SERVICE BULLETIN

MANDATORY MANDATORY MANDATORY

REPLACEMENT OF TAVCO PN 23111369 SOLENOID VALVE, FLOAT INFLATION SYSTEM – EMERGENCY FLOAT ASSEMBLIES, HUGHES PN 369D290121–501 AND 369D290121–505.

1. PLANNING INFORMATION

A. MODELS AFFECTED:

All subject float assemblies, incorporating subject solenoid valve, installed on 500D Model 169D helicopters or in Spares Inventory.

B. PREFACE:

The information given in Part I of this Service Information Notice lists a procedure for replacement of the TAVCO so valve, in the emergency float system, with a TAVCO squib valve assembly. The subject solenoid valve is no longer available from the manufacturer. Therefore, when replacement becomes necessary, it must be replaced with a TAVCO squib valve assembly (in sets only). This Notice also provide for rewiring of the emergency float system to actuate the new squib valve. Installation of squib valves removes the 32° F temperature limit. Accomplishment of Part I reidentifies float inflation system to PN 369D290121–519. Part H lists procedures for replacement of PN 232626–1 squib valve after each activation of squib valve assembly.

C. TIME OF COMPLIANCE:

Part I: Shall be accomplished at next replacement of subject solenoid valve.
Part II: Shall be accomplished after each activation of squib valve assembly.

D. FAA APPROVAL:

FAA/DER APPROVED 16 April 1981

E. WEIGHT AND BALANCE:

Weight and balance not affected

F. REFERENCE:

500D Model 369D Basic HMI–Vol I, Issued 15 September 1976; Revision No. 3, 15 March 1979
IPL and Maintenance Instructions for Emergency Float Kit – Extended Landing Gear, Publication No. CSP–02S, Issued 15 August 1977

G. PARTS LIST:

PARTS LIST

When ordering, specify Kit No. M50458 (Commercial or M50458–5 (Militaty) consisting of:

Nomenclature	Part No.	Qty.	Source
Valve, squib (LH)	23111 380– 3	1	TAVCO

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PARTS LIST (Cont)

Nomenclature	Part No.	Qty.	Source
Valve, squib (RH)	23111 380–4	1	TAVCO
Kit – squib valve replacement (for valves with sealed cover)	50014114	2	TAVCO
Kit – squib valve replacement (for valves with button type cover)	50014115	2	TAVCO
Fitting	60056163	2	TAVC O
Packing	MS28778–12	2	Commercial
Packing	MSZ8778– 6	4	Commercial
Card, VNE	369D292574–49	1	HH
Card, VNE	369D292574–51	1	HH
Card, VNE	369D292574–53	1	HH
Card, VNE	369D292573–19	1	HH
Electrical Inst[Kit (Comm)	369H9Z557–511	1	HH
	or		
Electrical Instl Kit (Mil)	369H92557–513	1	HH
consisting of:			
Switch assy	369H92557–61	1	HH
Disconnect	3Z445	Z	Amp Inc.
Disconnect*	32445	8	Amp Inc.
Sleeve	D 121#	8	Rayc hem
Sleeve**	D 1 Z 1#	2	Rayc hem
Sleeving	RNF 100X 1 /4	AR	Raychem
Cap**	3/16 PD	4	
Contact	MPC MZ0MH2	3	Burndy Corp.
Terminal	MS25036–103	2	Commercial
Terrninal**	MS25036–103	3	Commercial
Terminal	MS25036–149	1	Commercial
Terrninal*	MS25036–149	1	Commercial

PARTS LIST (Cont)			
Nomenclature	**Part No.**	**Qty.**	**Source**
Steering	RNF100X1–8	AR	Raychem
Splice	MS25181–1	4	Commercial
Connector	PT06P8–4S	2	Bendix Plug

Alternate PN NAS1745–3

*Component of 369H92557–513

**Component of 369H9255 7– 511

H. MATERIALS:

MATERIAL	
Nomenclature	**Source**
Wire, MIL–W–5086, Type II, ZZ GA, one conductor	
Cable, MIL–C–7078, CL A, Type 2, two conductor shielded (red and black)	
Wire, MIL–C–7078, CL A, Type 2, 20 GA, one conductor shielded	
Wire, MIL–W–5086, Type II, AWG Z0, one conductor	
Sleeving, MIL–I–631, Type F, No. 20	
Grease – MIL–G–4343 or equivalent	
Alcohol	

