TECHNICAL MANUAL

AVIATION UNIT AND INTERMEDIATE MAINTENANCE MANUAL

ARMY MODEL OH-58A AND OH-58C HELICOPTERS

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This manual supersedes TM 55-1520-228-23-1 dated 4 August 1978, including changes 1 through 51.

HEADQUARTERS, DEPARTMENT OF THE ARMY

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TECHNICAL MANUAL
No. TM 55-1520-228-23-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
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Aviation Unit and Intermediate Maintenance Manual

ARMY MODELS OH-58A AND OH-58C

NOTE:

This manual is printed in two volumes, as follows:

TM 55-1520-228-23-1, consisting of Table of Contents, Preface, Chapters 1 through 9.

TM 55-1520-228-23-2, consisting of Table of Contents, Chapters 10 through 17, Appendices A through F, and index.

The Preface, Appendices, and Index are applicable to the -1 and -2.

REPORTING ERRORS AND RECOMMENDING IMPROVEMENT

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedure, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-P, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished you.

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CHAPTER 1
AIRCRAFT GENERAL

SECTION I. SERVICING

1-1. SERVICING.

1-2. Description — Servicing. Instructions and information for complete servicing of the helicopter with fuel, oil, and hydraulic fluid are provided in the following paragraphs. Location of fillers, sight gages, and drains are shown on servicing diagrams as required, with indication of how frequently each reservoir should be checkd and serviced. Refer to figure 1-1 for the servicing diagram. Instructions for use of greases and other lubricants refer to Lubrication Requirement Section II, this chapter.

1-3. Fuel System. The fuel supply system consists of a single bladder type cell, fuel pump, and lines. The filler cap (10, figure 1-1) is located on the right side of helicopter aft of passenger door. Helicopters are equipped with crashworthy fuel system, the self-sealing TANK CAPACITY is 71.5 U.S. GALLONS.

1-4. Precautions in Fuel Servicing and Defueling.

WARNING

0bserve the following precautions in all fuel servicing and defueling operations as applicable. Refer to FM 10-68 and FM 10-69 for additional precautions prior to servicing the helicopter.

a. Position auxiliary ground power unit on the windward side of the helicopter.

b. Do not fuel or defuel during electrical storms.

c. Do not fuel or defuel while ground radar sets are operating within 300 feet of the helicopter.

d. Servicing personnel must not wear metal taps on shoes.

e. Ensure battery switch is in OFF position and external power is disconnected before fueling or defueling the helicopter.

f. Ground the helicopter at receptacle, located adjacent to filler capon right side of helicopter, to the filler-nozzle before removing filler cap.

g. Fuel truck shall be grounded (truck to ground and truck to helicopter). The helicopter shall be grounded to the same ground point as is the fuel truck.

h. Do not use splash-filling. Fill tanks slowly and evenly.

i. After completion of servicing, wash-down, and remove any spillover of jet fuel. This fuel does not evaporate as rapidly as gasoline, and constitutes a fire hazard for a much longer time. Cleaning materials which have become saturated with fuel shall be disposed of in a designated area well away from buildings.

j In the event of fuel spillage on personnel, clothing shall be washed down thoroughly with clear water before removing clothing.

