15-19 Aug

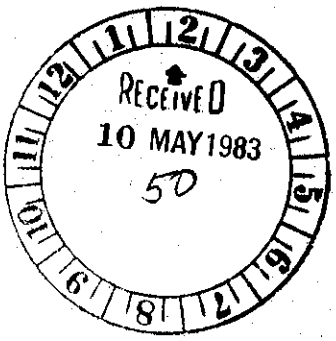
OPERATIONAL SUPPLEMENT

FLIGHT MANUAL

USAF SERIES

CH-3E AND HH-3E

HELICOPTERS



THIS PUBLICATION SUPPLEMENTS TO 1H-3(C)E-1 DATED 1 SEPTEMBER 1973.

COMMANDERS ARE RESPONSIBLE FOR BRINGING THIS SUPPLEMENT TO THE ATTENTION OF ALL AFFECTED AF PERSONNEL

PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE

13 JANUARY 1983

SHORT TITLE: HOT REFUELING

1. PURPOSE.

To provide flight crews with new hot refueling procedures.

2. INSTRUCTIONS.

a. Pages 2-44, 2-44A/(2-44B blank), 2-45, and 2-46, HOT REFUELING OPERATIONS procedure is amended to delete all text and steps under this heading and to replace all text with the following:

HOT REFUELING OPERATIONS.

NOTE

These procedures will be used only when authorized by the Major Command and a System Safety Engineering Analysis has been performed.

The following procedures describe hot refueling operations with the rotors engaged. The flight mechanic will refuel helicopter and check that the pressure refueling system used is compatible with the helicopter fuel system, that the proper type fuel is used, and that the aircraft is properly grounded. The aircraft commander is responsible for positioning the aircraft in the fueling area clear of all obstructions and ensuring that all procedures outlined herein are complied with. The aircraft commander is responsible for briefing safety precautions and other pertinent information.

PREPARATION.

WARNING

Do not operate aircraft radio equipment (UHF, VHF, HF, or FM), doppler, or radar altimeter within 300 feet of refueling area.

NOTE

Preparation steps will be accomplished 300 feet short of refueling area.

1. Doppler - "STBY". (CP)
2. IFF - "STBY". (CP)
3. Radar Altimeter - "OFF". (P, CP)
4. Lights - "SET". (CP)
   a. Strobes - OFF.
   b. Position - AS REQUIRED.
5. Radios - "AS REQUIRED". (P, CP)
6. Refuel Panel - "SET". (CP)
   a. Master Power - ON.
   b. Probe - EXTENDED (If Applicable).
   c. Tank Fill Switches - AS REQUIRED.

7. Ramp - "LEVEL". (FM)

8. Preparation Checklist - "COMPLETED". (FM)

HOT REFUELING.

WARNING

During all hot refueling, receiver must be bonded to refueler.

1. Parking Brakes - "ON". (P)

2. Cockpit Windows and Cabin Door - "AS REQUIRED". (ALL)

WARNING

If no grounding point is available, ensure helicopter is bonded to refueler.

NOTE

The personnel door will remain closed and ramp open during single point refueling.

3. Auxiliary Tank Pins/Ground Wires - "INSTALLED". (FM)

   a. Helicopter to Ground.

   b. Refueler to Ground.

   c. Helicopter to Refueler.

WARNING

Position a fire extinguisher 10 feet from refueling point of helicopter. A minimum of two fire extinguishers will be used, one at the helicopter and one at the refueler.

4. Fire Guard - "POSTED". (FM)

WARNING

Ensure refueling nozzle is locked and checked for security prior to pressurizing refueling hose.

5. Refueling Nozzle "CONNECTED AND CHECKED". (FM)

   a. Inspect refueling nozzle for general condition.

   b. Connect nozzle to SPR receptacle or to IFR probe (if applicable).

   c. Install adapter on IFR probe (if applicable). Check for security on probe.

   d. Open fuel flow lever on nozzle.

   e. Check nozzle to ensure it cannot be rotated or disconnected from SPR receptacle or probe adapter.

WARNING

Failure of flow lights to extinguish when preshutoff test is accomplished indicates a system malfunction and refueling will be terminated.

NOTE

Refuel helicopter at a maximum flow rate of 150 gpm or 25 psig. As fuel enters helicopter, MAIN TANKS FWD and AFT and EXT TANKS LEFT and RIGHT FLOW indicating lights will illuminate. Immediately following start of fuel flow, precheck internal tank high level control valves and external shutoff valves by pressing PRESHUTOFF TEST switch. When switch is pressed, fuel flow will stop and FLOW indicating lights will go out. When switch is released, fuel flow will resume and FLOW indicating lights will illuminate. Tank selector switches can then be repositioned as required. When tanks are full, FWD and AFT FLOW lights will go out. EXT TANKS LEFT and RIGHT FULL lights will illuminate, and LEFT and RIGHT FLOW lights will go out.

