A20	186P13	U	18-4.1
TB4	3H		2KY100-25A20	186P19	K	18-4.1
TB17	7J			182CR	ANODE	18-4.1
TB17	7L		2KY100-2A20	#2KY-100 CIPHER RELAY	A2	18-4.1
TB17	8C		1KY58-1B20	300J16	16	18-4.1
TB17	8F		1KY58-1C20	186P2	D	18-4.1
TB17	8J			182CR	CATHODE	18-4.1
TB17	9A		2KY100-1B20	300J7	6	18-4.1
TB17	9B		2KY100-1C20	300J9	48	18-4.1

TERMINAL BOARD	TERM NO	SPL	WIRE NO.	CONNECTED TO	PIN NO	DIAG REF
TB17	9C		2KY100-1E20	#2KY-100 CIPHER RELAY	X1	18-4.1
TB17	9D		2KY100-1F20	#2KY-100 CIPHER RELAY	A1	18-4.1
TB53	6C		ARC220-80A22WHT	186P4	60	18-4.1
TB53	6J		ARC220-80A22BLU	186P4	61	18-4.1
TB53	7C		SHLD GRD			18-4.1
TB53	7K		SHLD GRD			18-4.1
TB53	8D		ARC220-82A22	186P4	62	18-4.1
TB62	6		ARC220-1A8	186CB1		18-4.1
TB62	6		ARC220-188	186P21	B	18-4.1

END OF TASK















GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN/ TERM	DIAG REF	GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN/ TERM	DIAG REF
GD252	ACH2		W664-GD252A20N	031P10	D	11-3.1.1	GD287	DC2		W528-GD287A22N	135P2	3	7-2.2
GD253	ST		W664-GD253A20N	031P8	F-	11-3.1.1	GD288	DC2		W528-GD288A20N	143P3	3	7-1.2
GD254	DC1		W655-GD254C22N	057P11	24	8-11.1	GD288	DC2		W528-GD288B20N	143P4	3	7-1.2
GD255	ST		W664-GD255A20N	031P16	7	11-3.1.1	GD289	DC1		W668-GD289A22N	147J3	R	16-2.1
GD255	ST		W664-GD255B20N	031P18	7	11-3.1.1	GD289	DC1		W668-GD289B20N	147P4	A	16-2.1
GD255	ST		W664-GD255C20N	031P14	7	11-3.1.1	GD290	ACH1		W668-GD290A22N	175P2	2	8-16.1
GD256	ST		W655-GD256A22N	057P9	D	8-11.1	GD291	ACH2		W668-GD291A22N	175P2	6	8-16.1
GD256	ST		W655-GD256B22N	057P10	G	8-11.1	GD292	ST		W668-GD292A22N	175P2	9	8-16.1
GD256	ST		W655-GD256C22N	057P9	N	8-11.1	GD293	ST		SHLD GRD A22	187P10		NOTE 1
GD256	ST		W655-GD256D16N	057P9	P	8-11.1	GD293	ST		W701-GD293A22N	187P10	D	NOTE 1
GD257	ACH2		W645-GD257A20N	084P1	D	9-19.1	GD294	ST		SHLD GRD D22	187P10		NOTE 1
GD258	DC1		W668-GD258A20N	148J2	C	11-3.1.1	GD294	ST		W701-GD294A22N	TB31	2F	NOTE 1
GD258	DC1		W668-GD258B20N	SP0237	7	9-5.1	GD295	ST		W701-GD295A22N	TB31	3M	NOTE 1
GD259	DC2		W698-GD259A20N	134J7	F	16-1.2	GD296	ST		W701-GD296A22N	TB31	5F	NOTE 1
GD260	DC2		W698-GD260A20N	134J9	F	16-1.2	GD297	ST		SHLD GRD AH22	187P13		NOTE 1
GD261	DC1		W625-GD261A22N	171J8	A-	8-11.1	GD297	ST		W701-GD297A22N	187P13	D	NOTE 1
GD261	DC1		W625-GD261B22N	171J8	B-	8-11.1	GD298	DC2		W701-GD298A22N	182DS3	1	NOTE 1
GD261	DC1		W625-GD261C22N	300J38	U	8-11.1	GD298	DC2		W701-GD298B22N	182DS4	1	NOTE 1
GD261	DC1		W625-GD261D22N	300J38	W	8-11.1	GD299	ST		SHLD GRD U22	187P13		NOTE 1
GD262	DC1		W625-GD262A22N	174J5	C	8-11.1	GD299	ST		W701-GD299A22N	TB30	2F	NOTE 1
GD263	DC1		W625-GD263A20N	300J34	U	8-11.1	GD300	ST		W701-GD300A22N	TB30	3M	NOTE 1
GD263	DC1		W625-GD263B20N	300J34	W	8-11.1	GD301	ST		W701-GD301A22N	TB30	5F	NOTE 1
GD264			W629-GD264A22N	057P4	3	8-11.1	GD302	ST		SHLD GRD AX22	187P31		NOTE 1
GD265	DC1		W625-GD265A22N	174P7	G	10-2.1	GD302	ST		W701-GD302A22N	TB29	5F	NOTE 1
GD266			W629-GD266A22N	174P8	G	10-2.1	GD303	ST		W701-GD303A22N	TB29	6M	NOTE 1
GD267	ACL1		W557-GD267A22N-BLU	197P5	M	9-12.1	GD304	ST		SHLD GRD BB22	187P31		NOTE 1
GD267	ACL1		W557-GD267B22N	202P4	E	9-12.1	GD304	ST		W701-GD304A22N	187P31	D	NOTE 1
GD267	ACL1		W557-GD267C22N	SP0247		9-12.1	GD305	DC1		W557-GD305A22N	201P2	10	NOTE 1
GD268	DC2		W645-GD268A20N	084XK1	X2	9-19.1	GD305	DC1		W557-GD305B22N	201P1	10	NOTE 1
GD269	ACM1		W645-GD269A20N	197P2	U		GD305	DC1		W557-GD305C22N	201P2	22	NOTE 1
GD270	ST		SHLD GRD B22	184P3		NOTE 1	GD305	DC1		W557-GD305D22N	181P1	E	NOTE 1
GD271	ST		SHLD GRD W22	184P3		NOTE 1	GD306	ST		SHLD GRD G20	300J7		NOTE 1
GD272	ST		SHLD GRD D22	184P3		NOTE 1	GD307			W673-GD307A20N	138J1	N	5-2.1
GD273	ST		SHLD GRD F22	184P3		NOTE 1	GD308			SHLD GRD R22	147P2		16-2.1
GD274	ST		SHLD GRD H22	184P3		NOTE 1	GD308			W673-GD308A22N	147P2	H	16-2.1
GD275	ST		SHLD GRD K22	184P3		NOTE 1	GD309			W673-GD309A22N	147P2	F	16-2.1
GD276	ST		SHLD GRD M22	184P3		NOTE 1	GD310	DC2		W557-GD310A22N	182P4	E	NOTE 1
GD277	ST		SHLD GRD Y22	184P3		NOTE 1	GD311	ST		SHLD GRD G22	147J3		16-2.1
GD278	ST		SHLD GRD AA22	184P3		NOTE 1	GD313	ST		SHLD GRD AV22	062P3		NOTE 1
GD279	ST		SHLD GRD AB22	184P3		NOTE 1	GD313	ST		SHLD GRD CF22	192P11		NOTE 1
GD280	ST		SHLD GRD BB22	062P5		NOTE 1	GD313	ST		SHLD GRD CH22	192P10		NOTE 1
GD281	ST		SHLD GRD AU22	062P6		NOTE 1	GD314	ST		SHLD GRD BU22	192P11		NOTE 1
GD281	ST		SHLD GRD CV22	188P2		NOTE 1	GD314	ST		SHLD GRD BV22	192P10		NOTE 1
GD282	DC2		W558-GD282A20N	083P3	F	12-1.1	GD315	ST		SHLD GRD CJ22	192P10		NOTE 1
GD283	DC1		W558-GD283A20N	083P1	F	12-1.1	GD316	ST		SHLD GRD LE22	192P11		NOTE 1
GD284	DC2		W558-GD284A20N	083K3	X2	12-1.1	GD316	ST		W690-GD316A22N	192P10	35	NOTE 1
GD285	DC1		W558-GD285A20N	083K1	X2	12-1.1	GD316	ST		W690-GD316B22N	188P2	P	NOTE 1
GD286	DC1		W528-GD286A20N	043P11	1	8-9.1	GD317	ST		SHLD GRD BY22	192P10		NOTE 1

GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN/TERM	DIAG REF	GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN/TERM	DIAG REF
GD317	ST		W690-GD317A22N	192P10	28	NOTE 1	GD350	ST		SHLD GRD AH22	062P6		NOTE 1
GD318	ST		SHLD GRD B22	031P3		11-3.1.1	GD351	ACH2		SHLD D	184P3		NOTE 1
GD318	ST		W564-GD318A22N	TB52	8G	NOTE 1	GD351	ACH2		W690-GD351A20N	184P3	27	NOTE 1
GD319	ST		SHLD GRD H22	031P3		11-3.1.1	GD355	ACH1		W645-GD355A22N-BLU	300J58	52	NOTE 1
GD320	ST		SHLD GRD D22	031P4		11-3.1.1	GD355	ACH1		W690-GD355A20N	062XK2	A1	11-3.1.1
GD321	ST		SHLD GRD J22	031P4		11-3.1.1	GD355	ACH1		W690-GD355B20N	062XK2	B1	11-3.1.1
GD322	DC2		W639-GD322A22N	182DS2	1	NOTE 1	GD356	ACM1		W645-GD356A22N-BLU	300J58	24	NOTE 1
GD323	DC1		W668-GD323A22N	147P4	E	16-2.1	GD357	ACM1		W690-GD357A22N	191 P1	H	NOTE 1
GD324	ST		SHLD GRD P22	241P1		9-2.2	GD357	ACM1		W690-GD357B22N	SM0006		11-3.1
GD325	ST		W690-GD325A22N	185P8	34	8-1.2	GD359	ST		W645-GD359A22N	202P1	E	NOTE 1
GD326	DC2		W690-GD326A22N	182P15	B	NOTE 1	GD360	ST		SHLD GRD BK22	191P2		NOTE 1
GD327	ST		W564-GD327B22N	187P30	H	NOTE 1	GD360	ST		W690-GD360A20N	SM0002		NOTE 1
GD328	ST		W645-GD328A22N	300J22	1	NOTE 1	GD361	DC2		W645-GD361A22N	202P1	K	NOTE 1
GD329	ST		W664-GD329B20N	031J11	F	11-3.1.1	GD362	ST		W645-GD362A22N	197P2	P	NOTE 1
GD330	ST		W664-GD330A20N	031J5	F	11-3.1.1	GD363	DC2		W645-GD363A20N	197P2	Z	NOTE 1
GD330	ST		W664-GD330B20N	031J9	F	11-3.1.1	GD365	DC1		W666-GD365A20N	SP0239	7	9-5.1
GD331			SHLD GRD BP22	191P1		NOTE 1	GD365	DC1		W666-GD365B20N (WITH 74)	153P1	B	7-3.2
GD331	DC1		W690-GD331A22N	191P1	C	NOTE 1	GD365	DC1		W666-GD365C20N (WITH 74)	153P1	E	7-3.2
GD332	DC1		W690-GD332A22N	201P12	16	NOTE 1	GD366	DC1		W528-GD366A20N	SP0241	6	9-5.1
GD333	ST		W664-GD333A20N	031J12	F	11-3.1.1	GD367	DC1		W528-GD367A20N	SP0243	6	9-5.1
GD334	ST		W664-GD334A20N	031P13	7	11-3.1.1	GD400	ST		W592-1898-20N (WITH 74)	051 P6	B	8-6.1
GD334	ST		W664-GD334B20N	031P15	7	11-3.1.1	GD401	DC2		W592-1880-22N (WITH 74)	SPLICE		8-4.1
GD335	ST		SHLD GRD BL22	187P30		NOTE 1	GD401	DC2		W592-1915-22N (WITH 74)	300J80	F	4-9.1
GD335	ST		W564-GD335A22N	187P30	D	NOTE 1	GD401	DC2		W592-1950-22N (WITH 74)	300J80	J	6-2.1
GD340	ST		W591-1915-20N (WITH 74)	300J81	F	4-9.1	GD406	ST		W591-1891-20N (WITH 74)	300J81	U	8-3.1
GD340	ST		W591-1919-20N (WITH 74)	300J81	H	4-13.1	GD500	ST		W592-1919-20N (WITH 74)	300J80	H	4-13.1
GD340	ST		W591-1950-20N (WITH 74)	300J81	J	4-13.1							



1-6 GROUND DEVICES WIRING DATA, WITH 61 (Continued)

GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN/ TERM	DIAG REF
ASN149GD002	DC2		ASN149-82A20N	99DS1	3	18-1.1
ASN149GD002	ST		ASN149-80A20N	199SI	2	18-1.1
ASN149GD002	ACM1		ASN149-79A20N	199P3	U	18-1.1
ASN149GD003	ACM1		ASN149-77A20N	199T1	2	18-1.1
ASN149GD003	ACM1		ASN149-75A20N	199T1	5	18-1.1
ASN149GD003	DC2		ASN149-64B22N	199P6	36	18-1.1
ASN149GD003	DC2		ASN149-70B22N	199P6	46	18-1.1

1-6 GROUND DEVICES WIRING DATA, WITH 71 (Continued)

GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN/ TERM	DIAG REF
GD001	ST		W557-GDOO1A22N	196P2	A	18-3.1
GD002	ST		ASN128B-53A20N	SHLD OF WIRE		18-3.1
GD003	ST		ASN128B-58A22N	SHLD OF WIRE		18-3.1
GD004	ST		ASN128BGD004	SHLD OF WIRE		18-3.1
GD004	ST		ASN128B-7A20N	TB4BLK10	F	18-3.1
GDO10D	DC2		W557-GD010D20N	197P5	D	18-3.1
GD101	ST			SHLD OF WIRE		18-3.1
GD144	ST			SHLD OF WIRE		18-3.1
GD197	ST		W557-GD197132-2N	197P6	19	18-3.1
GD25-1	ST		ASN128B-6A20N	TB53BLK7	F	18-3.1
GD253	ST		ASN128B-28A20N	TB53BLK7	m-	18-3.1
GD269	ACM1		W645-GD269A22N	197P2	U	18-3.1
GD362	ST		W645-GD362A22N	197P2	p	18-3.1
GD363	DC2		W645-GD363A20N	197P2	Z	18-3.1

1-6 GROUND DEVICES WIRING DATA WITH **73** (Continued)

GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN TERM	DIAG REF	GROUND DEVICE	TYPE GND	PIN NO.	WIRE NO.	CONNECTED TO	PIN NO.	DIAG REF
GD233	DC2		2KY100-22A20N	186P19	F	18-4.1	GD272	DC2		ARC220-69A20N	186P1	L	18-4.1
GD233	DC2		ARC220-25A20N	186P13	E	18-4.1	GD273	DC2		ARC220-76A20N	186P1	PP	18-4.1
GD233	ACM1		ARC220-27A20N	SP1		18-4.1	GD273	ST		ARC220-77A20N	186P1	KK	18-4.1
GD233	DC2		ARC220-46A20N	186P13	X	18-4.1	GD274	ST		ARC220-78A20N	186P1	HH	18-4.1
GD270	DC2		ARC220-21A20N	186P1	e	18-4.1	GD274	ST		ARC220-79A20N	186P10	Z	18-4.1
GD270	ST		ARC220-22A20N	186P10	V	18-4.1	GD274	ST		ARC220-83A22N	SP9		18-4.1
GD271	DC2		ARC220-23A20N	186P10	k	18-4.1	GD275	DC2		2KY100-23A20N	186P16	K	18-4.1
GD271	ST		ARC220-24A20N	186P10	Y	18-4.1	GD275	DC2		2KY100-24A20N	SP6		18-4.1
GD272	DC2		ARC220-28A20N	186P2	B	18-4.1	GD351	DC2		ARC220-2A8N	186P21	A	18-4.1
GD272	DC2		ARC220-57A20N	186P16	P	18-4.1	GD351	DC2		ARC220-28BN	186P7	A	18-4.1
							ARC220GD001	DC2		ARC220-75A20N	186K1/XK1	B2	18-4.1

END OF TASK

Abbreviations

ACCEL .....	ACCELEROMETER	DEV .....	DEVIATION	MAN .....	MANUAL
ACTR .....	ACTUATOR	DGNS .....	DOPPLER GPS NAVIGATION SYSTEM	MECH .....	MECHANICAL
ADT .....	AIR DATA TRANSDUCER	DIFF .....	DIFFERENTIAL	NAV .....	NAVIGATION
AFCS .....	ADVANCED FLIGHT CONTROL SYSTEM	DIR .....	DIRECTIONAL	NC .....	NORMALLY CLOSED
ALT .....	ALTIMETER	DISC .....	DISCONNECT	NO .....	NORMALLY OPEN
AMPLT .....	AMPLIFIER	ELEC .....	ELECTRIC	NO .....	NUMBER
APU .....	AUXILIARY POWER UNIT	EMER .....	EMERGENCY	NORM .....	NORMAL
ASSY .....	ASSEMBLY	EMERG .....	EMERGENCY	NR% .....	PERCENTAGE OF ROTOR RPM
ATT .....	ATTITUDE	ENG .....	ENGINE	OAT .....	OUTSIDE AIR TEMPERATURE
AUTO .....	AUTOMATIC	EPE .....	ESTIMATED POSITION ERROR	OV .....	OVERVOLTAGE
AUX .....	AUXILIARY	EXH .....	EXHAUST	OVHD .....	OVERHEAD
AVWS .....	ALTITUDE VOICE WARNING SYSTEM	EXT .....	EXTENSIBLE	OVSP .....	OVERSPEED
BAL .....	BALANCE	EXT .....	EXTERNAL	PDP .....	POWER DISTRIBUTION PANEL
BARO .....	BAROMETRIC	EXT .....	EXTINGUISHER	PDU .....	PILOT'S DISPLAY UNIT
BATT .....	BATTERY	FIL .....	FILAMENT	PH .....	PHASE
BL .....	BUTT LINE	FLT .....	FLIGHT	PLT .....	PILOT
BLK .....	BLACK	FM .....	FIGURE OF MERIT	PNL .....	PANEL
BOT .....	BOTTOM	FORM .....	FORMATION	PRI .....	PRIMARY
BRG .....	BEARING	FWD .....	FORWARD	POS .....	POSITION
BRK .....	BRAKE	GD .....	GEAR BOX	POSN .....	POSITION
BRT .....	BRIGHT	GD .....	GROUND DEVICE	POT .....	POTENTIOMETER
BST .....	BOOST	GEN .....	GENERATOR	PRESS .....	PRESSURE
B/U .....	BACK UP	GPS .....	GLOBAL POSITIONING SYSTEM	PROD .....	PRODUCER
CAB .....	CABIN	GRN .....	GREEN	PTIT .....	POWER TURBINE INLET TEMPERATURE
CB .....	CIRCUIT BREAKER	HMU .....	HYDROMECHANICAL UNIT	PWR .....	POWER
CCD .....	COCKPIT CONTROL DRIVER	HSI .....	HORIZONTAL SITUATION INDICATOR	QTY .....	QUANTITY
CCU .....	CONVERTER CONTROL UNIT	HTG .....	HEATING	R .....	RIGHT
CDU .....	COPILOT'S DISPLAY UNIT	HTR .....	HEATER	RAD .....	RADAR
CDU .....	CONTROL DISPLAY UNIT	HUD .....	HEADS UP DISPLAY	RCCO .....	REVERSE CURRENT CUT OUT
CGI .....	CRUISE GUIDE INDICATING	HV .....	HIGH VOLTAGE	RCPT .....	RECEPTACLE
CHK .....	CHECK	HYD .....	HYDRAULIC	RECEPT .....	RECEPTACLE
CKPT .....	COCKPIT	HYDR .....	HYDRAULIC	REF .....	REFERENCE
CKT .....	CIRCUIT	IGN .....	IGNITION	RECTG .....	RECTIFIER
COMPT .....	COMPONENT	IND .....	INDICATOR	REL .....	RELEASE
COLL .....	COLLECTIVE	INSTAL .....	INSTALLATION	REV .....	REVERSE (WITHOUT 74 )
COLL .....	COLLISION	INSTR .....	INSTRUMENT	REV .....	REVERSIONARY (WITH 74 )
COMB .....	COMBINING	INTMD .....	INTERMEDIATE	RH .....	RIGHT HAND
COMP .....	COMPASS	INVERT .....	INVERTER	RTA .....	RECEIVER TRANSMITTER ANTENNA
COND .....	CONDITION	JCT .....	JUNCTION	SCHLT .....	SEARCHLIGHT
CONT .....	CONTROL	JPR .....	JUMPER	SDC .....	SIGNAL DATA CONVERTER
CONTR .....	CONTROL	L .....	LOW	SEC .....	SECONDARY
CPLT .....	CO-PILOT	LCT .....	LONGITUDINAL CYCLIC TRIM	SEL .....	SELECT
CPT .....	CONTROL POSITION TRANSDUCER	LDG .....	LANDING	SHLD .....	SHIELD
CSL .....	CONSOLE	LH .....	LEFT HAND	SIG .....	SIGNAL
CTR .....	CENTER	LONG .....	LONGITUDINAL	SLT .....	SEARCHLIGHT
CUT .....	CURRENT	LT .....	LIGHT	SOL .....	SOLENOID
CW .....	CLOCKWISE	LTG .....	LIGHTING	STA .....	STATION
DASH .....	DIFFERENTIAL AIRSPEED HOLD	LV .....	LOW VOLTAGE	STBY .....	STANDBY
DECU .....	DIGITAL ELECTRONIC CONTROL UNIT	LVL .....	LEVEL	STEERG .....	STEERING
DEPRESS .....	DEPRESSURIZING	M/W .....	MATE WITH	SW .....	SWITCH
DET .....	DETECTOR (WITHOUT 74 )	MAG .....	MAGNETIC	SYS .....	SYSTEM
DETR .....	DETECTOR (WITH 74 )	MAINT .....	MAINTENANCE	TACH .....	TACHOMETER

TAS .....	TRUE AIRSPEED
TB .....	TERMINAL BOARD
TD .....	TIME DELAY
TEMP .....	TEMPERATURE
TRP .....	TROOP
TRQ .....	TORQUE
TYP .....	TYPICAL
UTIL .....	UTILITY
UTL .....	UTILITY
VERT .....	VERTICAL
VIB .....	VIBRATION
VLV .....	VALVE
VM .....	VOLTMETER
WHT .....	WHITE
WL .....	WATERLINE
WP .....	WAYPOINT
WSHLD .....	WINDSHIELD
XDCR .....	TRANSDUCER
XFEED .....	CROSSFEED
XFMR .....	TRANSFORMER
XFER .....	TRANSFER
XMSN .....	TRANSMISSION
XMTR .....	TRANSMITTER
YEL .....	YELLOW

CHAPTER 2  
VIBRATION ANALYSIS AND  
DYNAMIC ABSORBER SYSTEM  
TROUBLESHOOTING

**CHAPTER 2**  
**VIBRATION ANALYSIS AND DYNAMIC ABSORBER TROUBLESHOOTING**  
 CHAPTER OVERVIEW

Chapter 2 contains procedures for vibration analysis and dynamic absorber troubleshooting. Each system and failure symptom is listed below. Included in this chapter are locations and views of all electrical connectors, receptacles, relays, and ground connections involved with vibration analysis.

Refer to TM 55-1520-240-23 for required maintenance procedures.

SYSTEM	PARA
VIBRATION ANALYSIS	2-1
DYNAMIC ABSORBER	2-2

**FAILURE SYMPTOM LIST**  
**VIBRATION ANALYSIS**

SYMPTOM	TASK	SYMPTOM	TASK
LOW FREQUENCY VIBRATION ISOLATION PROCEDURE	2-1.1	VIBRATION FREQUENCY TOO RAPID TO COUNT,VIBRATION FELT IN STRUCTURE (6/REV)	2-1.1
HIGH FREQUENCY VIBRATION ISOIATION PROCEDURE	2-1.1	LATERAL BALANCE IS 1 IPS OR GREATER DURING GROUND TRACKING	2-1.7
ROTOR BLADE SHOCK ABSORBER ISOLATION PROCEDURE	2-1.1	TRACKING IS ERRATIC AFTER SEVERAL ATTEMPTS	2-1.8
VIBRATION FREQUENCY IDENTIFIED AS 225 RPM (1/REV)	2-1.1	BLADE CHANGES MORE THAN 1 INCH BETWEEN GROUND AND HOVER	2-1.9
VIBRATION FREQUENCY IDENTIFIED AS 675 CYCLES PER SECOND (3/REV)	2-1.1		

DYNAMIC ABSORBER

SYMPTOM	TASK
CTR VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED	2-2.4
LH VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED	2-2.4
NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT CENTER	2-2.4
NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT LEFT	2-2.4

SYMPTOM	TASK
NO INDICATION ON TEST BOX WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT RIGHT	2-2.4
RH VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED	2-2.4
TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT CENTER	2-2.4

SYMPTOM	TASK
TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT LEFT	2-2.4
TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT RIGHT	2-2.4

VIBRATION SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST

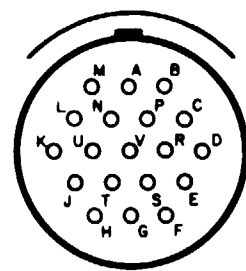
REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION		
				FS	WL	BL
GD050		151	NOSE COMPARTMENT	40	-17	15L
GD051		151	COCKPIT, UNDERFLOOR — PLT	85	-20	10R
GD052		151	COCKPIT, UNDERFLOOR — CPLT	70	-19	20L
GD053		151	HEATER COMPARTMENT	95	30	50R
139P1	MS3476W14-19S	21	LH VIB ABSORBER — CPLT	90	-35	20L
139P2	MS3476W14-19S	21	CTR VIB ABSORBER — NOSE	35	-5	o
139P3	MS3476W14-19S	21	RH VIB ABSORBER — PLT	90	-35	30R
139P4	MS3476W18-32S	25	VIB ABSORBER TEST BOX	95	40	45R
300J8	M 83723-74A2461N	42	NO. 2 POP			
300P8	M 83723-75A2461N	42	NO. 2 POP			

DYNAMIC ABSORBER SYSTEM ELECTRICAL COMPONENT  
LOCATION AND CONFIGURATION LIST (Continued)

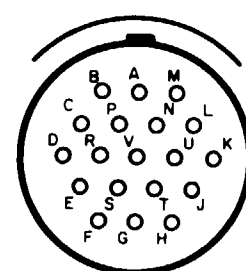
RECEPTACLE

PLUG

GND STUD



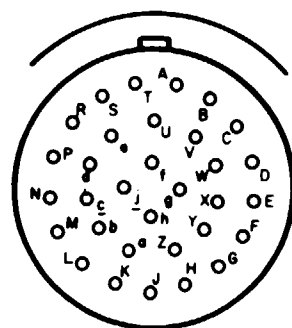
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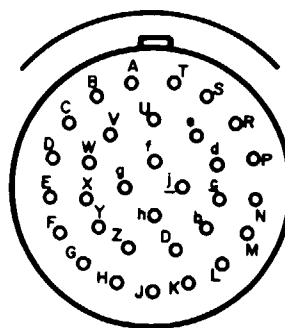
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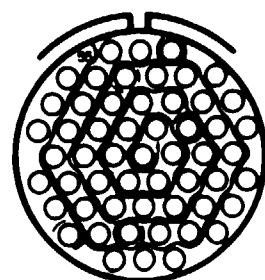
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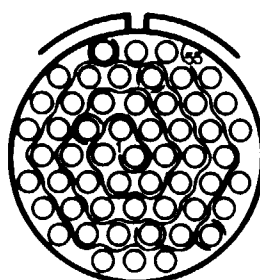
25



25



42



42



## 2-1 VIBRATION ANALYSIS

1. All helicopters have a certain amount of vibration especially during changes in attitude and at high airspeeds and power settings. Excessive vibration is any vibration that is different from the vibration normally sensed in a particular helicopter, any vibration that is noticeable in only one part of the helicopter, or any vibration that causes discomfort to personnel or damage to cargo carried by the helicopter.

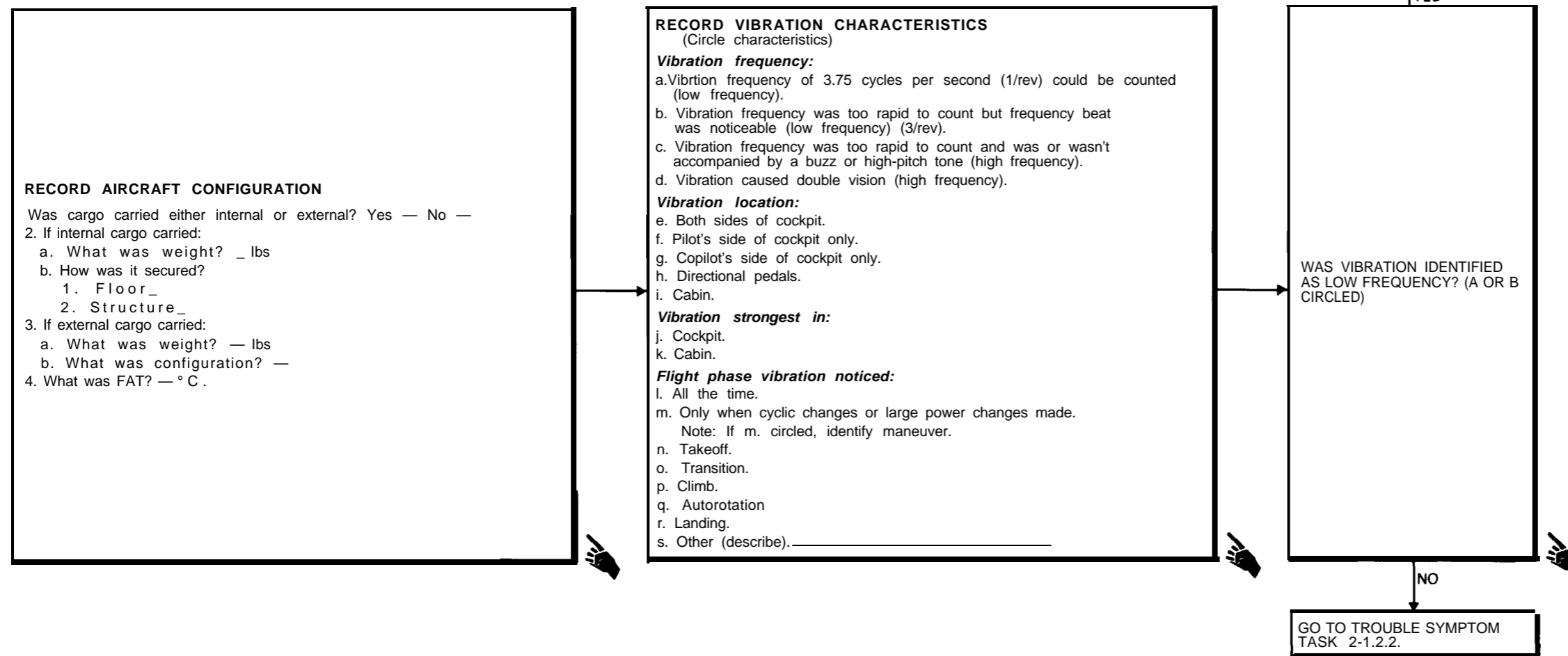
2. There are two types of vibration, low frequency and high frequency. Low frequency vibration cycles can be counted or identified by a beat. A 1/rev vibration frequency is 3.75 cycles per second at 225 rotor rpm (100% N<sub>2</sub>). This is slow enough to count. A 3/rev vibration frequency is 11.25 cycles per second which is too rapid to count; however, the individual beats are noticeable.

3. With high frequency vibration, the vibration to be more of a buzz. Rotor generated vibration can usually be observed at 1, 3, and 6 per rev (1350 cycles per minute). 9, 12, and 15 per rev, drive system vibrations tend to be in the higher frequencies. The Chadwick Helmuth Vibrex balancer 177M6A or 177M7A can be used to record vibrations up to 99,900 cycles per minute (1665 Hz). The Chadwick Helmuth Spectrum Analyzer, Model 192A, is capable of recording vibrations up to 900,000 cycles per minute (15,000 Hz). Table 2-1.2.2 lists the most common CH-47D exciting frequencies in Hertz (cycles per second), and cycles per minute at 225 rotor rpm (100% N<sub>2</sub>).

The Vibrex system 177M6A or 177M7A should be used to measure low frequency rotor generated vibration (1, 3, and 6/rev). The Chadwick Helmuth Model 192 Spectrum Analyzer should be used to measure drive train vibration and higher frequency rotor vibration (9, 12, and 15/rev).

4. To identify and locate cause of vibration, record aircraft configuration and vibration characteristics as outlined below. Then, determine vibration experienced and go to the task identified.

START



END OF TASK

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:  
None

Personnel Required:  
Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23

Equipment Condition:

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Forward Transmission Work Platform Open  
Pylon Work Platforms Open  
Forward and Aft Pivoting and Swiveling Servo-cylinders Inspected

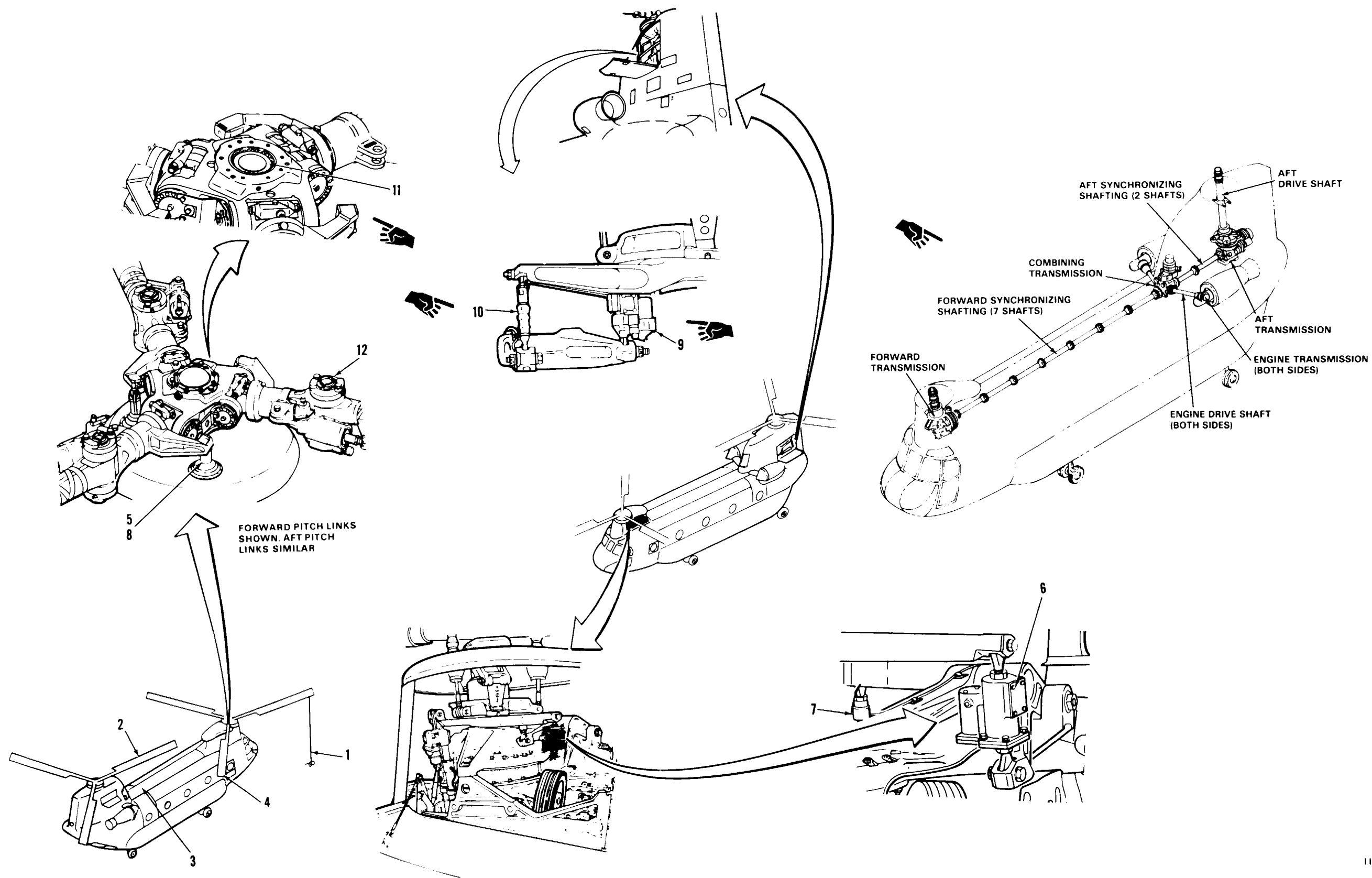
TASK	RESULT
1. Attach tiedown line (1) to a forward blade.	
2. Position aft blade (2) over fuselage (3). Check aft blade (2).	If blade (2) is damaged, replace it.
3. Repeat step 2 on remaining two aft blades. Then go to step 4.	
4. Position forward blade (4) over fuselage (3). Check forward blade (4).	If blade (4) is damaged, replace it.
5. Repeat step 4 on remaining two forward blades.	
6. Check three forward pitch links (5).	If any pitch link (5) is damaged, has worn bearings, or loose attaching hardware, tighten hardware or replace pitch link as required.
7. Check forward LCT actuator (6).	If actuator (6) is damaged, has worn bearings, or loose attaching hardware, tighten hardware or replace actuator as required.
8. Check forward LCT connecting link (7).	If link (7) is damaged, has worn bearings, or loose attaching hardware, tighten hardware or replace link as required.
9. Check three aft pitch links (8).	If any pitch link (8) is damaged, has worn bearings, or loose attaching hardware, tighten hardware or replace pitch link as required.
10. Check aft LCT actuator (9).	If actuator (9) is damaged, has worn bearings, or loose attaching hardware, tighten hardware or replace actuator as required.

TASK	RESULT
11. Check aft LCT connecting link (10).	If link (10) is damaged, has worn bearings, or loose attaching hardware, tighten hardware or replace link as required.
12. Check rotor hub nut (11).	If nut (11) is loose, tighten it. If nut (11) is bottomed on splines, refer to TM 55-1520-240-23.
13. Check torque on vertical hinge pin (12).	If vertical hinge pin (12) is not properly torqued, tighten to proper torque.
14. Check all sync shaft mounting and coupling bolts, engine drive shaft coupling bolts, forward, aft, combining, and engine transmission mounting bolts for proper torque and/or wear.	If any bolts are loose or damaged, tighten or replace them as required.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:  
Forward transmission work platform closed.  
Pylon work platform closed.

2-1.2 VIBRATION ANALYSIS VISUAL CHECK (Continued)



**INITIAL SETUP**

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Vibrex Model 177M6A or 177M7A
- Vibrex Accessory Set

Materials:

Two 1-Inch Square Steel Blocks (See Below)

Personnel Required:

- Medium Helicopter Repairer (2)
- Army Rotary Wing Aviator (2)
- Technical Inspector

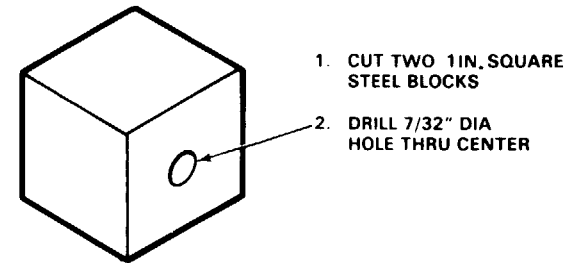
References:

- TM 55-1520-240-23
- TM 55-1520-240-10

Equipment Condition:

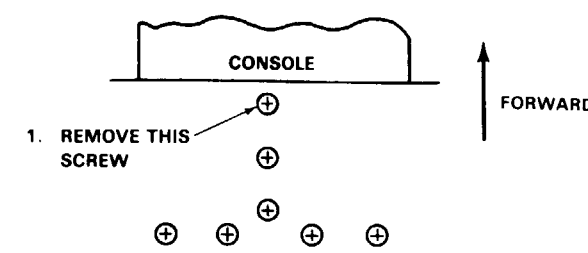
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Helicopter Prepared for In-Flight Blade Balancing
- Visual Check Performed

**VIBRATION PICKUP MOUNTS**



1. CUT TWO 1IN. SQUARE STEEL BLOCKS
2. DRILL 7/32" DIA HOLE THRU CENTER

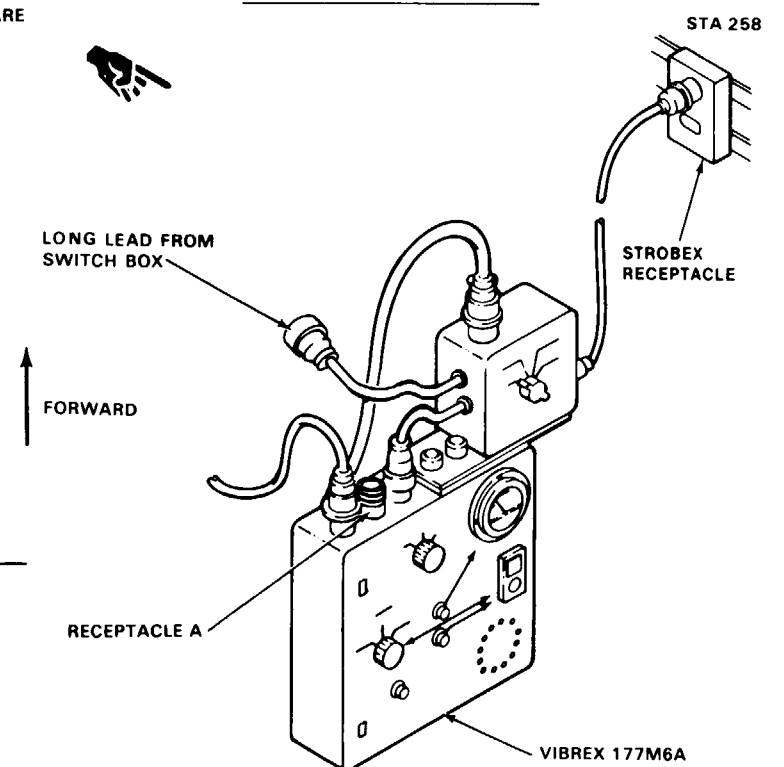
**STEEL BLOCK INSTALLATION AT STA 95**



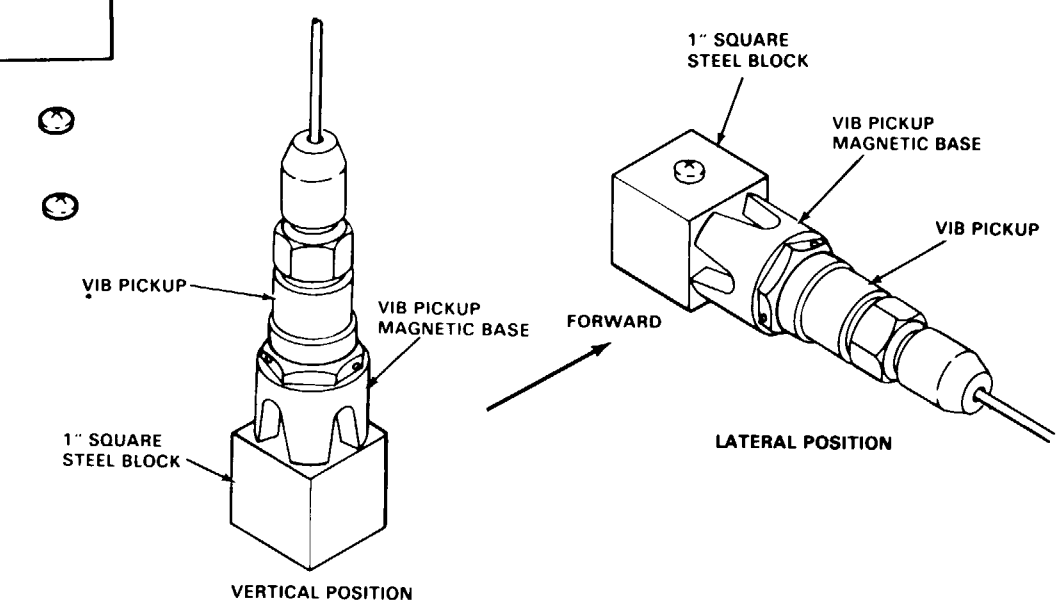
1. REMOVE THIS SCREW

2. SECURE 1 IN. STEEL BLOCK WITH SCREW

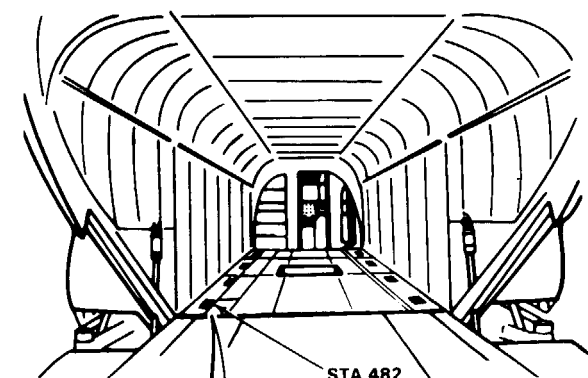
**VIBREX 117M6A CONNECTIONS**



**TYPICAL VIB PICKUP MEASUREMENT POSITIONS**

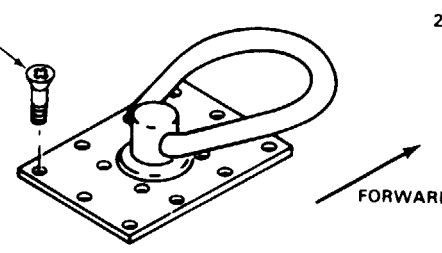


**STEEL BLOCK INSTALLATION AT STA 482**



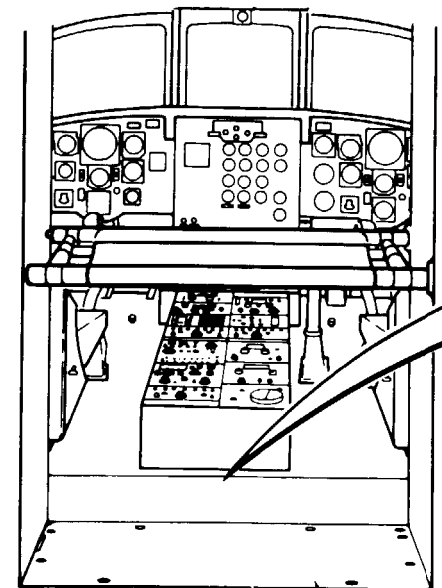
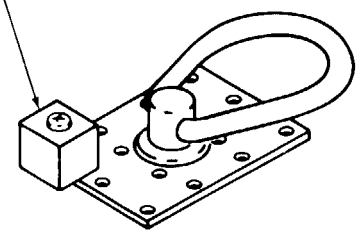
**STEEL BLOCK INSTALLATION AT STA 482**

1. REMOVE THIS SCREW



CARGO TIEDOWN AT STA 482 L

2. SECURE 1 IN. STEEL BLOCK WITH SCREW



STA 95

2-1.2.1 LOW FREQUENCY VIBRATION ISOLATION PROCEDURE (Continued)

2-1.2.1

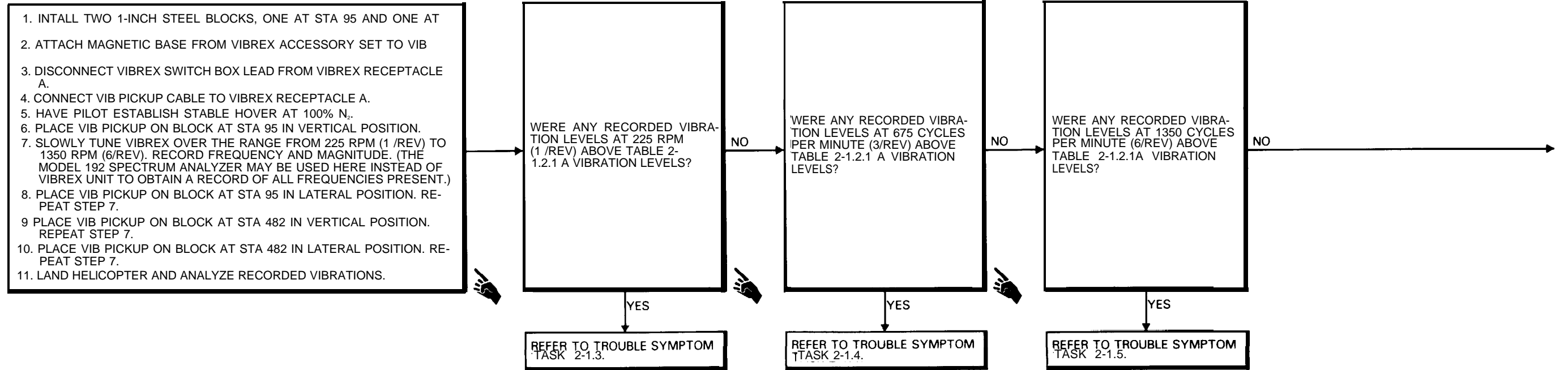


TABLE 2-1.2.1A NORMAL VIBRATION LEVELS AT HOVER

STA	VIBRATION LEVEL AT FREQUENCY		
	225	675	1350
95 VERT	0 TO 0.4	0.3 TO 0.7	0.2 TO 0.6
95 LAT	0 TO 0.4	0 TO 0.4	0.1 TO 0.5
482 VERT	0 TO 0.4	0.5 TO 1.1	0 TO 0.4
482 LAT	0 TO 0.4	0 TO 0.4	0 TO 0.4

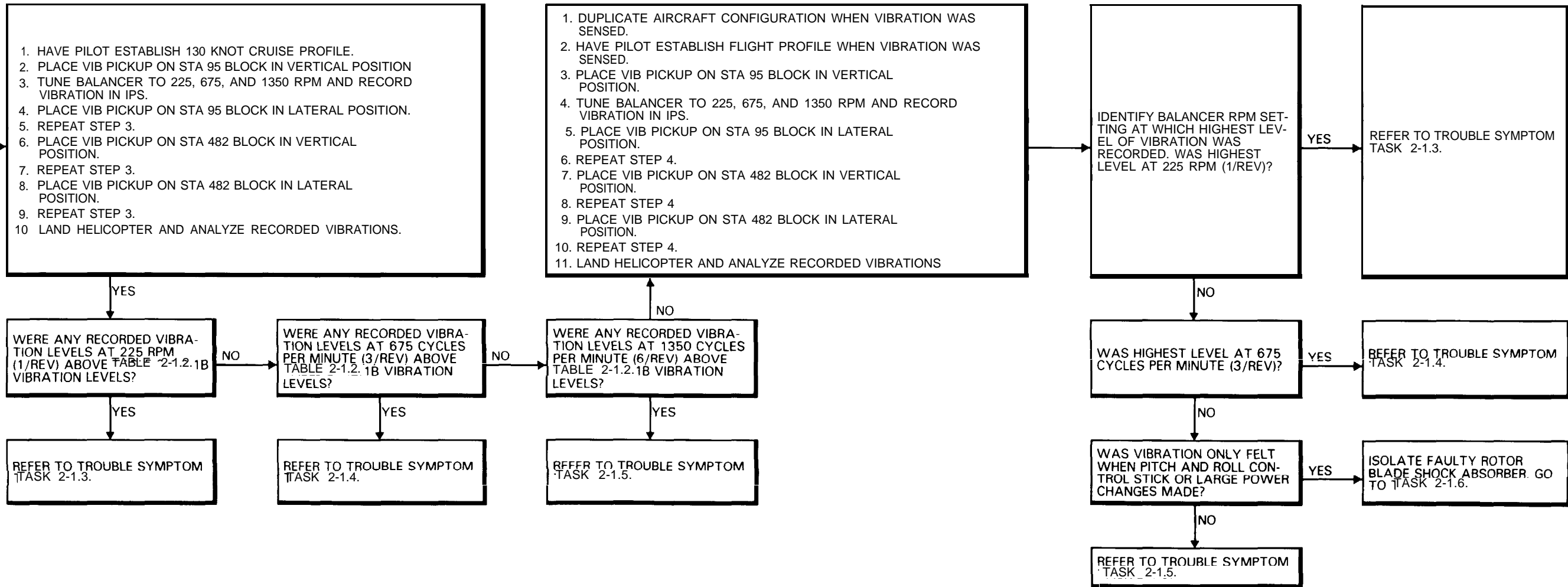
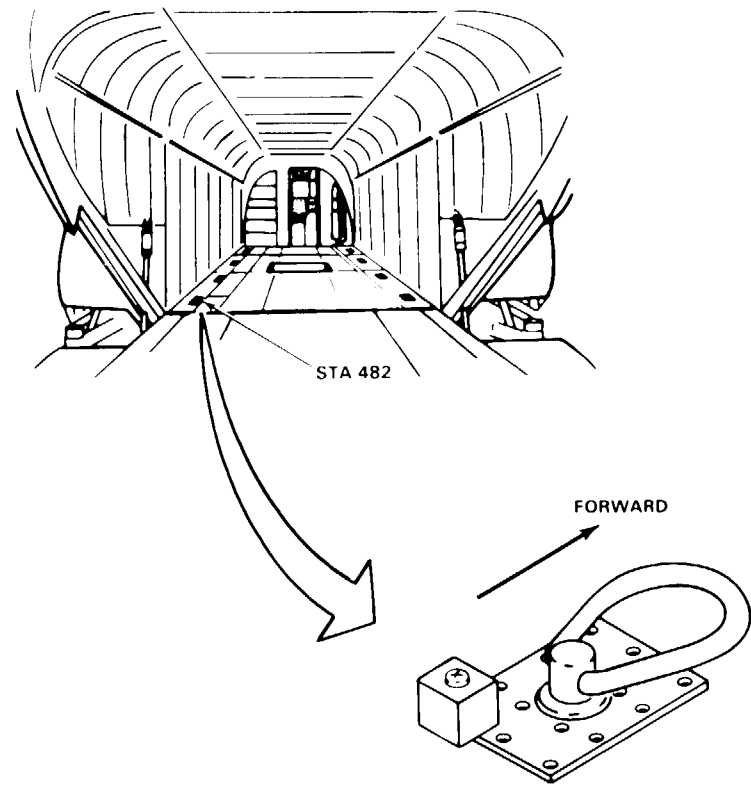
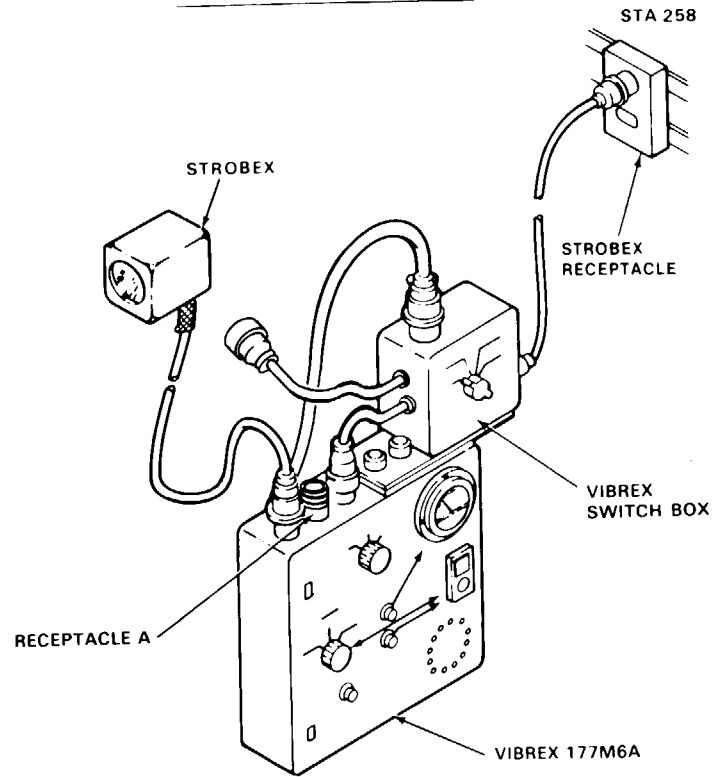


TABLE 2-1.2.1B. NORMAL VIBRATION LEVELS AT 130 KNOTS

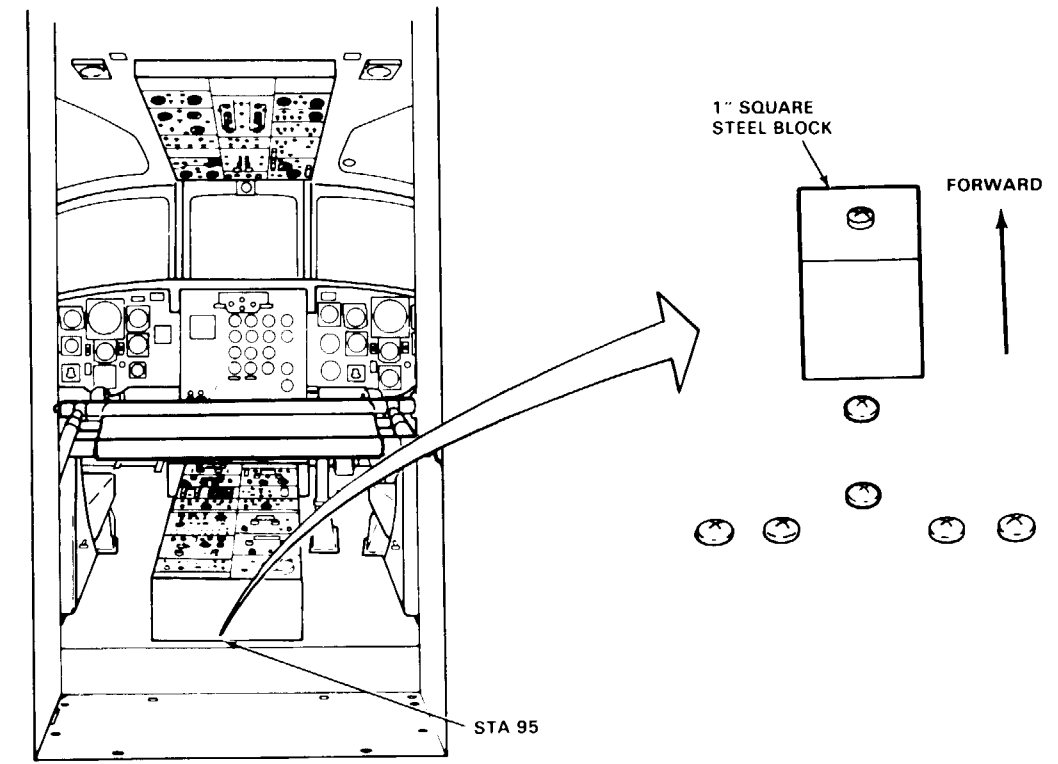
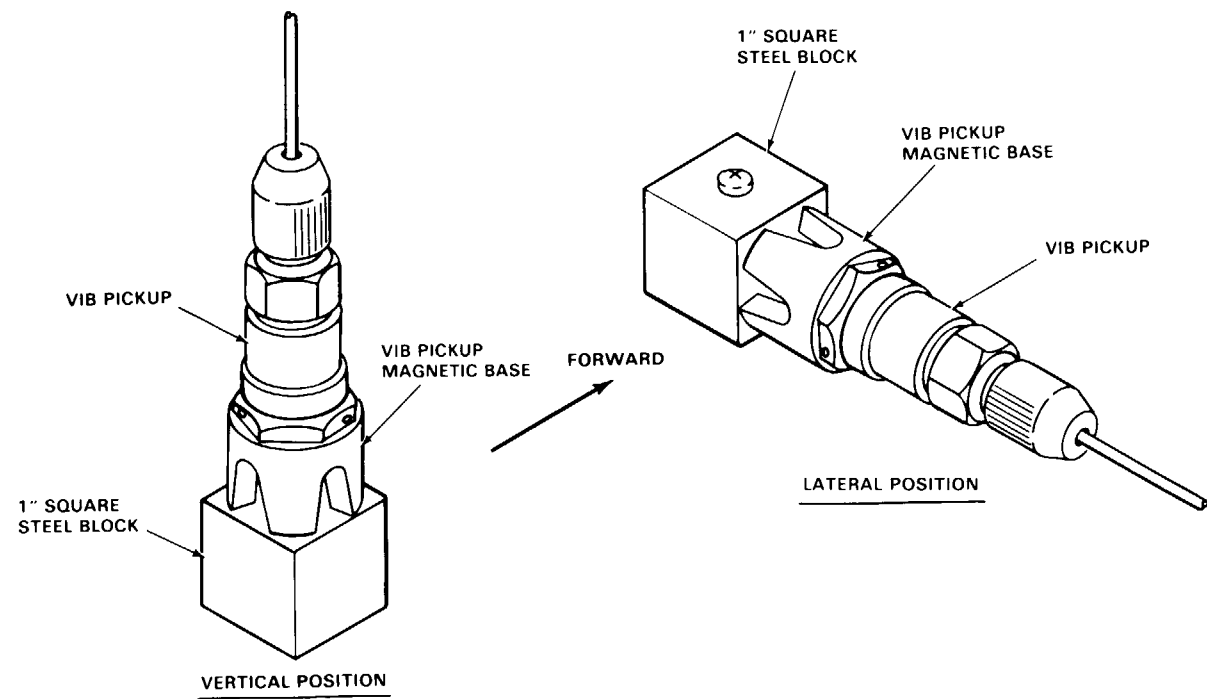
STA	VIBRATION LEVEL AT FREQUENCY		
	225	675	1350
95 VERT	0.1 TO 0.7	0.2 TO 0.6	0.1 TO 0.5
95 LAT	0.1 TO 0.5	0.2 TO 0.6	0 TO 0.4
482 VERT	0.1 TO 0.4	0.6 TO 1.2	0.1 TO 0.5
482 LAT	0 TO 0.4	0 TO 0.4	0.3 TO 0.7

2-1.2.1 LOW FREQUENCY VIBRATION ISOLATION PROCEDURE (Continued)

VIBREX 117M6A CONNECTIONS



TYPICAL VIB PICKUP MEASUREMENT POSITIONS





INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Chadwick Helmuth Model 192 Spectrum Analyzer with Vib Pickups

Materials:

Two 1-Inch Square Steel Blocks (See Below)

Personnel Required:

- Medium Helicopter Repairer (2)
- Army Rotary Wing Aviator (2)
- Technical Inspector

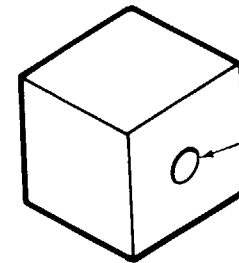
References:

- TM 55-1520-240-23
- TM 55-1520-240-10

Equipment Condition:

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Helicopter Prepared for In-Flight Blade Balancing
- Visual Check Performed

VIBRATION PICKUP MOUNTS



- CUT TWO 1 IN. SQUARE STEEL BLOCKS
- DRILL 7/32" DIA HOLE THRU CENTER

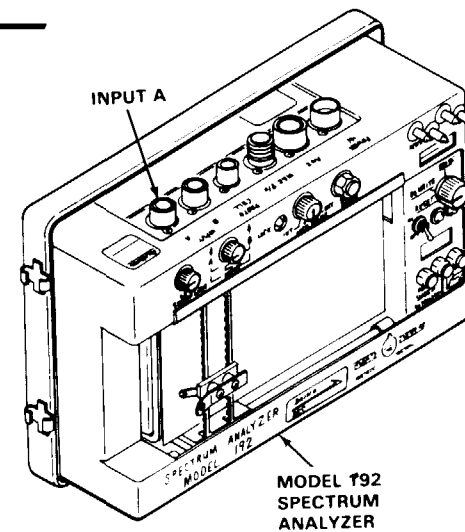
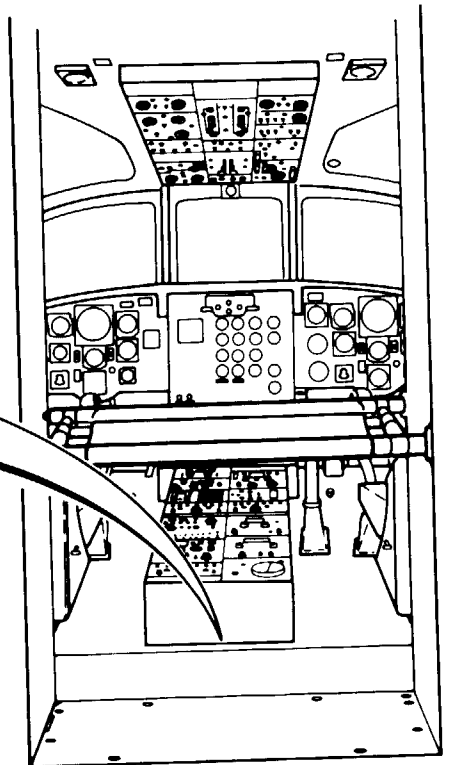
STEEL BLOCK INSTALLATION AT STA 95

FORWARD

CONSOLE

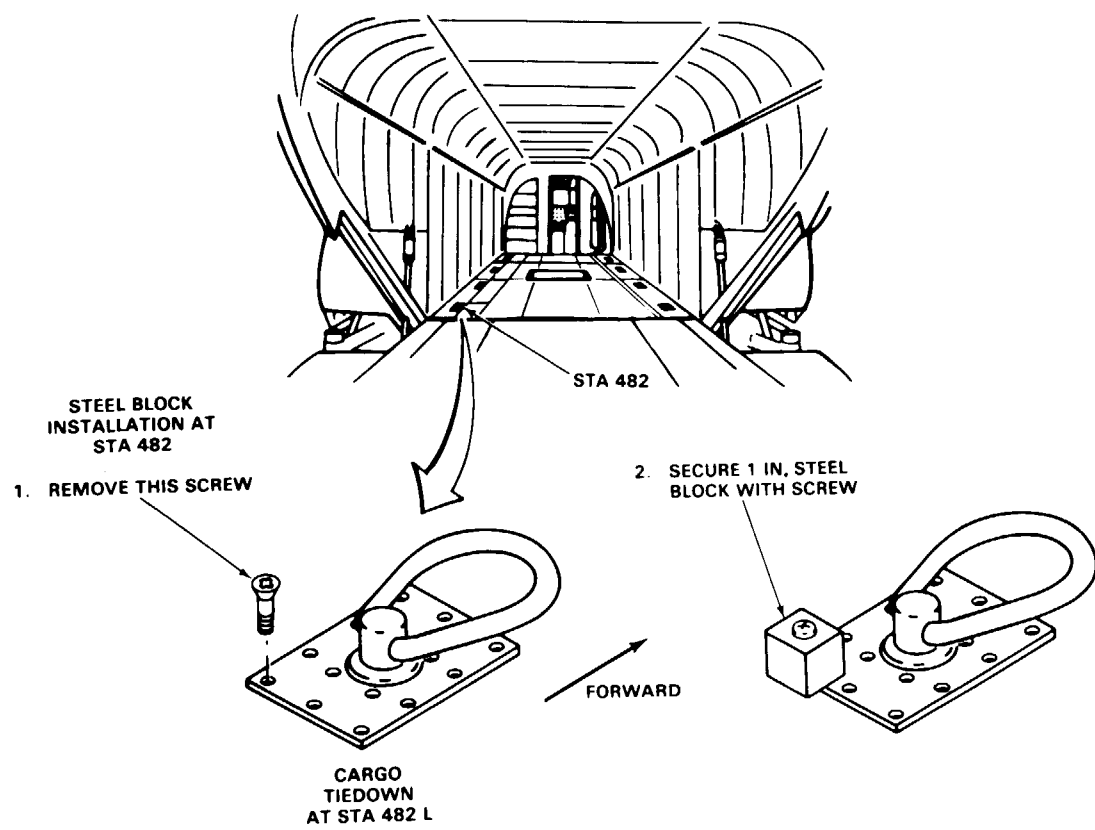
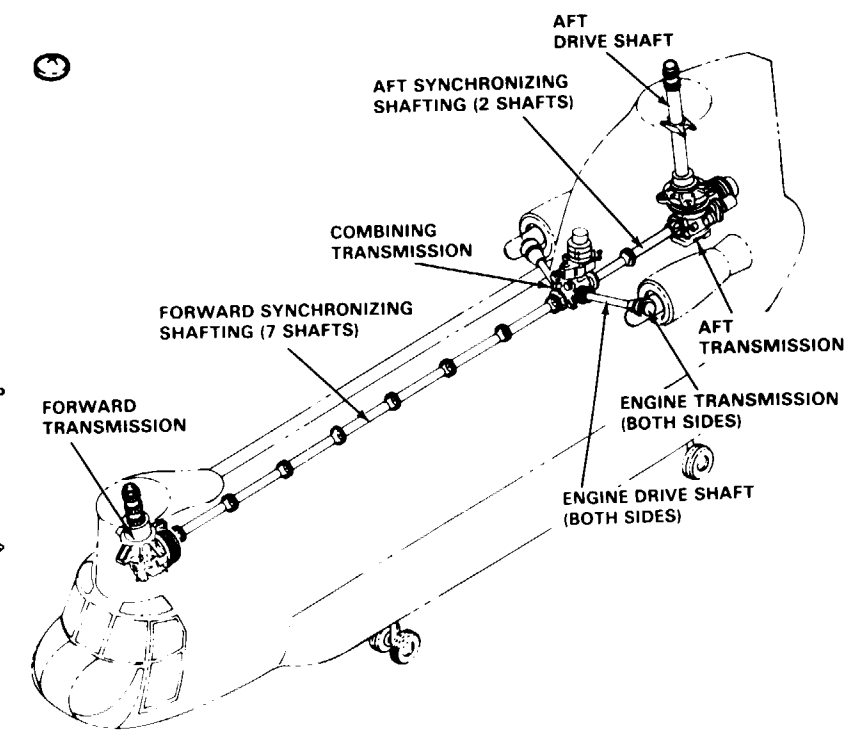
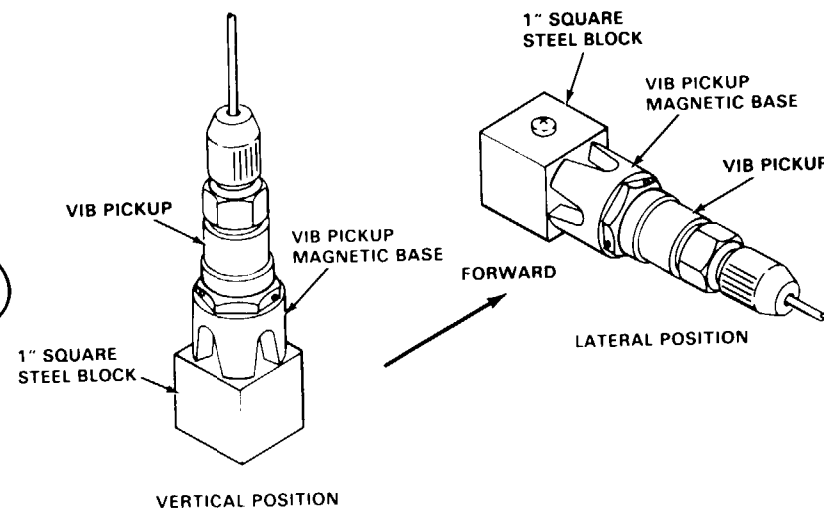
- REMOVE THIS SCREW

- SECURE 1 IN. STEEL BLOCK WITH SCREW



MODEL 192 SPECTRUM ANALYZER

TYPICAL VIB PICKUP MEASUREMENT POSITIONS



11192

GO TO NEXT PAGE

2-1.2.2 HIGH FREQUENCY VIBRATION ISOLATION PROCEDURE (Continued)

NOTE

AT THE PRESENT TIME, NO COMPREHENSIVE VIBRATION DATA OR VALID DIAGNOSTIC CRITERIA EXISTS FOR THE VARIOUS CH-47D MECHANICAL DRIVE COMPONENTS AND SYSTEMS. HOWEVER, SOURCES OF UNUSUALLY HIGH VIBRATION CAN BE LOCATED USING THE CHADWICK HELMUTH MODEL 192 SPECTRUM ANALYZER WITH ITS HAND HELD VIBRATION PROBE. ONCE THE SOURCE OF THE ABNORMAL VIBRATION IS FOUND, THE REPAIR, REMOVAL, AND REPLACEMENT OF COMPONENTS SHOULD BE DETERMINED BY QUALIFIED FIELD PERSONNEL.

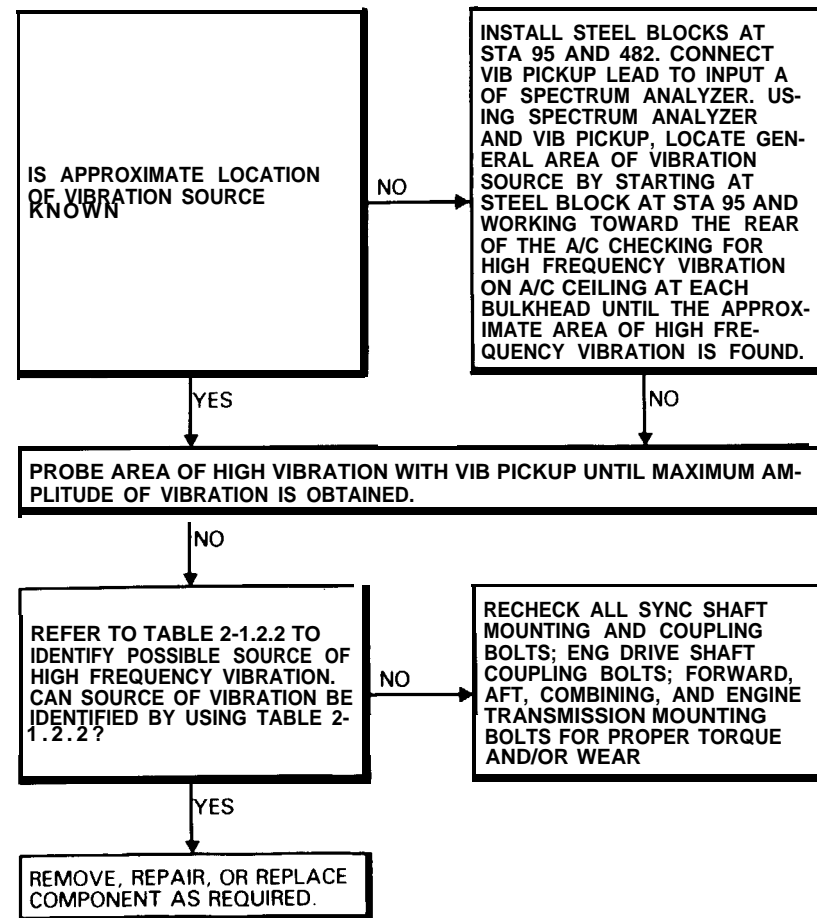


TABLE 2-1.2.2. CH-47D EXCITING FREQUENCIES AT 225 RPM (100% N<sub>2</sub>)

OVERALL	HERTZ (CYCLES/SEC)	CYCLES/MIN
1/REV	3.75	225
3/REV	11.25	675
6/REV	22.50	1350
9/REV	33.75	2025
12/REV	45.00	2700
<b>ENGINE/ENGINE XMSN</b>		
PINION MESH	8789	527,340
CROSS SHAFT 1/REV	204	12,240
CROSS SHAFT 2/REV	409	24,540
P/T SHAFT 1/REV	251	15,060
GAS GENERATOR 1/REV	266/300	15,960/18,000
<b>COMBINING XMSN</b>		
PINION MESH	6336	380,160
COOLER FAN MESH	3371	214,260
LUBE PUMP MESH	3802	228,120
SYNC SHAFT 1/REV	115	6,900
SYNC SHAFT 2/REV	230	13,800
CROSS SHAFT 1/REV	204	12,240
CROSS SHAFT 2/REV	409	24,540
COOLER FAN 1/REV	162	9,720
<b>FWD XMSN</b>		
UPPER MESH 1ST	397	23,820
UPPER MESH 2ND	794	47,640
UPPER MESH 3RD	1191	71,460
UPPER MESH 4TH	1588	95,280
UPPER MESH 5TH	1985	119,100
UPPER MESH 6TH	2382	142,920
LOWER MESH 1ST	1450	87,000
LOWER MESH 2ND	2900	174,000
LOWER MESH 3RD	4350	261,000
PINION MESH	3340	200,400
LUBE/HYD PUMP MESH	2489	149,340
AUX. PUMP MESH	2381	142,860
LOWER CARRIER 1/REV	13.7	822
SUN GEAR 1/REV	65.5	3930
SYNC SHAFT 1/REV	115	6,900
SYNC SHAFT 2/REV	230	13,800
COOLER FAN 1/REV	115	6,900
<b>AFT XMSN</b>		
UPPER MESH 1ST	397	23,820
UPPER MESH 2ND	794	47,640
UPPER MESH 3RD	1191	71,460
UPPER MESH 4TH	1586	95,280
UPPER MESH 5TH	1985	119,100
UPPER MESH 6TH	2382	142,920
LOWER MESH 1ST	1450	87,000
LOWER MESH 2ND	2900	174,000
LOWER MESH 3RD	4350	261,000
PINION MESH	3340	200,400
ACCESSORY SECTION MESH	4732	283,920
AUX. PUMP MESH	2381	142,860
LOWER CARRIER 1/REV	13.7	822
SUN GEAR 1/REV	65.5	3930
SYNC SHAFT 1/REV	115	6,900
SYNC SHAFT 2/REV	230	13,800
ACCESSORY DRIVE	92.8	5,568
COOLER FAN 1/REV	175	10,500

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

*Applicable Configurations:*

All

*Tools:*

- Aircraft Mechanic's Tool Kit,
- NSN 5180-00-323-4692
- Sharp PC 1500A Track and Balance Computer
- Vibrex Model 177M6A or 177M7A
- Vibrex Accessory Set

*Materials:*

None

*Personnel Required:*

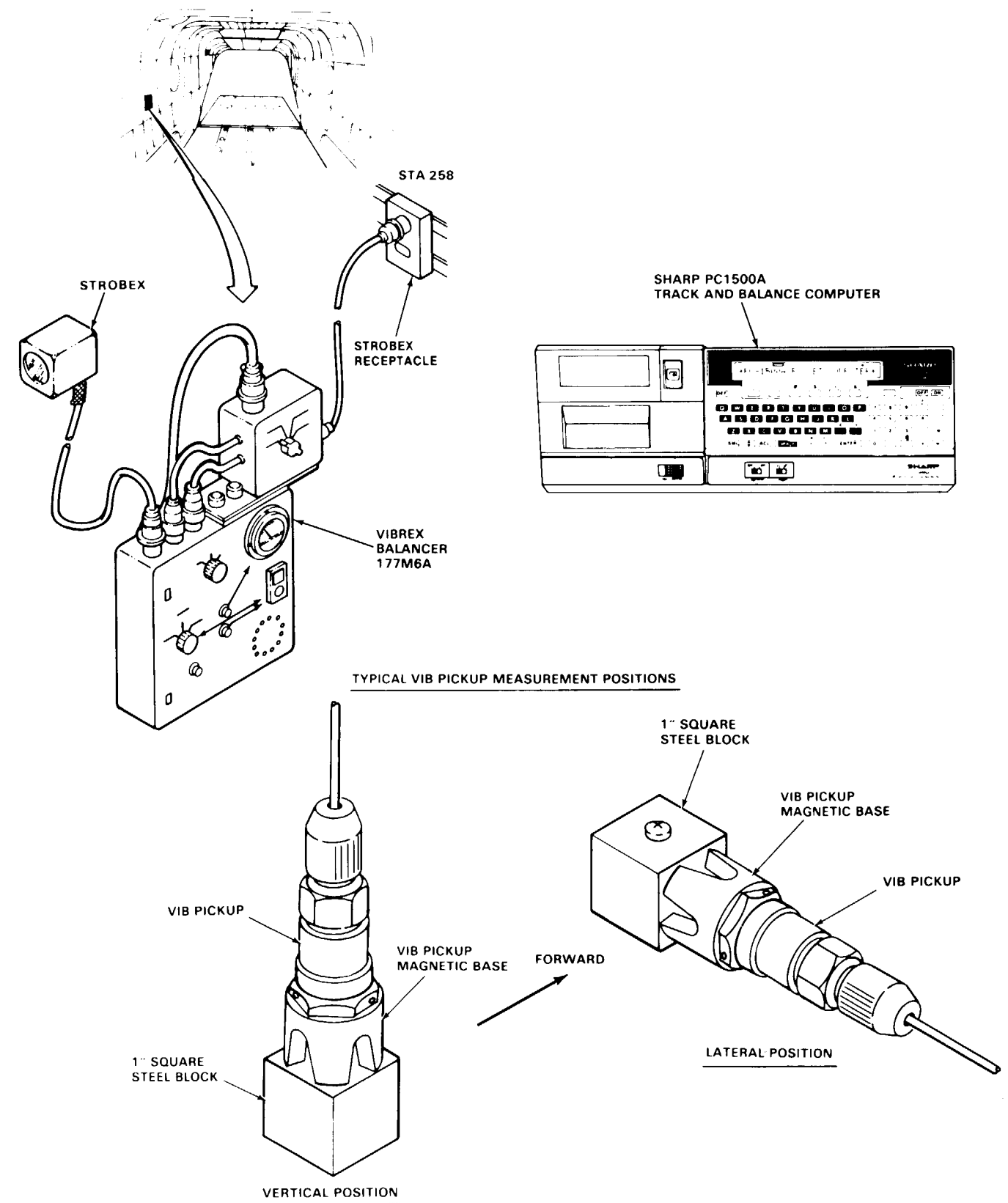
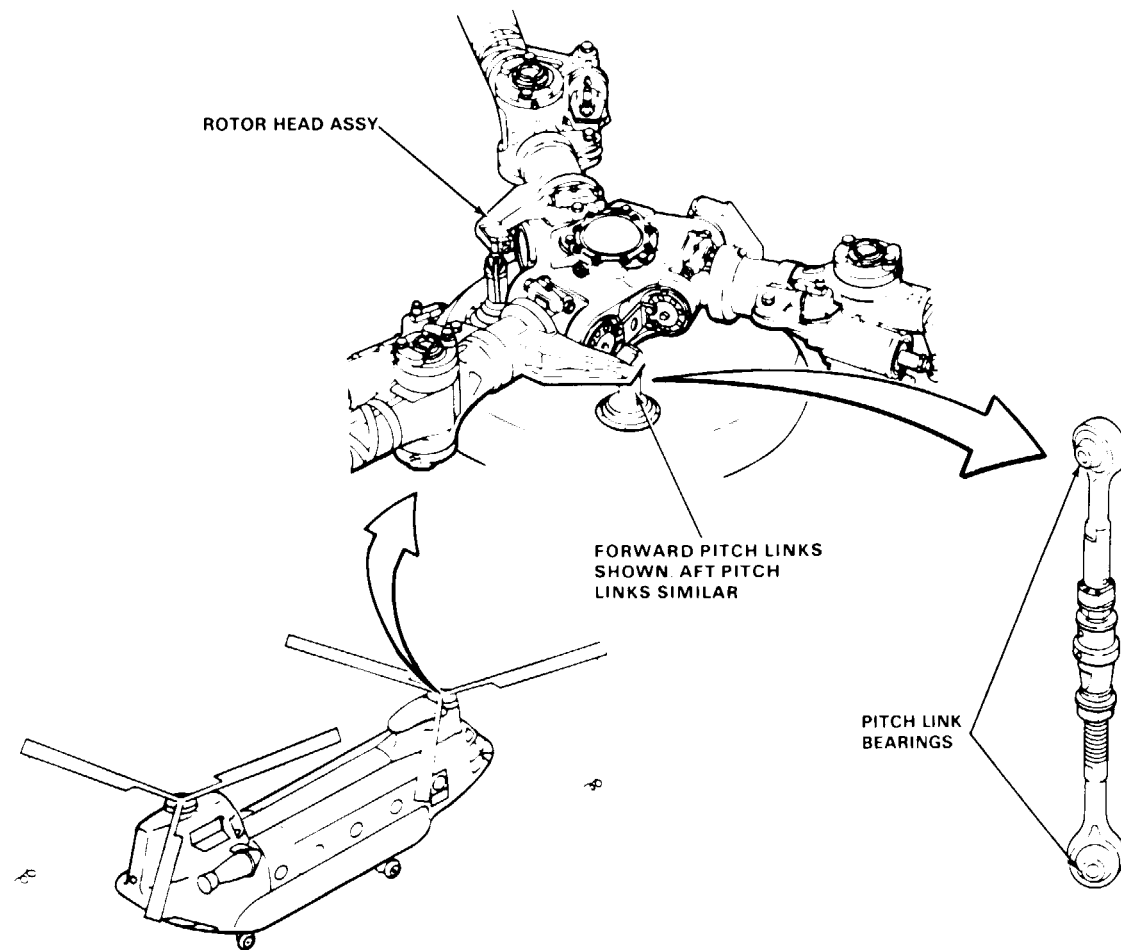
- Medium Helicopter Repairer (2)
- Army Rotary Wing Aviator (2)
- Technical Inspector

*References:*

- TM 55-1520-240-23
- TM 55-1520-240-10

*Equipment Condition:*

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Helicopter Prepared for In-Flight Blade Balancing
- Tracking Targets Installed
- Visual Check Performed



2-1.3 VIBRATION FREQUENCY IDENTIFIED AS 225 RPM (1 /REV) (Continued)

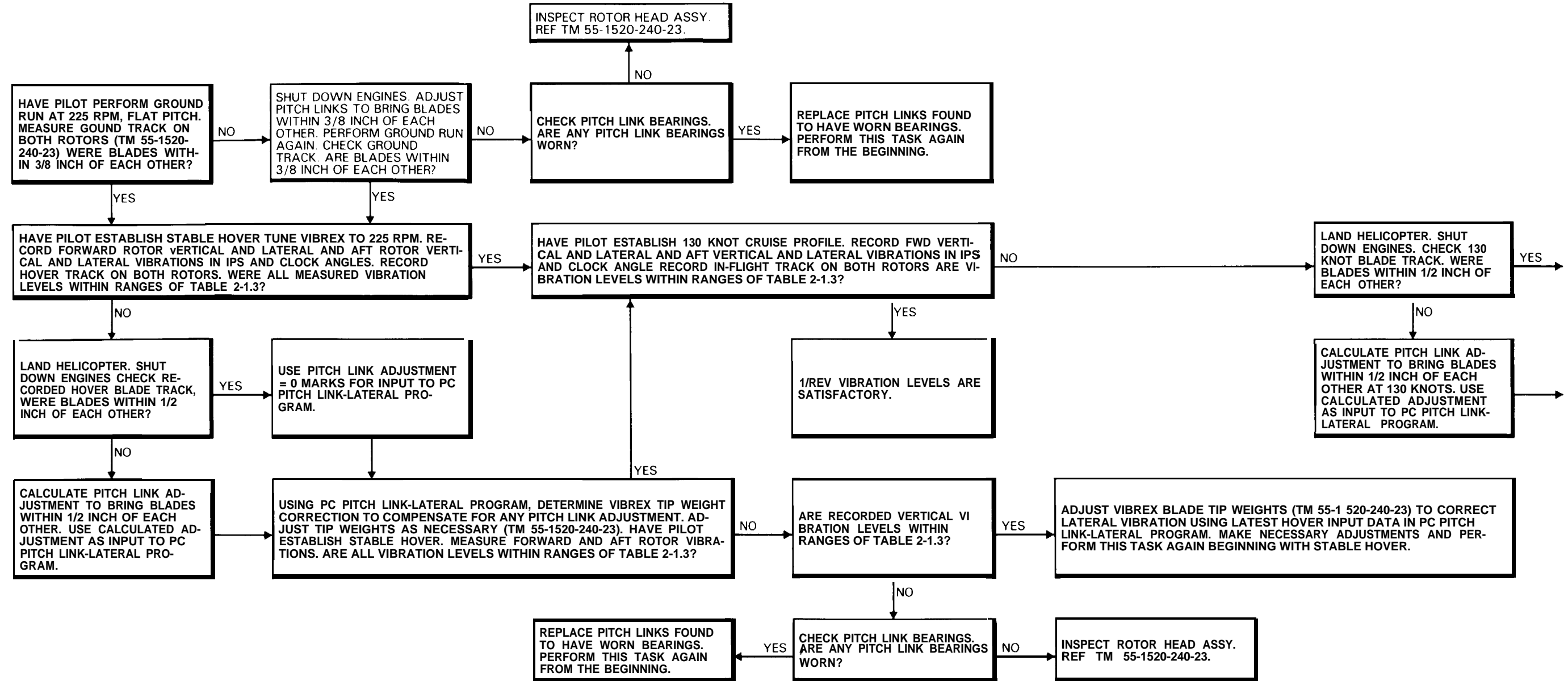


TABLE 2-1.3. NORMAL ONE/REV VIBRATION LEVELS FWD AND AFT ROTOR AT 225 RPM

ACCELEROMETER LOCATION	FLIGHT PROFILE		
	HOVER	130 KT	155 KT
FWD VERTICAL	0 TO 0.2	0.2 TO 0.4	0.2 TO 0.6
FWD LATERAL	0.1 TO 0.3	0.2 TO 0.4	0.3 TO 0.5
AFT VERTICAL	0 TO 0.2	0.2 TO 0.4	0.2 TO 0.6
AFT LATERAL	0.1 TO 0.3	0.2 TO 0.4	0.3 TO 0.5

2-1.3 VIBRATION FREQUENCY IDENTIFIED AS 225 RPM (1/REV) (Continued)

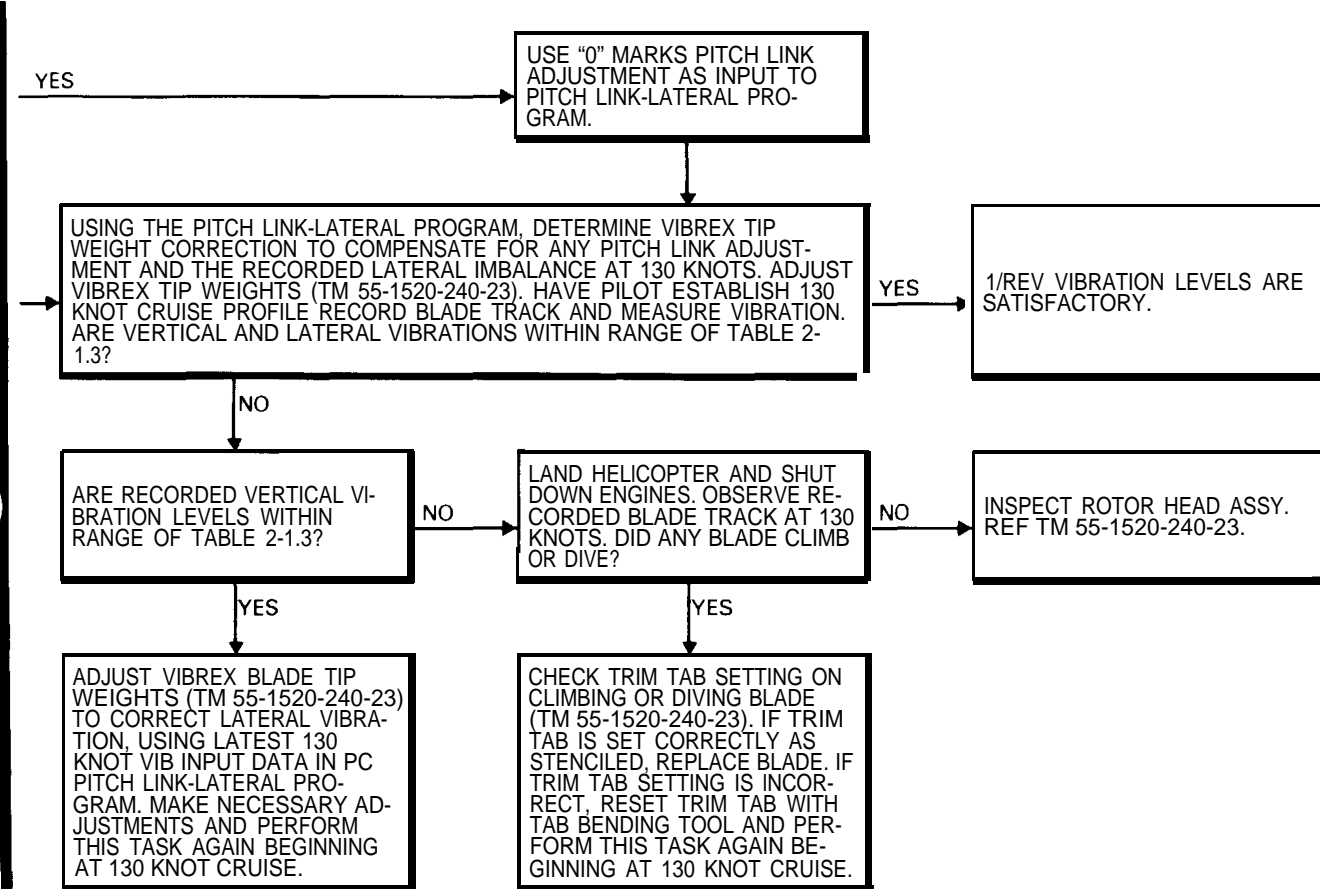
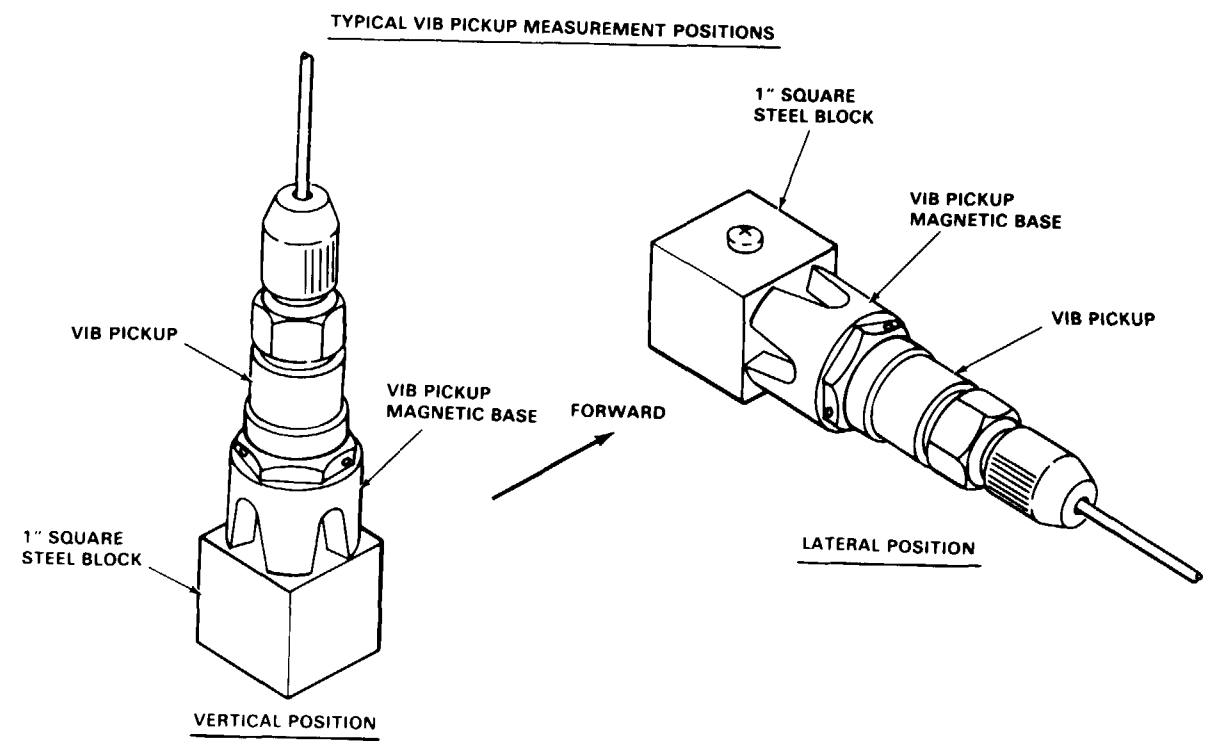
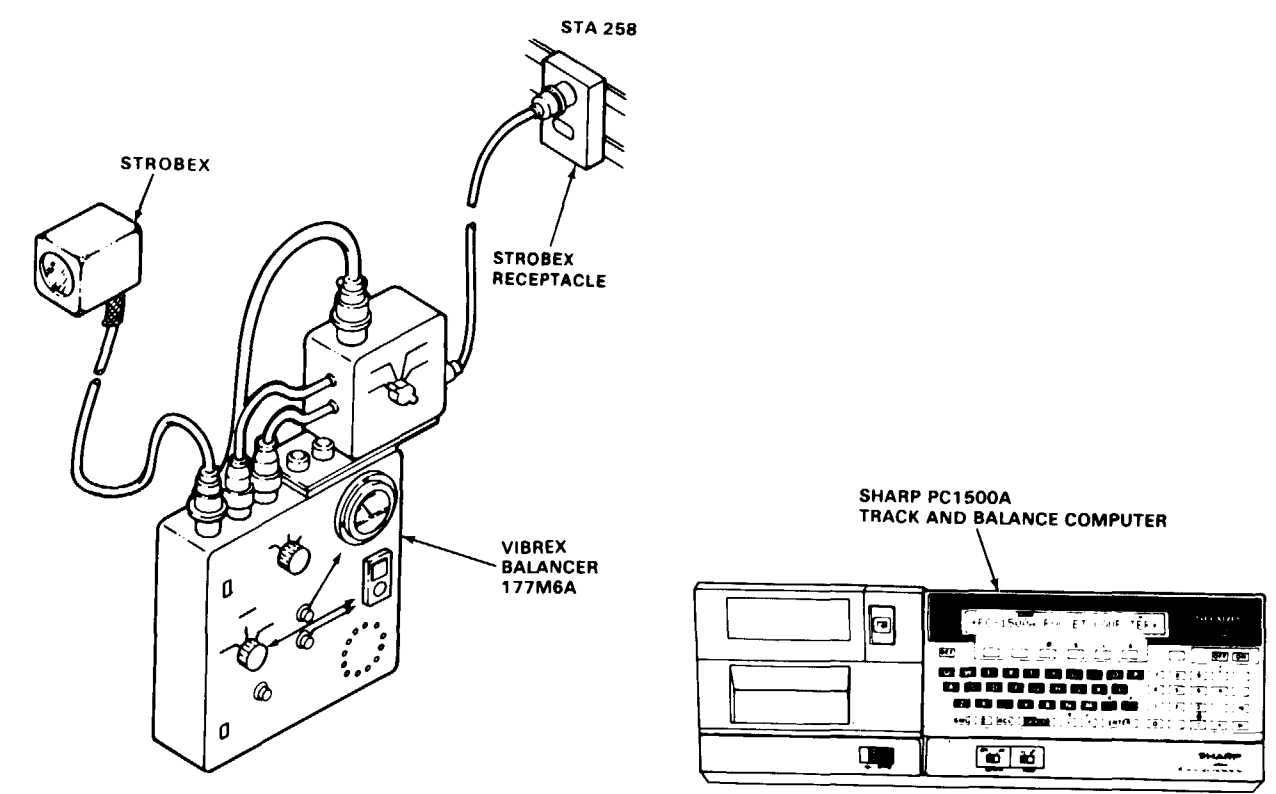


TABLE 2-1.3. NORMAL ONE/REV VIBRATION LEVELS FWD AND AFT ROTOR AT 225 RPM

ACCELEROMETER LOCATION	FLIGHT PROFILE		
	HOVER	130 KT	155 KT
FWD VERTICAL	0 TO 0.2	0.2 TO 0.4	0.2 TO 0.6
FWD LATERAL	0.1 TO 0.3	0.2 TO 0.4	0.3 TO 0.5
AFT VERTICAL	0 TO 0.2	0.2 TO 0.4	0.2 TO 0.6
AFT LATERAL	0.1 TO 0.3	0.2 TO 0.4	0.3 TO 0.5



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Chadwick Helmuth Model 192 Spectrum Analyzer  
with Vib Pickups

**Materials:**

- 90° Bracket for Installation of Vib Pickup to Nose  
Absorber

**Personnel Required:**

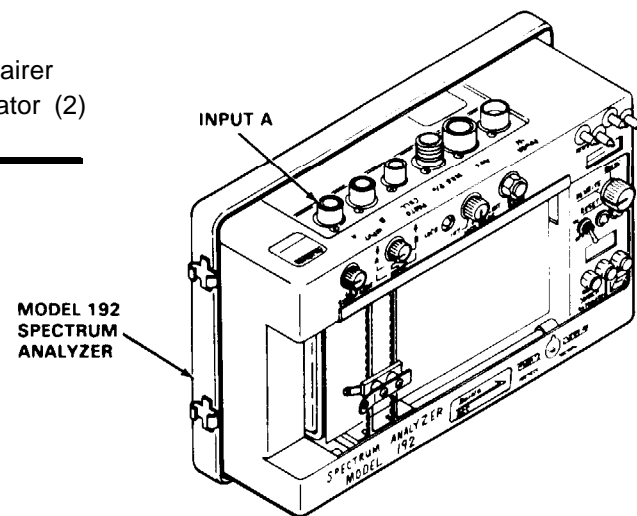
- Medium Helicopter Repairer
- Army Rotary Wing Aviator (2)
- Technical Inspector

**References:**

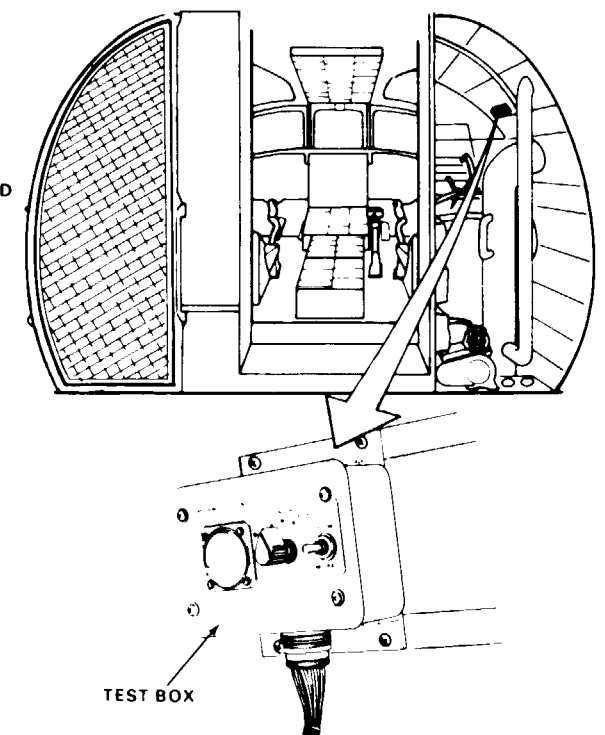
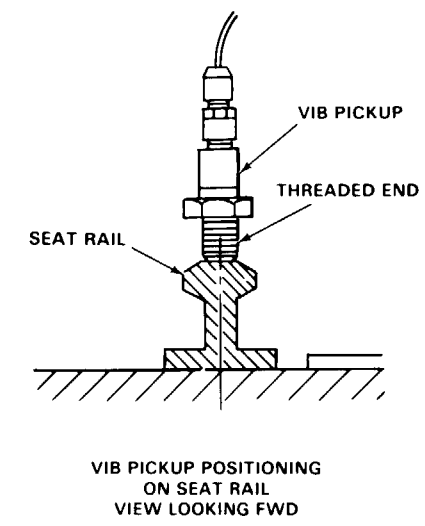
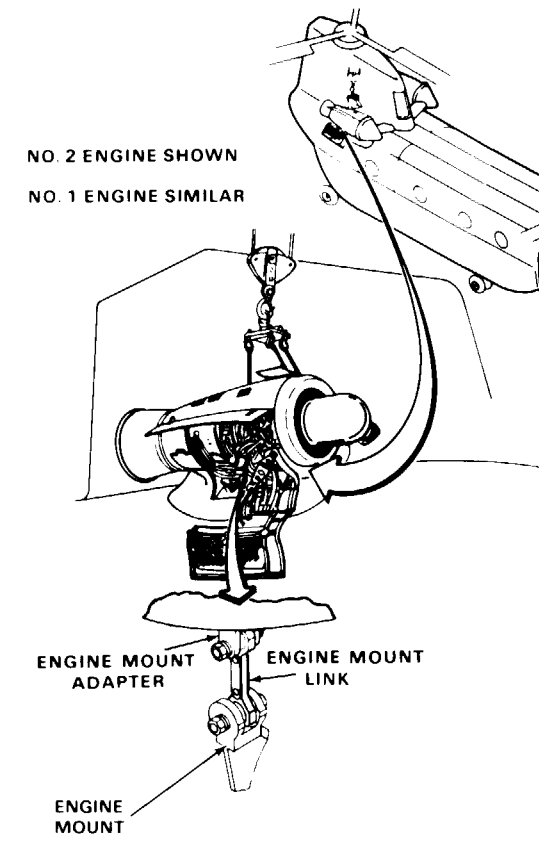
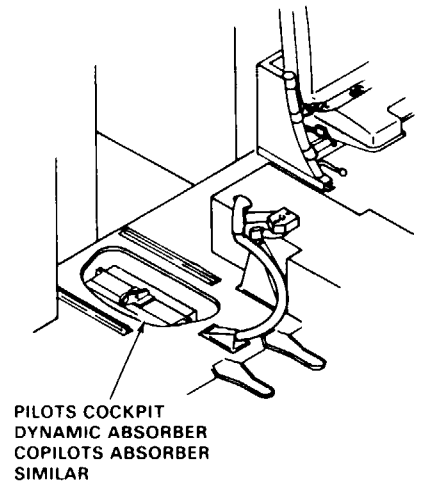
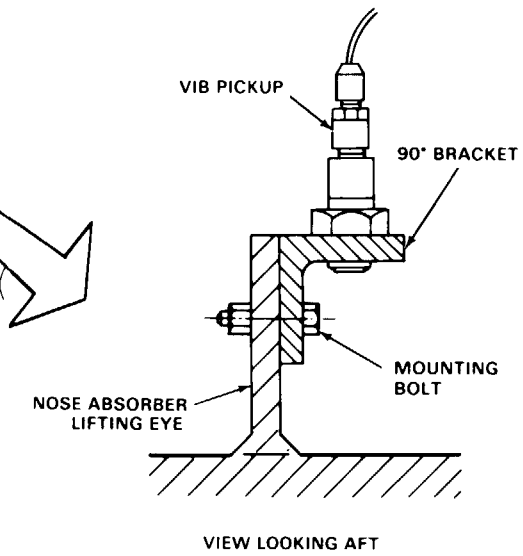
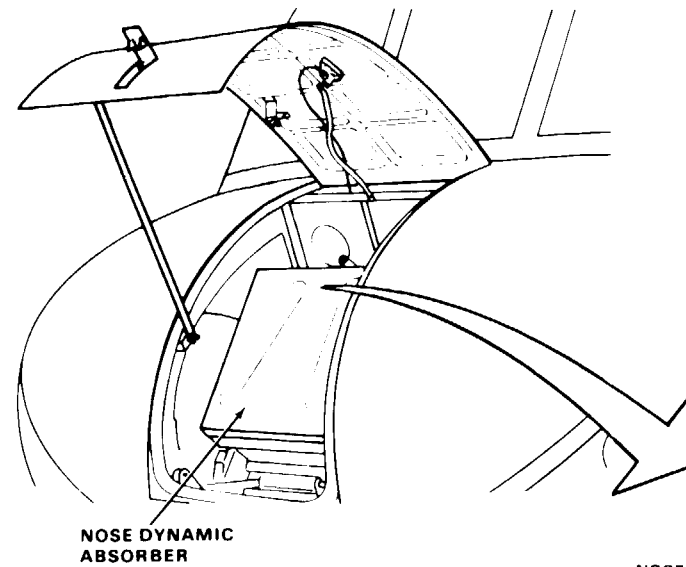
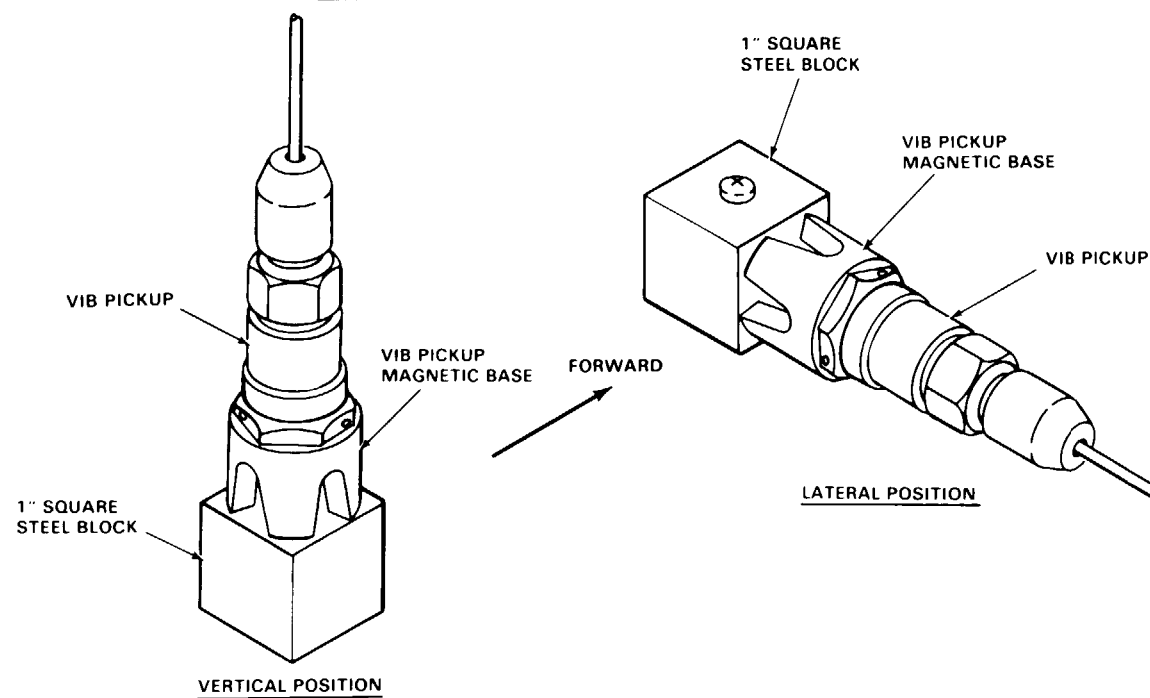
- TM 55-1520-240-23
- TM 55-1520-240-10

**Equipment Condition:**

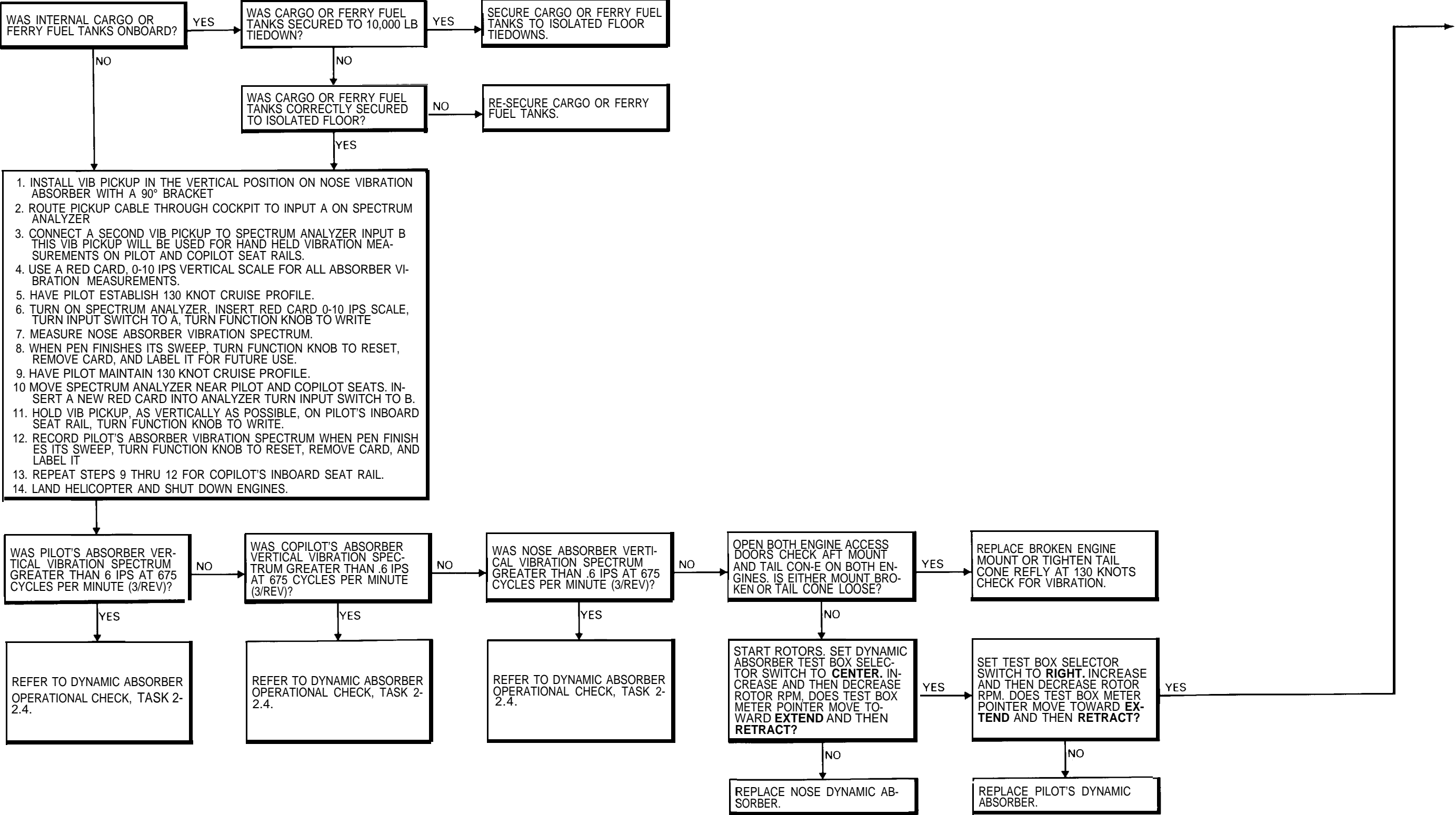
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Visual Check Performed



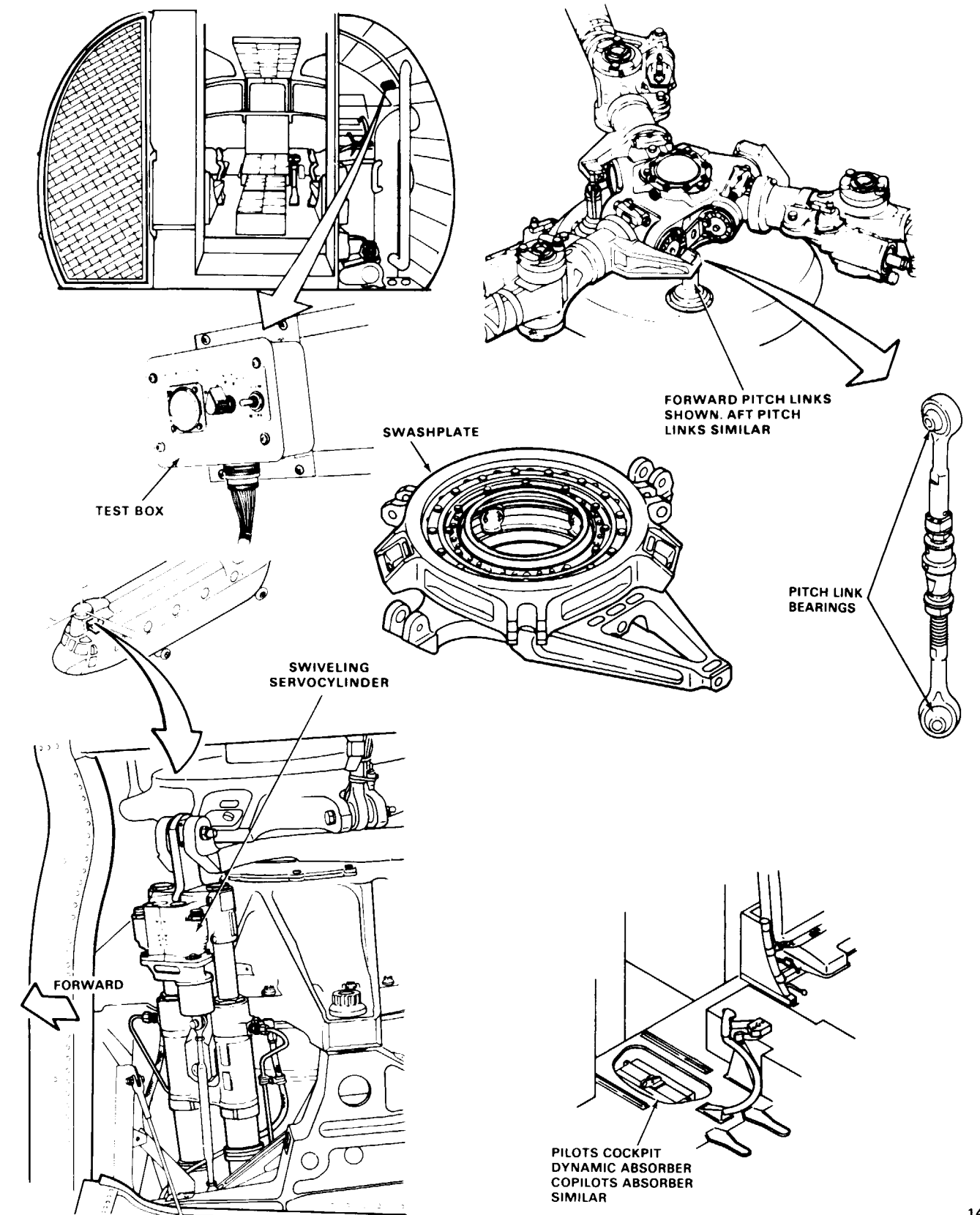
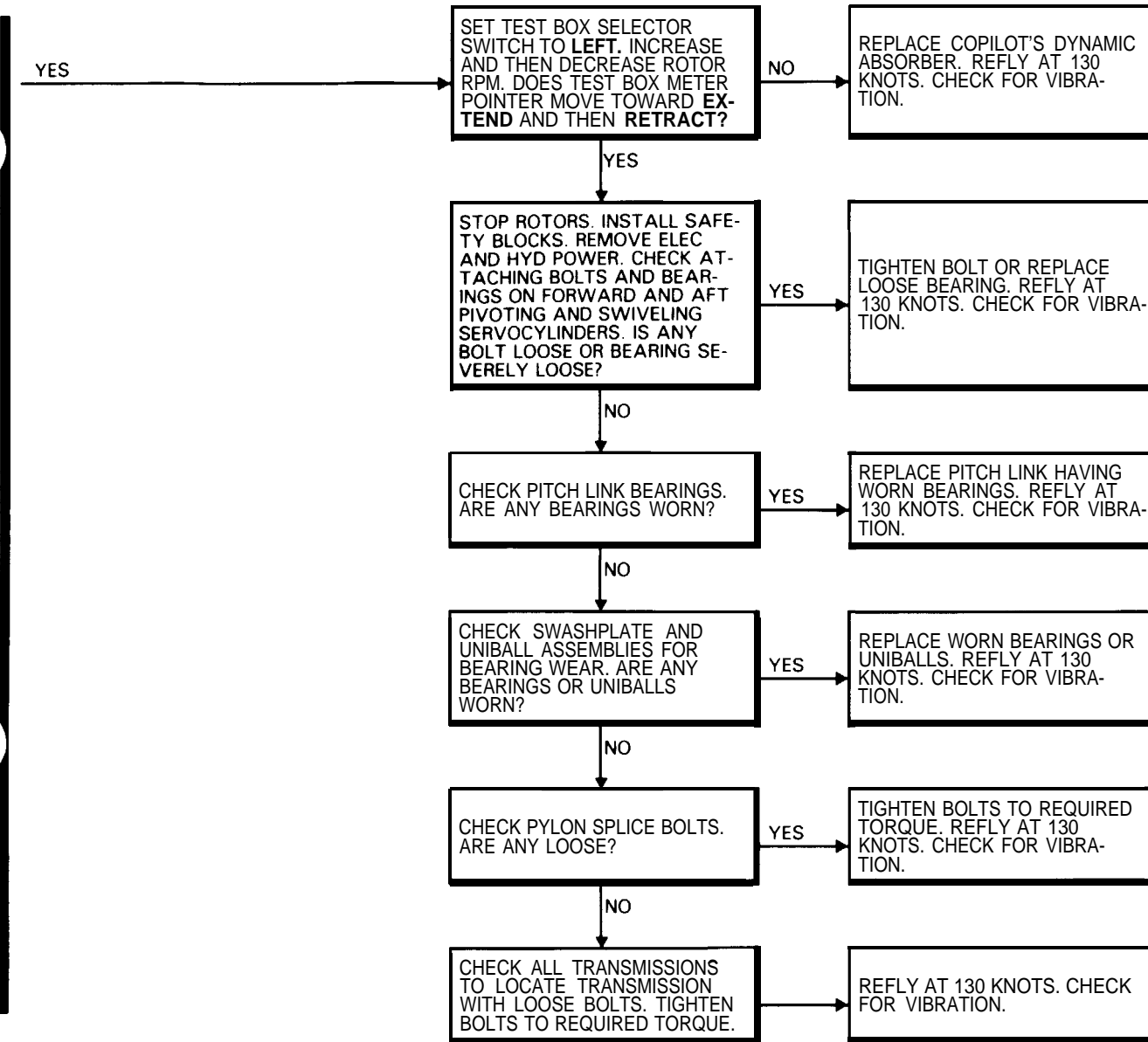
TYPICAL VIB PICKUP MEASUREMENT POSITIONS



2-1.4 VIBRATION FREQUENCY IDENTIFIED AS 675 CYCLES/MIN (3/REV) (Continued)



2-1.4 VIBRATION FREQUENCY IDENTIFIED AS 675 CYCLES/MIN (3/REV) (Continued)





**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

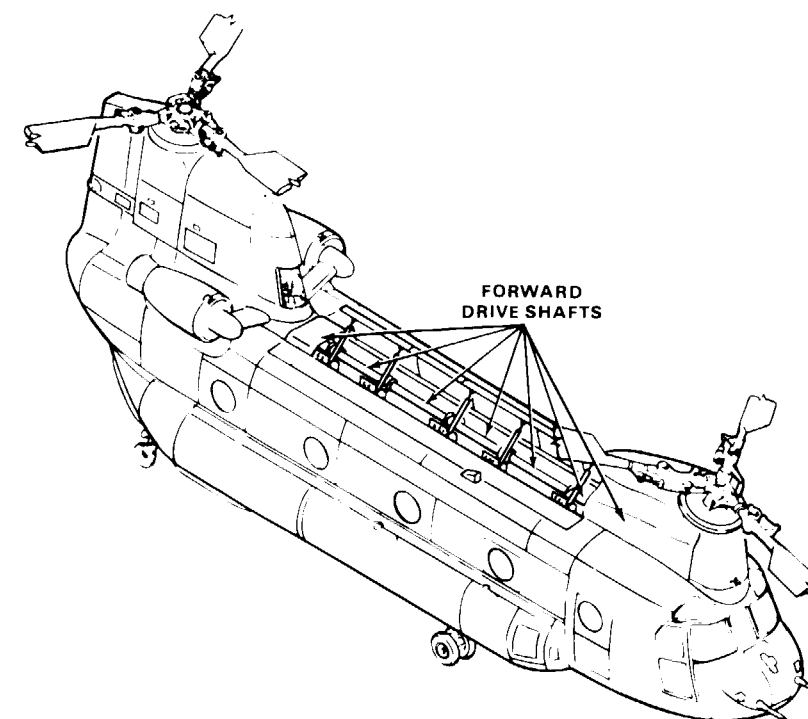
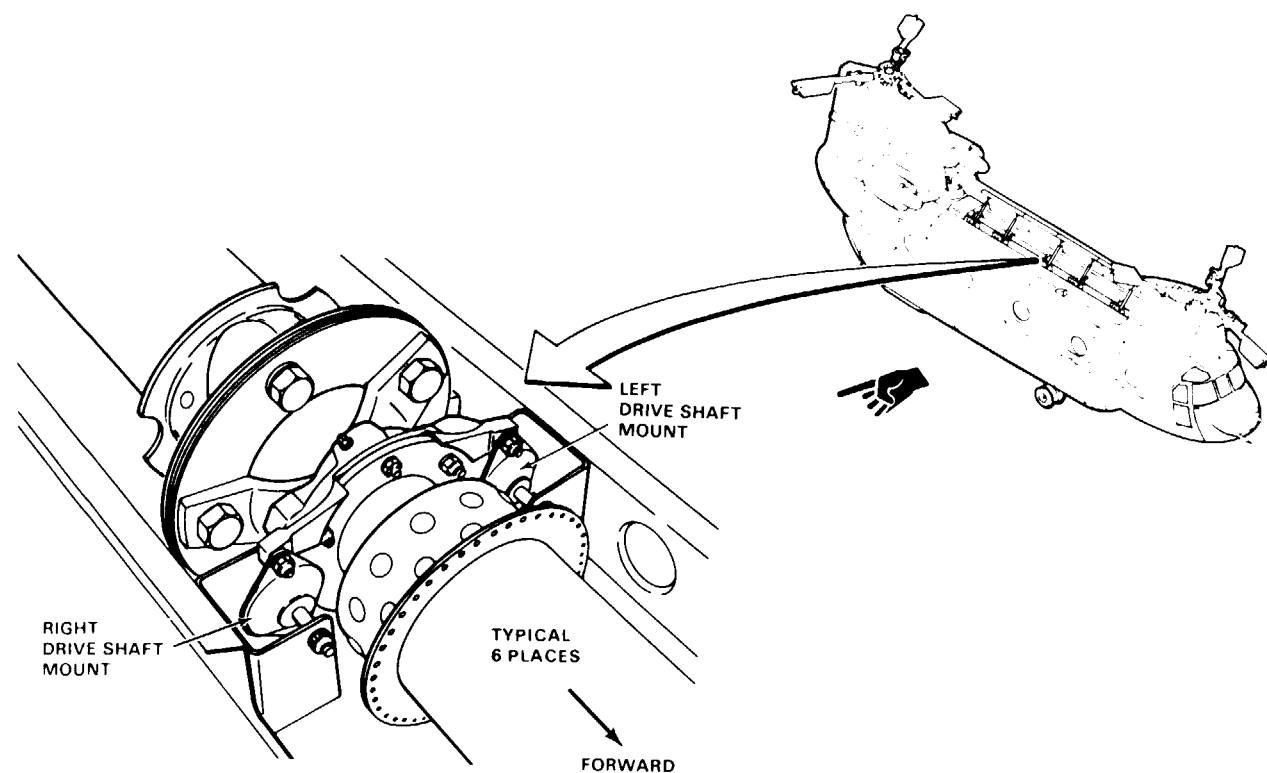
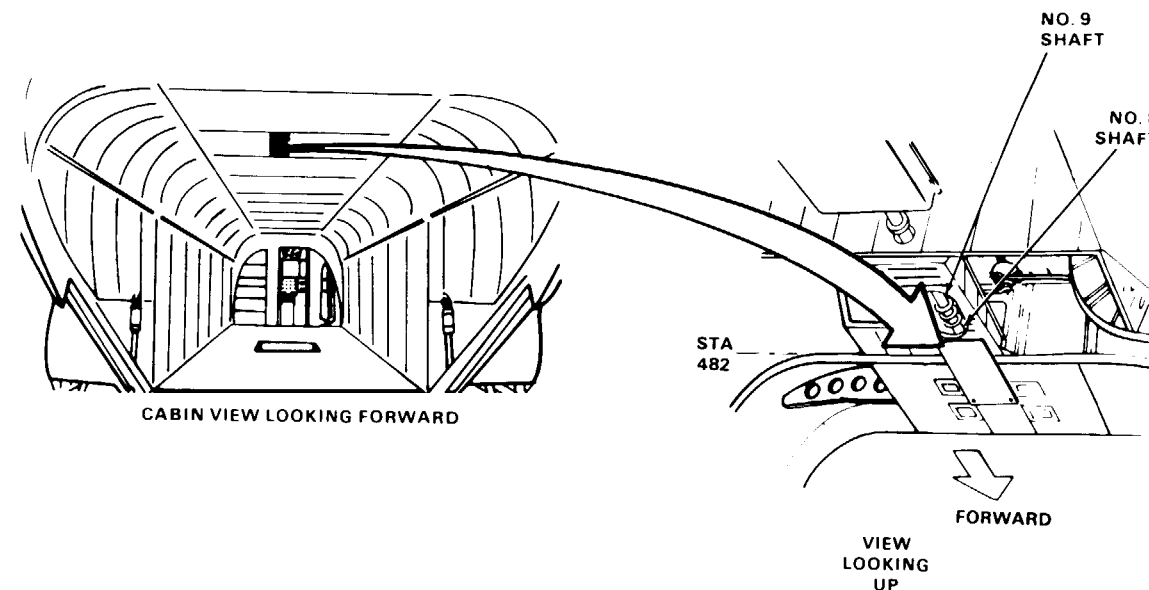
Medium Helicopter Repairer  
Army Rotary Wing Aviator (2)  
Technical Inspector

**References:**

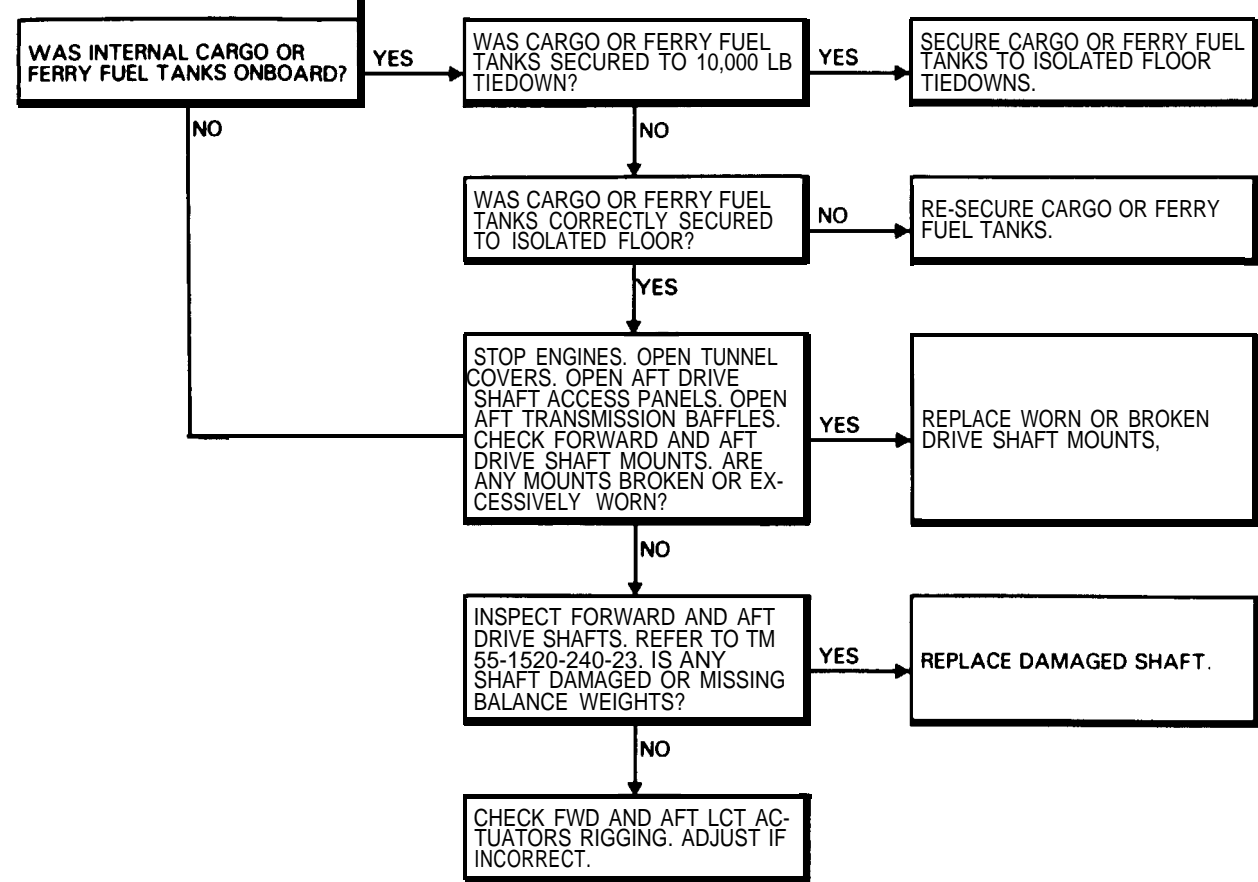
TM 55-1520-240-23  
TM 55-1520-240-10

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
TM 55-1520-240-10:  
Rotors Turning



2-1.5 VIBRATION FREQUENCY TOO RAPID TO COUNT, VIBRATION FELT IN STRUCTURE (6/REV) (Continued)



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer (2)  
Technical Inspector

**References:**

TM 55-1520-240-23

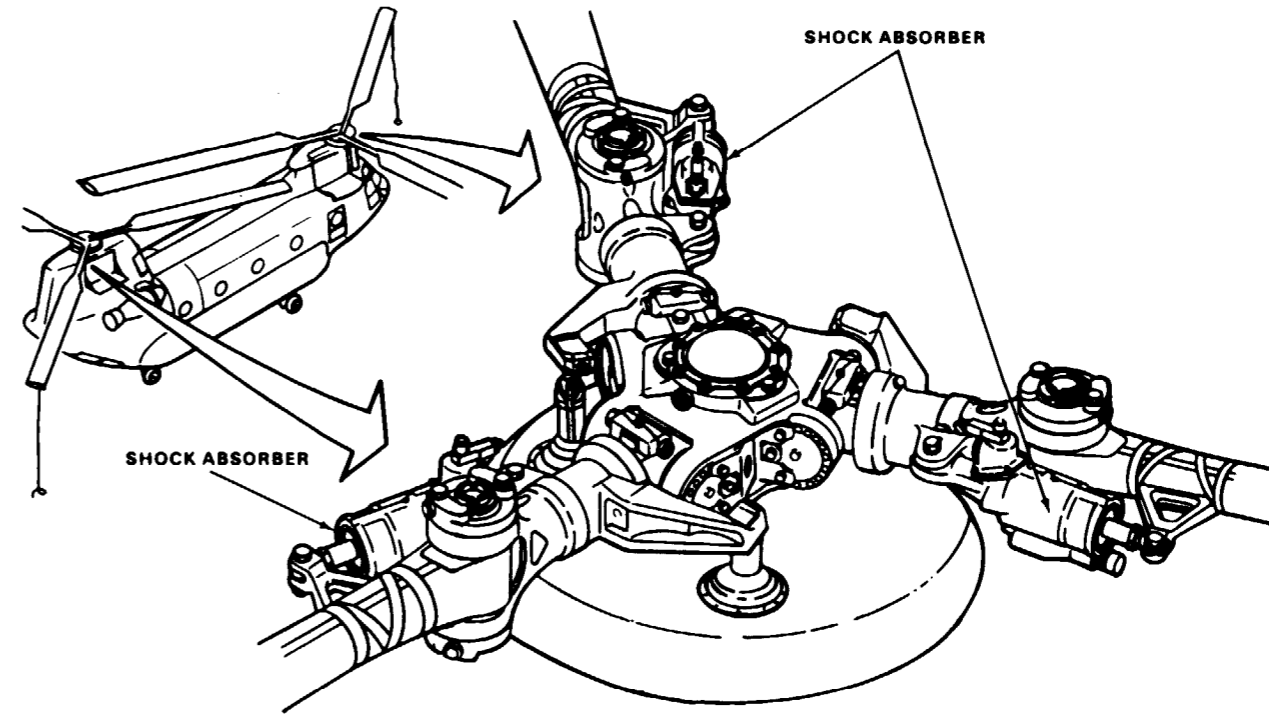
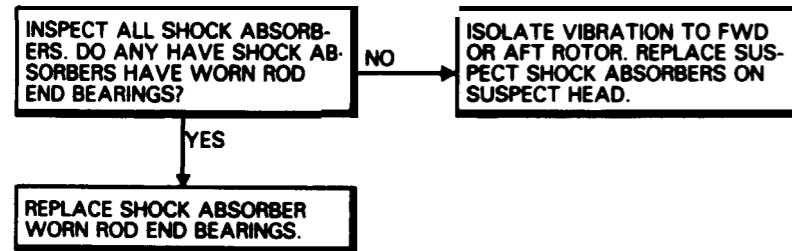
**Equipment Condition:**

TM 55-1520-240-23

Battery Connected

Electrical Power On

Hydraulic Power On



D145-12529-SPA

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

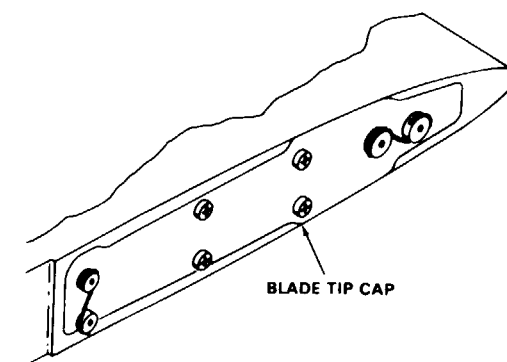
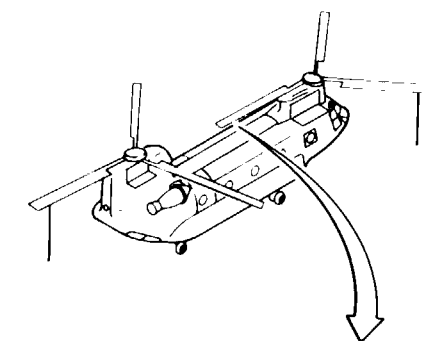
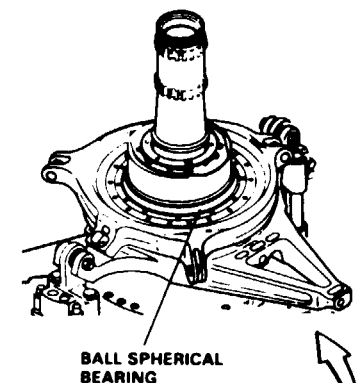
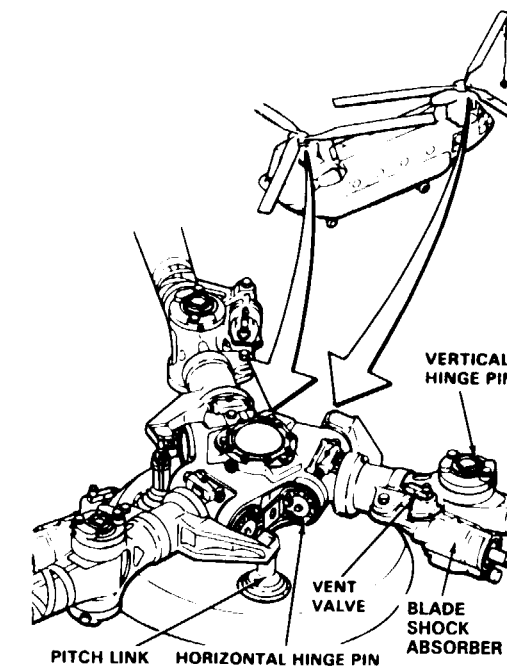
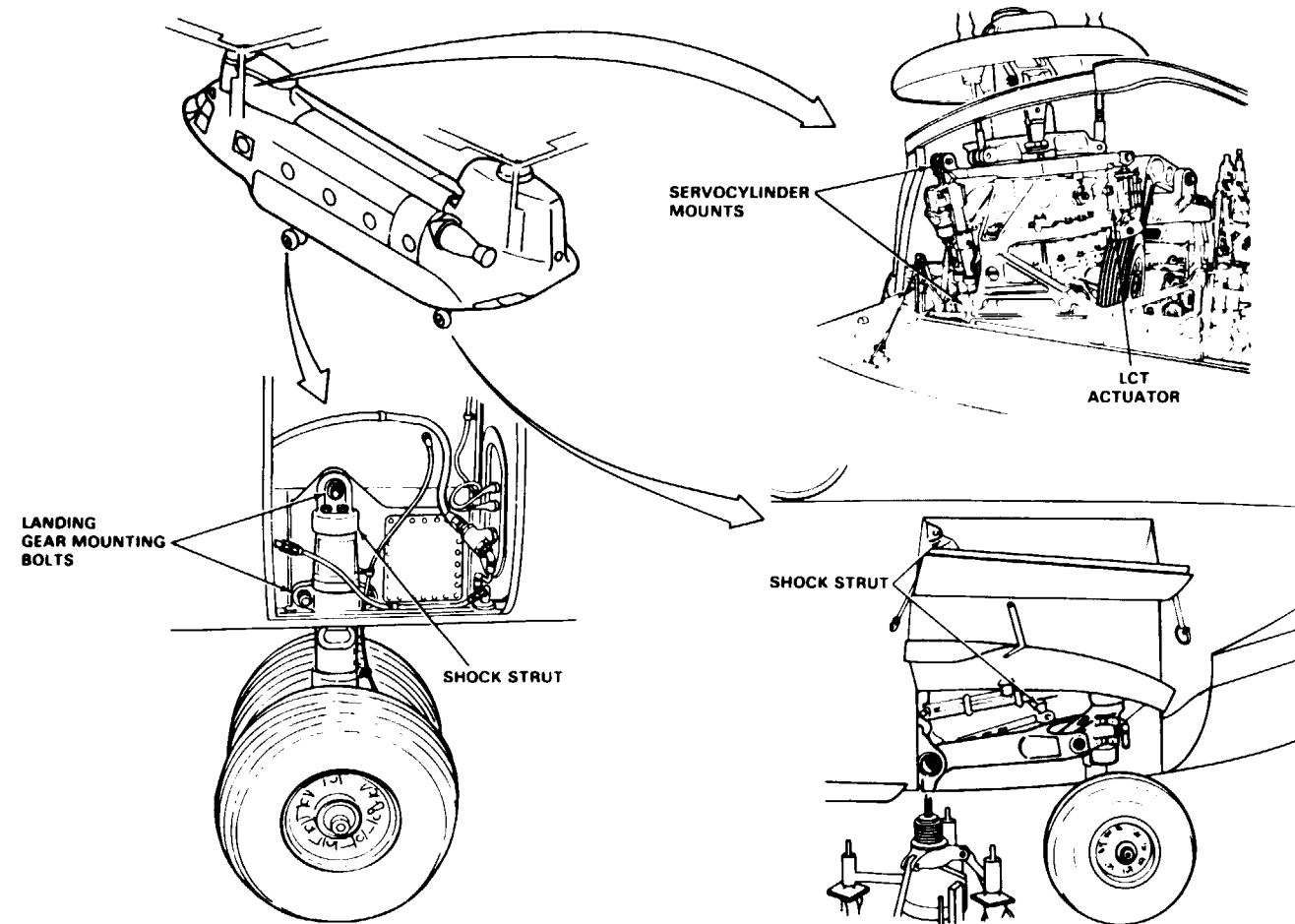
Medium Helicopter Repairer  
Technical Inspector

**References:**

TM 55-1520-240-23

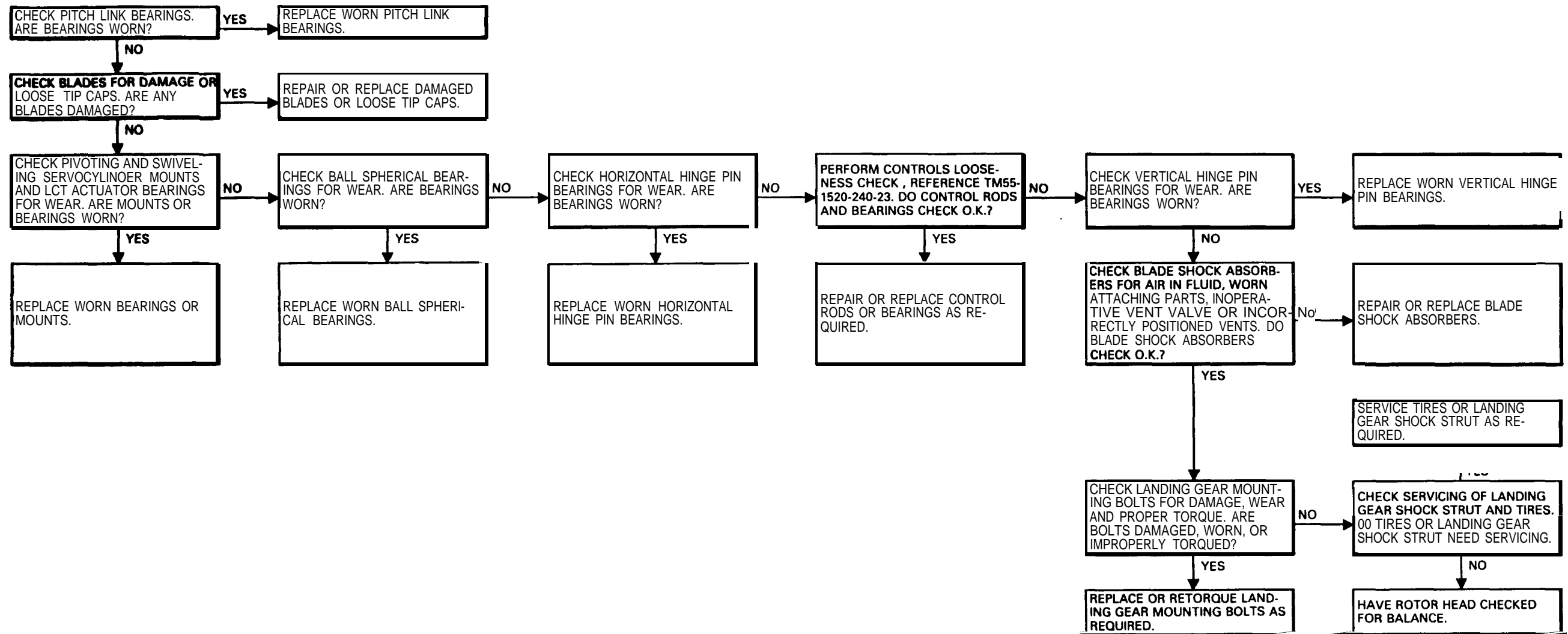
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



23045

2-1.7 LATERAL BALANCE IS 1 IPS OR GREATER DURING GROUND TRACKING (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

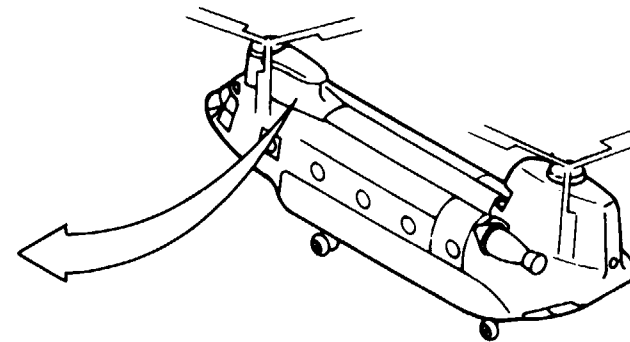
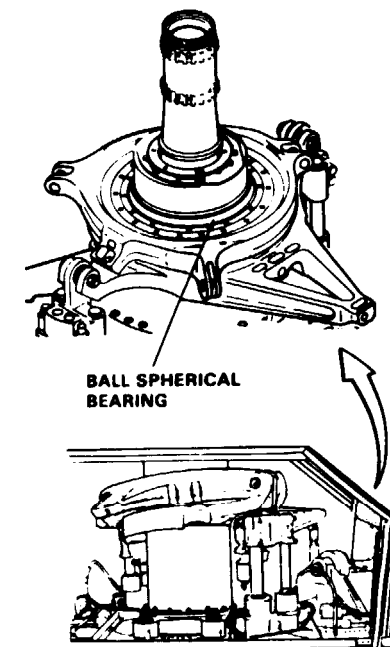
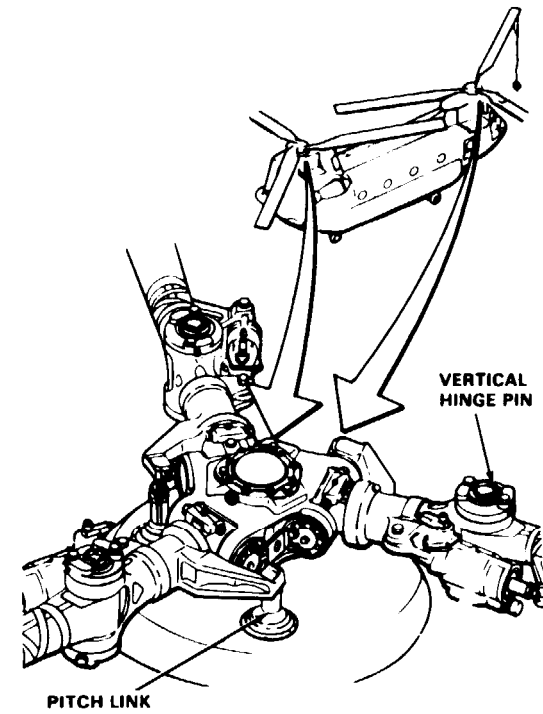
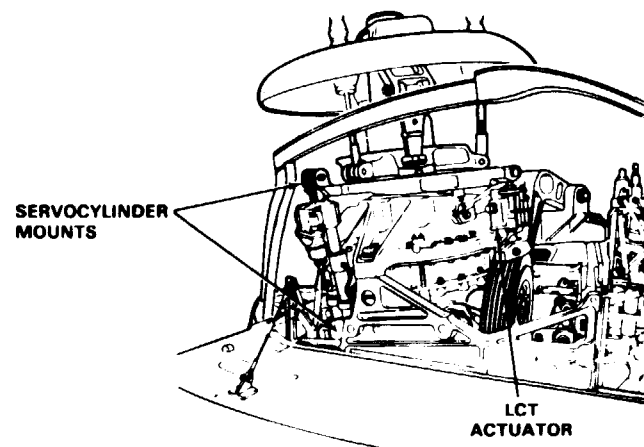
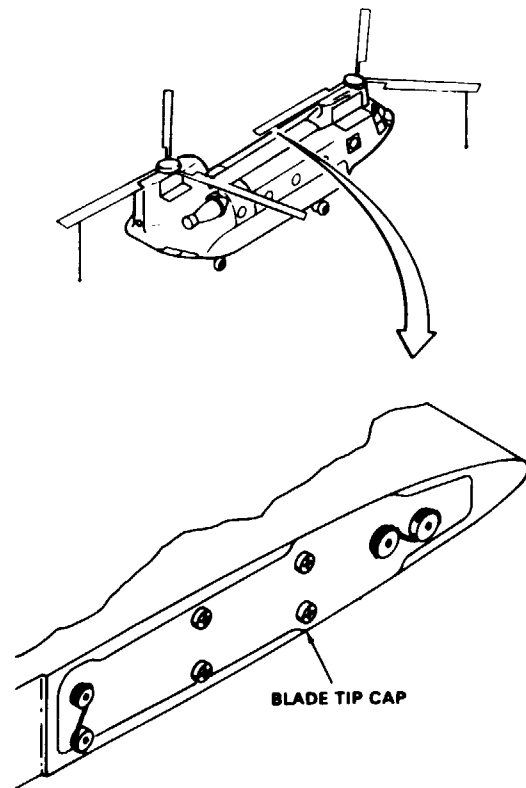
Medium Helicopter Repairer  
Technical Inspector

**References:**

TM 55-1520-240-23

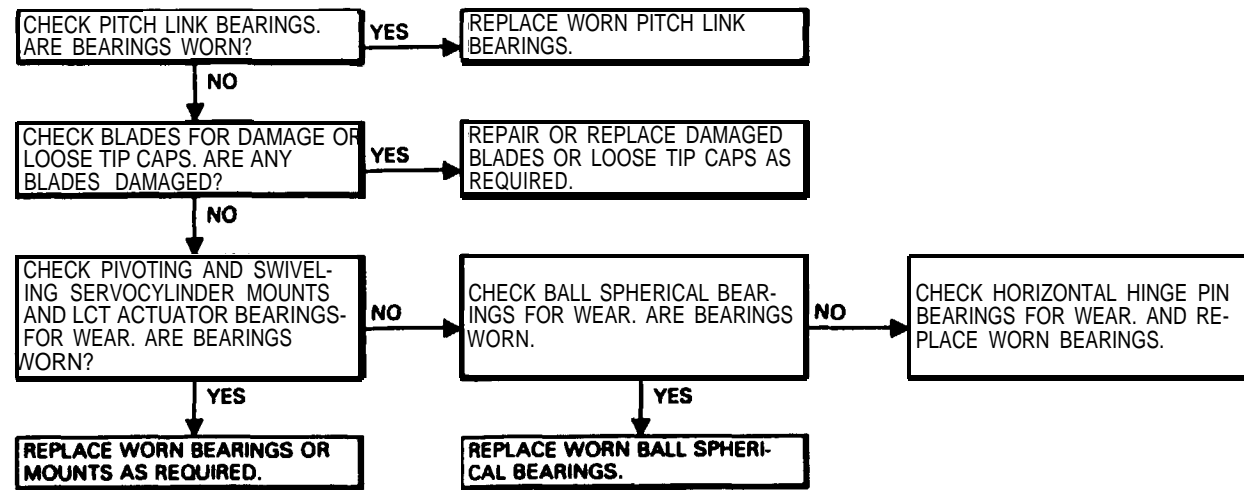
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



23046

2-1.8 TRACKING IS ERRATIC AFTER SEVERAL ATTEMPTS (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

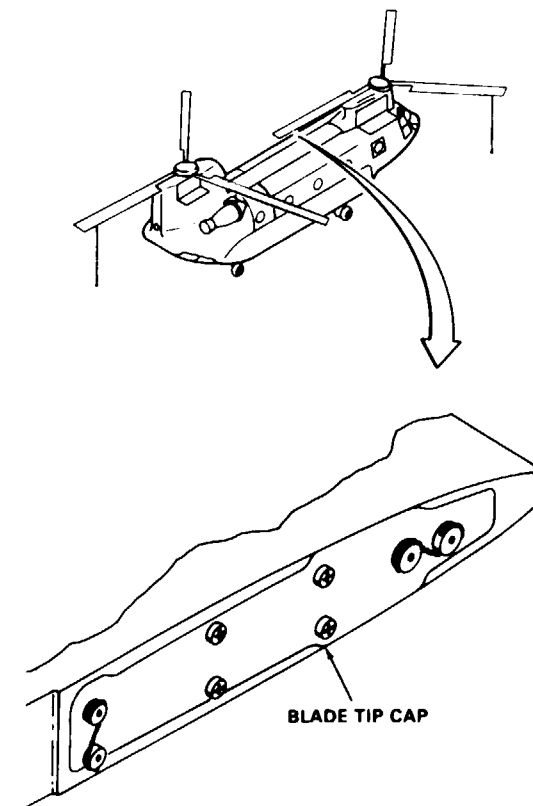
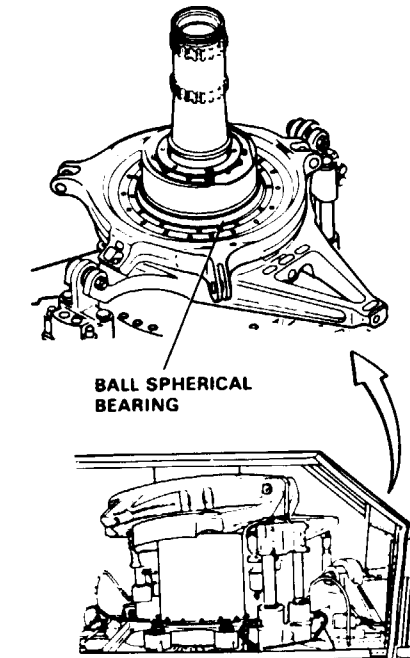
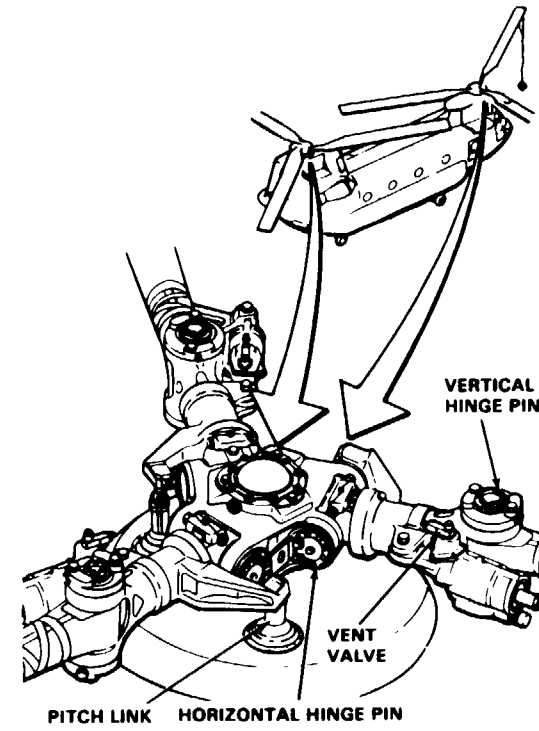
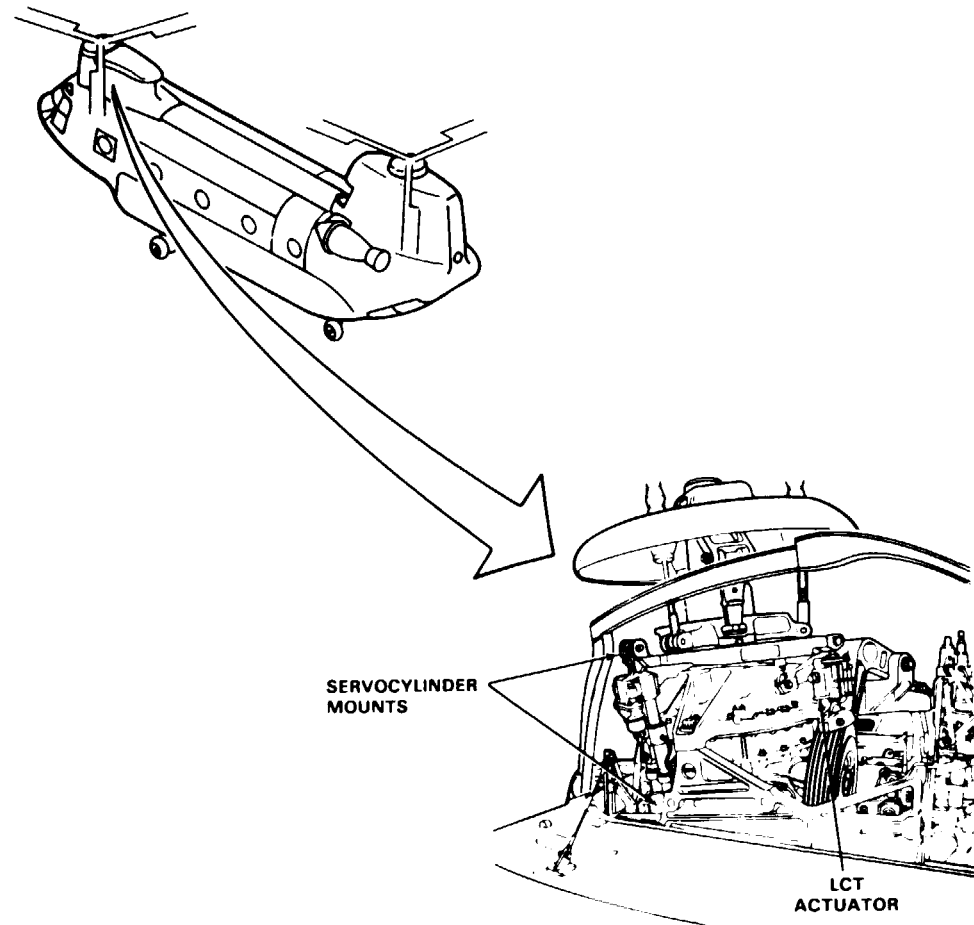
Medium Helicopter Repairer  
Technical Inspector

**References:**

TM 55-1520-240-23

**Equipment Condition:**

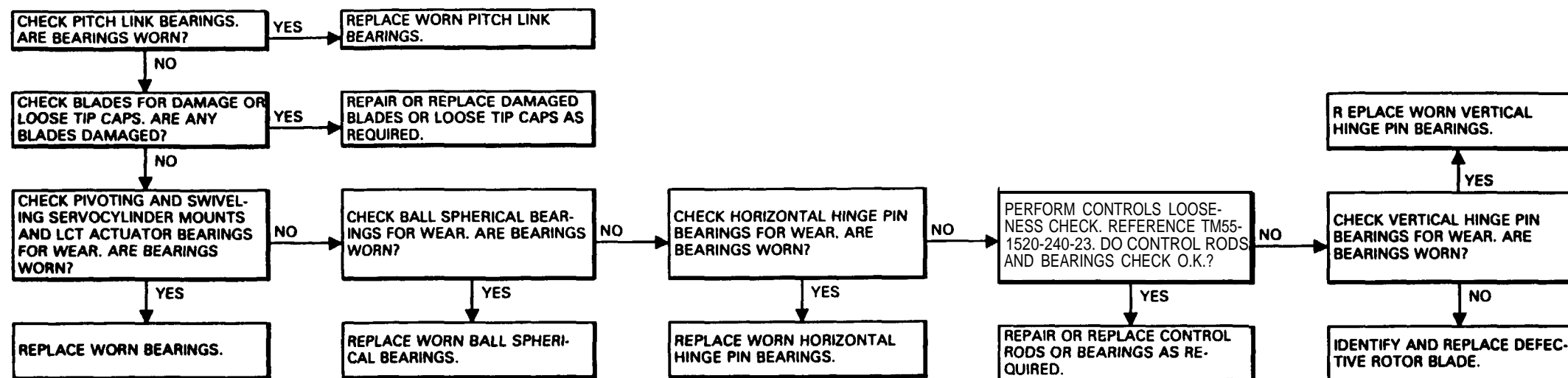
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



23044



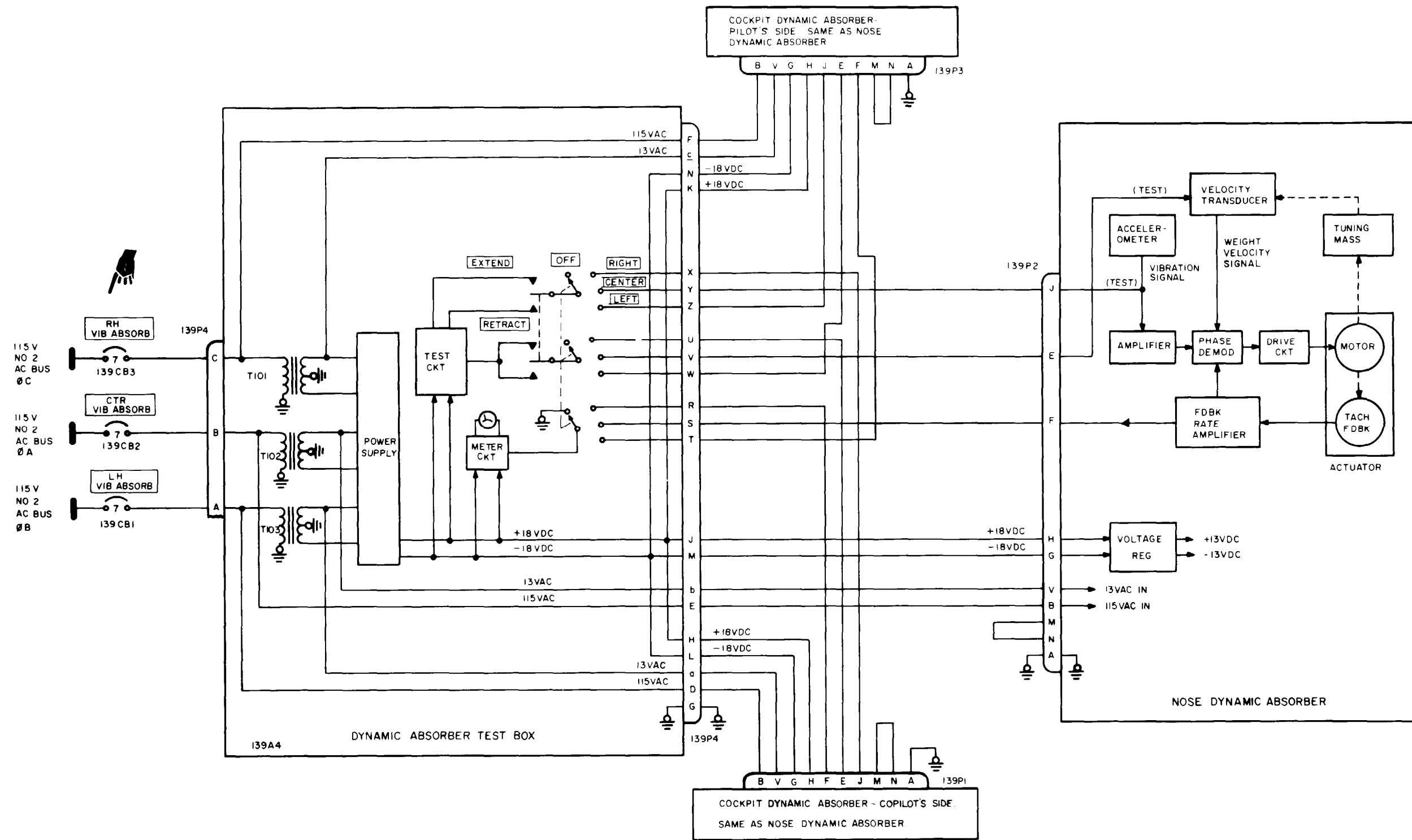
2-1.9 BLADE CHANGES MORE THAN 1 INCH BETWEEN GROUND AND HOVER (Continued)



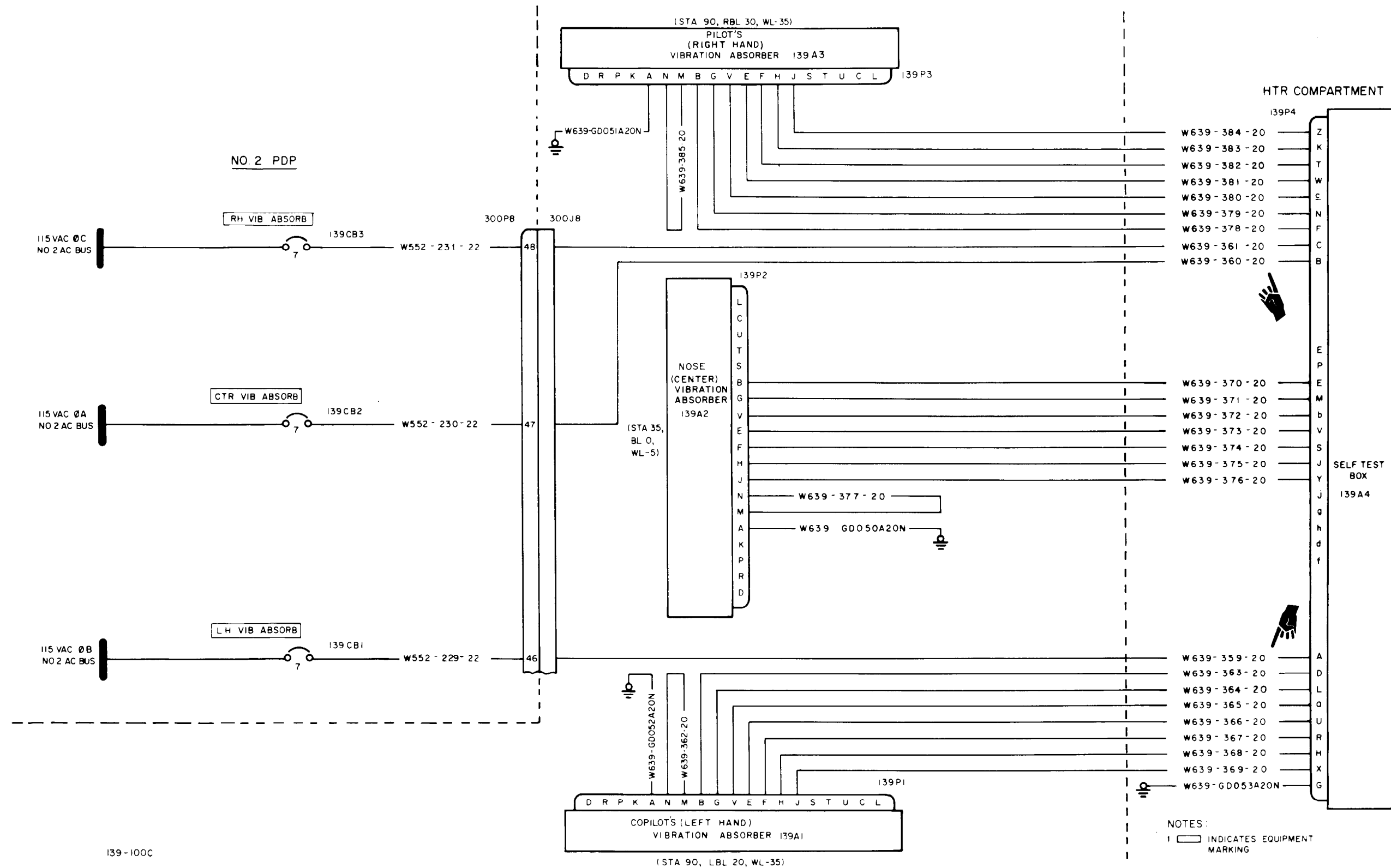
## **2-2 DYNAMIC ABSORBER SYSTEM**

2-2 DYNAMIC ABSORBER SYSTEM

2-2.1 DYNAMIC ABSORBER SYSTEM SCHEMATIC



2-2.2 SELF TUNING DYNAMIC ABSORBER WIRING DIAGRAM



139-100C

NOTES:  
 1  INDICATES EQUIPMENT MARKING

2-2.3 DYNAMIC ABSORBER SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

All

**References:**

TM 55-1520-240-23

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Workstand

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Heater Compartment Acoustic Blanket  
Removed  
Nose Access Door Open

**Materials:**

None

**Personnel Required:**

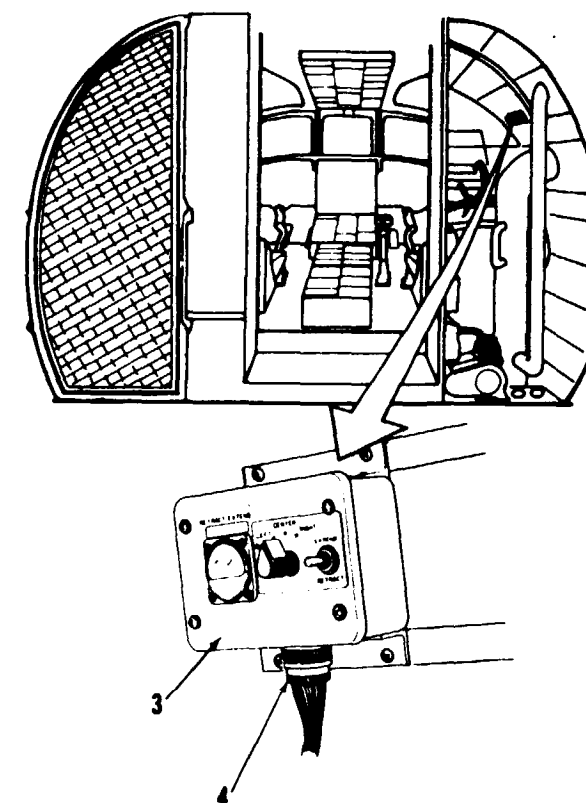
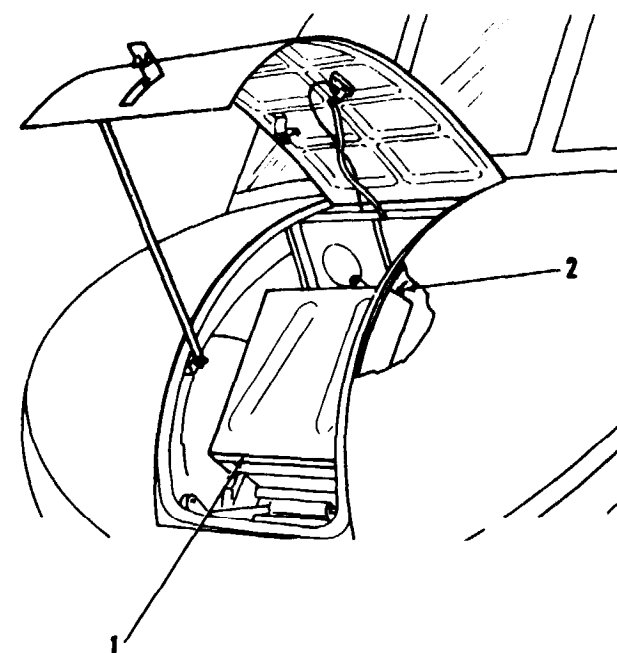
68F10 Aircraft Electrician

TASK	RESULT
1. Check nose absorber (1).	If absorber (1) is loose or damaged, tighten or replace it as required.
2. Check nose absorber connector (2).	If connector (2) is loose or damaged, tighten or replace it as required. If wires to connector are damaged, repair or replace them as required.
3. Check test box (3).	If test box (3) is loose or damaged, tighten or replace as required.
4. Check test box connector (4).	If connector (4) is loose or damaged, tighten or replace it as required. If wires to connector are damaged, repair or replace them as required.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

Heater Compartment Acoustic Blanket Installed  
Nose Access Door Closed



2-2.4 DYNAMIC ABSORBER SYSTEM OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Stop Watch

**Materials:**

None

**Personnel Required:**

68F10 Aircraft Electrician

**References:**

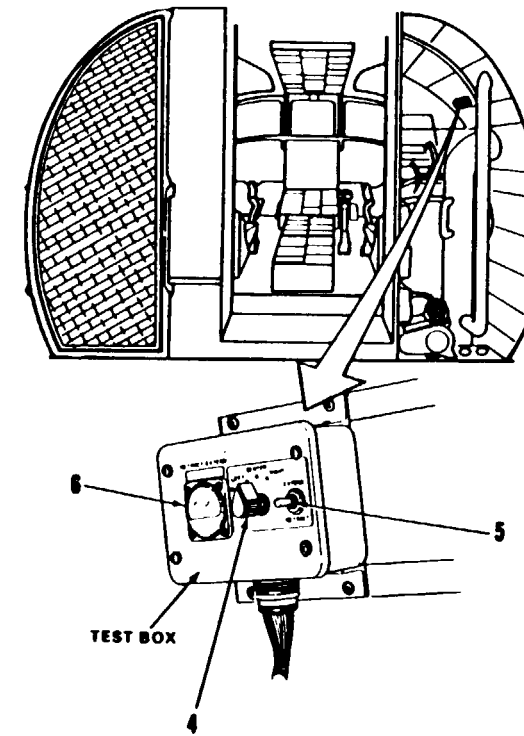
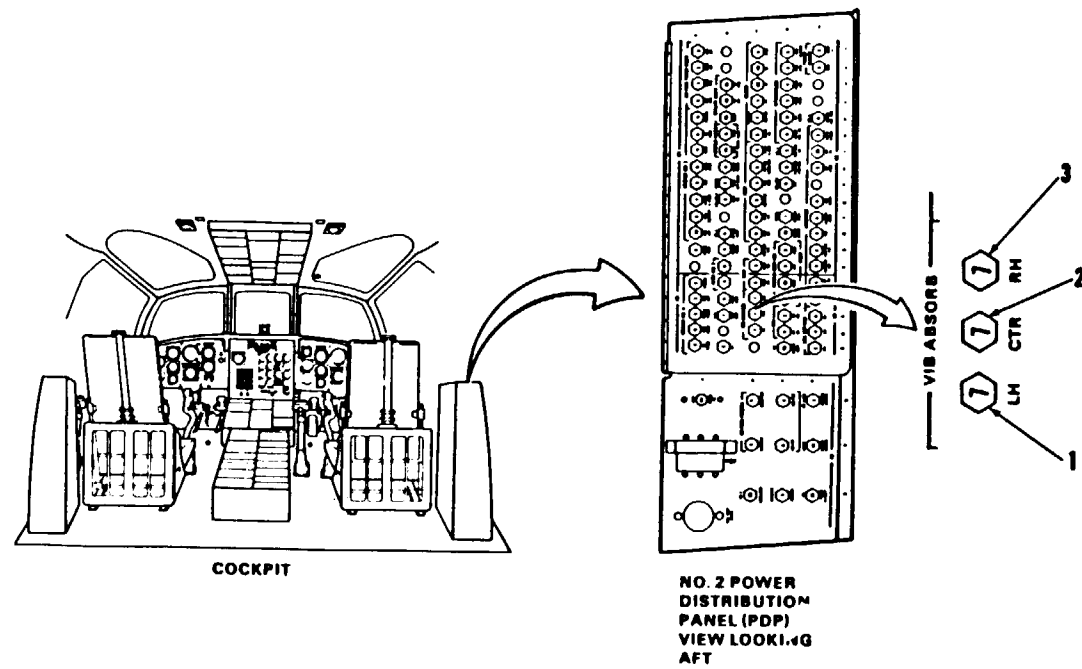
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

- Battery Connected
- Electrical Power On
- Hydraulic Power Off
- Heater Compartment Acoustic Blanket Removed

Visual Check of Dynamic Absorber System Performed (Task 2-2.3)



2-2.4 DYNAMIC ABSORBER SYSTEM OPERATIONAL CHECK (Continued)

2-2.4

TASK	RESULT
1. Check that LH VIB ABSORB circuit breaker (1) is closed.	If circuit breaker (1) is open, close it. If it opens again, go to task 2-2.7.
2. Check that CTR VIB ABSORB circuit breaker (2) is closed.	If circuit breaker (2) is open, close it. If it opens again, go to task 2-2.6.
3. Check that RH VIB ABSORB circuit breaker (3) is closed.	If circuit breaker (3) is open, close it. If it opens again, go to task 2-2.5.
4. Turn selector switch (4) on test box to LEFT. Set test switch (5) to RETRACT.	Hold test switch (5) at <b>RETRACT</b> until meter (6) pointer stabilizes at about 0. If meter pointer does not move, set test switch (5) to <b>EXTEND</b> . If meter still does not indicate, go to task 2-2.8.
5. Hold test switch (5) to EXTEND.	Meter (6) pointer shall move toward <b>EXTEND</b> . It may initially deflect off-scale. After that, pointer shall return to average meter deflection (Table 2-1) and fall to about 0 in the time interval for temperature (Table 2-1). If meter pointer does not move to <b>EXTEND</b> go to task 2-2.9.
6. Hold test switch (5) to RETRACT.	Meter (6) pointer shall move toward <b>RETRACT</b> . It may initially deflect off-scale. Meter pointer shall return to average meter deflection (Table 2-1). After that, pointer shall fall to about 0 in the time interval for temperature (Table 2-1). If meter pointer does not move toward <b>RETRACT</b> , go to task 2-2.9.
7. Set selector switch (4) to CENTER.	Repeat steps 4 thru 6. If meter (6) pointer does not move in either direction, go to task 2-2.10. If meter pointer indicates in one direction only, go to task 2-2.11.
8. Set selector switch (4) to RIGHT.	Repeat steps 4 thru 6. If meter (6) pointer does not move in either direction, go to task 2-2.12. If meter pointer moves in one direction only go to task 2-2.13.
9. Set selector switch (4) to OFF.	

TABLE 2-1

TEMPERATURE	AVERAGE METER DEFLECTION	TIME INTERVAL IN SECONDS
+50° F (+10° C) and above	0.05 to 0.20	50 to 300
-4° F (-20° C) to +50° F (+10° C)	0.04 to 0.20	50 to 360
-67° F (-55° C) to -4° F (-20° C)	0.02 to 0.20	50 to 480

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Heater Compartment Acoustic Blanket Installed

END OF TASK

2-2.5 R.H. VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

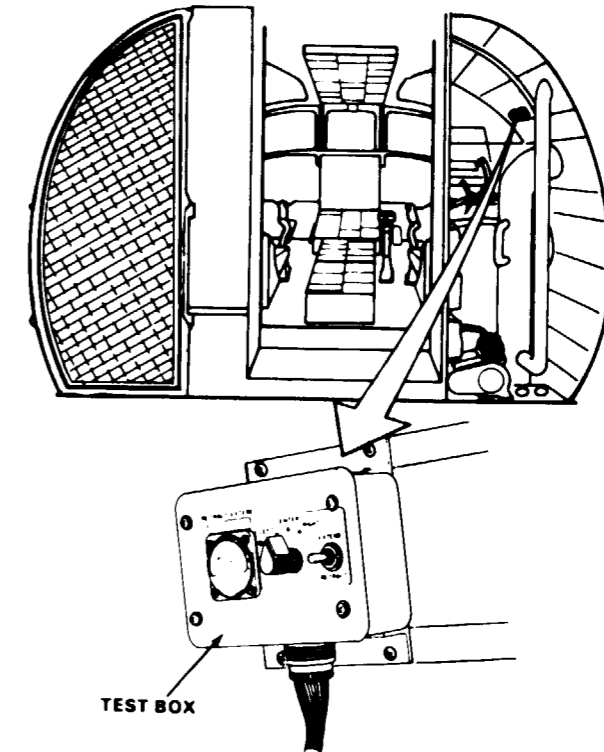
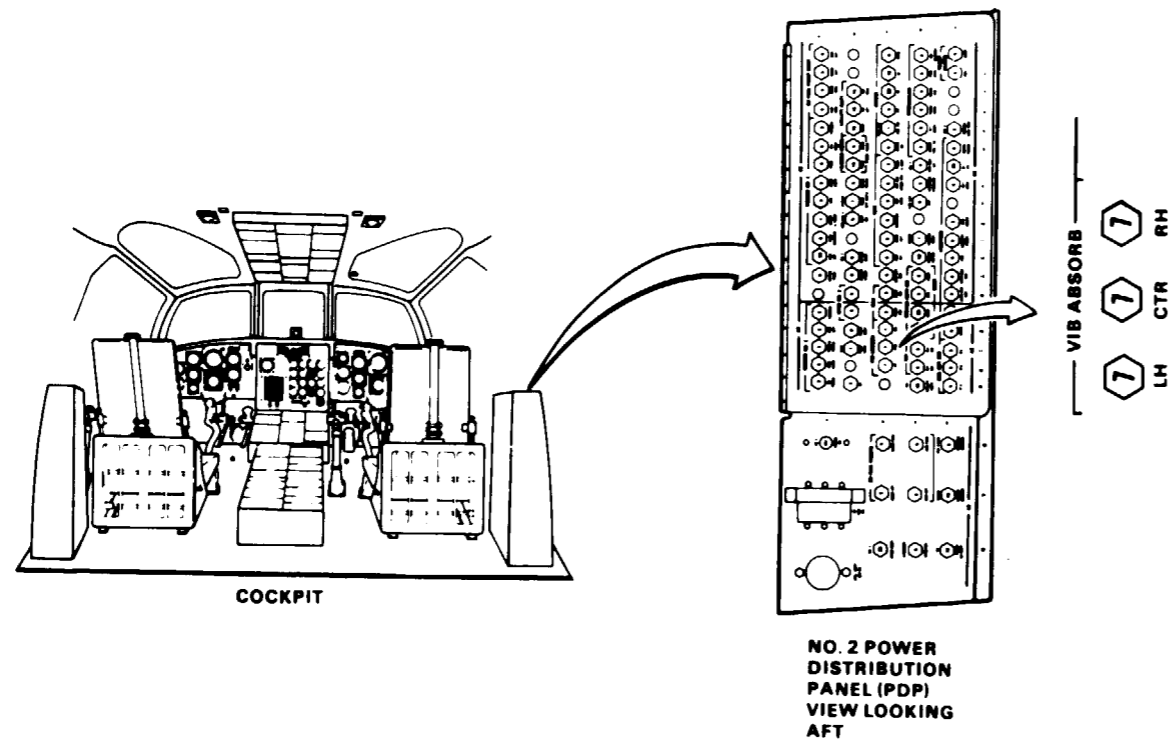
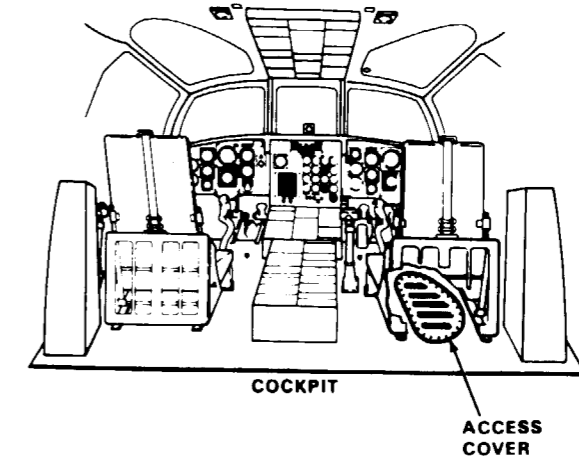
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

**Personnel Required:**  
68F10 Aircraft Electrician  
68F20 Aircraft Electrician

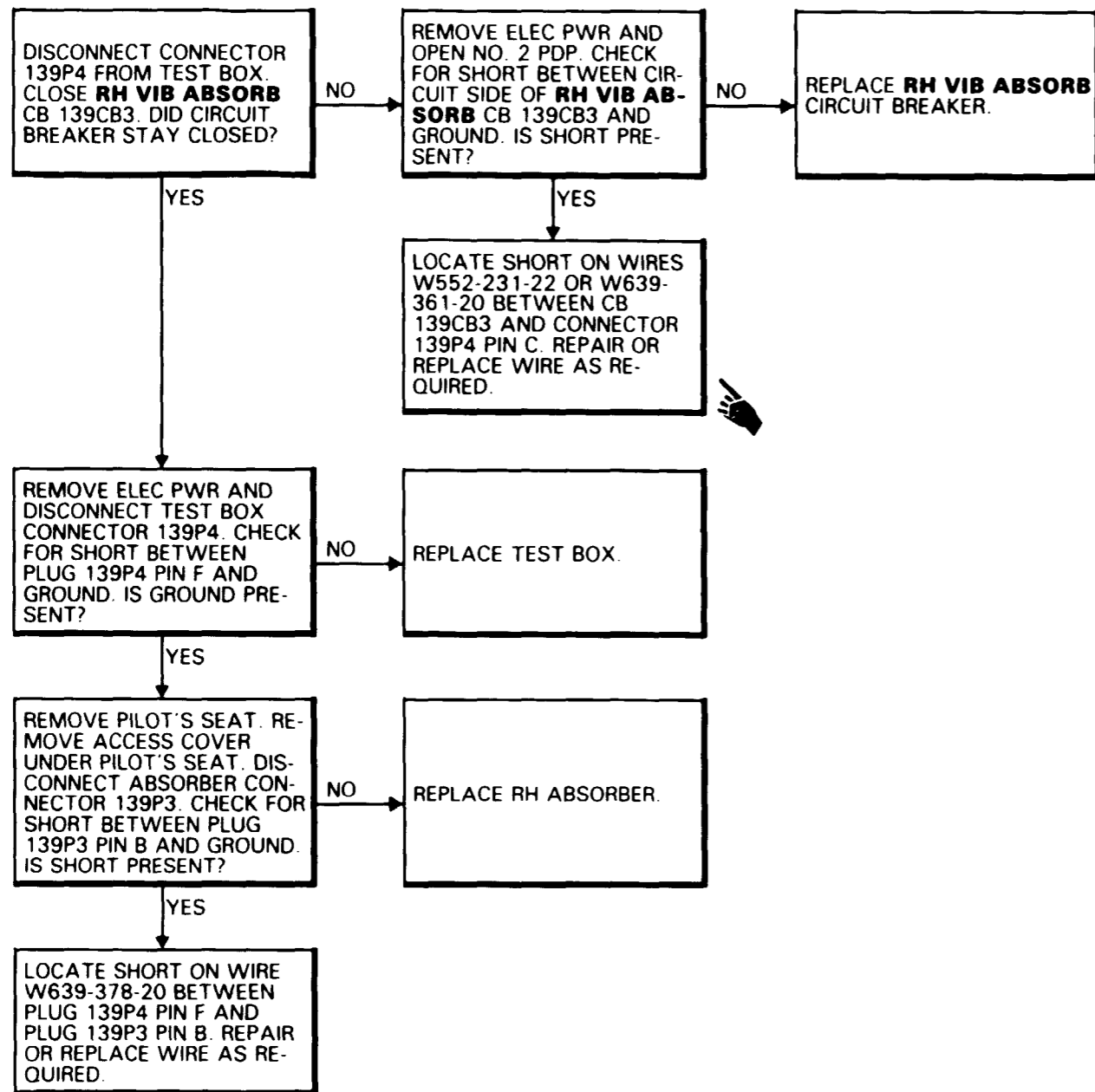
**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Heater Compartment Acoustic Blanket  
Removed





2-2.5 RH VIB ABSORBER CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



2-2.6 CTR VIB ABSORB CIRCUIT BREAKER WILL STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**

- 68F10 Aircraft Electrician
- 68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

**Applicable Configurations:**

All

**Tools:**

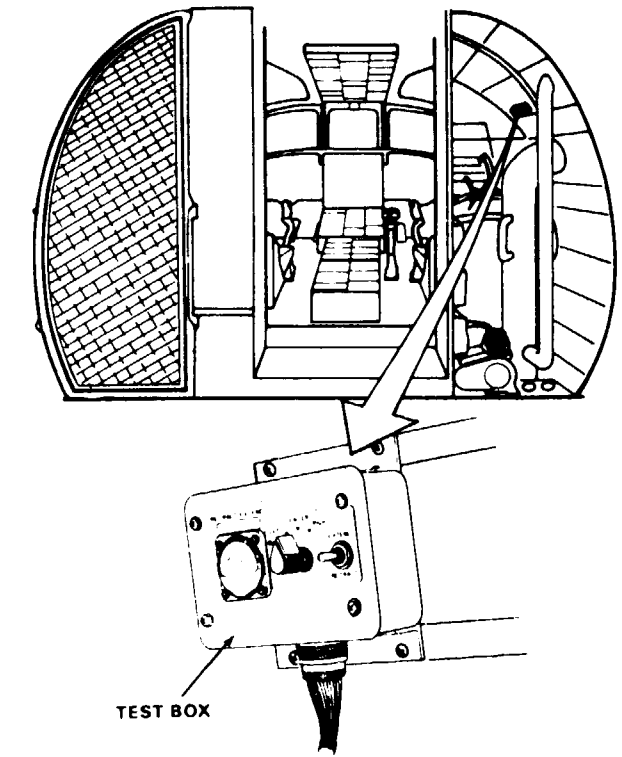
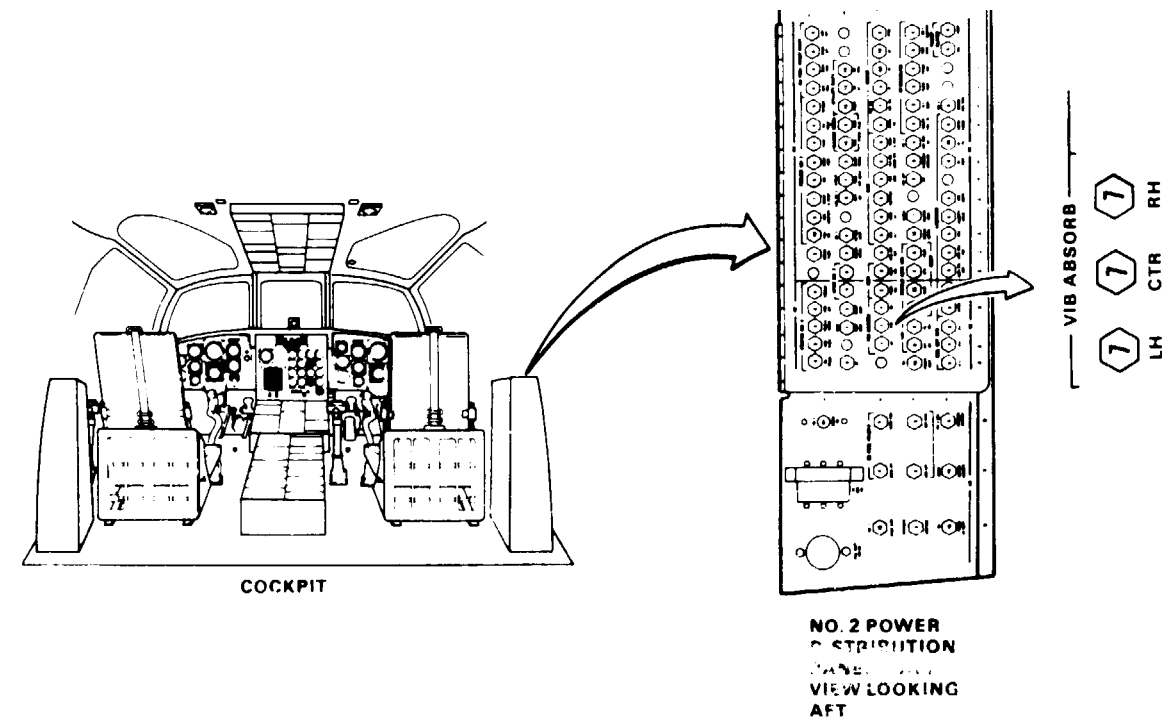
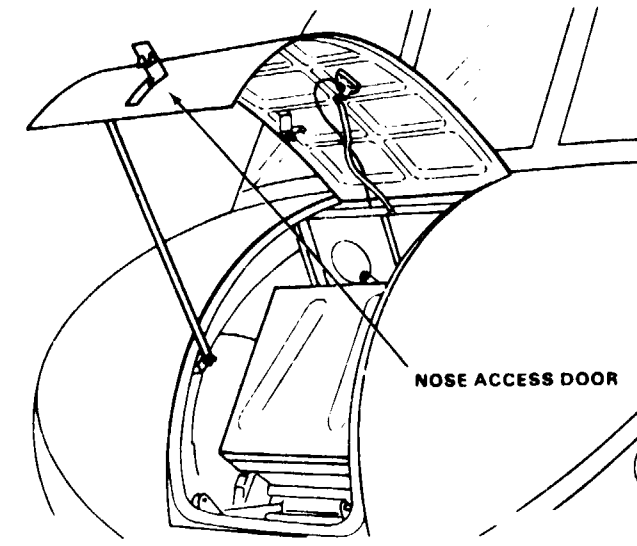
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multi meter
- Vworkstand

**Equipment Condition:**

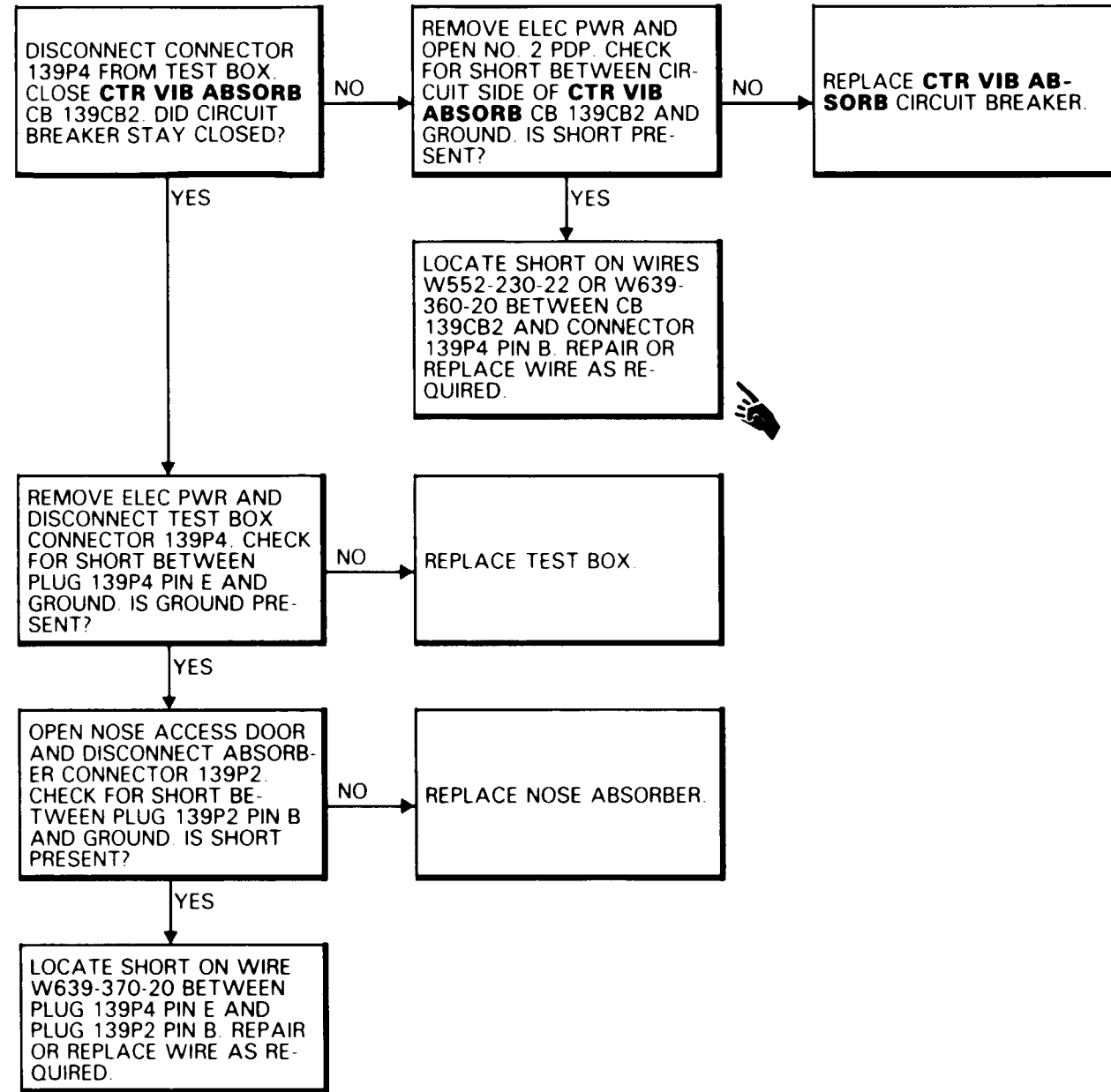
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Heater Compartment Acoustic Blanket  
Removed
- Nose Access Door Open

**Materials:**

None



2-2.6 CTR VIB ABSORBER CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



2-2.7 LH VIB ABSORB CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**

- 68F10 Aircraft Electrician
- 68F20 Aircraft Electrician

**References:**

- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Heater Compartment Acoustic Blanket Removed

**Applicable Configurations:**

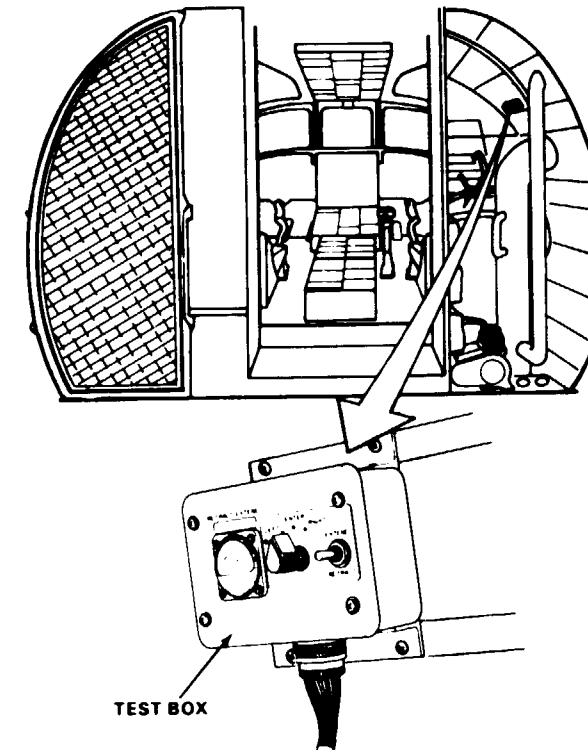
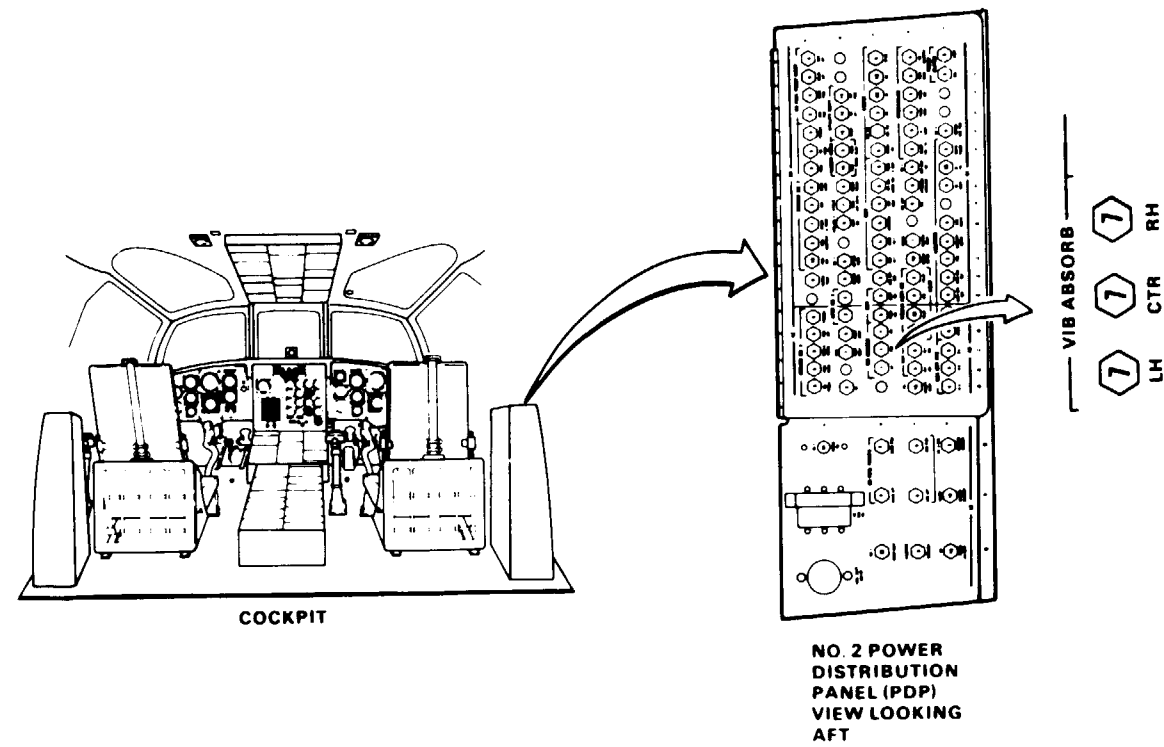
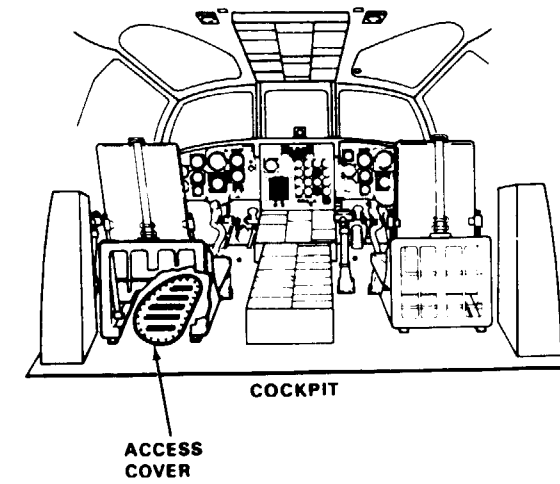
All

**Tools:**

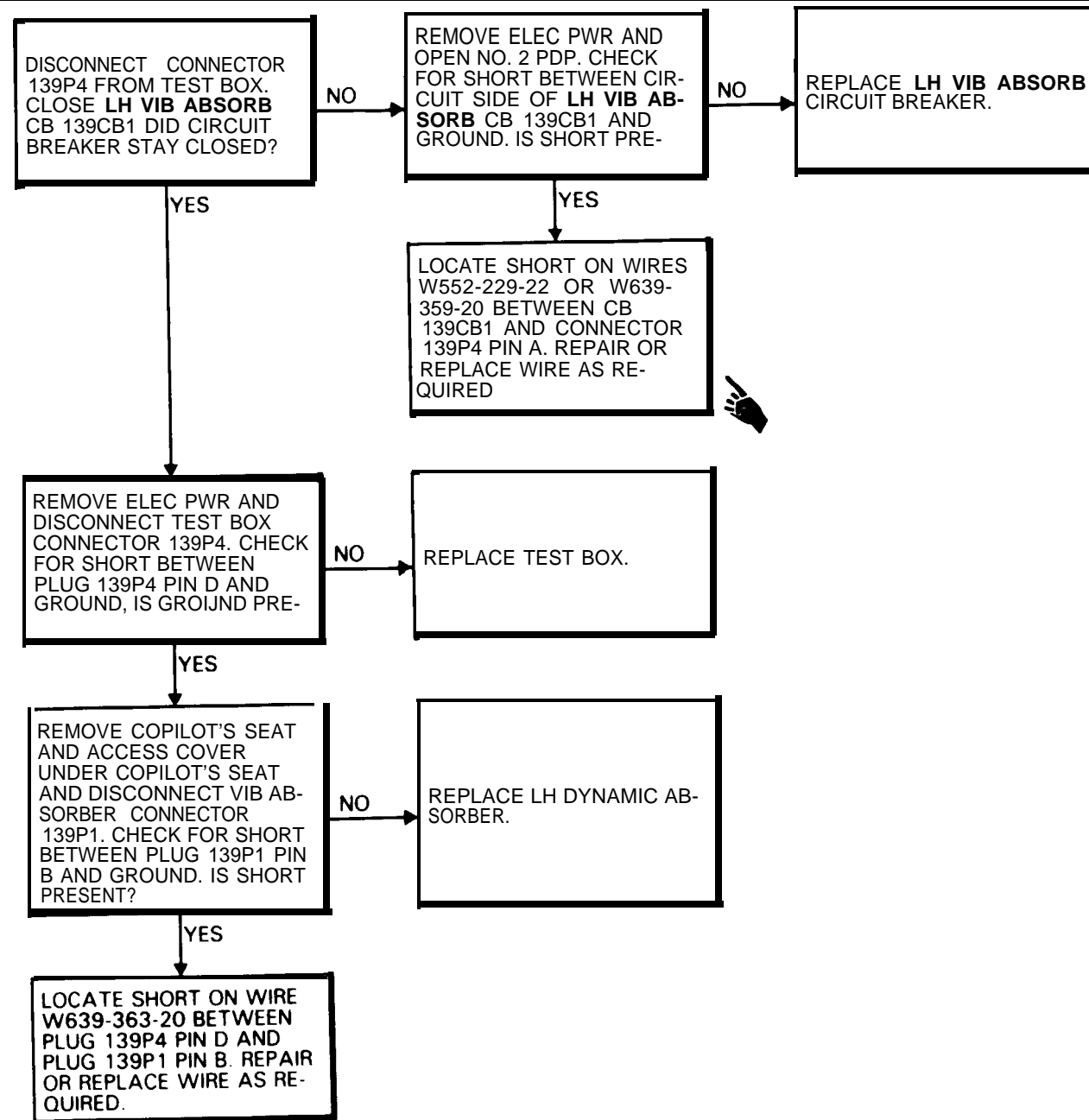
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None



2-2.7 LH VIB ABSORBER CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



2-2.8 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT LEFT

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Personnel Required:

- 68F10 Aircraft Electrician
- 68F20 Aircraft Electrician

References:

TM 55-1520-240-23

Applicable Configurations:

All

Tools:

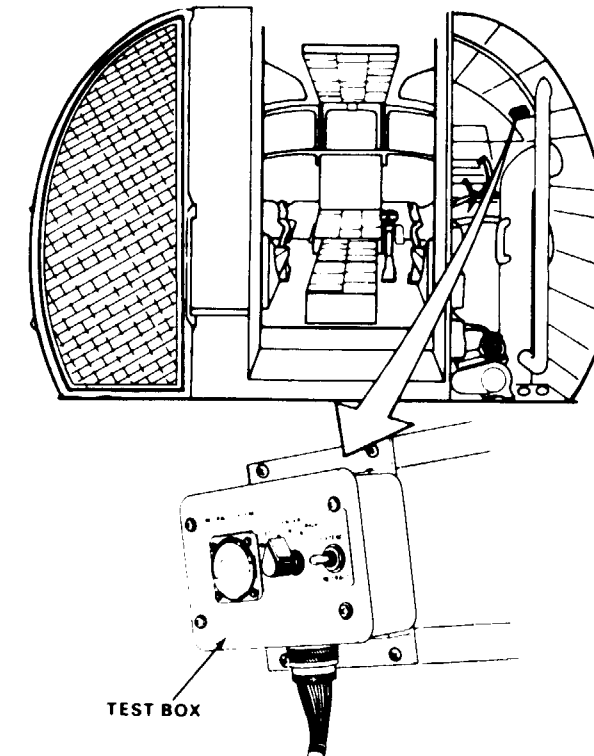
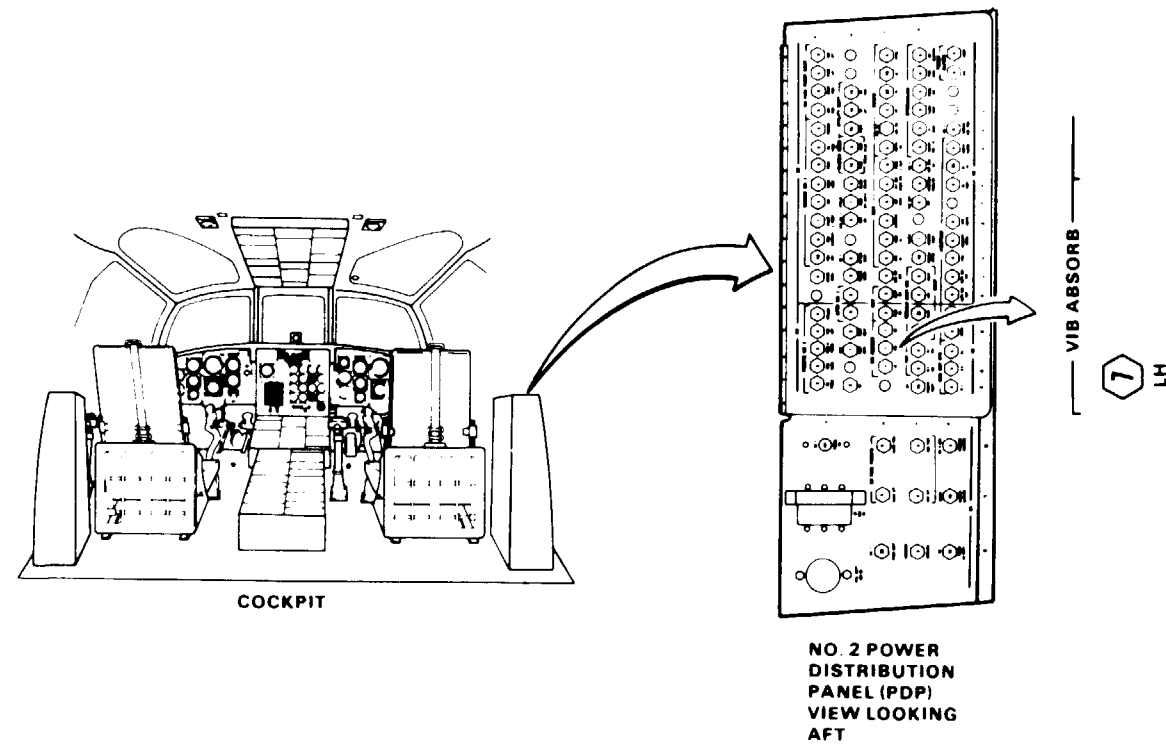
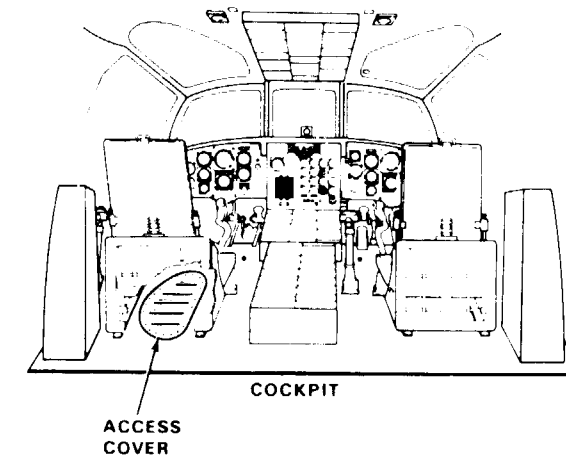
- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Multimeter

Equipment Condition:

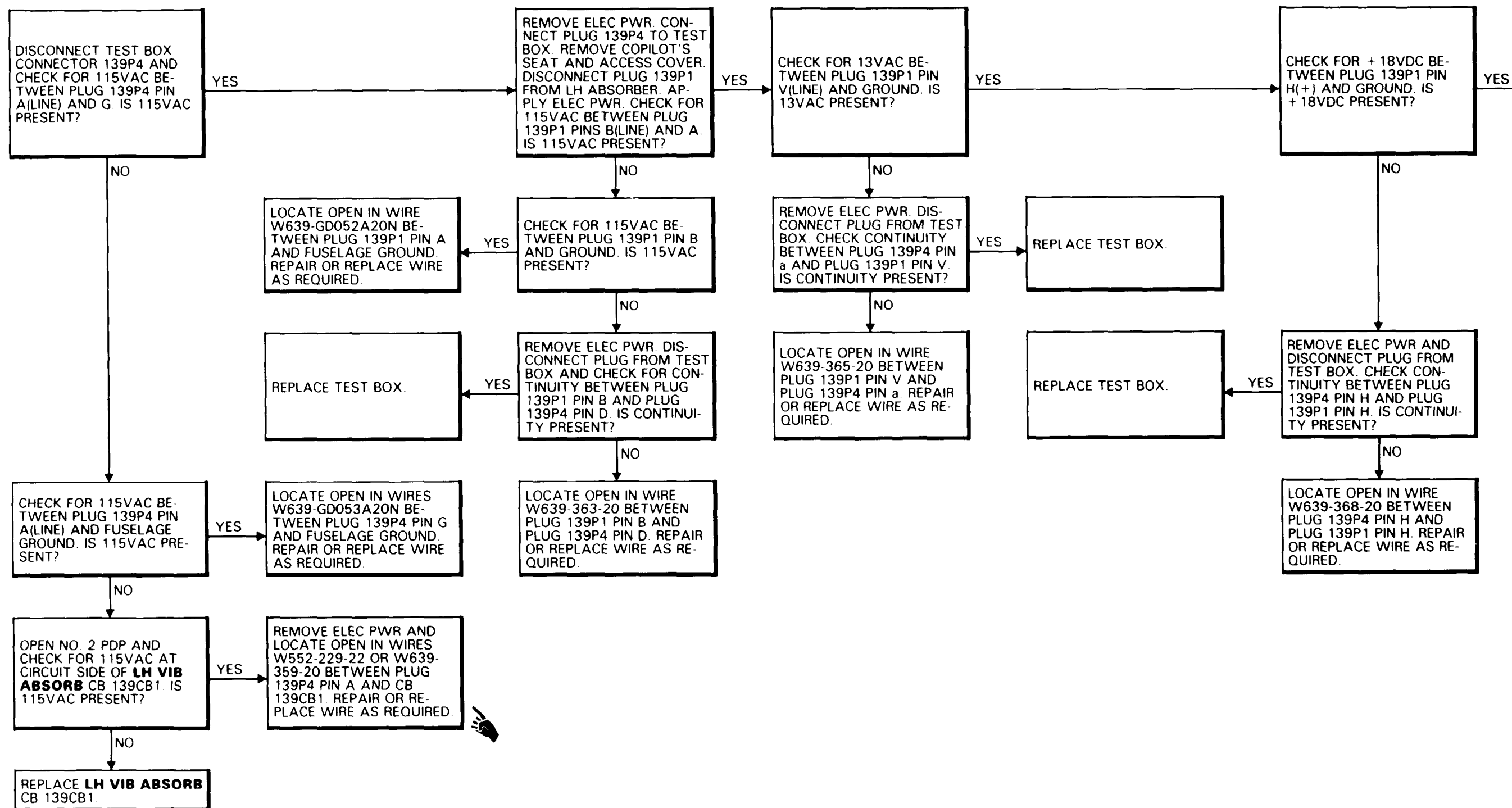
- TM 55-1520-240-23;
- Battery Connected
- Electrical Power On
- Hydraulic Power Off
- Heater Compartment Acoustic Blanket Removed

Materials:

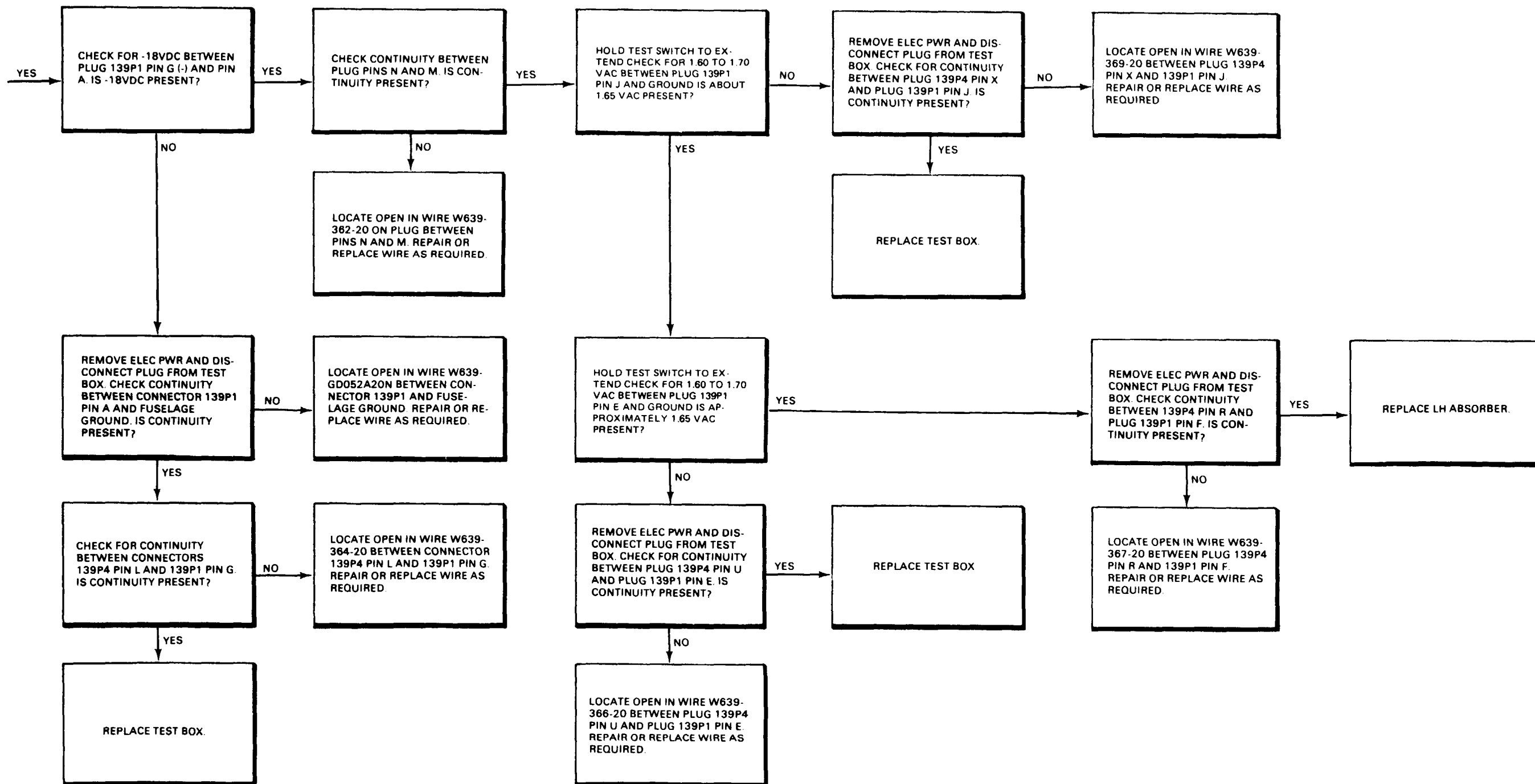
None



2-2.8 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT LEFT (Continued)



2-2.8 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT LEFT (Continued)



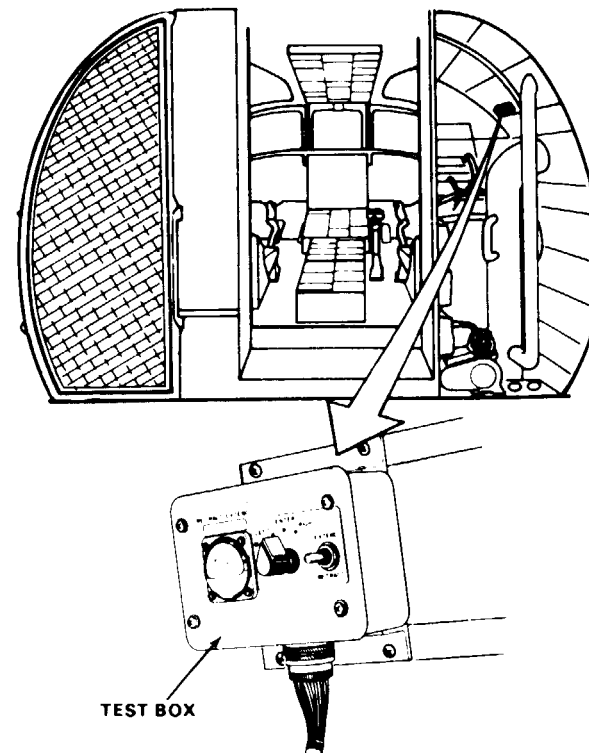
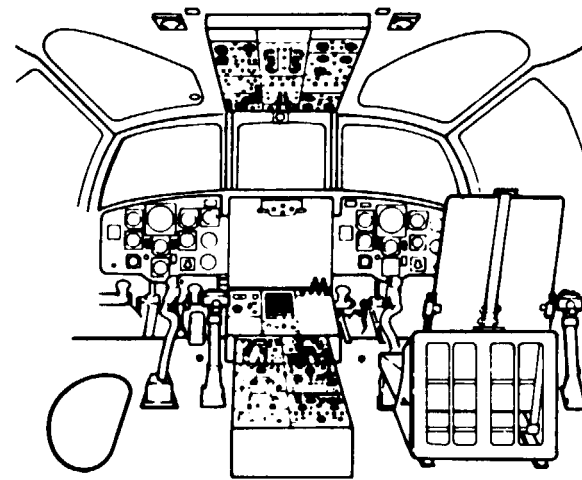
GO TO NEXT PAGE



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2-2.8 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT LEFT (Continued)

---



2-2.9 TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT LEFT

FAULT ISOLATION PROCEDURE  
INITIAL SETUP

Personnel Required:  
Aircraft Electrician (2)

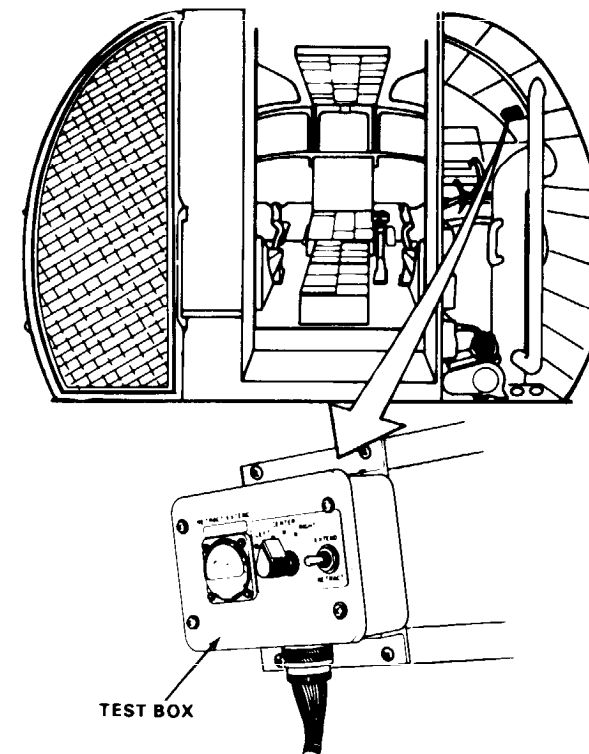
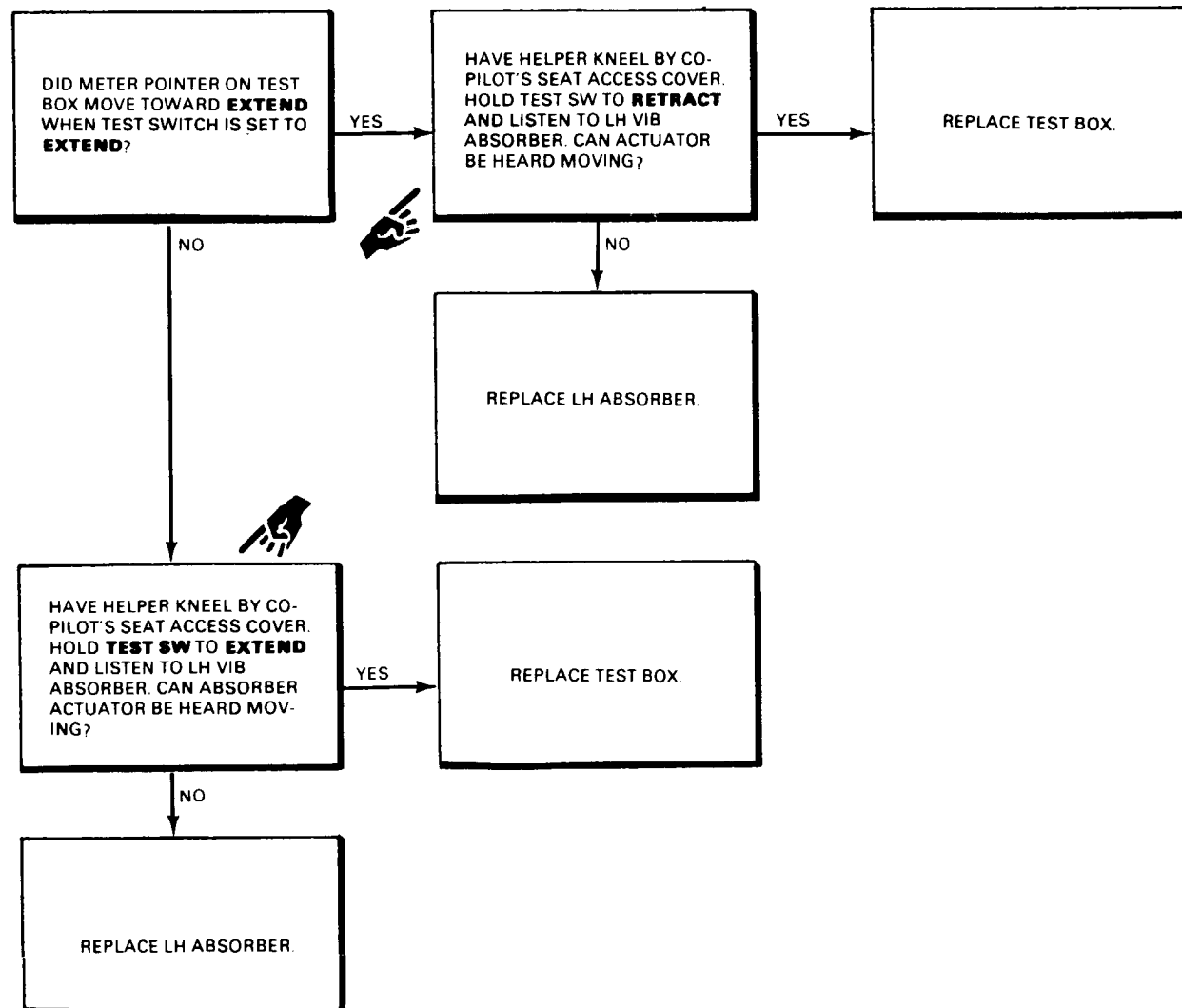
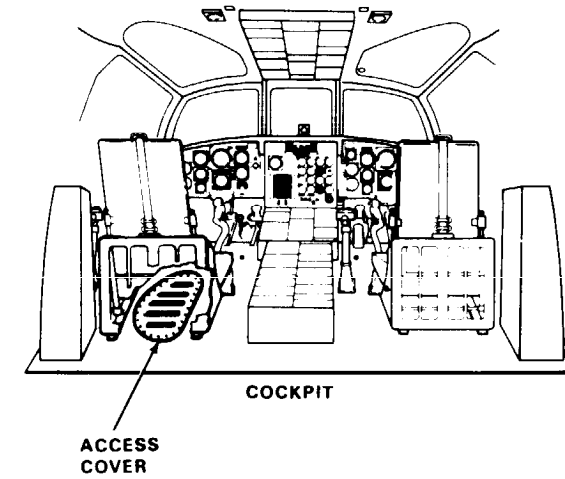
Applicable Configurations:  
All

References:  
TM 55-1520-240-23

Tools:  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multi meter

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Heater Compartment Acoustic Blanket  
Removed

Materials:  
None



15x54

DI45-9413-SPA

2-2.10 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT CENTER

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Electrical Repairers Tool Kit, NSN 5180-00-323-4915
- Multimeter
- Workstand

Materials:

None

Personnel Required:

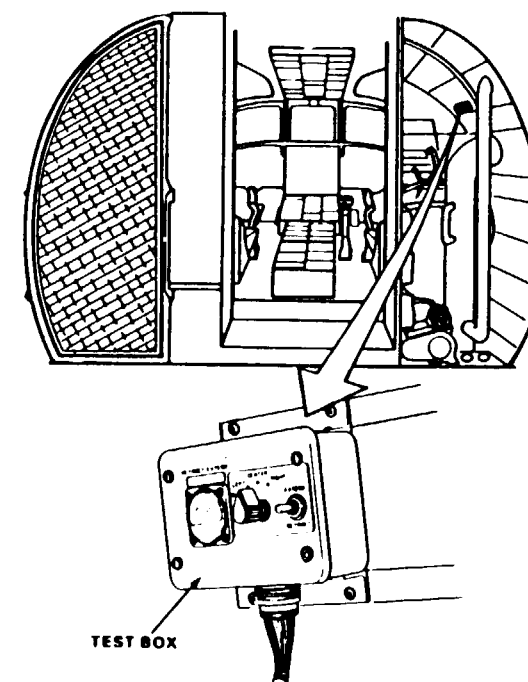
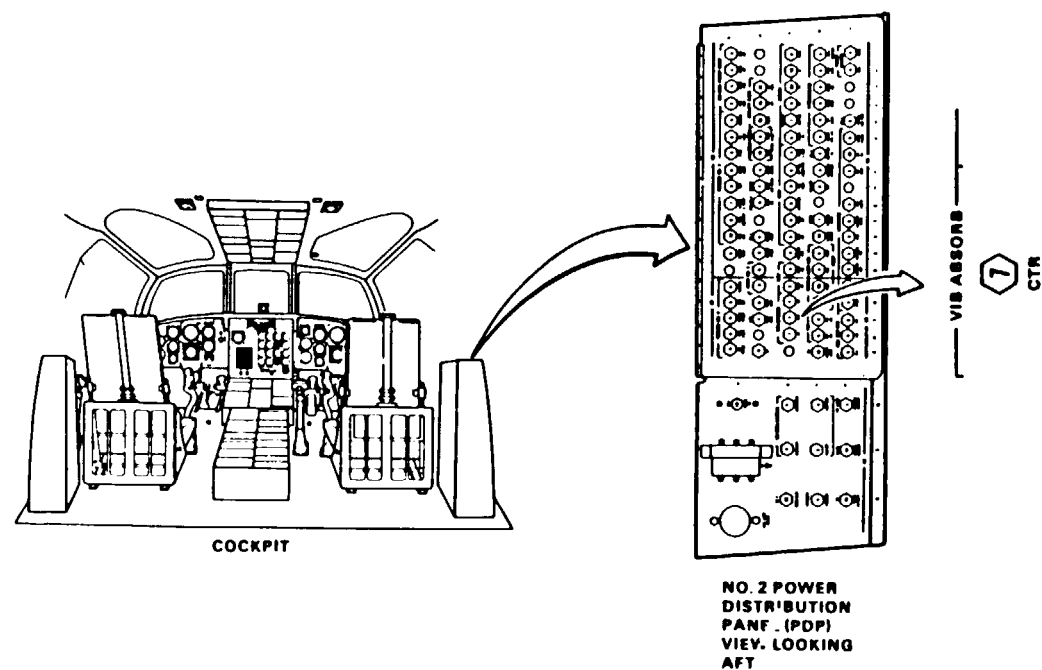
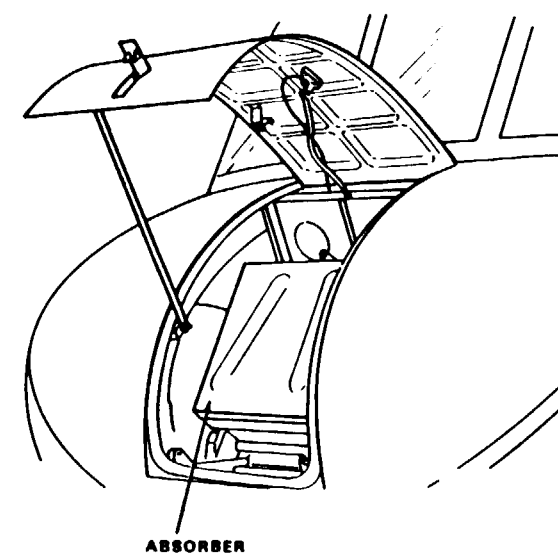
- 6BF10 Aircraft Electrician
- 68F20 Aircraft Electrician

References:

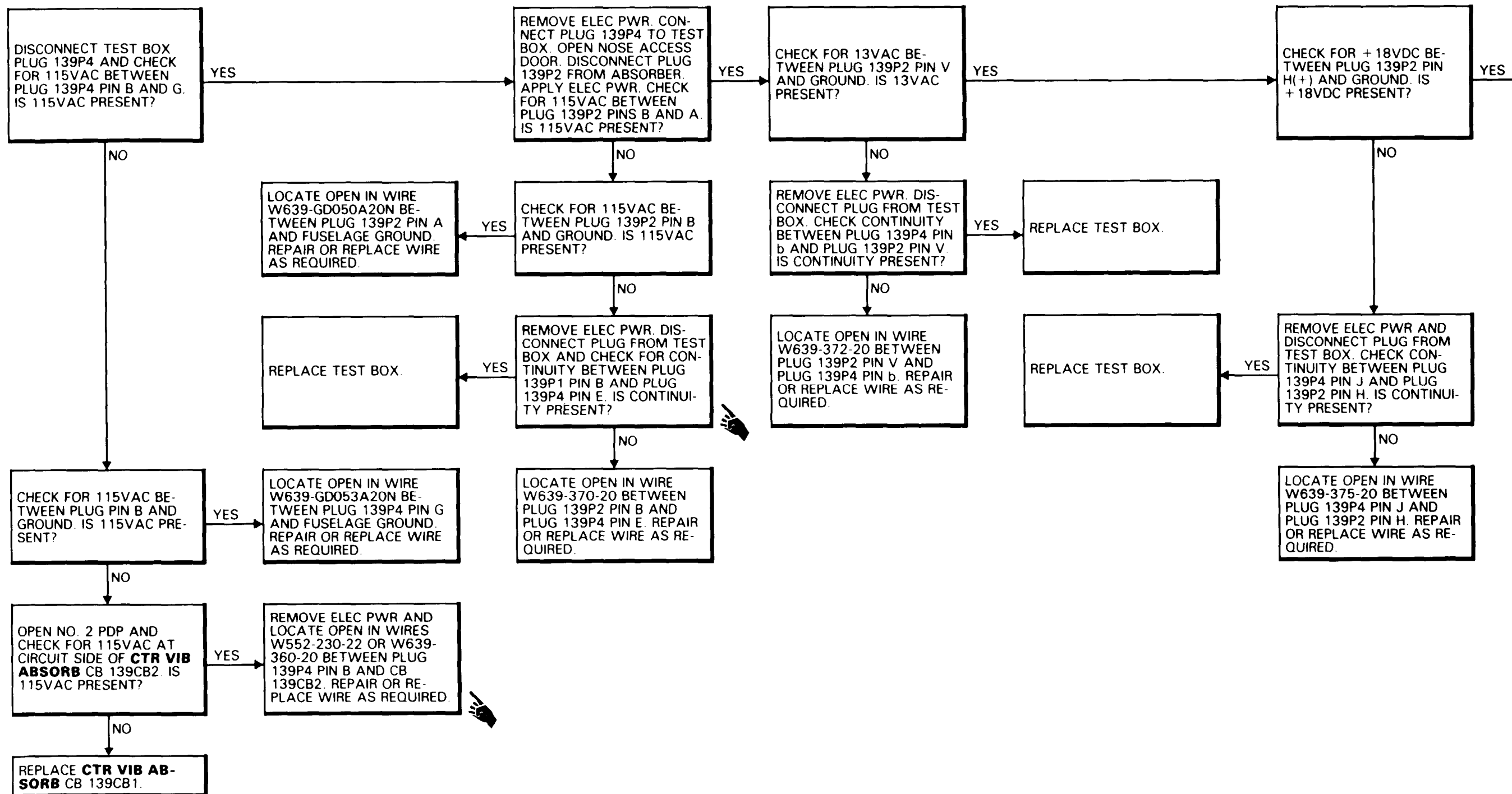
TM 55-1520-240-23

Equipment Condition:

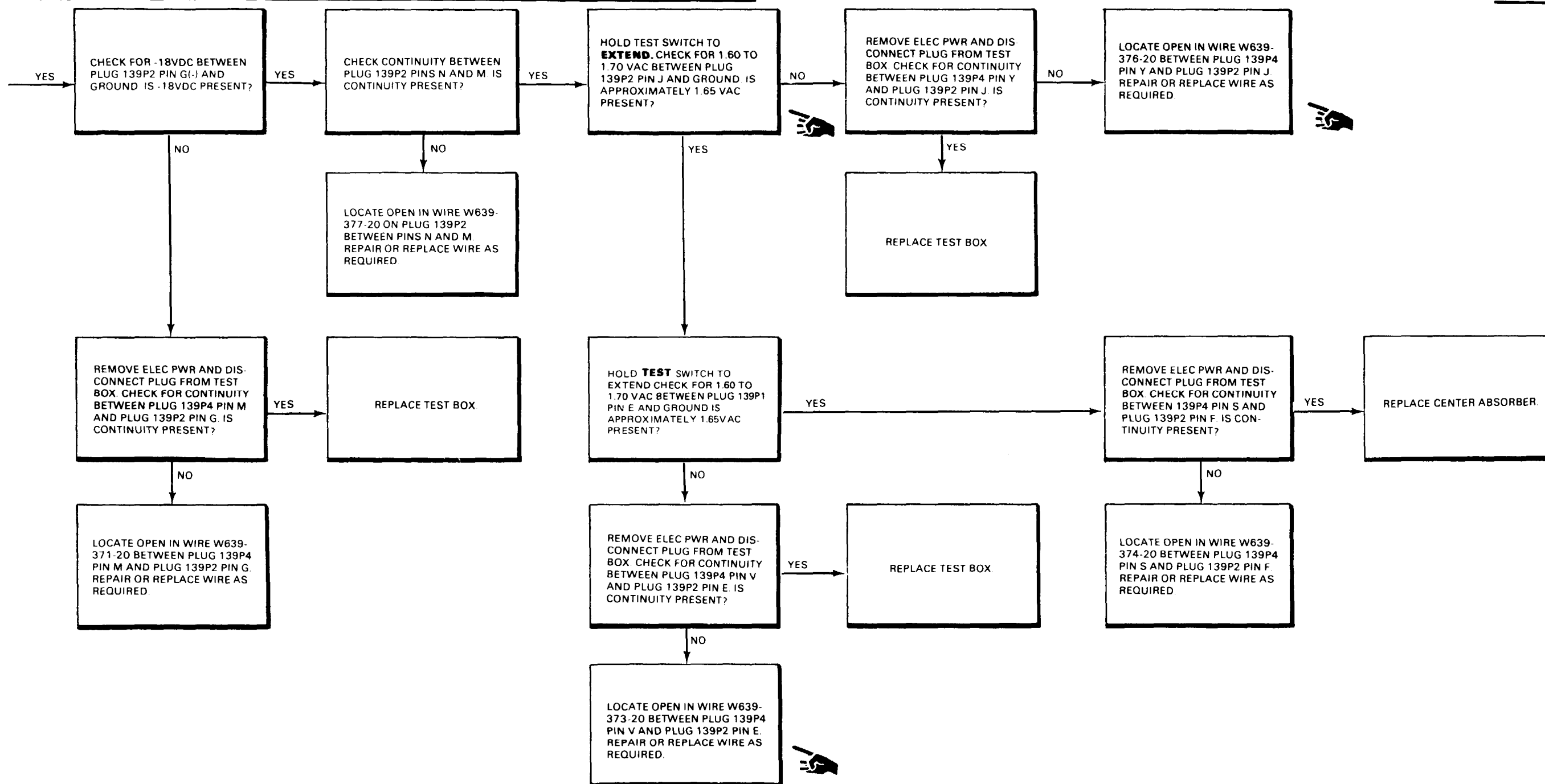
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power Off
- Hydraulic Power Off
- Heater Compartment Acoustic Blanket Removed
- Nose Access Door Opened



2-2.10 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT CENTER (Continued)



2-2.10 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT CENTER  
(Continued)



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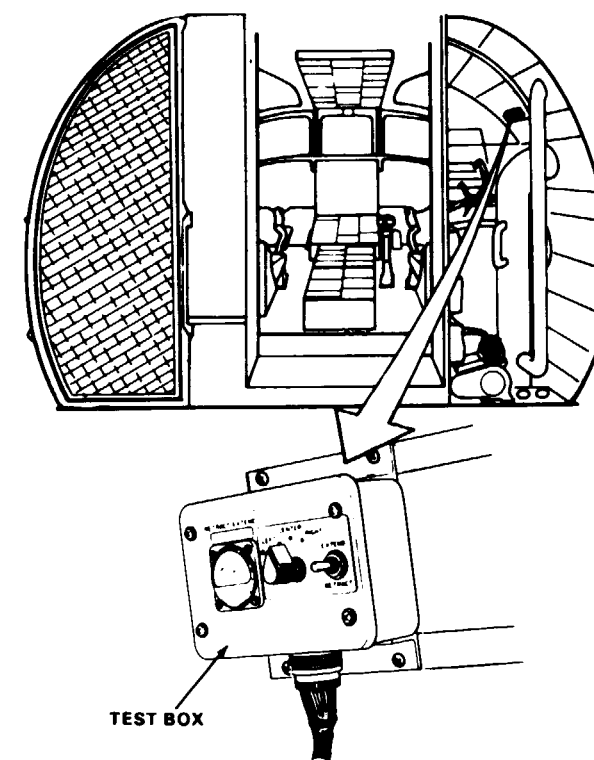
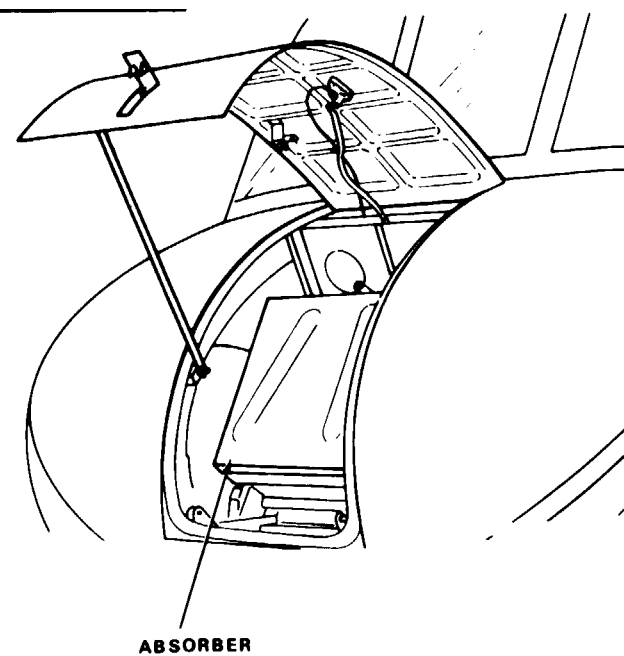
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2-2.10 NO INDICATION ON TEST BOX METER WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT CENTER  
(Continued)

---

2-2.10

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**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter  
Workstand

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

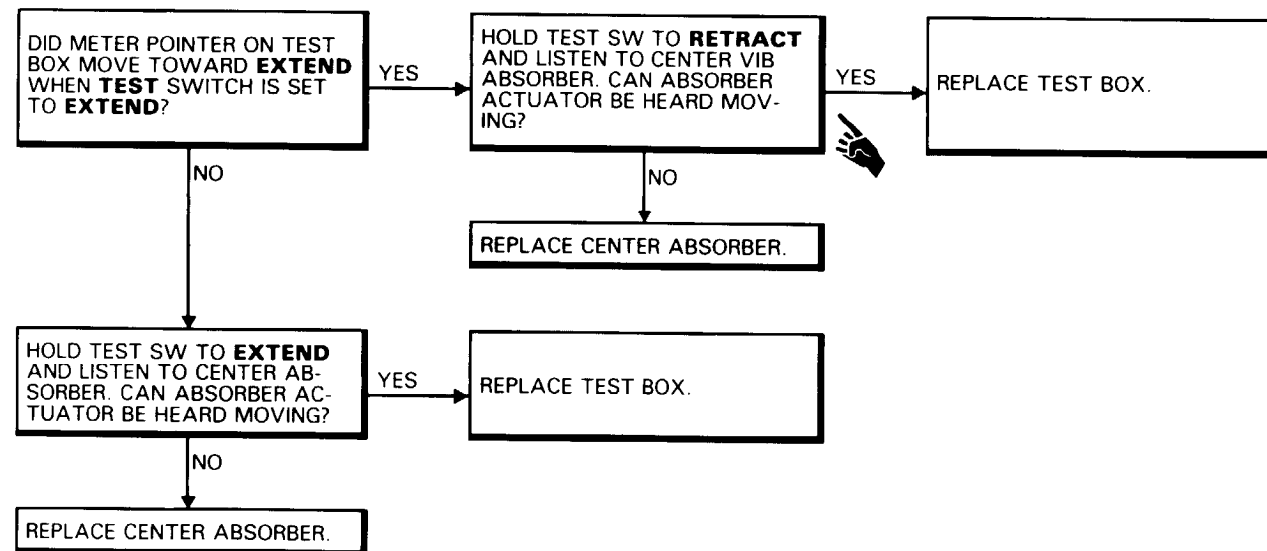
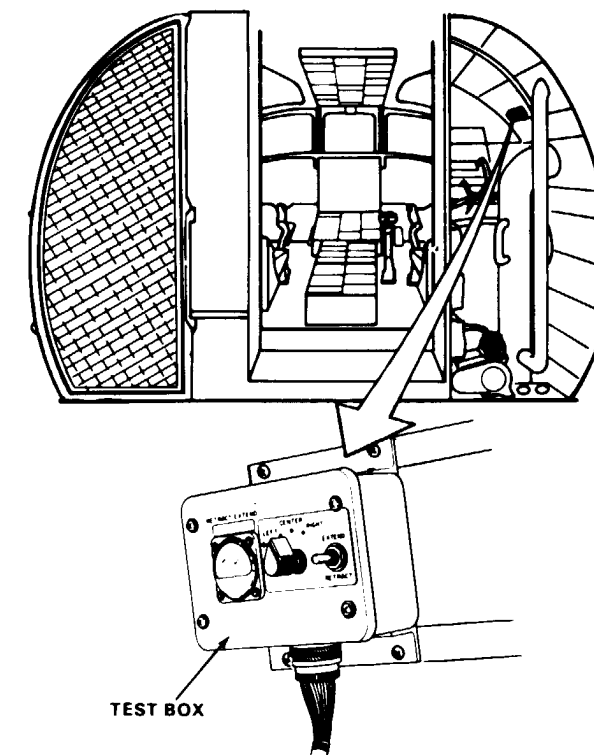
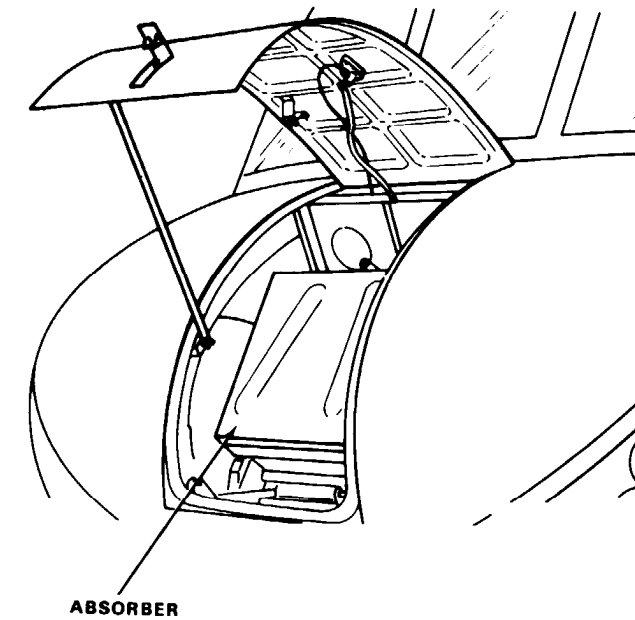
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected  
Electrical Power ON  
Hydraulic Power Off  
Heater Compartment Acoustic Blanket Removed  
Nose Access Door Opened



2-2.12 NO INDICATION ON TEST BOX WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT RIGHT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**  
68F10 Aircraft Electrician  
68F20 Aircraft Electrician

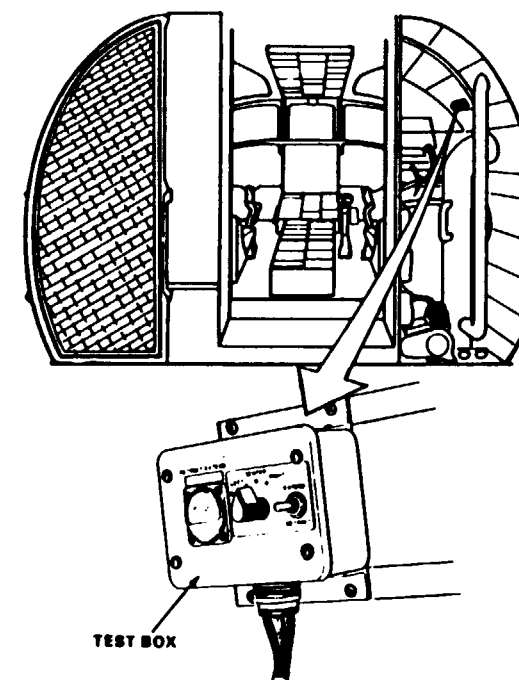
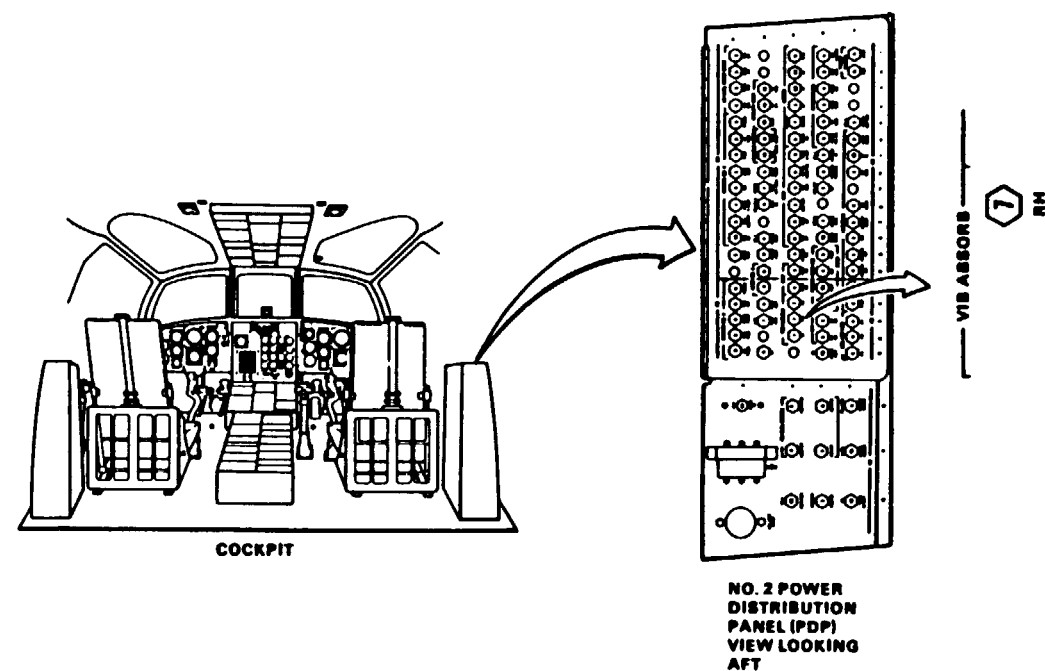
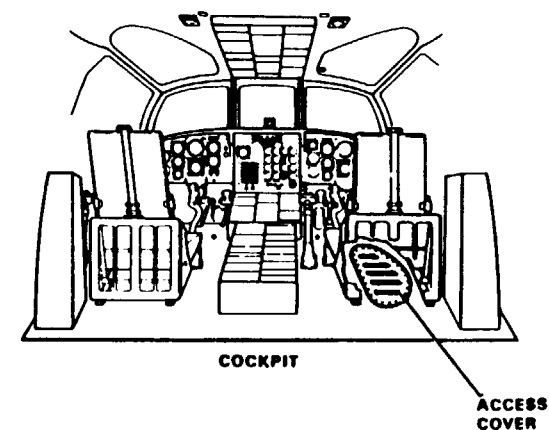
**Applicable Configurations:**  
All

**References:**  
TM 55-1520-240-23

**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

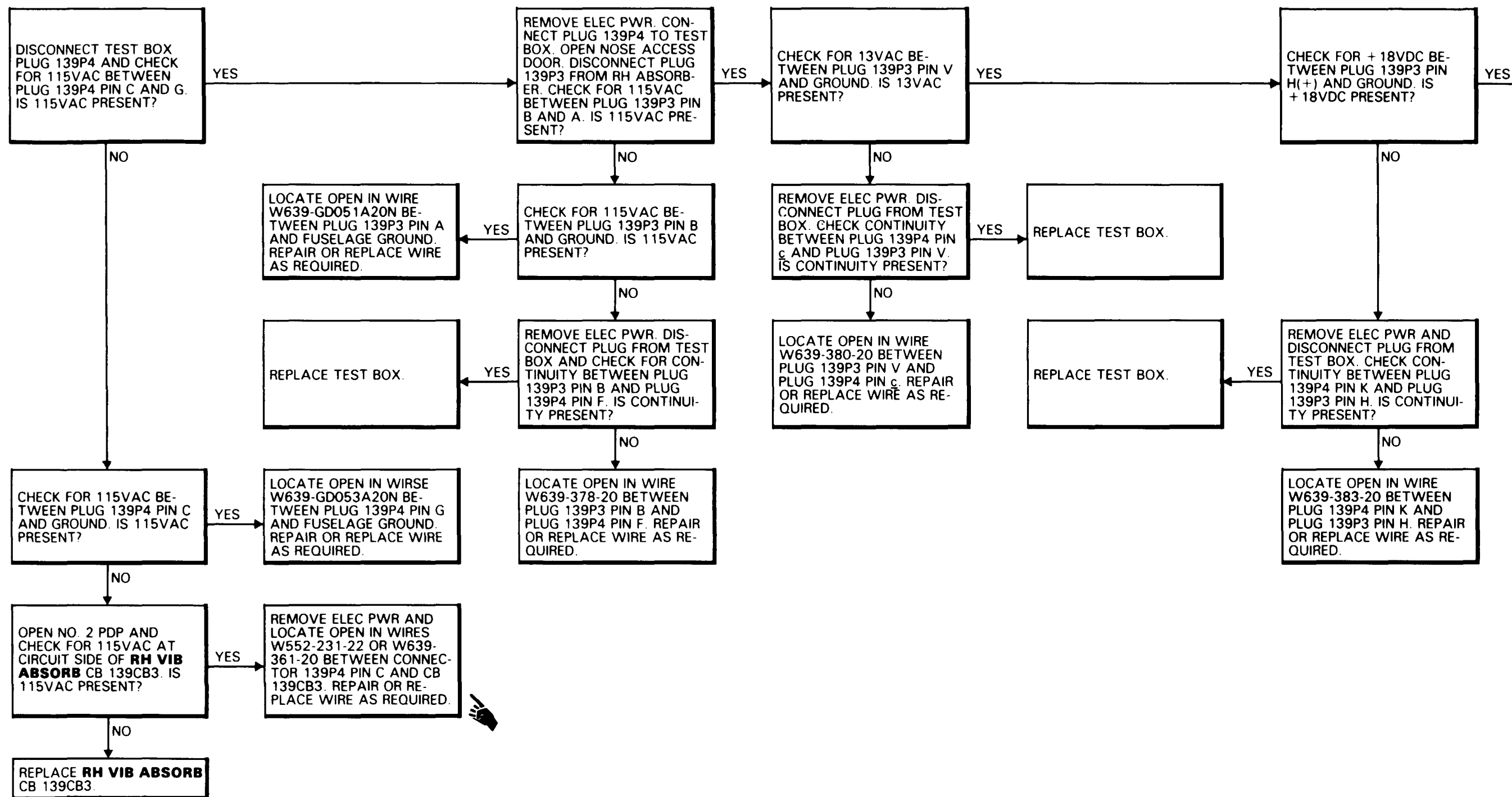
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Heater Compartment Acoustic Blanket  
Removed

**Materials:**  
None

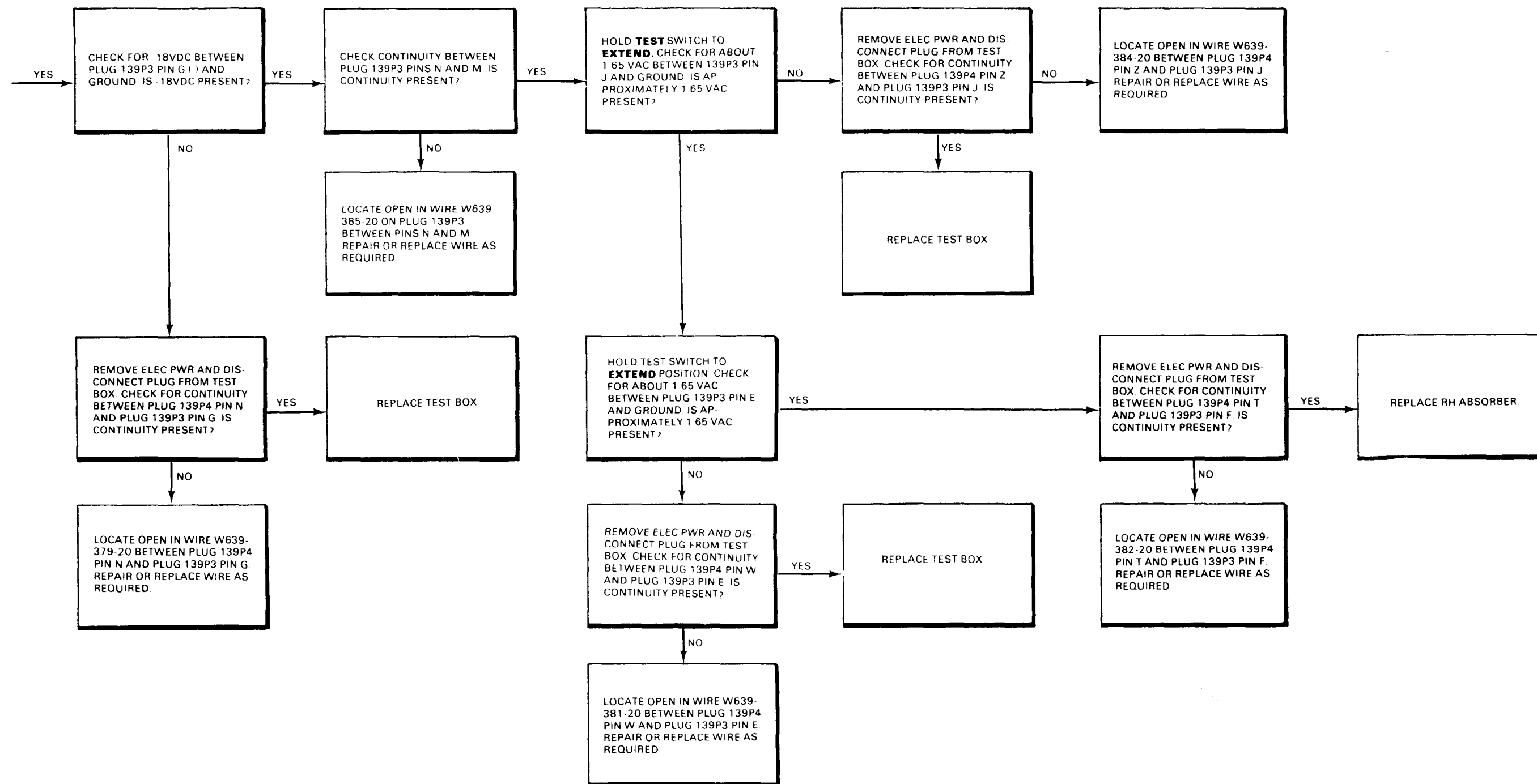




2-2.12 NO INDICATION ON TEST BOX WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT RIGHT (Continued)



2-2.12 NO INDICATION ON TEST BOX WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT RIGHT  
(Continued)

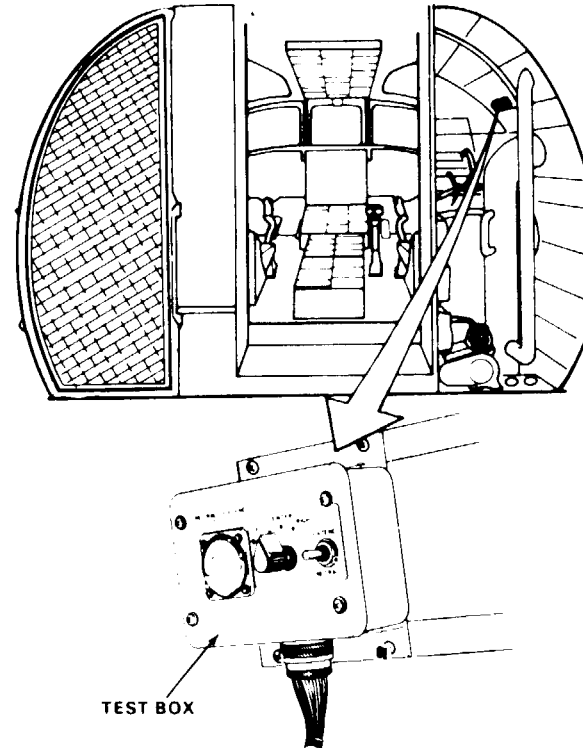
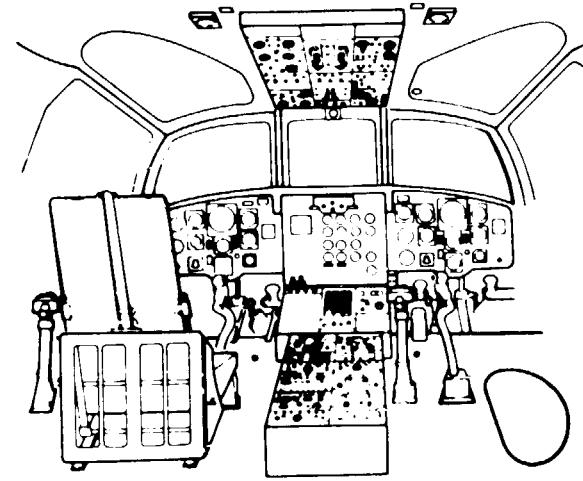


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2-2.12 NO INDICATION ON TEST BOX WHEN TEST SWITCH IS SET TO EXTEND OR RETRACT, SWITCH AT RIGHT  
(Continued)

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**2-2.13 TEST BOX METER INDICATES ONE DIRECTION BUT NOT EXTEND AND RETRACT WHEN TEST SWITCH IS SET TO EXTEND AND RETRACT, SWITCH AT RIGHT**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**  
Aircraft Electrician (2)

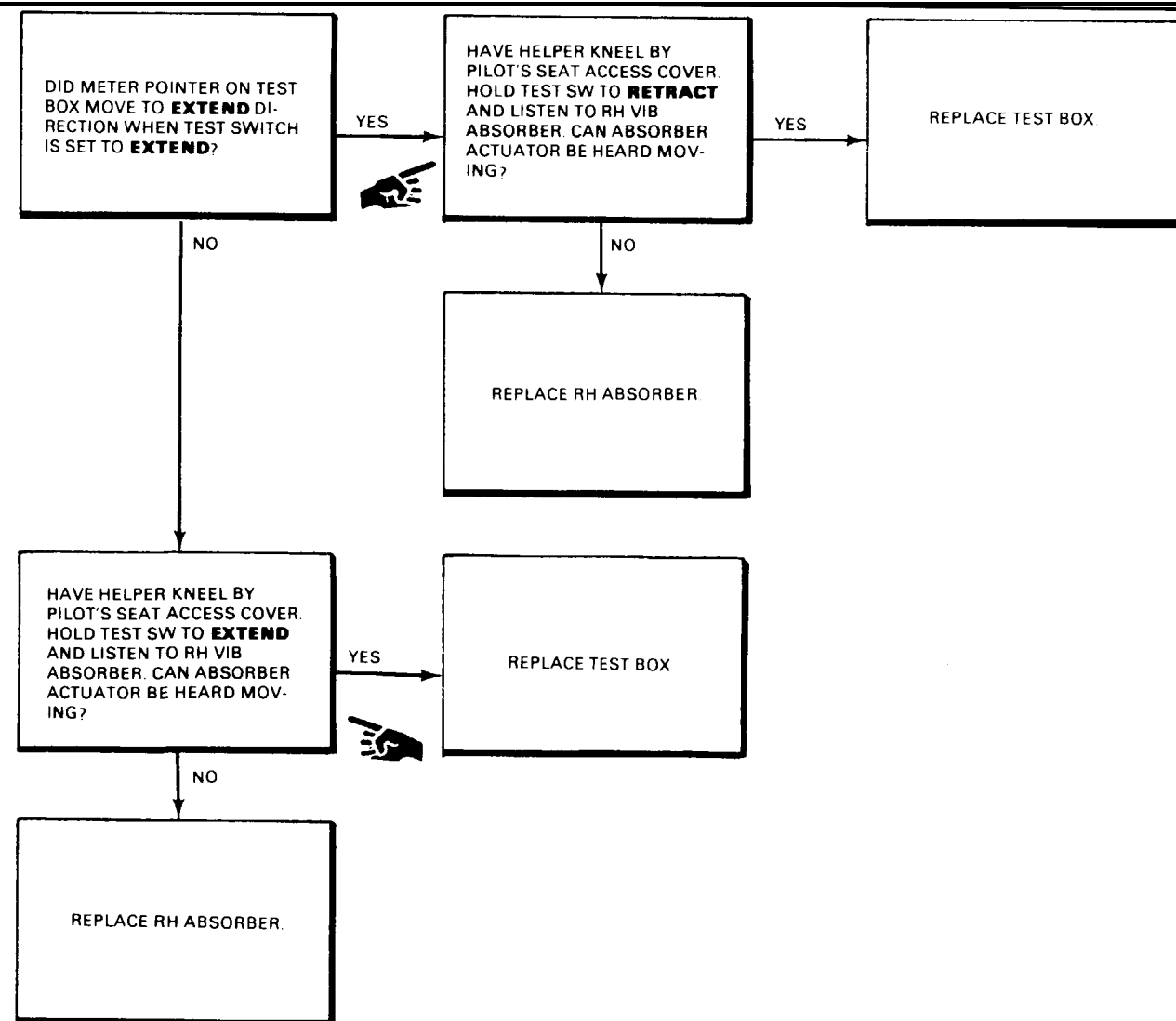
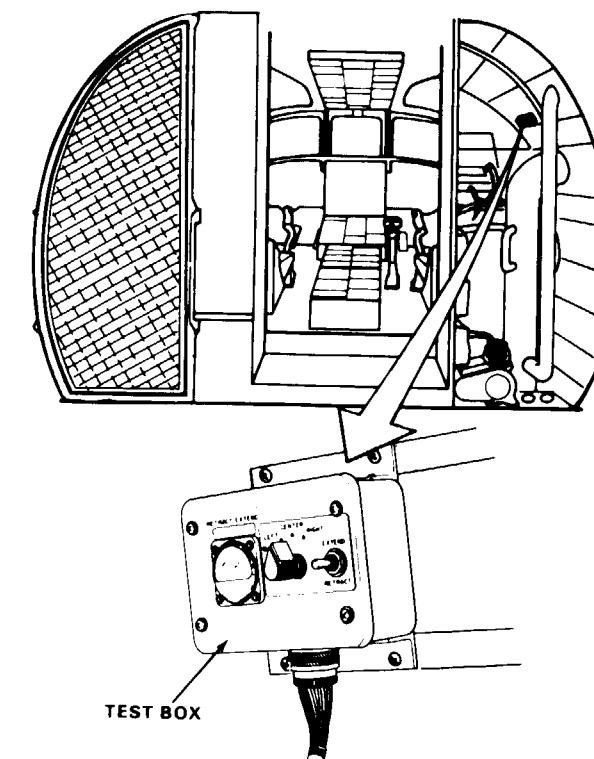
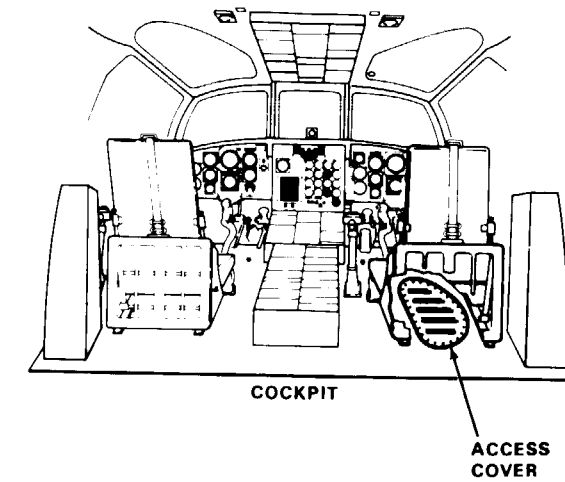
**Applicable Configurations:**  
All

**References:**  
TM 55-1520-240-23

**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Heater Compartment Acoustic Blanket  
Removed

**Materials:**  
None



**CHAPTER 3**  
**ALIGNING GEAR**

**CHAPTER 3  
ALIGHTING GEAR TROUBLESHOOTING**

**CHAPTER OVERVIEW**

Chapter 3 contains procedures for Alighting Gear System troubleshooting. Each system and failure symptom is listed below. Included in this chapter are locations and views of all electrical connectors, receptacles, relays and ground connections for the Alighting Gear System.

Refer to TM 55-150-240-23 for required maintenance procedures.

SYSTEM	PARA
PROXIMITY SWITCH	3-1

**FAILURE SYMPTOM LIST**

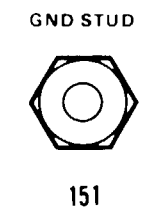
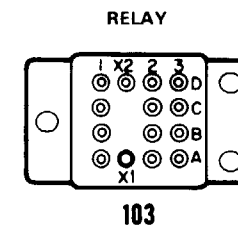
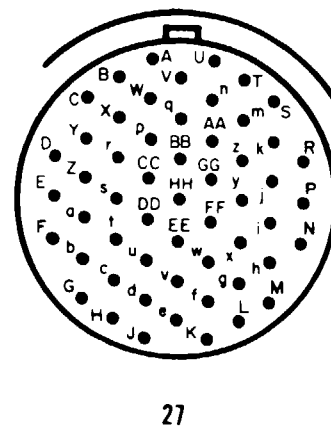
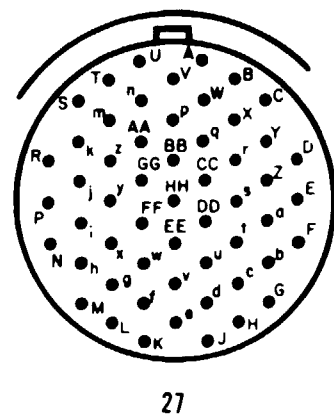
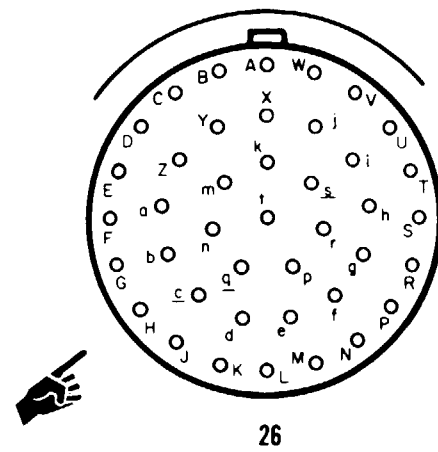
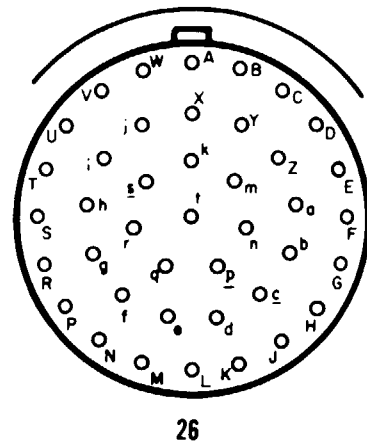
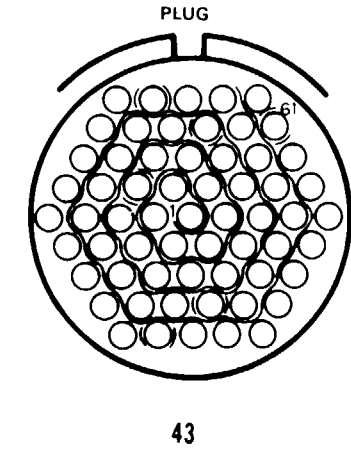
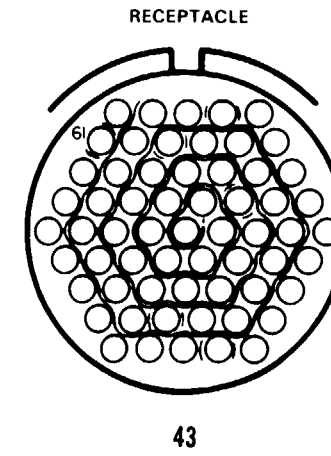
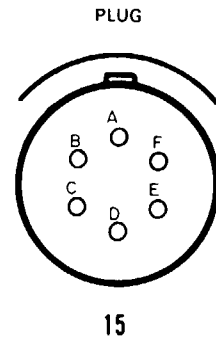
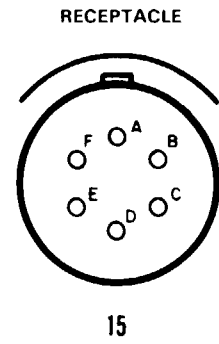
**PROXIMITY SWITCH**

SYMPTOM	TASK
LEFT GROUND CONTACT LIGHT IS NOT LIT WHEN LEFT AFT WHEEL IS ON THE GROUND	3-1.4
LEFT GROUND CONTACT LIGHT STAYS LIT WHEN LEFT AFT WHEEL IS OFF THE GROUND	3-1.4
RIGHT GROUND CONTACT LIGHT IS NOT LIT WHEN RIGHT AFT WHEEL IS ON THE GROUND	3-1.4
RIGHT GROUND CONTACT LIGHT STAYS LIT WHEN RIGHT AFT WHEEL IS OFF THE GROUND	3-1.4

ALIGHTING GEAR SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST

REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION		
				FS	WL	BL
GD131		151		485	-8	55R
GD181		151		56	20	55R
GD258		151		<b>484</b>	10	50L
GD340		151				
146J1	MS3474W20-41P	26	J1 OF MAINT PNL	516	40	50R
146J2	MS3474W22-55P	27	J2 OF MAINT PNL	516	40	50R
148K1		103	LH AFT CABIN	482	20	50L
148K2		103	RH AFT CABIN	482	20	50L
148J1	MS3474W10-6S	15	RH AFT RAMP AREA	485	-30	52R
148J2	MS3474W10-6S	15	LH AFT RAMP AREA	485	-30	52L
148P2	MS3474W10-6P	15	RH AND LH LDG GEAR COMP			
300J4	M83723-74A2461N	43	NO. 1 PDP			
300P4	M83723-75A2461N	43	NO. 1 PDP			
300J8	M83723-74A2461N	43	NO. 2 PDP			
300P8	M83723-75A2461N	43	NO. 2 PDP			
300P28	MS3476W22-55S	27	J2 OF MAINT PNL	516	40	50R
300P31	MS3476W20-41S	26	J1 OF MAINT PNL	516	40	50R
300J45	M83723-73A2461N	43	HEATER COMPARTMENT	105	40	30R
300P45	M83723-76A2461N	43	HEATER COMPARTMENT	105	40	30R
300J60	M83723-73A2461N	43	ELECTRONICS COMP	120	40	20L
300P50	M83723-76A2461N	43	ELECTRONICS COMP	120	40	20L
300J51	M83723-74A2461N	43	AFT CROWN - OVHD	460	45	20R
300P51	M83723-75A2461N	43	AFT CROWN - OVHD	460	45	20R
300J54	M83723-74A2461N	43	AFT CROWN - OVHD	460	50	20L
300P54	M83723-75A2461N	43	AFT CROWN - OVHD	460	50	20L

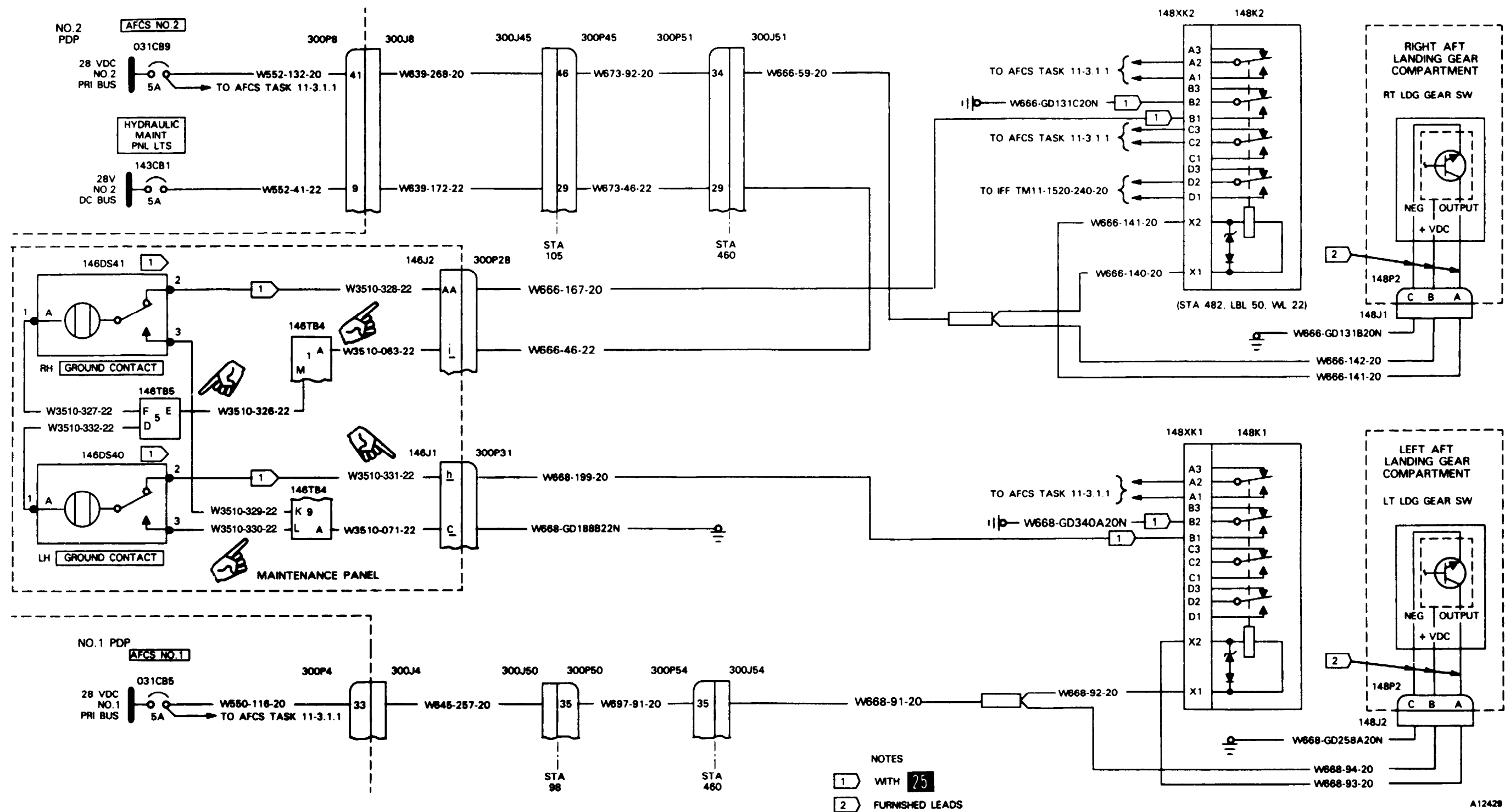
ALIGHTING GEAR SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)





3-1 PROXIMITY SWITCH

1



3-1.2 PROXIMITY SWITCH VISUAL CHECK

**INITIAL SETUP**

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Avionic Mechanic  
Medium Helicopter Repairer

References:

TM 55-1520-240-23

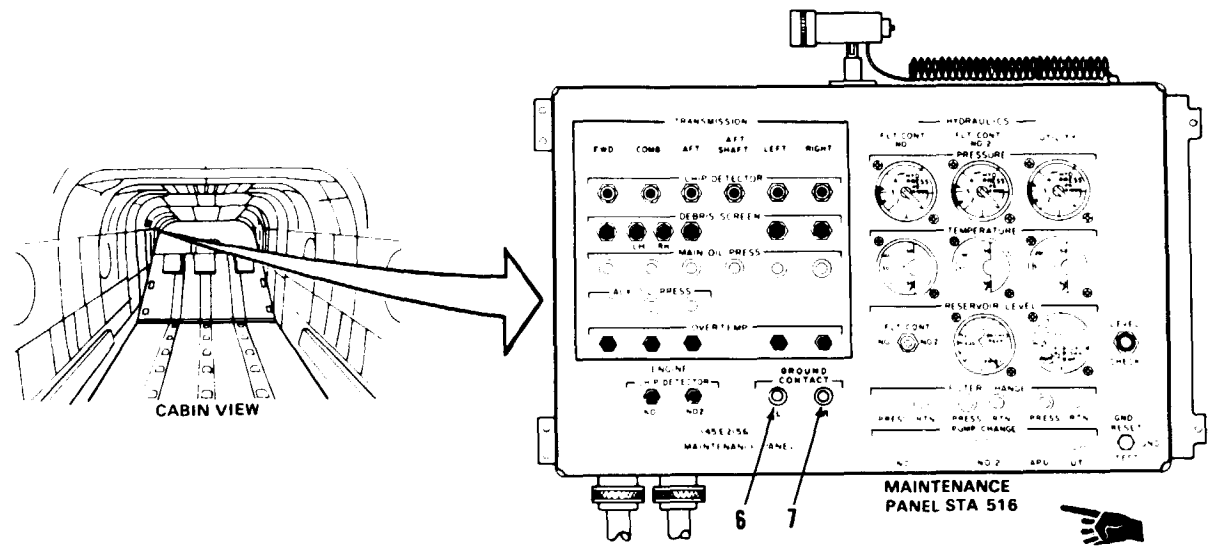
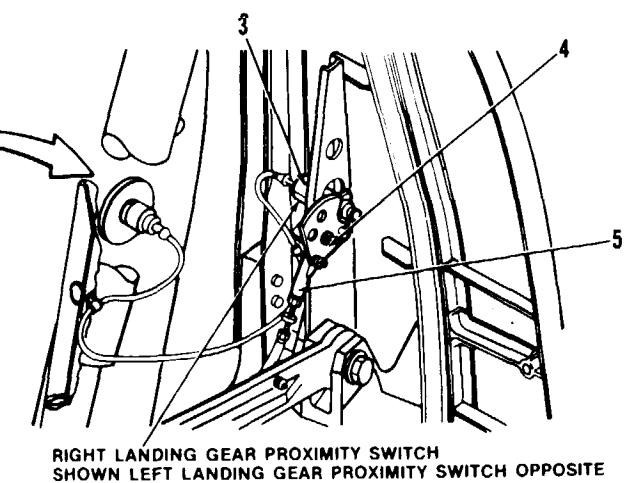
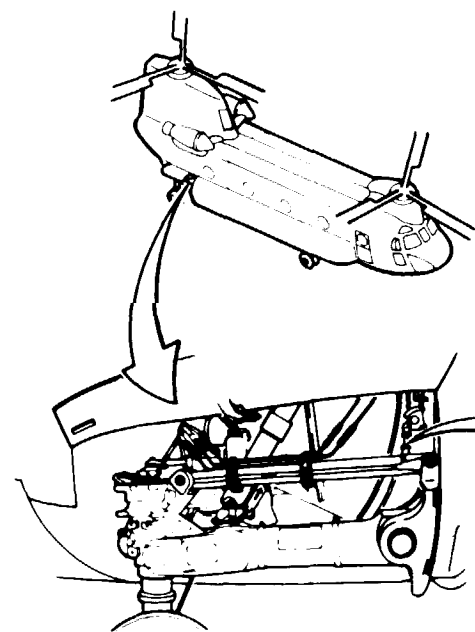
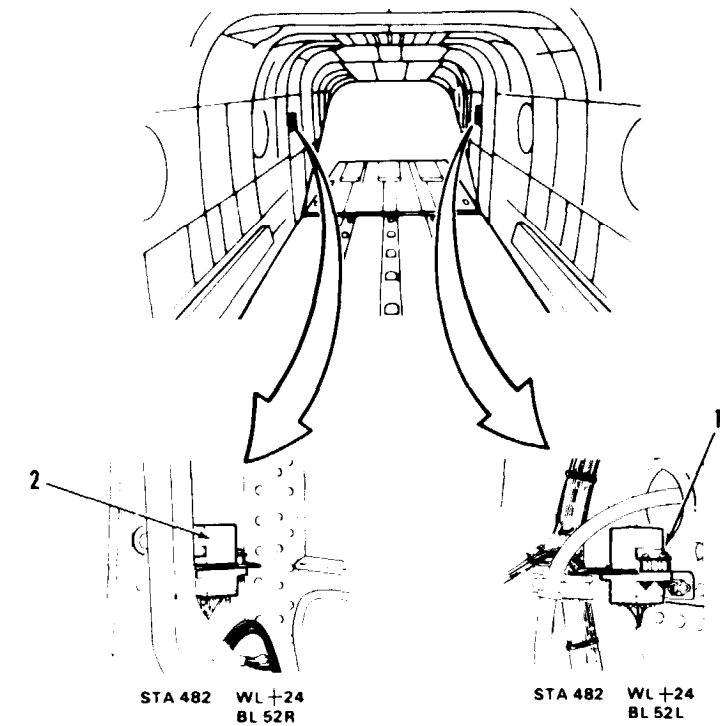
Equipment Condition:

Battery Disconnected  
Electrical Power Off  
Aft Landing Gear Access Panels Open

TASK	RESULT
1. Check left and right landing gear proximity switch relays (1 and 2).	If either relay is loose or damaged, tighten or replace it as required. If wiring to the relay socket is damaged, repair or replace it as required.
2. Check right landing gear proximity switch (3).	If right landing gear proximity switch (3) is loose or damaged, tighten or replace it as required. If wiring to the switch is damaged, repair or replace it as required.
3. Check target (4) and linkage (5).	If either target (4) or link (5) is loose or damaged, tighten or replace it as required.
4. Repeat steps 2 and 3 for left landing gear proximity switch.	
5. On maintenance panel with 25, check left and right GROUND CONTACT lights (6 and 7).	If either light (6 or 7) is loose or damaged, tighten or replace it as required.

**FOLLOW-ON MAINTENANCE:**

Aft landing gear access panels closed.



**INITIAL SETUP**

Applicable Configurations:

Without **25**

Tools:

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Jack 1214-151 or equal

Materials:

None

Personnel Required:

- Avionic Mechanic
- Medium Helicopter Repairer (2)

References:

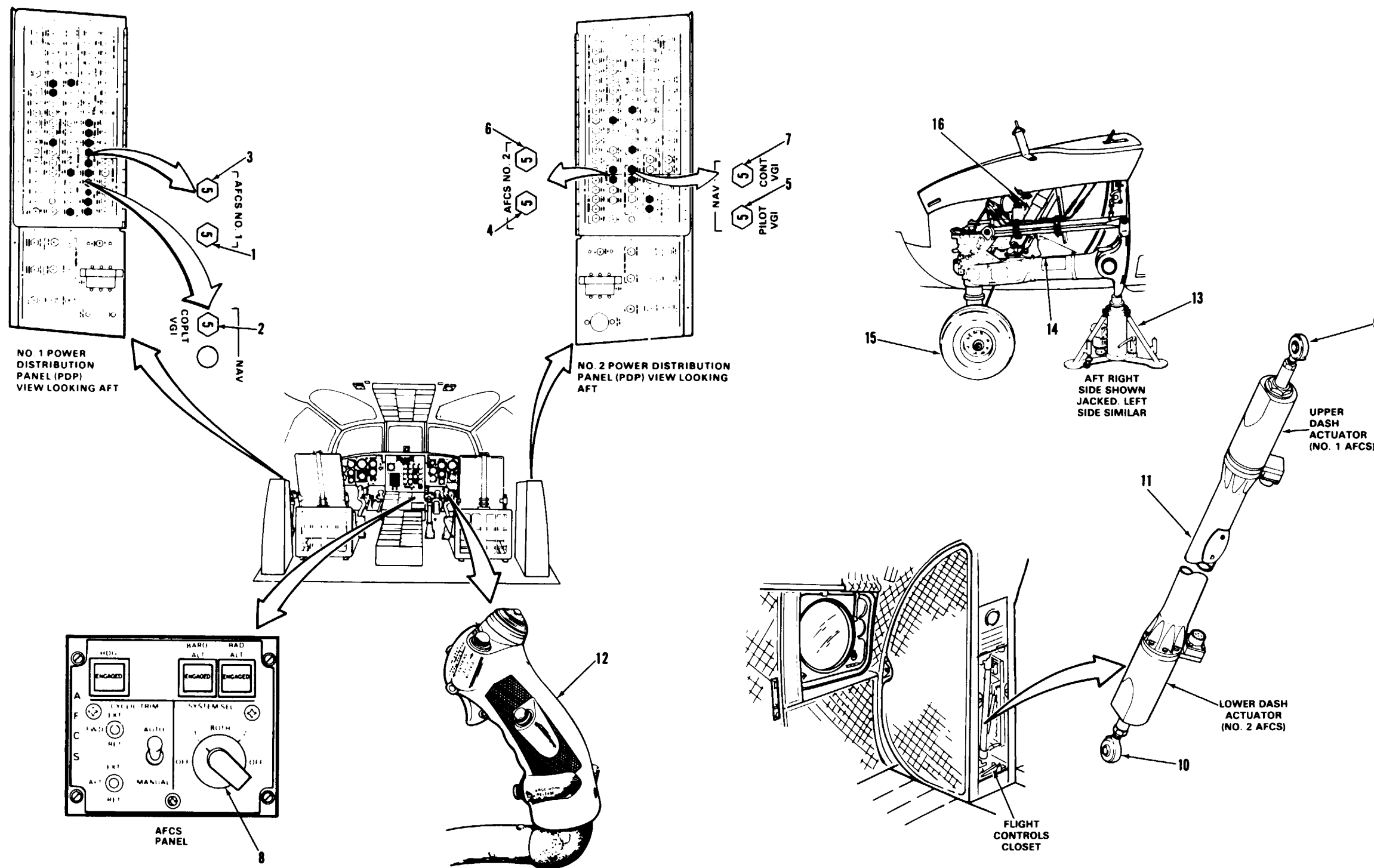
TM 55-1520-240-23

Equipment Condition:

- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Aft Landing Gear Access Panels Open
- Flight Controls Closet Acoustic Blanket Removed
- Flight Controls Closet Panel Open

TASK	RESULT
<i>CHECK CIRCUIT BREAKERS</i>	
1. Check that following circuit breakers in NO. 1 PDP are closed: AC AFCS NO. 1 (1) NAV COPLT VGI (2) DC AFCS NO. 1 (3)	If any circuit breaker ( 1 through 3) is open, close it. If AFCS NO. 1 circuit breaker (1) opens again, go to task 11-3.4. If NAV COPLT VGI circuit breaker (2) opens again, refer to TM 11-1520-240-20. If AFCS NO. 1 circuit breaker (3) opens again, go to task 11-3.6.
2. Check that following circuit breakers in NO. 2 PDP are closed: AC AFCS NO. 2 (4) NAV PILOT VGI (5) DC AFCS NO. 2 (6) NAV CONT VGI (7)	If any circuit breaker (4 through 7) is open, close it. If AFCS NO. 2 circuit breaker (4) opens again, go to task 11-3.10. If NAV PILOT VGI circuit breaker (5) opens again, refer to TM 11-1520-240-20 for troubleshooting information. If AFCS NO. 2 circuit breaker (6) opens again, go to task 11-3.11. If NAV CONT VGI circuit breaker (7) opens again, refer to TM 11-1520-240-20 for troubleshooting information.
<i>CHECK LEFT PROXIMITY SWITCH</i>	
3. Set SYSTEM SEL switch (8) to 1.	
4. Position observer at flight controls closet to watch output shafts (9 and 10) of DASH actuator (11).	
5. Move pilot's pitch and roll control stick grip (12) forward.	Output shaft (9) on DASH actuator (11) shall not move. If it moves, go to task 11-3.15.
6. Return pilot's pitch and roll control stick grip (12) to neutral.	

TASK	RESULT
<b>WARNING</b>	
Keep movement to minimum while aircraft is on jack. Personnel injury and damage to equipment can result if aircraft should slip off jack.	
7. Raise left aft end of helicopter with jack (13) but do not install static lock (14). Jack helicopter until wheel (15) is off ground and shock strut (16) is fully extended.	
8. Move pilot's pitch and roll control stick grip (12) forward.	Output shaft (9) on DASH actuator (11) shall move. If it does not, check proximity switch adjustment. If adjustment is correct, go to task 11-3.15.
9. Return pilot's pitch and roll control stick grip (12) to neutral.	
10. Lower jack (13) until clear of helicopter and remove it.	
<i>CHECK RIGHT PROXIMITY SWITCH</i>	
11. Set SYSTEM SEL switch (8) to 2.	
12. Repeat steps 4, 5, and 6 above.	Output shaft (10) on DASH actuator (11) shall not move. If it moves, go to task 11-3.15.
13. Repeat steps 7 through 10 above, except jack right aft end of helicopter.	Output shaft (10) on DASH actuator (11) shall move. If it does not, check proximity switch adjustment. If adjustment is correct, go to task 11-3.15.
<i>FOLLOW-ON MAINTENANCE:</i>	
TM 55-1520-240-23	
Close aft landing gear access panels.	
Close flight controls closet and install blanket.	



3-1.4 PROXIMITY SWITCH OPERATIONAL CHECK (WITH 25)

**INITIAL SETUP**

Applicable Configurations:

With 25

Tools:

- Aircraft Mechanic's Tool Kit,
- NSN 5180-00-323-4692
- Jack 1214-151 or equal

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23

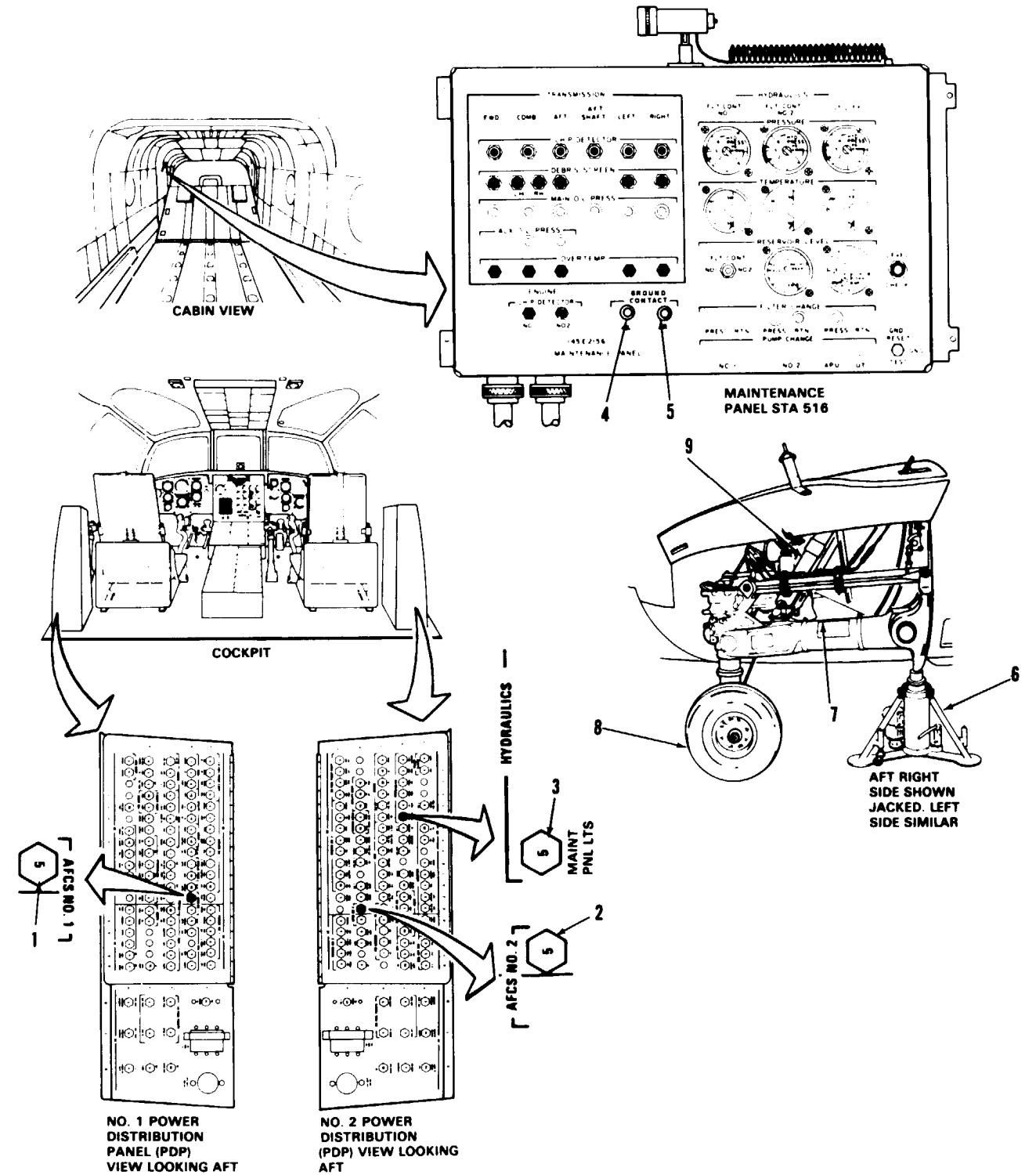
Equipment Condition:

- Battery Connected
- Electrical Power On
- Aft Landing Gear Access Panels Open

TASK	RESULT
<b>CHECK CIRCUIT BREAKERS</b>	
1. Check that AFCS NO. 1 DC circuit breaker (1) is closed.	If AFCS NO. 1 DC circuit breaker (1) is open, close it. If it opens again, go to task 11-3.6.
2. Check that AFCS NO. 2 DC circuit breaker (2) is closed.	If AFCS NO. 2 DC circuit breaker (2) is open, close it. If it opens again, go to task 11-3.11.
3. Check that HYDRAULICS MAINT PNL LTS circuit breaker (3) is closed.	If HYDRAULICS MAINT PNL LTS circuit breaker (3) is open, close it. If it opens again, go to task 8-14.10.
<b>CHECK LEFT PROXIMITY SWITCH</b>	
4. Check left GROUND CONTACT light (4).	Left GROUND CONTACT light (4) shall be lit. If it is not, go to task 3-1.5.
5. Raise left aft end of helicopter with jack (6) but do not install static lock (7). Jack helicopter until wheel (8) is off the ground and shock strut (9) is fully extended.	Left GROUND CONTACT light (4) shall go out. If it does not, go to task 3-1.6.
6. Lower jack (6) until clear of helicopter and remove it.	
<b>CHECK RIGHT PROXIMITY SWITCH</b>	
7. Check right GROUND CONTACT light (5).	Right GROUND CONTACT light (5) shall be lit. If it is not, go to task 3-1.7.
8. Raise right aft end of helicopter with jack (6) but do not install static lock (7). Jack helicopter until wheel (8) is off the ground and shock strut (9) is fully extended.	Right GROUND CONTACT light (5) shall go out. If it does not, go to task 3-1.8.
9. Lower jack (6) until clear of helicopter and remove it.	

**FOLLOW-ON MAINTENANCE:**

- Disconnect battery.
- Turn electrical power off.
- Close aft landing gear access panels.



12430

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

With **25**

Tools:

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

Materials:

None

Personnel Required:

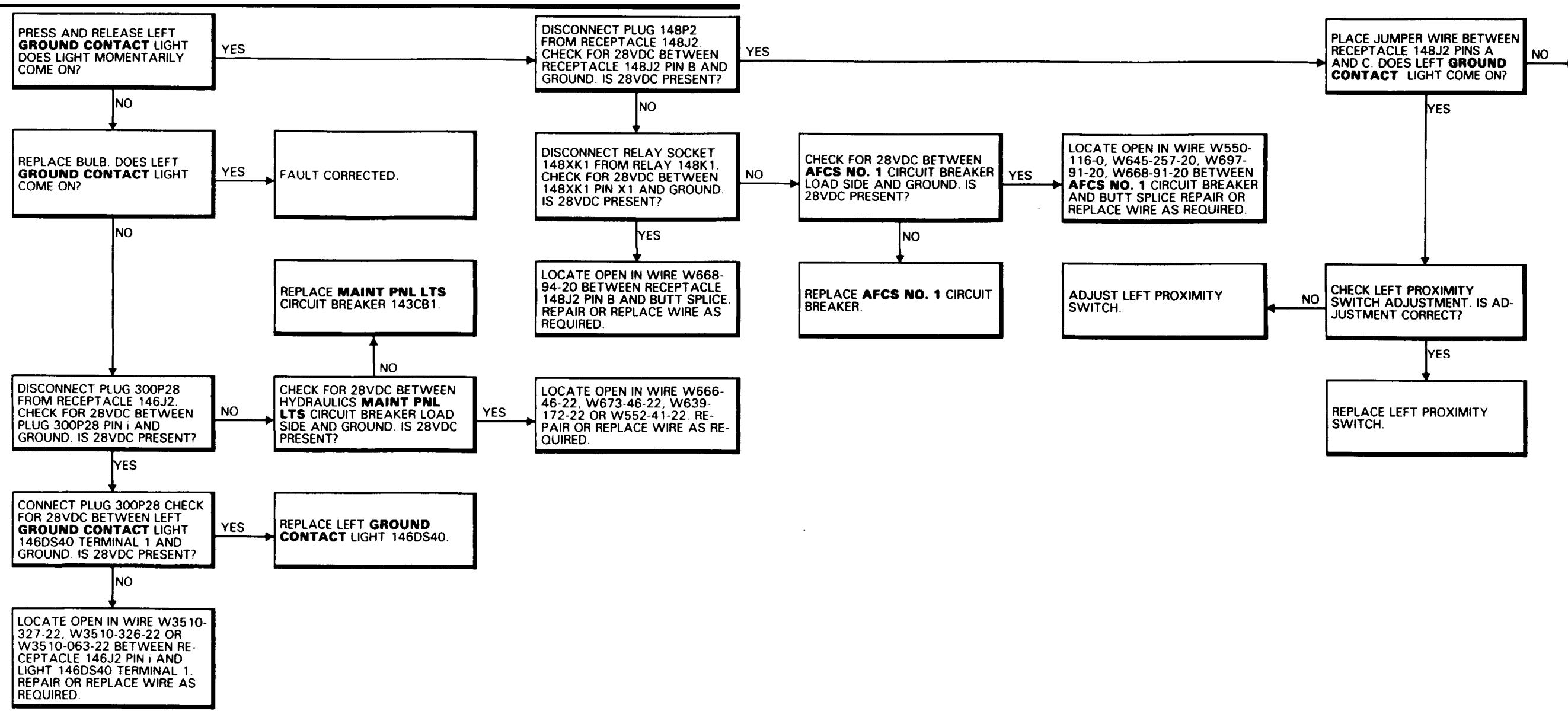
Aircraft Electrician

References:

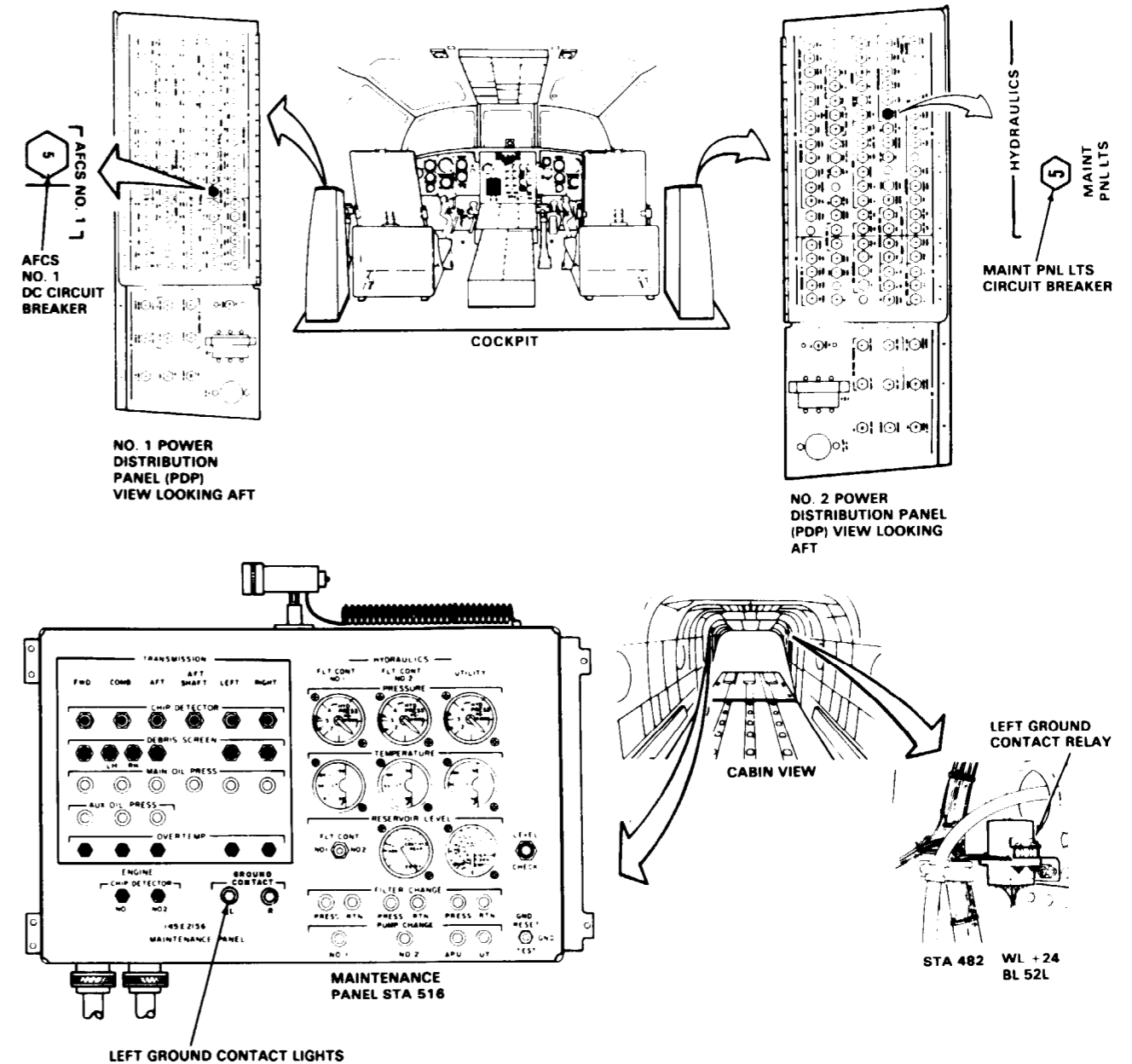
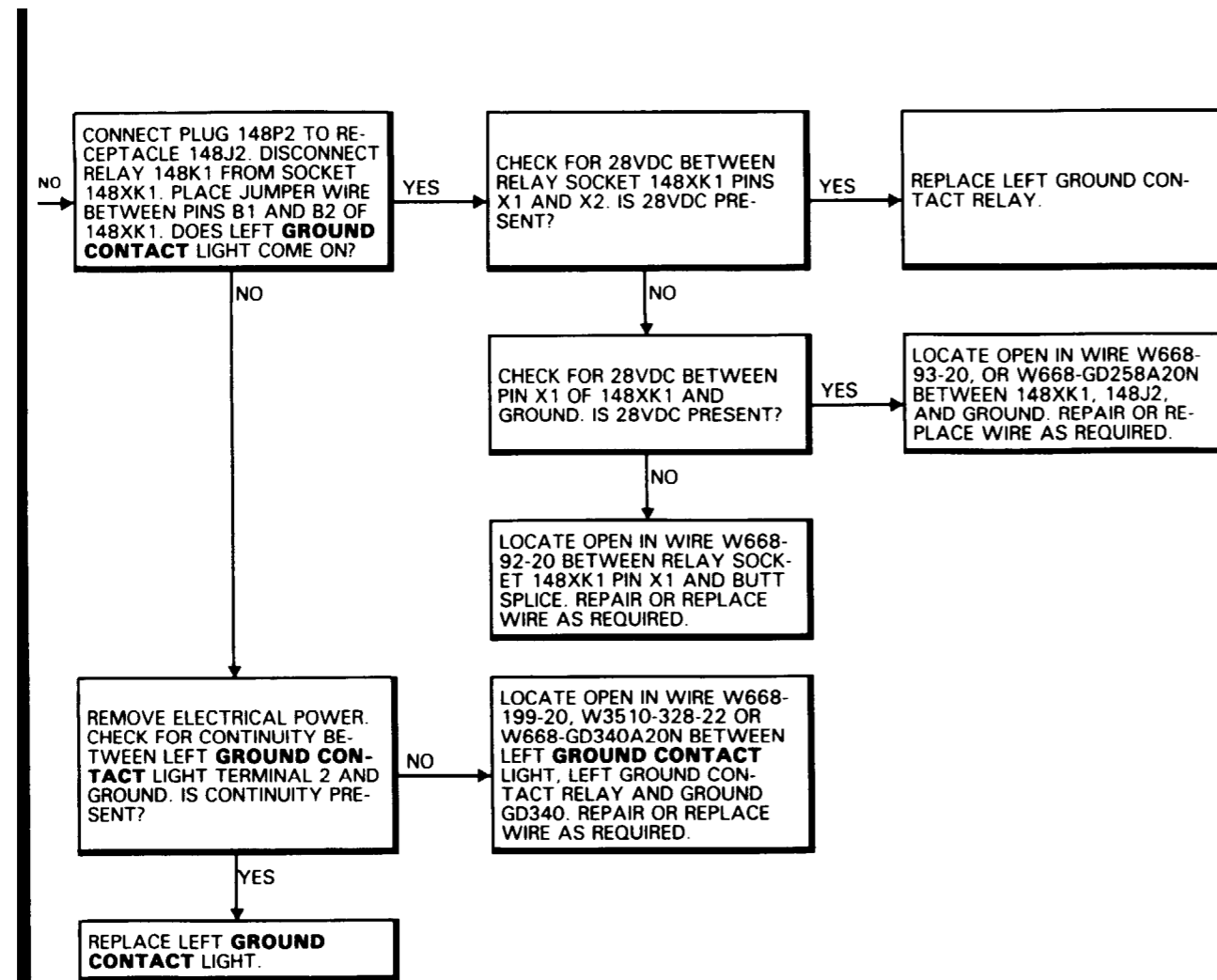
TM 55-1520-240-23

Equipment Condition:

Battery Connected  
Electrical Power On  
Aft Landing Gear Access Panels Open



3-1.5 LEFT GROUND CONTACT LIGHT IS NOT LIT WHEN LEFT AFT WHEEL IS ON THE GROUND (Continued)



12431



3-1.6 LEFT GROUND CONTACT LIGHT STAYS LIT WHEN LEFT AFT WHEEL IS OFF THE GROUND

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

With 25

Tools:

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

Materials

None

Personnel Required:

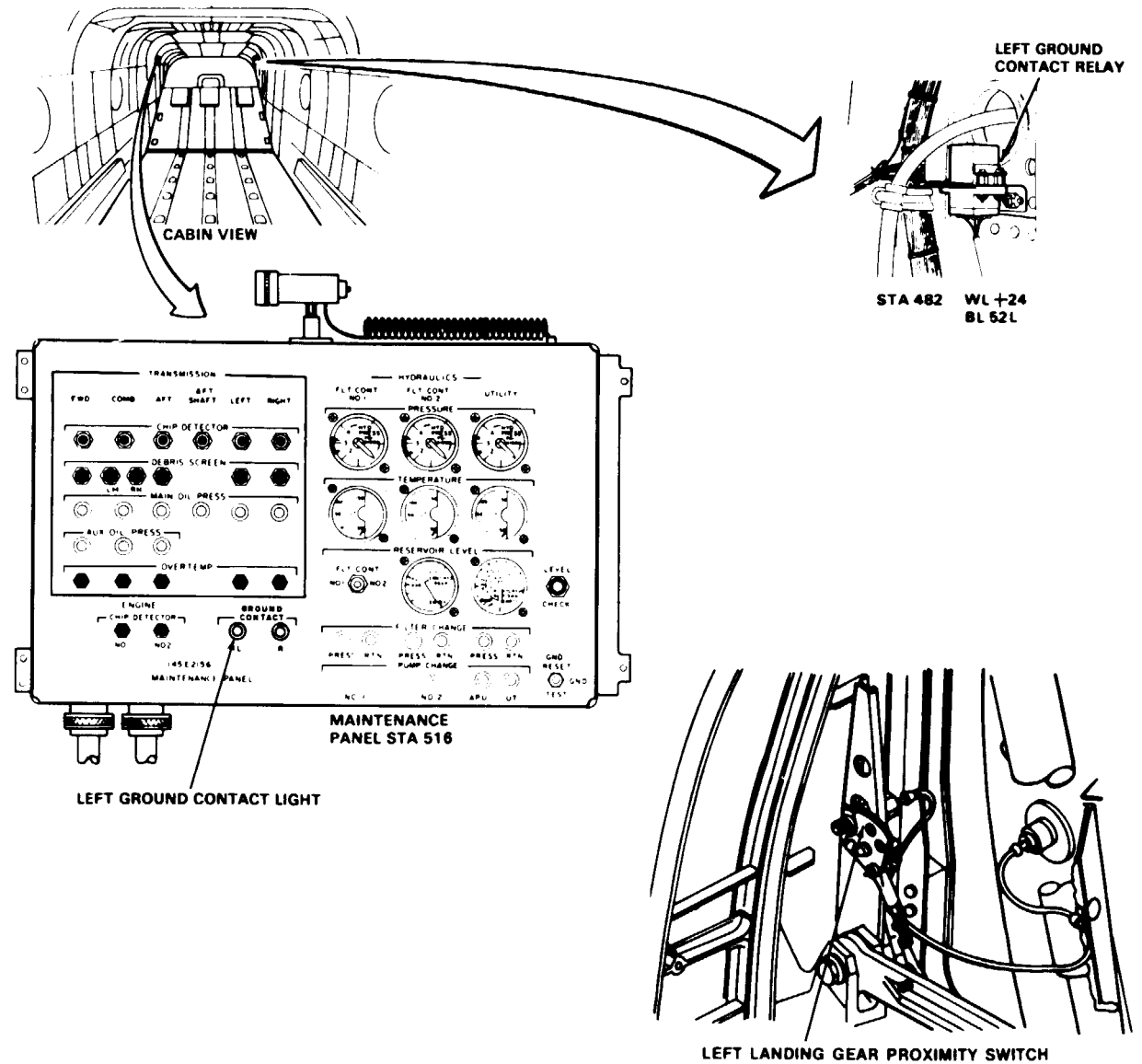
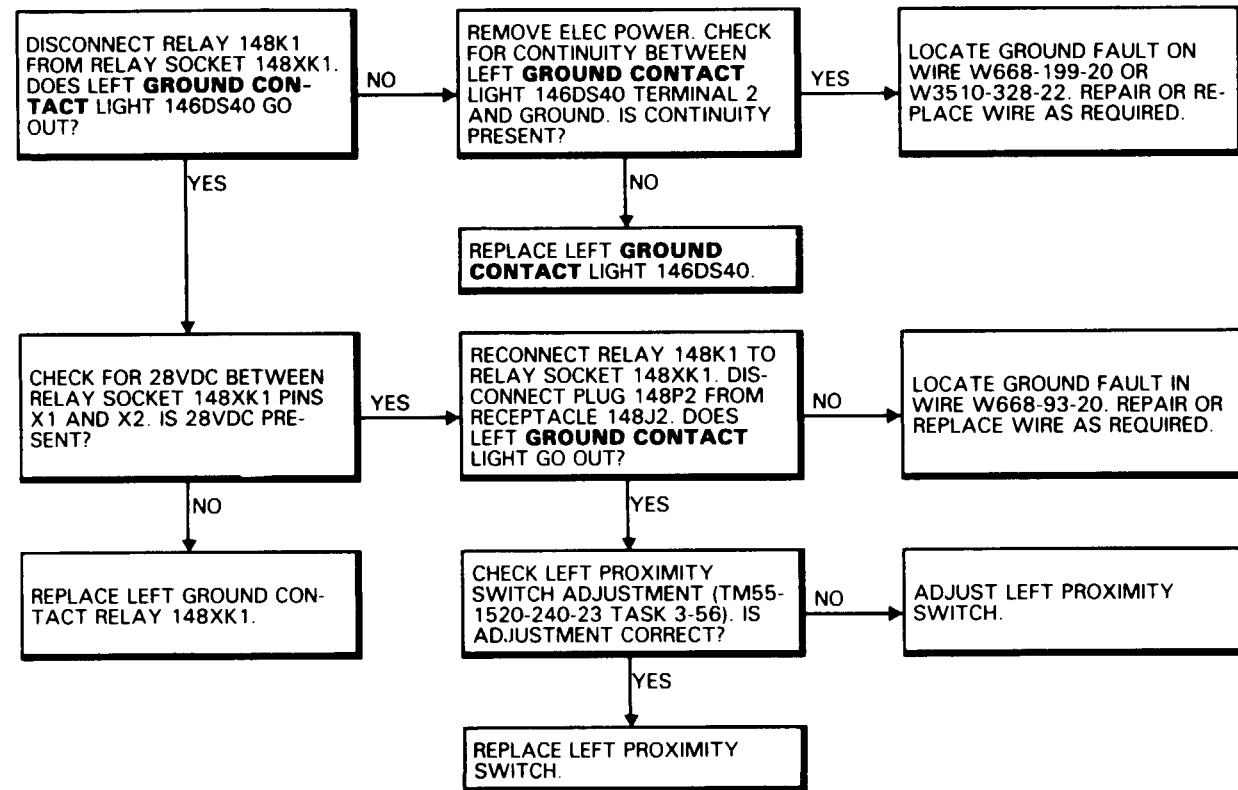
Aircraft Electrician

References:

TM 55-1520-240-23

Equipment Condition:

Battery Connected  
Electrical Power On  
Aft Landing Gear Access Panels Open



FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

With 25

Tools:

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

Materials:

None

Personnel Required:

Aircraft Electrician

References:

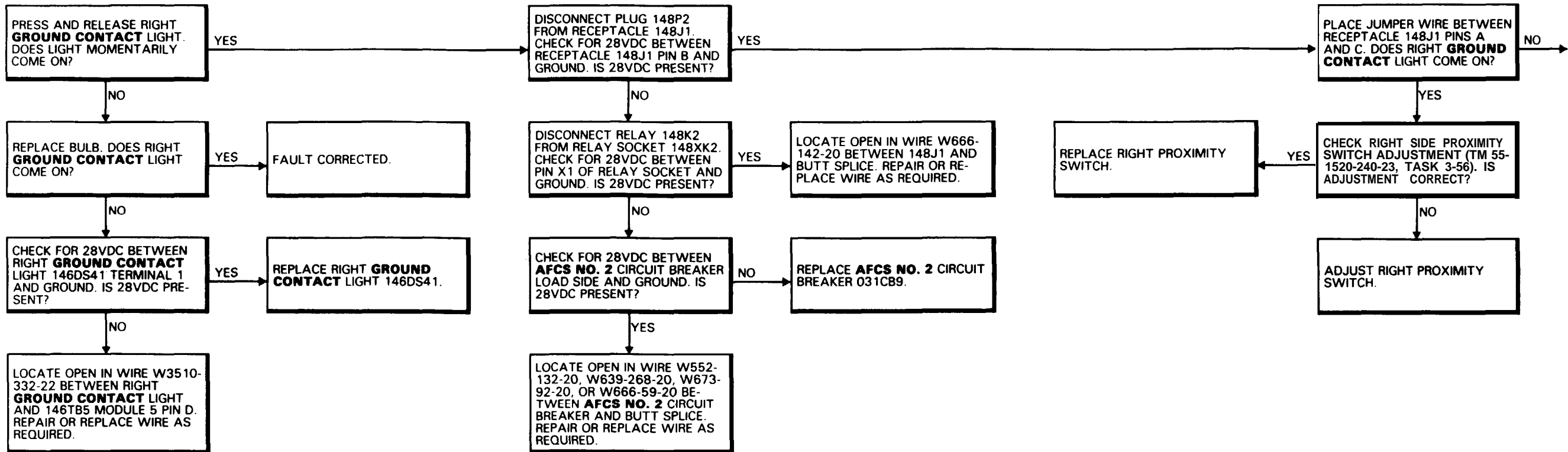
TM 55-1520-240-23

Equipment Condition:

Battery Connected

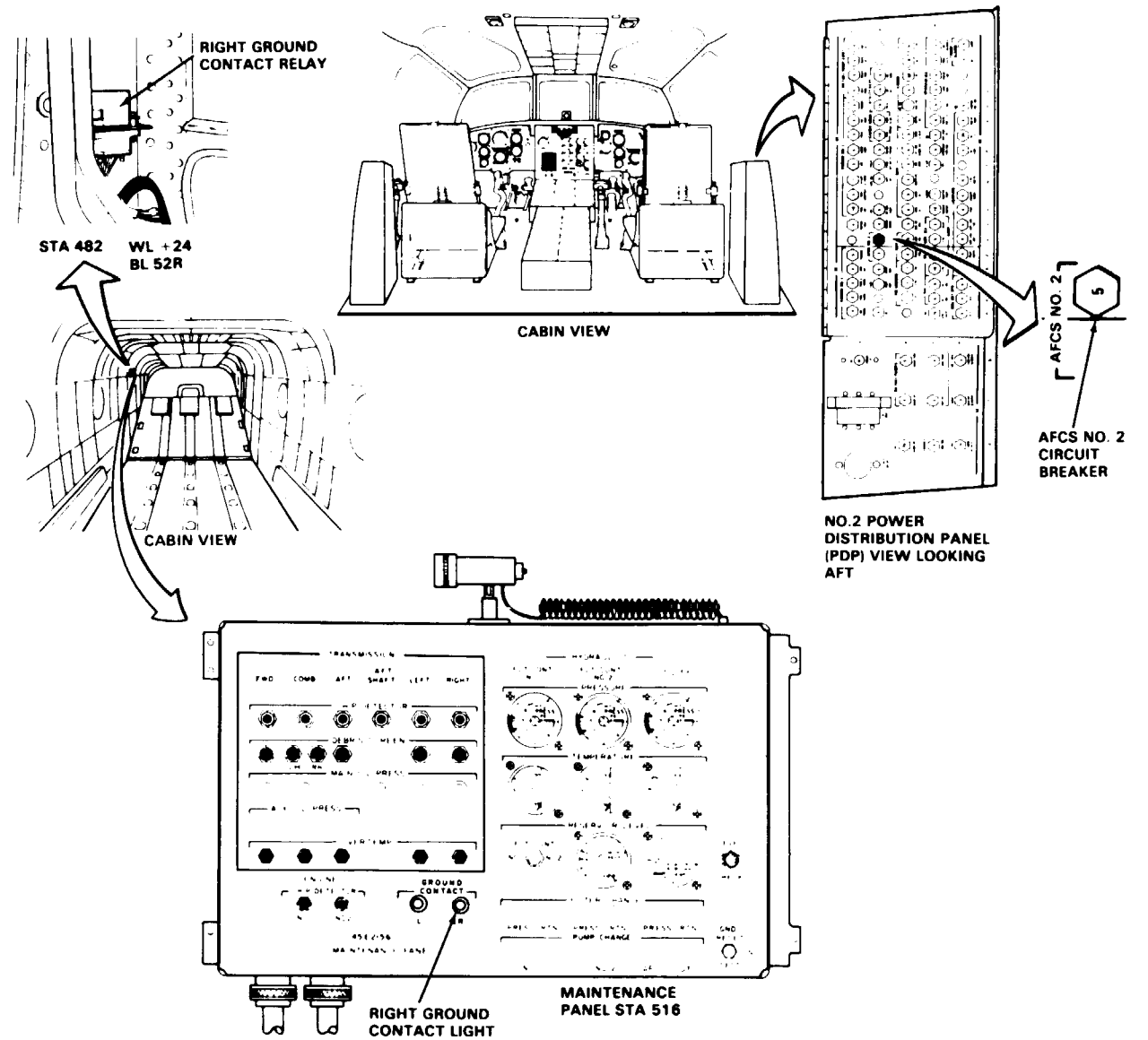
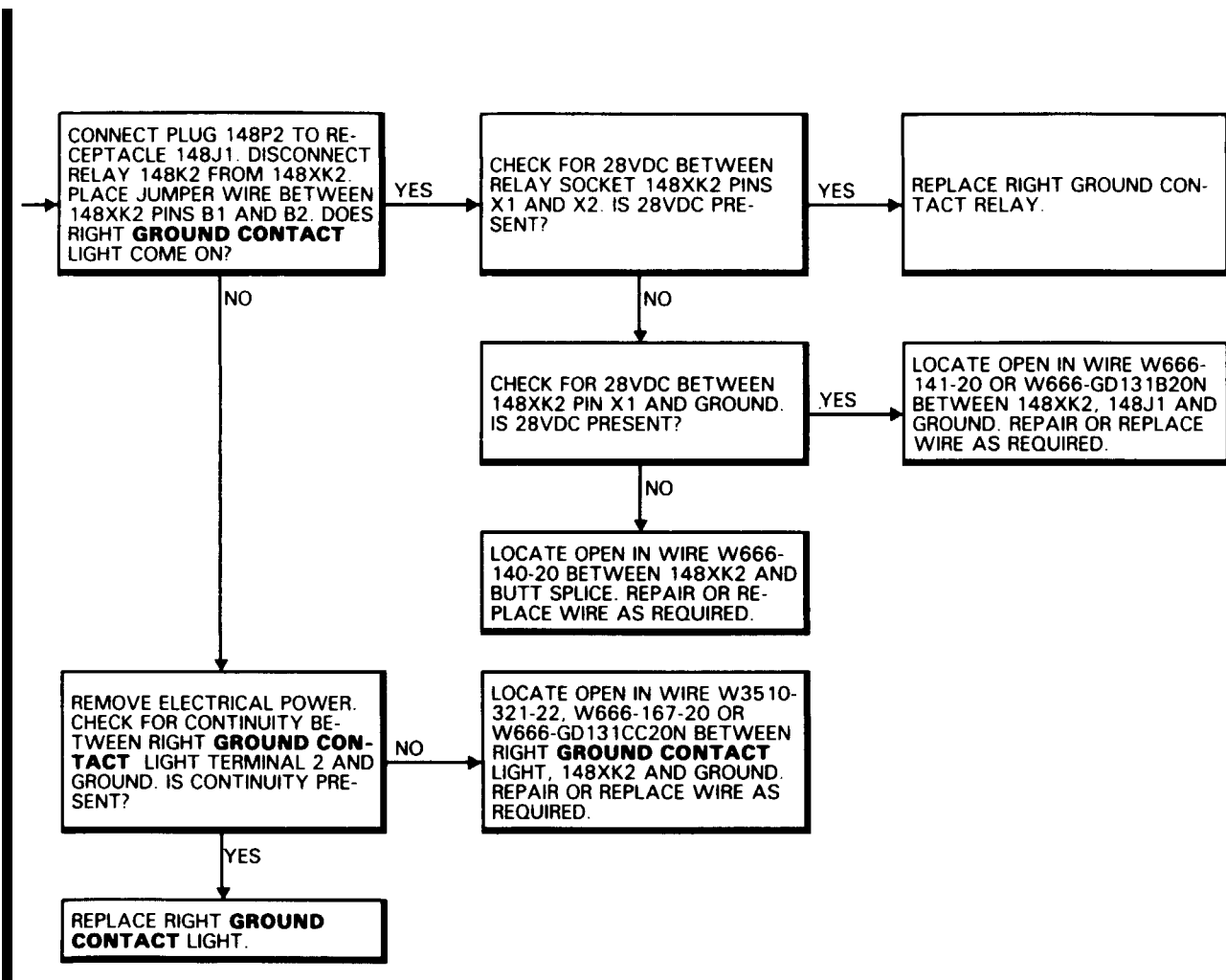
Electrical Power On

Aft Landing Gear Access Panels Open



3-1.7 RIGHT GROUND CONTACT LIGHT IS NOT LIT WHEN RIGHT AFT WHEEL IS ON THE GROUND

(Continued)



12433

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

With 25

Tools:

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

Materials:

None

Personnel Required:

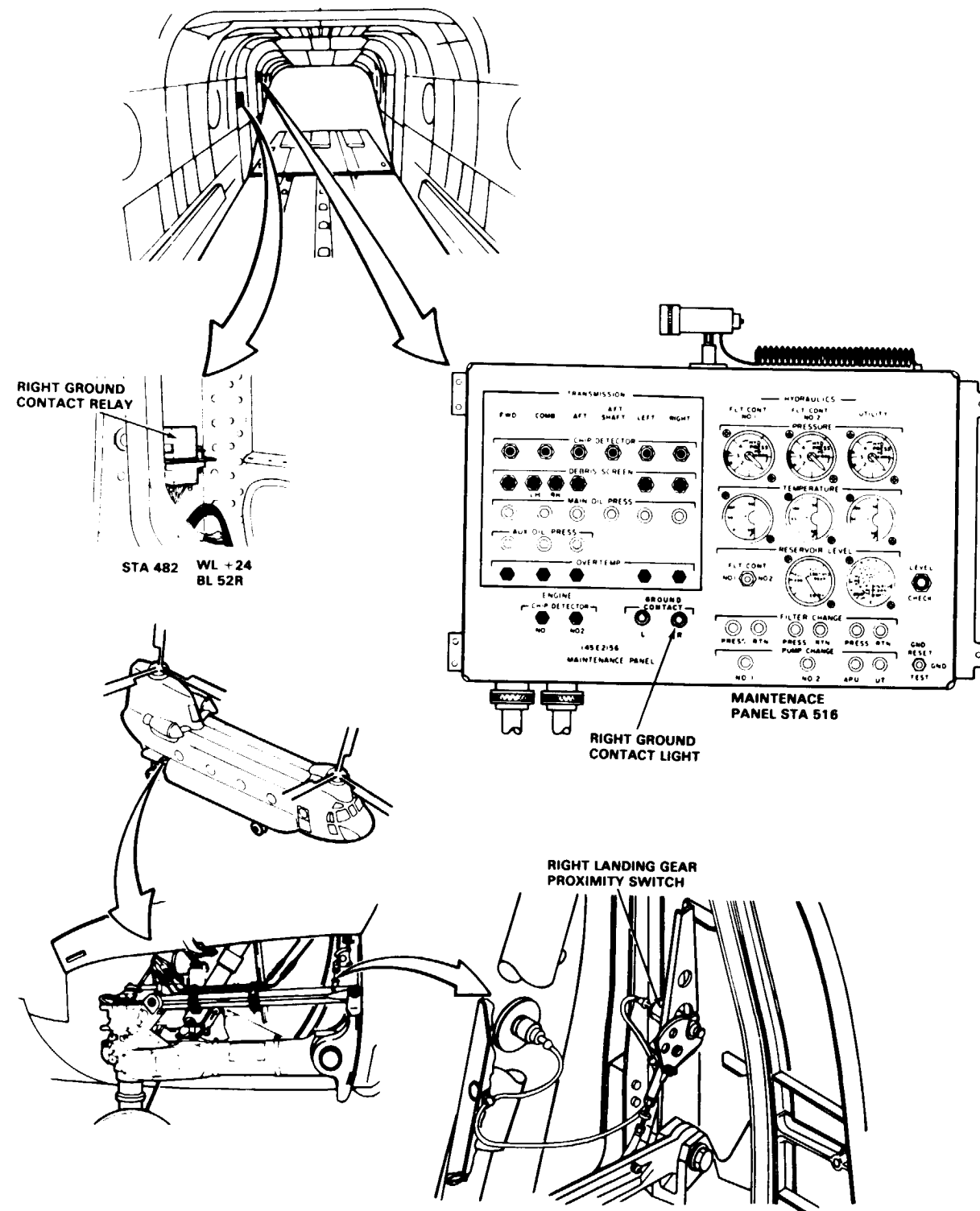
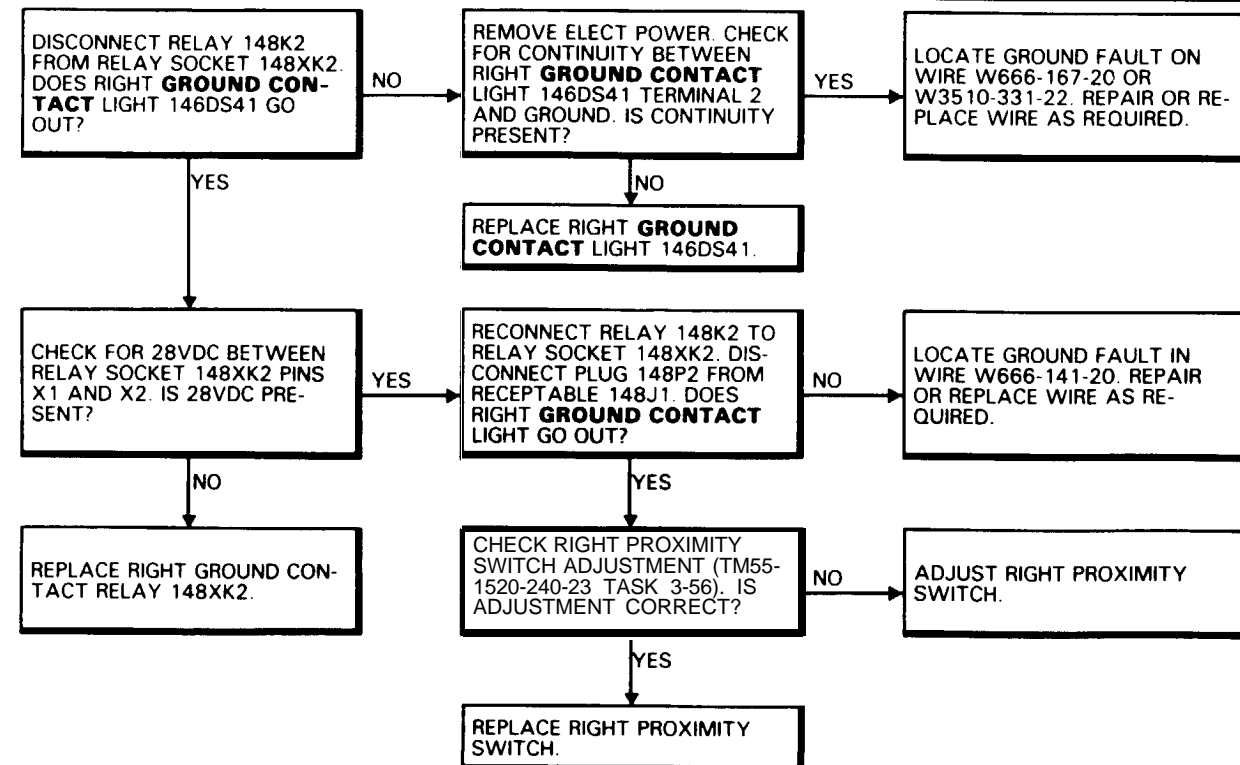
Aircraft Electrician

References:

TM 55-1520-240-23

Equipment Condition:

Battery Connected  
Electrical Power On  
Aft Landing Gear Access Panels Open



## CHAPTER 4

# POWERPLANT SYSTEMS TROUBLE SHOOTING

**CHAPTER 4  
POWERPLANT SYSTEM TROUBLESHOOTING  
CHAPTER OVERVIEW**

Chapter 4 contains procedures for Powerplant System troubleshooting. Each system and failure symptom is listed below. Included in this Chapter are locations and views of all electrical connectors, receptacles, relays, and ground connections for the Powerplant System. Refer to TM 55-1520-240-23 for required maintenance procedures.

SYSTEM	PARA	SYSTEM	PARA
ENGINE PERFORMANCE CHECK (WITHOUT 74)	4-1	ENGINE PERFORMANCE CHECK (WITH 74)	4-8
ENGINE ANTI-ICING SYSTEM (WITHOUT 74)	4-2	ENGINE LOW OIL LEVEL WARNING SYSTEM (WITH 74)	4-9
ENGINE LOW OIL LEVEL WARNING SYSTEM (WITHOUT 74)	4-3	ENGINE START AND IGNITION SYSTEM (WITH 74)	4-10
ENGINE START AND IGNITION SYSTEM (WITHOUT 74)	4-4	GAS PRODUCER CONTROL SYSTEM (N1) (WITH 74)	4-11
GAS PRODUCER CONTROL SYSTEM (N1) (WITHOUT 74)	4-5	FULL AUTHORITY DIGITAL ELECTRONIC CONTROL (FADEC) (WITH 74)	4-12
POWER TURBINE CONTROL SYSTEM (N2) (WITHOUT 74)	4-6	ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITH 74)	4-13
ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITHOUT 74)	4-7		

**FAILURE SYMPTOM LIST**

**ENGINE PERFORMANCE CHECK (WITHOUT 74)**

SYMPTOM	TASK
DUAL ENGINE BEEP TRIM INCORRECT, ROTOR RPM BETWEEN 94-96 PERCENT WITH ECL AT FLIGHT	4-1.1
NO. 1 ENGINE HIGH PTIT READING DURING START OR HOT START	4-1.1
NO. 1 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM	4-1.1
NO. 1 OR NO. 2 ENGINE HIGH PTIT	4-1.1

SYMPTOM	TASK
ENG NO. 1 OR NO. 2 ANTI-ICE CIRCUIT BREAKER WILL NOT STAY CLOSED	4-2.4

SYMPTOM	TASK
NO. 1 OR NO. 2 ENGINE N2 OVERSPEED OCCURS WHEN ECL IS MOVED FROM GROUND IDLE TO FLIGHT	4-1.1
NO. 1 OR NO. 2 ENGINE OIL TEMP HIGH	4-1.1
NO. 1 OR NO. 2 ENGINE ROUGH OR SURGING ACCELERATION FROM GROUND IDLE TO FLIGHT	4-1.1

**ENGINE ANTI-ICE SYSTEM (WITHOUT 74)**

SYMPTOM	TASK
NO. 1 ENGINE ANTI-ICING VALVE DOES NOT OPERATE (CLICK NOT HEARD)	4-2.4

SYMPTOM	TASK
NO. 2 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM	4-1.1
ROTOR RPM CHANGES MORE THAN +0 OR -2 PERCENT OR ENGINE TORQUE SPLIT EXCEEDS 6 PERCENT DURING HOVER	4-1.1

SYMPTOM	TASK
NO. 2 ENGINE ANTI-ICING VALVE DOES NOT OPERATE (CLICK NOT HEARD)	4-2.4

**ENGINE LOW OIL LEVEL WARNING (WITHOUT 74)**

SYMPTOM	TASK
NO. 1 OR NO. 2 ENGINE LOW OIL CAUTION LIGHTS DO NOT COME ON	4-3.3

**ENGINE START AND IGNITION (WITHOUT 74 )**

SYMPTOM	TASK
ENGINE NO. 1 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
ENGINE NO. 1 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
ENGINE NO. 2 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
ENGINE NO. 2 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED	4-4.4
ENGINE 1 STARTER ON LIGHT DOES NOT COME ON	4-4.4

SYMPTOM	TASK
ENGINE 2 STARTER ON LIGHT DOES NOT COME ON	4-4.4
NO. 1 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)	4-4.4
NO. 1 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-4.4
NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-4.4
NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START 4-4.4	

SYMPTOM	TASK
NO. 2 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)	4-4.4
NO. 2 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-4.4
NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-4.4
NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START 4-4.4	

**GAS PRODUCER CONTROL SYSTEM (N1) (WITHOUT 74 )**

SYMPTOM	TASK
ENGINE NO. 1 OR NO. 2 COND CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-5.3
NO. 1 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND	4-5.3
NO. 1 ENG CONT N1 CAPSULE DOES NOT COME ON	4-5.3

SYMPTOM	TASK
NO. 1 ENGINE OR NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MAKE CONTACT WITH STOP OR BROWN BAND IS NOT PARTIALLY COVERED	4-5.3
NO. 1 ENG OR NO. 2 ENG N1 CONT CAPSULE IS LIT	4-5.3

SYMPTOM	TASK
NO. 2 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND	4-5.3
NO. 2 ENG N1 CONT CAPSULE DOES NOT COME ON	4-5.3

**POWER TURBINE CONTROL SYSTEM (N2) (WITHOUT 74 )**

SYMPTOM	TASK
ENGINE NO. 1 TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
ENGINE NO. 1 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
ENGINE NO. 2 TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
ENGINE NO. 2 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 1 EMERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED)	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE	4-6.3

SYMPTOM	TASK
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO DEC	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO INC	4-6.3
NO. 1 ENGINE FUEL CONTROL POINTER NOT BETWEEN 130 AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK	4-6.3
NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP	4-6.3
NO. 2 EMERG ENGINE TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED)	4-6.3

SYMPTOM	TASK
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 AND 2 ENGINE BEEP TRIM SWITCH SET TO RPM DECREASE	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 AND 2 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO DEC	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO INC	4-6.3
NO. 2 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK	4-6.3
NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED)	4-6.3

**ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITHOUT 74 )**

SYMPTOM	TASK
ENG CHIP DET CAPSULE DOES NOT COME ON AND ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED	4-7.3
NO. 1 AND NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS ALL BLACK WHEN GND SWITCH SET TO TEST	4-7.3

SYMPTOM	TASK
NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-7.3
NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN, ENG CHIP DET CAPSULE OUT	4-7.3

SYMPTOM	TASK
NO. 1 OR NO. 2 ENG CHIP DET CAPSULE IS LIT	4-7.3
NO. 2 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-7.3

**ENGINE PERFORMANCE CHECK (WITH 74 )**

SYMPTOM	TASK
DECU CODE F AFTER POWER ASSURANCE TEST	4-8.1
ENG FAIL WARNING NOT SHOWN (12 SECONDS ON) DURING ENGINE SHUTDOWN OR WHEN ENG PRI REV SWITCH SET TO PRI	4-8.1
ENG FAIL WARNING STAYS ON	4-8.1

SYMPTOM	TASK
ENGINE OVERSPEED TEST FAILS	4-8.1
FADEC REV MODE INOPERATIVE	4-8.1
PTIT'S NOT MATCHED WITH LOAD SHARE SWITCH SET TO PTIT	4-8.1

SYMPTOM	TASK
FADEC TOGGLES BETWEEN PRIMARY AND REVERSIONARY MODE	4-8.1
TORQUES NOT MATCHED WITH LOAD SHARE SWITCH AT TRQ	4-8.1

**ENGINE LOW OIL LEVEL WARNING SYSTEM (WITH 74 )**

SYMPTOM	TASK
ENG1 OIL LVL LO CAUTION LIGHTS DO NOT COME ON	4-9.3
ENG2 OIL LVL LO CAUTION LIGHTS DO NOT COME ON	4-9.3

**ENGINE START AND IGNITION SYSTEM (WITH 74 )**

SYMPTOM	TASK
FADEC NO. 1 START & IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-10.4
FADEC NO. 2 START & IGN CIRCUIT BREAKER DOES NOT STAY CLOSED	4-10.4
NO. 1 ENGINE DOES NOT MOTOR OR N1 GAUGE DOES NOT REACH 10%	4-10.4

SYMPTOM	TASK
NO. 1 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-10.4
NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-10.4
NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-10.4

SYMPTOM	TASK
NO. 2 ENGINE DOES NOT MOTOR OR N1 GAUGE DOES NOT REACH 10%	4-10.4
NO. 2 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)	4-10.4
NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)	4-10.4
NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START	4-10.4

**GAS PRODUCER CONTROL SYSTEM (N1) (WITH 74 )**

SYMPTOM	TASK
DECU CODE IS A5 AND/OR B6	4-11.3

**FADEC (WITH 74 )**

SYMPTOM	TASK
DECU CODE 10 TO 18	4-12.4
DECU CODE 1B AND 1C	4-12.4

SYMPTOM	TASK
DECU CODE 1E AND 1F	4-12.4
DECU CODE AI TO A7	4-12.4

SYMPTOM	TASK
DECU CODE B2 TO B9	4-12.4
DECU CODE BA AND BC	4-12.4



**FADEC (WITH 74 ) (Continued)**

SYMPTOM	TASK
DECU CODE C1 TO C9	4-12.4
DECU CODE CF	4-12.4
DECU CODE D0 TO D9	4-12.4
DECU CODE DA TO DF	4-12.4
DECU CODE E1 TO E5	4-12.4

SYMPTOM	TASK
DECU CODE F1 TO F9	4-12.4
DECU CODE FA AND FB	4-12.4
FADEC 1 CAPSULE ON MASTER CAUTION PANEL ILLUMINATES (ENGINE RUNNING NORMALLY IN PRI MODE)	4-12.4
FADEC 2 CAPSULE ON MASTER CAUTION PANEL ILLUMINATES (ENGINE RUNNING NORMALLY IN PRI MODE)	4-12.4

SYMPTOM	TASK
ENGINE NO. 1 PRI CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-12.4
ENGINE NO. 1 REV CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-12.4
ENGINE NO. 2 PRI CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-12.4
ENGINE NO. 2 REV CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	4-12.4

**ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITH 74 )**

SYMPTOM	TASK
ENG CHIP DET CAPSULE DOES NOT COME ON AND ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED	4-13.3
NO. 1 AND NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS ALL BLACK WHEN GND SWITCH SET TO TEST	4-13.3

SYMPTOM	TASK
ENG 1 CHIP DETR CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-13.3
NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN, ENG 1 OR ENG 2 CHIP DETR CAPSULE OUT	4-13.3

SYMPTOM	TASK
ENG 1 OR ENG 2 CHIP DETR CAPSULE IS LIT	4-13.3
ENG 2 CHIP DETR CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	4-13.3

POWERPLANT SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST

REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION			REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION		
				FS	WL	BL					FS	WL	BL
GD012		151	AFT CABIN OVHD	528	45	15L	101K2		103	OVERHEAD PANEL (WITHOUT 74)	67	54	
GD013		151	AFT CABIN OVHD	528	45	15L	101K2		103	START AND IGNITION RELAYS, FADEC (WITH 74)	490	40	48L
GD021		150	COCKPIT	61	40	10R	101K3		103	START AND IGNITION RELAYS, FADEC (WITH 74)	490	40	48L
GD032		151	COCKPIT	61	40	10L	101K4		103	START AND IGNITION RELAYS, FADEC(WITH 74)	490	40	48L
GD034		150	COCKPIT	61	40	10L	102K1		325	NO. 2 ENG COND CNTRL RELAY, FADEC (WITH 74)	495	46	40L
GD035		151	COCKPIT	61	40	10L							
GD045		150	NO. 1 PDP				102K2		325	NO. 1 ENG COND CNTRL RELAY, FADEC (WITH 74)	495	46	40L
GD046		151	NO. 2 PDP										
GD054		151	RH POD	170	-20	52R	103K1		106	LH POD (WITHOUT 74)	165	-10	54L
GD058		151	AFT CABIN	494	20	52L	103K2		106	RH POD (WITHOUT 74)	187	-10	65R
GD059		151	AFT CABIN	492	50	20R	103K3		109	RH POD (WITHOUT 74)	187	-10	65R
GD060		151	AFT CABIN	477	30	52L	103K4		109	LH POD (WITHOUT 74)	165	-10	54L
GD061		151	AFT CABIN	492	50	20R	056P1	M83723-75A1407N	33	CTR INSTR PNL, PTIT IND			
GD062		151	LH CABIN	210	40	40L	056P2	M83723-75A1407N	33	CTR INSTR PNL, PTIT IND			
GD063		151	RH CABIN	215	50	40R	056P3	M24308/6-3	11	OVHD PNL EMERG PWR PNL			
GD132		150	LH POD	192	-20	52L	101P1	M83723-95A1005N	30	ENG NO. 1 START SOLENOID VALVE (WITH 74)	534	55	15L
GD173		150	RH POD	170	-20	52R	101P2	M83723-95A1005N	30	ENG NO. 2 START SOLENOID VALVE (WITH 74)	534	55	15L
GD198		151	RH POD	170	-20	52R	101S7			IGNITION SWITCH			
GD200		151	RH POD	170	-20	52R	102P1	MS3476W14-19P	21	LH CABIN OVHD (WITHOUT 74)	200	40	50L
GD201		151	FLIGHT CLOSET	95	10	15L	102P2	MS3476W16-26S	24	LH CABIN OVHD (WITHOUT 74)	200	40	50L
GD202		151	LH CABIN	242	40	45L	102P3	MS3476W14-19P	21	RH CABIN OVHD (WITHOUT 74)	200	40	50R
GD205		151	LH CABIN	242	40	45L	102P4	MS3476W16-26S	24	RH CABIN OVHD (WITHOUT 74)	200	40	50R
GD228		151	FLIGHT CLOSET AREA	100	42	12L	102P5	MS3476W14-19SW	21	OVHD PANEL, ENG CONT QUAD NO. 1 ENG (WITHOUT 74)			
GD340		151	RAMP AREA, LH (WITH 74)	497	35	50R							
GD405		151	RAMP CEILING AREA, LH (WITH 74)	491	45	30L	102P6	MS3476W14-19S	21	OVHD PANEL, ENG CONT QUAD NO. 2 ENG (WITHOUT 74)			
GD500		151	RAMP AREA, RH (WITH 74)	590	30	50R							
TB8			CONSOLE-FWD CTR INSTR PNL				103P1	MS3476W14-19S	21	LH CABIN, NO. 1 ENG CONT BOX	242	51	42L
TB17			COCKPIT PASSAGE WALKWAY, UNDER FLOOR				103P2	MS3476W14-19S	21	RH POD NO. 2 ENG CONT BOX	175	-30	65R
TB18			COCKPIT UNDER FLOOR-COPILOT				104J7	D38999-24WA35SN	313	C/P POS SNSR (WITH 74)			
TB19			RH POD (WITHOUT 74)				104J8	D38999-24WA35SN	313	C/P POS SNSR (WITH 74)			
TB20			LH POD (WITHOUT 74)				104J9	D38999-24WA35SN	313	C/P POS SNSR (WITH 74)			
TB24			FLIGHT CLOSET	95	-5	16L	104P1	D38999-26WJ61SN	305	J1 - DECU NO. 1 (WITH 74)			
TB36			OVERHEAD PANEL-COCKPIT	80	40	12R	104P2	D38999-26WJ61SN	305	J1 - DECU NO. 2 (WITH 74)			
THE FOLLOWING TB'S ARE LOCATED IN MAINTENANCE PANEL				510	25	50R	104P3	D38999-26WJ61SA	305	J3 - DECU NO. 1 (WITH 74)			
TB1							104P4	D38999-26WJ61SA	305	J3 - DECU NO. 2 (WITH 74)			
TB2							104P5	D38999-26WD18SN	309	J1 - FADEC CONT PNL, OVHD PANEL (WITH 74)			
TB3							104P6	D38999-26WD18SA	309	J2 - FADEC CONT PNL, OVHD PANEL (WITH 74)			
TB4							104S1			POWER ASSURANCE TEST SWITCH (WITH 74)	523	27	48R
101K1		103	OVERHEAD PANEL (WITHOUT 74)	67	54		146J1	MS3474W20-41P	26	RH AFT MAINTENANCE PANEL	510	25	50R
101K1		103	START AND IGNITION RELAYS, FADEC (WITH 74)	490	40	48L	146J2	MS3474W22-55P	27	RH AFT MAINTENANCE PANEL	510	25	50R

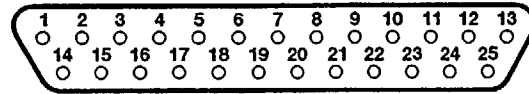


## POWERPLANT SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

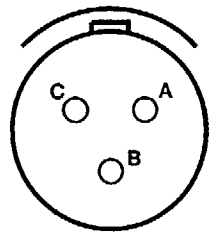
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				FS	WL	BL
300J76	D38999-24KH53SA	302	NO. 2 ENG DISC PAN RCPT (WITH 74)	590	40	50R
300J77	D38999-24KH53SA	302	NO. 1 ENG DISC PAN RCPT (WITH 74)	590	40	50L
300J78	D38999-24KA98SN	12	NO. 2 ENG DISC PAN RCPT (WITH 74)	590	40	50R
300J79	D38999-24KA98SN	12	NO. 1 ENG DISC PAN RCPT (WITH 74)	590	40	50L
300J80	D38999-24KD18SN	401	NO. 1 ENG DISC PAN RCPT (WITH 74)	590	40	50L
300J81	D38999-24KD18SN	401	NO. 2 ENG DISC PAN RCPT (WITH 74)	590	40	50R
300J84	D38999-26WG41SN	26	OVERHEAD PANEL-COCKPIT (WITH 74)			
300P84	D38999-26WG41PN	26	OVERHEAD PANEL-COCKPIT (WITH 74)			
300J85	D38999-26WG41SN	26	OVERHEAD PANEL-COCKPIT (WITH 74)			
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POWERPLANT SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

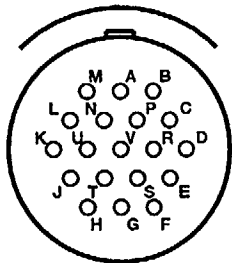
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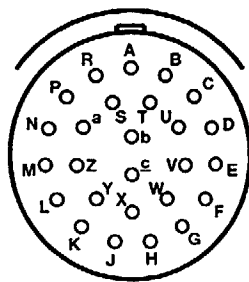
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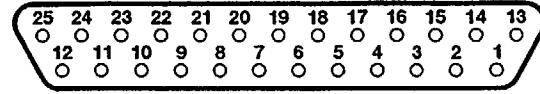


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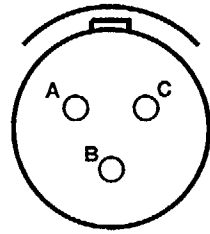


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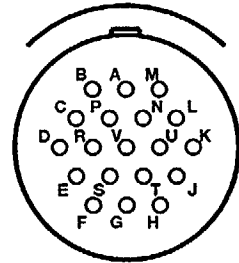
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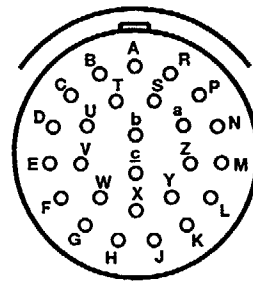
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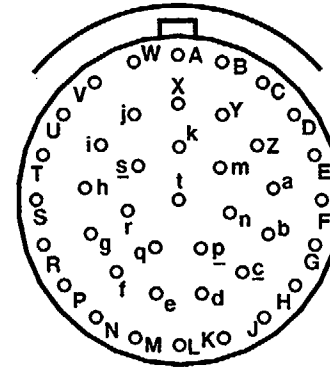


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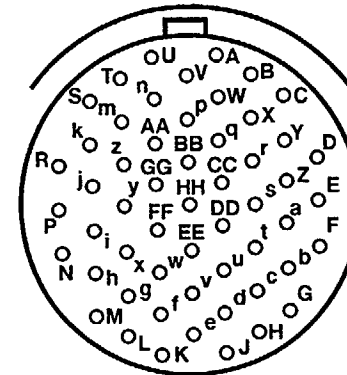


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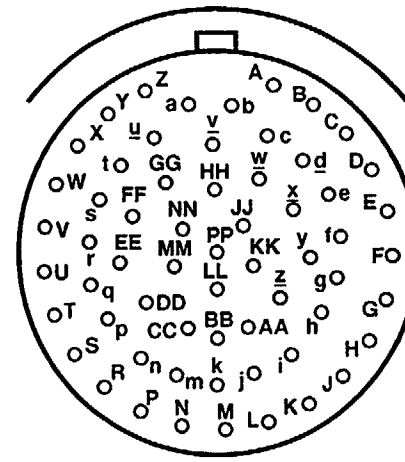
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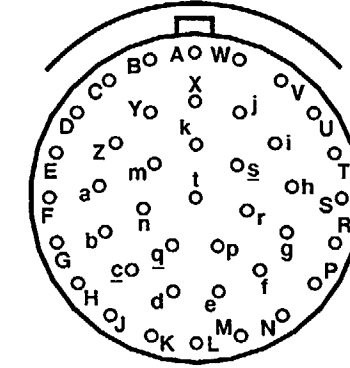


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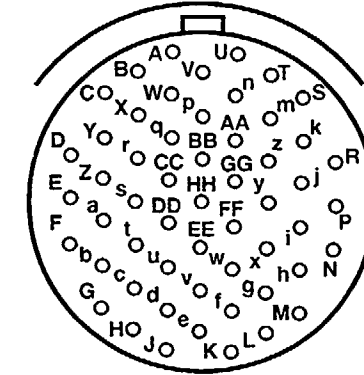


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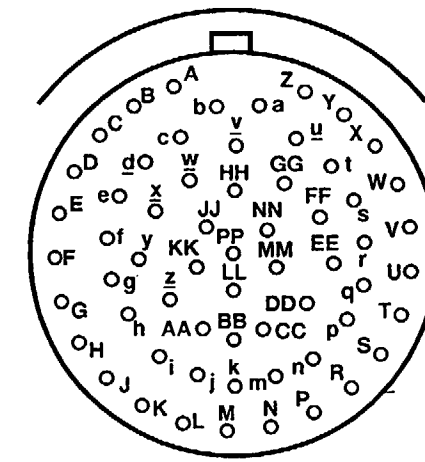
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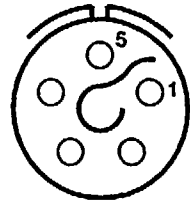
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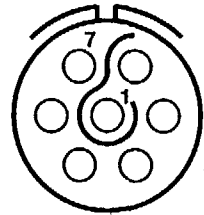
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POWERPLANT SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

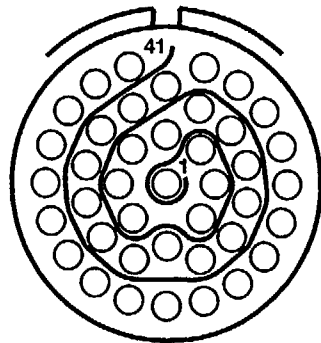
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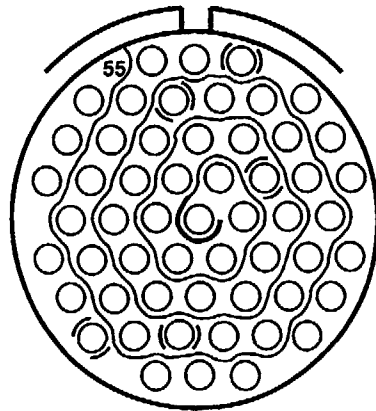
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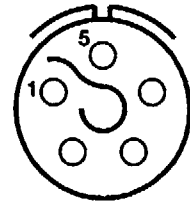


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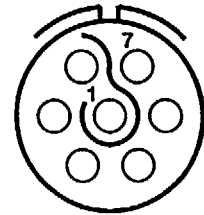


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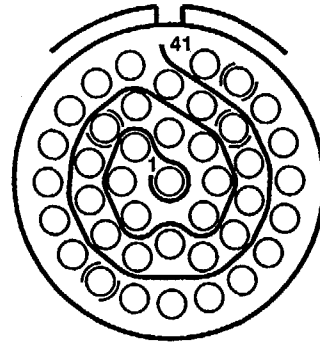
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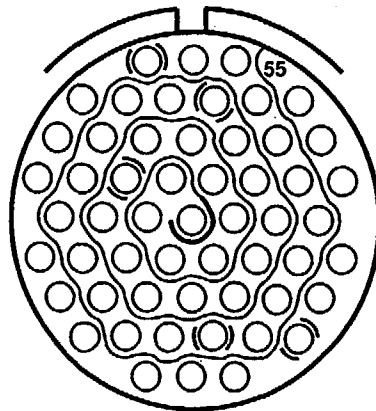
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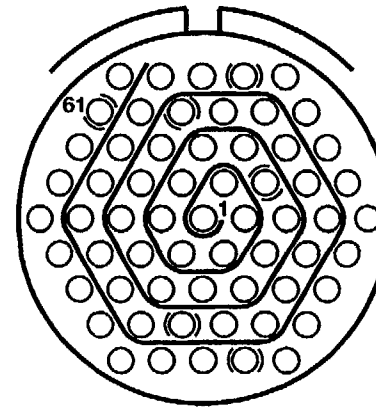


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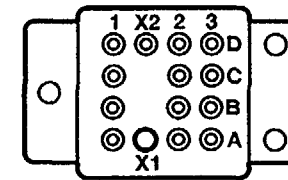


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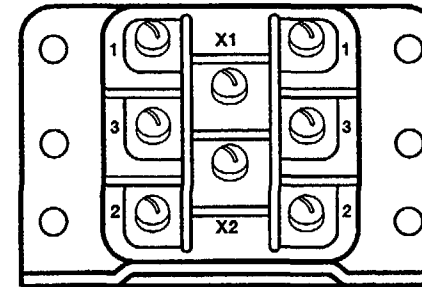
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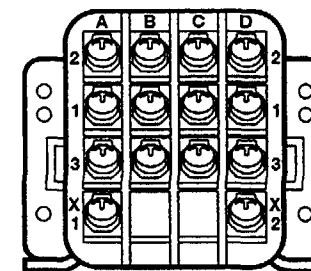
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103

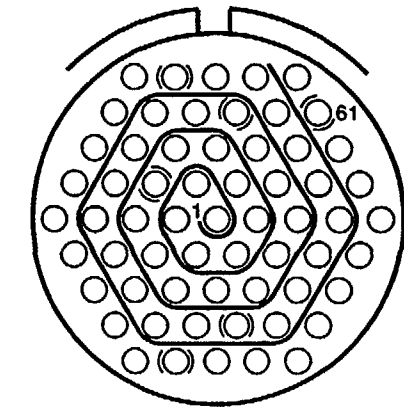


106



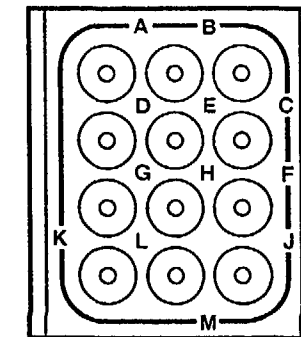
109

PLUG



43

GND MODULE



150

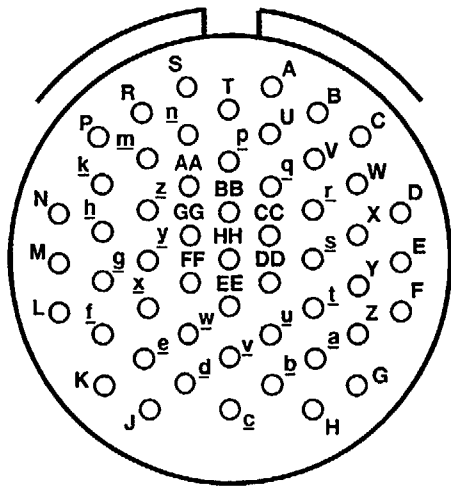
GND STUD



151

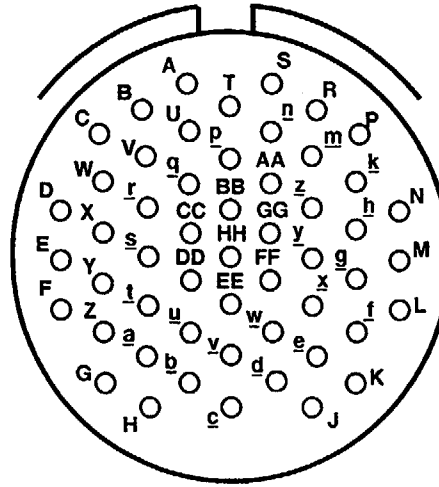
POWERPLANT SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

RECEPTACLE

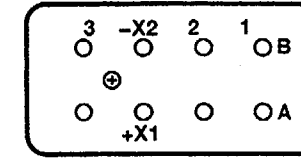


302

PLUG

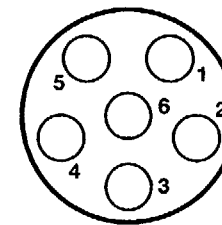


302



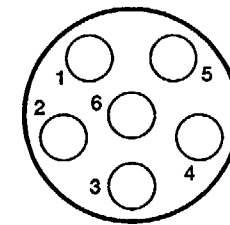
325

RECEPTACLE



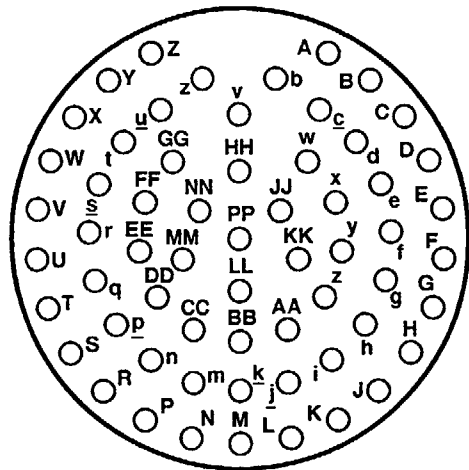
313

PLUG

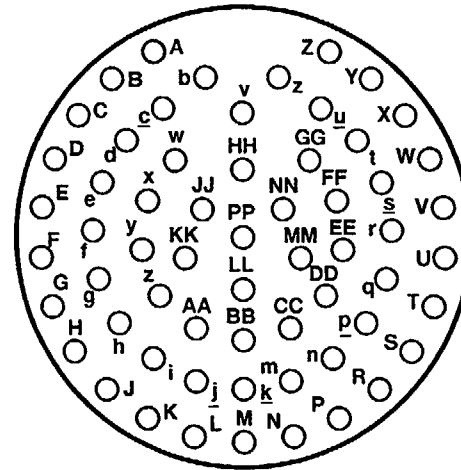


313

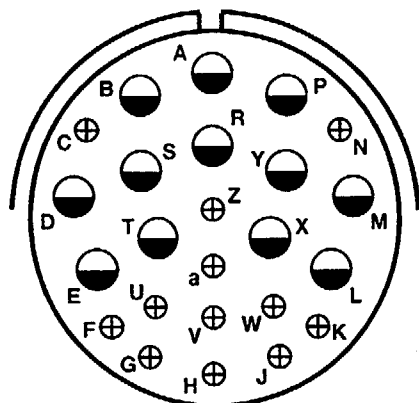
305



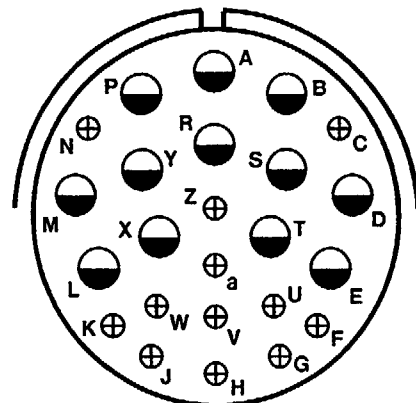
305



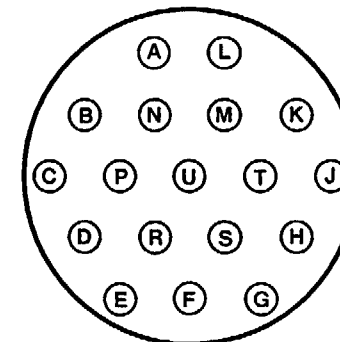
309



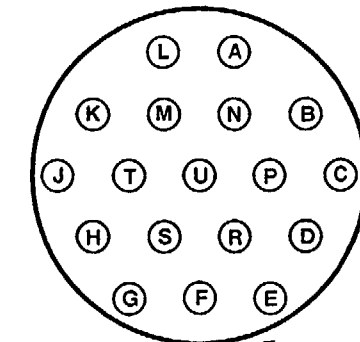
309



401



401



A59130

SECTION 4-1 ENGINE PERFORMANCE CHECK (WITHOUT 74) |



4-1.1 ENGINE PERFORMANCE CHECK OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations  
Without 74

Tools

None

Materials:  
None

Personnel Required:

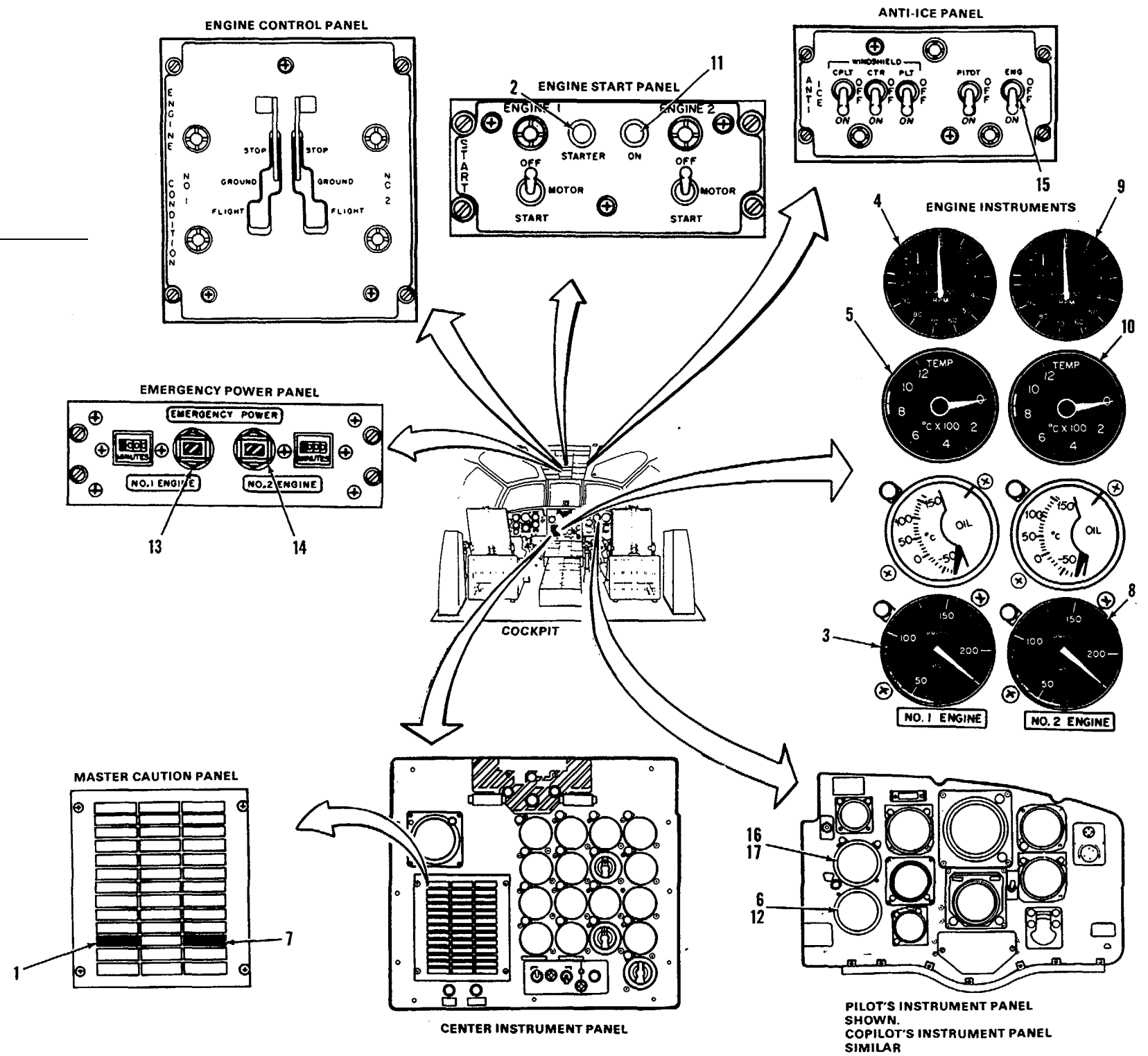
Rotary Wing Aviator (2)  
Medium Helicopter Repairer  
Aircraft Powerplant Repairer

References

TM 55-1520-240-10  
TM 55-1520-240-23  
TM 55-2840-254-23

Equipment Condition:

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



4-1.1 ENGINE PERFORMANCE CHECK OPERATIONAL CHECK  
(Continued)

4-1.1

TASK	RESULT
1. Have pilot start NO. 1 engine and stabilize at ground idle.	<p>If NO. 1 engine N1 CONT. caution light (1), does not come on, go to task 4-5.3.</p> <p>If engine does not motor, go to task 4-4.4.</p> <p>If engine NO. 1 STARTER ON light (2) does not come on, go to task 4-4.4.</p> <p>If engine motors normally but does not start, go to task 4-4.4.</p> <p>If engine oil pressure indicator (3) does not indicate oil pressure, go to task 8-3.3.</p> <p>If engine oil pressure is below <u>20 psi</u>, go to task 8-3.3.</p> <p>If gas producer tachometer (4) does not indicate rpm, go to task 8-2.3.</p> <p>If PTIT Indicator (5) does not Indicate temperature, go to task 8-5.3.</p> <p>If PTIT indicator is high or hot start occurs, go to task 4-1.2.</p> <p>If copilot's rotor tachometer (6) does not indicate rpm, go to task 8-15.3.</p>
2. Check NO. 1 engine ground idle speed after <u>45 seconds</u> .	<p>If gas producer tachometer (4) does not indicate between <u>60 and 63 percent</u> rpm, go to task 4-1.3.</p>
3. Have pilot start NO. 2 engine and stabilize at ground idle.	<p>If NO. 2 engine N1 CONT caution light (7) does not come on, go to task 4-5.3.</p> <p>If engine does not motor, go to task 4-4.4.</p> <p>If engine NO. 2 STARTER ON light (11) does not come on, go to task 4-4.4.</p>

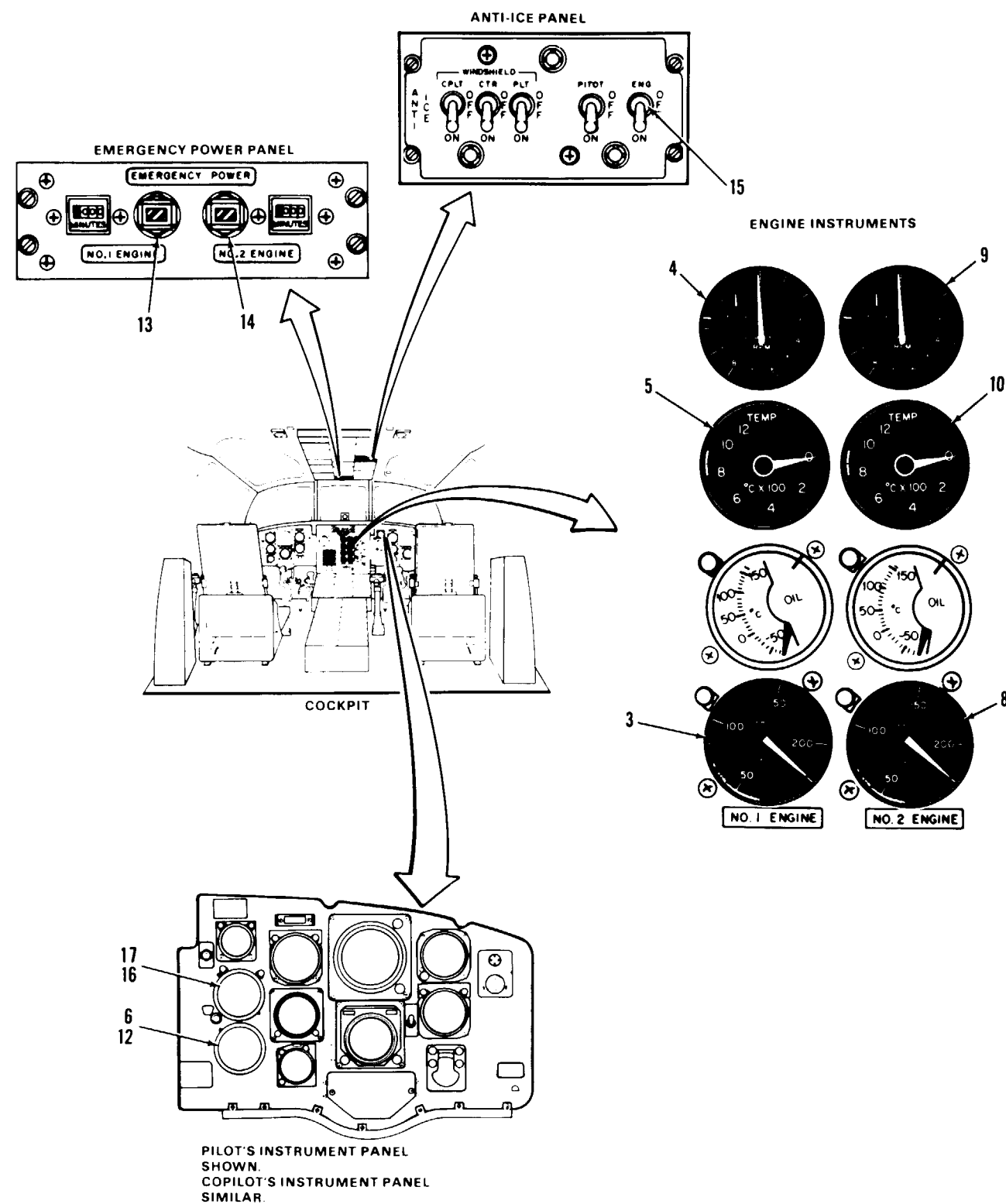
TASK	RESULT
4. Check NO. 2 engine ground idle speed after <u>45 seconds</u> .	<p>If engine motors normally but does not start, go to task 4-4.4.</p> <p>If engine oil pressure indicator (8) does not indicate oil pressure, go to task 8-3.3,</p> <p>If engine oil pressure is below <u>20 psi</u>, go to task 8-3.3.</p> <p>If gas producer tachometer (9) does not indicate rpm, go to task 8-2.3.</p> <p>If PTIT indicator (10) does not indicate temperature, go to task 8-5.3.</p> <p>If PTIT indication is high or hot start occurs, go to task 4-1.4.</p> <p>If pilot's rotor tachometer (12) does not indicate rpm, go to task 8-15.3.</p> <p>If gas producer tachometer (9) does not indicate between <u>60 and 63 percent</u> rpm, go to task 4-1.5.</p>
5. Have pilot move both NO. 1 and NO. 2 engine condition levers to flight and stabilize rotors at minimum beep.	<p>If either NO. 1 or NO. 2 engine N2 overspeeds, go to task 4-1.6.</p> <p>If either NO. 1 or NO. 2 engine acceleration is rough or surging, go to task 4-1.7.</p> <p>If dual engine minimum beep is not between <u>92-96 percent</u>, go to task 4-1.8.</p>
6. Have pilot beep both NO. 1 and NO. 2 engines to <u>100 percent</u> rotor rpm and match torque.	<p>If either NO. 1 or NO. 2 engine power turbine (N2) actuator does not increase or decrease, go to task 4-6.3.</p> <p>If either NO. 1 or NO. 2 engine oil pressure indicator (3 and 8) readings fluctuate more than <u>5 psi</u>, go to task 8-3.3.</p>

GO TO NEXT PAGE

TASK	RESULT
7. Have pilot set <b>ENG</b> anti-ice switch (15) to <b>ON</b> .	If either NO. 1 or NO. 2 engine oil temperature indicator (5 and 10) readings is high, go to Task 4-1.9. If either pilot's or copilot's rotor tachometer (6 and 12) does not indicate between <u>98 and 102 percent rpm</u> , go to Task 8-15.3.
8. Have pilot set <b>ENG</b> anti-ice switch (15) to <b>OFF</b> .	If either NO. 1 or No. 2 engine emergency power indicator (13 and 14) is on, go to Task 8-5.3. If NO. 1 engine anti-icing valve does not operate, go to Task 4-2.4. If NO. 2 engine anti-icing valve does not operate, go to Task 4-2.4.
9. Have pilot establish stable hover. Check rotor rpm indicator (6 and 12) and torque indicator (16 and 17) indications.	Rotor rpm shall not change more than <u>+0 to -2 percent</u> . Torque indication shall not split more than <u>6 percent</u> . If either indication does, go to Task 4-1.10.

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off



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4-1.2 NO. 1 ENG HIGH PTIT READING DURING START OR HOT START

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
Without 74

**Tools:**  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944.  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**  
None

**Personnel Required:**  
Aircraft Powerplant Repairer  
Aircraft Electrician  
Army Rotary Wing Aviator (2)

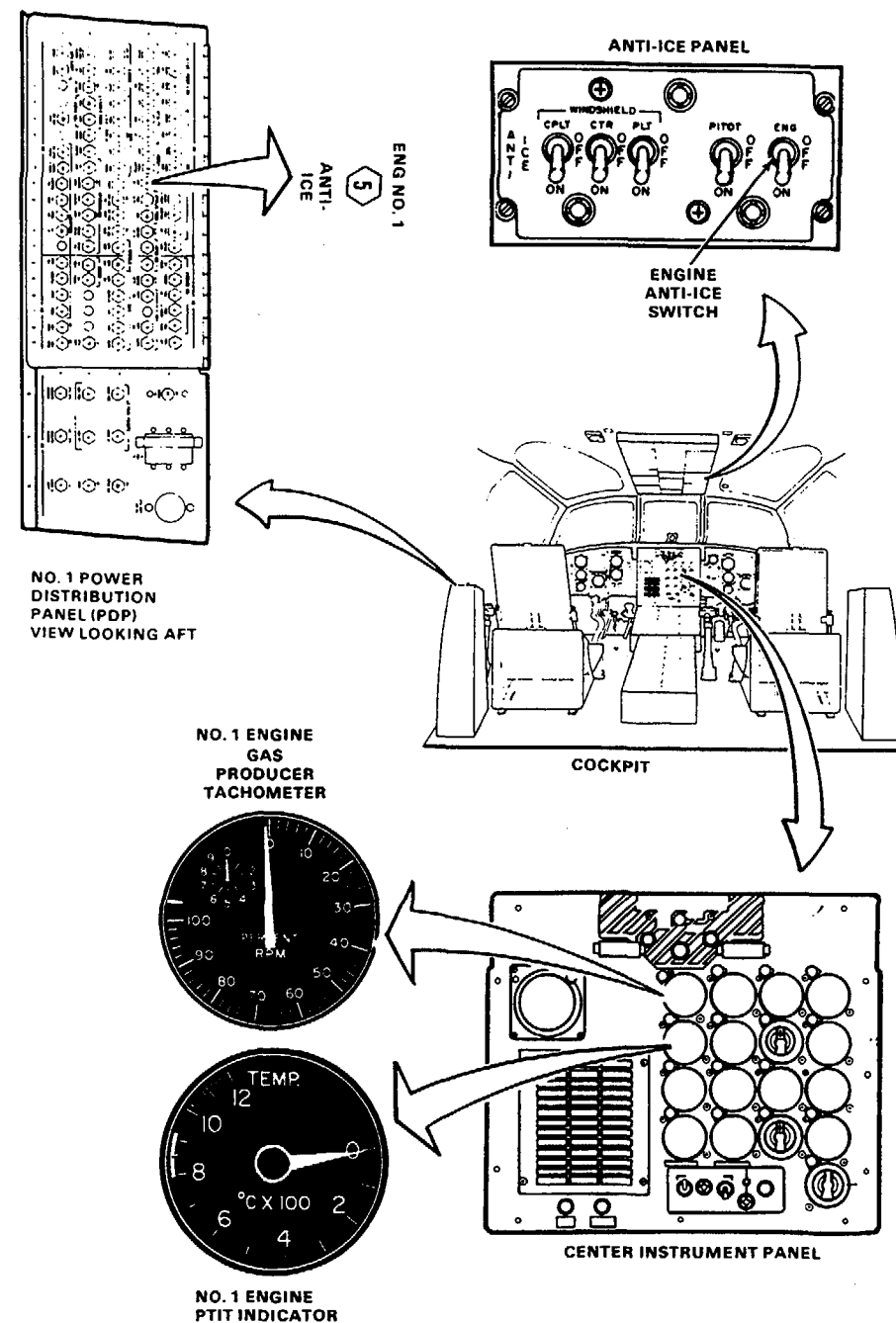
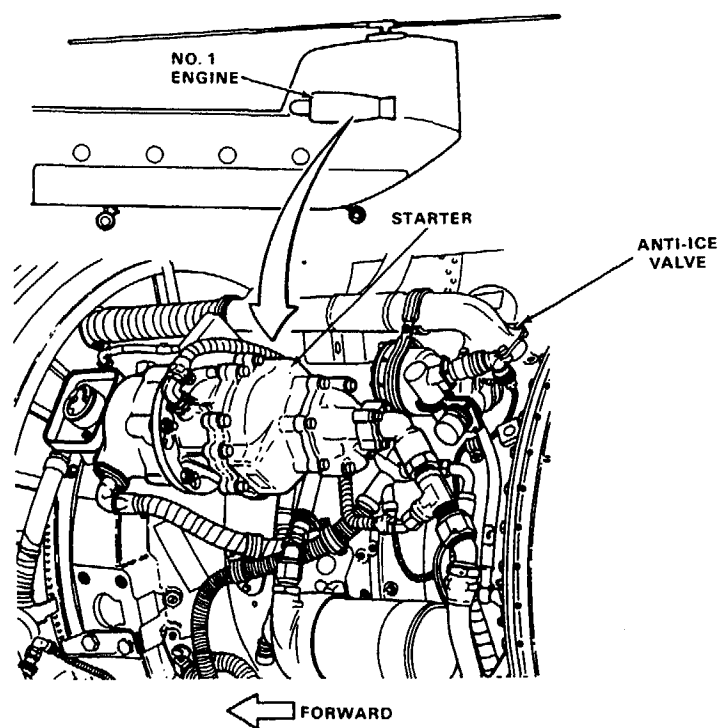
**References:**

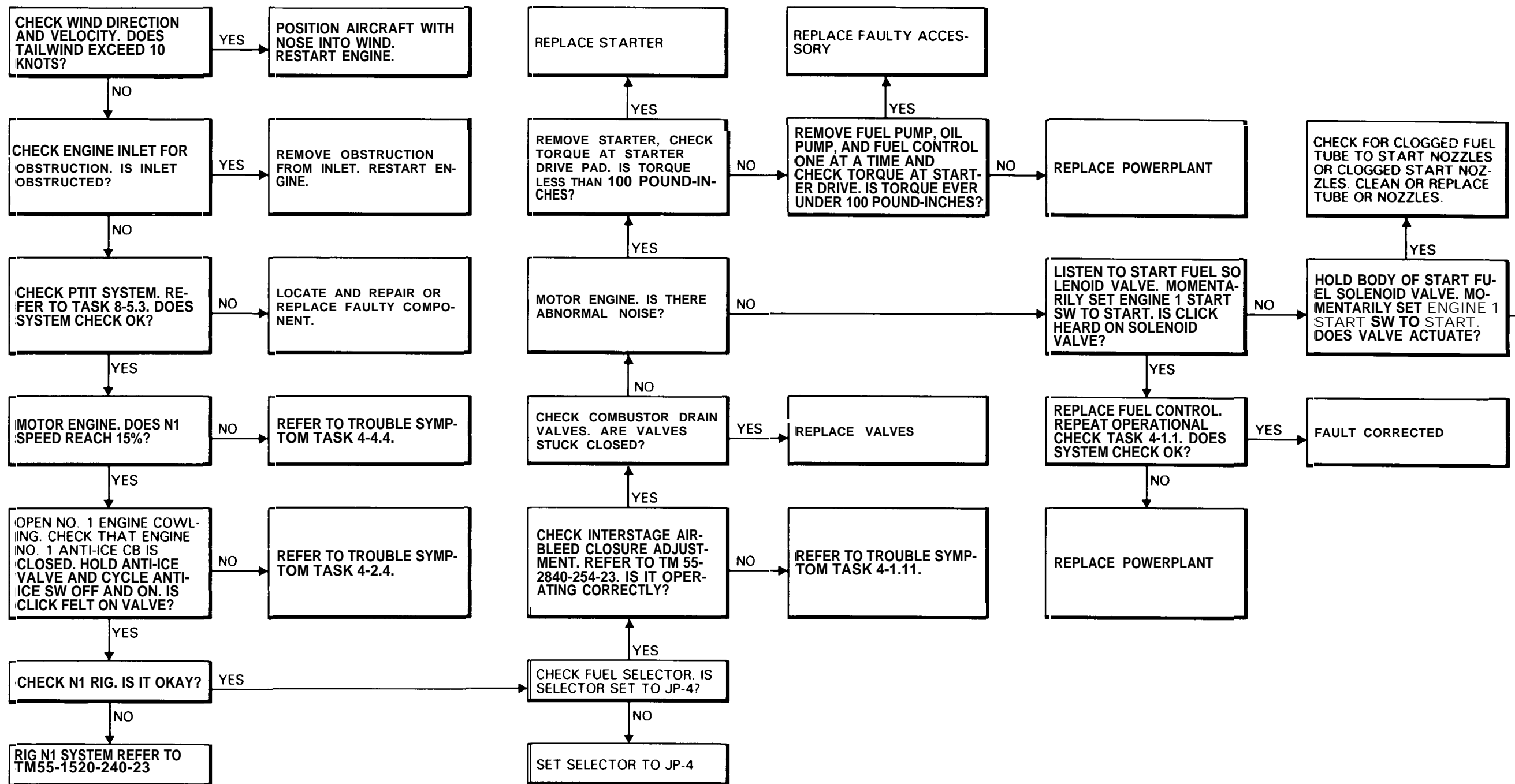
- TM 55-1520-240-10
- TM 55-1520-240-23
- TM 55-2840-254-23
- TM 55-1500-323-25

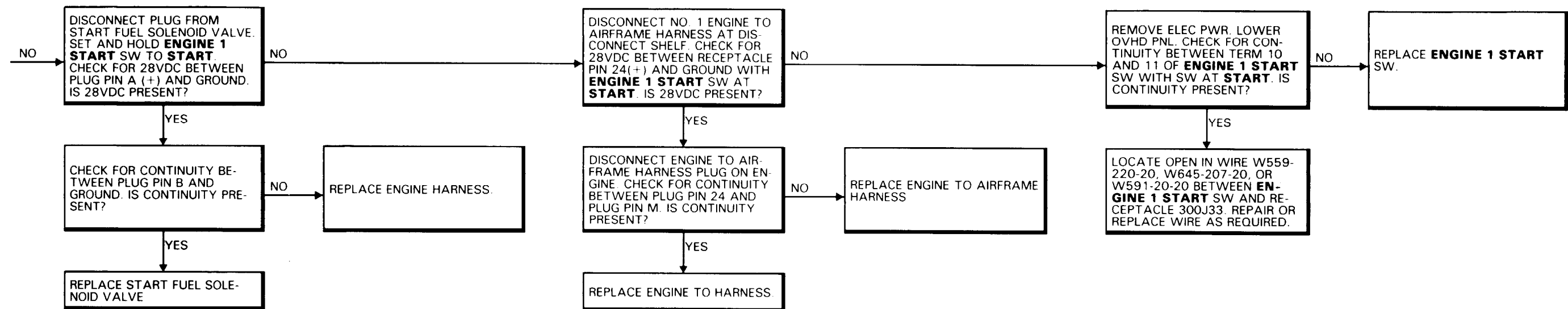
**Equipment Condition:**

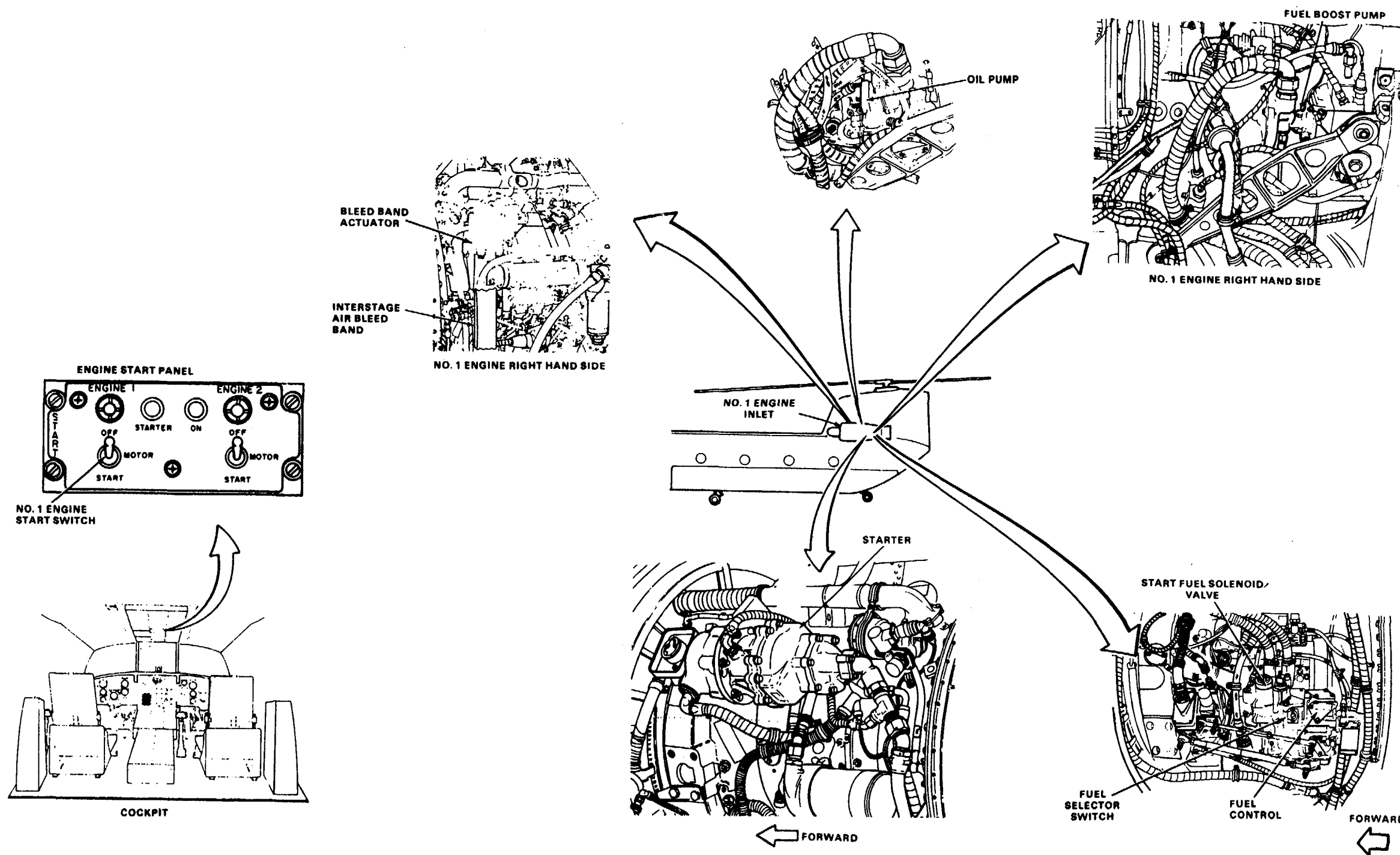
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On

NOTE  
NO.1 ENGINE SHOWN  
WITH INLET SCREENS  
REMOVED









90154

D145-12021-5PA

END OF TASK



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
Without 74

**Tools:**  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**  
None

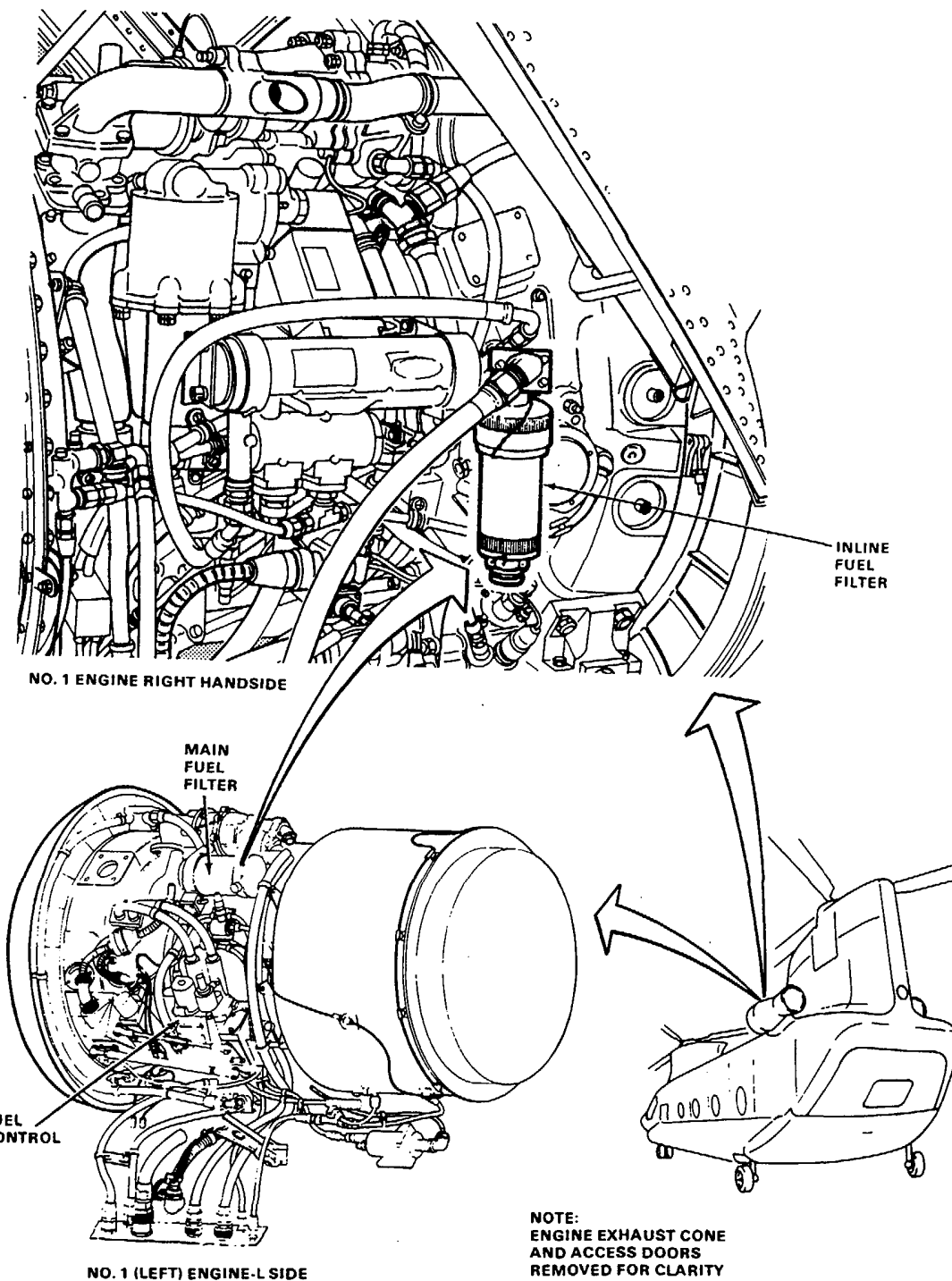
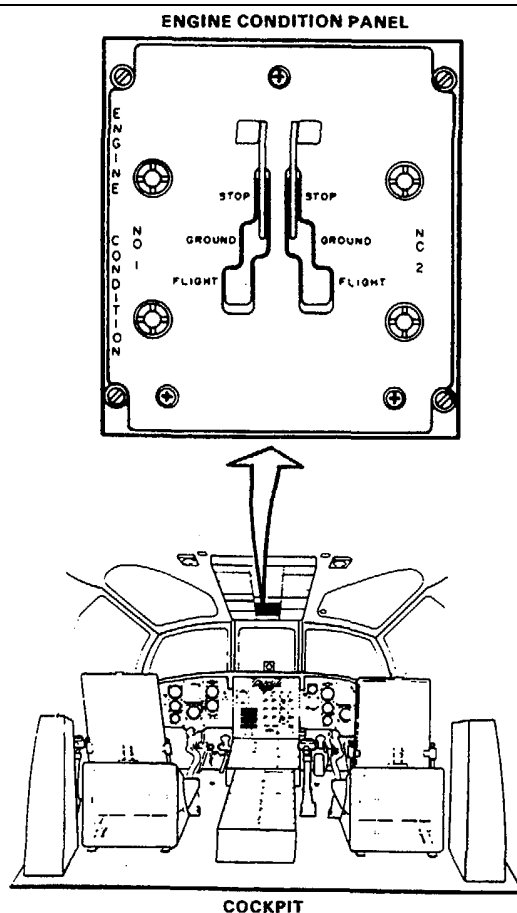
**Personnel Required:**  
Aircraft Powerplant Repairer  
Rotary Wing Aviator (2)

**References:**

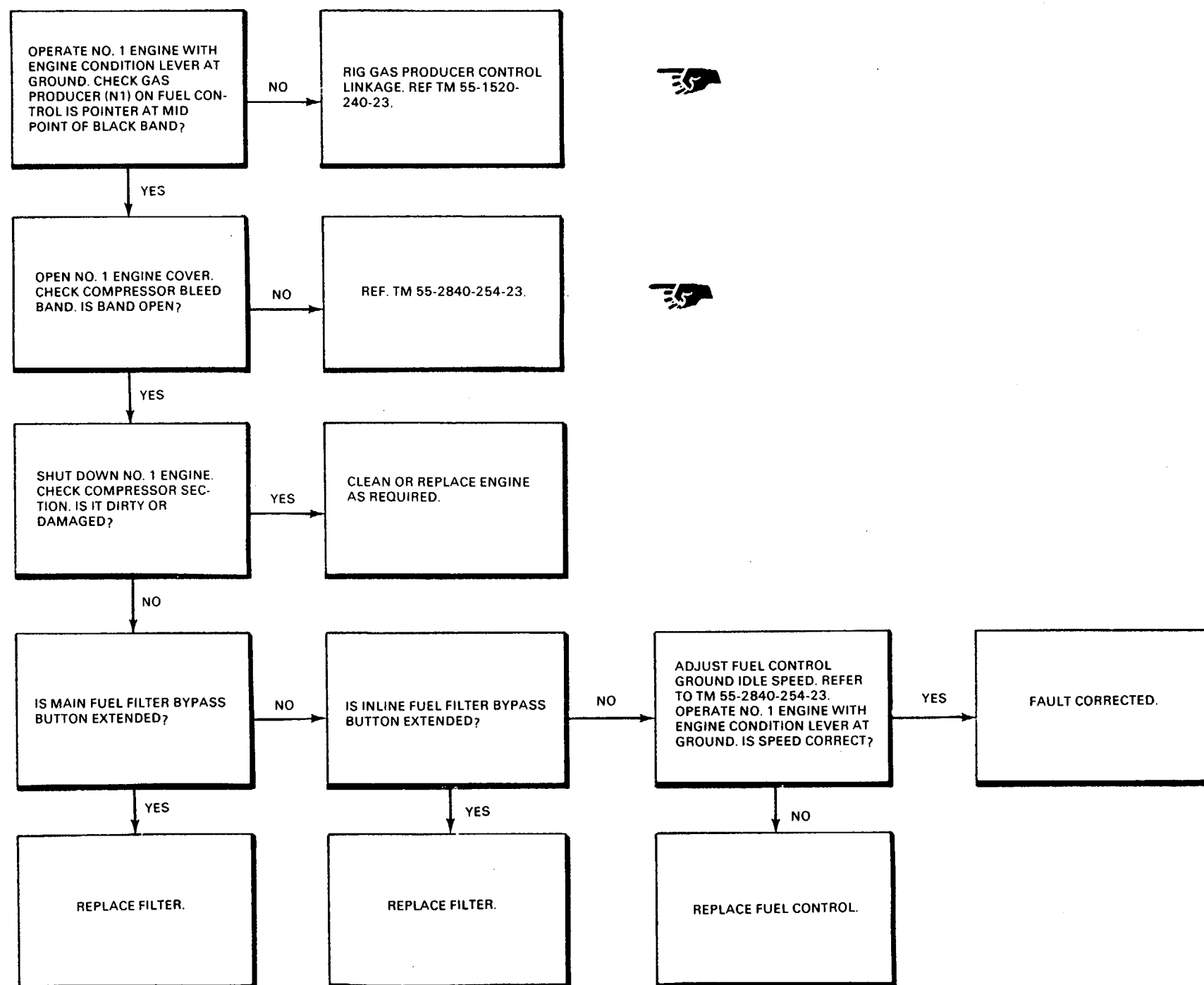
- TM 55-1520-240-10
- TM 55-1520-240-23
- TM 55-2840-254-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On



4-1.3 NO. 1 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM (Continued)  
63 PERCENT RPM (Continued)



END OF TASK

Change 1 4-11

4-1.4 NO. 2 ENGINE HIGH PTIT READING DURING START OR HOT START

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**

None

**Personnel Required:**

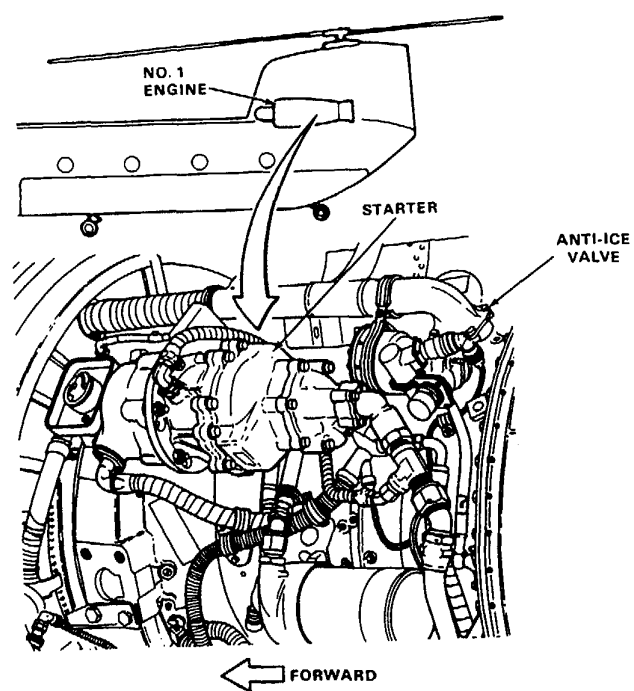
Aircraft Powerplant Repairer  
Rotary wing Aviator (2)

**References:**

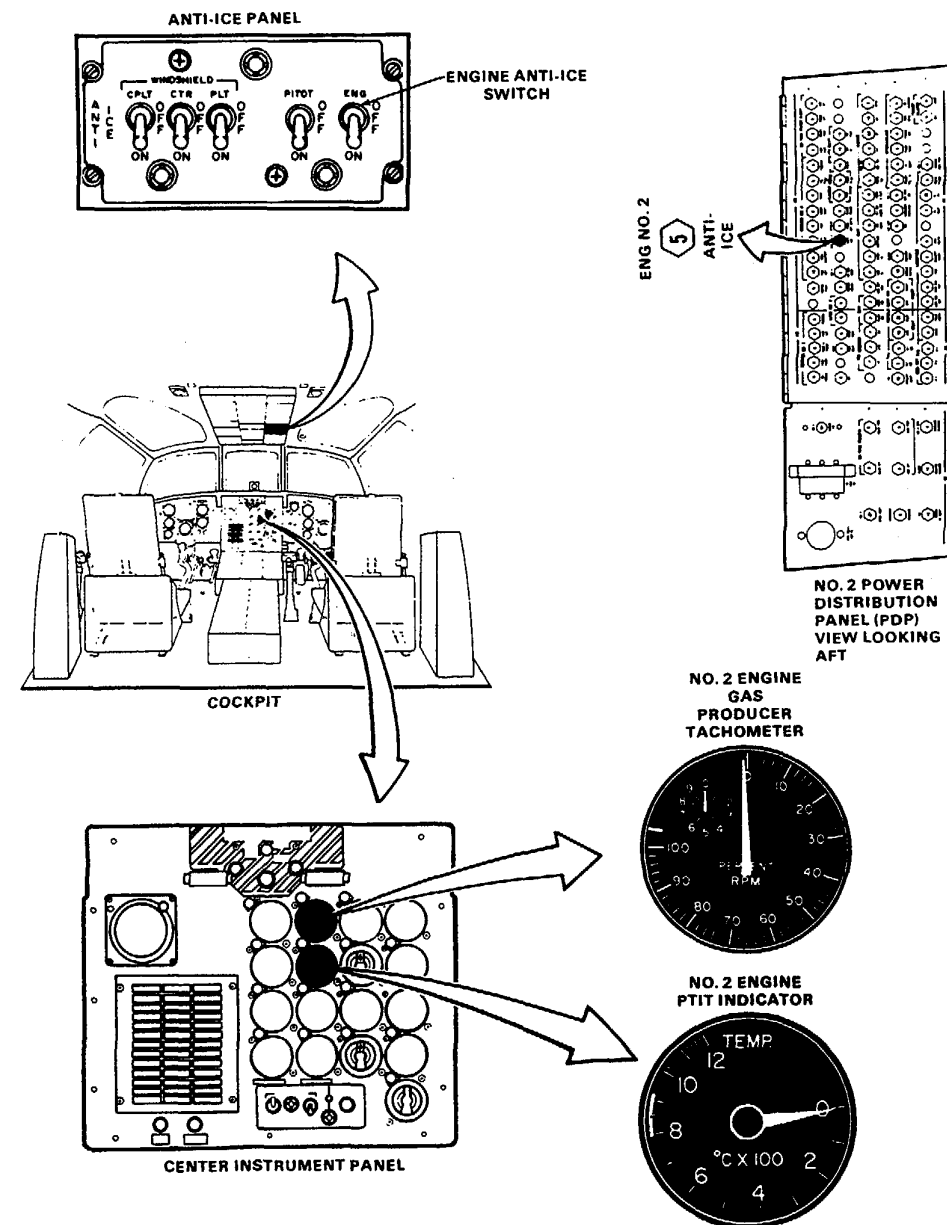
TM 55-1520-240-10  
TM 55-1520-240-23  
TM 55-2840-254-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



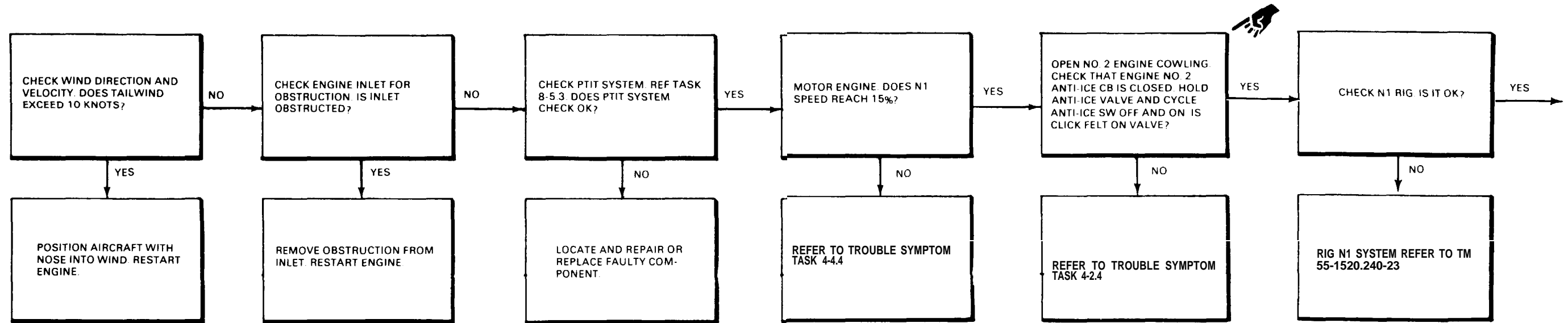
NO. 1 ENGINE SHOWN.  
NO. 2 ENGINE SIMILAR



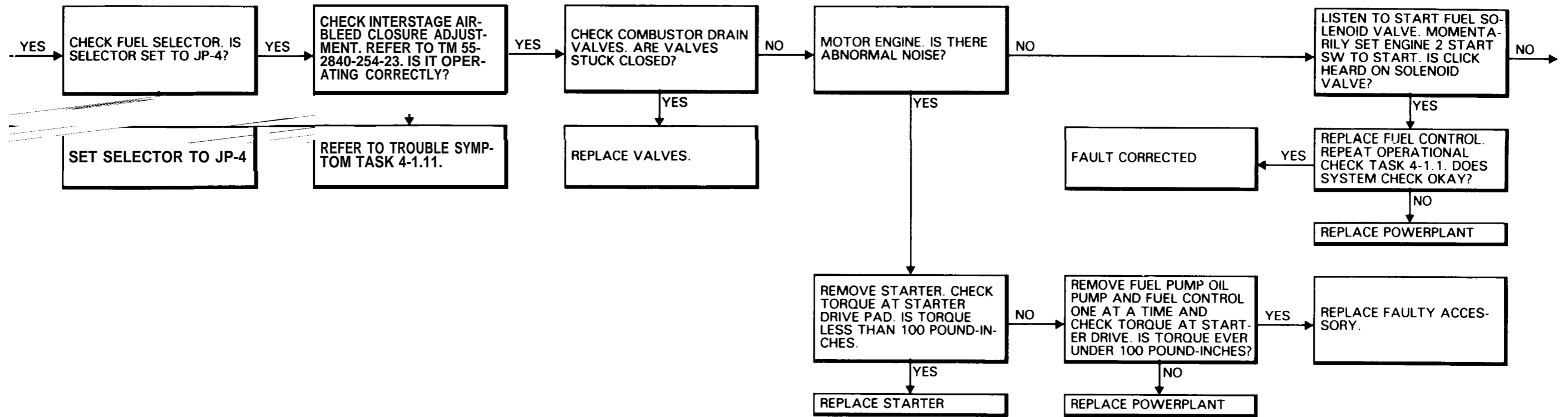
90 X 54

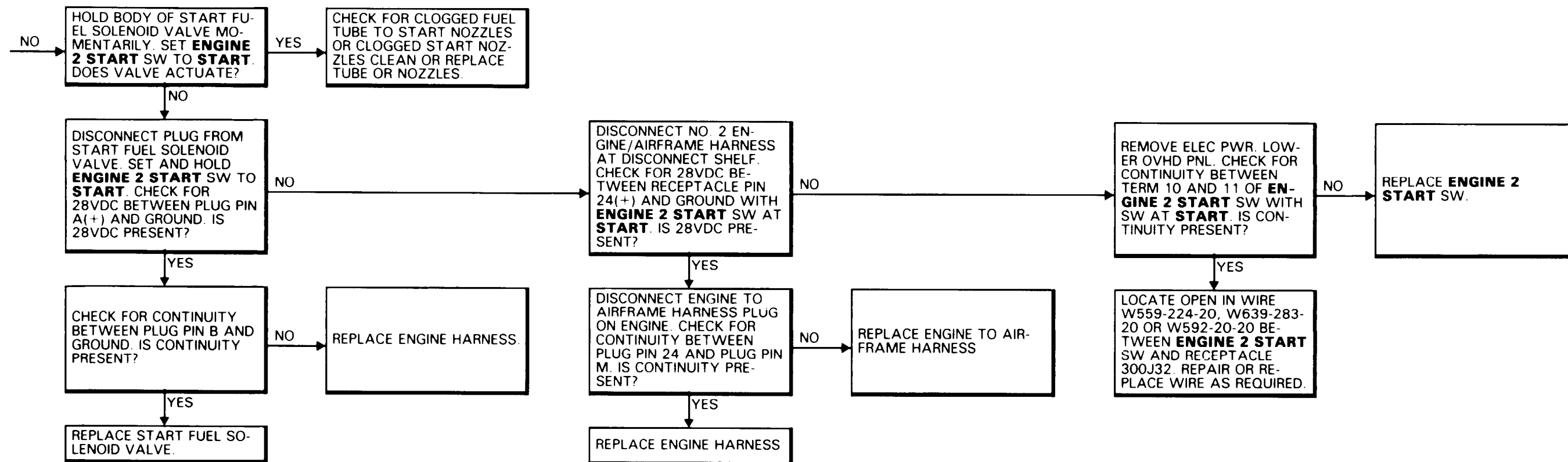
D145-12024-SPA

4-1.4 NO. 2 ENGINE HIGH PTIT READING DURING START OR HOT START (Continued)

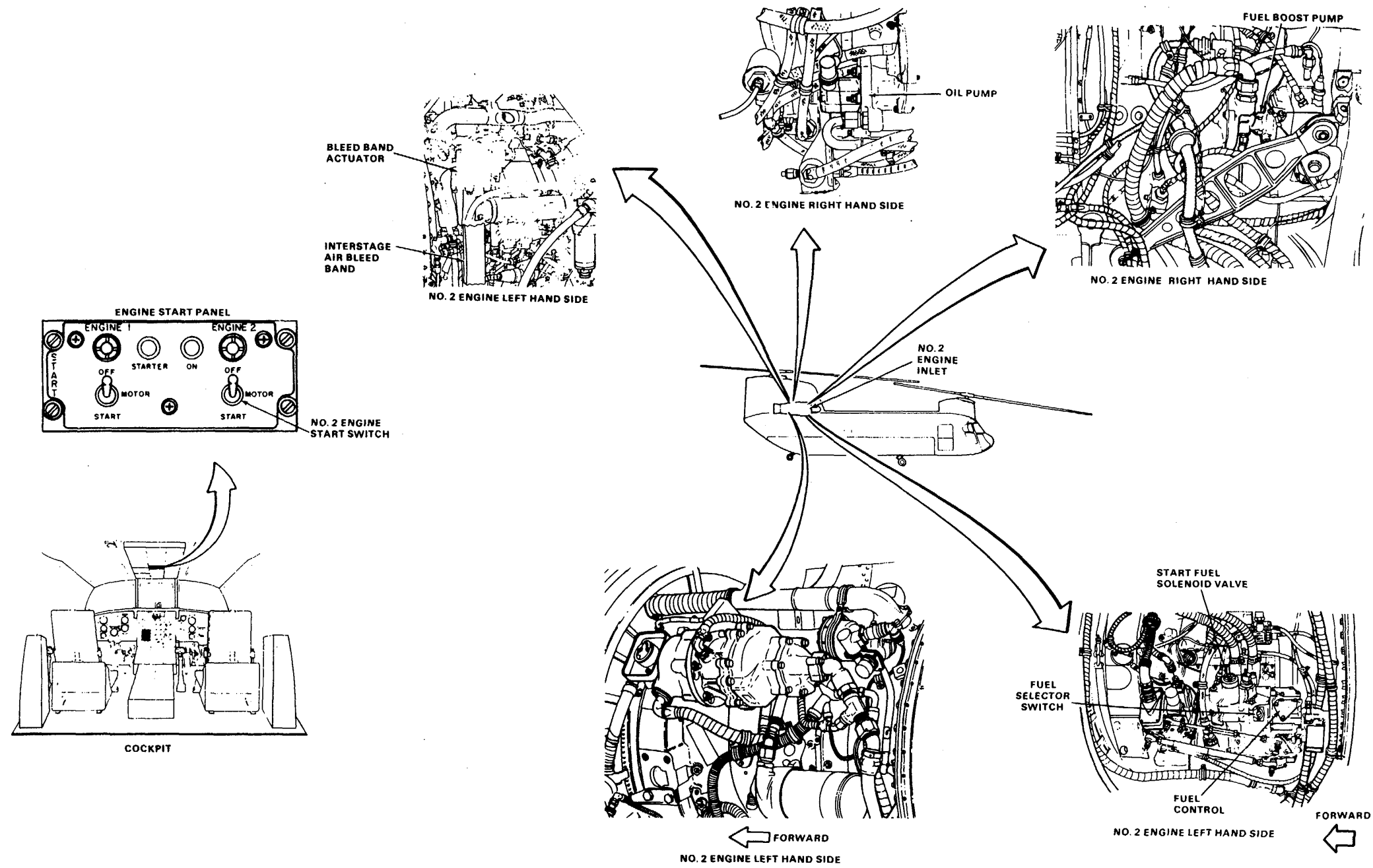


GO TO NEXT PAGE





4-1.4 NO. 2 ENGINE HIGH PTIT READING DURING START OR HOT START (Continued)



90 X 54

D145-12025-SPA

4-1.5 NO. 2 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials**

None

**Personnel Required:**

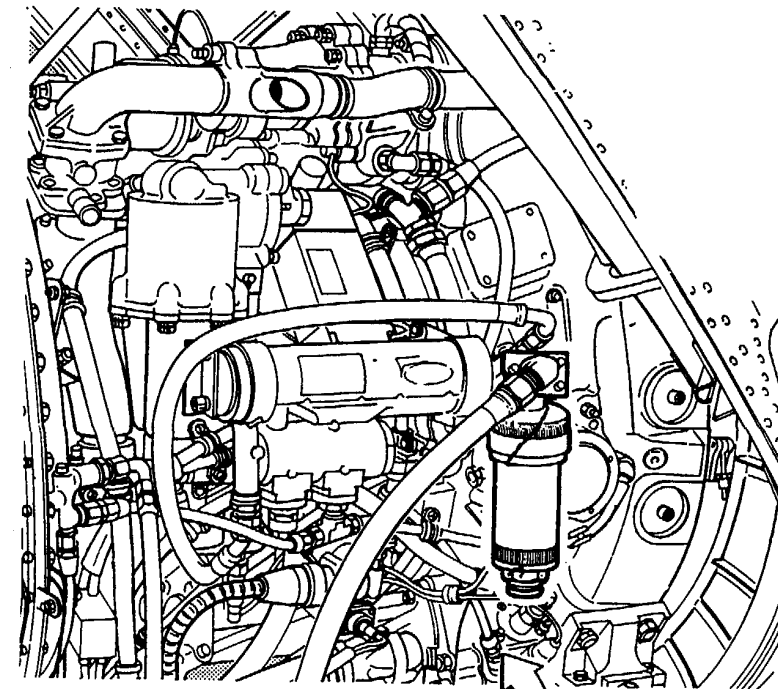
Aircraft Powerplant Repairer  
Rotary Wing Aviator (2)

**References**

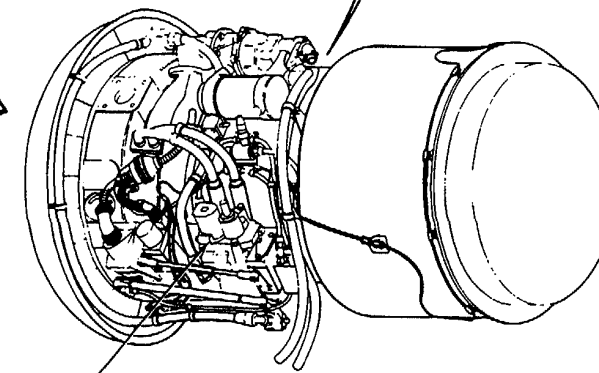
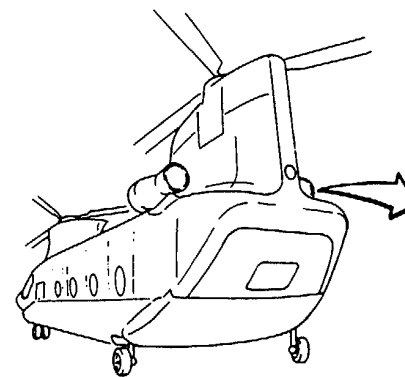
- TM 55-1520-240-10
- TM 55-1520-240-23
- TM 55-2840-254-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On

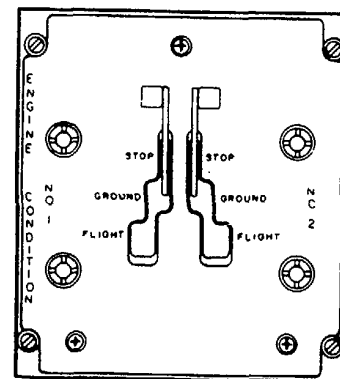


NO. 2 ENGINE RIGHT HAND SIDE

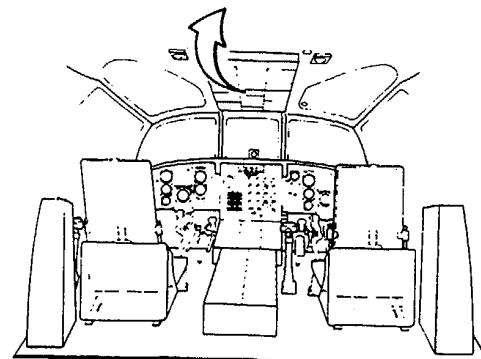


FUEL CONTROL NO. 2 ENGINE LEFT HAND SIDE

NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
REMOVE FOR CLARITY



ENGINE CONDITION PANEL



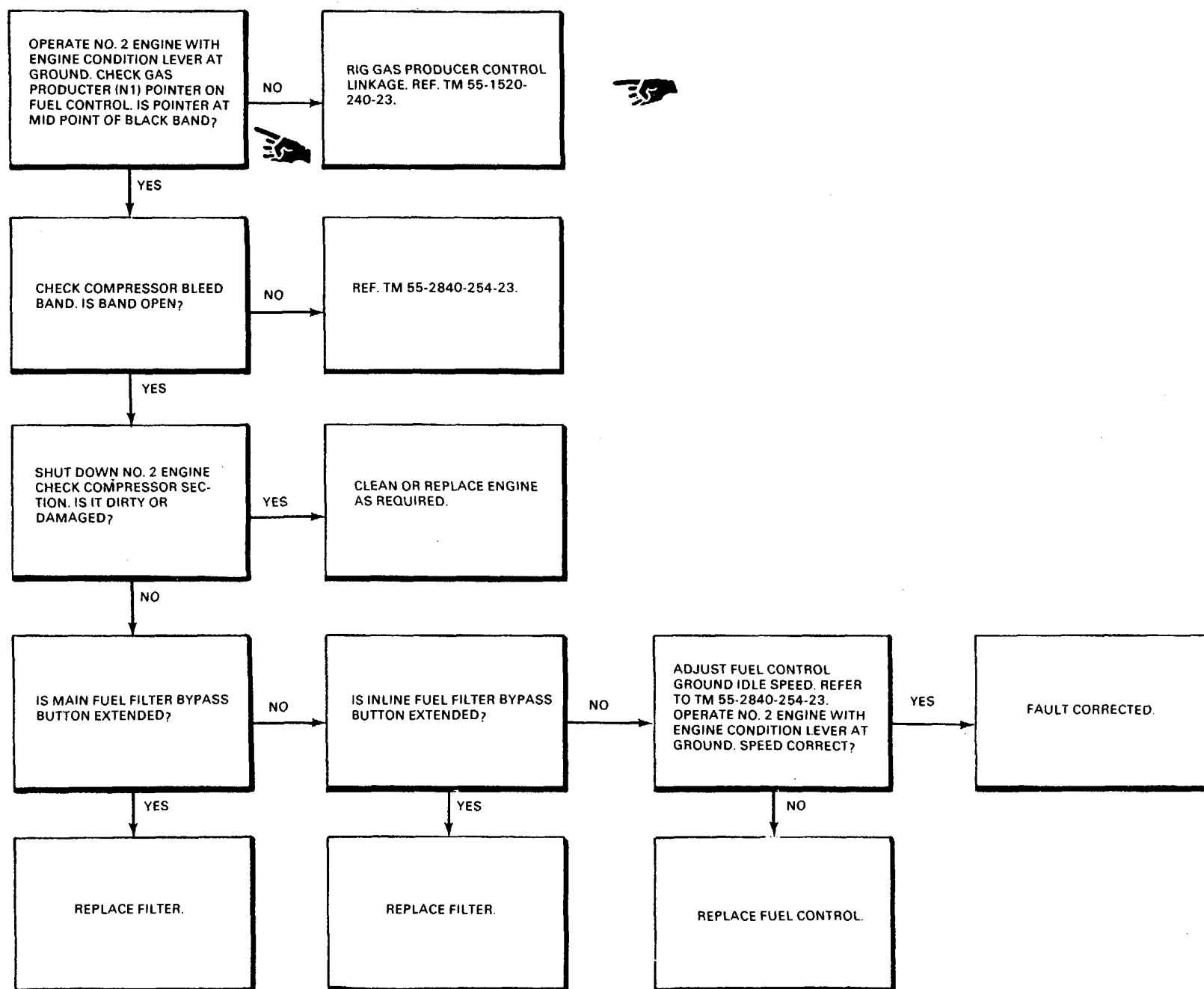
COCKPIT

90x54

D145-12027-SPA



4-1.5 NO. 2 ENGINE GROUND IDLE SPEED BELOW 60 TO 63 PERCENT RPM (Continued)



END OF TASK

Change 1 4-17

4-1.6 NO. 1 OR NO. 2 ENGINE N2 OVERSPEED OCCURS WHEN ECL IS MOVED FROM GROUND IDLE TO FLIGHT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials**

None

**Personnel Required:**

Aircraft Powerplant Repairer

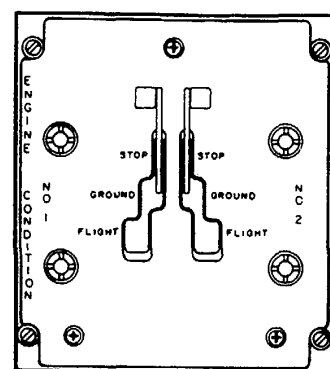
**References:**

TM 55-1520-240-23

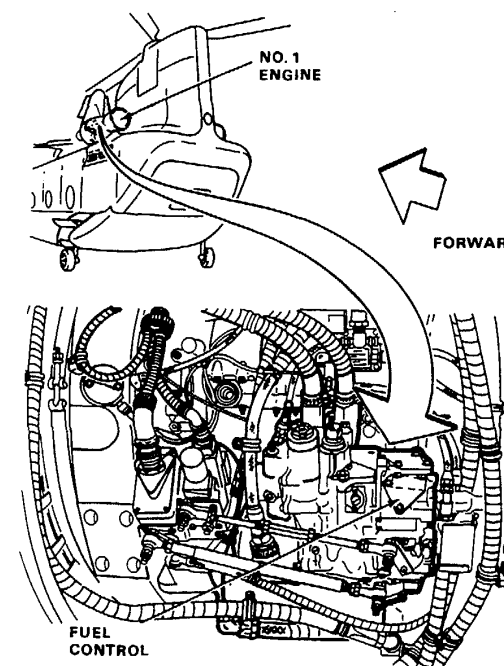
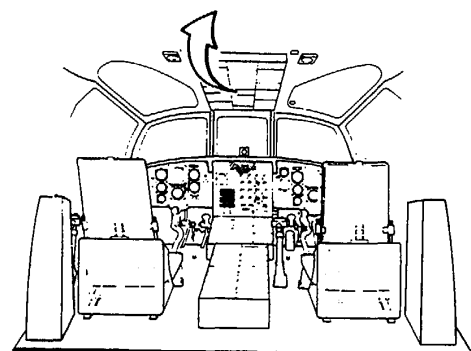
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected  
Electrical Power On  
Hydraulic Power On



ENGINE CONDITION PANEL



NO. 1 ENGINE LEFT SIDE SHOWN.  
NO. 2 ENGINE LEFT SIDE SIMILAR

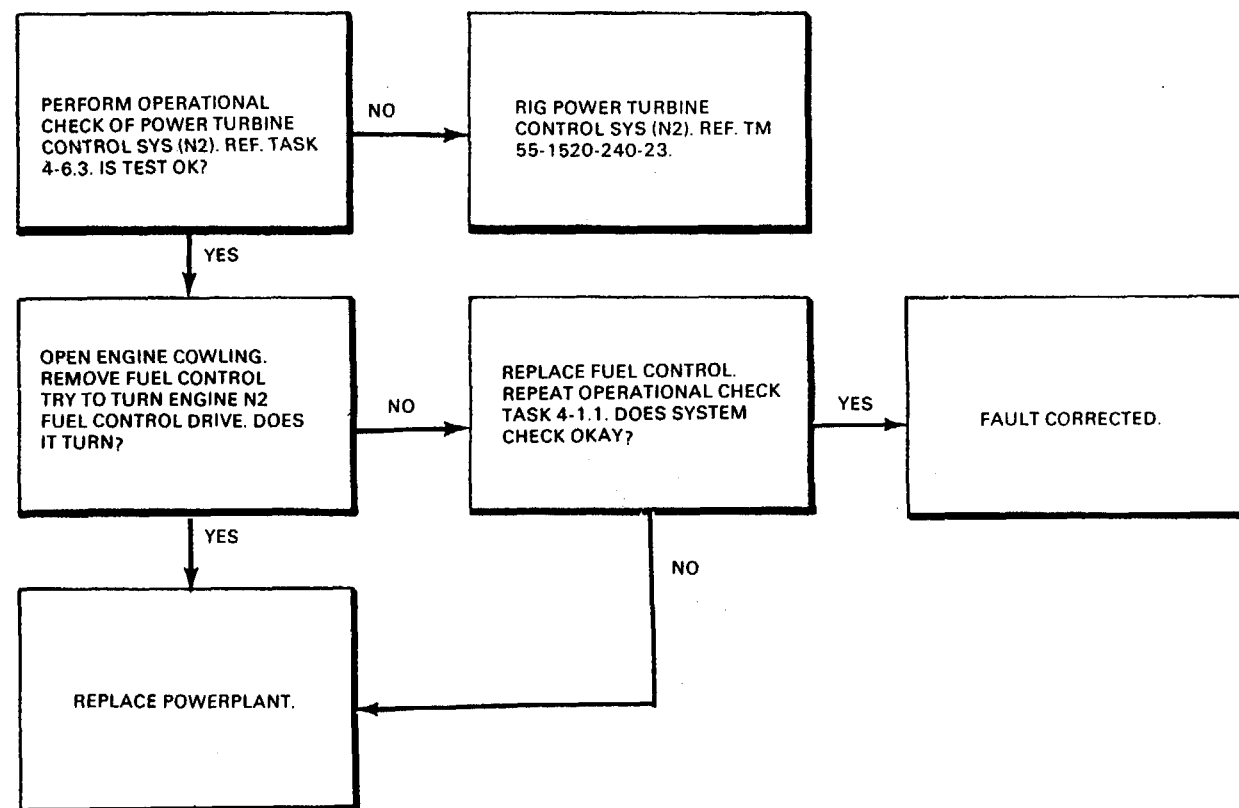
90x54

0145-12028-SPA

4-1.6 NO. 1 OR NO. 2 ENGINE N2 OVERSPEED OCCURS WHEN  
ECL IS MOVED FROM GROUND IDLE TO FLIGHT  
(Continued)

4-1.6

NOTE  
PROCEDURES ARE THE SAME FOR BOTH ENGINES



4-1.7 NO. 1 OR NO. 2 ENGINE ROUGH OR SURGING ENGINE ACCELERATION FROM GROUND IDLE TO FLIGHT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**

None

**Personnel Required:**

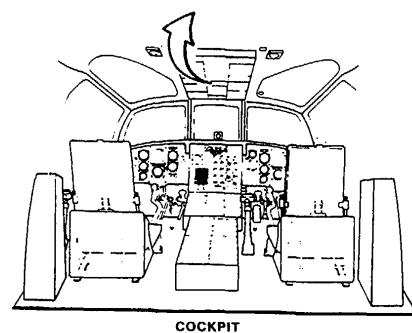
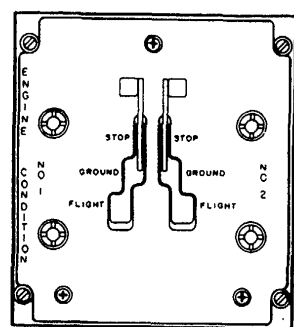
Aircraft Powerplant Repairer  
Rotary Wing Aviator (2)

**References:**

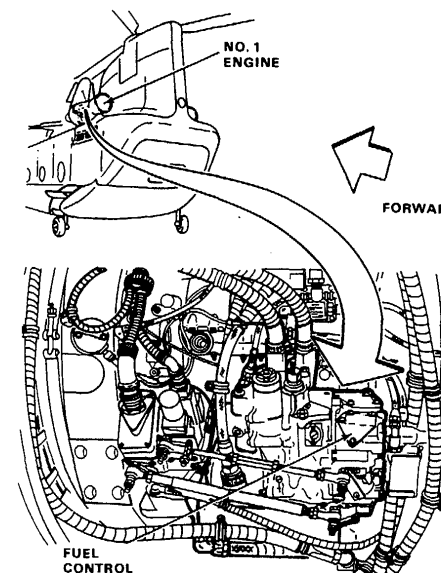
- TM 55-1520-240-10
- TM 55-1520-240-23
- TM 55-2840-254-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On



90454



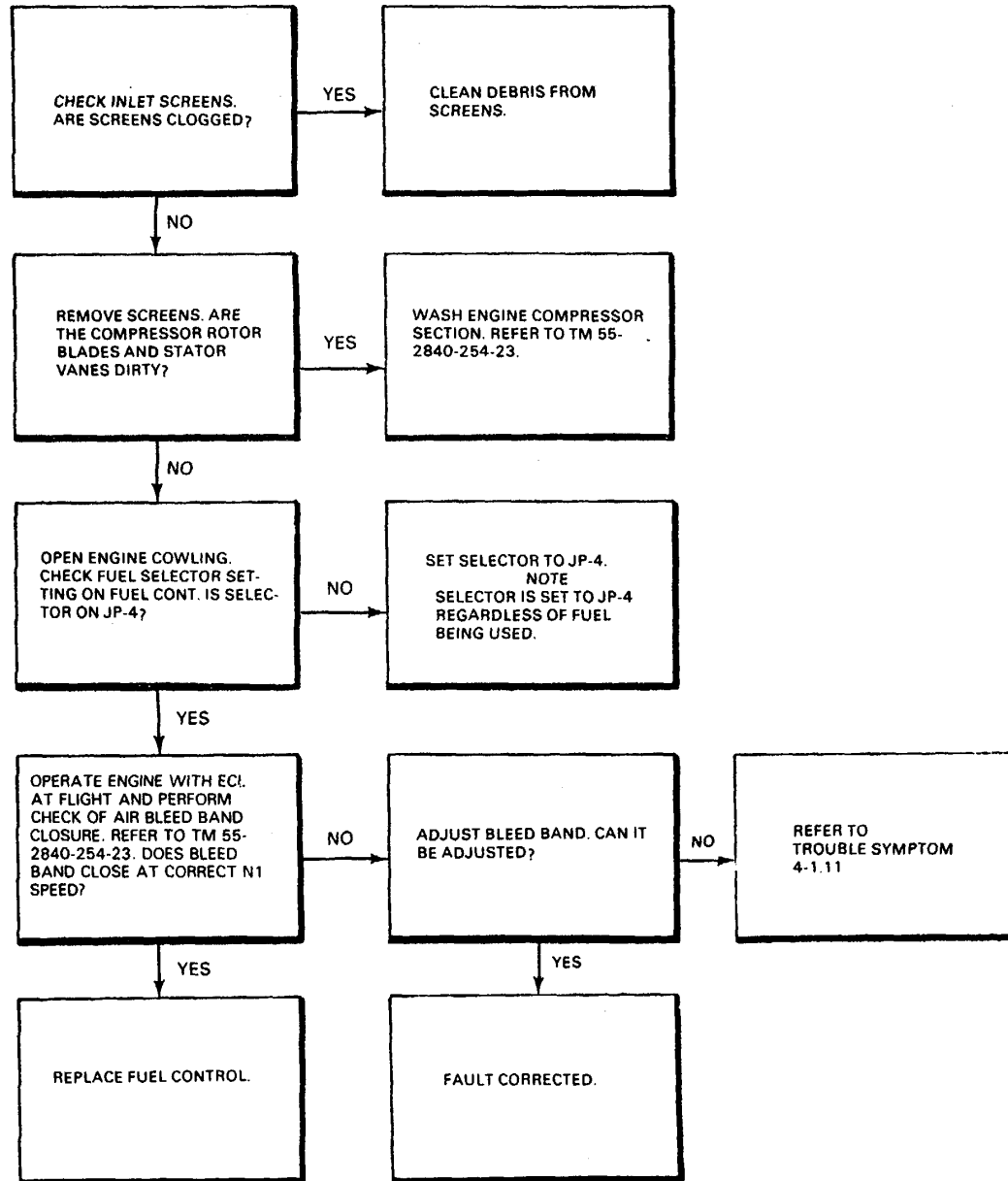
NO. 1 ENGINE LEFT SIDE SHOWN.  
NO. 2 ENGINE LEFT SIDE SIMILAR

D145-12029-SPA

4-1.7 NO. 1 OR NO. 2 ENGINE ROUGH OR SURGING  
ACCELERATION FROM GROUND IDLE  
TO FLIGHT (Continued)

NOTE

Procedures are the same for both engines.



