

NOM : ..... PRENOM : .....

## GRILLE D'EVALUATION

### 1.3. EPREUVE PRATIQUE EN ATELIER OU SUR AVION

Durée : 3 heures

Coef. : 5

OPERATION A EFFECTUER : ...ATA 29 MODULE HYDRAULIQUE A.....

UTILISATION DE LA DOCUMENTATION	/10 pts
PREPARATION DU POSTE DE TRAVAIL /SECURITE	/20 pts
ETABLISSEMENT GAMME DE TRAVAIL	/ 20 pts
DEPOSE DE L'ORGANE	/ 30 pts
VERIFICATION DE L'ORGANE	/ 30 pts
POSE DE L'ORGANE	/ 30 pts
AUTO CONTROLE ESSAIS	/ 30 pts
REMETTRE EN SITUATION DE VOL	/ 20 pts
RENDRE COMPTE/A.P.R.S.	/ 10 pts
TOTAL	/200 pts

Ramener la note sur 20 : /

Nom et Prénom du notateur : .....

Signature :

<b>A C A D E M I E   D E   G R E N O B L E</b>				<b>SESSION 2002</b>	
<b>EXAMEN :</b> CAP Mécanicien Entretien Avions option T2				<b>DUREE :</b> 3 h	
<b>Epreuve :</b> epreuve Pratique en Atelier ou sur Avion				<b>COEFFICIENT :</b> 5	
<b>ECHELLE :</b>	<b>Nb. Tirages :</b>	<b>SUJET</b>	<u>4</u>	<b>FEUILLE :</b>	_____



## MAINTENANCE MANUAL

### SYSTEM A MODULAR UNIT - REMOVAL/INSTALLATION

#### 1. General

- A. A container will be necessary to catch fluid from the modular unit and disconnected hydraulic lines. Take necessary precaution to prevent spillage of fluid. Should any fluid spill on the airplane, decontaminate (Ref Chapter 12, Cleaning and Washing).

#### 2. Remove System A Modular Unit

- A. Open aft stairwell left side panel.
- B. Depressurize hydraulic system A (Ref 29-11-0, Hydraulic System A - Maintenance Practices).
- C. Check that the PRESSURE INDICATION SYS A circuit breaker on circuit breaker panel P6 is open.
- D. Disconnect pump low pressure warning switches electrical connectors (Fig. 401).
- E. Disconnect hydraulic lines and plug lines. Plug open ports on modular unit.
- F. Remove mounting bolts and remove modular unit.