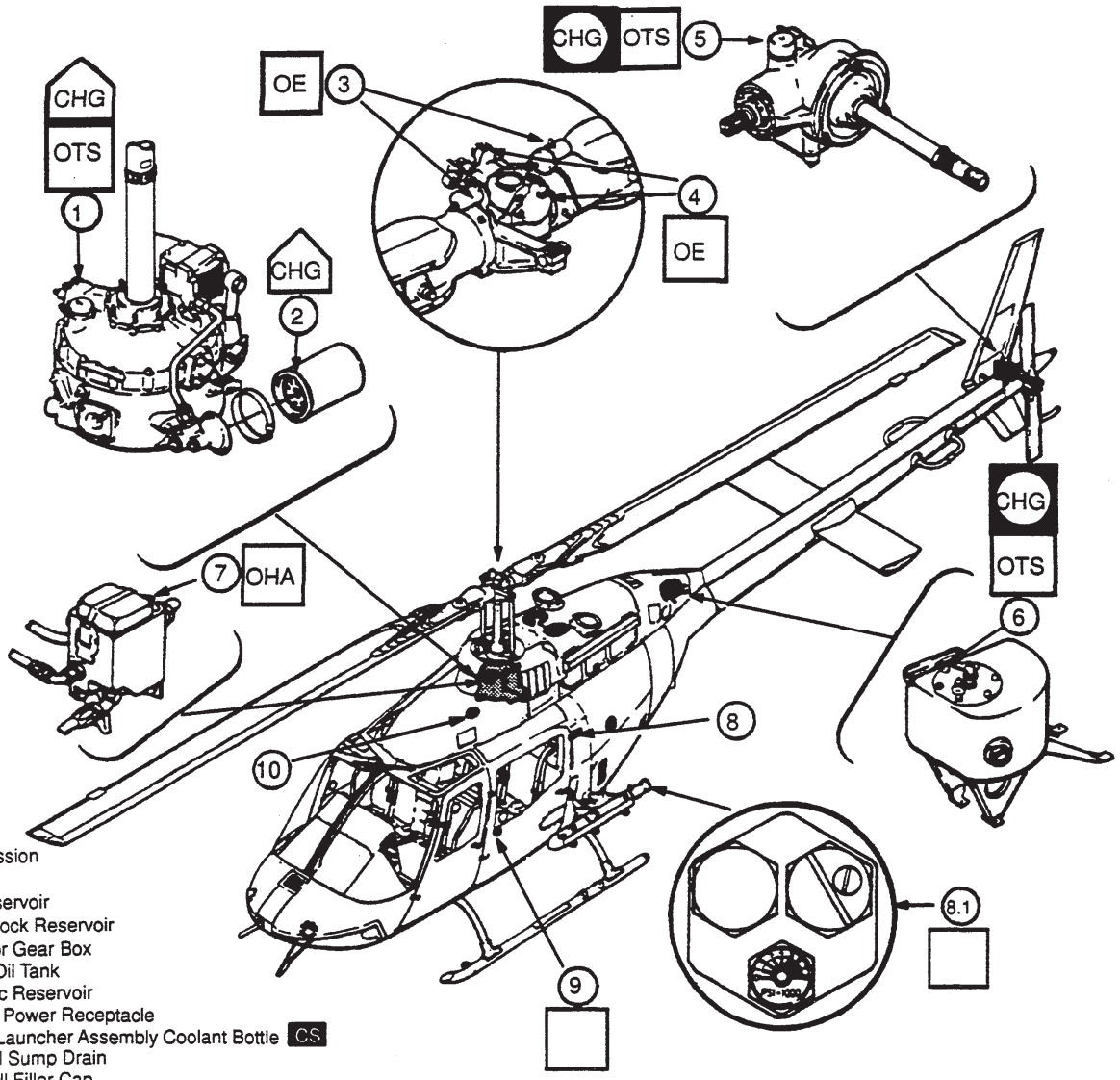
k. Refueling will be accomplished as soon as possible after landing to keep moisture condensation to a minimum.

1-5. Servicing – Fuel System.

CAUTION

Insert nozzle carefully in a generally downward direction, avoiding contact with internal fuel hoses. Fuel nozzles must be hand held during servicing.

a. Fill tank cells with specified jet fuel (C75). Crashworthy fuel tank capacity is 71.5 gallons. The



1. Transmission
2. Oil Filter
3. Grip Reservoir
4. Pillow Block Reservoir
5. Tail Rotor Gear Box
6. Engine Oil Tank
7. Hydraulic Reservoir
8. External Power Receptacle
8.1 ATAS Launcher Assembly Coolant Bottle CS
9. Fuel Cell Sump Drain
10. Fuel Cell Filler Cap

		Symbol	Specification
CHG	Change each 300 hours	OE	MIL-L-2104
CHG	Change each 100 Hours *	OTS	MIL-L-7808
	Change each 150 hours **		MIL-L-23699
	Change each 200 hours ***		DOD-L-85734
	Daily	OHA	MIL-H-5606 MIL-H-83282

CAUTION

Lubrication oil made to MIL-L-7808 by Shell Oil Company under their part number 307, qualifications number 7D-1 shall not be used in engine or aircraft systems. It contains additives which are harmful to seals in the systems.