END OF TASK

Change 1 4-21

4-1.8 DUAL ENGINE BEEP TRIM INCORRECT, ROTOR RPM NOT 94-96 PERCENT WITH ECL AT FLIGHT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

Without 74

**Tools**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials**

None

**Personnel Required:**

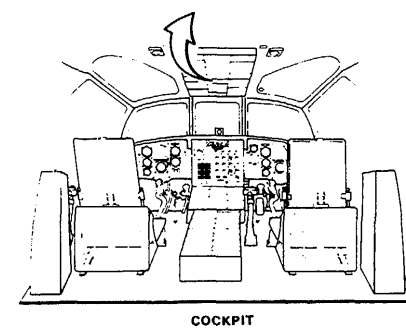
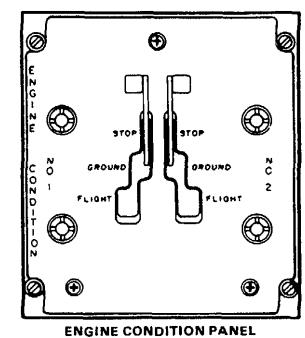
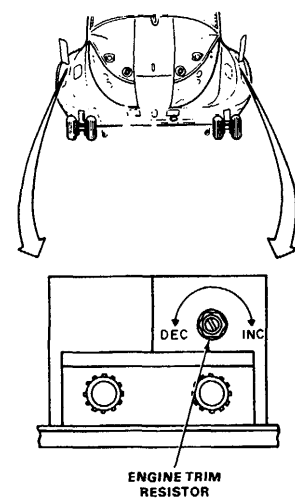
Aircraft Powerplant Repairer  
Rotary-Wing Aviator (2)

**References:**

TM 55-1520-240-10  
TM 55-1520-240-23

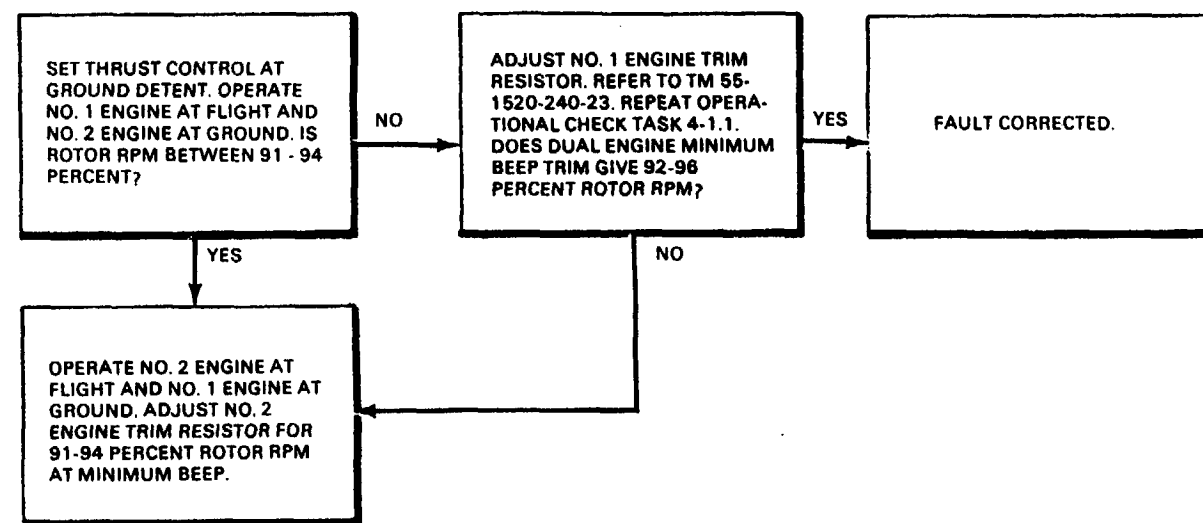
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Right and Left Electrical Compartment Open



D145-12030-SPA

4-1.8 DUAL ENGINE BEEP TRIM INCORRECT, ROTOR RPM IS NOT BETWEEN 94 - 96 PERCENT WITH ECL AT FLIGHT (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**  
Without 74

**Tools:**  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**  
None

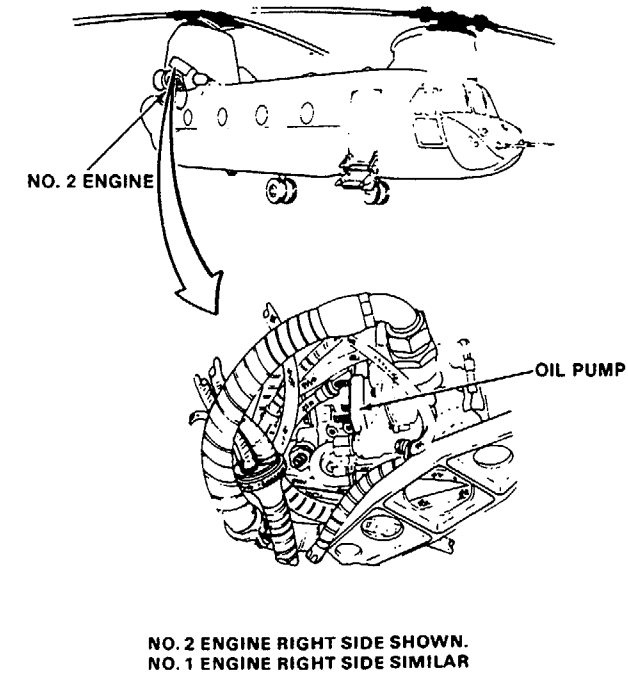
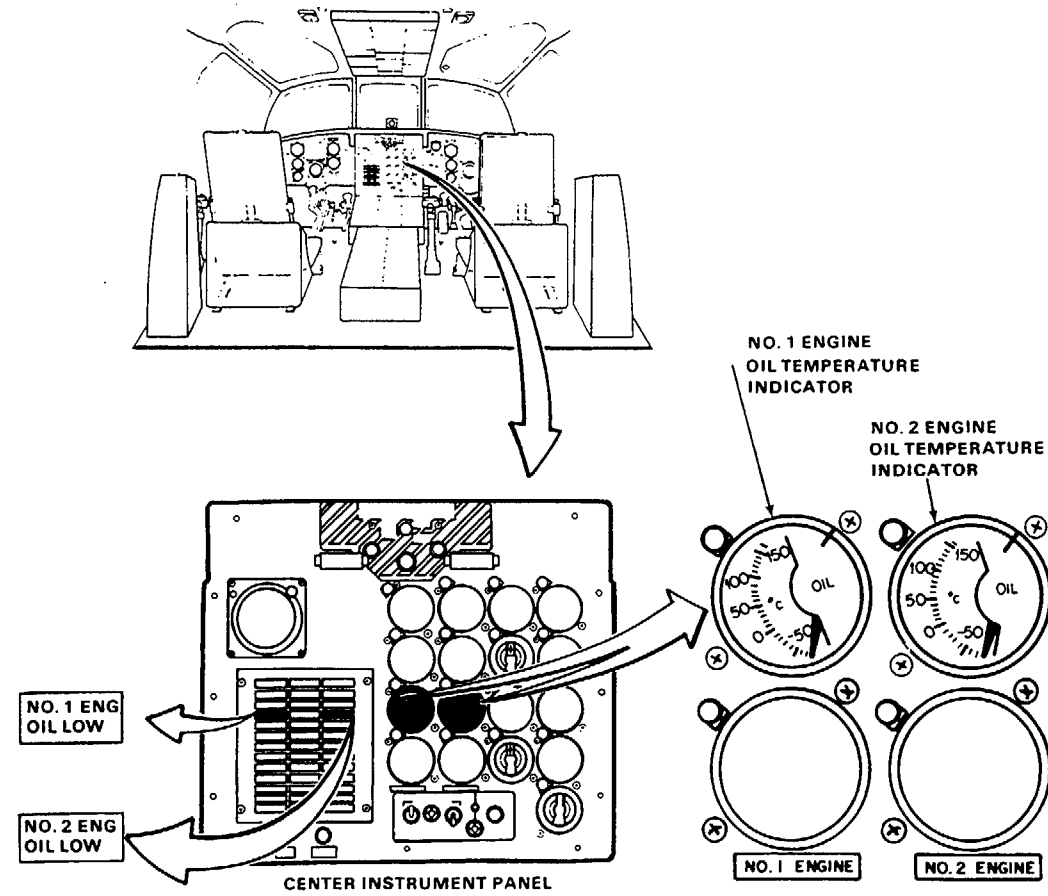
**Personnel Required:**  
Aircraft Powerplant Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



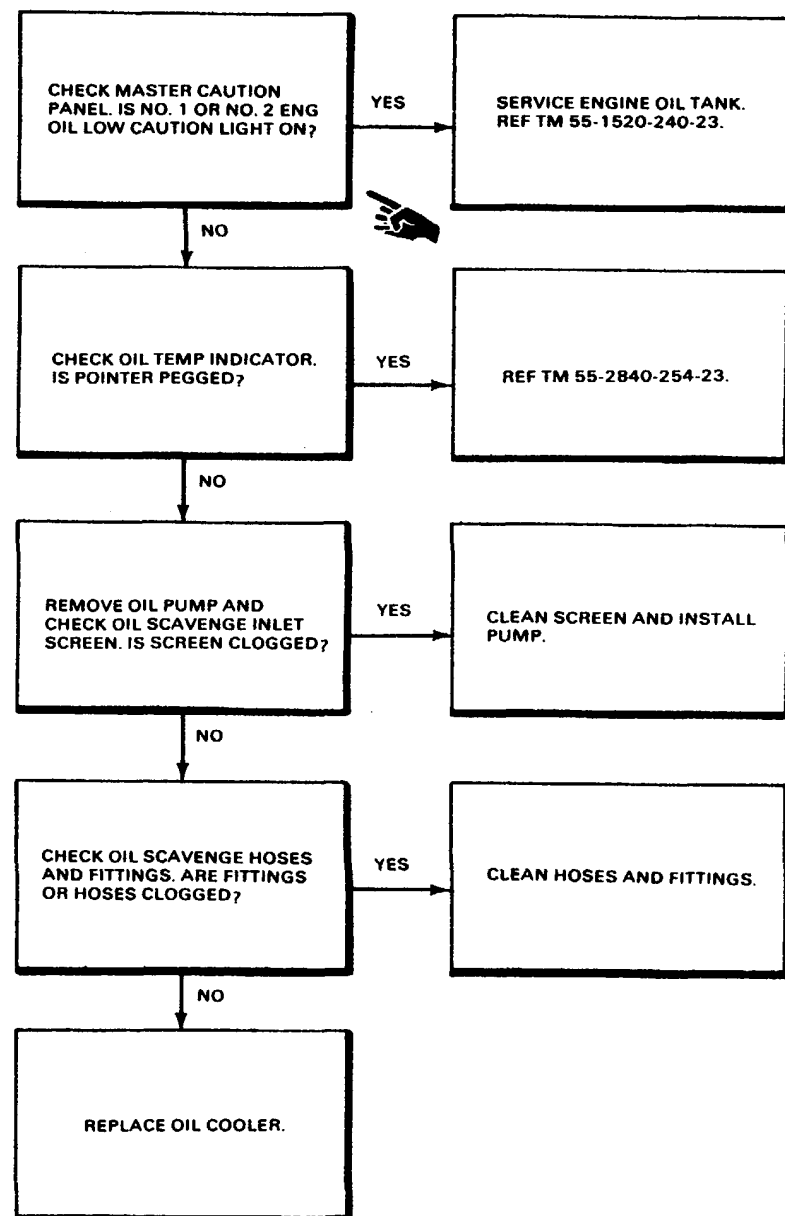
90 X 54

D145-12031-SPA



NOTE

PROCEDURES ARE THE SAME FOR BOTH ENGINES.



END OF TASK

Change 1 4-25

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**

None

**Personnel Required:**

Aircraft Powerplant Repairer

**References:**

TM 55-1520-240-23

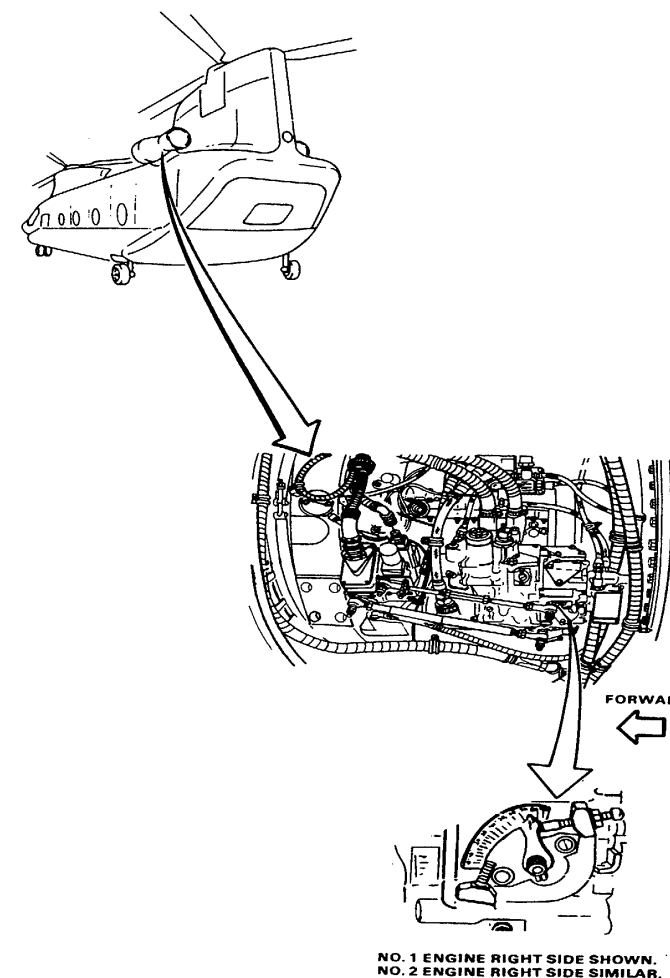
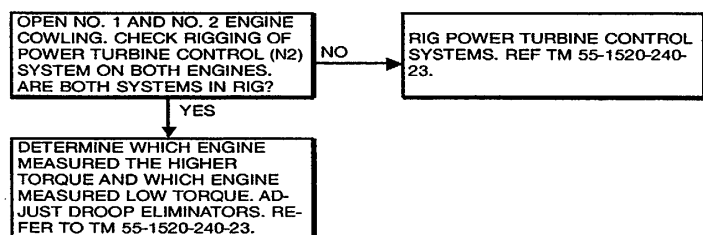
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power On



45X54

D145-12032-SPA

END OF TASK

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**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

Applicable Configurations:

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**

None

**Personnel Required:**

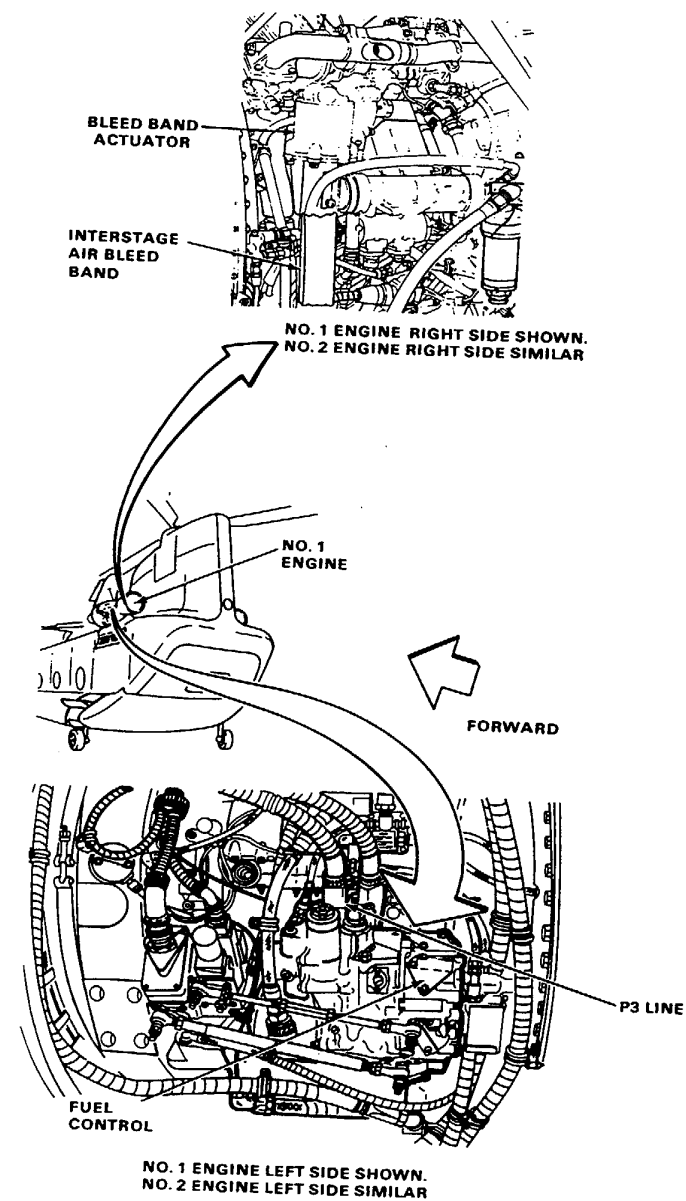
Aircraft Powerplant Repairer  
Army Rotary Wing Aviator (2)

**References:**

TM 55-1520-240-10  
TM 55-1520-240-23  
TM 55-2840-254-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



45X54

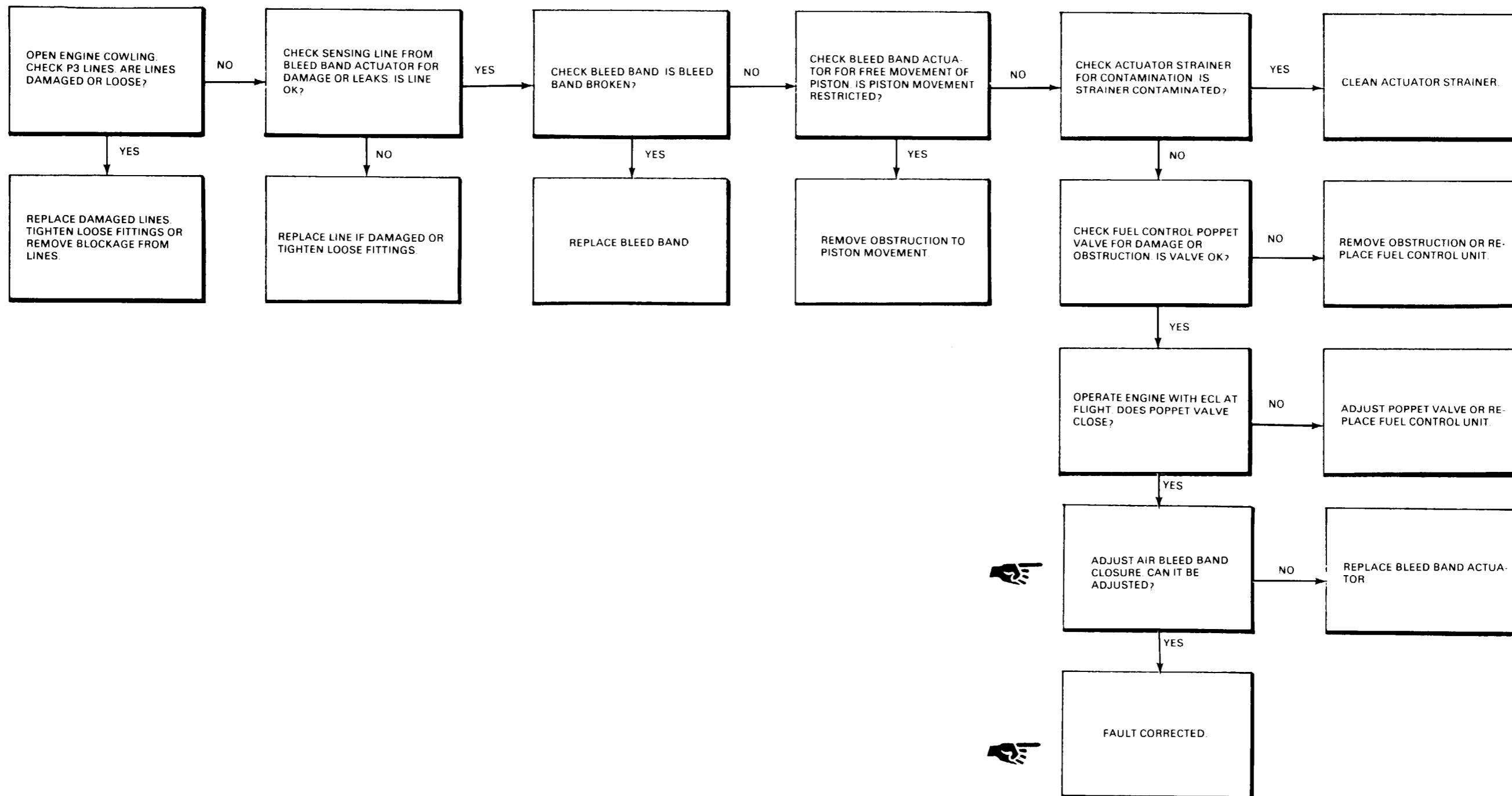
D145-12033-SPA

4-1.11 NO. 1 OR NO. 2 ENGINE HIGH PTIT (Continued)

4-1.11

**NOTE**  
THE FOLLOWING  
PROCEDURE IS FOR  
ENGINE WITH HIGH PTIT  
INDICATION.

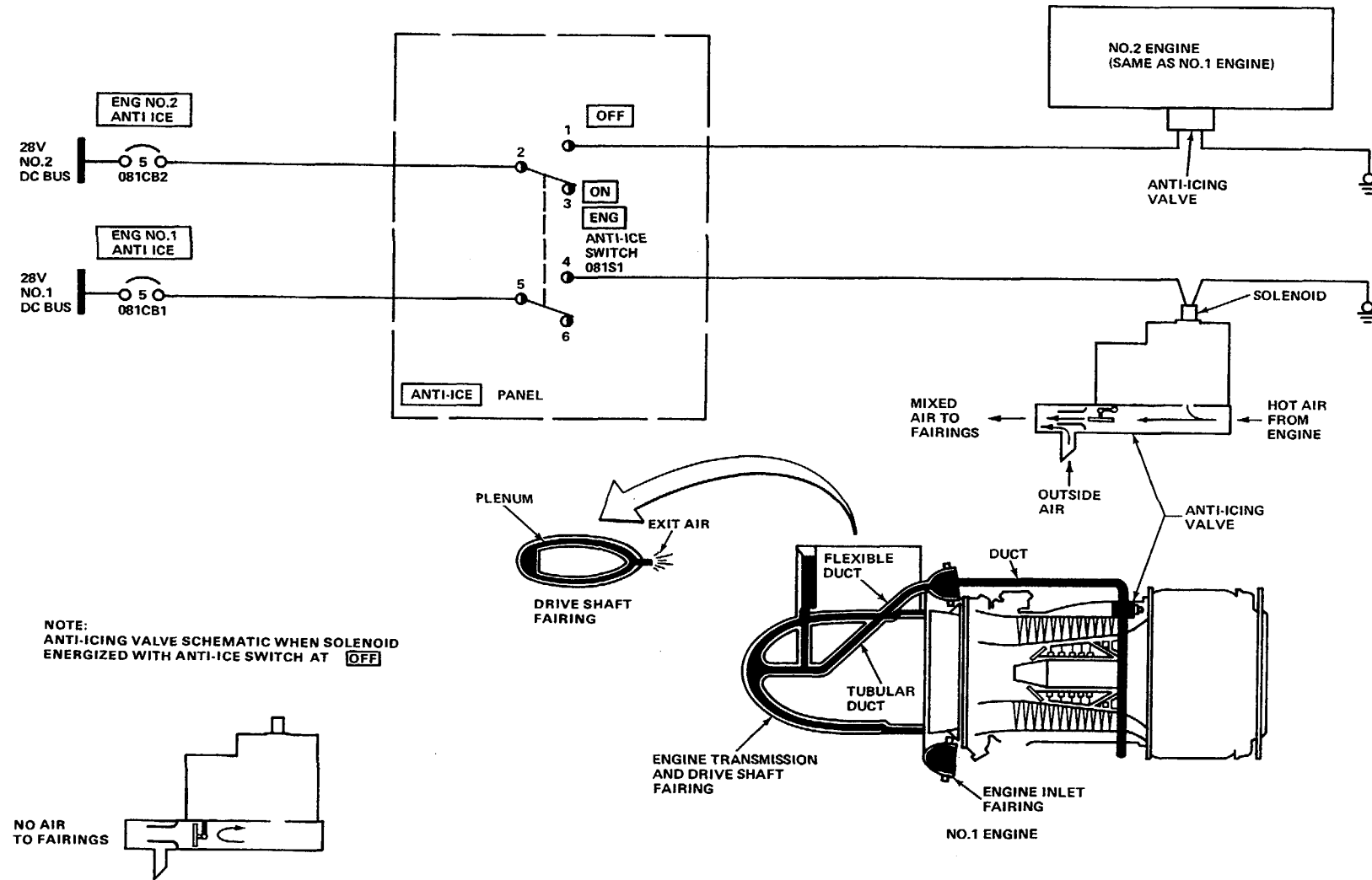
**NOTE**  
REFER TO TM 55-2840-254-  
23 FOR ALL ENGINE  
RELATED TASKS.



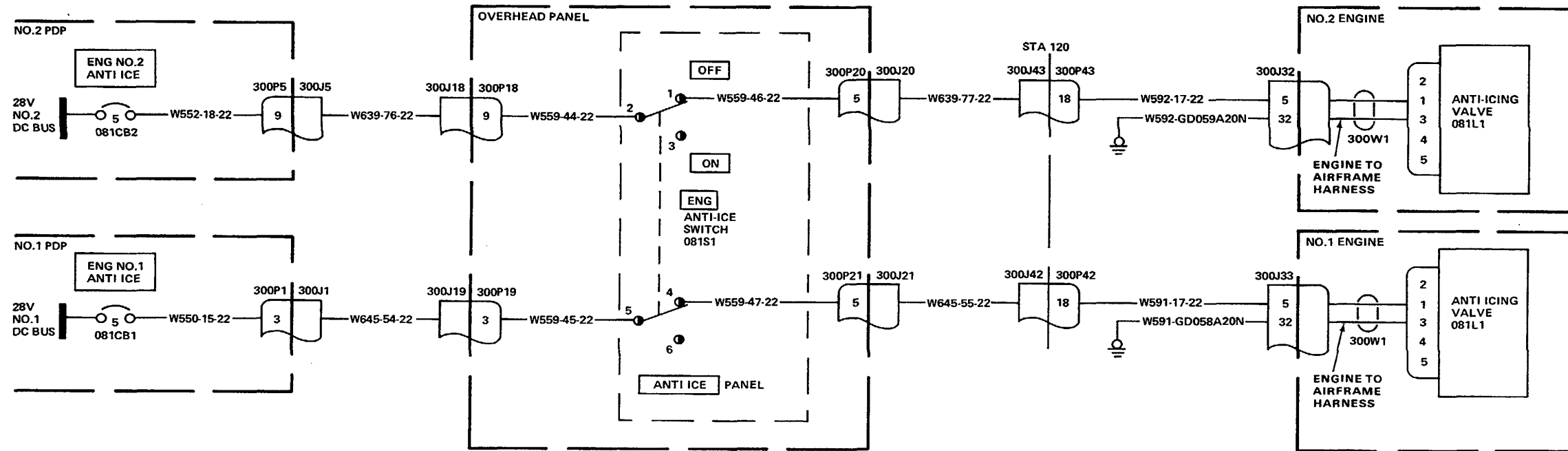
END OF TASK

SECTION 4-2 ENGINE ANTI-ICING SYSTEM (WITHOUT 74)

WITHOUT 43 AND 74



WITHOUT 43 AND 74



081.100  
90 x 54

D145-5241-SPA

END OF TASK  
Change 17 4-33



4-2.3 ENGINE ANTI-ICING SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations**

Without 43 and 74

**Tools**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials**

None

**Personnel Required:**

Medium Helicopter Repairer

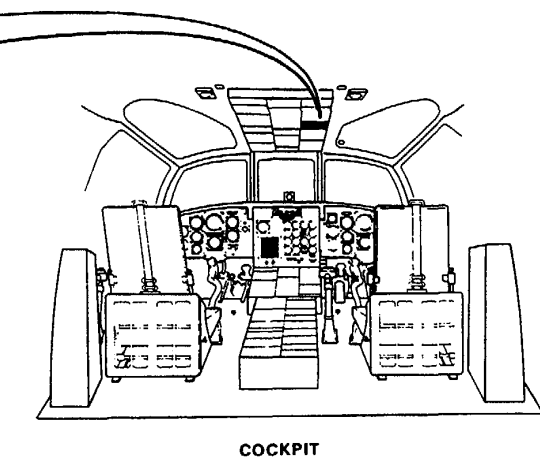
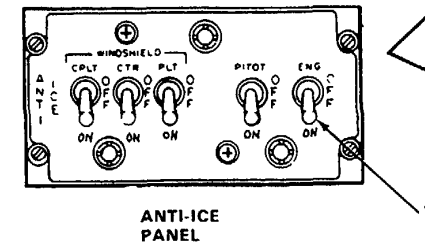
**References**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Engine Work Platforms Open
- Engine Access Covers Open
- Engine Air Inlet Screens Removed
- Engine Transmission Upper Fairings Opened

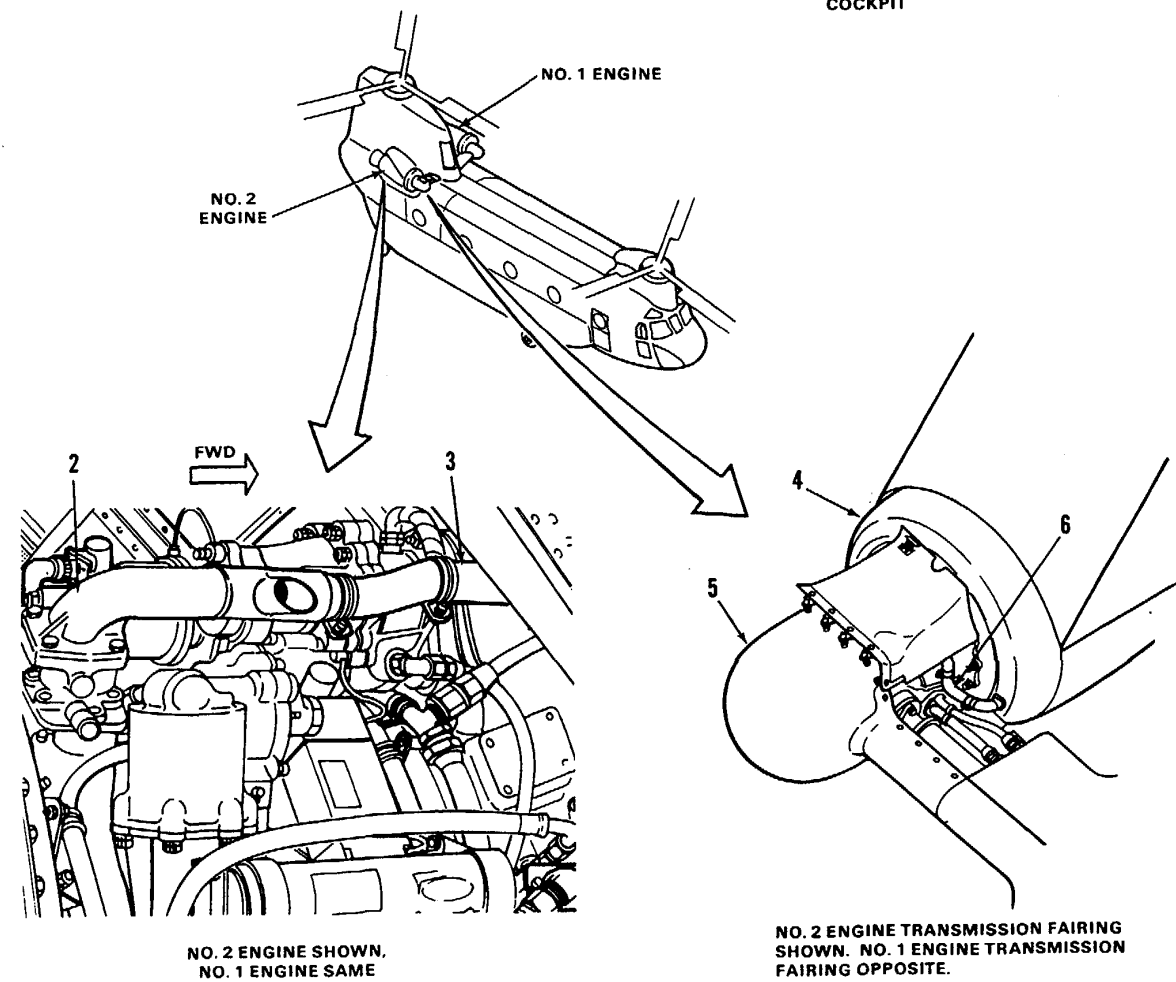


TASK	RESULT
1. Check ENG anti-ice switch (1).	If switch (1) is loose or damaged, tighten or replace it as required.
2. Check No. 1 engine anti-icing valve (2) and hose (3).	If valve (2) is loose or damaged, tighten or replace it as required. If electrical connector or wiring to valve is damaged, replace it. If hose (3) is loose or damaged, tighten clamps or replace hose as required.
3. Check No. 1 engine air inlet fairing (4).	If fairing (4) is damaged, repair or replace it.
4. Check No. 1 engine transmission fairing (5) and hose (6).	If fairing (5) is damaged, repair or replace it. If hose (6) is loose or damaged, tighten or replace it as required.
5. Repeat steps 2 through 4 on No. 2 engine.	

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

Close engine transmission upper fairings.



45X54

D145-5514-SPA

4-2.4 ENGINE ANTI-ICING SYSTEM OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

Without 43 and 74

**Tools:**

None

**Materials:**

None

**Personnel Required:**

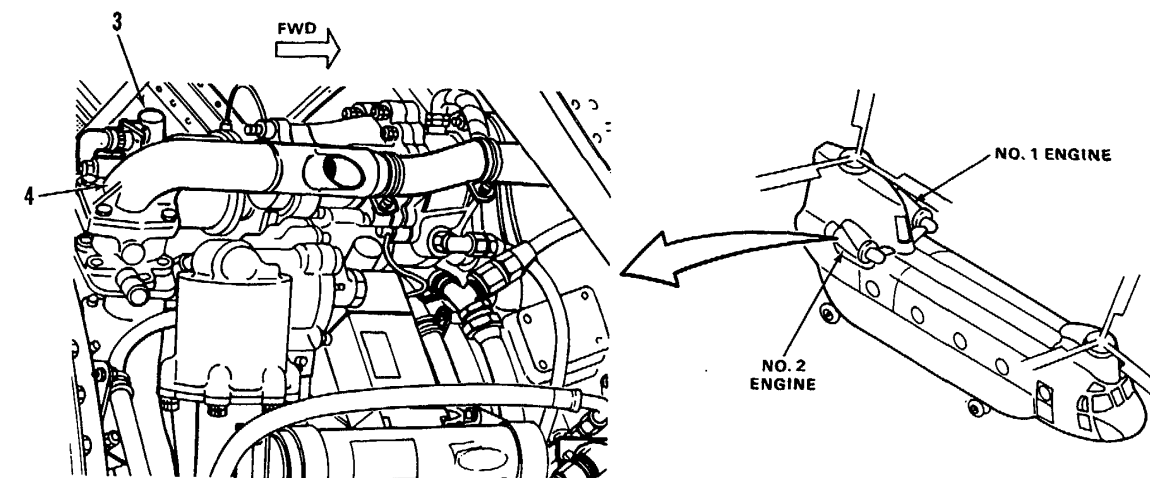
Medium Helicopter Repairer  
Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Visual Check of Engine Anti-Icing System Performed  
(Task 4-2.3)



NO. 2 ENGINE SHOWN,  
NO. 1 ENGINE SAME

TASK	RESULT
1. Check that ENG NO. 1 ANTI ICE circuit breaker (1) is closed.	If ENG NO. 1 ANTI ICE circuit breaker (1) is open, close it. If it opens again, go to task 4-2.5.
2. Check that ENG NO. 2 ANTI ICE circuit breaker (2) is closed.	If ENG NO. 2 ANTI ICE circuit breaker (2) is open, close it. If it opens again, go to task 4-2.5.

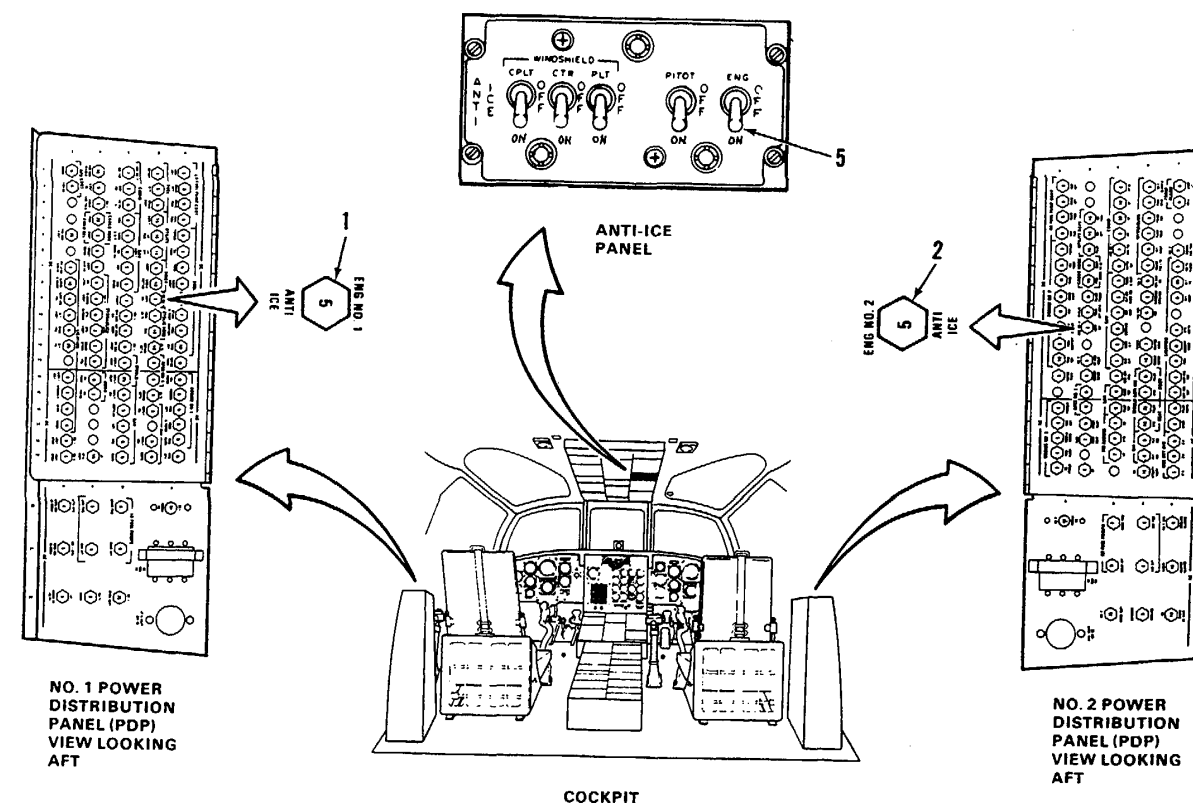
**WARNING**

Engine anti-ice valve solenoid is energized when ENG anti-ice switch is at OFF. Solenoid body temperature may exceed 300°F (149°C). Contact with solenoid body could cause personnel burns or could be an ignition source.

3. Listen to solenoid (3) on No. 1 engine anti-ice valve (4). Move ENG anti-ice switch (5) from OFF to ON to OFF.	No. 1 engine anti-icing valve solenoid (3) shall click when switch (5) is cycled. If it does not, go to task 4-2.6.
4. Listen to solenoid (3) on No. 2 engine anti-ice valve (4). Move ENG anti-ice switch (5) from OFF to ON to OFF.	No. 2 engine anti-icing valve solenoid (3) shall click when switch (5) is cycled. If it does not, go to task 4-2.7.

**NOTE**

If system was reported inoperative and operational check found no problem, have pilot recheck system. If system fails pilot's check again, replace appropriate anti-icing valve.



45X54

0145-5515-SPA

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

- Electrical power off.
- Battery disconnected.
- Engine access covers closed.
- Engine work platforms closed.
- Engine air inlet screens installed.

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 43 and 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

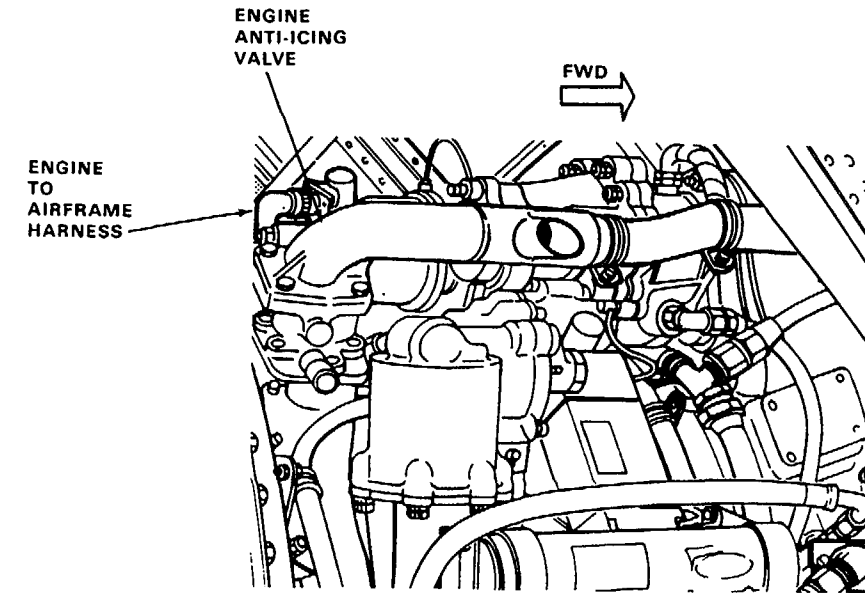
**Equipment Condition:**

TM 55-1520-240-23:

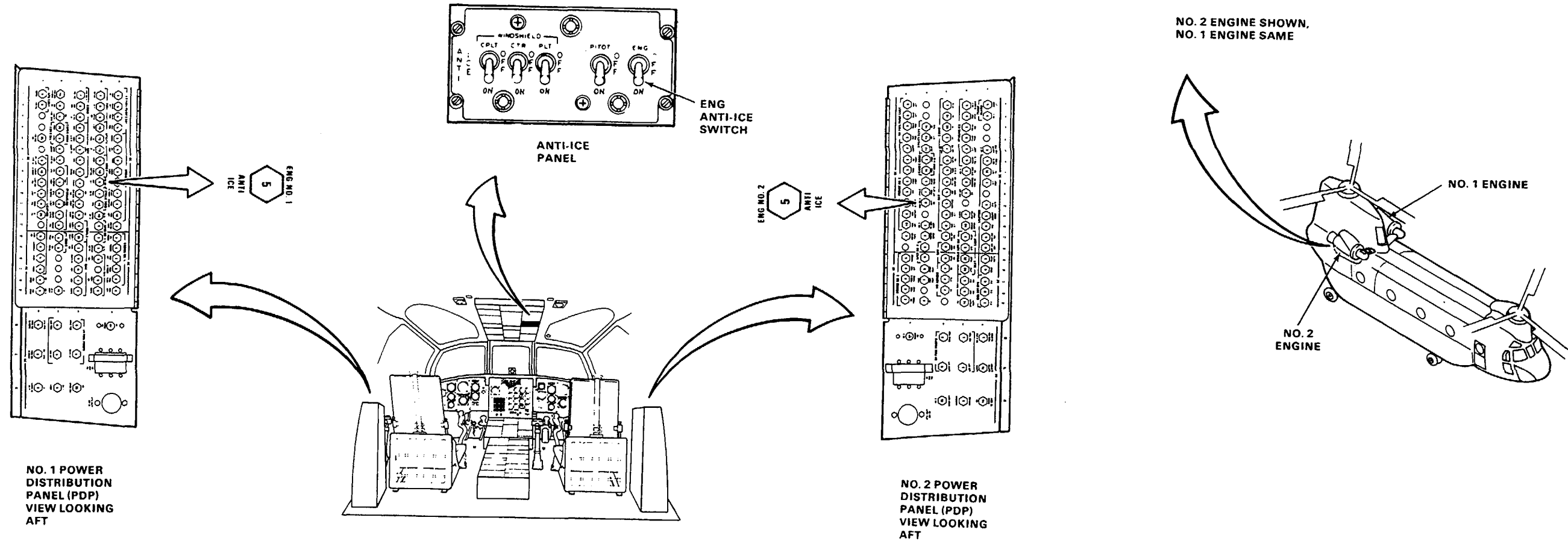
Battery Disconnected

Electrical Power Off

Hydraulic Power Off



NO. 2 ENGINE SHOWN,  
NO. 1 ENGINE SAME



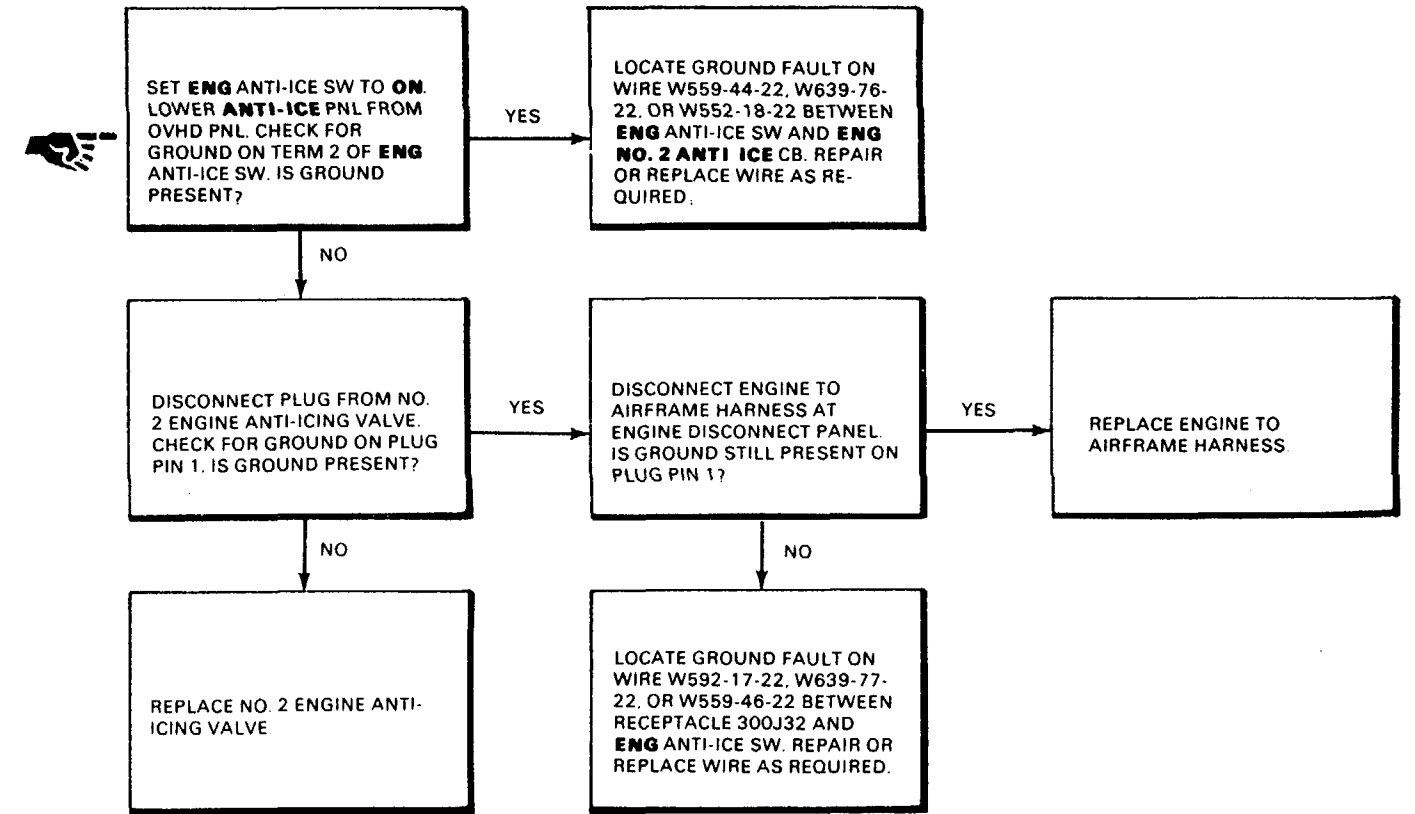
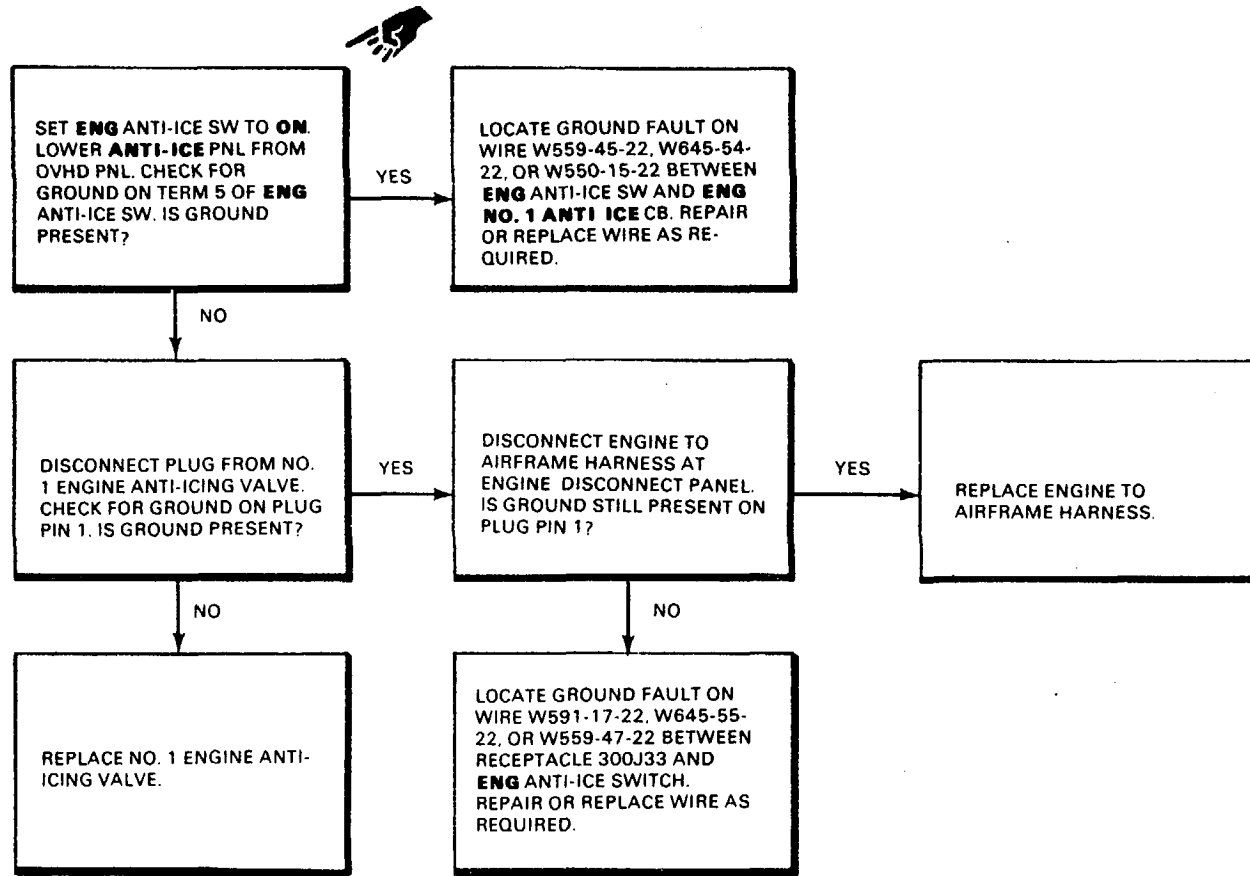
90X54

D145-5516-SPA

4-2.5 ENG NO. 1 OR NO. 2 ANTI ICE CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)

ENG NO. 1 ANTI ICE CIRCUIT BREAKER WILL NOT STAY CLOSED

ENG NO. 2 ANTI ICE CIRCUIT BREAKER WILL NOT STAY CLOSED



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 43 and 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None -

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

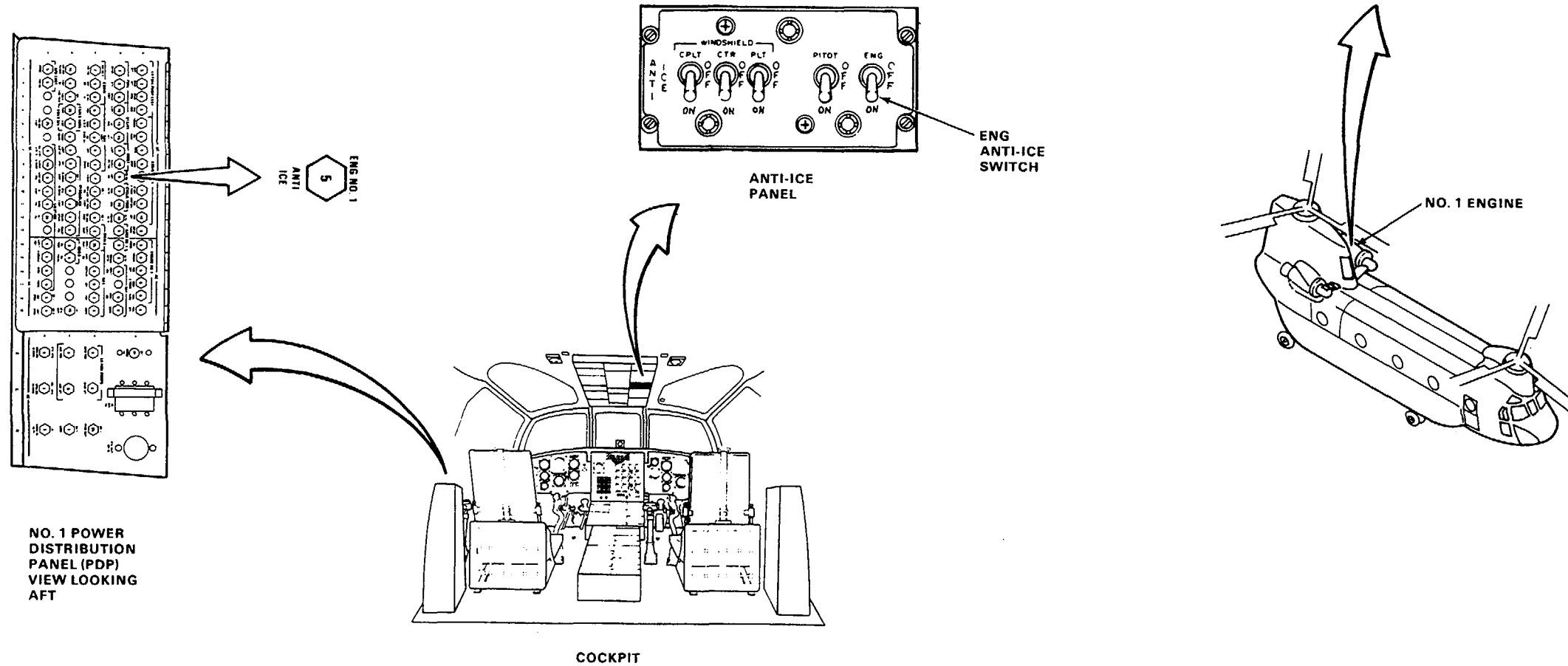
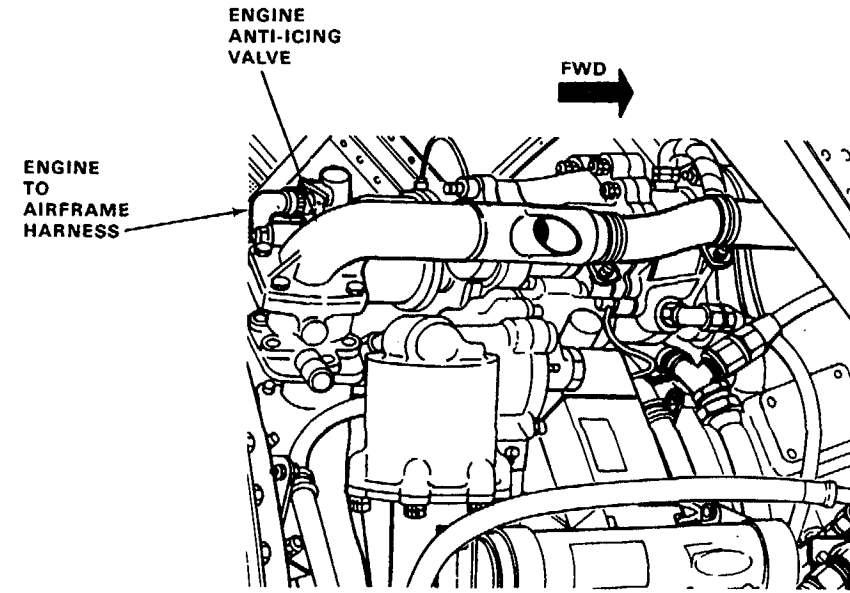
**Equipment Condition:**

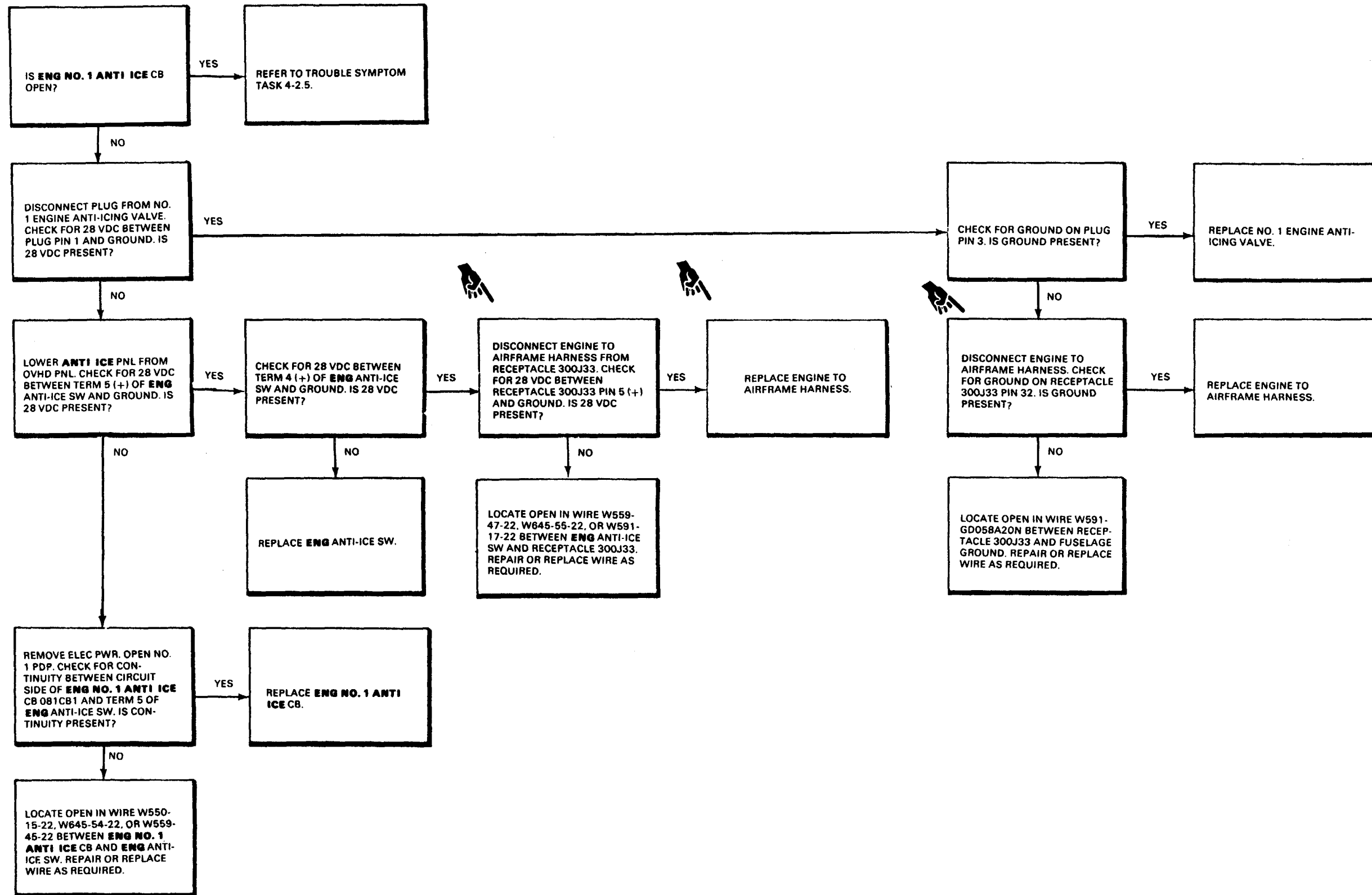
TM 55-1520-240-23:

Battery Disconnected

Electrical Power On

Hydraulic Power Off





**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 43 and 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

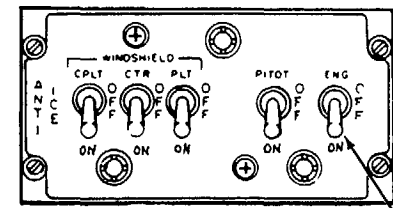
**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

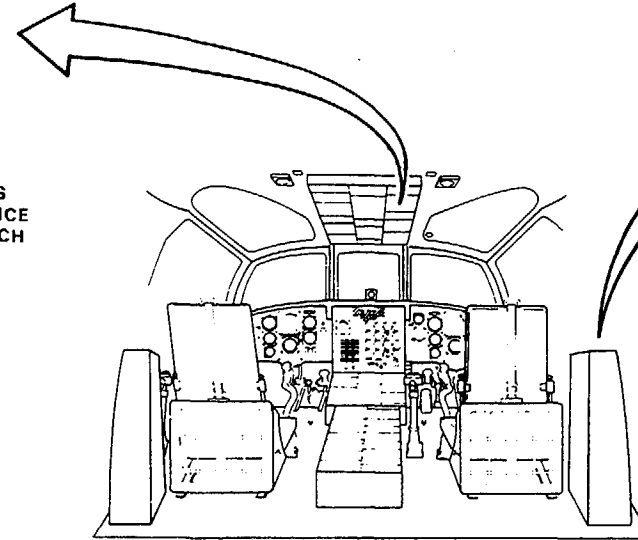
Electrical Power On

Hydraulic Power Off

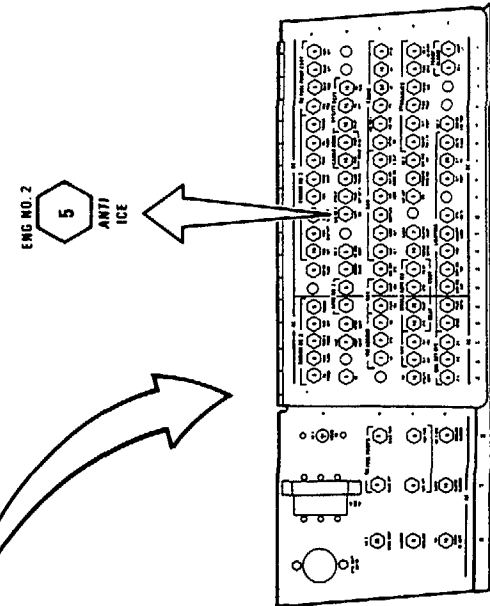


ANTI-ICE PANEL

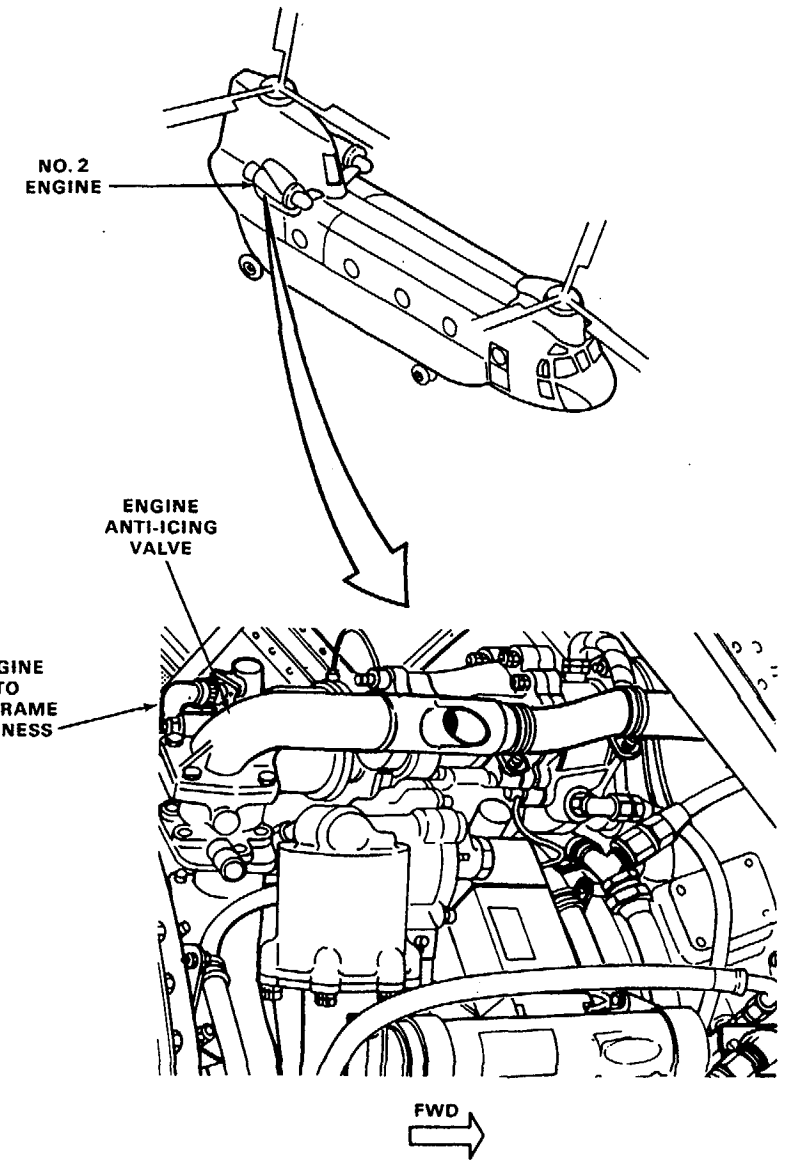
ENG ANTI-ICE SWITCH



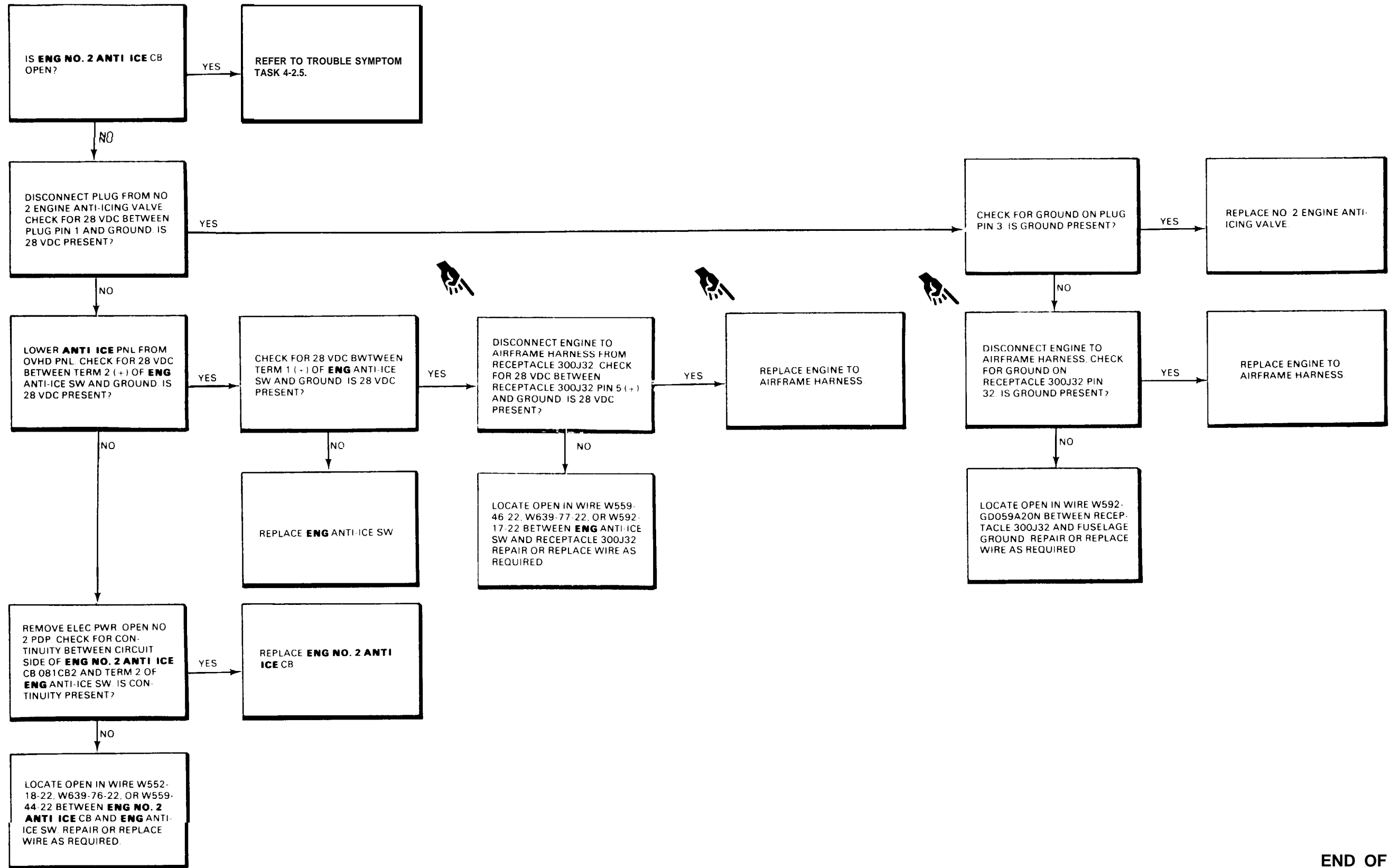
COCKPIT



NO. 2 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



4-2.7 NO. 2 ENGINE ANTI-ICING VALVE DOES NOT OPERATE  
(CLICK NOT HEARD) (Continued)

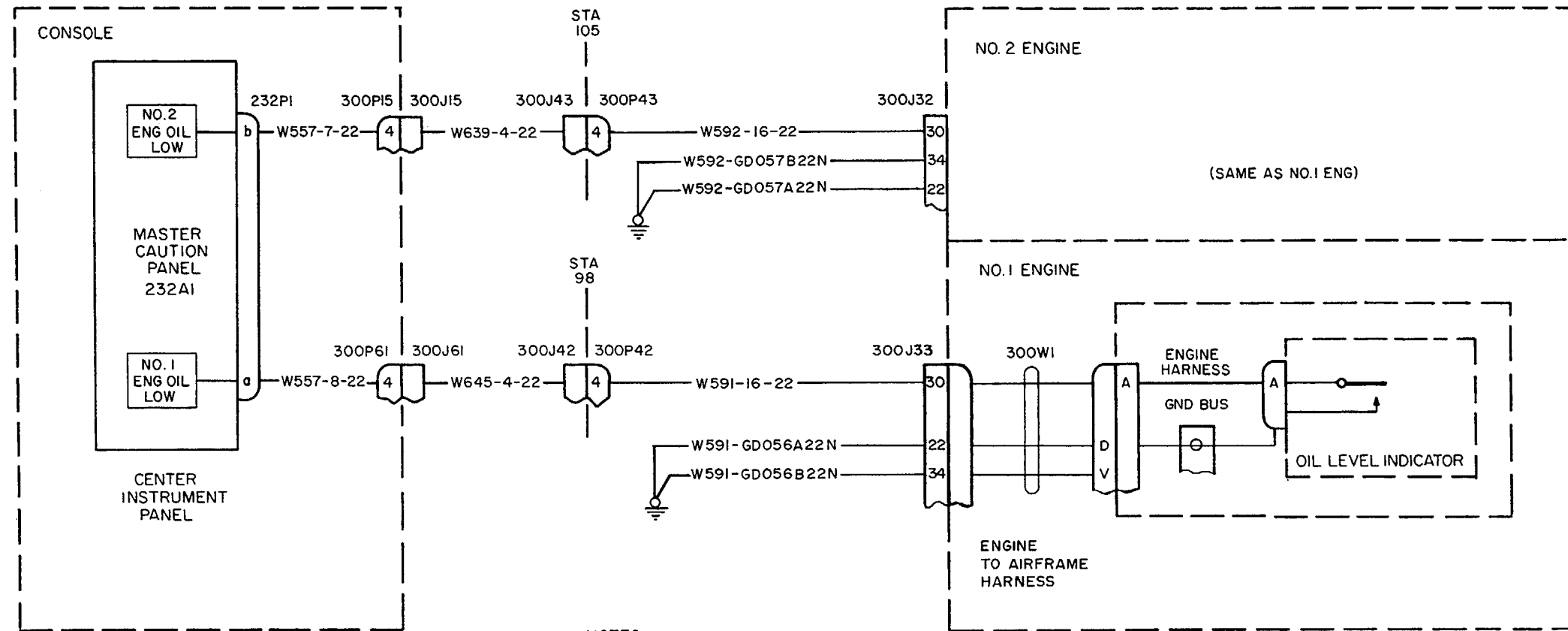


END OF TASK




SECTION 4-3 ENGINE LOW OIL LEVEL WARNING SYSTEM (WITHOUT 74) 

 WITHOUT 74



NOTES:

- I.  INDICATES EQUIPMENT MARKINGS

058.100A

90x54

D145-8407-SPA

4-3.2 ENGINE LOW OIL LEVEL WARNING SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

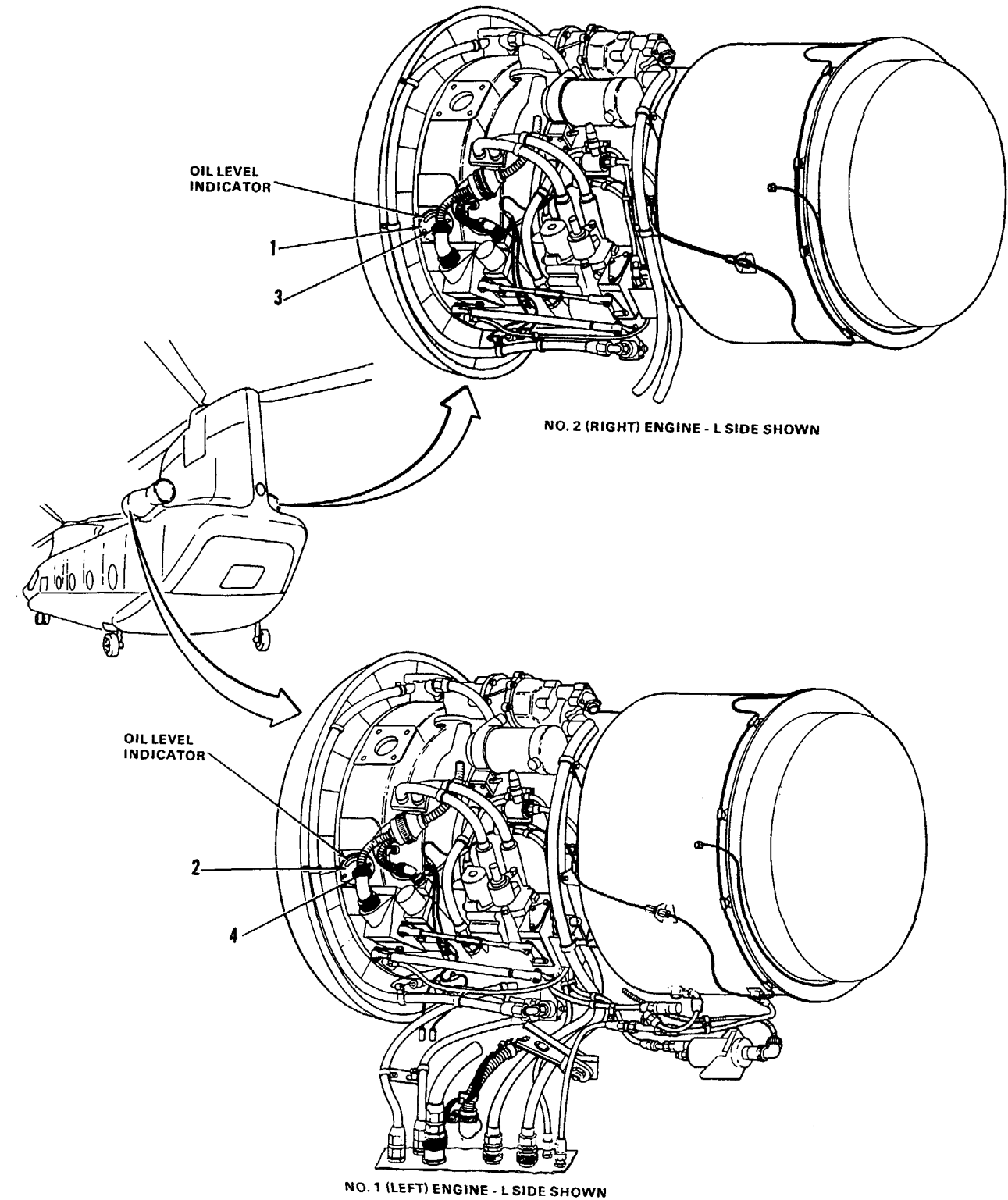
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- No. 1 Engine Upper and Lower Access Covers Open
- No. 1 Engine Work Platform Open
- No. 2 Engine Upper and Lower Access Covers Open
- No. 2 Engine Work Platform Open

TASK	RESULT
1. Check No. 2 engine oil level indicator (1).	If indicator (1) is loose or damaged, repair or replace it as required.
2. Check No. 2 engine oil level indicator (1) connector (3).	If connector (3) is loose or damaged, repair or replace it as required.
3. Check No. 1 engine oil level indicator (2).	If indicator (2) is loose or damaged, repair or replace it as required.
4. Check No. 1 engine oil level indicator (2) connector (4).	If connector (4) is loose or damaged, repair or replace it as required.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

- No. 1 engine upper and lower access covers closed.
- No. 1 engine work platform closed.
- No. 2 engine upper and lower access covers closed.
- No. 2 engine work platform closed.



INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

None

**Materials:**

Open

None

Open

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off

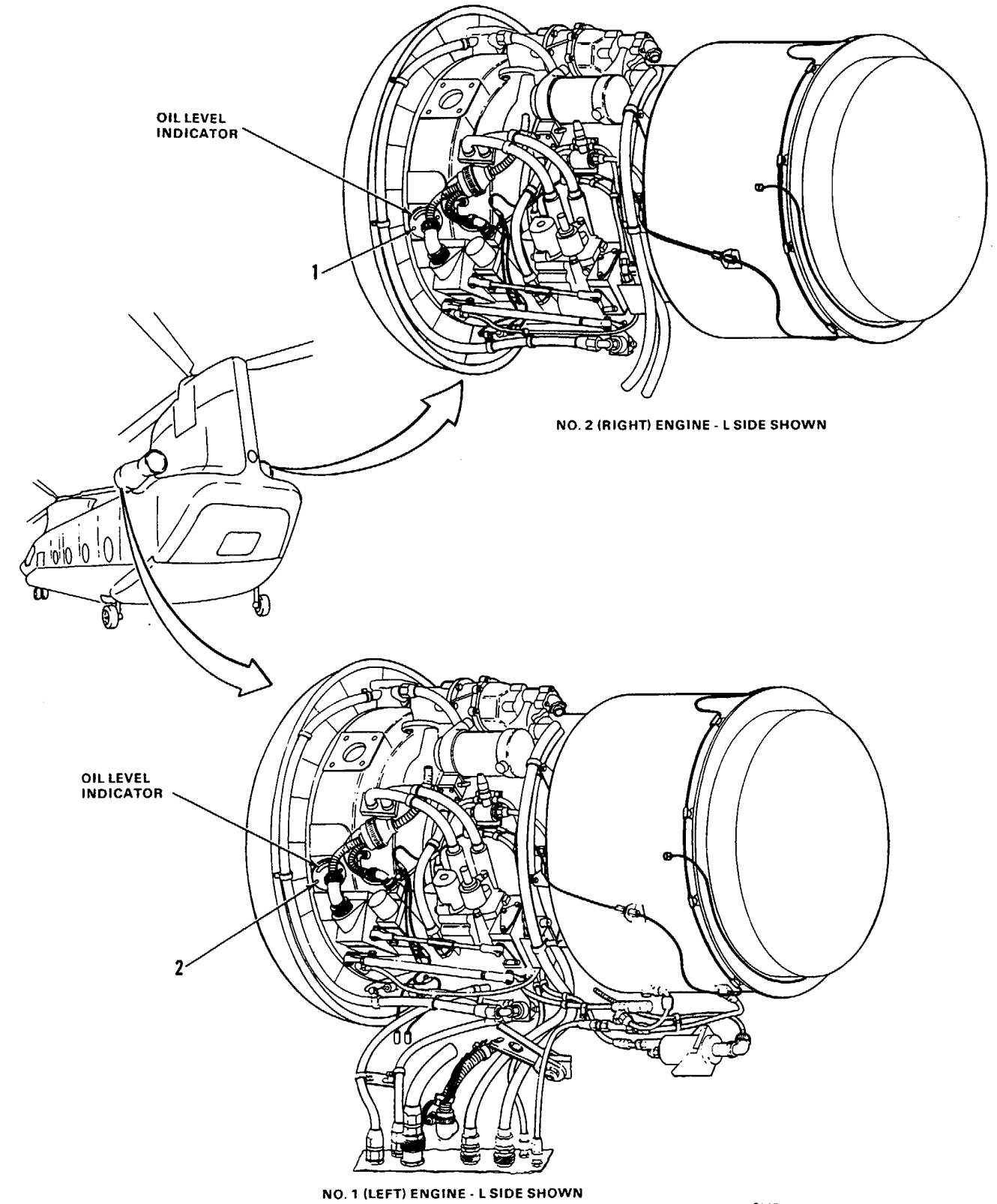
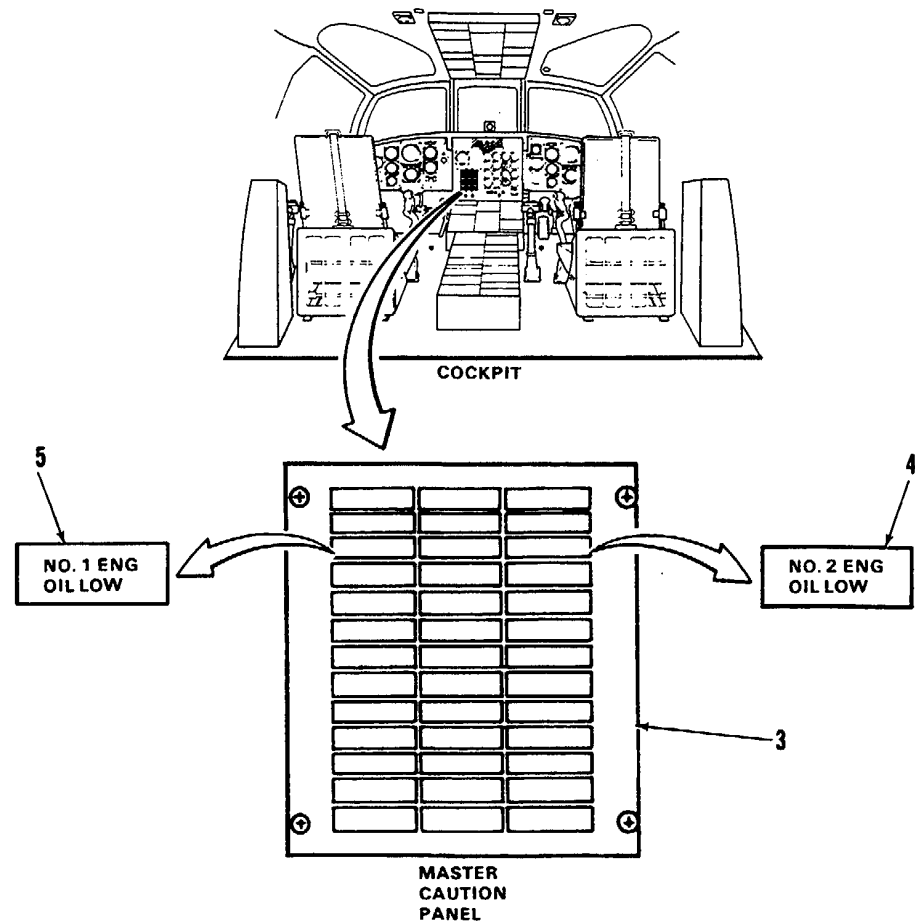
No. 1 Engine Upper and Lower Access Doors

No. 1 Engine Work Platform Open

No. 2 Engine Upper and Lower Access Doors

No. 2 Engine Work Platform Open

Visual Check of Engine Low Oil Level Warning System Performed (Task 4-3.2)



**4-3.3 ENGINE LOW OIL LEVEL WARNING SYSTEM OPERATIONAL CHECK (Continued)**

4-3.3

TASK	RESULT
<p>1. <b>Insert small diameter screwdriver in oil level indicator (1) housing slot. Use it to move oil level indicating arm from FULL position to LOW position (white line). come on. If not, go to task 4-3.4.</b></p>	<p>Indicator (1) pointer shall move freely and return to original position. If pointer binds or sticks, repair or replace it, as required. On master caution panel (3), <b>NO. 2 ENG OIL LOW</b> caution light (4) shall</p>
<p>2. <b>Insert small diameter screwdriver in oil level indicator (2) housing slot. Use it to move oil level indicating arm from FULL position to LOW position (white line). come on. If not go to task 4-3.4.</b></p>	<p>Indicator (2) pointer shall move freely and return to original position. If pointer binds or sticks, repair or replace it as required. On master caution panel (3), <b>NO. 1 ENG OIL LOW</b> caution light (5) shall</p>

FOLLOW-ON MAINTENANCE:

- TM-55-1 520-24-23:
- Electrical Power Off
- Battery Disconnected
- No. 1 Engine Upper and Lower Access Doors Closed
- No. 1 Engine Work Platform Closed
- No. 2 Engine Upper and Lower Access Doors Closed
- No. 2 Engine Work Platform Closed

END OF TASK

4-3.4 NO. 1 OR NO. 2 ENGINE OIL LOW CAUTION LIGHTS DO NOT COME ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
Without 74

**Tools:**  
None

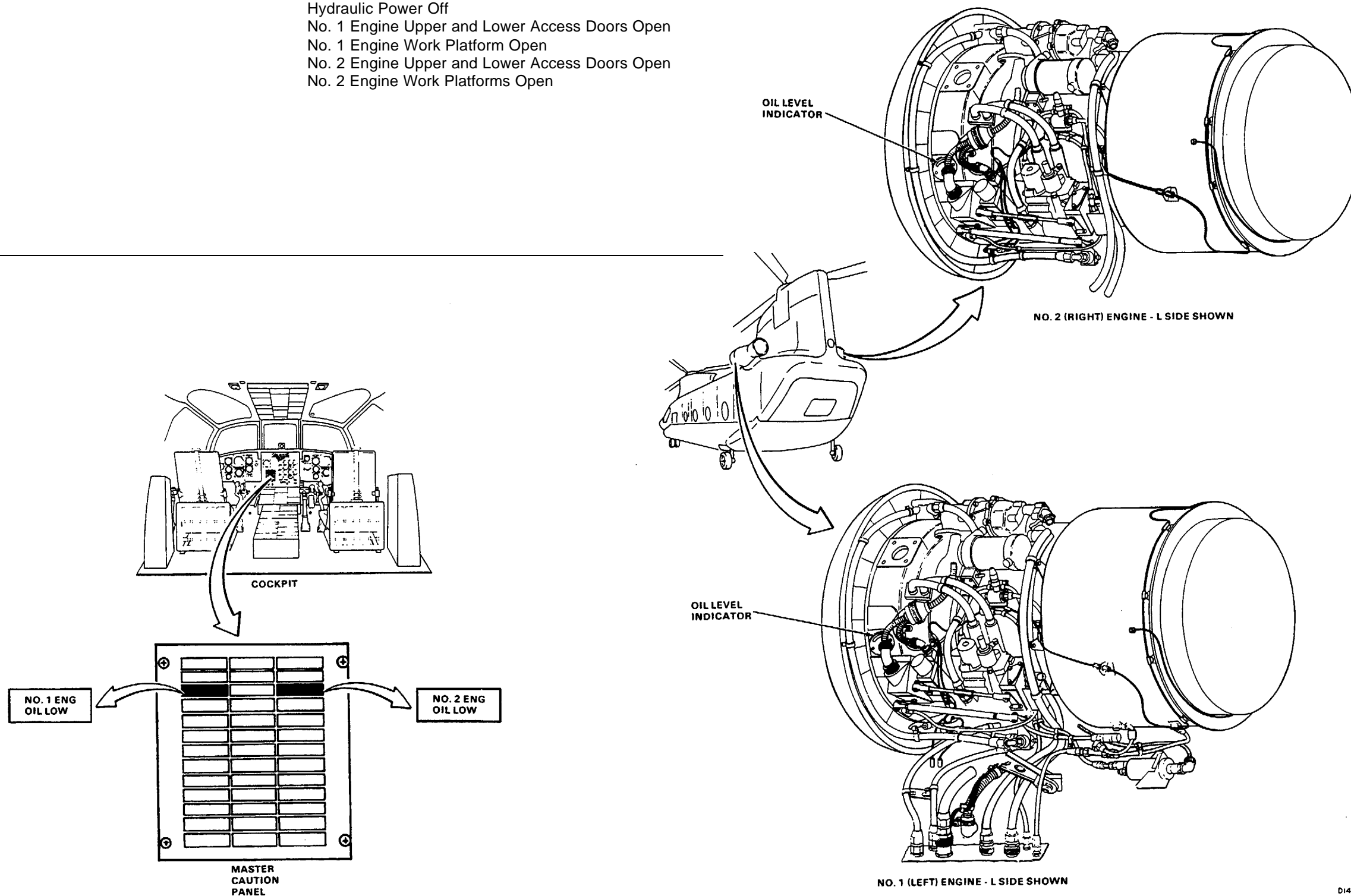
**Materials:**  
None

**Personnel Required:**  
Aircraft Electrician (2)

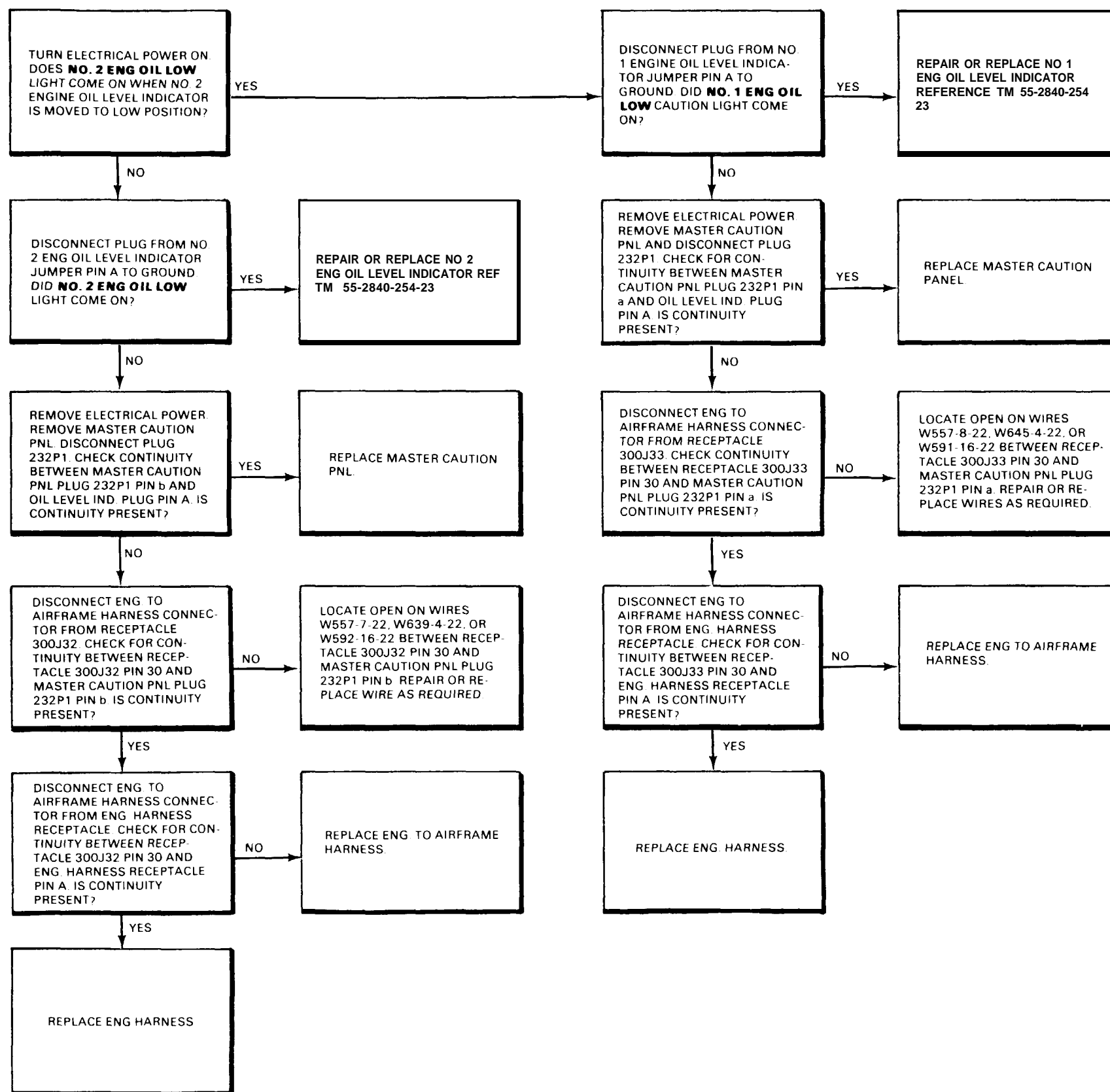
**References:**  
TM 55-1520-240-23  
TM 55-2840-254-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power Off
- Hydraulic Power Off
- No. 1 Engine Upper and Lower Access Doors Open
- No. 1 Engine Work Platform Open
- No. 2 Engine Upper and Lower Access Doors Open
- No. 2 Engine Work Platforms Open



4-3.4 NO. 1 OR NO. 2 ENGINE OIL LOW CAUTION LIGHTS  
DO NOT COME ON (Continued)

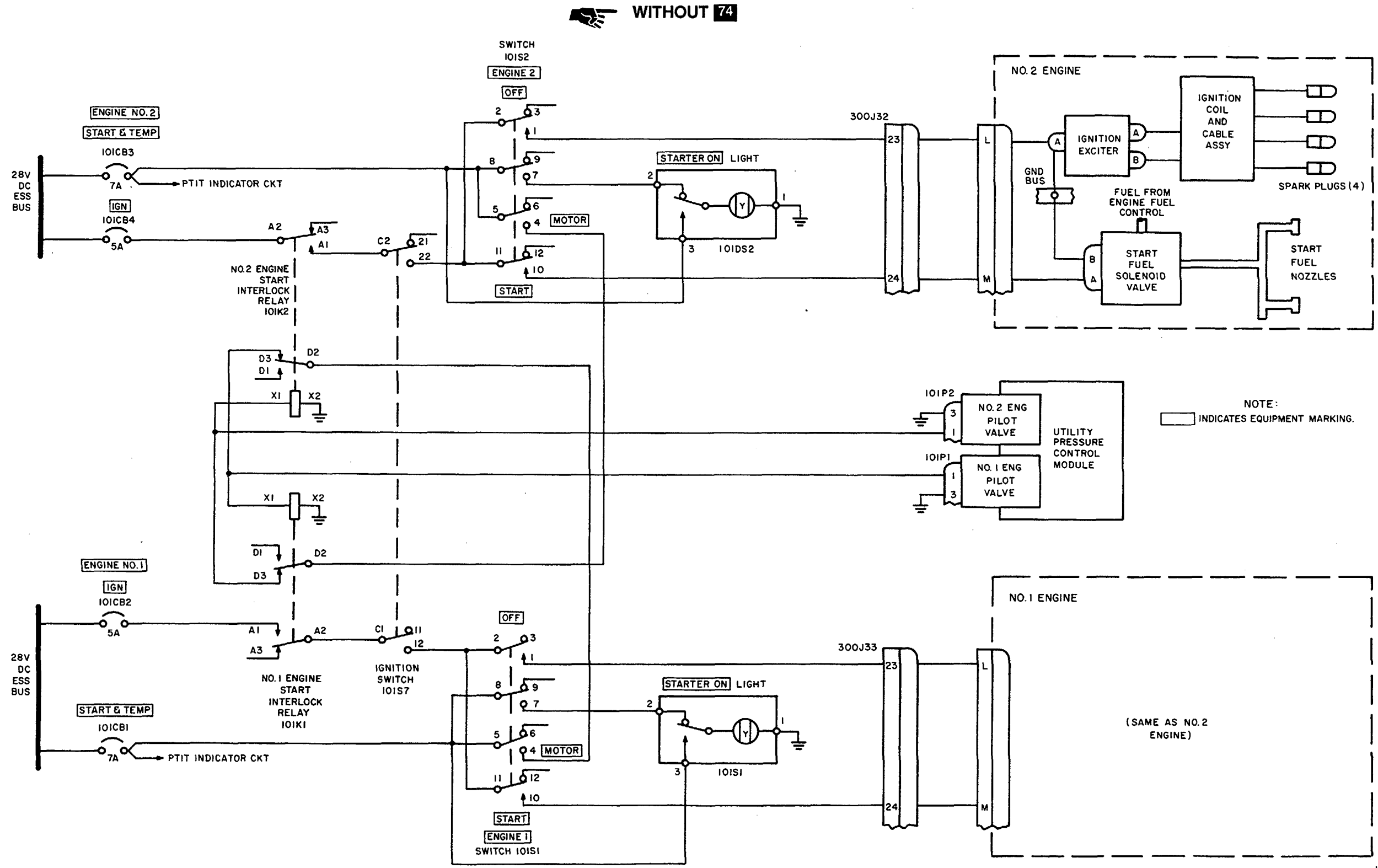


END OF TASK

SECTION 4-4 ENGINE START AND IGNITION SYSTEM (WITHOUT 74)



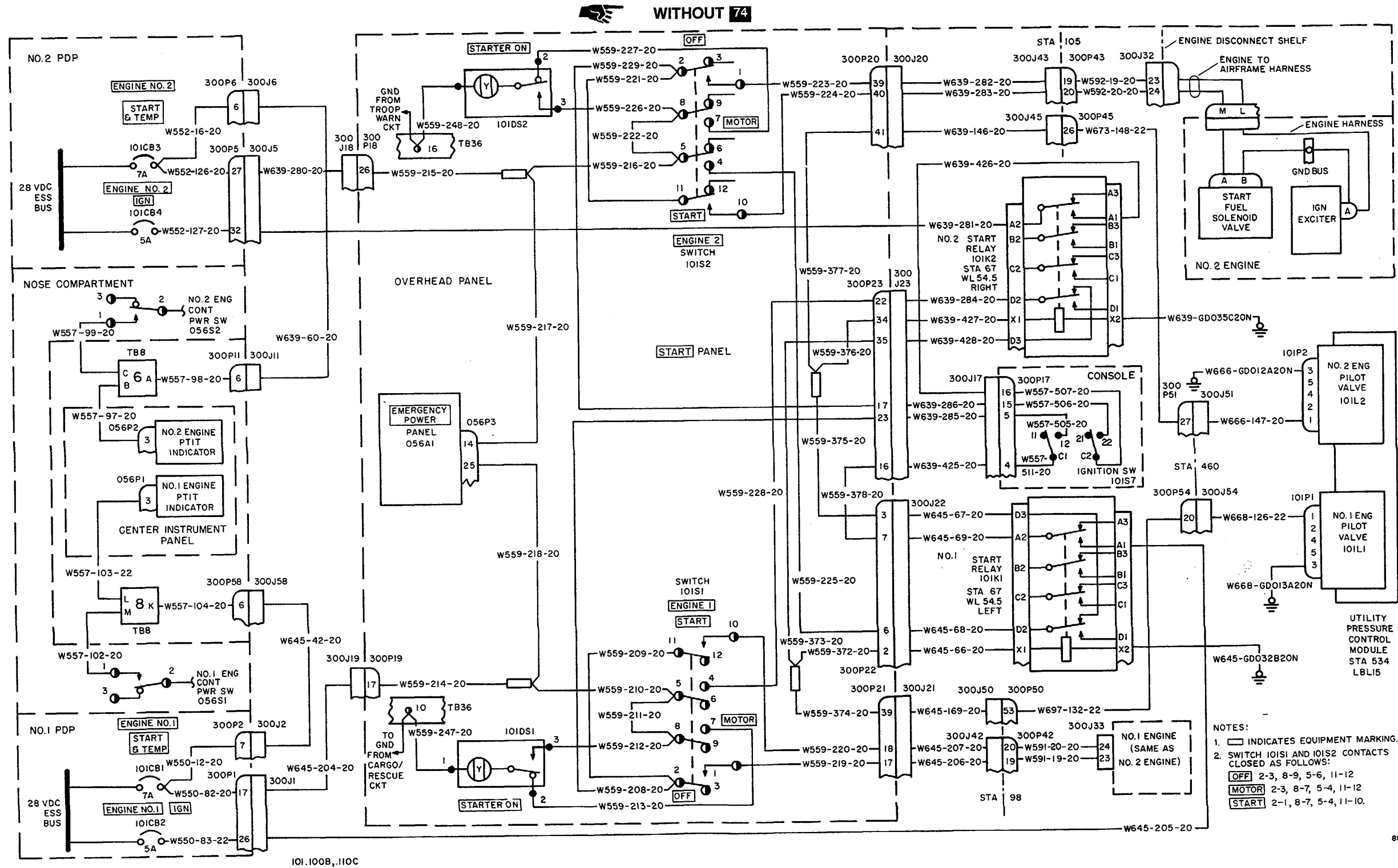




90 X 54

145-7869-SPA

4-4.2 ENGINE START AND IGNITION SYSTEM WIRING DIAGRAM



8899

4-4.3 ENGINE START AND IGNITION SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations**

Without 74

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials**

None

**Personnel Required:**

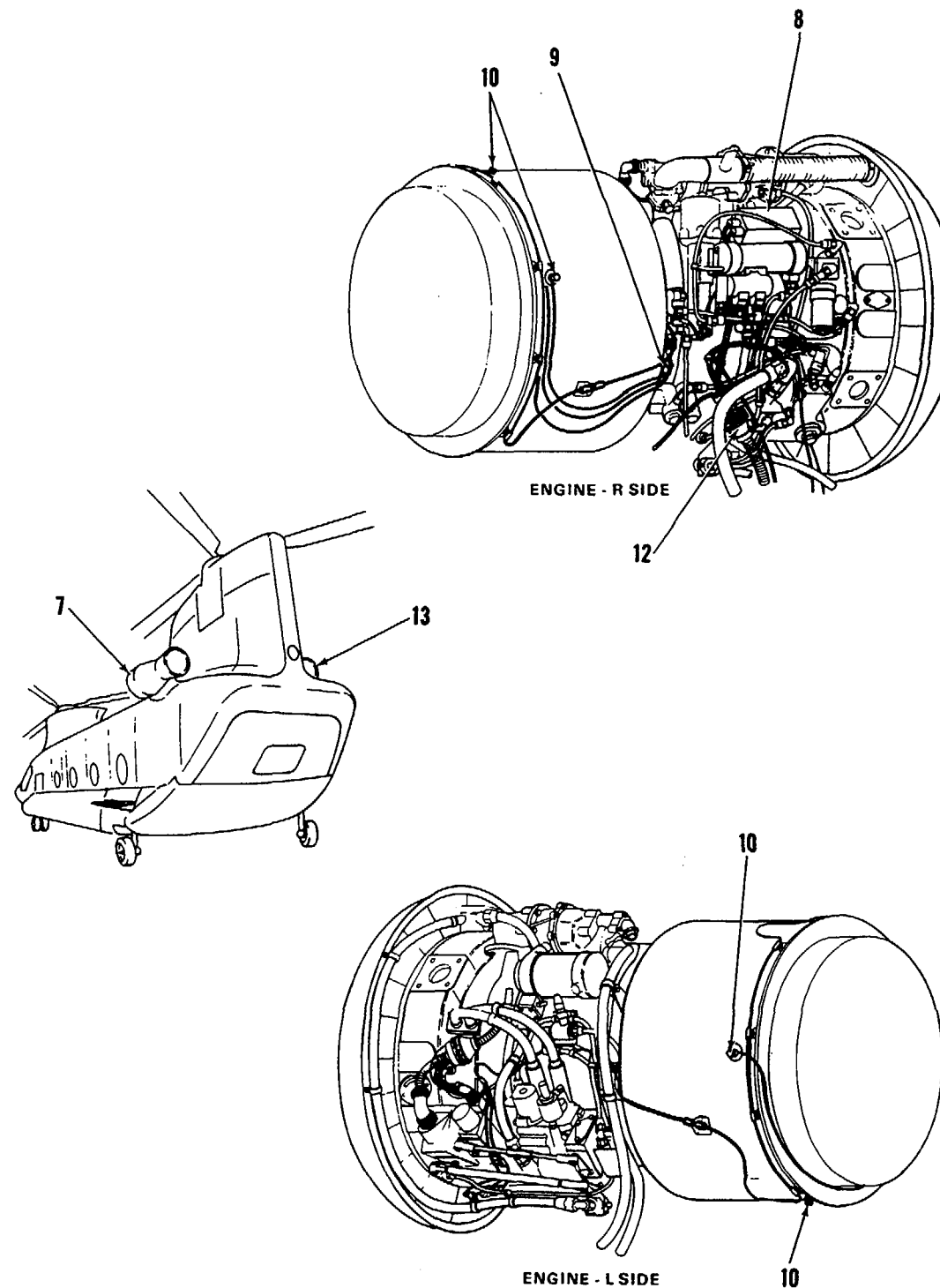
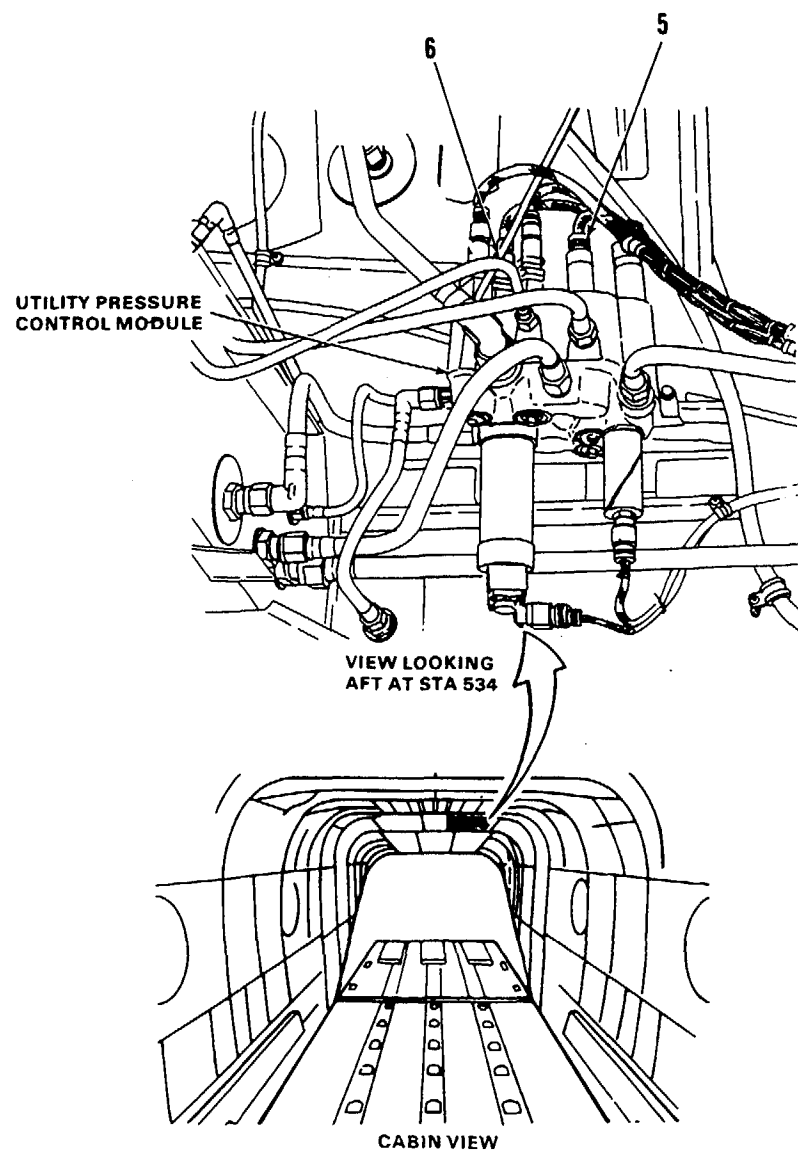
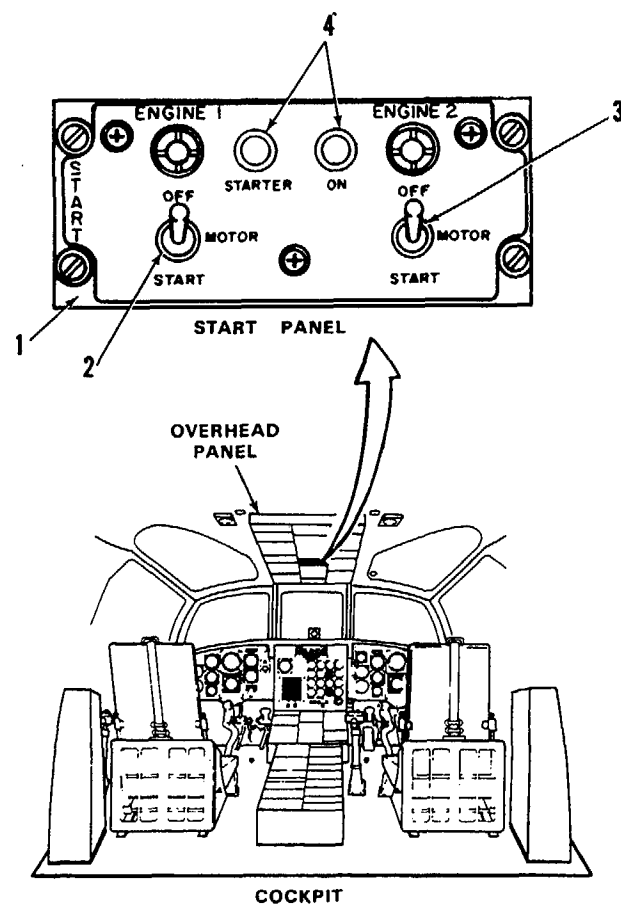
Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Engine Work Platforms Open
- Engine Access Covers Open



NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY

D145-8408-SPA

---

**4-4.3 ENGINE START AND IGNITION SYSTEM VISUAL CHECK**  
**(Continued)**


---

4-4.3

TASK	RESULT
1. <b>Check START panel (1).</b>	If switches (2 and 3) are loose or damaged, tighten or replace them as required. If either light (4) is damaged, replace it.
2. <b>Check No. 1 engine start pilot valve (5).</b>	If valve (5) is loose or damaged, tighten or replace it as required. If wiring or connector to valve is damaged, repair or replace it as required.
3. <b>Check No. 2 engine start pilot valve (6).</b>	If valve (6) is loose or damaged. tighten or replace it as required. If wiring or connector to valve is damaged, repair or replace it as required.
4. <b>Check No. 1 engine (7).</b>	If ignition exciter (8) is damaged, replace it. If ignition coil and cable assembly (9) is damaged, replace it. If any one of four spark plugs (10) is damaged, replace it. If start fuel solenoid valve (11 ) is damaged, replace it. If harness (1 2) to exciter (8) and valve ( 11) is damaged, replace it.
5. <b>Check No. 2 engine (13).</b>	If ignition exciter (8) is damaged, replace it. If ignition coil and cable assembly (9) is damaged, replace it. If any one of four spark plugs ( 10) is damaged, replace it. If start fuel solenoid valve (11 ) is damaged, replace it. If harness (12) to exciter (8) and valve (11 ) is damaged, replace it.

---

**FOLLOW-ON MAINTENANCE:**

TM 55-1520-240-23:

- Close Engine Access Covers.
- Close Engine Work Platforms

4-4.4 ENGINE START AND IGNITION SYSTEM OPERATIONAL CHECK

4-4.4

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

None

**Materials:**

None

**Personnel Required:** Performed (Task 4-4.3)

Medium Helicopter Repairer  
Army Rotary Wing Aviator (2)

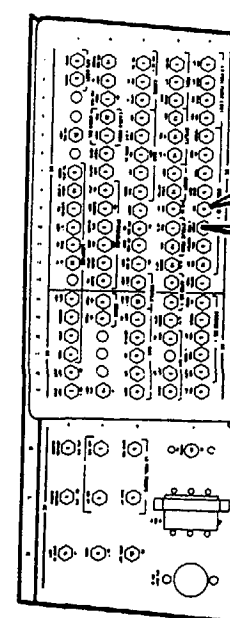
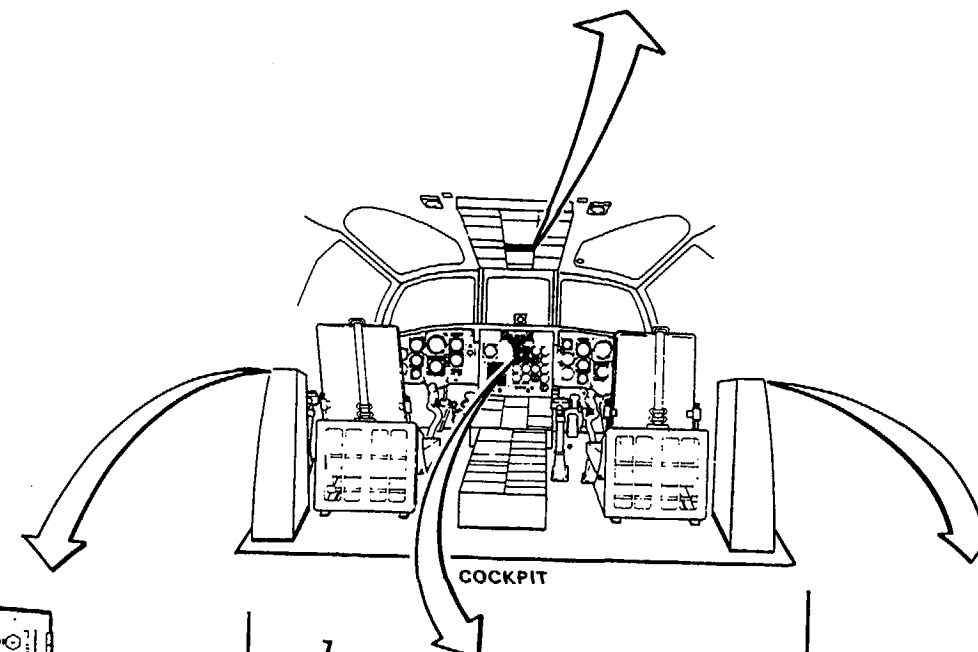
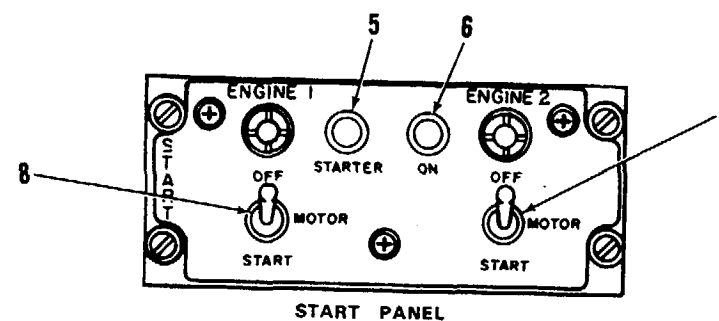
**References:**

TM 55-1520-240-23

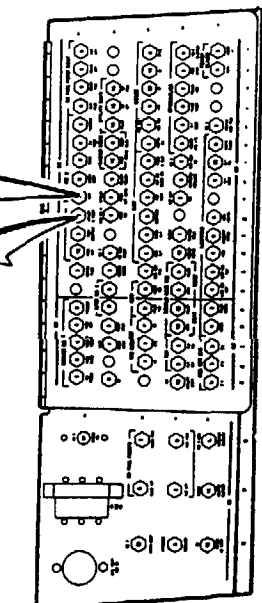
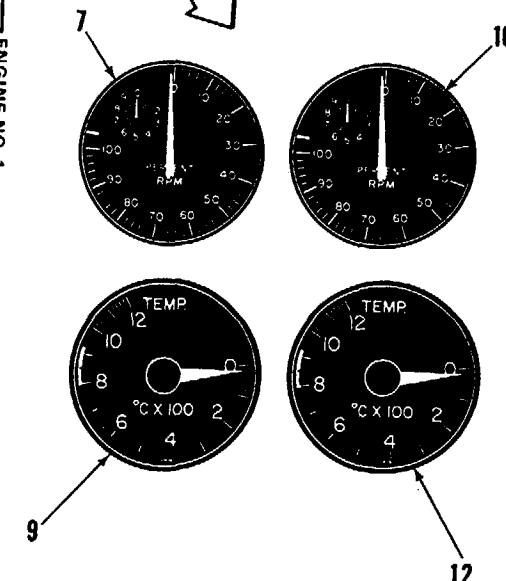
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Engine Start and Ignition System Visual Check

TASK	RESULT
1. Check that <b>ENGINE NO. 1 IGN and START &amp; TEMP circuit breakers (1 and 2)</b> are closed.	If IGN or START & TEMP circuit breaker (1 or 2) is open, close it. If IGN circuit breaker opens again, go to task 4-4.5. If START & TEMP circuit breaker opens again, go to task 4-4.6.
2. Check that <b>ENGINE NO. 2 IGN and START &amp; TEMP circuit breakers (3 and 4)</b> are closed.	If IGN or START & TEMP circuit breaker (3 or 4) is open, close it. If IGN circuit breaker opens again, go to task 4-4.7. If START & TEMP circuit breaker opens again, go to task 4-4.8.
3. Press and release <b>ENGINE 1 STARTER ON light (5)</b> .	Light (5) shall momentarily come on. If it does not light, go to task 4-4.9.
4. Press and release <b>ENGINE 2 STARTER ON light (6)</b> .	Light (6) shall momentarily come on. If it does not light, go to task 4-4.10.
<b>CHECK NO. 1 ENGINE START AND IGNITION SYSTEM</b>	
5. Have pilot motor No. 1 engine.	ENGINE 1 STARTER ON light (5) shall come on. NO. 1 ENGINE gas producer tachometer (7) shall indicate <u>10 to 15%</u> . If ENGINE 1 STARTER ON light does not come on, go to task 4-4.9. If NO. 1 ENGINE gas producer tachometer does not indicate <u>10 to 15%</u> N1, go to task 4-4.11.



NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



NO. 2 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT

45x54

4-4.4 ENGINE START AND IGNITION SYSTEM OPERATIONAL CHECK (Continued)

4-4.4

TASK	RESULT
6. Have pilot start No. 1 engine. When NO. 1 ENGINE gas producer tachometer (7) indicates <u>50%</u> , SET ENGINE 1 START switch (8) to OFF. If engine has high PTIT or hot start, go to task 4-1.2.	No. 1 engine shall accelerate to <u>60-63% N1</u> as indicated on tachometer (7) within <u>45 seconds</u> . Power turbine inlet temperature shall rise and then stabilize at <u>400°C</u> as indicated on PTIT indicator (9). STARTER ON light (5) shall go out when switch (8) set to OFF. If engine does not start, go to task 4-4.12. If light (5) stays on, replace ENGINE 1 MOTOR/START switch.
<b>CAUTION</b>	
<p>After starting NO. 1 ENGINE, do not delay starting NO. 2 ENGINE more than 3 minutes, or motoring engine for 10 seconds every 30 minutes. The N2 section of NO. 2 ENGINE starts turning when NO. 1 ENGINE is started; however, the lubrication system of NO. 2 ENGINE is driven by the N1 section; which does not begin to turn until the START sequence is initiated. Delay in starting NO. 2 ENGINE will result in excessive wear on N2 bearing package and seals.</p>	
7. Have pilot stop No. 1 engine if no further checks are to be performed.	

**CHECK NO. 2 ENGINE START AND IGNITION SYSTEM**

8. Have pilot motor No. 2 engine.	ENGINE 2 STARTER ON light (6) shall come on. NO. 2 ENGINE gas producer tachometer (10) shall indicate <u>10 to 15%</u> . If ENGINE 2 STARTER ON light does not come on, go to task 4-4.10. If NO. 2 ENGINE gas producer tachometer does not indicate <u>10 to 15%</u> N1, go to task 4-4.15.
-----------------------------------	--

TASK	RESULT
9. Have pilot start No. 2 engine. When NO. 2 ENGINE gas producer tachometer (10) indicates <u>50%</u> , SET ENGINE 2 START switch (11) to OFF. If engine has high PTIT or hot start, go to task 4-1.4.	No. 2 engine shall accelerate to <u>60-63% N1</u> as indicated on tachometer (10) within <u>45 seconds</u> . Power turbine inlet temperature shall rise and then stabilize at <u>400°C</u> as indicated on PTIT indicator (12). STARTER ON light (6) shall go out when switch (11) set to OFF. If engine does not start, go to task 4-4.16. If light (6) stays on, replace ENGINE 2 MOTOR/START switch.
<b>CAUTION</b>	
<p>After starting NO. 2 ENGINE, do not delay starting NO. 1 ENGINE more than 3 minutes, or motoring engine for 10 seconds every 30 minutes. The N2 section of NO. 1 ENGINE starts turning when NO. 2 ENGINE is started; however, the lubrication system of NO. 1 ENGINE is driven by the N1 section; which does not begin to turn until the START sequence is initiated. Delay in starting NO. 1 ENGINE will result in excessive wear on N2 bearing package and seals.</p>	
10. Have pilot stop engines.	

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Hydraulic Power Off
- Electrical Power On
- Battery Disconnected

4-4.5 ENGINE NO. 1 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

Without 74

**Tools** TM 55-1520-240-23  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

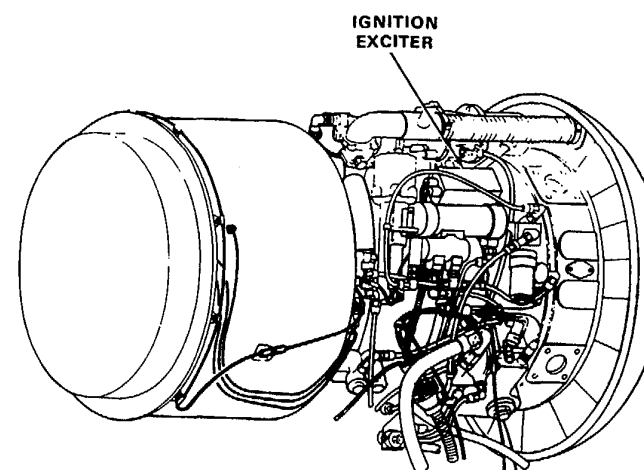
**Personnel Required:**

Aircraft Electrician

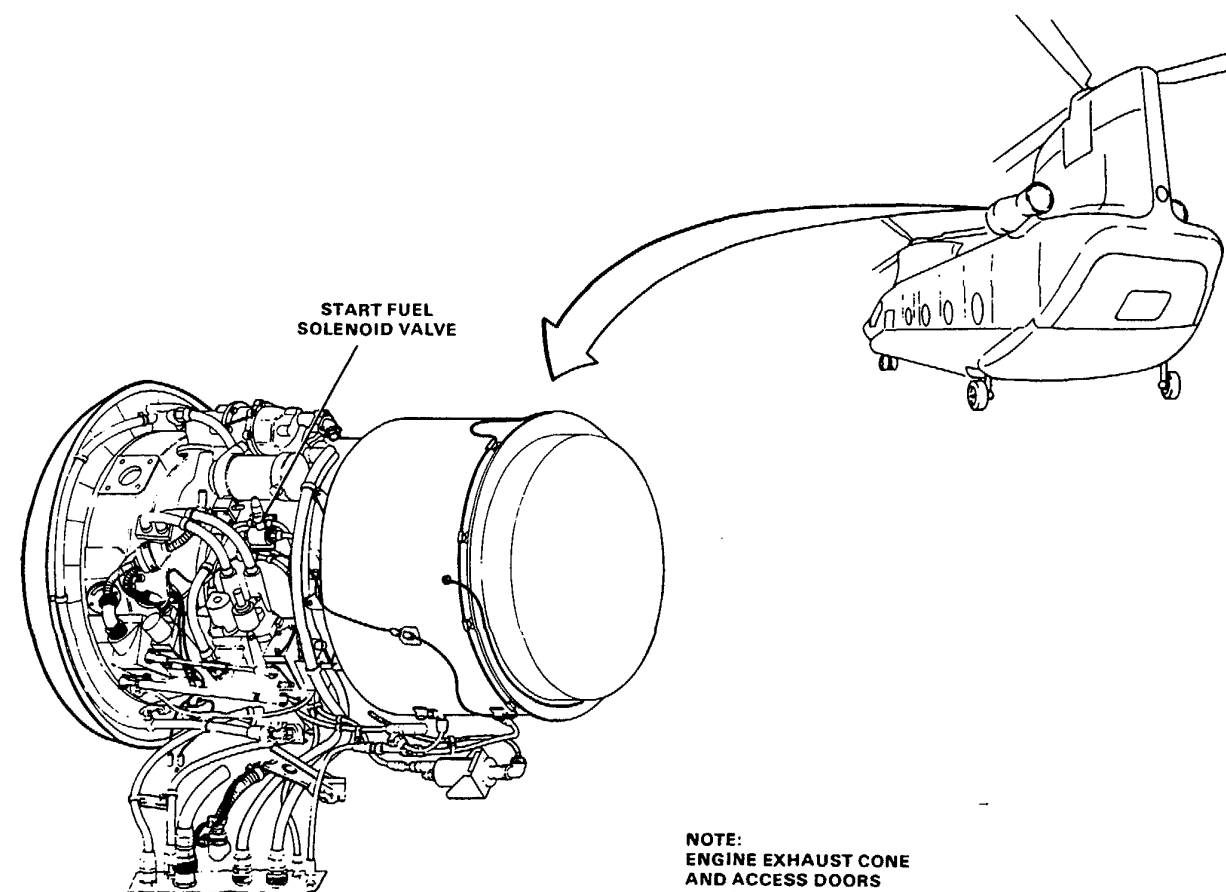
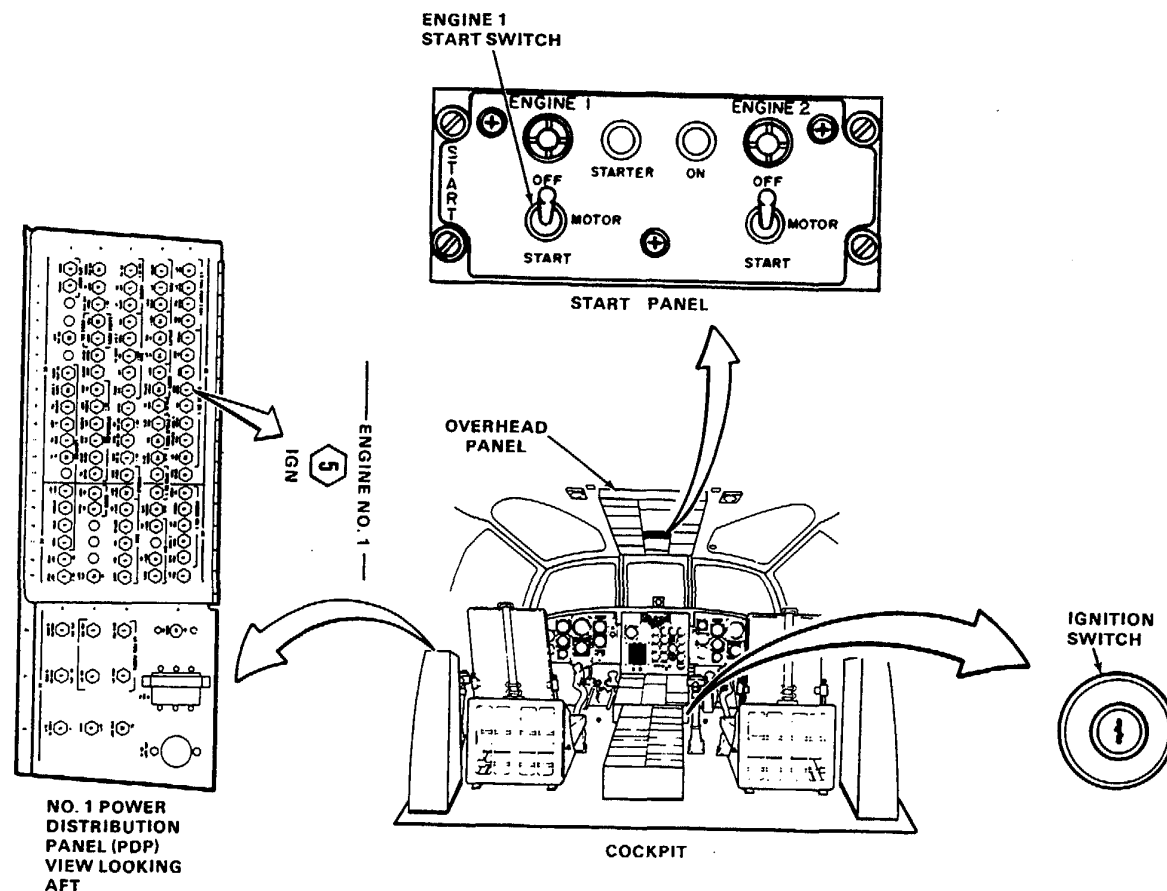
**References:**

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



NO. 1 (LEFT) ENGINE - R SIDE

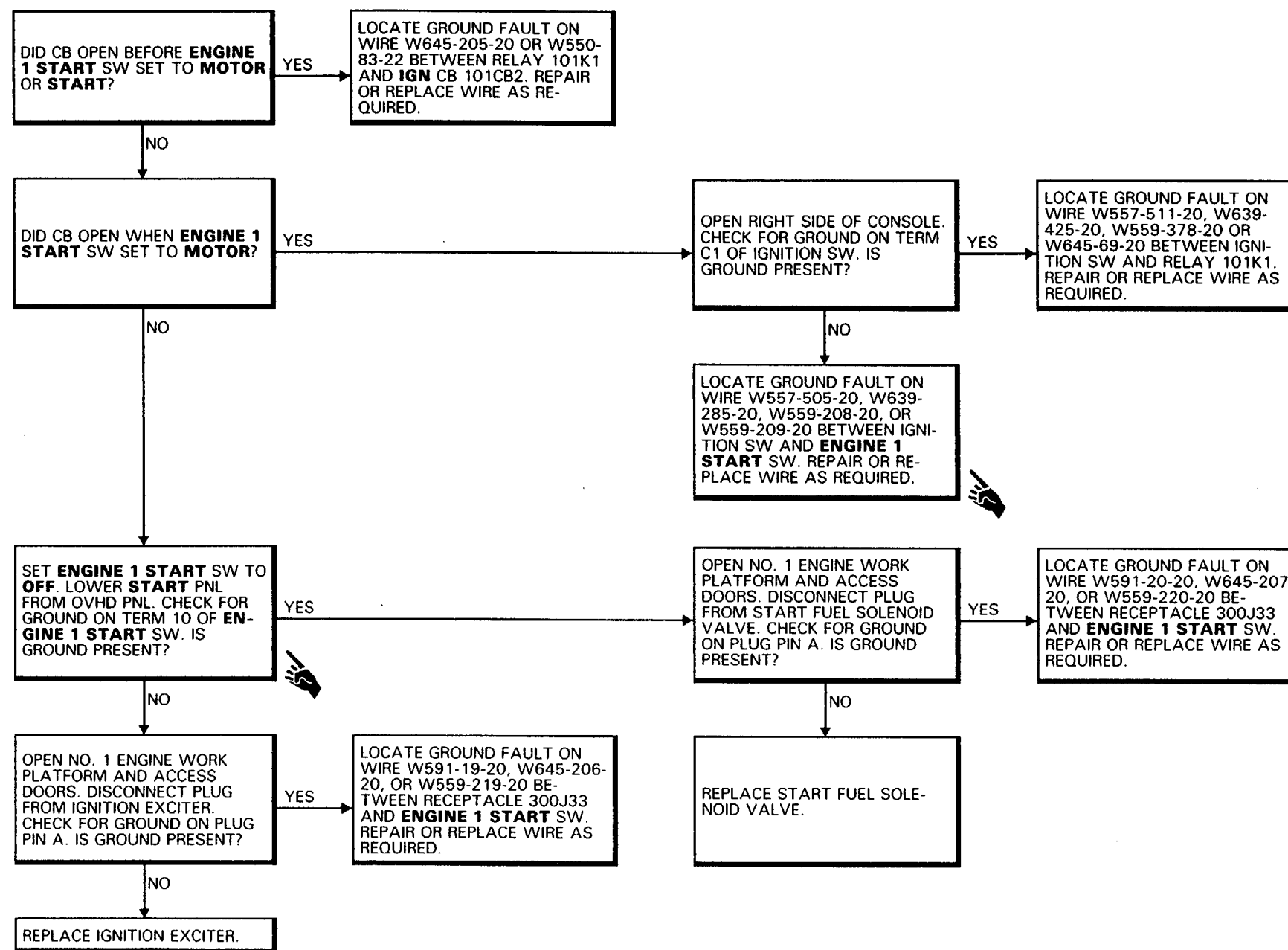


NO. 1 (LEFT) ENGINE - L SIDE

NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR  
CLARITY

90x54

D145-8410-SPA





4-4.6 ENGINE NO. 1 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

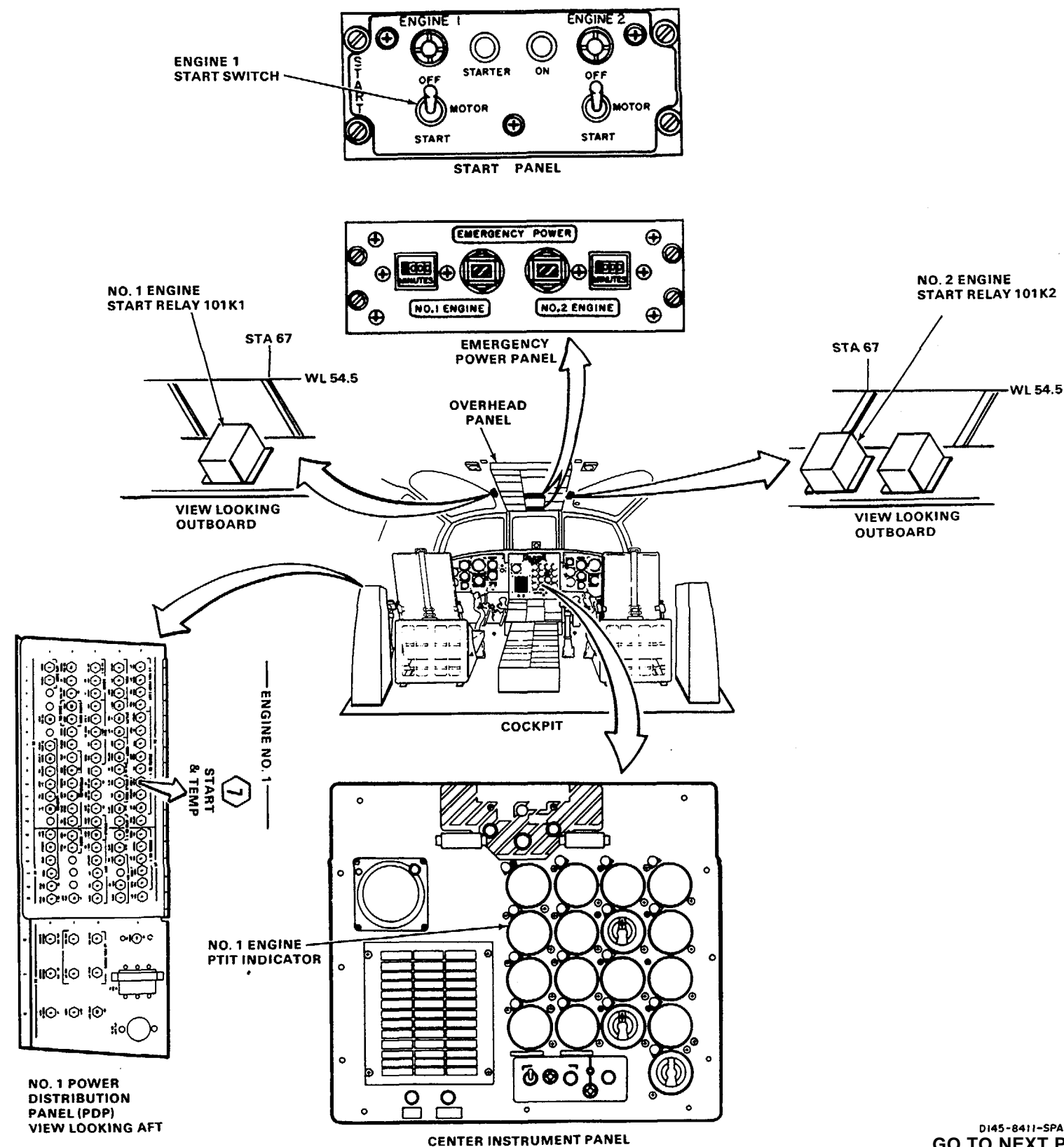
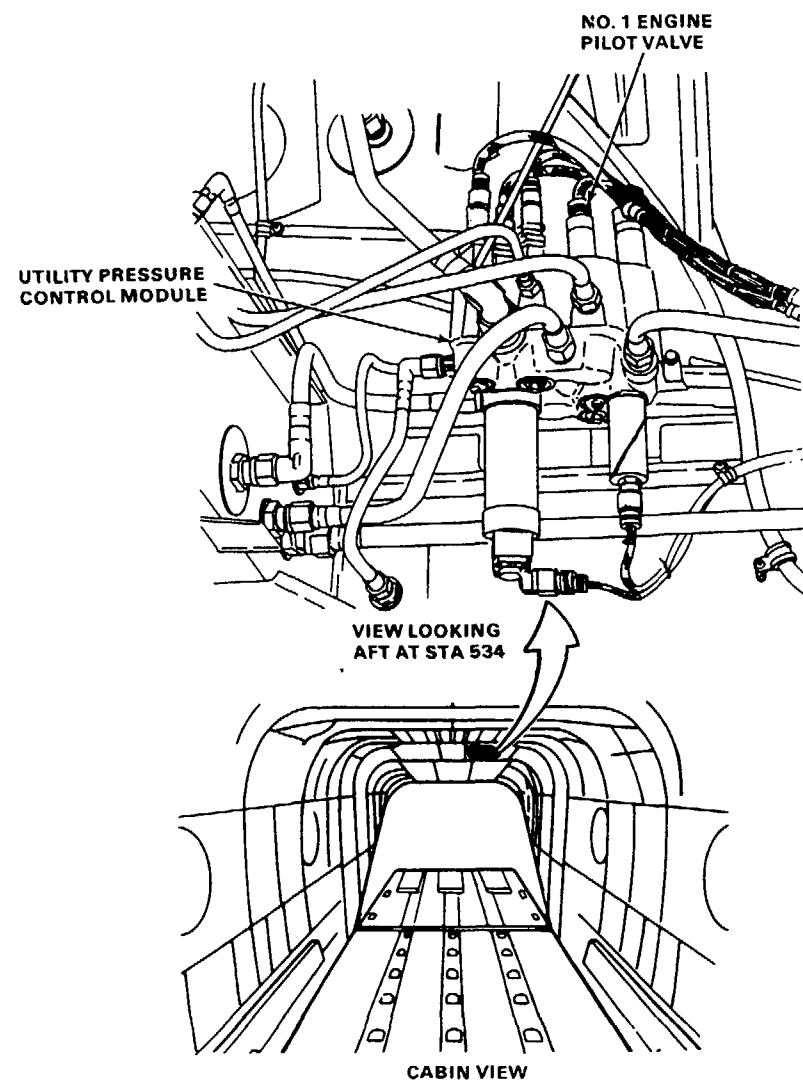
**Equipment Condition:**

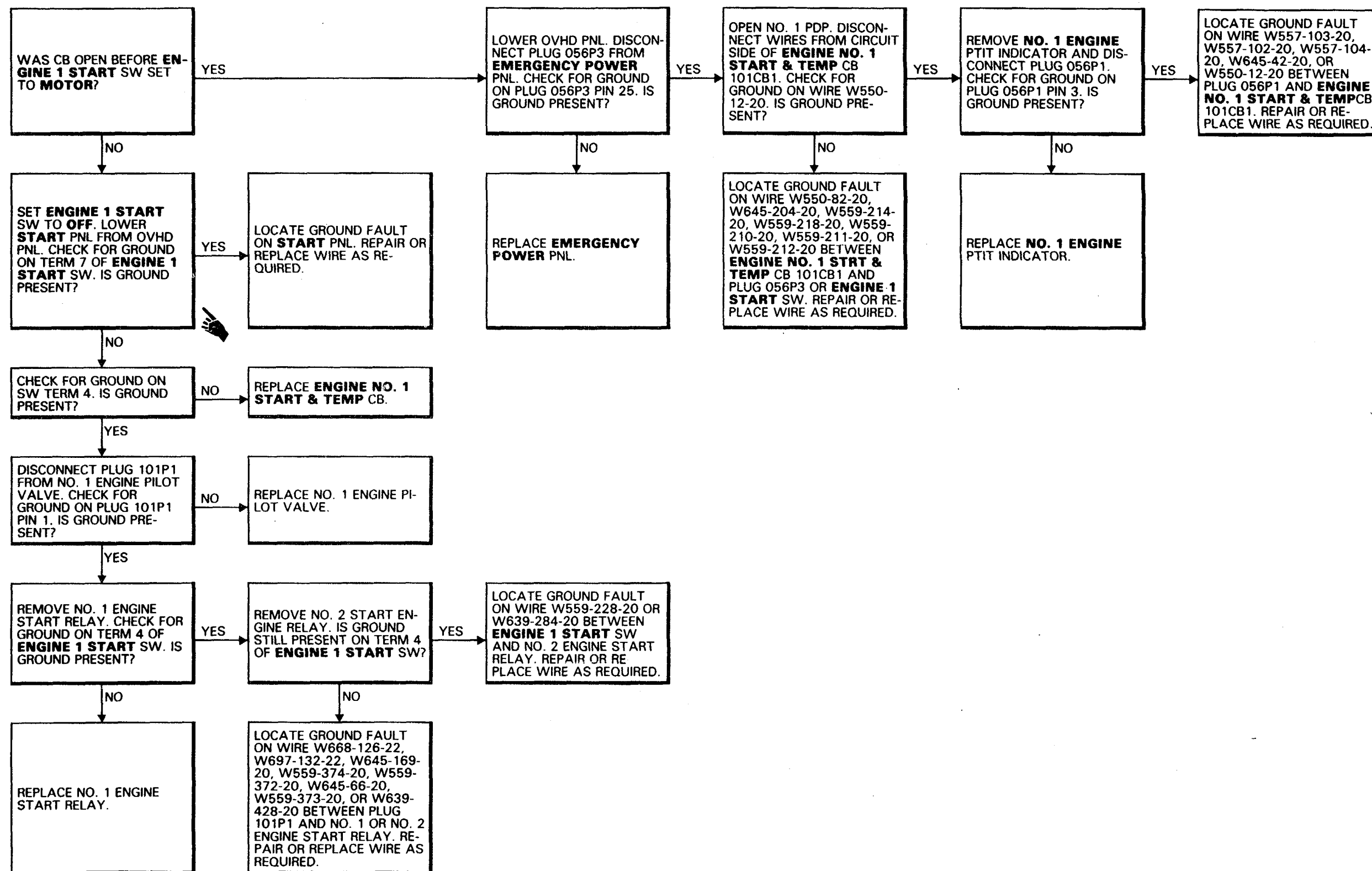
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off





4-4.7 ENGINE NO. 2 IGN CIRCUIT BREAKER DOES NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

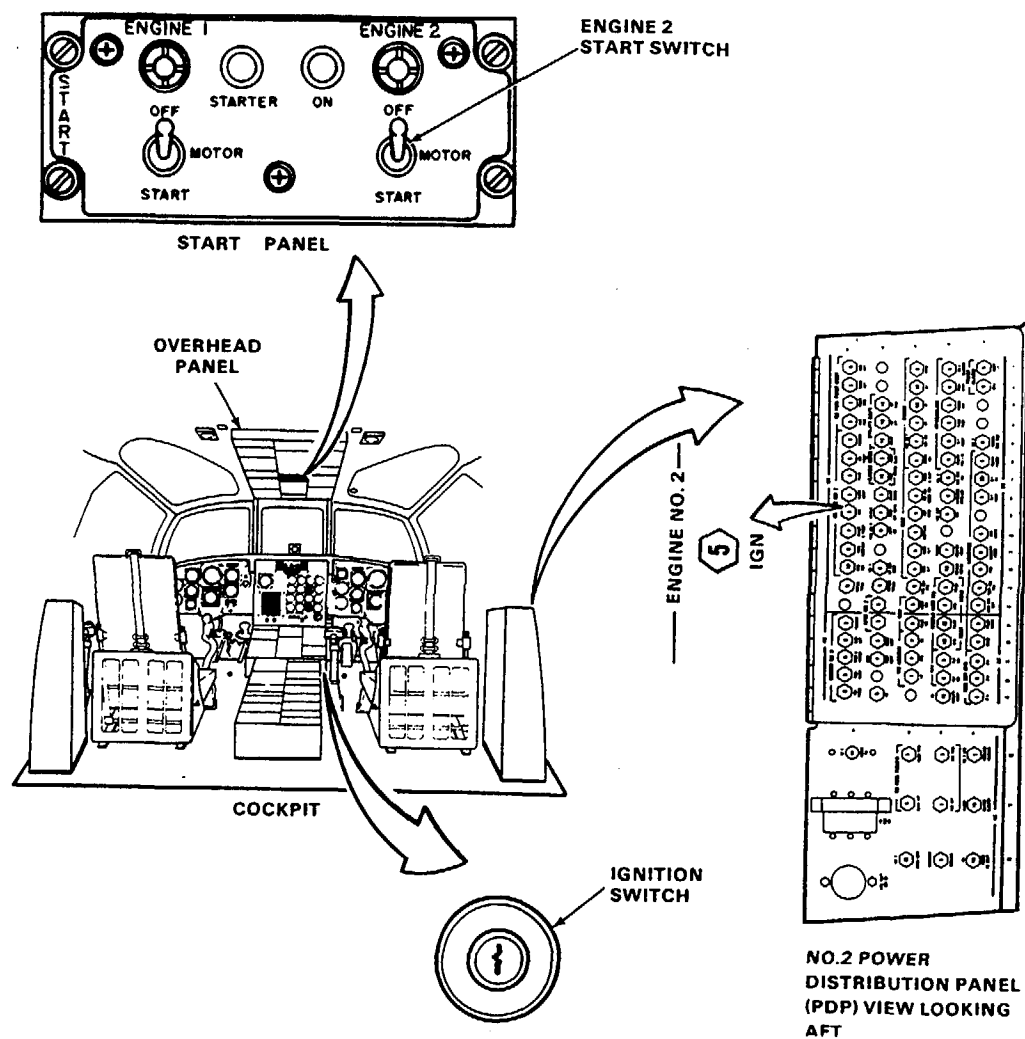
**Equipment Condition:**

TM 55-1520-240-23:

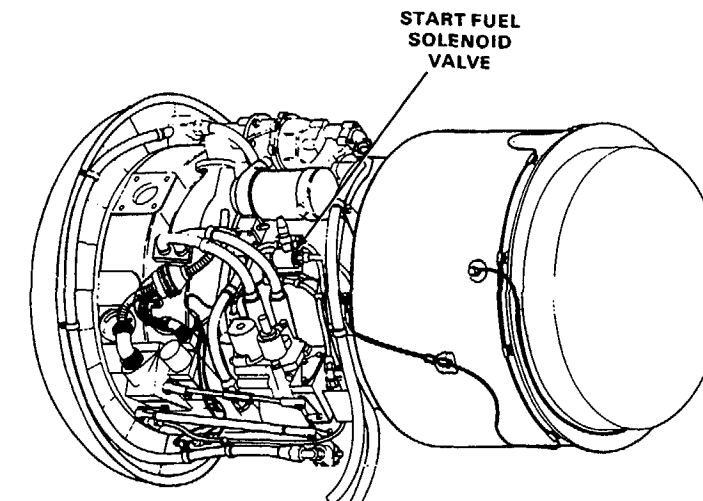
Battery Disconnected

Electrical Power Off

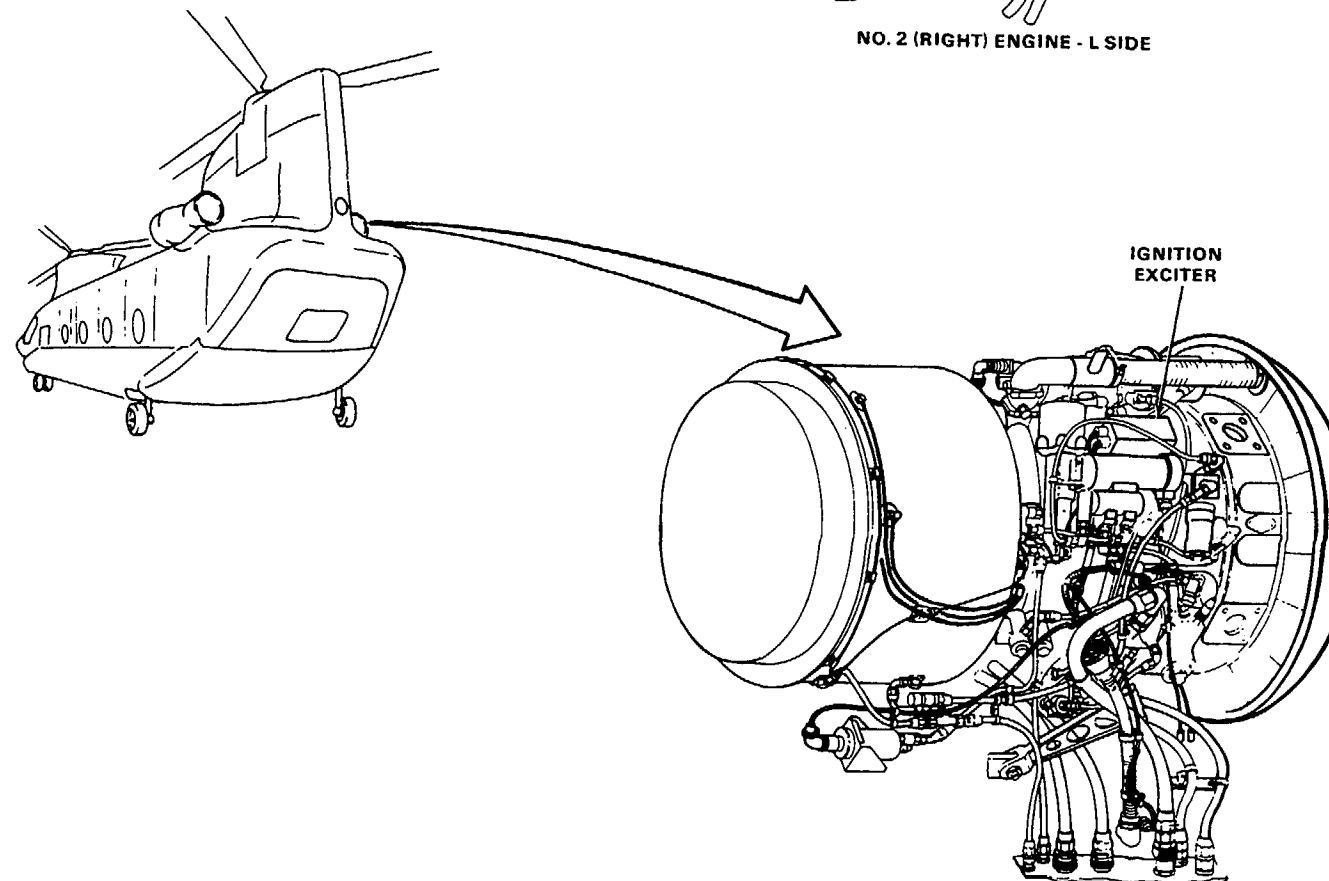
Hydraulic Power Off



90x54



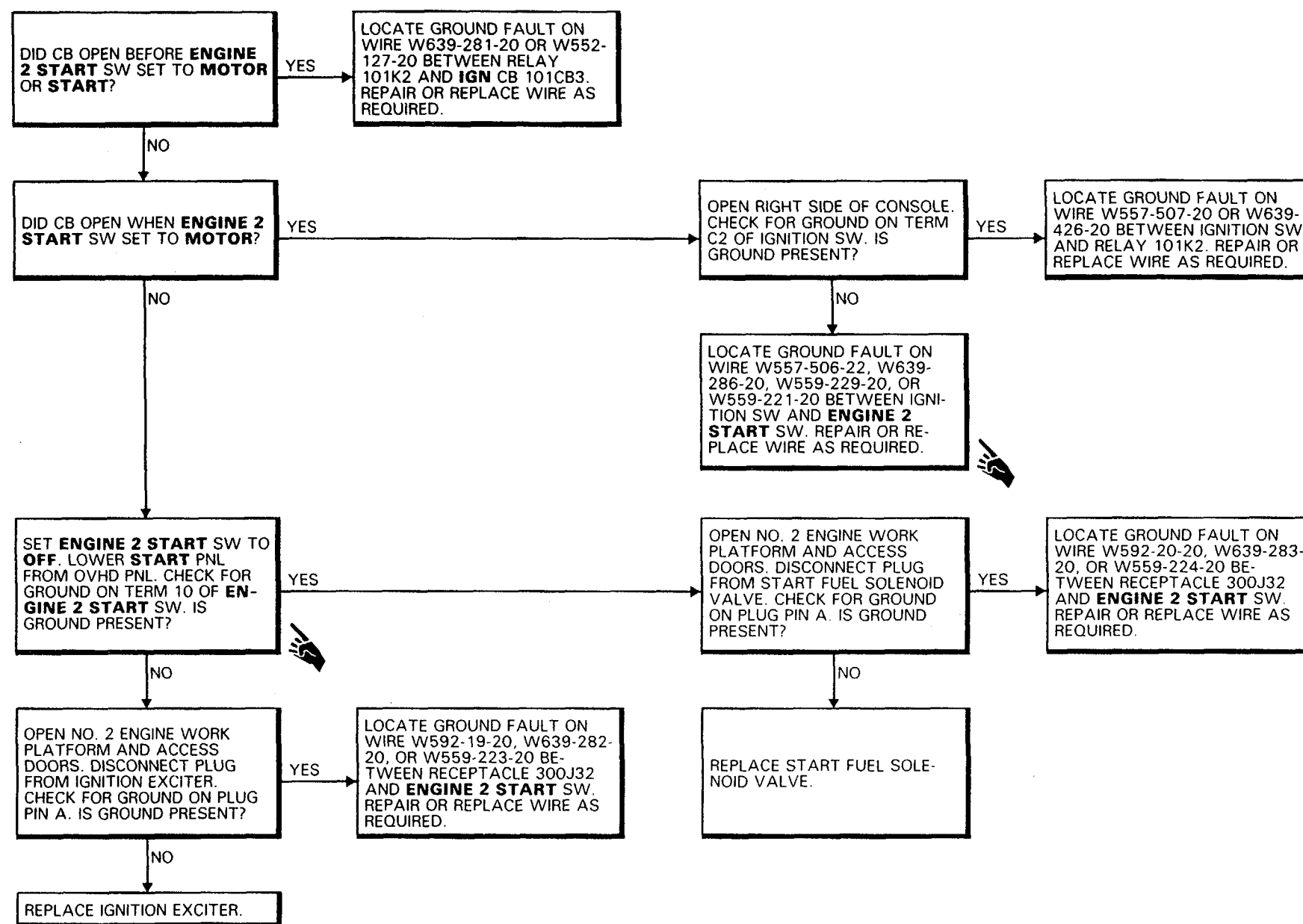
NO. 2 (RIGHT) ENGINE - L SIDE



NO. 2 (RIGHT) ENGINE - R SIDE SHOWN

**NOTE:**  
ENGINE EXHAUST CONE  
AND ACCESS DOOR  
REMOVED FOR CLARITY

D145-8412-SPA



4-4.8 ENGINE NO. 2 START & TEMP CIRCUIT BREAKER DOES NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

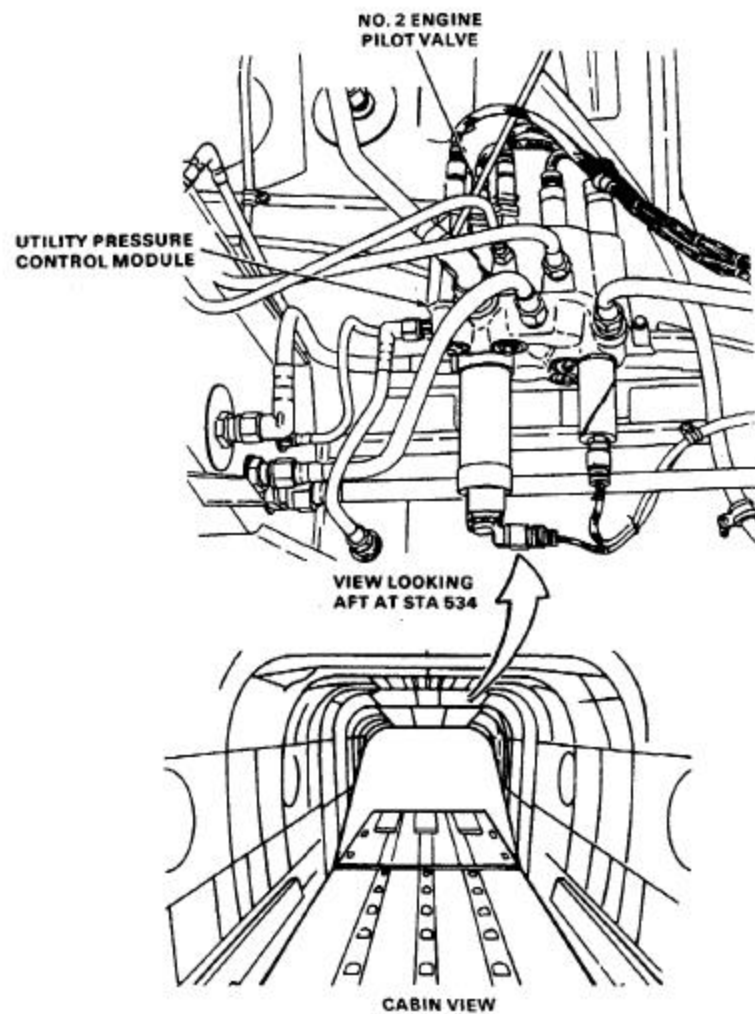
**Equipment Condition:**

TM 55-1520-240-23:

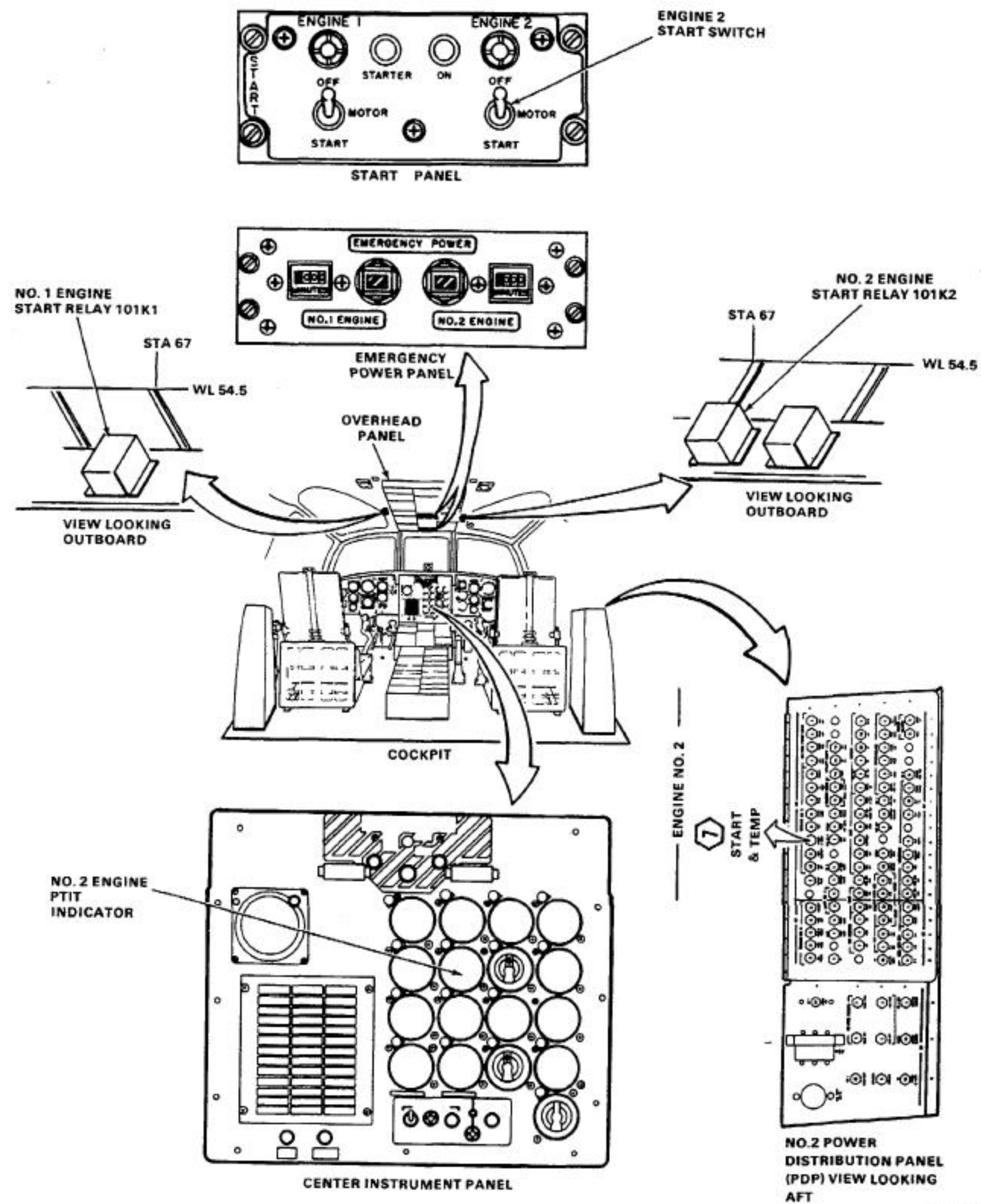
Battery Disconnected

Electrical Power Off

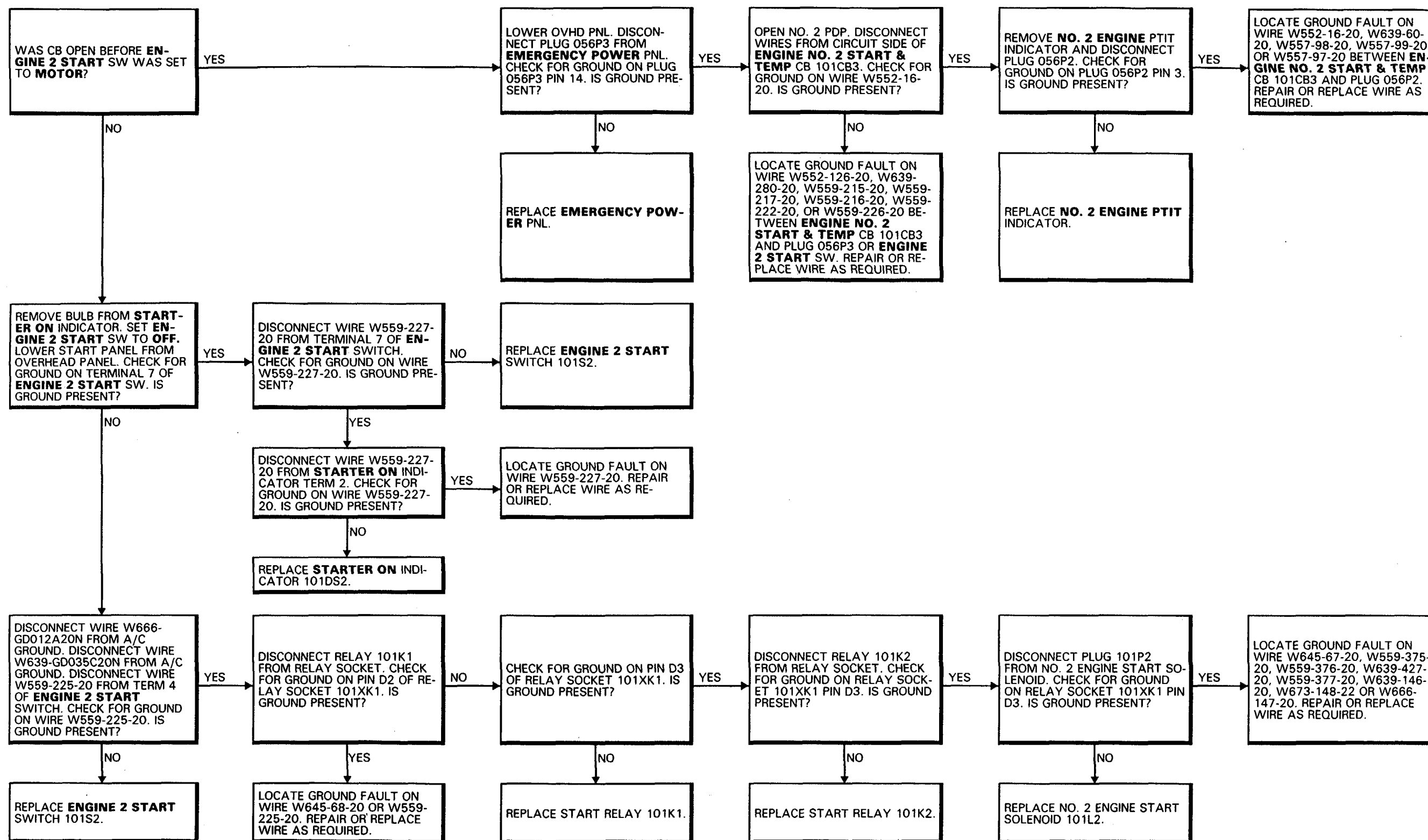
Hydraulic Power Off



90x54



D145-8413-5PA



4-4.9 ENGINE 1 STARTER ON LIGHT DOES NOT COME ON

4-4.9

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

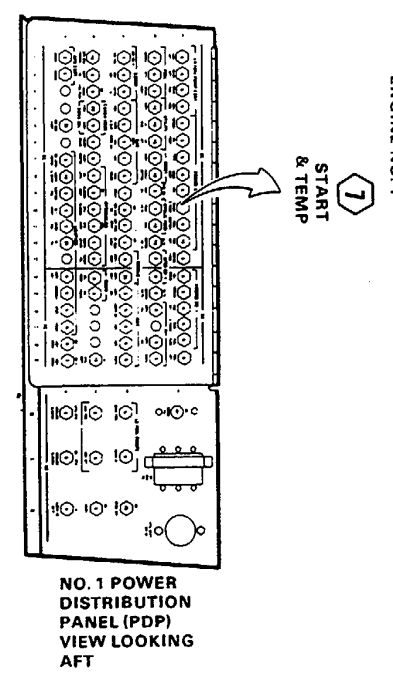
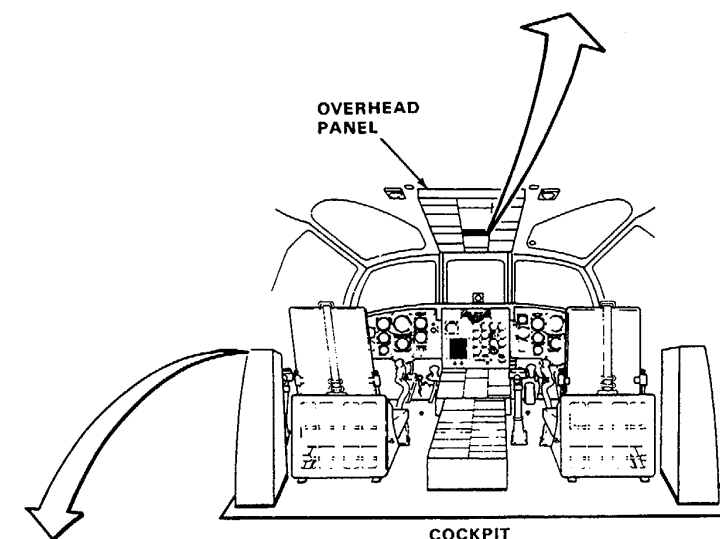
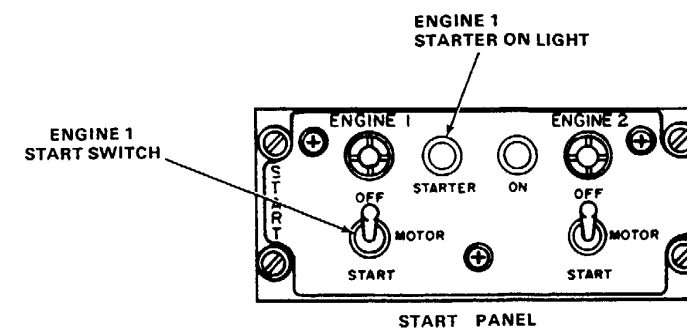
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off

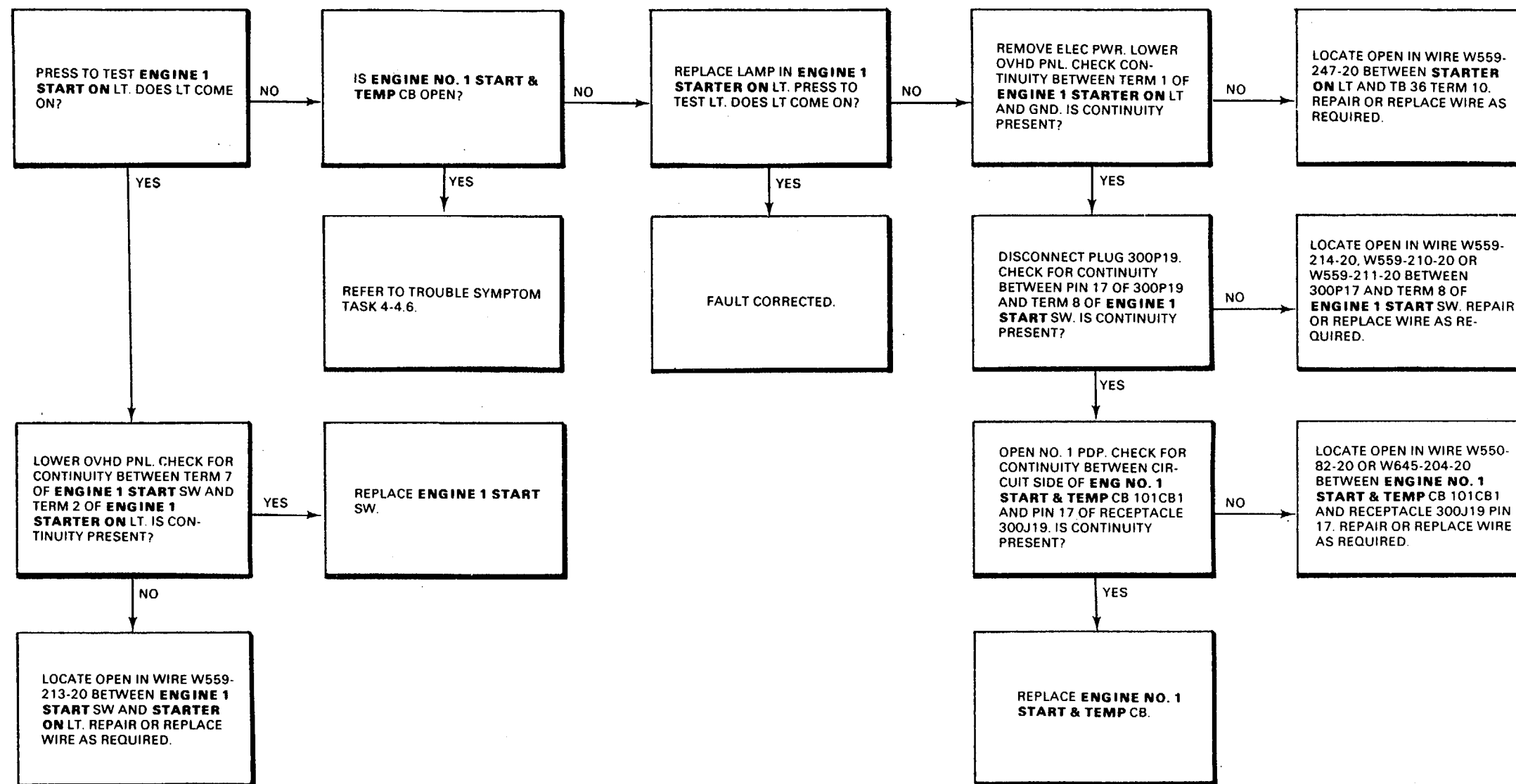


45x54

D145-8414-SPA

GO TO NEXT PAGE

4-4.9 ENGINE 1 STARTER ON LIGHT DOES NOT COME ON  
(Continued)





4-4.10 ENGINE 2 STARTER ON LIGHT DOES NOT COME ON

4-4.10

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

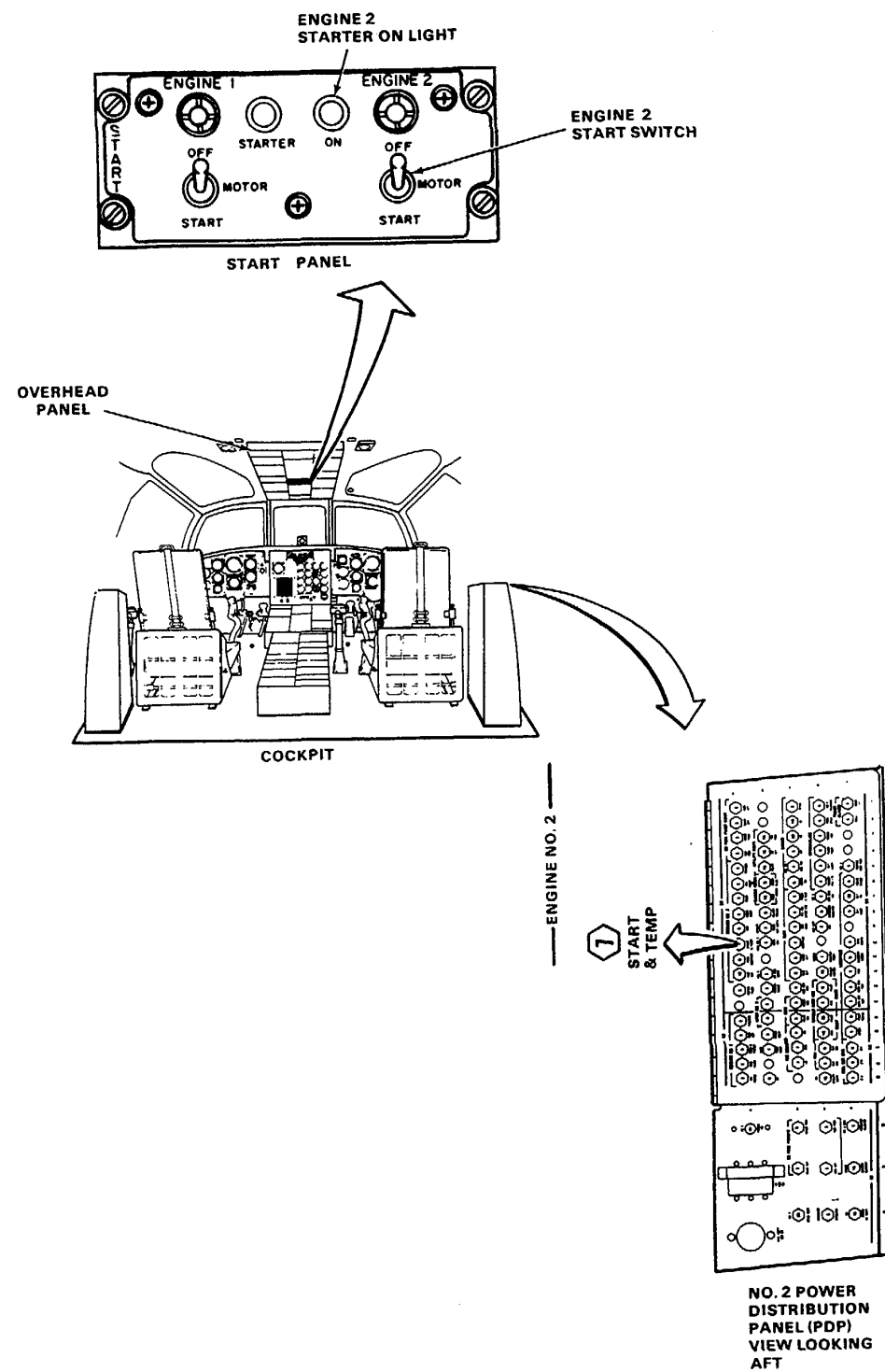
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

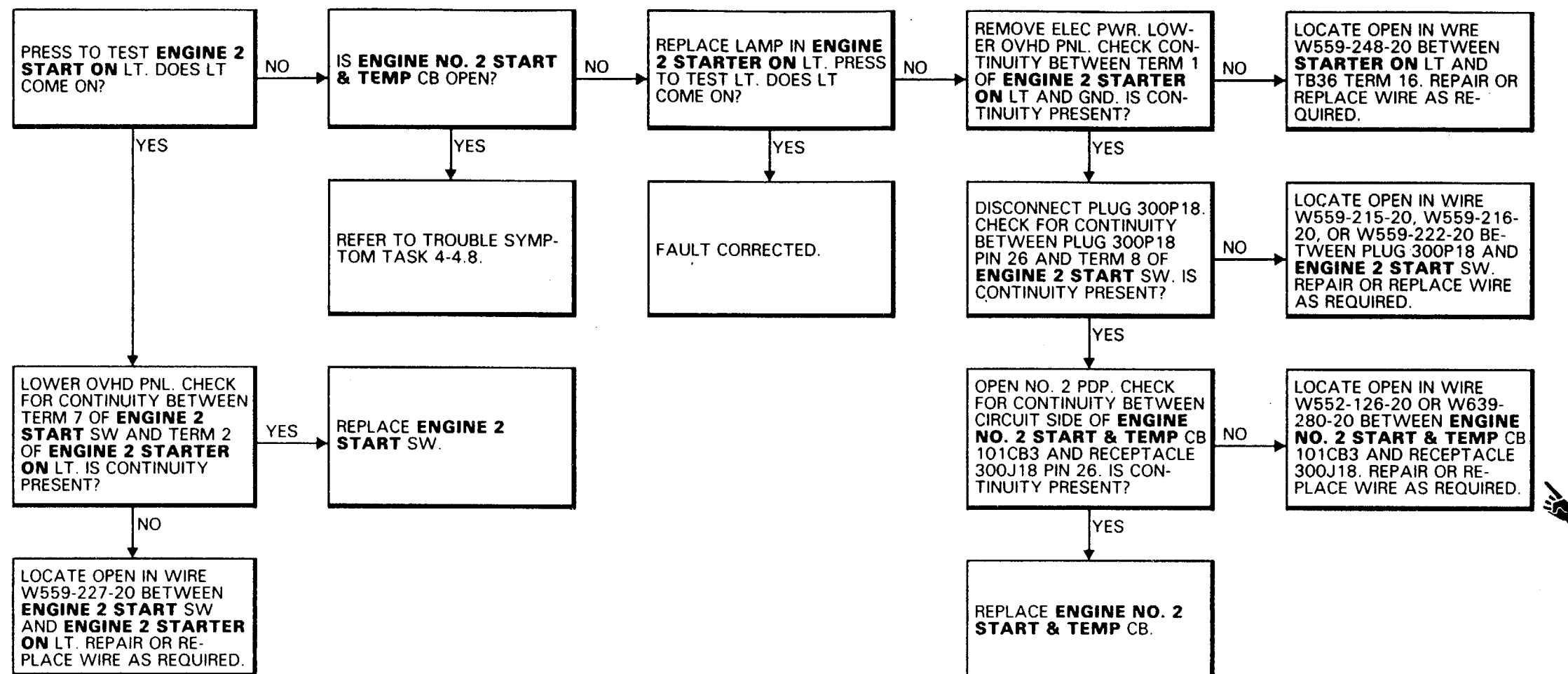
Electrical Power On

Hydraulic Power Off



45x54

D145-8415-SPA



4-4.11 NO. 1 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without **74**

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

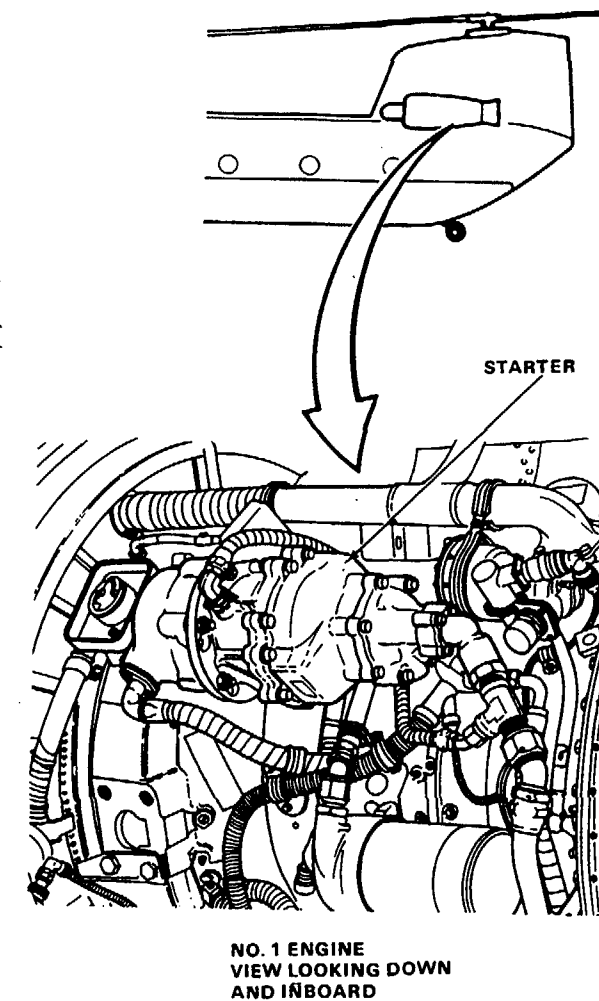
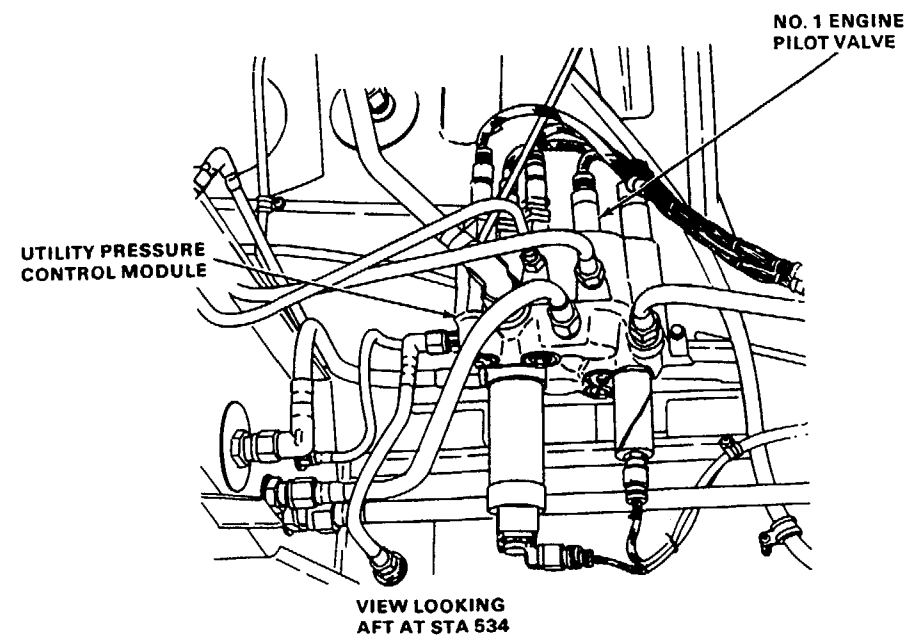
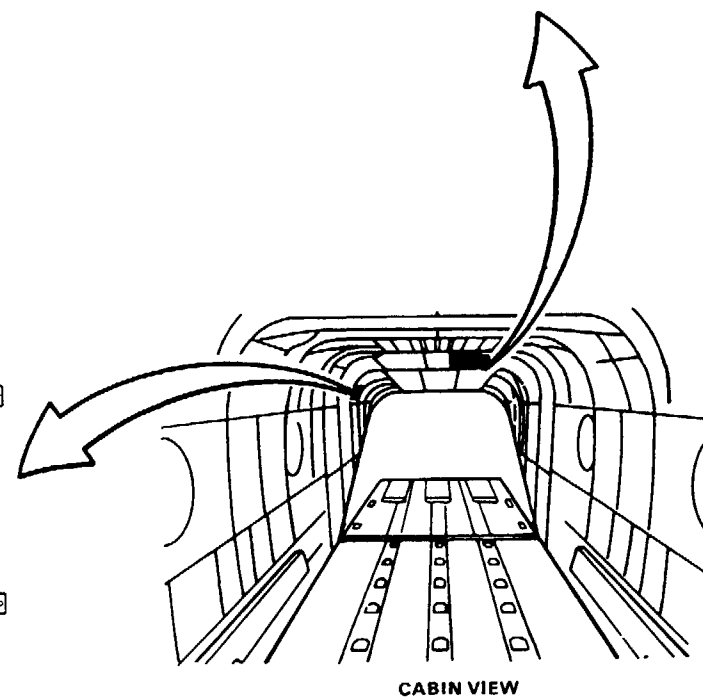
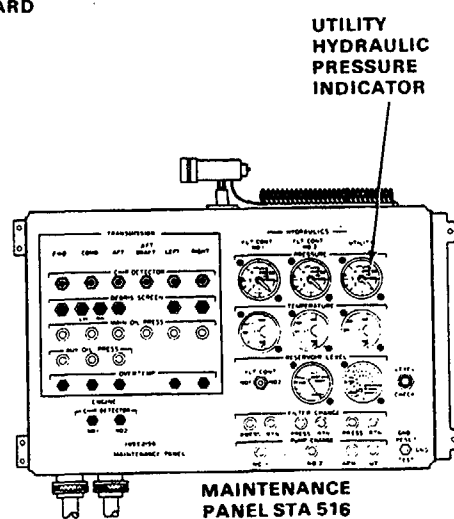
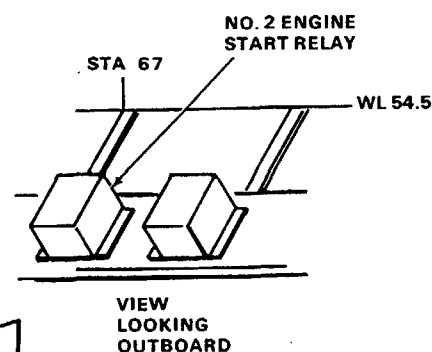
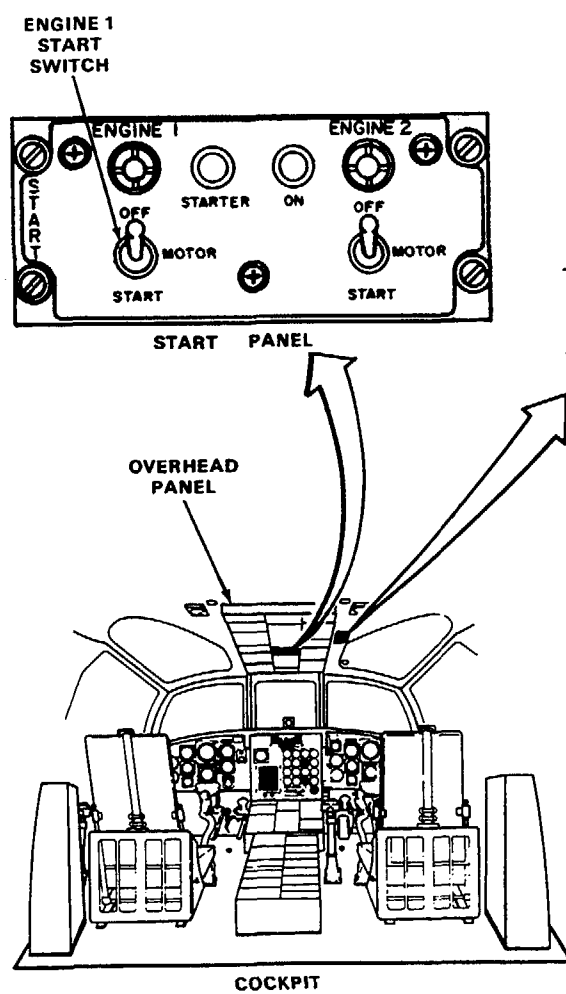
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

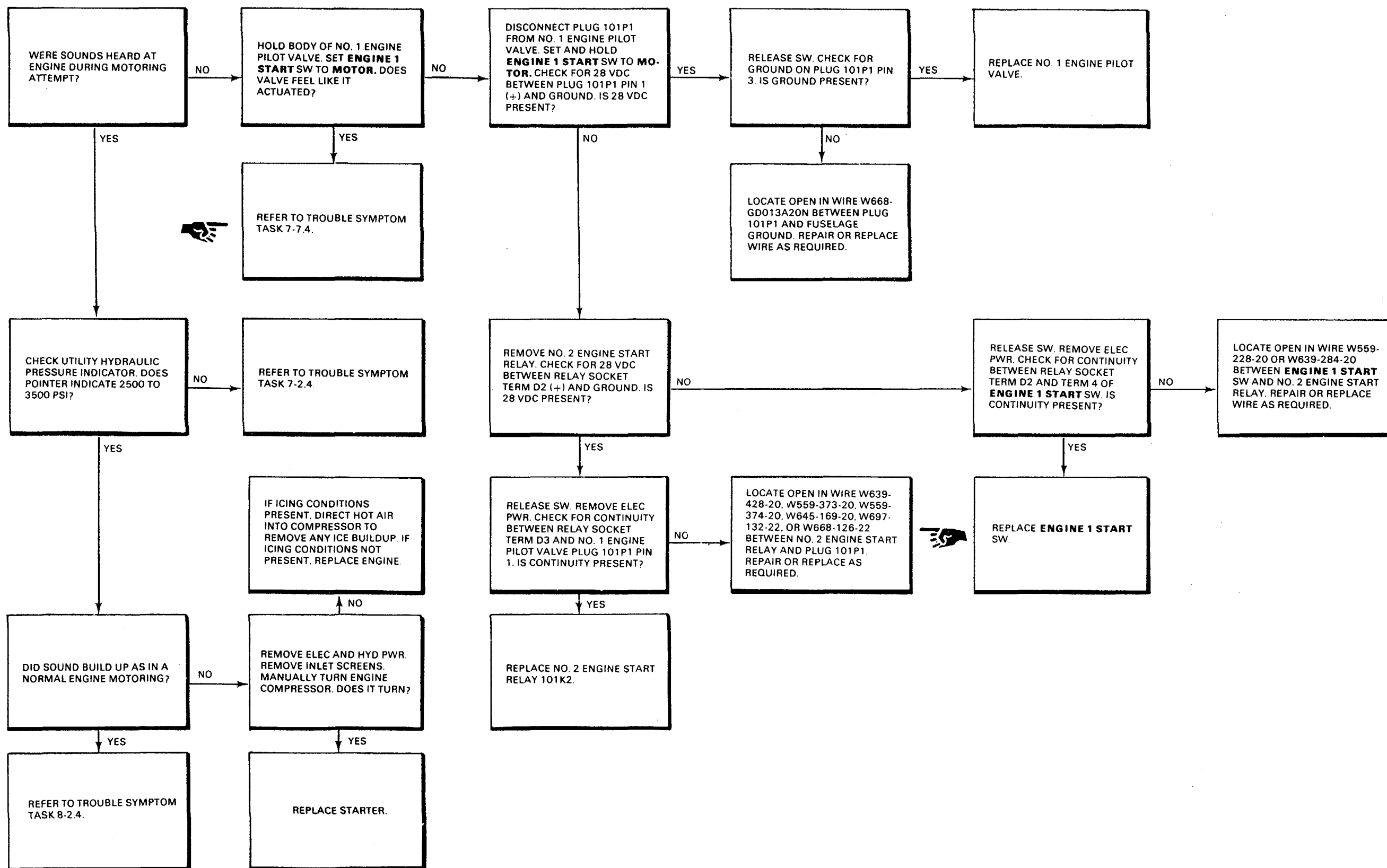
**Equipment Condition:**

- TM 55-20-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



4-4.11 NO. 1 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)  
(Continued)

4-4.11



END OF TASK

Change 1 4-71

4-4.12 NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

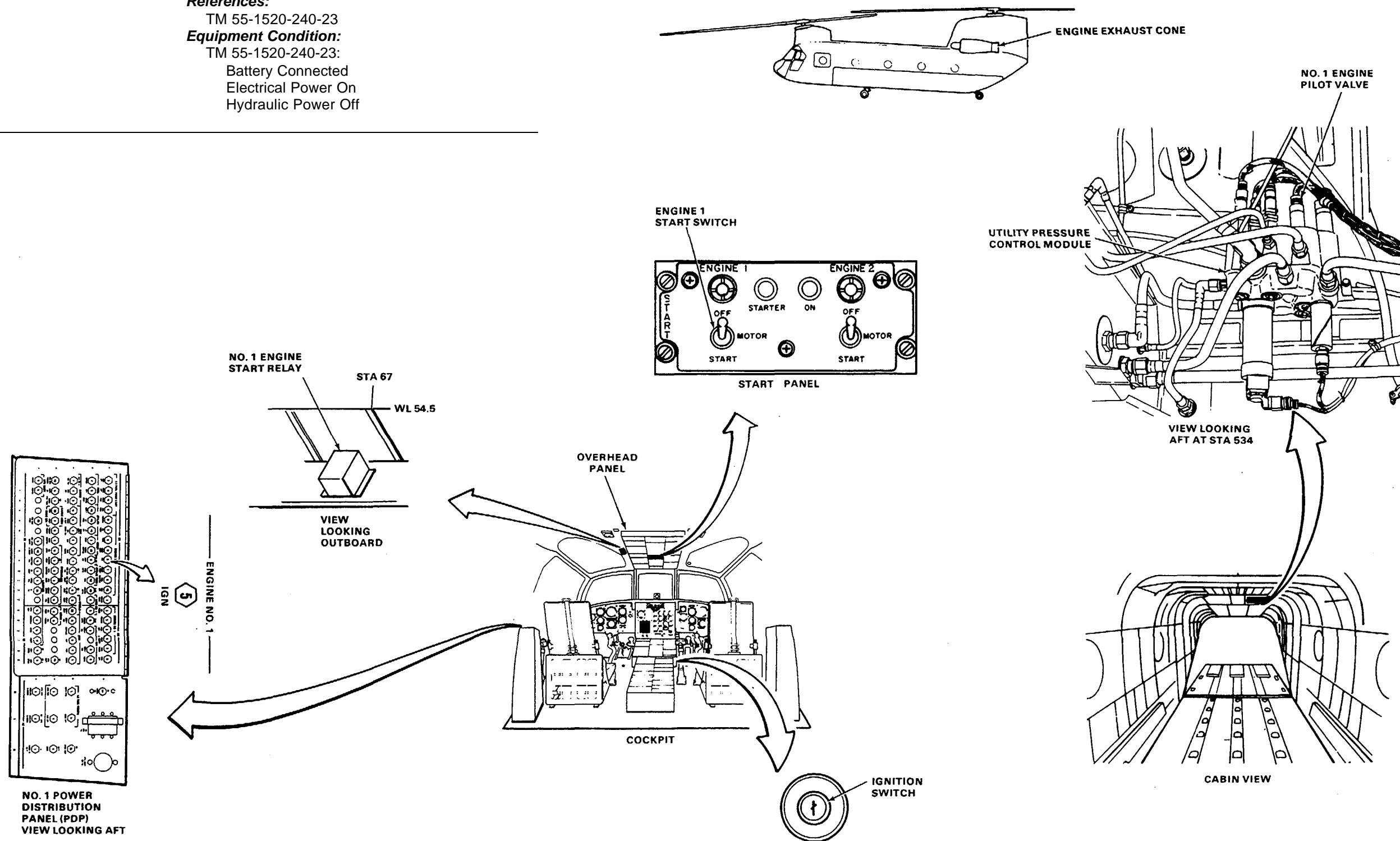
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

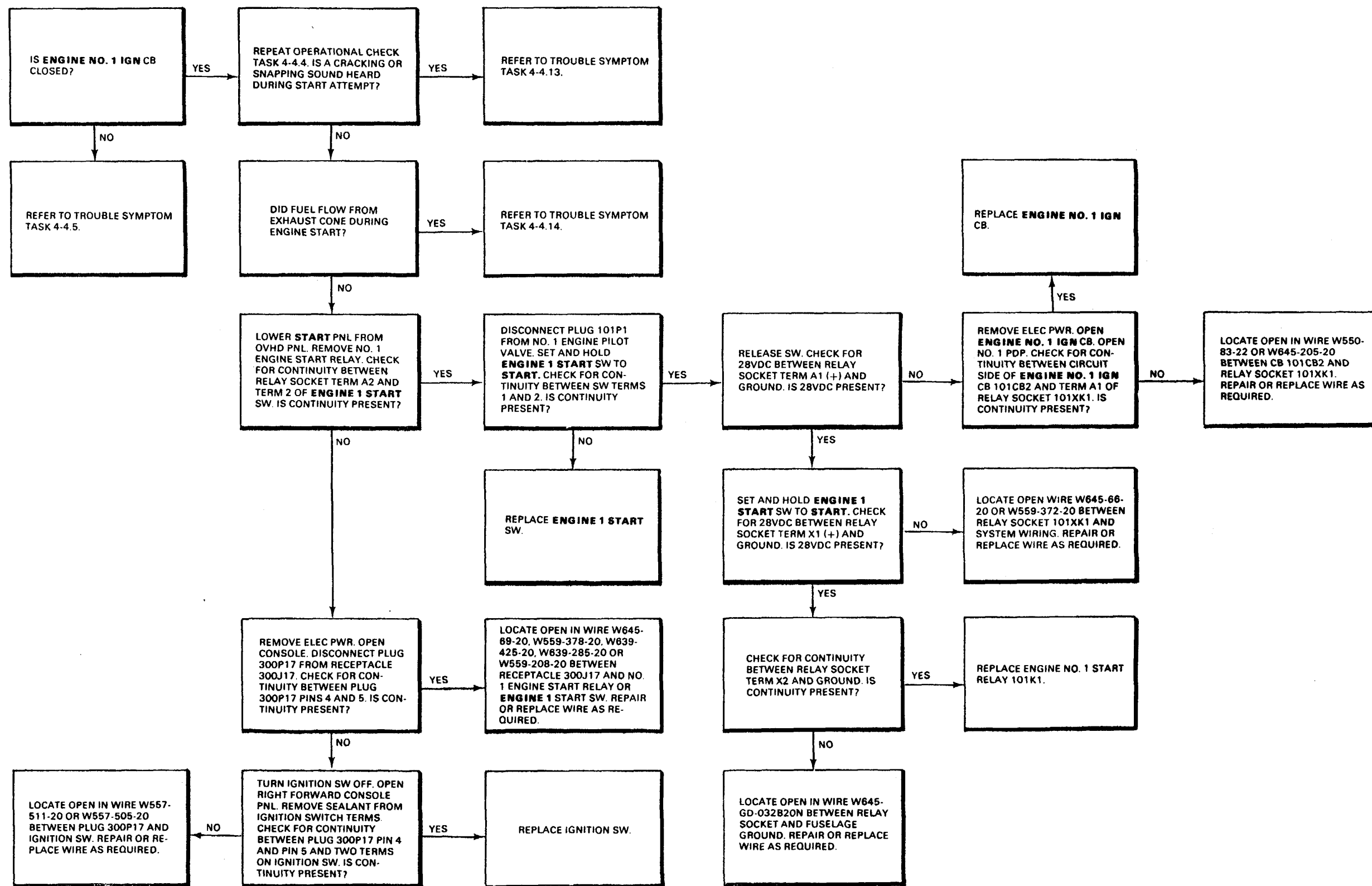
Hydraulic Power Off



90x54

4-4.12 NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START  
(Continued)

4-4.12



END OF TASK

4-4.13 NO. 1 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)

**FAULT ISOLATION PROCEDURE**  
INITIAL SETUP

**Applicable Configurations:**  
Without 74

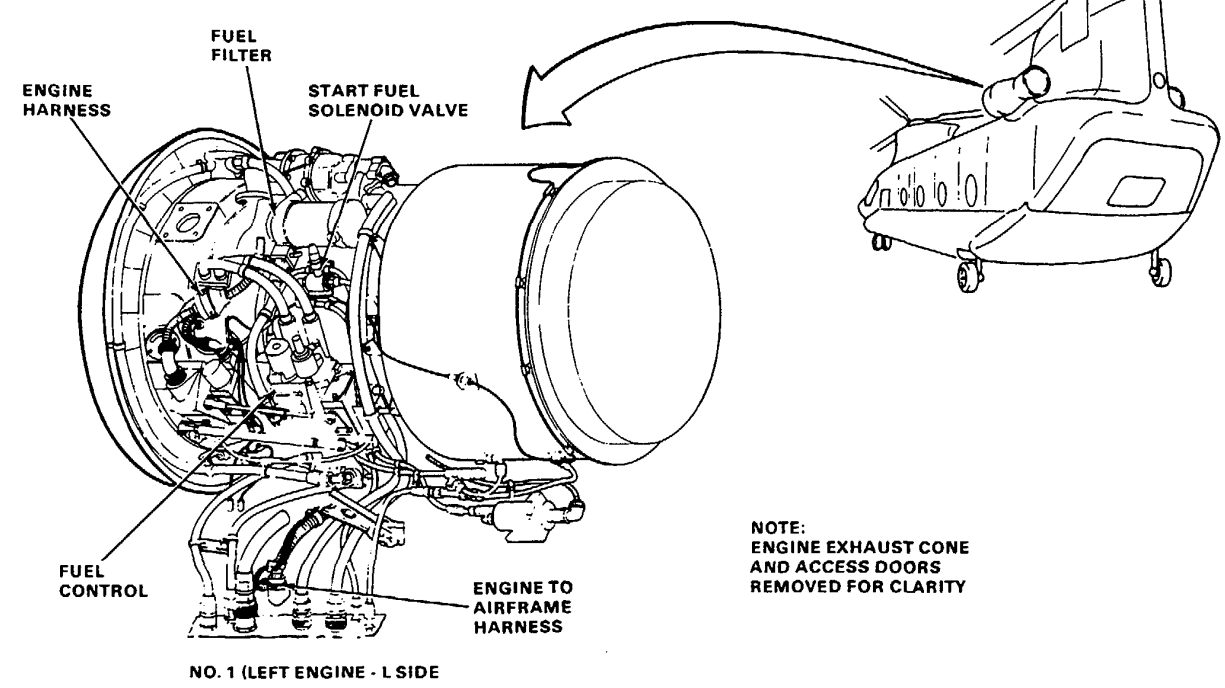
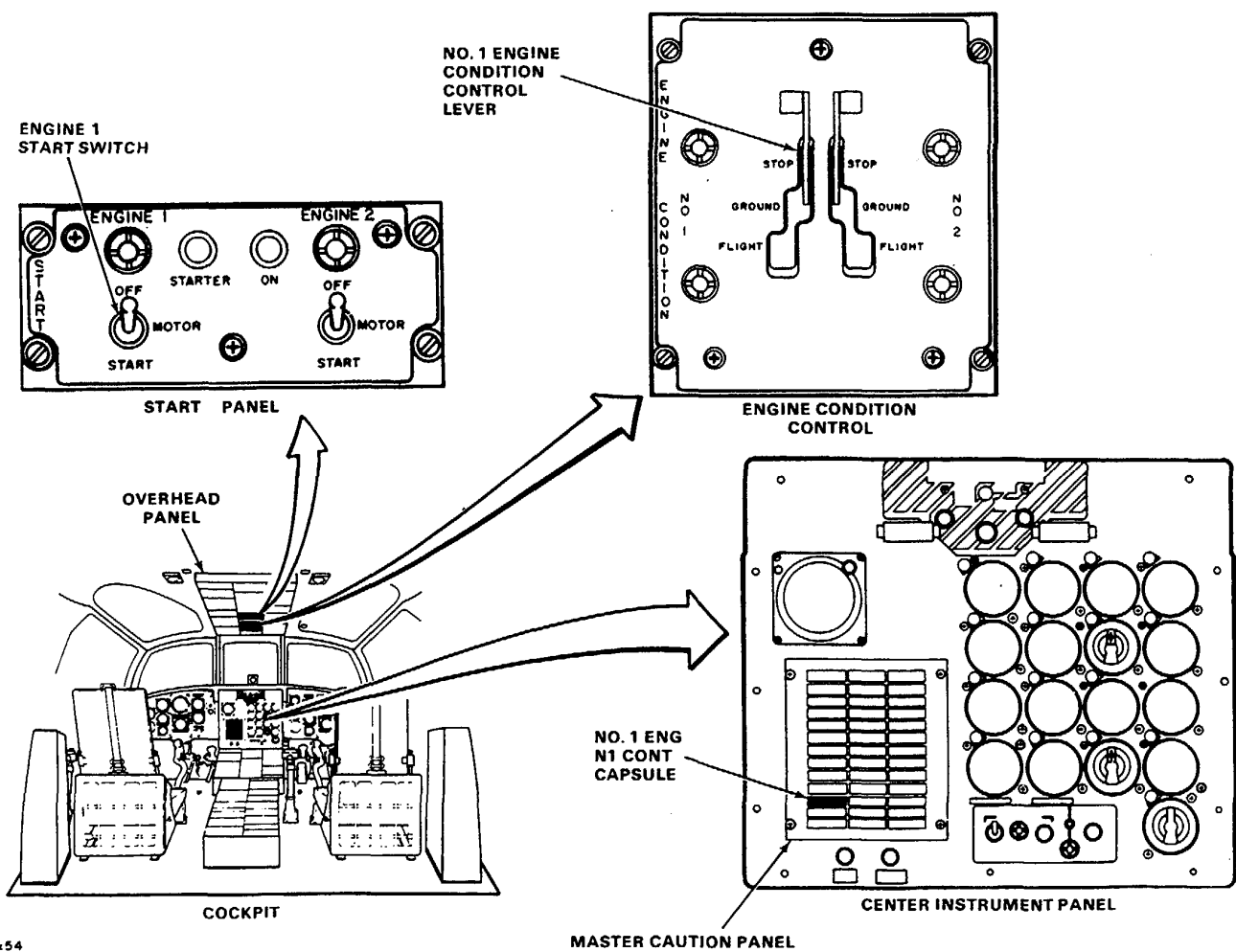
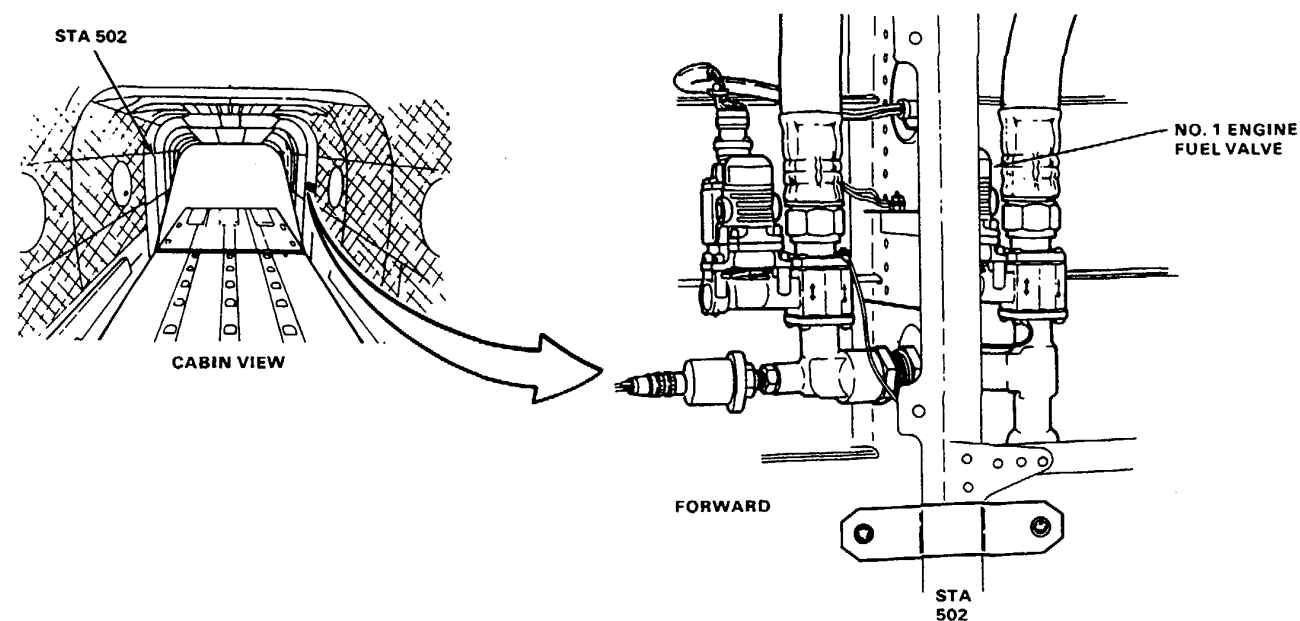
**Tools:**  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter  
Container, One Gallon

**Materials:**  
None

**Personnel Required:**  
Aircraft Powerplant Repairer  
Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-24023:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
No. 1 Engine Work Platform and Access Doors  
Open

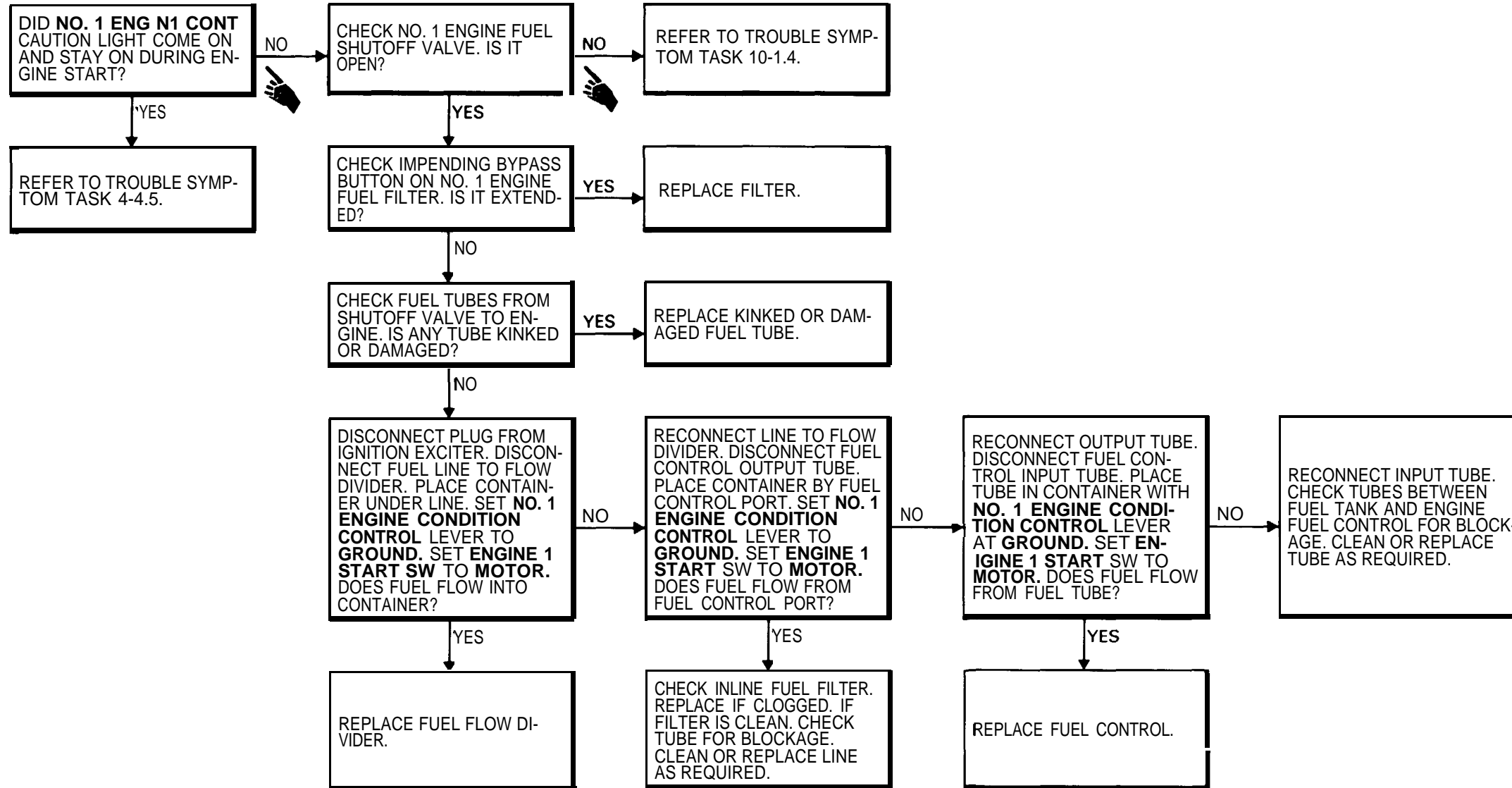


90x54

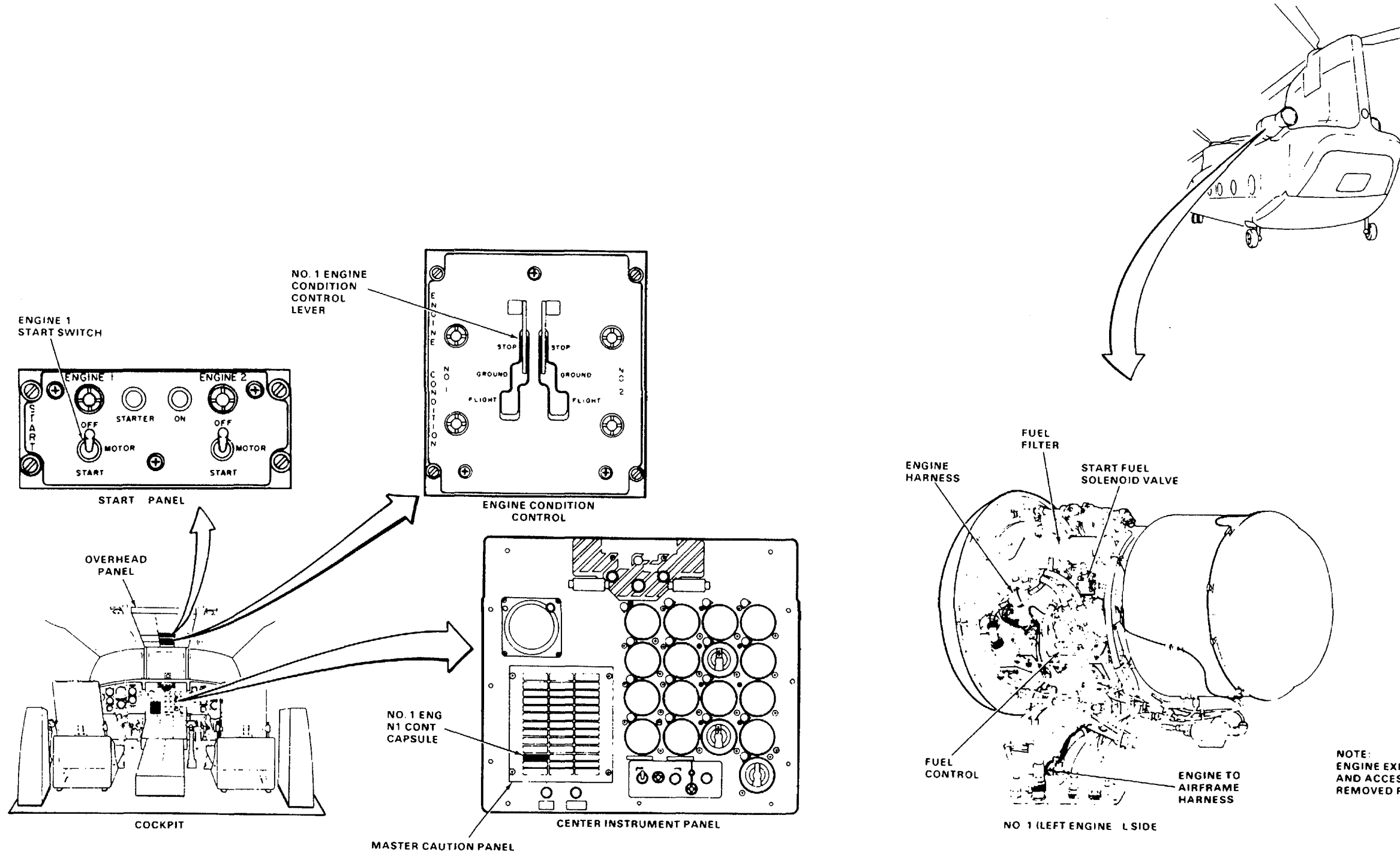
MASTER CAUTION PANEL

NO. 1 (LEFT ENGINE - L SIDE)

D145-8418-SPA







90-54

D/45-11848-SPA

4-4.14 NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

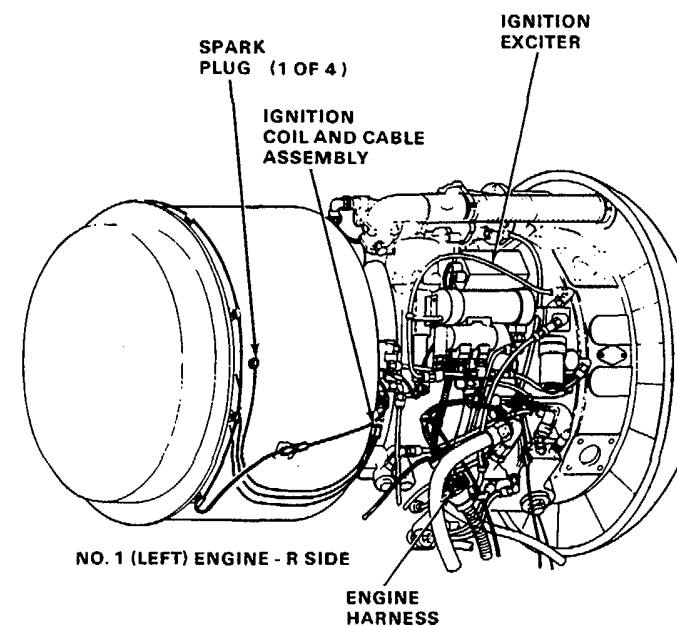
Aircraft Electrician

**References:**

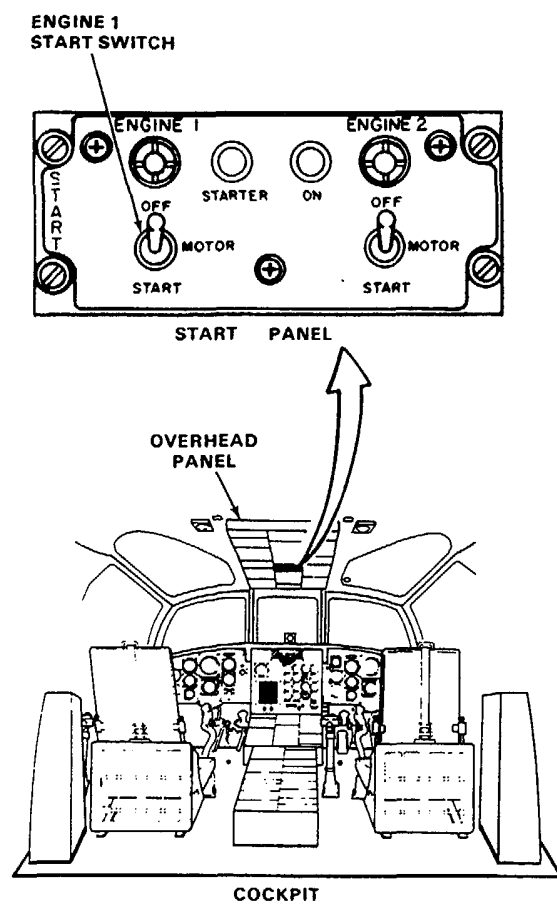
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off
- Hydraulic Power Off
- No. 1 Engine Work Platform and Access  
Doors
- Open



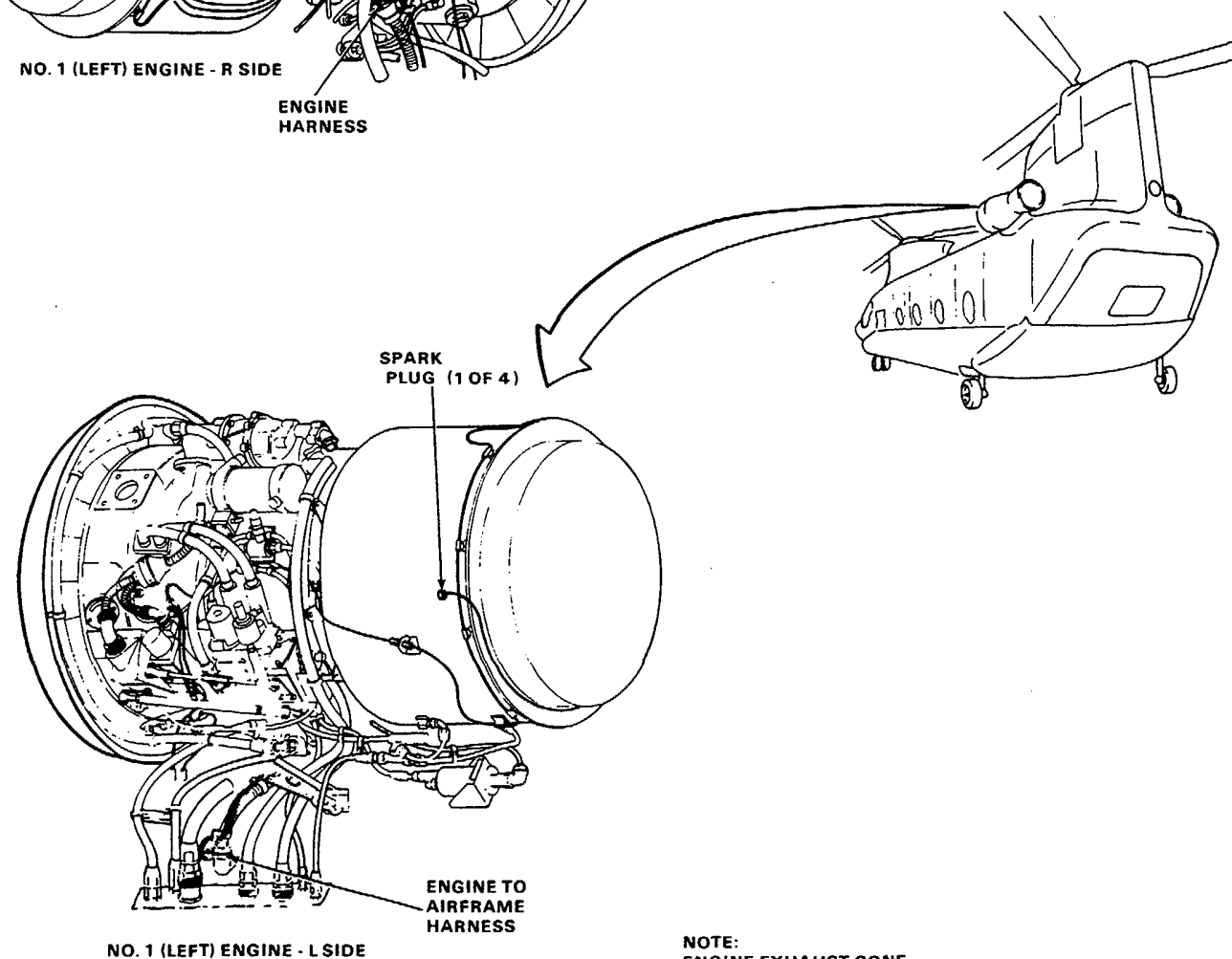
NO. 1 (LEFT) ENGINE - R SIDE



START PANEL

OVERHEAD PANEL

COCKPIT



NO. 1 (LEFT) ENGINE - L SIDE

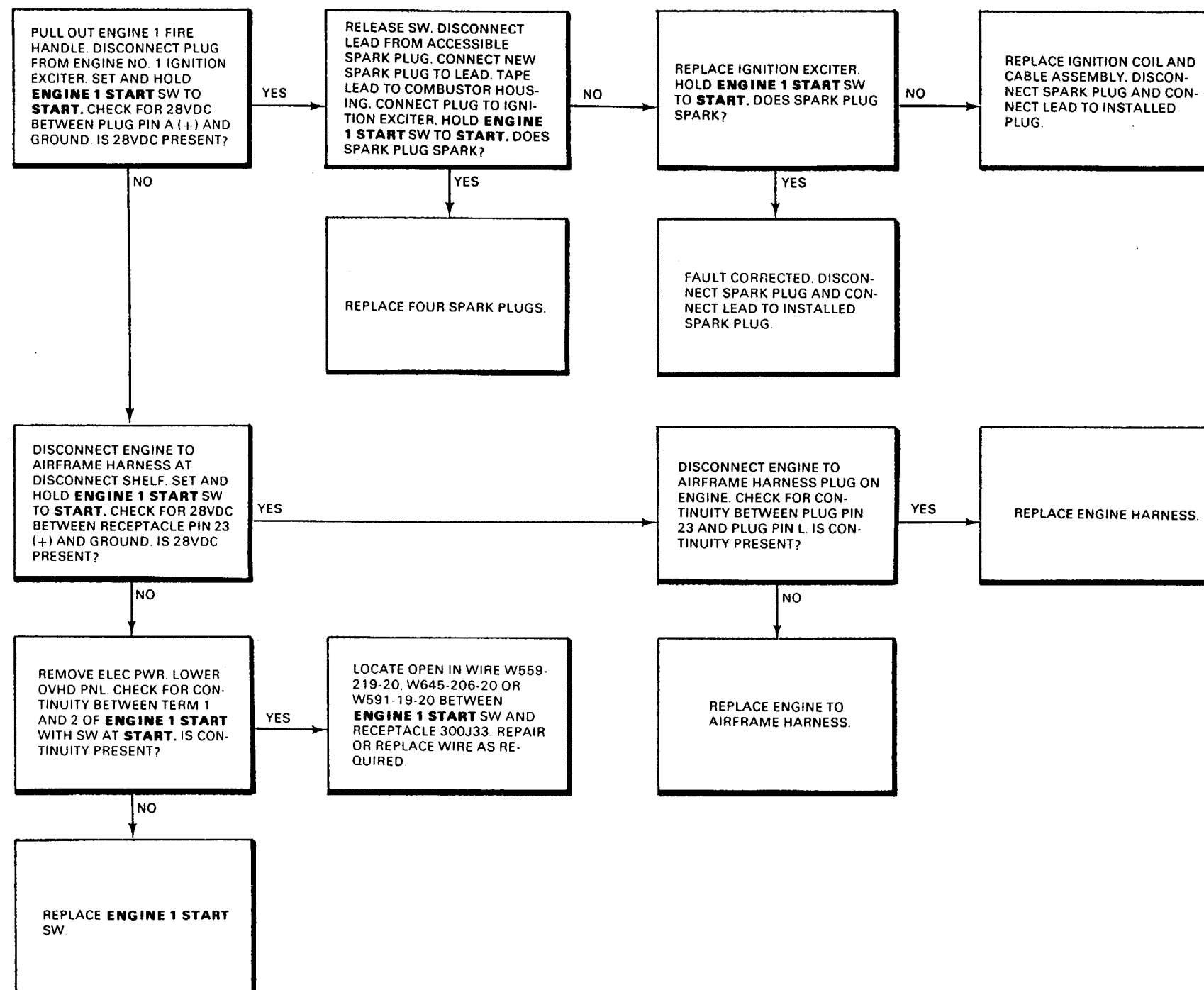
NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
REMOVED FOR CLARITY

D145-8419-SPA

90x54

4-4.14 NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE) (Continued)

4-4.14



4-4.15 NO. 2 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

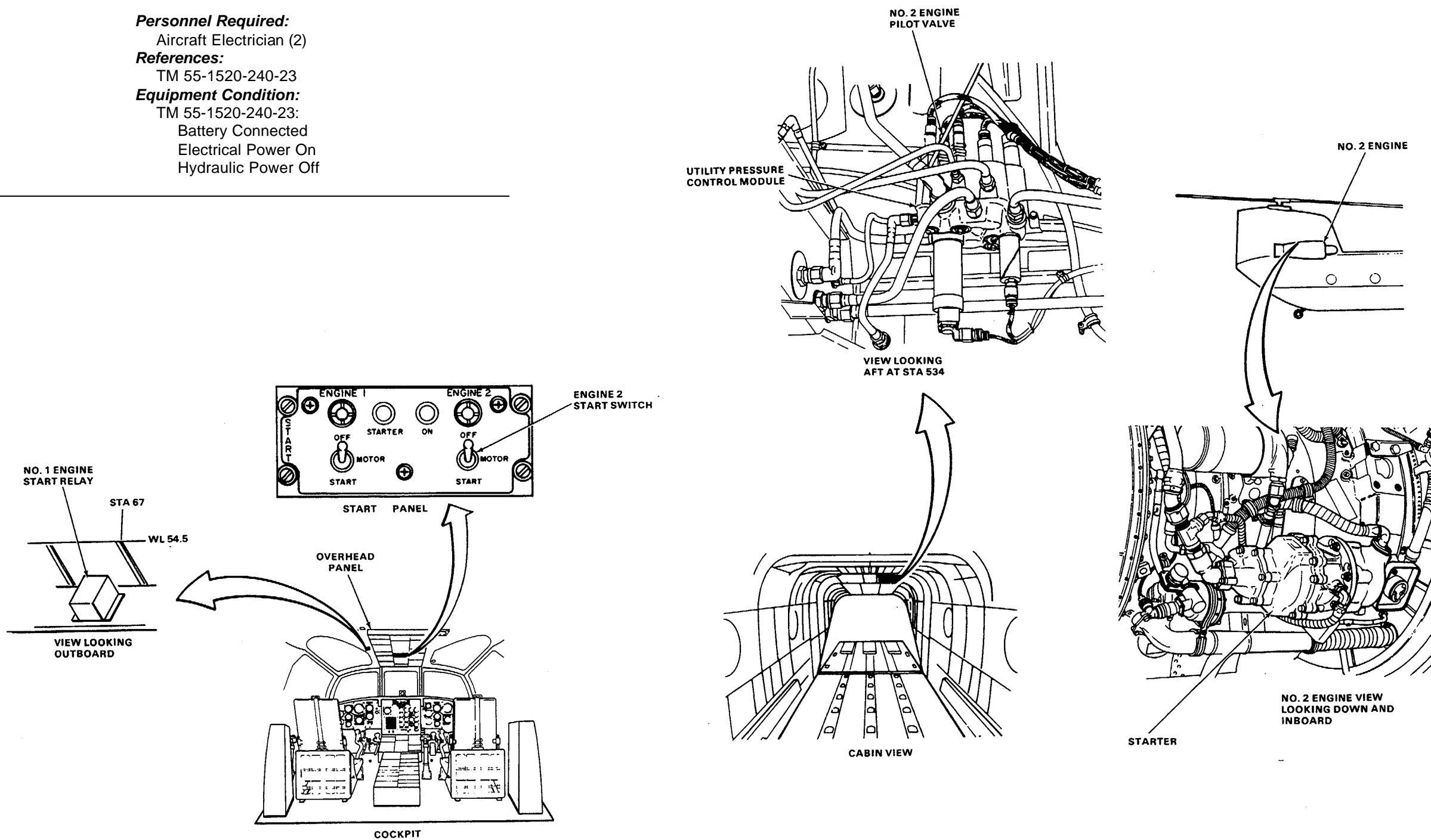
**Equipment Condition:**

TM 55-1520-240-23:

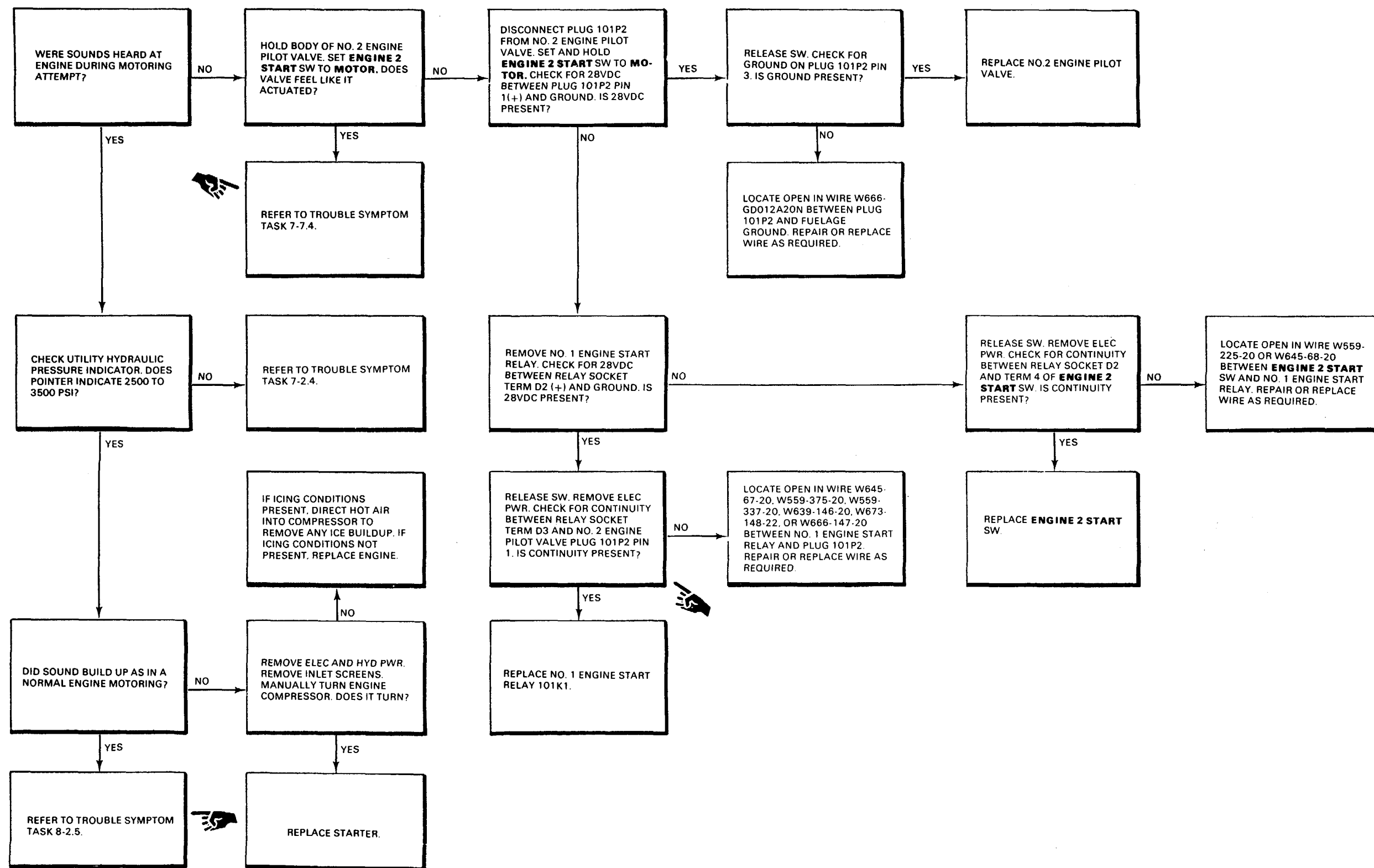
Battery Connected

Electrical Power On

Hydraulic Power Off



4-4.15 NO. 2 ENGINE DOES NOT MOTOR (GAS PRODUCER TACHOMETER DOES NOT INDICATE 10 TO 15% N1)  
(Continued)



4-4.16 NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

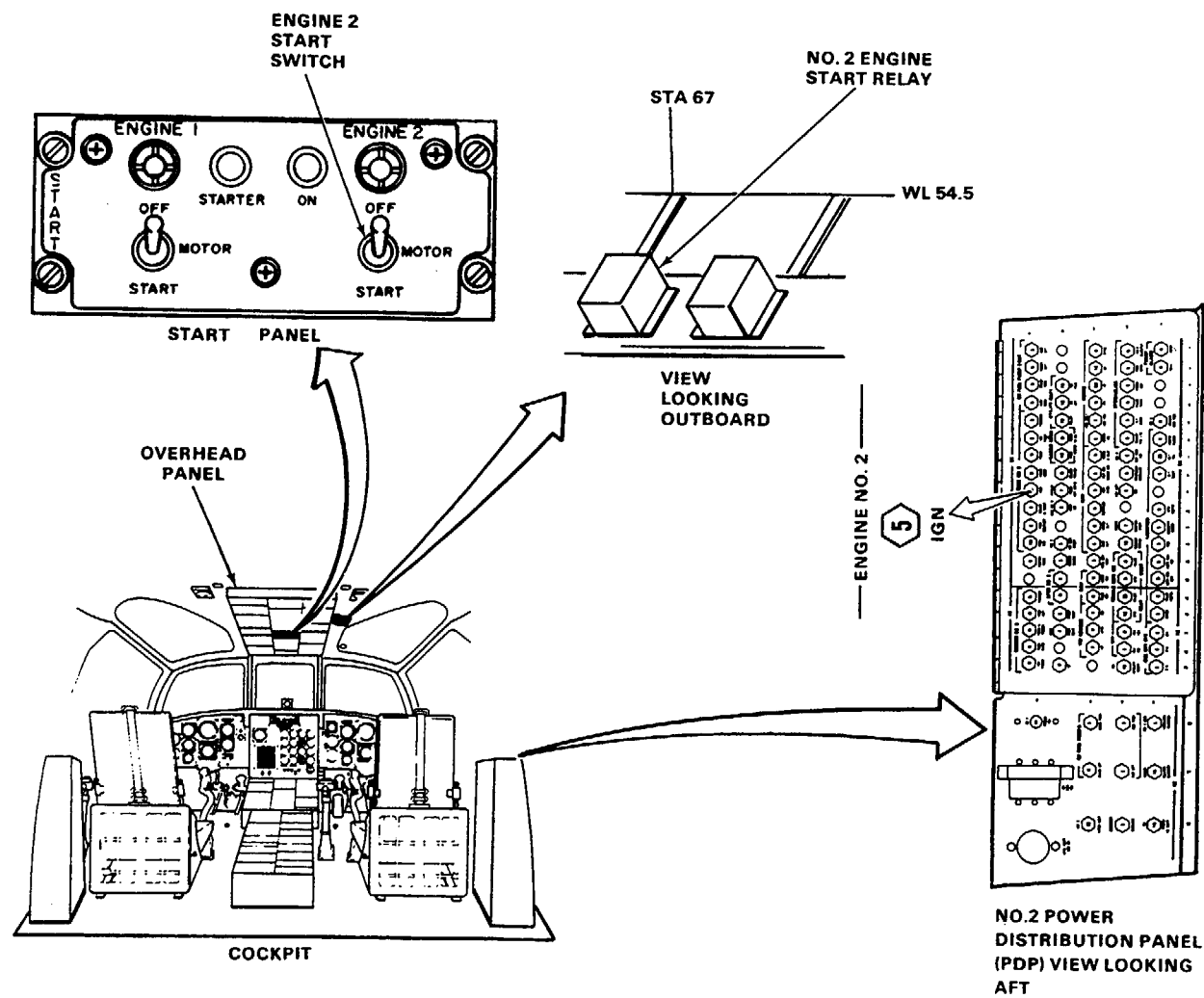
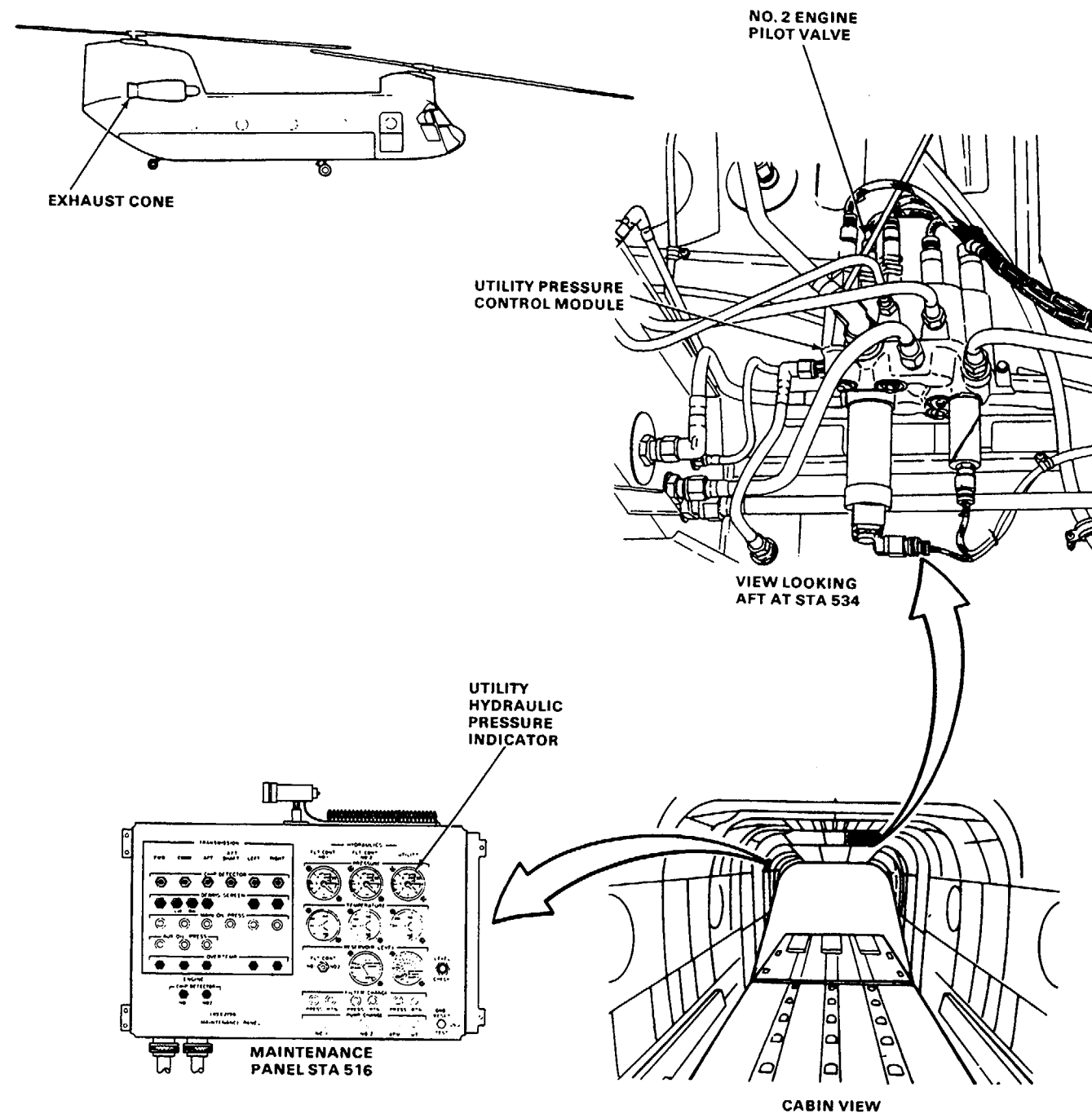
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

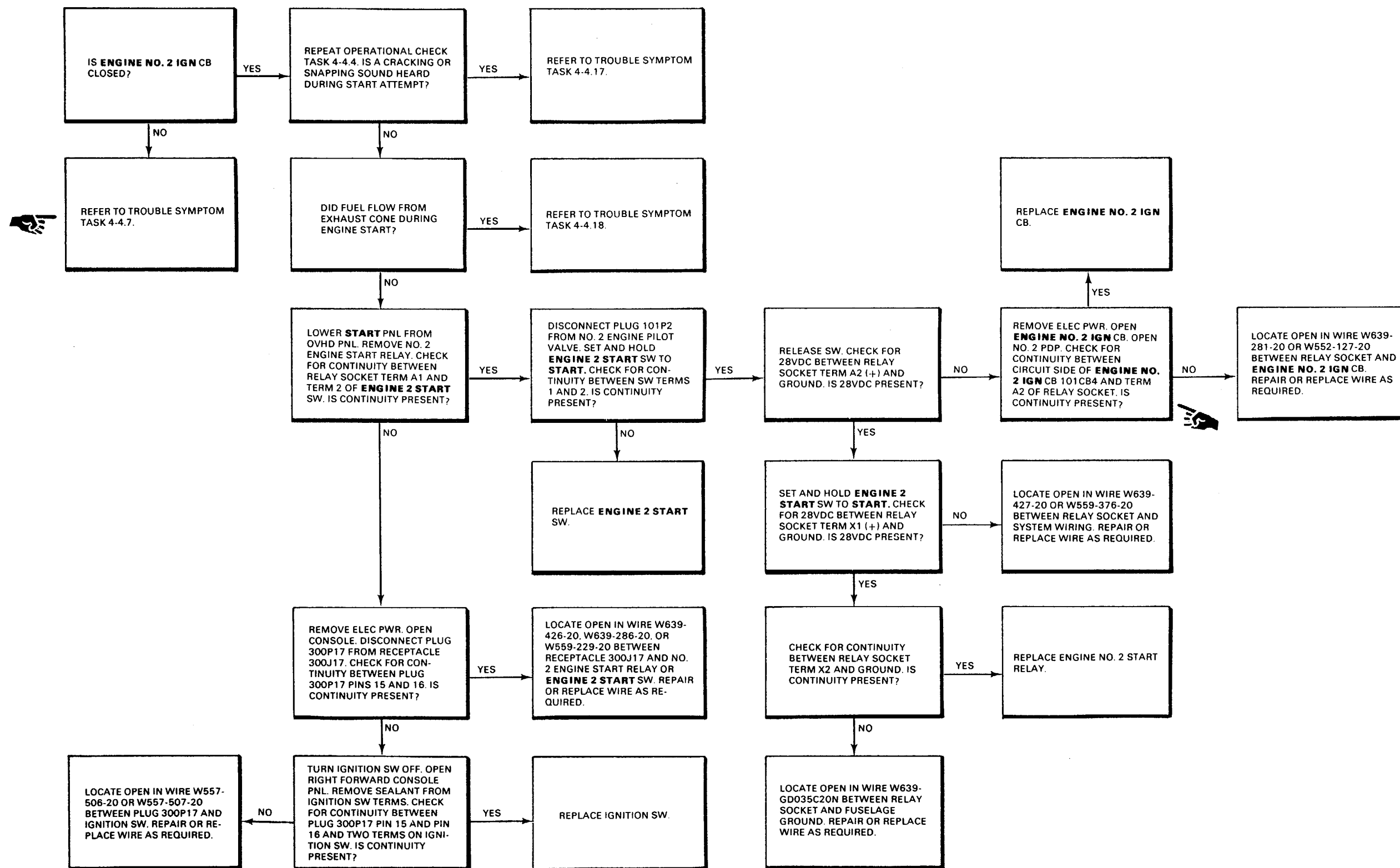
Battery Connected  
Electrical Power On  
Hydraulic Power Off



90x54

D145-8421-SPA

4-4.16 NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START  
(Continued)



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter
- Container, One Gallon

**Materials:**

None

**Personnel Required:**

- Aircraft Powerplant Repairer
- Aircraft Electrician

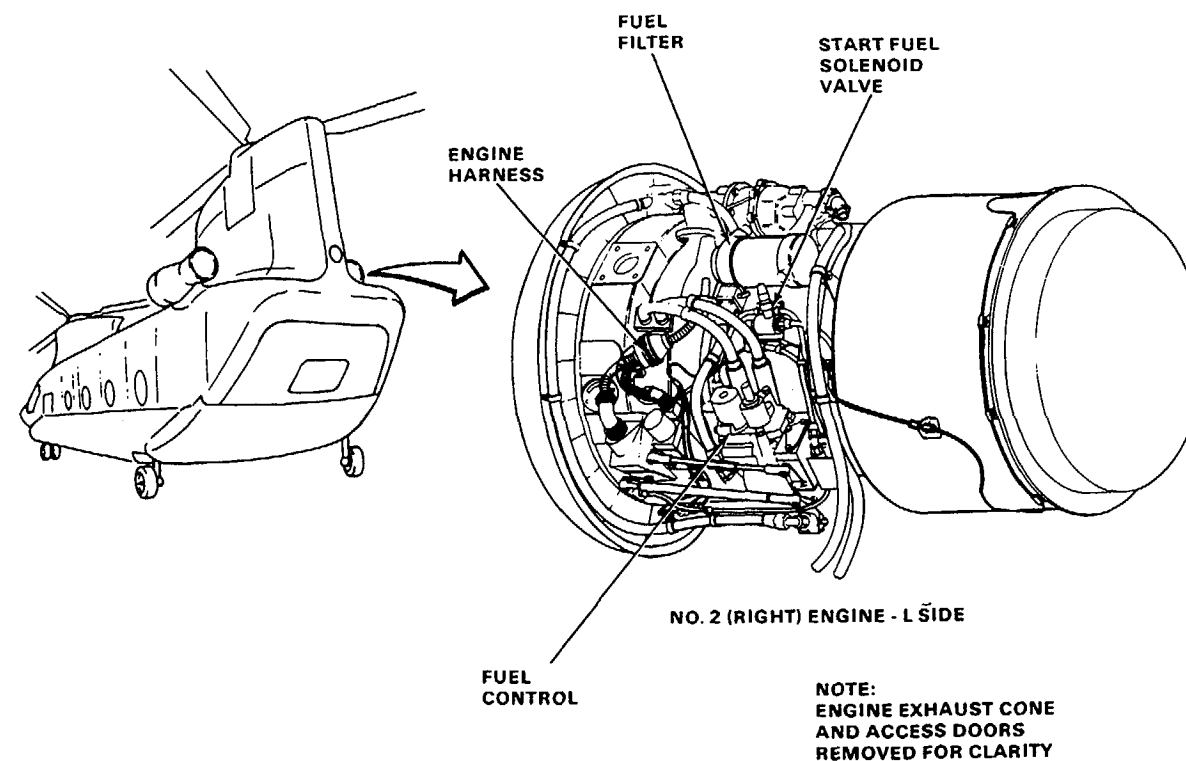
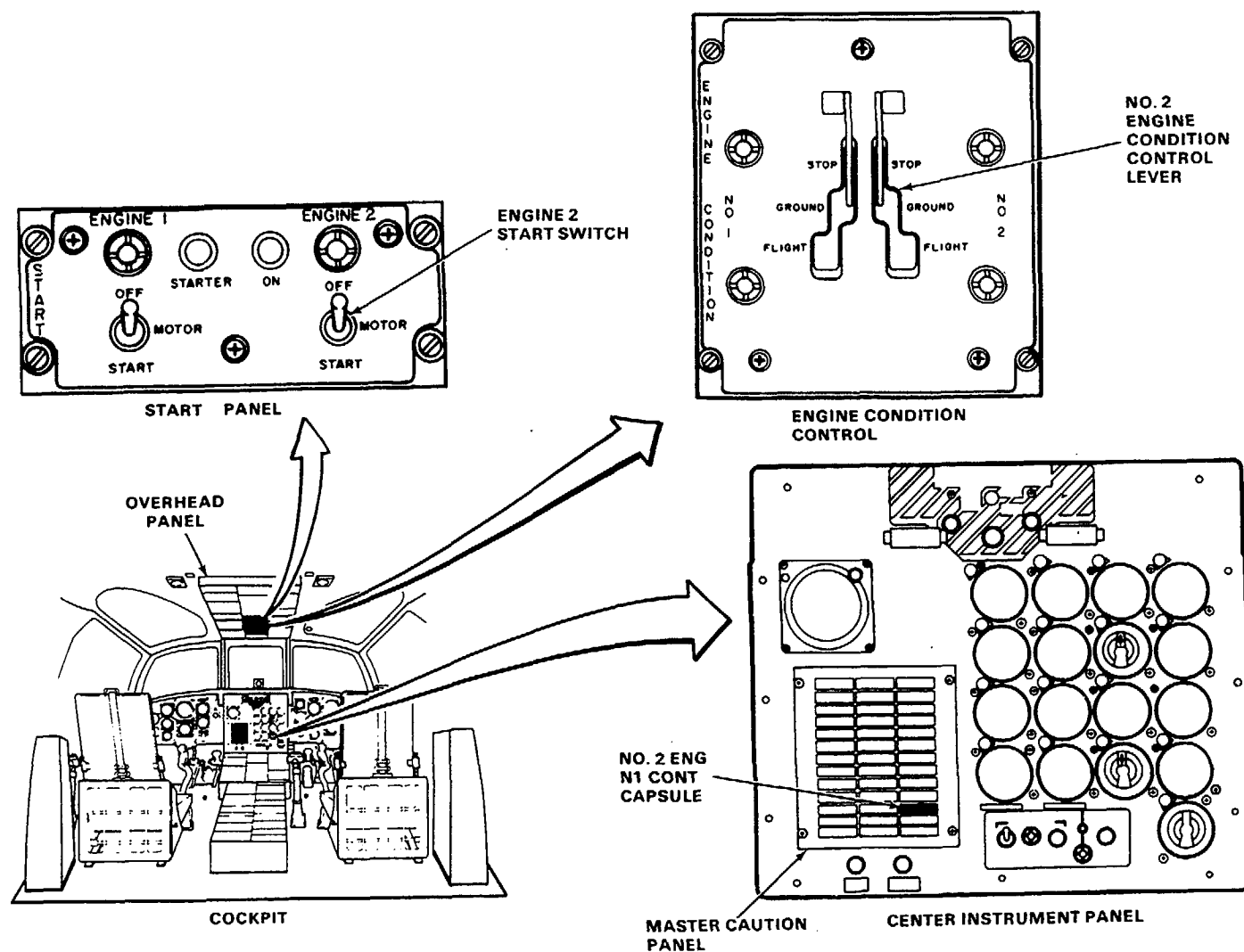
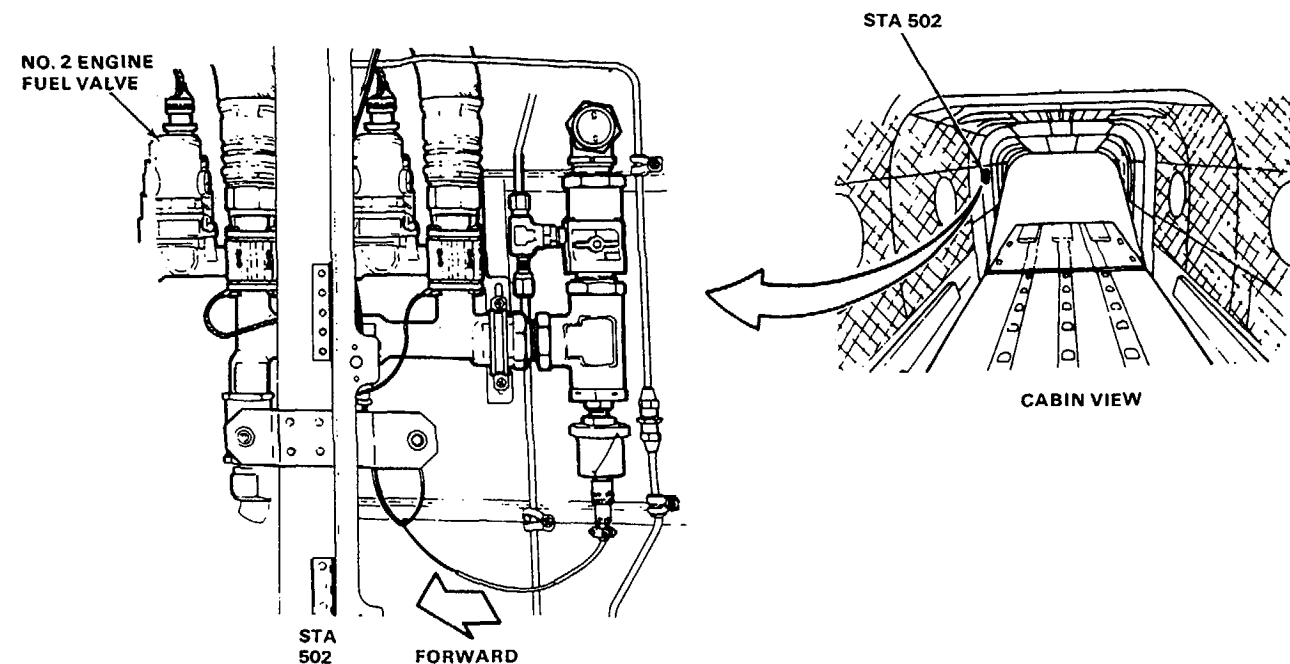
**References:**

TM 55-1520-240-23

Equipment Condition:

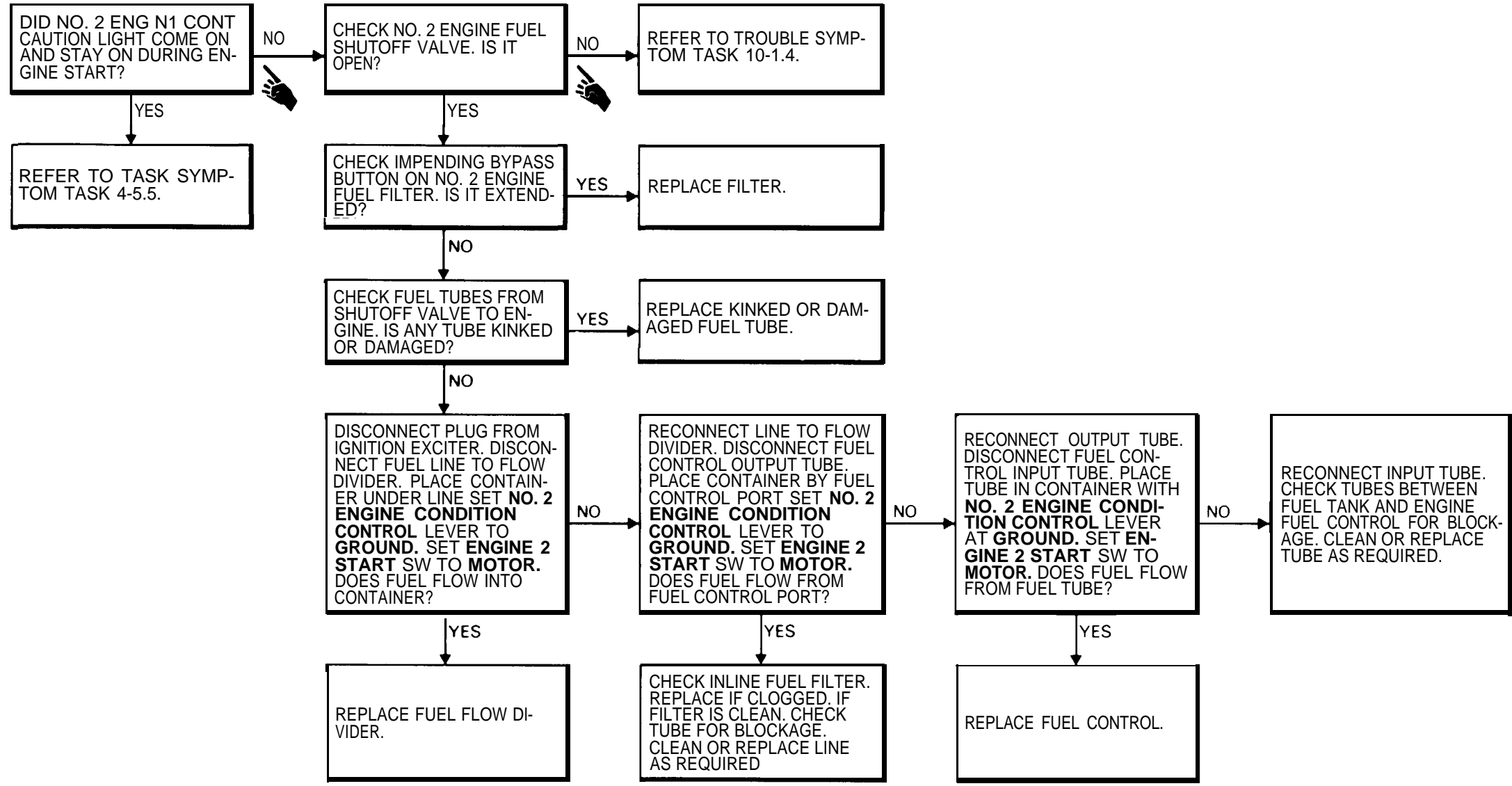
TM 55-1520-240-23:

- Battery Connected
- Electrical Power On
- Hydraulic Power On
- No. 2 Engine Work Platform and Access  
Doors Open



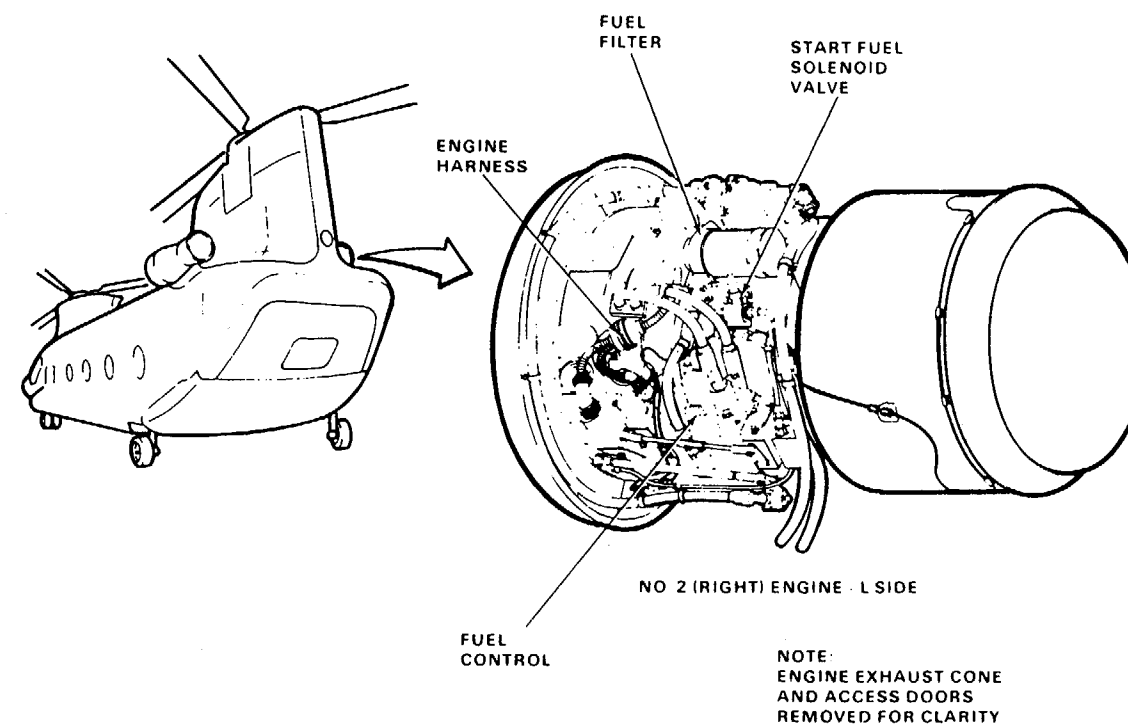
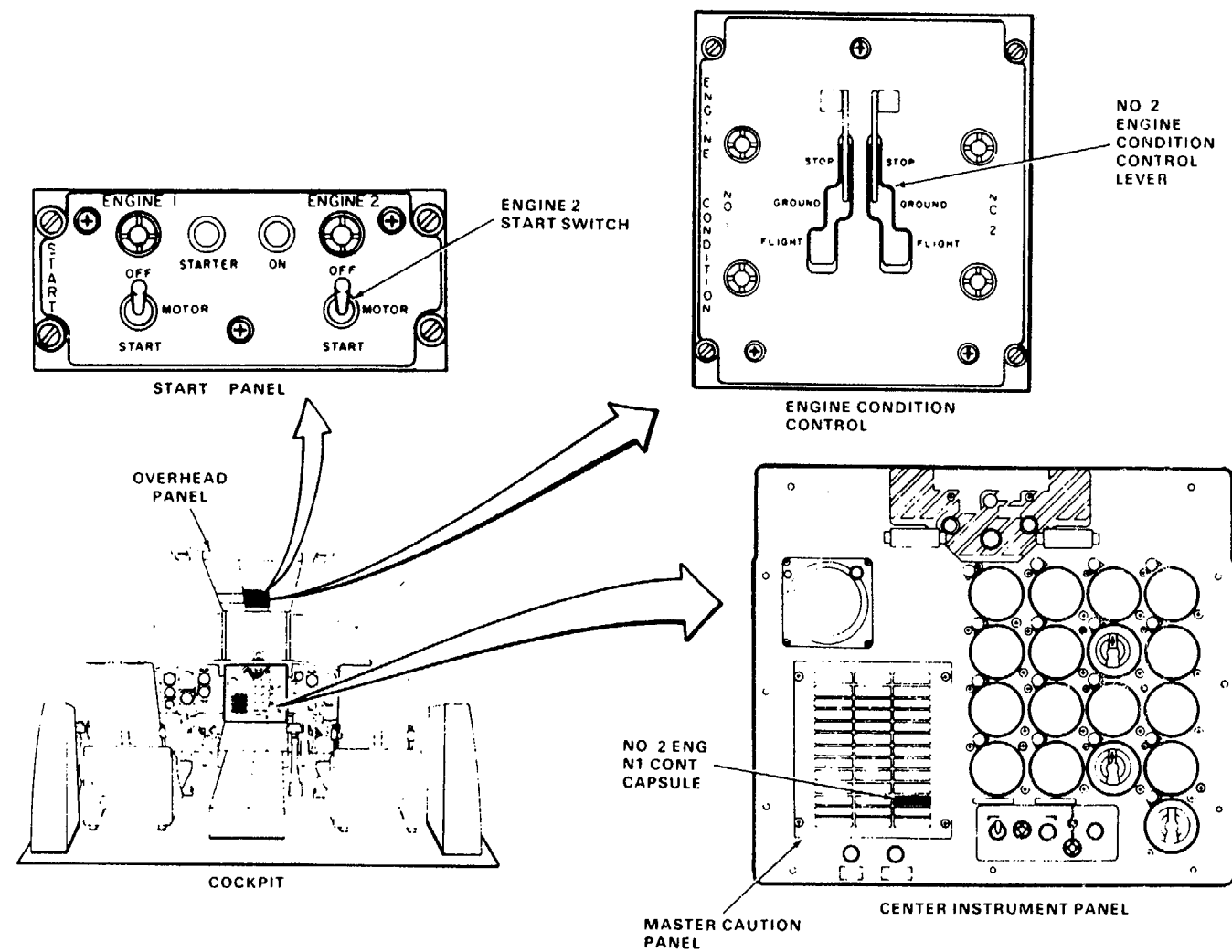
90x34





4-4.17 NO. 2 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)  
(Continued)

4-4.17



4-4.18 NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

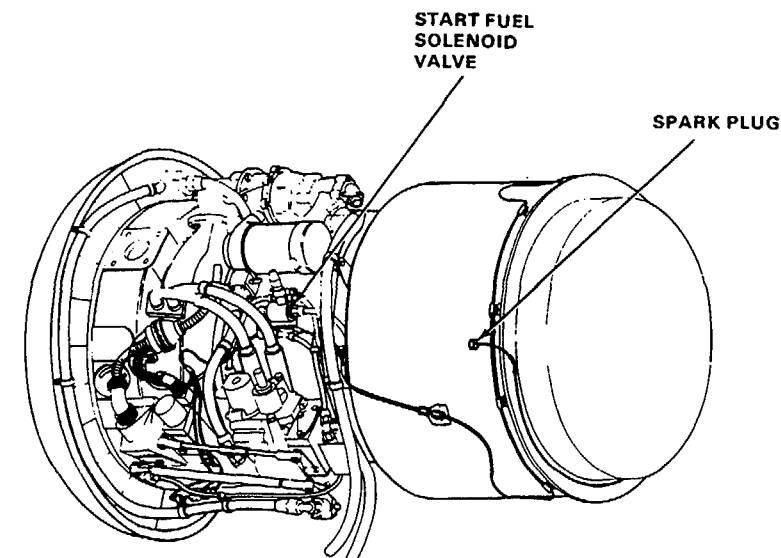
Aircraft Electrician

**References:**

TM 55-1520-240-23

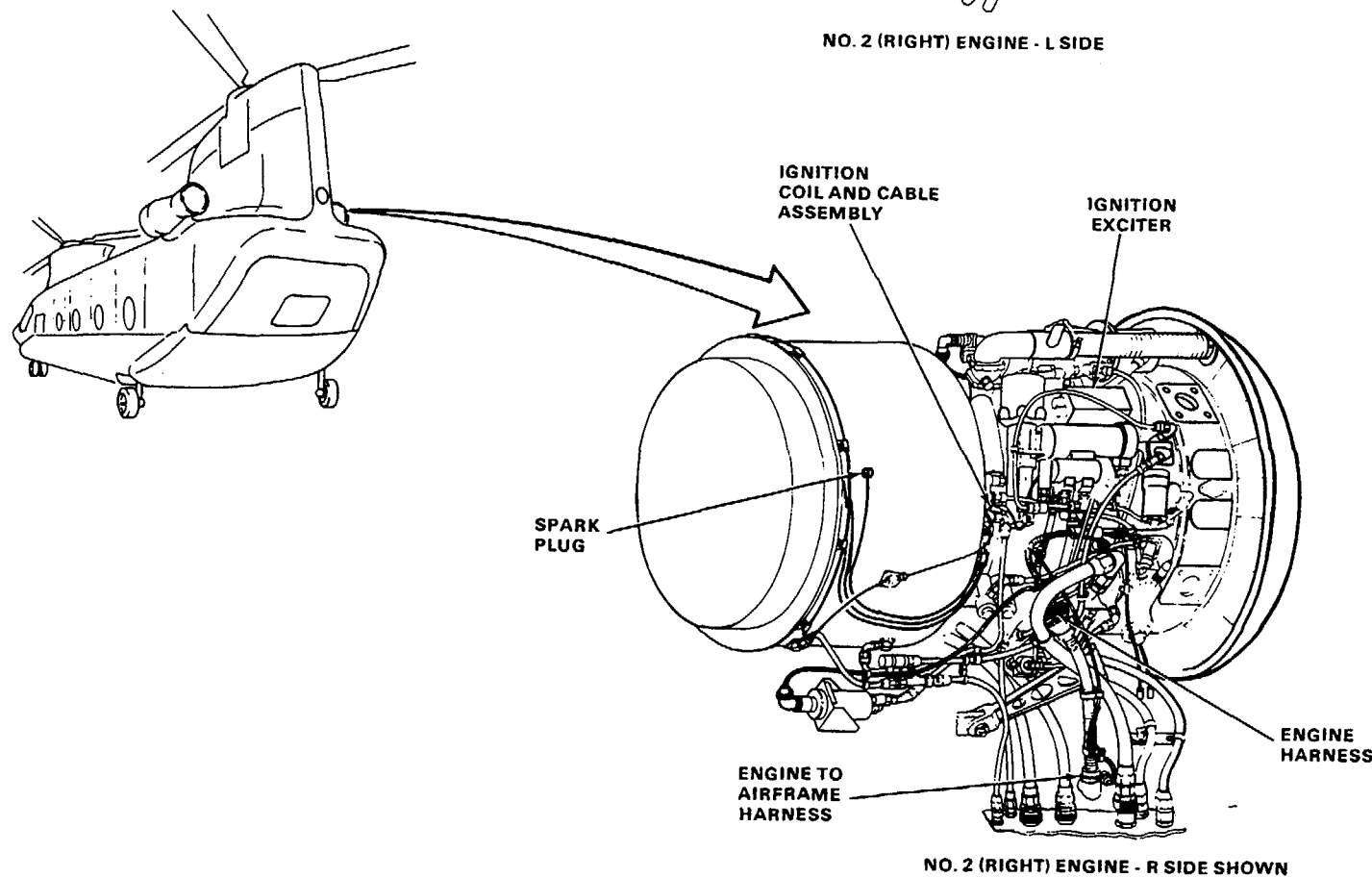
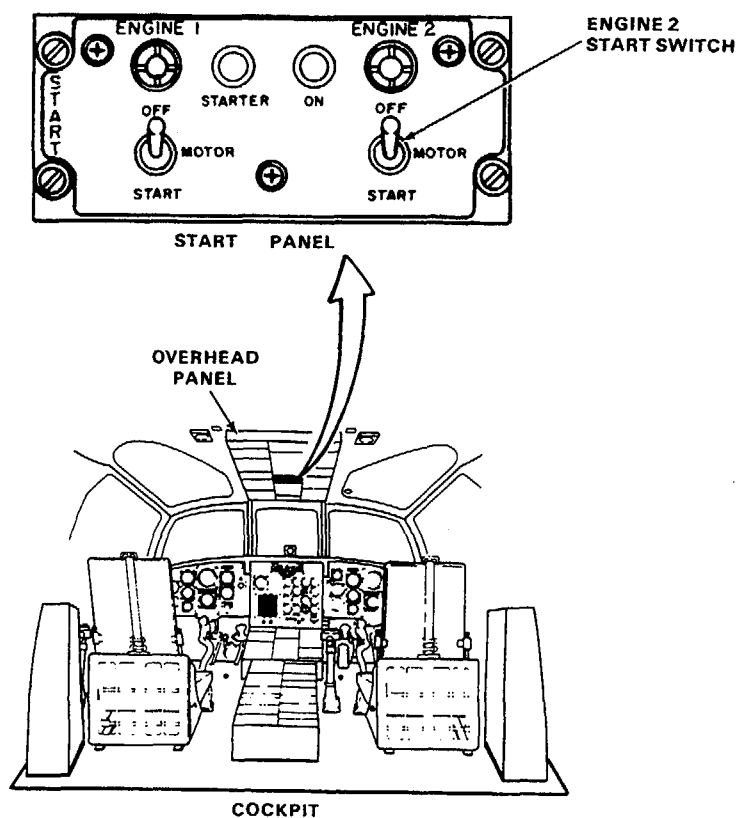
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Electrical Power On  
Hydraulic Power On  
No. 2 Engine Work Platform and Access  
Doors Open



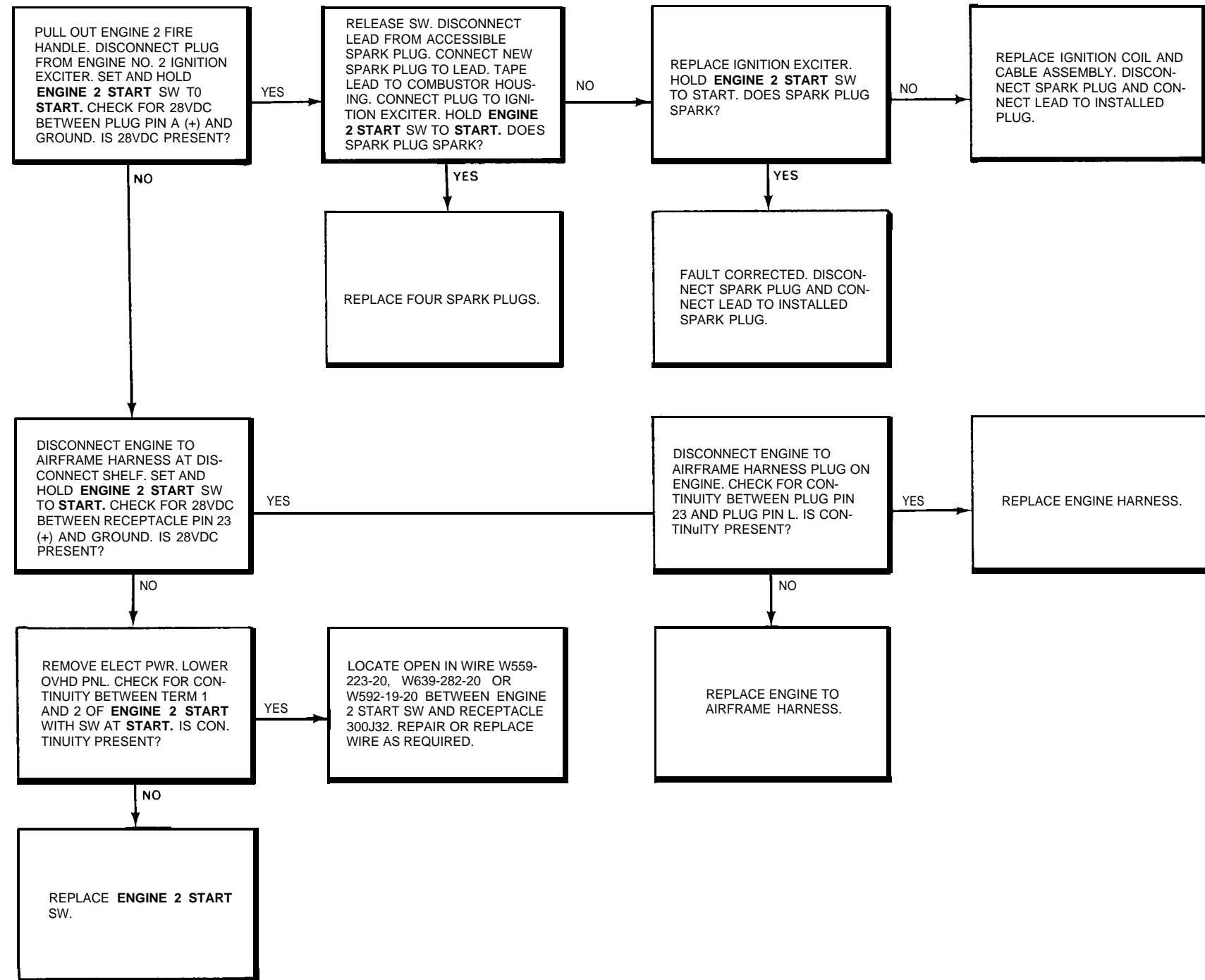
**NOTE:**  
ENGINE EXHAUST  
ENGINE CONE  
AND ACCESS DOORS  
REMOVED FOR CLARITY

NO. 2 (RIGHT) ENGINE - L SIDE



NO. 2 (RIGHT) ENGINE - R SIDE SHOWN

4-4.18 NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE (Continued))

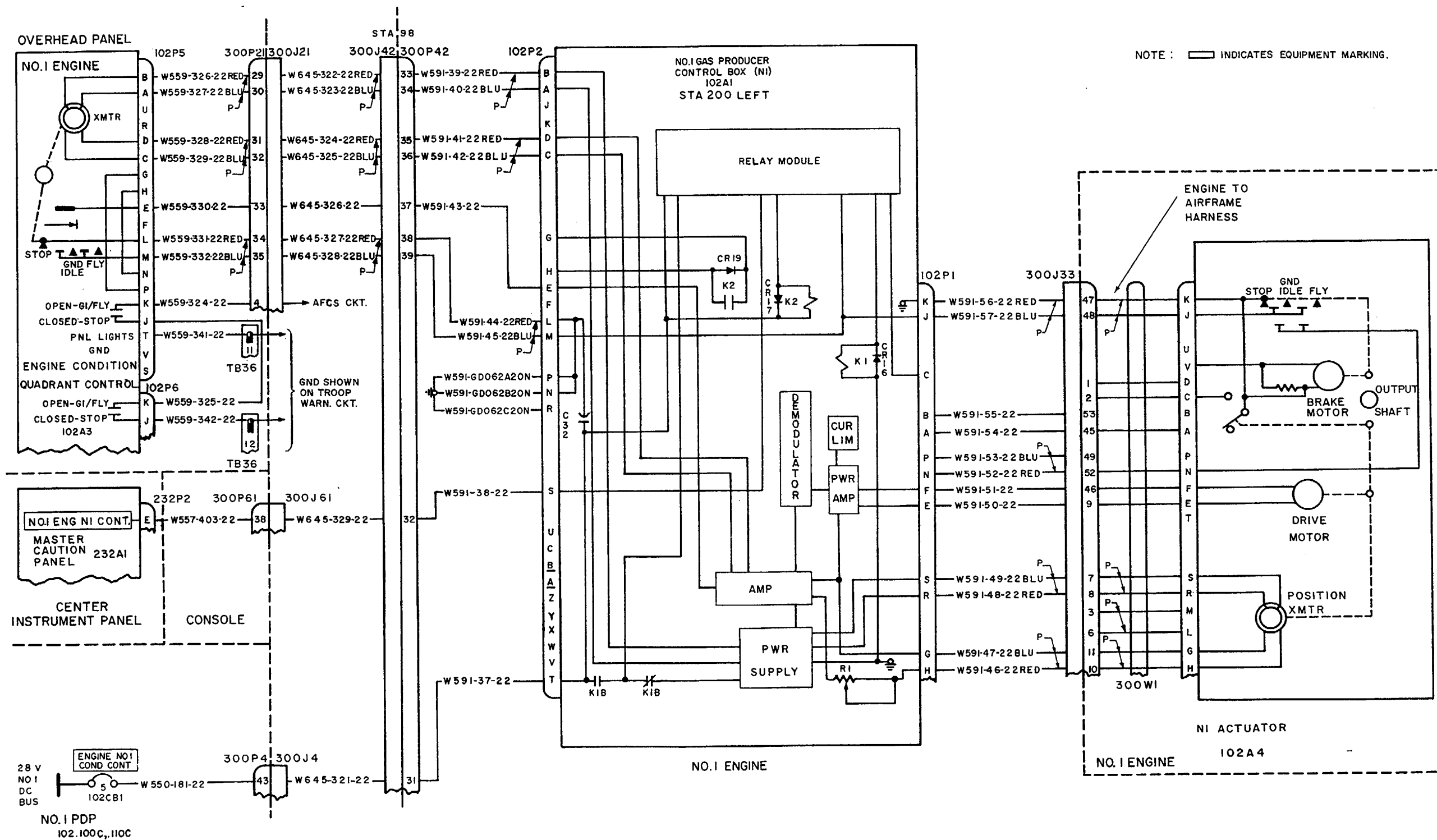


END OF TASK

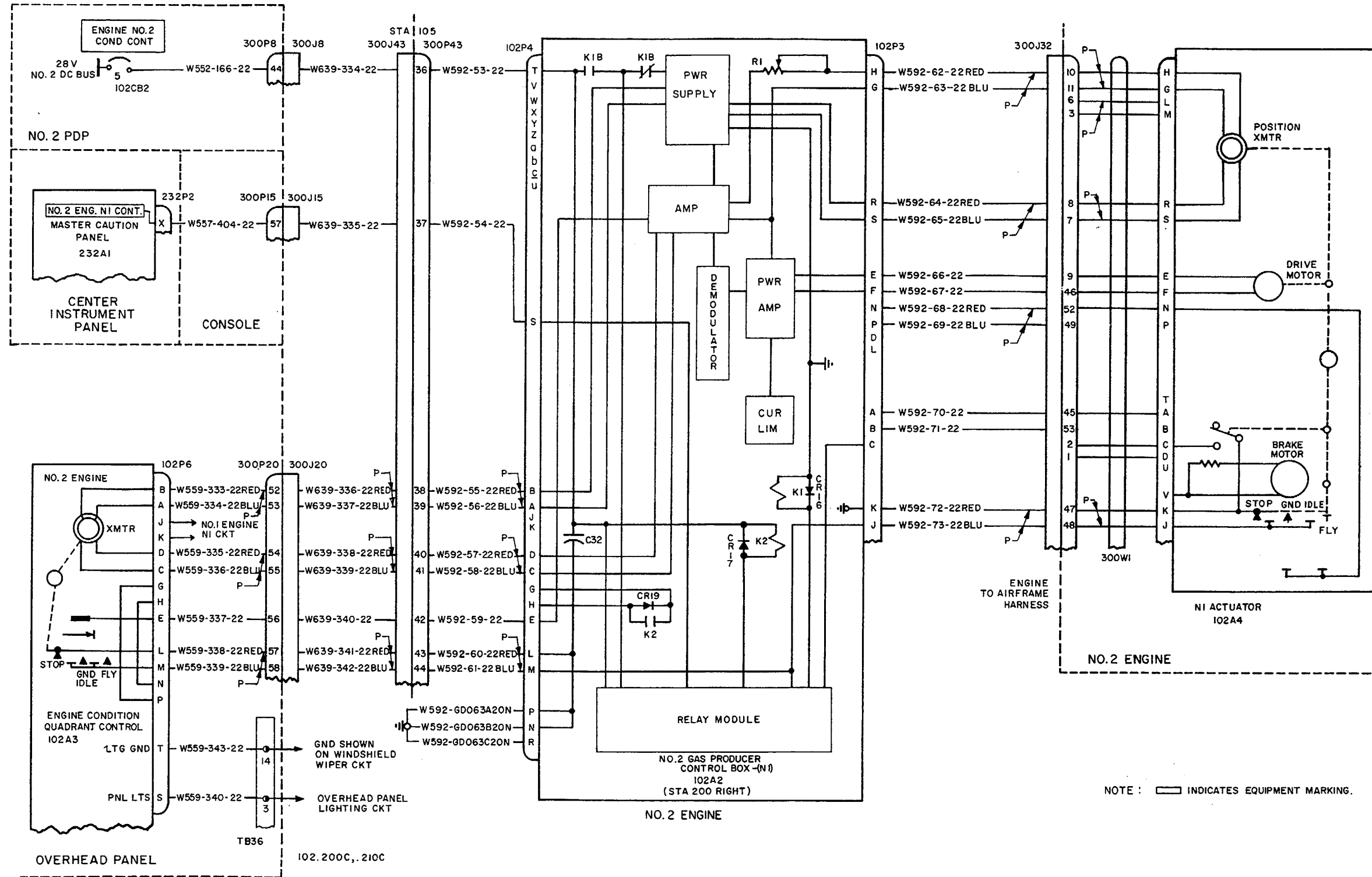
4-89/(4-90 blank)

SECTION 4-5 GAS PRODUCER CONTROL SYSTEM (N1) (WITHOUT 74) |

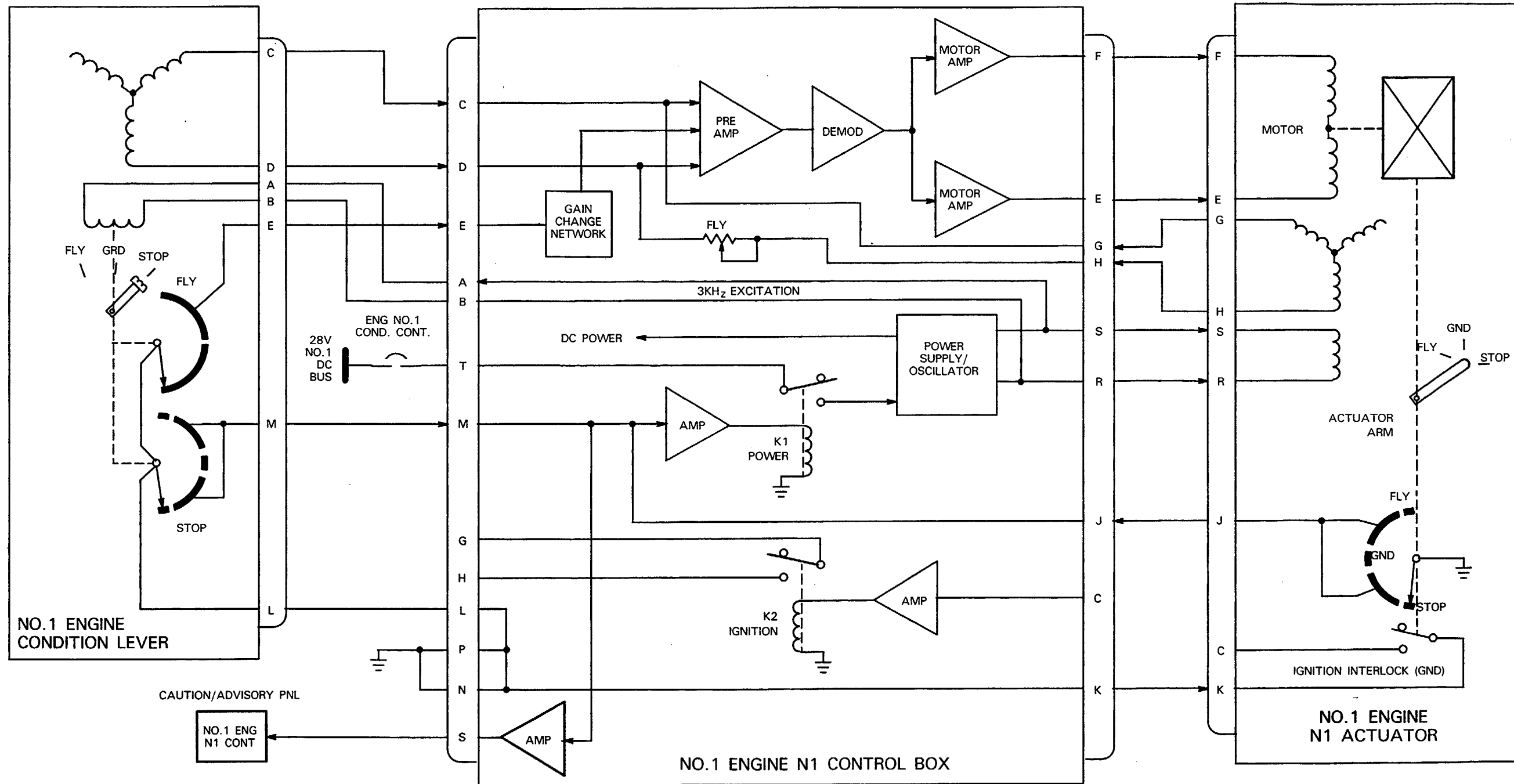
WITHOUT 74



WITHOUT 74



WITHOUT 74



NOTE: NO.1 ENGINE SHOWN, NO.2 ENGINE SIMILAR

A8901



4-5.2 GAS PRODUCER CONTROL SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

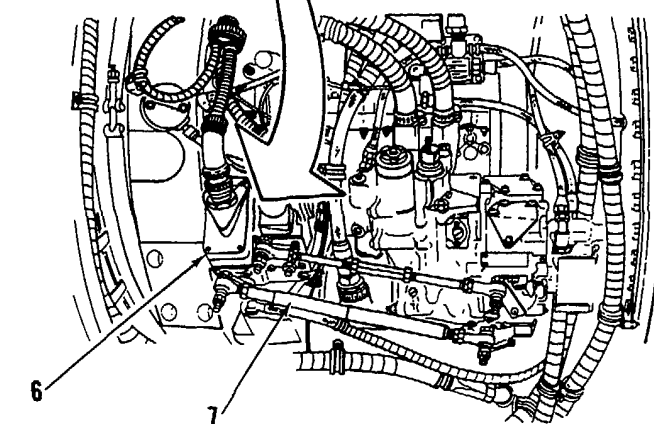
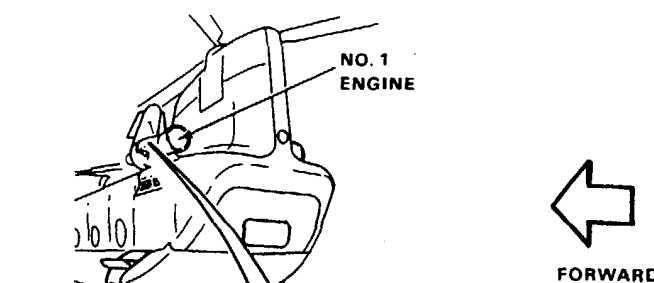
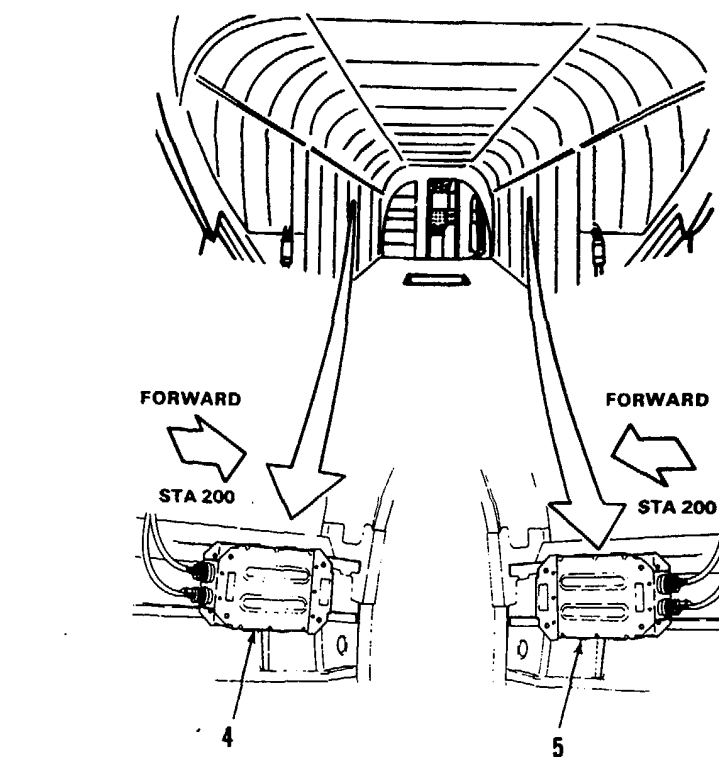
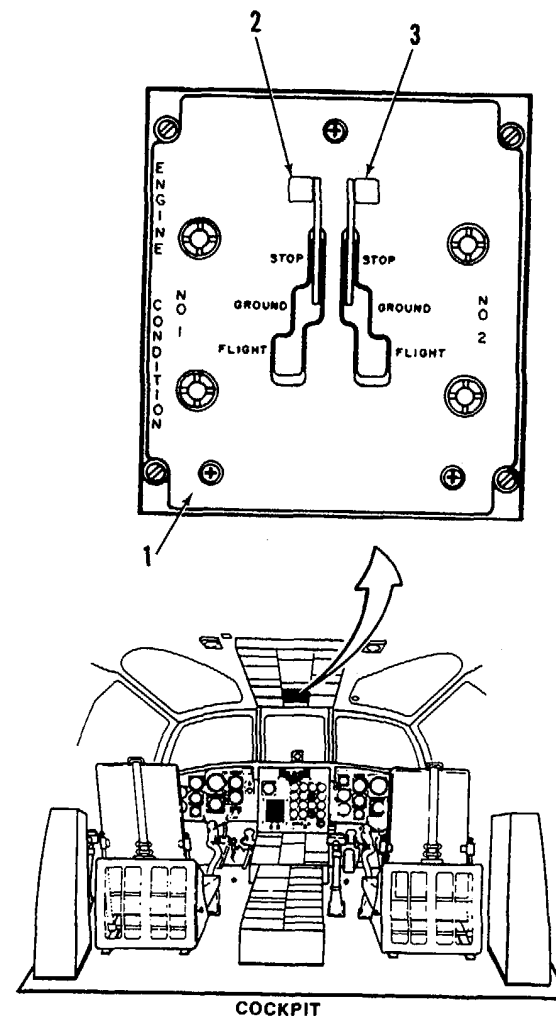
TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- No. 1 and No. 2 Engine Work Platforms Open
- No. 1 and No. 2 Engine Access Covers Open

TASK	RESULT
1. Check engine quadrant (1).	If quadrant is loose or damaged, tighten or replace it as required. If levers (2 or 3) are damaged, replace control.
2. Check No. 1 gas producer control box (4).	If box (4) is loose or damaged, tighten or replace it as required. If wiring or electrical connectors to box are damaged, repair or replace as required.
3. Check No. 2 gas producer control box (5).	If box (5) is loose or damaged, tighten or replace it as required. If wiring or electrical connectors to box are damaged, repair or replace as required.
4. Check No. 1 engine gas producer actuator (6).	If actuator (6) is loose or damaged, tighten or replace it as required. If rod (7) is damaged, replace it. If electrical connector to actuator is loose, tighten it.
5. Check No. 2 engine gas producer actuator (6).	If actuator (6) is loose or damaged, tighten or replace it as required. If rod (7) is damaged, replace it. If electrical connector to actuator is loose, tighten it.

FOLLOW-ON MAINTENANCE:

None



NO. 1 ENGINE SHOWN.  
NO. 2 ENGINE SAME.

D145-10982-SPA

END OF TASK  
Change 17 4-95

4-5.3 GAS PRODUCER CONTROL SYSTEM (N1) OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**

None

**Personnel Required:**

Aircraft Powerplant Repairer (2)

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

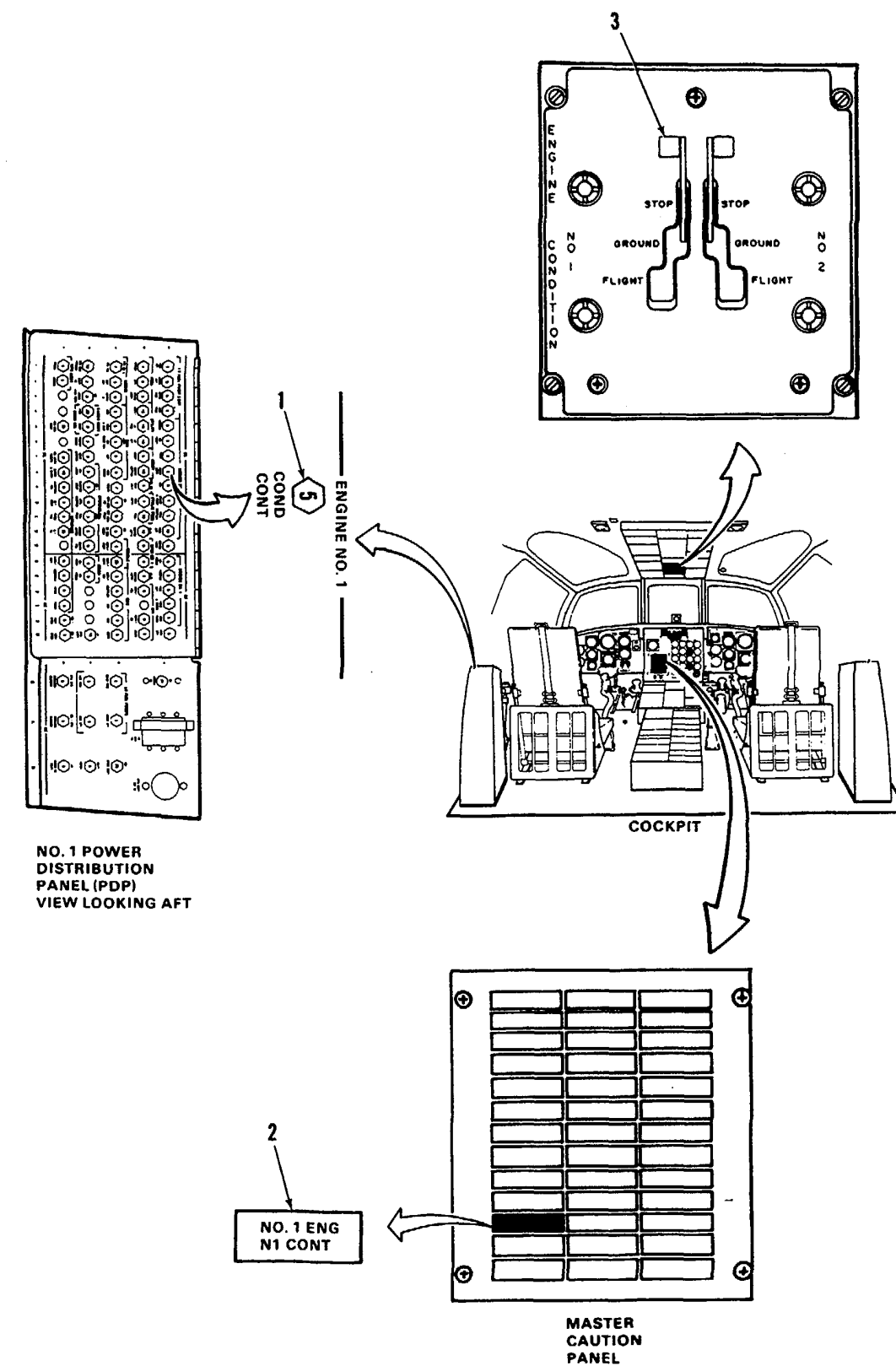
Battery Connected

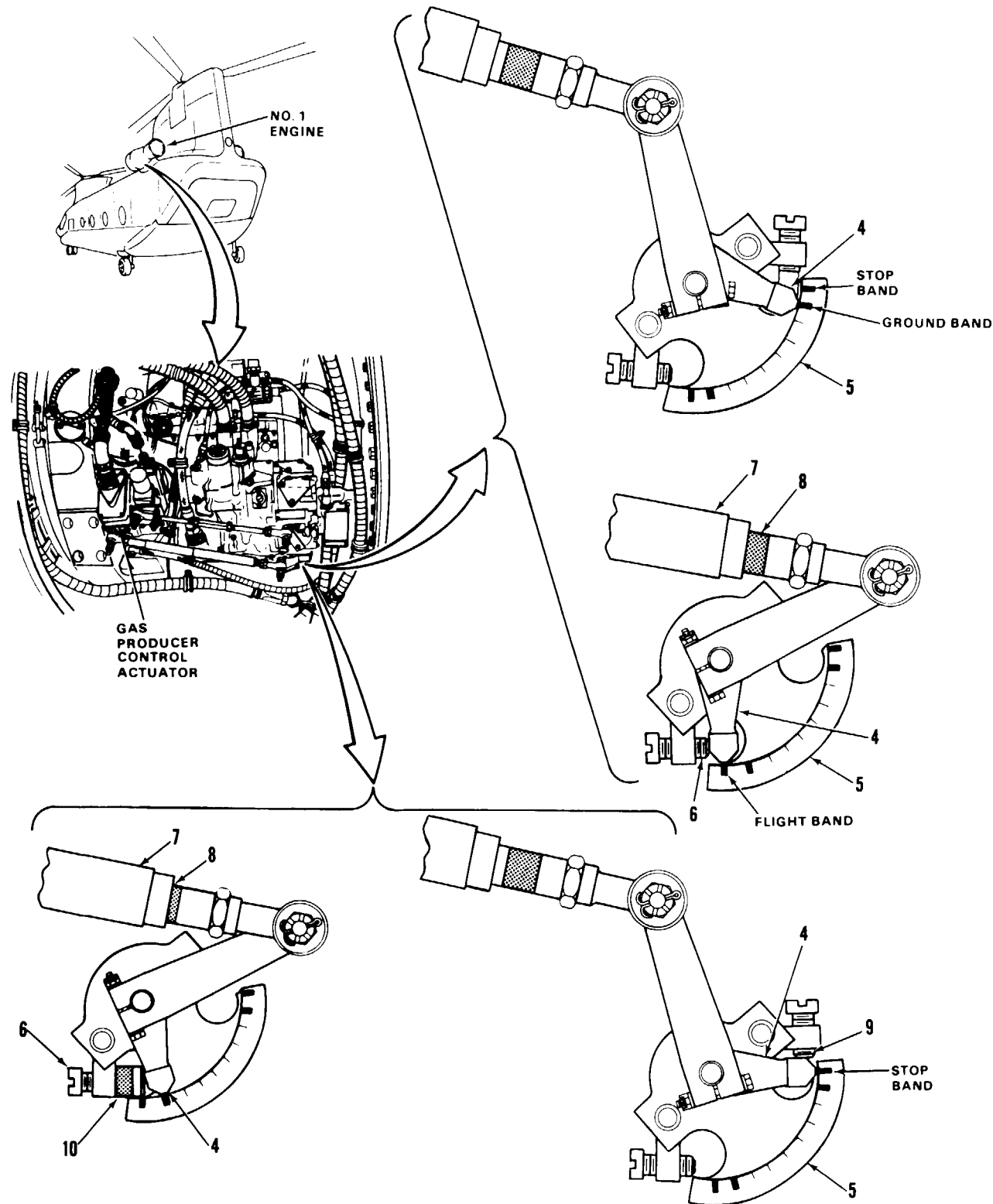
Electrical Power On

Hydraulic Power Off

Visual Check of Gas Producer Control System Performed (Task 4-6.2)

TASK	RESULT
<b>CHECK NO. 1 ENGINE GAS PRODUCER CONTROL SYSTEM</b>	
1. Check that ENGINE NO. 1 COND CONT circuit breaker (1) is closed.	If circuit breaker (1) is open, close it. If it opens again, go to task 4-5.4.
2. Check No. 1 ENG N1 CONT capsule (2).	If capsule (2) is lit, go to task 4-5.5.
3. Open ENGINE NO. 1 COND CONT circuit breaker (1). Set NO. 1 ENGINE CONDITION lever (3) to GROUND. Close ENGINE NO. 1 COND CONT circuit breaker (1).	Fuel control pointer (4) shall not move. If it does, replace No. 1 gas producer control box.
4. Set NO. 1 ENGINE CONDITION lever (3) to STOP and then to GROUND.	Fuel control pointer (4) shall move and stop about mid point in ground band on protractor 95). If it does not, go to task 4-5.6. NO. 1 ENG N1 CONT capsule (2) shall come on and stay on until fuel control pointer moves to ground position. If capsule does not come on, go to task 4-5.7. If light comes on and stays on, go to task 4-5.5.
5. Set NO. 1 ENGINE CONDITION lever (3) to FLIGHT.	NO. 1 ENG N1 CONT capsule (2) shall come on and stay on until fuel control pointer (4) moves to flight band. Pointer (4) shall make positive contact with stop (6). Rod (7) shall compress and partially cover brown band (8). If capsule (2) comes on and goes out and pointer (4) does not move, replace No. 1 gas producer control actuator. If pointer (4) moves but does not make contact with stop or brown band is not partially covered, go to task 4-5.8.





TASK	RESULT
6. Set NO. 1 ENGINE CONDITION lever (3) to GROUND.	NO. 1 ENG N1 CONT capsule (2) shall come on and stay on until fuel control pointer (4) moves to and stops within ground band.
7. Set NO. 1 ENGINE CONDITION lever (3) to STOP.	NO. 1 ENG N1 CONT capsule (2) shall come on and stay on until fuel control pointer (4) moves to stop band on protractor (5) and is in positive contact with stop (9). If capsule (2) is still on when pointer is against stop (9), go to task 4-5.5.
8. Move NO. 1 ENGINE CONDITION lever (3) from STOP to GROUND to FLIGHT, and then directly from FLIGHT to STOP.	NO. 1 ENG N1 CONT capsule (2) shall come on when pointer (4) travels between bands. If capsule is not on when pointer is traveling between any two bands, go to task 4-5.7. If pointer (4) is not against stop (9), adjust gas producer system. Refer to TM 55-1520-240-23.
9. Move NO. 1 ENGINE CONDITION lever (3) from STOP to GROUND to FLIGHT and then to GROUND and STOP with a pause at each position.	Fuel control pointer (4) shall move to each corresponding band on protractor (5).
10. Open ENGINE NO. 1 COND CONT circuit breaker (1). Install topping stop (10). Do not move stop (6) when installing topping stop (10).	
11. Close ENGINE NO. 1 COND CONT circuit breaker (1). Set NO. 1 ENGINE CONDITION lever (3) to FLIGHT.	Fuel control pointer (4) shall move to and be in positive contact with topping stop (10). Rod (7) shall compress and cover brown band (8), more than in step 5.
12. Set NO. 1 ENGINE CONDITION lever (3) to STOP. Remove topping stop (10).	

**NOTE**

Brown band shall still be visible.

**CAUTION**

Make sure topping stop is removed from engine. If it is not, engine emergency power capability will be disabled. Damage to aircraft or components can result.

TASK

RESULT

CHECK NO. 2 ENGINE GAS PRODUCER CONTROL SYSTEM

- 13. Check that ENGINE NO. 2 COND CONT circuit breaker (11) is closed.
- 14. Check NO. 2 ENG N1 CONT capsule (12).
- 15. Open ENGINE NO. 2 COND CONT circuit breaker (11). Set NO. 2 ENGINE CONDITION lever (13) to GROUND. Close ENGINE NO. 2 COND CONT circuit breaker (11).
- 16. Set NO. 2 ENGINE CONDITION lever (13) to STOP and then to GROUND.
- 17. Set NO. 2 ENGINE CONDITION lever (13) to FLIGHT.
- 18. Set NO. 2 ENGINE CONDITION lever (13) to GROUND.
- 19. Set NO. 2 ENGINE CONDITION lever (13) to STOP.

If circuit breaker (11) is open, close it. If it opens again, go to task 4-5.4.

If capsule (12) is lit, go to task 4-5.5.

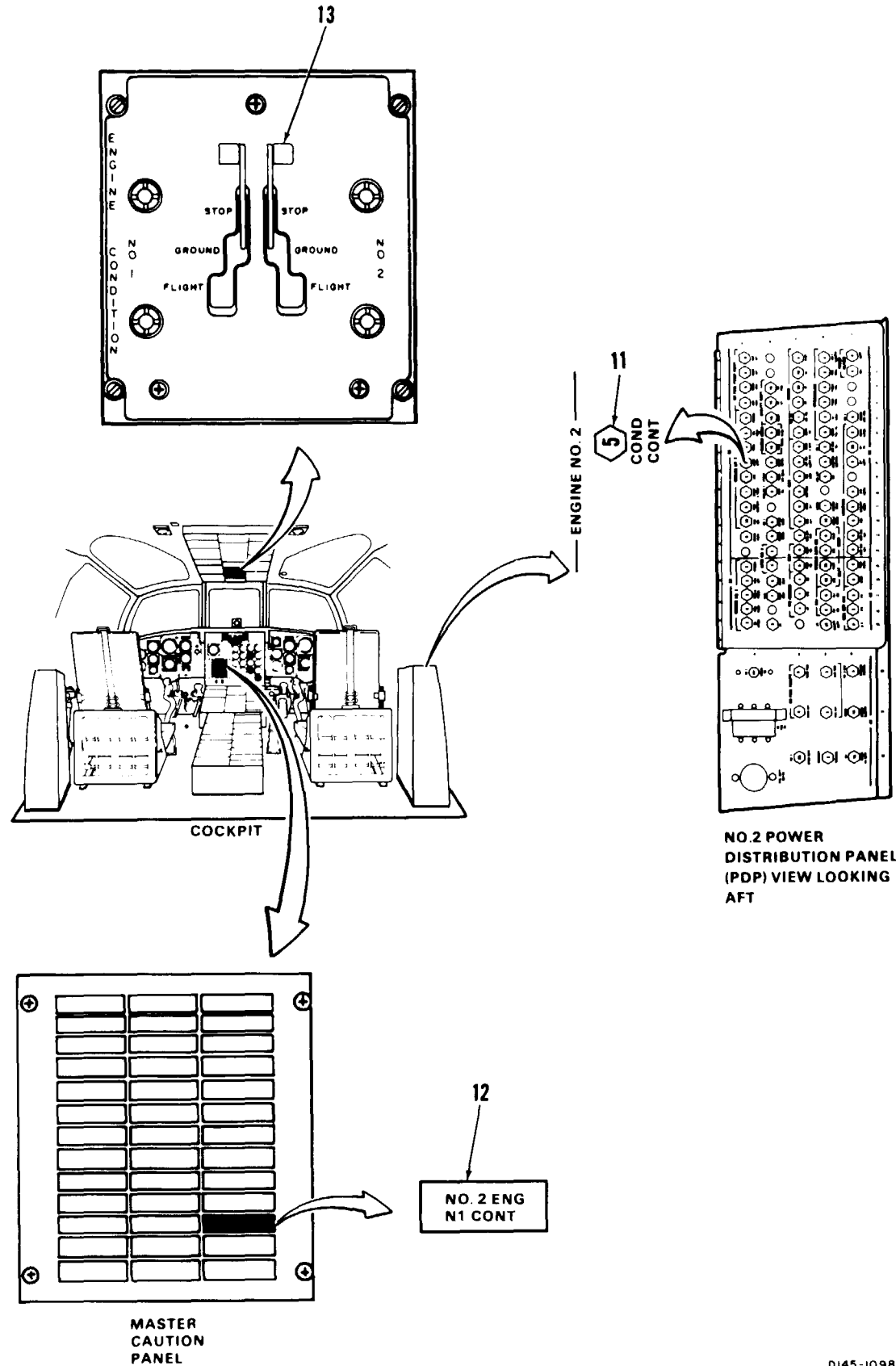
Fuel control pointer (14) shall not move. If it does, replace No. 2 gas producer control box.

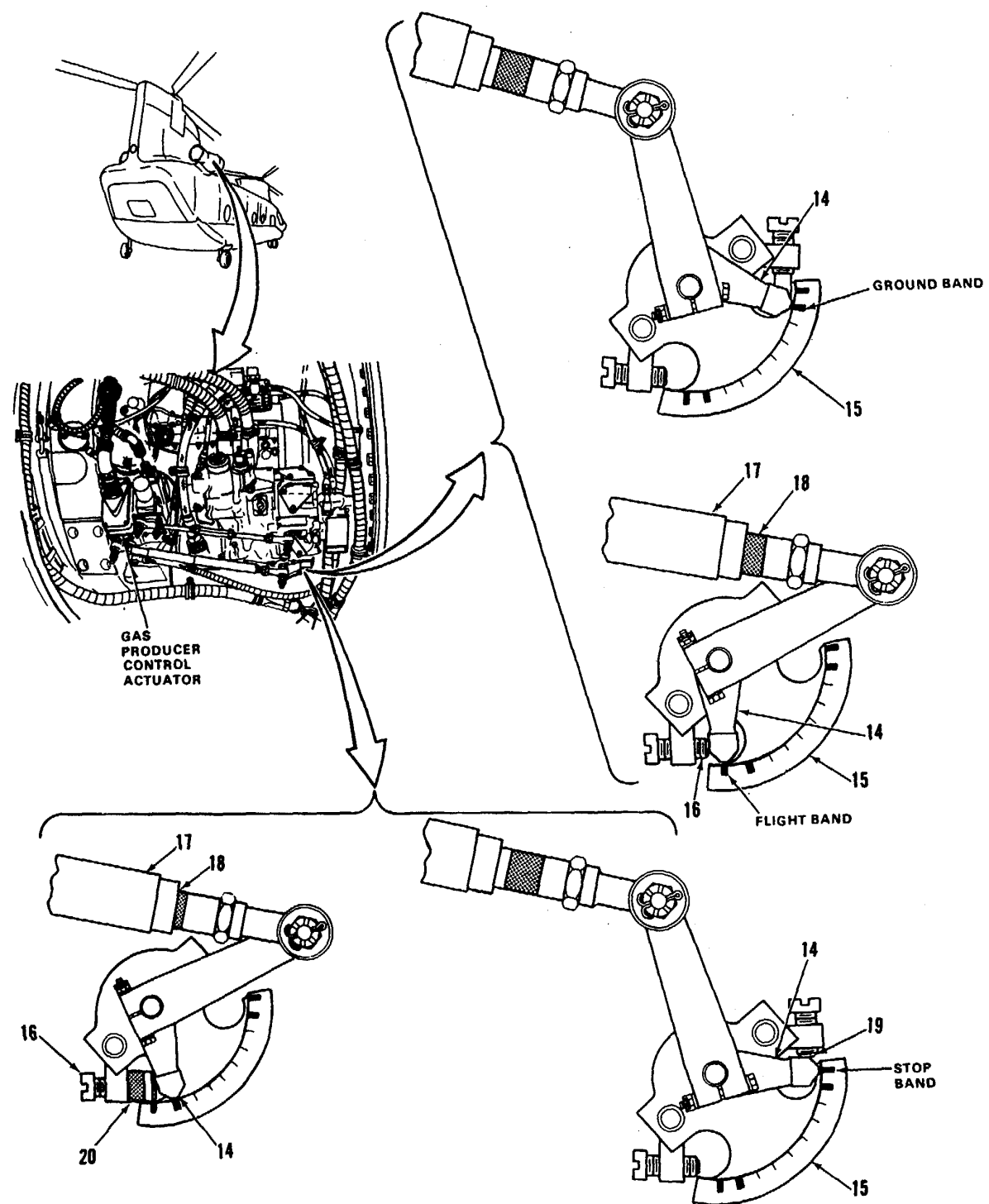
Fuel control pointer (14) shall move and stop about mid point in ground band on protractor (15). If it does not, go to task 4-5.9. NO. 2 ENG N1 CONT capsule (12) shall come on and stay on until fuel control pointer moves to ground position. If capsule does not come on, go to task 4-5.10. If light comes on and stays on, go to task 4-5.5.

NO. 2 ENG N1 CONT capsule (12) shall come on and stay on until fuel control pointer (14) moves to flight band. Pointer (14) shall make positive contact with stop (16). Rod (17) shall compress and partially cover brown band (18). If capsule (12) comes on and goes out and pointer (14) does not move, replace No. 2 gas producer control actuator. If pointer (14) moves but does not make contact with stop or brown band is not partially covered, go to task 4-5.8.

NO. 2 ENG N1 CONT capsule (12) shall come on and stay on until fuel control pointer (14) moves to and stops within ground band.

NO. 2 ENG N1 CONT capsule (12) shall come on and stay on until fuel control pointer (14) moves to stop band on protractor (15) and is in positive contact with stop (19). If capsule (12) is still on when pointer is against stop (19), go to task 4-5.5.





TASK	RESULT
20. Move NO. 2 ENGINE CONDITION control lever (13) from STOP to GROUND to FLIGHT, and then directly from FLIGHT to STOP.	NO. 2 ENG N1 CONT capsule (12) shall come on when pointer (14) travels between bands. If capsule is not on when pointer is travelling between any two bands, go to task 4-5. 10. If pointer (14) is not against stop (19), adjust gas producer system. Refer to TM 55-1520-240-23.
21. Move NO. 2 ENGINE CONDITION control lever (13) from STOP to GROUND to FLIGHT and then to GROUND and STOP with a pause at each position.	Fuel control pointer (14) shall move to corresponding band on protractor (15).
22. Open ENGINE NO. 2 COND CONT circuit breaker (11). Install topping stop (20). Do not move stop (16) when installing topping stop (20).	
23. Close ENGINE NO. 2 COND CONT circuit breaker (11). Set NO. 2 ENGINE CONDITION control lever (13) to FLIGHT.	Fuel control pointer (14) shall move to and be in positive contact with topping stop (20). Rod (17) shall compress and cover brown band (18) more than in step 17.
<b>NOTE</b>	
Brown band shall still be visible.	
24. Set NO. 2 ENGINE CONDITION control lever (13) to STOP. Remove topping stop(20).	
<b>CAUTION</b>	
Make sure topping stop is removed from engine. If it is not, engine emergency power capability will be disabled. Damage to aircraft or components may result.	

FOLLOW-ON MAINTENANCE:  
 TM 55-1520-240-23:  
 Electrical Power Off  
 Battery Disconnected

4-5.4 ENGINE NO. 1 OR NO. 2 COND CONT CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

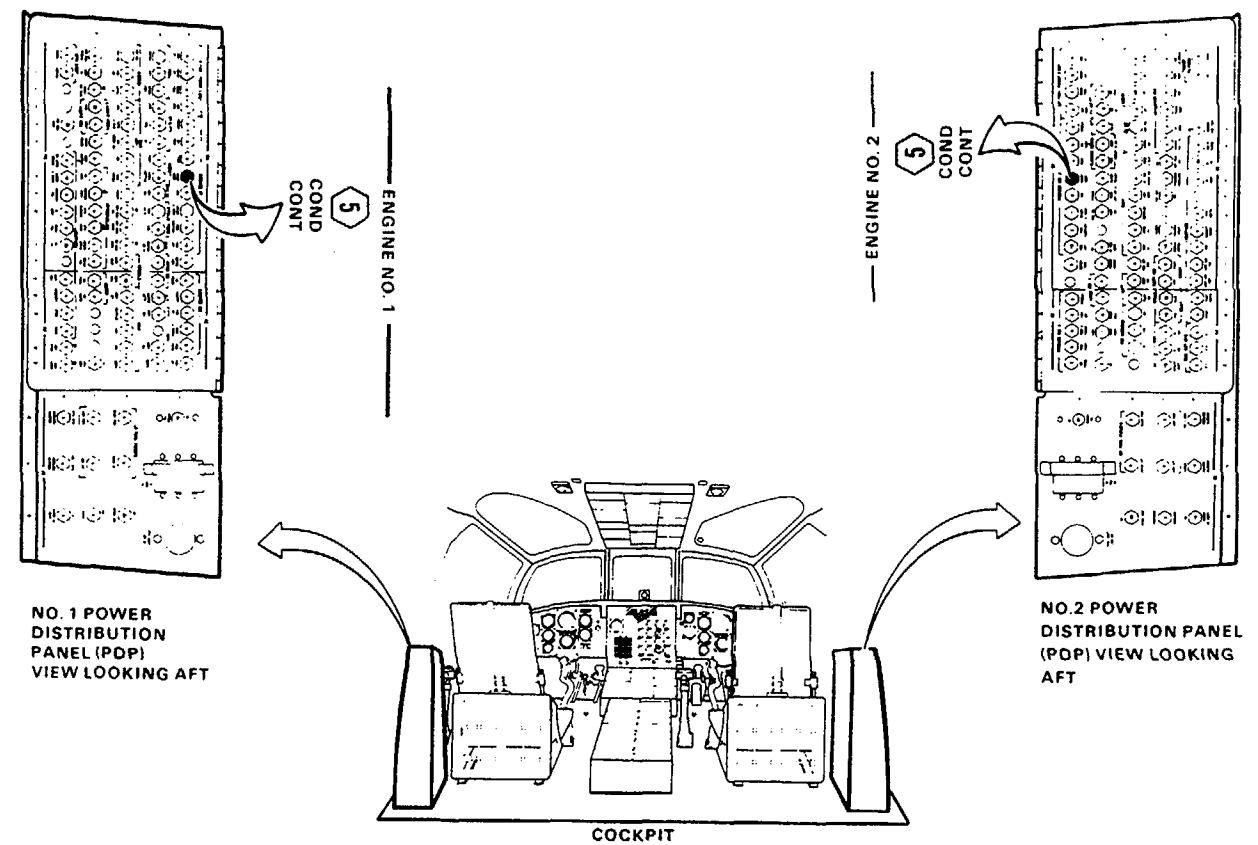
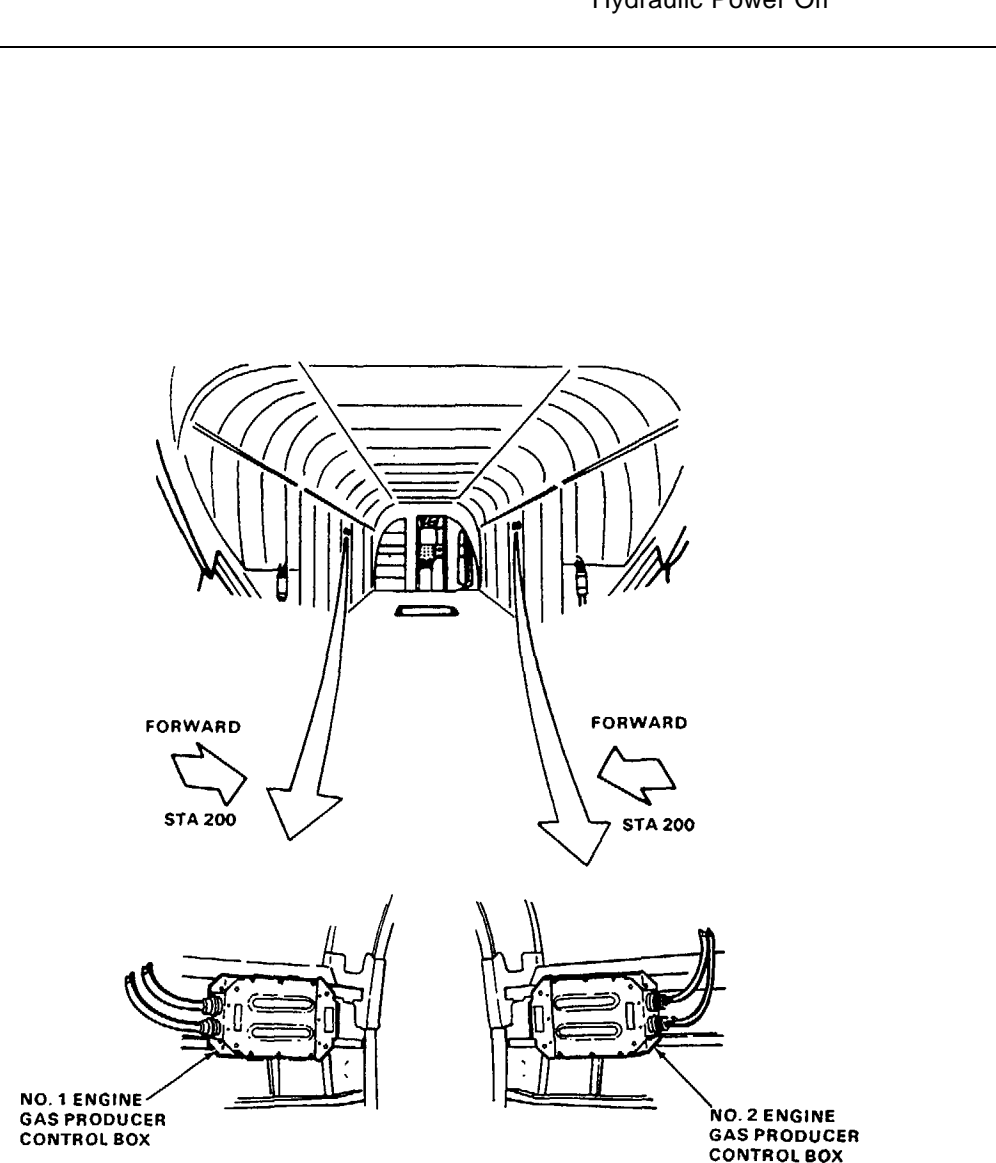
**Equipment Condition:**

TM 55-1520-240-23

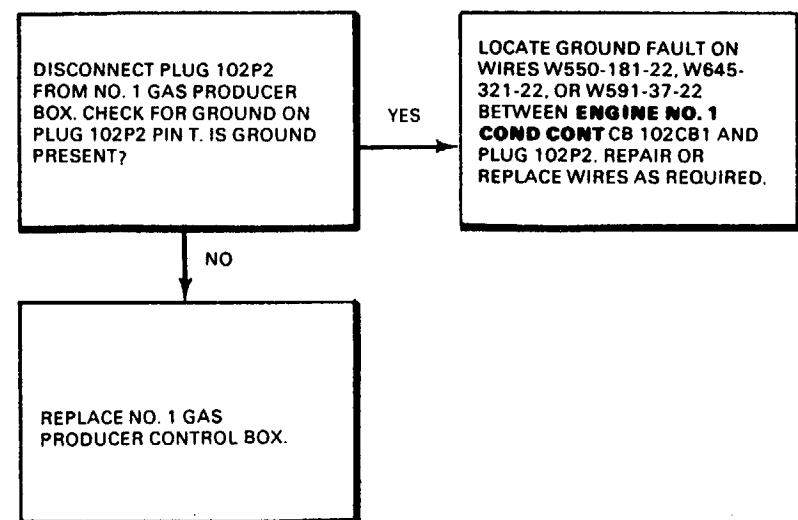
Battery Disconnected

Electrical Power Off

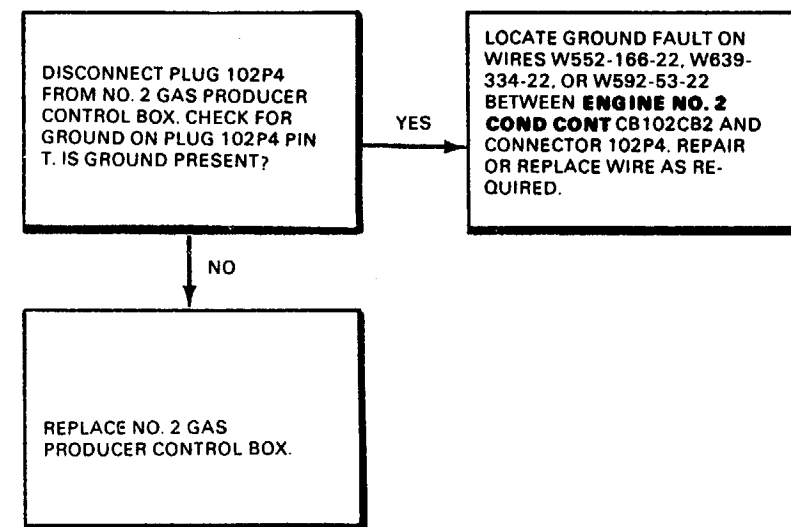
Hydraulic Power Off



**ENGINE NO. 1 COND CONT CIRCUIT BREAKER  
WILL NOT STAY CLOSED**



**ENGINE NO. 2 COND CONT CIRCUIT BREAKER  
WILL NOT STAY CLOSED**



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

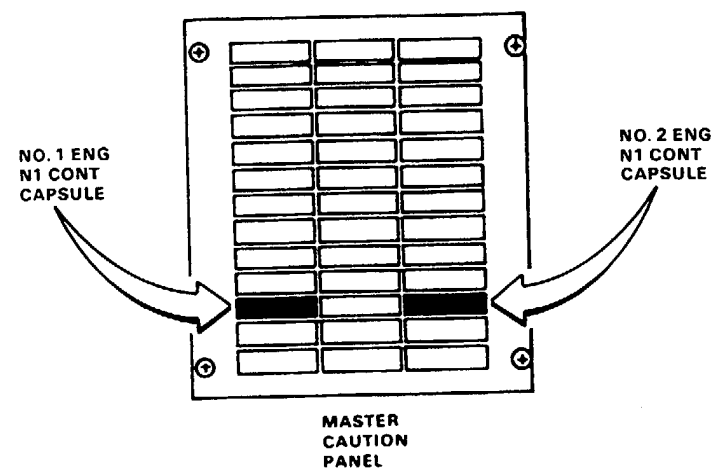
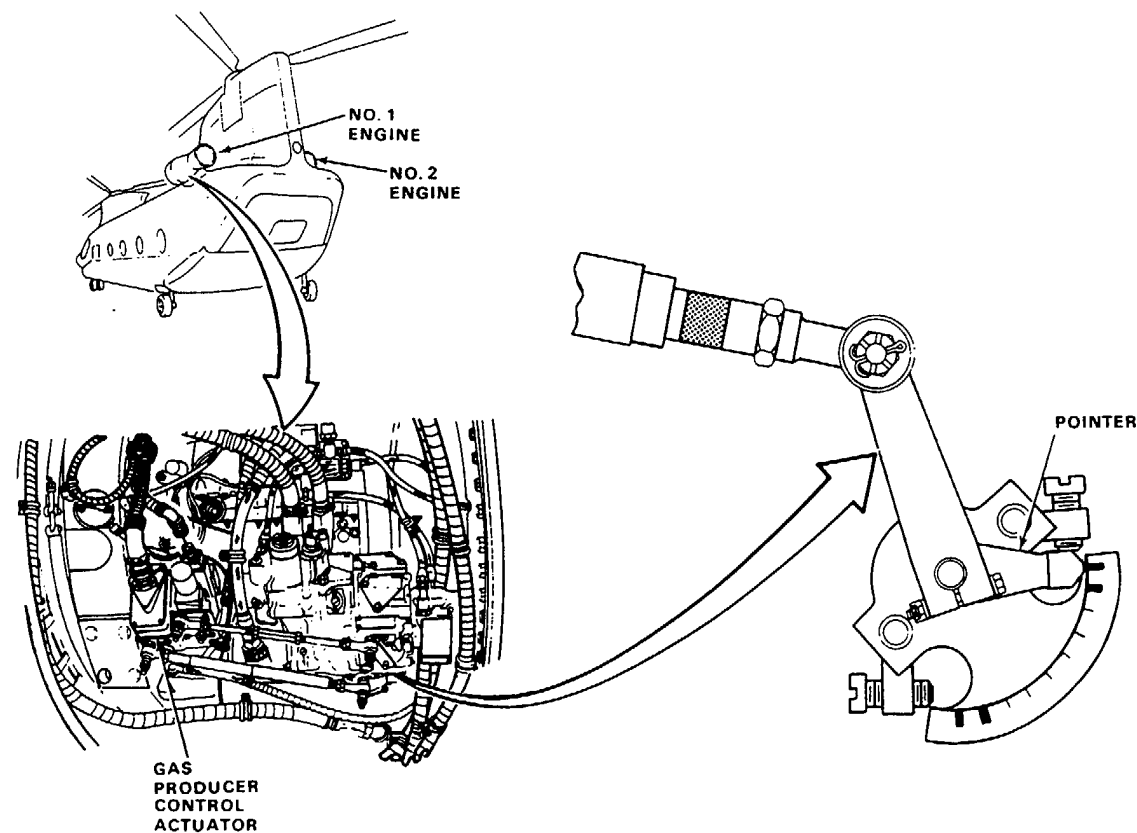
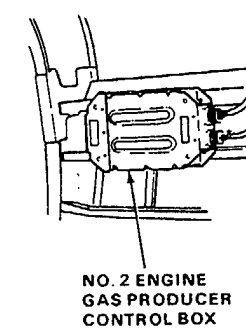
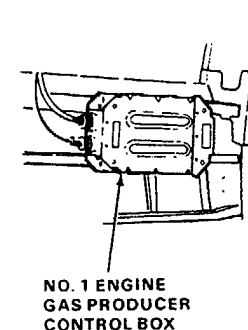
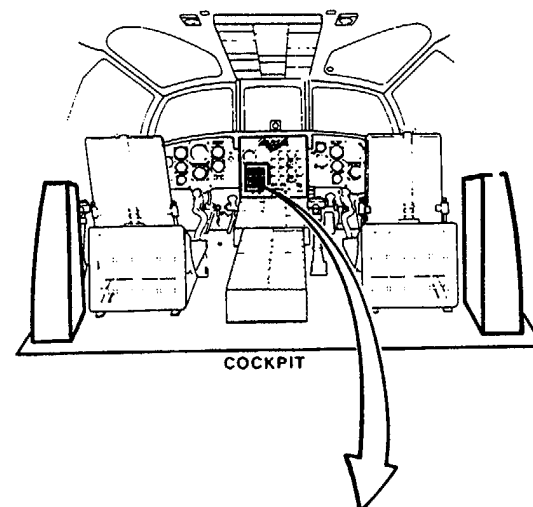
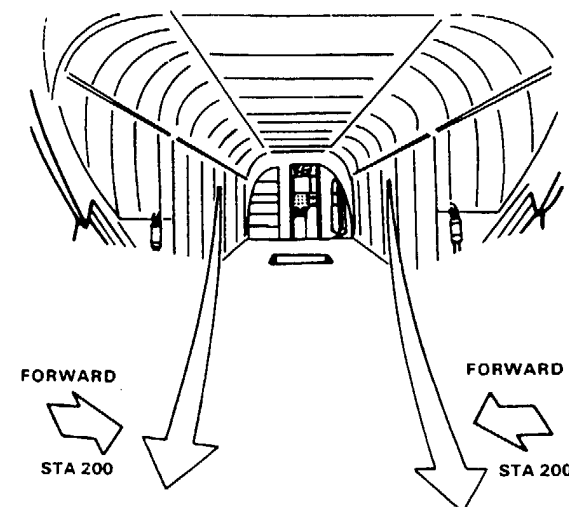
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

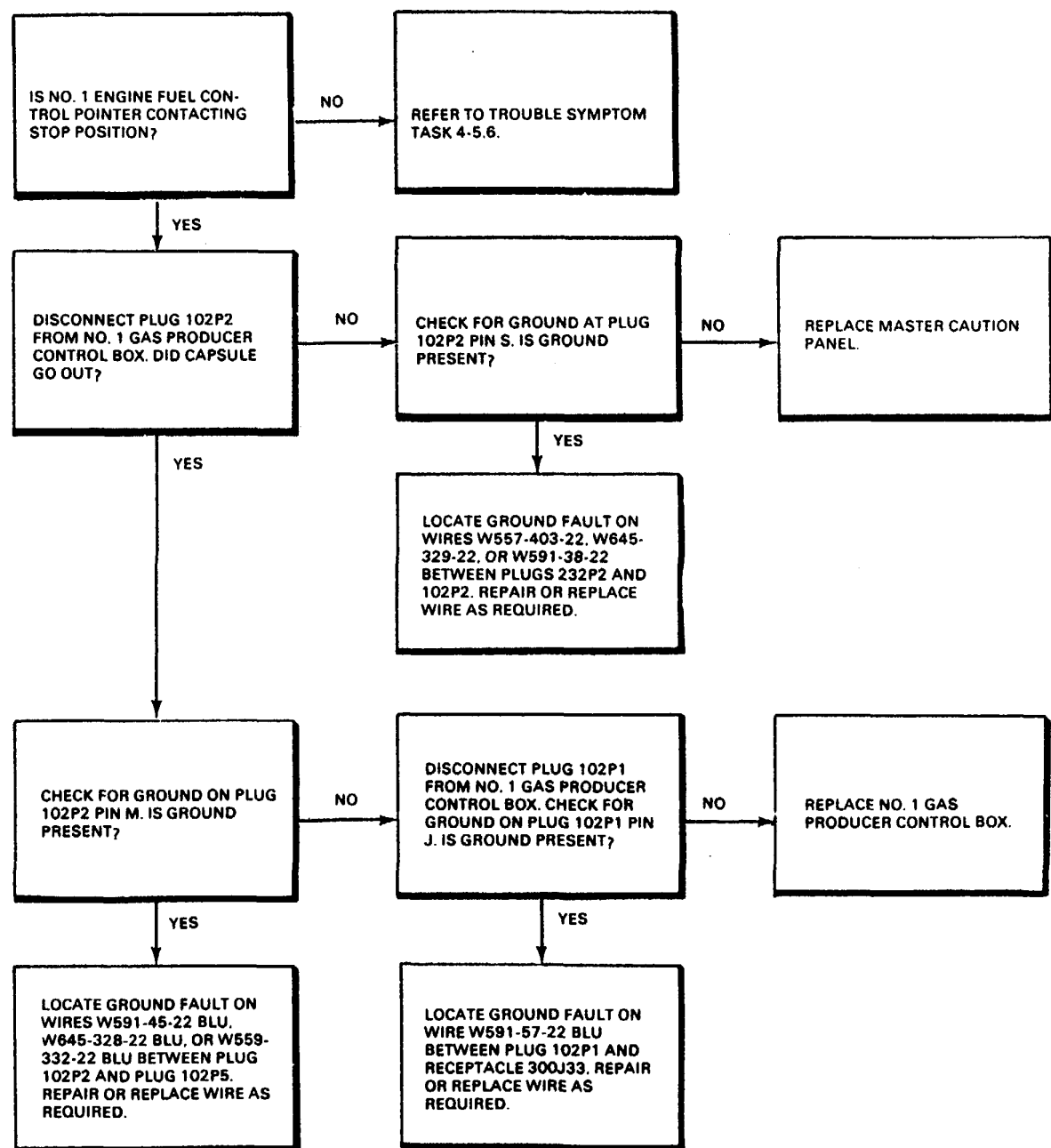
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off

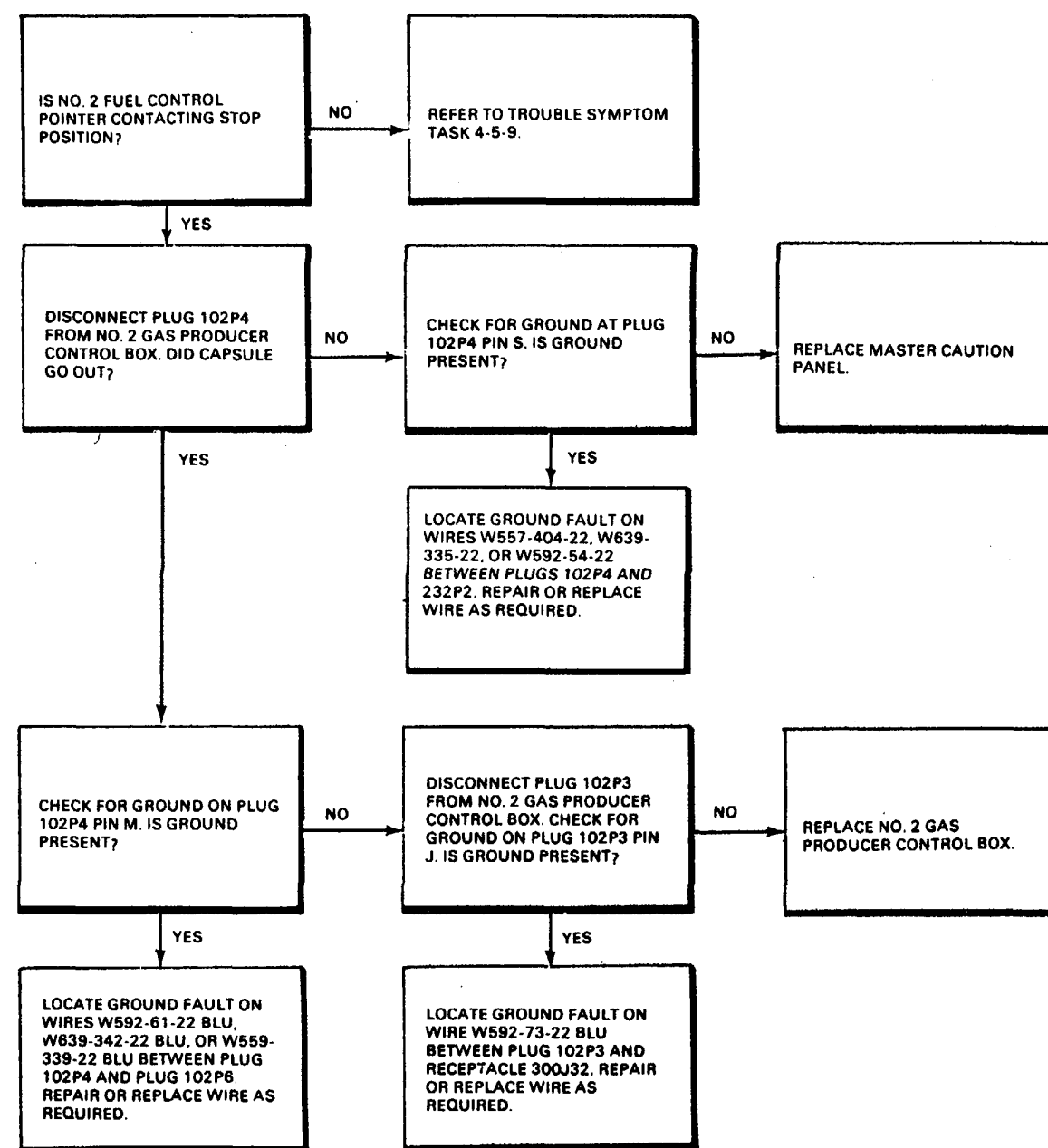




NO. 1 ENG N1 CONT CAPSULE IS LIT



NO. 2 ENG N1 CONT CAPSULE IS LIT



4-5.6 NO. 1 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter
- Test Harness Set (T115)

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

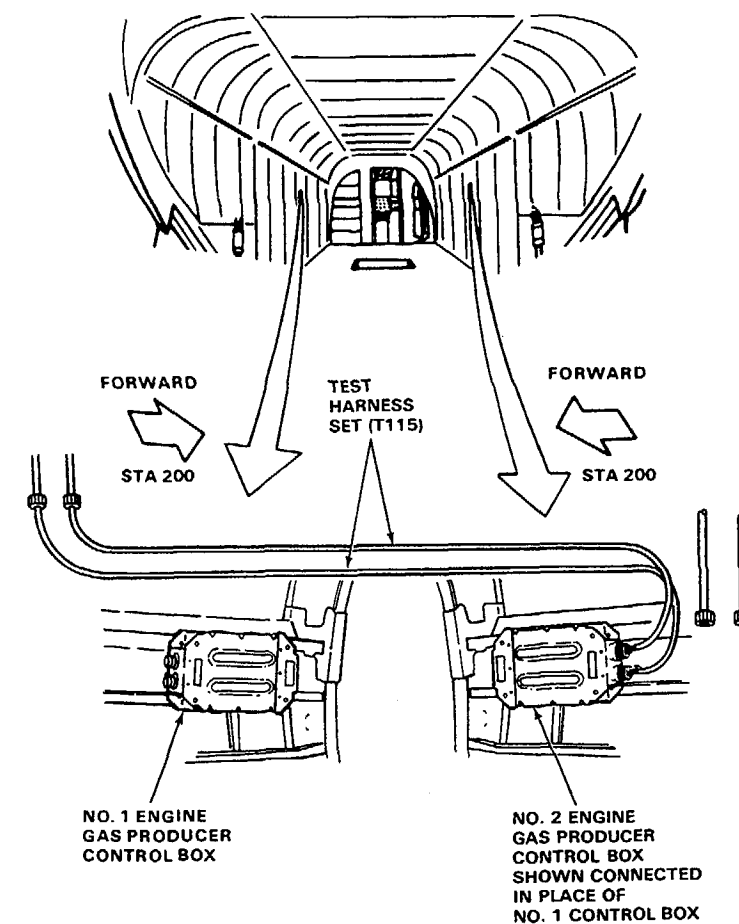
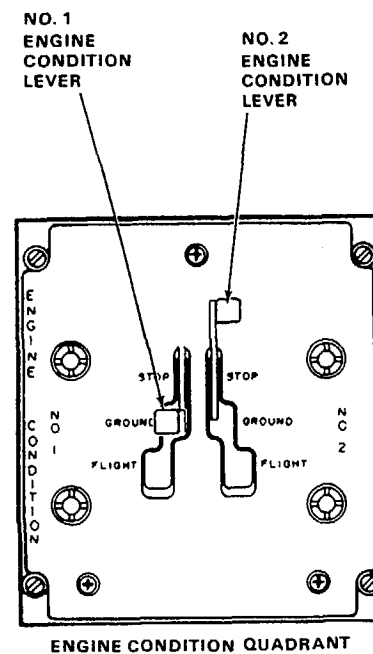
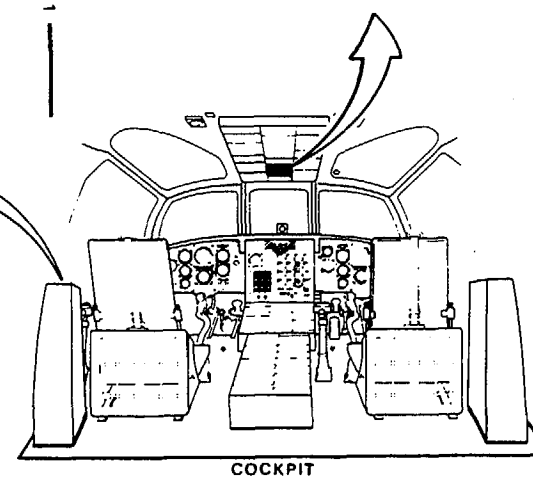
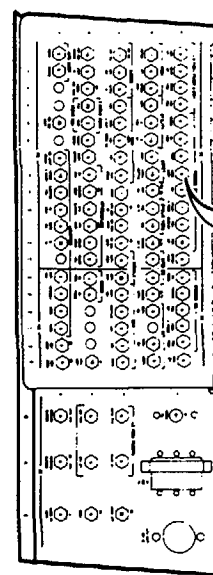
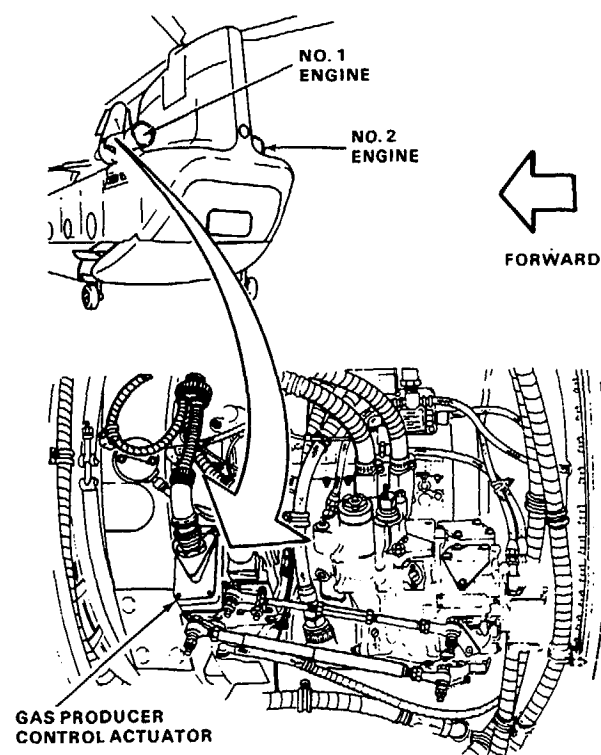
**References:**

TM 55-1520-240-23

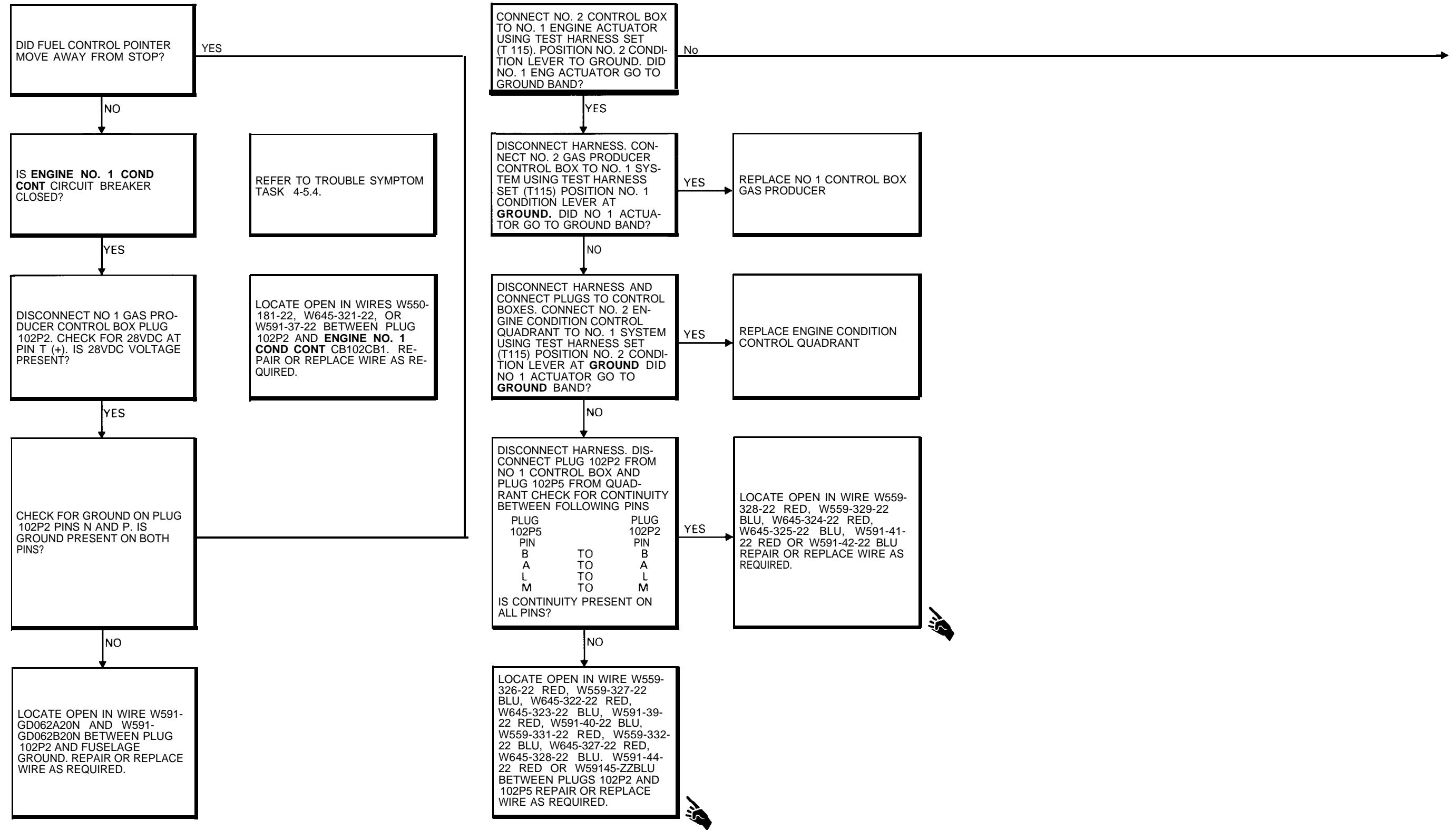
**Equipment Condition:**

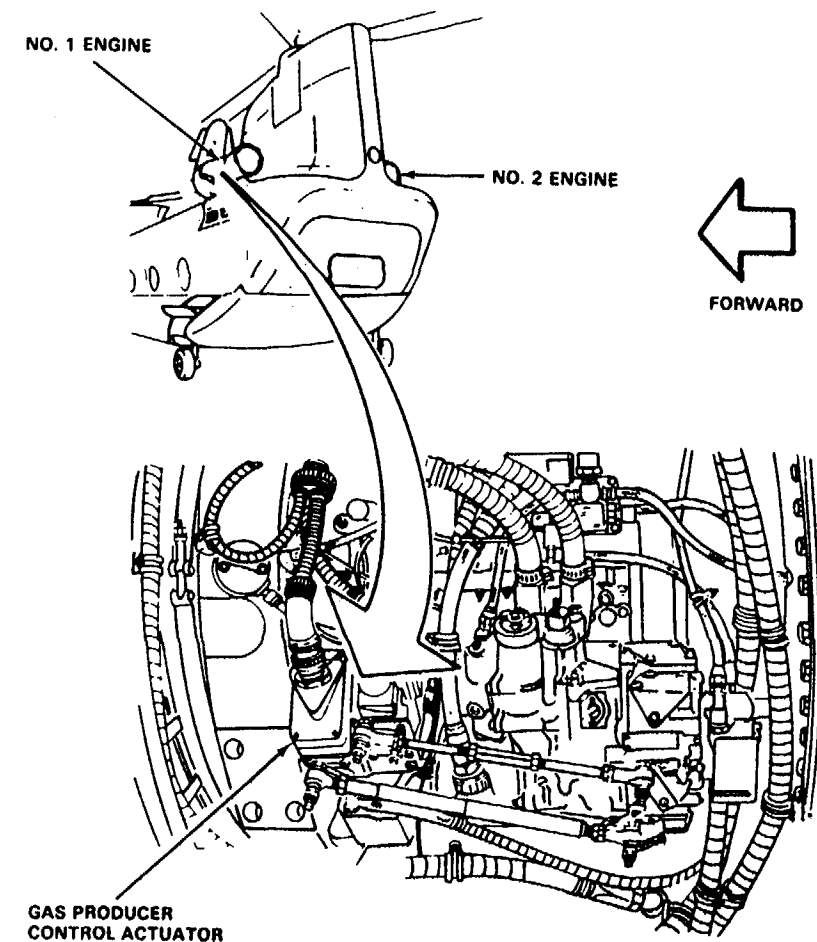
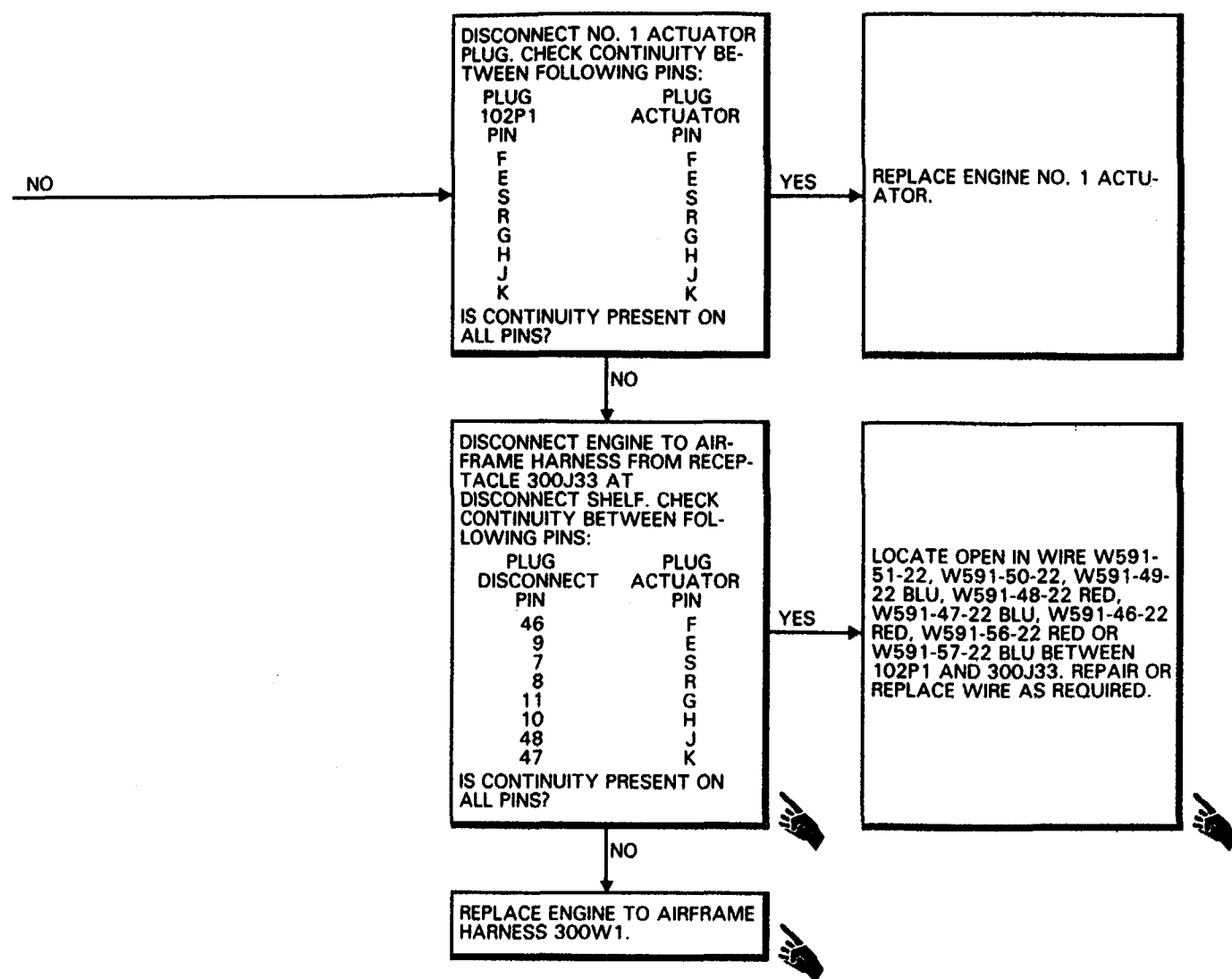
TM 55-1520-240-23:

- Battery Connected
- Electrical Power On
- Hydraulic Power Off



4-5.6 NO. 1 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND (Continued)





4-5.7 NO. 1 ENG N1 CONT CAPSULE DOES NOT COME ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

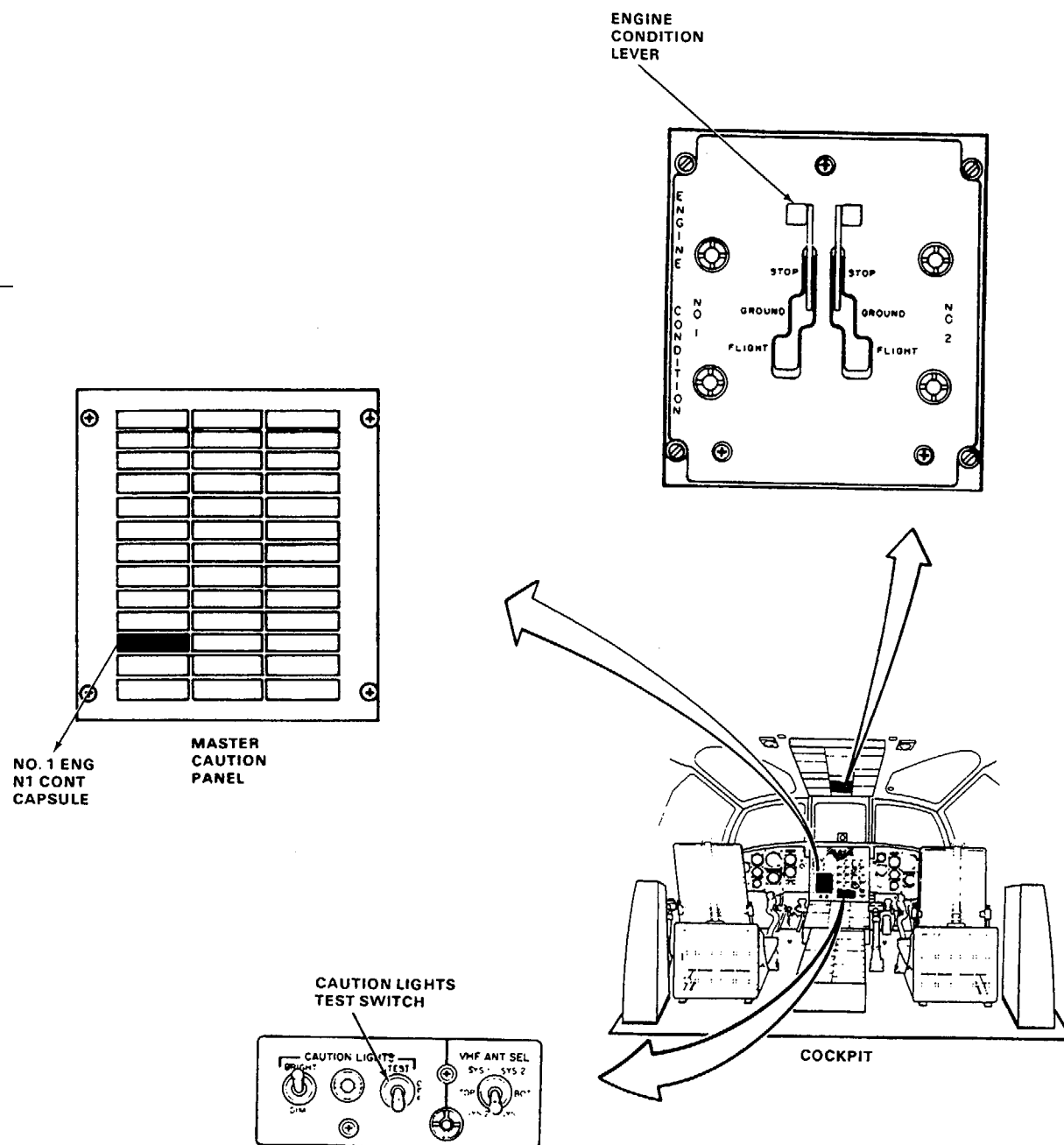
Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

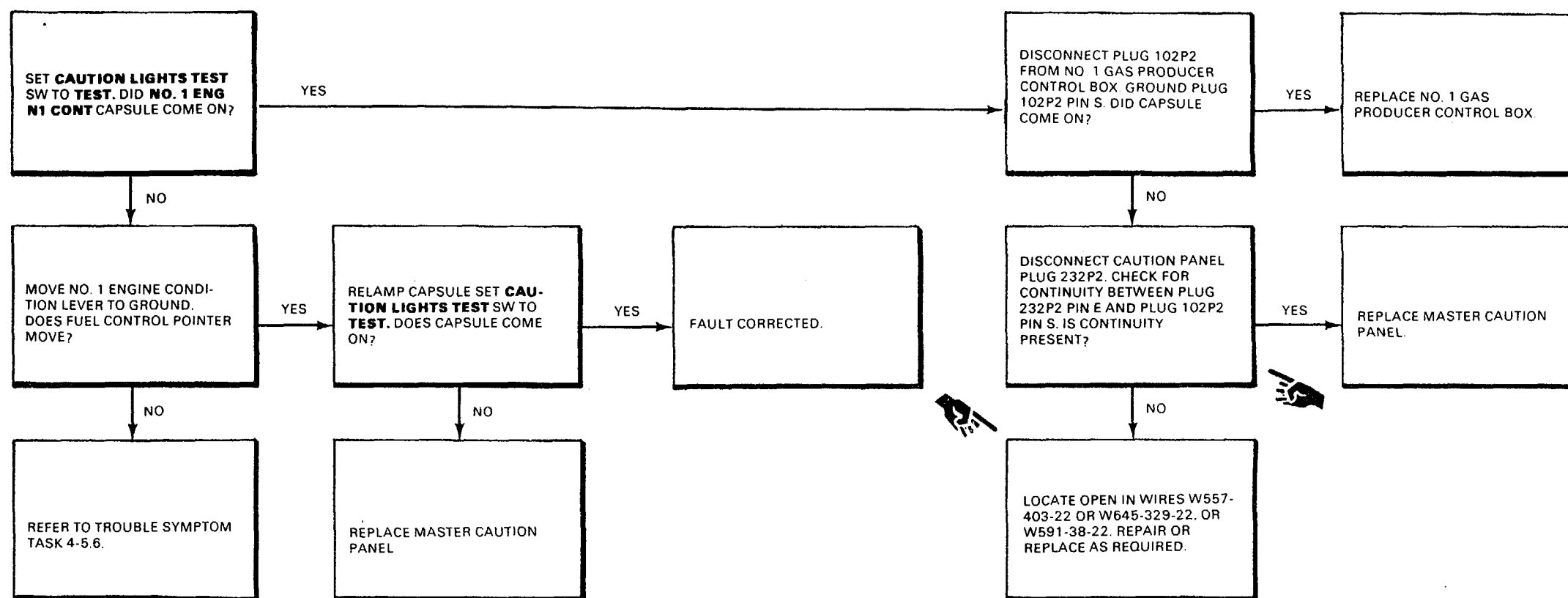
**Equipment Condition:**

TM 55-1520-24023:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



45 X 54

D145-11695-SPA



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
Without 74

**Tools:**  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**  
None

**Personnel Required:**

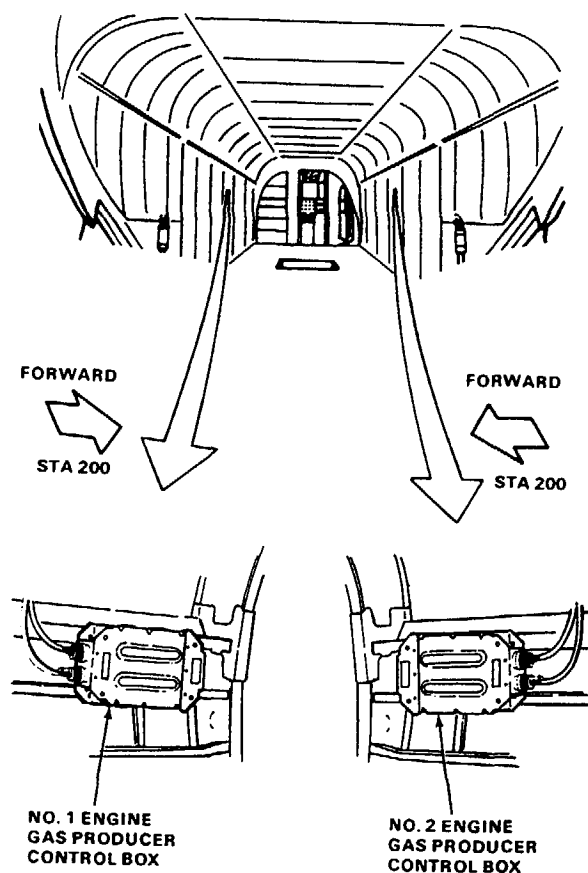
Medium Helicopter Repairer (2)

**References:**

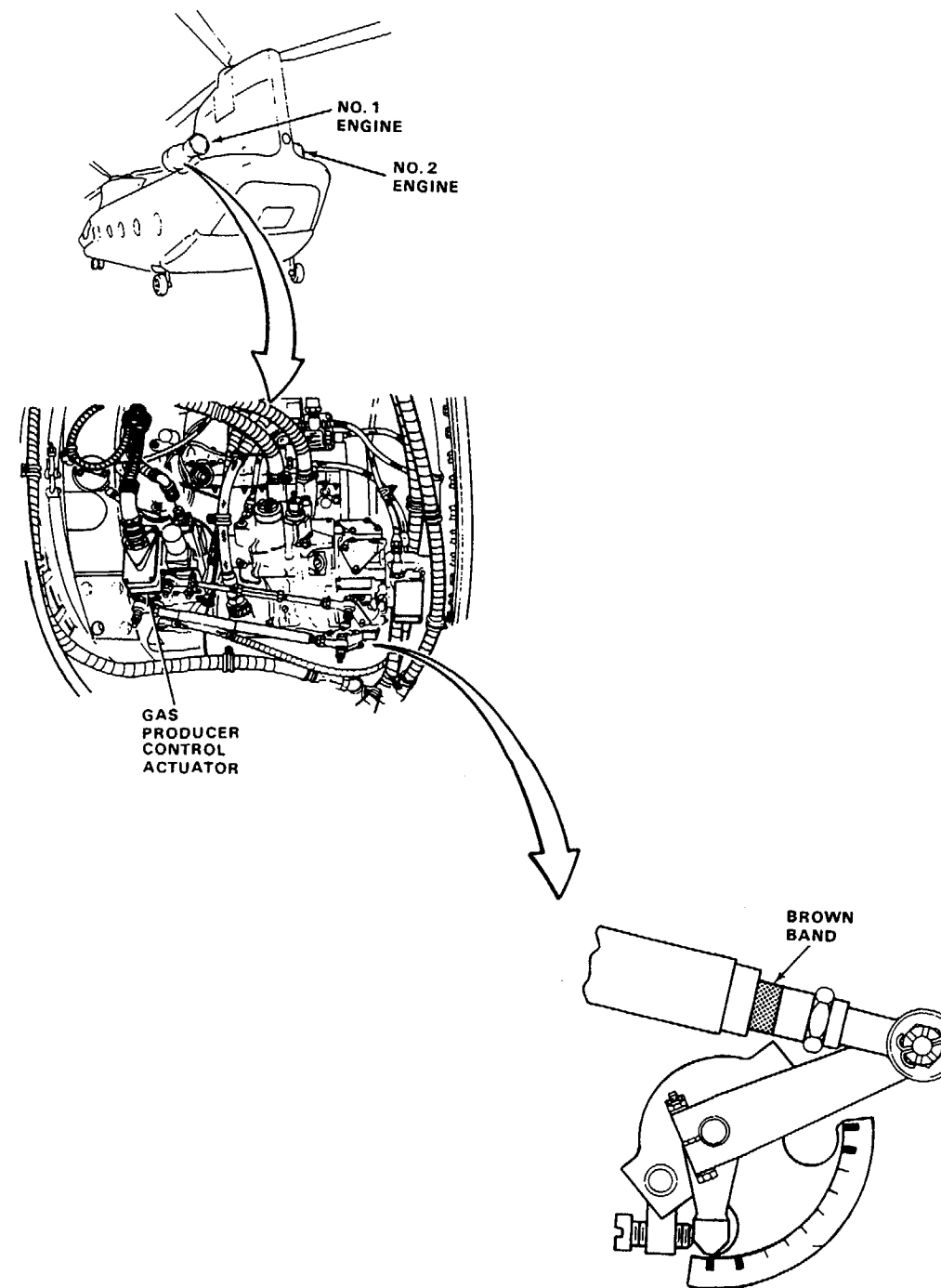
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



90 X 54

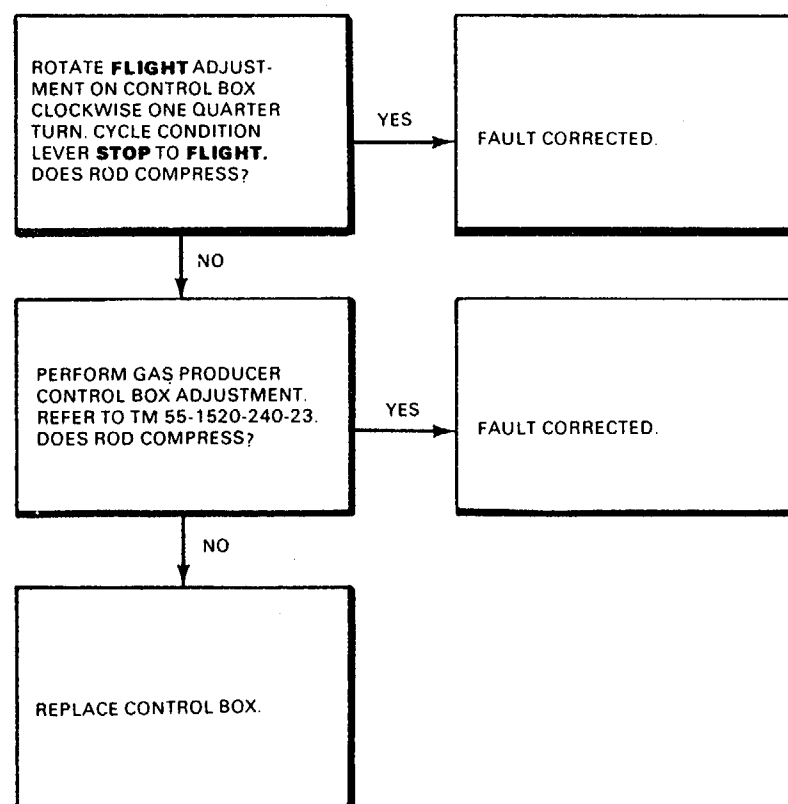


D145-11696-SPA

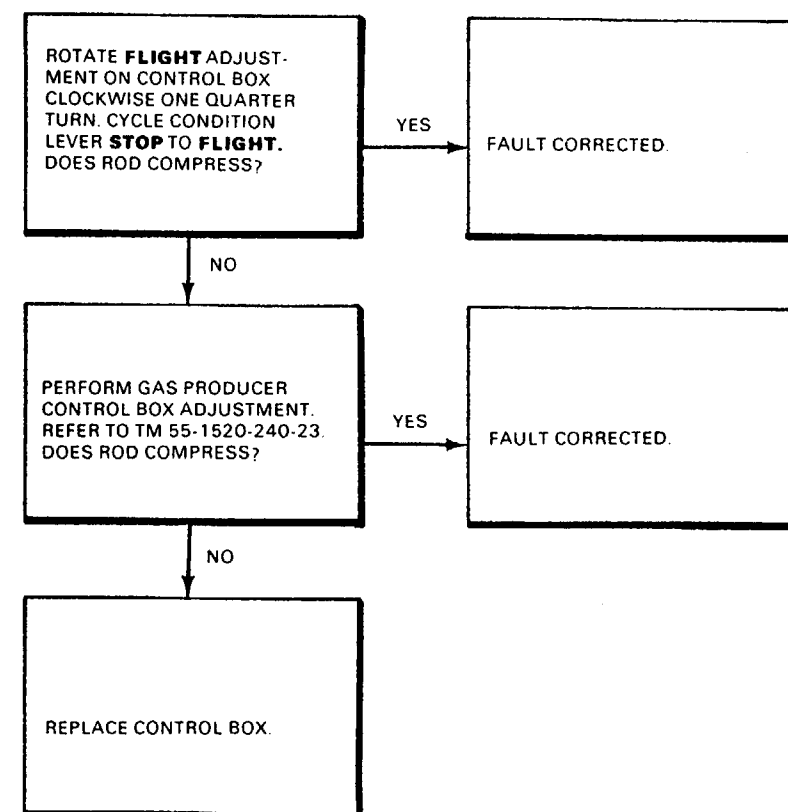
4-5.8 NO. 1 ENGINE OR NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MAKE CONTACT WITH STOP OR BROWN BAND IS NOT PARTIALLY COVERED (Continued)

4-5.8

NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MAKE CONTACT WITH STOP OR BROWN BAND IS NOT PARTIALLY COVERED



NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MAKE CONTACT WITH STOP OR BROWN BAND IS NOT PARTIALLY COVERED





4-5.9 NO. 2 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND

INITIAL SETUP

**Applicable Configurations:**  
Without 74

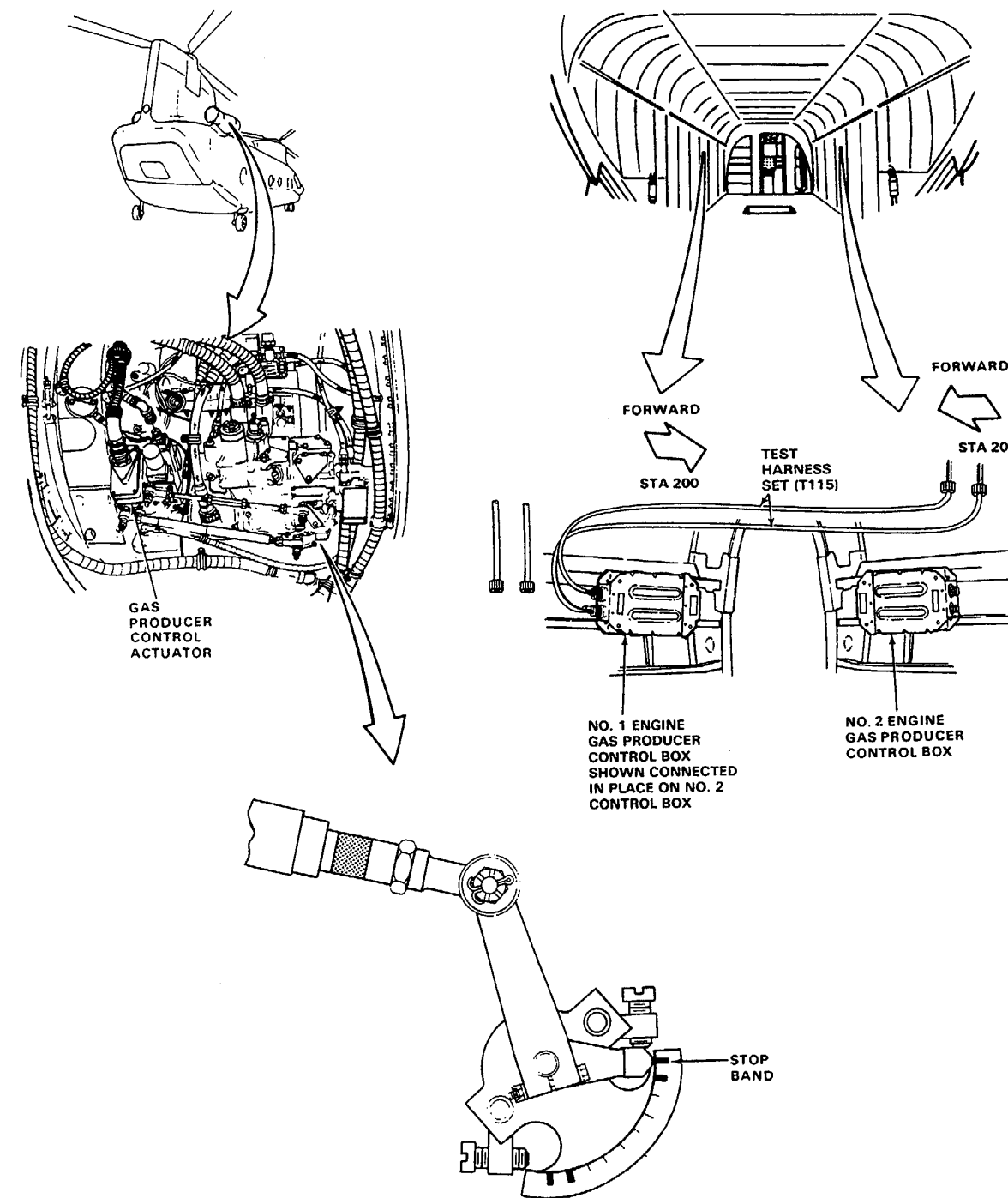
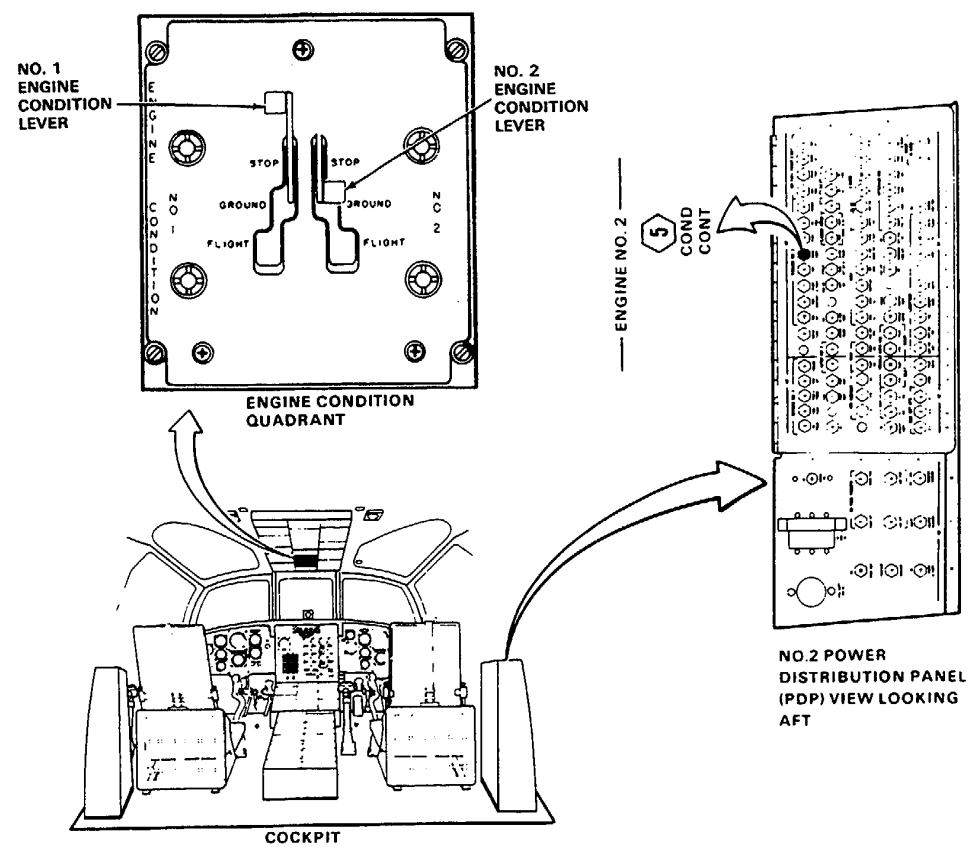
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter  
Test Harness Set (T115)

**Materials:**  
None

**Personnel Required:**  
Aircraft Electrician (2)

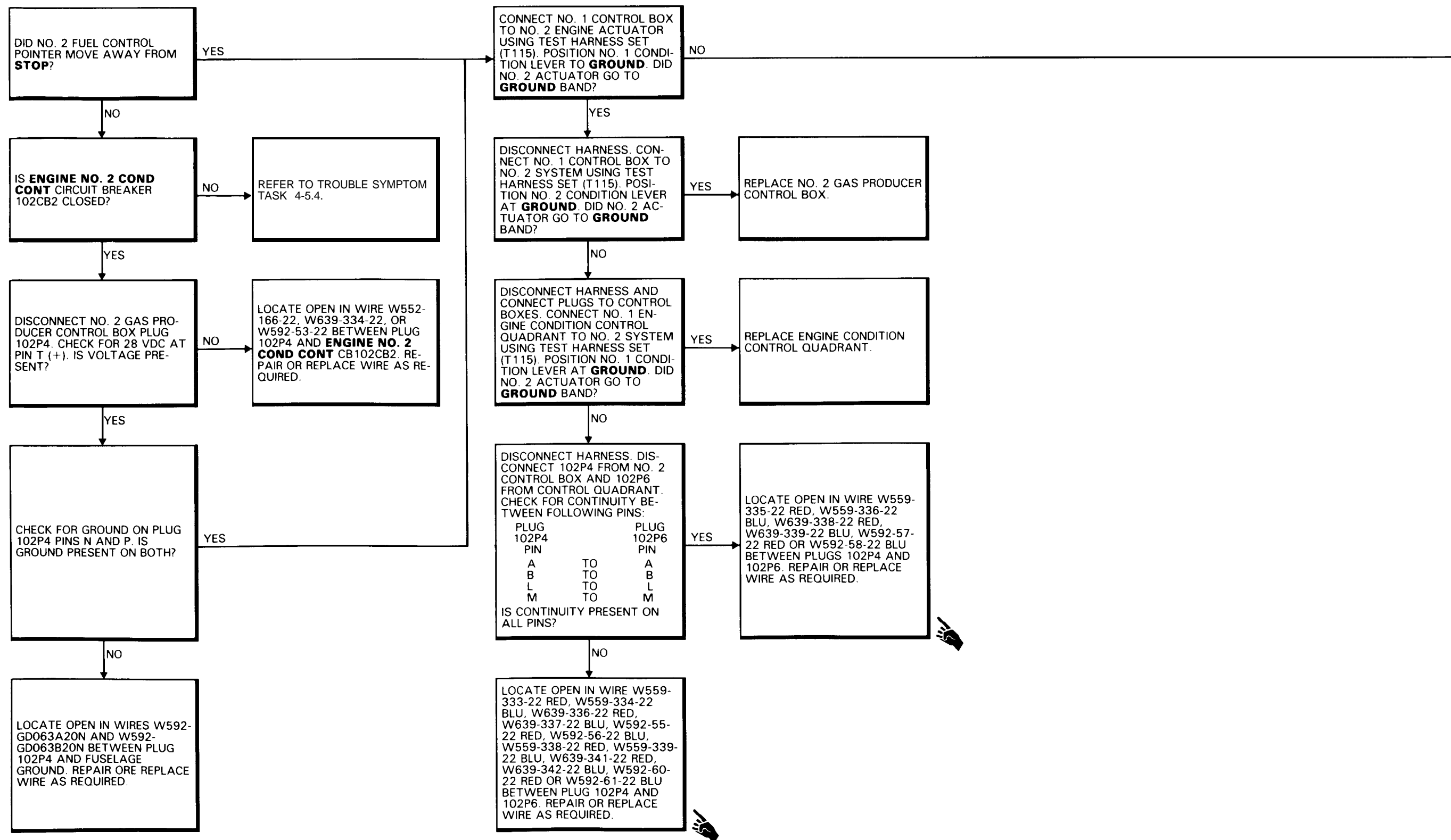
**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off

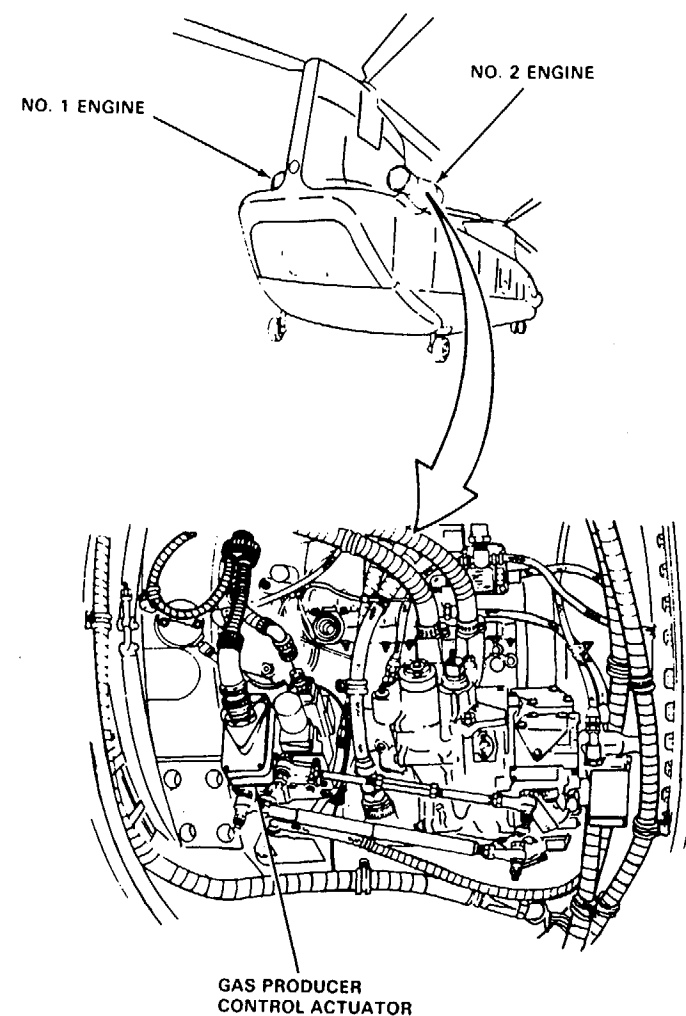
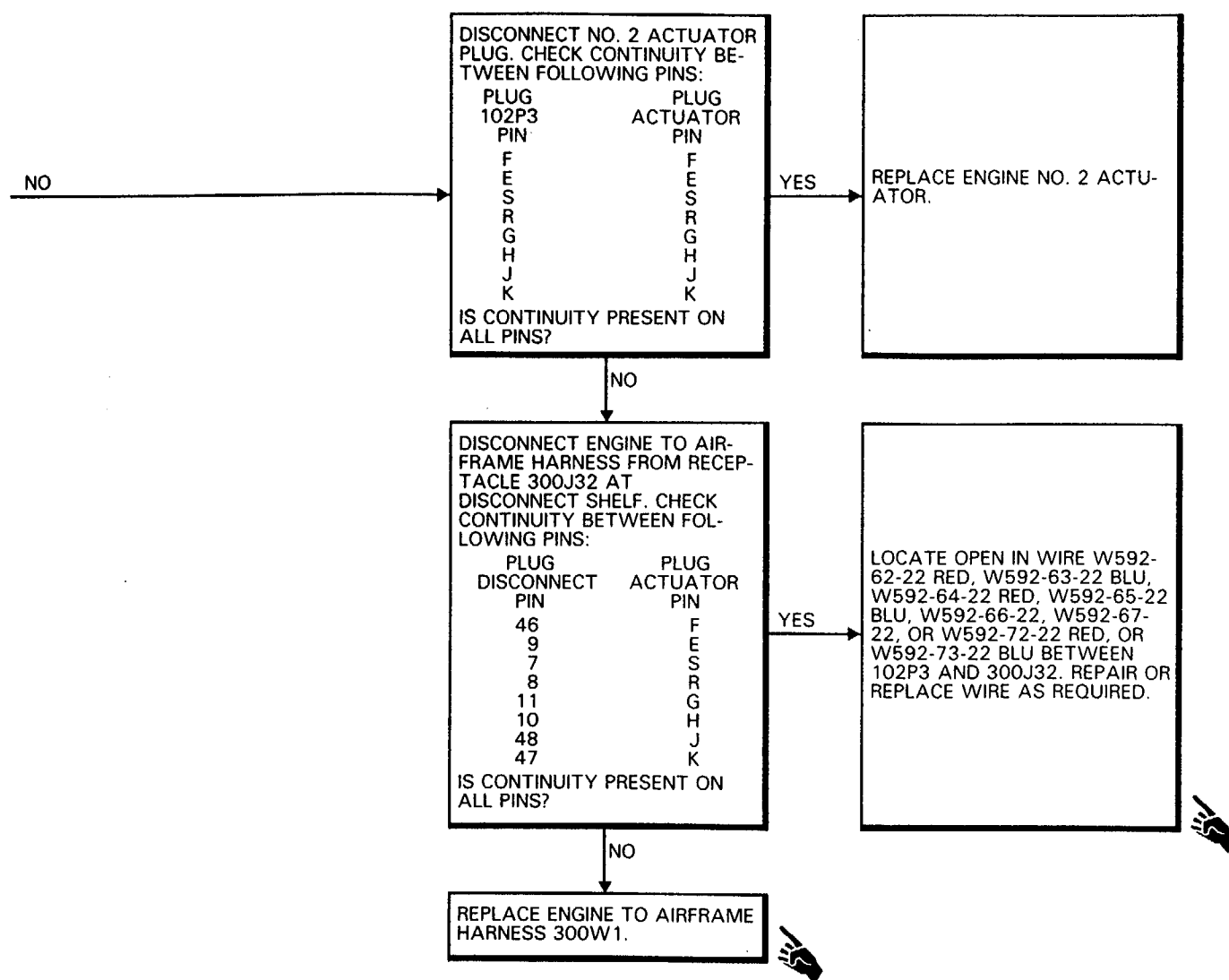


D145-11697-SPA

4-5.9 NO. 2 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND (Continued)



4-5.9 NO. 2 ENGINE FUEL CONTROL POINTER NOT AT GROUND BAND (Continued)



4-5.10 NO. 2 ENG N1 CONT CAPSULE DOES NOT COME ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

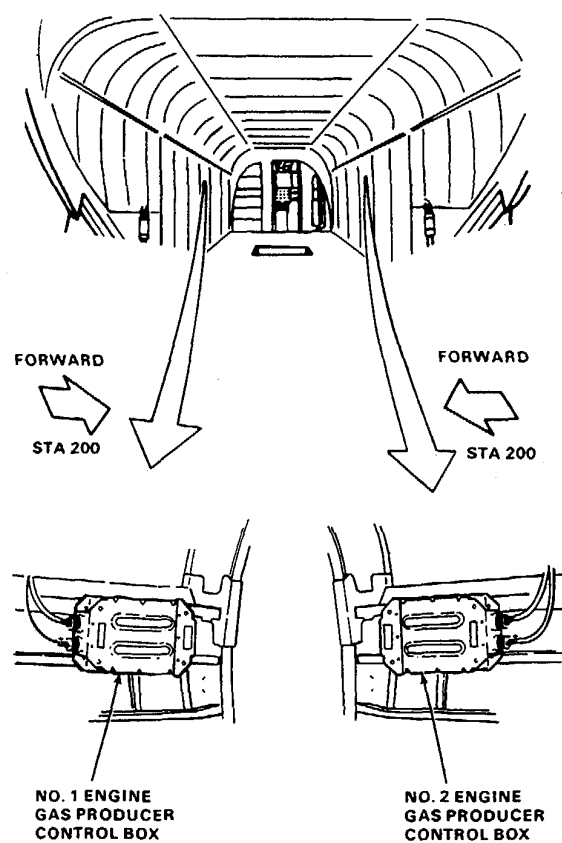
Aircraft Electrician (2)

**References:**

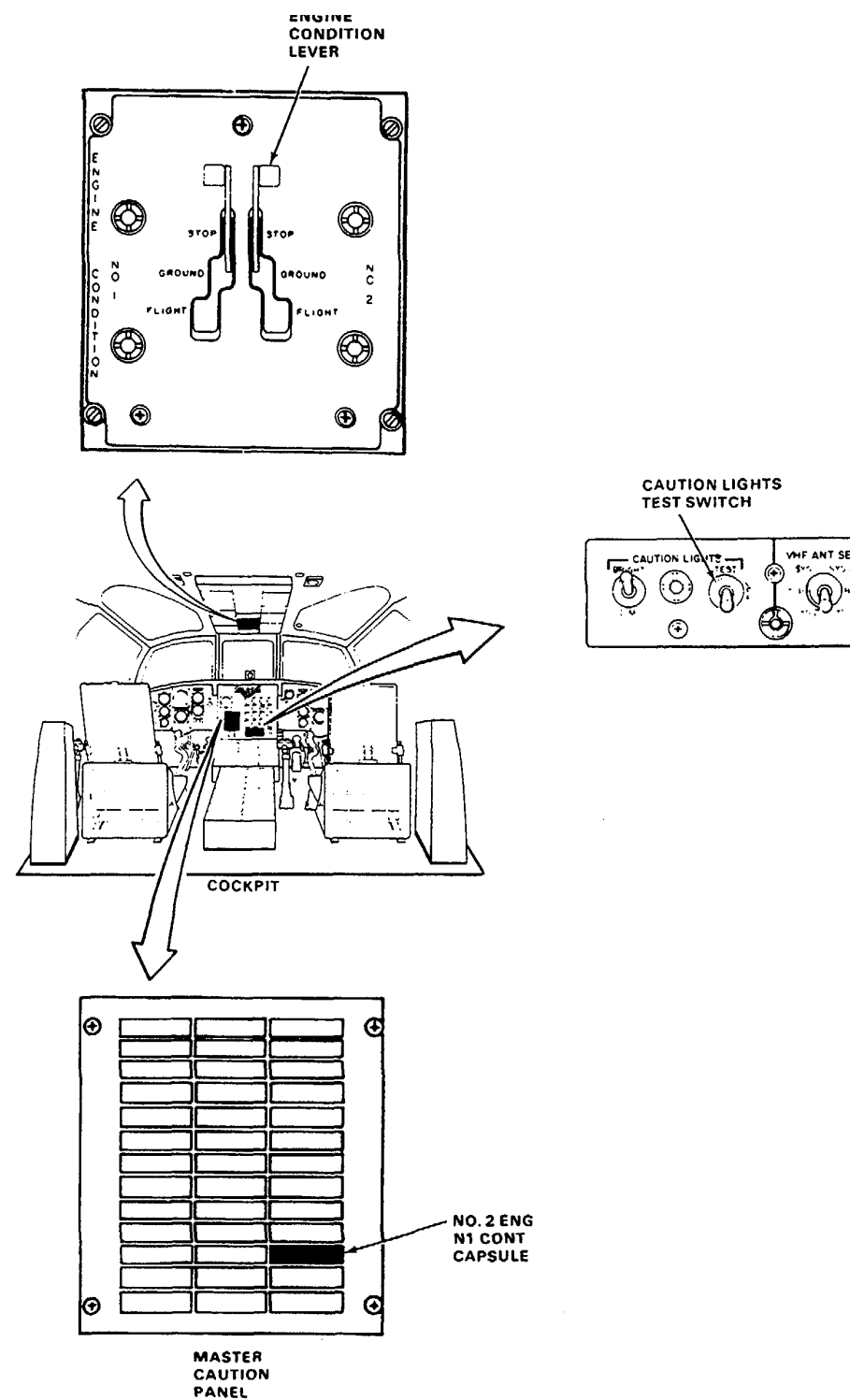
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off

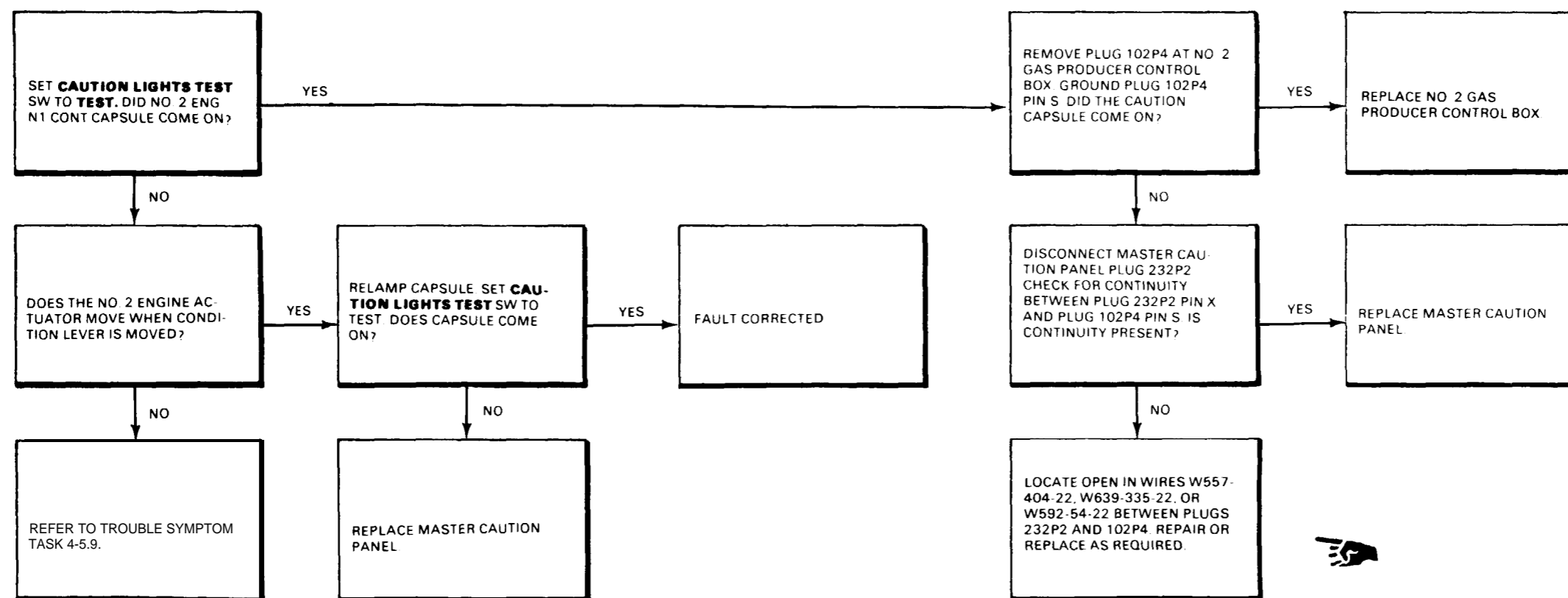


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D145-11698-SPA

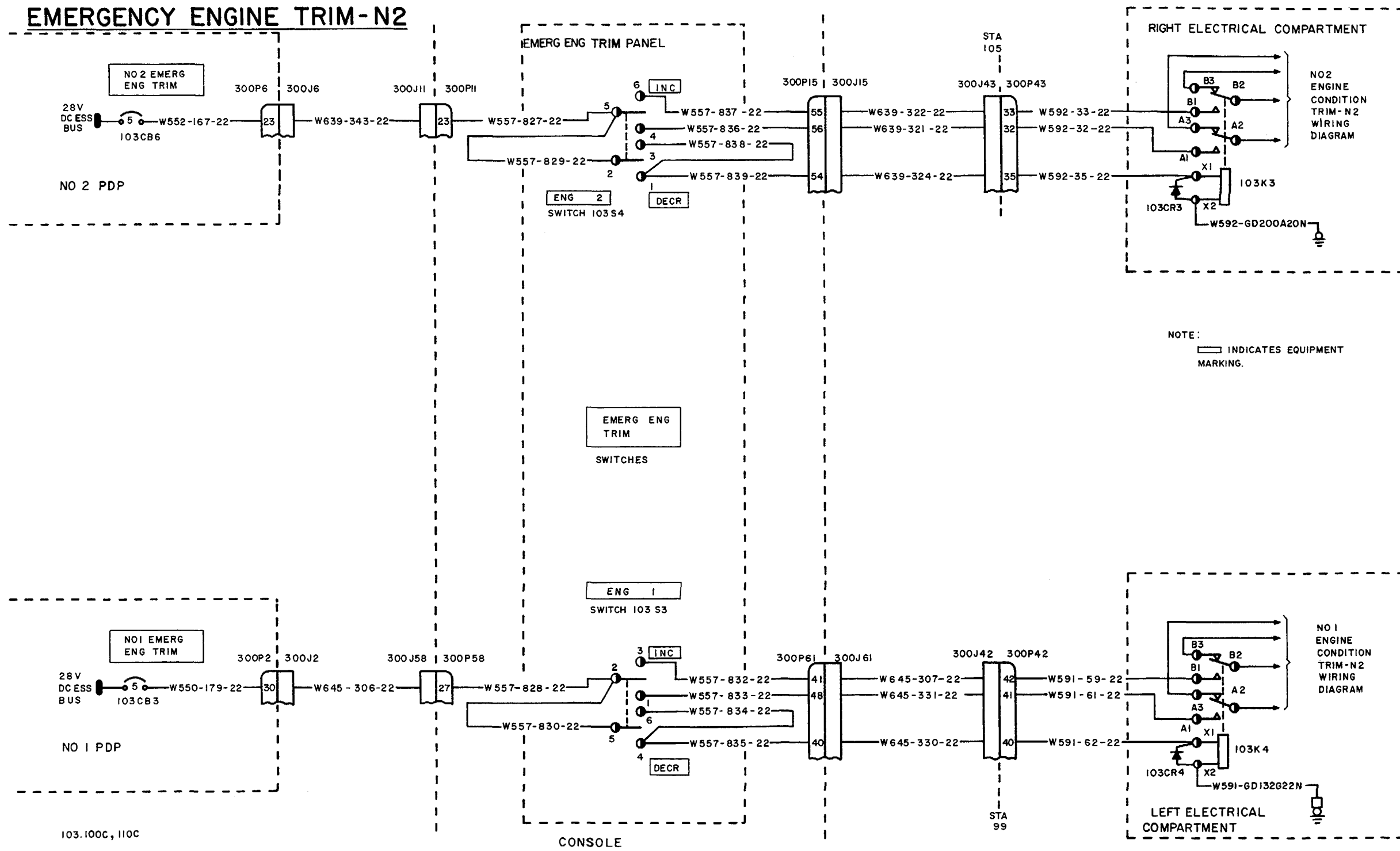
4-5.10 NO. 2 ENG N1 CONT CAPSULE DOES NOT COME ON (Continued)



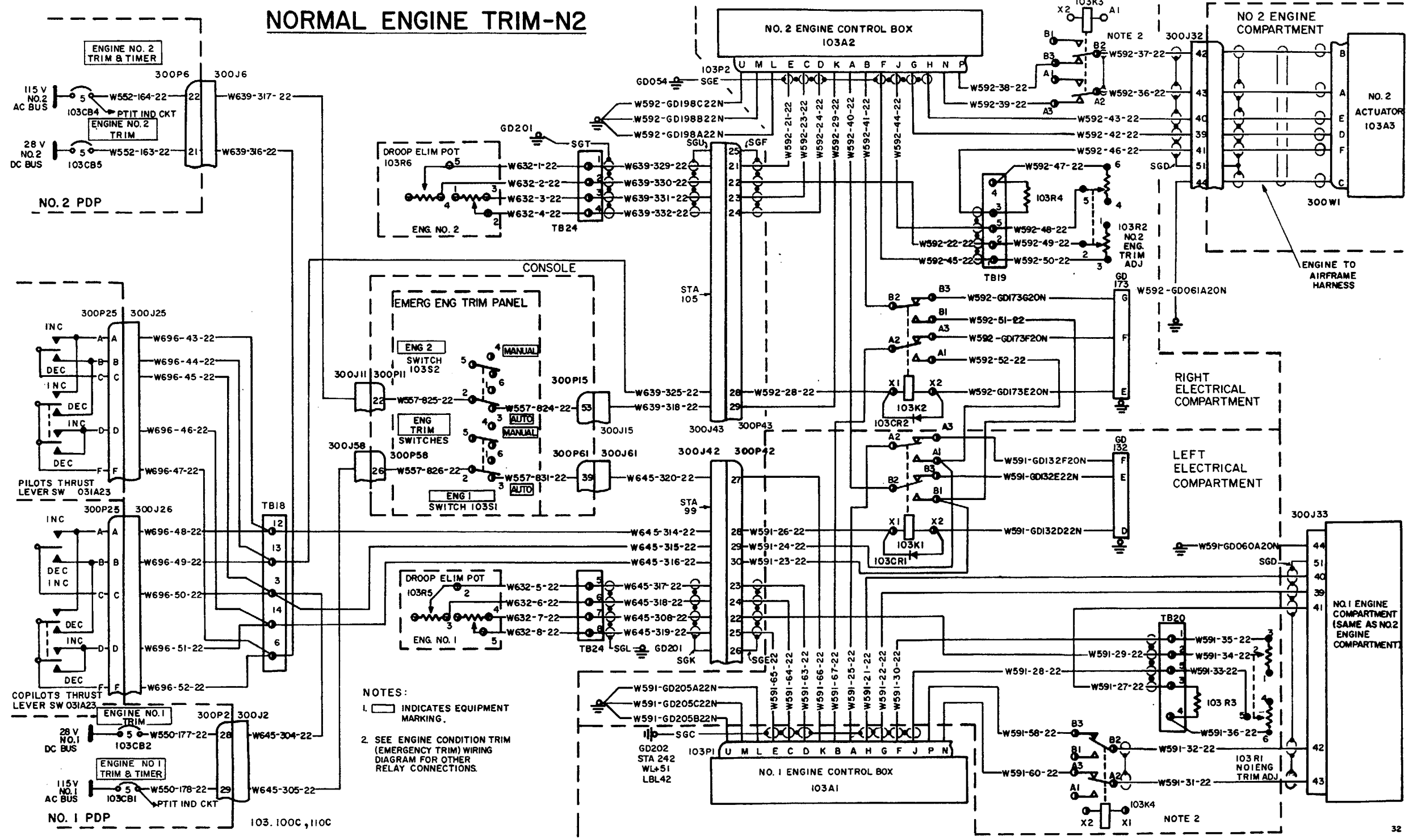
END OF TASK

SECTION 4-6 POWER TURBINE CONTROL SYSTEM (N2) (WITHOUT 74) |

WITHOUT 74

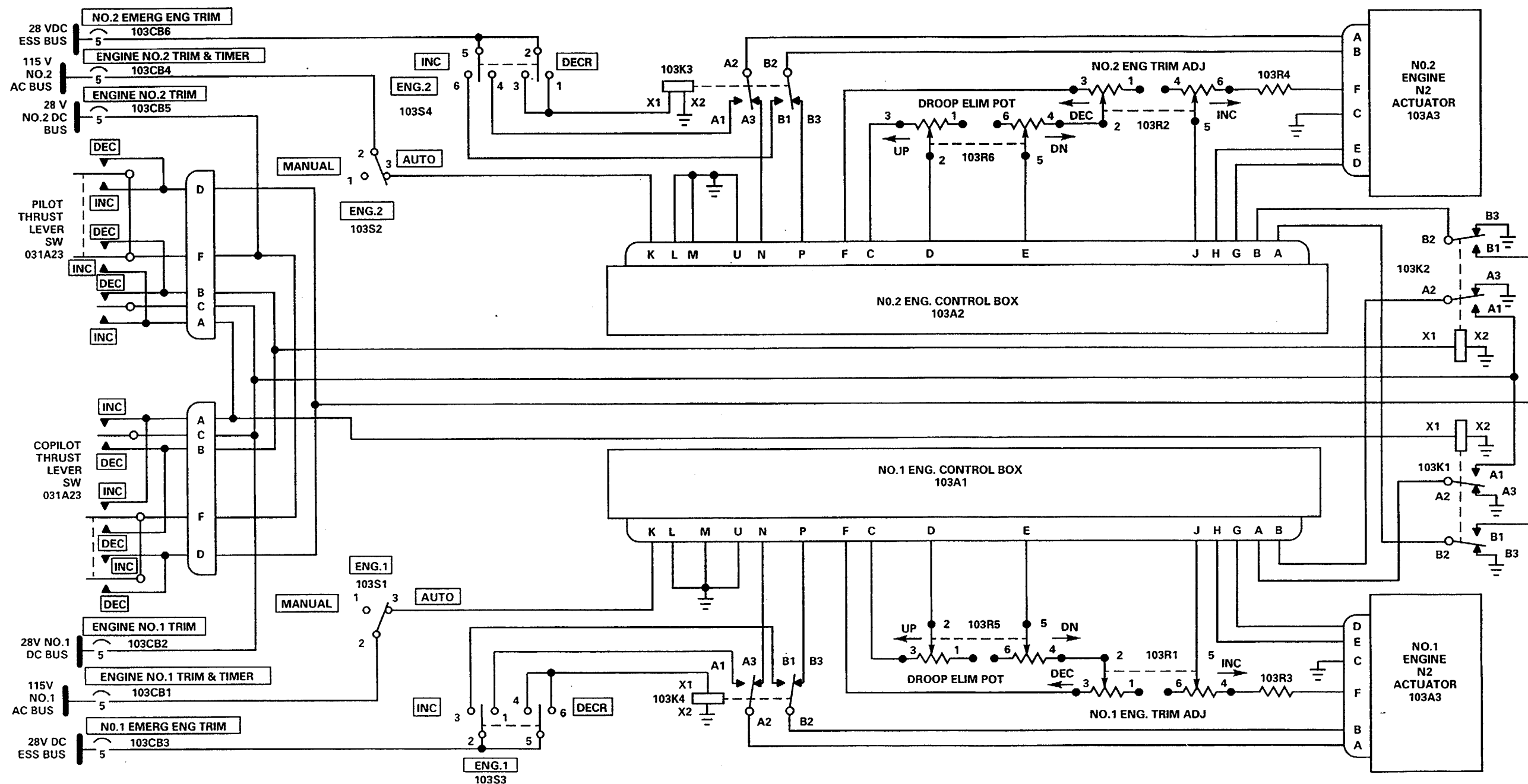


WITHOUT 74





WITHOUT 74



A8902

4-6.2 POWER TURBINE (N2) CONTROL SYSTEM VISUAL CHECK

FAULT ISOLATION PROCEDURE  
INITIAL SETUP

**Applicable Configurations:**  
Without **74**

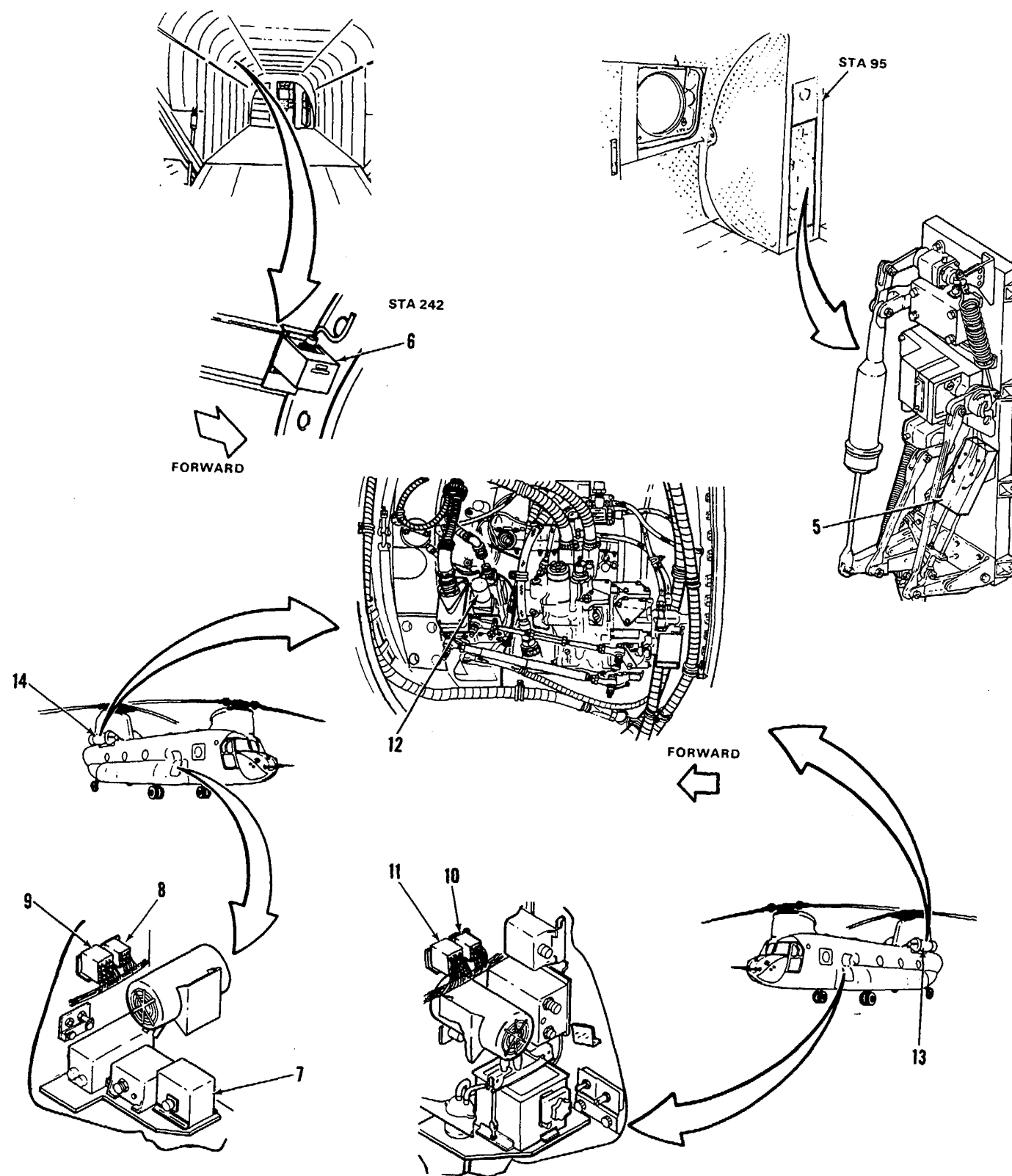
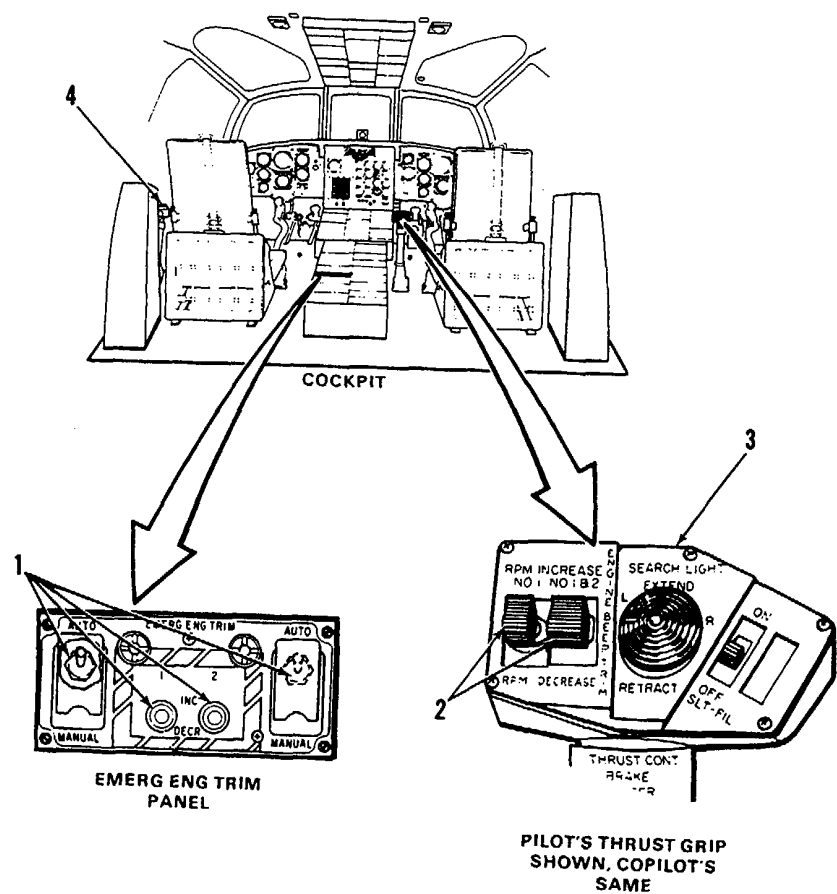
**Tools:**  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**  
None

**Personnel Required:**  
Medium Helicopter Repairer

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Controls Closet Acoustic Blanket Removed  
Controls Closet Panel Open  
Left and Right Electrical Compartment Access  
Doors Open  
N2 Control Box Access Cover Removed  
Engine Work Platforms Open  
Engine Access Covers Open



**4-6.2 POWER TURBINE (N2) CONTROL SYSTEM VISUAL CHECK**  
**(Continued)**

4-6.2

TASK	RESULT	FOLLOW-ON MAINTENANCE:
1. <b>Check four EMERG ENG TRIM switches (1).</b>	If any switch (1) is loose or damaged. tighten or replace it as required.	None
2. <b>Check two ENG INE BEEP TRIM switches (2)</b> on pilot's thrust lever grip (3).	If any switch (2) is loose or damaged, tighten or replace it as required.	
3. <b>Check two ENG INE BEEP TRIM switches (2)</b> on copilot's thrust lever grip (4).	If any switch (2) is loose or damaged, tighten or replace it as required.	
4. <b>Check two engine droop eliminator variable resistors (5).</b>	If either resistor is damaged, replace it. If wiring to either resistor is damaged, repair or replace it as required.	
5. <b>Check No. 1 N2 control box (6).</b>	If box (6) is loose or damaged, tighten or replace it as required. If connector to box is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.	
6. Check No. 2 N2 control box (7).	If box (7) is loose or damaged, tighten or replace it as required. If connector to box is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.	
7. <b>Check No. 2 engine trim relay (8) and No. 2 emergency engine trim relay (9).</b>	If either relay (8 or 9) is loose or damaged, tighten or replace it as required. If wiring to either relay is loose or damaged, tighten or replace it as required.	
8. Check No 1 engine trim relay (10) and No 1 emergency engine trim relay (11)	If either relay (10 or 11) is loose or damaged, tighten or replace it as required. If wiring to either relay is loose or damaged, tighten or replace it as required.	
9. <b>Check power turbine control actuator (12)</b> on No. 1 engine (13)	If actuator (12) is loose or damaged, tighten or replace it as required. If connector to actuator is loose or damaged. tighten or replace engine-to-airframe harness.	
10. <b>Check power turbine control actuator (12)</b> on No. 2 engine (14).	If actuator (12) is loose or damaged. tighten or replace it as required. If connector to actuator is loose or damaged. tighten or replace engine-to-airframe harness	

END OF TASK

4-6.3 POWER TURBINE CONTROL SYSTEM (N2) OPERATIONAL CHECK

4-6.3

INITIAL SETUP

**Applicable Configurations:**

Without **74**

**Tools:**

None

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer  
Aircraft Powerplant Repairer

**References:**

TM 55-1520-240-23

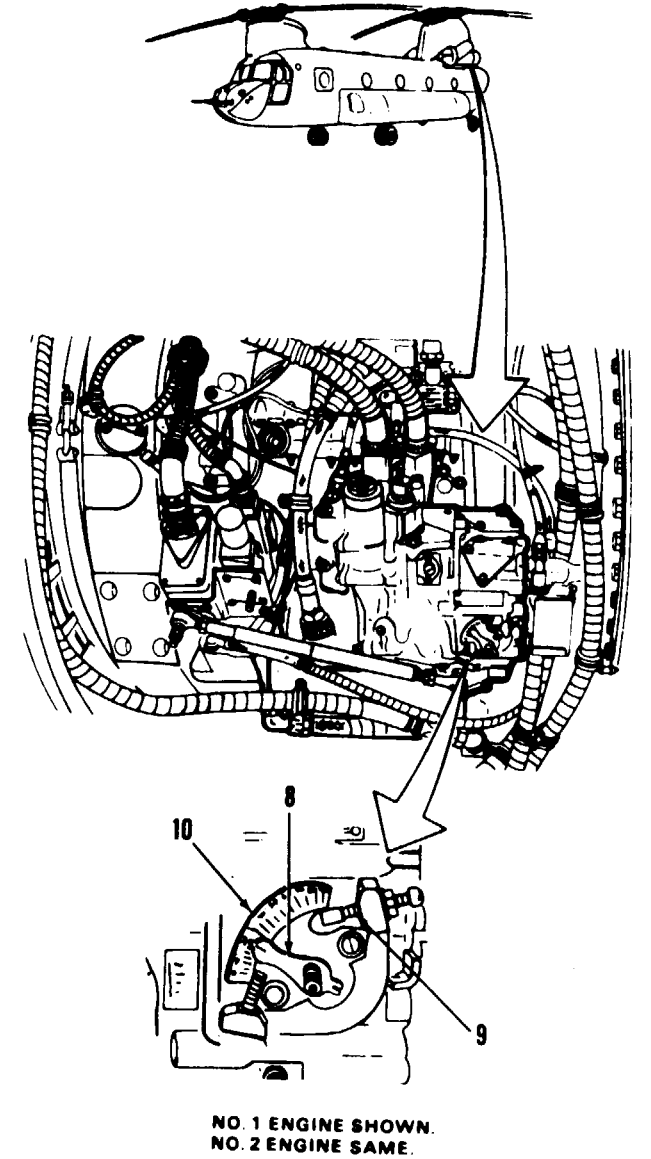
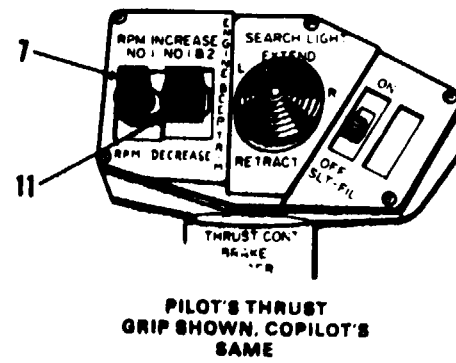
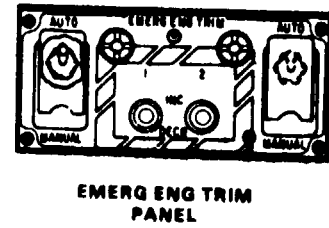
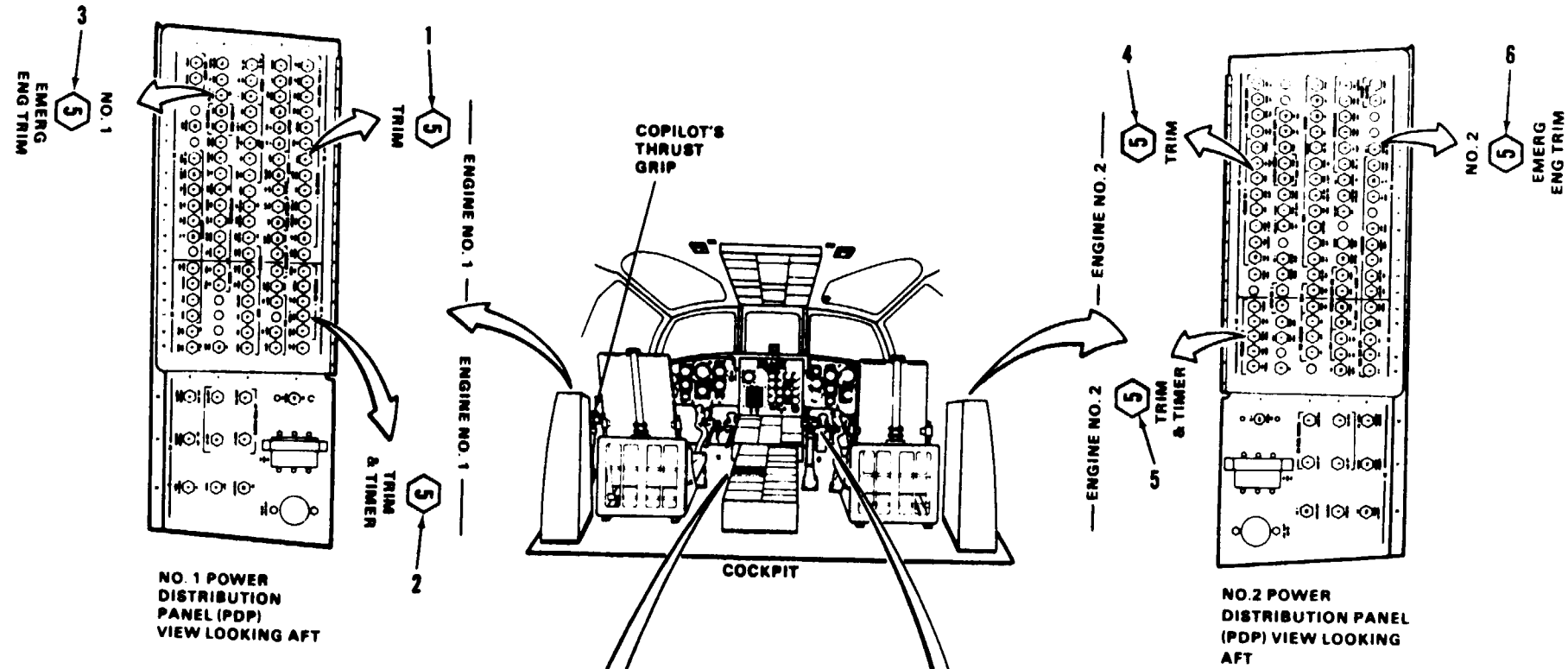
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Thrust Control at Detent Position  
Visual Check of Power Turbine Control System Performed (Task 4-6.2)

TASK	RESULT
<b>CHECK CIRCUIT BREAKERS</b>	
1. Check that <b>ENGINE NO. 1 TRIM and TRIM &amp; TIMER circuit breakers (1 and 2)</b> are closed.	If either circuit breaker (1 or 2) is open, close it. If circuit breaker (1) opens again, go to task 4-6.4. If circuit breaker (2) opens again, go to task 4-6.5.
2. Check that <b>NO. 1 EMERG ENG TRIM circuit breaker (3)</b> is closed.	If circuit breaker (3) is open, close it. If it opens again, go to task 4-6.6.
3. Check that <b>ENGINE NO. 2 TRIM and TRIM &amp; TIMER circuit breakers (4 and 5)</b> are closed.	If either circuit breaker (4 or 5) is open, close it. If circuit breaker (4) opens again, go to task 4-6.7. If circuit breaker (5) opens again, go to task 4-6.8.
4. Check that <b>NO. 2 EMERG ENG TRIM circuit breaker (6)</b> is closed.	If circuit breaker (6) is open, close it. If it opens again, go to task 4-6.9.
<b>CHECK NORMAL POWER TURBINE CONTROL SYSTEM</b>	
4.1 Set and hold pilot <b>NO. 1 ENGINE BEEP TRIM switch (7) to RPM DECREASE</b> for <u>30 seconds</u> . Check <b>NO. 1 engine fuel control pointer (8)</b> .	No. 1 engine fuel control pointer (8) shall be between <u>19° and 21°</u> on protractor (10). If it is not, go to task 4-6.22.