#### 3. Install System A Modular Unit

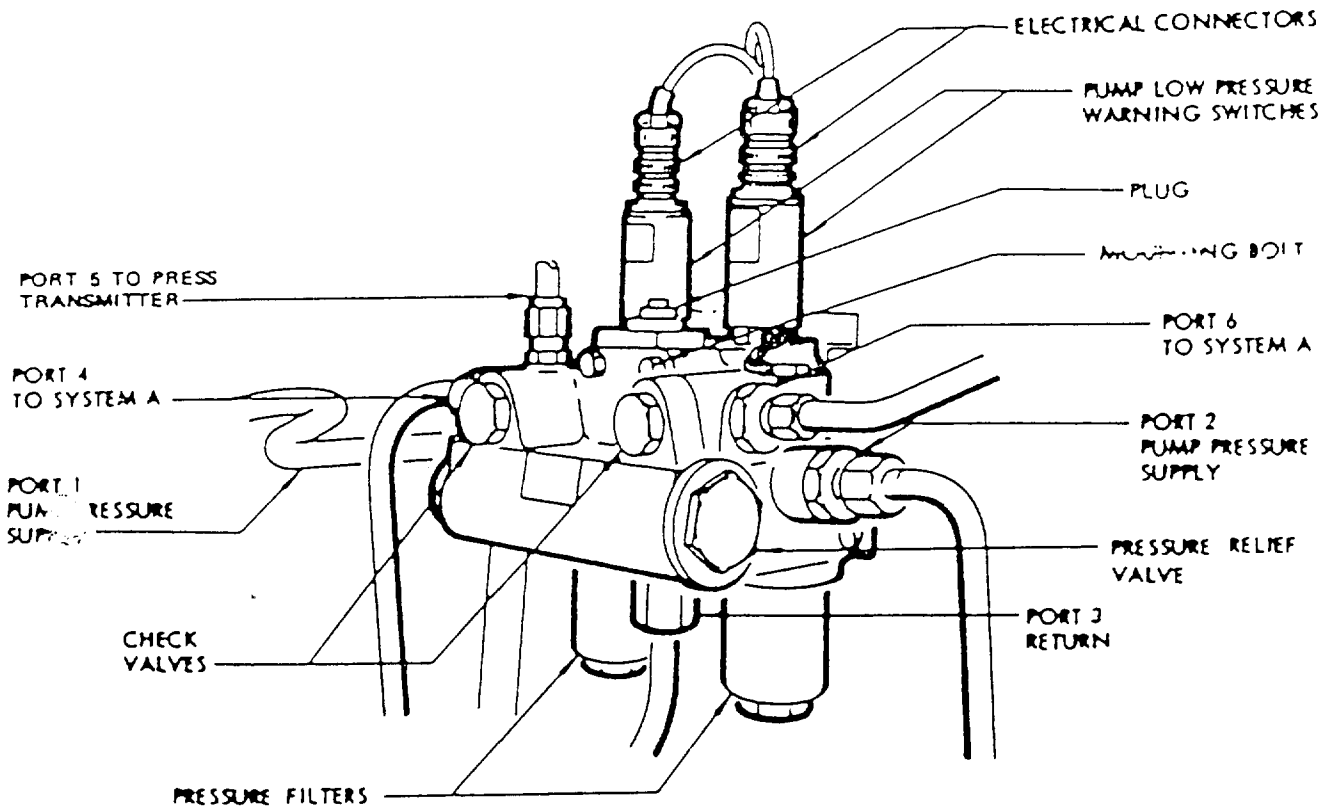
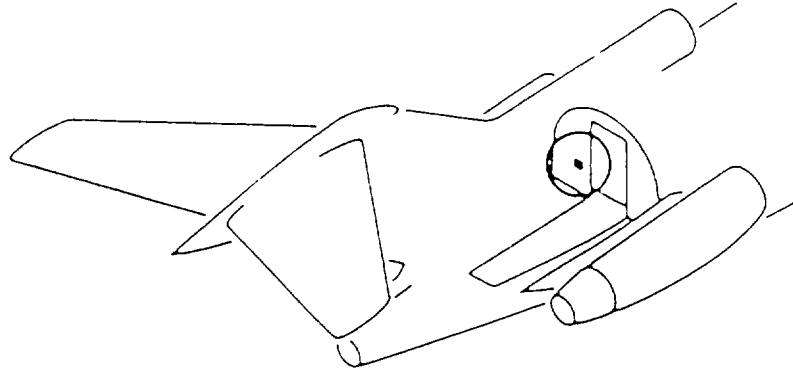
- A. Make sure that no foreign matter enters modular opening during installation.
- B. Install O-ring and union in all hydraulic ports (Fig. 401).
- C. Place modular unit in mounting position and install mounting bolts.
- D. Connect hydraulic lines to modular unit.
- E. Connect pump low pressure warning switches electrical connectors.
- F. Close PRESSURE INDICATION SYS A circuit breaker on P6 panel.
- G. Provide electrical power. On captain's overhead panel, check that RUDDER SYS A switch is ON.

WARNING: RUDDER & RUDDER PEDALS MUST BE IN NEUTRAL WHEN POWER IS TURNED ON OR RUDDER MOVEMENT MAY CAUSE INJURY OR DAMAGE EQUIPMENT.

- H. Check low pressure switch operation and check for leaks.
  - (1) Pressurize hydraulic system A by motoring engine No. 1 (Ref 29-11-0, Maintenance Practices).
  - (2) Cycle rudder control system to bleed hydraulic system.

WARNING: TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT, CHECK THAT RUDDER IS CLEAR TO DEFLECT FULLY BEFORE CYCLING RUDDER.

- (3) Check that system A No. 1 low pressure light extinguishes.
  - (4) Check module for leaks.
  - (5) Pressurize hydraulic system A by motoring engine No. 2.
  - (6) Check that system A No. 2 low pressure light extinguishes.
  - (7) Check module for leaks.
  - (8) Depressurize hydraulic system A (Ref 29-11-0, Maintenance Practices) and remove electrical power.
- I. Service hydraulic reservoir (Ref Chapter 12, Hydraulic Fluid Servicing).
  - J. Close access panel.



