STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-R01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	W/B FAIRING				003	APR 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	SYSTEM C AIR DRIVEN PUMP		NOTE	ALL

ZONES	ACCESS PANELS
195	1004 195RL 195SL NOTE

MECH	INSP	MPD ITEM NUMBER

REPLACE THE SYSTEM C AIR DRIVEN PUMP. 29-11-03-4A

AIRPLANE NOTE: THIS TASK IS APPLICABLE TO ALL AIRPLANE MODELS EXCEPT THE 767-400ER.

ACCESS NOTE: SPECIAL ACCESS 1004 REQUIRES ACCESSING THE LANDING GEAR THROUGH THE WHEEL WELL DOORS PER MM REF 32-00-15.

THIS CARD IS NOT A SCHEDULED MAINTENANCE TASK. IT IS A COMPONENT CHANGE CARD AND IT IS PROVIDED FOR OPERATOR CONVENIENCE DURING UNSCHEDULED MAINTENANCE ACTIVITIES. SEE APPENDIX A OF THE 767 MAINTENANCE PLANNING DATA (MPD) DOCUMENT, D622T001, FOR A DESCRIPTION OF THE COMPONENT CHANGE CARDS.

1. Remove the ADP for the Center Hydraulic System

A. Equipment

(1) General Boom Hoist - A20001-79 (Recommended)

(2) Hoist Adapter - A29001-1

B. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

(2) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(3) AMM 29-11-00/501, Main (Left, Right and Center) Hydraulic Systems

(4) AMM 32-00-15/201, Main Gear Door Locks

(5) AMM 36-00-00/201, Pneumatic - General

MECH | INSP

C. Remove the ADP (Fig. 402)

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Open the door for the right wheel well and install a door lock (AMM 32-00-15/201).

(2) Remove the pressure from the center hydraulic system and reservoir (AMM 29-11-00/201).

(3) Remove the pneumatic power (AMM 36-00-00/201).

(4) Open this circuit breaker on the overhead panel, P11, and install a DO-NOT-CLOSE tag:

(a) 11D31, HYDRAULIC AIR PUMP

(5) At the aft, left wing-body fairing, open the ADP access panel, 195SL (AMM 06-41-00/201).

(6) Disconnect the air pressure line (8) from the ADP modulating valve (5) (Fig. 401).

(7) Disconnect the electrical connector (9).

(a) To prevent inadvertent damage, disconnect the wire bundles and clamps that are connected to the ADP and tubing.

1) Inspect the ADP wiring for external chafing as recommended in Service Letter 767-SL-29-28-A.

(8) Remove the nuts (7), the screws (5), and the washers (6) that connect the bonding jumper assemblies (3) to the ADP.

(9) Loosen the clamp (13) on the air inlet side of the ADP and remove the clamp (13).

(10) Loosen the clamp (4) on the exhaust duct (3) and slide the clamp (4) to one side.

MECH | INSP

(11) Disconnect the self-seal fittings (7) at the ADP and install caps on the ADP ports.

NOTE: To prevent fluid loss, do not disconnect the hydraulic lines (10, 11, 12) from the self-seal fittings (7). Disconnect the self-seal fittings only where they attach to the unions on the ADP. Do not disconnect the fittings at the B-nut near the hydraulic line.

(12) Install the hoist with the adapter under the ADP.

NOTE: The ADP weighs approximately 110 pounds.

(13) Use a strap to hold the ADP (8) to the hoist adapter (Fig. 402).

(14) Move the hoist up a small distance to remove the weight of the ADP from the mounting bolts.

(15) At the bottom aft attachment,
remove the two screws (17) from the bolt head retainer (19) and remove the retainer (19).

(16) At the top and bottom aft attachments,
remove the bolt (21), nut (9), washers (10), and bushings (12, 20).

NOTE: Identify the bolts (21), nuts (9), washers (10), and bushings (12, 20) for the installation procedure.

(17) Remove the two bolts (14), washers (15), and plate assembly (16) at the top aft attachment.

(18) Lower the ADP a small distance to get better access to the forward attachment.

(19) At the forward attachment,
remove the bolt (13), nut (9), washers (10), and bushings (11, 12).

(20) Lower the ADP away from the airplane and remove it from the hoist.