TASK	RESULT
5. Set and hold pilot's <b>NO. 1 ENGINE BEEP TRIM switch (7) to RPM INCREASE</b> for <u>30 seconds</u> .	No. 1 engine fuel control pointer (8) shall move toward the clockwise mechanical stop (9). If pointer does not move, go to task 4-6.10.
6. Set and hold pilot's <b>NO. 1 ENGINE BEEP TRIM switch (7) to RPM DECREASE</b> for <u>30 seconds</u> .	No. 1 engine fuel control pointer (8) shall move and stop between <u>19° and 21°</u> on protractor (10). If pointer does not move or moves but stops outside of <u>19° to 21°</u> on protractor, go to task 4-6.11.
6.1 Set and hold pilot <b>NO. 1 &amp; 2 ENGINE BEEP TRIM switch (11) to RPM DECREASE</b> for <u>30 seconds</u> . Check <b>No. 2 engine fuel control pointer (8)</b> .	No. 2 engine fuel control pointer (8) shall be between <u>19° and 21°</u> on protractor (10). If it is not, go to task 4-6.23.
7. Set and hold pilot's <b>NO. 1 &amp; 2 ENGINE BEEP TRIM switch (11) to RPM INCREASE</b> for <u>30 seconds</u> .	No. 2 engine fuel control pointer (8) shall move toward the clockwise mechanical stop (9). If No. 2 pointer does not move, go to task 4-6.12.
8. Set and hold pilot's <b>NO. 1 &amp; 2 ENGINE BEEP TRIM switch (11) to RPM DECREASE</b> for <u>30 seconds</u> .	No. 2 engine fuel control pointer (8) shall move to and stop between <u>19° and 21°</u> on protractor (10). If No. 2 pointer does not move or moves but stops outside of <u>19° to 21°</u> on protractor, go to task 4-6.13.
9. Set and hold copilot's thrust control <b>NO. 1 ENGINE BEEP TRIM switch (7) to RPM INCREASE</b> for <u>30 seconds</u> .	No. 1 engine fuel control pointer (8) shall move to clockwise mechanical stop (9). If pointer does not move, go to task 4-6.14.
10. Set and hold copilot's <b>NO. 1 ENGINE BEEP TRIM switch (7) to RPM DECREASE</b> for <u>30 seconds</u> .	No. 1 engine fuel control pointer (8) shall move and stop between <u>19° and 21°</u> on protractor (10). If pointer does not move, go to task 4-6.15.
11. Set and hold copilot's <b>NO. 1 &amp; 2 ENGINE BEEP TRIM switch (11) to RPM INCREASE</b> for <u>30 seconds</u> .	No. 2 engine fuel control pointer (8) shall move to clockwise mechanical stop (9). If No. 2 pointer does not move, go to task 4-6.16.
12. Set and hold copilot's <b>NO. 1 &amp; 2 ENGINE BEEP TRIM switch (11) to RPM DECREASE</b> for <u>30 seconds</u> .	No. 2 engine fuel control pointer (8) shall move to and stop between <u>19° and 21°</u> on protractor (10). If No. 2 pointer does not move, go to task 4-6.17.
13. Set and hold copilot's <b>NO. 1 &amp; 2 ENGINE BEEP TRIM switch (11) to RPM INCREASE</b> for <u>30 seconds</u> .	No. 1 and No. 2 Fuel control pointers (8) shall move toward the clockwise mechanical stop (9). If pointer contacts stop, go to step 15. If pointer does not contact stop, go to step 14.

### 4-6.3 POWER TURBINE (N2) CONTROL SYSTEM OPERATIONAL CHECK (Continued)



TASK	RESULT
14. Press THRUST CONT BRAKE TRIGGER switch (15) and lift thrust control full up.	Both pointers (8) shall move smoothly clockwise and contact stops (9). If either pointer moves erratically, replace droop eliminator potentiometer.
15. Press THRUST CONT BRAKE TRIGGER switch (15) and push thrust control to detent position.	Both pointers (8) shall move smoothly toward the counterclockwise mechanical stops (14).
16. Release THRUST CONT BRAKE TRIGGER switch (15).	
17. Set and hold copilot's NO. 1 & 2 ENGINE BEEP TRIM switch (11) and NO. 1 ENGINE BEEP TRIM switch (7) to RPM DECREASE for 30 seconds.	Both pointers (8) shall return to between <u>19°</u> and <u>21°</u> on protractor (10).
18. Lift guard (16) and set switch (17) to MANUAL. Set and hold EMERG ENG TRIM 1 switch (12) to INC until No. 1 engine fuel control pointer (8) tightly contacts clockwise stop (9). Release switch.	Pointer (8) shall stay against stop (9). If pointer has stopped but is not touching stop, adjust rigging of power turbine control system. If pointer returns to between <u>19°</u> and <u>21°</u> on protractor (10), replace switch (17). Refer to TM 55-1520-240-23. If pointer does not move, go to task 4-6.18.
19. Set and hold EMERG ENG TRIM 1 switch (12) to DEC until No. 1 engine fuel control pointer (8) contacts counterclockwise stop (14). Release switch.	Pointer (8) shall stay against stop (14). If pointer is not against stop, adjust rigging of power turbine control system. Refer to TM 55-1520-240-23. If pointer does not move, go to task 4-6.19.
20. Close switch guard (16).	
21. Lift guard (18) and set switch (19) to MANUAL. Set and hold EMERG ENG TRIM 2 switch (13) to INC until No. 2 engine fuel control pointer (8) lightly contacts clockwise stop (9). Release switch.	Pointer (8) shall stay against stop (9). If pointer has stopped but is not touching stop, adjust rigging of power turbine control system. Refer to TM 55-1520-240-23. If pointer returns to between <u>19°</u> and <u>21°</u> on protractor (10), replace switch (19). If pointer does not move, go to task 4-6.20.
22. Set and hold EMERG ENG TRIM 2 switch (13) to DEC until No. 2 engine fuel control pointer (8) contacts counterclockwise stop (14). Release switch.	Pointer (8) shall stay against stop (14). If pointer is not against stop, adjust rigging of power turbine control system. Refer to TM 55-1520-240-23. If pointer does not move, go to task 4-6.21.

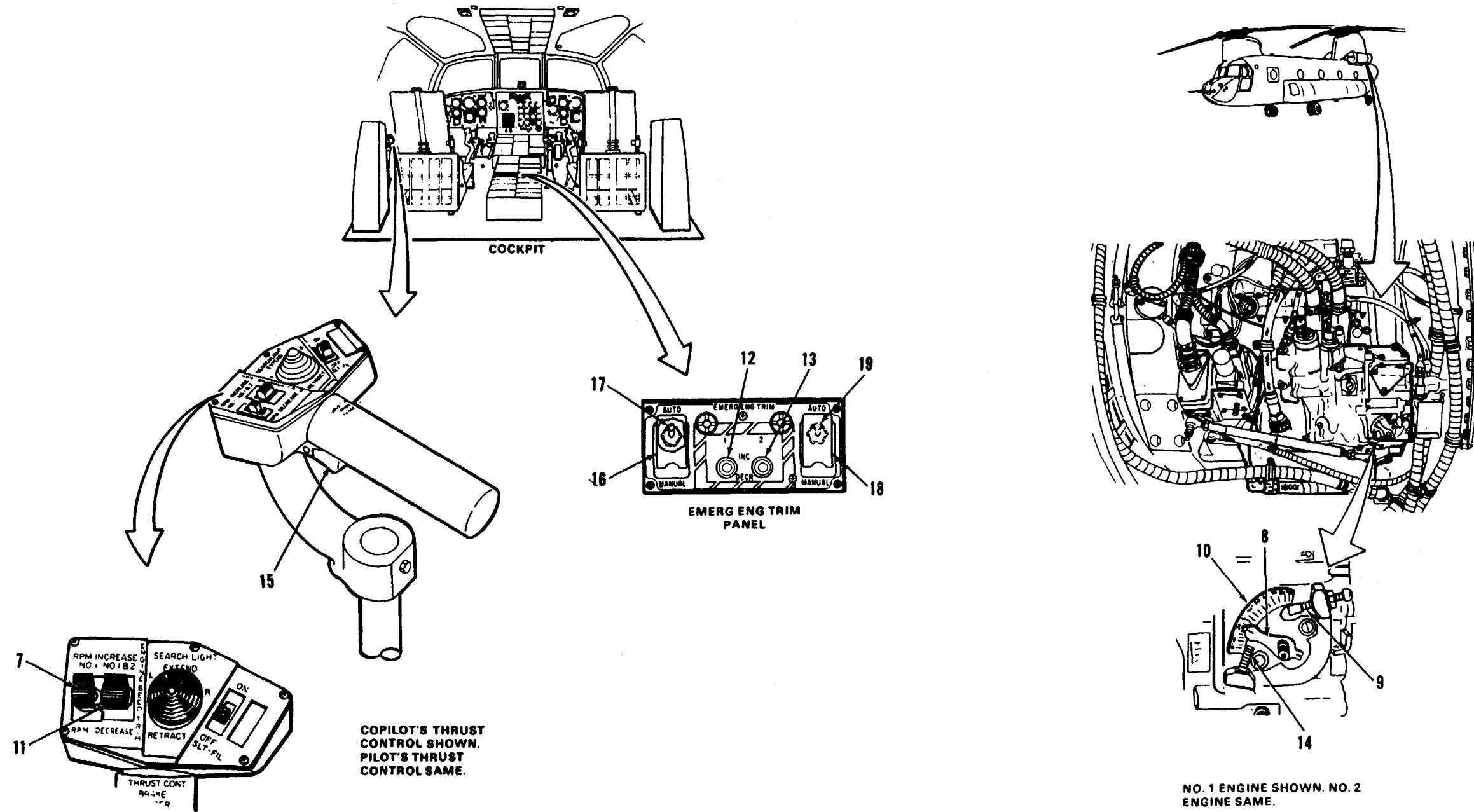
## FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

- Battery disconnected.
- Electrical power off.
- Hydraulic power off.
- Controls closet panel closed.
- Controls closet blanket installed.
- Left and right electrical compartment access doors closed.
- Engine access covers closed.
- Engine work platforms closed.

GO TO NEXT PAGE

4-6.3 POWER TURBINE (N2) CONTROL SYSTEM OPERATIONAL CHECK (Continued)



4-6.4 ENGINE NO. 1 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

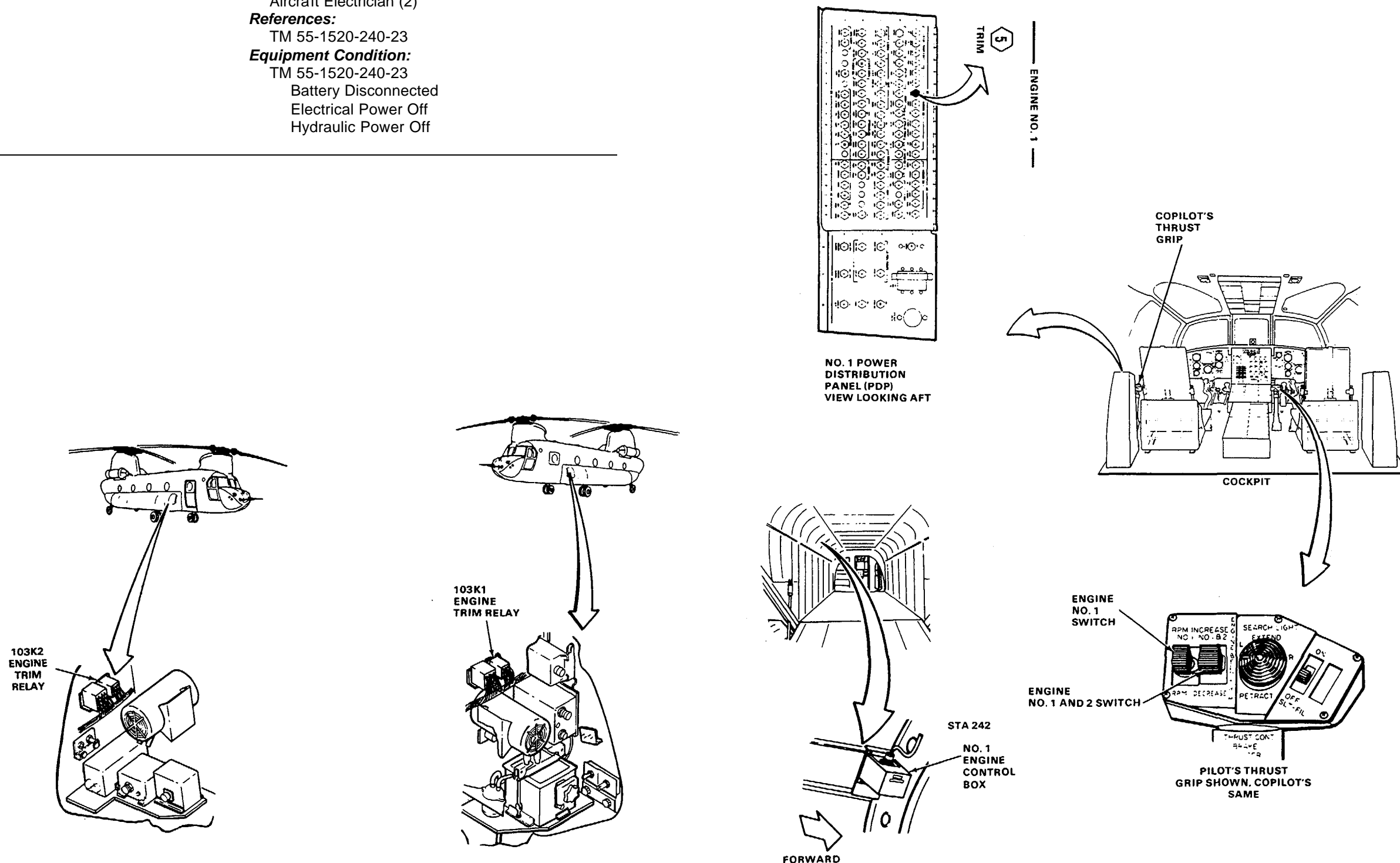
**Equipment Condition:**

TM 55-1520-240-23

Battery Disconnected

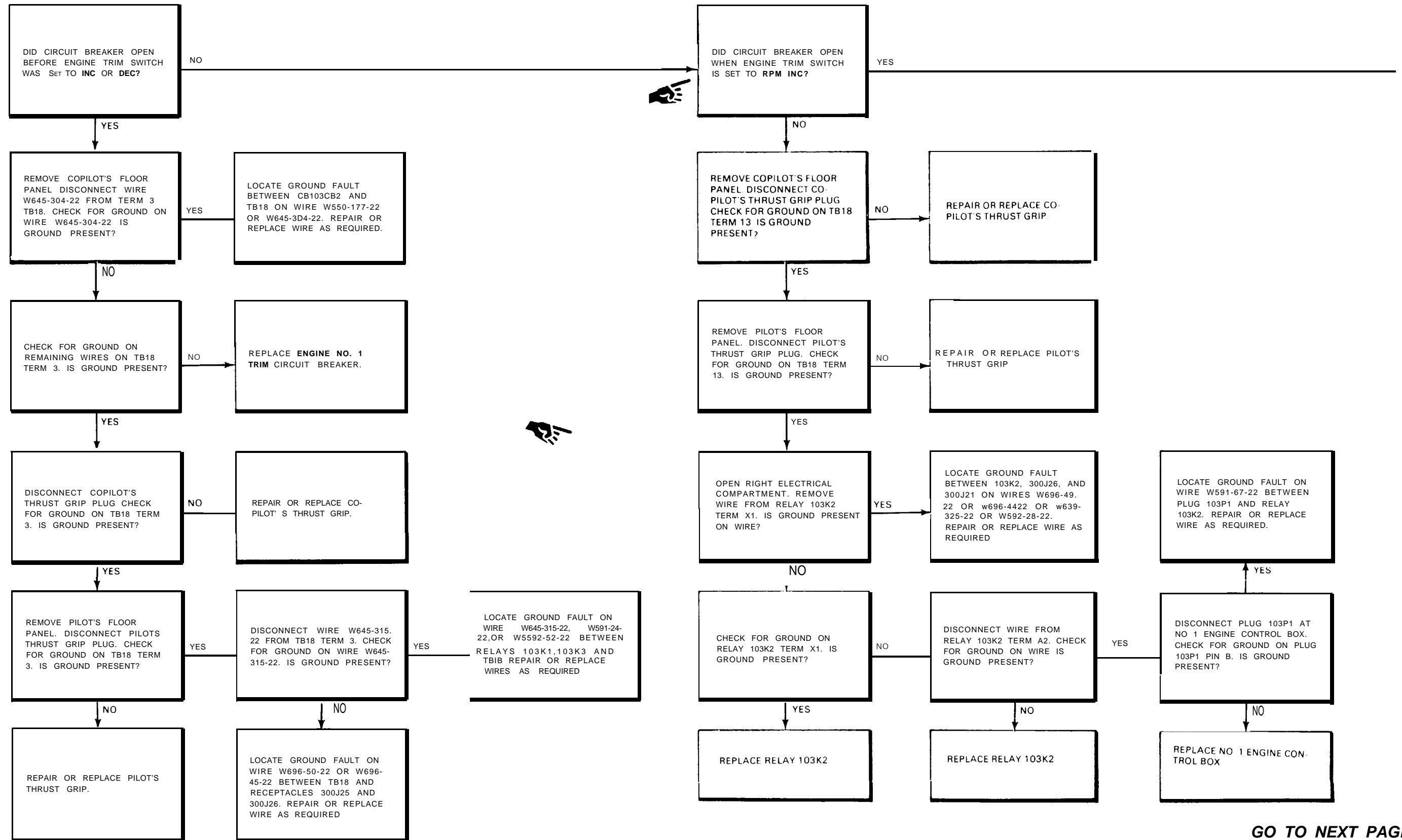
Electrical Power Off

Hydraulic Power Off

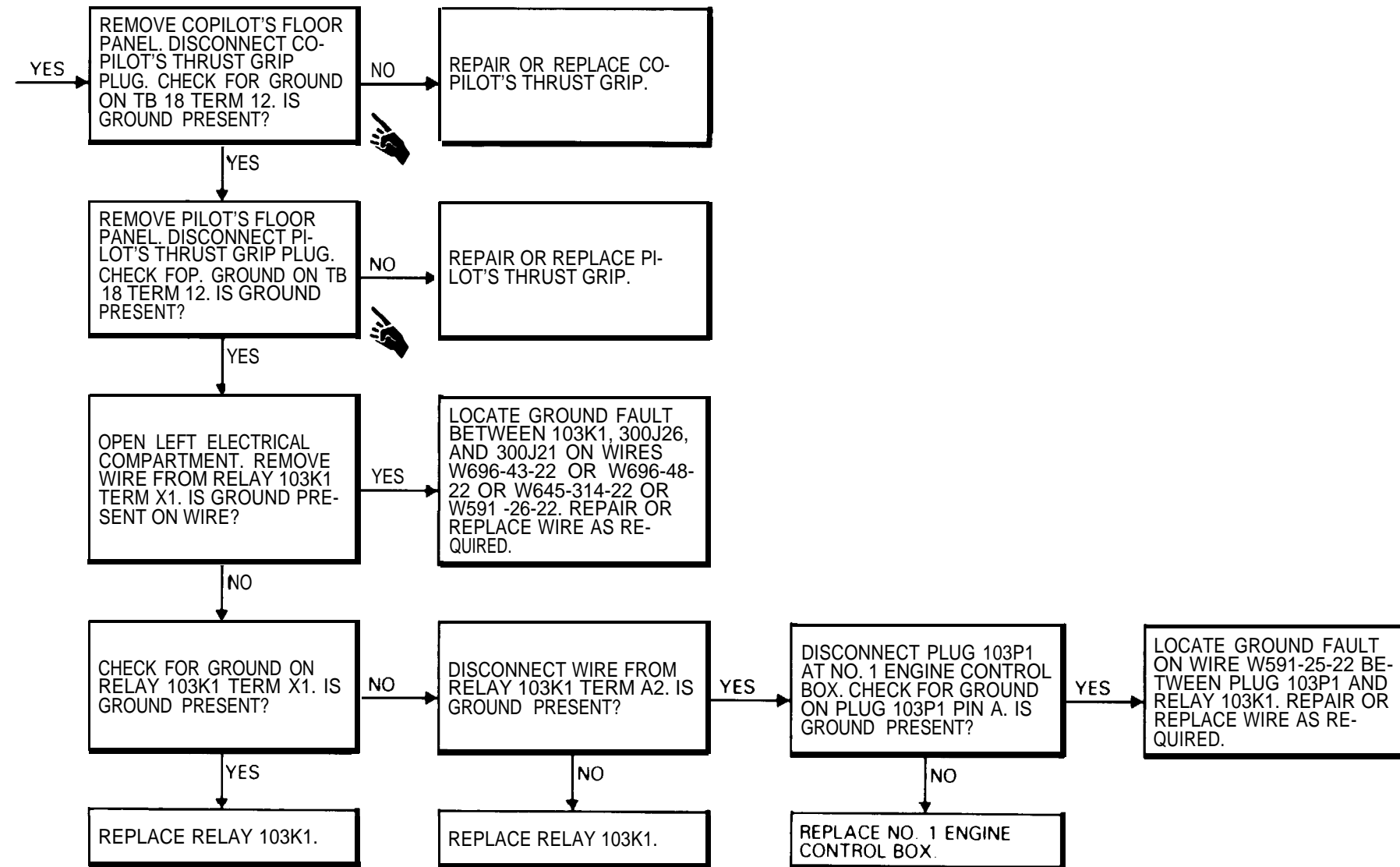




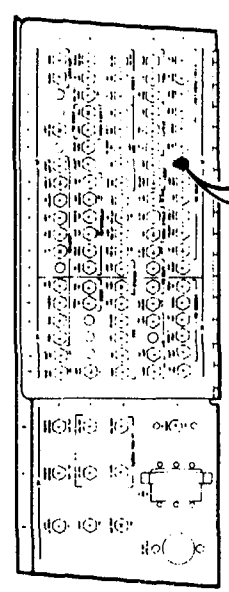
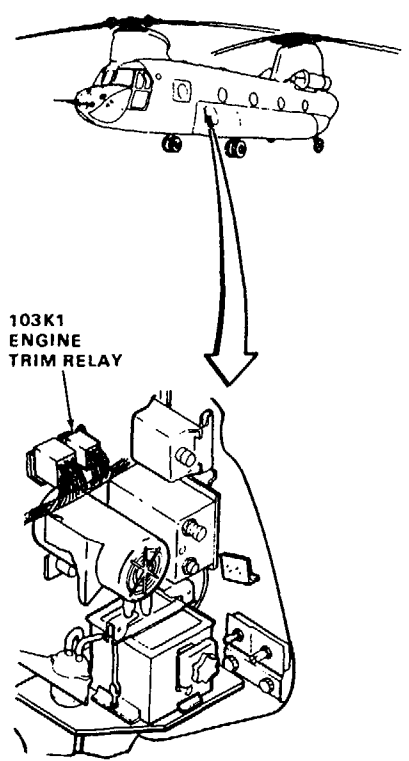
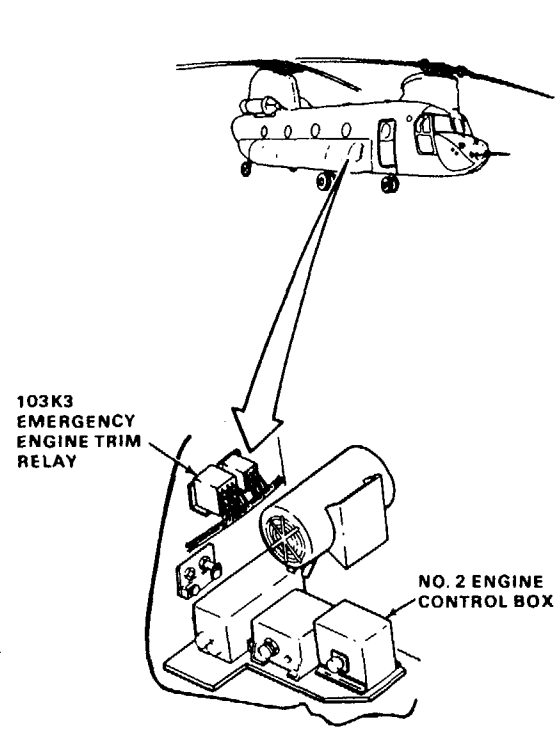
4-6.4 ENGINE NO. 1 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



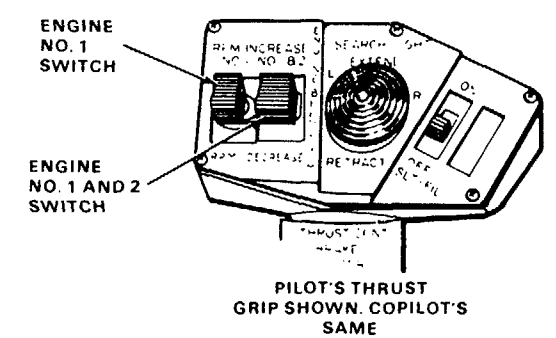
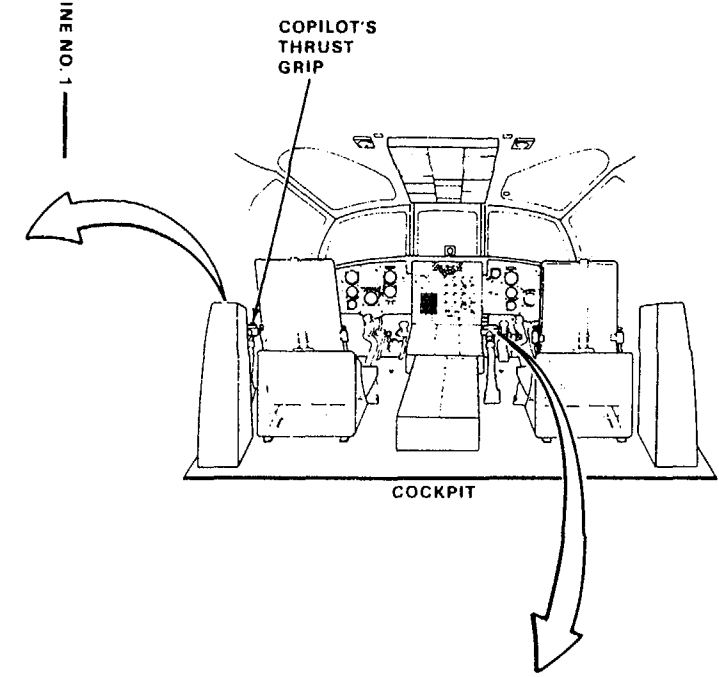
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4-6.4 ENGINE NO. 1 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



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0145-11969-SPA

END OF TASK

4-6.5 ENGINE NO. 1 TRIM & TIMER CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

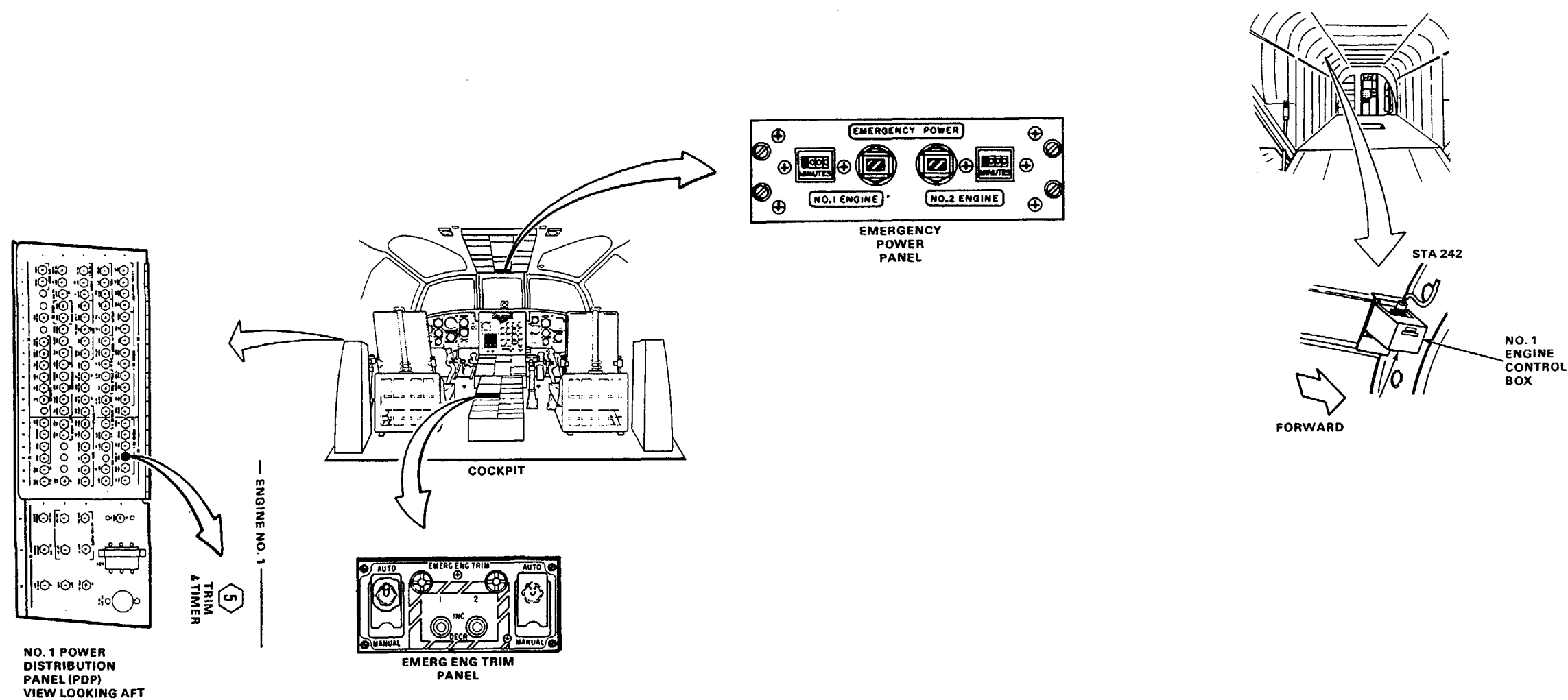
**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

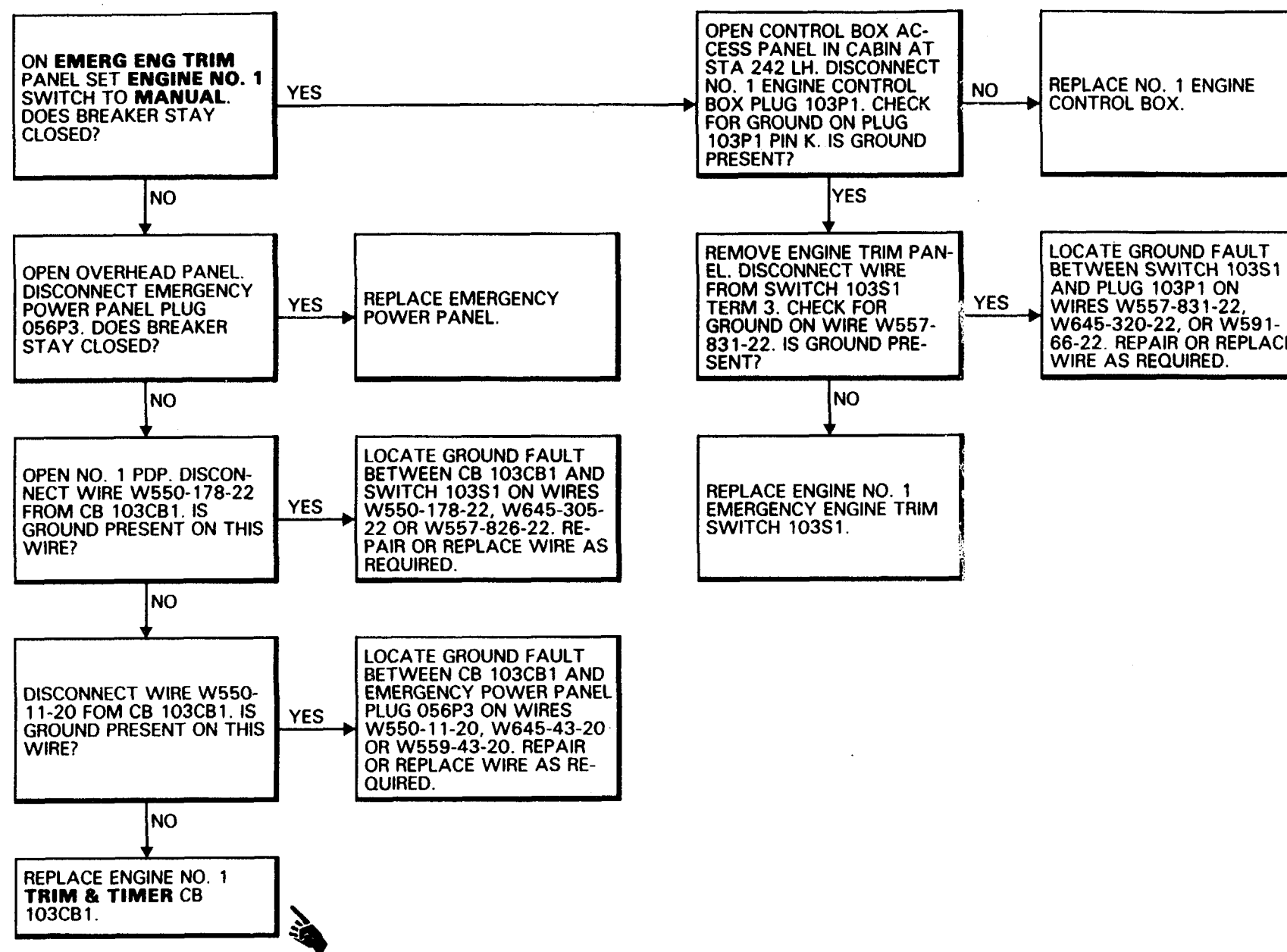
Hydraulic Power Off



90 x 54

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GO TO NEXT PAGE



4-6.6 NO. 1 EMERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

- Medium Helicopter Repairer
- Aircraft Electrician

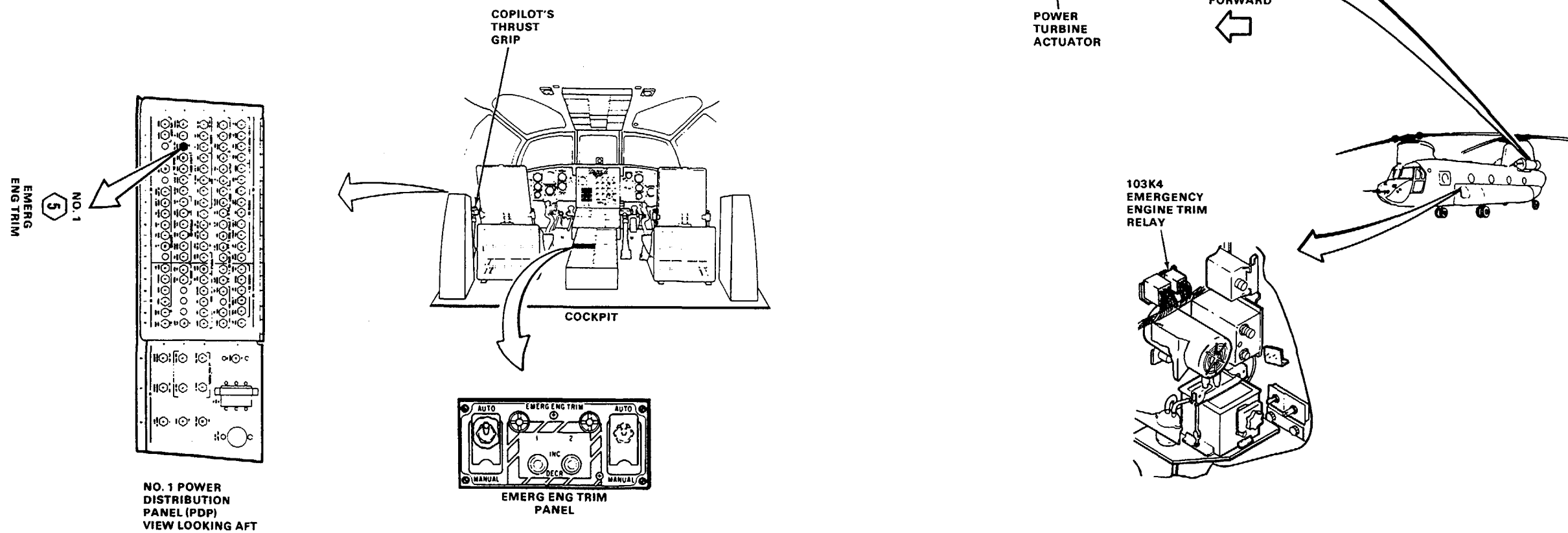
**References:**

TM 55-1520-240-23

**Equipment Condition:**

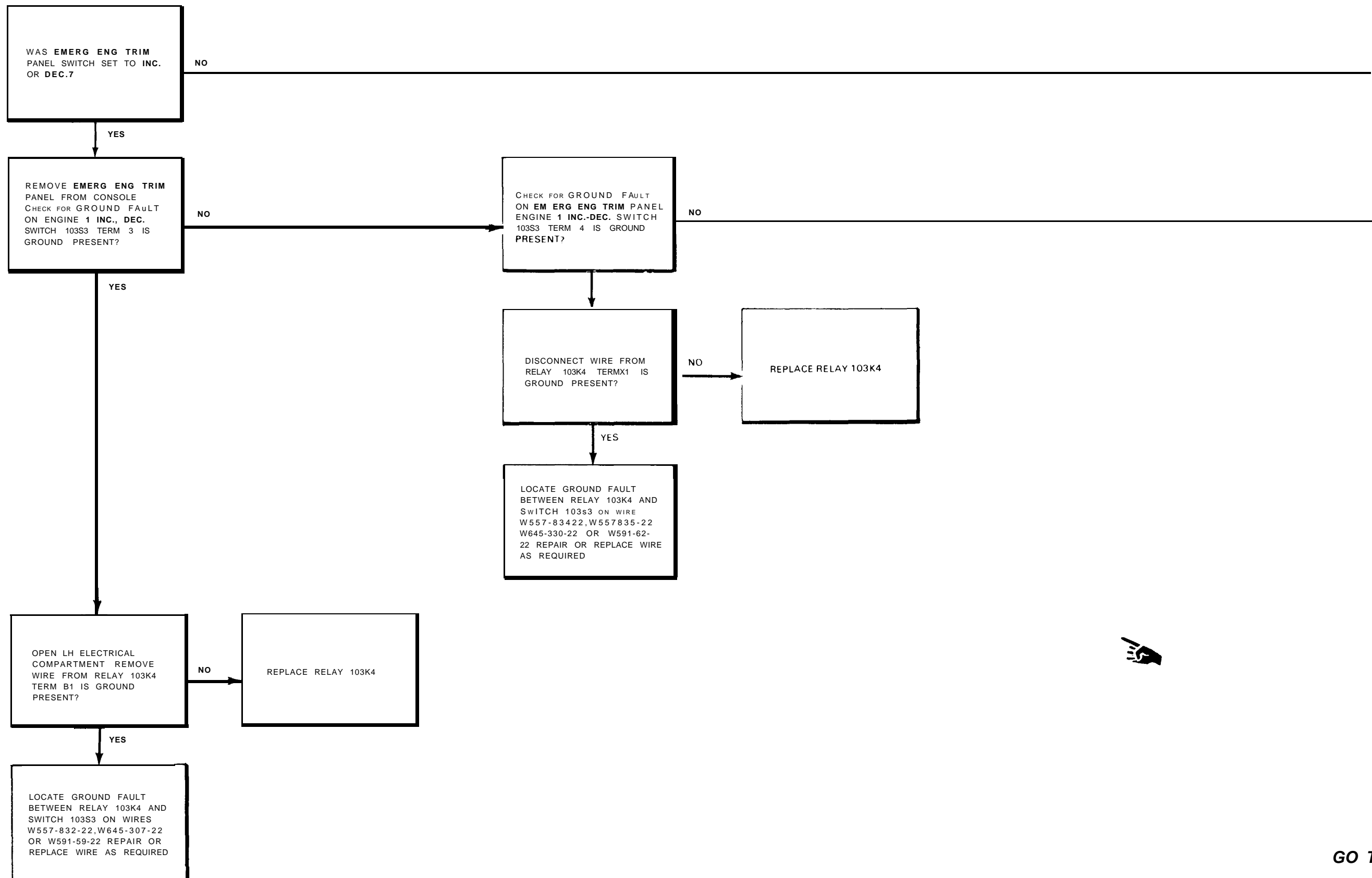
TM 55-1520-240-23

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off



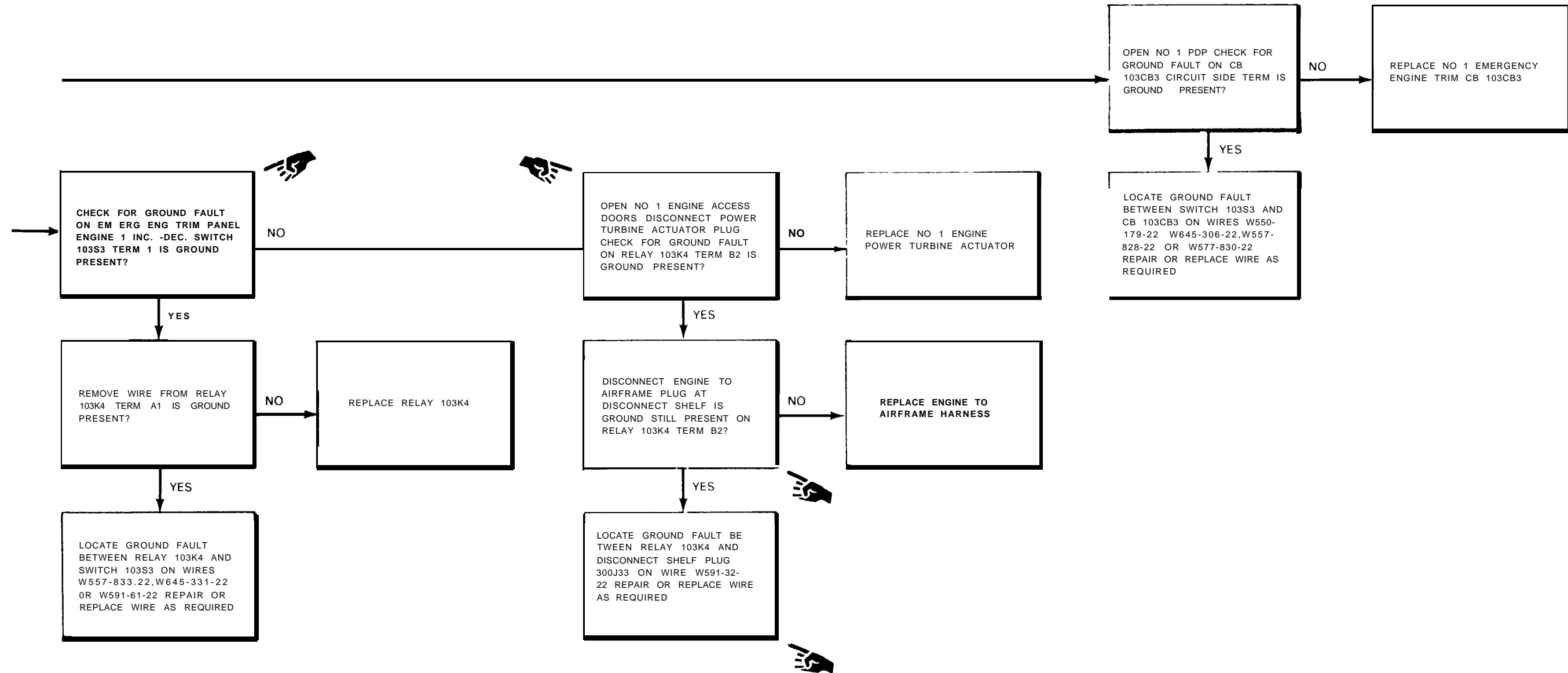
4-6.6 NO. 1 EM ERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)

4-6.6



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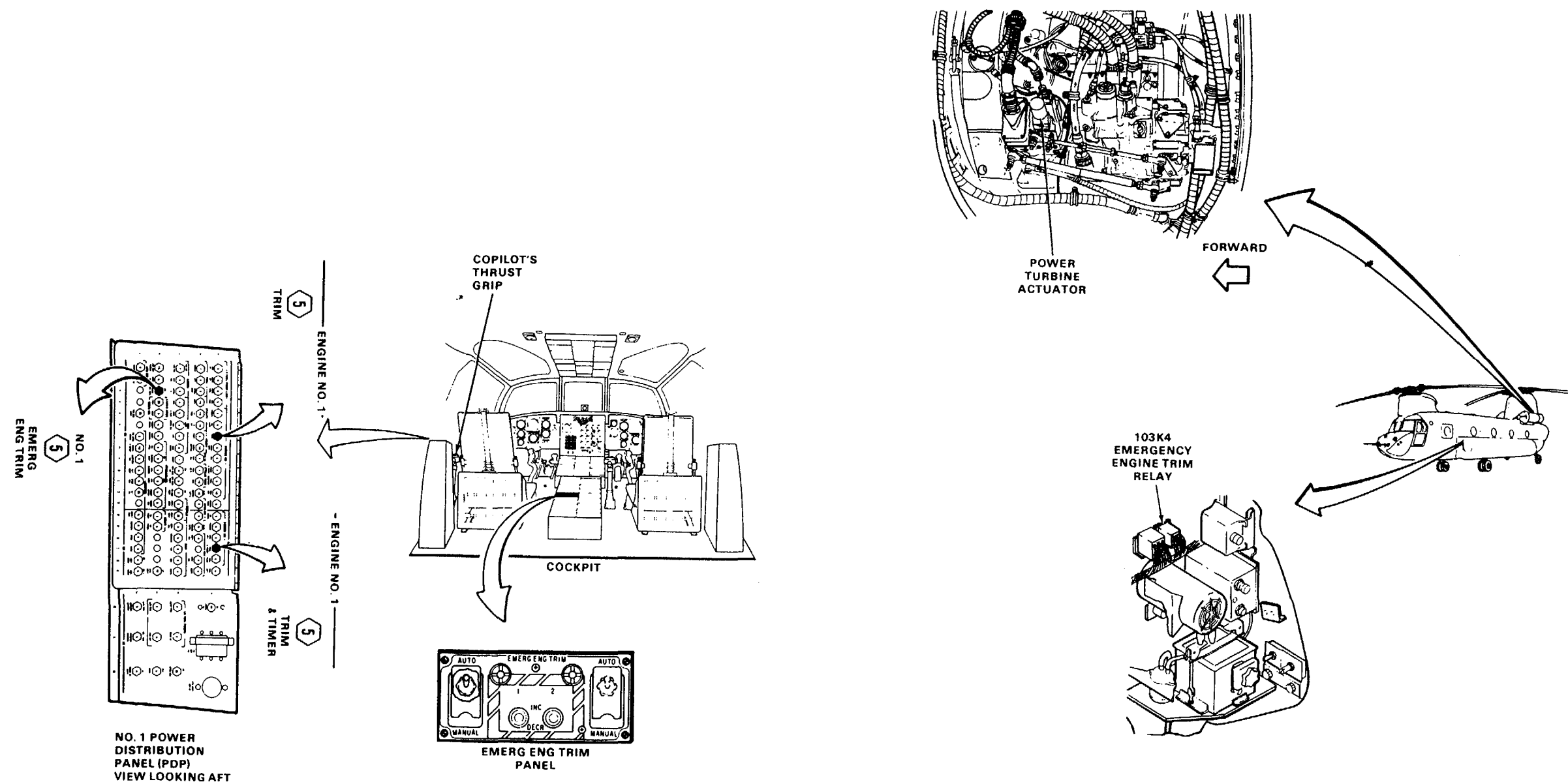
4-6.6 NO. 1 EMERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



GO TO NEXT PAGE



4-6.6 NO. 1 EMERG ENG TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



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D145-11972 - SPA

END OF TASK

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

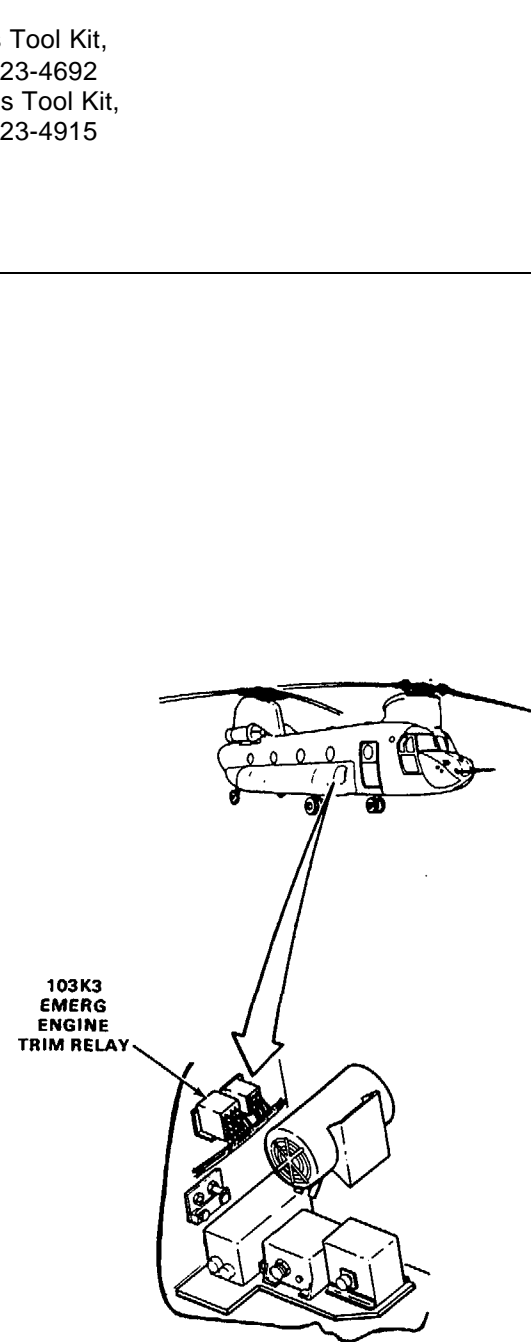
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

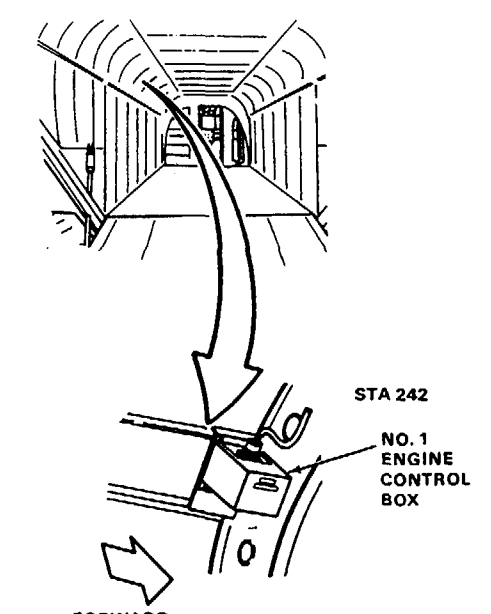
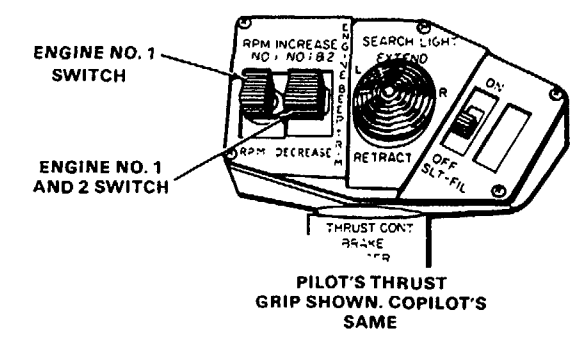
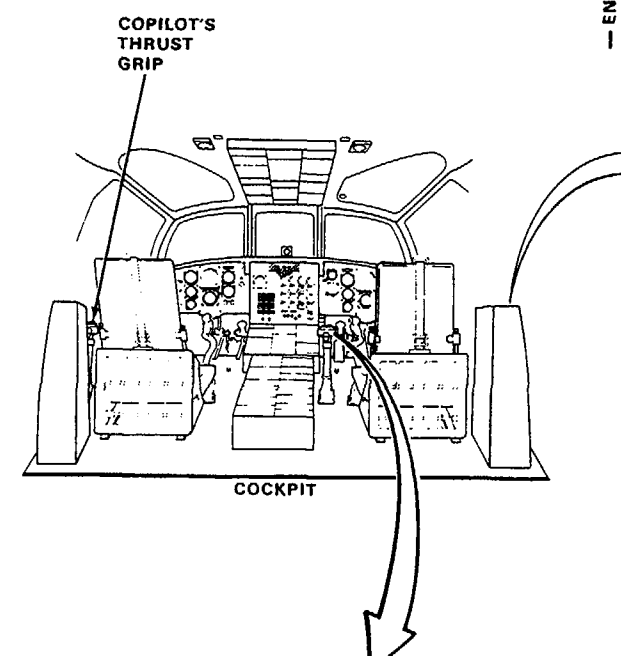
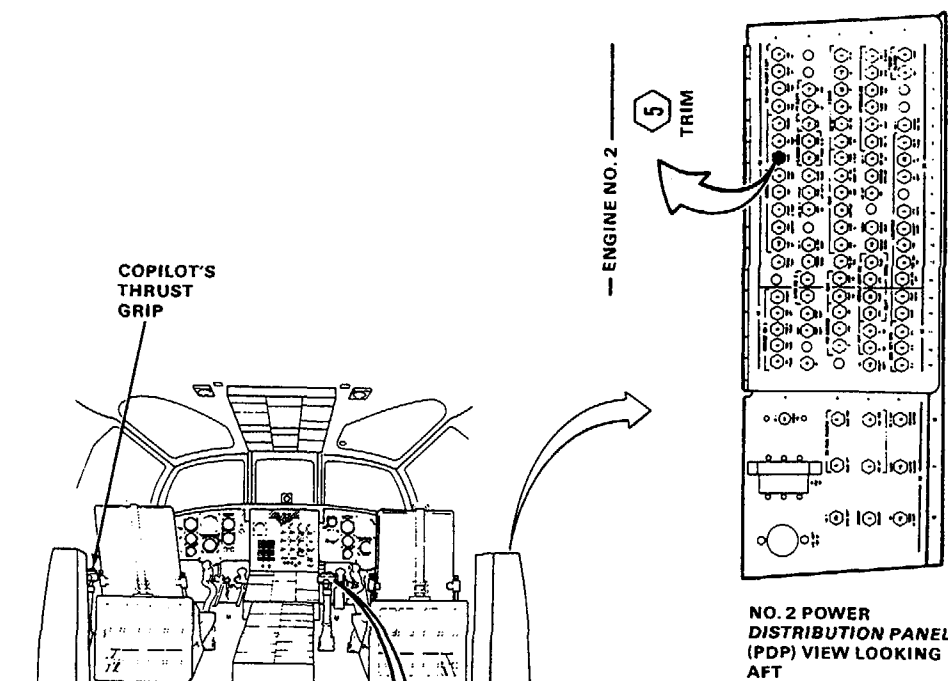
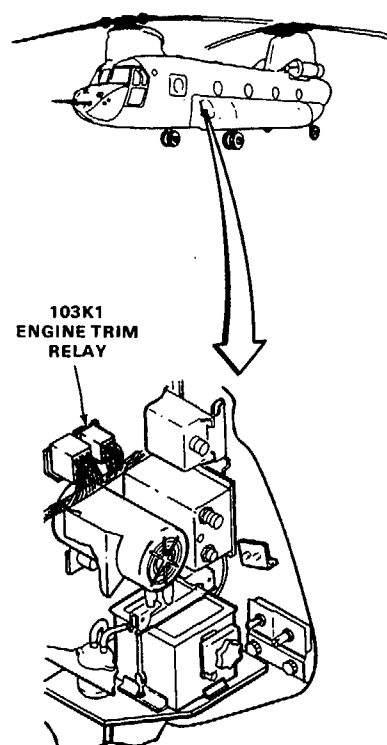
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off



90 X 54

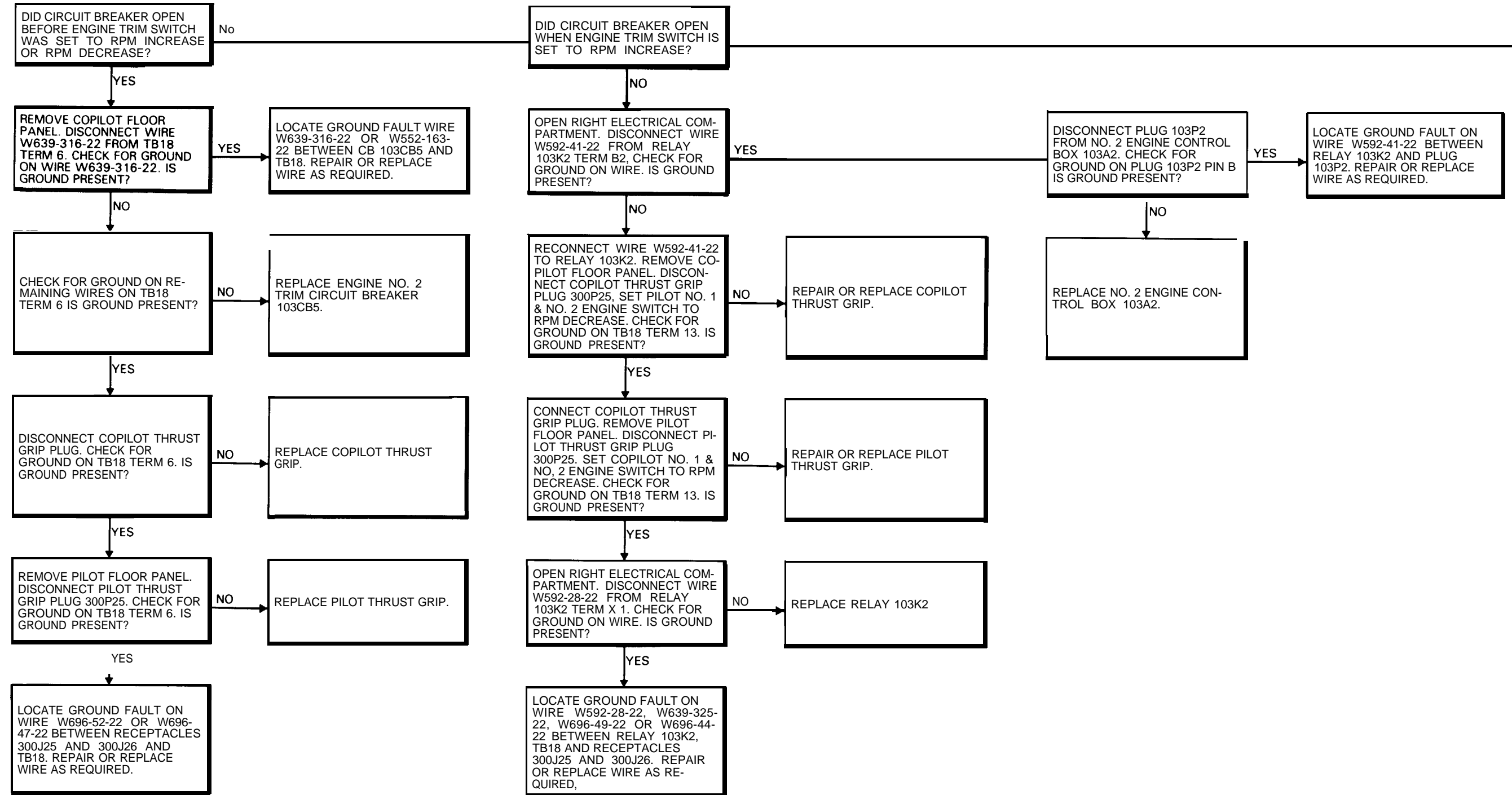


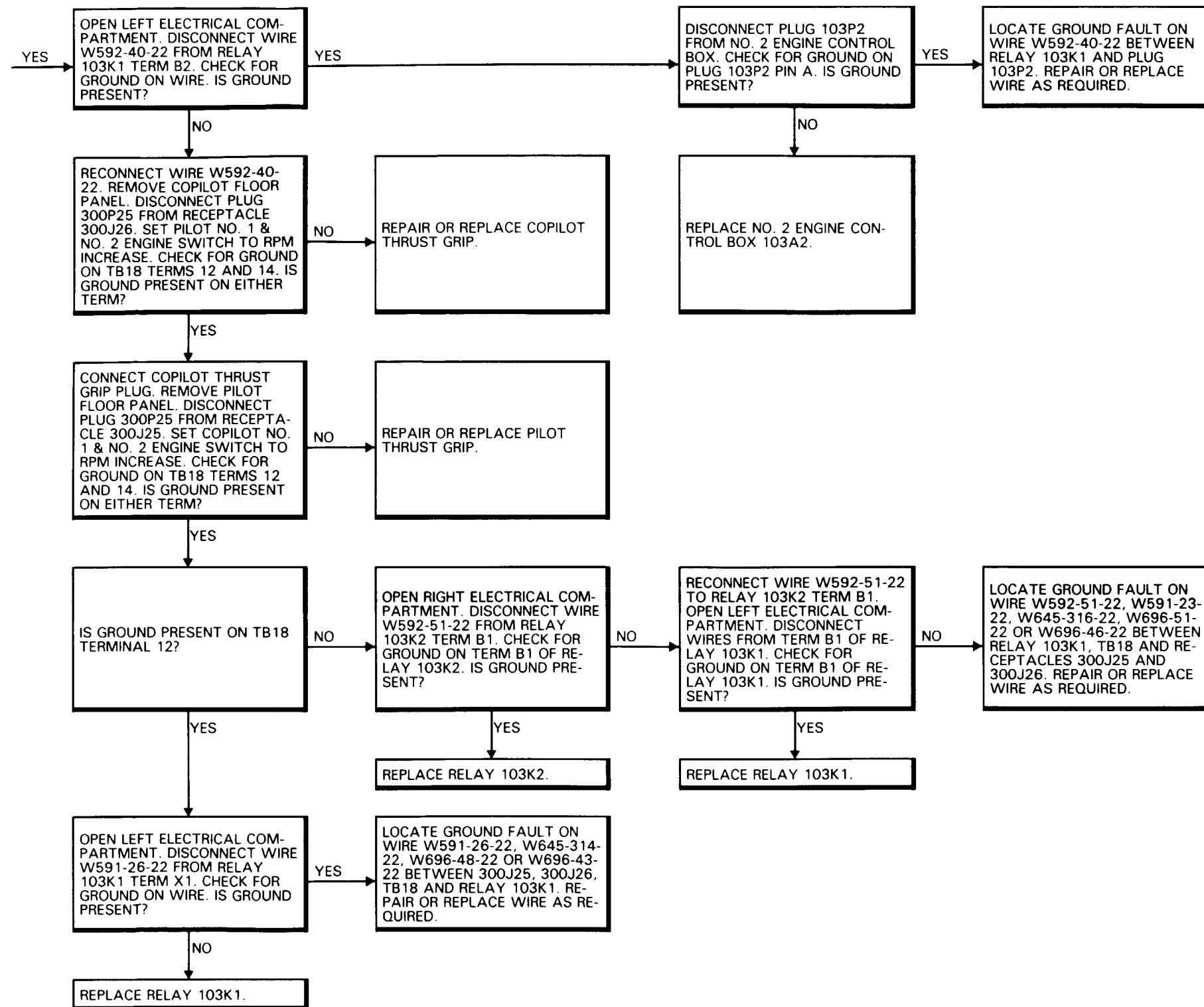
STA 242

D145-11973-SPA

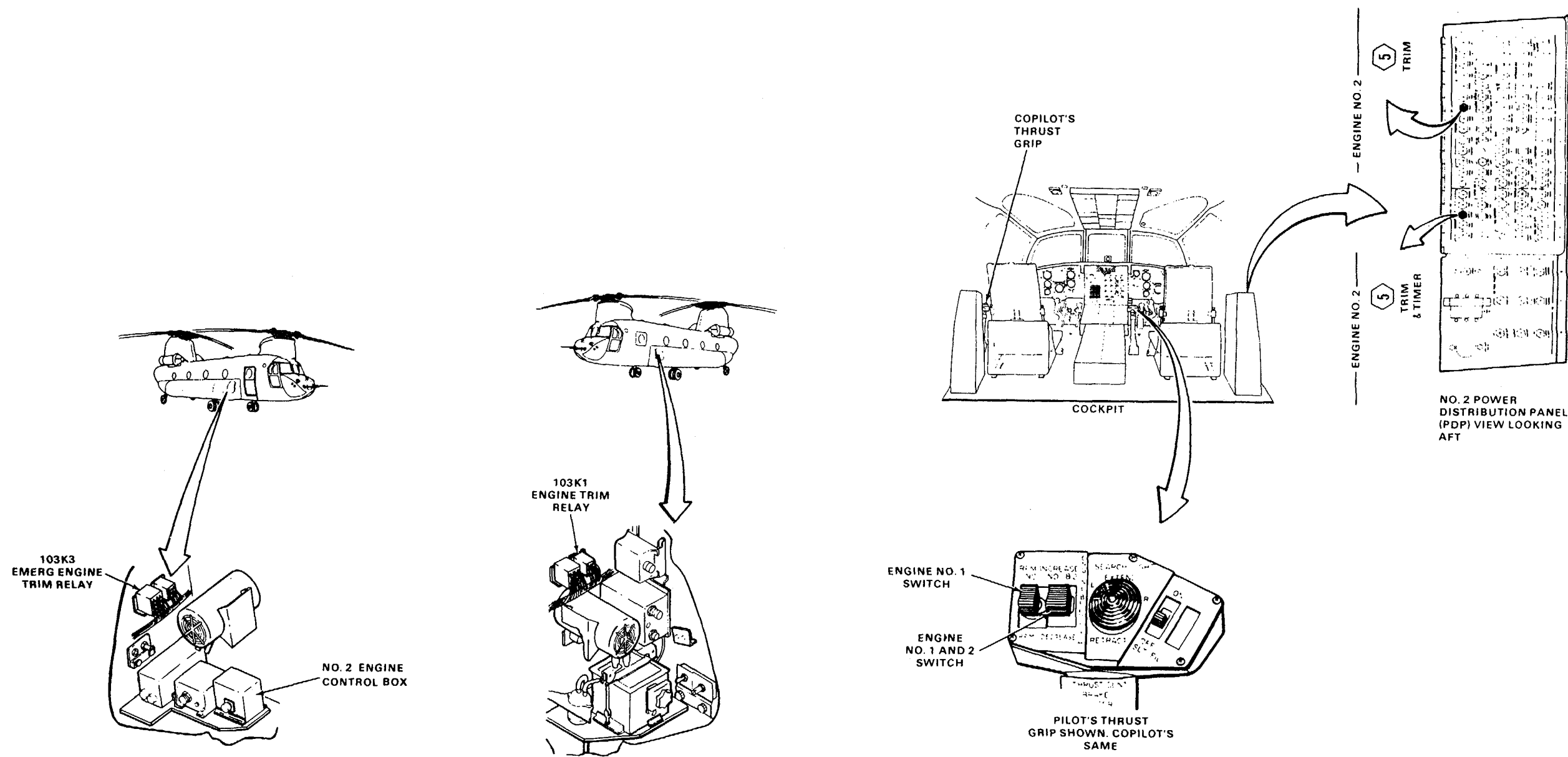
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4-6.7 ENGINE NO. 2 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)





4-6.7 ENGINE NO. 2 TRIM CIRCUIT BREAKER WILL NOT STAY CLOSED  
(Continued)



90 X 54

0145-11974-SPA

END OF TASK

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

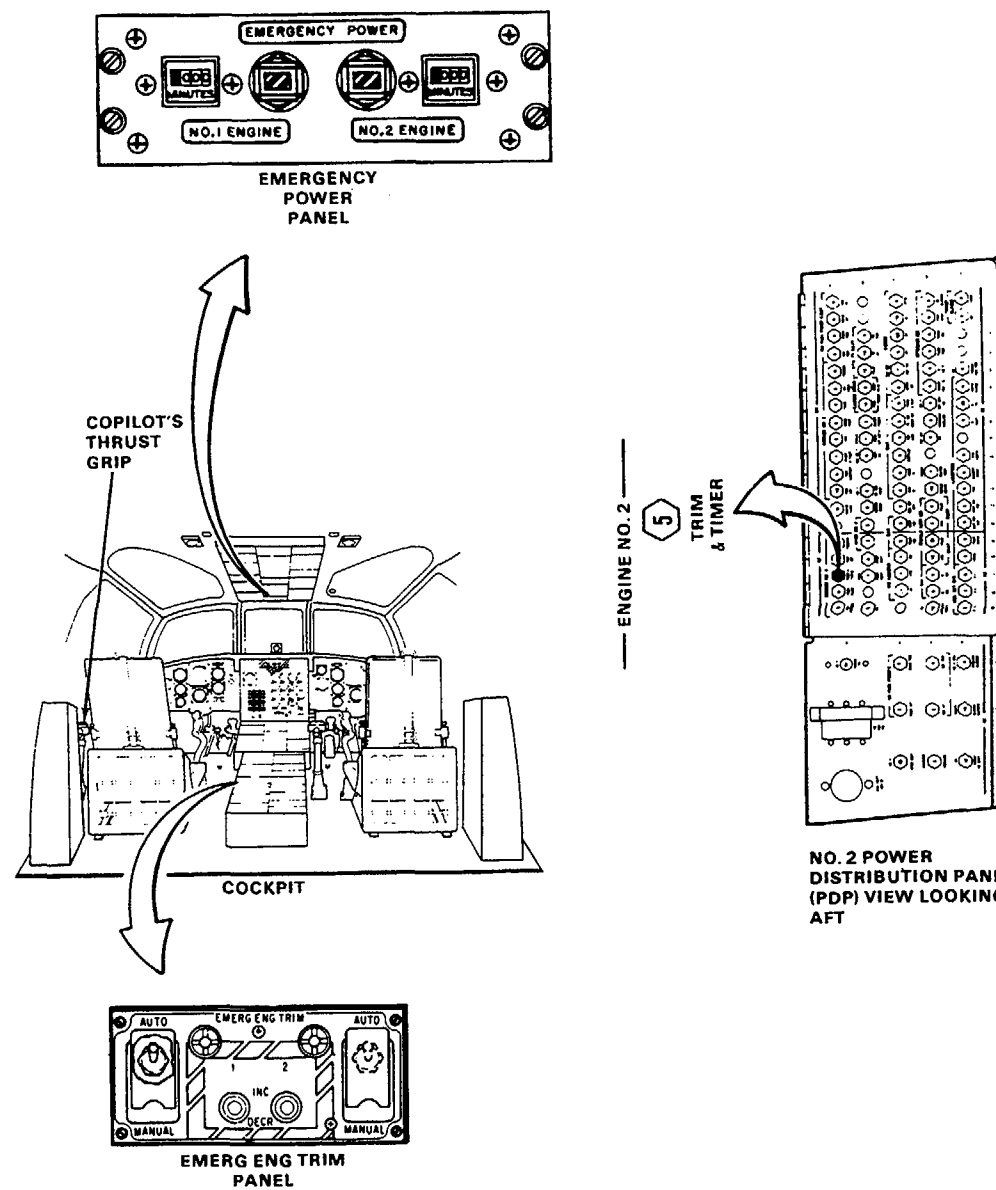
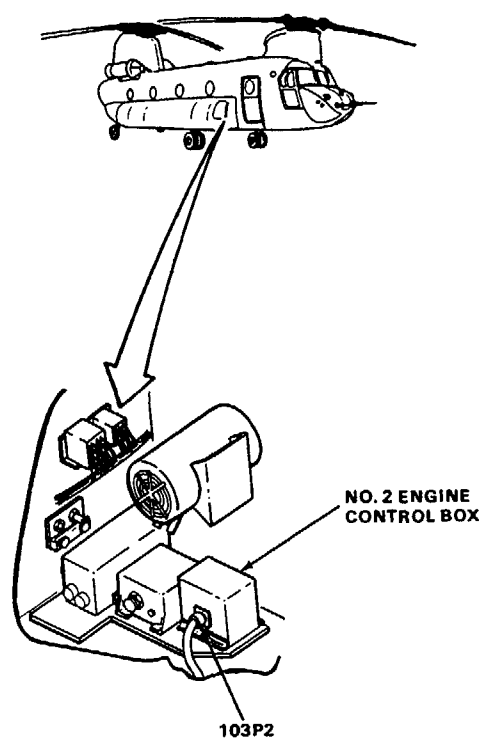
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

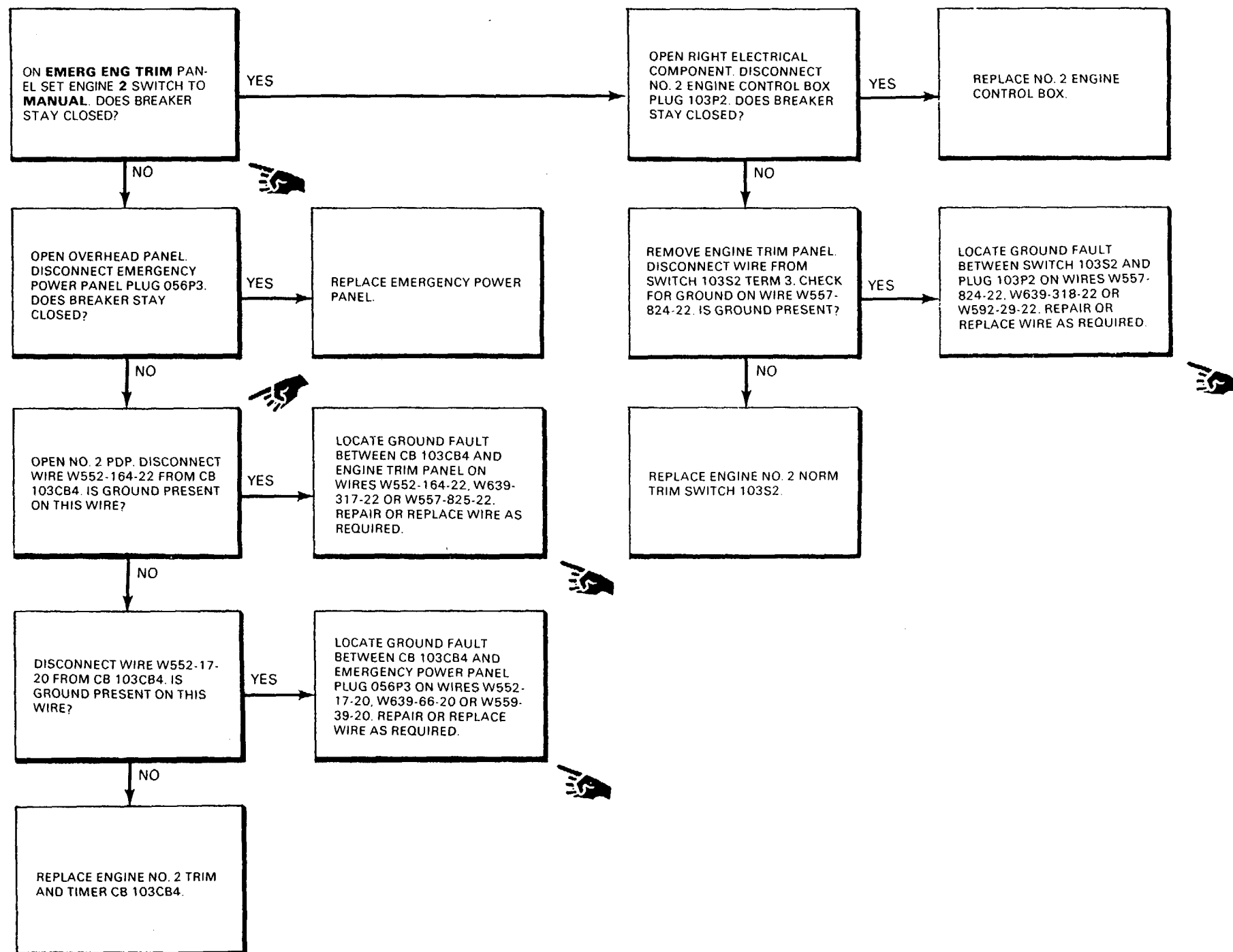
- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off



90 X 54

D145-11975-SPA

4-6.8 ENGINE NO. 2 TRIM AND TIMER CIRCUIT BREAKER  
WILL NOT STAY CLOSED (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools,:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

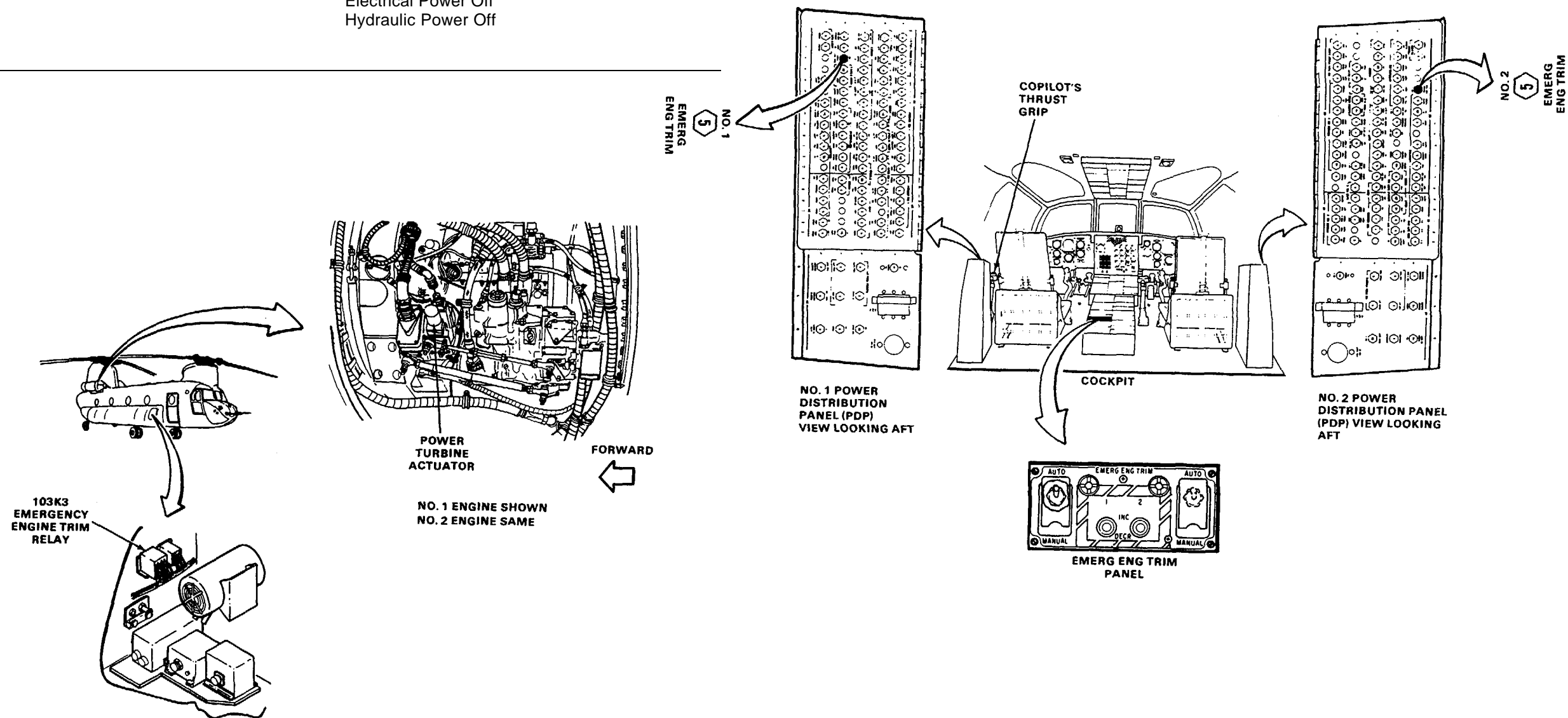
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

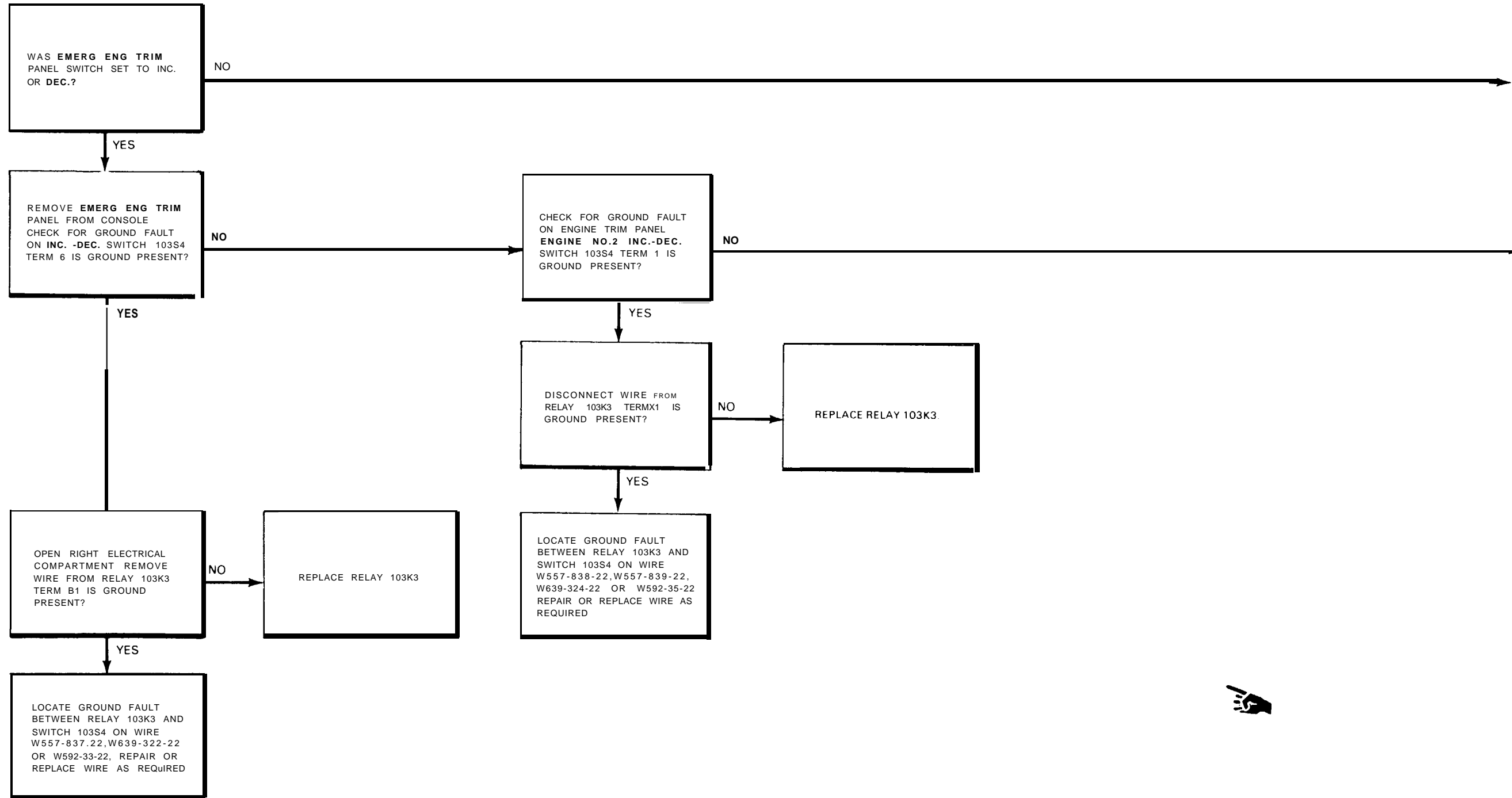


90 X 54

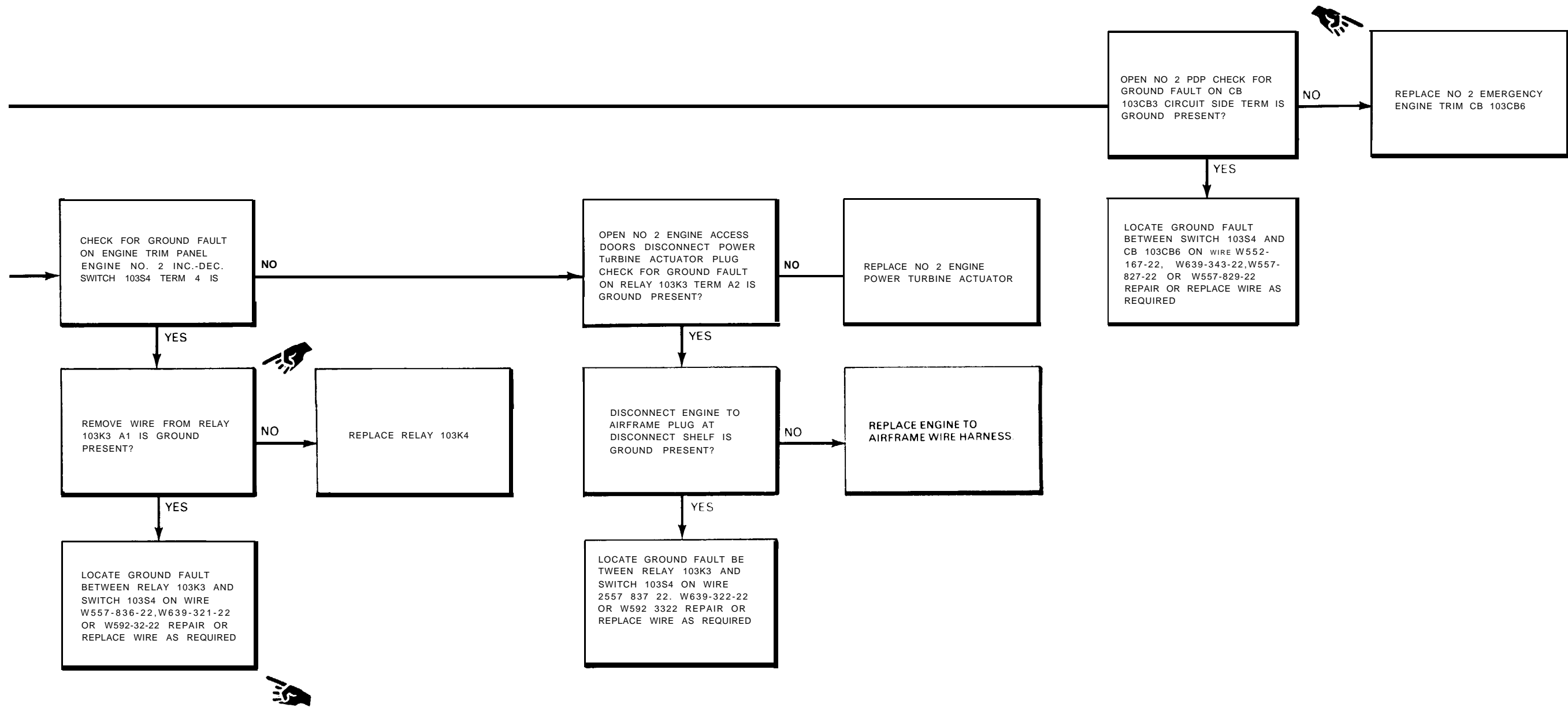
D145-11976-SPA



4-6.9 NO. 2 EMERGENCY ENGINE TRIM CIRCUIT BREAKER  
WILL NOT STAY CLOSED (Continued)

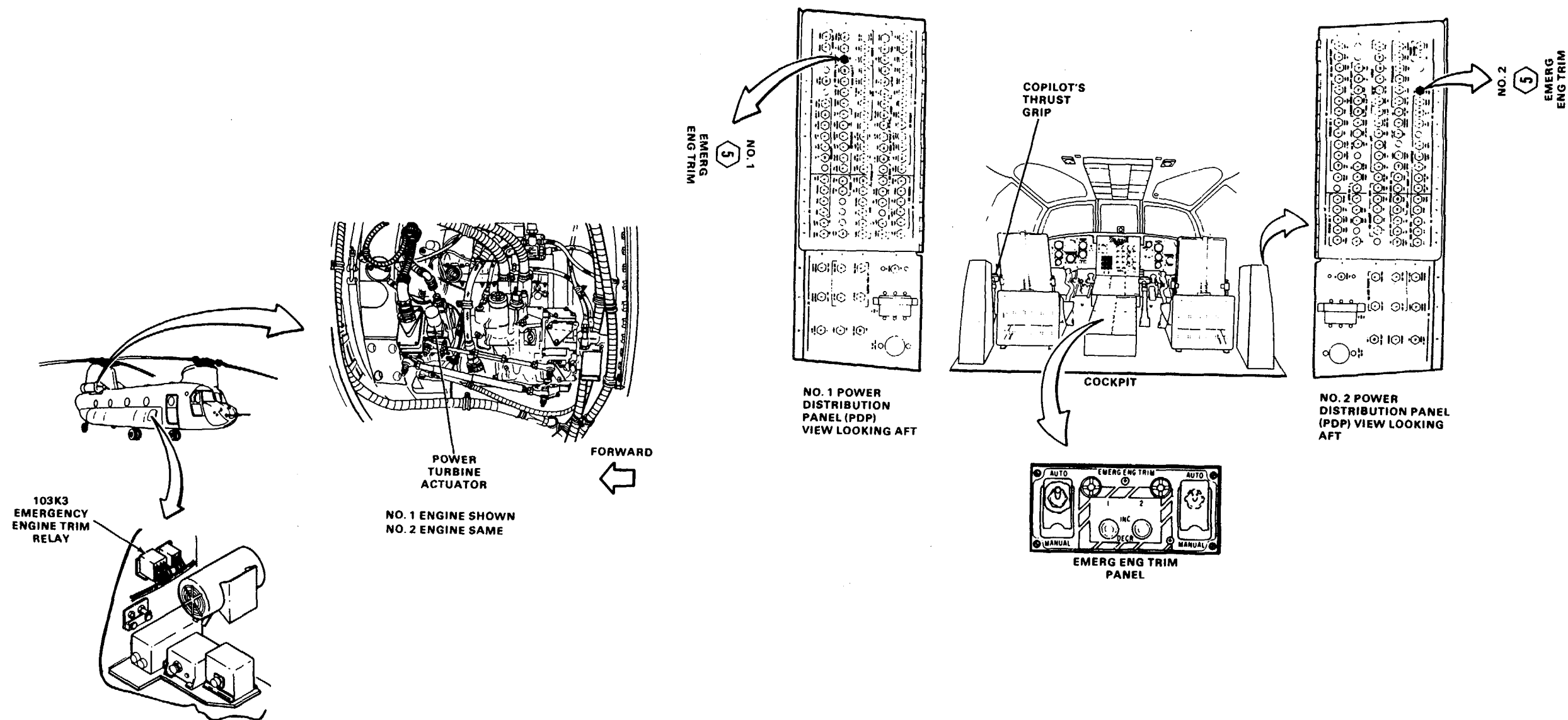


4-6.9 NO. 2 EMERGENCY ENGINE TRIM CIRCUIT BREAKER  
WILL NOT STAY CLOSED (Continued)



GO TO NEXT PAGE

4-6.9 NO. 2 EMERGENCY ENGINE TRIM CIRCUIT BREAKER  
WILL NOT STAY CLOSED (Continued)



90 X 54

D145-11977-5PA

4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

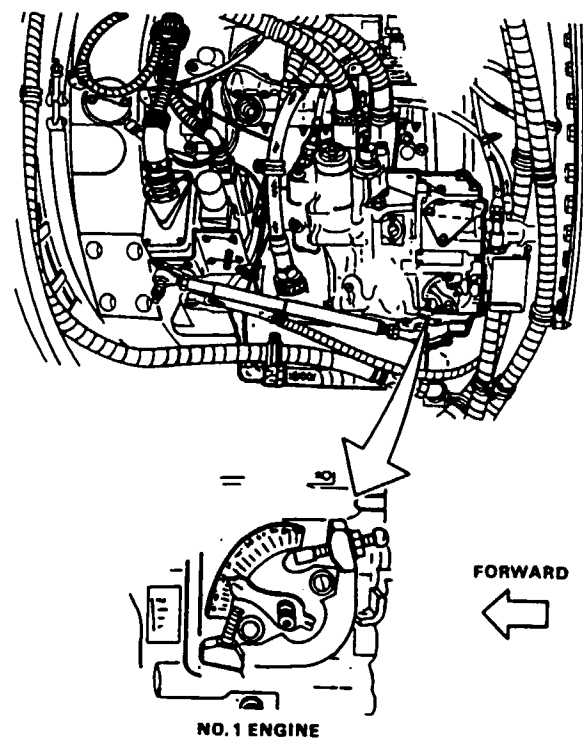
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

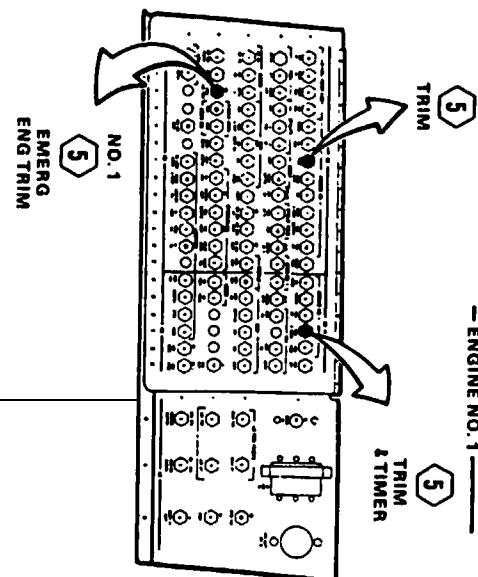
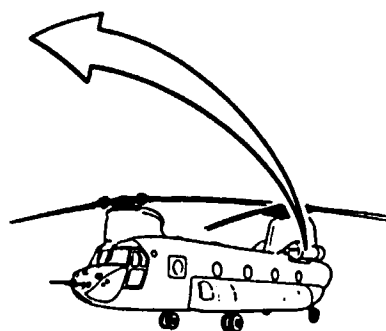
TM 55-1520-240-23

**Equipment Condition:**

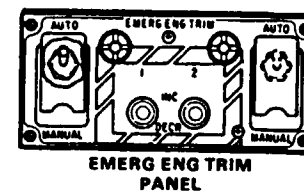
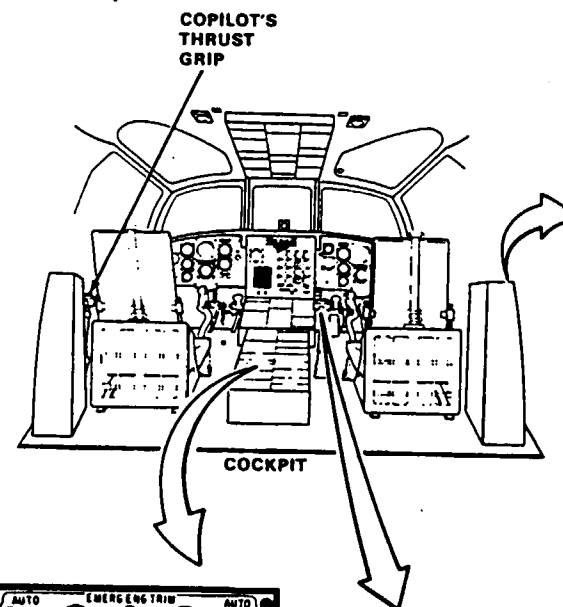
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



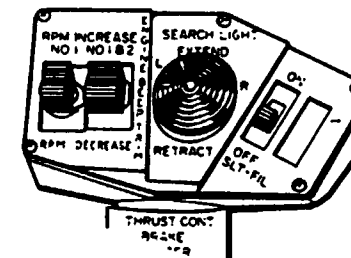
90 X 54



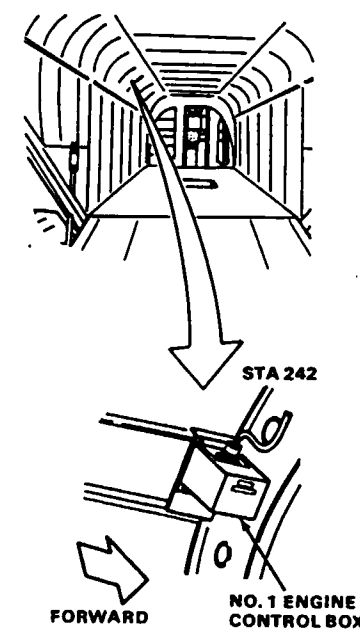
NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



EMERG ENG TRIM PANEL

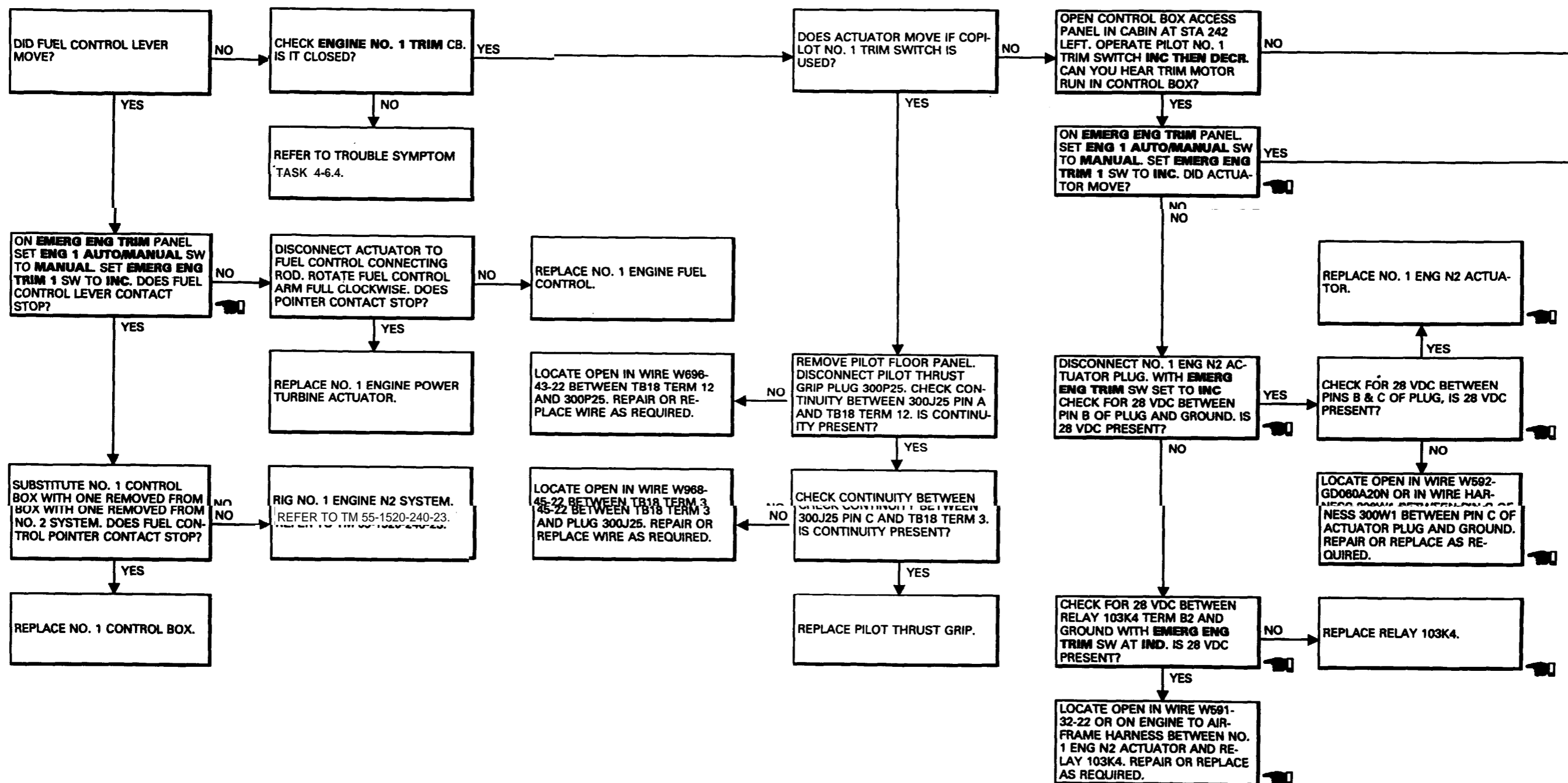


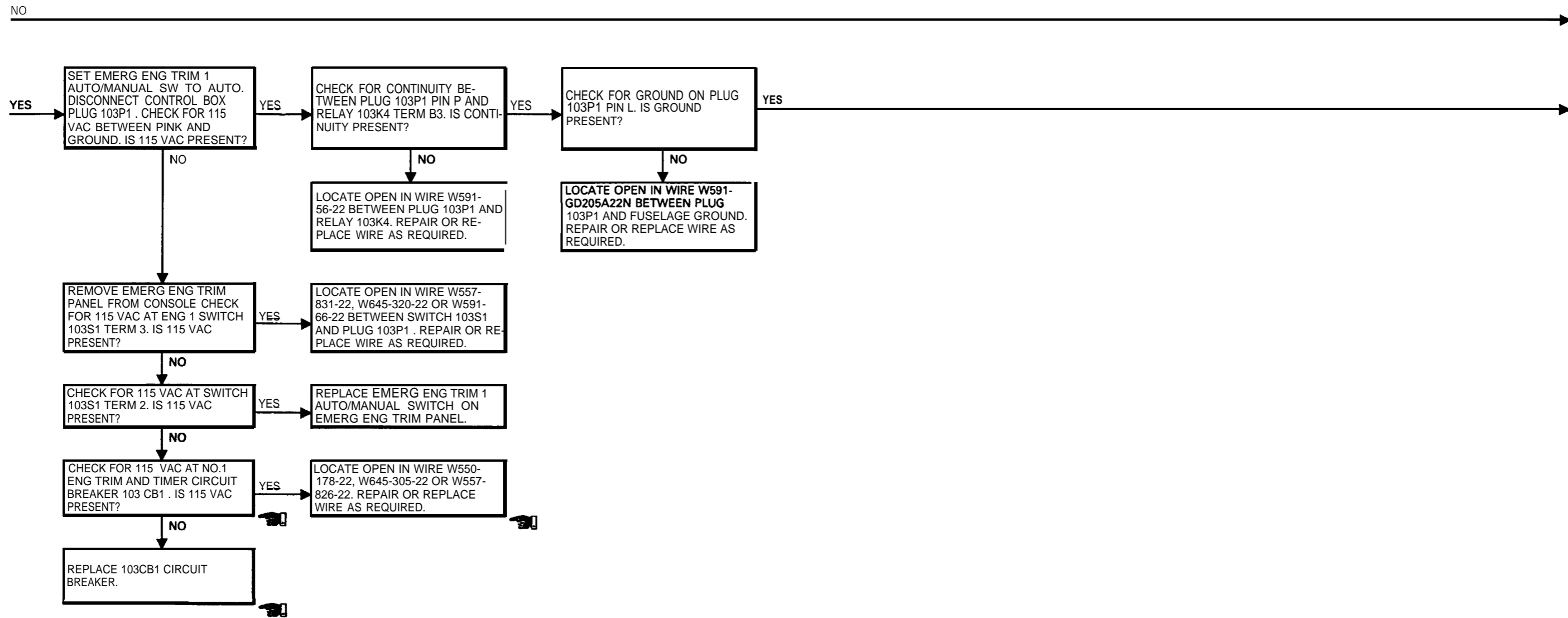
PILOT'S THRUST GRIP SHOWN. COPILOT'S SAME



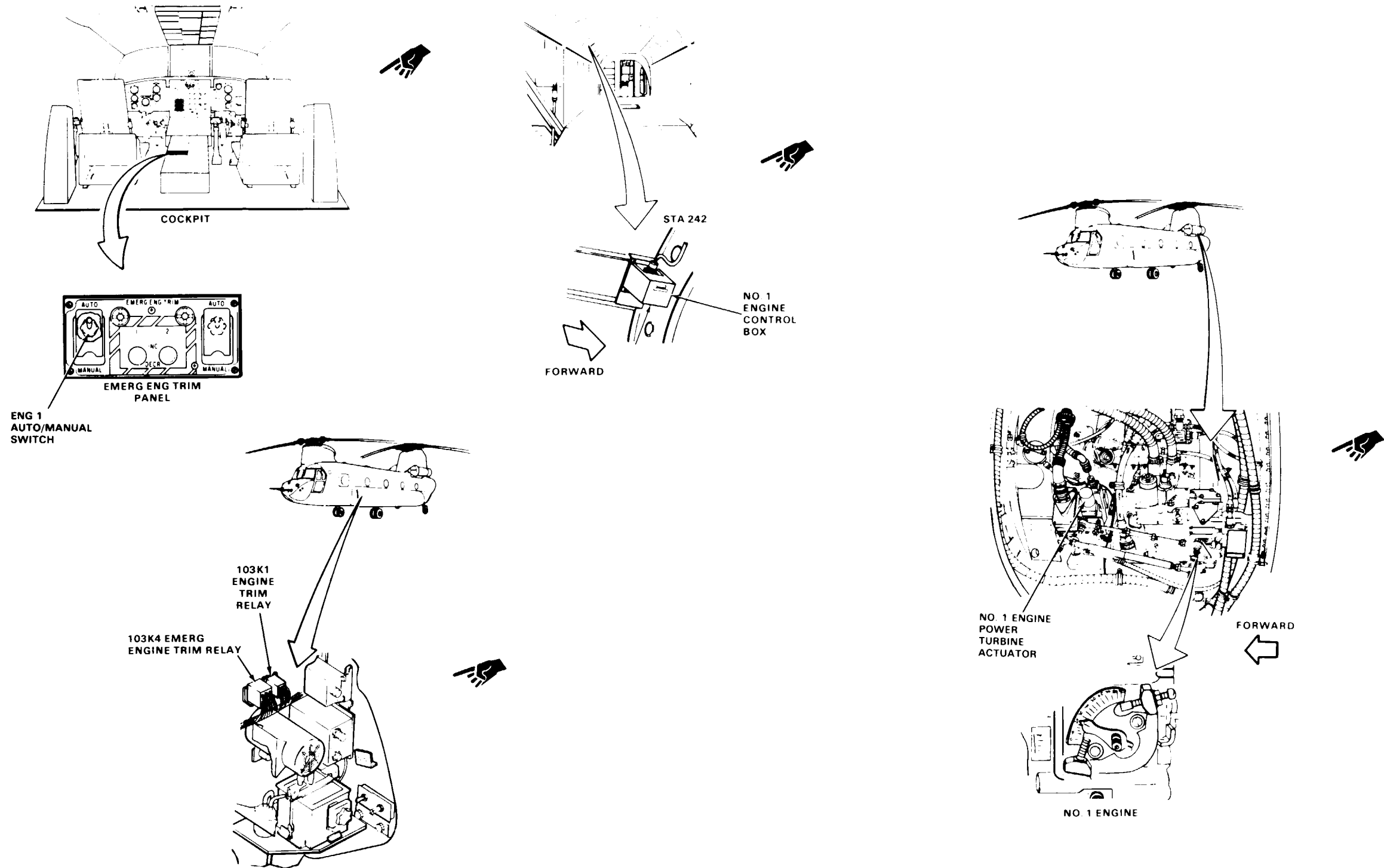
D145-11978-SPA

4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (Continued)



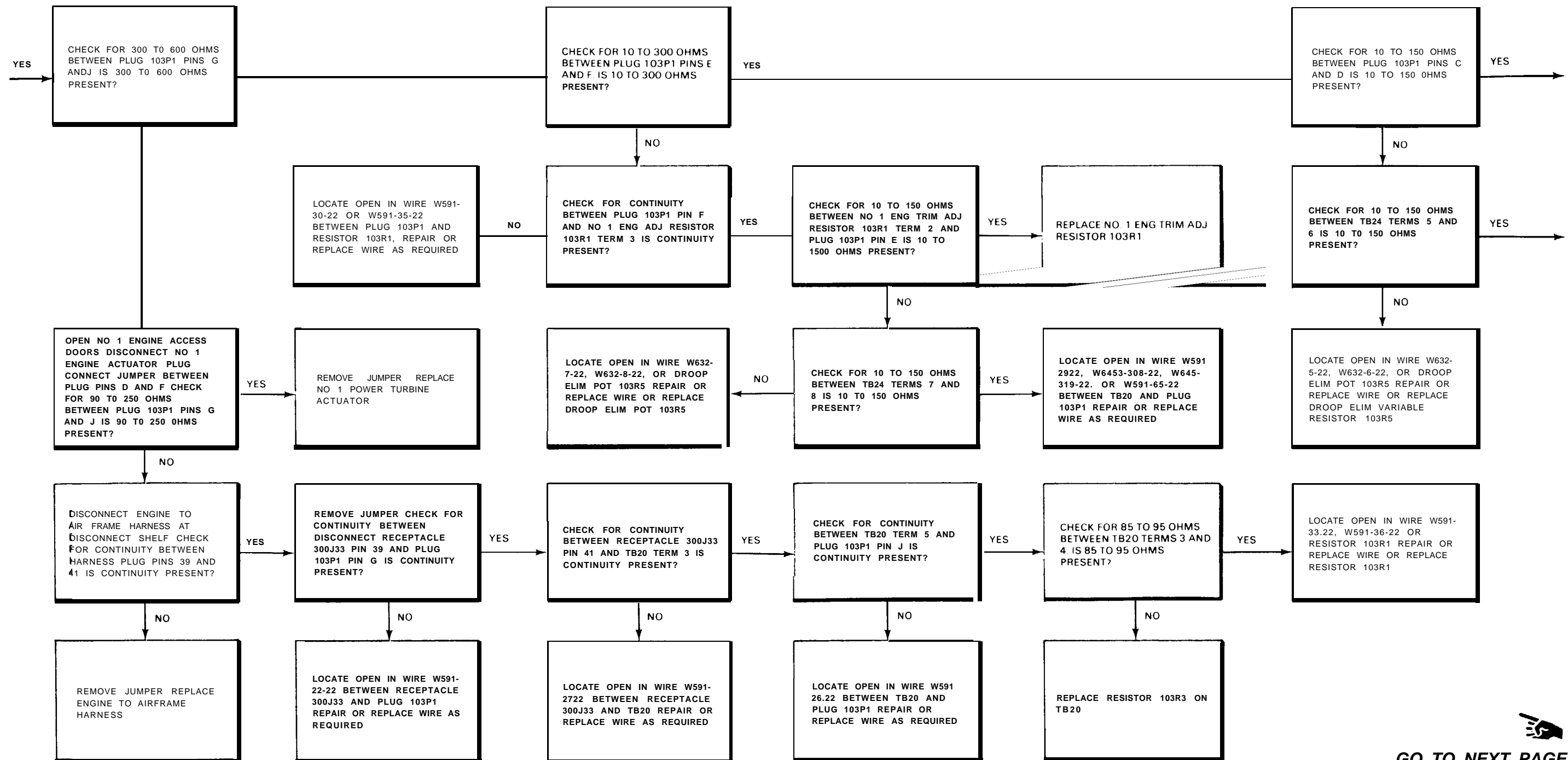


4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (Continued)



4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (Continued)

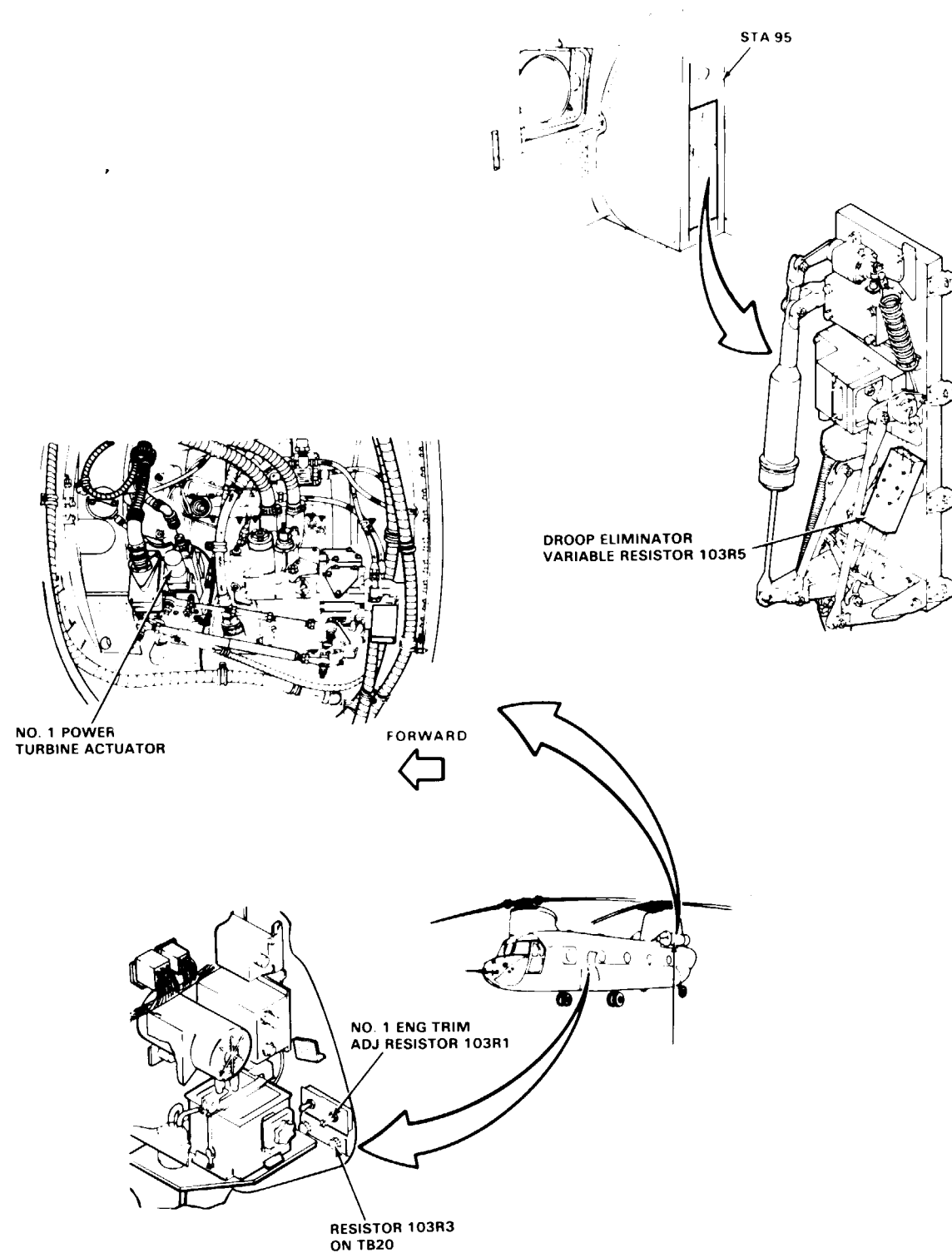
NO





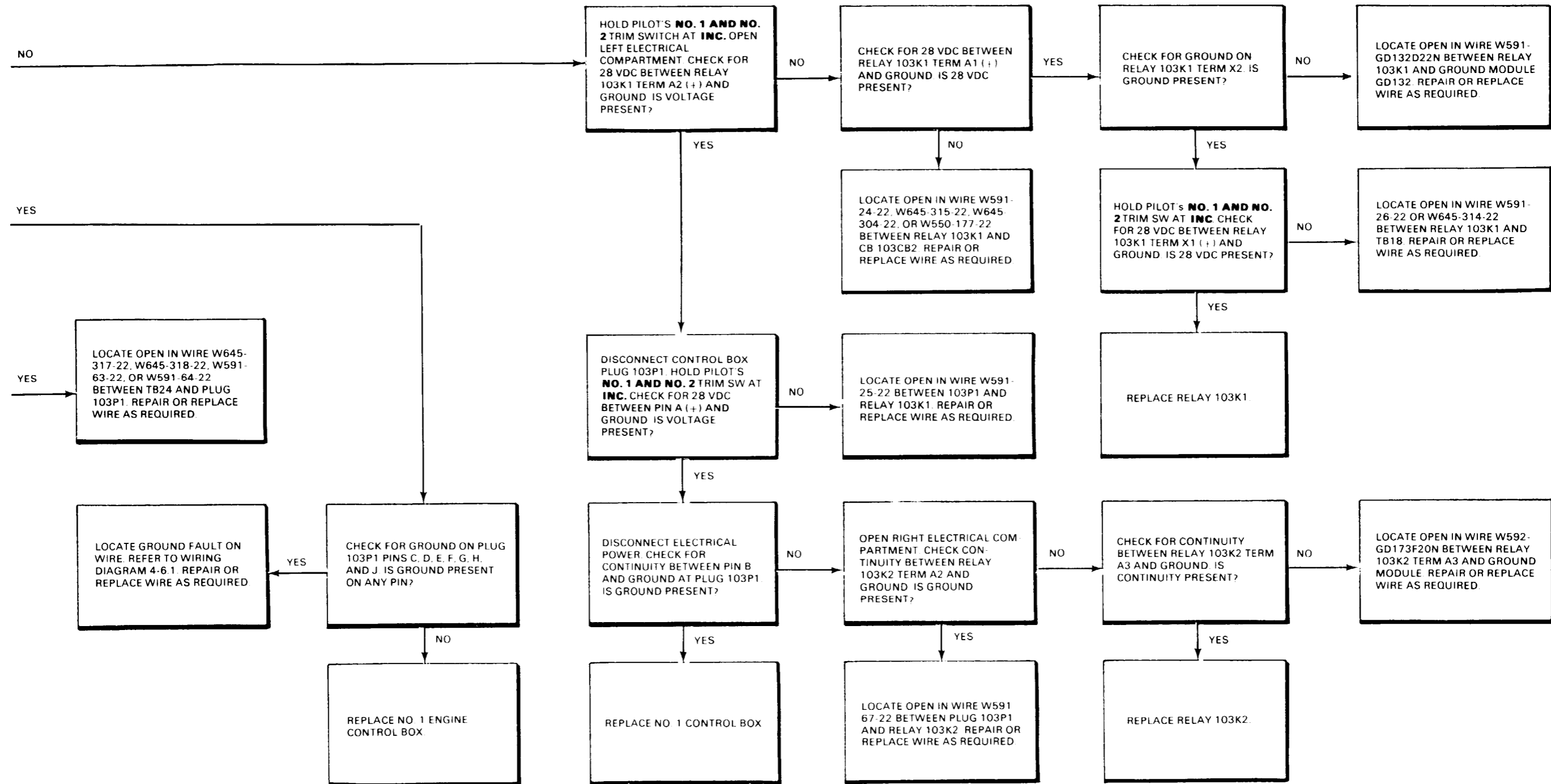
4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE  
OR MOVES BUT DOES NOT CONTACT STOP (Continued)

4-6.10



GO TO NEXT PAGE

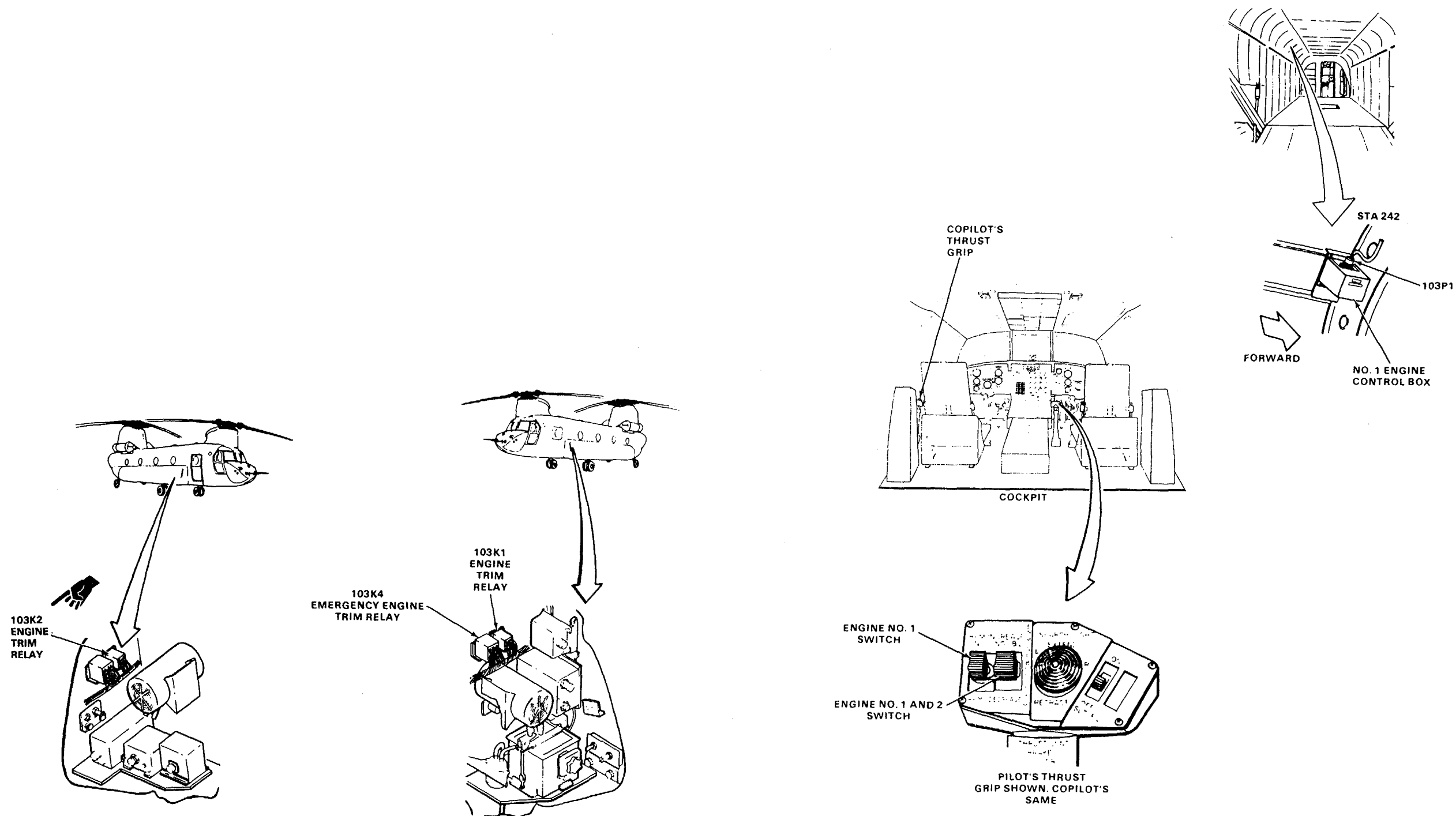
4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (Continued)



GO TO NEXT PAGE

4-6.10 NO. 1 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (Continued)

4-6.10



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

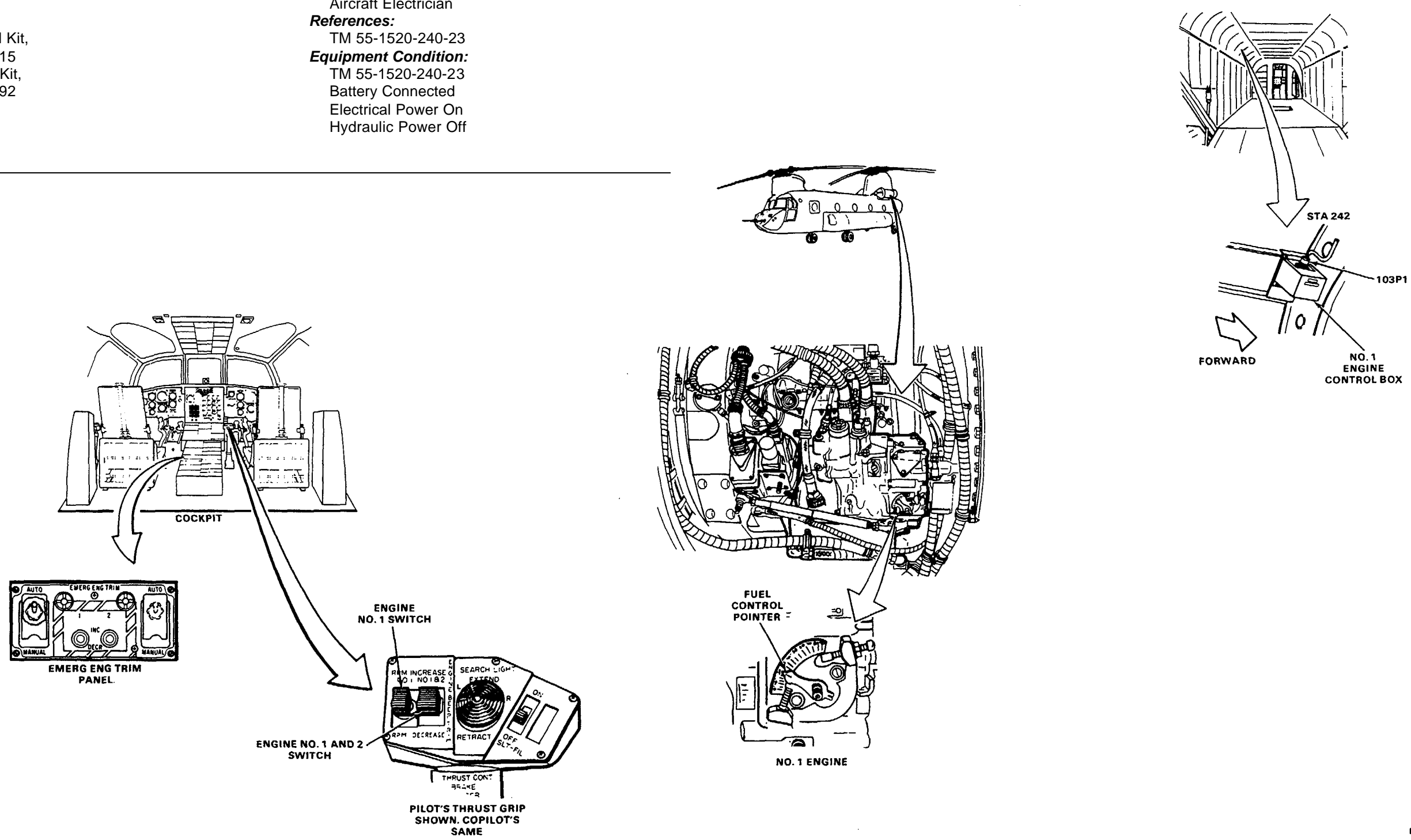
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power Off

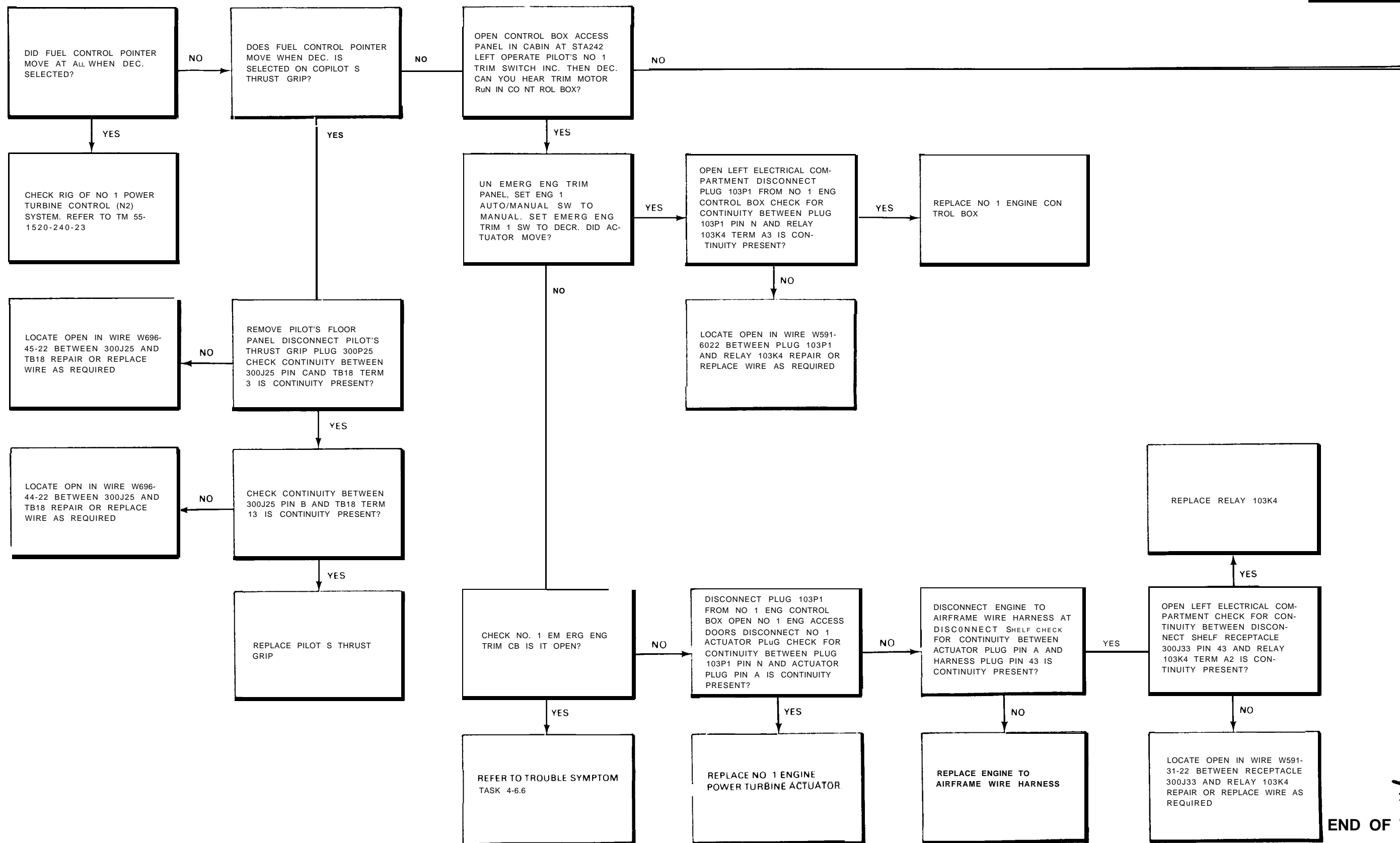


90 x 54

D145-11982-SPA

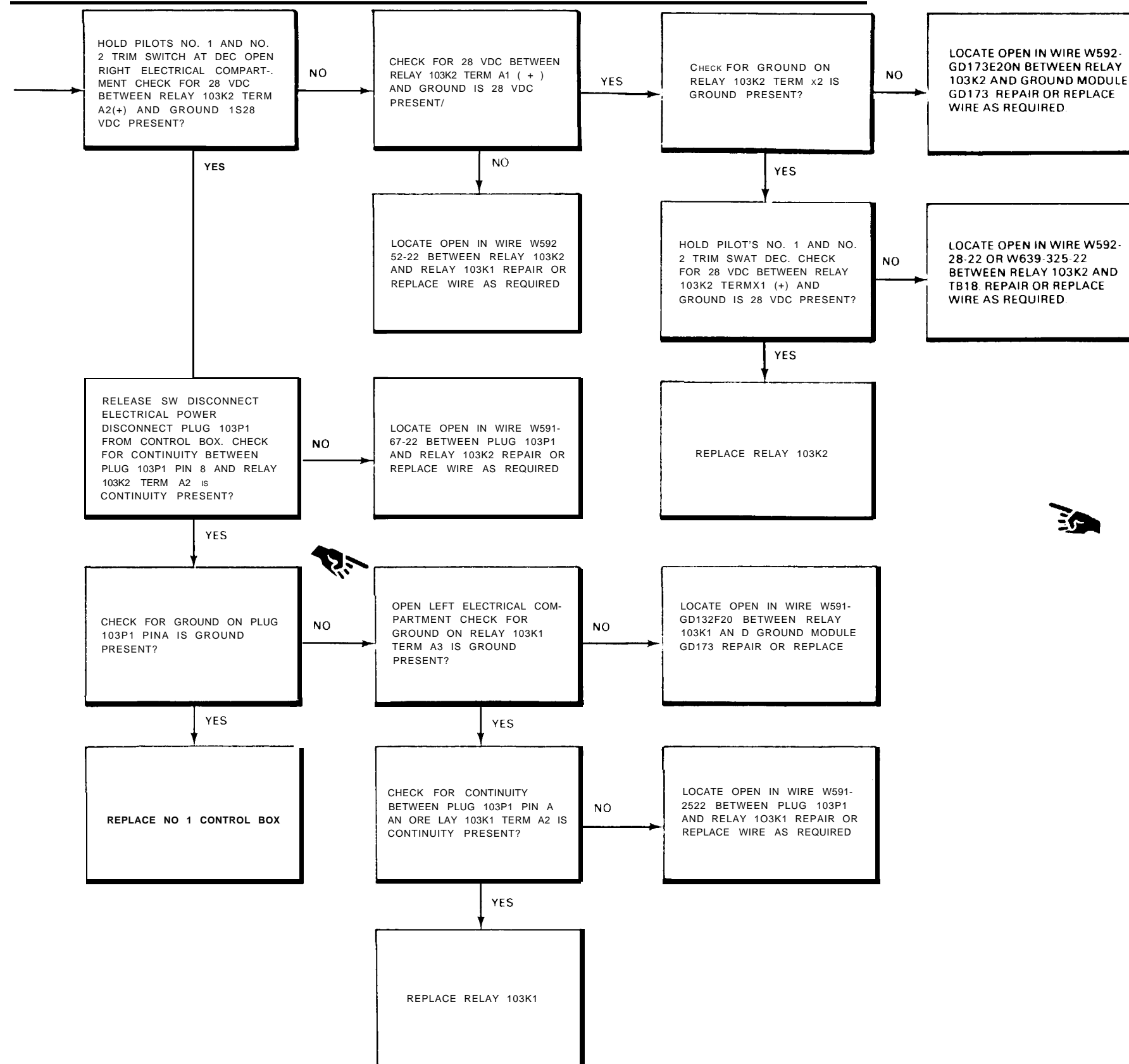
**4-6.11 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED) (Continued)**

4-6.11



END OF TASK

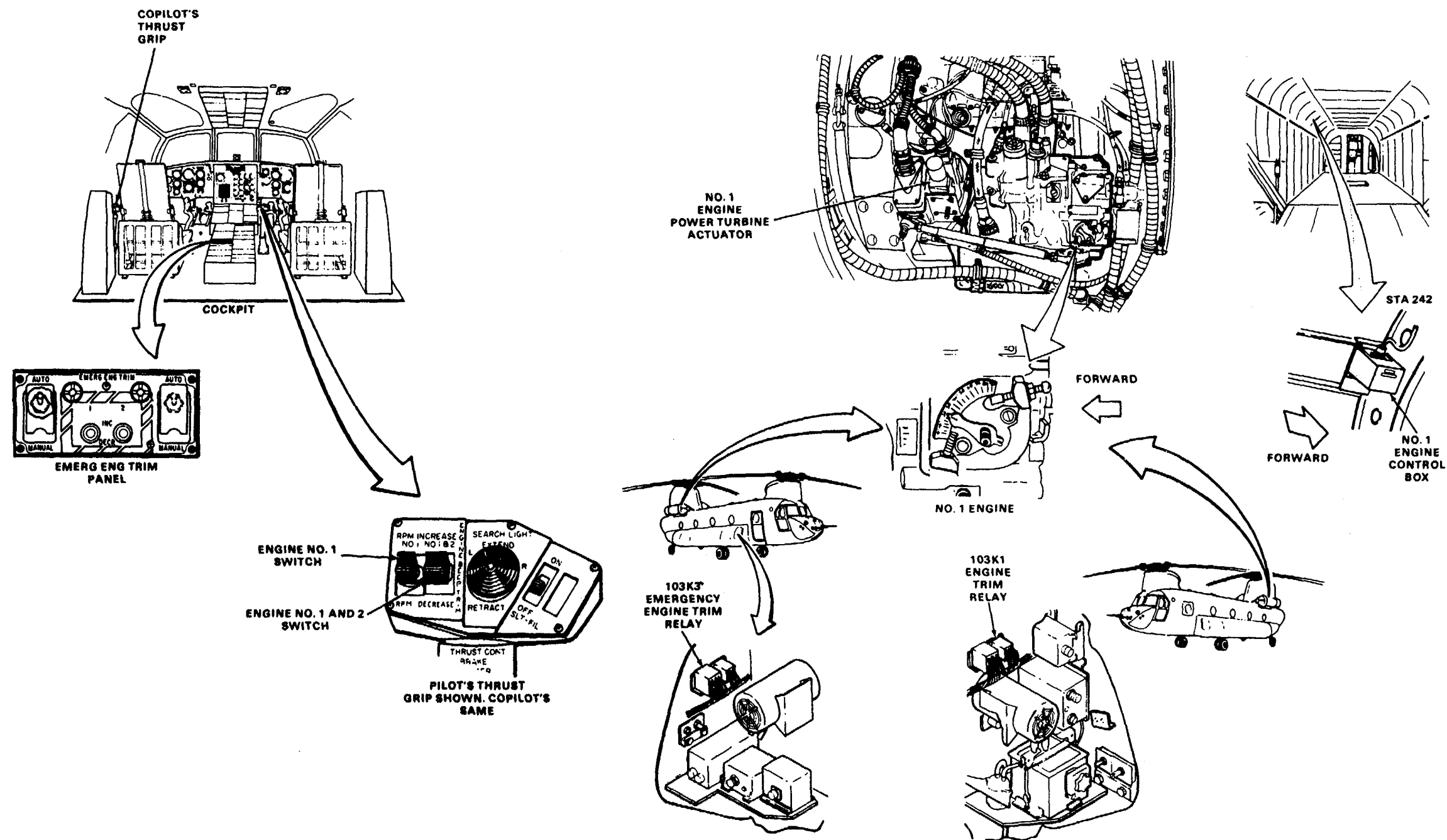
4-6.11 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED) (Continued)



GO TO NEXT PAGE

4-6.11 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE (DECREASE SELECTED) (Continued)

4-6.11



90 X 54

D145-11983-SPA

END OF TASK

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

- Medium Helicopter Repairer
- Aircraft Electrician

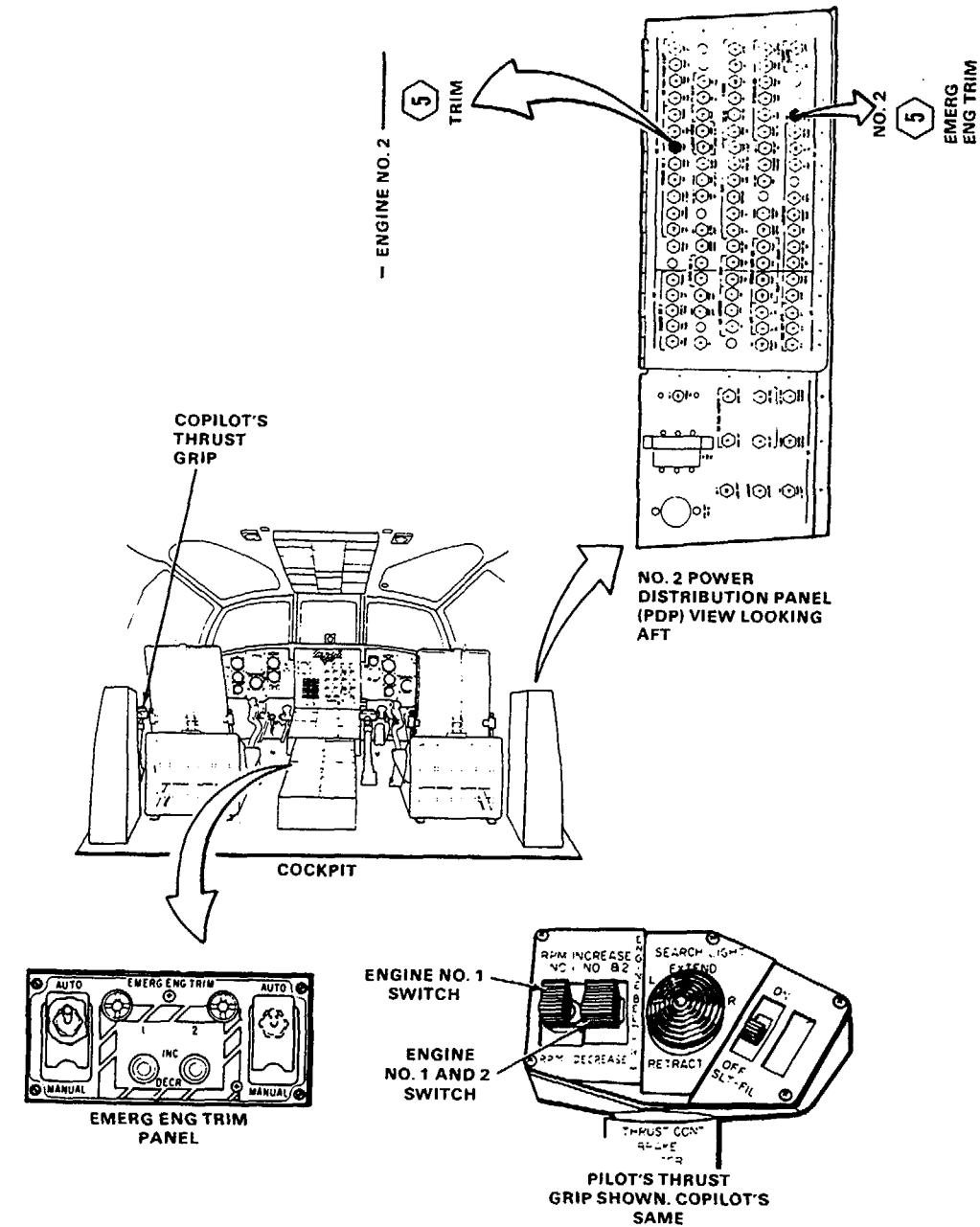
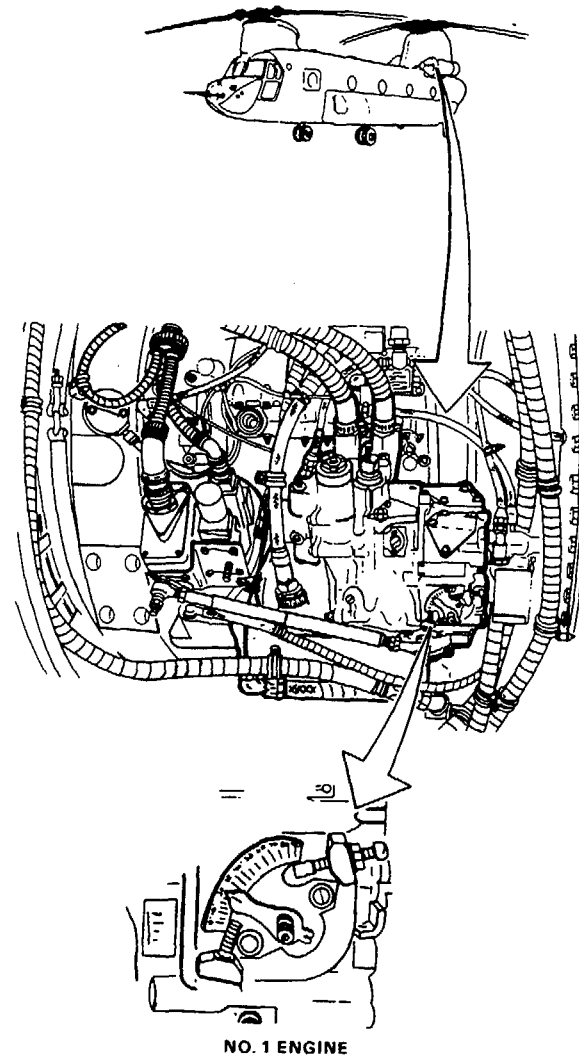
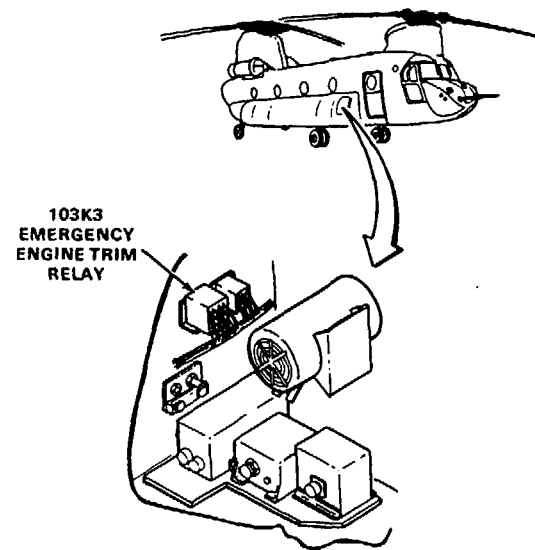
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23

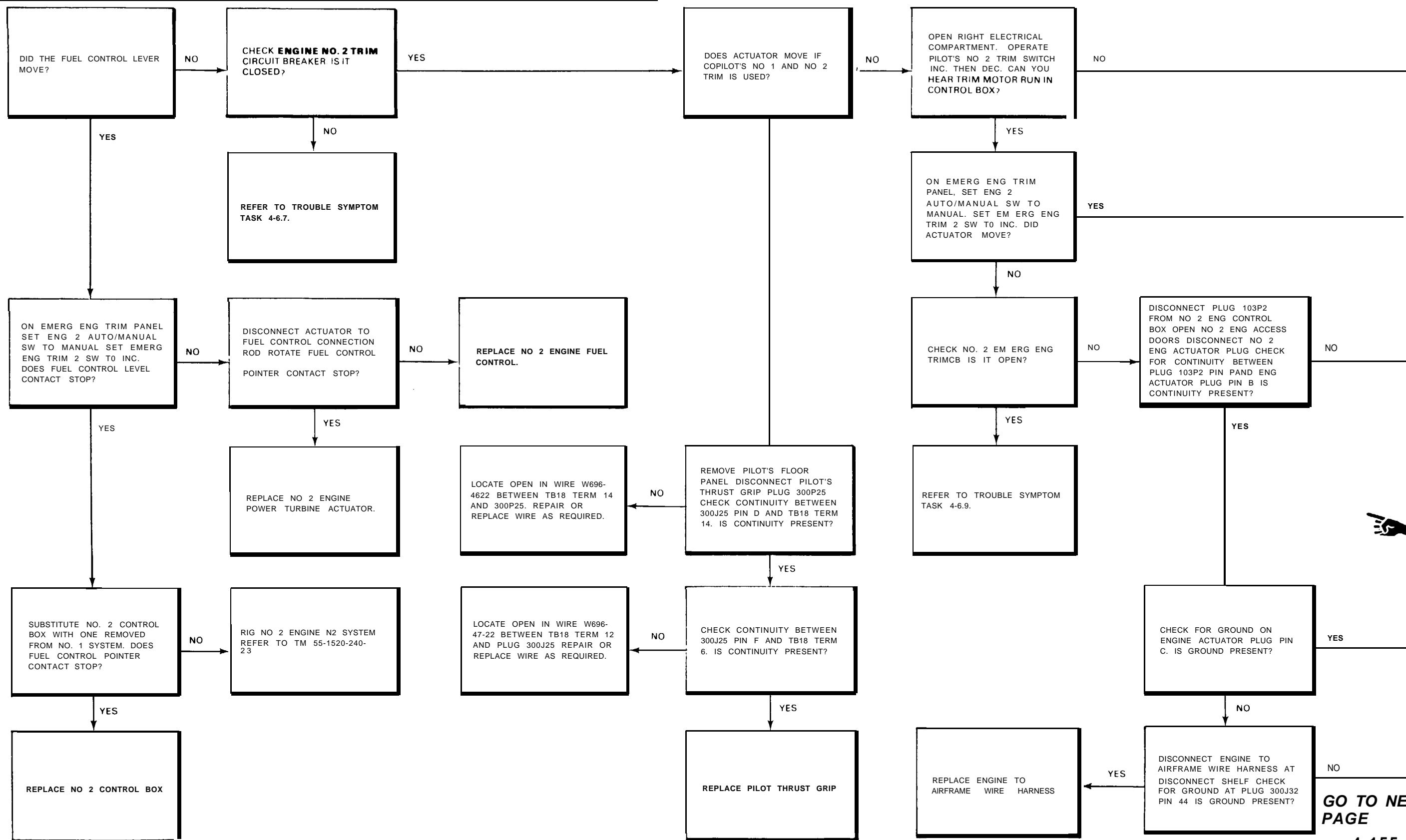
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



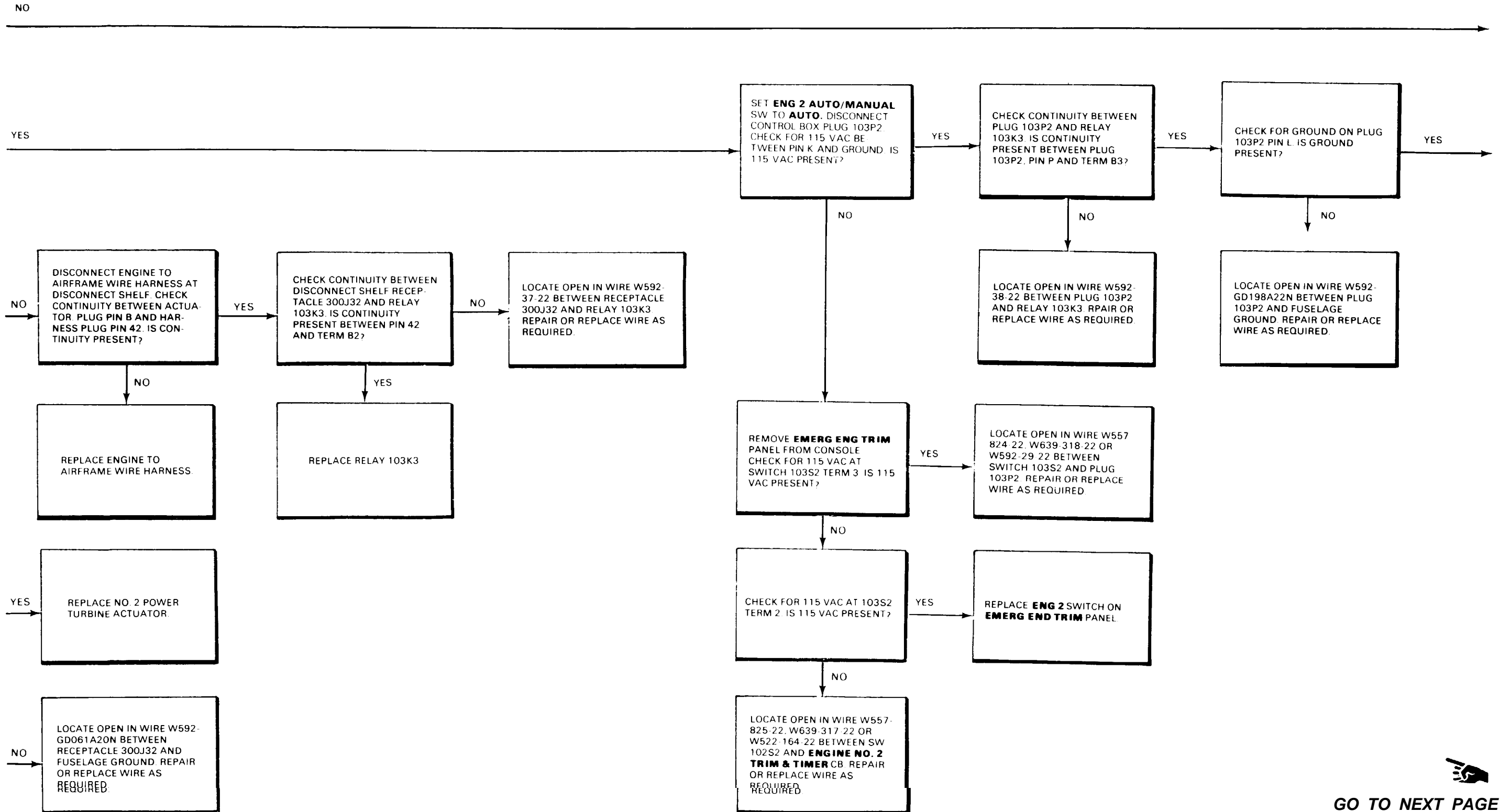


**4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)**

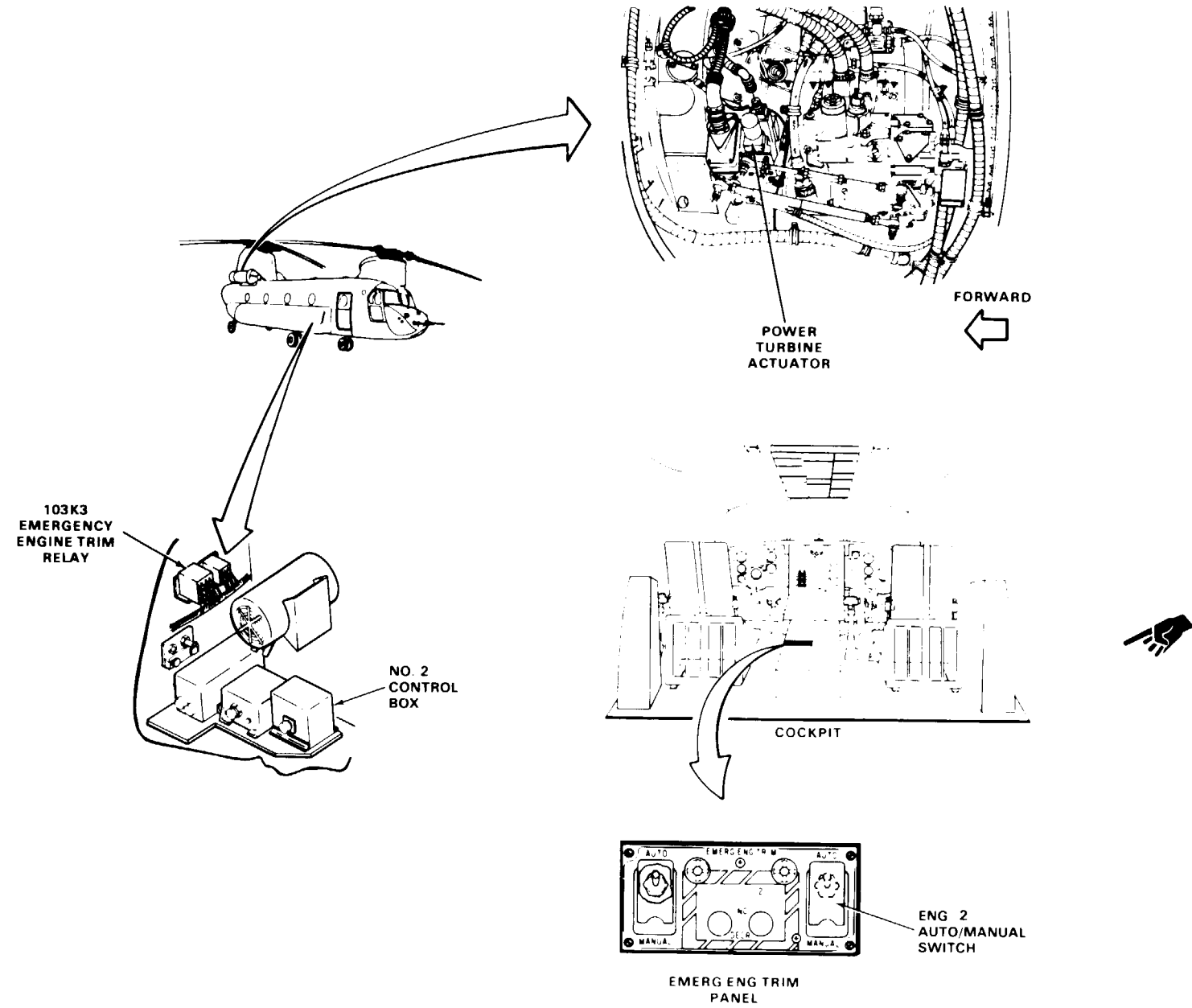
4-6.12



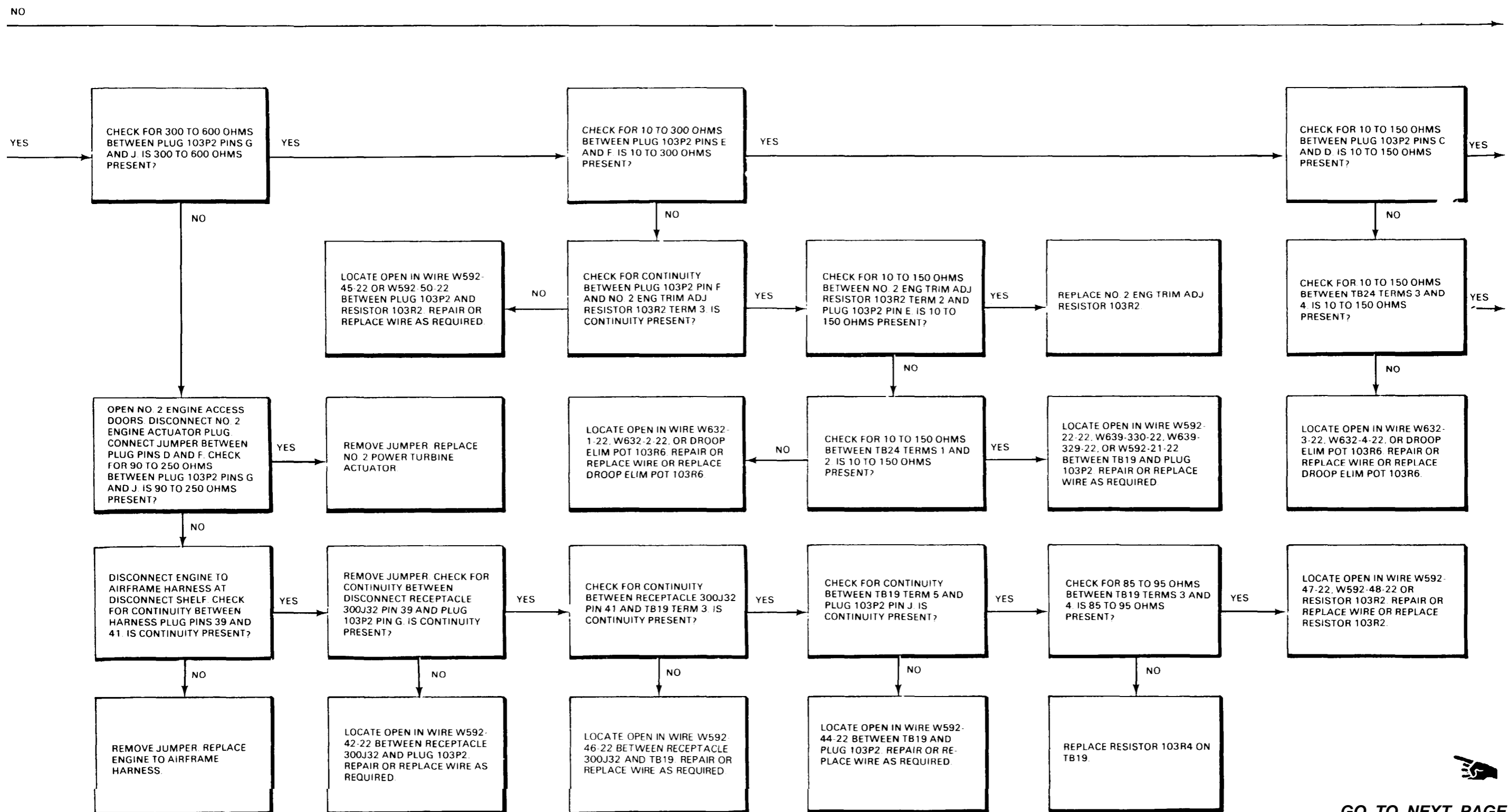
4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)



4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)

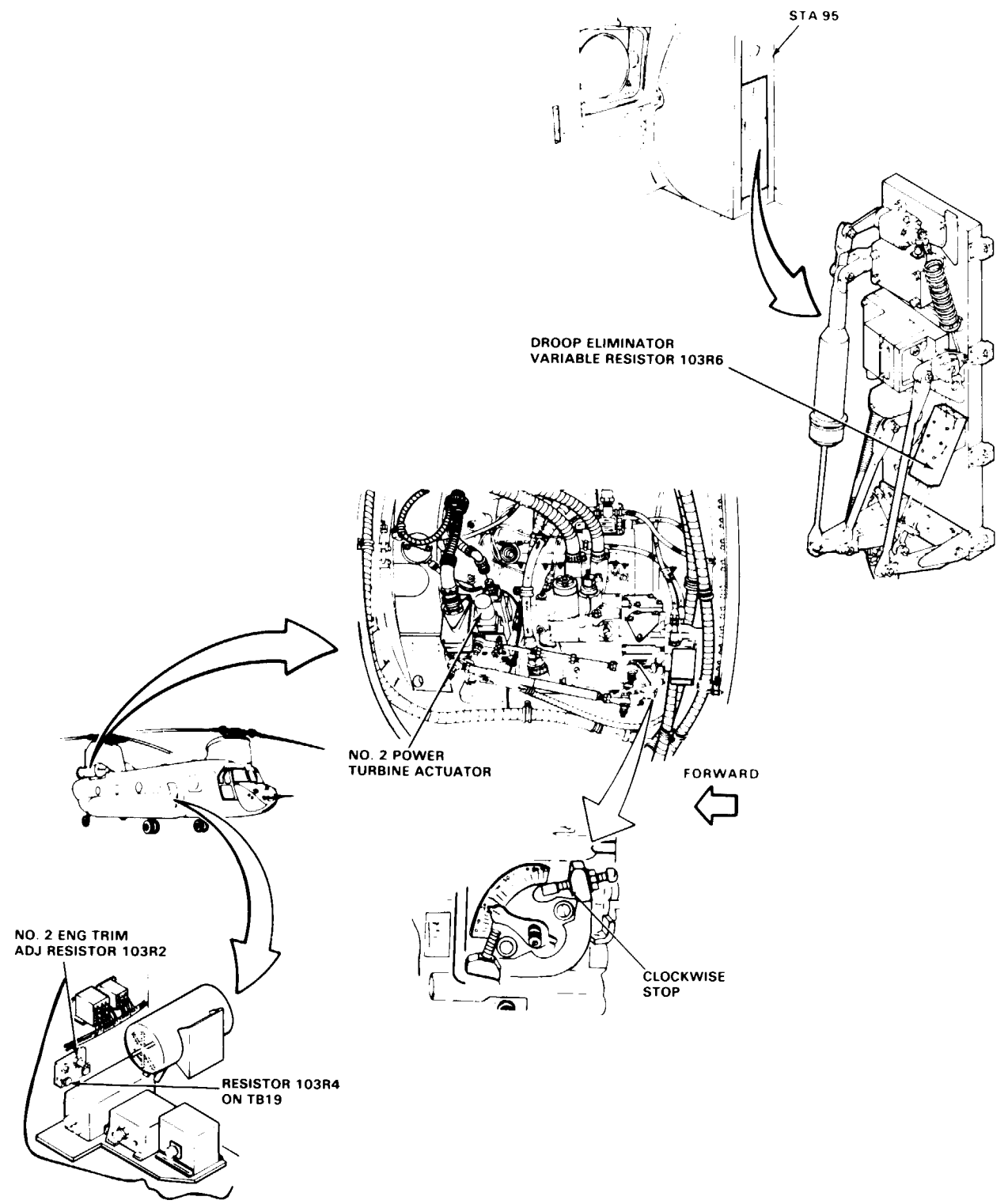


4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)

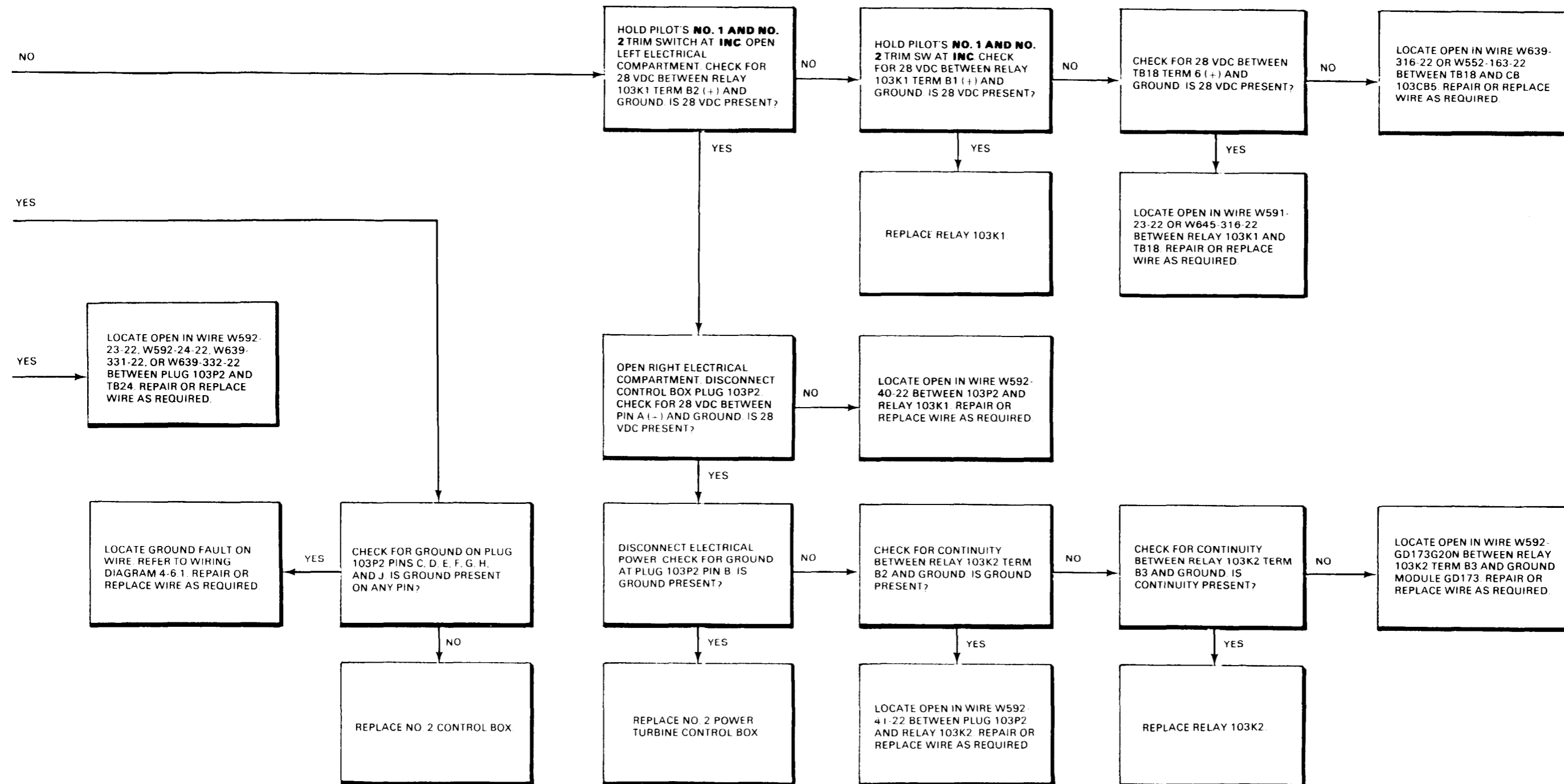


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4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)

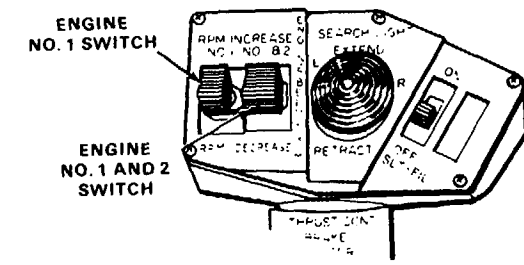
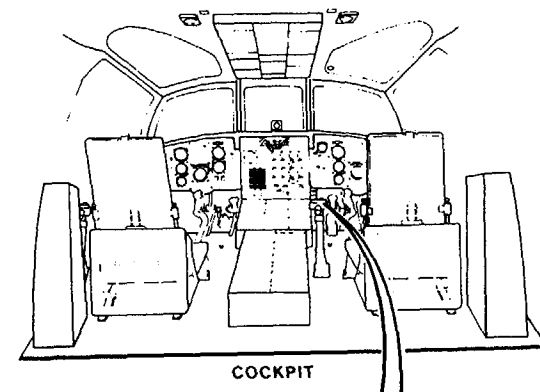


4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)

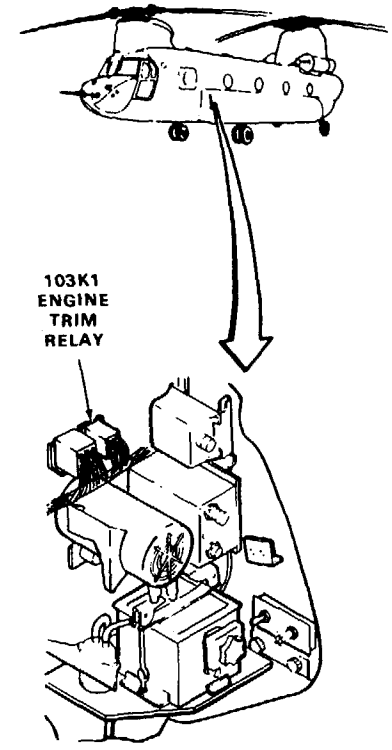
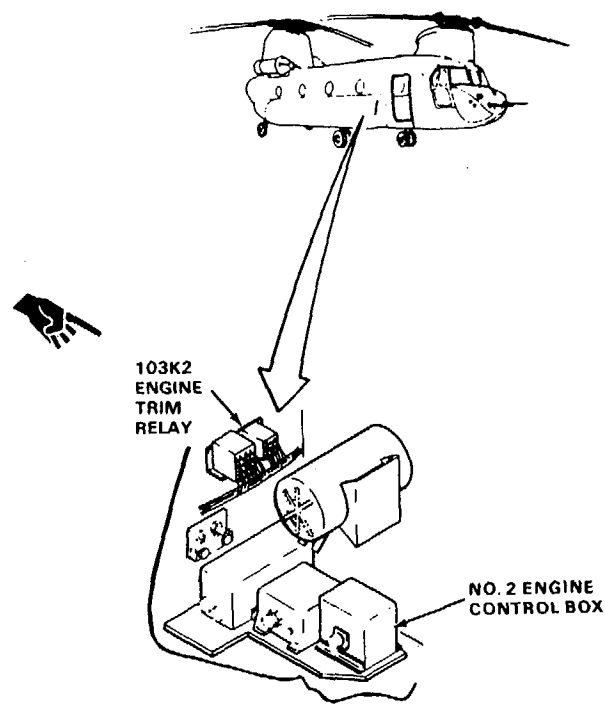


GO TO NEXT PAGE

4-6.12 NO. 2 ENGINE POWER TURBINE LEVER DOES NOT MOVE OR MOVES BUT DOES NOT CONTACT STOP (INCREASE SELECTED) (Continued)



PILOT'S THRUST GRIP SHOWN. COPILOT'S SAME



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

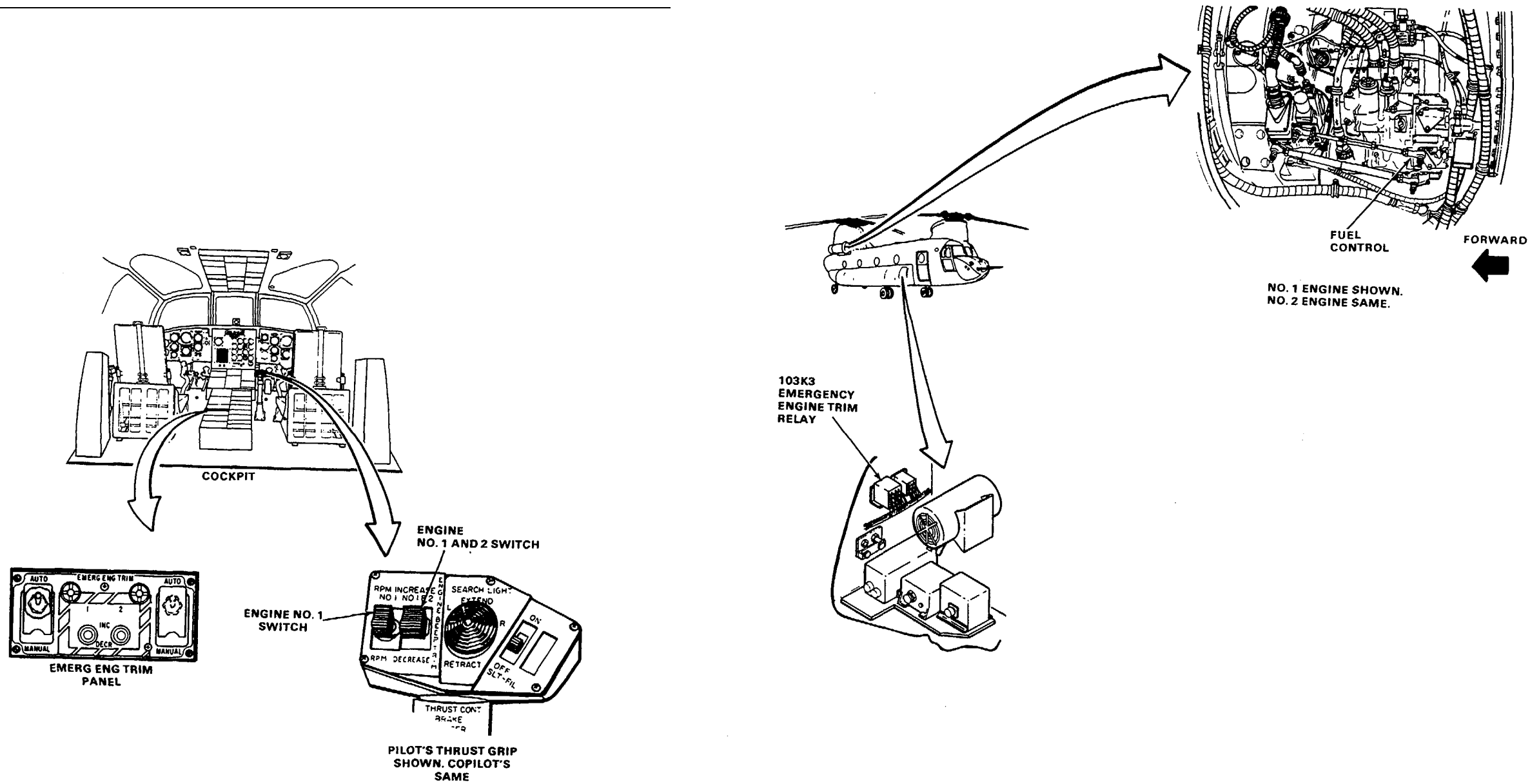
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

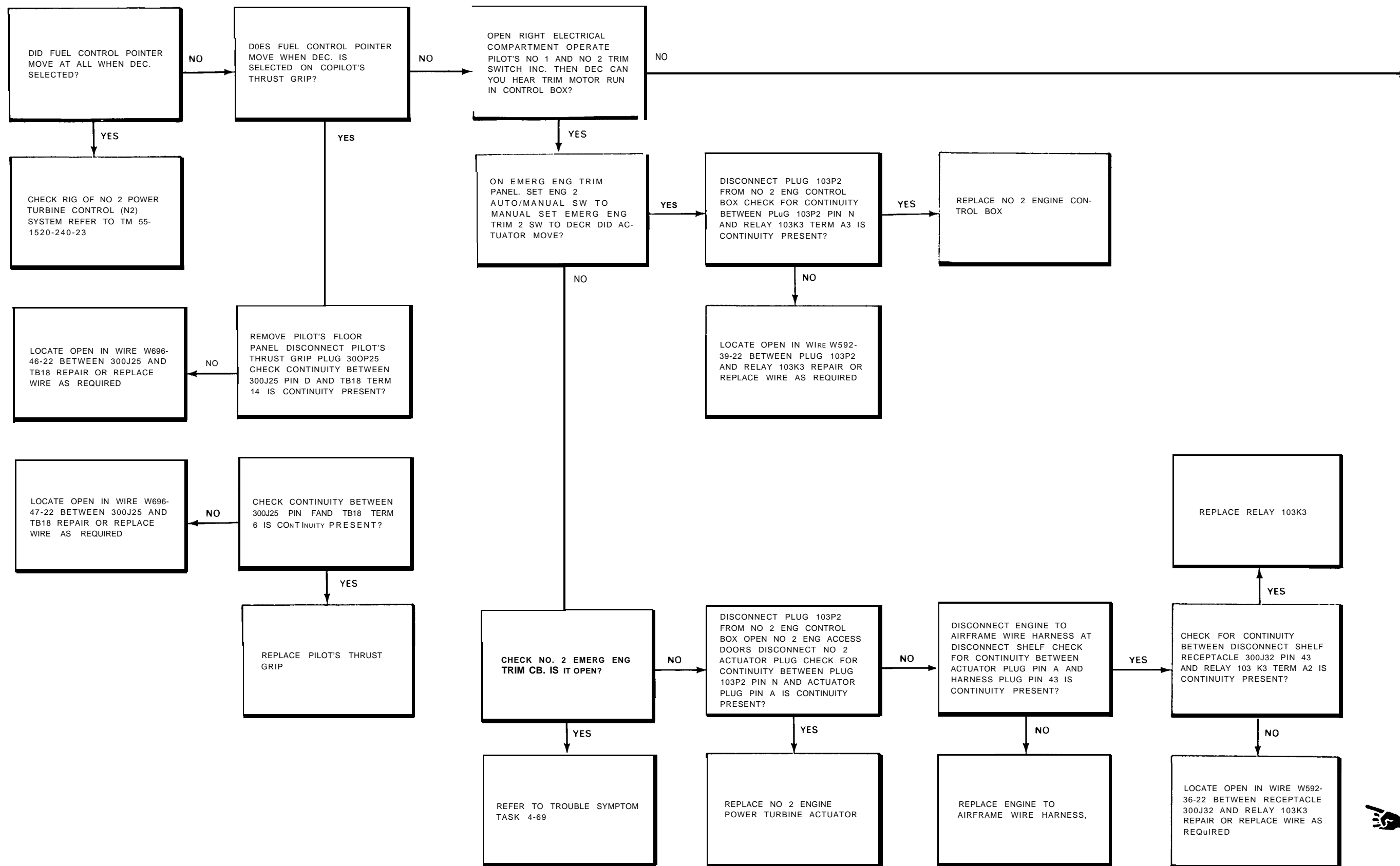
- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



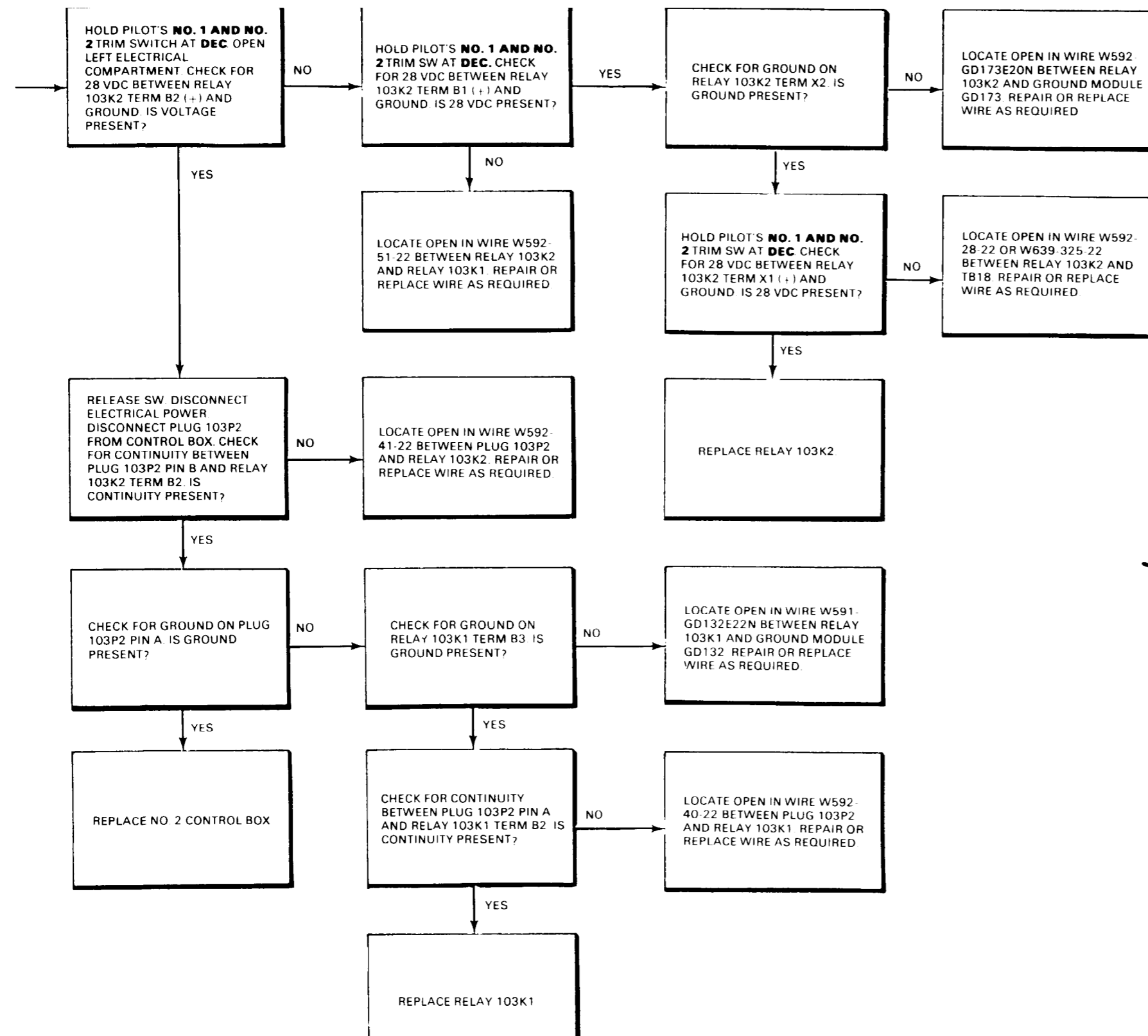
90X54

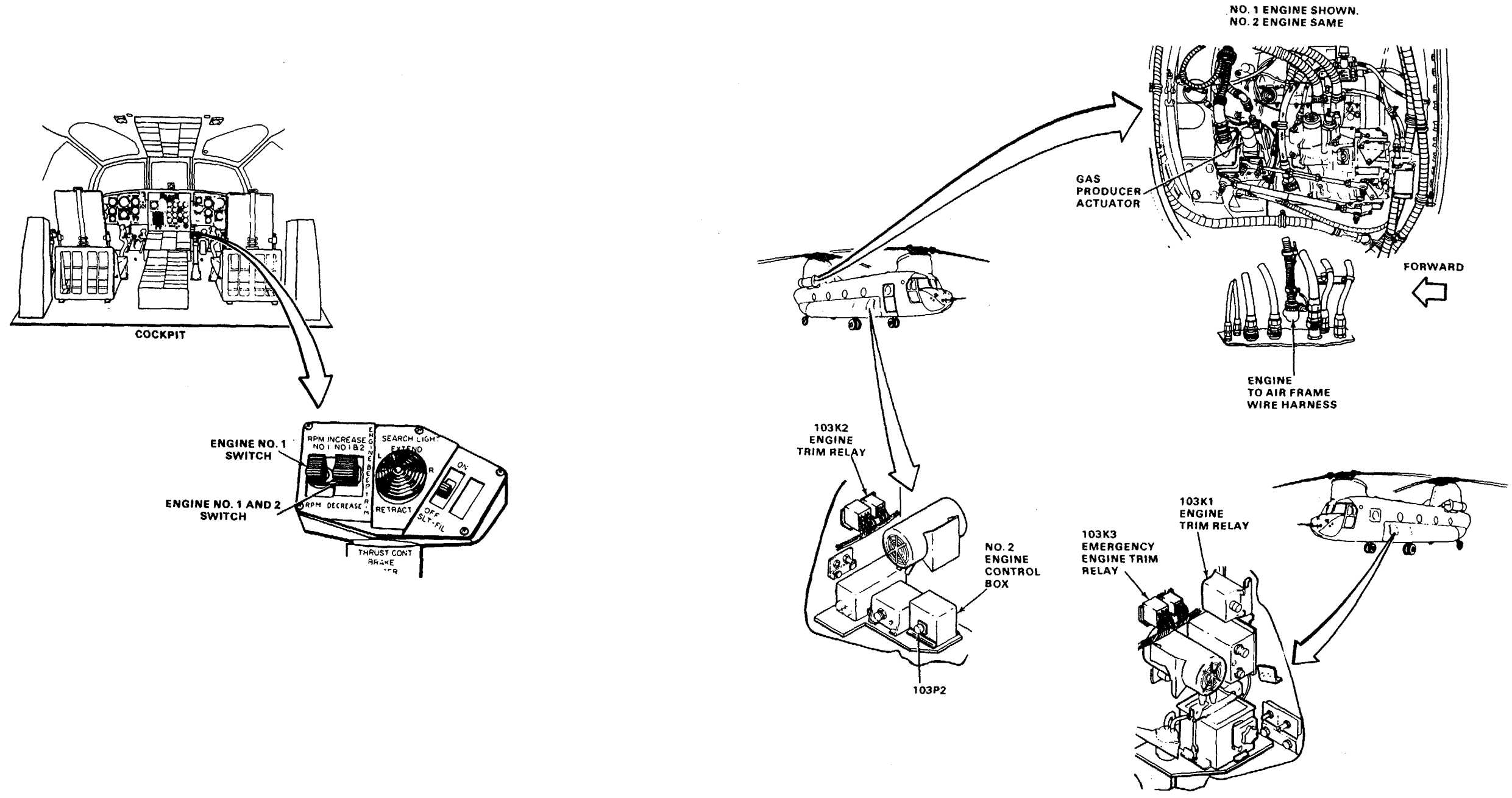


**4-6.13 NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED) (Continued)**



4-6.13 NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE OR MOVES BUT STOPS OUTSIDE OF 13° TO 21° ON PROTRACTOR (DECREASE SELECTED) (Continued)





90X54

D145-11990-SPA

4-6.14 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN COPILOT'S NO. 1 ENGINE BEEP TRIM SWITCH SET TO RPM INCREASE

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

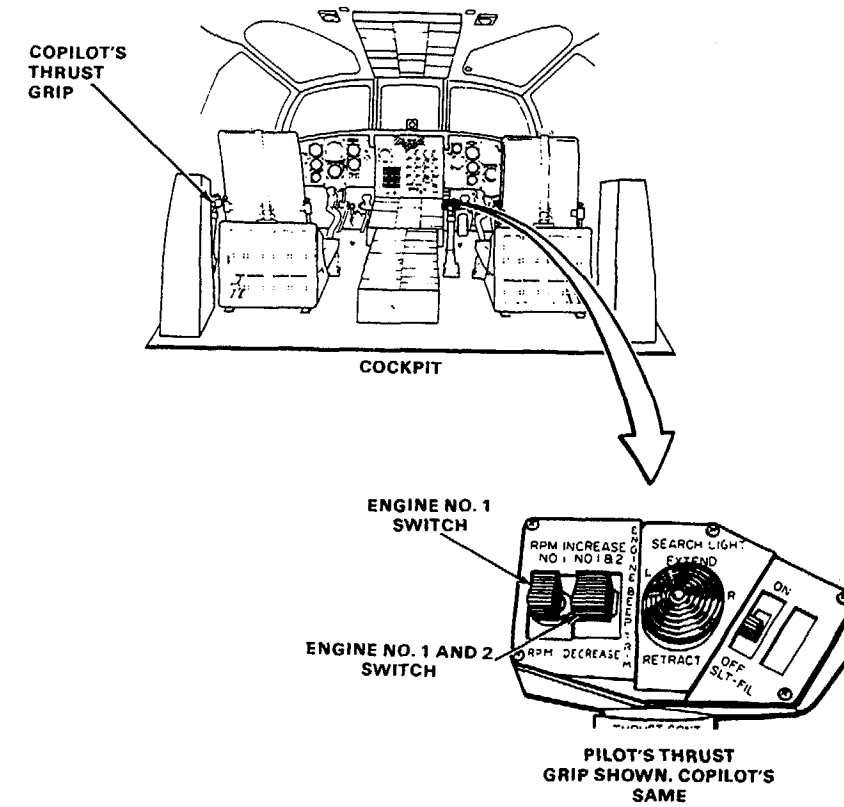
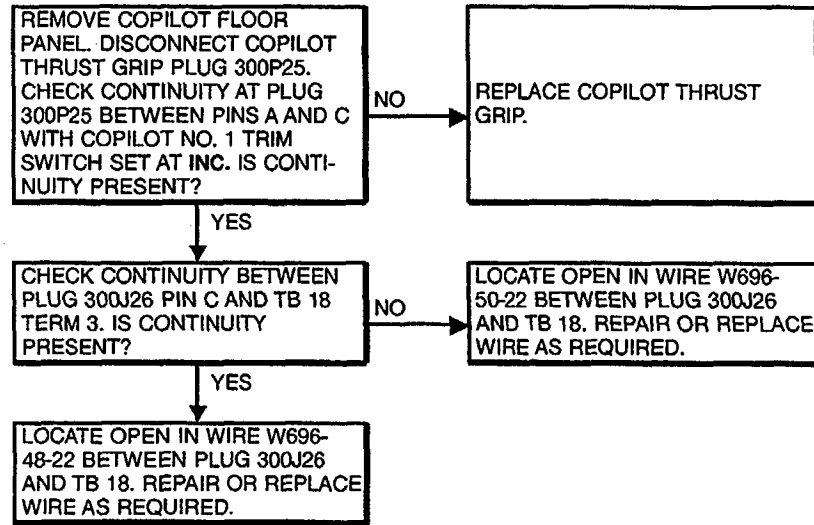
**Equipment Condition:**

TM 55-1520-240-23

Battery Disconnected

Electrical Power Off

Hydraulic Power Off



45X54

D145-11992-SPA

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

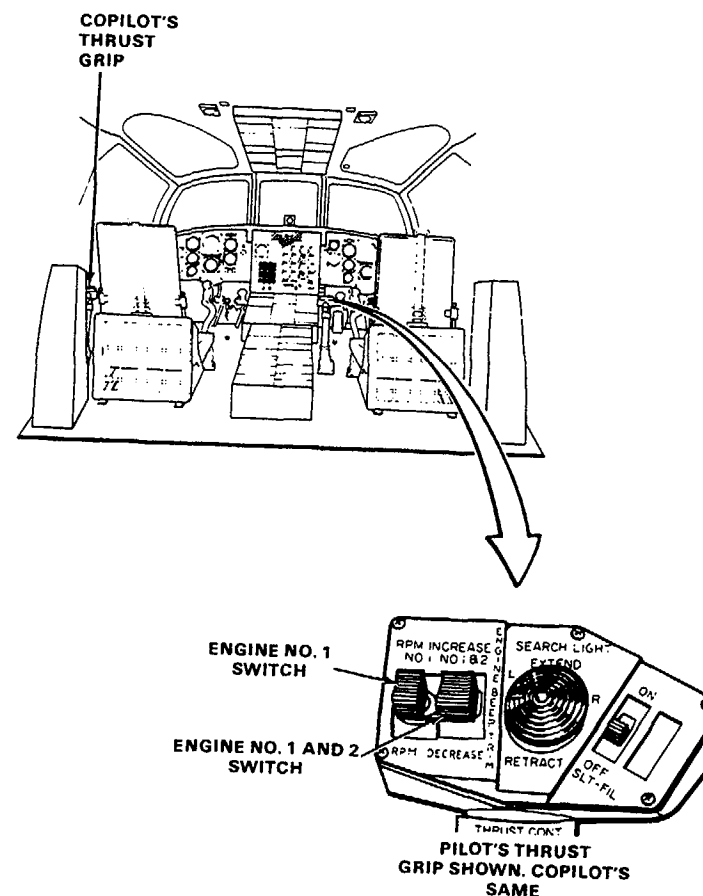
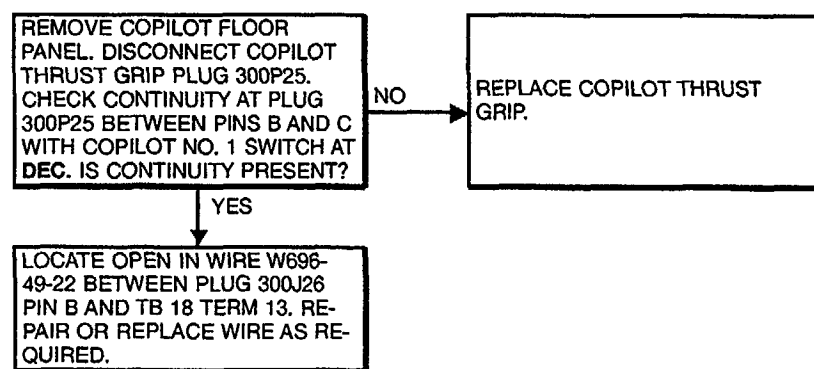
**Equipment Condition:**

TM 55-1520-240-23

Battery Disconnected

Electrical Power Off

Hydraulic Power Off



45X54

D145-11993-SPA

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

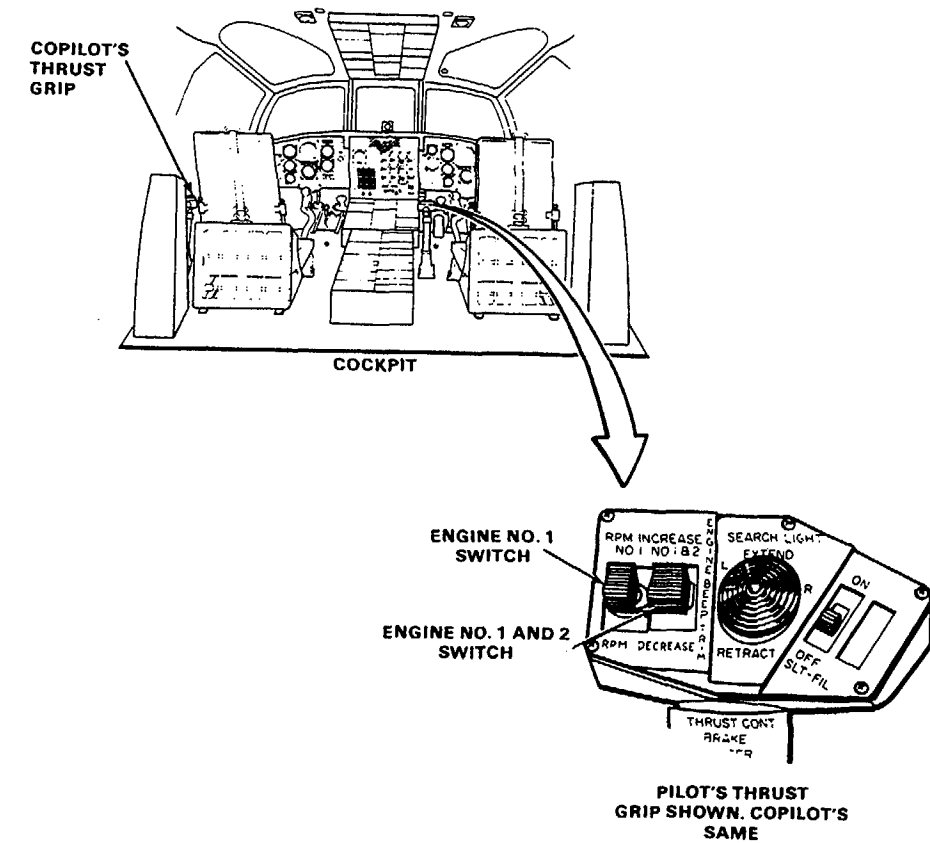
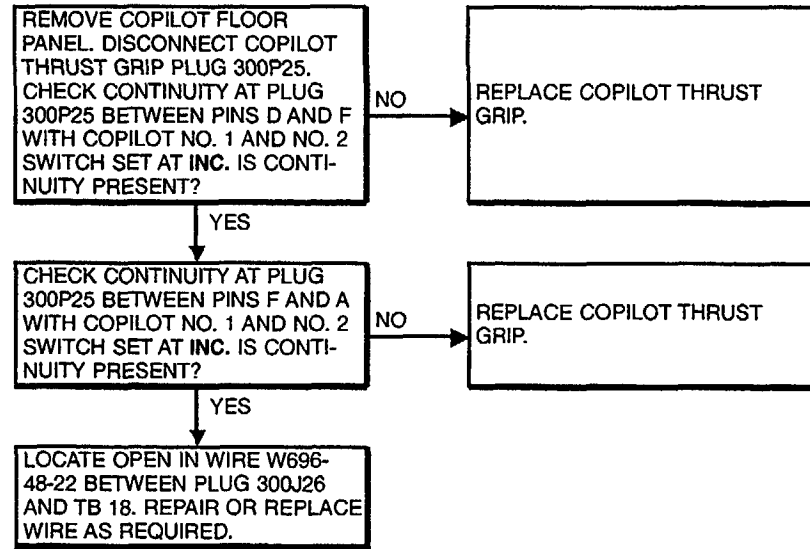
**Equipment Condition:**

TM 55-1520-240-23

Battery Disconnected

Electrical Power Off

Hydraulic Power Off



45X54

D145-11994-SPA

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

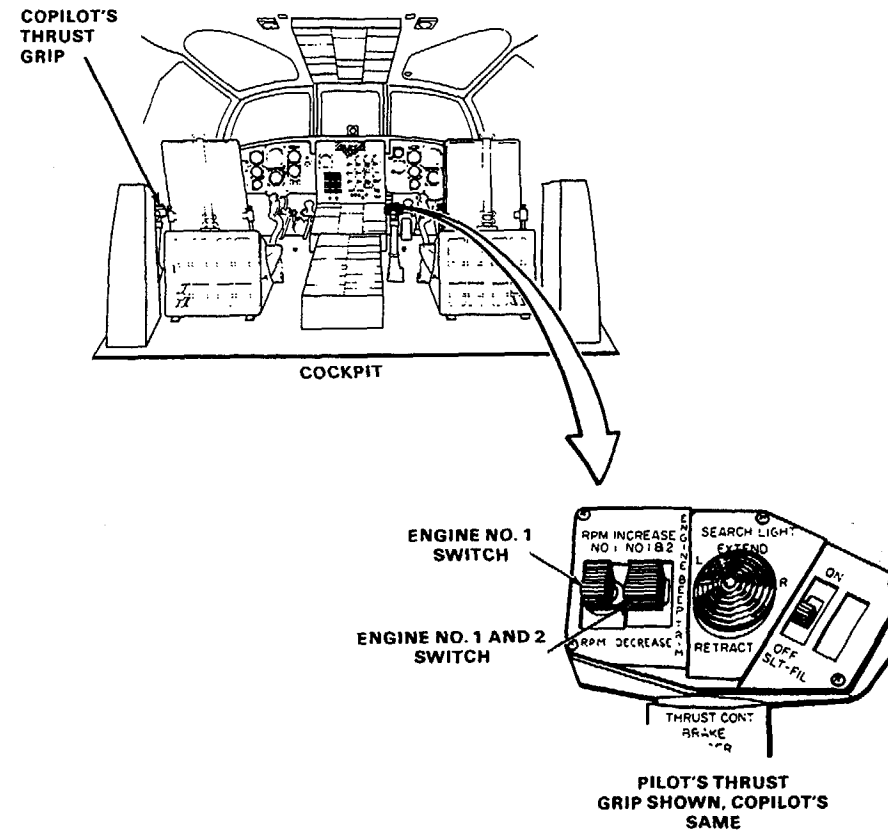
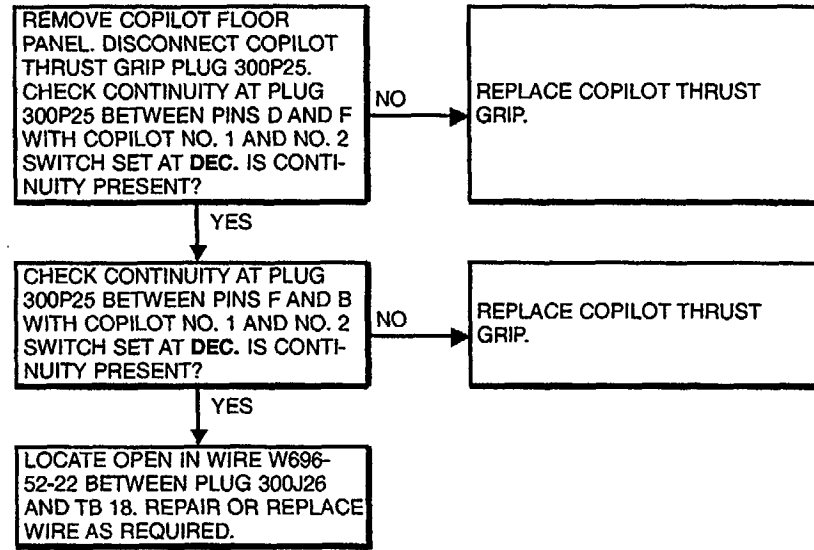
**Equipment Condition:**

TM 55-1520-240-23

Battery Disconnected

Electrical Power Off

Hydraulic Power Off



4-6.18 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO INC

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

- Medium Helicopter Repairer
- Aircraft Electrician

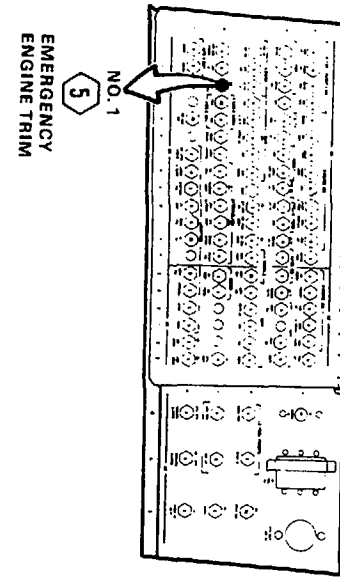
**References:**

TM 55-1520-240-23

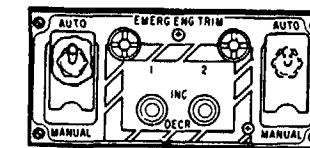
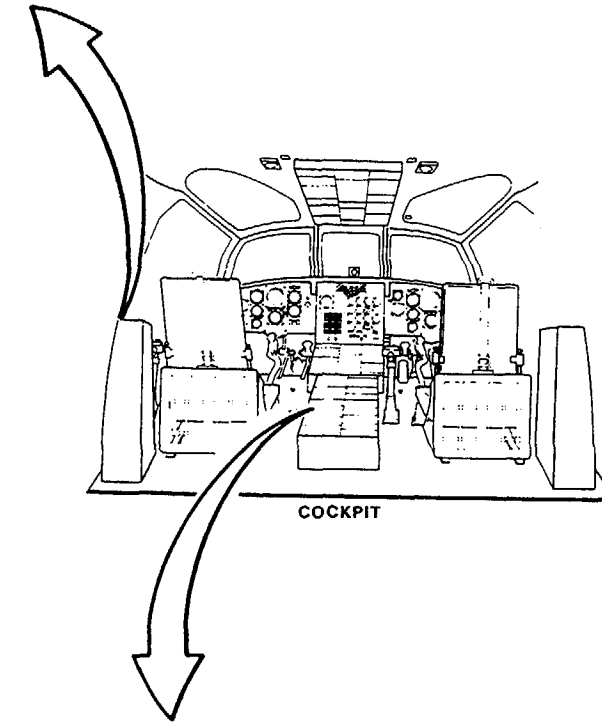
**Equipment Condition:**

TM 55-1520-240-23:

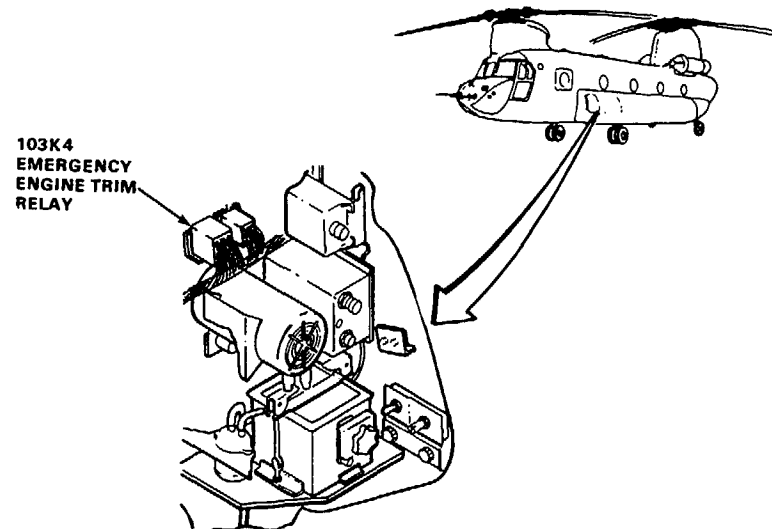
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



EMERGENCY TRIM PANEL



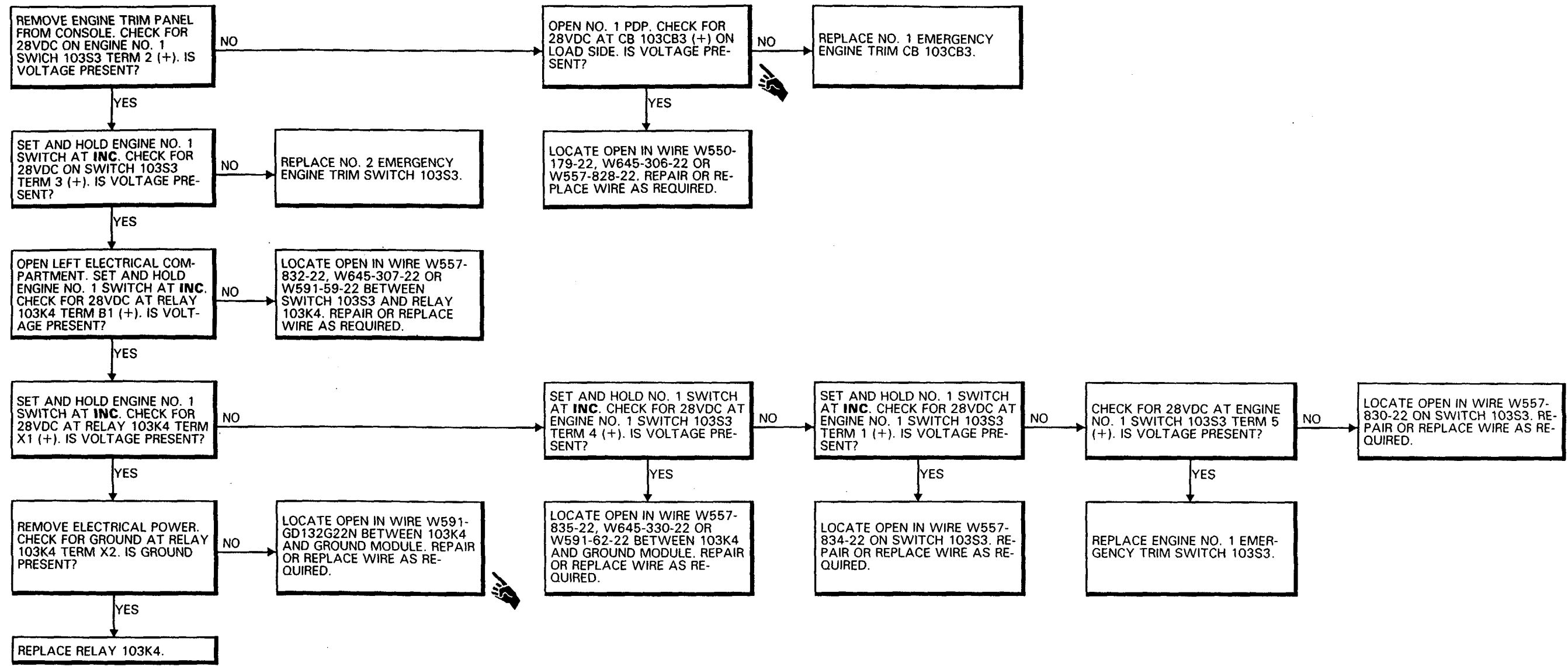
103K4 EMERGENCY ENGINE TRIM RELAY

90X54

D145-11996-SPA



4-6.18 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO INC (Continued)



END OF TASK

4-6.19 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO DEC

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

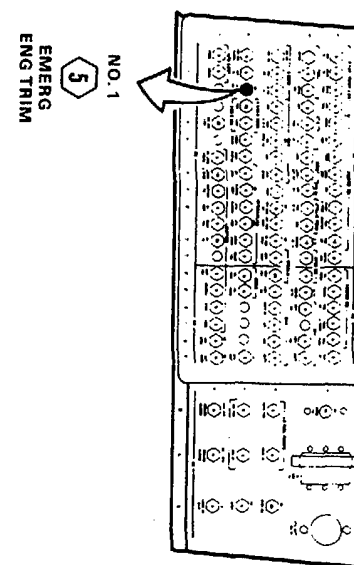
Aircraft Electrician (2)

**References:**

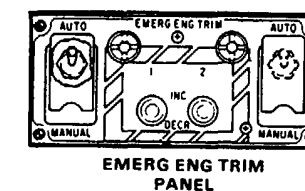
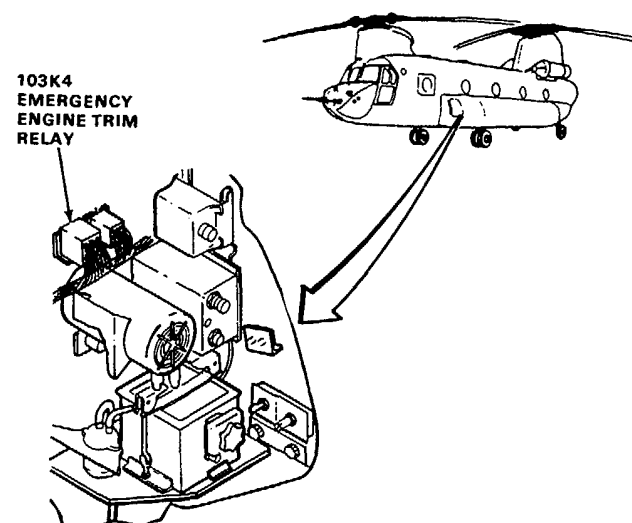
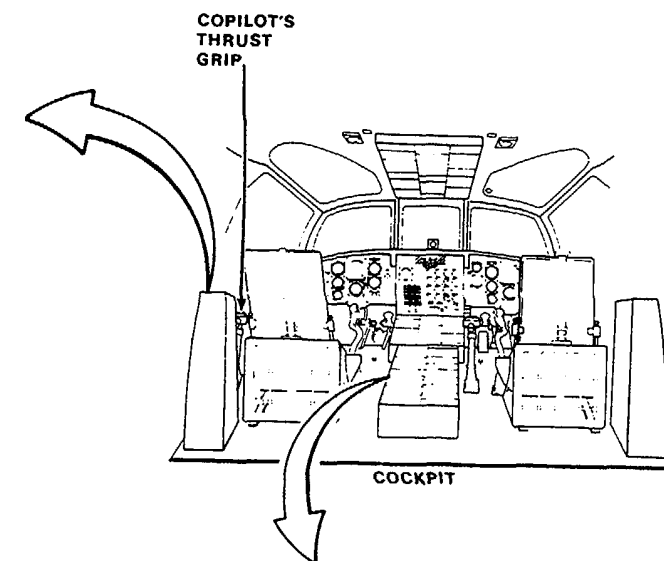
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



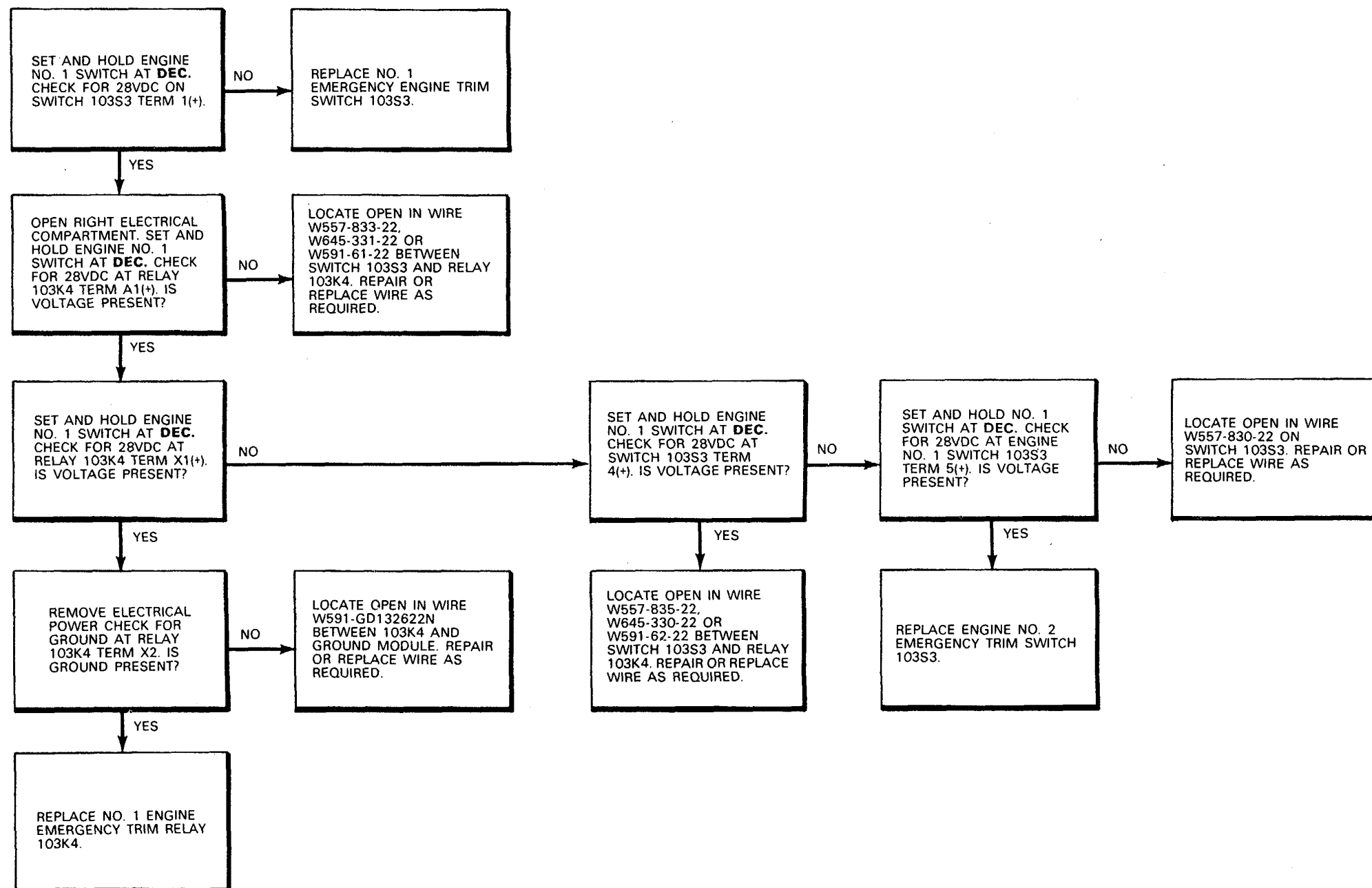
NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



90X54

4-6.19 NO. 1 ENGINE FUEL CONTROL POINTER DOES NOT MOVE  
WHEN EMERGENCY ENGINE TRIM 1 SWITCH SET TO DEC.  
(Continued)

4-6.19



END OF TASK

4-6.20 NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM I SWITCH SET TO INC

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

Without 74

**Tools**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials**

None

**Personnel Required:**

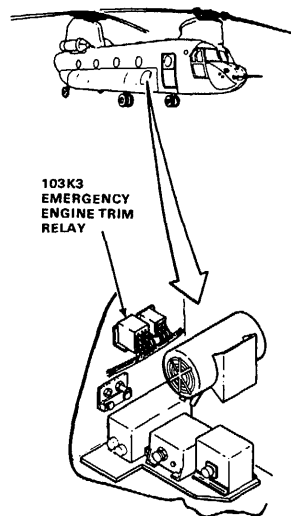
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

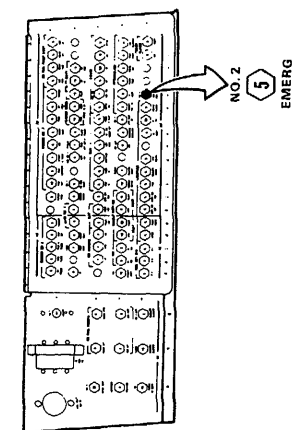
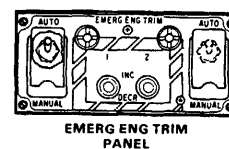
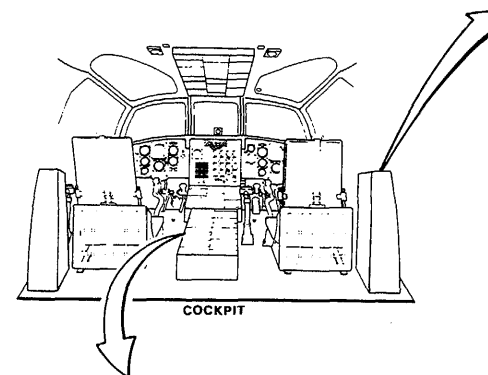
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



90X54

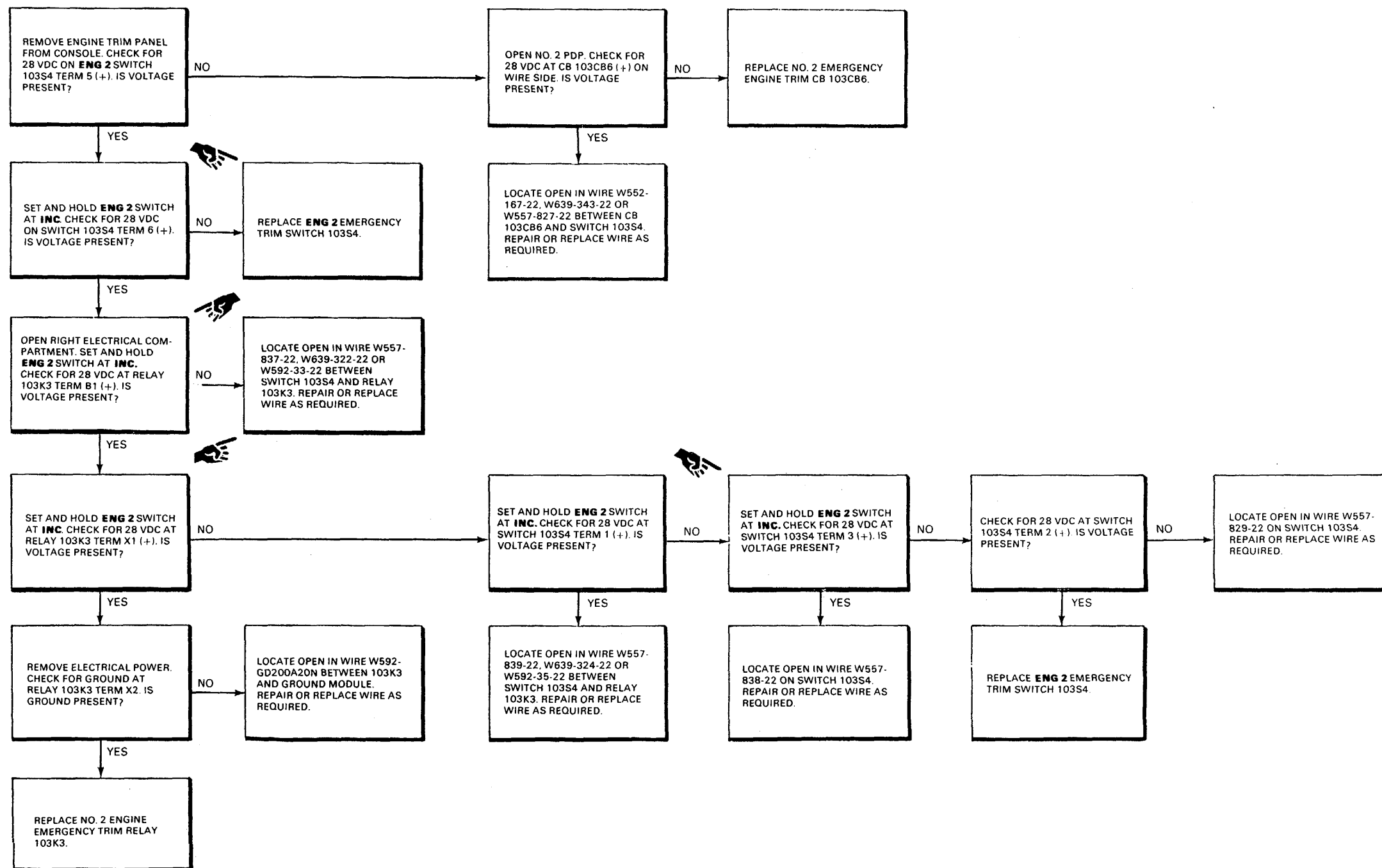


NO. 2 POWER  
DISTRIBUTION PANEL  
(PDP) VIEW LOOKING  
AFT

D145-11998-SFA

4-6.20 NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO INC. (Continued)

4-6.20



END OF TASK

Change 1 4-173

4-6.21 NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH AT DEC.

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools**

Electrical Repairer's Tool Kit,

NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

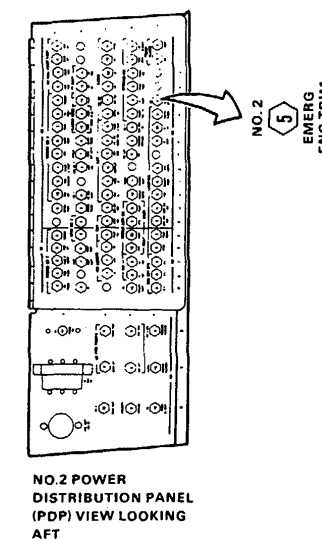
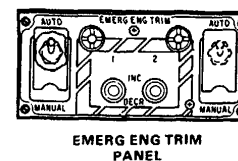
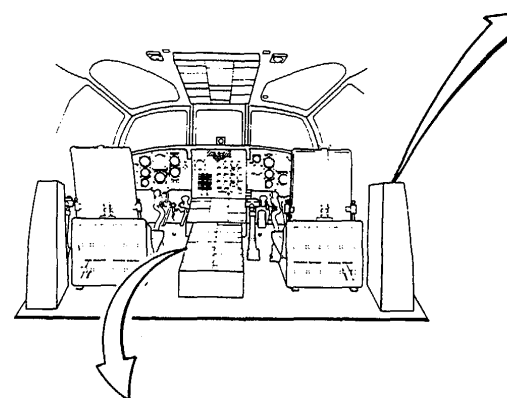
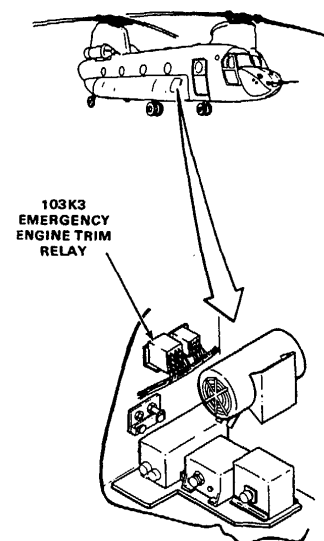
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

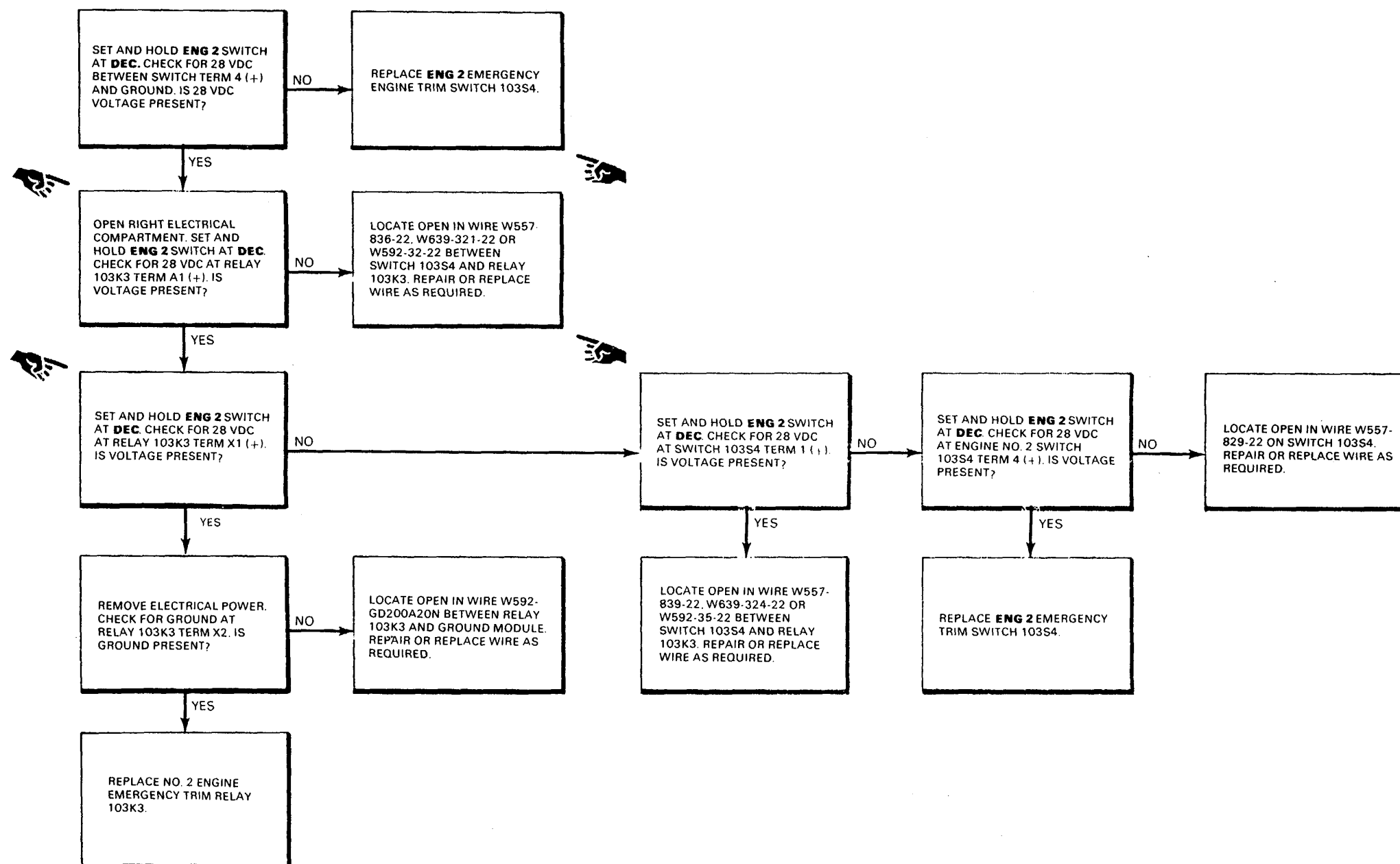
Hydraulic Power Off



0145-11999-SPA

4-6.21 NO. 2 ENGINE FUEL CONTROL POINTER DOES NOT MOVE WHEN EMERGENCY ENGINE TRIM 2 SWITCH SET TO DEC. (Continued)

4-6.21



END OF TASK

Change 1 4-175

4-6.22 NO. 1 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 210 ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

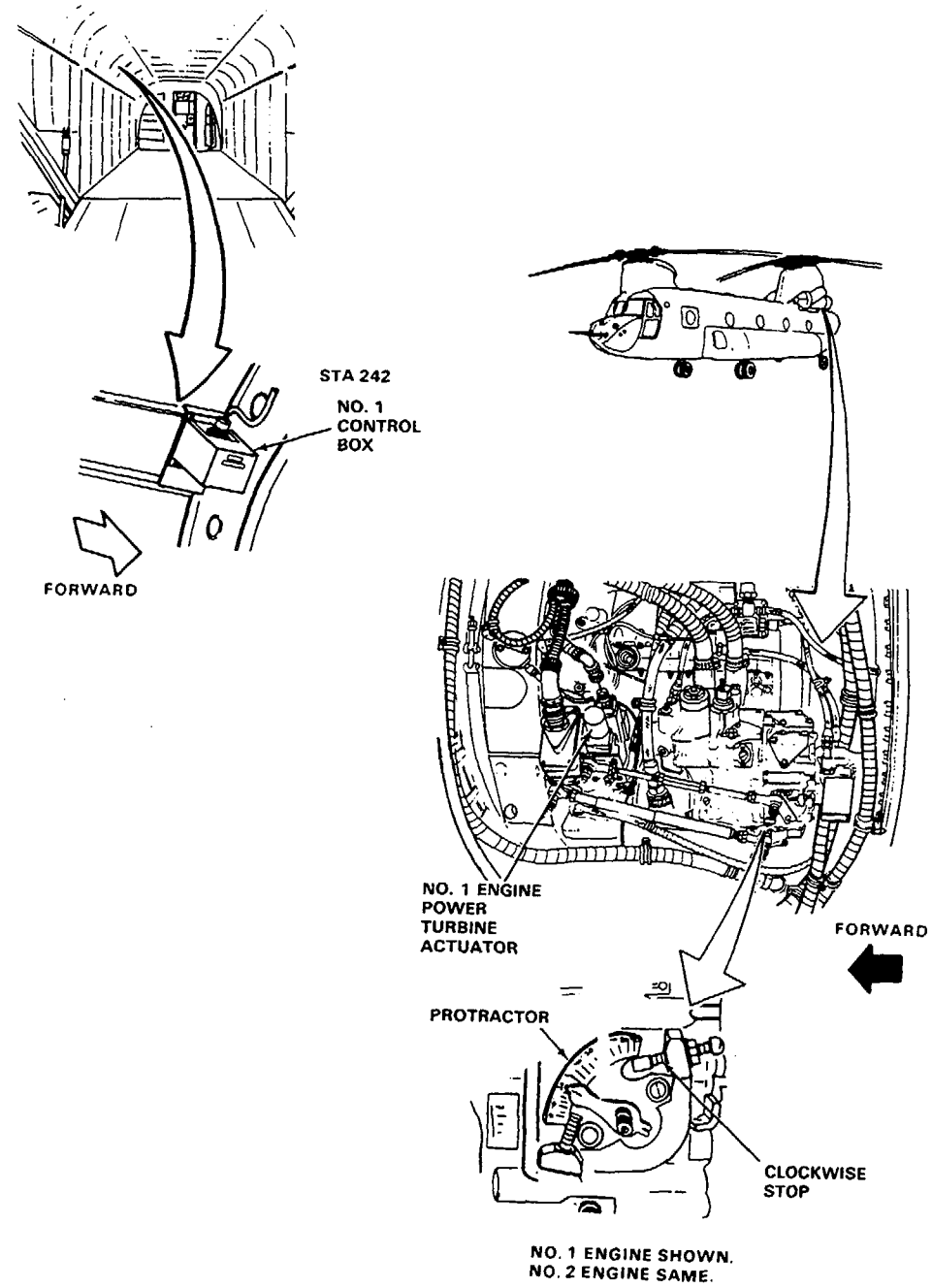
Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

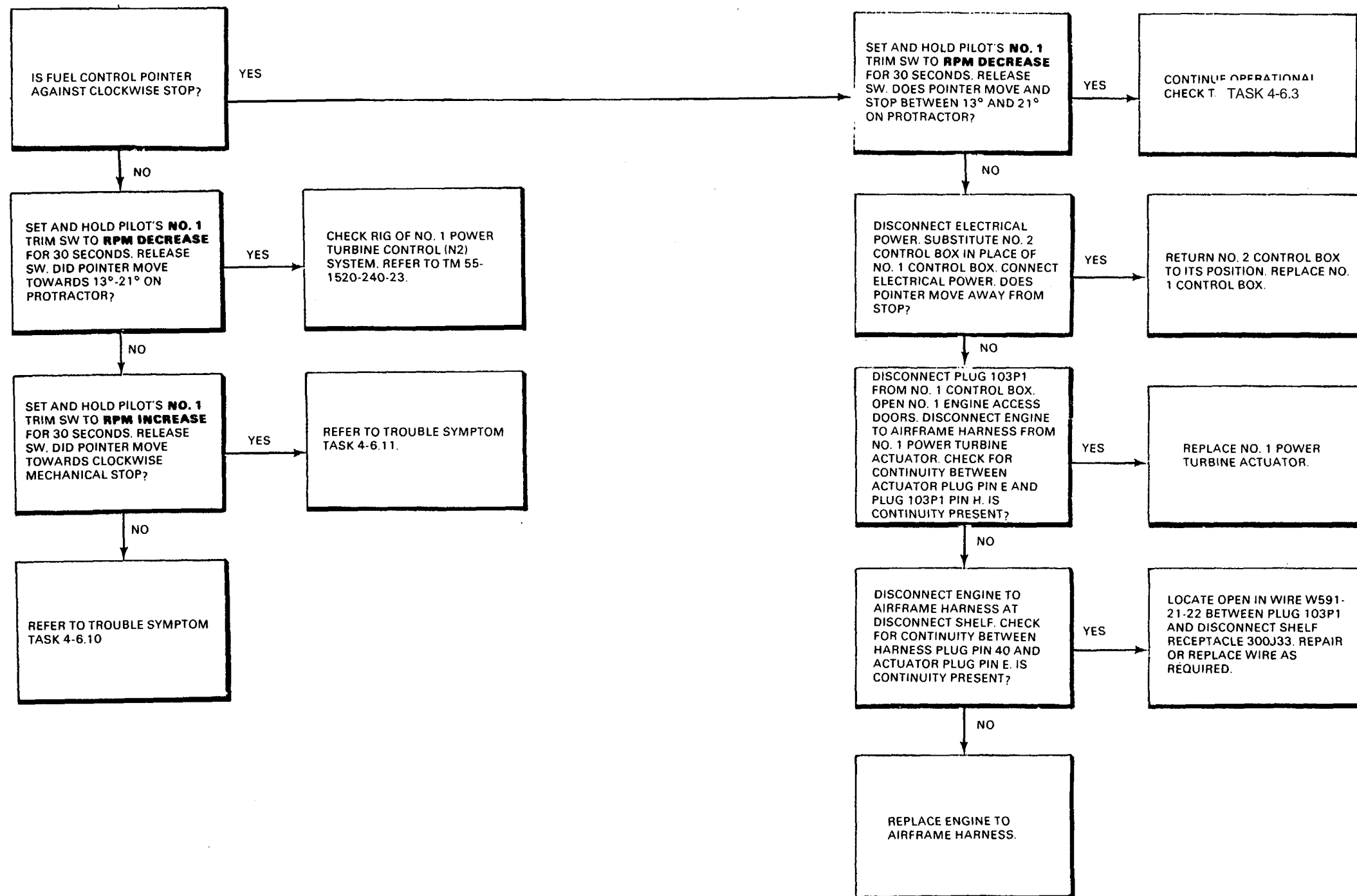
**Equipment Condition:**

TM 55-152024023:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off





4-6.22 NO. 1 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK (Continued)



4-6.23 NO. 2 ENGINE FUEL CONTROL POINTER NOT BETWEEN 130 AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK

4-6.23

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials**

None

**Personnel Required:**

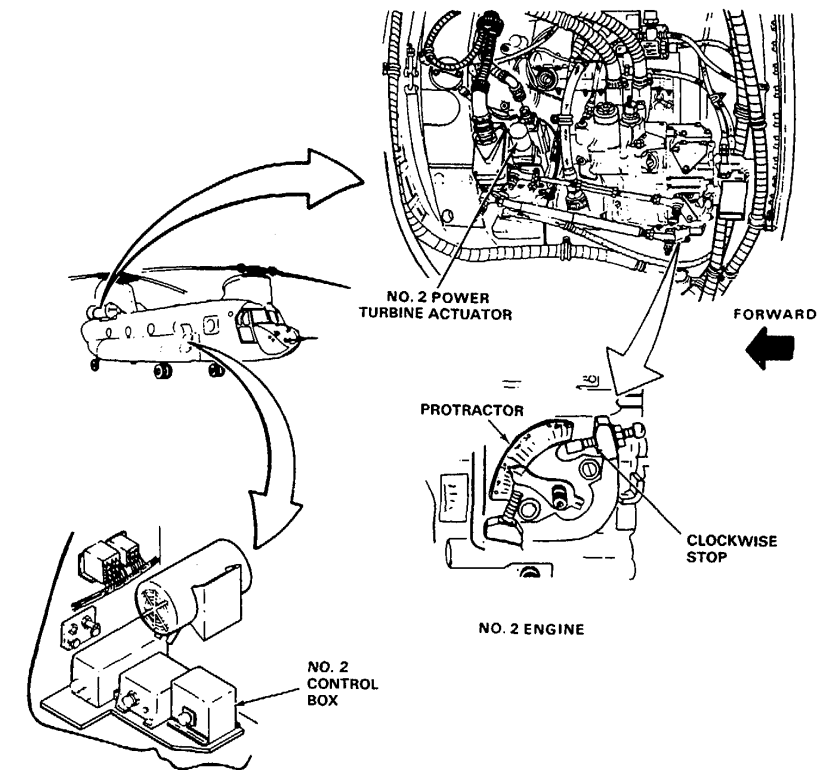
Aircraft Electrician (2)

**References:**

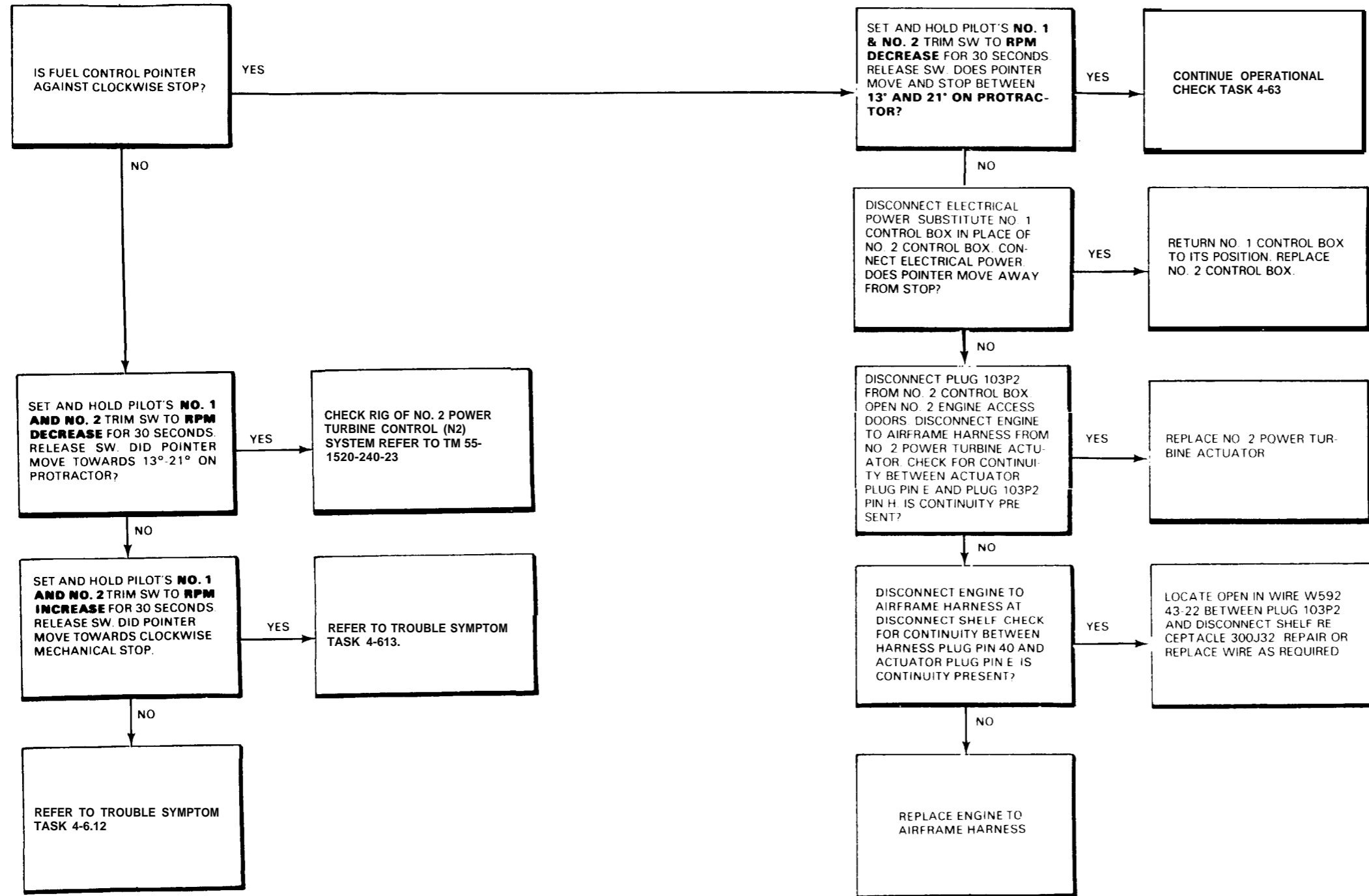
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



**4-6.23 NO. 2 ENGINE FUEL CONTROL POINTER NOT BETWEEN 13° AND 21° ON PROTRACTOR AT BEGINNING OF OPERATIONAL CHECK (Continued)**

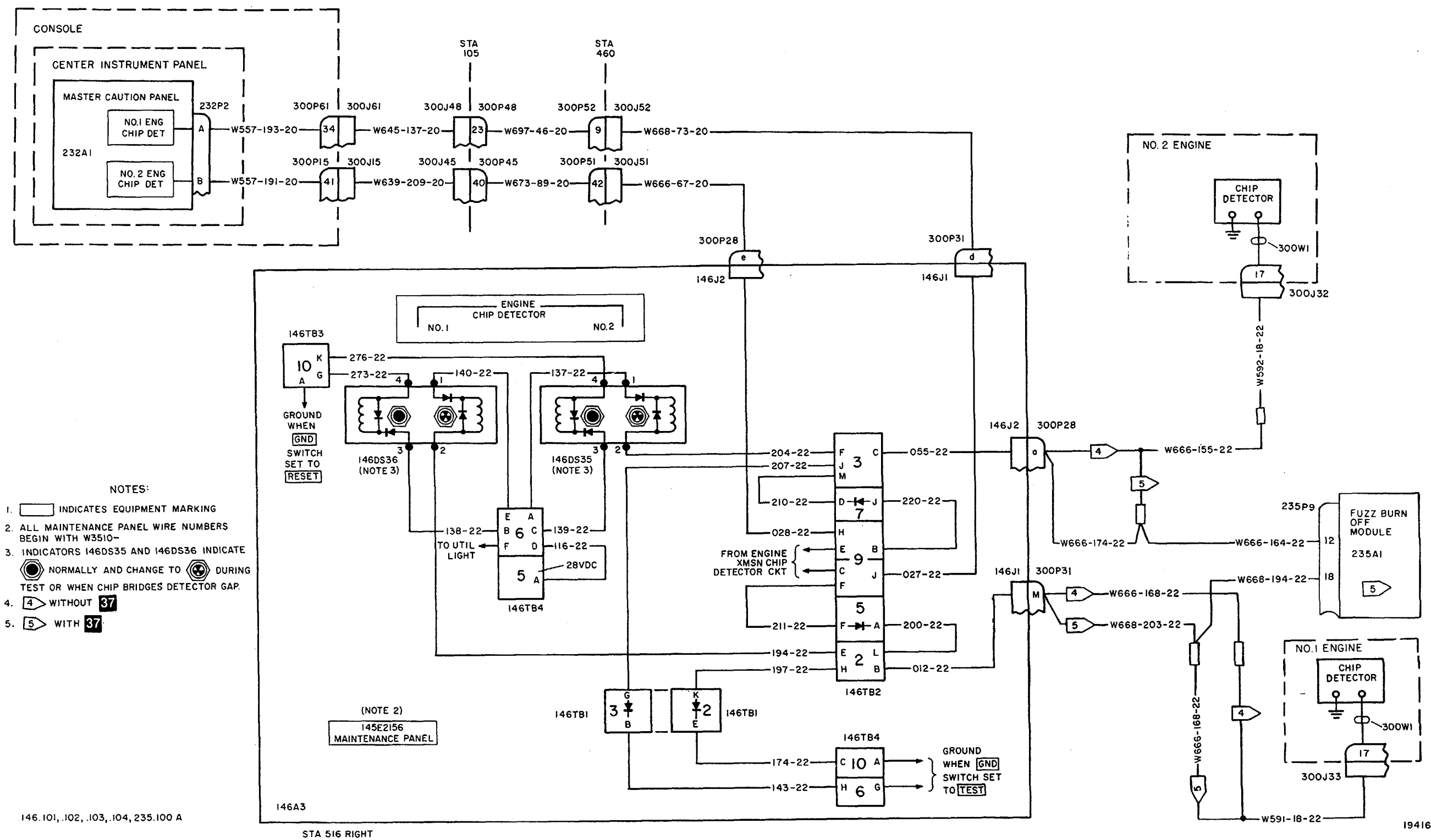


SECTION 4-7 ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITHOUT 74)



4-7.1 ENGINE ACCESSORY GEARBOX CHIP DETECTORS WIRING DIAGRAM

WITHOUT 74



- NOTES:
1. [ ] INDICATES EQUIPMENT MARKING
  2. ALL MAINTENANCE PANEL WIRE NUMBERS BEGIN WITH W3510-
  3. INDICATORS 146DS35 AND 146DS36 INDICATE NORMALLY AND CHANGE TO [ ] DURING TEST OR WHEN CHIP BRIDGES DETECTOR GAP.
  4. [4] WITHOUT 37
  5. [5] WITH 37

146.101, .102, .103, .104, 235.100 A

4-7.2 ENGINE ACCESSORY GEARBOX CHIP DETECTORS VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

Without **74**

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

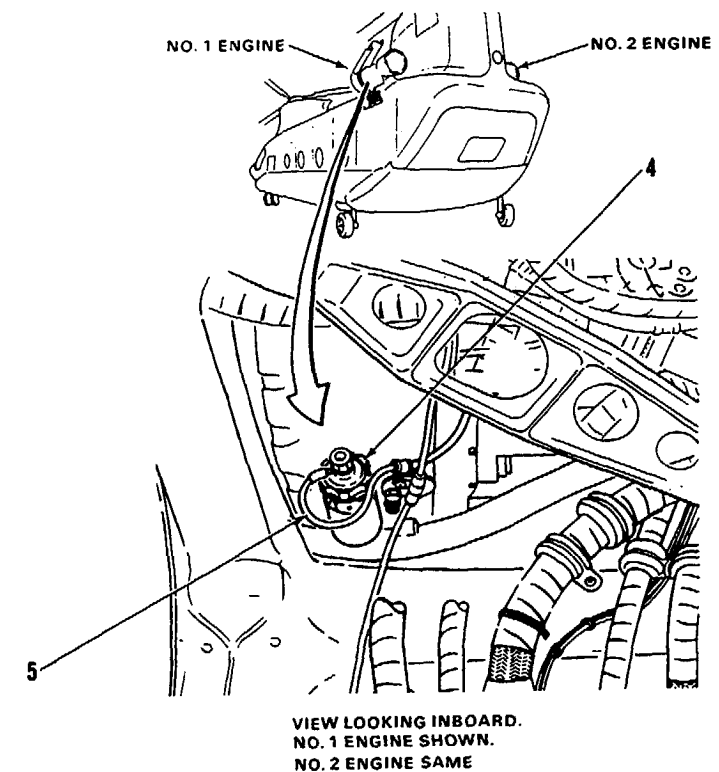
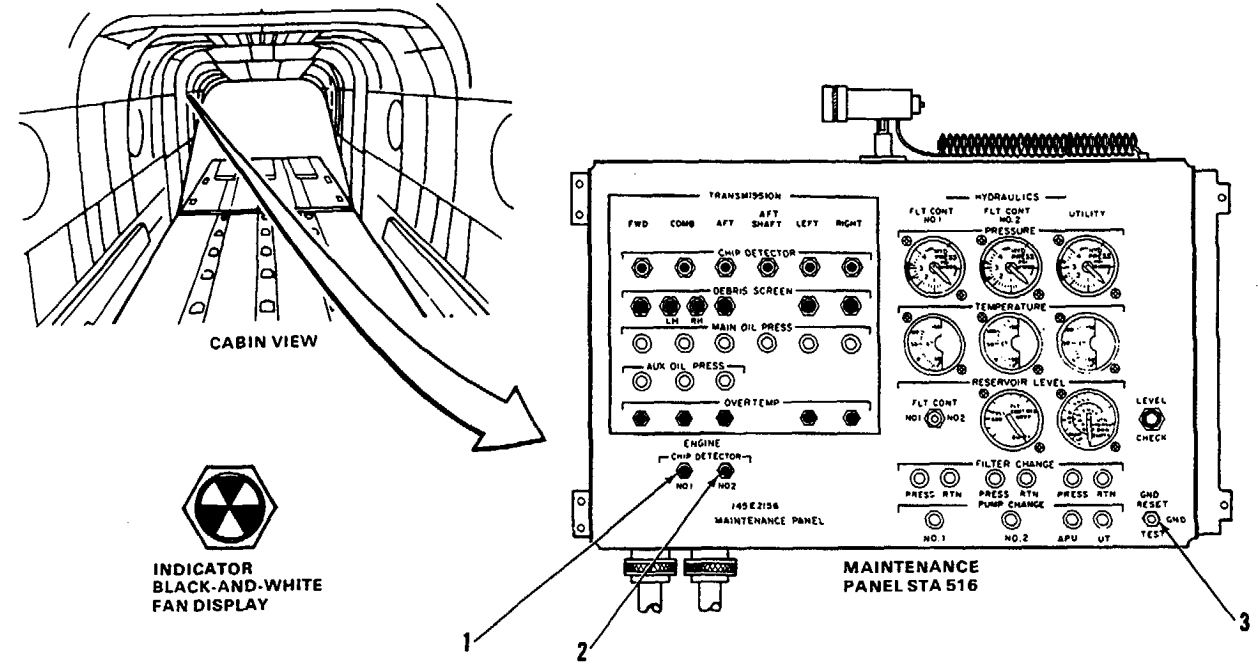
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
No. 1 or No. 2 Engine Work Platform and Access  
Doors Open

TASK	RESULT
1. <b>Check NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (1 and 2).</b>	If either indicator (1 or 2) is loose or damaged, tighten or replace it as required. If either indicator displays black-and-white fan, go to task 4-7.4.
2. <b>Check GND switch (3).</b>	If switch (3) is loose or damaged, tighten or replace it as required.
<b>CHECK NO. 1 ENGINE</b>	
3. <b>Check No. 1 engine accessory gearbox chip detector (4).</b>	If chip detector (4) is loose or damaged, tighten or replace it as required. If wire (5) is loose or damaged, tighten connection, repair, or replace engine to airframe harness as required.
<b>CHECK NO. 2 ENGINE</b>	
4. <b>Check No. 2 engine accessory gearbox chip detector (4).</b>	If chip detector (4) is loose or damaged, tighten or replace it as required. If wire (5) is loose or damaged, tighten connection, repair, or replace engine to airframe harness as required.

FOLLOW-ON MAINTENANCE:

None



4-7.3 ENGINE ACCESSORY GEARBOX CHIP DETECTORS OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

Without **74**

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

Jumper Wire, 24 Inches

**Personnel Required:**

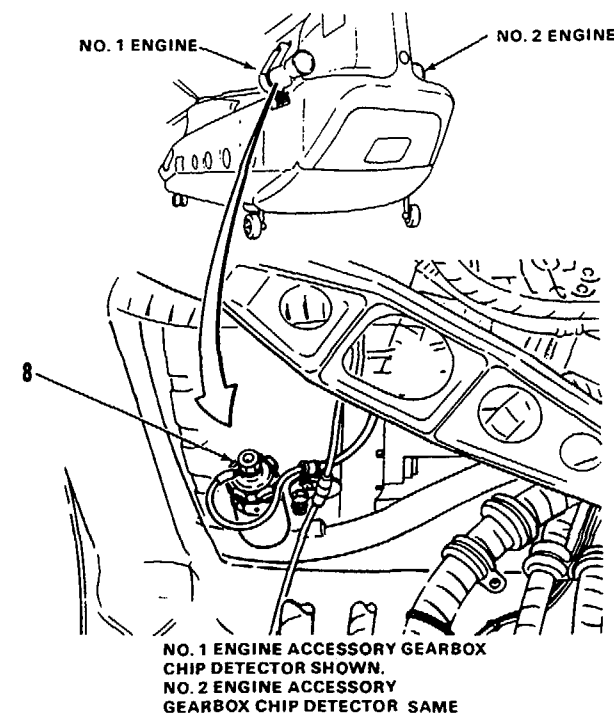
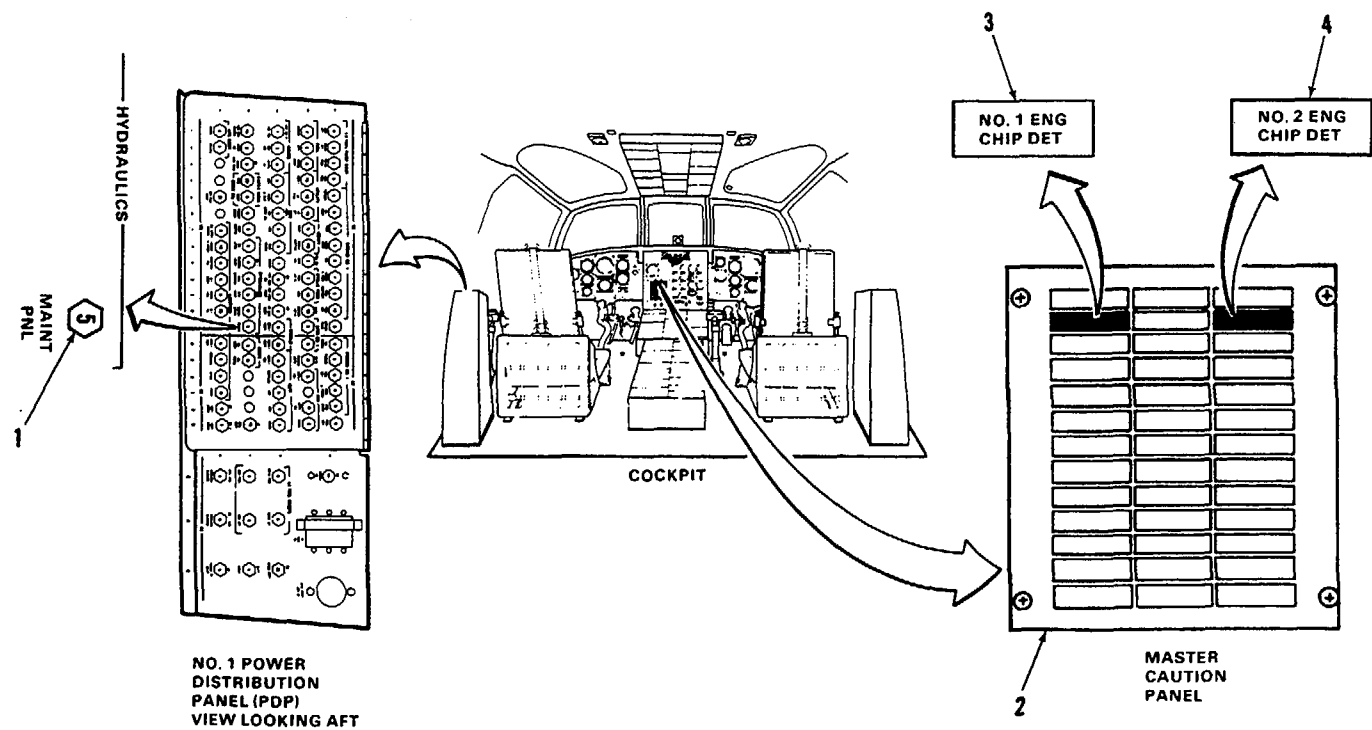
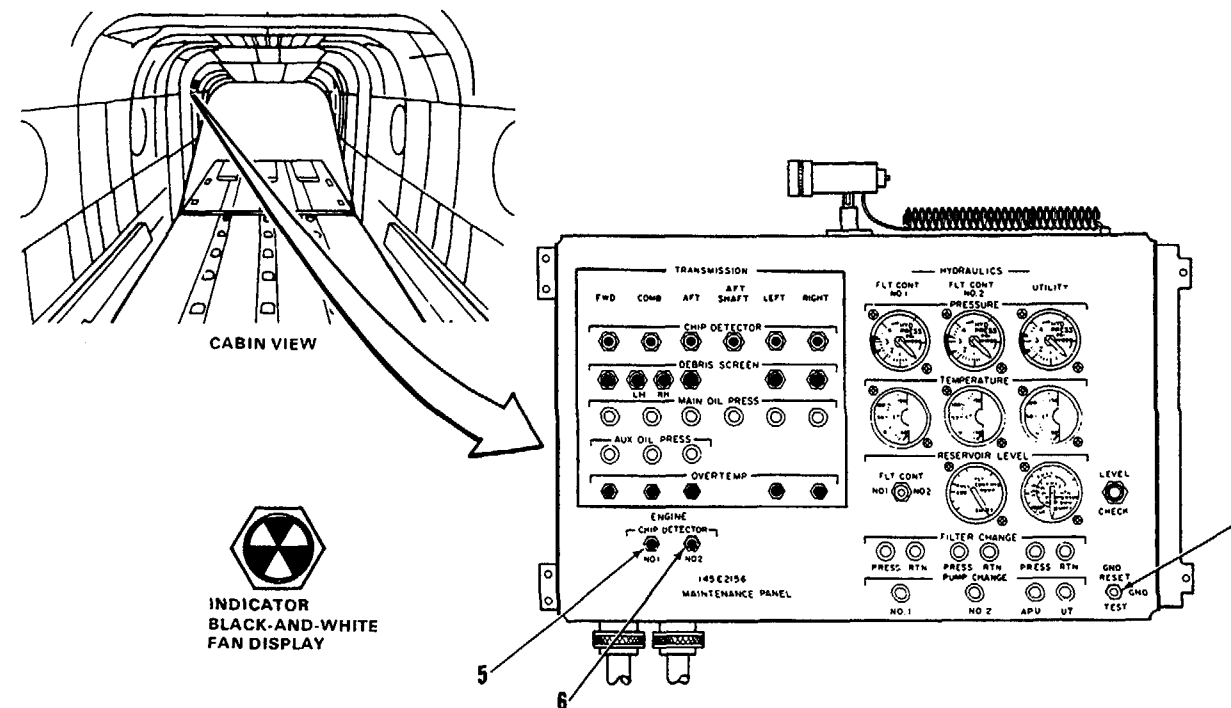
Medium Helicopter Repairer (2)

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Visual Check of Engine Accessory Gearbox Chip  
Detectors Performed (Task 4-7.2)



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D145-9253-SPA

4-7.3 ENGINE ACCESSORY GEARBOX CHIP DETECTORS  
OPERATIONAL CHECK (Continued)

4-7.3

TASK	RESULT
1. Check that HYDRAULICS MAINT PNL circuit breaker (1) is closed.	If circuit breaker (1) is open, close it. If it opens again, go to task 8-14.3.
2. Check master caution panel (2).	If NO. 1 or NO. 2 ENG CHIP DET capsule (3 or 4) is lit, go to task 4-7.4.
3. Check NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (5 and 6).	Both indicators shall be all-black. If either indicator displays black-and-white fan, go to task 4-7.5.
4. Set and hold GND switch (7) to TEST.	NO. 1 and NO. 2 ENG CHIP DET capsules (3 and 4) shall come on. NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (5 and 6) shall change to black-and-white fan. If NO. 1 ENG CHIP DET capsule is out, go to task 4-7.6. If NO. 2 ENG CHIP DET capsule is out, go to task 4-7.7. If NO. 1 or NO. 2 ENGINE CHIP DETECTOR indicator is all-black, go to task 4-7.8.
5. Set GND switch (7) to RESET, then to GND.	NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (5 and 6) shall change to all-black. If both indicator displays are not black, go to task 4-7.5.

**CHECK NO. 1 ENGINE ACCESSORY GEARBOX CHIP DETECTOR**

6. Short terminal stud of NO. 1 engine chip detector (8) to its mounting base with a jumper wire.	NO. 1 ENG CHIP DET capsule (3) shall come on and NO. 1 ENGINE CHIP DETECTOR indicator (5) shall change to black-and-white fan. If capsule does not come on and indicator display does not change, go to task 4-7.9.
7. Remove jumper.	NO. 1 ENG CHIP DET capsule (3) shall go out. If it stays on, go to task 4-7.4.
8. Set GND switch (7) to RESET, then to GND.	NO. 1 ENGINE CHIP DETECTOR indicator (5) display shall change to all-black. If it does not, go to task 4-7.5.

**CHECK NO. 2 ENGINE ACCESSORY GEARBOX CHIP DETECTOR**

9. Short terminal stud of No. 2 engine chip detector (8) to its mounting base with a jumper wire.	NO. 2 ENG CHIP DET capsule (4) shall come on and NO. 2 ENGINE CHIP DETECTOR indicator (6) shall change to black-and-white fan. If capsule does not come and indicator display does not change, go to task 4-7.9.
10. Remove jumper.	NO. 2 ENG CHIP DET capsule (4) shall go out. If it stays on, go to task 4-7.4.

TASK	RESULT
11. Set GND switch (7) to RESET then to GND.	NO. 2 ENGINE CHIP DETECTOR indicator (6) display shall change to all-black. If it does not, go to task 4-7.5.

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:  
Remove electrical power.  
Disconnect battery.  
Close No. 1 or No. 2 engine work platform and access door.



4-7.4 NO. 1 OR NO. 2 ENG CHIP DET CAPSULE IS LIT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

Multimeter

**Materials:**

None

**Personnel Required:**

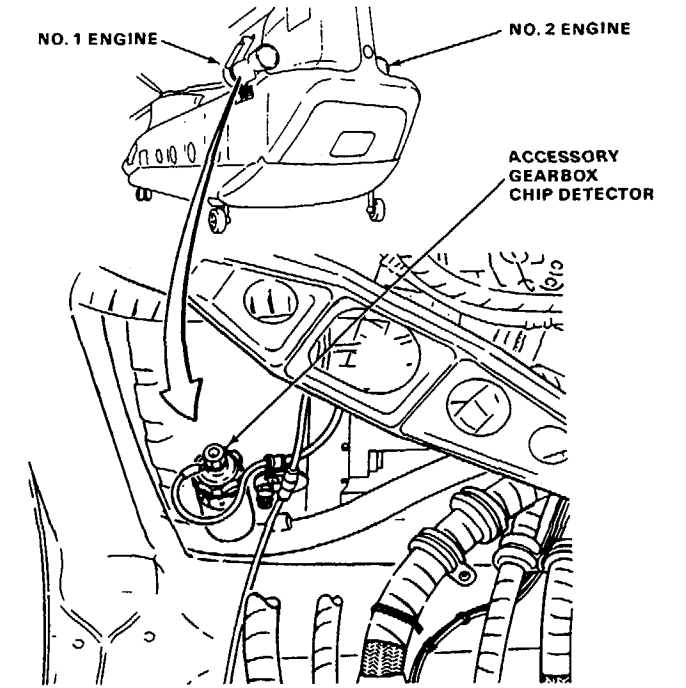
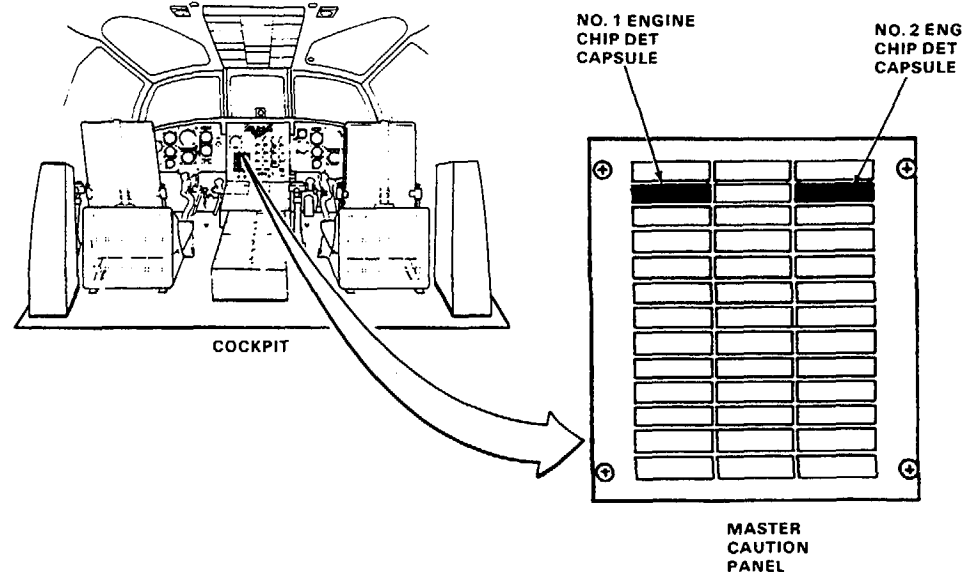
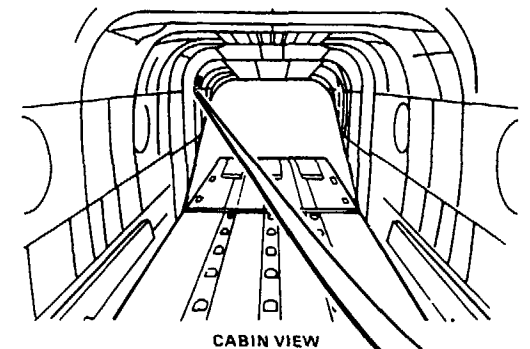
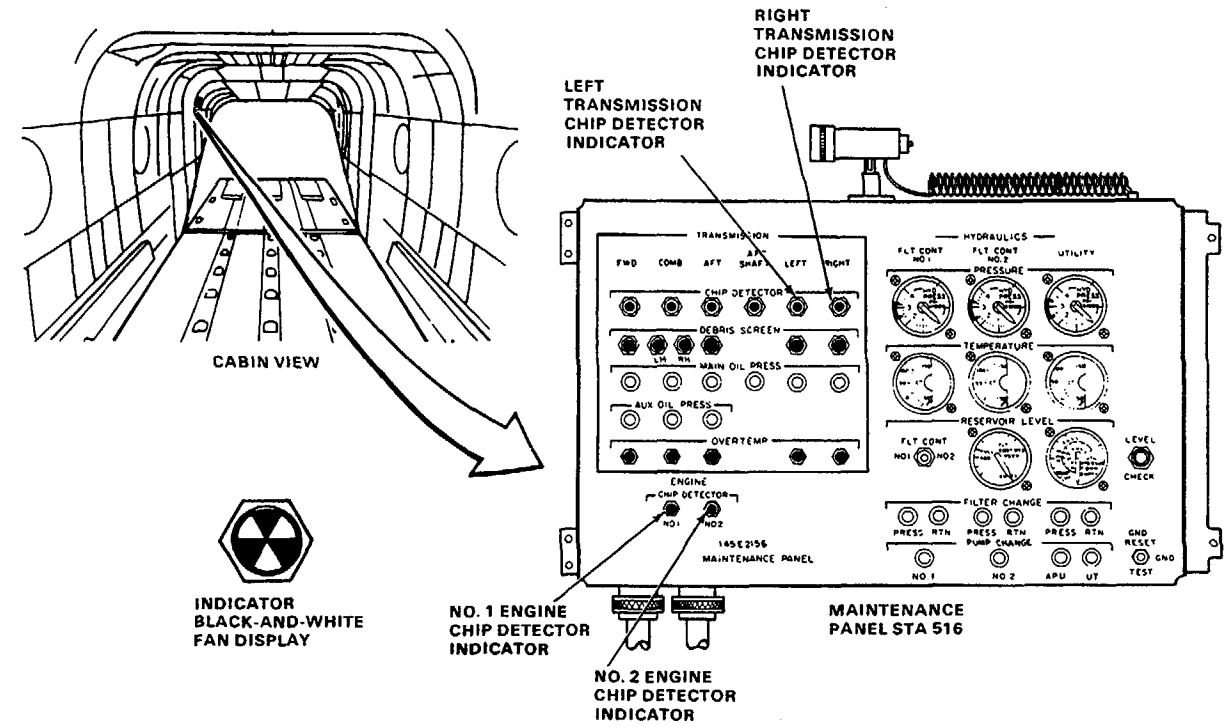
- Aircraft Powerplant Repairer
- Aircraft Electrician

**References:**

- TM 55-1520-240-23
- TM 55-2840-254-23

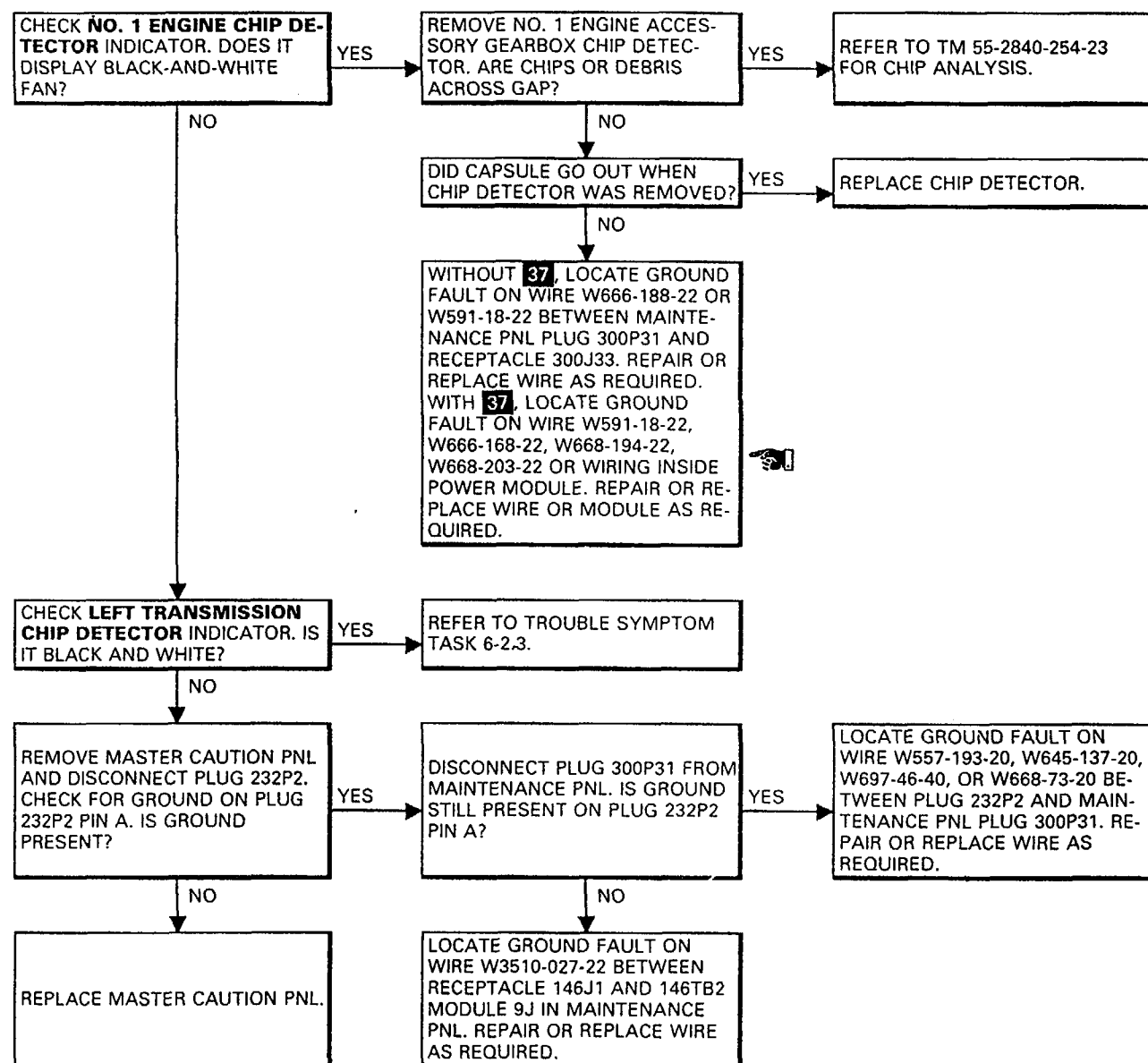
**Equipment Condition:**

- TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off

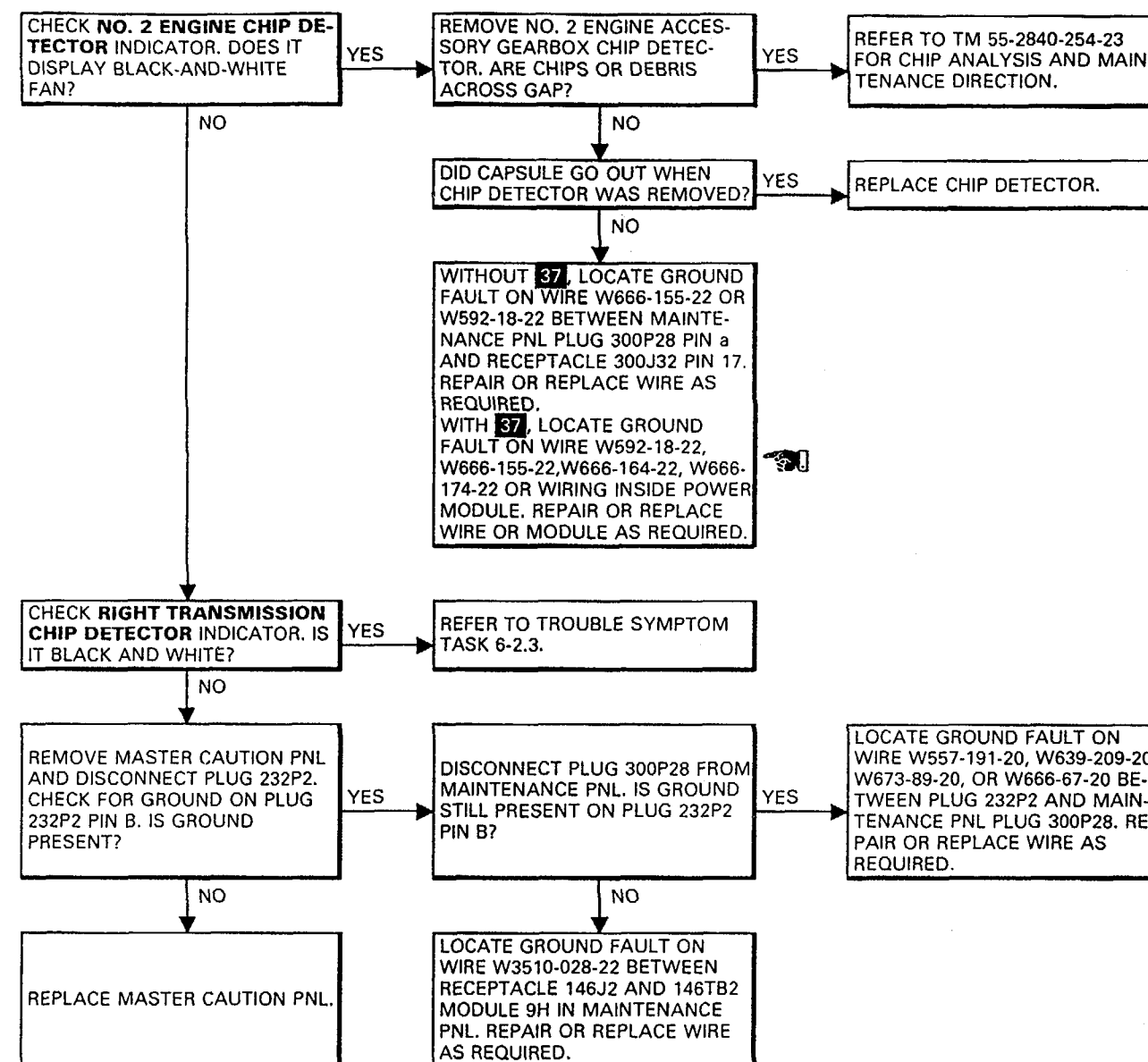


NO. 1 ENGINE ACCESSORY GEARBOX CHIP DETECTOR SHOWN.  
NO. 2 ENGINE ACCESSORY GEARBOX SAME. **GO TO NEXT PAGE**  
D145-9254-SPA

NO. 1 ENG CHIP DET CAPSULE IS LIT



NO. 2 ENG CHIP DET CAPSULE IS LIT



4-7.5 NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN, ENG CHIP DET CAPSULE OUT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

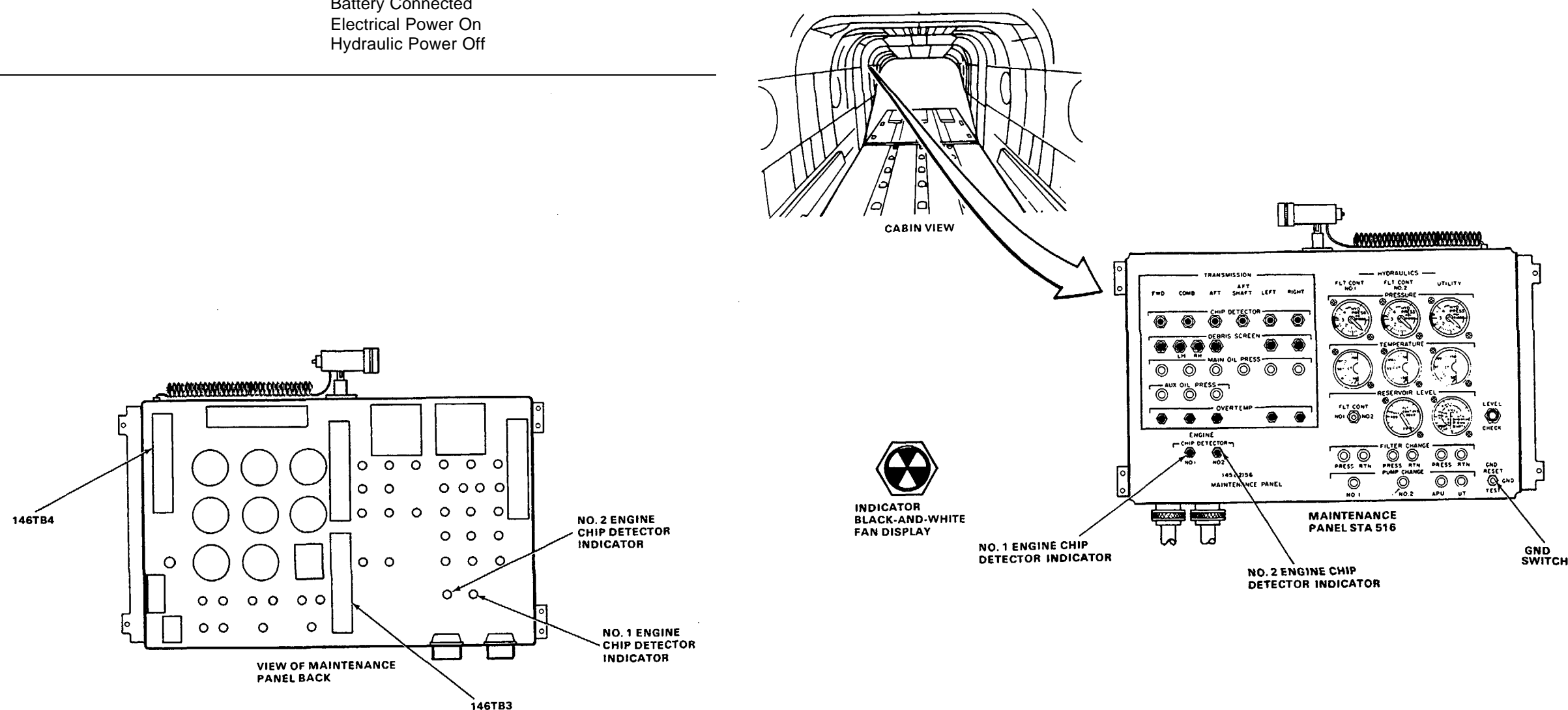
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off

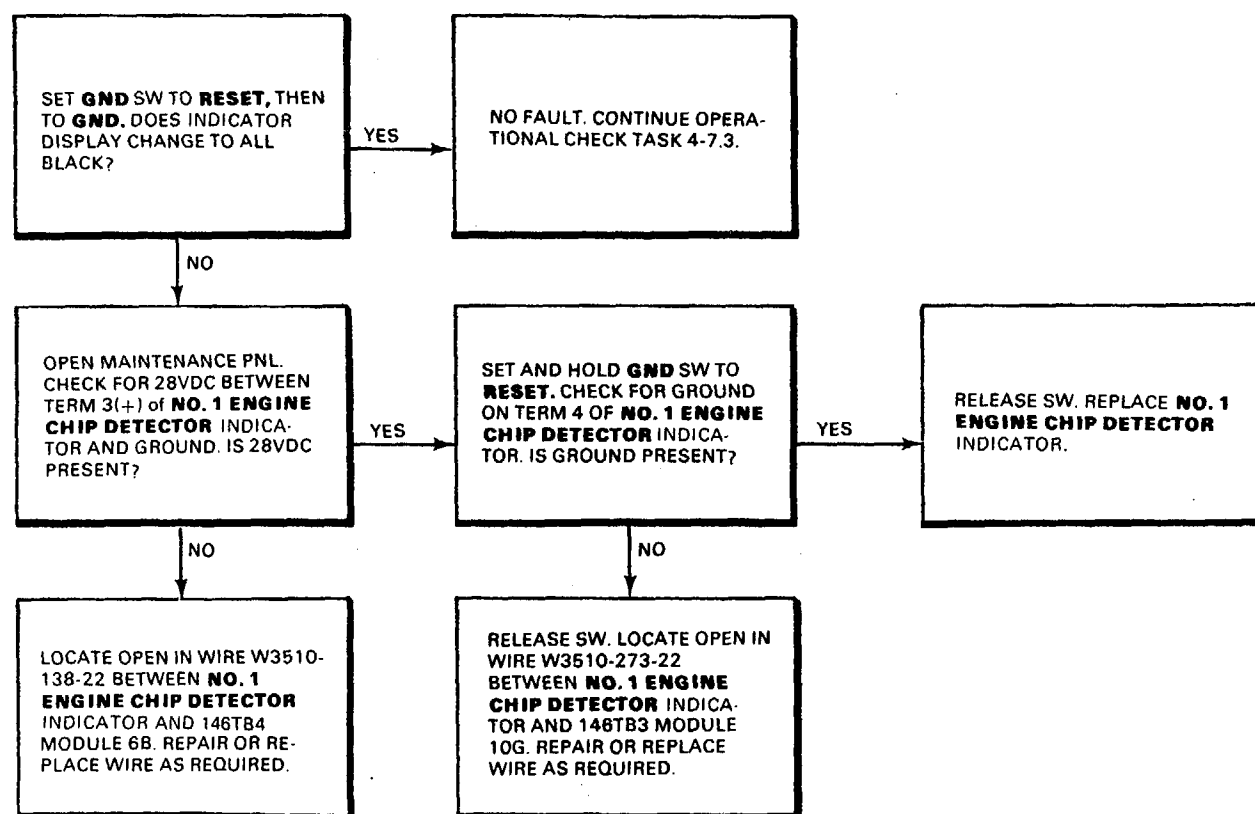


DI45-9255-SPA

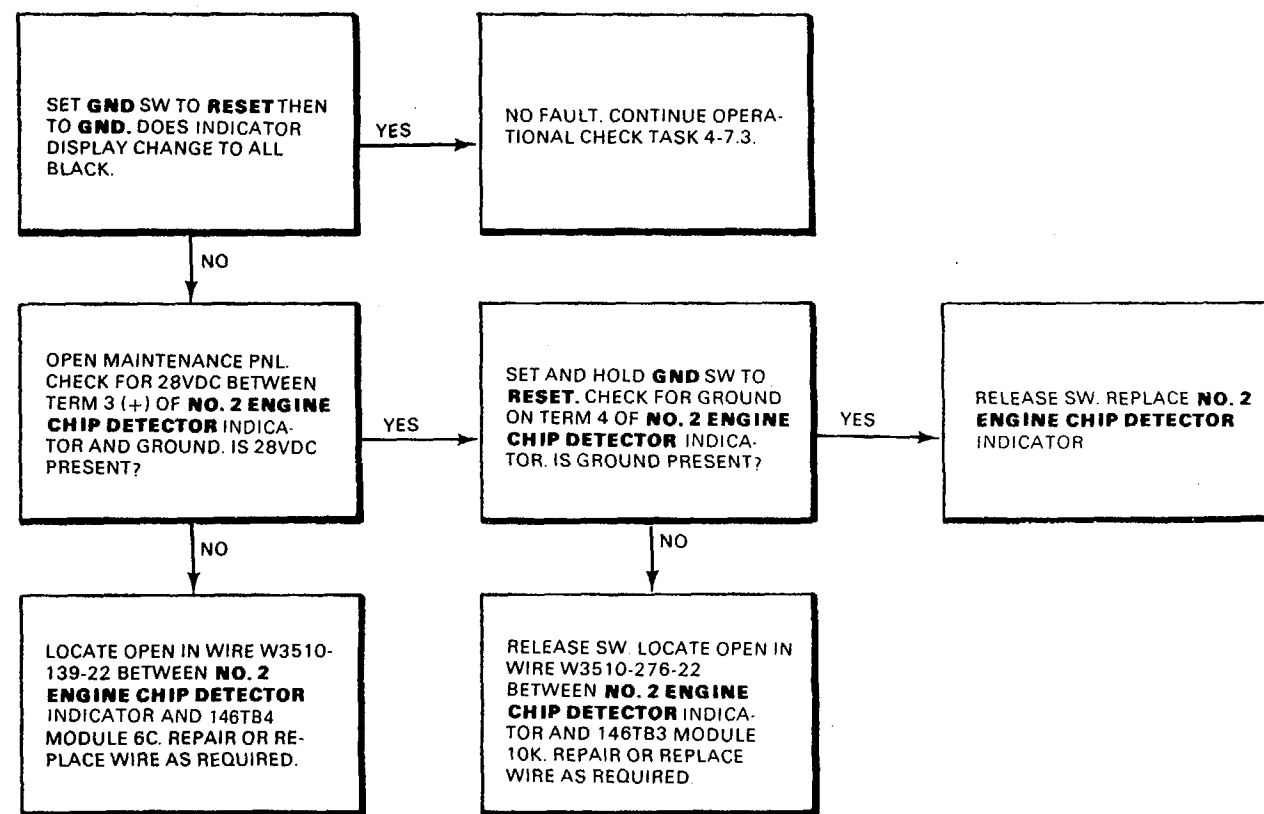
90x54

4-7.5 NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN, ENG CHIP DET CAPSULE OUT (Continued)

NO. 1 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN



NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN



END OF TASK

4-7.6 NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without- **FZ**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

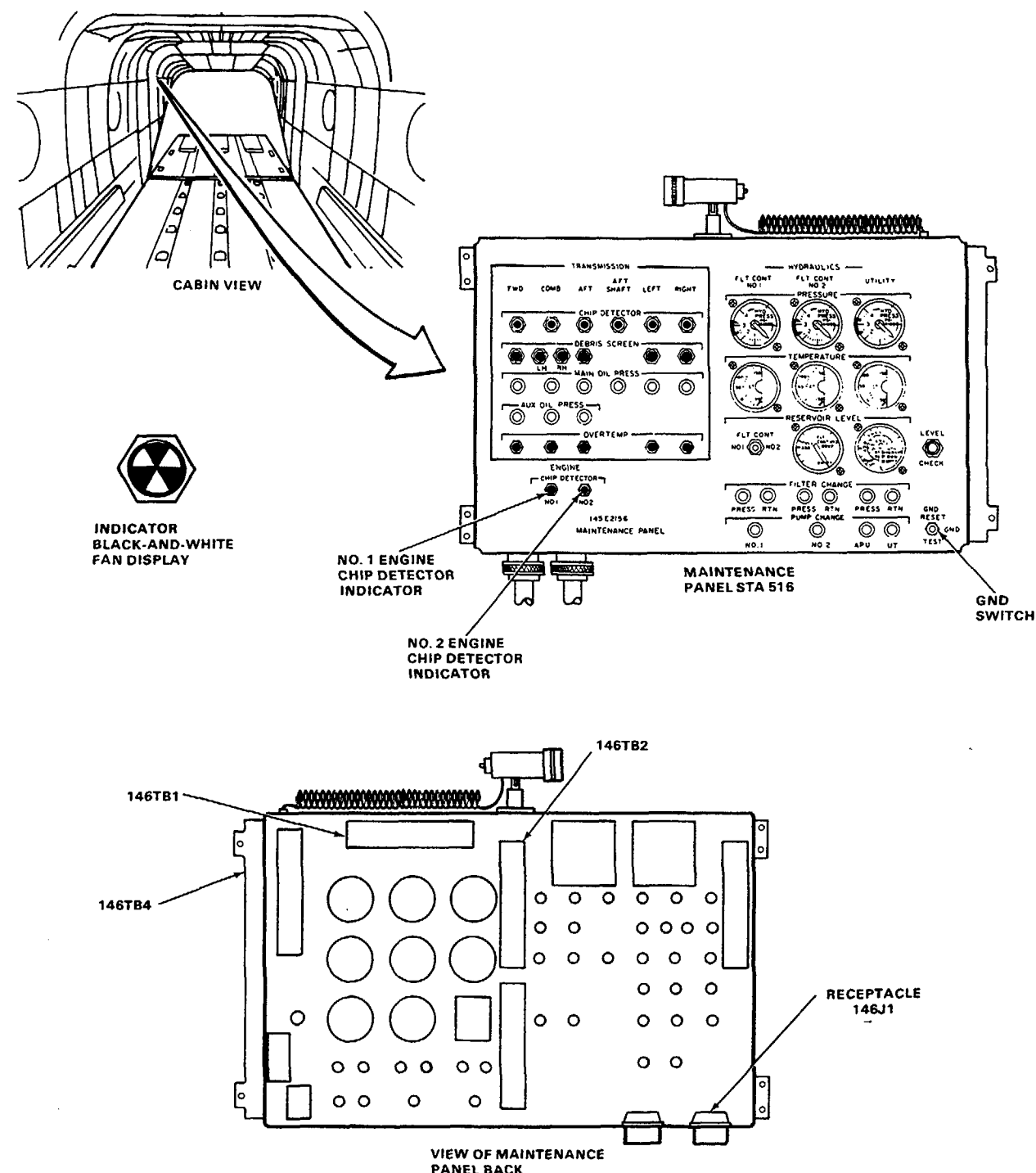
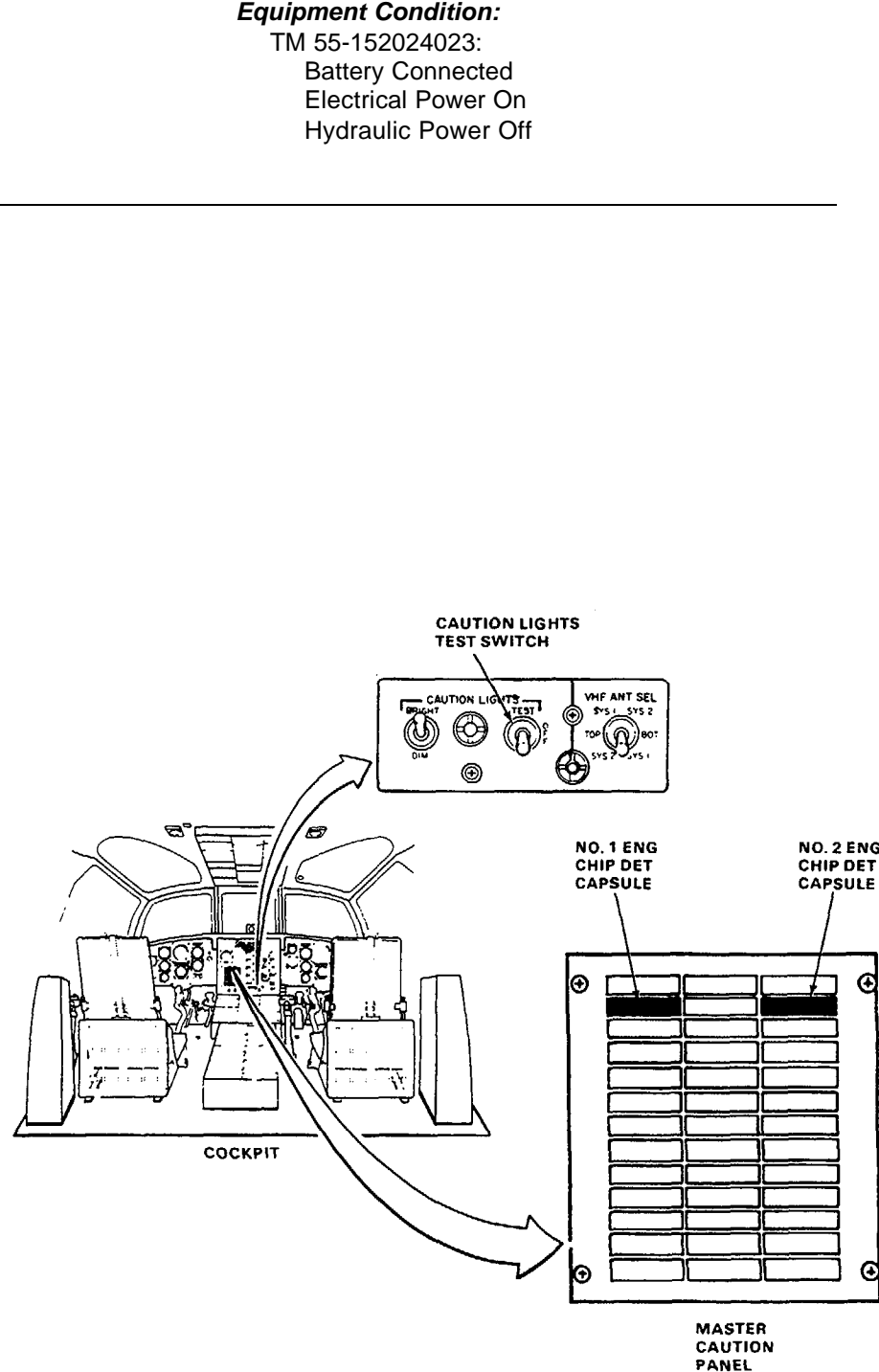
Aircraft Electrician

**References:**

TM 55-1520-240-23

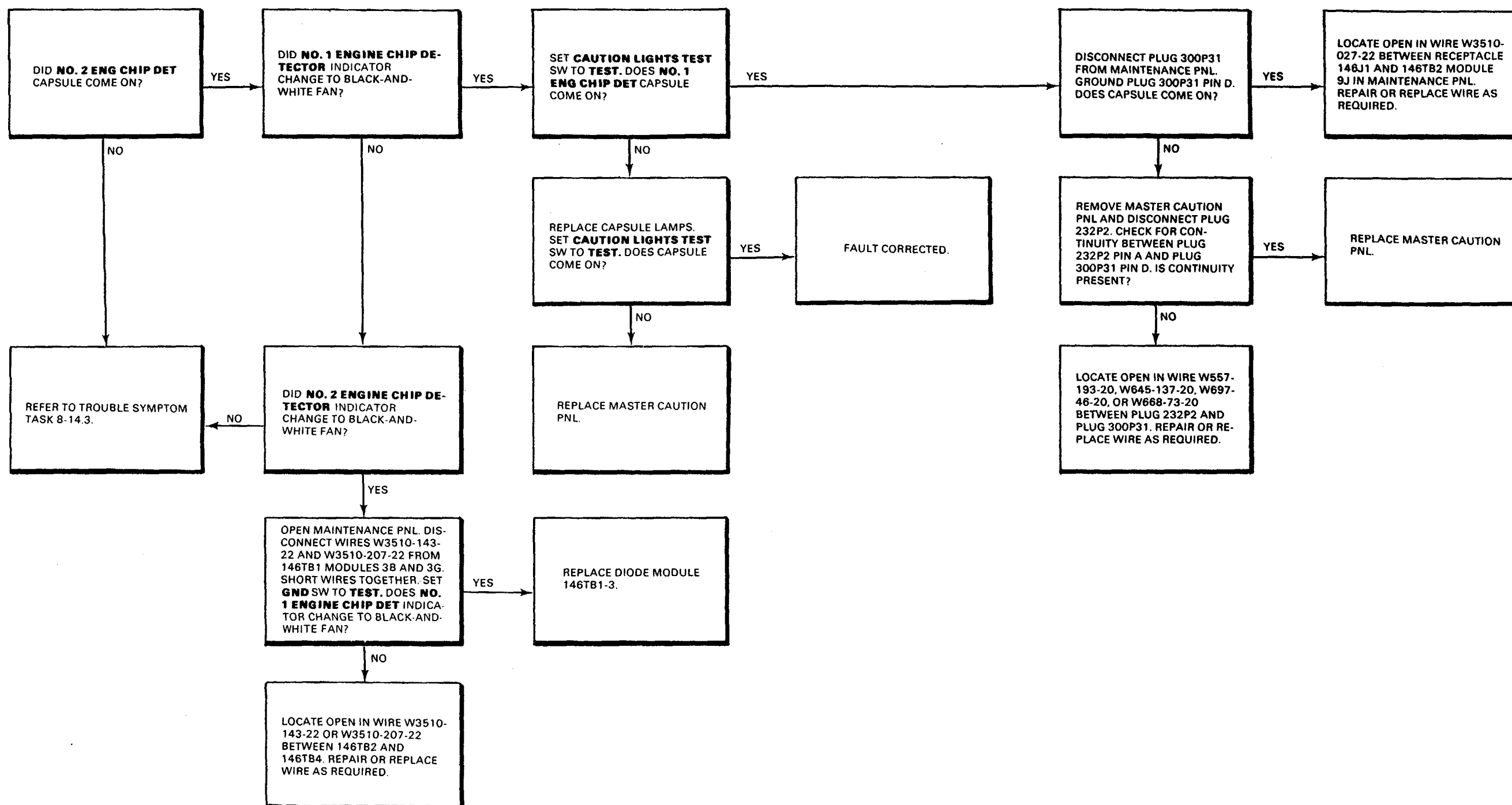
**Equipment Condition:**

TM 55-152024023:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



4-7.6 NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST (Continued)

4-7.6



END OF TASK

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

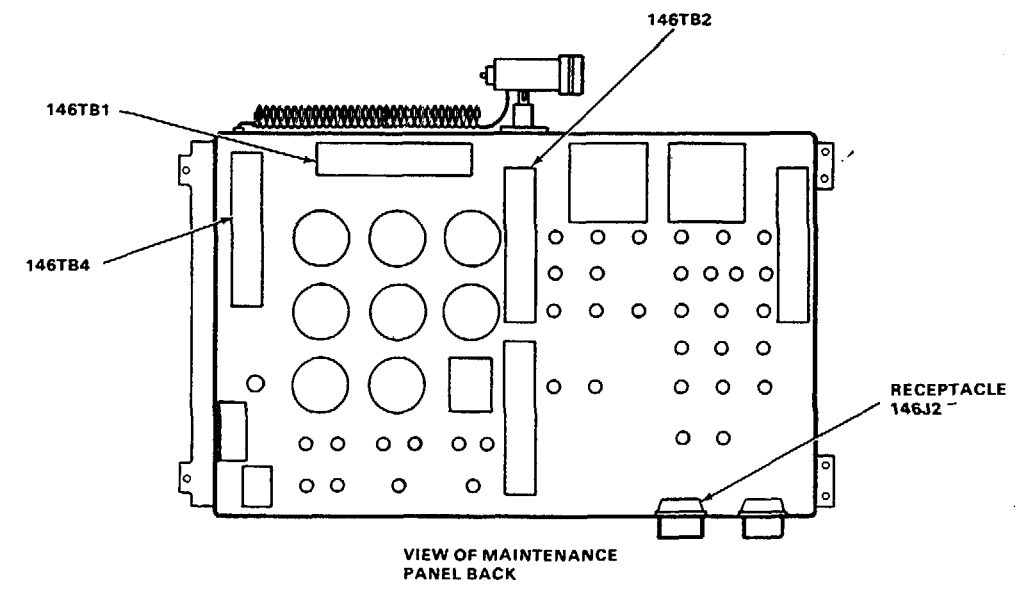
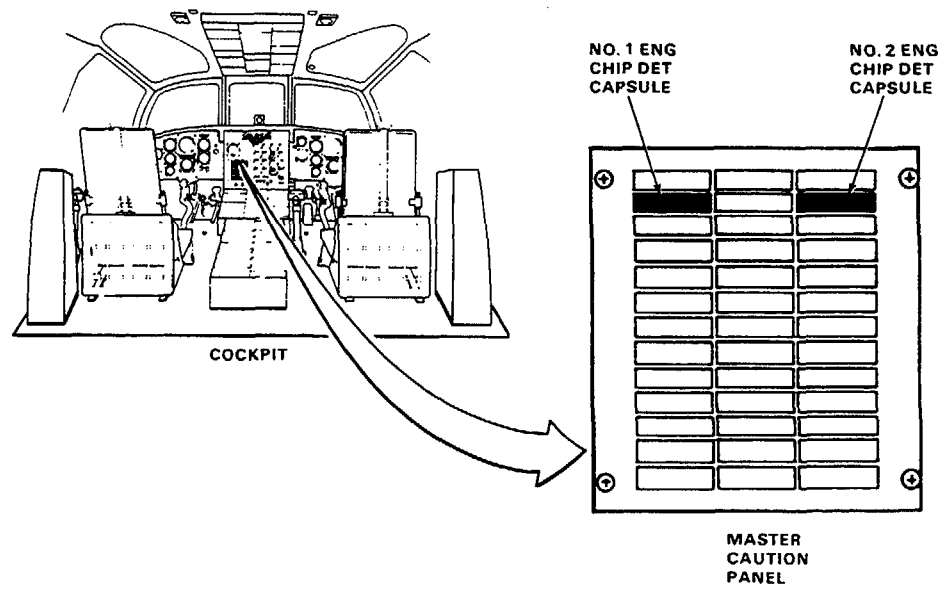
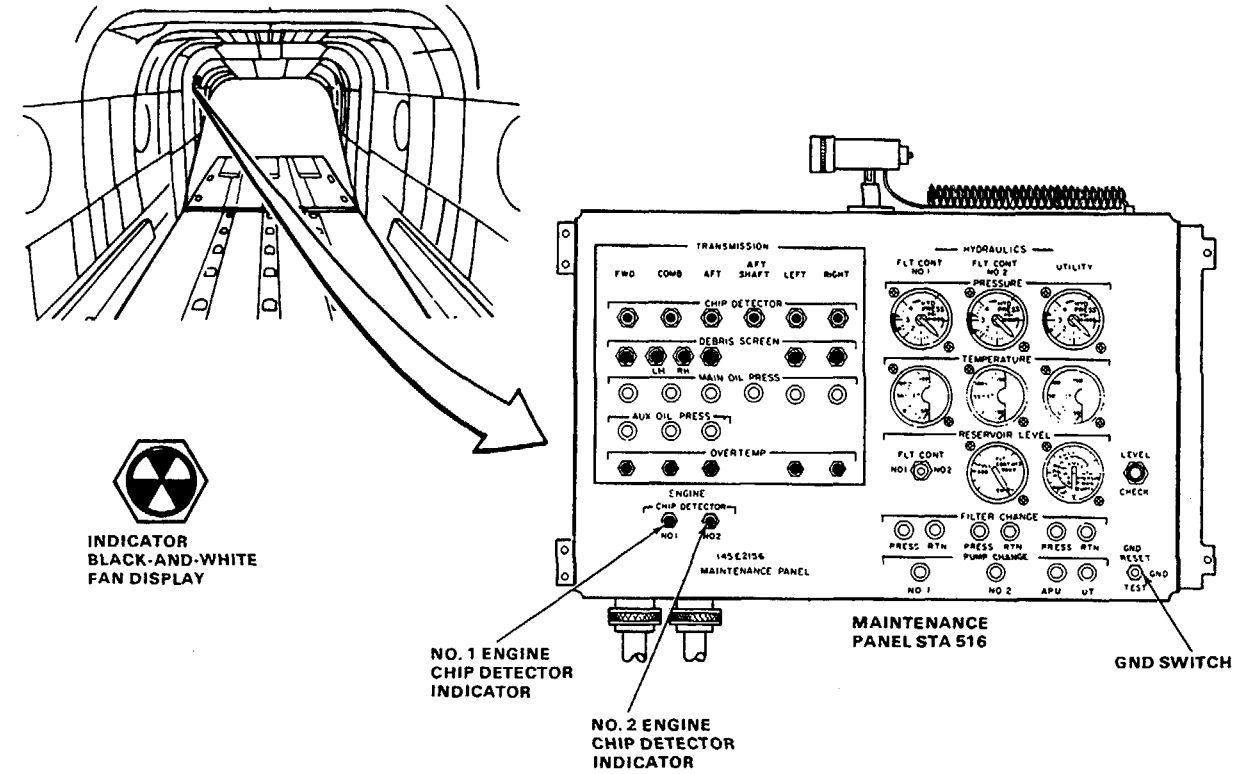
**Equipment Condition:**

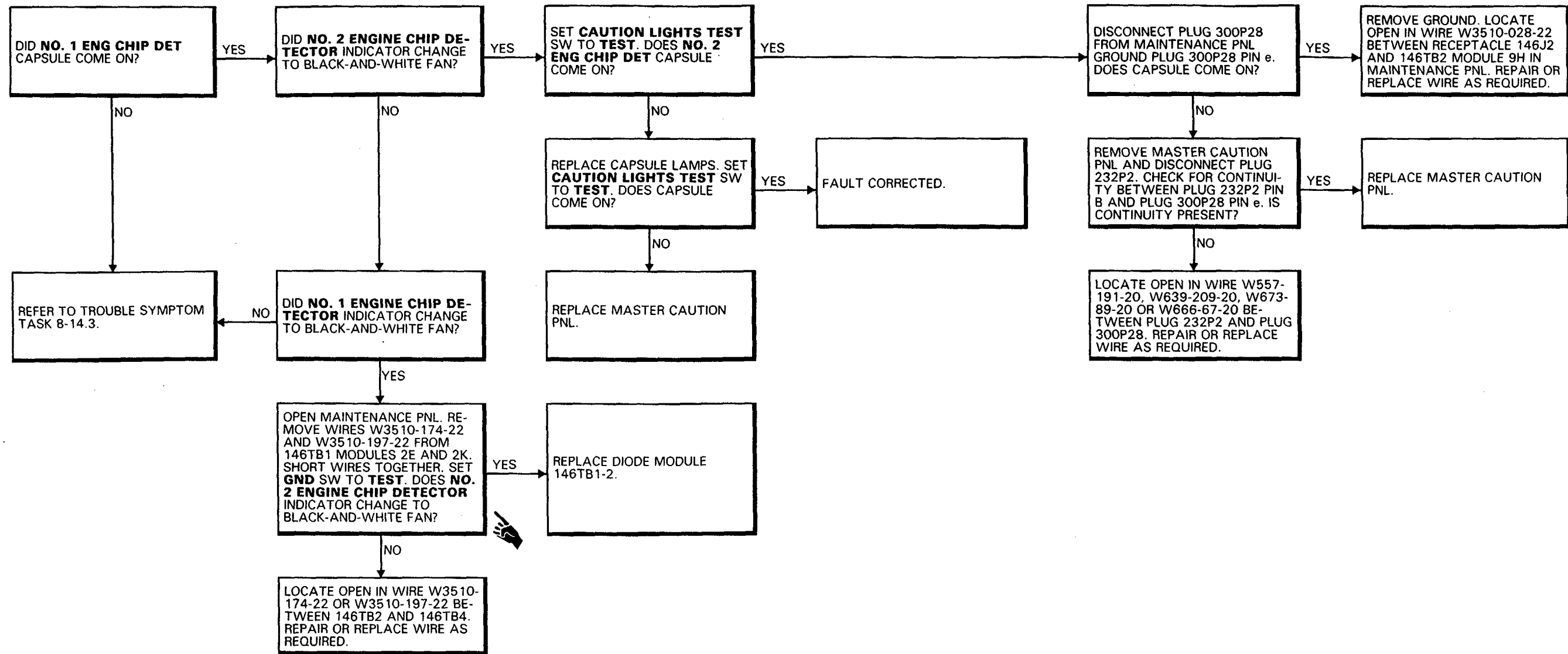
TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off







**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

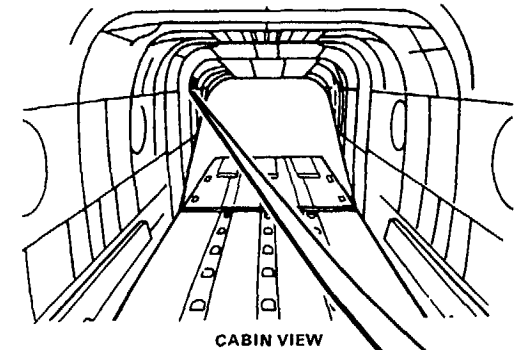
Aircraft Electrician

**References:**

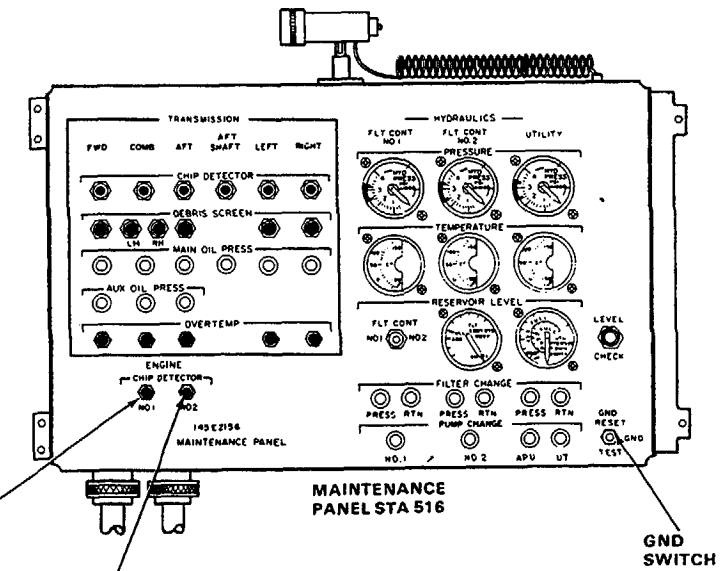
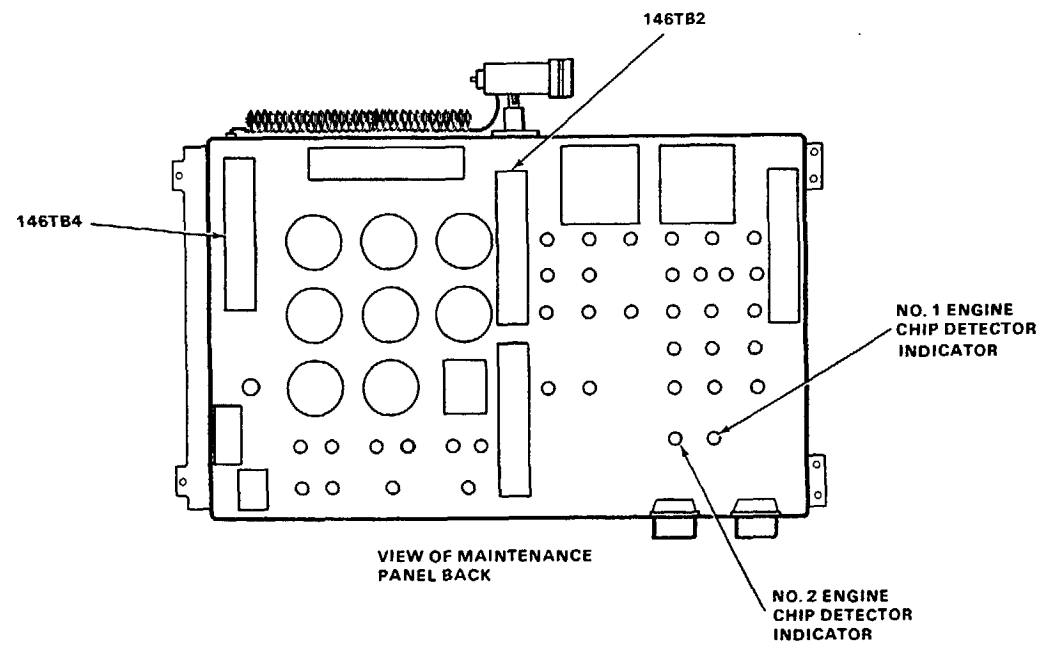
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23: Battery Connected  
Electrical Power On  
Hydraulic Power Off



INDICATOR  
BLACK-AND-WHITE  
FAN DISPLAY



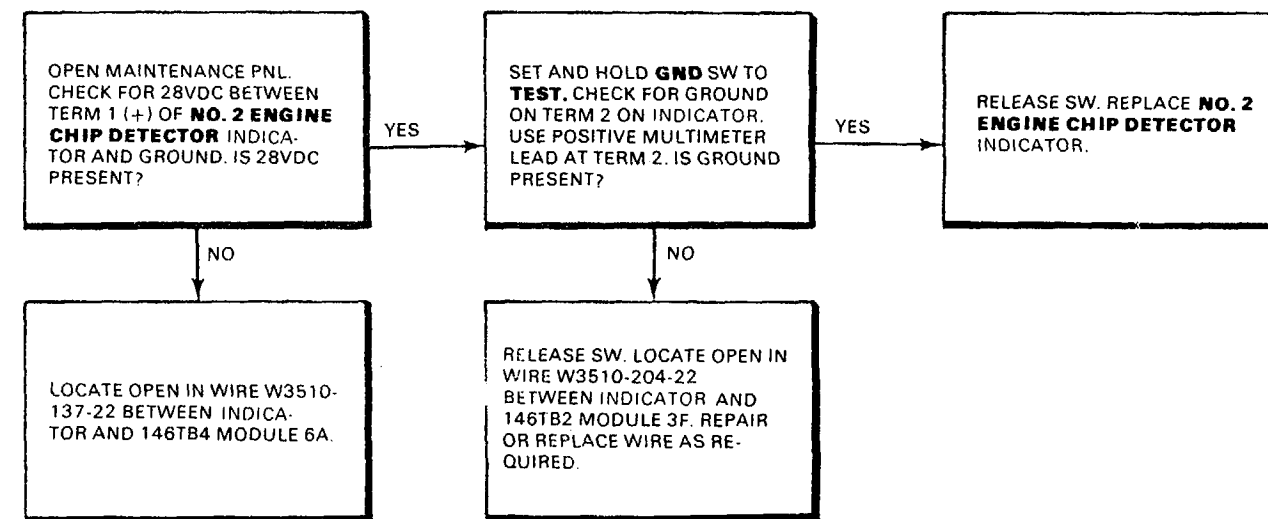
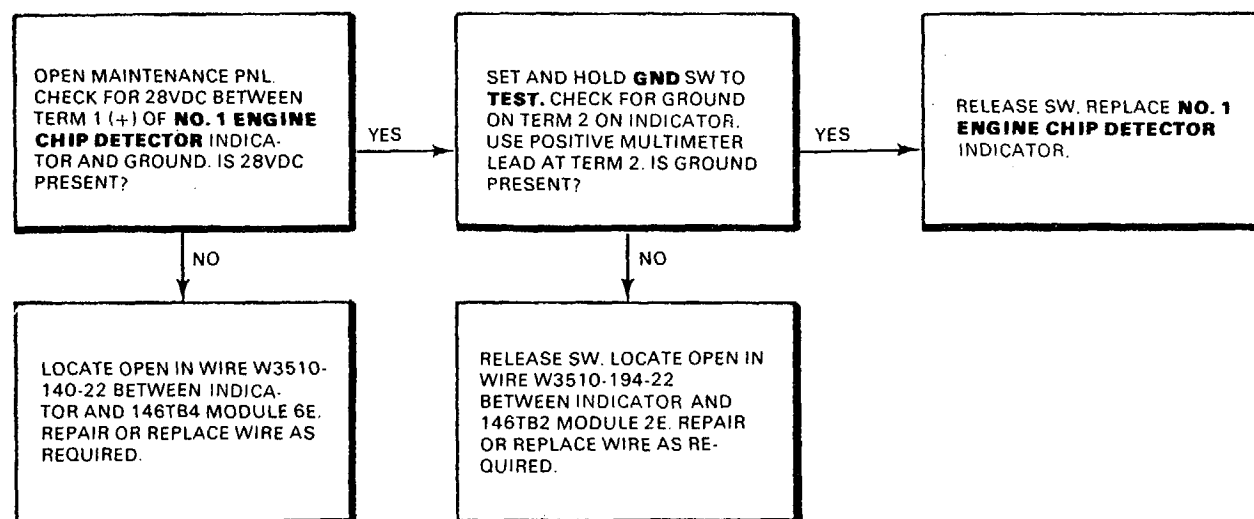
90+54

D145-9258-SPA

4-7.8 NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS ALL BLACK WHEN GND SWITCH SET TO TEST  
(Continued)

NO. 1 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS BLACK WHEN GND SWITCH IS SET TO TEST

NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS BLACK WHEN GND SWITCH IS SET TO TEST



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Without 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

Jumper Wire, 24 Inches

**Personnel Required:**

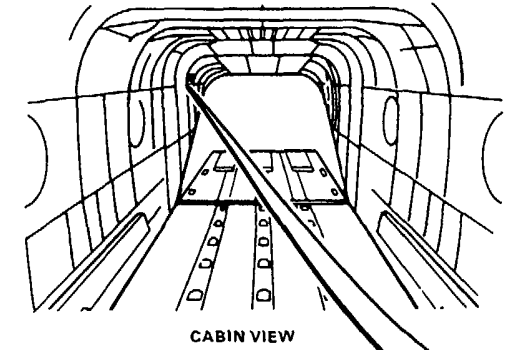
Aircraft Electrician

**References:**

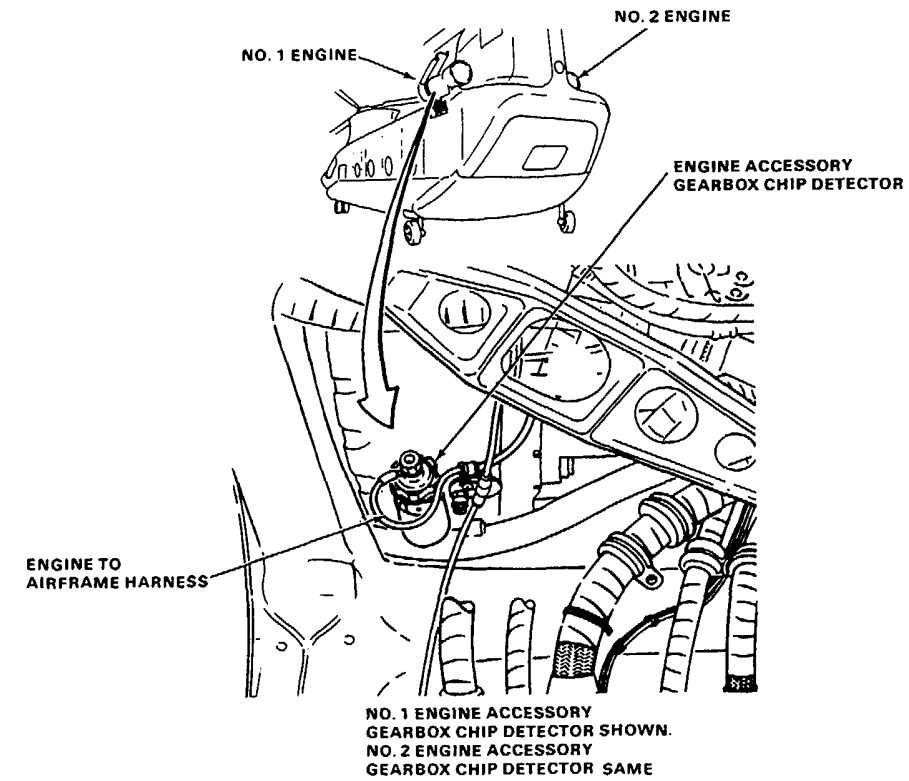
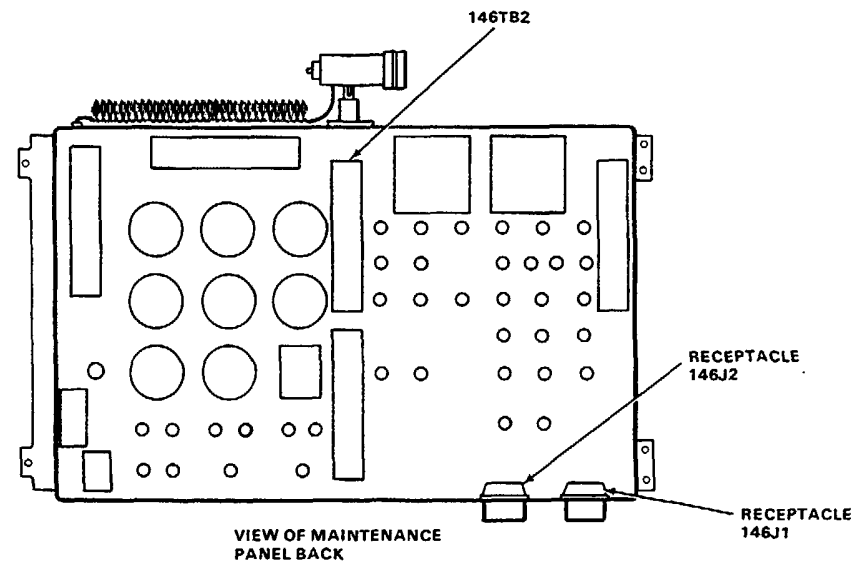
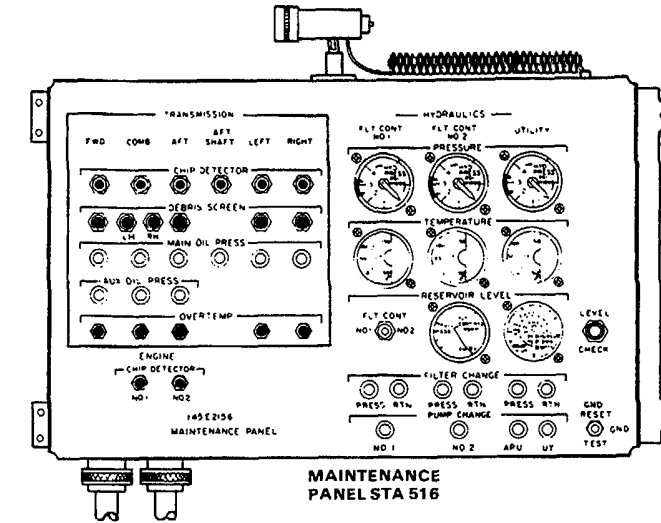
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



INDICATOR  
BLACK-AND-WHITE  
FAN DISPLAY



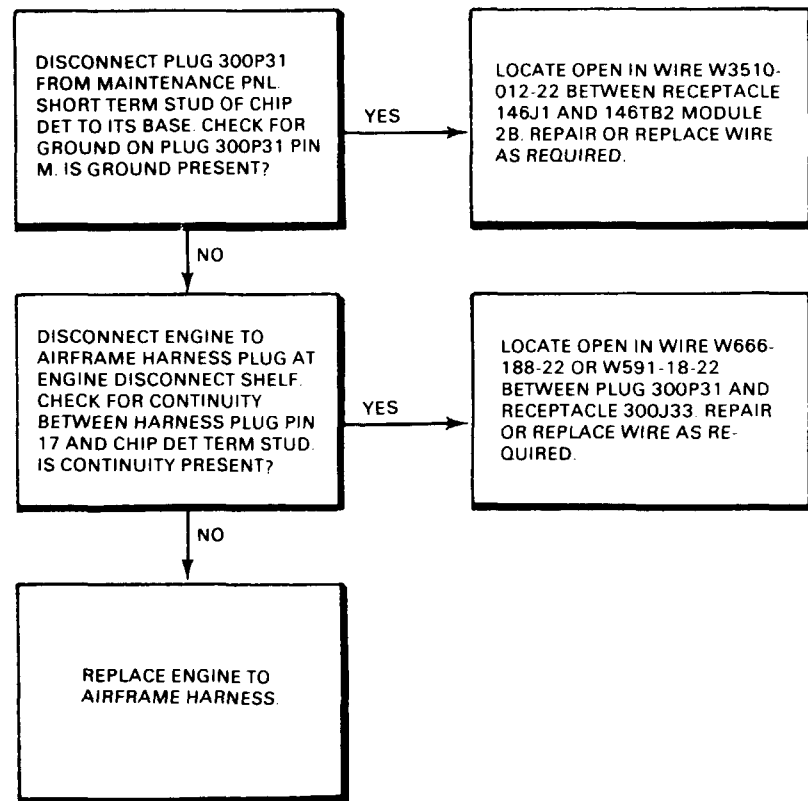
90x54

D145-9259-SPA

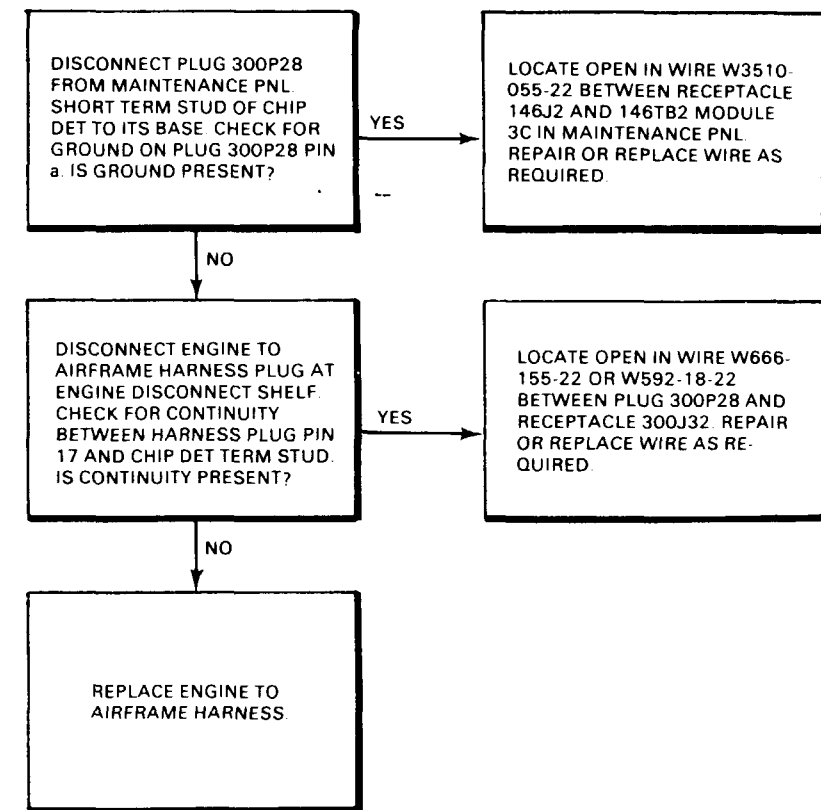
4-7.9 ENG CHIP DET CAPSULE DOES NOT COME ON  
AND ENGINE CHIP DETECTOR INDICATOR DOES NOT  
CHANGE DISPLAY WHEN DETECTOR SHORTED  
(Continued)

4-7.9

NO. 1 ENG CHIP DET CAPSULE DOES NOT COME ON AND  
NO. 1 ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE  
DISPLAY WHEN DETECTOR SHORTED



NO. 2 ENG CHIP DET CAPSULE DOES NOT COME ON AND  
NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY DOES  
NOT CHANGE WHEN DETECTOR SHORTED



END OF TASK

SECTION 4-8 ENGINE PERFORMANCE CHECK (WITH 74) |

INITIAL SETUP

Applicable Configurations:

With 74

Tools:

None

Materials:

None

Personnel Required:

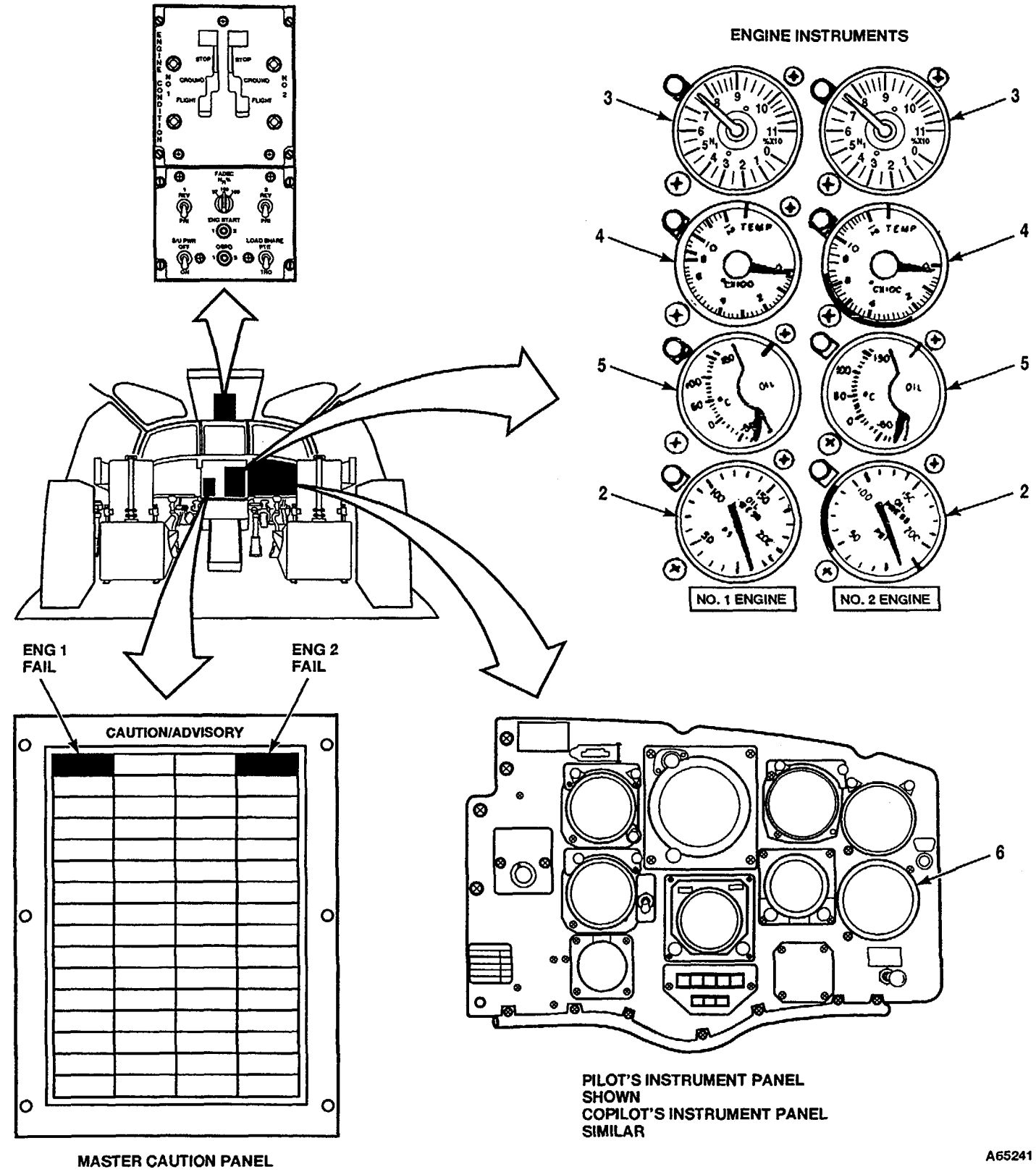
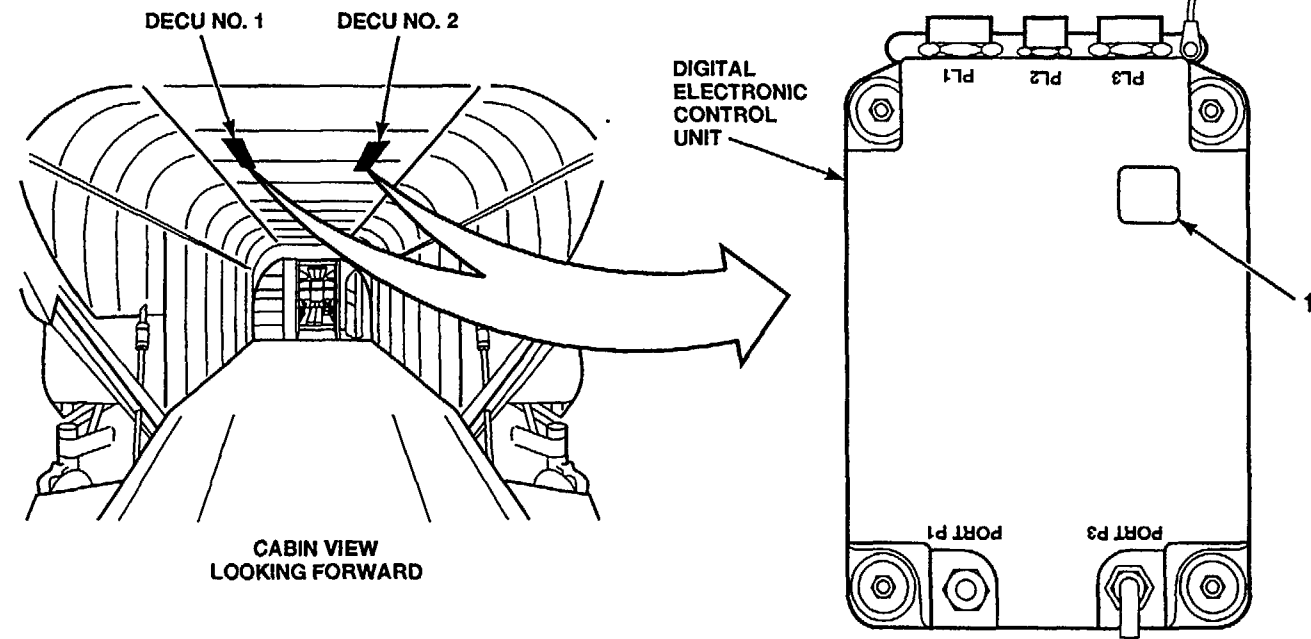
- Rotary Wing Aviator (2)
- Medium Helicopter Repairer
- Aircraft Powerplant Repairer

References:

- TM 1-2840-265-23
- TM 55-1520-240-10
- TM 55-1520-240-23

Equipment Condition:

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On



TASK	RESULT	TASK	RESULT
<p>1. <b>Follow procedures in TM 55-1520-240-10 as pilot starts engines:</b></p> <p><b>A. DECU BIT TEST.</b> Check following occurs: ENG FAIL warning comes on after ENG PRI REV switch set to PRI and goes out about 12 seconds later. DECU No. 1 and No. 2 displays (1) read 88.</p> <p><b>B. FIRST ENGINE START:</b> Check engine instruments (2 through 5) when stabilized at ground idle (N1 at 50 to 59%).</p>	<p>If ENG 1 FAIL or ENG 2 FAIL warning does not come on, go to task 4-8.2.</p> <p>If ENG 1 FAIL or ENG 2 FAIL warning does not go out, go to task 4-8.3.</p> <p>If DECU No. 1 or No. 2 display (1) is blank or another code shown, refer to task 4-12.4.</p> <p>If engine does not motor, go to task 4-10.4.</p> <p>If engine motors normally but does not start, go to task 4-10.4.</p> <p>If engine oil pressure gauge (2) does not indicate oil pressure, go to task 8-3.3.</p> <p>If engine oil pressure is below <u>20 psi</u>, go to task 8-3.3.</p> <p>If N1 gauge (3) does not indicate between <u>50 and 59 percent rpm</u> after <u>45 seconds</u>, go to TM 1-2840-265-23.</p> <p>If ENG TEMP gauge (4) does not indicate temperature, go to task 8-5.3.</p> <p>If ENG TEMP indication is high or hot start occurs, go to TM 1-2840-265-23.</p>	<p><b>C. SECOND ENGINE START:</b> Check engine instrument display when stabilized at ground idle (N1 at 50 to 59%).</p> <p><b>D. ENGINE CONDITION LEVERS - FLY.</b> Check engine instruments display.</p> <p><b>E. DECU FAULT MONITORING:</b> DECU No. 1 and No. 2 displays (1) read 88.</p> <p><b>F. BEFORE TAXI- FADEC SYSTEM REVERSIONARY TEST:</b> Observe torquemeter (6) gauge.</p> <p><b>G. BEFORE HOVER - POWER ASSURANCE TEST:</b> Observe DECU No. 1 and No. 2 displays (1).</p> <p>2. <b>If pilot performs engine overspeed test and test results are not satisfactory, go to task 4-8.8.</b></p>	<p>If engine does not motor, go to task 4-10.4.</p> <p>If engine motors normally but does not start, go to task 4-10.4.</p> <p>If engine oil pressure gauge (2) does not indicate oil pressure, go to task 8-3.3.</p> <p>If engine oil pressure is below <u>20 psi</u>, go to task 8-3.3.</p> <p>If N1 gauge (3) does not indicate between <u>50 and 59 percent rpm</u> after <u>45 seconds</u>, go to TM 1-2840-265-23.</p> <p>If ENG TEMP gauge (4) does not indicate temperature, go to task 8-5.3.</p> <p>If ENG TEMP indication is high or hot start occurs, go to TM 1-2840-265-23.</p> <p>If either NO. 1 or NO. 2 engine oil pressure gauges (5) fluctuate more than <u>5 psi</u>, go to task 8-3.3.</p> <p>If either NO. 1 or NO. 2 engine oil temperature gauge (5) is high, go to TM 1-2840-265-23.</p> <p>If DECU No. 1 or No. 2 display (1) is blank or another code shown, refer to task 4-12.4.</p> <p>If FADEC reversionary mode is inoperative, go to task 4-8.4. If FADEC toggles between primary and reversionary modes, go to task 4-8.6. If torques are not matched when switch is at PRI, go to task 4-8.7.</p> <p>If DECU display is F, go to task 4-8.5.</p>
<p style="text-align: center;"><b>CAUTION</b></p> <p>If the No. 1 engine is started first, the No. 2 engine N2 section starts turning. The engine lubrication system is driven by the N1 section which does not turn until the START sequence is initiated. Delay in starting the No. 2 engine will result in excessive wear on N2 bearing package and seals. Start the No. 2 engine within <u>3 minutes</u> after the first engine started.</p>		<p>FOLLOW-ON MAINTENANCE:  TM 55-1520-240-23:  Hydraulic power off.  Electrical power off.  Battery disconnected.</p>	

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

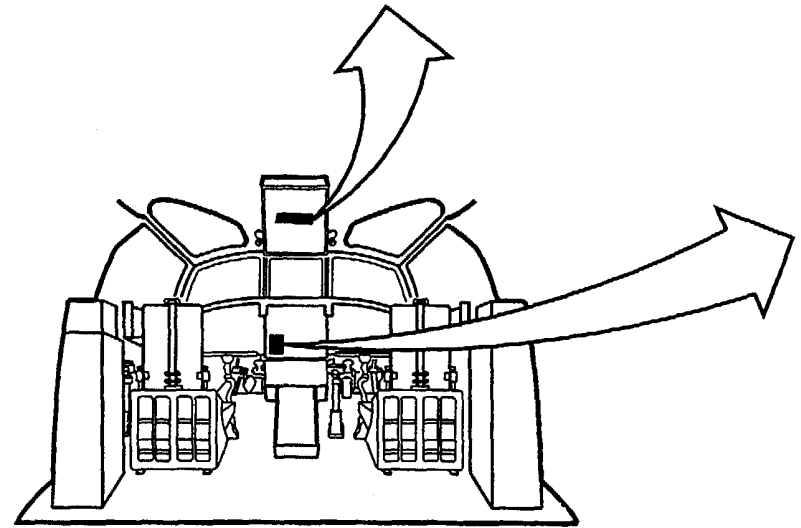
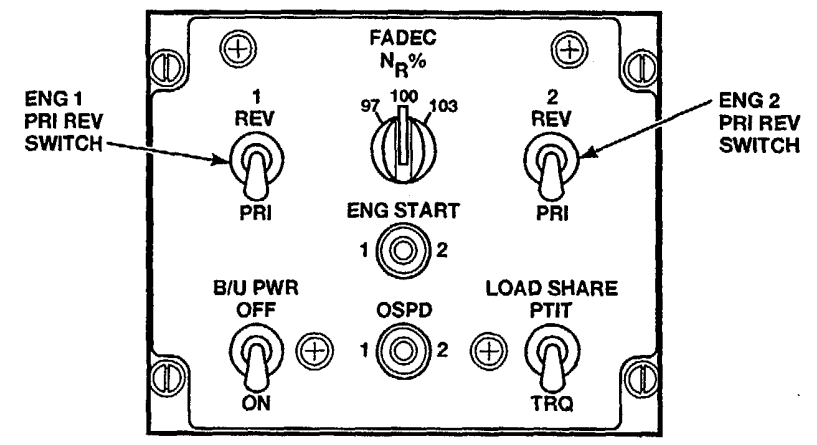
**Equipment Condition:**

TM 55-1520-240-23:

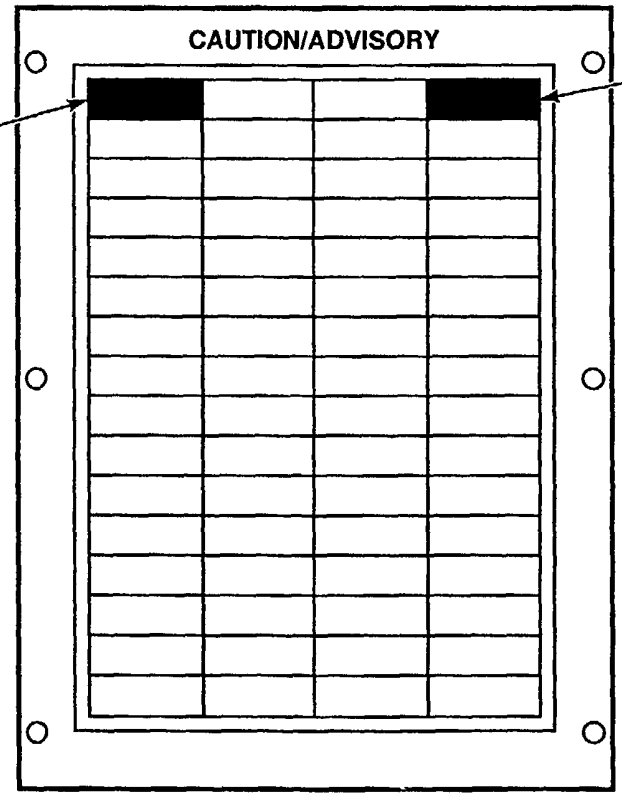
Battery Connected

Electrical Power On

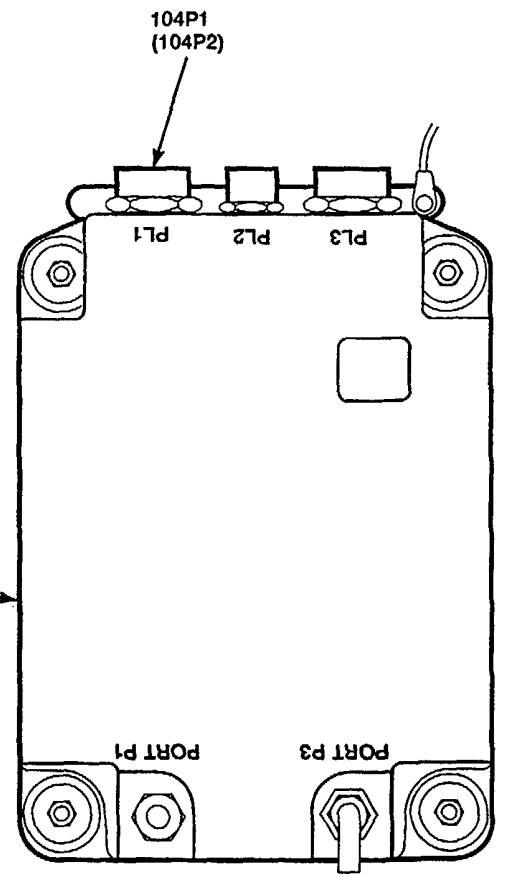
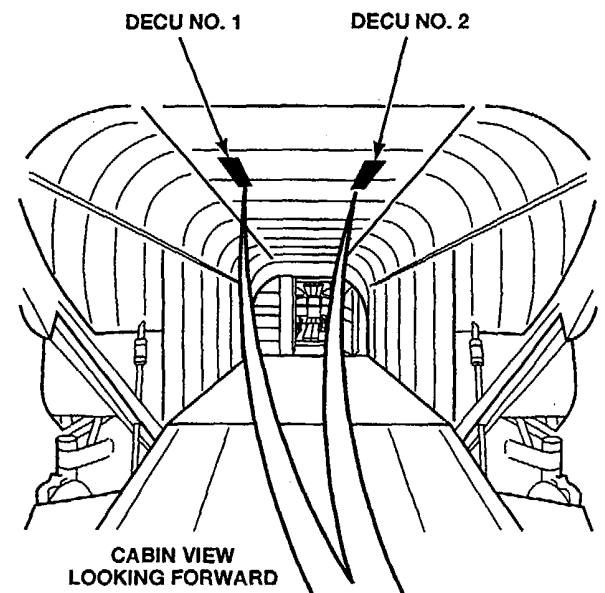
Hydraulic Power Off



COCKPIT



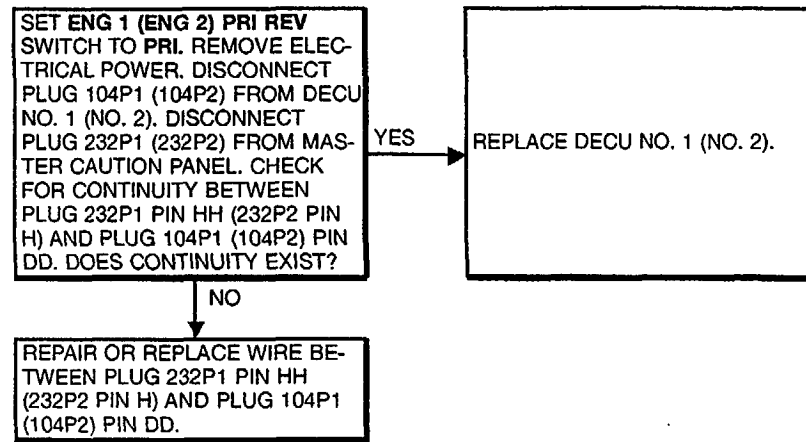
MASTER CAUTION PANEL



DIGITAL ELECTRONIC CONTROL UNIT



**NOTE:** . Information in ( ) applies to DECU NO. 2.  
. Use wiring diagram in Task 4-12.2.



END OF TASK

Change 17 4-199

4-8.3 ENG FAIL WARNING STAYS ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

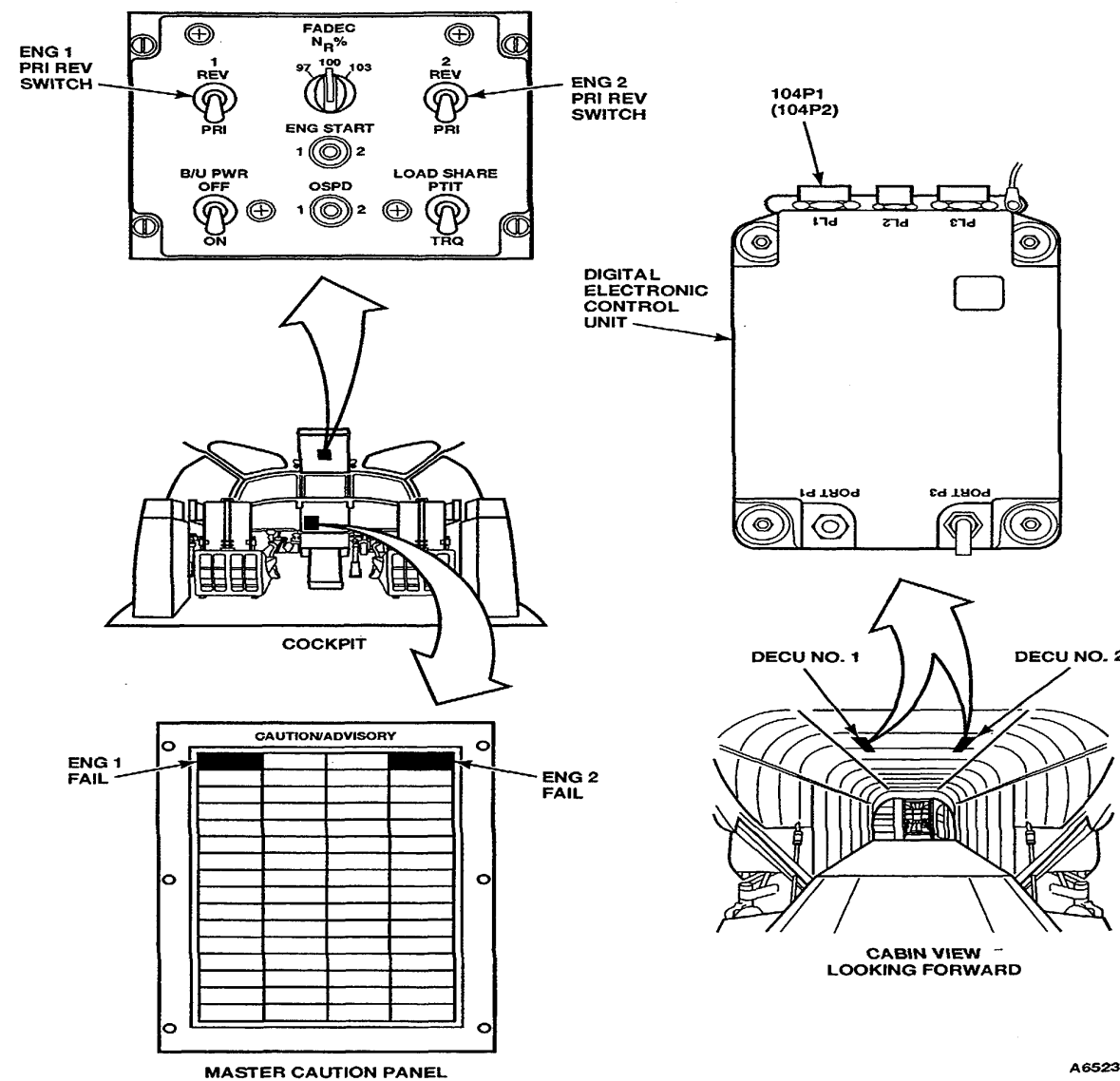
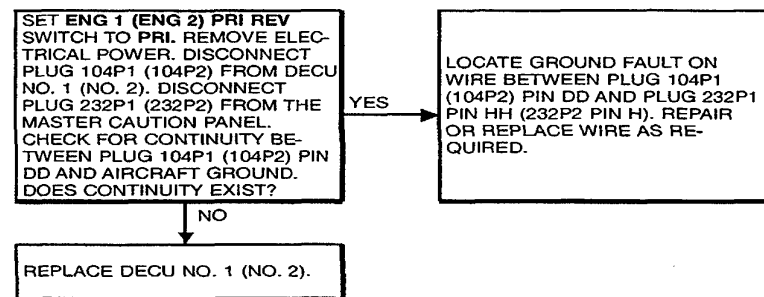
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.  
Use wiring diagram in Task 4-12.2.



A65239

4-8.4 FADEC REV MODE INOPERATIVE

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

TM 1-2840-265-23

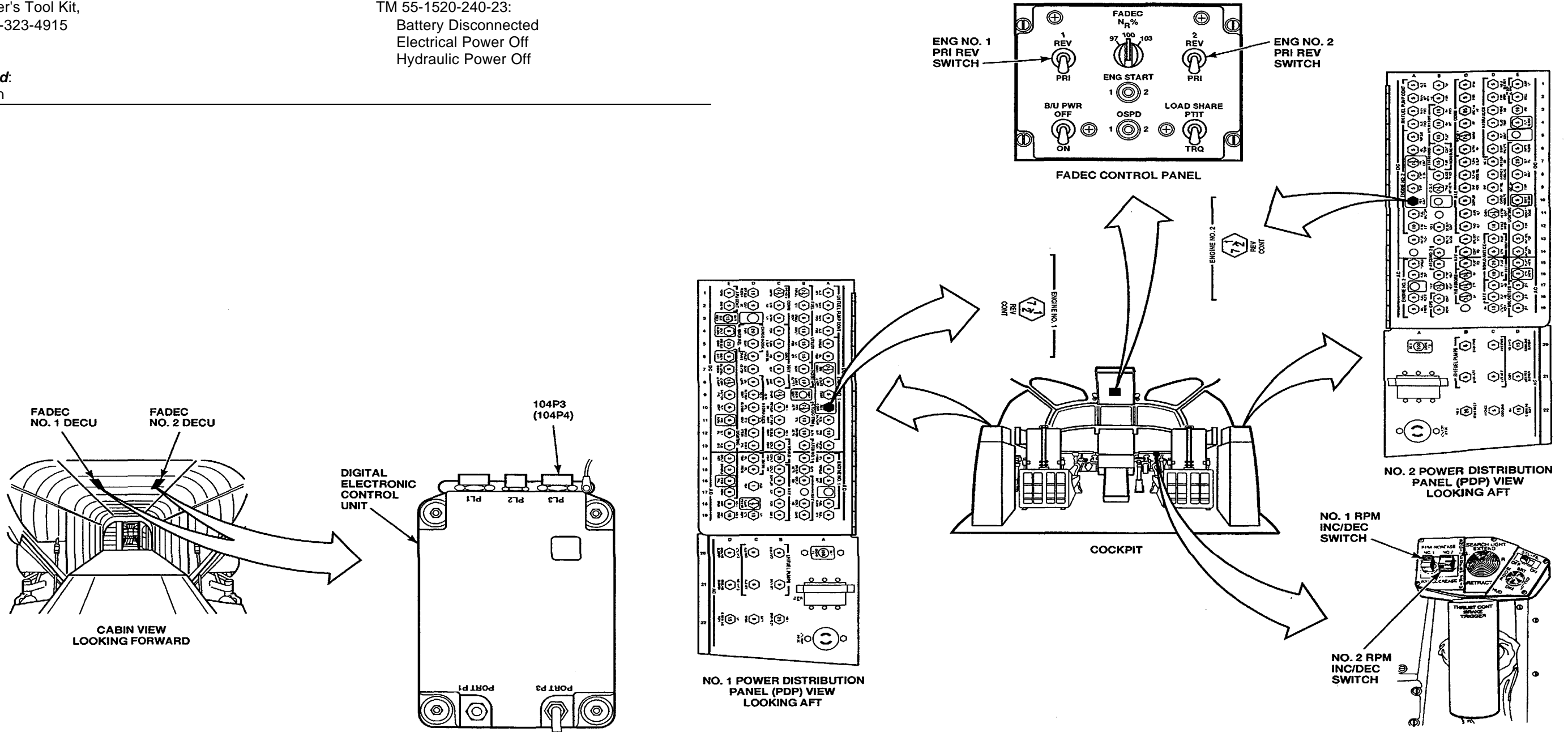
**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

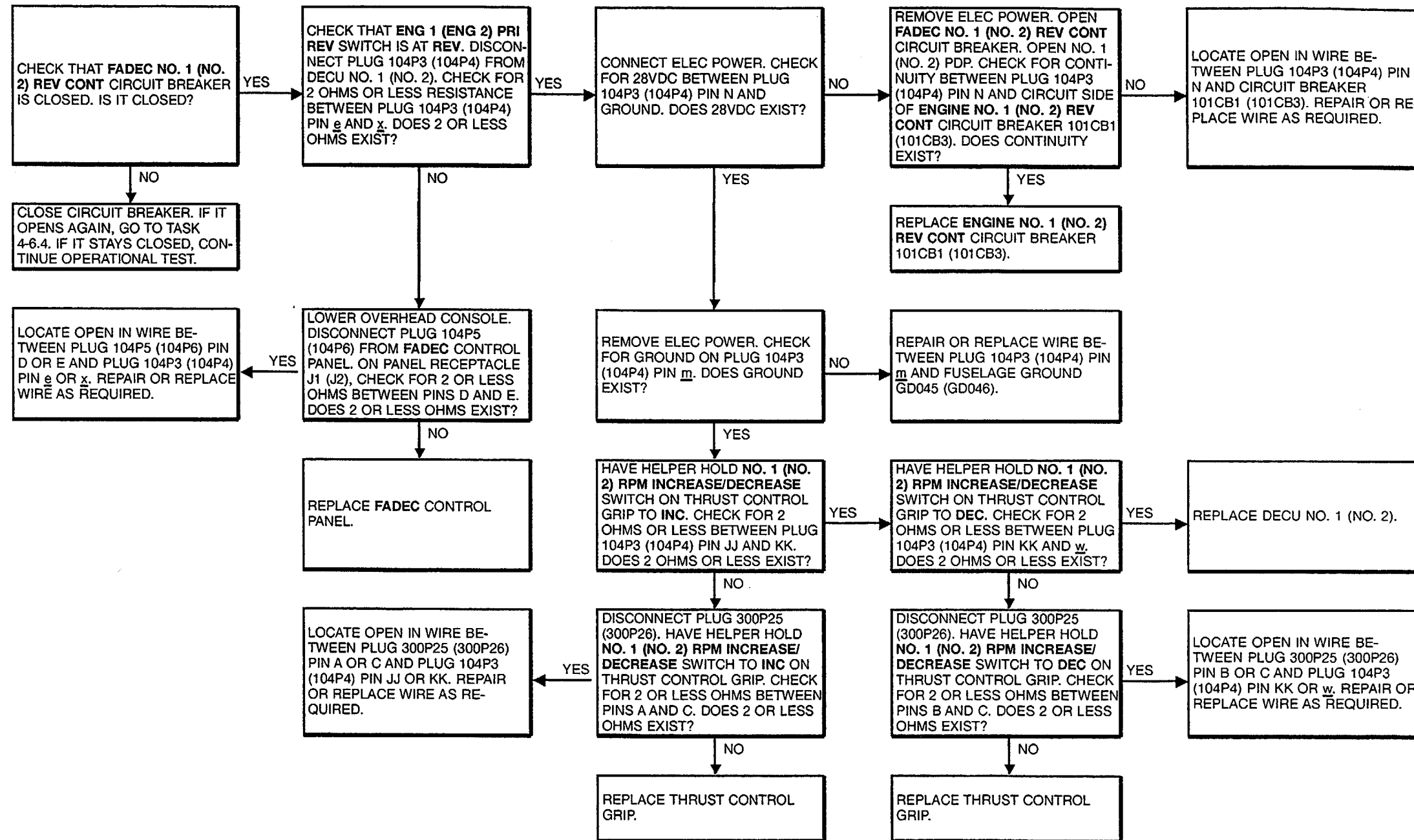
Electrical Power Off

Hydraulic Power Off



A65238

**NOTE:** Information in ( ) applies to DECU NO. 2.  
Use wiring diagram in Task 4-12.2.



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

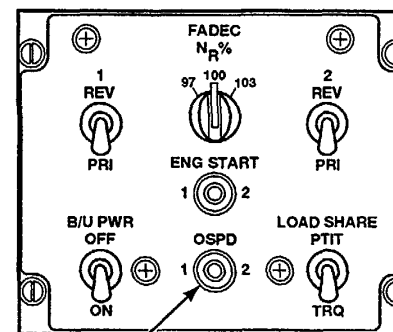
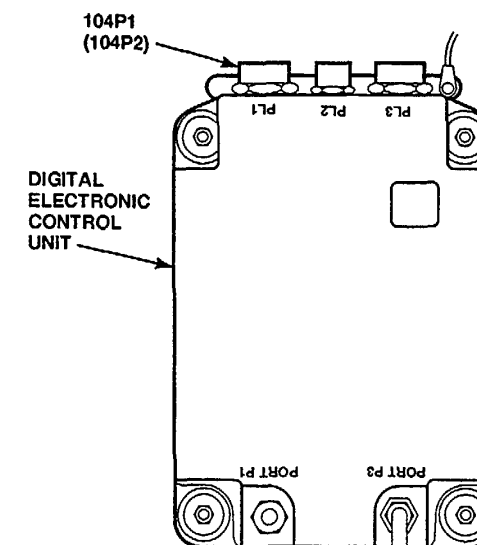
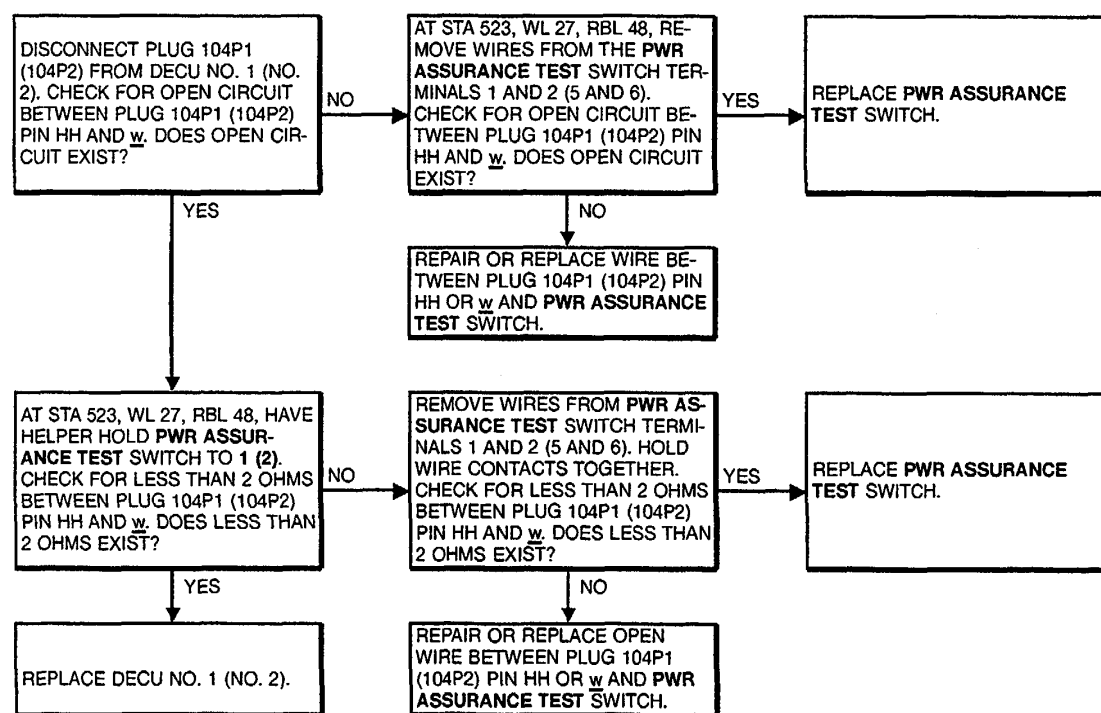
TM 55-1520-240-23:

Battery Disconnected

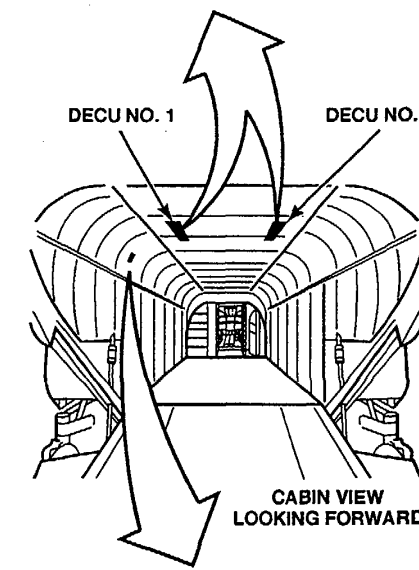
Electrical Power Off

Hydraulic Power Off

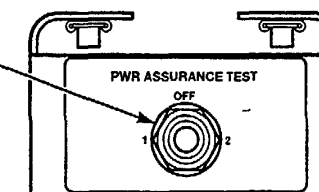
**NOTE:** Information in ( ) applies to DECU NO. 2.  
Use wiring diagram in Task 4-12.2.



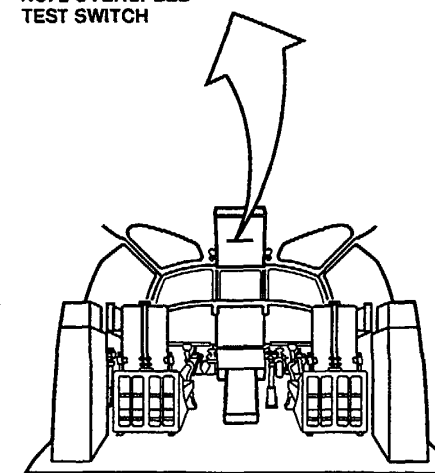
ENGINE NO. 1 AND NO. 2 OVERSPEED TEST SWITCH



ENGINE NO. 1 AND NO. 2 POWER ASSURANCE SWITCH



STA 523, WL 27, RBL 48



COCKPIT

A65237

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**

None

**Personnel Required:**

Aircraft Powerplant Repairer

**References:**

TM 55-1520-240-23

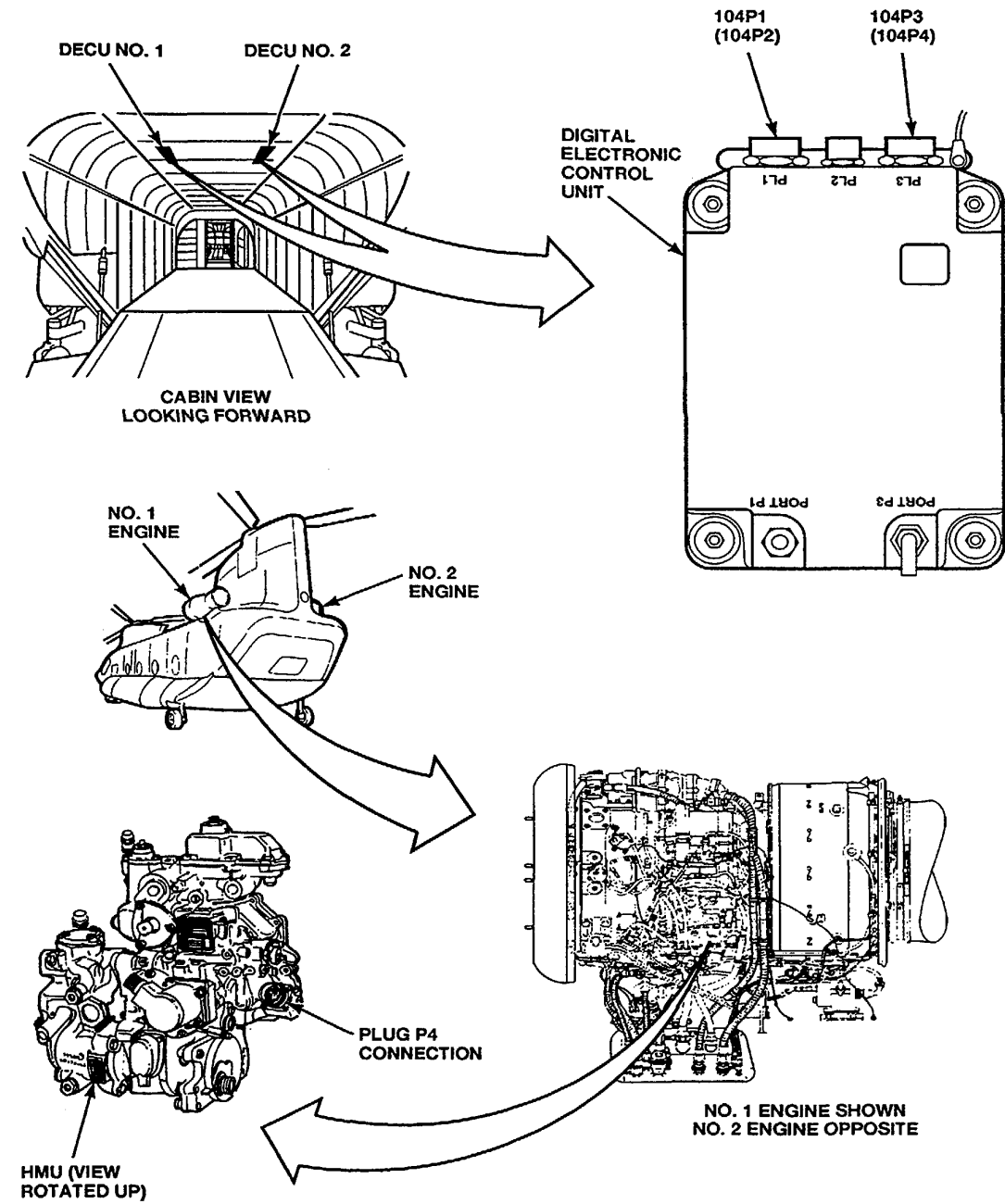
**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

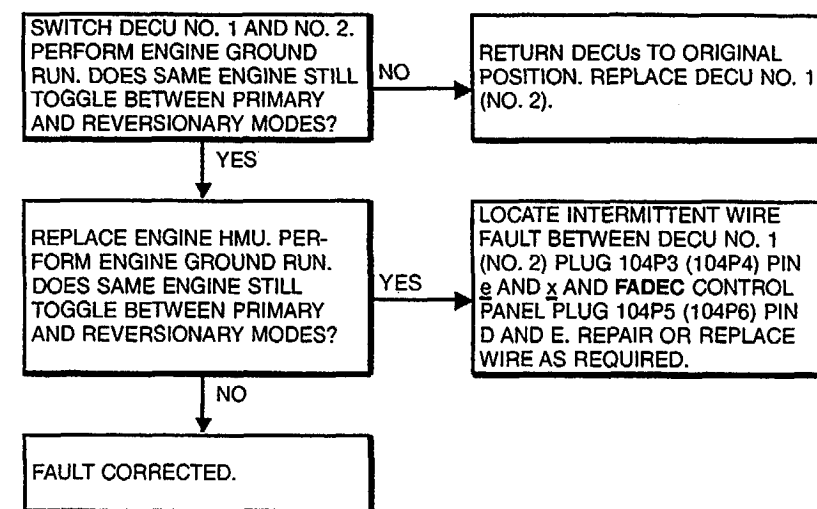
Hydraulic Power Off



A65236

GO TO NEXT PAGE

- NOTE:**
- Information in ( ) applies to DECU NO. 2.
  - Use wiring diagram in Task 4-12.2.



4-8.7 TORQUES NOT MATCHED WITH LOAD SHARE SWITCH AT TRQ

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

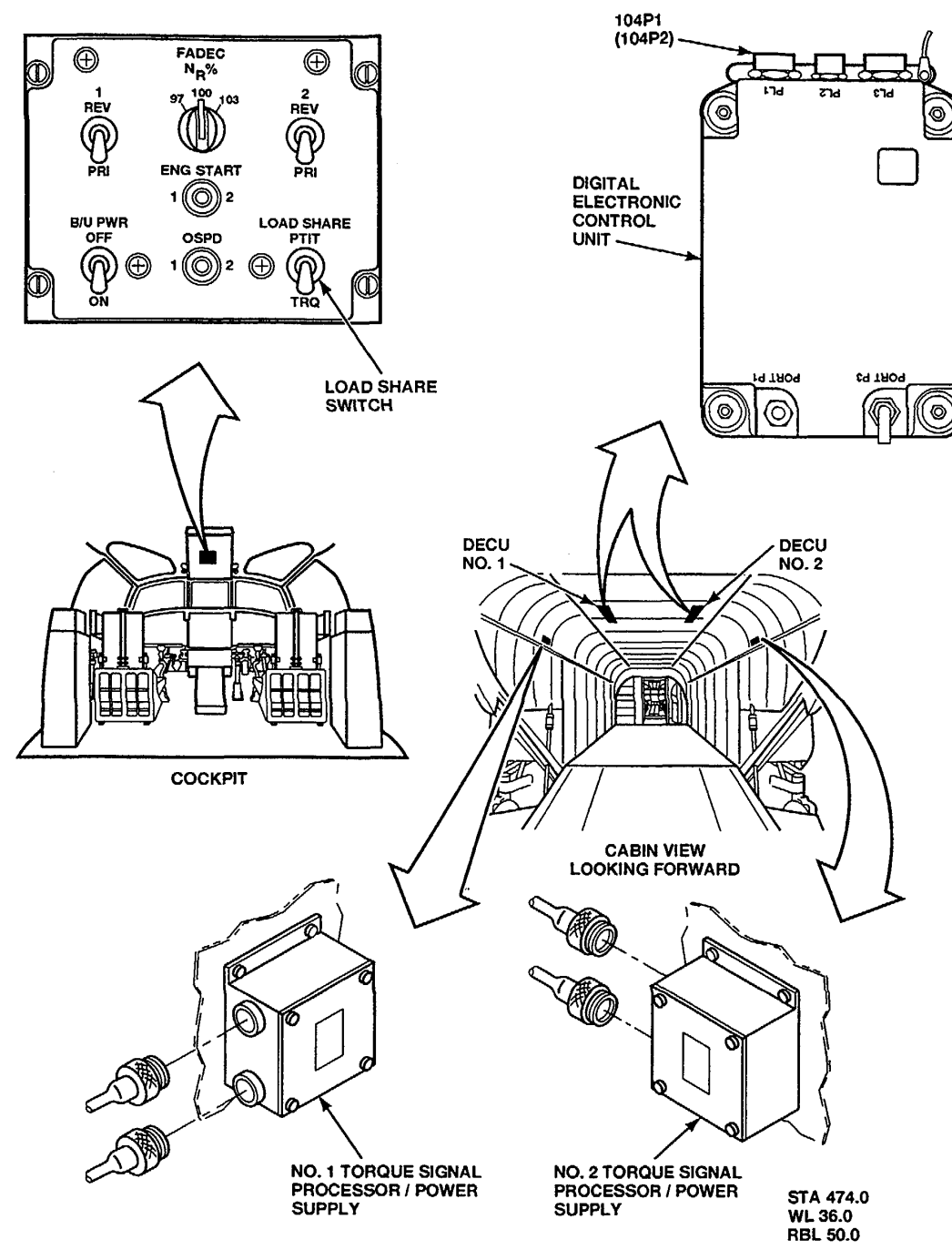
**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

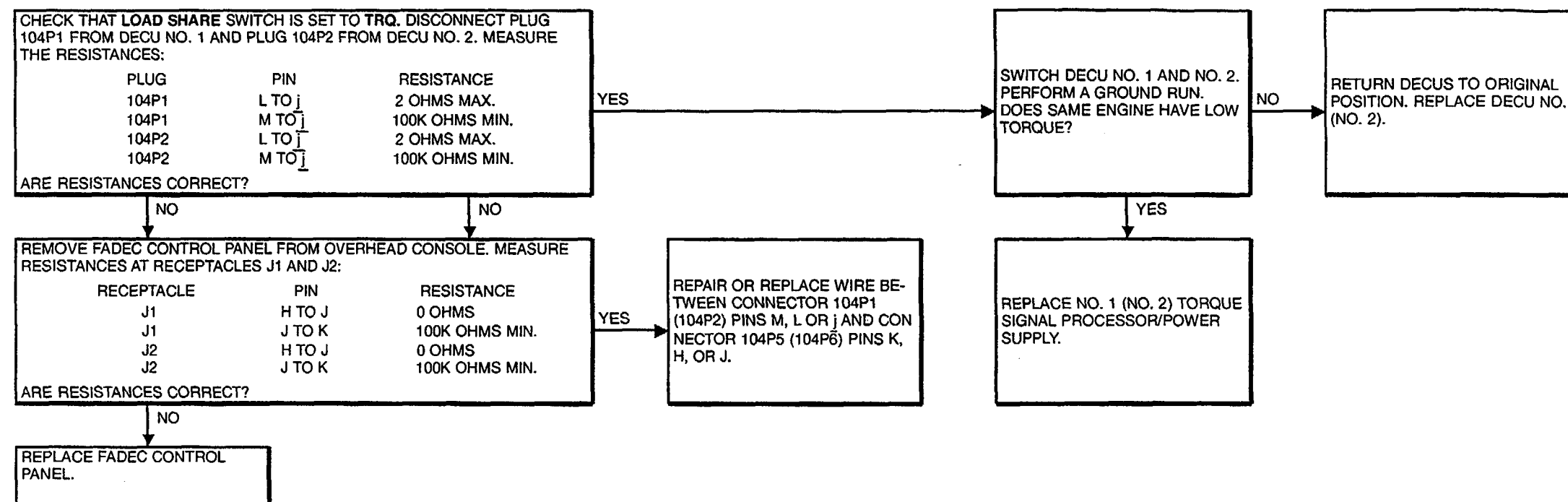


A65235

GO TO NEXT PAGE



**NOTE:** Information in ( ) applies to DECU NO. 2.  
Use wiring diagram in Task 4-12.2.



4-8.8 ENGINE OVERSPEED TEST FAILS

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **Z**

**Tools:**

- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

- Aircraft Powerplant Repairer
- Aircraft Electrician

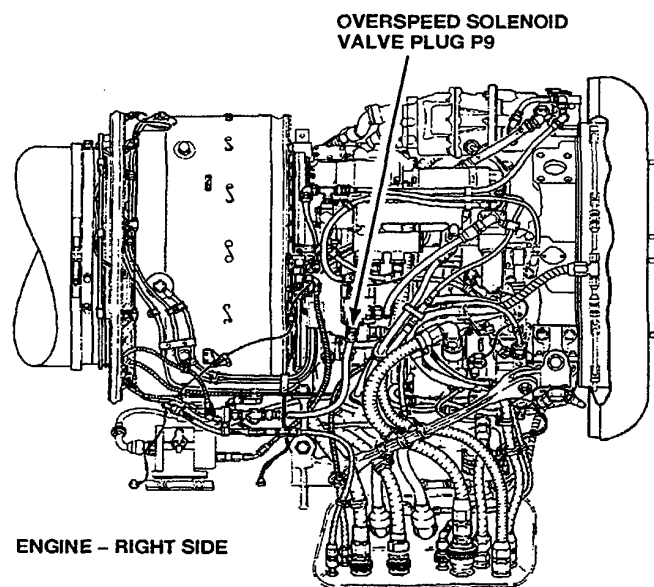
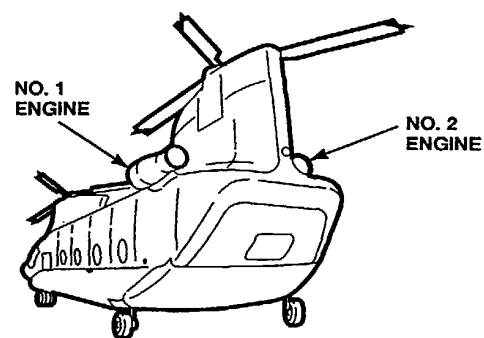
**References:**

TM 55-1520-240-23

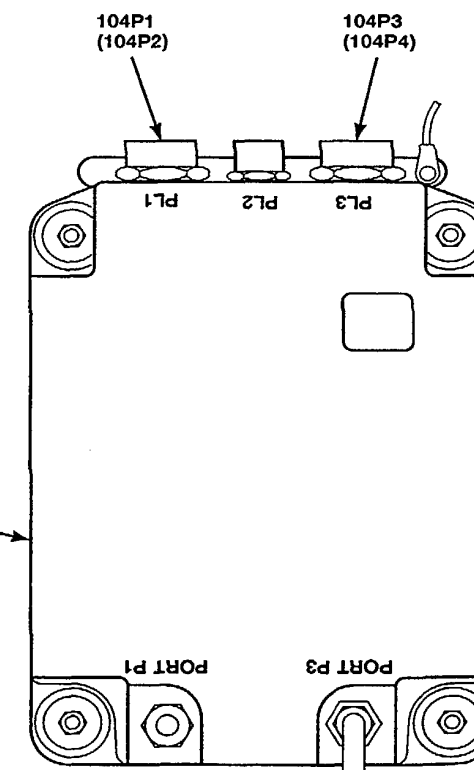
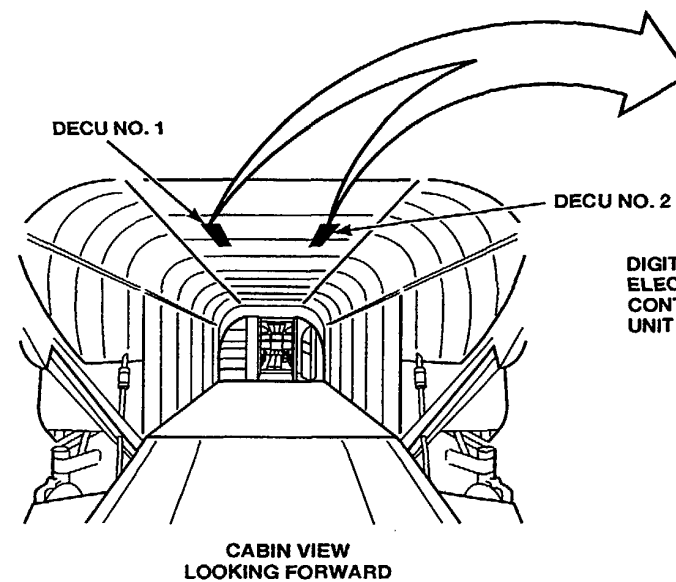
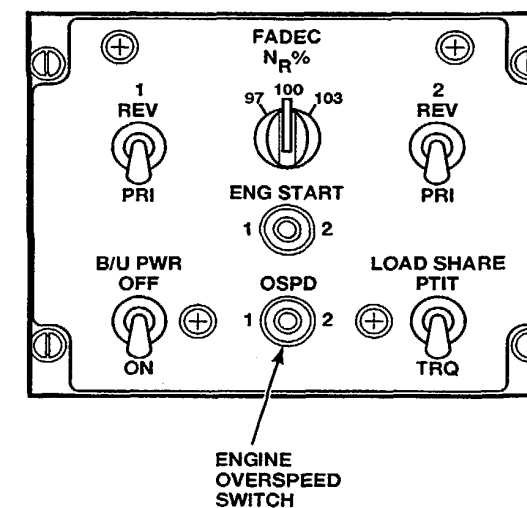
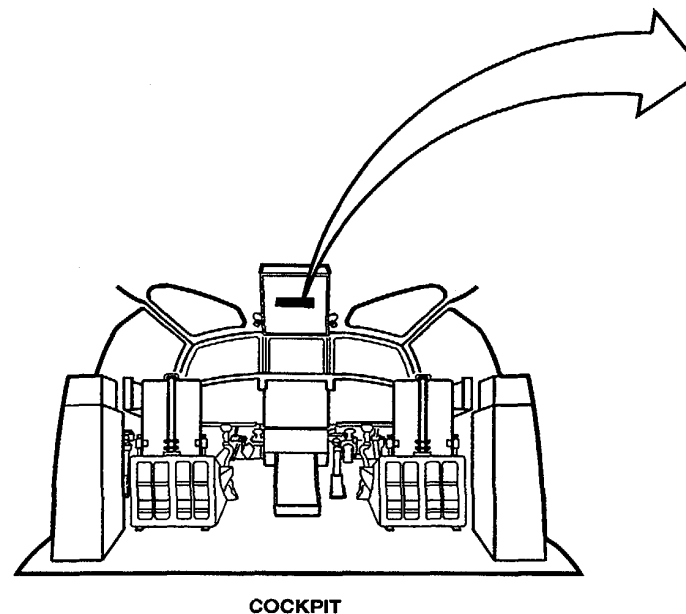
**Equipment Condition:**

TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off



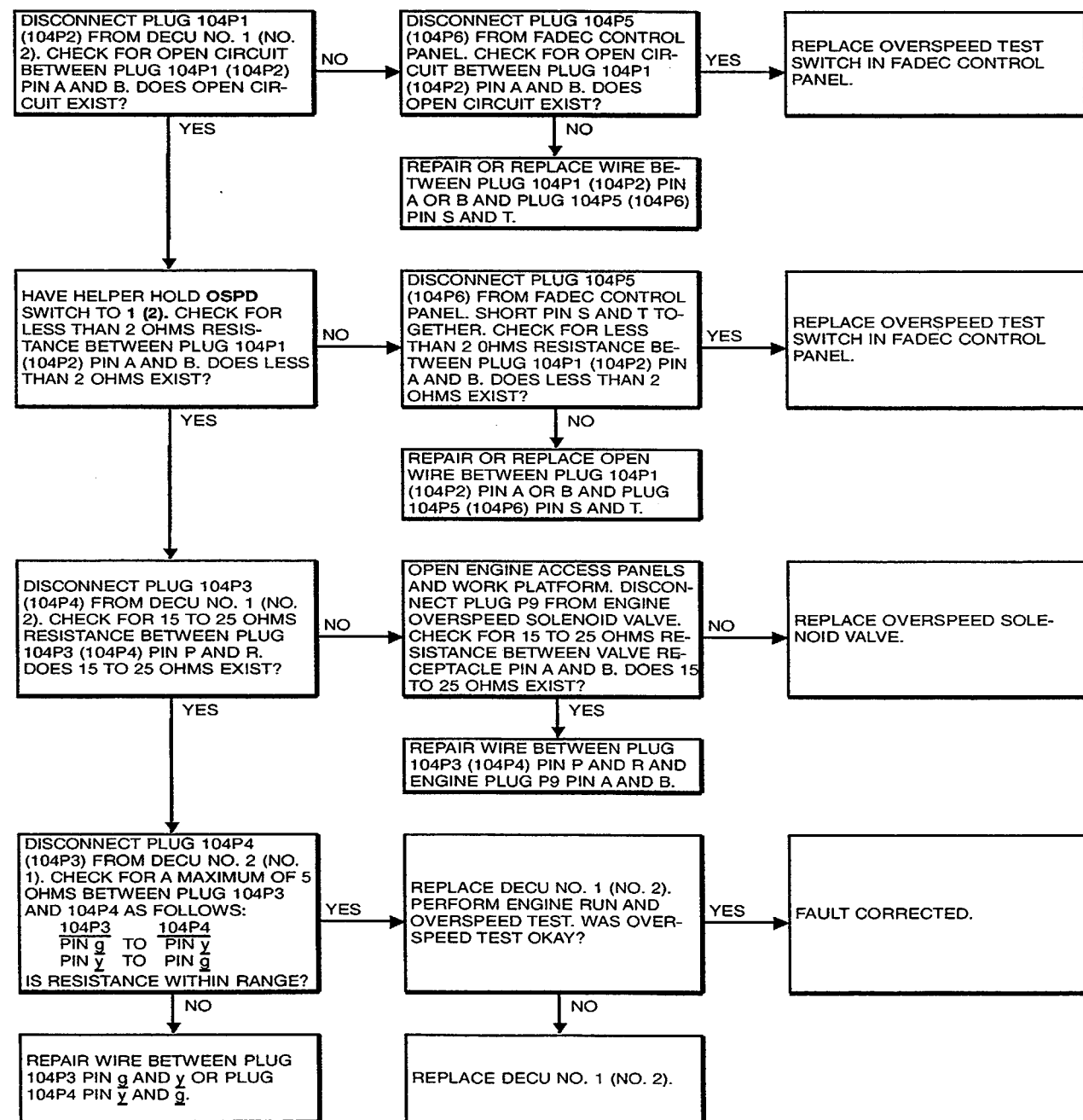
OUTBOARD NO. 2 ENGINE SHOWN  
INBOARD NO. 1 ENGINE SIMILAR



A65234

GO TO NEXT PAGE

**NOTE:** Information in ( ) applies to DECU NO. 2.  
Use wiring diagram in Task 4-12.2.



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
With 74

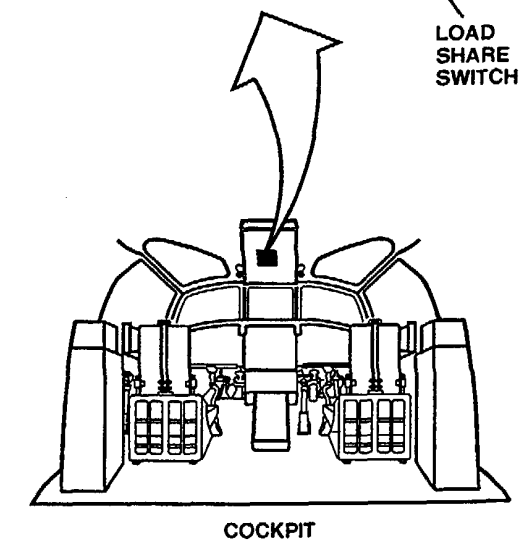
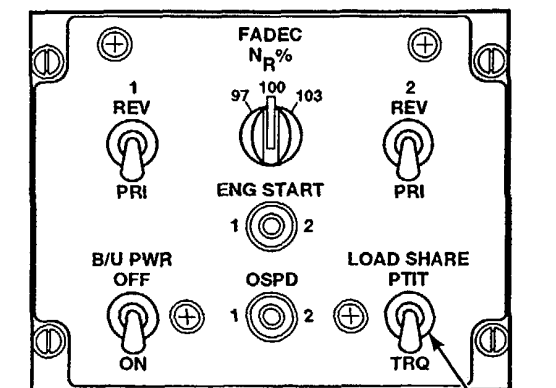
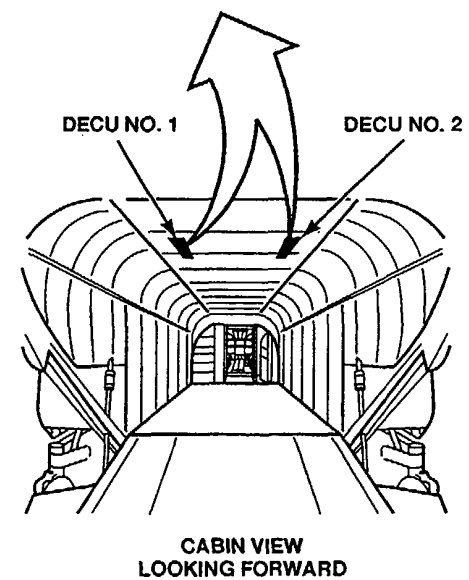
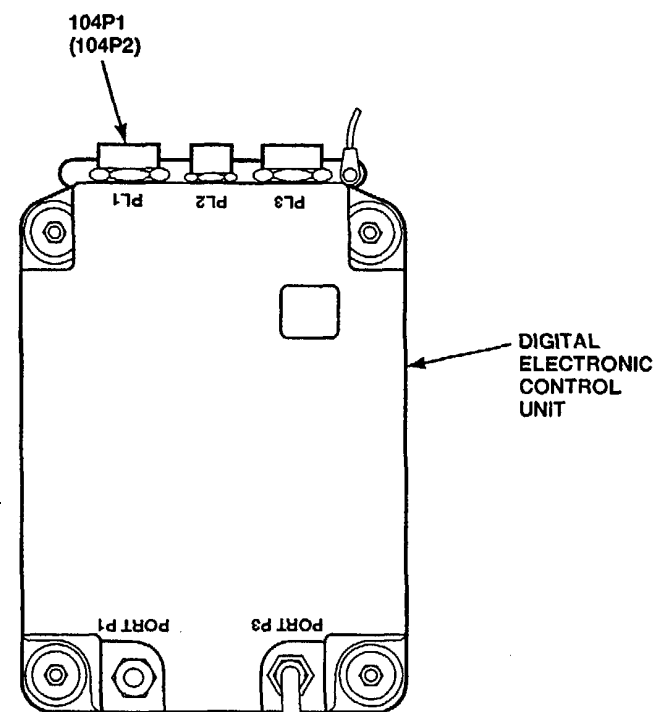
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**  
None

**Personnel Required:**  
Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

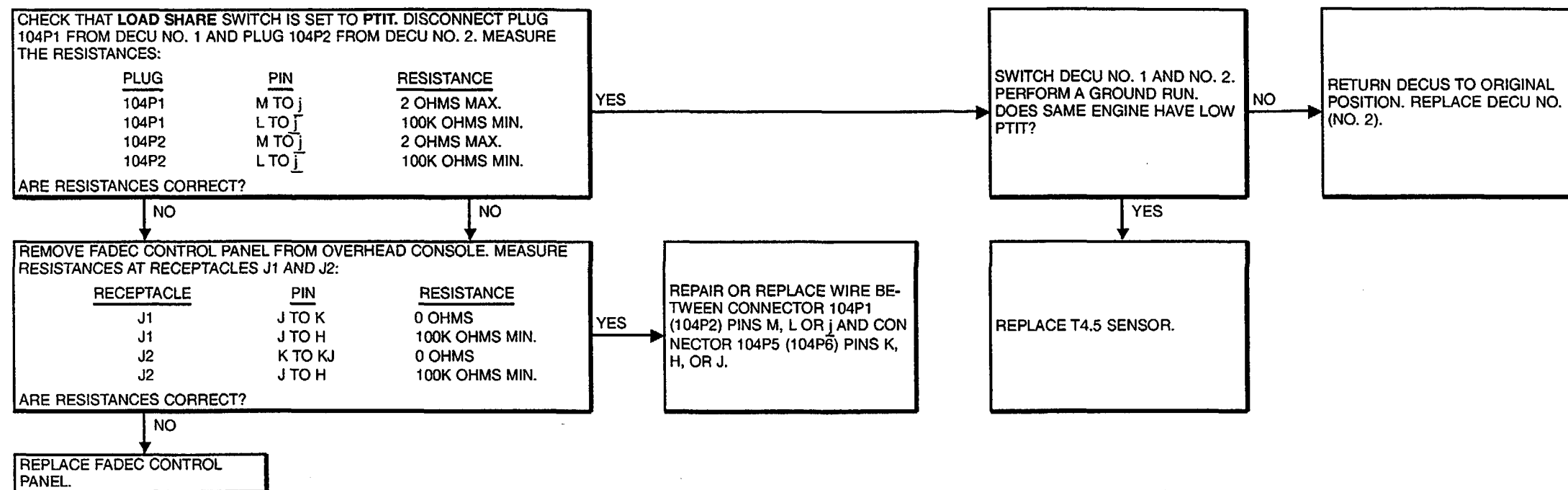


A59127

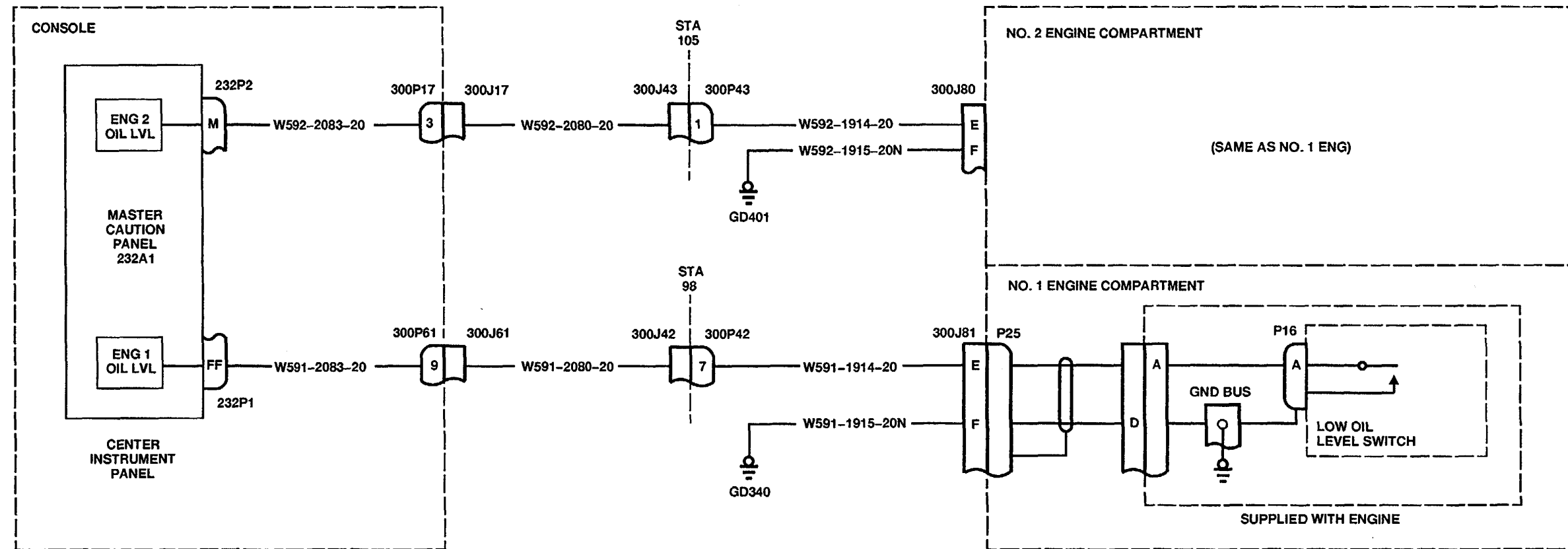
GO TO NEXT PAGE


4-8.9 PTIT'S NOT MATCHED WITH LOAD SHARE SWITCH SET TO PTIT (Continued)

**NOTE:** . Information in ( ) applies to DECU NO. 2.  
 . Use wiring diagram in Task 4-12.2.



SECTION 4-9 ENGINE LOW OIL LEVEL WARNING SYSTEM (WITH 74)



NOTE:  
1.  INDICATES EQUIPMENT MARKINGS

4-9.2 ENGINE LOW OIL LEVEL WARNING SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

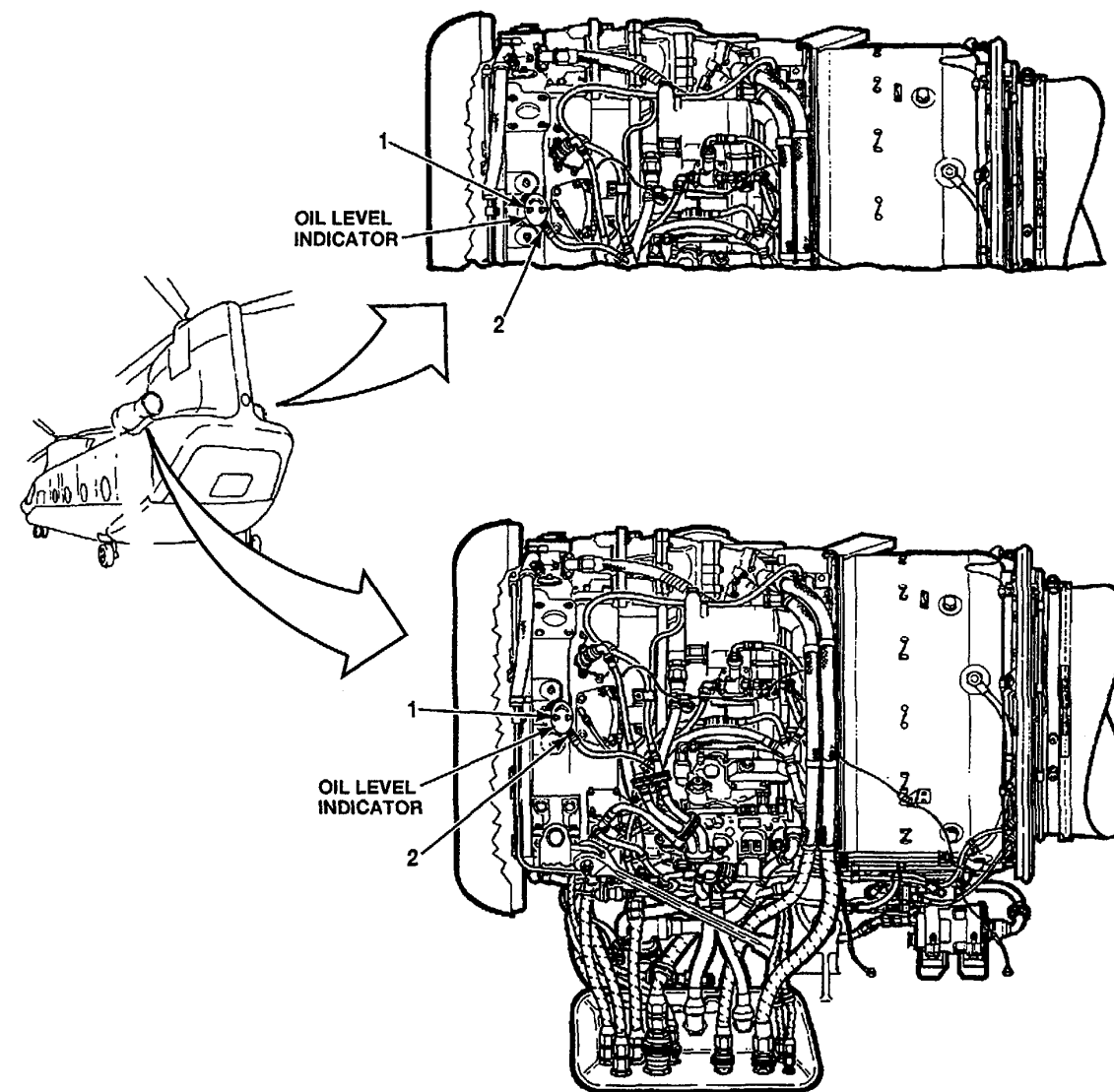
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- No. 1 Engine Upper and Lower Access Covers Open
- No. 1 Engine Work Platform Open
- No. 2 Engine Upper and Lower Access Covers Open
- No. 2 Engine Work Platform Open

TASK	RESULT
1. Check No. 2 engine oil level indicator (1).	If indicator (1) is loose or damaged, repair or replace it as required.
2. Check No. 2 engine oil level indicator (1) connector (2).	If connector (2) is loose or damaged, repair or replace it as required.
3. Check No. 1 engine oil level indicator (1).	If indicator (1) is loose or damaged, repair or replace it as required.
4. Check No. 1 engine oil level indicator (1) connector (2).	If connector (2) is loose or damaged, repair or replace it as required.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

- No. 1 engine upper and lower access covers closed.
- No. 1 engine work platform closed.
- No. 2 engine upper and lower access covers closed.
- No. 2 engine work platform closed.