System A Modular Unit Installation  
Figure 401



## MAINTENANCE MANUAL

### SYSTEM A HYDRAULIC PRESSURE FILTER - SERVICING

#### 1. General

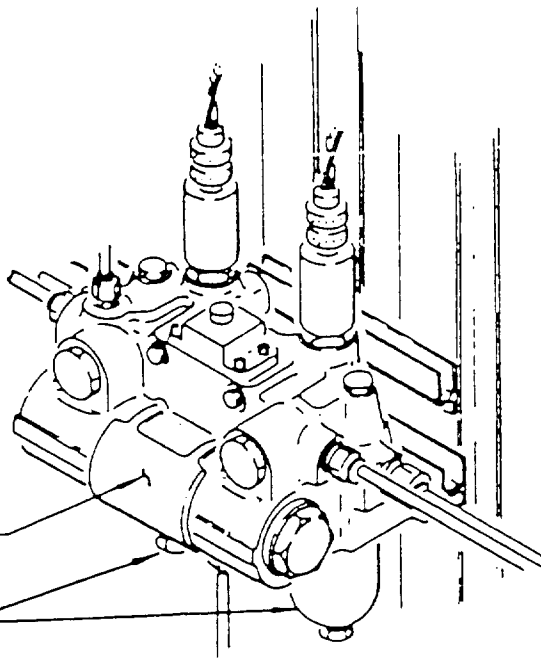
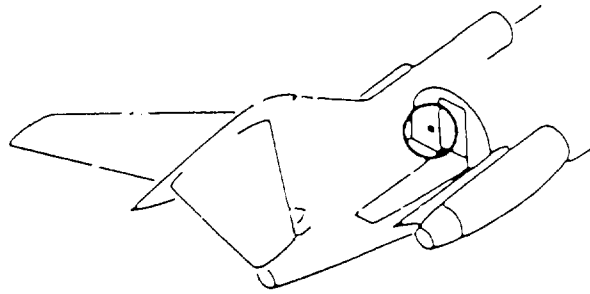
- A. A container will be necessary to catch hydraulic fluid when removing pressure filter element. Should any fluid spill on the airplane, decontaminate (Ref Chapter 12, Cleaning and Washing).

#### 2. Remove System A Hydraulic Pressure Filter Element (Fig. 301)

- A. open aft stair well left side panel.
- B. Depressurize hydraulic system A (Ref 29-11-0 MP).
- C. Unscrew filter bowl with element.
- D. Clean filter bowl.

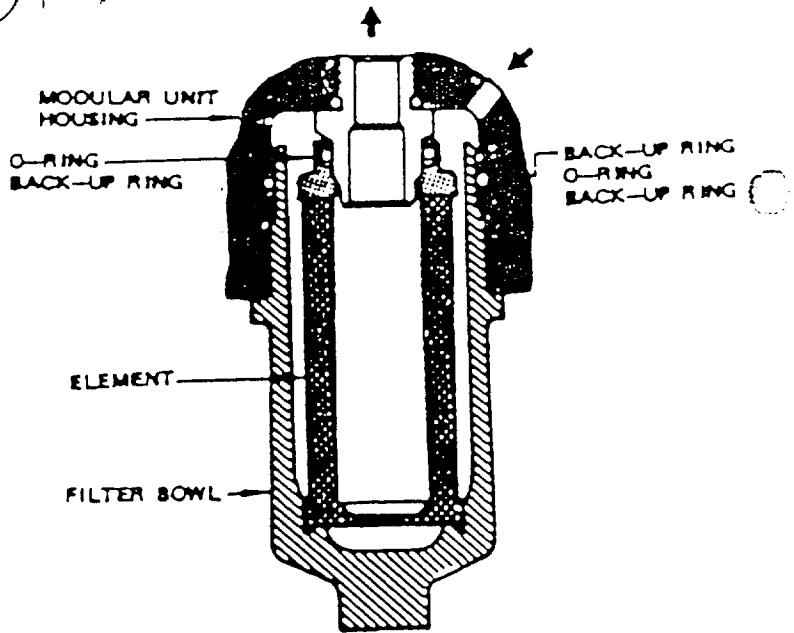
#### 3. Install System A Hydraulic Pressure Filter Element (Fig. 301)

- A. Install back-up ring, O-ring and back-up ring in groove in modular housing.
- B. Install O-ring and back-up ring in groove at top of clean filter element.
- C. Lightly lubricate filter bowl threads with BMS 3-11 hydraulic fluid, and partially prefill filter bowl with hydraulic fluid. Place filter element in modular housing, and screw filter bowl in modular housing. Tighten filter bowl to 50-200 pound-inches and secure with lockwire.
- D. Pressurize hydraulic system A (Ref 29-11-0 MP).
- E. Check pressure filter for leaks.
- F. Close access panel.



SYSTEM A  
MODULAR UNIT

SYSTEM A HYDRAULIC  
PRESSURE FILTERS  
SEE DETAIL A



MODULAR UNIT  
HOUSING

O-RING  
BACK-UP RING

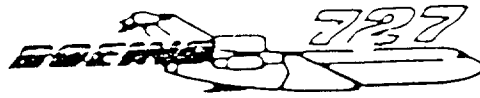
BACK-UP RING  
O-RING  
BACK-UP RING

ELEMENT

FILTER BOWL

DETAIL A

System "A" Hydraulic Pressure Filter Installation  
Figure 301



## MAINTENANCE MANUAL

### SYSTEM A PRESSURE RELIEF VALVE - REMOVAL, INSTALLATION

#### 1. General

- A. A container will be necessary to catch hydraulic fluid when removing the relief valve. Should any fluid spill on the airplane, decontaminate. See Chapter 12, "Cleaning and Washing."

