
DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ONE TIME VISUAL INSPECTION FOR AND REMOVAL
OF CERTAIN SERIAL NUMBERED 145DS102-3
FORWARD TRANSMISSION MAIN LUBRICATION
PUMPS
FOR
ALL CH-47D, MH-47D, AND MH-47E AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.
05 September 1996

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NOTE
THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

1. Priority Classification Urgent.

- a. Aircraft in Use Upon receipt of this Technical Bulletin (TB) the condition status symbol of the cited aircraft will be changed to a Red Horizontal Dash "-". The Red Horizontal Dash "-" may be cleared when the inspection of paragraph 8 below is completed. The affected aircraft shall be inspected as soon as practical but no later than the task inspection suspense date. Failure to comply with the requirements of this TB within the time frame required will cause the status symbol to be upgraded to a Red "X".
- b. Aircraft in Depot Maintenance Inspect and correct prior to issue. Aircraft shall not be issued until compliance with this TB has been completed.
- c. Aircraft Undergoing Maintenance Same as paragraph 1a.
- d. Aircraft in Transit (1) Surface/Air Shipment Same as paragraph 1a.
(2) Ferry Status Same as paragraph 1a.
- e. Maintenance Trainers (Category A and B) Same as paragraph 1a.

*This TB supersedes USAATCOM Message 211509Z August 1996 (CH-47-96-ASAM-08)

f. Component/Parts in Stock at All Levels (Depot and Others) Including War Reserves Upon receipt of this TB the materiel condition tags of all items in all condition codes listed in paragraph 6 and 7 shall be annotated to read 'TB 1-1520-240-20-88, One Time Visual Inspection of Forward Transmission Main Lubrication Pumps, not complied with.

(1) Wholesale Stock Report receipt of this TB in accordance with paragraph 13c(2).

(a) Upon receipt of this TB all serviceable items (condition codes "A", "B", "C", "D", and "E") listed in paragraph 6 located in wholesale depot storage shall be placed in condition code NJ' and tagged with a suspended tag/label materiel, DD Form 1576/DD Form 1576-1. Report compliance in accordance with paragraph 13d(1). Do not remove original condition tags.

(b) Upon receipt of this TB inspect all serviceable items (condition codes "A", "B", "C", "D" and "E") listed in paragraph 7 in accordance with paragraph 8. Classify items determined to be discrepant in condition code "D" and prepare a test/modification tag materiel, DD Form 1576. Reference this TB in the authority block. Serviceable items are to remain in the original condition code. Indicate compliance with this TB in the authority block Report compliance with this TB in accordance with paragraph 13d(1).

(2) Retail Stock Report receipt of this TB in accordance with paragraph 13c(1). Upon receipt of this TB commanders and others maintaining retail stock at installation level and below shall contact the supported aviation unit to perform the inspection required by paragraph 8 and the correction procedures of paragraph 9 on discrepant materiel. Classify items in paragraph 7 determined to be discrepant in condition code "K" and prepare a test/modification tag material, DD Form 1576. Reference this TB in the authority block Disposition of discrepant material will be in accordance with paragraph 10. Report compliance with this TB in accordance with paragraph 13d(2).

g. Components/Parts in Work AI items listed in paragraph 6 and 7 below shall not be issued until compliance with this TB has been completed.

2. Task/Inspection Suspense Date Within 10 flight hours or 14 days from receipt of superseded message or receipt of this TB, whichever is received first.

3. Reporting Compliance Suspense Date No later than 12 September 1996 per paragraph 13a of this TB.

4. Summary of the Problem.

a Two (2) 145DS102-3 forward transmission main lubrication pump shafts have failed in service. The pump shaft fractured causing the output pressure of the pump to decrease. The failures consisted of a fracture of the pump shaft between the two gerotors resulting in only one gerotor being driven and a reduction of main oil pressure to five to seven psi. The shaft failures were determined to be the result of bending fatigue with the origin at a manufacturing defect (crack) in the snap ring groove. Our investigation concluded that the cracks were caused by shaft straightening after hardening.

b. Three (3) additional pump shafts inspected exhibited cracks. All five of the above failures were from the same manufacturing work order (i.e., lot). Five (5) additional manufacturing lots of pump shafts have been inspected and no cracks have been found. The suspect lot of 1 45DS102-3 forward transmission lubrication pumps consists of serial number V534 through V598. The probability of a suspect pump malfunction is increased over that of a non-suspect pump.