I. TOOLS AND EQUIPMENT:

TOOLS AND EQUIPMENT	
Nomenclature	**Source**
X–Acto knife	
Torque wrench	
Blow dryer or equivalent source of hot flowing air	
Volt–ohrnrneter (VOM), Simpson Z60 or equivalent	
Allen Wrench – 3/16 inch	

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2. PART I – REWORK PROCEDURE

a. Turn off electrical power.

b. Unpack emergency floats. (Refer to CSP–025)

c. Remove valve protector and unlace cylinder sling lacing cords. (See Figure 1)

d. Disconnect solenoid valve electrical wiring knife splice at (SP4, SP5, SPA, and SP10)solenoid.

e. Loosen nut at outlet port of solenoid valve. Disconnect valve assembly from union by unscrewing cylinder and valve assembly in counterclockwise direction. Remove cylinder and valve assembly. (See Figure 1)

f. If cylinder is not empty, discharge as follows:

WARNING **Exercise care when discharging cylinder. Personnel can be injured by high pressure air or flying debris.**

1. Secure cylinder in chain vise or equivalent. Point filler valve outlet in safe direction.

2. Use two open end wrenches, one on filler valve body and one on nut. Turn nut slowly counterclockwise 2–1/4 turns and allow all pressure to escape. Check gage to verify that no pressure remains in cylinder.

g. Remove solenoid valve from cylinder. Discard solenoid valve and packing. (See Figure 1)

h Install new squib valve (PN 23111380–3 LH float, PN 23111380–4 RH float) with PN MS28778–12 packing on cylinder. Torque to 360–504 inch pounds. (See Figure 2)

i. Install fitting with PN MS28778–6 packing on existing union. (See Figure 2)

j. Recharge cylinder and test for air leaks. (Refer to CSP–025)

k. Install charge cylinder and squib valve assembly with PN MS28778–6 packing on fitting. (See Figure 2)

l. Revise emergency float electrical system as follows:

1. Remove access panels and/or covers as necessary to expose emergency float wiring. (Refer to Basic HMI – Vol I)

2. Remove all emergency float wiring except as noted in Figure 3.

3. Remove and discard relay installation, doubter and attaching hardware located on pilot's floor support, left bulkhead.

4. Remove emergency float switch tight assembly and install new switch tight assembly.

5. Install wiring as shown in Figure 3. Do not plug in electrical connectors (P 101 and P102) until after electrical system check.

6. Reinstall access panels and/or covers. (Refer to Basic HMI – Vol I)

m. Turn on electrical power.

n Perform inflation system electrical control equipment operational check as follows:

1. Test light check.

   (a) Check ship voltage with VOM. Voltage should be 27.5 VDC.

   (b) Open emergency float circuit breaker (CB121).

   (c) Install one lead of 0.5 ohm ±5%, 10W resistor in pin A of. lefthand connector: (P101). Connect one test lead of ammeter (VOM) to other lead of resistor. Connect other test lead of ammeter (VOM) to pin D of connector (P101).

   (d) Close emergency float circuit breaker (CB121).

   (e) Press ”PRESS TO TEST” switch and observe current reading on meter and brilliance of lamps. Current should be 75 MA minimum and brilliancy of lamps should be fairly bright.

   (f) Open emergency float circuit breaker (CBl2l).

   (g) Remove meter and resistor from connector (PlO1).

   (h) Repeat steps (c) through (g) for righthand connector (P102).

2. System check.

   (a) Ensure that circuit breaker (CB121) is open and connectors (P101 and P102) are disconnected.

   (b) Install one lead of 40 ohm ±1%, 20W resistor in pin A of lefthand connector (P101) and install other lead of resistor in pin D of connector (P 101).

   (c) Connect test leads of volt meter (VOM) across resistor.

   (d) Close emergency float circuit breaker (CB121).

   (e) Press firing switch on pilot’s grip and observe voltage on Voltage should be 25.5 VDC minimum,

   (f) Open circuit breaker (CB121).

   (g) Remove meter and resistor from connector (P101).

   (h) Repeat steps (b) through (g) for righthand connector (P102).