6. Fuel Flow - "ESTABLISHED". (CP)

WARNING

During fuel flow, the flight mechanic will visually check for leaks from overboard vents. The pilot will maintain eye contact with the hot refueling supervisor.

7. Preshutoff Test - "COMPLETED". (CP)

NOTE

Once preshutoff test is complete, it is recommended that aux tanks be fueled prior to main tanks. If this procedure is followed, aux tank fuel venting will enter main tanks instead of overflowing to outside of aircraft.

8. Hot Refueling Checklist - "COMPLETED". (CP)

POST HOT REFUELING.

1. Fuel Flow - 'STOPPED". (CP)

WARNING

Ensure hose pressure is depleted prior to disconnecting nozzle from SPR receptacle or probe adapter to avoid fuel spray or spillage.

2. Refueling Nozzle/Adapter - "DISCONNECTED". (FM)
3. Refueling Nozzle from Probe Adapter - "REMOVED". (FM) (If Required)
4. SPR Access Panel - "CLOSED". (FM)
5. Refuel Panel - "SET". (CP)
   a. Tank Selector Switches - OFF.
   b. Probe - STOWED (If Required).
   c. Master Power - OFF.
6. Auxiliary Tank Pins/Ground Wires - "REMOVED". (FM)
   a. Refueler to Helicopter.
   b. Helicopter to Ground.
7. Parking Brakes - "RELEASED". (P)

WARNING

Radar altimeter will remain off until helicopter is 300 feet from refueling area.

8. Radar Altimeter - "ON". (P, CP)
9. Post Hot Refueling Checklist - "COMPLETED". (FM)

b. Changes to the Pilot's Flight Crew Checklist (TO 1H-3(C)E-1CL-1) are reproduced so that appropriate pages may be cut out and inserted in the binder over the existing pages, pending change to the manual and checklist. Reference to this supplement shall be made on the title page of the checklist.

THE END

FLIGHT MANUAL, SAFETY SUPPLEMENT, AND OPERATIONAL SUPPLEMENT STATUS.

This page is published with each Safety and Operational Supplement. It provides a comprehensive listing of the current Flight Manuals, Flight Crew Checklists, Safety Supplements, and Operational Supplements. If you are missing any publications listed on this page, see your Publications Distribution Officer and get your copy.

FLIGHT MANUAL	DATE	CHANGE NO.
TO 1H-3(C)E-1	1 Sep 73	13 - 21 Oct 82

FLIGHT CREW CHECKLIST	DATE	CHANGE NO.
TO 1H-3(C)E-1CL-1	1 Sep 73	13 - 21 Oct 82
TO 1H-3(C)E-1CL-2	1 Sep 73	6 - 11 Mar 82

CURRENT SUPPLEMENTS

NUMBER	DATE	SHORT TITLE	FLIGHT MANUAL PAGES AFFECTED
S-142	20 Jan 82	Engine Anti-Ice System	2-16, 2-16A, 2-17 2-35, 4-5, 4-6
S-147	30 Nov 82	AFCS Engagement	Sec II, VII
S-148	13 Jan 82	Hot Refueling	2-44, 2-44A/2-44B, 2-45, 2-46

REPLACED/RESCINDED SUPPLEMENTS

NUMBER	DATE	DISPOSITION

OPERATIONAL SUPPLEMENT

FLIGHT MANUAL

USAF SERIES
CH-3E AND HH-3E
HELICOPTERS

THIS PUBLICATION SUPPLEMENTS TO 1H-3(C)E-1 DATED 1 SEPTEMBER 1973 AND REPLACES OPERATIONAL SUPPLEMENT TO 1H-3(C)E-1S-146 DATED 25 AUGUST 1982, WITH CHANGES TO THE TEXT.

COMMANDERS ARE RESPONSIBLE FOR BRINGING THIS SUPPLEMENT TO THE ATTENTION OF ALL AFFECTED AF PERSONNEL

PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE

30 NOVEMBER 1982

SHORT TITLE: AFCS ENGAGEMENT

1. PURPOSE.

To advise flight crews to use caution when engaging AFCS.