#### 2. Remove System A Pressure Relief Valve

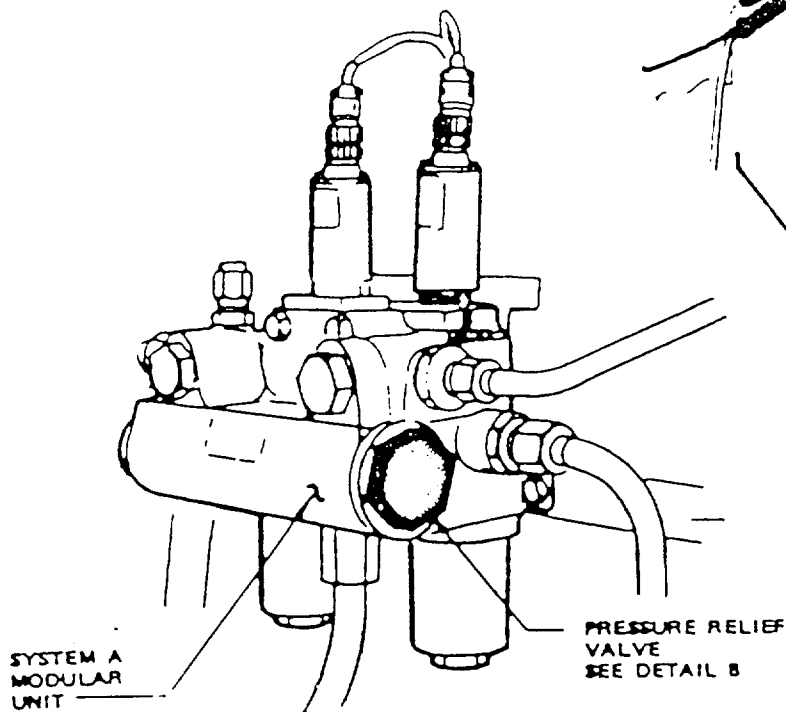
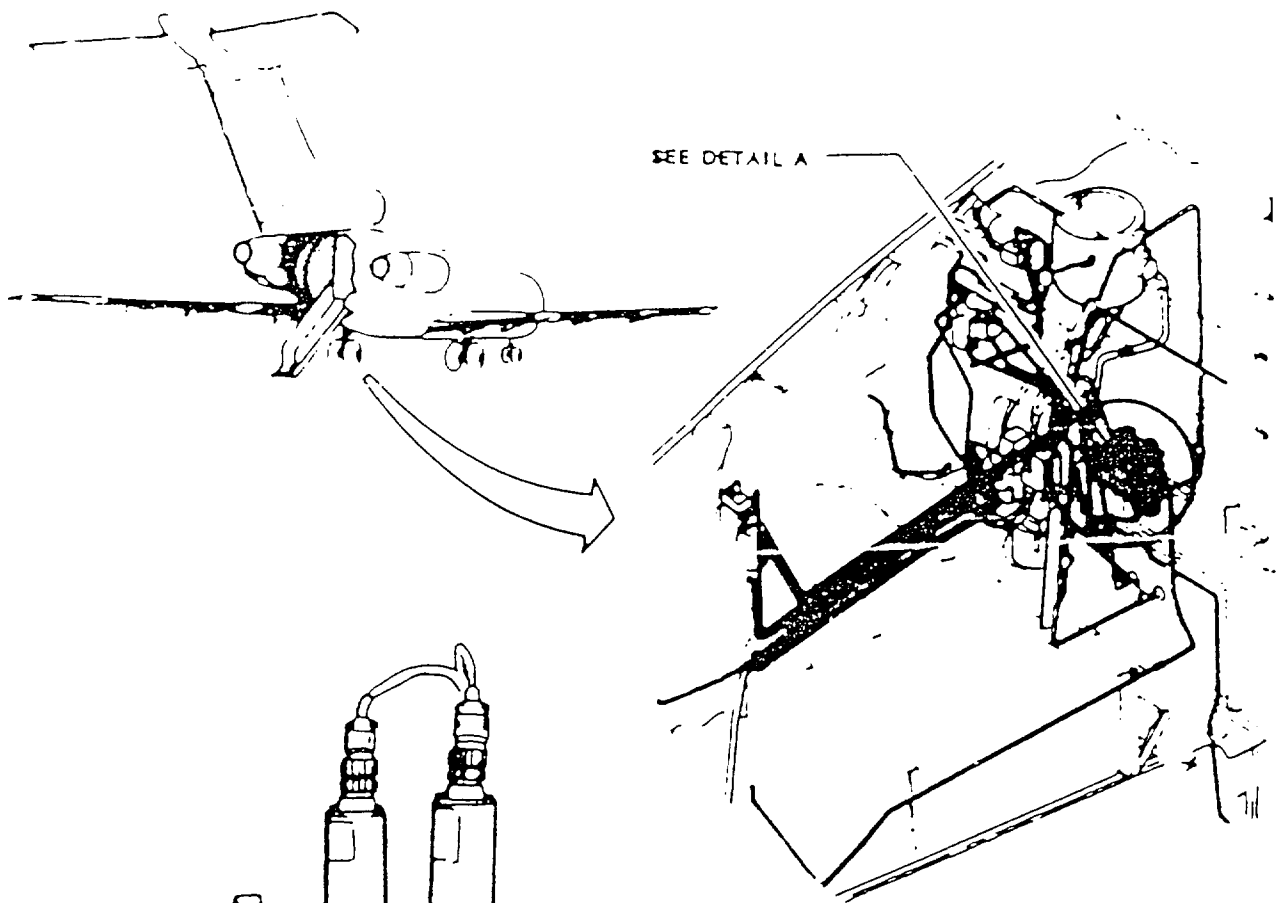
- A. Open aft stair well left side panel.
- B. Depressurize hydraulic system A. See 29-11-0, "Hydraulic System A - Maintenance Practices."
- C. Unscrew pressure relief valve (figure 401) and install protective cover over relief valve cavity.