NOTES

***On OH-58A/C without MWO 1-1520-228-50-44 completed, drain and refill lubrication system of the T63-A-720 engine after each 100 hours of operation.**

**** On OH-58 A/C, drain and refill lubrication system Tail Rotor Gear Box after each 150 hours of operation.**

**** On OH-58A, drain and refill lubrication system of the T63-A-700 engine after each 150 hours of operation.**

*****After completion of MWO 1-1520-228-50-44, service engine oil every 200 hours. Additional servicing may be needed for filter replacement.**

NOTE

After completion of MWO 55-1520-228-50-25, service gearbox to oil level indicator line only.

NOTE

Items 8 and 10 are located on right side of aircraft. On helicopter with standard landing gear, gearbox oil level must be maintained to the oil level indicator oil liner. On helicopters with high landing gear or floats, maintain oil level 1/8 inch below line.

CAUTION

Lubrication of DOD-L-85734 will not be used in the engine.

Figure 1-1. Servicing Diagram (Typical)

following fuel servicing instructions apply to helicopters incorporating the closed circuit refueling provision.

b. Closed Circuit Refueling.

CAUTION

The closed circuit refueling receptacle is subject to damage at the gravity refueling port. Refer to figure 1-2. This damage can cause external fuel leakage during subsequent closed circuit refueling operations. To preclude damage to the receptacle, the closed circuit nozzle will be used if possible when refueling. If, however, the receptacle has been previously damaged and leakage occurs, the following must be observed:

Closed circuit refueling operations with a leaking receptacle shall be discontinued. Gravity refueling method shall be used until the receptacle can be replaced or repaired.

(1) Ground the helicopter at the receptacle, located adjacent to the filler cap on the helicopter, to the filler-nozzle and remove filler cap.

(2) Ensure that gravity refueling port is closed. If not, rotate inner sleeve counterclockwise until gravity refueling port is closed and flange of sleeve is in contact with rivet at base of receiver cylinder. Refer to figure 1-3.

CAUTION

Ensure that servicing unit pressure is not above 125 psi while refueling.

(3) Insert fueling nozzle into receiver and actuate automatic nozzle lever to ON or FLOW position. Pin at base of nozzle will momentarily indicate when fuel flow stops.

(4) Fuel flow will automatically shut off when normal fuel level is reached. Just prior to normal shut off, fuel flow may cycle several times as fuel level is reached. Gage on servicing unit will indicate when flow is stopped.

(5) When fuel flow has stopped, actuate lever on nozzle to OFF, disconnect nozzle from receiver and replace filler cap.

(6) Disconnect fuel nozzle ground and rewind hose assembly.

(7) Disconnect servicing unit ground at helicopter.

(8) Disconnect servicing unit ground at grounding stake.

CAUTION

If helicopter is equipped with closed circuit refueling system and fuel servicing unit is not equipped with related nozzle for closed circuit refueling, a gravity system may be used providing the servicing nozzle does not exceed 1.75 inches outside diameter. To refuel, utilizing the gravity nozzle, it is necessary to position the inner sleeve of receiver until slot is lined up with fuel port in bottom of receiver. Position nozzle into port in order to bypass closed circuit valve. Damage could result to the closed circuit refueling system if caution is not used in positioning nozzle into inner sleeve of fuel receiver at fuel port.

c. Gravity Refueling.

(1) Ground the helicopter at the receptacle, located adjacent to the filler cap on the helicopter, to the filler-nozzle and remove filler cap.

(2) Rotate inner sleeve clockwise until sleeve clears the port in bottom of fuel receiver. Refer to figure 1-3.

(3) Position nozzle into port of fuel receiver.

(4) Fill to specified level.

(5) Remove nozzle and rotate inner sleeve counterclockwise until gravity refueling port is closed and flange of inner sleeve is in contact with rivet at base of receiver cylinder.