2. INSTRUCTIONS.

a. Page 2-13, ENGINE STARTING AND ROTOR ENGAGEMENT paragraph is amended to add new step 6A to read as follows:

6A. AFCS - "ON AND INDICATORS CHECKED." (CP, P)

Check AFCS indicators in Mode A to ensure all channels are operative and no hardover signals are indicated. Check that CG trim is centered. All flight controls will be run through their full range of motion with the AFCS on.

CAUTION

Any resistance or seizing of controls or excessive pedal force during these checks indicates a malfunction. The helicopter will not be flown until the discrepancy is corrected.

WARNING

The rotor will not be engaged when a hardover condition exists due to the possibility that a control displacement may cause rotor to fuselage contact. If AFCS has not warmed up at this time, the check may be delayed until the BEFORE TAKEOFF checklist when overriding operational requirements dictate.

b. Pages 2-16, 2-16A/2-16B, and 2-17, BEFORE TAXIING paragraph is amended to delete step 4, the amplification, and the WARNING; and to renumber existing steps 5 through 13 to read 4 through 12.

c. Pages 7-13 and 7-14, AFCS SYSTEM GROUND CHECKS paragraph is amended to delete all text and steps under this heading.

d. Changes to the Pilot's Flight Crew Checklist (TO 1H-3(C)E-1CL-1) are reproduced so that appropriate pages may be cut out and inserted in the binder over the existing pages, pending change to the manual and checklist. Reference to this supplement shall be made on the title page of the checklist.

THE END

FLIGHT MANUAL, SAFETY SUPPLEMENT, AND OPERATIONAL SUPPLEMENT STATUS.

This page is published with each Safety and Operational Supplement. It provides a comprehensive listing of the current Flight Manuals, Flight Crew Checklists, Safety Supplements, and Operational Supplements. If you are missing any publications listed on this page, see your Publications Distribution Officer and get your copy.

FLIGHT MANUAL	DATE	CHANGE NO.
TO 1H-3(C)E-1	1 Sep 73	13 - 21 Oct 82

FLIGHT CREW CHECKLIST	DATE	CHANGE NO.
TO 1H-3(C)E-1CL-1	1 Sep 73	13 - 21 Oct 82
TO 1H-3(C)E-1CL-2	1 Sep 73	6 - 11 Mar 82

CURRENT SUPPLEMENTS

NUMBER	DATE	SHORT TITLE	FLIGHT MANUAL PAGES AFFECTED
S-142	20 Jan 82	Engine Anti-Ice System	2-16, 2-16A, 2-17 2-35, 4-5, 4-6
S-147	30 Nov 82	AFCS Engagement	Sec II, VII

REPLACED/RESCINDED SUPPLEMENTS

NUMBER	DATE	DISPOSITION
S-146	25 Aug 82	Replaced by S-147

Capt Harris

T.O. 1H-3(C)E-1

FLIGHT MANUAL

USAF SERIES

CH-3E AND HH-3E

HELICOPTERS

NOw63003730F
F09603-81-C-0108

This publication Supersedes Safety/Operational Supplements 1H-3(C)E-1S-143 Dated 25 March 1982 and 1H-3(C)E-1S-145 Dated 3 May 1982.

COMMANDERS ARE RESPONSIBLE FOR BRINGING THIS PUBLICATION TO THE ATTENTION OF ALL AFFECTED PERSONNEL

See T.O. 0-1-1-5 series publications for current status of Flight Manuals, Safety/Operational Supplements, and Flight Crew Checklists.

PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE

1 SEPTEMBER 1973

CHANGE 13 21 OCTOBER 1982

LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

NOTE: The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands. Changes to wiring diagrams are indicated by shaded areas.

Dates of issue for original and changed pages are:

Original . . . . 0 . . . . 1 Sep 73
Change . . . . 10 . . . 18 Jul 80
Change . . . . 11 . . . . 2 Apr 81
Change . . . 12. . . . 11 Mar 82
Change . . . . 13 . . . 21 Oct 82

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 446 CONSISTING OF THE FOLLOWING:

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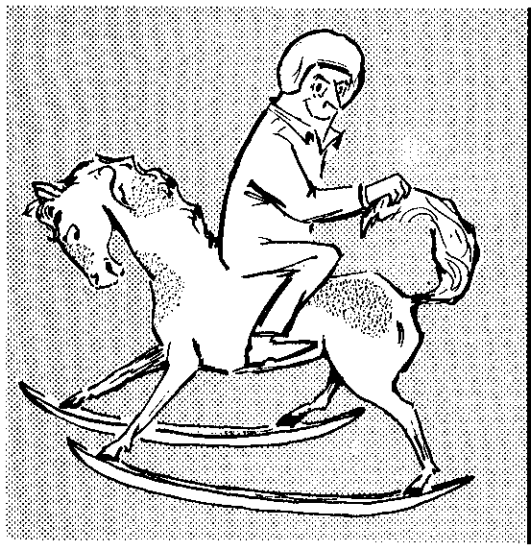