(21) Install plugs in the ADP ports.

2. Install the ADP for the Center Hydraulic System

MECH | INSP

A. Equipment

(1) General Boom Hoist - A20001-79 (Recommended)

(2) Hoist Adapter - A29001-1

(3) Bonding Meter

B. Consumable Materials

(1) D00633 Grease - BMS 3-33 (Preferred)

(2) D00013 Grease - MIL-PRF-23827 (Supersedes MIL-G-23827) (Alternate)

(3) D00015 Grease - BMS 3-24 (Alternate)

(4) A00247 Sealant - BMS 5-95

(5) B00316 Solvent - Aliphatic Naphtha

(6) G00034 Cotton Wiper - Cheesecloth BMS 15-5

C. Parts

AMM		NOMENCLATURE	AIPC		
FIG	ITEM		SUBJECT	FIG	ITEM
401	6	Pump Assembly	29-11-03	01	240
	13	Clamp	36-11-01	60	140
402	3	Jumper Assembly	29-11-03	01	4
	5	Screw			12
	6	Washer			14
	7	Nut			16
	9	Nut			80
	10	Washer			75,78
	11	Bushing			95
	12	Bushing			85
	13	Bolt			60
	14	Bolt			53
	15	Washer			65
	16	Plate Assembly			100
	17	Screw			54
	18	Washer			70
	19	Retainer			110
	20	Bushing			90
	21	Bolt			55
	22	Washer			68
	24	Washers			73

D. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

(2) AMM 12-12-01/301, Hydraulic Systems

(3) AMM 12-13-05/301, Air Driven Pump

(4) AMM 12-25-01/301, Exterior Cleaning

(5) AMM 20-10-21/601, Electrical Bonding

(6) AMM 20-10-22/701, Metal Surfaces -Cleaning/Painting

(7) AMM 24-22-00/201, Electrical Power - Control

(8) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

MECH | INSP

(9) AMM 29-11-00/501, main (Left, Right and Center) Hydraulic Systems

(10) AMM 32-00-15/201, Main Gear Door Locks

(11) AMM 36-00-00/201, Pneumatic - General

E. Install the ADP (Fig. 402)

(1) Put the ADP on the lift adapter of the hoist.

(2) Use a strap to hold the ADP to the hoist adapter (Fig. 402).

(3) Move the ADP into the mounting position with the hoist.

(4) Apply a thin layer of grease to all mating surfaces of the bolt (13) and bushings (11, 12).

(5) Install the bushing (12) with grease.

(6) At the forward attachment, put the bushings (11, 12) and washers (10, 22) in the correct position.

(7) Install washers (24) to get the gap shown.

(8) Insert a bolt (13) and tighten the nut (9) to 95-135 pound-inches more than the torque necessary to turn the nut on the bolt.

(9) Adjust the hoist to align the ADP to the top and bottom aft attachments.

(10) At the top aft attachment, install the plate assembly (16) with two washers (15) and bolts (14) and install new safety wire (AMM 20-10-23/401).

(11) Apply a thin layer of grease to all mating surfaces of the bolt (21) and bushings (12, 20).

(12) Install a bushing (12) with grease.

(13) At the top and bottom aft attachments, put the bushings (12, 20) and washers (10, 22) in the correct position.

(14) Install washers (24) to get the gap shown.

MECH | INSP

(15) Insert a bolt (21) and tighten the nut (9) to 95-135 pound-inches more than the torque necessary to turn the nut on the bolt.

(16) Apply a fillet seal at the head end of the bolts (13, 21).

(17) At the bottom aft attachment, put the bolt retainer (19) in its position and install with washers (18) and screws (17) and install new safety wire (AMM 20-10-23/401).

(18) Remove the strap that holds the ADP to the hoist adapter and remove the hoist.

(19) Connect the self-seal fittings (7), to the ADP (6) (Fig. 401).

(a) Torque the pressure line self-seal fitting (11) to the ADP (6) 500-700 pound-inches.

(b) Torque the supply line self-seal fitting (12) to the ADP (6) 400-500 pound-inches.

(c) Torque the case drain line self-seal fitting (10) to the ADP (6) 250-300 pound inches.