3. Connect connectors (P101 and P102) to squib valves.

4. Close emergency float circuit breaker (CB121).

5. Press ”PRESS TO TEST” switch and observe that lamps light.

6. Open circuit breaker (CB121).

o. Ensure that cylinder is positioned so that pressure gage is visible through inspection window when floats are stowed (pressure gage axis inclined outboard approximately 40°).

p. Repack emergency floats. (Refer to CSP–025)

q. Remove existing VNE cards (solenoid valve, floats stowed (3) and solenoid valve, floats inflated (1)).

r. Install PN 369D9-92574-49, -51 and -53 VNE cards (squib valve, floats stowed and PN 369D292573-19 VNE card '(squib valve, floats inflated).

s. Record compliance with Part I of this Service Information Notice in Compliance Record of helicopter Log Book.

3. PART II REPLACEMENT OF PN 232626-1 SQUIB VALVE

a. Replace squib valves with sealed covers as follows: (See Figure 4)

1. Removal of actuated valve.

(a) MANDATORY: Open manifold charge valve to verify that there is no pressure in the pressure vessel.

(b) Note orientation of squib with respect to pressure gauge.

(c) Using X-Acto knife, cut through black plastic cover all around valve-body to manifold joint and to uncover four .screw heads near outlet port (See Figure 4).

(d) Using Allen Wrench, remove the four screws near the outlet port. Retain screws to use with new valve.

(e) Pull 232626 valve straight off manifold until separated.

(f) Discard actuated valve.

2. Installation of Replacement Valve.

(a) Lightly lubricate 0-ring on new valve with MIL-G-4343 or equivalent pneumatic grease.

(b) Maintaining squib orientation noted in step 1 (b) above, install 232626 valve onto manifold. Valve must bottom metal-to-metal on the face of the manifold. Minor trimming of the plastic cover may be required. Remove minimum material.

(c) Install the four screws hand-tight (Note: helicoil insert in manifold has locking thread).

(d) Using Allen Wrench, tighten the four screws evenly until bottomed. Using a Torque Wrench, apply 38 to 43 lb-in. torque to the screws.

(e) To reseal the black plastic cover clean the surface with alcohol and apply a thin coat of the black fluid supplied with the 50014114 kit to the valve body and manifold joint. Cure with hot air until it turns shiny, then remove heat source.

To reseal the screw holes, preheat the screw heads with hot air. Fill the cavities with the black fluid and cure with hot air Until shiny, then remove heat source.

NOTE: Multiple coats may be required to seal the joints completely. Resealing is recommended for maximum protection from corrosion in a humid environment. If is not mandatory for valve operation.

b. Replace squib valves with button type covers as follows:

1. Removal of actuated valve:

(a) MANDATORY: Open manifold charge valve to verify that there is no pressure in the pressure vessel.

(b) Note orientation of squib with respect to pressure gauge.

(c) Spread plastic cover at its parting line until the small round end of the white plastic buttons pull through the black plastic and over the squib connector, allowing access to the four screws that retain the valve body.

(d) Using Allen Wrench, remove the four screws near the outlet port. Retain screws to use with new valve.

(e) Pull 232626–1 valve straight off manifold until separated.

(f) Discard actuated valve.

2. Installation of Replacement Valve:

(a) Lightly lubricate o–ring on new valve 'with MIL–G–4343 or equivalent pneumatic grease.

(b) Maintaining squib orientation noted in step 1 (b) above, install 232626–1 valve onto manifold. Valve must bottom metal–to–metal on the face of the manifold.

(c) Install the four screws hand–tight (Note: helicoil insert in manifold has locking thread).

(d) Using Allen Wrench, tighten the four screws evenly until bottomed. Using a Torque Wrench, apply 38 to 43 lb–in. torque to the screws.

(e) Remove plug from squib connector, notice the plug only fits one way. Realign the black plastic cover and pull it back over the squib connector. Replace the squib connector plug. Snap the white plastic buttons back through the holes in the black plastic cover as they were before. Check the plug in squib connector to insure that it is bottomed.

c. Record Compliance with Part II of this Service Information Notice in Compliance Record of helicopter Log Book.