#### 3. Install System A Pressure Relief Valve

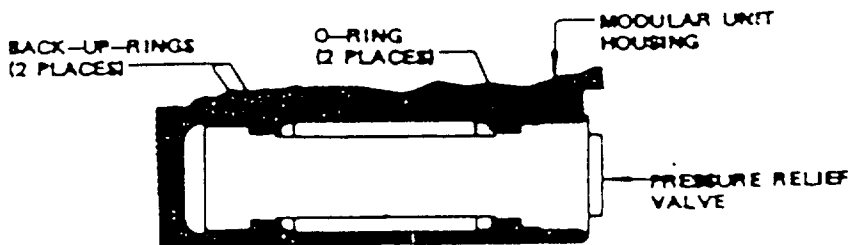
- A. Insert back-up ring, O-ring and back-up ring in each relief valve groove. (See figure 401.)
- B. Screw relief valve into modular housing and apply a torque of 50 to 200 inch-pounds to relief valve.
- C. Pressurize hydraulic system A. See 29-11-0, "Hydraulic System A - Maintenance Practices."
- D. Check relief valve for leaks.
- E. Secure relief valve with lockwire.
- F. Close access panel.



# MAINTENANCE MANUAL



DETAIL A



DETAIL B

System A Pressure Relief Valve Installation  
Figure 401



MAINTENANCE MANUAL  
SYSTEM A CHECK VALVE - REMOVAL/INSTALLATION

1. General

- A. A container will be necessary to catch hydraulic fluid when removing check valves. Take necessary precautions to prevent spillage of fluid, should any fluid spill on the airplane, decontaminate. (Ref Chapter 12, Cleaning and Washing).

2. Equipment and Materials

- A. Skydrol Assembly Lube - MCS 352 (Ref 20-60-2)
- B. Hydraulic Fluid - BMS-311 (Ref 20-60-2).

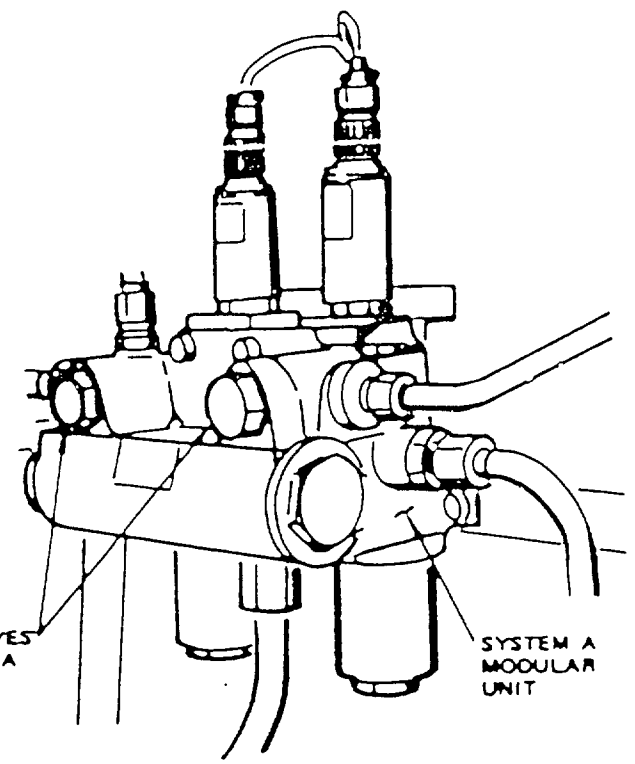
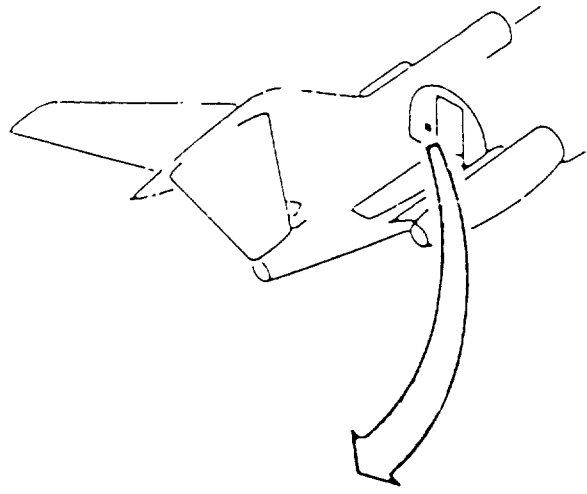
3. Remove System A Check Valve