c. Based on data obtained during forward transmission auxiliary oil system testing, it is likely that after a main lubrication pump malfunction the transmission oil pressure master caution warning light will illuminate followed by illumination of the forward transmission oil hot master caution warning light. Illumination of these warning lights requires compliance with published emergency procedures, i.e., land as soon as practicable. It should be noted that malfunction of a main lubrication pump will not affect auxiliary oil pressure within the forward transmission.

d. The suspect forward transmission lubrication pumps are to be removed from service, reworked, and identified with the letters "RW" after the serial number on the pump identification plate.

e. For Manpower/Downtime and Funding Impacts See paragraph 11 below.

f. The purpose of this TB is to conduct a visual inspection of all forward transmission lubrication pump identification plates for suspect serial numbers V534 through V598. If found, these pumps are to be removed from service and returned for rework.

5. **End Items to be Inspected** - All CH-47D, MH-47D, and MH-47E aircraft.

6. **Assembly Components to be Inspected** -

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Forward Transmission	145D1300-9	1615-01-317-6446
	145D1300-8	1615-01-312-5162
	145D1300-7	1615-01-296-3090
	145D1300-6	1615-01-306-6971
	145D1300-5	1615-01-216-3827
	145D1300-4	1615-01-117-1119

7. **Parts to be Inspected** -

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Pump Assembly, Main	145DS102-3	4320-01-115-3822

8. **Inspection Procedures** -

- a. Prepare the aircraft for safe ground maintenance.
- b. Remove the forward transmission drip tray. (Refer to TM 55-1520-240-23 Task 2-3, or TM 1520-25-23 Task 2-4).

NOTE

Care should be taken to ensure that oil does not get on the center console.

c. Check forward transmission main lubrication pump identification plate for any of the following suspect serial numbers -

V534	V561	V577	V590	V596
V535	V564	V578	V591	V597
V539	V566	V579	V592	V598
V541	V569	V580	V593	
V545	V574	V581	V594	
V557	V575	V589	V595	

NOTE

Since subject pump assembly is not listed in the TB 1-1500-341 -O1, aircraft components requiring maintenance management and historical data, performance of a records check to identify suspect serial numbers is not feasible.

d. If the pumps serial number is in the above list of suspect serial numbers, call the logistical point of contact (paragraph 15b below) for disposition instructions before proceeding to paragraph 9 below for corrective procedures.

e. If the pumps serial number is not in the above list of suspect serial numbers, no further maintenance action is required. Record serial number of forward transmission main lubrication pump on the forward transmission, DA Form 2408-16 in the remarks block. Install the forward transmission drip tray, (refer to TM 55-1520-240-23 Task 2-3, or TM 1-1520-252-23 Task 2-4), and record and report compliance with this TB in accordance with paragraph 13 below.

9. Correction Procedures-

NOTE

Care should be taken to ensure that oil does not get on the center console.

a Remove forward transmission main oil filter element. (Refer to TM 55-1520-240-23 Task 6-123, or TM 1-1520-252-23 Task 6-153).

b Remove suspect main lubrication pump and replace it with a non-suspect pump. Record serial number of forward transmission main lubrication pump on the forward transmission DA Form 2408-16 in the remarks block (Refer to TM 55-1520-240-23 Tasks 6-124 and 6-125, or TM 1-1520-252-23 Tasks 6-155 and 6-156).

NOTE

The torque value published in TM 55-1 520-240-23 Task 6-125 for the main lubrication pump nuts is incorrect. Torque nuts to 70-85 inch-pounds (wet torque). Both TM 55-1520-240-23 and TM 1-1520-252-23 should also state to lubricate threads of self-locking nuts prior to torquing and to lubricate packings prior to installation with MIL-L-7808, MIL-L-23699, or DODL-85734 oil.

c. Reinstall forward transmission main oil filter element. (Refer to TM 55-1520-240-23 Task 6-123, or TM 1-1520-252-23 Task 6-153).

NOTE

The torque value published in TM 55-1 520-240-23 Task 6-125 for the main lubrication pump nuts is incorrect. Torque nuts to 70-85 inch-pounds (wet torque). Both TM 55-1520-240-23 and TM 1-1520-252-23 should also state to lubricate threads of self-locking nuts prior to torquing and to lubricate packings prior to installation with MIL-L-7808, MIL-L-23699, or DODL-85734 oil.

d. Reinstall forward transmission drip tray. (Refer to TM 55-1520-240-23 Task 2-3, or TM 1-1520-252-23 Task 2-4).

e. Service forward transmission. (Refer to TM 55-1520-240-23 Task 1-54, or TM 1-1520-252-23 Task 1-58).

f. Perform ground run Maintenance Operational Check (MOC). (Refer to TM 55-1520-240-1 0 or TM 1-1520-252-10).