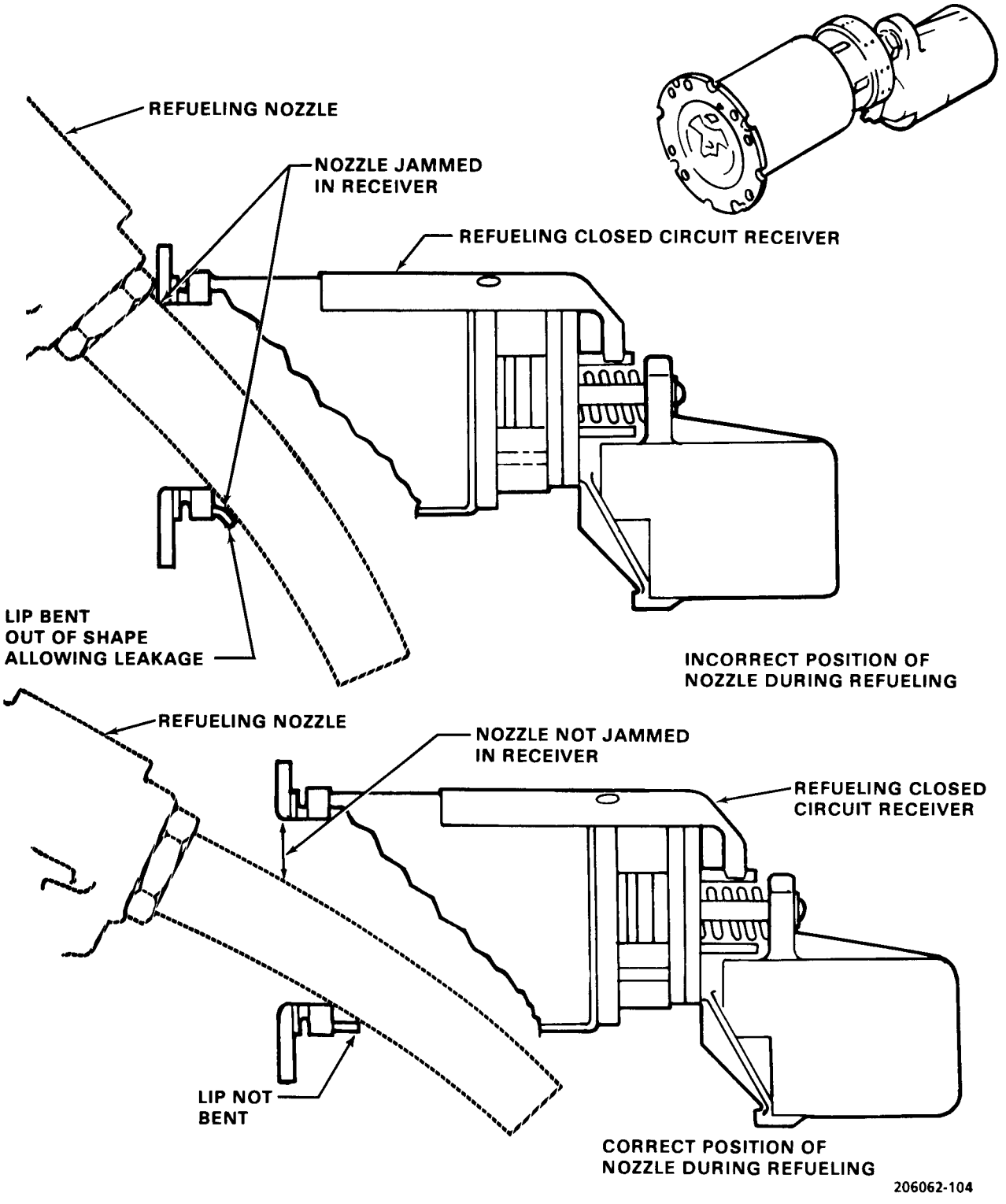
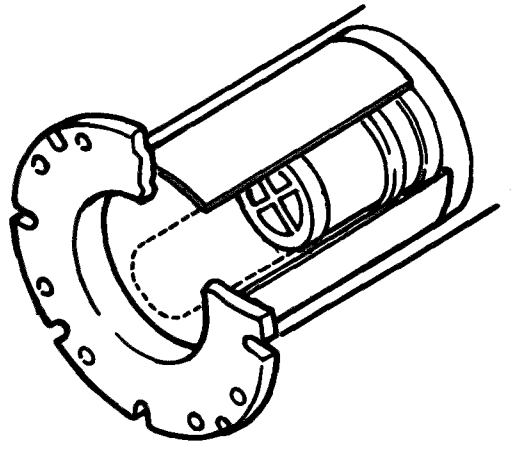


Figure 1-2. Gravity Refueling with Closed Circuit Receiver



SLEEVE POSITION WHEN USING CLOSED CIRCUIT REFUELING SYSTEM

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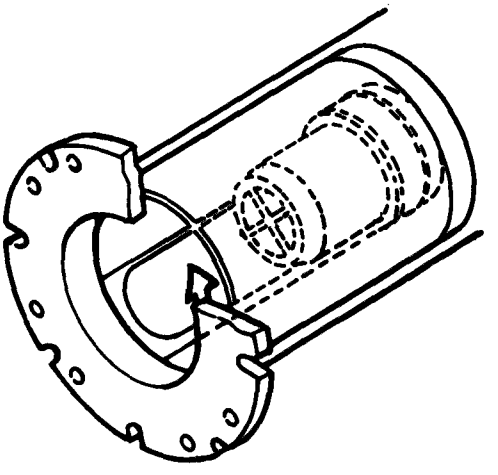