OUTBOARD LH ENGINE SHOWN  
INBOARD RH ENGINE SIMILAR

A65232



4-9.3 ENGINE LOW OIL LEVEL WARNING SYSTEM OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

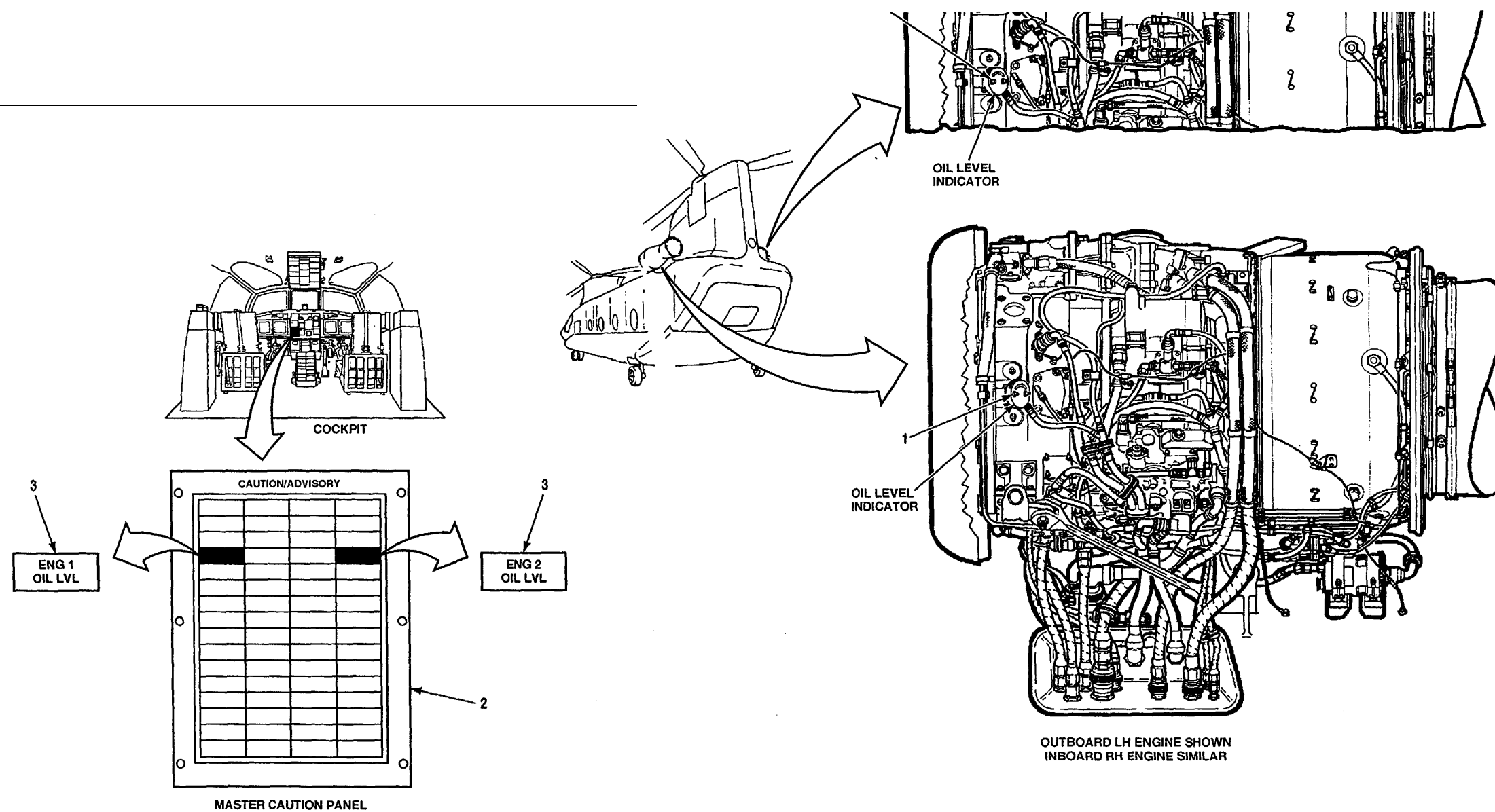
Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off
- No. 1 Engine Upper and Lower Access Doors Open
- No. 1 Engine Work Platform Open
- No. 2 Engine Upper and Lower Access Doors Open
- No. 2 Engine Work Platform Open
- Visual Check of Engine Low Oil Level Warning System Performed (Task 4-9.2)



## 4-9.3 ENGINE LOW OIL LEVEL WARNING SYSTEM OPERATIONAL CHECK (Continued)

4-9.3

TASK	RESULT
1. <b>On No. 1 or No. 2 engine, insert small diameter screwdriver in oil level indicator (1) housing slot Use it to move oil level indicating arm from FULL position to LOW position (white line). not, go to task 4-9.4.</b>	Indicator (1) pointer shall move freely and return to original position. If pointer binds or sticks, repair or replace it as required. On master caution panel (2), <b>ENG 1 (ENG 2) OIL LVL</b> low caution light (3) shall come on. If

## FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

Electrical power off.

Battery disconnected.

No. 1 engine upper and lower access doors closed.

No. 1 engine work platform closed.

No. 2 engine upper and lower access doors closed.

No. 2 engine work platform closed.

4-9.4 NO. 1 OR NO. 2 ENGINE OIL LOW CAUTION LIGHTS DO NOT COME ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
With **74**

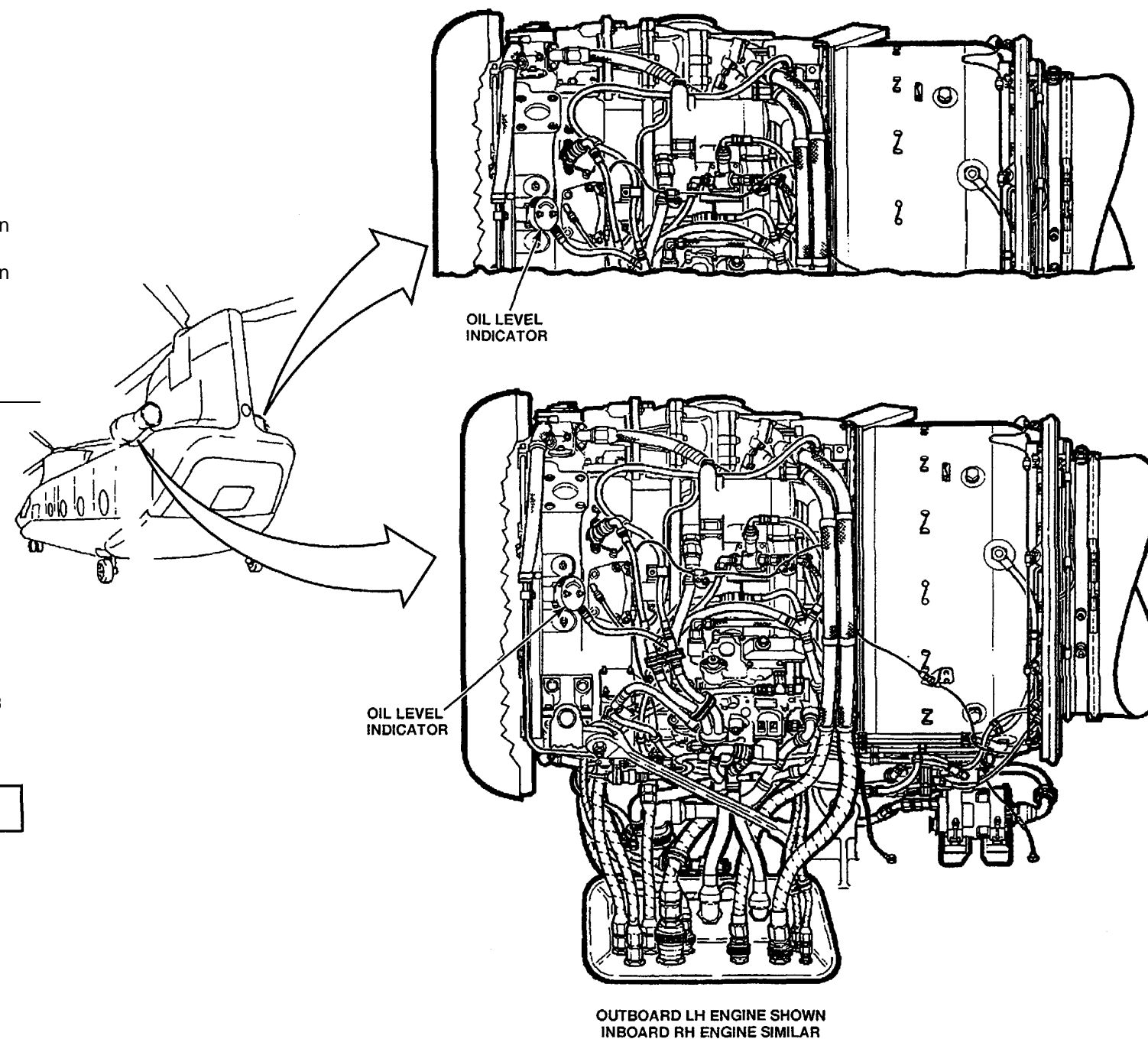
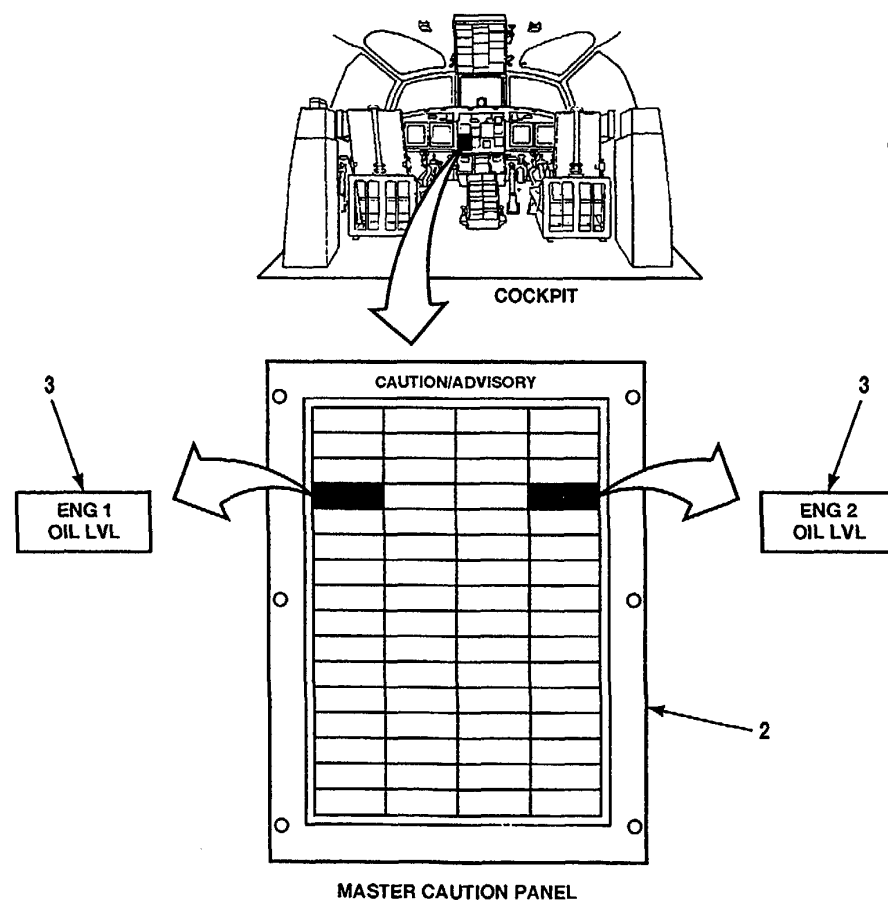
**Tools**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**  
None

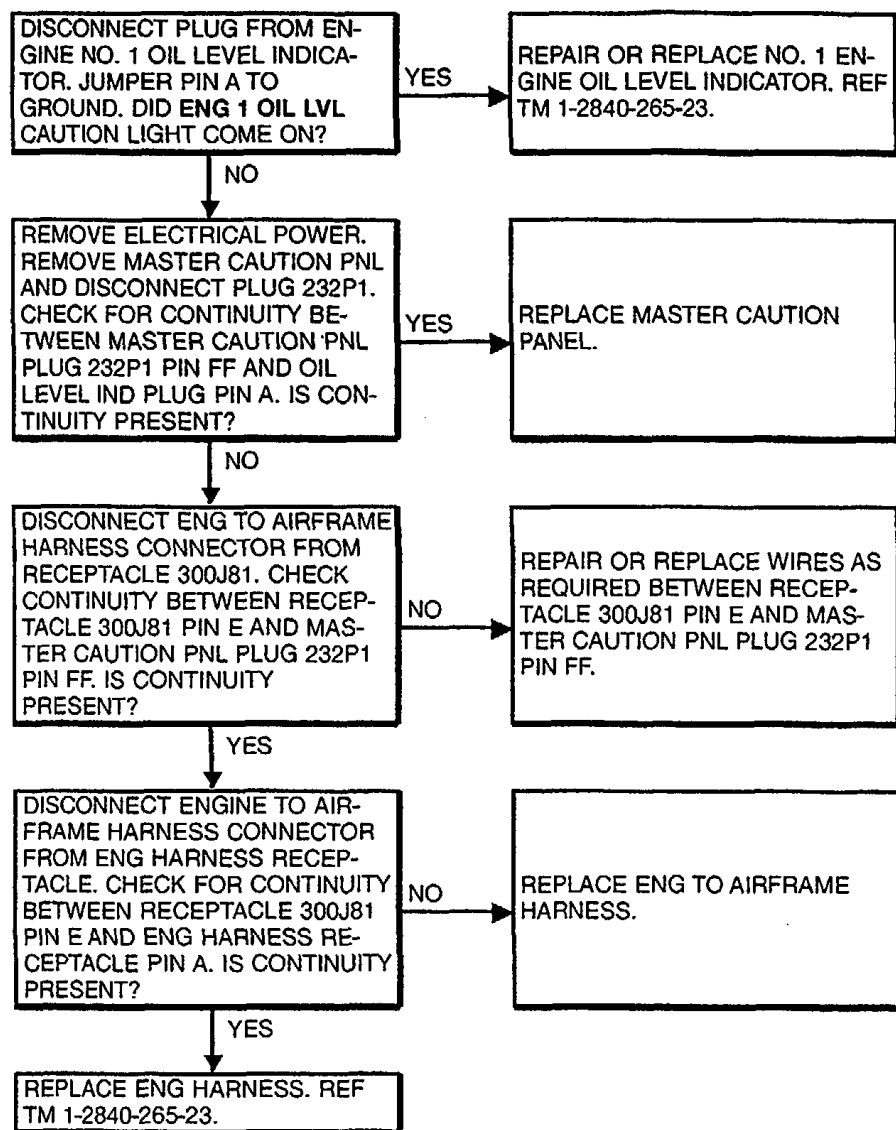
**Personnel Required:**  
Aircraft Electrician (2)  
Aircraft Powerplant Repairer

**References:**  
TM 55-1520-240-23  
TM 1-2840-265-23

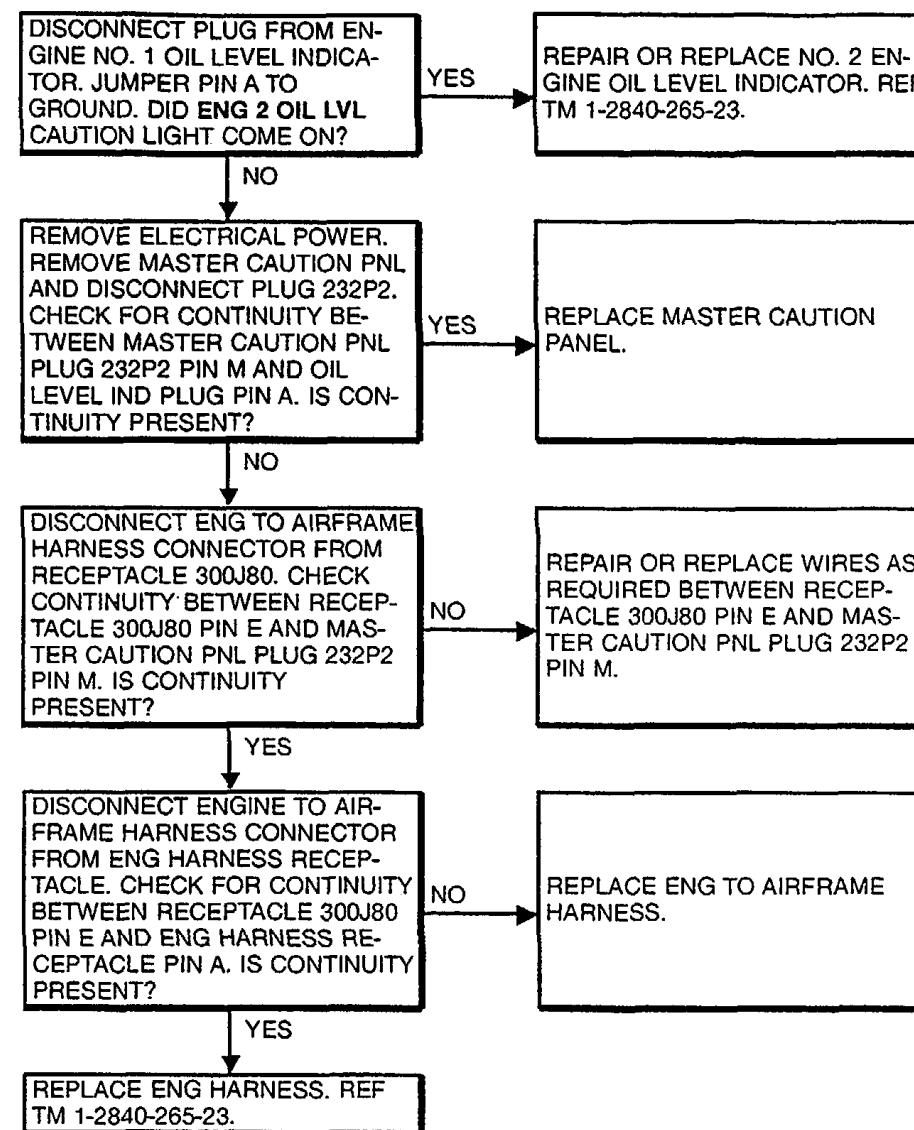
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power Off  
Hydraulic Power Off  
No. 1 Engine Upper and Lower Access Doors Open  
No. 1 Engine Work Platform Open  
No. 2 Engine Upper and Lower Access Doors Open  
No. 2 Engine Work Platforms Open



NO. 1 ENGINE OIL LEVEL LOW CAUTION LIGHT DOES NOT COME ON



NO. 2 ENGINE OIL LEVEL LOW CAUTION LIGHT DOES NOT COME ON

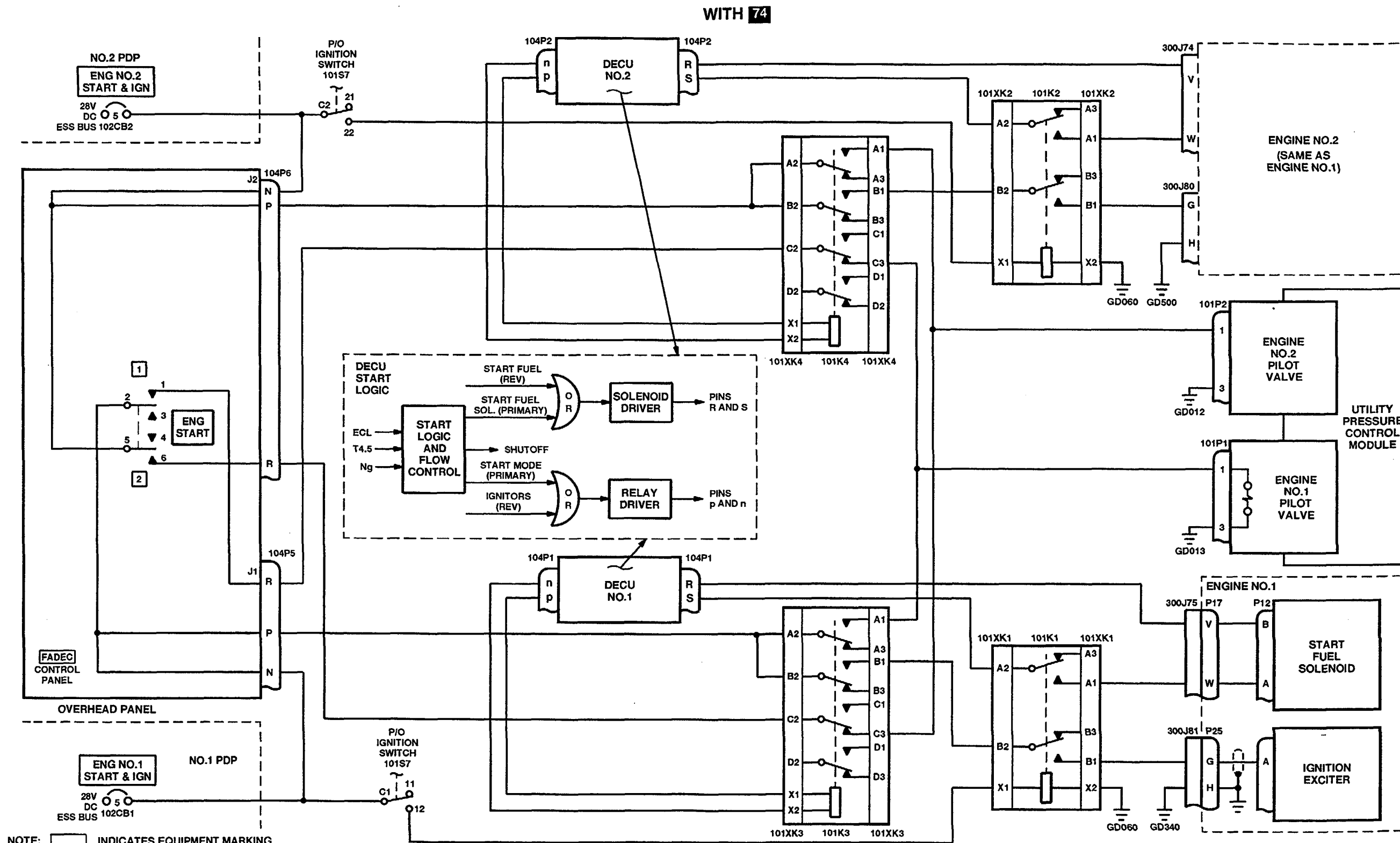


END OF TASK

Change 17 4-219/(4-220 blank)

SECTION 4-10 ENGINE START AND IGNITION SYSTEM (WITH 74 )

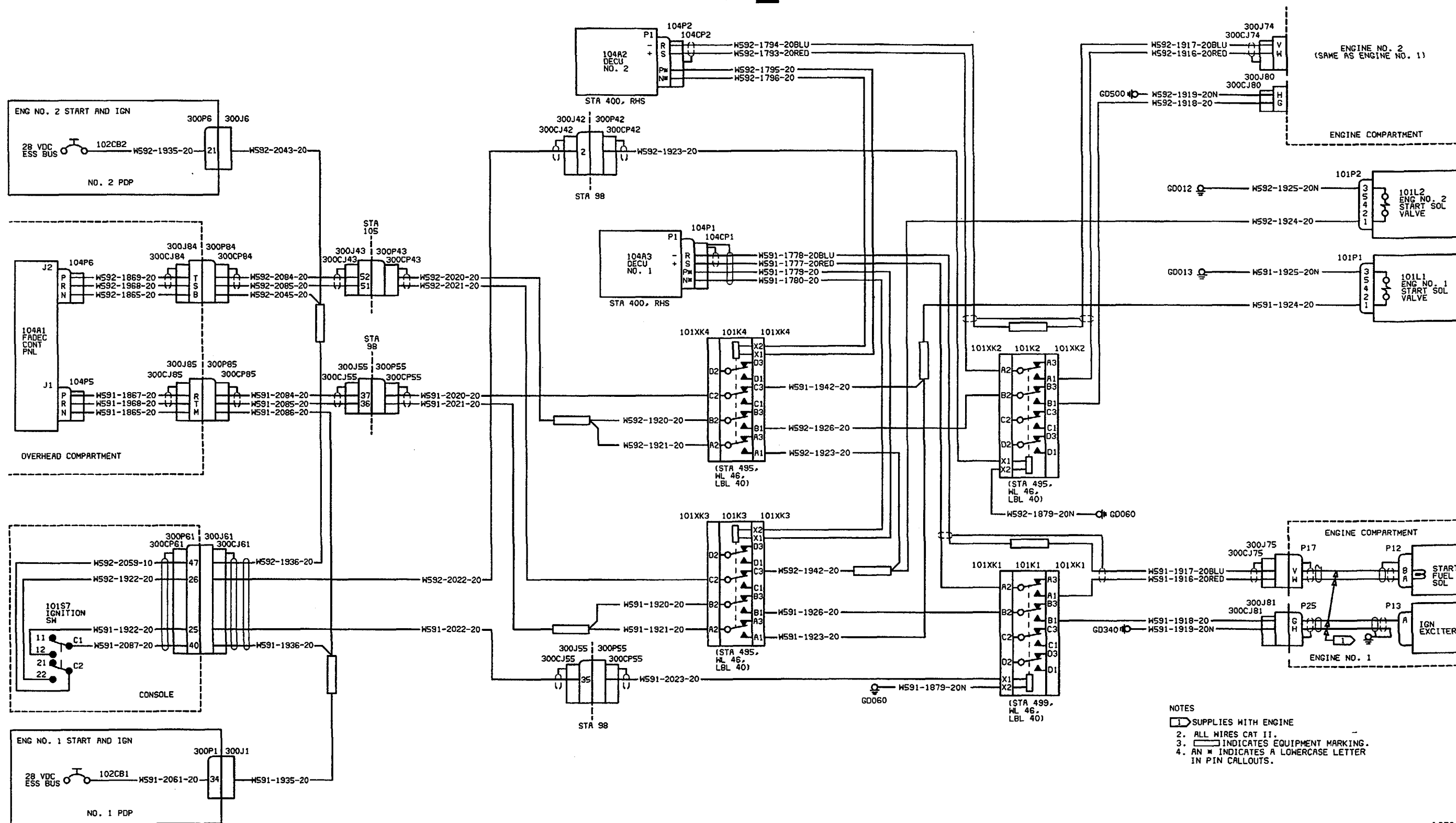
4-10.1 ENGINE START AND IGNITION SYSTEM SCHEMATIC DIAGRAM



A65313

4-10.2 ENGINE START AND IGNITION SYSTEM WIRING DIAGRAM

WITH 74



- NOTES
1. SUPPLIES WITH ENGINE
  2. ALL WIRES CAT II.
  3. INDICATES EQUIPMENT MARKING.
  4. AN \* INDICATES A LOWERCASE LETTER IN PIN CALLOUTS.

A65314

4-10.3 ENGINE START AND IGNITION SYSTEM VISUAL CHECK

4-10.3

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Engine Work Platforms Open  
Engine Access Covers Open

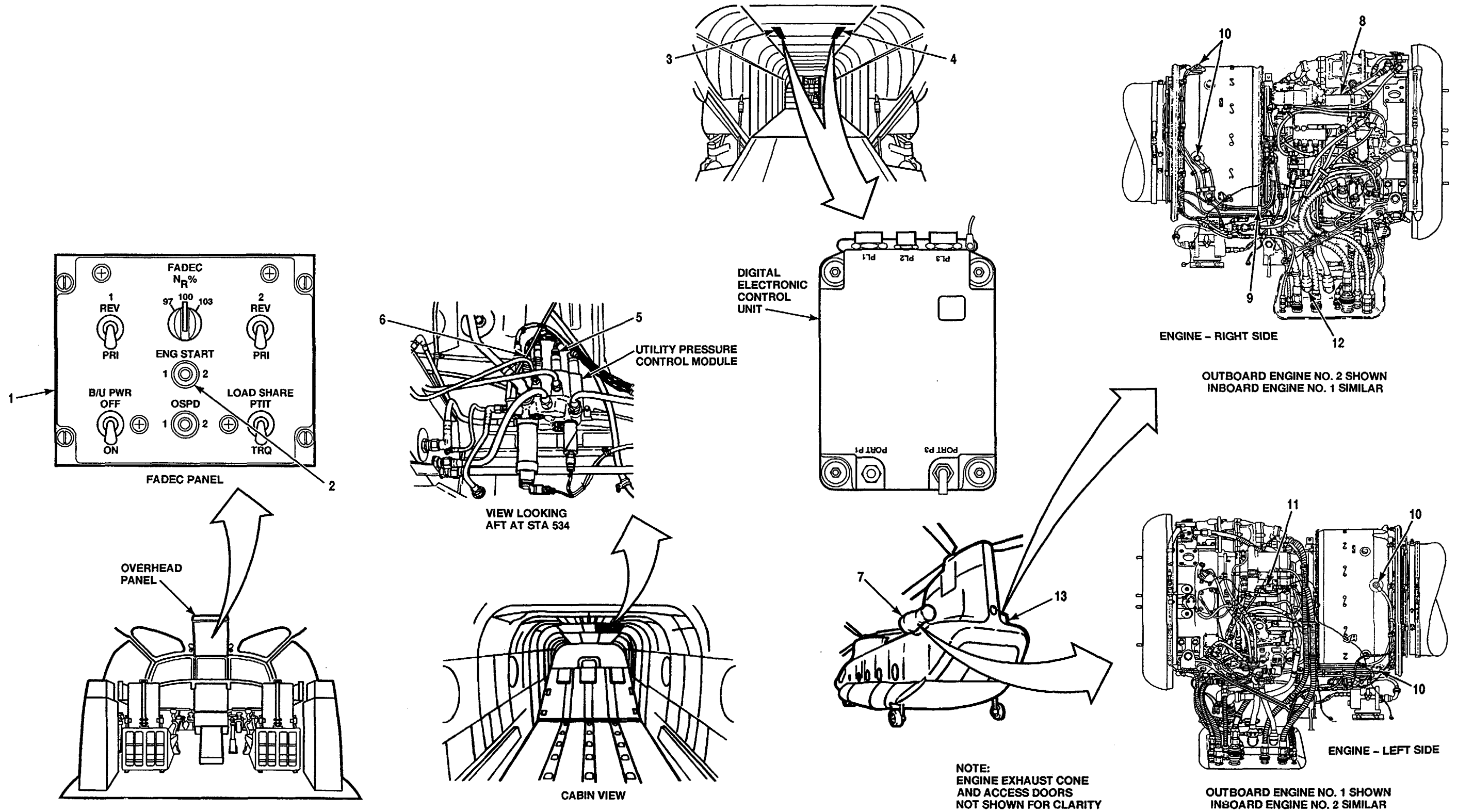
TASK	RESULT
1. Check FADEC panel (1).	If switch (2) is loose or damaged, tighten or replace it as required.
2. Check DECU No. 1 (3).	If DECU No. 1 (3) is loose or damaged, tighten or replace it. If any connector is loose, tighten or replace it. If any wire in DECU connectors is broken or damaged, repair or replace it.
3. Check DECU No. 2 (4).	If DECU No. 2 (4) is loose or damaged, tighten or replace it. If any connector is loose, tighten or replace it. If any wire in DECU connectors is broken or damaged, repair or replace it.
4. Check No. 1 engine pilot valve (5).	If valve (5) is loose or damaged, tighten or replace it as required. If wiring or connector to valve is damaged, repair or replace it as required.
5. Check No. 2 engine pilot valve (6).	If valve (6) is loose or damaged, tighten or replace it as required. If wiring or connector to valve is damaged, repair or replace it as required.
6. Check No. 1 engine (7).	If ignition exciter (8) is damaged, replace it. If ignition coil and cable assembly (9) is damaged, replace it. If any one of four spark plugs (10) is damaged, replace it. If start fuel solenoid valve (11) is damaged, replace it. If harness (12) to exciter (8) and valve (11) is damaged, replace it.
7. Check No. 2 engine (13).	If ignition exciter (8) is damaged, replace it. If ignition coil and cable assembly (9) is damaged, replace it. If any one of four spark plugs (10) is damaged, replace it. If start fuel solenoid valve (11) is damaged, replace it. If harness (12) to exciter (8) and valve (11) is damaged, replace it.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

Close engine access covers.  
Close engine work platforms.





ENGINE - RIGHT SIDE  
OUTBOARD ENGINE NO. 2 SHOWN  
INBOARD ENGINE NO. 1 SIMILAR

ENGINE - LEFT SIDE  
OUTBOARD ENGINE NO. 1 SHOWN  
INBOARD ENGINE NO. 2 SIMILAR

NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY

A65202

4-10.4 ENGINE START AND IGNITION SYSTEM OPERATIONAL CHECK

4-10.4

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Army Rotary Wing Aviator (2)

**References:**

TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Engine Start and Ignition System Visual Check  
Medium Helicopter Repairer

TASK	RESULT
1. Check that FADEC NO. 1 START & IGN circuit breaker (1) is closed.	If START & IGN circuit breaker (1) is open, close it. If it opens again, go to task 4-10.5.
2. Check that FADEC NO. 2 START & IGN circuit breaker (2) is closed.	If START & IGN circuit breaker (2) is open, close it. If it opens again, go to task 4-10.6.
3. On FADEC panel (3), check ENG 1 and ENG 2 switches (4 and 5) are at PRI.	If switches are not at PRI, set switches to PRI.
4. Move ENGINE CONDITION NO. 1 and NO. 2 levers (6 and 7) to GND. Look at DECU NO. 1 and NO. 2 (8 and 9) fault display (10).	If display shows 88, go to step 5. If display is blank or other than 88, go to task 4-12.4.
5. Move ENGINE CONDITION levers (6 and 7) to STOP.	
<b>START NO. 1 ENGINE</b>	
<b>CAUTION</b>	
<b>If the No. 1 engine is the first engine started, start the No. 2 engine within 3 minutes.</b>	
6. Have pilot start No. 1 engine. Monitor engine N1, ENG TEMP, OIL PRESS, and N2.	N1 indication accelerates to <u>10%</u> with ENG START switch (11) at 1. At that point, pilot releases ENG START switch and N1 indication increases and stabilizes at <u>50 to 59%</u> within <u>45 seconds</u> . Engine OIL PRESS should be <u>20 psi</u> minimum.  If No. 1 engine N1 does not indicate <u>10%</u> , go to task 4-10.7.  If No. 1 engine does not start or accelerate to <u>50 to 59%</u> N1, go to task 4-10.8.  If engine has high PTIT or hot start, go to task 4-8.2.

TASK	RESULT
7. Have pilot stop No. 1 engine if no further checks are to be performed.	If engine OIL PRESS is not <u>20 psi</u> minimum, go to task 8-3.3.
8. Move ENGINE CONDITION NO. 1 lever (6) to GND. Look at DECU NO. 1 (8) fault display (10).	If display shows 88, go to step 9. If display is blank or other than 88, go to task 4-12.4.
9. Move ENGINE CONDITION NO. 1 lever (6) to STOP.	

**START NO. 2 ENGINE**

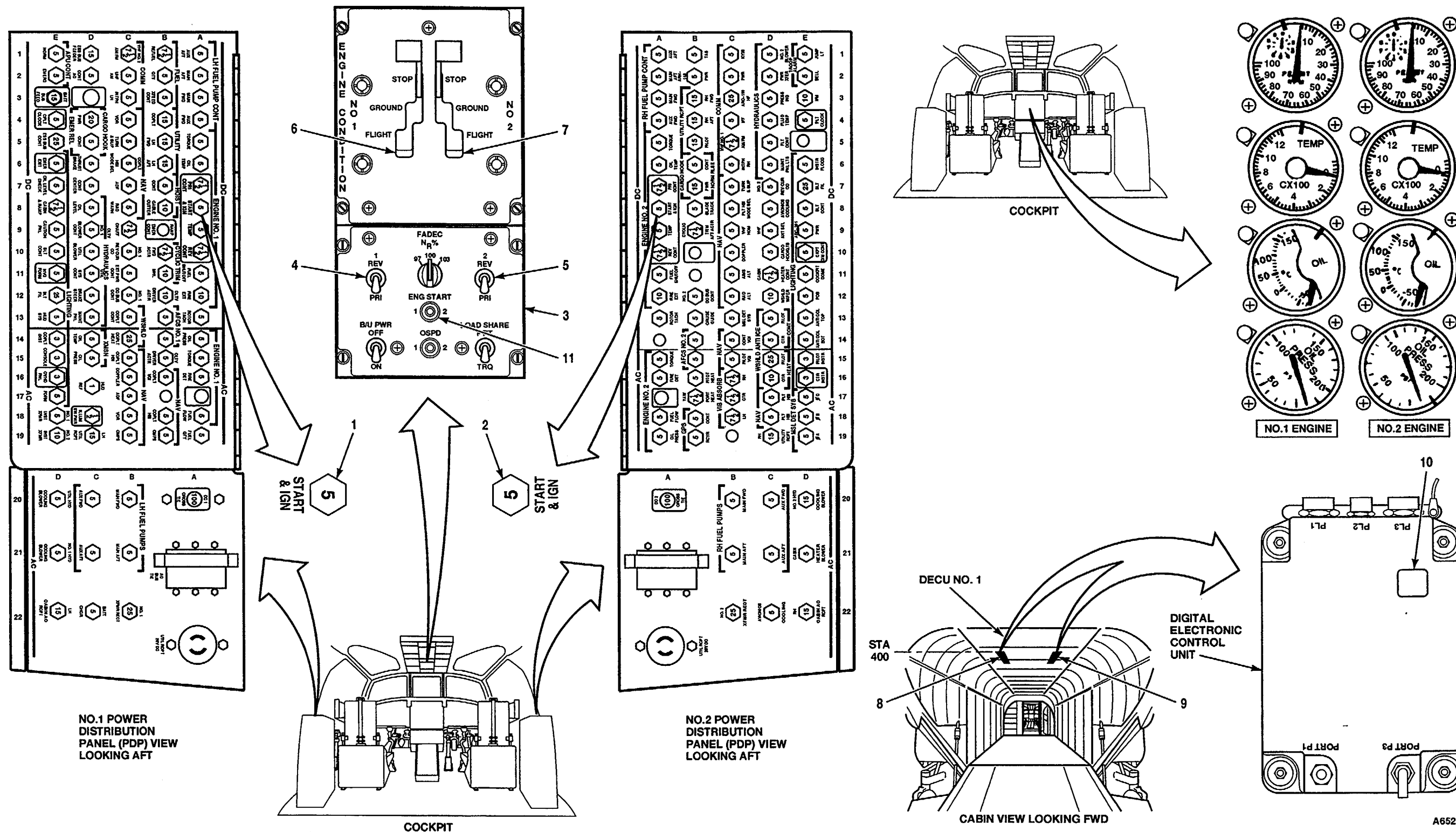
**CAUTION**

**If the No. 2 engine is the first engine started, start the No. 1 engine within 3 minutes.**

10. Have pilot start No. 2 engine. Monitor engine N1, ENG TEMP, OIL PRESS, and N2.	N1 indication accelerates to <u>10%</u> with ENG START switch (11) at 2. At that point, pilot releases ENG START switch and N1 indication increases and stabilizes at <u>50 to 59%</u> within <u>45 seconds</u> . Engine OIL PRESS should be <u>20 psi</u> minimum.  If No. 2 engine N1 does not indicate <u>10%</u> , go to task 4-10.11.  If No. 2 engine does not start or accelerate to <u>50 to 59%</u> N1, go to task 4-10.12.  If engine has high PTIT or hot start, go to task 4-8.4.  If engine OIL PRESS is not <u>20 psi</u> minimum, go to task 8-3.3.
11. Have pilot stop No. 2 engine if no further checks are to be performed.	
12. Move ENGINE CONDITION NO. 2 lever (7) to GND. Look at DECU NO. 2 (9) fault display (10).	If display shows 88, go to step 13. If display is blank or other than 88, go to task 4-12.4.
13. Move ENGINE CONDITION NO. 2 lever (7) to STOP.	

**FOLLOW-ON MAINTENANCE:**

TM 55-1520-240-23:  
Hydraulic power off.  
Electrical power off.  
Battery disconnected.



A65203

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

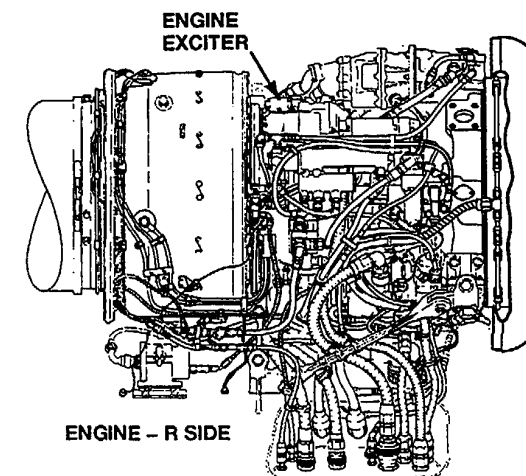
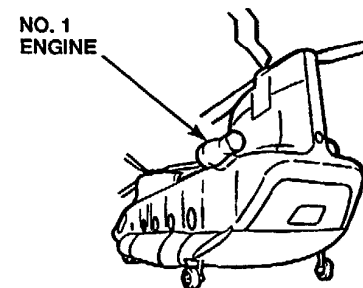
**Equipment Condition:**

TM 55-1520-240-23:

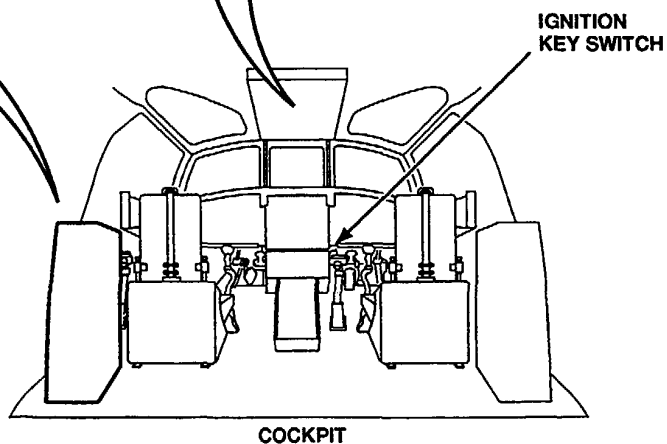
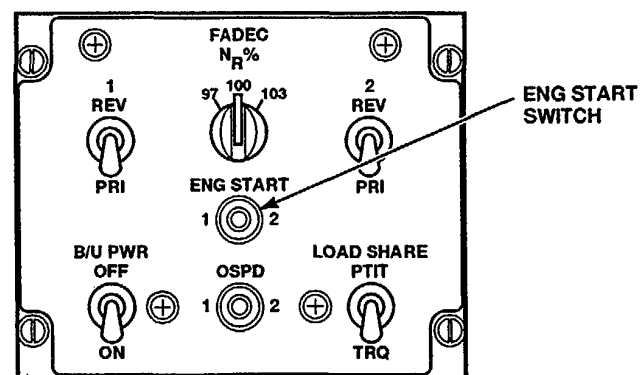
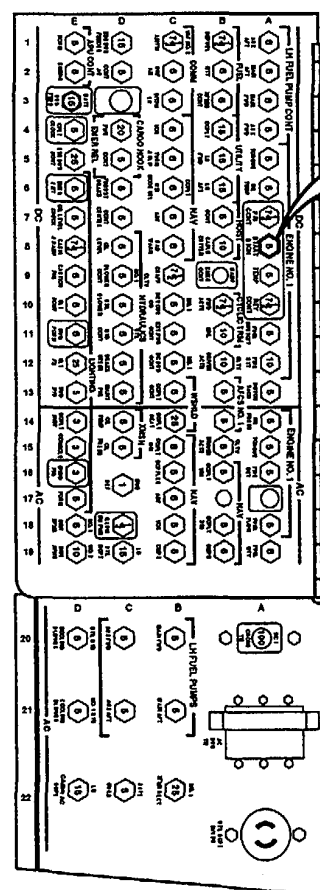
Battery Disconnected

Electrical Power On

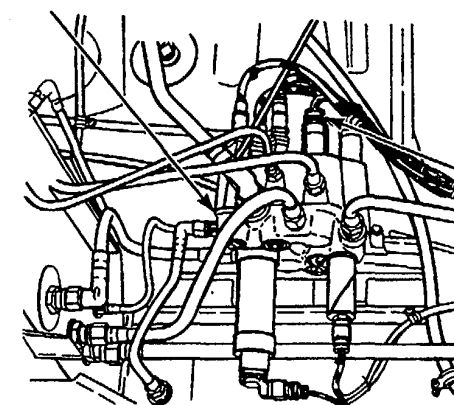
Hydraulic Power On



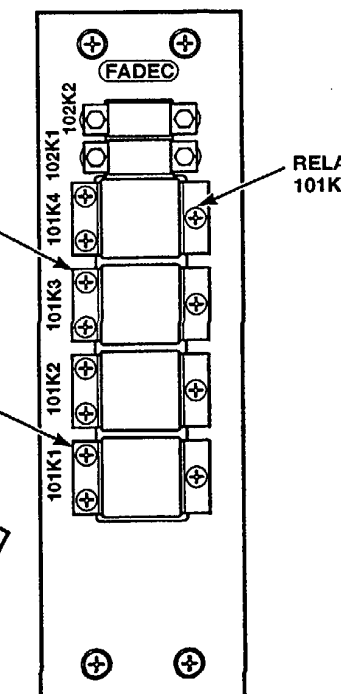
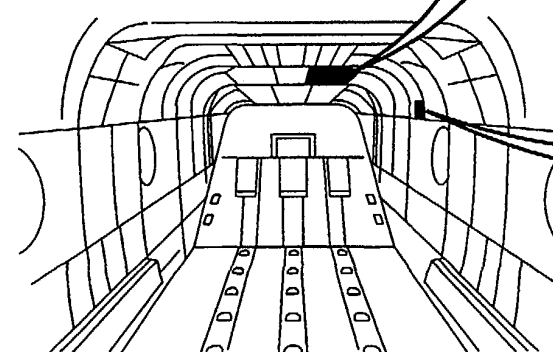
NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY



**UTILITY PRESSURE CONTROL MODULE**

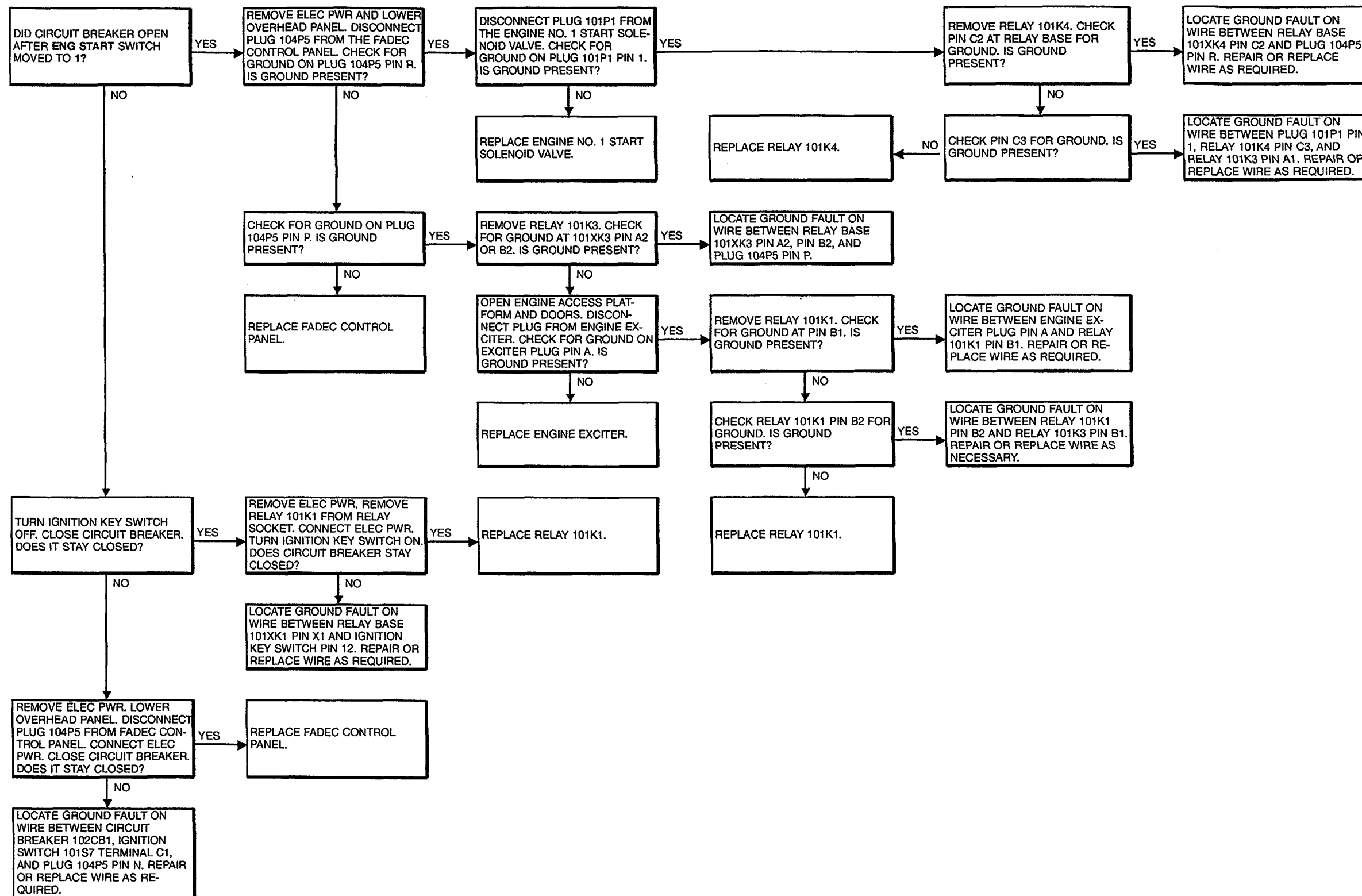


VIEW LOOKING AFT AT STA 534



STA 495, WL 47, LBL 40

A65191



4-10.6 FADEC NO. 2 START & IGN CIRCUIT BREAKER DOES NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

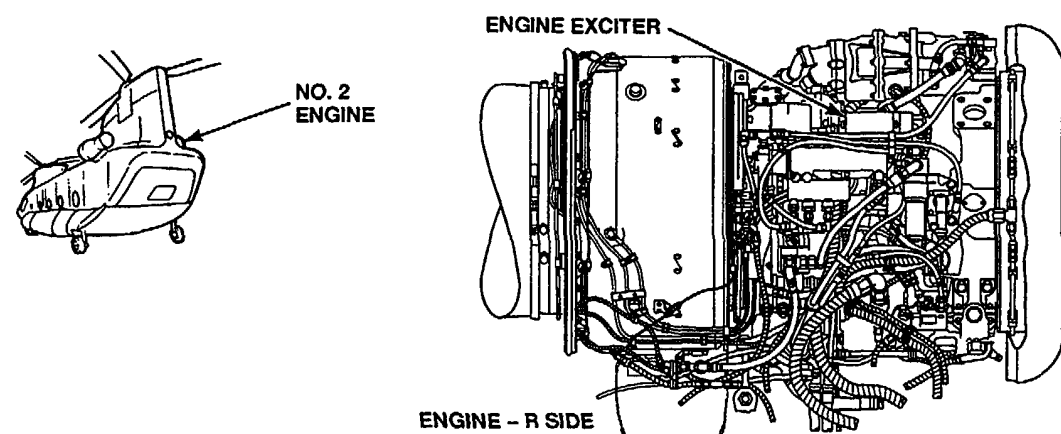
**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

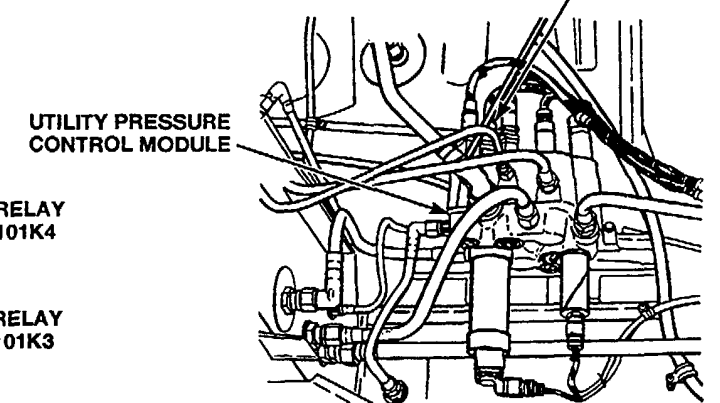
Electrical Power On

Hydraulic Power On

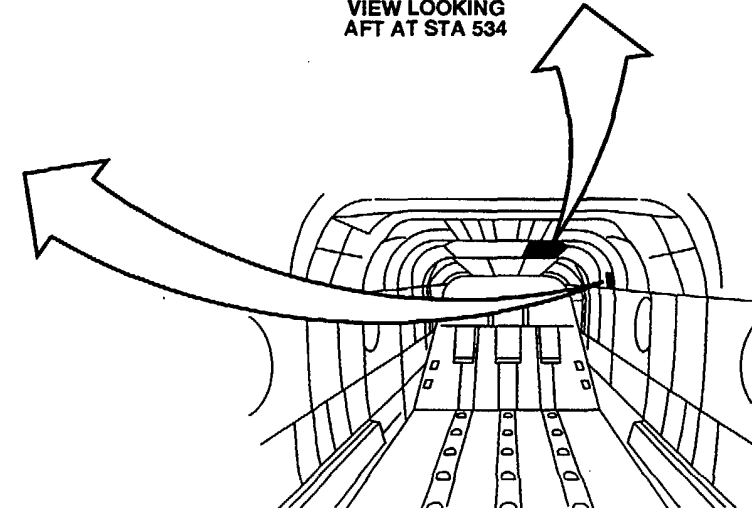


NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY

NO. 2 ENGINE START  
SOLENOID VALVE

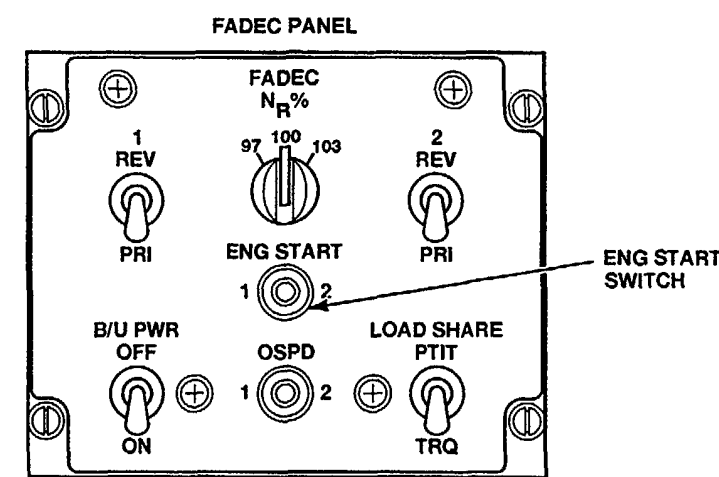


VIEW LOOKING  
AFT AT STA 534

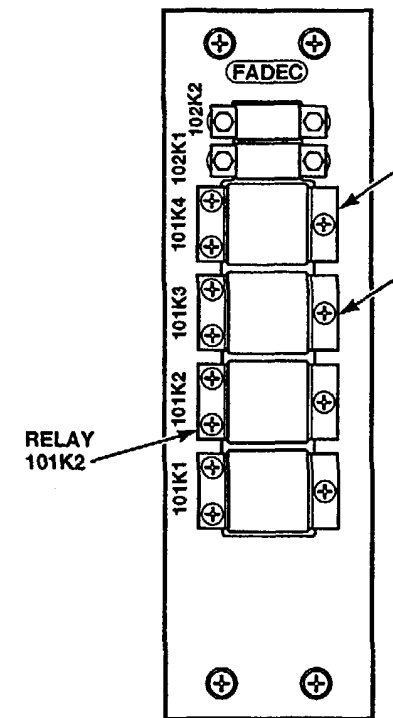
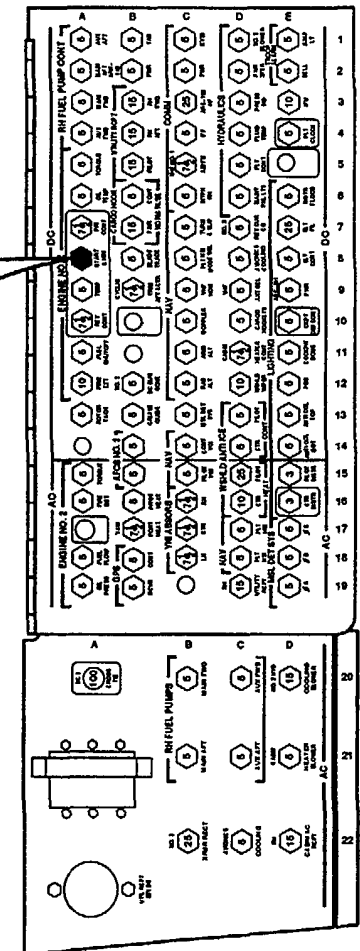


A65193

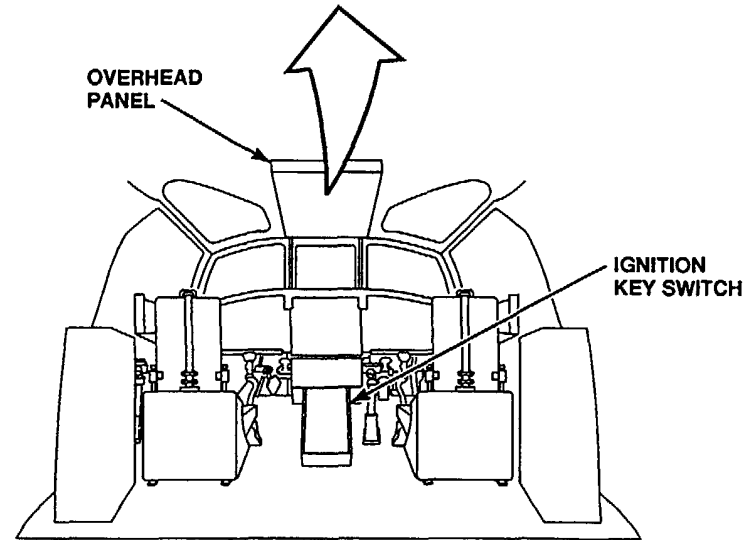
GO TO NEXT PAGE

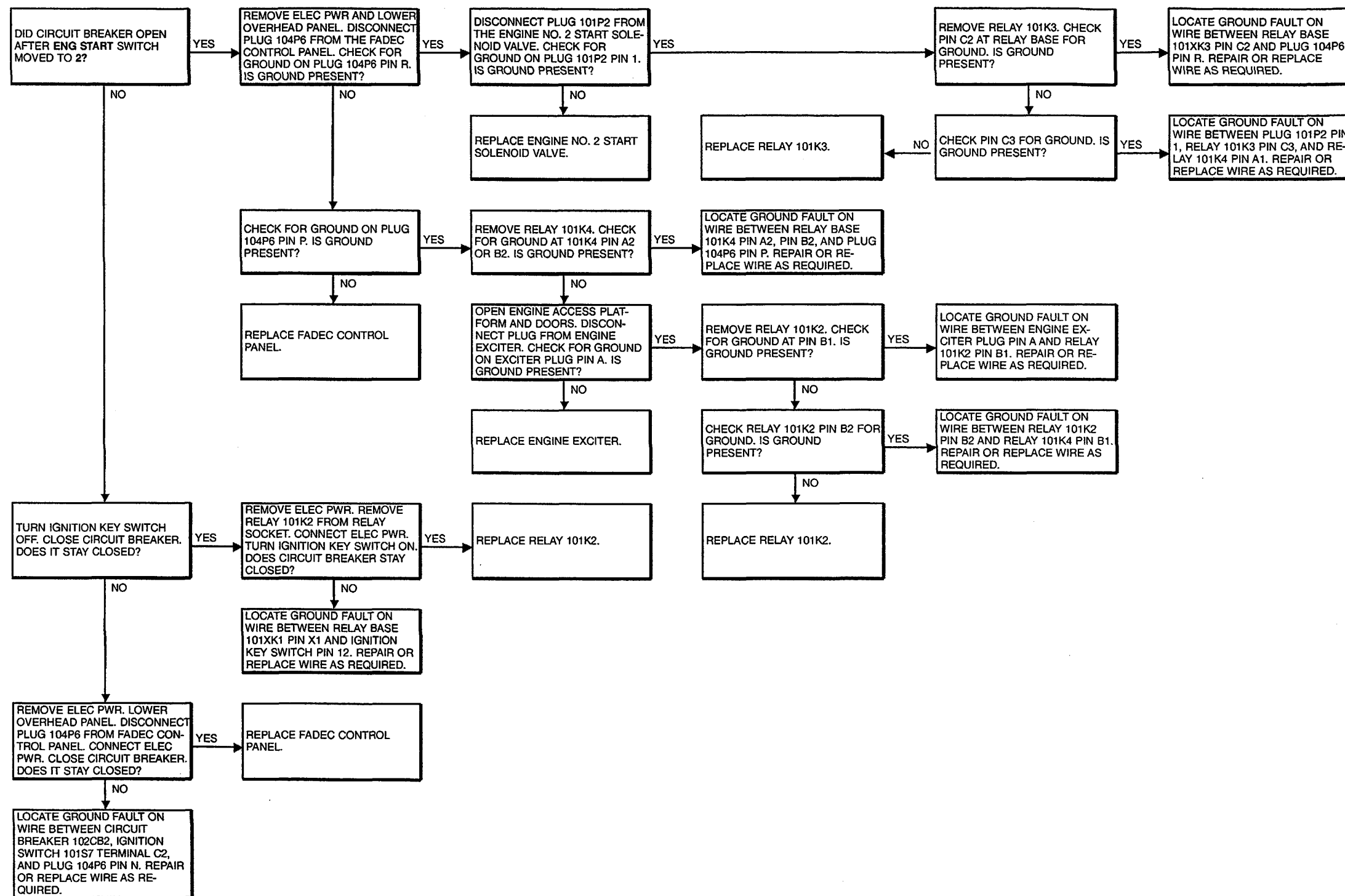


-ENGINE NO. 2-  
START & IGN



STA 495, WL 47, LBL 40





END OF TASK

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

- Medium Helicopter Repairer
- Aircraft Electrician

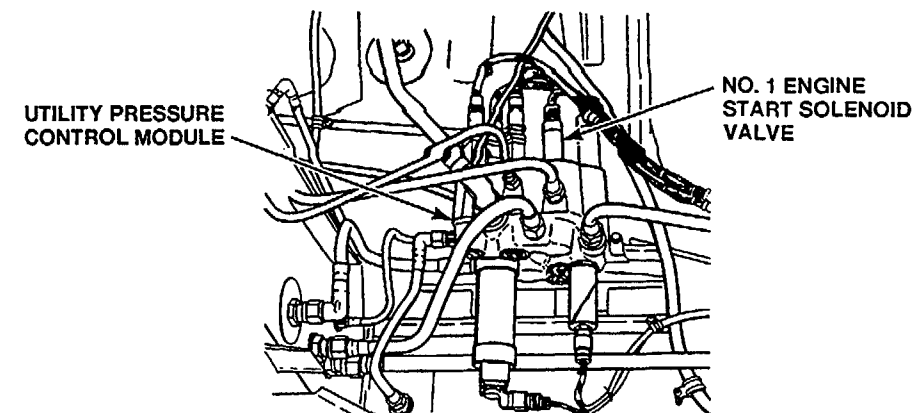
**References:**

TM 55-1520-240-23

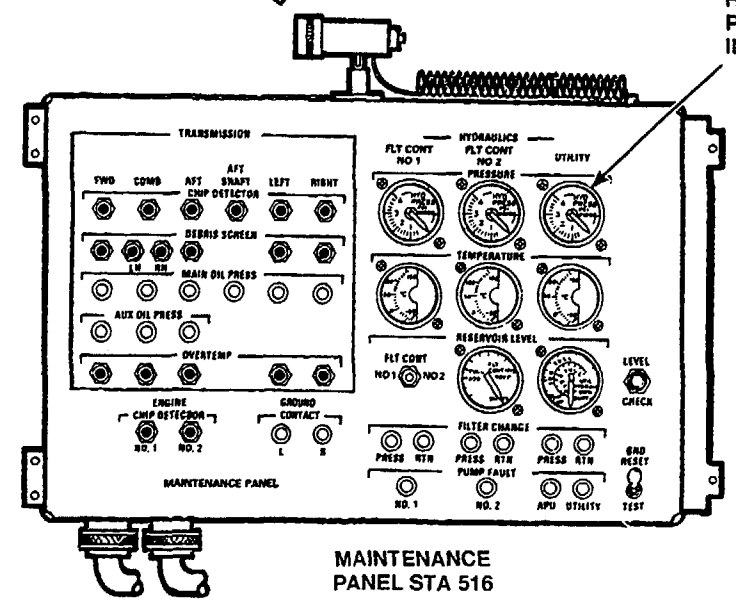
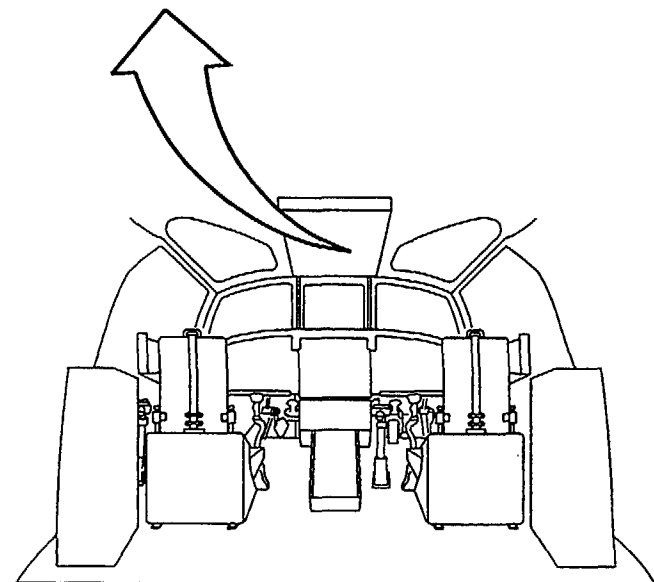
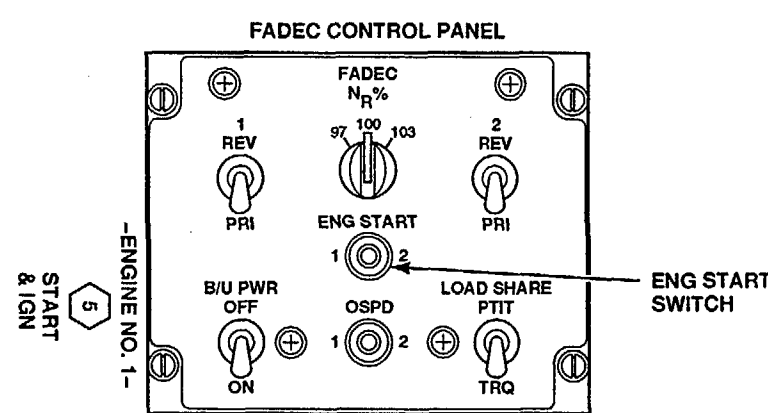
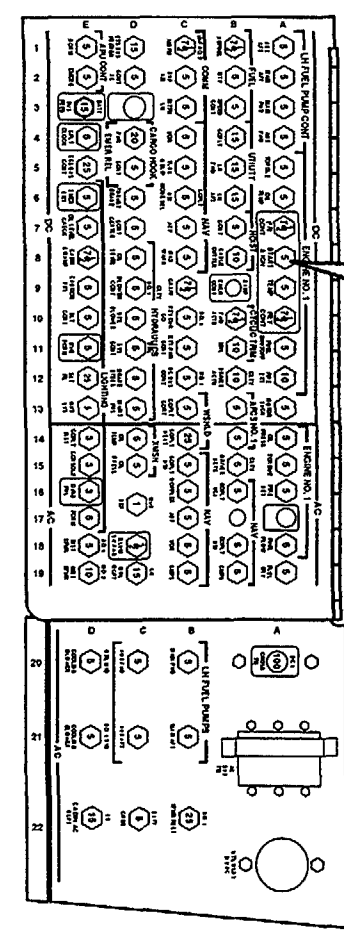
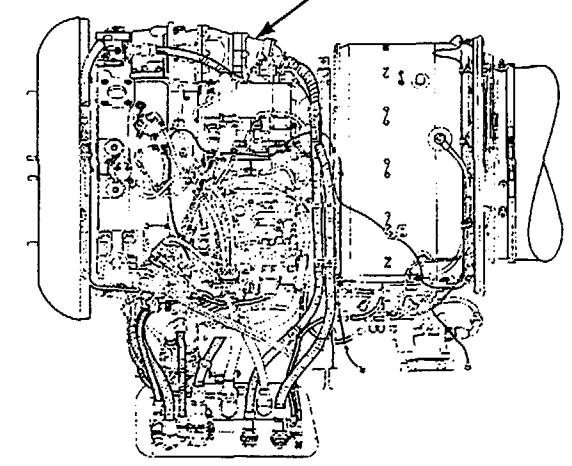
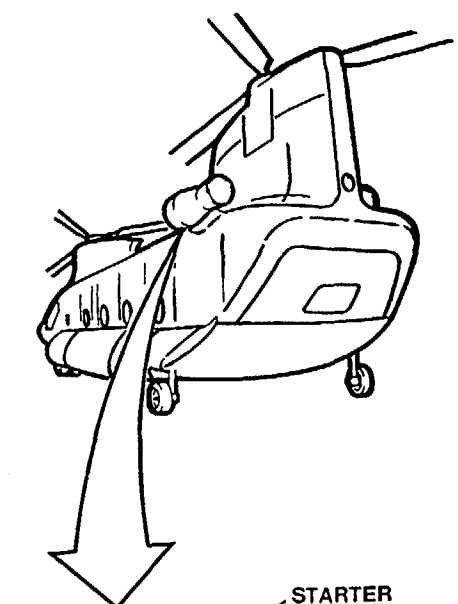
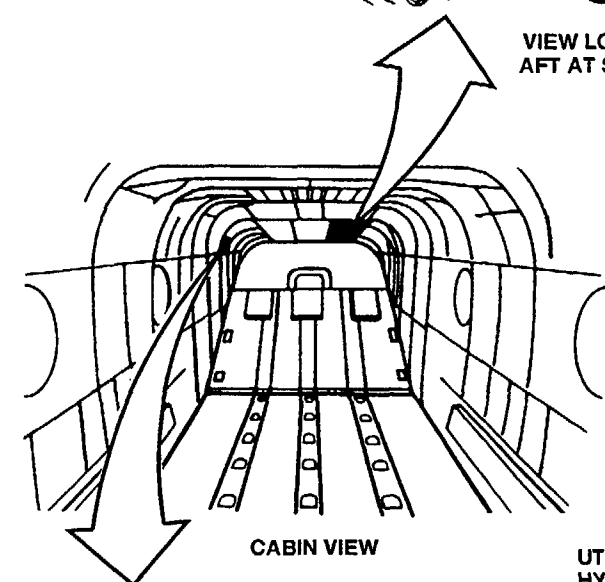
**Equipment Condition:**

TM 55-1520-240-23:

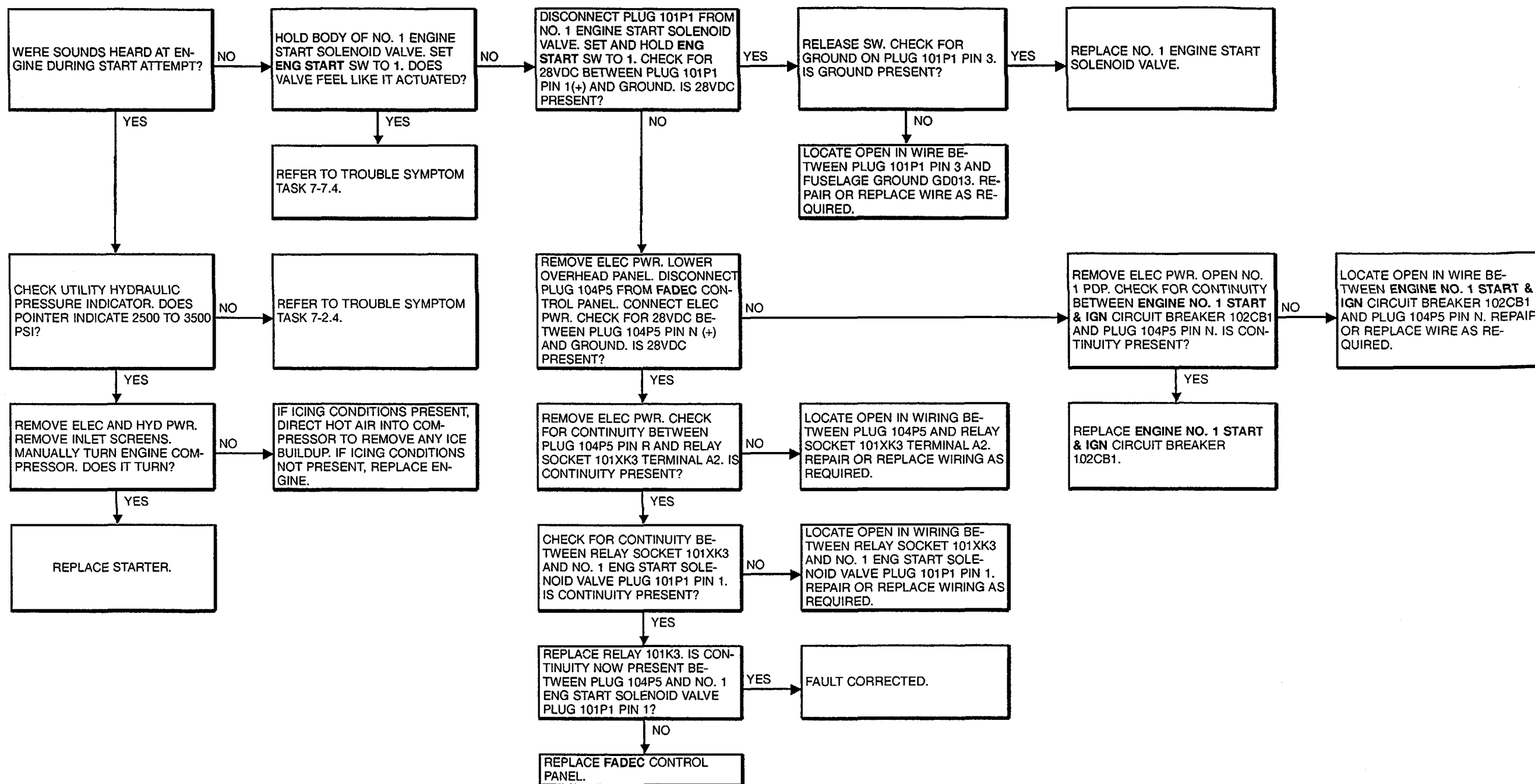
- Battery Connected
- Electrical Power On
- Hydraulic Power On



VIEW LOOKING AFT AT STA 534







END OF TASK

4-10.8 NO. 1 ENGINE MOTORS NORMALLY BUT DOES NOT START

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

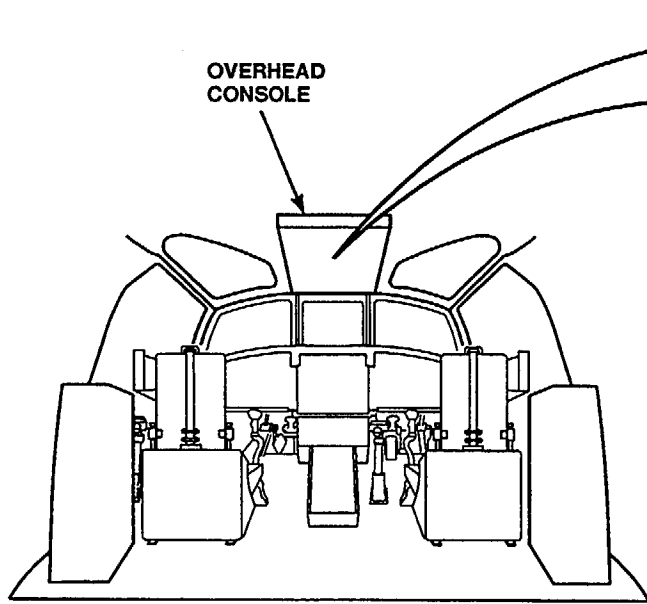
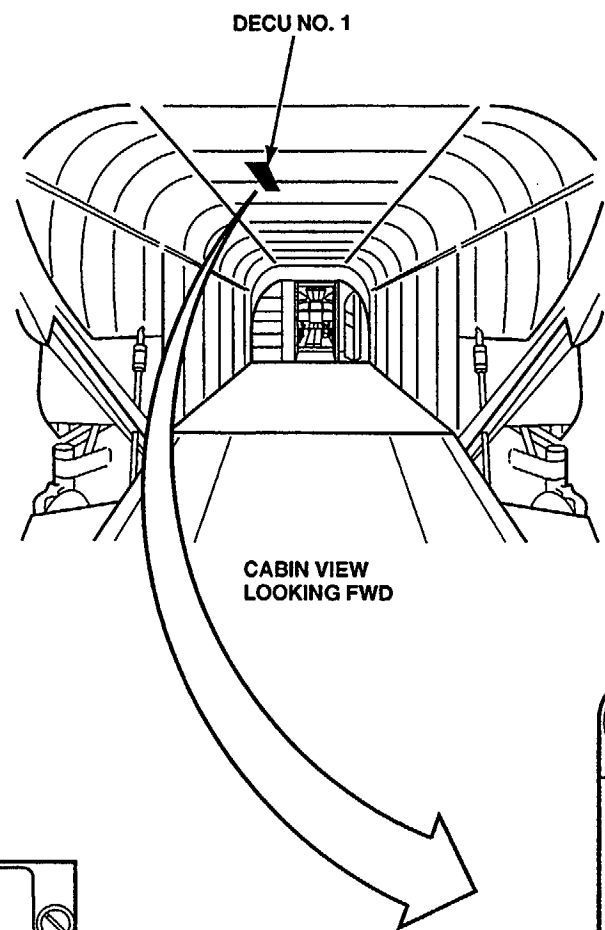
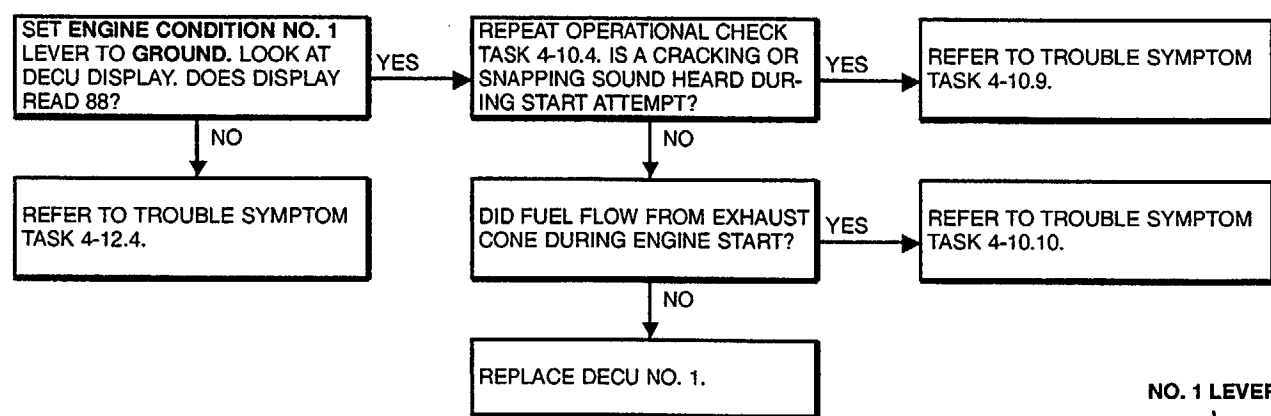
**Equipment Condition:**

TM 55-1520-240-23:

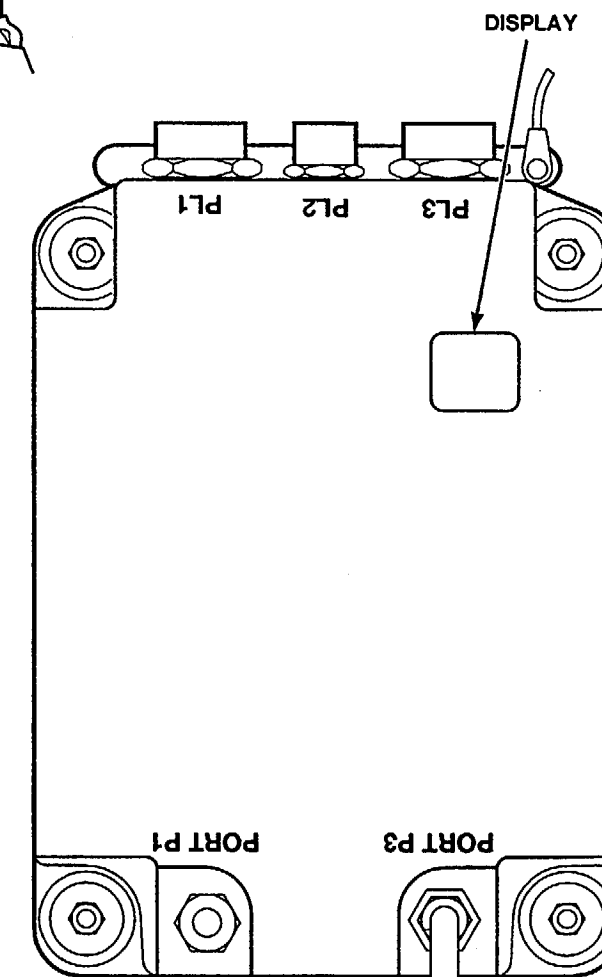
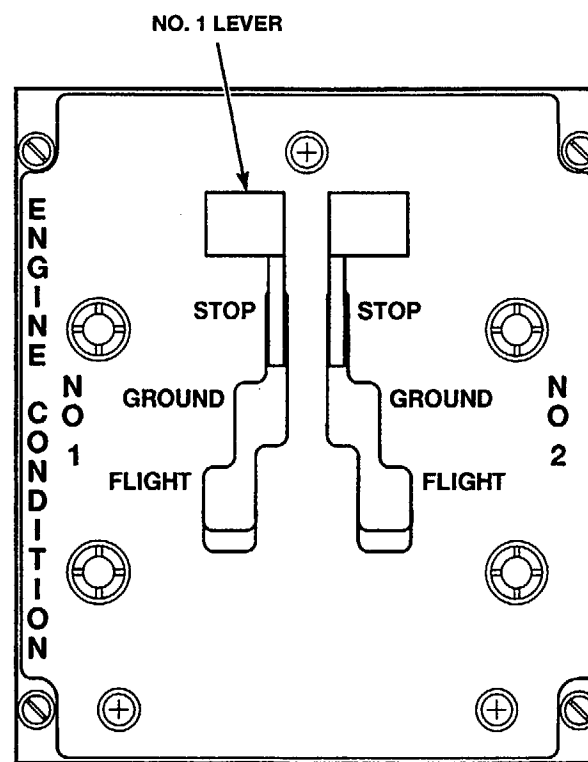
Battery Connected

Electrical Power On

Hydraulic Power Off



COCKPIT



STA 408, RBL 20, WL 53

4-10.9 NO. 1 ENGINE DOES NOT START (ENGINE FUEL SYSTEM FAILURE)

4-10.9

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

Materials:

None

**Personnel Required:**

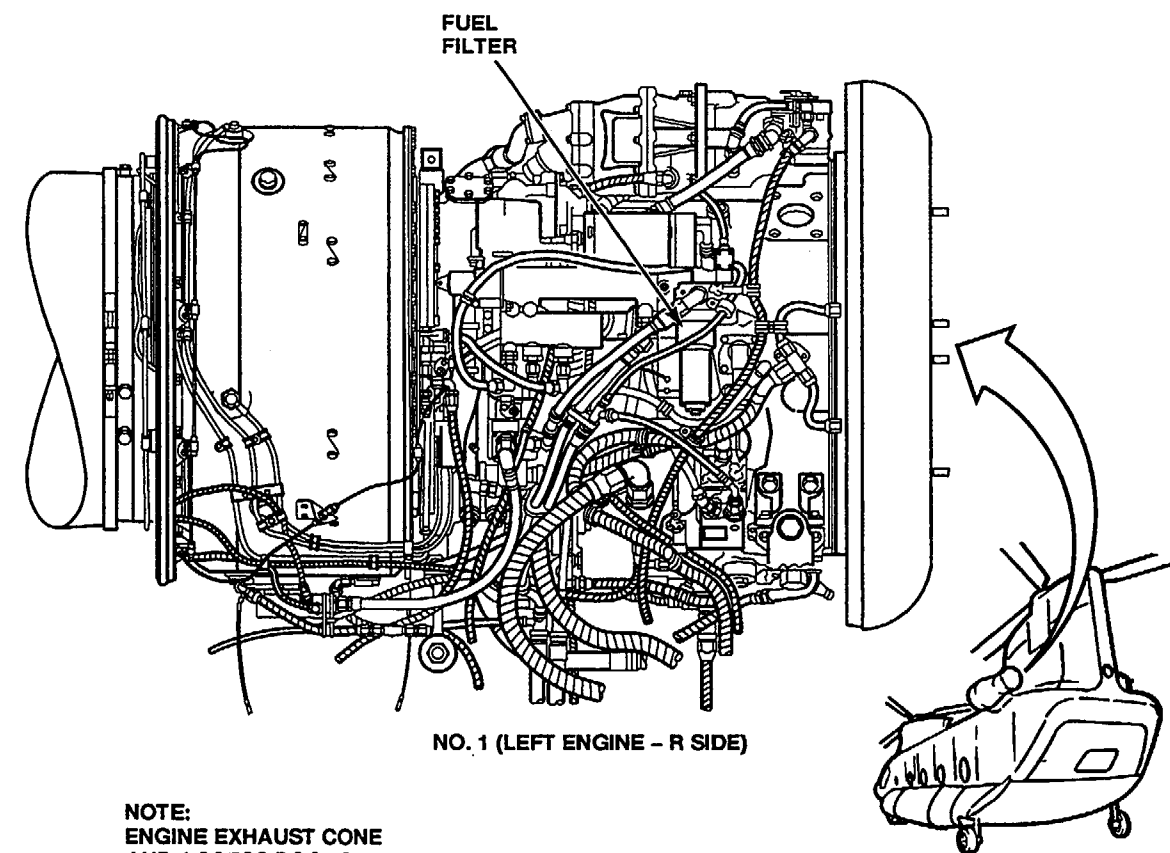
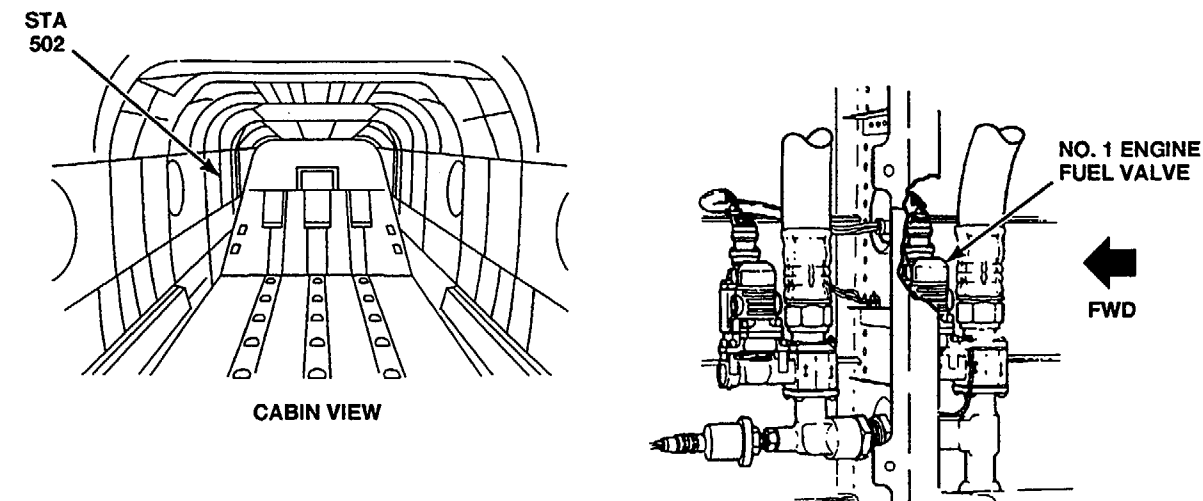
Aircraft Powerplant Repairer

**References:**

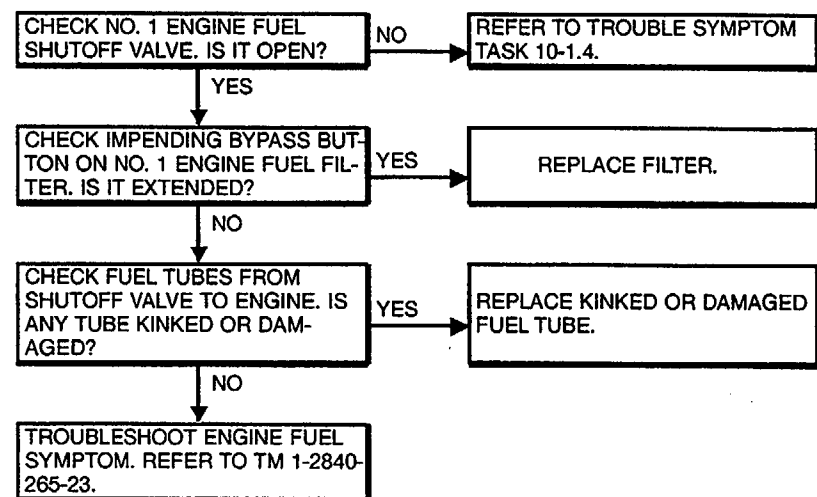
TM 1-2840-265-23  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
No. 1 Engine Work Platform and Access Doors  
Open



**NOTE:**  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
REMOVED FOR CLARITY



4-10.10 NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

Multimeter

**Materials:**

None

**Personnel Required:**

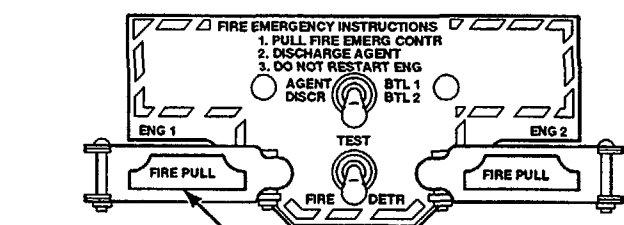
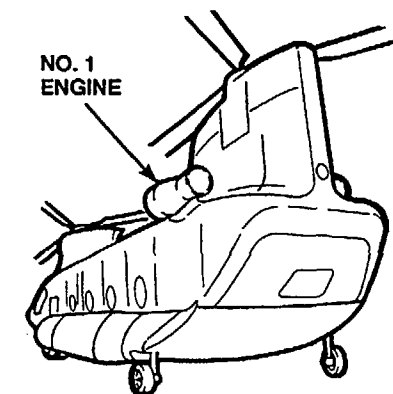
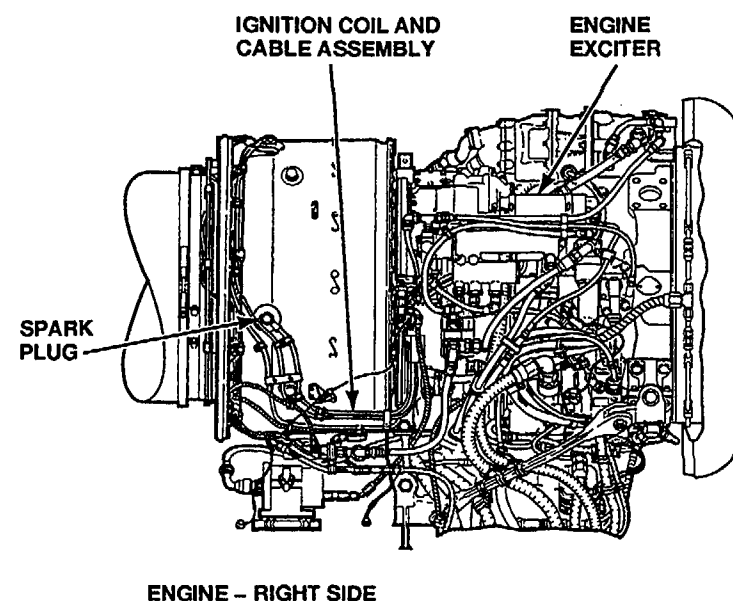
- Aircraft Electrician
- Aircraft Powerplant Repairer

**References:**

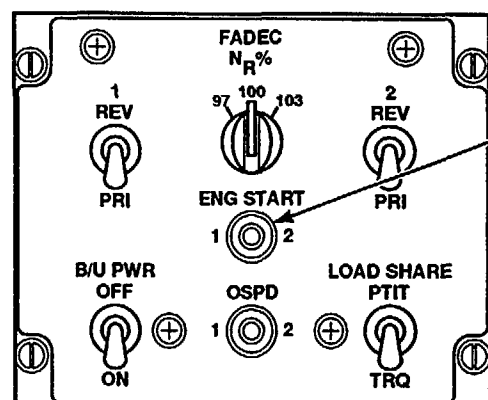
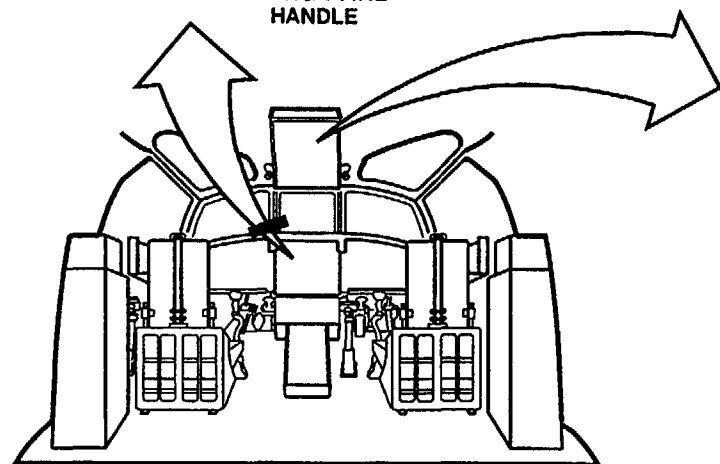
- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- No. 1 Engine Work Platform and Access Doors Open



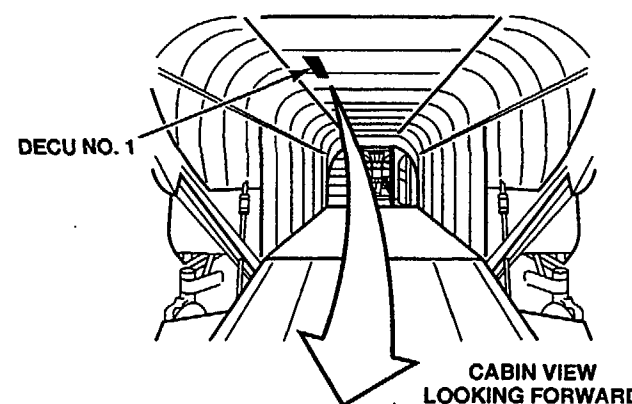
ENG 1 FIRE HANDLE



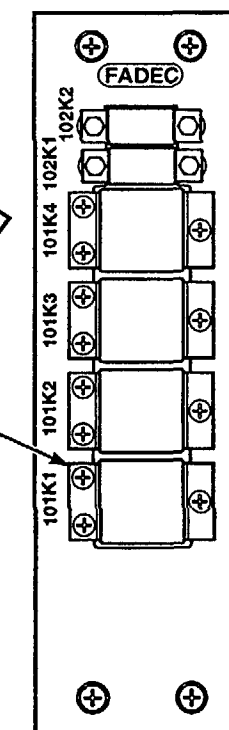
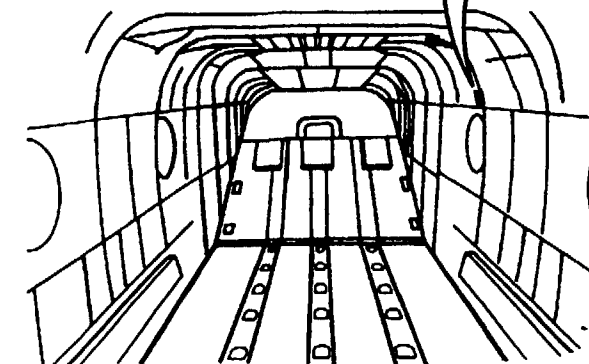
ENG START SWITCH

DIGITAL ELECTRONIC CONTROL UNIT

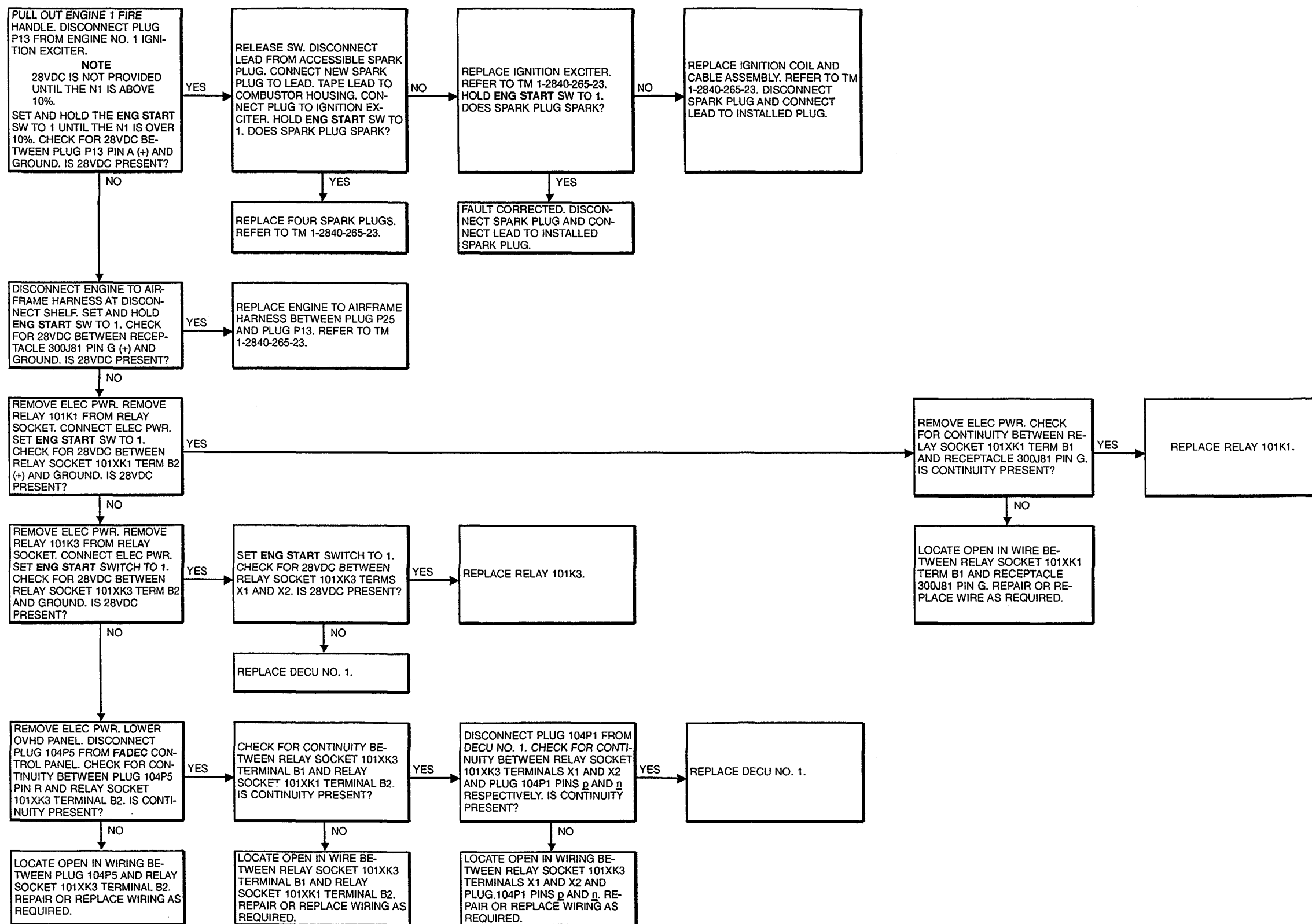
FADEC CONTROL PANEL



NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY



4-10.10 NO. 1 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE) (Continued)



END OF TASK

4-10.11 NO. 2 ENGINE DOES NOT MOTOR OR N1 GAUGE DOES NOT REACH 10%

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
With 74

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit;  
NSN 5180-00-323-4944

Multimeter

**Materials:**

None

**Personnel Required:**

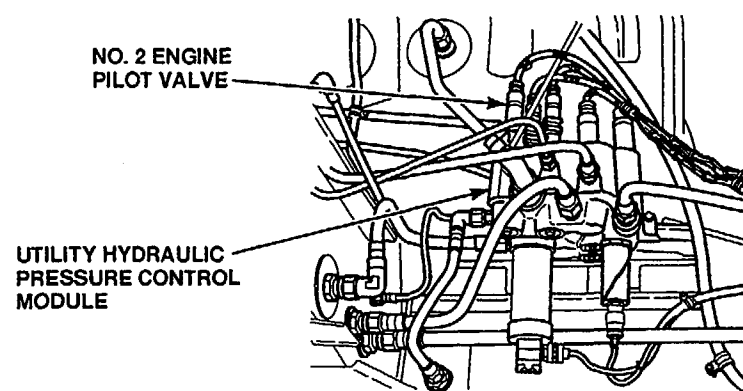
- Aircraft Electrician (2)
- Medium Helicopter Repairer
- Aircraft Powerplant Repairer

**References:**

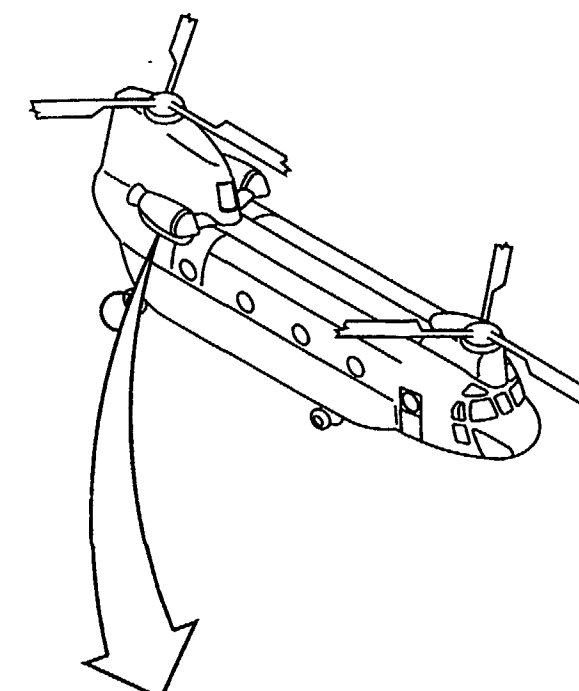
- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On

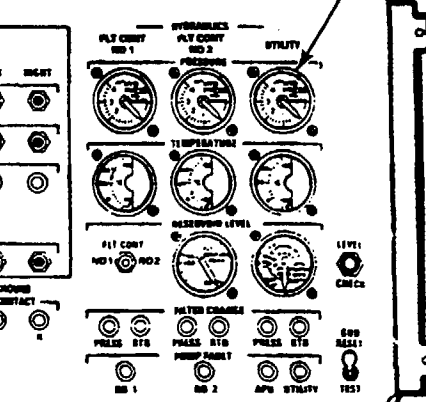
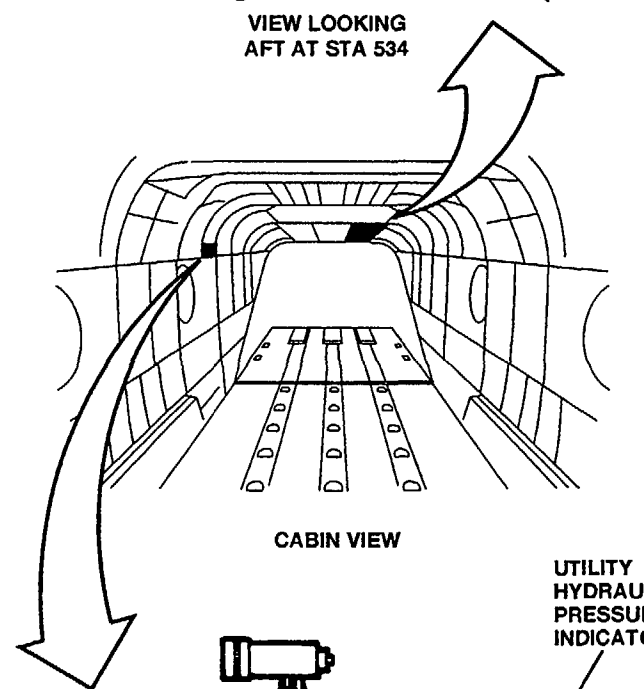


VIEW LOOKING AFT AT STA 534

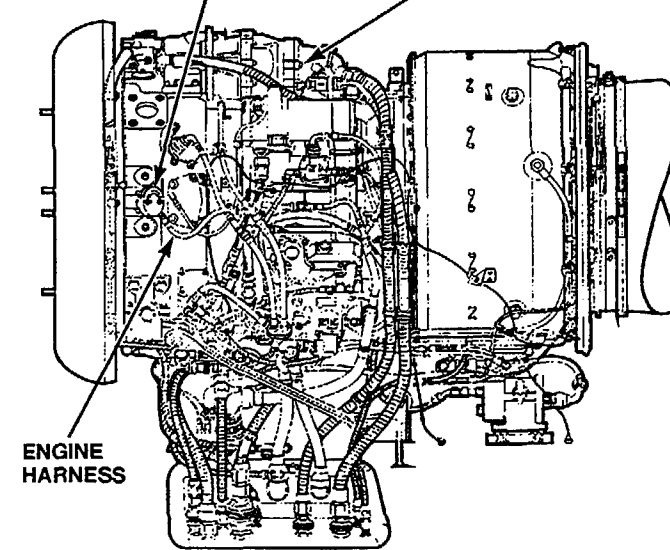


OIL LEVEL INDICATOR

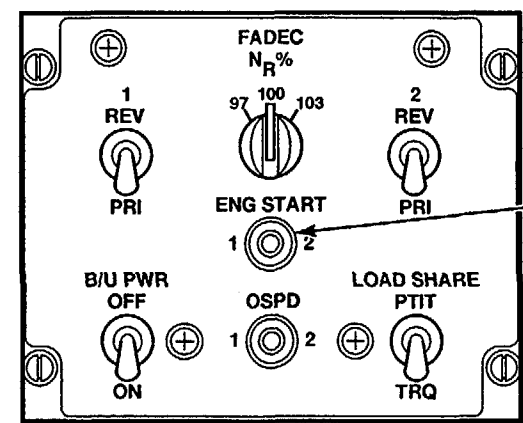
STARTER



MAINTENANCE PANEL STA 516

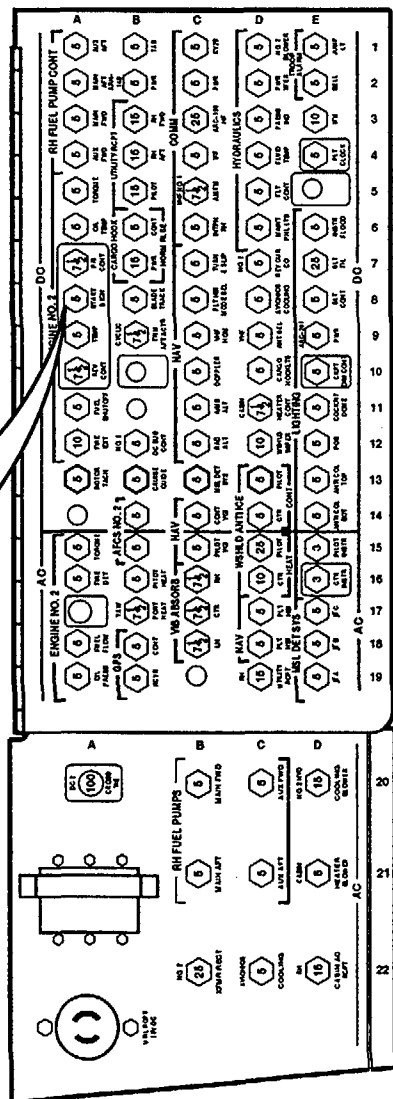


NO. 2 ENGINE VIEW LOOKING DOWN AND INBOARD

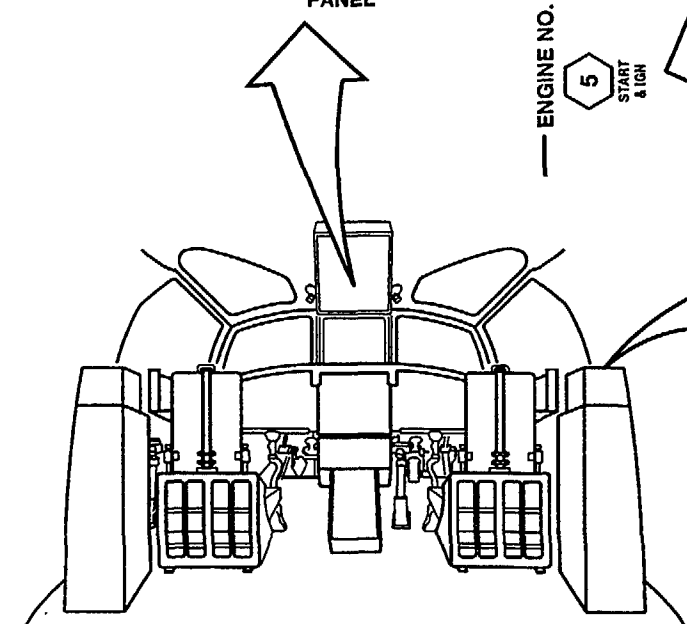


ENG START SWITCH

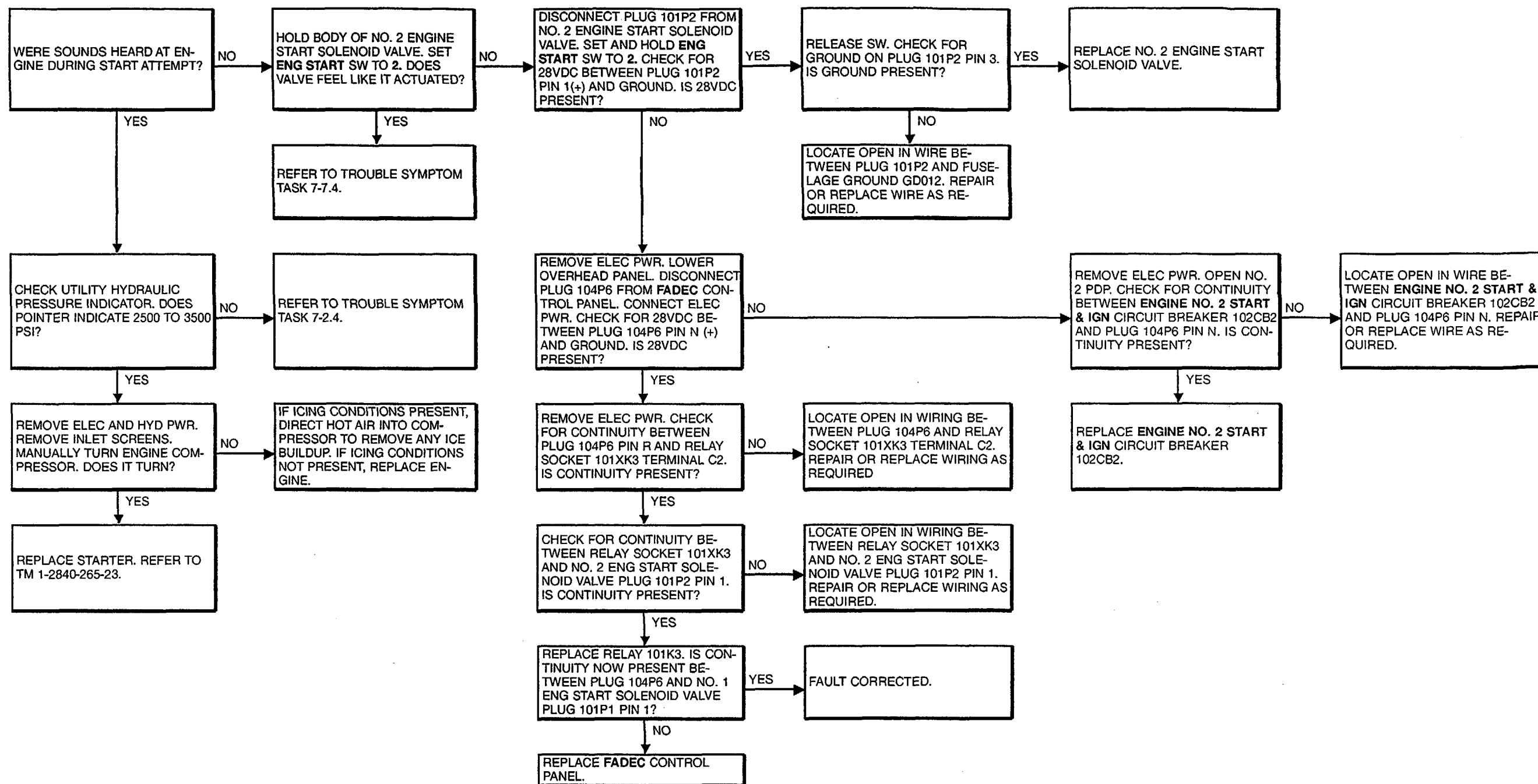
ENGINE NO. 2 START & ICH



NO. 2 DISTRIBUTION PANEL (PDP)



COCKPIT



4-10.12 NO. 2 ENGINE MOTORS NORMALLY BUT DOES NOT START

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

**References:**

TM 55-1520-240-23

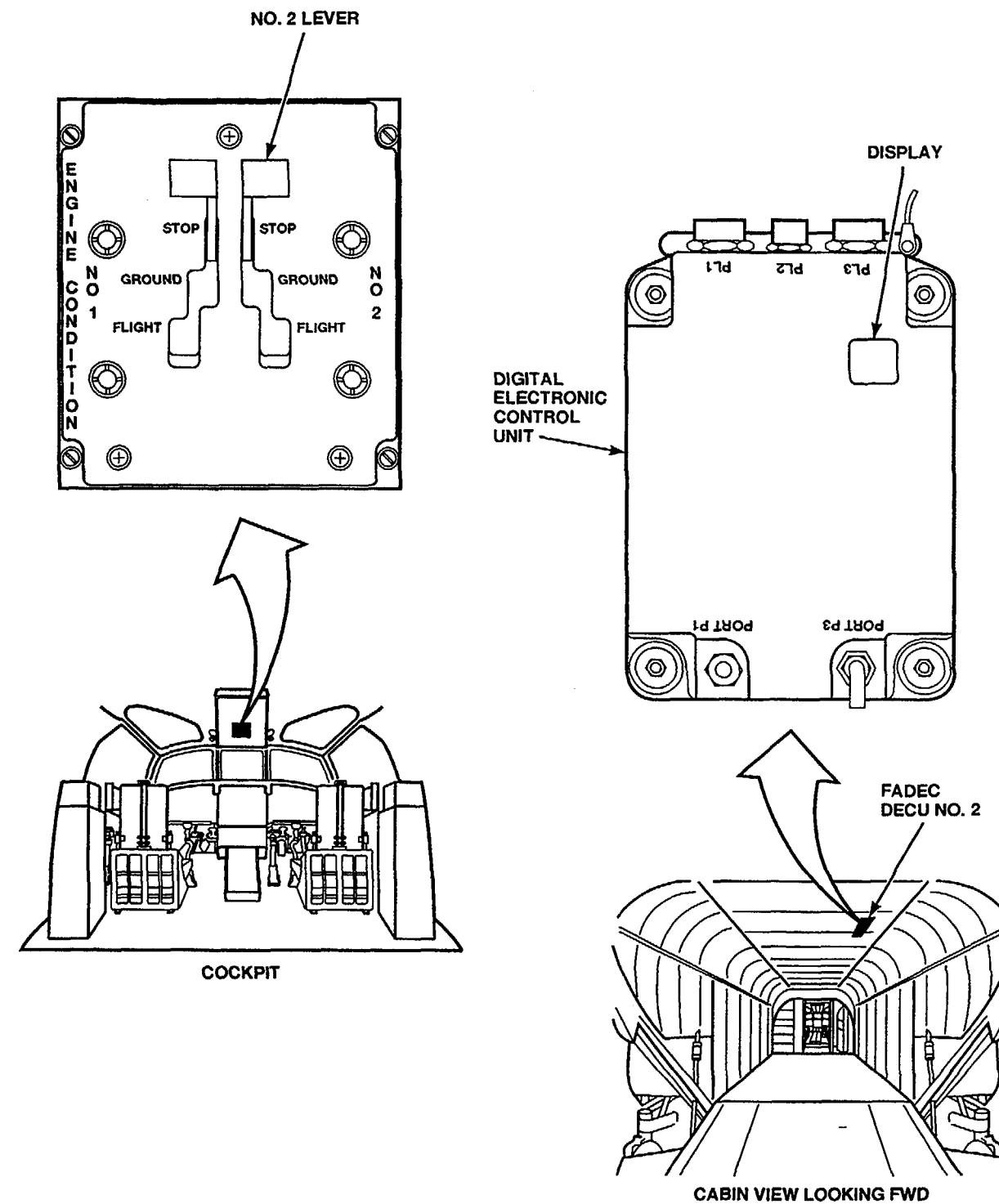
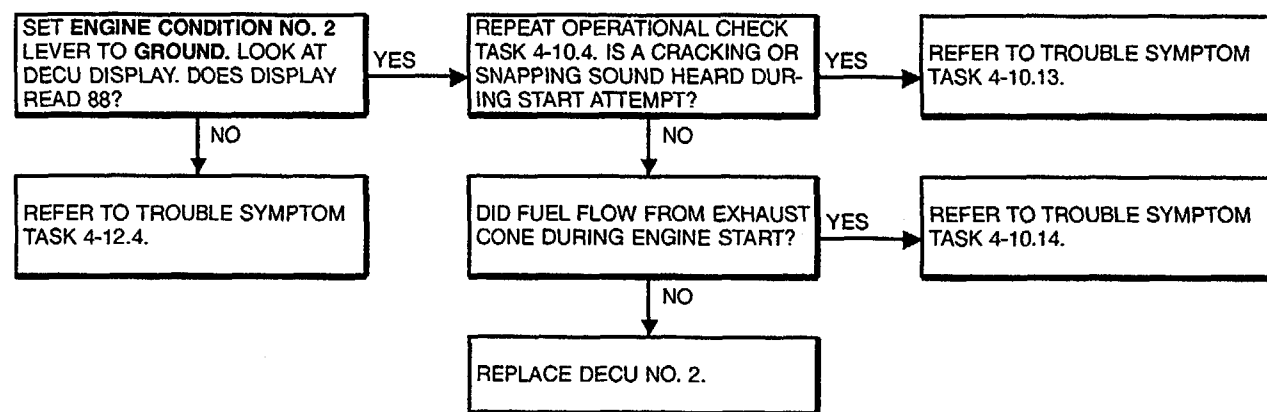
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off



A65199



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
With 74

**Tools:**  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

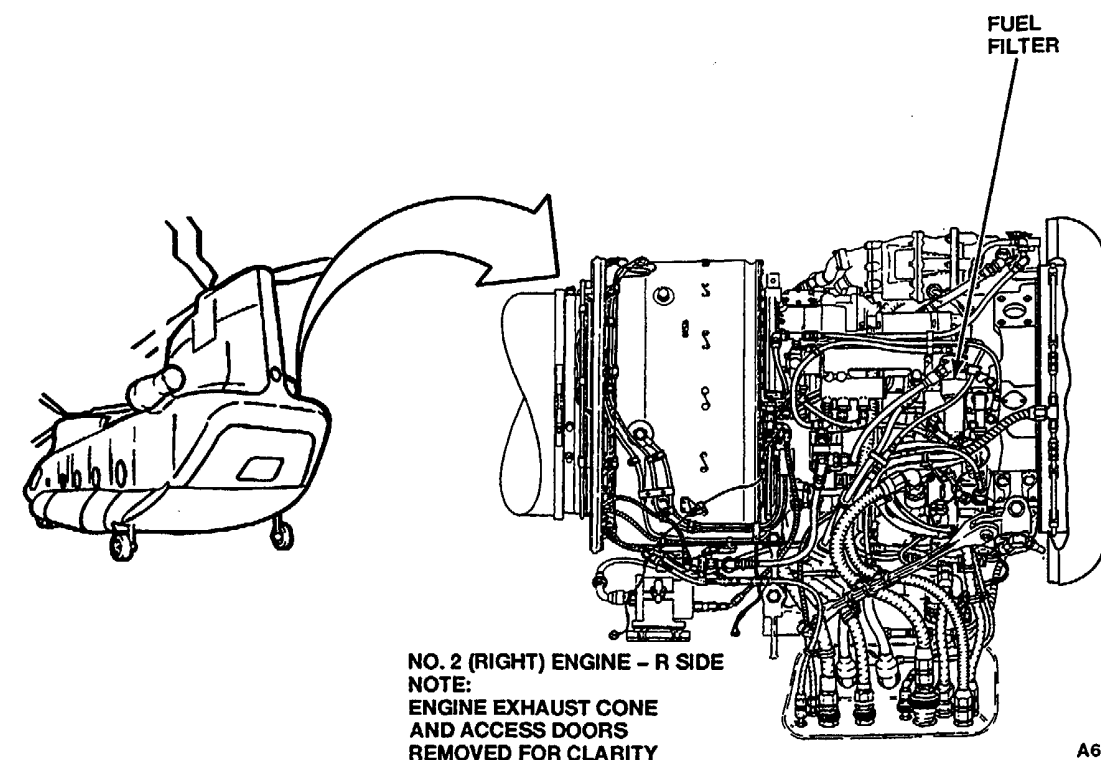
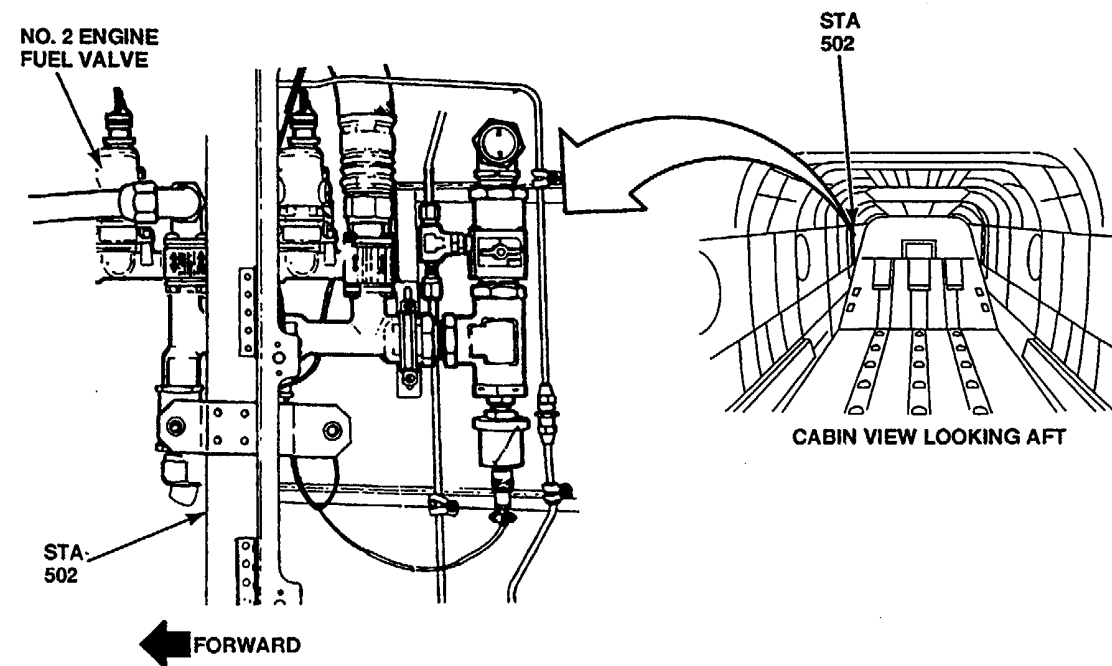
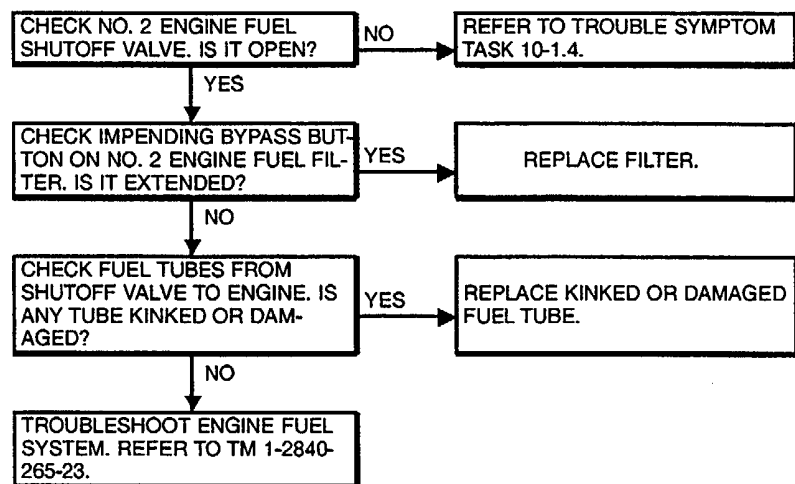
**Materials:**  
None

**Personnel Required:**  
Aircraft Powerplant Repairer

**References:**

TM 1-2840-265-23  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
No. 2 Engine Work Platform and Access Doors  
Open



A65200

END OF TASK

Change 17 4-243

4-10.14 NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE)

**FAULT ISOLATION PROCEDURE**  
INITIAL SETUP

**Applicable Configurations:**  
With 74

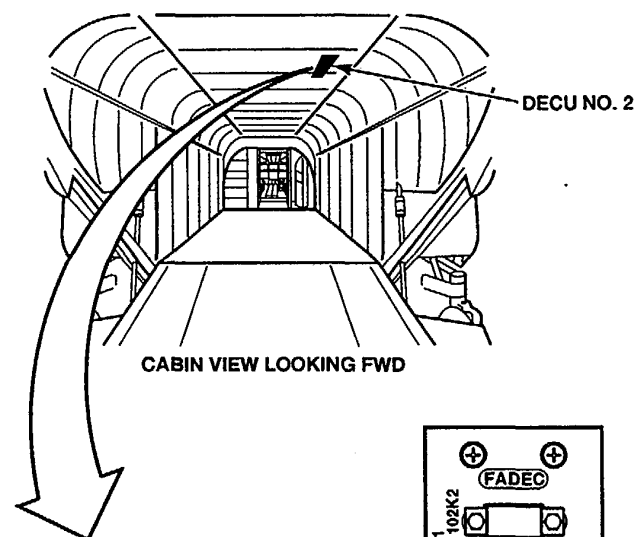
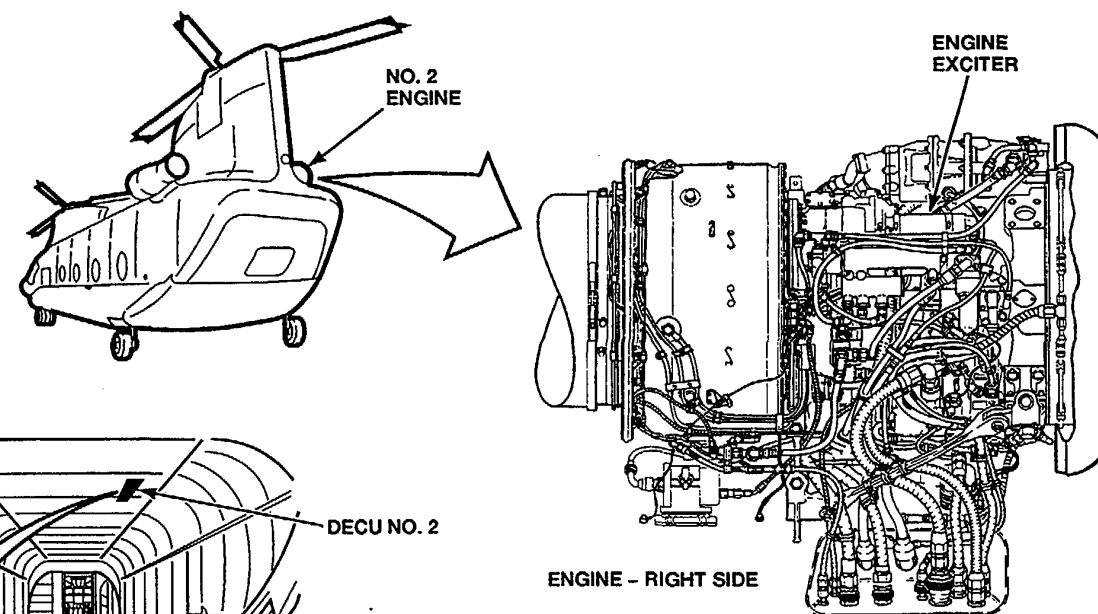
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

**Materials:**  
None

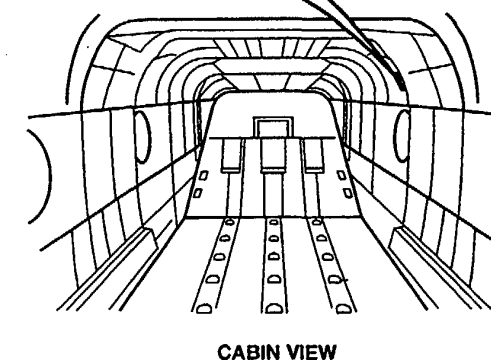
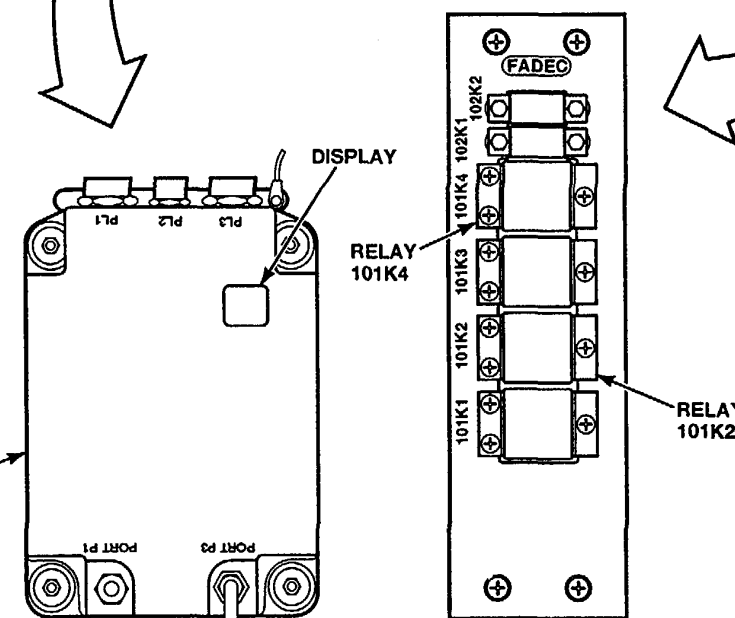
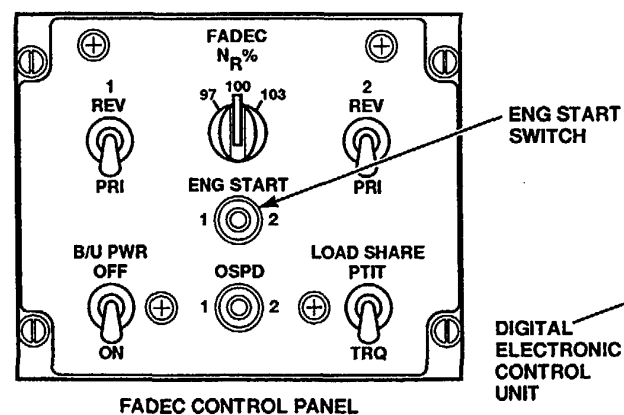
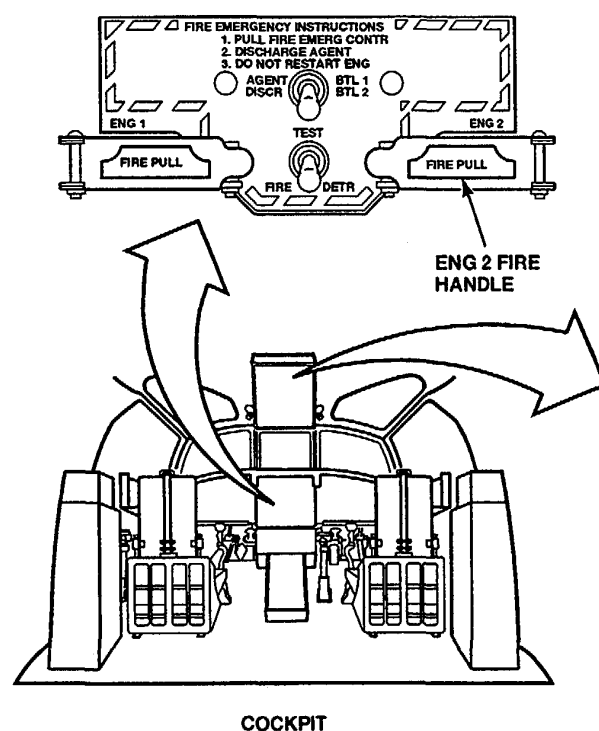
**Personnel Required:**  
Aircraft Electrician  
Aircraft Powerplant Repairer

**References:**  
TM 1-2840-265-23  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
No. 2 Engine Work Platform and Access  
Open

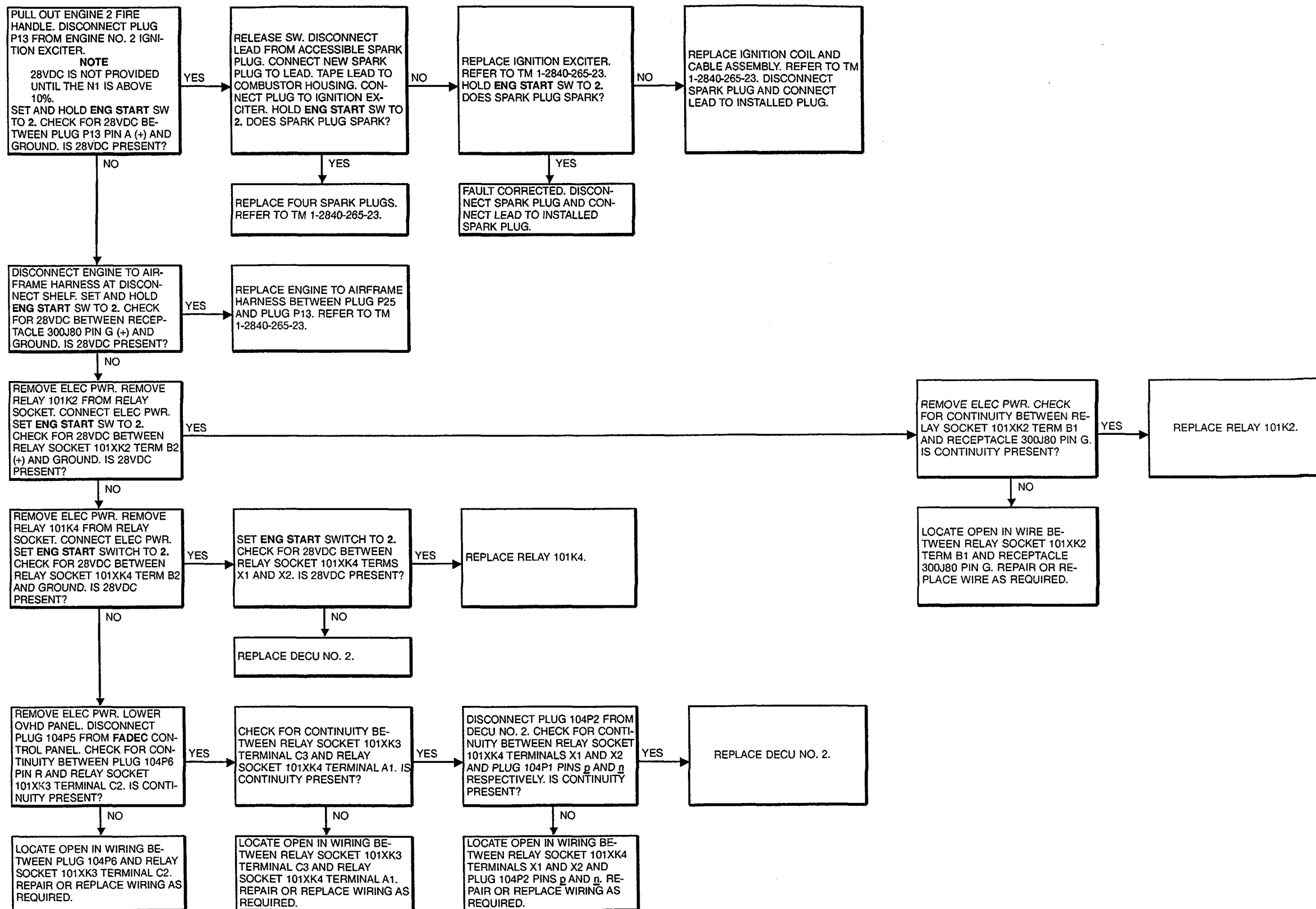


NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY



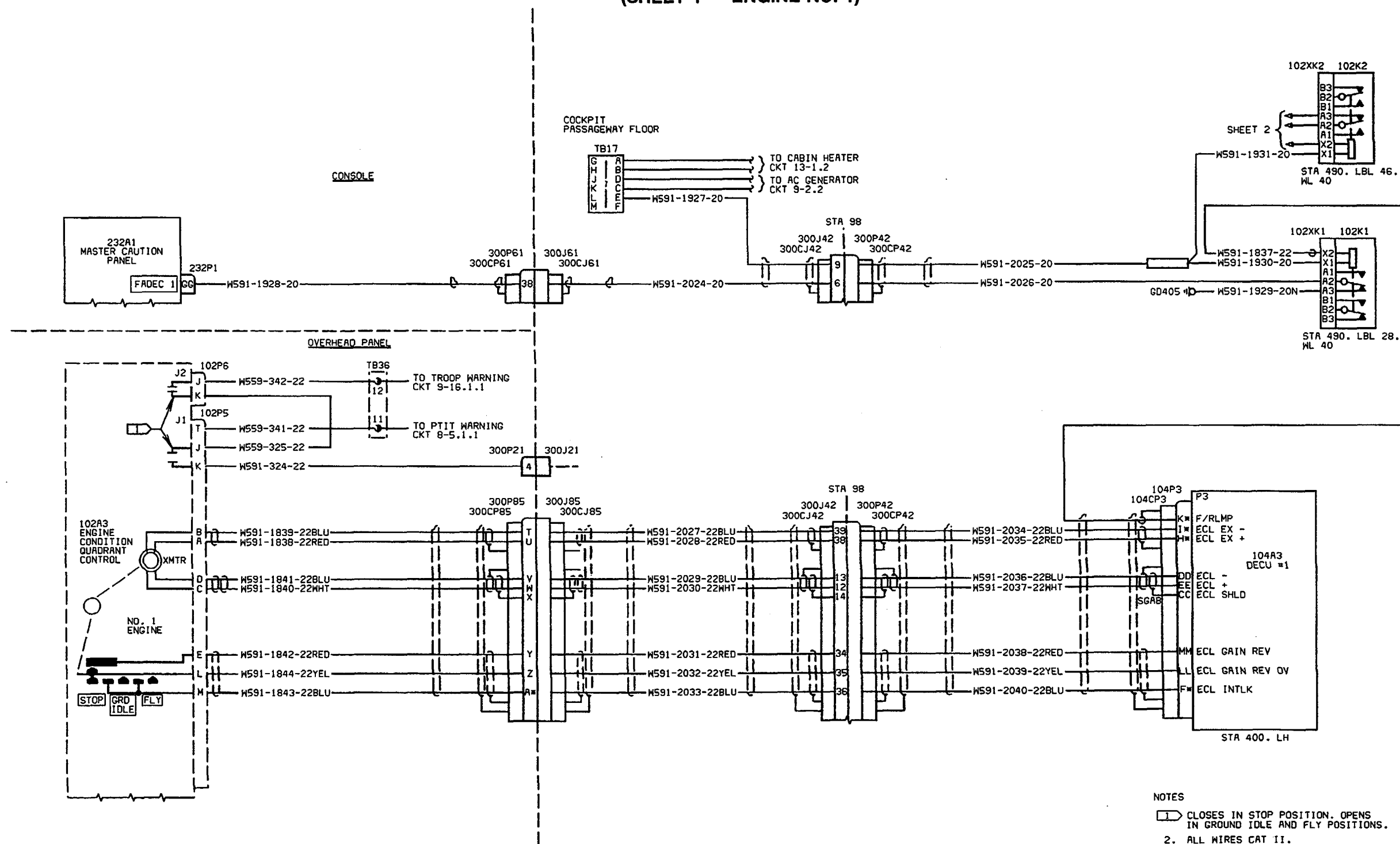
A65201

4-10.14 NO. 2 ENGINE DOES NOT START (ENGINE IGNITION SYSTEM FAILURE) (Continued)



SECTION 4-11 GAS PRODUCER CONTROL SYSTEM (N1) (WITH 74) |

WITH 74  
(SHEET 1 — ENGINE NO. 1)

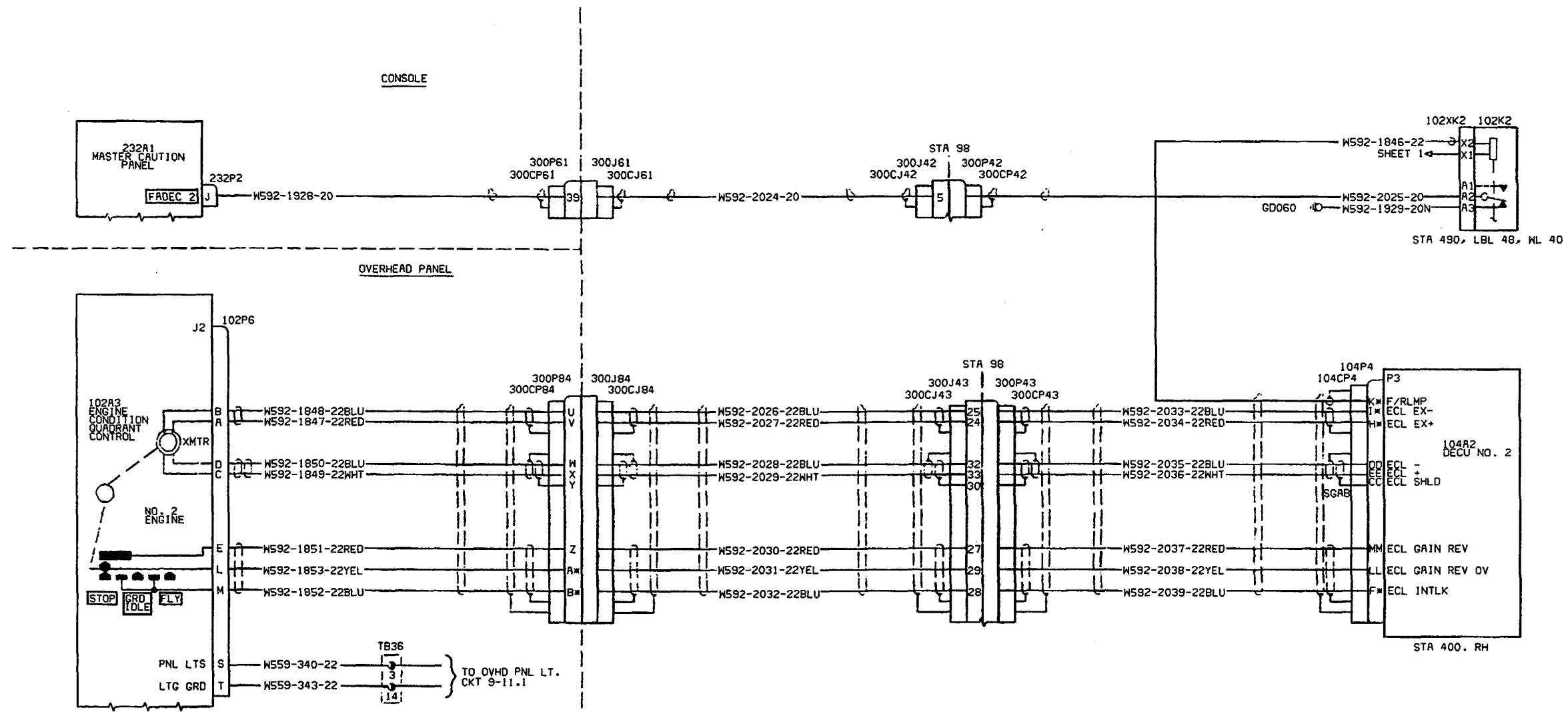


- NOTES
1. CLOSURES IN STOP POSITION. OPENS IN GROUND IDLE AND FLY POSITIONS.
  2. ALL WIRES CAT II.
  3. INDICATES EQUIPMENT MARKING.
  4. AN \* INDICATES A LOWERCASE LETTER IN PIN CALLOUTS.

A65267

GO TO NEXT PAGE

WITH 74  
(SHEET 2 — ENGINE NO. 2)



- NOTES:
1. ALL WIRES CAT II.
  2. [Symbol] INDICATES EQUIPMENT MARKING.
  3. AN \* INDICATES A LOWERCASE LETTER IN PIN CALLOUTS.

A65268

4-11.2 GAS PRODUCER CONTROL SYSTEM VISUAL CHECK

4-11.2

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected

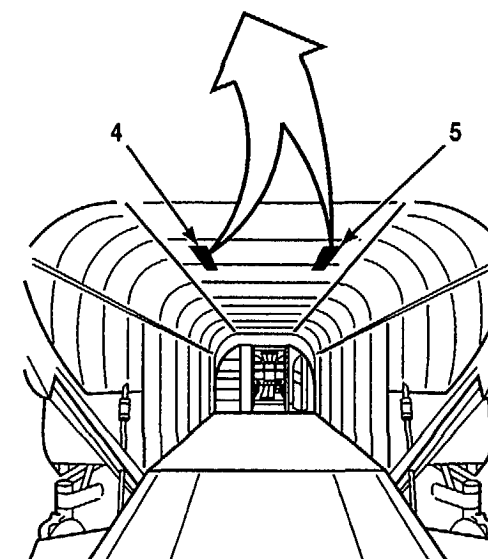
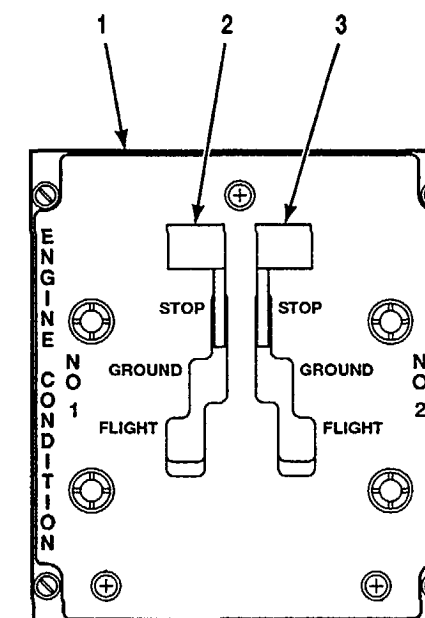
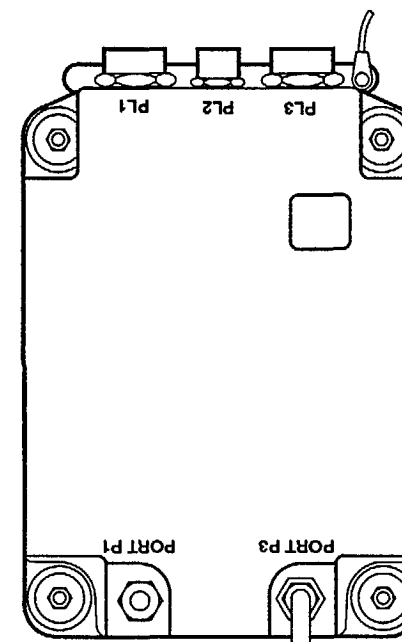
Electrical Power Off

Hydraulic Power Off

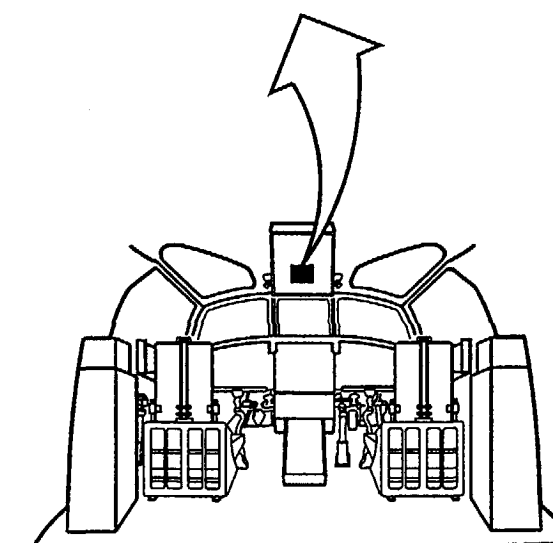
TASK	RESULT
1. Check ENGINE CONDITION control quadrant (1).	If quadrant is loose or damaged, tighten or replace it as required. If levers (2 or 3) are damaged, replace quadrant.
2. Check DECU No. 1 (4).	If DECU NO. 1 (4) is loose or damaged, tighten or replace it as required. If wiring or electrical connectors to DECU NO. 1 are damaged, repair or replace as required.
3. Check DECU No. 2 (5).	If DECU NO. 2 (5) is loose or damaged, tighten or replace it as required. If wiring or electrical connectors to DECU NO. 2 are damaged, repair or replace as required.

FOLLOW-ON MAINTENANCE:

None



CABIN VIEW LOOKING FWD



COCKPIT

A65285

END OF TASK  
4-250 Change 17

4-11.3 GAS PRODUCER CONTROL SYSTEM (N1) OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

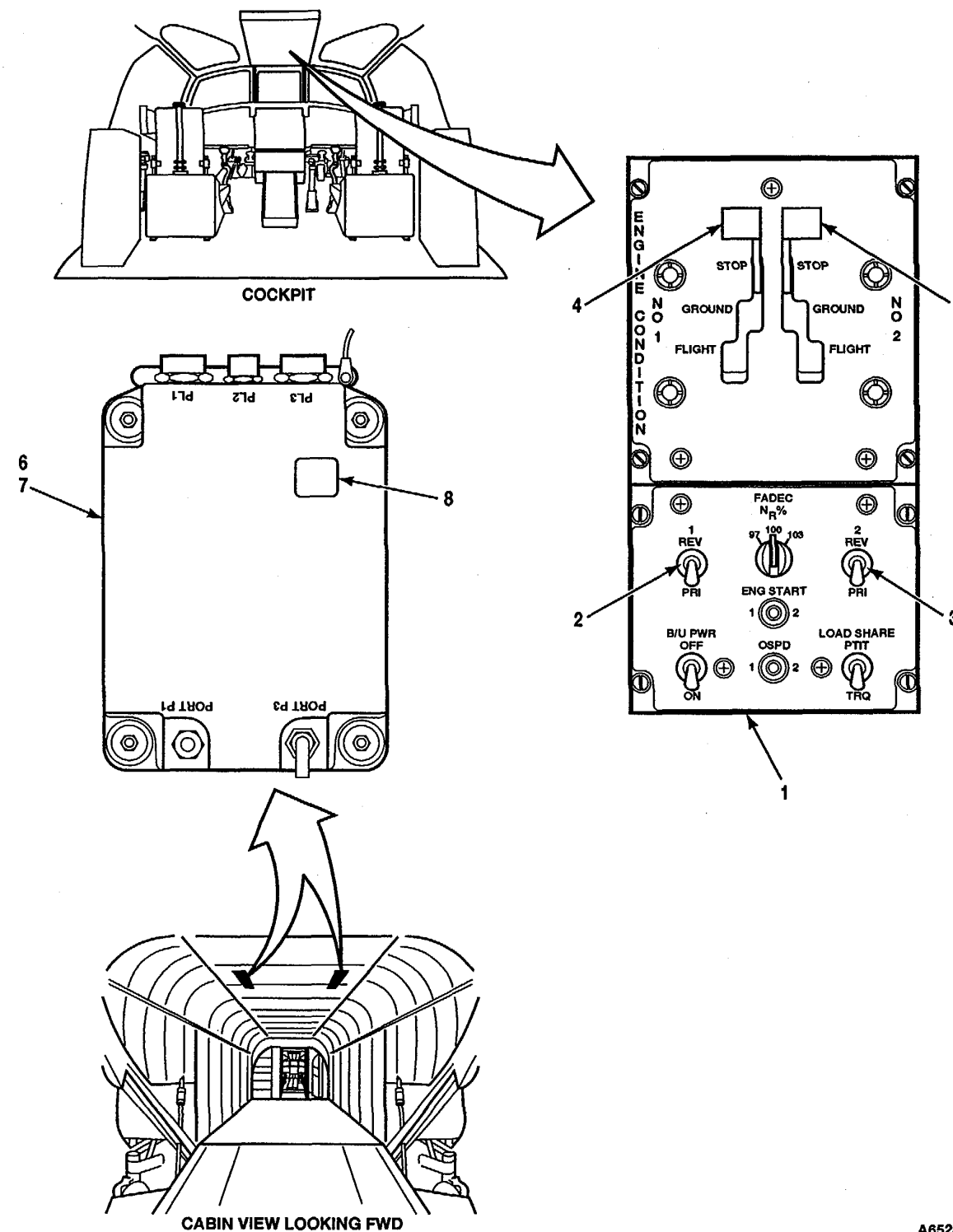
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Visual Check of Gas Producer Control System  
Performed (Task 4-11.2)

TASK	RESULT
1. On FADEC panel (1), check NO. 1 and NO. 2 REV/PRI switches (2 and 3) are at PRI.	If switches are not at PRI, set switches to PRI.
2. Move ENGINE CONDITION NO. 1 and NO. 2 levers (4 and 5) to GROUND. Look at DECU No. 1 and No. 2 (6 and 7) fault display (8).	If display shows 88, go to step 3. If display shows A5 and/or B6, go to task 4-11.4. If display is blank or shows a code other than 88, go to task 4-12.4.
3. Move ENGINE CONDITION levers (4 and 5) to STOP. Look at DECU No. 1 and No. 2 (6 and 7) fault display (8).	If display shows A5 and/or B6, go to task 4-11.4. If display is blank or shows a code other than 88, go to Task 4-12.4.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:  
Hydraulic power off.  
Electrical power off.  
Battery disconnected.



A65233

END OF TASK

Change 17 4-251



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

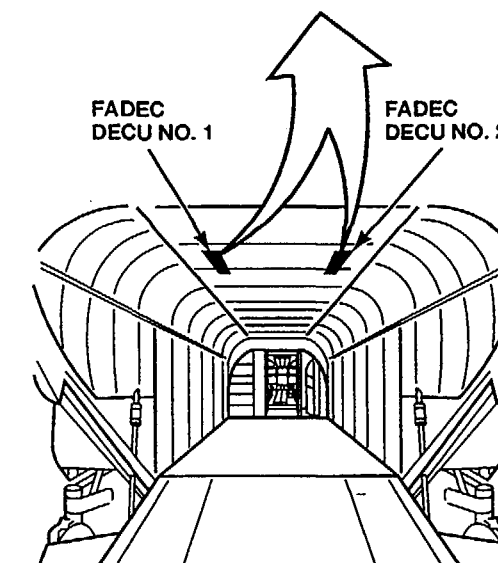
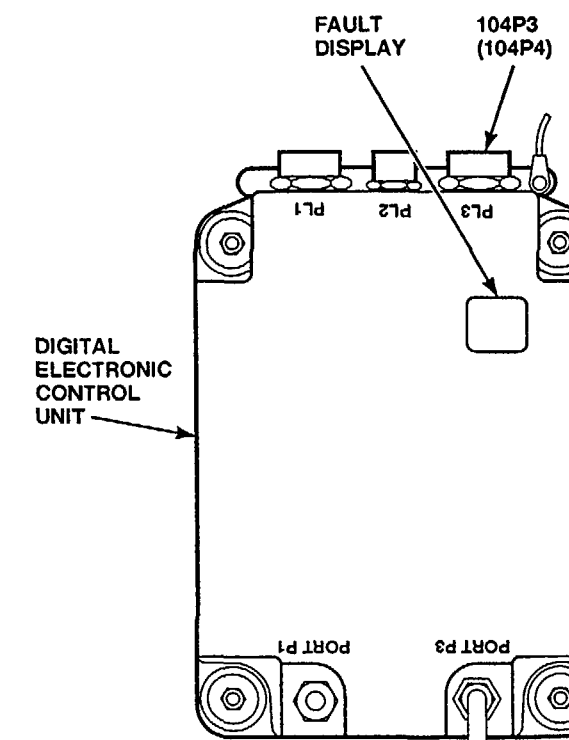
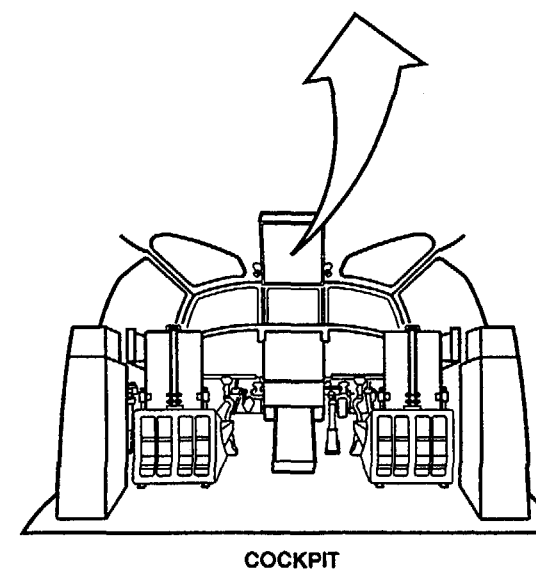
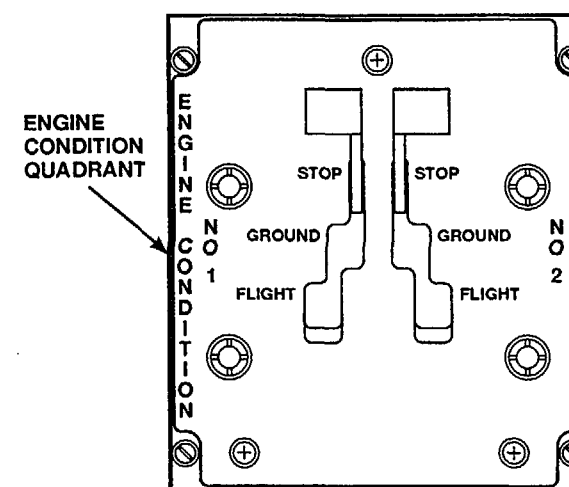
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off

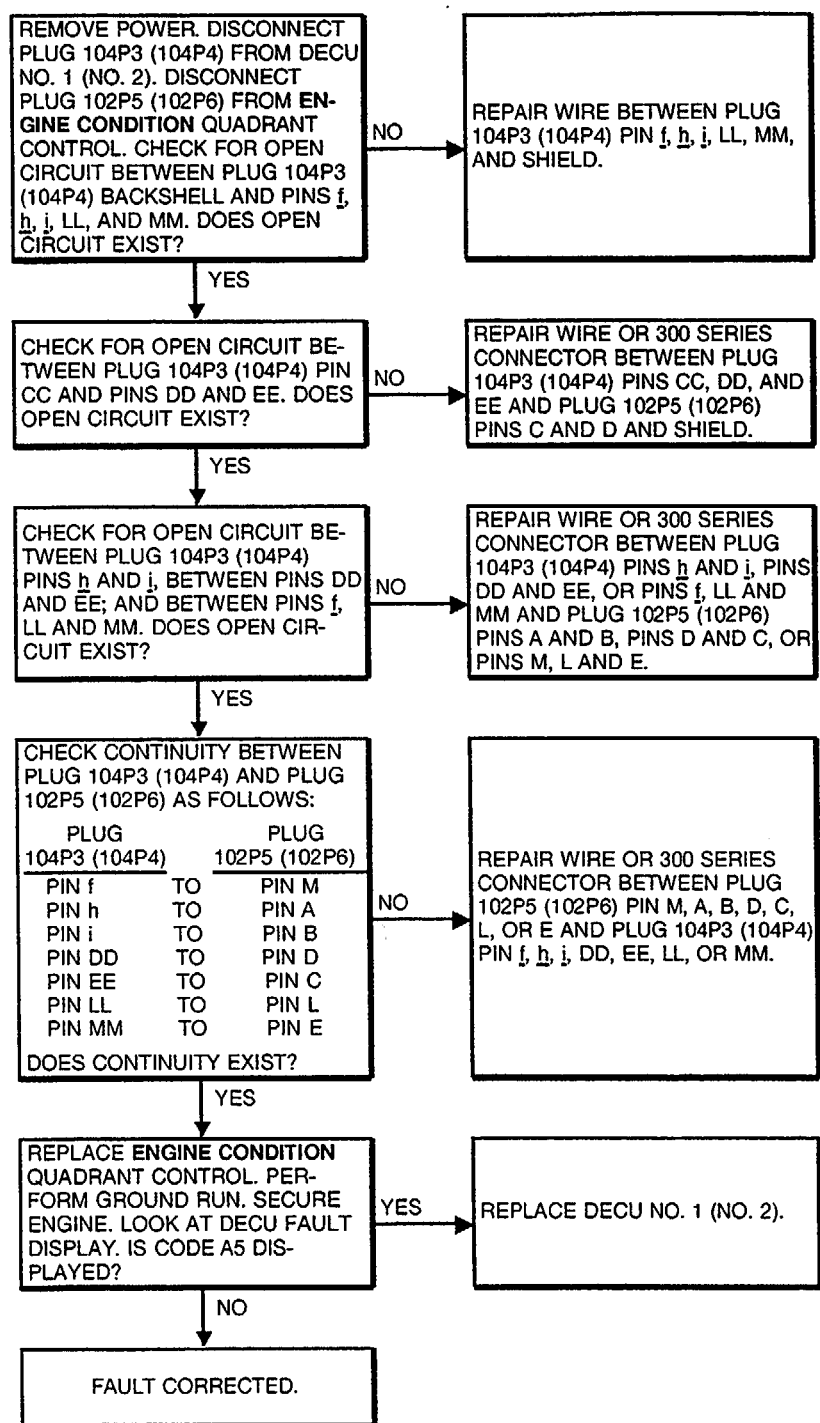


CABIN VIEW LOOKING FWD

A65207

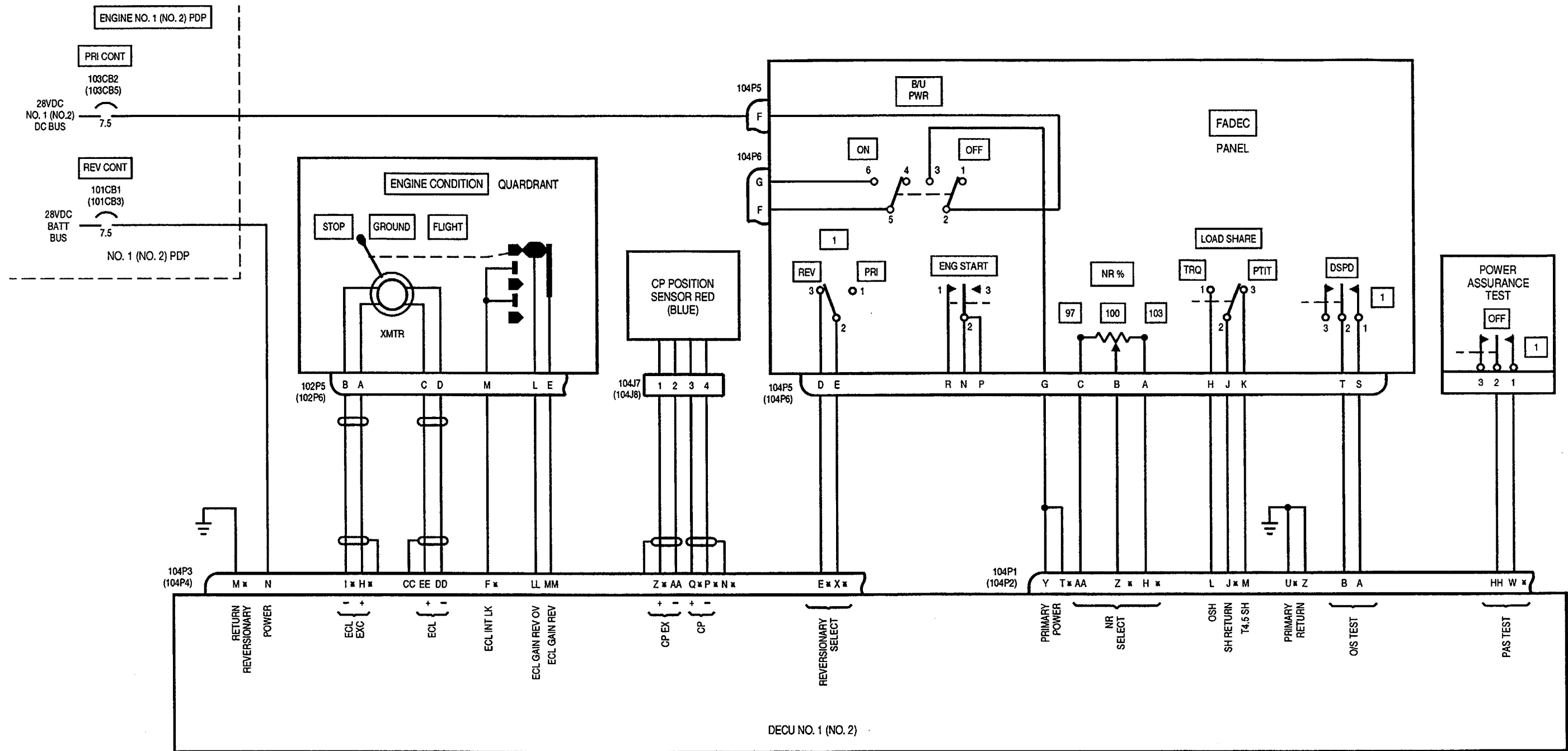
GO TO NEXT PAGE

NOTE: Information in ( ) applies to DECU NO. 2.



SECTION 4-12 FULL AUTHORITY DIGITAL ENGINE CONTROL (FADEC) (WITH 74)

WITH 74

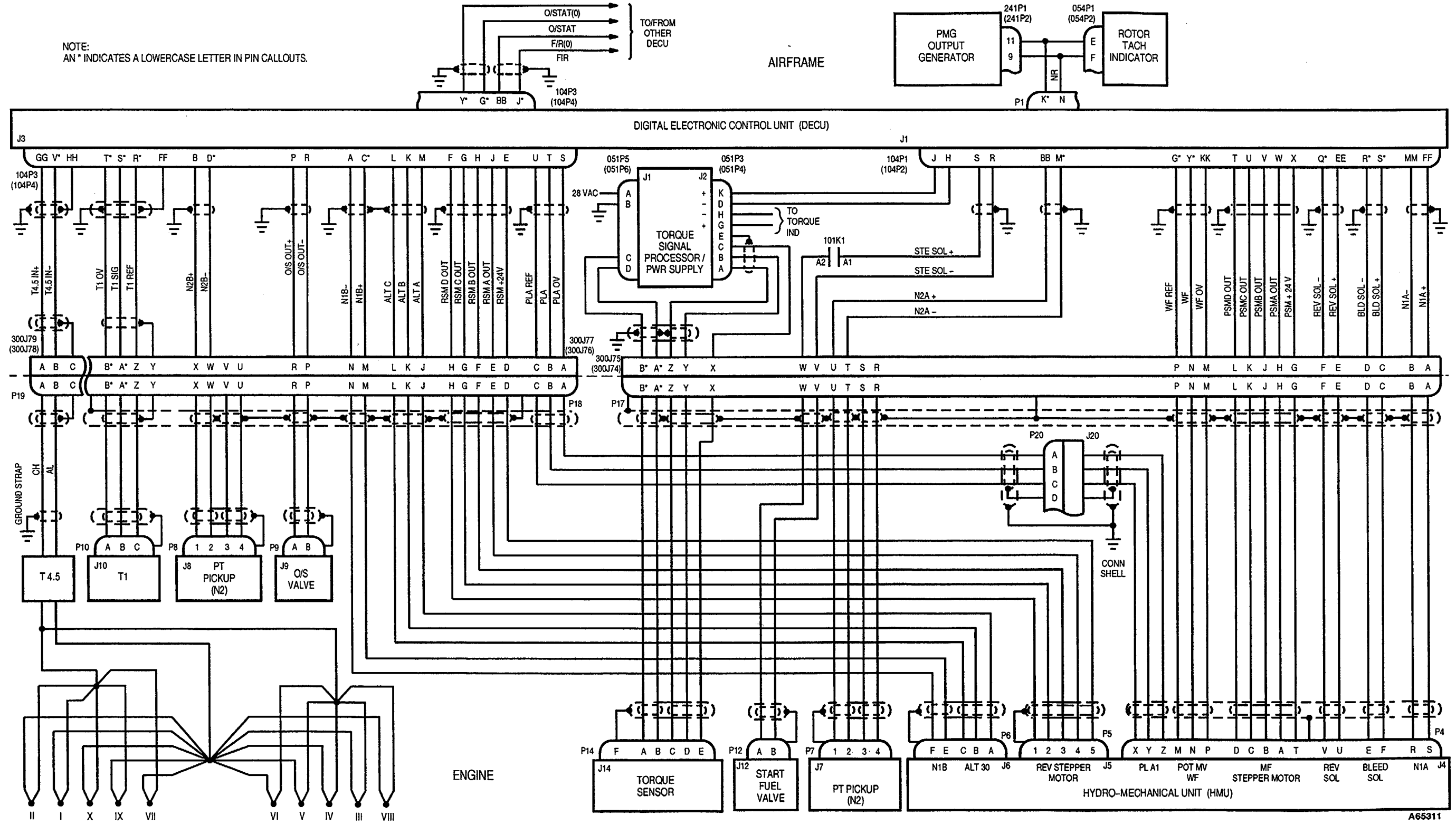


- NOTES:
1. INDICATES EQUIPMENT MARKINGS.
  2. ( ) APPLIES TO ENGINE 2 SYSTEM.
  3. AN\* INDICATES A LOWER CASE LETTER IN PIN CALLOUTS.

A65312

WITH 74

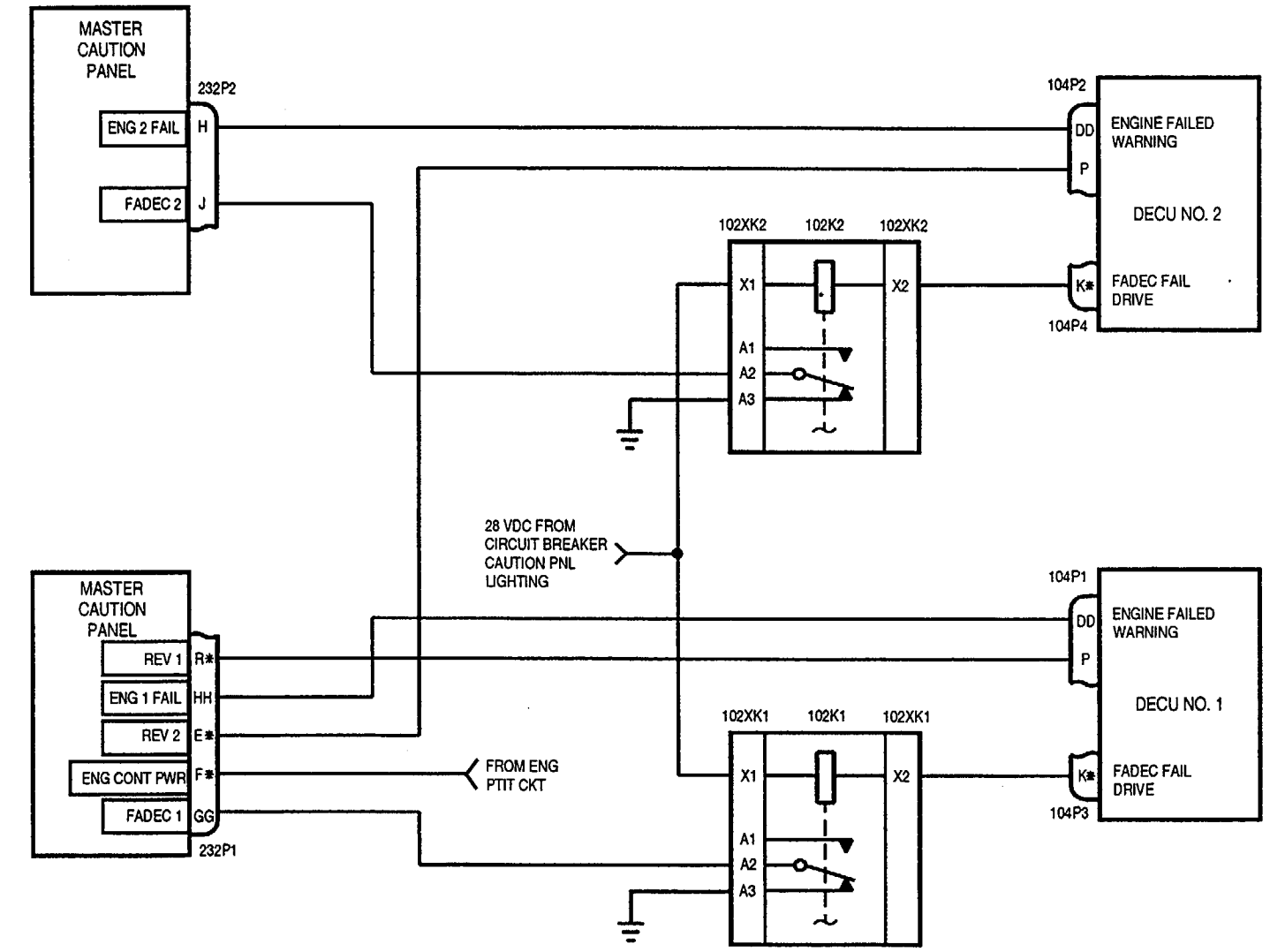
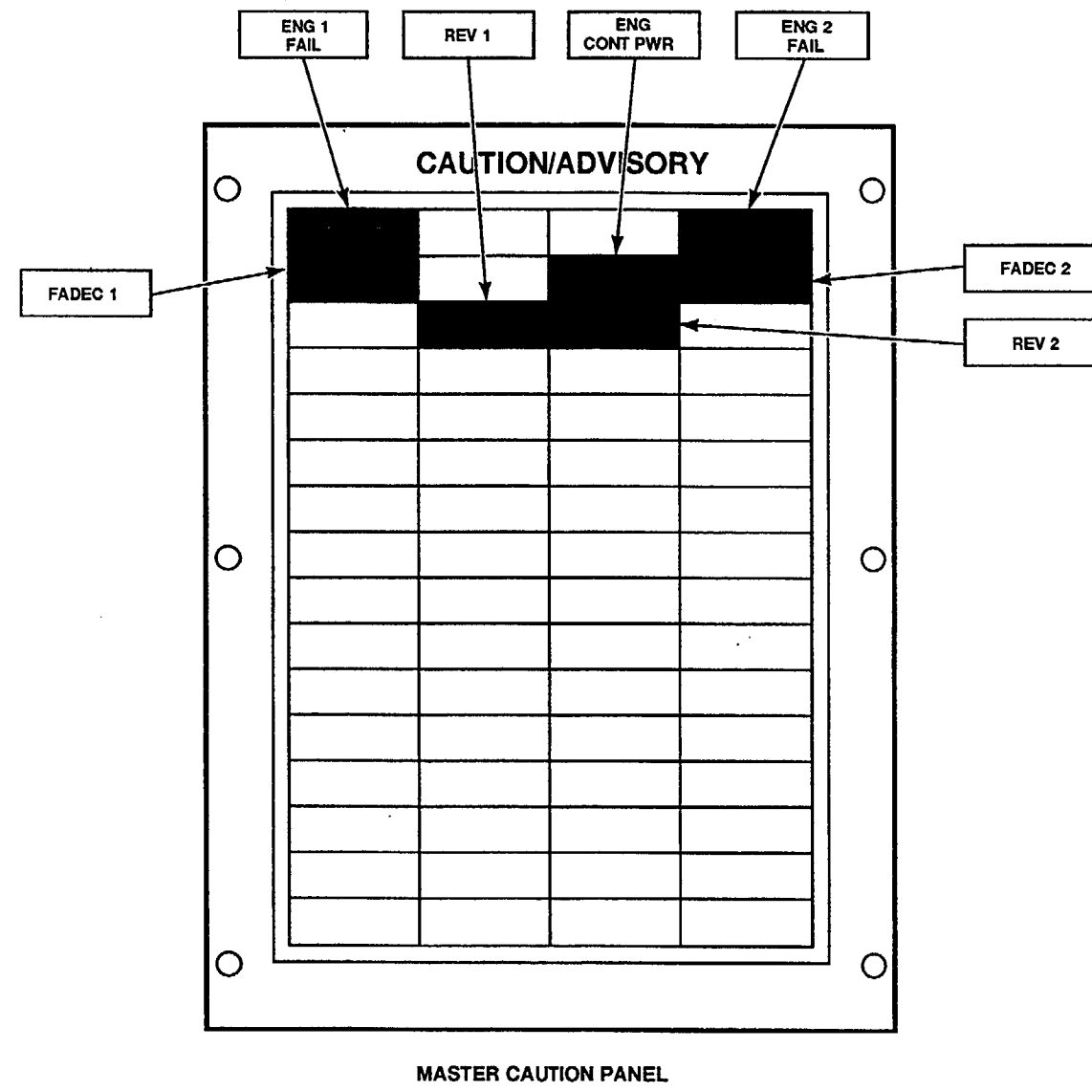
NOTE:  
AN \* INDICATES A LOWERCASE LETTER IN PIN CALLOUTS.



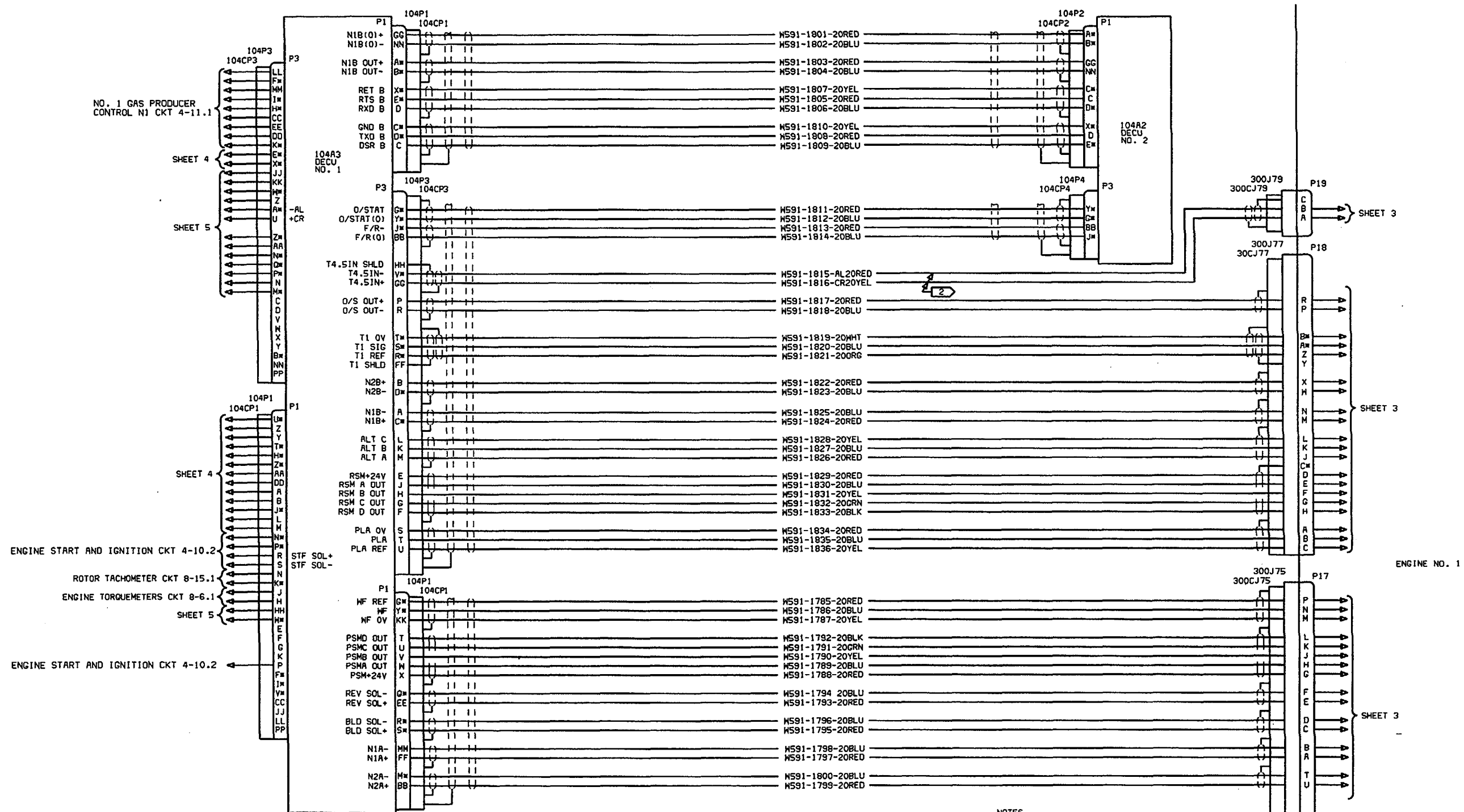
A65311

WITH 74

- NOTES:  
 1.  INDICATES EQUIPMENT MARKING.  
 2. AN\* INDICATES A LOWER CASE LETTER IN PIN CALLOUTS.



WITH 74  
(SHEET 1 OF 5)

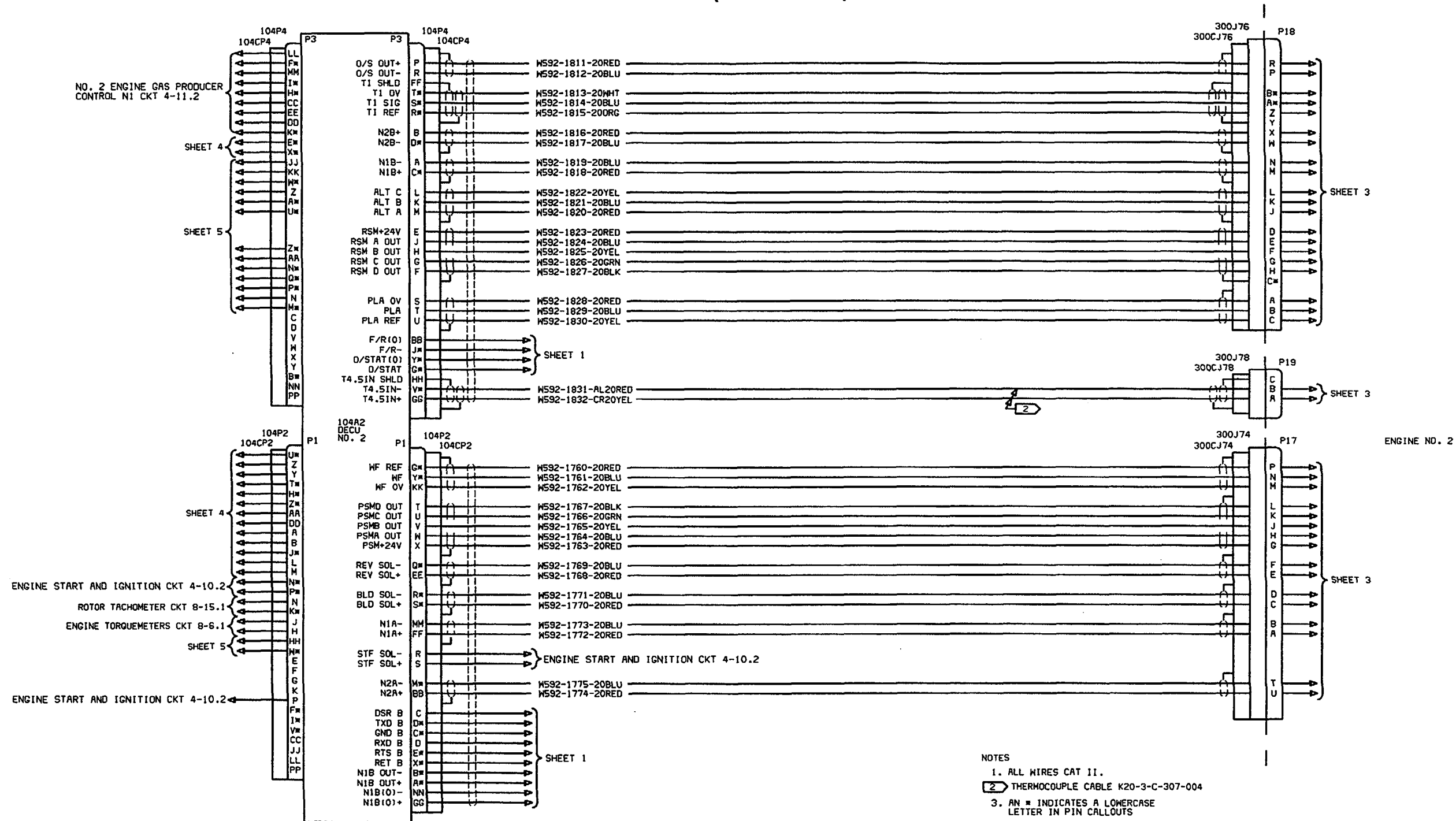


- NOTES
1. ALL WIRES CAT 11.
  2. THERMOCOUPLE CABLE K20-3-C-307-004
  3. AN # INDICATES A LOWERCASE LETTER IN PIN CALLOUTS

A65278

GO TO NEXT PAGE  
Change 17 4-259

WITH 74  
(SHEET 2 OF 5)

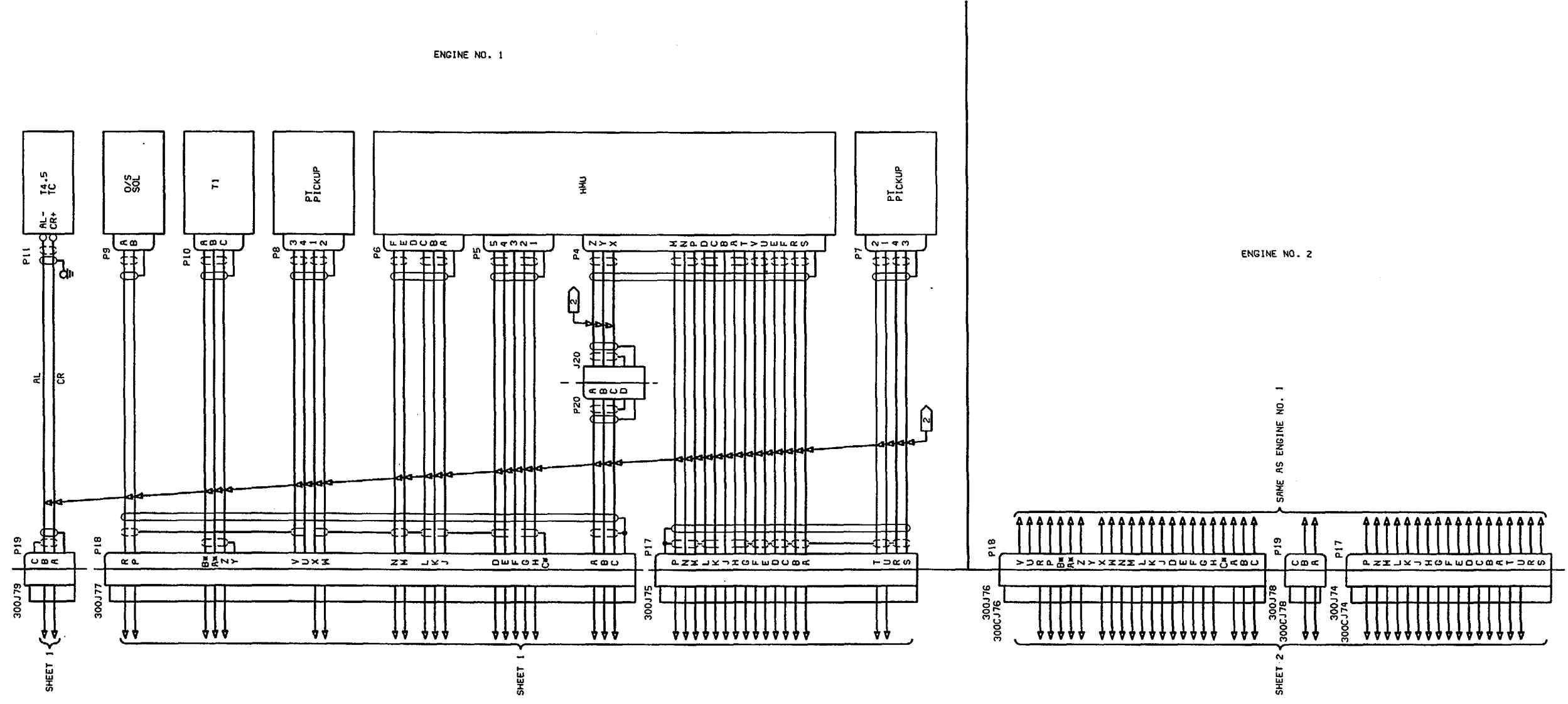


- NOTES
1. ALL WIRES CAT 11.
  2. THERMOCOUPLE CABLE K20-3-C-307-004
  3. AN = INDICATES A LOWERCASE LETTER IN PIN CALLOUTS

A65279



WITH 74  
(SHEET 3 OF 5)

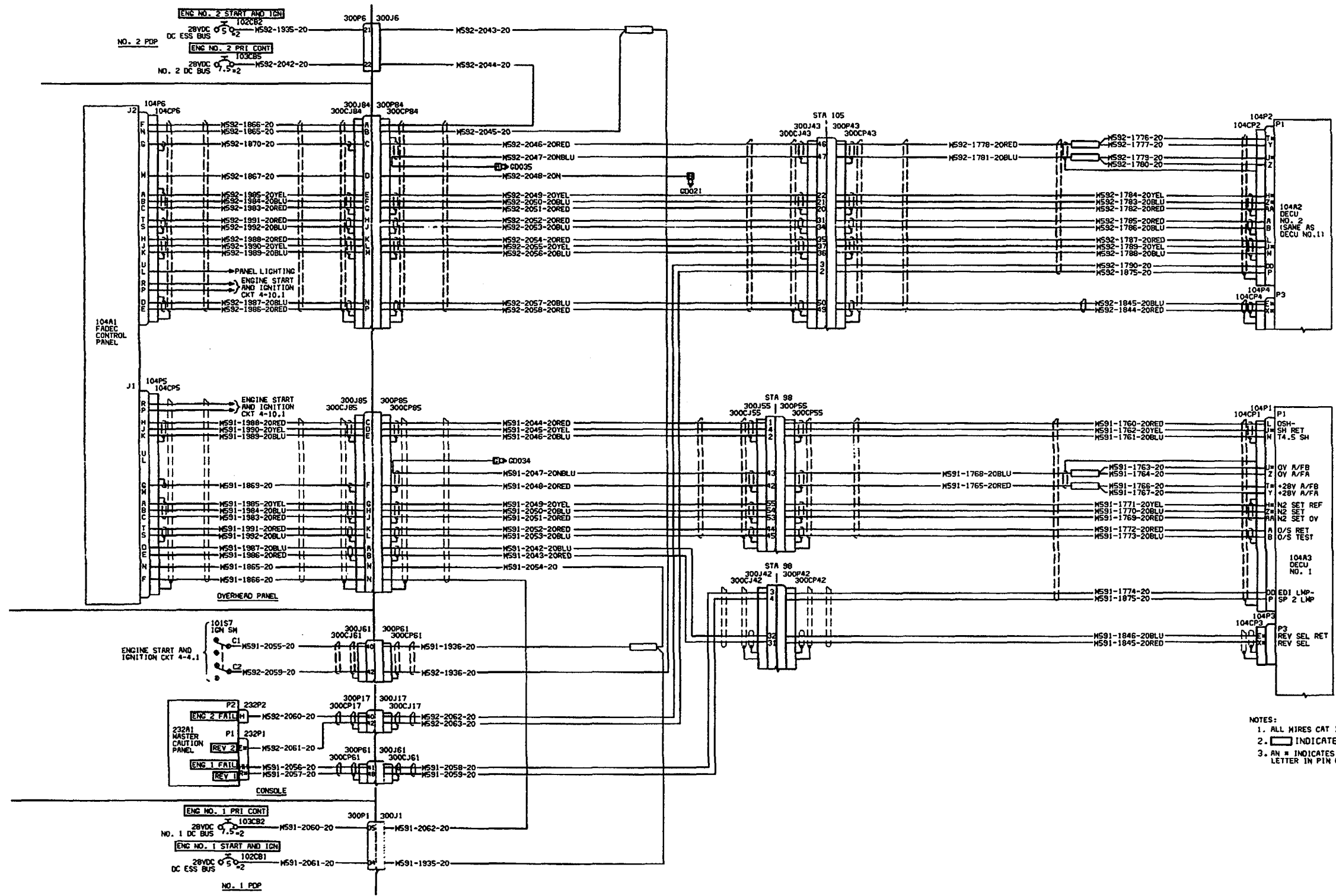


- NOTES
1. ALL WIRES CAT II
  2. SUPPLIED WITH ENGINE
  3. AN \* INDICATES A LOWERCASE LETTER IN PIN CALLOUTS

A65275

GO TO NEXT PAGE  
Change 17 4-261

WITH 74  
(SHEET 4 OF 5)

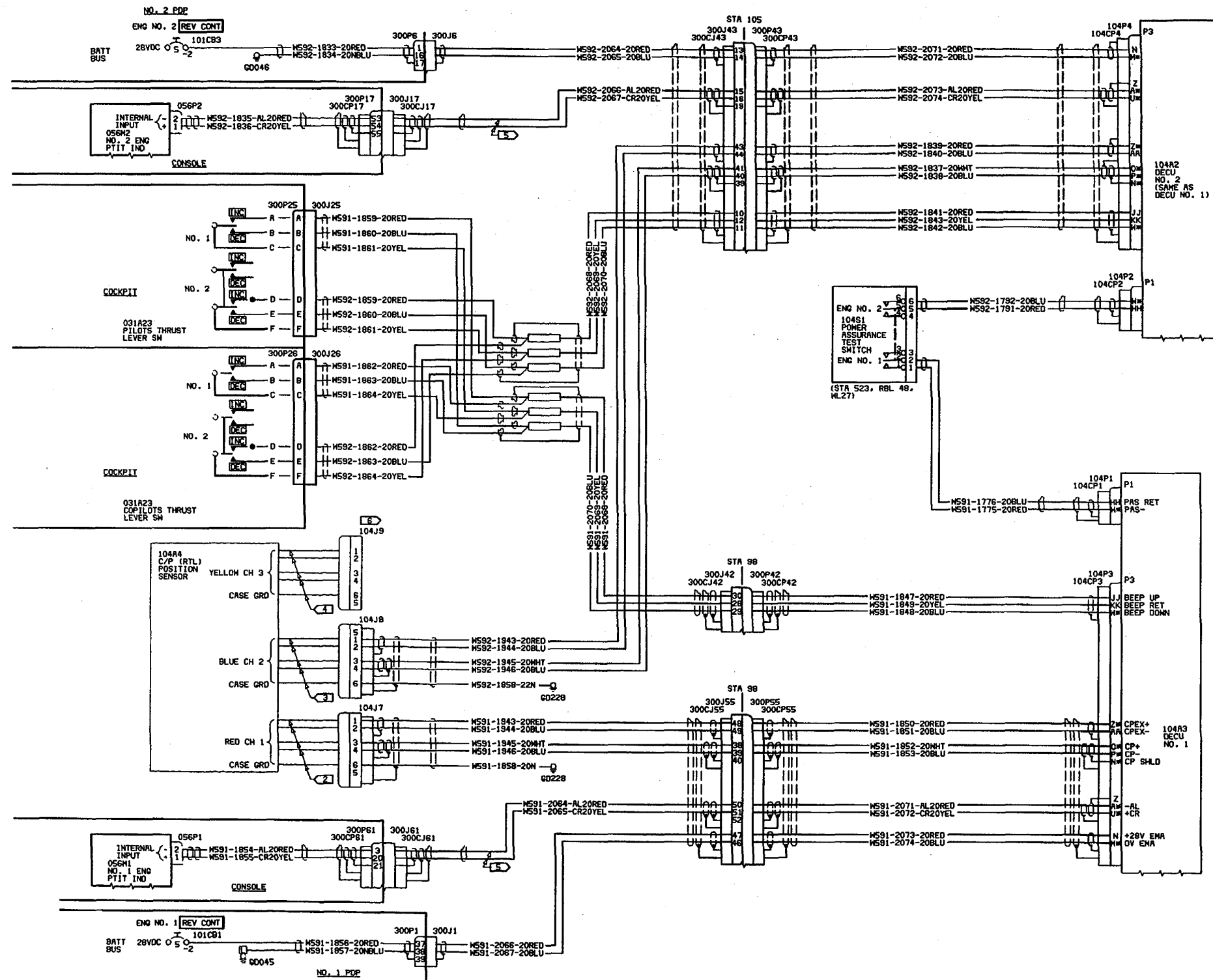


- NOTES:
1. ALL WIRES CAT II.
  2. INDICATES EQUIPMENT MARKINGS.
  3. AN # INDICATES A LOWERCASE LETTER IN PIN CALLOUTS

A65277

GO TO NEXT PAGE

WITH 74  
(SHEET 5 OF 5)



- NOTES:
1. ALL WIRES CAT II.
  2. FURNISHED LEADS & CONN-RED BAND.
  3. FURNISHED LEADS & CONN-BLU BAND.
  4. FURNISHED LEADS & CONN-YEL BAND.
  5. THERMOCOUPLE CABLE K20-3-C-307-004.
  6. USE FOR STORAGE OF YELLOW PIGTAIL FROM 104A4.
  7. [Symbol] INDICATES EQUIPMENT MARKINGS.
  8. AN = INDICATES A LOWERCASE LETTER IN PIN CALLOUTS

A65276

END OF TASK  
Change 17 4-263

4-12.3 FULL AUTHORITY DIGITAL ELECTRONIC CONTROL (FADEC) VISUAL CHECK

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

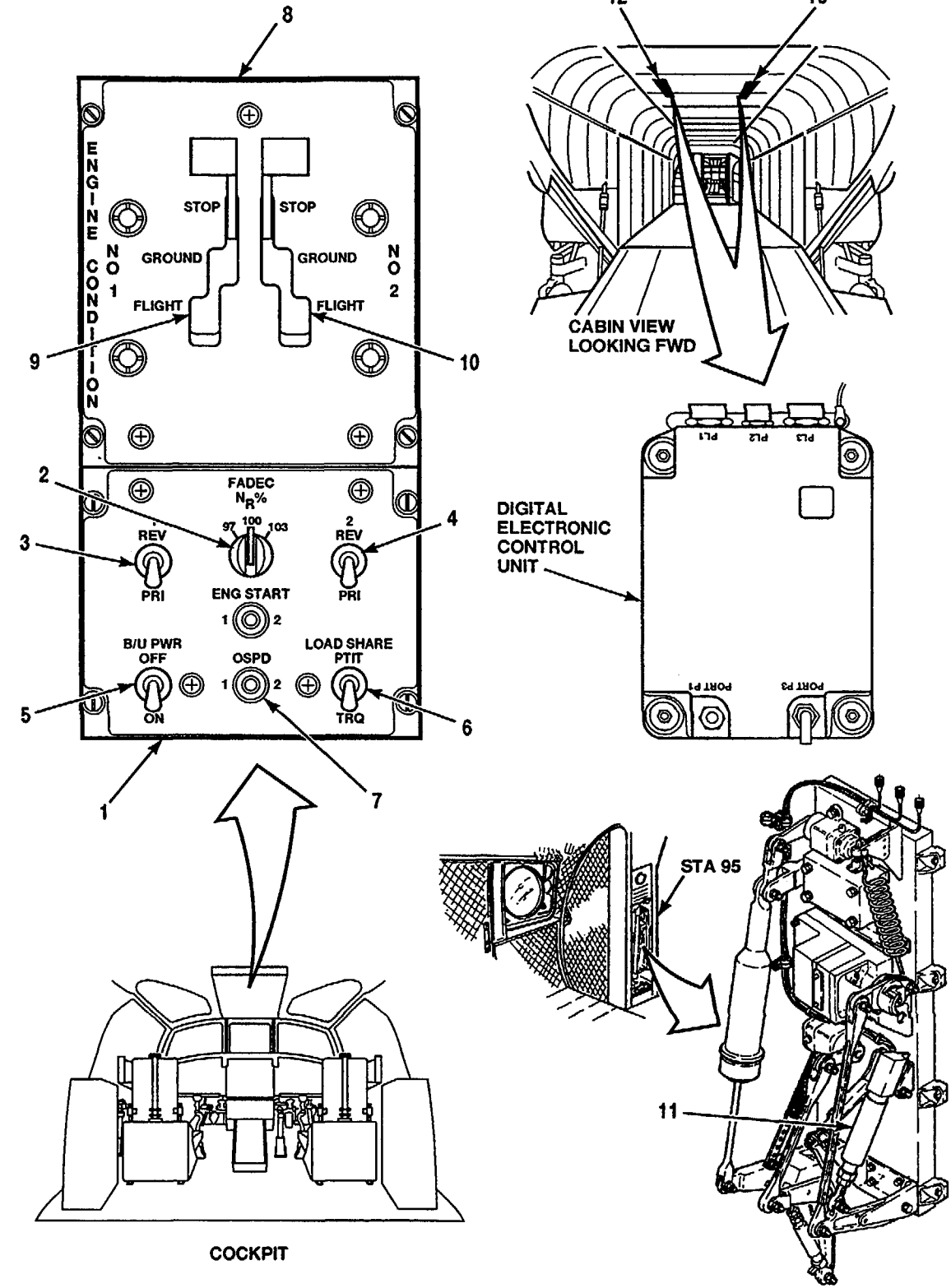
**References:**

TM 1-2840-265-23  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Controls Closet Acoustic Blanket Removed  
Controls Closet Panel Open  
Engine Work Platforms Open  
Engine Access Covers Open

TASK	RESULT
1. Check FADEC control panel (1).	If NR% control knob (2) is loose or damaged, tighten or replace it as required. If either engine PRI/REV switch (3 or 4) is loose or damaged, tighten or replace it as required. If B/U PWR OFF/ON switch (5) is loose or damaged, tighten or replace it as required. If LOAD SHARE PTIT/TRQ switch (6) is loose or damaged, tighten or replace it as required. If OSPD 1/2 switch (7) is loose or damaged, tighten or replace it as required.
2. Check ENGINE CONDITION control quadrant (8).	If either NO. 1 or NO. 2 lever (9 or 10) is loose or damaged, replace the quadrant.
3. Check thrust control position transducer (11).	If thrust control position transducer (11) is loose or damaged, tighten or replace it as required. If wiring or connector to transducer is damaged, repair or replace wiring or connector as required.
4. Check DECU (Digital Electronic Control Unit) NO.1 (12).	If DECU NO. 1 (12) is loose or damaged, tighten or replace it as required. If wiring to DECU NO. 1 is damaged, repair or replace it as required.
5. Check DECU (Digital Electronic Control Unit) NO. 2 (13).	If DECU NO. 2 (13) is loose or damaged, tighten or replace it as required. If wiring to DECU NO. 2 is damaged, repair or replace it as required.



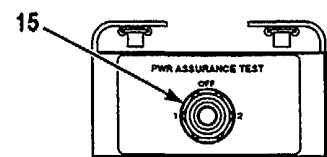
A65211

GO TO NEXT PAGE

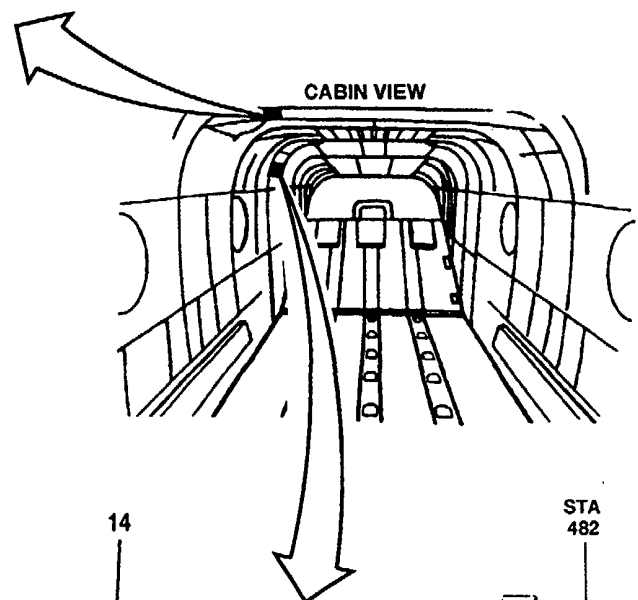
TASK	RESULT
6. <b>Check P3</b> line (14) from DECU's (12 and 13) to engine No. 1 and No. 2 disconnect shelves.	If any part of P3 line (14) is loose, kinked or damaged, tighten or replace it as required.
7. Check <b>POWER ASSURANCE TEST 1/OFF/2</b> switch (15).	If switch is loose or damaged, tighten or replace it as required.
<b>CHECK ENGINE NO. 1</b>	
8. <b>Check inlet air temp T1 sensor</b> (16).	If sensor (16) is loose or damaged, tighten or replace it. If connector to sensor (16) is loose or damaged, tighten plug or replace wire harness (TM 1-2840-265-23).
9. <b>Check wire harness connection</b> (17).	If harness plug is loose or damaged, tighten or replace harness (TM 1-2840-265-23). If receptacle is damaged, replace harness (TM 1-2840-265-23).
10. <b>Check start fuel valve</b> (18).	If start fuel valve is loose or damaged, tighten or replace valve. If connector to valve is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
11. <b>Check HMU connector</b> (19).	If HMU connector (19) is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
12. <b>Check HMU alternator connector</b> (20).	If HMU alternator connector (20) is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
13. <b>Check reversionary stepper motor connector</b> (21).	If connector (21) is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
14. <b>Check engine harness connector</b> (22).	If engine harness connector (22) is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
15. <b>Check P3 line</b> (23).	If P3 line (23) is loose, kinked or damaged, tighten connection or replace line.
16. <b>Check engine harness connector</b> (24).	If engine harness connector (24) is loose or damaged, tighten plug or replace harness.
17. <b>Check N2 sensor</b> (25).	If sensor (25) is loose or damaged, tighten or replace it. If either connector to sensor is loose or damaged, tighten plug or replace harness.
18. <b>Check torque sensor junction box</b> (26).	If junction box (26) is loose or damaged, tighten or replace it. If connector to junction box is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
19. <b>Check overspeed valve</b> (27).	If valve (27) is loose or damaged, tighten or replace it. If connector to valve is loose or damaged, tighten plug or replace harness (TM 1-2840-265-23).
<b>CHECK ENGINE NO. 2</b>	
20. Perform steps 8 thru 19 on engine no. 2.	

**FOLLOW-ON MAINTENANCE:**

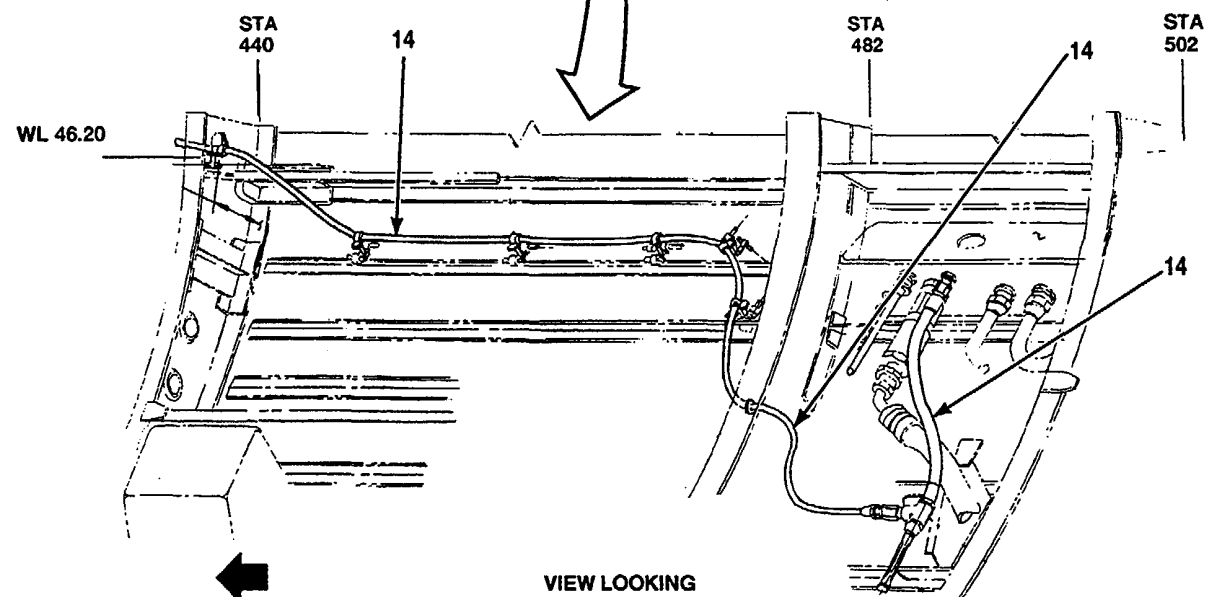
- Controls closet acoustic blanket installed.
- Controls closet panel closed.
- Engine work platforms closed.
- Engine access covers closed.



STA 523, WL 27, RBL 48

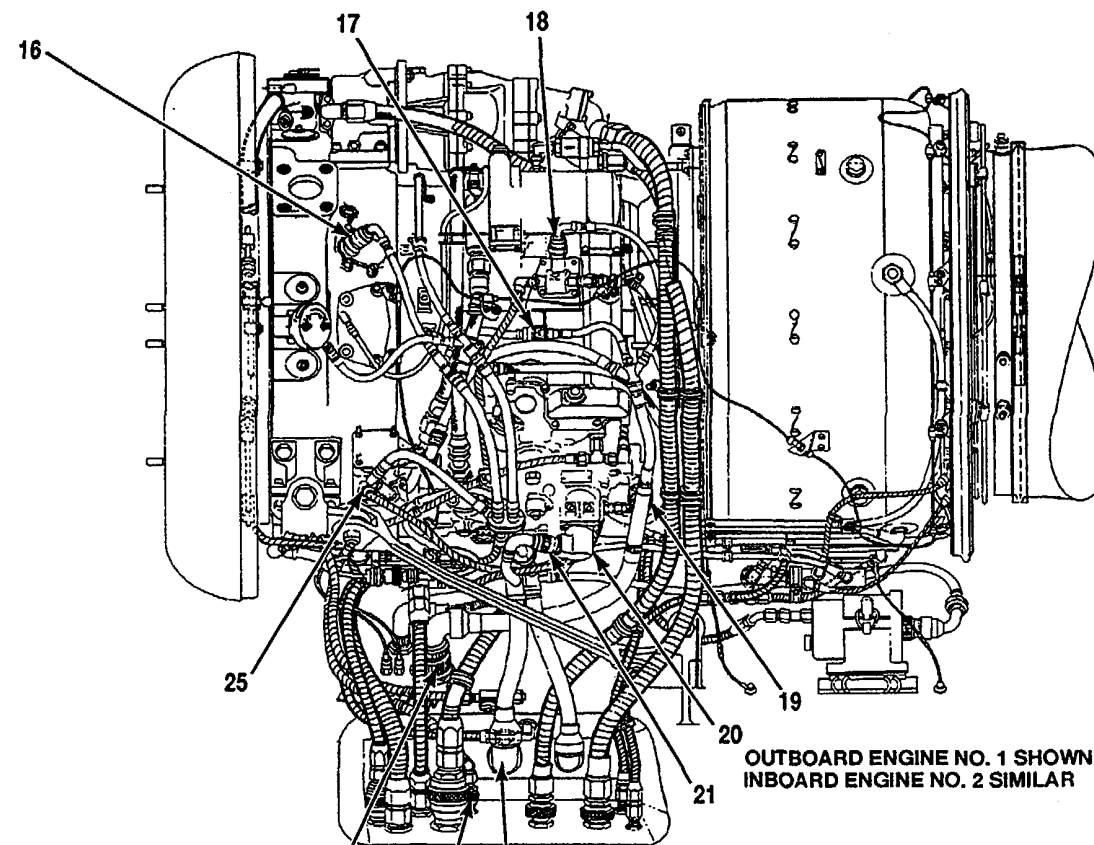


CABIN VIEW

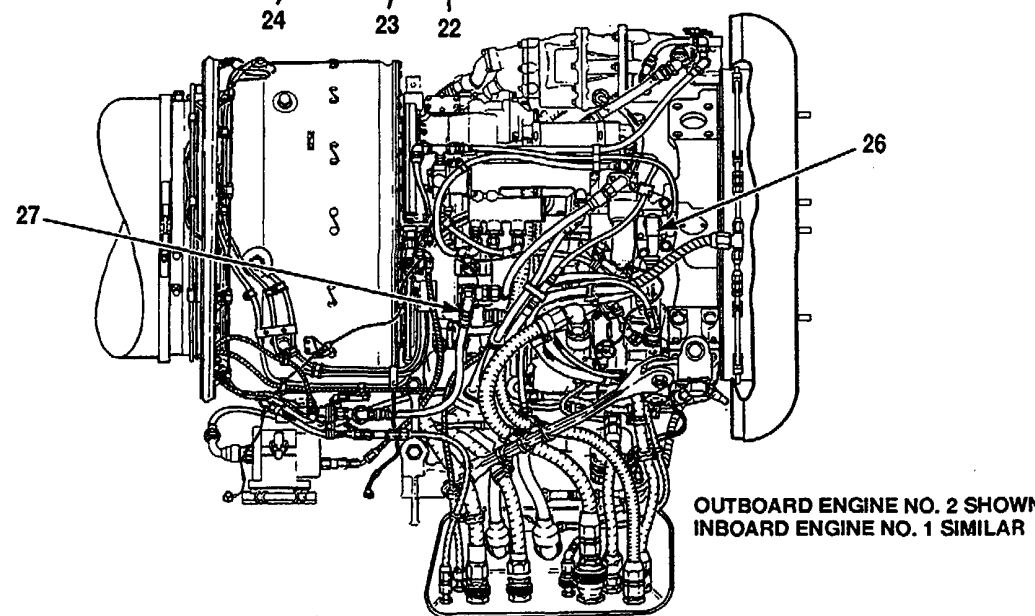


FORWARD

VIEW LOOKING  
OUTBOARD RIGHT SIDE  
LEFT SIDE OPPOSITE



OUTBOARD ENGINE NO. 1 SHOWN  
INBOARD ENGINE NO. 2 SIMILAR



OUTBOARD ENGINE NO. 2 SHOWN  
INBOARD ENGINE NO. 1 SIMILAR

A65229

4-12.4 FULL AUTHORITY DIGITAL ELECTRONIC CONTROL (FADEC) OPERATIONAL CHECK

4-12.4

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Visual Check of FADEC Performed (Task 4-12.3)

TASK	RESULT
1. Check that <b>ENGINE NO. 1 PRI CONT, REV CONT and START &amp; IGN circuit breakers (1, 2 and 3) are closed.</b>	If circuit breaker (1, 2 or 3) is open, close it. If circuit breaker (1, 2 or 3) opens again, go to task 4-12.5, task 4-12.6 or task 4-10.5, respectively.
2. Check that <b>ENGINE NO. 2 PRI CONT, REV CONT and START &amp; IGN circuit breakers (4, 5 and 6) are closed.</b>	If circuit breaker (4, 5 or 6) is open, close it. If circuit breaker (4, 5 or 6) opens again, go to task 4-12.5, task 4-12.6 or task 4-10.6, respectively.
3. On FADEC control panel (7), <b>set 1 and 2 PRI/ REV switches (8 and 9) to PRI. Check FADEC 1 and FADEC 2 cautions (10 and 11).</b>	Cautions (10 and 11) should be out. If either caution is illuminated, go to task 4-12.7.
4. <b>Look at fault display (12) on DECU No. 1 and No. 2 (13 and 14).</b>	Display should show 88. If any other code shown, copy code and refer to Table 1 for maintenance action.
5. On ENGINE CONDITION quadrant (15), <b>move NO. 1 and NO. 2 levers (16 and 17) to GROUND. Look at fault display (12) on DECU No. 1 and No. 2 (13 and 14).</b>	Each display should show 88. If any other code shown, copy code and refer to Table 1 for maintenance action.
6. <b>Open ENGINE NO. 1 and NO. 2 PRI CONT circuit breakers (1 and 4). Check FADEC 1 and 2 cautions (10 and 11) and fault display (12).</b>	Cautions (10 and 11) should be illuminated. Fault display (12) on both DECU's (13 and 14) should be blank.
7. <b>Open ENGINE NO. 1 REV CONT circuit breaker (2). Close ENGINE NO. 1 PRI CONT circuit breaker (1). Move 1 PRI/ REV switch (8) to REV and back to PRI. Check FADEC 1 caution (10) and fault display (12).</b>	Caution (10) should go out. DECU No. 1 display should show code A6. If it does not, replace DECU No. 1.
8. <b>Close ENGINE NO. 1 REV CONT circuit breaker (2). Open ENGINE NO. 1 PRI CONT circuit breaker (1).</b>	Caution (10) shall illuminate.
9. <b>Open ENGINE NO. 2 REV CONT circuit breaker (5). Close ENGINE NO. 2 PRI CONT circuit breaker (4). Move 2 PRI/ REV switch (11) to REV and back to PRI. Check FADEC 2 caution (11) and fault display (12) on DECU (14).</b>	Caution (11) should go out. DECU No. 2 display should show code A6. If it does not, replace DECU No. 2.

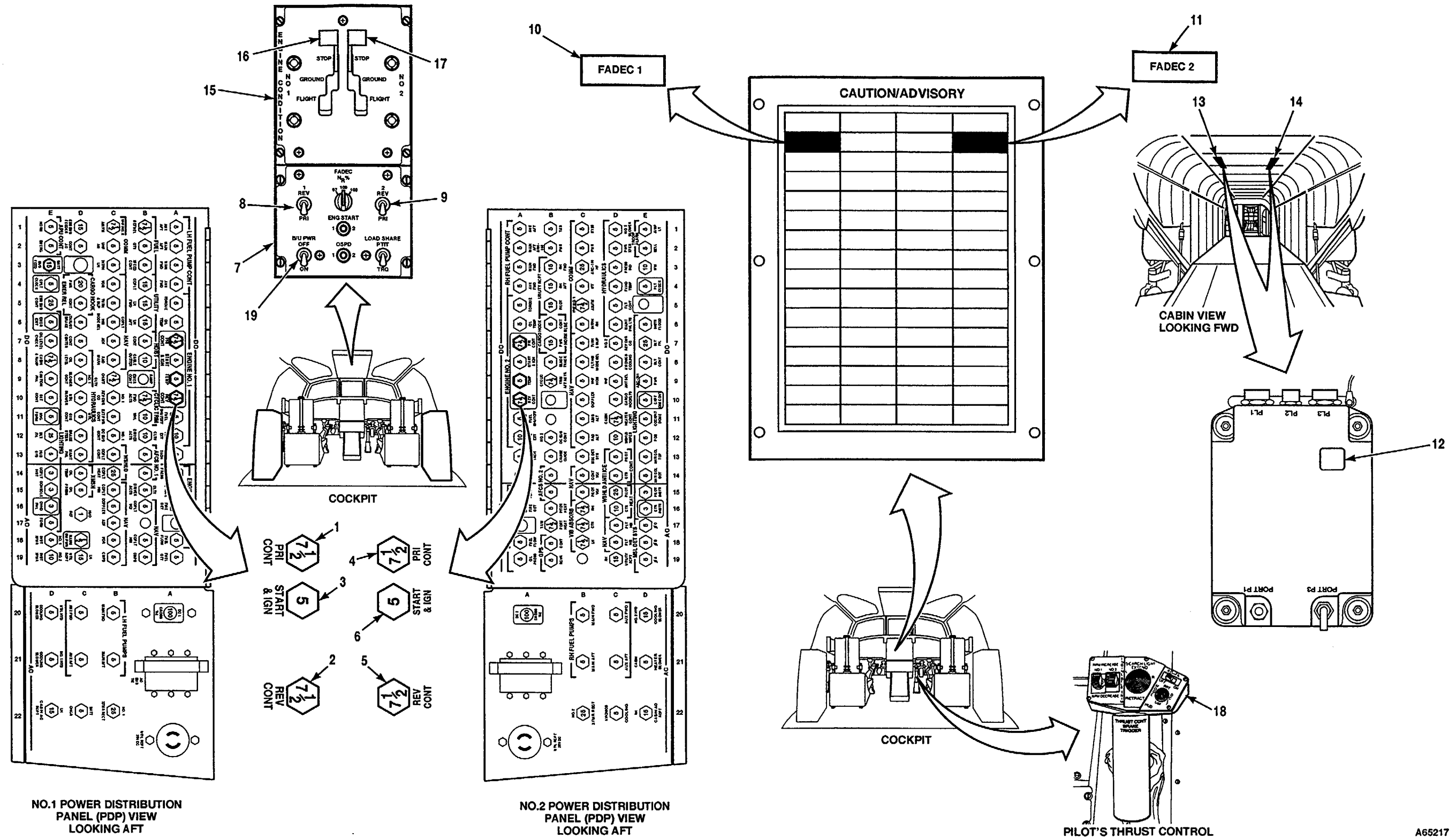
TASK	RESULT
10. <b>Close ENGINE NO. 2 REV CONT circuit breaker (5). Close ENGINE NO. 1 PRI CONT circuit breaker (1).</b>	Caution (11) shall illuminate.
11. <b>Move pilot's thrust control (18) through its range. Check fault display (12) on DECU No. 1 and No. 2 (13 and 14).</b>	Fault display (12) on both DECU's (13 and 14) should show 88. If not, copy code and refer to Table 1 for maintenance action.
12. On ENGINE CONDITION quadrant (15), <b>move NO. 1 and NO. 2 levers (16 and 17) to STOP.</b>	

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:  
Hydraulic power off.  
Electrical power off.  
Battery disconnected.

Table 1. DECU FAULT DISPLAY CODE MAINTENANCE ACTION

FAULT CODE	MAINTENANCE ACTION/ REFER TO TASK	FAULT CODE	MAINTENANCE ACTION/ REFER TO TASK
10 to 18	Replace DECU.	D0	Replace DECU.
1B and 1C	Replace DECU.	D1	Refer to task 4-12.33.
1E and 1F	Replace DECU	D2	Refer to task 4-12.34.
A1	Refer to task 4-12.8.	D3 to D9	Replace DECU.
A2	Refer to task 4-12.9.	DA to DD	Replace DECU.
A3	Refer to task 4-12.10.	DE	Refer to task 4-12.35.
A4	Refer to task 4-12.11.	DF	Replace DECU.
A5	Refer to task 4-12.12.	E1	Refer to task 4-12.19.
A6	Refer to task 4-12.13.	E2	Refer to task 4-12.20.
A7	Refer to task 4-12.14.	E3	Refer to task 4-12.21.
B2	Refer to task 4-12.24.	E4	Refer to task 4-12.22.
B3	Refer to task 4-12.22.	E5	Replace N2 Sensor.
B4	Refer to task 4-12.19.	F1	Refer to task 4-12.23.
B5	Refer to task 4-12.10.	F2	Refer to task 4-12.24.
B6	Refer to task 4-5.4.	F3	Replace HMU.
B7	Refer to task 4-12.27.	F4	Refer to task 4-12.25.
B9	Replace DECU.	F5	Refer to task 4-12.26.
BA to BC	Replace DECU.	F6	Refer to task 4-12.27.
C1 to C8	Refer to task 4-12.15 or 4-12.16.	F7	Refer to task 4-12.28.
and CF	Refer to task 4-12.15 or 4-12.16.	F8	Refer to task 4-12.29.
C1 to C8	Replace other DECU.	F9	Refer to task 4-12.30.
C9	Refer to task 4-12.17 or 4-12.18.	FA	Refer to task 4-12.31.
CF	Replace other DECU.	FB	Refer to task 4-12.32.



A65217



4-12.5 ENGINE NO. 1 OR NO. 2 PRI CONT CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

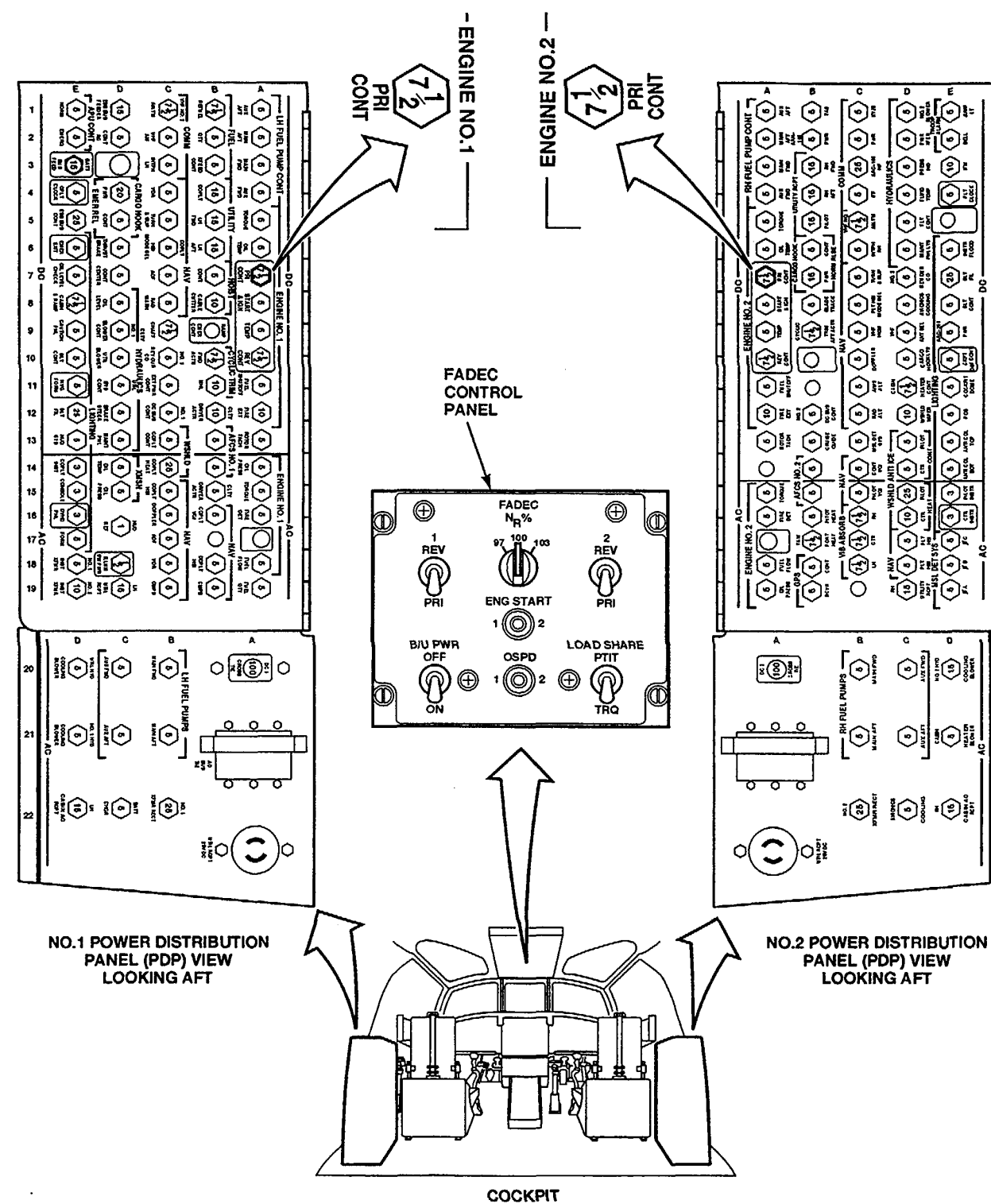
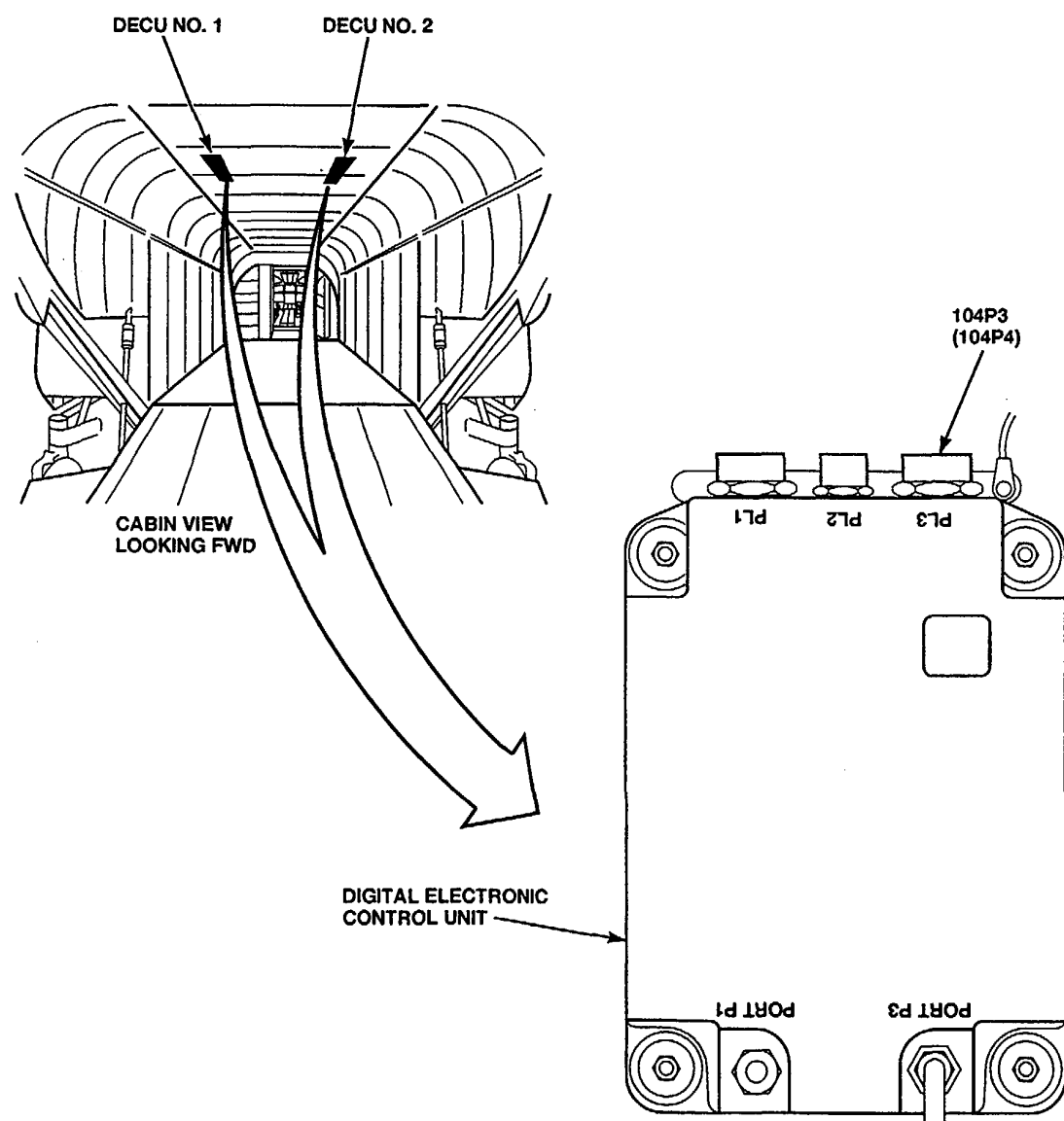
**Equipment Condition:**

TM 55-1520-240-23

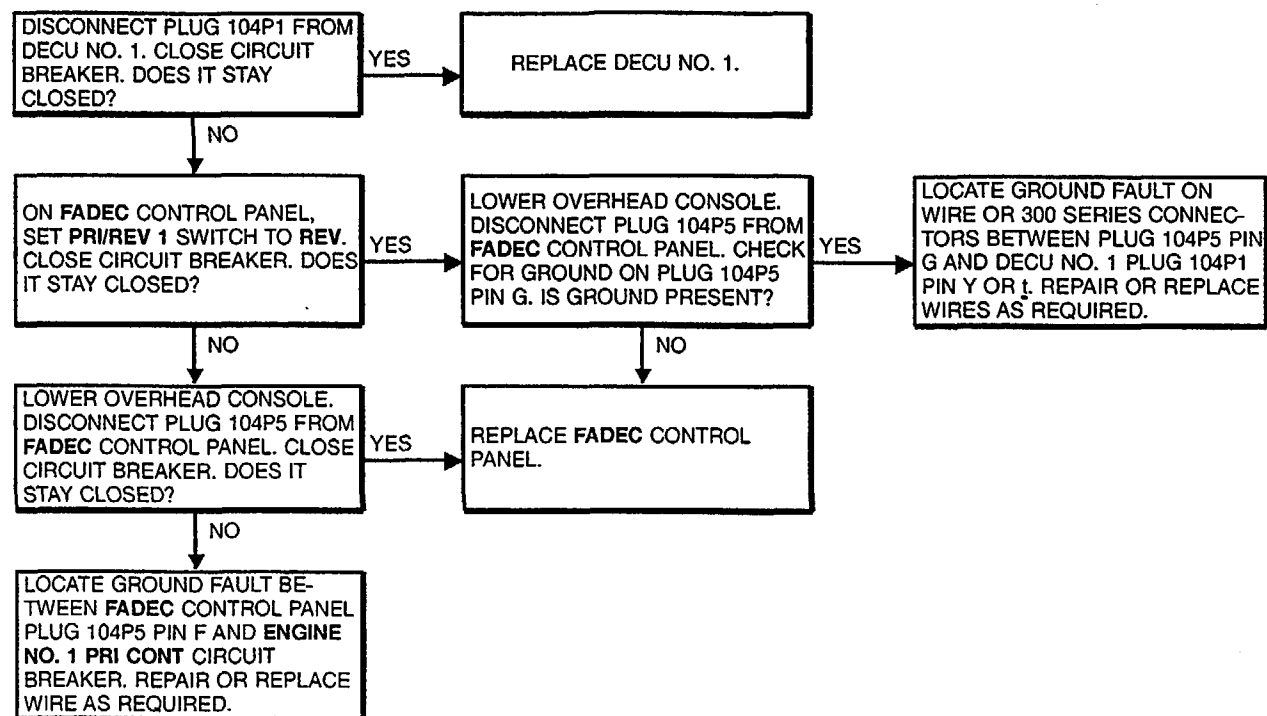
Battery Connected

Electrical Power On

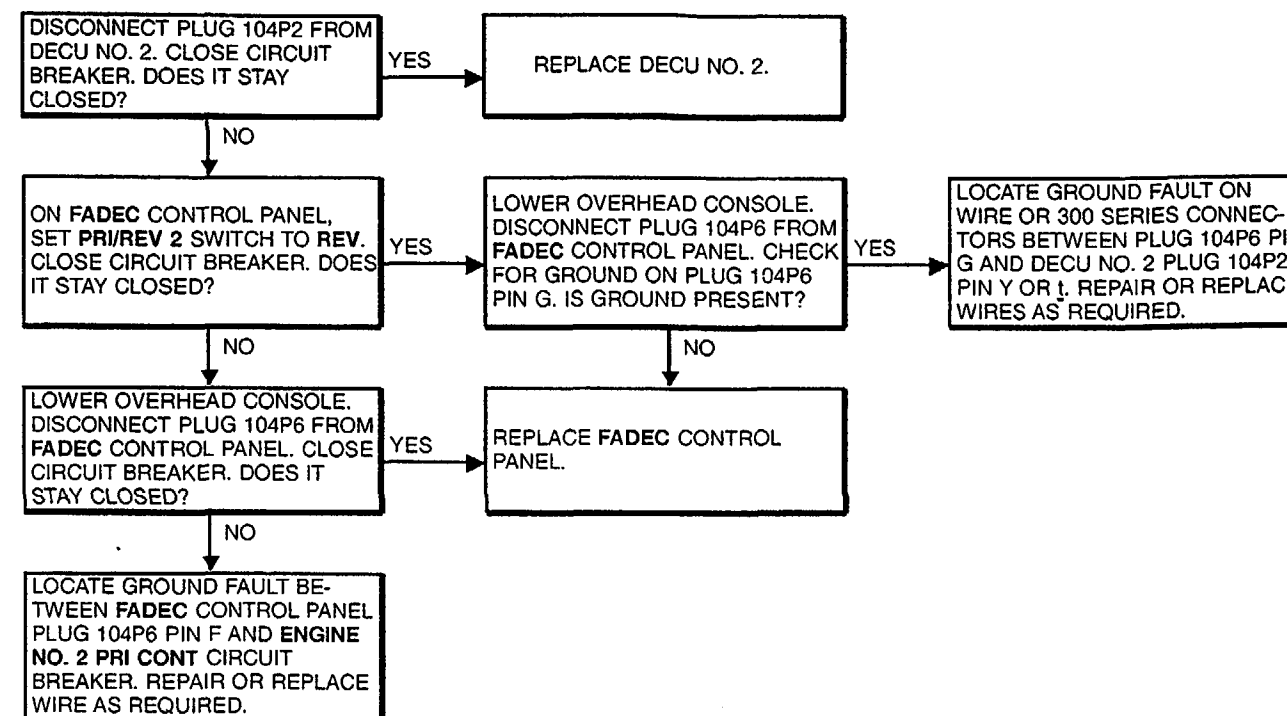
Hydraulic Power Off



**ENGINE NO. 1 PRI CONT CIRCUIT BREAKER WILL NOT STAY CLOSED**



**ENGINE NO. 2 PRI CONT CIRCUIT BREAKER WILL NOT STAY CLOSED**



4-12.6 ENGINE NO. 1 OR NO. 2 REV CONT CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

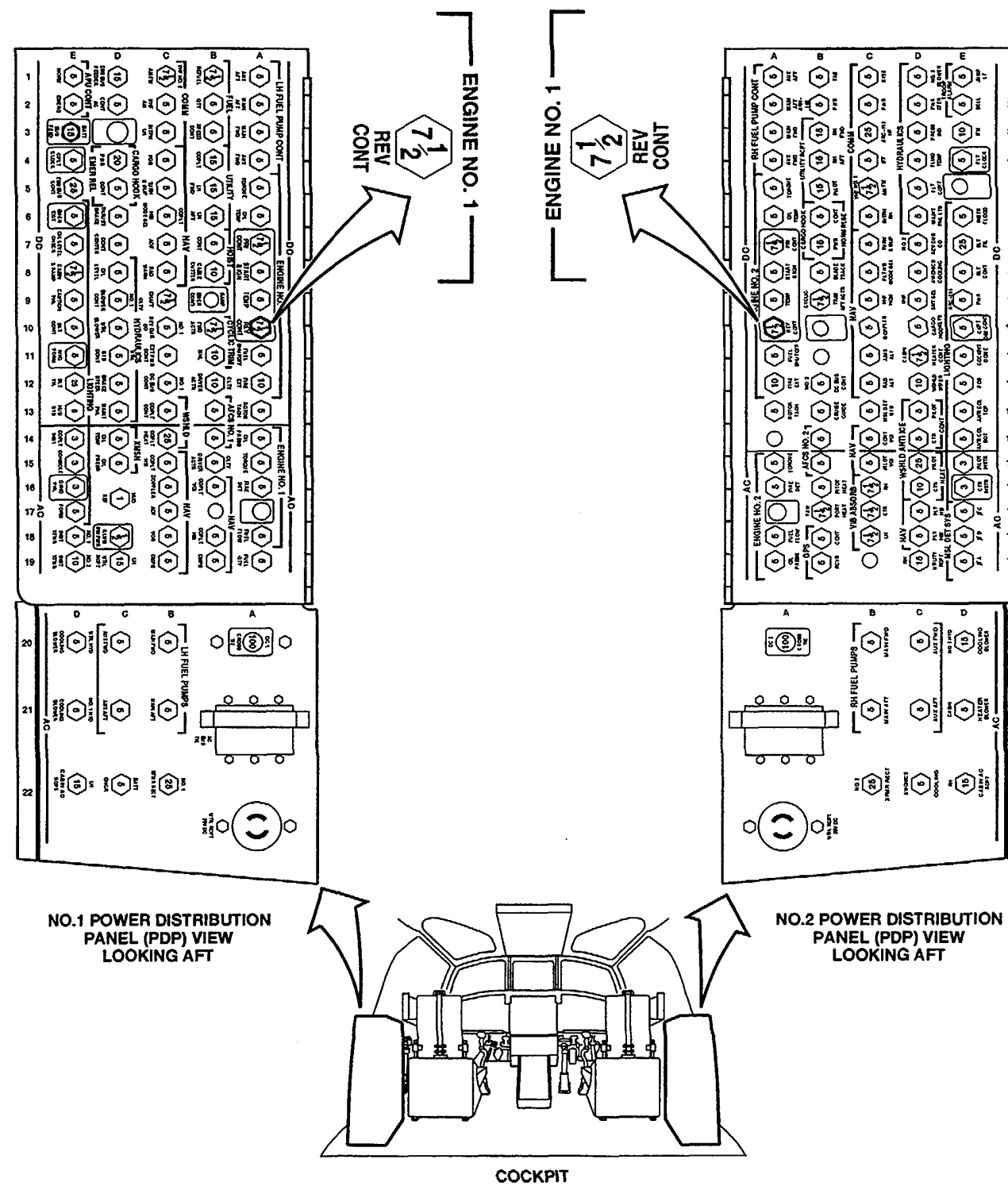
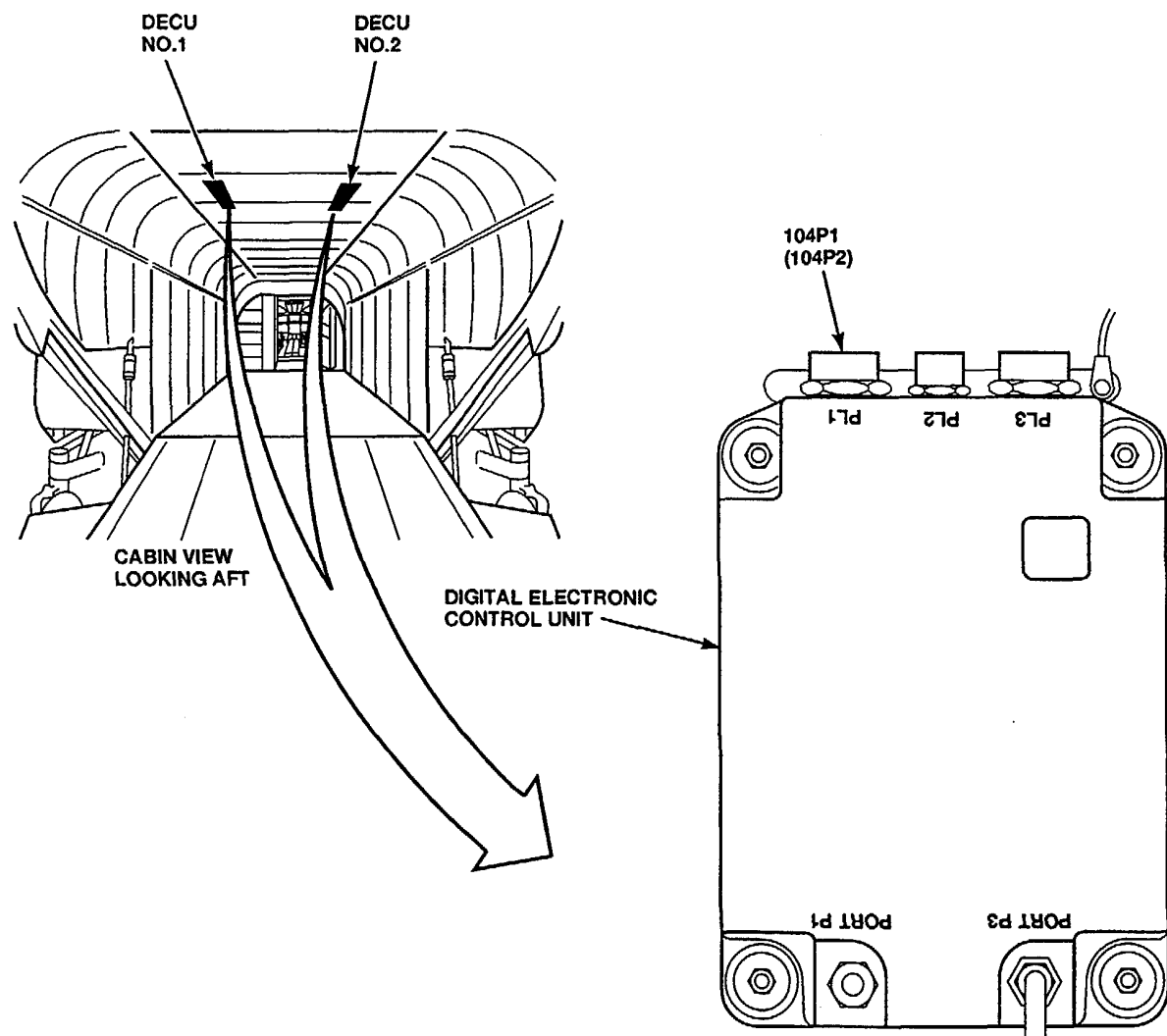
**Equipment Condition:**

TM 55-1520-240-23

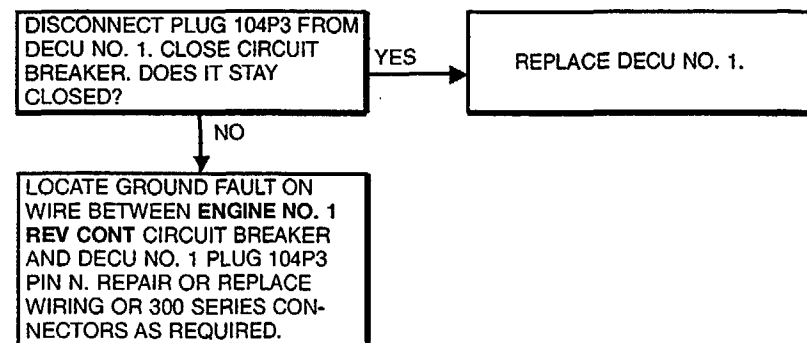
Battery Connected

Electrical Power On

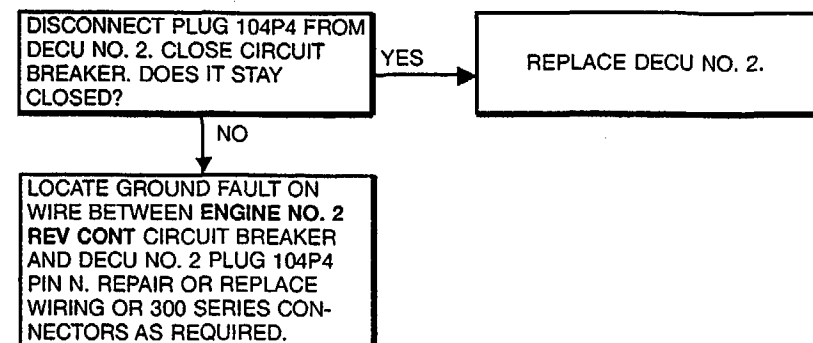
Hydraulic Power Off



**ENGINE NO. 1 REV CONT CIRCUIT BREAKER WILL NOT STAY CLOSED**



**ENGINE NO. 2 REV CONT CIRCUIT BREAKER WILL NOT STAY CLOSED**



4-12.7 FADEC 1 OR FADEC 2 CAPSULE ON MASTER CAUTION PANEL ILLUMINATES (ENGINE RUNNING NORMALLY IN PRI MODE)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

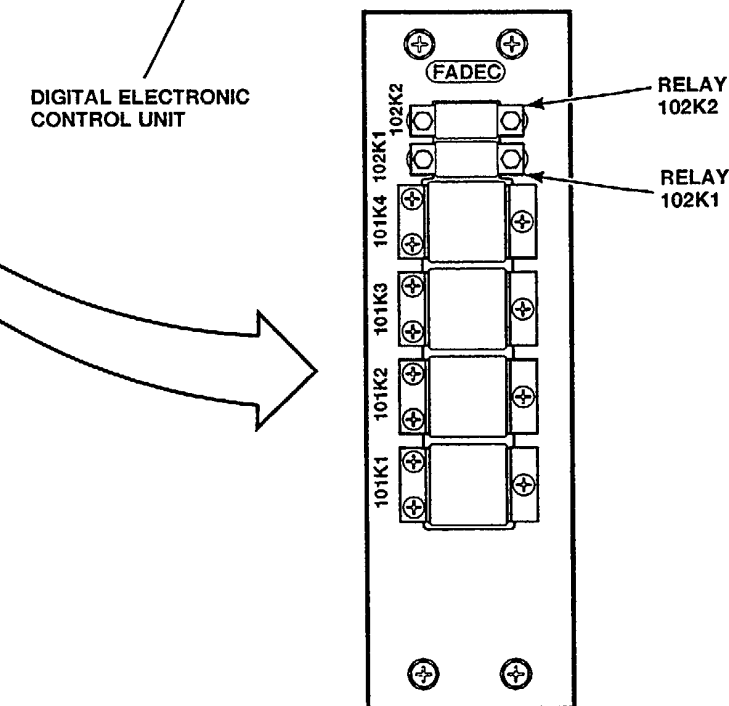
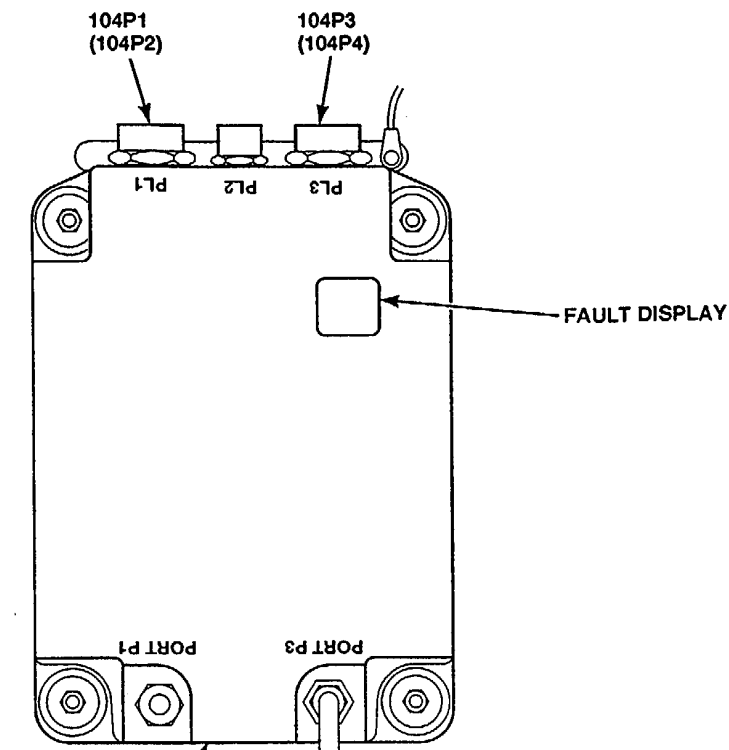
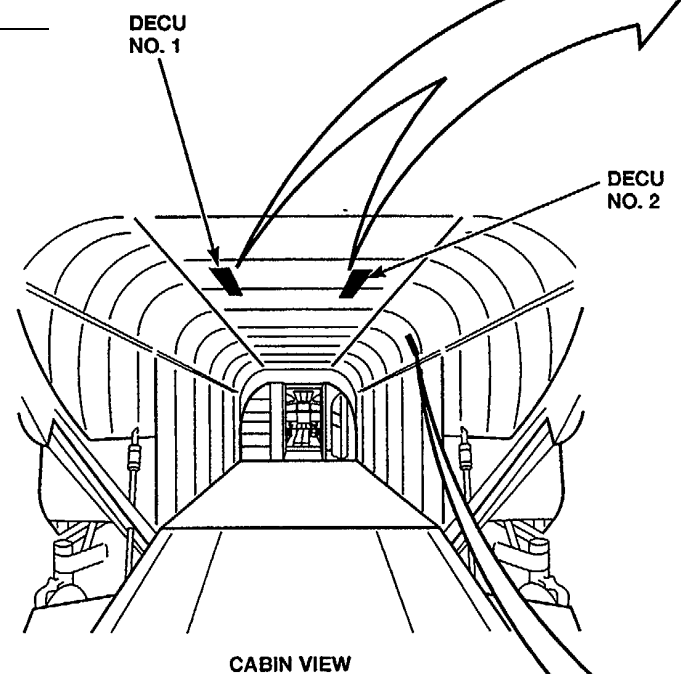
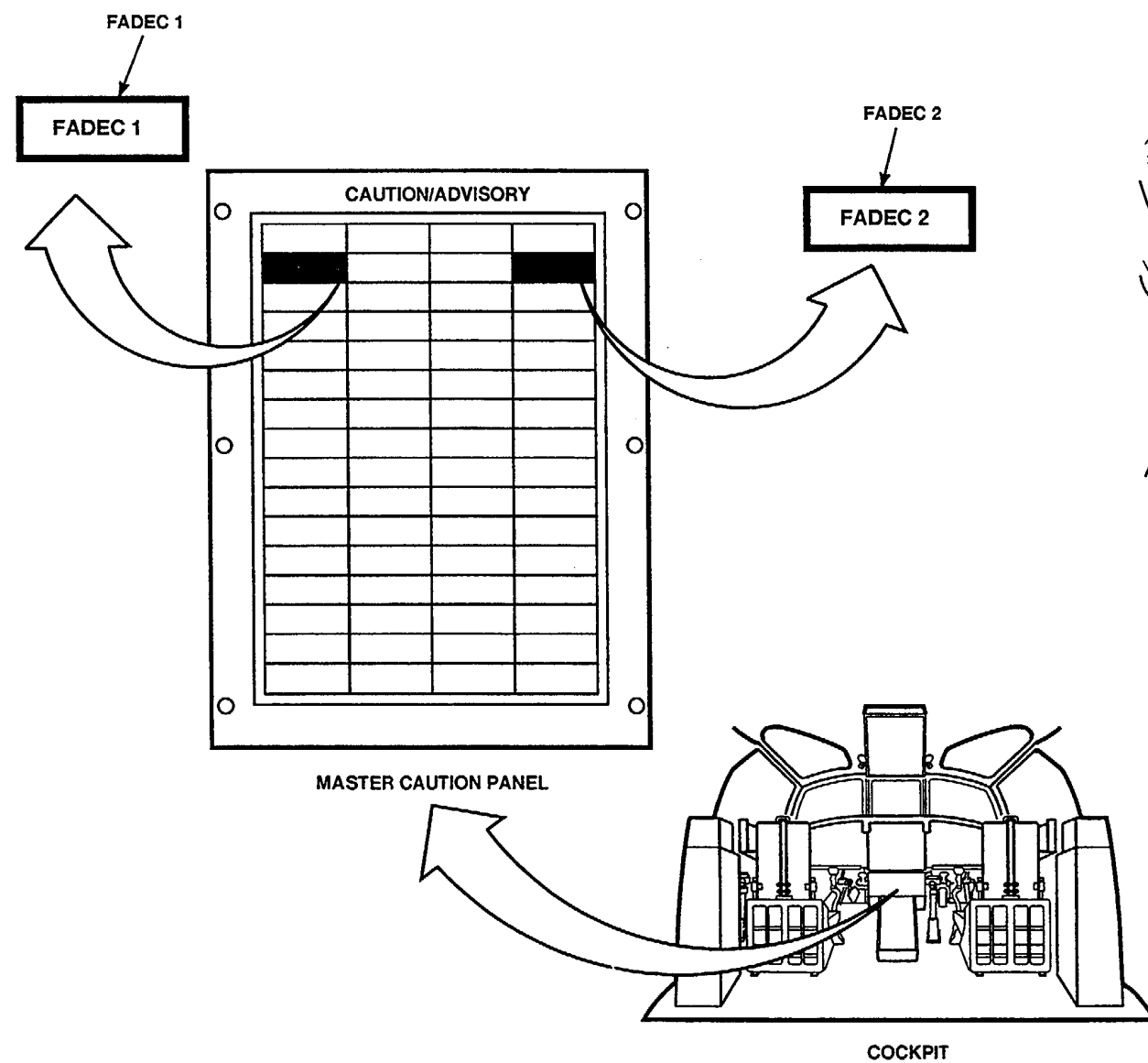
**Equipment Condition:**

TM 55-1520-240-23

Battery Connected

Electrical Power On

Hydraulic Power Off



STA 400, WL 40, LBL 48

A65206

4-12.7 FADEC 1 OR FADEC 2 CAPSULE ON MASTER CAUTION PANEL ILLUMINATES (ENGINE RUNNING NORMALLY IN PRI MODE) (Continued)

NOTE: Information in ( ) applies to DECU NO. 2.

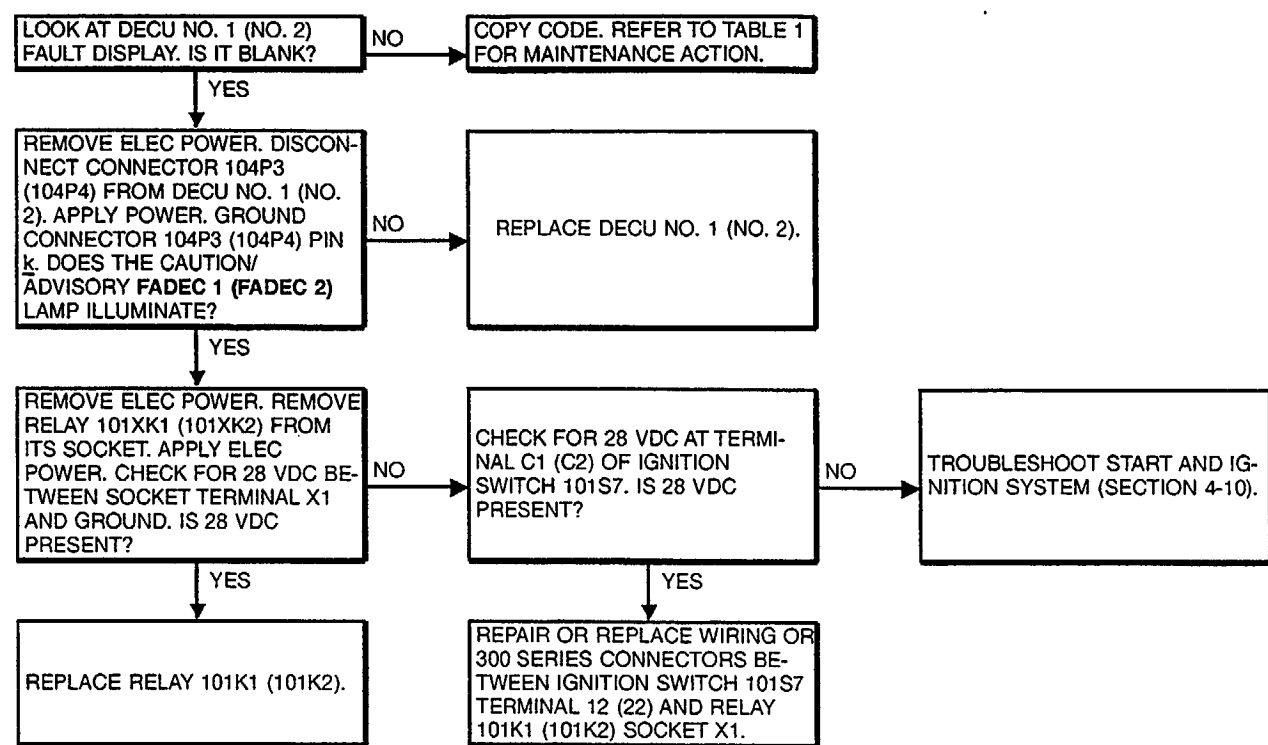


Table 1. DECU FAULT DISPLAY CODE MAINTENANCE ACTION

FAULT CODE	MAINTENANCE ACTION/ REFER TO TASK	FAULT CODE	MAINTENANCE ACTION/ REFER TO TASK
10 to 18	Replace DECU.	C9	Refer to task 4-12.17 or 4-12.18.
1B and 1C	Replace DECU.	CF	Replace other DECU.
1E and 1F	Replace DECU	D0	Replace DECU.
A1	Refer to task 4-12.8.	D1	Refer to task 4-12.33.
A2	Refer to task 4-12.9.	D2	Refer to task. 4-12.34.
A3	Refer to task 4-12.10.	D3 to D9	Replace DECU.
A4	Refer to task 4-12.11.	DA to DD	Replace DECU.
A5	Refer to task 4-12.12.	DE	Refer to task 4-12.35
A6	Refer to task 4-12.13.	DF	Replace DECU.
A7	Refer to task 4-12.14.	E1	Refer to task 4-12.19.
B2	Refer to task 4-12.24.	E2	Refer to task 4-12.20.
B3	Refer to task 4-12.22.	E3	Refer to task 4-12.21.
B4	Refer to task 4-12.19.	E4	Refer to task 4-12.22.
B5	Refer to task 4-12.10.	E5	Replace N2 Sensor.
B6	Refer to task 4-11.4.	F1	Refer to task 4-12.23.
B7	Refer to task 4-12.27.	F2	Refer to task 4-12.24.
B9	Replace DECU.	F3	Replace HMU.
BA to BC	Replace DECU.	F4	Refer to task 4-12.25.
C1 to C8 and CF	Refer to task 4-12.15 or 4-12.16.	F5	Refer to task 4-12.26.
C1	Replace other DECU.	F6	Refer to task 4-12.27.
C2	Replace other DECU.	F7	Refer to task 4-12.28.
C3	Replace other DECU.	F8	Refer to task 4-12.29.
C4	Replace other DECU.	F9	Refer to task 4-12.30.
C5	Replace other DECU.	FA	Refer to task 4-12.31.
C6	Replace other DECU.	FB	Refer to task 4-12.32.
C7	Replace other DECU.		
C8	Replace other DECU.		

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

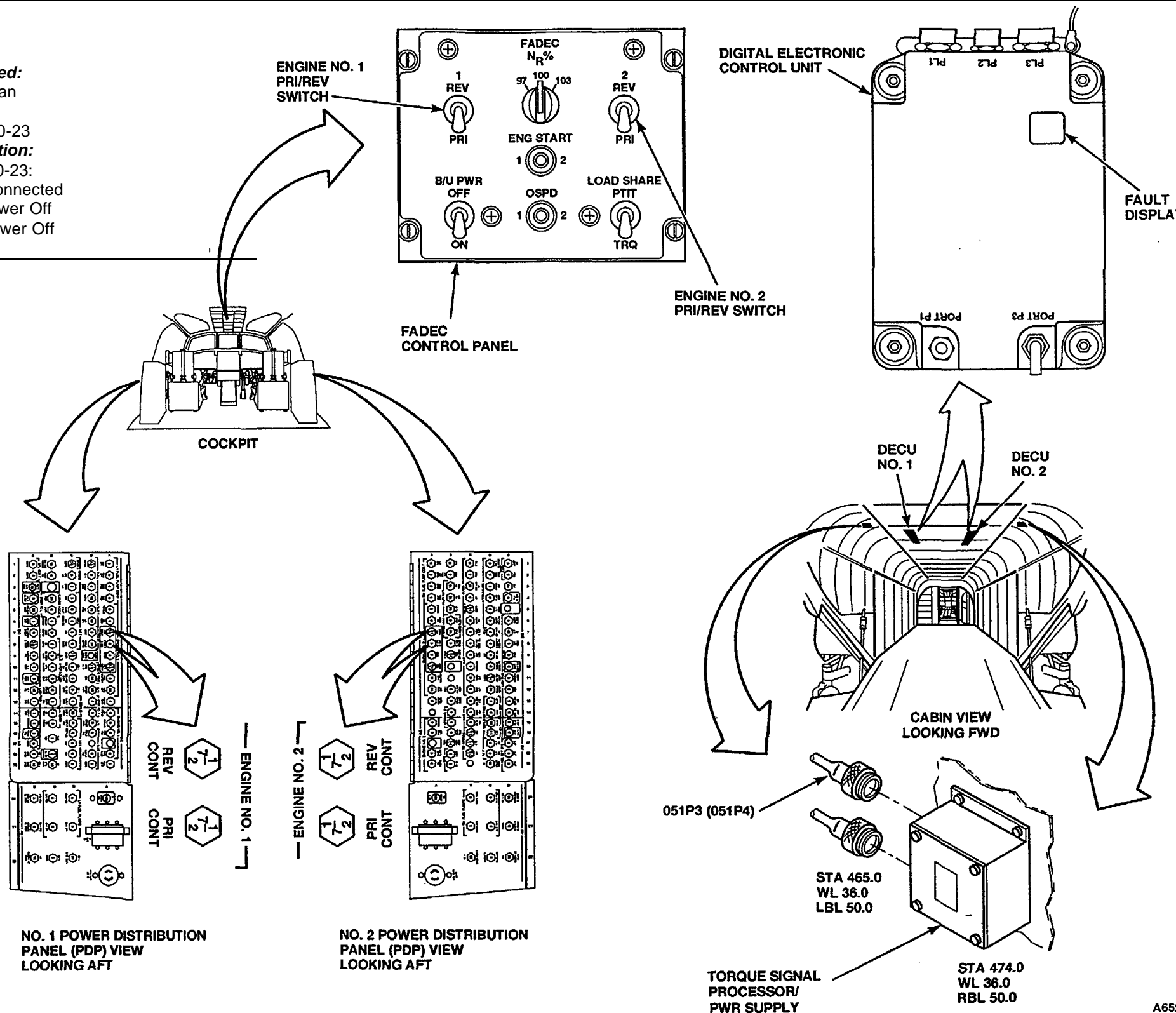
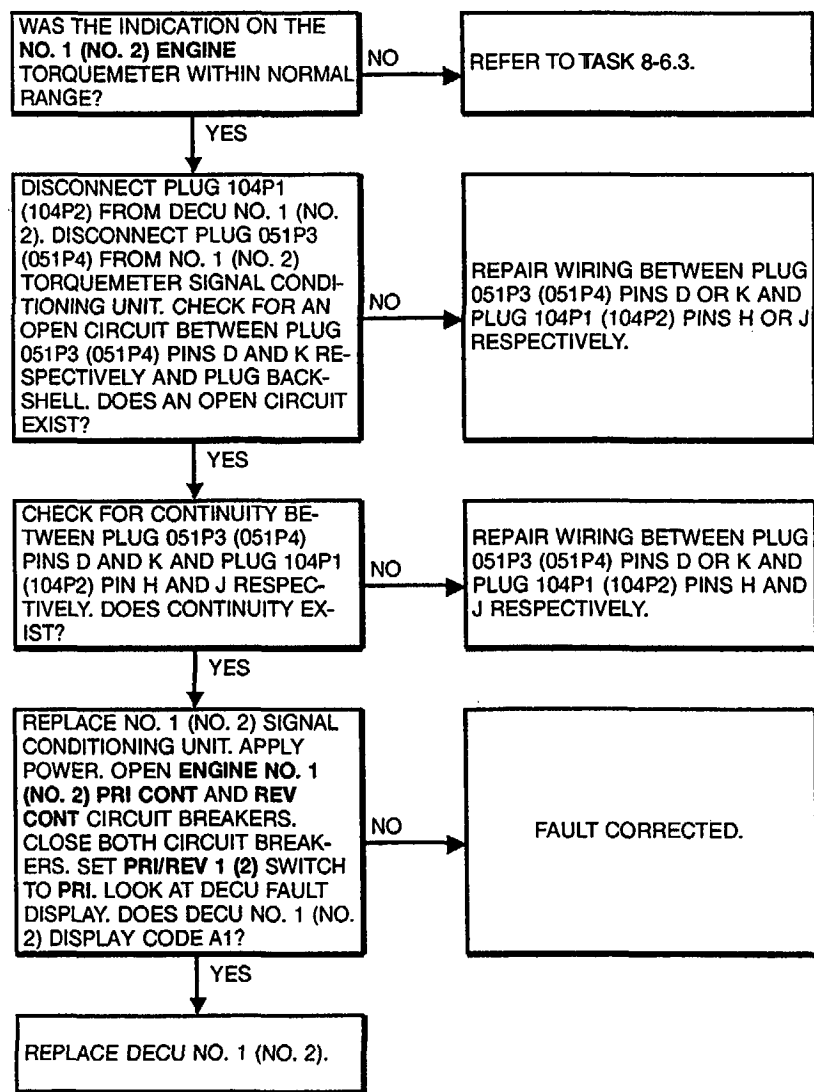
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician

**References**

TM 55-1520-240-23

**Equipment Condition:**

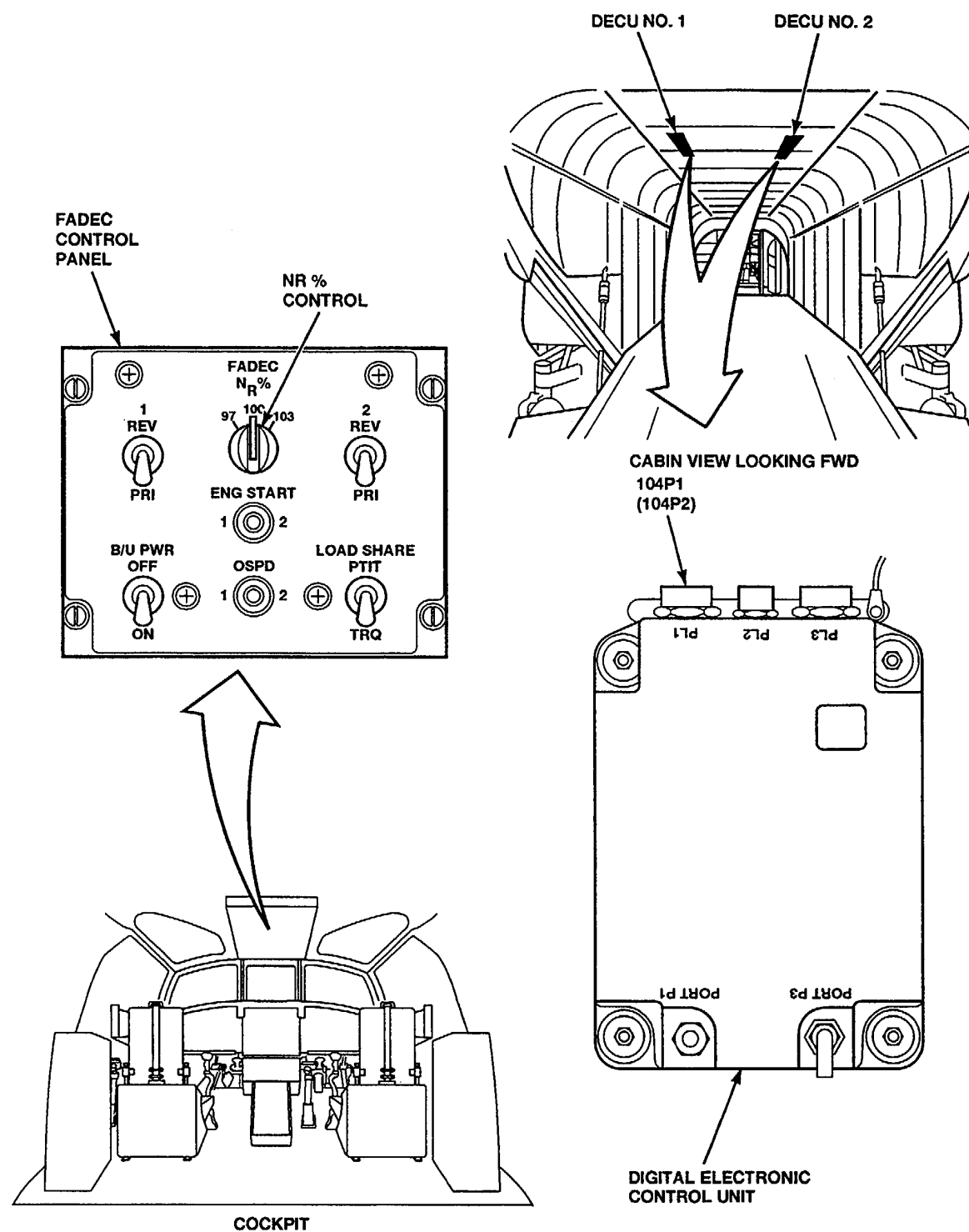
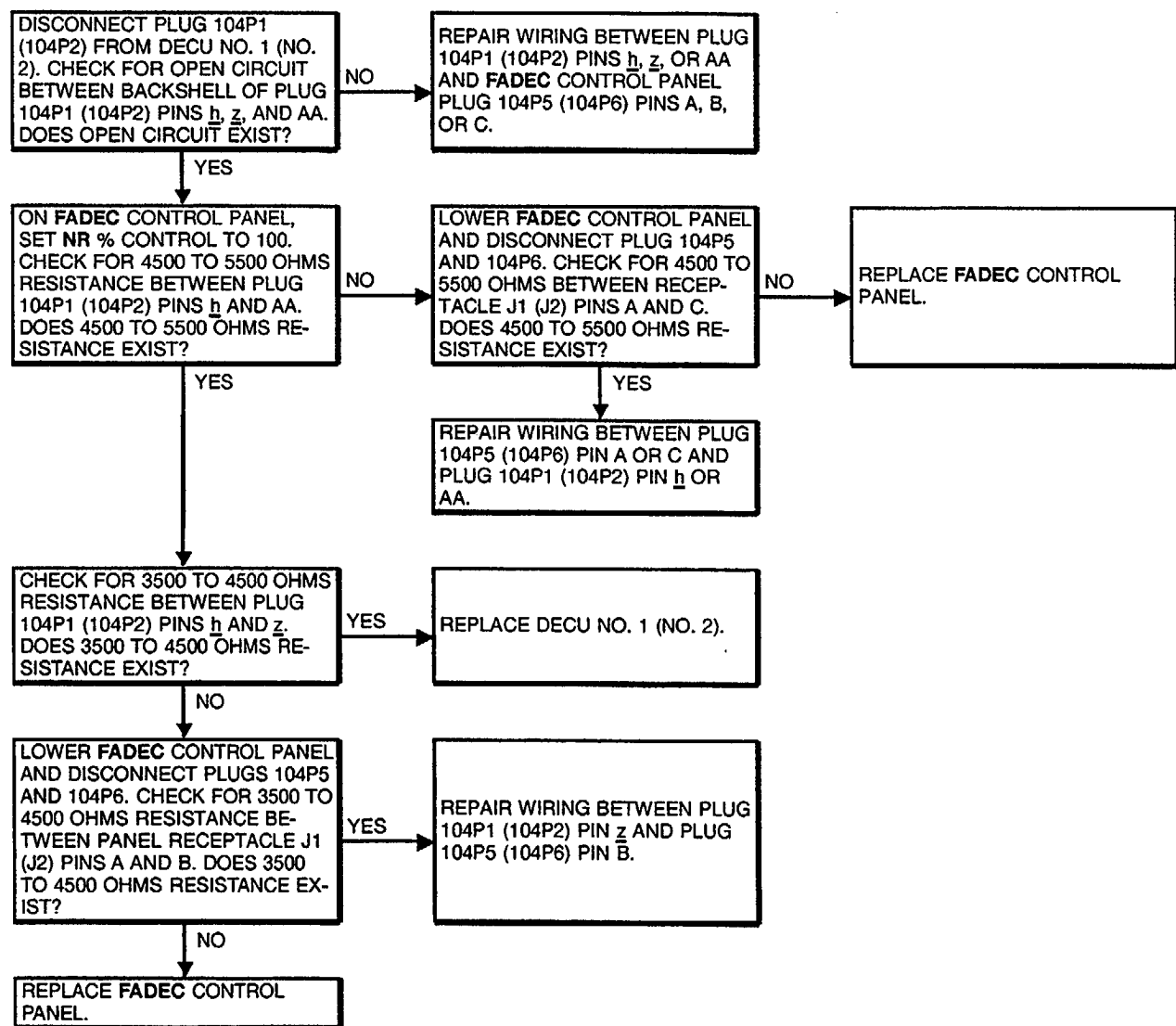
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

NOTE: Information in ( ) applies to DECU NO. 2.



A65212

END OF TASK

Change 17 4-277



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician

**References**

TM 55-1520-240-23

**Equipment Condition:**

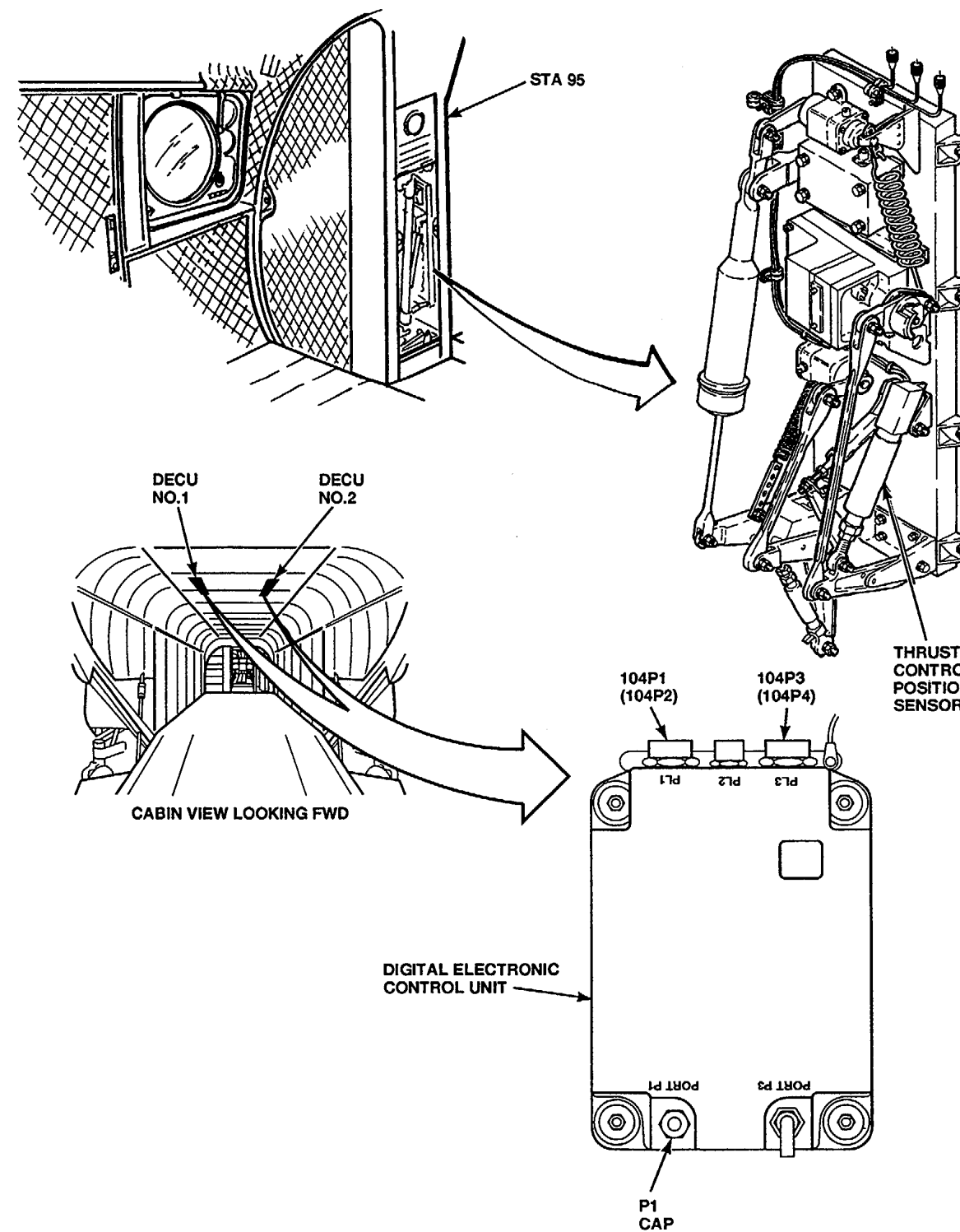
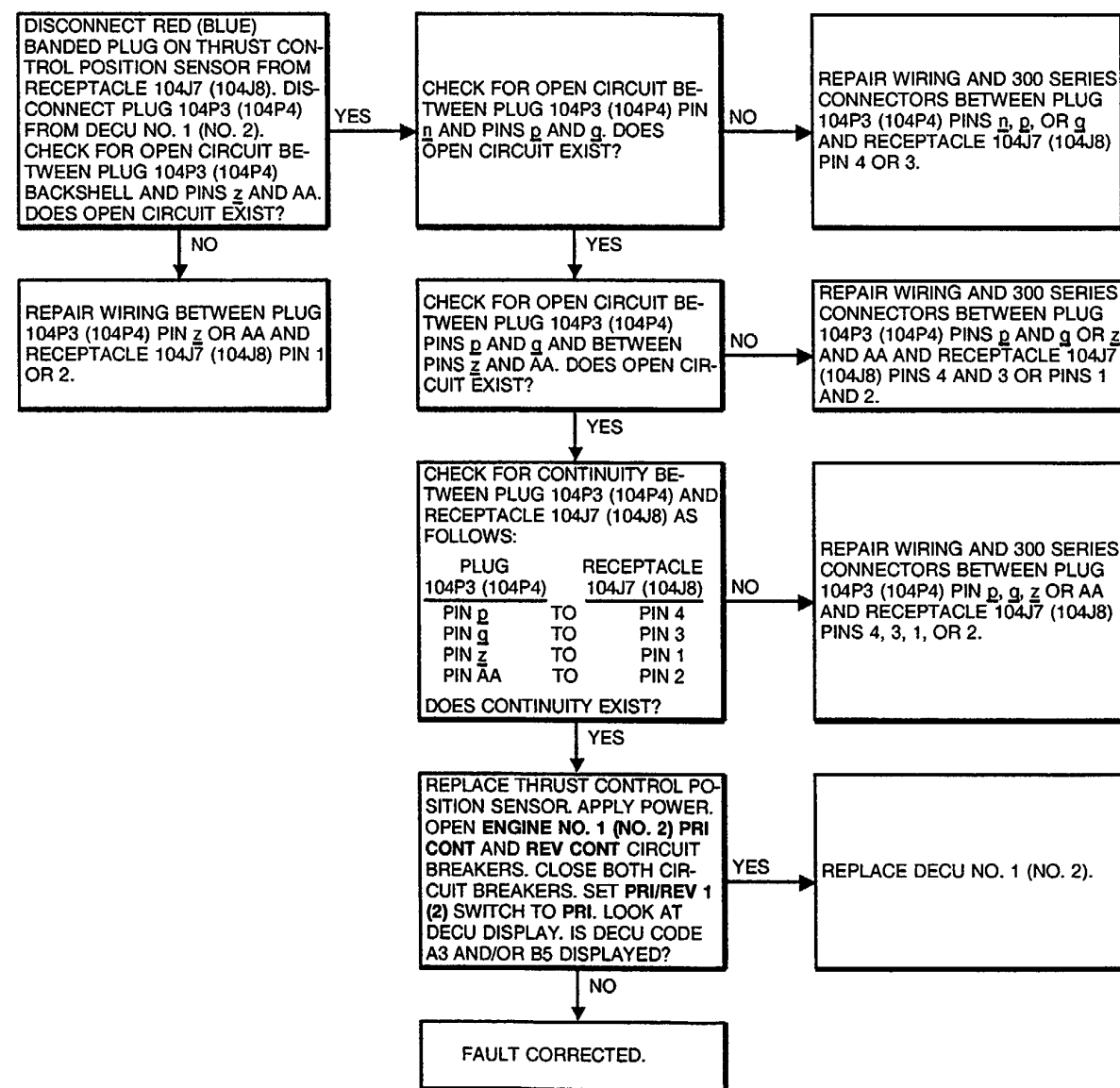
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

NOTE: Information in ( ) applies to DECU NO. 2.



A65208

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician  
**References**

TM 55-1520-240-23

**Equipment Condition:**

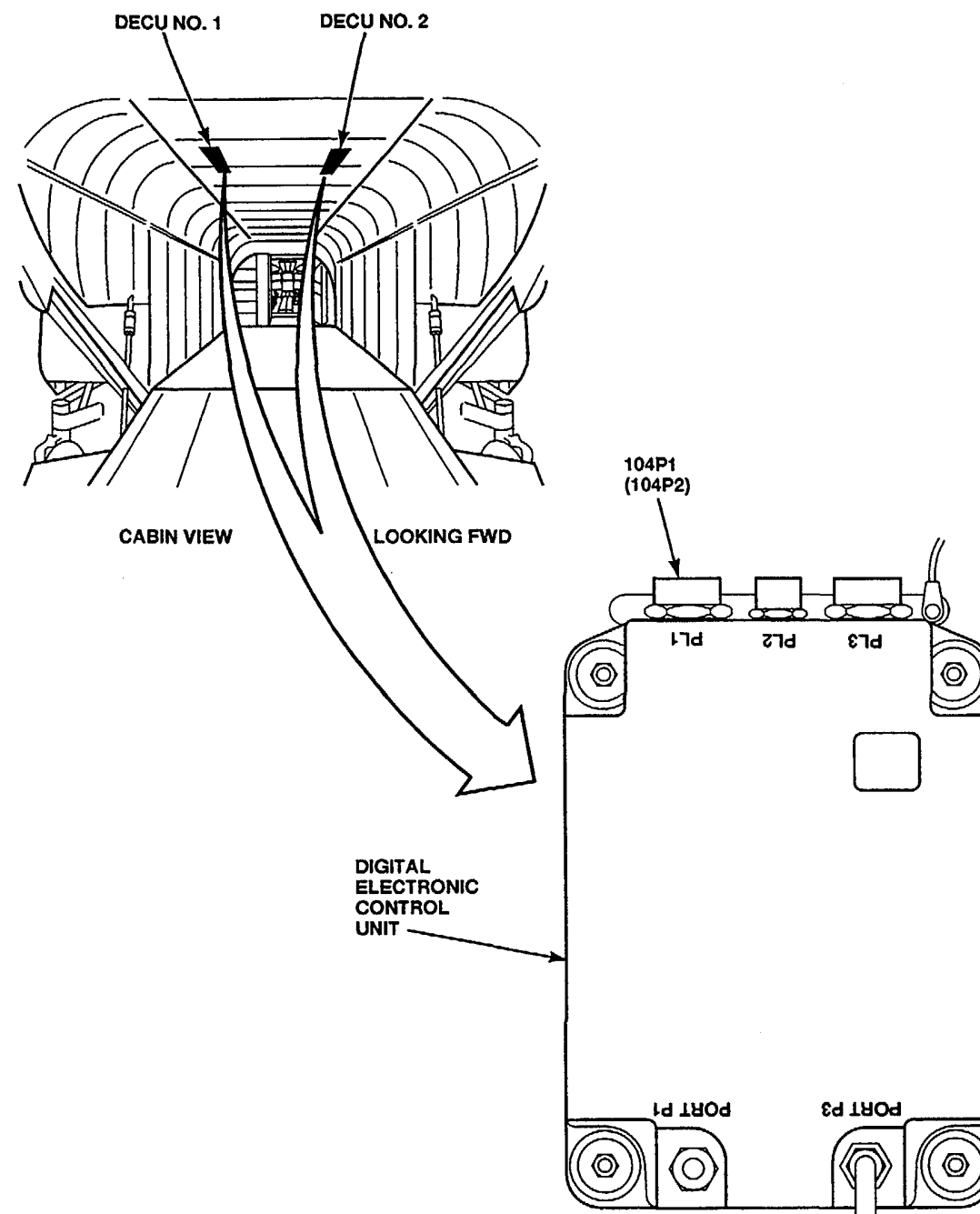
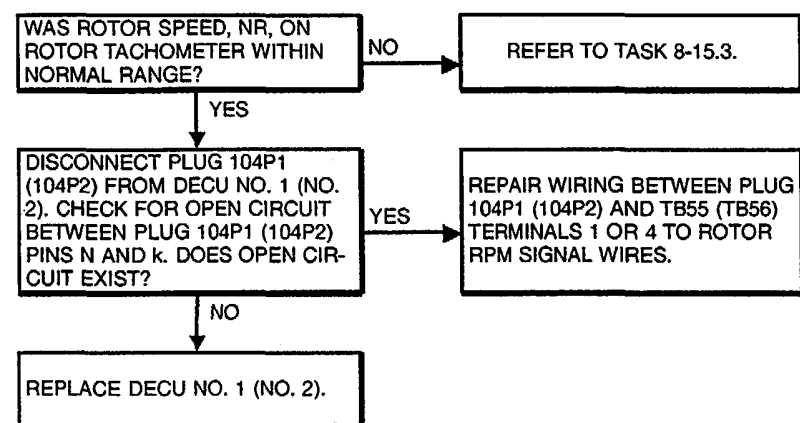
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65209

END OF TASK

Change 17 4-279

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician

**References**

TM 55-1520-240-23

**Equipment Condition:**

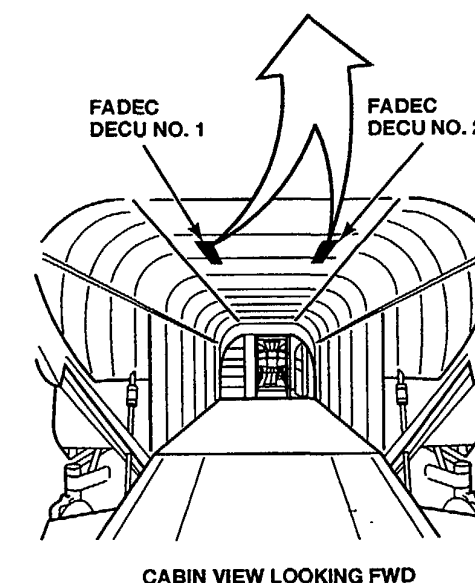
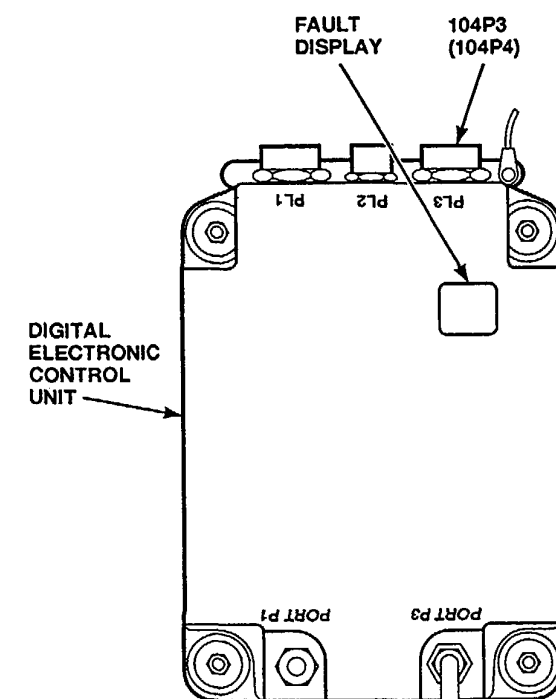
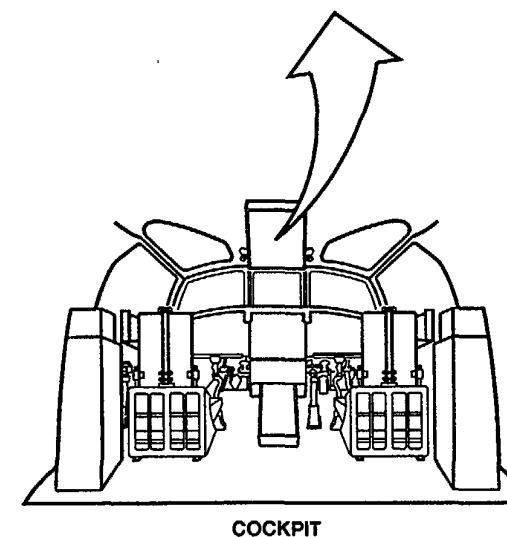
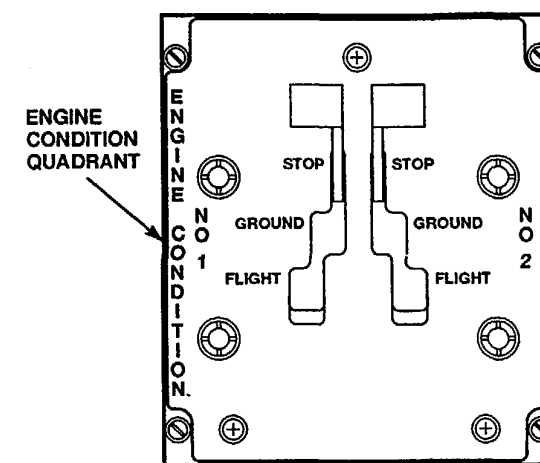
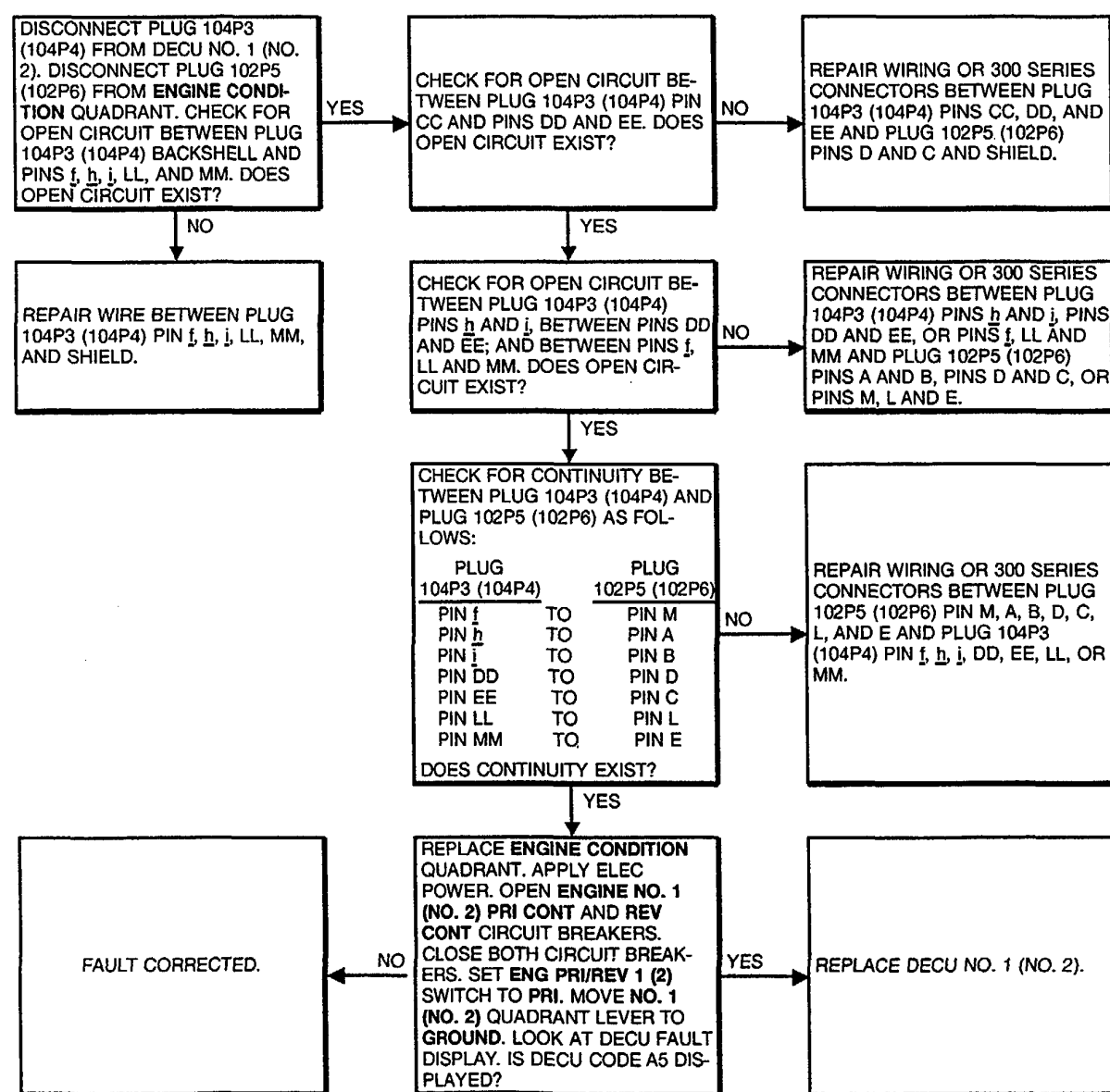
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

NOTE: Information in ( ) applies to DECU NO. 2.



A65207

4-12.13 DECU CODE A6

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician

**References**

TM 55-1520-240-23

**Equipment Condition:**

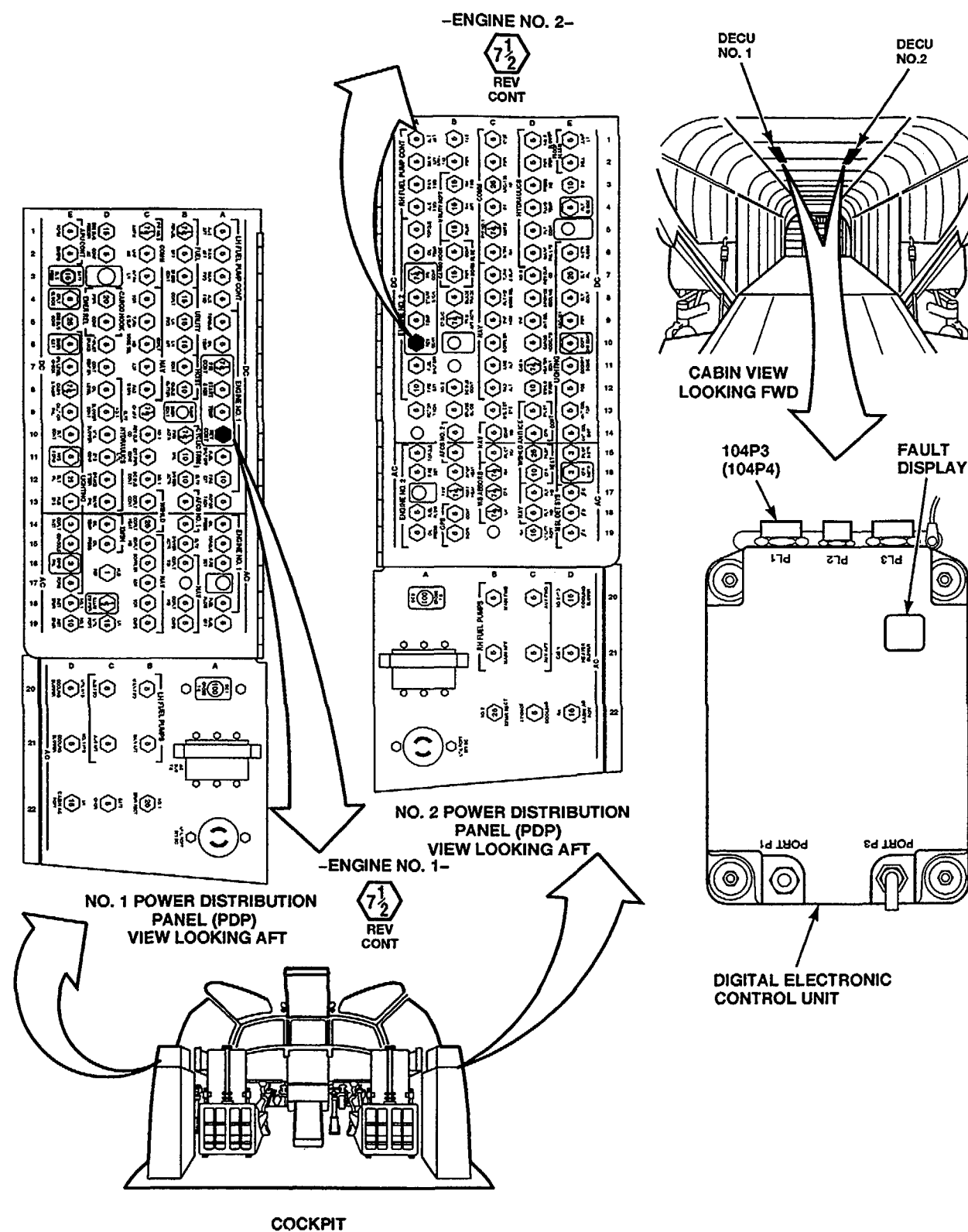
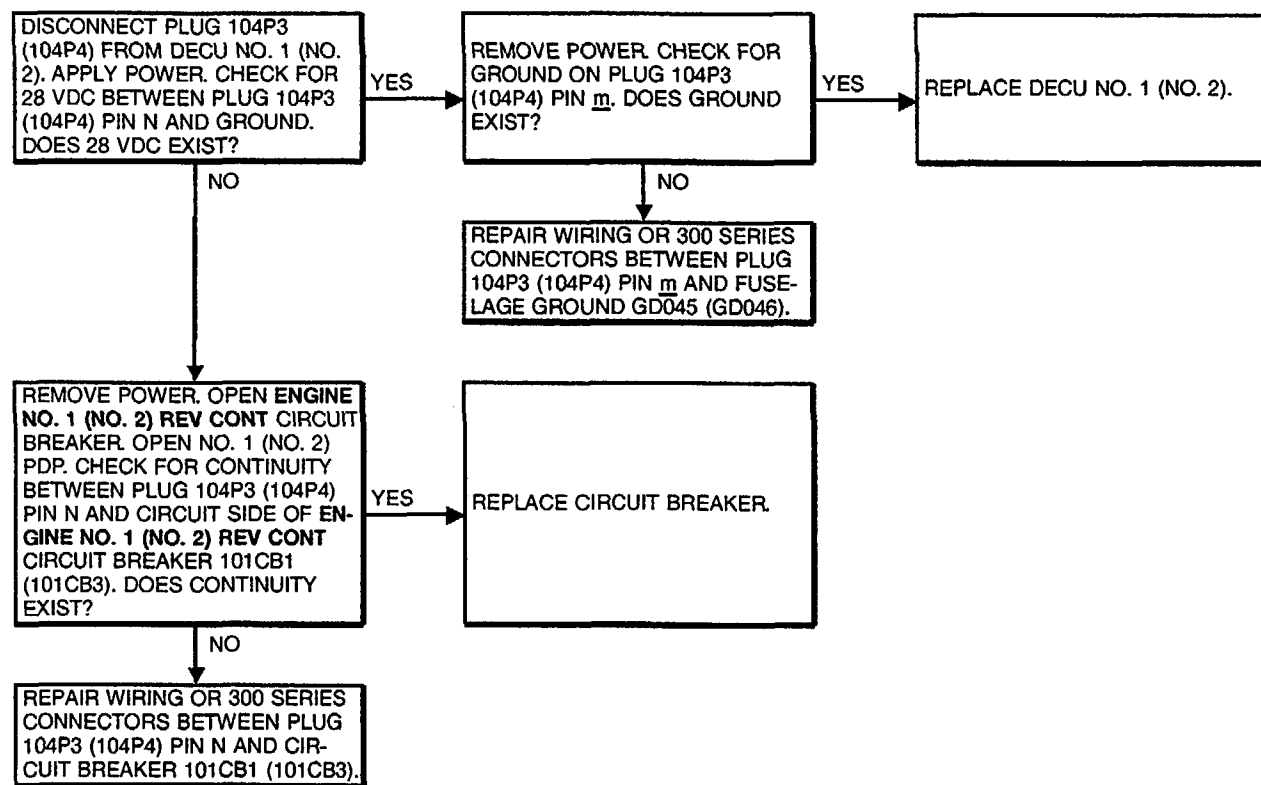
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

*NOTE: Information in ( ) applies to DECU NO. 2.*



A65225

END OF TASK

Change 17 4-281

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician

**References**

TM 55-1520-240-23

**Equipment Condition:**

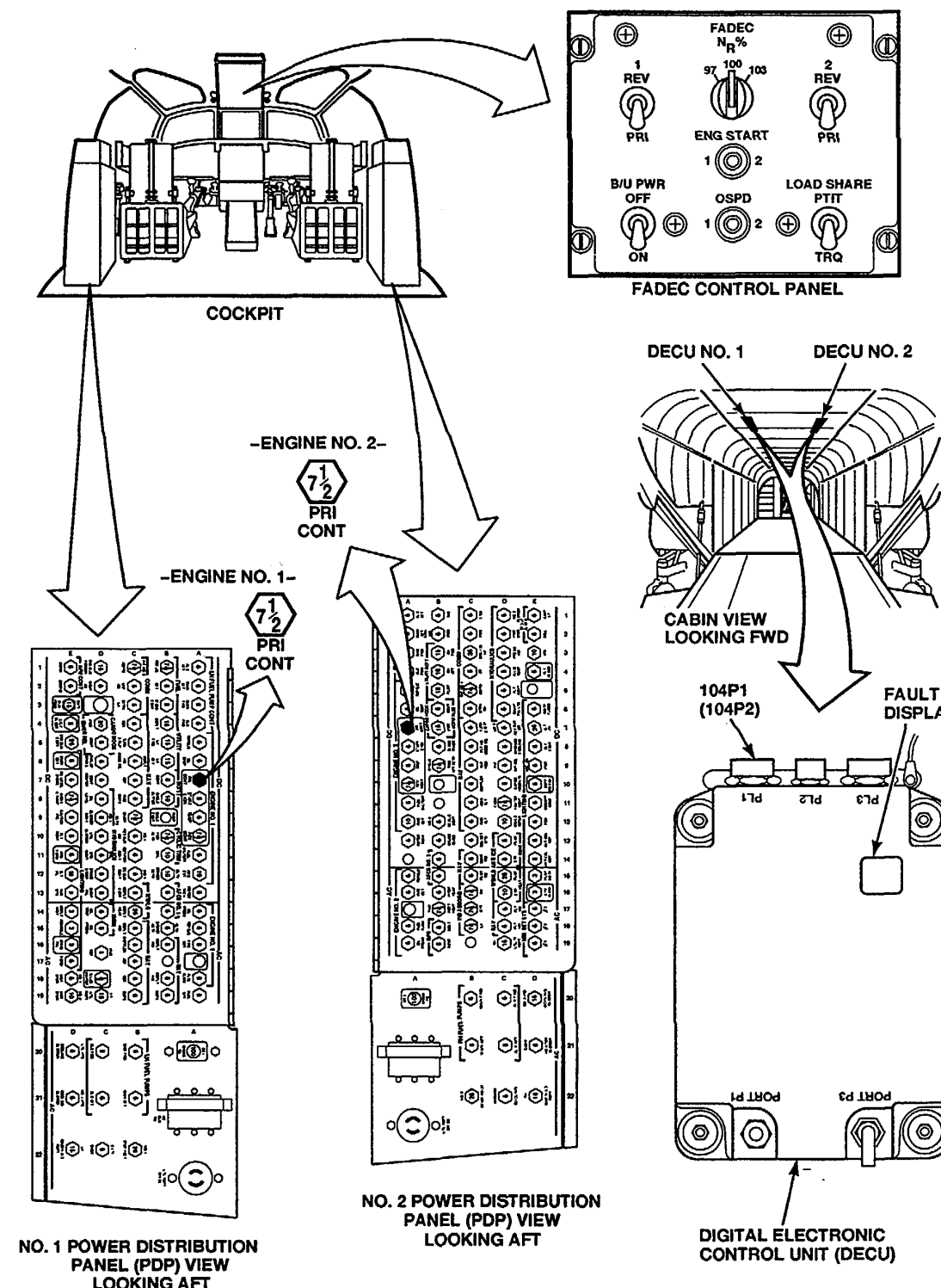
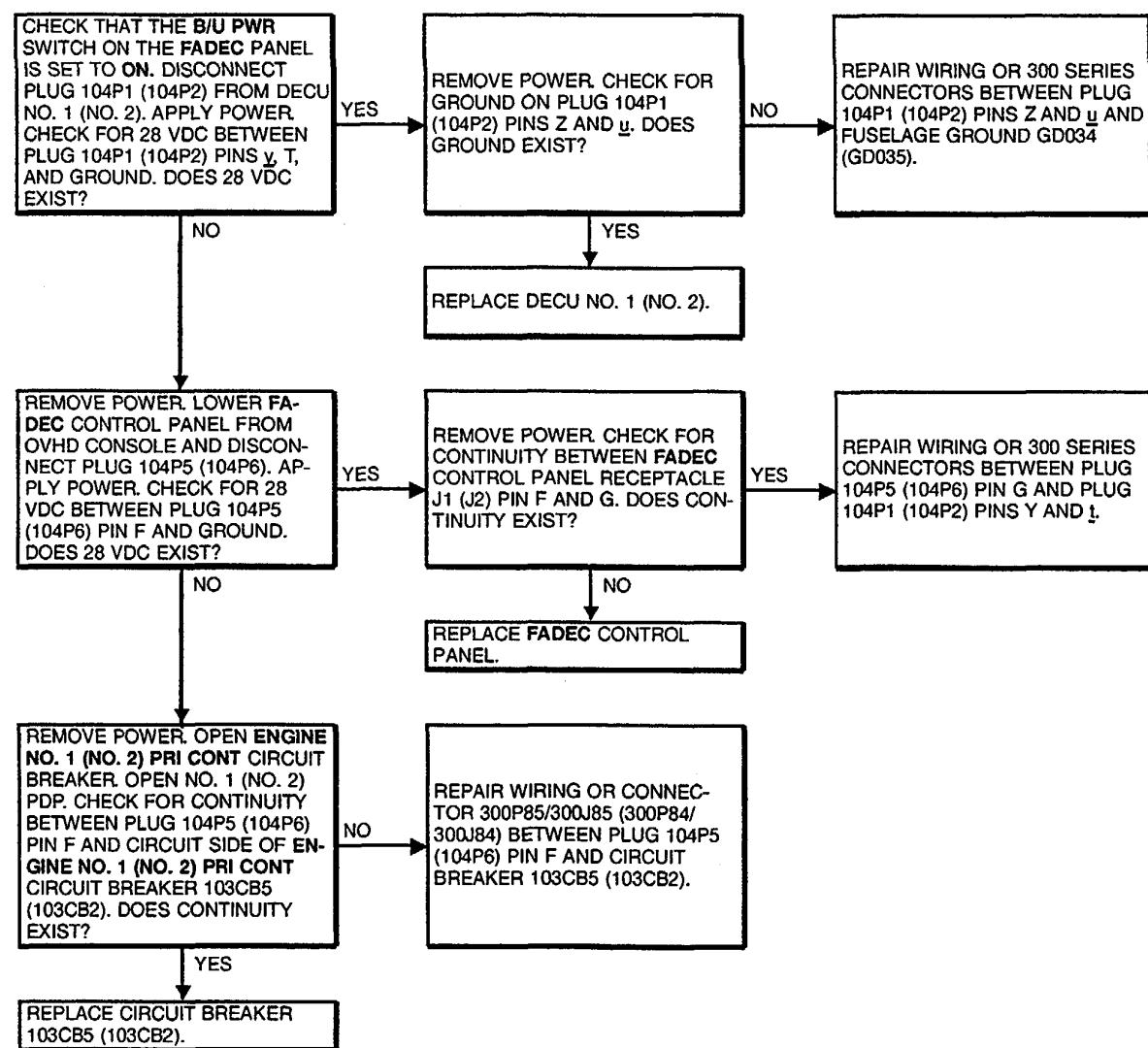
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off

NOTE: Information in ( ) applies to DECU NO. 2.



A65213

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

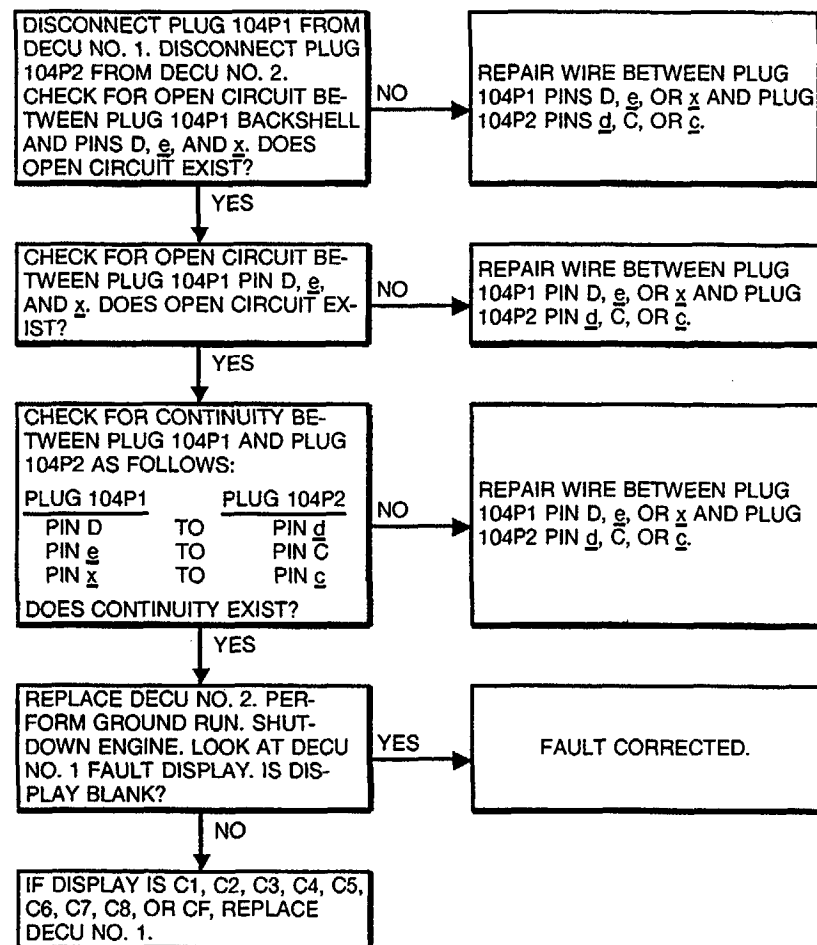
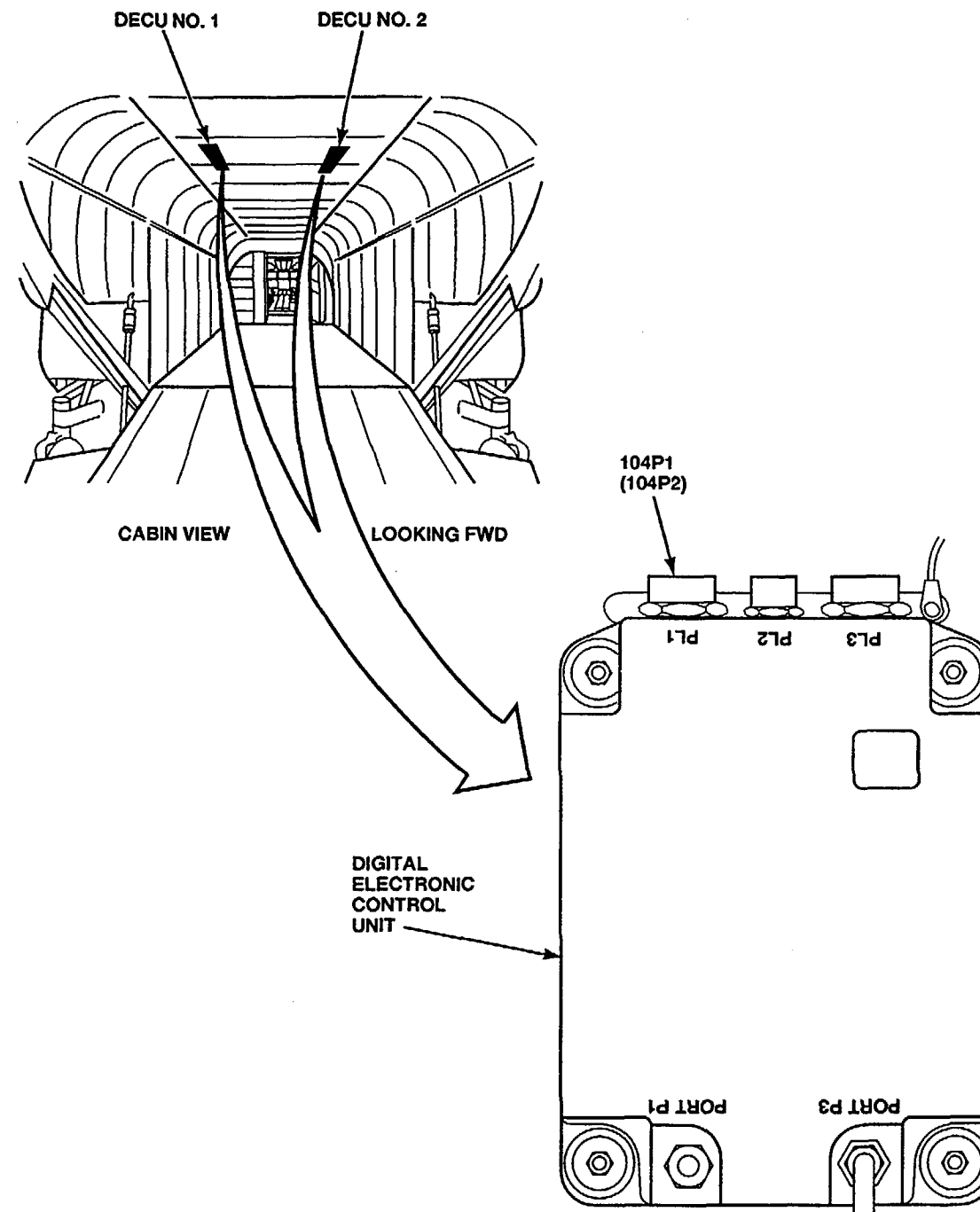
Aircraft Electrician  
Army Rotary-Wing Aviator

**References**

TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

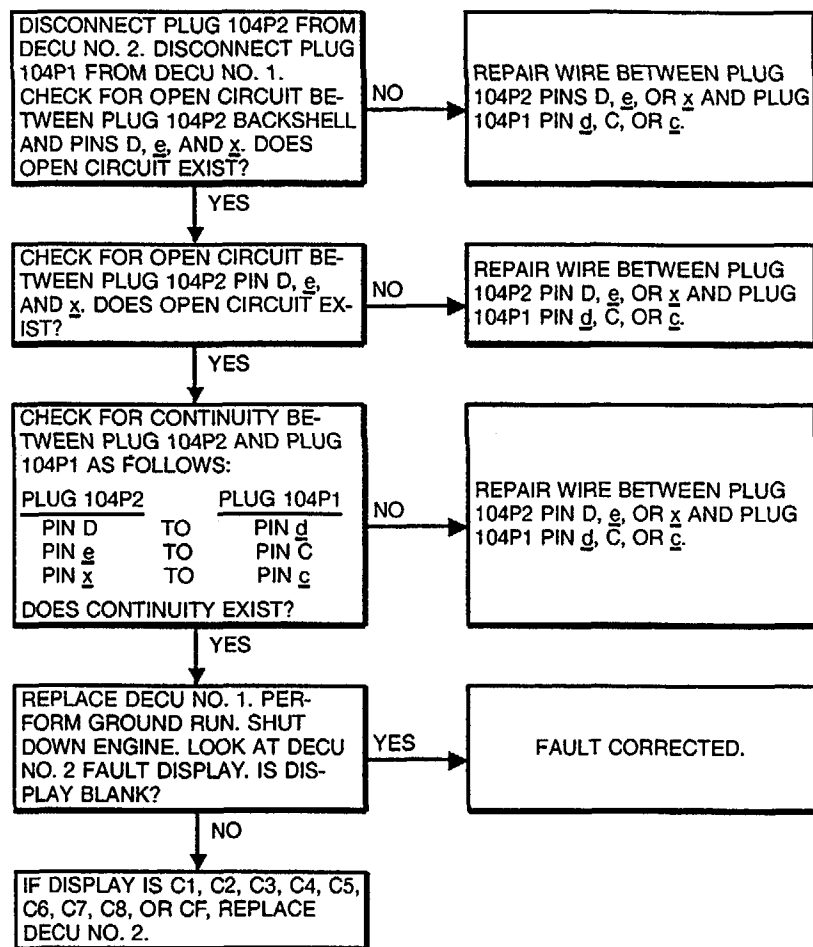
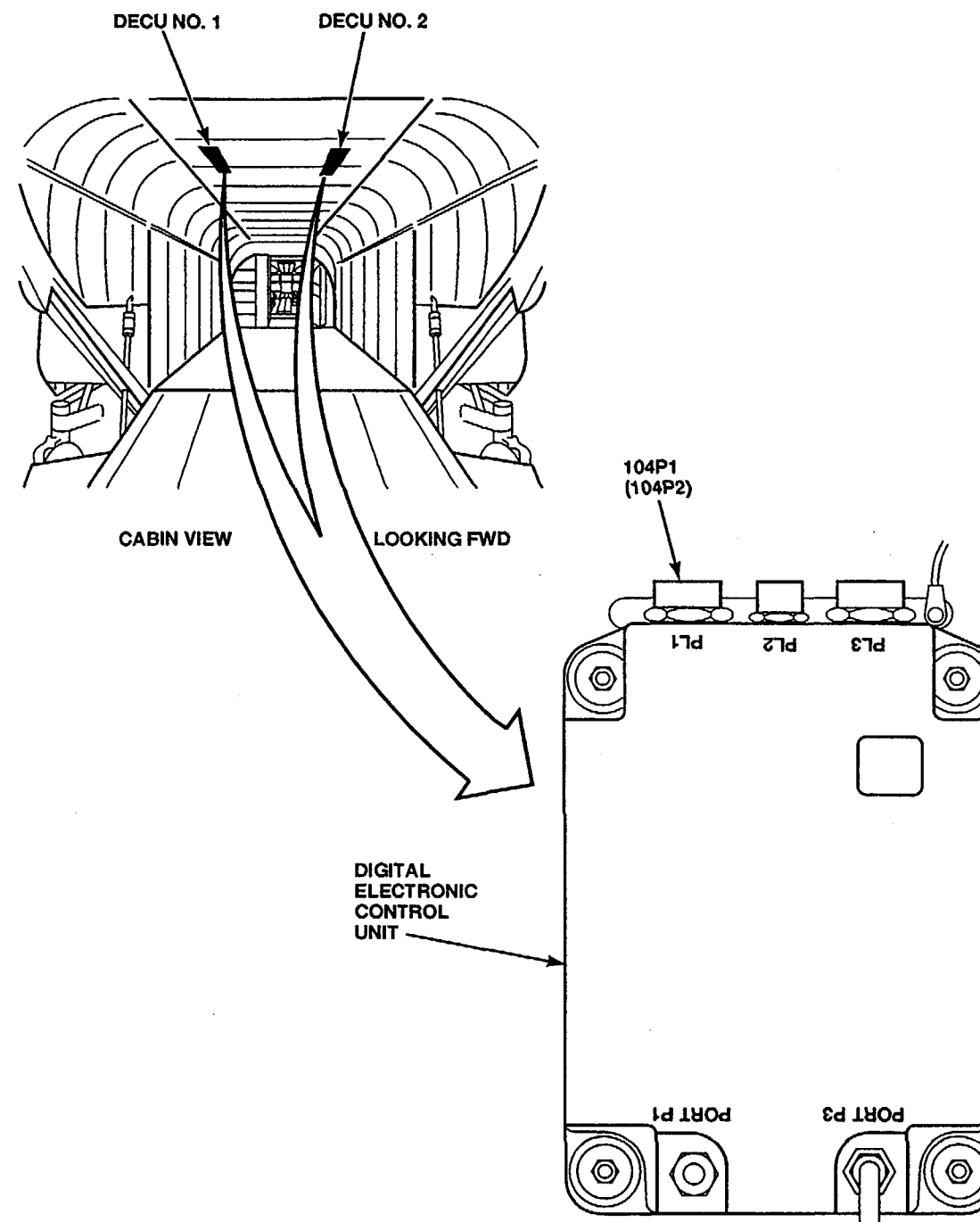
Aircraft Electrician  
Army Rotary-Wing Aviator

**References**

TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

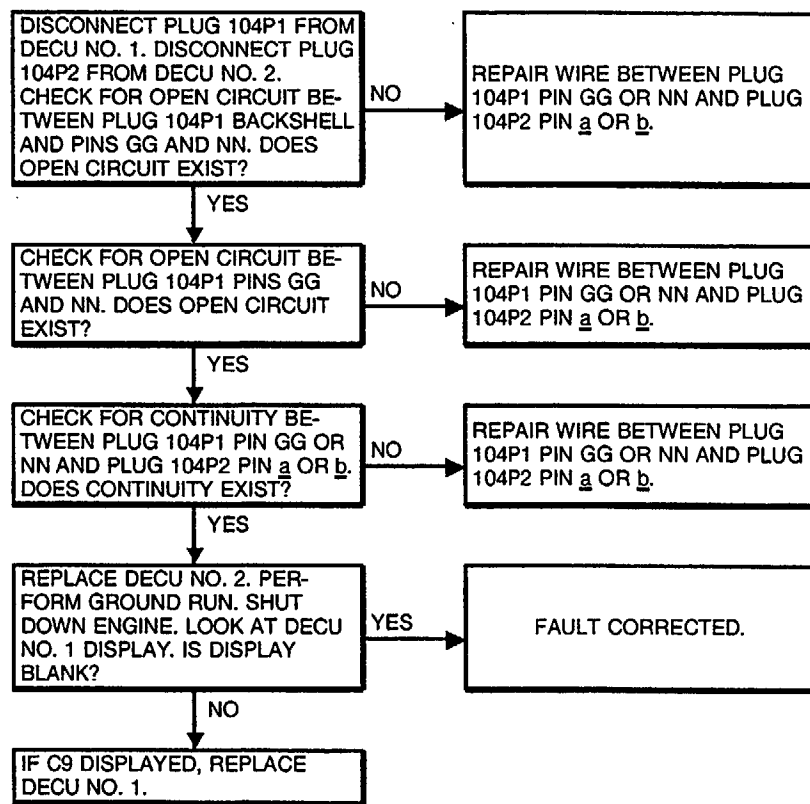
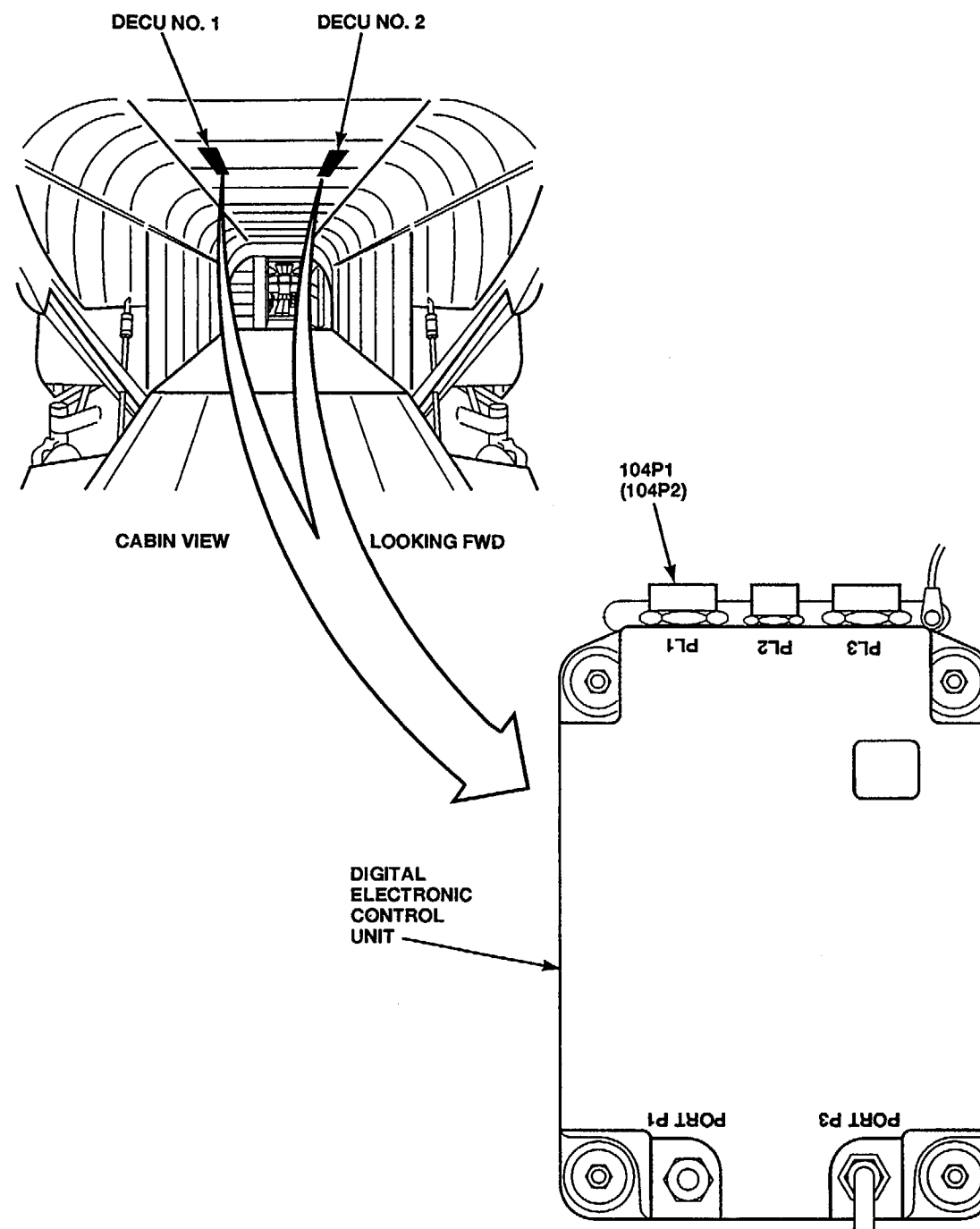
Aircraft Electrician  
Army Rotary-Wing Aviator

**References**

TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off





**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

With 74

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials**

None

**Personnel Required:**

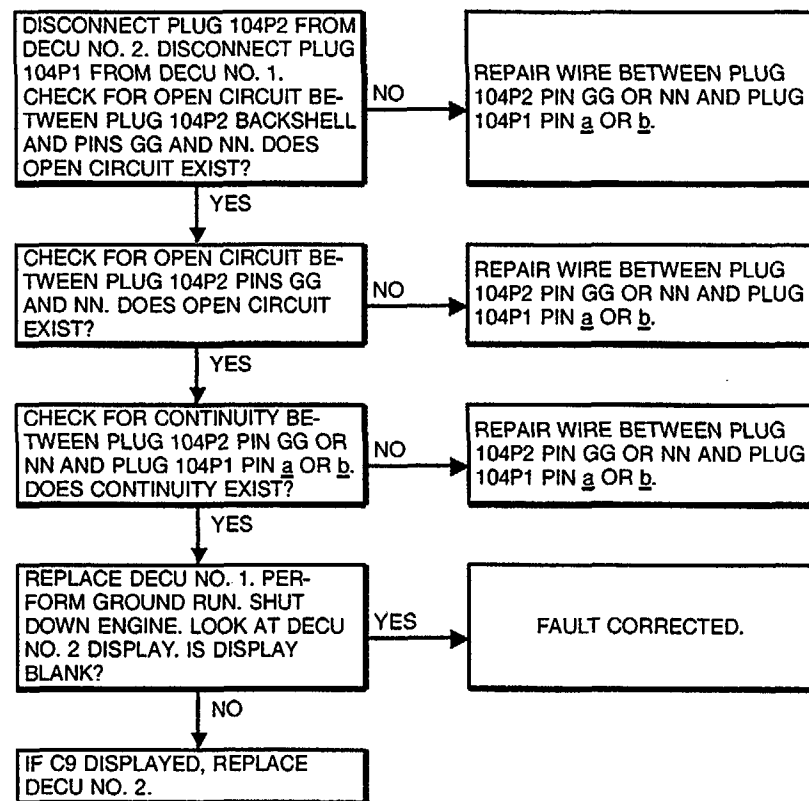
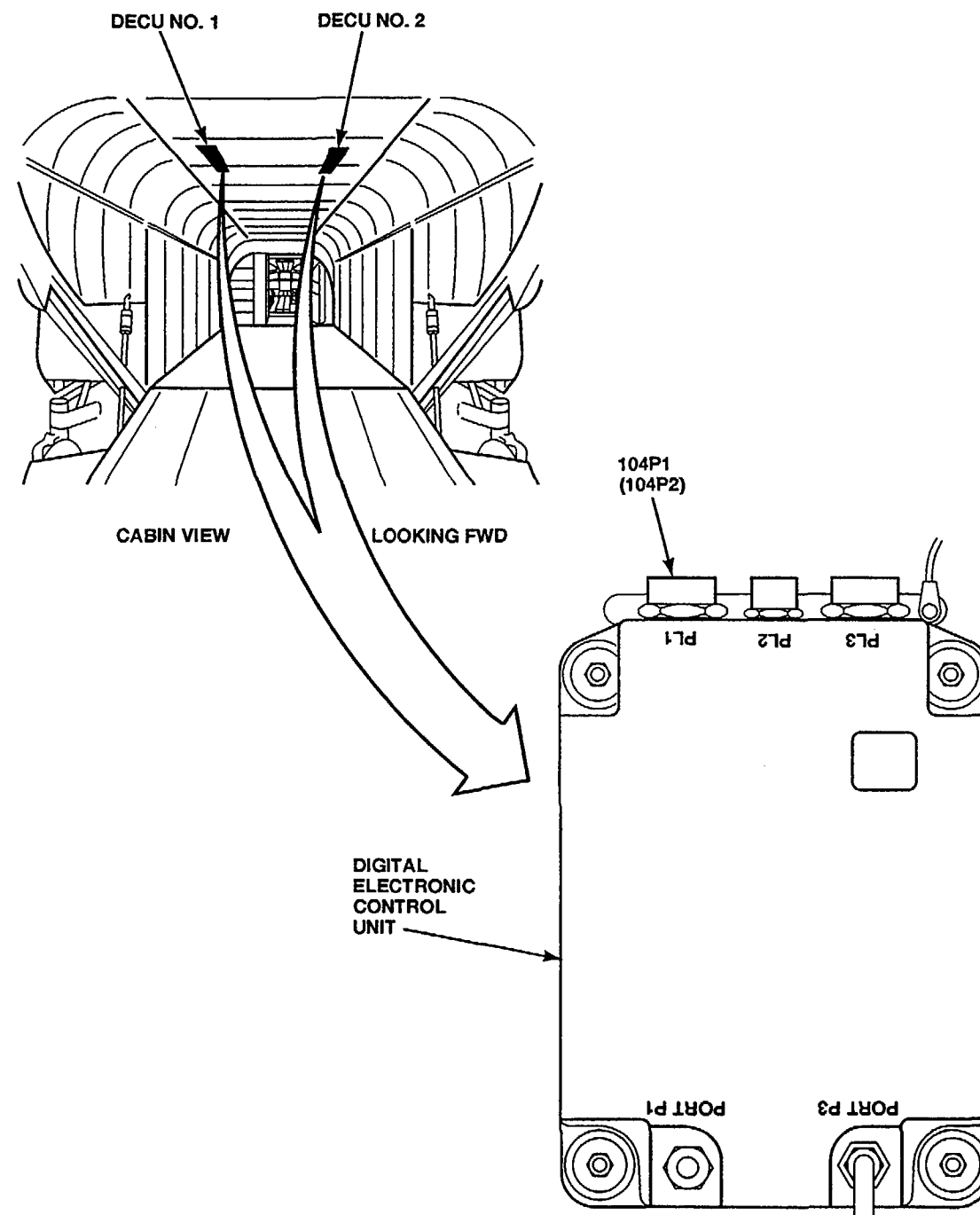
Aircraft Electrician  
Army Rotary-Wing Aviator

**References**

TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
With 74

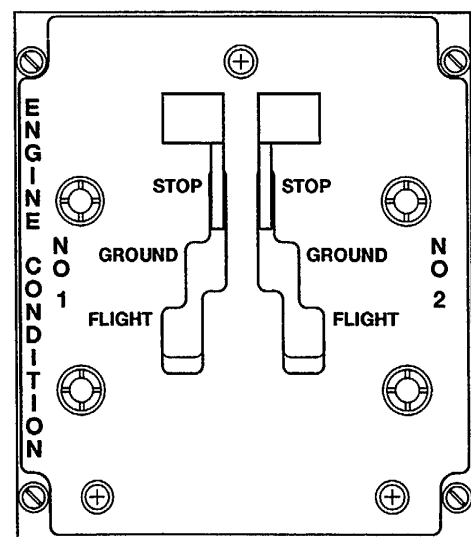
**Tools:**  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

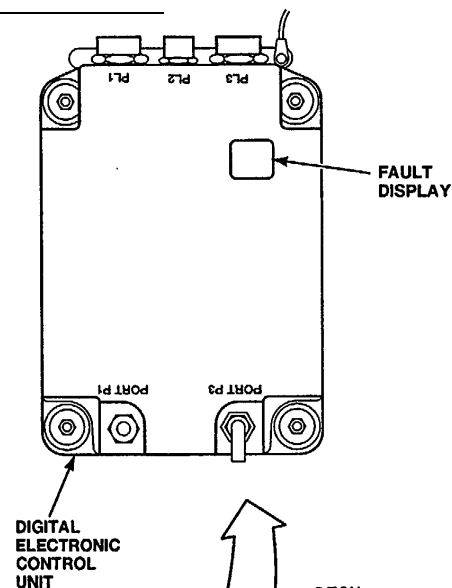
**Personnel Required:**  
Medium Helicopter Repairer  
Aircraft Electrician

**References:**  
TM 1-2840-265-23  
TM 55-1520-240-23

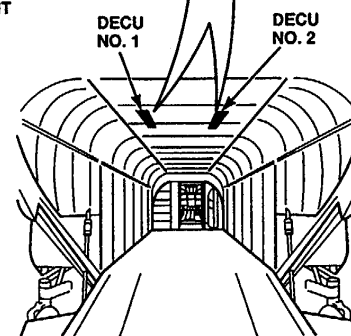
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



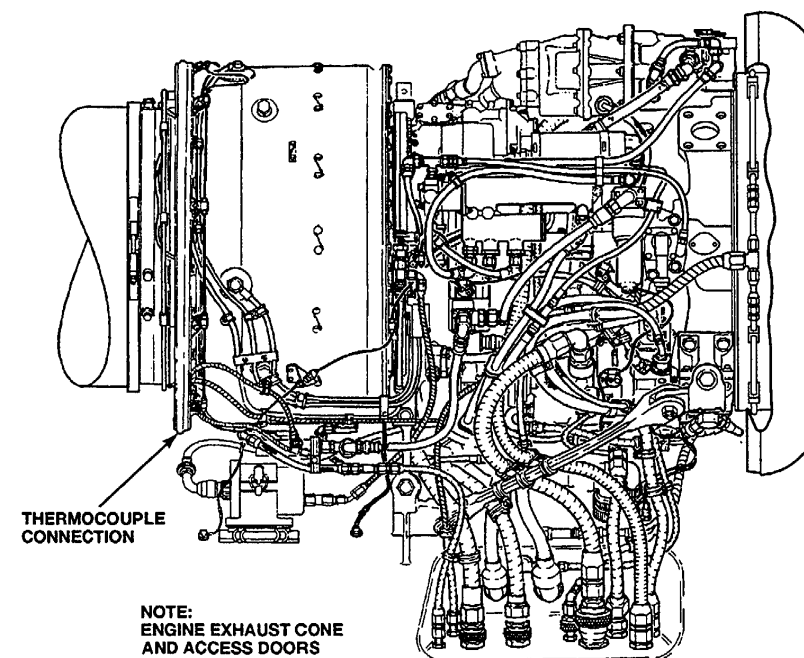
ENGINE CONDITION LEVERS



DIGITAL ELECTRONIC CONTROL UNIT

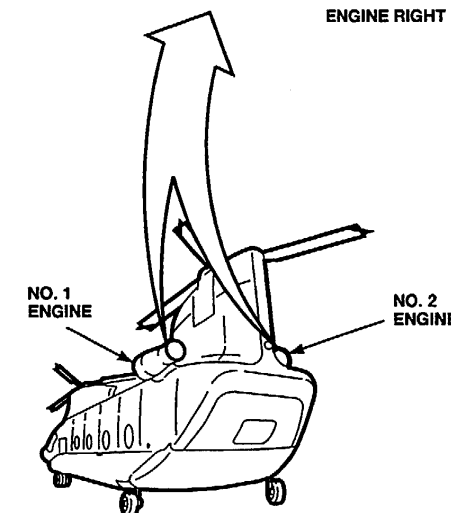


CABIN VIEW LOOKING FWD



NOTE:  
ENGINE EXHAUST CONE  
AND ACCESS DOORS  
NOT SHOWN FOR CLARITY

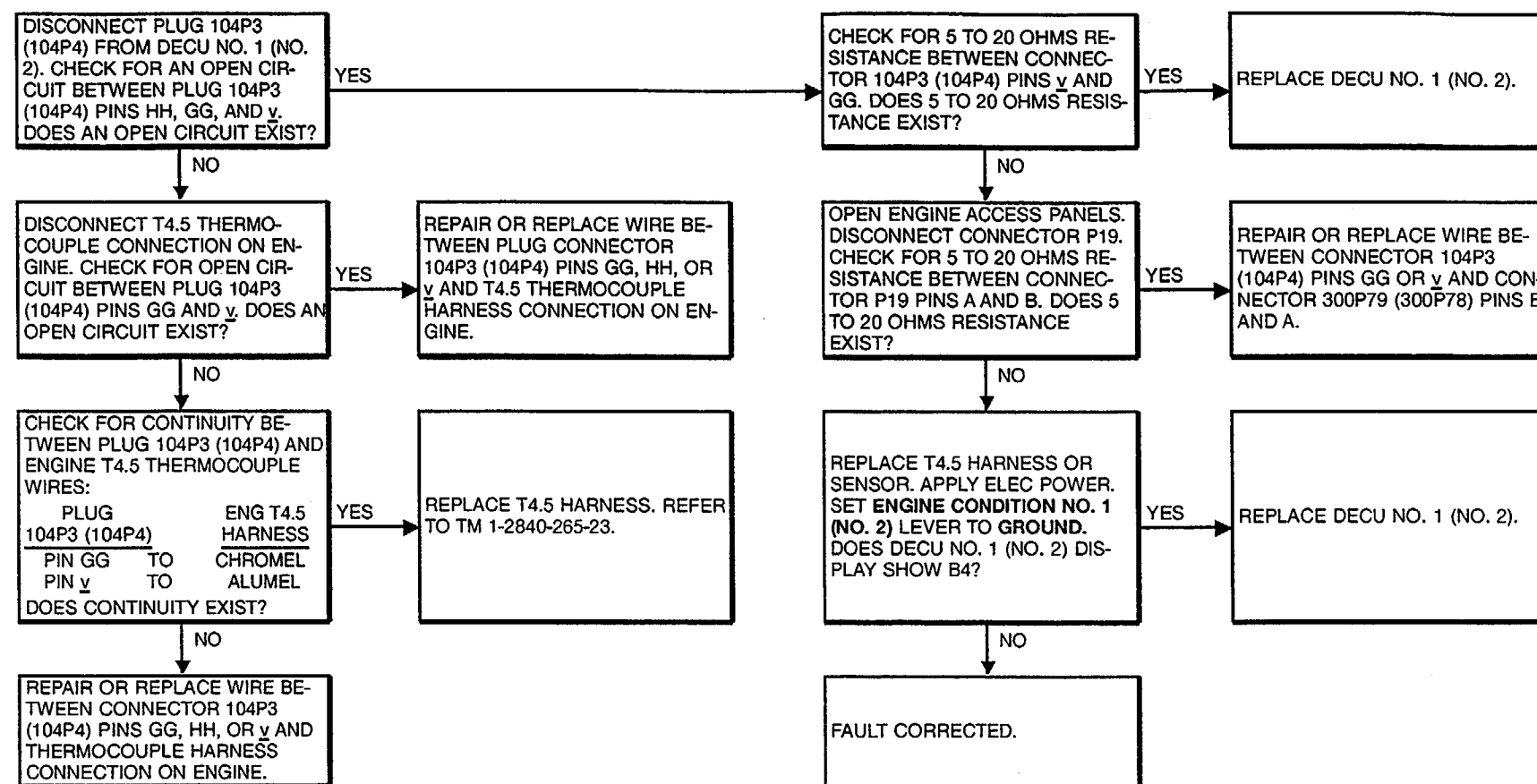
ENGINE RIGHT SIDE



NO. 1 ENGINE

NO. 2 ENGINE

NOTE: Information in ( ) applies to DECU NO. 2.



END OF TASK

Change 17 4-289

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer

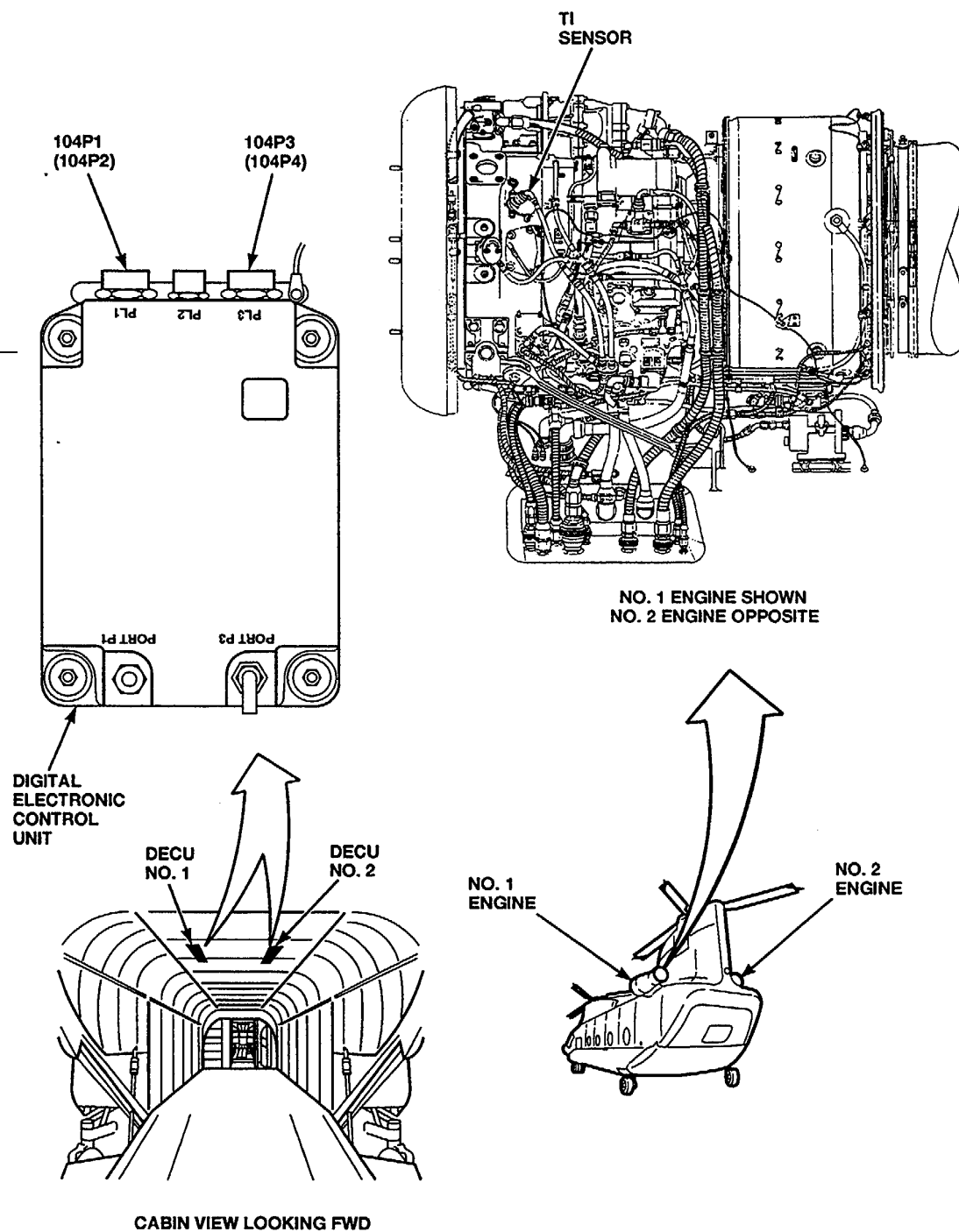
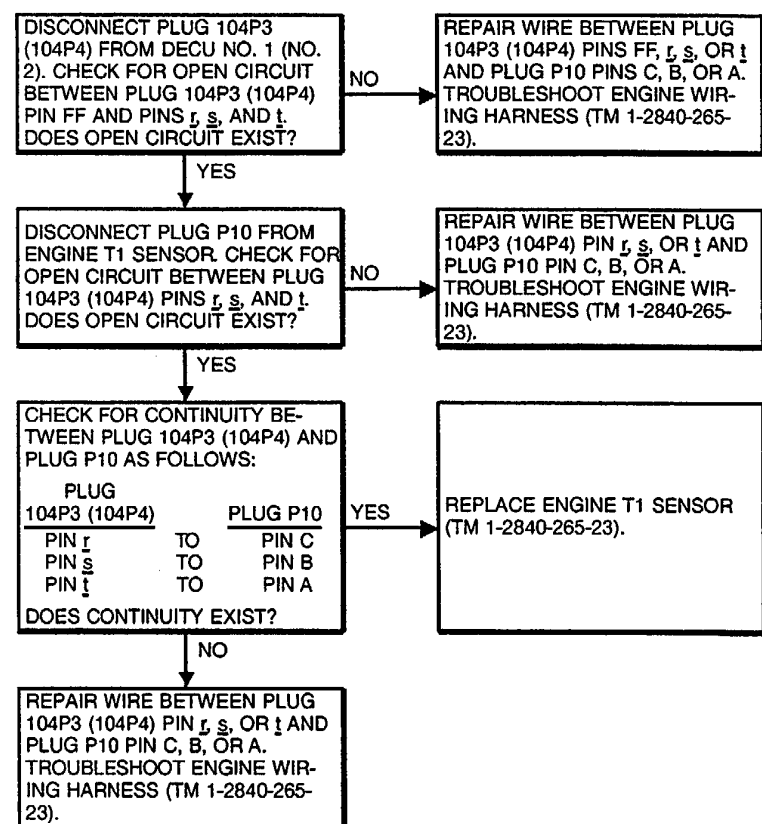
**References:**

- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65221

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer

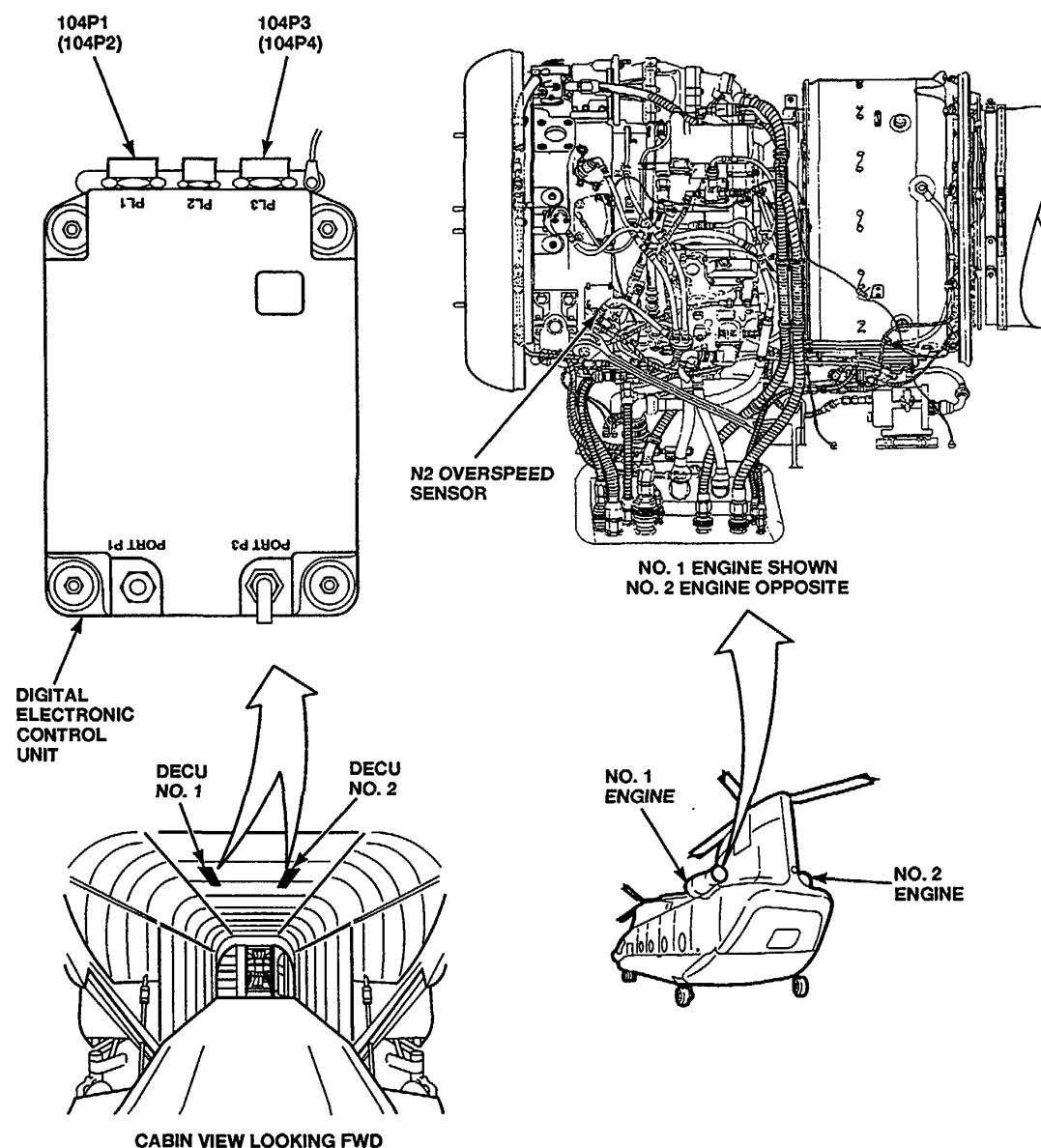
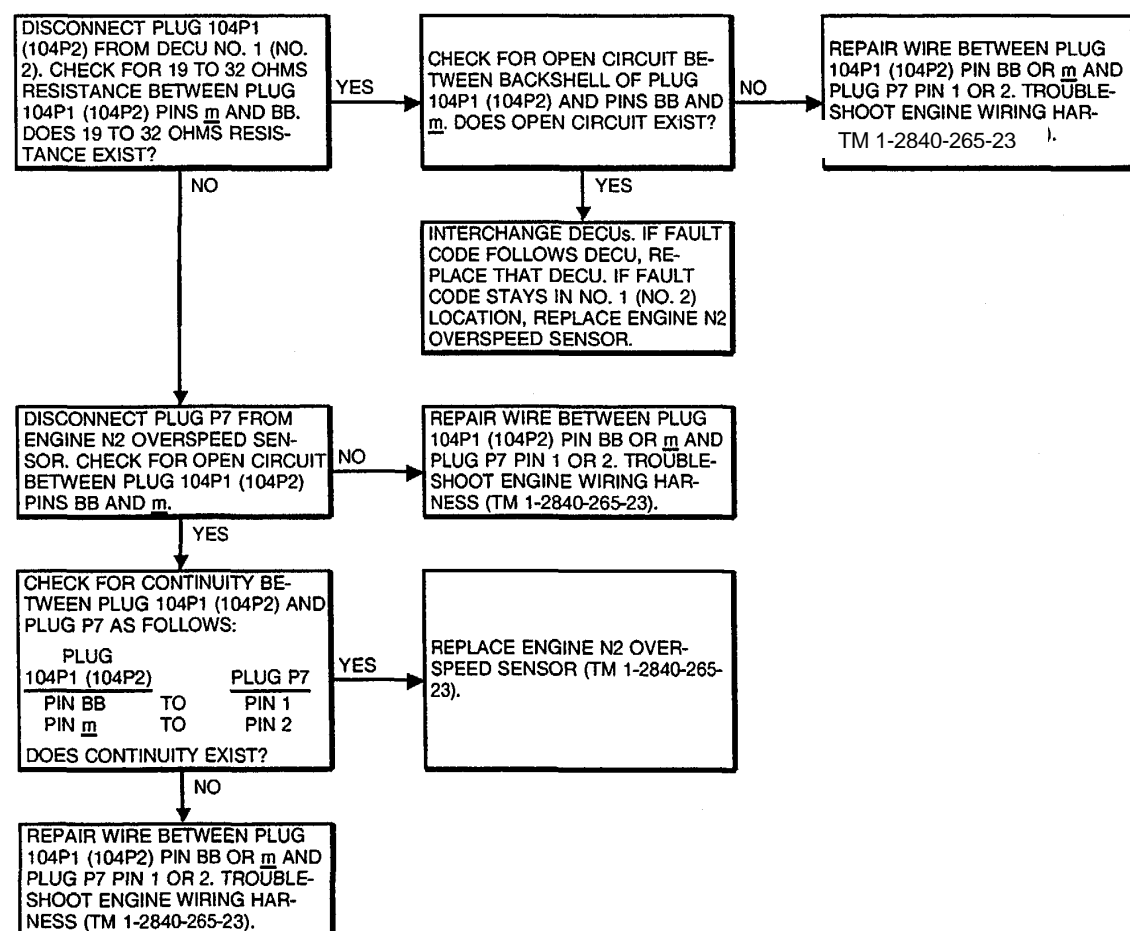
**References:**

- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65222

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician  
Aircraft Powerplant Repairer

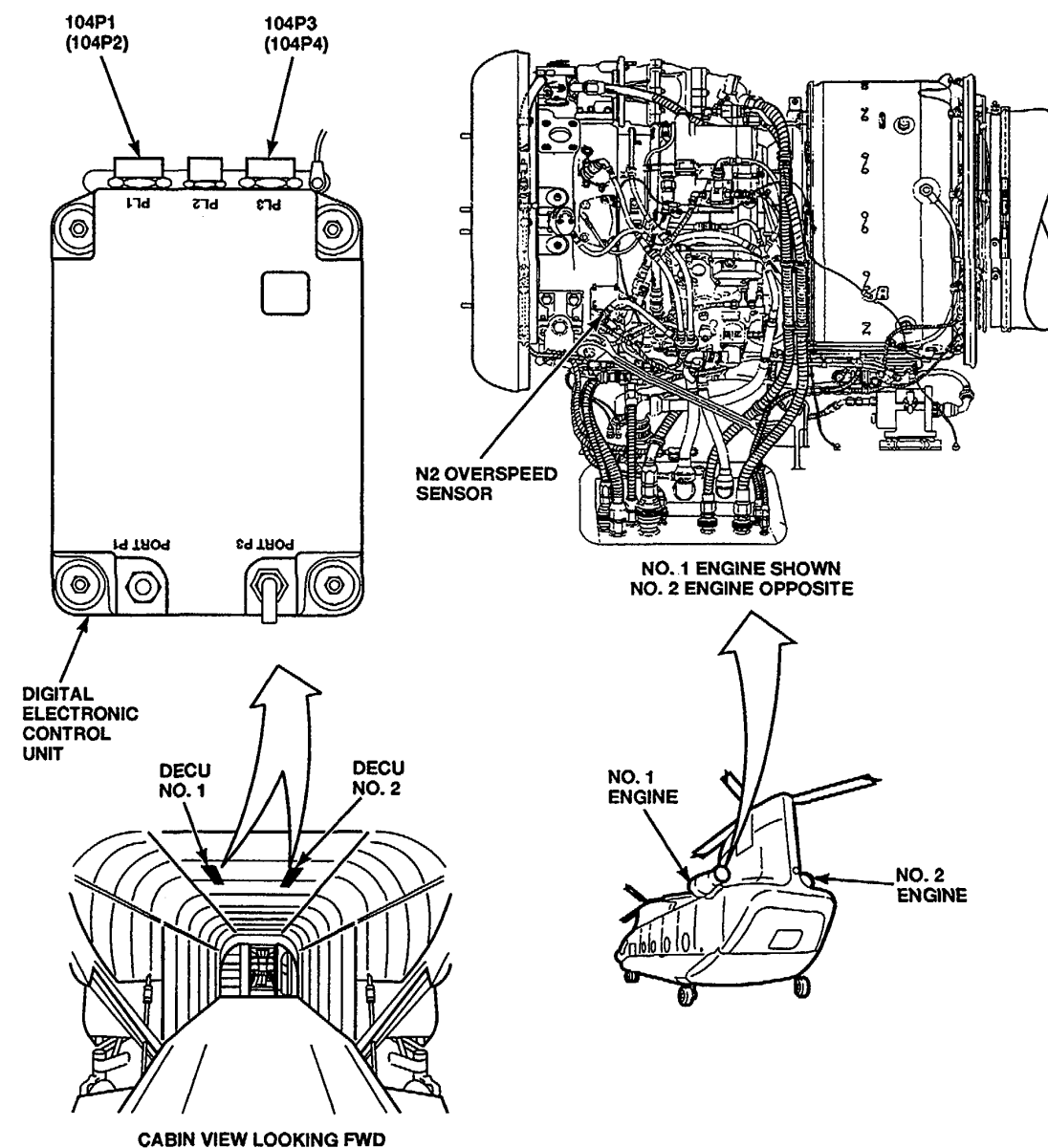
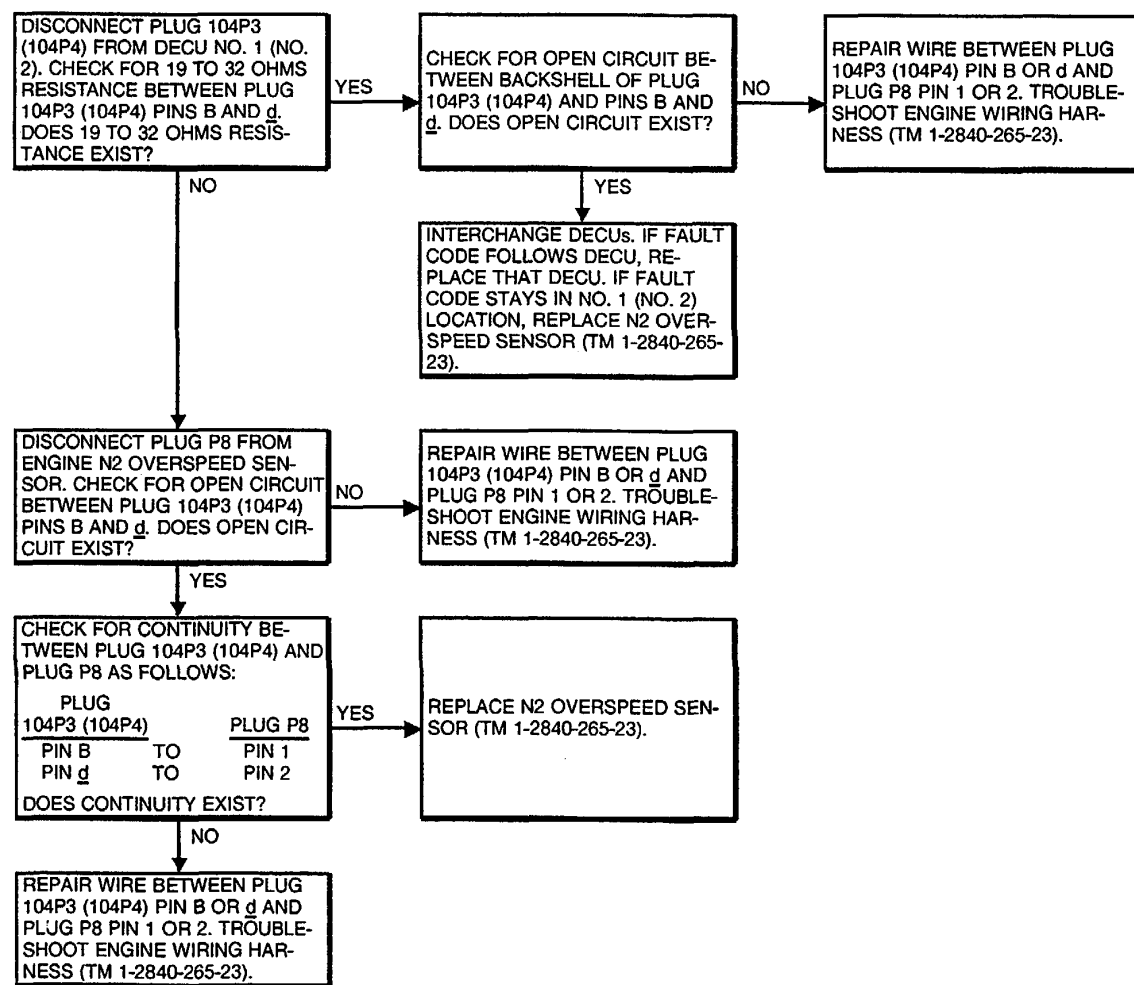
**References:**

TM 1-2840-265-23  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65222

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer

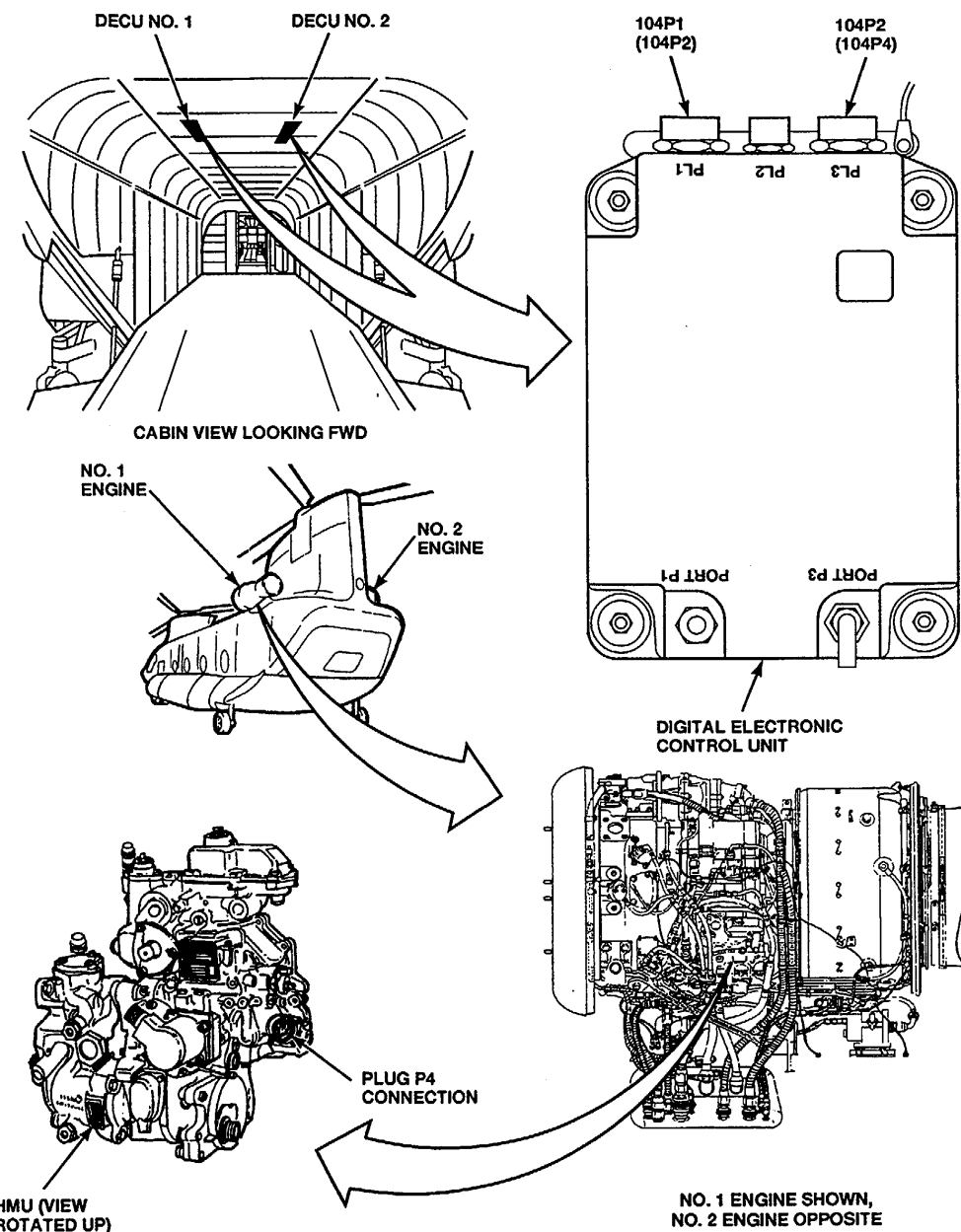
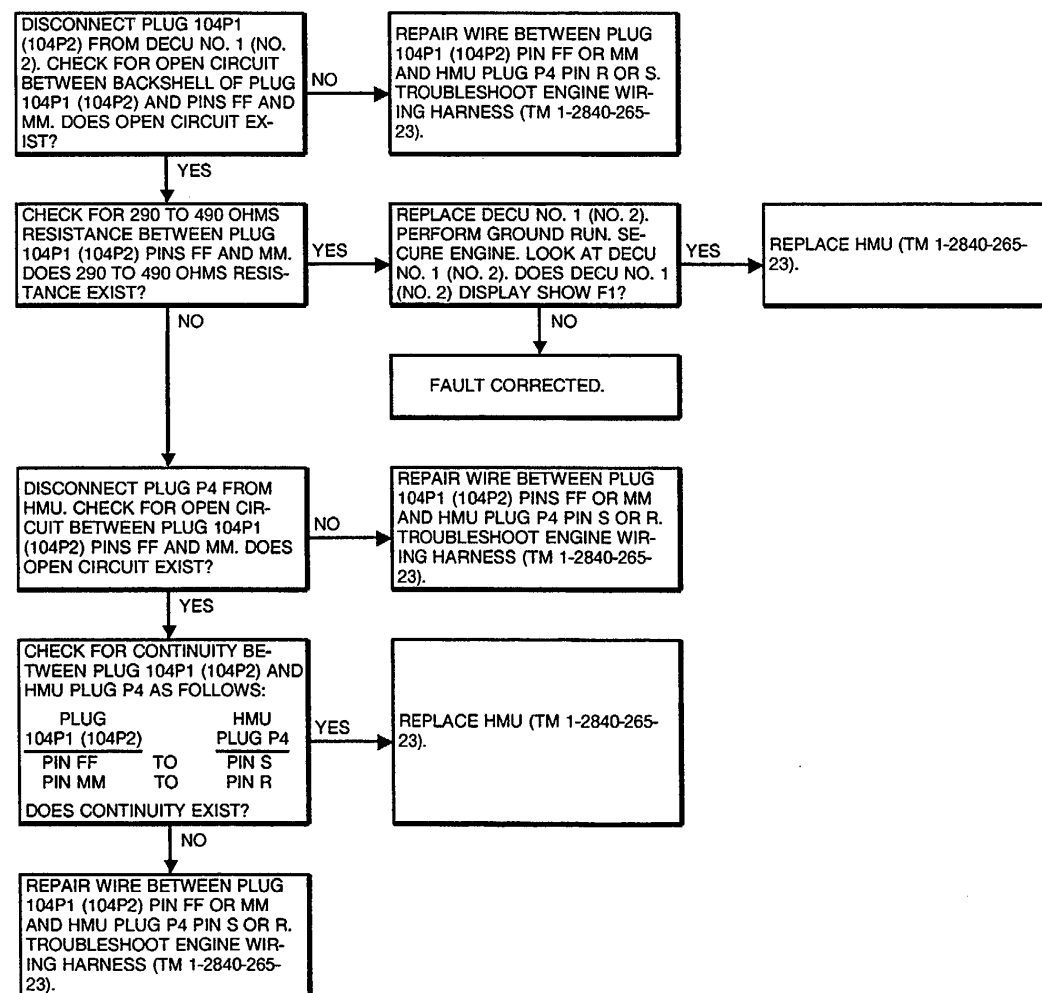
**References:**

- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE: Information in ( ) applies to DECU NO. 2.**



A65218

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing Aviator

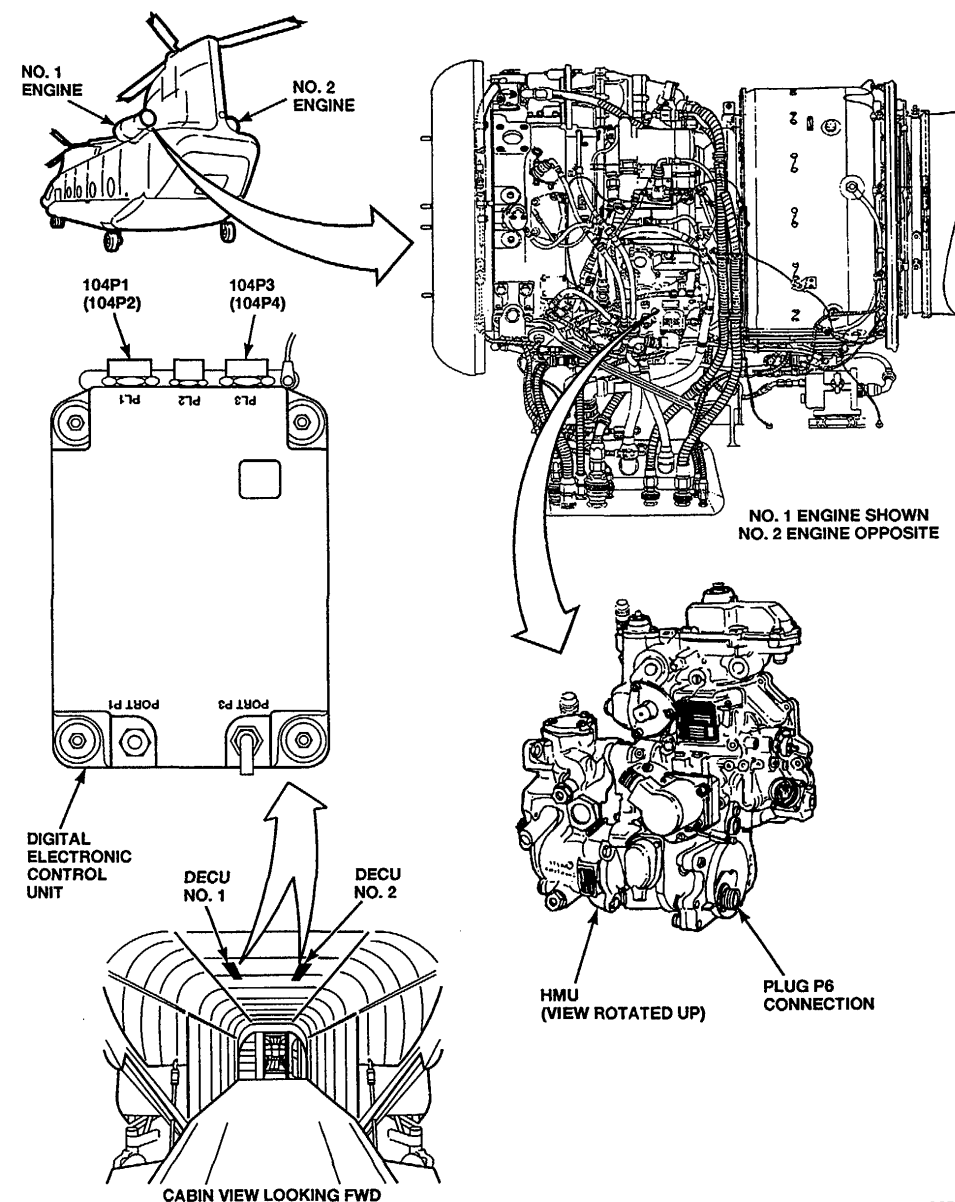
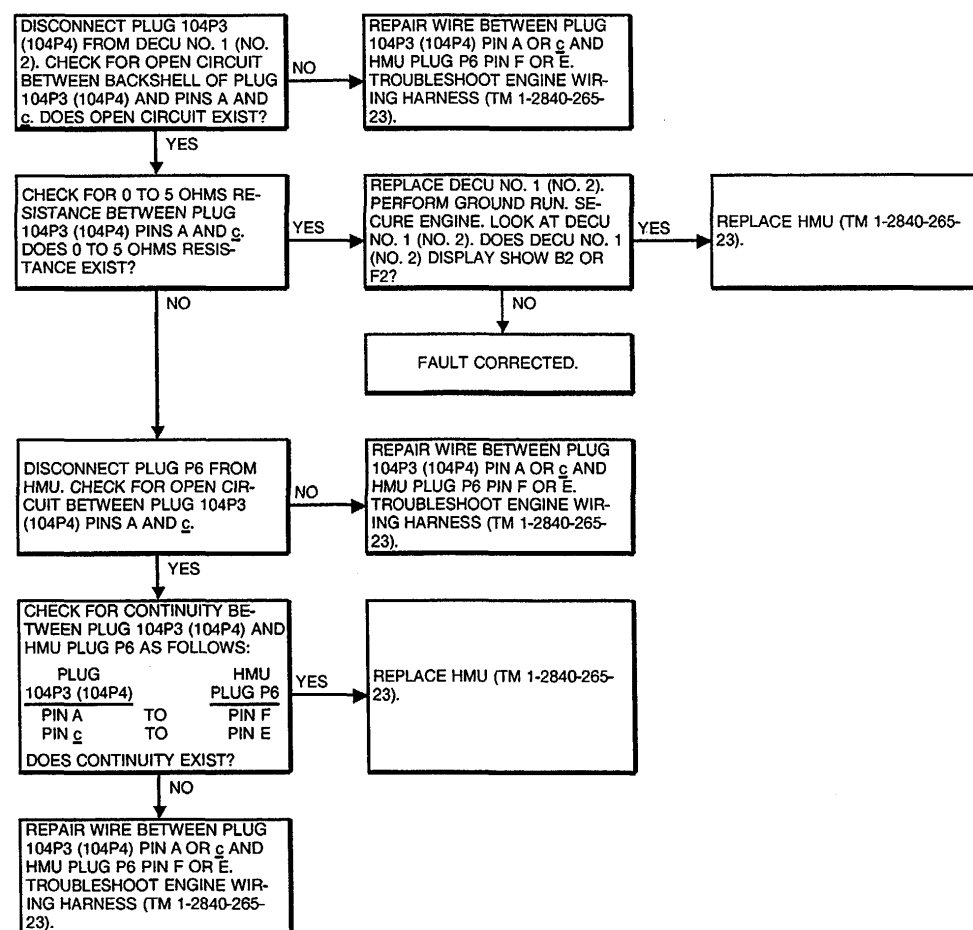
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE: Information in ( ) applies to DECU NO. 2.**



A65220

END OF TA



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Powerplant Repairer's Tool Kit,**

NSN 5180-00-323-4944  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician  
Aircraft Powerplant Repairer, Rotary-Wing Aviator

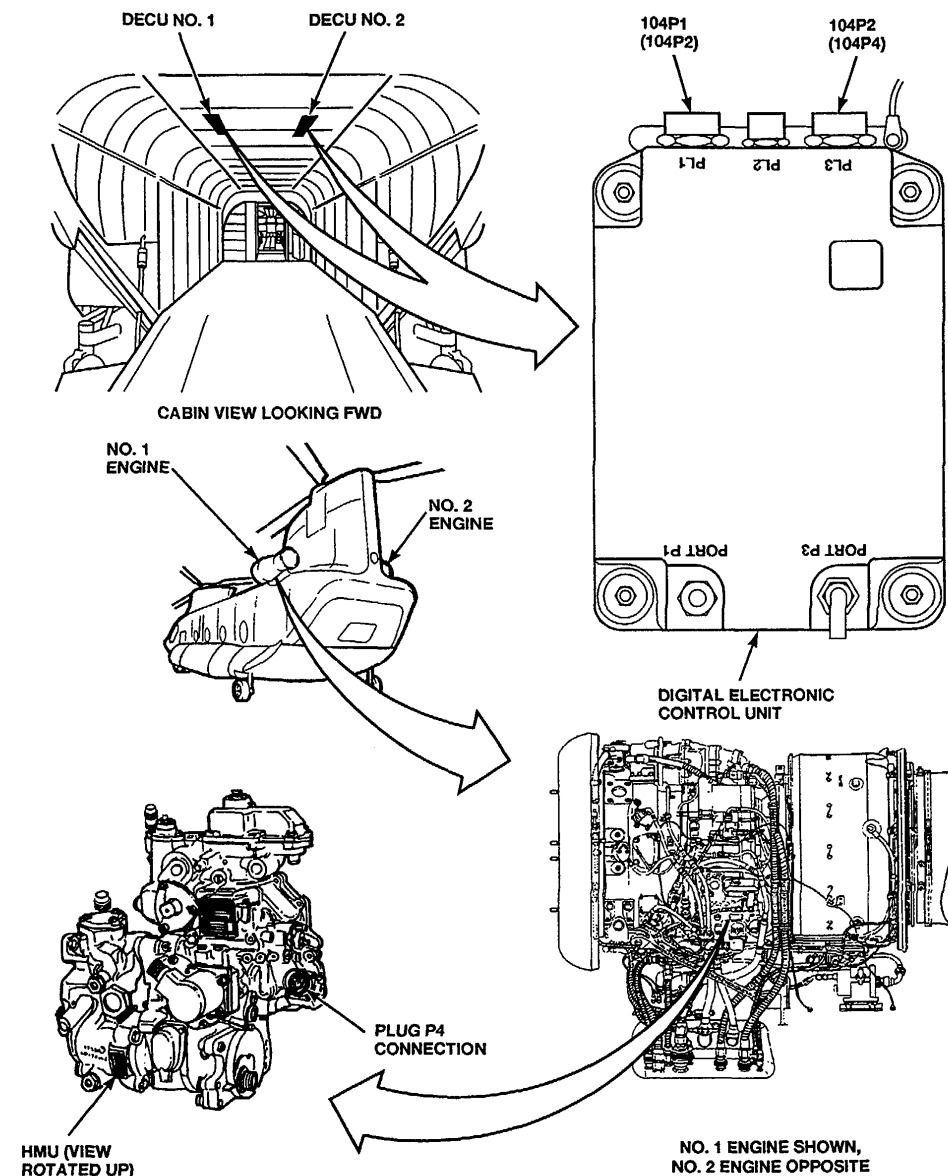
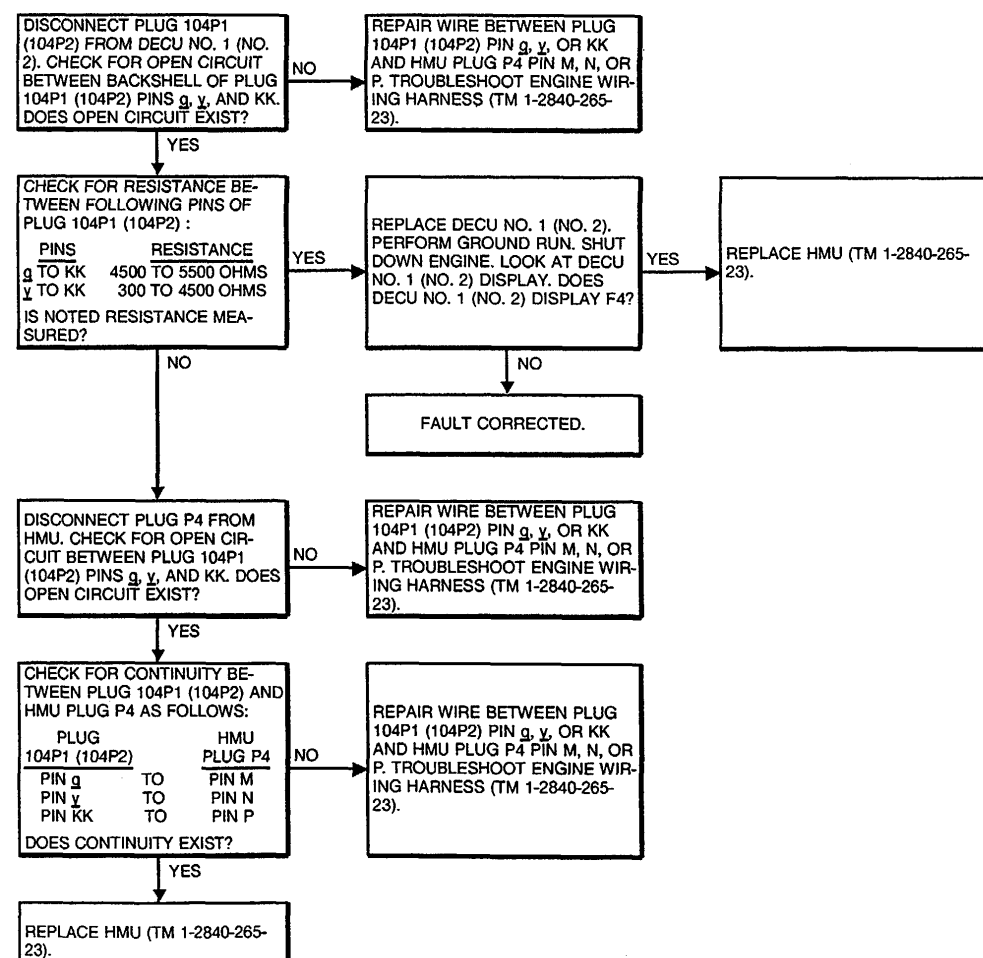
**References:**

TM 1-2840-265-23, TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65218

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing Aviator

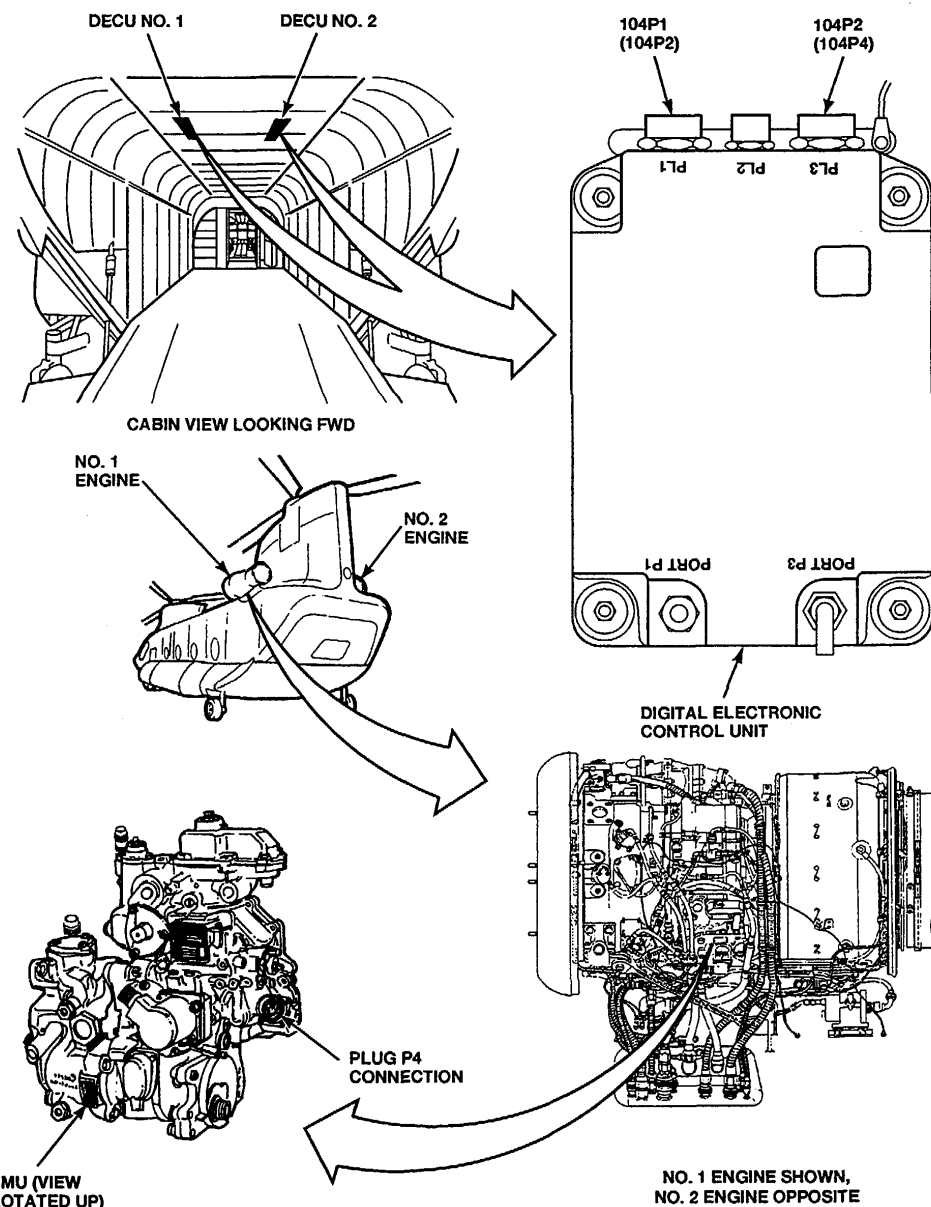
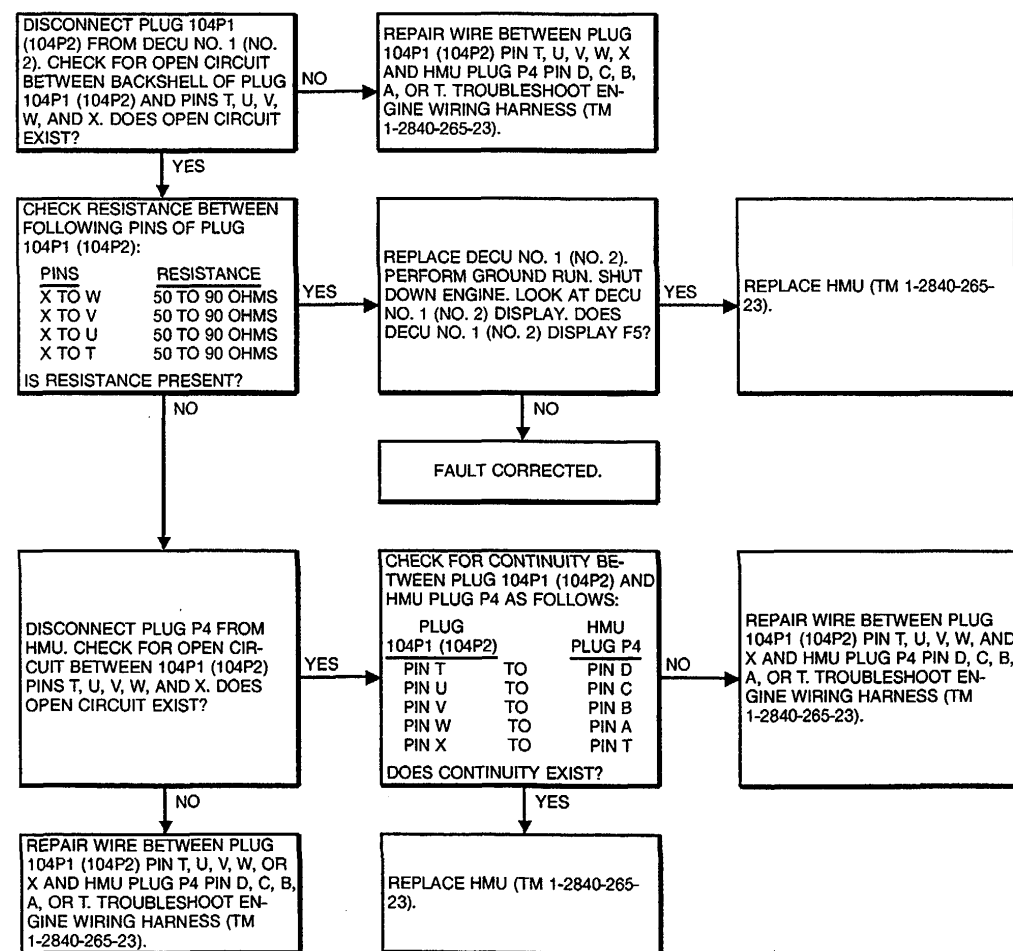
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65218

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing Aviator

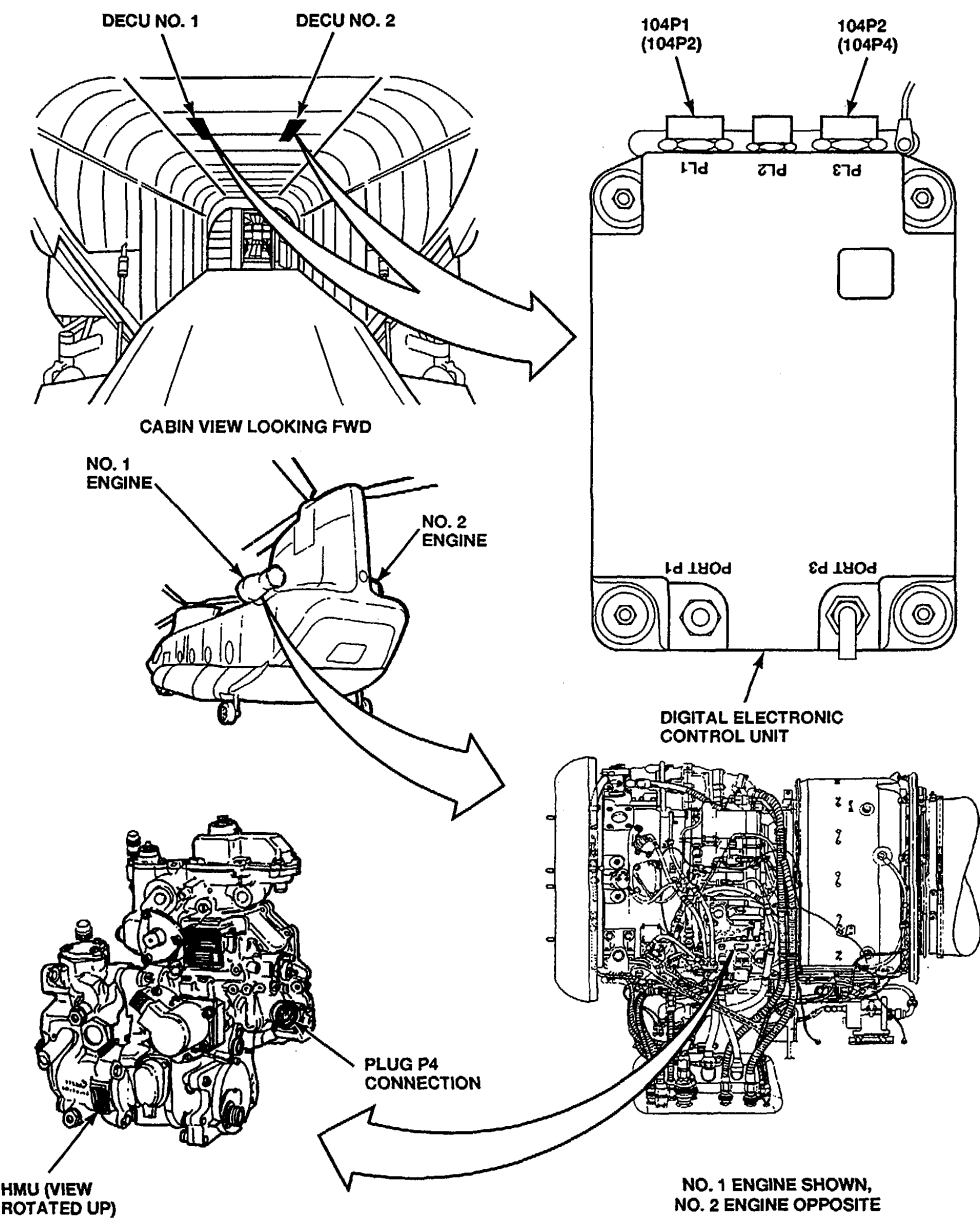
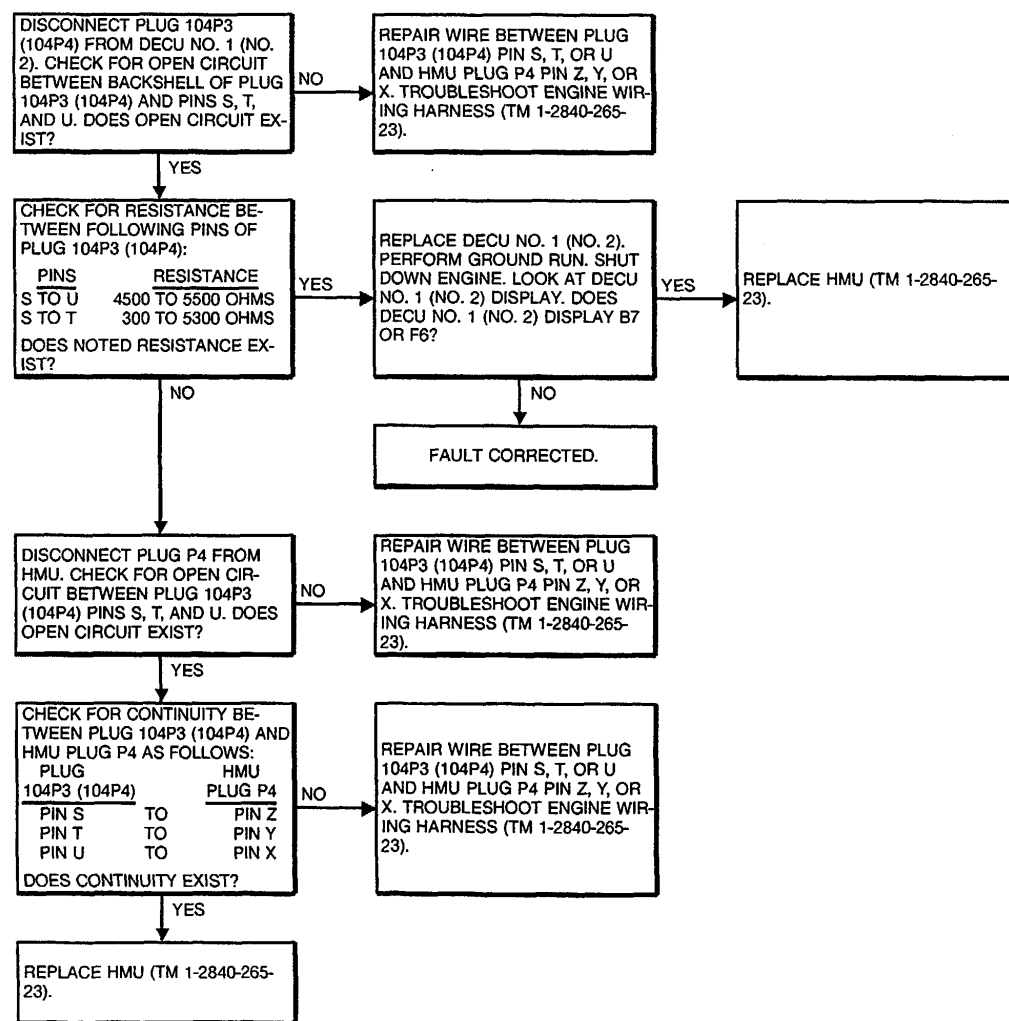
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65218

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944

Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing Aviator

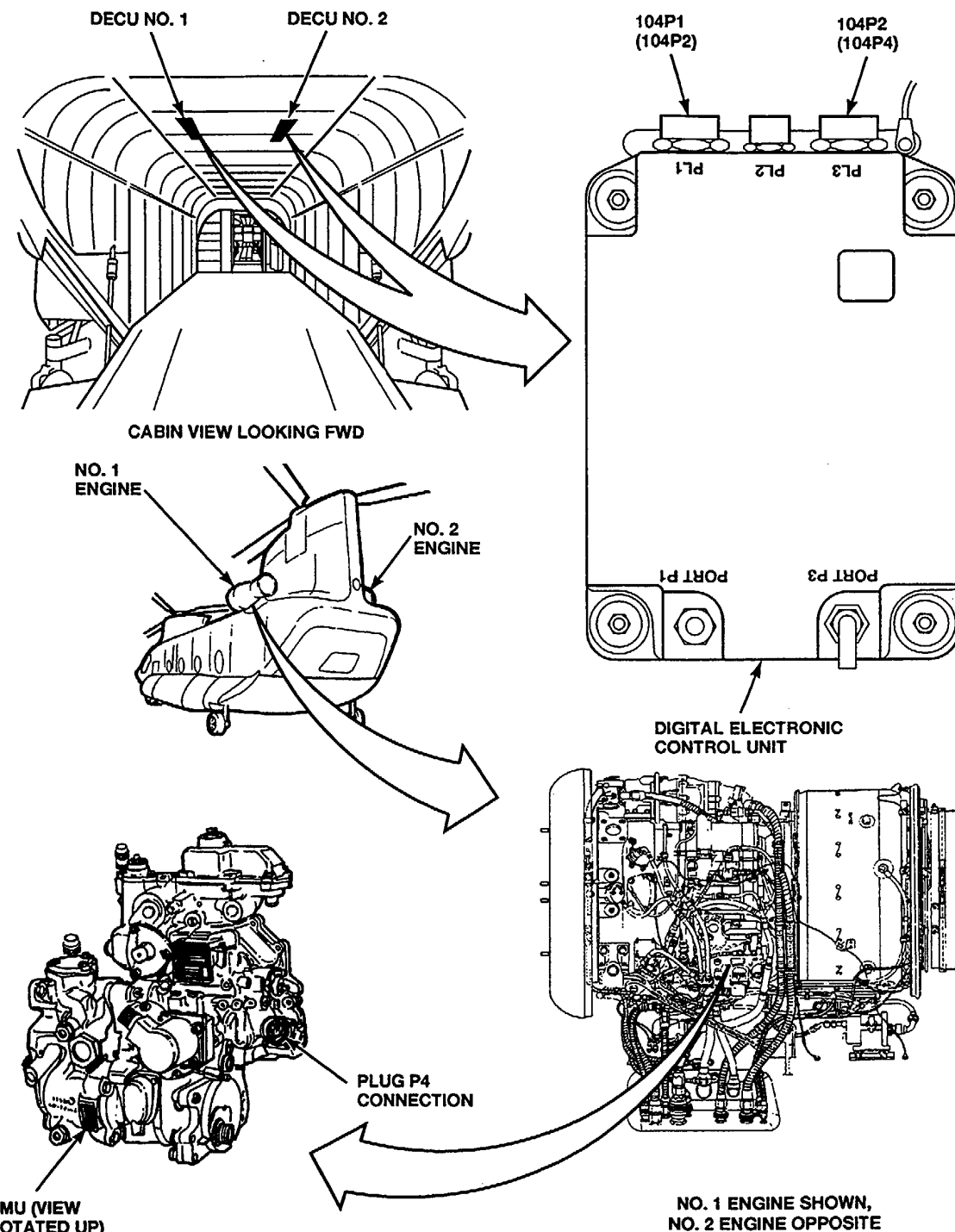
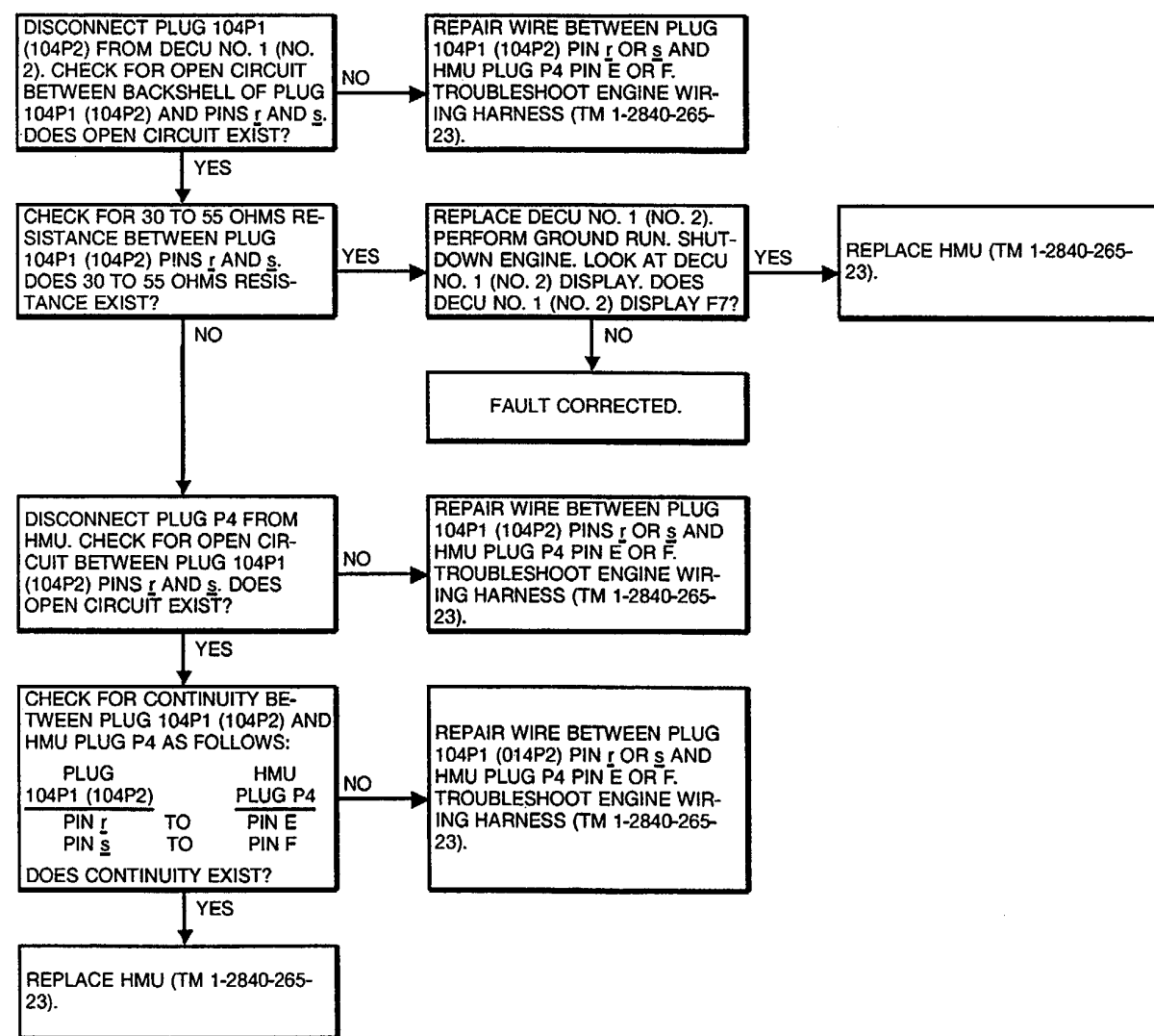
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65218

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing Aviator

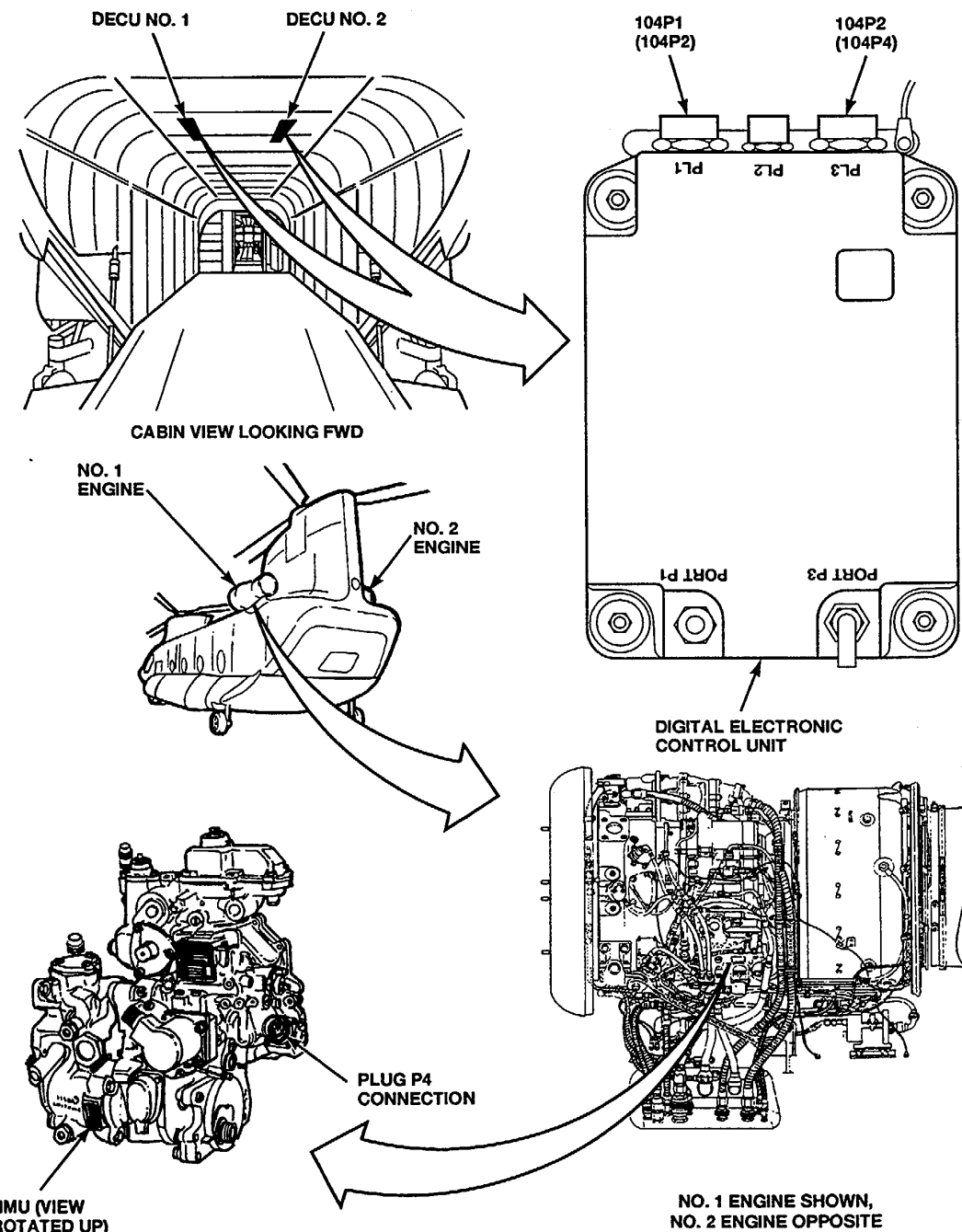
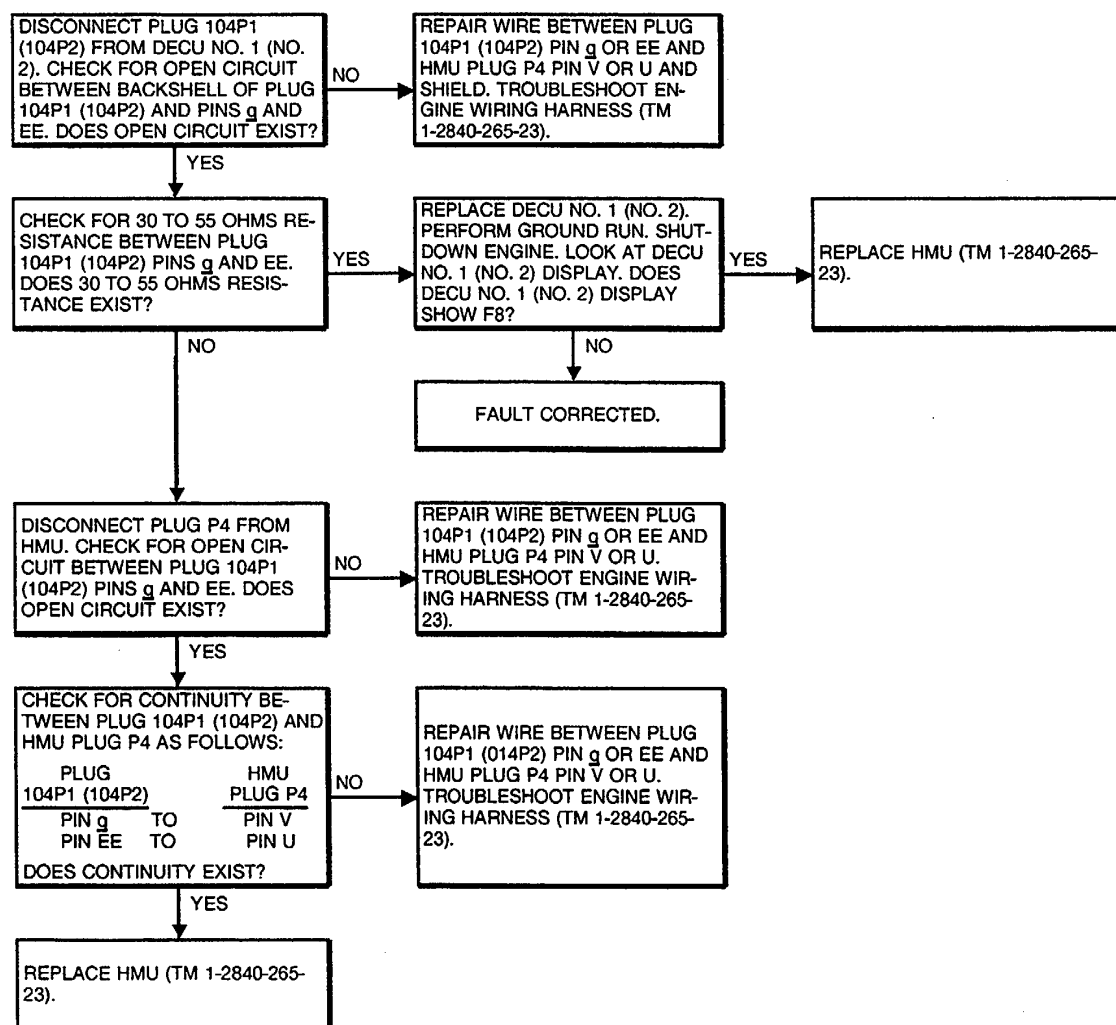
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65218

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

Aviator

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing

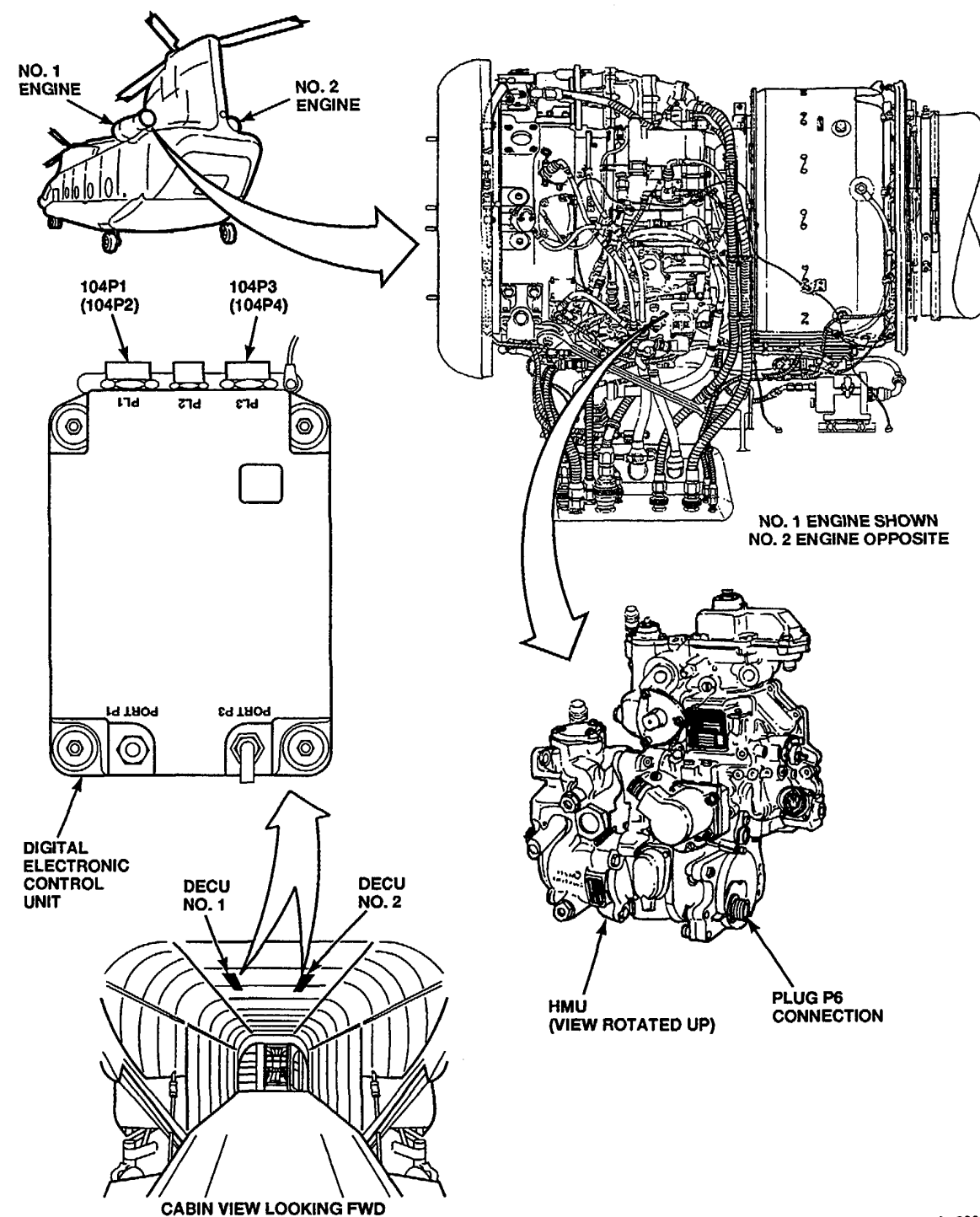
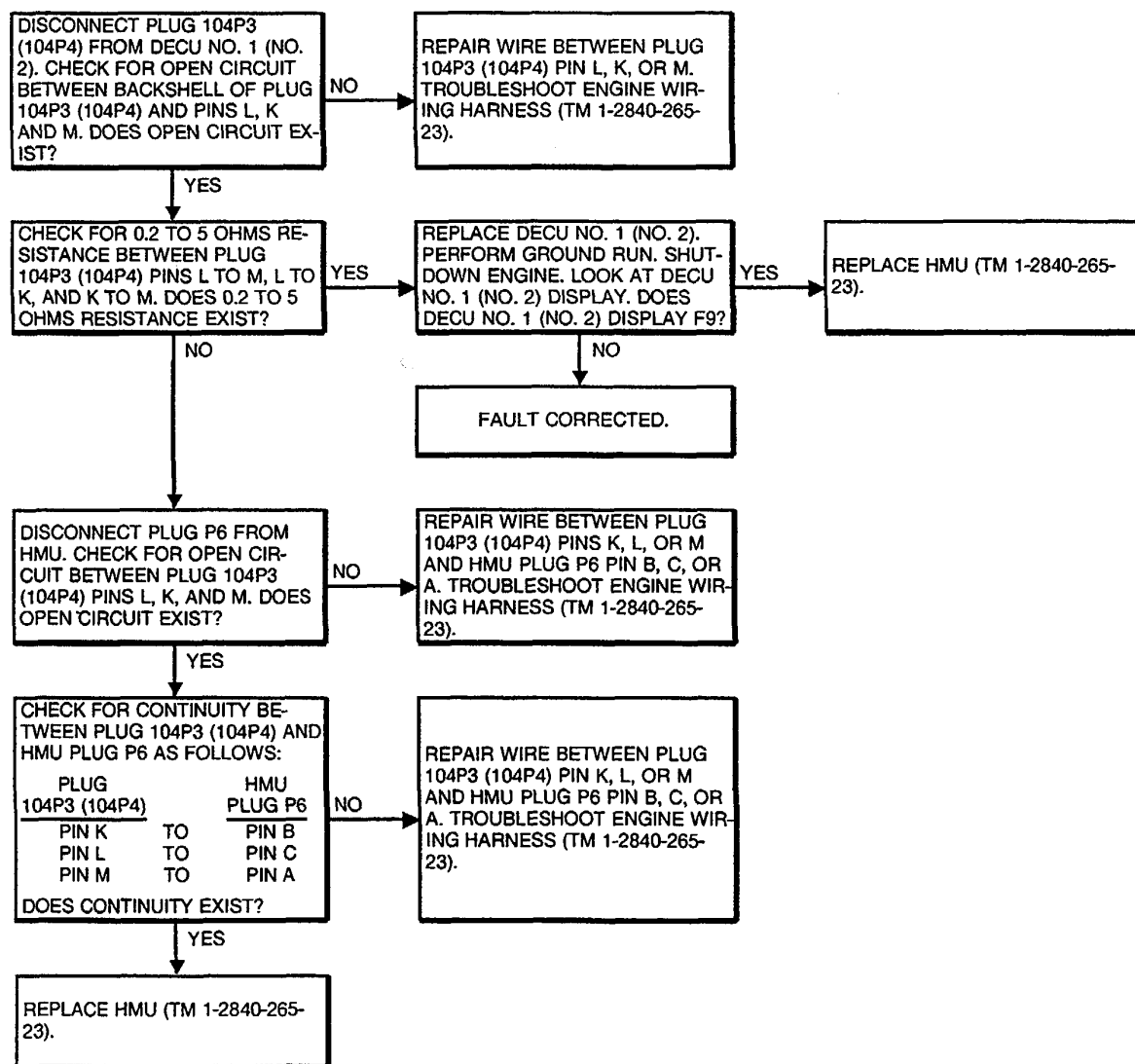
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65220

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

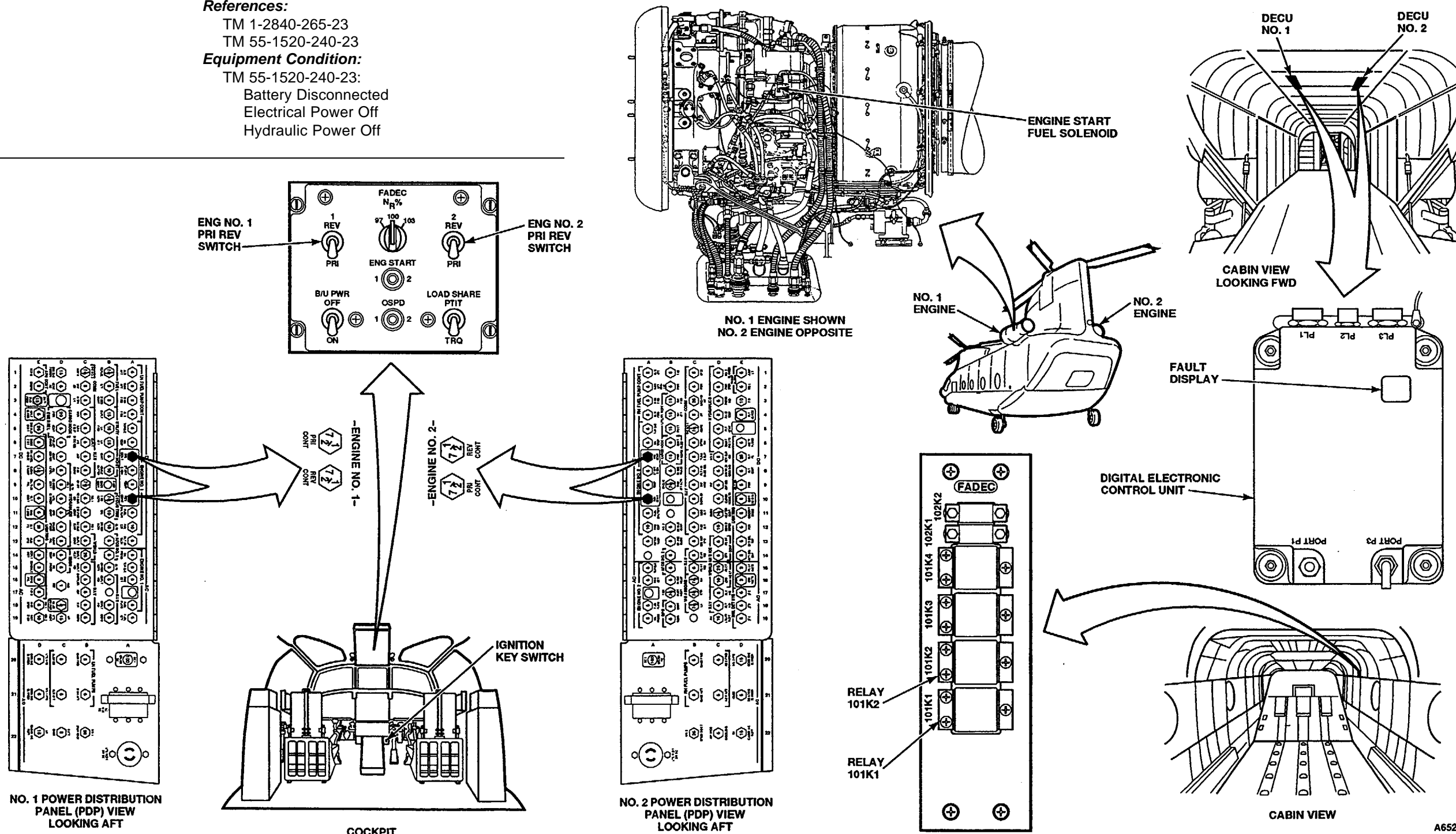
- Aircraft Electrician
- Aircraft Powerplant Repairer

**References:**

- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

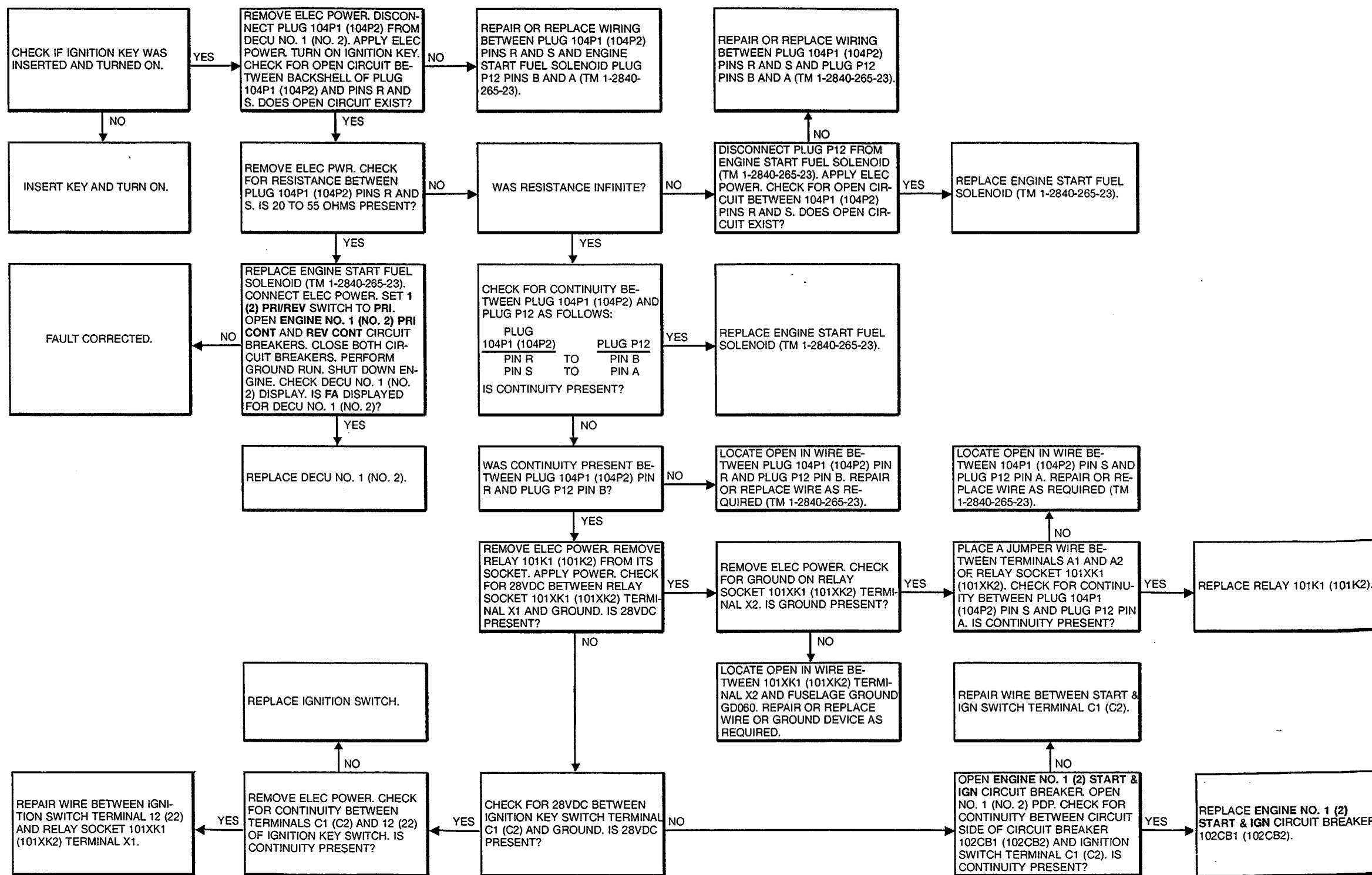


A65228

GO TO NEXT PAGE

**NOTE:** Information in ( ) applies to DECU NO. 2.  
Use wiring diagram in Task 4-10.2 for Engine Start Relay 101K1 (101K2).