I Alway's Know Where I'm Going On

I Will If I Read THIS

SCOPE. This manual contains the necessary information for safe and efficient operation of the CH-3E and HH-3E helicopters. These instructions provide you with a general knowledge of the helicopter, its characteristics, and specific normal and emergency operating procedures. Your flying experience is recognized, and therefore, basic flight principles are avoided.

PERMISSIBLE OPERATIONS. The Flight Manual takes a "positive approach" and normally states only what you can do. Unusual operations or configurations (such as asymmetrical loading) are prohibited unless specifically covered herein. Clearance must be obtained from the Flight Manual Manager WRALC, Attn: MMSRE before any questionable operation is attempted which is not specifically permitted in this manual. Items in the manual not applicable to the model, series or configuration being operated may be omitted.

HOW TO BE ASSURED OF HAVING THE LATEST DATA. Refer to the basic index T.O 01-1-5 and supplements thereto for current status of Flight Manuals, Safety and Operational Supplements, and Checklists. Its frequency of issue and brevity assures an accurate, up-to-date listing of these publications.

SAFETY SUPPLEMENTS. Information involving safety will be promptly forwarded to you by Safety Supplements. Supplements covering loss of life will get to you in 48 hours by TWX, and those concerning serious damage to equipment within 10 days by mail. The title page of the Flight Manual and the title block of each Safety Supplement should be checked to determine the effect they may have on existing supplements. You must remain constantly aware of the status of all supplements - current supplements must be complied with but there is no point in restricting your operation by complying with a replaced or rescinded supplement.

OPERATIONAL SUPPLEMENTS. Information involving changes to operating procedures will be forwarded to you by operational supplements. The procedure for handling operational supplements is the same as for safety supplements.

CHECKLISTS. The Flight Manual contains only amplified checklists. Condensed (abbreviated) checklists have been issued as separate technical orders-see the back of the title page for the T.O. number of your latest checklist. Line items in the Flight Manual and checklists are identical with respect to arrangement and item number. Whenever a Safety Supplement affects the condensed (abbreviated) checklist, write in the applicable change on the affected checklist page. As soon as possible, a new checklist page, incorporating the supplement will be issued. This will keep handwritten entries of Safety Supplement information in your checklist to a minimum.

HOW TO GET PERSONAL COPIES. Each flight crewmember is entitled to personal copies of the Flight Manual, Safety Supplements, Operational Supplements and Checklist. The required quantities should be ordered before you need them to assure their prompt receipt. Check with your supply personnel - it is their job to fulfill your Technical Order request. Basically, you must order the required quantities on the Publication Requirement Table (T.O. 0-1-1-5). Technical Orders 00-5-1 and 00-5-2 give detailed information for properly ordering these publications. Make sure a system is established at your base to deliver the publications to the flight crews immediately upon receipt.

Loose leaf binders, and sectionalized tabs, available through local purchase, are available for use with your manual. These are obtained through local purchase procedures and are listed in the Federal Supply Schedule (FSC Group 75, Office Supplies, Part 1). Binders are also available for carrying your condensed (abbreviated) checklist. These binders contain plastic envelopes into which individual checklist pages are inserted. They are available in two capacities and are obtained through normal Air Force supply, Class 7510. Check with your supply personnel for assistance in securing these items.

WARNINGS, CAUTIONS, AND NOTES. The following definitions apply to Warnings, Cautions, and Notes found throughout the manual.

WARNING	Operating procedures, techniques, etc. which will result in personal injury or loss of life if not carefully followed.
CAUTION	Operating procedures, techniques, etc. which will result in damage to equipment if not carefully followed.
NOTE	An operating procedure, technique, etc. which is considered essential to emphasize.

Two or more Warnings, Cautions, or Notes placed in sequence are denoted by the use of a large dot on the left margin. The heading (WARNING, CAUTION, or NOTE) is not repeated.

USE OF SHALL, WILL, SHOULD, AND MAY. The words shall or will are used to indicate a mandatory requirement. The word should is used to indicate a nonmandatory desired or preferred method of accomplishment, and the word may is used to indicate an acceptable or suggested means of accomplishment.