10. Supply/Parts and Disposition -

a. Parts Required - The following items will be required to replace suspect pumps.

NOMENCLATURE	PART NUMBER	NSN	QUANTITY
MAIN LUBE PUMP	145DS102-3	4320-01-115-3822	1
PREFORMED PACKING	M83248/1-126	5330-00-167-5114	1
PREFORMED PACKING	M83248/1-146	5330-00-172-7188	2
PREFORMED PACKING	M83248/1-906	5330-00-020-0186	1
NUT, SELF-LOCKING	21 042-4	5310-00-807-1468	8
WASHER, FLAT	AN960-416	5310-00-141-1795	8

b. Requisitioning Instructions Requisition replacement parts through normal supply channels using normal supply procedures. All requisitions shall use project code 'XCE' per this TB.

NOTE

Project code 'XCE' is required to track and establish a data base of stock fund expenditures incurred by the field as a result of this TB.

c. Bulk and Consumable Materials -

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
LUBRICATING OIL	MIL-L-7808	9150-00-782-2627
LUBRICATING OIL	MIL-L-23699	9150-00-985-7099
LUBRICATING OIL	DOD-L-85734	9150-01-204-2684
LOCKWIRE	MS20995C32	9505-00-293-4208

d. Disposition Turn in discrepant items listed in paragraph 7 using normal supply procedures All turn-in documents must include project code (CC57-59) 'XCE', and condition code 'D'.

e. Disposition of Hazardous Material N/A.

11. Special Tools, Jigs and Fixtures Required N/A 12. Application

- a. Category of Maintenance AVUM. Aircraft downtime will be charged to AVUM.
- b. Estimated Time Required (1) Total of 0.5 man-hours using one person to perform the inspection.
 - (2) Total of 0.5 hours downtime for one end item.
 - (3) Total of two man-hours using one person to replace a suspect pump.
- c. Estimated cost impact of stock fund items to the field

NOMENCLATURE	PART NO./NSN	QTY COST EA.	TOTAL \$
PUMP ASSY	145DS102-3/4320-01-115-3822	1 EA	\$5962.00
PACKING PREFORMED	M83248/1-126/5330-00-167-5114	1 EA	.24
PACKING PREFORMED	M83248/1-146/5330-00-172-7188	2 EA	.94
PACKING PREFORMED	M83248/1-906/5330-00-020-0186	1 EA	.11
NUT, SELF-LOCKING	22FT-428/5310-00-807-1468	8 EA	79.92
WASHER, FLAT	AN960-416/5310-00-1 41-1795	8 EA	8.80
LUBE, OIL	MIL-L-7808/9150-00-782-2627	QT	3.85
LUBE, OIL	MIL-L-23699/9150-00-985-7099	QT	3.83
LUBE, OIL	DOD-L-85734/9150-01-209-2684	QT	4.91
LOCKWIRE	MS20995C32/9505-00-293-4208	LB	3.30

d. TB/MWOs to be Applied Prior to or Concurrently With This Inspection N/A.

e. Publications Which Require Change as a Result of This Inspection The following publications shall be changed to reflect this TB (1) TM 55-1520-240-23, Chapter 1, Task 1-92 and Chapter 6, Tasks 6-123 and 6-125.

(2) TM 1-1520-252-23, Chapter 1, Task 1-100 and Chapter 6, Tasks 6-153 and 6-156.

(3) A copy of this TB shall be inserted in the above publications as authority to implement the change until the tag printed change is received. Pen and ink changes are authorized

12. References-

- a. TM 5-1520-240-10.
- b. TM 1-1520-252-10.

- c. TM 55-1520-240-23.
- d. TM 1-1520-252-23.