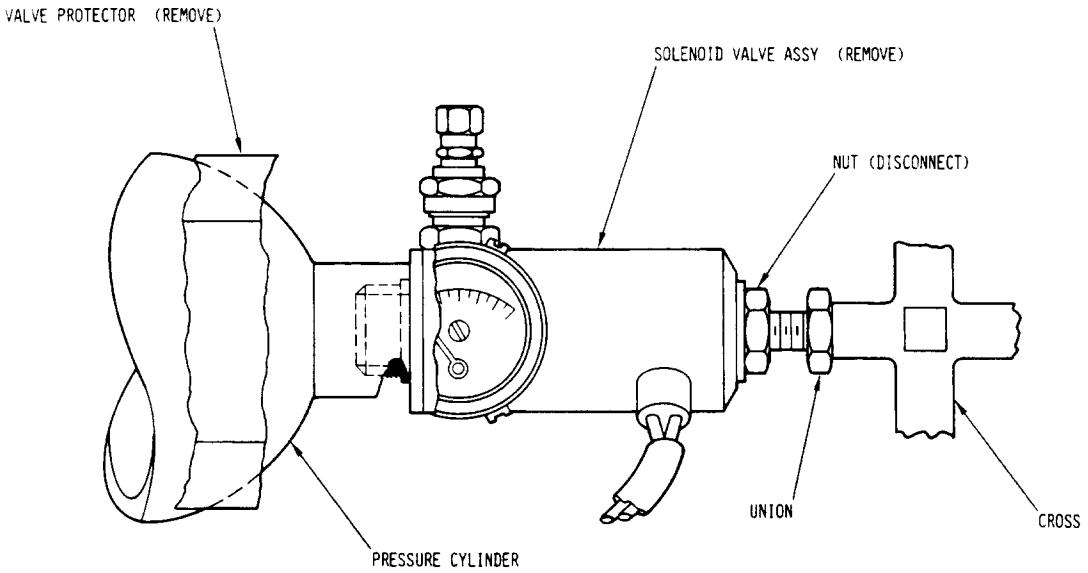

Figure 1. Removal of Solenoid Valve Assembly

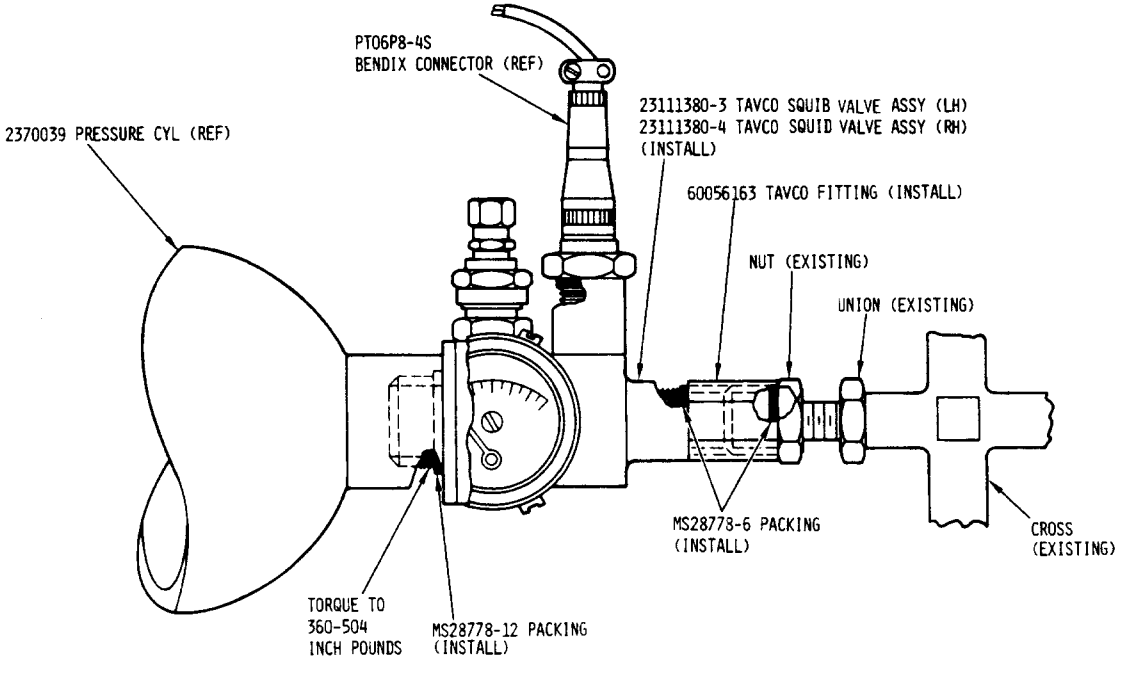