SLEEVE POSITION WHEN USING GRAVITY REFUELING SYSTEM

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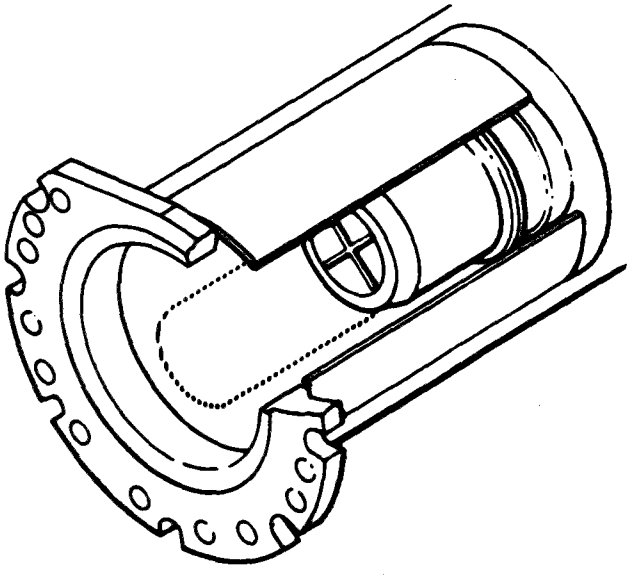

SLEEVE POSITION WHEN USING CLOSED CIRCUIT REFUELING SYSTEM

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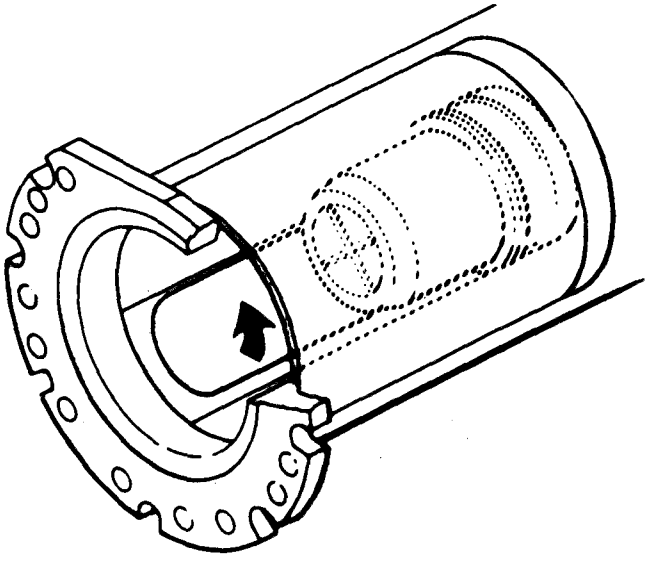

SLEEVE POSITION WHEN USING GRAVITY REFUELING SYSTEM

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Figure 1-3. Refueling Receptacle

(6) Reinstall filler cap.

(7) Disconnect fuel nozzle ground and rewind hose.

(8) Disconnect servicing unit ground at helicopter.

(9) Disconnect servicing unit ground at grounding stake.

1-6. Fuel System Servicing (Rapid (Hot) Refueling).

WARNING

Aircraft may be rapid (hot) refueled with engine/engines running, electrical power on, radios on, weapons systems on with safety covers/guards/switches in SAFE position, and any computer systems operating that would require reprogramming.

a. Precautions.

NOTE

Servicing personnel shall comply with all safety precautions and procedures in FM 10-68.

(1) Ground the helicopter at the receptacle, located adjacent to the filler cap on the helicopter, to the filler-nozzle before removing filler cap.

(2) Servicing unit shall be grounded (servicing unit to ground and servicing unit to helicopter). The helicopter should be grounded to the same ground point as is the servicing unit,

(3) After completion of servicing, remove nozzle, install cap and disconnect all grounds from helicopter.

b. Servicing — Fuel System, Fill tank cells with specified jet fuel (C75). Crashworthy fuel tank capacity is 71.5 gallons. The following fuel servicing instructions apply to helicopters incorporating the closed circuit refueling provision.

c. Before Rapid (Hot) Refueling

WARNING

Only emergency radio transmission should be made during rapid refueling.

