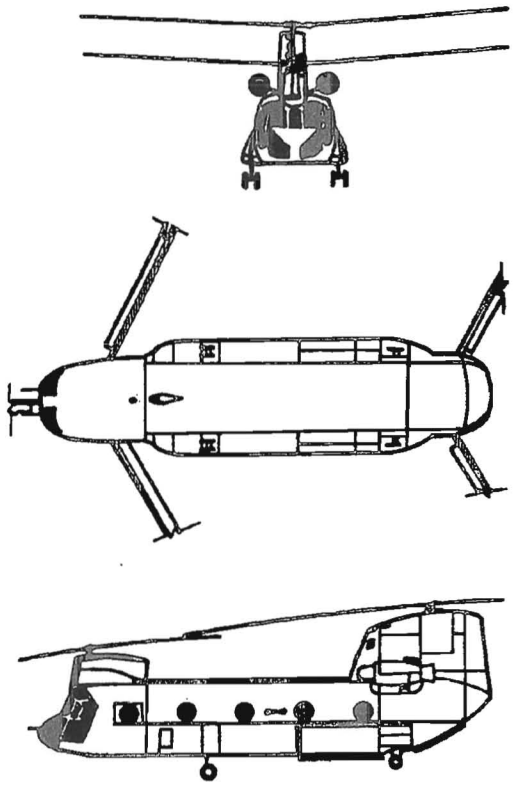
CH-47 CHINOOK (BOEING VERTOL)



GENERAL DATA

Country of Origin. USA.

Similar Aircraft. CH-46 Sea Knight.

Crew. Two on flight deck.

Role. Transport, cargo (44 equipped troops), recovery.

Armament. Usually none.

Dimensions. Length: 51 ft (15.56 m).

Rotor diameter: 60 ft (18.3 m).

WEFT DESCRIPTION

Wings. Two three-blade main rotors, one above the nose and one above the tail section.

Engine(s). Two turboshafts in pods, one on each side of thick tail fin.

Fuselage. Thick, box-like body with bulges along the sides of the midsection. Tapered front and rear. Glassed-in, stepped cockpit above a short, rounded nose. Fixed landing gear.

Tail. High, thick tail fin.

USER COUNTRIES

Argentina, Australia, Canada, Egypt, Greece, Iran, Italy, Japan, Libya, Morocco, UK, USA.

The Sea Knight is a land- and ship-based aircraft. There are many versions. When comparing this aircraft and the CH-47 Chinook, note the differences in the landing gear, engine mounting, fuel pod size, and size of the aircraft.

CW4 Barker leads the way and is a driving force in training and the extraordinary successes associated with B Co 4-123rd Aviation Regiment. As the unit's Standardization Instructor Pilot for the past 2.5 years, CW4 Barker has rendered invaluable service to the unit managing the flying programs of 38 aviators. September 1, 1994 - August 31, 1995 represents a particularly intense year--one that has been full of firsts and major accomplishments. New and increased emphasis on NVG training, Crew Coordination Training, High Altitude Rescue Training, and Environmental training coupled with field excercises, ARMS inspections, and real world missions have honed the unit to an all time sharpness directly attributeable to CW4 Barker.

Alaska represents a double-edged sword for aviators in terms of NVG qualification and proficiency. Extended daylight hours in the summer make goggle flying impossible for three months out of the year--a waiver is required for the IP's to maintain their currency--yet this very same phenomenom yields long periods of continual darkness in the winter and mandates a high degree of. NVG ability. Due to the lack of darkness for a fourth of the year CW4 Barker is forced to qualify and train the unit aviators in 3/4 of the time that other units enjoy. Despite this obstacle.CW4 Barker achieved 100% qualified on NVG systems, a feat many units are unable to duplicate even with a year round NVG program.. Extended darkness coupled with deep blowing snow, make goggle proficiency more critical than other units--simple currency is not enough in the unforgiving extremes of Alaska. During this time CW4 Barker revised the unit SOP and, seeing shortcomings, realigned it to more accurately take into account the unit's mission requirements while establishing a new NVG training program. In keeping with his safety first attitude, CW4 Barker coordinated with DES to update all NVG messages on file; revised and established the maintenance program for NVG's; and attended all seminars and workshops for modernizing NVG's and training.

With temperatures dropping to -60F in the winter, special precautions and additional environmental training are necessary. Considerations such as aircraft limitations, glacier operations, muskeg , and tundra require specific academics and flight training which includes 10 additional 3000 series tasks not typically addressed in other units. The additional tasks require a minimum of two extra qualification flights. CW4 Barker must often conduct training flights in adverse weather conditions to keep all of the aviators current and proficient.