If troubleshooting indicates a fault in the engine wiring harness, troubleshoot the harness. Refer to TM 1-2840-265-23.





**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944

Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Aircraft Powerplant Repairer, Rotary-Wing Aviator

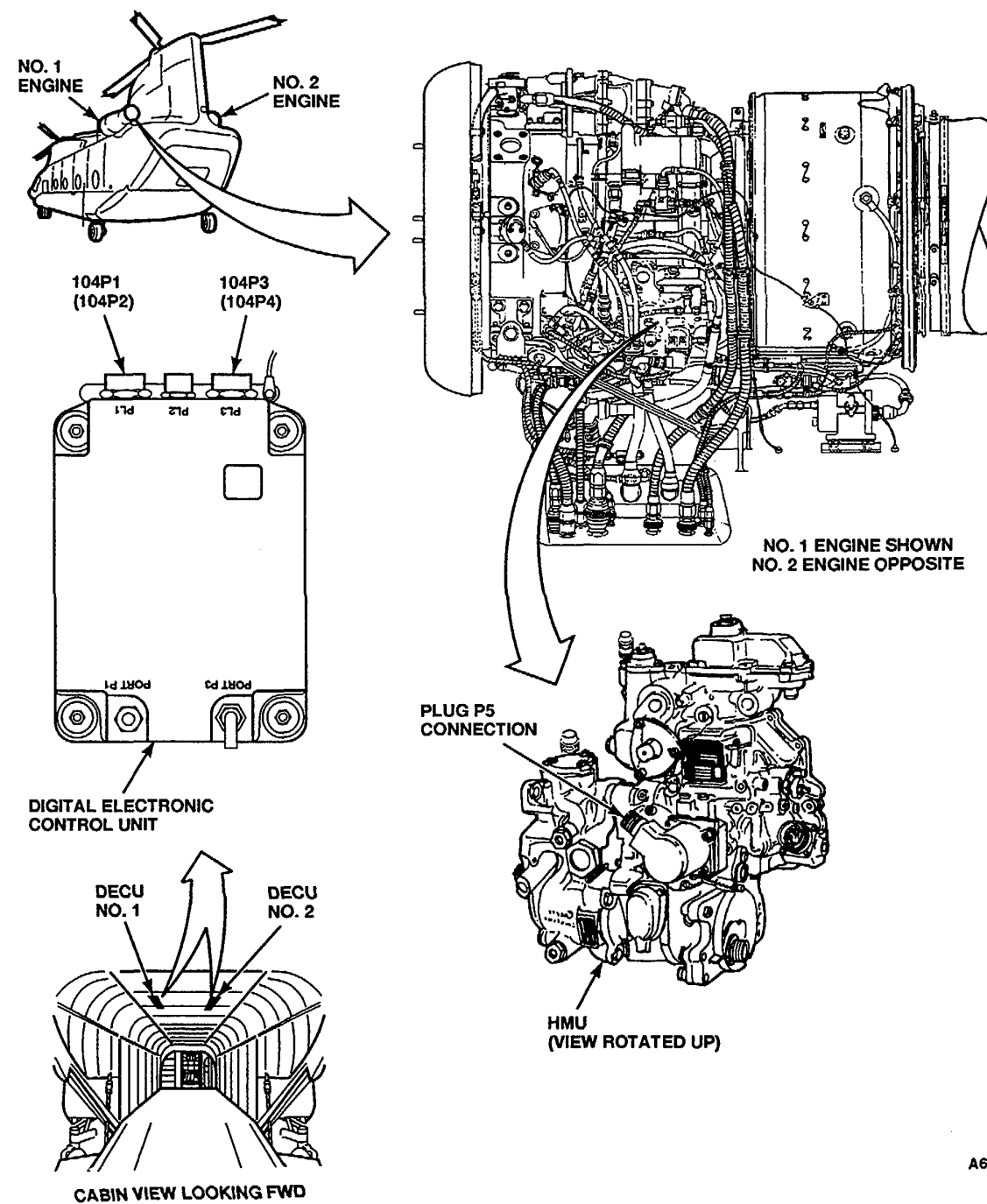
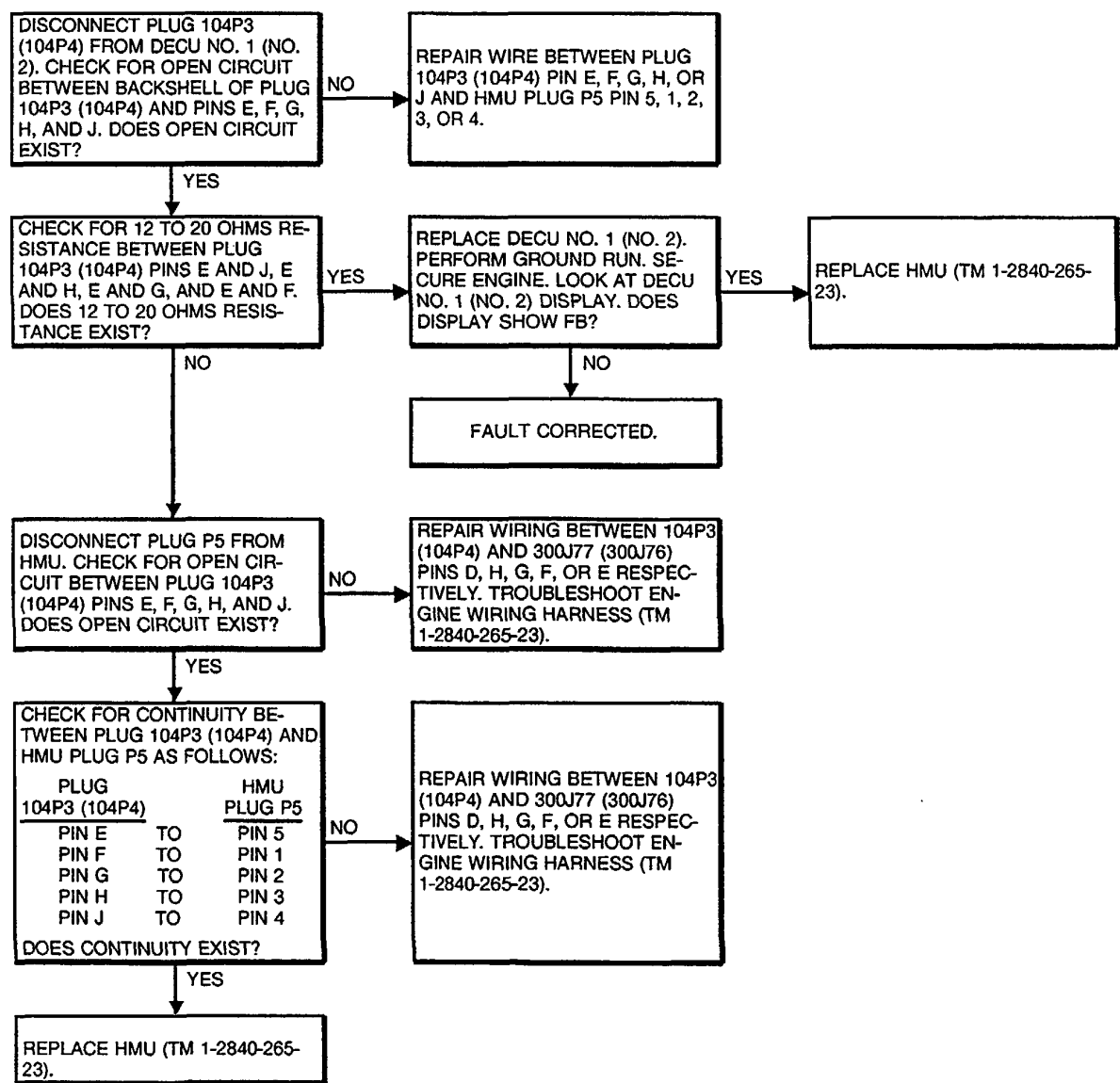
**References:**

- TM 1-2840-265-23, TM 55-1520-240-10
- TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.



A65219

END OF TASK

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With **74**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-24-23

**Equipment Condition:**

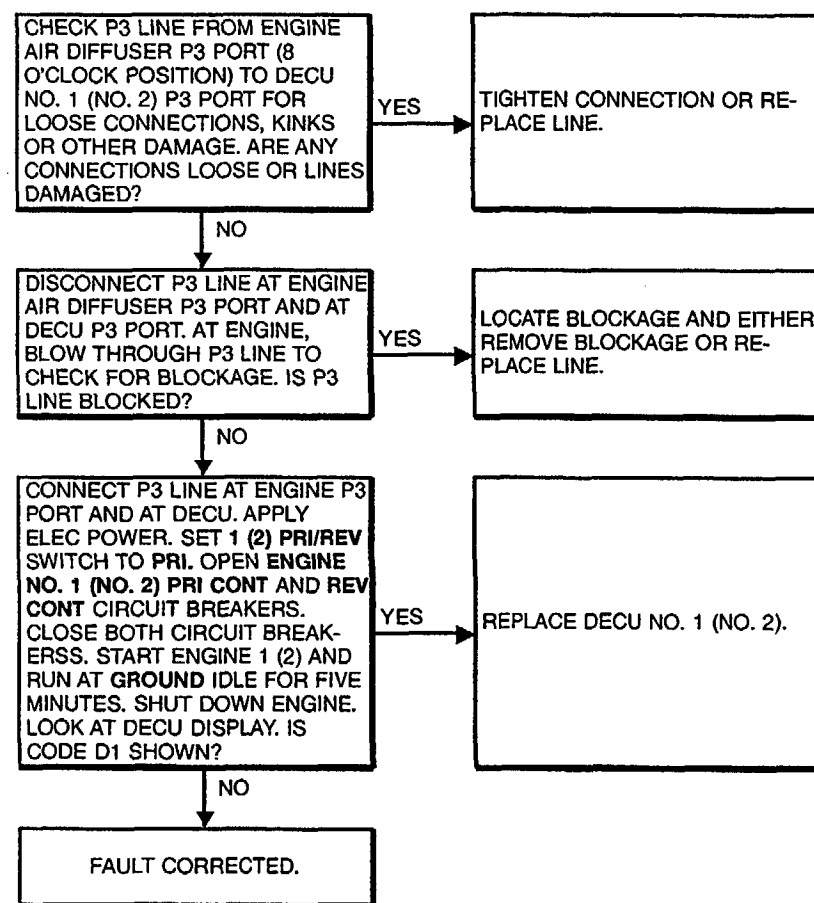
TM 55-1520-240-23:

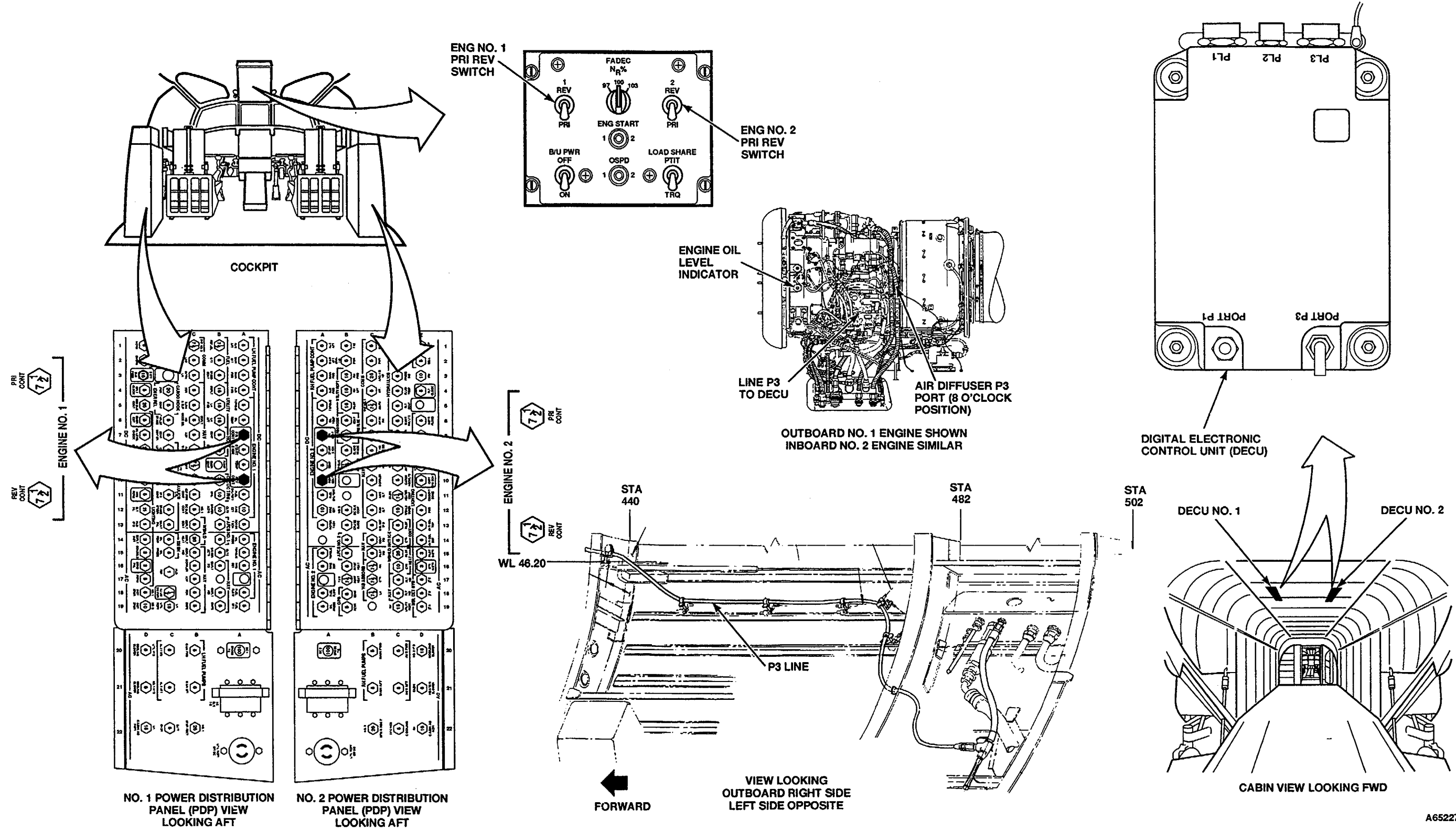
Battery Disconnected

Electrical Power Off

Hydraulic Power Off

**NOTE:** Information in ( ) applies to DECU NO. 2.





A65227

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

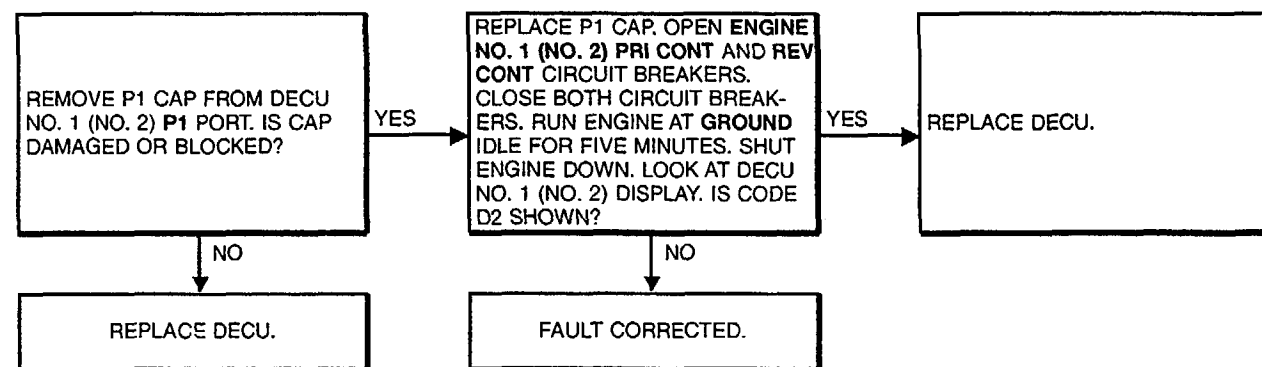
Aircraft Electrician

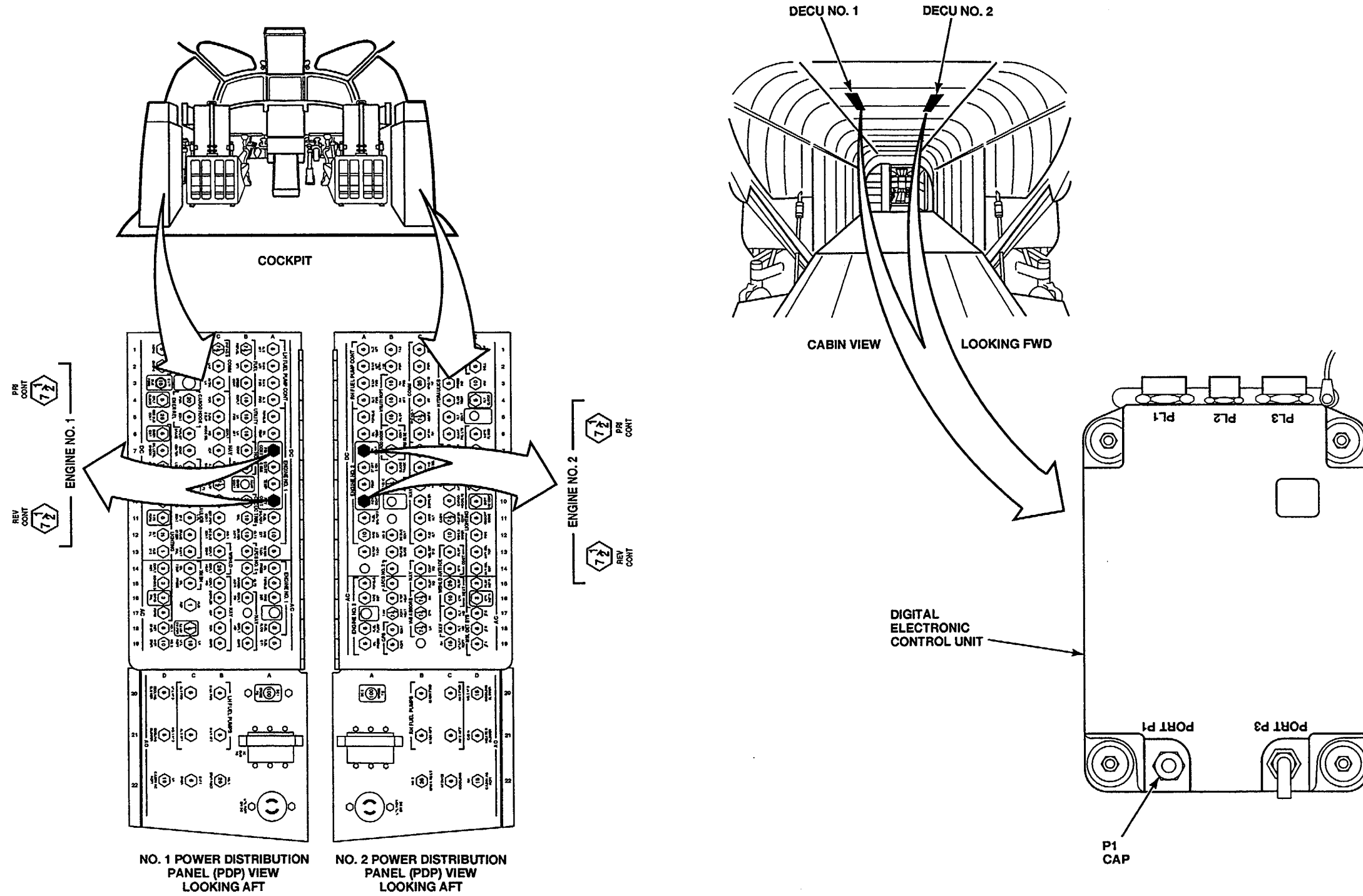
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off





A65210

END OF TASK

Change 17 4-309

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

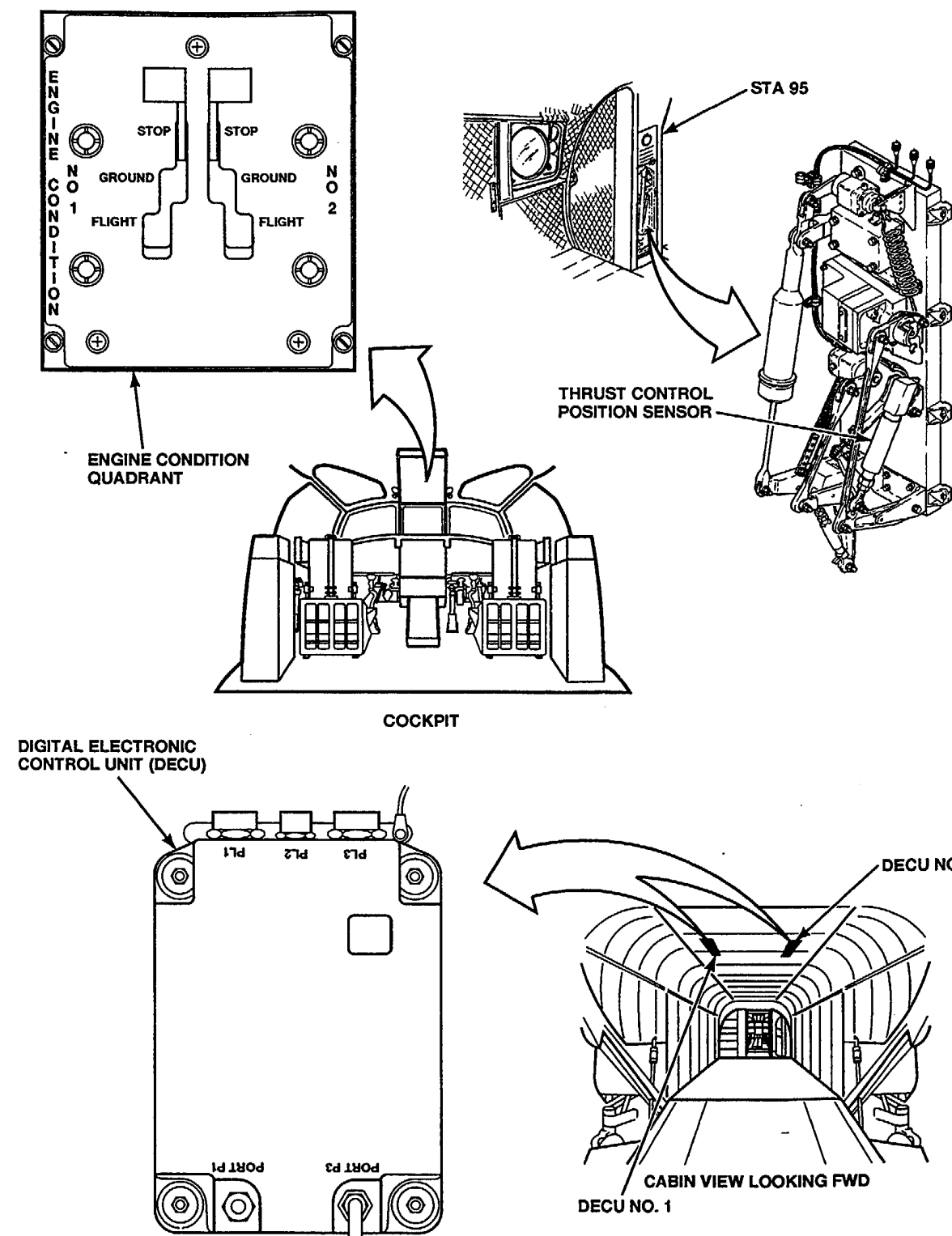
**References:**

TM 55-1520-240-23

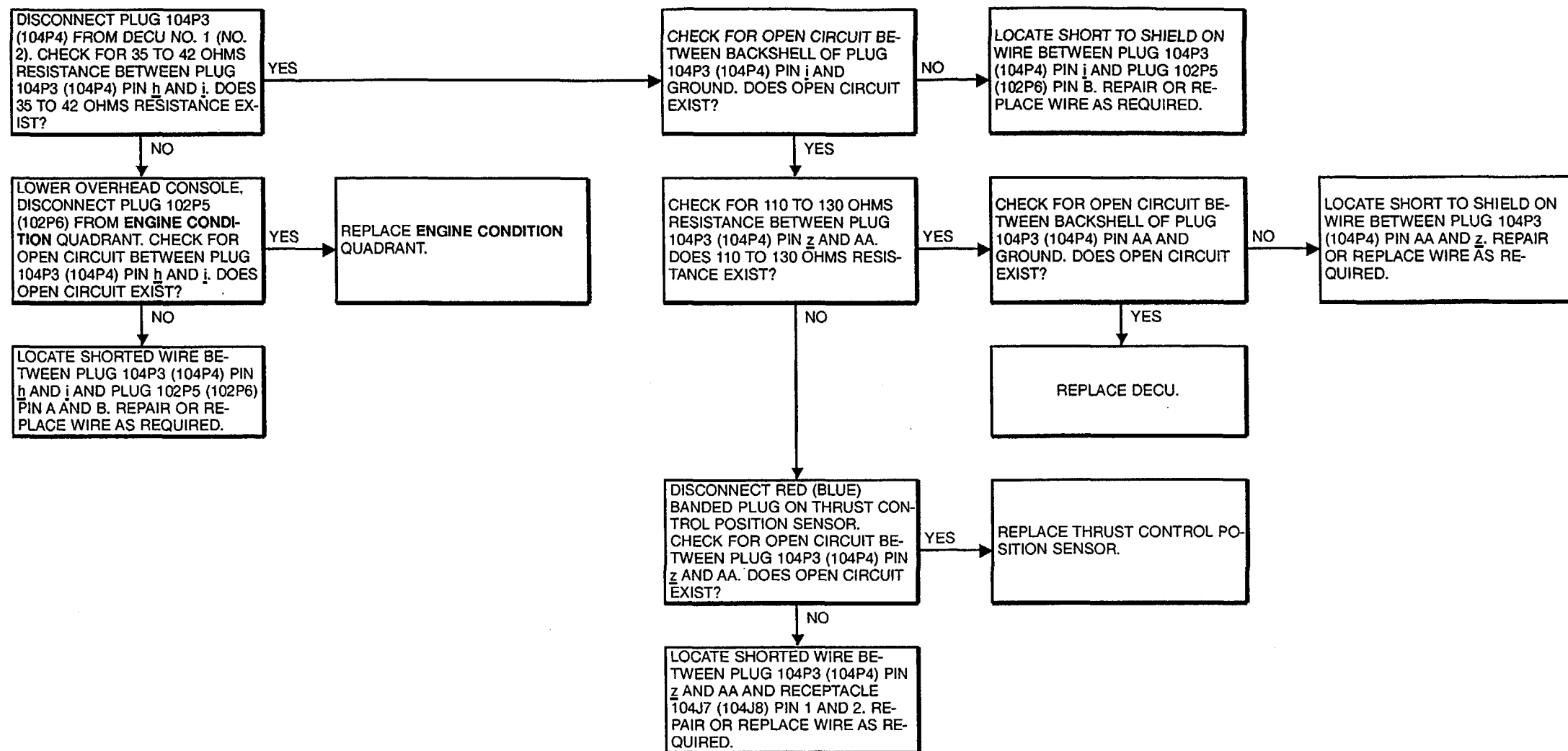
**Equipment Condition:**

TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off



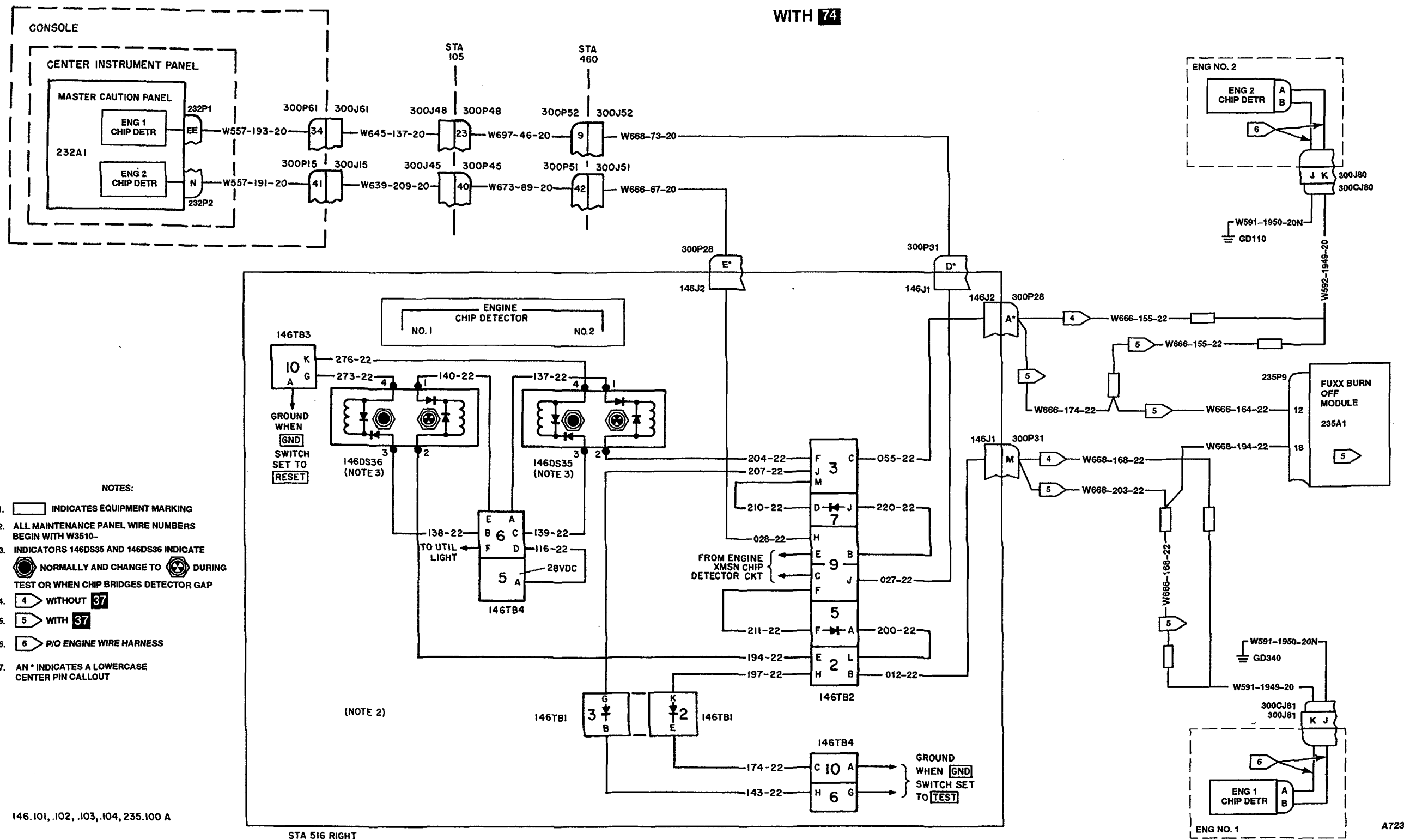
A65226



SECTION 4-13 ENGINE ACCESSORY GEARBOX CHIP DETECTORS (WITH 74) 



4-13.1 ENGINE ACCESSORY GEARBOX CHIP DETECTORS WIRING DIAGRAM



WITH 74

- NOTES:
1. [ ] INDICATES EQUIPMENT MARKING
  2. ALL MAINTENANCE PANEL WIRE NUMBERS BEGIN WITH W3510-
  3. INDICATORS 146DS35 AND 146DS36 INDICATE NORMALLY AND CHANGE TO [ ] DURING TEST OR WHEN CHIP BRIDGES DETECTOR GAP
  4. [4] WITHOUT 37
  5. [5] WITH 37
  6. [6] P/O ENGINE WIRE HARNESS
  7. AN \* INDICATES A LOWERCASE CENTER PIN CALLOUT

146.101, .102, .103, .104, 235.100 A

STA 516 RIGHT

A72300

4-13.2 ENGINE ACCESSORY GEARBOX CHIP DETECTORS VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

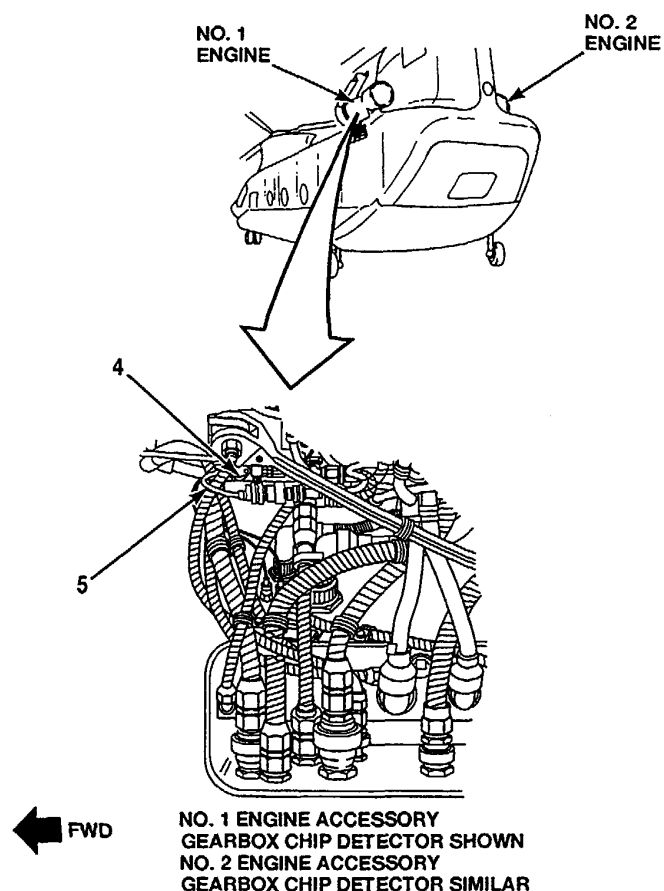
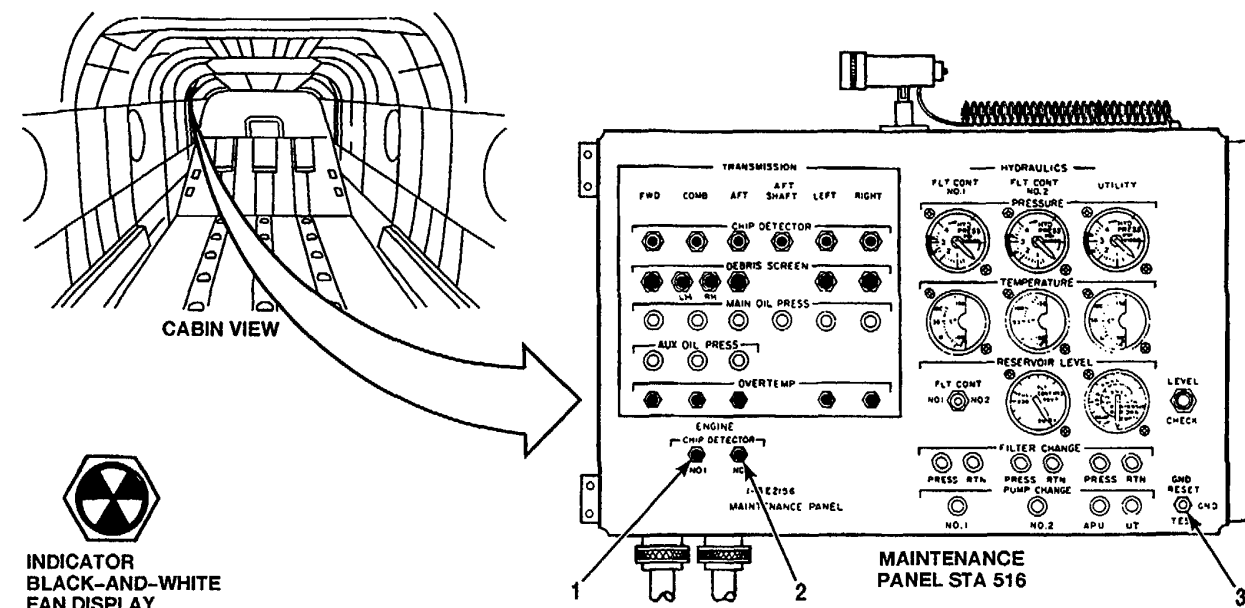
TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- No. 1 or No. 2 Engine Work Platform and Access Doors Open

TASK	RESULT
1. Check NO.1 and NO.2 ENGINE CHIP DETECTOR indicators (1 and 2).	If either indicator (1 or 2) is loose or damaged, tighten or replace it as required. If either indicator displays black-and-white fan, go to task 4-13.4.
2. Check GND switch (3).	If switch (3) is loose or damaged, tighten or replace it as required.
<b>CHECK NO. 1 ENGINE</b>	
3. Check No.1 engine accessory gearbox chip detector (4).	If chip detector (4) is loose or damaged, tighten or replace it as required. If wire (5) is loose or damaged, tighten connection, repair, or replace engine to airframe harness as required.
<b>CHECK NO. 2 ENGINE</b>	
4. Check No.2 engine accessory gearbox chip detector (4).	If chip detector (4) is loose or damaged, tighten or replace it as required. If wire (5) is loose or damaged, tighten connection, repair, or replace engine to airframe harness as required.

FOLLOW-ON MAINTENANCE:

None



NO. 1 ENGINE ACCESSORY GEARBOX CHIP DETECTOR SHOWN  
NO. 2 ENGINE ACCESSORY GEARBOX CHIP DETECTOR SIMILAR

A72301

4-13.3 ENGINE ACCESSORY GEARBOX CHIP DETECTORS OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations:

With 74

Tools:

None

Materials:

Jumper Wire, 24 Inches

Personnel Required:

Medium Helicopter Repairer (2)

References:

TM 55-1520-240-23

Equipment Condition:

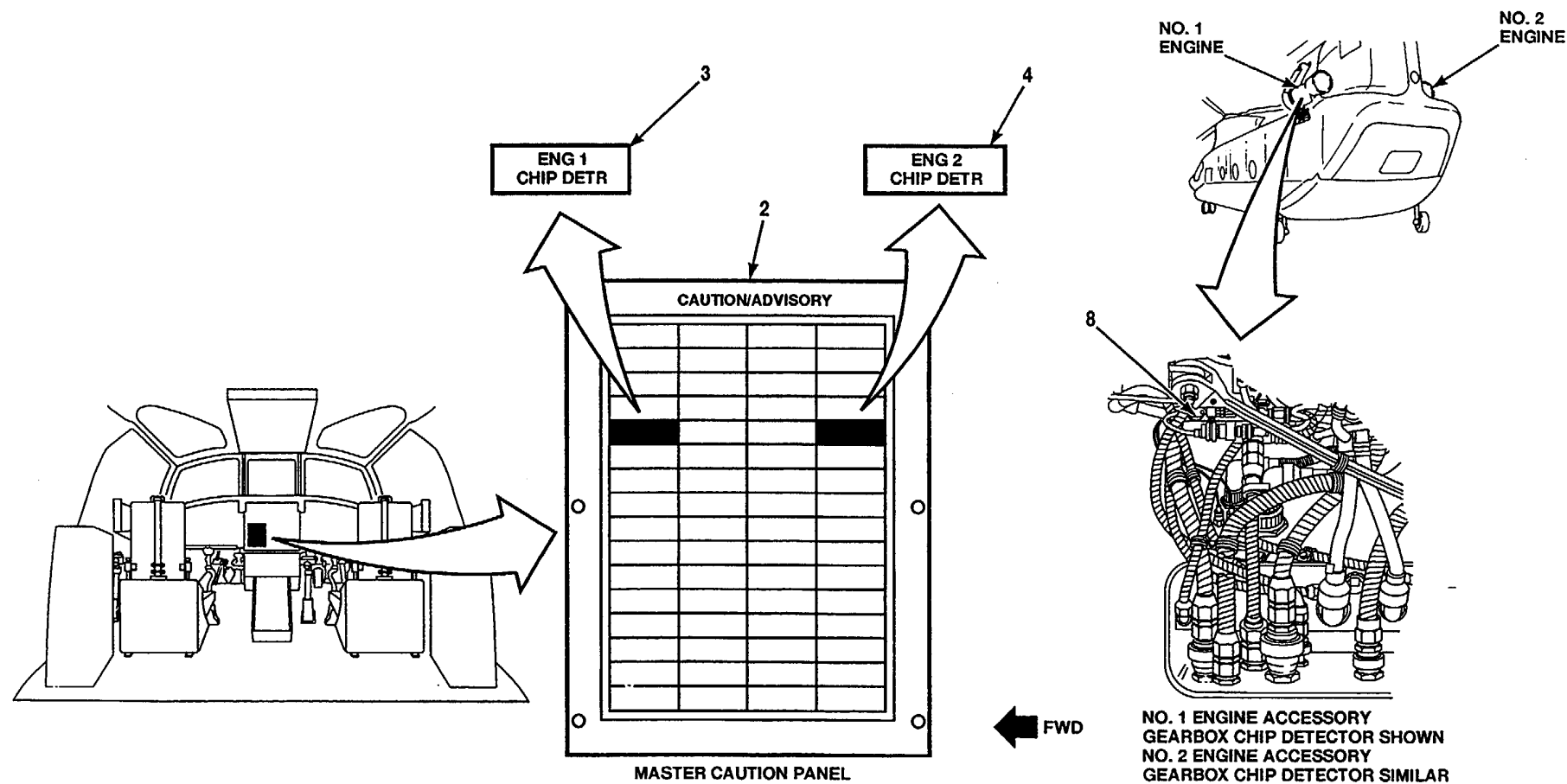
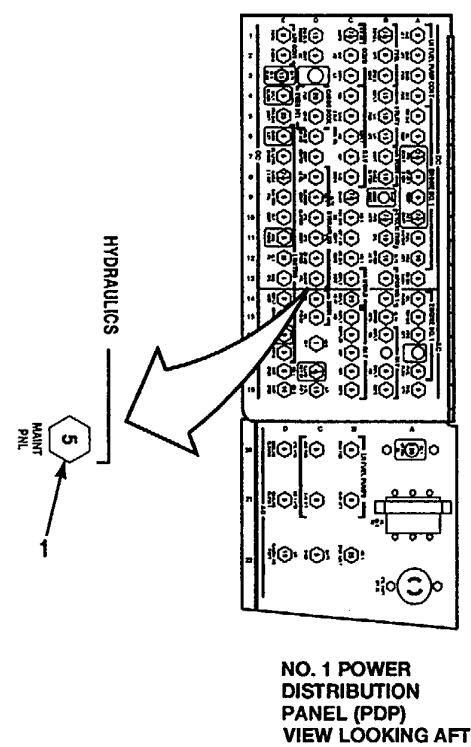
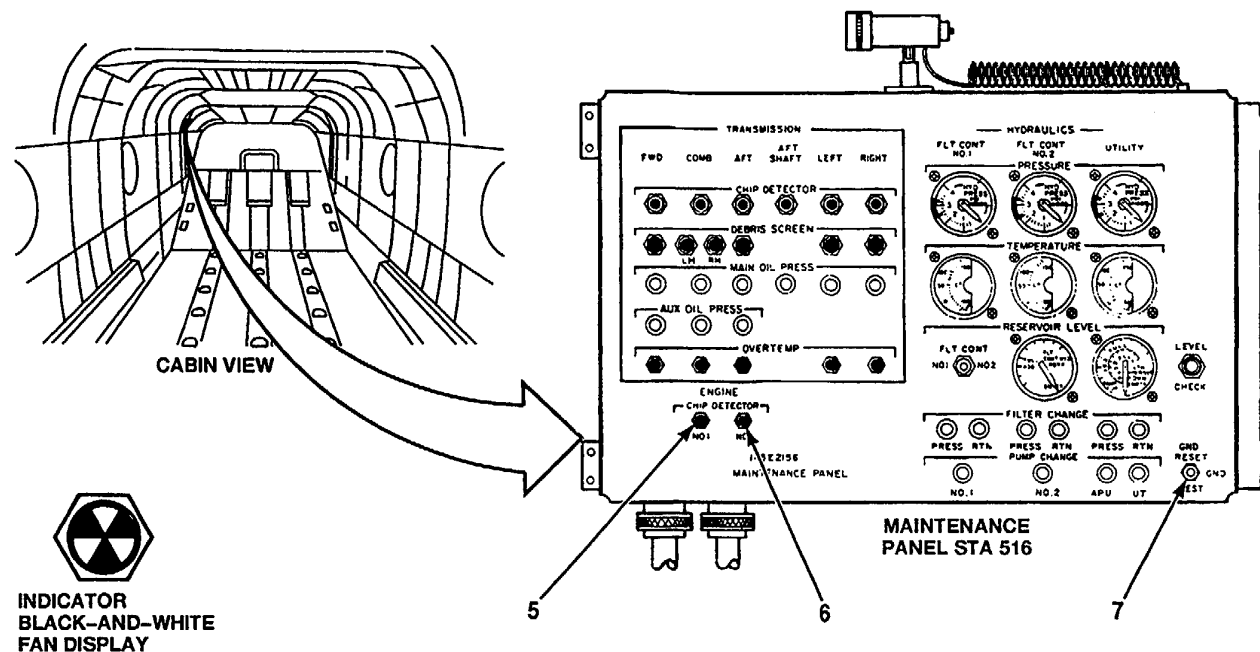
TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power On

Visual Check of Engine Accessory Gearbox Chip Detectors Performed (Task 4-13.2)



4-13.3 ENGINE ACCESSORY GEARBOX CHIP DETECTORS OPERATIONAL CHECK (Continued)

4-13.3

TASK	RESULT
1. Check that HYDRAULICS MAINT PNL circuit breaker (1) is closed.	If circuit breaker (1) is open, close it. If it opens again, go to task 8-14.3.
2. Check master caution panel (2).	If ENG 1 or ENG 2 CHIP DETR capsule (3 or 4) is lit, go to task 4-13.4.
3. Check NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (5 and 6).	Both indicators shall be all-black. If either indicator displays black-and-white fan, go to task 4-13.5.
4. Set and hold GND switch (7) to TEST.	ENG 1 and ENG 2 CHIP DETR capsules (3 and 4) shall come on. NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (5 and 6) shall change to black and white fan. If ENG 1 CHIP DETR capsule is out, go to task 4-13.6. If ENG 2 CHIP DETR capsule is out, go to task 4-13.7. If NO. 1 or NO. 2 ENGINE CHIP DETECTOR indicator is all-black, go to task 4-13.8.
5. Set GND switch (7) to RESET, then to GND.	NO. 1 and NO. 2 ENGINE CHIP DETECTOR indicators (5 and 6) shall change to all-black. If both indicator displays are not black, go to task 4-13.5.
<b>CHECK NO. 1 ENGINE ACCESSORY GEARBOX CHIP DETECTOR</b>	
6. Short terminal stud of NO. 1 engine chip detector (8) to its mounting base with a jumper wire.	ENG 1 CHIP DETR capsule (3) shall come on and NO. 1 ENGINE CHIP DETECTOR indicator (5) shall change to black-and white fan. If capsule does not come on and indicator display does not change, go to task 4-13.9.
7. Remove jumper.	ENG 1 CHIP DETR capsule (3) shall go out. If it stays on, go to task 4-13.4.
8. Set GND switch (7) to RESET, THEN TO GND.	NO. 1 ENGINE CHIP DETECTOR indicator (5) display shall change to all-black. If it does not, go to task 4-13.5.
<b>CHECK NO. 2 ENGINE ACCESSORY GEARBOX CHIP DETECTOR</b>	
9. Short terminal stud of No. 2 engine chip detector (8) to its mounting base with a jumper wire.	ENG 2 CHIP DETR capsule (4) shall come on and NO. 2 ENGINE CHIP DETECTOR indicator (6) shall change to black-and-white fan. If capsule does not come and indicator display does not change, go to task 4-13.9.
10. Remove jumper.	ENG 2 CHIP DETR capsule (4) shall go out. If it stays on, go to task 4-13.4.

TASK	RESULT
11. Set GND switch (7) to RESET then to GND.	NO. 2 ENGINE CHIP DETECTOR indicator (6) display shall change to all-black. If it does not, go to task 4-13.5.
<b>FOLLOW-ON MAINTENANCE:</b> TM 55-1520-240-23: Remove electrical power. Disconnect battery. Close No. 1 or No. 2 engine work platform and access door.	

4-13.4 ENG 1 OR ENG 2 CHIP DETR CAPSULE IS LIT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit,  
NSN 5180-00-323-4944
- Multimeter

**Materials:**

None

**Personnel Required:**

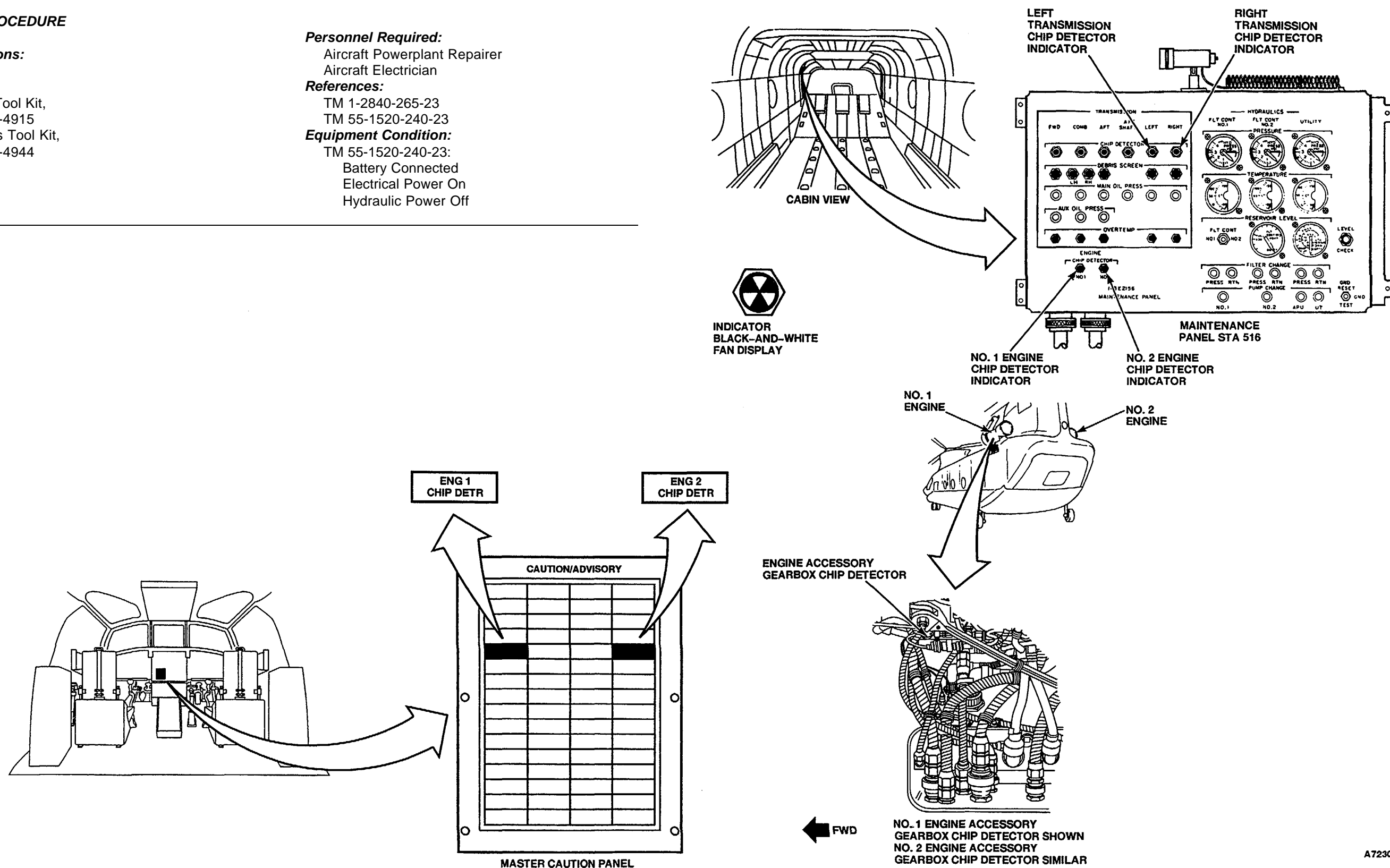
- Aircraft Powerplant Repairer
- Aircraft Electrician

**References:**

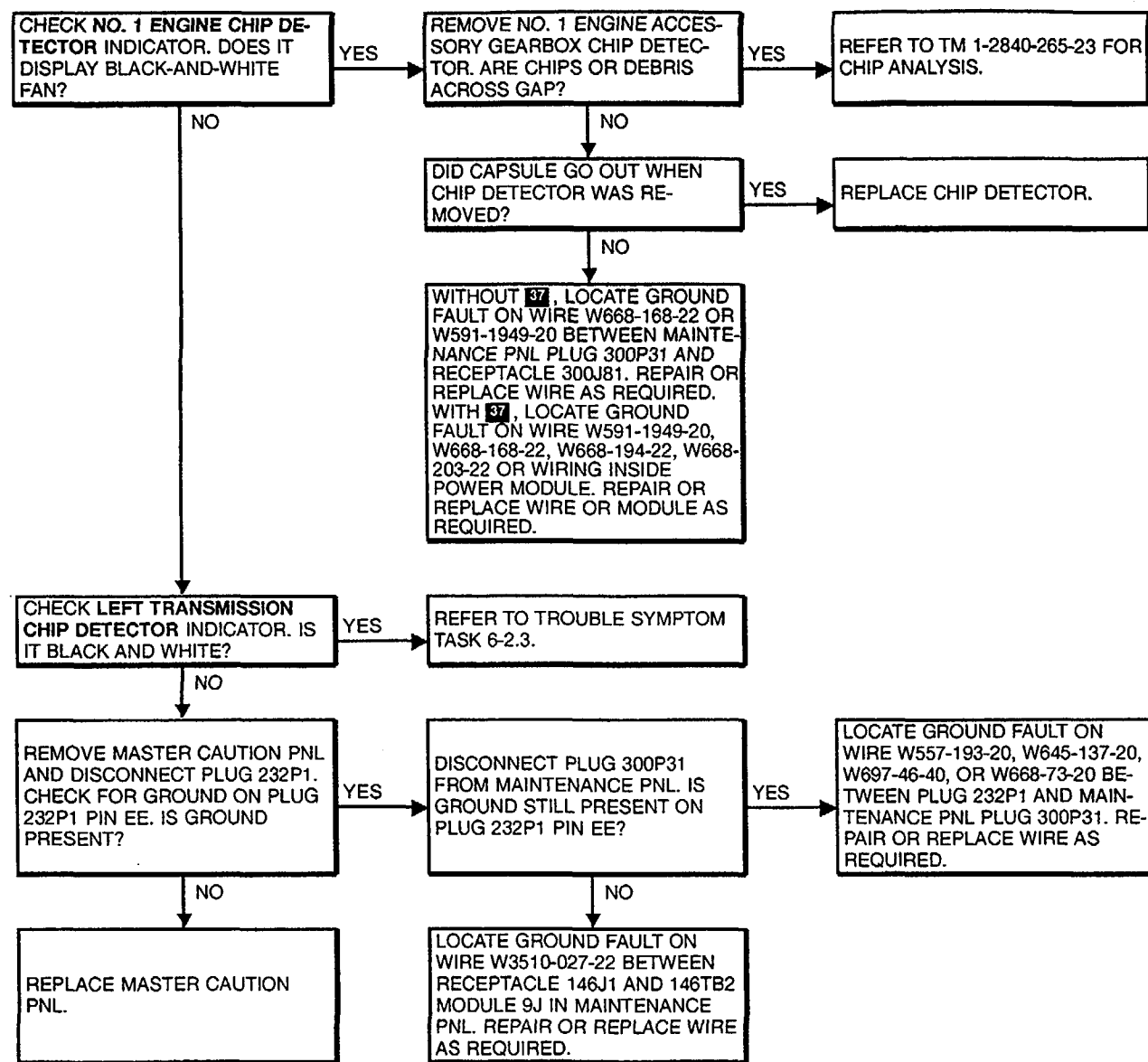
- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

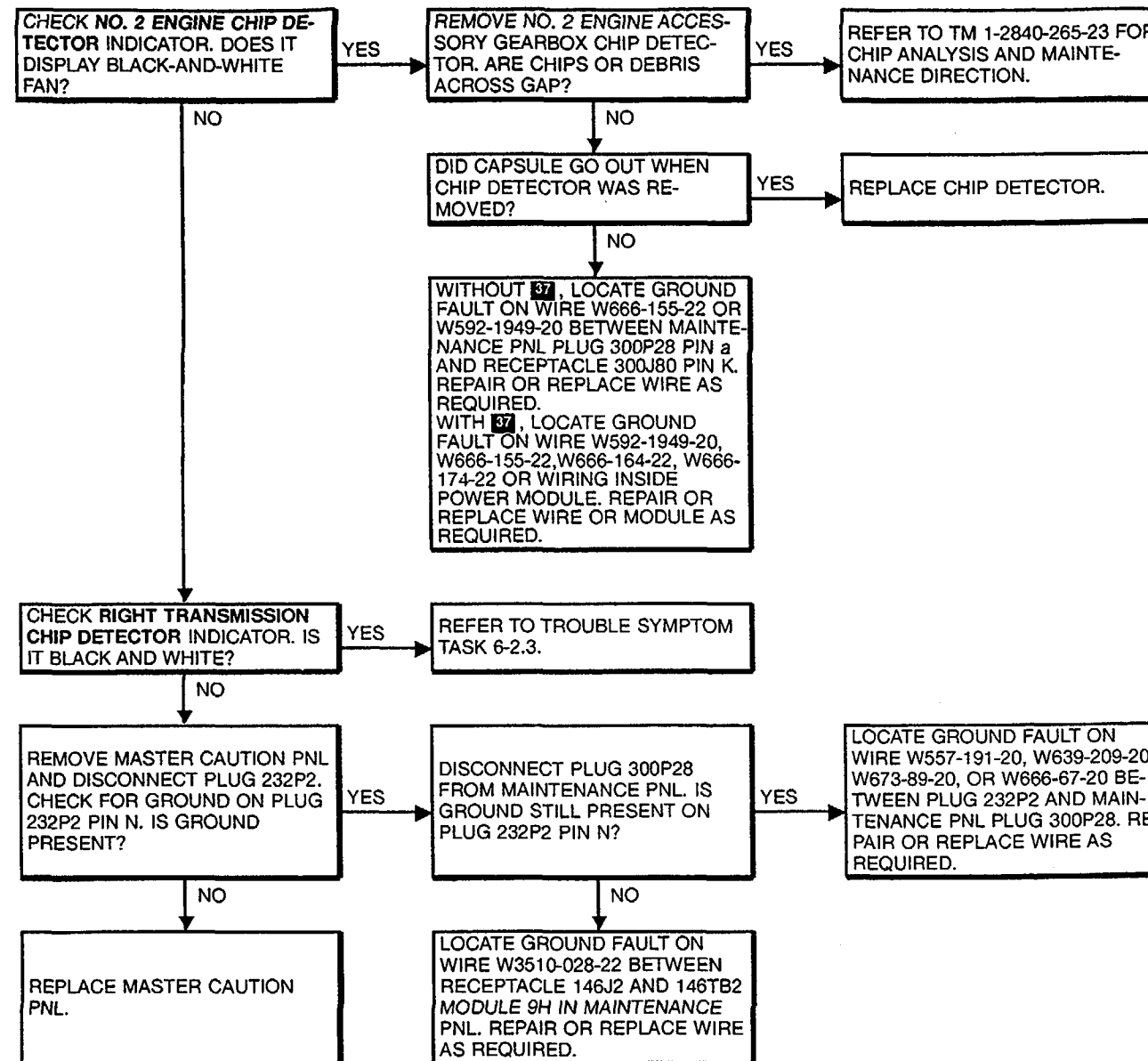
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



ENG 1 CHIP DETR CAPSULE IS LIT



ENG 2 CHIP DETR CAPSULE IS LIT



4-13.5 NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK- AND-WHITE FAN, ENG 1 OR ENG 2 CHIP DETR CAPSULE OUT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

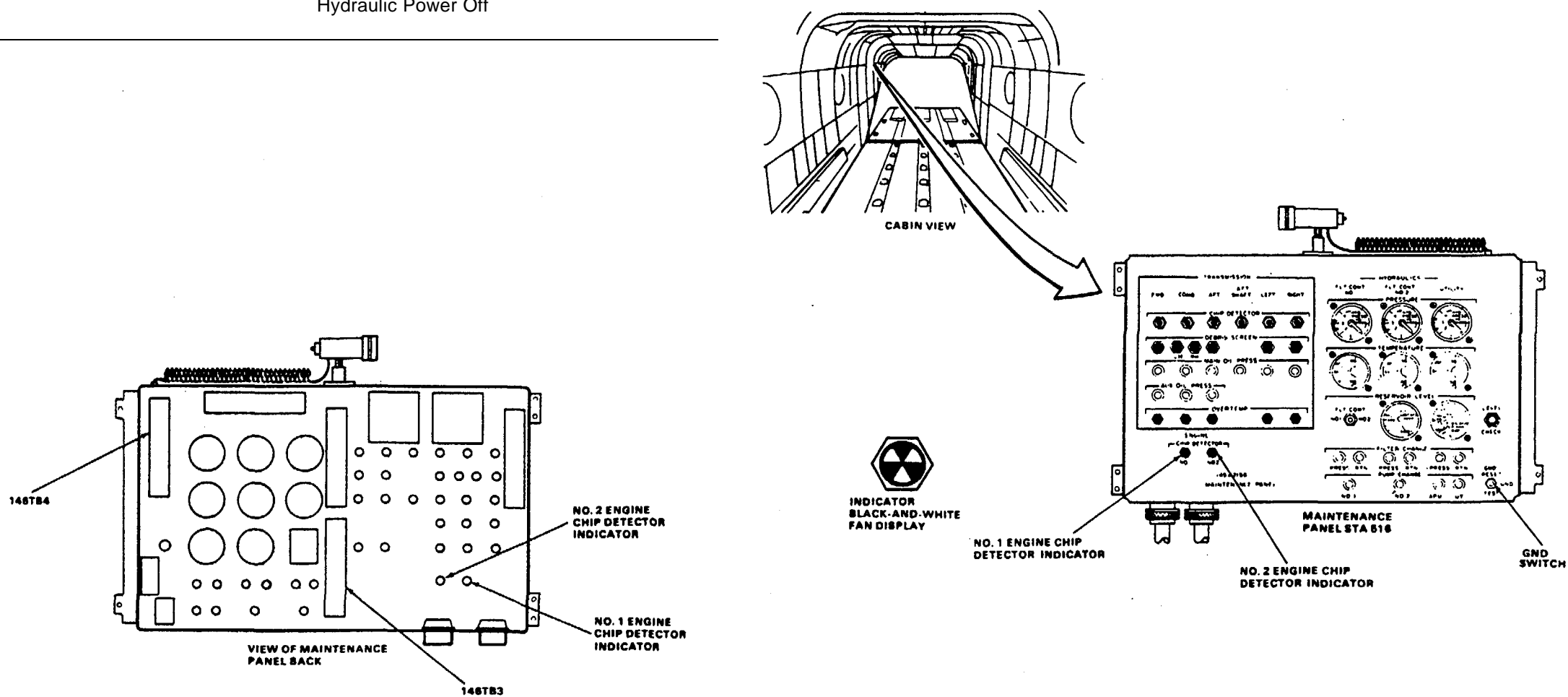
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

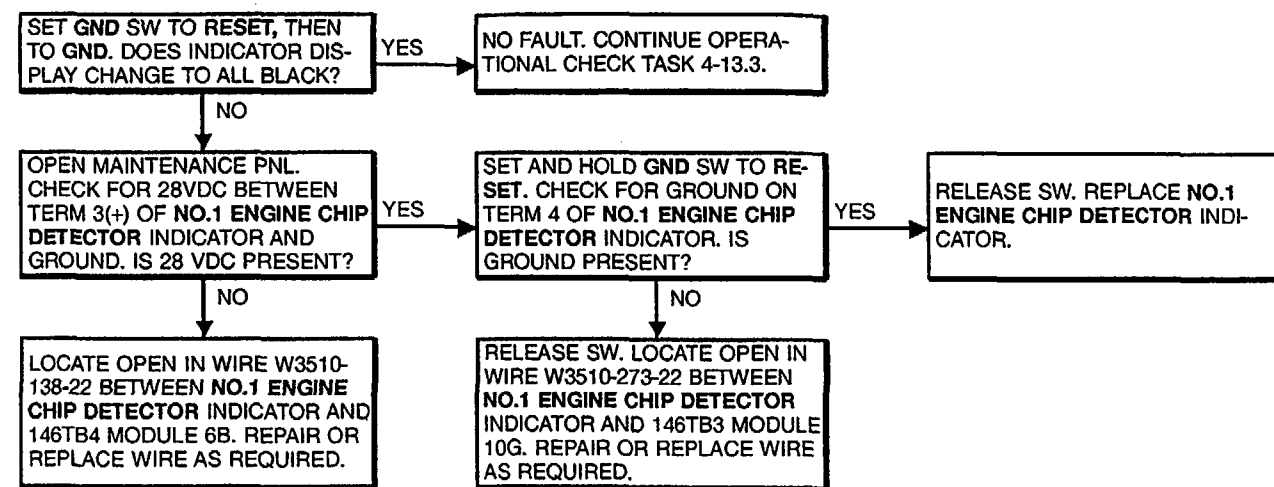
Hydraulic Power Off



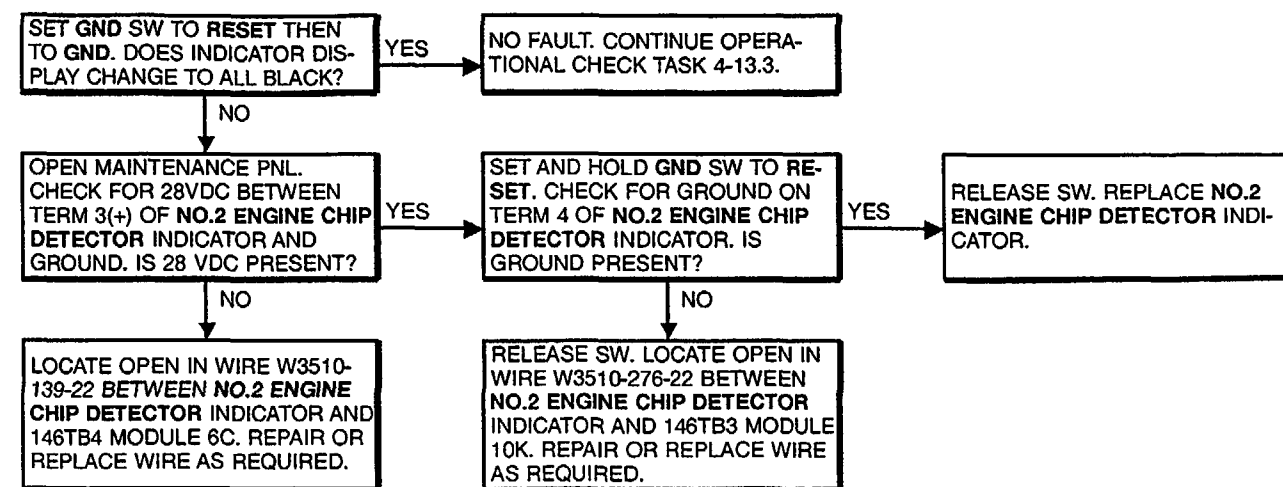
90154

0145-9255-SPA

**NO. 1 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN**



**NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN**





4-13.6 ENG 1 CHIP DETR CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

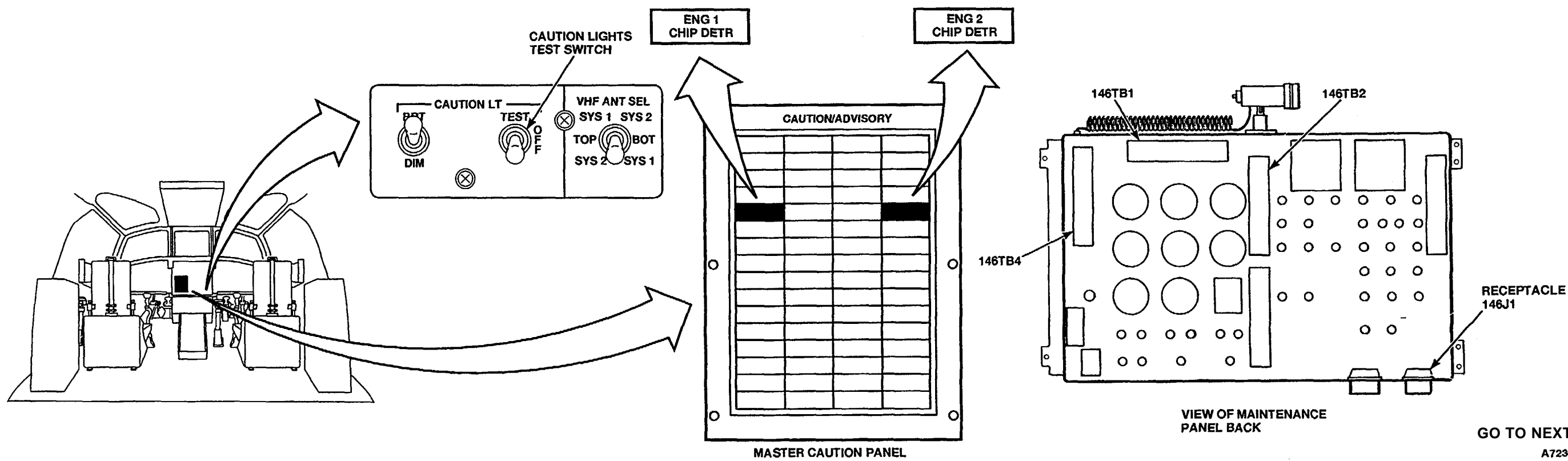
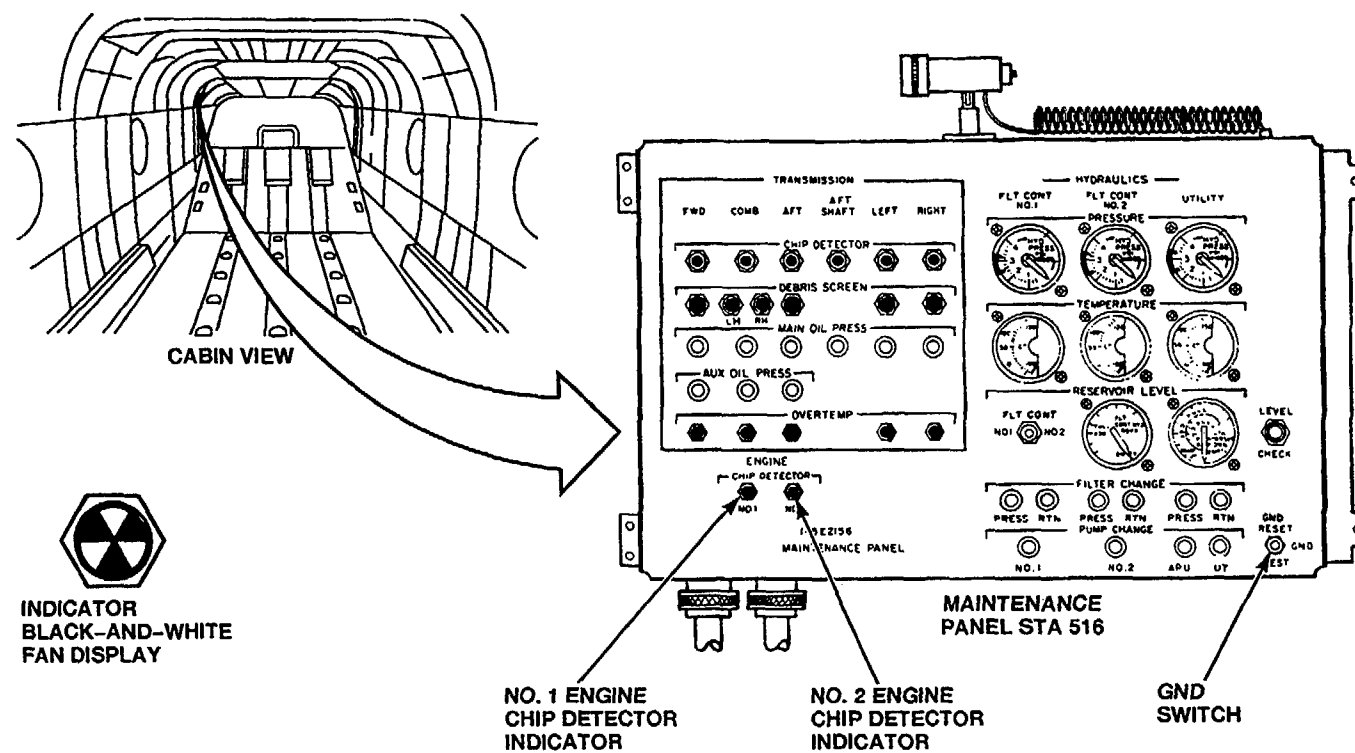
**References:**

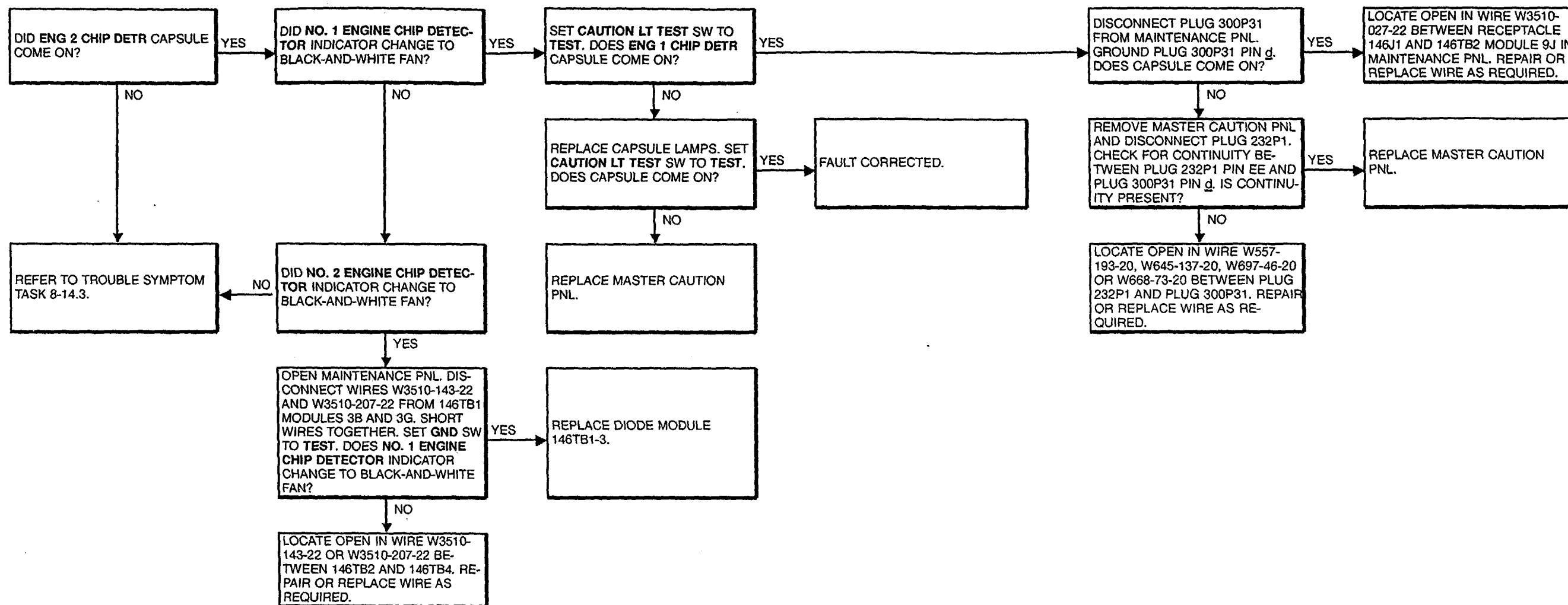
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-2423:

Battery Connected  
Electrical Power On  
Hydraulic Power Off





4-13.7 ENG 2 CHIP DETR CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

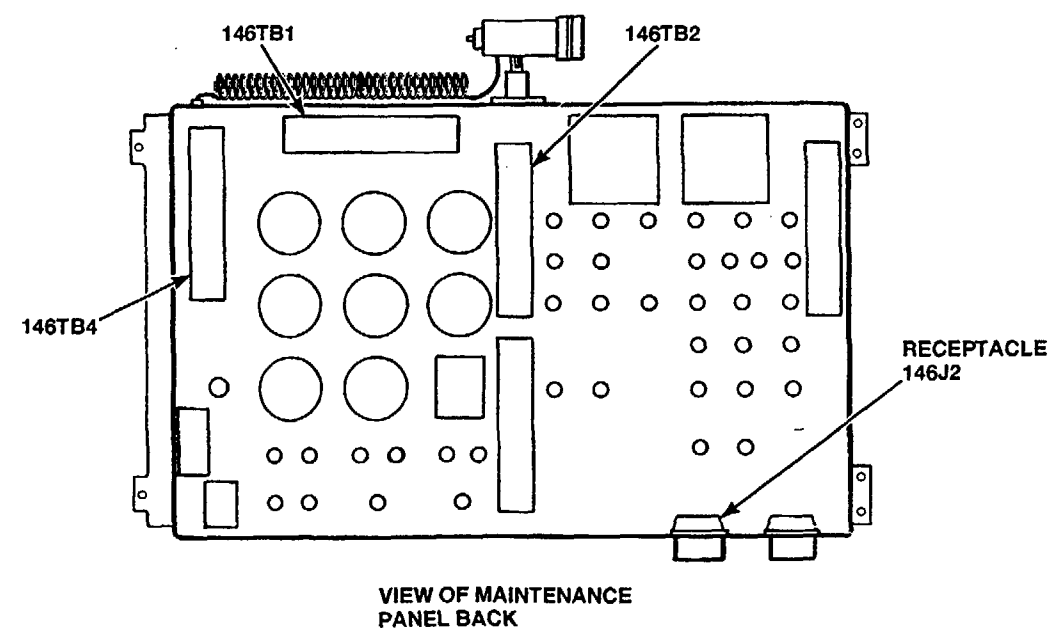
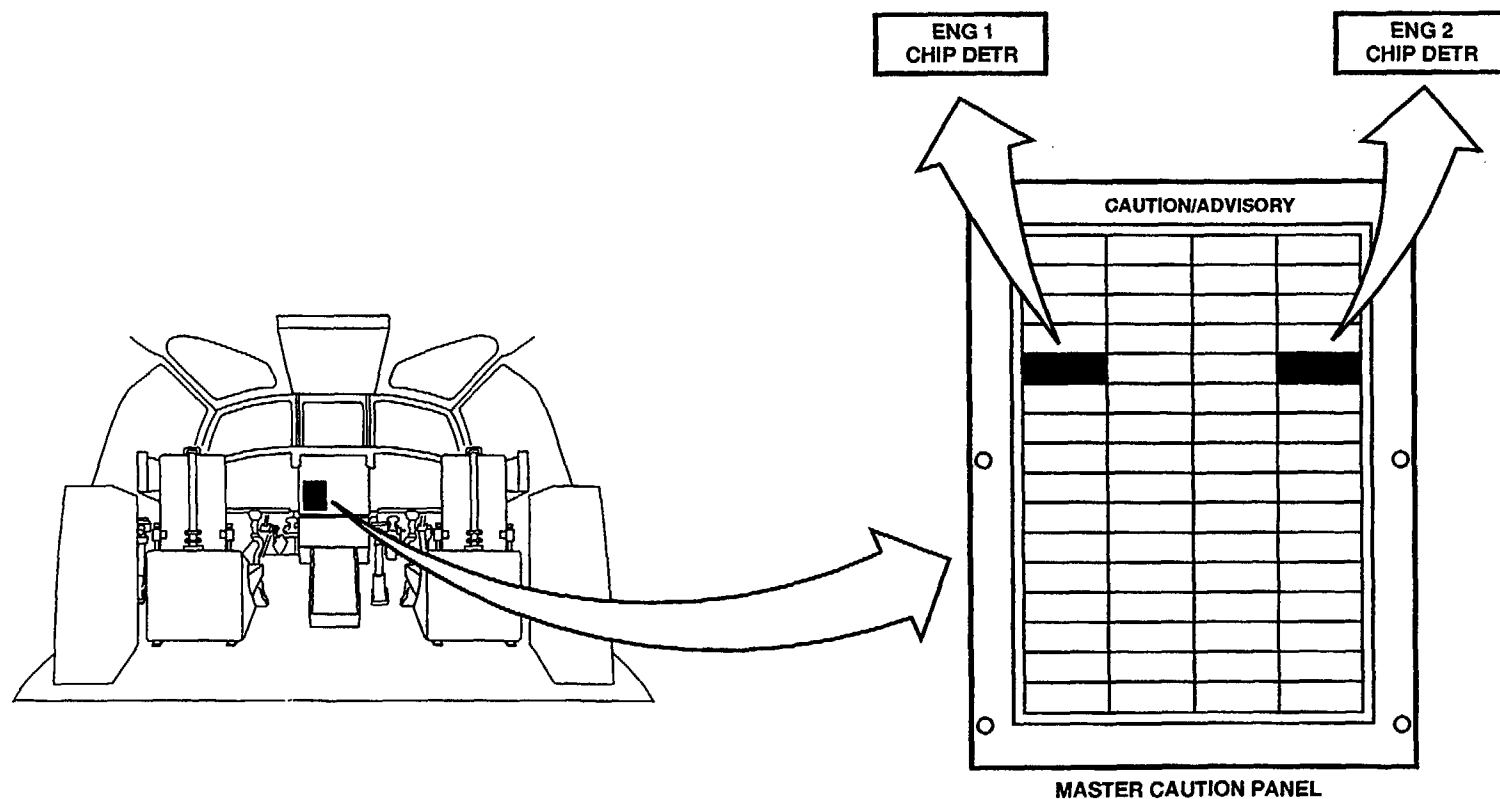
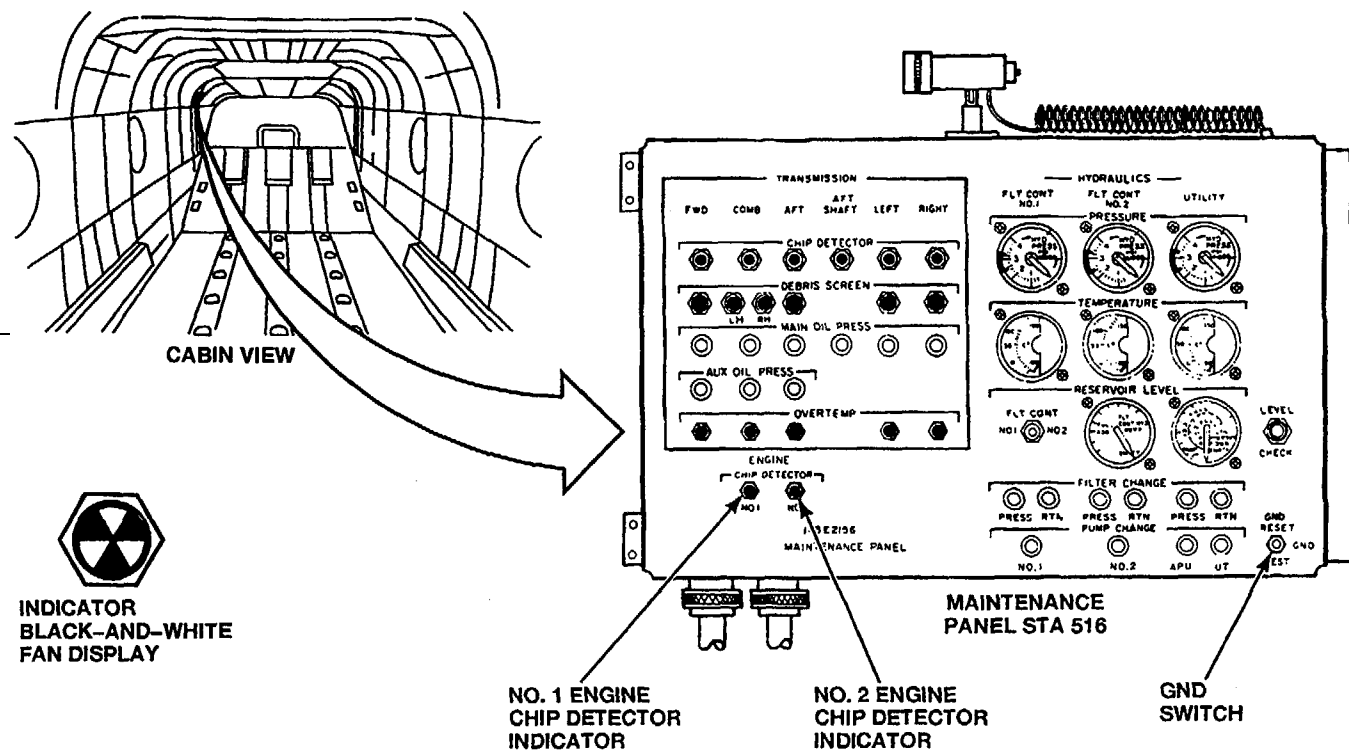
Aircraft Electrician

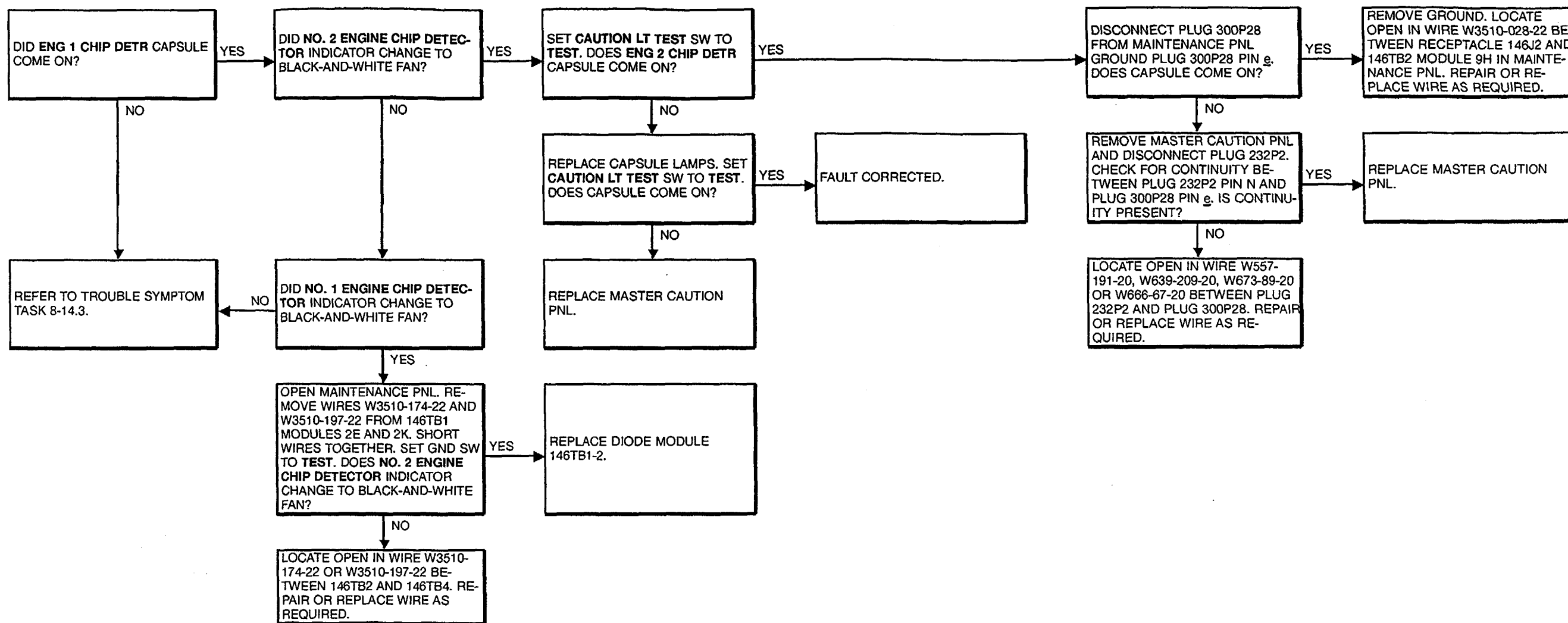
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off





4-13.8 NO. 1 OR NO. 2 ENGINE CHIP DETECTOR INDICATOR DISPLAY IS ALL BLACK WHEN GND SWITCH SET TO TEST

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

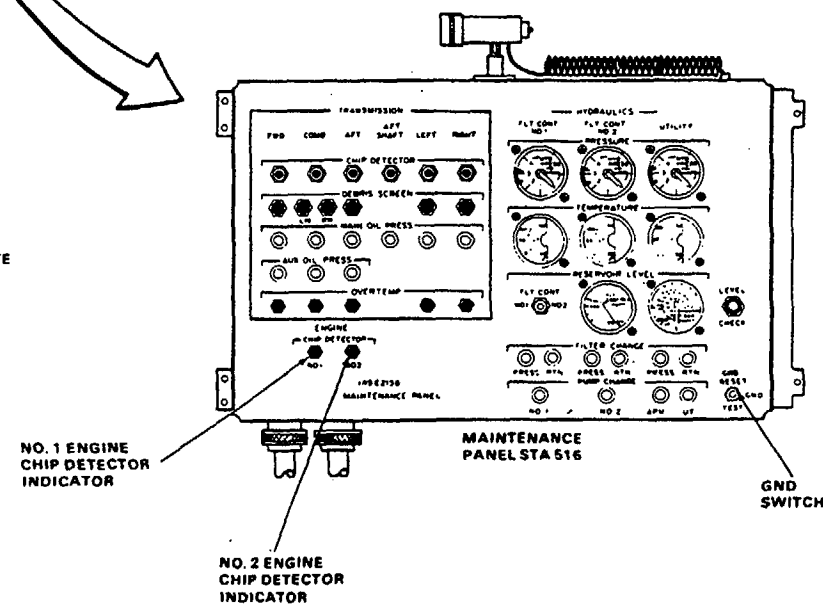
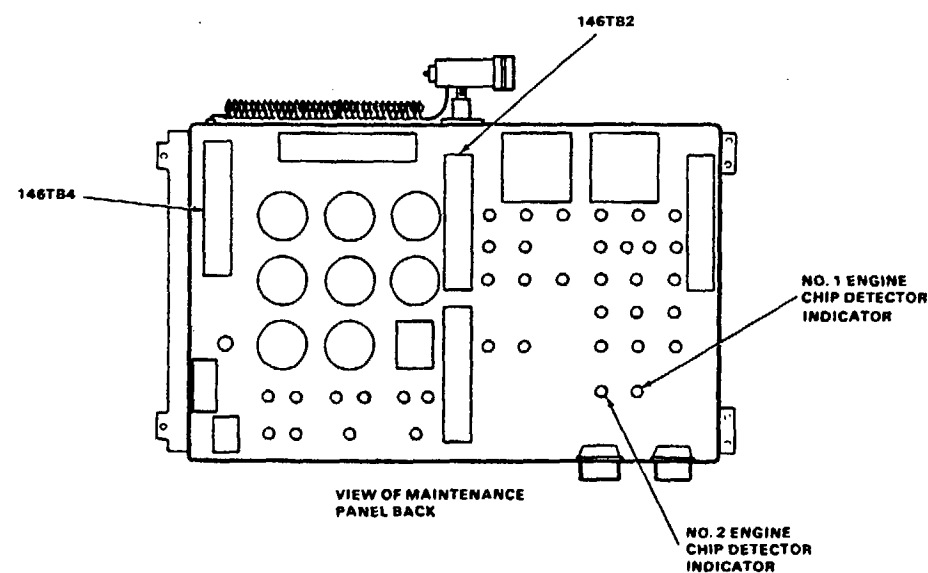
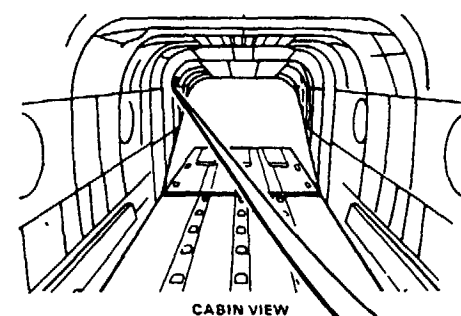
Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

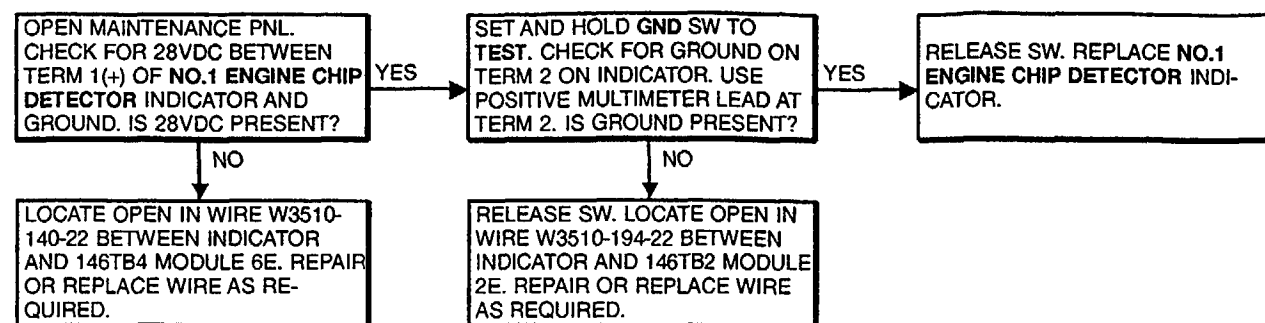
TM 55-1520-240-23: Battery Connected  
Electrical Power On  
Hydraulic Power Off



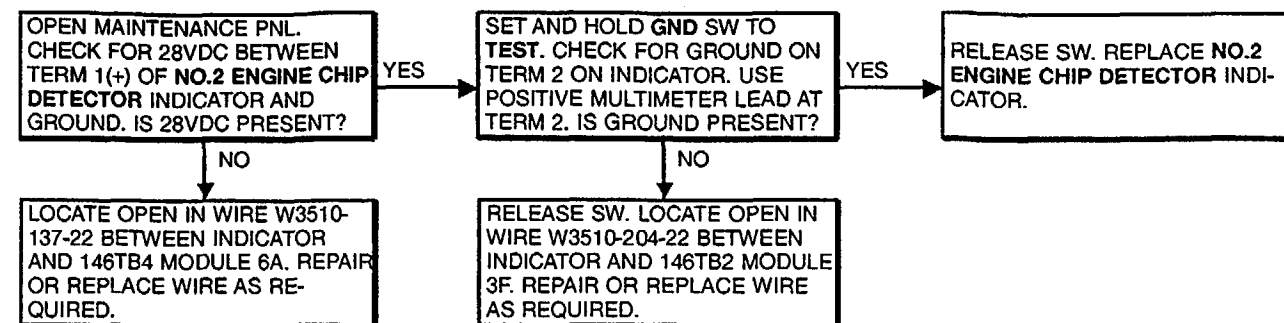
90-54

D145-9258-SPA

NO. 1 ENGINE CHIP DETECTOR INDICATOR IS BLACK WHEN GND SWITCH IS SET TO TEST



NO. 2 ENGINE CHIP DETECTOR INDICATOR IS BLACK WHEN GND SWITCH IS SET TO TEST



4-13.9 ENG CHIP DETR CAPSULE DOES NOT COME ON AND ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

With 74

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Powerplant Repairer's Tool Kit, NSN 5180-00-323-4944

Multimeter

**Materials:**

- Jumper Wire, 24 Inches

**Personnel Required:**

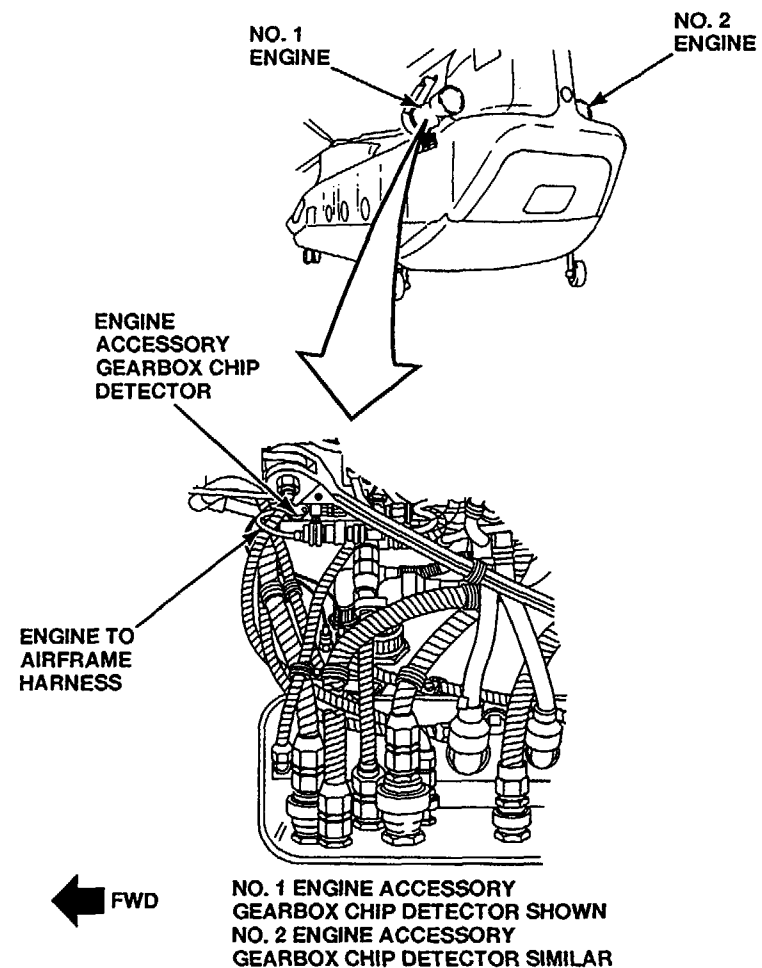
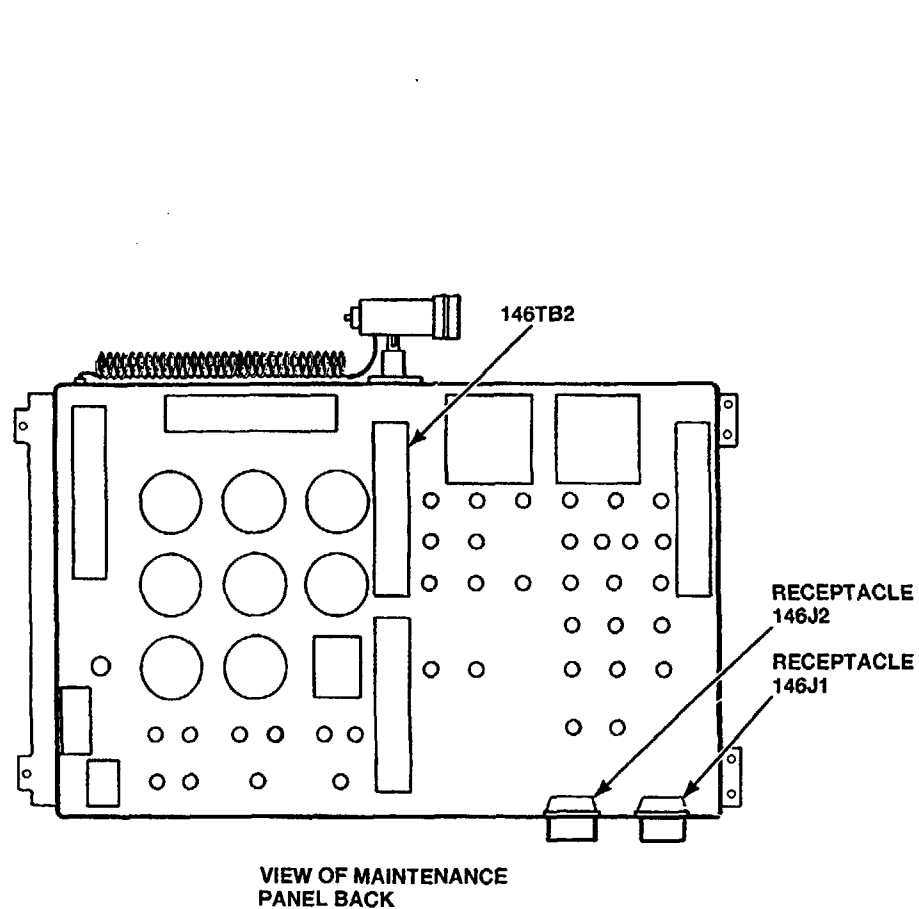
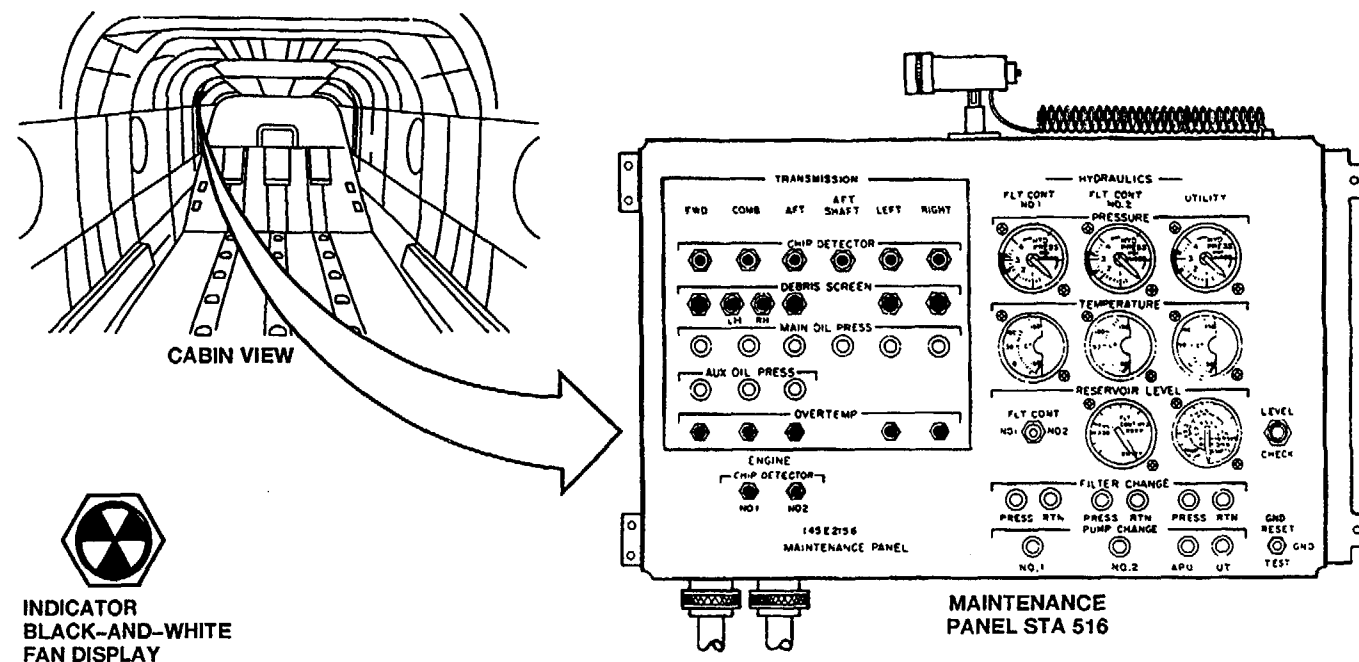
- Aircraft Electrician
- Aircraft Powerplant Repairer

**References:**

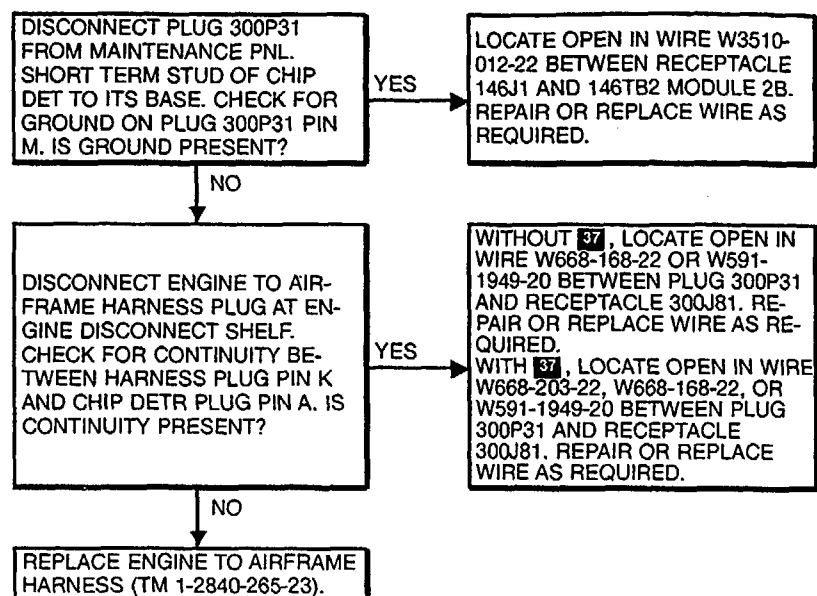
- TM 1-2840-265-23
- TM 55-1520-240-23

**Equipment Condition:**

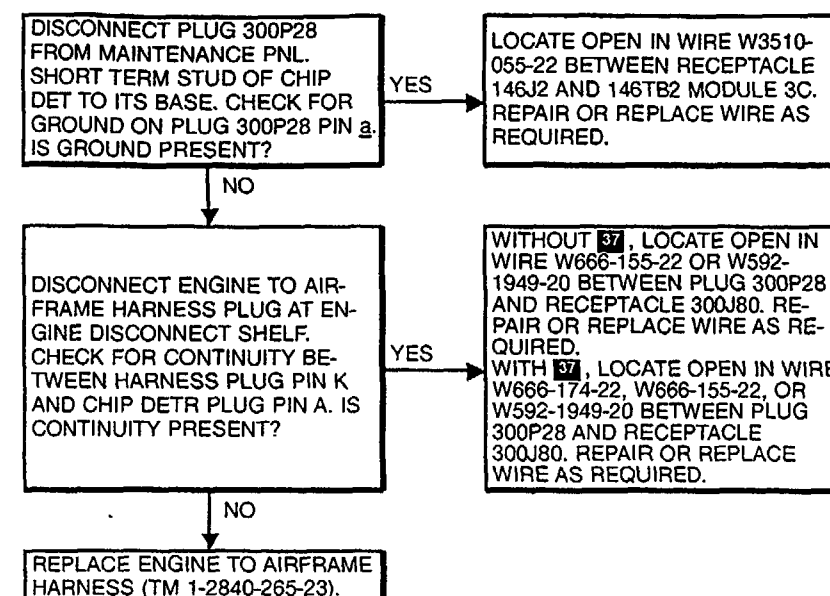
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



**ENG 1 CHIP DETR CAPSULE DOES NOT COME ON AND NO. 1 ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED**



**ENG 2 CHIP DETR CAPSULE DOES NOT COME ON AND NO. 2 ENGINE CHIP DETECTOR INDICATOR DOES NOT CHANGE DISPLAY WHEN DETECTOR SHORTED**





## **CHAPTER 5**

# **ROTOR BLADE TRACKING AND BALANCING SYSTEM TROUBLESHOOTING**

**CHAPTER 5  
 ROTOR BLADE TRACKING AND BALANCING SYSTEM TROUBLESHOOTING  
 CHAPTER OVERVIEW**

Chapter 5 contains procedures for Rotor Blade Tracking and Balancing System troubleshooting. Rotor Blade Tracking and Balancing system and failure symptoms are listed below. Included in this Chapter are locations and views of all electrical connectors, receptacles, relays, and ground connections for the Rotor Blade Tracking and Balancing System.

Refer to TM 55-1520-240-23 for required Rotor Blade Tracking and Balancing Systems maintenance procedures.

SYSTEM	PARA	SYSTEM	PARA
CENTRIFUGAL DROOP STOPS	5-1	ROTOR BLADE TRACKING AND BALANCING SYSTEM	5-2

**FAILURE SYMPTOM LIST**

ROTOR BLADE TRACKING AND BALANCING SYSTEM

SYMPTOM	TASK
GREEN POWER STATUS LIGHTS DO NOT COME ON WHEN HELITUNE UNIT IS TURNED ON	5-2.3
NO FWD LATERAL OR AFT LATERAL INDICATION ON IPS INDICATOR	5-2.3
NO FWD VERTICAL OR AFT VERTICAL INDICATION ON IPS INDICATOR	5-2.3
PHAZOR CLOCK ANGLE INDICATOR LIGHTS DO NOT COME ON	5-2.3
ROTOR BLADE CIRCUIT BREAKER WILL NOT STAY CLOSED	5-2.3
TRACKING TARGETS NOT VISIBLE OR STROBEX TUBE LAMP DOES NOT FLASH	5-2.3

ROTOR SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST

REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION		
				FS	WL	BL
GD134		151	RH CABIN	255	35	50R
GD307		151	RH CABIN	255	35	50R
138J1	MS3470W14-15S	19	BALANCER — RH CABIN	256	35	50R
138P2	MS3456W14S-5P	49	FWD ACCELEROMETER	70	55	12L
138P3	MS25183-10SL-4S	46	MAG PHASE DET — FWD SWASH PLATE	78	80	20L
138P4	MS3456W14S-5P	49	AFT ACCELEROMETER	590	122	0
300J8	M83723-74A2461N	42	NO. 2 PDP			
300P8	M83723-75A2461N	42	NO. 2 PDP			
300J44	M83723-74A2461N	43	AFT PYLON	520	72	15L
300P44	M83723-75A2461N	43	AFT PYLON	520	72	15L
300J47	M83723-74A2461N	43	HEATER COMPARTMENT — OVHD	105	40	20L
300P47	M83723-75A2461N	43	HEATER COMPARTMENT — OVHD	105	40	20L
300J52	M83723-74A2255N	42	AFT CROWN	460	45	30L
300P52	M83723-75A2255N	42	AFT CROWN	460	45	30L

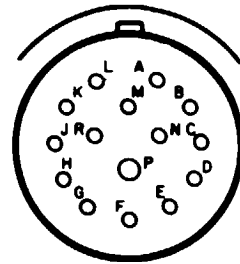
ROTOR BLADE TRACKING AND BALANCING SYSTEM  
ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

RECEPTACLE

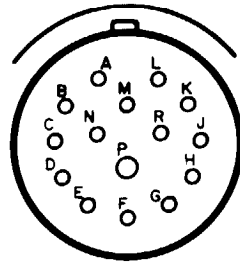
PLUG

RECEPTACLE

PLUG



19



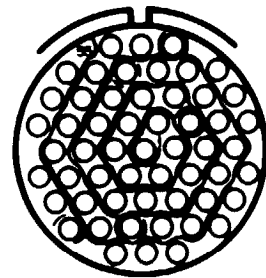
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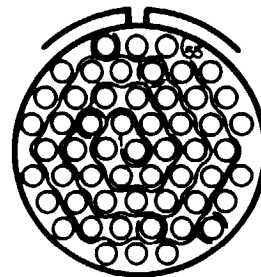
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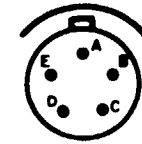
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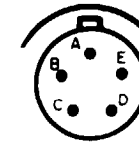
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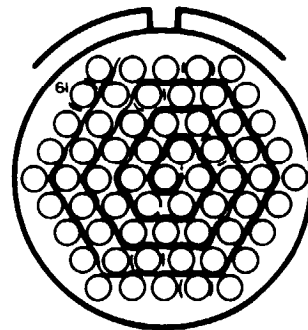
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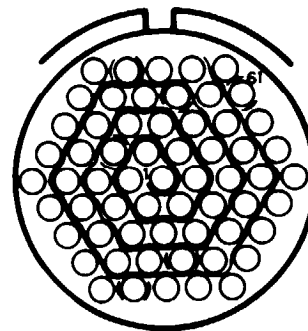
49



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43



43

GND STUD



151

## **5-1 CENTRIFUGAL DROOP STOP**

5-1 CENTRIFUGAL DROOP STOP

5-1.1 CENTRIFUGAL DROOP STOP VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**  
All

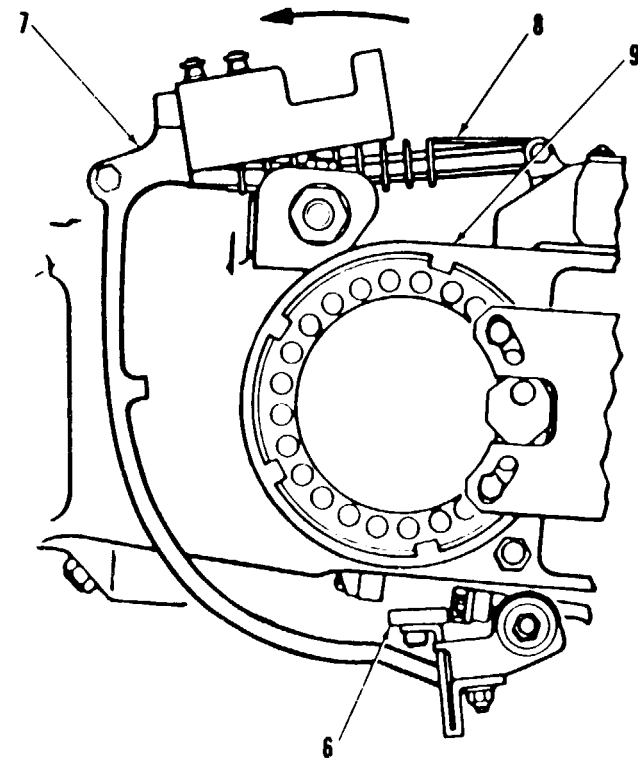
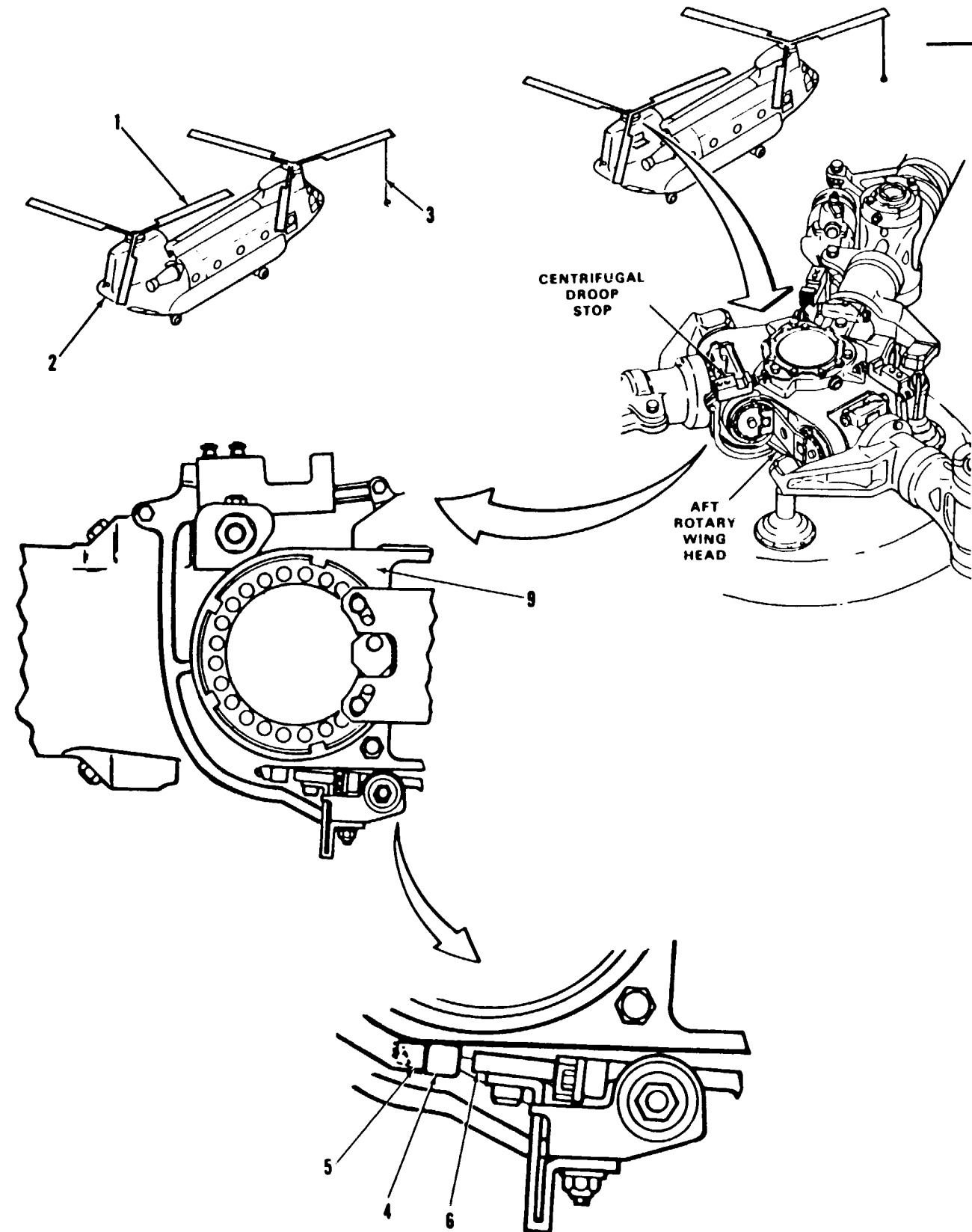
**References:**  
TM 55-1520-240-23

**Tools:**  
Aircraft Mechanic's Tool Kit,  
NSN 518-00-323-4692

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Tiedown Line Installed on One Forward  
Blade  
Aft Pylon Work Platform Open  
Droop Stop Shrouds Removed

**Materials:**  
None

**Personnel Required:**  
67U10 Medium Helicopter Repairer (3)  
67U20 Medium Helicopter Repairer



5-1.1 CENTRIFUGAL DROOP STOP VISUAL CHECK (Continued)

5-1.1

TASK	RESULT
------	--------

**WARNING**

Rotor blades can seriously injure personnel. Make sure area around helicopter is clear of personnel before turning blades.

**NOTE**

Blade for centrifugal droop stop to be checked must be positioned over fuselage.

1. Position blade (1) over fuselage (2). Connect tiedown line (3) to one forward blade.
2. Have helpers lift blade (1) until fixed droop stop (4) on pitch shaft (5) is clear of interposer block (6). Support blade.

**CAUTION**

Balancing arms must move freely when blade is raised. Fuselage can be damaged if there is interference with balancing arm operation.

3. Move balancing arm (7) outward as far as it will go.

There shall be no binding felt when balance arm (7) is moved. Spring (8) shall be clear of other parts. There shall be no interference with spring operation. There shall be no interference with interposer block (6). If there is interference or binding, refer to TM 55-1520-240-23.

**WARNING**

Do not lower rotary wing blade without warning personnel working on droop stops. Personnel can be injured if blade is lowered suddenly.

TASK	RESULT
------	--------

4. Let balancing arm (7) slowly return to hub (9). Have helpers lower blade (1) slowly until fixed droop stop (4) rests against interposer block (6).
5. Repeat steps 1 through 7 on remaining two aft rotor blades.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

Remove tiedown line on forward blade.

Close aft pylon work platform.

END OF TASK

5-1.2 CENTRIFUGAL DROOP STOP OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

None

**Materials:**

None

**Personnel Required:**

- 100C0 Army Rotary Wing Aviator (2)
- 67U20 Medium Helicopter Repairer

**References:**

- TM 55-1520-240-23
- TM 55-1520-240-10

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Centrifugal Droop Stop Visual Check Completed (Task 5-1.1)

**General Safety Instructions:**

**WARNING**

When rotors are turning, use care outside helicopter. Stay outside rotor disk area in front of helicopter. Do not climb on top of helicopter until blades stop. Serious injury or loss of life can occur if personnel are struck by a moving blade.

1. Have pilot start engines and stabilize rotors at ground idle rpm.

Observe that weights remain in cut-in position (1).

**NOTE**

Balancing weights are visible during rotation. Weights can be seen at cut-in position (1) (stop engaged) or at cut-out position (2) (stop disengaged)

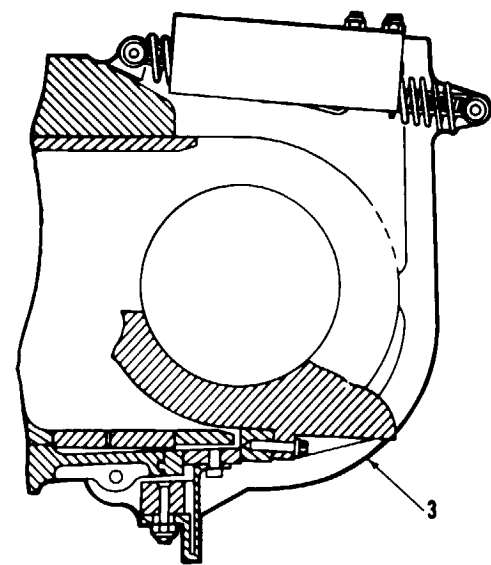
2. Have pilot operate engines at flight rpm.
3. Have pilot shut down both engines.

**CAUTION**

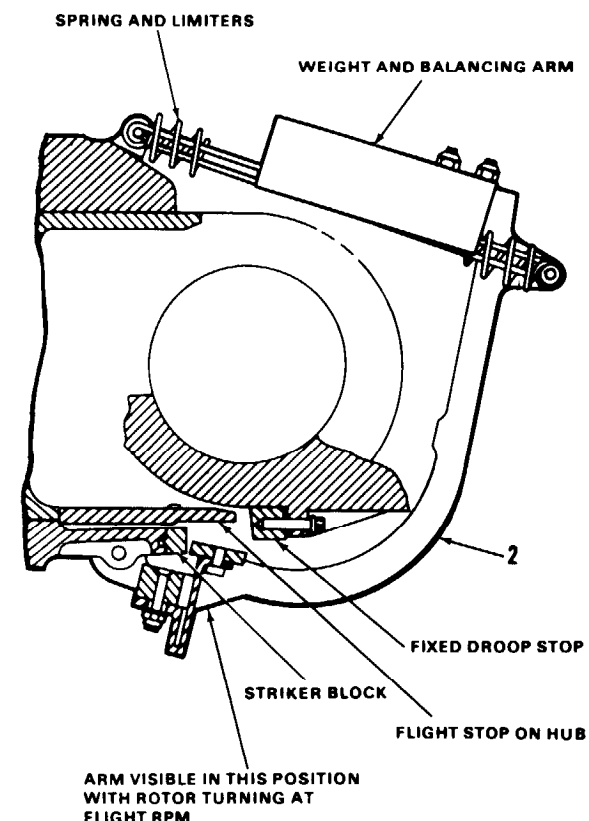
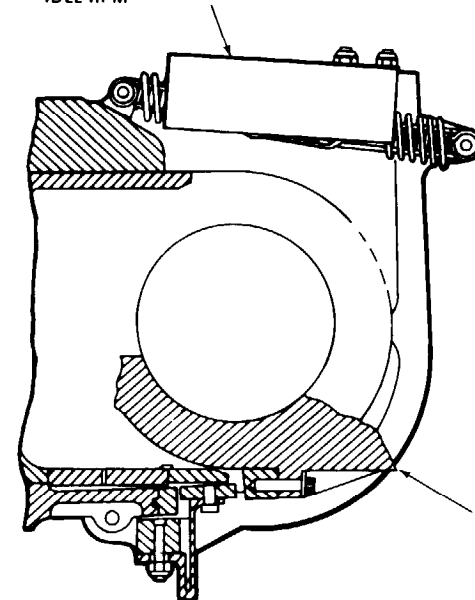
A balancing arm and weight that does not return to cut-in position (stop engaged) will cause a hazardous blade condition during shutdown in gusty weather.

Observe that weights have moved to cutout position (2) as rotor speed increases to flight rpm.

As blades slow down, note rotor rpm at which balancing arms and weights return to cut-in position. Balancing arm and weights shall reach cut-in position at about ground idle rpm. If not refer to TM 55-1520-240-23.



WEIGHT VISIBLE IN THIS POSITION WITH ROTOR TURNING AT GROUND IDLE RPM



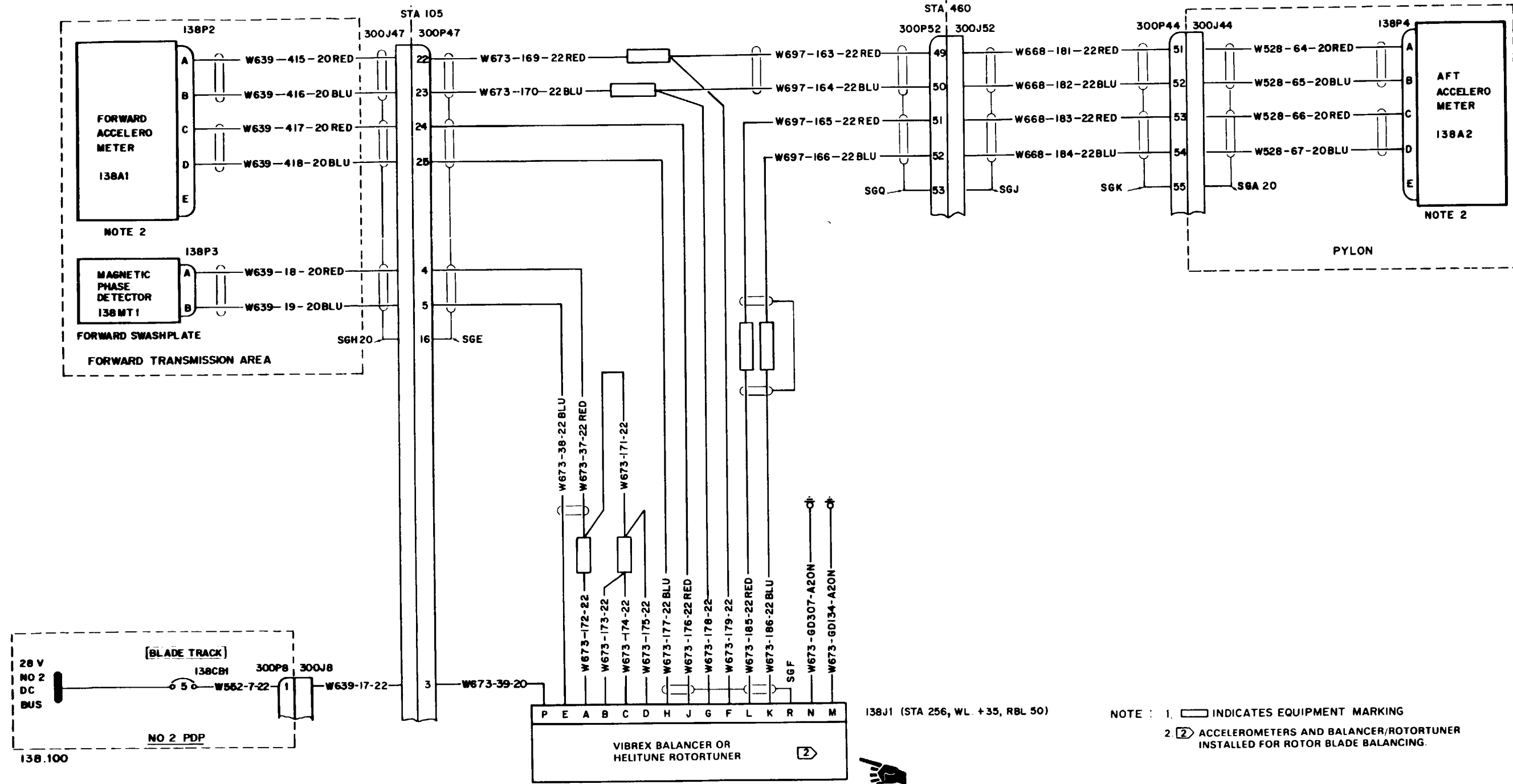
ARM VISIBLE IN THIS POSITION WITH ROTOR TURNING AT FLIGHT RPM.

**FOLLOW-ON MAINTENANCE:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- No. 1 and No. 2 Engines Shut Down
- Droop Stop Shrouds Installed



## **5-2 ROTOR BLADE TRACKING AND BALANCING SYSTEM**



23047

END OF TASK

**5-2.2 ROTOR BLADE TRACKING AND BALANCING SYSTEM VISUAL CHECK**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

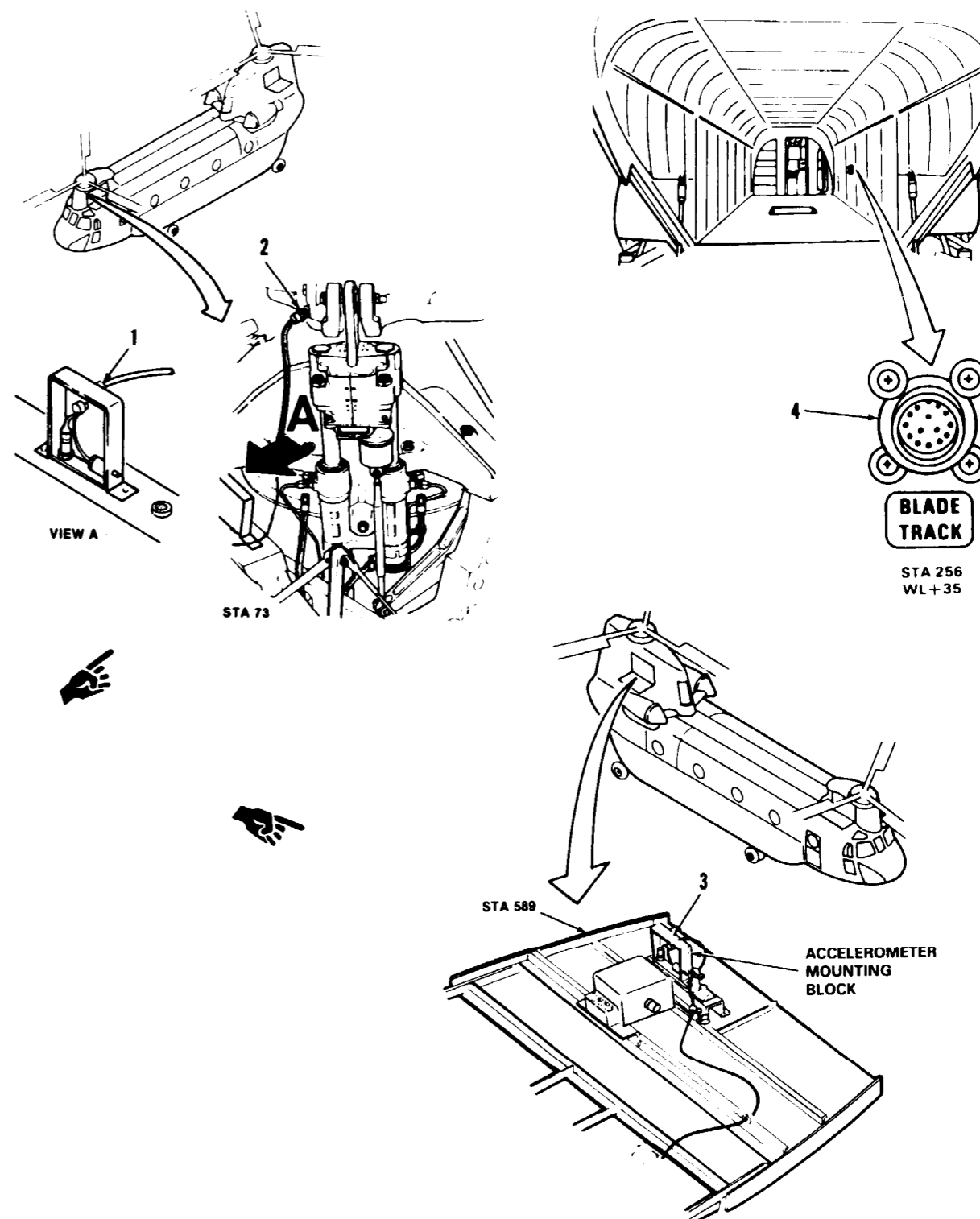
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Forward Transmission Left Work Platform Open
- Pylon Left Work Platform Open
- Tracking Targets Installed (Only when tracking with Strobex).
- Accelerometer Blocks Installed

TASK	RESULT
1. Check foward accelerometer connector (1).	If connector (1) is loose or damaged, tighten or replace connector. If wires to connector are damaged, repair or replace as required.
2. Check magnetic phase detector (2).	If detector (3) is loose or damaged, tighten or replace it as required. If connector is loose or damaged, tighten or replace it as required. If wires to connector are damaged, repair or replace as required.
3. Check aft accelerometer connector (3).	If connector (3) is loose or damaged, tighten or replace connector. If wires to connector are damaged, repair or replace as required.
4. Check cabin BLADE TRACK receptacle (4).	If receptacle (4) is loose or damaged, tighten or replace it as required.
5. Check connectors on vibrex or helitune equipment.	If connectors are loose or damaged, tighten or replace them as required.

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Forward transmission left work platform closed.
- Pylon left work platform closed.



INITIAL SETUP

Applicable Configurations:

Tracking with Strobex

Tools:

None

Materials:

None

Personnel Required:

Rotary Wing Aviator (2)  
Aircraft Electrician

References:

TM 55-1520-240-23

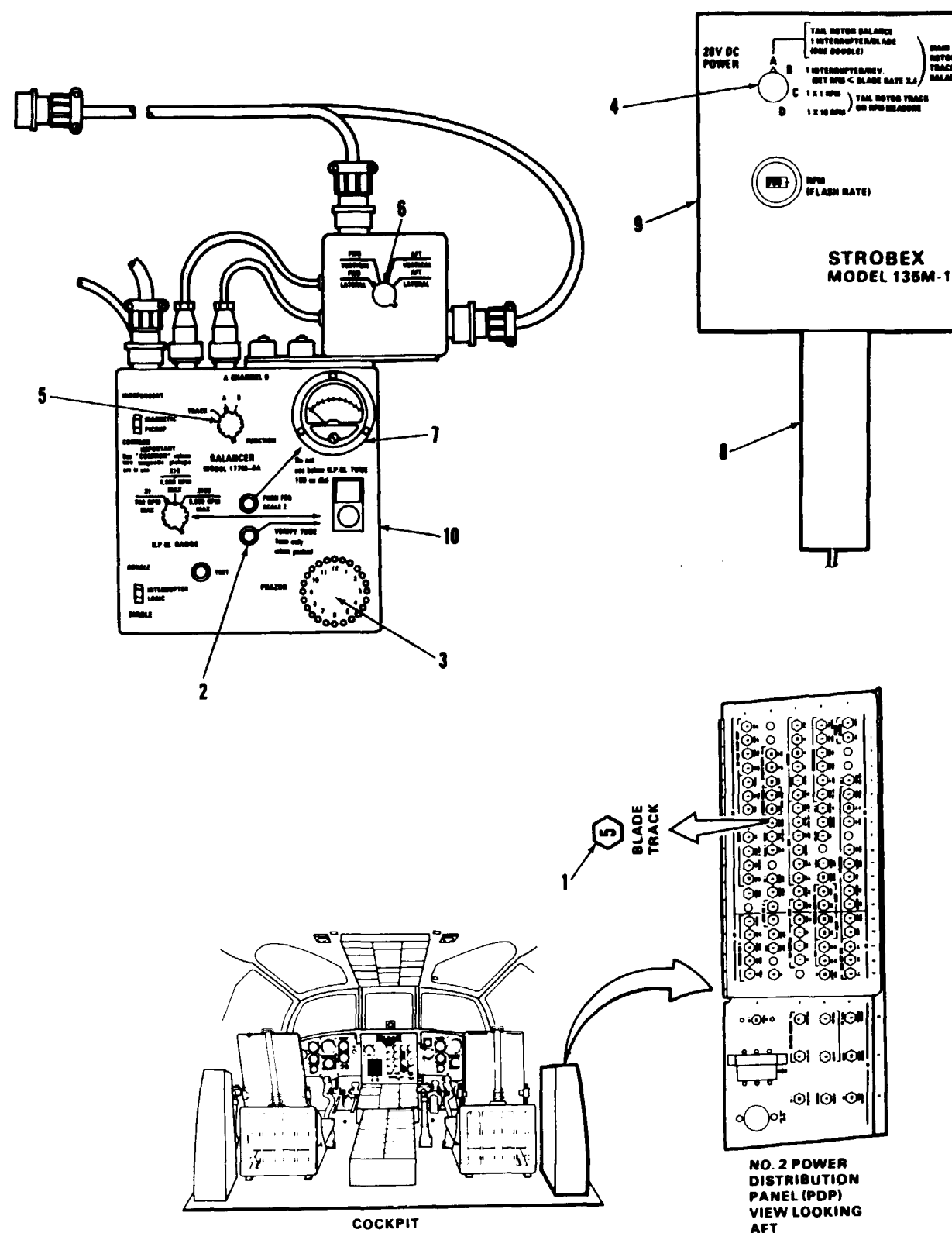
Equipment Condition:

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Rotor Blade Tracking and Balancing System Visual Check Performed (Task 5-2.2).  
Helicopter Prepared for In-Flight Blade Balancing Tracking Targets Installed

TASK	RESULT
1. Check that <b>BLADE TRACK</b> circuit breaker (1) is closed.	If Blade Track circuit breaker (1) is open, close it. If it opens again, go to task 5-2.4.
2. Have pilot start engines and stabilize rotors at 100 percent rpm. Prepare strobex (9) for Ground Track, reference TM 55-1520-240-23. Set function switch (5) to A. Press <b>VERIFY TUNE</b> switch (2).	Lights on clock angle indicator (3) shall come on at 12, 4, and 8 o'clock positions. If not, go to task 5-2.5.
3. Press trigger (8).	Strobex flash tube shall flash. Aim at targets. (1 o'clock, Fwd Rotors, 11 o'clock, Aft Rotors.) Targets shall be visible. If not, go to task 5-2.6.
4. Prepare balancer (10) for in-flight balance, reference TM 55-1520-240-23. Set switch (6) to <b>FWD LATERAL</b> then <b>AFT LATERAL</b> .	IPS meter (7) shall move up scale at both positions and not return to zero. If the IPS meter does not move or moves and then returns to zero, go to task 5-2.7.
5. Set switch (6) to <b>FWD VERTICAL</b> , then <b>AFT VERTICAL</b> .	IPS meter (7) shall move up scale at both positions and not return to zero. If the IPS meter does not move or moves and then returns to zero, go to task 5-2.8.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Disconnect Vibrex Equipment



45x54

DI45-8382-SPA

END OF TASK

**5-2.3.1 ROTOR BLADE TRACKING AND BALANCING SYSTEM OPERATIONAL CHECK**

**INITIAL SETUP**

**Applicable Configurations:**

Tracking with Helitune

**Tools:**

None

**Materials:**

None

**Personnel Required:**

Rotary Wing Aviator (2)  
Aircraft Electrician

**References:**

TM 55-1520-240-23

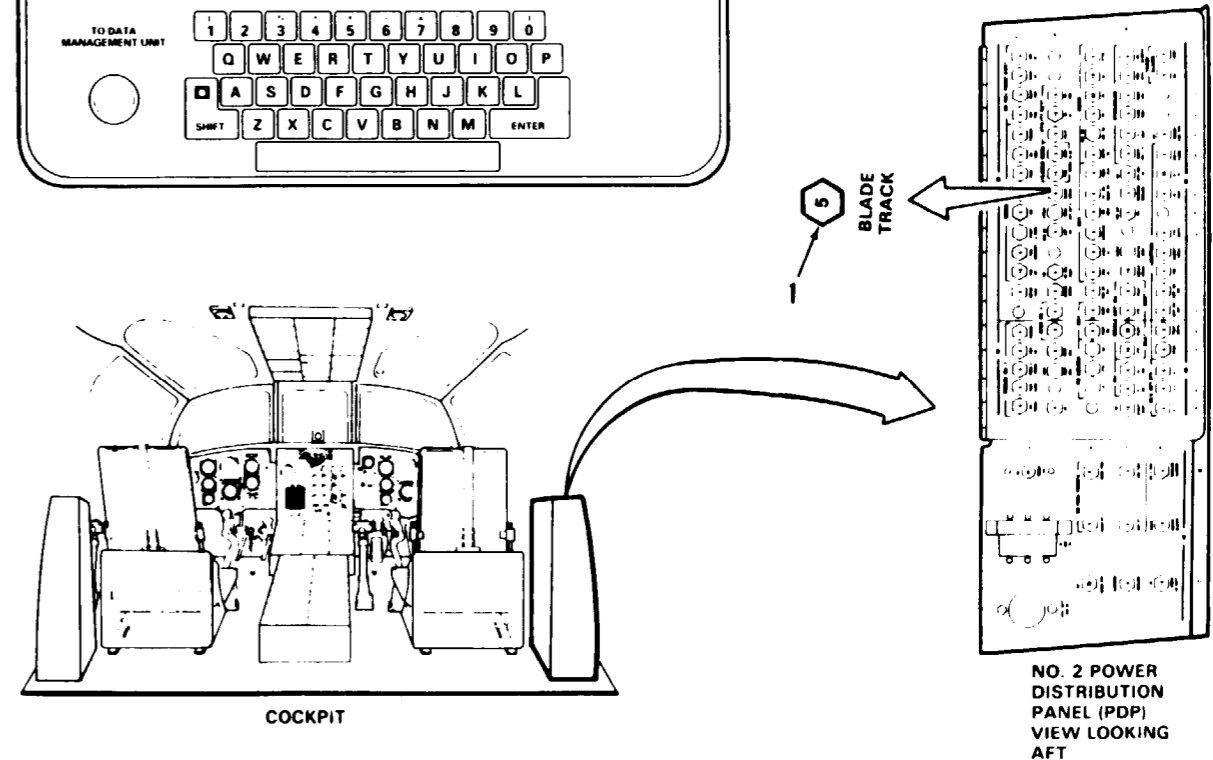
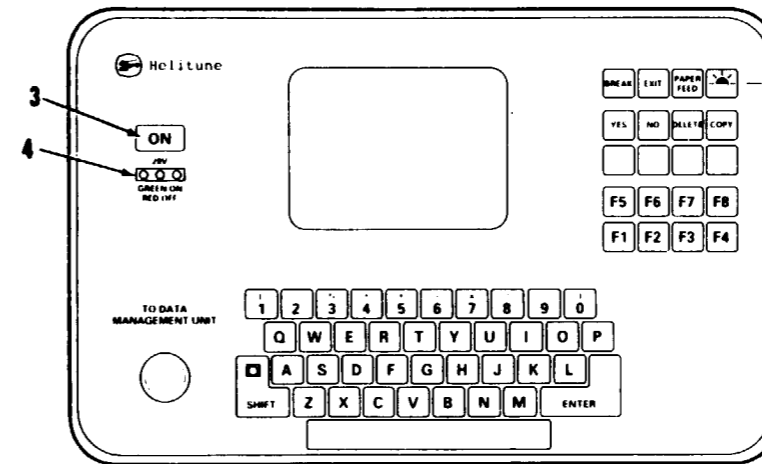
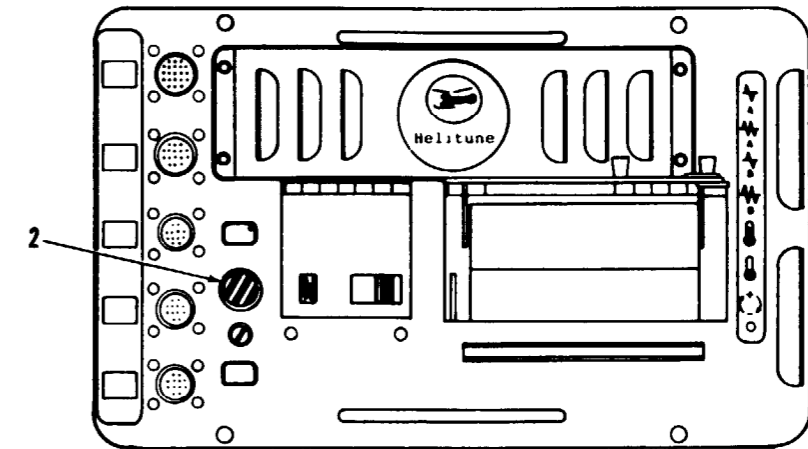
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Rotor Blade Tracking and Balancing System Visual  
Check Performed (Task 5-2.2).  
Helicopter Prepared for In-Flight Blade Balancing

TASK	RESULT
1. Check that <b>BLADE TRACK</b> circuit breaker (1) is closed.	If Blade Track circuit breaker (1) is open, close it. If it opens again, go to task 5-2.4.
2. Have pilot start engines and stabilize rotors at 100 percent rpm. Prepare Helitune unit for Ground Track, reference TM 55-1520-240-23.	
3. Release <b>EMERGENCY ISOLATION</b> switch (2) on DMU. Press <b>ON</b> key (3) on operators console.	Power status lights (4) on operators console shall be green. If not, go to task 5-2.9.
4. Perform ground track procedure, reference TM55-1520-240-23	

**FOLLOW-ON MAINTENANCE:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Disconnect Helitune Equipment



23051

5-2.4 BLADE TRACK CIRCUIT BREAKER WILL NOT STAY CLOSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

All

Tools:

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

Materials:

None

Personnel Required:

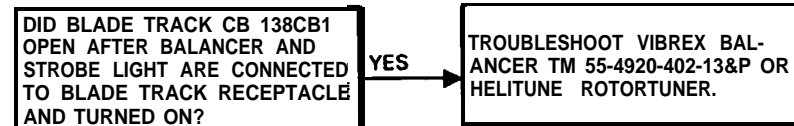
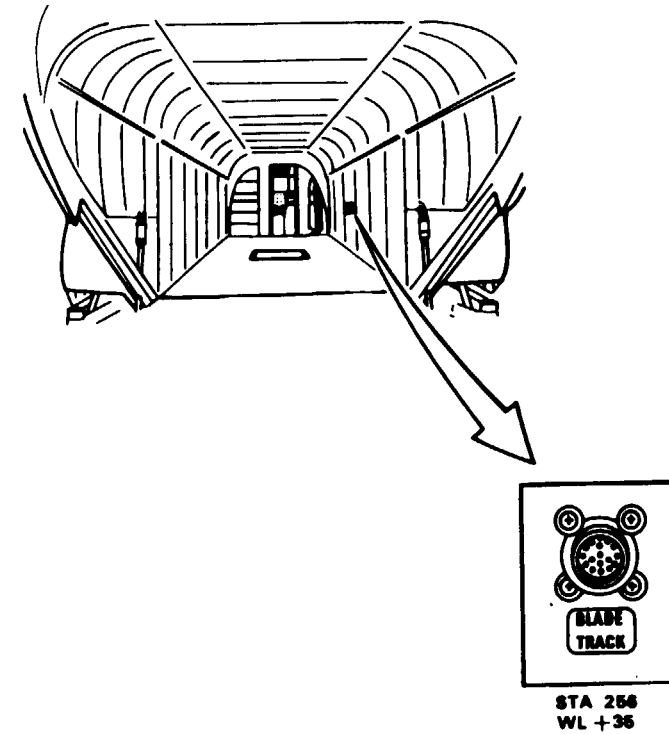
Aircraft Electrician

References:

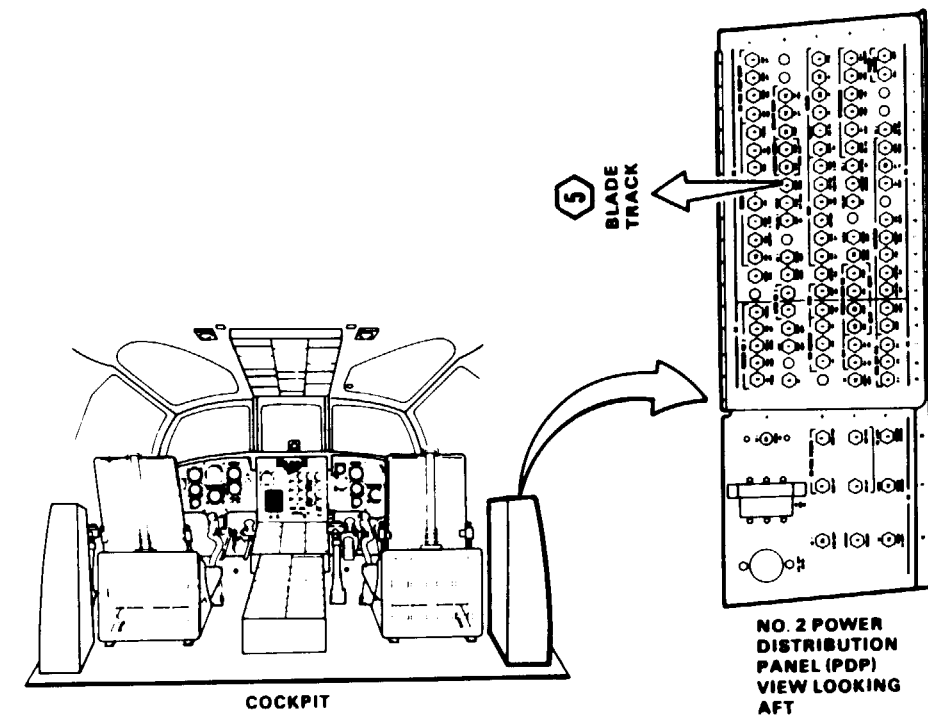
TM 55-1520-240-23  
TM55-4920-402-13&P (Vibrex)  
Helitune Rotortuner Dash 5 Vendor Manual (Helitune).

Equipment Condition:

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Tracking Targets Installed (Only When Tracking With Strobex).  
Helicopter Prepared for In-Flight Blade Balancing



LOCATE GROUND FAULT ON WIRES W673-39-20, W639-17-22, OR W552-7-22 BETWEEN BLADE TRACK RECEPTACLE 138J1 AND BLADE TRACK CB 138CB1. REPAIR OR REPLACE WIRE AS REQUIRED.



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

Applicable Configurations:

- Tracking With Strobex

**Tools:**

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Multimeter

**Materials:**

- None

**Personnel Required:**

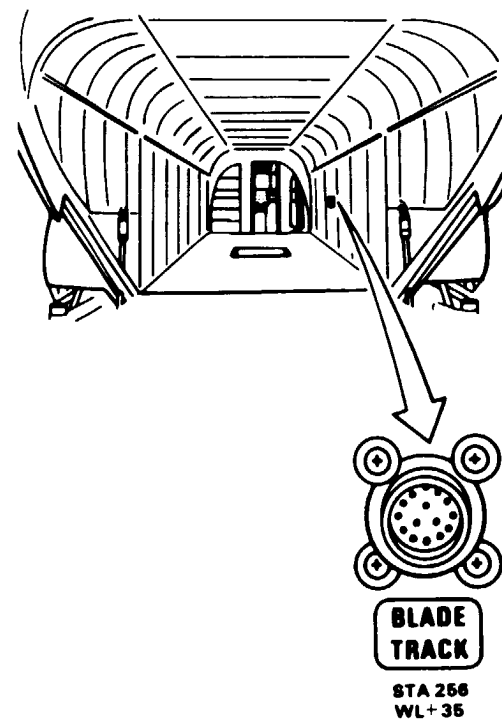
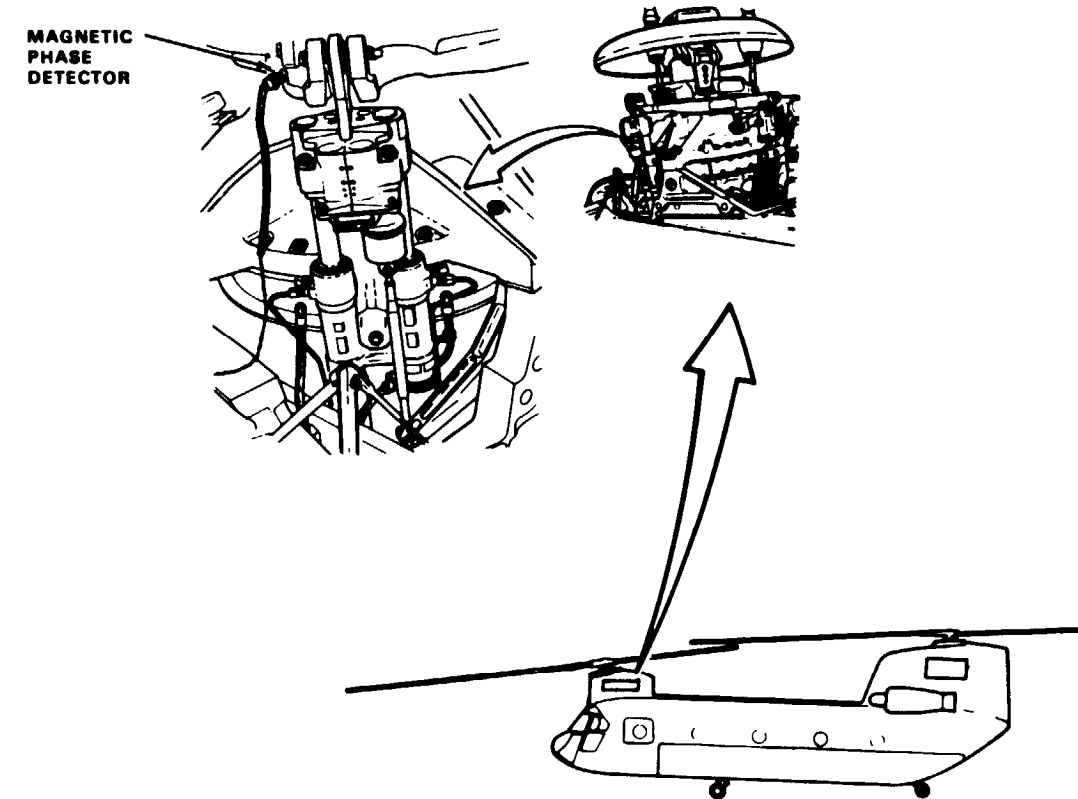
- Aircraft Electrician

**References:**

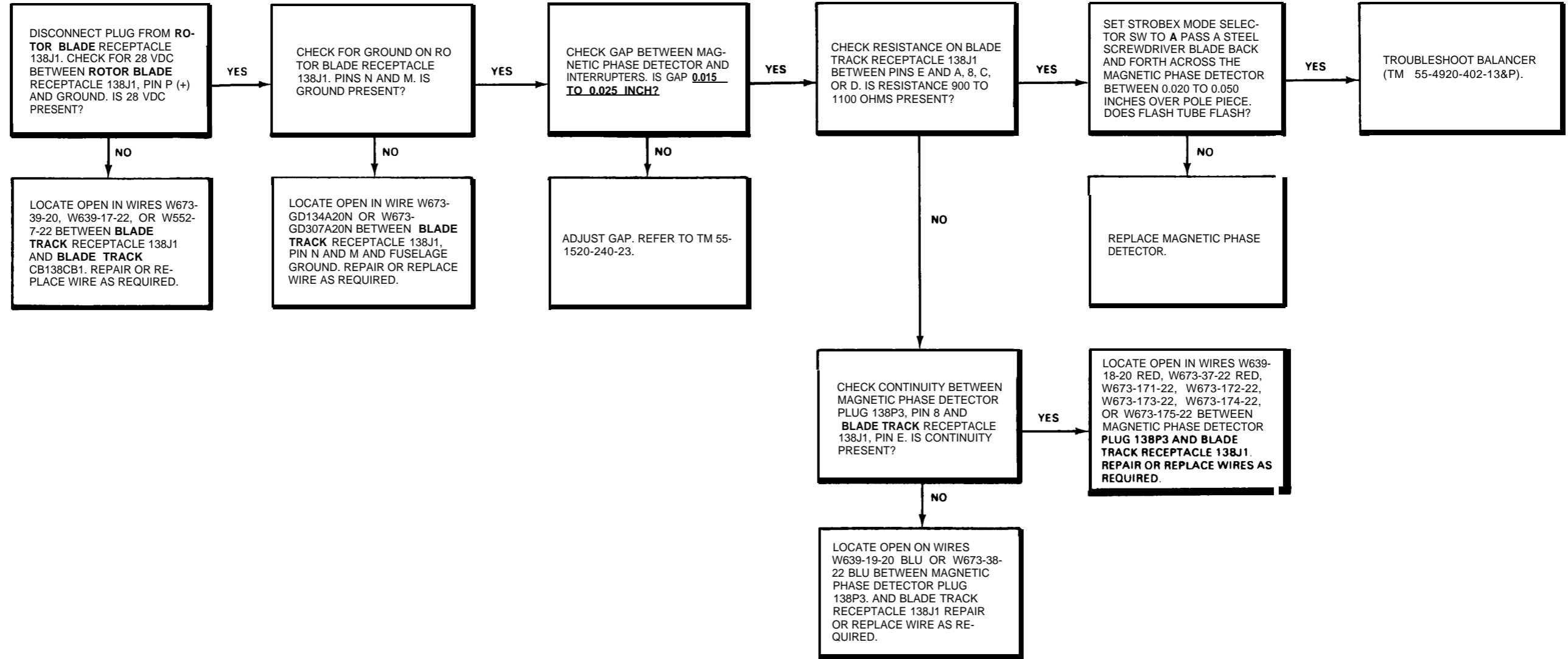
- TM 55-1520-240-23
- TM 55-4920-402-13&P

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Forward Transmission Left Work Platform Open
- Helicopter Prepared for In-Flight Blade Balancing
- Tracking Targets Installed



5-2.5 PHAZOR CLOCK ANGLE INDICATOR LIGHTS DO NOT COME ON (Continued)





FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

Tracking With Strobex

Tools:

- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Multimeter

Materials:

None

Personnel Required:

Aircraft Electrician

References:

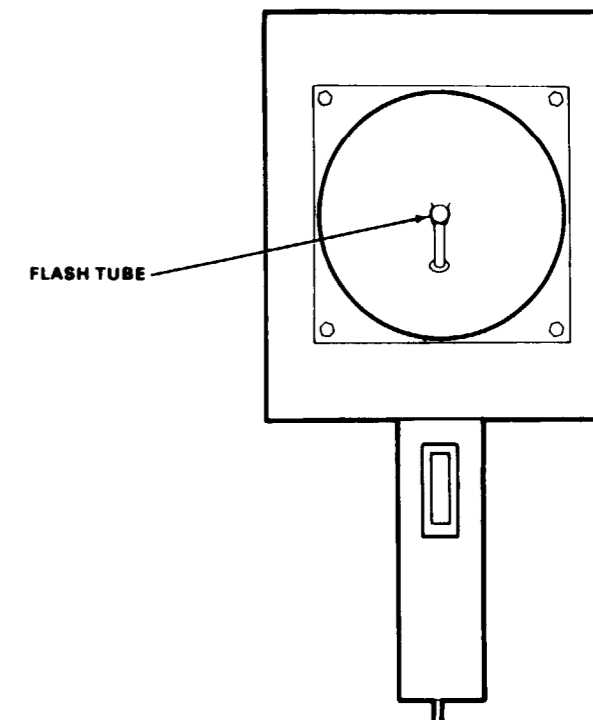
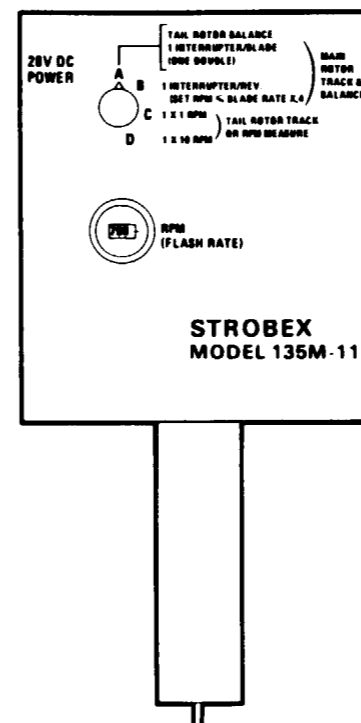
TM 55-1520-240-23

TM 55-4920-402-13&LP

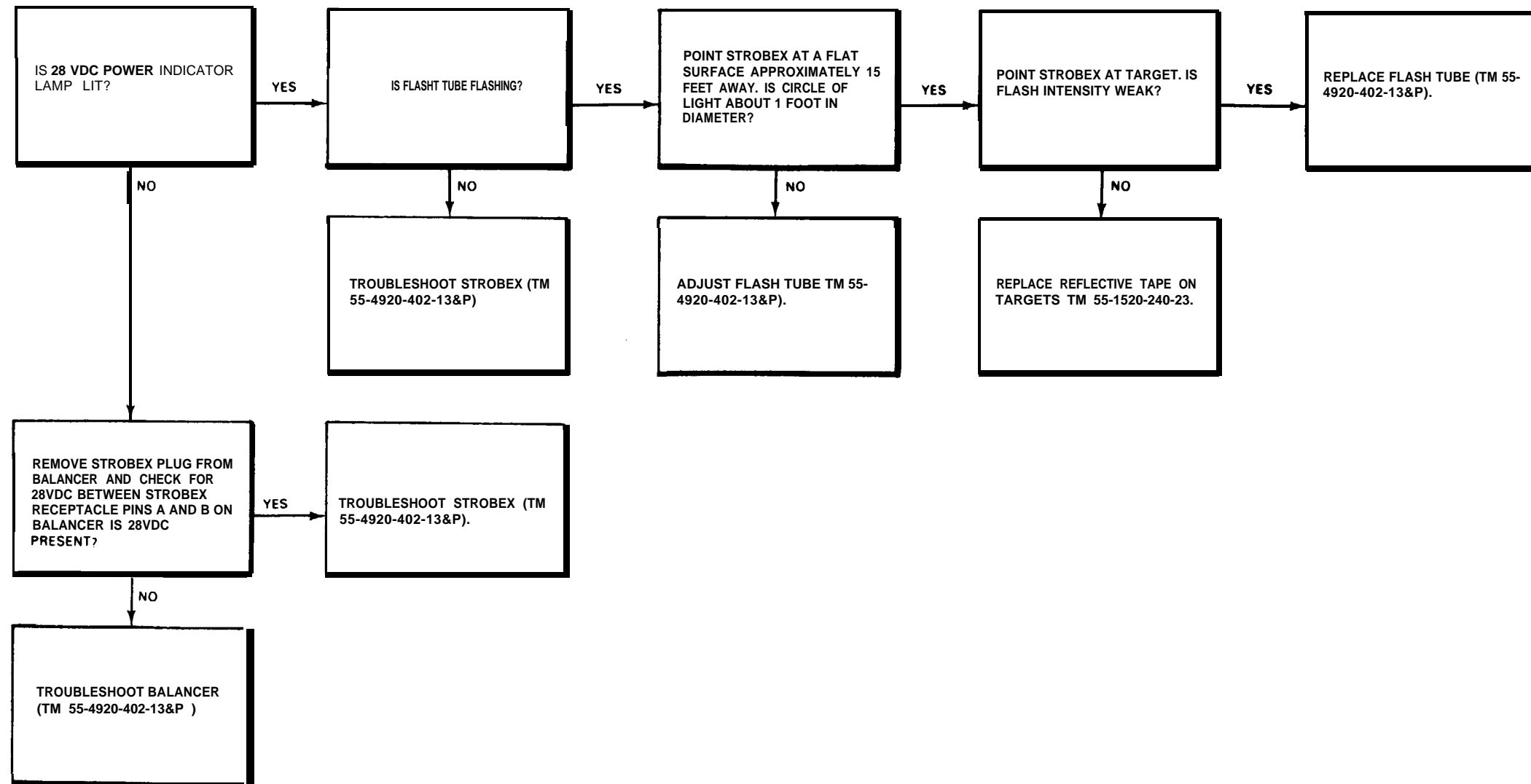
Equipment Condition:

TM 55-1520-240-23:

- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Helicopter Prepared for In-Flight Blade Balancing
- Rotors Turning



5-2.6 TRACKING TARGETS NOT VISIBLE OR STROBE TUBE  
LAMP DOES NOT FLASH (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Tracking With Strobex

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5160-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

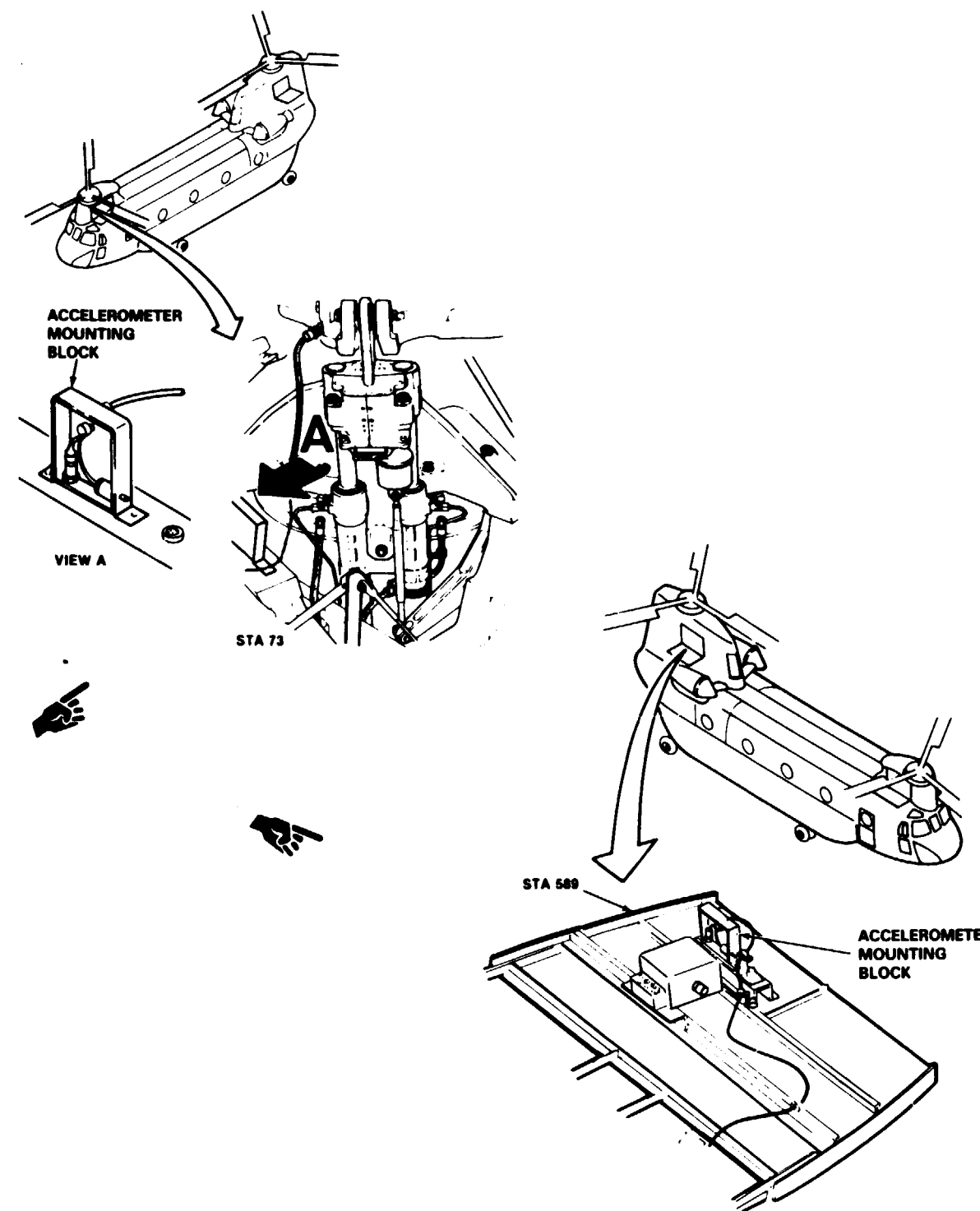
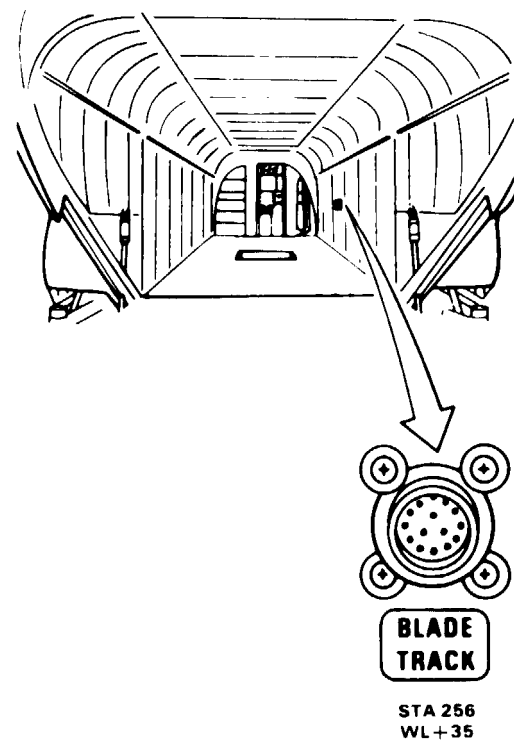
Aircraft Electrician

**References:**

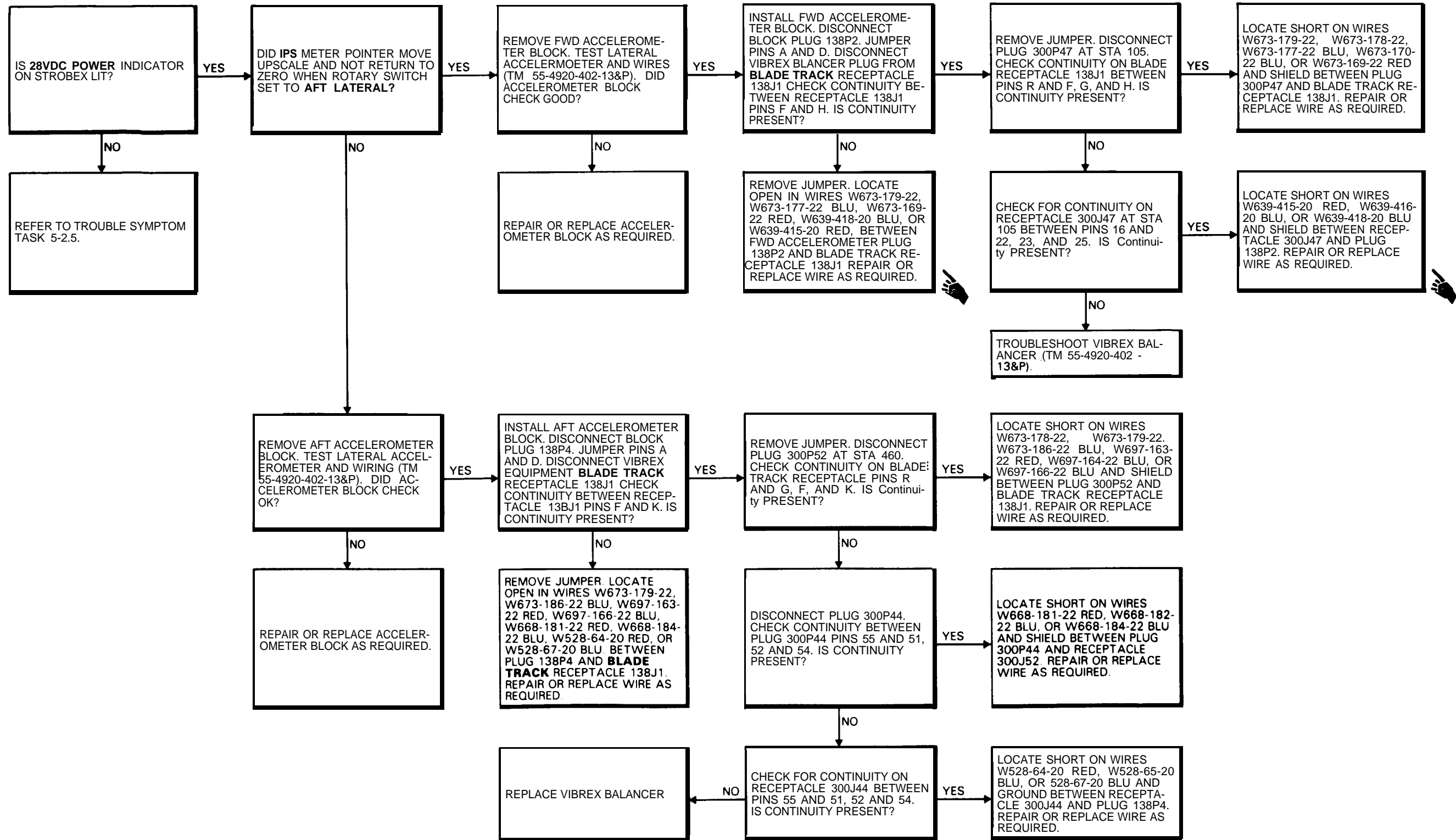
- TM 55-1520-240-23
- TM 55-4920-402-13&P

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected Electrical Power On
- Hydraulic Power Off
- Forward Transmission Left Work Platform Open
- Pylon Left Work Platform Open
- Tracking Target Installed
- Helicopter Prepared for In-Flight Blade Balancing



5-2.7 NO FWD LATERAL OR AFT LATERAL INDICATION ON IPS INDICATOR (Continued)



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

Tracking With Strobex

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

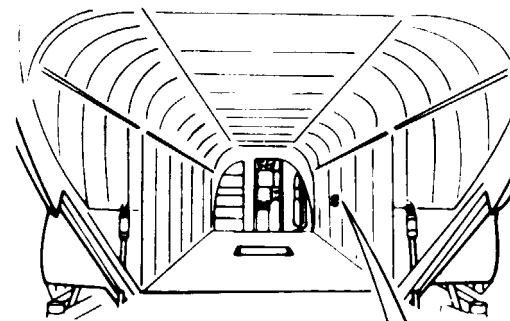
Aircraft Electrician

**References:**

- TM 55-1520-240-23
- TM 55-4920-402-13&P

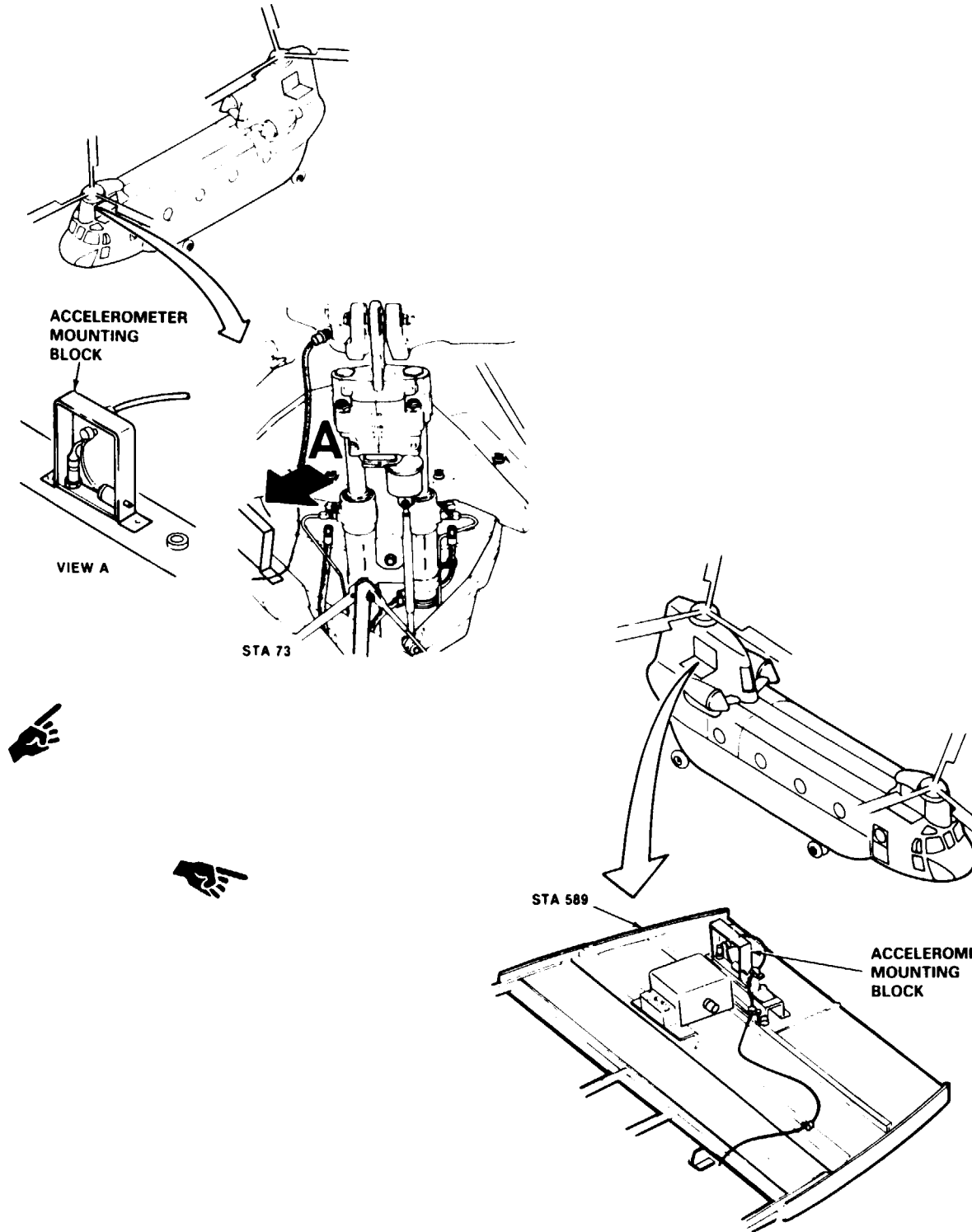
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off
- Forward Transmission Left Work Platform Open
- Pylon Left Work Platform Open
- Tracking Target Installed
- Helicopter Prepared for In-Flight Blade Balancing,



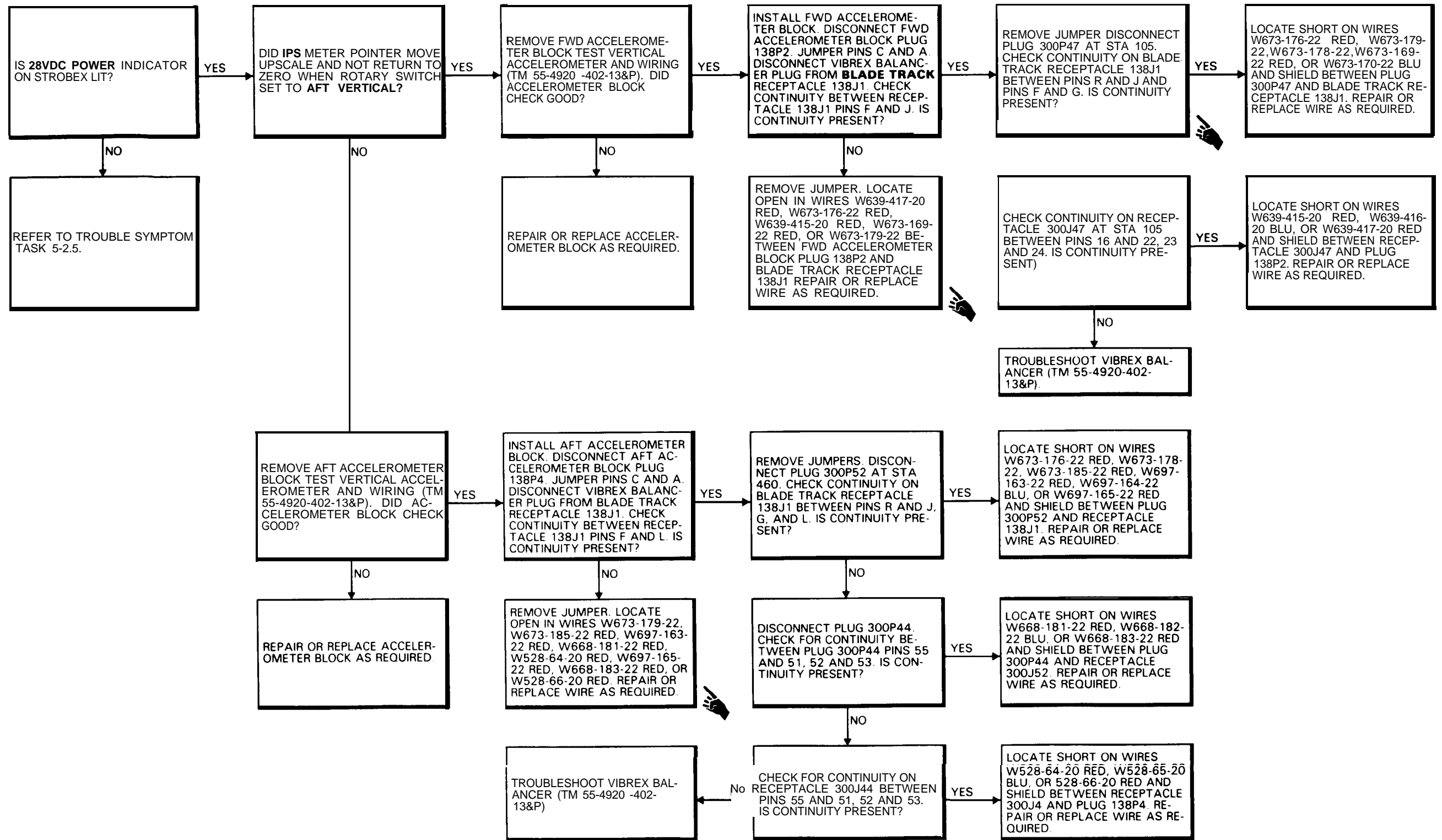
**BLADE TRACK**

STA 256  
WL + 35



23389

5-2.8 NO FWD VERTICAL OR AFT VERTICAL INDICATION ON IPS INDICATOR (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

Applicable Configurations:  
Tracking With Helitune

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

Personnel Required:

Aircraft Electrician

References:

TM 55-1520-240-23

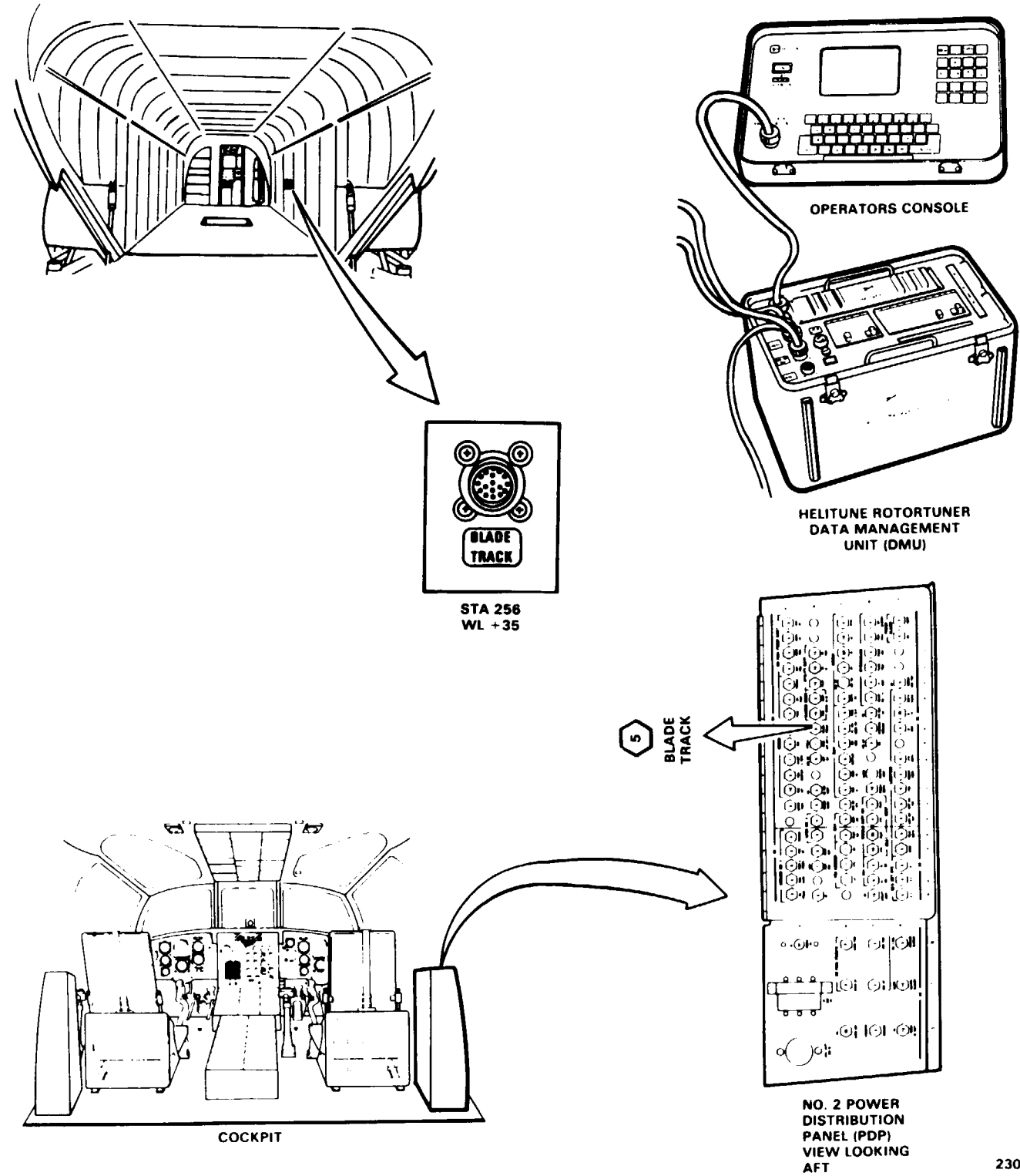
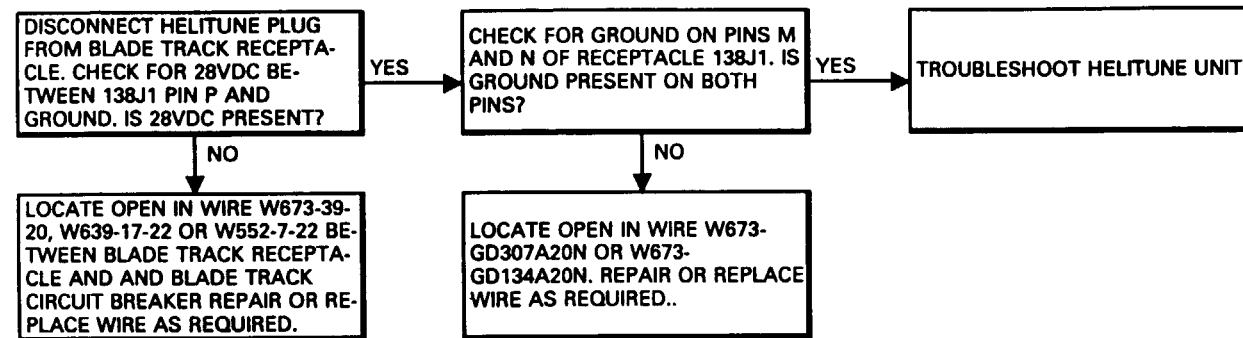
Equipment Condition:

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off



23059

## CHAPTER 6

# DRIVE SYSTEMS TROUBLESHOOTING



**CHAPTER 6  
DRIVE SYSTEM TROUBLESHOOTING  
CHAPTER OVERVIEW**

Chapter 6 contains procedures for Drive System troubleshooting. Each system and failure symptom is listed below. Included in this chapter are locations and views of all electrical connectors, receptacles, relays, and ground connections for the Drive System. Refer to TM 55-1520-240-23 for required maintenance procedures.

SYSTEM	PARA
TRANSMISSION LUBRICATION SYSTEMS	6-1
TRANSMISSION CHIP DETECTORS AND DEBRIS INDICATING SCREENS	6-2

**FAILURE SYMPTOM LIST  
TRANSMISSION LUBRICATION SYSTEMS**

SYSTEM	TASK
XMSN AUX OIL PRESS CAPSULE ON WITH ROTORS TURNING	6-1.3
XMSN OIL HOT CAPSULE ON, ONE TRANSMISSION OIL TEMPERATURE INDICATION HIGH	6-1.3
XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW	6-1.3
XMSN OIL PRESS CAPSULE ON, TRANSMISSION OIL PRESSURE INDICATIONS NORMAL	6-1.3

**TRANSMISSION CHIP DETECTORS AND INDICATING SCREENS**

SYMPTOM	TASK
AFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
FWD TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
LEFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
LH COMB TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
NO. 1 ENG CHIP DET (WITHOUT 74), ENG 1 CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN NO. 1 ENGINE TRANSMISSION CHIP DETECTOR SHORTED	6-2.3

SYMPTOM	TASK
NO. 1 OR NO. 2 ENG CHIP DET (WITHOUT 74) ENG 1 OR ENG 2 CHIP DETR (WITH 74) CAPSULE LIT, TRANSMISSION OR ENGINE CHIP DETECTOR INDICATOR BLACK-AND-WHITE	6-2.3
NO. 2 ENG CHIP DET (WITHOUT 74), ENG 2 CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN NO. 2 ENGINE TRANSMISSION CHIP DET SHORTED	6-2.3
RH COMB TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3
RIGHT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED	6-2.3

SYMPTOM	TASK
TRANSMISSION CHIP DETECTOR INDICATOR DISPLAYS BLACK-AND-WHITE FAN, XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE OUT	6-2.3
TRANSMISSION CHIP DETECTOR INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST	6-2.3
TRANSMISSION DEBRIS SCREEN INDICATOR DISPLAYS BLACK-AND-WHITE FAN	6-2.3
TRANSMISSION DEBRIS SCREEN INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST	6-2.3
XMSN CHIP DET (WITHOUT 74), XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN AFT SHAFT CHIP DETECTOR SHORTED	6-2.3
XMSN CHIP DET (WITHOUT 74), XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN AFT TRANSMISSION CHIP DETECTOR SHORTED	6-2.3

SYMPTOM	TASK
XMSN CHIP DET (WITHOUT 74), XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN COMBINING TRANSMISSION CHIP DETECTOR SHORTED	6-2.3
XMSN CHIP DET (WITHOUT 74), XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN FORWARD TRANSMISSION CHIP DETECTOR SHORTED	6-2.3

SYMPTOM	TASK
XMSN CHIP DET (WITHOUT 74), XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN GND SWITCH SET TO TEST	6-2.3

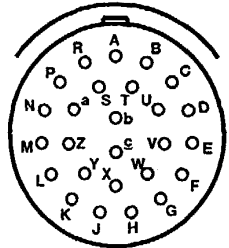
SYMPTOM	TASK
XMSN CHIP DET (WITHOUT 74), XMSN CHIP DETR (WITH 74) CAPSULE LIT, ONE TRANSMISSION CHIP DETECTOR INDICATOR BLACK-AND-WHITE	6-2.3

DRIVE SYSTEM ELECTRICAL COMPONENT AND CONFIGURATION LIST

REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION			REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION		
				FS	WL	BL					FS	WL	BL
GD082	151		PYLON	534	79	0	300J15	M83723-74A24617	43	CONSOLE, UNDERFLOOR DISCONNECT	85	-20	
GD118	151		AFT CROWN-OVHD	534	55	6R	300P15	M83723-75A24617	43	CONSOLE, UNDERFLOOR DISCONNECT	85	-20	
GD127	151		FWD XMSN AREA	95	45	126	300P28	MS3476W22-55S	27	MAINTENANCE PANEL, J-2	510	25	50R
GD235	151		COMB XMSN AREA	450	52	12R	300P31	MS3476W20-41S	26	MAINTENANCE PANEL, J-1	510	25	50R
GD236	151		COMB XMSN AREA	450	52	12R	300J44	M83723-74A2461N	43	PYLON, WL 72 DISC	528	72	18L
GD241	151		COMB XMSN AREA	482	72	186	300P44	M83723-75A2461N	43	PYLON, WL 72 DISC	528	72	18L
THE FOLLOWING TB'S ARE LOCATED IN MAINTENANCE PANEL,146A3				510	25	50R	300J45	M83723-73A2461N	43	HEATER COMPARTMENT	105	40	30R
TB1							300P45	M83723-76A2461N	43	HEATER COMPARTMENT	105	40	30R
TB2							300J48	M83723-74A2461N	43	ELECTRONICS COMPARTMENT	105	40	20L
TB3							300P48	M83723-75A2461N	43	ELECTRONICS COMPARTMENT	105	40	20L
TB4							300J51	M83723-74A2461N	43	AFT CROWN-OVHD	460	45	20R
TB5							300P51	M83723-75A2461N	43	AFT CROWN-OVHD	460	45	20R
042P7	M83723-95A10057	30	NO. 1 ENG XMSN	460	65	50L	300J52	M83723-74A2255N	42	AFT CROWN-OVHD	460	45	30L
042P9	M83723-95A10057	30	NO. 2 ENG XMSN	460	65	50R	300P52	M83723-75A2255N	42	AFT CROWN-OVHD	460	45	30L
146J1	MS3474W20-41P	26	RH AFT, MAINTENANCE PANEL	510	25	50R	300J61	M83723-73A24619	43	CONSOLE, UNDERFLOOR DISCONNECT	85	-20	
146J2	MS3474W22-55P	27	RH AFT, MAINTENANCE PANEL	510	25	50R				(WITHOUT 74)			
232P1	MS3476W22-55S	27	CTR INSTR PNL - MASTER CAUTION PANEL (WITH 74 )				300J61	M83723-73W24619	28	CONSOLE, UNDERFLOOR DISCONNECT (WITH 74)	85	-20	
232P2	MS3476W16-26S	24	CTR INSTR PNL-MASTER CAUTION PANEL				300P61	M83723-76A24619	43	CONSOLE, UNDERFLOOR DISCONNECT (WITHOUT 74 )	85	-20	
235P1	M83723-95A1005N	30	AFT XMSN, CHIP DET & DEBRIS SCR N	556	55	0							
235P2	M83723-95A1005N	30	FWD XMSN, CHIP DET & DEBRIS SCR N	100	45	0	300P61	M83723-76W24619	28	CONSOLE, UNDERFLOOR DISCONNECT (WITH 74 )	85	-20	
235P3	M83723-95A10056	30	NO. 1 ENG XMSN DEBRIS SCR N (COMB)	460	70	12L							
235P4	M83723-95A10056	30	NO. 2 ENG XMSN DEBRIS SCR N (COMB)	460	70	12R							
235P5	M83723-95A08038	29	COMBINING XMSN CHIP DET	460	65	0							
235P6	M83723-95A1005N	30	COMBINING XMSN L IND SCR N	460	64	6L							
235P7	M83723-95A1005N	30	COMBINING XMSN R IND SCR N	460	64	6R							
235P8	M83723-95A0803N	29	AFT SHAFT CHIP DET	558	103	6L							

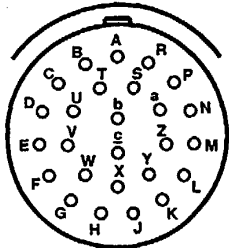
DRIVE SYSTEM ELECTRICAL COMPONENT AND CONFIGURATION LIST (Continued)

RECEPTACLE



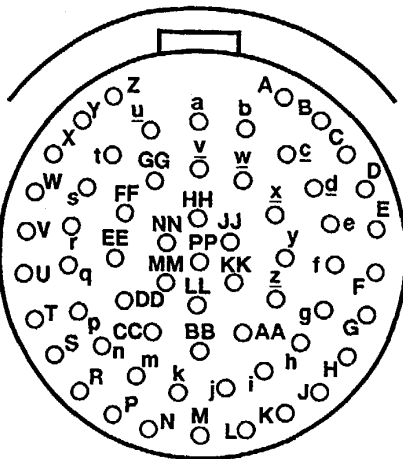
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PLUG



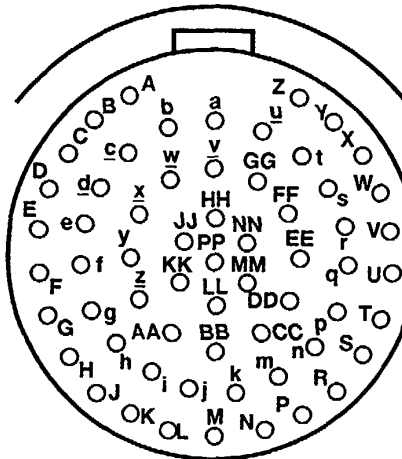
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RECEPTACLE

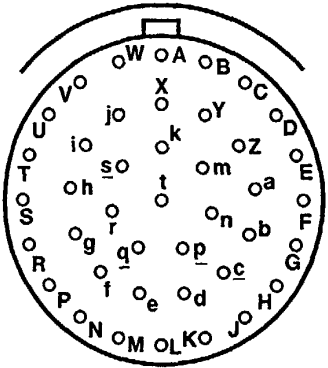


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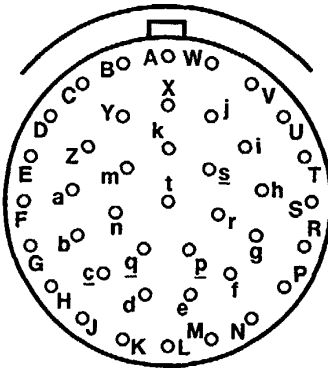
PLUG



28



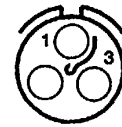
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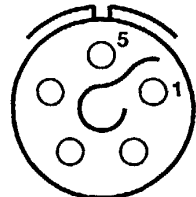
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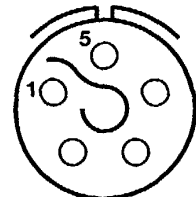
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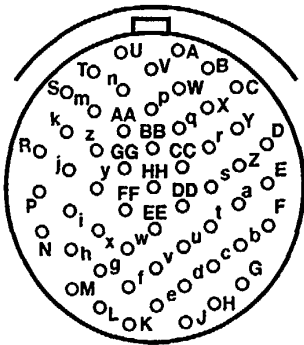
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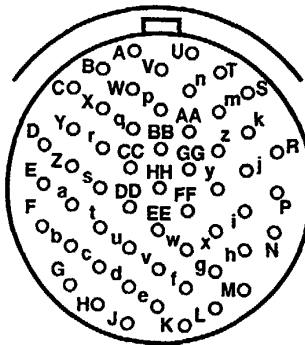
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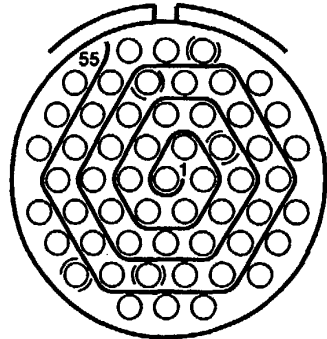
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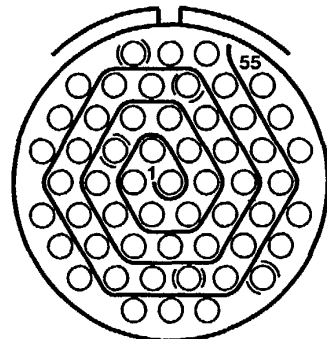
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27

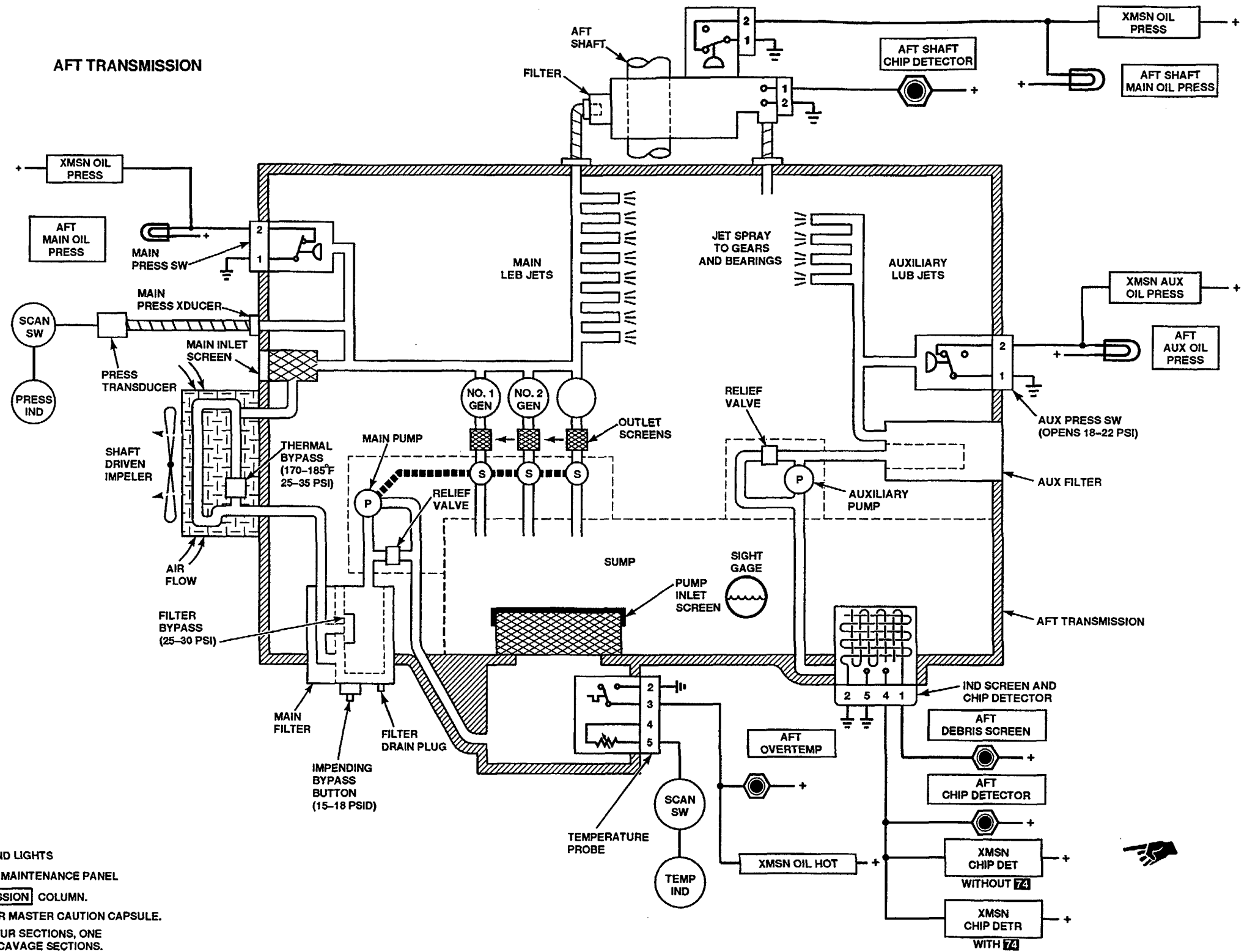


42






42

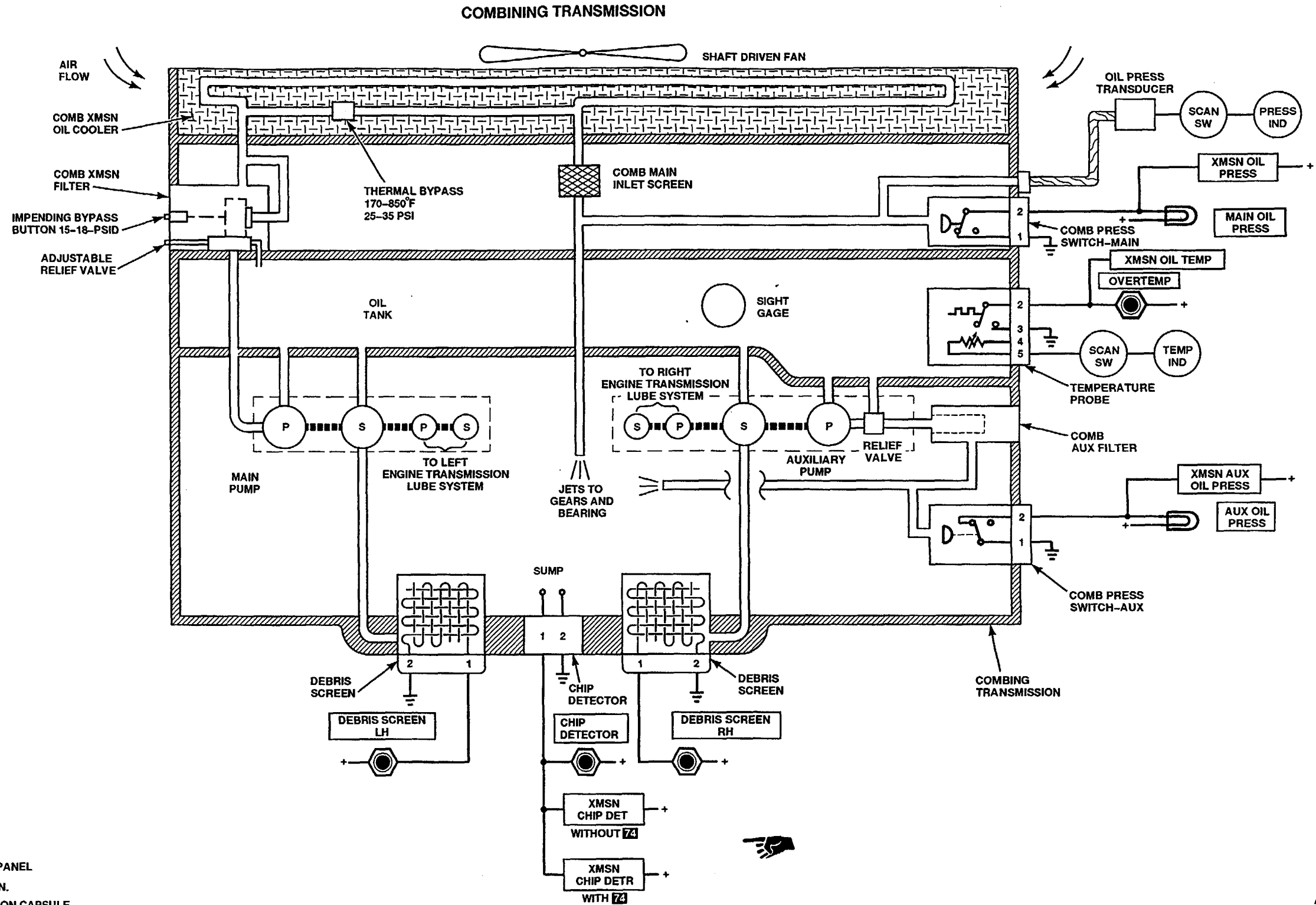
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NOTES:

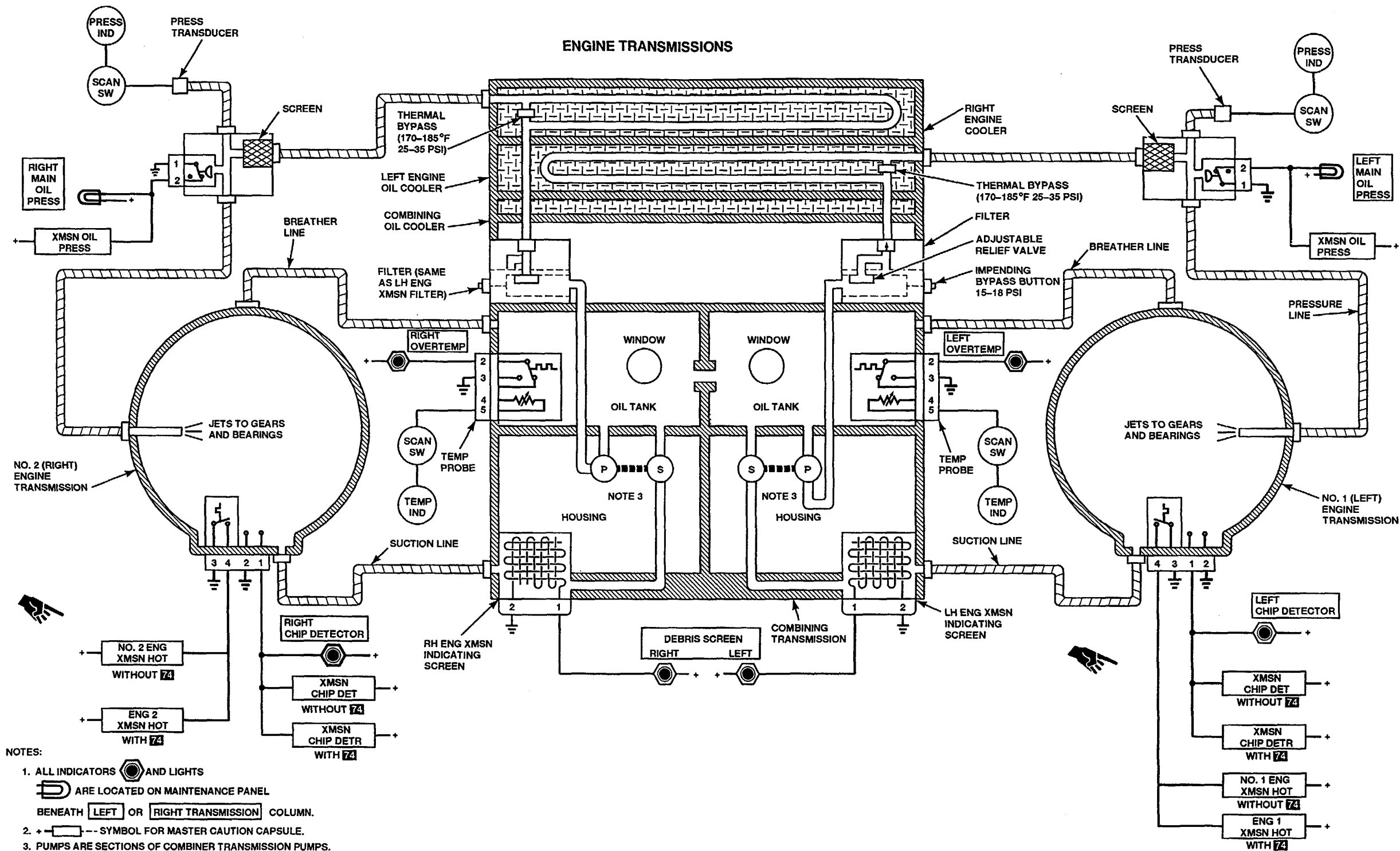
1. ALL INDICATORS  AND LIGHTS  ARE LOCATED ON MAINTENANCE PANEL BENEATH **AFT TRANSMISSION** COLUMN.
2. +  -- SYMBOL FOR MASTER CAUTION CAPSULE.
3. MAIN PUMP CONTAINS FOUR SECTIONS, ONE PRESSURE AND THREE SCAVAGE SECTIONS.

A65327



- NOTES:
1. ALL INDICATORS AND LIGHTS ARE LOCATED ON MAINTENANCE PANEL BENEATH COMB TRANSMISSION COLUMN.
  2. + [Symbol] -- SYMBOL FOR MASTER CAUTION CAPSULE.

A65328



A65329

6-1.2 TRANSMISSION LUBRICATION SYSTEMS VISUAL CHECK

6-1.2

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

67U10 Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

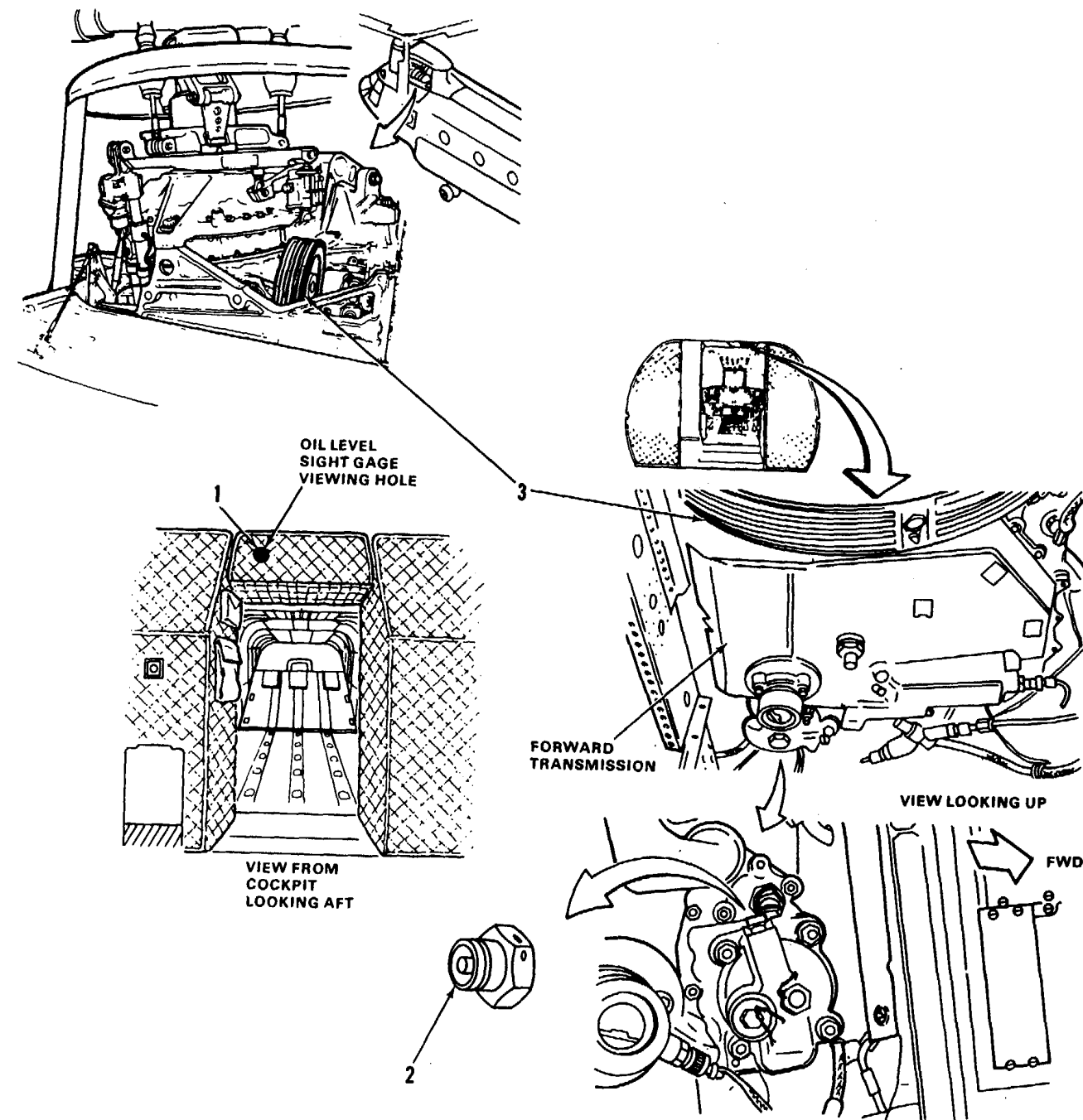
**Equipment Condition:**

- TM 55-1520-240-23
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Left and Right Forward Work Platforms Open
- Forward Drip Pan Removed
- Aft Transmission Baffles Open
- Pylon Hinged Fairing Open
- Pylon Lower Fairing Open
- Engine Air Inlet Screens Removed
- Engine Transmission Fairings Removed
- Cargo Ramp Open and Level (Task 7-3.3)

TASK	RESULT
------	--------

**CHECK FORWARD TRANSMISSION LUBRICATION SYSTEM**

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Check oil level sight gage (1).</li> <li>2. Check oil filter indicating button (2).</li> <li>3. Check bottom of forward transmission for oil leaks.</li> <li>4. Check inside and outside of cooler (3).</li> <li>5. Check top of forward transmission for oil leaks.</li> </ol> | <p>If oil level is low, service transmission. Refer to TM 55-1520-240-23.</p> <p>If button (2) is extended, replace filter element and inspect removed element for debris. Refer to TM 55-1520-240-23.</p> <p>If any oil leaks are found, investigate source. Tighten or replace leaking part as required.</p> <p>If cooler is clogged, clean or replace it as required. If leaks are found, replace cooler.</p> <p>If any oil leaks are found, investigate source. Tighten or replace leaking part as required.</p> |
|---|--|



45X54

D145-10987-SPA



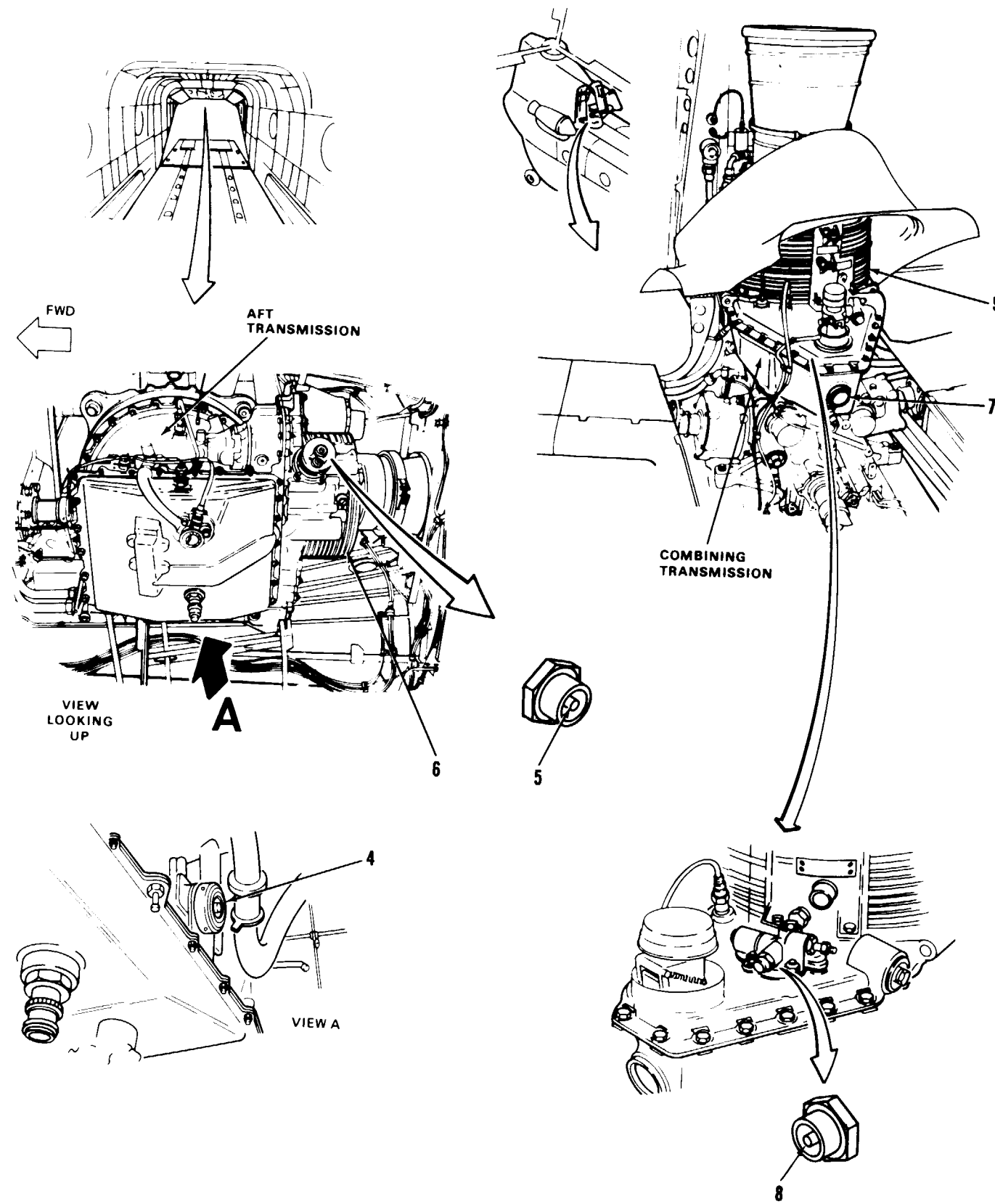
TASK	RESULT
------	--------

**CHECK AFT TRANSMISSION LUBRICATION SYSTEM**

- |  |   |
|--|---|
| 6. Check oil level sight gage (4).                           | If oil level is low, service transmission. Refer to TM 55-1520-240-23.  |
| 7. Check oil filter indicating button (5).                   | If button (5) is extended, replace filter element and inspect removed element for debris. Refer to TM 55-1520-240-23. |
| 8. Check bottom and sides of aft transmission for oil leaks. | If any oil leaks are found, investigate source. Tighten or replace leaking part as required.                          |
| 9. Check inside and outside of cooler (6).                   | If cooler is clogged, clean or replace it as required. If leaks are found, replace cooler.                            |

**CHECK COMBINING TRANSMISSION LUBRICATION SYSTEM**

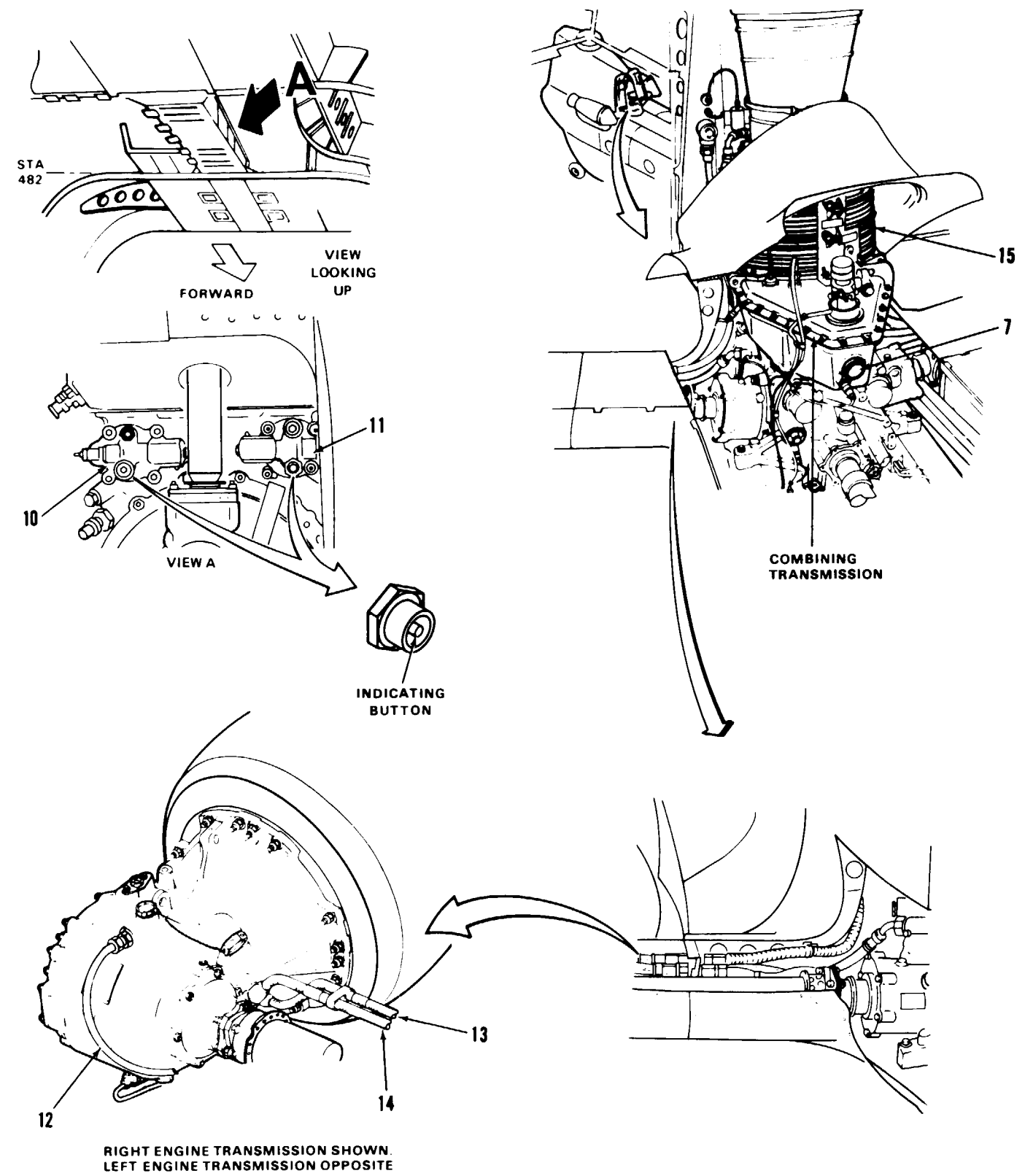
- |   |   |
|---|---|
| 10. Check oil level sight gage (7).             | If oil level is low, service transmission. Refer to TM 55-1520-240-23.  |
| 11. Check oil filter indicating button (8).     | If button (8) is extended, replace filter element and inspect removed element for debris. Refer to TM 55-1520-240-23. |
| 12. Check combining transmission for oil leaks. | If any oil leaks are found, investigate source. Tighten or replace leaking part as required.                          |
| 13. Check cooler (9).                           | If cooler is clogged, clean or replace it as required. If leaks are found, replace cooler.                            |



TASK	RESULT
<i>CHECK ENGINE TRANSMISSION LUBRICATION SYSTEM</i>	
14. Check indicating button on left transmission oil filter (10) and right transmission oil filter (11).	If either bypass button is extended, replace filter element and inspect removed element for debris. Refer to TM 55-1520-240-23.
15. Check oil level sight gage (7).	If oil level is low, service transmission. Refer to TM 55-1520-240-23.
16. Check oil lines (12, 13, and 14) between right engine transmission and combining transmission.	If any line (12, 13, or 14) is loose or damaged, tighten or replace it as required.
17. Check right engine transmission for oil leaks.	If any oil leaks are found, investigate source. Tighten or replace leaking part as required.
18. Check cooler (15).	If cooler (15) is clogged, clean or replace it as required. If leaks are found, replace cooler.
19. Check oil lines (12, 13, and 14) between left engine transmission and combining transmission.	If any line (12, 13, or 14) is loose or damaged, tighten or replace it as required.
20. Check left engine transmission for oil leaks.	If any oil leaks are found, investigate source. Tighten or replace leaking part as required.

**FOLLOW-ON MAINTENANCE:**

- TM 55-1520-240-23:
- Engine Transmission Fairings Installed
- Engine Air Inlet Screens Installed
- Pylon Lower Fairing and Hinged Fairing Closed
- Left and Right Forward Work Platforms Closed



6-1.3 TRANSMISSION LUBRICATION SYSTEMS OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:

None

Personnel Required:

Medium Helicopter Repairer  
Rotary-Wing Aviator (2)

References:

TM 55-1520-240-10  
TM 55-1520-240-23

Equipment Condition:

TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Visual Check of Transmission Lubrication System Performed

TASK	RESULT
------	--------

NOTE

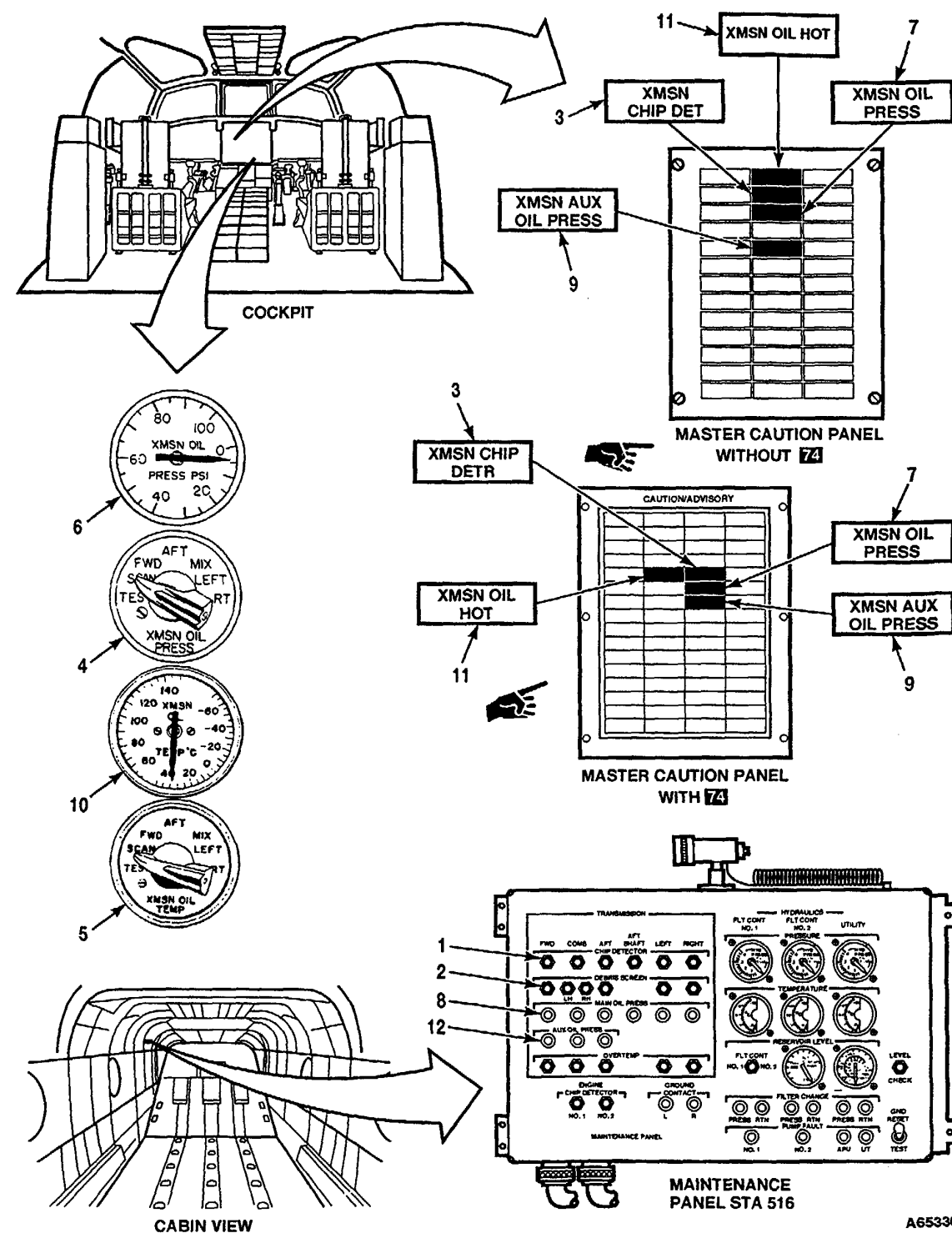
If last flight reported trouble symptom of low oil pressure indication and XMSN OIL PRESS capsule on, go to Task 6-1.4.

1. Check six TRANSMISSION CHIP DETECTOR indicators (1).
2. Check five TRANSMISSION DEBRIS SCREEN indicators (2).
3. Check XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) capsule (3).
4. Check that XMSN OIL PRESS switch (4) and XMSN OIL TEMP switch (5) are at SCAN.
5. Have pilot start engines and stabilize rotors at 100 percent rpm. Check master caution panel and XMSN OIL PRESS indicator (6) as rotor rpm accelerates to 100 percent.

If any indicator (1) displays black-and-white fan, go to Task 6-2.3.  
If any indicator (2) displays black-and-white fan, go to Task 6-2.3.  
If capsule (3) is lit, go to Task 6-2.3.

If either switch (4 or 5) is not at SCAN, set it to SCAN.

XMSN OIL PRESS capsule (7) shall go out as pointer on XMSN OIL PRESS indicator passes 20 psi. If indicator reads below 20 psi and capsule (7) is on, note which TRANSMISSION MAIN OIL PRESS light (8) is on. Have pilot stop engines, then go to Task 6-1.4. If indicator reads below 20 psi and capsule (7) is out, note which XMSN OIL PRESS switch position is lit. Have pilot stop engines, then go to Task 8-9.3. If indicator reads above 20 psi and capsule (7) is on, note which TRANSMISSION MAIN OIL PRESS light (8) is on. Have pilot stop engines, then go to Task 6-1.5.



6-1.3 TRANSMISSION LUBRICATION SYSTEMS OPERATIONAL CHECK (Continued)

TASK	RESULT
6. Check XMSN TEMP indicator (10).	<p>XMSN AUX OIL PRESS capsule (9) shall go out as pointer on XMSN OIL PRESS indicator (6) passes 20 psi. If capsule (9) is still on, note which TRANSMISSION AUX OIL PRESS light (12) is on. Have pilot stop engines, then go to Task 6-1.6.</p> <p>Pointer on indicator (10) shall be in normal range. If it is not and XMSN OIL HOT capsule (11) is on, have pilot stop engines, then go to Task 6-1.7.</p>
7. Have pilot stop engines.	
8. Check maintenance panel TRANSMISSION CHIP DETECTOR and DEBRIS SCREEN indicators (1 and 2).	<p>If any indicator (1) is black and white, go to Task 6-2.3. If any indicator (2) is black and white, go to Task 6-2.3.</p>

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23
- Shut down engines.
- Electrical power off.
- Hydraulic power off.
- Battery disconnected.

6-1.4 XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

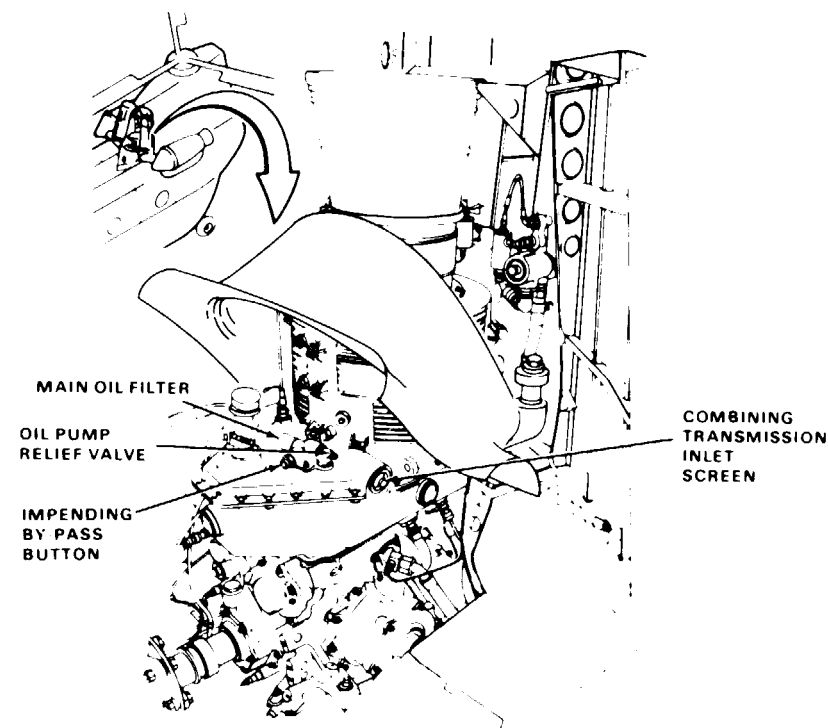
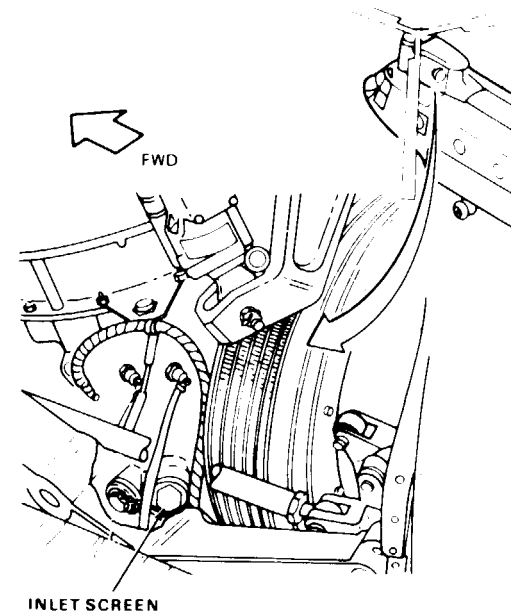
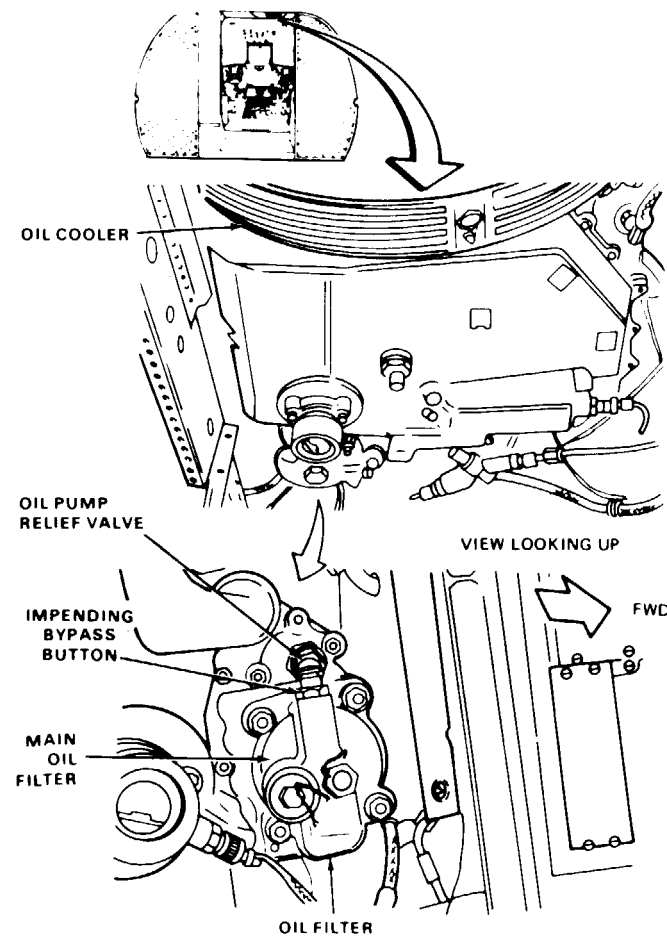
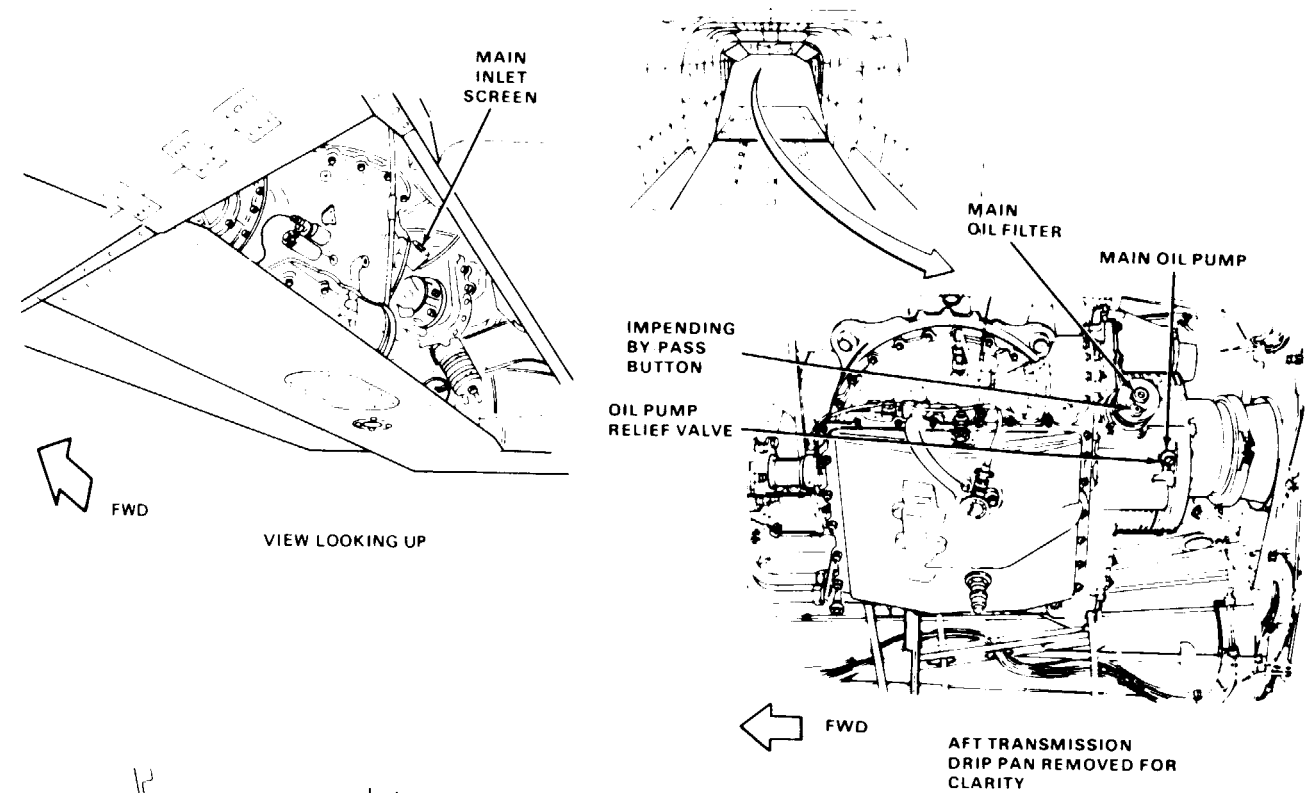
**Tools:**  
Aircraft Mechanic's Tool Klt  
NSN 5180-00-323-4692

**Materials:**  
None

**Personnel Required:**  
67U10 Medium Helicopter Repairer  
67U20 Medium Helicopter Repairer

**References:**  
TM 55-1520-240-23

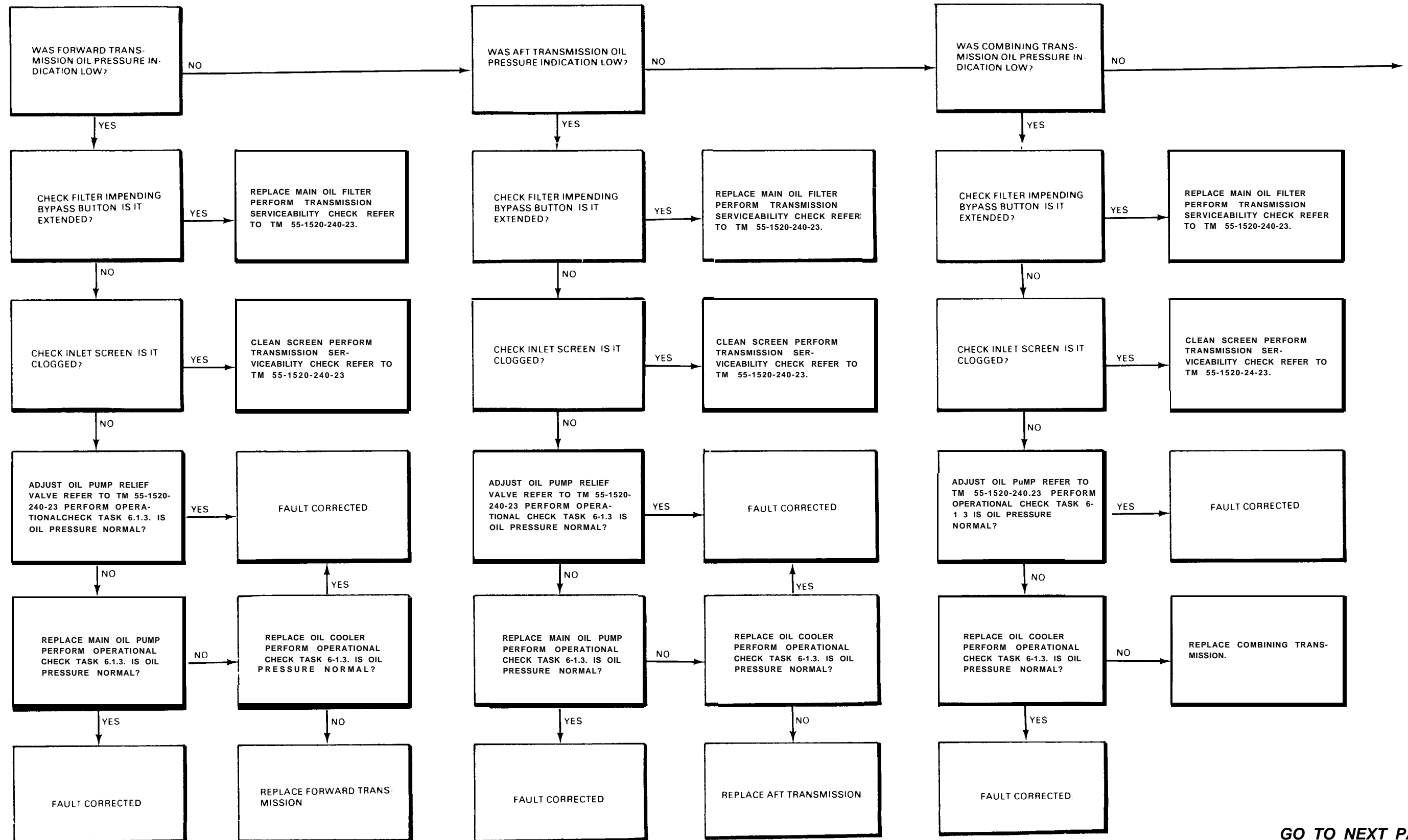
**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



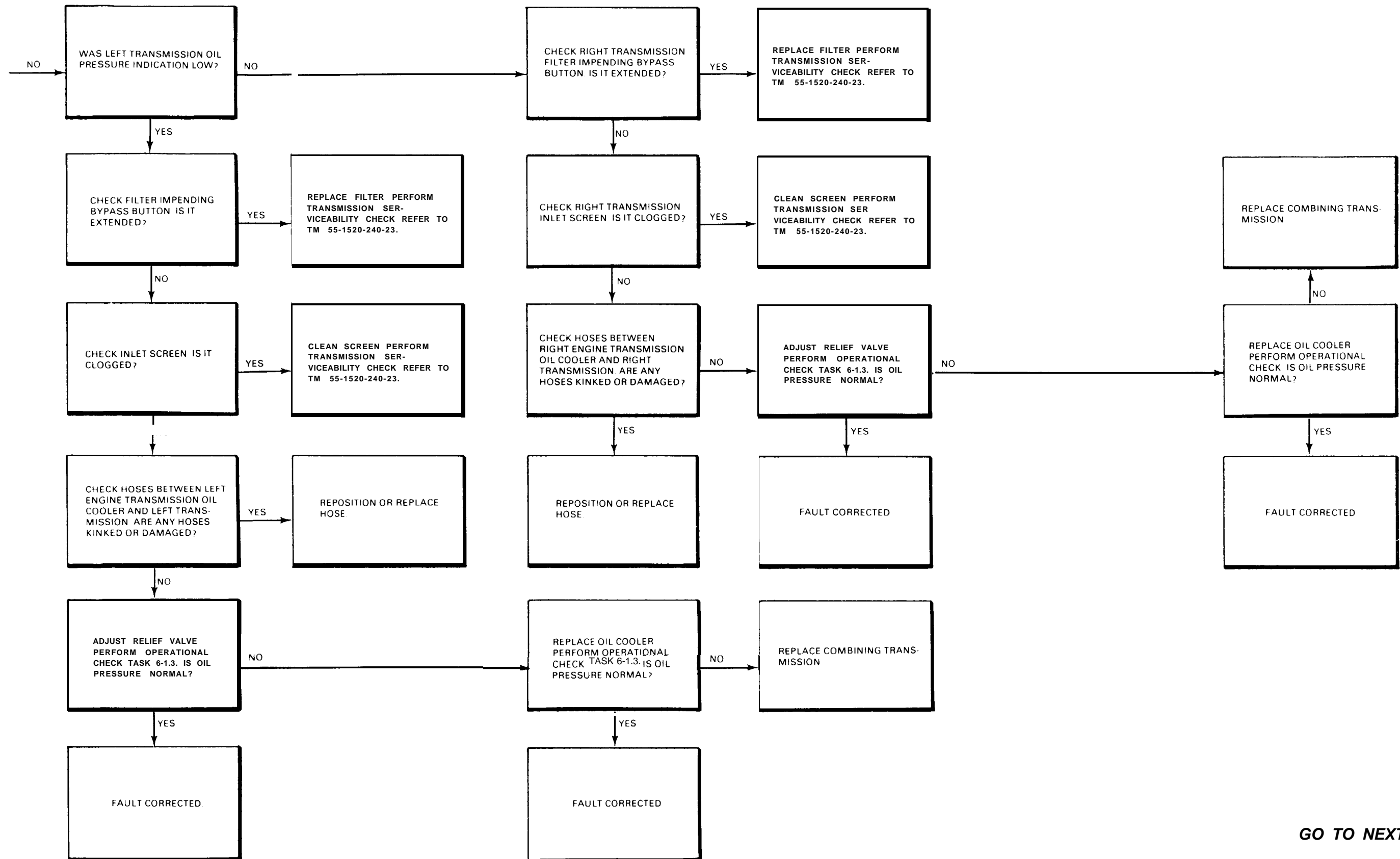
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6-1.4 XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW (Continued)



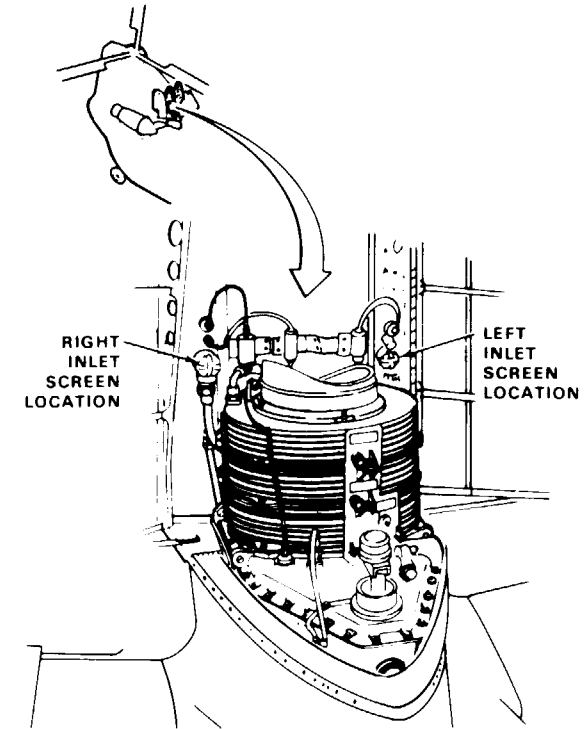
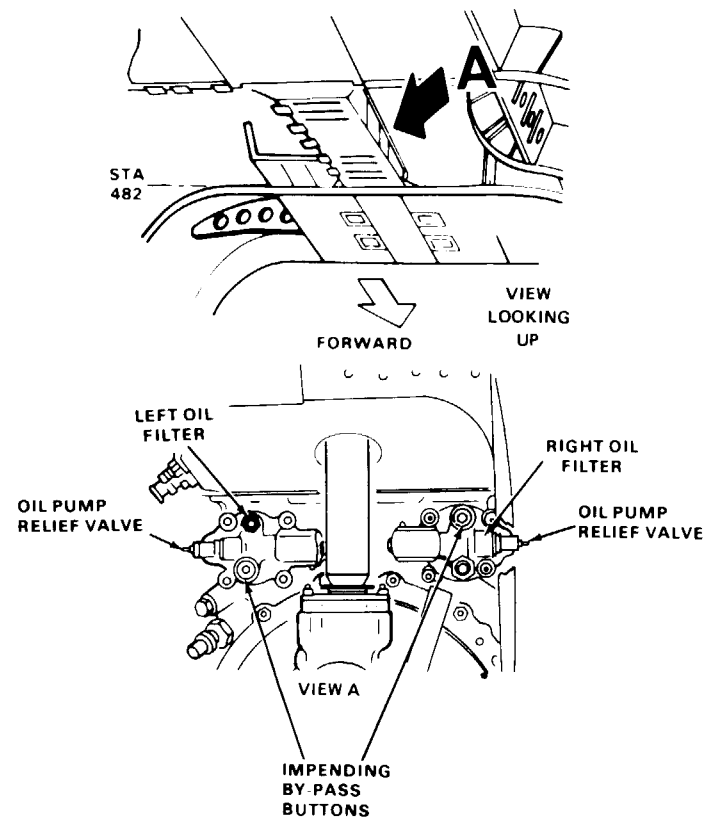
6-1.4 XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW (Continued)



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6-1.4 XMSN OIL PRESS CAPSULE ON AND ONE TRANSMISSION OIL PRESSURE INDICATION LOW (Continued)

6-1.4





6-1.5 XMSN OIL PRESS CAPSULE ON, TRANSMISSION OIL PRESSURE INDICATIONS NORMAL

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

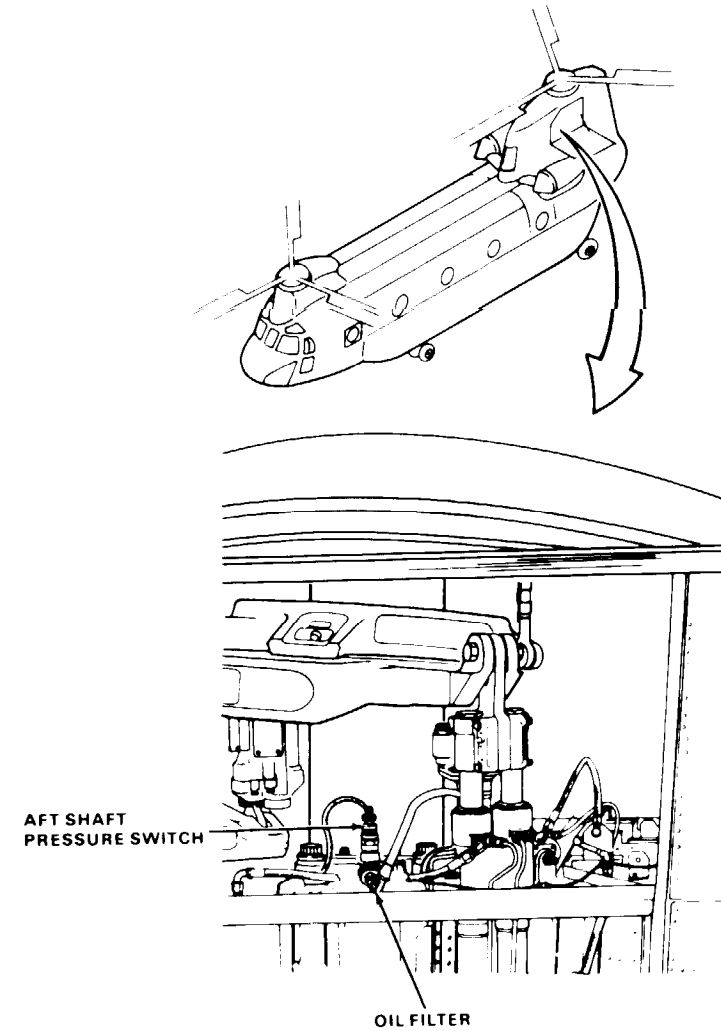
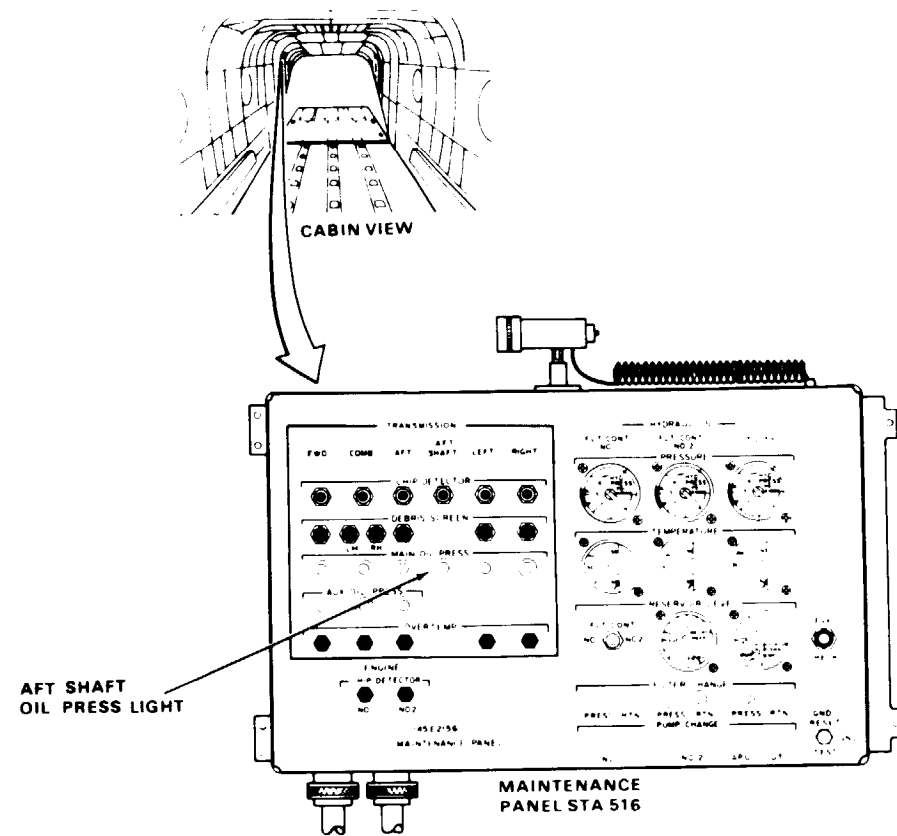
**Tools:**  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**  
None

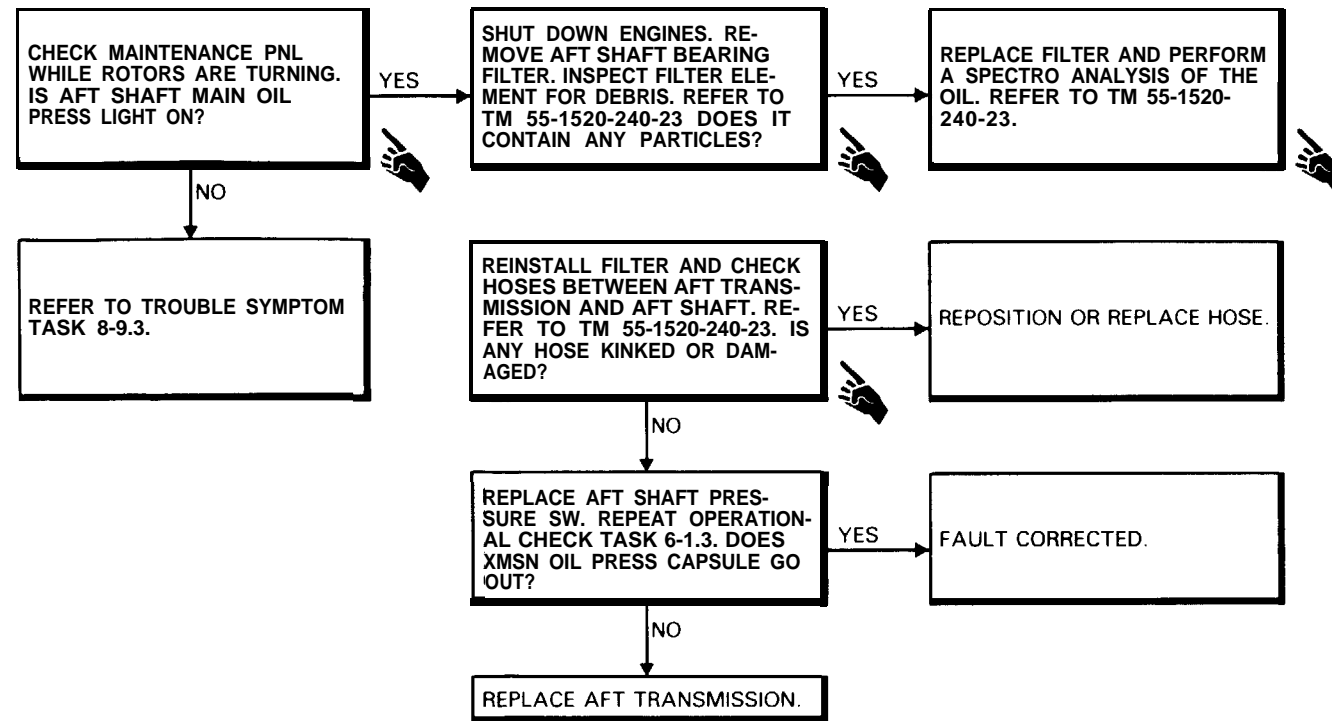
**Personnel Required:**  
67U20 Medium Helicopter Repairer  
100C0 Army Rotary-Wing Aviator (2)

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-10:  
Rotors Turning  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



6-1.5 XMSN OIL PRESSURE CAPSULE ON, TRANSMISSION OIL PRESSURE INDICATIONS NORMAL  
(Continued)



6-1.6 XMSN AUX OIL PRESS CAPSULE ON WITH ROTORS TURNING

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4962

**Materials:**

None

**Personnel Required:**

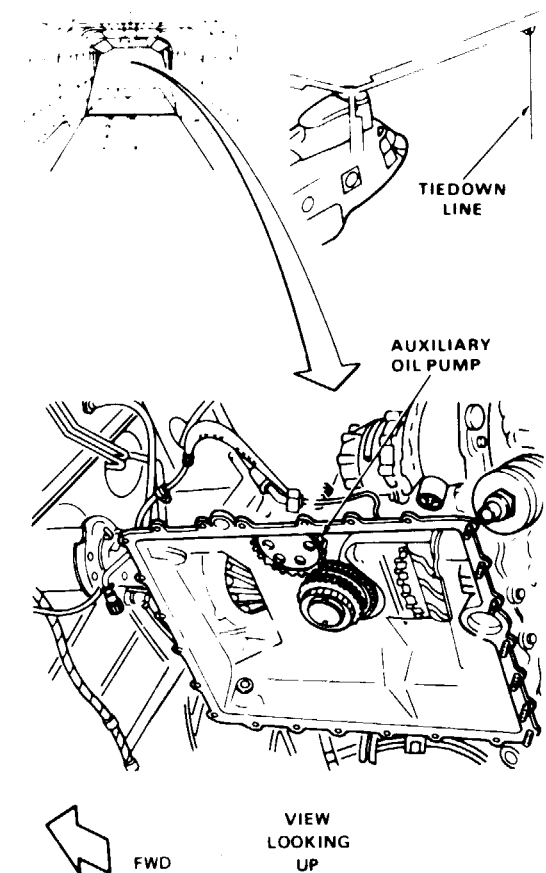
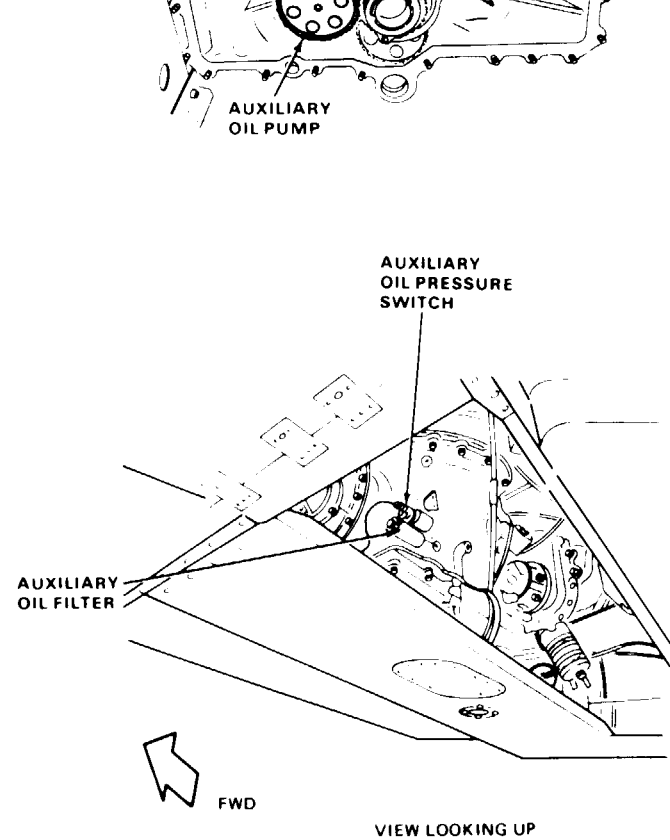
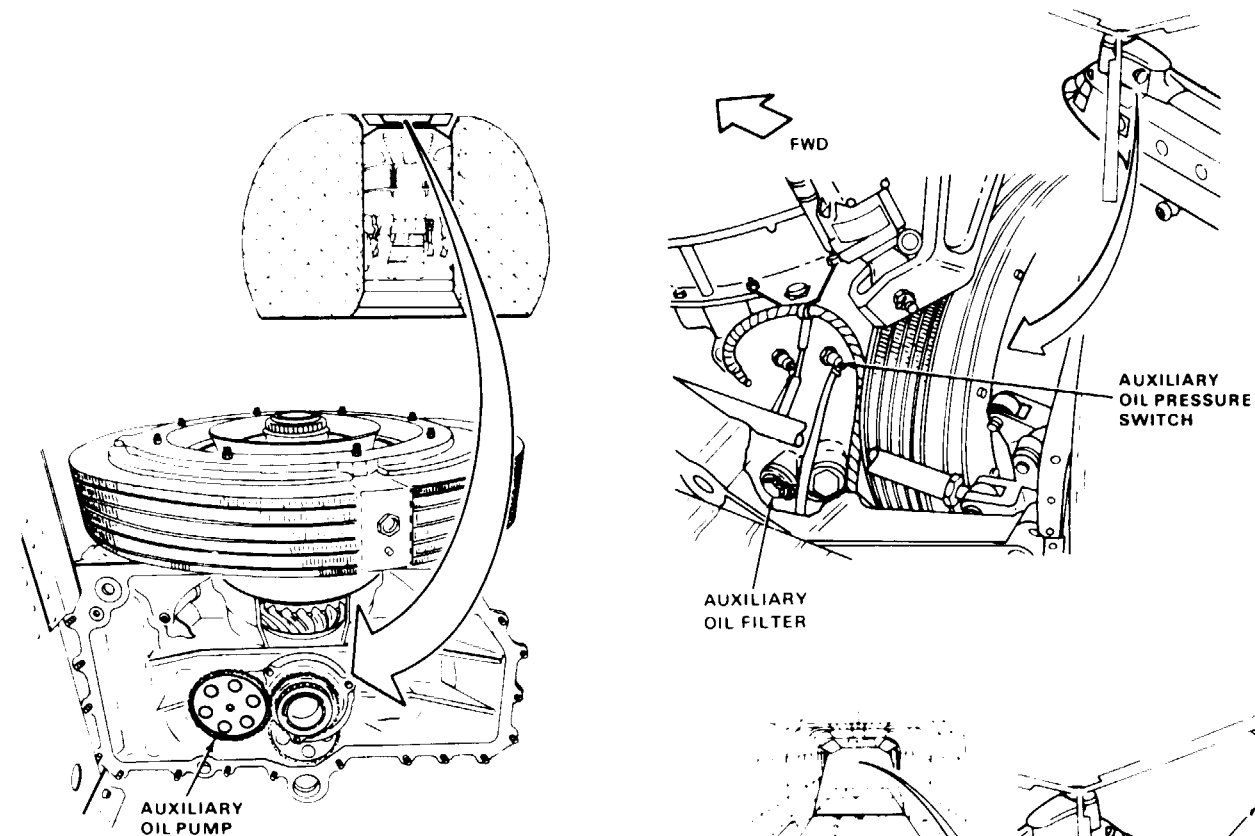
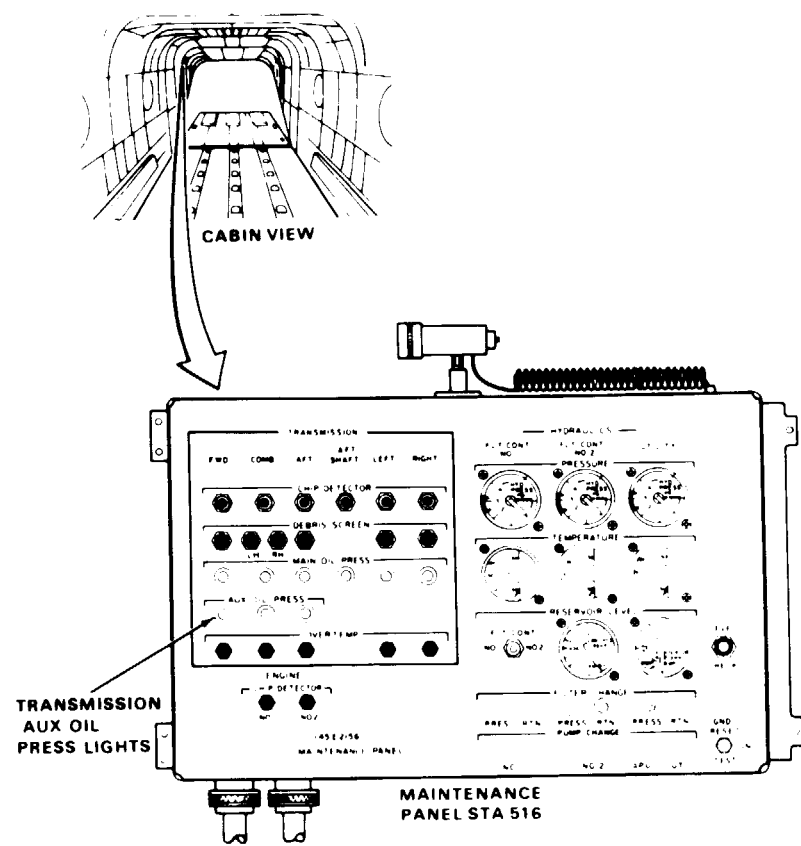
67U10 Medium Helicopter Repairer  
67U20 Medium Helicopter Repairer

**References:**

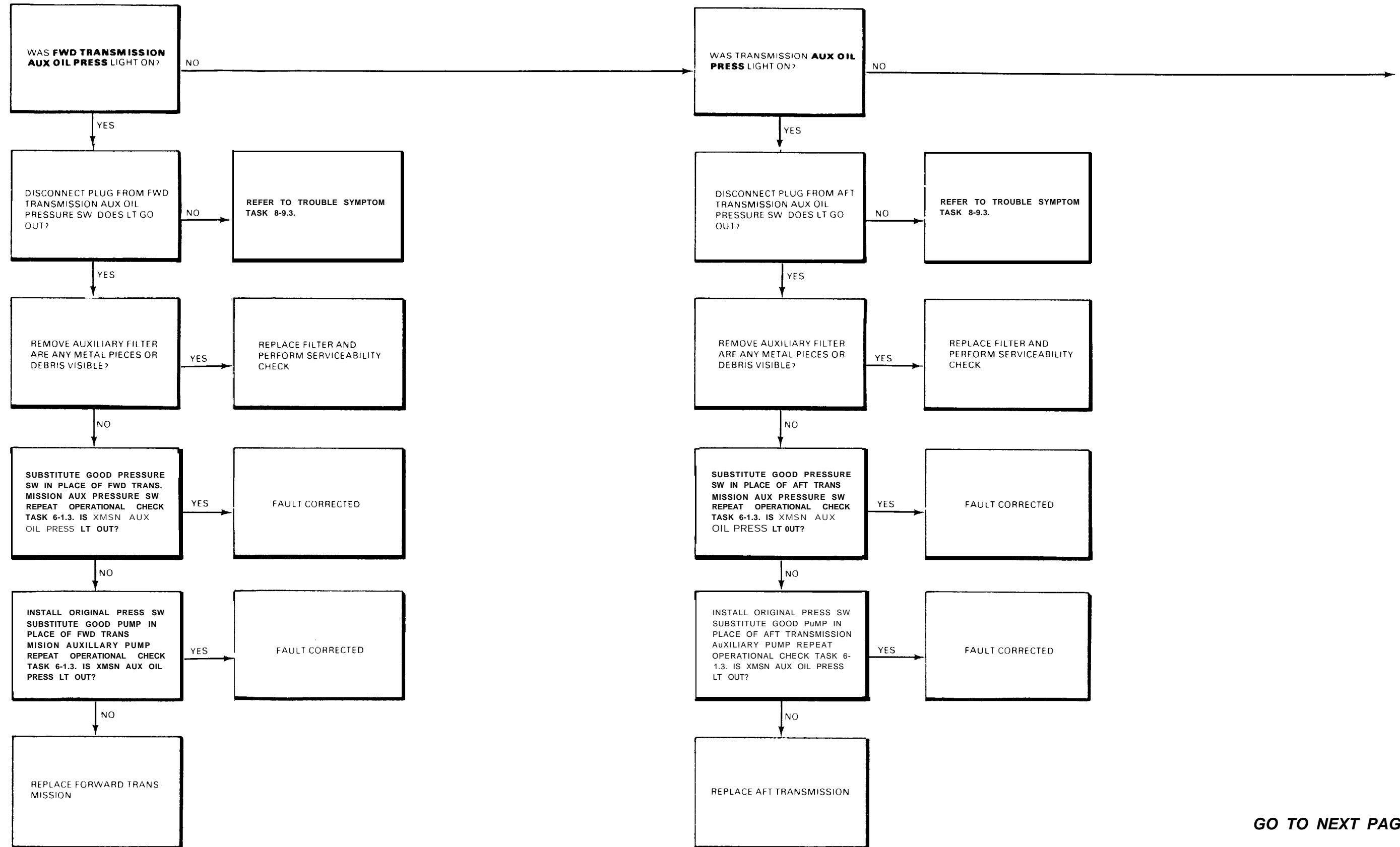
TM 55-1520-240-23

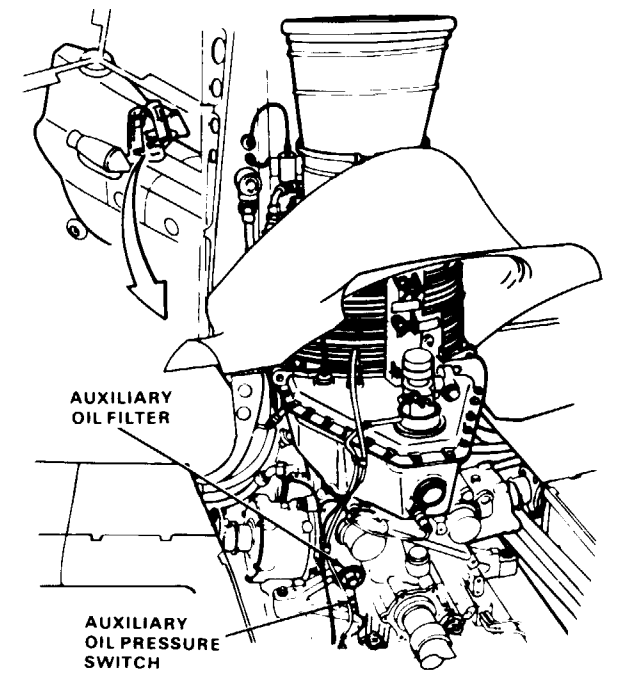
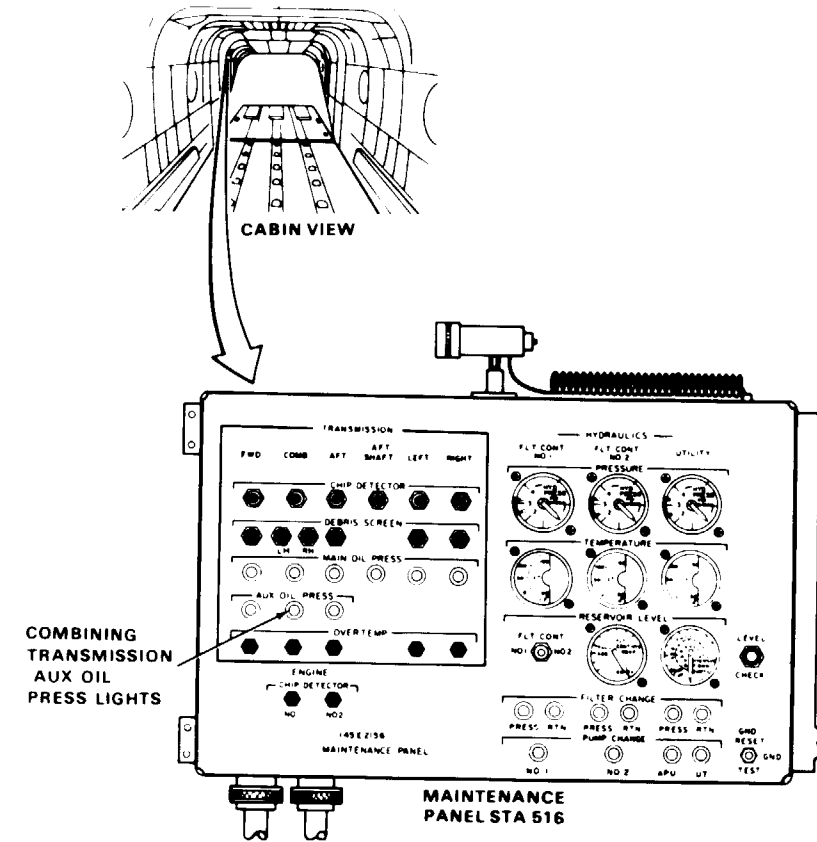
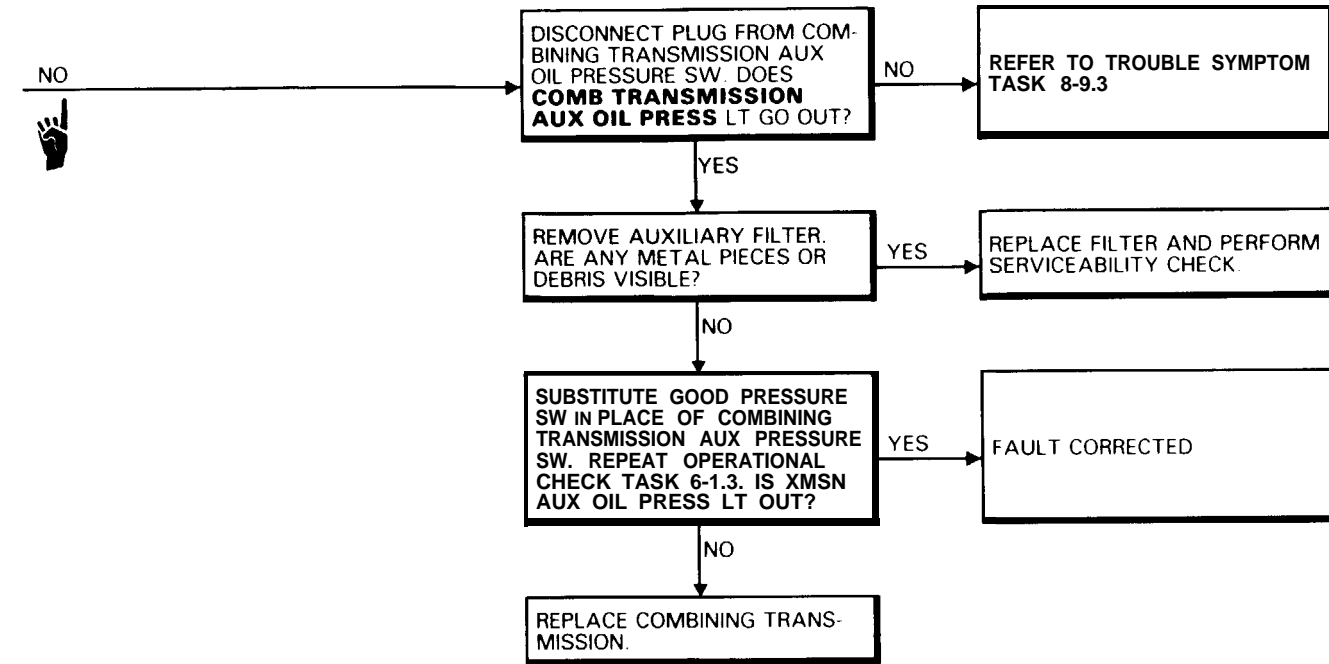
**Equipment Condition:**

TM 55-1520-240-23.  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



6-1.6 XMSN AUX OIL PRESS CAPSULE ON WITH ROTORS TURNING (Continued)



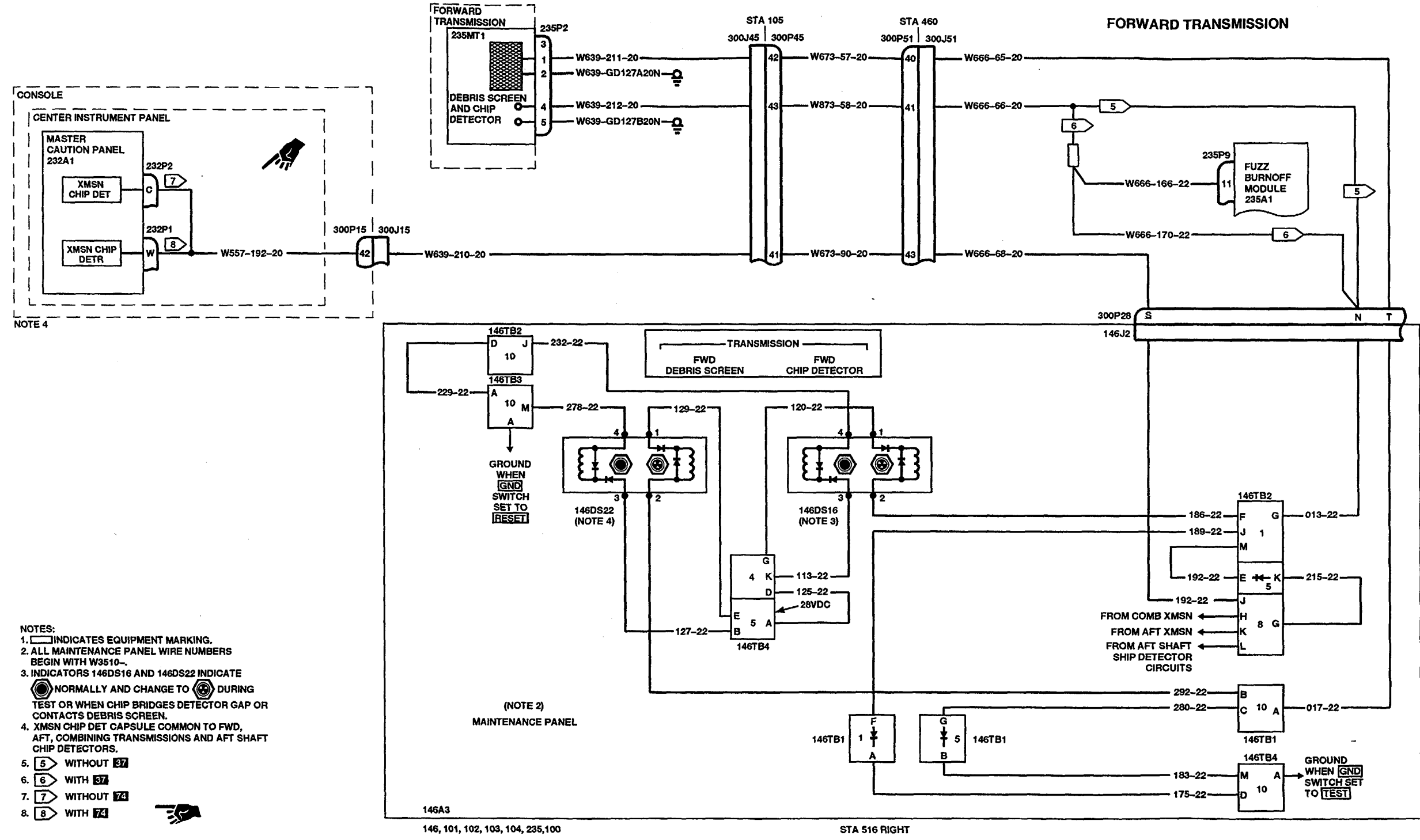


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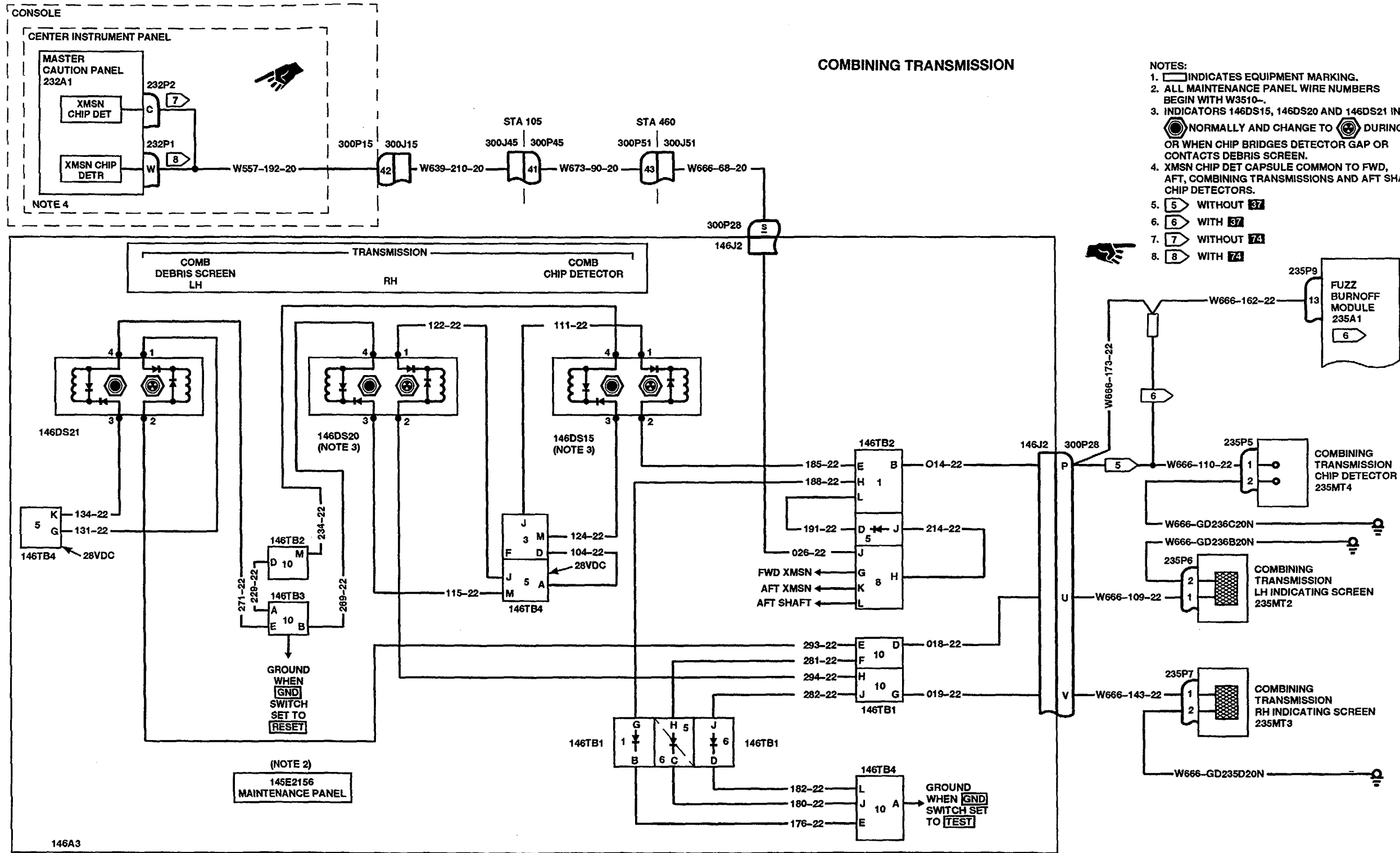
**6-2 TRANSMISSION CHIP DETECTORS  
AND DEBRIS SCREENS**

6-2.1 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS WIRING DIAGRAM



- NOTES:
1. [Symbol] INDICATES EQUIPMENT MARKING.
  2. ALL MAINTENANCE PANEL WIRE NUMBERS BEGIN WITH W3510-.
  3. INDICATORS 146DS16 AND 146DS22 INDICATE [Symbol] NORMALLY AND CHANGE TO [Symbol] DURING TEST OR WHEN CHIP BRIDGES DETECTOR GAP OR CONTACTS DEBRIS SCREEN.
  4. XMSN CHIP DET CAPSULE COMMON TO FWD, AFT, COMBINING TRANSMISSIONS AND AFT SHAFT CHIP DETECTORS.
  5. [Symbol] WITHOUT [Symbol]
  6. [Symbol] WITH [Symbol]
  7. [Symbol] WITHOUT [Symbol]
  8. [Symbol] WITH [Symbol]

6-2.1 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS WIRING DIAGRAM (Continued)



146A3  
146, 101A, 102A, 103A, 104A, 235.100

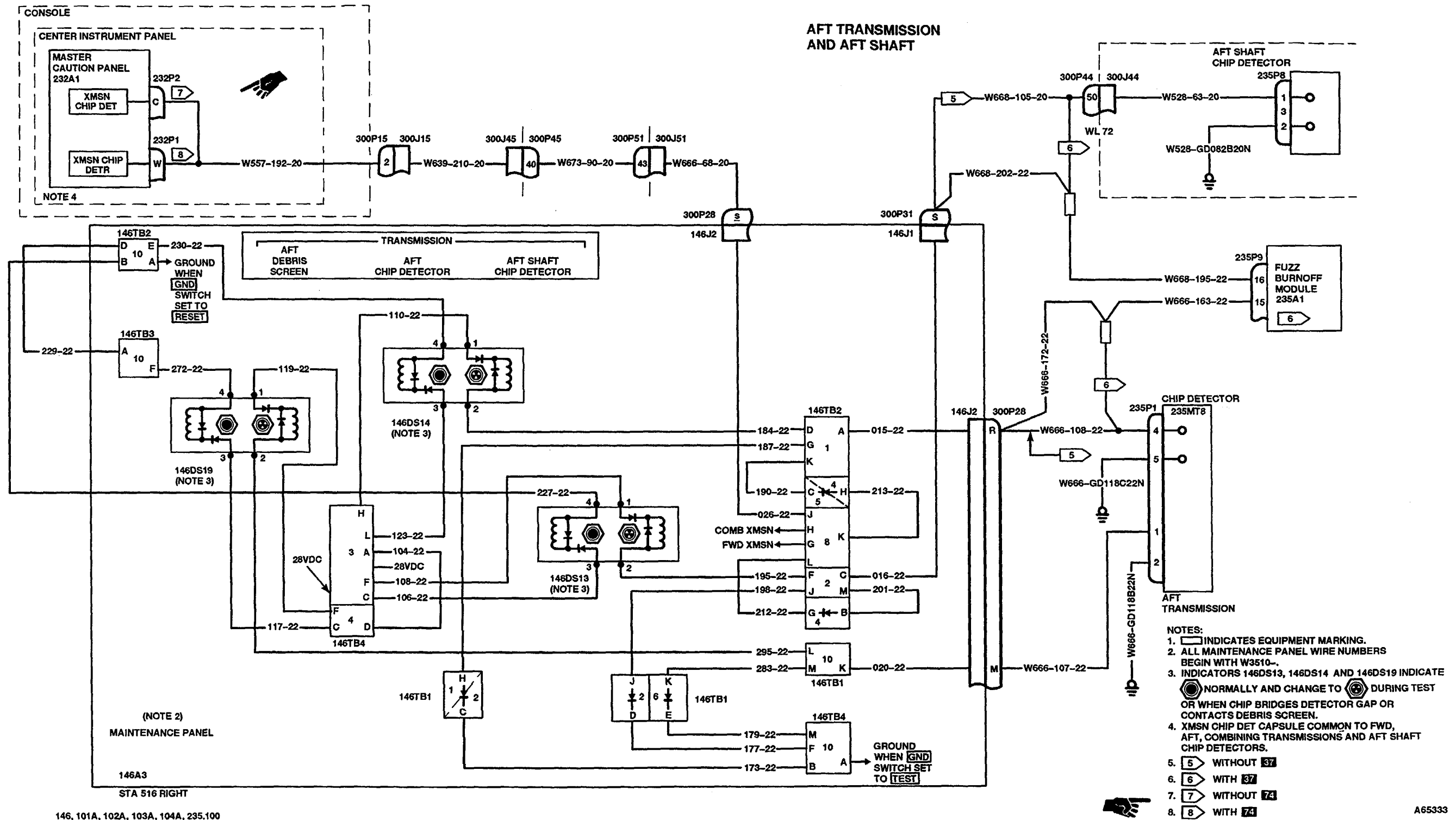
STA 516 RIGHT

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Change 17 6-27



6-2.1 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS WIRING DIAGRAM (Continued)

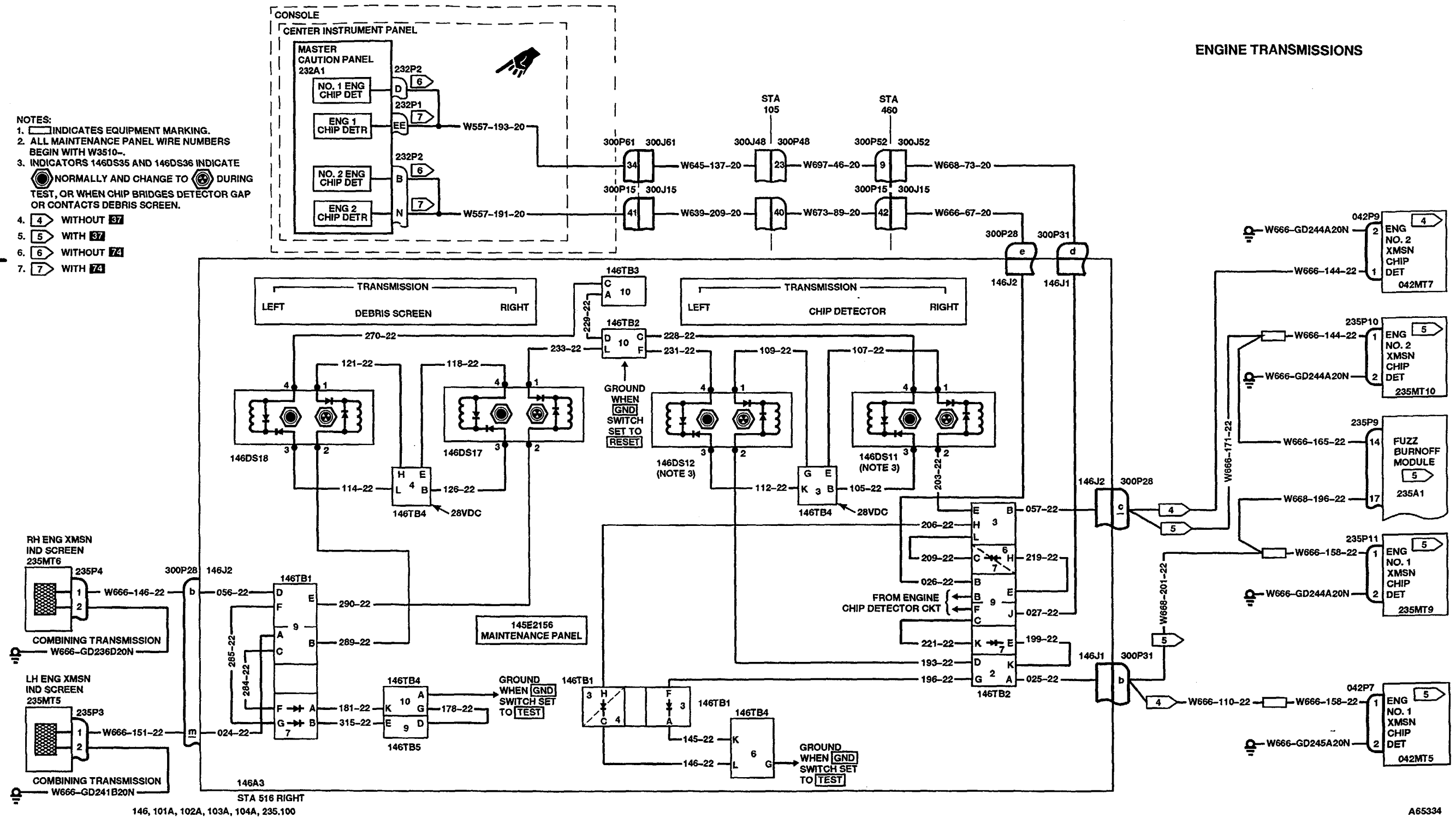


146, 101A, 102A, 103A, 104A, 235.100

A65333

6-2.1 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS WIRING DIAGRAM (Continued)

- NOTES:
1. INDICATES EQUIPMENT MARKING.
  2. ALL MAINTENANCE PANEL WIRE NUMBERS BEGIN WITH W3510-.
  3. INDICATORS 146DS35 AND 146DS36 INDICATE NORMALLY AND CHANGE TO DURING TEST, OR WHEN CHIP BRIDGES DETECTOR GAP OR CONTACTS DEBRIS SCREEN.
  4. WITHOUT
  5. WITH
  6. WITHOUT
  7. WITH



146, 101A, 102A, 103A, 104A, 235.100

A65334

**6-2.2 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS VISUAL CHECK**

6-2.2

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

67U 10 Medium Helicopter Repairer

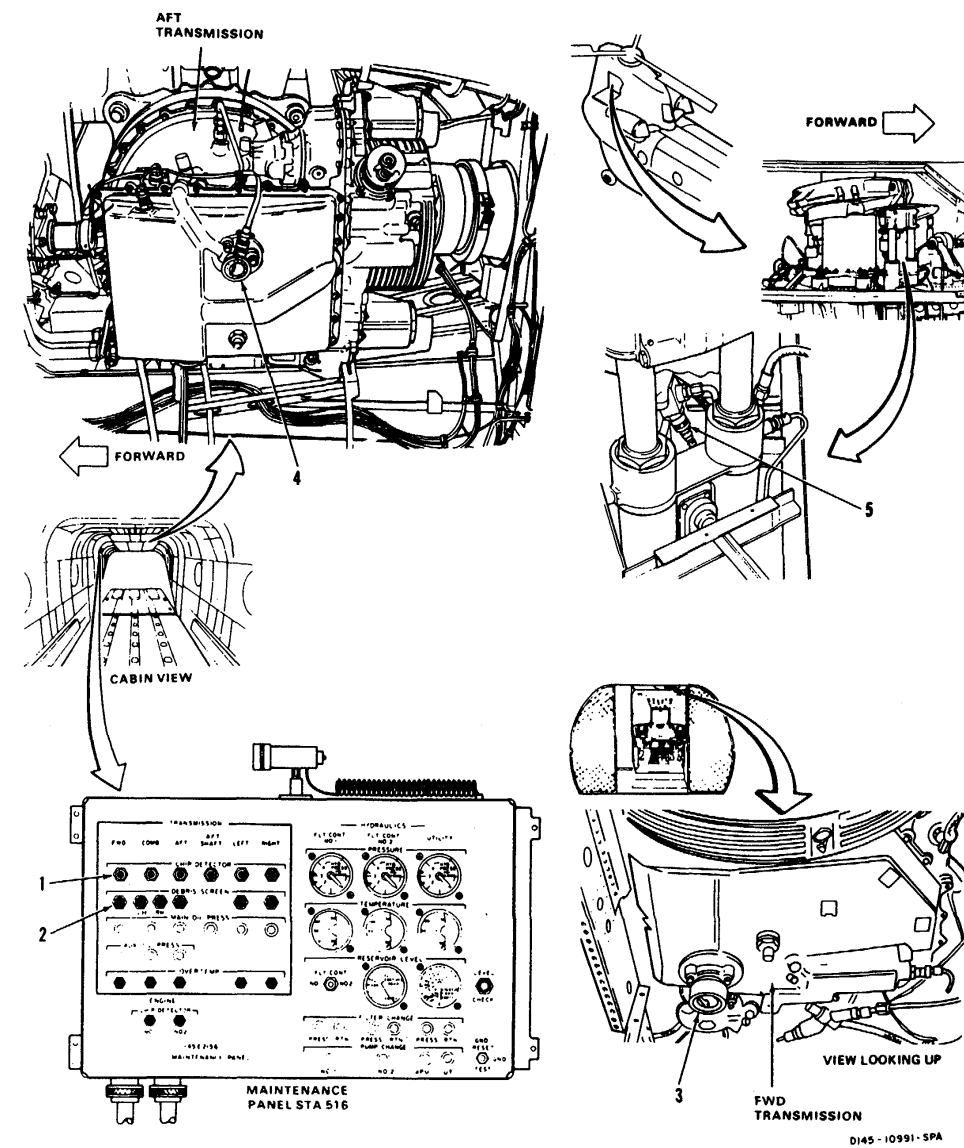
**References:**

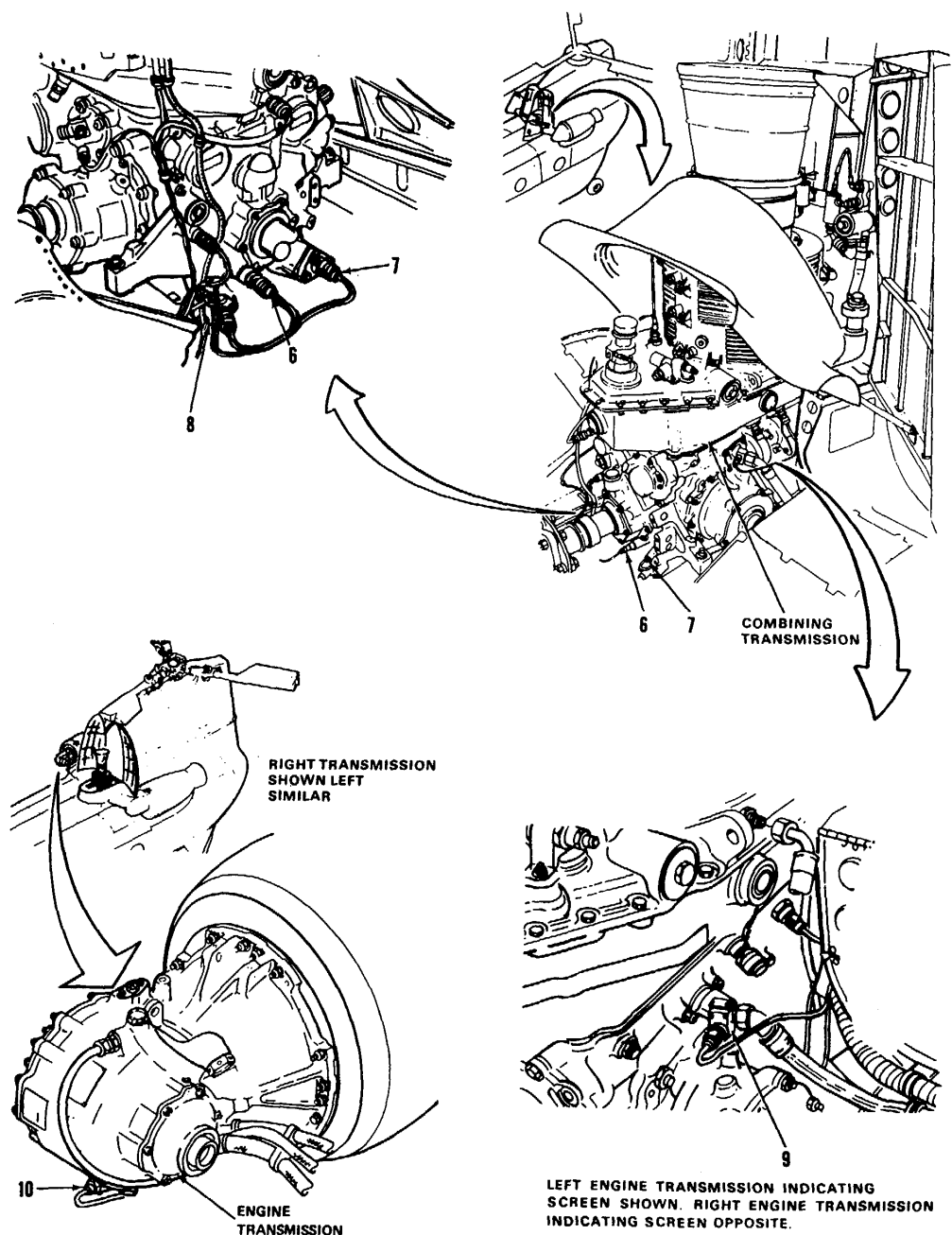
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Forward Drip Pan Removed
- Aft Transmission Baffles Open
- Pylon Hinged Fairing Open
- Pylon Lower Fairing Open
- Pylon Right Work Platforms Open
- Engine Air Inlet Screens Removed
- Engine Transmission Fairings Removed
- Cargo Ramp Open and Level (Task 7-3.3)

TASK	RESULT
<b>CHECK INDICATORS</b>	
1. Check six TRANSMISSION CHIP DETECTOR indicators (1).	If any indicator (1) is loose or damaged, tighten or replace it as required. If left or right indicator displays a black-and-white fan, go to Task 6-2.4. If FWD, COMB, AFT, or AFT SHAFT indicator displays a black and white fan, go to Task 6-2.5.
2. Check six TRANSMISSION DEBRIS SCREEN indicators (2).	If any indicator (1) is loose or damaged, tighten or replace it as required. If any indicator displays a black-and-white fan, go to Task 6-2.7.
<b>CHECK FORWARD TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION</b>	
3. Check chip detector and indicating screen.	If chip detector and screen (3) is damaged, replace. If wiring or electrical connector to chip detector and indicating screen is damaged, repair or replace it as required.
<b>CHECK AFT TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION</b>	
4. Check chip detector and indicating screen (4).	If chip detector and screen (4) is damaged, replace it. If wiring or electrical connector to chip detector and indicating screen is damaged, repair or replace it as required.





45 X 54

D145-10992-SPA

TASK	RESULT
<p><b>CHECK AFT SHAFT CHIP DETECTOR INSTALLATION</b></p> <p>5. Check chip detector</p>	<p>If chip detector (5) is damaged, replace it. If wiring or electrical connector to detector is damaged, repair or replace it as required.</p>
<p><b>CHECK COMBINING TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION</b></p> <p>6. Check chip detector (6).</p> <p>7. Check indicating screens (7 and 8).</p>	<p>If chip detector (6) is damaged, replace it. If wiring or electrical connector to detector is damaged, repair or replace it as required.</p> <p>If either screen (7 or 8) is damaged, replace it. If wiring or electrical connector to either screen is damaged, repair or replace it as required.</p>
<p><b>CHECK ENGINE TRANSMISSION CHIP DETECTOR AND INDICATING SCREENS INSTALLATION</b></p> <p>8. Check left engine transmission indicating screen (9).</p> <p>9. Check right engine transmission indicating screen (9).</p> <p>10. Check right engine transmission temperature and chip detector (10).</p> <p>11. Check left engine transmission temperature and chip detector (10).</p>	<p>If screen (9) is damaged, replace it. If wiring or electrical connector to screen is damaged, repair or replace it as required.</p> <p>If screen (9) is damaged, replace it. If wiring or electrical connector to screen is damaged, repair or replace it as required.</p> <p>If detector (10) is damaged, replace it. If wiring or electrical connector to detector is damaged, repair or replace it as required.</p> <p>If detector (10) is damaged, replace it. If wiring or electrical connector to detector is damaged, repair or replace it as required.</p>

**FOLLOW-ON MAINTENANCE:**  
None

END OF TASK

Change 9 6-31

6-2.3 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS OPERATIONAL CHECK

INITIAL SETUP

**Applicable Configurations:**

All

**Tools**

Container, Two Quart  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00323-4692

**Materials**

Cloths (E120)

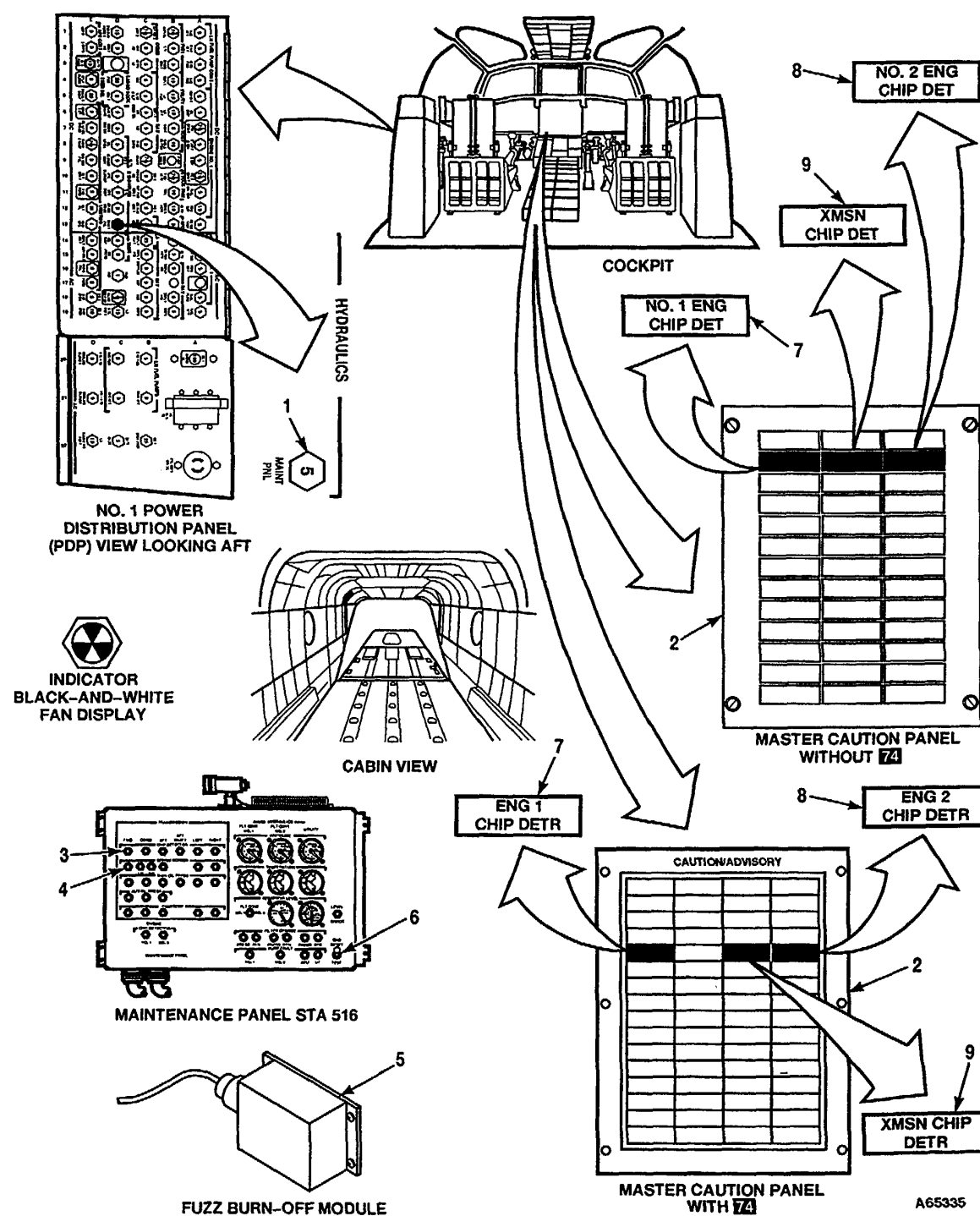
**Personnel Required:**

Medium Helicopter Repairer (2)

**Equipment Condition:**

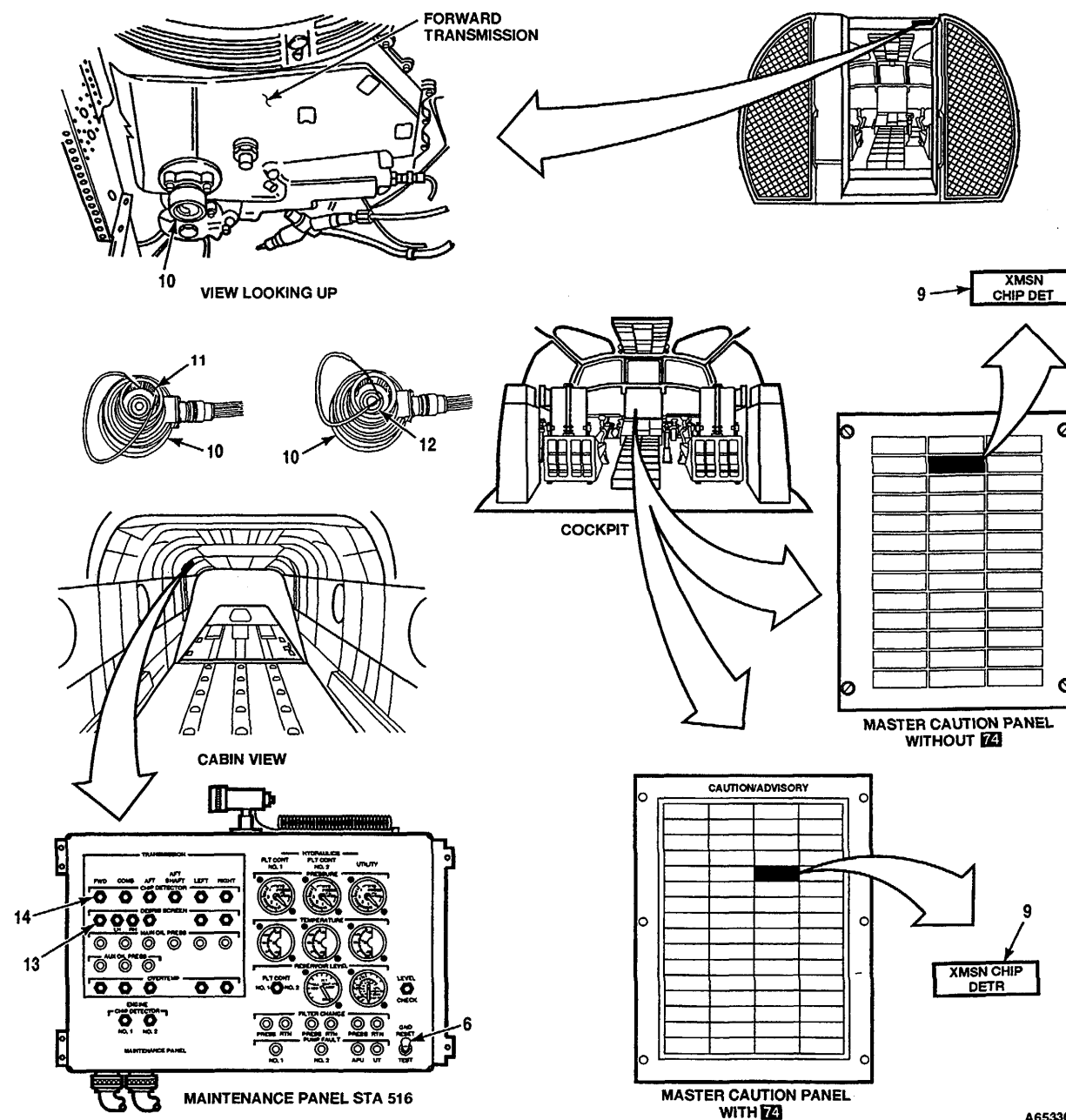
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Visual Check of Transmission Chip Detectors and  
Debris Screens Performed (Task 6-2.2).

TASK	RESULT
<b>CHECK INDICATORS</b>	
1. Check that MAINT PNL circuit breaker (1) is closed.	If MAINT PNL circuit breaker (1) is open, close it. If it opens again, go to Task 8-14.4.
1.1 Check master caution panel (2).	If NO. 1 or NO. 2 ENG CHIP DET (Without 74) ENG 1 or 2 CHIP DETR (With 74) capsule (7 or 8) is lit, go to Task 6-2.4. If XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) is lit, go to Task 6-2.5.
2. Check six TRANSMISSION CHIP DETECTOR indicators (3).	All indicators (3) shall be all-black. If any indicator (3) displays black-and-white fan, go to Task 6-2.6.
3. Check six TRANSMISSION DEBRIS SCREEN indicators (4).	All indicators (4) shall be all-black. If any indicator (4) displays black-and-white fan, go to Task 6-2.7.
<b>WITH 37</b>	
<b>WARNING</b>	
If plug 235P9 is not disconnected from fuzz burn off module, arcing can occur while checking chip detectors. Damage to aircraft or personnel may result.	
3.1 Disconnect plug 235P9 from fuzz burn off module (5).	
4. Set and hold GND switch (6) to TEST.	NO. 1 and NO. 2 ENG CHIP DET (Without 74) ENG 1 or 2 CHIP DETR (With 74) capsules (7 and 8) shall come on. XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) shall come on. All TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN indicators (3 and 4) shall change to black-and-white fans. If NO. 1 or NO. 2 ENG CHIP DET (Without 74) ENG 1 or 2 CHIP DETR (With 74) capsule (7 or 8) is out, go to Task 4-7.3. If XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) is out, go to Task 6-2.8. If any indicator (3) is all-black, go to Task 6-2.9. If any indicator (4) is all-black, go to Task 6-2.10.



6-2.3 TRANSMISSION CHIP DETECTORS AND DEBRIS SCREENS OPERATIONAL CHECK (Continued)

TASK	RESULT
5. Set GND switch (6) to RESET, then to GND. <b>CHECK FORWARD TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION</b>	Indicators (3 and 4) shall change to all-black. If any indicator display is not all-black, go to Task 6-2.6 or 6-2.7.
6. Disconnect connector from debris detection screen cap (8).  <b>NOTE</b> Cap holds 2 to 3 ounces of oil.	
7. Hold container under cap (10). Push up center of cap and pull down on cap edge to remove cap. Drain oil into container.	
8. Filter drained oil through cloth (E120). Check cloth, screen (11), and chip detector (12) for debris for contamination analysis. (Refer to TM 55-1520240-23.)	
9. Connect connector to cap (10).  <b>CAUTION</b> Be careful when placing jumper wire on screen. Rough handling could damage debris screen.	
10. Place a jumper wire across at least four consecutive wires on the inside mesh of screen (11).	FWD TRANSMISSION DEBRIS SCREEN indicator (13) shall change to black-and-white fan. If it does not, go to Task 6-2.11.
11. Remove jumper wire from debris screen. Place jumper wire across gap of chip detector (12).	XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) shall come on. FWD TRANSMISSION CHIP DETECTOR indicator (14) shall change to black-and-white fan. If capsule (9) does not come on or indicator (14) does not change display, go to Task 6-2.12.
12. Remove jumper wire.	XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) shall go out.
13. Set GND switch (6) to RESET, then to GND.	Indicators (13 and 14) shall change to all-black.
14. Install debris detection screen cap (10).	



A65336

6-2.3 TRANSMISSION' CHIP DETECTORS AND DEBRIS SCREENS OPERATIONAL CHECK (Continued)

TASK	RESULT
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**CHECK AFT TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION**

15. Disconnect connector from debris detection screen cap (15).

**NOTE**

Cap holds 2 to 3 ounces of oil.

16. Hold container under cap (15). Push up center of cap and pull down on cap edge to remove cap. Drain oil into container.

17. Filter drained oil through cloth (E104). Check cloth, screen (16), and chip detector (17) for debris. Retain debris for contamination analysis. (Refer to TM 55-1520-240-23.)

18. Connect connector to cap (15).

**CAUTION**

Be careful when placing jumper wire on screen. Rough handling could damage debris screen.

19. Place a jumper wire across at least four consecutive wires on the inside mesh of screen (16).

20. Remove jumper wire from debris screen. Place jumper wire across gap of chip detector (17).

21. Remove jumper wire .

22. Set GND switch (6) to RESET, then to GND.

23. Install debris detection screen cap (15).

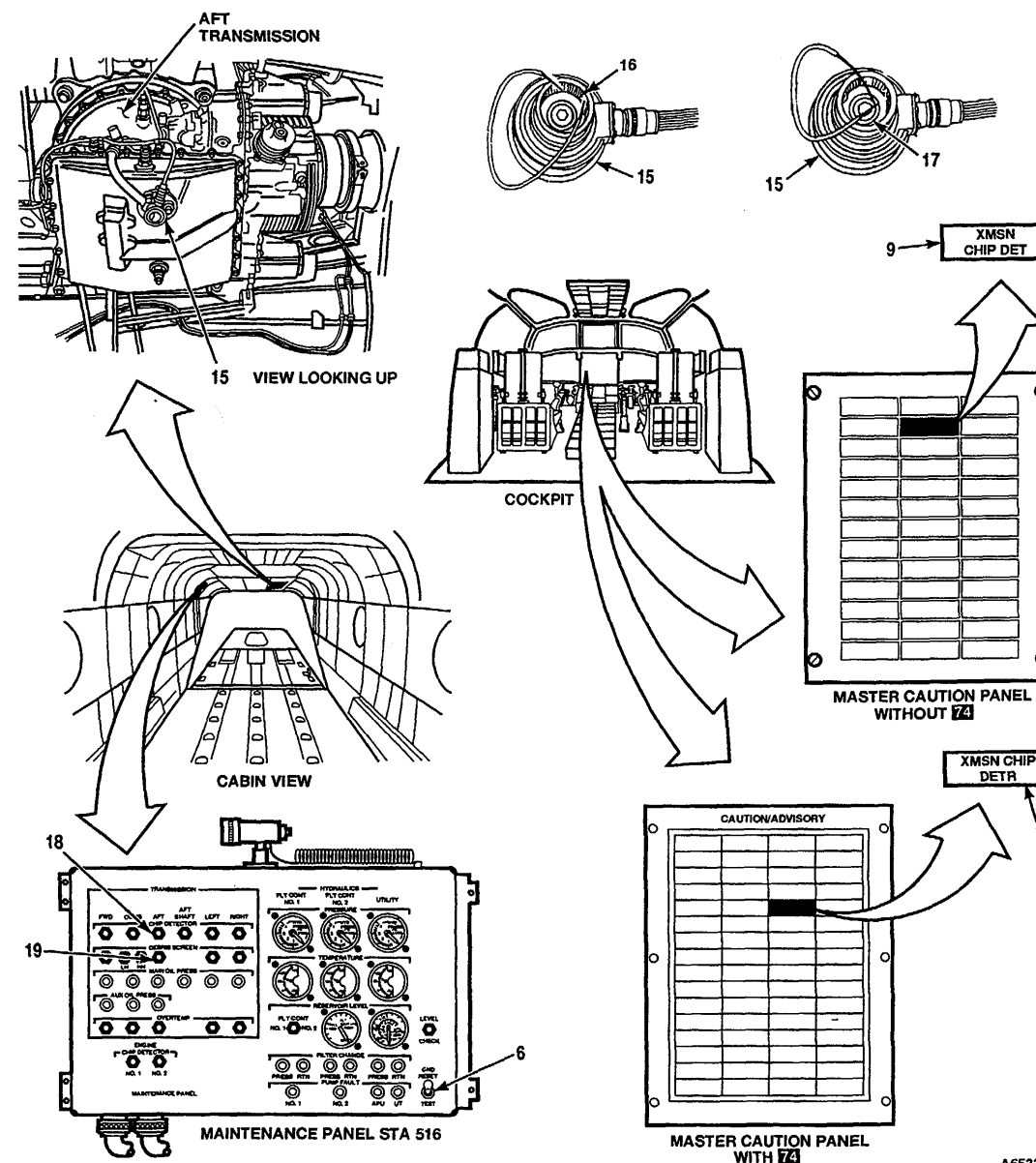
AFT TRANSMISSION DEBRIS SCREEN indicator (19) shall change to black-and-white fan. If it does not, go to Task 6-2.13.

XMSN CHIP DET (Without 74) 3 XMSN CHIP DETR (With 74)

capsule (9) shall come on. FWD TRANSMISSION CHIP DETECTOR indicator (18) shall change to black-and-white fan. If capsule (9) does not come on or indicator (18) does not change display, go to Task 6-2.14.

XMSN CHIP DET (Without 74) 3 XMSN CHIP DETR (With 74) us capsule (9) shall go out.

Indicators (18 and 19) shall change to all-black.



A65337

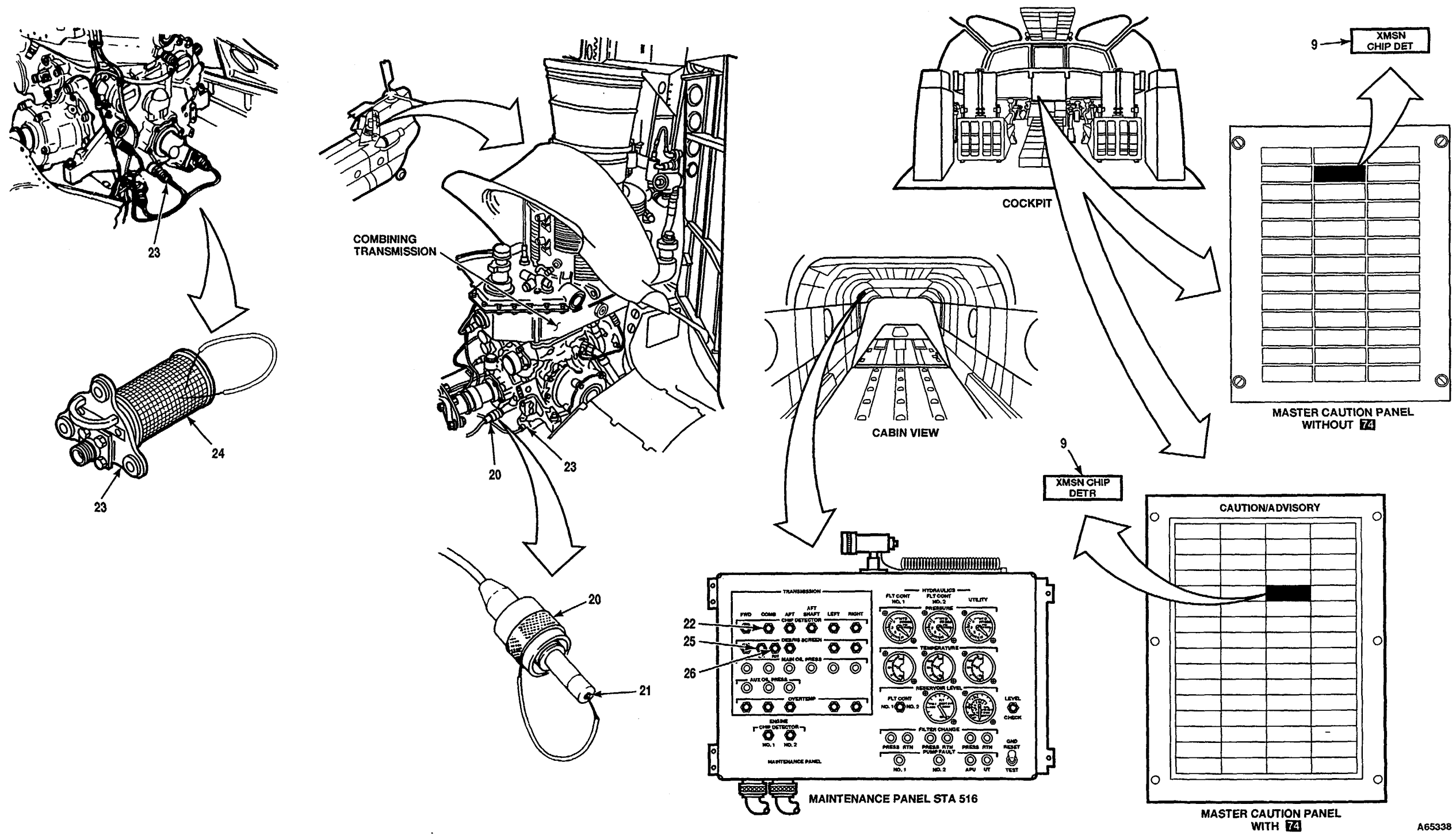
TASK	RESULT
<b>CHECK COMBINING TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION</b>	
24. Push in chip detector plug (20) and turn it counterclockwise. Remove plug (20) from chip detector body. Leave connector connected.	
25. Check tip (21) on plug (20) for chips. Save chips for contamination analysis. (Refer to TM 55-1520-240-23.)	
26. <b>Clean tip (21)</b> with clean cloth (E104).	
27. <b>Place a jumper wire between tip of plug (21) and edge of plug (20).</b>	XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74 capsule (9) shall come on. COMB TRANSMISSION CHIP DETECTOR indicator (22) shall change to black-and-white fan. If capsule (9) does not come on or indicator (22) does not change display, go to Task 6-2.15.
28. Remove jumper wire. Install chip detector plug (20).	XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74 capsule (9) shall go out.
29. <b>Remove combining transmission right debris detection screen (23). Inspect screen.</b> (Refer to TM 55-1520-240-23.)	
30. <b>Connect connector to combining transmission right debris detection screen (23).</b>	

**CAUTION**

Be careful when placing jumper wire on screen. Rough handling could damage debris screen.

TASK	RESULT
31. <b>Place a jumper wire across at least four consecutive wires on the outside mesh of screen (24).</b>	COMB TRANSMISSION RH DEBRIS SCREEN indicator (25) shall change to black-and-white fan. If it does not, go to Task 6-2.16.
32. <b>Remove jumper wire. Install combining transmission right debris detection screen (23).</b>	
33. <b>Hold container under combining transmission left debris detection screen (23) and remove it. Inspect screen.</b> (Refer to TM 55-1520-240-23.)	
34. <b>Connect connector to combining transmission left debris detection screen (23).</b>	
<b>CAUTION</b> Be careful when placing jumper wire on screen. Rough handling could damage debris screen.	
35. <b>Place a jumper wire across at least four consecutive wires on the outside mesh of screen (24).</b>	COMB TRANSMISSION LH DEBRIS SCREEN indicator (26) shall change to black-and-white fan. If it does not, go to Task 6-2.17.
36. <b>Remove jumper wire. Install combining transmission right debris detection screen (23).</b>	
37. <b>Set GND switch (6) to RESET, then to GND.</b>	Indicators (22, 25, and 26) shall change to all-black.





A65338

TASK

RESULT

**CHECK ENGINE TRANSMISSION CHIP DETECTOR AND DEBRIS SCREEN INSTALLATION**

38. Remove left engine transmission debris detection screen (27) and inspect it. (Refer to TM 55-1520-240-23.)

39. Connect connector to engine transmission debris detection screen (27).

**CAUTION**

Be careful when placing jumper wire on screen. Rough handling could damage debris screen.

40. Place a jumper wire across at least four consecutive wires on the outside mesh of screen (28).

LEFT TRANSMISSION DEBRIS SCREEN indicator (29) shall change to black-and-white fan. If it does not, go to Task 6-2.18.

41. Remove jumper wire. Install left engine transmission debris detection screen (27). (Refer to TM 55-1520-240-23.)

42. Remove right engine transmission debris detection screen (27) and inspect it. (Refer to TM 55-1520-240-23.)

43. Connect connector to engine transmission debris detection screen (27).

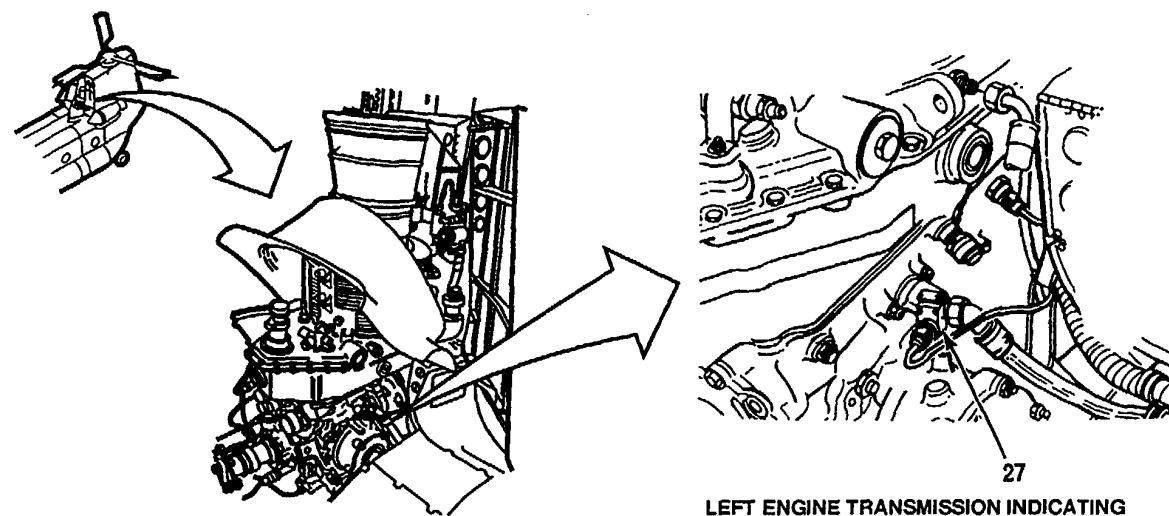
**CAUTION**

Be careful when placing jumper wire on screen. Rough handling could damage debris screen.

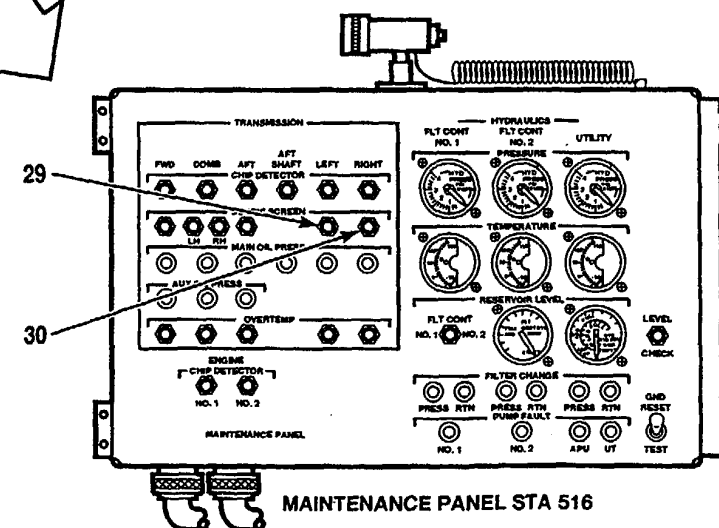
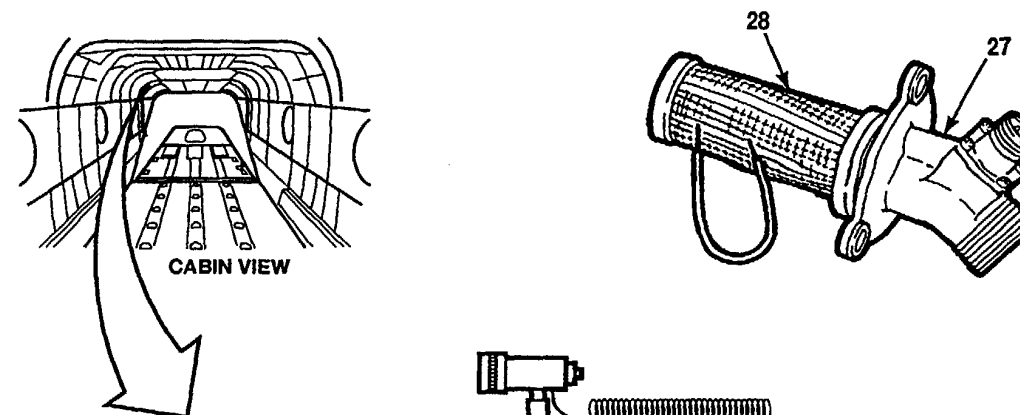
44. Place a jumper wire across at least four consecutive wires on the outside mesh of screen (28).

RIGHT TRANSMISSION DEBRIS SCREEN indicator (30) shall change to black-and-white fan. If it does not, go to Task 6-2.19.

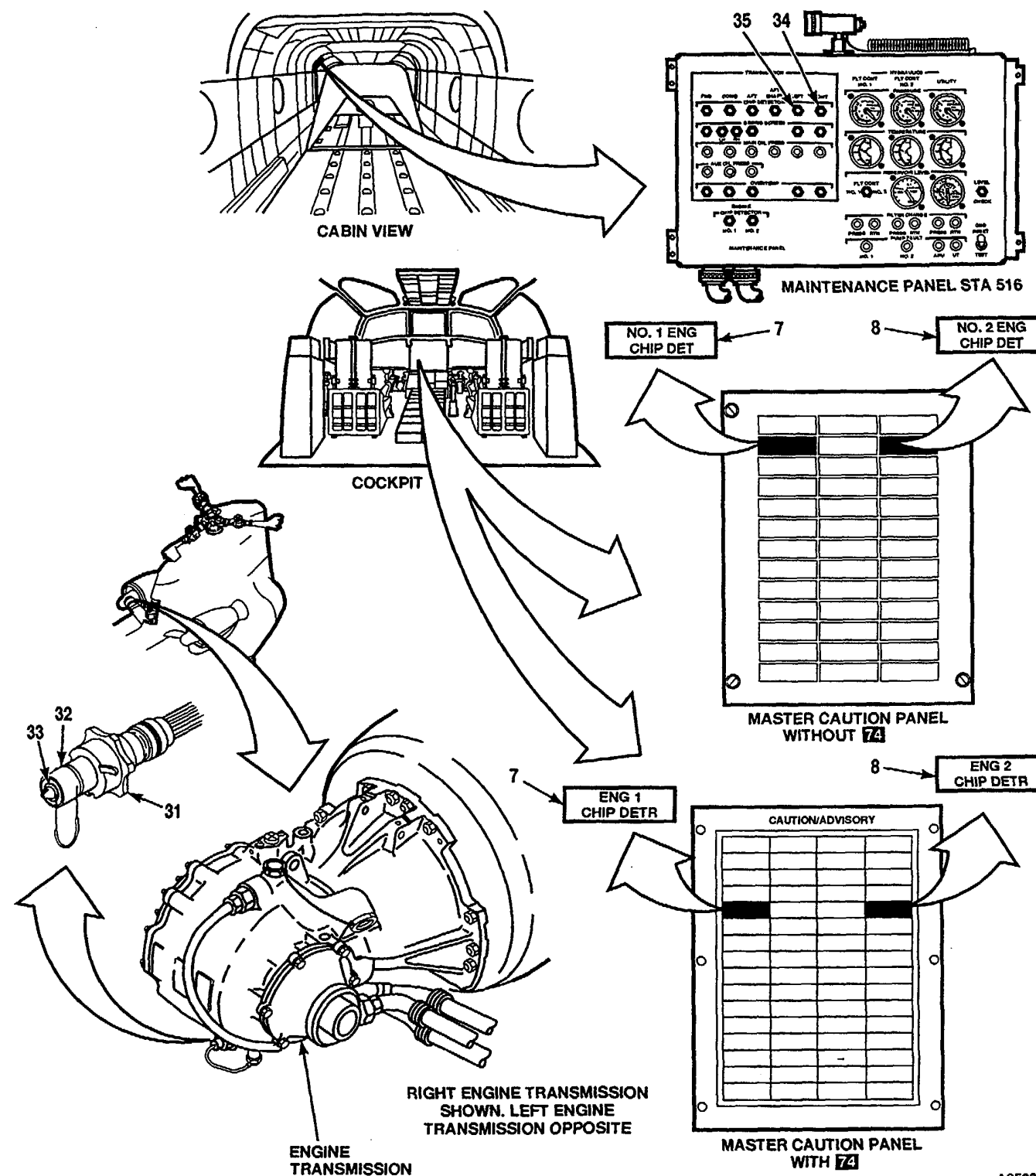
45. Remove jumper wire. Install right engine transmission debris detection screen (27). (Refer to TM 55-1520-240-23.)



LEFT ENGINE TRANSMISSION INDICATING SCREEN SHOWN. RIGHT ENGINE TRANSMISSION INDICATING SCREEN OPPOSITE.



TASK	RESULT
46. Remove right engine transmission chip detector plug (31) and inspect it. (Refer to TM 55-1520-240-23.)	
47. Connect connector to plug (31).	
48. Place a jumper wire between chip detector body (32) and chip detector ring (33).	NO. 2 ENG CHIP DET (Without 74) ENG 2 CHIP DETR (With 74 capsule (8) shall come on. RIGHT TRANSMISSION CHIP DETECTOR indicator (34) shall change to black-and-white fan. If capsule (8) is not on or indicator (34) is still black, go to Task 6-2.20.
49. Remove jumper wire. Install right engine transmission chip detector plug (31).	NO. 2 ENG CHIP DET (Without 74) ENG 2 CHIP DETR (With 74) capsule (8) shall go out.
50. Remove left engine transmission chip detector plug (31) and inspect it. (Refer to TM 55-1520-240-23.)	
51. Connect connector to plug (31).	
52. Place a jumper wire between chip detector body (32) and chip detector ring (33).	NO. 1 ENG CHIP DET (Without 74) ENG 1 CHIP DETR (With 74) capsule (7) shall come on. LEFT TRANSMISSION CHIP DETECTOR indicator (35) shall change to black-and-white fan. If capsule (7) is not on or indicator (35) is still black, go to Task 6-2.21.
53. Remove jumper wire. Install left engine transmission chip detector plug (31).	NO. 1 ENG CHIP DET (Without 74) ENG 1 CHIP DETR (With 74) capsule (7) shall go out.
54. Set GND switch (6) to RESET, then to GND.	Indicators (29, 30, 34, and 35) shall change to all-black.



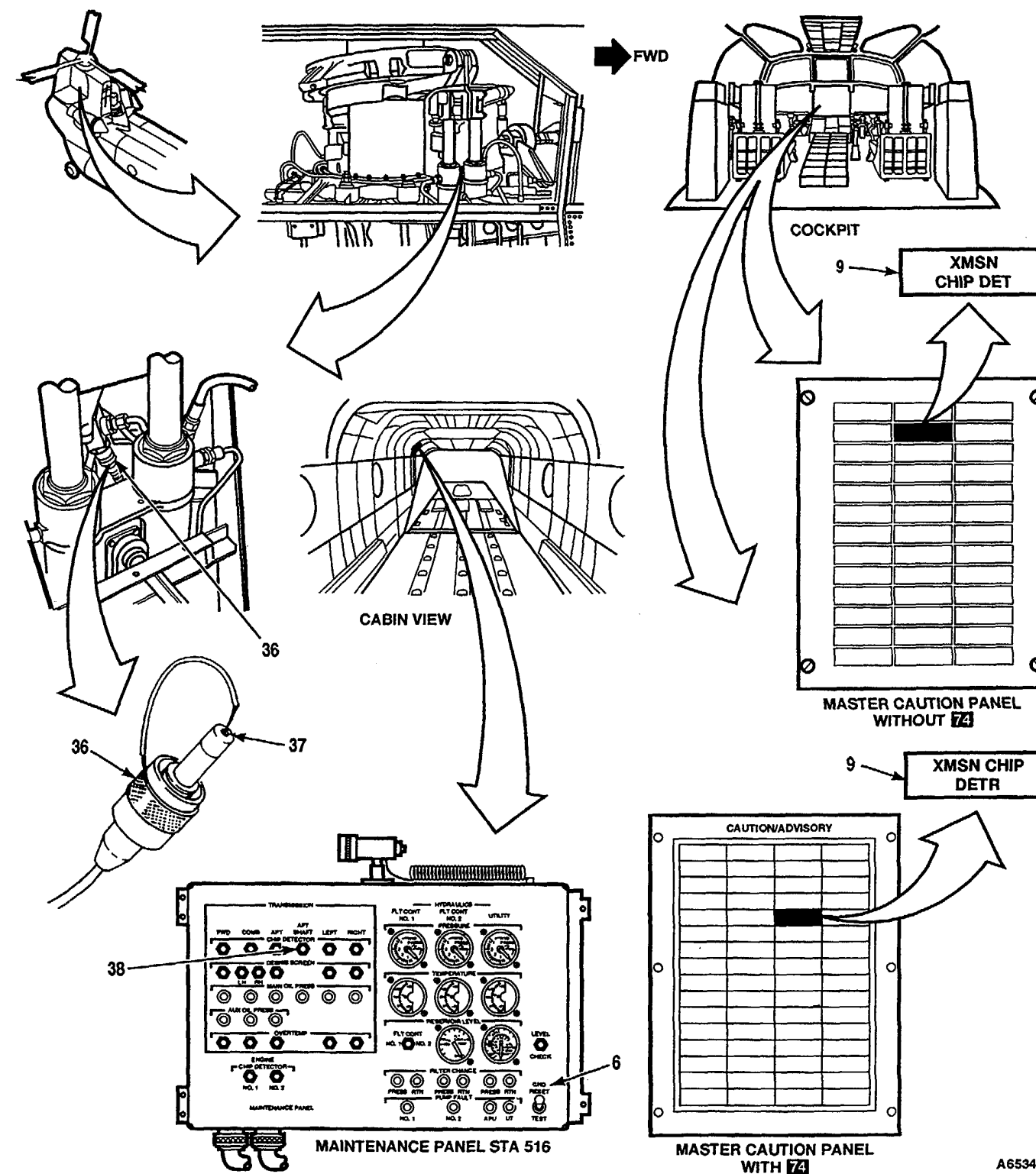
A65339

TASK	RESULT
<b>CHECK AFT SHAFT CHIP DETECTOR INSTALLATION</b>	
55. Remove aft shaft chip detector plug (36) and inspect it. (Refer to TM 55-1520-240-23.)	
56. Connect connector to aft shaft chip detector plug (36).	
57. Place a jumper wire between tip of plug (37) and edge of plug (36).	XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) shall come on. AFT SHAFT TRANSMISSION CHIP DETECTOR indicator (38) shall change to black-and-white fan. If capsule (9) does not come on or indicator (38) is still black, go to Task 6-2.22.
58. Remove jumper wire. Install aft shaft chip detector plug (36).	XMSN CHIP DET (Without 74) XMSN CHIP DETR (With 74) capsule (9) shall go out.
59. Set GND switch (6) to RESET, then to GND.	Indicator (38) shall change to all-black.

**FOLLOW-ON MAINTENANCE:**

TM 55-1520-240-23:

- Battery disconnected.
- Electrical power off.
- Forward drip pan installed.
- Aft transmission baffles closed.
- Pylon lower fairing closed.
- Pylon hinged fairing closed.
- Pylon right work platform closed.
- Engine transmission fairings installed.
- Engine air inlet screens installed.



A65340

END OF TASK

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

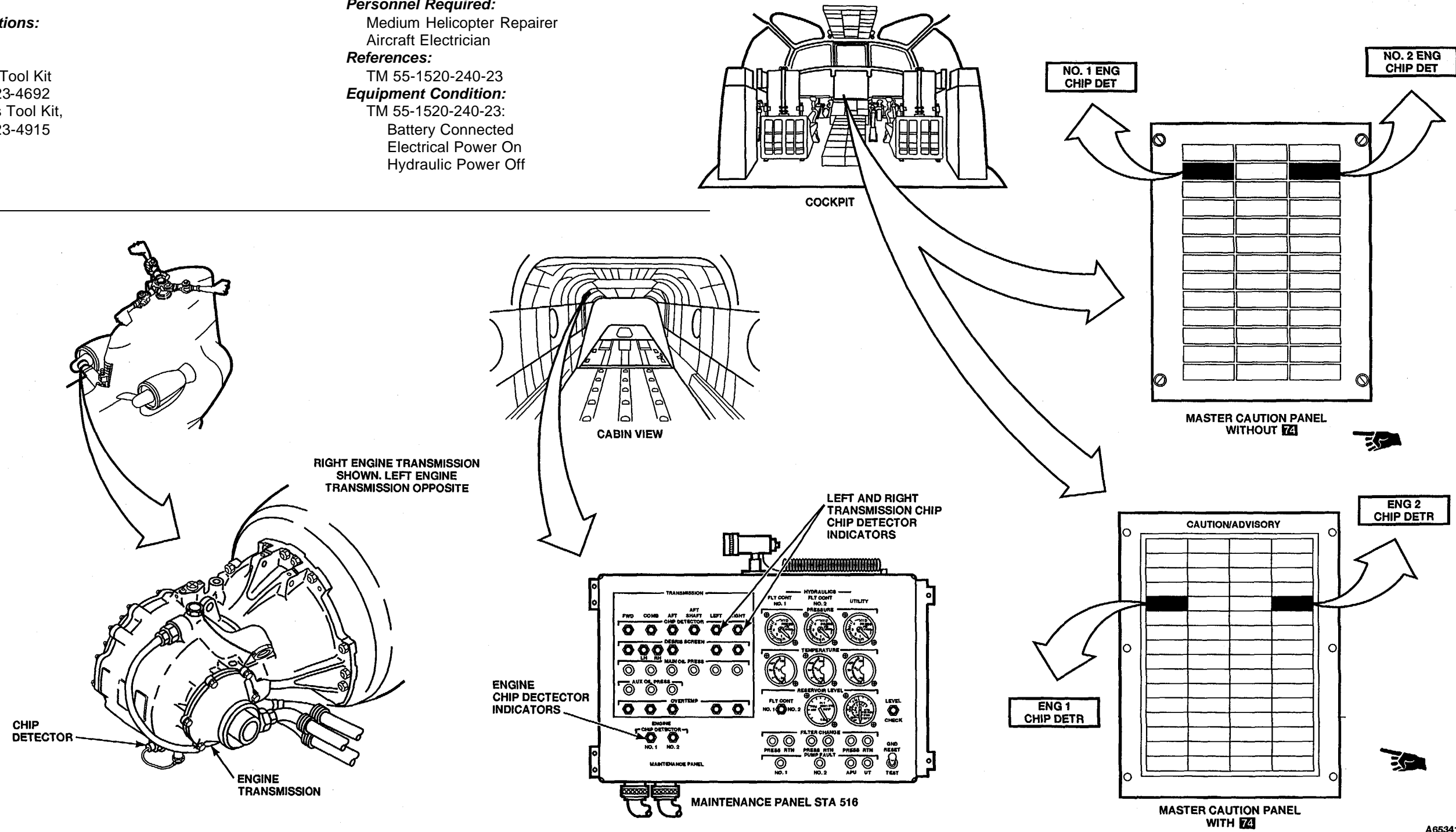
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

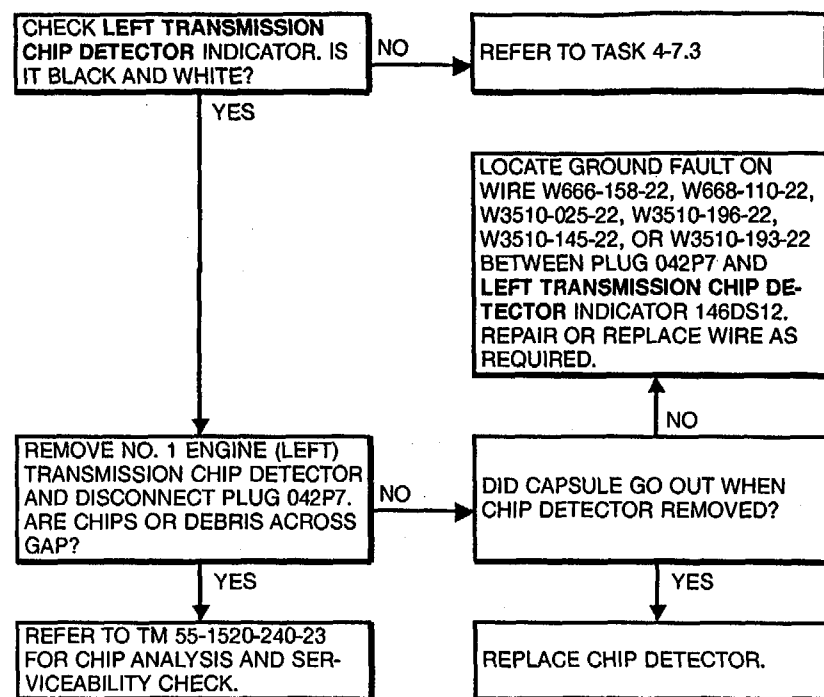
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off

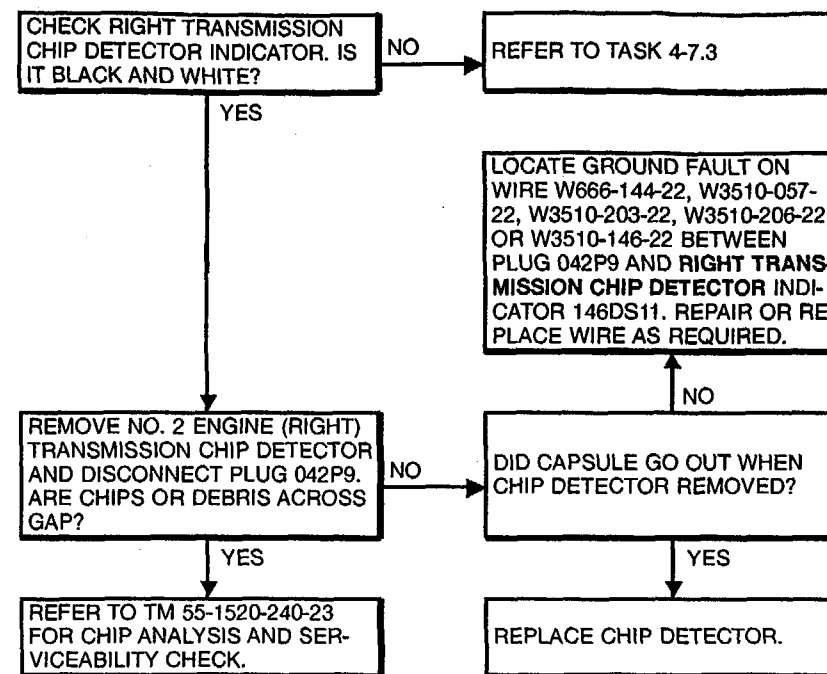


A65341

NO. 1 ENG CHIP DET (WITHOUT 74) ENG 1 OR 2 CHIP DETR (WITH 74) CAPSULE LIT, LEFT TRANSMISSION OR NO. 1 ENGINE CHIP DETECTOR INDICATOR BLACK-AND-WHITE



NO. 2 ENG CHIP DET (WITHOUT 74) ENG 1 OR 2 CHIP DETR (WITH 74) CAPSULE LIT, RIGHT TRANSMISSION OR NO. 2 ENGINE CHIP DETECTOR INDICATOR BLACK-AND-WHITE



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit, NSN 5 180-00-3234692
- Electrical Repairer's Tool Kit, NSN 5180-00-3234915
- Multimeter

**Materials:**

None

**Personnel Required:**

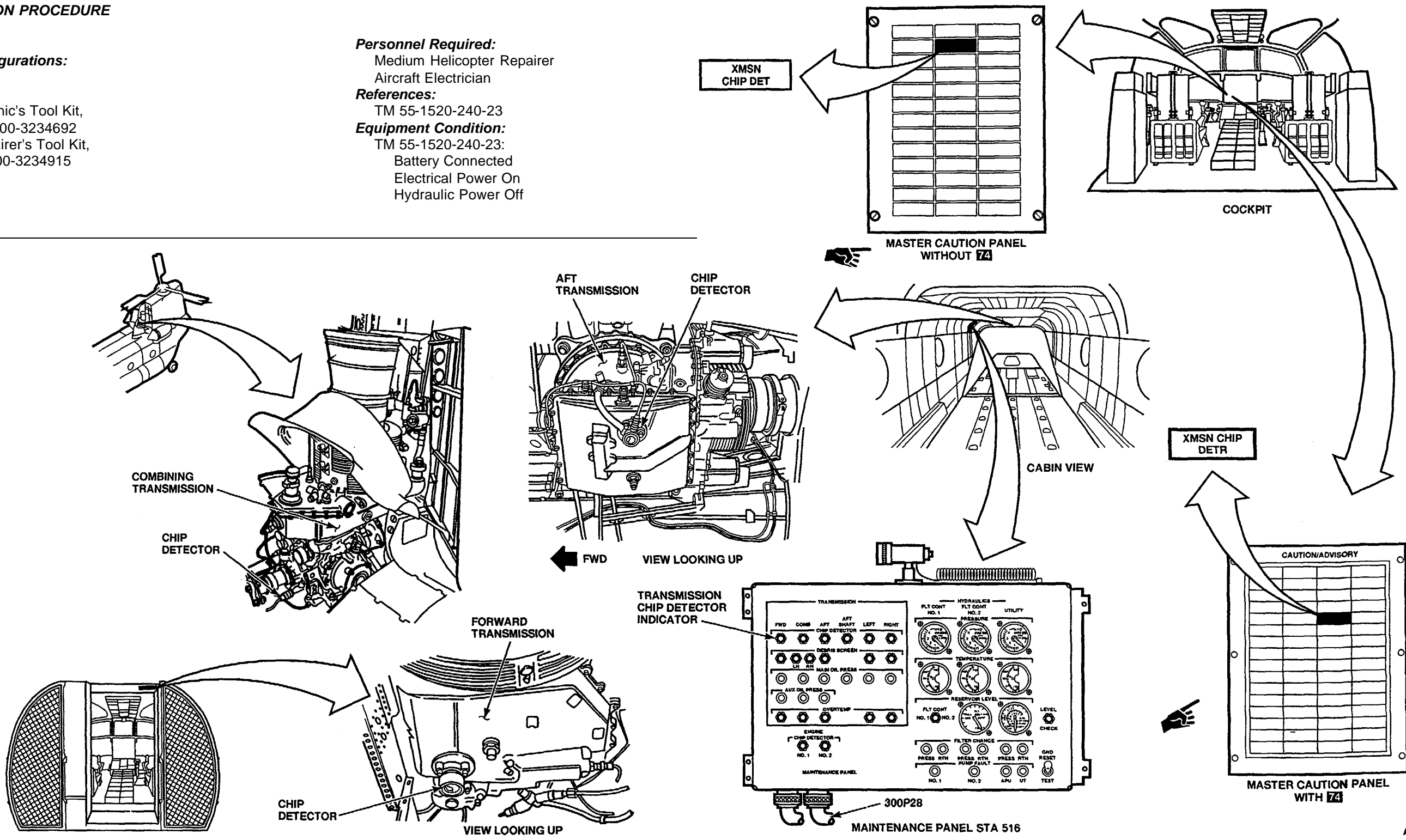
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

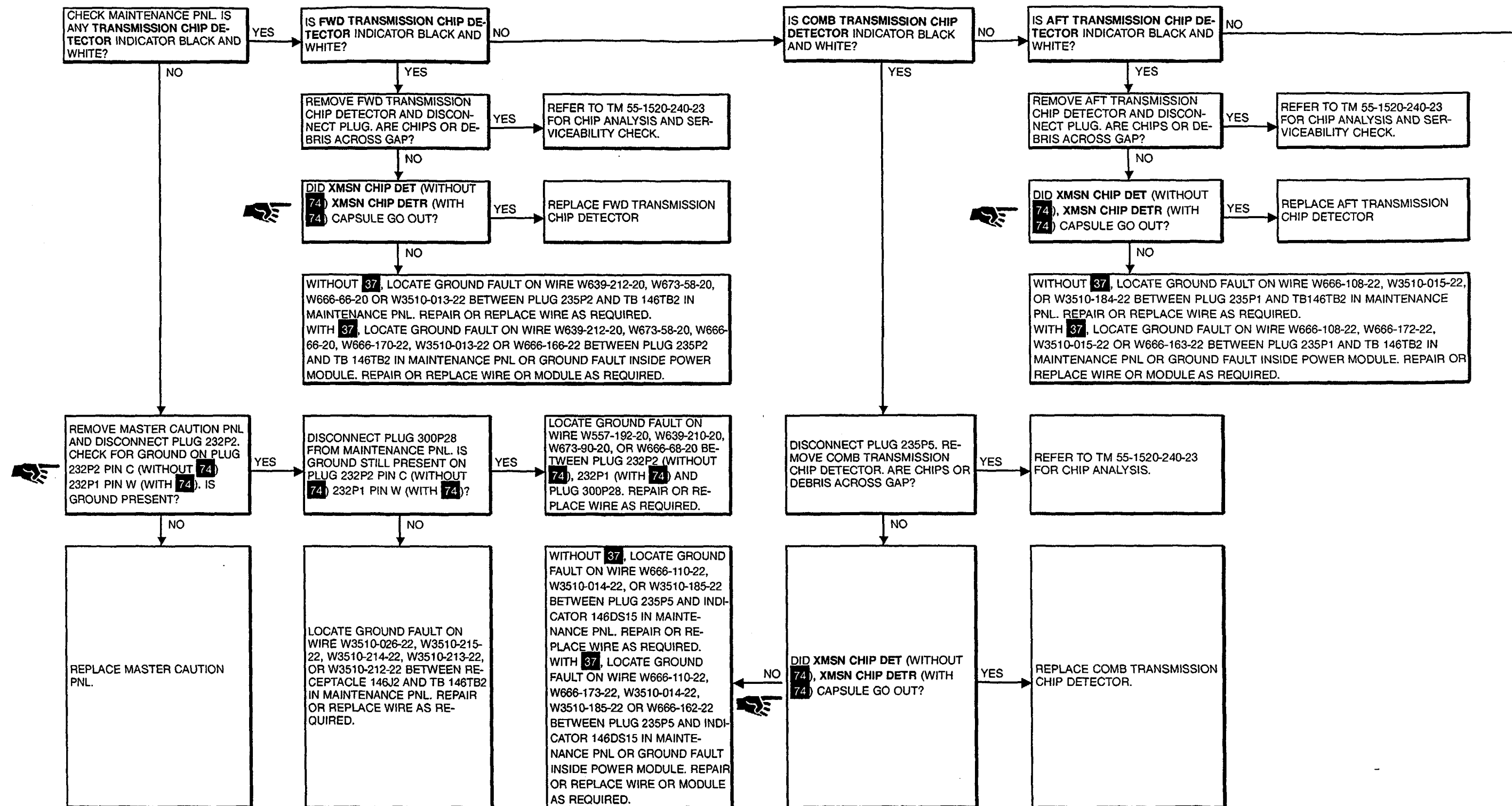
TM 55-1520-240-23

**Equipment Condition:**

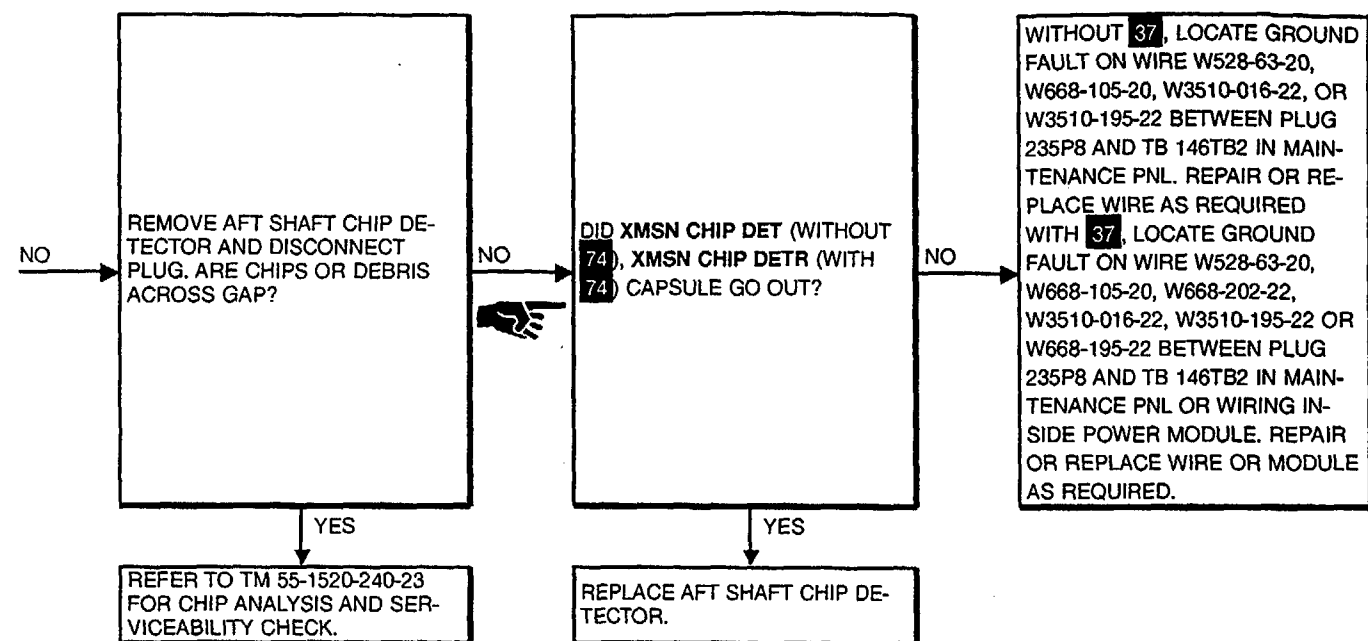
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off

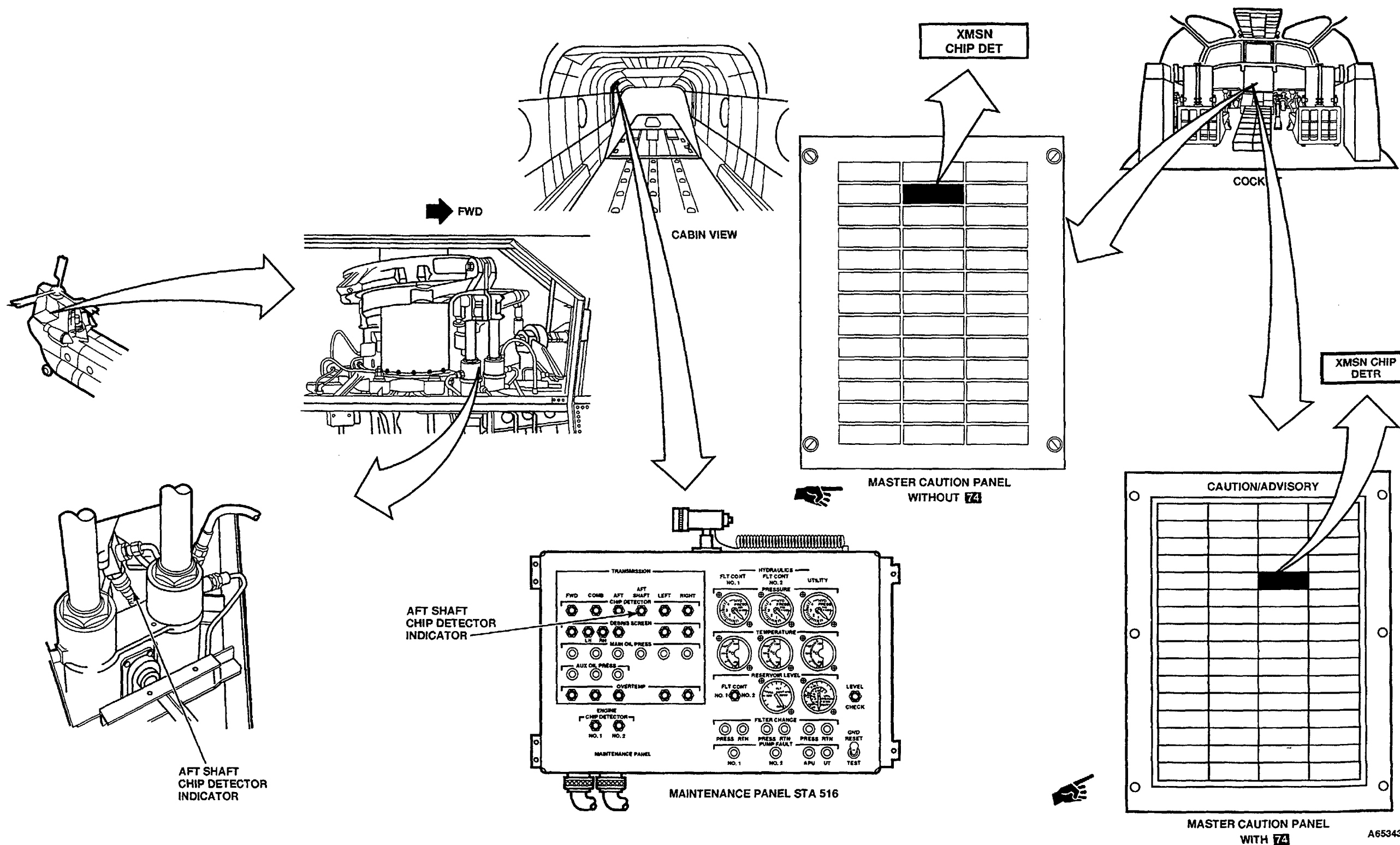


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**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

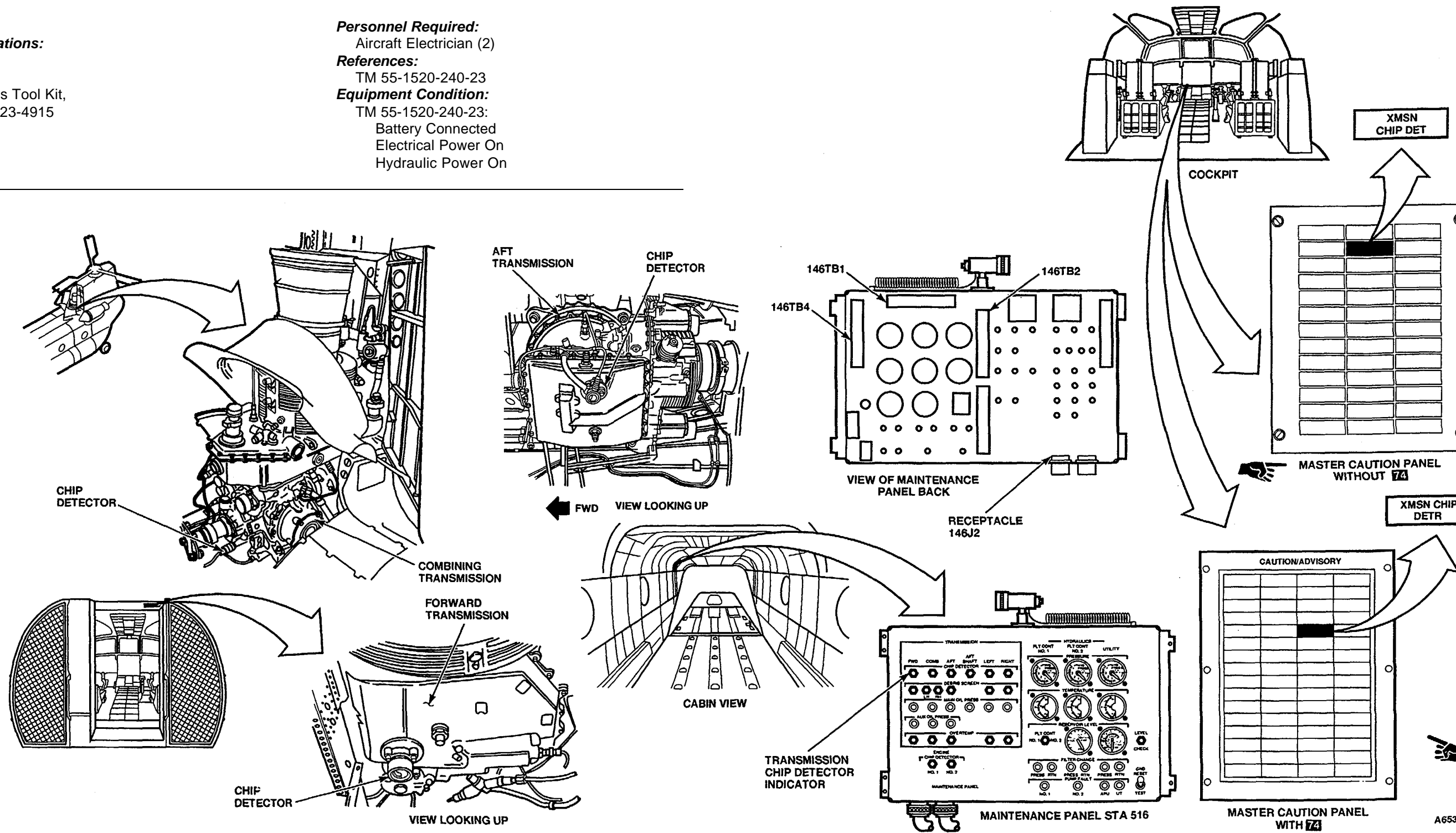
Aircraft Electrician (2)

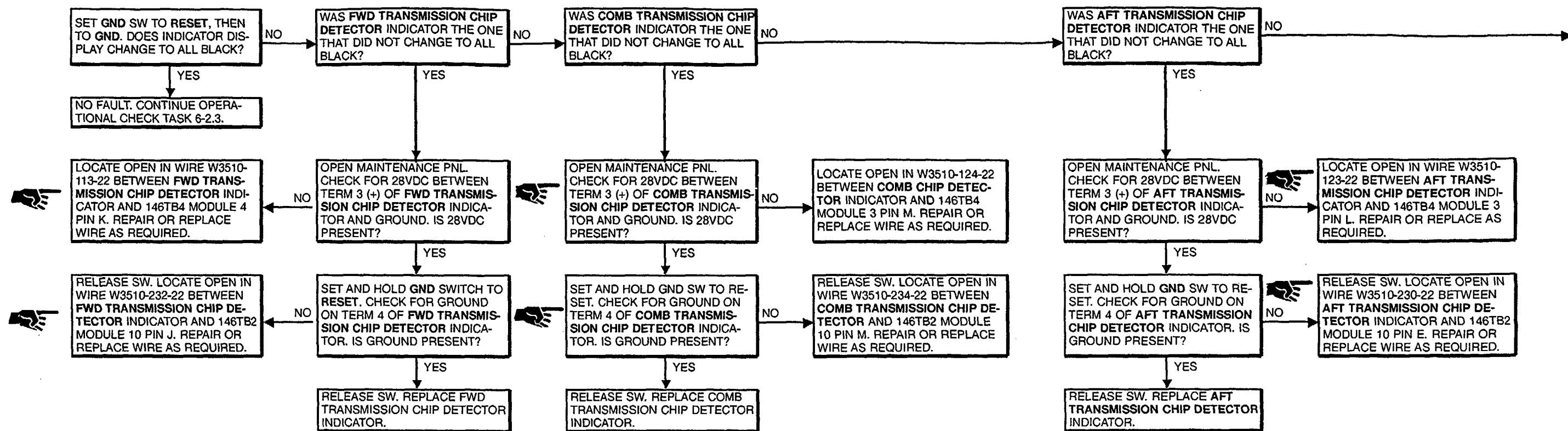
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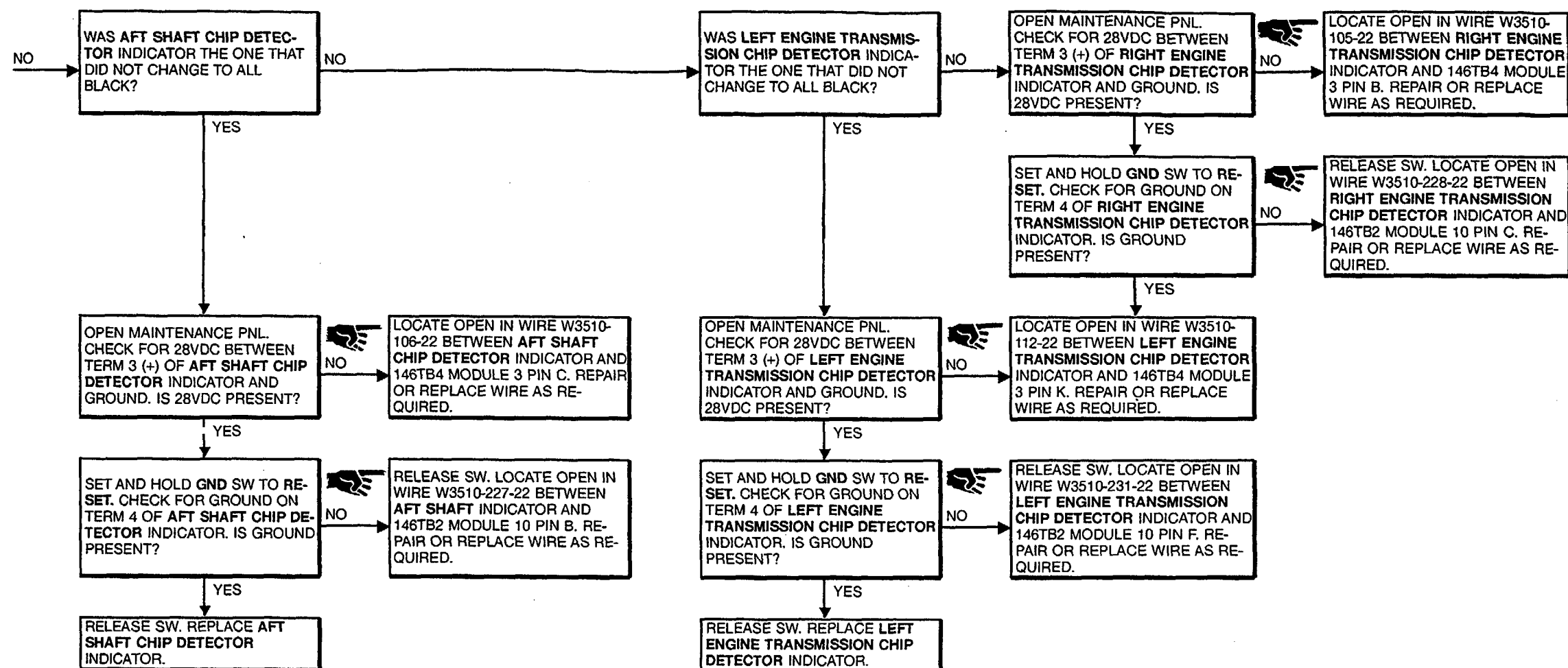
TM 55-1520-240-23

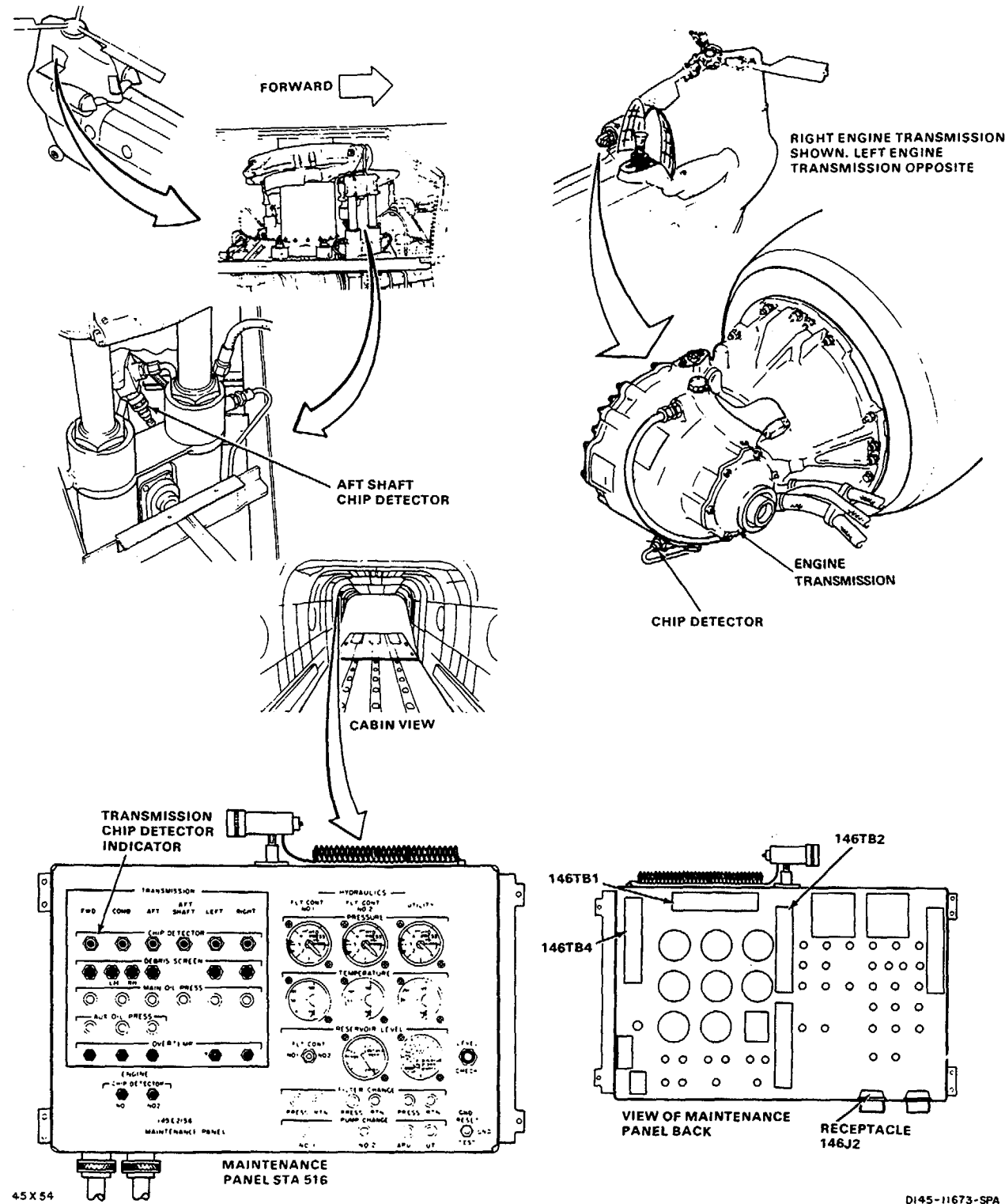
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On









6-2.7 TRANSMISSION DEBRIS SCREEN INDICATOR DISPLAYS  
BLACK-AND-WHITE FAN

**FAULT ISOLATION PROCEDURE**  
INITIAL SETUP

**Applicable Configurations:**  
All

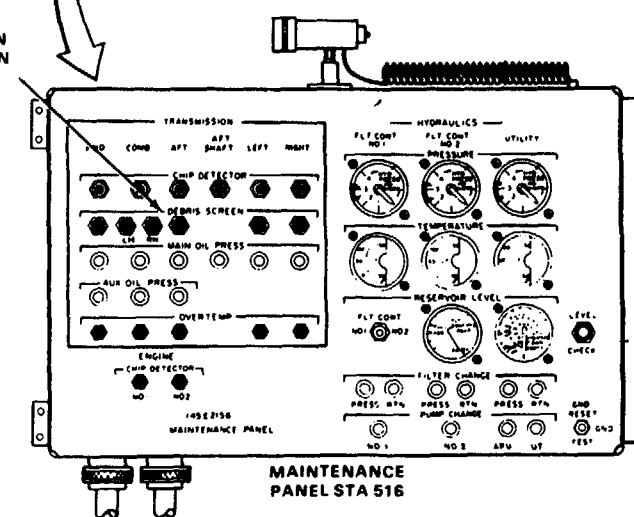
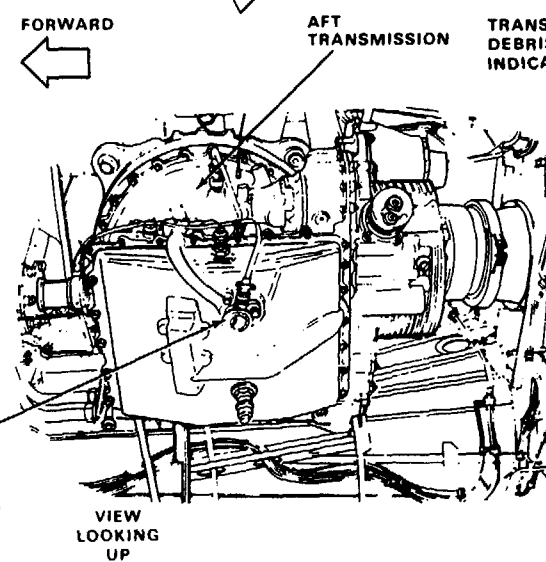
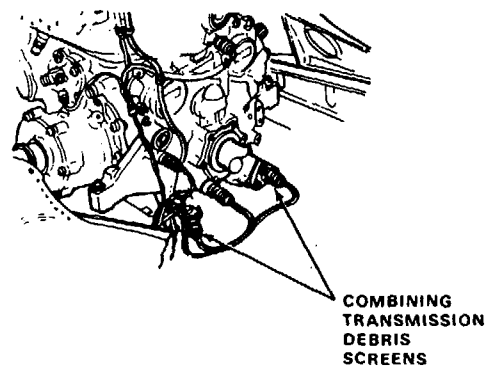
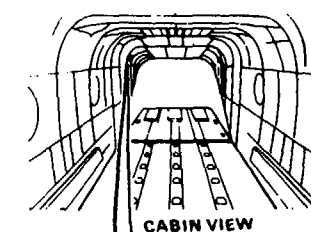
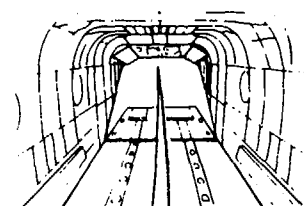
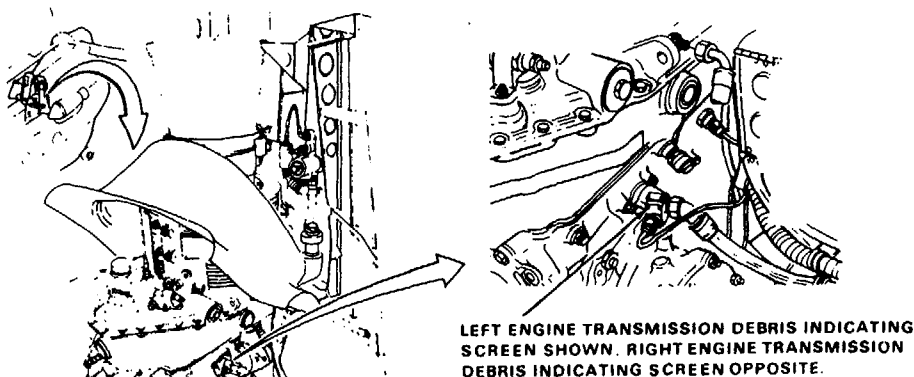
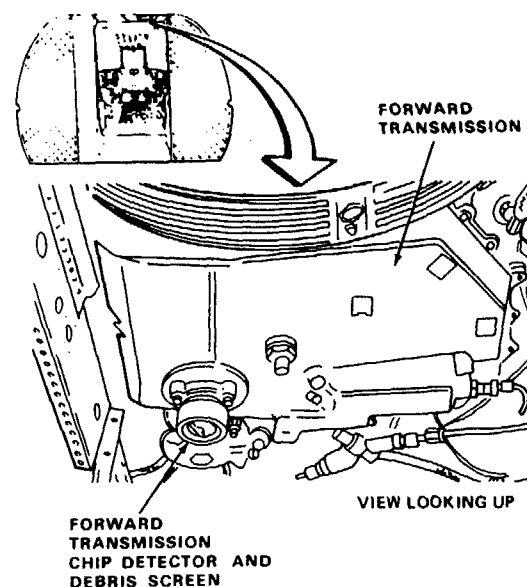
**Tools:**  
Aircraft Mechanic's Tool Kit.  
NSN 5180-00-323-4692  
Multimeter

**Materials:**  
None

**Personnel Required:**  
67U20 Medium Helicopter Repairer  
68F20 Aircraft Electrician

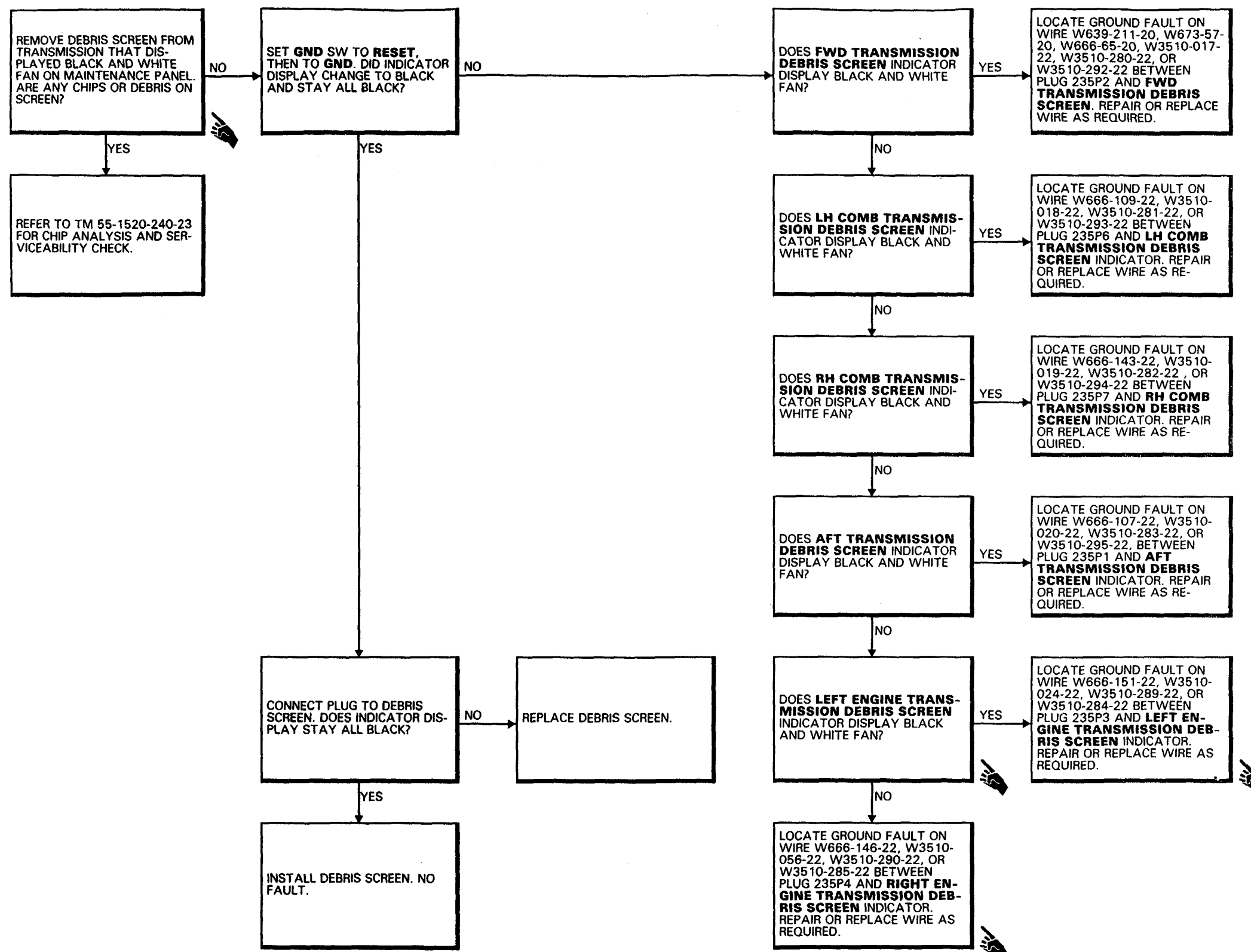
**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



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END OF TASK

Change 5 6-53



**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

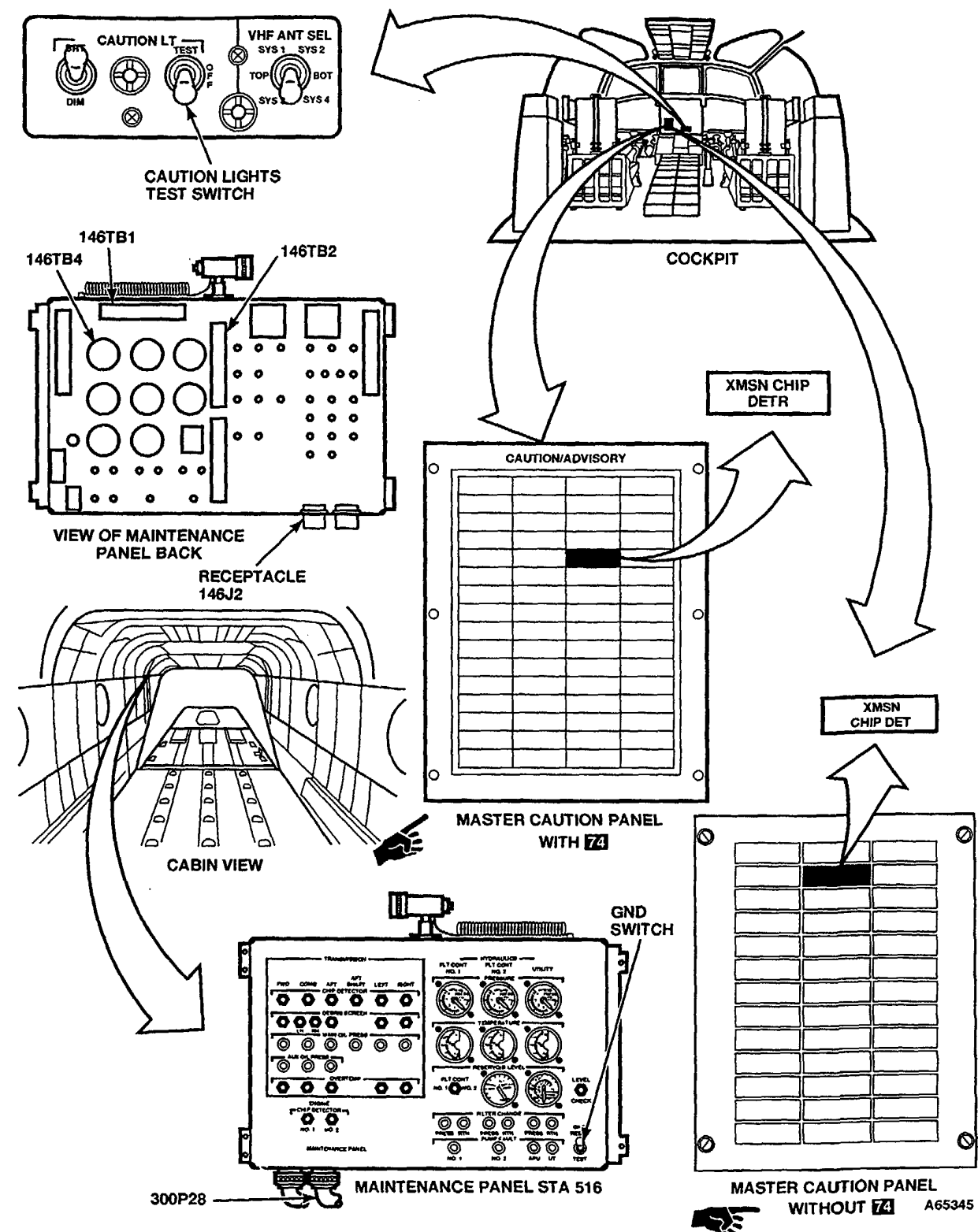
**Equipment Condition:**

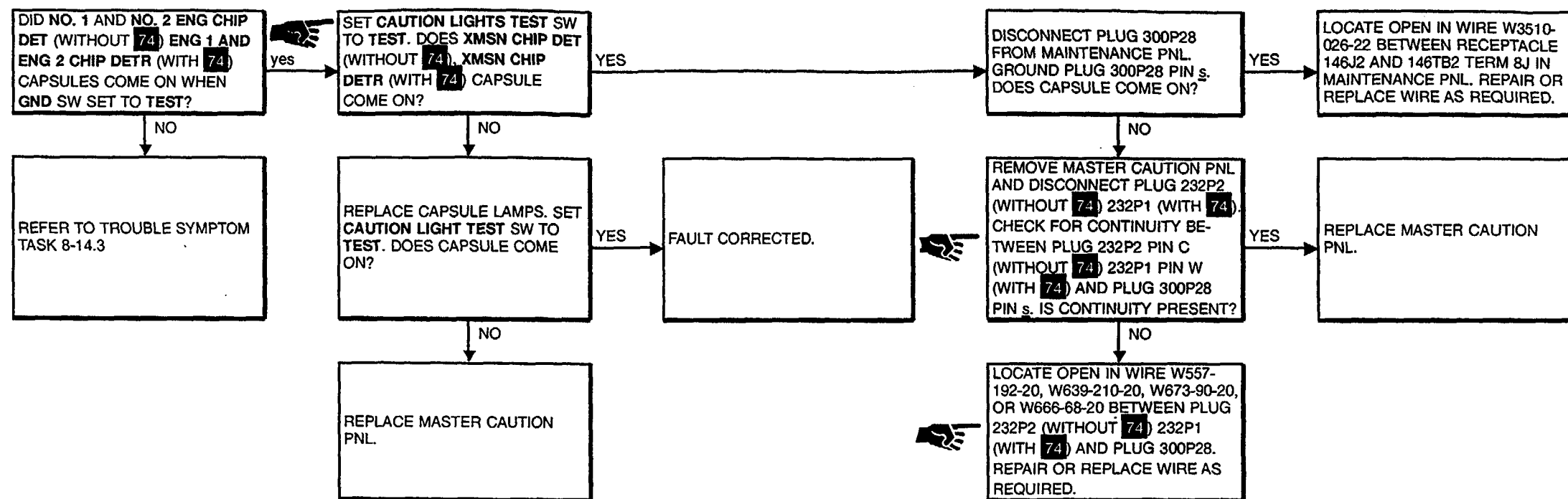
TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power Off





END OF TASK

**6-2.9 TRANSMISSION CHIP DETECTOR INDICATOR IS ALL BLACK WHEN GND SWITCH SET TO TEST**

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

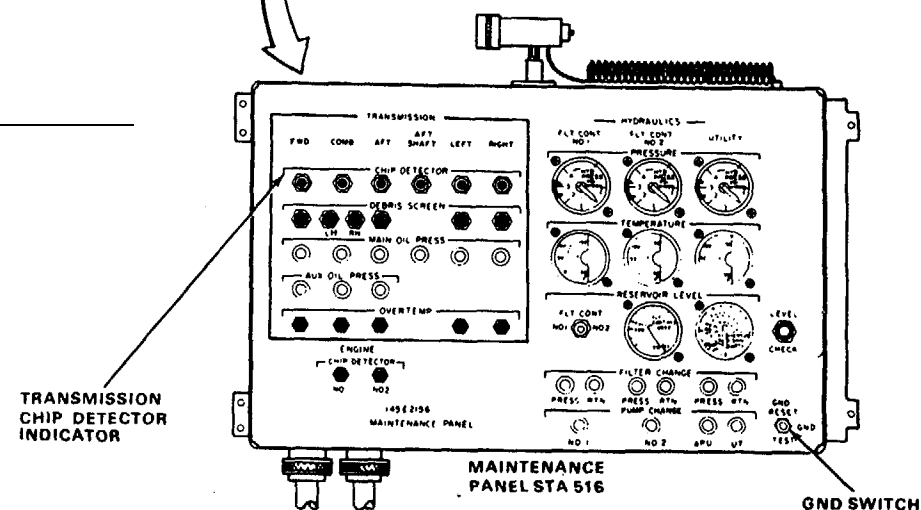
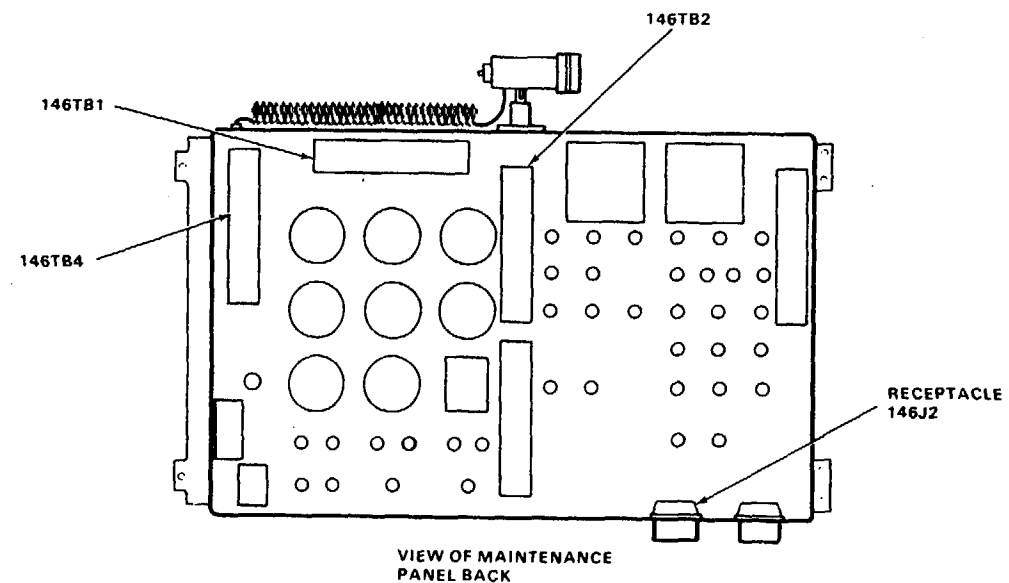
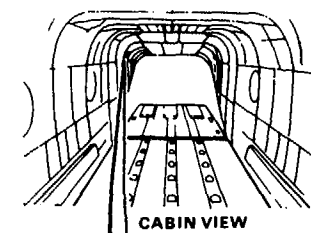
68F20 Aircraft Electrician

**References:**

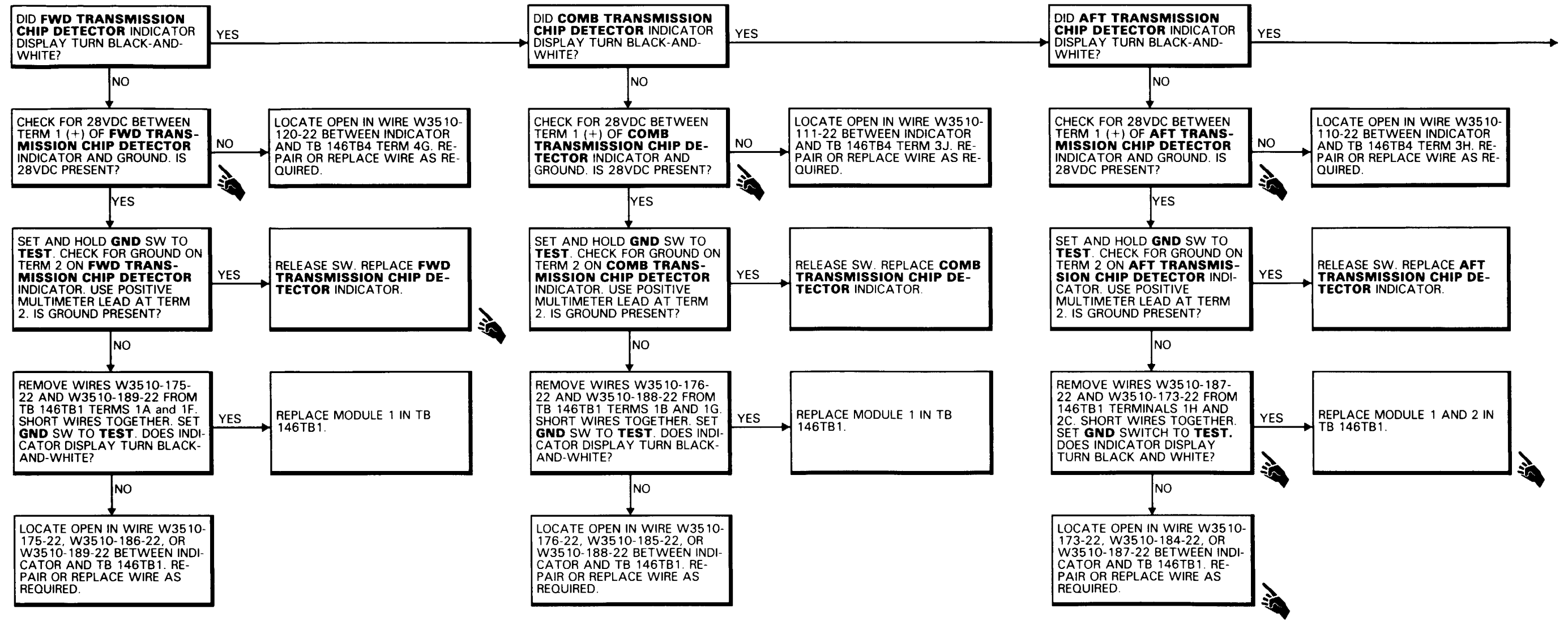
TM 55-1520-240-23

**Equipment Condition:**

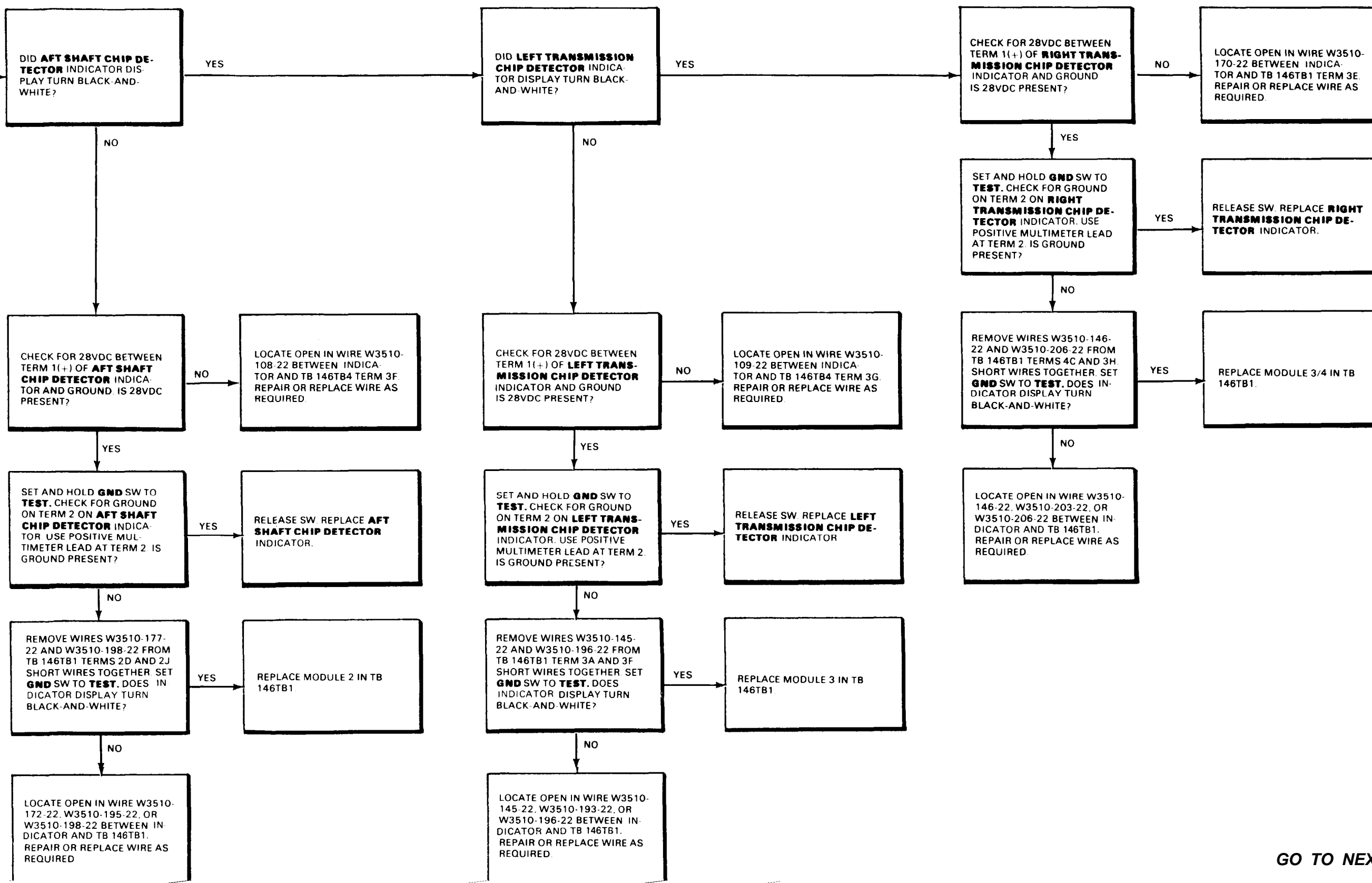
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Maintenance Panel Open



6-2.9 TRANSMISSION CHIP DETECTOR INDICATOR IS ALL BLACK WHEN GND SWITCH SET TO TEST  
(Continued)



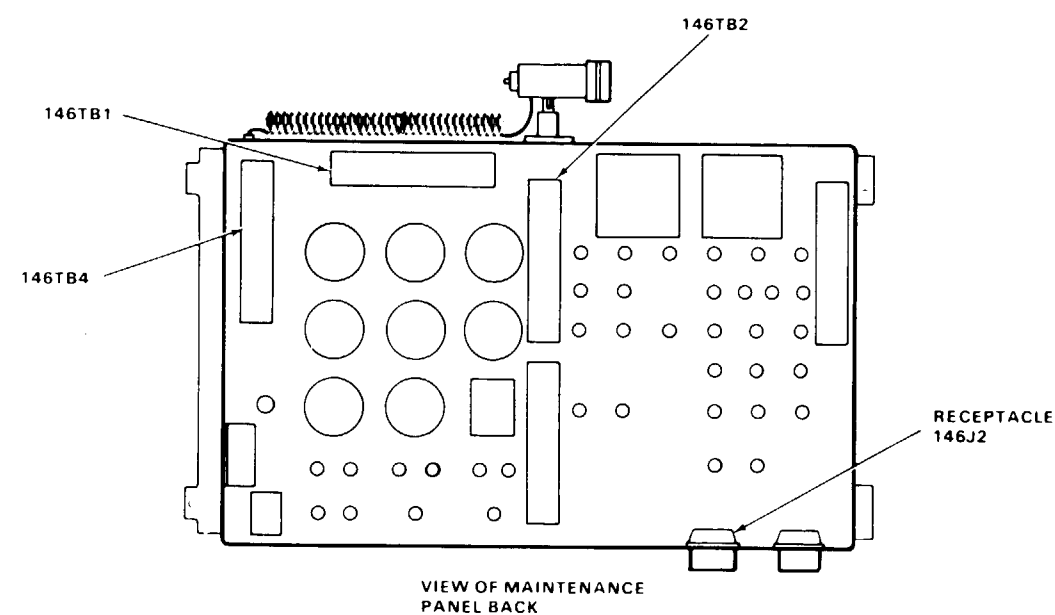
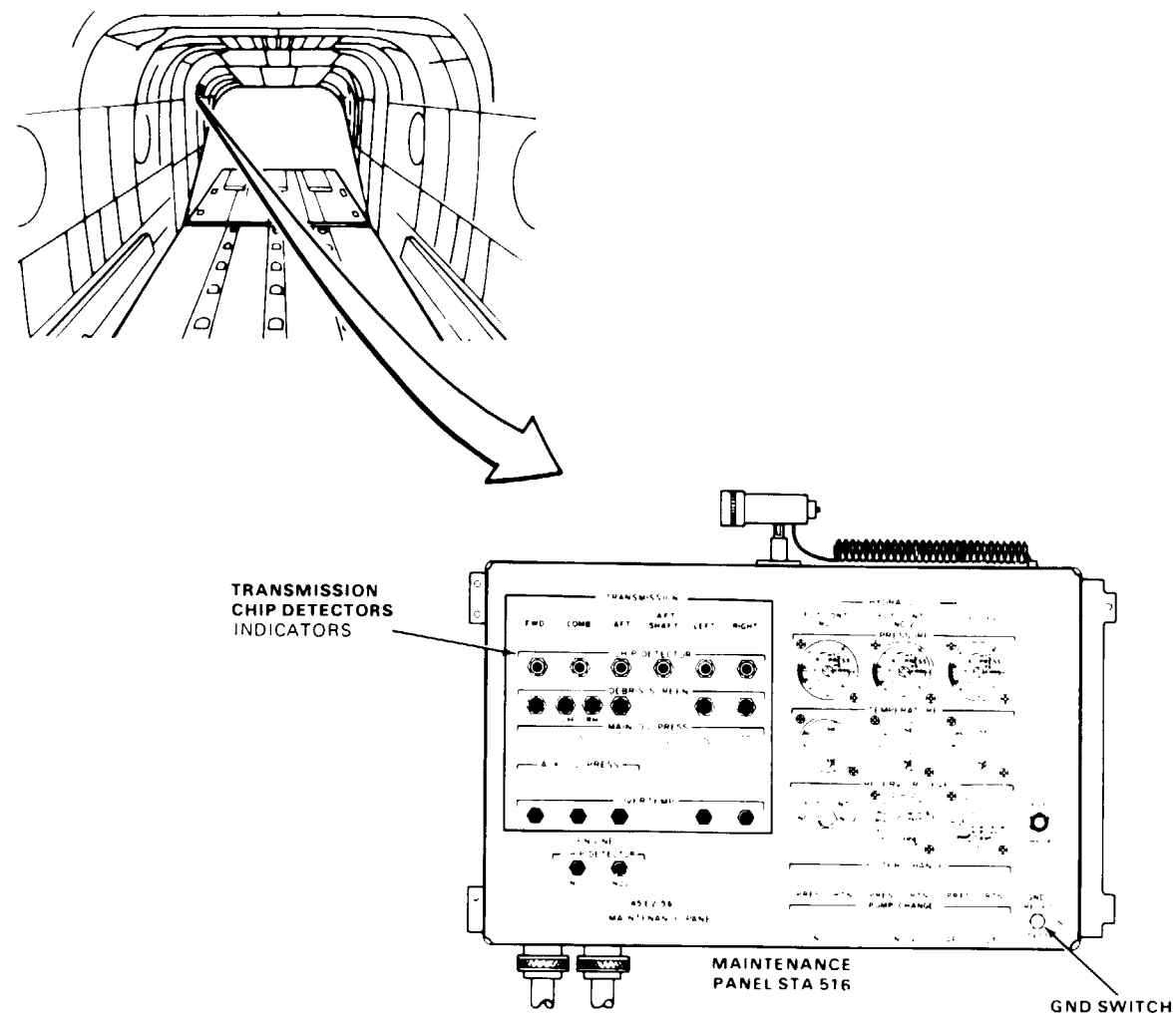
6-2.9 TRANSMISSION CHIP DETECTOR INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST (Continued)