- A. Depressurize hydraulic system A (Ref 29-11-0 MP).
- B. Unscrew and remove check valve from modular unit.
- C. Install protective cover over check valve cavity in modular unit.

4. Install System A Check Valve

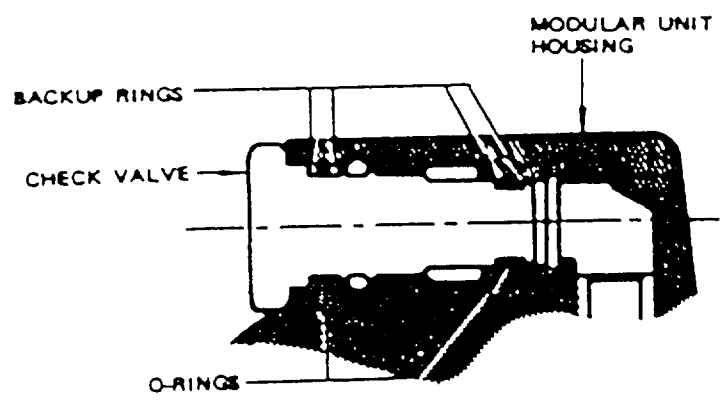
- A. Install back-up rings and O-rings on check valve (Fig. 401).
- B. Lightly coat threads and O-rings on valve with assembly lube or hydraulic fluid.
- C. Remove protective cover and screw check valve into modular housing.
- D. On airplanes with 10-60491-2 check valves, tighten valve 350 to 375 pound-inches.
- E. On airplanes with 10-60491-3 check valves, check tighten valve 200 to 250 pound-inches.
- F. Pressurize hydraulic system A (Ref 29-11-0 MP).
- G. Examine check valve for leakage.
- H. Secure check valve with lockwire.
- I. Close access door.