During this period B Company participated in two field exercises and one JFTX--Northern Edge. The success of these operations are a direct reflection of the efficacy of CW4 Barker's training program.

Aircrew Coordination Training is an integral par of CW4 Barkers training program, also. During this period he attended the Ft. Rucker course after which he immediately returned to the unit and implemented it, personally teaching several blocks of instruction during each class. In the short time since its implementation he has already trained 90% of the aircrews which is noteworthy when considering the logistical difficulties involved with remote site simulator utilization and the increasingly limited availability of resources.

B Company 4-123rd has a mission which is unique to the Alaskan environment--HART (high altitude rescue team) operations. The presence of Mt. McKinley and the Denali range offers many climbers the chance to summit a20,000'mountain in North America. The CH-47D is one of the very few aircraft in he world that can land at such extreme altitudes and so B Co. has a standing rescue mission during the climbing season. The 1995 climbing season was particularly busy. Early in the season B Co was called to rescue three stranded Japanese climbers. The very nature of the rescue mission implies short planning sequence ; the same factors also all for greater detail and excellence in mission execution as the extreme altitudes kill climbers and significantly impact aircraft performance. As the trainer ad OIC of the company HART team, CW4 Barker revised the HART SOP to streamline the planning phase yet still allow for maximum safety ad optimize the chances for successful mission outcome. Changing the SOP and providing tough realistic training required that new ground be broken. CW4 Barker worked with the National Park Service to coordinate training areas and was the liaison to the RCC at Elmendorf AFB for training and missions assigned. Leading by example, CW4 Barker personally flew in all three of the rescues in 1995. In mid season the team was called upon to rescue a snow boarder. Later in the season, in what was one of the most dramatic rescues ever, CW4 barker and the HART team landed at 19,600' to save two Spanish climbers. The conditions at that altitude allow for a margin of error that approaches iota. Control touch, performance planning, and most of all training, is required to execute a landing and rescue at these altitudes. This particular rescue set a new North American altitude record and a new all time high landing record for the CH-47D and the US Army. CW4 Barker is personally responsible for HART crew selection and academic training and as such is directly responsible for saving five civilian lives this year. It is a tribute to the effectiveness of his training and success of the program that e set up tat allowed the rescues to be performed mishap free with the requisite timelines of response.

CW4 Barker has established himself as a top trainer by consistently seeking the best solution and paying strict attention to detail. He has earned commendable ratings in two consecutive ARMS inspections for his fastidious

record keeping and superior management skills. CW4 Barker continues to pursue personal and professional development--earlier this year he completed the Warrant Officer Staff Course and a three credit course in Airline Regulation from Embry-Riddle Aeronautical University. He has been awarded an ARCOM, an AAM, and has an Air Medal pending for accomplishments which have taken place since 1 September 1994.

INADVERTENT IMC

TRANSITION TO INSTRUMENTS:

- **ATTITUDE** - WINGS LEVEL
- **HEADING** - CONSTANT, TURNING ONLY TO AVOID KNOWN OBSTACLES
- **TORQUE** - CLIMB POWER
- **AIRSPEED**- CLIMB AIRSPEED

THEN REFER TO SPECIFIC AREA INSTRUCTIONS

FT WAINWRIGHT (FBK):

- SET XPNDR TO 7700 ASAP
- CLIMB TO 3,000 ft MSL IN TFTA, 4,500 ft MSL IN YTA
- CONTACT FAI APPROACH CONTROL ON 118.1 / 363.8 or 126.5 / 271.3 (or on GUARD if unable)
- REQUEST PAR TO FBK, PAR TO EIL OR VECTORS FOR THE NDB-A AT FBK
- **LOST COMMO:** COMPLY WITH LOST COMMO PROCEDURES, THEN PROCEED TO CUN AND EXECUTE THE NDB-A APPROACH AT FBK

FT GREELY (BIG):

- SET XPNDR TO 7700 ASAP
- **WEST** of **BIG DELTA RIVER** CLIMB TO 8,000 ft MSL, TURN TO HEADING OF 330 DEGREES
- **EAST** of **BIG DELTA RIVER** CLIMB TO 6,000 ft MSL, TURN TO HEADING OF 330 DEGREES
- CONTACT ANCHORAGE CENTER ON 135.3 / 322.5 (IF UNABLE TO CONTACT ANC CTR, TRY FAI RADIO ON 122.2)
- **LOST COMMO:** COMPLY WITH LOST COMMO PROCEDURES. IF VOR EQUIPT, PROCEED TO BIG DELTA VOR AND EXECUTE THE VOR RWY 18 TO BIG. IF ADF EQUIPT, PROCEED TO DELTA JUNCTION NDB AND EXECUTE THE NDB-A TO BIG

FT RICHARDSON (FRN):

BEFORE OPERATING IN THE MOUNTAINS EAST OF GLENN HWY, DETERMINE APPROPRIATE HEADINGS AND ALTITUDES.