13. Recording and Reporting Requirements -

a. Reporting Compliance Suspense Date (Aircraft) Upon entering requirements of this TB on DA Form 2408-13-1 on all subject MDS aircraft, forward a priority message, data fax or E-Mail to Commander, ATCOM, ATTN: AMSAT-R-X (SOF Compliance Officer), per AR 95-3. Data fax number is DSN 693-2064 or commercial (314) 263-2064. E-Mail address is "asatrxs4st-louis-emh4.stl.army.mir. The report will cite this TB number, date of entry in DA Form 2408-13-1, the aircraft mission design series and serial numbers of aircraft in numerical order.

b. Task/Inspection Reporting Suspense Date (Aircraft) For aircraft which required suspect pump replacement, units will forward a priority message to: Commander, ATCOM, ATTN: AMCPM-CH-L The report will cite this TB number, date of inspection, aircraft serial number, and description of results of the inspection. Inspection reports will be completed no later than seven days after task/inspection suspense date.

c. Reporting Message Receipt (Spares)

(1) Materiel in Retail Storage Report receipt of this TB by E-mail or datafax to the logistical point of contact listed in paragraph 15b within 7 days from the date of this TB.

(2) Materiel in Wholesale Depot Storage. Report receipt of this TB by E-mail or data fax to the wholesale materiel (spares) point of contact listed in paragraph 15c within 3 working days from the date of this TB.

d. Task/inspection Reporting Suspense Date (Spares)

(1) Materiel In Wholesale Depot Storage Report compliance with this TB to the wholesale materiel point of contact (spares) point of contact listed in paragraph 15c within 7 days of the date of this TB. Provide the actual cost of performing the required inspection on items listed in paragraph 7 and an estimate of the cost reimbursable funding required to move suspended items on hand listed in paragraph 6 to a work area, unpack the materiel, repack the materiel after inspection by ATCOM inspectors, and to return the materiel to storage. Report the results of the inspection using DD Form 1225. For items in paragraph 6 indicate the quantity placed in condition code 'J'. For items in paragraph 7 report by condition code the serial numbers of the items inspected. Report by data fax and provide local point of contact.

(2) Materiel in Retail Storage Report compliance with this TB by e-mail or data fax to the logistical point of contact in paragraph 15b within 10 working days of this TB. Report the serial numbers of all items listed in paragraph 7 that are determined to be discrepant. Report by E-mail or data fax and provide to the logistical point of contact e. The following forms are applicable and are to be completed in accordance with DA PAM 738-751, 15 June 1992 (1) DA Form 2408-5-1, Equipment Modification Record (XMSN assy rotor wing fwd) (2) DA Form 2408-13, Aircraft Status Information Record.

(3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.

(4) DA Form 2408-15, Historical Record for Aircraft.

(5) DD Form 1576/1576-1, Test Modification Tag/Label (Blue Color). (Annotate authority block with "Repair Required per TB 1-1520-240-20-88".

14. Weight and Balance - N/A.

15. Points of Contact -

a. Technical points of contact for this TB are Mr. Michael Wright or Mr. Robert A. Lawyer, AMSAT-R-ECC, DSN 693-3550/-3820 or commercial (314)263-3550/-3820 respectively.

b. Logistical point of contact for this TB is Mr. Mike Melliore, AMCPM-CH-L, DSN 693-1901 or commercial (314)263-1901 and data fax is DSN 693-1485 or commercial (314)263-1485. E-mail mmellier@emh1.w5md.army.mil.

c. Wholesale Materiel point of contact (spares) for this TB is Ms. Linda Tanksley, AMSAT-I-SACE, DSN 693-6007 or commercial (314)263-6007 and Data Fax DSN 693-7569 or commercial (314)263-7569.

d. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAT-I-MDM, DSN 490-2318 or commercial (314)260-2318.

e. Safety point of contact for this TB is Mr. Lyell Myers. AMSAT-R-X, DSN 693-2438 or commercial (314)263-2438.

f. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should contact Mr. Ron Van Rees, AMSAT-D-SAF, DSN 693-7844/3216 or commercial (314)263-7844/33216. Data fax is DSN 693-2917 or commercial (314)263-2917

g. After hours contact ATCOM Command Operations Center (COC) DSN 693-2066/2067 or commercial (314)263-2066/2067.

16. Reporting of Errors and Recommending Improvements. You can help improve this TB. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished to you. You may also submit your recommended changes by E-mail directly to <n)1t%avnma28(st-louis-emh7.ammy.mil>. A reply will be furnished directly to you.


By Order of the Secretary of the Army:

Official: 
JOEL B. HUDSON
*Administrative Assistant to the
Secretary of the Army*
02160

DENNIS J. REIMER
*General, United States Army
Chief of Staff*

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