SERVICE BULLETIN

MANDATORY MANDATORY MANDATORY

REPLACEMENT OF TAVCO PN 23111357 SOLENOID VALVE, FLOAT INFLATION SYSTEM– EMERGENCY FLOAT ASSEMBLIES, HUGHES PN 369H92036–1 AND 369H92036–2

1. PLANNING INFORMATION:

A. Models Affected:

All subject float assemblies, incorporating subject solenoid valve, installed on 36911 Series helicopters or in Spares Inventory at date of this Notice.

B. Time of Compliance:

Shall be accomplished on installed float assemblies within next 100 hours of helicopter operation, or within 30 days after date of this Notice, whichever is sooner.

Shall be accomplished prior to installation of subject Spares solenoid valve or Spares float assemblies on helicopter, or within 30 days after date of this Notice, whichever is sooner.

C. Preface:

A malfunction of the emergency float solenoid valve and subsequent failure of floats to inflate could occur due to corrosion in the valve. This Notice includes the approved Air Cruisers Company procedure for replacement of the solenoid valve. A replacement kit will be provided by Air Cruisers Company, and may be obtained from Hughes Helicopters by contacting Warranty and Repair, Hughes Helicopters Customer Service Department.

D. Reference Publications:

Air Cruisers Company Service Bulletin No. 120–77–1, dated 30 March 1977; Revision 1, 1 April 1977; 500 Series Basic HMI, Issued 1 October 1972; Revision No. 7, 15 December 1976; 500 Series HMI, Issued 1 October 1972; Appendix A, Revision No. 4, 15 December 1974; 500 Series HMI Issued 1 October 1972; Appendix B, Revision No. 6, 1 August 1976

REPLACEMENT PARTS/SUPPLIES			
Nomenclature	**Part No.**	**Qty.**	**Source**
Kit, Valve replacement	EDR 30–188	1	Air Cruisers Company

TOOLS AND EQUIPMENT	
Nomenclature	**Source**
Air compressor system (dry nitrogen or dry air with a dew point of –80 deg. F or lower)	Commercial

2. PROCEDURE – REPLACEMENT OF SOLENOID VALVE

(1). Actuate the float inflate switch to inflate floats. (Refer to HMI Appendix A.)

SERVICE BULLETIN

WARNING **If floats do not inflate when switch is actuated, remove and discharge air cylinder and valve assembly per attached Air Cruisers Bulletin No. 120-77-1.**

(2). Replace existing Tavco solenoid valve assembly with reworked Tavco valve assembly, per attached Air Cruiser Service Bulletin No. 120-77-1.

NOTE: Reworked Tavco solenoid valve is identified by ""Mod"" alter serial number and customer specification No. D17753-107, in addition to a decal on face o~ gage lens.

(3). Charge the cylinder and valve assembly, per Air Cruisers Bulletin No. 120-77-1. Reinstall cylinder and bag on float; use new O-ring provided in kit.

(4). Perform Special 6-months inflation inspection of emergency floats. (Refer to }{MI Appendix B,)

(5). Charge the cylinder and valve assembly, per Air Cruisers Service Bulletin No. 120-77-1.

(6). Perform inflation system electrical control equipment reliability test, per HMI Appendix A.

(7). Repack the emergency float, per Air Cruisers Service Bulletin No. 120-77-].

(8). Record compliance with this Service Information Notice in Compliance Record of helicopter Log Book.

(9). Record compliance with Air Cruisers Company Service Bulletin No. 120-77-1 in Compliance Record of helicopter Log Book.

(10). Record compliance with 6-months inflation inspection per HMI Appendix B in Compliance Record of helicopter Log Book.

NOTE: Fill out and return the attached compliance coupon to Warranty and Repair, Hughes Helicopters Customer Service Department.

FAA APPROVED

3. HUGHES MODEL HS AND HM HELICOPTER EMERGENCY FLOATS SOLENOID VALVE ASSEMBLY REPLACEMENT

A. A. Effectivity

All Tavco Inc. solenoid valve assemblies P/N 23111357 which were installed on Hughes emergency helicopter floats P/N D2~483-series, when shipped from the factory having the following serial numbers:

All Tavco valves P/N 23111357 shipped from the factory as spare parts.

B. Reason

Two instances of solenoid valve assembly malfunctions have been reported in the field. It was reported the solenoid valve assemblies did not open when they were actuated. Thus, inflation of the emergency floats did not occur. Subsequent analysis by the solenoid valve manufacturer, Tavco Inc. disclosed inadequate plating on the plunger within the valve assembly. Consequently the pluger corroded and the corrosion products jammed the valve mechanism. Accordingly, it is recommended that replacement valves which incorporate a plunger that is less vulnerable to corrosion be installed on all emergency floats in the field and units in spares inventory.