GO TO NEXT PAGE

6-2.9 TRANSMISSION CHIP DETECTOR INDICATOR IS ALL BLACK  
WHEN GND SWITCH IS SET TO TEST (Continued)

6-2.9



90X54

DI45-11677-SPA

END OF TASK

6-59

**6-2.10 TRANSMISSION DEBRIS SCREEN INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**  
68F20 Aircraft Electrician

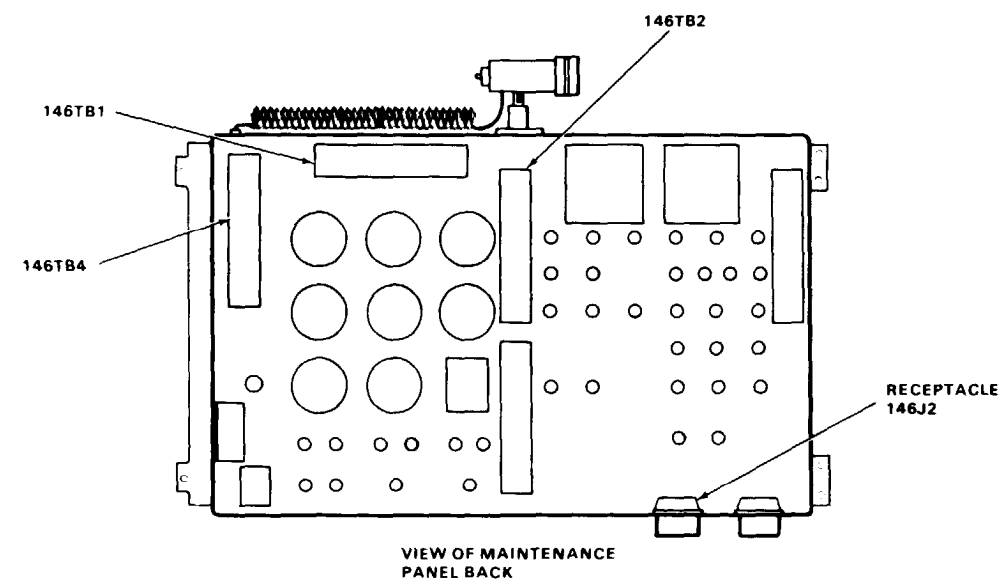
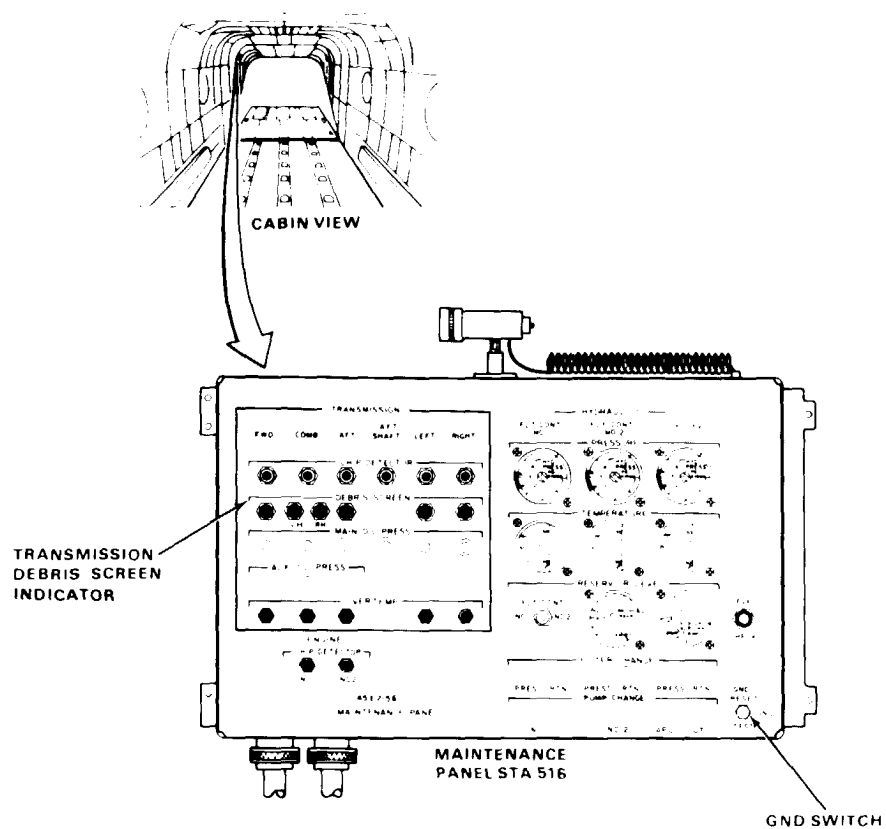
**Applicable Configurations:**  
All

**References:**  
TM 55-1520-240-23

**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

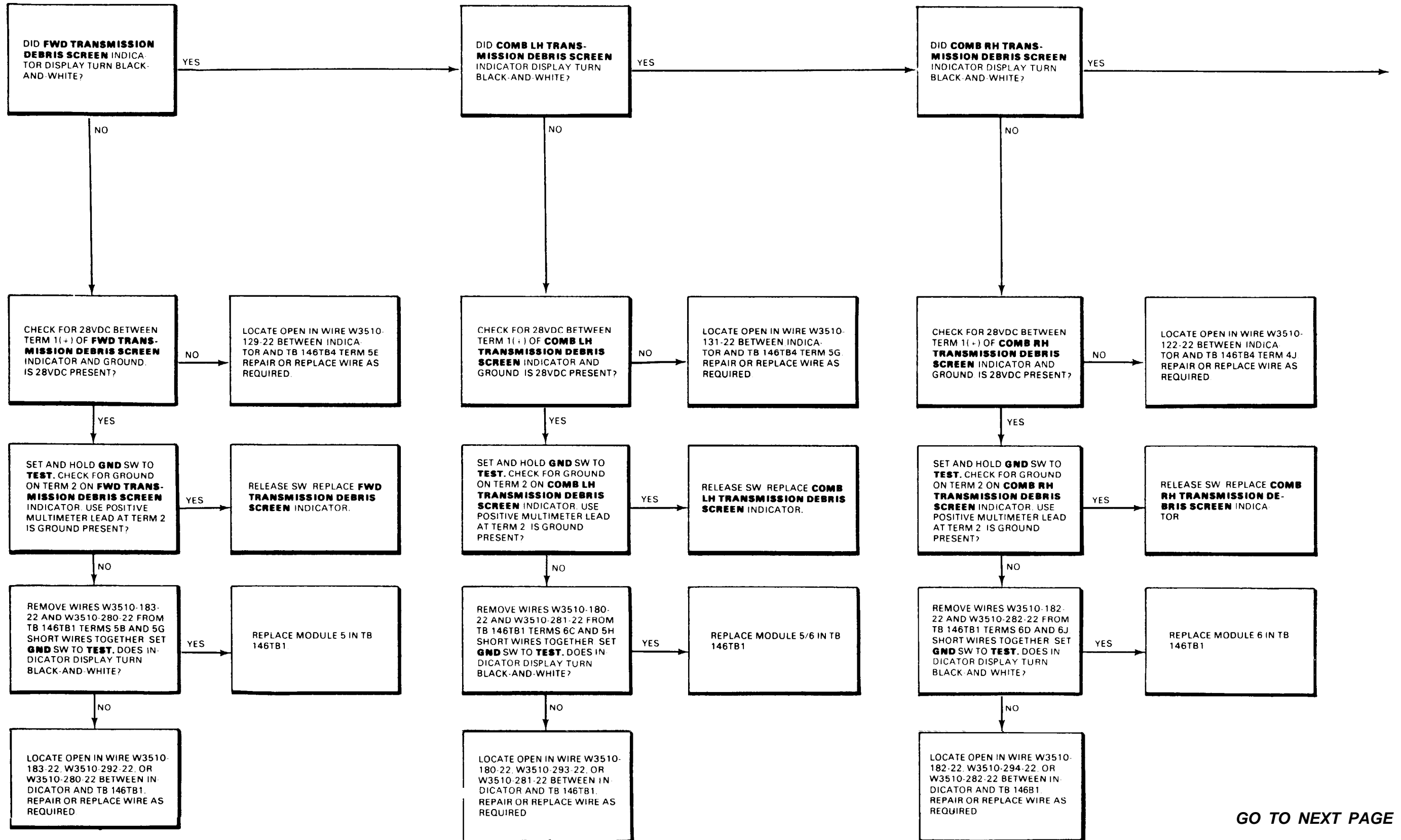
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off  
Maintenance Panel Open

**Materials:**  
None



GO TO NEXT PAGE

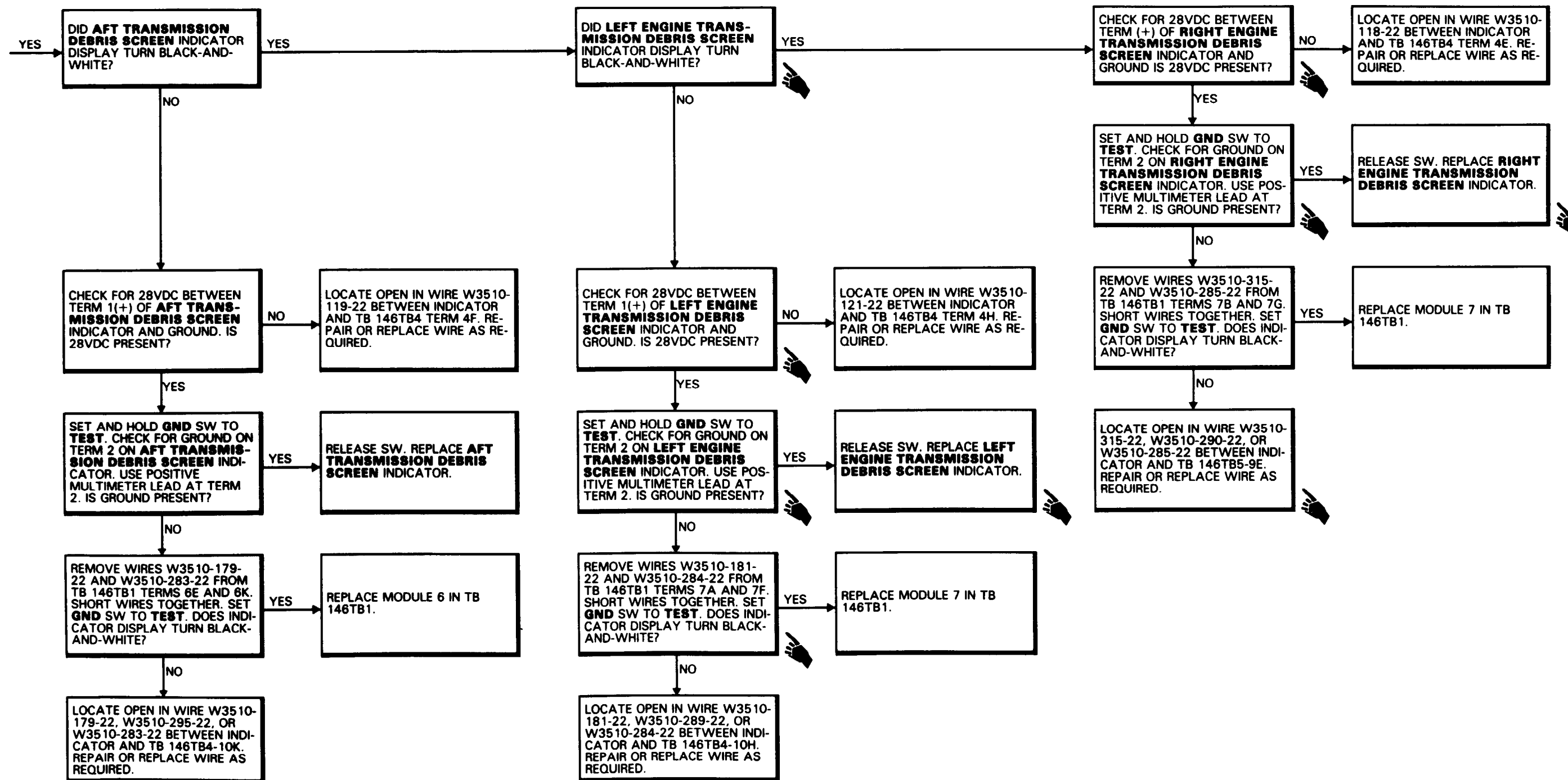
6-2.10 TRANSMISSION DEBRIS SCREEN INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST (Continued)



GO TO NEXT PAGE

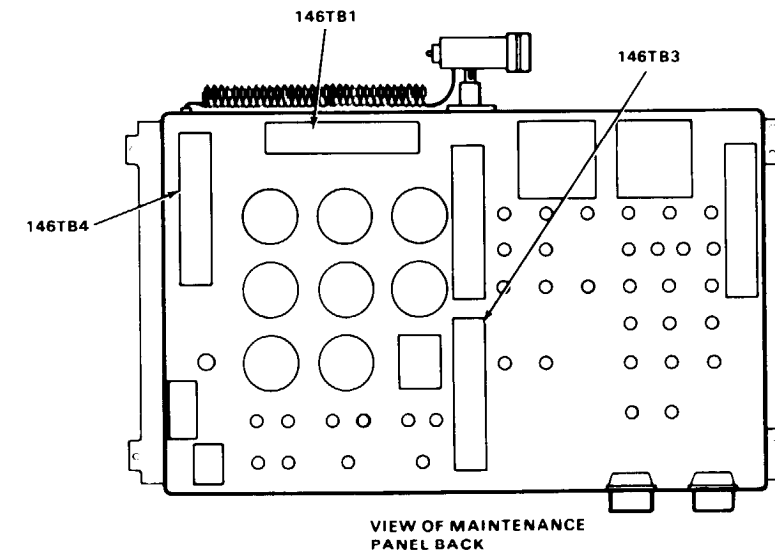
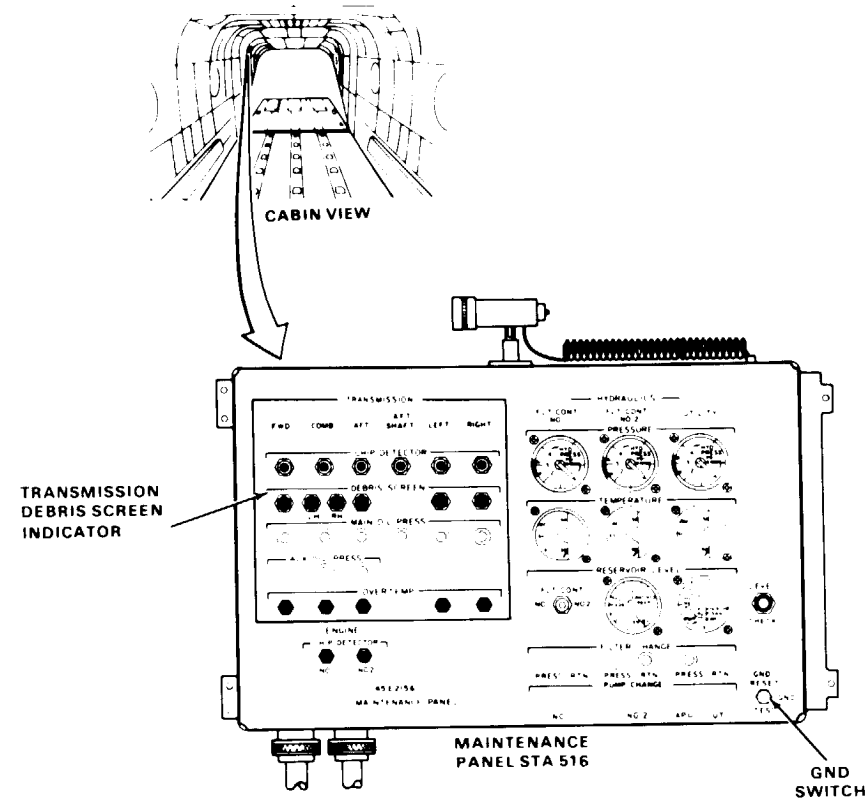


6-2.10 TRANSMISSION DEBRIS SCREEN INDICATOR IS ALL BLACK WHEN GND SWITCH IS SET TO TEST  
(Continued)



6-2.10 TRANSMISSION DEBRIS SCREEN INDICATOR IS ALL BLACK  
WHEN GND SWITCH IS SET TO TEST (Continued)

6-2.10



DI45-11679-SPA

END OF TASK

**6-2.11 FWD TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**

- 67U10 Medium Helicopter Repairer
- 68F20 Aircraft Electrician

**Applicable Configurations:**

All

**References:**

TM 55-1520-240-23

**Tools:**

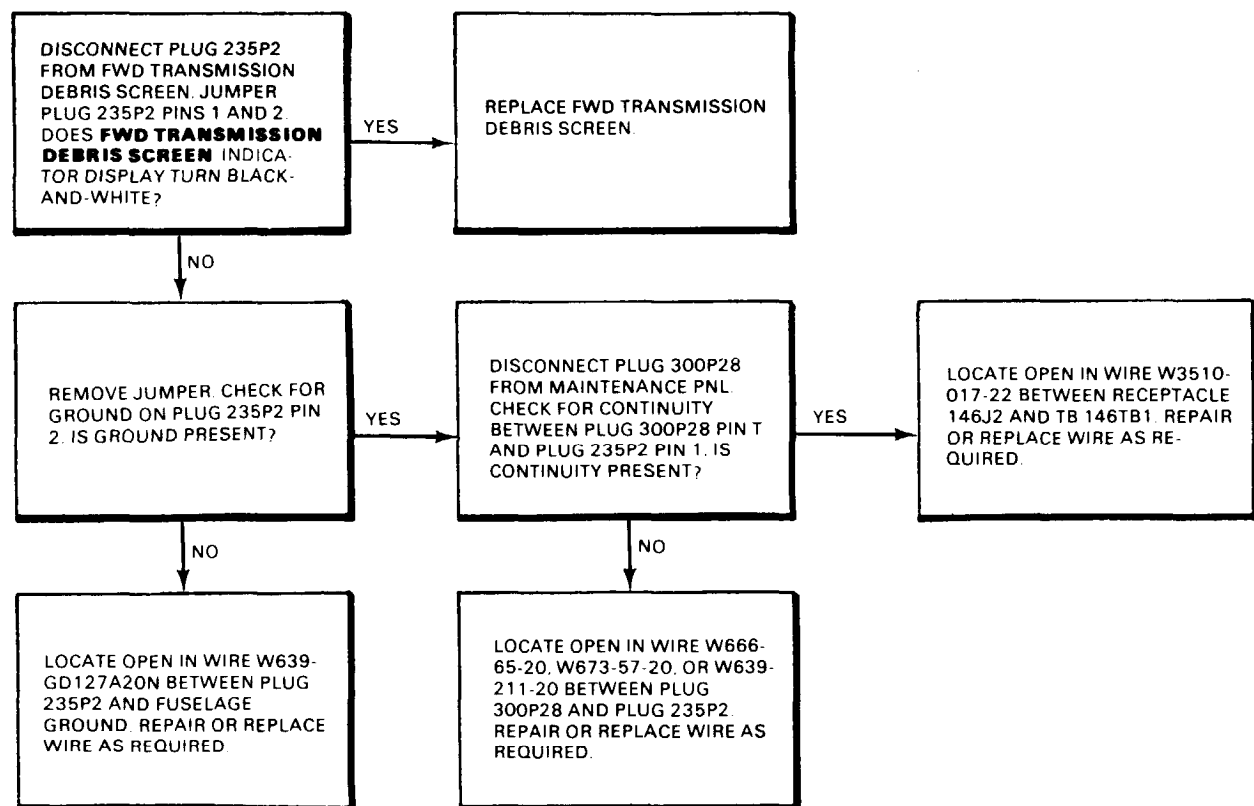
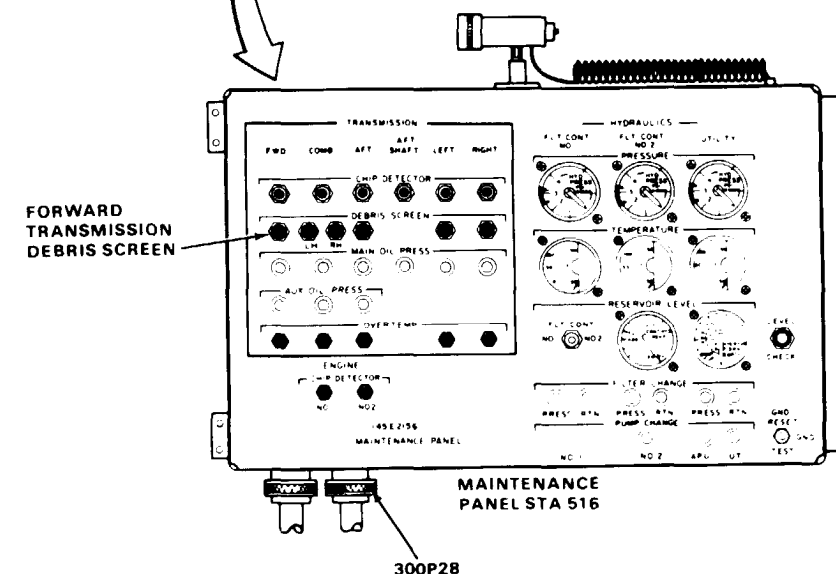
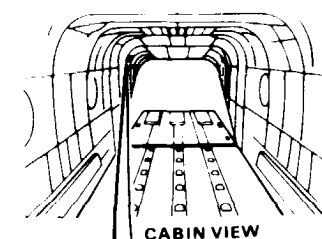
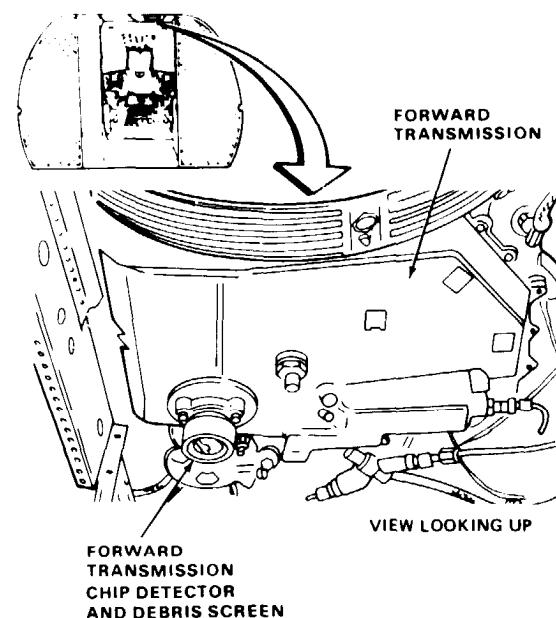
- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Multi meter

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off

**Materials:**

None



6-2.12 XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN FORWARD TRANSMISSION CHIP DETECTOR SHORTED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

Aircraft Electrician

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit, NSN 518040-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

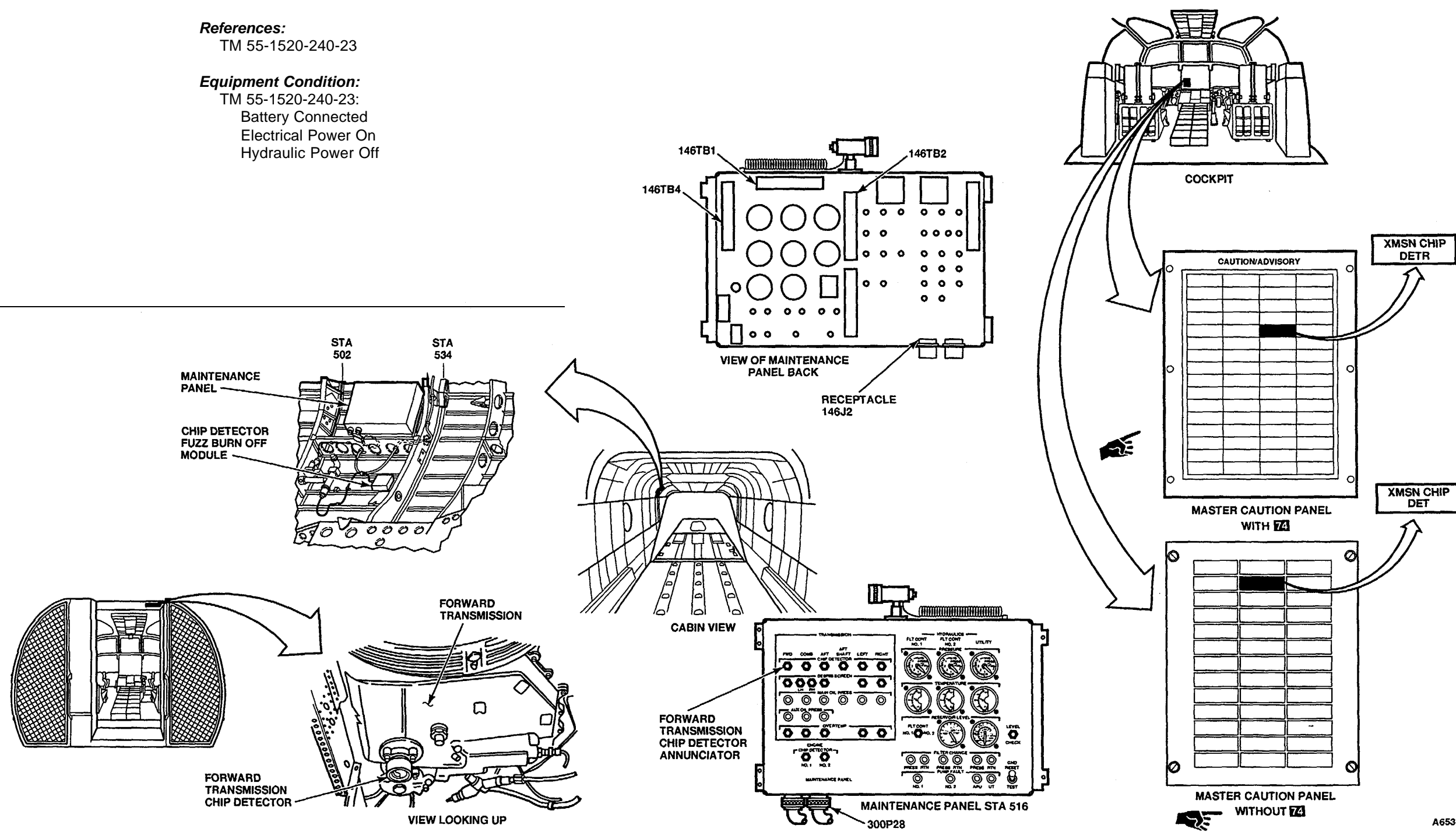
Medium Helicopter Repairer

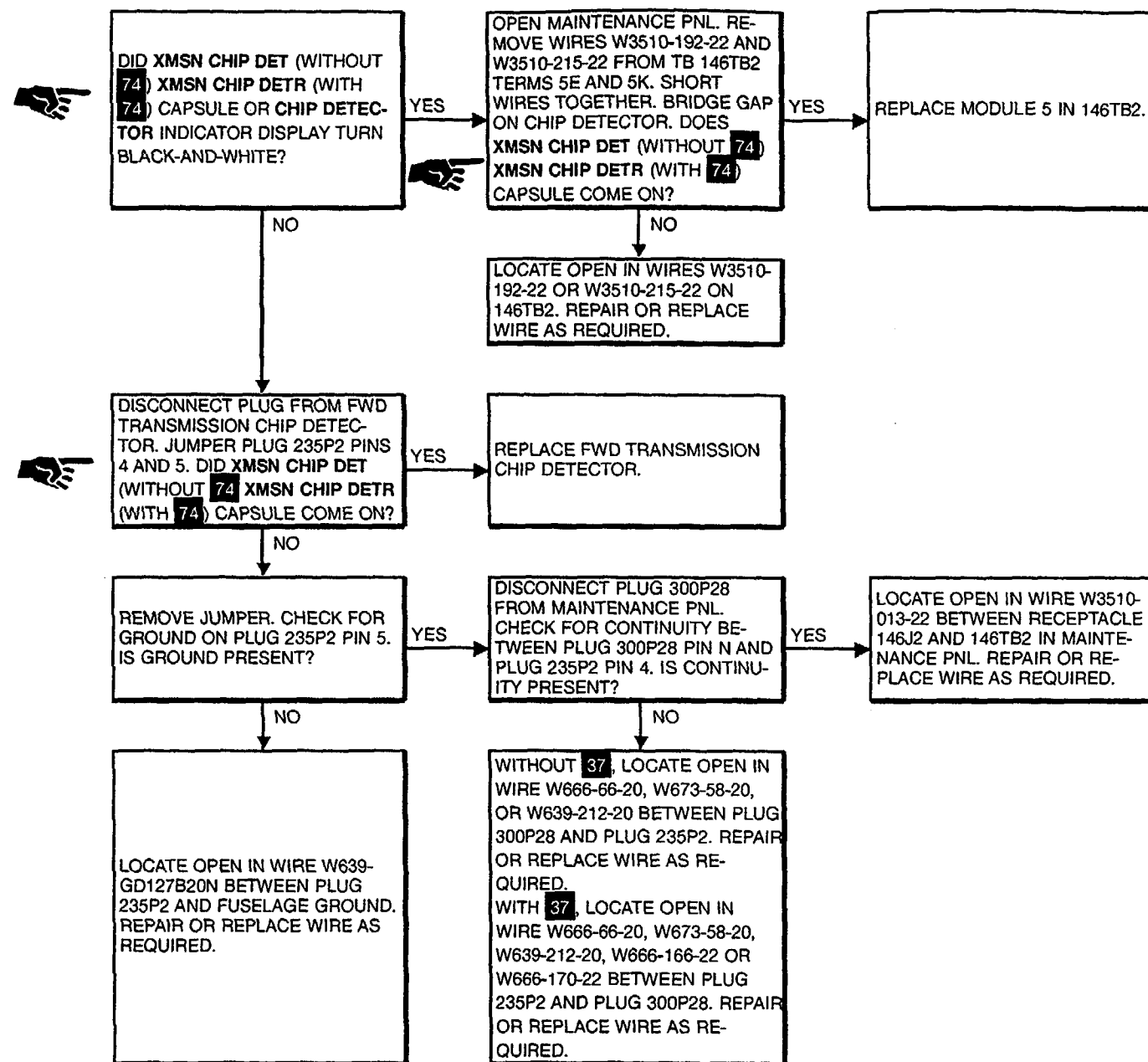
**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off





END OF TASK

Change 17 6-67

6-2.13 AFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED

INITIAL SETUP

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools**

Electrical Repairer's Tool Kit.  
NSN 5180-00-323-4915  
Multimeter

**Materials**

None

**Personnel Required:**

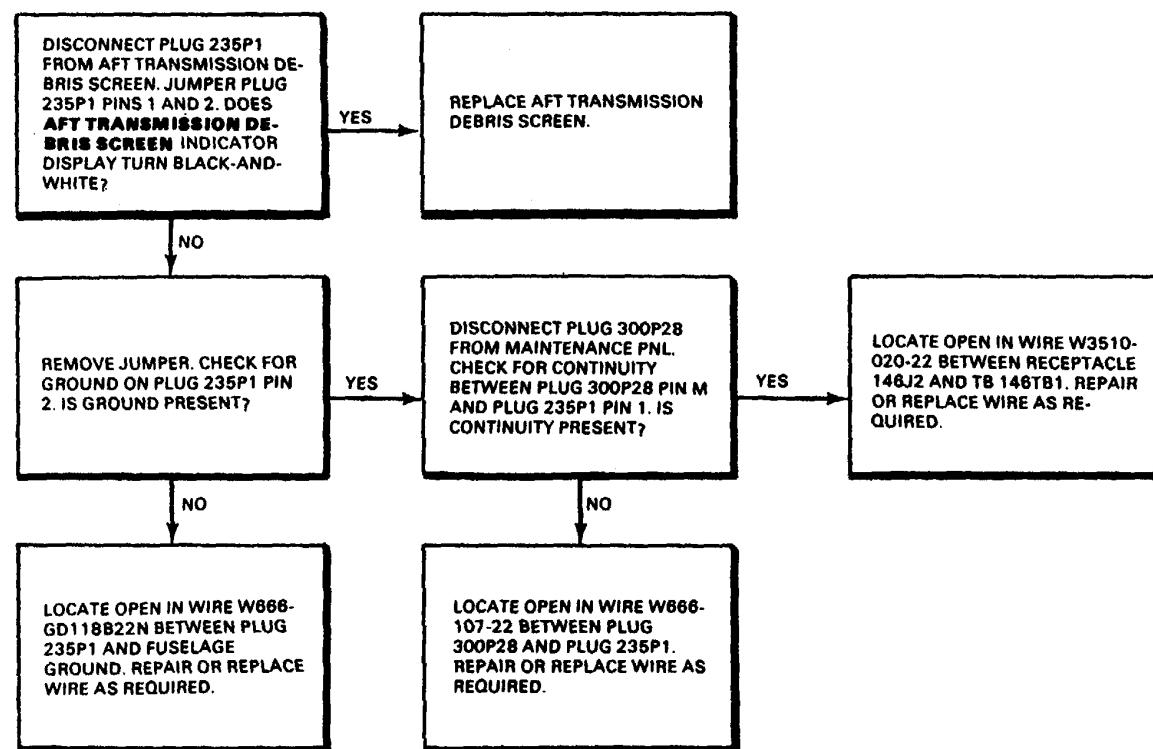
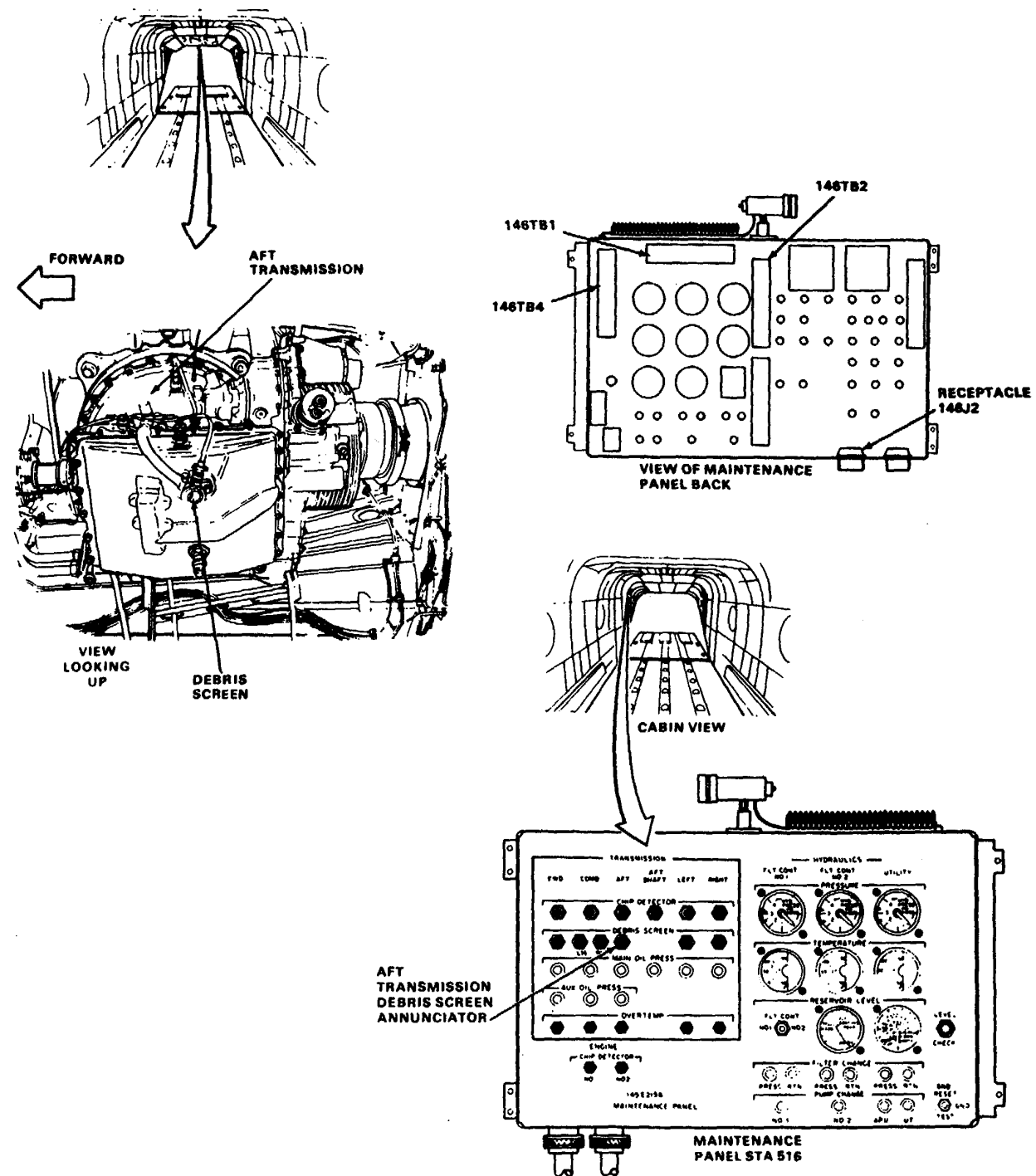
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

All

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials**

None

**Personnel Required:**

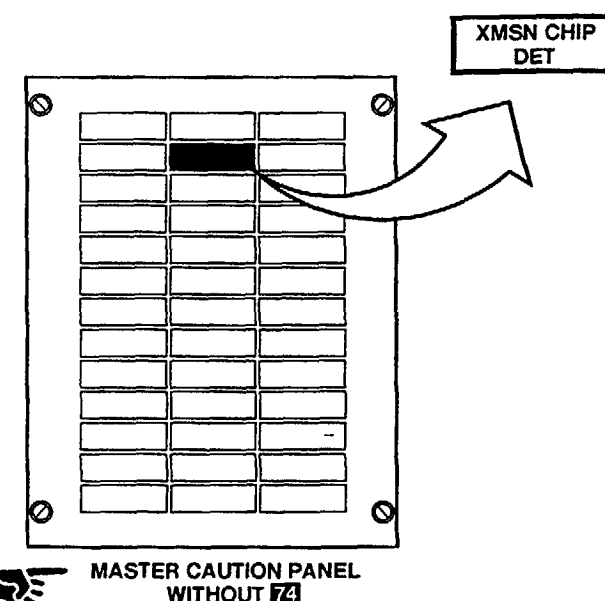
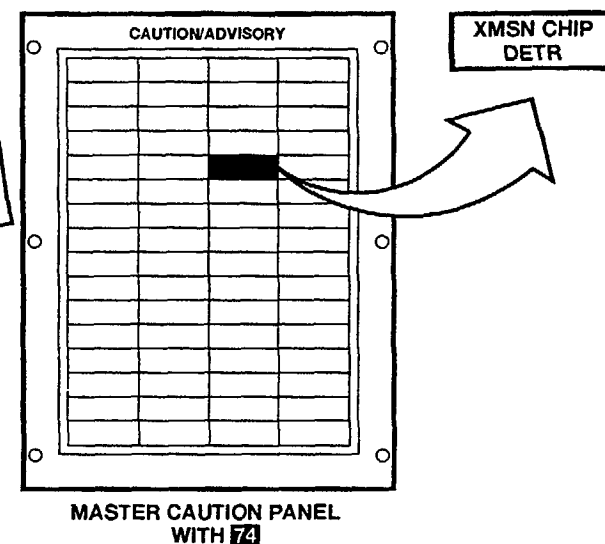
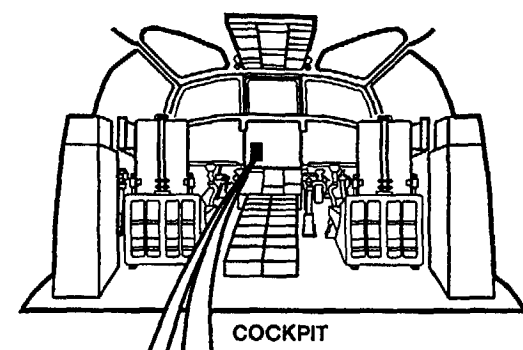
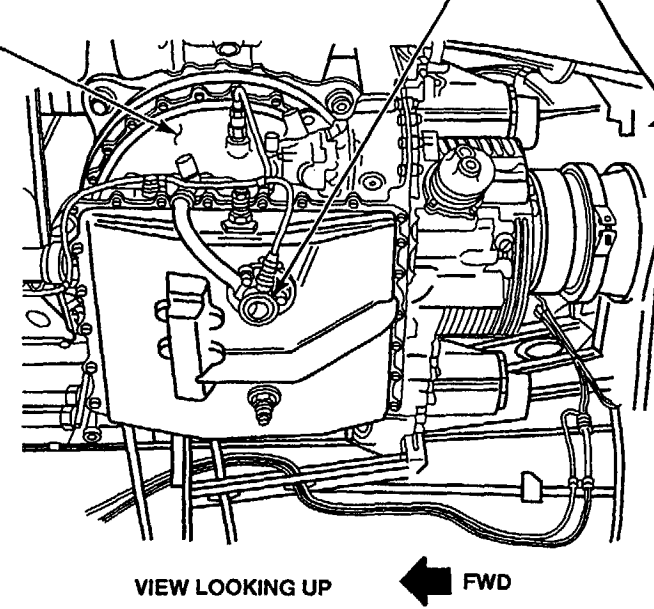
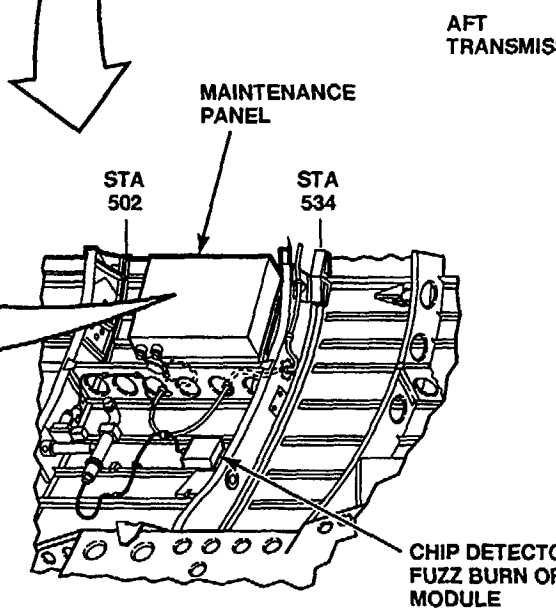
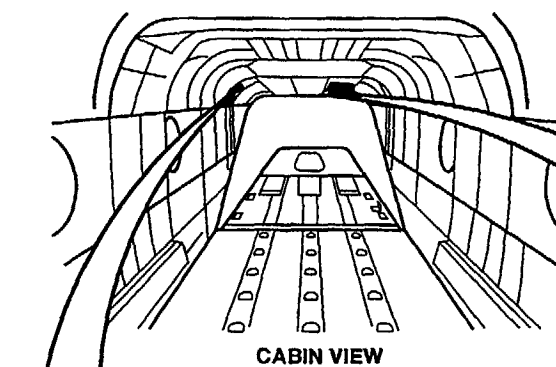
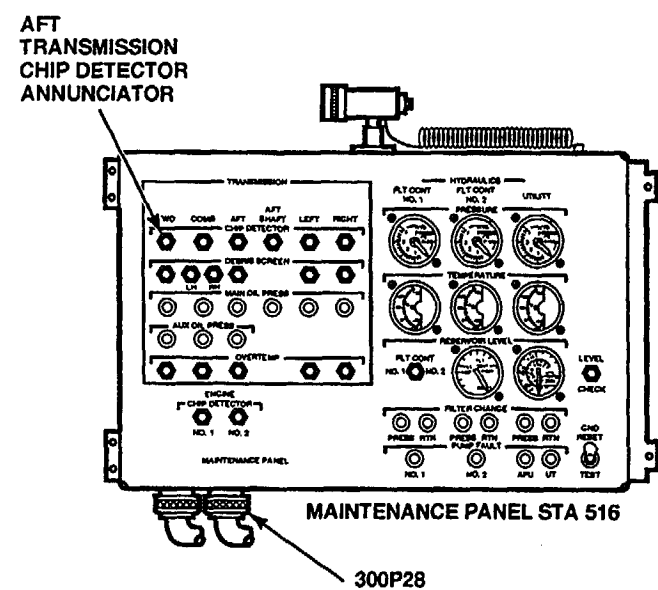
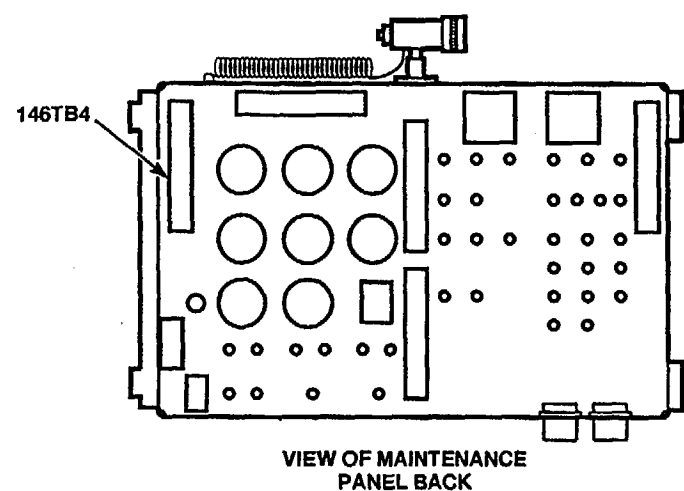
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

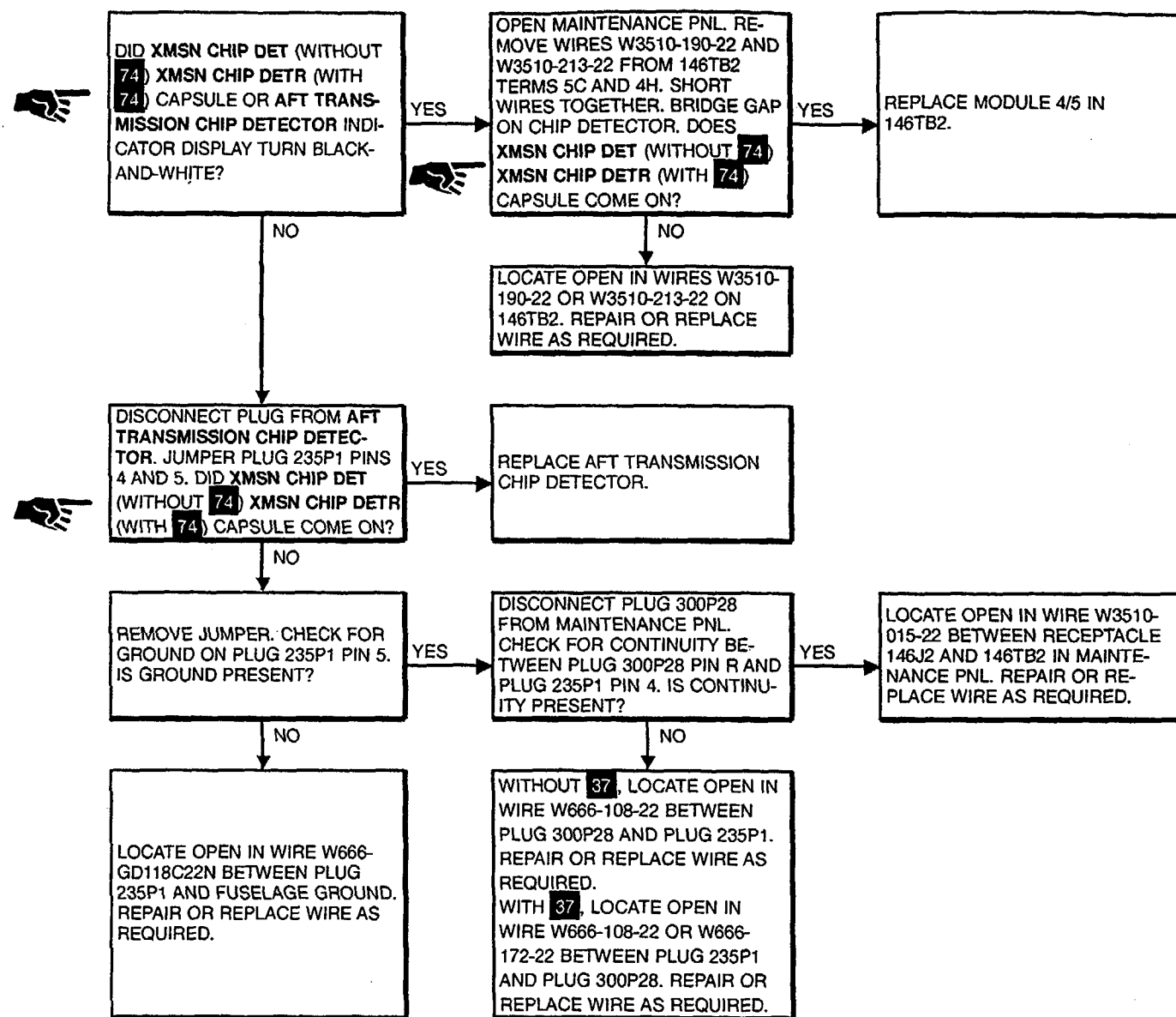
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



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**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

All

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

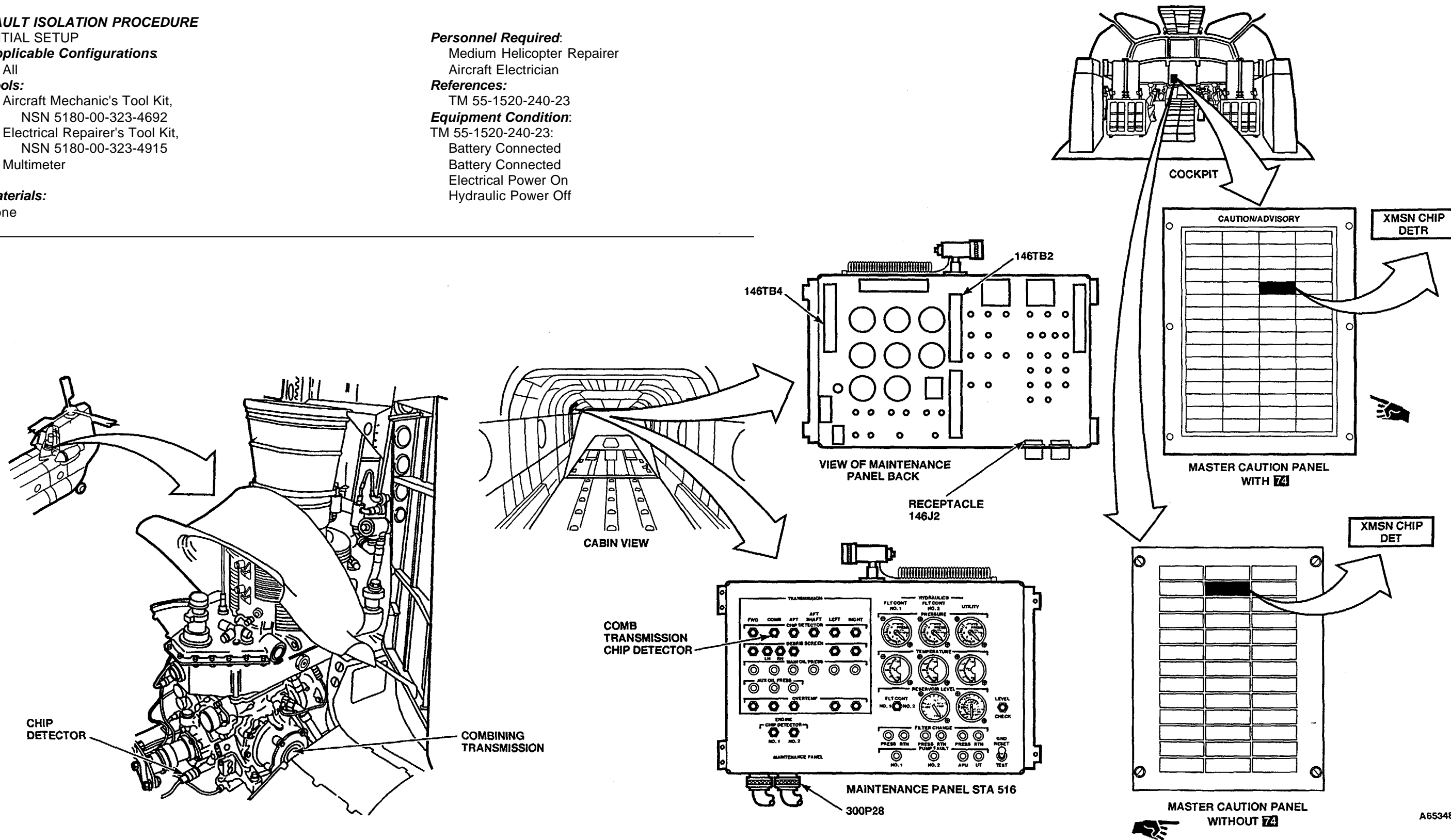
- Medium Helicopter Repairer
- Aircraft Electrician

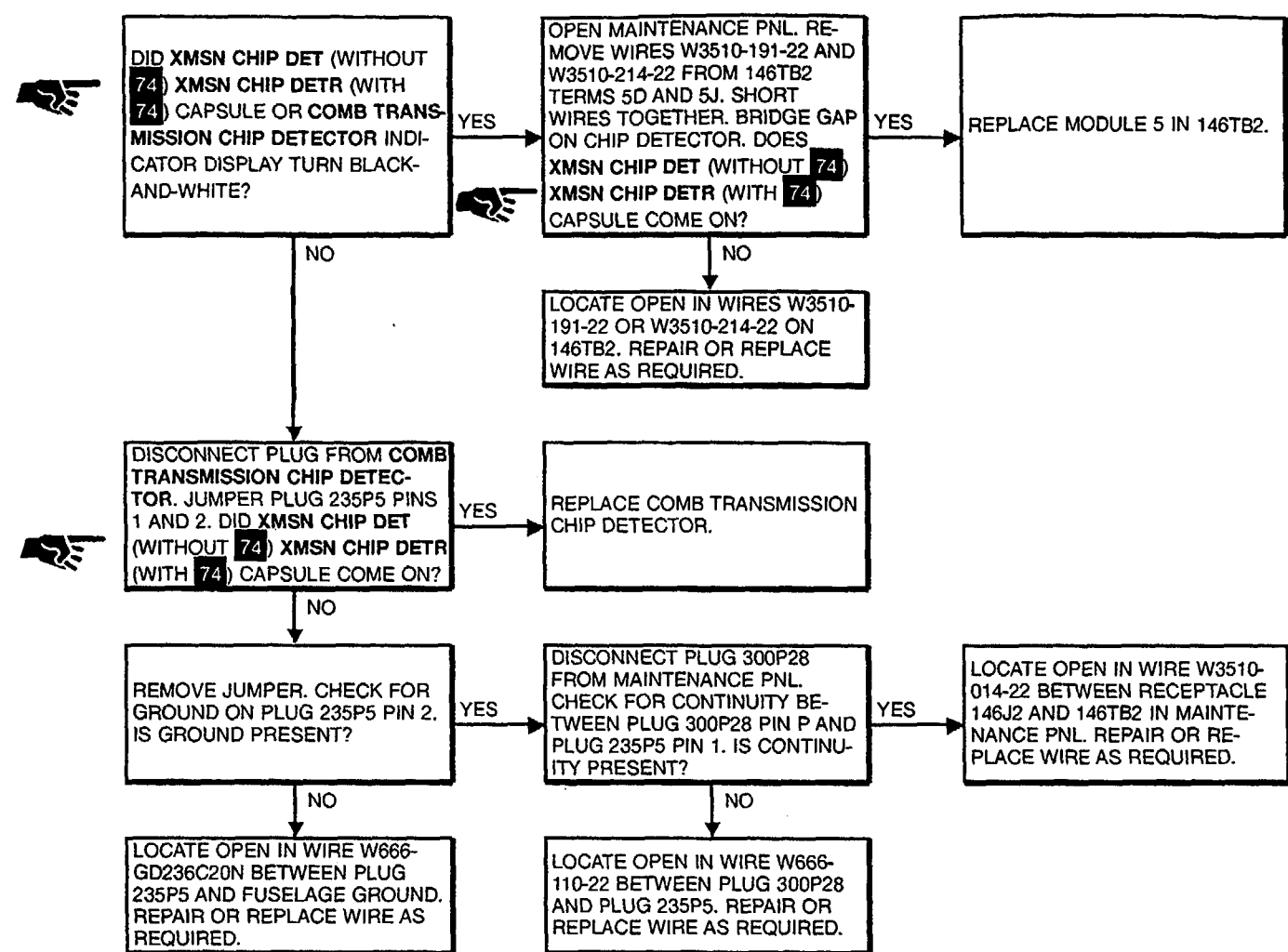
**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Battery Connected
- Electrical Power On
- Hydraulic Power Off





**6-2.16 RH COMB TRANSMISSION DEBRIS SCREEN INDICATOR  
DOES NOT CHANGE TO BLACK-AND-WHITE FAN  
DISPLAY WHEN DEBRIS SCREEN SHORTED**

6-2.16

**FAULT ISOLATION PROCEDURE**  
INITIAL SETUP

**Applicable Configurations**  
All

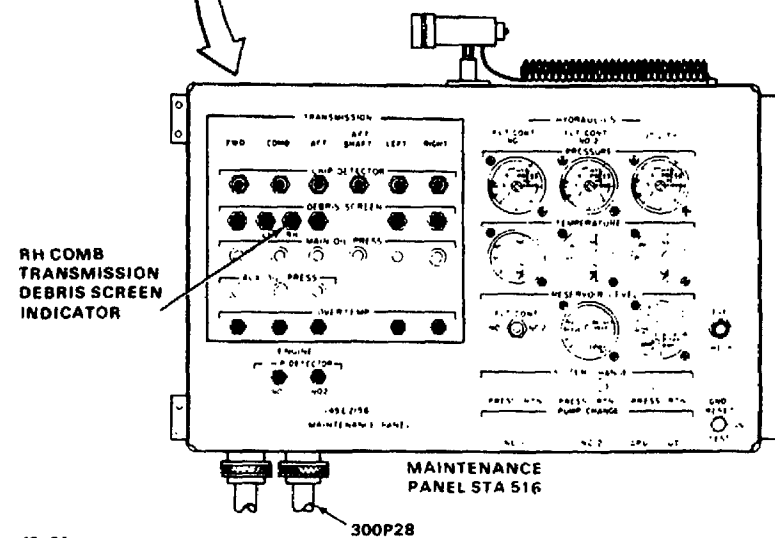
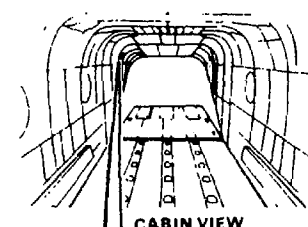
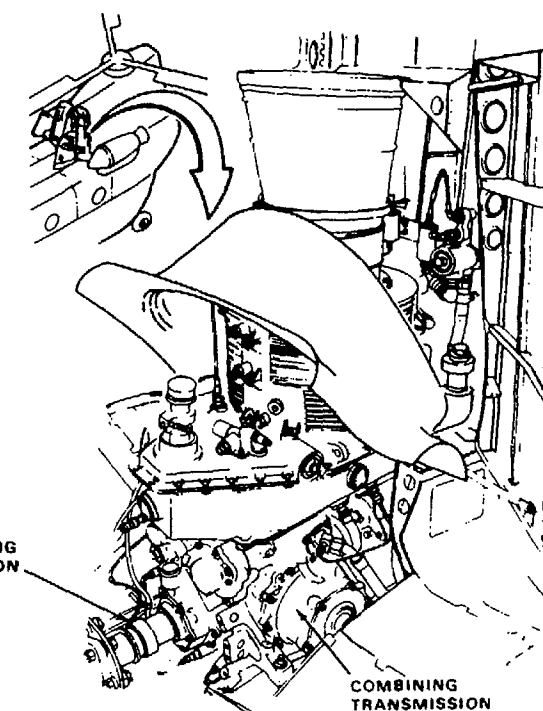
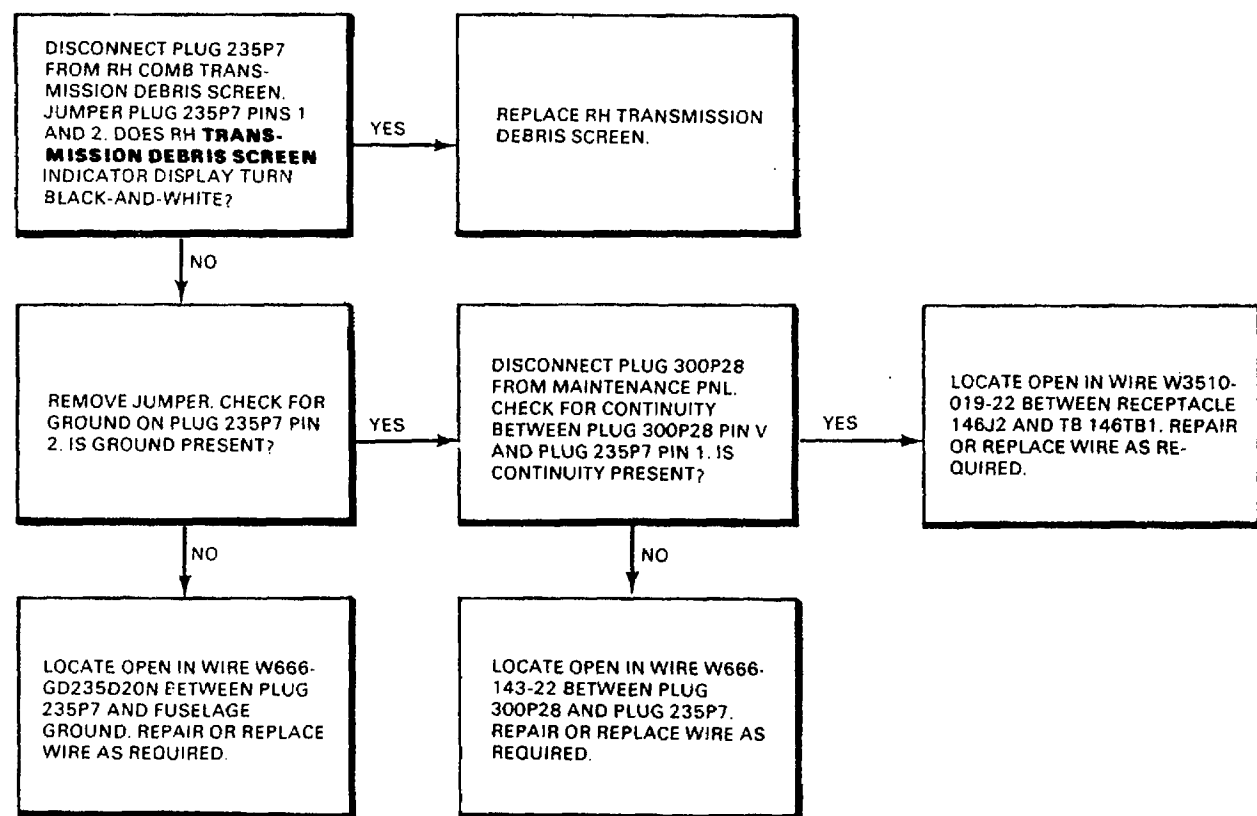
**Tools**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials**  
None

**Personnel Required:**  
67U 10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



49 x 54

D145-11685-SPA

END OF TASK

**6-2.17 LEFT COMB TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

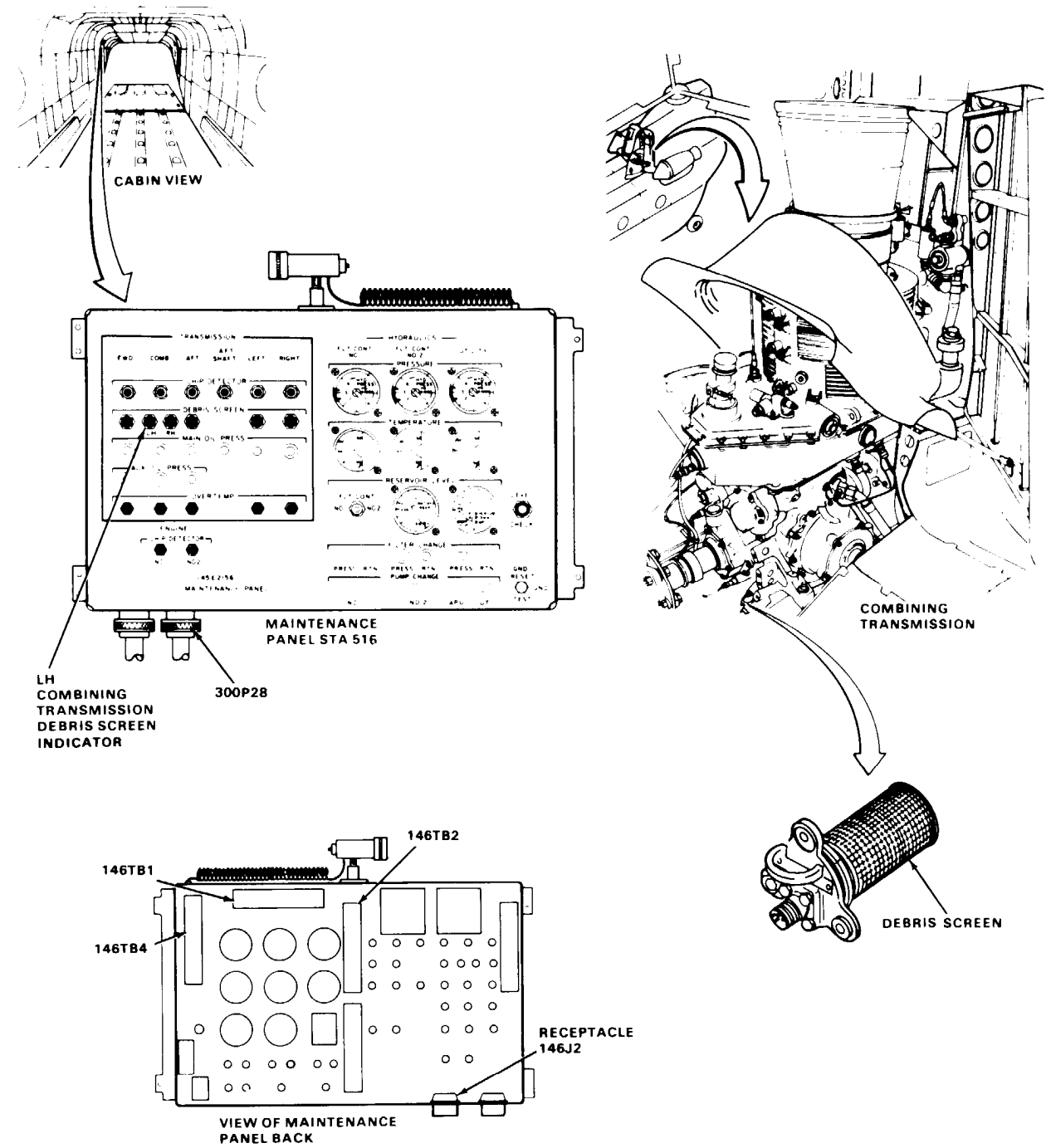
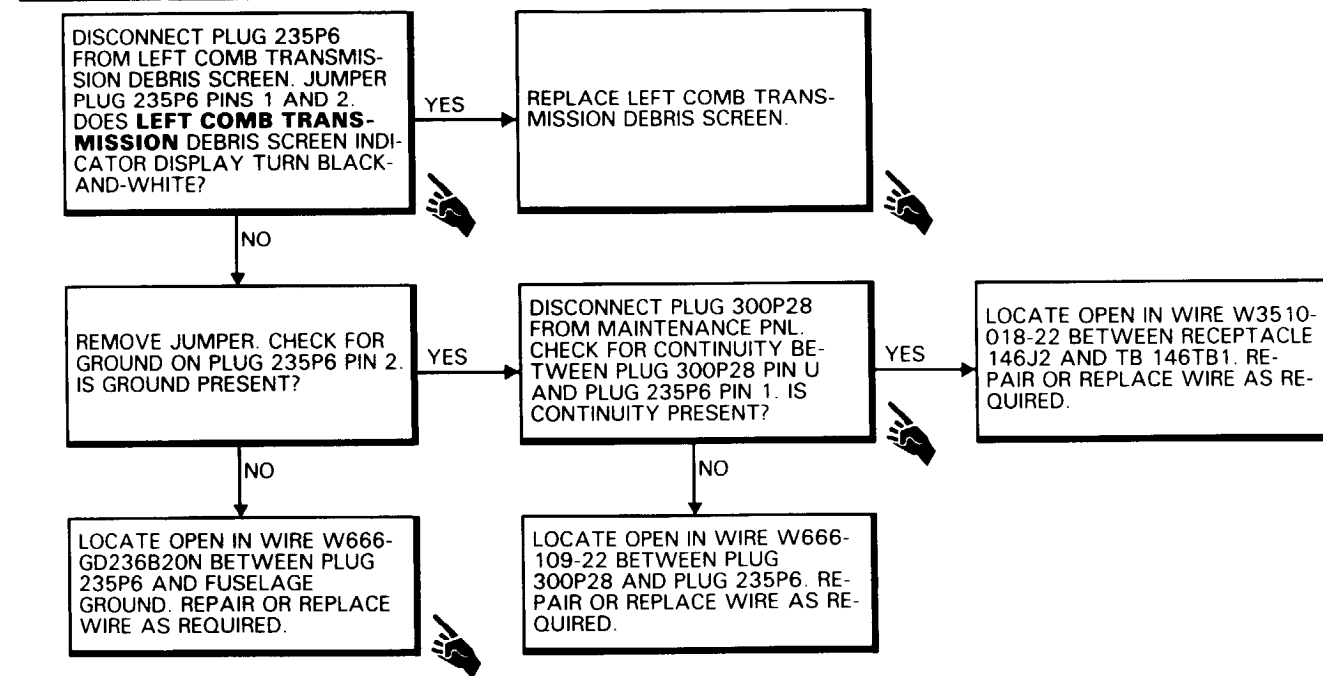
Medium Helicopter Repairer  
Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



**6-2.18 LEFT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

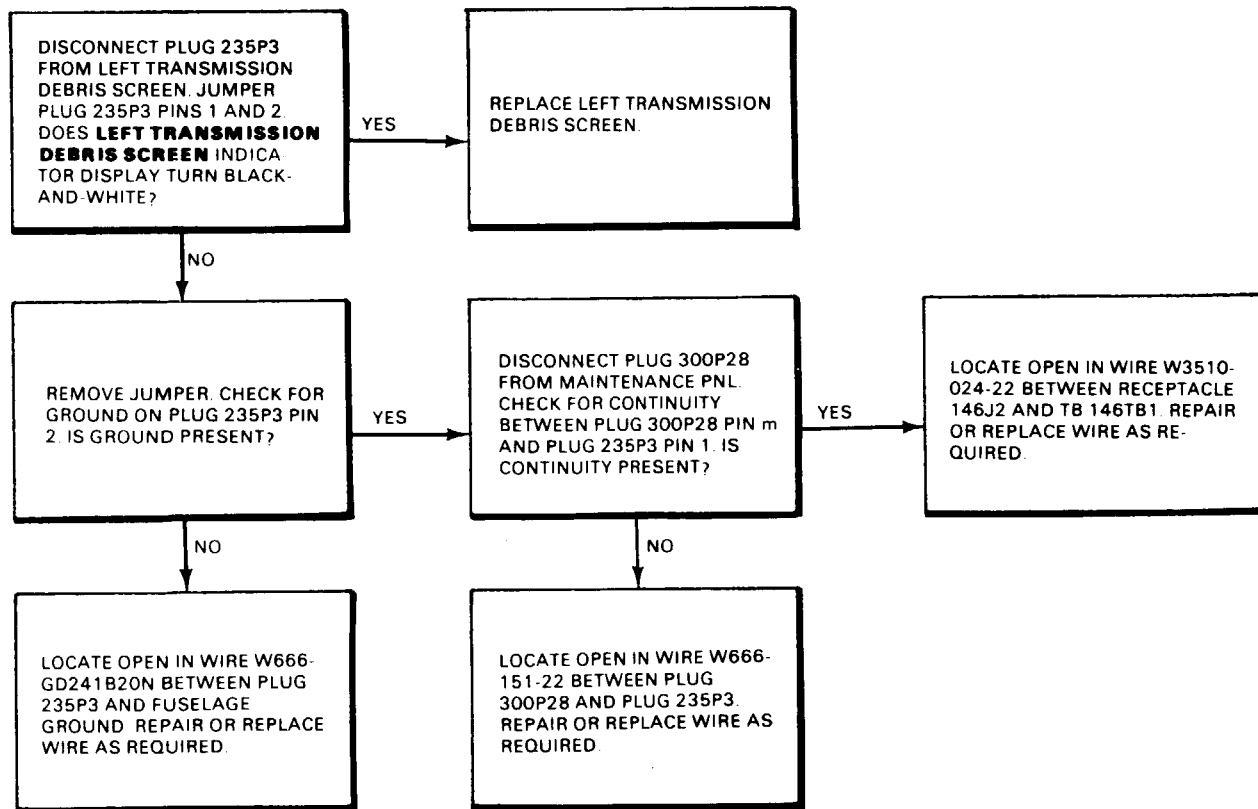
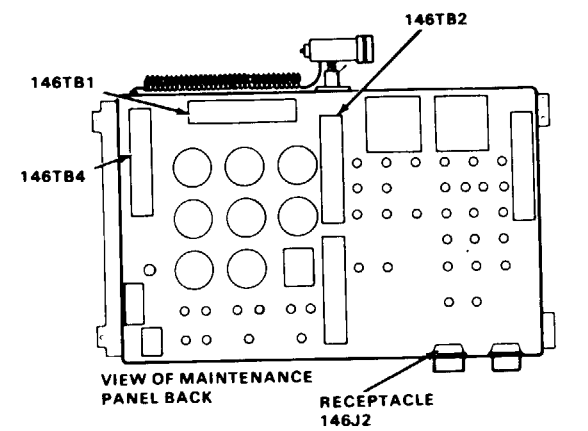
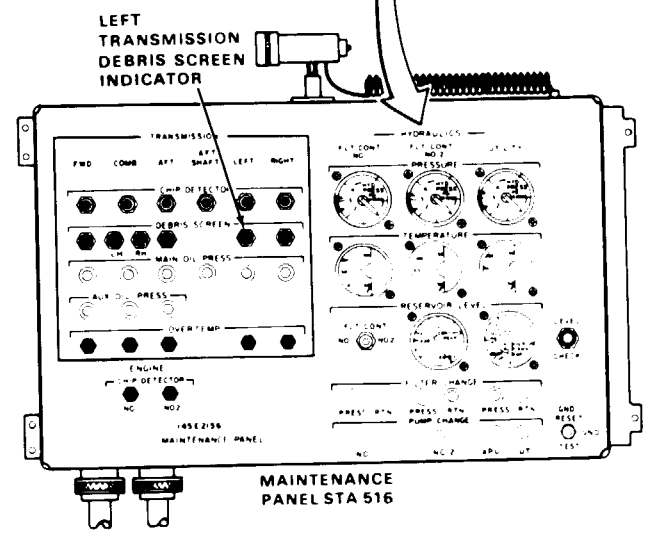
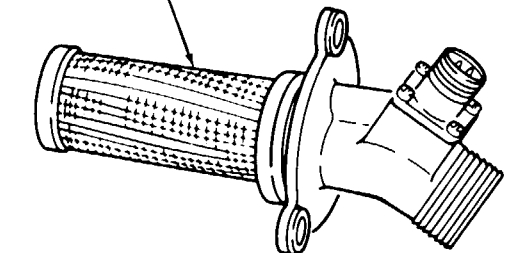
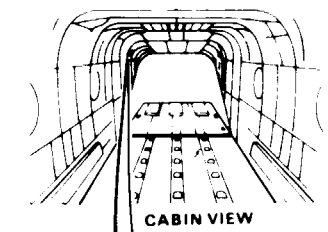
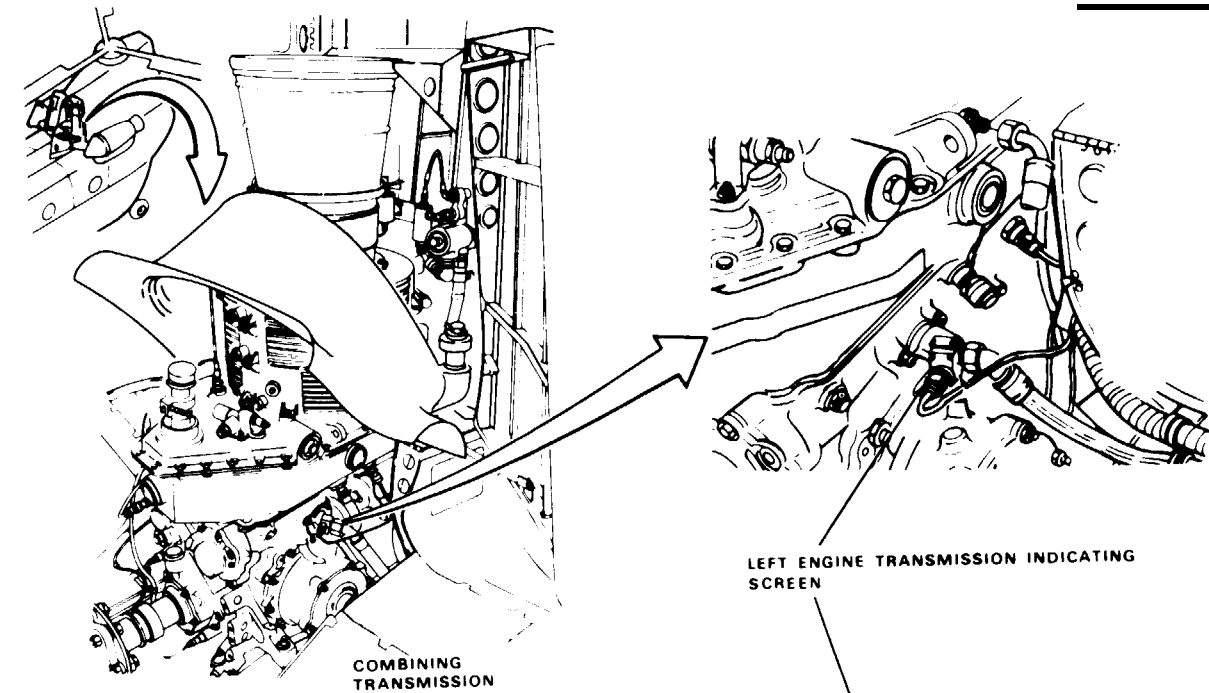
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multi meter

**Materials:**  
None

**Personnel Required:**  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



45X54

D145-11687-SPA

**END OF TASK**

**6-2.19 RIGHT TRANSMISSION DEBRIS SCREEN INDICATOR DOES NOT CHANGE TO BLACK-AND-WHITE FAN DISPLAY WHEN DEBRIS SCREEN SHORTED**

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials**

None

**Personnel Required:**

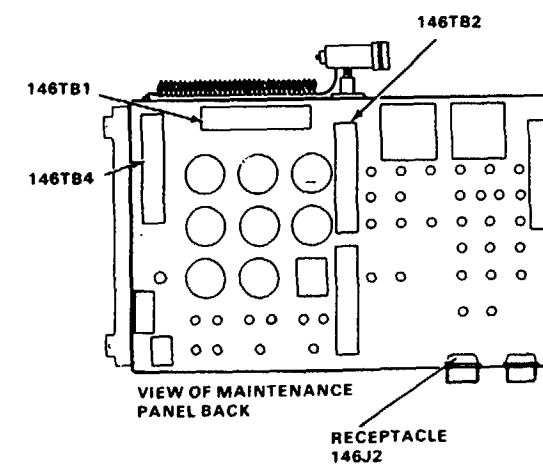
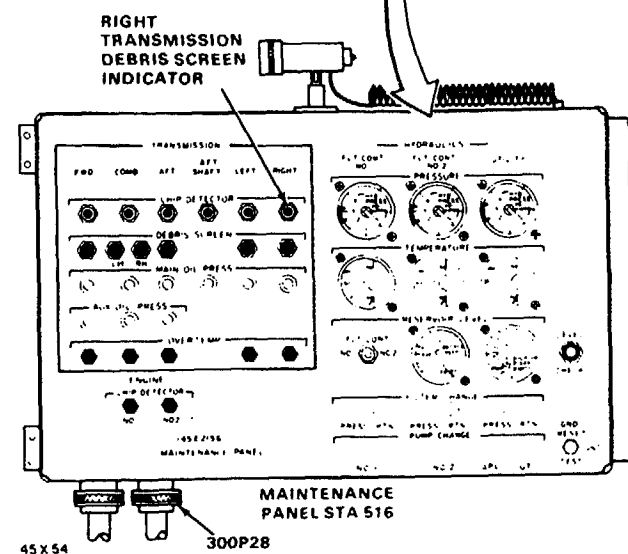
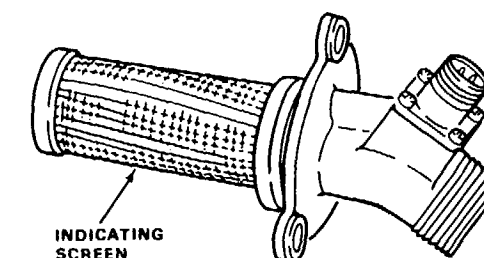
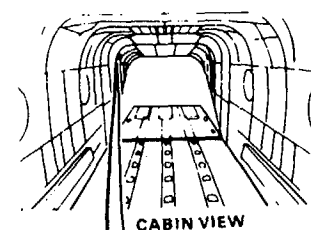
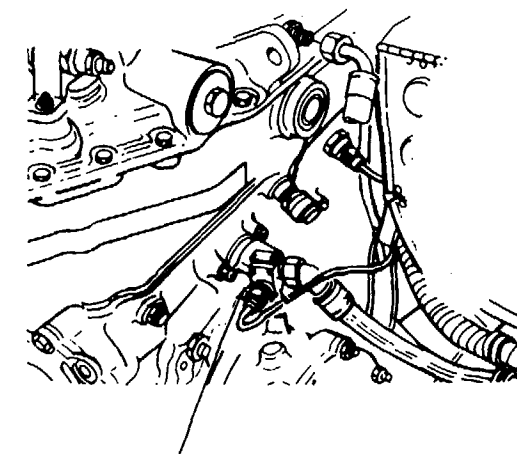
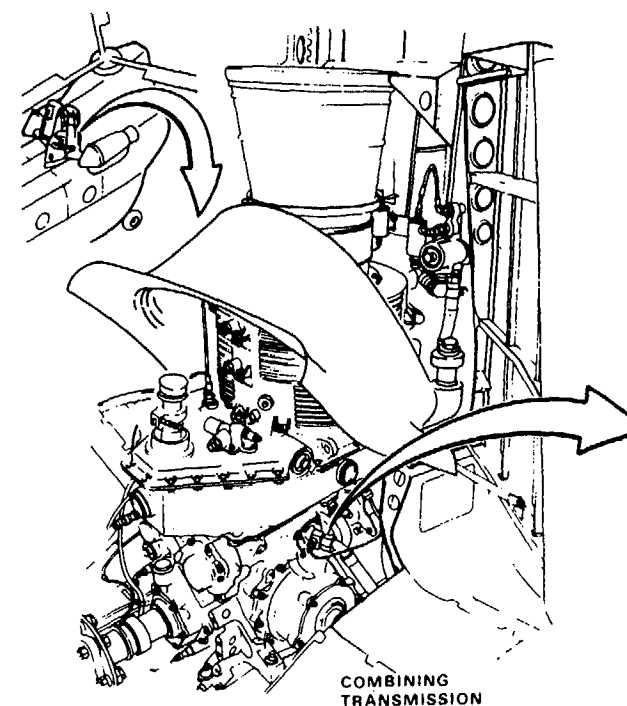
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References**

TM 55-1520-240-23

**Equipment Condition:**

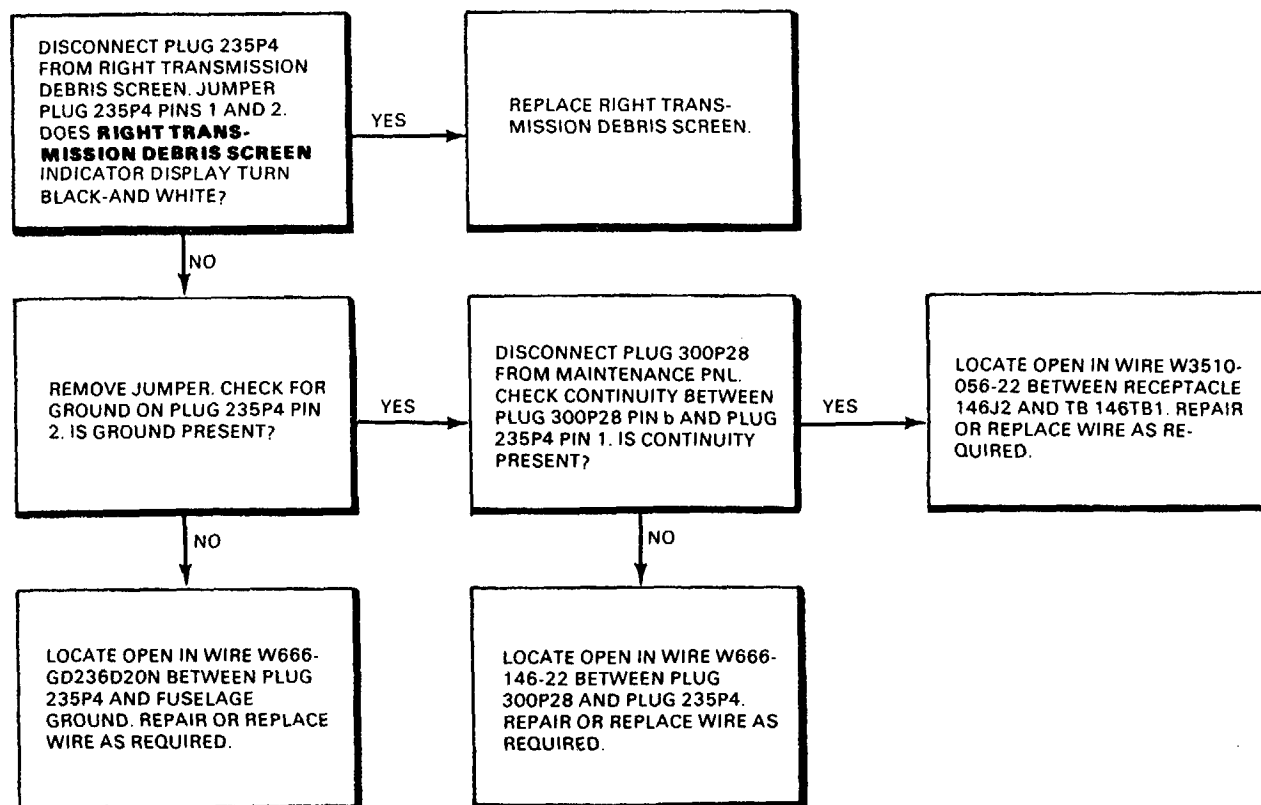
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



45 X 54

300P28

D45-11688-SPA



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

All

**Tools:**

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

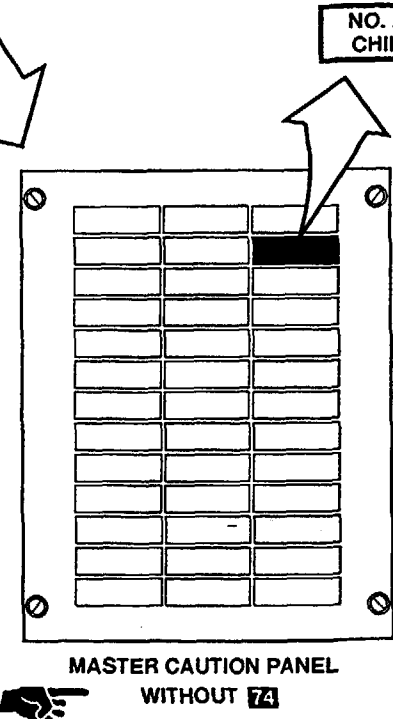
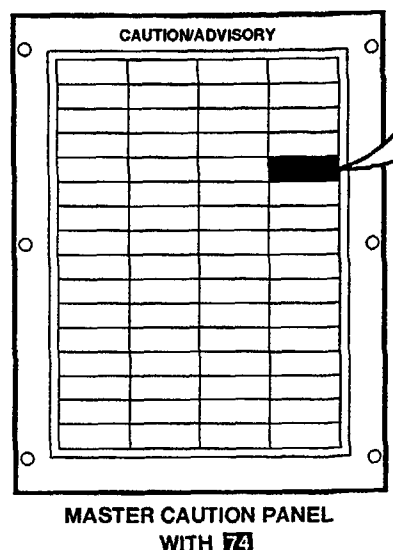
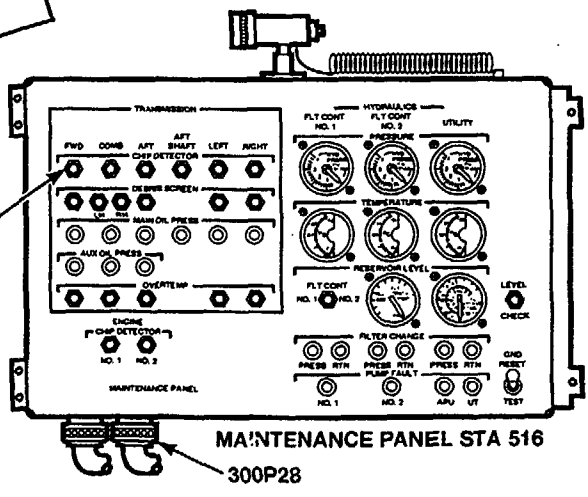
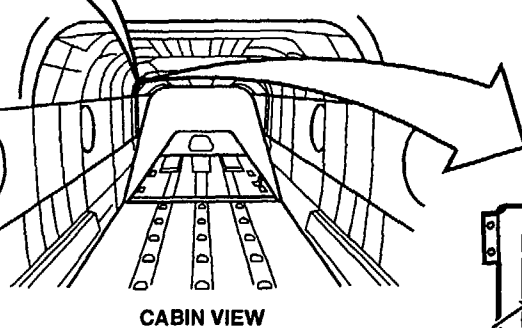
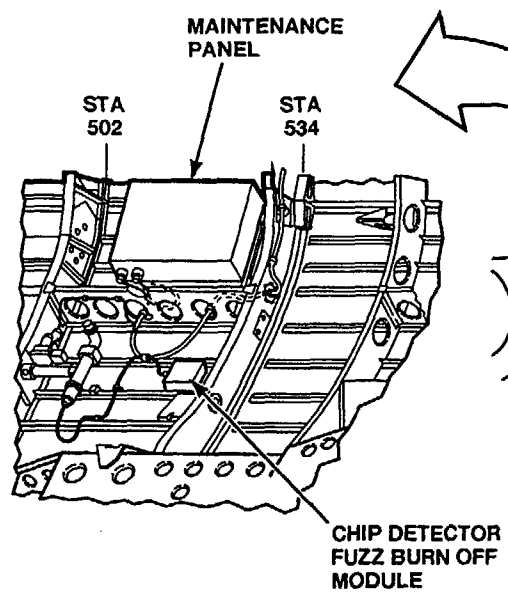
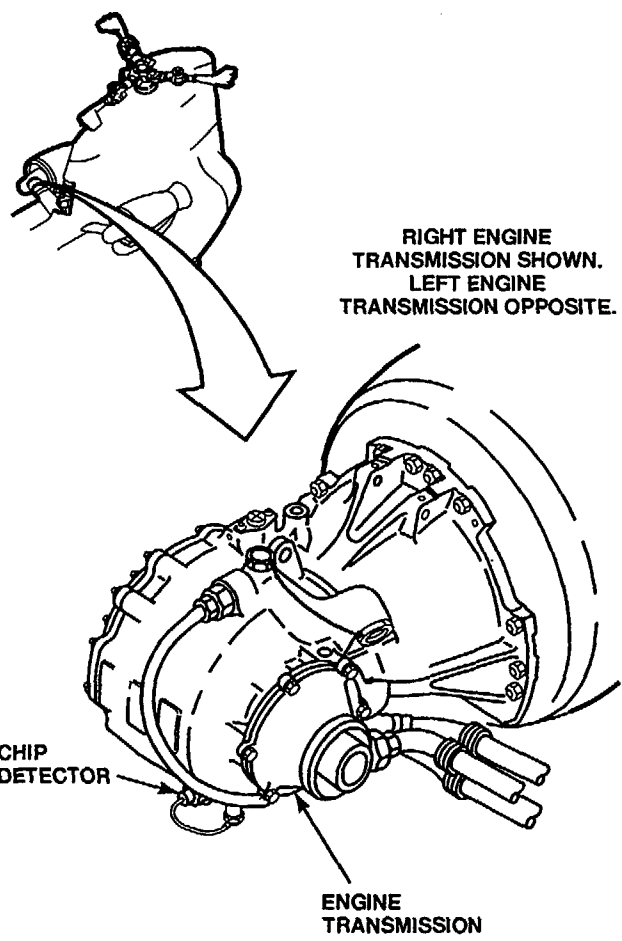
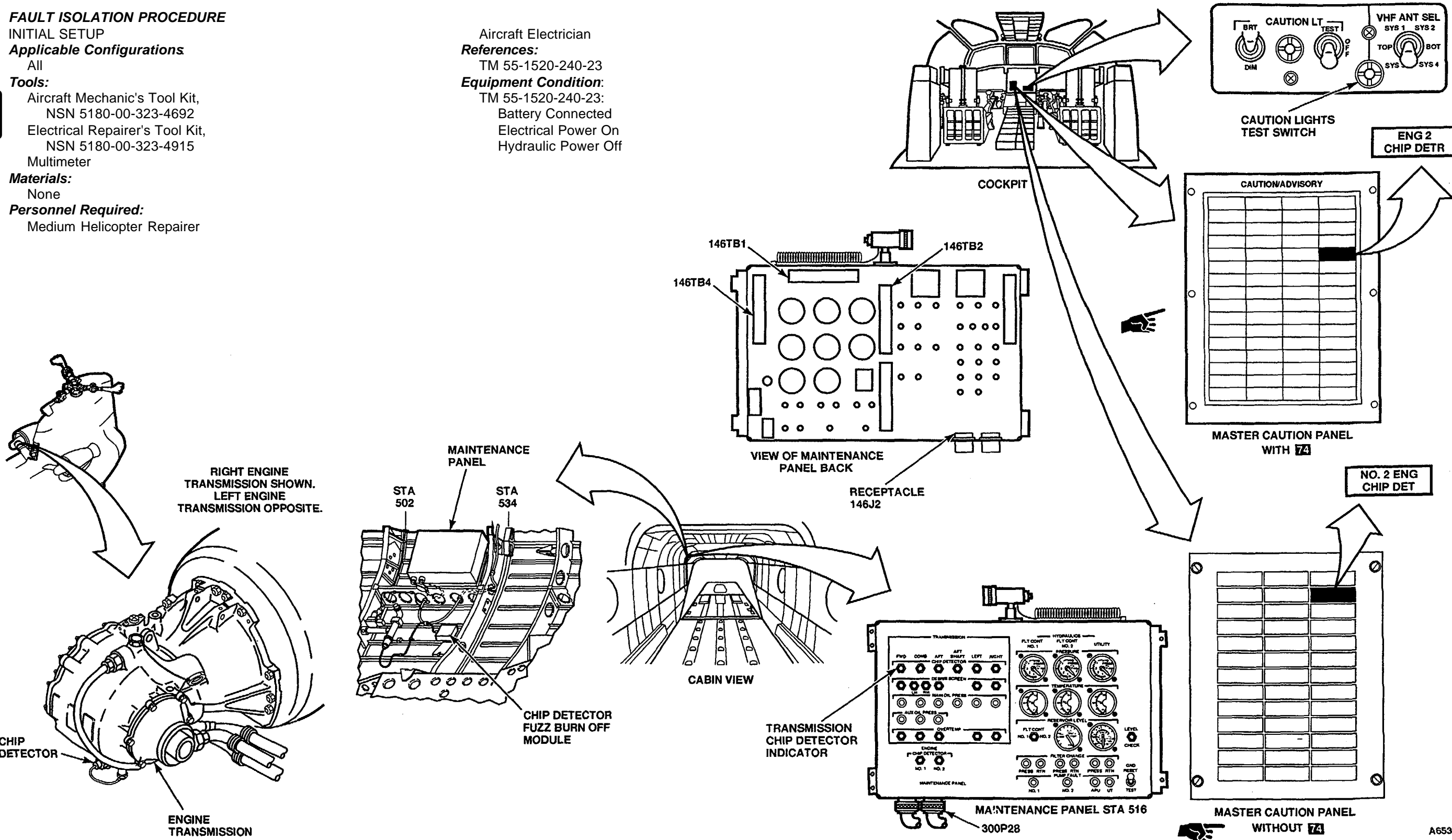
Aircraft Electrician

**References:**

TM 55-1520-240-23

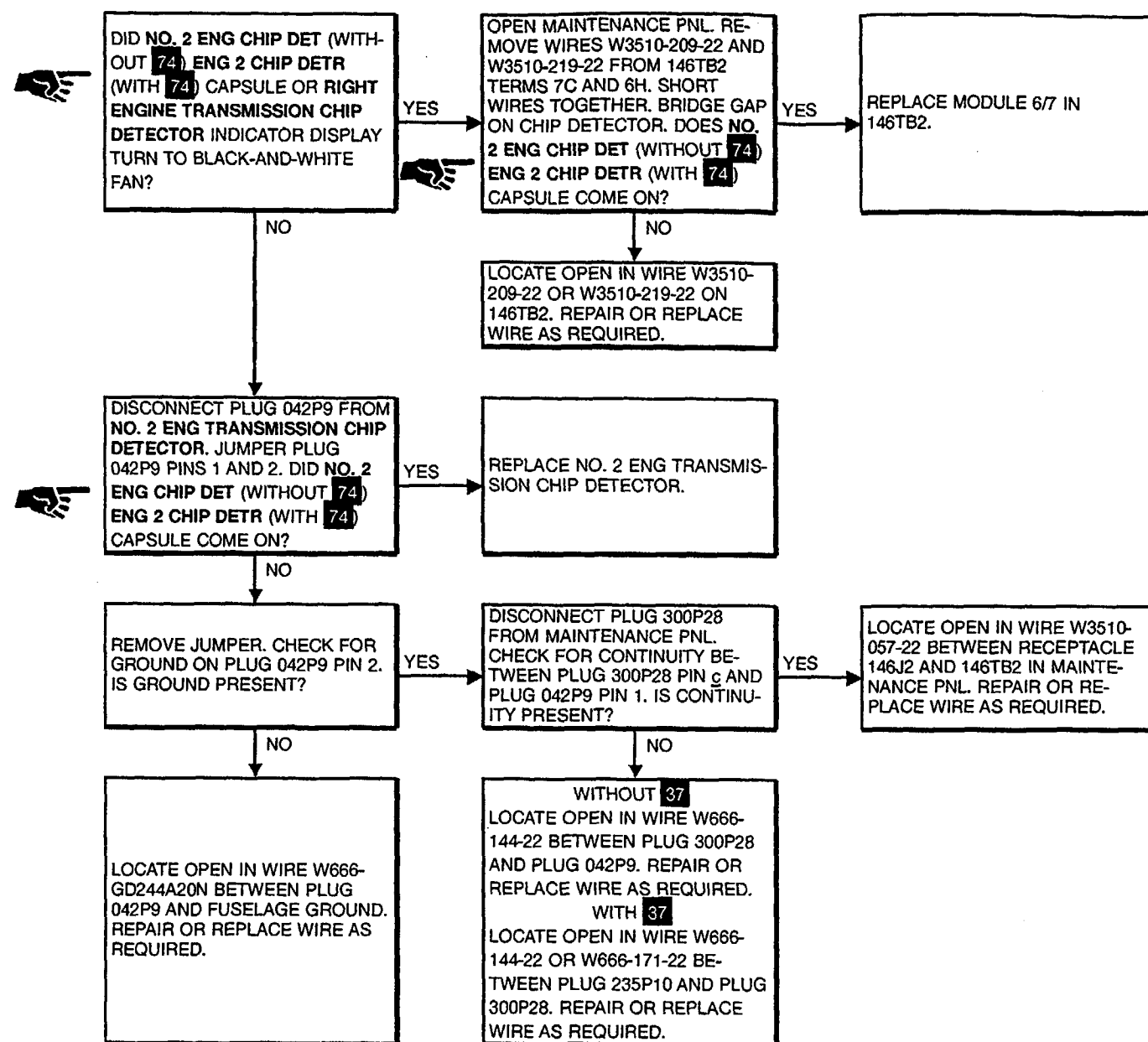
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



6-2.20 NO. 2 ENG CHIP DET (WITHOUT 74) ENG 2 CHIP DETR (WITH 74) CAPSULE DOES' NOT COME ON WHEN NO. 2 ENGINE TRANSMISSION CHIP DETECTOR SHORTED

(Continued)





**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

All

**Tools**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

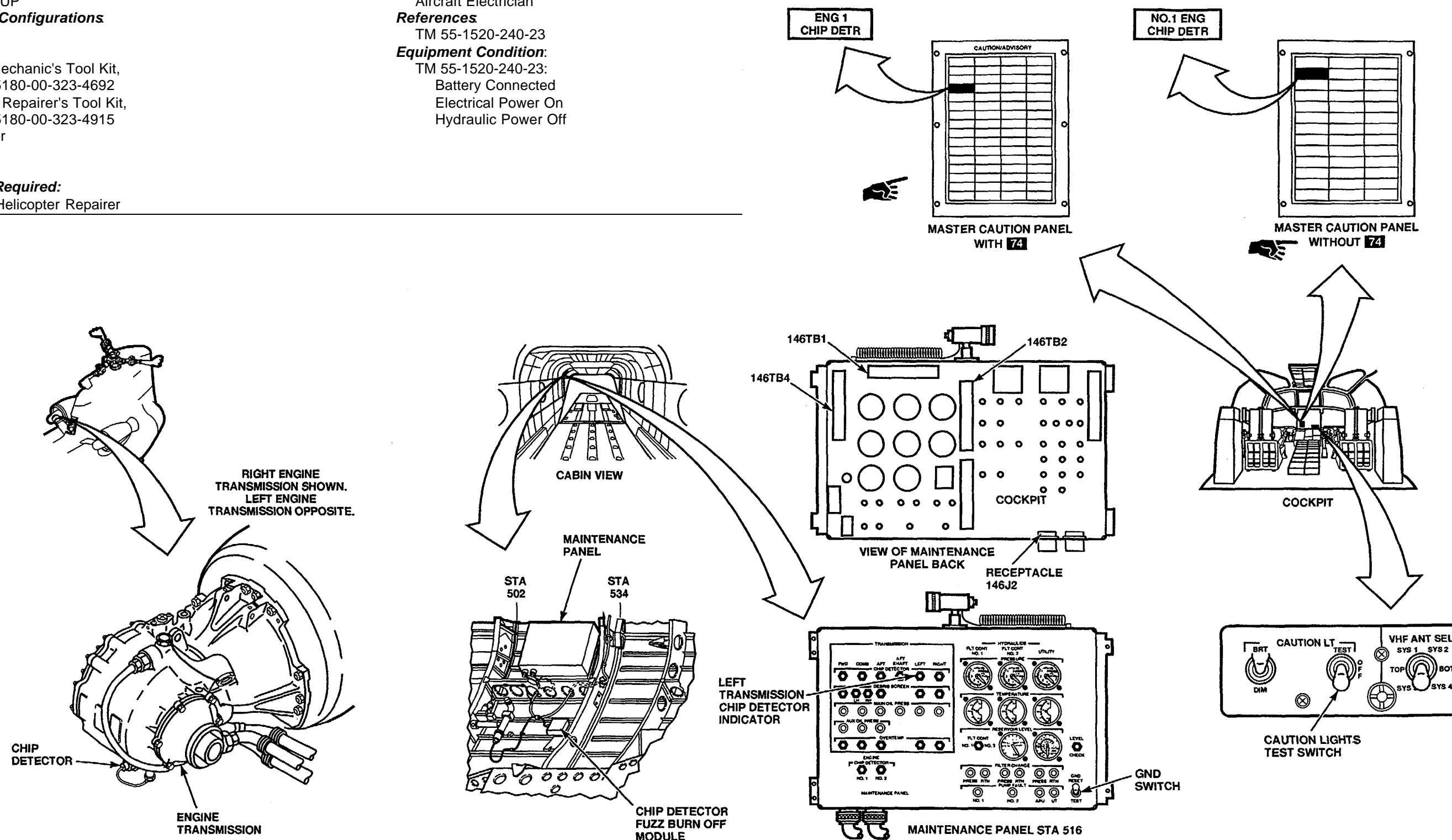
Aircraft Electrician

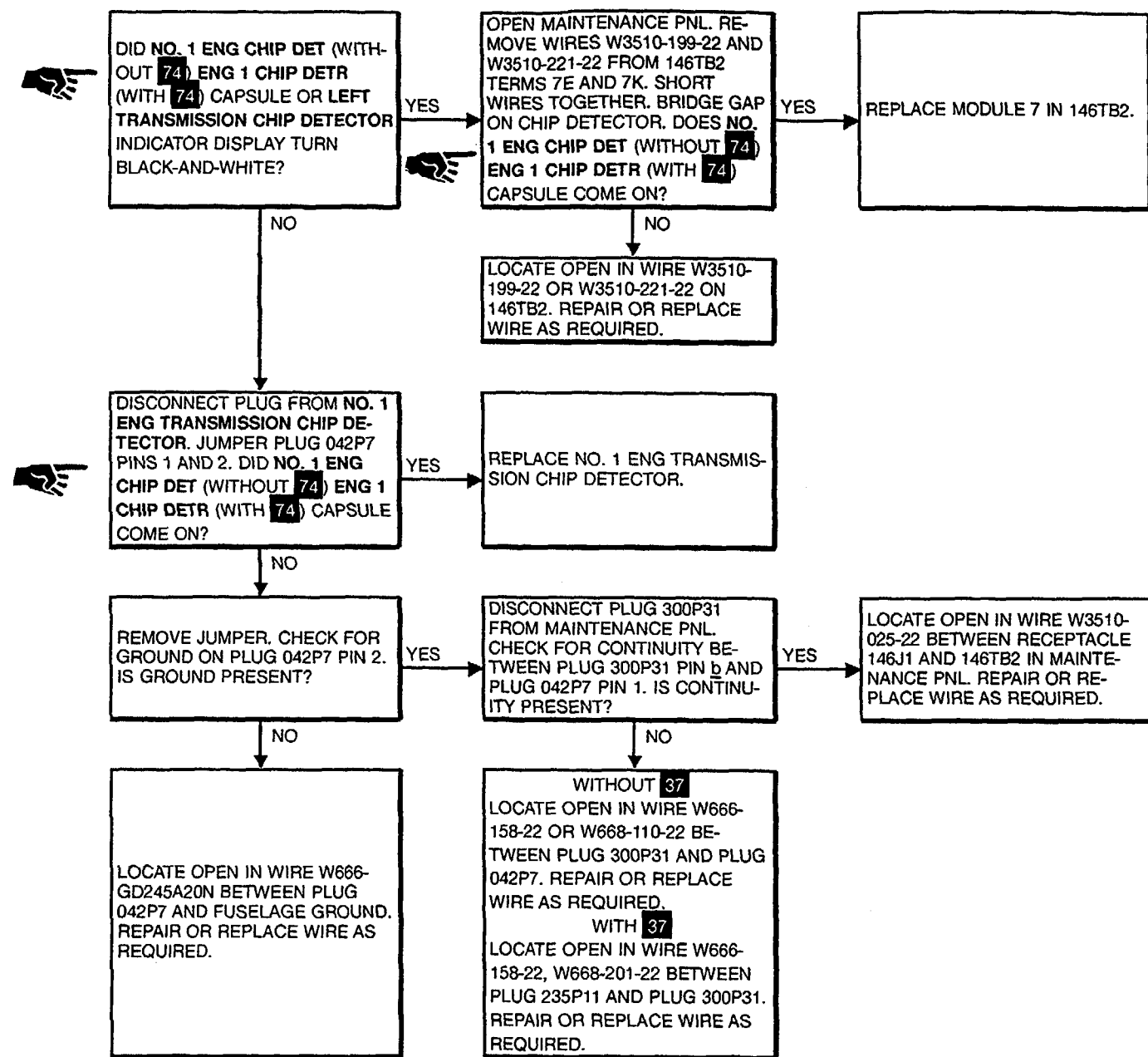
**References**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off





6-2.22 XMSN CHIP DET (WITHOUT 74) XMSN CHIP DETR (WITH 74) CAPSULE DOES NOT COME ON WHEN AFT SHAFT CHIP DETECTOR SHORTED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit, NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

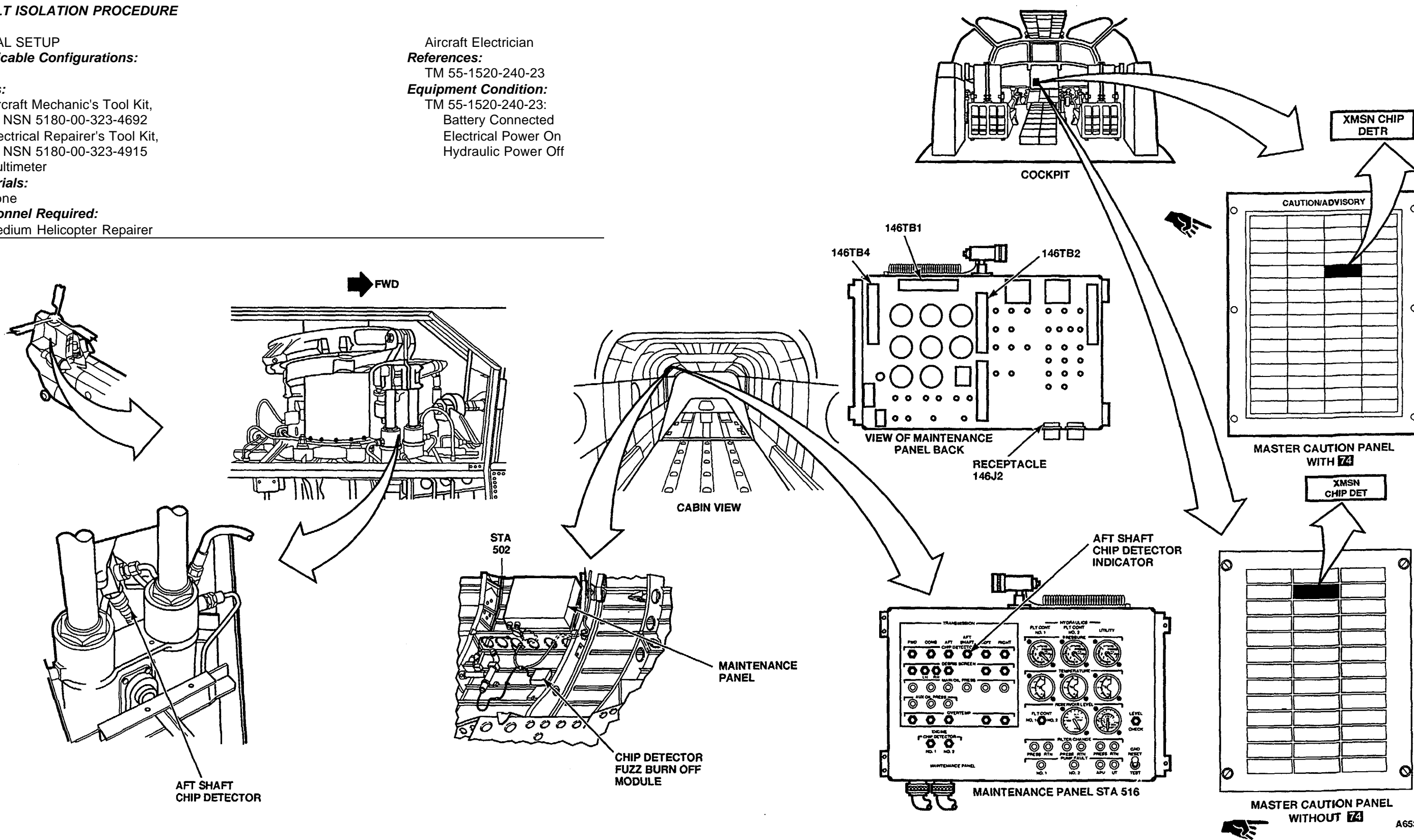
Aircraft Electrician

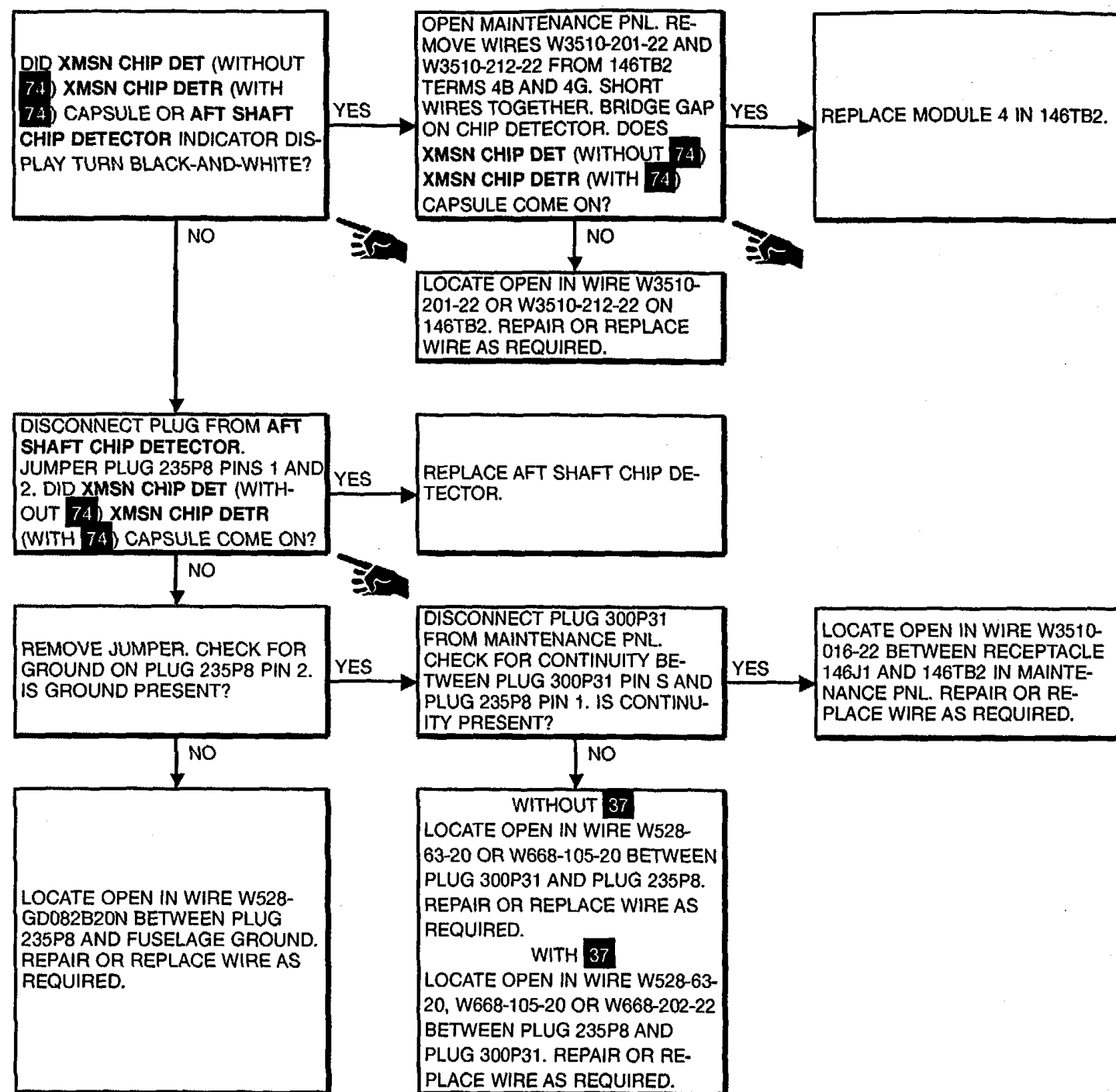
**References:**

TM 55-1520-240-23

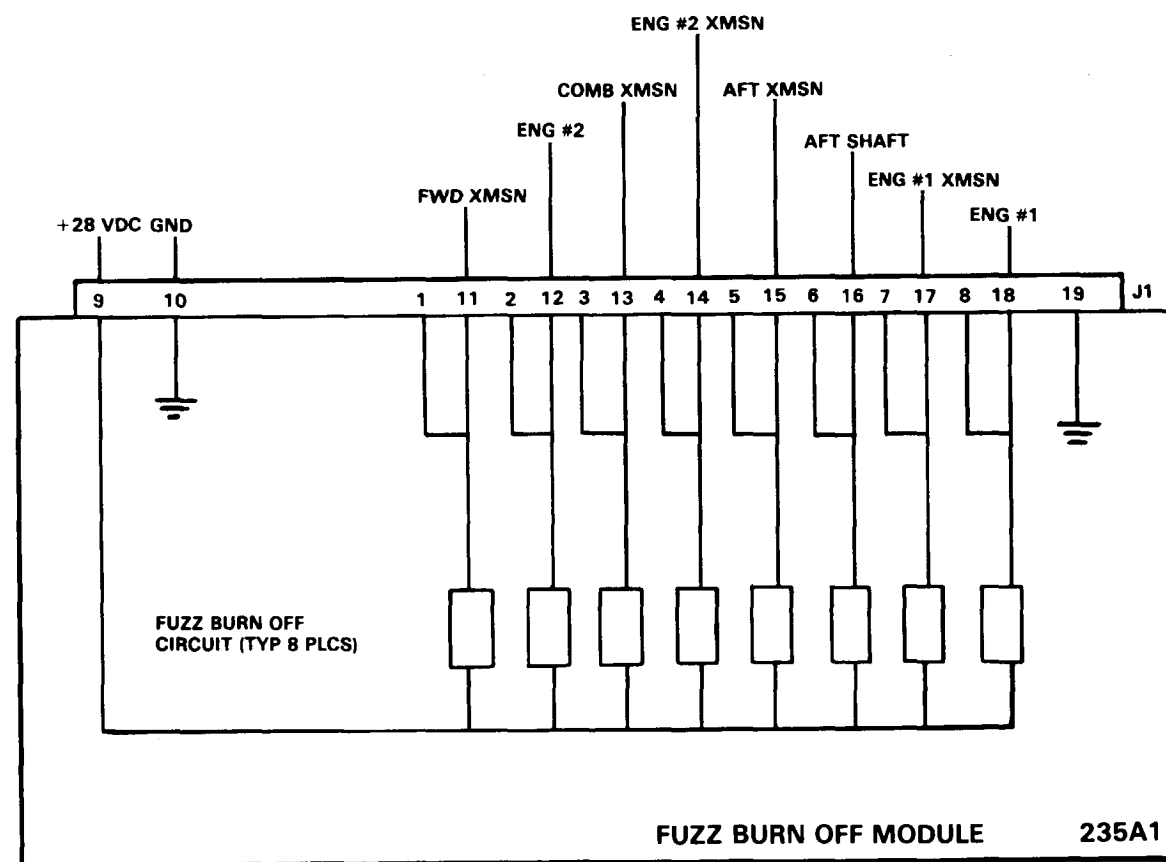
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off





### 6-3 TRANSMISSION CHIP DETECTOR FUZZ BURN OFF MODULE



22401

6-3.2 TRANSMISSION CHIP DETECTOR FUZZ BURN OFF MODULE VISUAL CHECK

6-3.2

INITIAL SETUP

**Applicable Configurations:**  
With 37

**Tools:**  
None

**Materials:**  
None

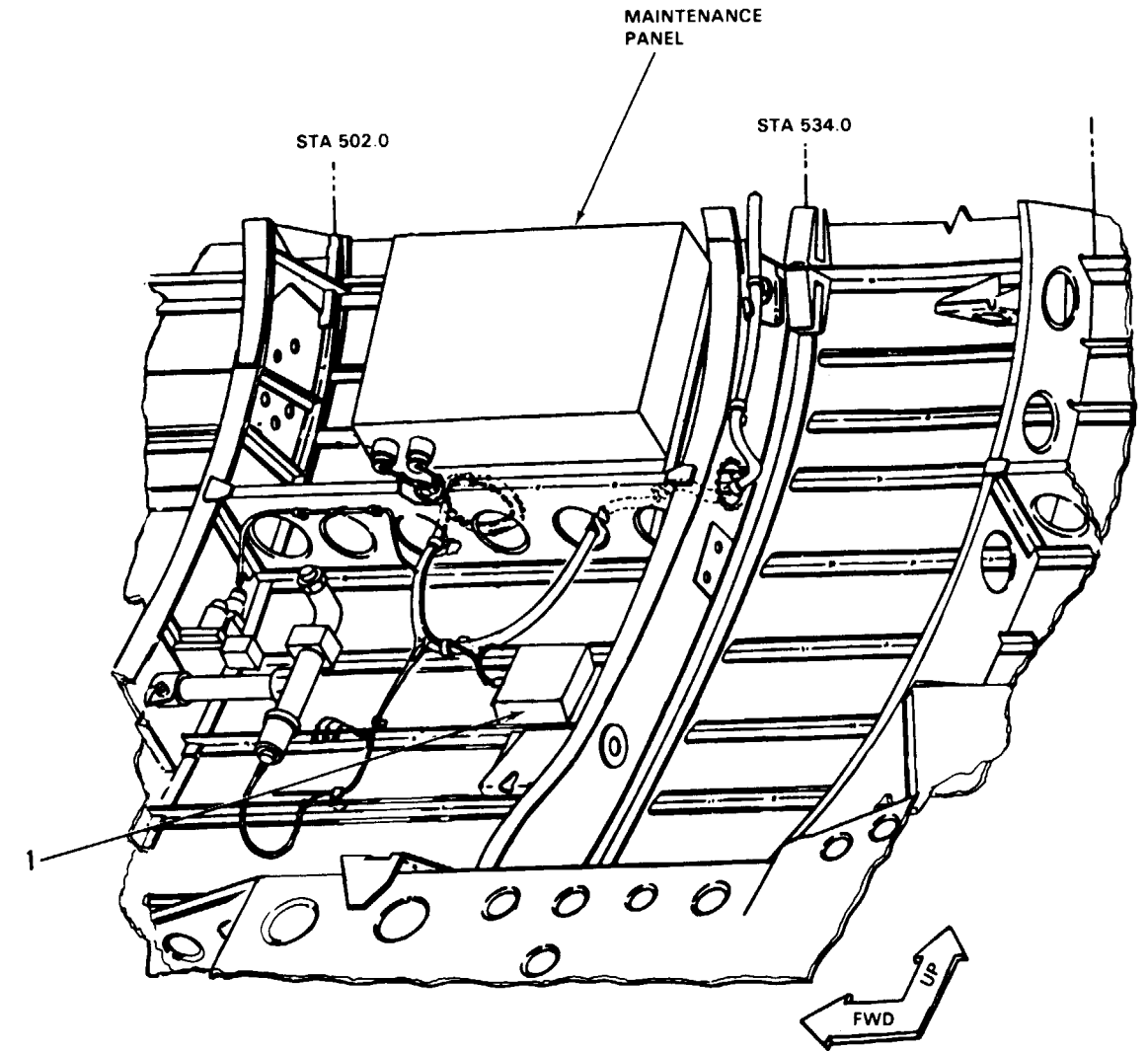
**Personnel Required:**  
Medium Helicopter Repairer

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

TASK	RESULT
<p><b>WITH 37</b></p> <p>1. Check chip detector fuzz burn off module (1).</p>	<p>If module (1) is loose or damaged, tighten or replace it. If wiring or connector to module is loose or damaged, repair or replace it as required.</p>

FOLLOW-ON MAINTENANCE:  
None



WITH 37

19944

INITIAL SETUP

Applicable Configurations:

With 37

Tools:

- Test Set, Chip Detector Fuzz Burn Off
- TE 145-02-5400-1 (Appx E, E-266)
- Multimeter

Materials:

None

Personnel Required:

Aircraft Electrician

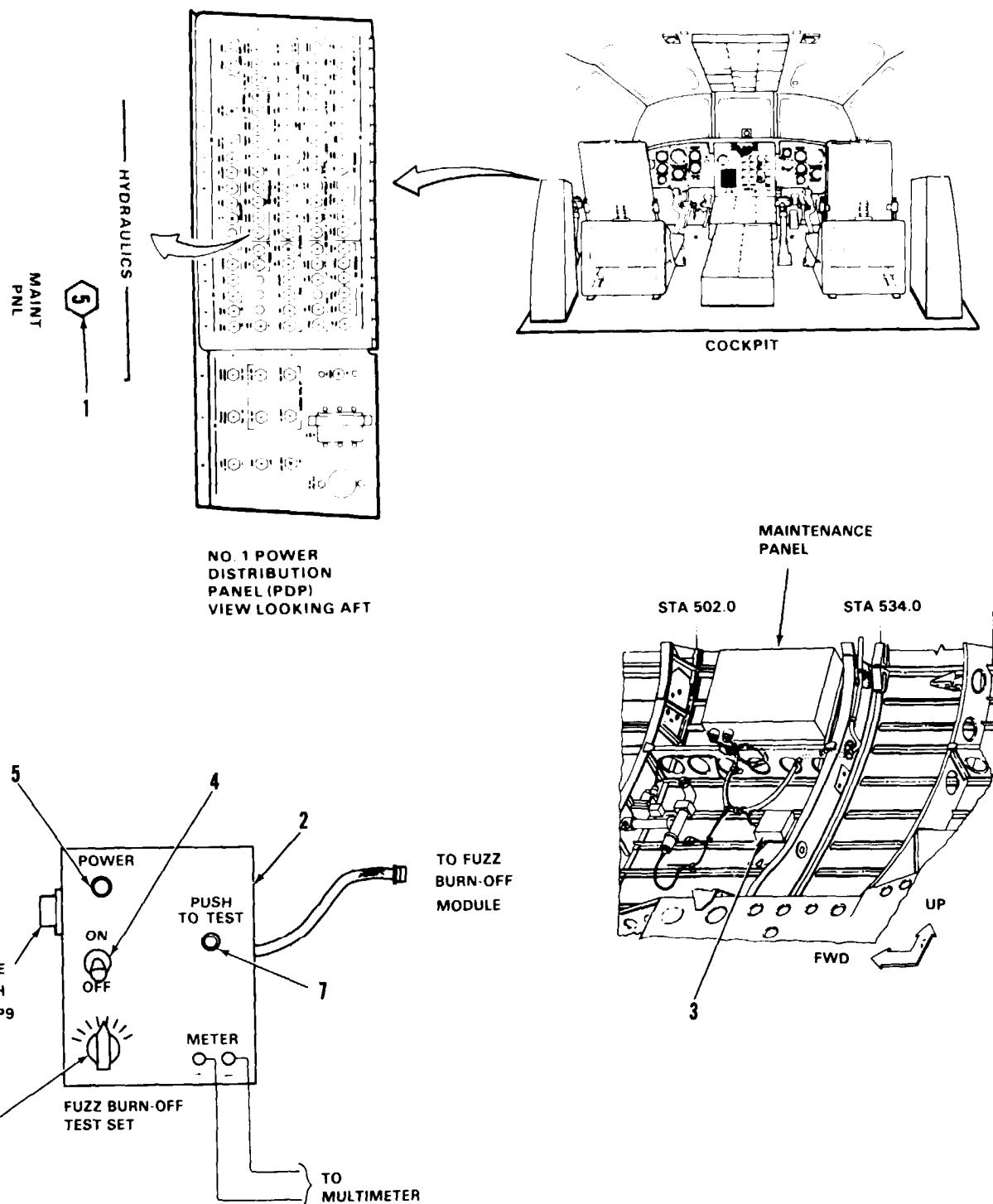
References:

TM 55-1520-240-23

Equipment Condition:

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On

TASK	RESULT
1. Disconnect plug 235P9 from fuzz burn-off module.	
2. Connect fuzz bum-off test set (2) to fuzz burn-off module (3). Connect plug 235P9 to fuzz burn-off test set.	
3. Check That MAINT PNL circuit breaker (1) is closed.	If MAINT PNL circuit breaker (1) is open, close it. If it opens again, go to Task 8-14.4.
<b>NOTE</b>	
When the fuzz burn off test set is plugged in, the latch TEST/RESET switch is disabled.	
4. Connect multimeter to fuzz bum-off test set (2). Adjust multimeter to 50VDC scale.	
5. Turn test set ON/OFF switch (4) to ON.	Test set POWER light (5) shall come on. If it does not, go to Task 6-3.4.
6. Adjust fuzz burn-off test set selector switch (6) to FWD XMSN.	Multimeter shall read above 24VDC. If it does not, repair or replace test set as required.
7. Press and release fuzz burn-off test set TEST switch (7).	Multimeter reading shall drop below 14VDC and return to original reading. If it does not, repair or replace fuzz burn off module (3) as required. Verify that corresponding latch indicator trips (black/white).
8. Repeat steps 6 and 7 for each selector switch position on fuzz burn-off test set.	Results should be the same for steps 6 and 7 at each selector switch position on the test set.
<b>NOTE</b>	
Wait at least seven seconds before repeating test on any one selector switch position.	
9. Turn test set ON/OFF switch (4) to OFF. Open MAINT PNL circuit breaker (1). Disconnect multimeter from fuzz burn-off test set (2).	
10. Disconnect fuzz burn-off test set. Connect plug 235P9 to fuzz burn-off module (3).	
11. Close MAINT PNL circuit breaker (1).	
12. Set GND RESET/TEST switch on maintenance panel at sta 516 to RESET.	Indicator reset (black/white).



22402

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Battery disconnected.
- Electrical power off.

END OF TASK



6-3.4 CHIP DETECTOR FUZZ BURN OFF TEST SET POWER LIGHT DOES NOT COME ON

INITIAL SETUP

**Applicable Configurations:**

With 37

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

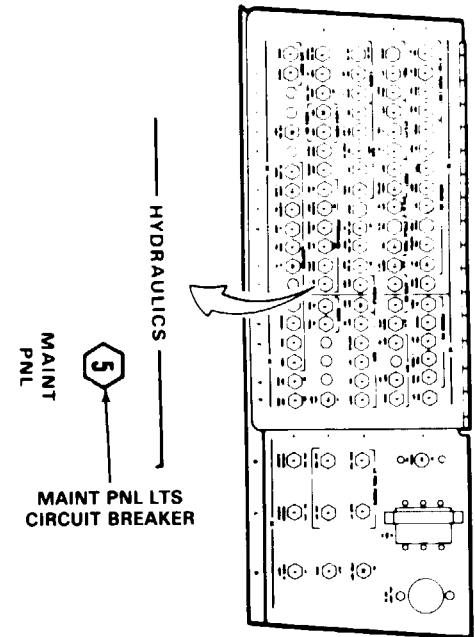
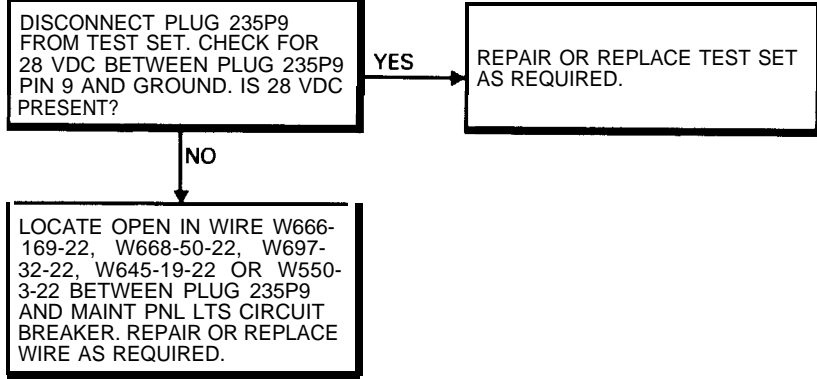
Aircraft Electrician

**References:**

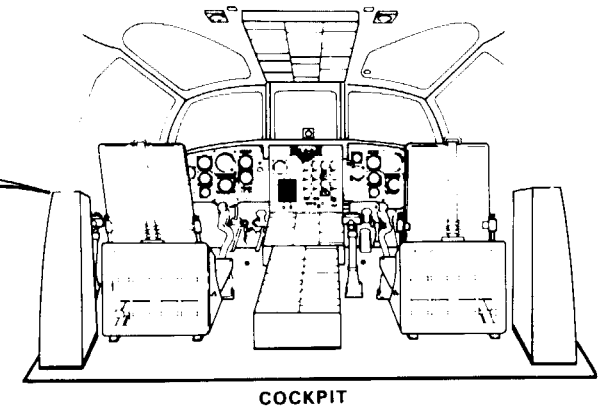
TM 55-1520-240-23

**Equipment Condition:**

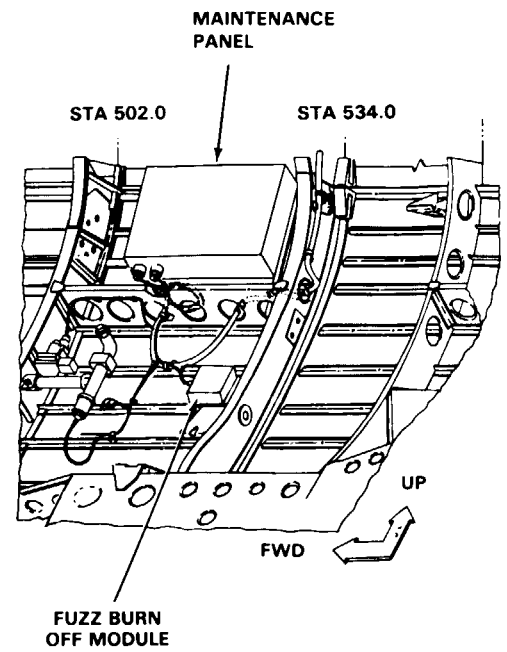
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



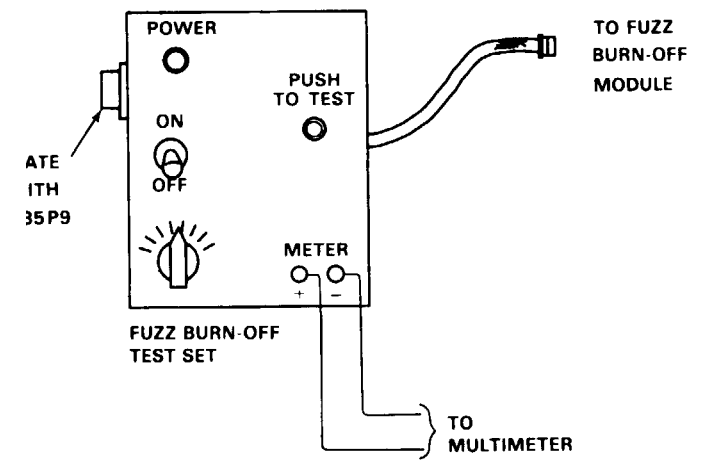
NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



COCKPIT



FUZZ BURN OFF MODULE



FUZZ BURN-OFF TEST SET

## CHAPTER 7

# HYDRAULIC "AIRFRAME" SYSTEMS TROUBLESHOOTING

**CHAPTER 7  
HYDRAULIC "AIRFRAME" SYSTEMS TROUBLESHOOTING  
CHAPTER OVERVIEW**

Chapter 7 contains procedures for Hydraulic "AIRFRAME" Systems troubleshooting. Each hydraulic "AIRFRAME" system and its failure symptoms is listed below. Included in this chapter are locations and views of all electrical connectors, receptacles, relays, and ground connections for the Hydraulic Systems. Refer to TM 55-1520-240-23 for required maintenance procedures.

SYSTEM	PARA	SYSTEM	PARA
FLIGHT CONTROL HYDRAULIC SYSTEM	7-1	ENGINE HYDRAULIC STARTING SYSTEM	7-7
UTILITY HYDRAULIC SYSTEM	7-2	APU HYDRAULIC STARTING SYSTEM	7-8
CARGO RAMP AND DOOR	7-3	INTEGRATED LOWER CONTROL ACTUATOR (ILCA)	7-9
SWIVEL LOCKS SYSTEM	7-4	HYDRAULIC HANDPUMP	7-10
POWER STEERING SYSTEM	7-5		
WHEEL BRAKES SYSTEM	7-6		

**FAILURE SYMPTOM LIST  
FLIGHT CONTROL HYDRAULIC SYSTEM**

SYMPTOM	TASK	SYMPTOM	TASK	SYMPTOM	TASK
FLIGHT CONTROL NO. 1 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON	7-1.4	ILCA JAM SENSOR BUTTON EXTENDED	7-1.4	NO. 1 OR NO. 2 PUMP FAULT LIGHT IS ON	7-1.4
FLIGHT CONTROL NO. 2 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON	7-1.4	INDICATING BUTTON ON FLIGHT CONTROL HYDRAULIC PRESSURE OR RETURN FILTER IS EXTENDED	7-1.4	NO. 1 OR NO. 2 PUMP FAULT OR FILTER CHANGE LIGHTS DO NOT COME ON WHEN PRESSED	7-1.4
FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER DOES NOT MOVE WITH FLIGHT CONT SWITCH AT NO. 1 OR NO. 2	7-1.4	NO. 1 HYD FLT CONTR CAPSULE (WITHOUT 74) OR HYD 1 (WITH 74) DOES NOT COME ON WHEN FLIGHT CONTROL SWITCH SET TO NO. 2 ON	7-1.4	NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 2 (WITH 74) CAPSULE DOES NOT COME ON WHEN FLIGHT CONTROL SWITCH SET TO NO. 1 ON	7-1.4
HYDRAULICS FLIGHT CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4	NO. 1 HYDRAULIC COOLING BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4	NO. 2 HYDRAULIC COOLING BLOWER CIRCUIT BREAKER DOES NOT STAY CLOSED	7-1.4
HYDRAULICS FLIGHT CONT NO. 1 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C	7-1.4	NO. 1 HYD FLT CONTR (WITHOUT 74) OR HYD 1 (WITH 74) CAPSULE COMES ON WHEN NO. 2 SYSTEM DEPRESSED THEN SELECTED	7-1.4	NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 2 (WITH 74) CAPSULE COMES ON WHEN NO. 1 SYSTEM DEPRESSED THEN SELECTED	7-1.4
HYDRAULICS FLIGHT CONTROL NO. 2 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C	7-1.4	NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE IS OUT WHEN SYSTEM NOT PRESSURIZED	7-1.4	PIVOTING OR SWIVELING SERVO CYLINDER JAM SENSOR BUTTON EXTENDED	7-1.4
HYDRAULICS NO. 1 BLOWER CONT CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4				
HYDRAULIC NO. 2 BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-1.4				

**FAILURE SYMPTOM LIST  
UTILITY HYDRAULIC SYSTEM**

SYMPTOM	TASK
APU OR UT PUMP FAULT LIGHT IS ON	7-2.4
HYDRAULICS OIL LEVEL CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
HYDRAULIC PWR XFR CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
HYDRAULICS UTILITY BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
NO. 1 AND NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 AND HYD 2 (WITH 74) CAPSULES ON WITH POWER XFR SWITCHES ON	7-2.4
NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE IS ON, SYSTEM PRESSURIZED	7-2.4

SYMPTOM	TASK
CARGO DOOR DOES NOT EXTEND	7-3.4
CARGO DOOR DOES NOT RETRACT	7-3.4
RAMP CONTINUES TO CLOSE AS CARGO DOOR IS EXTENDING	7-3.4

SYMPTOM	TASK
RAMP CONTROL VALVE DOES NOT OPERATE AS SELECTED FROM RAMP EMER SWITCH	7-3.4.1
RAMP CONTROL VALVE SOLENOIDS DO NOT ENGAGE AND RAMP CONTROL VALVE HANDLE IS NOT RESTRICTED IN STOP POSITION WHEN RAMP PWR SWITCH IS SET TO EMERG	7-3.4.1

SYMPTOM	TASK
BRAKE STEER CIRCUIT BREAKER DOES NOT STAY CLOSED	7-4.4
LEFT RIGHT, OR BOTH AFT LANDING GEAR NOT LOCKED	7-4.4

7-2.2 Change 17

SYMPTOM	TASK
NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE COMES ON WHEN COCKPIT CONTROLS ARE MOVED	7-2.4
NO. 1 OR NO. 2 HYD FLT CONTR (WITHOUT 74) OR HYD 1 OR HYD 2 (WITH 74) CAPSULE IS ON WITH POWER XFR SWITCHES ON	7-2.4
PTU PRESSURE LINE PRESSURIZED WHEN ITS SYSTEM CONTROLS ARE TURNED OFF	7-2.4
UTIL HYDRAULIC COOLING BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED	7-2.4
UTILITY HYDRAULIC SYSTEM CAPSULE DOES NOT GO OUT OR PRESSURE INDICATION IS NOT BETWEEN 3200 AND 3500 PSI WITH APU RUNNING	7-2.4

**CARGO RAMP AND DOOR**

SYMPTOM	TASK
RAMP CREEPS WITH RAMP CONTROL VALVE HANDLE AT STOP	7-3.4
RAMP DOES NOT MOVE DOWN (RAMP IN CLOSED POSITION)	7-3.4

**EMERGENCY CARGO RAMP AND DOOR  
EXTENSION SYSTEM (WITH 65)**

SYMPTOM	TASK
RAMP EMERG CONT CIRCUIT BREAKER DOES NOT STAY CLOSED	7-3.4.

**SWIVEL LOCKS SYSTEM**

SYMPTOM	TASK
SWIVEL LOCKS, POWER STEERING, AND WHEEL BRAKES CANNOT BE ISOLATED FROM UTILITY SYSTEM	7-4.4

SYMPTOM	TASK
UTIL HYDRAULIC SYSTEM CAPSULE OUT WHEN SYSTEM NOT PRESSURIZED	7-2.4
UTILITY HYDRAULICS TEMPERATURE INDICATOR EXCEEDS 95°C	7-2.4
UTILITY PRESS FILTER, UTILITY RTN FILTER, APU PUMP FAULT OR UT PUMP FAULT LIGHT DOES NOT COME ON WHEN PRESSED	7-2.4
UTILITY PRESS OR UTILITY RTN FILTER CHANGE LIGHT IS ON	7-2.4
UTILITY RESERVOIR LEVEL INDICATOR POINTER DOES NOT INDICATE FLUID LEVEL	7-2.4

SYMPTOM	TASK
RAMP DOES NOT MOVE UP	7-3.4
RAMP MOVES WITH RAMP SWITCH AT OFF	7-3.4
UTIL SYS CONT CIRCUIT BREAKER DOES NOT STAY CLOSED	7-3.4

**FAILURE SYMPTOM LIST (Continued)**

**POWER STEERING SYSTEM**

<b>SYMPTOM</b>	<b>TASK</b>
AFT RIGHT WHEEL DOES NOT MOVE WHEN STEERING CONTROL KNOB IS ROTATED IN EITHER DIRECTION	7-5.4

<b>SYMPTOM</b>	<b>TASK</b>
AFT RIGHT WHEEL DOES NOT RETURN TO NEUTRAL	7-5.4
POWER STEERING CAUTION LIGHT DOES NOT COME ON	7-5.4

<b>SYMPTOM</b>	<b>TASK</b>
POWER STEERING CAUTION LIGHT WILL NOT GO OUT	7-5.4
POWER STEERING/SWIVEL LOCK MODULE DOES NOT MAINTAIN PRESSURE WITH APU OFF	7-5.4

**WHEEL BRAKES SYSTEM**

BRAKE PRESSURE BLEEDS DOWN WITHIN 8 HOURS WITH PARKING BRAKE ON	7-6.3
BRAKES WILL NOT RELEASE	7-6.3
ONE OR MORE WHEEL BRAKES WILL NOT RELEASE, WHEELS DO NOT TURN FREELY	7-6.3

PARK BRAKE ON CAUTION LIGHT DOES NOT COME ON	7-6.3
PARK BRAKE ON CAUTION LIGHT WILL NOT GO OUT	7-6.3
PARKING BRAKE HANDLE WILL NOT LOCK	7-6.3

RIGHT OR LEFT BRAKES DO NOT COME ON WHEN COPILOT'S BRAKE PEDALS ARE PRESSED	7-6.3
RIGHT OR LEFT BRAKES DO NOT COME ON WHEN PILOT'S BRAKE PEDALS ARE PRESSED	7-6.3
UNABLE TO APPLY BRAKES THREE TIMES ON BRAKE ACCUMULATOR PRESSURE	7-6.3

**ENGINE HYDRAULIC STARTING SYSTEM**

NOTE: REFER TO TASK 15-5

**APU HYDRAULIC STARTING SYSTEM**

NOTE: REFER TO TASK 15-4

**FAILURE SYMPTOM LIST (Continued)**

**INTEGRATED LOWER CONTROL ACTUATOR (ILCA)**

SYMPTOM	TASK
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 1 OR TEST 2 (EXTENSIBLE LINK TRANSDUCER NULL VOLTAGE TEST (SPARE))	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 3 (CROSS EXTENSIBLE LINK TRANSDUCER NULL VOLTAGE TEST (SPARE))	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 4, 5, 7, 11, 13	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 6 (EXTENSIBLE LINK AUTHORITY TEST (SPARE))	7-9.2

SYMPTOM	TASK
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 8 (STABILITY TEST (SPARE))	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 9 (EXTENSIBLE LINK CENTERING SPRINGS TEST (SPARE))	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 10 (PROOF PRESSURE TEST (ALL))	7-9.2

SYMPTOM	TASK
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 12 (VALVE JAM INDICATOR TEST (ALL))	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 14 (RELIEF VALVE TEST (ALL))	7-9.2
INTEGRATED LOWER CONTROL ACTUATOR (ILCA) FAILS TEST 15 OR TEST 16	7-9.2

**HYDRAULIC HANDPUMP**

HYDRAULIC HANDPUMP FAILS INTEGRITY PRESSURE TEST OR INTERNAL LEAKAGE TEST	7-10.2
HYDRAULIC HANDPUMP FAILS PRESSURE ADJUSTMENT TEST	7-10.3
HYDRAULIC HANDPUMP FAILS HANDLE FORCE TEST	7-10.4
HYDRAULIC HANDPUMP FAILS FLUID DISPLACEMENT TEST	7-10.5

HYDRAULIC SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST

REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION			REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION			
				FS	WL	BL					FS	WL	BL	
GD005		150	CONSOLE, FWD CTR INST PNL											
GD009		150	CONSOLE, FWD CTR INST PNL				135P3	M83723-95A08036	29	LH AFT, RAMP SOL. VALVE	534	62	15L	
GD034		150	COCKPIT	61	40	10L	135P4	M83723-95A10056	30	LH AFT, UT PRESS CONT MOD	534	50	15L	
GD065		151	PYLON	534	79	12L	135P5	M83723-95A08036	29	LH AFT, UT PRESS CONT MOD	534	50	15L	
GD069		151	PYLON	520	122	12L	137P1	MS3476W14-15S	19	RH AFT	482	-36	49R	
GD070		151	PYLON	534	79	12L	137P2	MS3476W16-23S	23	CONSOLE, PWR STRG CONT BOX				
GD071		151	CABIN, OVHD	140	50	0	137P3	M83723-95A0803N	29	RH AFT	494	20	50R	
GD072		151	LH CABIN	130	50	20L	137P4	M83723-95A0803N	29	RH AFT, PWR STRG & SWVL LK MOD	482	20	50R	
GD073		151	PYLON	520	122	12L	137P5	M83723-95A08037	29	LH AFT, UTLTY PRESS CONT MOD	534	62	15L	
GD077		151	CABIN, OVHD	140	50	0	137J6	MS3474W14-19S	21	HEATER COMPARTMENT	105	20	50R	
GD078		151	PYLON	534	79	0	137P6	MS3476W14-19P	21	HEATER COMPARTMENT	105	20	50R	
G0112		151	LH AFT	528	45	20L	140P1	M83723-95A1005N	30	FWD XMSN AREA, NO. 1 BLD MOT	120	80	0	
GD116		151	CABIN, OVHD	534	55	16L	140P2	M83723-95A0803N	29	FWD XMSN AREA, NO. 1 THRM SW	170	60	12R	
GD117		151	CABIN, OVHD	140	50	0	140P3	M83723-95A1407N	33	PYLON, UTILITY BLOWER	505	115	0	
GD120		151	RH AFT	492	50	20R	140P4	M83723-95A0803N	29	PYLON, UTILITY THERM SW	502	76	0	
GD123		151	RH AFT	482	-5	50R	140P5	M83723-95A1005N	30	PYLON, NO. 2 BLD MOT	518	114	12L	
GD287		151	PYLON	515	72	12L	140P6	M83723-95A0803N	29	PYLON, NO. 2 THRM SW	510	80	12L	
GD288		151	PYLON	520	72	12R	140J7	MS3474W16-8S	22	LH CABIN	170	-5	50L	
GD365		151	RH AFT CABIN (WITH 65)	490	-8	55R	140P7	MS3476W16-8P	22	LH CABIN	170	-5	50L	
135K1		103	COCKPIT, OVHD	61	40	24R	140J8	MS3474W16-8P	22	LH CABIN	460	45	20L	
137K1		106	CONSOLE, FWD CTR INST PNL				140P8	MS3476W16-8S	22	LH CABIN	460	45	20L	
140K1		103	LH CABIN, OVHD	130	45	20L	140J9	MS3474W16-8P	22	PYLON, WL 72 DISC	530	72	18L	
140K2		113	PYLON	534	90	15L	140P9	MS3476W16-8S	22	PYLON, WL 72 DISC	530	72	18L	
140K3		108	PYLON	534	85	15L	141P1	M83723-95A1005N	30	PYLON, UTILITY RSVR COOLER	518	76	12R	
TB17			WALKWAY, UNDERFLOOR	105	-30	18R	141P2	M83723-95A1005N	30	PYLON, NO. 2 RSVR CLR	520	80	12L	
TB36			OVHD PNL, COCKPIT				141P3	M83723-95A1005N	30	FWD XMSN AREA, NO. 1 RSVR CLR	140	70	0	
TB37			OVHD PNL, COCKPIT				143P1	M83723-95A1005N	30	FWD XMSN AREA, FLTR, DIFF PRESS SW	130	60	0	
THE FOLLOWING TB'S ARE LOCATED IN MAINTENANCE PANEL 146A3				510	30	50R	143P2	M83723-95A1005N	30	FWD XMSN AREA, FLTR, DIFF RTN SW	130	60	0	
TB1							143P3	M83723-95A1005N	30	PYLON, FLTR, DIFF PRESS SW	520	80	20R	
TB3							143P4	M83723-95A1005N	30	PYLON, FILTER, DIFF RTN SW	527	80	20R	
TB4							143P5	M83723-95A1005N	30	LH AFT, UTILITY PRESS CONT MOD	534	50	15L	
031P3	MS3476W24-61SX	28	ELECTRONIC COMP, AFCS NO. 1				144P1	M83723-95A08038	29	FWD XMSN AREA, NO. 1 PMP CHG PRESS SW	130	70	SR	
031P4	MS3476W24-61SX	28	ELECTRONICS COMP, AFCS NO. 2											
033P1	M83723-95A08036	29	FWD XMSN AREA, NO. 1 BOOST PRESS, SW	130	70	0	144P2	M83723-95A08038	29	PYLON, NO. 2 PMP CHG PRESS SW	527	80	20R	
033P2	M83723-95A 1005N	30	PYLON, NO. 2 PILOT VALVE	527	80	20R	144P3	M83723-95A08038	29	RH AFT, UTILITY RN CONT MOD	534	50	15R	
033P3	M83723-95A08036	29	PYLON, NO. 2 BOOST PRESS SW	527	80	20R	144P4	M83723-95A08038	29	RH AFT, MAINTENANCE PANEL	534	50	15R	
033P4	M83723-95A1005N	30	FWD XMSN AREA, NO. 1 PILOT VALVE	130	70	0	146J1	MS3474W20-41P	26	RH AFT, MAINTENANCE PANEL	510	25	50R	
135P1	M83723-95A1005N	30	FWD XMSN AREA, NO. 1 PWR XFR	130	50	18R	146J2	MS3474W22-55P	27	RH AFT, UTILITY PRESS CONT MOD	510	25	50R	
135P2	M83723-95A1005N	30	PYLON NO. 2 PWR XFR	518	76	8L	146P6	MS3476W10-6S	15	MAINT PNL, TEMP IND UTILITY	510	30	50R	
							146P9	MS3476W8-33S	14	MAINT PNL, LEVEL IND UTILITY	510	30	50R	
							146P10	MS3476W8-33SW	14	MAINT PNL, HYD RSVR LVL IND	510	30	50R	

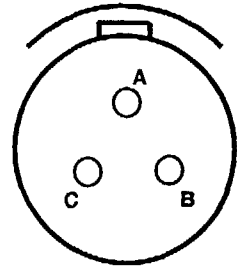
HYDRAULIC SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION			REF DESIG	PART NUMBER	TYPE	MATE WITH/LOCATION	STATION LOCATION		
				FS	WL	BL					FS	WL	BL
146P11	MS3476W12-10S	17	MAINT PNL, SIG COND-A2	510	30	50R	300J24	M83723-74A1831N	37	CONSOLE, UNDERFLOOR DISC			
146P12	MS3476W12-10S	17	MAINT PNL, SIGN CONT-A1	510	30	50R	300P24	M83723-75A1831N	37	CONSOLE, UNDERFLOOR DISC			
153K1	M83726-29-5001P	RELAY	SOCKET 153XK1 (WITH 65)				300P28	MS3476W22-55S	27	MAINTENANCE PANEL-J2	510	25	50R
153P1	MS3476W10-6S	17	MAINT PNL, SIGN CONT-A1 (WITH 65)	490	+4	50R	300P31	MS3476W20-41S	26	MAINTENANCE PANEL-J1	510	25	50R
153XK1	RSE116261	103	OVERHEAD PANEL-COCKPIT (WITH 65)				300J44	M83723-74A2461N	43	PYLON, WL 72 DISC	528	72	18L
232P1	MS3476W20-41S	26	CTR INSTR PNL-MASTER CAUTION PNL (WITHOUT 74)				300P44	M83723-75A2461N	43	PYLON, WL 72 DISC	528	72	18L
232P1	MS3476W22-55S	27	CTR INSTR PNL-MASTER CAUTION PNL (WITH 74)				300J45	M83723-73A2461N	43	HEATER COMPARTMENT	105	40	30R
232P2	MS3476W16-26S	24	CTR INSTR PNL-MASTER CAUTION PNL (WITH 74)				300P45	M83723-76A2461N	43	HEATER COMPARTMENT	105	40	30R
300J1	M83723-74A2041N	40	NO. 1 PDP				300J47	M83723-74A2461N	43	HEATER COMPARTMENT	105	40	30R
300P1	M83723-75A2041N	40	NO. 1 PDP				300P47	M83723-75A2461N	43	HEATER COMPARTMENT	105	40	30R
300J2	M83723-74A2255N	42	NO. 1 PDP				300J48	M83723-74A2461N	43	ELECTRONICS COMPARTMENT	105	40	20L
300P2	M83723-75A2255N	42	NO. 1 PDP				300P48	M83723-75A2461N	43	ELECTRONICS COMPARTMENT	105	40	20L
300J4	M83723-74A2461N	43	NO. 1 PDP				300J50	M83723-73A2461N	43	ELECTRONICS COMPARTMENT	120	40	20L
300P4	M83723-75A2461N	43	NO. 1 PDP				300P50	M83723-76A2461N	43	ELECTRONICS COMPARTMENT	120	40	20L
300J5	M83723-74A2041N	40	NO. 2 PDP				300J51	M83723-74A2461N	43	AFT CROWN-OVHD	460	45	20R
300P5	M83723-75A2041N	40	NO. 2 PDP				300P51	M83723-75A2461N	43	AFT CROWN-OVHD	460	45	20R
300J7	M83723-74A2255N	42	NO. 2 PDP				300J52	M83723-74A2255N	42	AFT CROWN-OVHD	460	45	30L
300P7	M83723-75A2255N	42	NO. 2 PDP				300P52	M83723-75A2255N	42	AFT CROWN-OVHD	460	45	30L
300J17	M83723-74A2255N	42	CONSOLE, UNDER FLOOR DISC (WITHOUT 74)				300J53	M83723-74A2255N	42	AFT CROWN-OVHD	460	45	20R
300J17	M83723-74W2255N	27	CONSOLE, UNDER FLOOR DISC (WITH 74)				300P53	M83723-75A2255N	42	AFT CROWN-OVHD	460	45	20R
300P17	M83723-75A2255N	42	CONSOLE, UNDER FLOOR DISC (WITHOUT 74)				300J54	M83723-74A2461N	43	AFT CROWN-OVHD	460	45	20L
300P17	M83723-75W2255N	27	CONSOLE, UNDER FLOOR DISC (WITH 74)				300P54	M83723-75A2461N	43	AFT CROWN-OVHD	460	45	20L
300J18	M83723-73A2041N	40	OVERHEAD PANEL-COCKPIT				300J58	M83723-73A22558	42	CONSOLE, UNDERFLOOR DISC	85	-20	
300P18	M83723-76A2041N	40	OVERHEAD PANEL-COCKPIT				300P58	M83723-76A22558	42	CONSOLE, UNDERFLOOR DISC	85	-20	
300J19	M83723-73A2041N	40	OVERHEAD PANEL-COCKPIT				300J59	M83723-74A22556	42	CONSOLE, UNDERFLOOR DISC	85	-20	
300P19	M83723-76A2041N	40	OVERHEAD PANEL-COCKPIT				300P59	M83723-75A22556	42	CONSOLE, UNDERFLOOR DISC	85	-20	
300J21	M83723-74A2461N	43	OVERHEAD PANEL-COCKPIT				300J60	M83723-74A22557	42	CONSOLE, UNDERFLOOR DISC	85	-20	
300P21	M83723-75A2461N	43	OVERHEAD PANEL-COCKPIT				300P60	M83723-75A22557	42	CONSOLE, UNDERFLOOR DISC	85	-20	
300J23	M83723-74A2255N	42	OVERHEAD PANEL-COCKPIT				300J61	M83723-73A24619	43	CONSOLE, UNDERFLOOR DISC (WITHOUT 74)	85	-20	
300P23	M83723-75A2255N	42	OVERHEAD PANEL-COCKPIT				300J61	M83723-73W24619	28	CONSOLE, UNDERFLOOR DISC (WITH 74)	85	-20	
							300P61	M83723-76A24619	43	CONSOLE, UNDERFLOOR DISC (WITHOUT 74)	85	-20	
							300P61	M83723-76W24619	28	CONSOLE, UNDERFLOOR DISC (WITH 74)	85	-20	



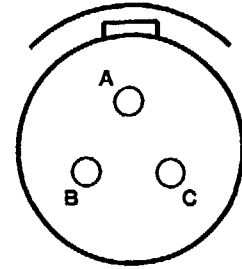
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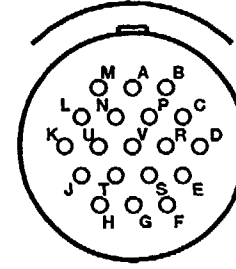
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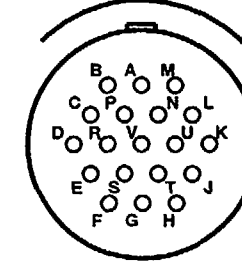
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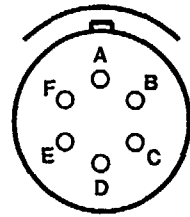


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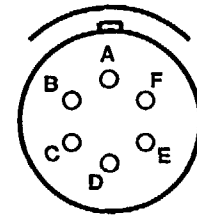
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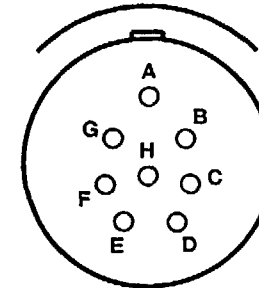
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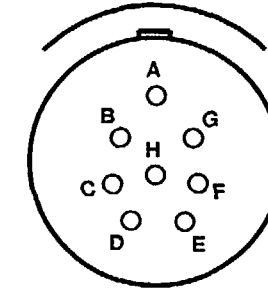
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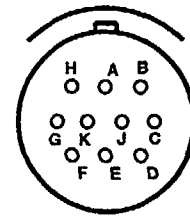
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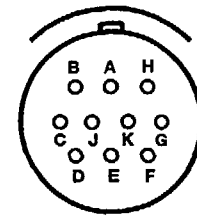
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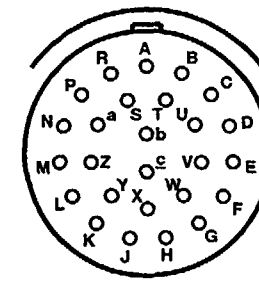
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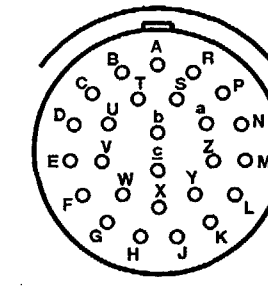
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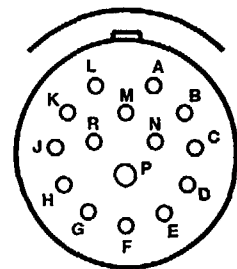
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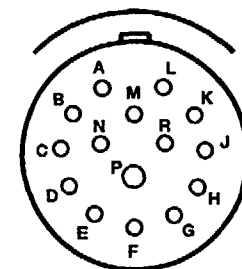
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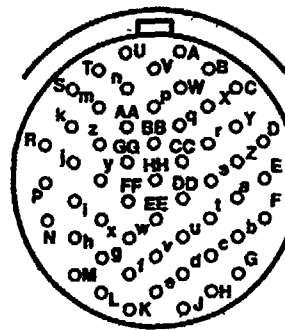
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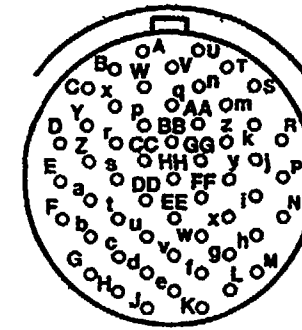
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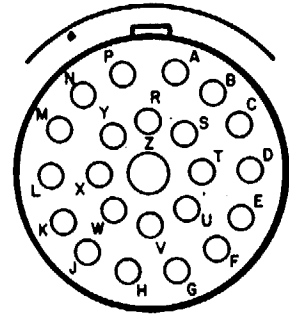


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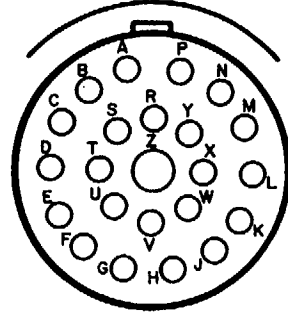
HYDRAULIC SYSTEM ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)

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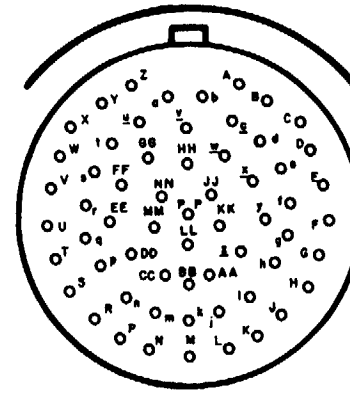
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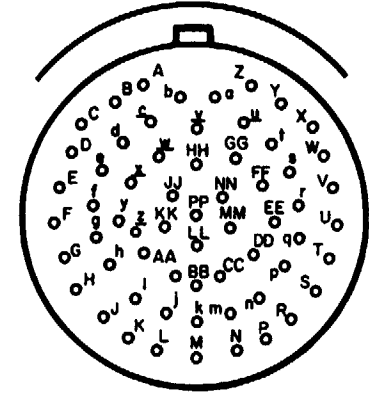
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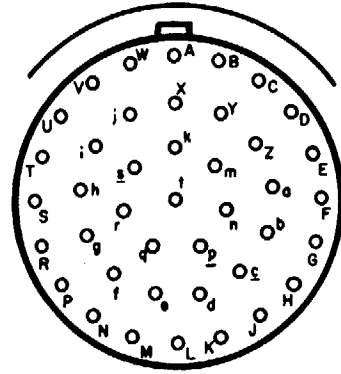


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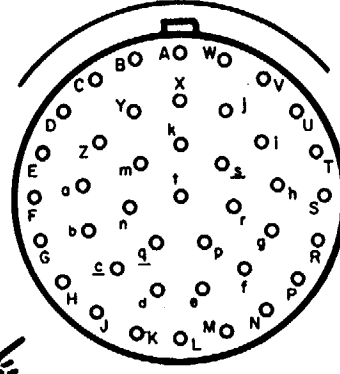
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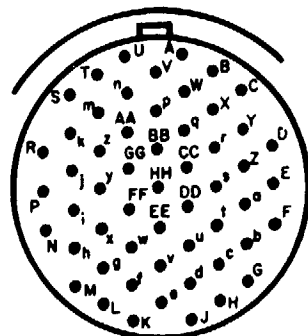
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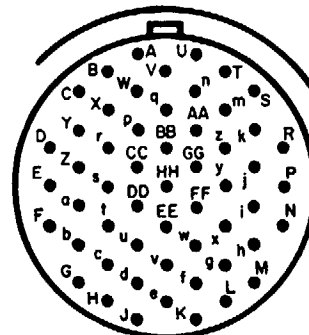
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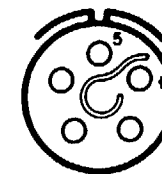
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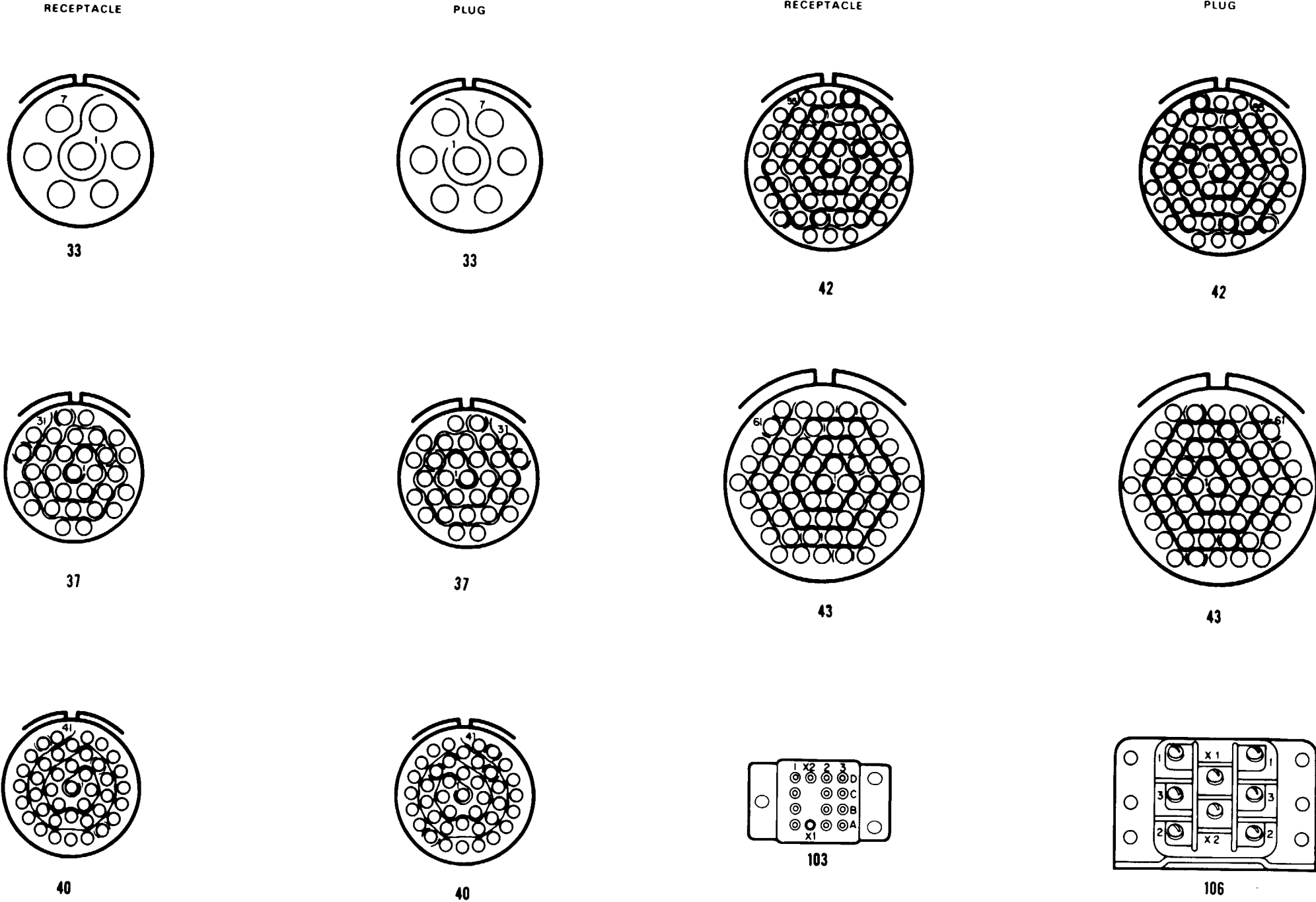


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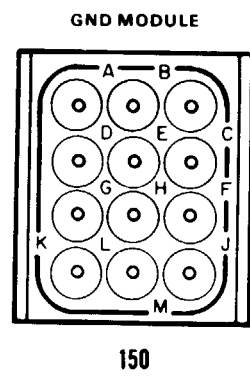
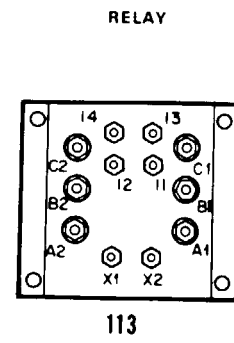
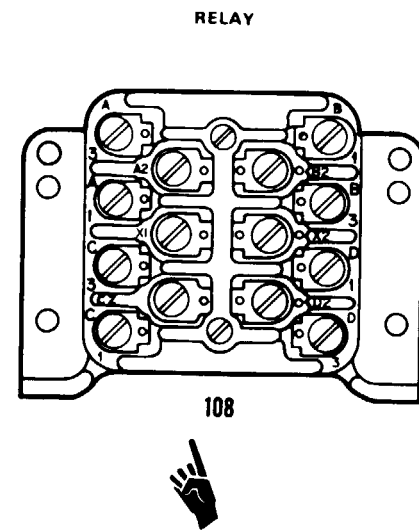


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HYDRAULIC SYSTEMS ELECTRICAL COMPONENT LOCATION AND CONFIGURATION LIST (Continued)



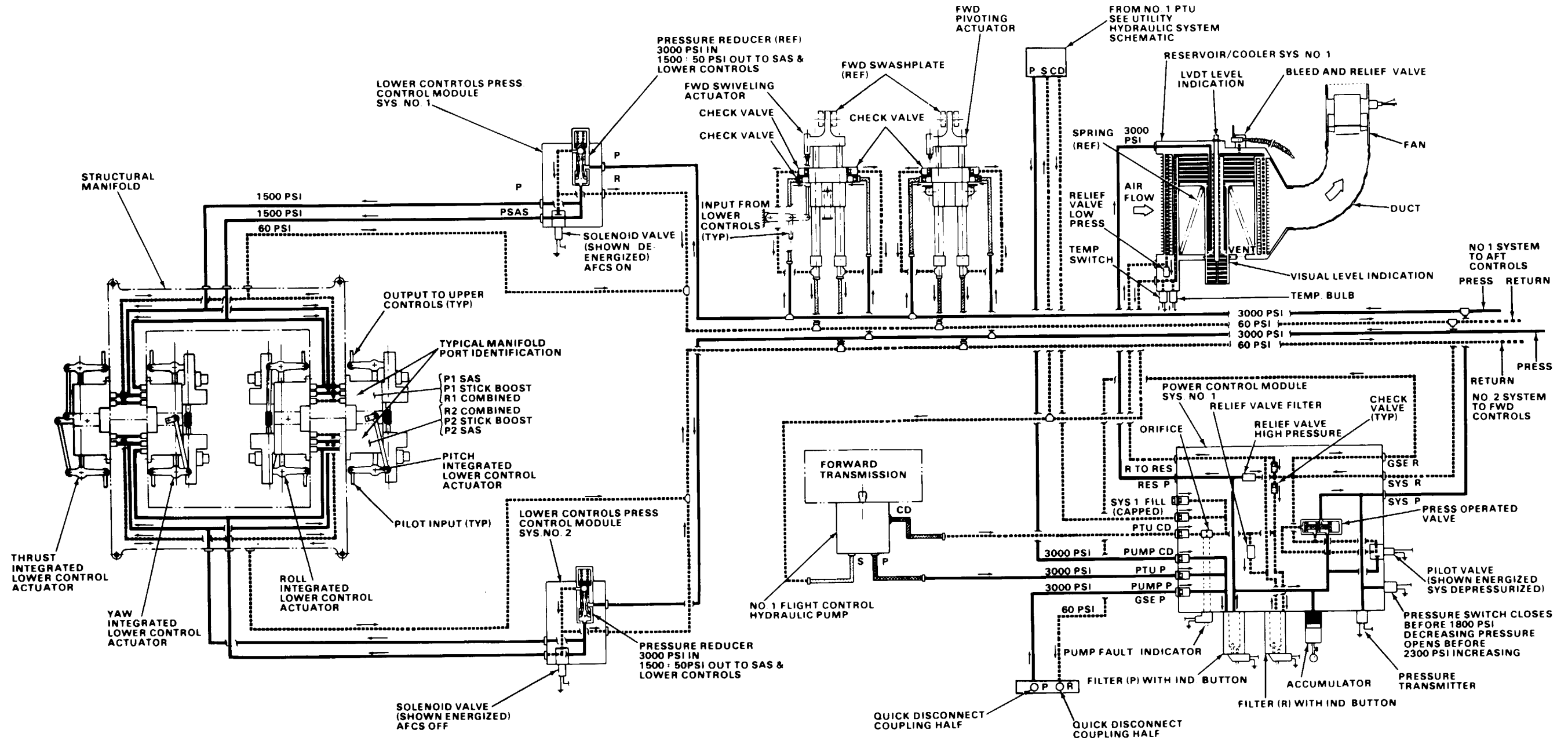
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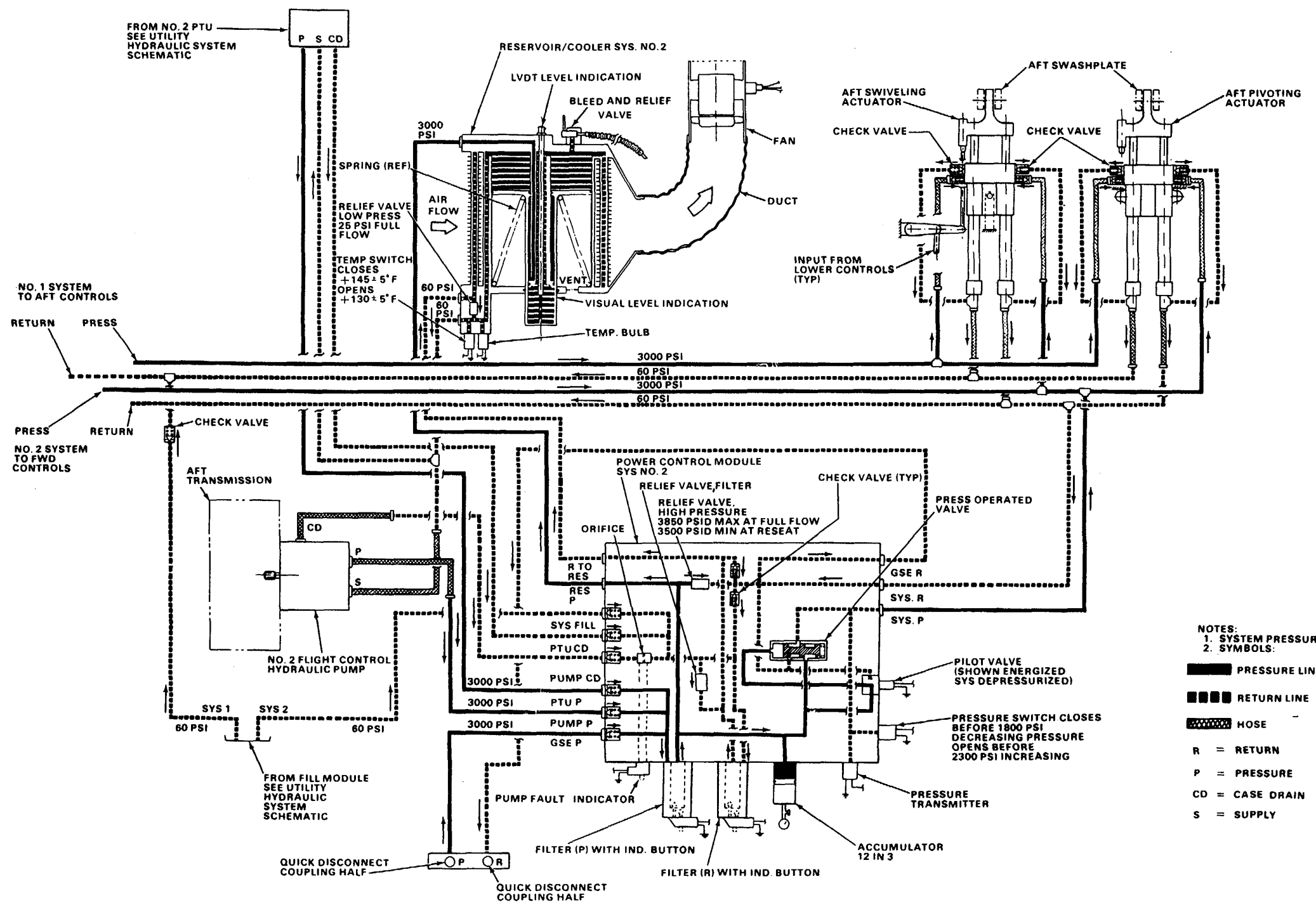


## **7-1 FLIGHT CONTROL HYDRAULIC SYSTEM**

7-1 FLIGHT CONTROL HYDRAULIC SYSTEM

7-1.1 FLIGHT CONTROL HYDRAULIC SYSTEM SCHEMATIC



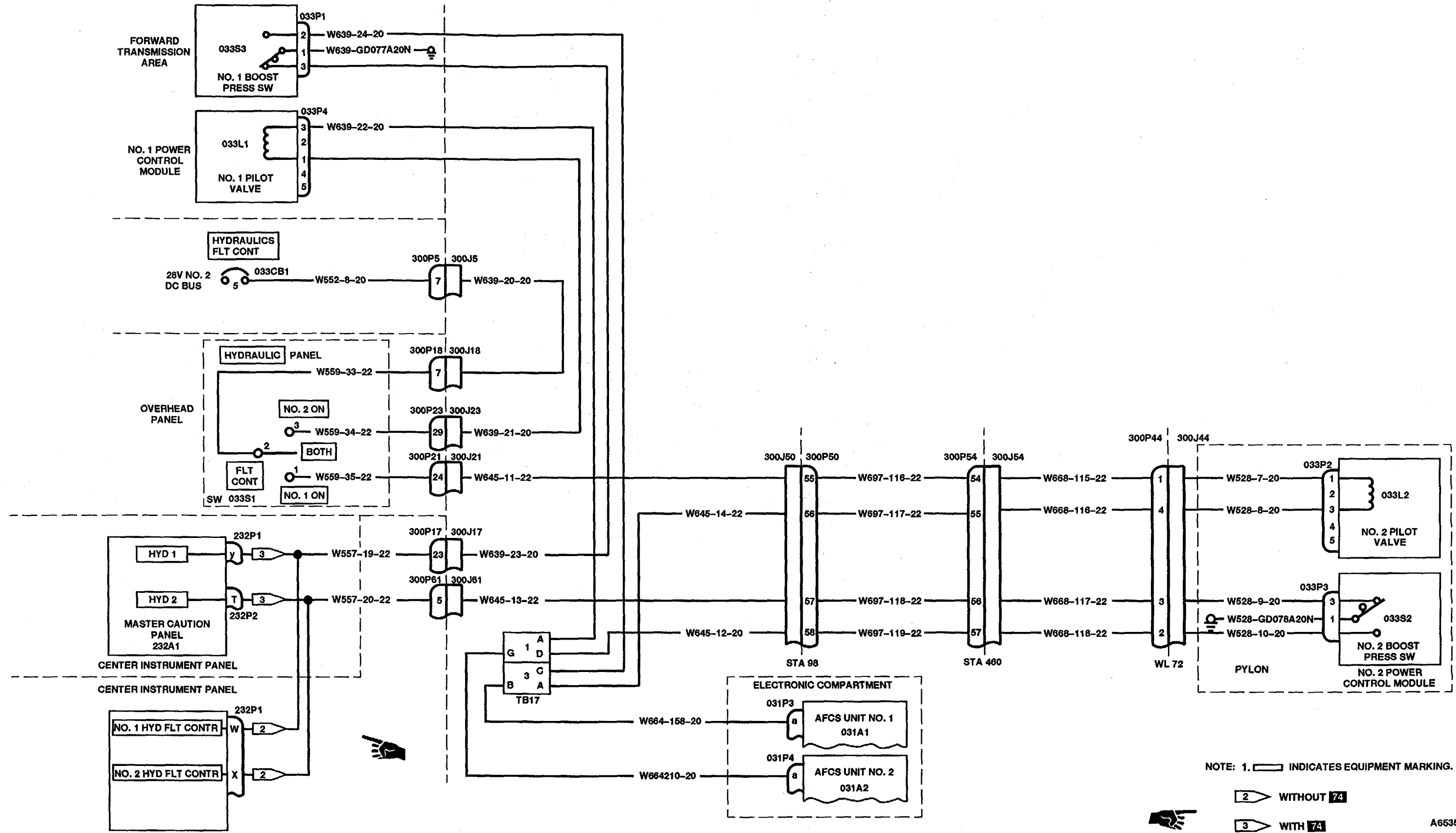


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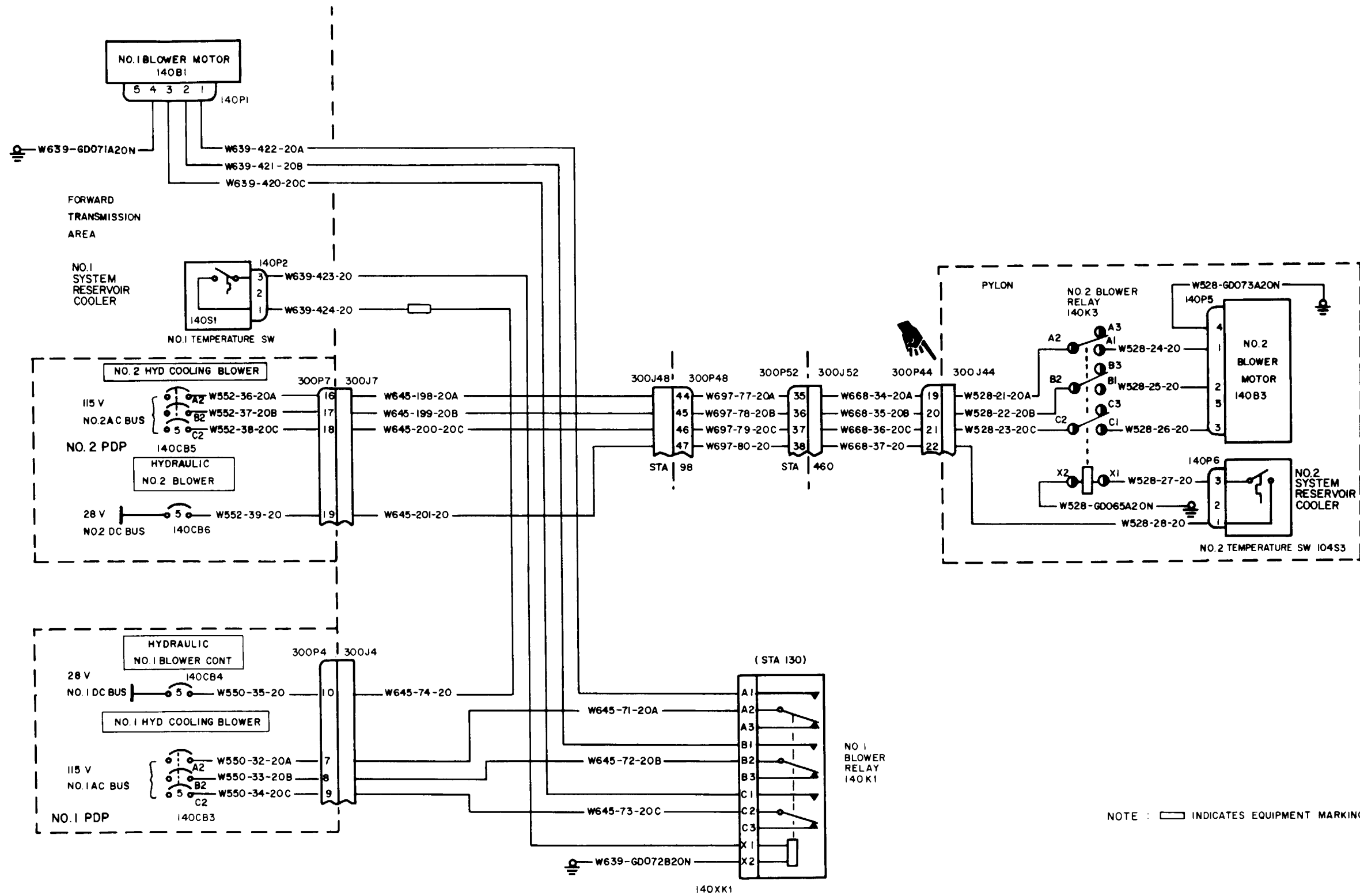
END OF TASK

7-1.2 FLIGHT CONTROL HYDRAULIC SYSTEM WIRING DIAGRAM



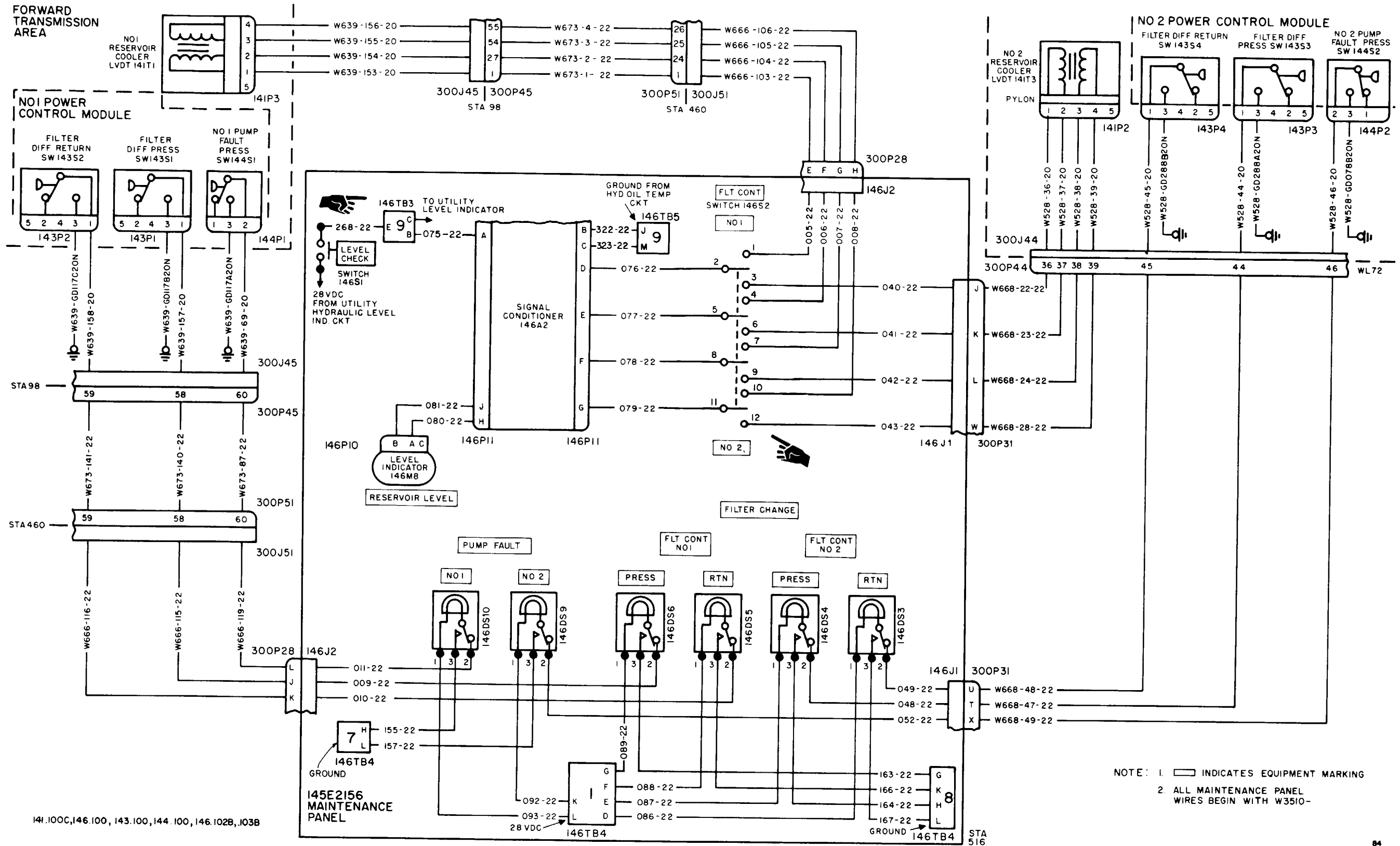
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140XX1



NOTE: 1. INDICATES EQUIPMENT MARKING  
 2. ALL MAINTENANCE PANEL WIRES BEGIN WITH W3510-

7-1.3 FLIGHT CONTROL HYDRAULIC SYSTEM VISUAL CHECK

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

Cloths (E135)

**Personnel Required**

67U10 Medium Helicopter Repairer (2)

**References:**

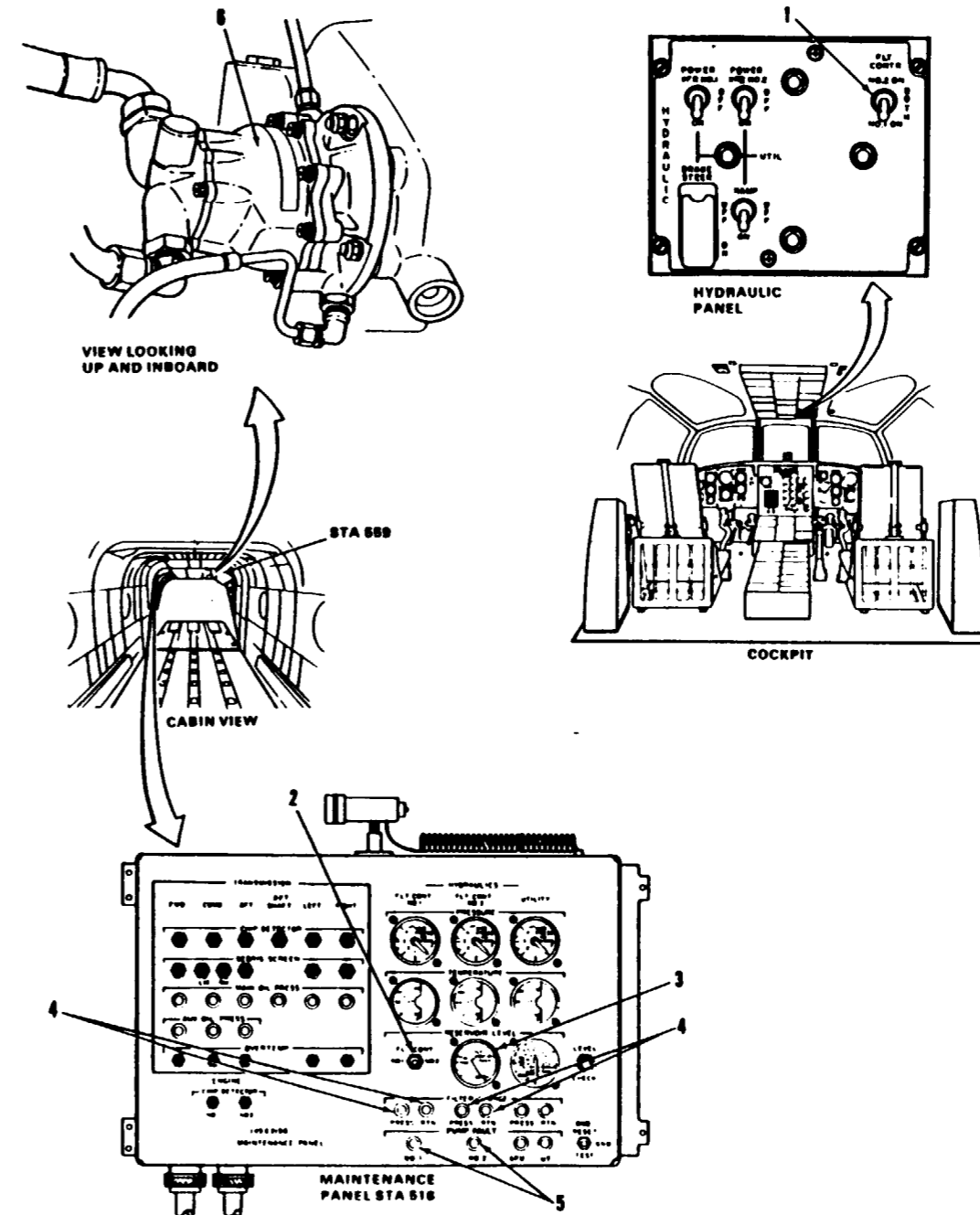
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Forward Transmission Drip Pan Removed
- Left Aft Transmission Access Door Open
- Forward Work Platforms Open
- Pylon Access Doors Open
- Controls Closet Acoustic Blanket Removed
- Controls Closet Panel Open
- Cargo Ramp Open and Level (Task 7-3.4)

TASK	RESULT
1. Check FLT CONTR switch (1).	If switch (1) is loose or damaged, tighten or replace it as required.
2. Check FLT CONT RESERVOIR LEVEL switch (2).	If switch (2) is loose or damaged, tighten or replace it as required.
3. Check FLT CONT RESERVOIR LEVEL indicator (3).	If indicator (3) is loose or damaged, tighten or replace it as required.
4. Check four FILTER CHANGE lights (4).	If any light (4) is damaged, repair or replace it as required.
5. Check two PUMP FAULT lights (5).	If either light (5) is damaged, repair or replace it as required.
6. Check No. 2 flight control hydraulic pump (6).	If pump (6) is loose or damaged, tighten or replace it as required. If any hose to pump is loose or damaged, tighten or replace it as required.



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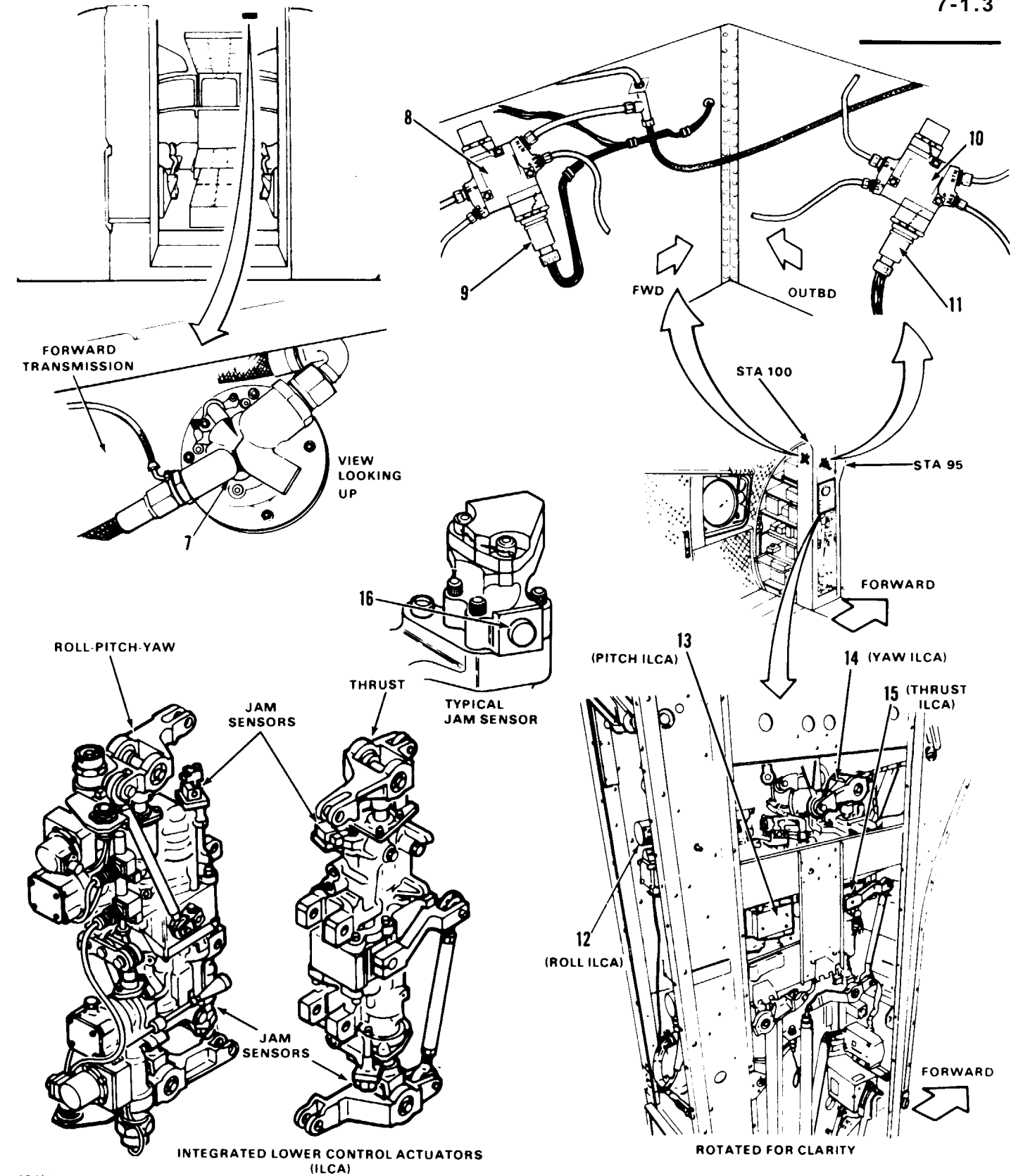
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7-1.3 FLIGHT CONTROL HYDRAULIC SYSTEM VISUAL CHECK (Continued)

7-1.3

TASK	RESULT
7. Check No. 1 flight control hydraulic pump (7).	If pump (7) is loose or damaged, tighten or replace it as required. If any hose to pump is loose or damaged, tighten or replace it as required.
8. Check No. 1 flight control lower controls module (8).	If module (8) is loose or damaged, tighten or replace it as required. If any tube to module is loose or damaged, tighten or replace it as required. If solenoid (9) is damaged, replace it. If connector to solenoid is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.
9. Check No. 2 flight control lower controls module (10).	If module (10) is loose or damaged, tighten or replace it as required. If any tube to module is loose or damaged, tighten or replace it as required. If solenoid (11) is damaged, replace it. If connector to solenoid is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.
10. Check ingrated lower control actuators (12, 13, 14, and 15).	If any actuator (12, 13, 14, or 15) is loose or damaged, tighten or replace it as required.
11. Check two jam sensors on each actuator (12, 13, 14, 15).	If any jam sensor button (16) is extended, go to task 7-1.5.



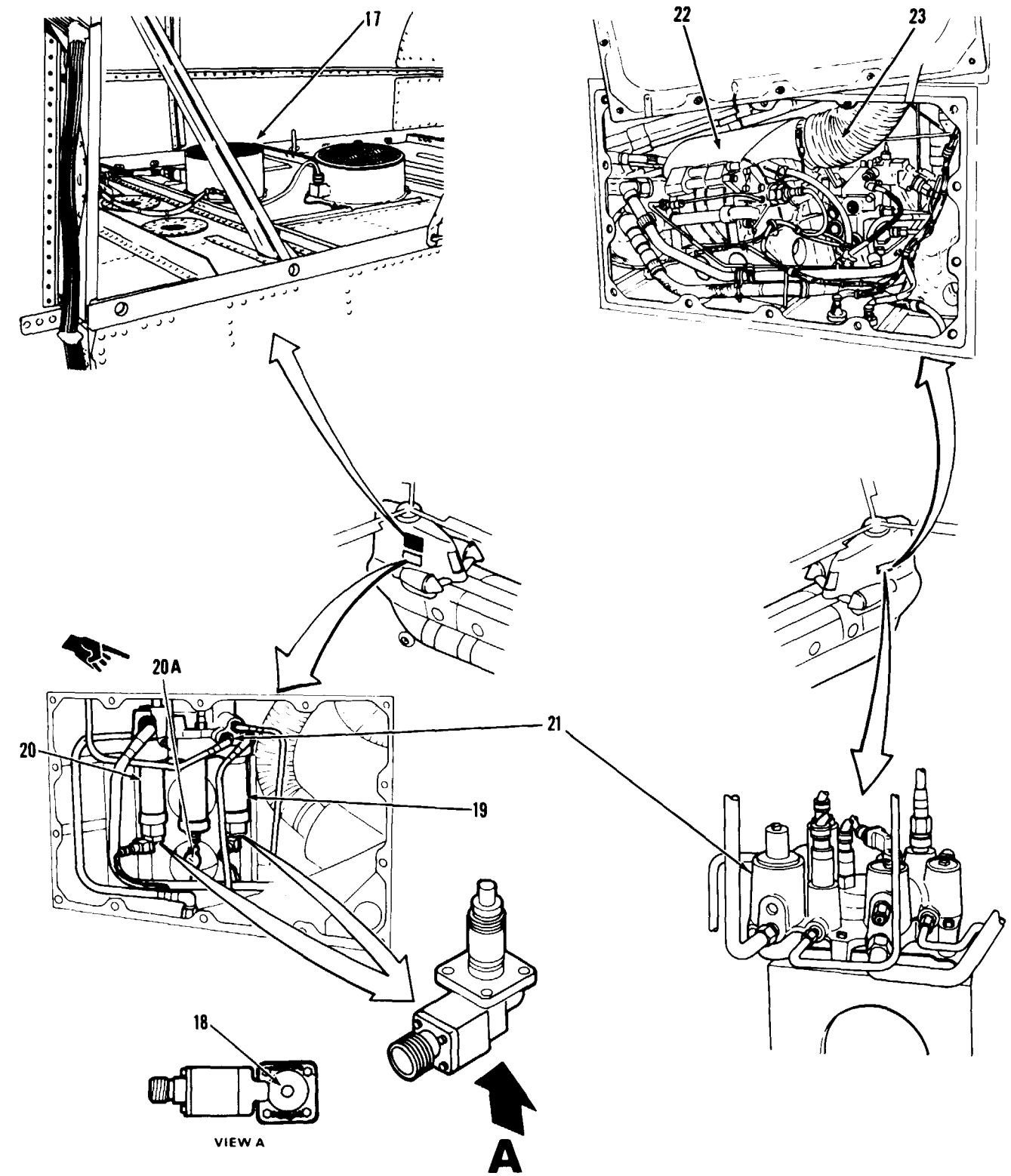
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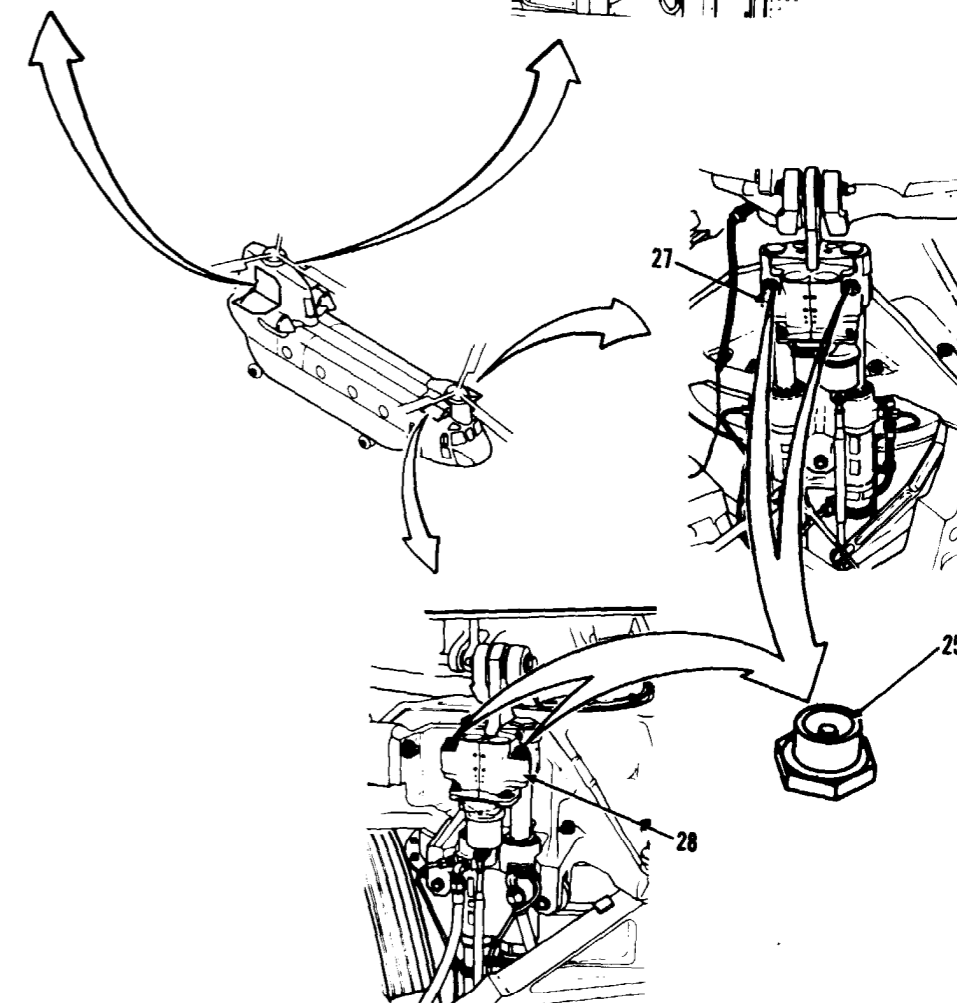
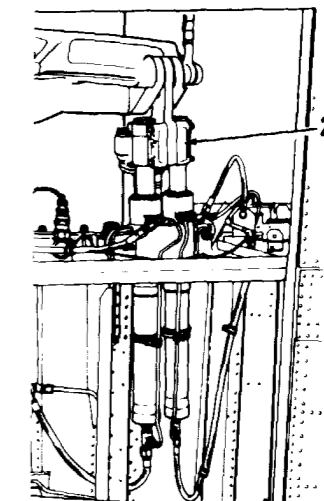
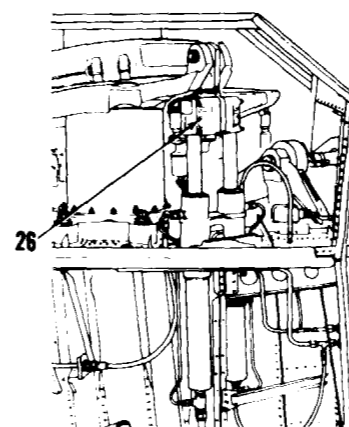
7-1.3 FLIGHT CONTROL HYDRAULIC SYSTEM VISUAL CHECK (Continued)

TASK	RESULT
12. Check No. 2 flight control cooling fan (17).	If fan (17) is loose or damaged, tighten or replace it as required. If fan screen is clogged, clean it. If connector to fan is loose or damaged, tighten or replace it. If wiring to connector is damaged, repair or replace it.
13. Check filter change indicating button (18) on two filters (19 and 20).	If either button (18) is extended, go to task 7-1.6.
13.1 Check reading on accumulator gags (20A).	Gage (20A) should be within limits shown on service chart in TM 55-1520-240-23. If it is not, service accumulator. Refer to TM 55-1520-240-23. If reading still not correct, replace accumulator.
14. Check both sides of No. 2 power control module (21).	If module (21) is loose or damaged, tighten or replace it as required. If any tube to module is loose or damaged, tighten or replace it. If any connector on module is loose or damaged, tighten or replace it. If wiring to any connector is damaged, repair or replace it.
15. Check No. 2 flight control reservoir cooler (22).	If cooler (22) is loose or damaged, tighten or replace it as required. If any tube to cooler is loose or damaged, tighten or replace it as required. If any connector on cooler is loose or damaged, tighten or replace it as required. If wiring to any connector is damaged, repair or replace it as required.
16. Check duct (23).	If duct (23) is loose or torn, tighten or replace it as required.



7-1.3 FLIGHT CONTROL HYDRAULIC SYSTEM VISUAL CHECK (Continued)

TASK	RESULT
17. Check aft pivoting servocylinder (24).	If servocylinder (24) is damaged, replace it. If any hose to servocylinder is loose or damaged, tighten or replace it as required. If any jam sensor (25) is extended, go to Task 7-1.19.
18. Check aft swiveling servocylinder (26).	If servocylinder (26) is damaged, replace it. If any hose to servocylinder is loose or damaged, tighten or replace it as required. If any jam sensor (25) is extended, go to Task 7-1.19.
19. Check forward swiveling servocylinder (27).	If servocylinder (27) is damaged, replace it. If any hose to servocylinder is loose or damaged, tighten or replace it as required. If any jam sensor (25) is extended, go to Task 7-1.19.
20. Check forward pivoting servocylinder (28).	If servocylinder (28) is damaged, replace it. If any hose to servocylinder is loose or damaged, tighten or replace it as required. If any jam sensor (25) is extended, go to Task 7-1.19.

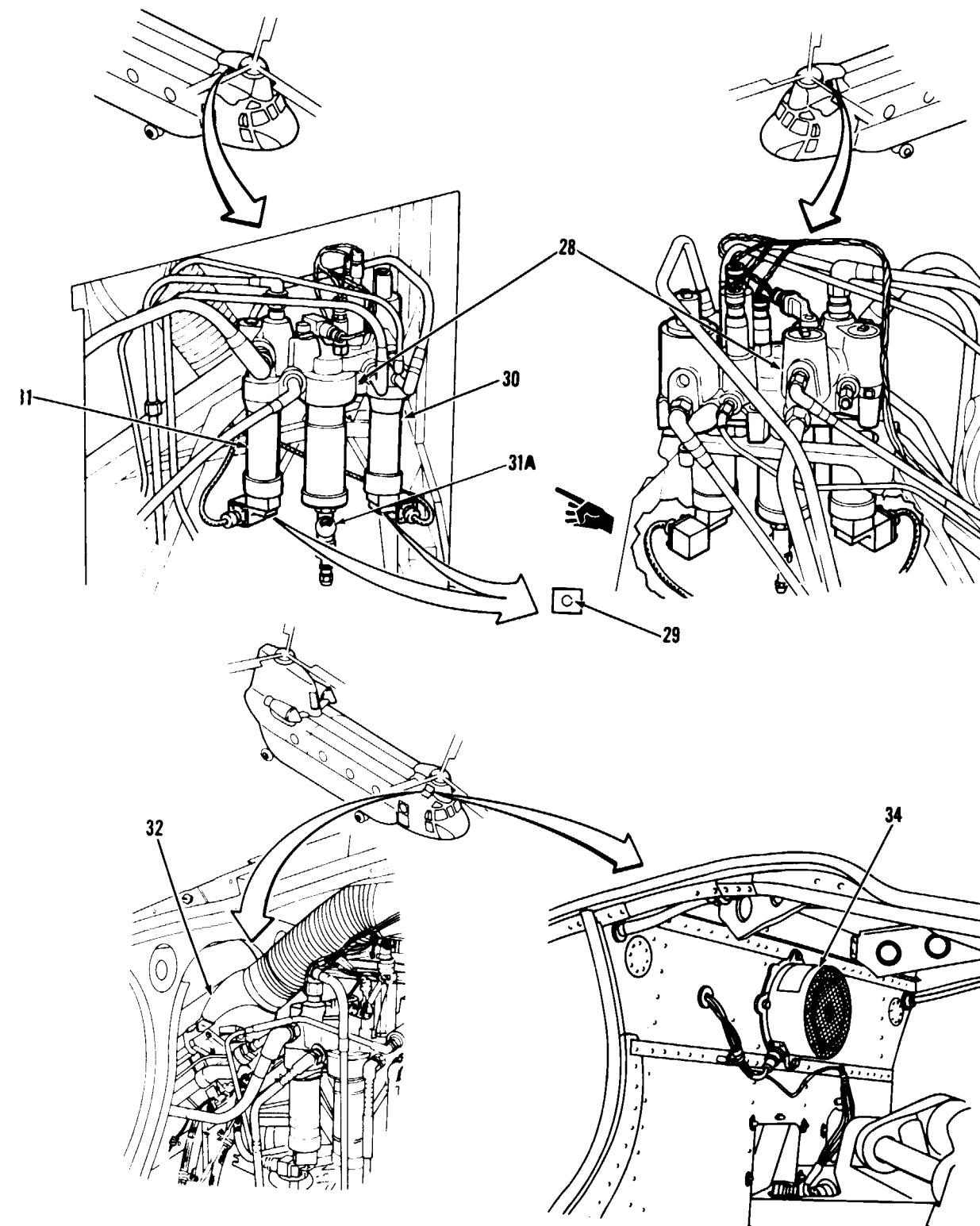


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TASK	RESULT
21. Check both sides of No. 1 power control module (28).	If module (28) is loose or damaged, tighten or replace it as required. If any tube to module is loose or damaged, tighten or replace it as required. If any connector to module is loose or damaged, tighten or replace it as required. If wiring to any connector is damaged, repair or replace it as required.
22. Check filter change indicating button (29) on two filters (30 and 31).	If either button (29) is extended, go to task 7-1.6.
22.1 Check reading on accumulator gags (31A).	Gage (31A) reading should be within limits shown on service chart in TM 55-1520-240-23. If it is not, service accumulator. Refer to TM 55-1520-240-23. If reading still not correct, replace accumulator.
23. Check No. 1 flight control reservoir cooler (32).	If cooler (32) is loose or damaged, tighten or replace it as required. If any tube to cooler is loose or damaged, tighten or replace it as required. If any connector on cooler is loose or damaged, tighten or replace it as required. If wiring to any connector is damaged, repair or replace it as required.
24. Check duct (33).	If duct (33) is loose or torn, tighten or replace it as required.
25. Check No. 1 flight control cooling fan (34).	If fan (34) is loose or damaged, tighten or replace it as required, If fan screen is clogged, clean it. If connector to fan is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.



FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Forward Work Platforms Closed
- Left Aft Transmission Access Door Closed
- Forward Transmission Drip Pan Installed

7-1.4 FLIGHT CONTROL HYDRAULIC SYSTEM OPERATIONAL CHECK

7-1.4

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

None

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer (2)  
Rotary Wing Aviator (2)

**References**

TM 55-1520-240-10  
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected  
Electrical Power On  
Hydraulic Power On  
Visual Check of Flight Control Hydraulic System Performed (Task 7-1.3)

**General Safety Instructions:**

**WARNING**

Keep head, hands and other body parts clear of moving flight controls. Hydraulic forces are strong enough to cause severe injury.

TASK

RESULT

- | TASK  | RESULT   |
|---|--|
| 4. Check that <b>NO. 2 HYD COOLING BLOWER circuit breaker (7)</b> is closed.  | If circuit breaker (7) is open, close it. If it opens again, go to Task 7-1.11.  |
| 5. Set <b>FLT CONT RESERVOIR LEVEL switch (8)</b> to <b>NO. 1</b> . Press and hold <b>RESERVOIR LEVEL CHECK switch (9)</b> . Check <b>RESERVOIR LEVEL indicator (10)</b> .                        | Pointer on indicator (10) shall move upscale indicating fluid level in No. 1 flight control system reservoir. If pointer does not move, go to Task 7-1.12. If pointer moves but shows reservoir not full, service No. 1 flight control hydraulic system. Refer to TM 55-1520-240-23. |
| 6. Release switch (9).  |  |
| 7. Set <b>FLT CONT RESERVOIR LEVEL switch (8)</b> to <b>NO. 2</b> .   |  |
| 8. Press and hold <b>RESERVOIR LEVEL indicator (10)</b> .   | Pointer on indicator (10) shall move upscale indicating fluid level in No. 2 flight control system reservoir. If pointer does not move, go to Task 7-3.11. If pointer moves but shows reservoir not full, service No. 2 flight control hydraulic system. Refer to TM 55-1520-240-23. |
| 9. Release switch (9).  |  |
| 10. Press and release four <b>FILTER CHANGE lights</b> and two <b>PUMP FAULT lights (11)</b> .  | Each light (11) shall momentarily come on. If any light does not come on, go to Task 7-1.13.   |
| 11. Check <b>NO. 1 HYD FLT CONTR</b> (Without <b>74</b> ) <b>HYD 1</b> (With <b>74</b> ) and <b>NO. 2 HYD FLT CONTR</b> (Without <b>74</b> ) <b>HYD 2</b> (With <b>74</b> ) capsules (12 and 13). | Both capsules (12 and 13) shall be on. If either capsule is out, go to Task 7-1.14.  |

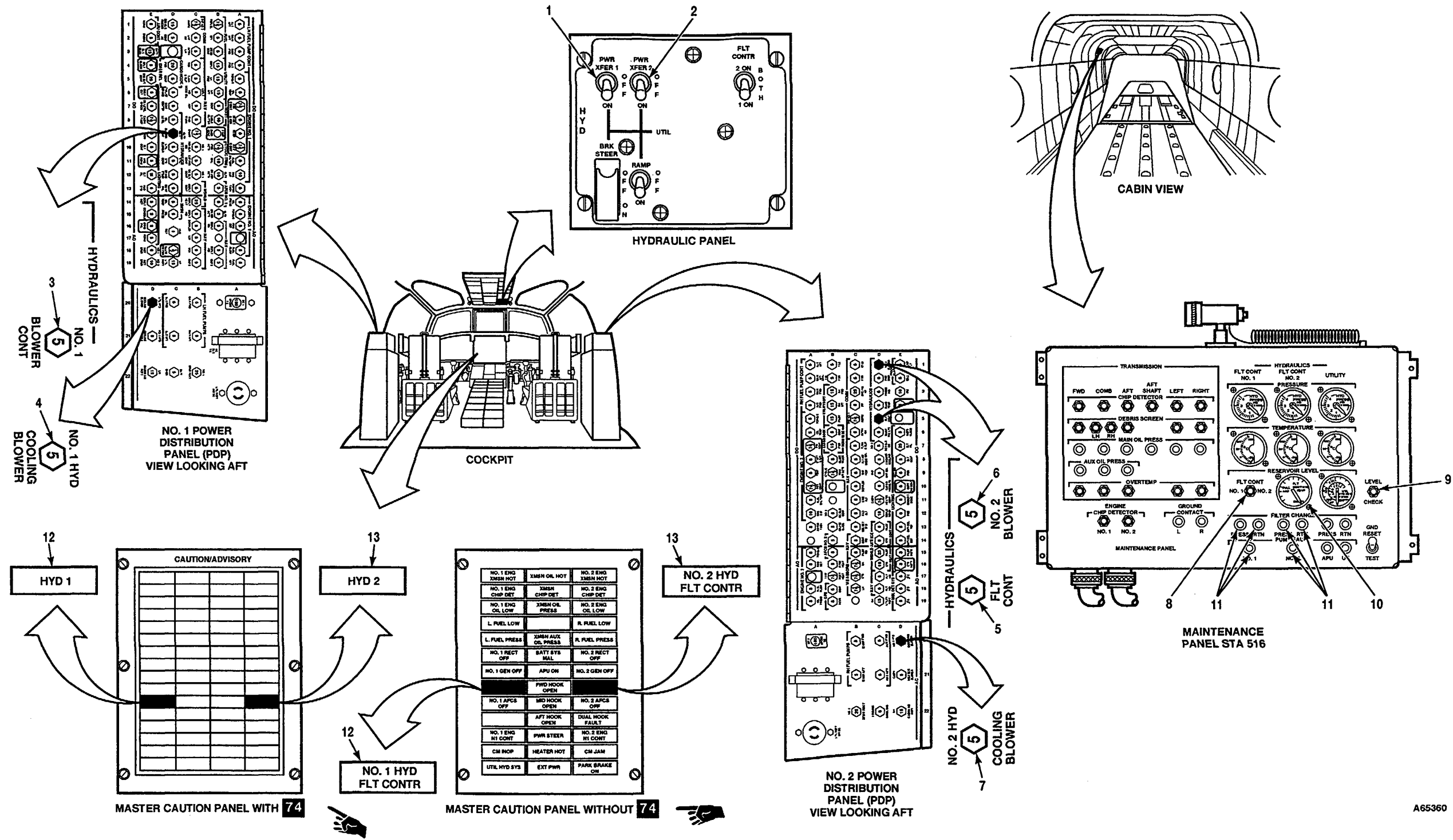
TASK

RESULT

- | TASK   | RESULT   |
|--|--|
| 1. Check that <b>POWER XFR NO. 1 and NO. 2 switches (1 and 2)</b> are at OFF.  | If not, set switches (1 and 2) to OFF.   |
| <b>CHECK CIRCUIT BREAKERS</b>  |  |
| 2. Check that <b>HYDRAULICS NO. 1 BLOWER CONT</b> and <b>NO. 1 HYD COOLING BLOWER circuit breakers (3 and 4)</b> are closed. | If either circuit breaker (3 or 4) is open, close it. If NO. 1 BLOWER CONT circuit breaker (3) opens again, go to Task 7-3.6. If NO. 1 HYD COOLING BLOWER circuit breaker (4) opens again, go to Task 7-1.8. |
| 3. Check that <b>HYDRAULICS FLT CONT</b> and <b>NO. 2 BLOWER circuit breakers (5 and 6)</b> are closed.                      | If either circuit breaker (5 or 6) is open, close it. If FLT CONT circuit breaker (5) opens again, go to Task 7-3.8. If NO. 2 BLOWER circuit breaker (6) opens again, go to Task 7-1.10.                     |

GO TO NEXT PAGE





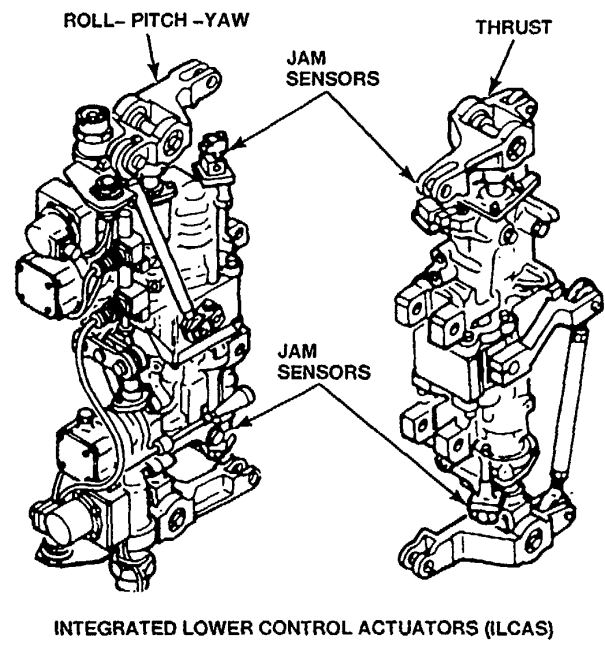
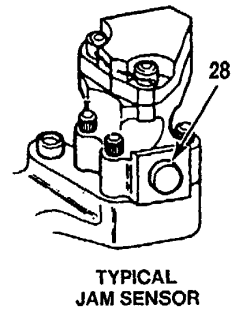
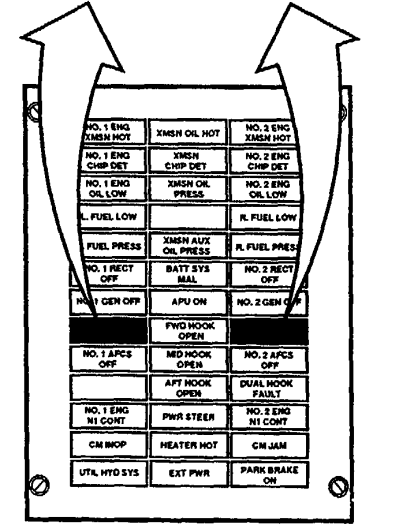
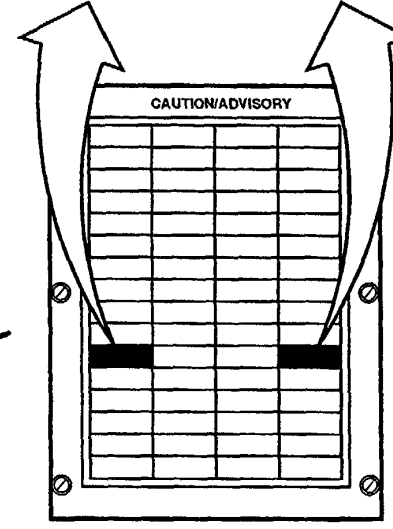
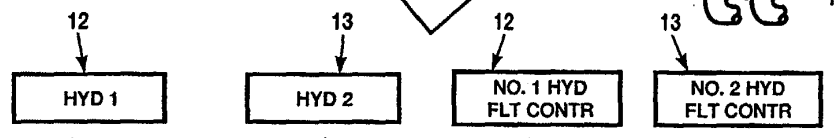
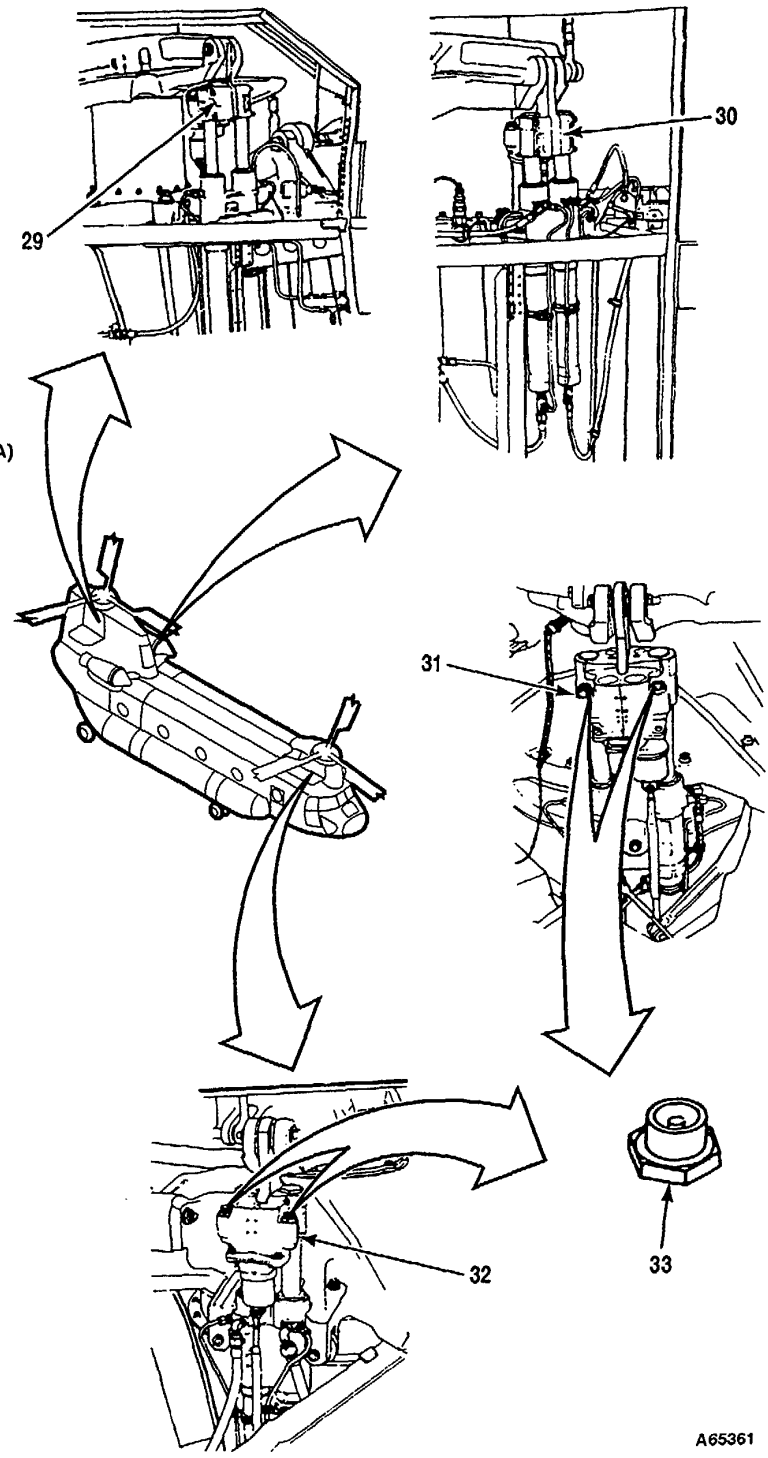
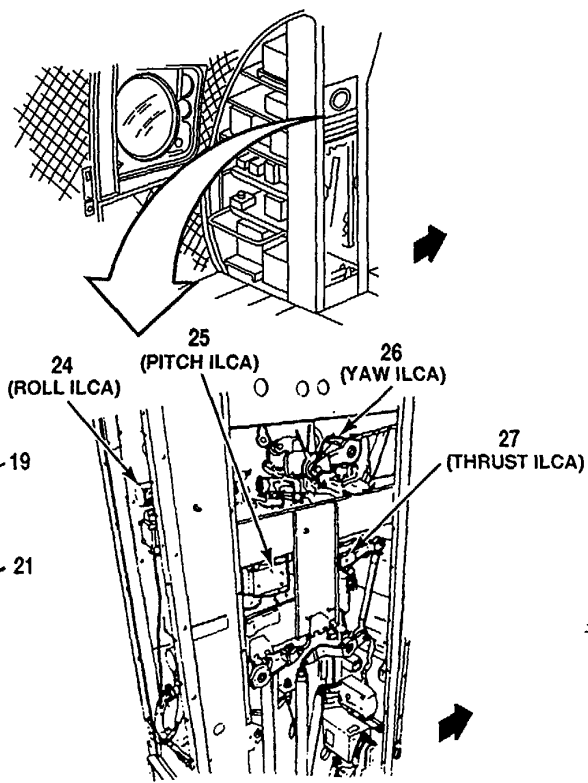
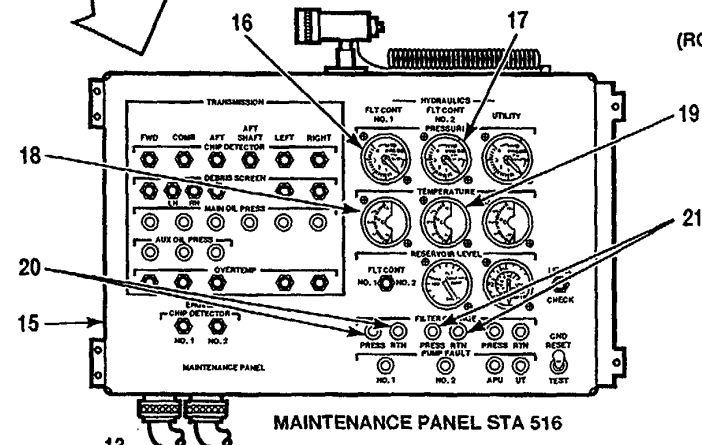
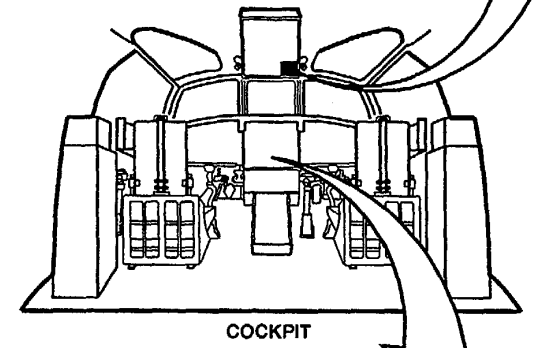
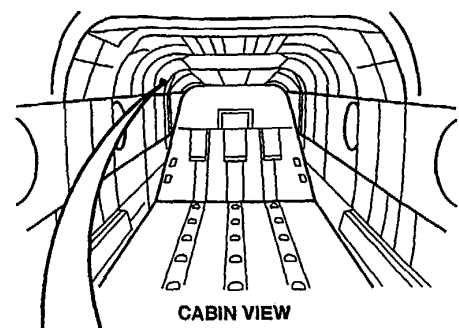
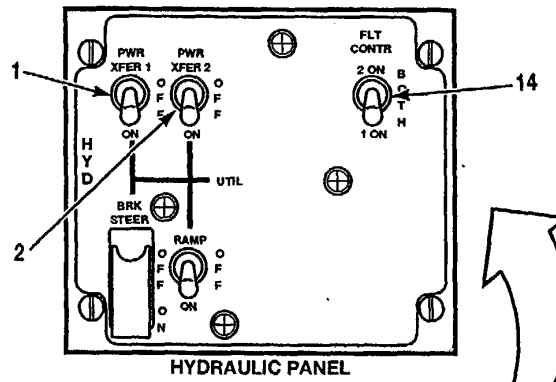
7-1.4 FLIGHT CONTROL HYDRAULIC SYSTEM OPERATIONAL CHECK (Continued)

7-1.4

TASK	RESULT
11. Check that FLT CONTR switch (14) is at BOTH.	If not, set switch (14) to BOTH.
12. Set POWER XFR NO. 1 AND NO. 2 switches (1 and 2) to ON.	NO. 1 HYD FLT CONTR (Without 74 ) HYD 1 (With 74 ) and NO. 2 HYD FLT CONTR (Without 74 ) HYD 2 (With 74 ) capsules (12 and 13) shall go out. If either capsule is still on, go to Task 7-12.15.
13. Check maintenance panel (15).	<p>FLT CONT NO. 1 and FLT CONT NO. 2 HYDRAULICS PRESS indicators (16 and 17) shall indicate <u>2500 to 3000 psi</u> and pointers shall fluctuate more than <u>100 psi</u>. If either does not indicate more than <u>2500 to 3000 psi</u> or pointer fluctuates more than <u>100 psi</u> go to Task 8-7.3. If either pointer fluctuates from <u>1800 to 2200 psi</u>, replace check valve on No. 1 or No. 2 power control module before replacing any module.</p> <p>Pointers on FLT CONT NO. 1 and FLT CONT NO. 2 HYDRAULICS TEMPERATURE indicators (18 and 19) shall move upscale as fluid temperature increases. Temperature indication shall not exceed <u>95°C</u>. If either pointer does not move, go to Task 8-8.3. If either pointer exceeds <u>95°C</u>, go to Task 7-1.15 or 7-1.16.</p> <p>FLT CONT NO. 1 PRESS and RTN FILTER CHANGE lights (20) shall be out. If either light is on, go to Task 7-1.17.</p> <p>FLT CONT NO. 2 PRESS and RTN FILTER CHANGE lights (21) shall be out. If either light is on, go to Task 7-1.18.</p>
14. Slowly move pilot pitch and roll control and thrust lever (22 and 23) through their travel range for 5 minutes. Check all flight control hydraulic system components for leaks and ease of movement.	Control and lever (22 and 23) travel shall be smooth and without binding or restriction. All hoses to flight control hydraulic system parts shall not be pinched, chaffed or stretched during control and lever movement. Hydraulic fluid leakage shall not exceed limits noted in TM 55-1520-240-23. If any binding or restriction is noted, locate cause and re-position or replace binding or restricted part. Re-position hose if it is being pinched, chaffed, or stretched. Tighten or replace leaking parts as required.

TASK	RESULT
15. Check two jam sensors on each actuator (24, 25, 26, and 27).	If any sensor (28) is extended, go to Task 7-1.5.
16. Check jam sensor on each actuator (29, 30, 31, and 32).	If any jam sensor button (33) is extended, go to Task 7-1.19.
17. Repeat step 13, then go to step 18.	
18. Set FLT CONTR switch (14) to NO. 1 ON.	NO. 2 HYD FLT CONT (Without 74 ) capsule (13) shall come on. HYD 2 (With 74 ) capsule (13) shall come on. If capsule does not come on, go to Task 7-1.20.
19. Set FLT CONTR switch (14) to NO. 2 ON.	NO. 2 HYD FLT CONT (Without 74 ) capsule (13) shall go out. HYD 2 (With 74 ) capsule (13) shall go out. NO. 1 HYD FLT CONT (Without 74 ) capsule (12) shall come on. HYD 1 (With 74 ) capsule (12) shall come on. If capsule (12) does not come on, go to Task 7-1.21.

7-1.4 FLIGHT CONTROL HYDRAULIC SYSTEM OPERATIONAL CHECK (Continued)



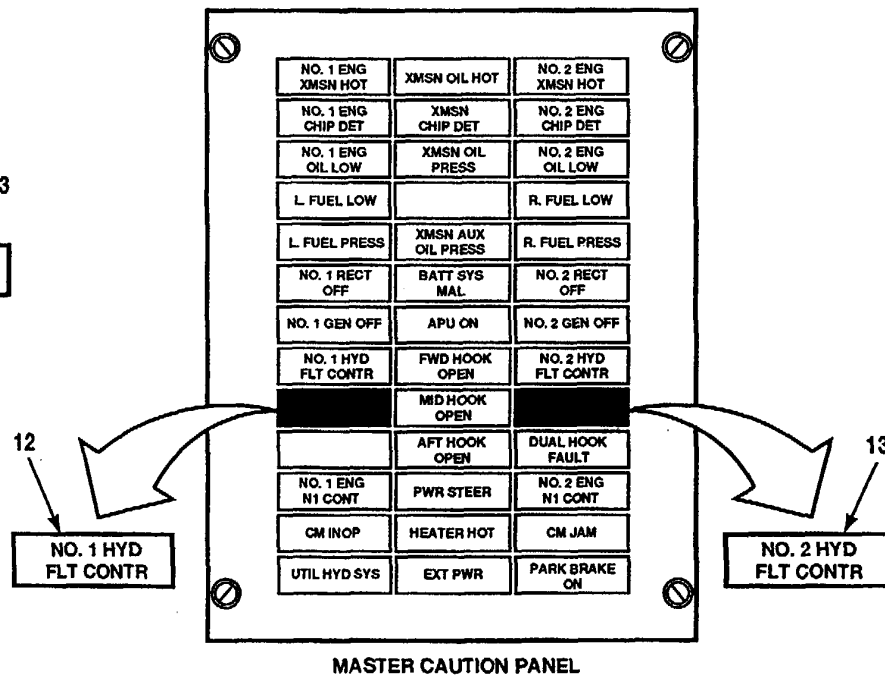
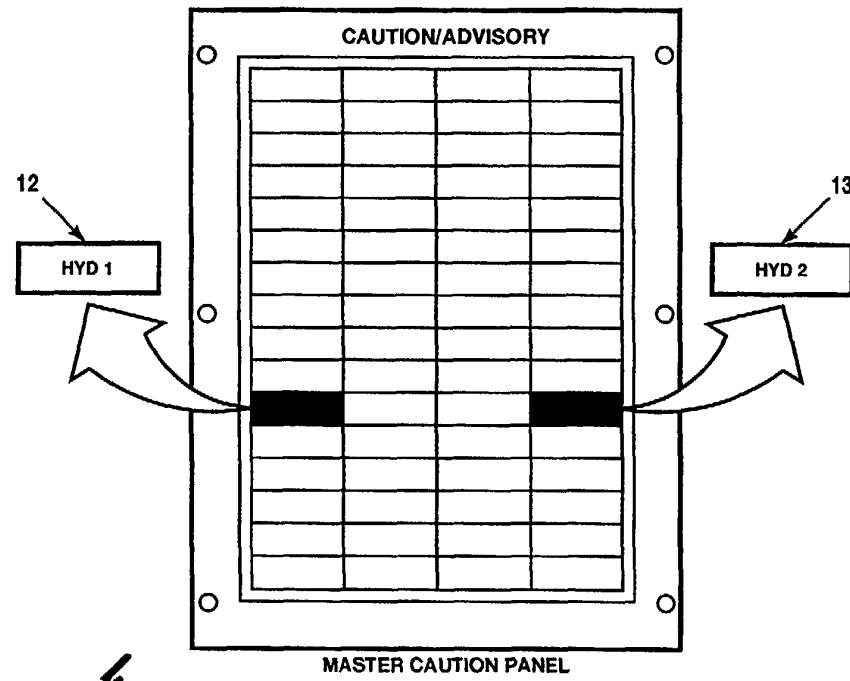
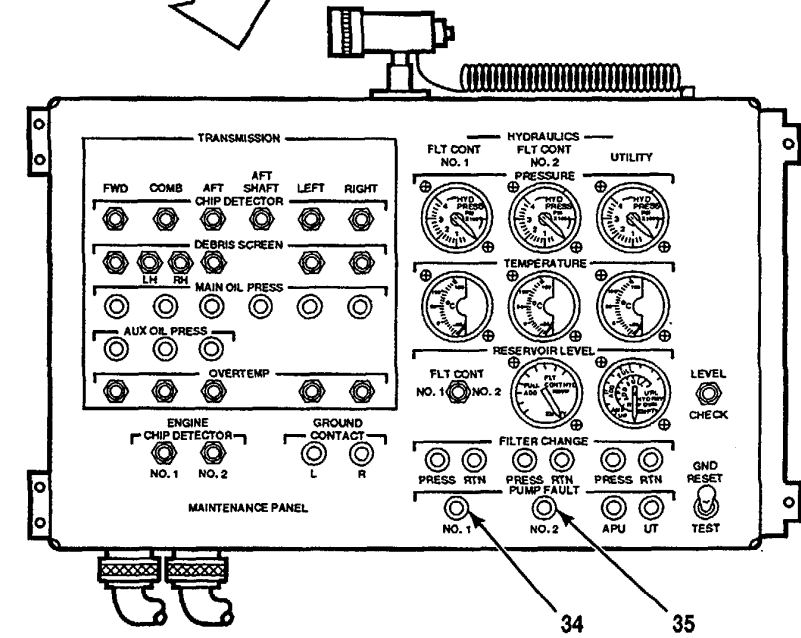
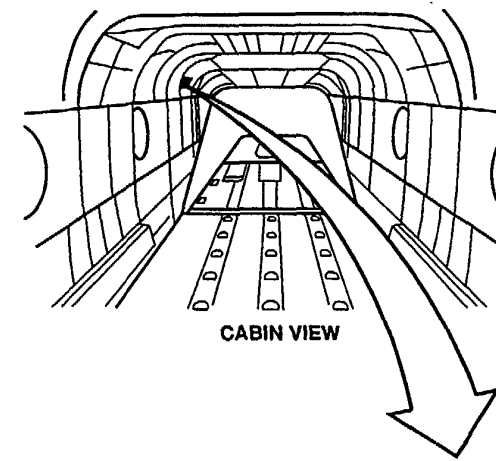
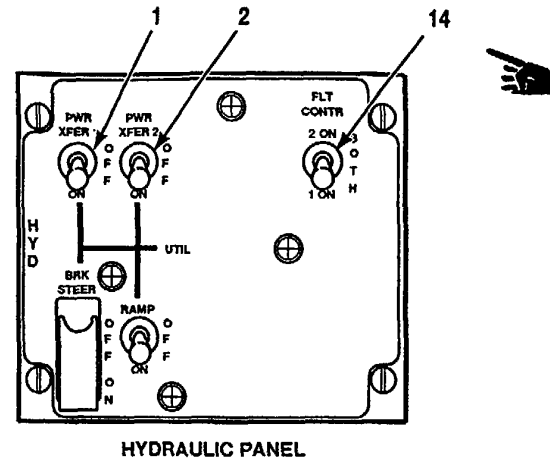
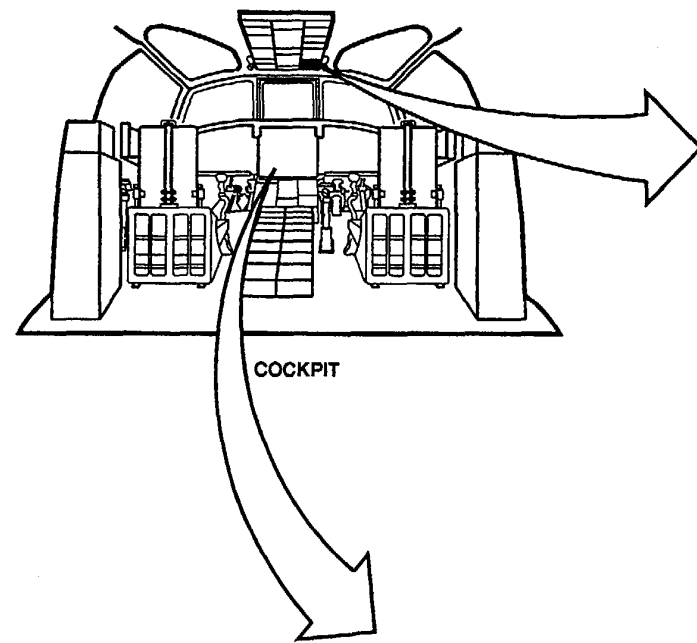
A65361

7-1.4 FLIGHT CONTROL HYDRAULIC SYSTEM OPERATIONAL CHECK (Continued)

7-1.4

TASK	RESULT
20. Set FLT CONTR switch (14) to BOTH.	NO. 1 HYD FLT CONTR (Without 74) capsule (12) shall go out. HYD 1 (With 74) capsule (12) shall go out.
21. Set POWER XFR NO. 1 switch (1) to OFF.	NO. 1 HYD FLT CONTR (Without 74) capsule (12) shall come on. HYD 1 (With 74) capsule (12) shall come on.
22. Set FLT CONTR switch (14) to NO. 1 ON.	NO. 2 HYD FLT CONTR (Without 74) capsule (13) shall stay out. If it comes on, go to Task 7-1.22. HYD 2 (With 74) capsule (13) shall stay out. If it comes on, go to Task 7-1.22.
23. Set FLT CONTR switch (14) to BOTH. Set POWER XFR NO. 1 switch to ON.	NO. 1 HYD FLT CONTR (Without 74) capsule (12) shall go out. HYD 1 (With 74) capsule (12) shall go out.
24. Set POWER XFR NO. 2 switch (2) to OFF.	NO. 2 HYD FLT CONTR (Without 74) capsule (13) shall come on. HYD 2 (With 74) capsule (13) shall come on.
25. Set FLT CONTR switch (14) to NO. 2 ON.	NO. 1 HYD FLT CONTR (Without 74) capsule (12) shall stay out. If it comes on, go to Task 7-1.23. HYD 1 (With 74) capsule (12) shall stay out. If it comes on, go to Task 7-1.23.
26. Set FLT CONTR switch (14) to BOTH. Set POWER XFR NO. 2 switch to ON.	NO. 2 HYD FLT CONTR (Without 74) capsule (13) shall go out. HYD 2 (With 74) capsule (13) shall go out.
27. Have pilot start engines and establish 100 percent rotor rpm. Set POWER XFR NO. 1 and NO. 2 switches (1 and 2) to OFF.	NO. 1 and NO. 2 HYD FLT CONTR (Without 74) capsules (12 and 13) shall be out. HYD 1 and HYD 2 (With 74) capsules (12 and 13) shall be out. If FLT CONT NO. 1 HYDRAULIC PRESS indicator does not read between 2500 and 3000 psi. and pointer fluctuates more than 50 psi. or capsule (12) is on, replace No. 1 flight control hydraulic system pump. If FLT CONT NO. 2 HYDRAULIC PRESS indicator does not read between 2500 and 3000 psi. or pointer fluctuates more than 50 psi and capsule (13) is on, replace No. 2 flight control hydraulic system pump.

TASK	RESULT
28. Check NO. 1 and NO. 2 PUMP FAULT lights (34 and 35).	If either light (34 or 35) is on, go to Task 7-1.24.
FOLLOW-ON MAINTENANCE: Have pilot shut down engines. TM 55-1520-240-23: Remove electrical power. Disconnect battery.	



WITH 74

WITHOUT 74

A65362

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit
- NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

67U20 Medium Helicopter Repairer

**References:**

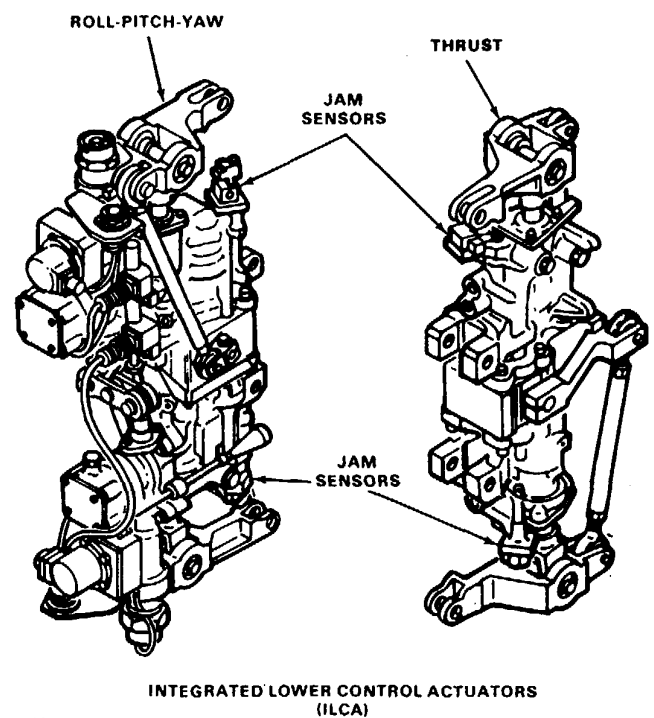
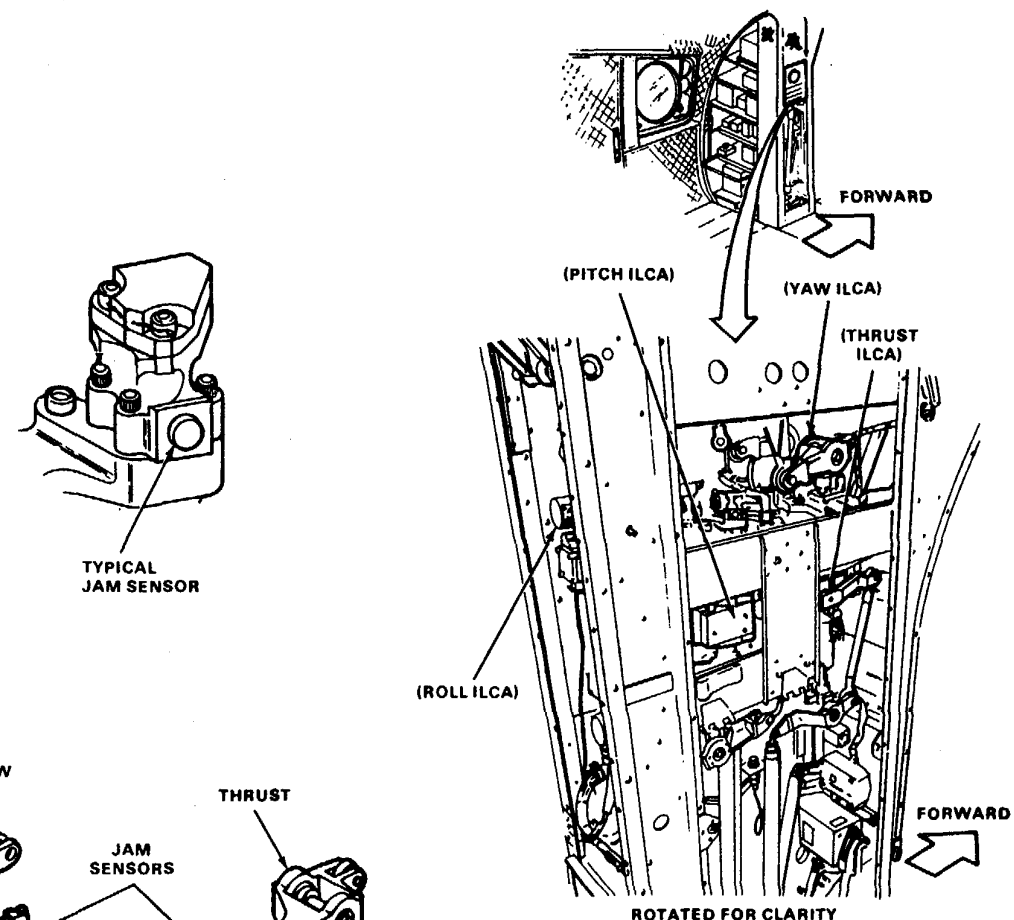
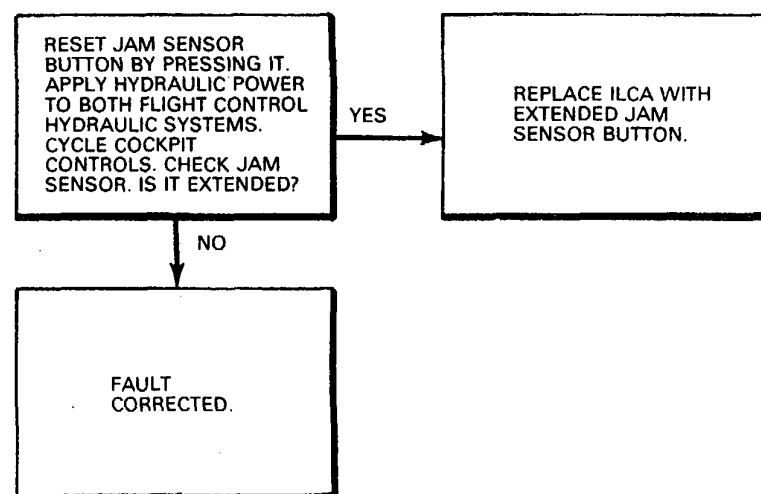
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off

**General Safety Instructions:**

**WARNING**  
Keep hands and feet away from flight controls. Moving controls can cause serious injury.



45 X 54

DI45 - 12121 - SPA

**7-1.6 INDICATING BUTTON ON FLIGHT CONTROL HYDRAULIC PRESSURE OR RETURN FILTER IS EXTENDED**

7-1.6

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

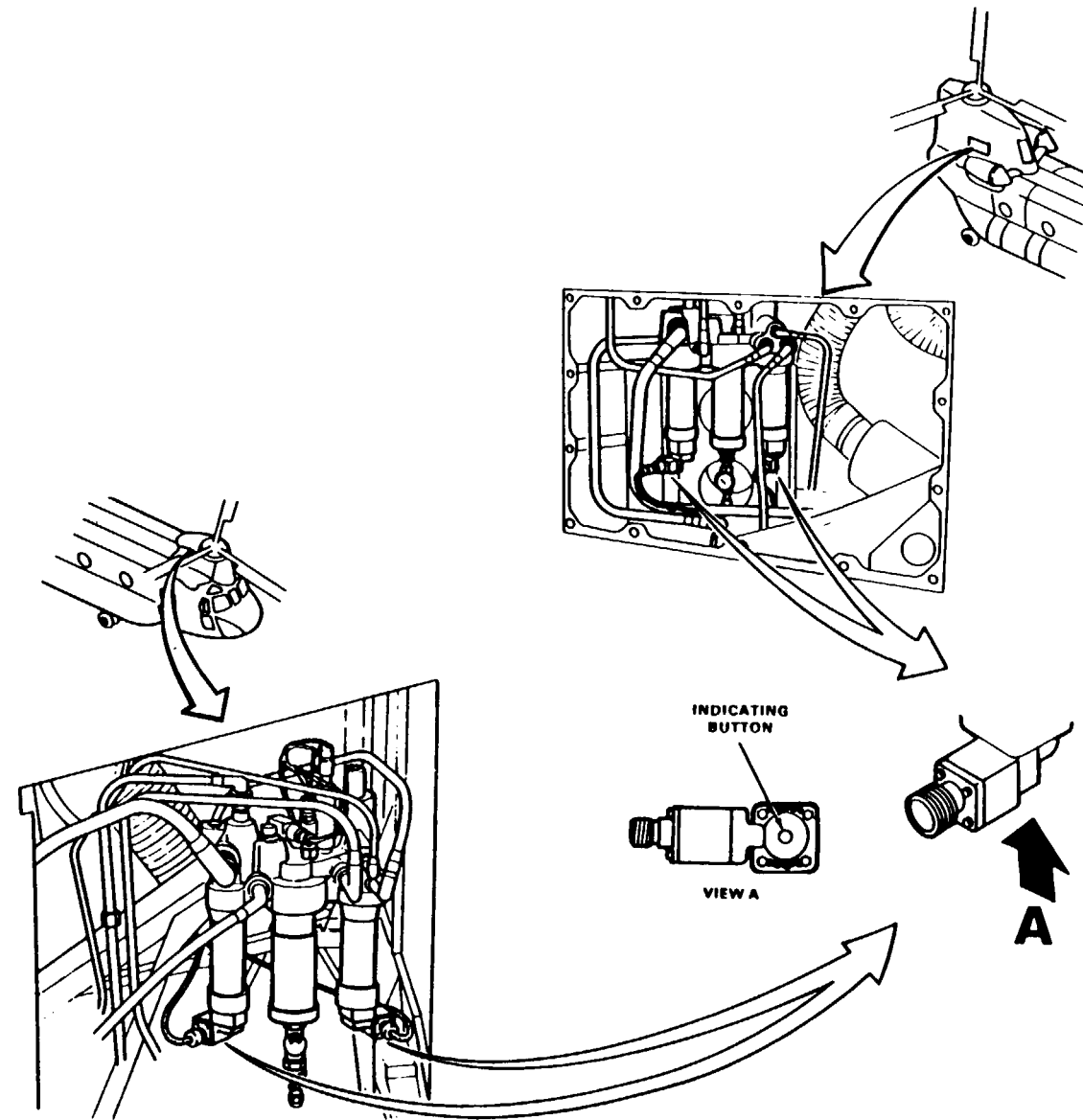
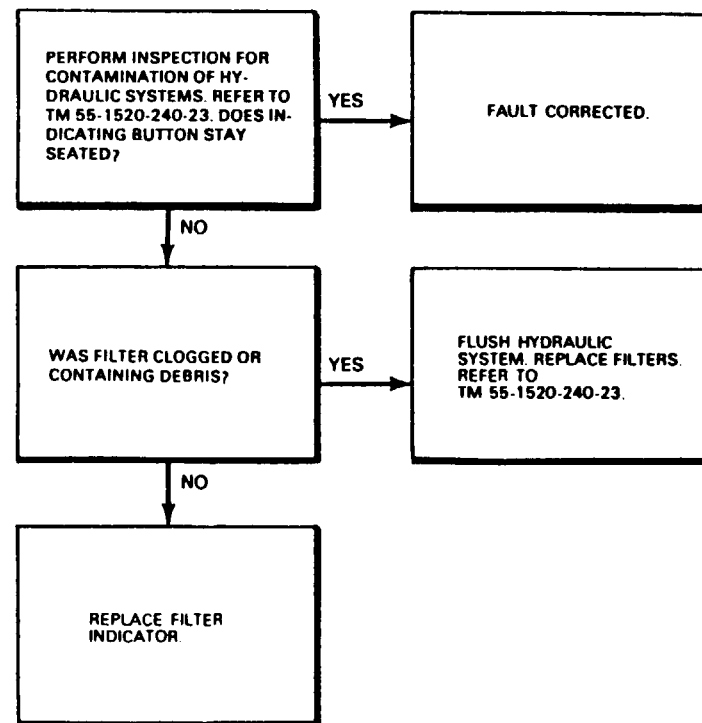
**Personnel Required:**  
67U20 Medium Helicopter Repairer

**Tools:**  
Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

**Materials:**  
None



48X84

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Page 7-21 is a blank page.

END OF TASK

7-1.7 HYDRAULICS NO. 1 BLOWER CONT CIRCUIT BREAKER WILL NOT STAY CLOSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Tools

Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multimeter

Materials:  
None

Personnel Required:

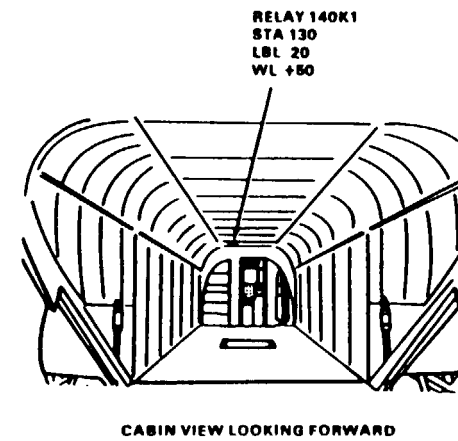
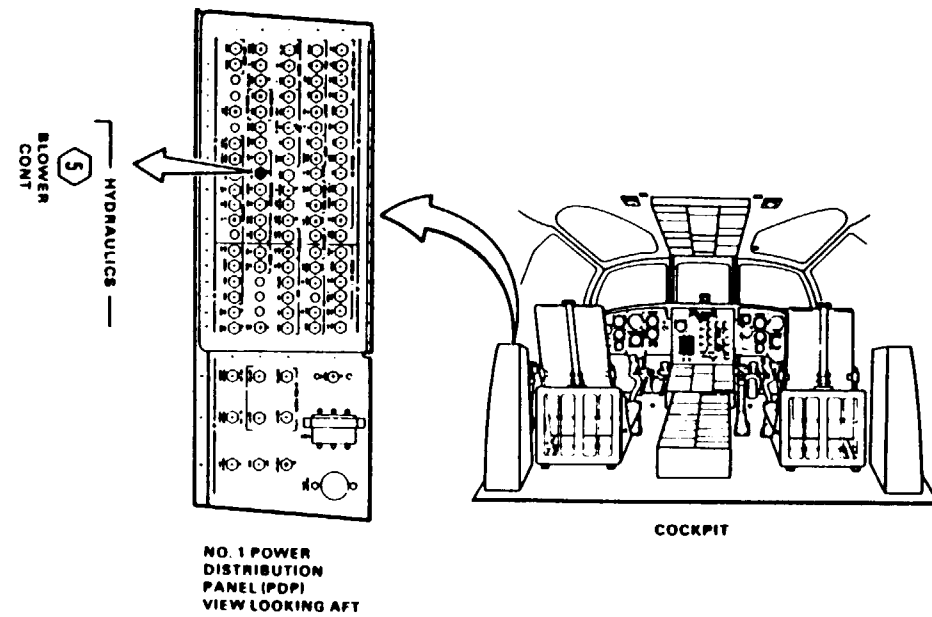
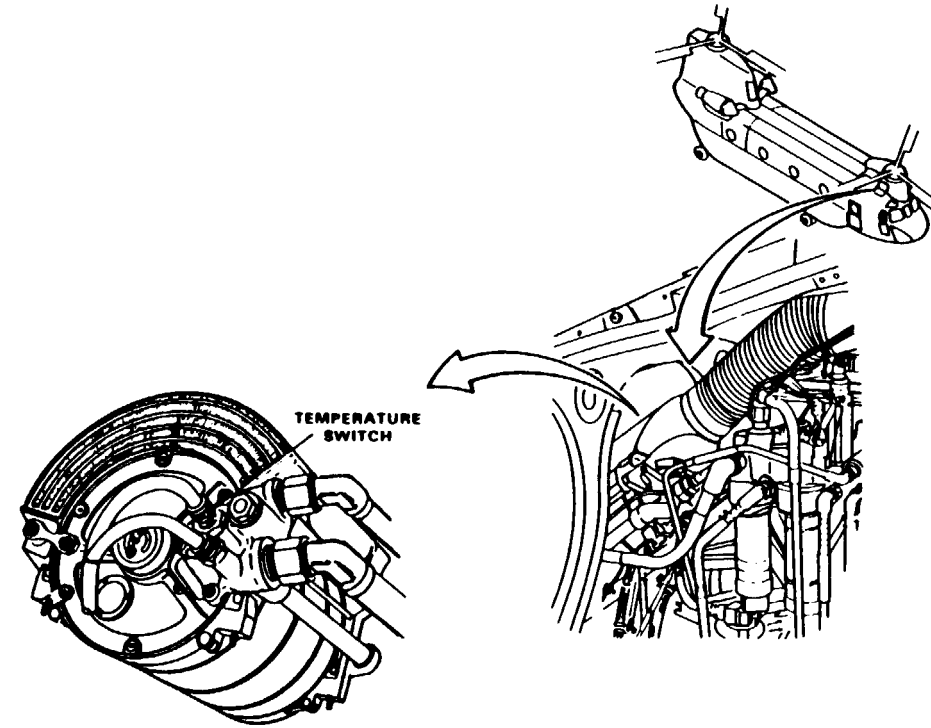
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

References:

TM 55-1520-240-23

Equipment Condition:

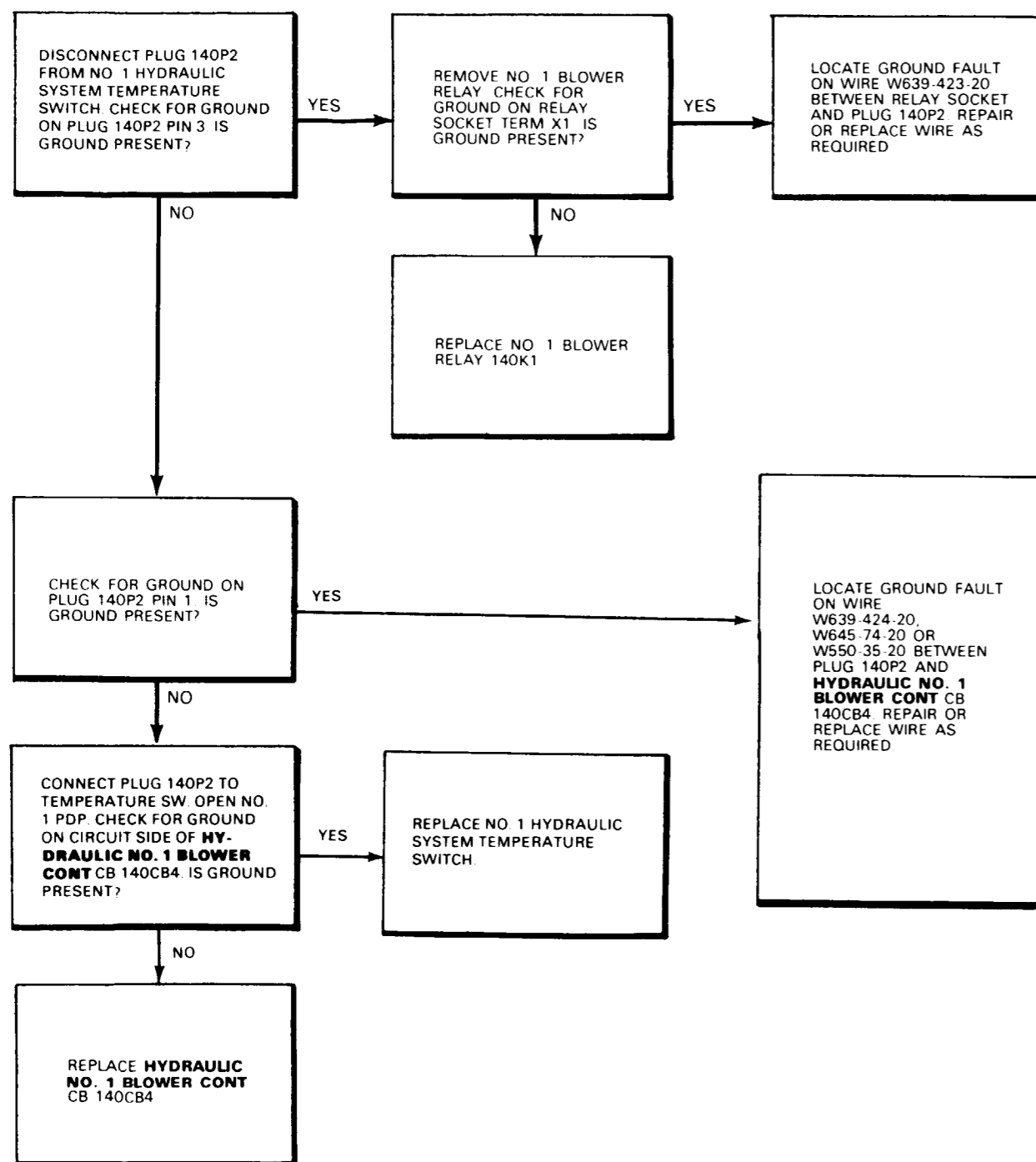
TM 55-1520-240-23  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off





7-1.7 HYDRAULICS NO. 1 BLOWER CONT CIRCUIT BREAKER  
WILL NOT STAY CLOSED (Continued)

7-1.7



END OF TASK

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer  
Aircraft Electrician

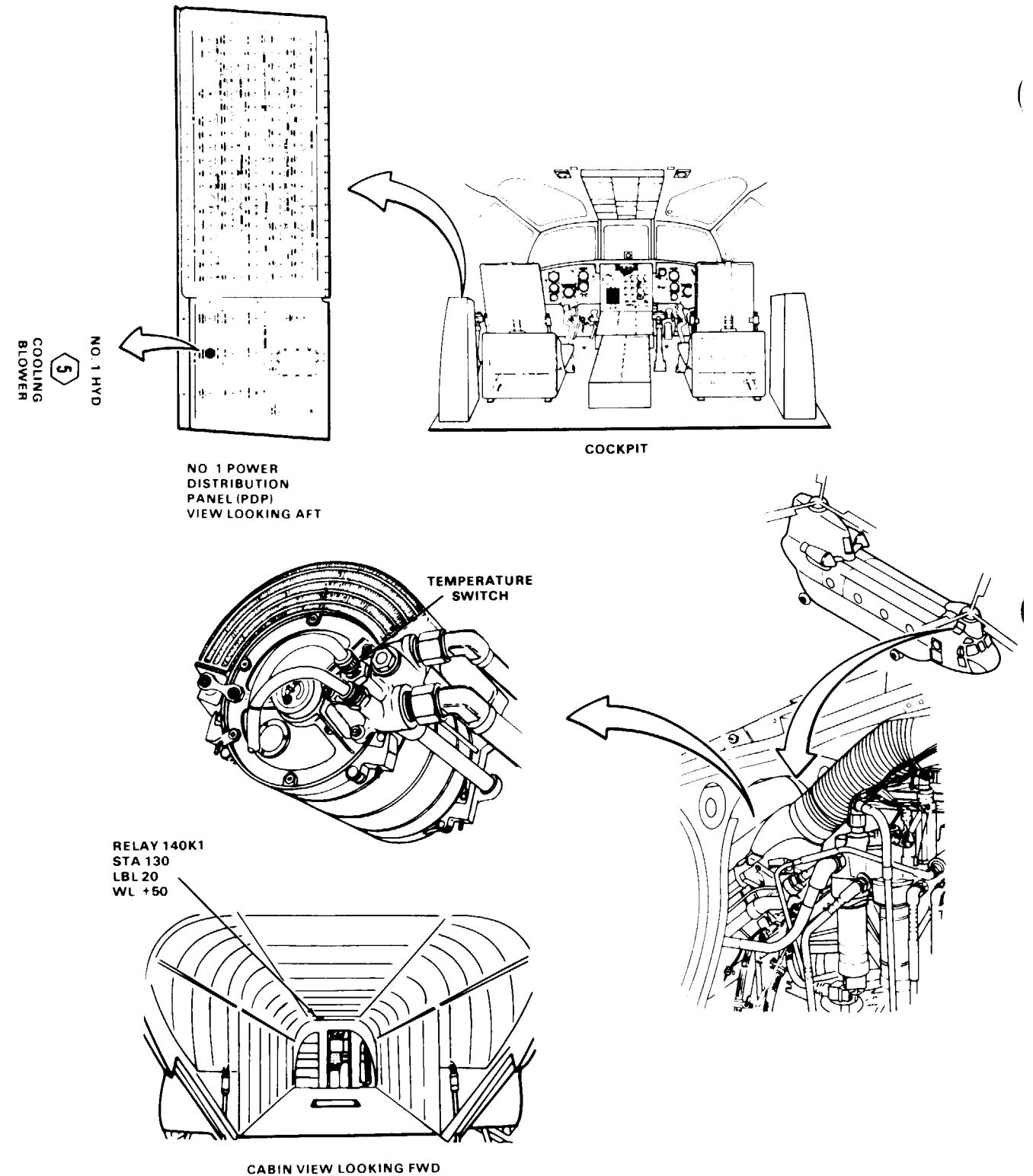
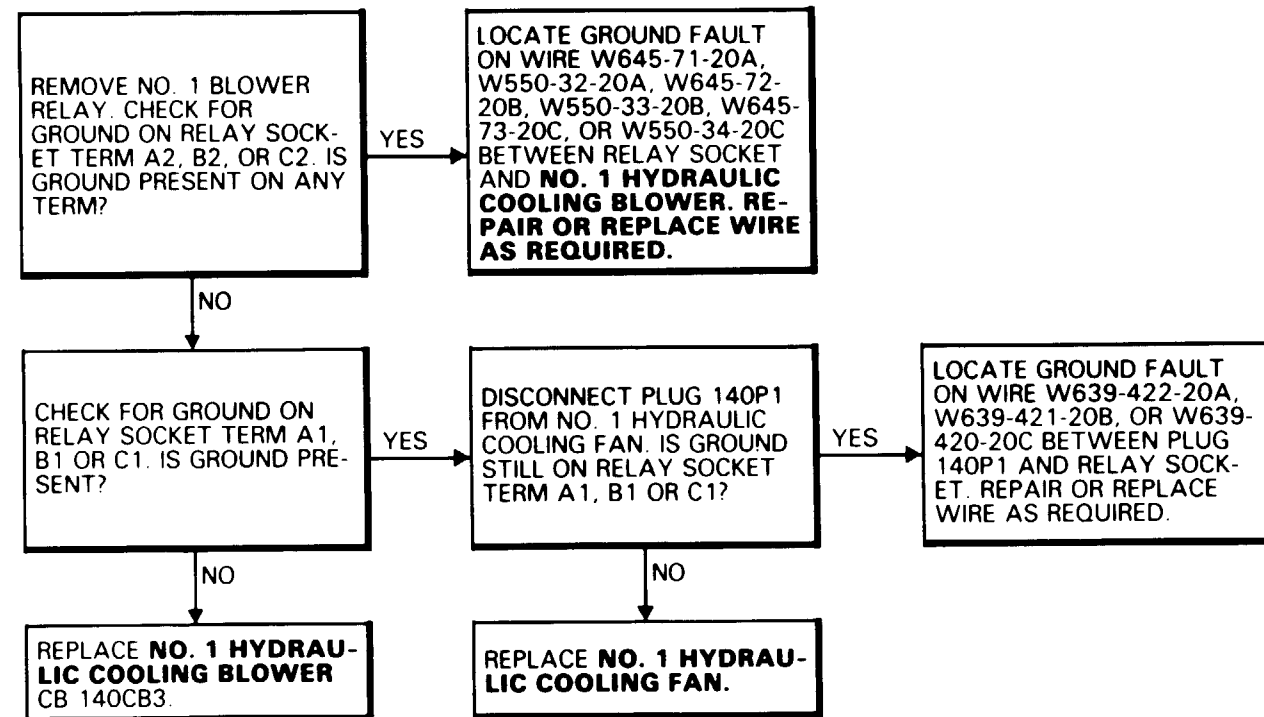
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



45 x 54

DI45-12124-SPA

END OF TASK

7-1.9 HYDRAULICS FLIGHT CONT CIRCUIT BREAKER WILL NOT STAY CLOSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

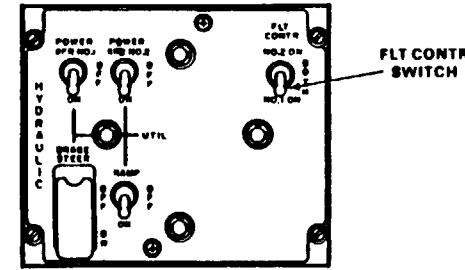
Tools:  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multimeter

Materials:  
None

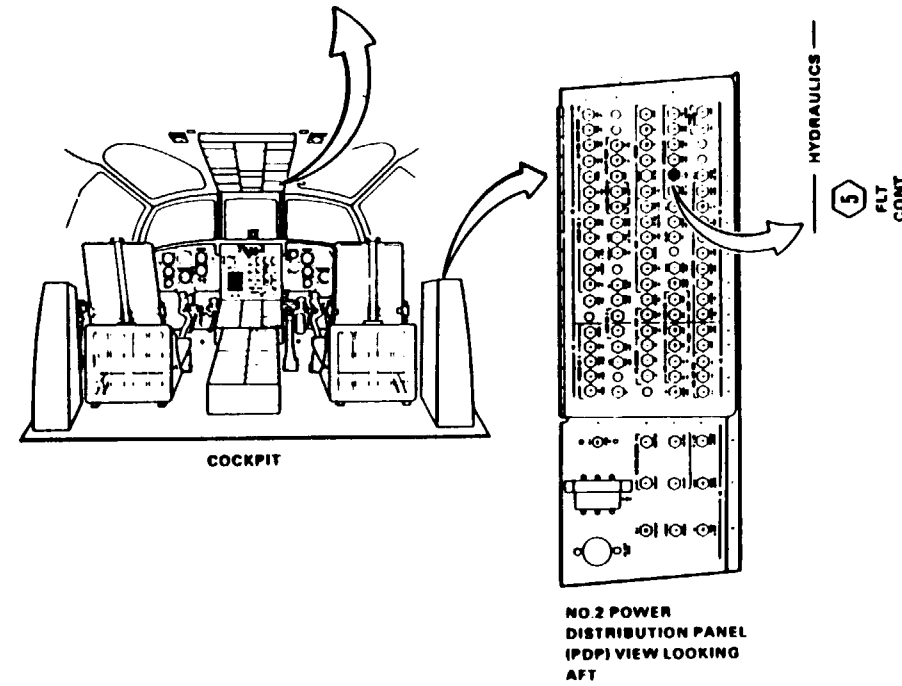
Personnel Required:  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



HYDRAULICS PANEL



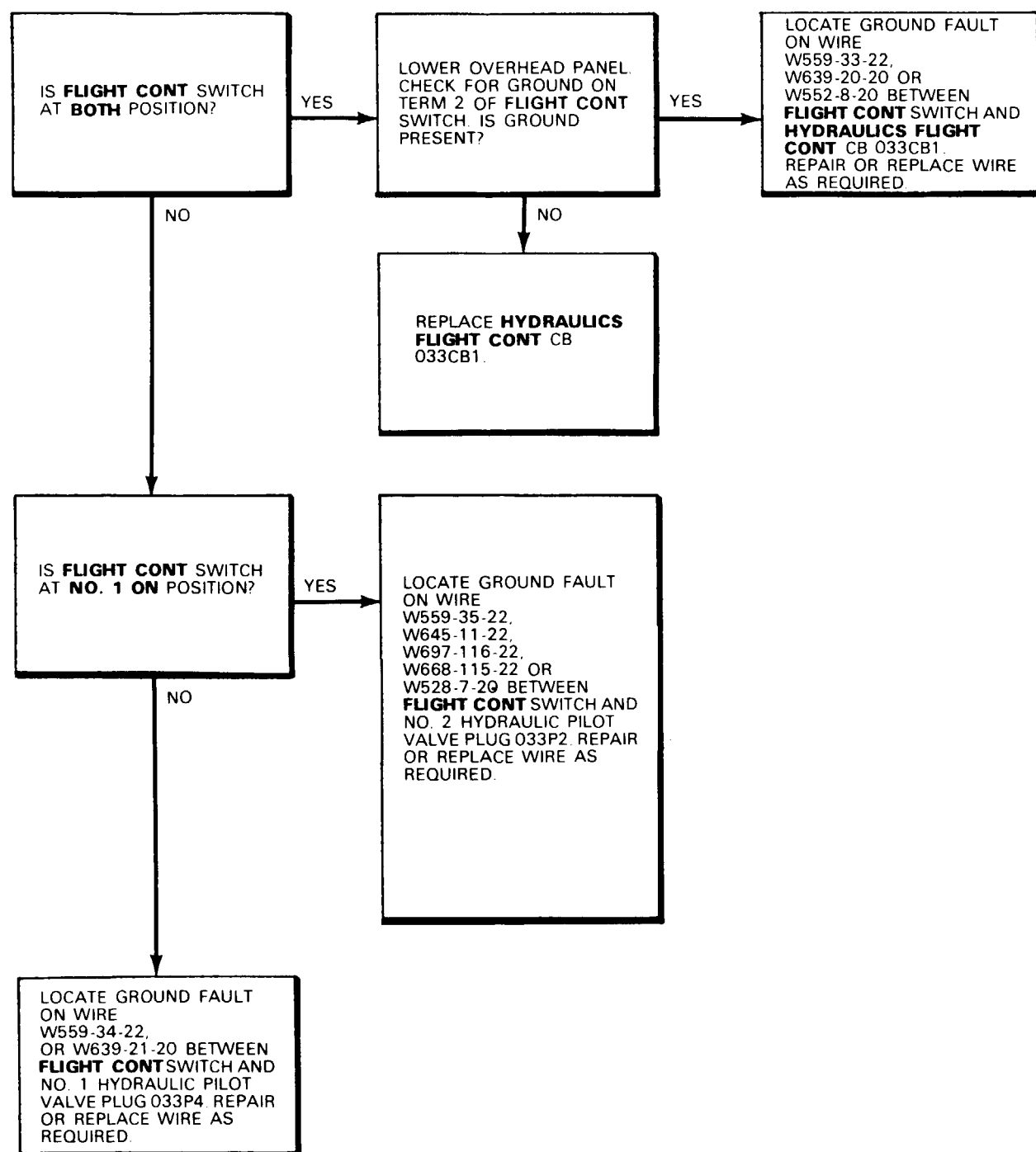
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7-1.9 HYDRAULICS FLIGHT CONT CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



7-1.10 HYDRAULIC NO. 2 BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

**Applicable Configurations:**  
All

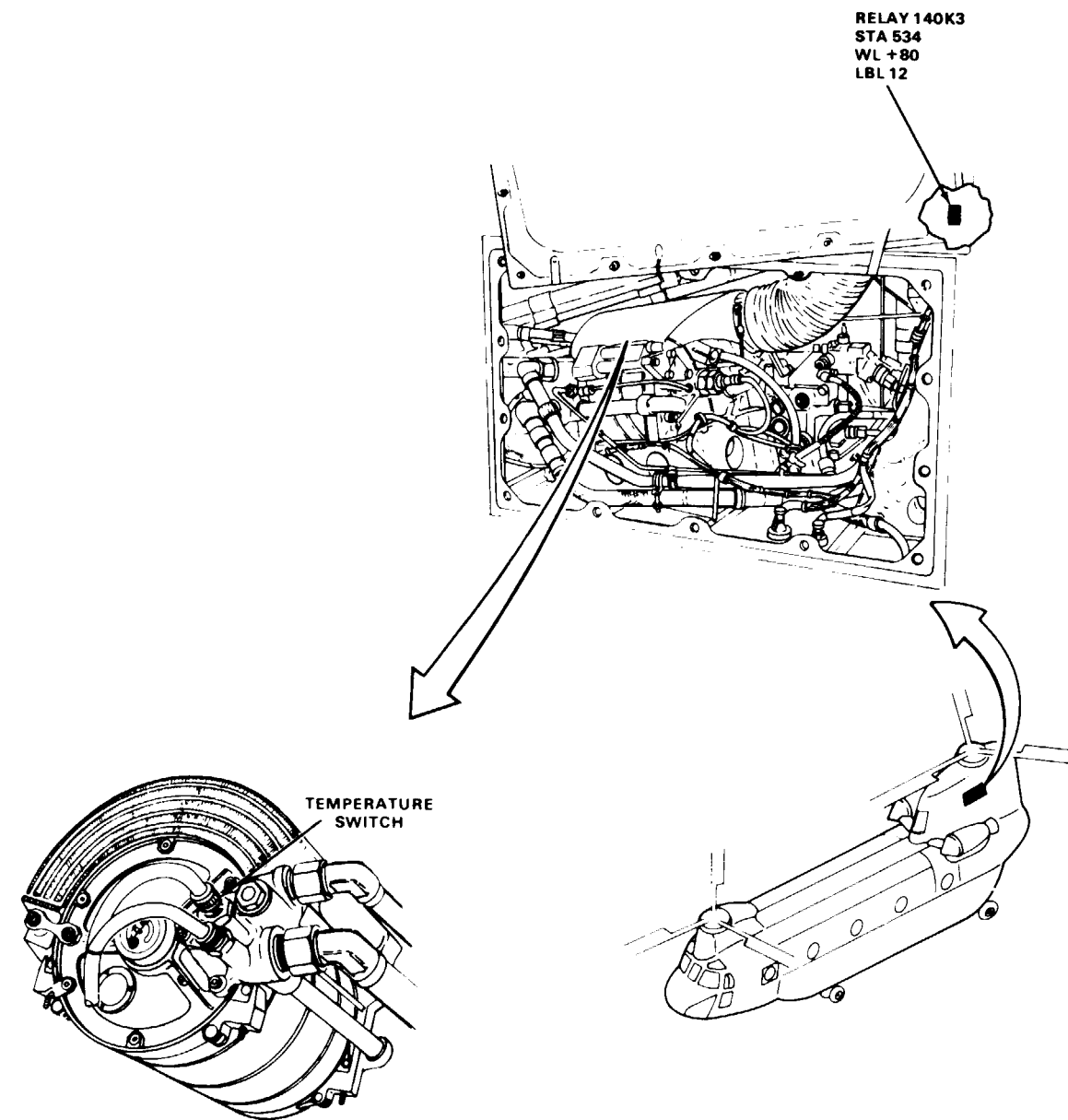
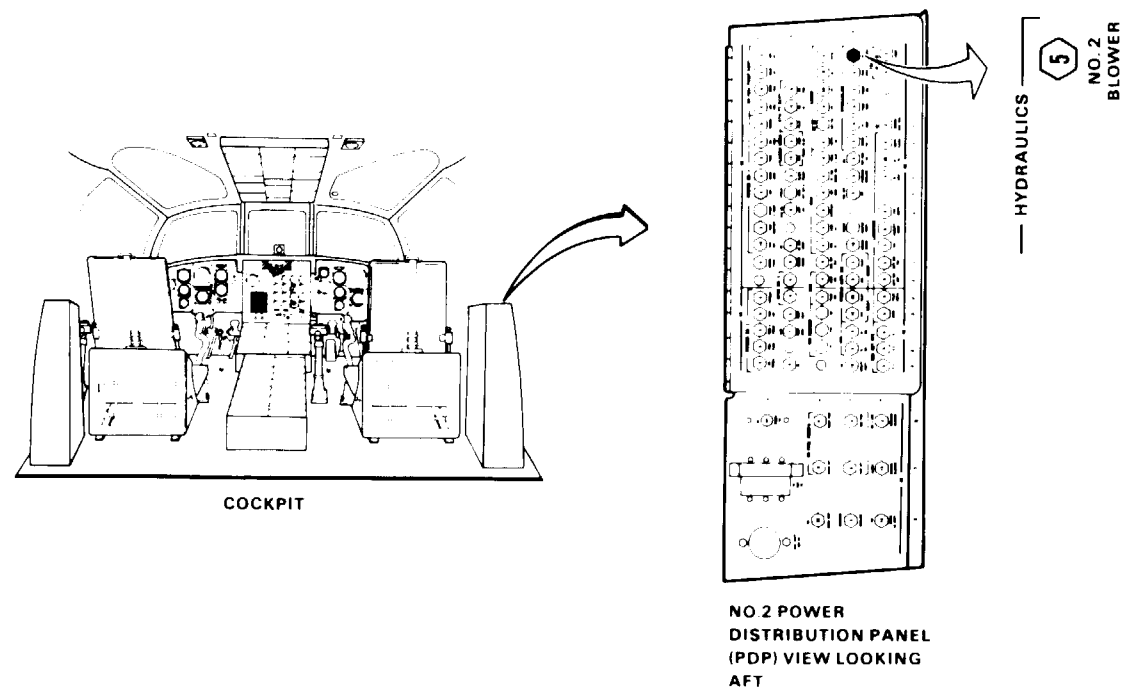
**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

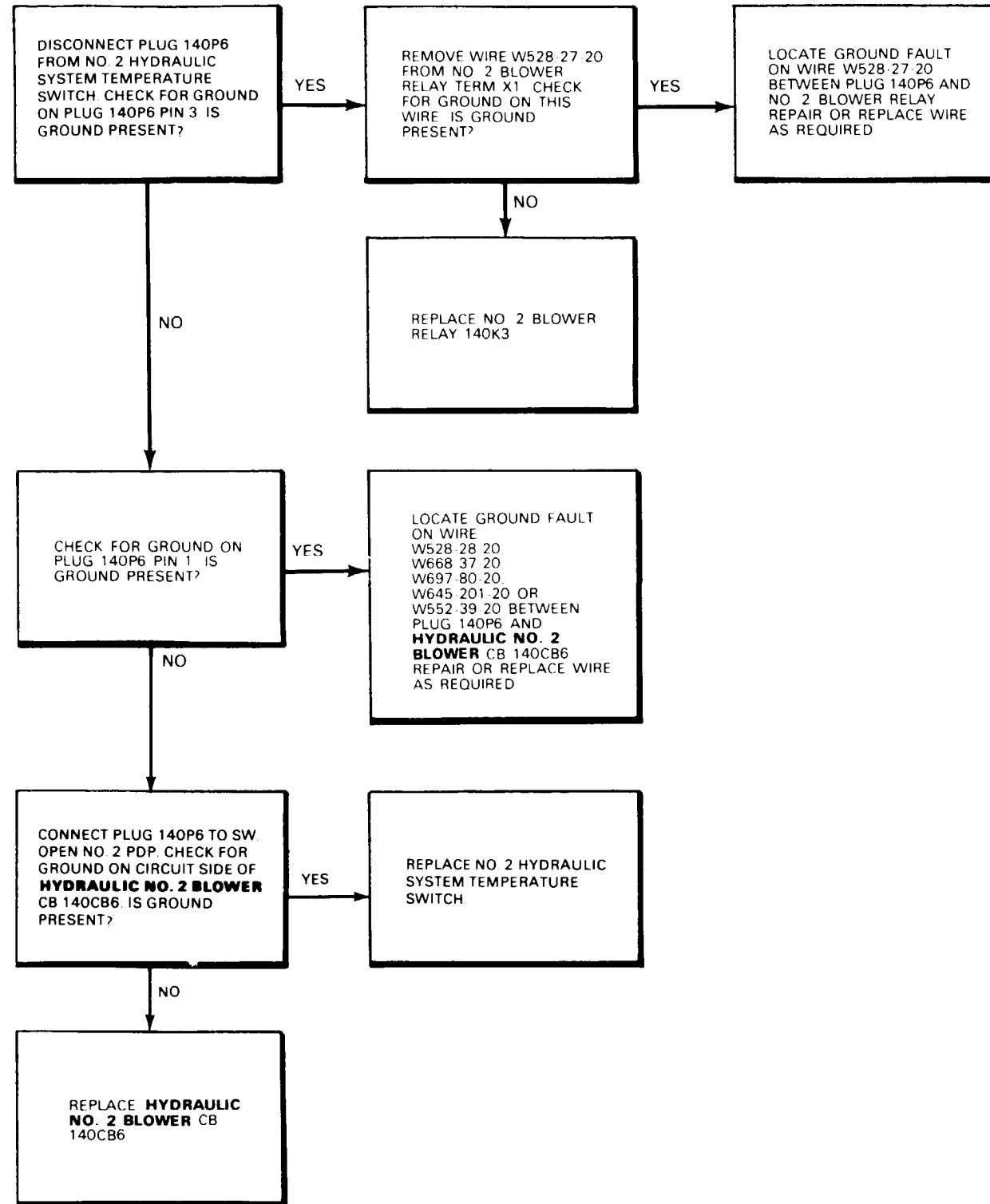
**Personnel Required:**  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



7-1.10 HYDRAULIC NO. 2 BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



END OF TASK

7-1.11 NO. 2 HYDRAULIC COOLING BLOWER CIRCUIT BREAKER DOES NOT STAY CLOSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692
- Multimeter

Materials:

None

Personnel Required:

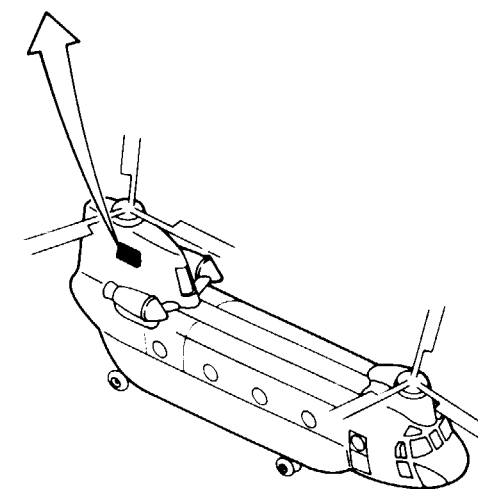
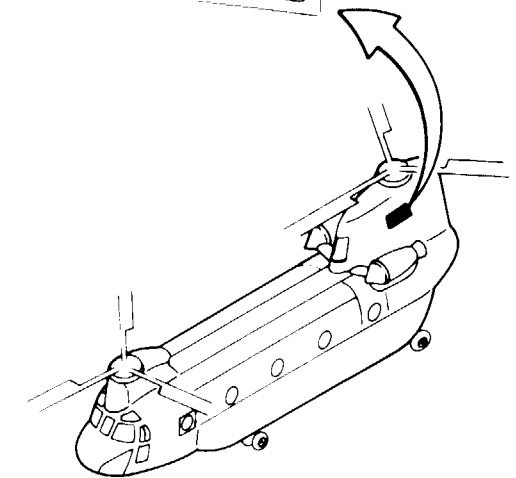
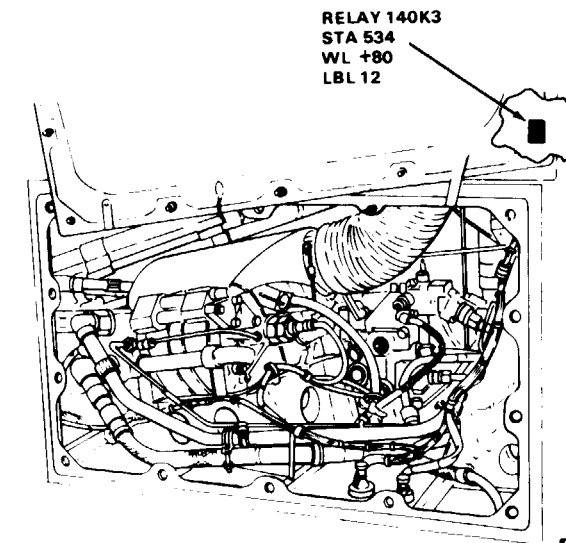
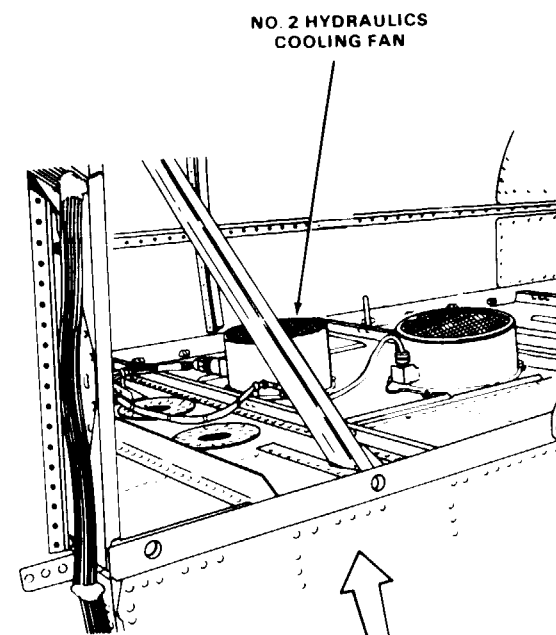
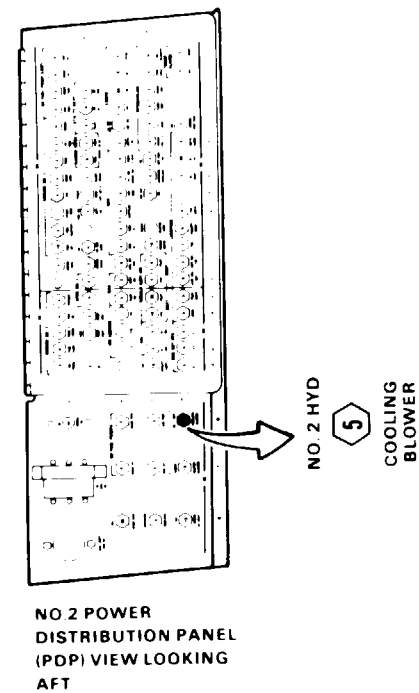
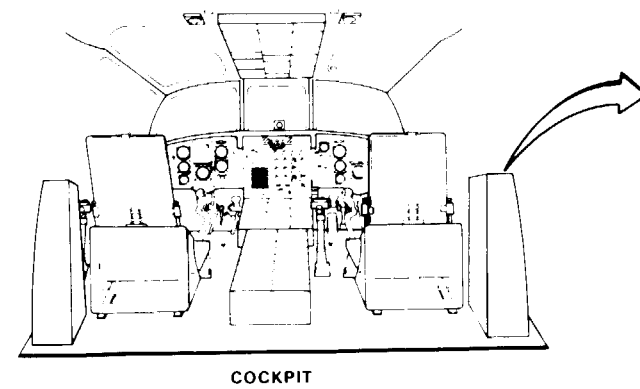
- 67U10 Medium Helicopter Repairer
- 68F20 Aircraft Electrician

References:

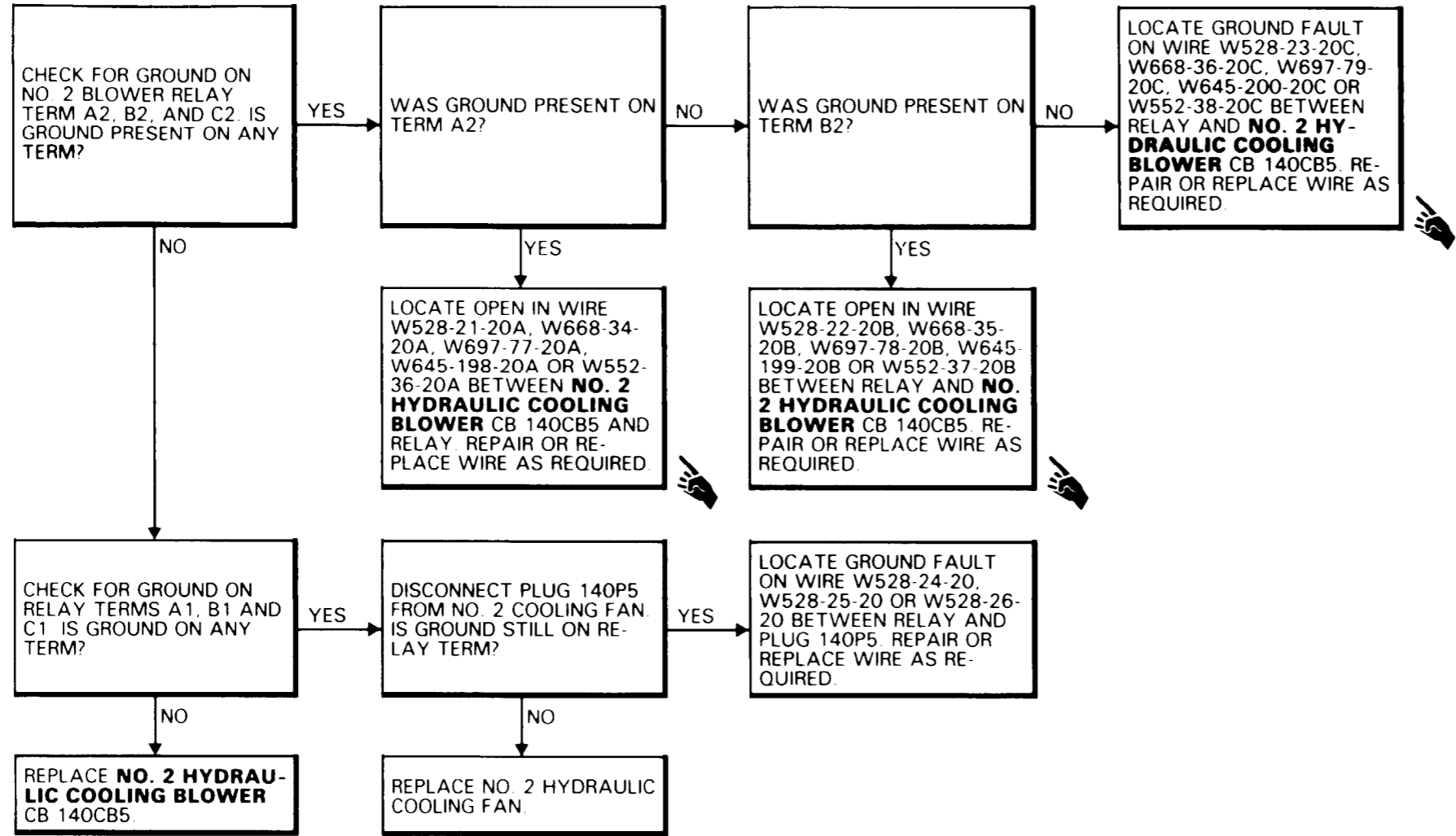
TM 55-1520-240-23

Equipment Condition:

- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power On



7-1.11 NO. 2 HYDRAULIC COOLING BLOWER CIRCUIT BREAKER DOES NOT STAY CLOSED (Continued)





**7-1.12 FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER DOES NOT MOVE WITH FLIGHT CONT SWITCH AT NO. 1 OR NO. 2**

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

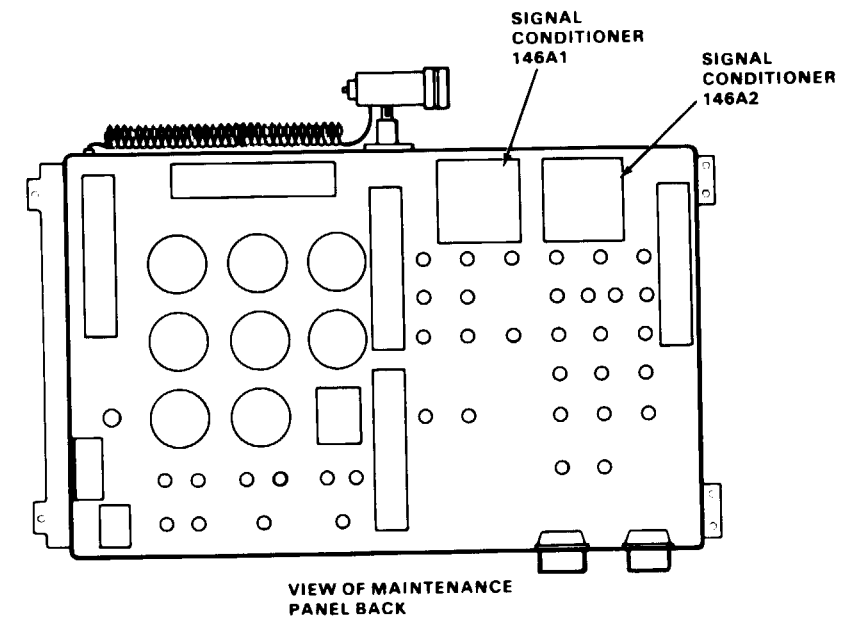
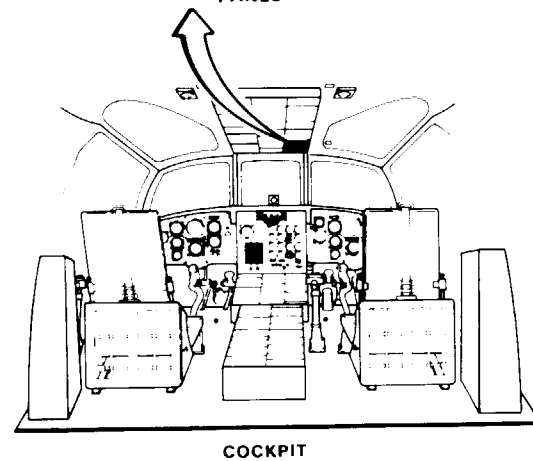
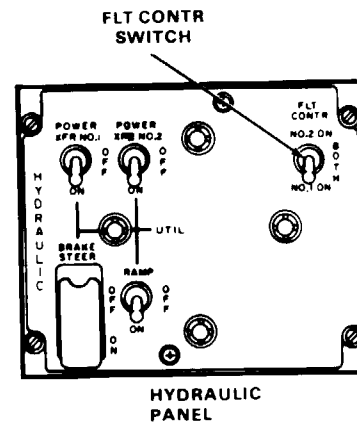
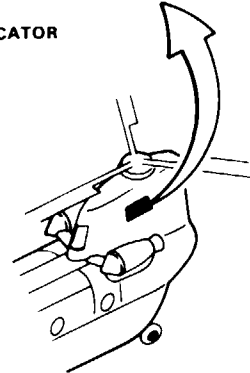
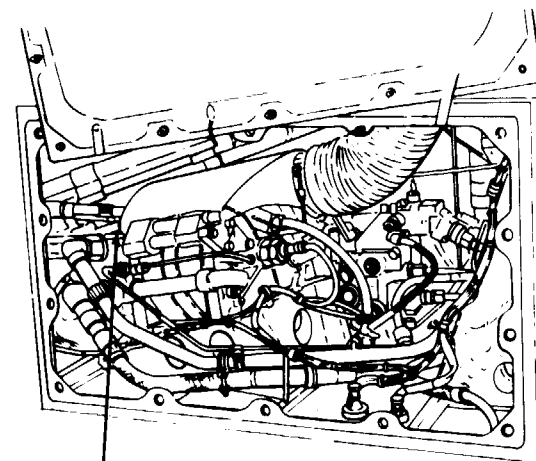
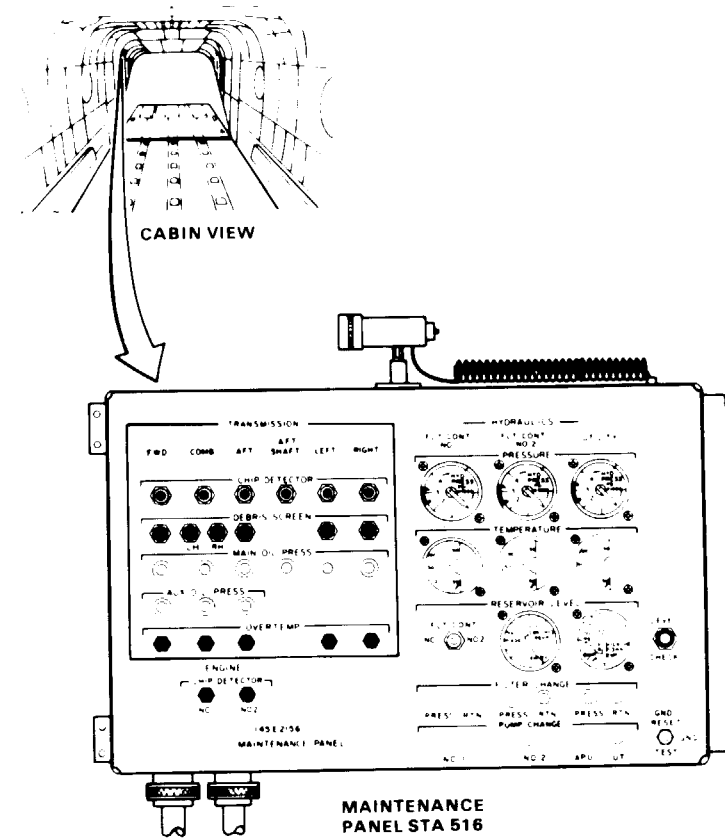
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power On

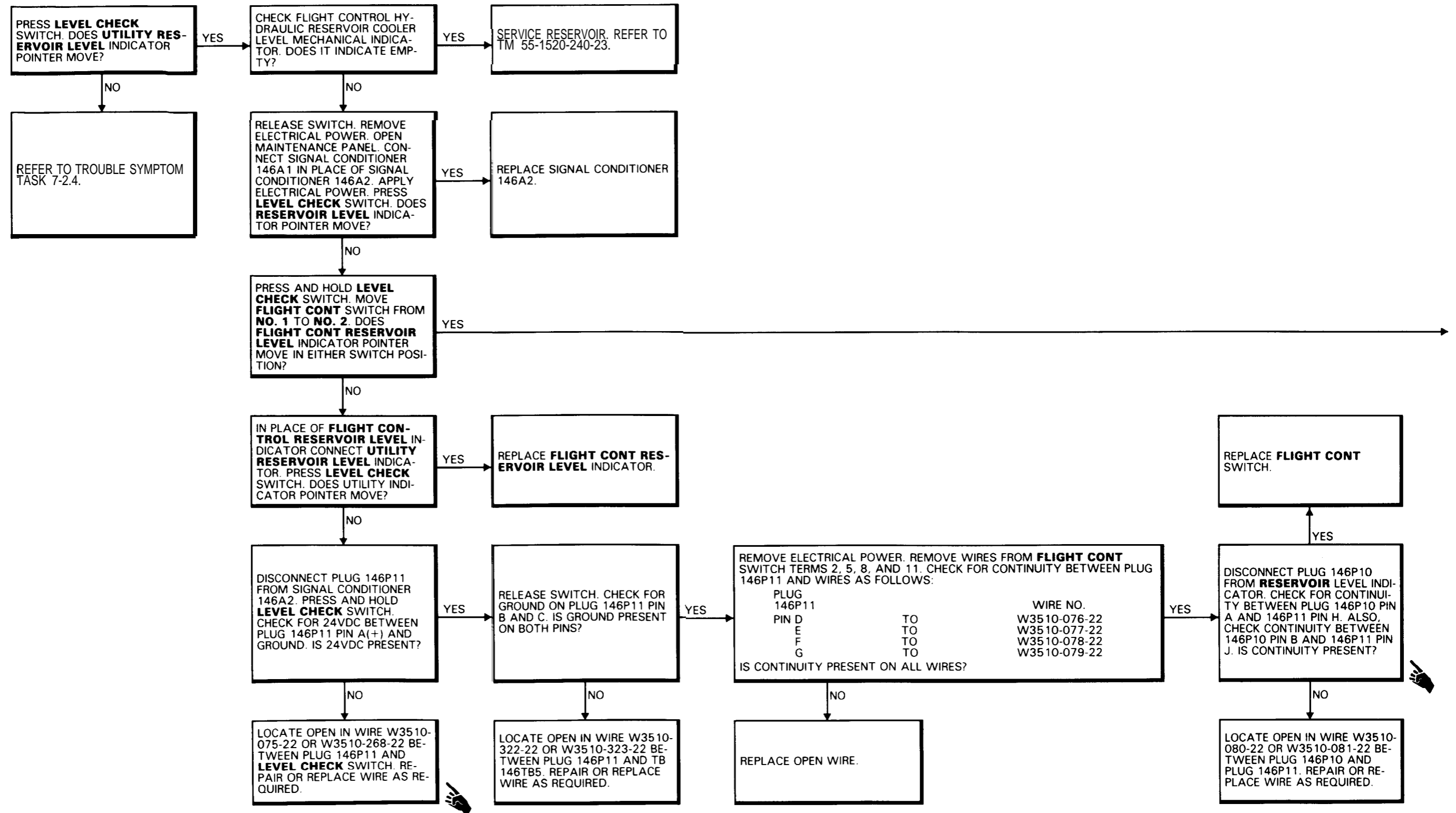


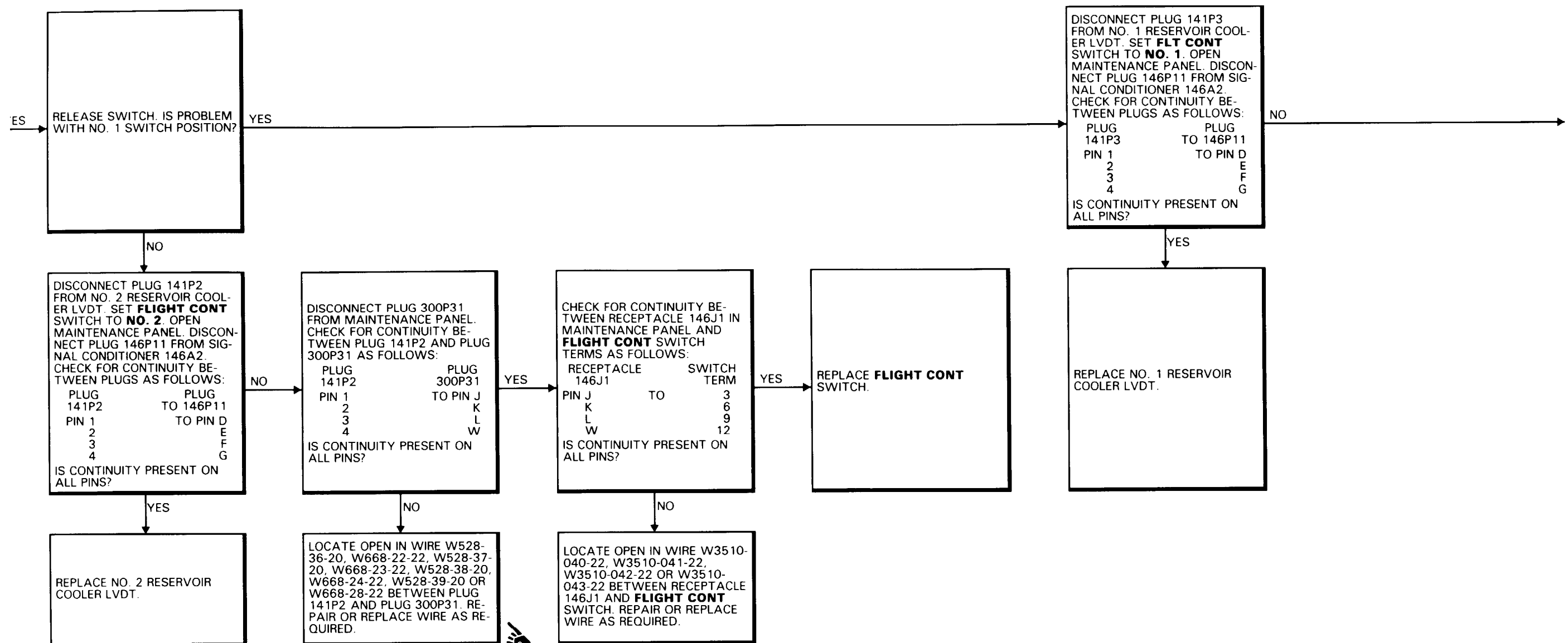
90X54

DI45-12128-SPA

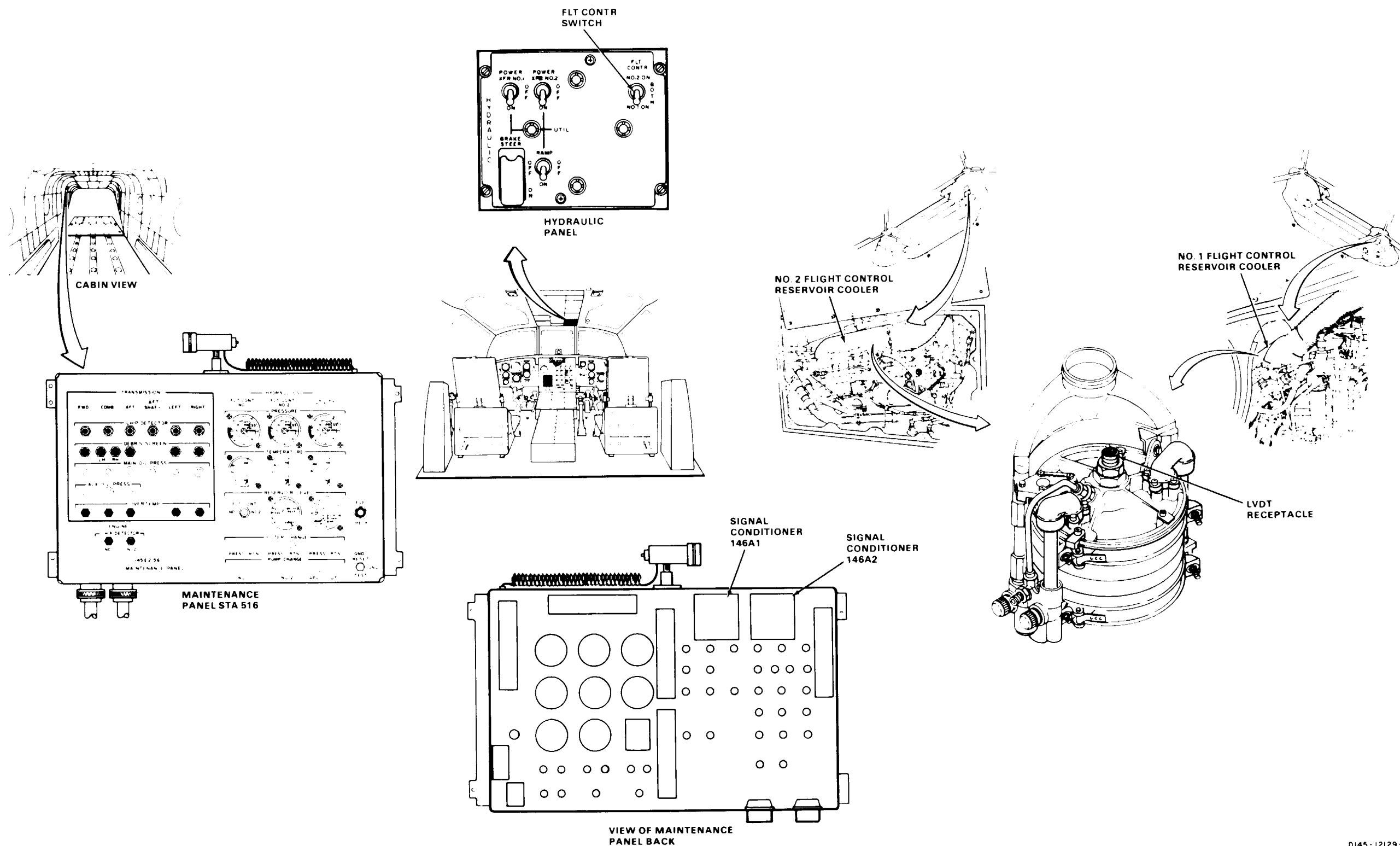
GO TO NEXT PAGE

7-1.12 FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER DOES NOT MOVE WITH FLIGHT CONT SWITCH AT NO. 1 OR NO. 2 (Continued)

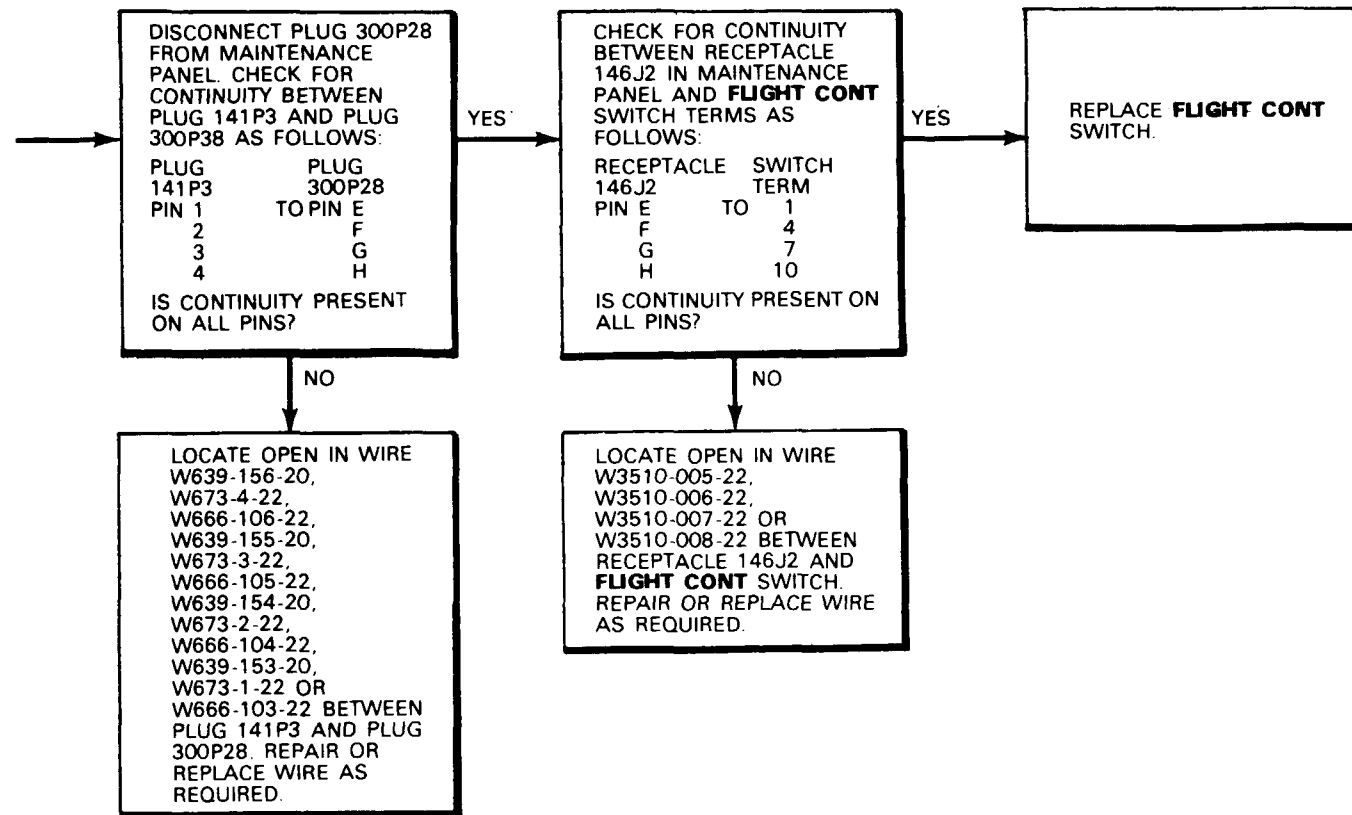




7-1.12 FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER DOES NOT MOVE WITH FLIGHT CONT SWITCH AT NO. 1 OR NO. 2 (Continued)



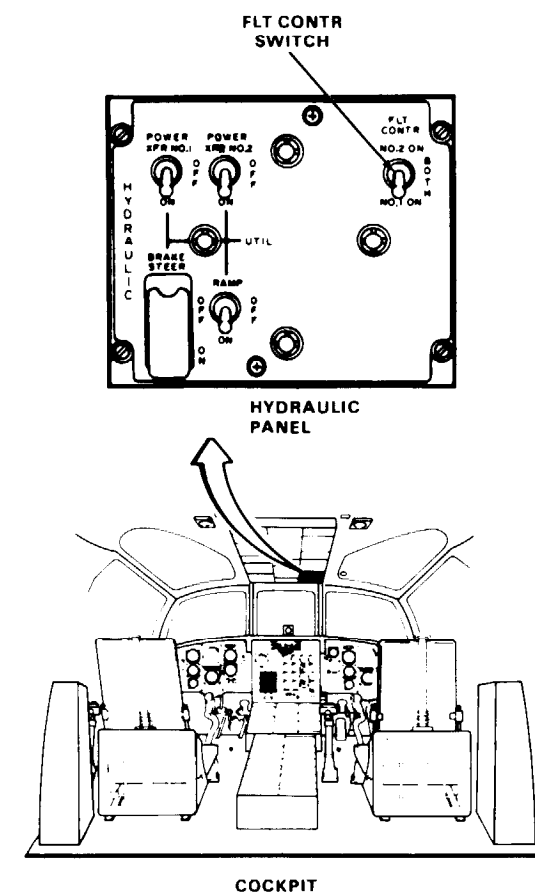
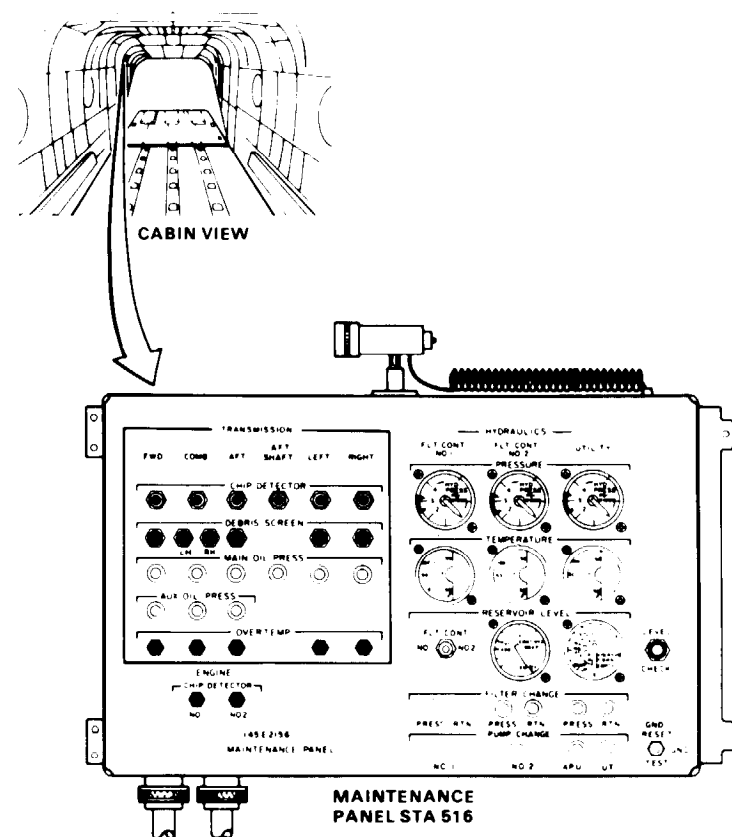
7-1.12 FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER DOES NOT MOVE WITH FLIGHT CONT SWITCH AT NO. 1 OR NO. 2 (Continued)



GO TO NEXT PAGE

**7-1.12 FLIGHT CONT RESERVOIR LEVEL INDICATOR POINTER  
DOES NOT MOVE WITH FLIGHT CONT SWITCH  
AT NO. 1 OR NO. 2 (Continued)**

7-1.12



**7-1.13 NO. 1 OR NO. 2 PUMP FAULT OR FILTER CHANGE LIGHTS  
DO NOT COME ON WHEN PRESSED**

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Personnel Required:**

- 67U10 Medium Helicopter Repairer
- 68F20 Aircraft Electrician

**Applicable Configurations:**

All

**References:**

TM 55-1520-240-23

**Tools:**

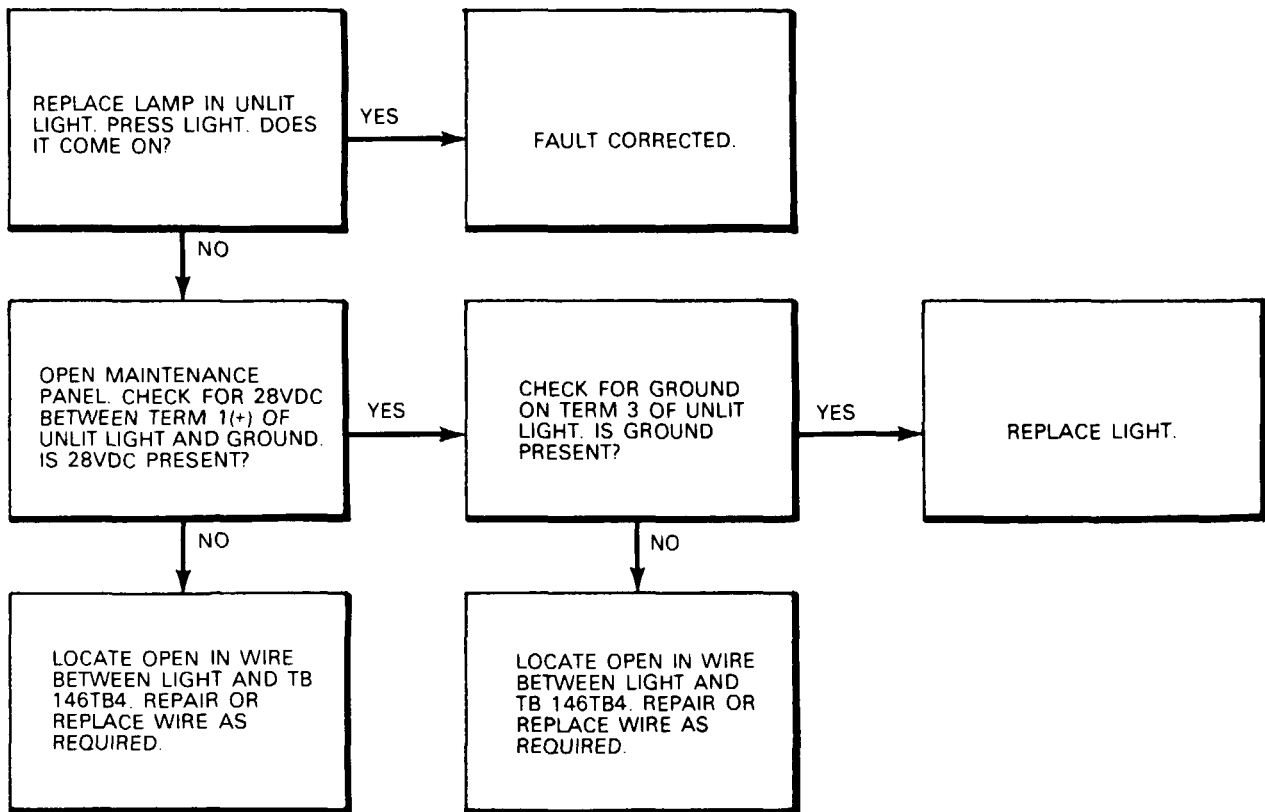
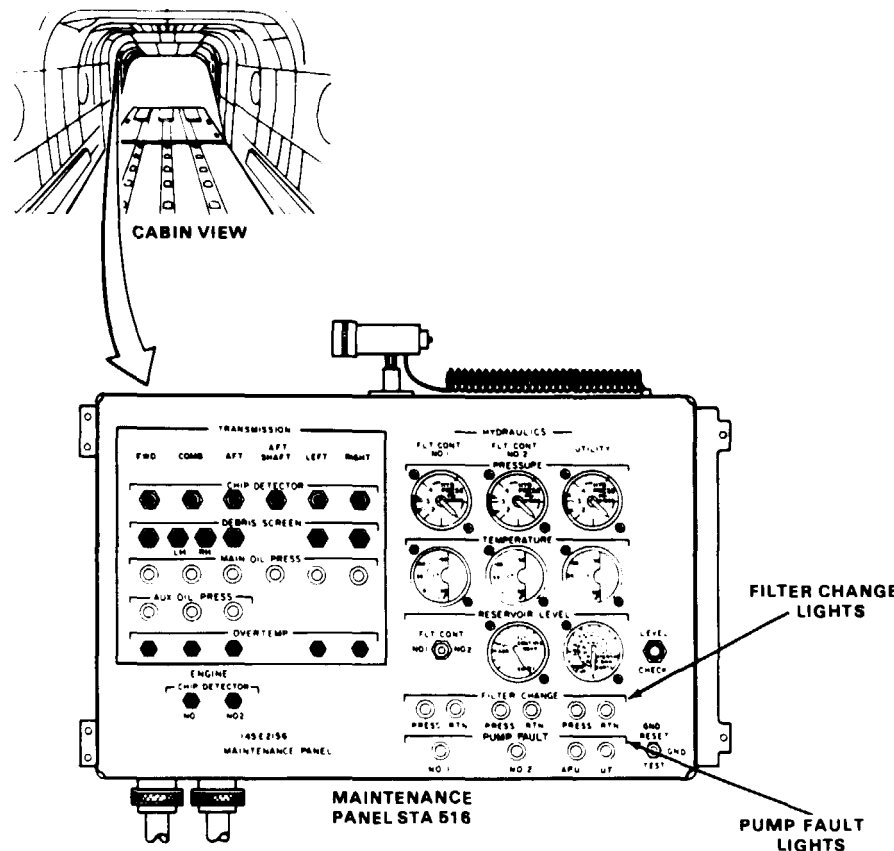
- Electrical Repairer's Tool Kit
- NSN 5180-00-323-4915
- Multimeter

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power On

**Materials:**

None



7-1.14 NO. 1 OR NO. 2 HYD FLT CONTR CAPSULE IS OUT WHEN SYSTEM NOT PRESSURIZED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

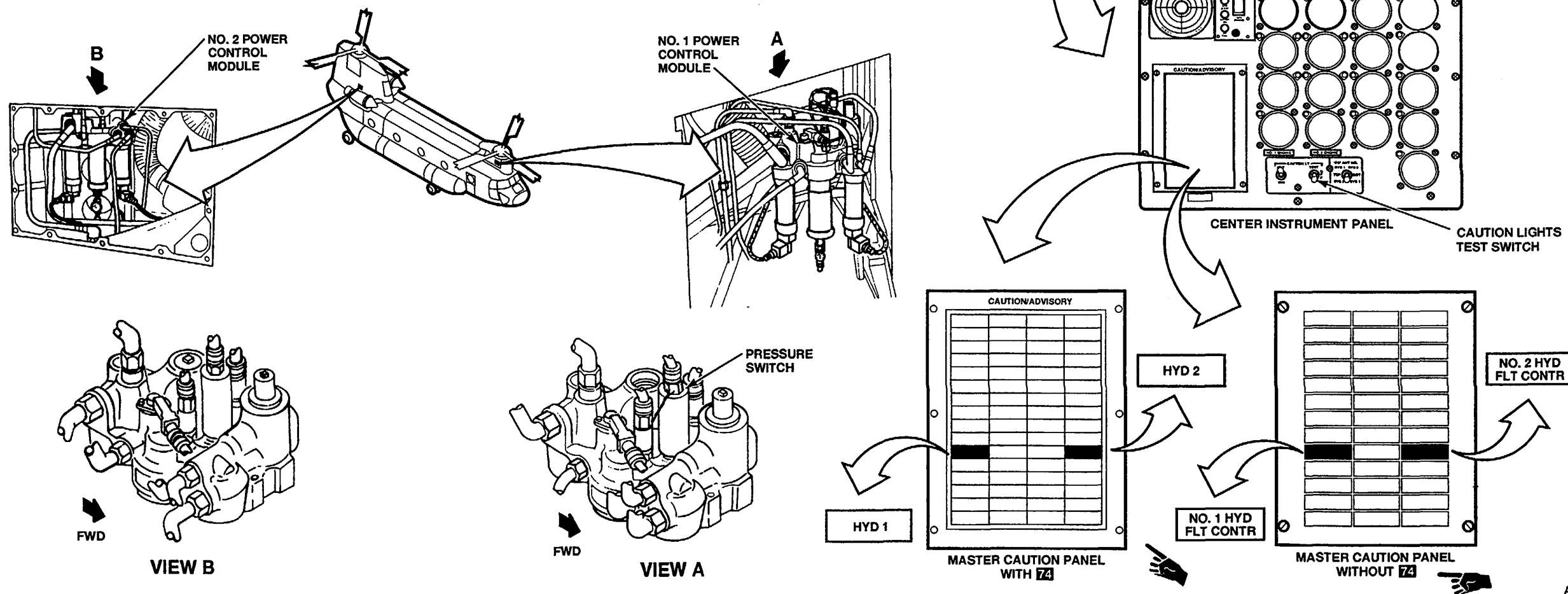
**Tools:**  
Aircraft Mechanics Tool Kit,  
NSN 5180-00-323-4692  
  
Electrical Repairer Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

**Personnel Required:**  
Medium Helicopter Repairer  
Aircraft Electrician

**References:**  
TM 55-1520-240-23

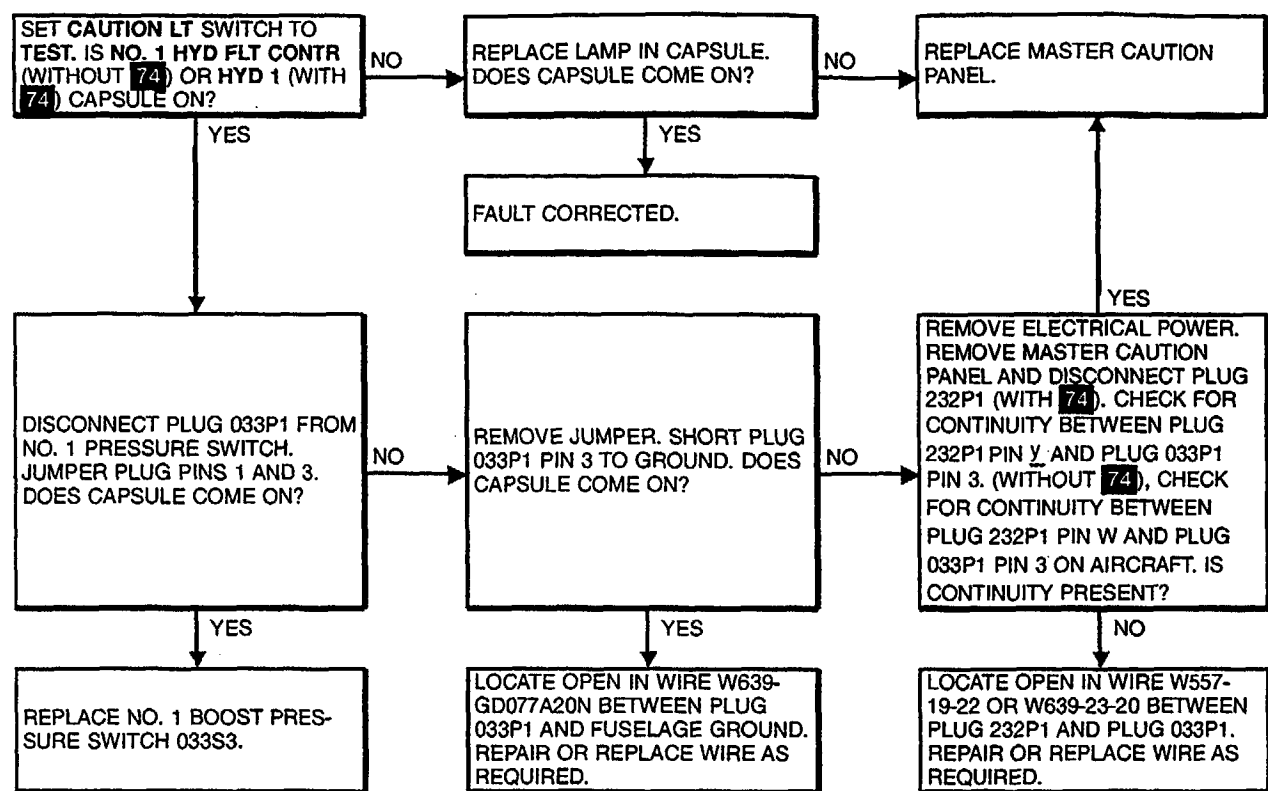
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



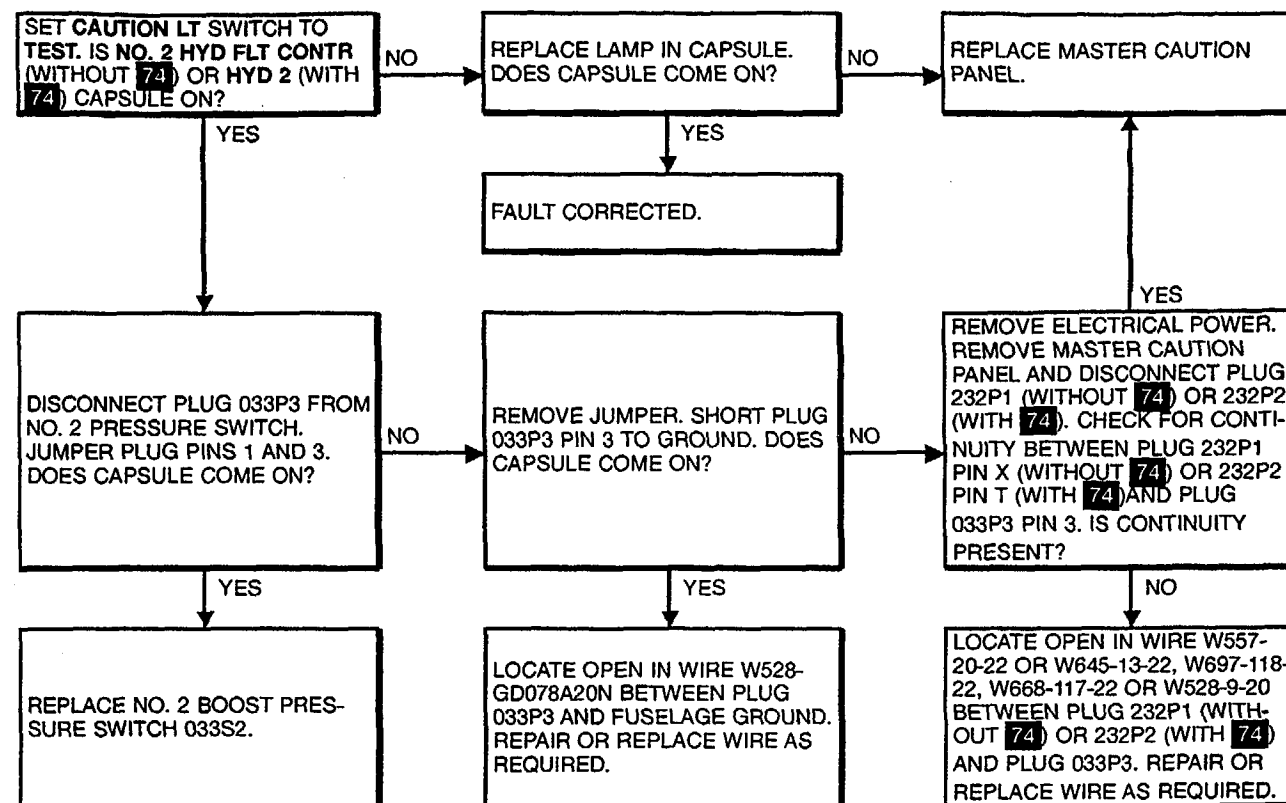
A65363



**NO. 1 HYD FLT CONTR CAPSULE IS OUT (WITHOUT 74)  
HYD 1 CAPSULE IS OUT (WITH 74)**



**NO. 2 HYD FLT CONTR CAPSULE IS OUT (WITHOUT 74)  
HYD 2 CAPSULE IS OUT (WITH 74)**



END OF TASK

Change 17 7-43

7-1.15 HYDRAULIC FLIGHT CONT NO. 1 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit
- NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

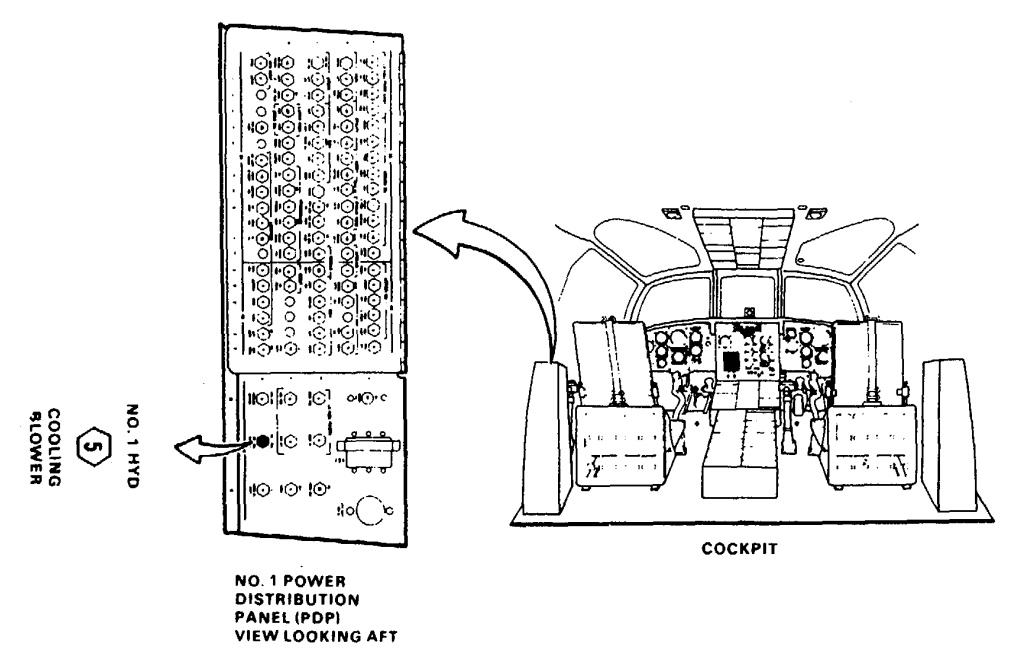
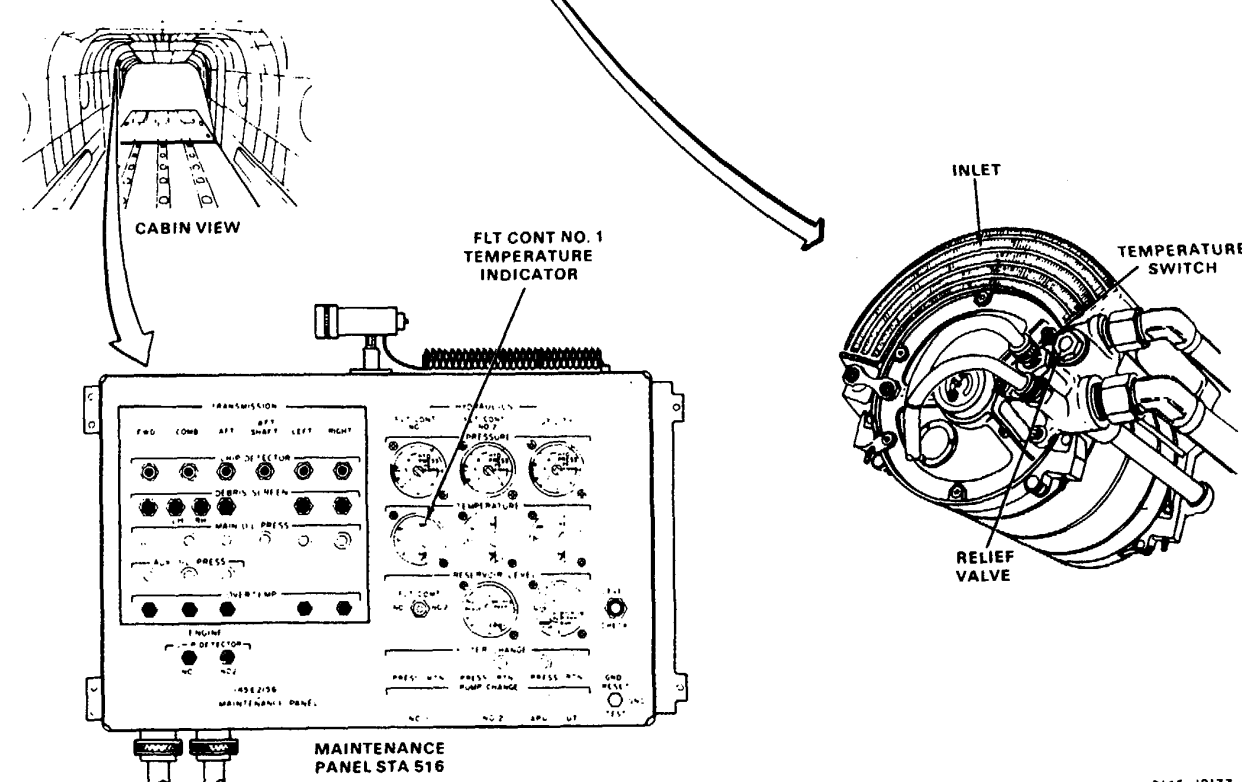
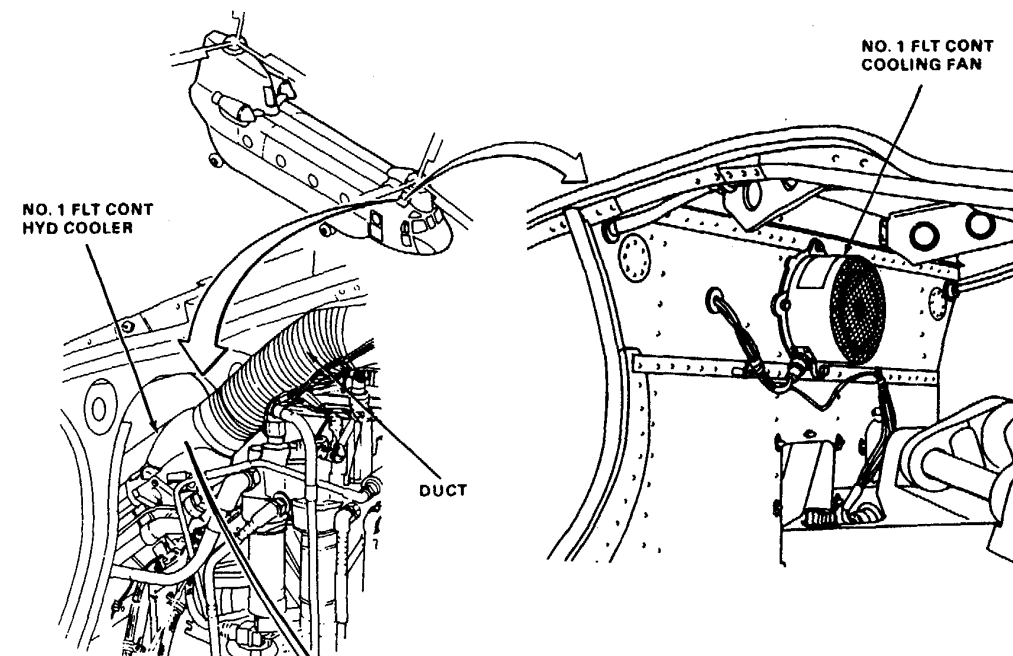
- 67U10 Medium Helicopter Repairer
- 68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

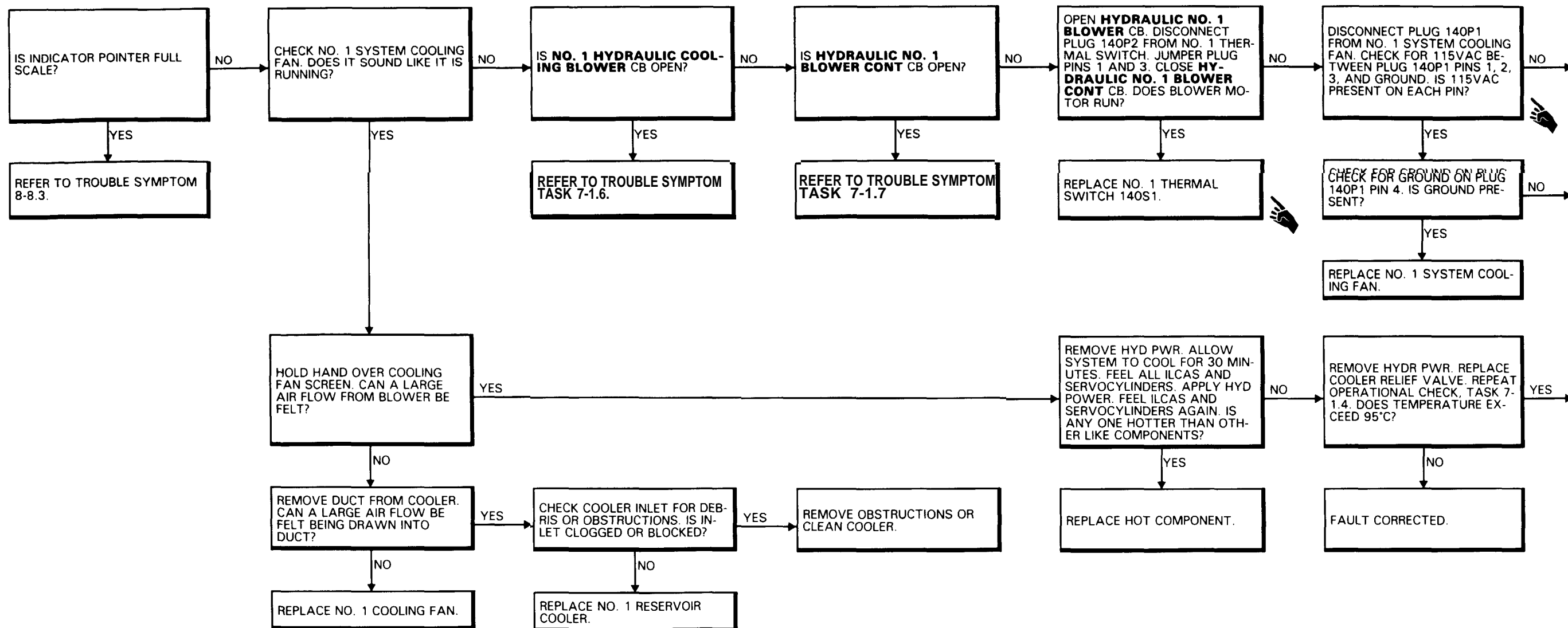
- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power On

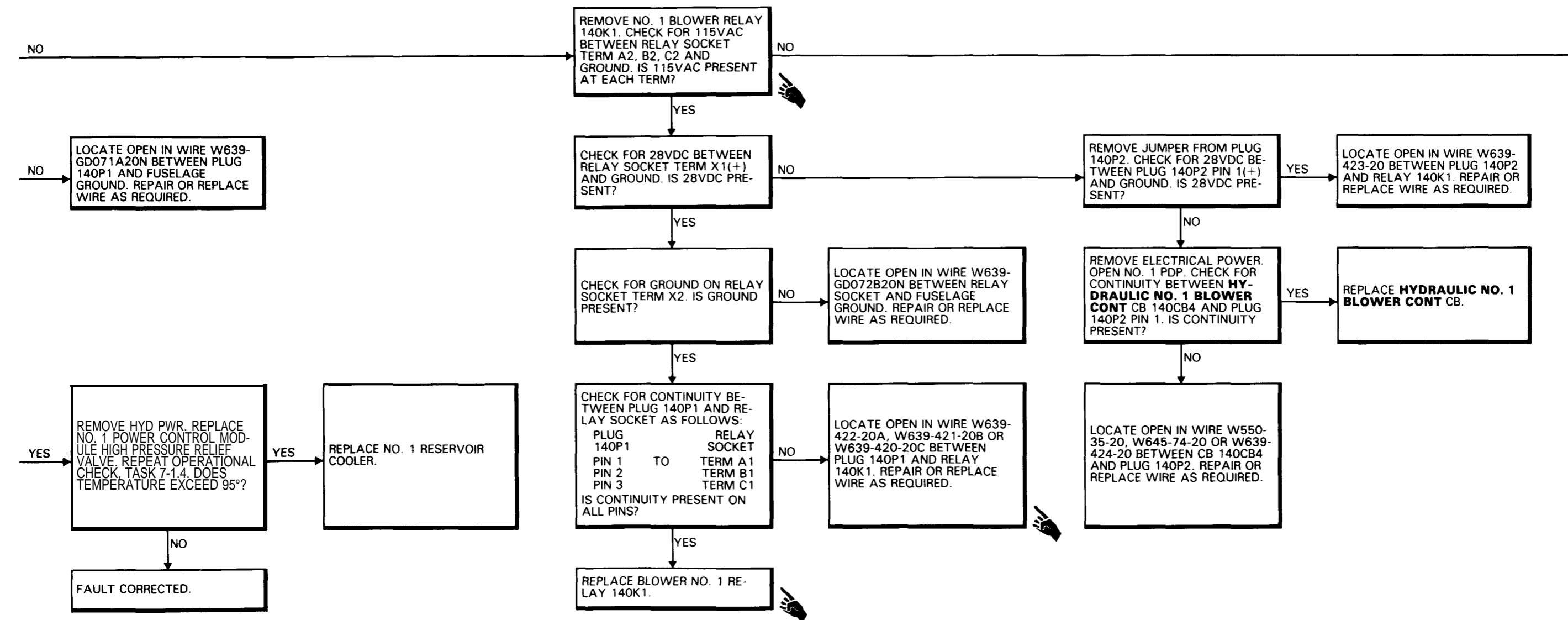


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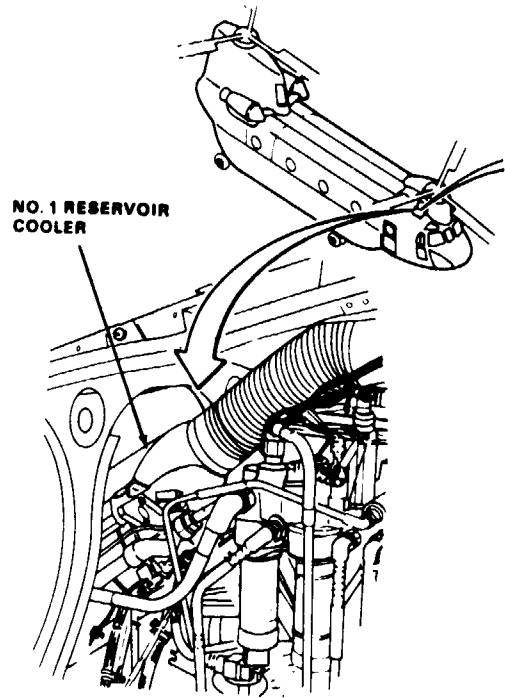
D145-12133-SPA

7-1.15 HYDRAULIC FLIGHT CONT NO. 1 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C (Continued)



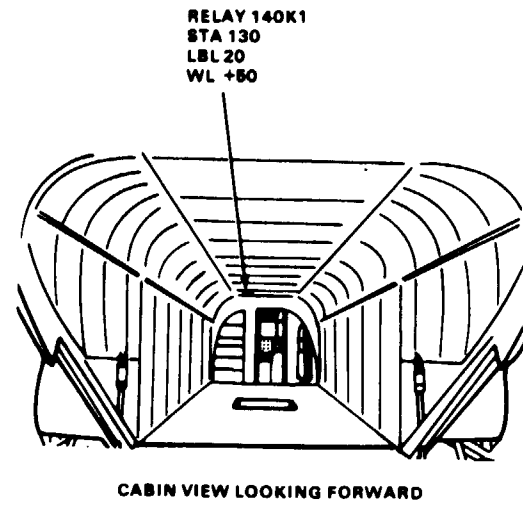
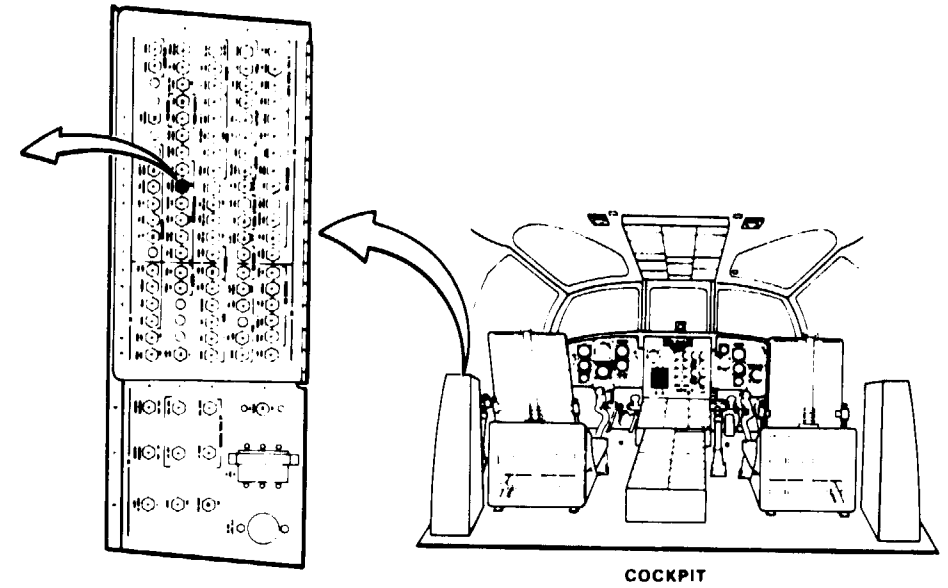


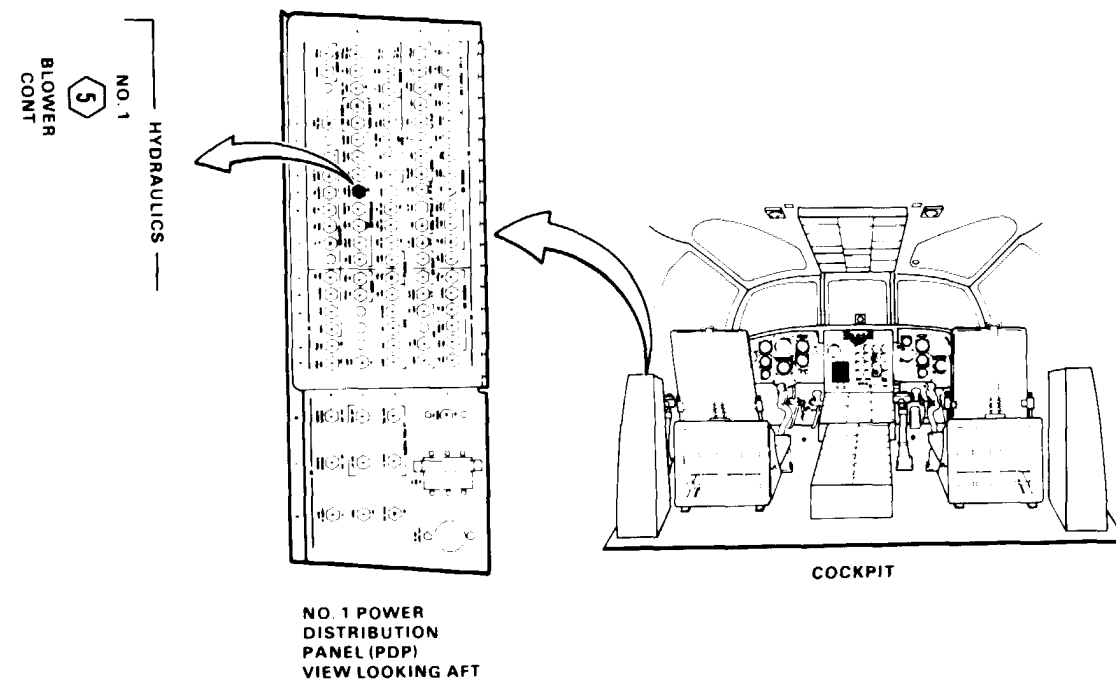
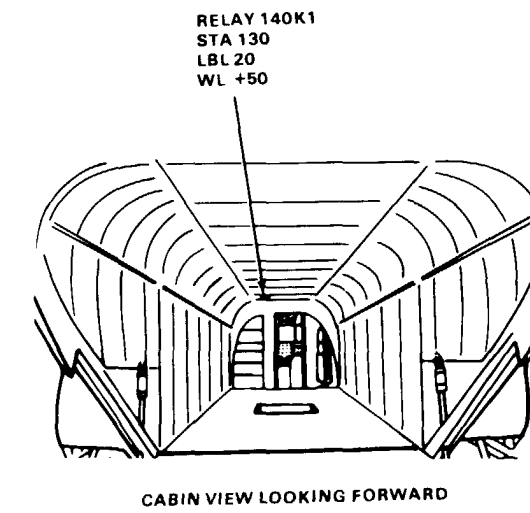
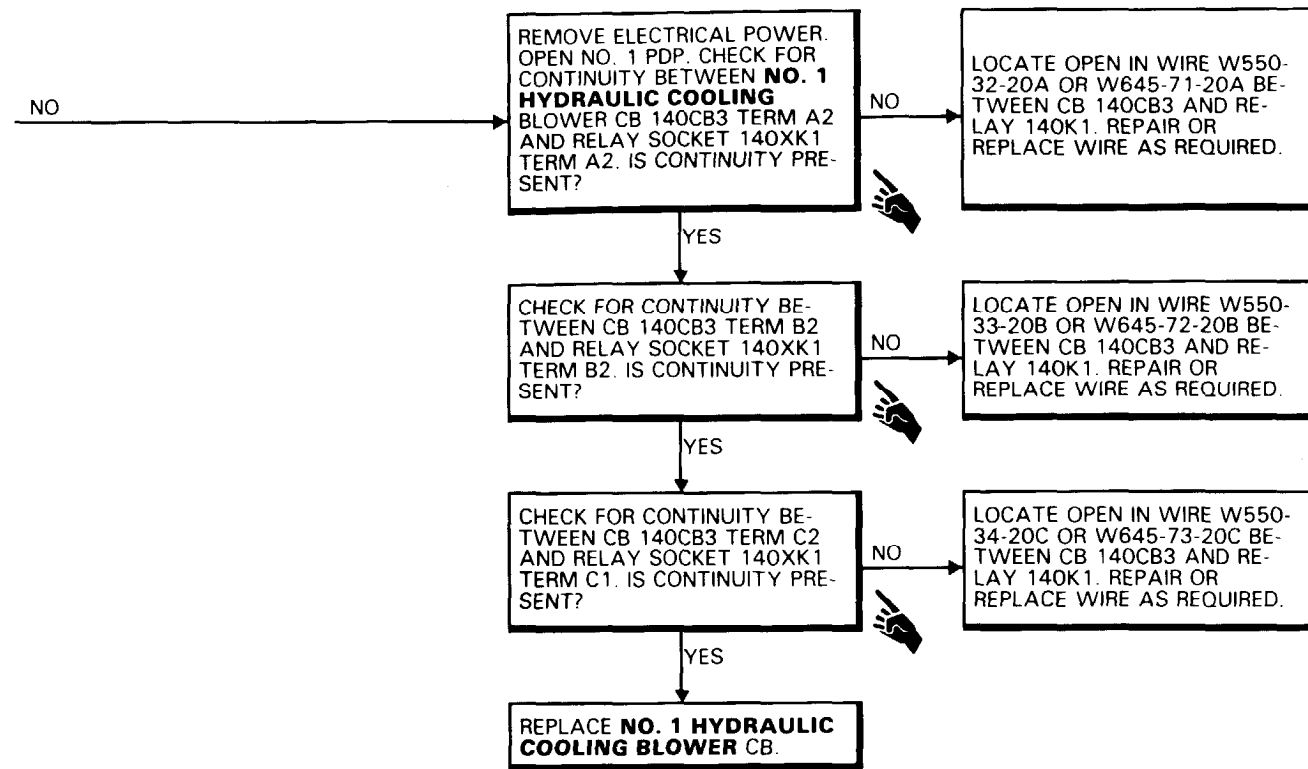
7-1.15 HYDRAULICS FLIGHT CONT NO. 1 TEMPERATURE INDICATOR POINTER EXCEEDS 95° C (Continued)



NO. 1  
5  
BLOWER  
CONT

HYDRAULICS





7-1.16 HYDRAULICS FLIGHT CONTROL NO. 2 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

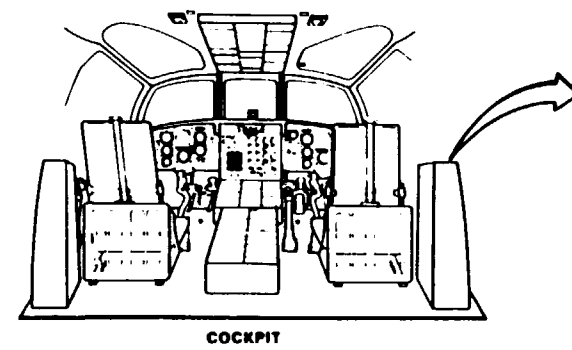
**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multi meter

**Materials:**  
None

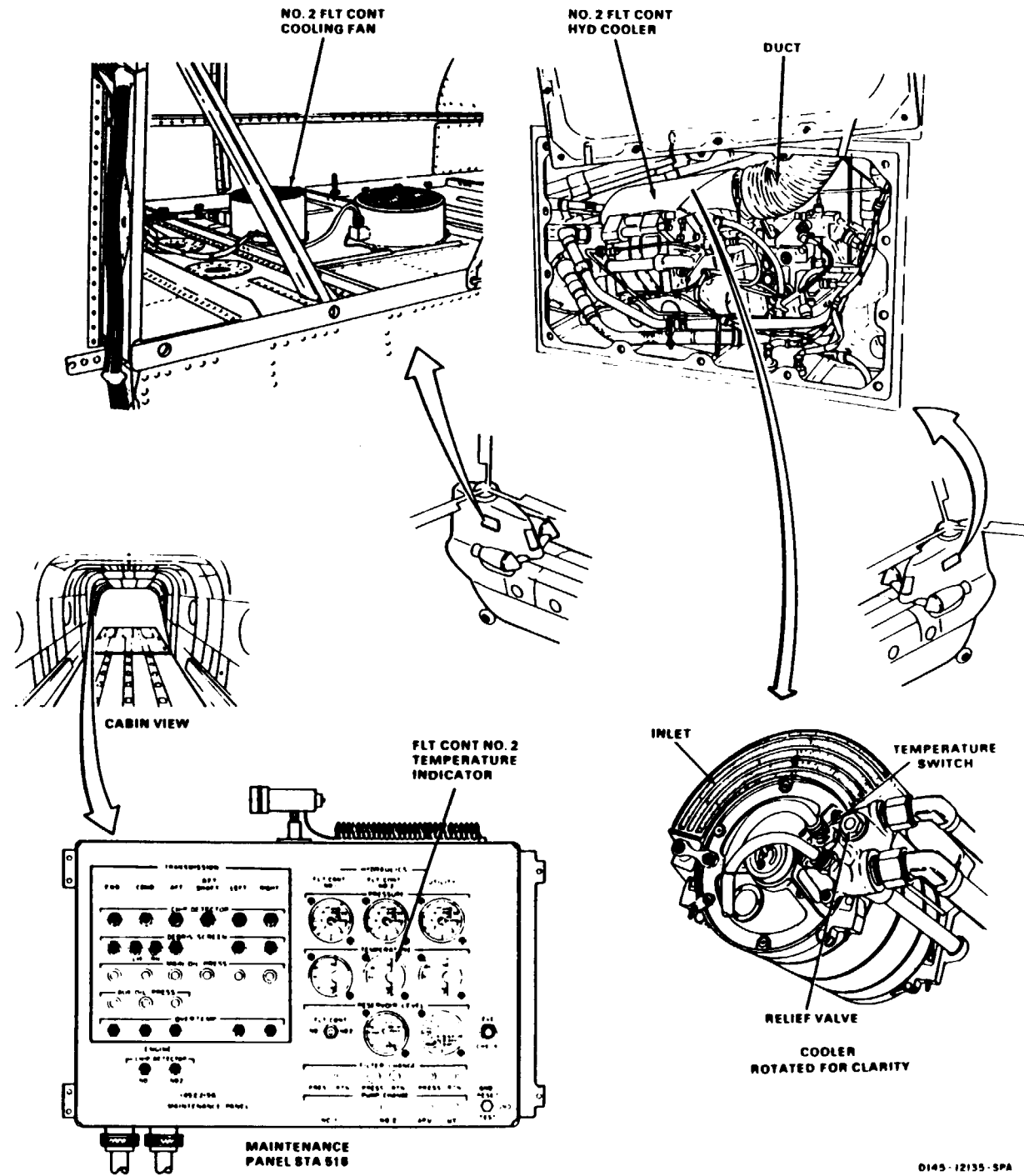
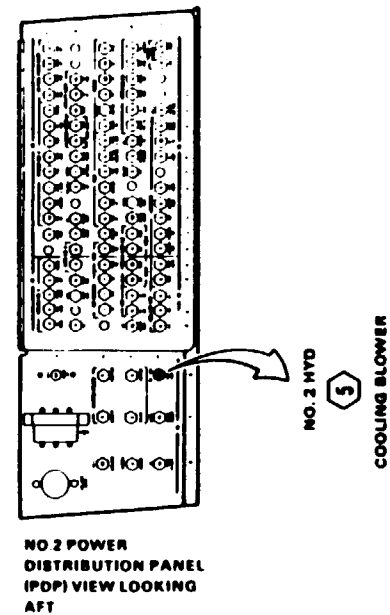
**Personnel Required:**  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On



90284

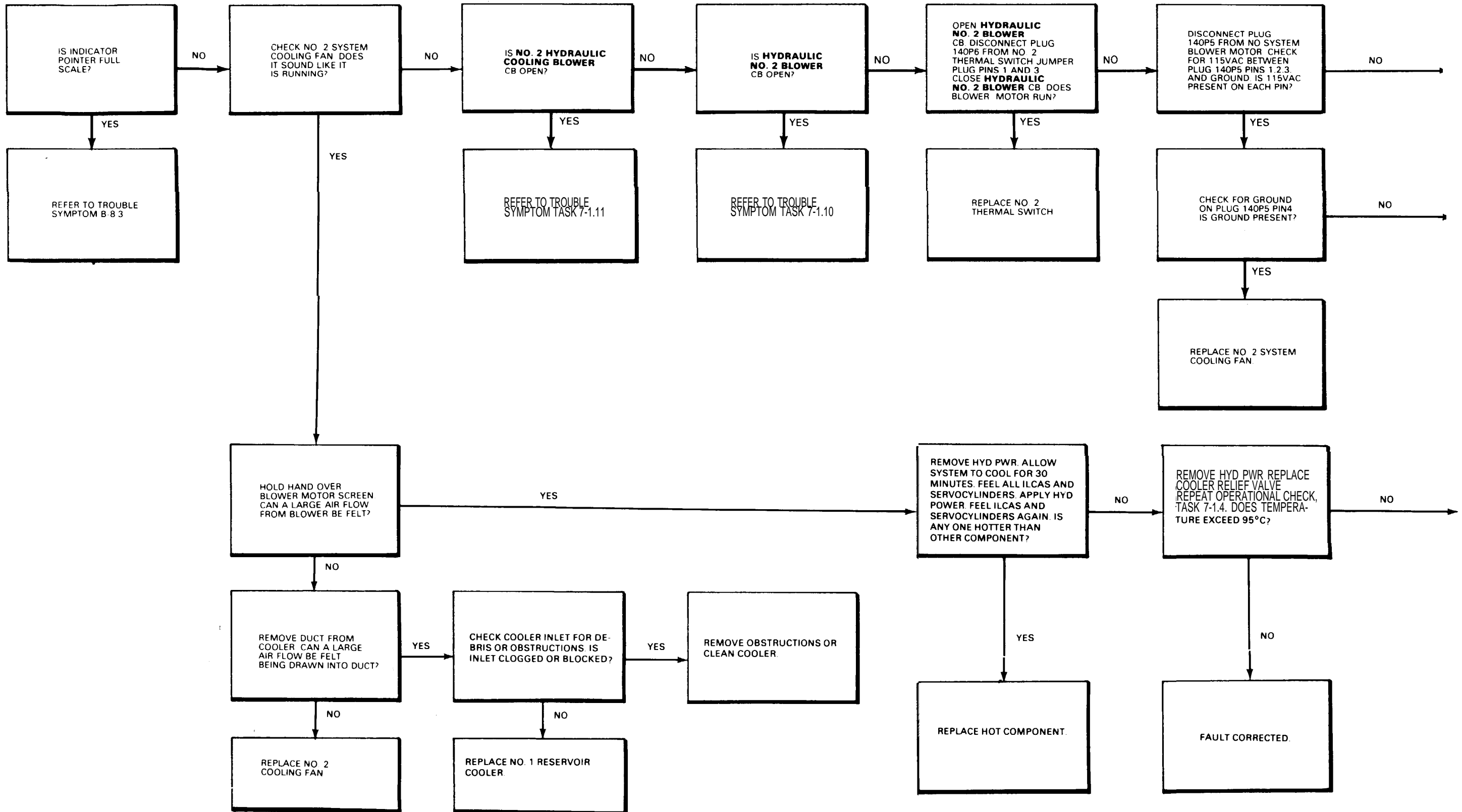


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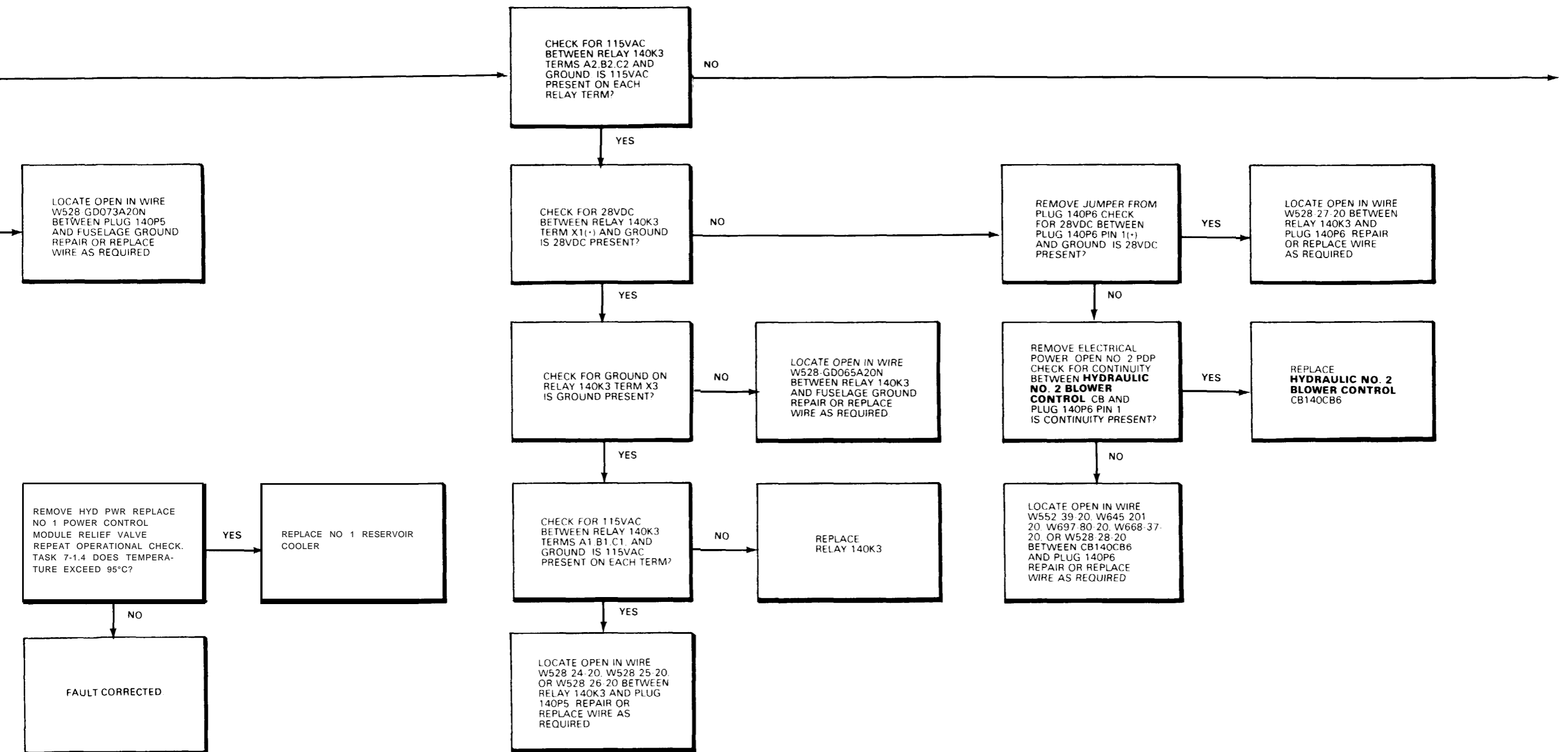
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**7-1.16 HYDRAULICS FLIGHT CONTROL NO. 2 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C (Continued)**

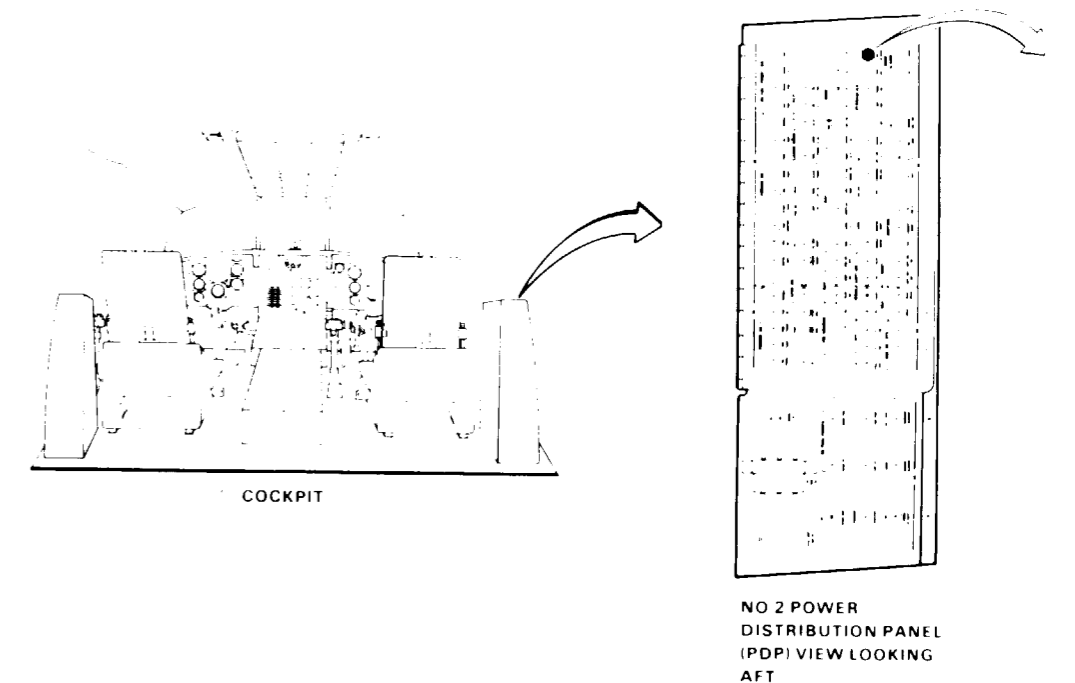
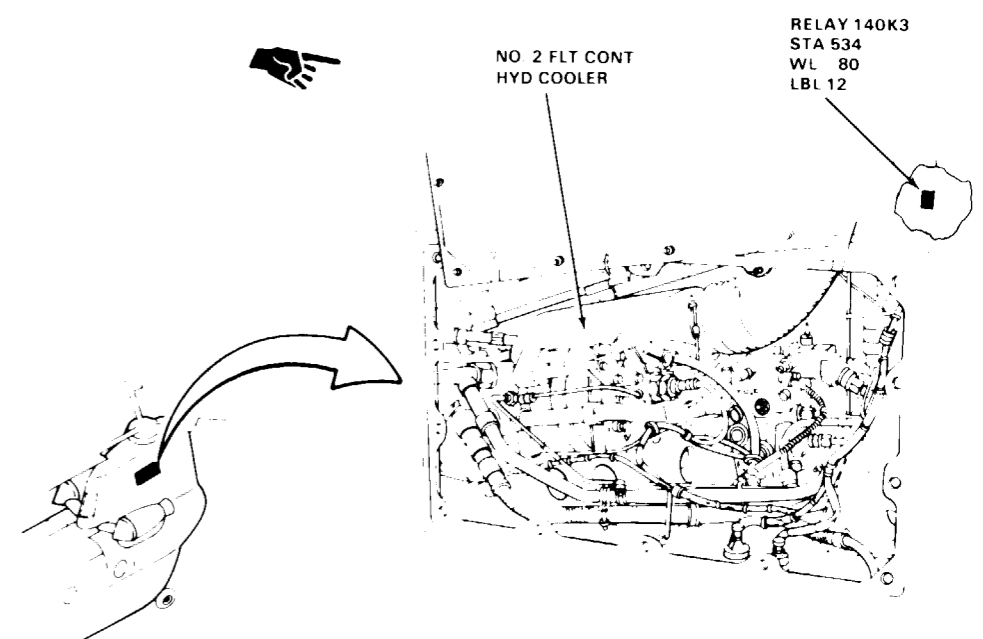
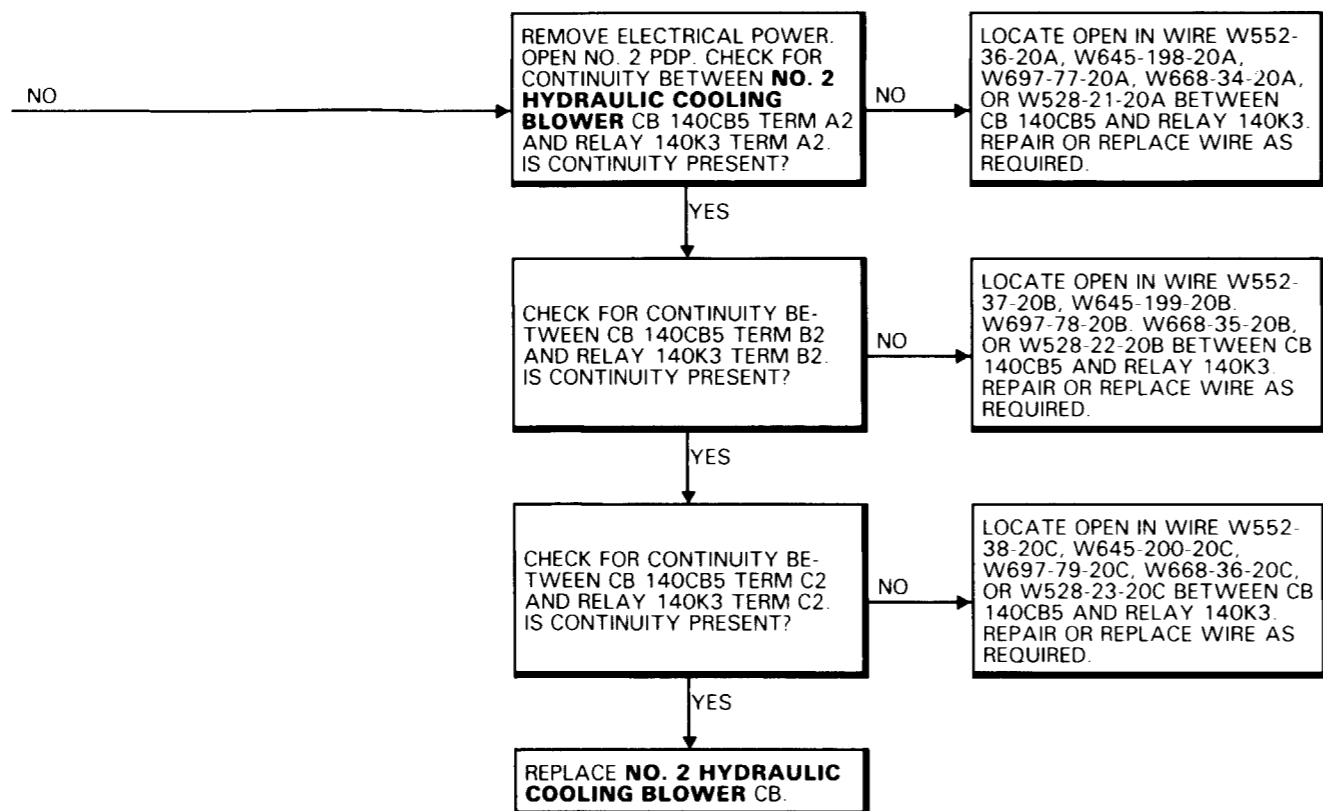




7-1.16 HYDRAULICS FLIGHT CONTROL NO. 2 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C (Continued)



7-1.16 HYDRAULICS FLIGHT CONTROL NO. 2 TEMPERATURE INDICATOR POINTER EXCEEDS 95°C  
(Continued)



**7-1.17 FLIGHT CONTROL NO. 1 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON**

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
All

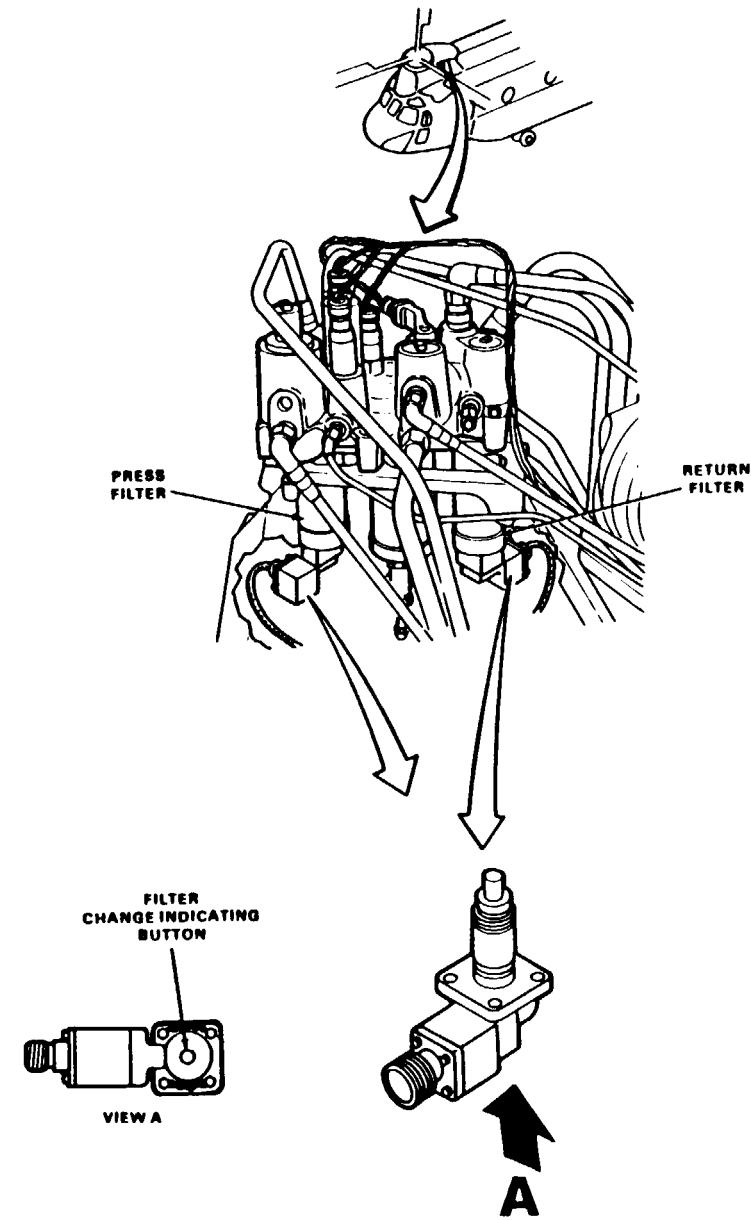
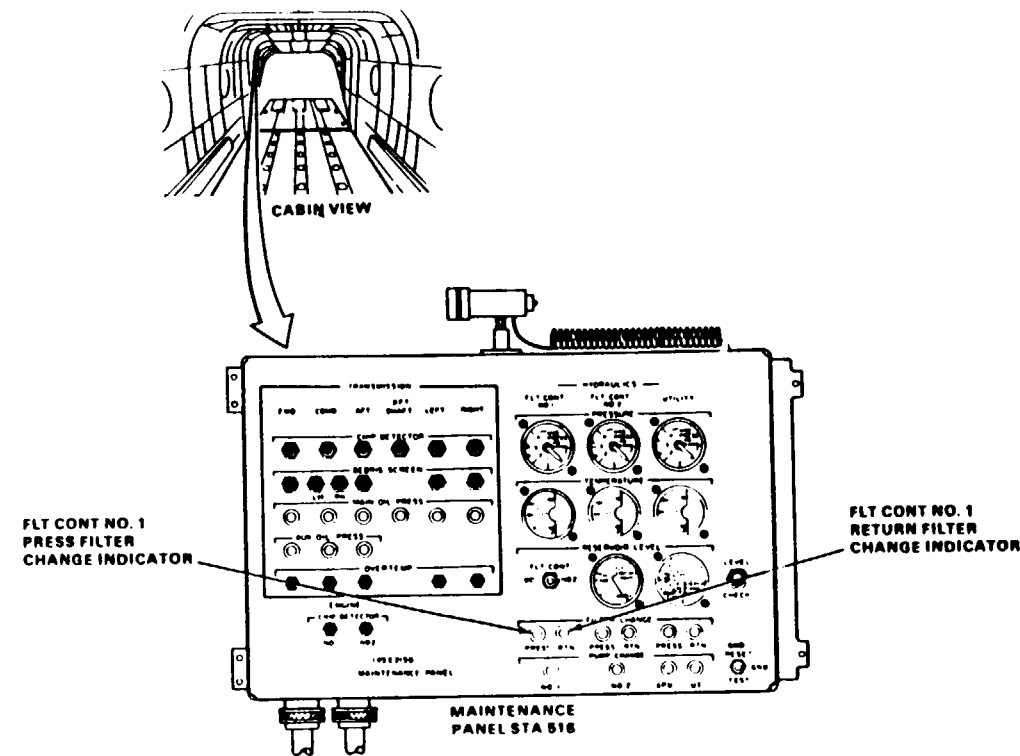
**Personnel Required:**  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multimeter

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On

**Materials:**  
None



90X54

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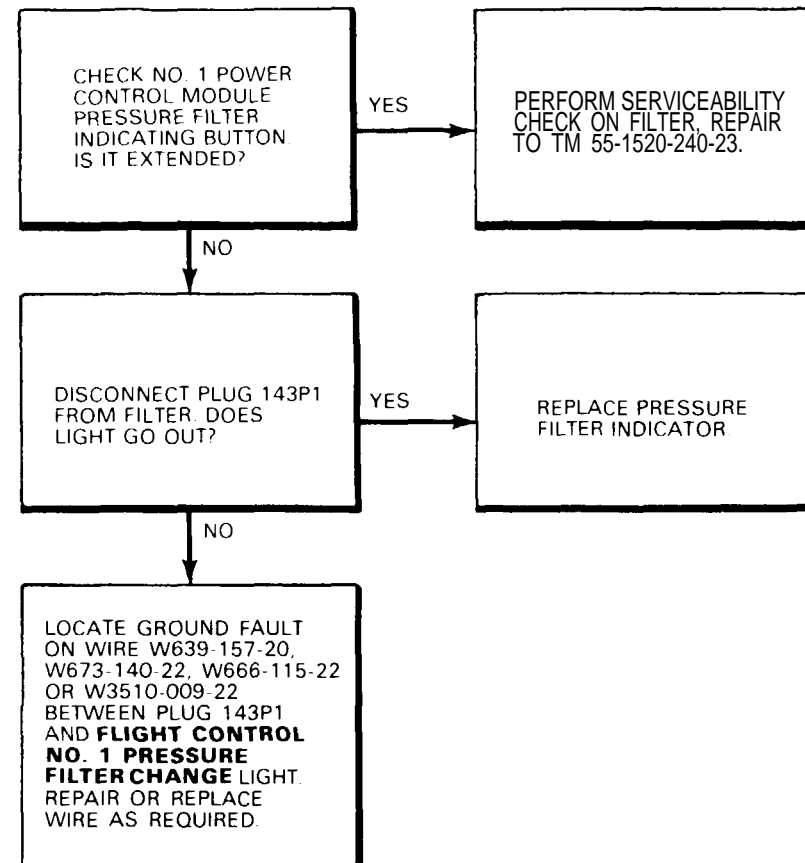
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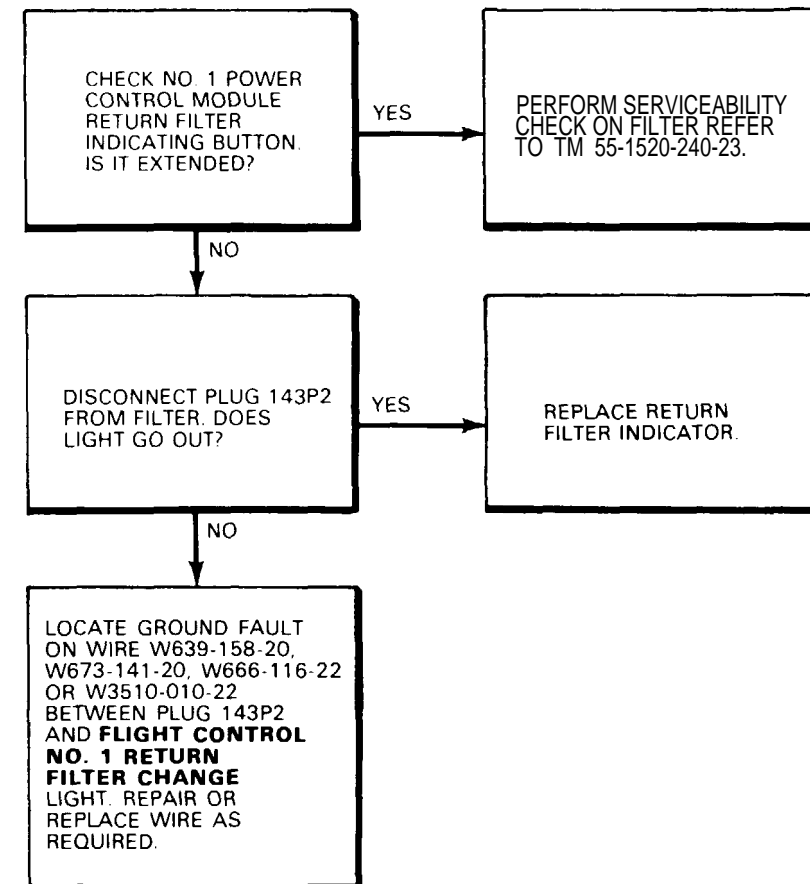
7-1.17 FLIGHT CONTROL NO. 1 PRESSURE OR RETURN  
FILTER CHANGE LIGHT IS ON (Continued)

7-1.17

FLIGHT CONTROL NO. 1 PRESSURE FILTER CHANGE  
LIGHT IS ON



FLIGHT CONTROL NO. 1 RETURN FILTER CHANGE  
LIGHT IS ON



END OF TASK

**7-1.18 FLIGHT CONTROL NO. 2 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

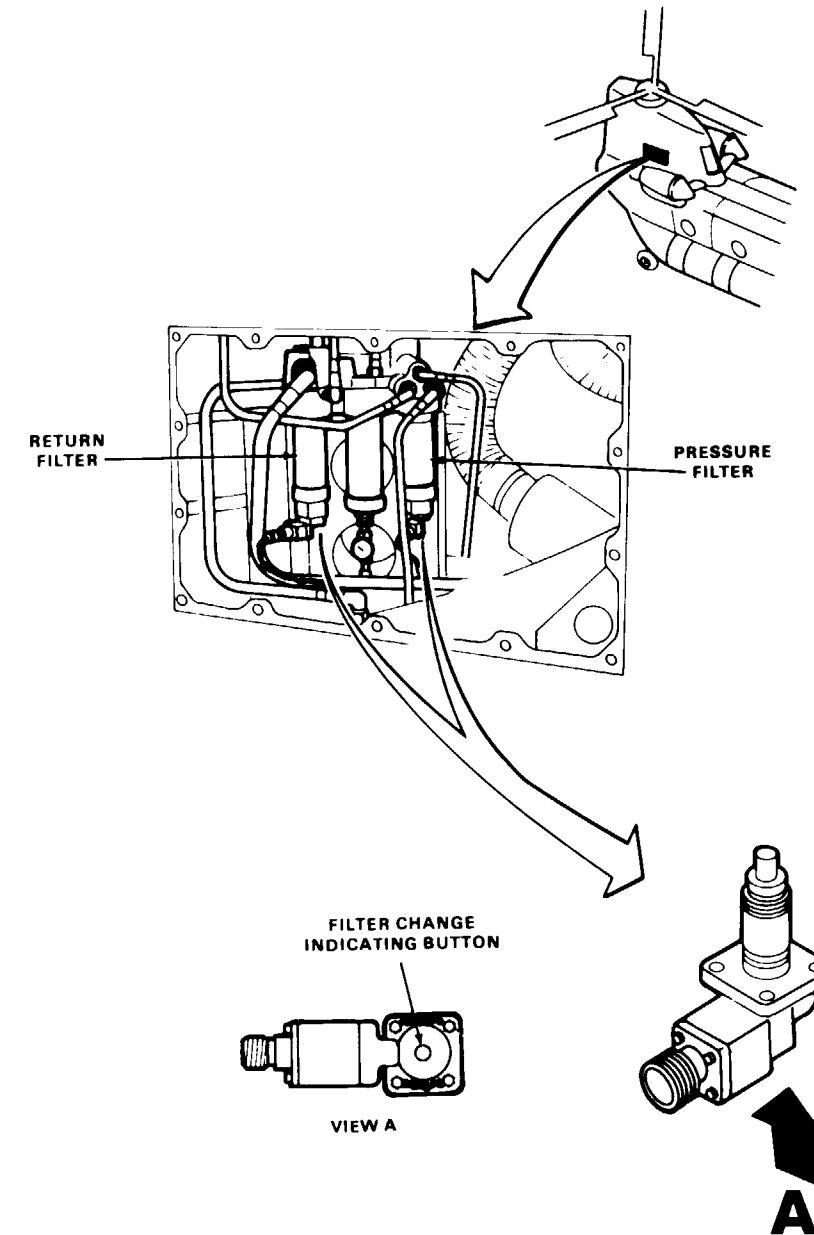
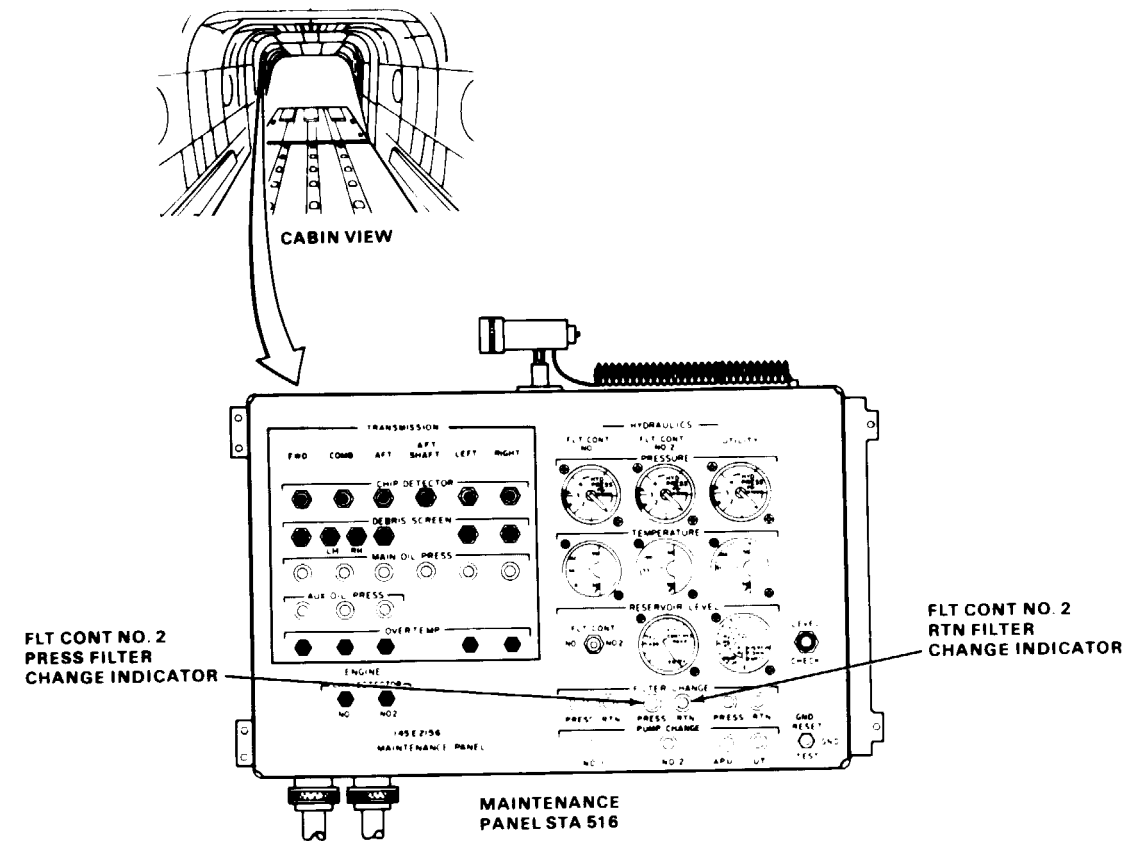
- 67U10 Medium Helicopter Repairer
- 68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power On

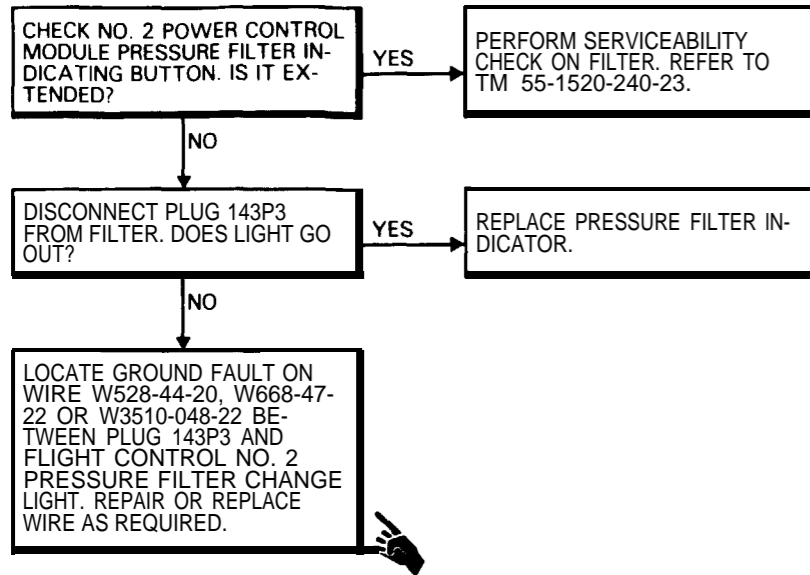


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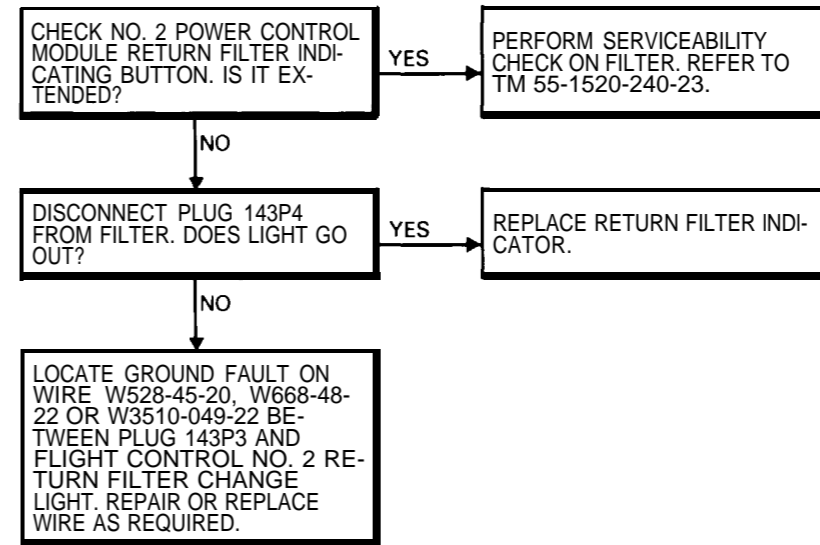
0145-12138-SPA

7-1.18 FLIGHT CONTROL NO. 2 PRESSURE OR RETURN FILTER CHANGE LIGHT IS ON (Continued)

FLIGHT CONTROL NO. 2 PRESSURE FILTER CHANGE LIGHT IS ON



FLIGHT CONTROL NO. 2 RETURN FILTER CHANGE LIGHT IS ON



**7-1.19 PIVOTING OR SWIVELING SERVO CYLINDER  
JAM SENSOR BUTTON EXTENDED**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

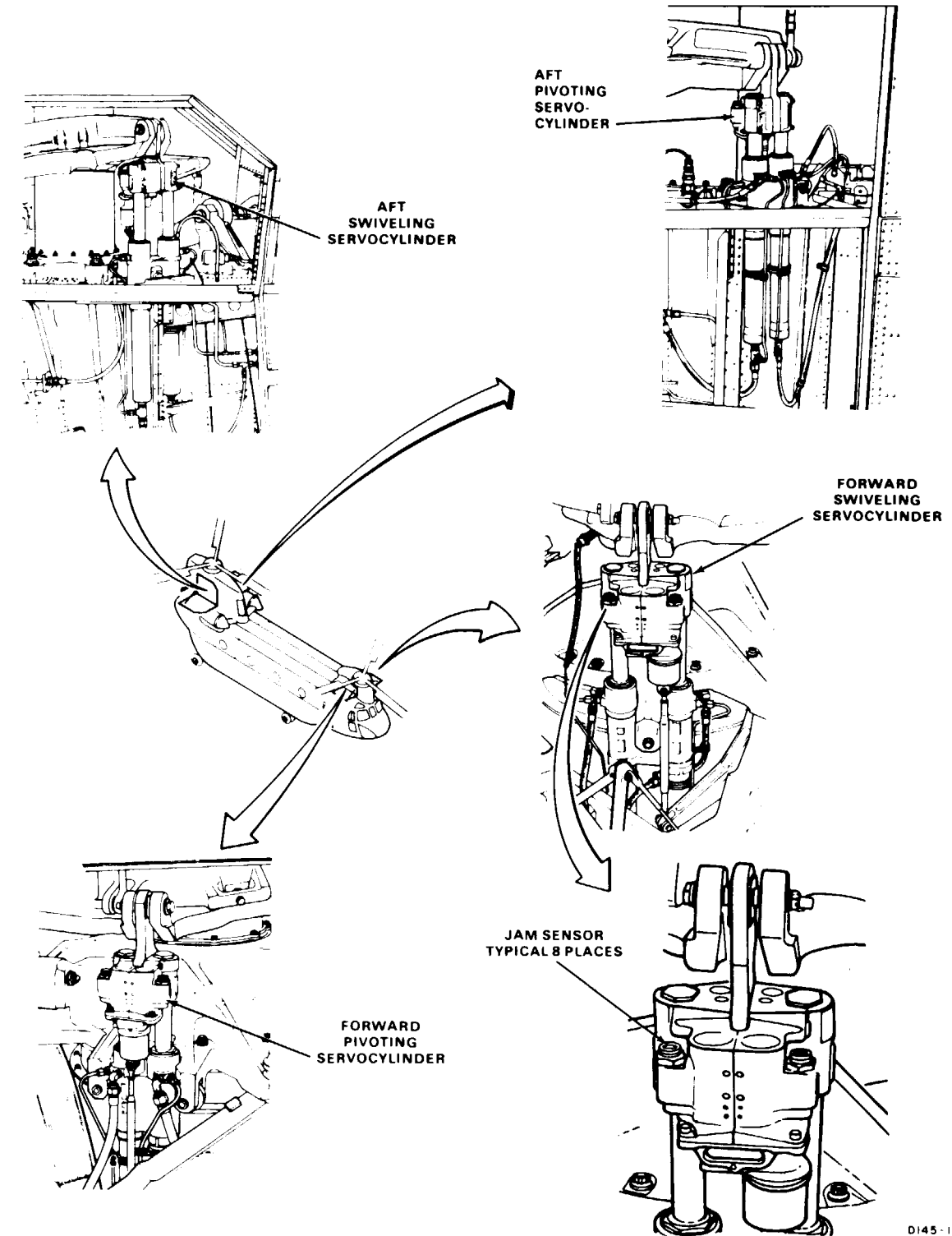
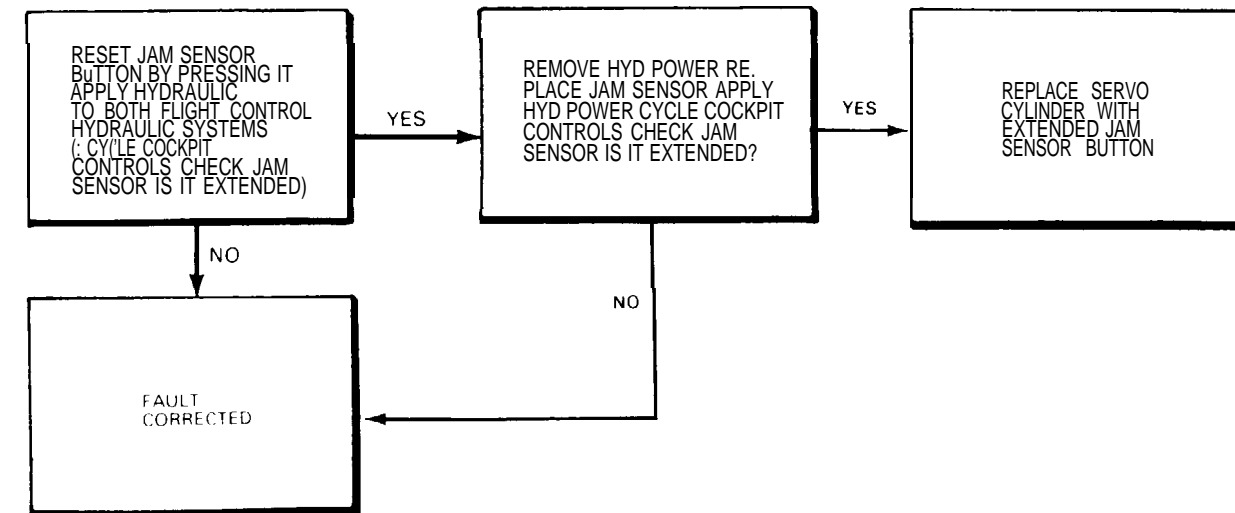
**Personnel Required:**  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On

**Materials:**  
None



45 x 54

D145-12139-SPA

END OF TASK

7-1.20 NO. 2 HYD FLT CONTR CAPSULE (WITHOUT 74) OR HYD 2 CAPSULE (WITH 74) DOES NOT COME ON WHEN FLIGHT CONTROL SWITCH IS SET TO NO. 1

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
All

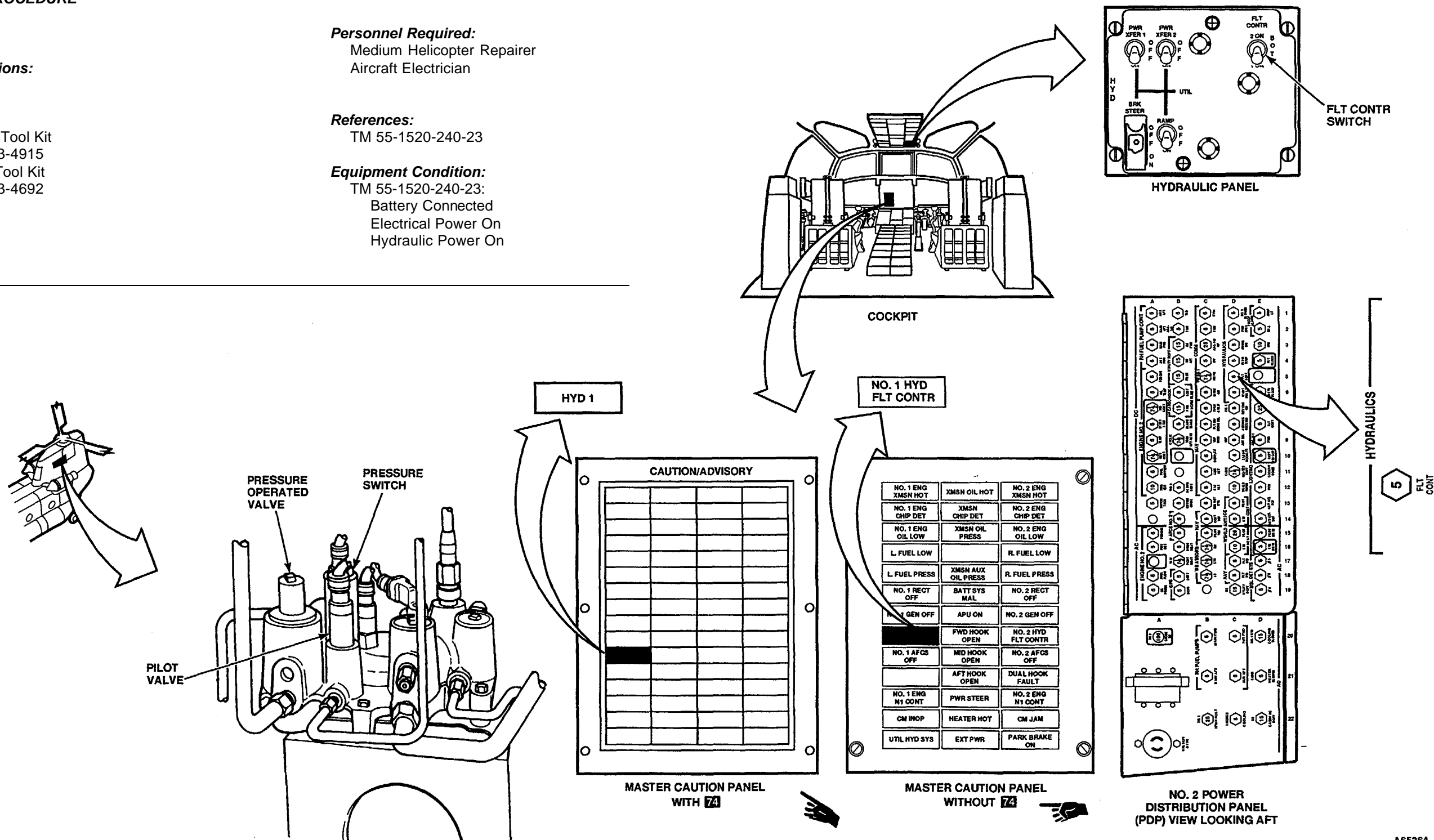
**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Aircraft Mechanic's Tool Kit  
NSN 5180-00-323-4692  
Multimeter

**Materials:**  
None

**Personnel Required:**  
Medium Helicopter Repairer  
Aircraft Electrician

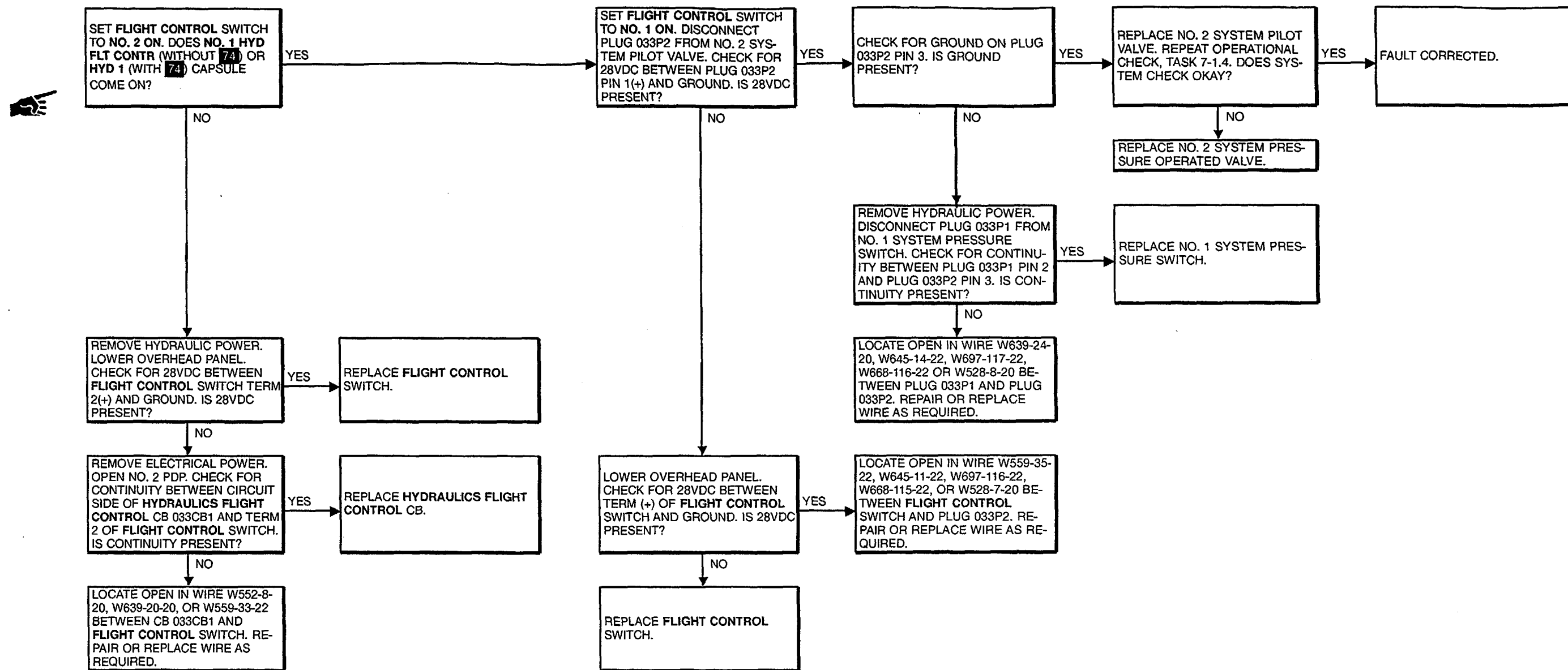
**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



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**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
All

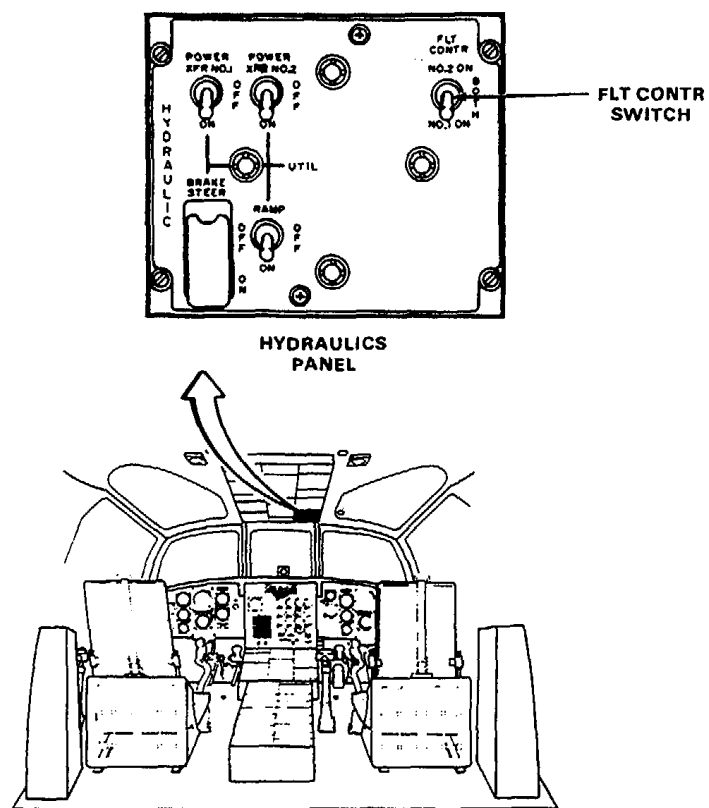
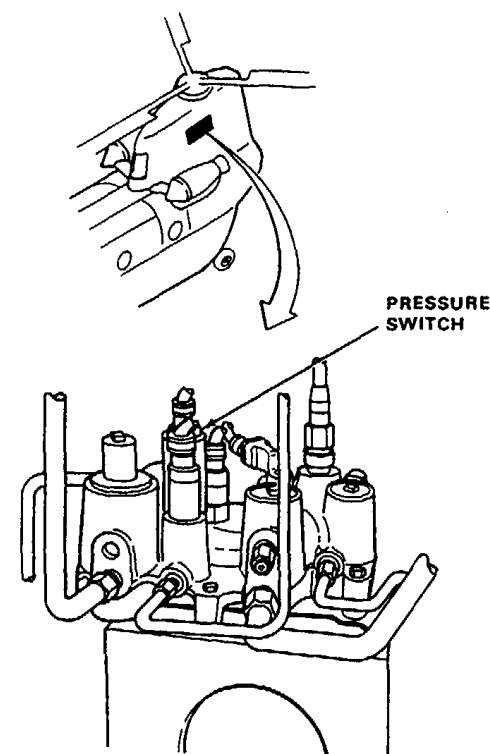
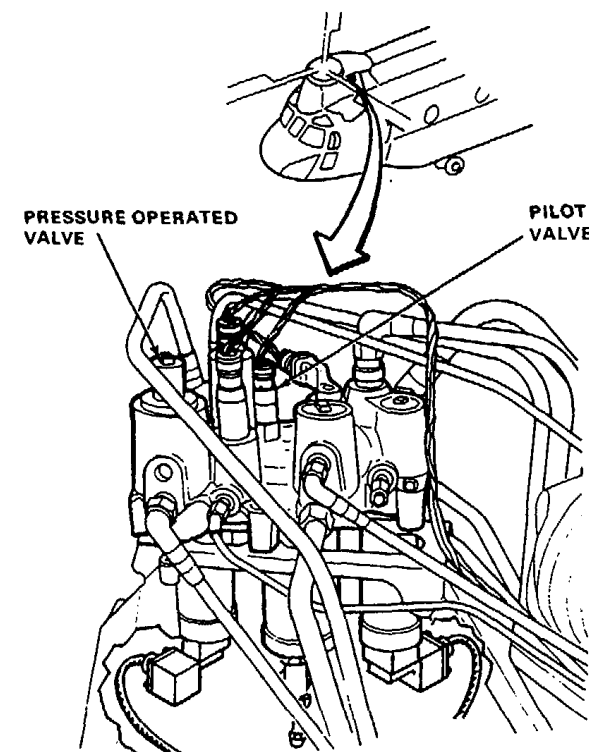
**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Aircraft Mechanic's Tool Kit  
NSN 5180-00323-4692  
Multimeter

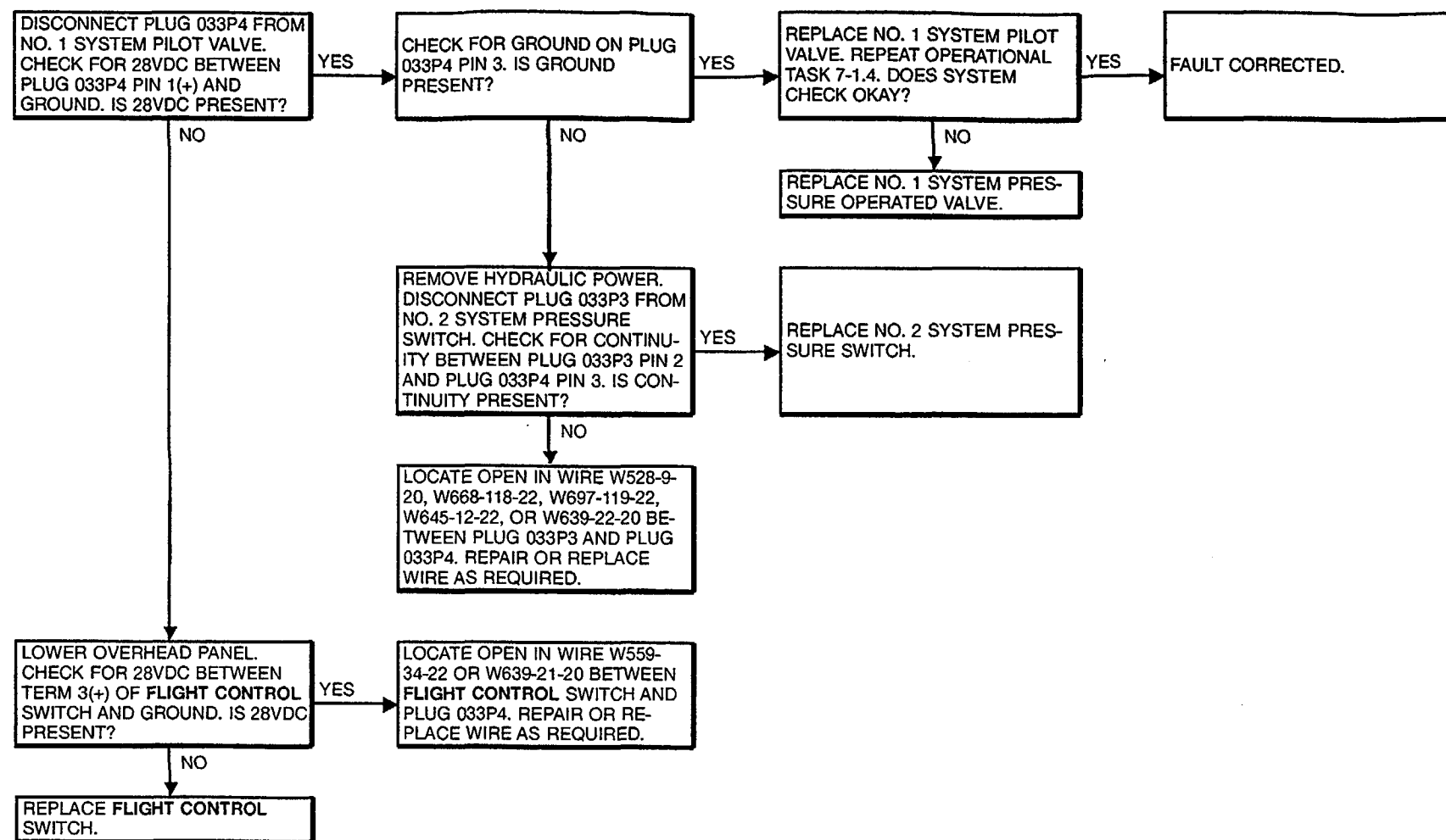
**Materials:**  
None

**Personnel Required:**  
Medium Helicopter Repairer  
Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On





**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multimeter

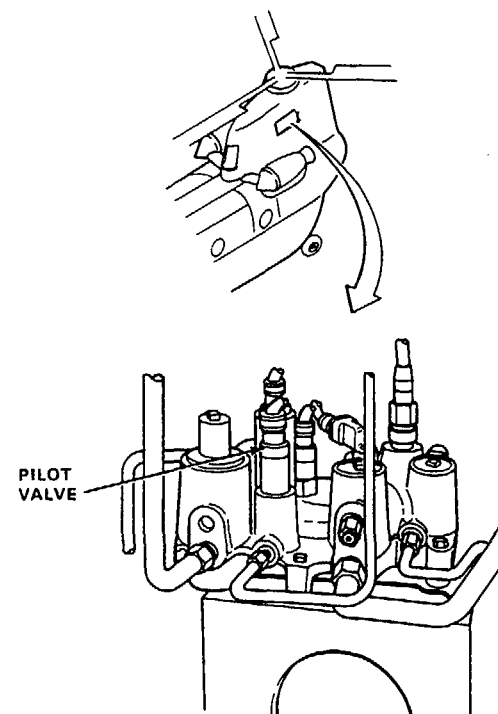
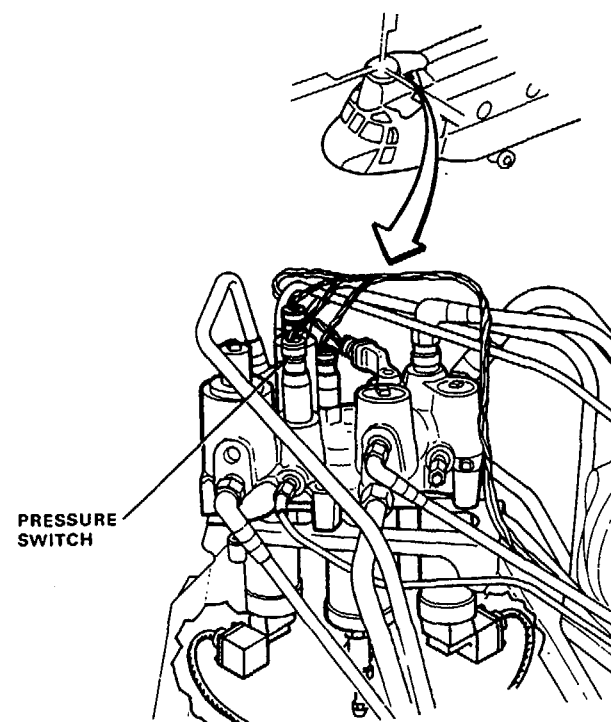
**Materials:**  
None

**Personnel Required:**  
Medium Helicopter Repairer  
Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

LOCATE GROUND FAULT ON WIRE W639-24-20, W645-14-22, W697-117-22, W668-116-22 OR W528-8-20 BETWEEN NO. 1 SYSTEM PRESSURE SWITCH PLUG 033P1 AND NO. 2 SYSTEM PILOT VALVE PLUG G033P2. REPAIR OR REPLACE WIRE AS REQUIRED.