Figure 2. Installation of Squib Valve Assembly

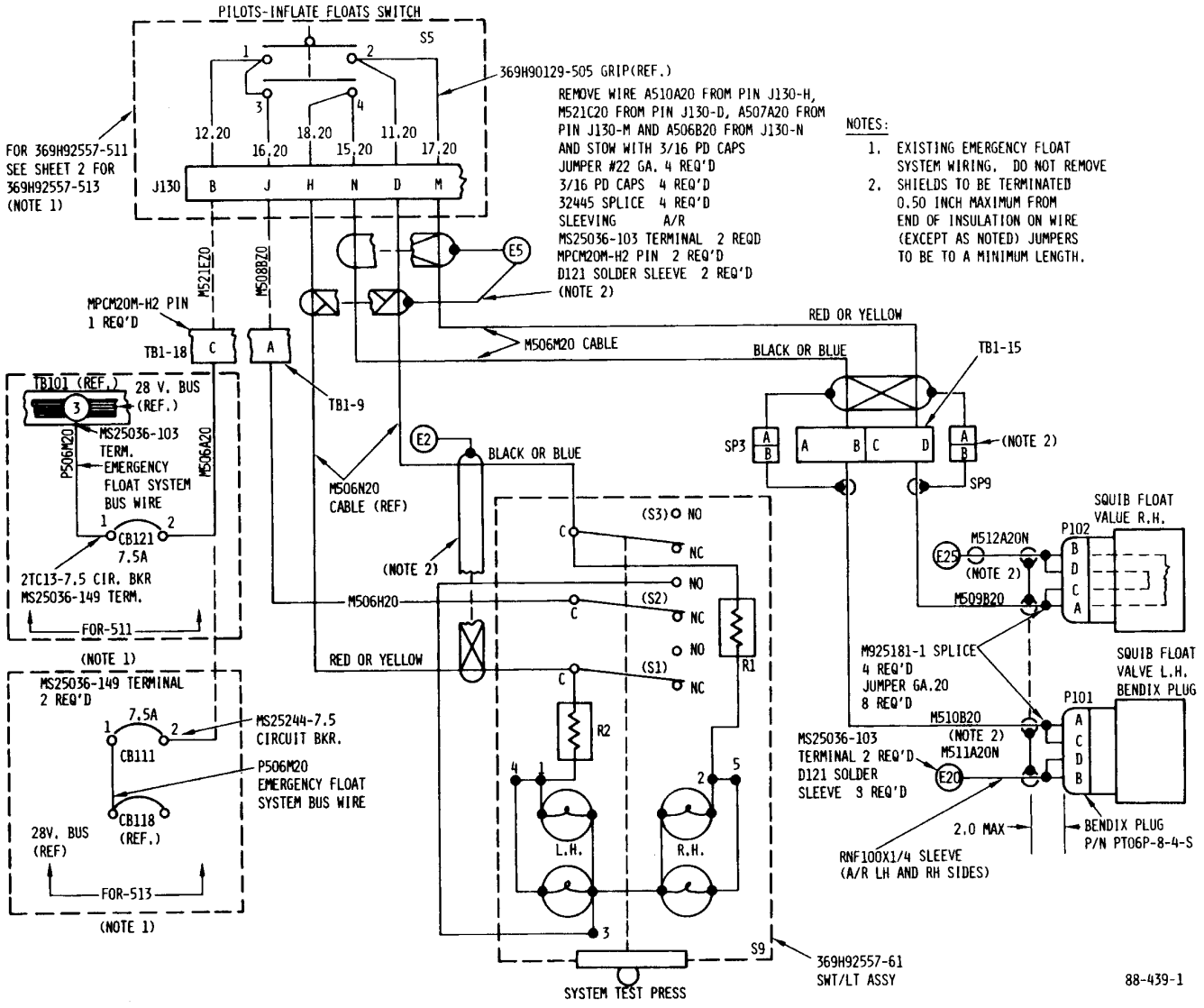

Figure 3. Emergency Float System Wiring Diagram (Sheet 1 of 2)