YOUR RESPONSIBILITY - TO LET US KNOW. Every effort is made to keep the Flight Manual current. Review conferences with operating personnel and a constant review of accident and flight test reports assure inclusion of the latest data in the manual. However, we cannot correct an error unless we know of its existence. In this regard, it is essential that you do your part. Comments, corrections, and questions regarding this manual or any phase of the Flight Manual program are welcomed. These should be forwarded through your command headquarters to Warner Robins Air Logistics Center, Robins AFB, GA. 31098, Attn: MMET-1

HELICOPTER DESIGNATION CODES. Major differences between individual or groups of helicopters covered in this manual are identified by designated number code symbols that appear in the text or on illustrations. The code number either appears at the top right corner, either opposite or above the paragraph heading, or within the text. If more than one paragraph in succession concerns the same series helicopters, the code will be repeated for each successive paragraph. The code will appear in warnings, cautions, and notes in the same manner as within text. In steps of procedure, the code shall follow the step. Paragraphs that are applicable to all series helicopters are not identified with a designation code. A black arrow between codes indicates "through", and a black arrow following a code indicates "and subsequent." The following designation codes are provided for this manual.

CODE	SERIAL NUMBERS
	MODEL CH-3E HELICOPTERS
1	62-12578, 62-12580, AND 62-12581
2	63-9676
3	63-9679
4	63-9683
5	63-9686, 63-9687, 63-9688, 63-9690 AND 63-4691
6	64-14221
7	64-14223
8	64-14224, 64-14225, AND 64-14226
9	64-14228
10	64-14234 AND 64-14235
11	64-5690 AND 65-5692
12	65-5693
13	65-5695 AND 65-5696
14	65-5697 THRU 65-5700
15	65-12788 THRU 65-12800
16	66-13285
17	66-13291 THRU 66-13293 AND 66-13296
18	67-14703
19	67-14705
20	67-14707
21	67-14718 THRU 67-14720
22	68-8282
	MODEL HH-3E HELICOPTERS
23	64-14230 AND 64-14232
24	65-12777, 65-12780, 65-12781, 65-12783, 65-12784 AND 65-12787
25	66-13284
26	66-13286
27	66-13290
28	67-14704
29	67-14706
30	67-14708, 67-14709 AND 67-14711 THRU 67-14717
31	67-14722 THRU 67-14725
32	69-5798 THRU 69-5812

RECORD OF APPLICABLE TIME COMPLIANCE TECHNICAL ORDERS

T.O. No.	Date	Title	Changes/Revision/ Supplement Date
1H-3-505	9 May 67	Incorp. Interim Fuel Dumping System (ECP 5697)	———
1H-3-533	31 Jul 69	Incorp. of Low Response External Cargo Sling (ECP 5641)	———
1H-3-553	16 Sep 68	Mod. of VOR 101 OMNI Instl.	———
1H-3-556	1 Dec 67	Instl. of FM-622A Radio	———
1H-3-557	1 Dec 67	Instl. of Secure Speech Capability	———
1H-3-566	21 Apr 72	Incorp. of Electrically Operated Windshield Washer System and Improved Wiper System	1 Sep 73
1H-3-575	1 Feb 71	Incorp. of Heating System Improvements (ECP 5645R)	———
1H-3-577	15 Jan 68	Instl. of KB-18A Panoramic Strike Camera	———
1H-3-581	2 Feb 70	Incorp. of a Screen Type Guard Over the Utility Hyd Sys Heat Exchange Blower Inlet (ECP 5775)	———
1H-3-582	1 Dec 69	Incorp. of AN/UPN-25 Radar Transponder	30 June 70
1H-3-609	15 Jun 70	Incorp. of Main Fuel Tank Explosion Suppression System (ECP 5798)	30 June 70
1H-3-610	31 Dec 71	AN/AIC-18 Intercommunications System Mod. (ECP 5827)	15 Oct 71
1H-3-611	21 Aug 70	Incorp. of AN/APN-171 (V) Radar Altimeter (ECP 5834)	30 June 70
1H-3-631	30 Sep 71	Incorp. of Air Traffic Control Radar Beacon System	1 Sep 73
1H-3-640	28 Feb 73	Install. VOR-101 Navigation Capability	1 Sep 73
1H-3-643	15 Mar 73	Mod. AN/APN-171 (V) Low Level Warn. Lt.	1 Sep 73
1H-3-646	15 Jan 73	Install AN/ALE-20 System	1 Sep 73
1H-3-655	28 Aug 75	Removal of TR4A Radio and Installation of VHF-101 Radio System	20 Jan 76
1H-3-661	10 Jun 77	In-Flight Blade Inspection System (IBIS)	———
1H-3-674	14 Mar 77	Installation of AN/ARC-164(V) UHF Radio in CH/HH-3E Aircraft	———
1H-3(C)C-532	16 Dec 66	Instl. of Dual AN/ARC-34 Radio (ECP 5640)	———
1H-3(C)C-555	15 Jul 68	Instl. of AM 3969 Preamplifier (ECP 5741E)	———
1H-3(C)C-557	15 Oct 66	Instl. Self Sealing Fuel Cells (ECP 5692)	———
1H-3(C)C-559	31 Dec 68	Instl. of Armor Plating CH-3C/E Helicopter (ECP 5790)	———
1H-3(C)C-561	15 Jul 69	Instl. of External Hydraulic Rescue Hoist (ECP 5773)	———
1H-3(H)E-501	7 Jun 67	Instl. of Air to Air Refueling (ECP 5693)	———
1H-3(H)E-507	15 Jun 70	Relocation of Chest Protector (ECP 5674)	———
3R4-2-5-507	25 Feb 72	Instl. of Main Gear Box Accessory Drive Thru - Shaft (ECP 5736)	1 Sep 73