45 X 54

0145-12142-SPA

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

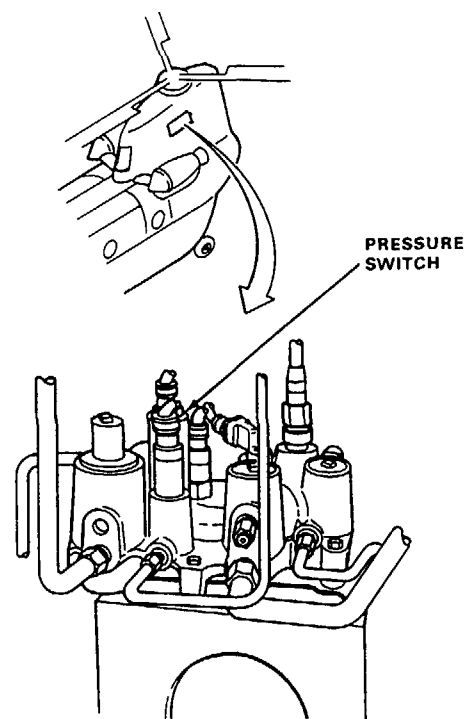
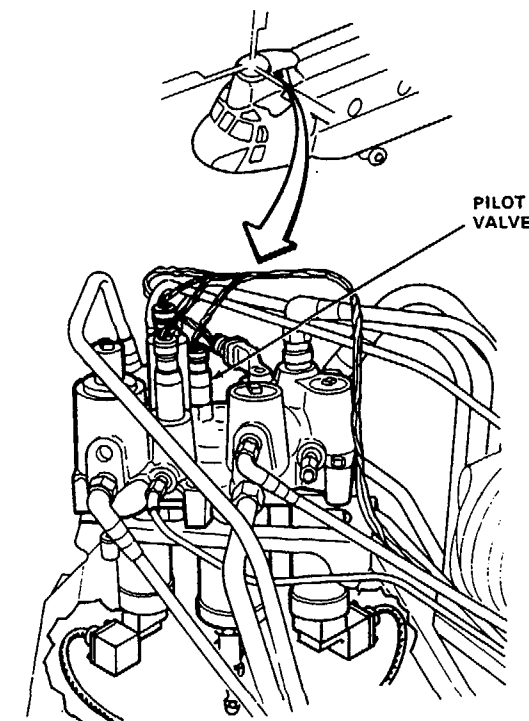
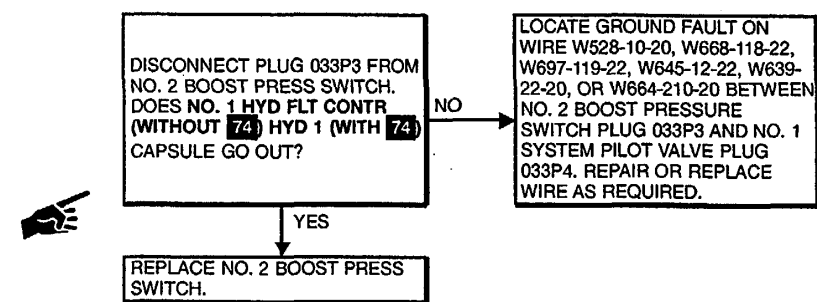
Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
All

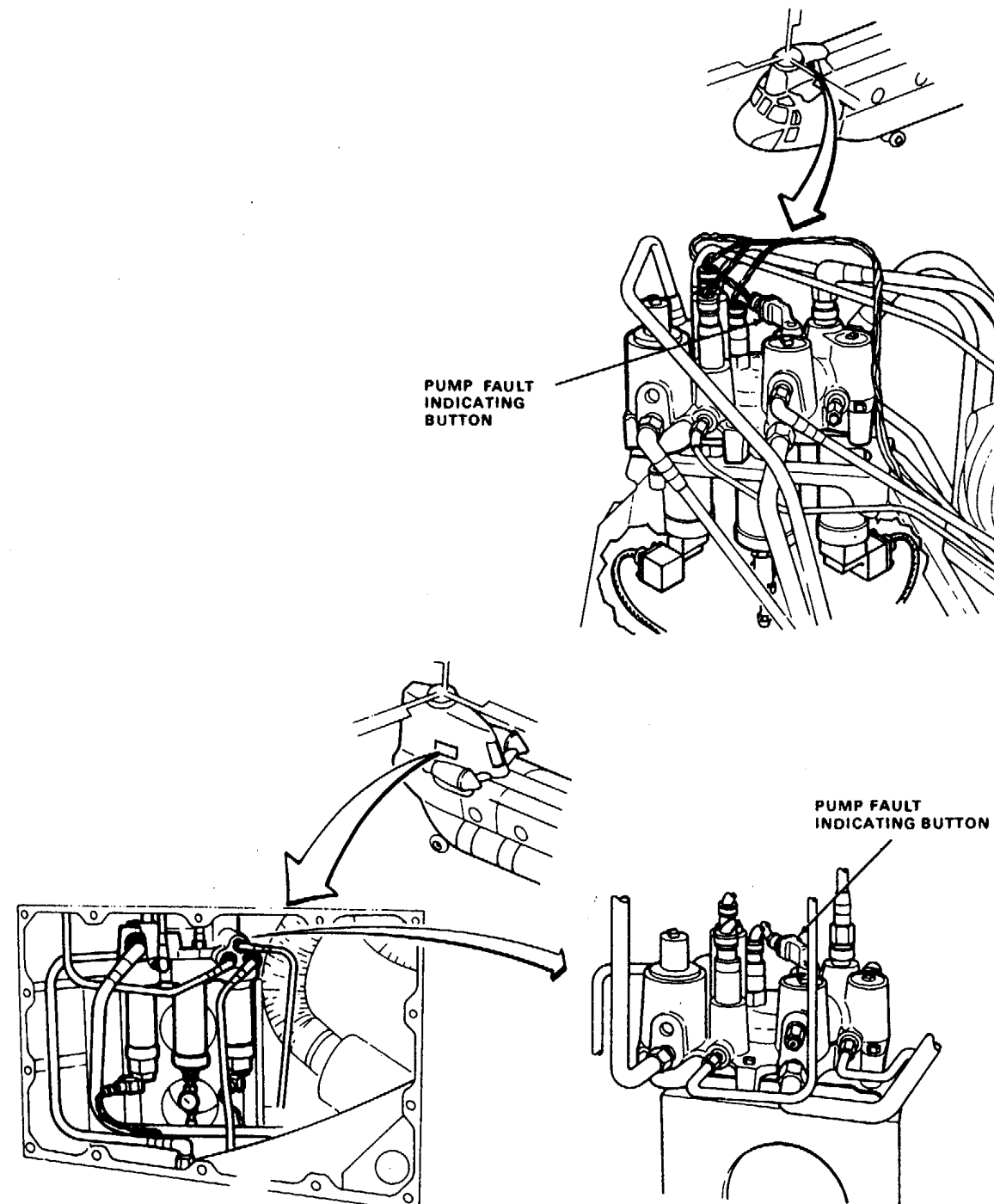
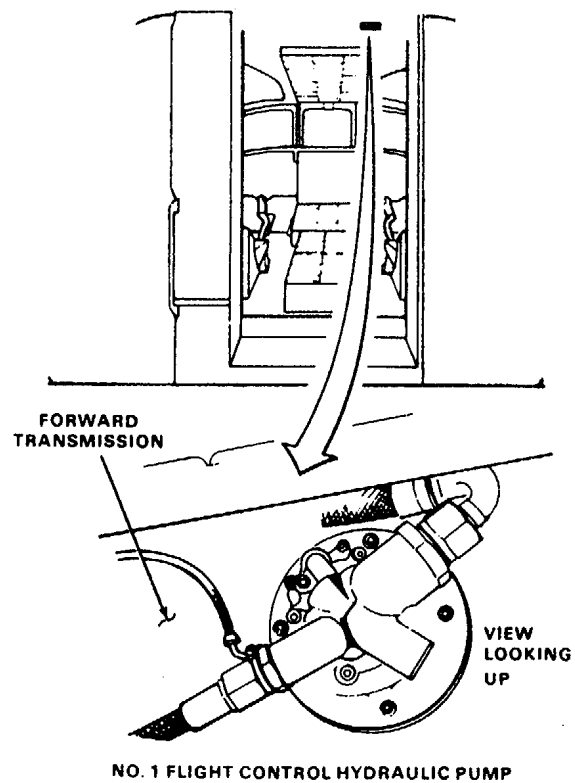
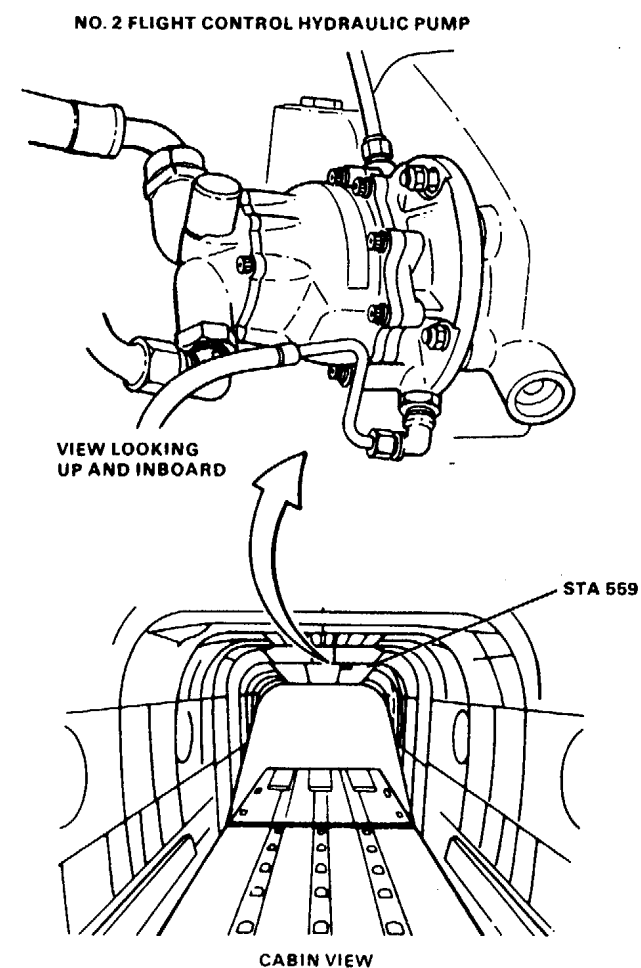
**Tools:**  
Electrical Repairer's Tool Kit  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

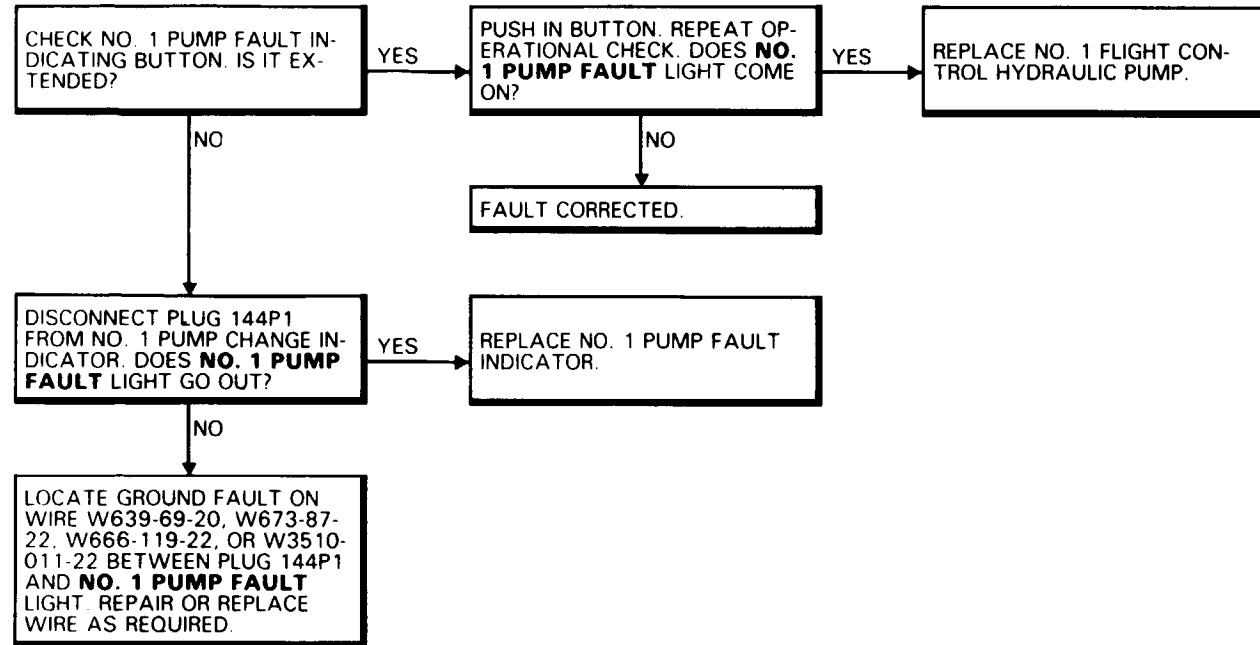
**Personnel Required:**  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

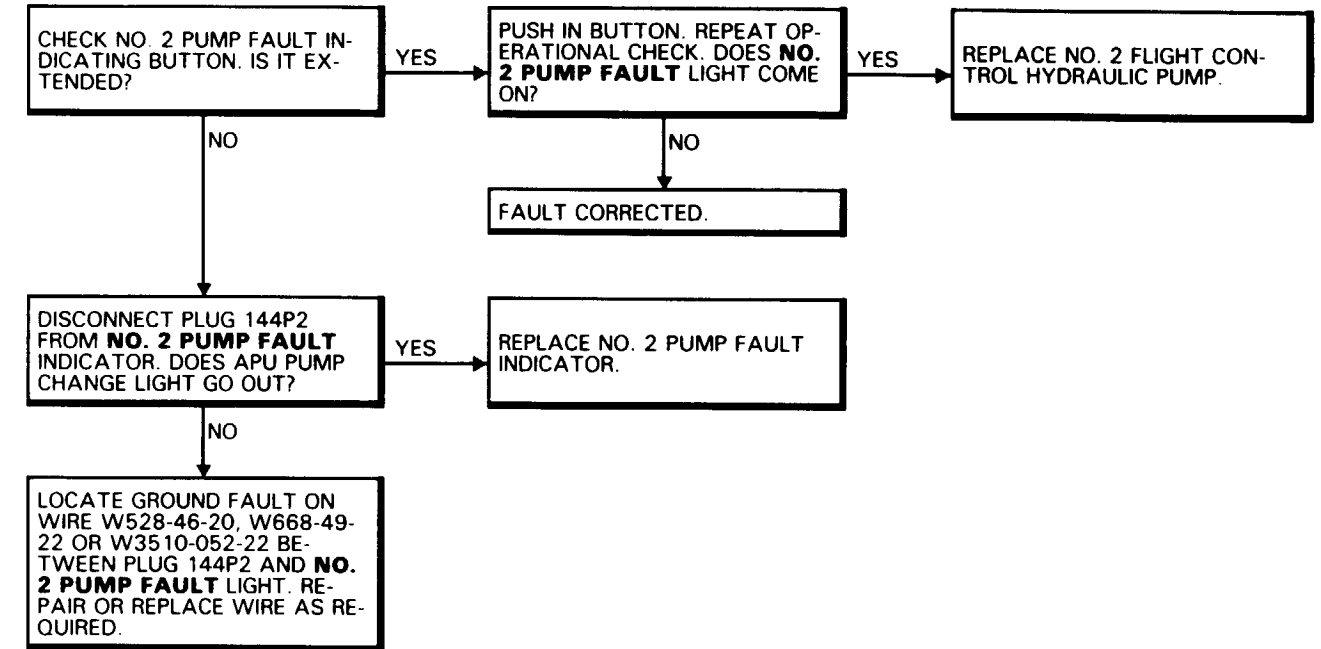
**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



**NO. 1 PUMP FAULT LIGHT IS ON**



**NO. 2 PUMP FAULT LIGHT IS ON**



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations**

All

**Tools:**

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Crissair Check Valve Tool Kit

**Materials:**

None

**Personnel Required:**

- Aircraft Pneudraulics Repairer
- Medium Helicopter Repairer

**References:**

- TM 55-1520-240-23
- TM 43-0104

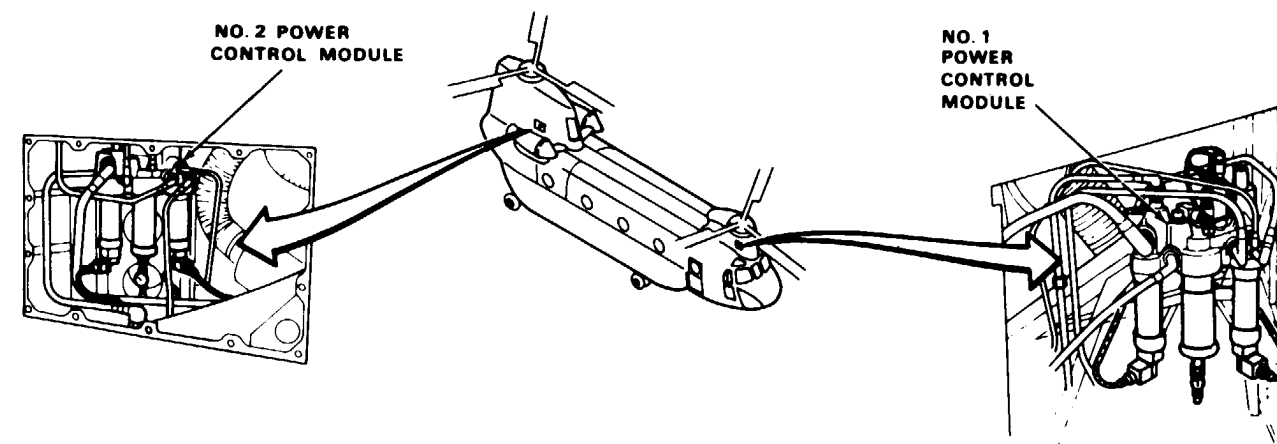
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On

**General Safety Instructions:**

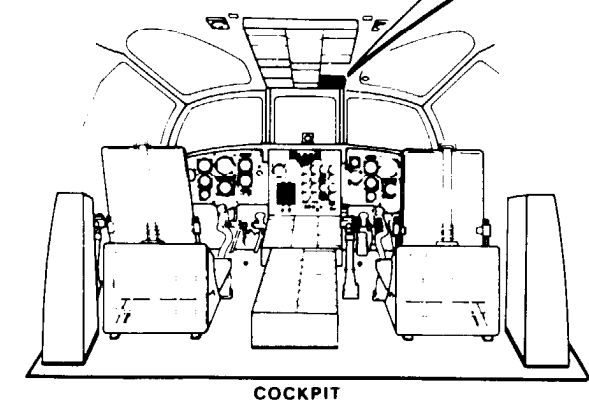
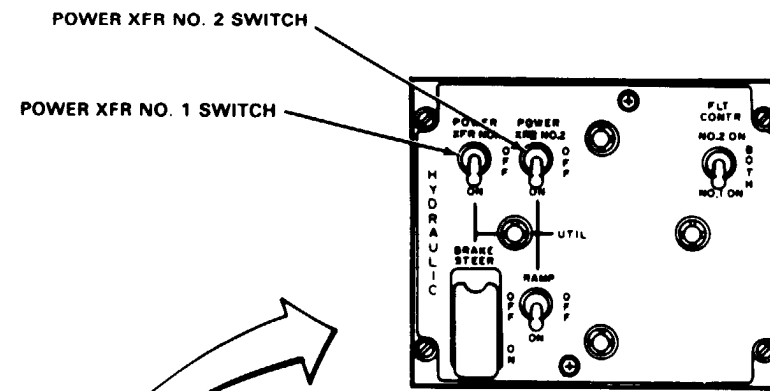
**WARNING**

Make sure area around aircraft is clear of personnel before performing this task. Rotor blades can cause serious injury to personnel.



REPLACE THE CHECK VALVE ON NO. 1 POWER CONTROL MODULE THAT PREVENTS BACK FLOW TO NO. 1 FLIGHT CONTROL HYDRAULIC PUMP. REFER TO TM 43-0104. IF CHROME RIVET AND WASHER ARE NO LONGER INSTALLED IN CENTER OF OLD CHECK VALVE, RECOVER THE RIVET AND WASHER FROM THE HYDRAULIC TUBES TO THE PUMP. CHECK TUBE 145H1301-89 FIRST.

REPLACE THE CHECK VALVE ON NO. 2 POWER CONTROL MODULE THAT PREVENTS BACK FLOW TO NO. 2 FLIGHT CONTROL HYDRAULIC PUMP. REFER TO TM 43-0104. IF CHROME RIVET AND WASHER ARE NO LONGER INSTALLED IN CENTER OF OLD CHECK VALVE, RECOVER THE RIVET AND WASHER FROM THE HYDRAULIC TUBES TO THE PUMP. CHECK TUBE 145H1803-11 FIRST.

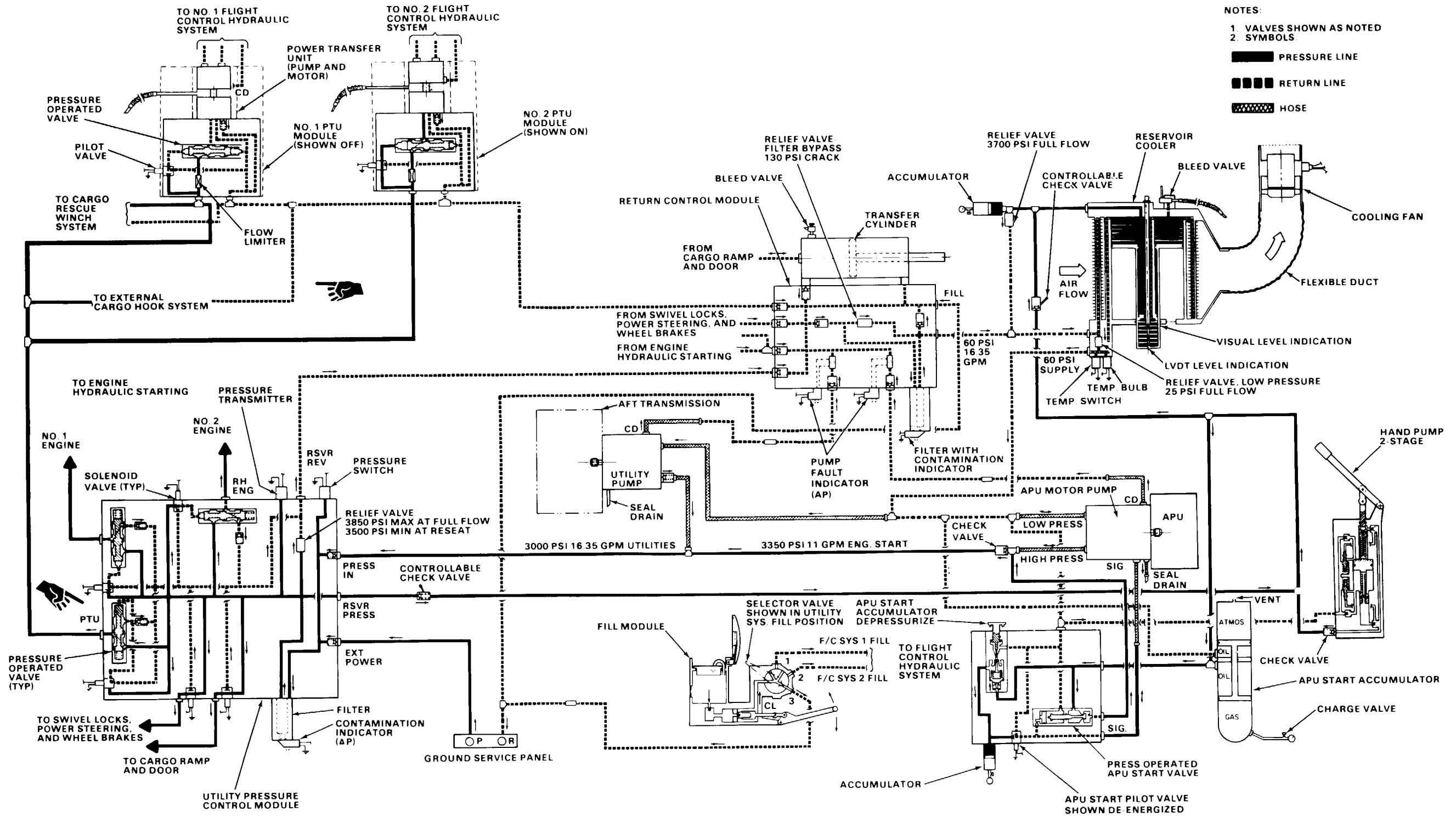




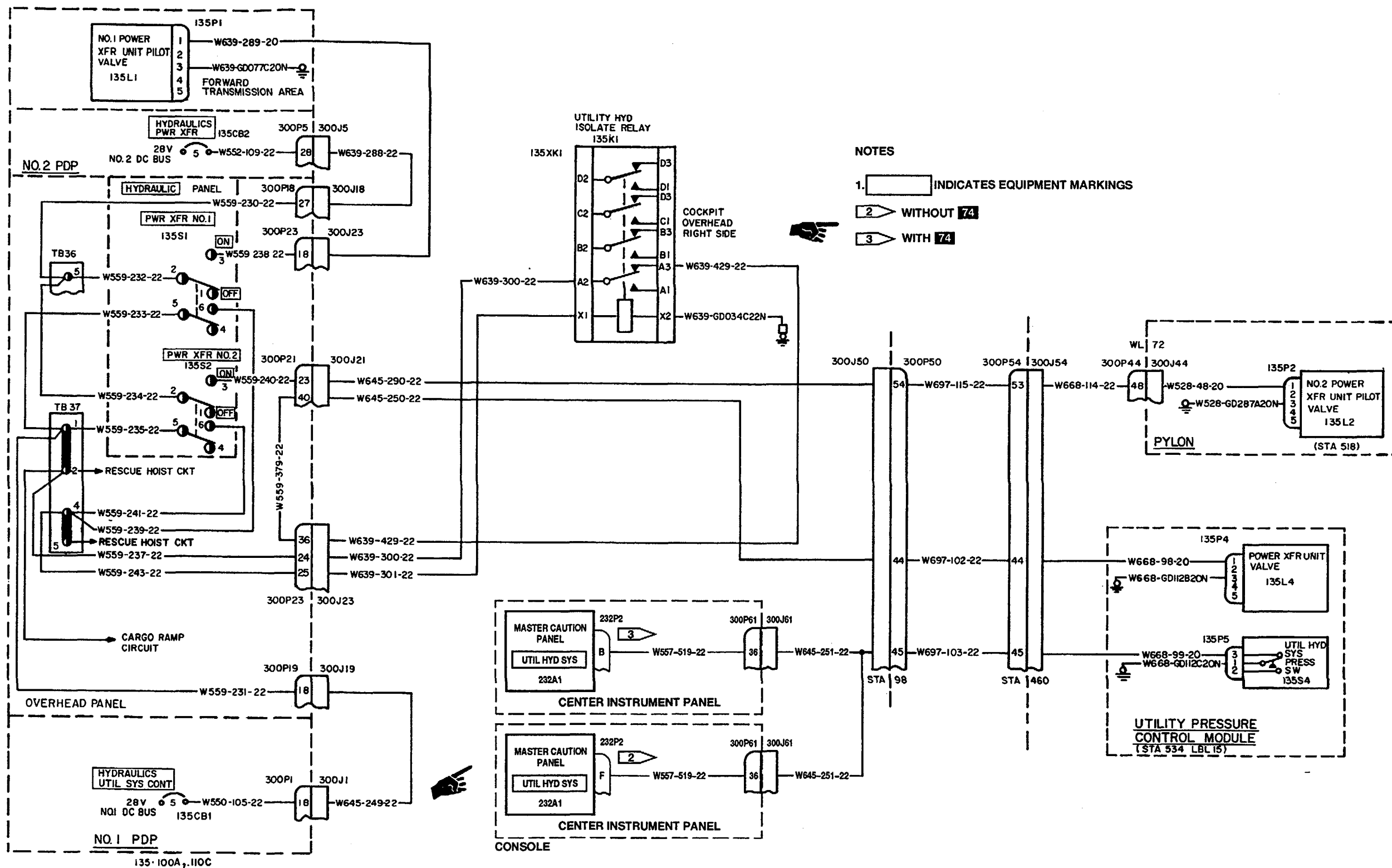
## 7-2 UTILITY HYDRAULIC SYSTEM

7-2 UTILITY HYDRAULIC SYSTEM

7-2.1 UTILITY HYDRAULIC SYSTEM SCHEMATIC

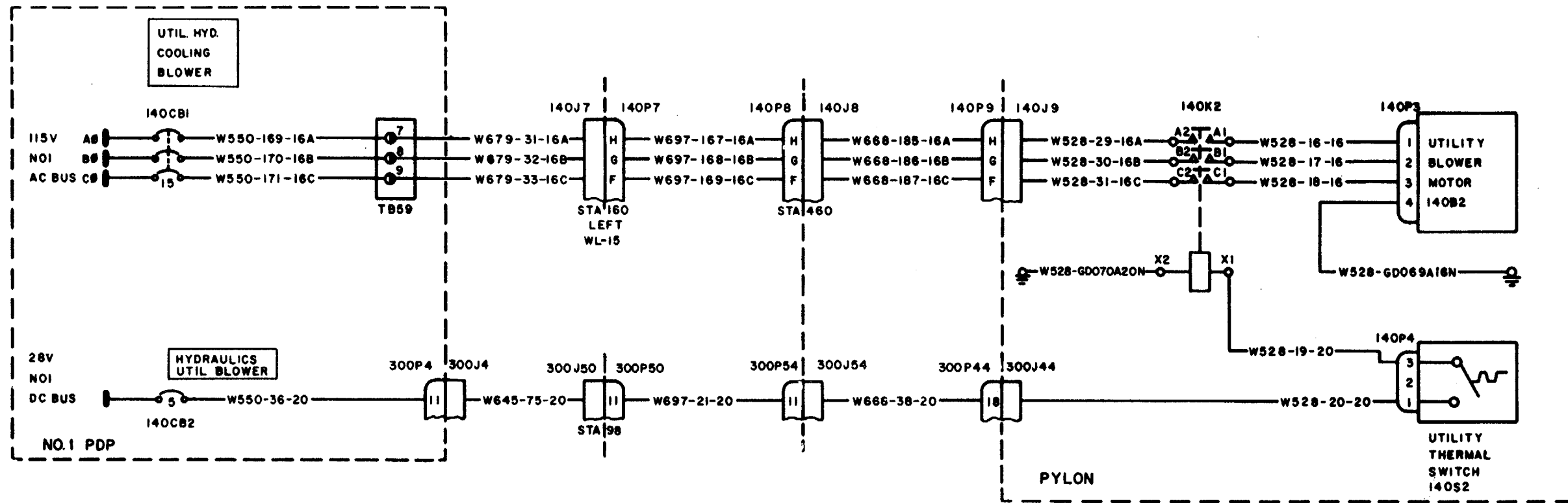


7-2.2 UTILITY HYDRAULIC SYSTEM WIRING DIAGRAM



A65389

GO TO NEXT PAGE  
Change 17 7-73



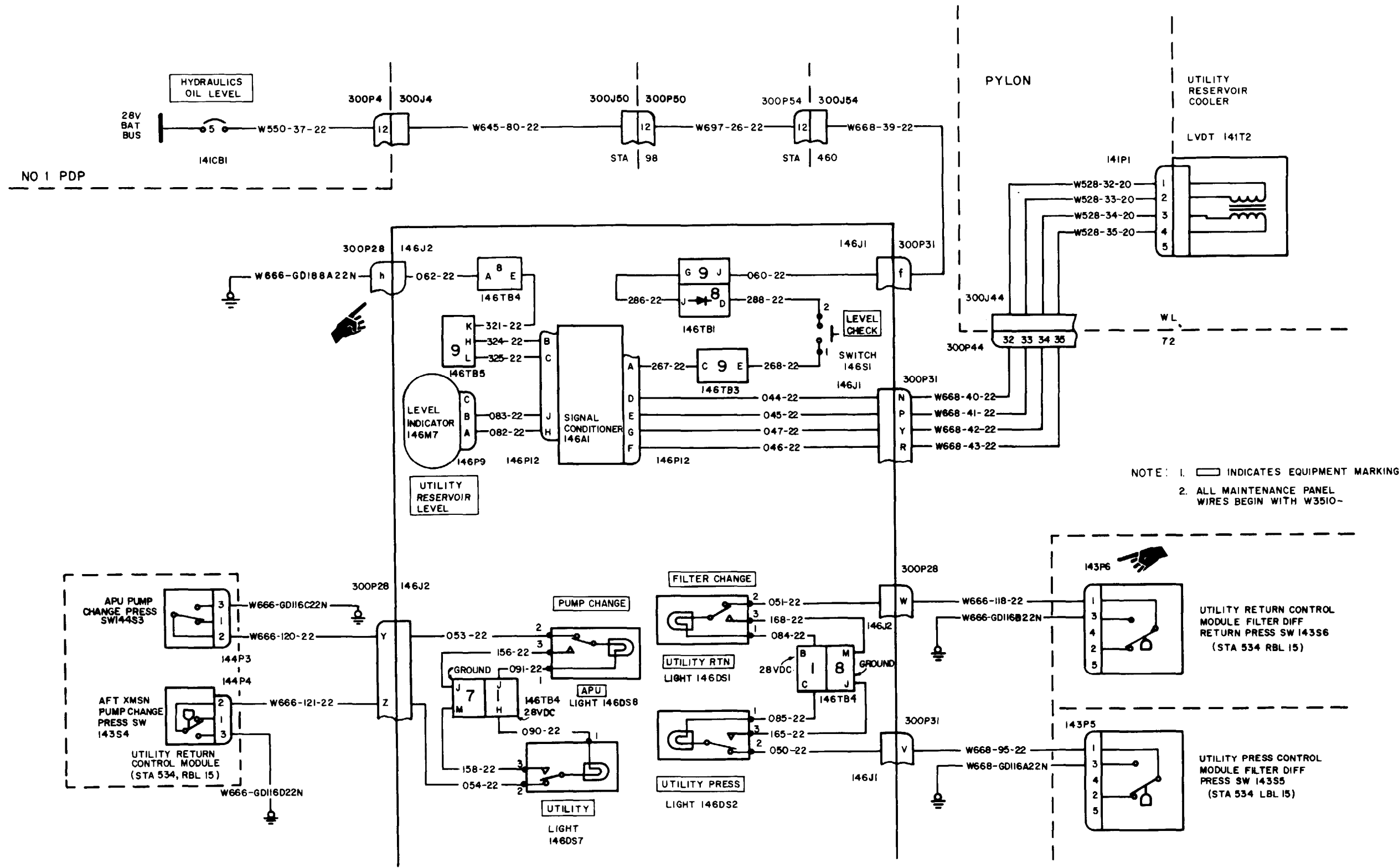
NOTE : □ INDICATES EQUIPMENT MARKING

I40.100A

90X84

D148-9188-SPA

7-2.2 UTILITY HYDRAULIC SYSTEM WIRING DIAGRAM (Continued)



I41. 100, I43. 100, I44. 100A, I46. 102B, I03B, I04B

7-2.3 UTILITY HYDRAULIC SYSTEM VISUAL CHECK

INITIAL SETUP

**References:**  
TM 55-1520-240-23

**Applicable Configurations:**  
All

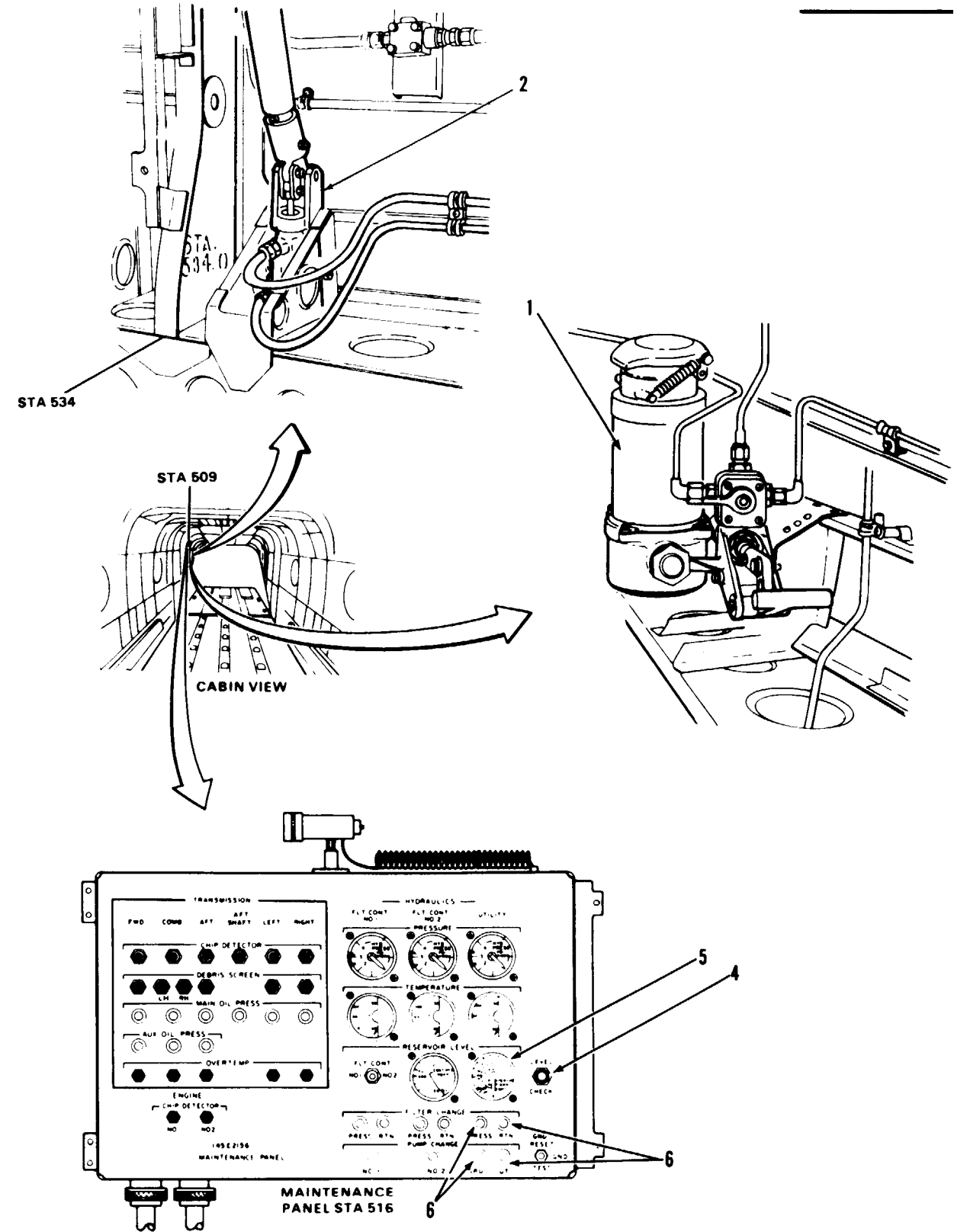
**Equipment Condition:**  
TM 55-1520-240-23:  
Electrical Power Off  
Battery Disconnected  
Hydraulic Power Off  
Right Aft Transmission  
Access Panel Open  
Pylon Access Doors Open  
Right Forward Work Platform  
Open  
Cargo Ramp Open and Level  
(Task 7-3.4)

**Tools:**  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**  
None

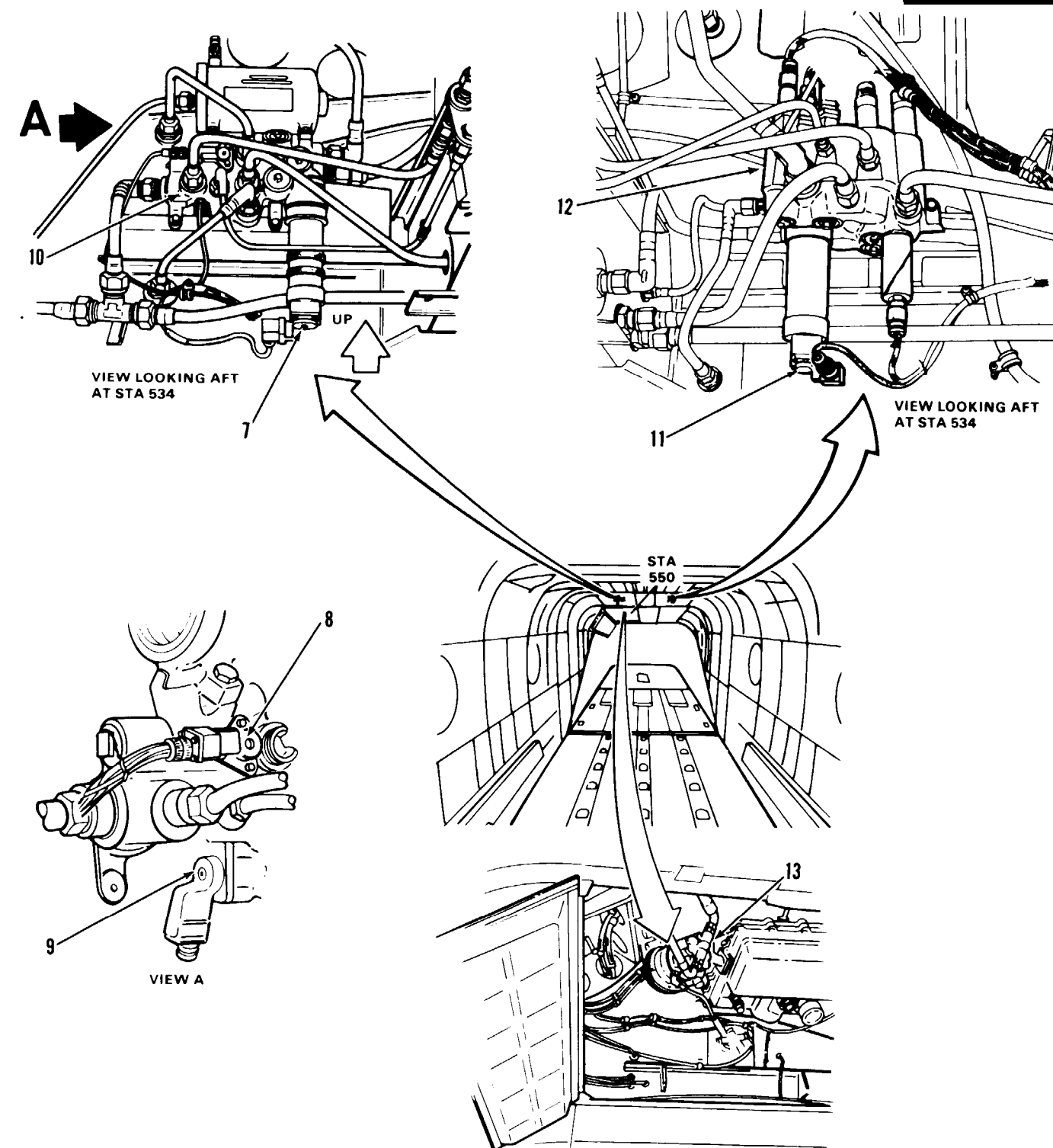
**Personnel Required:**  
67U10 Medium Helicopter Repairer

TASK	RESULT
1. Check fill module (1).	If module (1) is loose or damaged, tighten or replace it as required. If any tube to module is loose or damaged, tighten or replace it as required.
2. Check hand pump (2).	If pump (2) is loose or damaged, tighten or replace it as required. If pump handle linkage or mount is loose or worn, repair or replace it as required. If any tube to pump is loose or damaged, tighten or replace it.
3. Check maintenance panel (3).	If switch (4) is damaged, replace it. If indicator (5) is loose or damaged, tighten or replace it as required. If any of four lights (6) is damaged, repair or replace it as required.



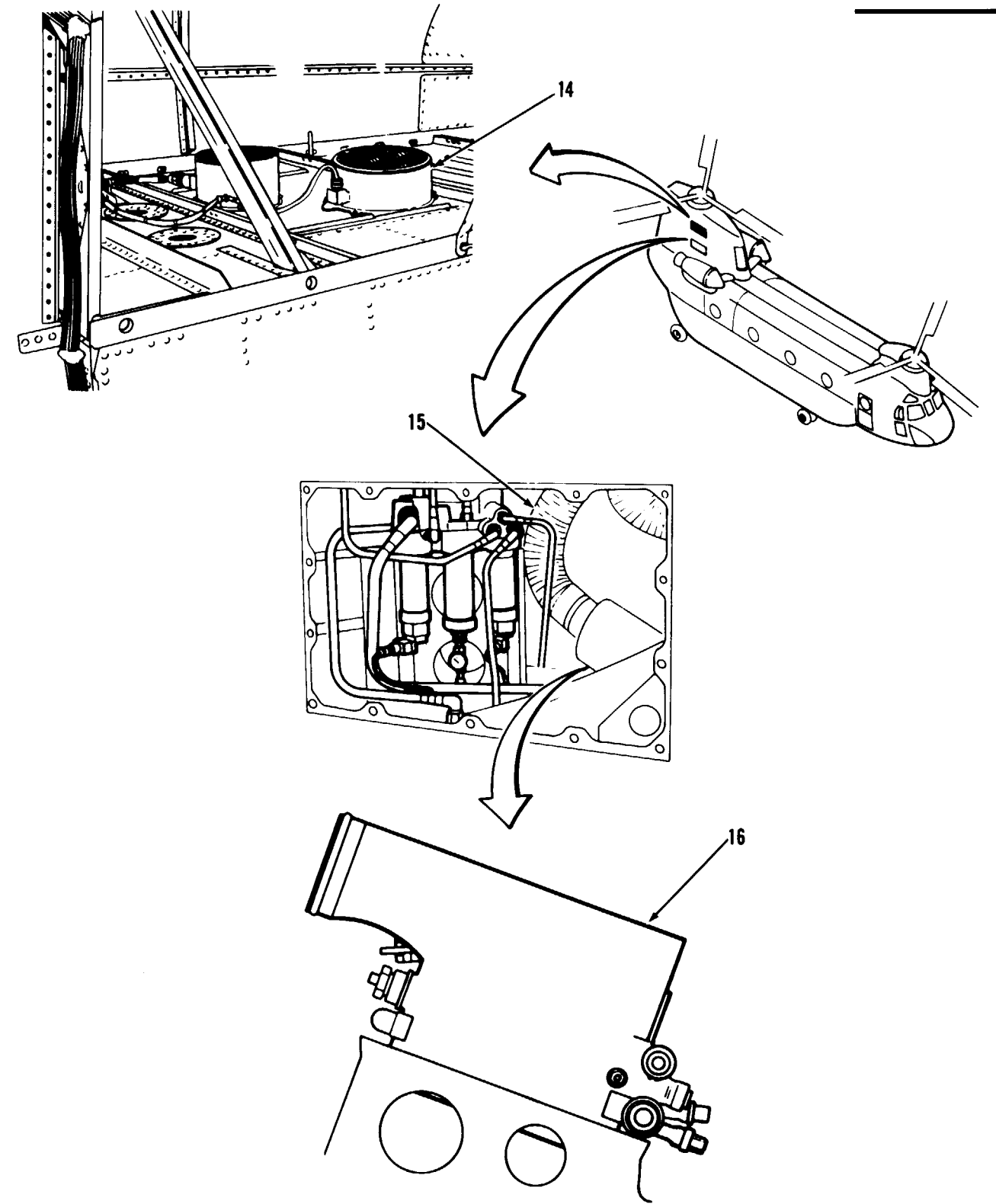
7-2.3 UTILITY HYDRAULIC SYSTEM VISUAL CHECK (Continued)

TASK	RESULT
4. Check return filter indicating button (7).	If button is extended, perform serviceability check. Refer to TM 55-1520-240-23.
5. Check APU pump indicating button (8).	
6. Check utility pump indicating button (9).	
7. Check utility return control module (10).	or damaged, tighten or replace it as required. If any electrical connector to module is loose or damaged, tighten or replace it as required. If wiring to any connector is damaged, repair or replace it as required.
8. Check pressure filter indicating button (11).	If button is extended, perform serviceability check. Refer to TM 55-1520-240-23.
9. Check utility pressure control module (12).	If module (12) is loose or damaged, tighten or replace it as required. If any tube to module is loose or damaged, tighten or replace it as required. If any electrical connector to module is loose or damaged, tighten or replace it as required. If wiring to any connector is damaged, repair or replace it as required.
10. Check utility hydraulic pump (13).	If pump (13) is loose or damaged, tighten or replace it as required. If any hose to pump is loose or damaged, tighten or replace it as required.



7-2.3 UTILITY HYDRAULIC SYSTEM VISUAL CHECK (Continued)

TASK	RESULT
11. Check utility cooling fan (14).	If fan (14) is loose or damaged, tighten or replace it as required. If fan screen is clogged, clean it. If electrical connector to fan is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.
12. Check duct (15).	If duct (15) is loose or torn, tighten or replace it as required.
13 Check utility reservoir cooler (16).	If cooler (16) is loose or damaged tighten or replace it as required. If any tube to cooler is loose or damaged, tighten or replace it as required. If any electrical connector to code is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.

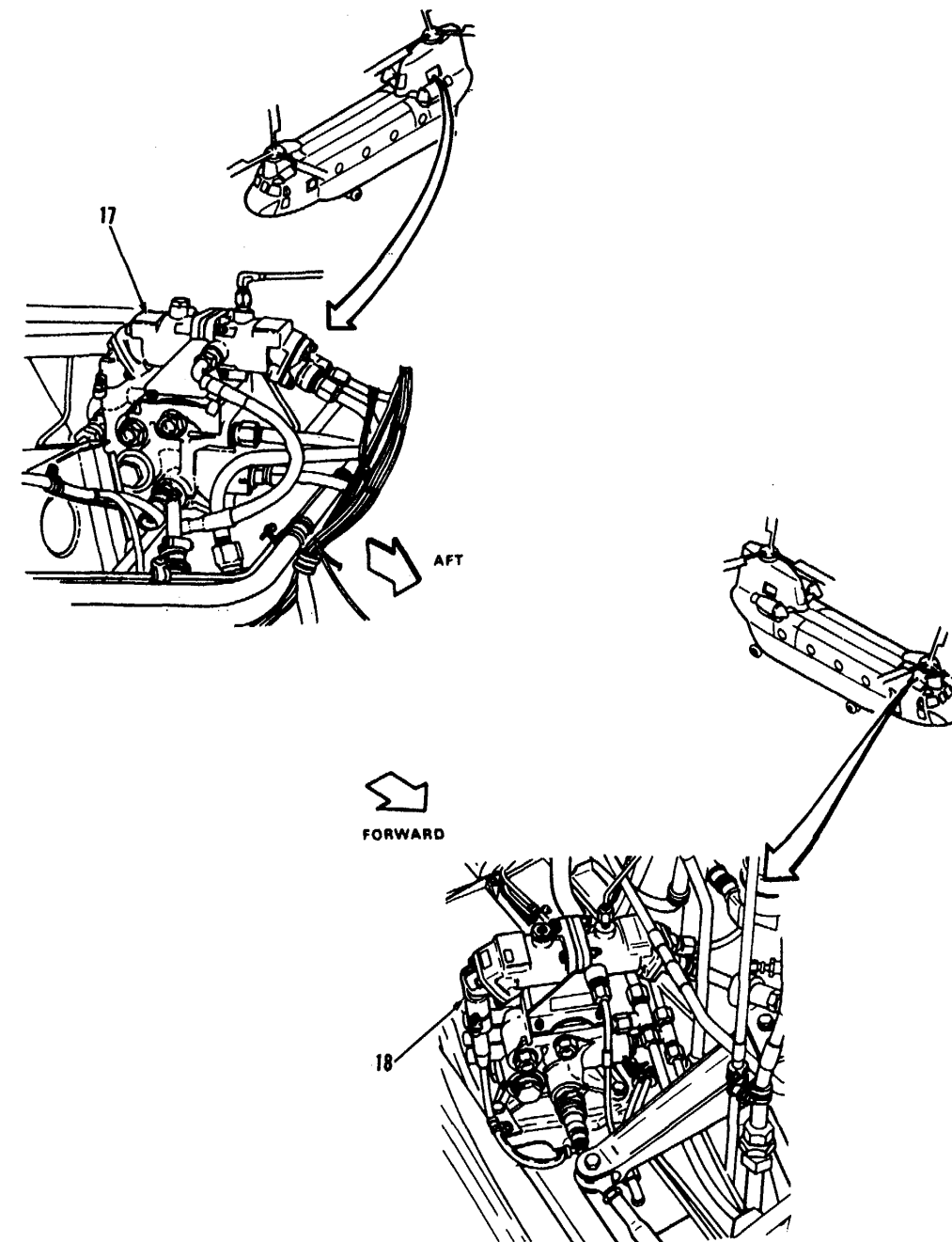




TASK	RESULT
14. Check No. 2 power transfer unit (17).	If No. 2 PTU (17) is loose or damaged, tighten or replace it as required. If any hose or tube-to-No-2 PTU is loose or damaged, tighten or replace it as required. If any electrical connector to PTU is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.
15. Check No. 1 power transfer unit (18).	If No. 1 PTU (18) is loose or damaged, tighten or replace it as required. If any hose or tube to No. 1 PTU is loose or damaged, tighten or replace it as required. If any electrical connector to PTU is loose or damaged, tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Pylon Access Doors Closed
- Right Forward Work platform Closed



7-2.4 UTILITY HYDRAULIC SYSTEM OPERATIONAL CHECK

7-2.4

INITIAL SETUP

**Applicable Configurations**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-3234692

**Materials**

None

**Personnel Required:**

Medium Helicopter Repairer (2)  
Rotary Wing Aviator (2)

**References:**

TM 55-1520-240-10  
TM 55-1520-240-123

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected

Electrical Power Off  
Hydraulic Power Off  
No. 1 and No. 2 Flight Control Systems Serviced.  
Flight Controls Connected and Rugged  
Control Locks and Rig Pins Removed  
Visual Check of Utility Hydraulic System Performed  
(Task 7-2.3)

**General Safety Instructions:**

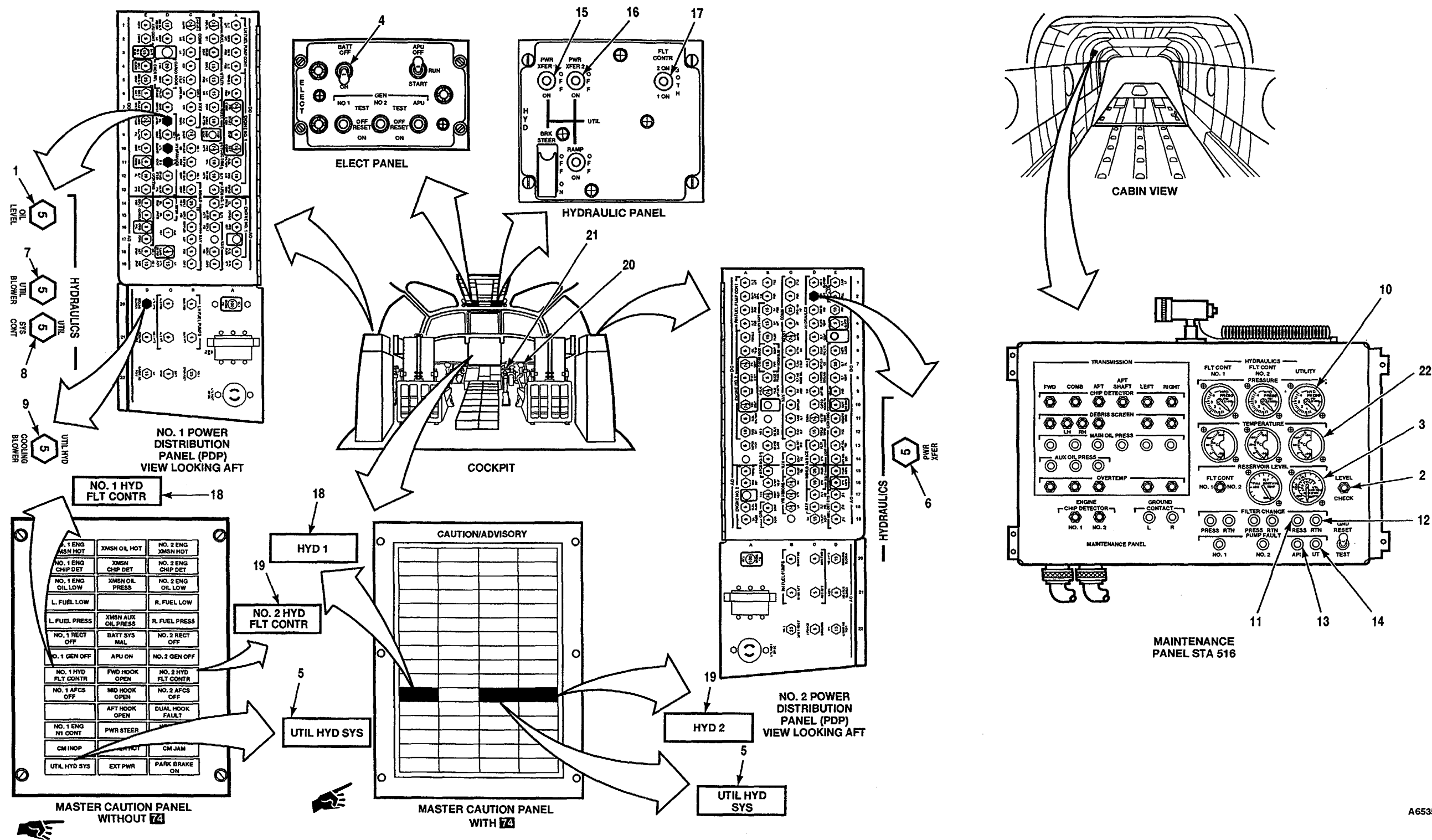
**WARNING**

**Keep hands away from flight controls. Application of hydraulic power will cause flight controls to move and rotor blades to flap. Injury to personnel can occur.**

TASK	RESULT
1. Check that <b>HYDRAULICS OIL LEVEL circuit breaker (1)</b> is closed.	If circuit breaker (1) is open, close it. If it opens again, go to Task 7-2.5.
2. Press and hold <b>LEVEL CHECK switch (2)</b> . Check indication on <b>UTILITY RESERVOIR LEVEL indicator (3)</b> .	Pointer on indicator (3) shall move upscale and indicate level of fluid in reservoir. If pointer does not move, go to Task 7-2.6. If pointer moves and indicates low level, service utility hydraulic system. Refer to TM 55-1520-240-23.
3. Release <b>LEVEL CHECK switch (2)</b> .	
4. Set <b>BATT switch (4)</b> to ON.	
5. Check <b>UTIL HYD SYS capsule (5)</b> , <b>NO. 1 HYD FLT CONTR</b> (Without <b>74</b> ) <b>HYD 1</b> (With <b>74</b> ) capsule (18) and <b>NO. 2 HYD FLT CONTR</b> (Without <b>74</b> ) <b>HYD 2</b> (With <b>74</b> ) capsule (19).	Capsules (5, 18 and 19) shall be on. If capsule (5) is not, go to Task 7-2.7 or 7-2.7.1. If capsule (18 or 19) is not on, go to Task 7-1.14.
6. Start <b>APU</b> . Refer to Task 15-1.5. Check <b>UTIL HYD SYS capsule (5)</b> .	UTIL HYD SYS capsule (5) shall go out. If it is on, check UTILITY HYDRAULICS indicator (10) and record indication. Shut down APU and go to Task 7-2.8.
7. Check that <b>HYDRAULICS PWR XFR UTIL BLOWER, AND UTIL SYS CONT and UTIL HYD COOLING BLOWER circuit breakers (6, 7, 8, and 9)</b> are closed.	If any circuit breaker (6, 7, 8, or 9) is open, close it. If PWR XFR circuit breaker (6) is open, close it. If it opens again, go to Task 7-2.9. If UTIL BLOWER circuit breaker (7) opens again, go to Task 7-2.10. If UTIL SYS CONT circuit breaker (8) opens again, go to Task 7-3.7. If UTIL HYD COOLING BLOWER (9) opens again, go to Task 7-2.11.

TASK	RESULT
8. Check <b>UTILITY HYDRAULICS indicator (10)</b> .	Indicator (10) shall indicate <u>3200 to 3500 psi</u> and pointer shall not fluctuate more than <u>50 psi</u> . If indicator does not indicate <u>3200 to 3500 psi</u> go to Task 7-2.8 if pointer fluctuates more than <u>50 psi</u> , go to Task 8-7.3.
9. Check <b>UTILITY PRESS and RTN FILTER lights (11 and 12)</b> .	If light (11 or 12) is on, go to Task 7-2.12.
10. Check <b>APU FAULT light (13)</b> . If light (13) is on, go to Task 7-2.13.	
11. Press and release <b>UTILITY PRESS and RTN FILTER lights (11 and 12)</b> and <b>APU and UT PUMP FAULT lights (13 and 14)</b> .	Lights (11, 12, 13, and 14) shall momentarily come on. If any light does not come on, go to Task 7-2.14.
12. Set <b>FLT CONTR switch (17)</b> to BOTH. Set <b>POWER XFR NO. 1 and POWER XFR NO. 2 switches (15 and 16)</b> to ON.	NO. 1 HYD FLT CONTR and NO. 2 HYD FLT CONTR (Without <b>74</b> ) HYD 1 and HYD 2 (With <b>74</b> ) capsules (18 and 19) shall go out. If either capsule is still on, go to Task 7-2.15.
13. Move pilot's pitch and roll control and thrust lever (20 and 21) through their travel range.	Control and lever (19 and 20) travel shall be smooth. NO. 1 and NO. 2 HYD FLT CONTR (Without <b>74</b> ) HYD 1 and HYD 2 (With <b>74</b> ) capsules (18 and 19) shall stay out. Pointer on UTILITY HYDRAULICS TEMPERATURE indicator (22), shall move upscale and not exceed 95°C. If either capsule comes on, go to Task 7-2.16. If indicator pointer exceeds 95°C, go to Task 7-2.17.
14. Have pilot start engines and establish 100% rotor rpm. Stop <b>APU</b> . Check <b>UTILITY HYDRAULICS indicator (10)</b> .	Indicator (10) shall indicate <u>2900 to 3200 psi</u> and shall not fluctuate more than 50 psi. If indicator does not indicate <u>2900 to 3200 psi</u> or if pointer fluctuates more than <u>50 psi</u> , replace utility hydraulic pump.
15. Check <b>UTILITY PRESS and RTN FILTER lights (11 and 12)</b> .	If light (11 or 12) is on, go to Task 7-2.12.
16. Check <b>UT PUMP FAULT light (14)</b> .	If light (14) is on, go to Task 7-2.13.
17. Remove heater compartment acoustic blanket. Refer to TM 55-1520-240-23.	
18. Have pilot stop engines and start APU.	

GO TO NEXT PAGE



A65354

## 7-2.4 UTILITY HYDRAULIC SYSTEM OPERATIONAL CHECK (Continued)

7-2.4

TASK	RESULT
19. Set POWER XFR NO. 1 and POWER XFR NO. 2 switches (15 and 16) to OFF.	NO. 1 and NO 2 HYD FLT CONTR (Without 74) HYD 1 and HYD 2 (With 74) capsules (18 and 19) shall come on. If one capsule does not come on, replace associated PWR XFR switch (15 and 16).
20. Hold pressure line (23) to brake on winch (24). Push in pushbutton (25) on shutoff valve (26).	Pressure surge should not be felt on pressure line (23). If surge felt, go to Task 7-2.20.
21. Release pushbutton (25).	Pushbutton (25) should come out. If it does not, replace shutoff valve (26).

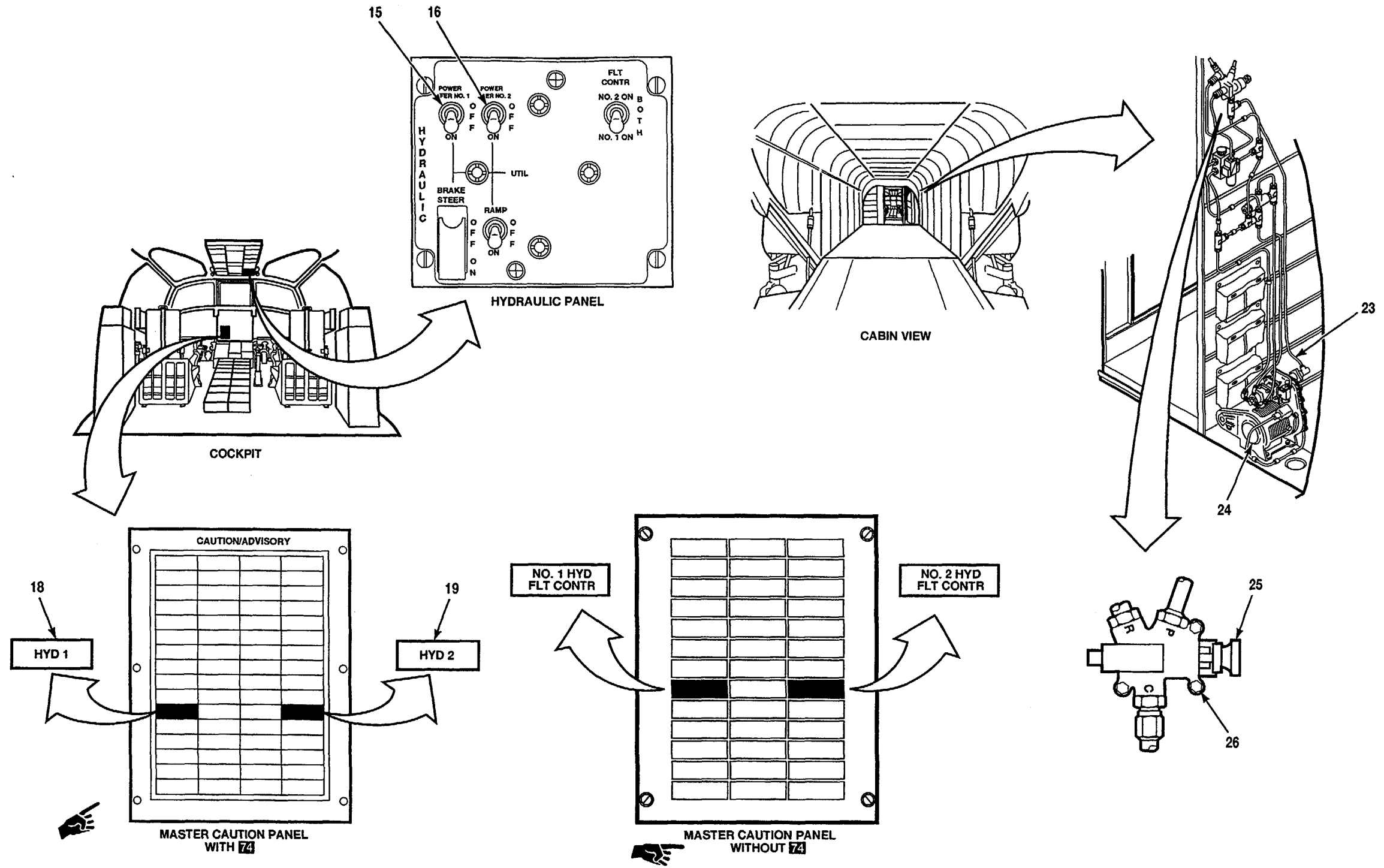
## FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

Electrical power off.

Battery disconnected.

Install heater compartment acoustic blanket.



A65375

7-2.5 HYDRAULICS OIL LEVEL CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

All

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials**

None

**Personnel Required:**

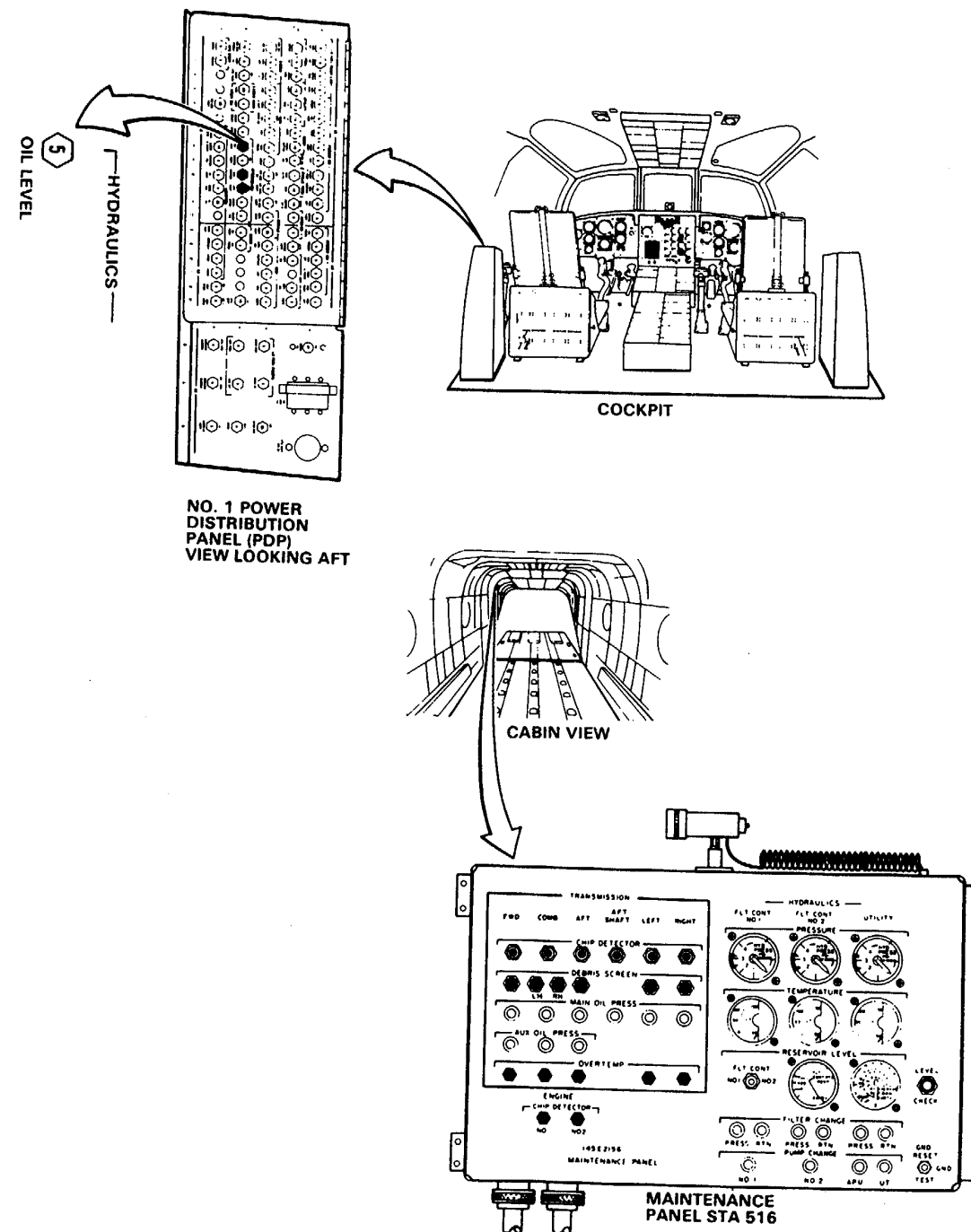
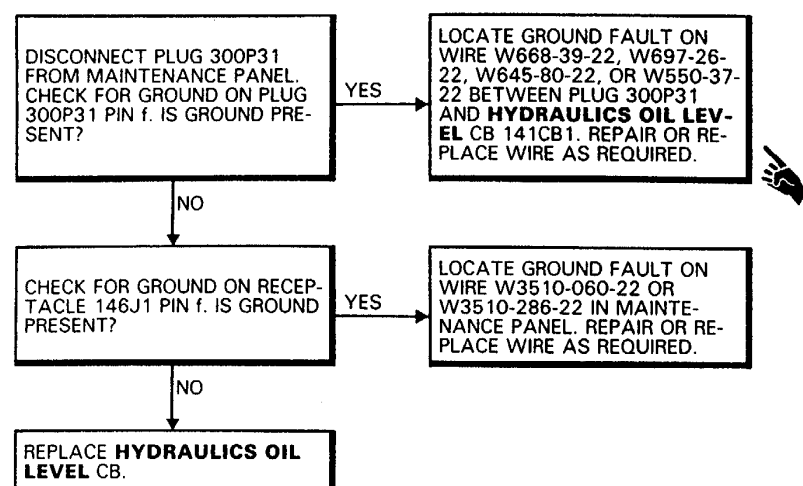
Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



45X54

D145-12000-SPA

**7-2.6 UTILITY RESERVOIR LEVEL INDICATOR POINTER DOES NOT INDICATE FLUID LEVEL**

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
All

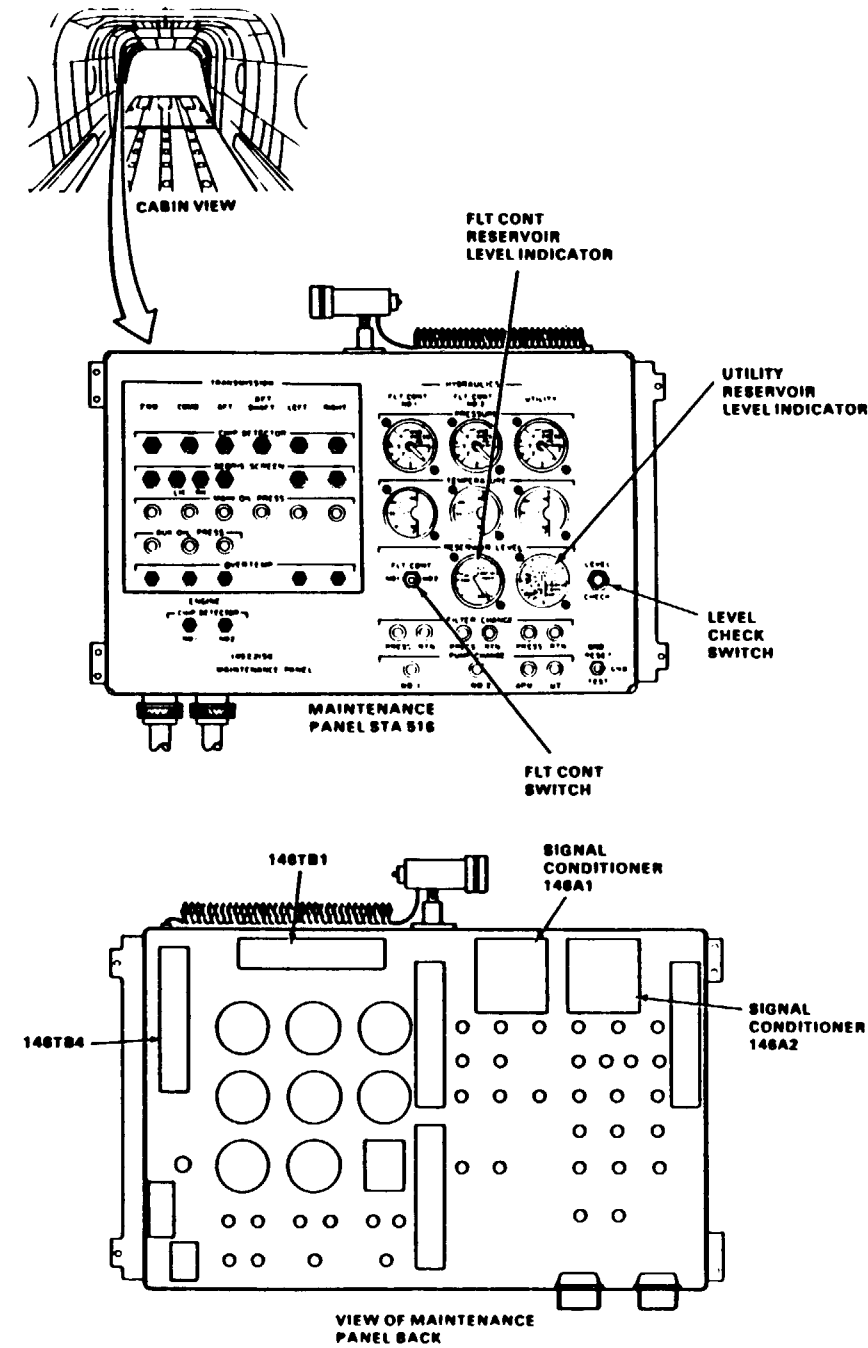
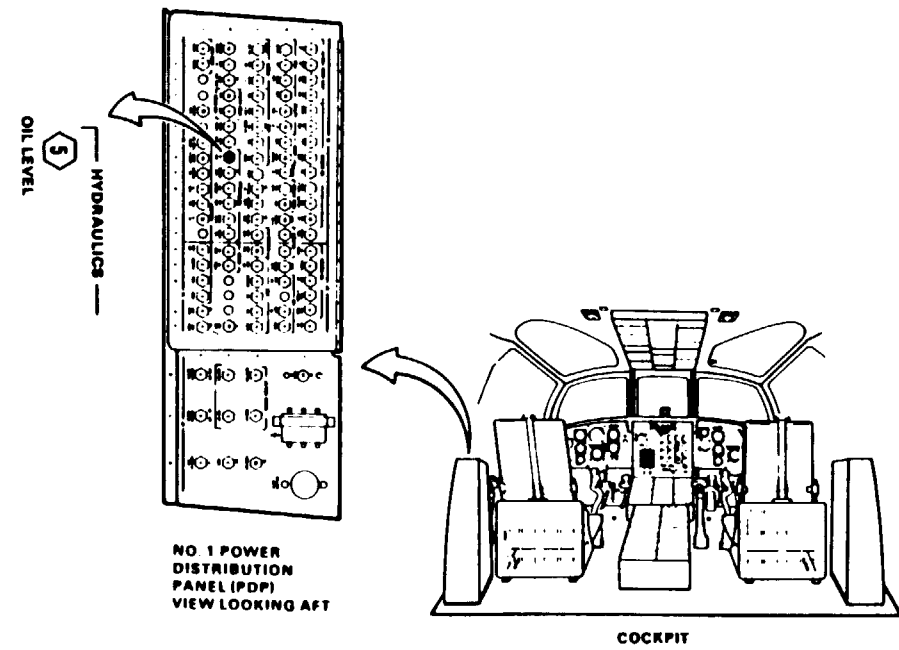
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

**Personnel Required:**  
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

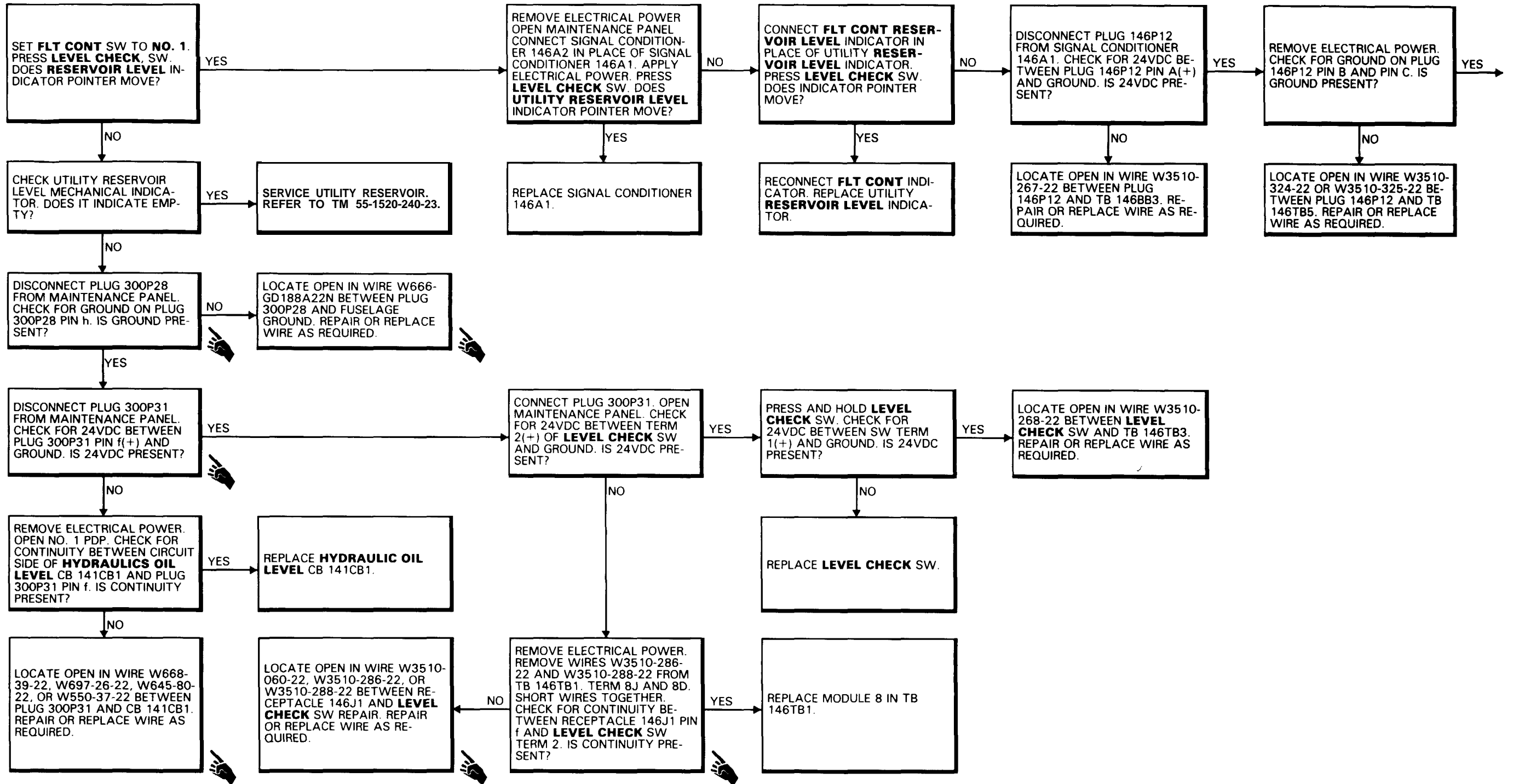
**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



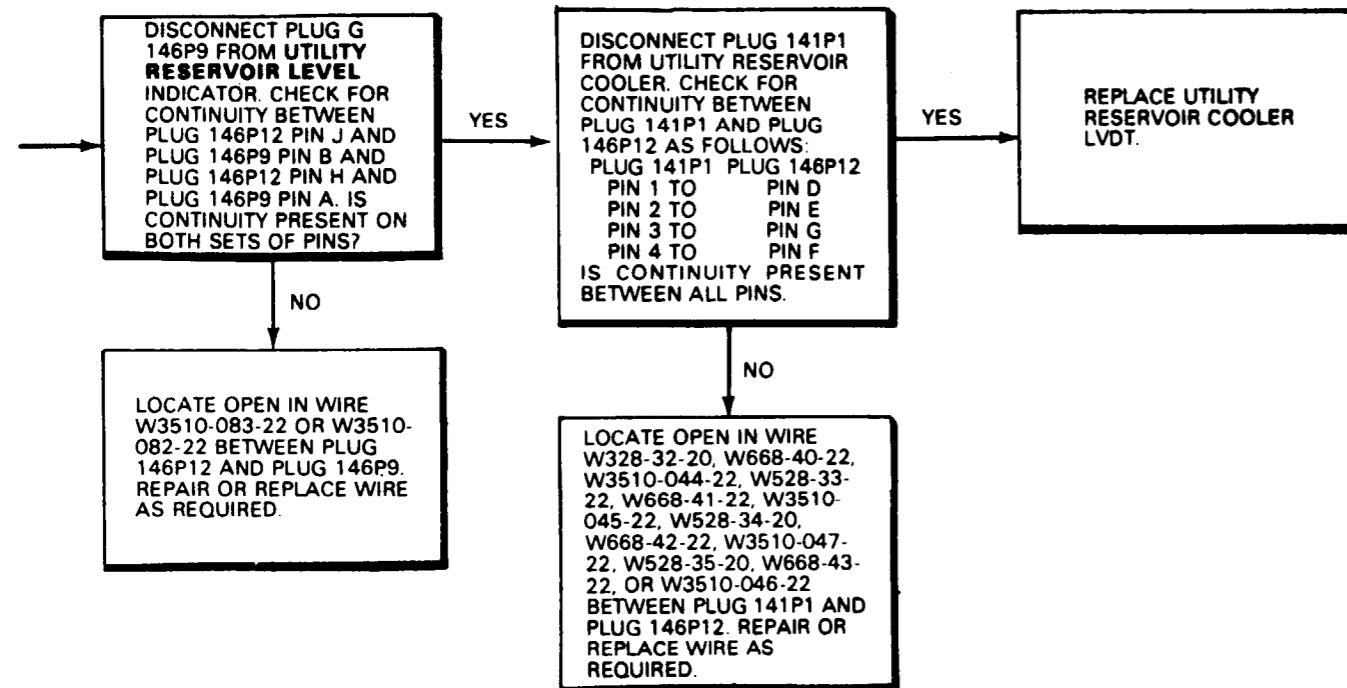
D145-12001-SPA

7-2.6 UTILITY RESERVOIR LEVEL INDICATOR POINTER DOES NOT INDICATE FLUID LEVEL (Continued)



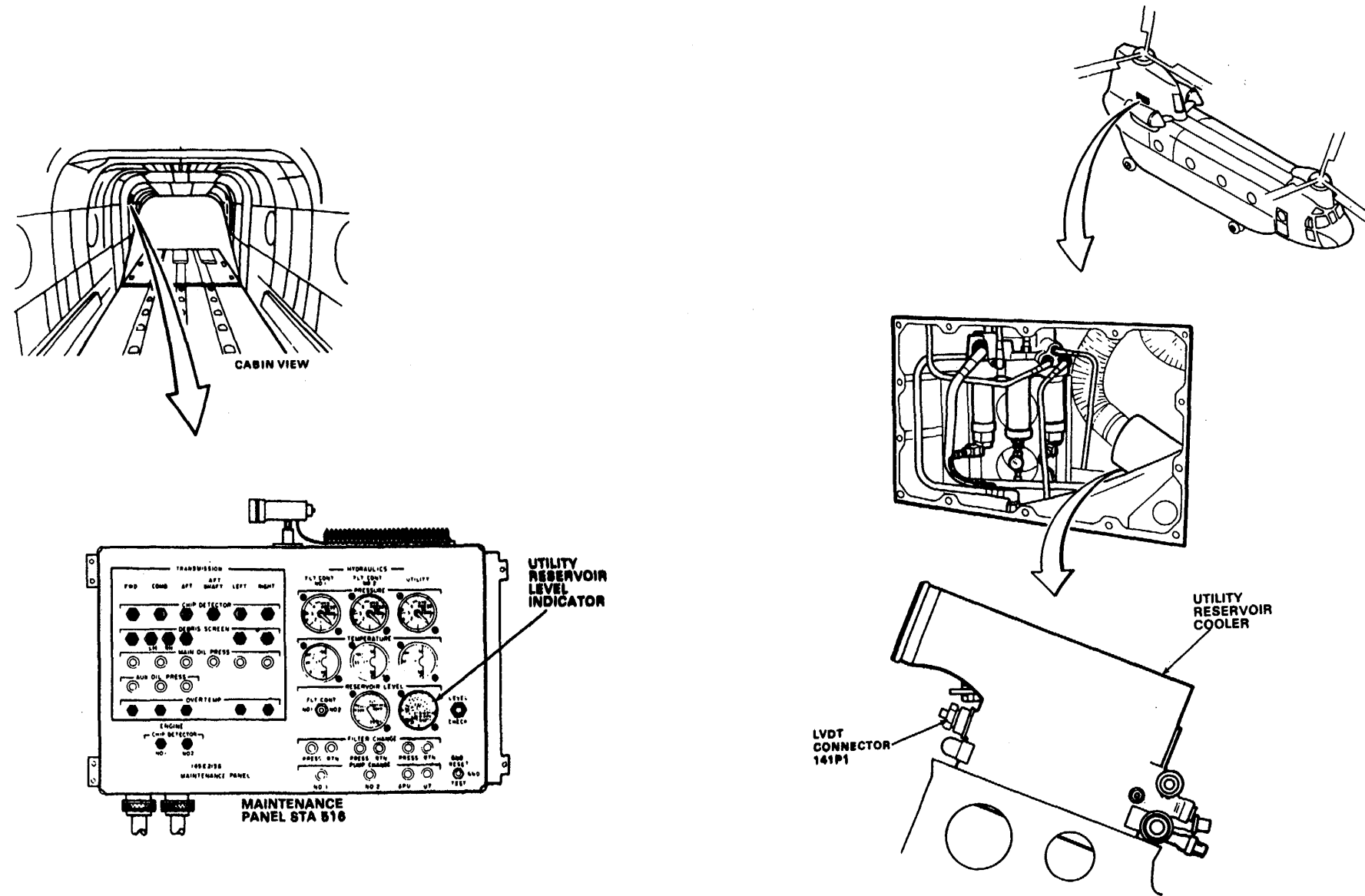


7-2.6 UTILITY RESERVOIR LEVEL INDICATOR POINTER DOES NOT INDICATE FLUID LEVEL (Continued)



GO TO NEXT PAGE

7-2.6 UTILITY RESERVOIR LEVEL INDICATOR POINTER DOES NOT INDICATE FLUID LEVEL (Continued)



90-54

D145 - 12002 - SPA

7-2.7 UTIL HYD SYS CAPSULE OUT WHEN SYSTEM NOT PRESSURIZED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations**

All

**Tools**

Electrical Repairer Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

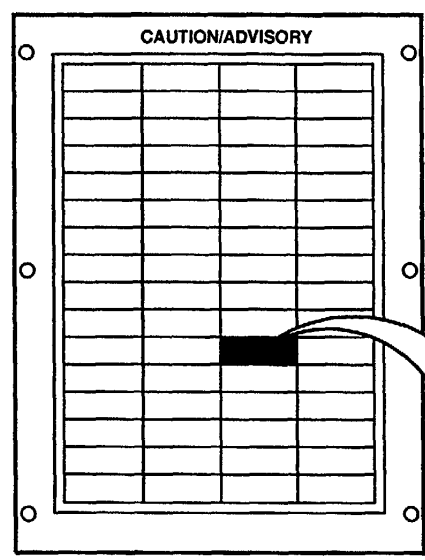
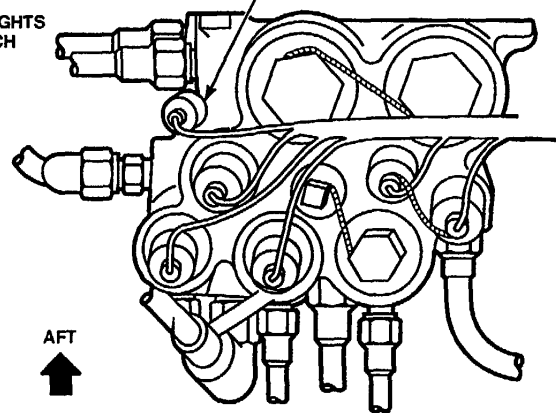
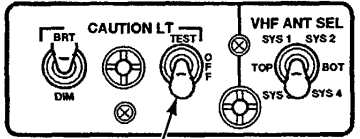
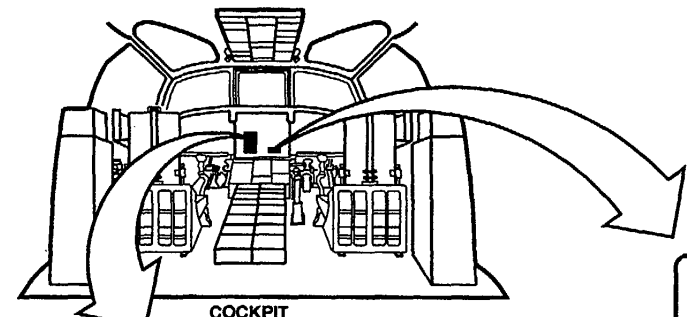
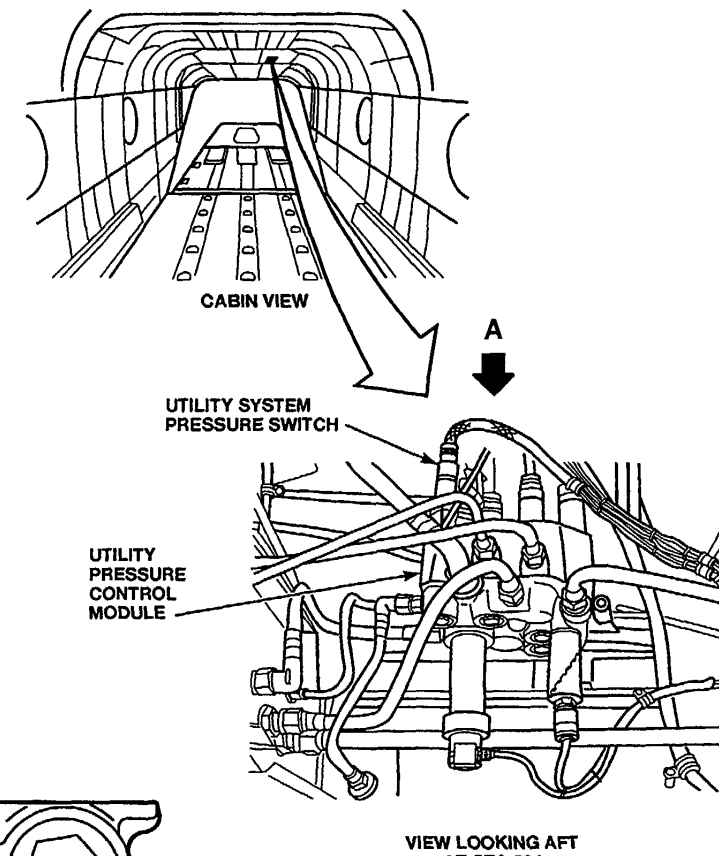
**Equipment Condition:**

TM 55-1520-240-23:

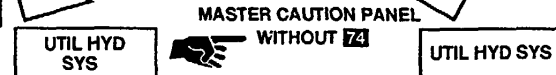
Battery Connected

Electrical Power On

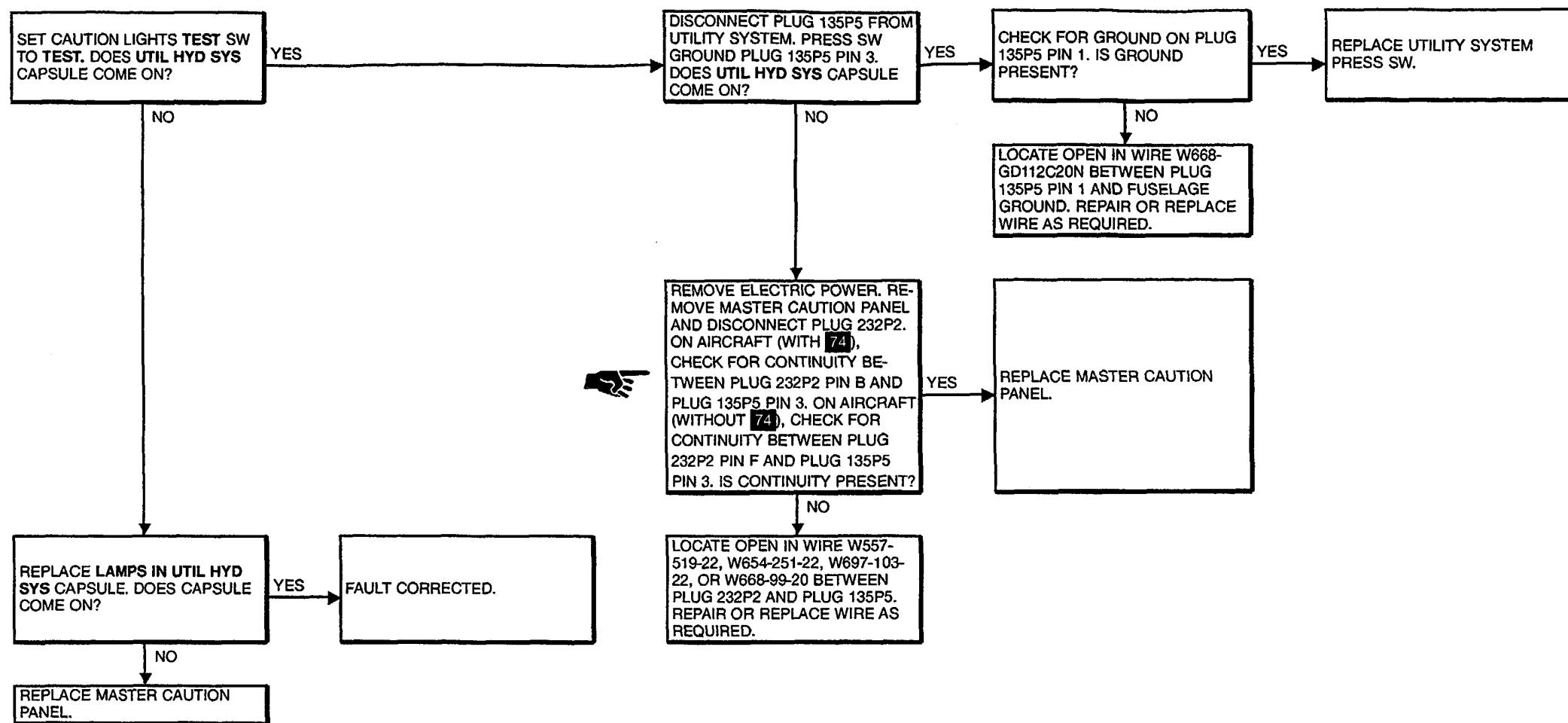
Hydraulic Power Off



NO. 1 ENG XMSN HOT	XMSN OIL HOT	NO. 2 ENG XMSN HOT
NO. 1 ENG CHIP DET	XMSN CHIP DET	NO. 2 ENG CHIP DET
NO. 1 ENG OIL LOW	XMSN OIL PRESS	NO. 2 ENG OIL LOW
L. FUEL LOW		R. FUEL LOW
L. FUEL PRESS	XMSN AUX OIL PRESS	R. FUEL PRESS
NO. 1 RECT OFF	BATT SYS MAL	NO. 2 RECT OFF
NO. 1 GEN OFF	APU ON	NO. 2 GEN OFF
NO. 1 HYD FLT CONTR	FWD HOOK OPEN	NO. 2 HYD FLT CONTR
NO. 1 AFCS OFF	MID HOOK OPEN	NO. 2 AFCS OFF
	AFT HOOK OPEN	DUAL HOOK FAULT
NO. 1 ENG N1 CONT	PWR STEER	NO. 2 ENG N1 CONT
CM INOP	WEATHER	
	EXT PWR	



A65355



7-2.8 UTIL HYD SYS CAPSULE DOES NOT GO OUT OR PRESSURE INDICATION IS NOT BETWEEN 3200 AND 3500 PSI WITH APU RUNNING

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials**

None

**Personnel Required:**

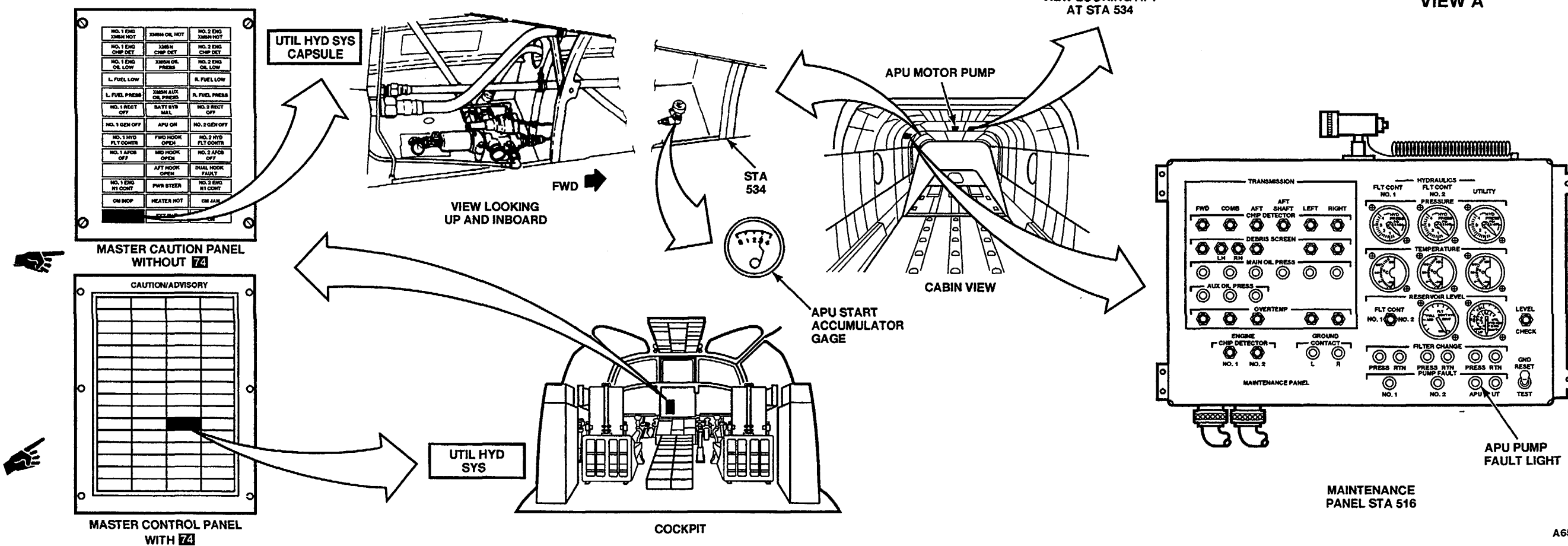
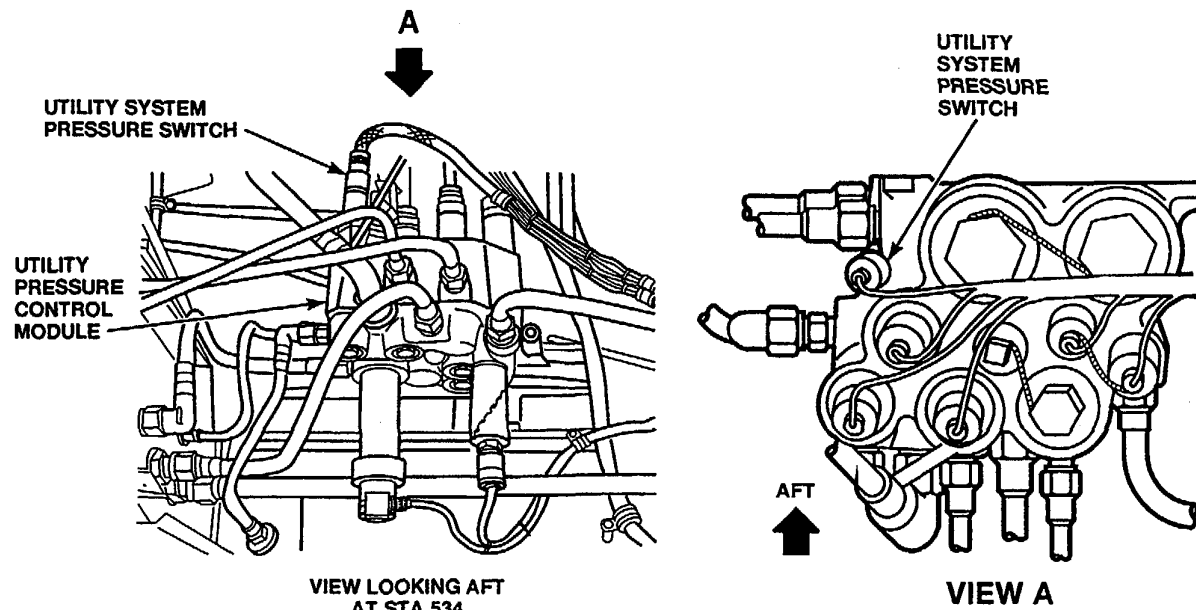
- Medium Helicopter Repairer
- Aircraft Electrician

**References**

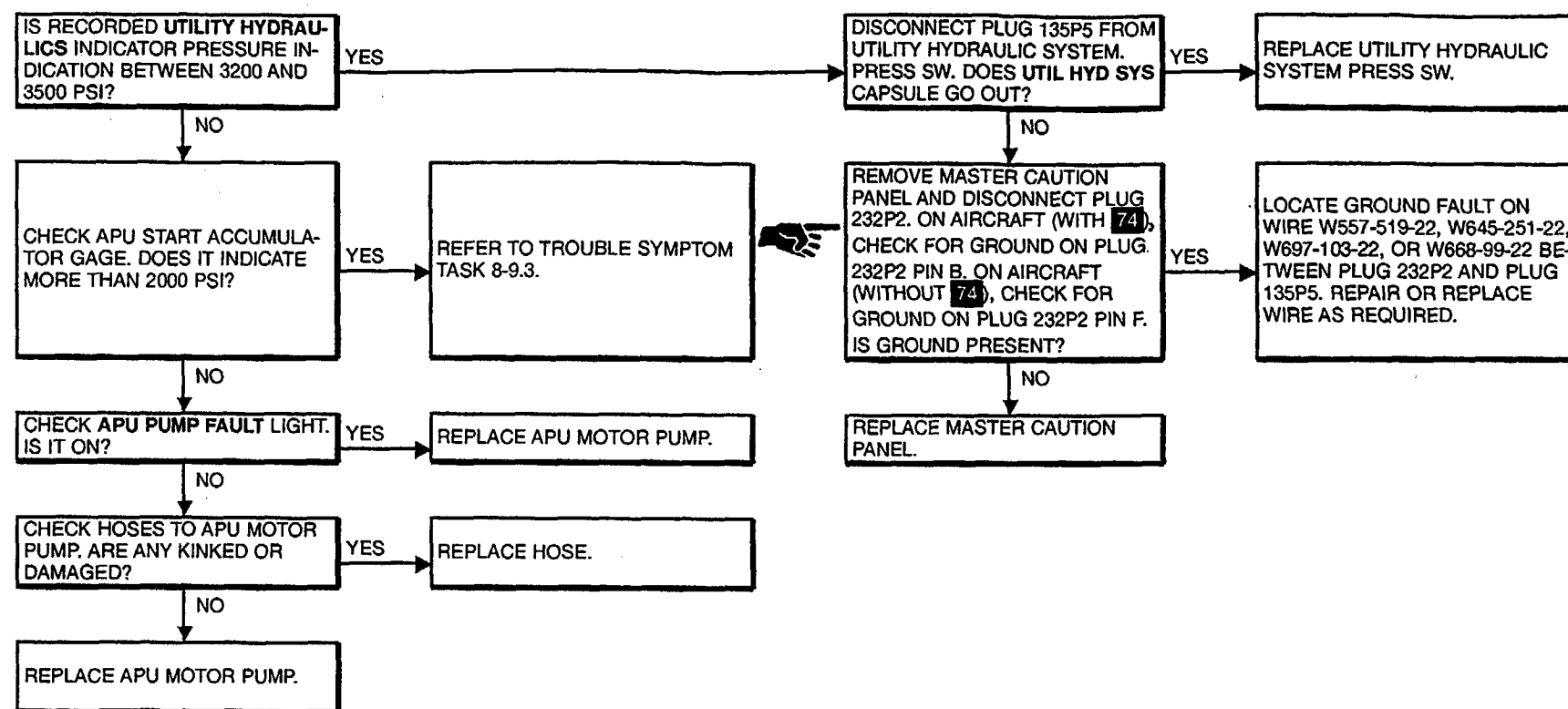
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power Off



A65356



7-2.9 HYDRAULIC PWR XFR CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit.  
NSN 5180-00-323-4915
- Aircraft Mechanic's Tool Kit.  
NSN 5180-00-323-4692
- Multimeter

**Materials:**

None

**Personnel Required:**

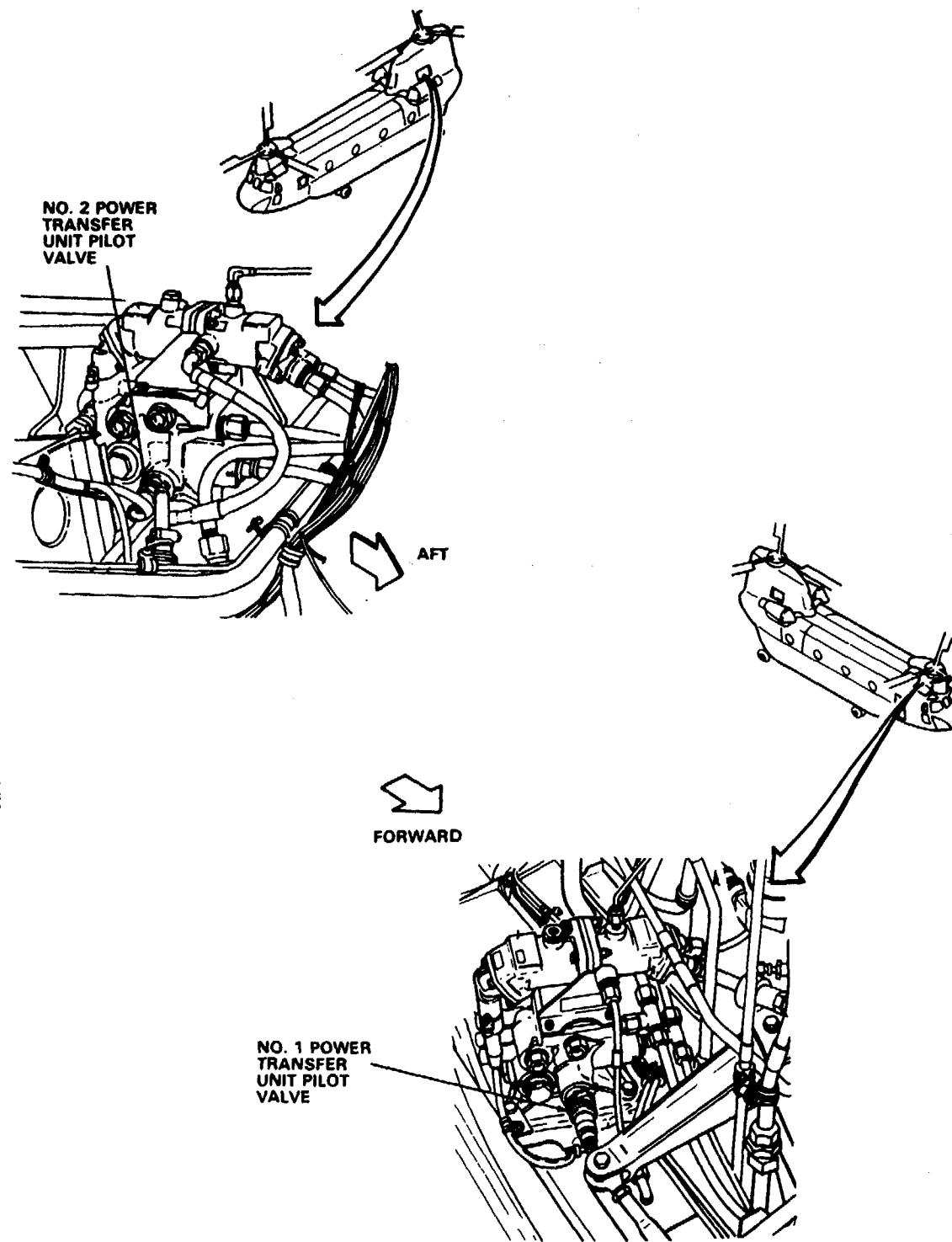
- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

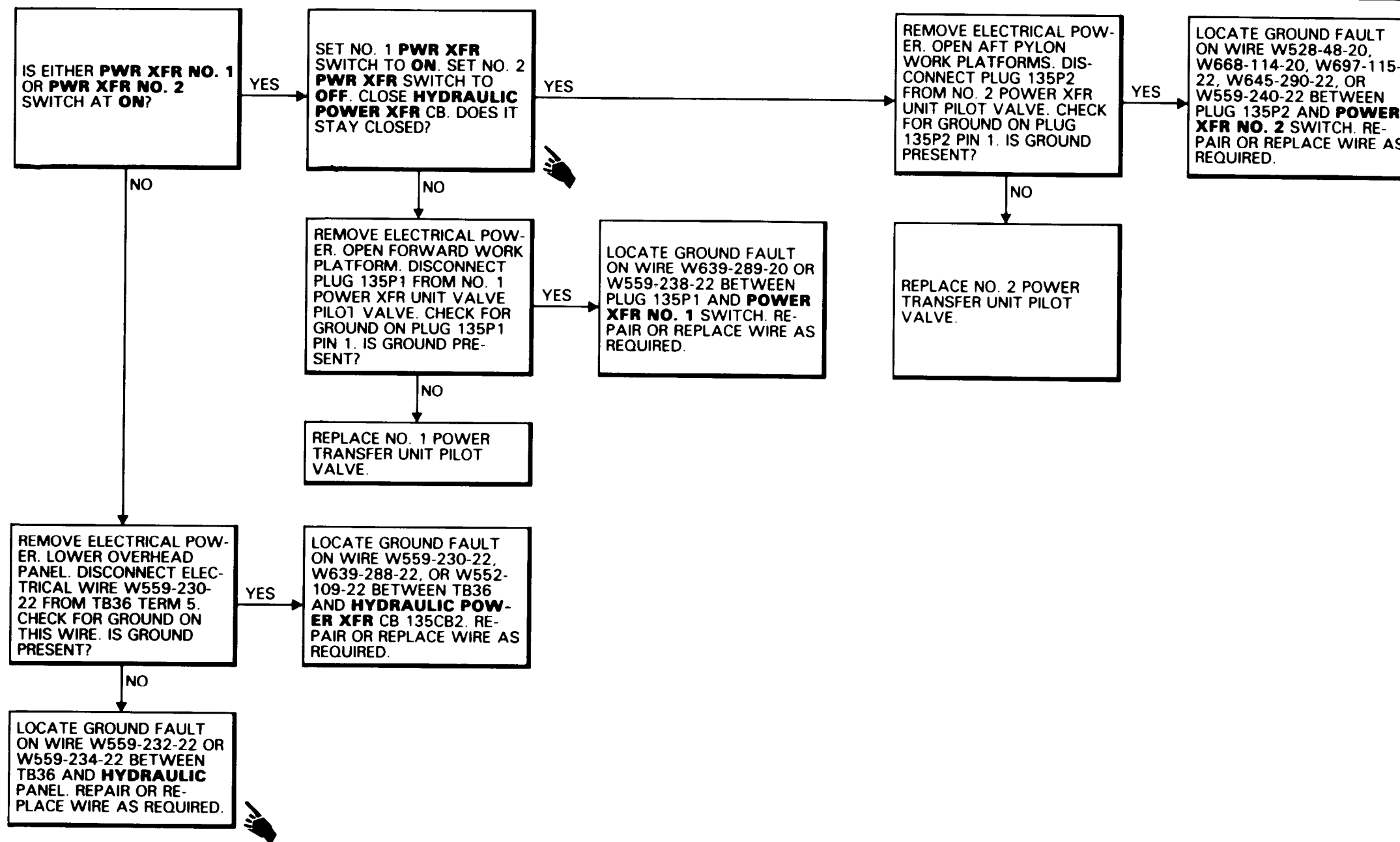
TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23
- Battery Connected
- Electrical Power On
- Hydraulic Power On



7-2.9 HYDRAULIC PWR XFR CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)





7-2.10 HYDRAULICS UTIL BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

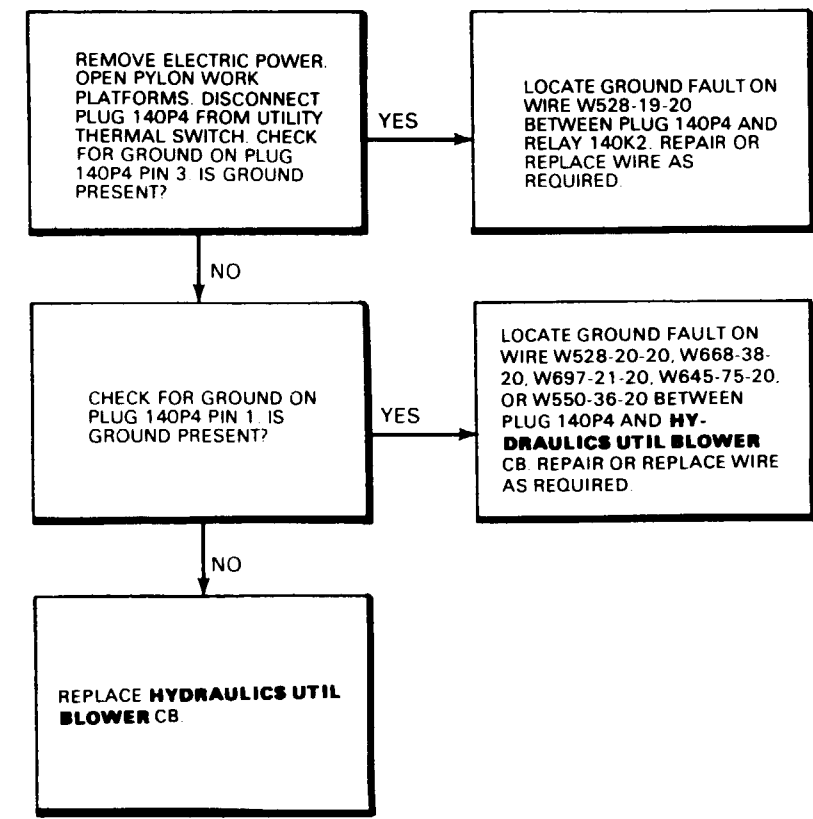
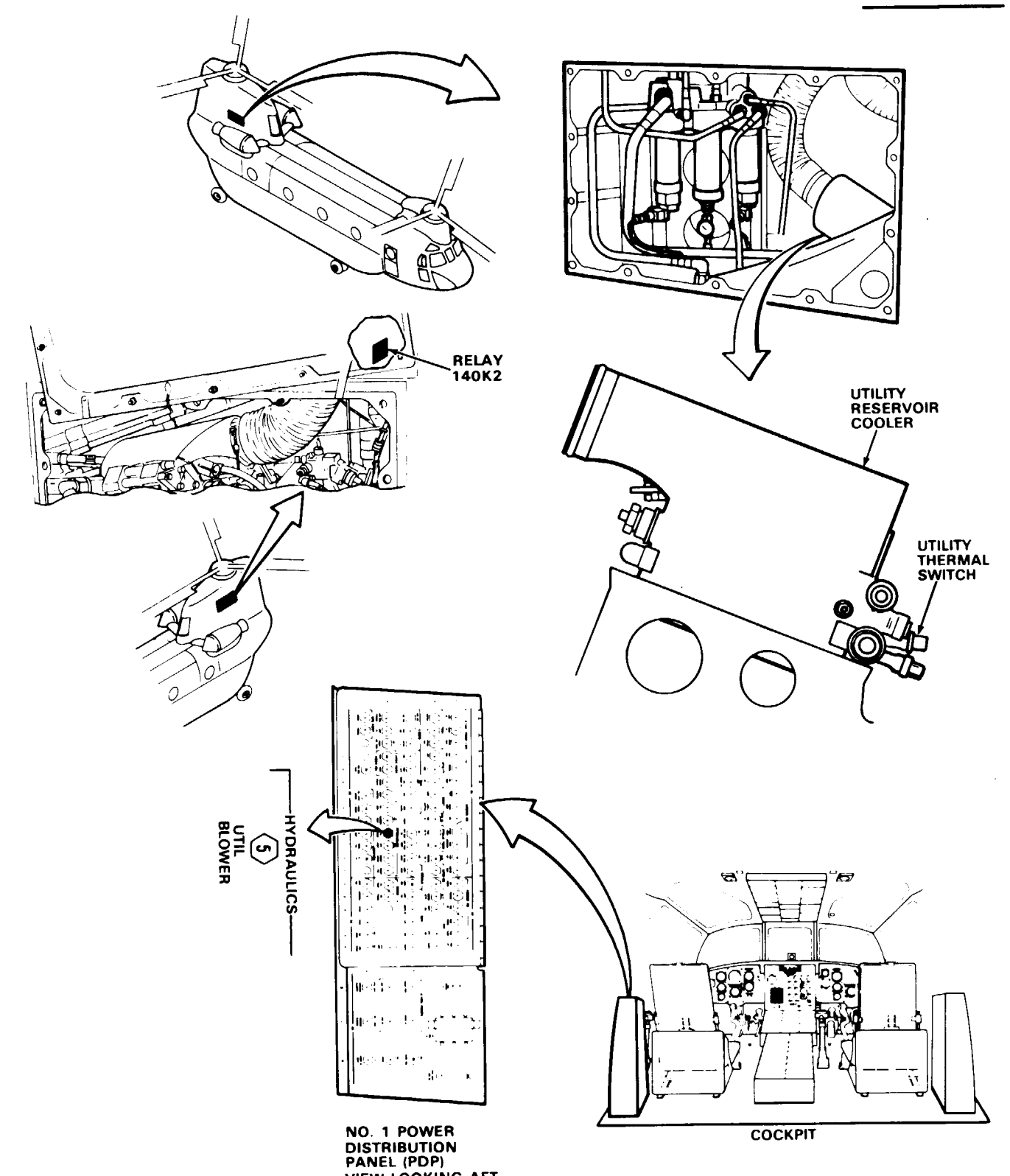
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

**Personnel Required:**  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On



**END OF TASK**

7-2.11 UTIL HYD COOLING BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

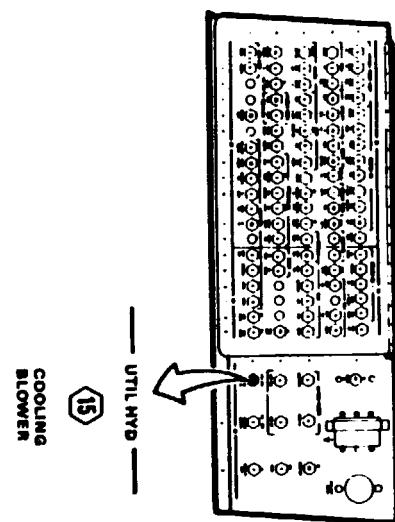
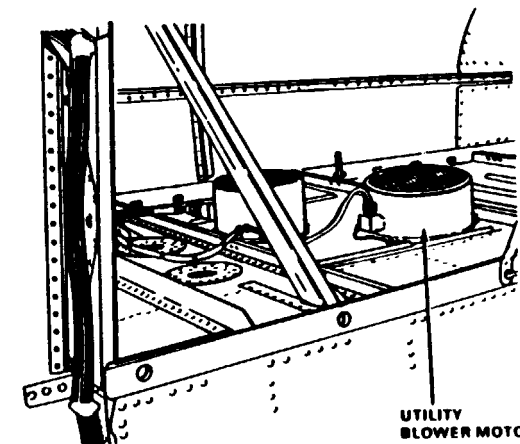
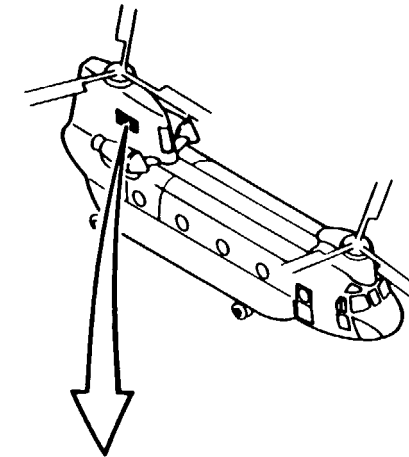
**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Material/s:**  
None

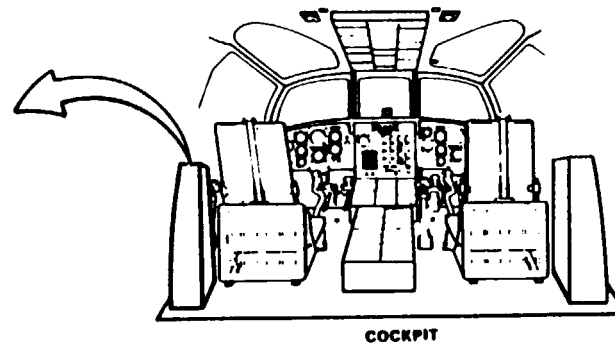
**Personnel Required:**  
68F10 Aircraft Electrician  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



COCKPIT

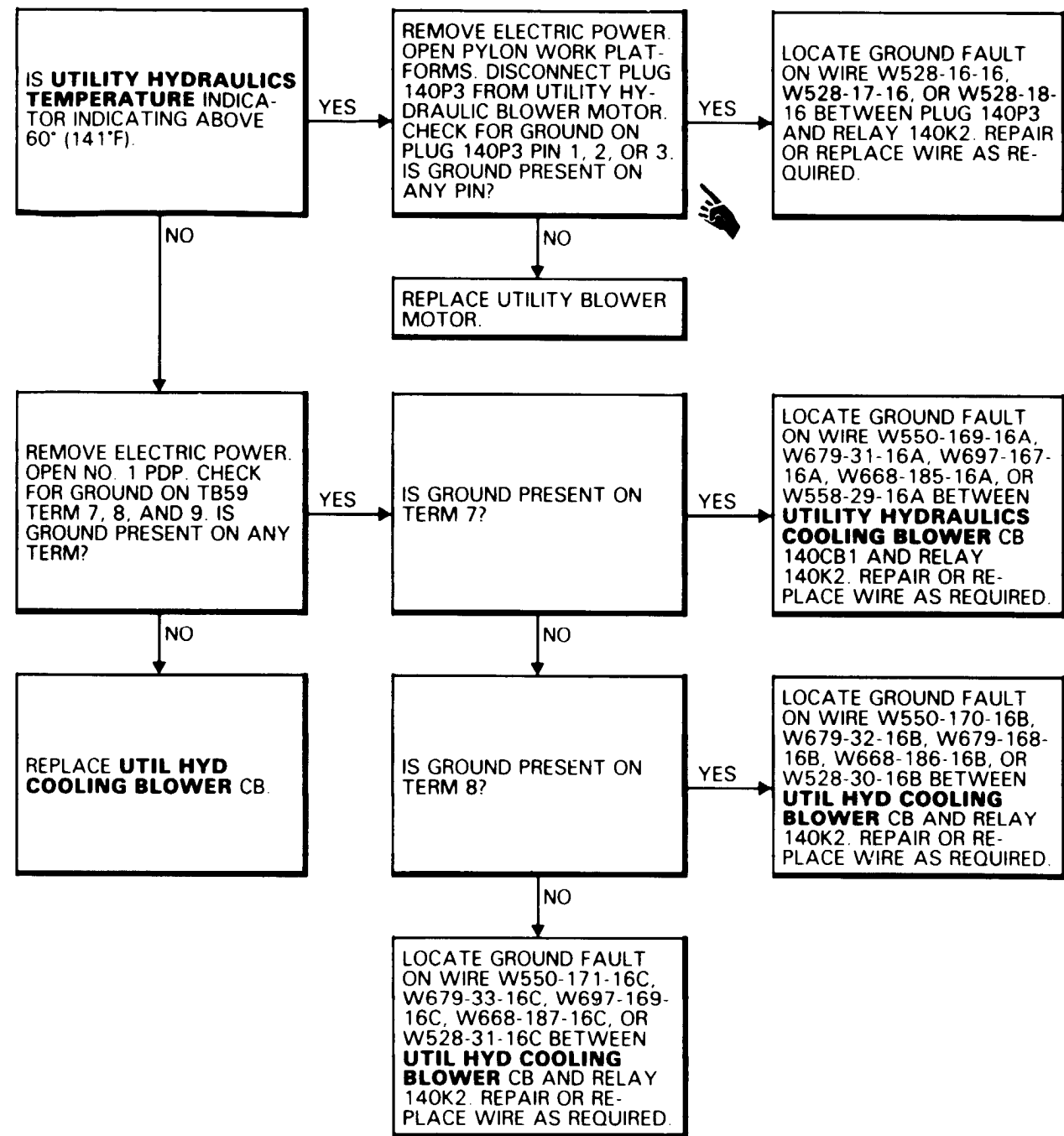
90-54

0145-12007-9PA

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GO TO NEXT PAGE

7-2.11 UTIL HYD COOLING BLOWER CIRCUIT BREAKER WILL NOT STAY CLOSED (Continued)



7-2.12 UTILITY PRESS OR UTILITY RTN FILTER CHANGE LIGHT IS ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

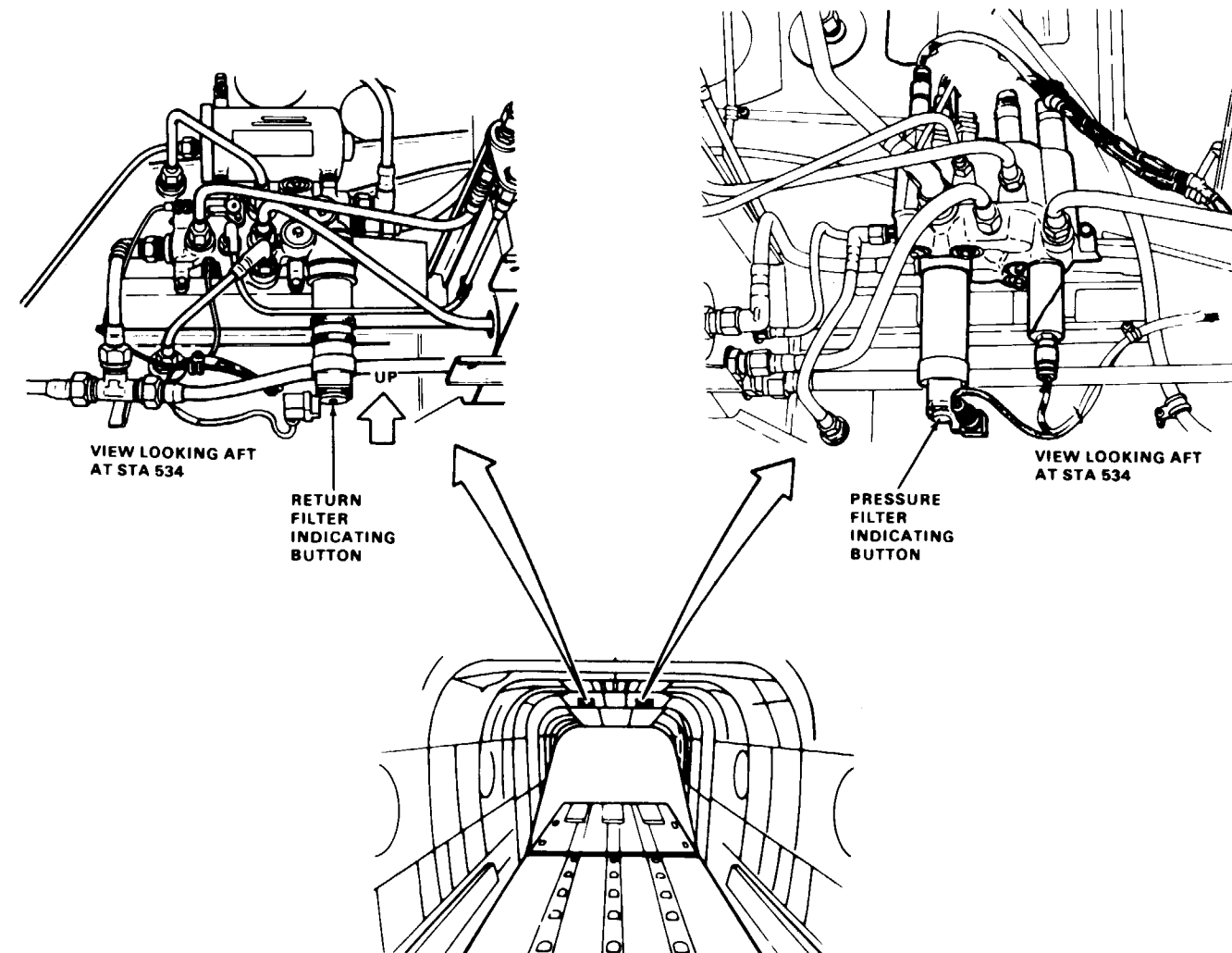
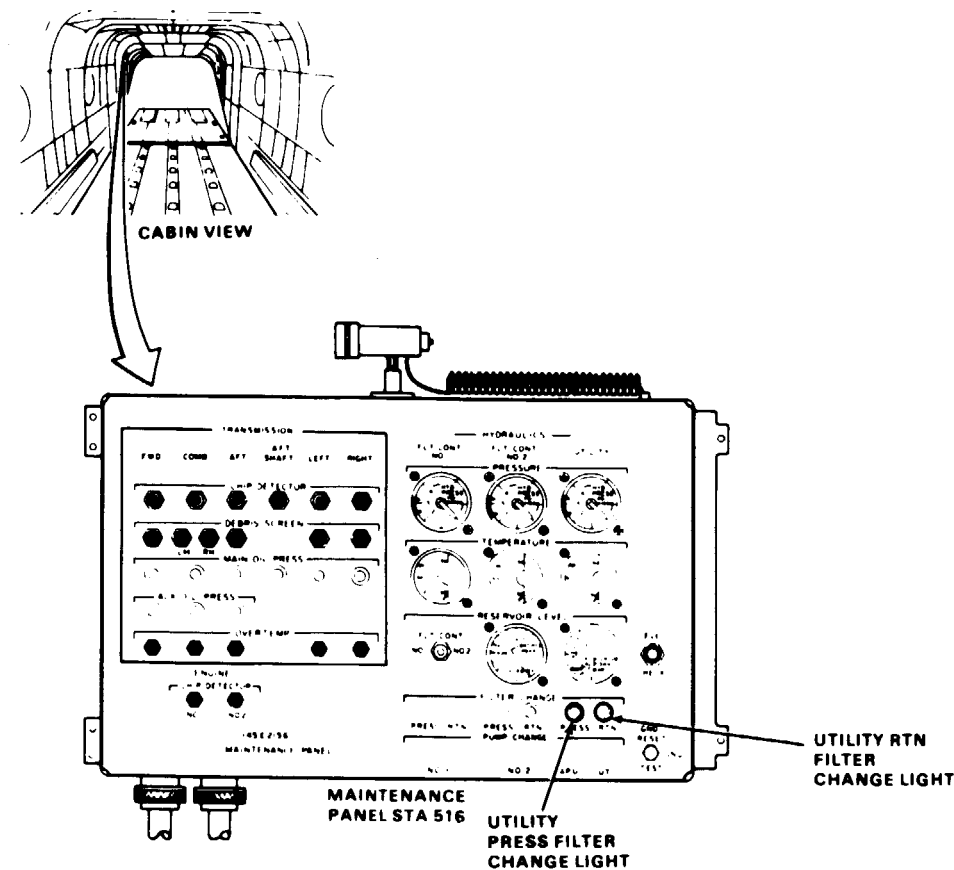
**Personnel Required:**  
67U20 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**Tools:**  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**References:**  
TM 55-1520-280-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On

**Materials:**  
None

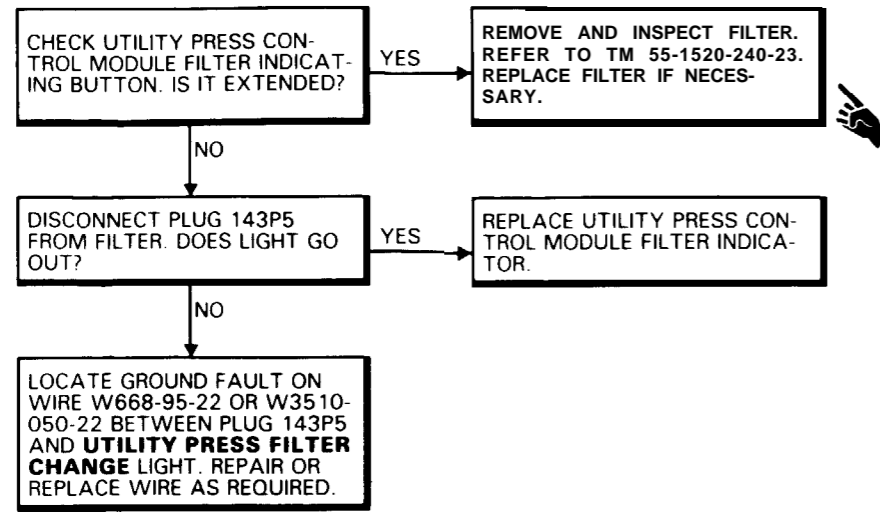


90 x 54

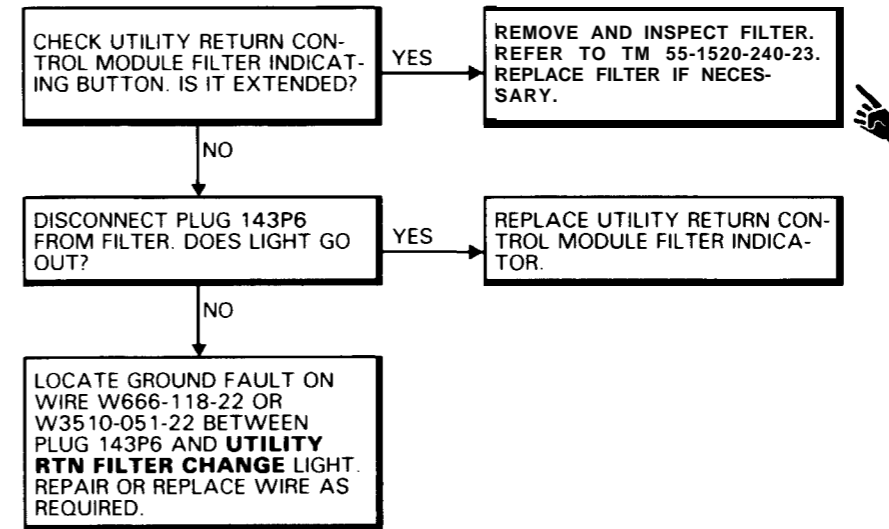
D145-12008-SPA

GO TO NEXT PAGE

**UTILITY PRESS FILTER CHANGE LIGHT IS ON**



**UTILITY RTN FILTER CHANGE LIGHT IS ON**



7-2.13 UTILITY PUMP FAULT LIGHT IS ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**  
 Medium Helicopter Repairer  
 Aircraft Electrician

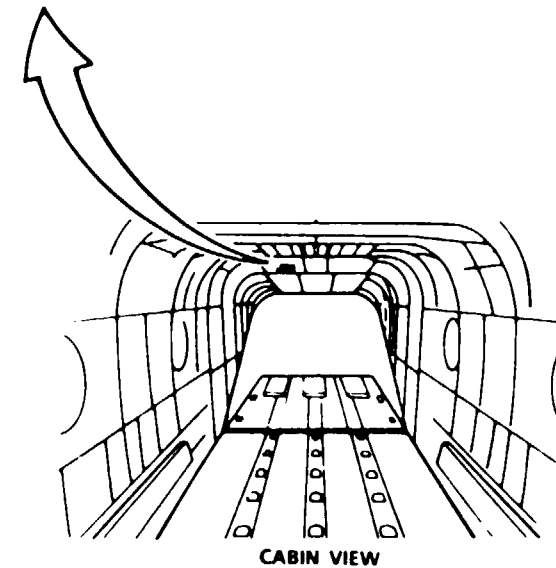
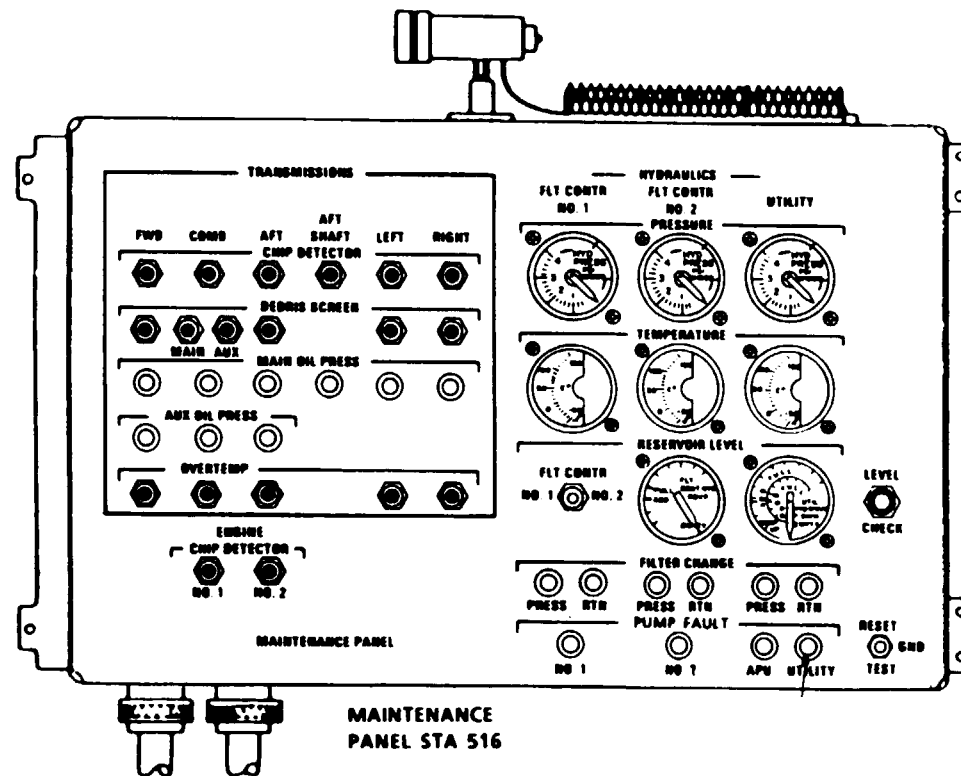
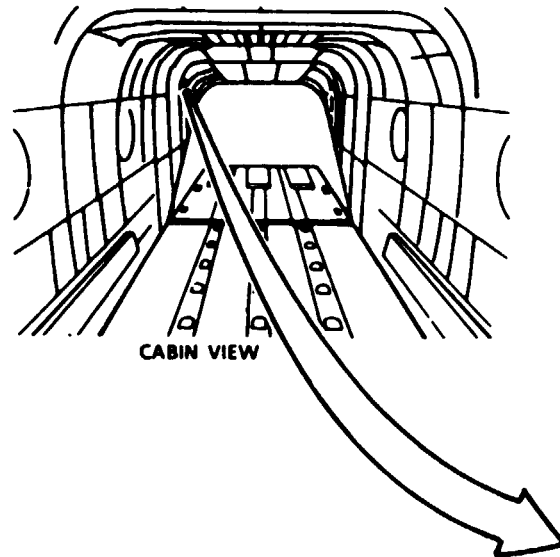
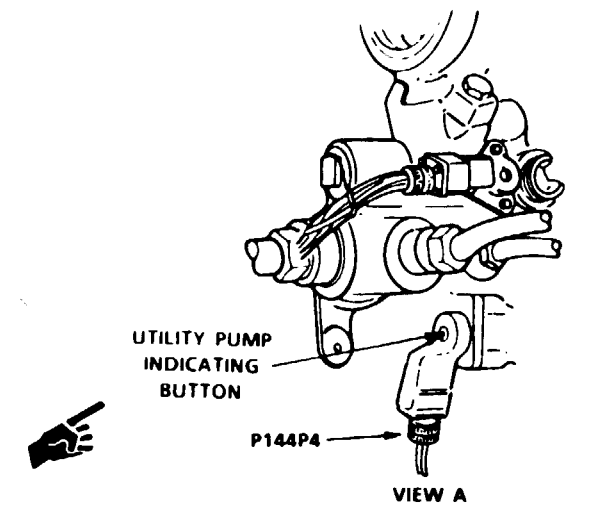
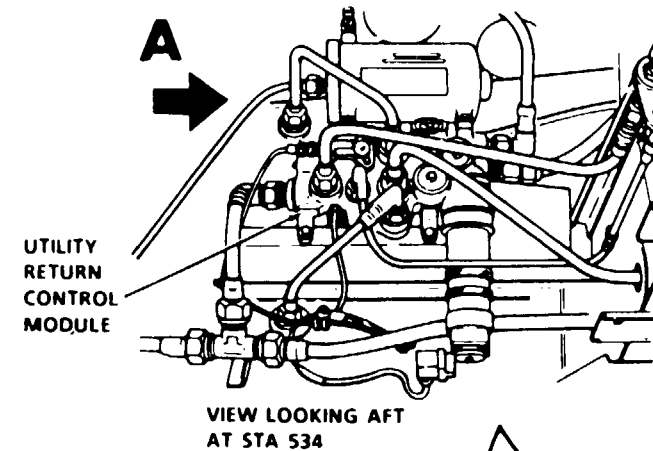
**Applicable Configurations:**  
 All

**References:**  
 TM 55-1520-280-23

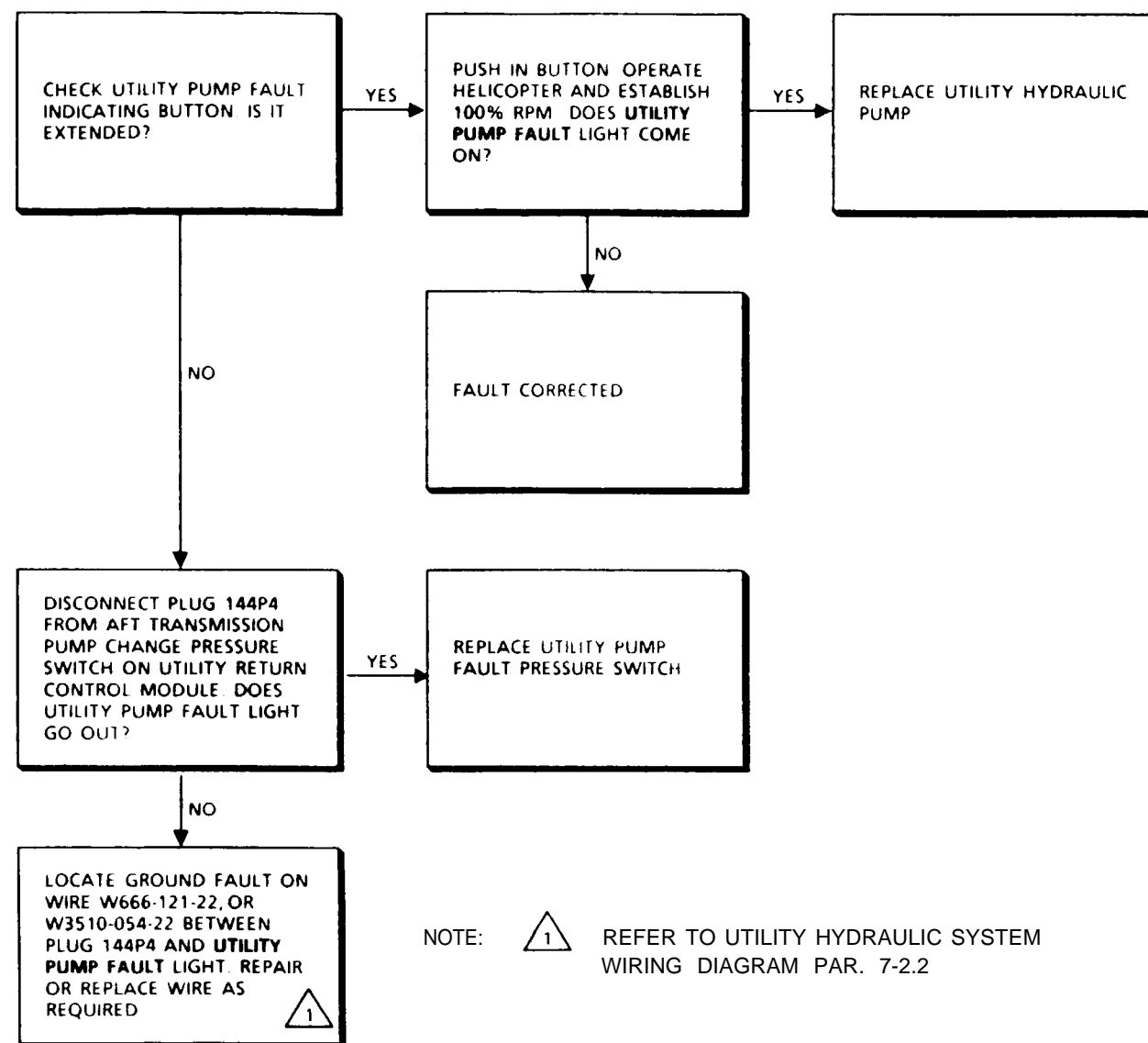
**Took:**  
 Electrical Repairer's Tool Kit,  
 NSN 5180-00-323-4915  
 Aircraft Mechanic's Tool Kit,  
 NSN 5180-00-323-4692  
 Multi meter

**Equipment Condition:**  
 TM 55-1520-240-23:  
 Battery Connected  
 Electrical Power On  
 Hydraulic Power On

**Materials:**  
 None



7-2.13 UTILITY PUMP FAULT LIGHT IS ON (CONTINUED)



END OF TASK

7-2.14 UTILITY PRESS FILTER, UTILITY RTN FILTER, APU PUMP FAULT OR UT PUMP FAULT LIGHT DOES NOT COME ON WHEN PRESSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

**Personnel Required:**  
Aircraft Electrician

**Applicable Configurations:**

All

**Equipment Condition:**  
TM 55-1520-240-23

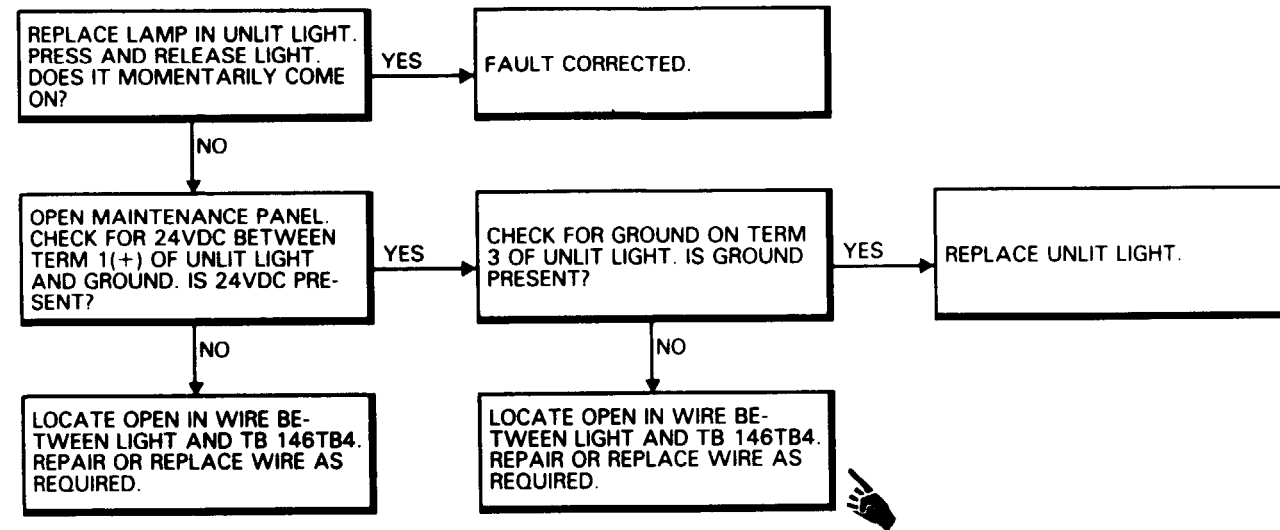
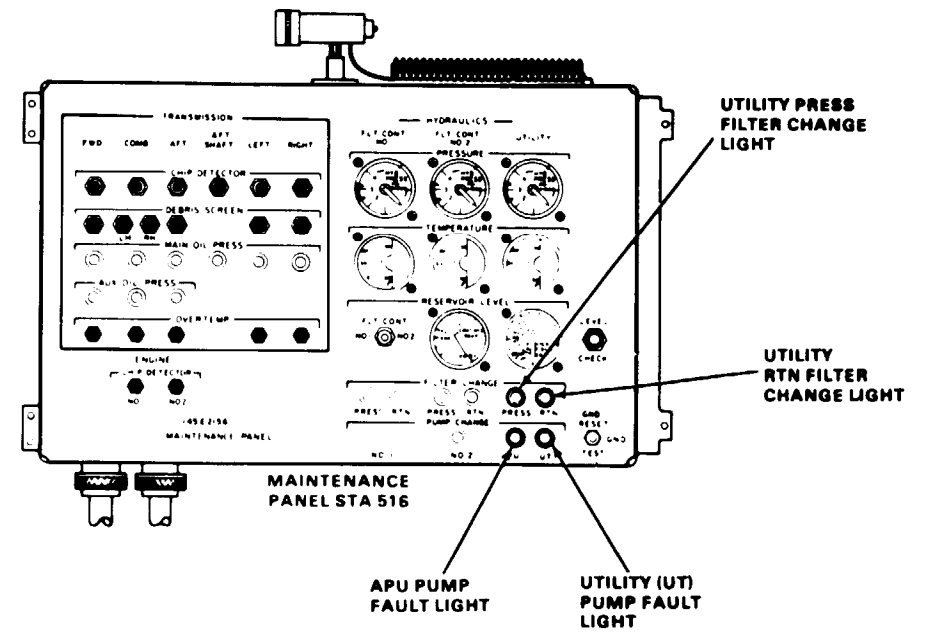
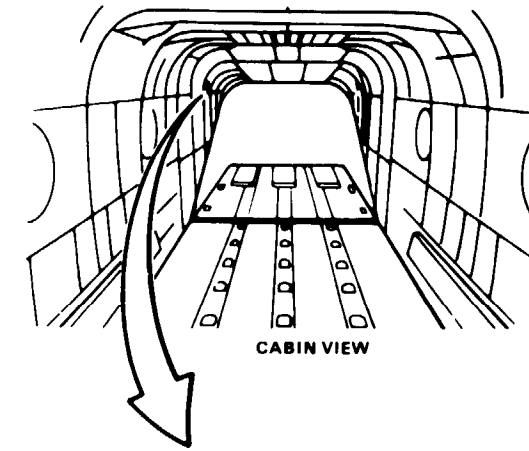
**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off

**Materials:**

None





**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692
- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

- Aircraft Electrician
- Medium Helicopter Repairer

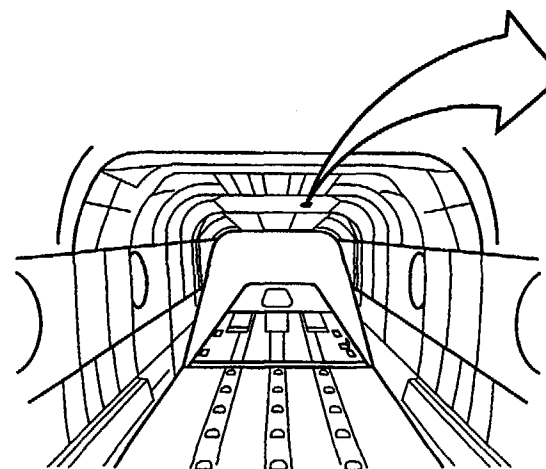
**References:**

TM 55-1520-240-23

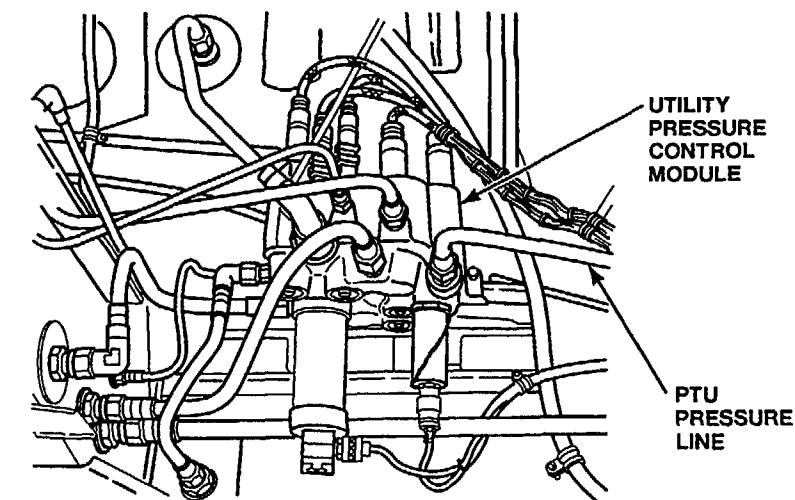
**Equipment Condition:**

TM 55-1520-240-23:

- Battery Connected
- Electrical Power On
- Hydraulic Power On



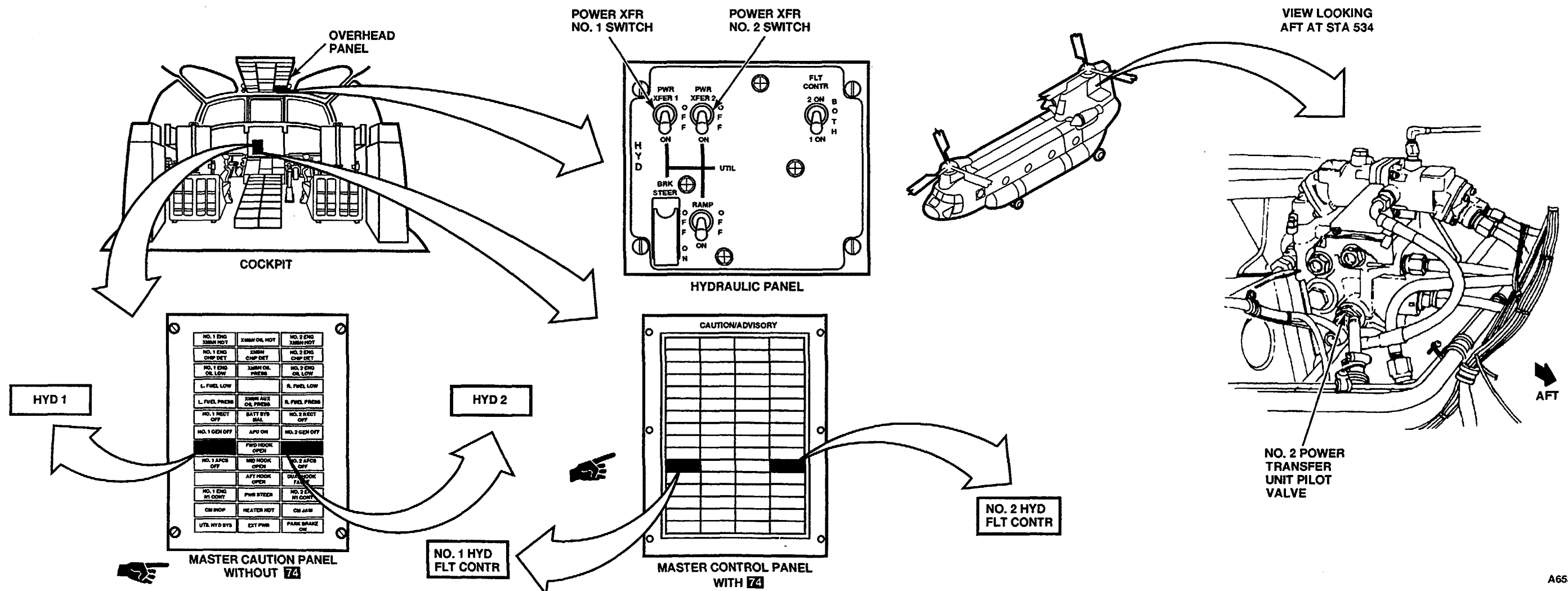
CABIN VIEW



UTILITY PRESSURE CONTROL MODULE

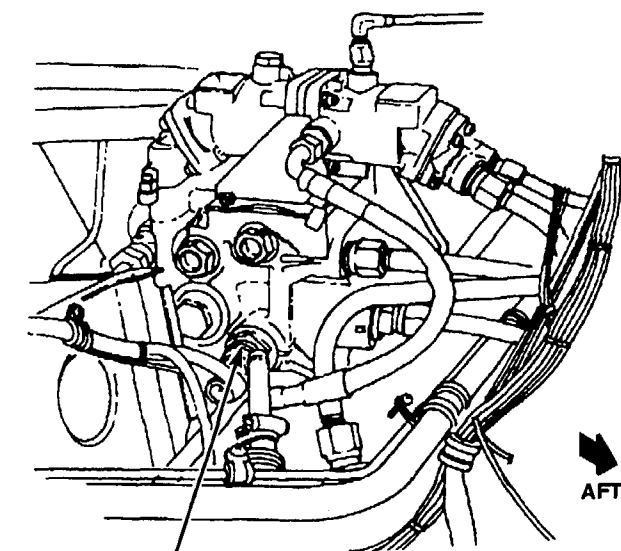
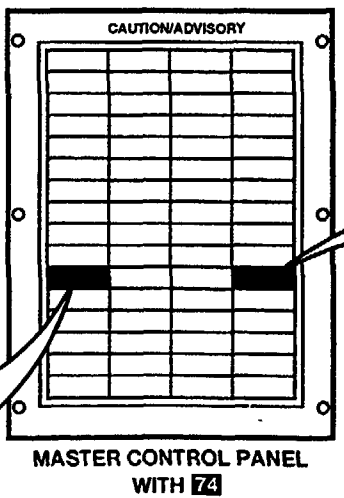
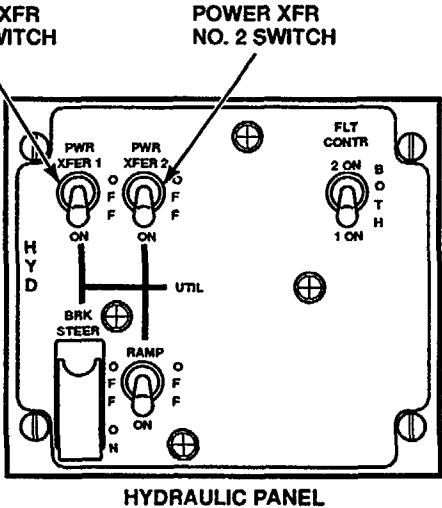
PTU PRESSURE LINE

VIEW LOOKING AFT AT STA 534



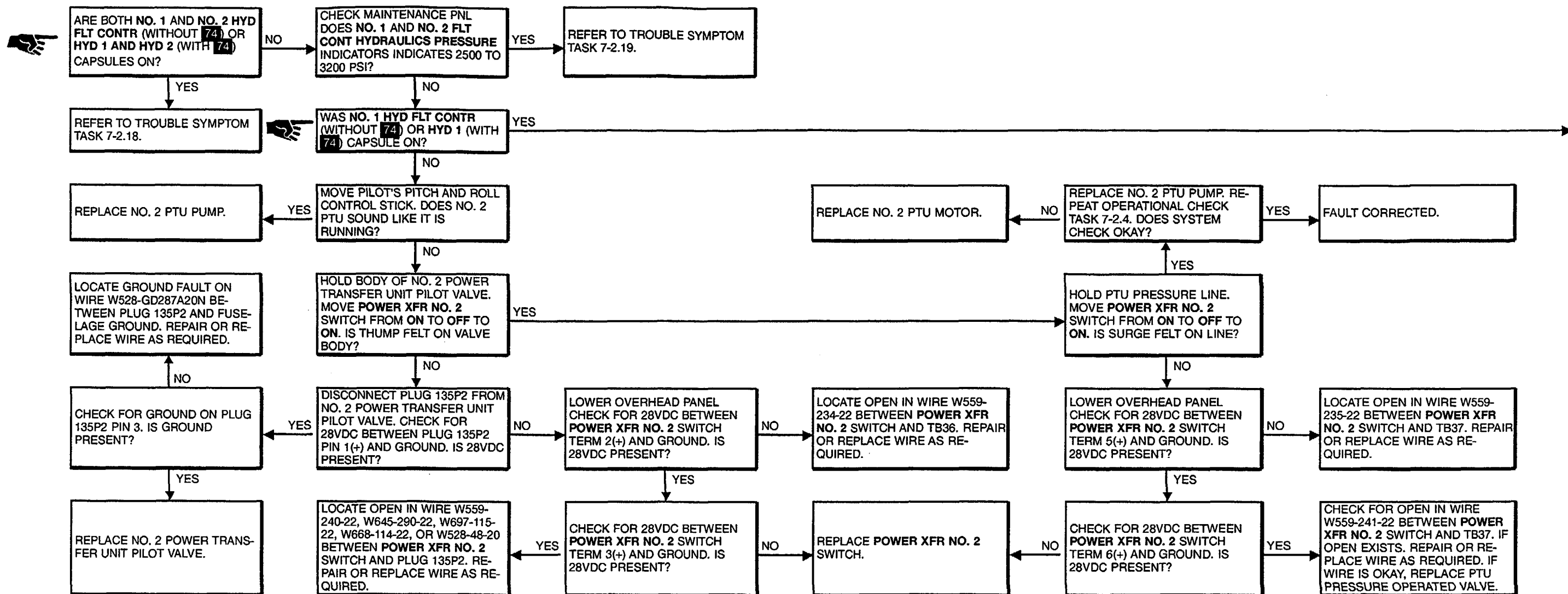
**MASTER CAUTION PANEL WITHOUT 74**

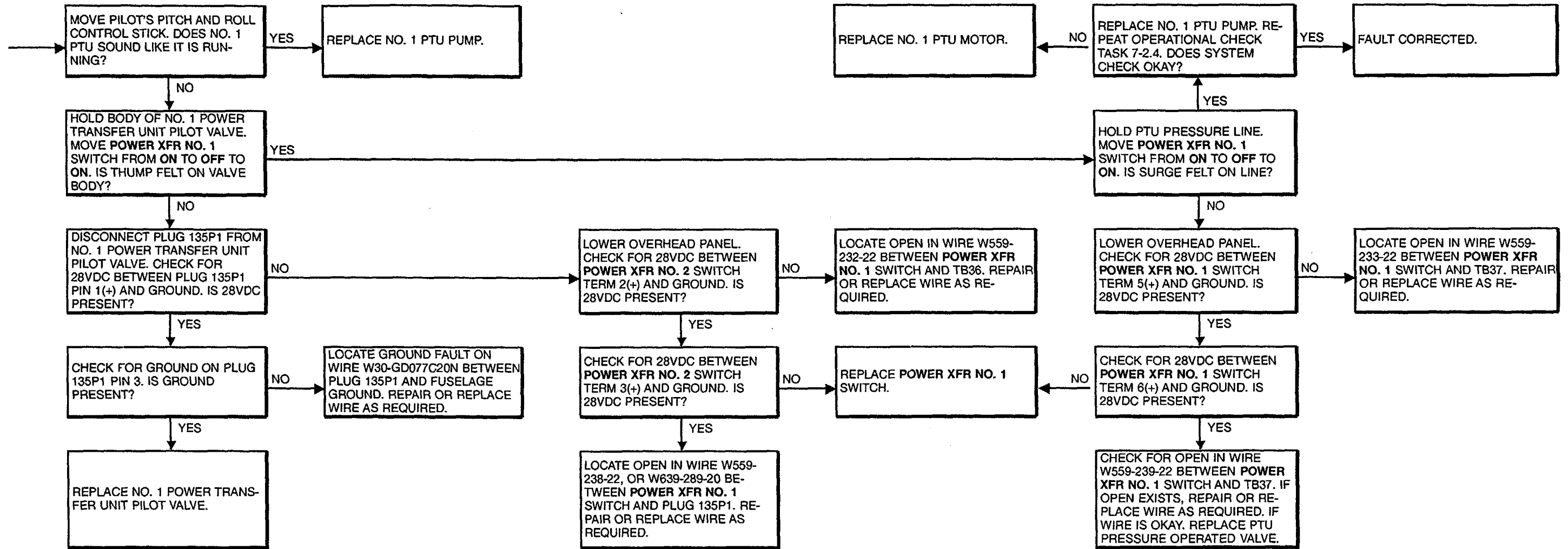
NO. 1 ENG 23MM HOT	23MM OIL HOT	NO. 2 ENG 23MM HOT
NO. 1 ENG CHP DET	23MM CHP DET	NO. 2 ENG CHP DET
NO. 1 ENG OIL LOW	23MM OIL PRESS	NO. 2 ENG OIL LOW
L. FUEL LOW		R. FUEL LOW
L. FUEL PRESS	23MM AUX OIL PRESS	R. FUEL PRESS
NO. 1 RECT OFF	BATT SYS MAL	NO. 2 RECT OFF
NO. 1 GEN OFF	APU ON	NO. 2 GEN OFF
NO. 1 AFCS OFF	NO. 2 AFCS OFF	
NO. 1 ENG HI CONT	PWR STEER	NO. 2 HI CONT
ON PROP	HEATER HOT	ON ARM
UTIL HYD SYS	EXT PWR	PARK BRAKE ON

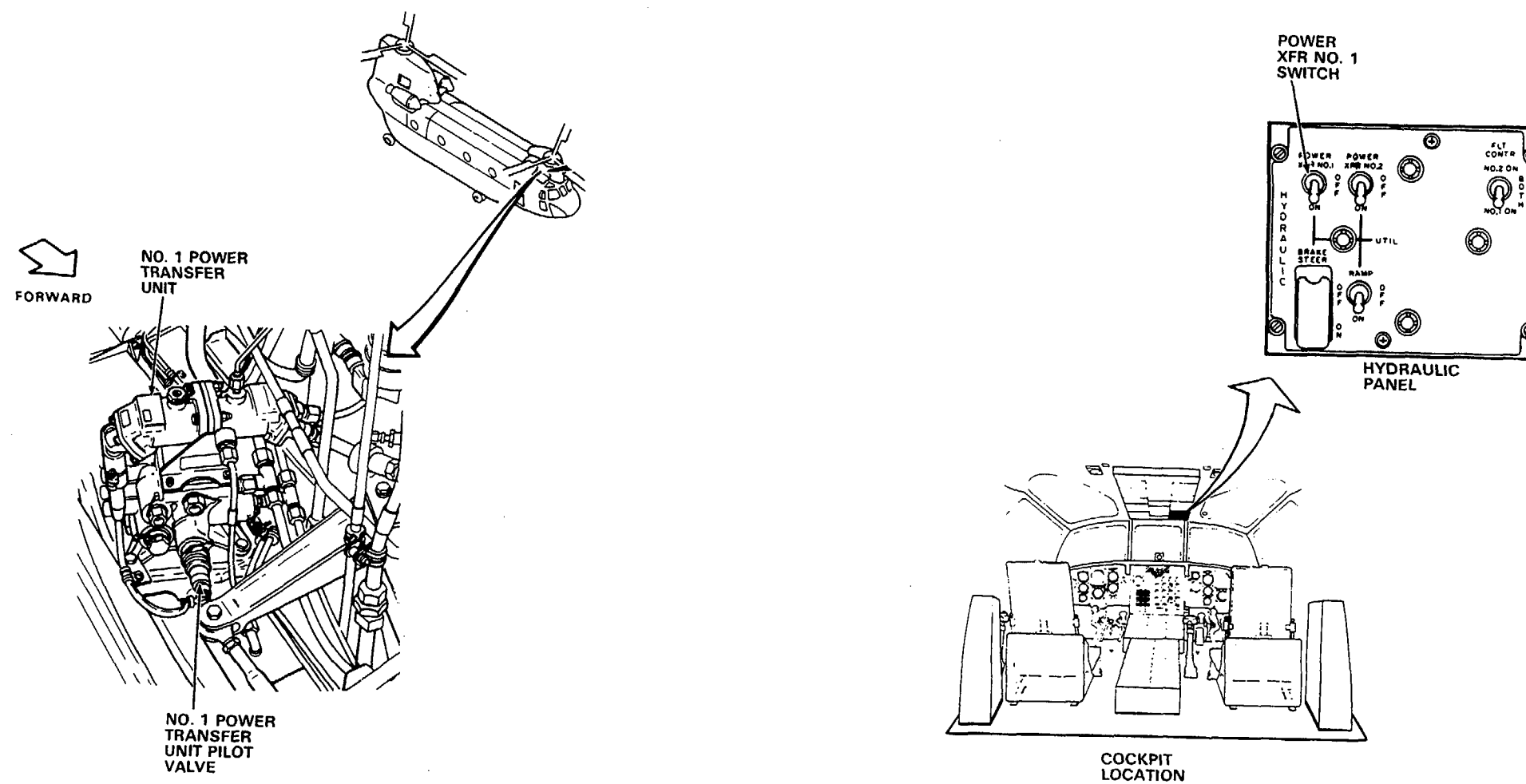


NO. 2 POWER TRANSFER UNIT PILOT VALVE

A65357







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END OF TASK  
Change 17 7-107

7-2.16 NO. 1 OR NO. 2 HYD FLT CONTR CAPSULE COMES ON WHEN COCKPIT CONTROLS ARE MOVED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

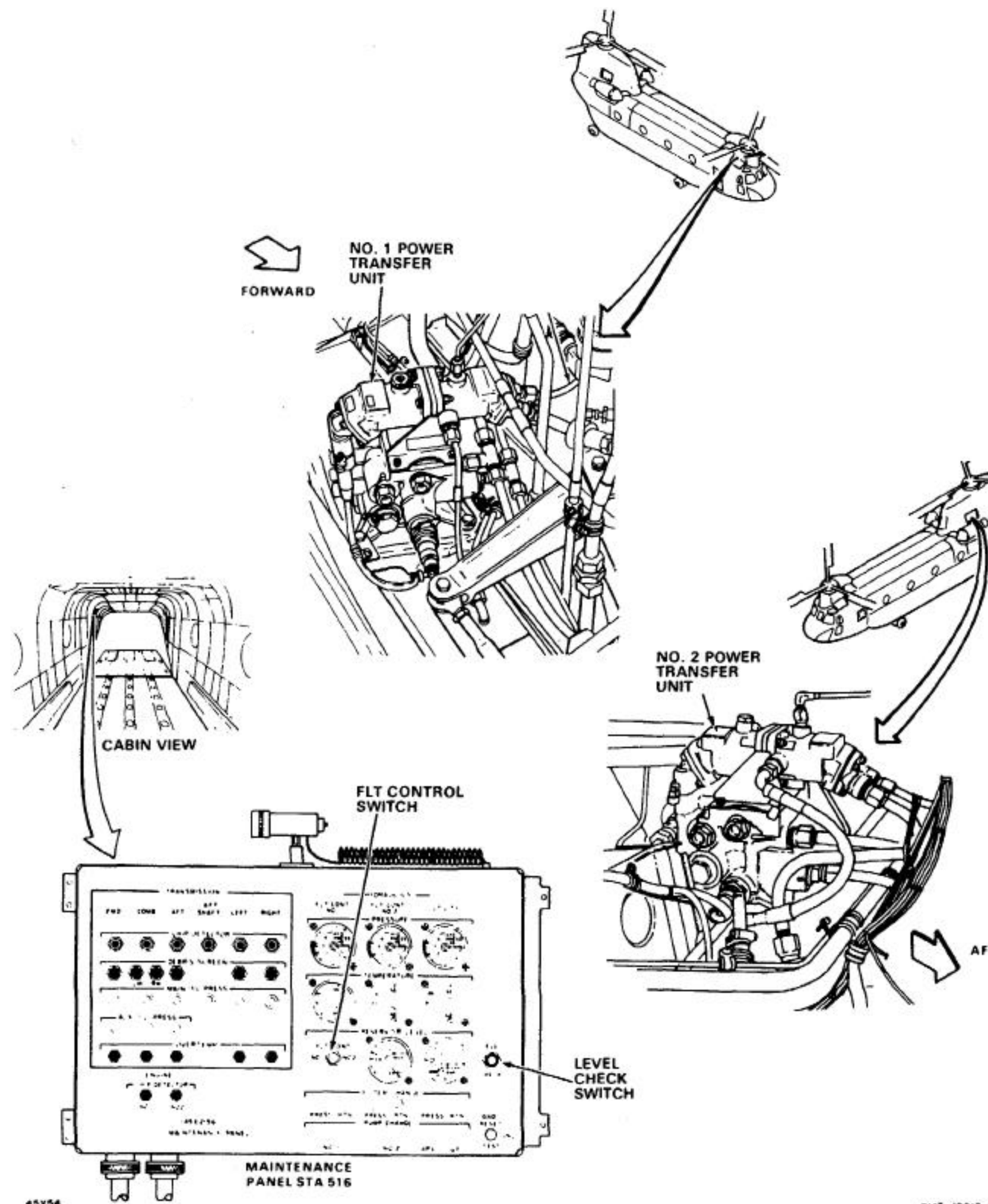
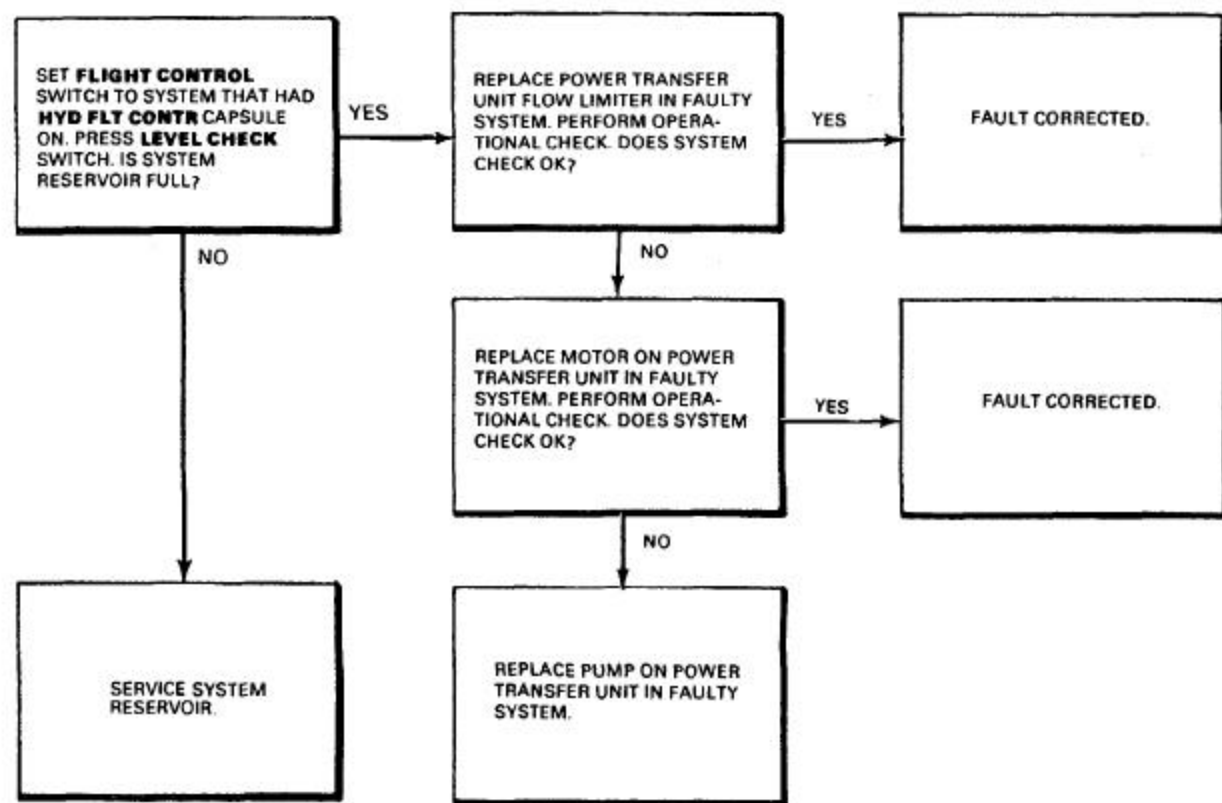
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23  
Battery Connected  
Electrical Power Off  
Hydraulic Power On



7-2.17 UTILITY HYDRAULICS TEMPERATURE INDICATOR POINTER EXCEEDS 95°C

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

**Materials:**

None

**Personnel Required:**

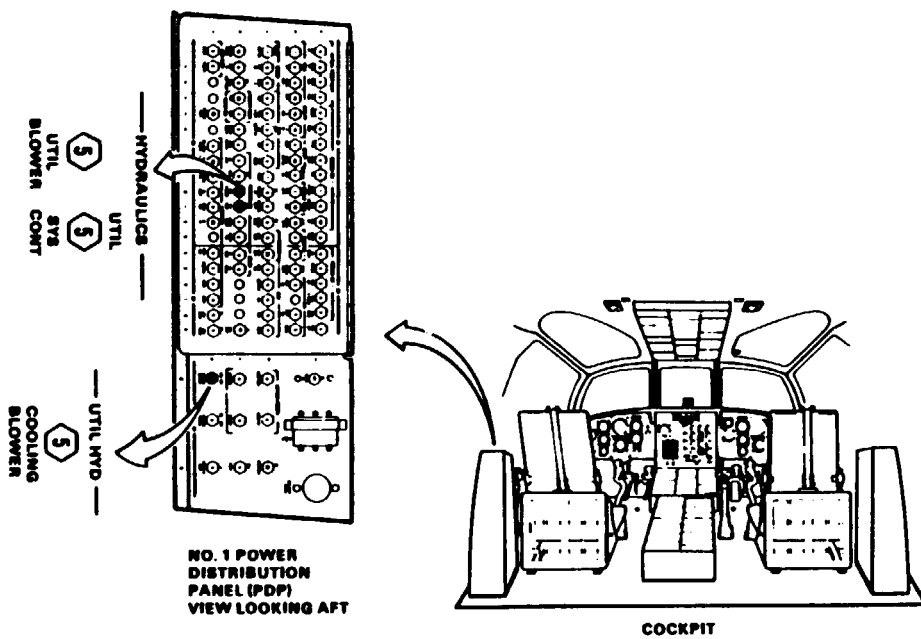
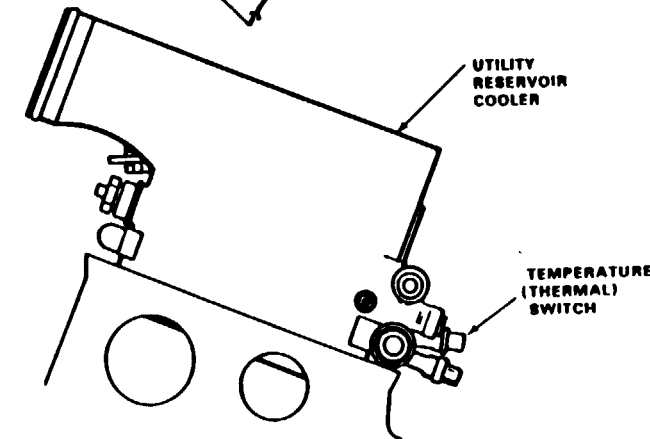
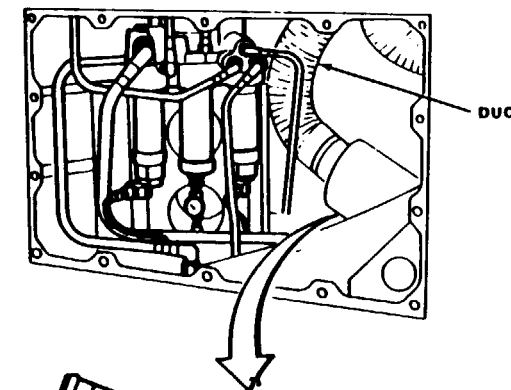
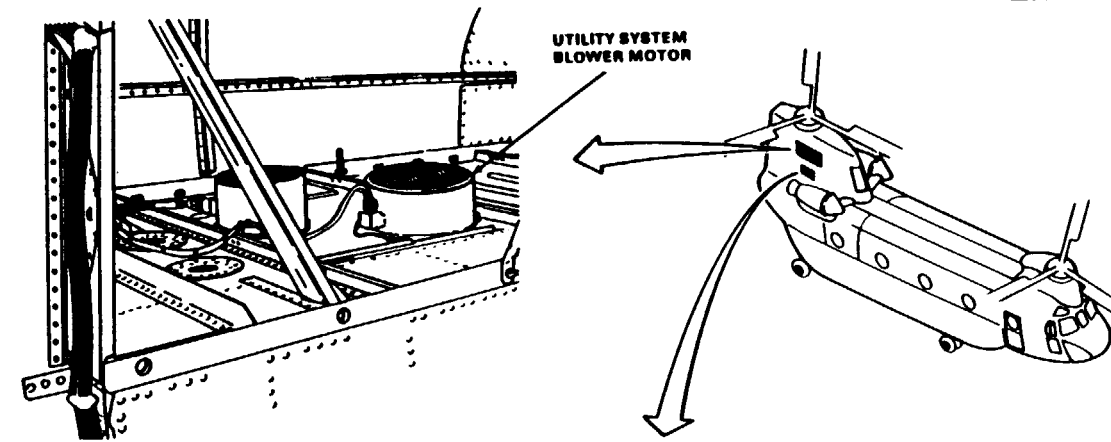
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On

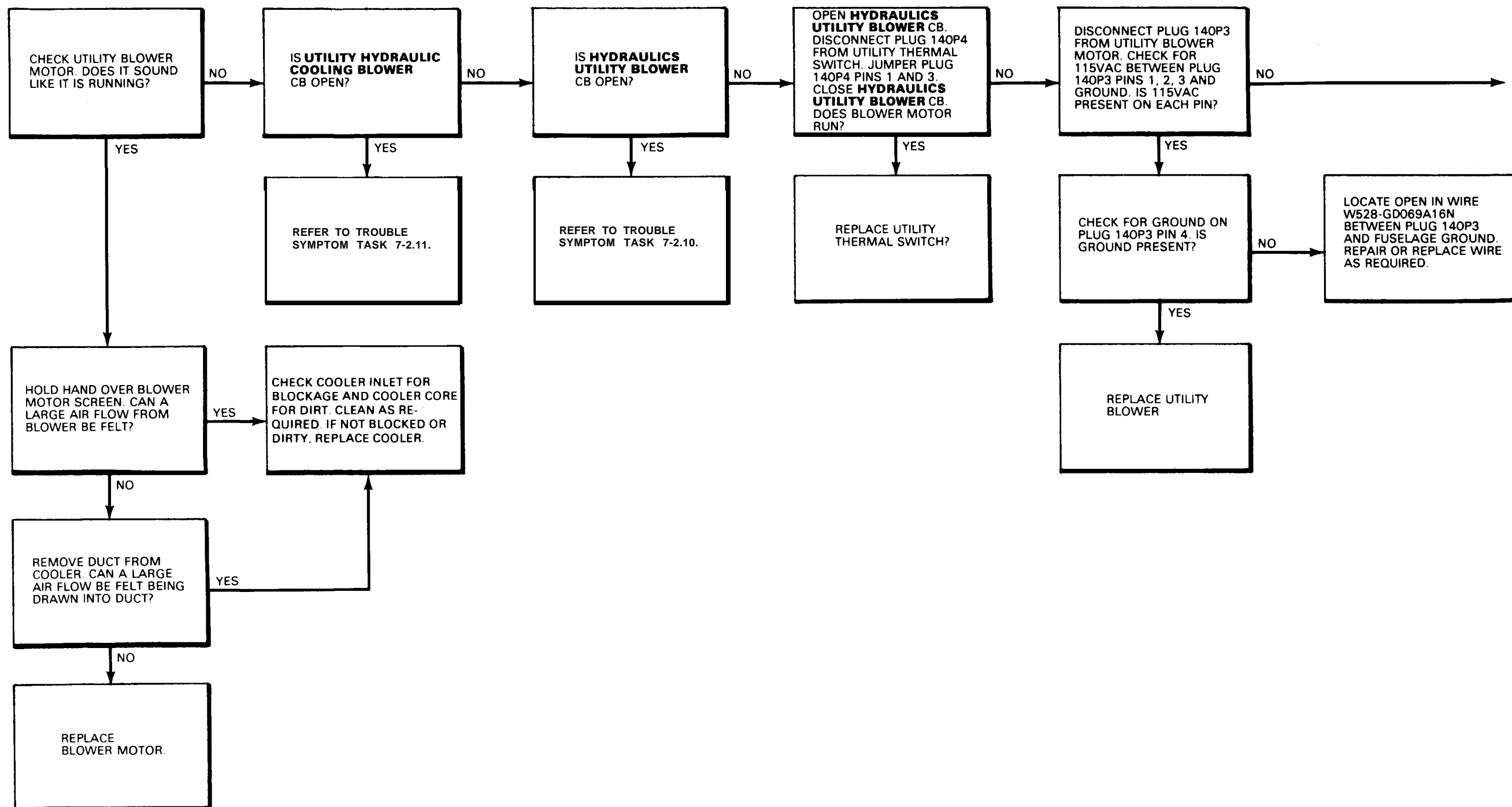


D145-12014-3PA

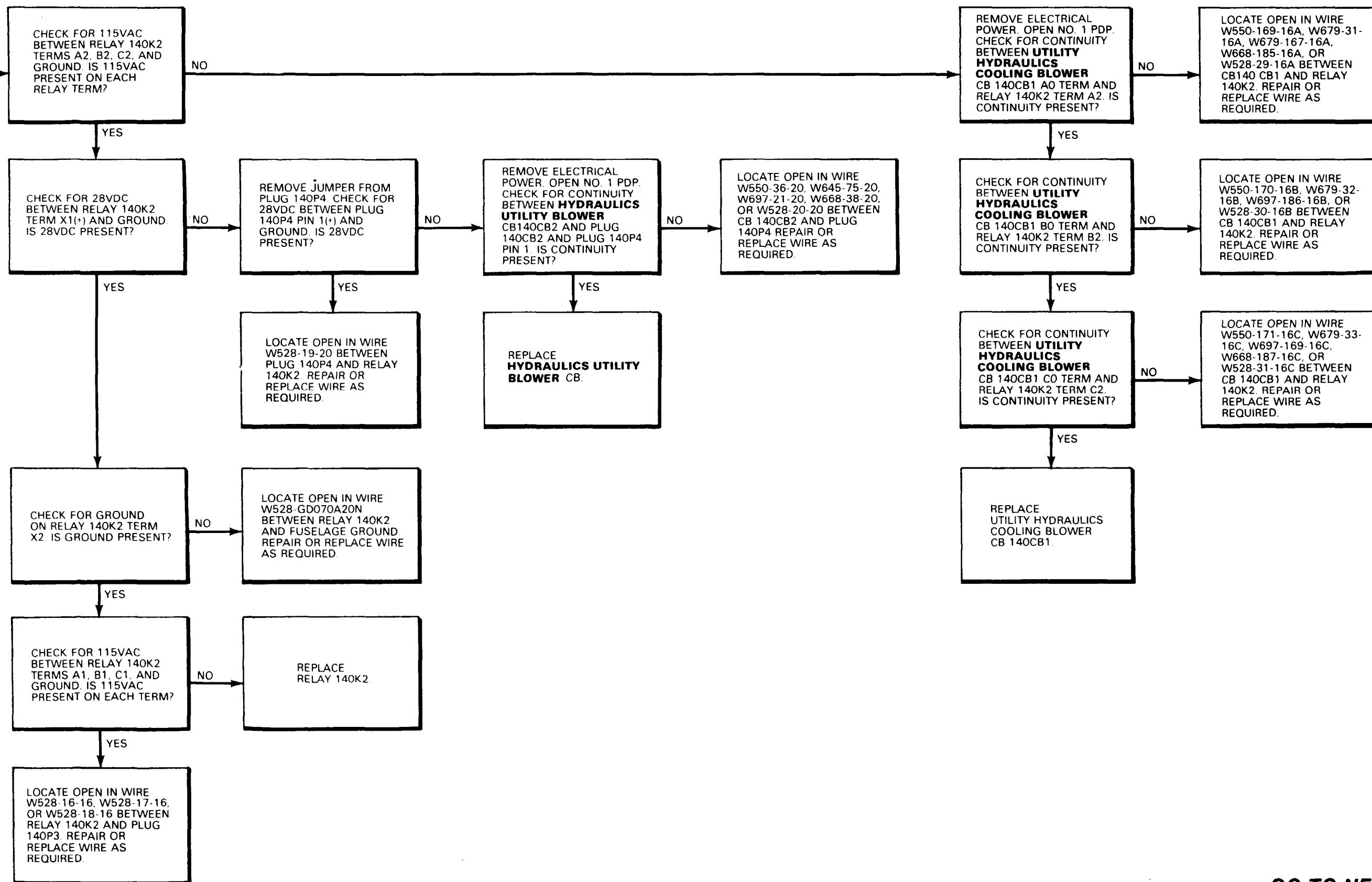
GO TO NEXT PAGE

Page 7-109 is a blank page.

7-2.17 UTILITY HYDRAULICS TEMPERATURE INDICATOR POINTER EXCEEDS 95°C (Continued)



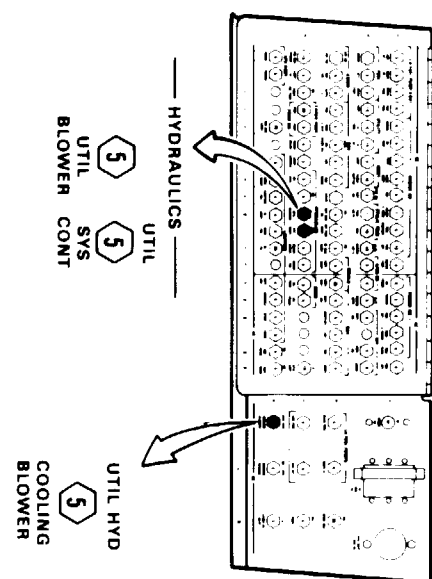
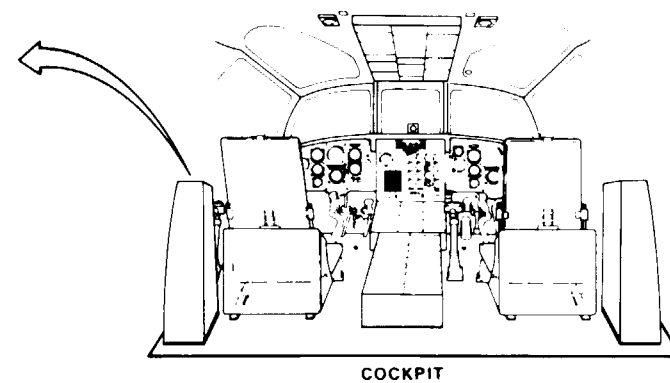
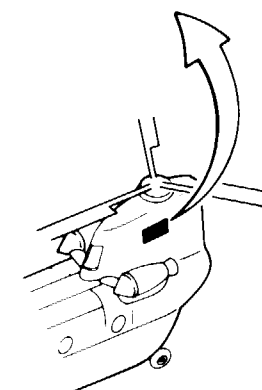
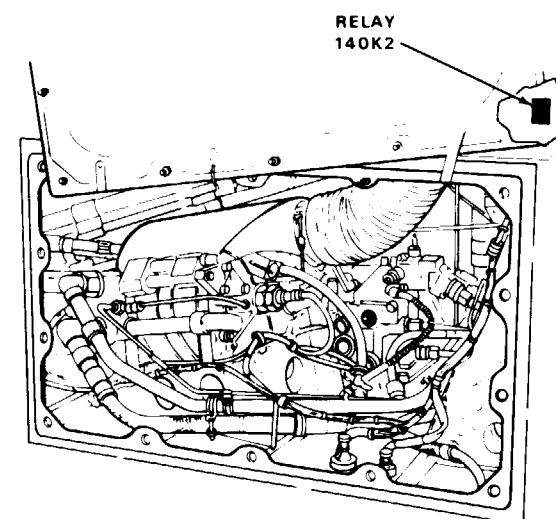
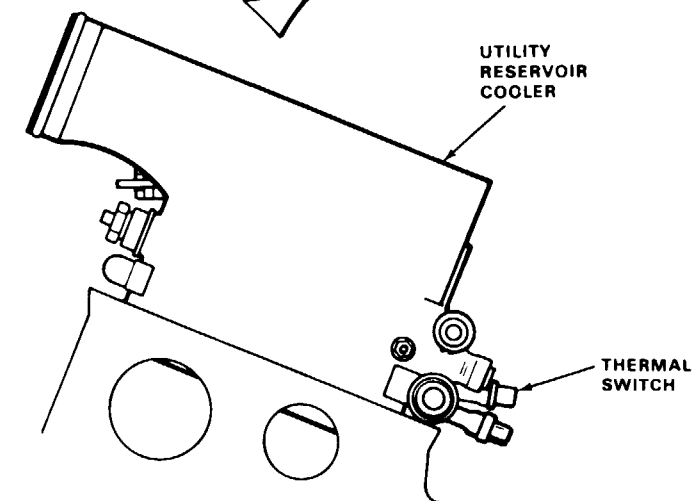
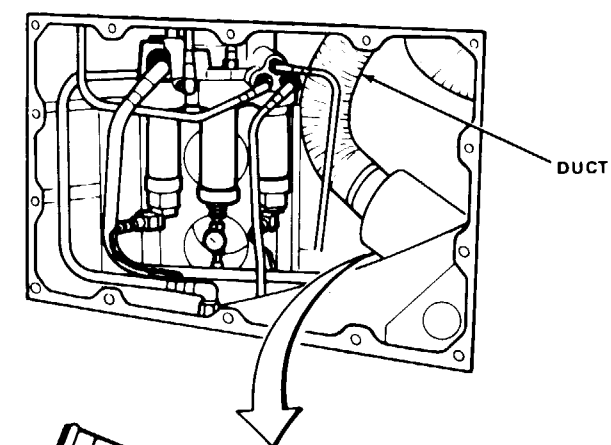
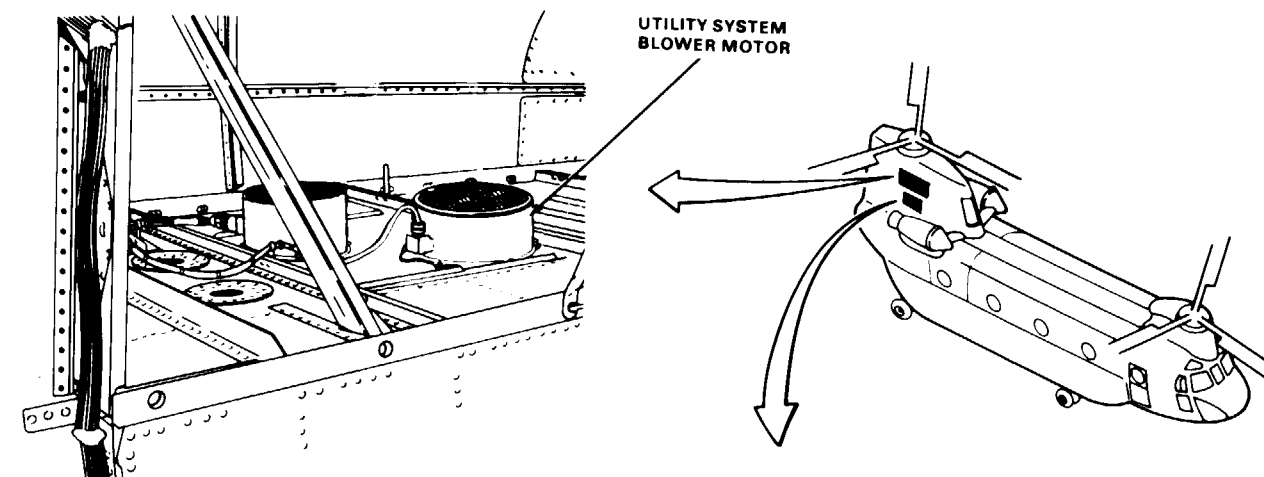
7-2.17 UTILITY HYDRAULICS TEMPERATURE INDICATOR POINTER EXCEEDS 95°C (Continued)



GO TO NEXT PAGE



7-2.17 UTILITY HYDRAULICS TEMPERATURE INDICATOR POINTER  
EXCEEDS 95°C (Continued)



NO 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT

7-2.18 NO. 1 AND NO. 2 HYD FLT CONTR CAPSULES ON WITH POWER XFR SWITCHES ON

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrician Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

**Materials:**

None

**Personnel Required:**

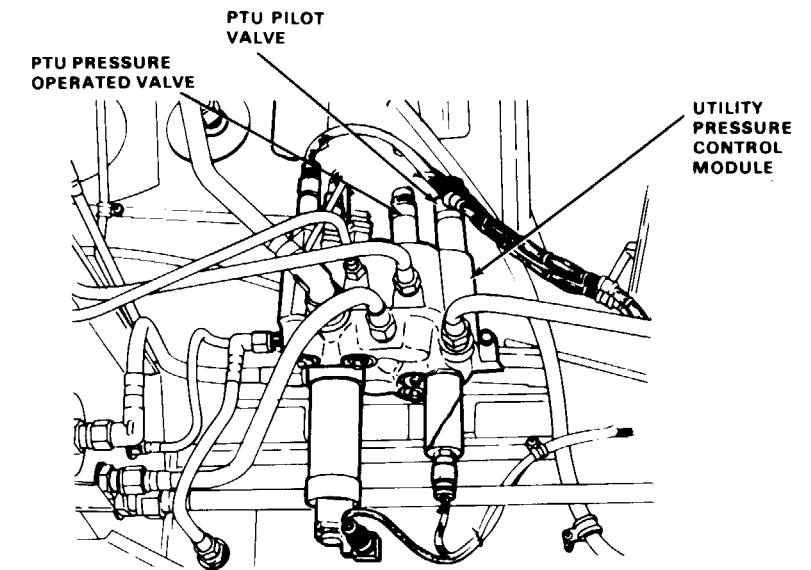
67U10 Medium Helicopter Repairer  
68F20 Aircraft Electrician

**References:**

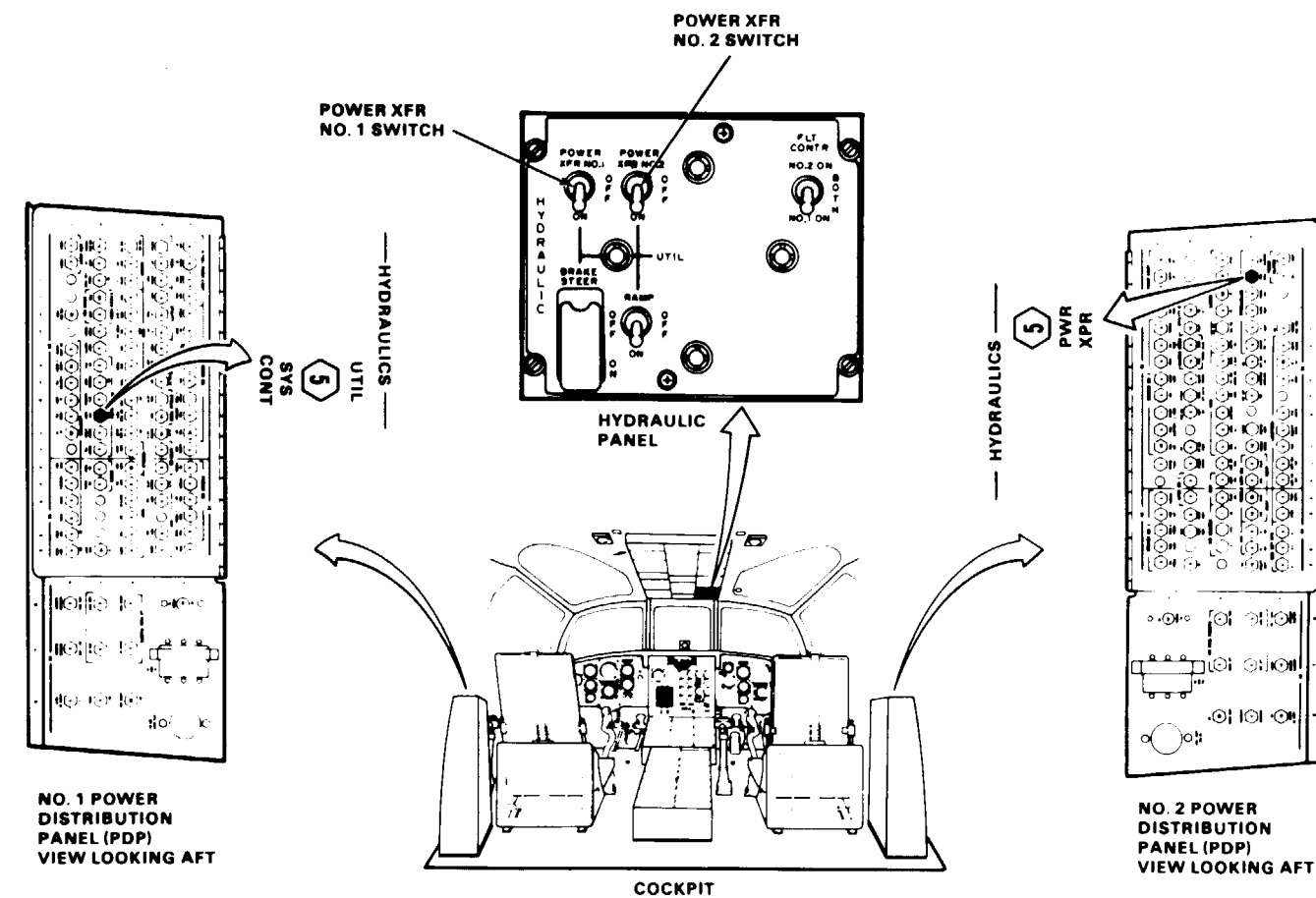
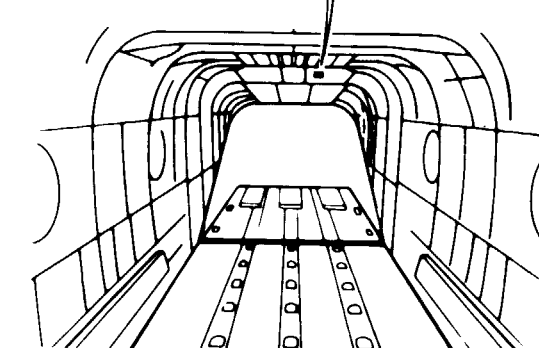
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On



VIEW LOOKING AFT AT STA 534

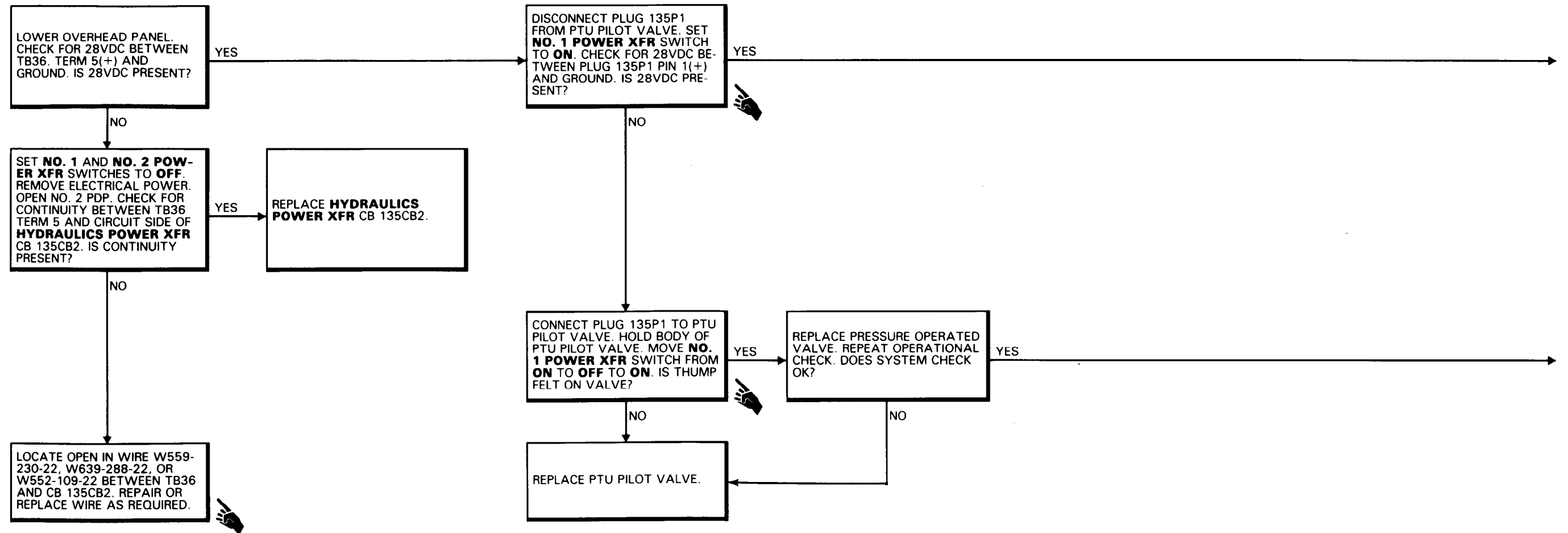


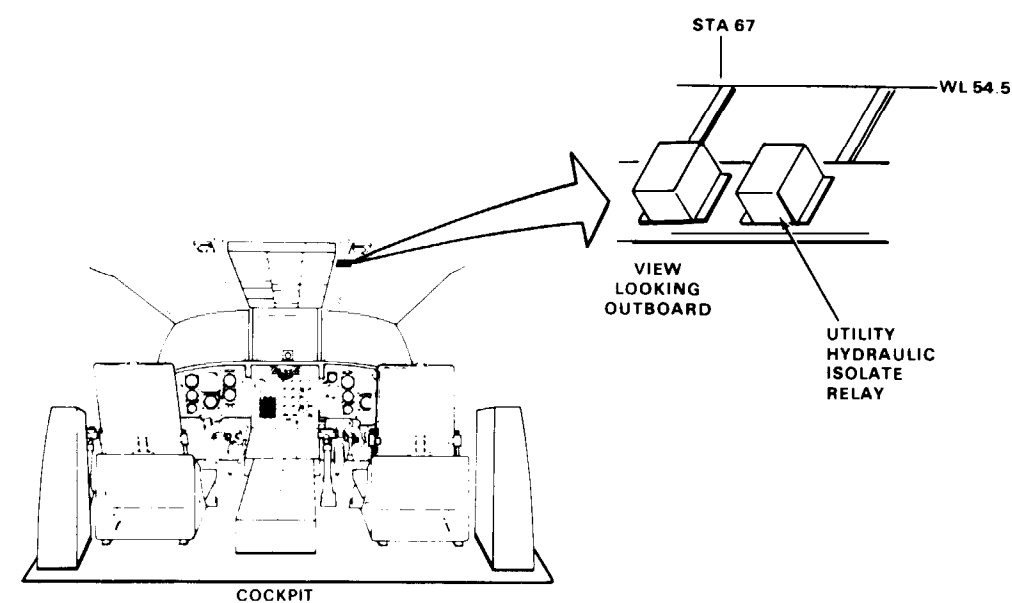
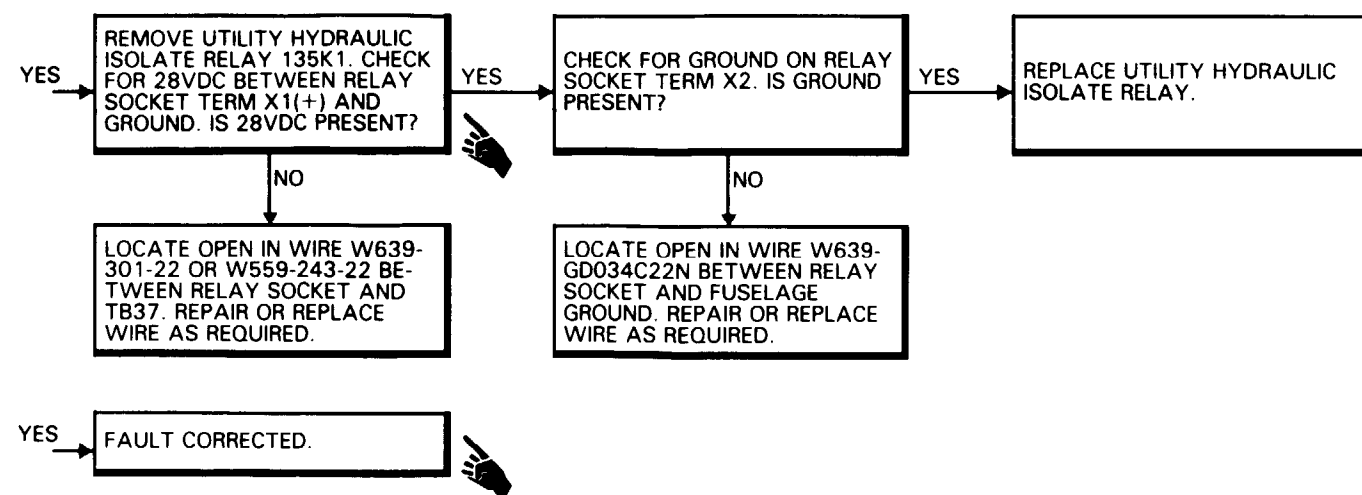
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7-2.18 NO. 1 AND NO. 2 HYD FLT CONTR CAPSULES ON WITH POWER XFR SWITCHES ON (Continued)





7-2.19 NO. 1 OR NO. 2 FLT CONTR CAPSULE IS ON, SYSTEM PRESSURIZED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Personnel Required  
68F20 Aircraft Electrician

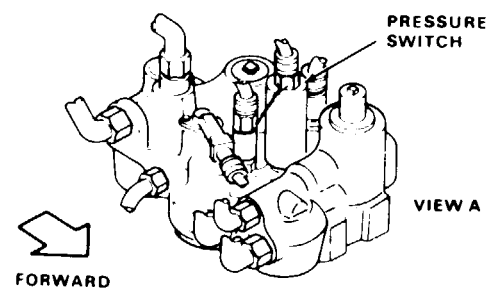
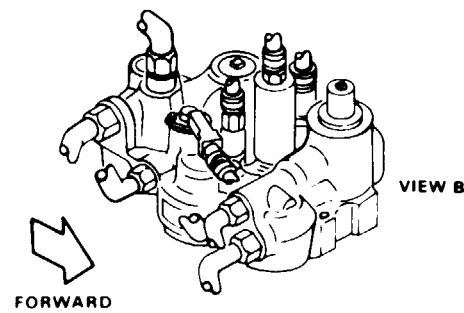
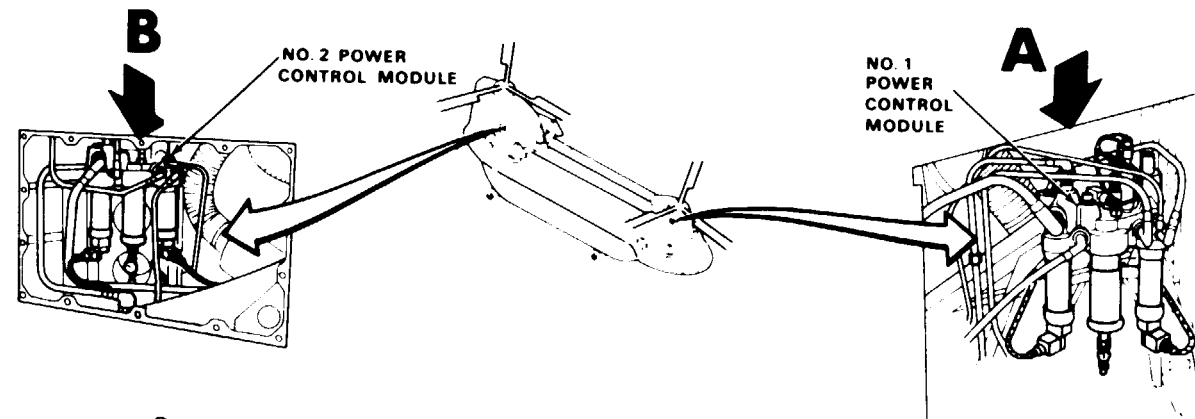
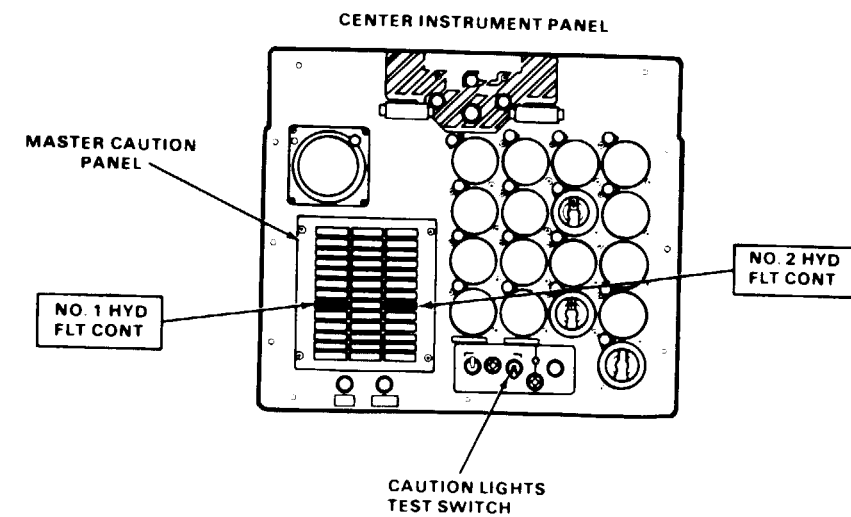
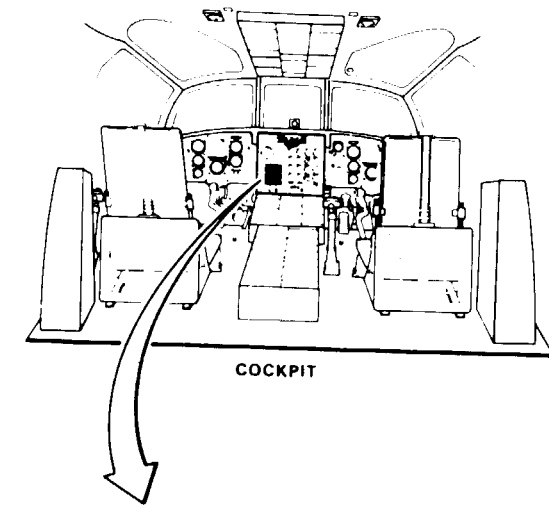
Applicable Configurations:  
All

References:  
TM 55-1520-240-23

Tools:  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multi meter

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On

Materials:  
None



90x54

DI45-12276-SPA

GO TO NEXT PAGE

7-2.19 NO. 1 OR NO. 2 HYD FLT CONTR CAPSULE (WITHOUT 74) OR HYD 1 OR HYD 2 CAPSULE (WITH 74), SYSTEM PRESSURIZED

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer Tool Kit,  
NSN 5180-00-323-4915

Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

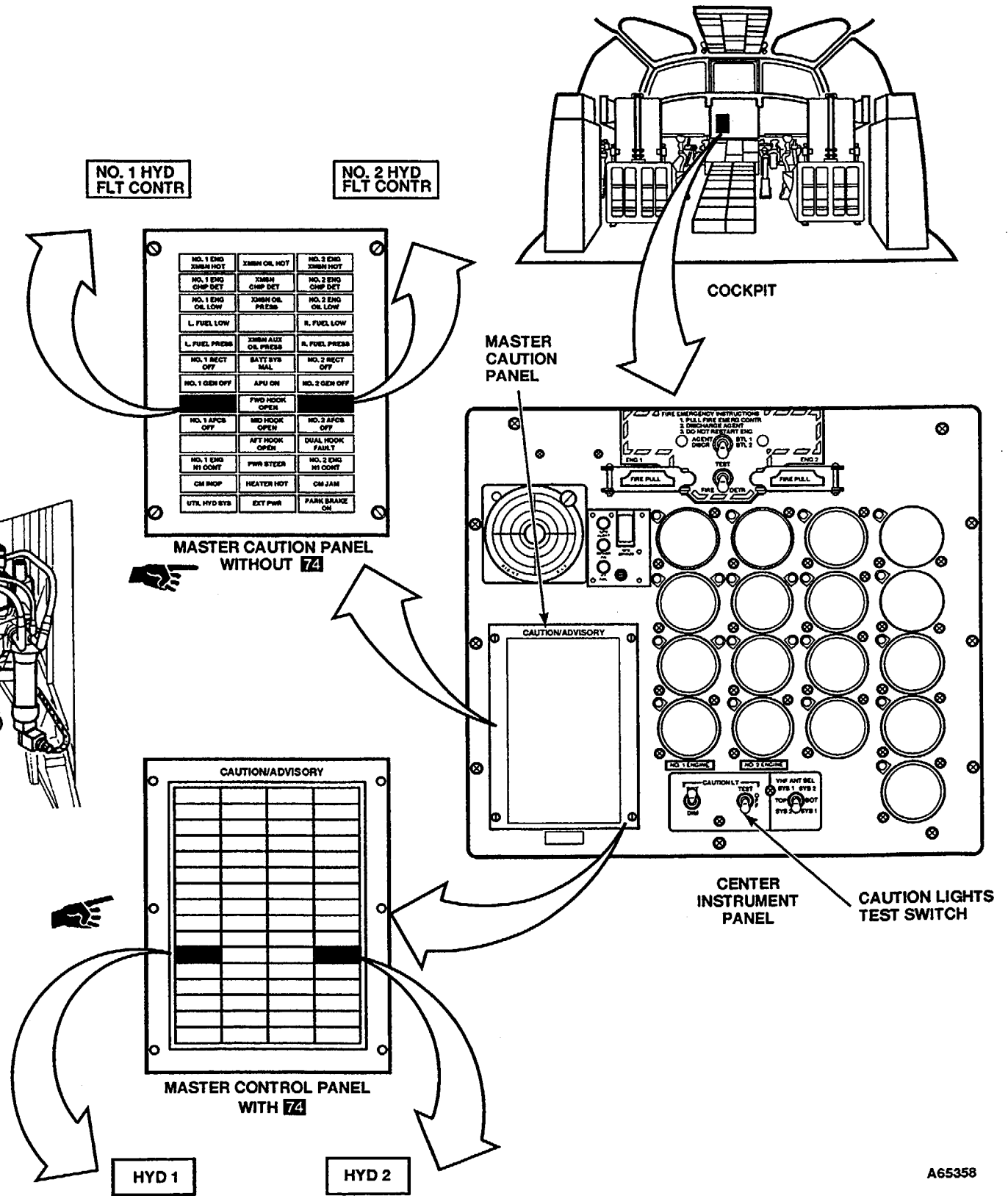
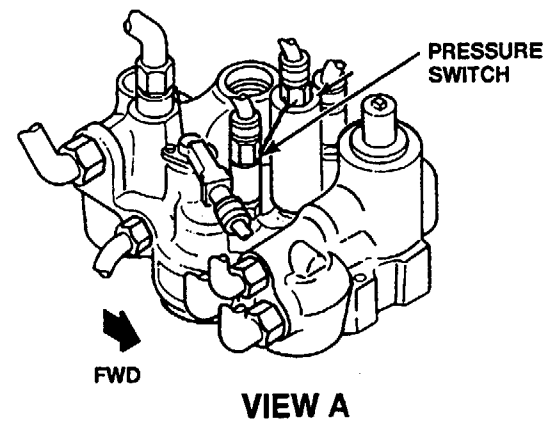
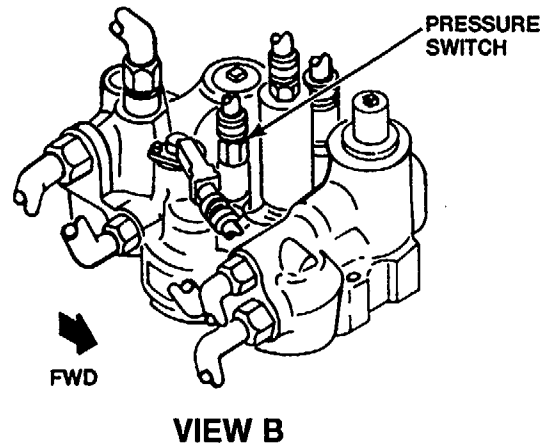
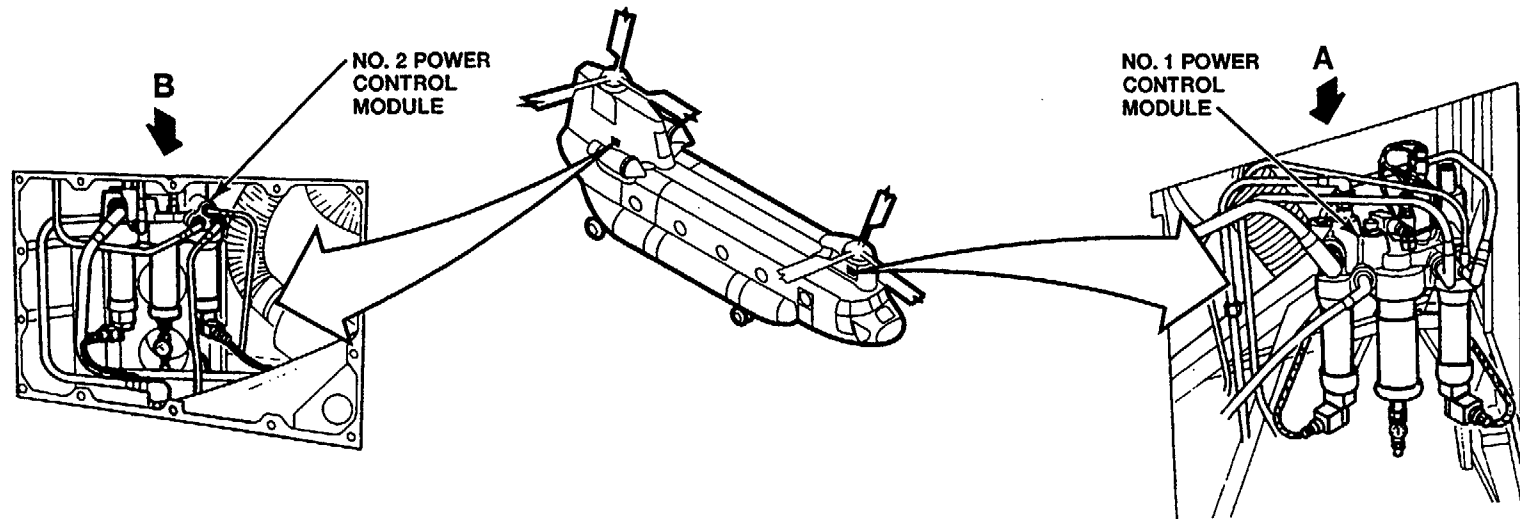
**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

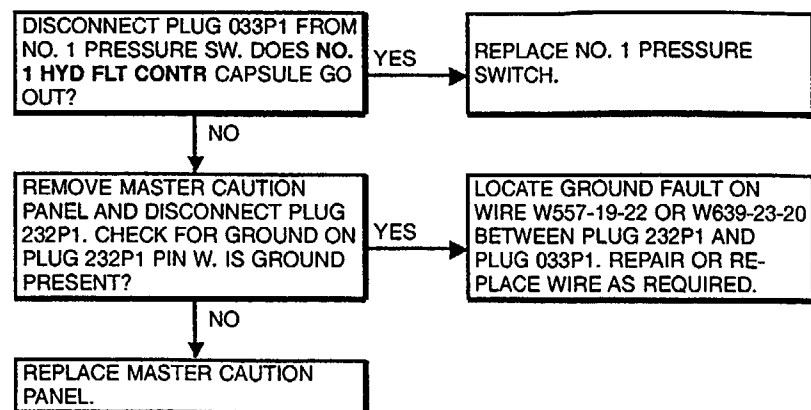
Electrical Power On

Hydraulic Power On

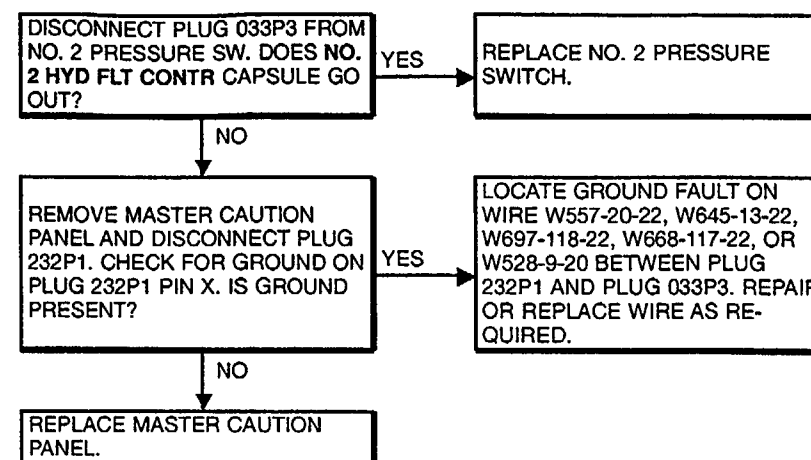


A65358

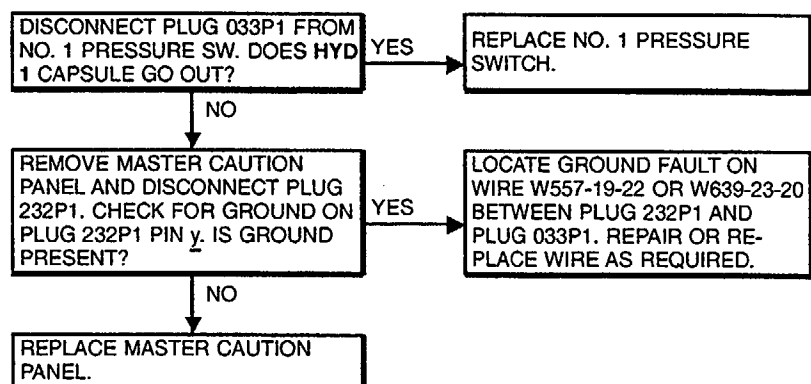
**NO. 1 HYD FLT CONTR CAPSULE IS ON, SYSTEM PRESSURIZED (WITHOUT 74)**



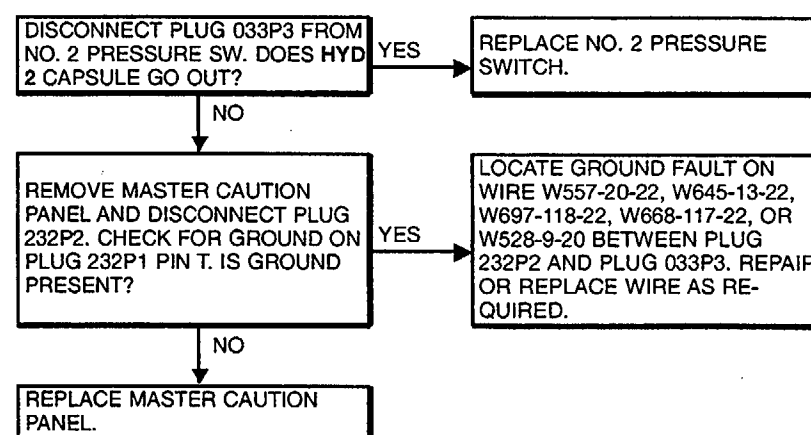
**NO. 2 HYD FLT CONTR CAPSULE IS ON, SYSTEM PRESSURIZED (WITHOUT 74)**



**HYD 1 CAPSULE IS ON, SYSTEM PRESSURIZED (WITH 74)**



**HYD 2 CAPSULE IS ON, SYSTEM PRESSURIZED (WITH 74)**



7-2.20 PTU PRESSURE LINE PRESSURIZED WHEN ITS SYSTEM CONTROLS ARE TURNED OFF

7-2.20

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configuration:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

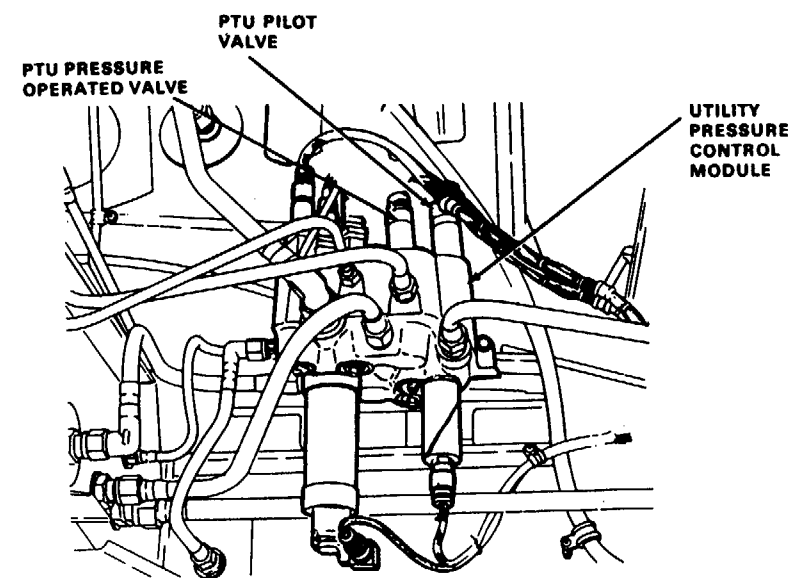
**Materials**

None

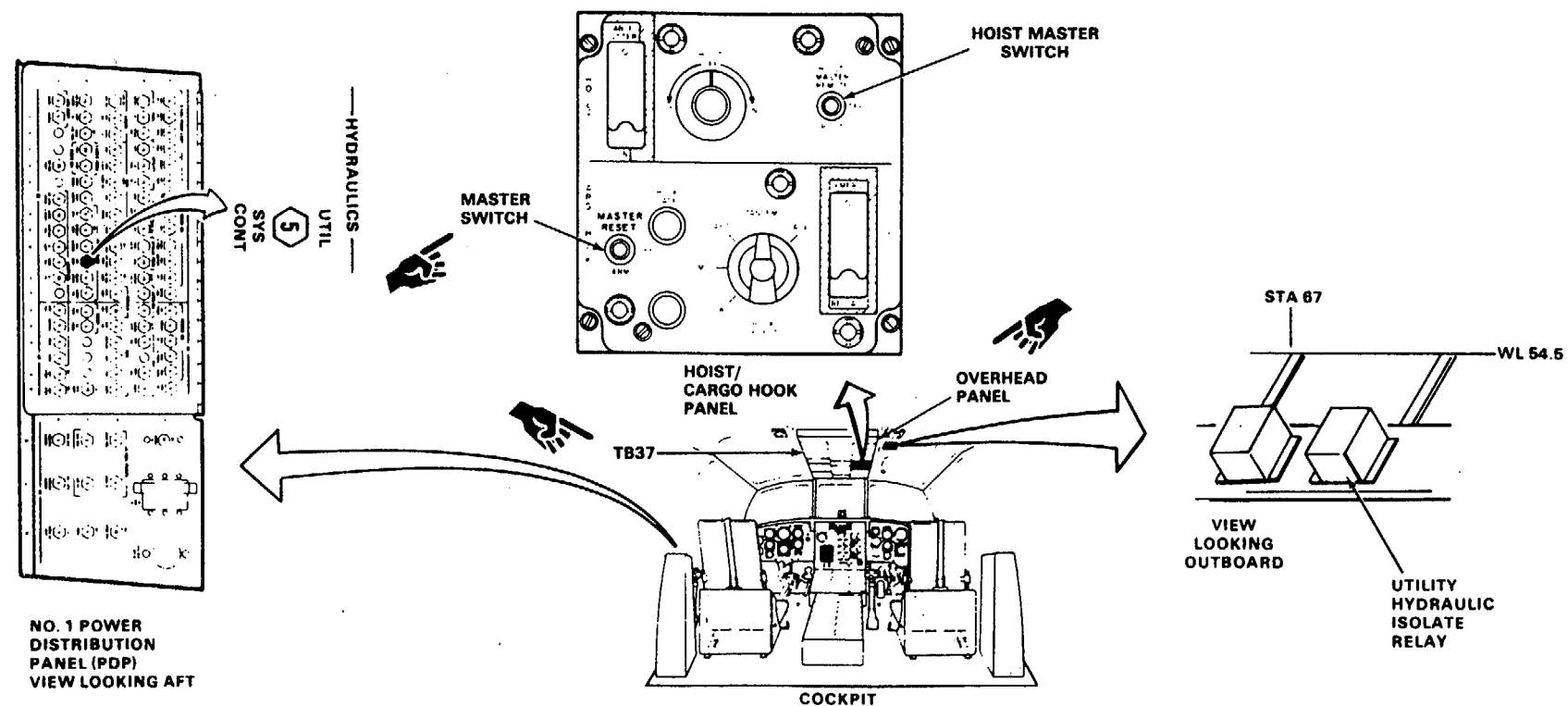
**Personnel Required:**  
Aircraft Electrician (2)

**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On

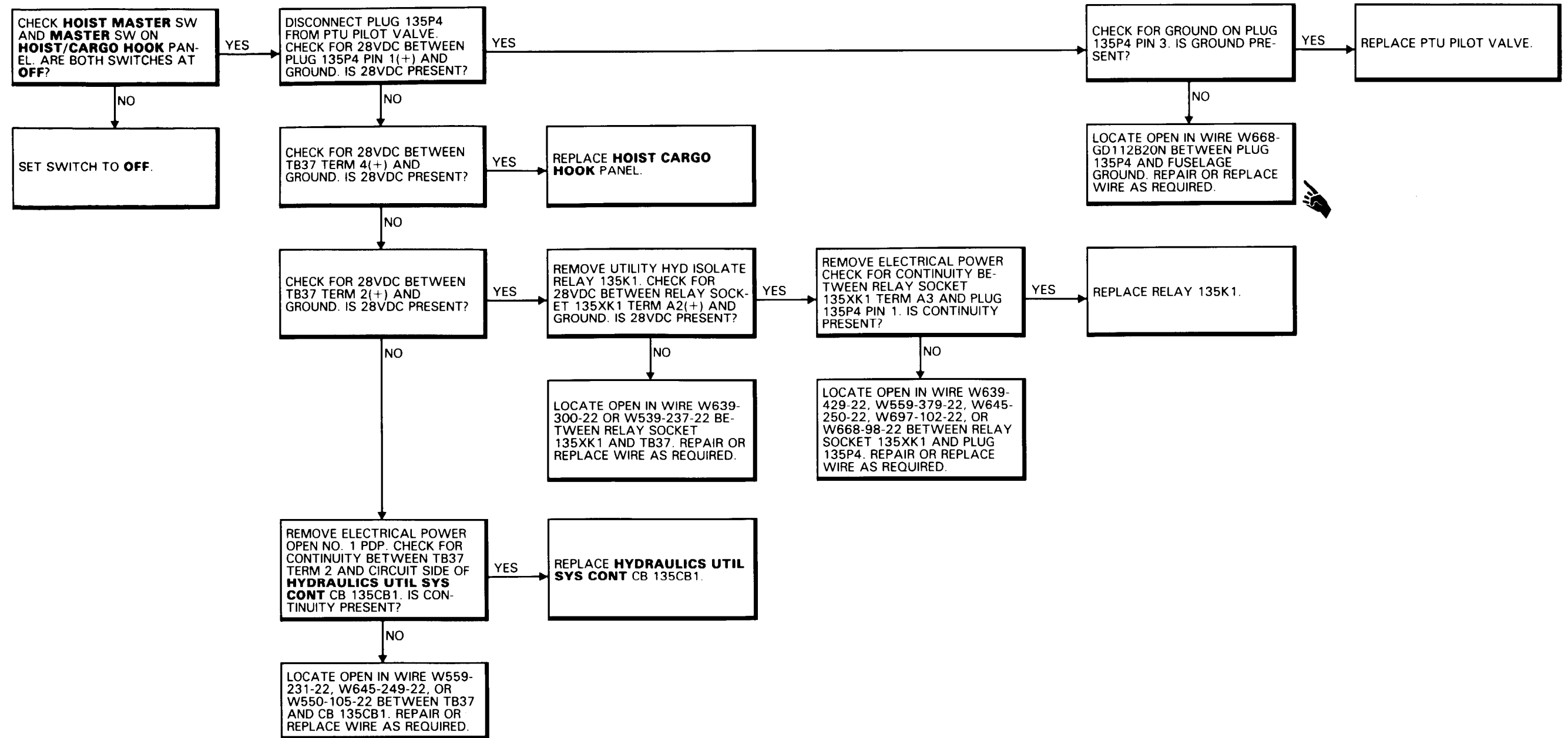


VIEW LOOKING AFT AT STA 534



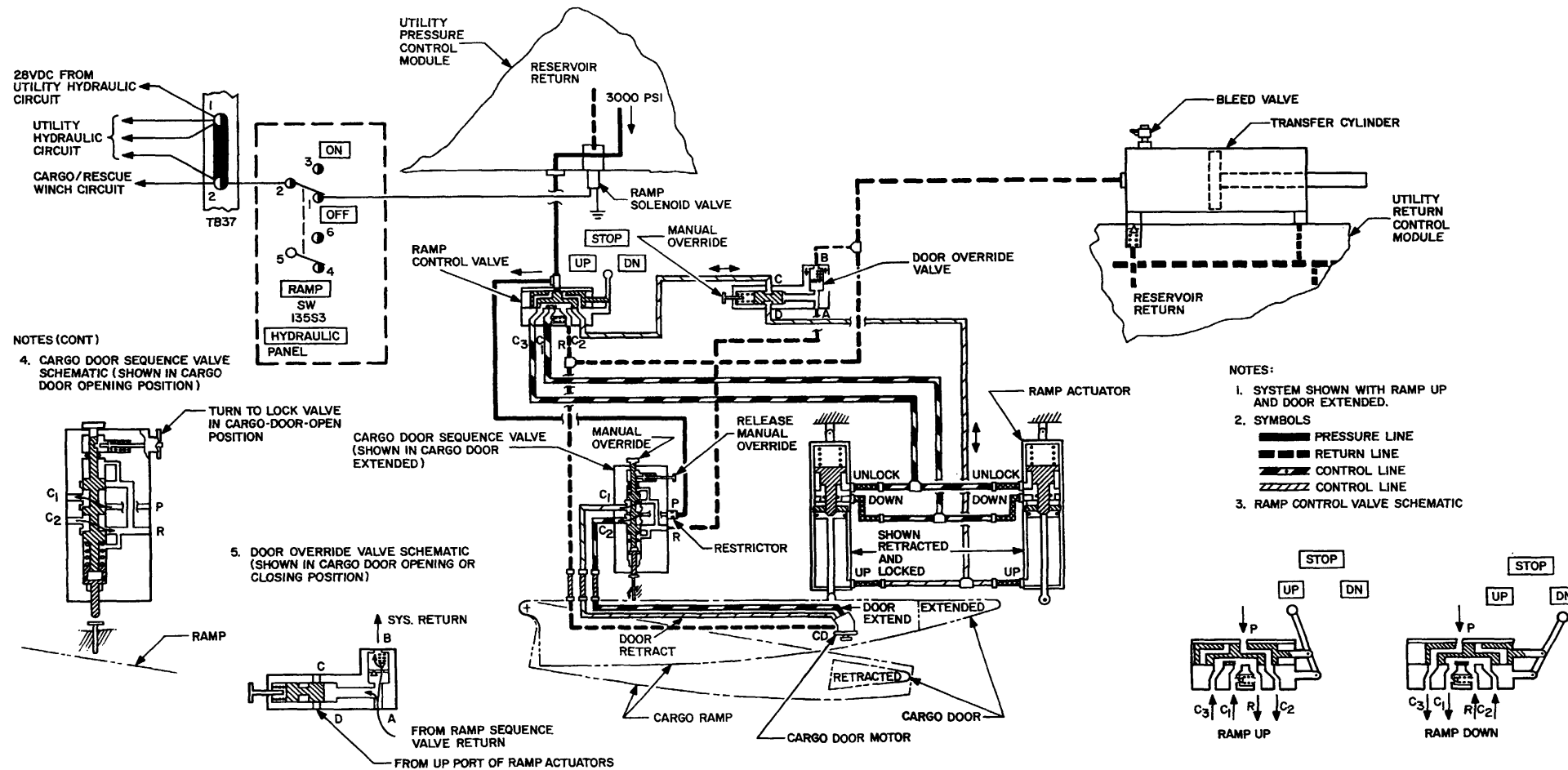


7-2.20 PTU PRESSURE LINE PRESSURIZED WHEN ITS SYSTEM CONTROLS ARE TURNED OFF (Continued)



## **7-3 CARGO RAMP AND DOOR**

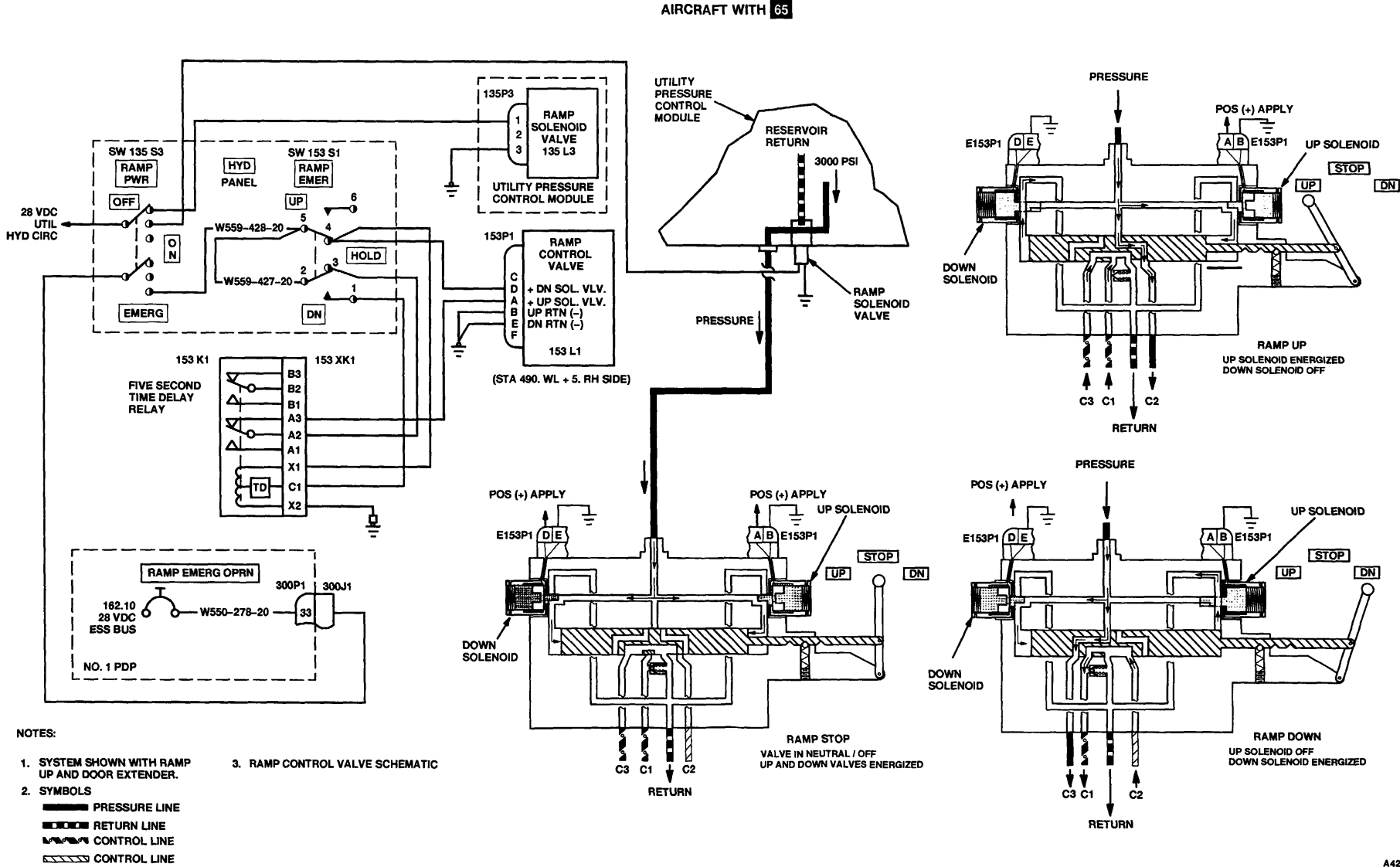
AIRCRAFT WITHOUT 65



90X54

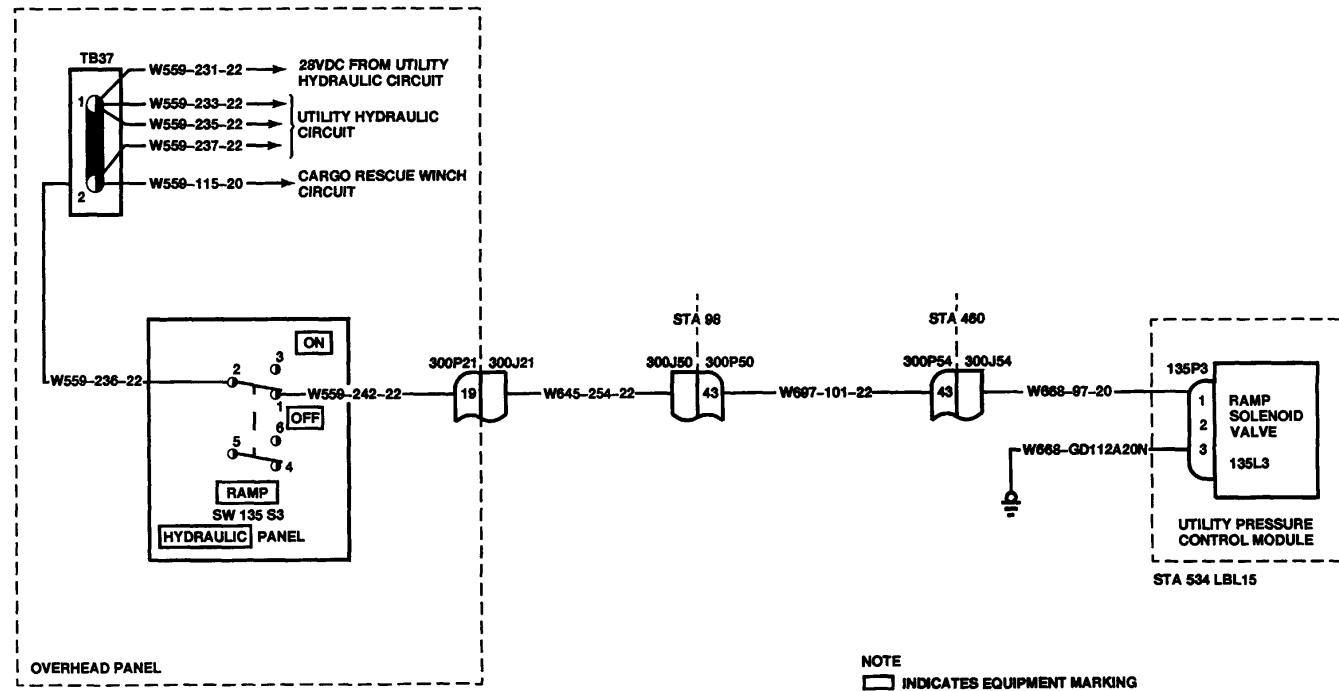
D145-4254-SPA

7-3.1 CARGO RAMP AND DOOR SCHEMATIC DIAGRAM (Continued)



A42107

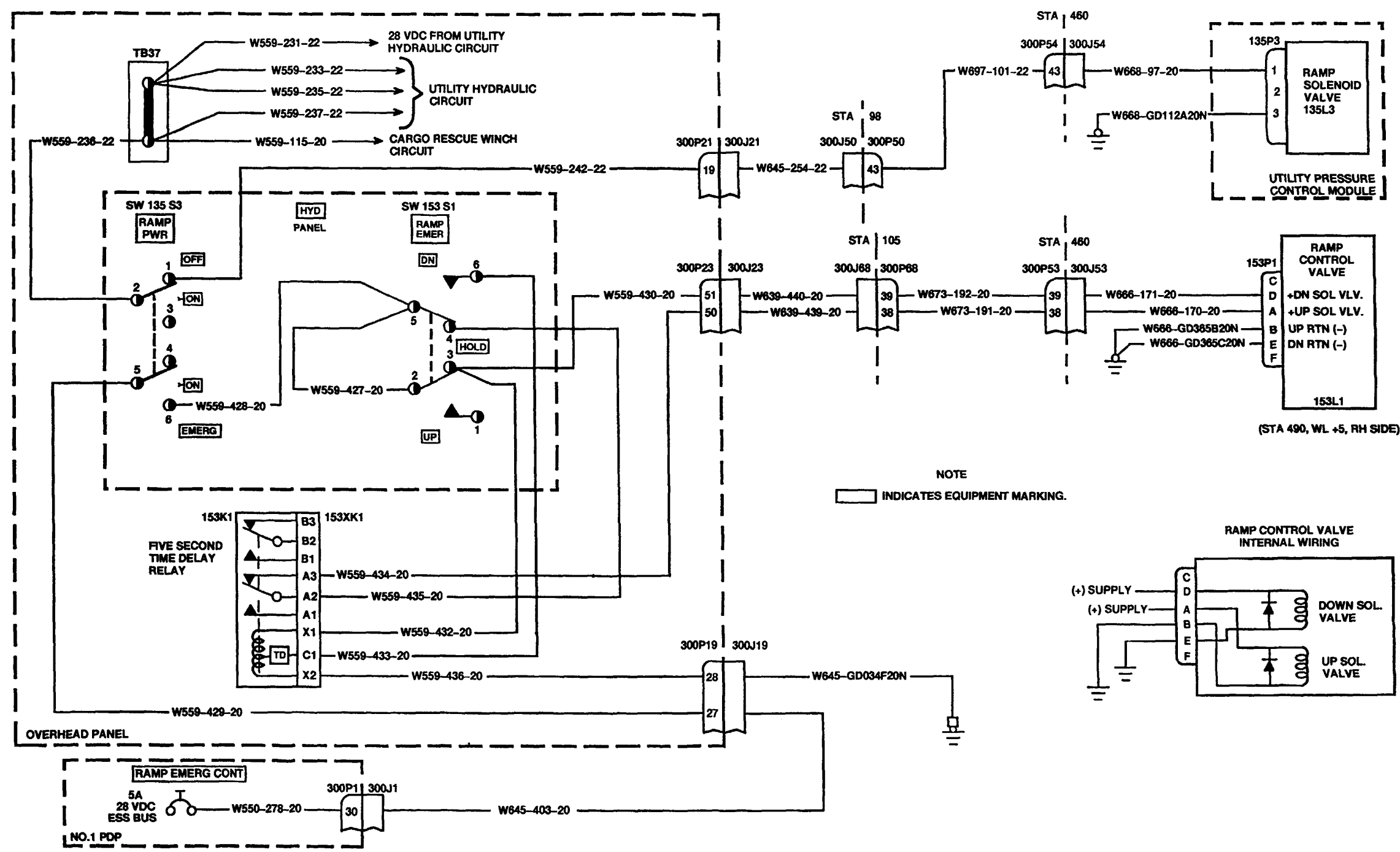
AIRCRAFT WITHOUT 65



135.100A,110C

A188

AIRCRAFT WITH 65



INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:

None

Personnel Required:

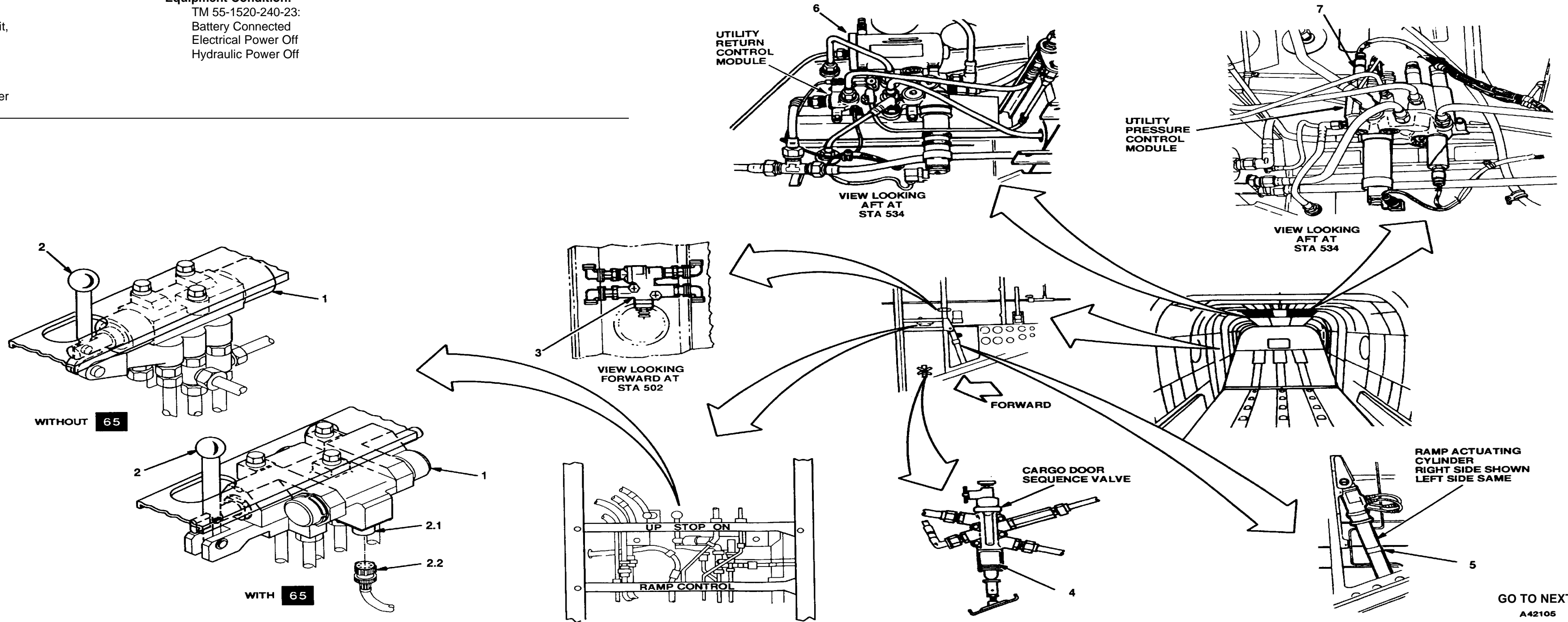
Medium Helicopter Repairer

References:

TM 55-1520-240-23

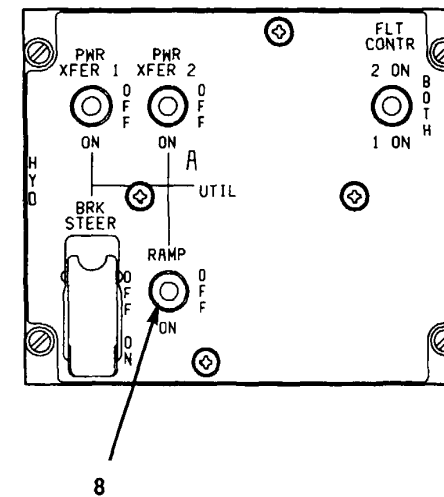
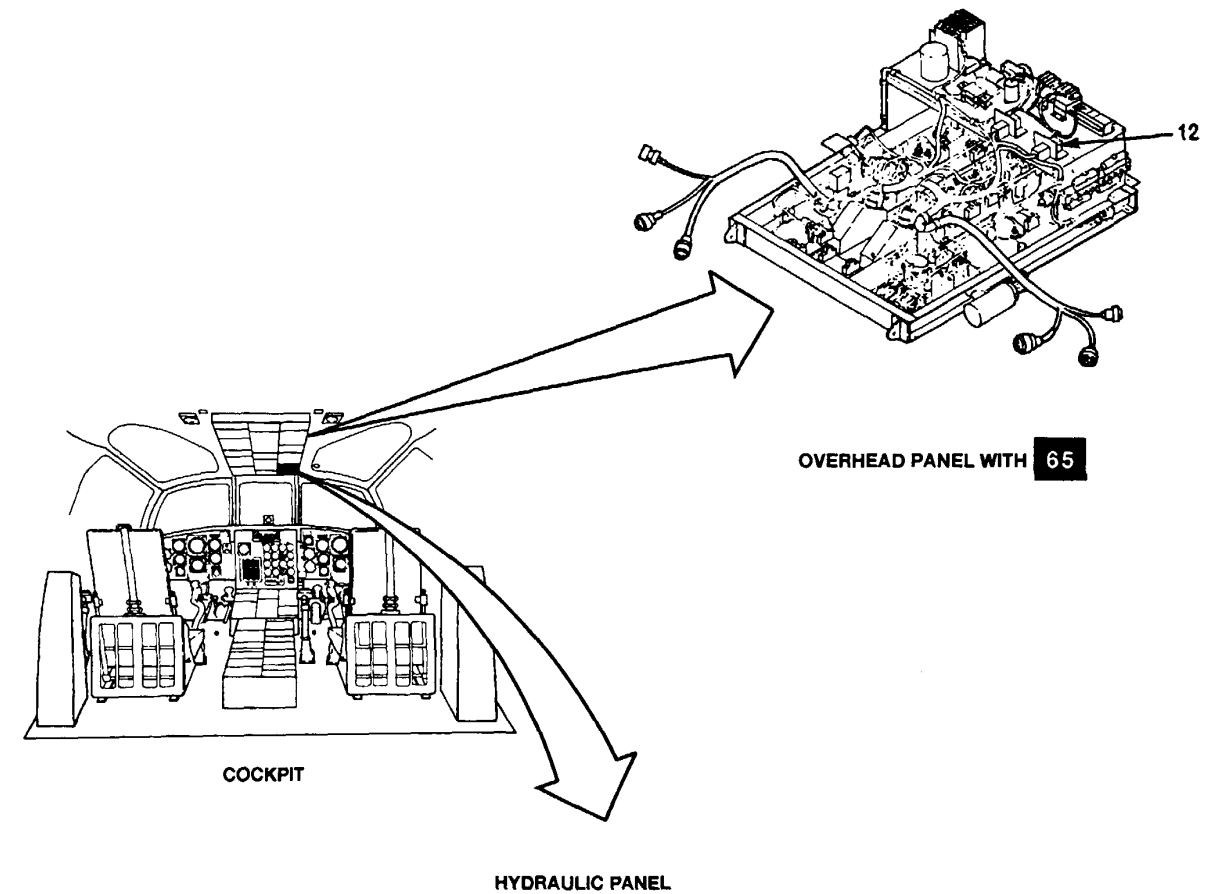
Equipment Condition:

TM 55-1520-240-23:  
Battery Connected  
Electrical Power Off  
Hydraulic Power Off

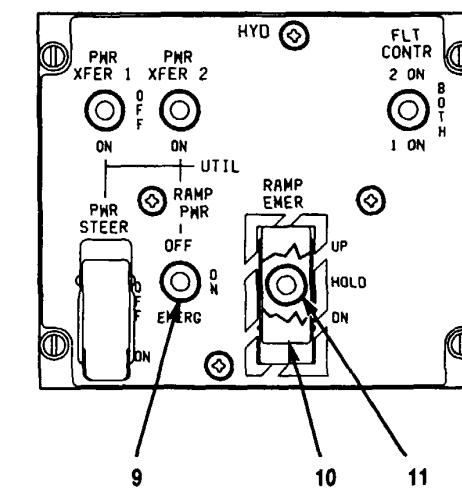


TASK	RESULT NOTE
1. Check ramp control valve (1).	Ramp control valves without if are AVIM serviceable as described in Chapter 7 of TM 55-1520-240-23. Maintenance to ramp control valves with M is limited to replacement only.  If valve (1) is damaged or valve handle (2) is bent or broken, replace valve. If hydraulic tubes to valve (1) are loose or damaged, tighten or replace as required.
2. On ramp control valves with (65), check electrical connections.	If loose, tighten electrical receptacle (2.1) and plug (2.2). Replace plug (2.2) if damaged. If receptacle (2.1) is damaged in ramp control valve replace ramp control valve.
3. Check door override valve (3).	If valve (3) is damaged, replace it. If hydraulic tubes to valve are loose or damaged, tighten or replace as required.
4. Check sequence valve (4).	If valve (4) is damaged, replace it. If hydraulic tubes to valve are loose or damaged, tighten or replace as required.
5. Check right side ramp actuating cylinder (5).	If cylinder (5) is damaged, replace it. If hydraulic tubes to cylinder are loose or damaged, tighten or replace as required.
6. Repeat step 4 for left side ramp actuating cylinder (5).	
7. Check transfer cylinder (6).	If cylinder (6) is loose or damaged, tighten or replace it as required. If hydraulic tube to cylinder is loose or damaged, tighten or replace it as required.
8. Check ramp solenoid valve (7).	If valve (7) is loose or damaged, tighten or replace it as required. If wiring or electrical connector to valve is damaged, replace it.
9. On aircraft without [65] check RAMP switch (8). On aircraft with [65], check RAMP PWR switch (9), switch guard (10), and RAMP EMER switch (11).	If switches (8, 9, or 11) or guard (10) are loose or damaged, tighten or replace as required. Check for loose or damage connections and tighten or replace connectors as required.
10. On aircraft with [65], check time delay relay (12) in overhead panel.	Tighten relay if found to be loose. Replace relay if damaged. Tighten or replace loose wires or connections.-

FOLLOW-ON MAINTENANCE:  
None



WITHOUT 65



WITH 65

A42106



7-3.4 CARGO RAMP AND DOOR MANUAL OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

TM 55-1520-240-23

Equipment Condition:

TM 55-1520-240-23:

Battery Connected

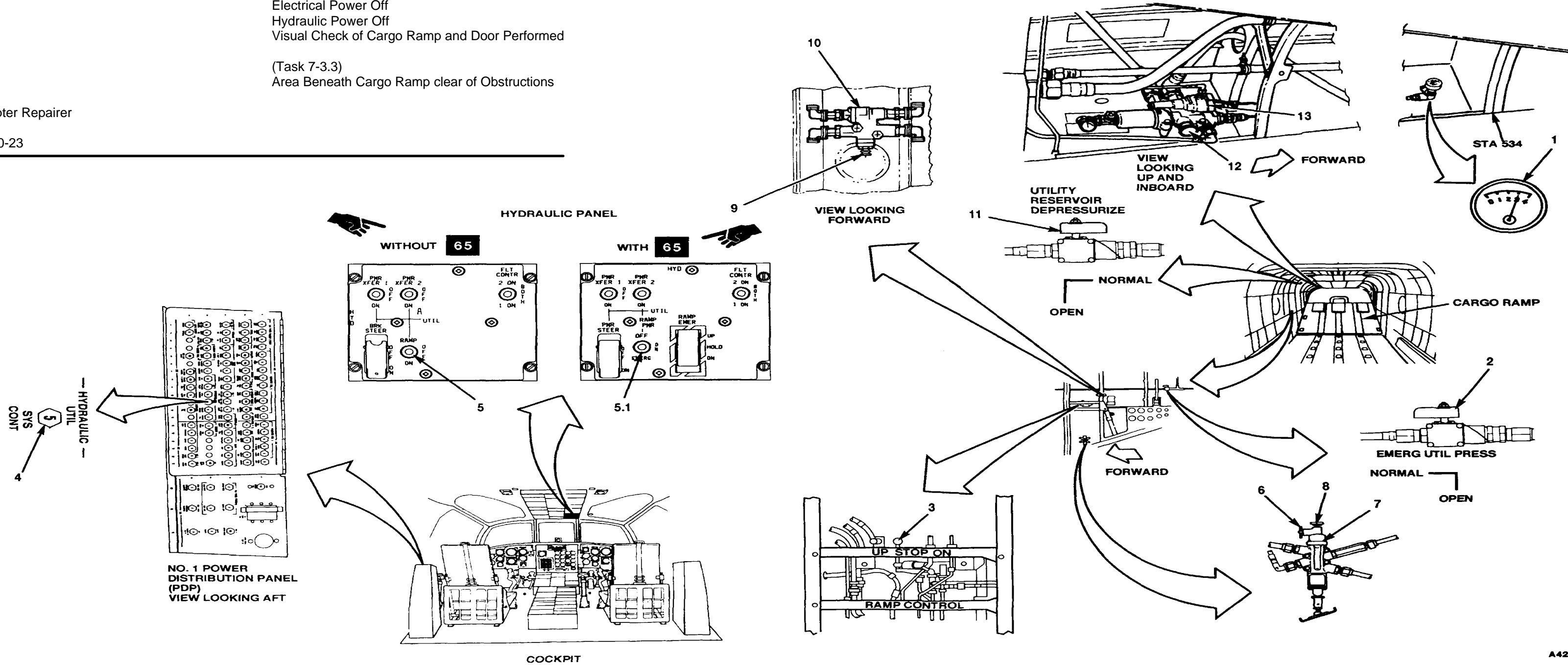
Electrical Power Off

Hydraulic Power Off

Visual Check of Cargo Ramp and Door Performed

(Task 7-3.3)

Area Beneath Cargo Ramp clear of Obstructions



A42109

7-3.4 CARGO RAMP AND DOOR MANUAL OPERATIONAL CHECK (Continued)

TASK	RESULT
1. Check apu start accumulator gage (1).	Gage (1) shall indicate at least 2500 psi. If it does not, use hand pump to charge accumulator.
2. Turn EMERG UTIL PRESS valve (2) to OPEN.	
3. Set RAMP control valve handle (3) to DN. When ramp is level with cabin floor, set handle to STOP.	Ramp shall move down and stop about 10 inches from fully closed position. Cargo door shall then retract into ramp. Ramp shall continue to move down and stop when RAMP CONTROL handle (3) is set to STOP. If ramp does not move, go to task 7-3.5. If cargo door does not retract, go to task 7-3.6.
4. Turn <b>EMERG UTIL PRESS</b> valve (2) to NORMAL.	
5. Apply electrical and hydraulic power.	
6. Check that <b>UTIL SYS CONT</b> circuit breaker (4) is closed.	
7. Set RAMP switch (5) to ON. On aircraft without [65], <b>set RAMP switch (5) to ON</b> . On aircraft with [65], set RAMP PWR switch (5.1) to ON.	If UTIL SYS CONT circuit breaker (4) is open, close it. If it opens again, go to task 7-3.7.
8. Turn pin (6) on sequence valve (7) to horizontal position.	
<b>CAUTION</b>	
Do not cycle cargo door with ramp in full up position. Damage to door and fuselage will occur.	
9. Set <b>RAMP CONTROL</b> valve handle (3) to DN. When ramp is fully down, set handle to UP.	Ramp shall move full down with handle (3) at DN. Ramp shall move full up with handle at UP. If ramp does not move up, go to task 7-3.8. If ramp moves up and down but is sluggish, bleed ramp activating cylinders. If door moves, replace sequence valve (7). Ramp shall move to mid position and remain there after handle (3) is moved to STOP. If ramp creeps up or down, go to task 7-3.12.
10. Move <b>RAMP CONTROL</b> valve handle (3) to DN. When ramp is at mid position, move handle to <b>STOP</b> .	
11. Turn pin (6) on sequence valve (7) to vertical position.	
12. Pull up and hold <b>MANUAL OPER</b> knob (8) on sequence valve (7).	Cargo door shall extend. If it does not, go to task 7-3.9.

TASK	RESULT
13. Release MANUAL OPER knob (8).	Cargo door shall retract. If it does not, replace sequence valve (7).
14. <b>Set RAMP switch (5) to OFF. On aircraft without [65], set RAMP switch (5) to OFF. On aircraft with [65], set RAMP PWR switch (5.1) to OFF.</b>	
15. <b>Set RAMP CONTROL valve handle (3) to UP.</b>	Ramp shall not move up. If it does, go to task 7-3.10.
16. <b>Set RAMP CONTROL valve handle (3) to STOP. On aircraft without [65] set RAMP switch (5) to ON. On aircraft with [65] set RAMP PWR switch (5.1) to ON.</b>	Ramp shall move full down with handle (3) at DN. Ramp shall move up with handle at UP and stop approximately <u>8 inches</u> from full closed position. Cargo door shall then extend. Ramp shall then move up and close. If cargo door does not extend, go to task 7-3.9. If ramp does not stop <i>before closing</i> , go to <i>task</i> 7-3.11.
17. <b>Set RAMP CONTROL valve handle (3) to DN.</b> When ramp is fully down <b>set handle to UP.</b>	Ramp shall move down to mid position with cargo door extended.
18. <b>Press and hold knob (9) on door override valve (10). Set RAMP CONTROL valve handle (3) to DN.</b> When ramp is at mid position, <b>set handle to STOP.</b>	Cargo door shall retract. If it does not, replace door override valve (10).
19. Release knob (9).	
20. <b>Set RAMP CONTROL valve handle (3) to UP.</b> When ramp is closed, <b>set handle to STOP.</b>	
21. <b>On aircraft equipped with [65] check operation of emergency extension system per task 7-3.4.1</b>	Utility system shall depressurize.
22. <b>Remove hydraulic power and electrical power. 23. Turn UTILITY RESERVOIR DEPRESSURIZE valve (11) to OPEN. Press depressurization valve (12) on apu start module (13).</b>	
24. <b>Turn UTILITY RESERVOIR DEPRESSURIZE valve (11) to NORMAL.</b>	Ramp shall not move. If it does, adjust actuating cylinders.
25. <b>Set RAMP CONTROL valve handle (3) to DN.</b>	

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Battery disconnected.
- Electrical power off.
- Hydraulic power off.

**INITIAL SETUP**

**Applicable Configurations:**

Aircraft With [65]

**Tools:**

None

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

Battery Connected

Electrical Power On

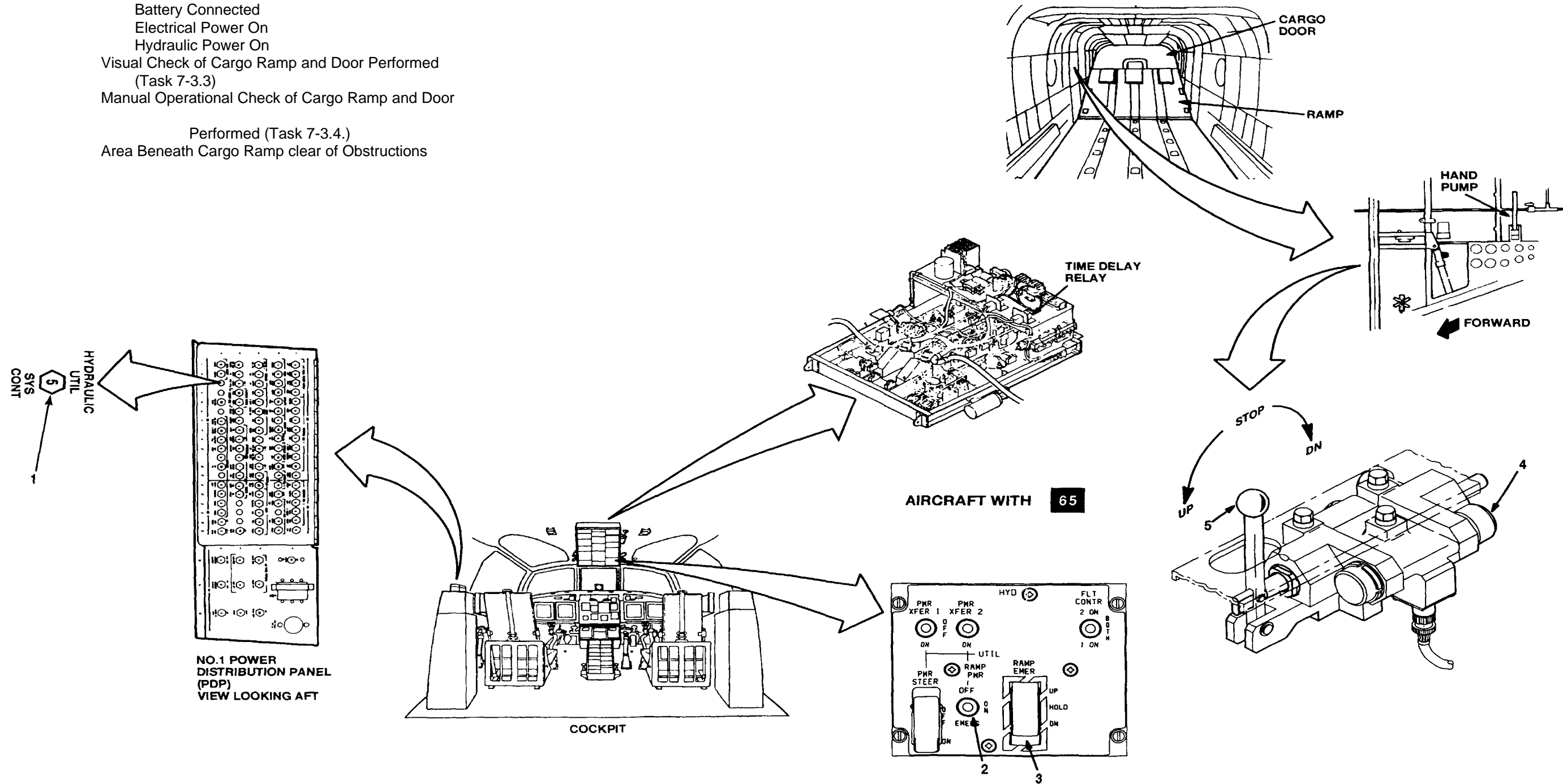
Hydraulic Power On

Visual Check of Cargo Ramp and Door Performed  
(Task 7-3.3)

Manual Operational Check of Cargo Ramp and Door

Performed (Task 7-3.4.)

Area Beneath Cargo Ramp clear of Obstructions



**7-3.4.1 CARGO RAMP AND DOOR EMERGENCY CONTROL SYSTEM OPERATIONAL CHECK (Continued)**

7-3.4.1

TASK	RESULT	TASK	RESULT
<ol style="list-style-type: none"> <li>1. <b>Apply electrical and hydraulic power.</b></li> <li>2. <b>Perform cargo ramp and door manual operational check making sure cargo ramp and door are completely closed when finished.</b></li> <li>3. Check that <b>RAMP EMER CONT circuit breaker (1)</b> is closed and <b>RAMP PWR switch is set to OFF.</b></li> <li>4. With <b>RAMP PWR switch (2)</b> set to <b>ON</b>, <b>lift guard of RAMP EMER switch (3)</b> and set switch to <b>DN and UP.</b></li> <li>5. <b>Set RAMP PWR switch (2) to EMERG. Check movement of ramp control valve handle (5).</b></li> <li>6. <b>Lift guard of RAMP EMER switch (3) and momentarily move switch to DN.</b></li> <li>7. <b>Lift guard of RAMP EMER switch (3) and momentarily move switch to DN and then UP positions before releasing switch to the HOLD position.</b></li> <li>8. <b>Lift guard of RAMP EMER switch (3) and hold switch in DN position until ramp fully opens. Move switch to UP and release switch when ramp is at a level position.</b></li> </ol>	<p>Proper ramp and door operation as described in task 7-3.4, must be achieved prior to performing the following checks and procedures.</p> <p>If RAMP EMER CONT circuit breaker (1) is open, close it. If it opens again, go to task 7-3.13.</p> <p>Ramp shall not move and condition of ramp control valve shall not change. If handle to ramp control valve stiffens or operates, check wiring between RAMP PWR and RAMP EMER switches. If switches are wired in accordance with wiring diagram with [65], replace RAMP PWR switch.</p> <p>Mechanism of handle (5) shall stiffen and resist movement. Handle shall return to STOP (center) position if moved to either UP or DN position. If ramp control valve does not operate as described, go to task 7-3.14.</p> <p>Spring in RAMP EMER switch (3) shall return switch to HOLD position when switch is released. Ramp control valve handle (5) shall move to DN position and ramp system shall open for approximately five seconds in proper sequence (cargo door retracts and ramp moves downward). After approximately five seconds, ramp control valve handle (5) shall return to STOP; and, ramp shall stop opening and hold its position. If RAMP EMER switch, ramp system, or control valve fail to operate properly, go to task 7-3.15.</p> <p>Ramp control valve handle (5) shall move to DN, UP and back to STOP positions. Ramp shall open then stop before five seconds is complete. If ramp system fails to operate properly go to task 7-3.15.</p> <p>Ramp control valve handle (5) shall move to DN position and ramp shall fall to the end of its travel. When RAMP EMER (3) switch is released, ramp control valve handle shall return to STOP or center position. When RAMP EMER switch is moved and held in UP position, ramp control valve handle shall move to its UP position and ramp shall close. When RAMP EMER switch is released, ramp shall stop and hold its position. If ramp system fails to operate properly go to task 7-3.15.</p>	<ol style="list-style-type: none"> <li>9. Lift switch guard of RAMP EMER switch (3) and hold switch in UP position until ramp and door are fully closed. Place RAMP PWR switch (2) in OFF position.</li> </ol>	<p>When RAMP EMER switch (3) is held in UP position, ramp shall close in proper sequence</p> <p>When RAMP EMER switch is moved to UP, ramp control valve handle (5) shall move to its UP position and ramp shall close with proper door extension. If ramp control valve (4) or ramp system fail to operate as described, go to task 7-3.15.</p>

**END OF TASK  
Change 14 7-125**

7-3.5 RAMP DOES NOT MOVE DOWN (RAMP IN CLOSED POSITION)

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

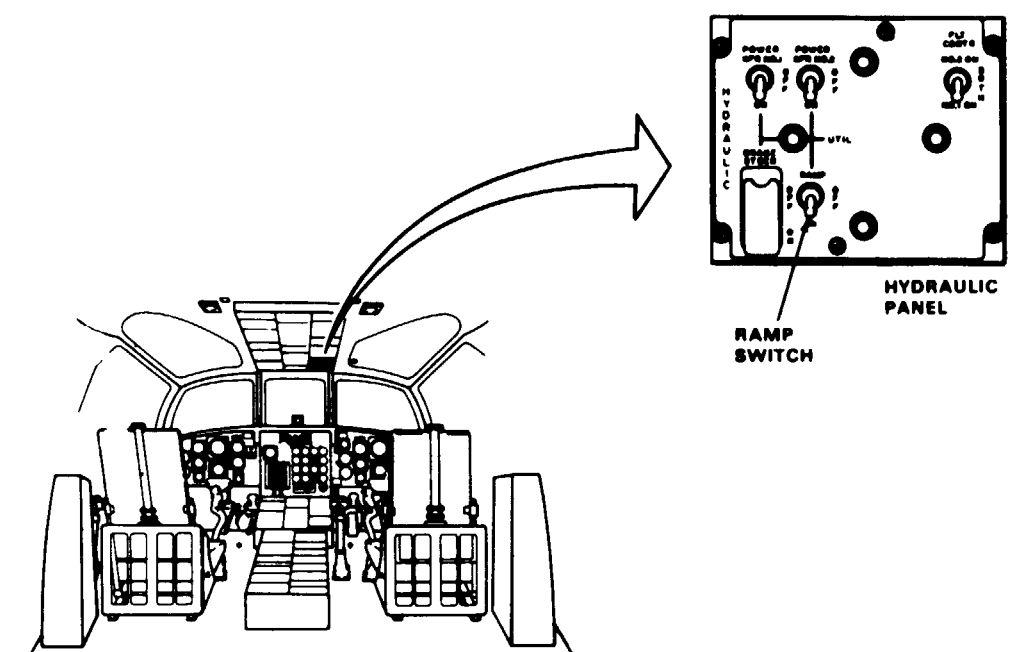
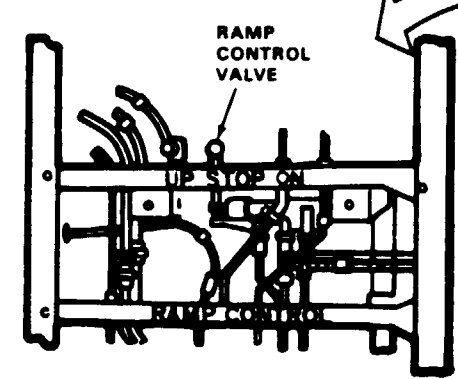
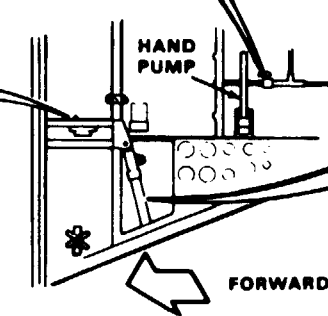
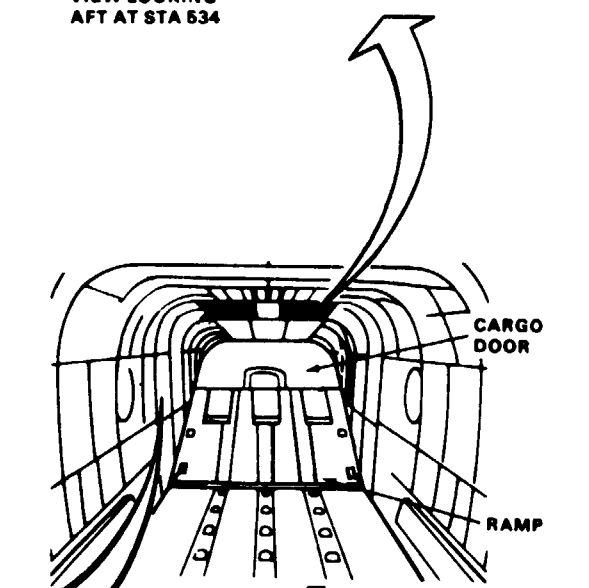
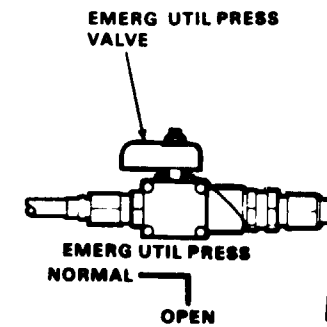
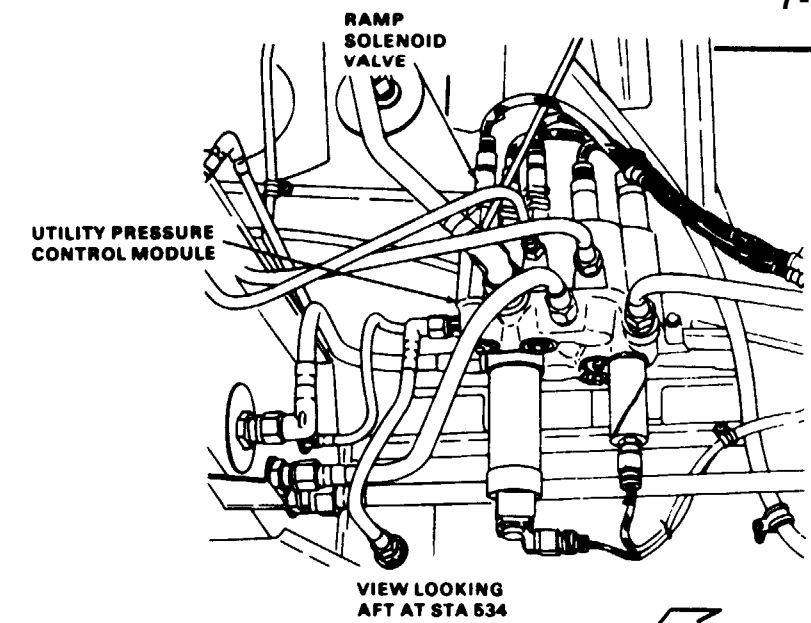
67U10 Helicopter Repairer  
67U20 Helicopter Repairer

**References:**

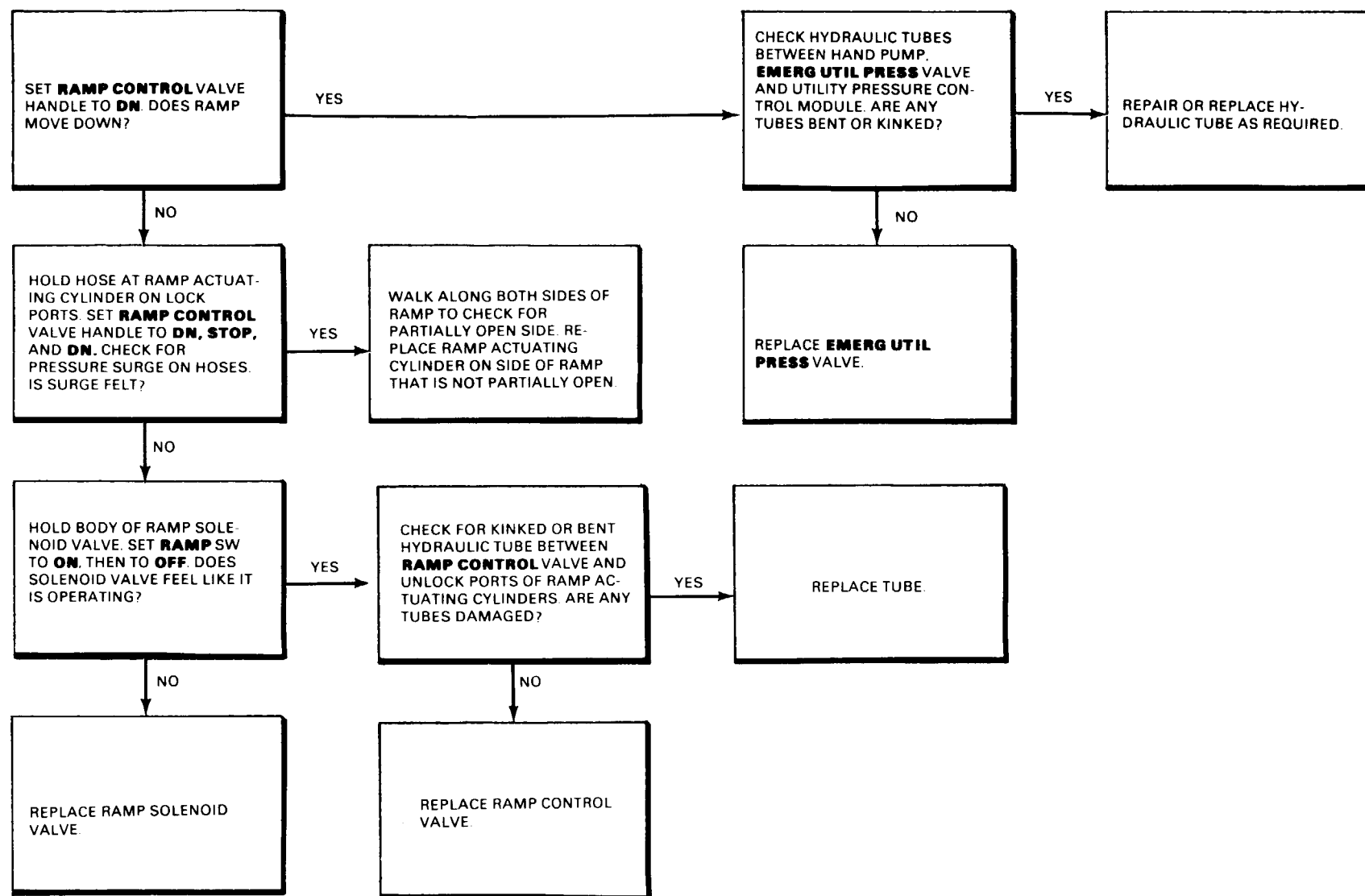
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
EM ERG UTIL PRESS Valve at NORMAL  
RAMP Switch Set TO ON



7-3.5 RAMP DOES NOT MOVE DOWN (RAMP IN CLOSED POSITION) (Continued)



7-3.6 CARGO DOOR DOES NOT RETRACT

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

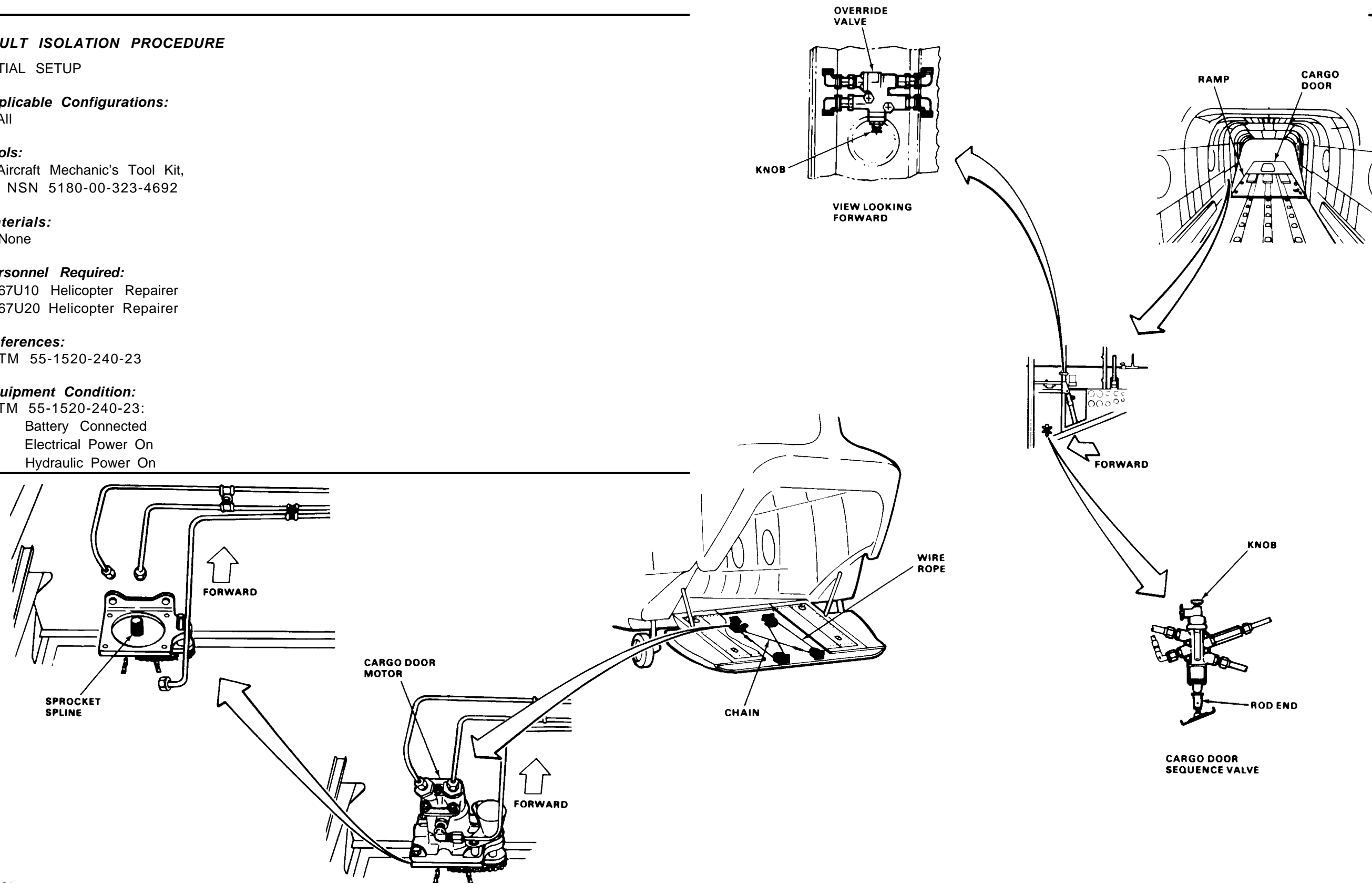
67U10 Helicopter Repairer  
67U20 Helicopter Repairer

**References:**

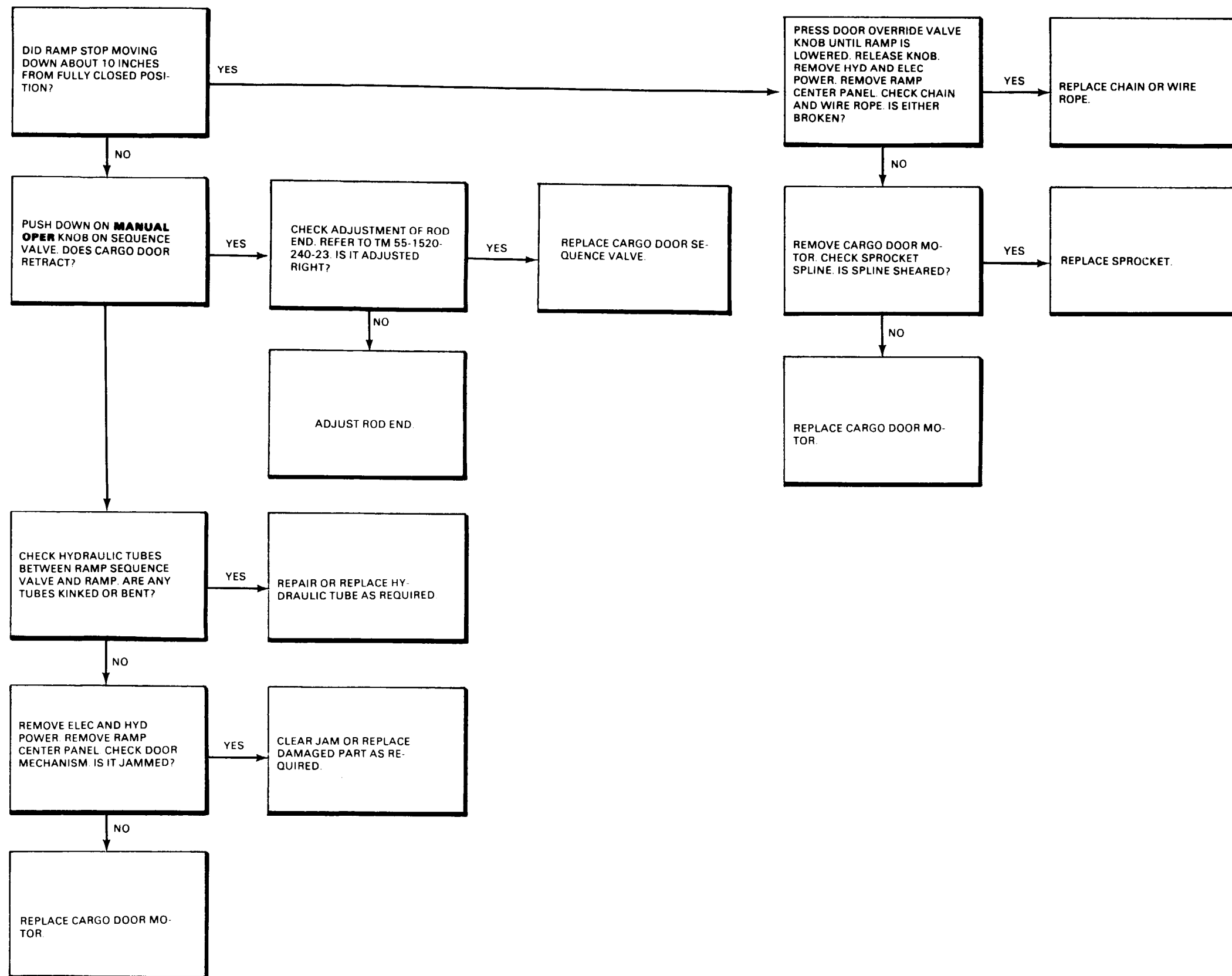
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



7-3.6 CARGO DOOR DOES NOT RETRACT (Continued)





**7-3.7 UTIL SYS CONT CIRCUIT BREAKER DOES NOT STAY CLOSED**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multi meter

**Materials:**

None

**Personnel Required:**

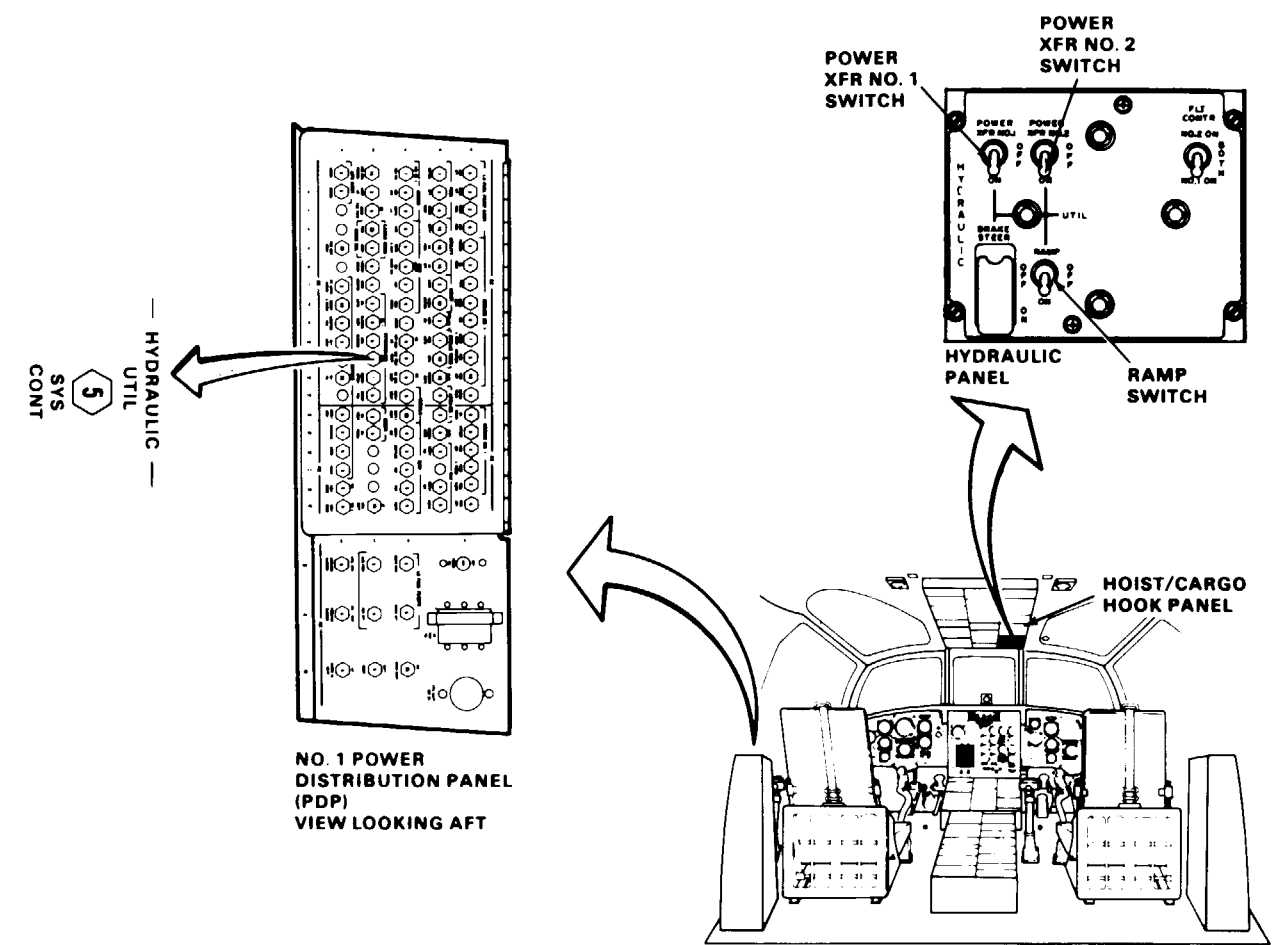
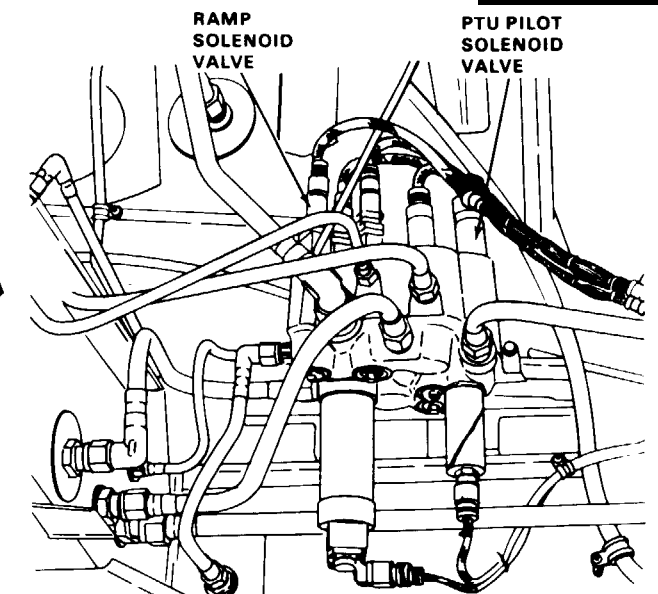
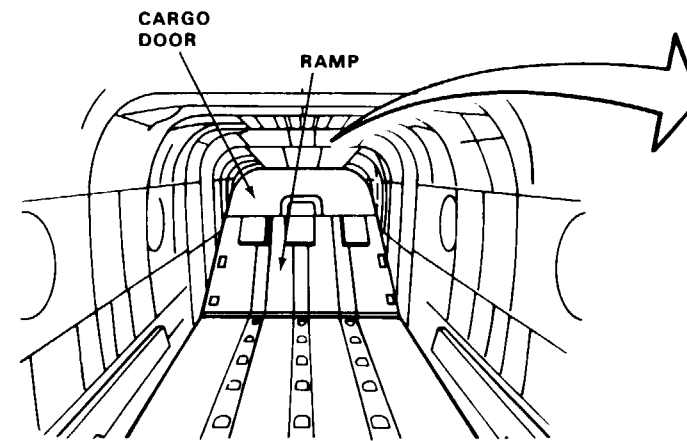
68F20 Aircraft Electrician

**References:**

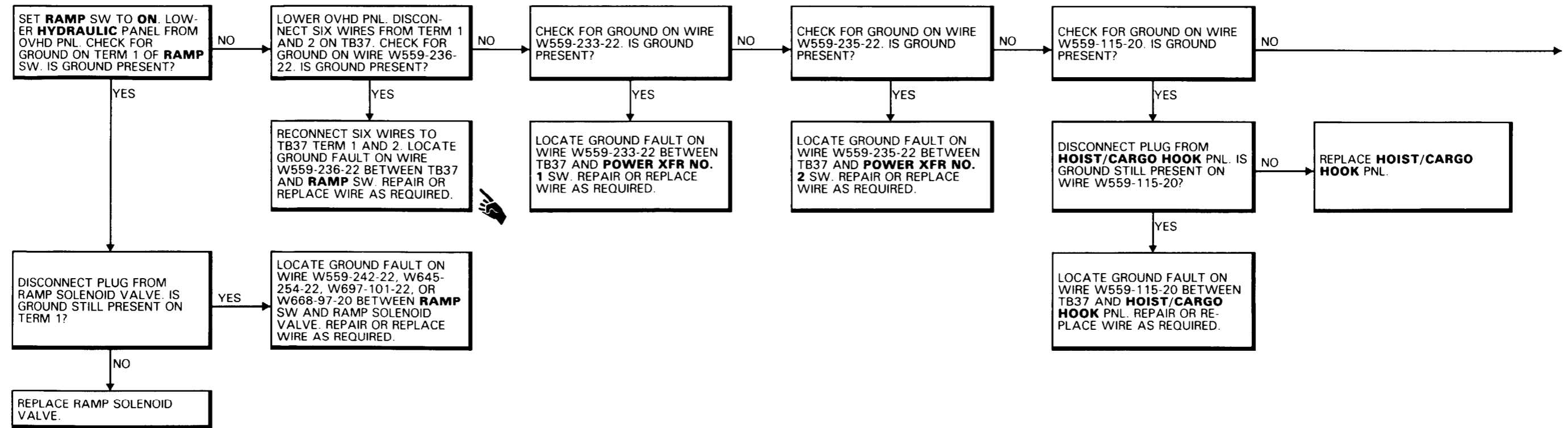
TM 55-1520-240-23

**Equipment Condition:**

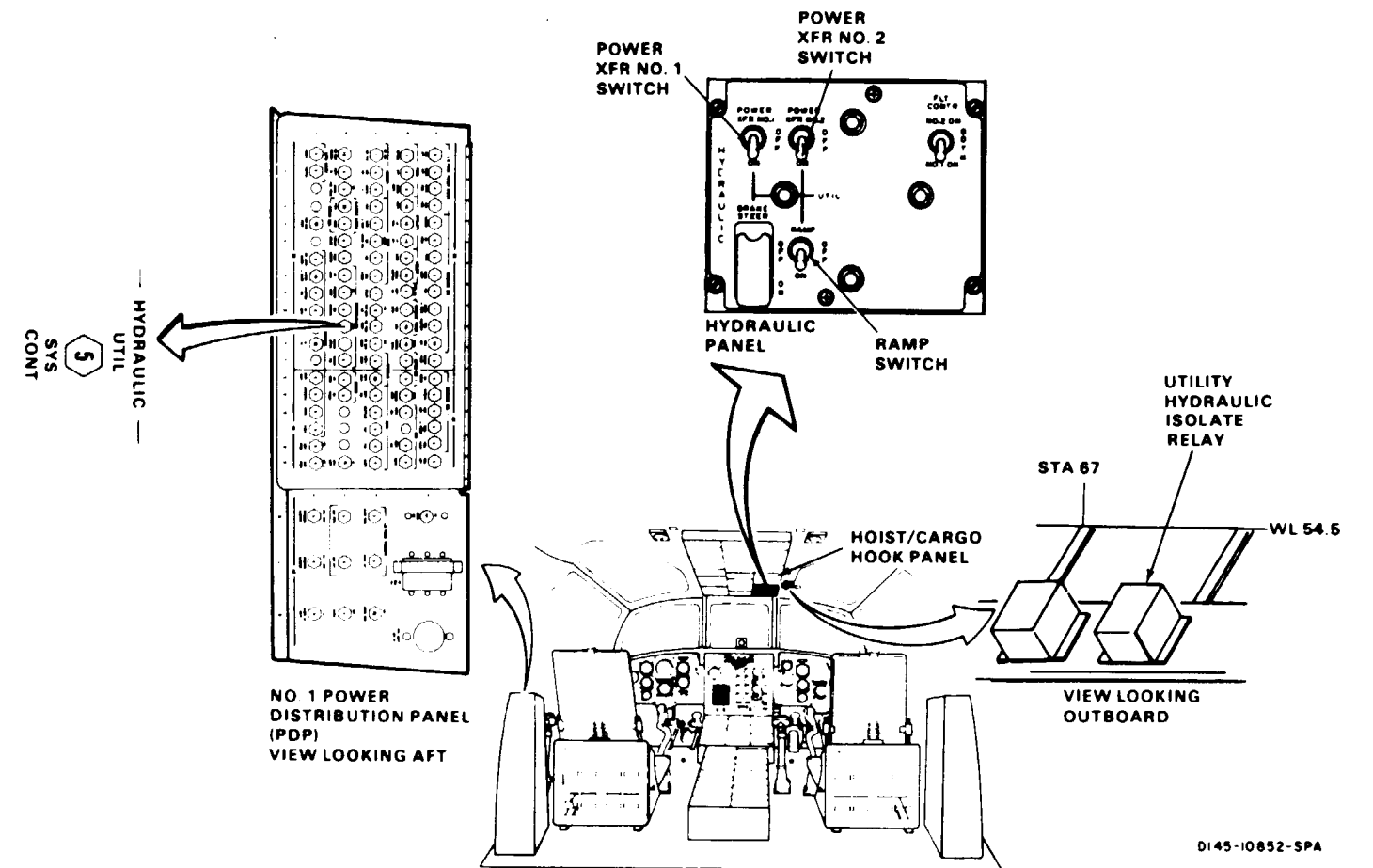
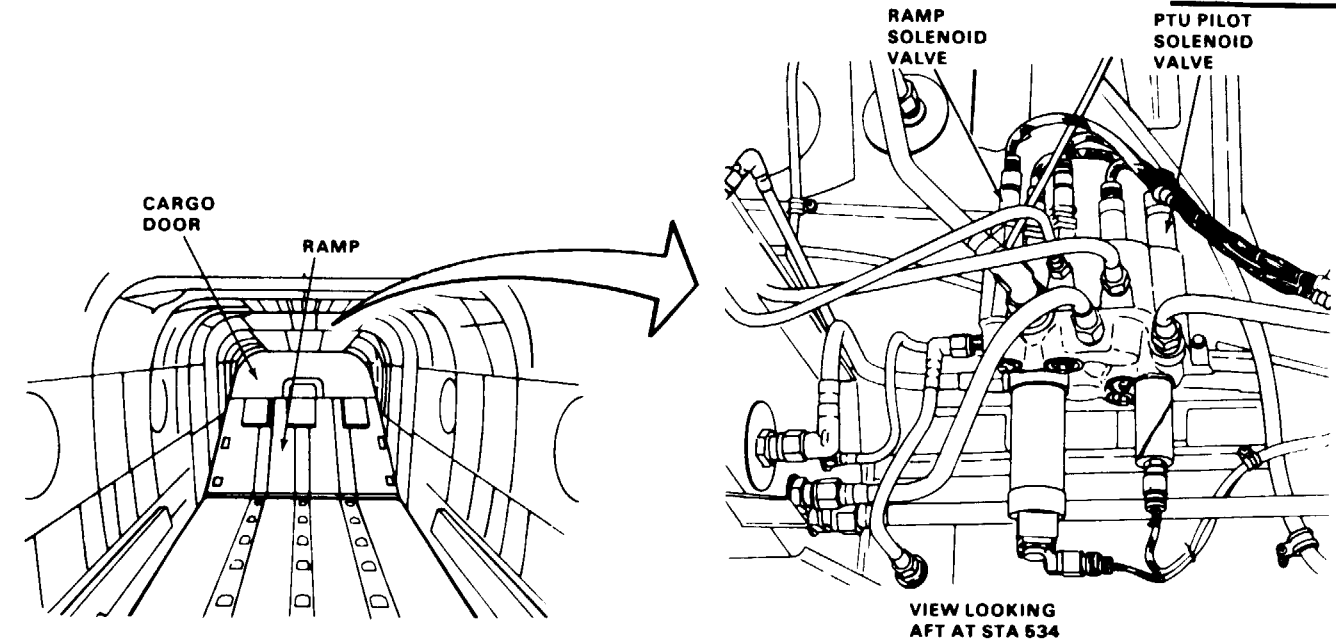
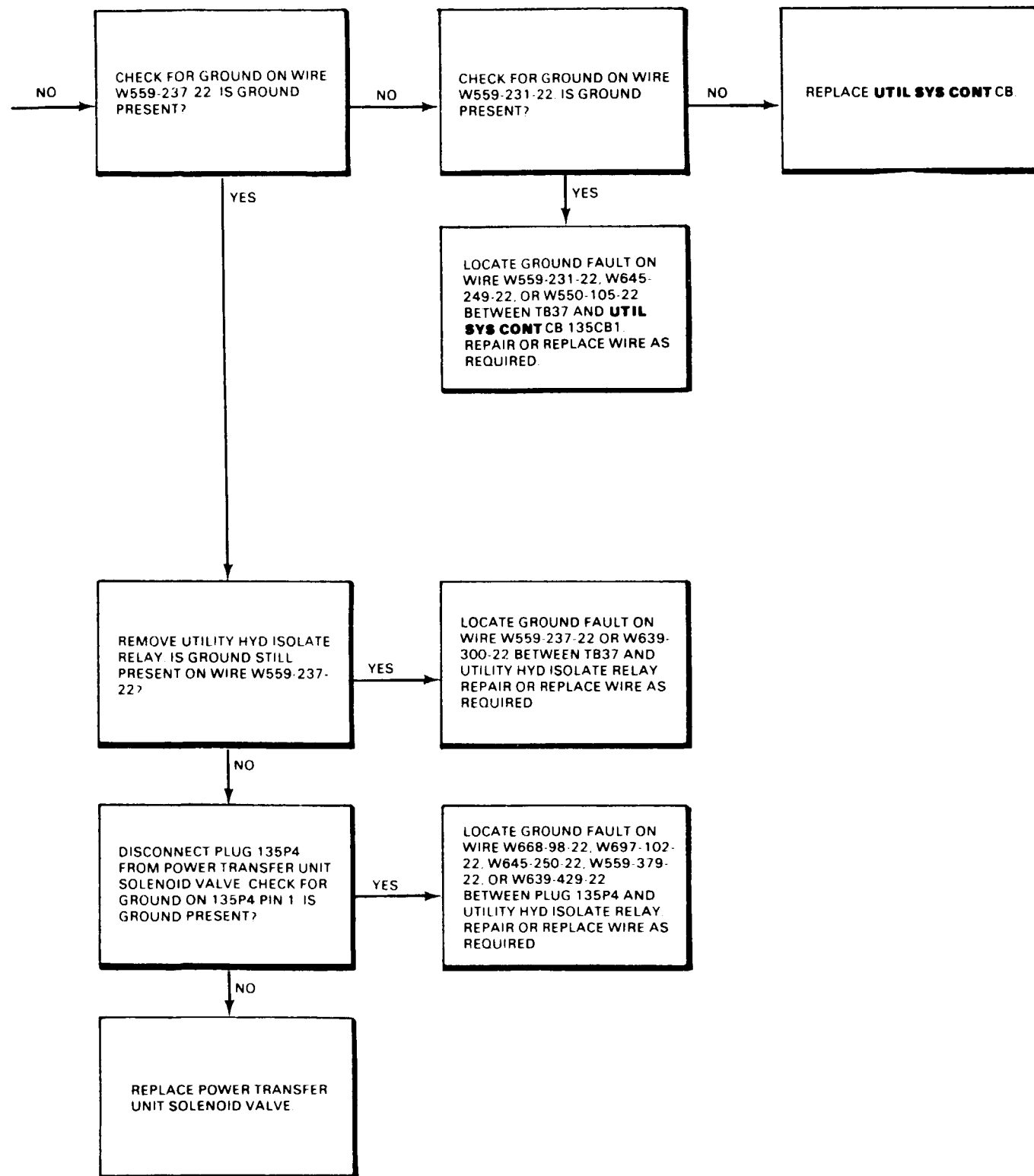
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



7-3.7 UTIL SYS CONT CIRCUIT BREAKER DOES NOT STAY CLOSED (Continued)



7-3.7 UTIL SYS CONT CIRCUIT BREAKER DOES NOT STAY CLOSED (Continued)



7-3.8 RAMP DOES NOT MOVE UP

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

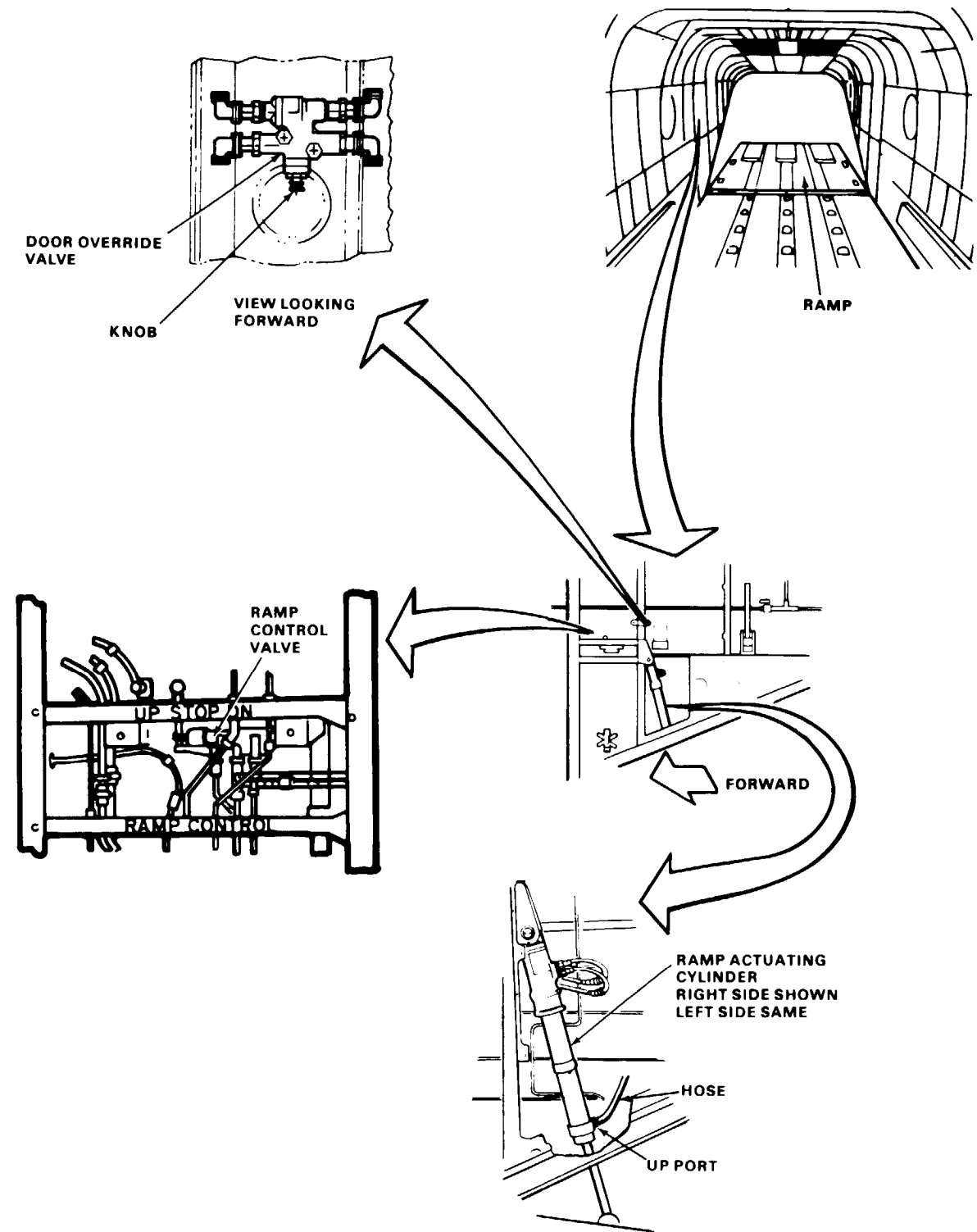
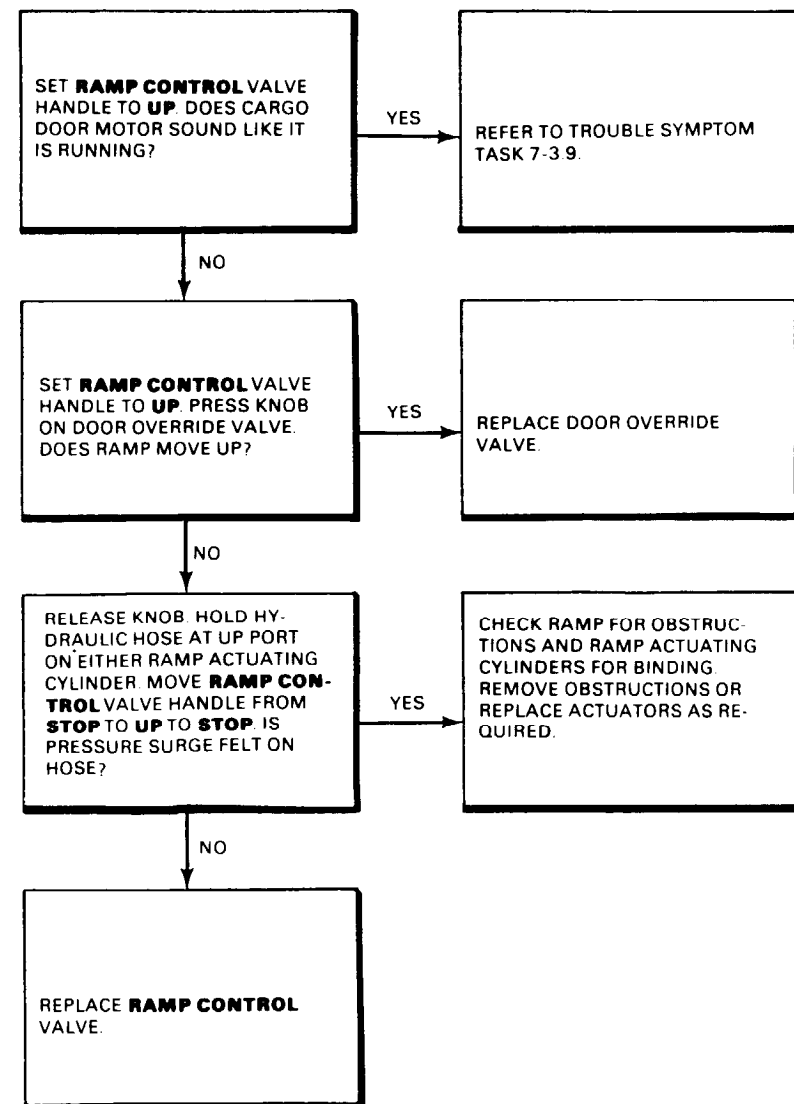
67U10 Helicopter Repairer  
67U20 Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



45x54

0145-4469-SPA

END OF TASK

7-133

7-3.9 CARGO DOOR DOES NOT EXTEND

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

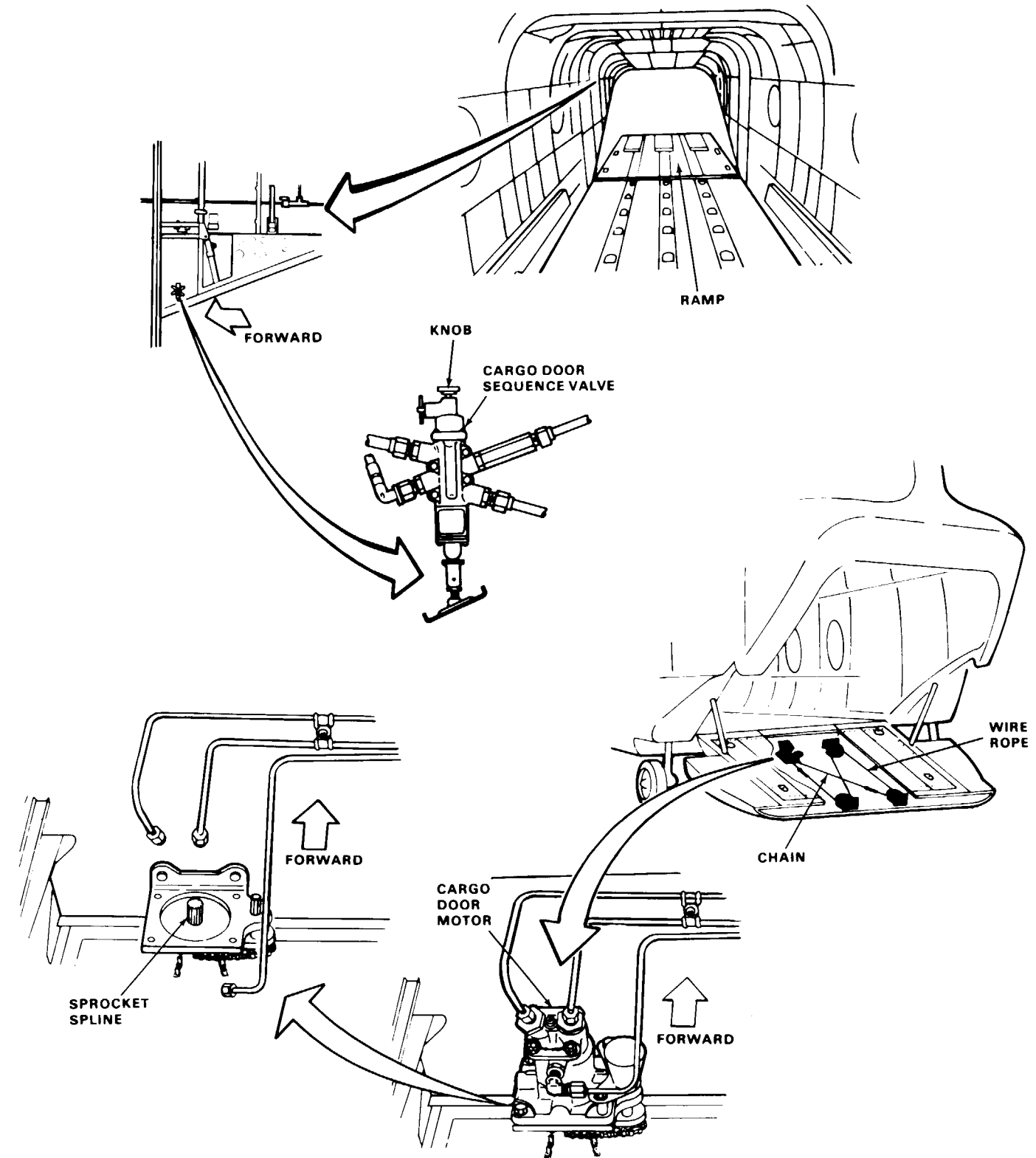
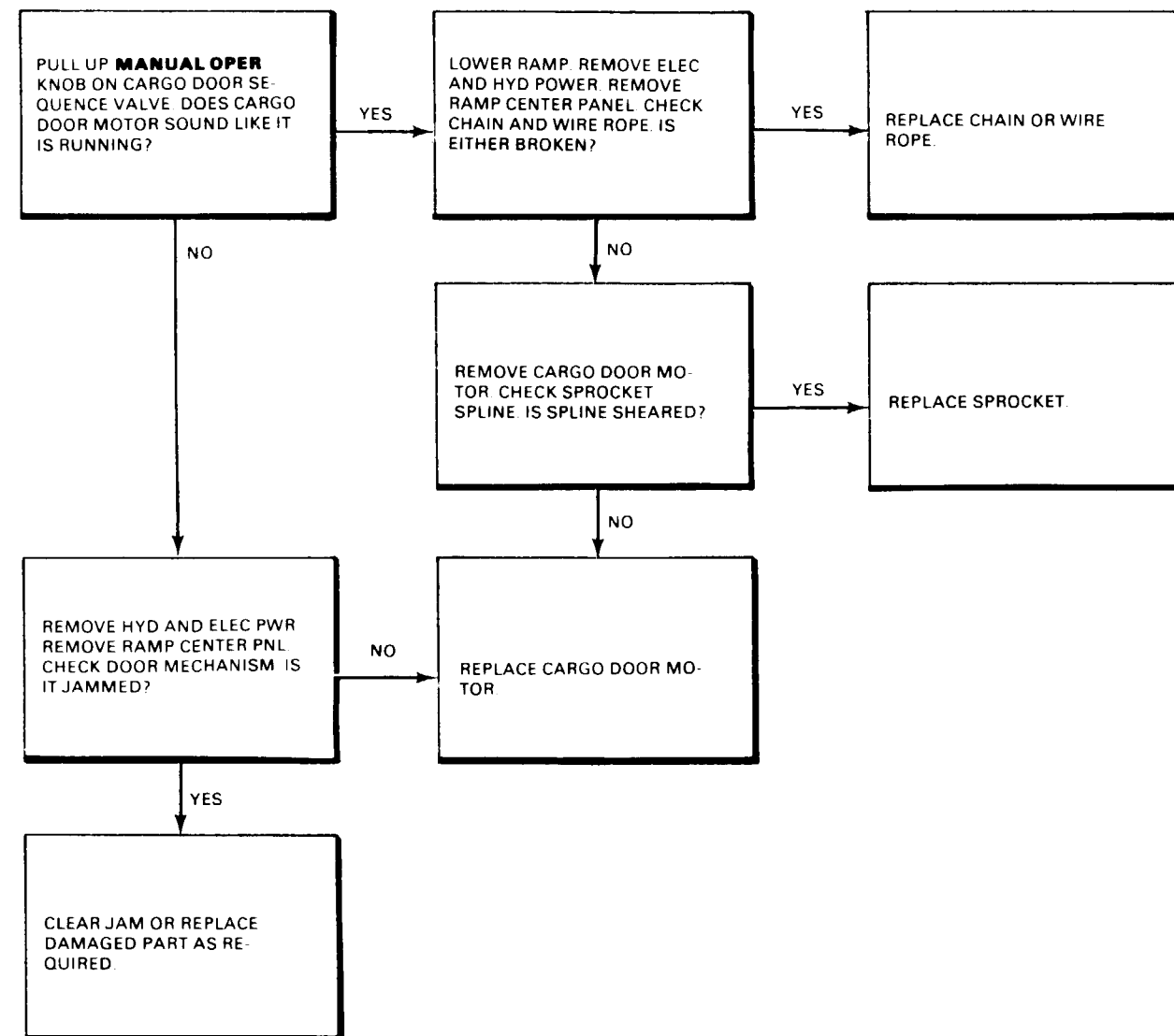
67U10 Helicopter Repairer  
67U20 Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



7-3.10 RAMP MOVES WITH RAMP SWITCH AT OFF

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**  
All

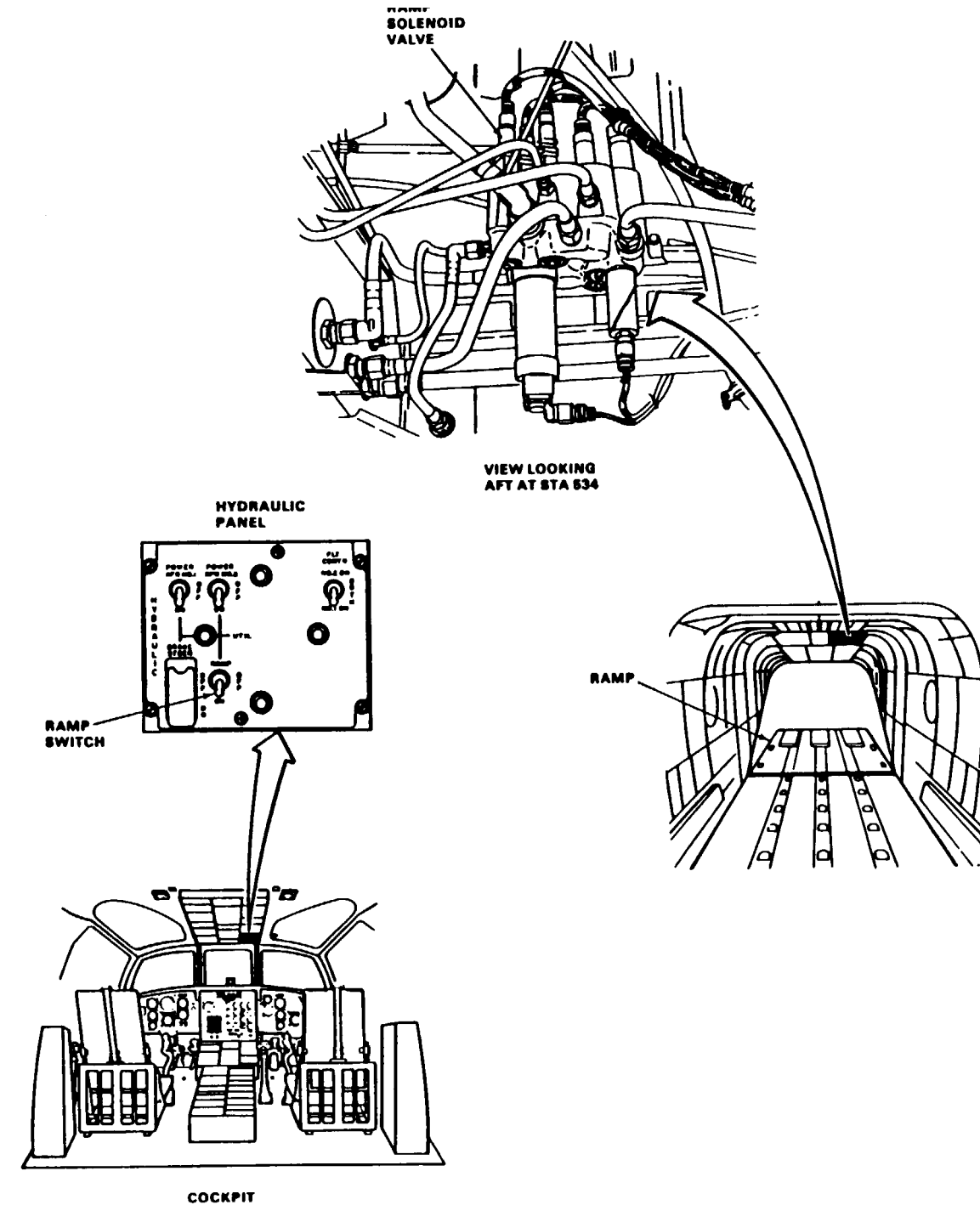
**Tools:**  
Electrical Repairer's Tool Kit.  
NSN 5180-00-323-4915  
Multimeter

**Materials:**  
None

**Personnel Required:**  
68F20 Aircraft Electrician

**References:**  
TM 55-1520-240-23

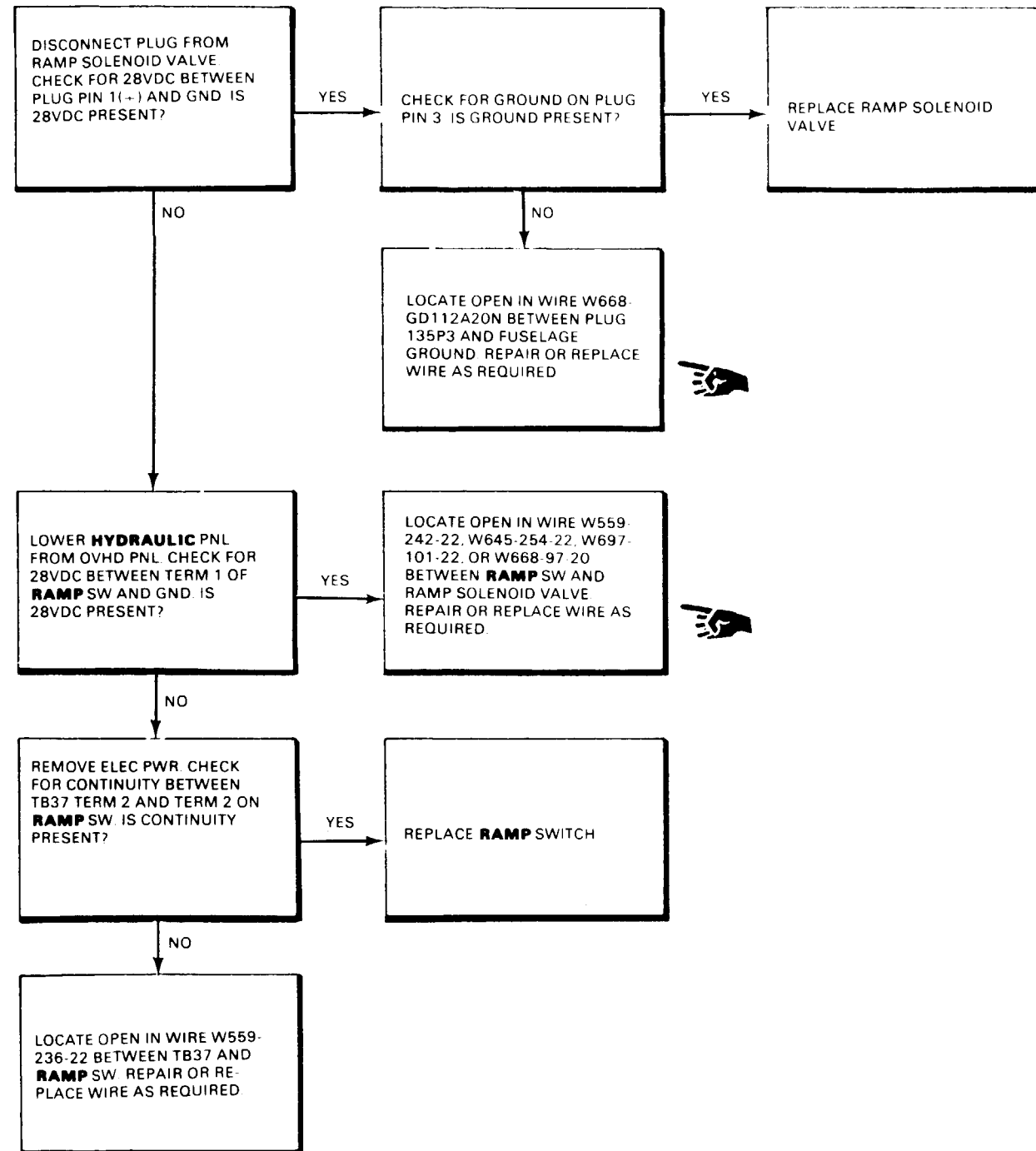
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



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D145-4471-SPA  
**GO TO NEXT PAGE**

7-3.10 RAMP MOVES WITH RAMP SWITCH AT OFF (Continued)



END OF TASK

7-3.11 RAMP CONTINUES TO CLOSE AS CARGO DOOR IS EXTENDING

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

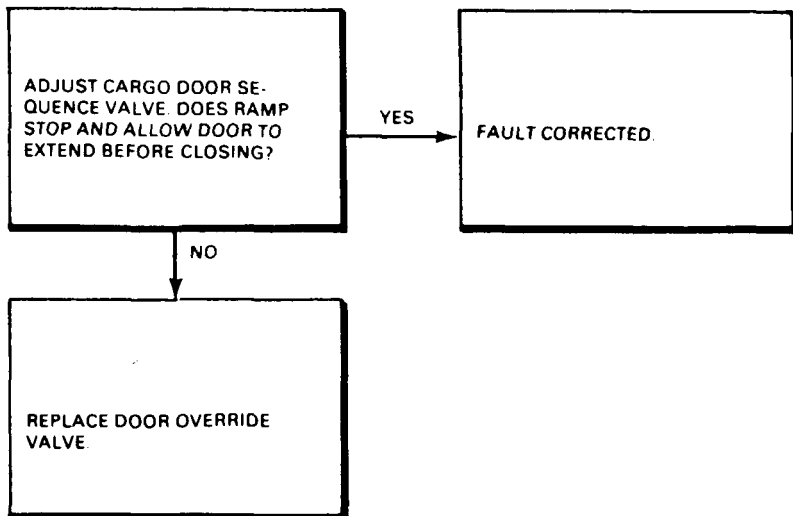
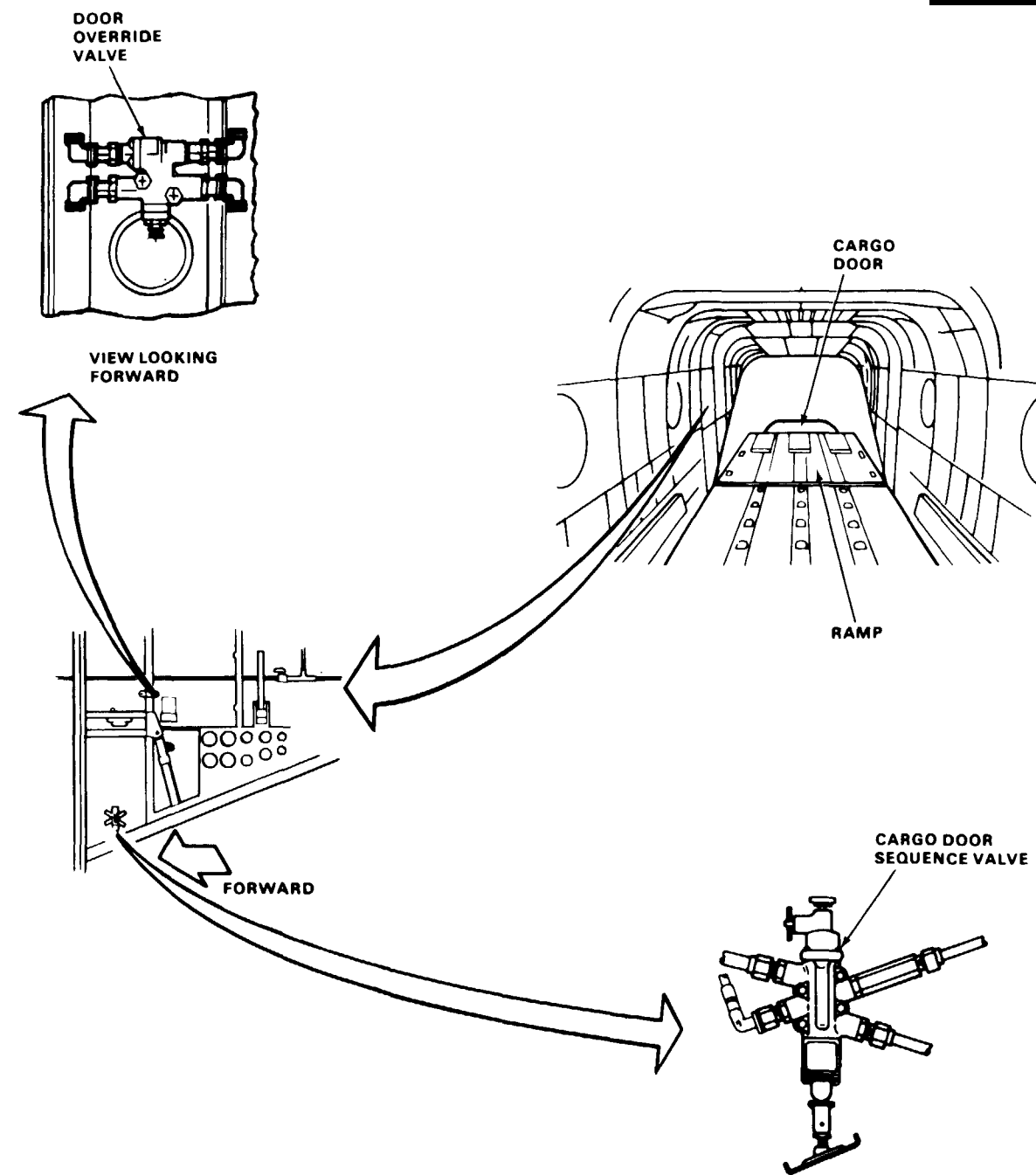
67U20 Helicopter Repairer

**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On





7-3.12 RAMP CREEPS WITH RAMP CONTROL VALVE HANDLE AT STOP7-

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

**Materials:**

None

**Personnel Required:**

Helicopter Repairer

**References:**

TM 55-1520240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On

CHECK RAMP ACTUATORS. ARE

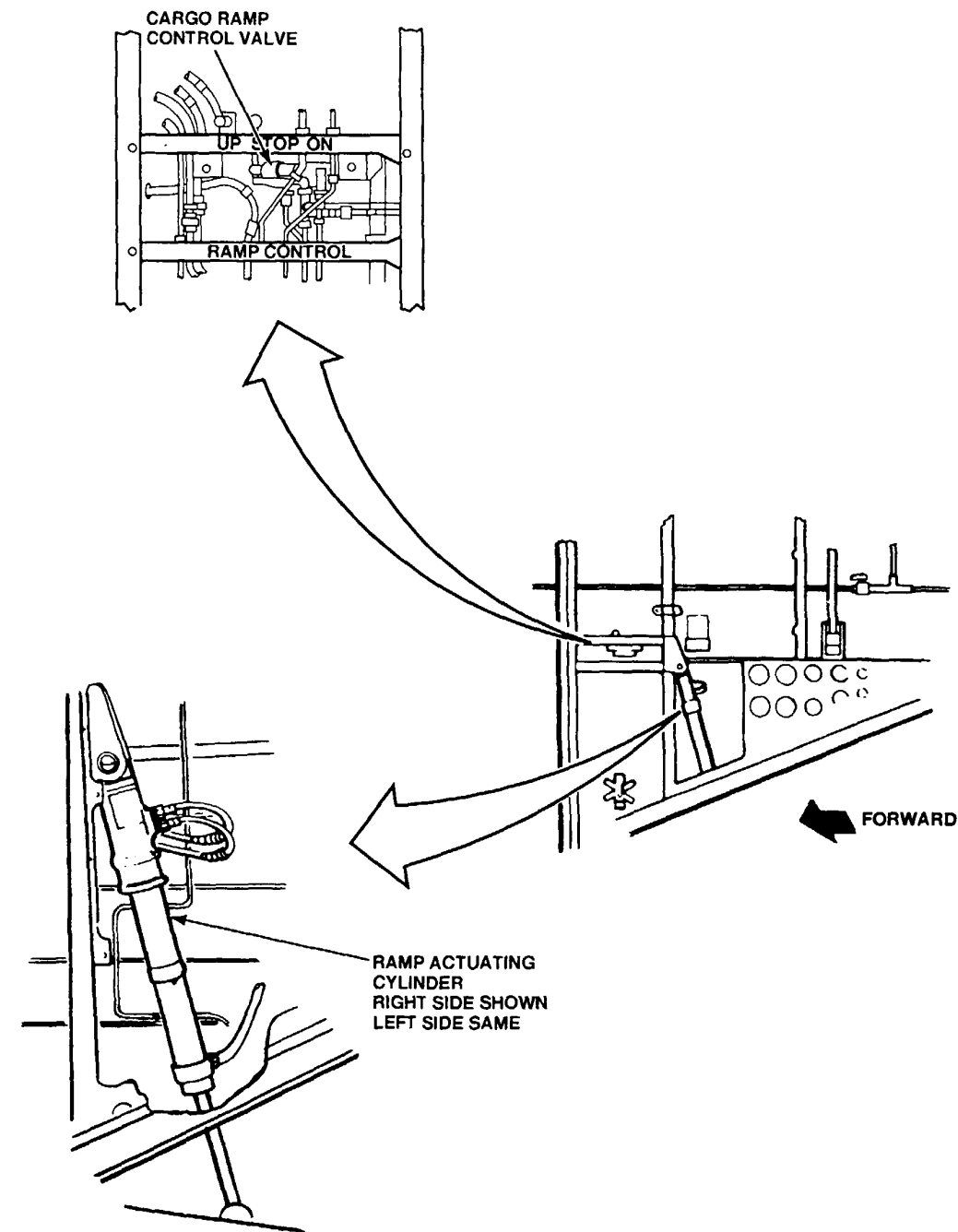
EITHER OF THE ACTUATORS  
HOT OR UNUSUALLY NOISY?

NO

REPLACE RAMP CONTROL

YES

REPLACE SUSPECT RAMP AC-  
TUATOR.



A22886

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

Aircraft With [65]

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

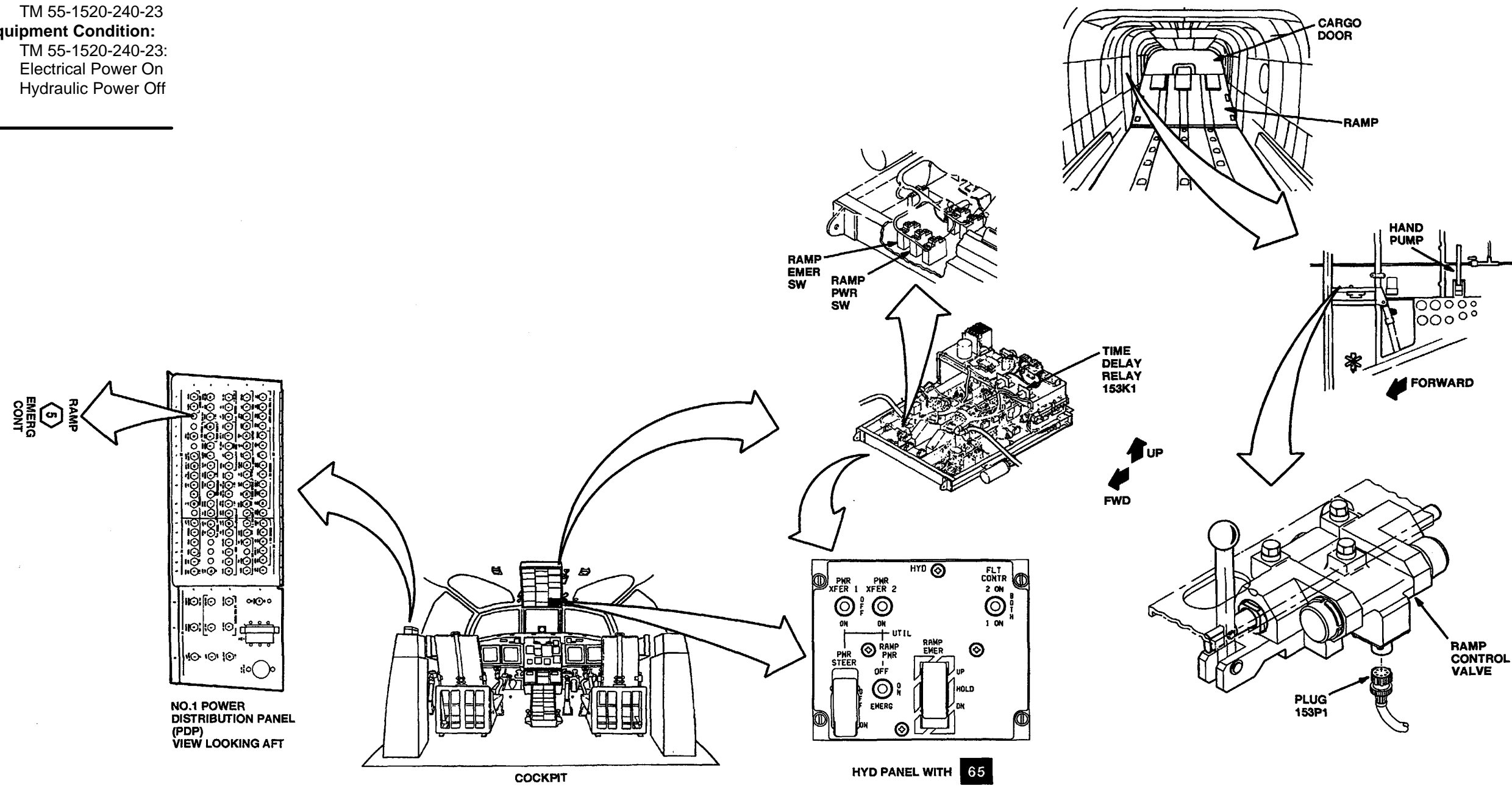
TM 55-1520-240-23

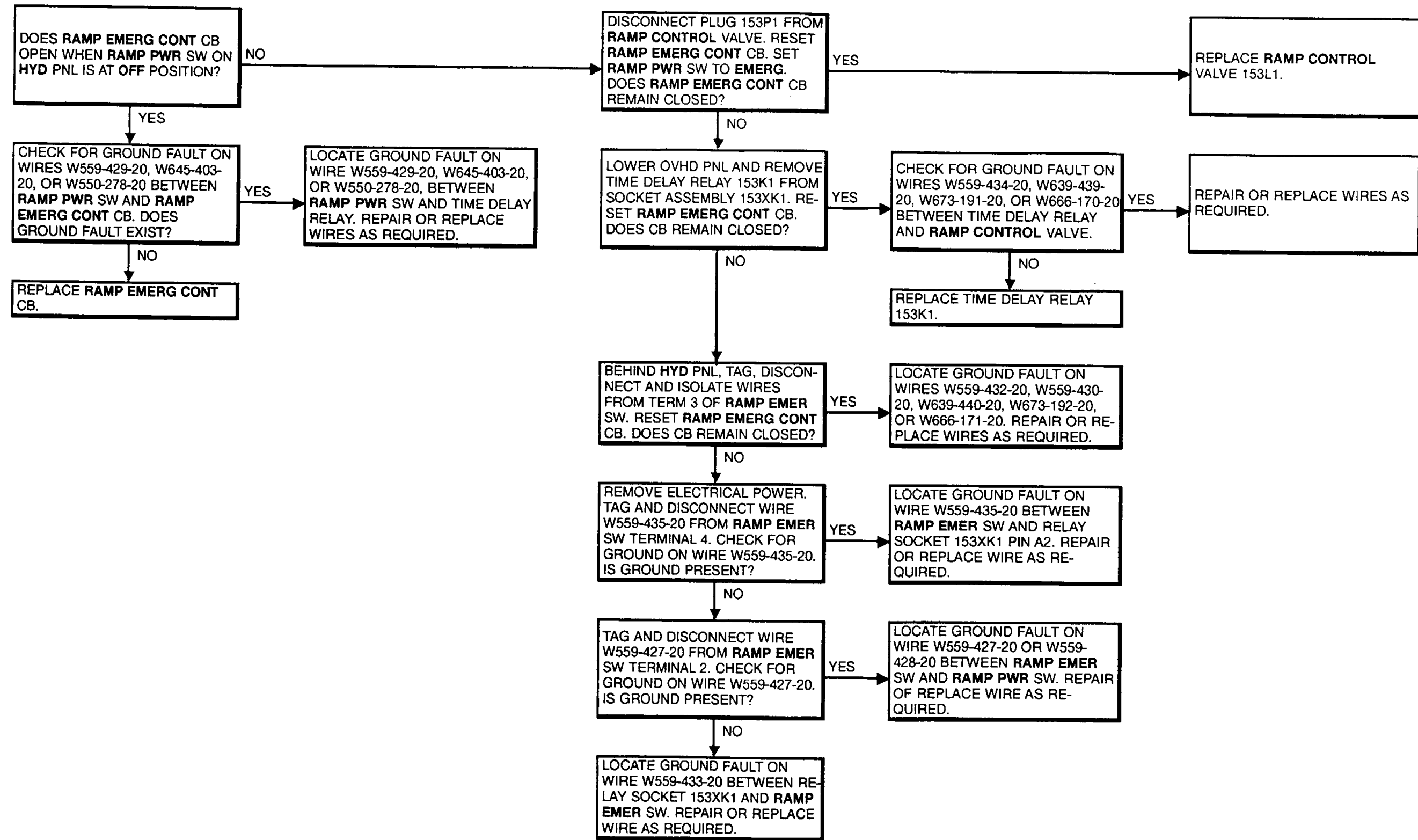
**Equipment Condition:**

TM 55-1520-240-23:

Electrical Power On

Hydraulic Power Off





**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Personnel Required:**

**Applicable Configurations:**

Aircraft With (65)

Aircraft Electrician

**References:**

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

TM 55-1520-240-23

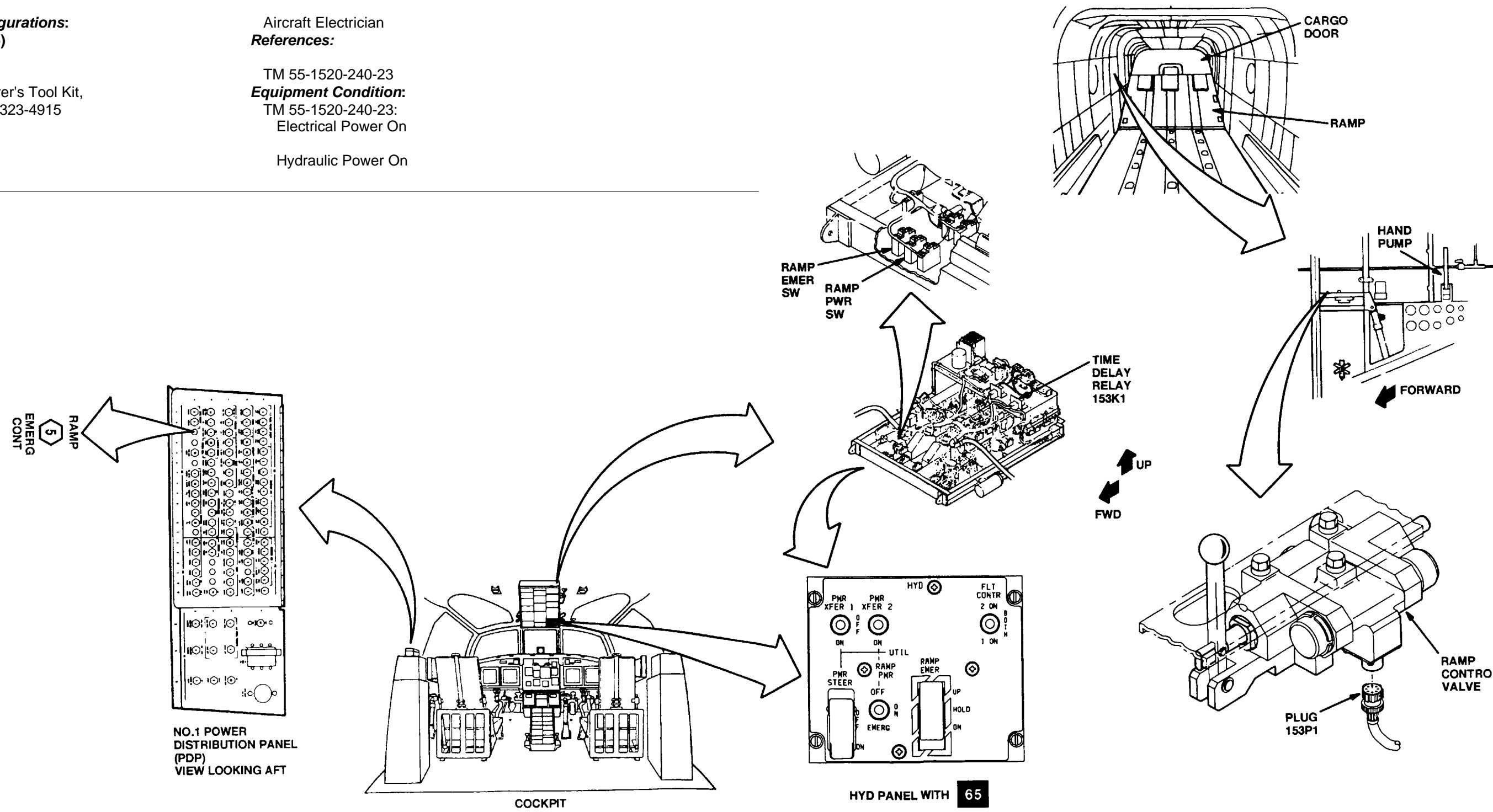
**Equipment Condition:**

TM 55-1520-240-23:  
Electrical Power On

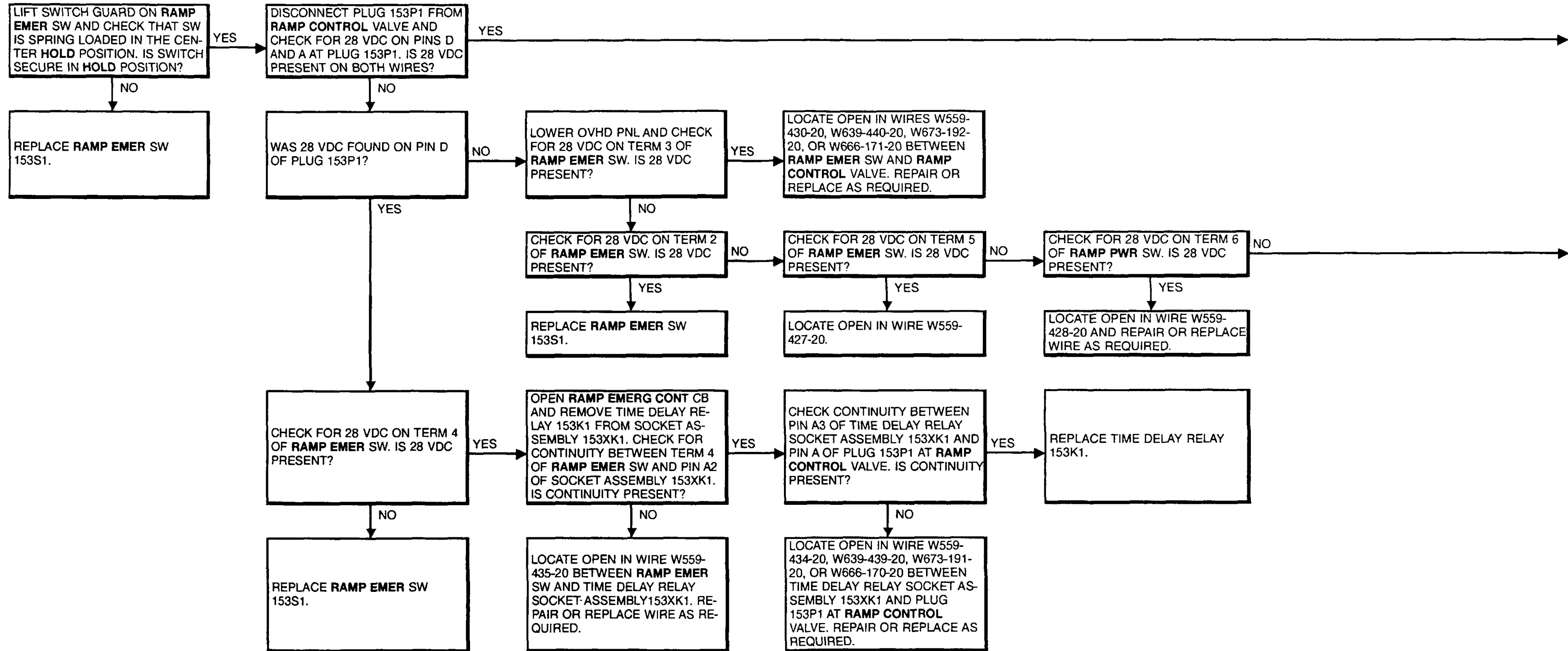
**Materials:**

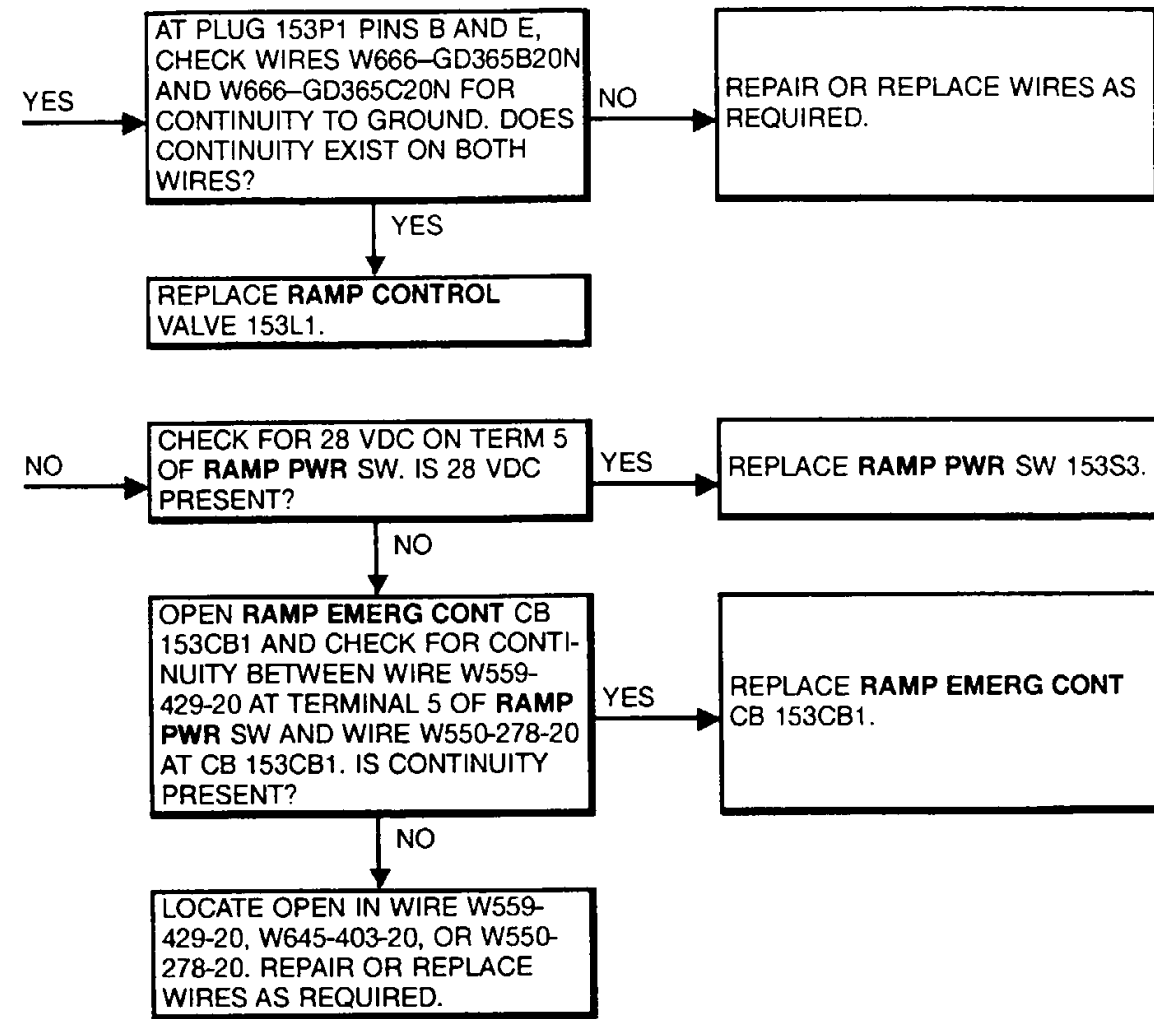
None

Hydraulic Power On



7-3.14 RAMP CONTROL VALVE SOLENOIDS DO NOT ENGAGE AND RAMP CONTROL VALVE HANDLE IS NOT RESTRICTED IN STOP POSITION WHEN RAMP PWR SW IS SET TO EMERG (Continued)





7-3.15 RAMP CONTROL VALVE DOES NOT OPERATE AS SELECTED FROM RAMP EMER SW

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**  
Aircraft Electrician

**Applicable Configurations:**

Aircraft With (65)

**References:**  
TM 55-1520-240-23

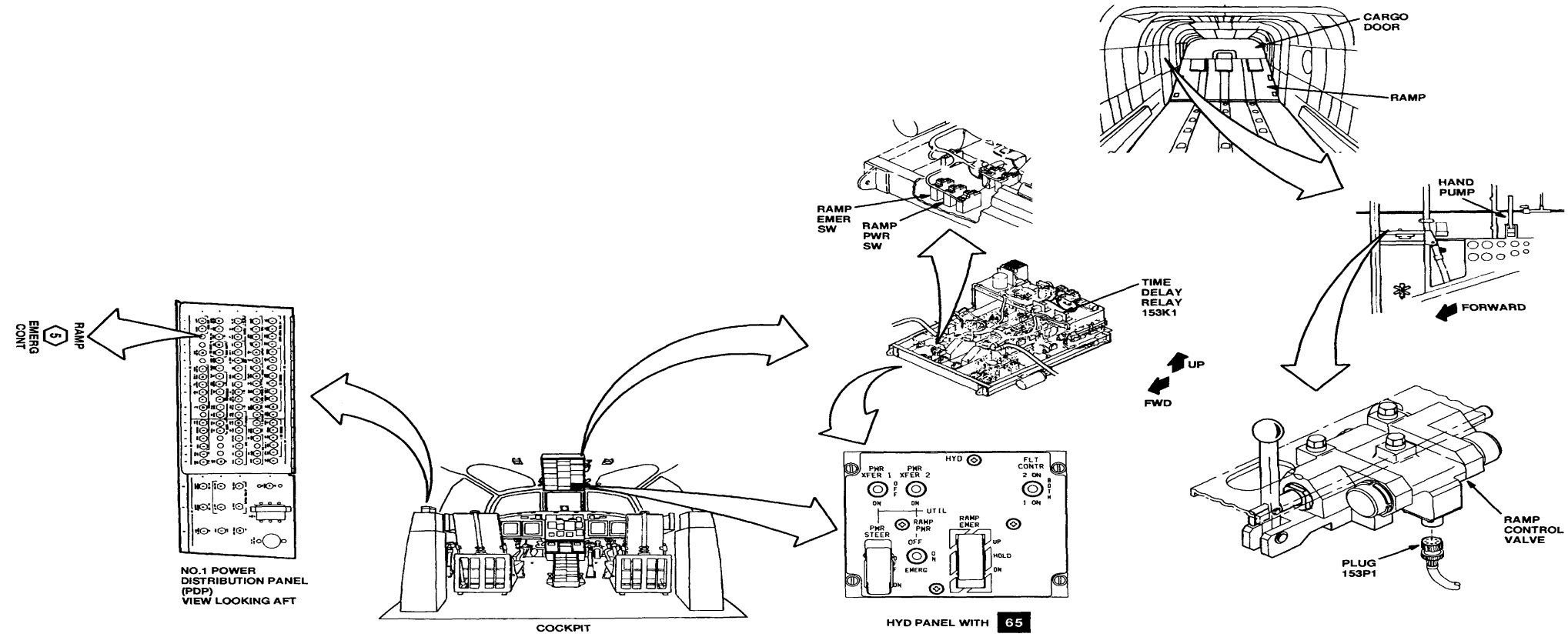
**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

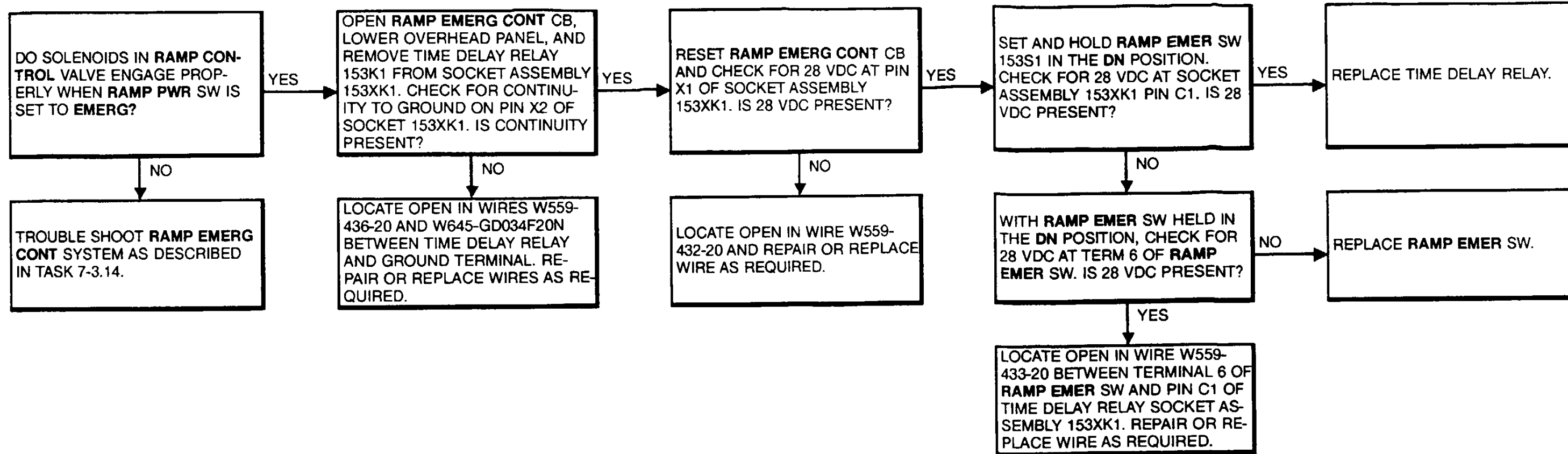
**Equipment Condition:**  
TM 55-1520240-23:  
Electrical Power On  
Hydraulic Power Off

**Materials:**

None



A43076

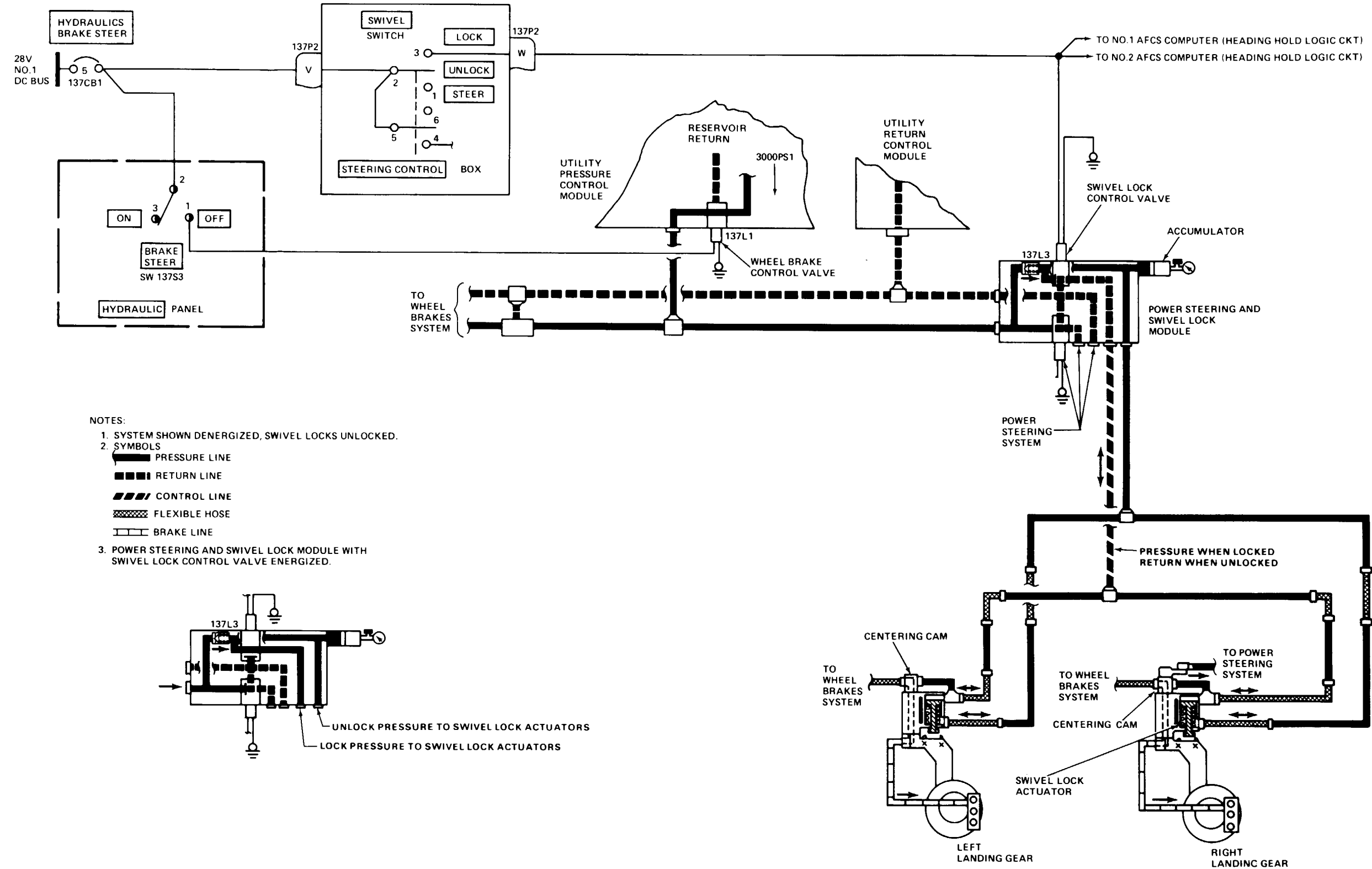




## **7-4 SWIVEL LOCKS SYSTEM**

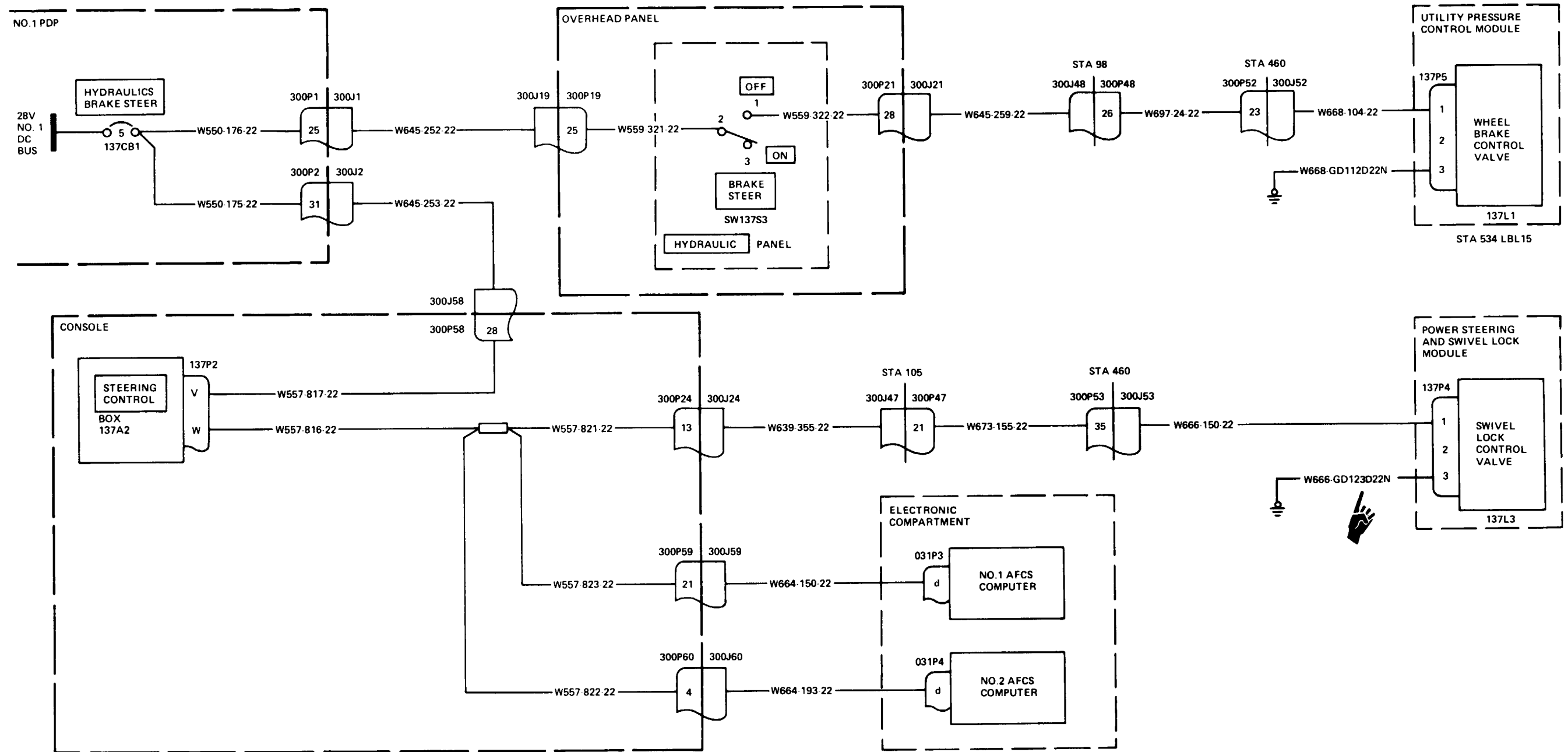
7-4 SWIVEL LOCKS SYSTEM

7-4.1 SWIVEL LOCKS SYSTEM SCHEMATIC



7-4.2 SWIVEL LOCKS SYSTEM WIRING DIAGRAM

7-4.2



INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

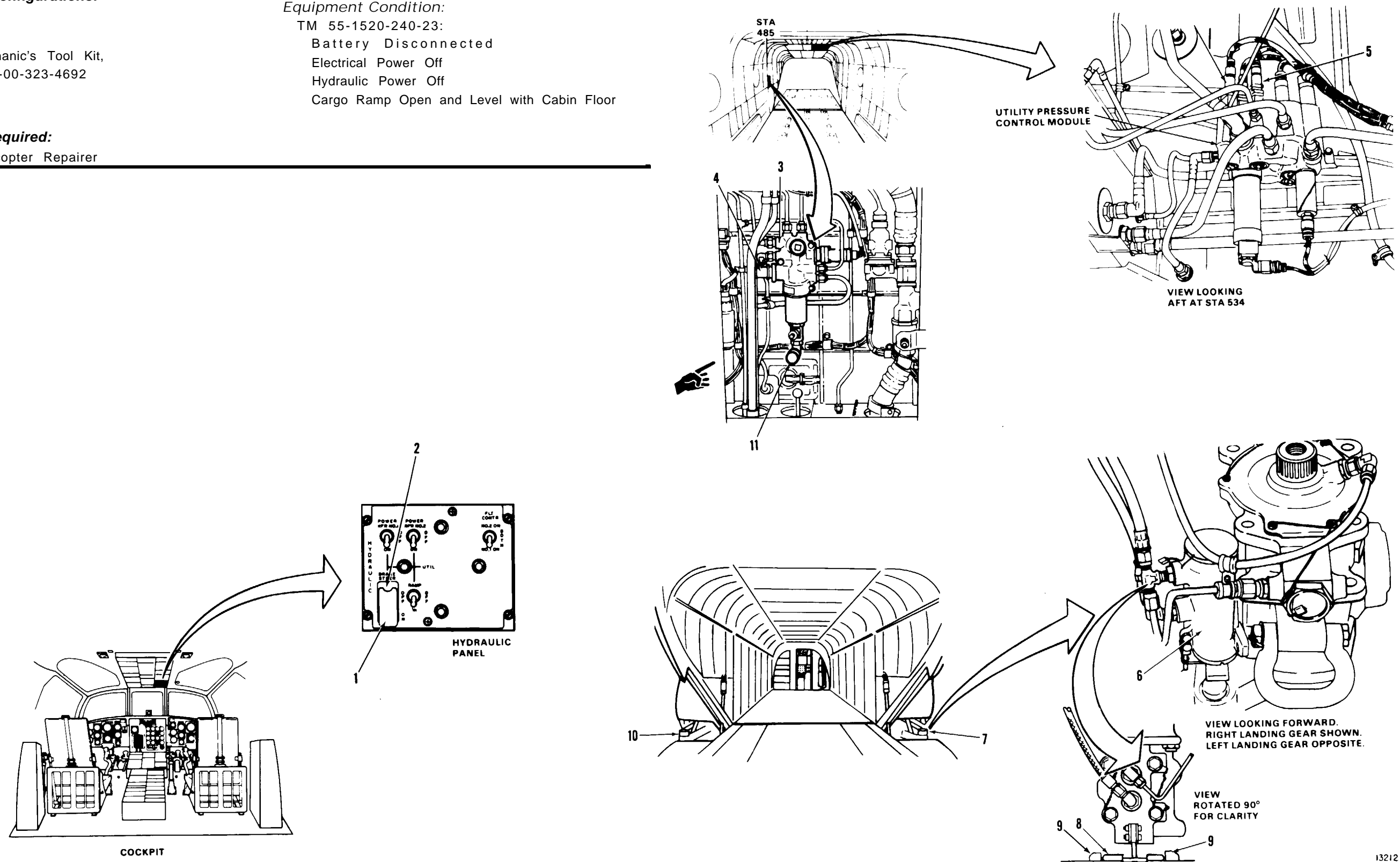
Medium Helicopter Repairer

*References:*

TM 55-1520-240-23

*Equipment Condition:*

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
Cargo Ramp Open and Level with Cabin Floor



**7-4.3 SWIVEL LOCKS SYSTEM VISUAL CHECK (Continued)**

TASK	RESULT
1. Lift switch guard (1). Check BRAKE STEER switch (2).	If switch guard (1) or switch (2) is loose or damaged, tighten or replace it as required.
2. Close switch guard (1).	
3. Check power steering and swivel lock module (3).	If module (3) is loose or damaged, tighten or replace it as required. If tubing to module is loose or damaged, tighten or replace it as required.
4. Check swivel lock control valve (4).	If valve (4) is loose or damaged, tighten or replace it as required. If wiring or electrical connector to valve is damaged, repair or replace it as required.
5. Check wheel brake control valve (5).	If valve (5) is loose or damaged, tighten or replace it as required. If wiring or electrical connector to valve is damaged, repair or replace it as required.
6. Check swivel lock actuator (6) on right, landing gear (7).	If actuator (6) is loose or damaged, tighten or replace it as required. If hydraulic hose or tube to actuator is loose or damaged, tighten or replace it as required. If swivel lock actuator rod (8) is extended between swivel lock pins (9), landing gear-locked, replace actuator (6).
7. Repeat step 6. for actuator (6) on left landing gear (10).	
8. Check power steering module accumulator gage (11) for pressure indication.	Accumulator gage (11) should indicate 3,000 psi or utility hydraulic system pressure as indicated on maintenance panel. If pressure is not correct, check accumulator precharge; service if necessary and pressurize to 3,000 psi. If power steering module does not maintain pressure, go to task 7-5.9.

FOLLOW-ON MAINTENANCE:  
None

**7-4.4 SWIVEL LOCKS SYSTEM OPERATIONAL CHECK**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

None

**Materials:**

None

**Personnel Required**

- Medium Helicopter Repairer
- Aircraft Electrician

**References:**

TM 55-1520-240-23

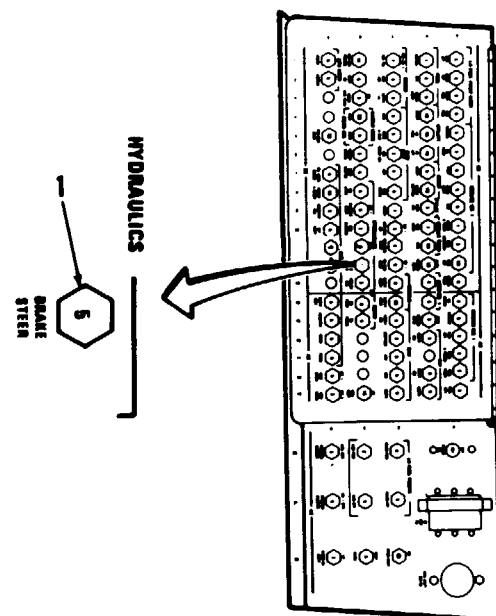
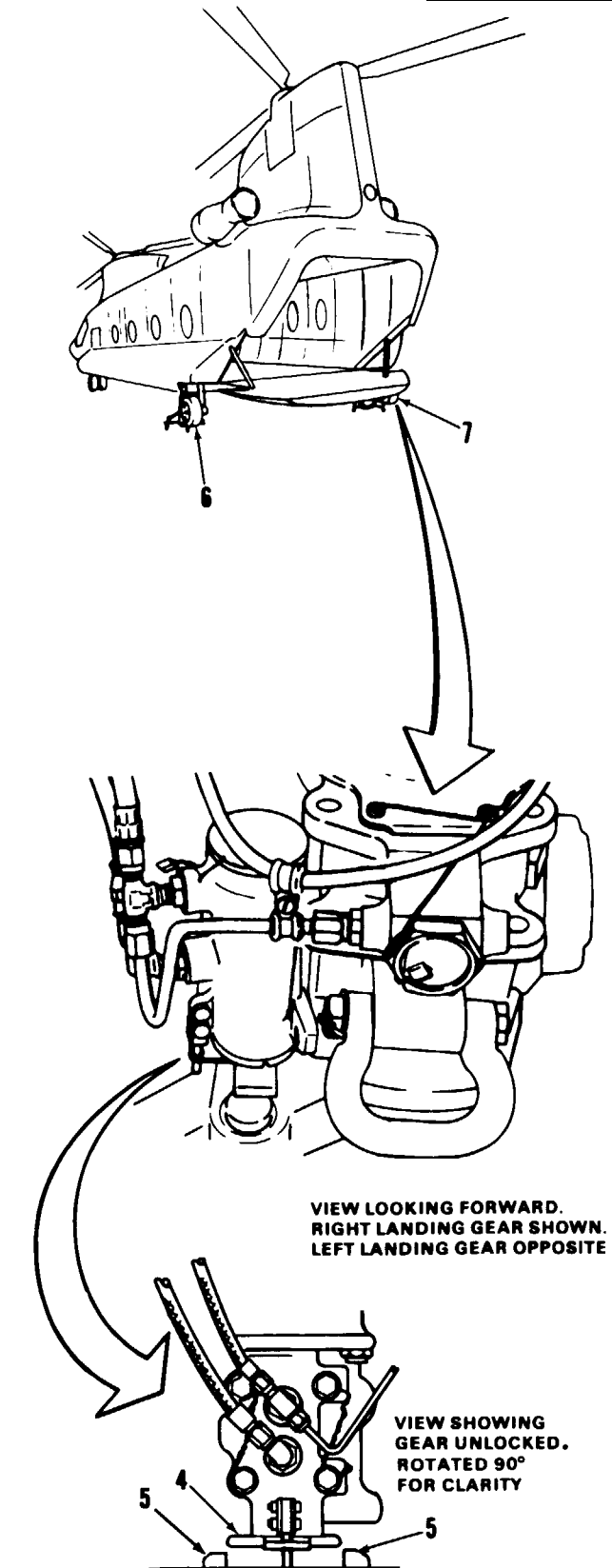
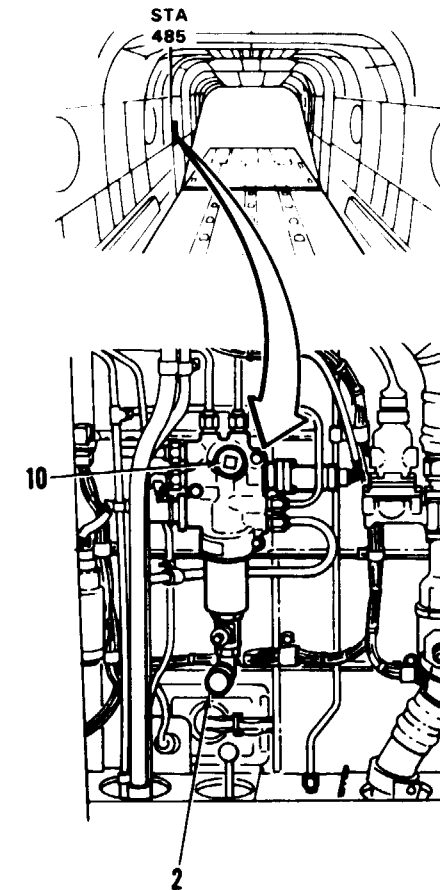
**Equipment Condition:**

- TM 55-1520-240-23:
- Helicopter Jacked at Both Aft Landing Gear
- Both Aft Landing Gear Positioned to Trail Aft (Neutral Position)
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Visual Check of Swivel Locks System Performed (Task 7-4.3)

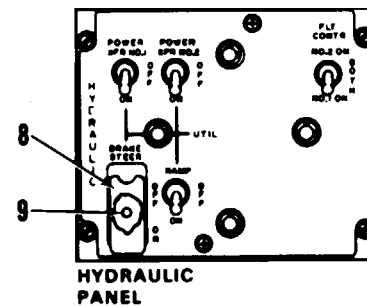
**General Safety Instructions:**

**WARNING**

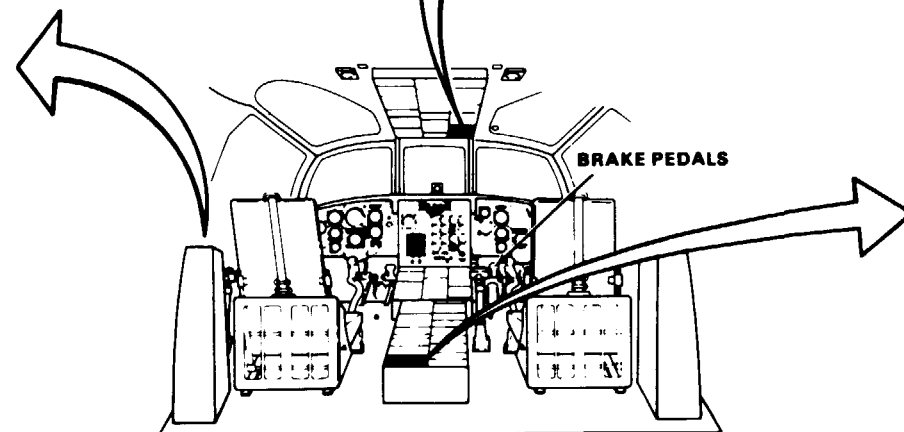
Personnel working around aft landing gear must be careful. Sudden wheel movement to swivel locked position can cause injury. Keep fingers clear of swivel lock mechanism.



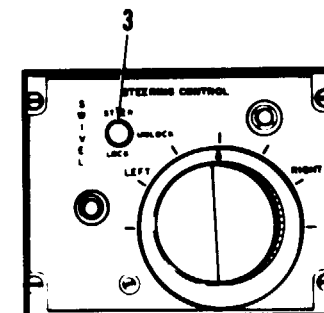
NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



HYDRAULIC PANEL



BRAKE PEDALS



STEERING CONTROL BOX

**7-4.4 SWIVEL LOCKS SYSTEM OPERATIONAL CHECK (Continued)**

TASK	RESULT
1. Check that HYDRAULIC BRAKE STEER circuit breaker (1) is closed.	If BRAKE STEER circuit breaker (1) is open, close it. If it opens again, go to task 7-4.5.
2. Check accumulator gage (2).	Gage (2) shall indicate at least <u>3,000 psi</u> . If it does not, service accumulator.
3. Set SWIVEL switch (3) to LOCK.	Swivel lock actuator rods (4) shall extend between swivel lock pins (5) on each aft landing gear. If either landing gear is not locked, go to task 7-4.6.
4. Set SWIVEL switch (3) to UNLOCK.	Both swivel lock actuator rods (4) shall retract and unlock right and left aft landing gears. If both gears remain locked, replace STEERING CONTROL box. If only one gear remains locked, replace swivel lock actuator on that landing gear.
5. Manually turn left aft landing gear wheel (6) clockwise <u>180 degrees</u> and release it.	Landing gear wheel (6) shall remain where positioned.
6. Set SWIVEL switch (3) to LOCK.	Left gear wheel (6) shall turn to neutral (trail aft) position. Both swivel lock actuator rods (4) shall extend between swivel lock pins (5) on each aft landing gear. If wheel does not turn or turns but does not reach neutral position, repair or replace swivel housing and spindle.
7. Set SWIVEL switch (3) to UNLOCK.	Both swivel lock actuator rods (4) shall retract and unlock right and left landing gear.
8. Manually turn left aft landing gear wheel (6) counterclockwise <u>180 degrees</u> and release it.	Landing gear wheel (6) shall remain where positioned.
9. Set SWIVEL switch (2) to LOCK.	Left gear wheel (6) shall turn to neutral (trail aft) position, Both swivel lock actuator rods (4) shall extend between swivel lock pins (5) on each aft landing gear. If wheel does not turn or turns but does not reach neutral position, repair or replace swivel housing and spindle.
10. Repeat steps 4 through 9 for right aft landing gear wheel (7).	

TASK	RESULT
11. Lift switch guard (8). Set BRAKE STEER switch (9) to OFF. Cycle SWIVEL switch (3) three times from LOCK to UNLOCK to LOCK.	Both swivel lock actuator rods (4) shall retract and unlock right and left landing gear. If both gear remain locked, go to task 7-4.7.
<b>NOTE</b>	
When swivel lock actuator rods retract, this indicates that swivel locks, power steering, and wheel brakes are isolated from utility system.	
12. Set BRAKE STEER switch (9) to ON then back to OFF.	Both swivel lock actuator rods (4) shall extend between swivel lock pins (5) on each aft landing gear.
13. Pump pilot's brake pedals three times. Check accumulator gage (2).	Gage (2) indication shall remain steady. If indication decreases, replace check valve (10).
14. Set BRAKE STEER switch (9) to ON. Close switch guard (8).	

**FOLLOW-ON MAINTENANCE**

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Aft Landing Gear Lowered and Jacks Removed

**END OF TASK**

**7-4.5 BRAKE STEER CIRCUIT BREAKER DOES NOT STAY CLOSED**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

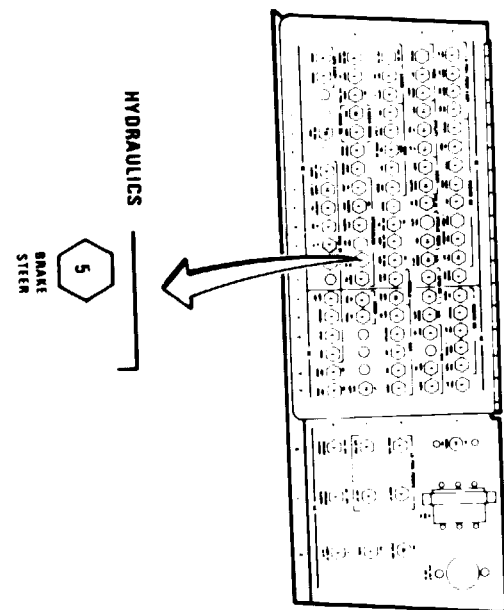
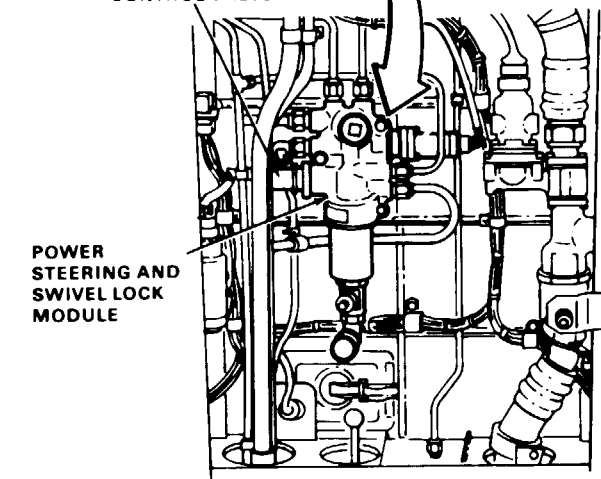
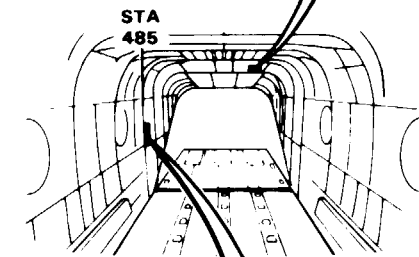
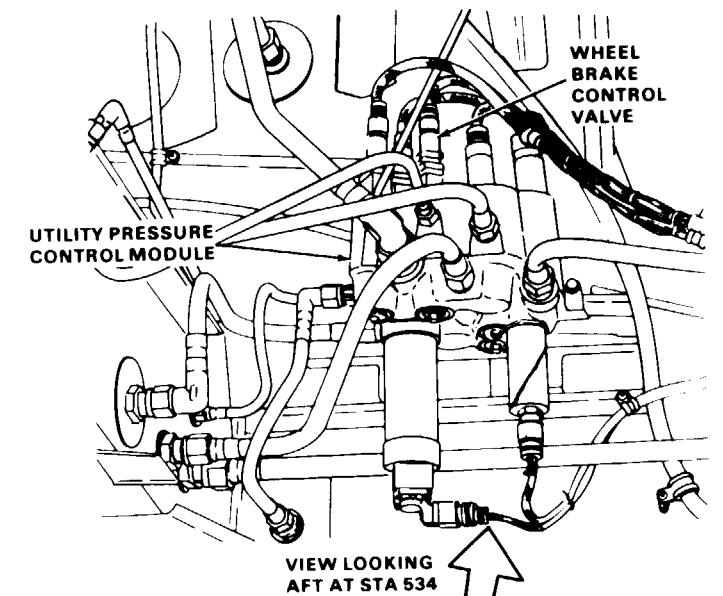
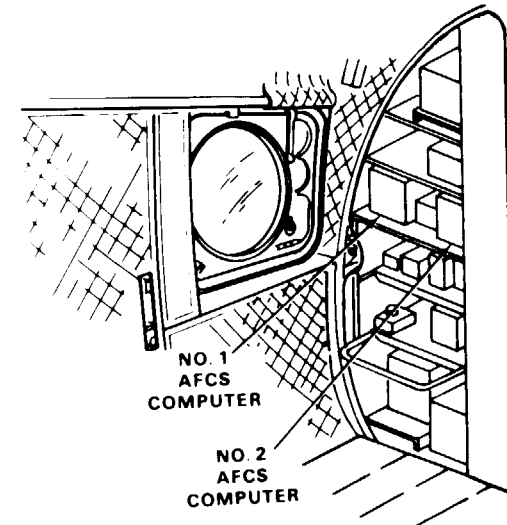
68F10 Aircraft Electrician  
68F20 Aircraft Electrician

**References:**

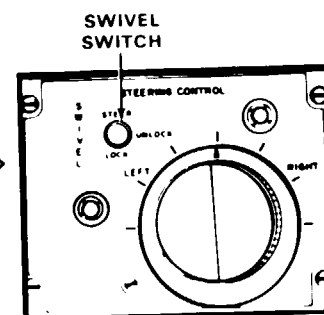
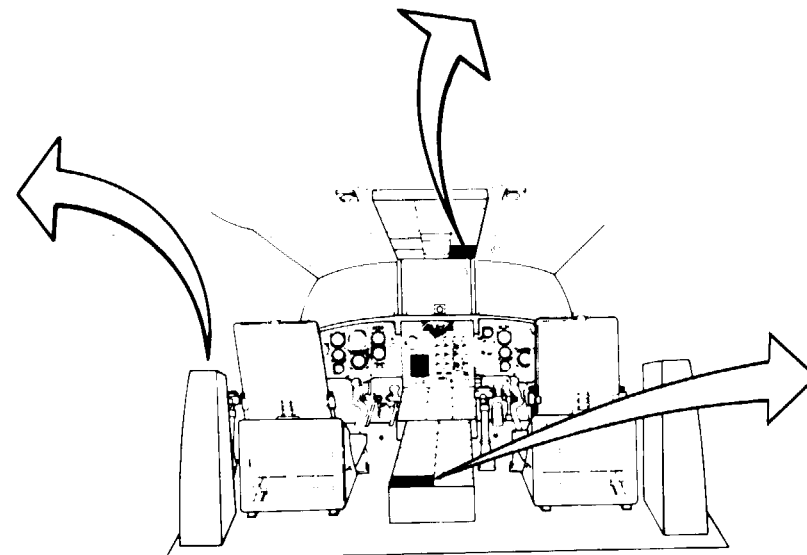
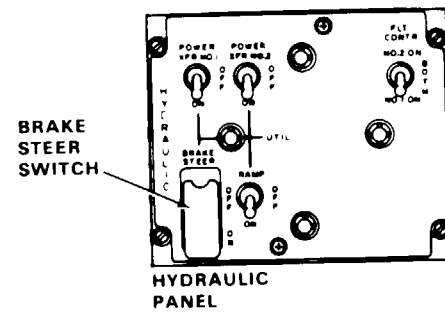
TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



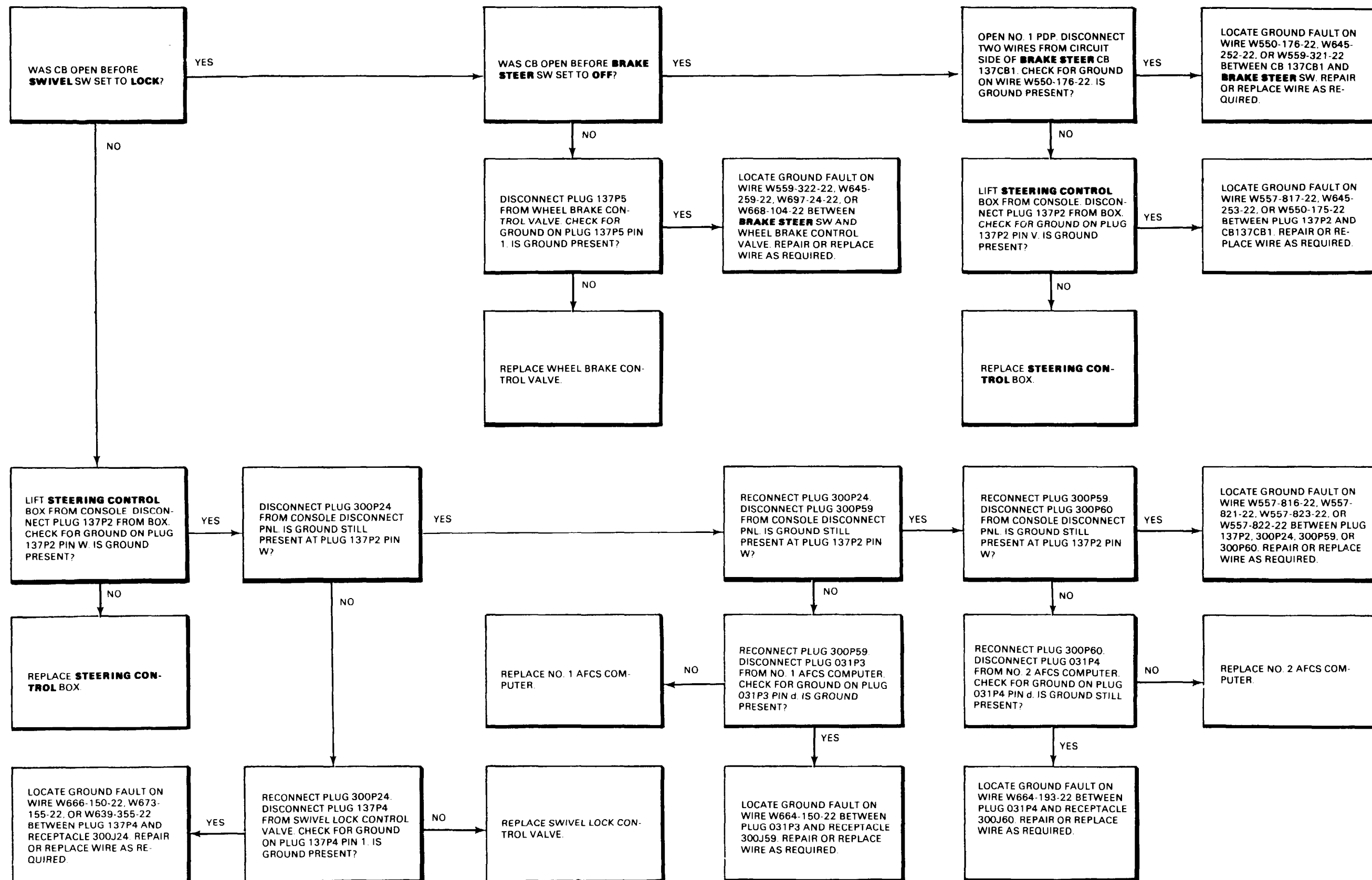
NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT





7-4.5 BRAKE STEER CIRCUIT BREAKER DOES NOT STAY CLOSED  
(Continued)

7-4.5



END OF TASK

7-4.6 LEFT, RIGHT, OR BOTH AFT LANDING GEAR NOT LOCKED

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

- 67U10 Medium Helicopter Repairer
- 68F20 Aircraft Electrician

**References:**

TM 55-1520-240-23

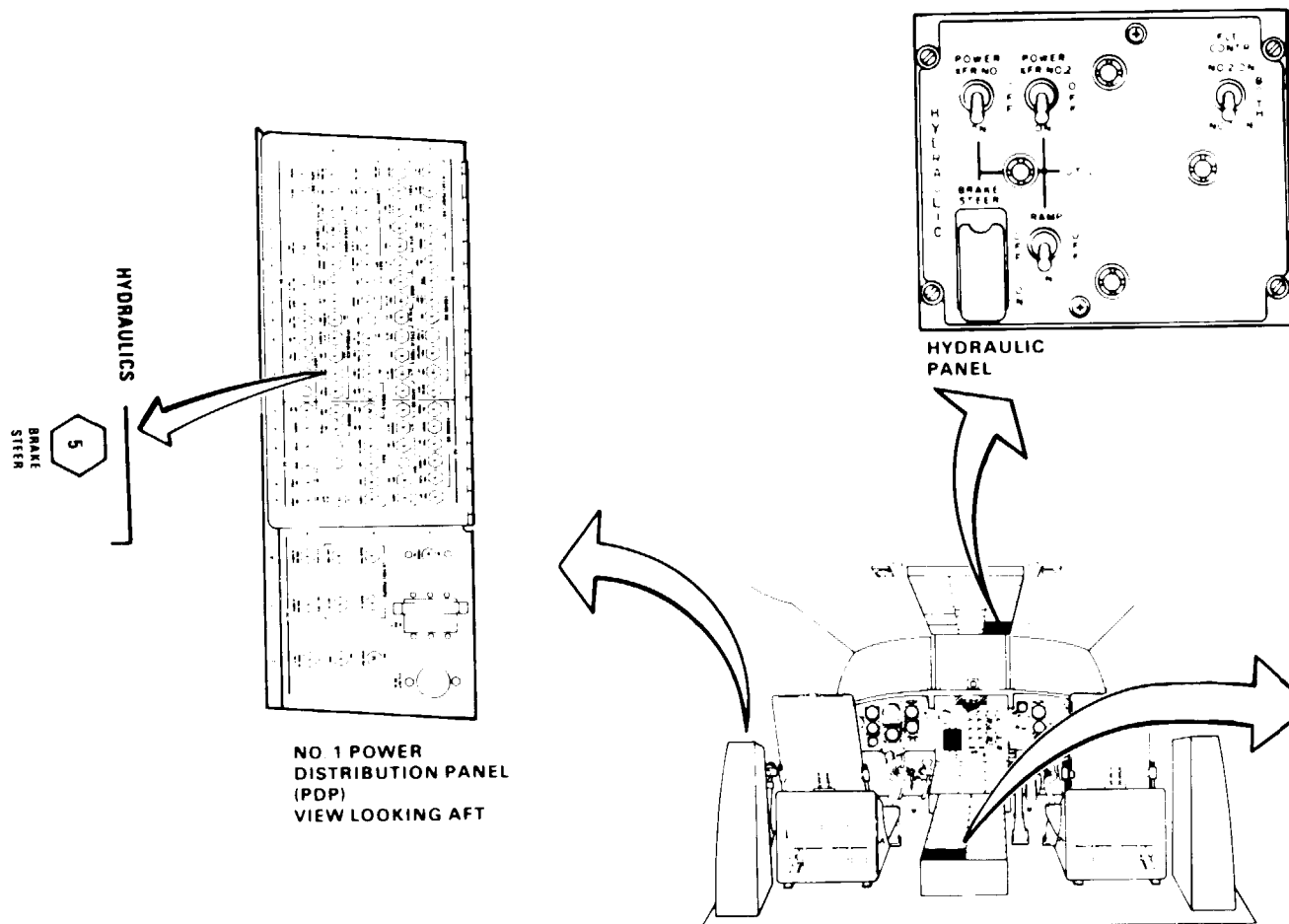
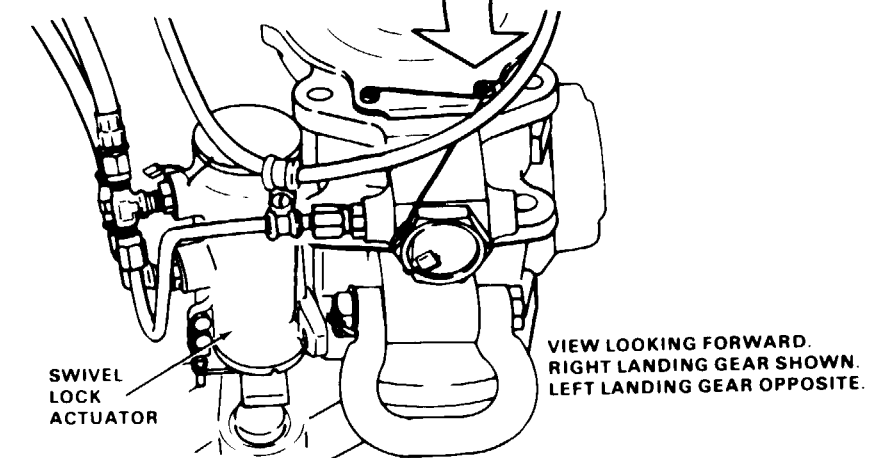
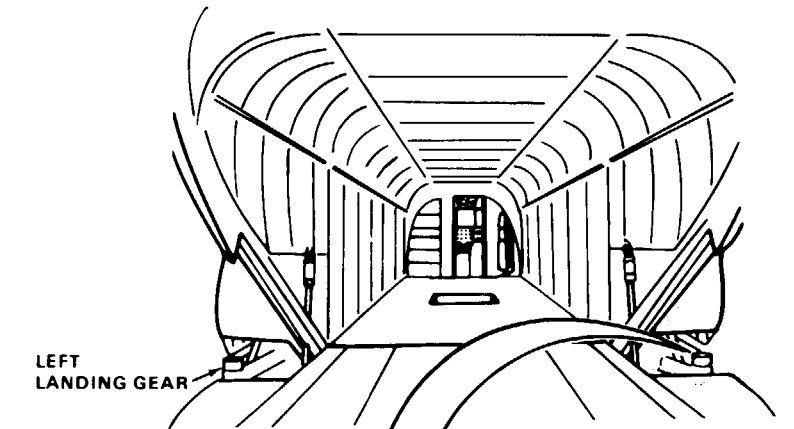
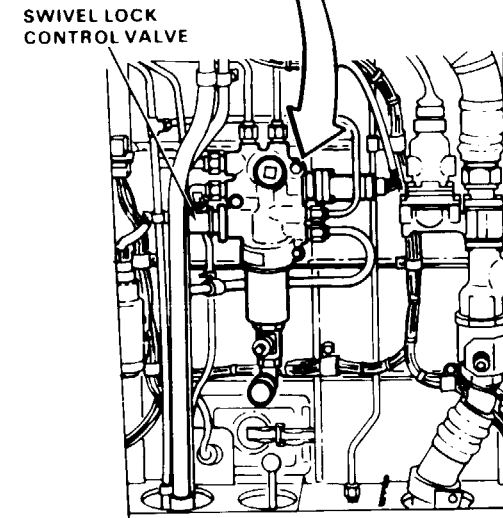
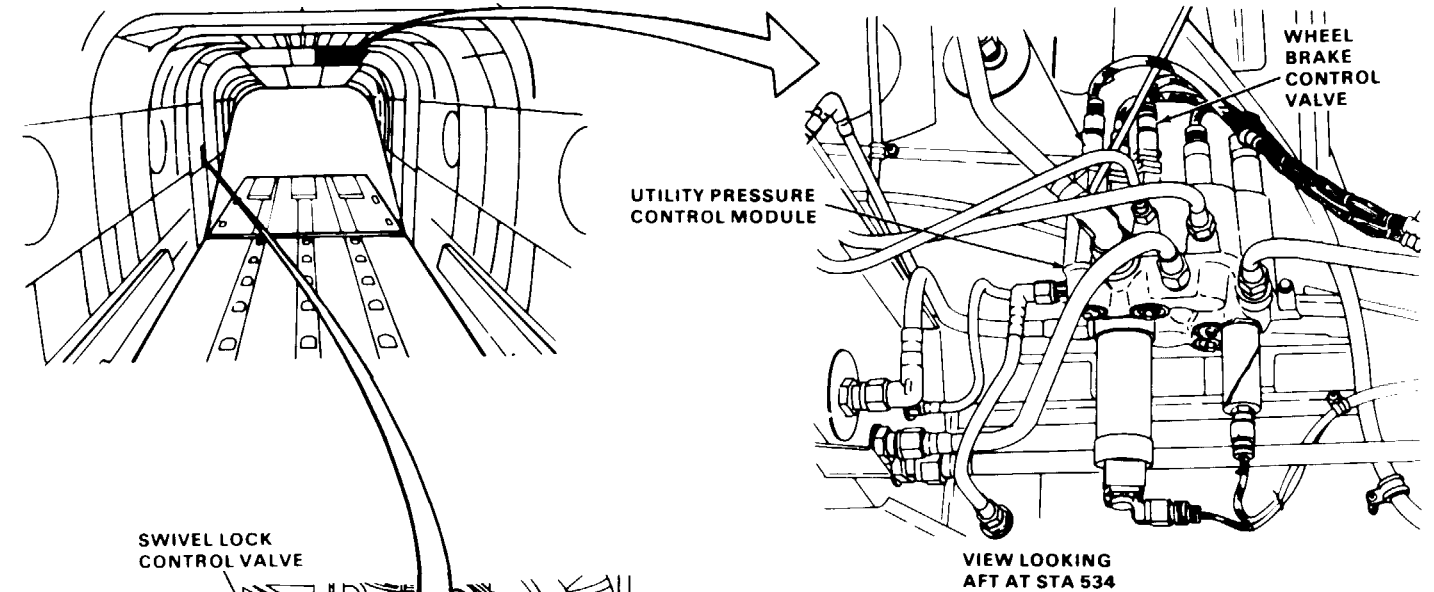
**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On

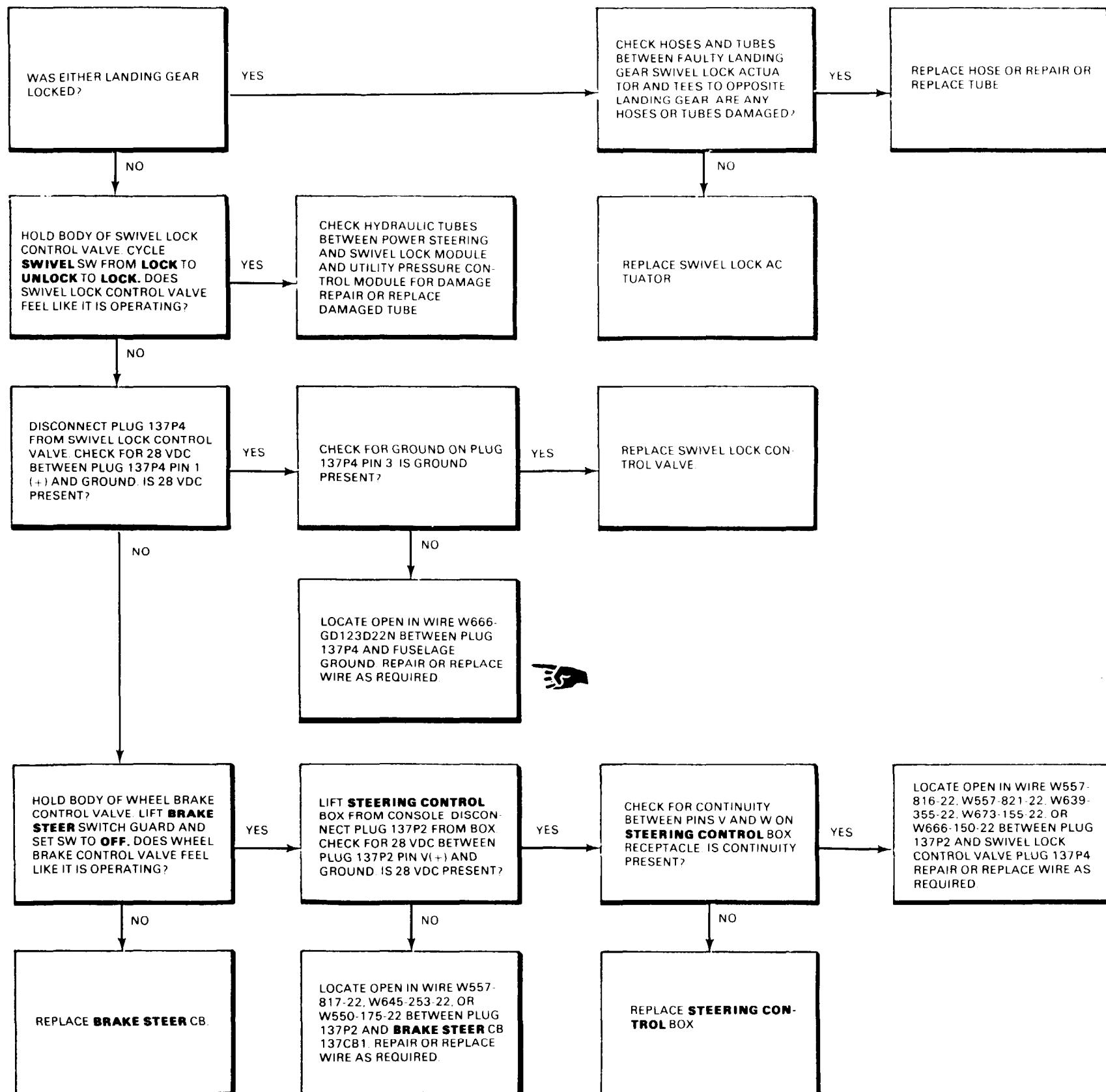
**General Safety Instructions:**

**WARNING**

Personnel working around aft landing gear must be careful. Keep fingers clear of swivel lock mechanism.