All replacement,(reworked) valve assemblies will be identified with customer specification No. D17753-107 with "Mod" stamped after the serial number in addition a decal on the face of the gage lens "Mod. per-S. B. 120-77-1".

C. Description

This Service Bulletin provides instructions for ,solenoid valve assembly replacement. Each emergency float must be unpacked and the cylinder and valve assembly discharged to accomplish the solenoid value assembly retrofit and reidentification instructions. The solenoid valve can then be replaced, the cylinder recharged and the floats repacked for service.

D. Approval:

This Service Bulletin has Hughes Helicopter approval.

E. Tools:

No special tools required.

F. Weight and Balance:

Weight and Balance - Not affected.

4. ACCOMPLISHMENT INSTRUCTIONS

NOTE: For the purpose of this bulletin. the emergency floats are considered to have been unpacked to gain access to the cylinder and valve.

(1). Remove the Cylinder and Valve Assembly as follows:

(a). Remove the valve protector from the cylinder and valve assembly.

(b). Unlace the cylinder sling lacing cords. Remove the cylinder end valve assembly from the sling.

(c). Loosen the hex nut at the outlet port of the solenoid valve and disconnect the valve from the bulkhead union by unscrewing the cylinder and 'valve assembly counter-clockwise and remove.

WARNING **HIGH PRESSURE AIR CAN CAUSE INJURY TO PERSONNEL EITHER BY DIRECT AIR BLAST OR SECONDARILY BY FLYING DEBRIS. EXERCISE CARE WHEN DISCHARGING AIR BOTTLE.**

(2). Discharge Cylinder Assemblies

WARNING **ENSURE ALL PERSONNEL AND LOOSE OBJECTS ARE OUT OF RANGE OF GAS CYLINDER WHEN DISCHARGING.**

(a). Ensure that the gas cylinder is empty. Check gage if cylinder is charged, immobilize in a chain vise or equivalent. The filler valve outlet should point in a safe direction.

(b). Remove filler valve cap from threaded stem. Using two open end wrenches on the filler valve body and nut, turn put slowly counterclockwise 2-1/4 turns to "open" the filler valve" allow all pressure to escape. Check gage to ensure no pressure remains.

(c). Remove the solenoid valve from gas cylinder using an open end wrench. Discard performed packing when removed.

SERVICE BULLETIN

(3). Install the Replacement Solenoid Valve' Assembly

(a). Coat "O-ring" (from kit, paragraph 3) with a thin film of Dow Coming Silicon Compound No. 4. Carefully install the "O"-ring on the valve (from kit, paragraph 3)- Coat the male threads of the valve lightly with a dry lubricant MIL-L-60326 and let dry, then coat lightly with Compound No. ~.

(b). Install the solenoid valve on the cylinder and tighten to a torque value between 360 lbs/in. and 500 lbs/in.

(4). Charge the Cylinder and Valve Assembly

WARNING **ENSURE GAS CYLINDER IS EMPTY.**

(a). Remove high pressure cap on the filler valve and attach the charging line and adapter/P/N D19238) to the filler valve.

(b). Install a plug (MS9015-06) in the outlet port of the solenoid valve as a safety precaution. Plug should be installed until it bottoms then back off approximately one turn.

NOTE: Dry nitrogen should be used to charge the cylinder and valve assembly. The use of shop compressor air is not recommended. Dry filtered air is acceptable.

CAUTION IF NITROGEN STARTS TO DISCHARGE THROUGH THE OUTLET PORT, REMOVE THE CHARGING LINE ADAPTER AND REPLACE THE VALVE.

(c). Loosen the filler valve from 2 1/4 turns and fill the cylinder and valve assembly with 4.05 +- .' lbs. nitrogen.

(d). Tighten the filler valve nut and remove the charging line and adapter. Install yellow cap on filler valve securely.

CAUTION DO NOT USE EXCESSIVE LEAK CHECK SOLUTION (SOAP OR EQUIVALENT), PLUG SHOULD REMAIN IN OUTLET PORT BACKED OFF ONE TURN TO PREVENT-VENT ENTRY OF LEAK CHECK SOLUTION INTO OUTLET PORT.

(e). Apply leak check solution around all valve fittings, outlet port end valve-to-cylinder connection to check for leakage. No leakage (indicated by escaping bubbles) is permitted. Dry thoroughly with compressed air.

(f). Install the cylinder bag on the cylinder and tie cord with one square knot.

(g). Remove the plug from the outlet port of the cylinder and valve assembly. Replace the "0" ring on the bulkhead union. Install the cylinder and valve assembly on the float in reverse order of disassembly.