- SET XPNDR TO 7700 ASAP
- CLIMB TO 2,500 ft MSL, TURN TO HEADING 340 DEGREES
- CONTACT ANCHORAGE APPROACH ON 118.6 / 290.9 (or on GUARD if unable)

LOST COMMO: COMPLY WITH LOST COMMO PROCEDURES. IF VOR EQUIPT, PROCEED TO BIG LAKE VOR, THEN TO HYSON INTERSECTION VIA PUBLISHED TRANSITION, EXECUTE THE ILS RWY 5 OR LOCALIZER RWY 5 TO EDF. IF ADF EQUIPT, PROCEED TO CAMPBELL LAKE NDB, THEN BRUCK LOM VIA THE PUBLISHED TRANSITION, EXECUTE THE NDB RWY 6 TO ANCHORAGE INT'L

24 NOV 83 - 24 NOV 84	1 YEAR	ADJUSTED ACTIVE DUTY ENTRY DATE
24 NOV 84 - 24 NOV 85	2 YEARS	
24 NOV 85 - 24 NOV 86	3 YEARS	
24 NOV 86 - 24 NOV 87	4 YEARS	
24 NOV 87 - 24 NOV 88	5 YEARS	
24 NOV 88 - 24 NOV 89	6 YEARS	
24 NOV 89 - 24 NOV 90	7 YEARS	
24 NOV 90 - 24 NOV 91	8 YEARS	31 OCT WO1
24 NOV 91 - 24 NOV 92	9 YEARS	1 YEAR WO SERVICE
24 NOV 92 - 24 NOV 93	10 YEARS	31 OCT CW2
24 NOV 93 - 24 NOV 94	11 YEARS	3 YEARS WO SERVICE
24 NOV 94 - 24 NOV 95	12 YEARS	4 YEARS WO SERVICE
24 NOV 95 - 24 NOV 96	13 YEARS	5 YEARS WO SERVICE
24 NOV 96 - 24 NOV 97	14 YEARS	6 YEARS WO SERVICE
24 NOV 97 - 24 NOV 98	15 YEARS	15 YEAR RETIREMENT
24 NOV 98 - 24 NOV 99	16 YEARS	CHANDAR PAID OFF
24 NOV 99 - 24 NOV 00	17 YEARS	
24 NOV 00 - 24 NOV 01	18 YEARS	
24 NOV 01 - 24 NOV 02	19 YEARS	
24 NOV 02 - 24 NOV 03	24 YEARS	20 YEAR RETIREMENT

MURPHY'S LAW CLAIMS THAT WHENEVER SOMETHING CAN POSSIBLY GO WRONG, IT WILL. THERE ARE, OF COURSE, NUMEROUS COROLLARIES TO THIS ADAGE, BUT ONE OF CONCERN TO PILOTS STATES THAT HEADWINDS OCCUR MORE FREQUENTLY THAN TAILWINDS.

IN A WAY , THIS STATEMENT IS ACCURATE, ESPECIALLY WITH RESPECT TO ROUND-ROBIN FLIGHTS. GIVEN ANY SPECIFIC WIND DIRECTION AND SPEED, A ROUND TRIP TAKES LONGER THAN WHEN THE WIND IS CALM.

FOR EXAMPLE, ASSUME THAT A PILOT IS FLYING DUE EAST FROM A TO B, A DISTANCE OF 300 NM. WITH A CALM WIND AND TRUE AIRSPEED OF 150 KNOTS, THE ROUND TRIP (600 NM) WOULD REQUIRE EXACTLY FOUR HOURS (EXCLUDING TIME LOST DURING CLIMB, DEPARTURE AND ARRIVAL MANEUVERING).

BUT NOW INTRODUCE A 50 KNOT WESTERLY WIND. THE 300 NM OUTBOUND FLIGHT WOULD BE FLOWN WITH A 200 KNOT GROUNDSPEED AND REQUIRE ONLY ONE HOUR AND THIRTY MINUTES. THE GROUNDSPEED FOR THE RETURN LEG, HOWEVER, WOULD BE ONLY 100 KNOTS AND REQUIRE THREE HOURS ENROUTE.