GLOSSARY OF TERMS AND ABBREVIATIONS

AC - Alternating current

ACCELERATION - The rate of change of velocity.

ADF - Automatic direction finder

AFCS - Automatic flight control system

AIRSPEED

KCAS - Knots calibrated airspeed

KIAS - Knots indicated airspeed

KTAS - Knots true airspeed

ALT - Altitude

APU - Auxiliary power unit

BAR ALT - Barometric altitude control

BDHI - Bearing distance heading indicator

BIM - Blade inspection method

BLADE TIP STALL - Beginning of blade stall. Occurs at tip of retreating blade due to its high angle of attack and low forward velocity.

BLADE STALL - A stall that begins at the tip of the blade and works progressively inboard as the conditions which cause it increase in severity.

FULL BLADE STALL - Blade stall that is allowed to fully develop causing loss of control and an upward left pitch of the helicopter.

INCIPIENT BLADE STALL - Blade tip stall

BOTTOMING - The engine is considered as bottoming during deceleration whenever a minimum fuel flow to compression-discharge pressure condition is attained.

BUOYANCY - The upward force exerted by water on a floating or immersed body by a fluid.

°C - Degrees Centigrade

CAS - Calibrated airspeed

CDI - Course deviation indicator

CENTER OF GRAVITY (CG) - The center of gravity is the point about which a helicopter would balance if suspended.

CG - Center of gravity

COLLECTIVE - The increasing or decreasing of pitch on all the main rotor blades simultaneously. Also short for collective lever.

CYCLIC - The changing of pitch of each main rotor blade individually as it makes a complete rotation or cycle. Also short for cyclic stick.

DC - Direct current

DG - Directional gyro

DRAFT - The depth of water the helicopter draws or requires to float.

DRAG DIVERGENCY - Beginning of blade tip stall.

DROOP - Characteristic built into speed control for speed stability and load sharing. When in the governing range steady state N_f will decrease in proportion to engine load at a fixed N_f setting. On this installation the droop is 8.5% N_f from no load to full load conditions.

DECAY - Loss of N_R beyond droop, resulting from a power requirement in excess of power available.

EXCESS BUOYANCY - Buoyancy in excess of that required to float.

°F - Degrees Fahrenheit

FOD - Foreign object damage

FPM - Feet per minute

FT - Feet

FT/MIN - Feet per minute

GAL - Gallons

GCA - Ground-controlled approach

GSI - Glide slope indicator

GW - Gross weight

HR - Hour

HYDROSTATIC ROLL ANGLE - Angle of roll when helicopter is on water.

H-V - Height velocity

IAS - Indicated airspeed

IGE - In ground effect

IN - Inches

INV - Inverter

KTS - Knots

KVA - Kilovolt-amperes

GLOSSARY OF TERMS AND ABBREVIATIONS (Cont)

LAT - Latitude

LB - Pound(s)

LB/GAL - Pound per gallon

LB/HR - Pound per hour

LOAD FACTOR - A factor representing the ratio of weight or pressure of a specified load or force to a standard weight or pressure. The load factor may represent the ratio of the total weight of the helicopter to a weight or pressure imposed by aerodynamic forces, inertia forces, or ground effect.