NOTE: Ensure the pressure gage is visible through the pressure gage inspection window when the float is stowed.

(h). Install valve protector over the cylinder and valve assembly. Ensure that the pressure gage face is visible.

(i). Using Cord-O-Hyde, lace the cylinder slings to secure cylinder and valve assembly in position. (Lace toward the valve end.) Tie cord ends with two (2) square knots.

(j). Actuate float inflation switch to perform 6-month qualification test per Hughes 500 Basic Handbook of Maintenance Instructions, Appendix B.

(k). Recharge the cylinder and valve assembly after testing per paragraph 2.C.

(5). Reidentification

Emergency Floats P/N D24484-series

(a). Reidentify the Tavco cylinder and valve assemblies by affixing the label provided in kit EDR20-188 to gage lens directly below gage manufacturing part number. The alternate kit EDR20-196 (Valcor Valve) requires no Reidentification.

(6). Repack the Emergency Float (Figure 1)

(a). Open all the topping-off valves of the inflated float and. compress the cells lightly by hand so that the float is flat and as smooth as possible.

(b). For a float with skid tube extensions, place fold at aft end of skid extension then evacuate the aft outboard air compartment (cell) until the fold is firm and sharp', use topping-off valve adapter (P/N D19238) and vacuum. Close the topping-off valve. For a float without extension, place a fold in the aft outboard cell between the double inlet check and topping-off valve by pushing the upper support tube as hard as possible while pressing the support tube .forward, then evacuate before closing topping-off valve.

(c). While pressing the support tube and holding float center forward and down, place a fold in the inboard center cell between the inlet check valve and topping-off valve, re-arrange the air hose as required. Still keeping the pressure on the support tube, evacuate first the center cell then the aft inboard cell until the folds are sharp and the support tube is firmly held from moving aft. Close the topping- off valve.

(d). Position air cylinder snug against the outboard side of the forward strut. While holding the cylinder in that position, evacuate the forward outboard cell then the forward inboard cell until the folds are firm and sharp. Close the topping-off valve.

(e). Recheck the float making sure that it is as flat as possible and free of any and all air pockets. Double check the firmness of all folds and re-evacuate the cells as necessary.

NOTE: Any remaining air may cause float opening at altitude and/or difficulty in packing.

(f). Fold float forward at aft end. Reposition as required. Storage cover must be outside of fold line.

(g). Fold float forward at aft end of support tube end. Reposition air hoses as required. Stowage cover must be outside of fold line.

(h). Roll and fold length of float towards center. Do not cover pressure gage.

(i). Roll and fold length of float towards center. Fasten snaps starting' at forward end. Ensure that pressure gage is visible in inspection window. Do not fasten end cover snaps.

(j). Tighten lacing. Ensure that snap fasteners remain closed·

(k). Secure end cover snaps. All snap fasteners must be used.