7-4.6 LEFT, RIGHT, OR BOTH AFT LANDING GEAR NOT LOCKED  
(Continued)



END OF TASK

**7-4.7 SWIVEL LOCKS, POWER STEERING, AND WHEEL BRAKES CANNOT BE ISOLATED FROM UTILITY SYSTEM**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter

**Materials:**

None

**Personnel Required:**

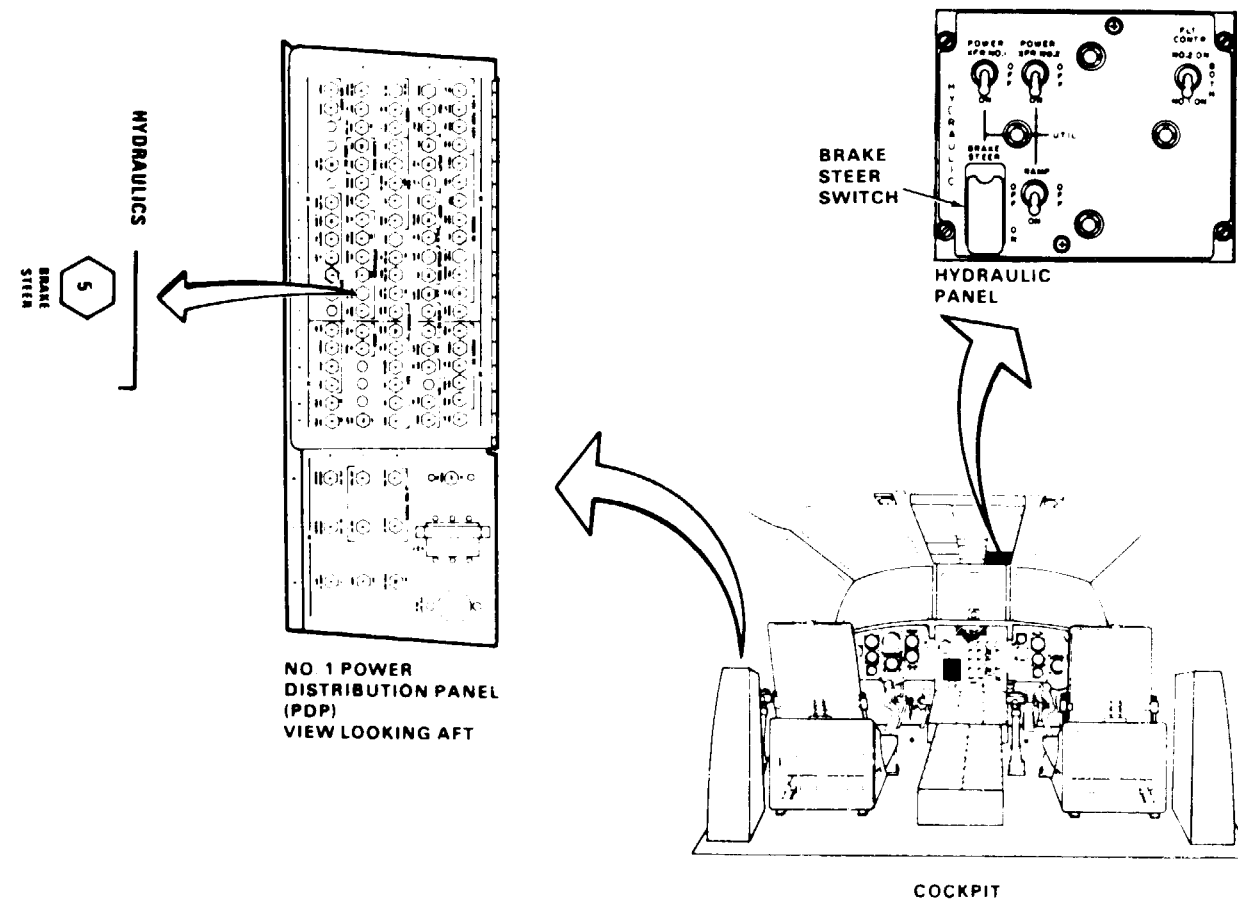
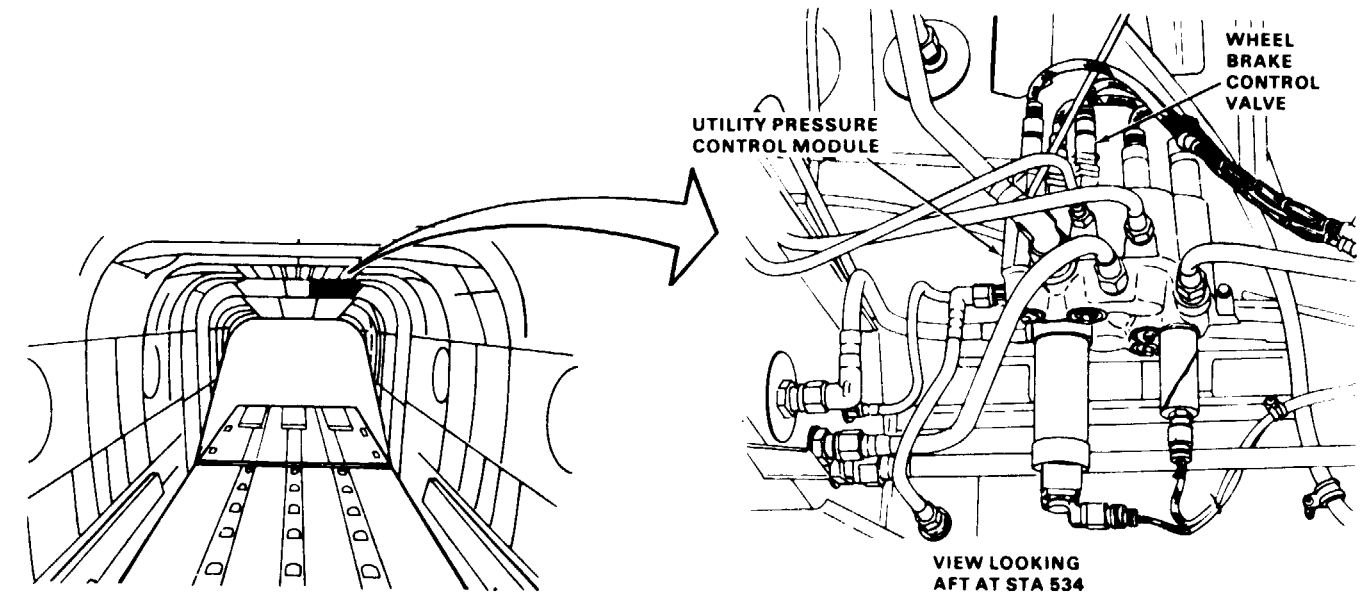
68F20 Aircraft Electrician

**References:**

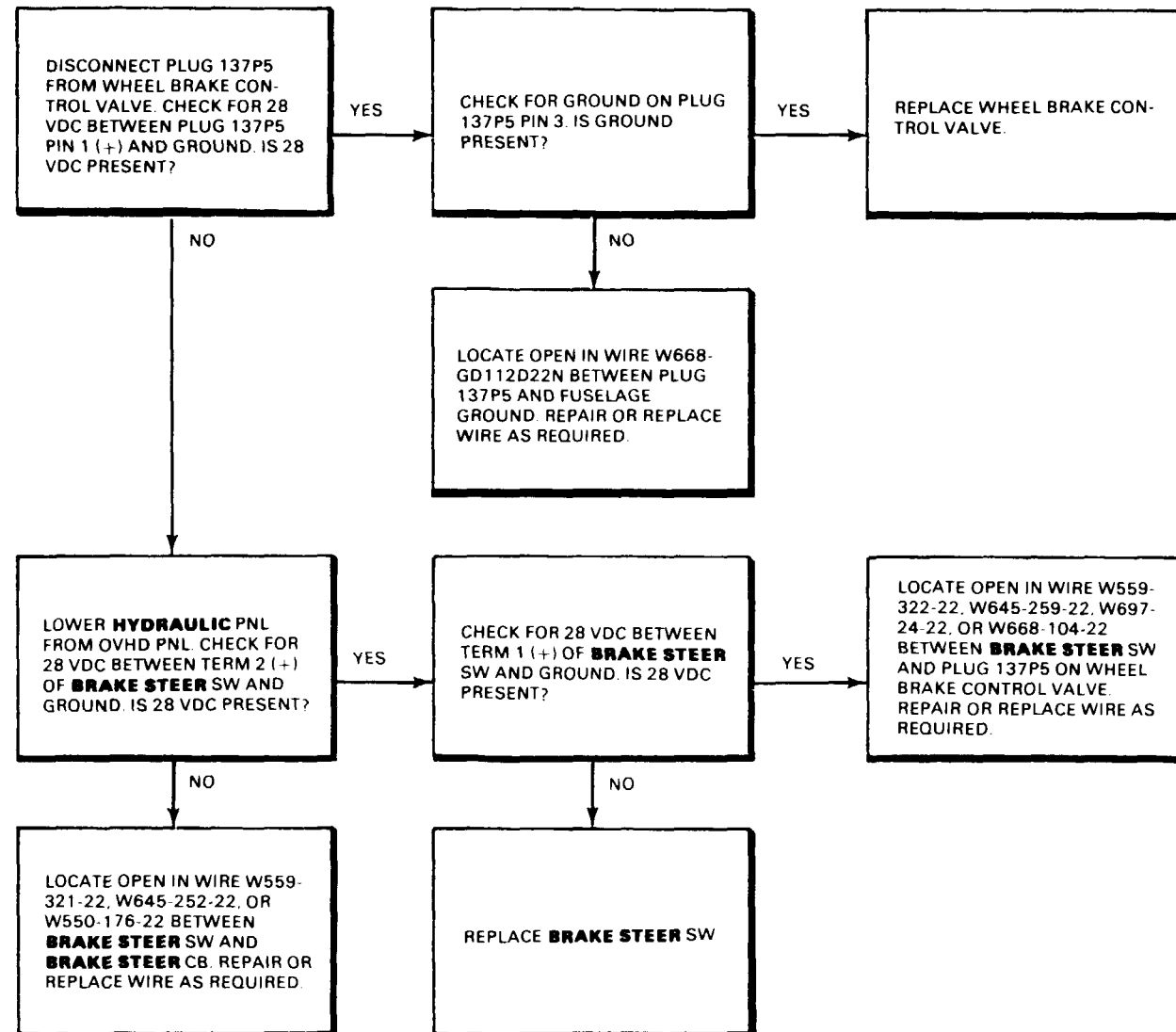
TM 55-1520-240-23

**Equipment Condition:**

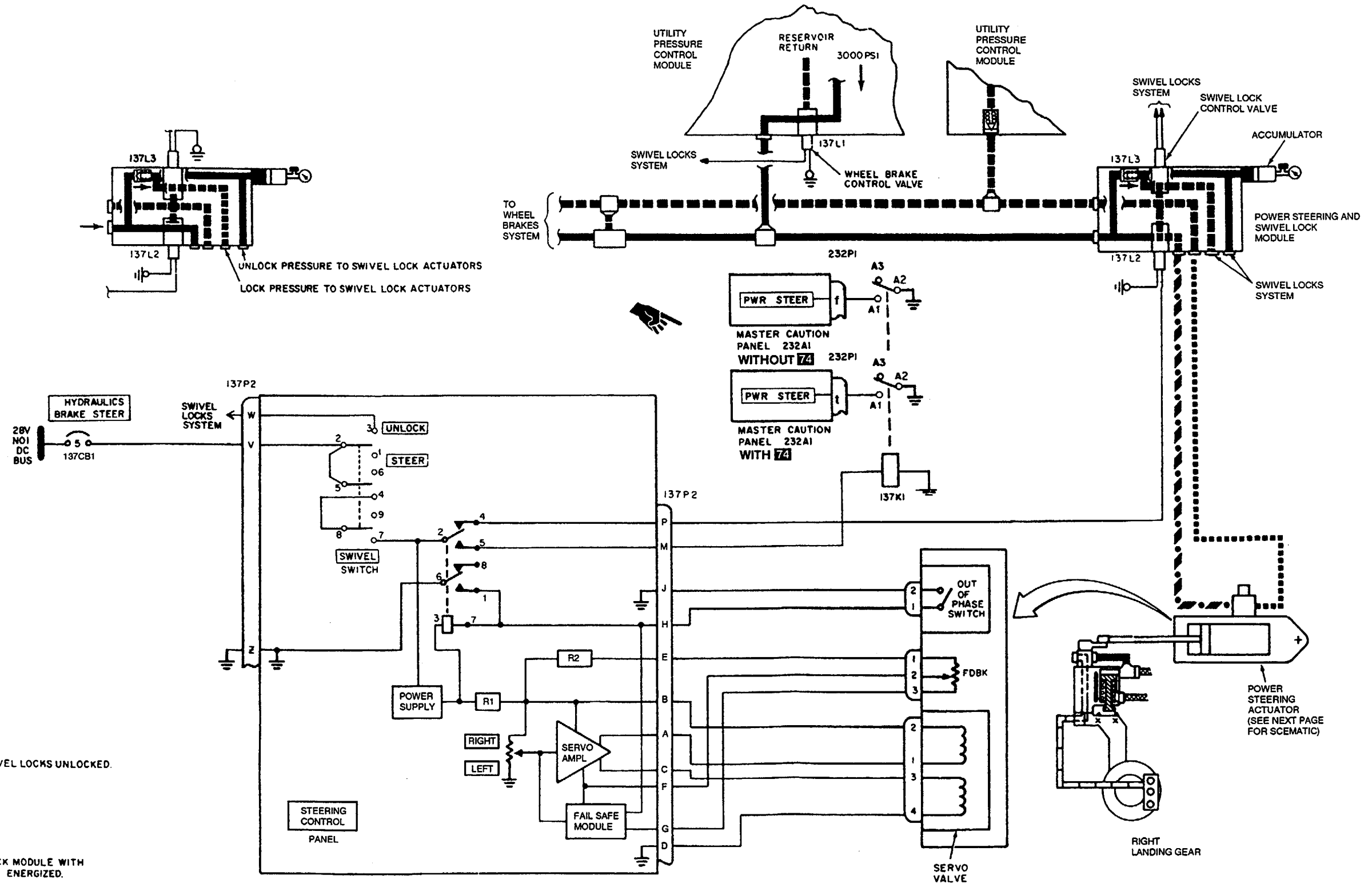
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



7-4.7 SWIVEL LOCKS, POWER STEERING, AND WHEEL BRAKES  
 CANNOT BE ISOLATED FROM UTILITY SYSTEM  
 (Continued)

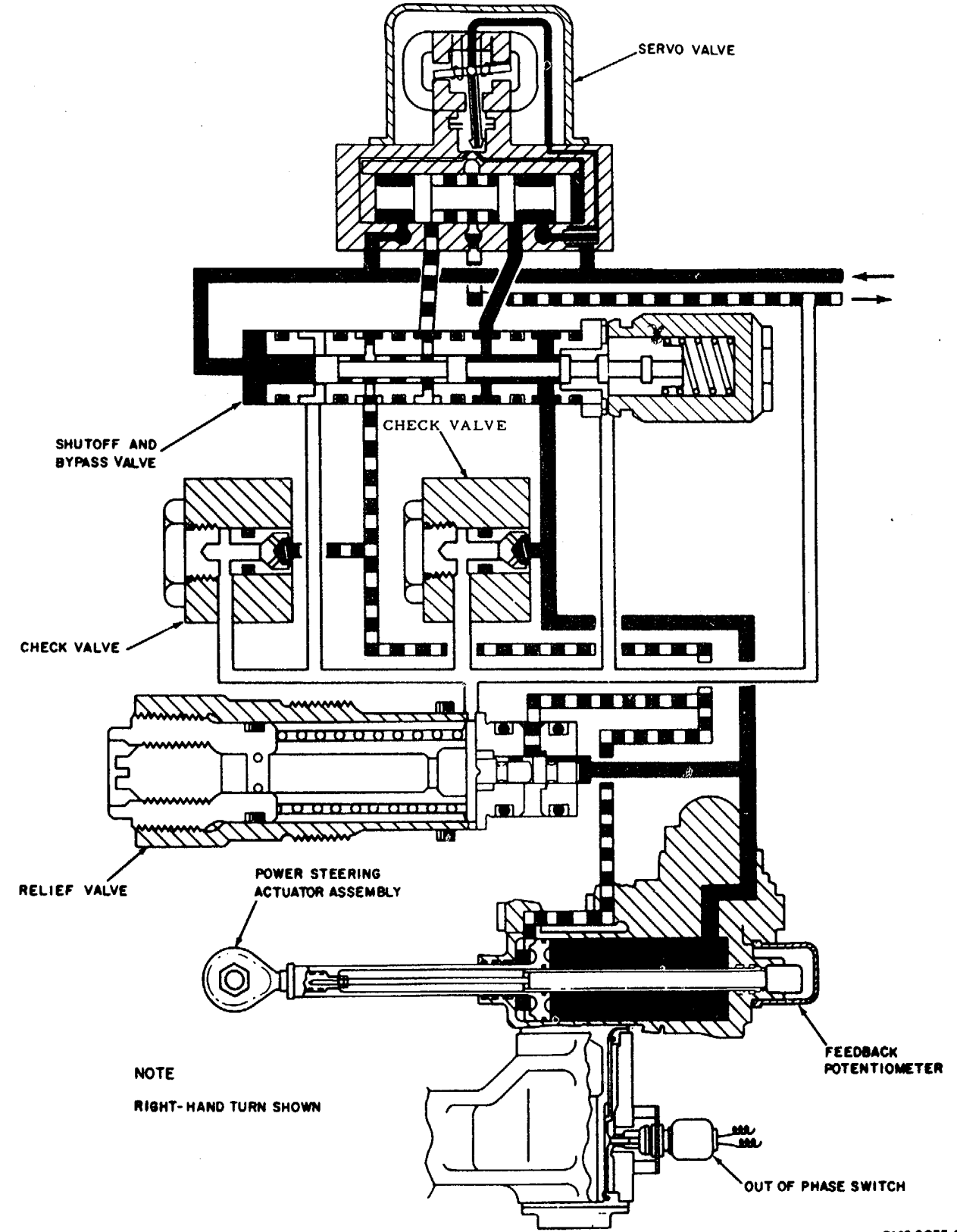
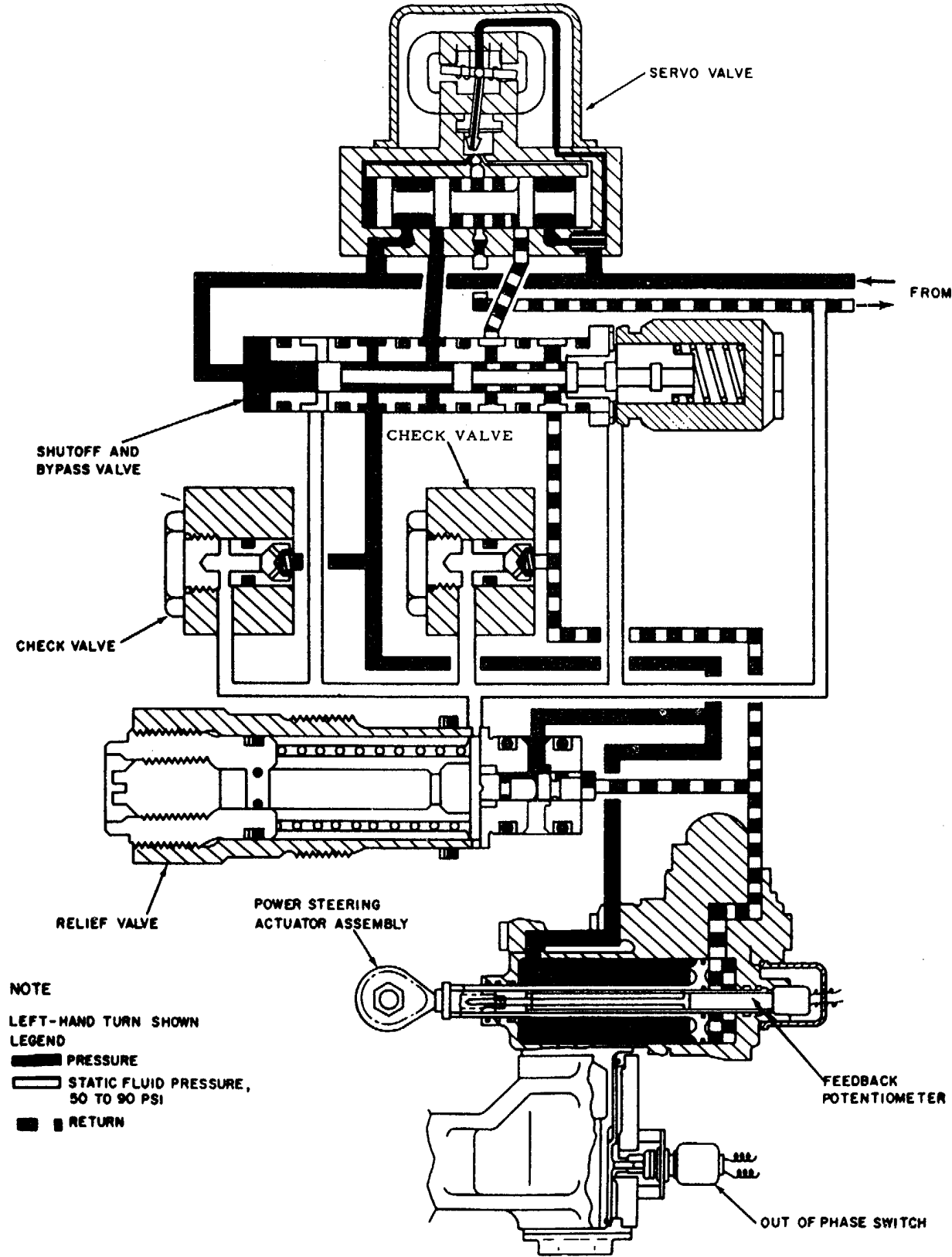


**7-5 POWER STEERING SYSTEM**



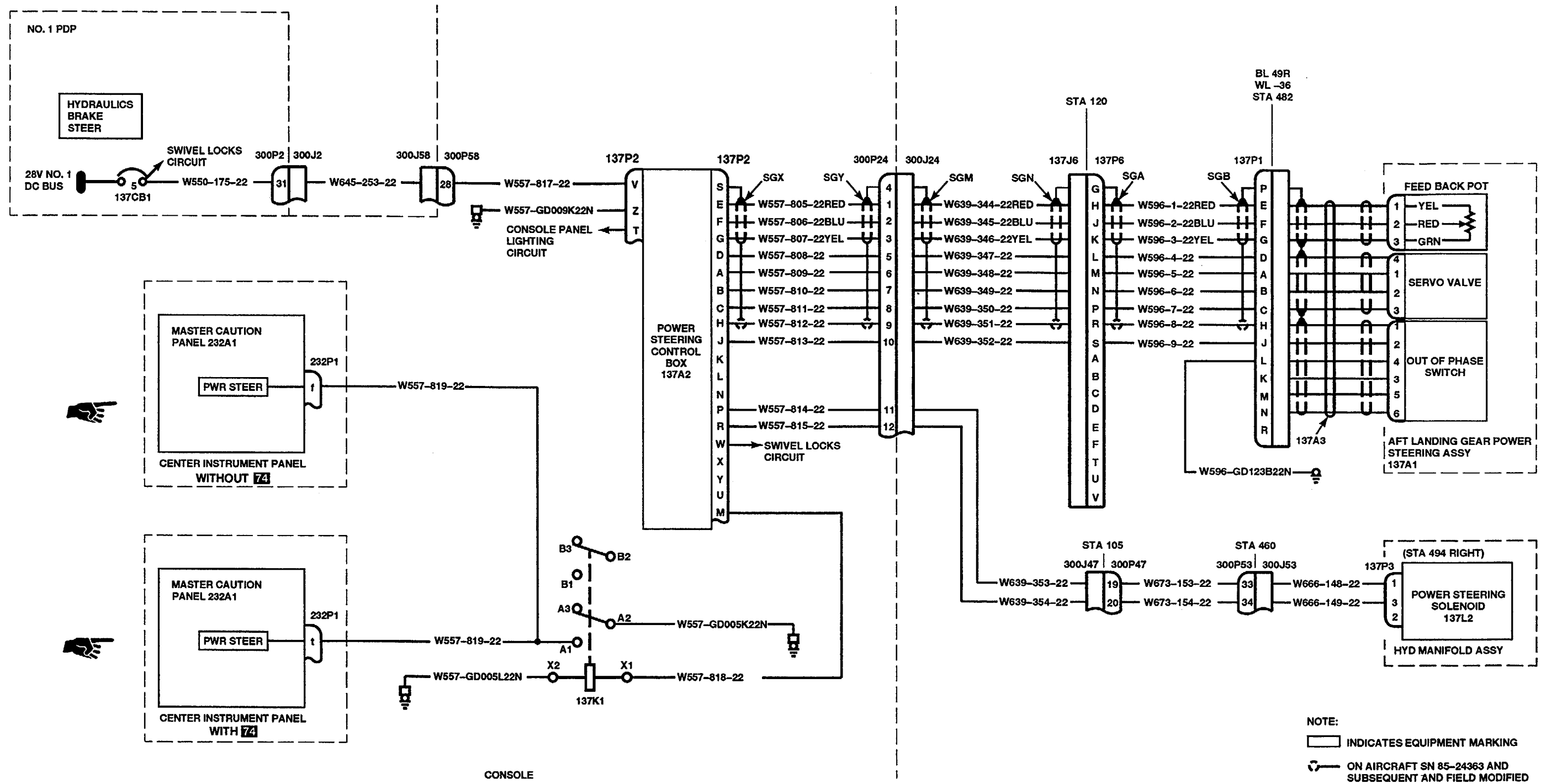
- NOTES:
1. SYSTEM SHOWN DENERGIZED, SWIVEL LOCKS UNLOCKED.
  2. SYMBOLS
    - PRESSURE LINE
    - ..... RETURN LINE
    - FLEXIBLE HOSE
    - //// STEER PRESSURE LINE
  3. POWER STEERING AND SWIVEL LOCK MODULE WITH POWER STEERING CONTROL VALVE ENERGIZED.

A65365





7-5.2 POWER STEERING SYSTEM WIRING DIAGRAM



NOTE:  
 [Symbol] INDICATES EQUIPMENT MARKING  
 [Symbol] ON AIRCRAFT SN 85-24363 AND SUBSEQUENT AND FIELD MODIFIED AIRCRAFT, SHIELDED WIRE M27500-22TGIT15 IS INSTALLED

A65366

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

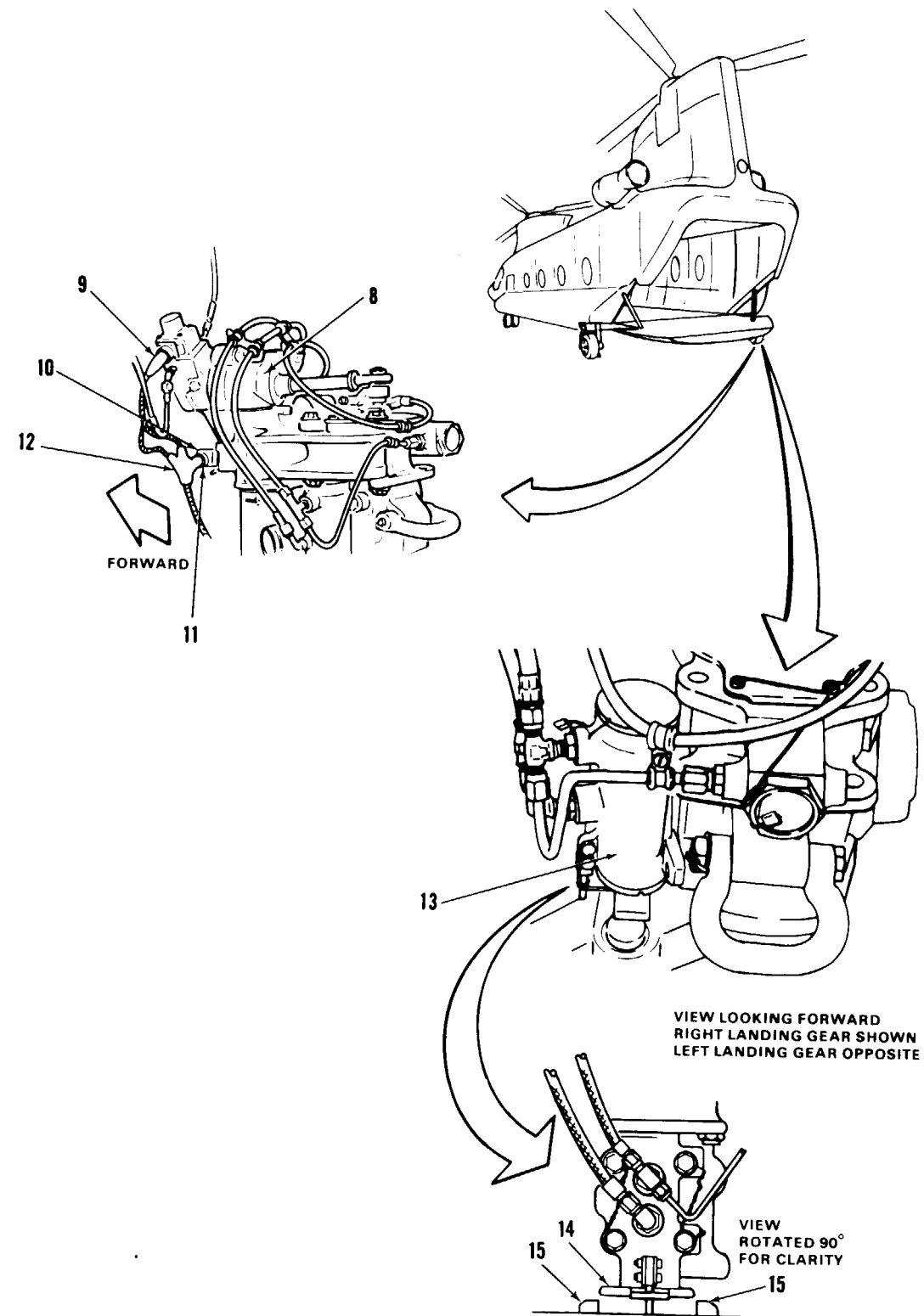
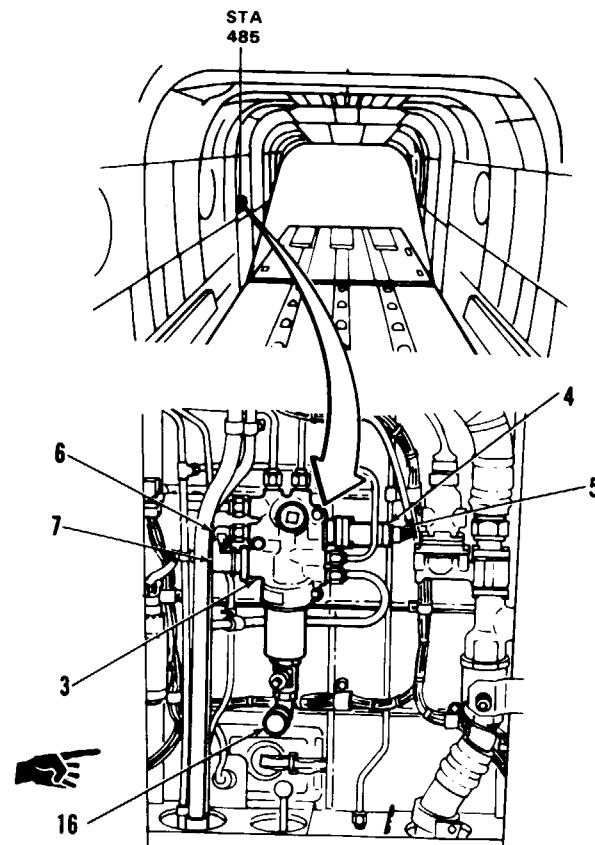
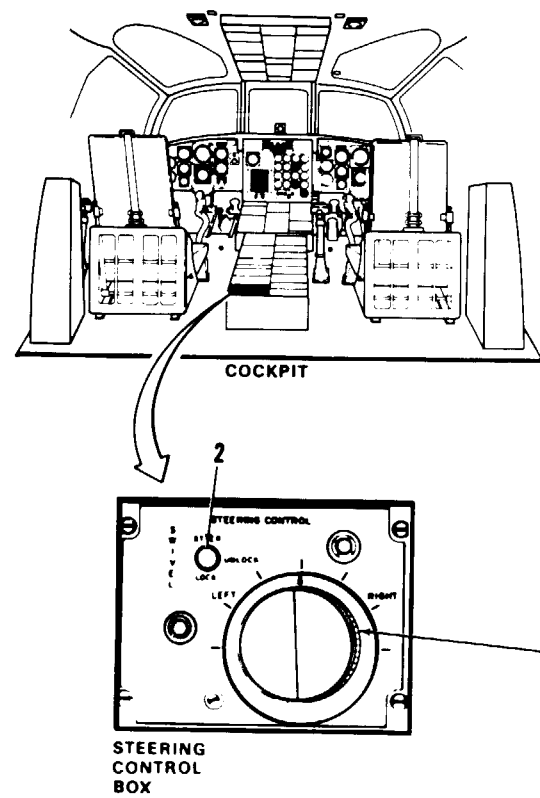
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Aft Right Landing Gear Access Panel Open



TASK	RESULT
1. <b>Check STEERING CONTROL knob (1).</b>	If knob (1) is loose or broken, tighten or replace it as required.  If knob (1) is binding or does not return to center, replace steering control box.
2. <b>Check SWIVEL switch (2).</b>	If switch (2) is loose or damaged, tighten switch or replace box as required.
3. <b>Check power steering swivel lock module (3).</b>	If module (3) is loose or damaged, tighten or replace fault components as required.  If hydraulic tubes to module are loose or damaged, tighten or repair them as required.
4. <b>Check power steering control valve (4).</b>	If valve (4) is loose or damaged, tighten or replace it as required.  If connector (5) is loose or damaged, tighten or replace it as required. If wires to connector are damaged, repair or replace them as required.
5. <b>Check swivel lock control valve (6).</b>	If valve (6) is loose or damaged, tighten or replace it as required.  If connector (7) is loose or damaged, tighten or replace it as required. If wires to connector are damaged, repair or replace them as required.
6. <b>Check power steering assembly (8).</b>	If assembly (8) is loose or damaged, tighten or replace it as required.  If hydraulic tubes to assembly are loose or damaged, tighten or replace them as required.  If connector (9) is loose or damaged, tighten or replace it as required.

TASK	RESULT
7. <b>Check out-of-phase switch (10).</b>	If switch (10) is loose or damaged, tighten or replace it as required. If connector (11) is loose or damaged, tighten or replace it as required. If harness (12) is damaged, repair or replace it as required.
8. <b>Check swivel lock actuator (13).</b>	If actuator (13) is loose or damaged, tighten or replace it as required. If swivel lock actuator rod (14) is extended between swivel lock pins (15) (landing gear-locked), replace actuator (13).
9. <b>Repeat step 8 for actuator (13) on left landing gear.</b>	
10. <b>Check power steering module accumulator gage (16) for pressure indication.</b>	Accumulator gage (16) should indicate 3,000 psi or utility hydraulic system pressure as indicated on maintenance panel. If pressure is not correct, check accumulator precharge; service if necessary and pressurize to 3,000 psi. If power steering module does not maintain pressure, go to task 7-5.9.

**FOLLOW-ON MAINTENANCE:**  
Close Right Aft Landing Gear Access Panel

7-5.4 POWER STEERING SYSTEM OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations:  
All

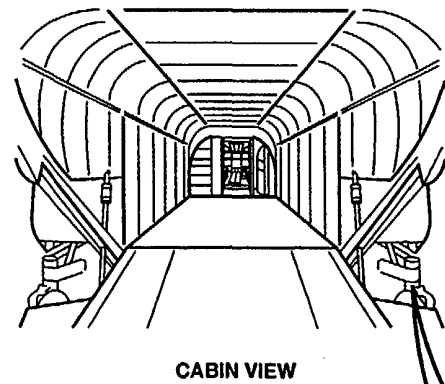
Tools:  
Aircraft Jack  
Measuring Tape

Materials:  
None

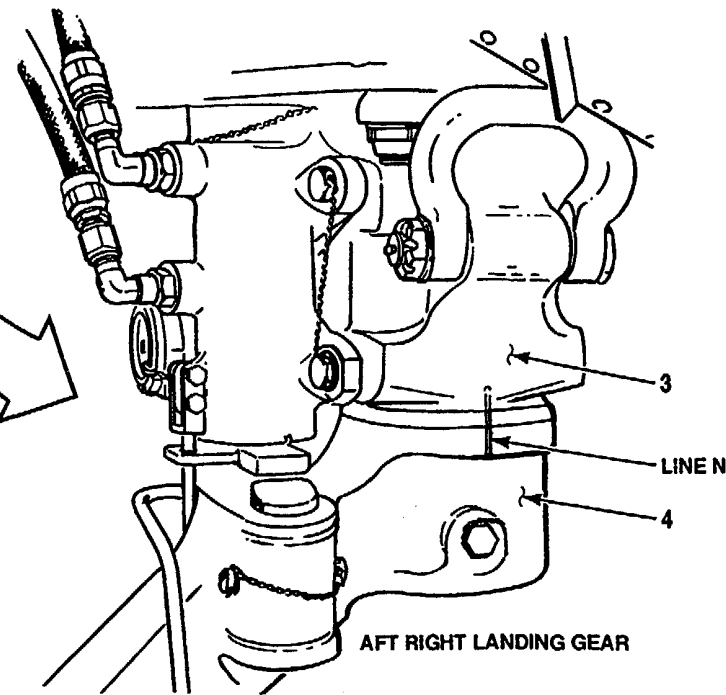
Personnel Required:  
Medium Helicopter Repairer (2)

References:  
TM 55-1520-240-23

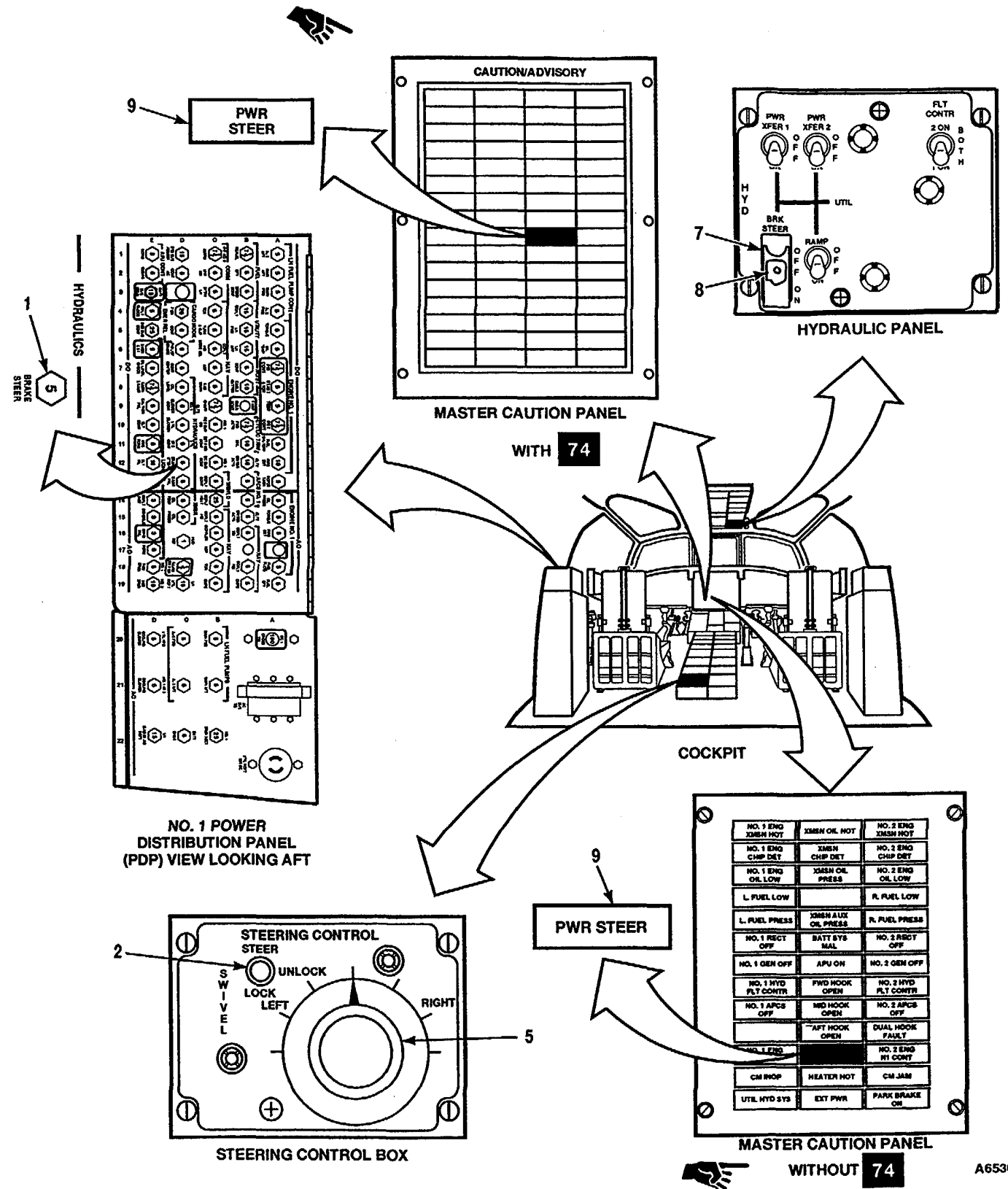
Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aft Right Landing Gear Raised - on Jack  
Visual Check Of Power Steering System Completed  
(Task 7-5.2)



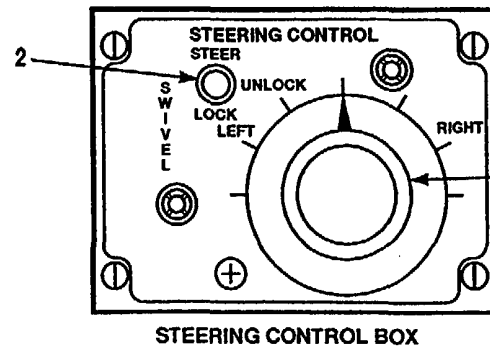
CABIN VIEW



AFT RIGHT LANDING GEAR



NO. 1 POWER DISTRIBUTION PANEL (PDP) VIEW LOOKING AFT



STEERING CONTROL BOX

NO. 1 ENG XMSN HOT	XMSN OIL HOT	NO. 2 ENG XMSN HOT
NO. 1 ENG CHAP DET	XMSN CHAP DET	NO. 2 ENG CHAP DET
NO. 1 ENG OIL LOW	XMSN OIL PRESS	NO. 2 ENG OIL LOW
L. FUEL LOW		R. FUEL LOW
L. FUEL PRESS	XMSN AUX OIL PRESS	R. FUEL PRESS
NO. 1 RECT OFF	BATT SYS MAL	NO. 2 RECT OFF
NO. 1 GEN OFF	APU ON	NO. 2 GEN OFF
NO. 1 HYD FLT CONTR	FWD HOOK OPEN	NO. 2 HYD FLT CONTR
NO. 1 APCB OFF	MD HOOK OPEN	NO. 2 APCB OFF
NO. 1 ENG	AFT HOOK OPEN	DUAL HOOK FAULT
NO. 2 ENG		NO. 2 ENG RT CONT
CM INOP	HEATER HOT	CM JAM
UTIL. HYD SYS	EXT PWR	PARK BRAKE ON

MASTER CAUTION PANEL

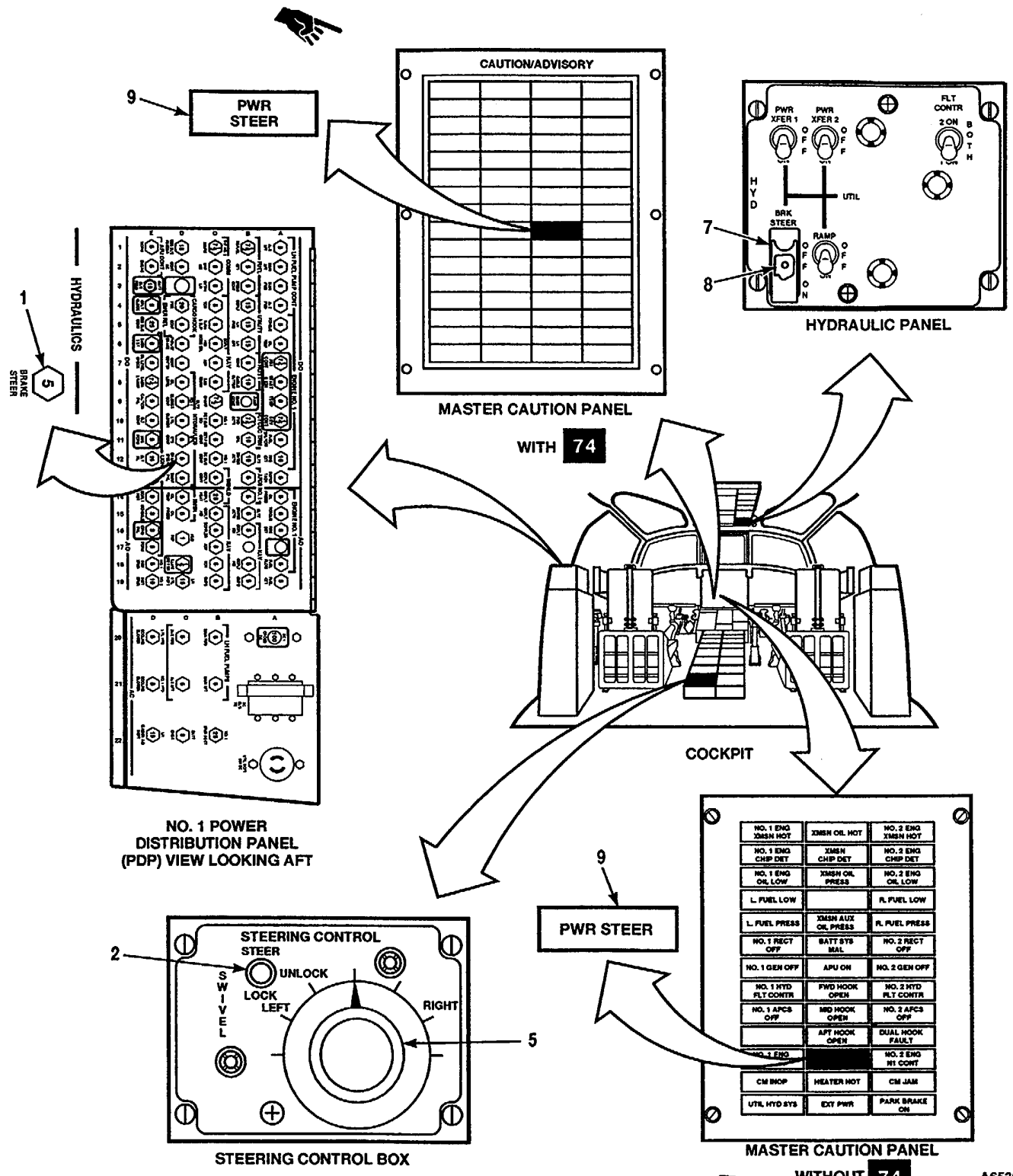
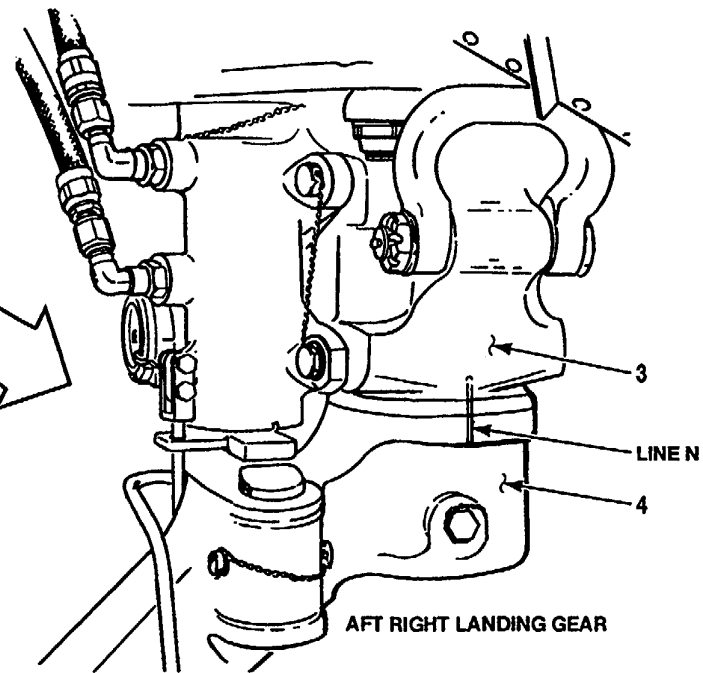
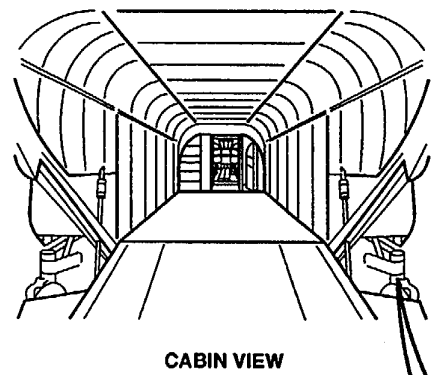
WITHOUT 74

A65367

7-5.4 POWER STEERING SYSTEM OPERATIONAL CHECK (Continued)

7-5.4

TASK	RESULT	TASK	RESULT
<p>1. <b>Check</b> that <b>BRAKE STEER</b> circuit breaker (1) is closed.</p>	<p>If circuit breaker is open, close it. If it opens again, go to task 7-4.5.</p>	<p>7. Maintain hand pressure to the right on wheel. Have helper <b>slowly rotate STEERING CONTROL knob (5) to extreme LEFT position. Measure travel.</b></p>	<p>Wheel shall swivel clockwise until lower line N moves <u>1-15/16 to 2-5/32 inches</u> from upper line N.</p>
<p><b>WARNING</b></p>		<p>8. Have helper slowly <b>return STEERING CONTROL knob (5) to neutral position.</b></p>	<p>If wheel does not move, go to task 7-5.5. If distance between lines is not <u>1-15/16 to 2-5/32 inches</u>, replace STEERING CONTROL box. Refer to TM 55-1520-240-23. Wheel shall return to neutral position. Lower line N shall align within <u>0.06 inch</u> of upper line N. If wheel does not return to neutral, go to task 7-5.6. If lines are not within <u>0.06 inch</u>, adjust STEERING CONTROL box. Refer to TM 55-1520-240-23.</p>
<p><b>Be careful when working near aft right wheel. Sudden wheel movement can cause injury.</b></p>		<p>9. Have helper <b>lift guard (7) and set BRAKE STEER switch (8) to OFF.</b></p>	<p>PWR STEER caution light (9) shall come on when lower line N is <u>2-3/16 to 2-1/2 inches</u> from upper line N.</p>
<p><b>CAUTION</b></p>		<p>10. <b>Set SWIVEL switch (2) from STEER to LOCK to STEER.</b></p>	<p>If caution light (9) comes on too soon or too late, adjust out-of-phase switch (8). Refer to TM 55-1520-240-23.</p>
<p><b>Do not operate power steering system when helicopter is stationary. Damage to equipment can result.</b></p>		<p>11. <b>Manually turn wheel slowly</b> clockwise. Use tape to measure travel.</p>	<p>If caution light (9) does not come on, go to task 7-5.7.</p>
<p>2. <b>Set SWIVEL SWITCH (2) to LOCK.</b></p>	<p>Wheel shall swivel counterclockwise until lower line N moves <u>2-11/16 to 3-3/32 inches</u> from upper line N. If wheel does not move, go to task 7-5.5. If wheel moves but distance between lines is not <u>2-11/16 to 3-3/32 inches</u>, replace STEERING CONTROL box. Refer to TM 55-1520-240-23.</p>	<p>12. <b>Manually return wheel to neutral.</b> Have helper <b>set SWIVEL switch (2) to UNLOCK and then to STEER.</b></p>	<p>PWR STEER caution light (9) shall go out. If not go to task 7-5.8.</p>
<p>3. Using a pencil or tape, <b>mark a vertical line (line N) on the aft right landing gear swivel housing (3) and spindle (4).</b></p>	<p>Wheel shall return to neutral position. Lower line N shall align within <u>0.06 inch</u> of upper line N.</p>	<p>13. <b>Manually turn wheel slowly counterclockwise.</b> Use tape to measure travel.</p>	<p>PWR STEER caution light (9) shall come on when lower line N is <u>3-3/16 to 3-13/16 inches</u> from upper line N. If caution light (9) comes on too soon or too late, adjust wheel-out-of-phase switch (8). Refer to TM 55-1520-240-23.</p>
<p>4. <b>Set SWIVEL switch (2) to STEER.</b></p>	<p>If wheel does not return to neutral, go to task 7-5.6.</p>	<p>14. <b>Manually return wheel to neutral.</b> Have helper <b>set SWIVEL switch (2) to UNLOCK and then to STEER.</b></p>	<p>If caution light (7) does not come on, go to task 7-5.7.</p>
<p><b>NOTE</b></p>		<p>If lines are not within <u>0.06 inch</u>, zero adjust STEERING CONTROL box. Refer to TM 55-1520-240-23.</p>	<p>PWR STEER caution light (9) shall go out. If not go to task 7-5.8.</p>
<p>· <b>Pressure on the aft right wheel simulates ground friction and prevents overtravel into out-of-phase zone.</b></p>			
<p>· <b>All dimensions in inches are measured around housing.</b></p>			
<p>6. Have helper slowly <b>return STEERING CONTROL knob (5) to neutral (center position).</b></p>			



A65367

**7-5.4 POWER STEERING SYSTEM OPERATIONAL CHECK (Continued)**

7-5.4

TASK	RESULT
15. Have helper <b>set BRAKE STEER switch (8) to ON.</b> Close guard (7).	
16. Have helper <b>set SWIVEL switch (2) to UNLOCK. Manually turn wheel slowly counterclockwise 90 degrees. Set SWIVEL switch (2) to STEER.</b>	PWR STEER caution light (9) shall come on. The wheel shall not move. If it does, replace STEERING CONTROL box.
17. <b>Manually return wheel to neutral.</b>	PWR STEER caution light (9) shall stay on. If not replace STEERING CONTROL box. Refer to TM 55-1520-240-23.
18. Have helper <b>turn STEERING CONTROL knob (5) to extreme RIGHT position.</b>	Wheel shall not move. If it does, replace STEERING CONTROL box. Refer to TM 55-1520-240-23.
19. Have helper <b>set SWIVEL switch (2) to LOCK, then STEER.</b>	
20. Have helper <b>turn STEERING CONTROL knob (5) to extreme RIGHT position.</b>	Aft right wheel shall swivel counterclockwise. If not, replace STEERING CONTROL box. Refer to TM 55-1520-240-23.
21. Have helper <b>set SWIVEL switch (2) to UNLOCK. Manually turn wheel slowly clockwise 90 degrees. Set SWIVEL switch (2) to STEER.</b>	PWR STEER caution light (9) shall come on. Wheel shall not move. If it does, replace STEERING CONTROL box.
22. <b>Manually return wheel to neutral.</b>	PWR STEER caution light (9) shall stay on, if not replace STEER CONTROL panel.
23. Have helper <b>turn STEERING CONTROL knob (5) to extreme LEFT position.</b>	Wheel shall not move. If it does, replace STEER CONTROL box. Refer to TM 55-1520-240-23.
24. Have helper <b>set SWIVEL switch (2) to LOCK, then STEER.</b>	PWR STEER caution light (9) shall go out.
25. Have helper <b>turn STEERING CONTROL knob (5) to extreme LEFT position.</b>	Wheel shall swivel clockwise, if not, replace STEERING CONTROL Panel.

FOLLOW-ON MAINTENANCE:

- TM 55-1520-240-23:
- Battery Disconnected
- Electrical Power Off
- Hydraulic Power Off
- Jack at Aft Right Landing Gear Removed
- Aft Right Landing Gear Access Panel Closed.

END OF TASK

**7-5.5 AFT RIGHT WHEEL DOES NOT MOVE WHEN STEERING CONTROL KNOB IS ROTATED IN EITHER DIRECTION**

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Personnel Required:**  
 68F10 Aircraft Electrician  
 68F20 Aircraft Electrician

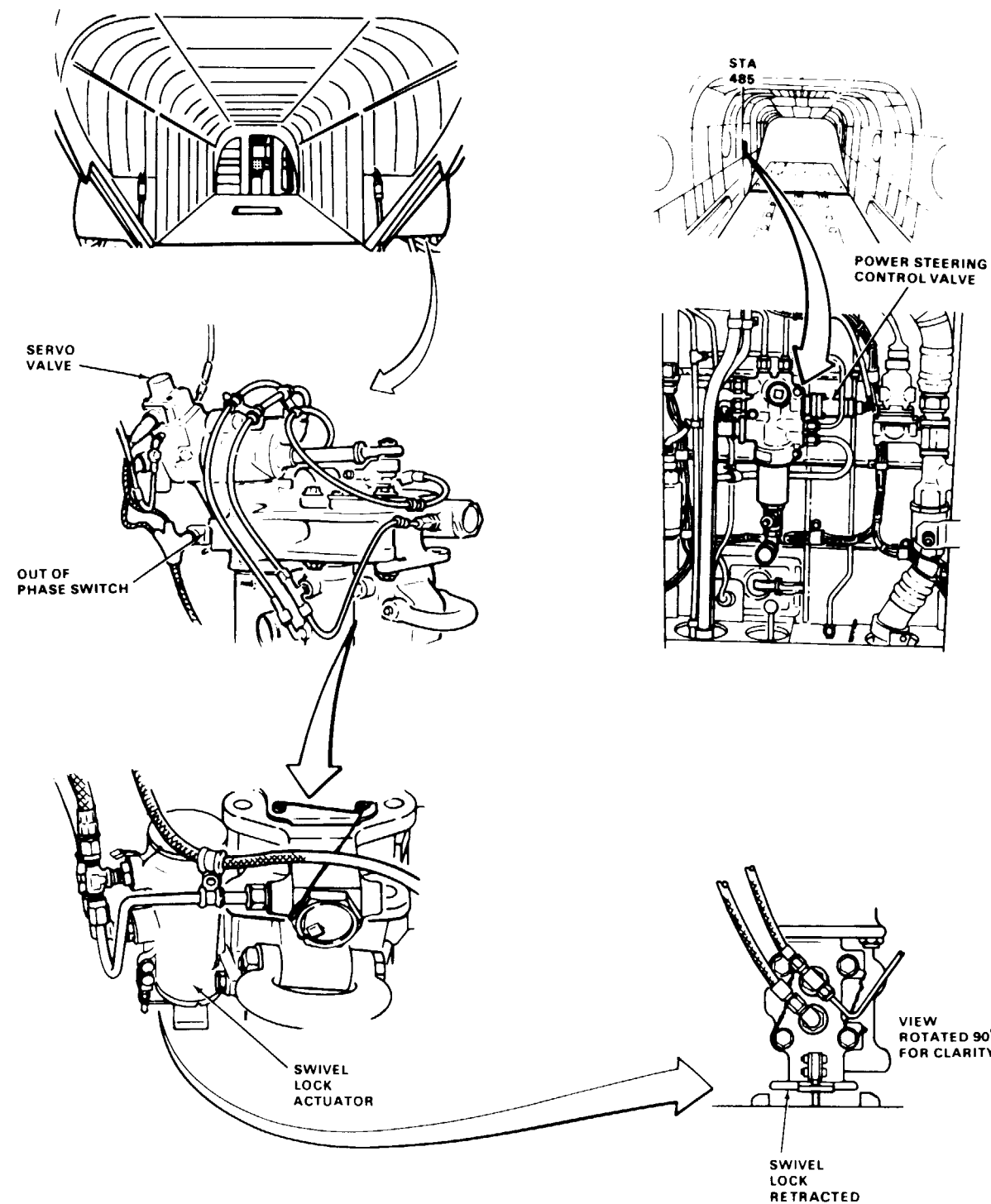
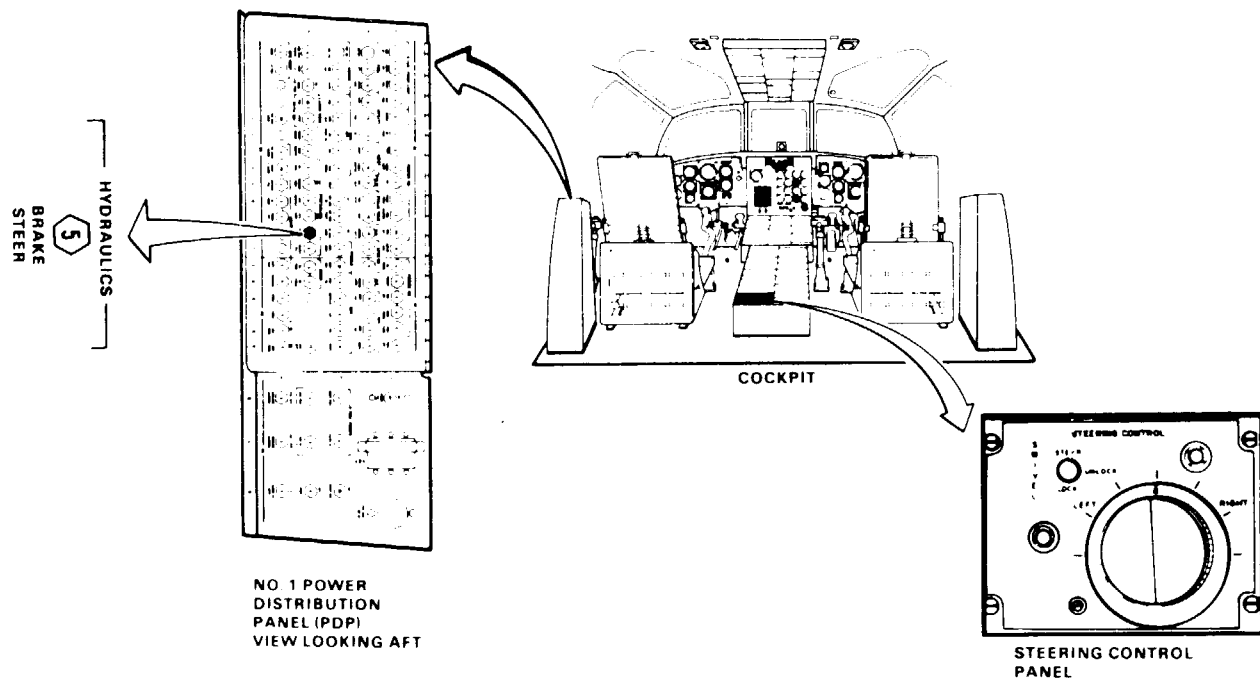
**Applicable Configurations:**  
 All

**References:**  
 TM 55-1520-240-23

**Tools:**  
 Electrical Repairer's Tool Kit,  
 NSN 5180-00-323-4915  
 Multimeter

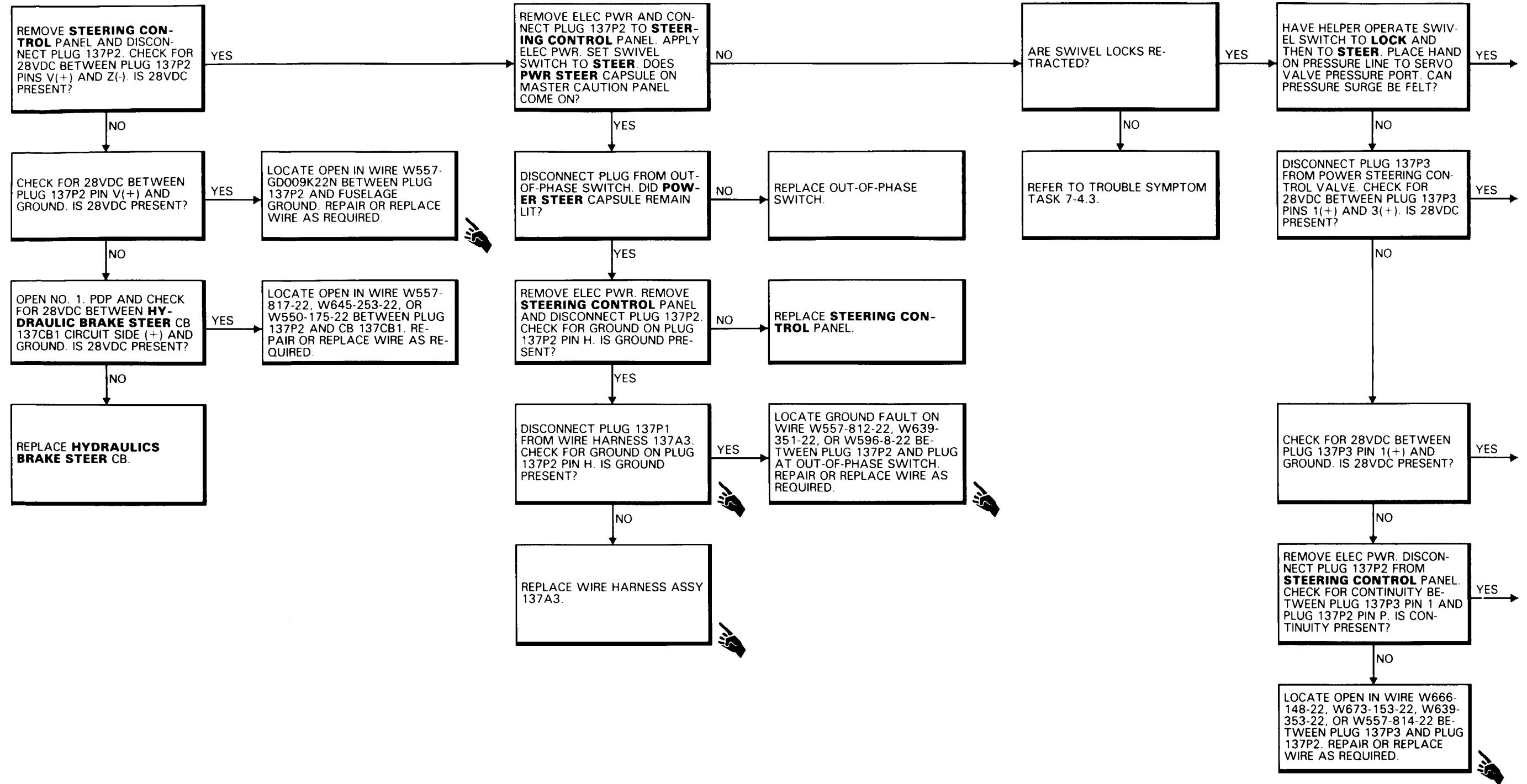
**Equipment Condition:**  
 TM 55-1520-240-23.  
 Battery Connected  
 Electrical Power On  
 Hydraulic Power On  
 Aft Right Landing Gear  
 Raised on Jack

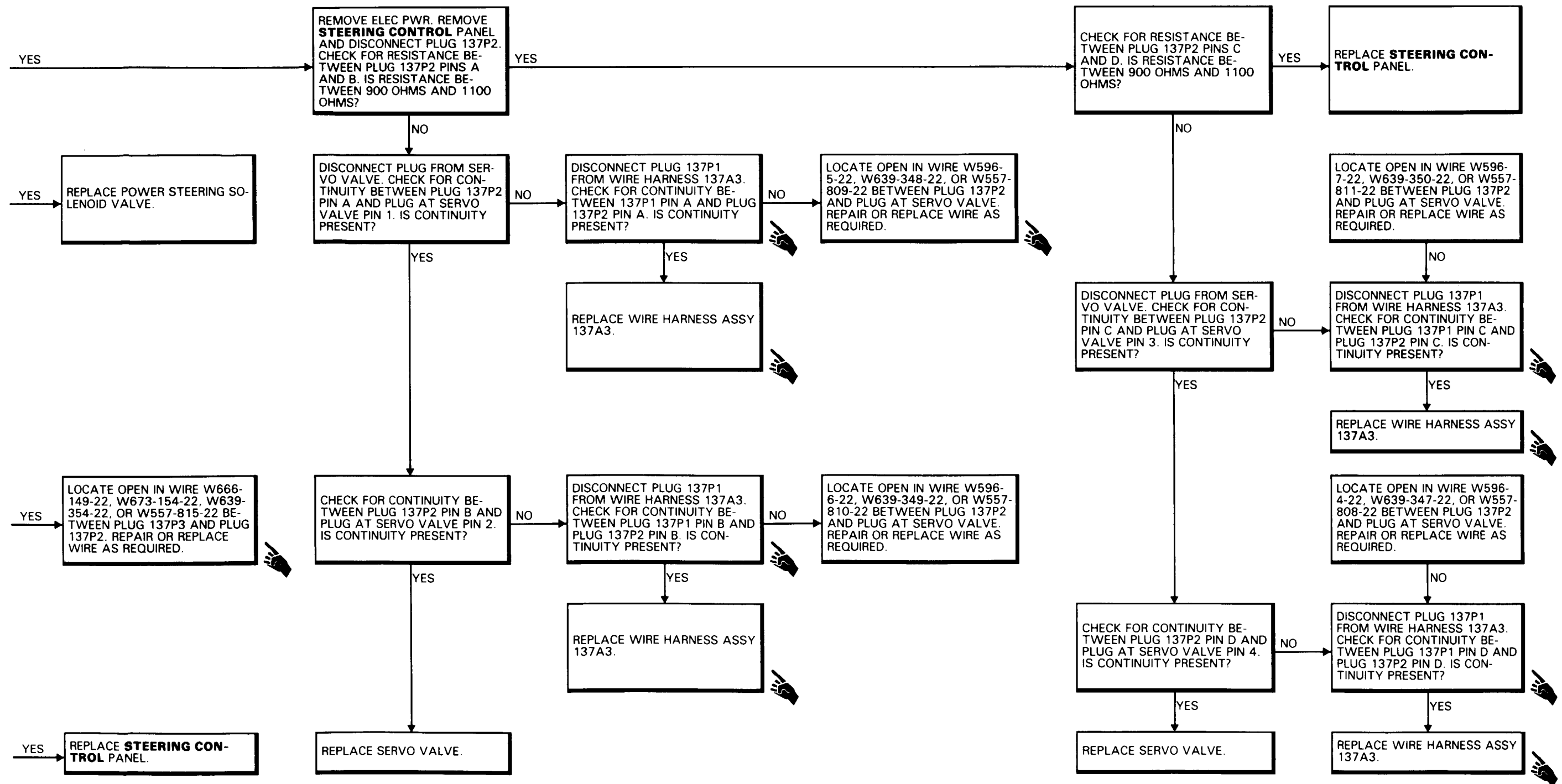
**Materials:**  
 None





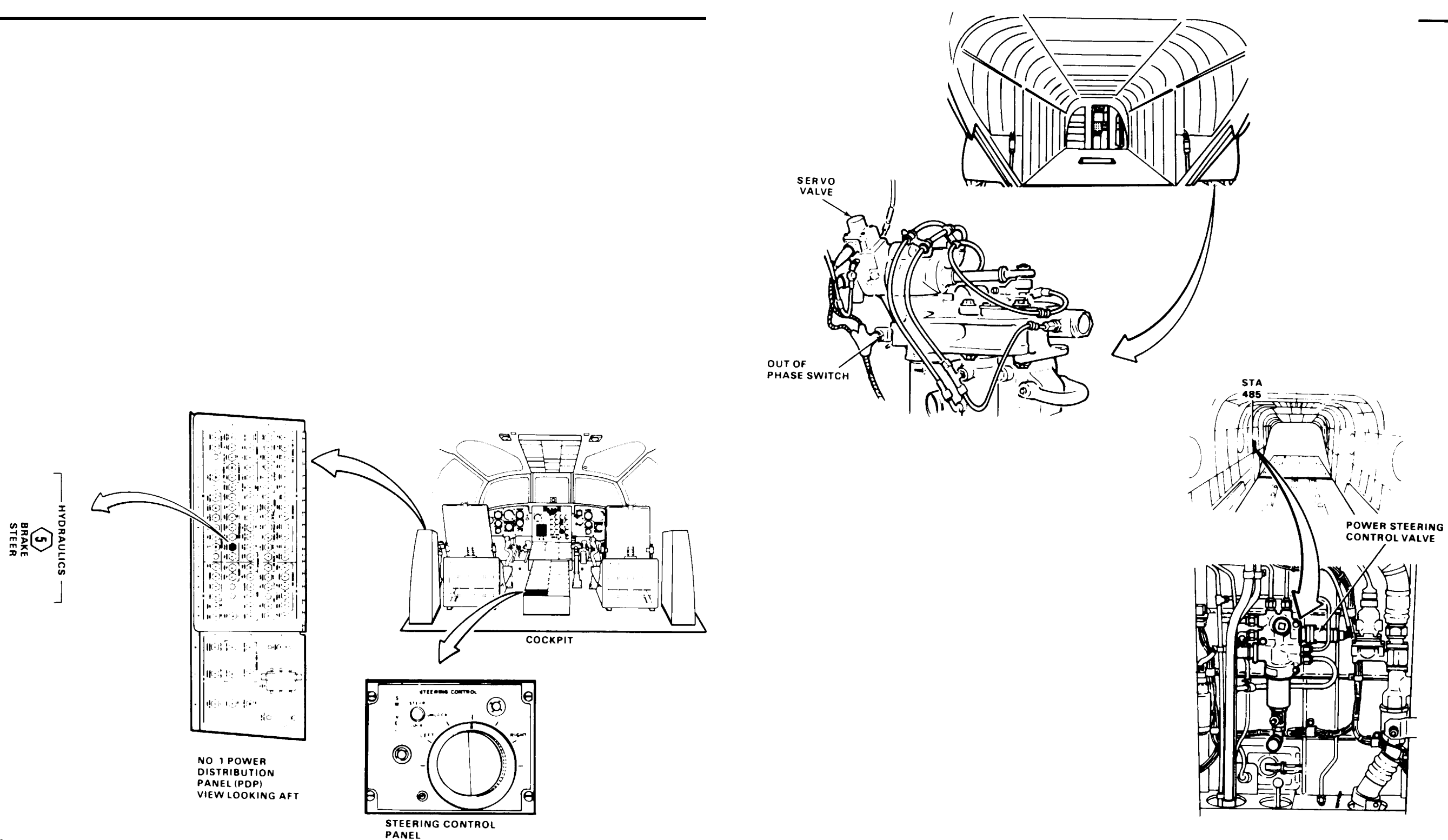
7-5.5 AFT RIGHT WHEEL DOES NOT MOVE WHEN STEERING CONTROL KNOB IS ROTATED IN EITHER





7-5.5 AFT RIGHT WHEEL DOES NOT MOVE WHEN STEERING CONTROL KNOB IS ROTATED IN EITHER DIRECTION (Continued)

7-5.5



7-5.6 AFT RIGHT WHEEL DOES NOT RETURN TO NEUTRAL

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multi meter

**Materials:**

None

**Personnel Required:**

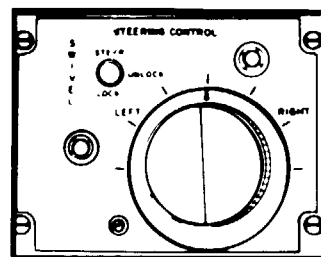
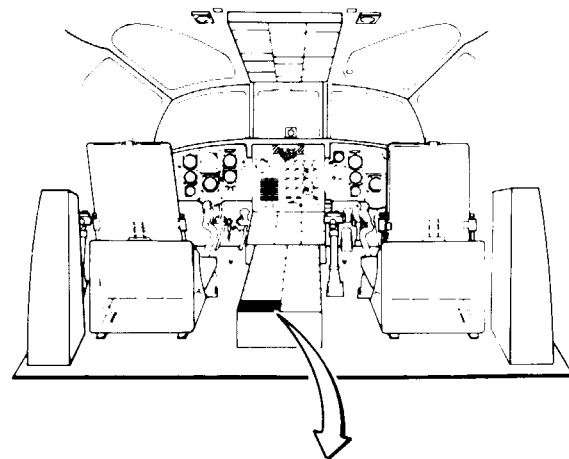
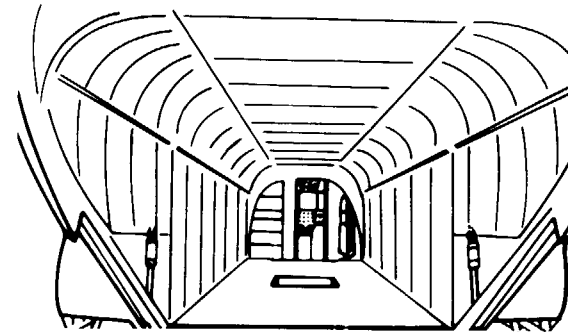
68F10 Aircraft Electrician  
68F20 Aircraft Electrician

**References:**

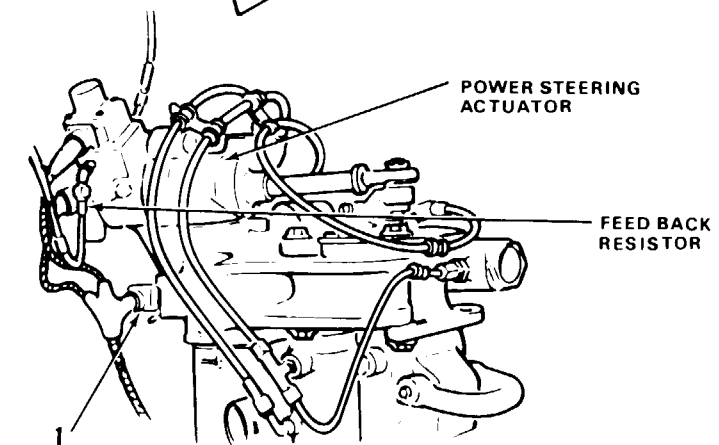
TM 55-1520-240-23

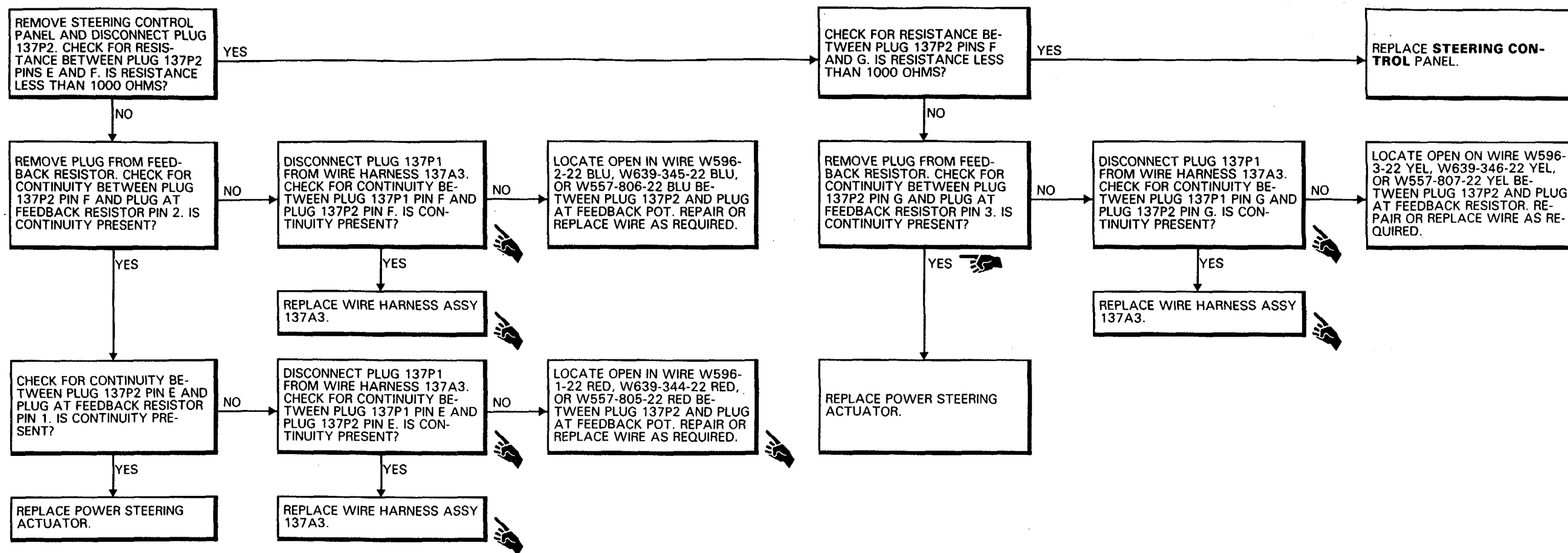
**Equipment Condition:**

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



STEERING CONTROL PANEL





7-5.7 POWER STEER CAUTION LIGHT DOES NOT COME ON

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

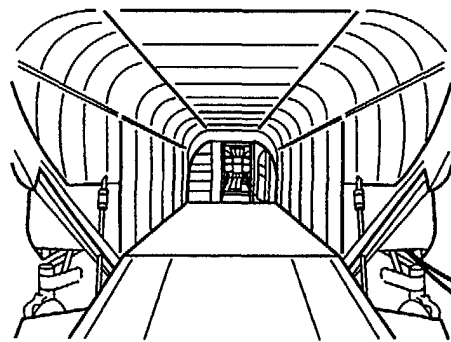
Aircraft Electrician (2)

**References:**

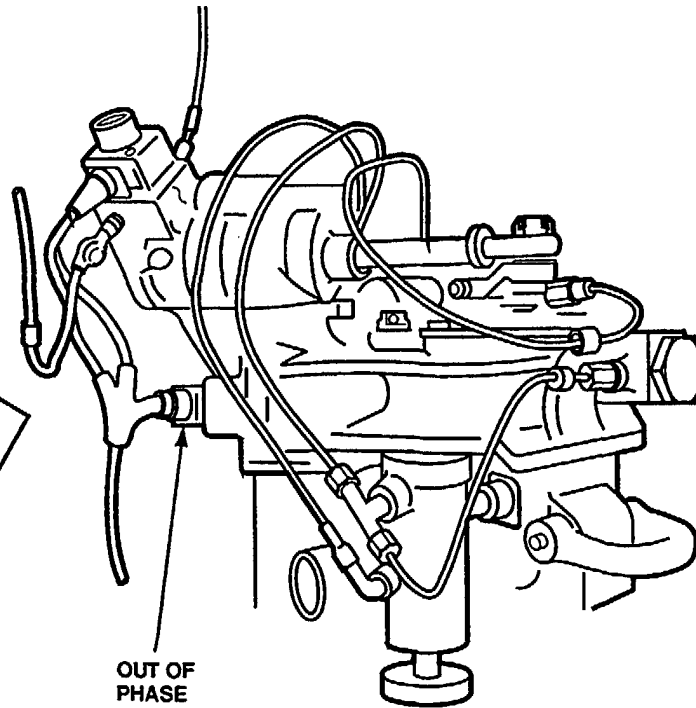
TM 55-1520-240-23

**Equipment Condition:**

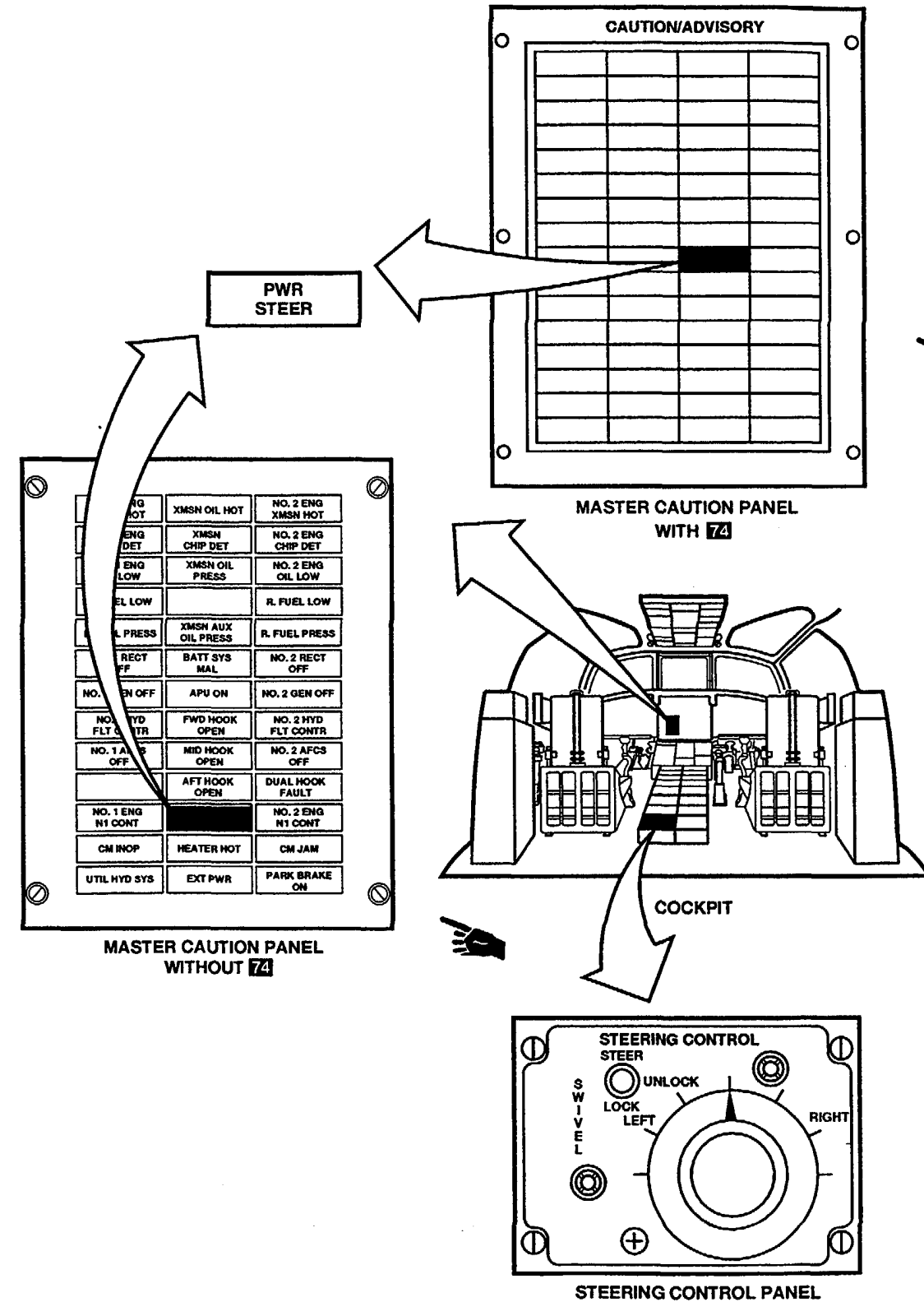
- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Aft Right Landing Gear Raised on Jacks

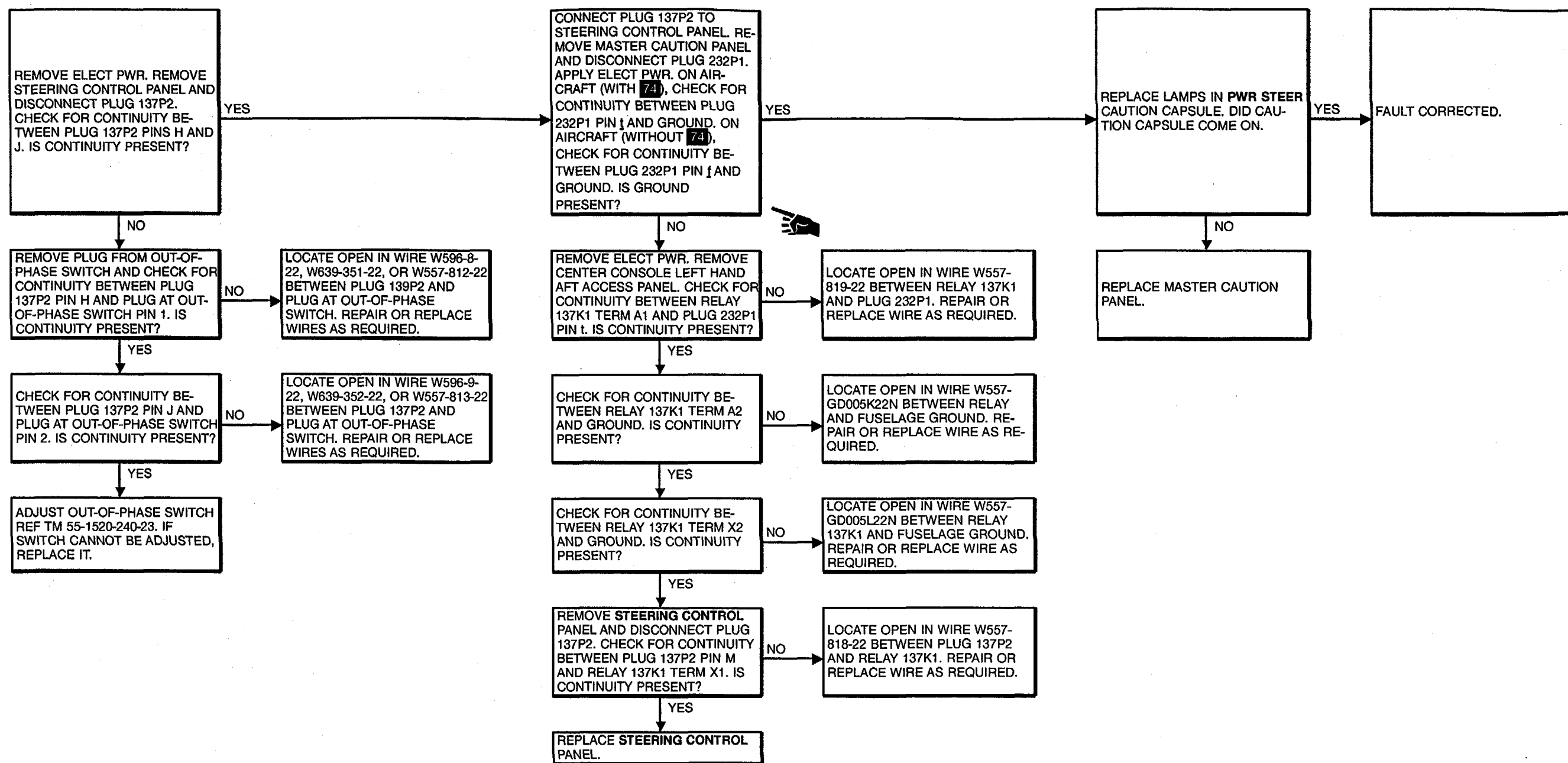


CABIN VIEW LOOKING FWD



OUT OF PHASE SWITCH





**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician (2)

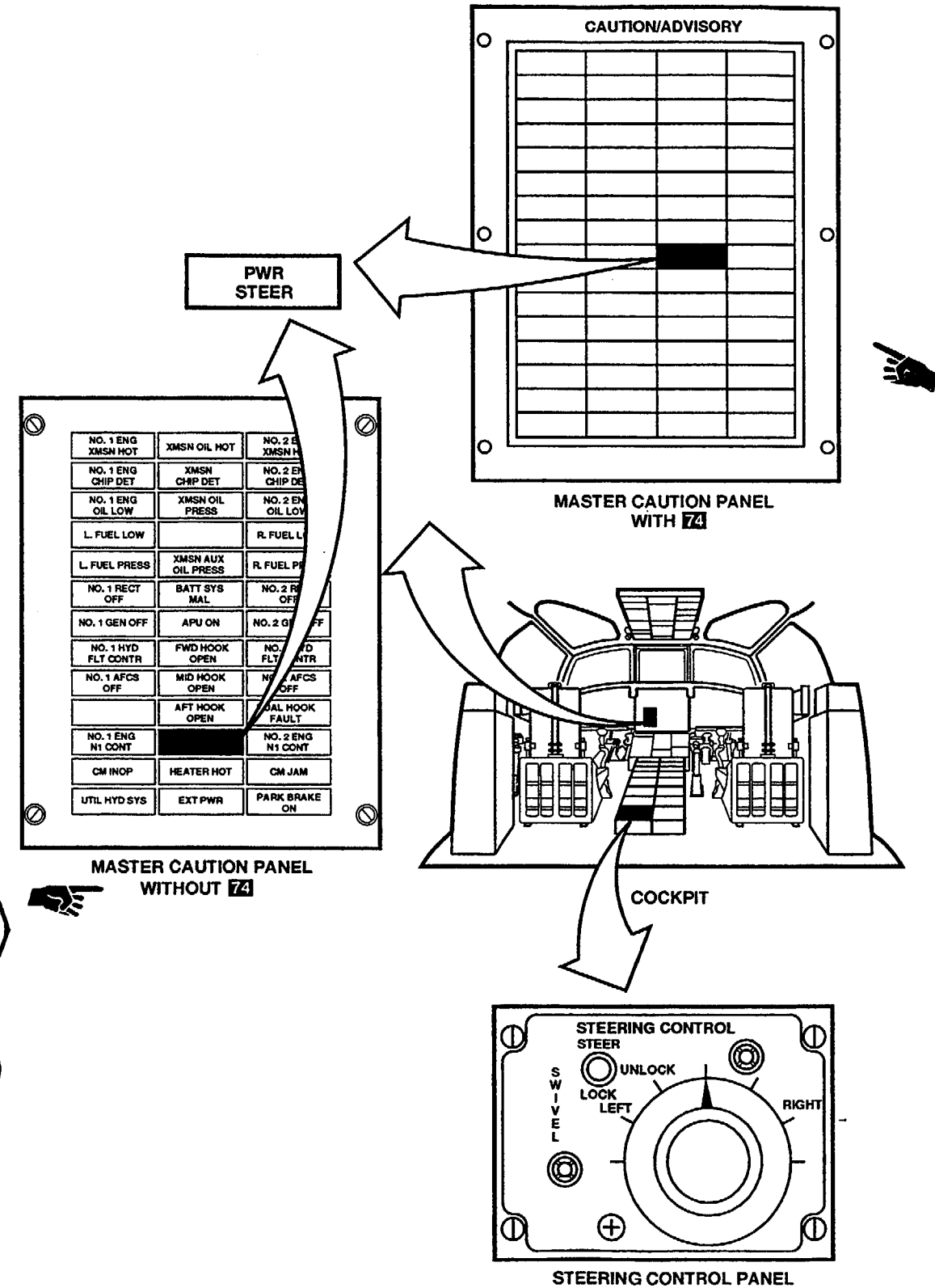
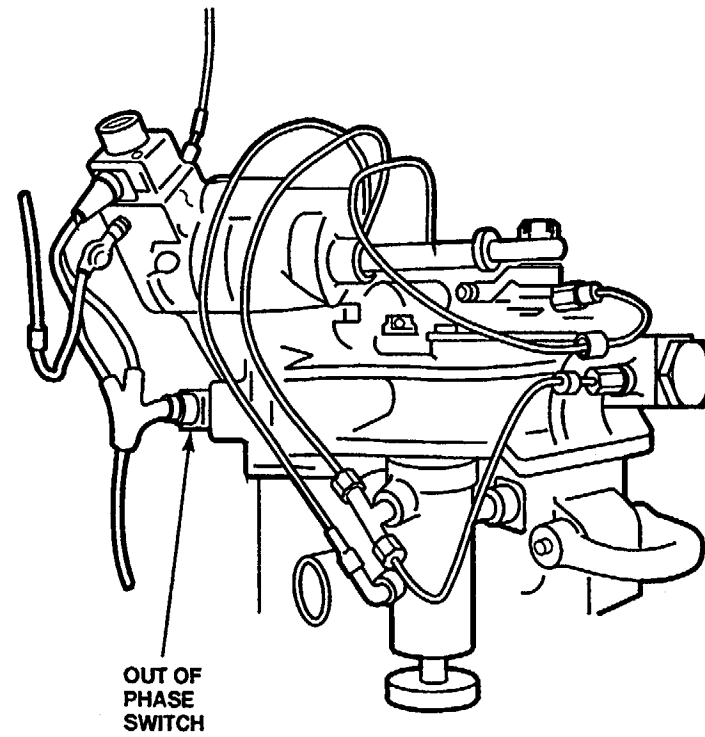
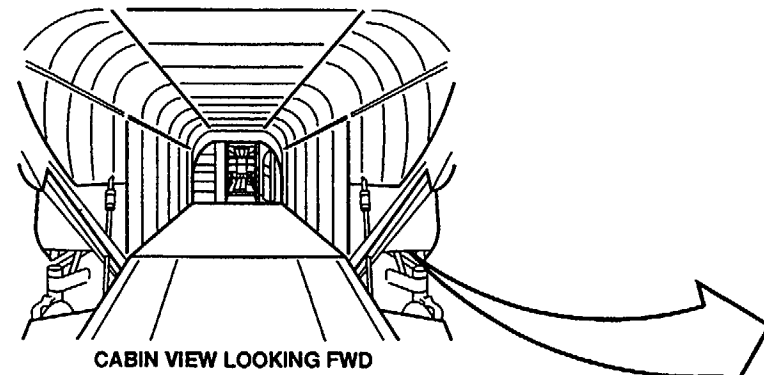
**References:**

TM 55-1520-240-23

**Equipment Condition:**

TM 55-1520-240-23:

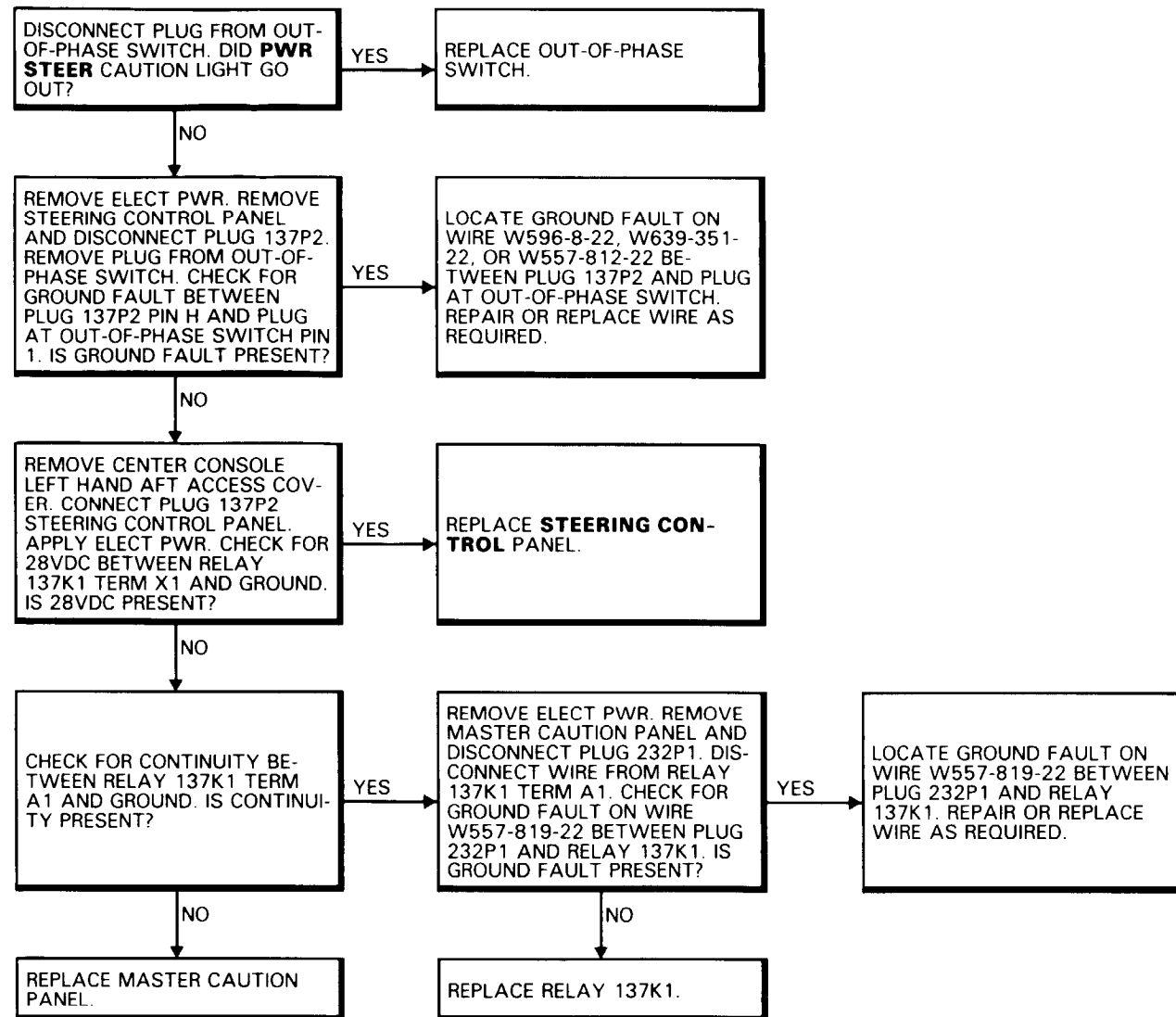
- Battery Connected
- Electrical Power On
- Hydraulic Power On



A65369



7-5.8 POWER STEERING CAUTION LIGHT WILL NOT GO OUT (Continued)



**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer

**References:**

TM 55-1520-240-23

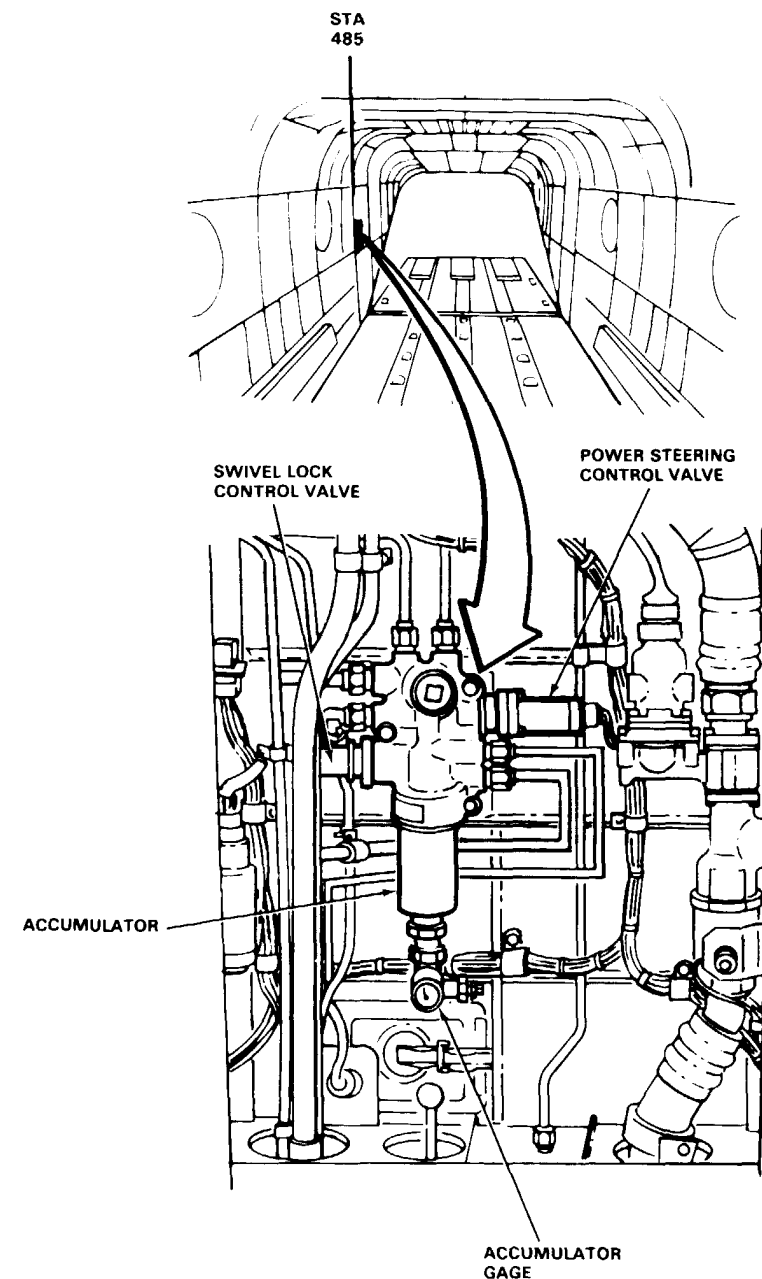
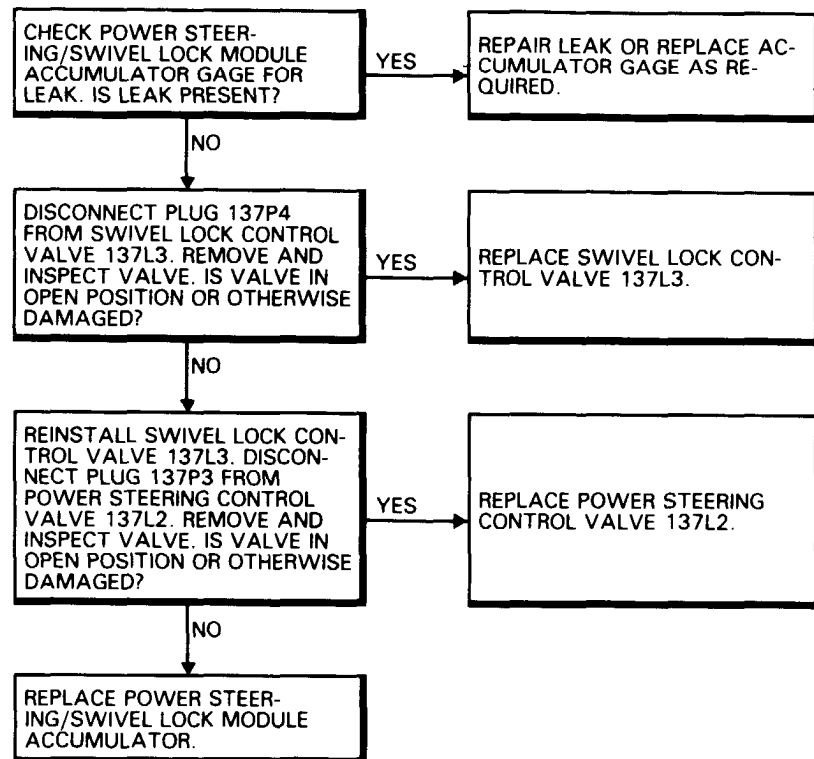
**Equipment Condition:**

TM 55-1520-240-23:

Electrical Power Off

Hydraulic Power Off

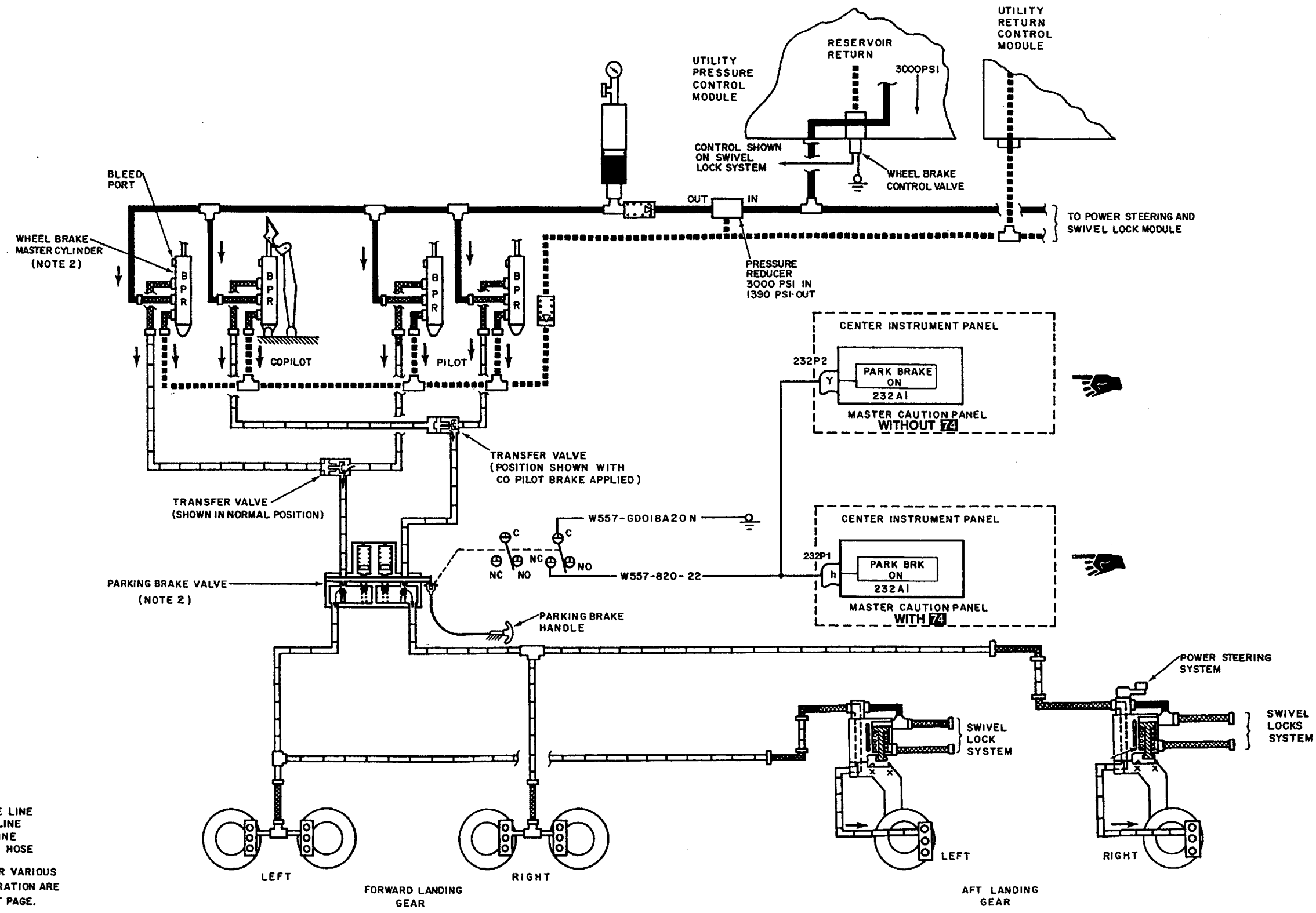
Cargo Ramp Open and Level With Cabin Floor



13214

END OF TASK

**7-6 WHEEL BRAKES SYSTEM**

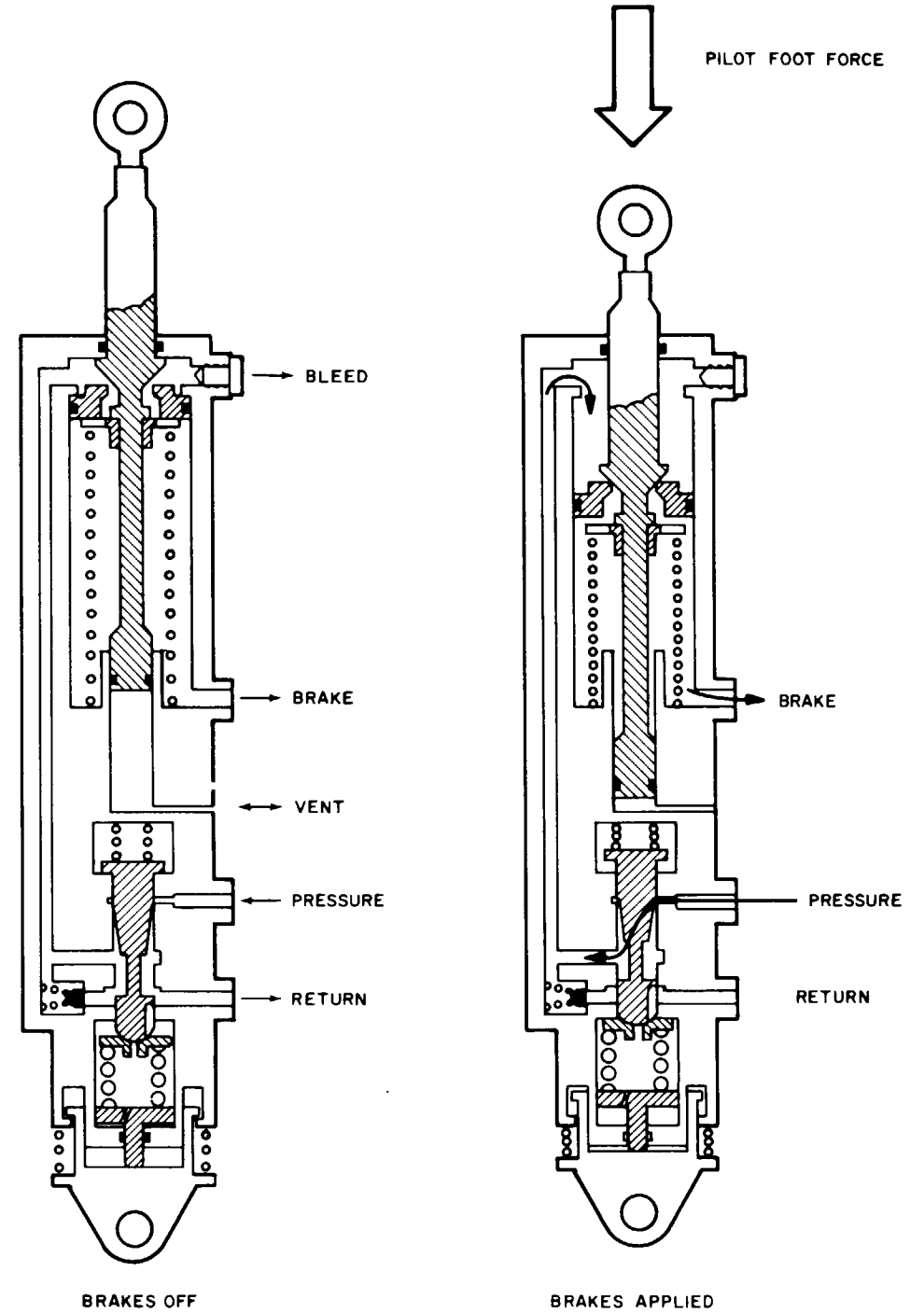
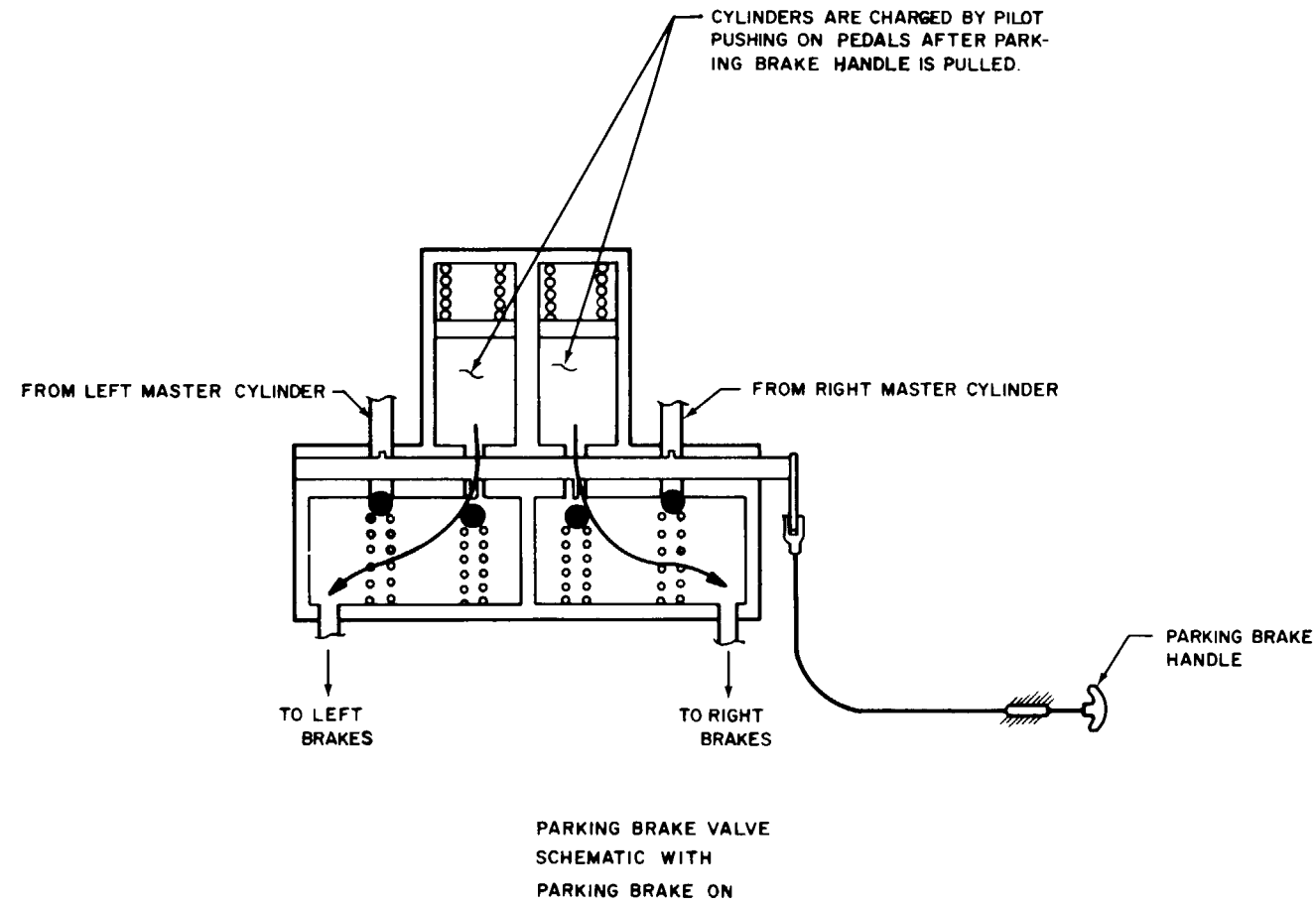


NOTES :

1. SYMBOLS
  - PRESSURE LINE
  - - - RETURN LINE
  - ▨ BRAKE LINE
  - ▤ FLEXIBLE HOSE
2. SCHEMATIC FOR VARIOUS MODES OF OPERATION ARE SHOWN ON NEXT PAGE.

A65370

7-6.1 WHEEL BRAKES SYSTEM SCHEMATIC AND PARKING BRAKE WIRING DIAGRAM (Continued)



WHEEL BRAKE MASTER CYLINDER

7-6.2 WHEEL BRAKE SYSTEM VISUAL CHECK

**INITIAL SETUP**

Applicable Configurations:  
All

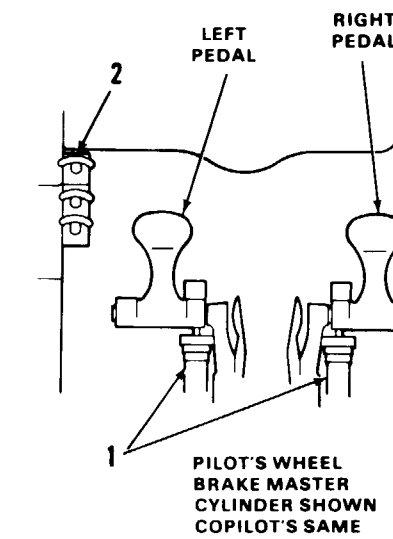
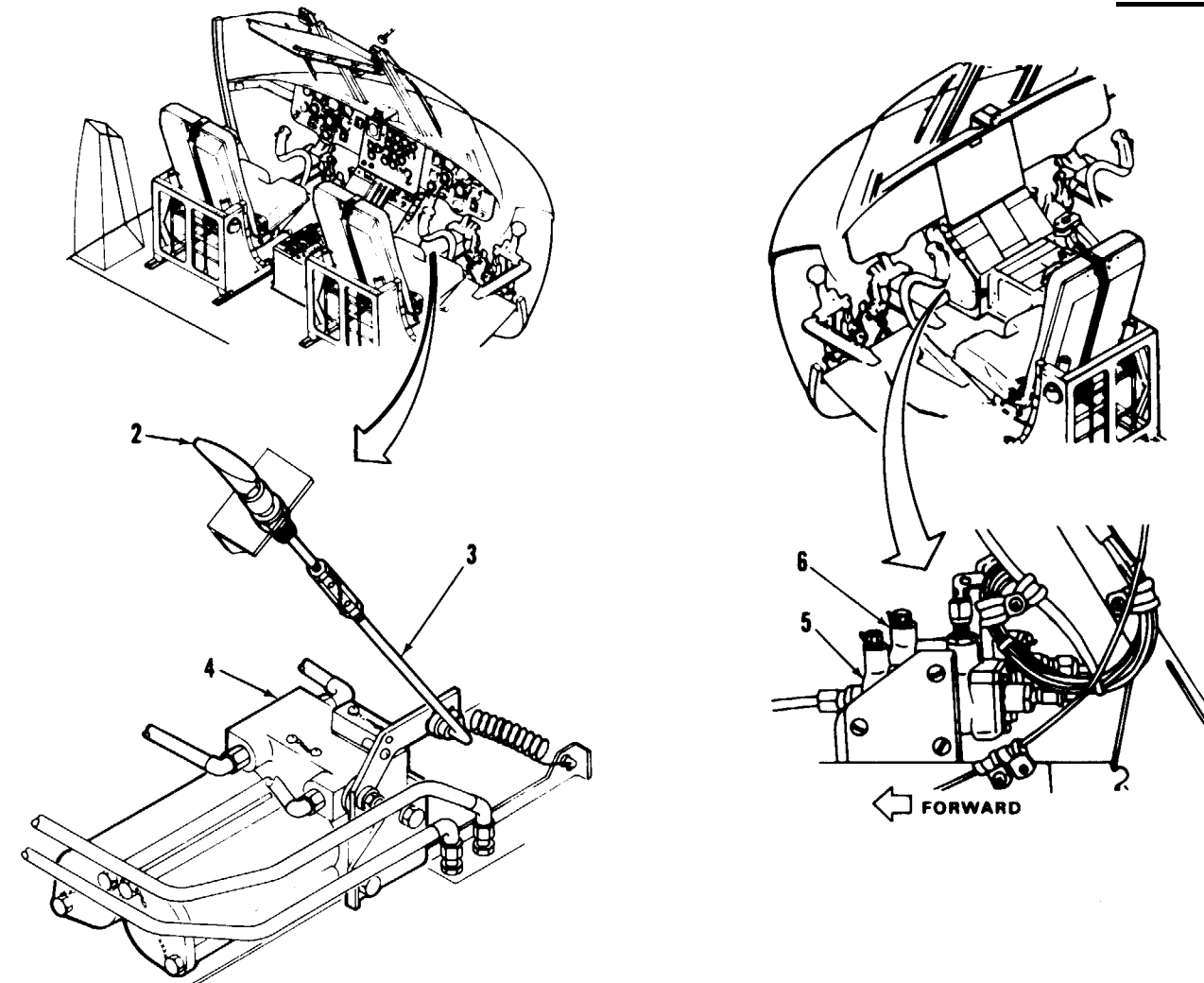
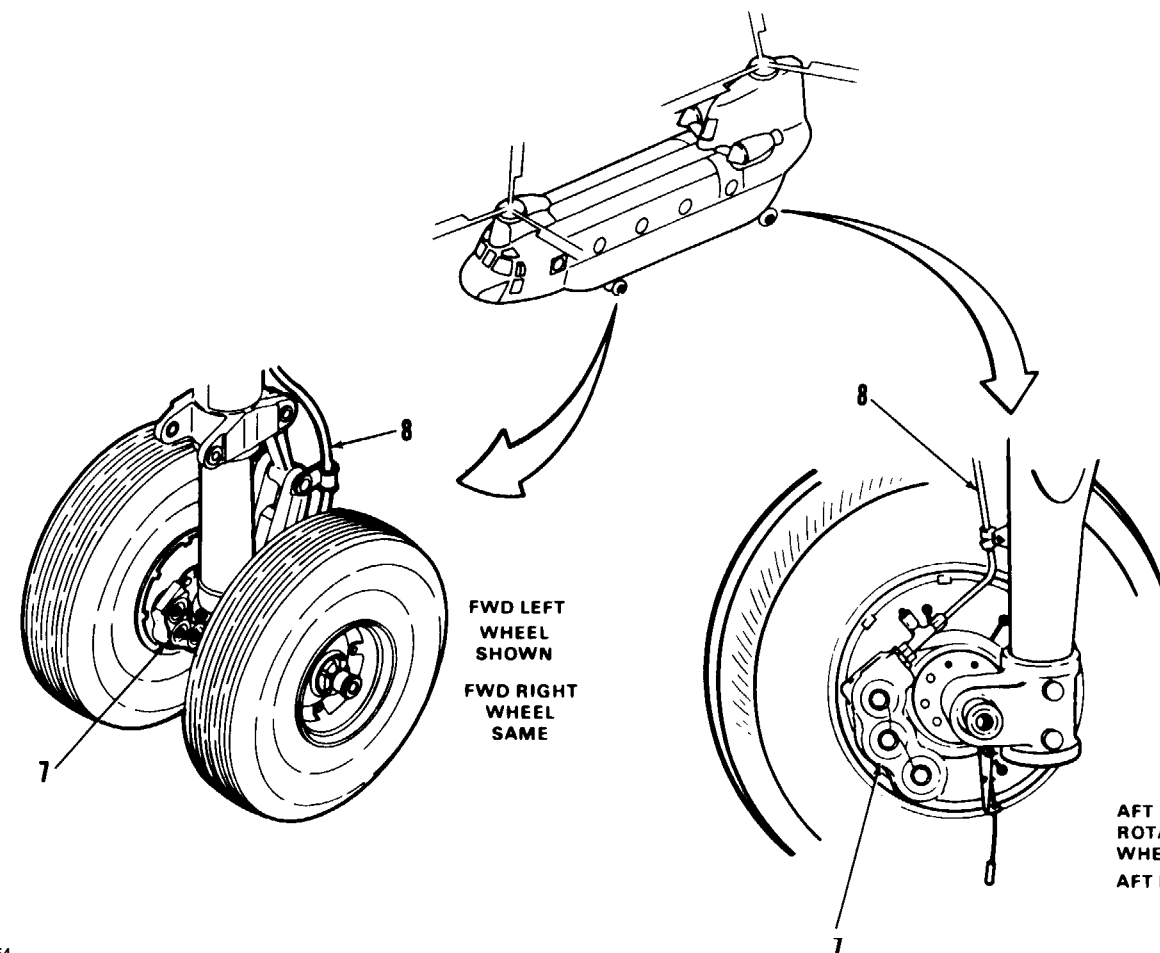
Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:  
None

Personnel Required:  
67U10 Medium Helicopter Repairer

References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off



TASK	RESULT
1. <b>Check wheel brake master cylinder (1)</b> at pilot's and copilot's pedals.	If master cylinder (1) is leaking or loose, tighten or replace it as required. If hydraulic hoses to master cylinder are loose or damaged, tighten or replace them as required.
2. <b>Check parking brake handle (2) and rod (3).</b>	If parking brake handle (2) is loose or damaged, tighten or replace it as required. If rod (3) is bent or damaged, replace it.
3. <b>Check parking brake valve (4).</b>	If parking brake valve (4) is loose or leaking, tighten or replace it as required. If hydraulic tubes to parking brake valve are loose or damaged, replace them as required.
4. <b>Check brake transfer valves (5 and 6).</b>	If brake transfer valves (5 and 6) are loose or damaged, tighten or replace them as required. If hydraulic tubes to brake transfer valves are loose or damaged, tighten or replace them as required.
5. <b>Check brake housings (7) and hydraulic tube (8).</b>	If housings (7) are loose or leaking, tighten or repair them as required. If hydraulic tubes to housings are loose or damaged, tighten or replace them as required.

FOLLOW-ON MAINTENANCE:  
None

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

**Materials:**

None

**Personnel Required:**

Medium Helicopter Repairer (2)

**References:**

TM 55-1520-240-23

**Equipment Condition:**

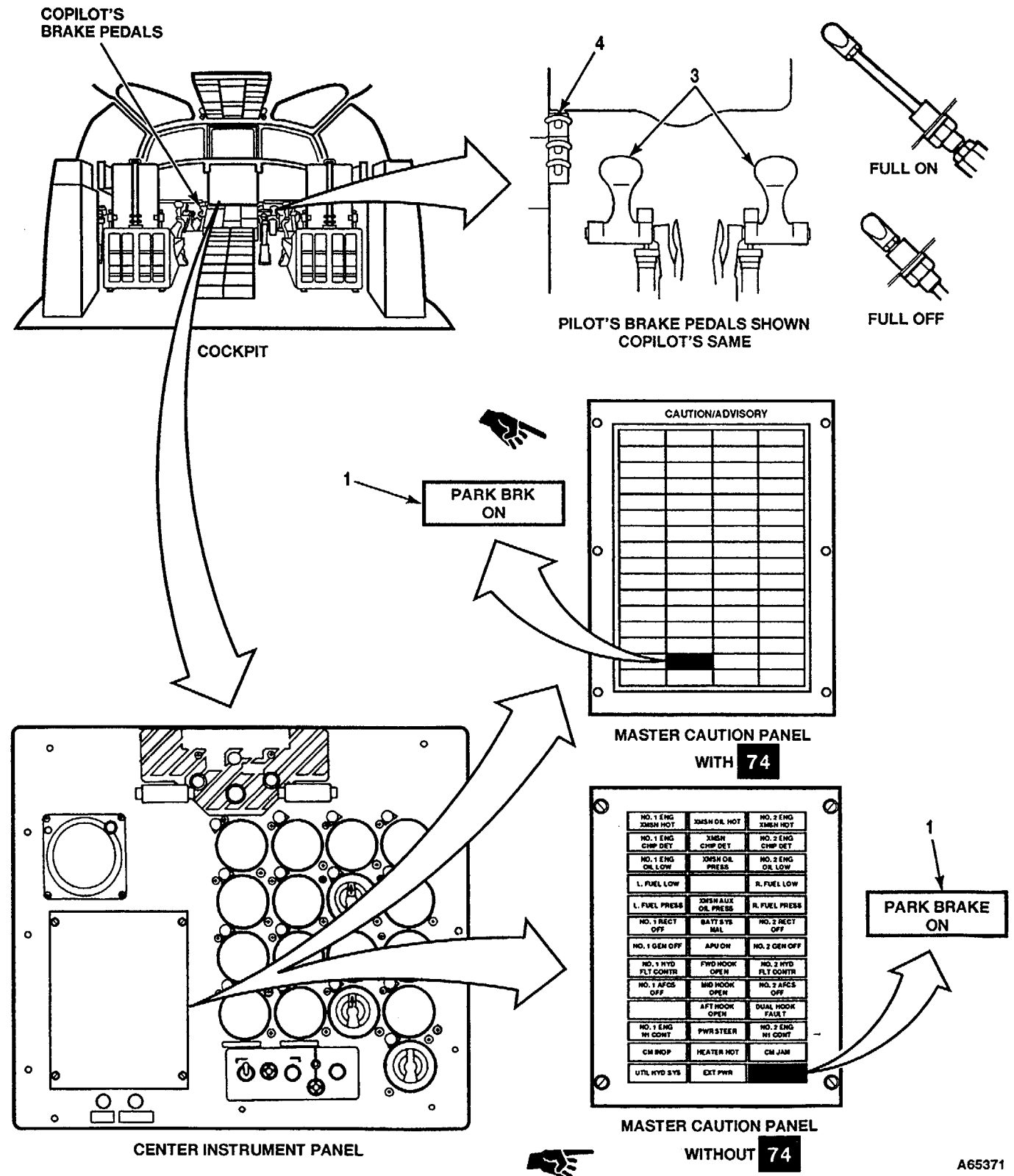
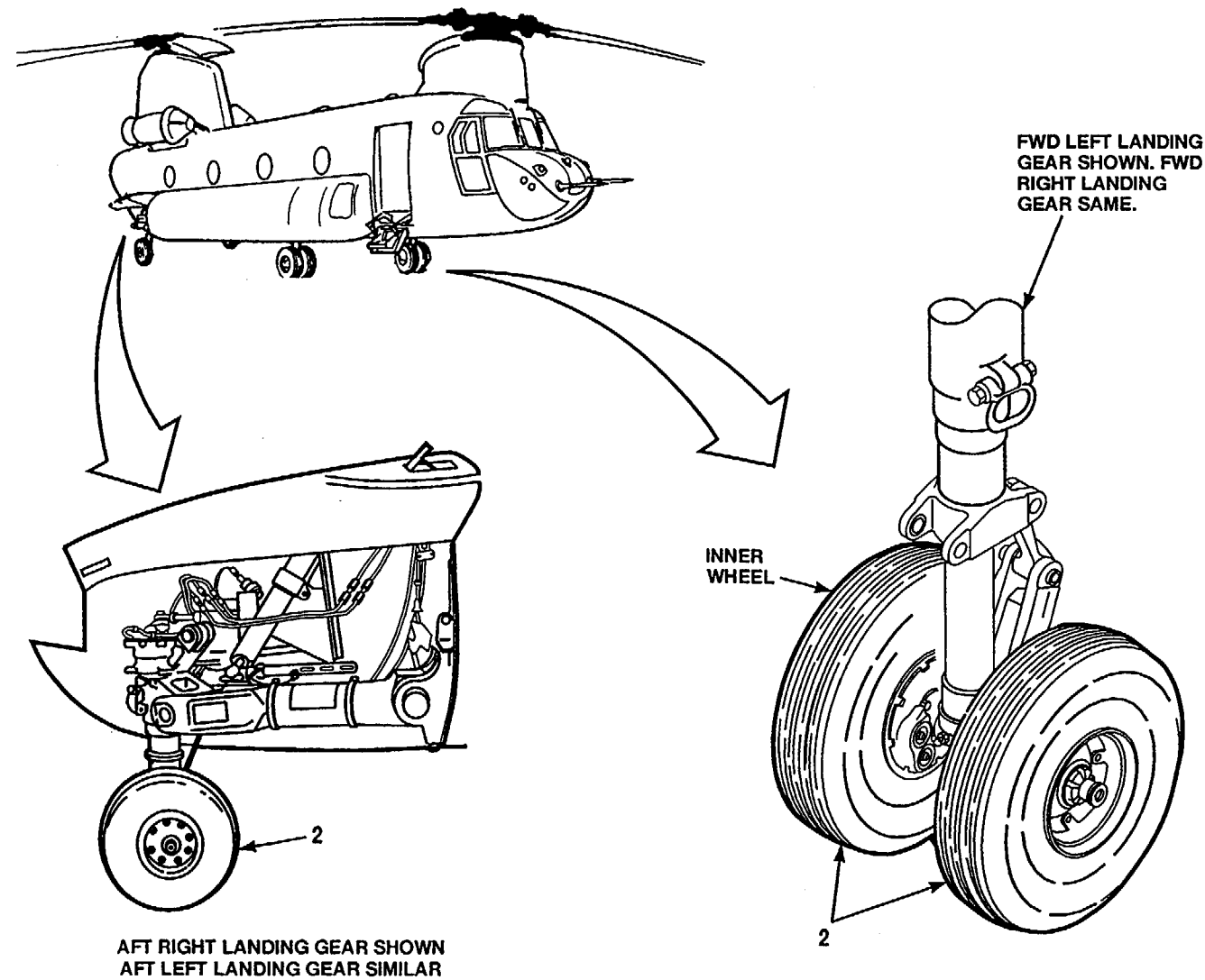
TM 55-1520-240-23:

Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aircraft on Jacks at Forward Axles and Aft Fuselage Jack Points  
Visual Check of Wheel Brake System Performed (Task 7-6.2)

**General Safety Instructions:**

**WARNING**

Limit movement of personnel while aircraft is on jacks. Personnel injury could occur if aircraft fell off jacks.





TASK	RESULT
1. <b>Check that PARK BRAKE ON</b> (Without <b>74</b> ) or <b>PARK BRK ON</b> (With <b>74</b> ) caution capsule (1) is out.	If capsule is lit, press and release pilot pedals. If capsule is still on, go to Task 7-6.4.
2. Have helper manually turn all six wheels (2).	All wheels shall turn freely. If any wheel does not turn, go to Task 7-6.5.
3. <b>Press pilot brake pedals (3)</b> . Have helper manually turn all forward and aft wheels.	All wheels shall come to a full stop. If not, go to Task 7-6.6.
4. <b>Release pilot brake pedals. Press copilot brake pedals (3)</b> . Have helper manually turn all forward and aft wheels (2).	All wheels shall come to a full stop. If not, go to Task 7-6.7.
5. <b>Press copilot brake pedals. Press pilot brake pedals (3). Pull out parking brake handle (4). Release brake pedals. Release handle.</b>	Fwd and aft wheels shall be locked and <b>PARK BRAKE ON</b> light shall come on. If parking brake will not lock, go to Task 7-6.8. If <b>PARK BRAKE ON</b> light does not come on, go to Task 7-6.9.
6. <b>Press and release pilot brake pedal (3)</b> and have helper turn wheels.	Parking brake handle shall return to off position. Forward and aft wheels shall unlock. <b>PARK BRAKE ON</b> (Without <b>74</b> ) or <b>PARK BRK ON</b> (With <b>74</b> ) light shall go out. If parking brake handle does not return to off, go to Task 7-6.10. If <b>PARK BRAKE ON</b> (Without <b>74</b> ) or <b>PARK BRK ON</b> (With <b>74</b> ) light does not go out or wheels stay locked, go to Task 7-6.4.
7. Remove hydraulic power. <b>Press and release pilot pedals (3) twice</b> . Then <b>press and hold pilot pedals</b> . Have helper manually turn all six wheels (2).	Wheels shall be locked. If wheels turn, go to Task 7-6.11. If trouble symptom, brake pressure bleeds down within <u>8 hours</u> with parking brake on, was reported, go to Task 7-6.12.

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23:

- Battery disconnected.
- Electrical power off.
- Hydraulic power off.
- Aircraft jack removed.

**FAULT ISOLATION PROCEDURE**

INITIAL SETUP

**Applicable Configurations:**

All

**Tools:**

- Electrical Repairer Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

Aircraft Electrician

**References:**

TM 55-1520-240-23

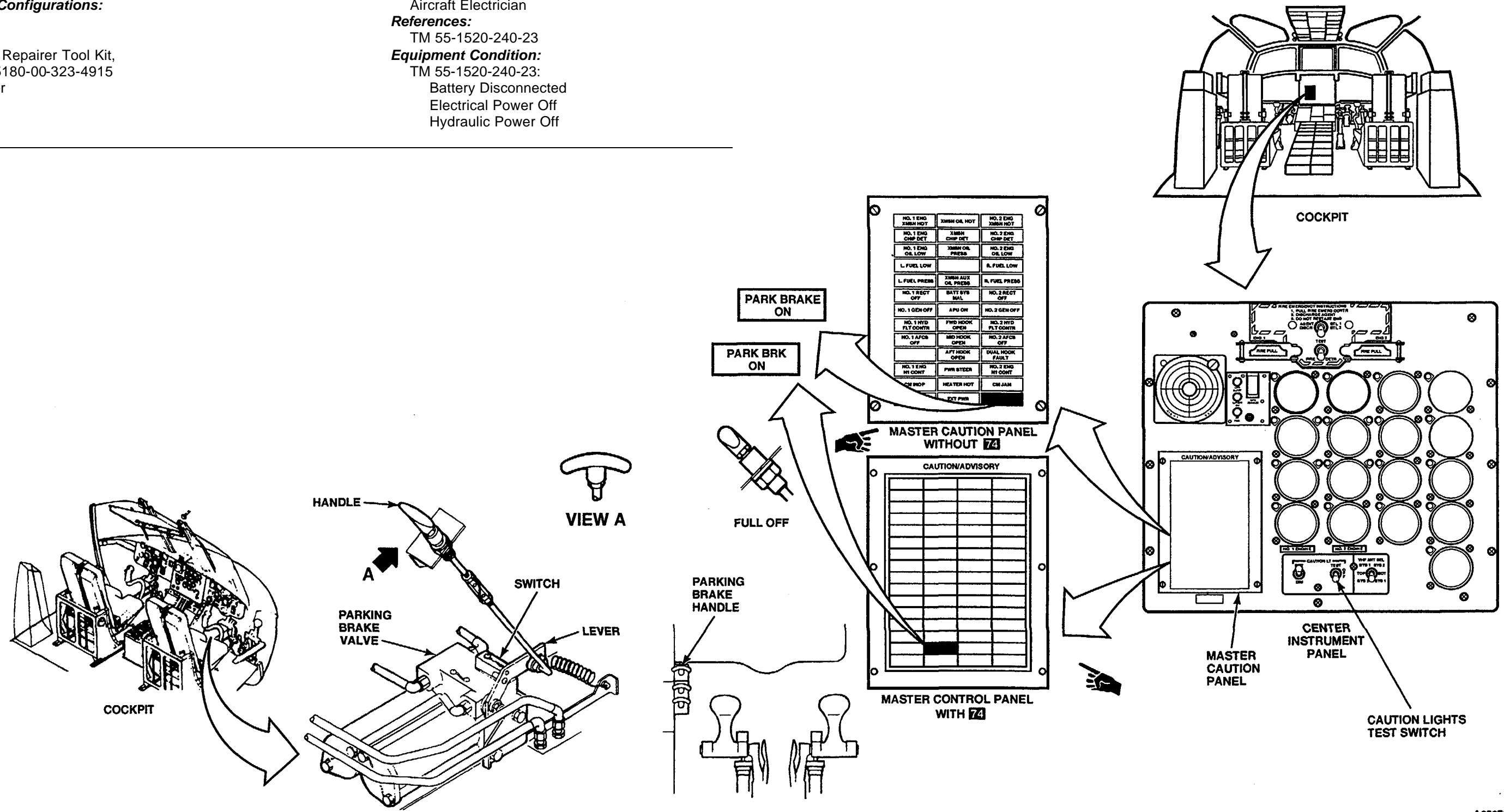
**Equipment Condition:**

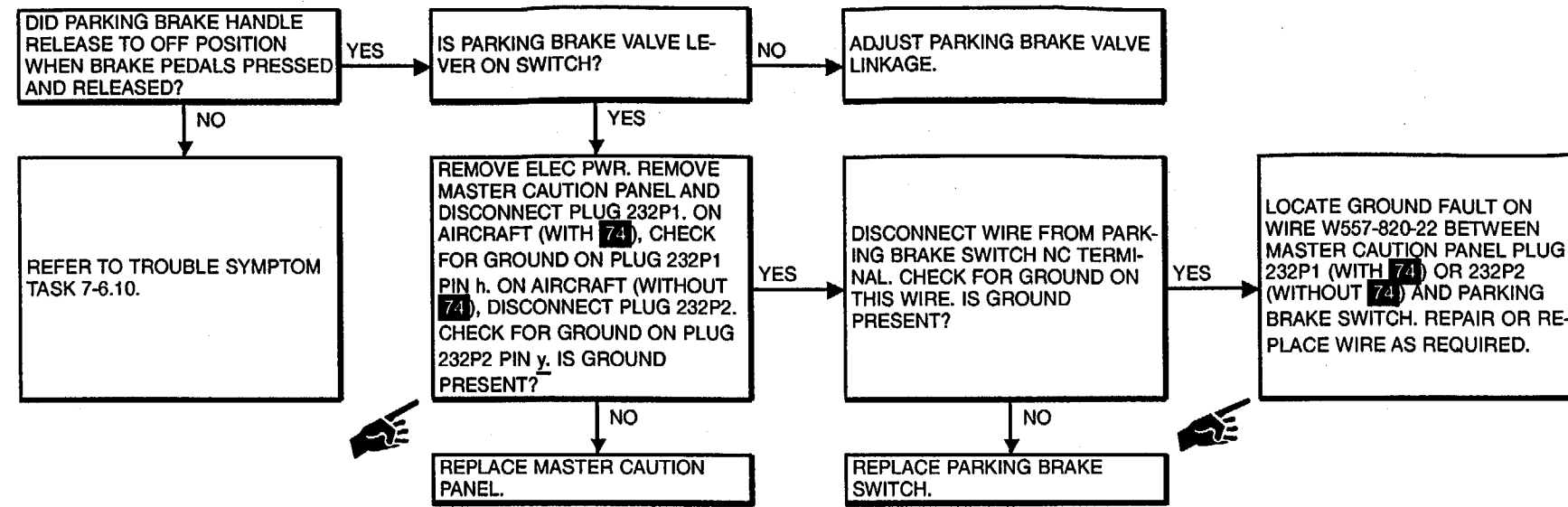
TM 55-1520-240-23:

Battery Disconnected

Electrical Power Off

Hydraulic Power Off





7-6.5 ONE OR MORE WHEEL BRAKES WILL NOT RELEASE, WHEELS DO NOT TURN FREELY

**FAULT ISOLATION PROCEDURE**  
INITIAL SETUP

**Applicable Configurations:**  
All

**Tools:**  
None

**Materials:**  
None

**Personnel Required:**  
67U10 Medium Helicopter Repairer (2)  
67U20 Medium Helicopter Repairer

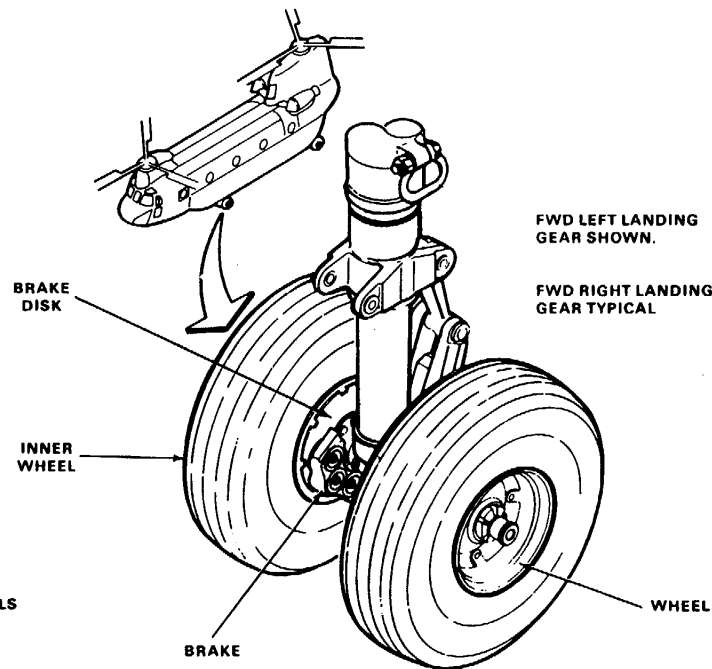
**References:**  
TM 55-1520-240-23

**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aircraft on Jacks at Forward Wheel Axles  
and Aft Fuselage Jack Points

**General Safety Instructions:**

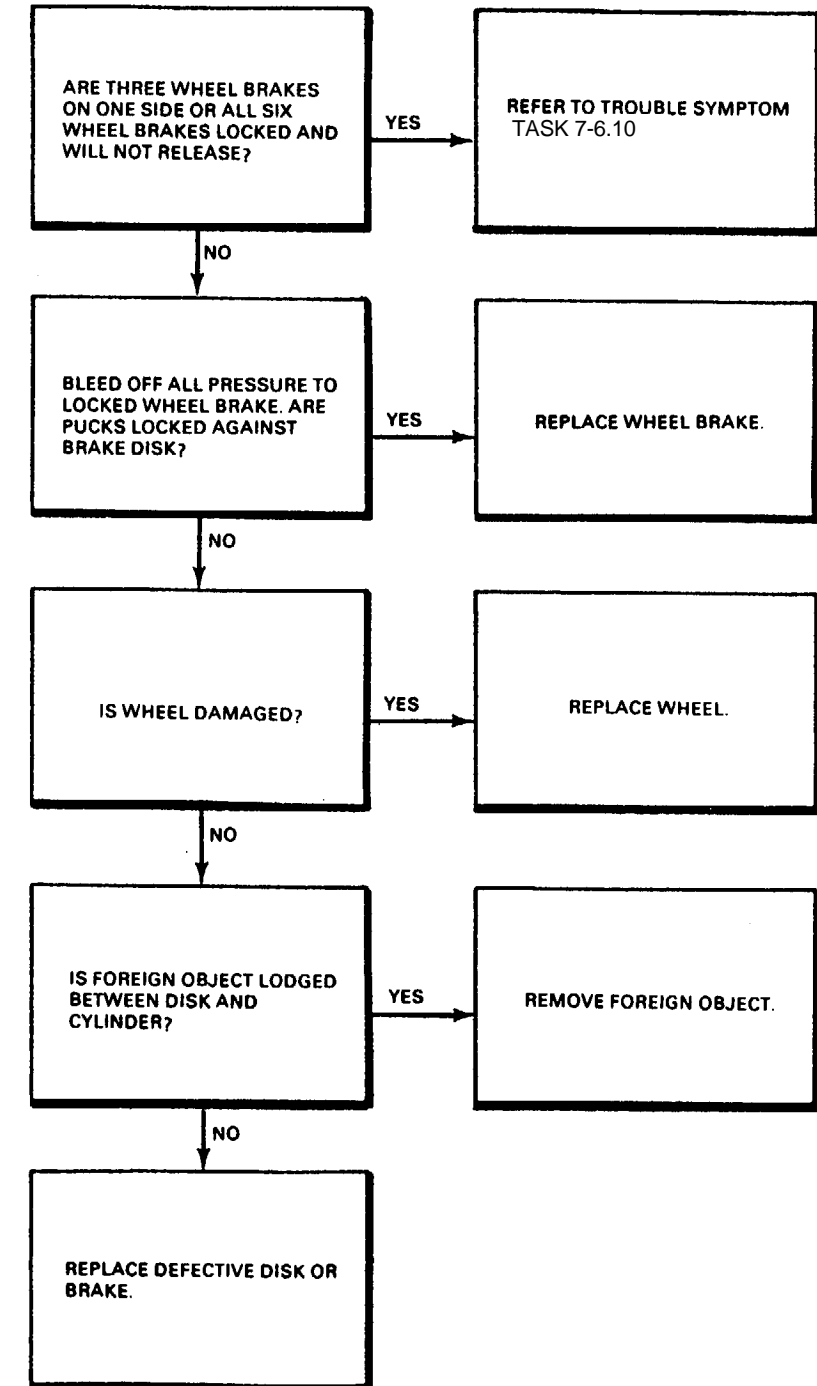
**WARNING**

Limit movement of personnel while aircraft is on jacks. Personnel injury could occur if aircraft fell off jacks.



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7-6.6 RIGHT OR LEFT BRAKES DO NOT COME ON WHEN PILOT'S BRAKE PEDALS ARE PRESSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
Aircraft Mechanic's T001 Kit,  
NSN 5180-00-323-4692

Materials:  
None

Personnel Required:  
67U10 Medium Helicopter Repairer (2)  
67U20 Medium Helicopter Repairer

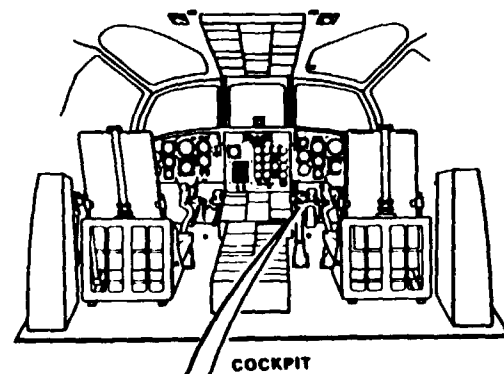
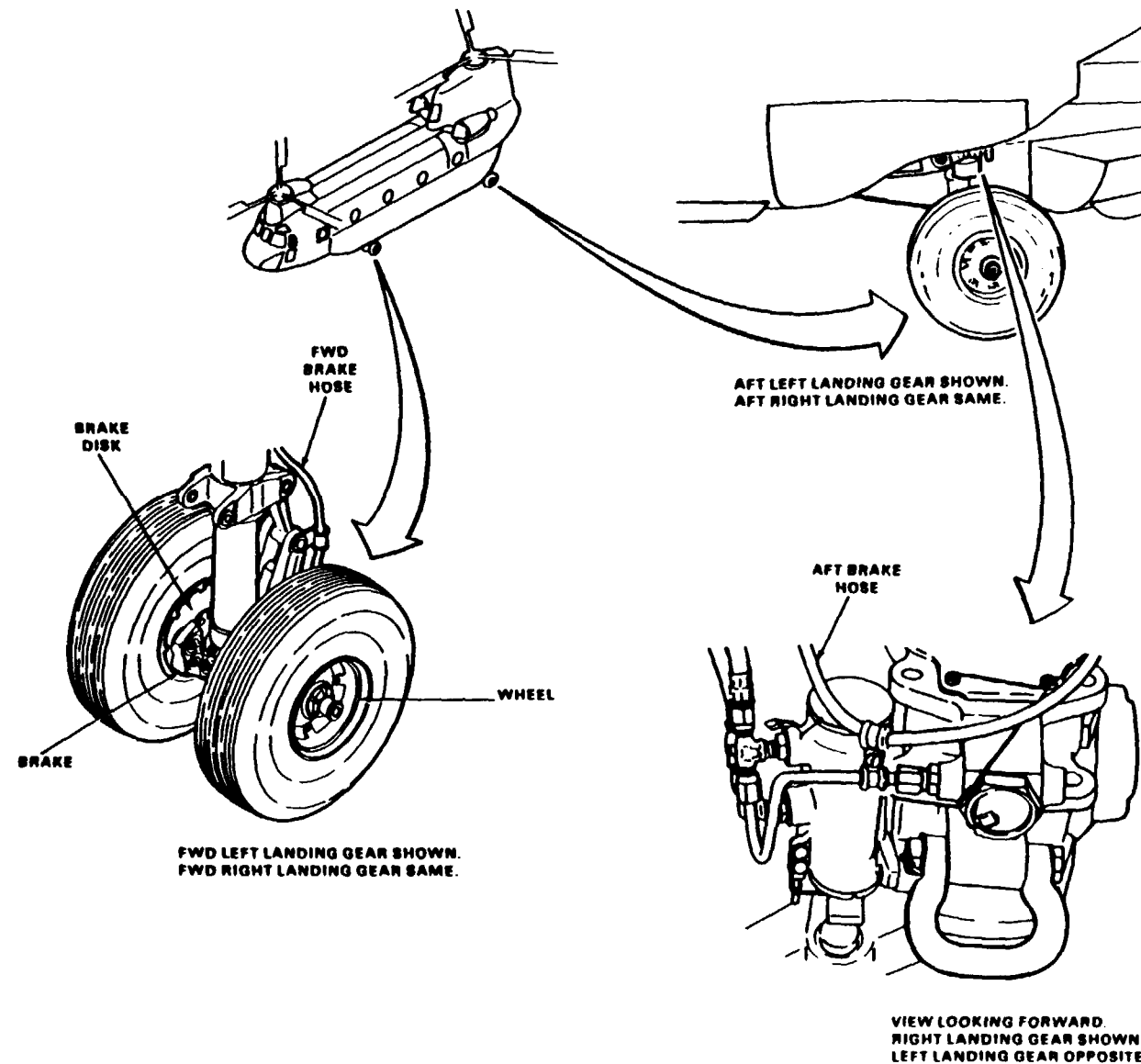
References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aircraft on Jacks at Forward Wheel Axles  
and Aft Fuselage Jacking Point

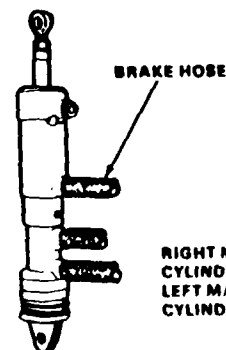
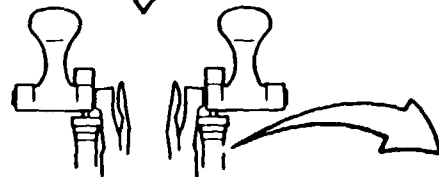
General Safety Instructions:

**WARNING**

Limit movement of personnel while aircraft is on jack. Personal injury can occur if aircraft falls off jacks.



PILOT'S BRAKE PEDALS SHOWN. COPILOT'S BRAKE PEDALS SAME.



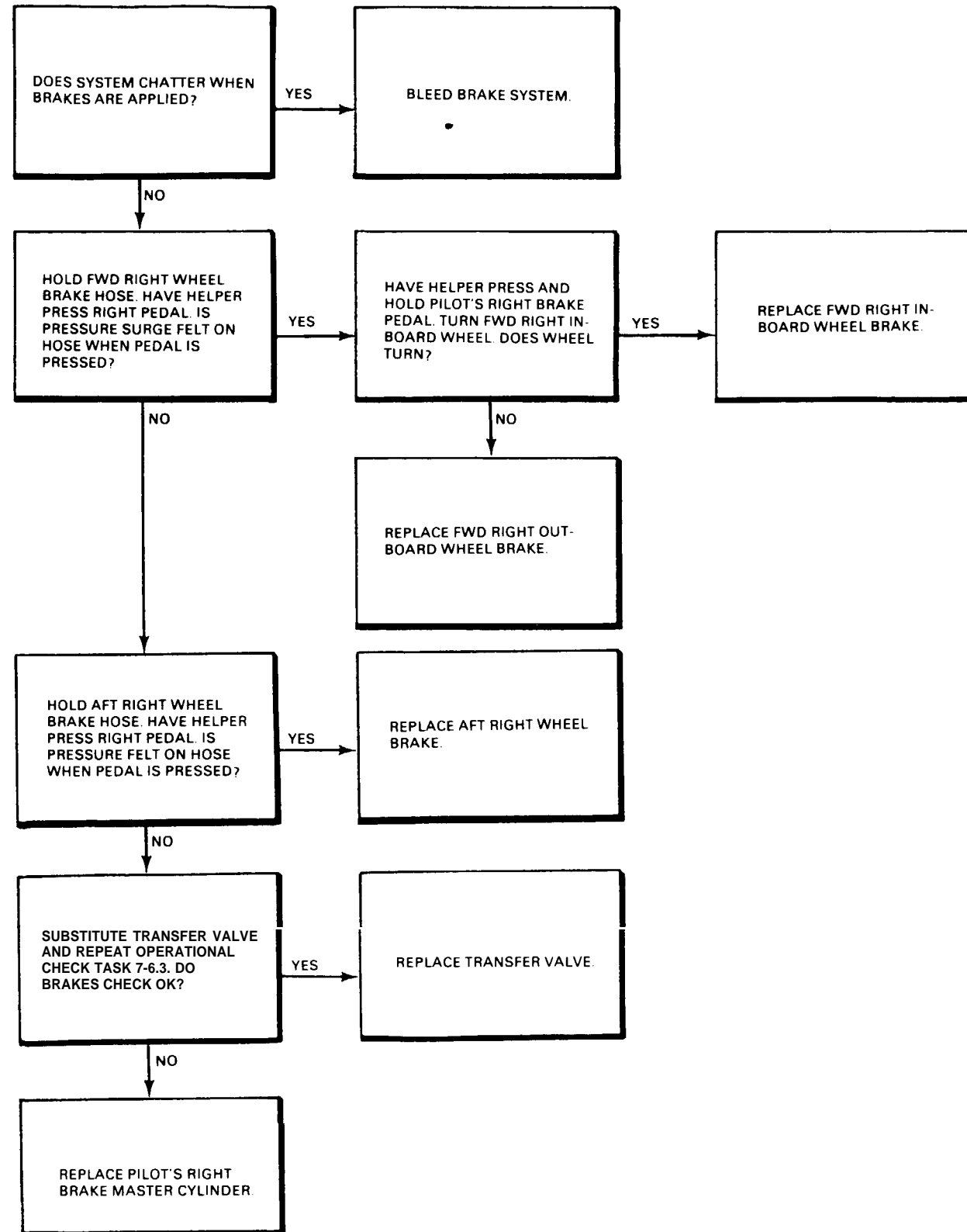
RIGHT MASTER CYLINDER SHOWN. LEFT MASTER CYLINDER SAME.

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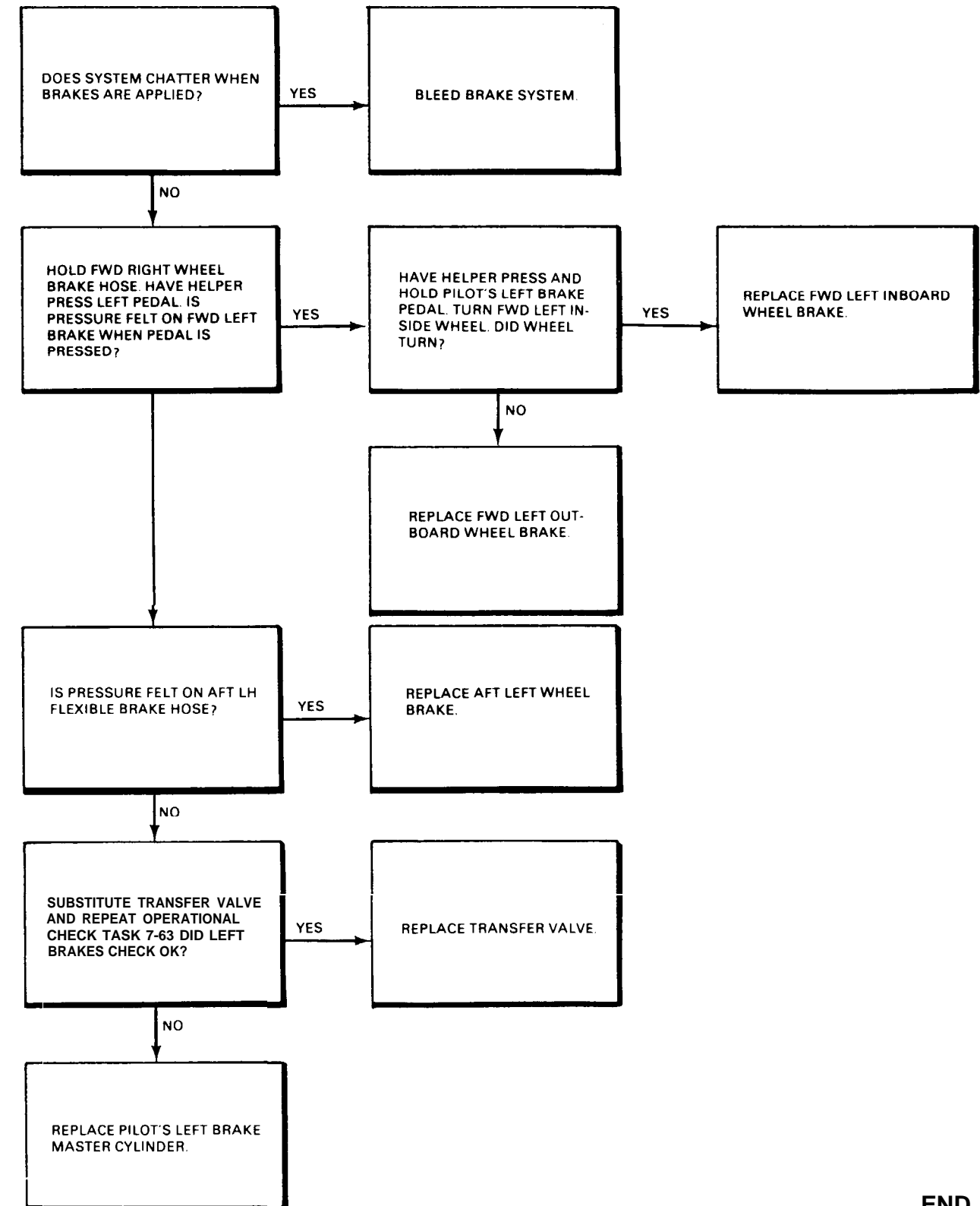
GO TO NEXT PAGE

7-6.6 RIGHT OR LEFT BRAKES DO NOT COME ON WHEN PILOT'S BRAKE PEDALS ARE PRESSED (Continued)

RIGHT BRAKES DO NOT COME ON WHEN PILOT'S RIGHT BRAKE PEDAL IS PRESSED



LEFT BRAKES DO NOT COME ON WHEN PILOT'S LEFT BRAKE PEDAL IS PRESSED



END OF TASK

7-6.7 RIGHT OR LEFT BRAKES DO NOT COME ON WHEN  
COPILOT'S BRAKE PEDALS ARE PRESSED

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:  
None

Personnel Required:  
67U10 Medium Helicopter Repairer (2)  
67U20 Medium Helicopter Repairer

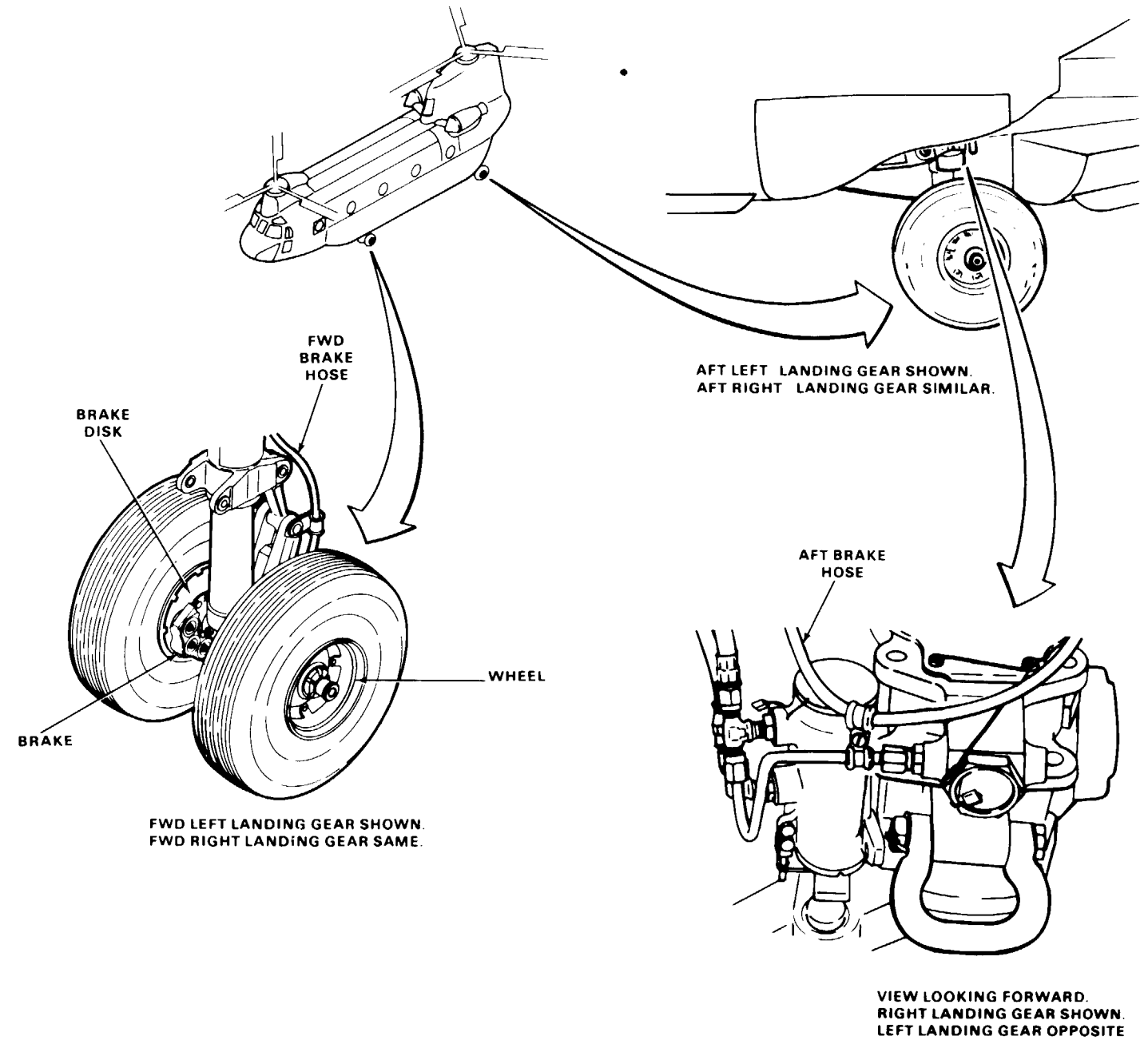
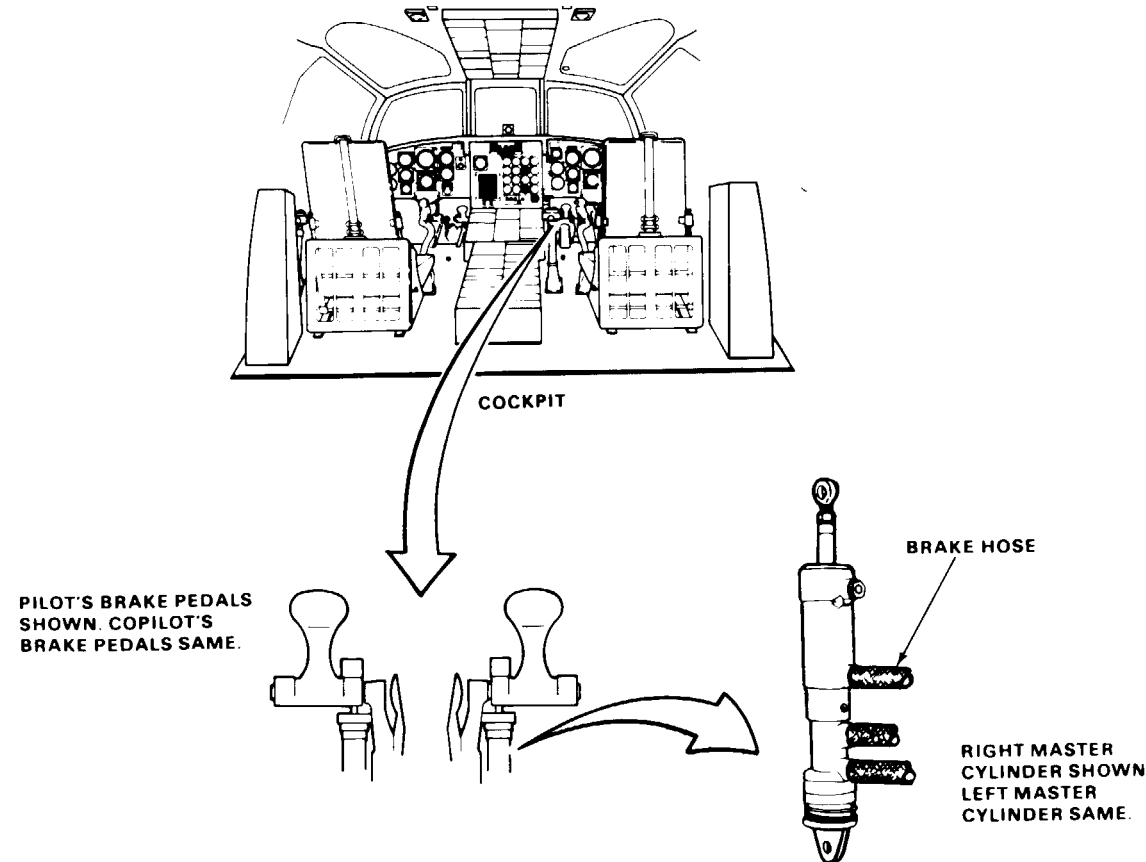
References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aircraft on Jacks at Forward Wheel Axles  
and Aft Fuselage Jacking Point

General Safety Instructions:

**WARNING**

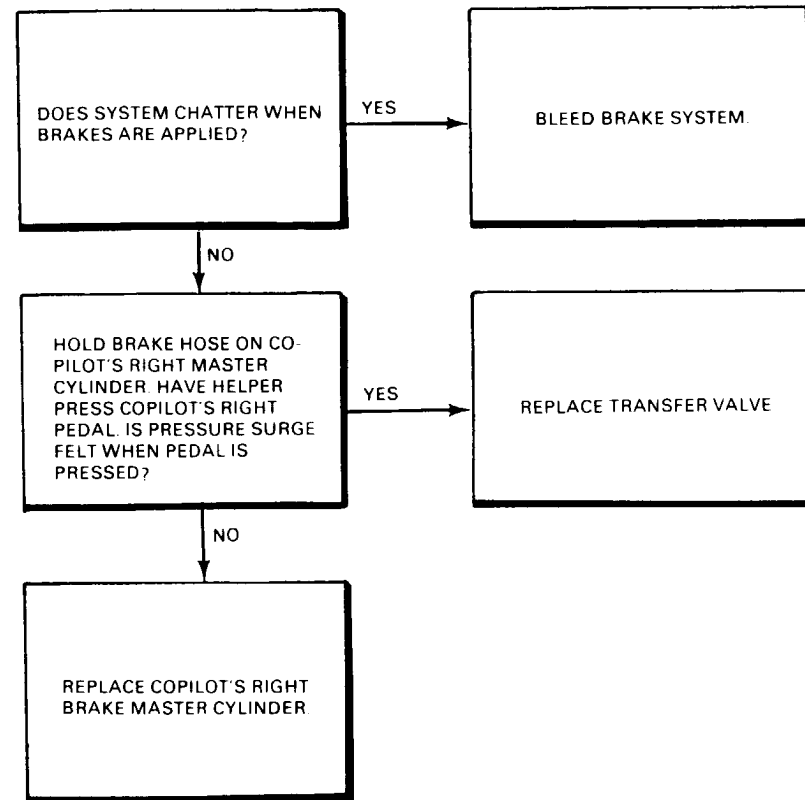
Limit movement of personnel  
while aircraft is on jacks. Per-  
sonal injury can occur if aircraft  
falls off jacks.



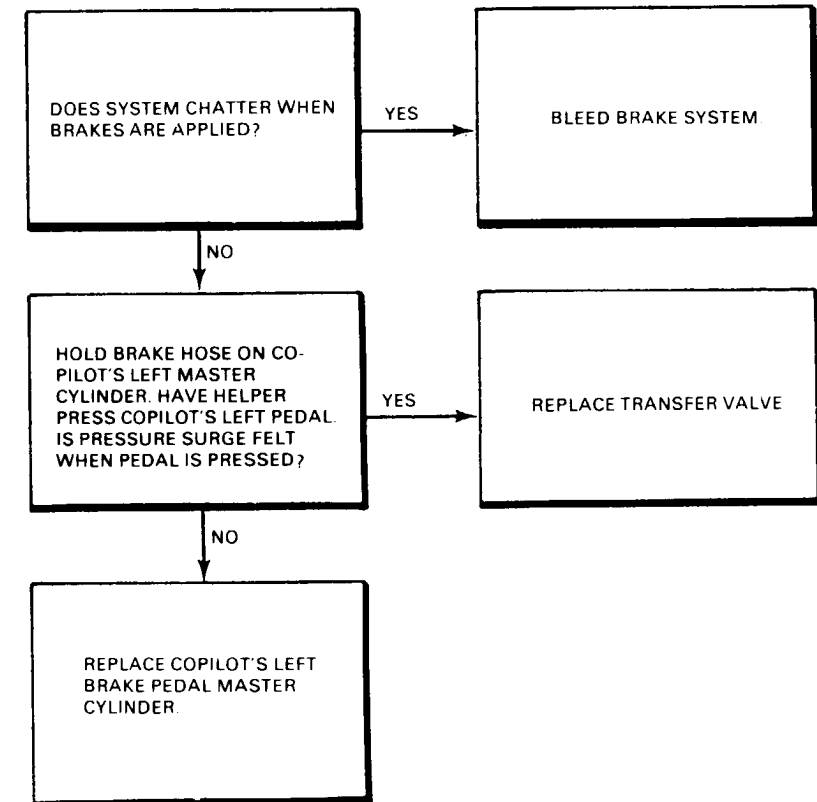
7-6.7 RIGHT OR LEFT BRAKES DO NOT COME ON WHEN  
COPILOT'S BRAKE PEDALS ARE PRESSED (Continued)

7-6.7

RIGHT BRAKES DO NOT COME ON WHEN COPILOT'S RIGHT PEDAL IS  
PRESSED



LEFT BRAKES DO NOT COME ON WHEN COPILOT'S LEFT PEDAL IS  
PRESSED



END OF TASK



7-6.8 PARKING BRAKE HANDLE WILL NOT LOCK

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Personnel Required:

67U10 Medium Helicopter Repairer

67U20 Medium Helicopter Repairer

References:

TM 55-1520-240-23

Equipment Condition:

TM 55-1520-240-23:

Battery Connected

Electrical Power On

Hydraulic Power On

Aircraft Jacks Removed

Applicable Configurations:

All

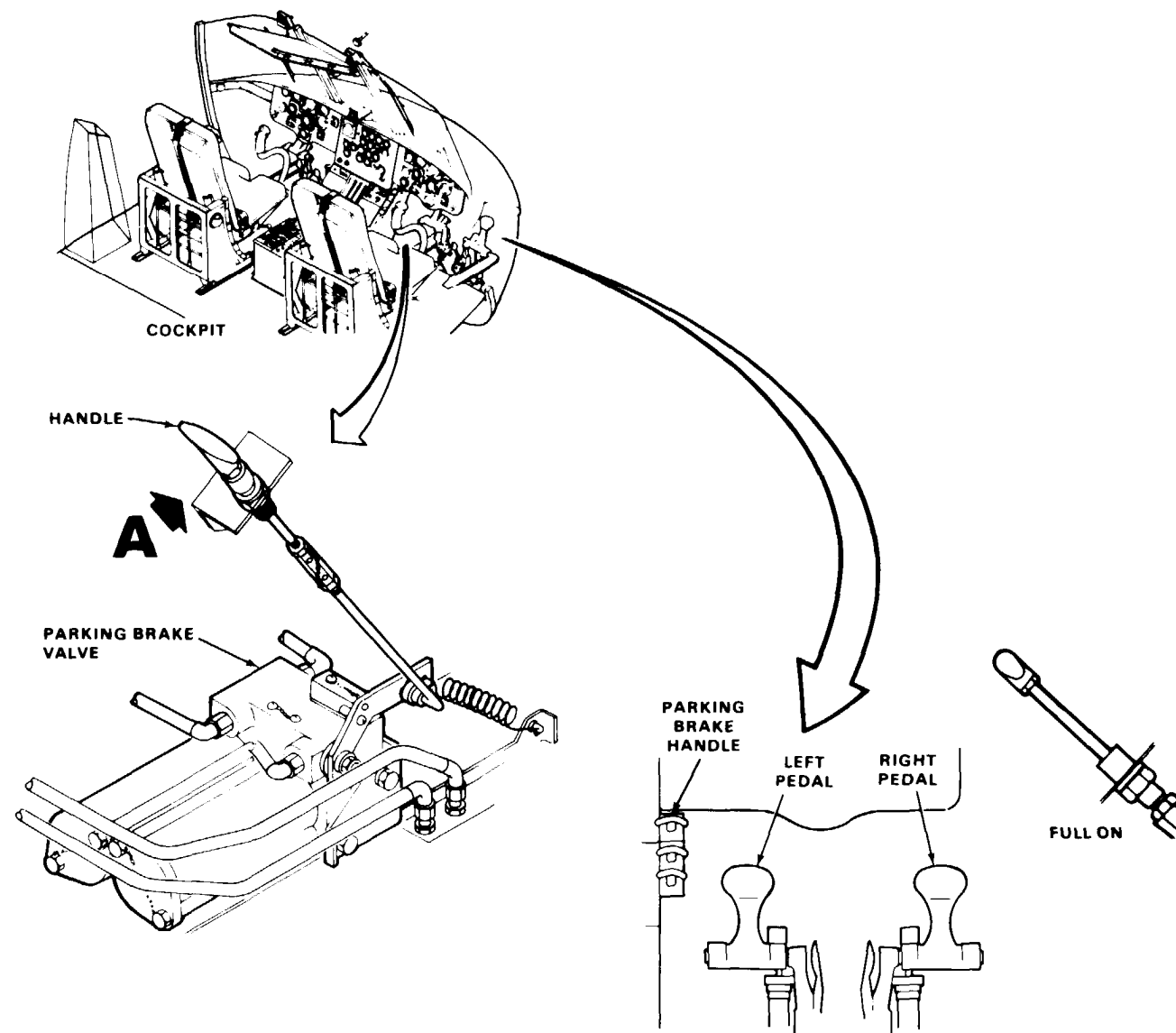
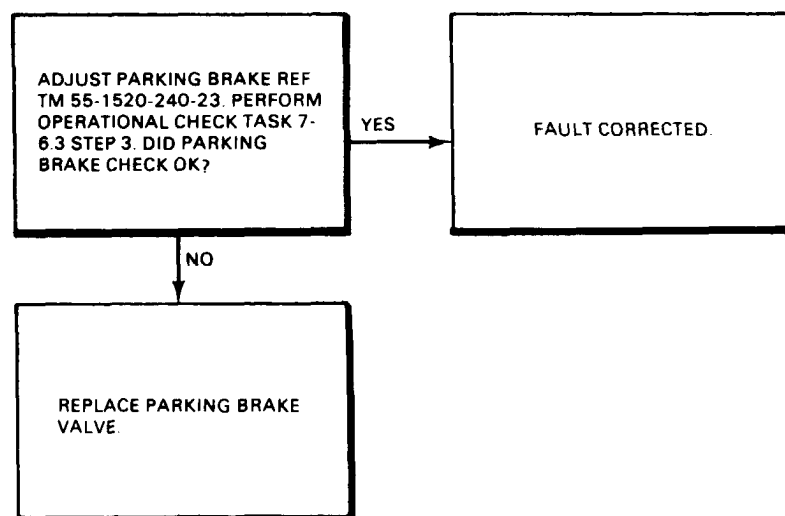
Tools:

Aircraft Mechanic's Tool Kit,

NSN 5180-00-323-4692

Materials:

None



7-6.9 PARK BRAKE (WITHOUT 74 ) OR PARK BRK (WITH 74 ) ON CAUTION LIGHT DOES NOT COME ON

**FAULT ISOLATION PROCEDURE**

**INITIAL SETUP**

**Applicable Configurations:**  
All

**Tools:**

- Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915
- Multimeter

**Materials:**

None

**Personnel Required:**

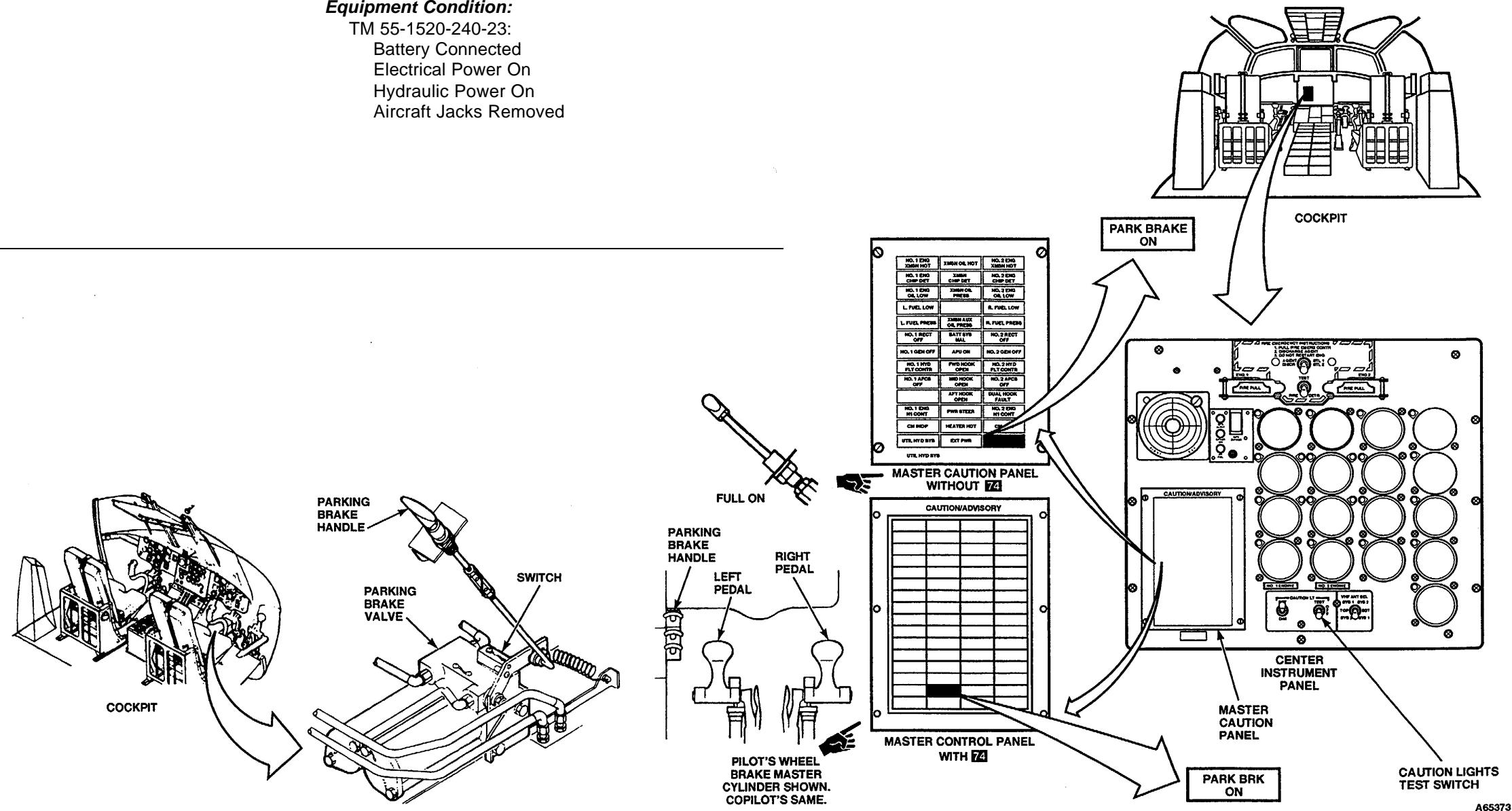
Aircraft Electrician

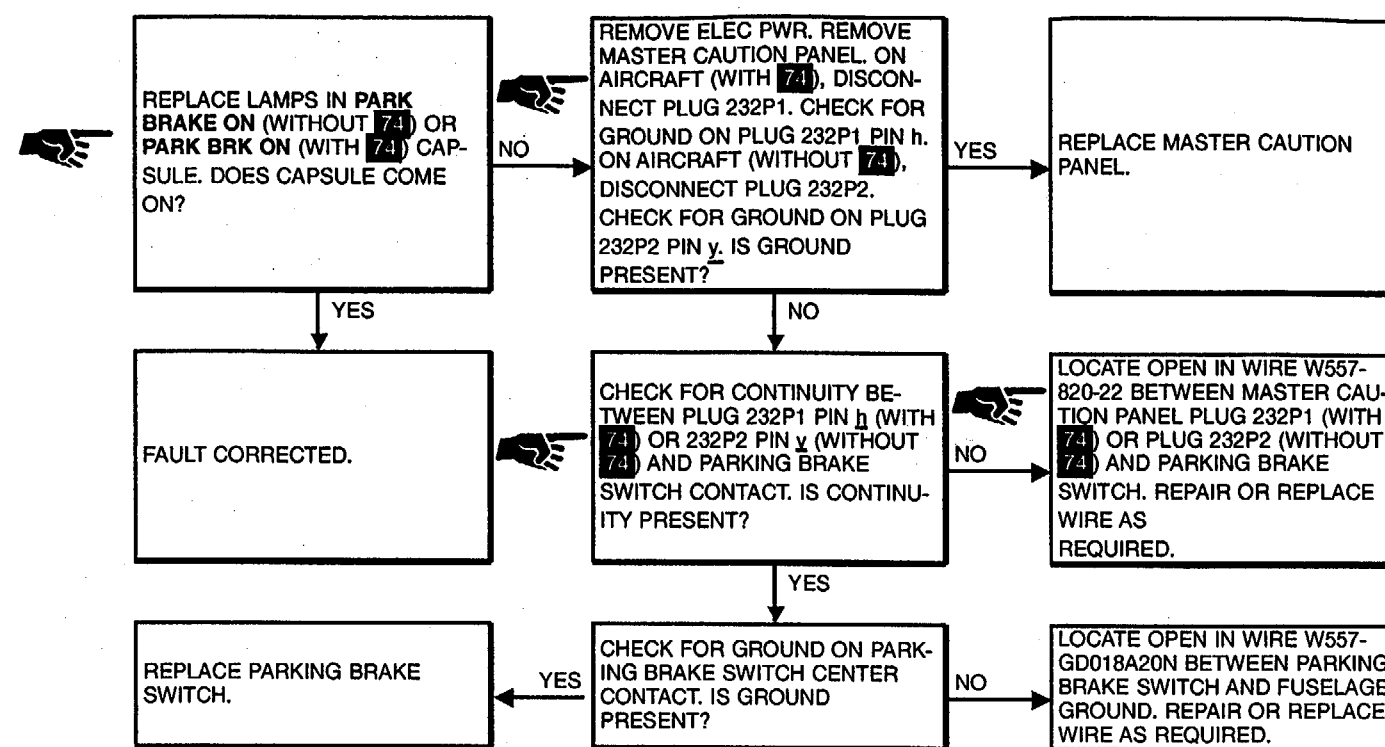
**References:**

TM 55-1520-240-23

**Equipment Condition:**

- TM 55-1520-240-23:
- Battery Connected
- Electrical Power On
- Hydraulic Power On
- Aircraft Jacks Removed





7-6.10 BRAKES WILL NOT RELEASE

**FAULT ISOLATION PROCEDURE**  
INITIAL SETUP

**Applicable Configurations:**  
All

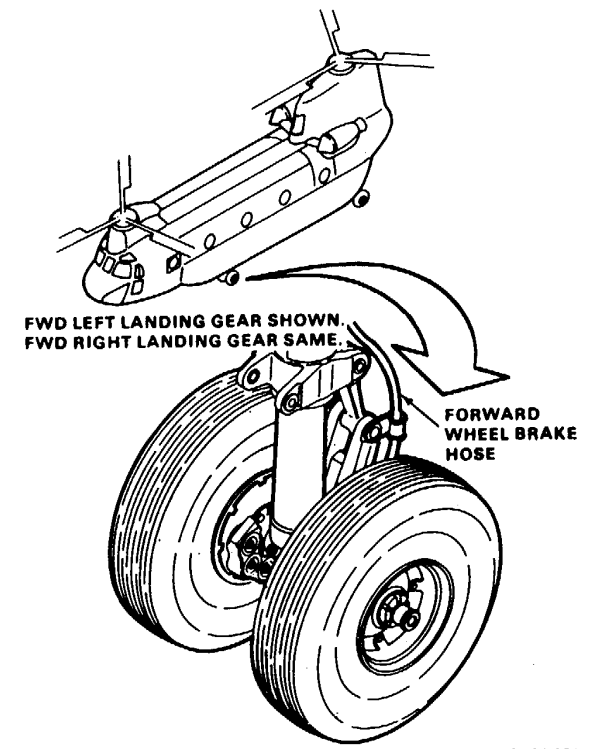
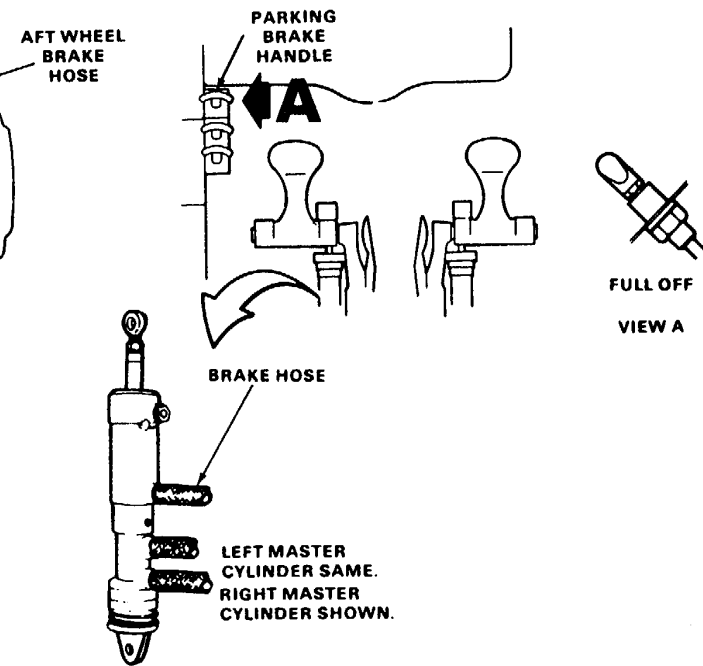
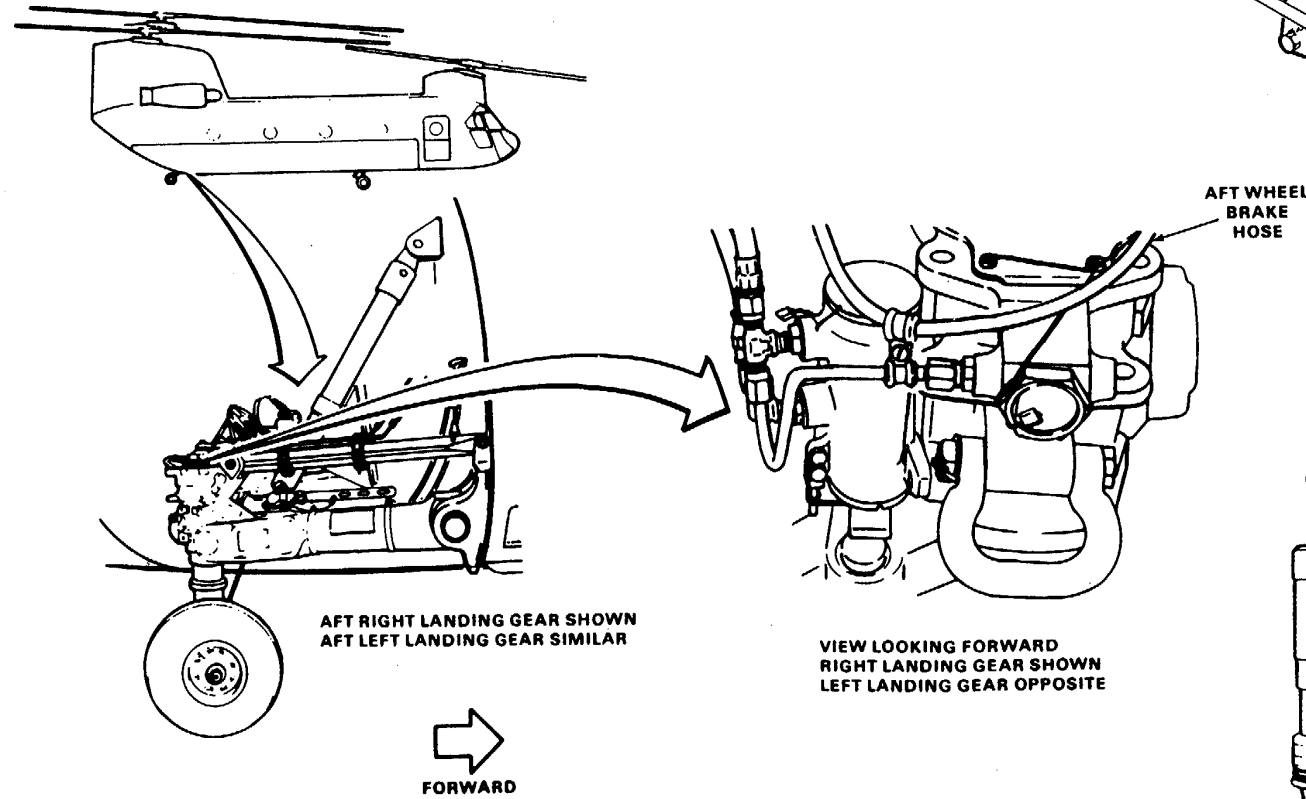
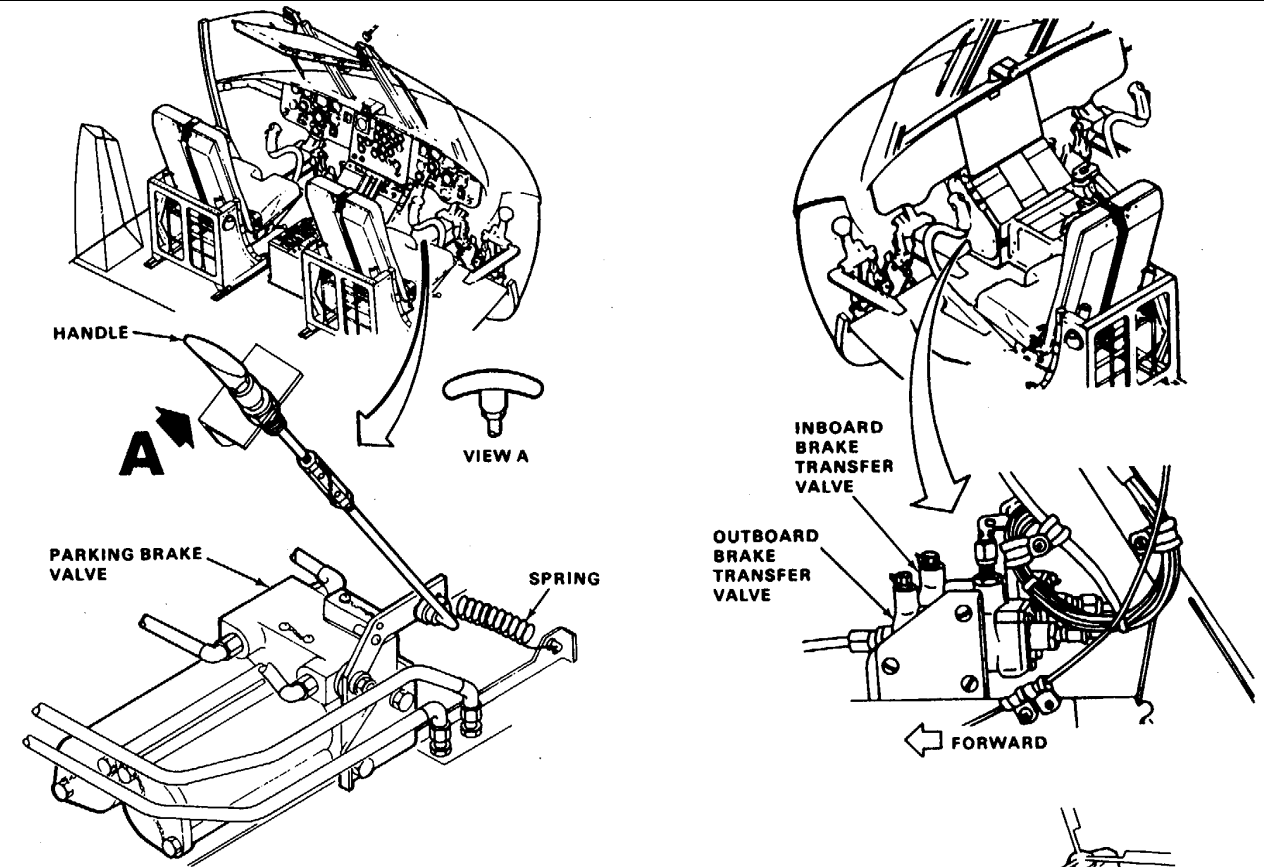
**Tools:**  
Aircraft Mechanic's Tool Kit.  
NSN 5180-00-323-4692

**Materials:**  
None

**Personnel Required:**  
67U10 Medium Helicopter Repairer  
67U20 Medium Helicopter Repairer

**References:**  
TM 55-1520-240-23

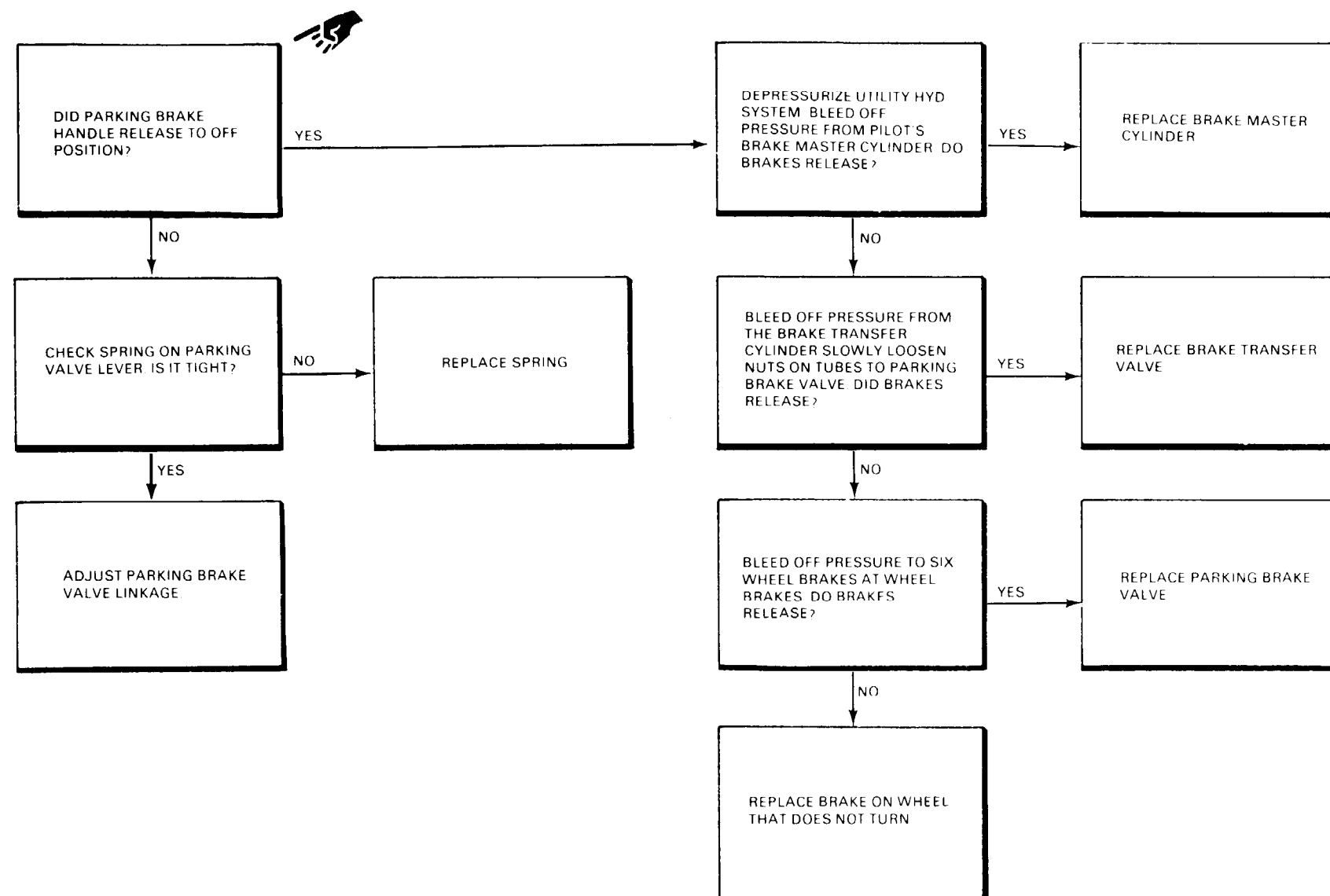
**Equipment Condition:**  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aircraft Jacks Removed



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7-6.10 BRAKES WILL NOT RELEASE (Continued)



END OF TASK

7-6.11 UNABLE TO APPLY BRAKES THREE TIMES ON BRAKE ACCUMULATOR PRESSURE

FAULT ISOLATION PROCEDURE  
INITIAL SETUP

Personnel Required:  
Medium Helicopter Repairer (2)

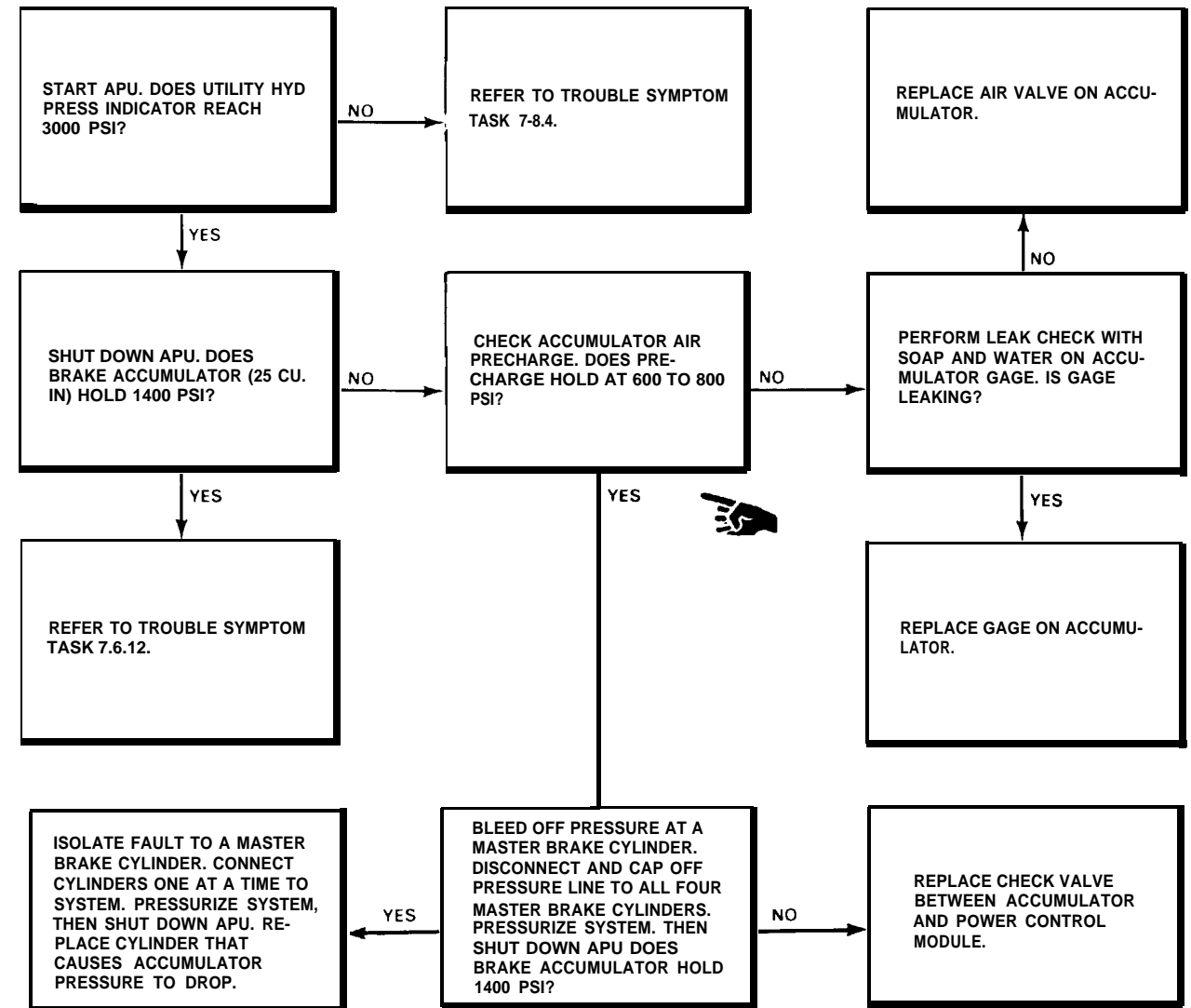
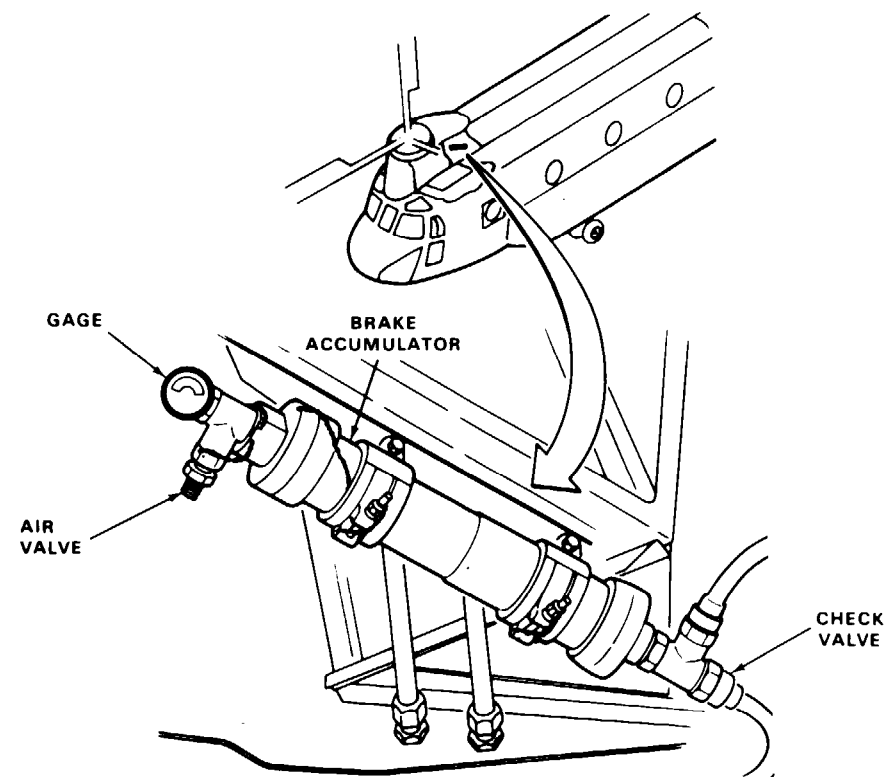
Applicable Configurations:  
All

References:  
TM 55-1520-240-23

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Equipment Condition:  
TM 55-1520-240-23  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Aircraft Jacks Removed

Materials:  
None



7-6.12 BRAKE PRESSURE BLEEDS DOWN WITH 8 HOURS WITH  
PARKING BRAKE ON

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Personnel Required:  
67U20 Medium Helicopter Repairer

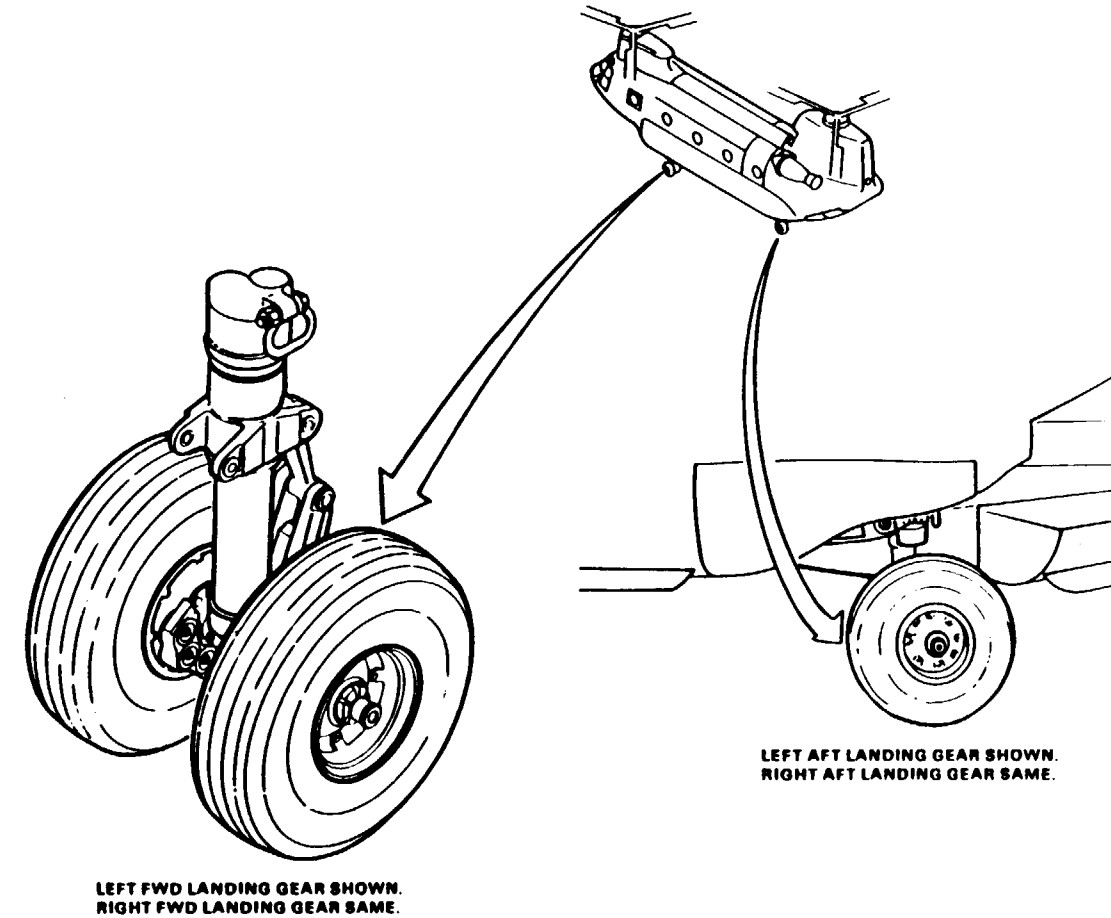
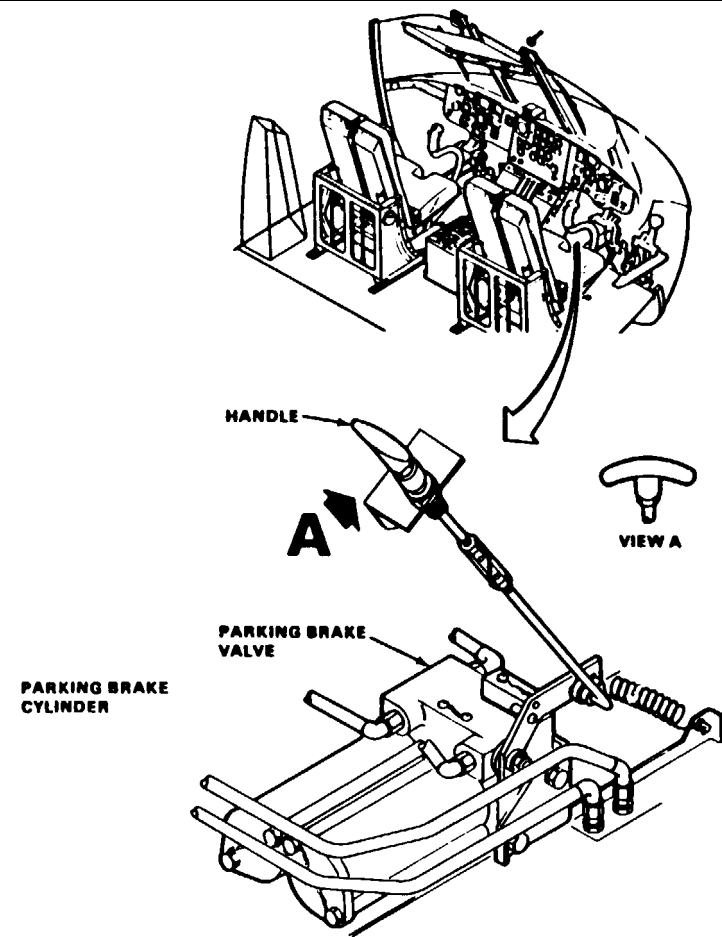
Applicable Configurations:  
All

References:  
TM 55-1520-240-23

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

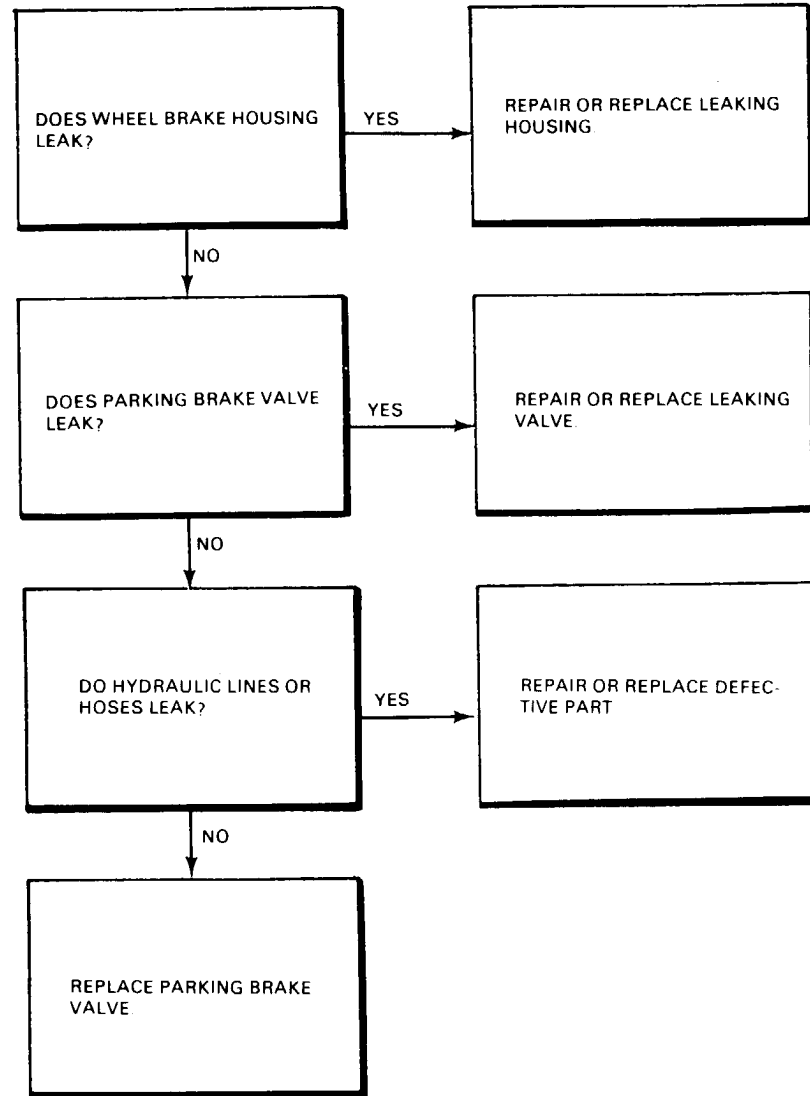
Equipment Condition:  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

Materials:  
None



NOTE:  
WHEEL BRAKES ON ALL SIX  
WHEEL ARE SIMILAR

7-6.12 BRAKE PRESSURE BLEEDS DOWN WITHIN 8 HOURS WITH PARKING BRAKE ON (Continued)





# 7-7 ENGINE HYDRAULIC STARTING SYSTEM

REFER TO CHAPTER 15-5

7-7.2 ENGINE HYDRAULIC STARTING SYSTEM VISUAL CHECK

7-7.2

**INITIAL SETUP**

*Applicable Configurations:*

All

*References:*

TM 55-1520-240-23

*Tools:*

Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

*Equipment Condition:*

TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off  
No. 1 or No. 2 Engine Work Platforms and  
Access Doors Open

*Materials:*

None

*Personnel Required:*

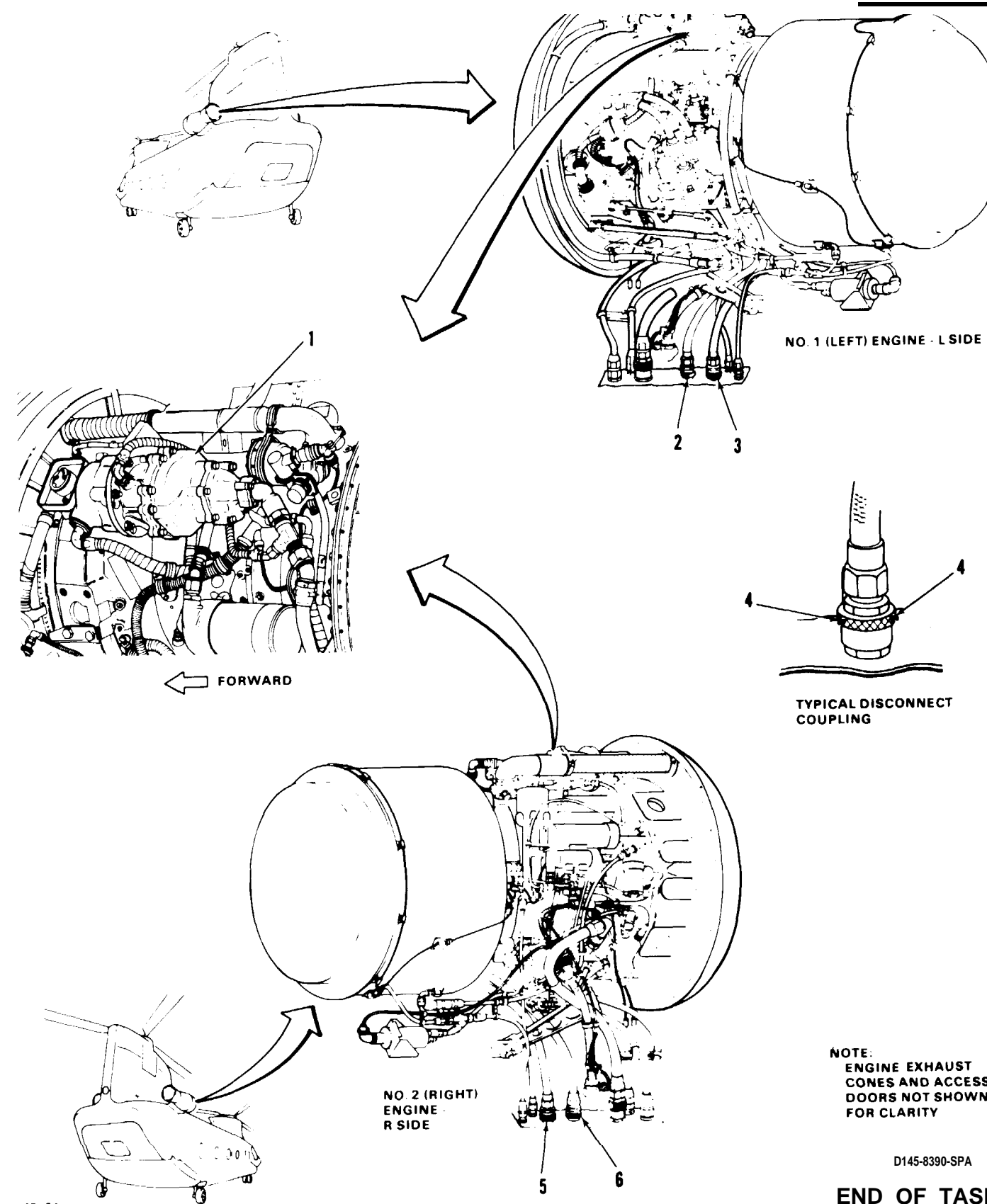
67U10 Medium Helicopter Repairer

TASK	RESULT
<p><i>CHECK NO. 1 ENGINE STARTER INSTALLATION</i></p> <p>1. <b>Check No. 1 engine starter (1).</b></p> <p>2. <b>Check disconnect couplings (2 and 3)</b> for extended buttons (4) or evidence of leaks.</p>	<p>If starter (1) is loose or damaged, tighten or replace it as required.</p> <p>If coupling (2 or 3) is not secured or buttons (4) are not extended, connect coupling. If buttons are still not extended, replace coupling. If buttons are extended and leaks are evident, repair or replace coupling or replace hose.</p>
<p><i>CHECK NO. 2 ENGINE STARTER INSTALLATION</i></p> <p>3. <b>Check No. 2 engine starter (1).</b></p> <p>4. <b>Check disconnect couplings (5 and 6)</b> for extended buttons (4) or evidence of leaks.</p>	<p>If starter (1) is loose or damaged, tighten or replace it as required.</p> <p>If coupling (5 or 6) is not secured or buttons (4) are not extended, connect coupling. If buttons are still not extended, replace couplings. If buttons are extended and leaks are evident, repair or replace coupling or replace hose.</p>

**FOLLOW-ON MAINTENANCE:**

TM 55-1520-240-23:

Close No. 1 or No. 2 Engine Work Platform and Access Door



NOTE:  
ENGINE EXHAUST  
CONES AND ACCESS  
DOORS NOT SHOWN  
FOR CLARITY

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**END OF TASK**

7-7.3 ENGINE HYDRAULIC STARTING SYSTEM  
OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
None

Materials:  
None

Personnel Required:  
67U10 Medium Helicopter Repairer  
67U20 Medium Helicopter Repairer

References:  
TM 55-1520-240-23

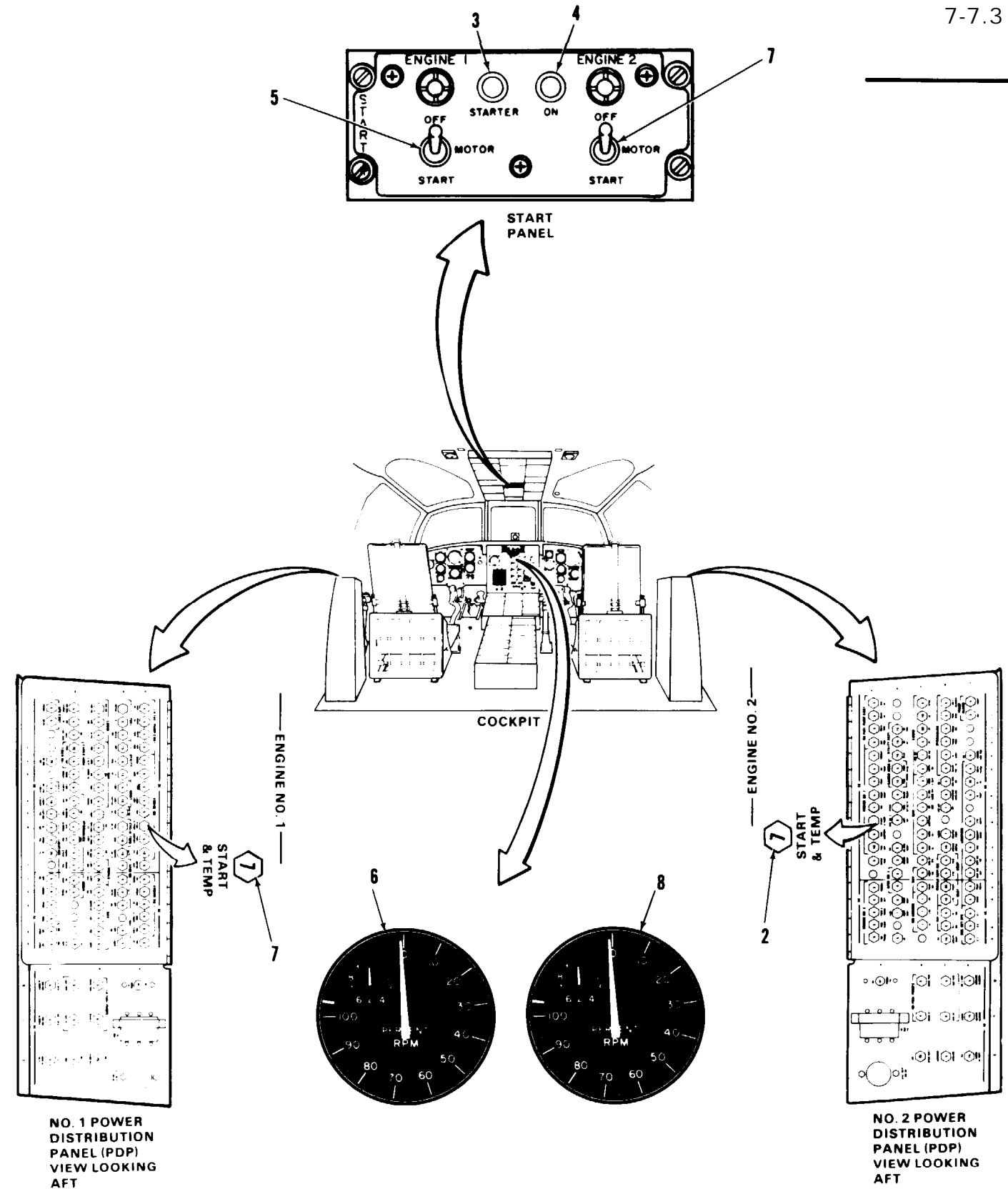
Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
Ignition Switch Key Removed

General Safety Instructions:

**WARNING**

Make sure that rotor blades are clear of obstructions and that personnel are aware that rotor blades may turn during engine motoring. Turning blades can cause damage or serious injury to personnel.

TASK	RESULT
1. Check that <b>ENGINE NO. 1 START&amp; TEMP circuit breaker (1)</b> is closed.	If START & TEMP circuit breaker (1) is open, close it. If it opens again, go to task 4-4.6.
2. Check that <b>ENGINE NO. 2 START&amp; TEMP circuit breaker (2)</b> is closed.	If START & TEMP circuit breaker (2) is open, close it. If it opens again, go to task 4-4.8.
3. Press and release <b>ENGINE 1 STARTER ON light (3)</b> .	Light (3) shall momentarily come on. If it does not light, go to task 4-4.9.
4. Press and release <b>ENGINE 2 STARTER ON light (4)</b> .	Light (4) shall momentarily come on. If it does not light, go to task 4-4.10.
<b>MOTOR NO. 1 ENGINE</b>	
5. Set <b>ENGINE 1 START switch (5)</b> to <b>MO-TOR</b> .	ENGINE 1 STARTER ON light (3) shall come on. NO. 1 ENGINE gas producer tachometer (6) shall indicate <u>10 to 15% N1</u> as starter motors engine. If ENGINE 1 STARTER ON light does not come on, go to task 4-4.9. If engine does not motor, go to task 7-7.4.
6. Set <b>ENGINE 1 START switch (5)</b> to <b>OFF</b> .	NO. 1 ENGINE gas producer tachometer (6) indication shall decrease to 0. If tachometer indication does not decrease or engine continues to motor, go to task 7-7.5.



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7-7.3 ENGINE HYDRAULIC STARTING SYSTEM  
OPERATIONAL CHECK (Continued)

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7-7.3

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TASK	RESULT
<i>MOTOR NO. 2 ENGINE</i>	
7. Set ENGINE 2 START switch (7) to MOTOR.	ENGINE 2 STARTER ON light (4) shall come on. NO. 2 ENGINE gas producer tachometer (8) shall indicate 10 to 15% N1 as starter motors engine. If ENGINE 2 STARTER ON light does not come on, go to task 4-4.10. If engine does not motor, go to task 7-7.4.
8. Set ENGINE 2 START switch (7) to OFF.	NO. 2 ENGINE gas producer tachometer (8) indication shall decrease to 0. If tachometer indication does not decrease or engine continues to motor, go to task 7-7.5.

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FOLLOW-ON MAINTENANCE:  
TM 55-1520-240-23:  
Battery Disconnected  
Electrical Power Off  
Hydraulic Power Off

END OF TASK

7-7.4 NO. 1 OR NO. 2 ENGINE DOES NOT MOTOR  
(HYDRAULIC SYSTEM)

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

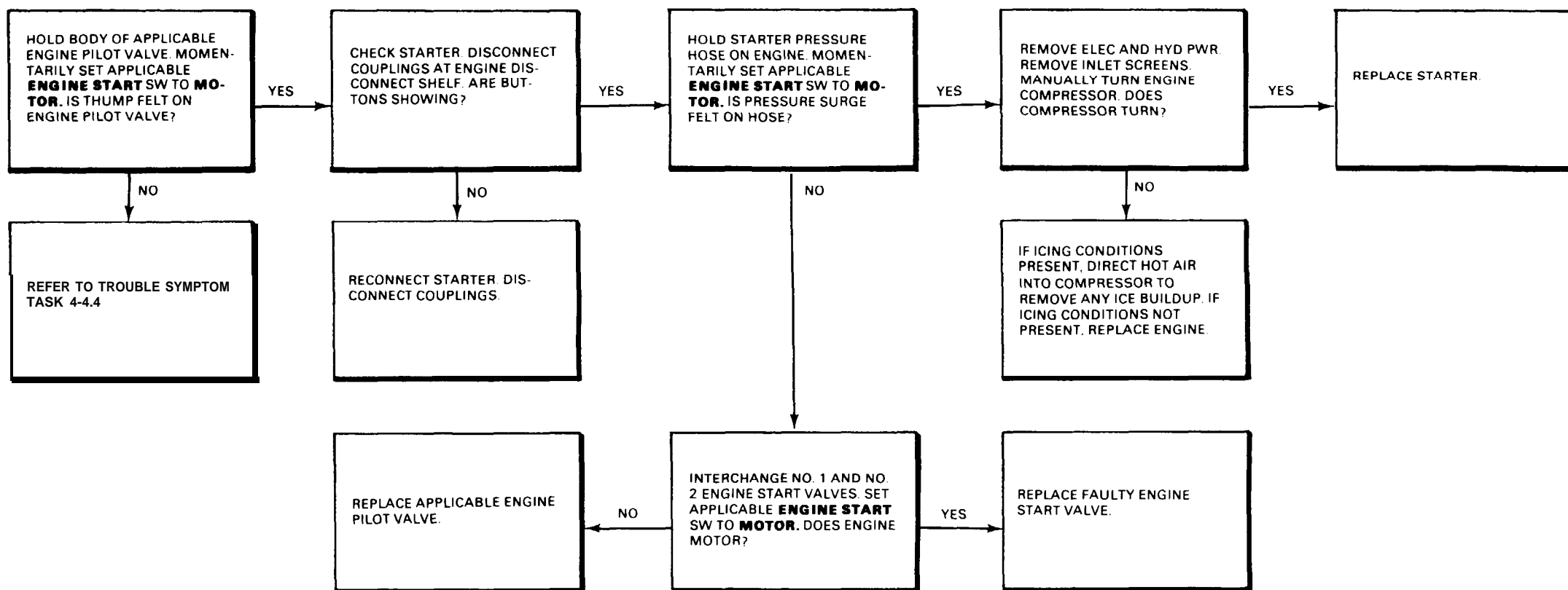
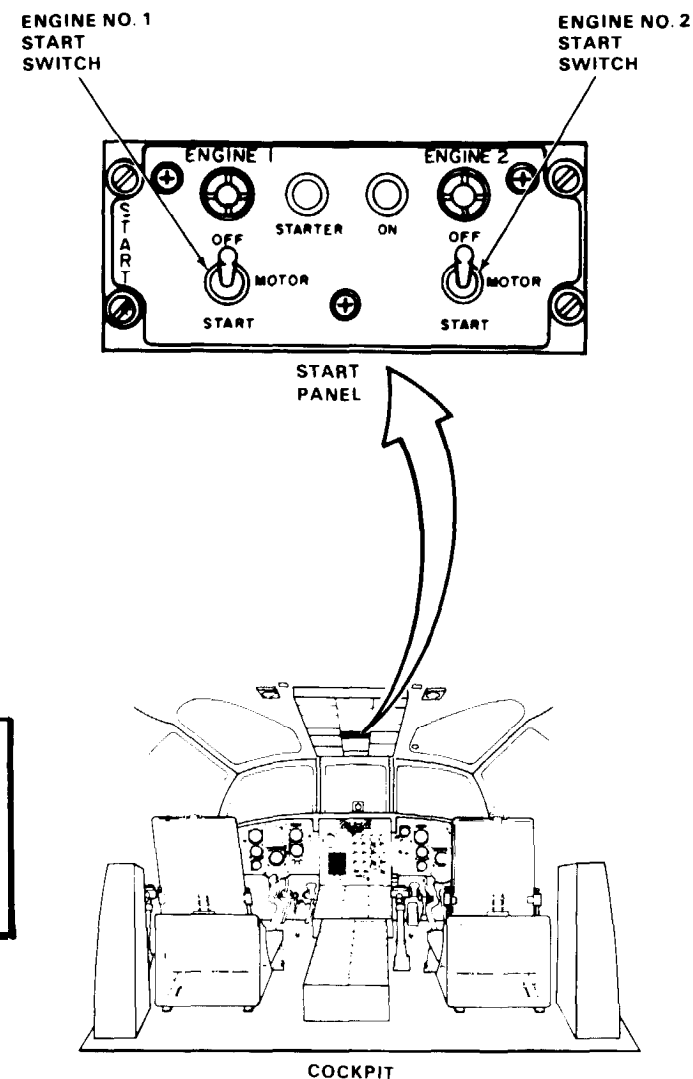
References:  
TM 55-1520-240-23

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On  
No. 1 or No. 2 Engine Work Platform and Access Doors Open

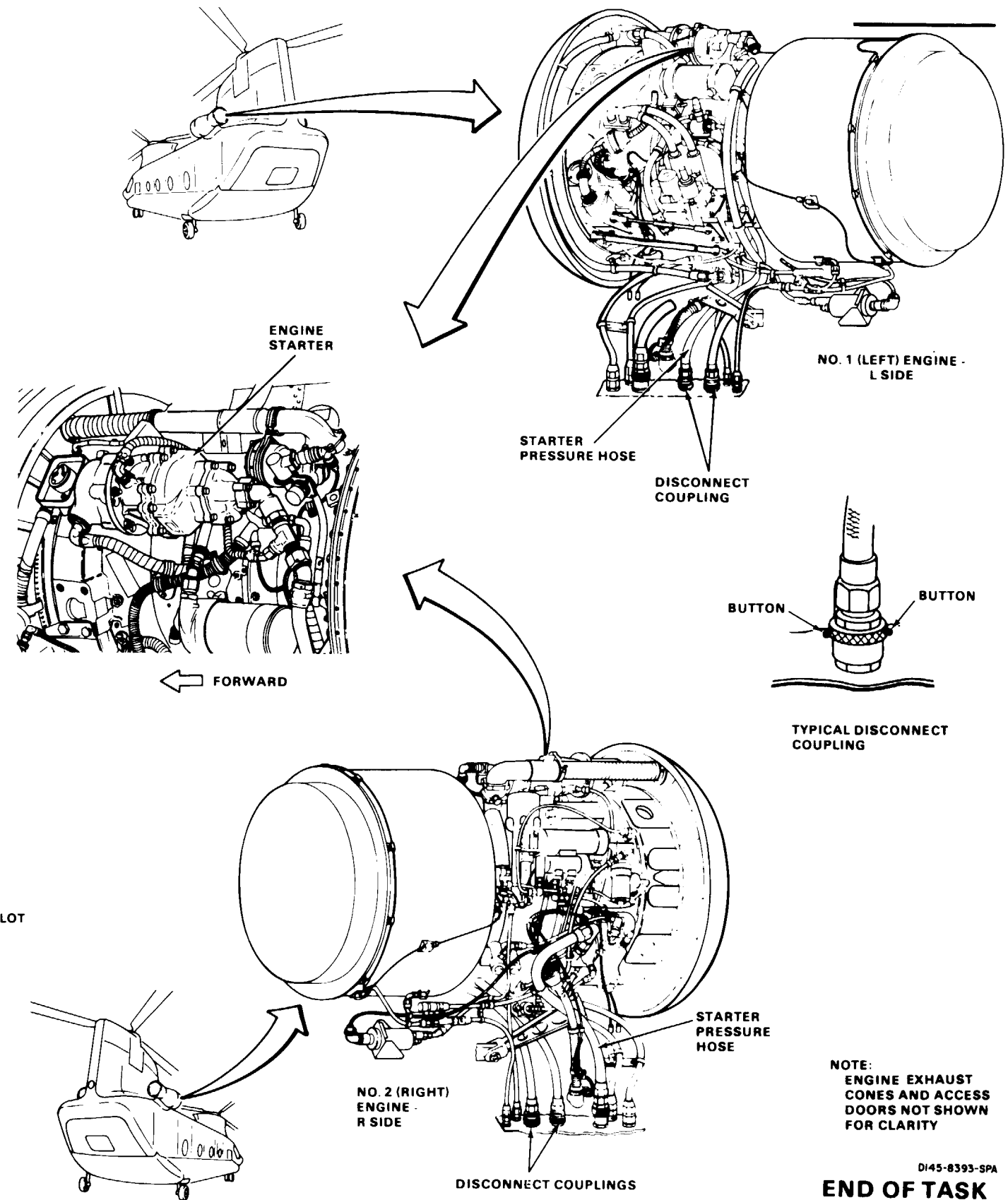
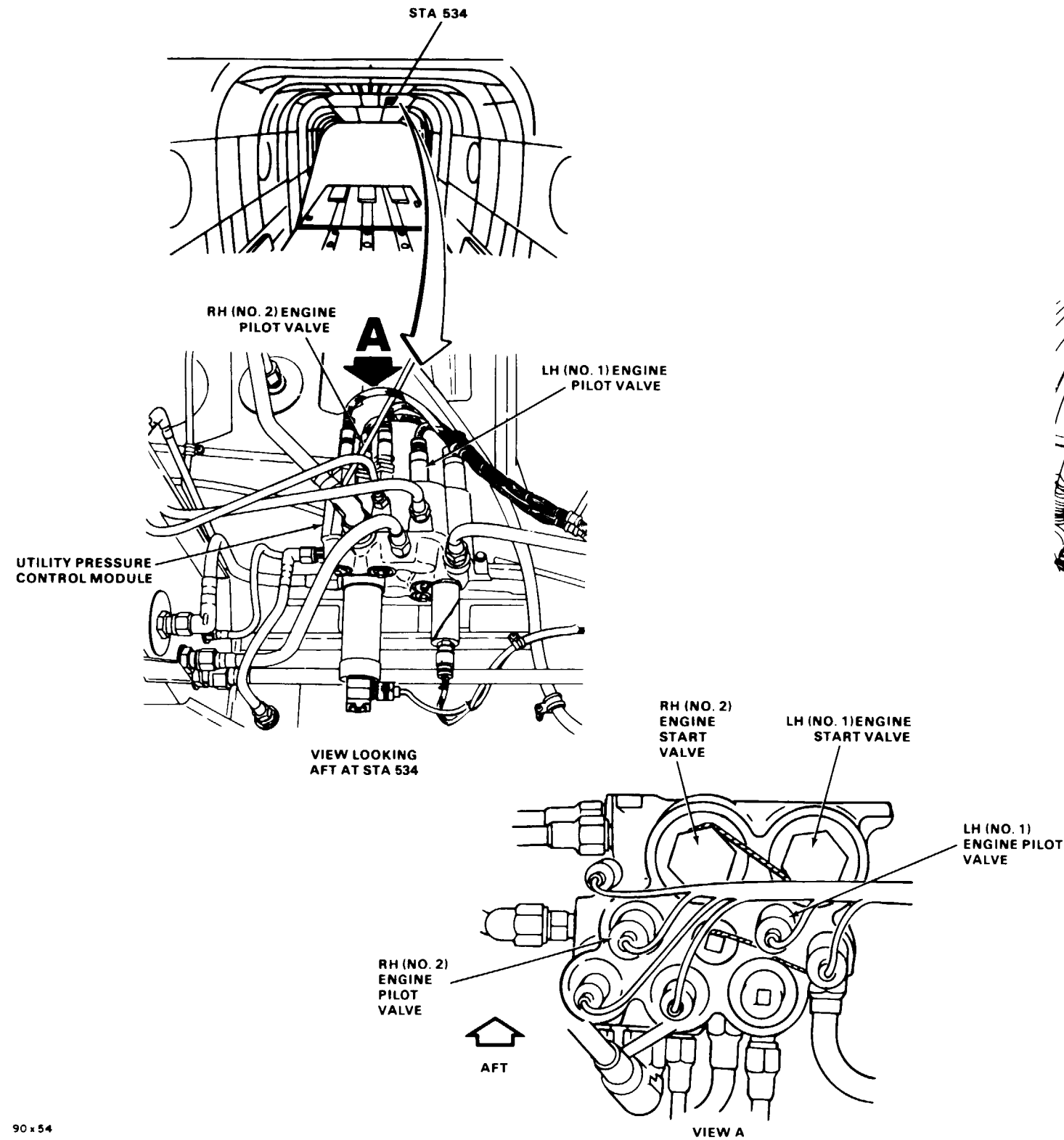
Materials:  
None

Personnel Required:  
67U10 Medium Helicopter Repairer  
67U20 Medium Helicopter Repairer



7-7.4 NO. 1 OR NO. 2 ENGINE DOES NOT MOTOR  
(HYDRAULIC SYSTEM) (Continued)

7-7.4



7-7.5 NO. 1 OR NO. 2 ENGINE KEEPS MOTORING WHEN  
ENGINE START SWITCH SET TO OFF

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

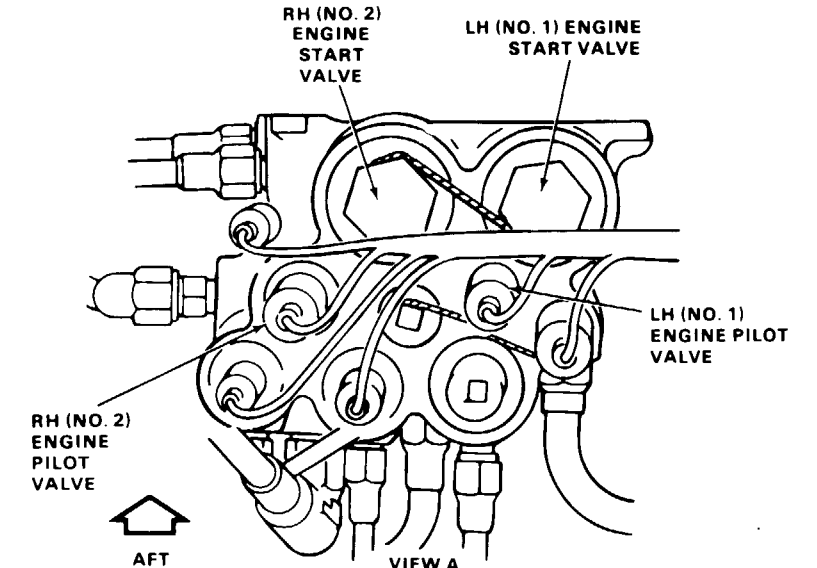
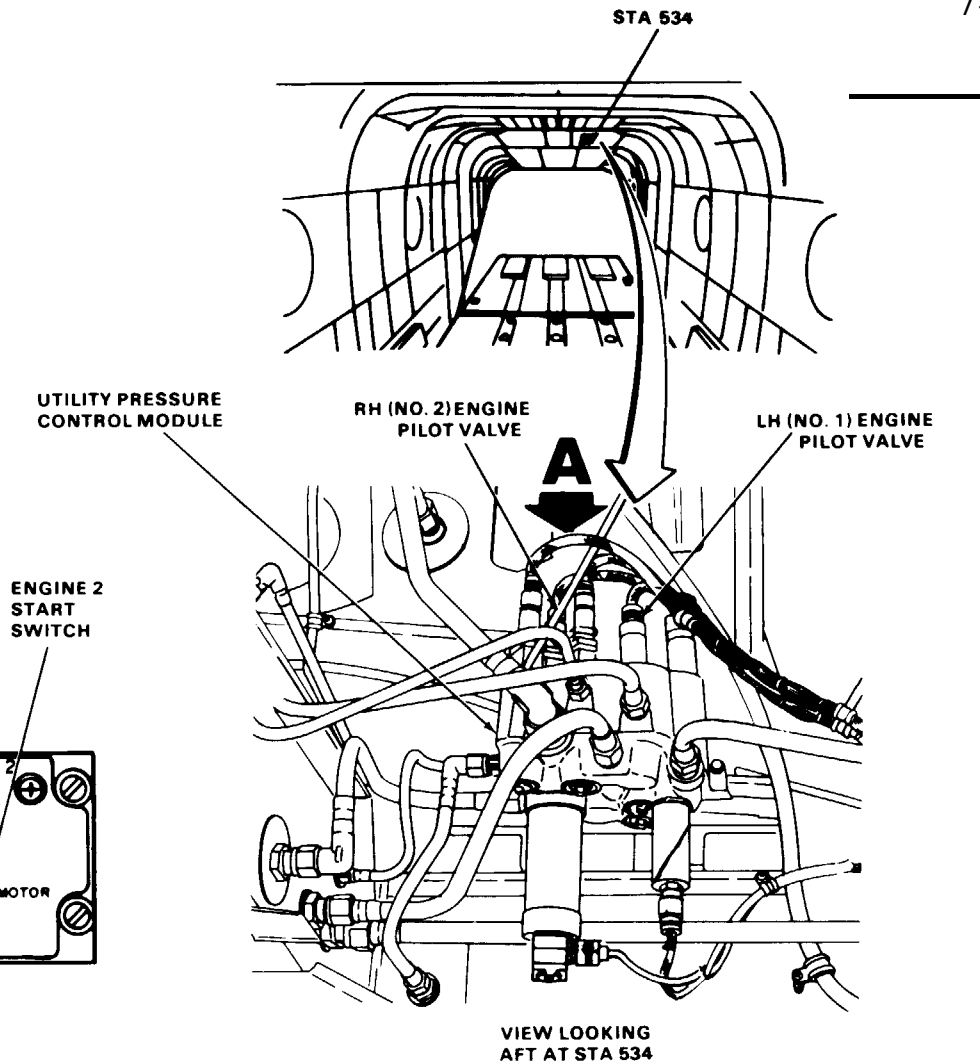
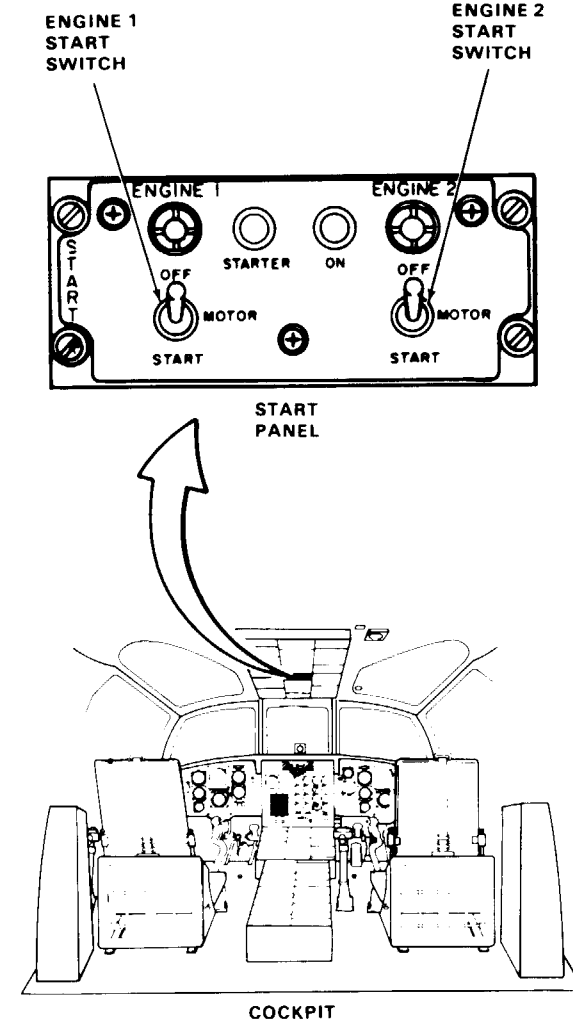
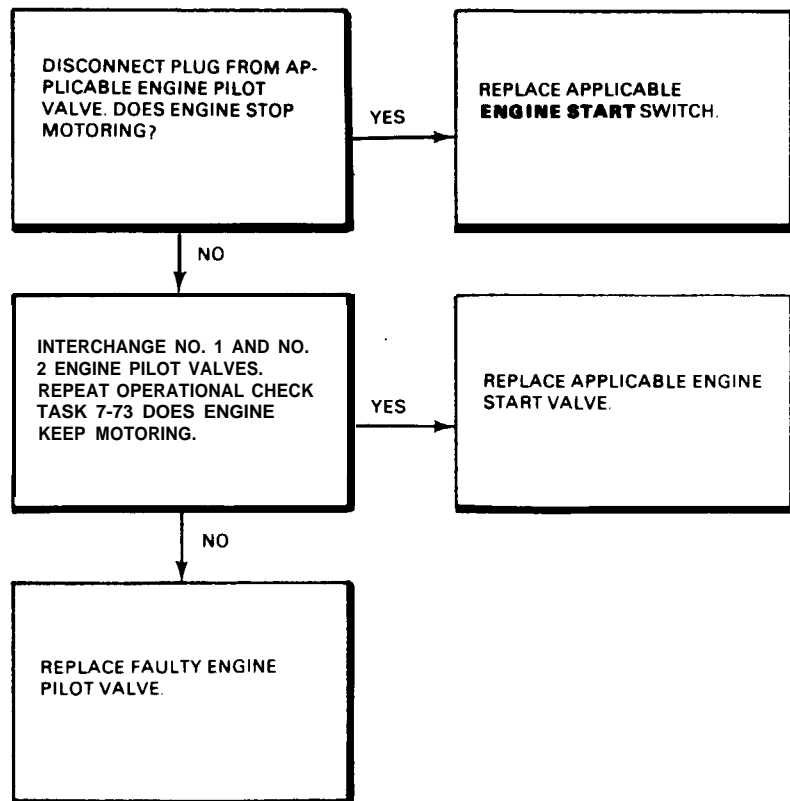
Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692

Materials:  
None

Personnel Required:  
67U20 Medium Helicopter Repairer

References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power On



## 7-8 APU HYDRAULIC STARTING SYSTEM

█ REFER TO CHAPTER 15-4



7-8.2 APU HYDRAULIC STARTING SYSTEM VISUAL CHECK

**INITIAL SETUP**

*Applicable Configurations:*  
All

*References:*  
**TM 55-1520-240-23**

*Tools:*  
Aircraft Mechanic's Tool Kit.  
NSN 5180-00-323-4692

*Equipment Condition:*  
TM 55-1520-240-23:  
Electrical Power Of  
Battery Disconnected  
Hydraulic Power Off  
Right Aft Transmission  
Baffle Open  
Cargo Ramp Operational Level  
(Task 7-3.4)

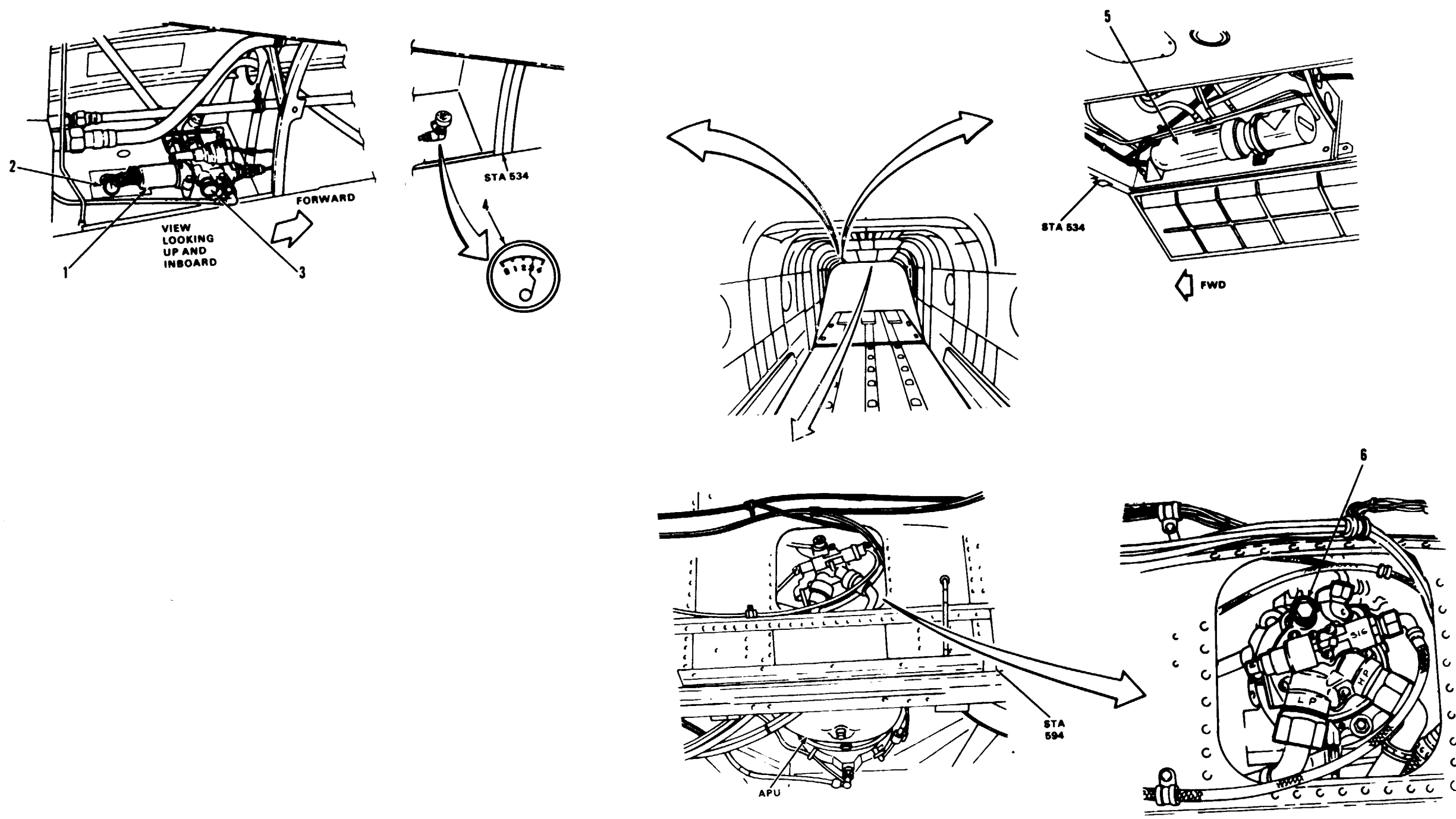
*Materials:*  
None

*Personnel Required:*  
67U10 Medium Helicopter Repairer

TASK	RESULT
1. <b>Check APU start module accumulator (1).</b>	If accumulator (1) or accumulator gage (2) is damaged. replace accumulator.
2. <b>Check apu start module (3).</b>	If any tube to module (3) is loose or damaged. tighten or replace it as required. If electrical connector to module is loose or damaged. tighten or replace it as required. If wiring to connector is damaged, repair or replace it as required.
3. <b>Check APU start accumulator gage (4).</b>	If gage (4) is loose or damaged. tighten or replace it as required.
4. <b>Check APU start accumulator (5).</b>	If accumulator (5) is loose or damaged, tighten or replace it as required. If any tube to accumulator is loose or damaged, tighten or replace it as required.
5. <b>Check APU motor pump (6).</b>	If pump (6) is loose or damaged. tighten or replace it as required. If any hose to pump is loose or damaged. tighten or replace it as required.

FOLLOW-ON MAINTENANCE:

7-8.2 APU HYDRAULIC STARTING SYSTEM VISUAL CHECK (Continued)



D145-11438-SPA

END OF TASK

7-8.3 APU HYDRAULIC STARTING SYSTEM OPERATIONAL CHECK

INITIAL SETUP

Applicable Configurations:

All

References:

TM 55-1520-240-23

Tools:

None

Equipment Condition:

TM 55-1520-240-23:

Battery Connected

Electrical Power Off

Hydraulic Power Off

Materials:

None

Visual Check of Apu Hydraulic

Starting System Performed (Task 7-8.2)

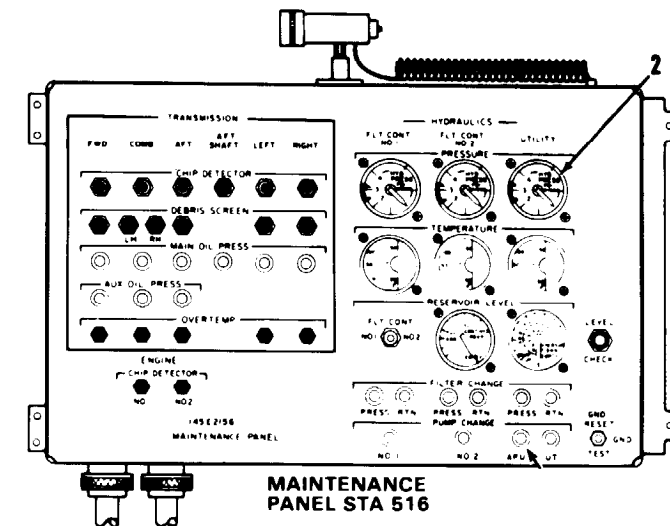
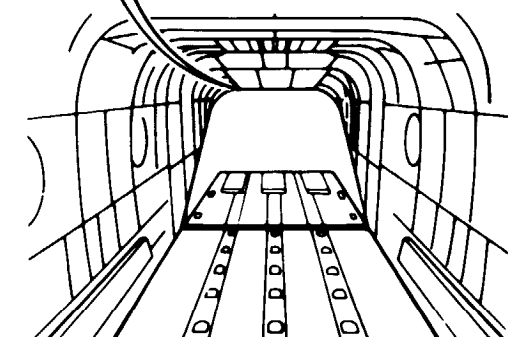
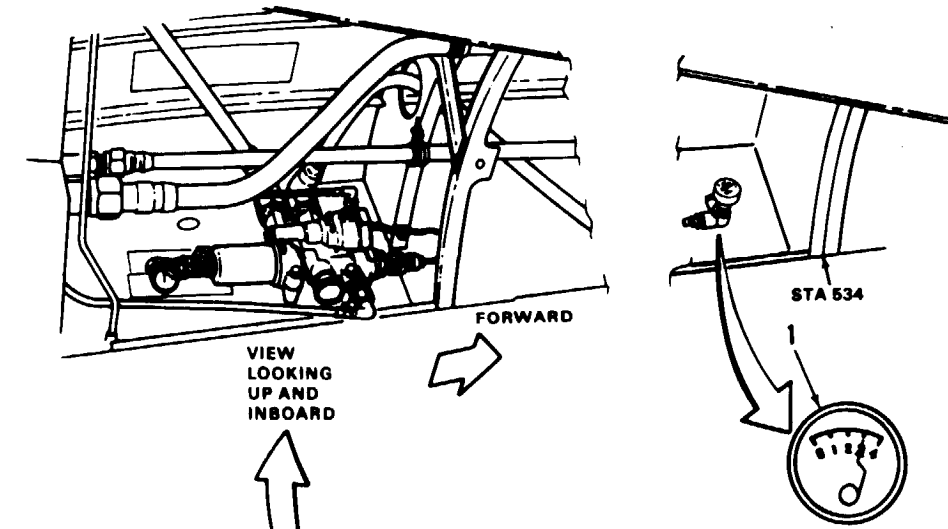
Personnel Required:

Medium Helicopter Repairer (2)

TASK	RESULT
1. Check APU start accumulator gage (1).	Gage (1) shall indicate at least <u>3000 psi</u> . If it does not, use hand pump to charge accumulator. If gage still does not indicate at least <u>3000 psi</u> , go to task 7-8.4.
2. Start APU. Refer to task 15-1.4.	APU shall begin to motor and accelerate to running speed within <u>30 seconds</u> . UTILITY HYDRAULICS indicator (2) shall indicate <u>3200 to 3500 psi</u> . If indicator does not indicate <u>3200 to 3500 psi</u> , stop apu and go to task 7-2.4. If APU does not motor, go to task 7-8.5. If APU motors but does not start, go to task 15-1.9.
3. Stop APU. Refer to task 15-1.4.	

FOLLOW-ON MAINTENANCE:

TM 55-1520-240-23



45x54

D145-11439-SPA

7-8.4 APU START ACCUMULATOR GAGE DOES NOT INDICATE AT LEAST 3000 PSI

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

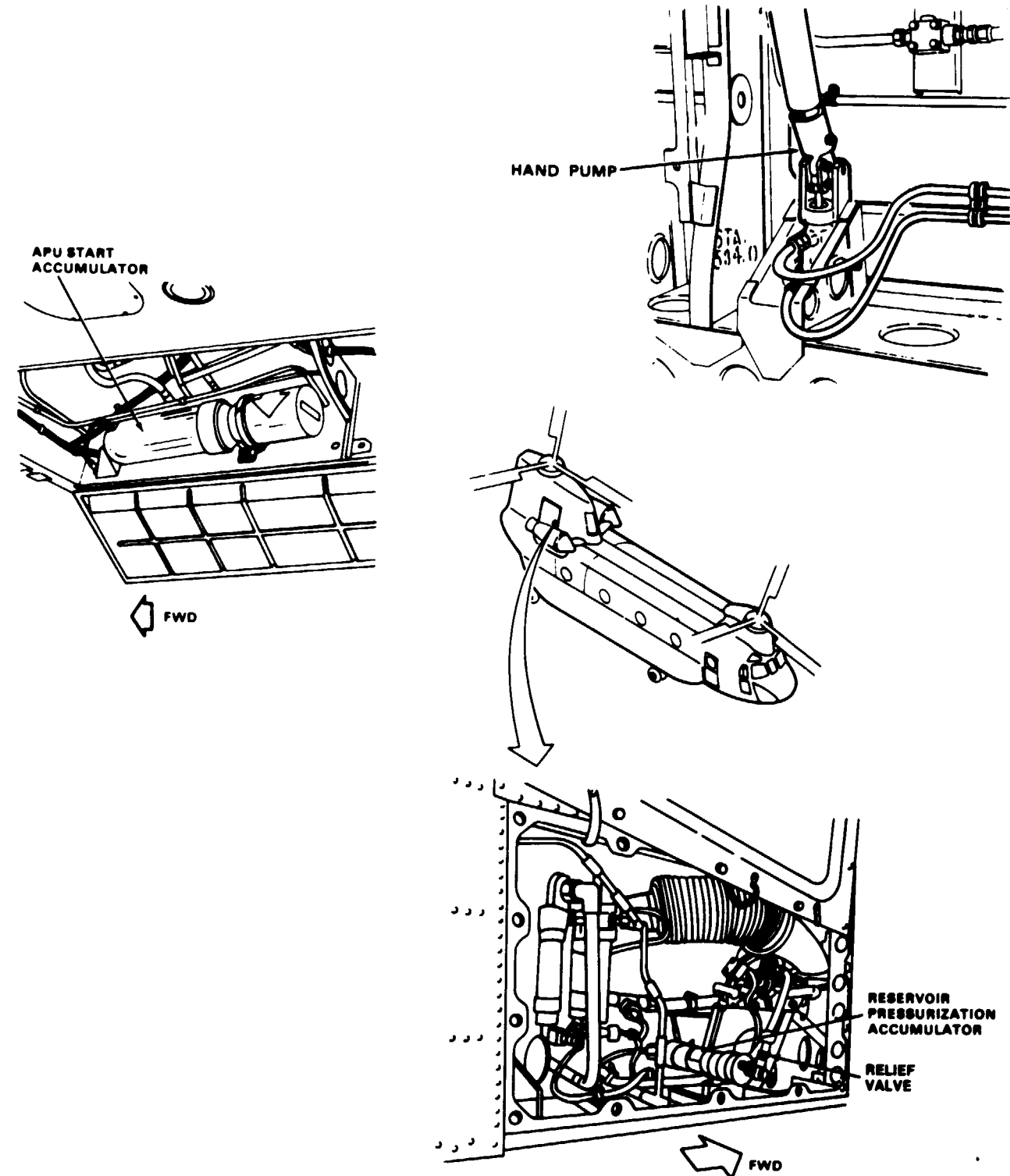
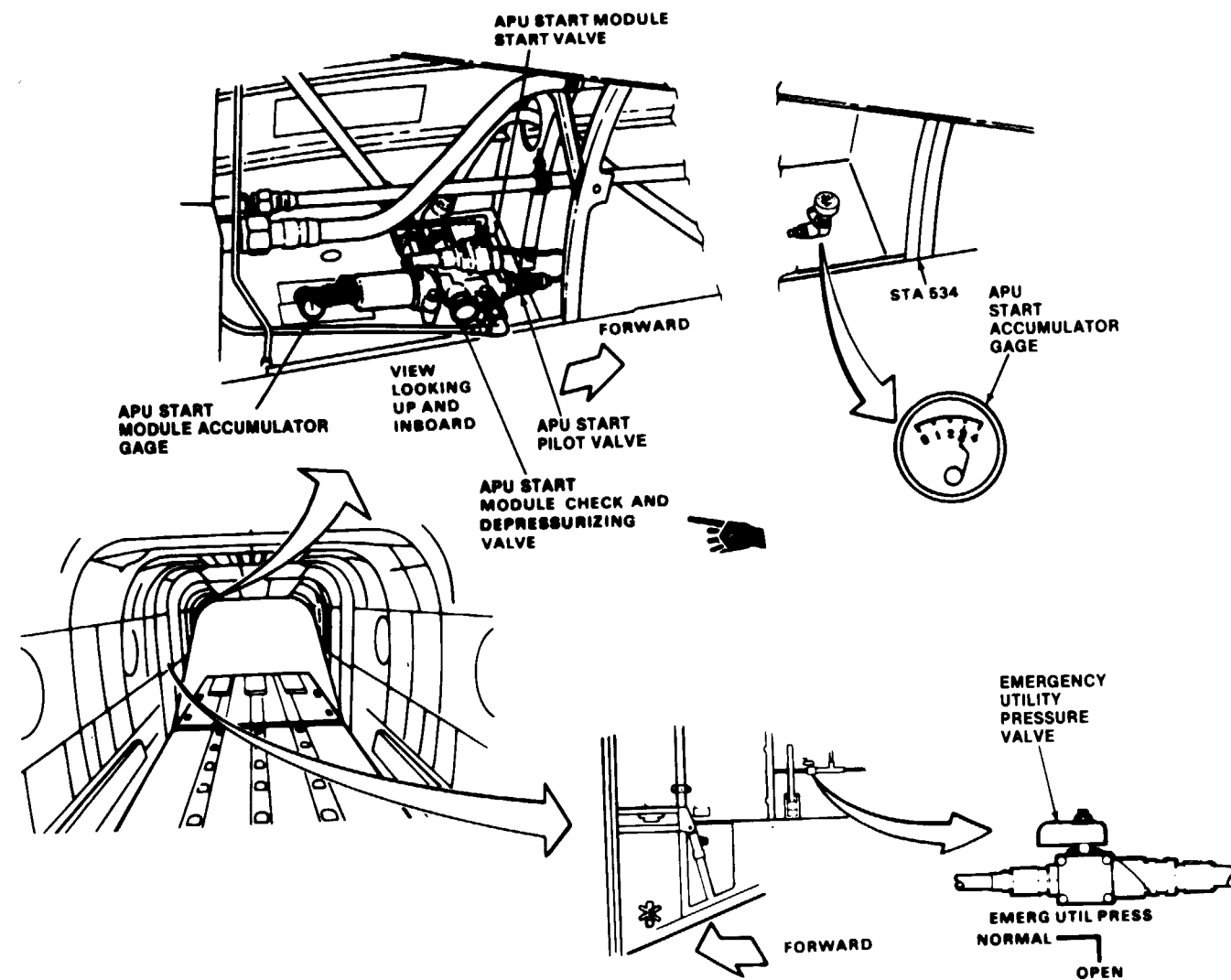
Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Hydraulic Power Source  
Pressure Gage 5000 PSI

Materials:  
None

Personnel Required:  
Medium Helicopter Repairer (2)

References:  
TM 55-1520-240-23

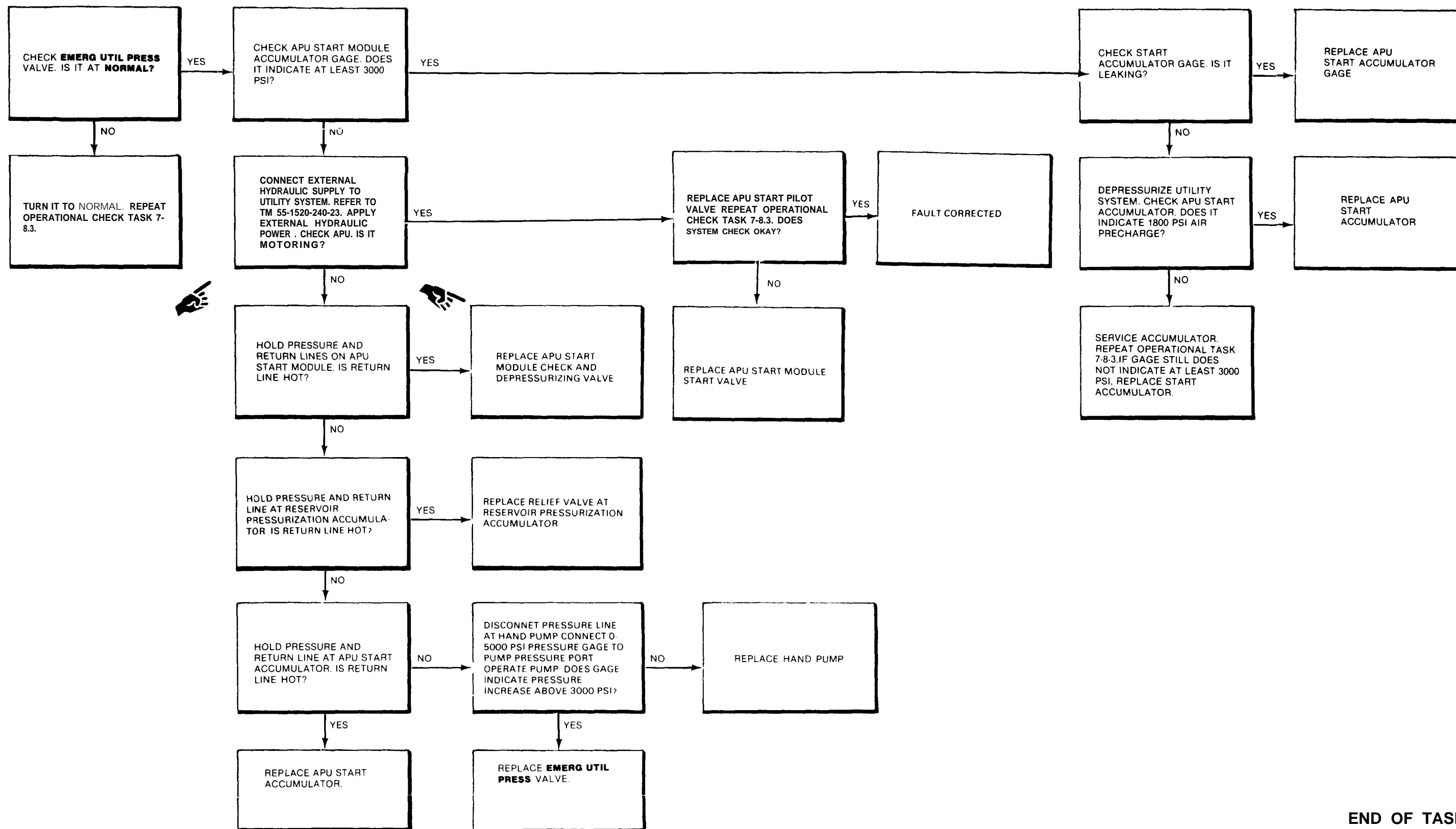
Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



Page 7-213 is a blank page.

7-8.4 APU START ACCUMULATOR GAGE DOES NOT INDICATE AT LEAST 3000 PSI (Continued)

7-8.4



END OF TASK

Change 1

7-215

7-8.5 APU DOES NOT MOTOR

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

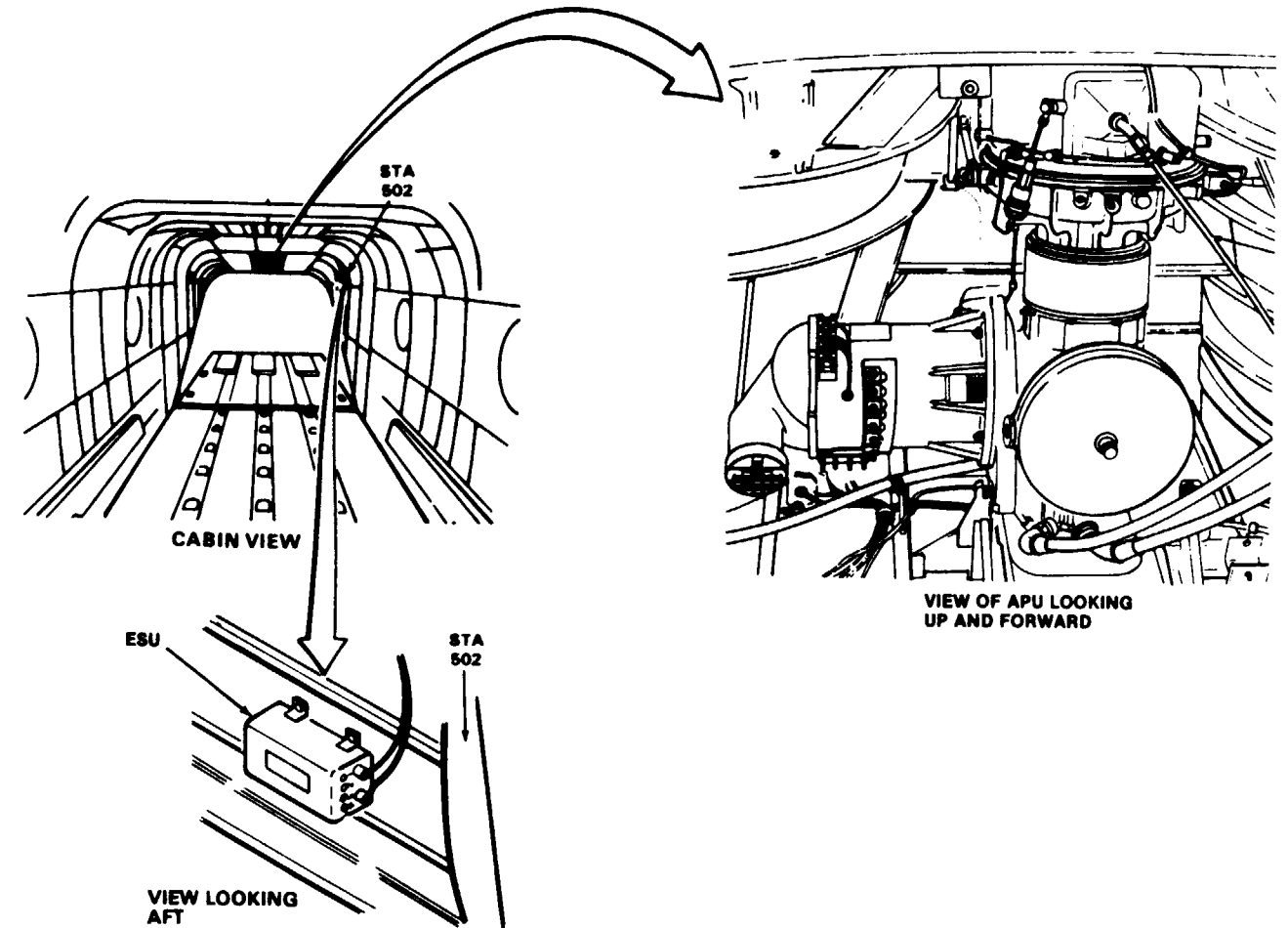
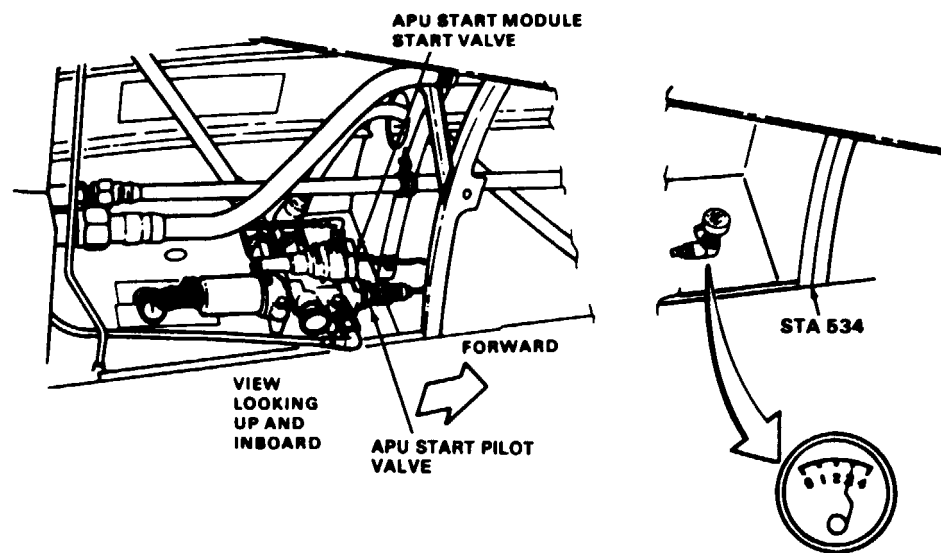
Tools:  
Electrical Repairer's Tool Kit,  
NSN 5180-00-323-4915  
Multimeter  
Hydraulic Power Source

Materials:  
None

Personnel Required:  
68F20 Aircraft Electrician  
67U10 Medium Helicopter Repairer

References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off

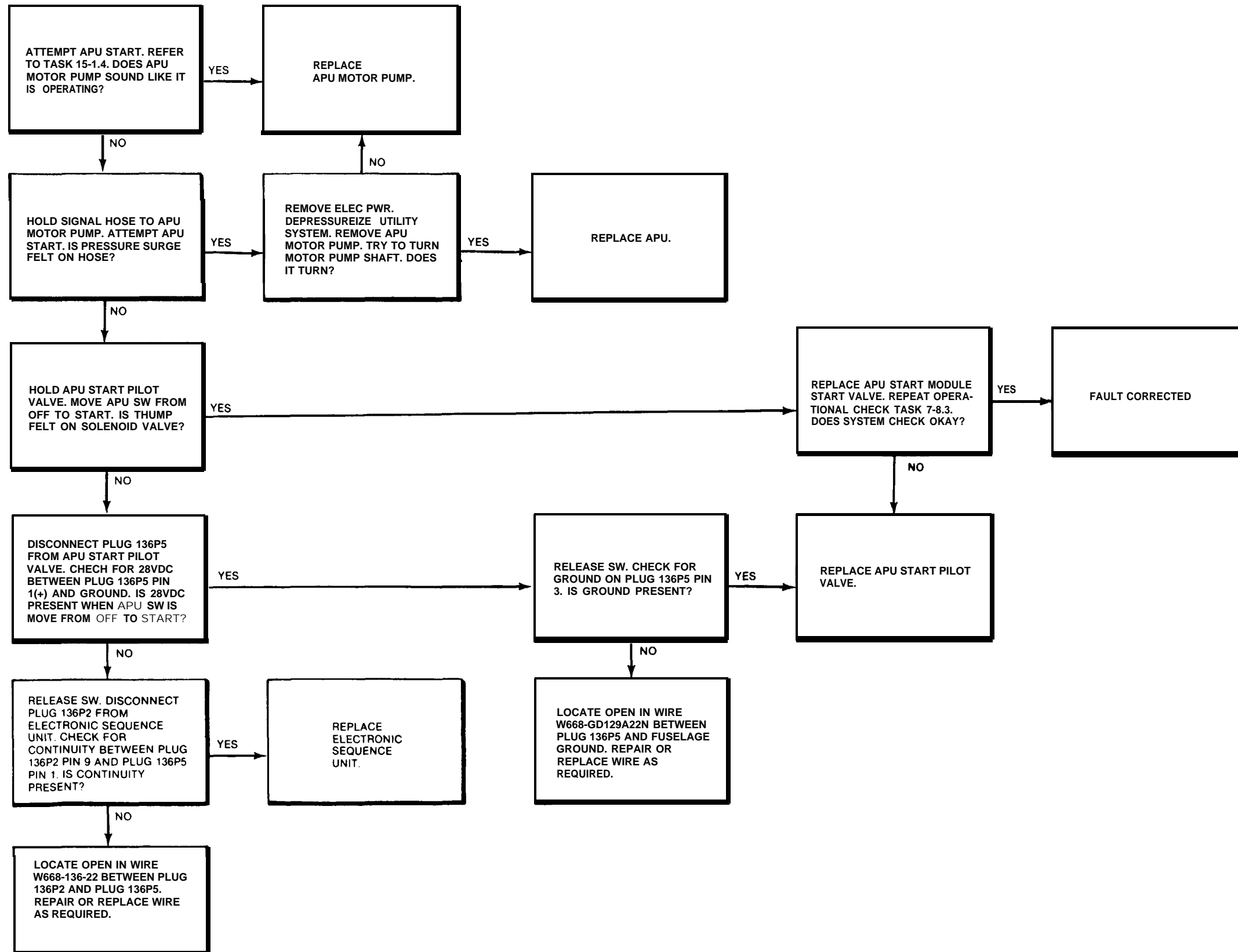


90 x 54

D145-11876-SPA

GO TO NEXT PAGE

7-8.5 APU DOES NOT MOTOR (Continued)



END OF TASK

7-8.6 APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○○○○ OR ●○○○ THEN ●○○○ (HYDRAULIC FAULT)

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

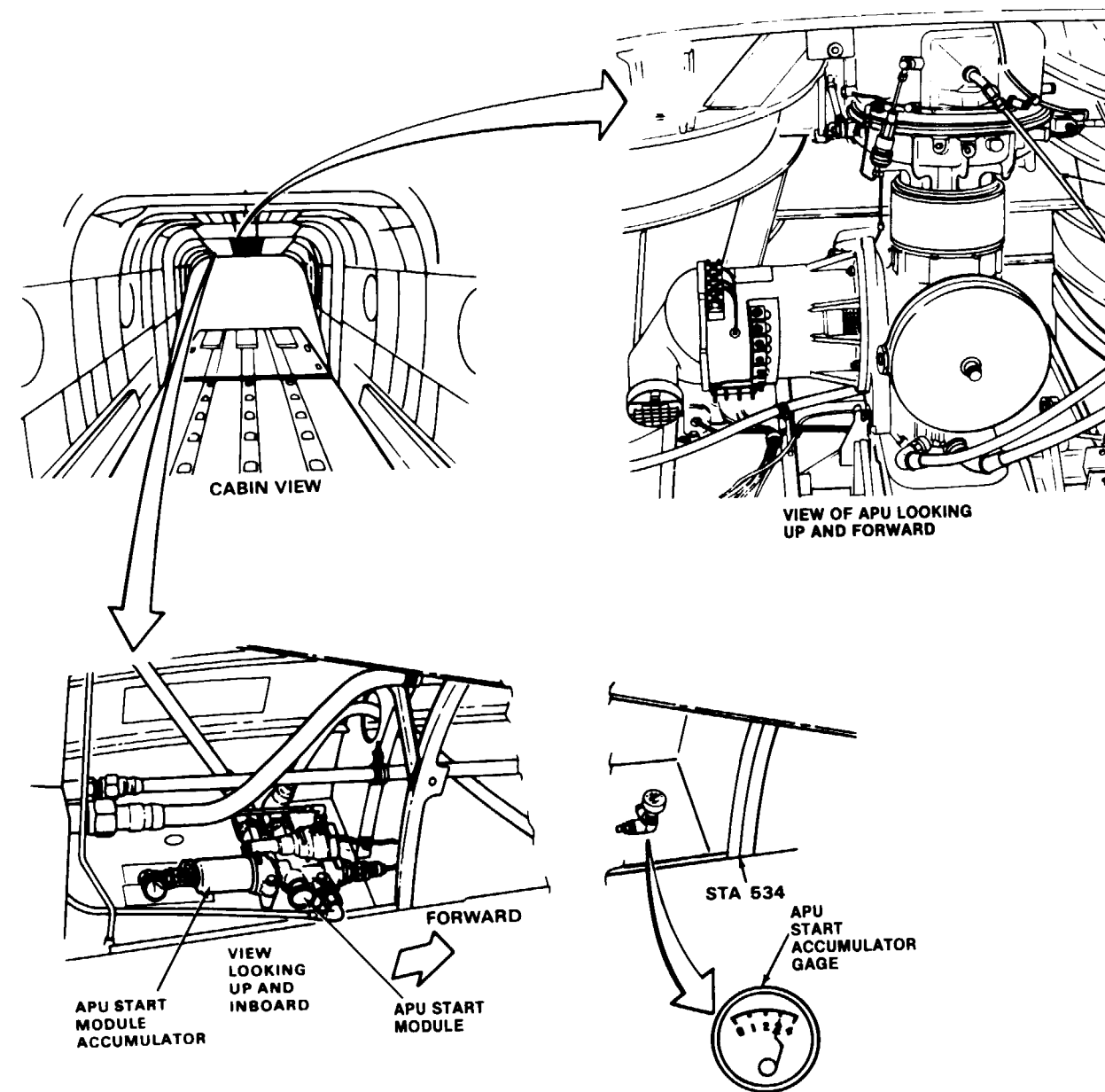
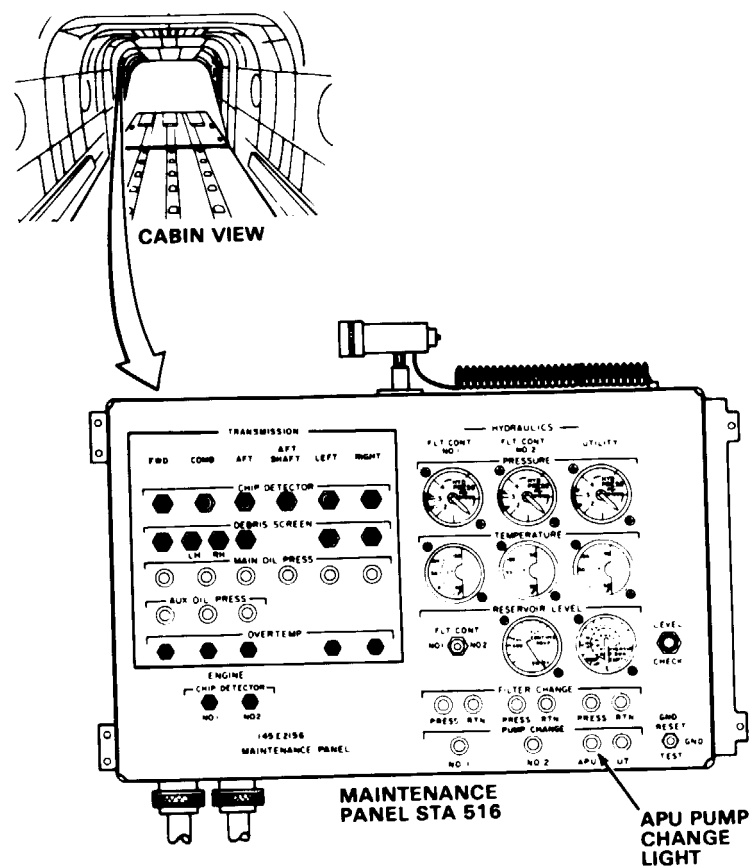
Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Hydraulic Power Source

Materials:  
None

Personnel Required:  
Medium Helicopter Repairer (2)

References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Battery Connected  
Electrical Power On  
Hydraulic Power Off



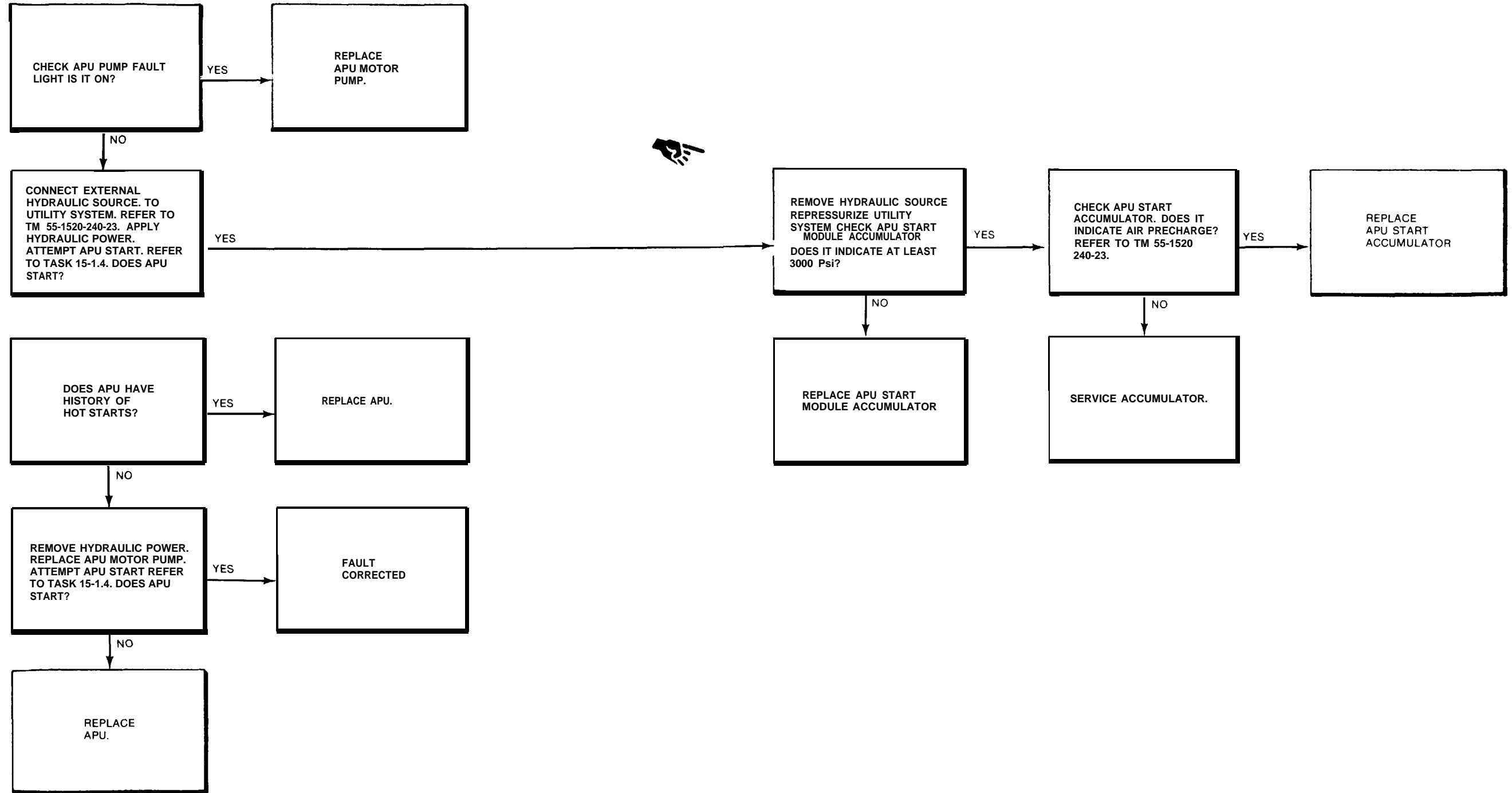
90 x 54

D145-11877-SPA

GO TO NEXT PAGE



7-8.6 APU MOTORS BUT DOES NOT START, ESU BITE INDICATES ○○○○ OR ●○○○ THEN ●○○○ (HYDRAULIC FAULT) (Continued)



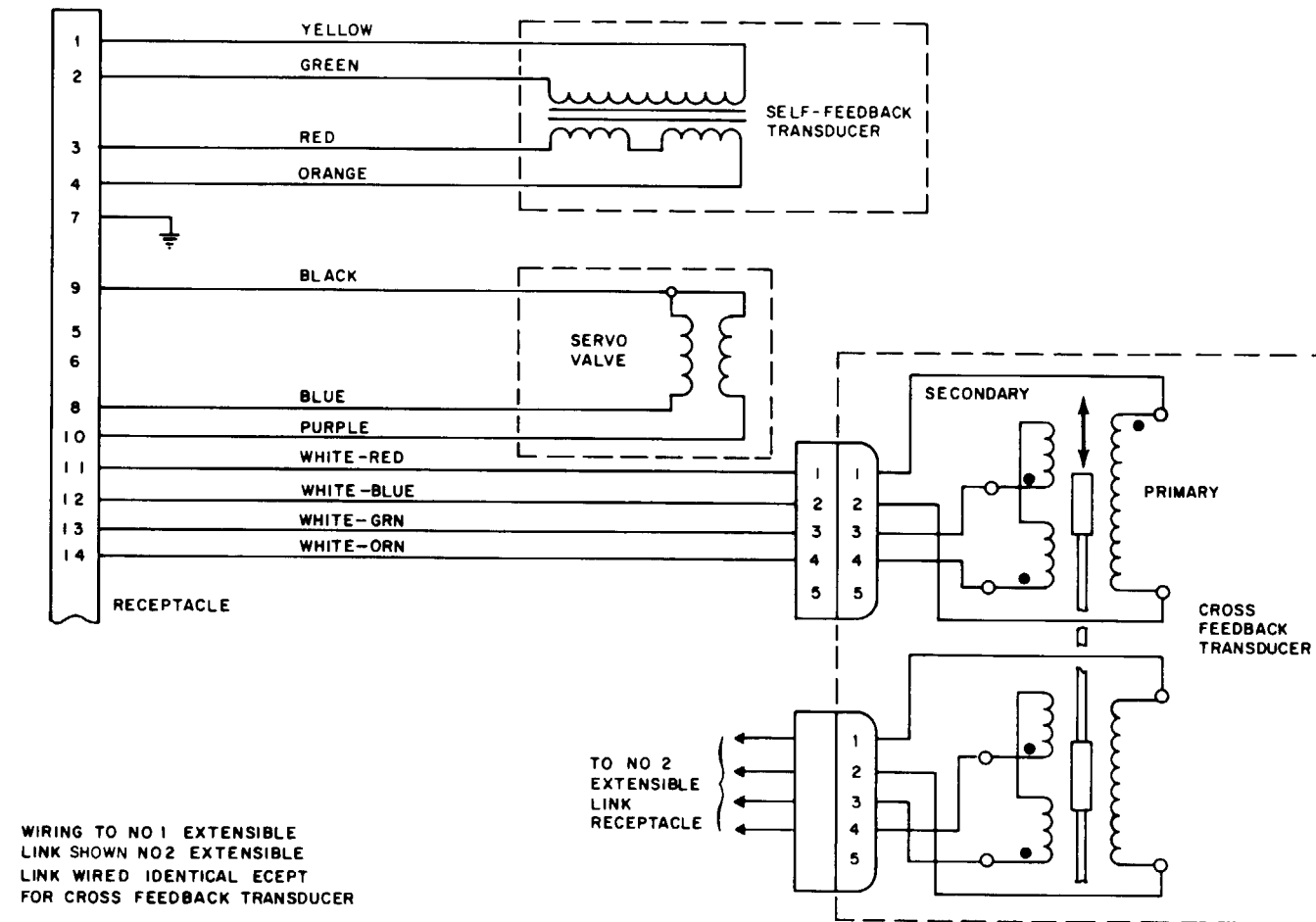
END OF TASK

Change

7-219/(7-220 Blank)

7-9 INTEGRATED LOWER CONTROL  
ACTUATOR (ILCA)

7-9.1 INTEGRATED LOWER CONTROL ACTUATOR  
(ILCA) WIRING DIAGRAM



7-9.2 INTEGRATED LOWER CONTROL ACTUATOR (ILCA) VISUAL CHECK

**INITIAL SETUP**

*Applicable Configurations:*

All

*Tools:*

None

*Materials:*

None

*Personnel Required:*

Aircraft Pneudraulics Repairer

*References:*

TM 55-1520-240-23

*Equipment Condition:*

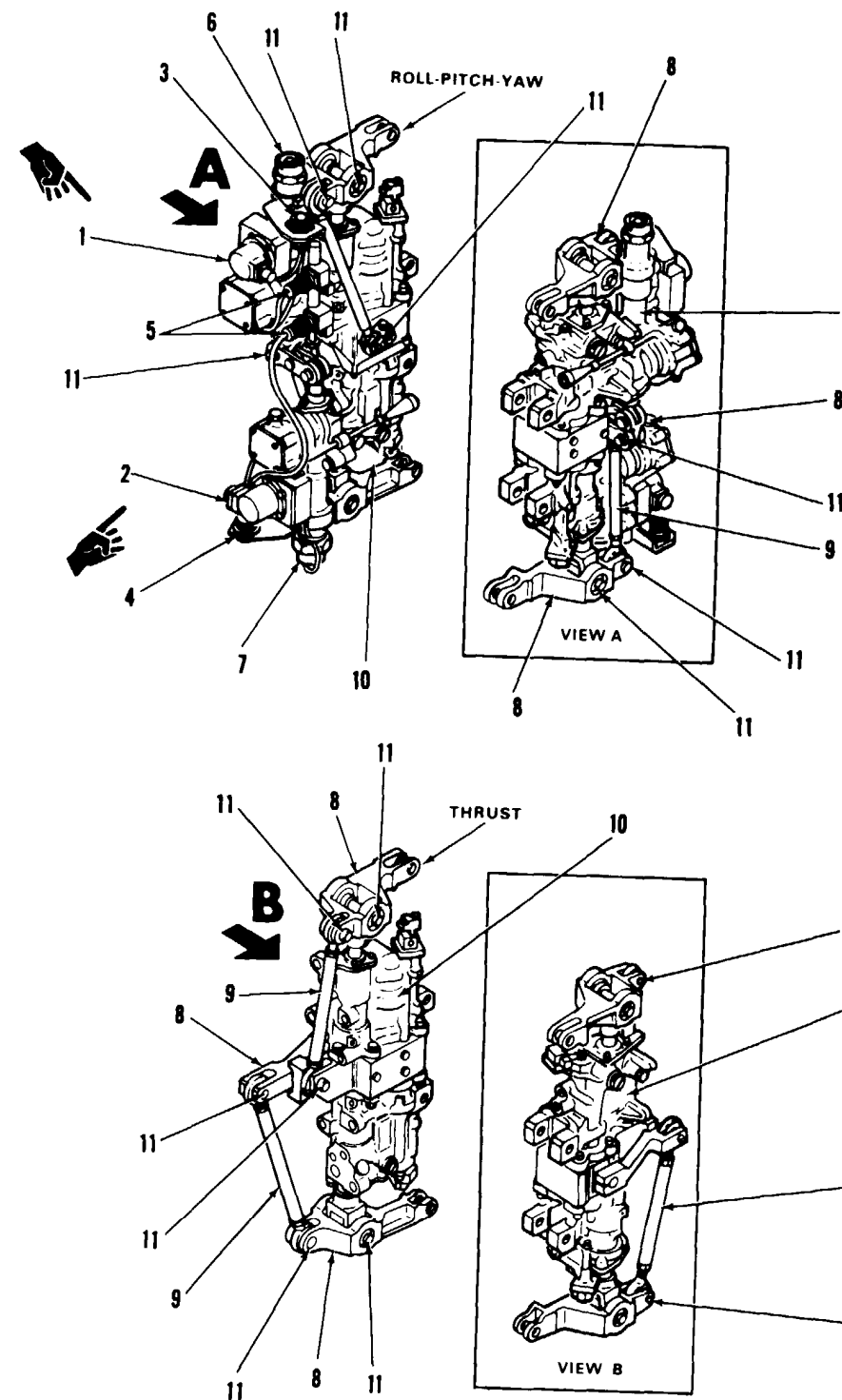
ILCA Removed From Shipping Container

TASK	RESULT
1. Check extensible link servo valves (1 and 2).	If either extensible link servo valve (1 or 2) is loose or damaged, tighten or replace it as required. If wiring from link servo valve (1 or 2) to receptacle (3 or 4) is damaged, replace link servo valve (1 and 2).
2. Check cross feedback transducer (5).	If transducer (5) is loose or damaged, tighten or replace it as required. If wiring from transducer (5) to receptacle (3 or 4) is damaged, replace wiring.
3. Check self feedback transducers (6 and 7).	If either transducer (6 or 7) is loose or damaged, tighten or replace it as required. If wiring from transducer (6 or 7) to receptacle (3 or 4) is damaged, replace transducer (6 or 7).
4. Check levers (8), and rods (9).	If any lever (8) is cracked or bent, forward actuator to depot. If any rod (9) is bent, forward actuator to depot.
5. Check actuator (1 O).	If body of actuator is cracked, forward actuator to depot.
6. Check six Huck bolts (11) on thrust ILCA or seven Huck bolts (11) on roll, pitch, or yaw ILCA.	If any Huck bolt (11) pin head is not seated, collar contains corrosion, or collar can be turned independent of bolt, forward actuator to depot.

**FOLLOW-ON MAINTENANCE:**

TM 55-1520-240-23:

Test Integrated Lower Control Actuator (ILCA).



7-9.3 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
 FAILS TEST 1 OR TEST 2 (EXTENSIBLE LINK  
 TRANSDUCER NULL VOLTAGE TEST (SPARE))

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
 All

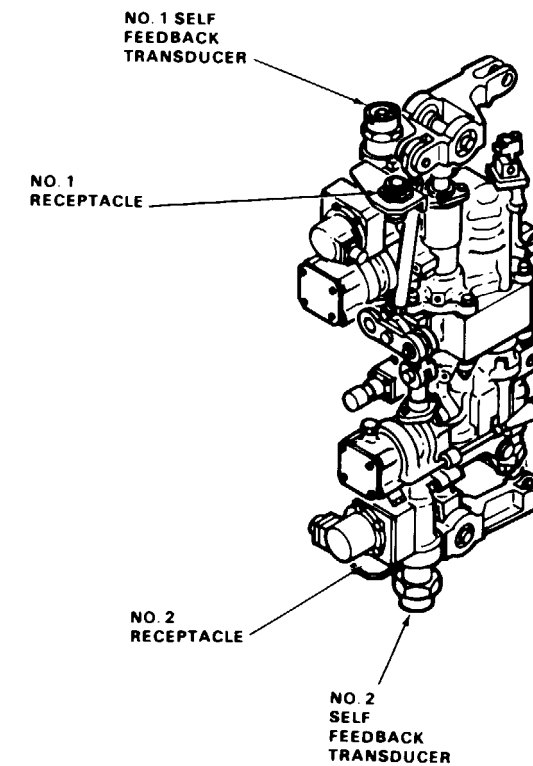
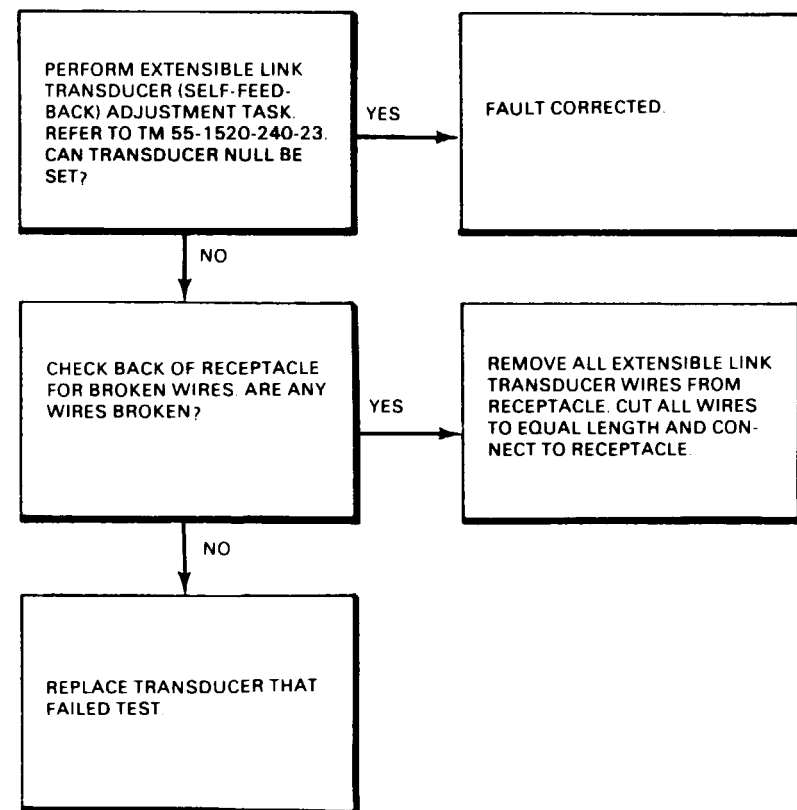
Personnel Required:  
 68H20 Aircraft Pneudraulics Repairer  
 35K10 Avionics Mechanic

Tools:  
 Aircraft Mechanic's Tool Kit,  
 NSN 5180-00-323-4692  
 Multimeter

References:  
 TM 55-1520-240-23

Materials:  
 None

Equipment Condition:  
 Visual Check of Integrated Lower Control Ac-  
 tuator (ILCA) Performed (Task 7-9.2)



45 x 54

D146-12461-SPA

7-9.4 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
 FAILS TEST 3 (CROSS EXTENSIBLE LINK  
 TRANSDUCER NULL VOLTAGE TEST (SPARE))

7-9.4

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
 All

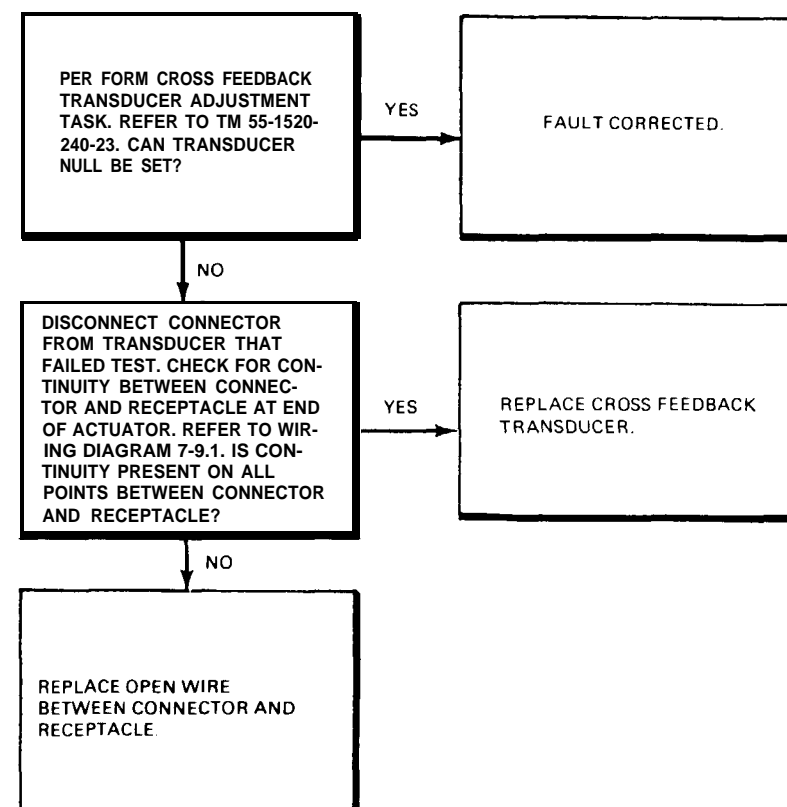
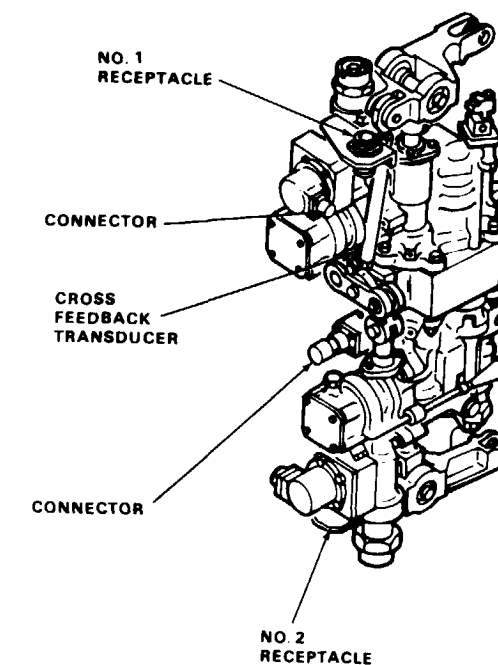
Personnel Required:  
 68H20 Aircraft Pnedraulics Repairer  
 35K20 Avionic Mechanic

Tools:  
 Aircraft Mechanic's Tool Kit,  
 NSN 5180-00-323-4692  
 Multimeter

References:  
 TM 55-1520-240-23

Materials:  
 None

Equipment Condition:  
 Visual Check of Integrated Lower Control Ac-  
 tuator (ILCA) Performed (Task 7-9.2)



45 x 54

D145-12462-SPA

END OF TASK

7-225

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7-9.5 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
FAILS TEST 4, 5, 7, 11, 13

---

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7-9.5

---

*FAULT ISOLATION PROCEDURE*

INITIAL SETUP

*Materials:*  
None

*Applicable Configurations:*  
All

*Personnel Required:*  
68H20 Aircraft Pneudraulics Repairer

*Tools:*  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

*References:*  
TM 55-1520-240-23

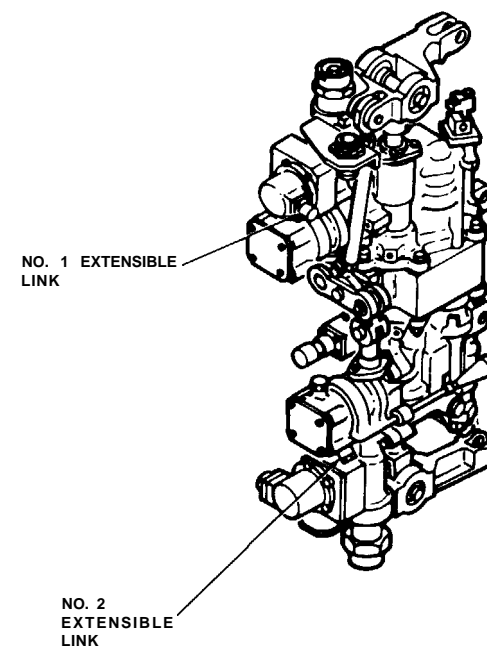
*Equipment Condtion:*  
Visual Check of Integrated Lower Control Ac-  
tuator (ILCA) Performed (Task 7-9.2)

---

**NOTE**

Test 4 is manual cycling test (all).  
Test 5 is cylinder stroke test (all). Test  
7 is static dead band test (all). Test  
11 is return pressure test (all). Test  
13 is case cavity leakage test (all).

REMOVE EXTENSIBLE  
LINKS FROM ACTUATOR.  
FORWARD ACTUATOR TO  
DEPOT FOR DISPOSITION.



**END OF TASK**

7-9.6 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
 FAILS TEST 6 (EXTENSIBLE LINK AUTHORITY  
 TEST (SPARE))

**FAULT ISOLATION PROCEDURE**  
 INITIAL SETUP

*Personnel Required:*  
 68H20 Aircraft Pneudraulics Repairer

*Applicable Configurations:*  
 All

*References:*  
 TM 55-1520-240-23

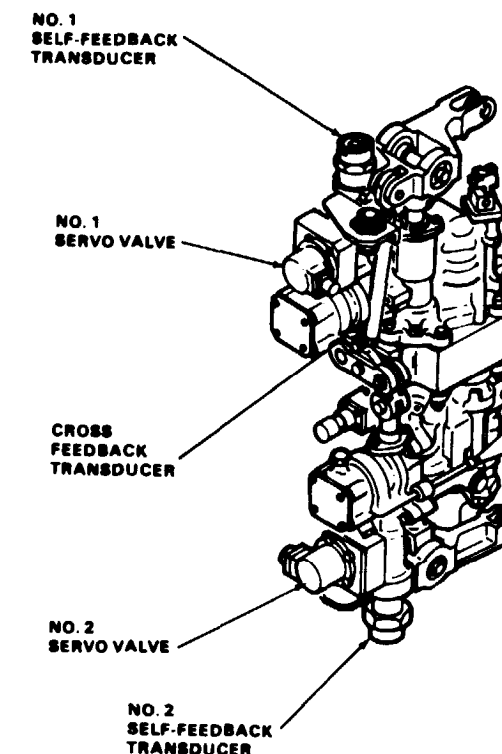
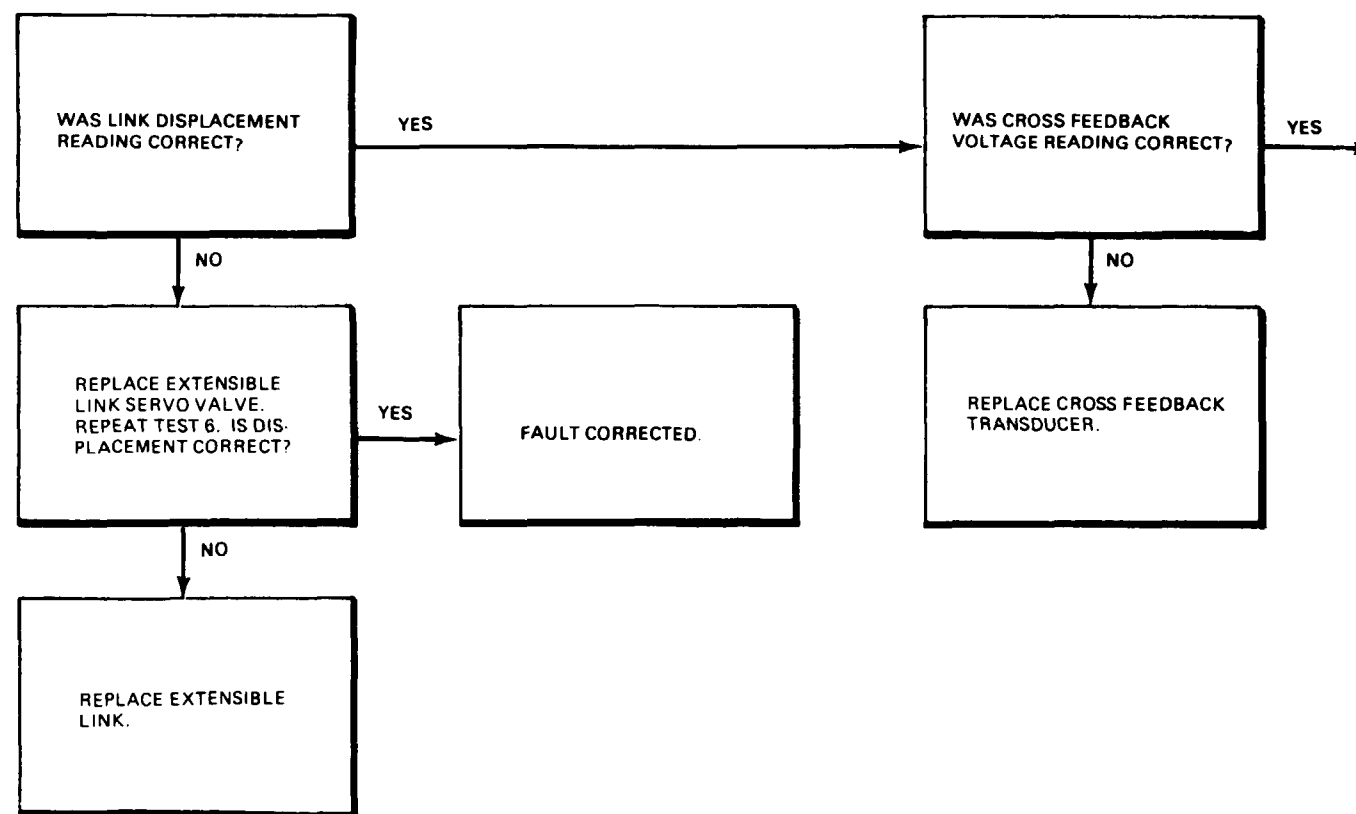
*Tools:*  
 Aircraft Mechanic's Tool Kit,  
 NSN 5180-00-323-4692  
 Multimeter

*Equipment Condition:*  
 Visual Check of Integrated Lower Control Ac-  
 tuator (ILCA) Performed (Task 7-9.2)

*Materials:*  
 None

**NOTE**

Troubleshooting procedure is same  
 for No. 1 and No. 2 links.



45 x 54

D145-12464-SPA

END OF TASK



FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

Materials:  
None

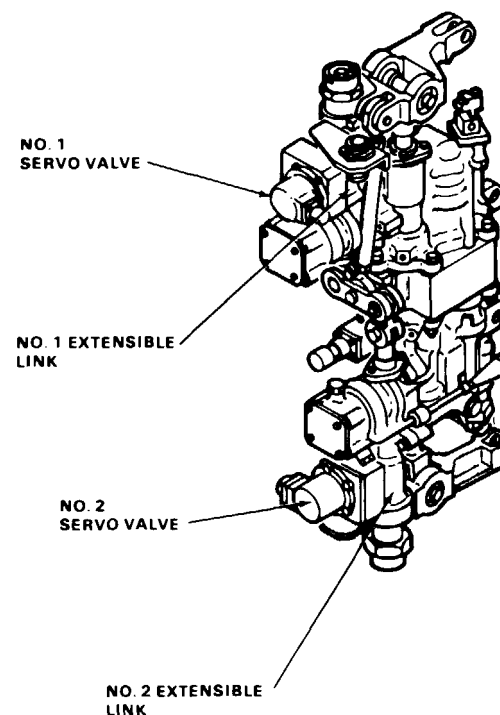
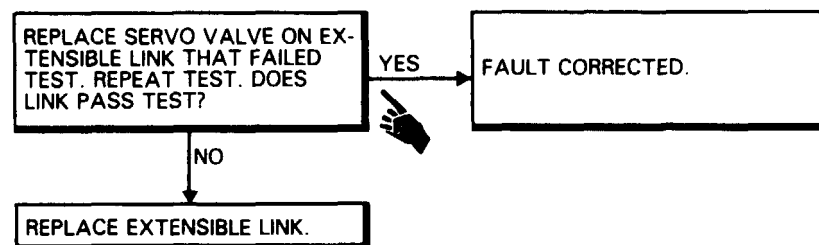
Personnel Required:  
Aircraft Pneudraulics Repairer

References:  
TM 55-1520-240-23

Equipment Condition:  
Visual Check of Integrated Lower Control Actuator  
(ILCA) Performed

**NOTE**

Troubleshooting procedure is same  
for No. 1 and No. 2 links.



7-9.8 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
FAILS TEST 9 (EXTENSIBLE LINK CENTERING  
SPRINGS TEST (SPARE))

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Personnel Required:  
68H20 Aircraft Pneudraulics Repairer

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

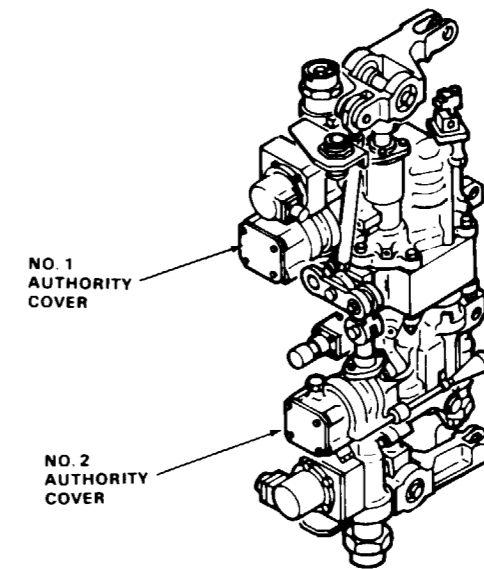
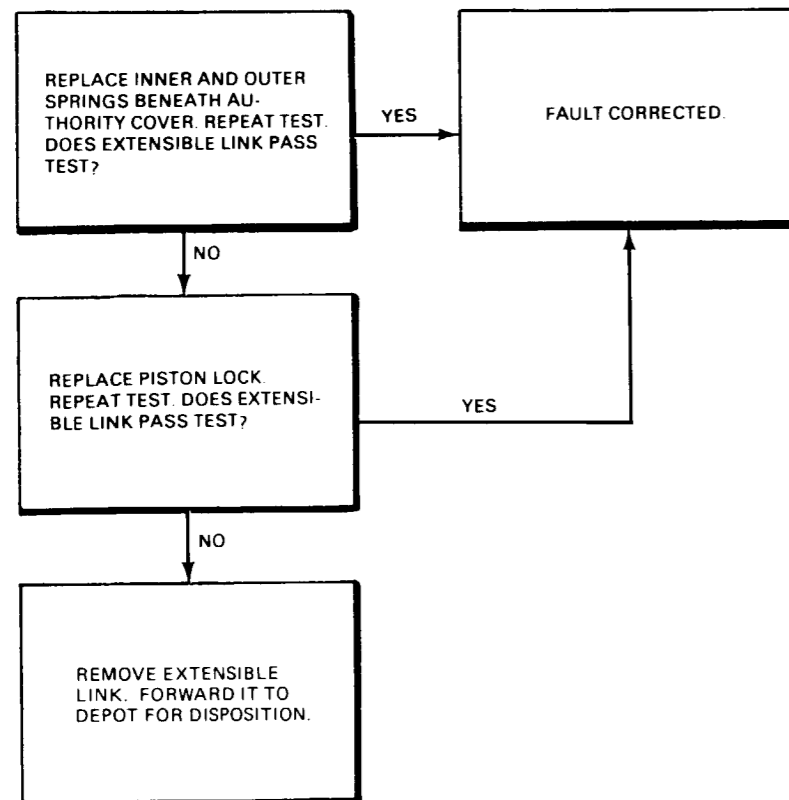
References:  
TM 55-1520-240-23

Materials:  
None

Equipment Condition:  
Visual Check of Integrated Lower Control Ac-  
tuator (ILCA) Performed (Task 7-9.2)

NOTE

TROUBLESHOOTING PROCEDURE  
IS SAME FOR NO. 1 AND NO. 2 EX-  
TENSIBLE LINKS.



7-9.9 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
FAILS TEST 10 (PROOF PRESSURE TEST (ALL))

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

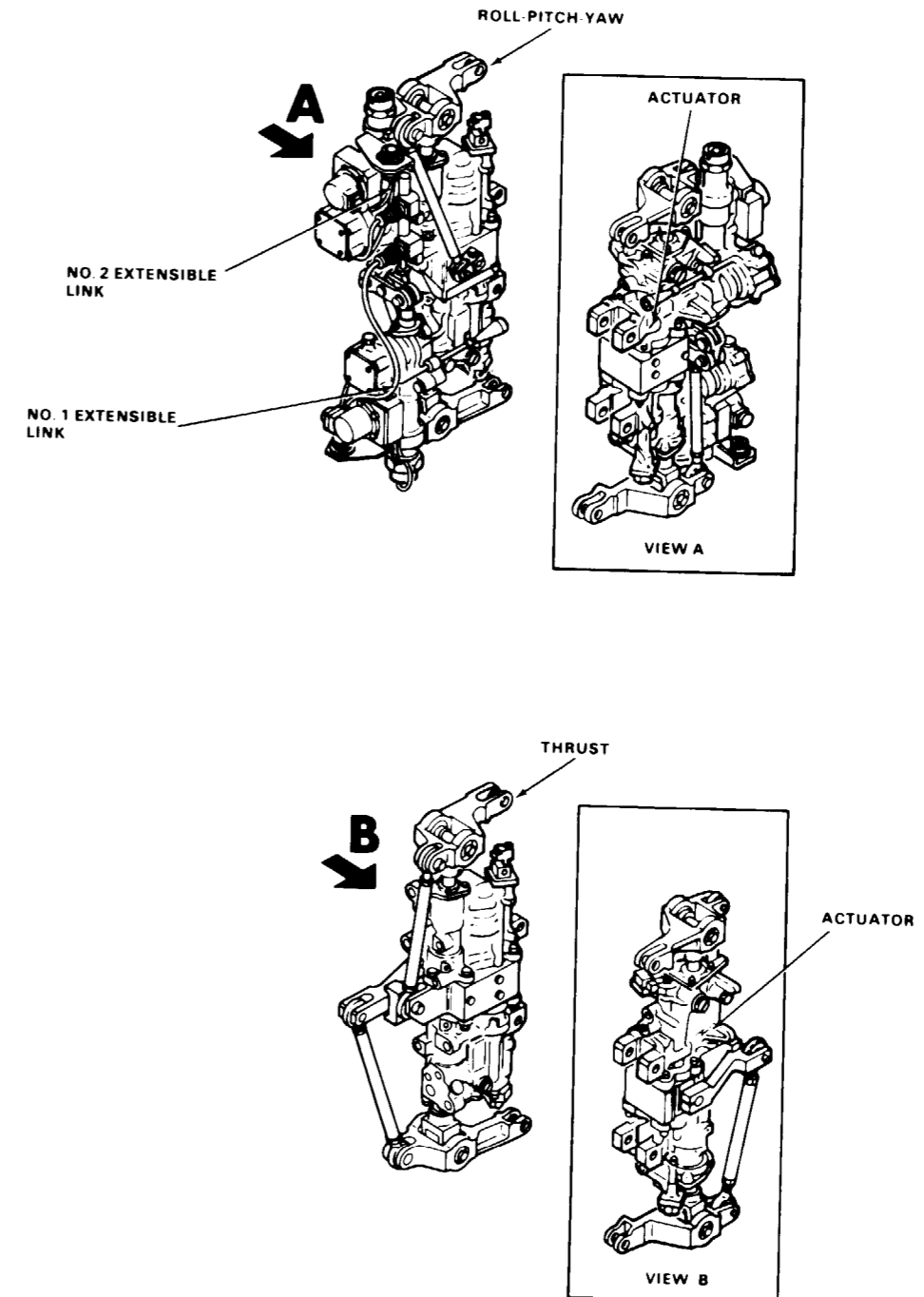
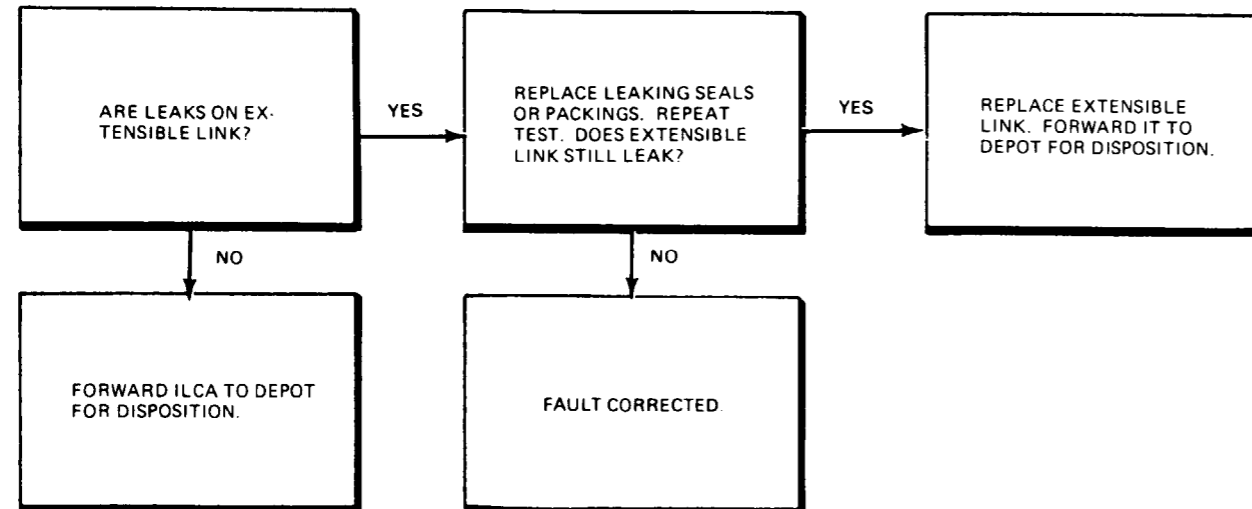
Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

Materials:  
None

Personnel Required:  
68H20 Aircraft Pneudraulics Repairer

References:  
TM 55-1520-240-23

Equipment Condition:  
Visual Check of Integrated Lower Control Ac-  
tuator (ILCA) Performed (Task 7-9.2)



---

7-9.10 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
FAILS TEST 12 VALVE JAM INDICATOR  
TEST (ALL))

---

7.9.10

---

*FAULT ISOLATION PROCEDURE*

INITIAL SETUP

*Applicable Configurations:*  
All

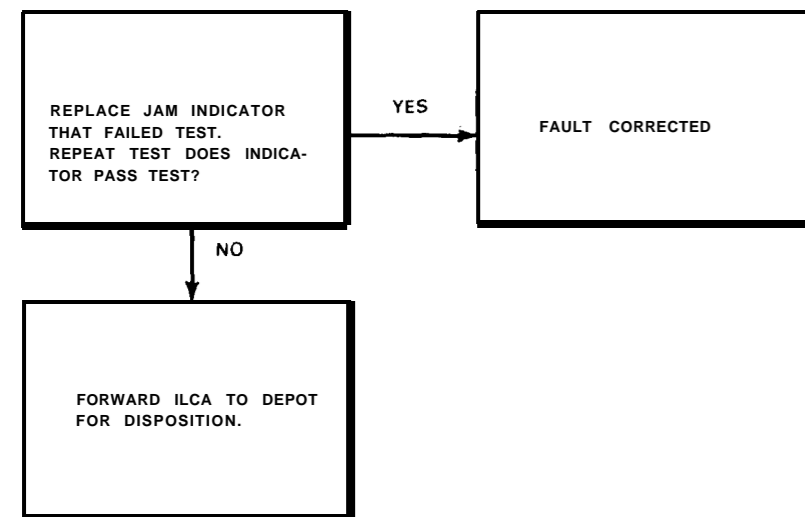
*Personnel Required:*  
68H20 Aircraft Pneudraulic Repairer

*Tools:*  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

*References:*  
TM 55-1520-240-23

*Equipment Condition:*  
Visual Check of Integrated Lower Control Ac-  
tuator (ILCA) Performed (Task 7-9.2)

*Materials:*  
None



7-9.11 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
FAILS TEST 14 (RELIEF VALVE TEST (ALL))

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Personnel Required:  
68H20 Aircraft Pneudraulics Repairer

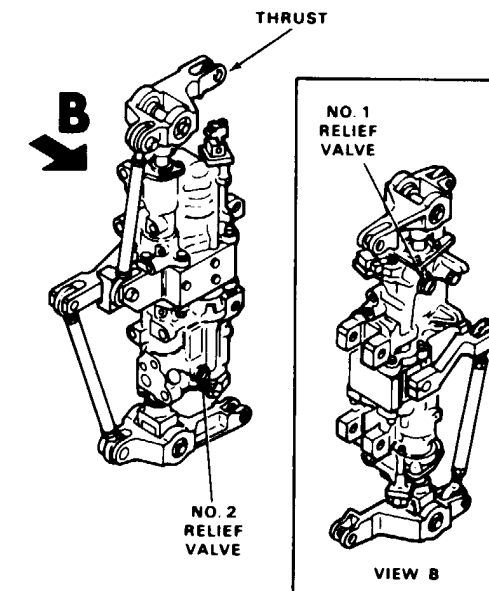
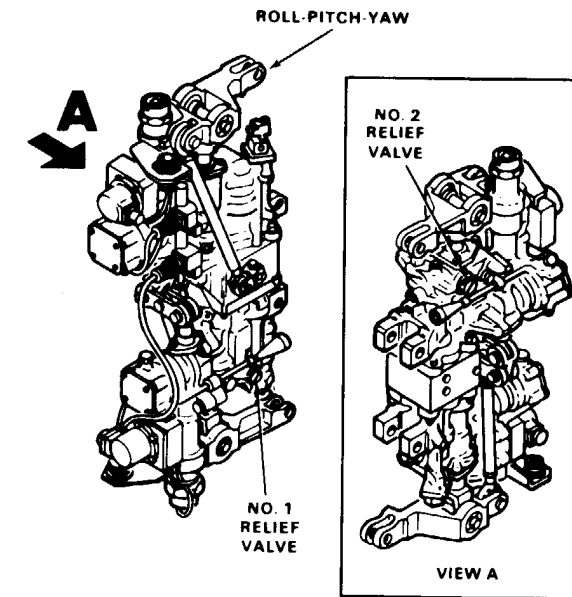
Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

References:  
TM 55-1520-240-23

Materials:  
None

Equipment Condition:  
Visual Check of Integrated Lower Control Ac-  
tuator (ILCA) Performed (Task 7-9.2)

REPLACE RELIEF VALVE.



7-9.12 INTEGRATED LOWER CONTROL ACTUATOR (ILCA)  
FAILS TEST 15 OR TEST 16

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

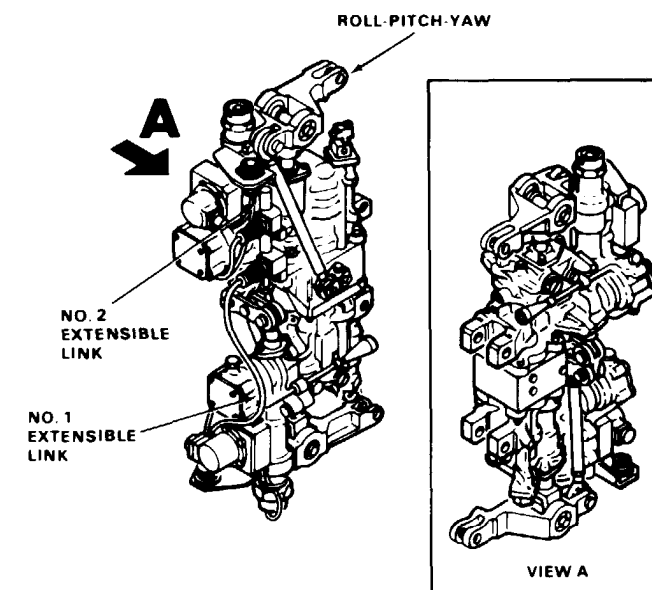
Personnel Required  
68H20 Aircraft Pneudraulics Repairer

Tools:  
Aircraft Mechanic's Tool Kit,  
NSN 5180-00-323-4692  
Multimeter

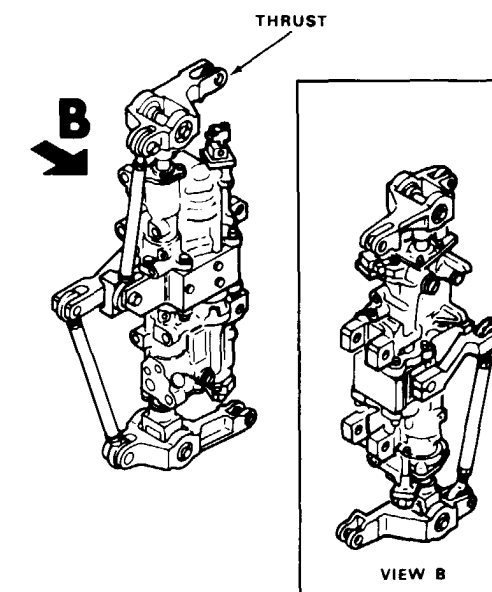
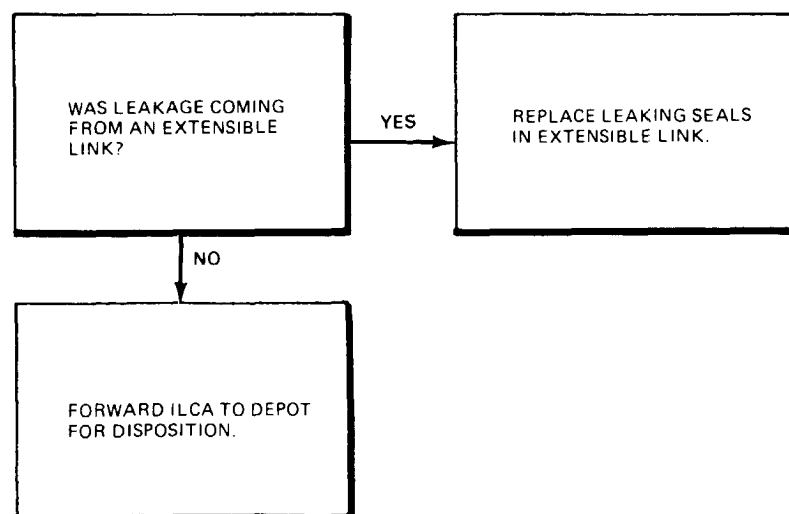
References:  
TM 55-1520-240-23

Materials:  
None

Equipment Condition:  
Visual Check of Integrated Lower Control Ac-  
tuator (ILCA) Performed (Task 7-9.2)



TEST 15 EXTERNAL DYNAMIC LEAKAGE  
(SPARE)  
TEST 16 EXTERNAL STATIC LEAKAGE  
(ALL)



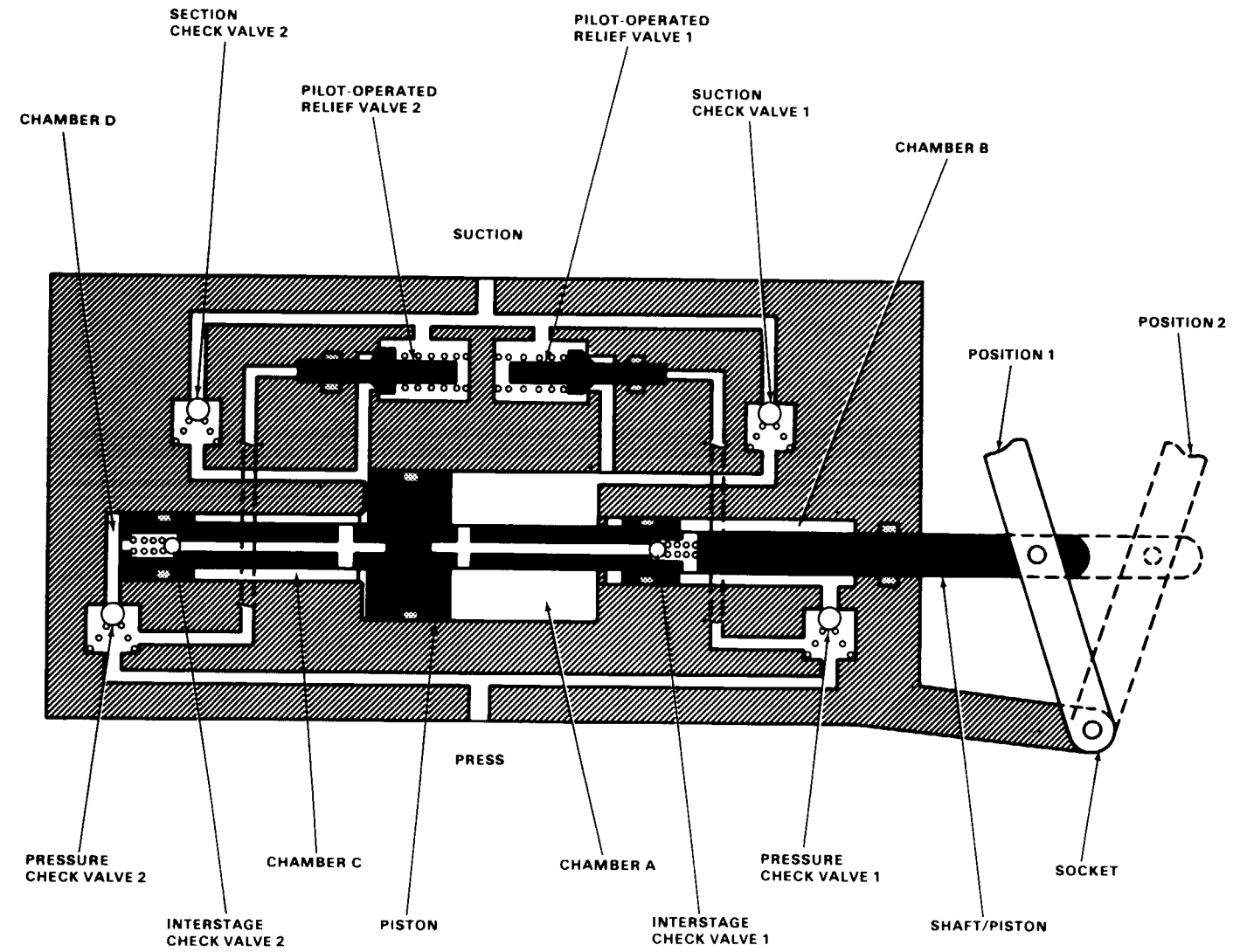
## 7-10 HYDRAULIC HANDPUMP

7-10 HYDRAULIC HANDPUMP

7-10.1 HYDRAULIC HANDPUMP SCHEMATIC

7-10

7-10.1





**7-10.2 HYDRAULIC HANDPUMP FAILS INTEGRITY PRESSURE TEST OR INTERNAL LEAKAGE TEST**

*FAULT ISOLATION PROCEDURE*

**INITIAL SETUP**

*Applicable Configurations:*  
All

*Tools:*  
Hydraulic Repairer's Tool Kit,  
NSN 5180-00-323-4891

*Materials:*  
None

*Personnel Required:*  
68H20 Aircraft Pneudraulics Repairer

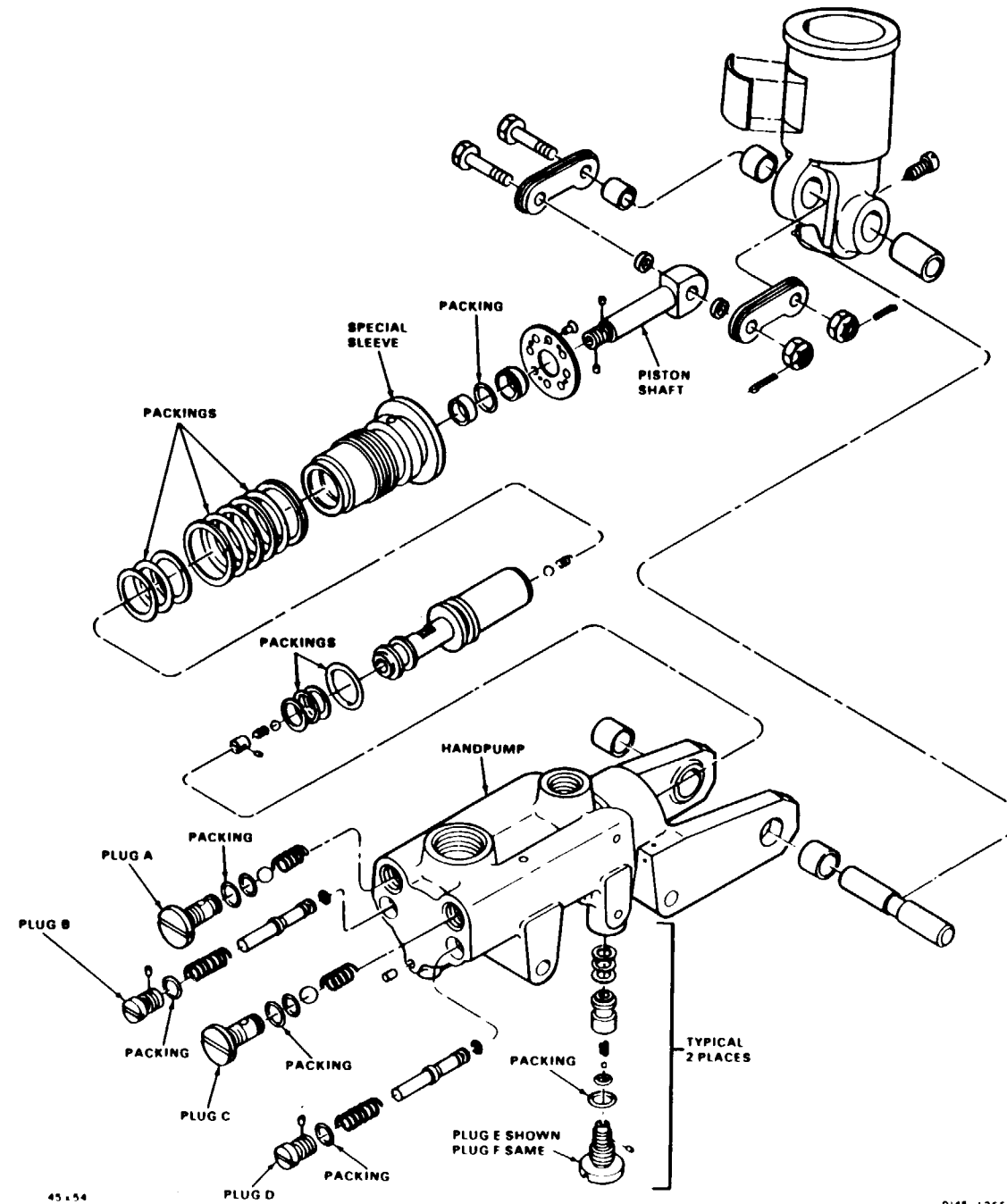
*References:*  
TM 55-1520-240-23

*Equipment Condition:*  
TM 55-1520-240-23:  
Hydraulic Handpump in AVIM Test Setup.

*General Safety Instructions:*

**WARNING**

Hydraulic fluid ejected under pressure can cause injury to personnel. Hydraulic fluid sprayed into the air is a fire hazard.

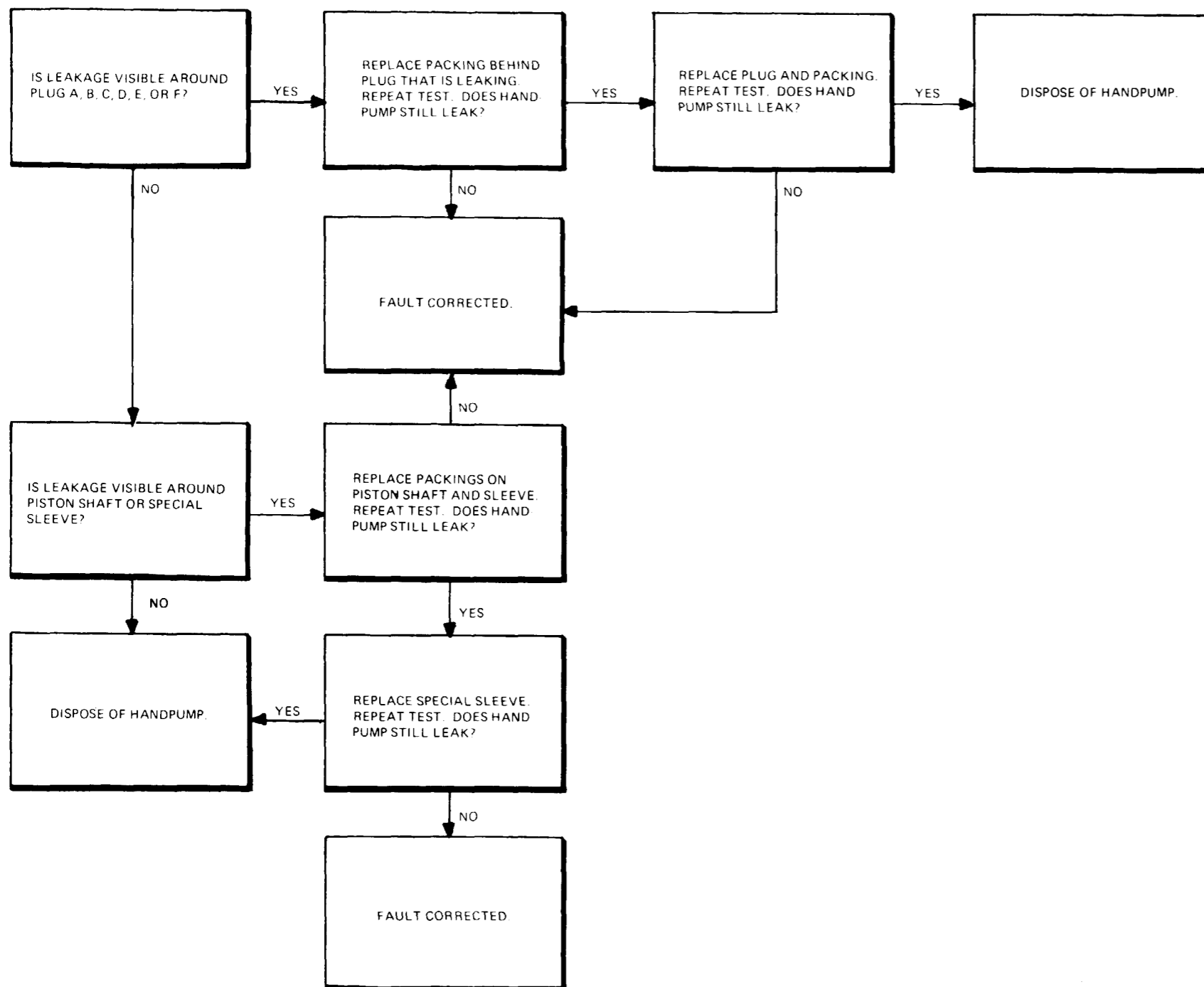


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7-10.2 HYDRAULIC HANDPUMP FAILS INTEGRITY PRESSURE TEST OR INTERNAL LEAKAGE TEST (Continued)

7-10.2



END OF TASK

7-10.3 HYDRAULIC HANDPUMP FAILS PRESSURE ADJUSTMENT TEST

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
Hydraulic Repairer's Tool Kit  
NSN 5180-00-323-4891

Materials:  
None

Personnel Required:  
68H20 Aircraft Pneudraulics Repairer.

References:

TM 55-1820-240-23

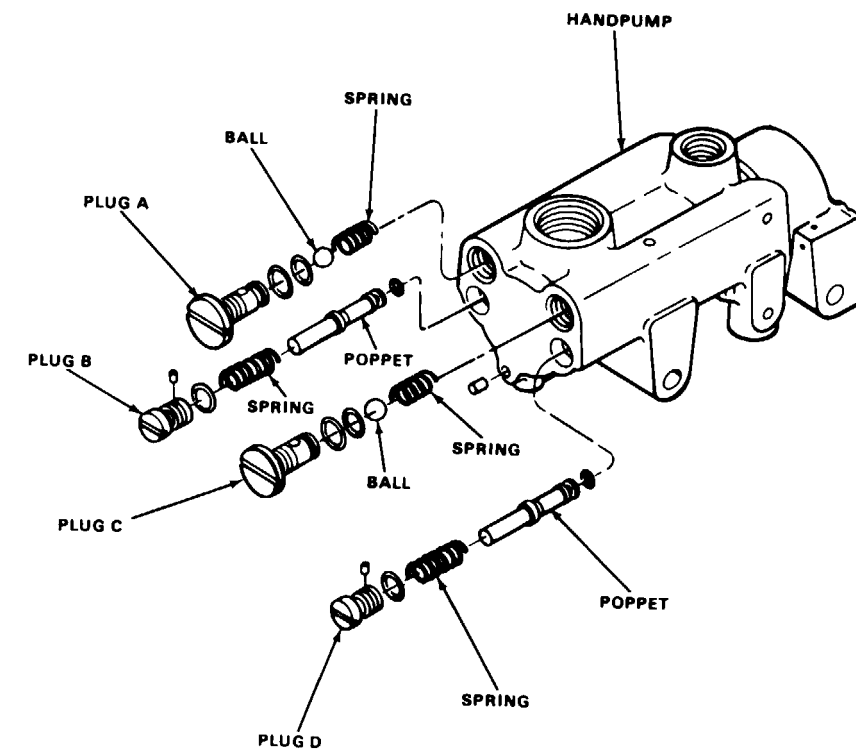
Equipment Condition:

TM 55-1820-240-23:  
Hydraulic Handpump in AVIM Test Setup,

General Safety Instructions:

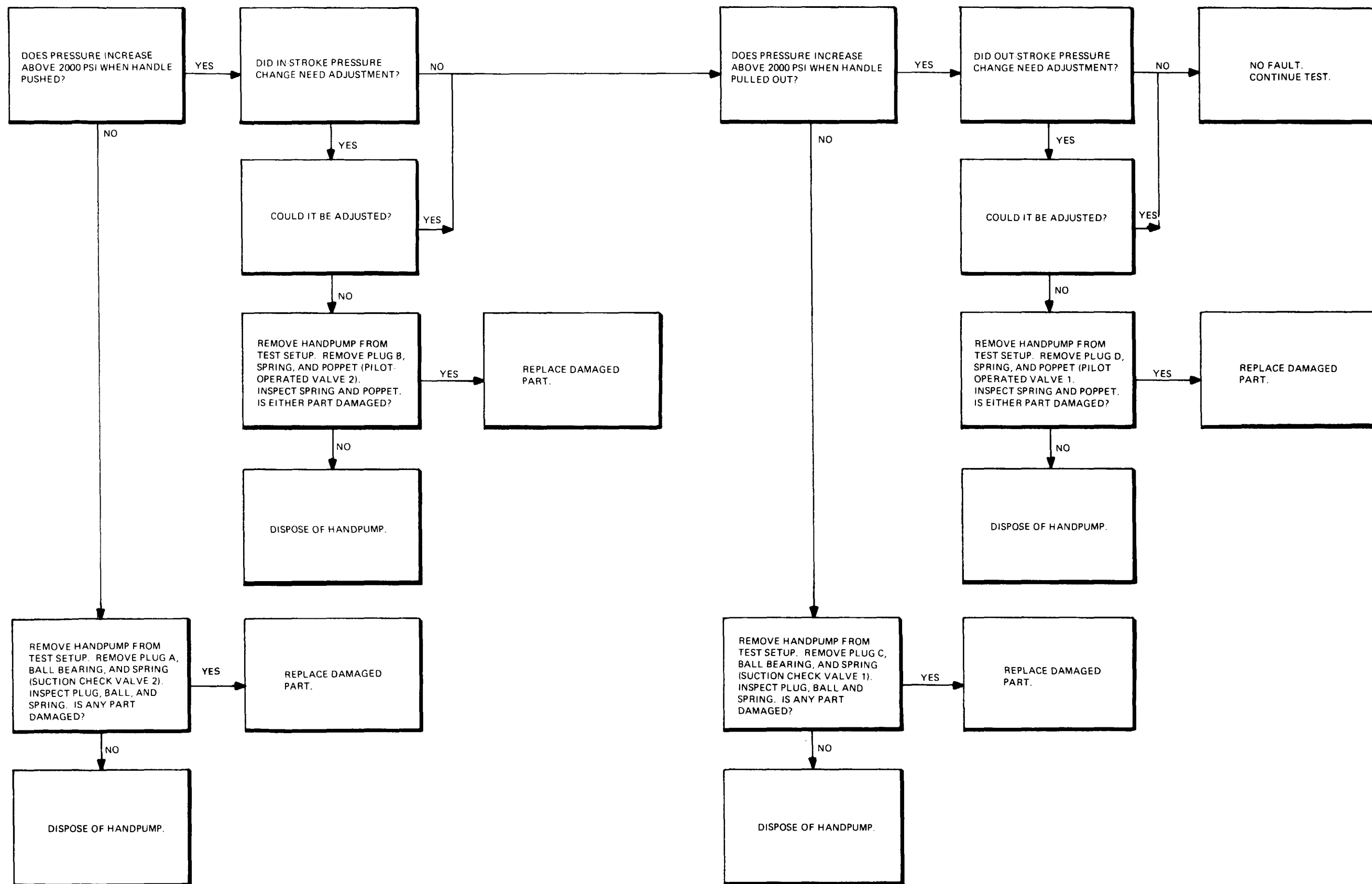
**WARNING**

Hydraulic fluid ejected under pressure can cause injury to personnel. Hydraulic fluid sprayed into the air is a fire hazard.



7-10.3 HYDRAULIC HANDPUMP FAILS PRESSURE ADJUSTMENT TEST (Continued)

7-10.3



END OF TASK

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

Tools:  
Hydraulic Repairer's Tool Kit,  
NSN 5180-00-323-4891

Materials:  
None

Personnel Required:  
68H20 Aircraft Pneudraulics Repairer

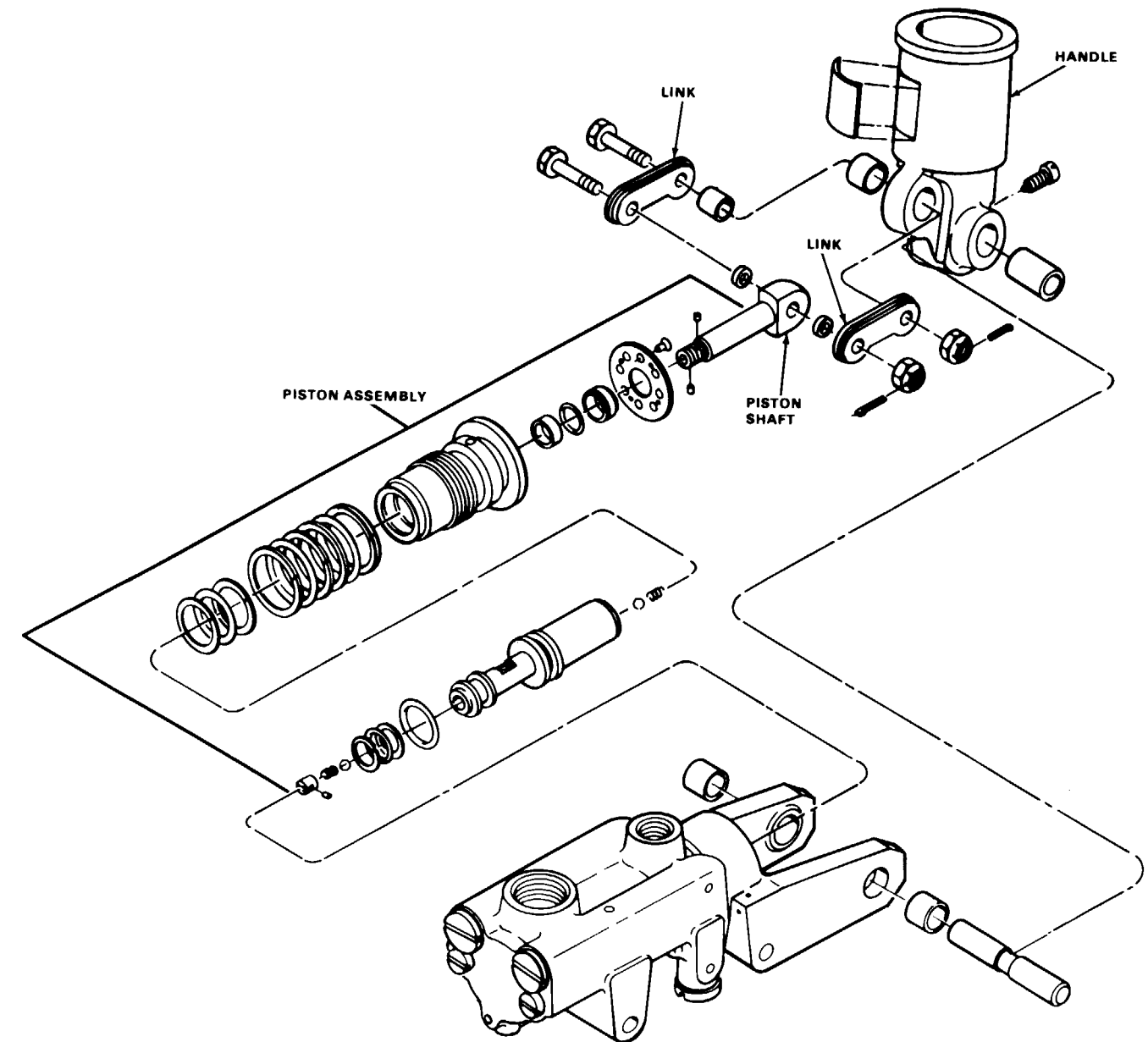
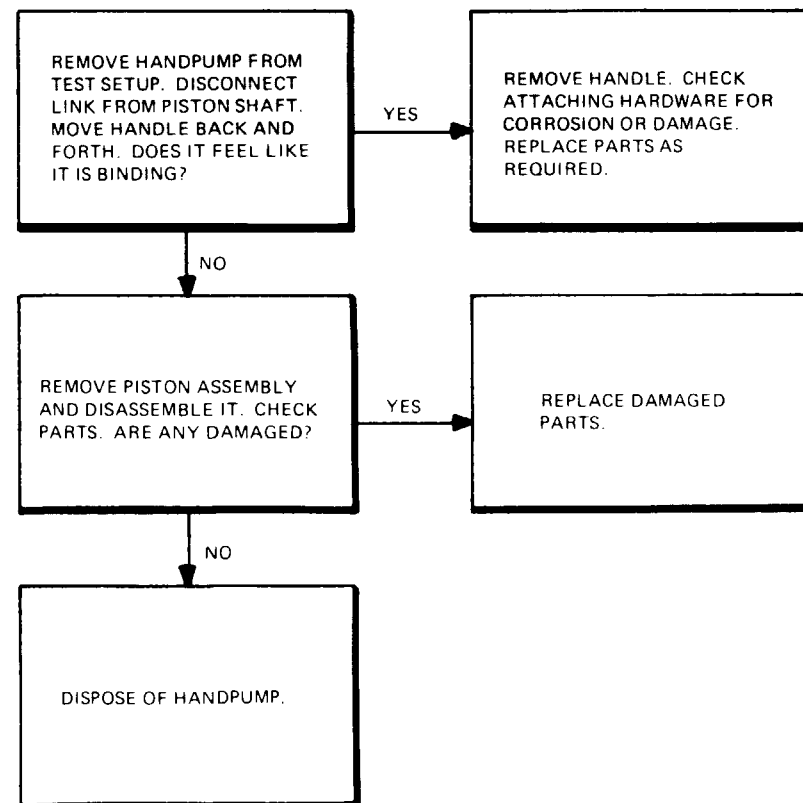
References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Hydraulic Handpump in AVIM Test Setup

General Safety Instructions:

**WARNING**

Hydraulic fluid ejected under pressure can cause injury to personnel. Hydraulic fluid sprayed into the air is a fire hazard.



45 x 54

D145-12663-SPA

END OF TASK

7-10.5 HYDRAULIC HANDPUMP FAILS FLUID DISPLACEMENT TEST

7-10.5

FAULT ISOLATION PROCEDURE

INITIAL SETUP

Applicable Configurations:  
All

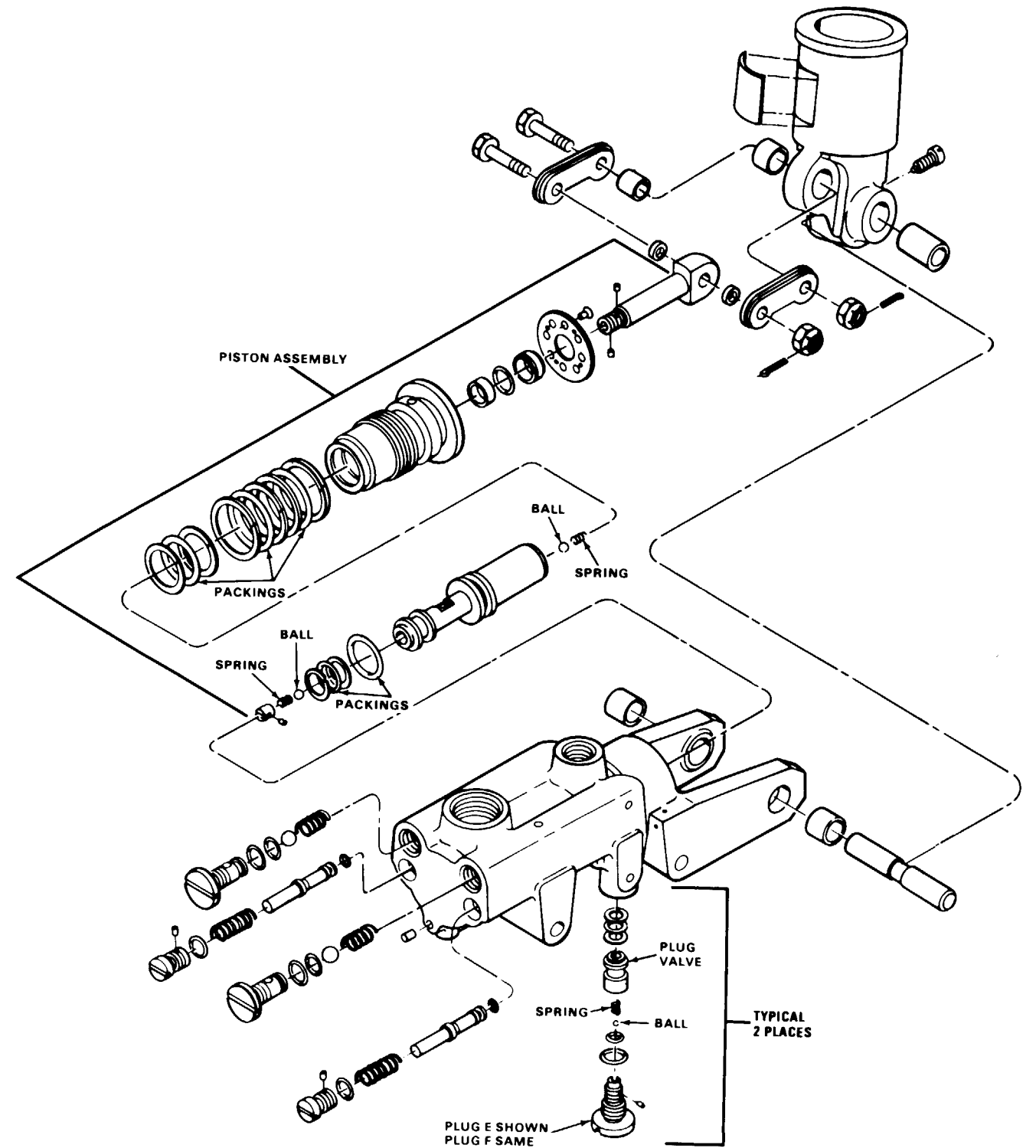
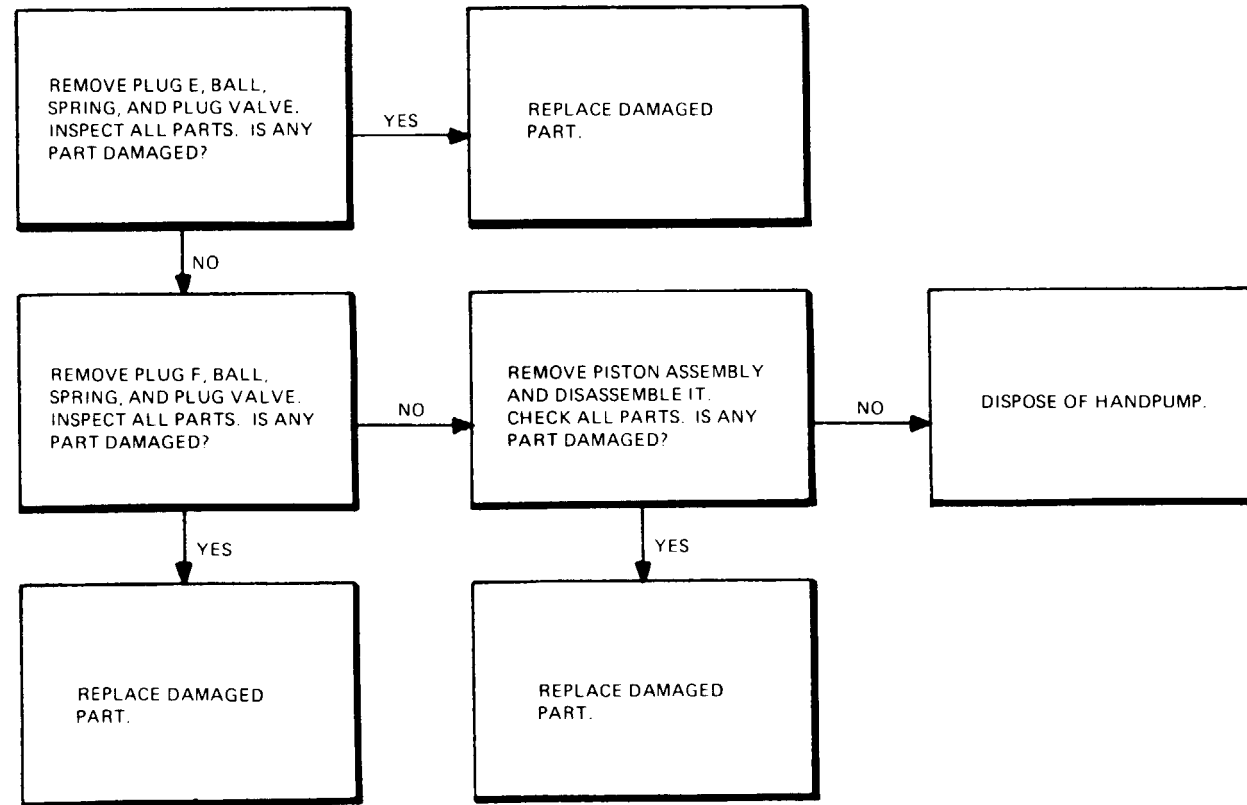
Tools:  
Hydraulic Repairer's Tool Kit,  
NSN 5180-00-323-4891

Materials:  
None

Personnel Required:  
68H20 Aircraft Pneudraulics Repairer

References:  
TM 55-1520-240-23

Equipment Condition:  
TM 55-1520-240-23:  
Handpump Removed from Test Setup



45 x 54

D145-12664-SPA

ALPHABETICAL INDEX

	<i>Task</i>	<i>Page</i>		<i>Task</i>	<i>Page</i>
<b>A</b>					
Absorber, Dynamic .....	2-2	2-19	APU System (Continued)		
AC Power System .....	9-2	9-53	Operational Check .....	15-1.5	15-16
Contactor, APU Generator			System Components .....	15-1.1	15-8
Contactor, External Power			Visual Check .....	15-1.4	15-14
Contactor, No. 1, No. 2 Generator			Electrical System .....	15-2	15-19
Control Panel, APU Generator			Block Diagram .....	15-2.4	15-29
Control Panel, No. 1, No. 2 Generator			Circuit Breaker - APU Cont "Norm" .....	15-2.7	15-32
Generator, APU			Circuit Breaker - APU Cont "Emerg" .....	15-2.7	15-32
Generator, No. 1, No. 2 AC			Components .....	15-2.3	15-28
Monitor, External Power			Control Diode .....	15-2.11	15-41
Receptacle, External Power, AC			Electrical Schematic Diagram .....	15-2.5	15-30
Relay, Slave, APU Generator			Table 15-2.1 - APU Starting Sequence Failures .....	15-2.1	15-25
Transformer, Current, APU Generator			Table 15-2.2 - APU Systems Bite Indication Failures .....	15-2.2	15-26
Transformer, Current, Main			Troubleshooting Tasks List .....	15-2	15-21
Actuator, Cockpit Control Driver .....	11-2	11-9	Wiring Diagram .....	15-2.6	15-31
Actuator, Collective Control Drive .....	11-3	11-35	Fuel System .....	15-3	15-49
Actuator, Dual Differential Airspeed Hold .....	11-3	11-35	Block Diagram .....	15-3.2	15-54
Actuator, Integrated Lower Control .....	11-3	11-35	Components .....	15-3.1	15-53
Actuator, N1 (Without 74) .....			Component Tests		
Actuator, N2 (Without 74) .....	4-6	4-115	• Fault Relay (Table 15-3.2).....	15-3.9	15-63
Actuator, Pitch Control Drive .....	11-3	11-35	• Fuel Boost Pump (Table 15-3.1) .....	15-3.8	15-62
Advanced Flight Control System .....	11-3	11-35	• Fuel Solenoid Valve (Table 15-3.1) .....	15-3.8	15-62
Actuator, Collective Control Drive			• Main Fuel Valve (Table 15-3.3) .....	15-3.10	15-64
Actuator, Dual Differential Airspeed Hold			• Start Fuel Valve (Table 15-3.3).....	15-3.10	15-64
Actuator, Integrated Lower Control			Electrical Schematic.....	15-3.4	15-56
Actuator, Pitch Control Drive			Fault Relay .....	15-3.9	15-63
Brake, Magnetic			Fuel Boost Pump .....	15-3.8	15-62
Computer, AFCS			Fuel Solenoid Valve .....	15-3.8	15-62
Control Panel, AFCS			Main Fuel Valve.....	15-3.10	15-64
Grip, Cyclic			Piping Diagram .....	15-3.3	15-55
Grip, Thrust			Start Fuel Valve .....	15-3.10	15-64
Indicator, Cyclic Trim			Table 15-3.1 - Component Tests - Fuel Boost Pump .....	15-3.8	15-62
Relay, Roll Erect Cutout			Table 15-3.1 - Component Tests - Fuel Solenoid Valve .....	15-3.8	15-62
Transducer, Control Position			Table 15-3.2 - Component Tests - Fault Relay .....	15-3.9	15-63
Altitude Voice Warning System (AVWS).....	18-2	18-47	Table 15-3.3 - Component Tests - Main Fuel Valve .....	15-3.10	15-64
Air Data Transducer (ADT) .....	16-4	16-143	Table 15-3.3 - Component Tests - Start Fuel Valve .....	15-3.10	15-64
Anticollision Light (AVIM) .....	9-20		Troubleshooting Tasks List .....	15-3	15-51
Anticollision Lights System .....	9-6	9-151	Hydraulic System APU.....	15-4	15-65
Light, Anticollision			Block Diagram .....	15-4.2	15-69
APU Hydraulic Starting System.....	15-4	15-65	Charging Accumulator Flow Diagram .....	15-4.4	15-72
Solenoid Valve, APU Hydraulic Start			Components.....	15-4.1	15-68
APU System.....	15	15-1	Major Interconnecting APU Hydraulic System Schematic .....	15-4.3	15-70
Airframe Interface System .....	15-1	15-5	Operation Check.....	15-4.8	15-76
Overall Electrical Cabling Interconnection of APU System Components,			Pump Flow Diagram.....	15-4.6	15-74
"Interfaced" to Main Engine "Starter" Components .....	15-1.2	15-10	Solenoid Valve, Hydraulic Stait .....	15-4.10	15-80
Overall Piping Interrelationship of APU System Components, Interfaced			Troubleshooting Tasks List .....	15-4.5	15-73
to Main Engine Starter Components .....	15-1.3	15-13	Visual Check .....	15-4.7	15-75

	<i>Task</i>	<i>Page</i>		<i>Task</i>	<i>Page</i>
Hydraulic System - Engine .....	15-5	15-87	Cable Assembly, APU Fuel Pump .....	15-2.9	15-41
Engine Hydraulic Starting System Operational Check .....	15-5.5	15-96	Capacitor, Caution Panel Filter .....	9-18	9-321
Engine Hydraulic Starting System Schematic .....	15-5.1	15-90	Cargo Ramp and Ramp System .....	7-3	7-119
Engine Hydraulic Starting System Visual Check .....	15-5.4	15-95	Solenoid Valve, Ramp		
Engine Start System Electrical Schematic (Hydraulic Portion) .....	15-5.2	15-91	Cargo/Rescue Winch System .....	14-1	14-1
Engine Start System Wiring Diagram (Hydraulic Portion) .....	15-5.3	15-92	Control Cable, Hoist		
Hydraulic Starting System Operational Check - Engine .....	15-5.5	15-96	Panel, Hoist Operator		
Hydraulic Starting System Schematic Engine .....	15-5.1	15-90	Solenoid, Brake Release		
Hydraulic Starting System Visual Check- Engine .....	15-5.4	15-95	Solenoid, Cable Cutter		
Troubleshooting Tasks List .....	15-5	15-89	Solenoid, Valve, Hoist Control		
Microprocessor Electronic Sequence Unit (ESU) .....	15-6	15-101	Winch Control Grip, Hoist Operator		
Block Diagram - Electronic Sequence Unit (ESU) .....	15-6.4	15-110	Winch Motor, Hoist		
Components - Electronic Sequence Unit (ESU) .....	15-6.1	15-105	Caution Panel, Master .....	9-18	9-321
Control Box .....	15-6.1	15-105	Center Flight Instrument Panel Lights .....	9-9	9-179
Initializing - Bite Logic Block Diagram .....	15-6.7	15-113	Light, Aft Cyclic Trim Indicator		
Malfunctions -			Light, Engine Gas Producer Tachometer		
• Before Start - Bite Logic Block Diagram .....	15-6.9	15-115	Light, Engine Oil Pressure Indicator		
• During Starting and Running -			Light, Engine Oil Temperature Indicator		
Bite Logic Block Diagram .....	15-6.10	15-116	Light, Engine Turbine Inlet Temperature		
Normal - Bite Logic Block Diagram.....	15-6.8	15-114	Light, Fire Handle Warning Panel		
Schematic - Electronic Sequence Unit (ESU) .....	15-6.5	15-111	Light, Fuel Quantity Indicator		
Table 15-6.1 - APU Systems Failures - Bite Indication Table .....	15-6.2	15-106	Light, Fwd Cyclic Trim Indicator		
Microprocessor Electronic Sequence Unit (ESU)			Light, Fuel Quantity Switch		
Table 15-6.2 - APU Starting Sequence Failures - Bite Indication Table .....	15-6.3	15-109	Light, Master Caution Switch Panel		
Table 15-6.3 - ESU Printed Circuit Board Failures - Bite Indication Table .....	15-6.3	15-109	Light, Transmission Oil Pressure Indicator		
Tester APU .....	15-7	15-137	Light, Transmission Oil Pressure Select Switch		
Troubleshooting Tasks List .....	15-6	15-103	Light, Transmission Oil Temperature Indicator		
Wiring Diagram - ESU/APU .....	15-6.6	15-112	Light, Transmission Oil Temperature Select Switch		
Artificial Feel - Magnetic Brakes System .....	11-2	11-9	Resistor, Center Instrument Panel Lights		
Actuator, Cockpit Control Driver			Resistor, Fuel Flow Indicator		
Brake, Magnetic			Centrifugal Droop Stop System.....	5-1	5-1
Auxiliary Power Unit .....	15	15-1	Charger, Battery .....	9-1	9-1
Avionics Cooling Fan System .....	9-19	9-341	Chip Detector .....	6-2	6-25
Fan, Cooling			Chip Detector and Indicating Screen .....	6-2	6-25
Relay, Avionics Cooling			Cockpit Dome and Utility Lights System .....	9-14	9-247
	<b>B</b>		Light, Cockpit Dome		
Battery .....	9-1	9-1	Light, Cockpit Utility		
Bell, Troop Alarm .....	9-16	9-277	Compass, Standby .....	9-8	9-167
Brake, Magnetic .....	11-2	11-9	Computer, AFCS .....	11-3	11-35
Bulb, Engine Oil Temperature .....	8-4	8-61	Console Panel Lights System.....	9-12	9-213
Bulb, Hydraulic Temperature .....	8-8	8-135	Indicator Assembly, Stick Position		
Bypass Switch Panel, Remote .....	16-2	16-69	Light, Engine Trim Panel		
	<b>C</b>		Transformer, Console 28V-5V		
Cabin and Ramp Lights System .....	9-15	9-259	Contactors, APU Generator .....	9-2	9-53
Light, Cabin			Contactors, External Power .....	9-2	9-53
Light, Ramp			Contactors, No. 1 Generator .....	9-2	9-53
Relay, Red Cabin Light			Contactors, No. 2 Generator .....	9-2	9-53
Relay, White Cabin Light			Control Box, APU.....	15-6:1	15-105
			Control Box, Engine (Without 74) .....	4-6	4-115
			Control Box, N1 (Without 74) .....	4-5	4-91



	<i>Task</i>	<i>Page</i>
Control Box, Power Steering .....	7-5	7-153
Control Cable, Hoist .....	14-1	14-1
Control Diode, APU .....	15-2.11	15-41
Control, Heater Fan Over-Run .....	13-1	13-1
Control Panel, AFCS .....	11-3	11-35
Control Panel, APU Generator .....	9-2	9-53
Control Panel, Hoist/Cargo .....	16-1	16-1
Control Panel, No. 1 Generator .....	9-2	9-53
Control Panel, No. 2 Generator .....	9-2	9-53
Control, Quadrant, Engine Condition (Without 74) .....	4-5	4-91
Control Quadrant, Engine Condition (With 74) .....	4-11	4-247
Control Valve, Swivel Lock .....	7-4	7-139
Control Valve, Wheel Brake .....	7-6	7-175
Controller, Temperature .....	13-1	13-1
Controller, Windshield Temperature .....	12-1	12-1
Copilot Flight Instrument Panel Lights .....	9-10	9-187
Light, Airspeed Indicator		
Light, Clock		
Light, Dual Engine Torquemeter Indicator (Without 74) .....		
Light, Radar Alt Dim Control Panel		
Light, Rate of Climb Indicator		
Light, Turn and Slip Indicator		
Resistor, Copilot Instrument Light Dim		
Transformer, Copilot 28V-5V		
Copilot's Display Unit (CDU) .....	16-4	16-143
Cowling, Anti-Ice (Without 74) .....	4-2	4-31
Cruise Guide Indicating System .....	8-12	8-295
Indicator, Cruise Guide		
Link, LCT Connecting		
Signal Conditional, Cruise Guide		
Signal Processor, Cruise Guide		
Switch, Cruise Guide		
Cycling Switch, Heater .....	13-1	13-1
<b>D</b>		
DC Power System .....	9-1	9-1
Battery		
Charger, Battery		
Indicator Light, Battery Charging		
Indicator Light, Charge Complete		
Receptacle, External Power, DC		
Relay, Battery		
Relay, Crosstie		
Relay, Essential DC Bus		
Relay, External Power		
Relay, Reverse Current Cutout		
Relay, Switched Battery		
Relay, Transformer Rectifier Fail		
Transformer Rectifier		
Debris Screen .....	6-2	6-25

	<i>Task</i>	<i>Page</i>
Detection Control Assembly, Engine Fire .....	12-2	12-29
Detector, Chip .....	8-9	8-149
Dispenser Control, Flare .....	16-2	16-69
Doppler/GPS Navigation System .....	18-3	18-61
CDU Display is not GO ALL .....		18-79
CDU does not display DOWNLOAD WAYPTS IN PROCESS during waypoint loading .....		18-88
CDU MAL LAMP and LED segments are not illuminated .....		18-77
EDE LIT panel does not light or vary .....		18-75
GPS Alert indicator does not illuminate .....		18-84
GPS does not zeroize .....		18-92
GPS HAVEQUICK Timing not working .....		18-94
Indications on the four-line display and HSI are not the same .....		18-90
Present position not displayed on CDU .....		18-86
Drain, Pitot Static .....	8-1	8-1
Dynamic Absorber System .....	2-2	2-19
Absorber, Dynamic		
Test Box, Self		
<b>E</b>		
Emergency Exit Lights System .....	17-1	17-1
Exit Light Assembly, Emergency		
Switch Assembly, Inertial		
Engine Accessory Gearbox Chip Detector System (Without 74) .....	4-7	4-177
Engine Accessory Gearbox Chip Detector System (With 74) .....	4-13	4-313
Engine Anti-Icing System (Without 74) .....	4-2	4-31
Cowling, Anti-Ice		
Engine Fuel Flow Indicating System .....	8-16	8-343
Indicator, Dual Fuel Flow		
Power Supply		
Transducer, Fuel Flow		
Engine Fuel Shutoff and Crossfeed Valves System .....	10-1	10-1
Light, Crossfeed Fuel Valve Indicator		
Light, Engine Fuel Valve Indicator		
Valve, Crossfeed Fuel		
Valve, Engine Fuel		
Engine Hydraulic Starting System .....	15-5	15-96
Solenoid Valve, Engine Start		
Engine Low Oil Level Warning System (Without 74) .....	4-3	4-43
Engine Low Oil Level Warning System (With 74) .....	4-9	4-213
Engine Oil Pressure Indicating System .....	8-3	8-43
Indicator, Engine Oil Pressure		
Transmitter, Engine Oil Pressure		
Engine Oil Temperature Indicating System .....	8-4	8-61
Bulb, Engine Oil Temperature		
Indicator, Engine Oil Temperature		
Engine Start and Ignition System (Without 74) .....	4-4	4-51
Panel, Engine Start		
Relay, Engine Start and Temperature		
Solenoid Valve, Engine Start		

	<i>Task</i>	<i>Page</i>
Engine Start and Ignition System (With 74).....	4-10	4-221
Digital Engine Control Unit (DECU)		
Panel, FADEC Control		
Relay, Engine Start		
Solenoid Valve, Engine Start		
Exit Light Assembly, Emergency .....	17-1	17-1
External Cargo Hook System .....	16-1	16-1
Control Panel, Hoist/Cargo		
Relay Box Assembly, Dual Hook		
Relay Box Assembly, Emergency Hook Release		
Hook Assembly, External Cargo, Fwd and Aft		
Hook Assembly, Mid		
Solenoid, Cargo Hook, Emergency Release		
Solenoid, Cargo Hook, Normal Release		
Extinguisher Bottle, Fire .....	12-3	12-53
<b>F</b>		
Fan Avionic Cooling .....	9-19	9-341
Fan, Heater .....	13-1	13-1
Filter, Auxiliary .....	6-2	6-25
Filter, Impending Bypass .....	6-2	6-25
Fire Detection System.....	12-2	12-29
Detection Control, Engine Fire		
Fire Sensing Element, Engine		
Light, Fire Detection, Engine		
Switch, Fire Detector Test		
Fire Extinguishing System .....	12-3	12-53
Extinguisher Bottle, Fire		
Switch, Fire Agent Selector		
Switch, Fire Handle, Engine		
Fire Sensing Element, Engine .....	12-2	12-29
Flare, Dispenser System .....	16-2	16-69
Bypass Switch Panel, Remote		
Dispenser Control, Flare		
Programmer and Dispenser		
Relay, Flare Dispenser		
Timer		
Flight Control Hydraulic System.....	7-1	7-1
Solenoid Valve, Boost Pressure		
Switch, Boost Pressure		
Floodlight, Console .....	9-13	9-229
Floodlight, Instrument Panel .....	9-13	9-229
Floodlight, Overhead Panel .....	9-13	9-229
Formation Lights System .....	9-5	9-139
Light, Formation		
Resistor, Formation Lights		
Forward Transmission Oil Level Check Light .....	9-7	9-159
Light, Oil Level Check		
Switch, Oil Level Check Light		

	<i>Task</i>	<i>Page</i>
Fuel Boost Pumps System .....	10-2	10-35
Panel, Fuel Control		
Pump, Fuel		
Relay Box, Fuel Control		
Pressure Switch, Engine Fuel		
Fuel Control, Heater .....	13-1	13-1
Fuel Pump, APU .....	15-3:8	15-62
Full Authority Digital Engine Control (FADEC) (With 74) .....	4-12	4-255
Digital Engine Control Unit (DECU)		
Control Quadrant, Engine Condition		
Hydro-Mechanical Unit (HMU)		
Panel, FADEC Control		
Relay, FADEC, Panel		
Transducer, Thrust Control Position (CPT)		
<b>G</b>		
Gas Producer Control System .....	4-5	4-91
Actuator, N1		
Control Box, N1		
Control, Quadrant, Engine Condition		
Gas Producer Tachometer System .....	8-2	8-29
Generator, Gas Producer Tachometer		
Indicator, Gas Producer Tachometer		
Generator, AC .....	9-2	9-53
Generator, APU .....	9-2	9-53
Generator, Gas Producer Tachometer .....	8-2	8-29
Generator, No. 1, No. 2 AC .....	9-2	9-53
Grip Cyclic .....	11-3	11-35
Grip, Thrust .....	11-3	11-35
<b>H</b>		
Handpump, Hydraulic .....	7-10	7-235
Harness, 10 Point Thermocouple .....	8-5	8-73
Heads Up Display (HUD) System.....	16-4	16-143
Air Data Transducer (ADT)		
Converter Control Unit (CCU)		
Copilot's Display Unit (CDU)		
Inclinometer		
Pilot's Display Unit (PDU)		
Signal Data Converter (SDC)		
Heating and Ventilating System .....	13-1	13-1
Control, Heater Fan Over-Run		
Controller, Temperature		
Cycling Switch, Heater		
Fan, Heater		
Fuel Control Heater		
Igniter, Heater		
Overheat Protector, Heater		
Pressure Switch, Differential		
Relay, Box, Heater		

	<i>Task</i>	<i>Page</i>
Heating and Ventilating System (Continued)		
Relay, Heater		
Relay, Heater Fan Control		
Solenoid, Master Fuel Valve		
Switch, Cabin Thermostat		
HF Liaison Facility .....	18-4	18-97
AN/ARC-200		
TSEC/KY-100		
Hook Assembly, External Cargo, Fwd and Aft .....	16-1	16-1
Hook Assembly, External Cargo, Mid .....	16-1	16-1
Hydraulic Pressure Indicating System .....	8-7	8-121
Indicator, Hydraulic Pressure		
Panel, Hydraulic		
Transmitter, Hydraulic Pressure		
Hydraulic Oil Temperature Indicating System.....	8-8	8-135
Bulb, Hydraulic Temperature		
Indicator, Hydraulic Temperature		
Hydro-Mechanical Unit (With 74).....	4-12	4-255
<b>I</b>		
Igniter, Heater .....	13-1	13-1
Inclinometer.....	16-4	16-143
Indicator, Airspeed .....	8-1	8-1
Indicator, Altimeter .....	8-1	8-1
Indicator Assembly, Stick Position .....	8-12	8-295
Indicator, Cruise Guide .....	8-12	8-295
Indicator, Cyclic Trim .....	11-3	11-35
Indicator, Dual Fuel Flow .....	8-16	8-343
Indicator, Dual Torque .....	8-6	8-101
Indicator, Engine Chip Detector (Without 74).....	4-7	4-177
Indicator, Engine Chip Detector (With 74).....	4-13	4-313
Indicator, Engine Oil Pressure .....	8-3	8-43
Indicator, Engine Oil Temperature .....	8-4	8-61
Indicator, Fuel Quantity .....	8-11	8-259
Indicator, Gas Producer Tachometer .....	8-2	8-29
Indicator, Flight Control Hydraulic Reservoir Level .....	8-14	8-319
Indicator, Hydraulic Pressure .....	8-7	8-121
Indicator, Hydraulic Temperature .....	8-8	8-135
Indicator, Hydraulic Temperature .....	8-10	8-213
Indicator, Utility Hydraulic Reservoir Level .....	8-14	8-319
Indicator Light, Battery Charging .....	9-1	9-1
Indicator Light, Charge Complete .....	9-1	9-1
Indicator, Ptit .....	8-5	8-73
Indicator, Rotor Tachometer .....	8-15	8-333
Indicator, Transmission Chip Detector .....	8-14	8-319
Indicator, Transmission Debris Screen .....	8-14	8-319
Indicator, Transmission Oil Pressure .....	8-9	8-149
Indicator, Transmission Oil Temperature .....	8-9	8-149
Indicator, Transmission Overtemp .....	8-14	8-319

	<i>Task</i>	<i>Page</i>
Indicator, Turn and Slip .....	8-13	8-309
Indicator, Vertical Speed.....	8-1	8-1
Igniter, Heater .....	13-1	13-1
Inverter.....	10-3	10-123
<b>J</b>		
Junction Box, Torquemeter .....	8-6	8-101
<b>L</b>		
Landing Lights (Search Lights) System .....	9-4	9-107
Searchlight		
Light, Aft Cyclic Trim Indicator .....	9-9	9-179
Light, Anti-Collision .....	9-6	9-151
Light, Aux Oil Pressure .....	8-14	8-319
Light, Cabin .....	9-15	9-259
Light, Clock, Copilot Panel .....	9-10	9-187
Light, Clock, Pilot Panel .....	9-8	9-167
Light, Cockpit Dome .....	9-14	9-247
Light, Cockpit Utility .....	9-14	9-247
Light, Crossfeed Fuel Valve Indicator .....	10-1	10-1
Light, Cruise Guide Indicator .....	9-8	9-167
Light, Dual Engine Torquemeter Indicator .....	9-10	9-187
Light, Electric Power Panel .....	9-11	9-199
Light, Emergency Power (Without 74).....	8-5	8-73
Light, Engine Fuel Valve Indicator .....	10-1	10-1
Light, Engine Gas Producer Tachometer .....	9-9	9-179
Light, Engine Oil Pressure Indicator .....	9-9	9-179
Light, Engine Oil Temperature Indicator .....	9-9	9-179
Light, Engine Start Panel (Without 74).....	9-11	9-199
Light, Engine Trim Panel (Without 74).....	9-12	9-213
Light, Engine Turbine Inlet Temp Indicator .....	9-9	9-179
Light, Fire Handle Warning Panel .....	9-9	9-179
Light, Engine Fire Detection .....	12-2	12-29
Light, Formation.....	9-5	9-139
Light, Fuel Quantity Indicator .....	9-9	9-179
Light, Fuel Quantity Switch.....	9-9	9-179
Light, Fwd Cyclic Trim Indicator .....	9-9	9-179
Light, Fwd XMSN Oil Level Check .....	9-7	9-159
Light, Green Position .....	9-3	9-99
Light, Ground Contact Indicator .....	3-1	3-2.4
Light, Hydraulic Filter Change.....	8-14	8-319
Light, Hydraulic Power Panel .....	9-11	9-199
Light, Hydraulic Pump Change .....	8-14	8-319
Light, Master Caution .....	9-18	9-321
Light, Master Caution Switch Panel .....	9-9	9-179
Light, Main Oil Pressure .....	8-14	8-319
Light, OVHD Fuel Control Panel .....	9-11	9-199
Light, OVHD Lighting Control Panel .....	9-11	9-199
Light, OVHD Switch Panel, Anti-Ice.....	9-11	9-199
Light, OVHD Switch Panel, Heating .....	9-11	9-199

	<i>Task</i>	<i>Page</i>
Light, OVHD Switch Panel, Lighting .....	9-11	9-199
Light, Radar Alt Dim Cont Panel .....	9-88	9-167
Light, Ramp .....	9-15	9-259
Light, Rate of Climb Indicator .....	9-10	9-187
Light, Red Position .....	9-3	9-99
Lighting System		
Anticollision .....	9-6	9-151
Cabin and Ramp .....	9-15	9-259
Cargo Hook .....	9-23	9-375
Cockpit Dome and Utility .....	9-14	9-247
Console .....	9-12	9-213
Formation .....	9-5	9-139
Forward Transmission Oil Level Check .....	9-7	9-159
Instrument Panel, Center .....	9-9	9-179
Instrument Panel, Copilot .....	9-10	9-187
Instrument Panel, Pilot .....	9-8	9-167
Landing .....	9-4	9-107
Master Caution .....	9-18	9-321
Overhead Panel .....	9-11	9-199
Position .....	9-3	9-199
Secondary Cockpit .....	9-13	9-229
Troop Warning .....	9-16	9-277
Light, Transmission Oil Pressure Indicator .....	9-9	9-179
Light, Transmission Oil Pressure Select Switch .....	9-9	9-179
Light, Transmission Oil Temperature Indicator .....	9-9	9-179
Light, Transmission Oil Temperature Select Switch .....	9-9	9-179
Light, Troop Jump .....	9-16	9-277
Light, Troop Jump Signal .....	9-16	9-277
Light, Turn and Slip Indicator .....	9-10	9-187
Light, White Position .....	9-3	9-99
Link, LCT Connecting .....	8-12	8-295
	<b>M</b>	
Maintenance Panel .....	8-14	8-319
Indicator, Engine Chip Detector		
Indicator, Ground Contact		
Indicator, Hydraulic, Pressure		
Indicator, Hydraulic Flight Control Reservoir Level		
Indicator, Utility Hydraulic Reservoir Level		
Indicator, Hydraulic Temperature		
Indicator, Transmission Chip Detector		
Indicator, Transmission Debris Screen		
Indicator, Transmission Overtemp		
Light, Aux Oil Pressure		
Light, Hydraulic Filter Change		
Light, Hydraulic Pump Change		
Light, Main Oil Pressure		
Switch, Hydraulic Level Check		
Switch, No. 1, or No. 2 Flight Control		
Switch, Test		

	<i>Task</i>	<i>Page</i>
Master Caution Lights System .....	9-18	9-321
Capacitor, Caution Panel Filter		
Caution Panel, Master		
Light, Master Caution		
Relay, Dimming Lockout		
Relay, Caution Light Dimming		
Switch, Caution Lights Dim/Bright		
Switch, Caution Lights Test		
Master Caution Panel (AVIM) (Without 74) .....	9-21	9-359
Monitor, External Power .....	9-2	9-53
Motor, Windshield Wiper .....	12-4	12-71
	<b>O</b>	
Overhead Panel Lights System .....	9-11	9-199
Light, Electrical Power Panel		
Light, Hydraulic Power Panel		
Light, Engine Start Panel (Without 74)		
Light, OVHD Fuel Control Panel		
Light, OVHD Lighting Control Panel		
Light, OVHD Switch Panel, Anti-Ice		
Light, OVHD Switch Panel, Heating		
Light, OVHD Switch Panel, Lighting		
Overheat Protector, Heater .....	13-1	13-1
	<b>P</b>	
Panel, Fuel Control .....	10-2	10-35
Panel, Fuel Quantity Pre-Check .....	8-11	8-259
Panel, Hoist Operator .....	14-1	14-1
Panel, Hydraulic .....	8-7	8-121
Panel, Emergency Power (Without 74) .....	8-5	8-73
Panel, Engine Start (Without 74) .....	4-4	4-51
Panel, FADEC Control (With 74) .....	4-12	4-255
Panel, Precheck .....	10.3	10-123
Phase Detector, Magnetic .....	5-2	5-5
Pilot Flight Instrument Panel Lights .....	9-8	9-167
Compass, Standby		
Light, Airspeed Indicator		
Light, Clock		
Light, Cruise Guide Indicator		
Light, Dual Engine Torquemeter		
Light, Radar Alt Dim Cont Panel		
Light, Rate of Climb Indicator		
Light, Turn and Slip Indicator		
Resistor, Pit Inst Lts Dim		
Compass, Standby		
Transformer, Pilot Instruments		
Pitot Static System .....	8-1	8-1
Drain, Pitot Static		
Indicator, Airspeed		
Indicator, Altimeter		

	<i>Task</i>	<i>Page</i>
Pitot Static System (Continued)		
Indicator, Vertical Speed		
Port, Sideslip Sense		
Port, Static		
Tube, Airspeed		
Port, Sideslip Sense.....	8-1	8-1
Port, Static.....	8-1	8-1
Position Lights System.....	9-3	9-99
Light, Green Position		
Light, Red Position		
Light, White Position		
Resistor, Navigation Lights		
Power Supply .....	8-16	8-343
Power Turbine (N2) Control System (Without 74).....	4-6	4-115
Actuator, N2		
Control Box, Engine		
Relay, Emergency Engine Trim		
Relay, Engine Trim		
Resistor, Droop Eliminator		
Resistor, Engine Trim, Adjustable		
Resistor, Engine Trim, Fixed		
Power Turbine (N2) Control System (With 74).....	4-12	4-255
Power Turbine Inlet Temperature System (Without 74).....	8-5	8-73
Harness, 10 Point Thermocouple		
Indicator, Ptit		
Light, Emergency Power		
Panel, Emergency Power		
Switch, Emergency Power		
Power Turbine Inlet Temperature System (With 74).....	8-5	8-73
Harness, Point Thermocouple		
Indicator, PTIT		
Power Steering Assembly, Aft Landing Gear .....	7-5	7-153
Power Steering System .....	7-5	7-153
Control Box, Power Steering		
Power Steering Assembly, Aft Landing Gear		
Relay, Power Steering		
Solenoid Valve, Power Steering		
Power Supply, Engine Torquemeter (Without 74).....	8-6	8-101
Power Supply, Engine Torquemeter Signal Processor/ (With 74).....	8-6	8-101
Pressure Switch, Differential .....	13-1	13-1
Pressure Switch, Engine Fuel .....	10-2	10-35
Probe, Transmission Temperature .....	8-9	8-149
Programmer and Dispenser .....	16-2	16-69
Pump, Fuel .....	10-2	10-35
<b>R</b>		
Receptacle, AC, External Power .....	9-2	9-53
Receptacle, DC .....	9-17	9-303
Receptacle, DC, External Power .....	9-1	9-1

	<i>Task</i>	<i>Page</i>
Receptacle, Utility, 1 Phase .....	9-17	9-303
Receptacle, 28VDC PDP, Utility .....	9-17	9-303
Receptacle, 3 Phase, Utility.....	9-17	9-303
Relay, APU Fault .....	15-3.9	15-63
Relay, APU Generator, Slave .....	9-2	9-53
Relay, Avionics Cooling.....	9-19	9-341
Relay Box Assembly, Dual Hook.....	16-1	16-1
Relay Box Assembly, Emergency Hook Release .....	16-1	16-1
Relay, Battery .....	9-1	9-1
Relay Box, Fuel Control .....	10-2	10-35
Relay Box, Heater .....	13-1	13-1
Relay, Red, Cabin Light .....	9-15	9-259
Relay, Caution Light Dimming.....	9-18	9-321
Relay, Cockpit Floodlight .....	9-13	9-229
Relay, Crosstie .....	9-1	9-1
Relay, Dimming Lockout .....	9-18	9-321
Relay, Emergency Engine Trim (Without 74) .....	4-6	4-115
Relay, Engine Start and Ignition (Without 74) .....	4-4	4-51
Relay, Engine Trim (Without 74) .....	4-6	4-115
Relay, Essential DC Bus .....	9-1	9-1
Relay, External Power .....	9-1	9-1
Relay, Flare Dispenser .....	16-2	16-69
Relay, Heater .....	13-1	13-1
Relay, Heater Fan Control .....	13-1	13-1
Relay, Instrument Light Transformer .....	9-13	9-229
Relay, Jump Light .....	9-16	9-277
Relay, Panel, FADEC (With 74) .....	4-10	4-221
Relay, Power Steering .....	7-5	7-153
Relay, Reverse Current Cutout .....	9-1	9-1
Relay, Roll Erect Cutout .....	11-3	11-35
Relay, Switched Battery .....	9-1	9-1
Relay, Transformer Rectifier Fail .....	9-1	9-1
Relay, Troop Light Dimming .....	9-16	9-277
Relay, Utility Hydraulic Isolate .....	7-2	7-71
Relay, White, Cabin Light .....	9-15	9-259
Relay, Windshield Anti-Ice .....	12-1	12-1
Resistor, Center Instrument Panel Light .....	9-9	9-179
Resistor, Copilot Instrument Light Dim .....	9-10	9-187
Resistor, Droop Eliminator (Without 74).....	4-6	4-115
Resistor, Engine Trim Adjustable (Without 74) .....	4-6	4-115
Resistor, Engine Trim Fixed (Without 74) .....	4-6	4-115
Resistor, Formation Lights .....	9-5	9-139
Resistor, Fuel Flow Indicator .....	9-9	9-179
Resistor, Jump Light Relay .....	9-16	9-277
Resistor, Jump Signal Dim .....	9-16	9-277
Resistor, Navigation Lights .....	9-3	9-99
Resistor, Pit Inst Lts Dim .....	9-8	9-167
Resistor, Windshield Wiper Motor .....	12-4	12-71

	<i>Task</i>	<i>Page</i>
Rotor Blade Tracking and Balancing System .....	5-2	5-5
Phase Detector, Magnetic .....		
Rotor Tachometer System.....	8-15	8-333
Generator, AC .....		
Indicator, Rotor Tachometer .....		
<b>S</b>		
Searchlight .....	9-4	9-107
Secondary Cockpit Lights System.....	9-13	9-229
Floodlight, Console .....		
Floodlight, Instrument Panel .....		
Floodlight, OVHD Panel .....		
Relay, Cockpit Floodlight .....		
Relay, Instrument Light Transformer .....		
Selector Switch, Fuel Quantity .....	8-11	8-259
Selector Switch, Oil Pressure .....	8-9	8-149
Sensor, Thermistor.....	8-11	8-259
Selector Switch, Transmission Oil Temperature .....	8-9	8-149
Signal Conditioner, Cruise Guide .....	8-12	8-295
Signal Data Converter (SDC).....	16-4	16-143
Signal Processor, Cruise Guide .....	8-12	8-295
Signal Processor/Power Supply, Engine Torquemeter (With 74).....	8-6	8-101
Single Point Pressure Refueling System.....	10-3	10-123
Inverter .....		
Panel, Fuel Control .....		
Panel, Precheck .....		
Switch Box, Fuel Quantity .....		
Valve, Fuel Level Control .....		
Valve, Fuel Level Shutoff .....		
Solenoid, Brake Release.....	14-1	14-1
Solenoid Valve, Boost Pressure .....	7-1	7-1
Solenoid, Cable Cutter .....	14-1	14-1
Solenoid, Cargo Hook Emergency Release.....	16-1	16-1
Solenoid, Cargo Hook, Normal Release .....	16-1	16-1
Solenoid, Hoist Control Valve .....	14-1	14-1
Solenoid, Master Fuel Valve .....	13-1	13-1
Solenoid Valve, APU Hydraulic Start.....	15-4.10	15-80
Solenoid Valve, Engine Pilot (Without 74) .....	4-4	4-51
Solenoid Valve, Engine Pilot (With 74).....	4-10	4-221
Solenoid Valve, Pilot .....	7-2	7-71
Solenoid Valve, Power Steering.....	7-5	7-153
Solenoid Valve, Power Transfer Unit.....	7-2	7-71
Solenoid Valve, Ramp I.....	7-3	7-119
Switch Assembly, Inertia.....	17-1	17-1
Switch, Boost Pressure .....	7-1	7-1
Switch Box, Fuel Quantity .....	8-11	8-259
Switch, Cabin Thermostat.....	13-1	13-1
Switch, Caution Lights Dim/Bright .....	9-18	9-321
Switch, Caution Lights Test .....	9-18	9-321
Switch, Cruise Guide .....	8-12	8-295

	<i>Task</i>	<i>Page</i>
Switch, Emergency Power (Without 74) .....	8-5	8-73
Switch, Fire Agent Selector .....	12-3	12-53
Switch, Fire Detector Test .....	12-2	12-29
Switch, Fire Handle, Engine .....	12-3	12-53
Switch, Hydraulic Level Check .....	8-14	8-319
Switch, No. 1, No. 2 Flight Control .....	8-14	8-319
Switch, Oil Pressure .....	8-9	8-149
Switch, Oil Level Check Light .....	9-7	9-159
Switch, Parking Brake Handle .....	7-6	7-175
Switch, Pressure, Utility System .....	7-2	7-71
Switch, Rotary Windshield Wiper .....	12-4	12-71
Switch, Test .....	8-14	8-319
Swivel Locks System .....	7-4	7-139
Control Box, Power Steering .....		
Control Valve, Swivel Lock .....		
<b>T</b>		
Tank Unit, Fuel Quantity Indicating .....	8-11	8-259
Test Box, Self .....	2-2	2-19
Timer .....	16-2	16-59
Transducer, Control Position .....	11-3	11-35
Transducer, Control Position, Thrust (With 74) .....	4-12	4-255
Transducer, Fuel Flow .....	8-16	8-343
Transducer, Oil Pressure .....	8-9	8-149
Transformer, Copilot 28V-5V .....	9-10	9-187
Transformer, Pilot Instruments .....	9-8	9-167
Transformer, Console System .....	9-12	9-213
Transformer, Current, APU Generator .....	9-2	9-53
Transformer, Current, Main .....	9-2	9-53
Transformer Rectifier .....	9-1	9-1
Transmission Chip Detectors and Debris Screens System .....	6-2	6-25
Chip Detector .....		
Chip Detector and Indicating Screen .....		
Debris Screen .....		
Filter, Auxiliary .....		
Filter, Impending Bypass .....		
Transmission Lubrication Systems .....	6-1	6-1
Transmission Oil Pressure Indicating and Warning System .....	8-9	8-149
Indicator, Transmission Oil Pressure .....		
Selector Switch, Oil Pressure .....		
Switch, Oil Pressure .....		
Transducer, Oil Pressure .....		
Transmission Oil Temperature Indicating and Warning System .....	8-10	8-213
Detector, Chip .....		
Indicator, Transmission Oil Temperature .....		
Probe, Transmission Temperature .....		
Selector Switch, Transmission Oil Temperature .....		
Transmitter, Engine Oil Pressure .....	8-3	8-43
Transmitter, Hydraulic Pressure .....	8-7	8-121
Transmitter Unit, Dual Control .....	8-11	8-259

	<i>Task</i>	<i>Page</i>
Torque Indicating System (Without 74) .....	8-6	8-101
Indicator, Dual Torque		
Junction Box, Electric Torquemeter		
Power Supply, Engine Torquemeter		
Torque Indicating System (With 74).....	8-6	8-101
Indicator, Dual Torque		
Junction Box, Electric Torquemeter		
Signal Processor/Power Supply, Engine Torquemeter		
Troop Warning System.....	9-16	9-277
Bell, Troop Alarm		
Light, Troop Jump		
Light, Troop Jump Signal		
Relay, Jump Light		
Relay, Troop Light Dimming		
Resistor, Jump Light Relay		
Resistor, Jump Signal Dim		
Tube, Airspeed .....	8-1	8-1
Turn and Slip Indicating System .....	8-13	8-309
Indicator, Turn and Slip		
<b>U</b>		
Utility Hydraulic System .....	7-2	7-71
Relay, Utility Hydraulic Isolate		
Solenoid Valve, Pilot		
Solenoid Valve, Power Transfer Unit		
Switch, Pressure, Utility System		
Utility Receptacles System .....	9-17	9-303
Receptacle, DC		
Receptacle, Utility, 1 Phase		
Receptacle, Utility, 3 Phase		
Receptacle, Utility, 28VDC, PDP		

	<i>Task</i>	<i>Page</i>
<b>V</b>		
Valve, APU Fuel .....	15-3.8	15-62
Valve, Crossfeed Fuel .....	10-1	10-1
Valve, Engine Fuel .....	10-1	10-1
Valve, Fuel Level Control .....	10-3	10-123
Valve, Fuel Level Shutoff. ....	10-3	10-123
Valve, Refuel Shutoff .....	8-11	8-259
Valve, Solenoid, APU Hydraulic Start .....	15-4.10	15-80
Valve, Shutoff, High Level .....	8-11	8-259
Valve, Solenoid .....	11-3	11-35
Valve, Solenoid, Engine Pilot (Without 74) .....	4-4	4-51
Valve, Solenoid, Engine Pilot (With 74).....	4-10	4-221
<b>W</b>		
Windshield Anti-Icing System .....	12-1	12-1
Controller, Windshield Temperature		
Relay, Windshield Anti-Ice		
Windshield Assembly		
Windshield Assembly .....	12-1	12-1
Windshield Wipers System .....	12-4	12-71
Motor, Windshield Wiper		
Resistor, Windshield Wiper Motor		
Switch, Rotary Windshield Wiper		
Wheel Brake System .....	7-6	7-175
Control Valve, Wheel Brake		
Switch, Parking Brake Handle		
Winch Control Grip, Hoist Operator .....	14-1	14-1
Winch Motor, Hoist .....	14-1	14-1

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To: Is-lp@redstone.army.mil

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4. **City:** Hometown
5. **St:** AL
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub No:** 55-2840-229-23
9. **Pub Title:** TM
10. **Publication Date:** 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. **Submitter Fname:** Joe
14. Submitter Mname: T
15. **Submitter Lname:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. **Text:**

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 PUBLICATION DATE: **10 May 83**  
 PUBLICATION TITLE: **Troubleshooting, CH-47D Helicopter**

BE EXACT. PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
<b>6</b>	<b>2-1 a</b>			<b>In line 6 of paragraph 2-1a the manual states the engine has <u>6</u> cylinders. The engine on my set only has <u>4</u> cylinders. Change the manual to show <u>4</u> cylinders.</b>
<b>B1</b>		<b>4-3</b>		<b>Callout 16 on figure 4-3 is pointing at a <u>bolt</u>. In key to figure 4-3, item 16 is called a <u>shim</u> - Please correct one or the other.</b>
<b>125</b>	<b>line 20</b>			<b>I ordered a gasket, item 19 on figure B-16 by NSN 2 910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN</b>

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# The Metric System and Equivalents

## Linear Measure

1 centimeter = 10 millimeters = .39 inch  
 1 decimeter = 10 centimeters = 3.94 inches  
 1 meter = 10 decimeters = 39.37 inches  
 1 dekameter = 10 meters = 32.8 feet  
 1 hectometer = 10 dekameters = 328.08 feet  
 1 kilometer = 10 hectometers = 3,280.8 feet

## Weights

1 centigram = 10 milligrams = .15 grain  
 1 decigram = 10 centigrams = 1.54 grains  
 1 gram = 10 decigram = .035 ounce  
 1 dekagram = 10 grams = .35 ounce  
 1 hectogram = 10 dekagrams = 3.52 ounces  
 1 kilogram = 10 hectograms = 2.2 pounds  
 1 quintal = 100 kilograms = 220.46 pounds  
 1 metric ton = 10 quintals = 1.1 short tons

## Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce  
 1 deciliter = 10 centiliters = 3.38 fl. ounces  
 1 liter = 10 deciliters = 33.81 fl. ounces  
 1 dekaliter = 10 liters = 2.64 gallons  
 1 hectoliter = 10 dekaliters = 26.42 gallons  
 1 kiloliter = 10 hecoliters = 254.18 gallons

## Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch  
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches  
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet  
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet  
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres  
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

## Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch  
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches  
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

## Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.754
square miles	square kilometers	2.590	square meters	Square yards	1.195
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.026	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.306
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

## Temperature (Exact)

°F Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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