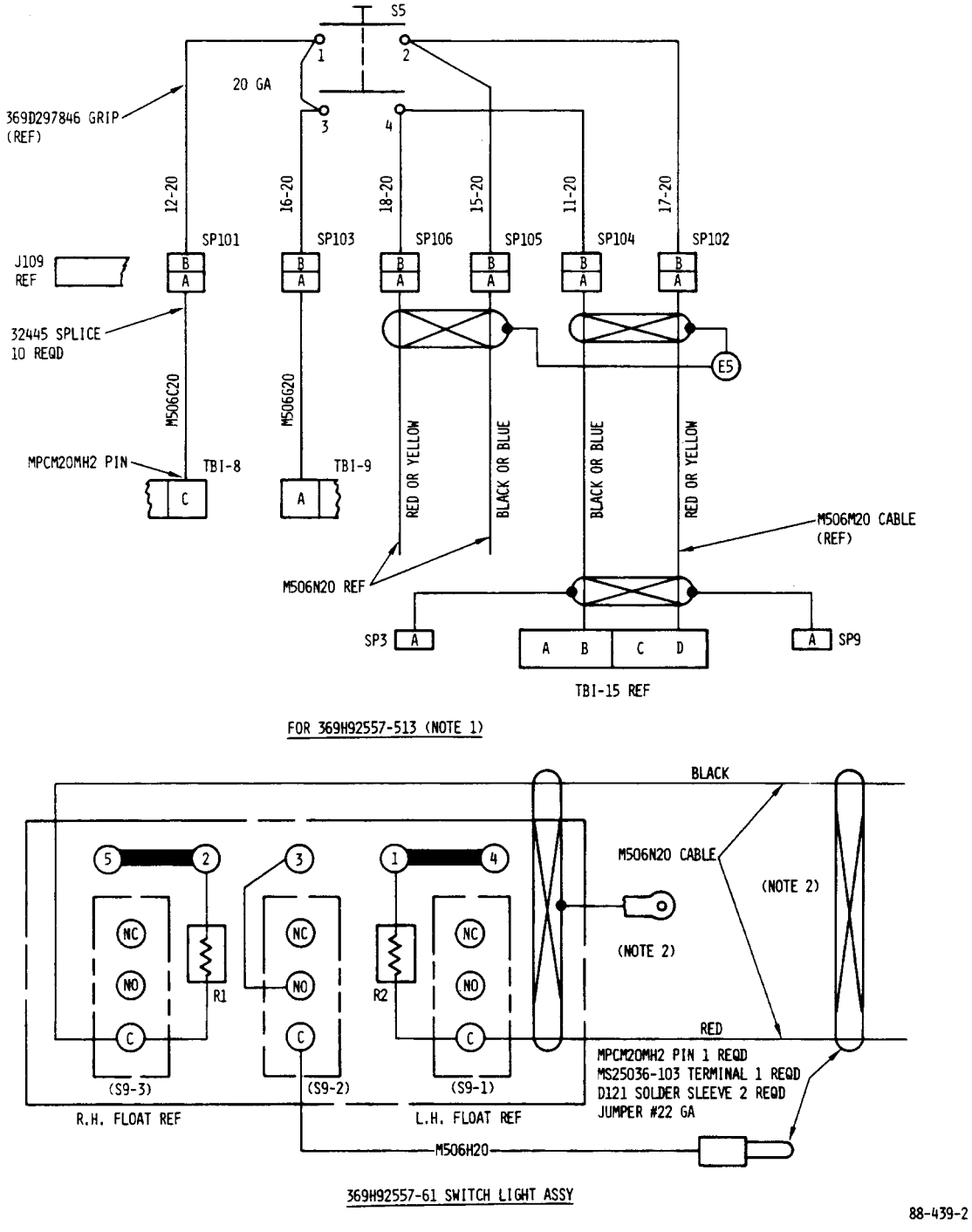

Figure 3. Emergency Float System Wiring Diagram (Sheet 2 of 2)

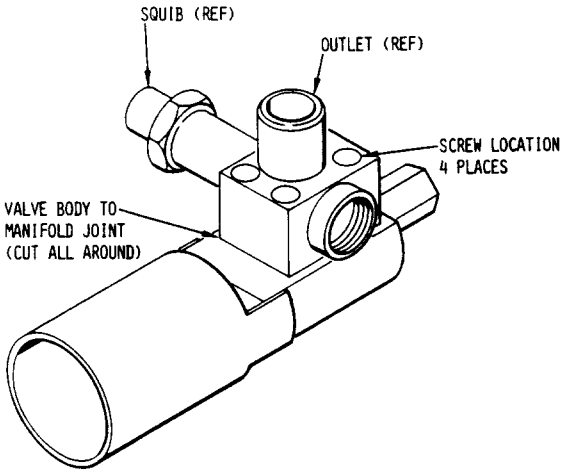

Figure 4. Replacement of Squib Valve with Sealed Cover