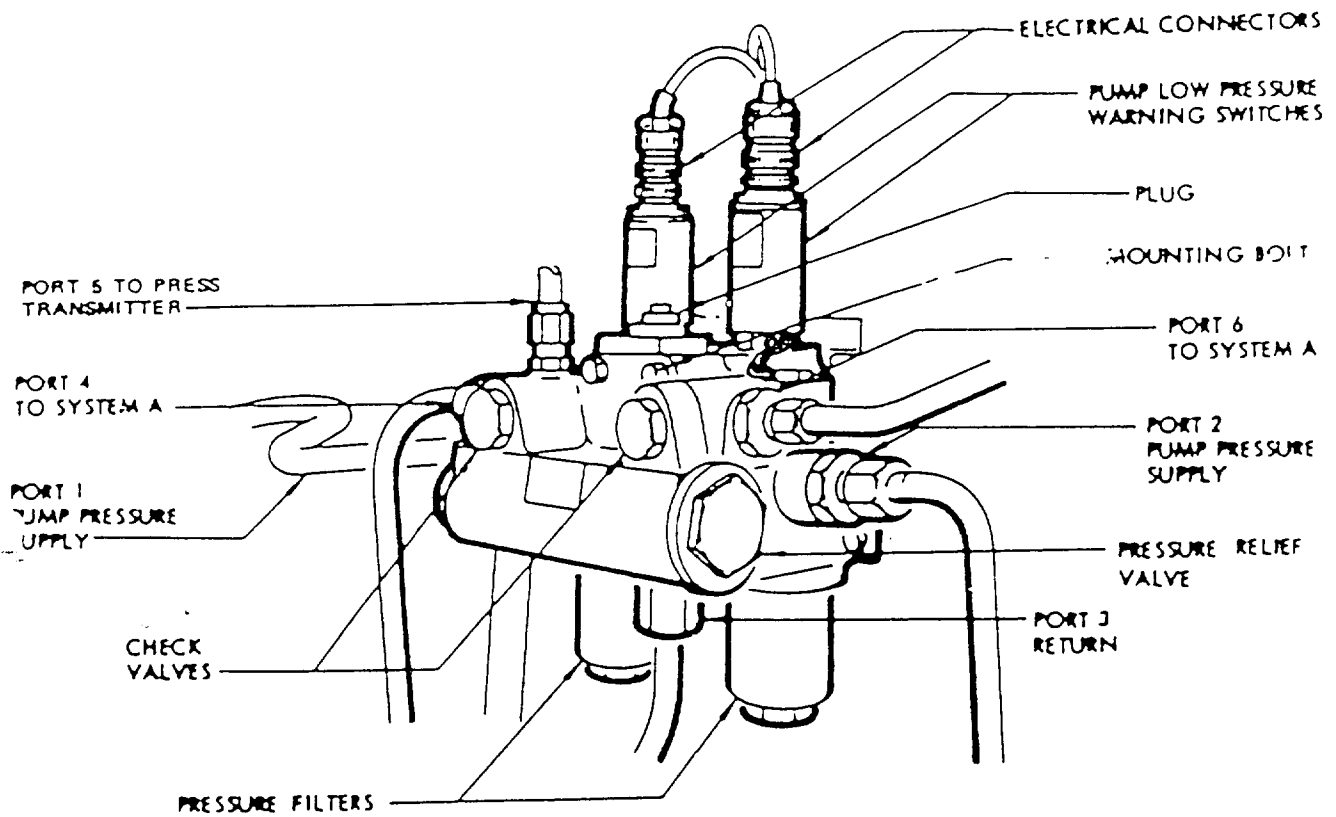
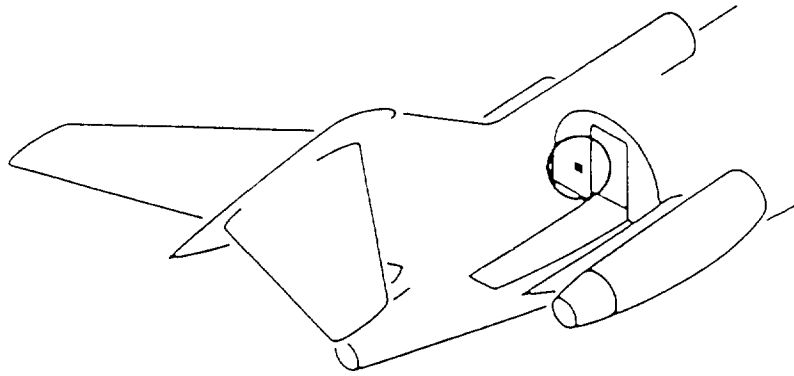
CHECK VALVES  
SEE DETAIL A

SYSTEM A  
MODULAR  
UNIT



DETAIL A

Check Valve Installation  
Figure 401



System A Modular Unit Installation  
Figure 401



## MAINTENANCE MANUAL

### HYDRAULIC - SERVICING

#### 1. Service Hydraulic Reservoirs

##### A. General

- (1) The A, B and standby system hydraulic reservoirs are serviced in one operation. Reservoir servicing may be accomplished with the systems pressurized or depressurized. Should any fluid spill on the airplane, decontaminate (Ref 12-40-0, Cleaning and Washing).

##### B. Service A, B and Standby System Reservoirs (Fig. 201)

WARNING: FIRE-RESISTANT HYDRAULIC FLUIDS CONFORMING TO BMS 3-11 MAY CAUSE SKIN IRRITATION. AVOID PROLONGED OR REPEATED CONTACT WITH THE SKIN. IN CASE OF EYE CONTACT, FLUSH THE EYES WITH WATER AND OBTAIN MEDICAL AID. IN CASE OF INGESTION, OBTAIN MEDICAL AID.