MAG - Magnetic slaved compass

MAX - Maximum

MEAN WATERLINE - The mean of the highest and lowest waterline for a given set of conditions, gross weight, sea state, etc.

MIN - Minutes/Minimum

MSL - Mean sea level

N_f - Power turbine speed (rpm)

N_g - Gas generator speed

N_r - Rotor speed (rpm)

OAT - Free air, ambient or outside air temperature

OGE - out of ground effect (for the CH-3E, and HH-3E, this means hovering approximately 50 feet wheel height or higher)

P_2 - Compressor inlet total pressure

P_3 - Compressor discharge pressure

PRESS - Pressure

PSI - Pounds per square inch

Q - Torque

R/C - Rate of climb

R/D - Rate of descent

RIGHTING MOMENT - A moment that tends to restore the helicopter to a previous position after an angular displacement on water about one of its axes.

RPM - Revolutions per minute

SEA STATE - Condition of water surface in terms of wind, wave height, wave length, etc.

SERVICE CEILING - Maximum altitude at which a rate of climb 100 FPM can be maintained.

SL - Sea level

STD DAY - Standard day atmospheric conditions

T_2 - Compressor inlet air temperature

OAT may be used in place of T_2 in this manual as T_2 is not indicated in the cockpit.

T_5 - Power turbine inlet temperature

TAS - True airspeed

TEMP - Temperature

TOLD - Take off and landing data

TOPPING - A procedure for adjusting engine fuel control to achieve engine performance at maximum operating limits.

TORQUE - Turning force or moment.

TORQUE POWER INDICATION - An indication of power input being delivered to the gear box by the engines.

TRIM ANGLE - The angle at which the helicopter's hull rests on the water.

UTI - Utility

VA - Volt amperes

VAC - Volts alternating current

WATERLINE - The line of intersection between the surface of the water and the side of the helicopter hull when the helicopter is afloat.

WAVE LENGTH - The distance between two successive wave crests.

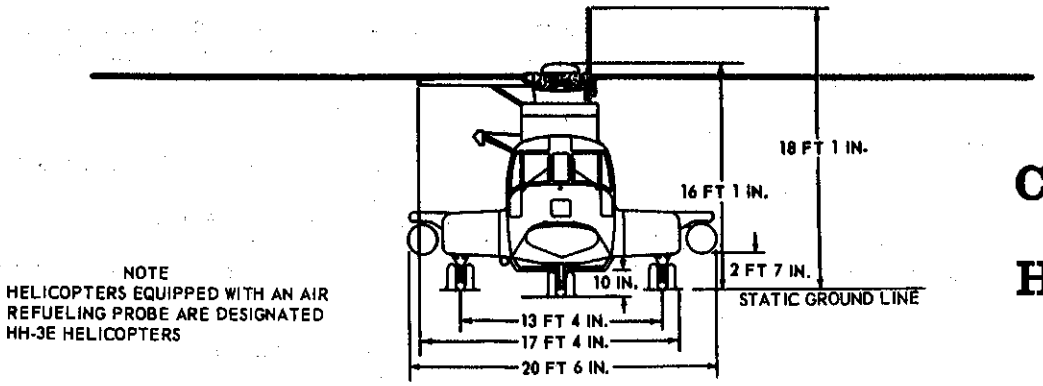
W_f - Fuel flow

W_f/P_3 - Ratio of weight of fuel flow to be burned to compressor discharge pressure or amount of air available for combustion and cooling.