In case of aircraft fire, observe fire emergency procedures in Chapter 9, TM 55-1520-228-10. Do not attempt to fly the helicopter.

(1) Minimum crew will remain at the controls.

(2) Throttle – Idle.

(3) Force Trim — ON or controls frictioned

(4) Passengers shall depart the aircraft and go to the terminal or passenger marshaling area.

(5) No smoking allowed during refueling operations.

(6) A crewmember, if available, should observe the refueling operation (performed by authorized refueling personnel) and stand fire guard as required,

d. During Rapid (Hot) Refueling

(1) Closed circuit refueling

(a) Ground the helicopter at the receptacle, located adjacent to the filler cap on the helicopter, to the filler-nozzle and remove filler cap.

(b) Ensure that gravity refueling port is closed, If not, rotate inner sleeve counterclockwise until gravity refueling port is closed and flange of sleeve is in contact with rivet at base of receiver cylinder. Refer to figure 1-3.

CAUTION

Ensure that servicing unit pressure is not above 125 psi while refueling.

(c) Insert fueling nozzle into receiver and actuate automatic nozzle lever to ON or FLOW position. Pin at base of nozzle will momentarily indicate when fuel flow stops.

(d) Fuel flow will automatically shut off when normal fuel level is reached. Just prior to normal shut off, fuel flow may cycle several times as fuel level is reached. Gage on servicing unit will indicate when flow is stopped.

(e) When fuel flow has stepped, actuate lever on nozzle to OFF, disconnect nozzle from receiver and replace filter cap.

(f) Disconnect fuel nozzle ground and rewind hose assembly.

(g) Disconnect servicing unit ground at helicopter.

(h) Disconnect servicing unit ground at

CAUTION

If **helicopter is equipped with closed circuit refueling system and fuel servicing unit is not equipped with related nozzle for closed circuit providing a gravity system maybe used providing the servicing nozzle does not exceed 1.76 inches outside diameter. To refuel utilizing the gravity nozzle, it is necessary to position the inner sleeve of receiver until slot is lined up with fuel port in bottom of receiver. Position nozzle into port in order to bypass closed circuit valve. Damage could result to the closed circuit refueling system if caution is not used in positioning nozzle in its inner sleeve of fuel receiver at fuel port.**

(2) Gravity refueling.

(a) Ground the helicopter at the receptacle, located adjacent to the filler cap on the helicopter, to the filer-nozzle and remove filler cap.

(b) Rotate inner sleeve clockwise until sleeve clears port in bottom of fuel receiver. Refer to figure 1-3.

(c) Position nozzle into port of fuel receiver.

(d) Fill to specified level.

(e) Remove nozzle and rotate inner sleeve counterclockwise until gravity refueling port is closed and flange of inner sleeve is in contact with rivet at base of receiver cylinder.

(f) Reinstall filler cap.

(g) Disconnect fuel nozzle ground and rewind hose.

(h) Disconnect servicing unit ground at helicopter.

(i) Disconnect servicing unit ground at grounding stake.

e. After Rapid Refueling.

(1) The pilot shall be advised by the refueling crew that fuel cap(s) are secure and ground cables have been removed.

(2) Crewmembers and passengers can enter aircraft.

1-7. Defueling and Drain Valves.

a. Remove fuel cap; rotate inner sleeve clockwise until end of sleeve clears port in bottom of fuel receiver.

b. Insert a suction pickup from a defuel unit into the fuel filler opening and remove all possible fuel.

c. To complete defueling, drain remaining fuel into a suitable container by opening fuel cell sump drain valve (9, figure 1-1).

d. Purge fuel cell. Refer to TM 55-1500-204. 25/1 .

1-8. Servicing — Engine Oil System. The engine oil tank (6, figure 1-1) is located aft of the engine and oil cooler blower fan. Oil level is checked by a “trapped ball” sight gage on the tank. Normal capacity is 11.2 pints. Service with Iubricating oil (C103). Tank drain valve is accessible through small door on the left side of aft cowl and has an overboard drain line. Clean oil filter at each oil change. Refer to TM 55-2840-231-23 A, TM 55-2840-241-2C.