SERVICE BULLETIN

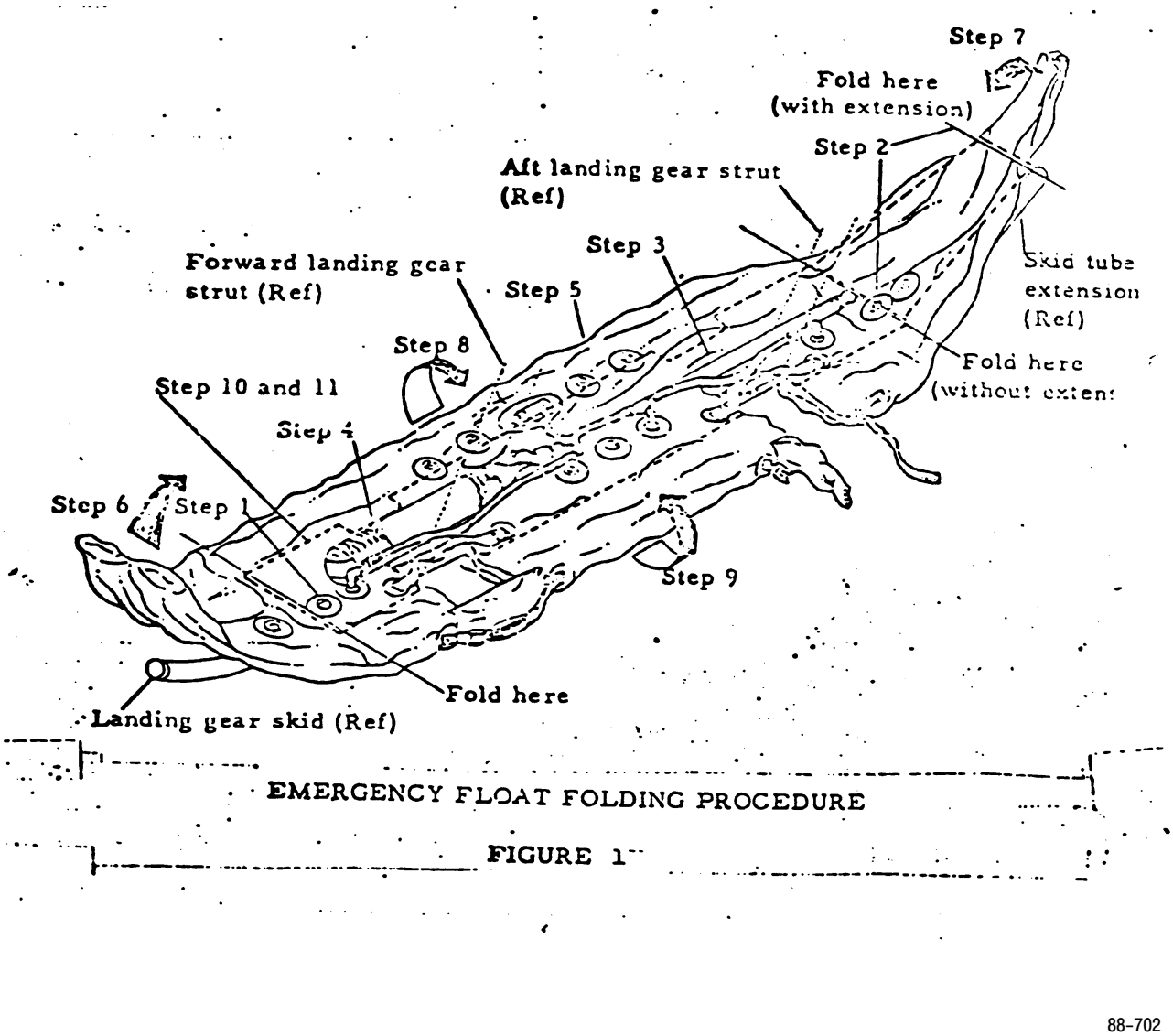

Figure 1. EMERGENCY FLOAT FOLDING PROCEDURE

SERVICE BULLETIN

MANDATORY MANDATORY MANDATORY

A. Material Information

The kit EDR 20-188 or alternate kit EDR 20-196 listed below is for the retrofit of one emergency float P/N D24484-series.

New P/N	Qty.	Unit List Price	Key Word	Old P/N	Disposition
EDR 20-188	1	Ref. Hughes Notice Page 1	Kit	N/A	Install per this S.B.
Consisting of:					
D17753-107	1		Solenoid Valve Assembly	D17753-101 OR -103	Ship old valve to West Coast Service Center*
B14056	1		"O" ring	N/A	Install per this S.B.
Label N/A	1		Decal	N/A	Install per this S.B.

NOTE: If kit EDR 20-196 is ordered all components are to be assembled prior to shipment.

New P/N	Qty.	Unit List Price	Key Word	Old P/N	Disposition
EDR 20-196	1	Ref. Hughes Notice Page	KIt	N/A	Install per this S.B.
Consists of:					

New P/N	Qty.	Unit List Price	Key Word	Old P/N	Disposition
B14056-6	1		"O' Ring	N/A	Install per this S.B.
B14056-4	1		"O" Ring	N/A	Install per this S.B.
B14054-1	1		Fitting Gage	N/A	Install per this S.B
C17238-19	1		Ring Retainer	N/A	Install per this S.B
C17238-10	1		Gage Protector	N/A	Install per this S.B

SERVICE BULLETIN

B15058	1		Filler Valve	N/A	Install per this S.B
C18223-1	1		Gage	N/A	Install per this S.B

* Air Cruisers Company
A Division of the Garrett Corporation
9851 Sepulveda Boulevard
Los Angeles, California 90009

SERVICE BULLETIN

MANDATORY MANDATORY MANDATORY

TO:

Hughes Helicopters
Centinela and Teale Streets
Culver City. CA 90230

Attn:
Customer Service Department
Bldg. 2 MS T - 7b

This is to certify that replacement of PN 23111357 Solenoid Valve was accomplished on the following 369H92036-1 and -2- Emergency Float Assemblies on the date/s noted. Indicate Spares if float is not installed on helicopter.

369H92036 Float Float Serial No.
Date

Helicopter SN

Also, as applicable, all PN 23111Z86 Float Inflation Systems in Spares have been reworked per Air Cruisers Company Service Bulletin No. 120-77-1; all

PN 23111357 'Solenoid Valve Assemblies in Spares have been exchanged for reworked valve assemblies identified by letters "MOD" imprinted after Serial Number on valve, and by decal on face of gage.

Signature

Title

Company / Organization

Complete Address