TOTAL TIME FOR THE ROUND TRIP WOULD BE FOUR HOURS AND THIRTY MINUTES, HALF AN HOUR LONGER THAN HAD THERE BEEN NO WIND AT ALL.

THE REASON FOR THE ADDITIONAL FLYING TIME IS THAT THE AIRCRAFT SPENDS MORE TIME UNDER THE INFLUENCE OF A HEADWIND THAN IT DOES BENEFITING FROM THE TAILWIND. CONSEQUENTLY, THE AVERAGE GROUNDSPEED IS LESS THAN HAD THE WIND BEEN CALM.

WITH RESPECT TO ROUND-ROBIN FLIGHTS, THEREFORE, IT CAN BE SAID THAT ANY WIND IS AN "EFFECTIVE HEADWIND" BECAUSE THE FLIGHT IS PROLONGED.

BUT WHAT ABOUT ONE-WAY FLIGHTS? DOES MURPHY'S LAW AFFECT THESE, TOO? DO HEADWINDS REALLY PREVAIL OVER TAILWINDS? LOGIC SUGGEST THAT FOR ANY GIVEN FLIGHT, THE ODDS IN FAVOR OF A HEADWIND ARE EQUAL TO THOSE IN FAVOR OF A TAILWIND. RIGHT? WRONG! SAD TO SAY, MURPHY IS ONCE AGAIN CORRECT. HEADWINDS DO PREVAIL, BUT NOT SIMPLY BECAUSE THE CONTRITE, IRISH GENTLEMAN HAS A VENDETTA AGAINST PILOTS. THE REASON IS A BIT MORE OBSCURE.

IMAGINE A COMPASS ROSE ABOUT AN AIRPLANE, A DIAGRAM USED TO COMMONLY IN TEXTBOOKS TO DESCRIBE THE EFFECTS OF VARIOUS WIND DIRECTIONS. FOR EXAMPLE, WINDS BLOWING TOWARD THE AIRPLANE FROM THE DIRECTIONS ENCOMPASSED BY THE UPPER TWO QUADRANTS ARE HEADWINDS WHILE THOSE BLOWING FROM THE LOWER TWO QUADRANTS DEFINE TAILWINDS. DO YOU AGREE? WELL YOU SHOULDN'T. THIS POPULAR PRESENTATION IS INACCURATE.

THE TEXTBOOK DIAGRAMS IMPLY THAT A CROSSWIND FROM EITHER 090 DEGREES OR 270 DEGREES HAS NO EFFECT ON GROUNDSPEED . IN

OTHER WORDS, THESE CROSSWINDS WOULD BE NEITHER HEADWINDS OR TAILWINDS. NOT SO.

IN ORDER TO CORRECT FOR A CROSSWIND AND MAINTAIN THE DESIRED TRUE COURSE, IT IS NECESSARY TO ESTABLISH A WIND CORRECTION ANGLE, OR CRAB.BUT THE ACT OF CRABBING NECESSITATES TURNING INTO THE WIND. THE RESULT? A LOSS OF GROUNDSPEED. THE STRONGER THE CROSSWIND, THE GREATER THE LOSS. IN OTHER WORDS, A DIRECT CROSSWIND ALSO IS A HEADWIND.

FOR EXAMPLE, IF A 160 KNOT AIRPLANE IS REQUIRED TO CRAB 20 DEGREES INTO A CROSSWIND TO MAINTAIN COURSE, THE GROUNDSPEED LOSS IS 10 KNOTS.

VERY STRONG WINDS THAT BLOW FROM EVEN SLIGHTLY BEHIND THE AIRCRAFT MAY APPEAR TO BE BENEFICIAL, BUT BY THE TIME THE WIND CORRECTION ANGLE IS APPLIED MORE GROUNDSPEED MAY BE LOST (BY CRABBING) THAN WOULD BE GAINED FROM THE TAILWIND COMPONENT.

CONSIDER A PILOT WHO WANTS TO FLY A TRUE COURSE OF 360 DEGREES IN A 150 KNOT AIRPLANE. THE PREVAILING WIND IS 260 DEGREES AT 60 KNOTS. CERTAINLY THIS APPEARS TO PROVIDE A SLIGHT TAILWIND. BUT IF THE PROBLEM IS RESOLVED ON A COMPUTER, GROUNDSPEED ALONG THE DESIRED COURSE IS ONLY 148 KNOTS. ALTHOUGH THIS WIND PROVIDES A 10 KNOT TAILWIND COMPONENT, 12 KNOTS ARE LOST BY HAVING TO CRAB 23 DEGREES INTO THE WIND.

SO, TO THE GLEE OF MR. MURPHY, HEADWINDS DO PREVAIL.