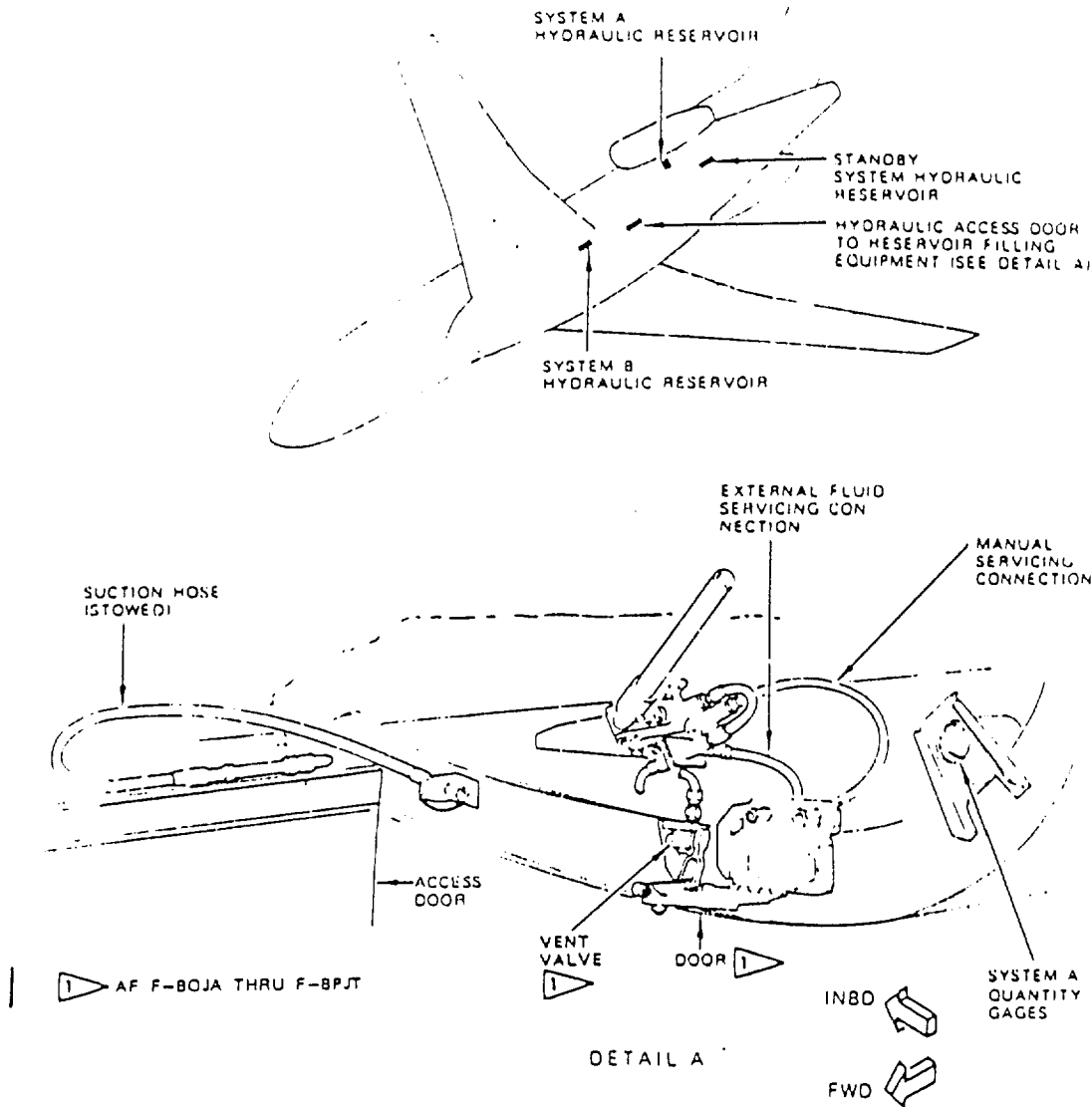
CAUTION: WHEN SERVICING HYDRAULIC RESERVOIRS MAKE SURE THAT SERVICE EQUIPMENT IS CLEAN, AND THAT CLEAN FIRE-RESISTANT HYDRAULIC FLUID, BMS 3-11, IS USED.

- (1) On airplanes with vent valve, open door covering hydraulic fill connections.

WARNING: RESERVOIR PRESSURE IS VENTED THROUGH OVERFLOW VALVE. OPEN DOOR SLOWLY TO PREVENT ANY FLUID TRAPPED IN OVERFLOW LINE FROM SPLASHING ONTO PERSONNEL AND PLACE SUITABLE CONTAINER UNDER OVERFLOW VALVE TO CATCH FLUID.

- (2) On airplanes with vent valve, (See Fig. 201 for effectivity) check that door is detented in open position.

**MAINTENANCE MANUAL**



	HYDRAULIC RESERVOIR FLUID CAPACITY DATA		
	U.S. GALLONS	IMPERIAL GALLONS	LITERS
SYSTEM A	4.9	4.1	18.5
SYSTEM B	3.13	2.6	11.8



MAINTENANCE MANUAL

- (3) If hand pump is to be used, remove suction hose from clips, remove cap if installed and attach hose to manual servicing connection.
- (4) Place end of suction hose in hydraulic fluid container.
- (5) If pressure cart is to be used, connect service cart hose to ground filling port.
- (6) Fill reservoir.
  - (a) On airplanes with vent valve, reservoir is full when fluid begins to vent from valve. Precautions should be taken to catch fluid.
  - (b) On airplanes without vent valve, add fluid until system A gage at fill station indicates FULL.

CAUTION: OVER FILLING RESERVOIR WITHOUT VENT VALVE MAY FORCE FLUID THROUGH RESERVOIR PRESSURIZATION SYSTEM TO ENGINE BLEED, CAUSING SMOKE AND ODORS IN CABIN.

NOTE: If output pressure of service cart is less than cracking pressure of reservoir regulator relief valve, depressurize reservoir at reservoir charging valve located inside access door 3901.

- (7) Remove and stow servicing equipment.
- (8) Close door over fill connections.
- (9) On airplanes with vent valve, pressurize hydraulic reservoirs.