WL - Water line

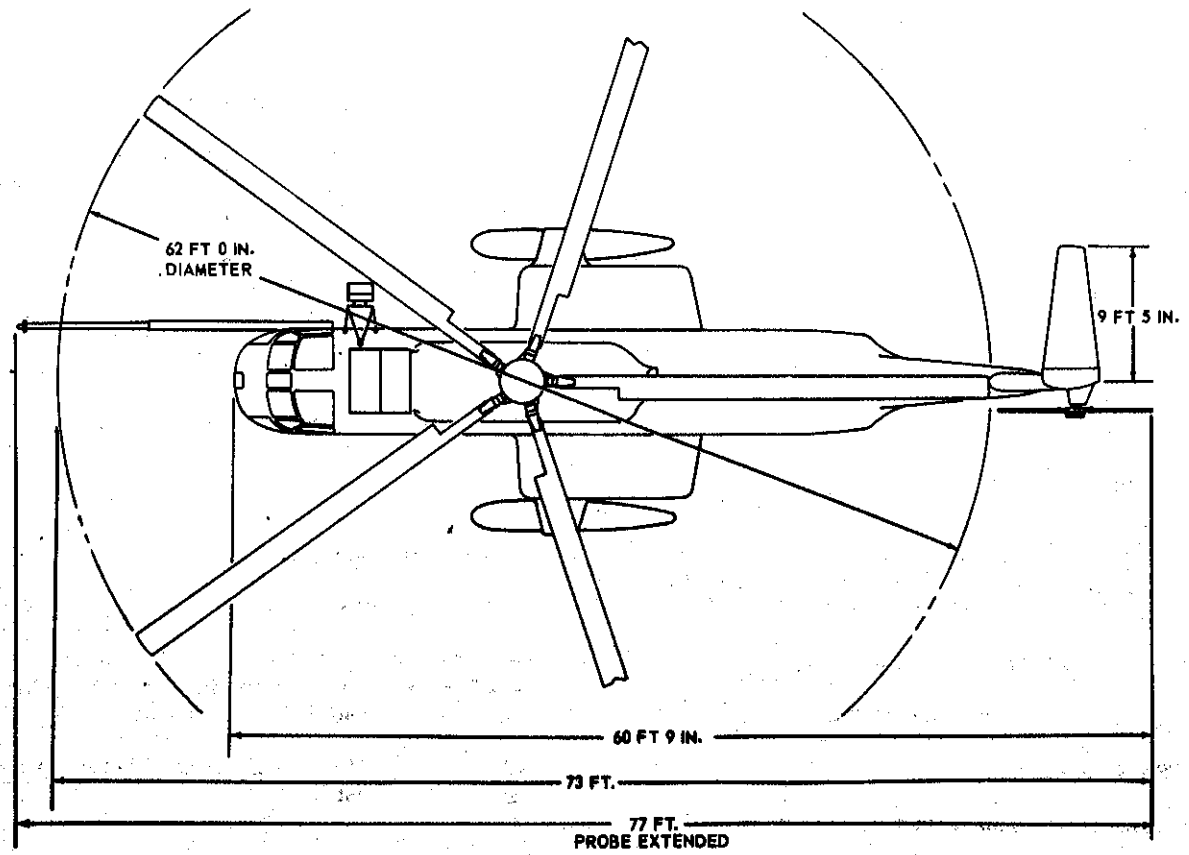
XMFR RECT - Transformer rectifier

$\frac{1}{\sqrt{\sigma}}$ - The reciprocal of the square root of density ratio, at the appropriate density altitude. The greek letter sigma (σ) is used to represent the density ratio.



CH 3E & HH 3E

NOTE
HELICOPTERS EQUIPPED WITH AN AIR REFUELING PROBE ARE DESIGNATED HH-3E HELICOPTERS



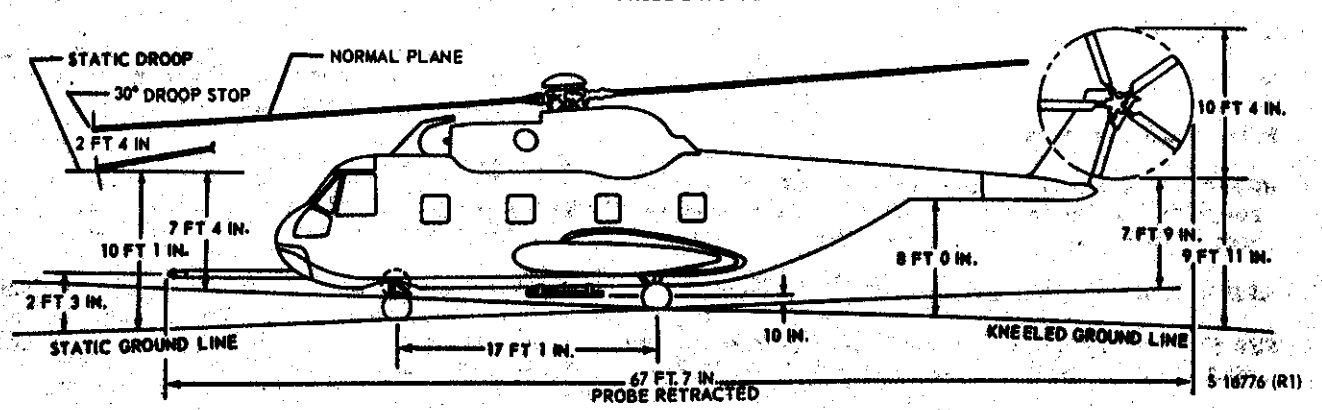


Figure 1-1. Three View and Dimensions