CAUTION: QUICKLY CLEAN THE INSTALLATION AREA OF ALL HYDRAULIC FLUID. HYDRAULIC FLUID CAN CAUSE DAMAGE TO THE AIRPLANE EQUIPMENT.

(20) Clean all hydraulic fluid from the installation area (AMM 12-25-01/301).

(21) Connect the air pressure line (8) to the ADP modulating valve (5).

(22) To connect the bonding jumpers to the ADP, do these steps:

(a) Use the solvent and the cheesecloth to clean and dry the bonding surfaces (AMM 20-10-22/701).

NOTE: The bonding surfaces must be clean and dry to provide a good electrical ground path.

(b) Install the washers (6), the screws (5), and the nuts (7) that connect the bonding jumpers to the ADP.

MECH | INSP

(c) Use the bonding meter to measure the resistance between each bonding jumper terminal and the ADP near the bonding jumper connection. (AMM 20-10-21/601).

NOTE: If necessary, you can remove a small area of the surface finish to make the measurement.

(d) If the resistance is greater than 0.0025 ohms, then disassemble the bonding jumper connection, repeat the cleaning and assembly steps, and measure the resistance again.

(e) If you removed some of the surface finish from the ADP, then repair the surface finish.

(23) Connect the electrical connector (9) to the modulating valve (5).

(a) Reconnect the wire bundles and clamps to the ADP and tubing.

1) Reroute ADP wiring to prevent external chafing as recommended in Service Letter 767-SL-29-28-A. Make sure to keep wires at least 0.5-inch from the ADP assembly and supporting structure.

(24) Put the exhaust duct (3) in its position and install the clamp (4).

(25) Move the inlet duct clamp (13) to the inlet joint and tighten the clamp (13).

(26) Examine the oil level in the ADP gearbox and add oil if it is necessary (AMM 12-13-05/301).

(27) Do the servicing steps to the reservoir for the center hydraulic system (AMM 12-12-01/301).

(28) Pressurize the reservoir for the center hydraulic system (AMM 29-11-00/201).

(29) Supply electrical power (AMM 24-22-00/201).

(30) Supply pneumatic power (AMM 36-00-00/201).

(31) Do the ADP Overspeed Shutdown Test (AMM 29-11-00/501).

NOTE: If the ADP does not operate, reset the ADP TEST/RESET switch (AMM 29-11-00/501).

MECH	INSP

(32) Make sure there are no leaks at the hydraulic connections to the ADP.

(33) Put the C DEMAND HYD PUMPS AIR switch, on the hydraulic control panel, in the AUTO position.

(34) Make sure the slats and flaps are in the fully retracted (zero degree) position.

(35) Make sure the speed brakes are stowed.

(36) Make sure the L, R, and C AIR SUPPLY ISLN valves are open.

(37) Make sure air conditioning packs, cargo heat, and anti-ice are off.

WARNING: SLATS AND FLAPS WILL EXTEND WHEN THE FLAP HANDLE IS REPOSITIONED. TO AVOID INJURY TO PERSONNEL, MAKE SURE THE SLAT AND FLAP AREAS ARE CLEAR BEFORE MOVING THE FLAP HANDLE.

(38) Put the FLAP handle to the 5-30 position, on the P10 control stand.

(39) Make sure system pressure remains above 2500 psi throughout flap motion.

NOTE: A momentary pressure drop does not indicate test failure.

(40) Put the FLAP handle in the zero (FLAPS UP) detent position.

(41) Put the C DEMAND HYD PUMPS AIR switch, on the hydraulic control panel, to the OFF position.

(42) Make sure the PRESS light for the ADP, on the hydrualic control panel, is illuminated for 1 to 3 seconds after the ADP switch is placed in the OFF position.

(43) Make sure the C HYD PRESS indication on EICAS ELEC/HYD display reads 0 to 160 psi.

(44) If you replaced the ADP because of a mechanical failure or other condition which could add contamination, you must flush the hydraulic system (AMM 29-11-00/201).

MECH	INSP

CAUTION: QUICKLY CLEAN THE INSTALLATION AREA OF ALL HYDRAULIC FLUID. HYDRAULIC FLUID CAN CAUSE DAMAGE TO THE AIRPLANE EQUIPMENT.

(45) Clean all hydraulic fluid from the installation area (AMM 12-25-01/301).

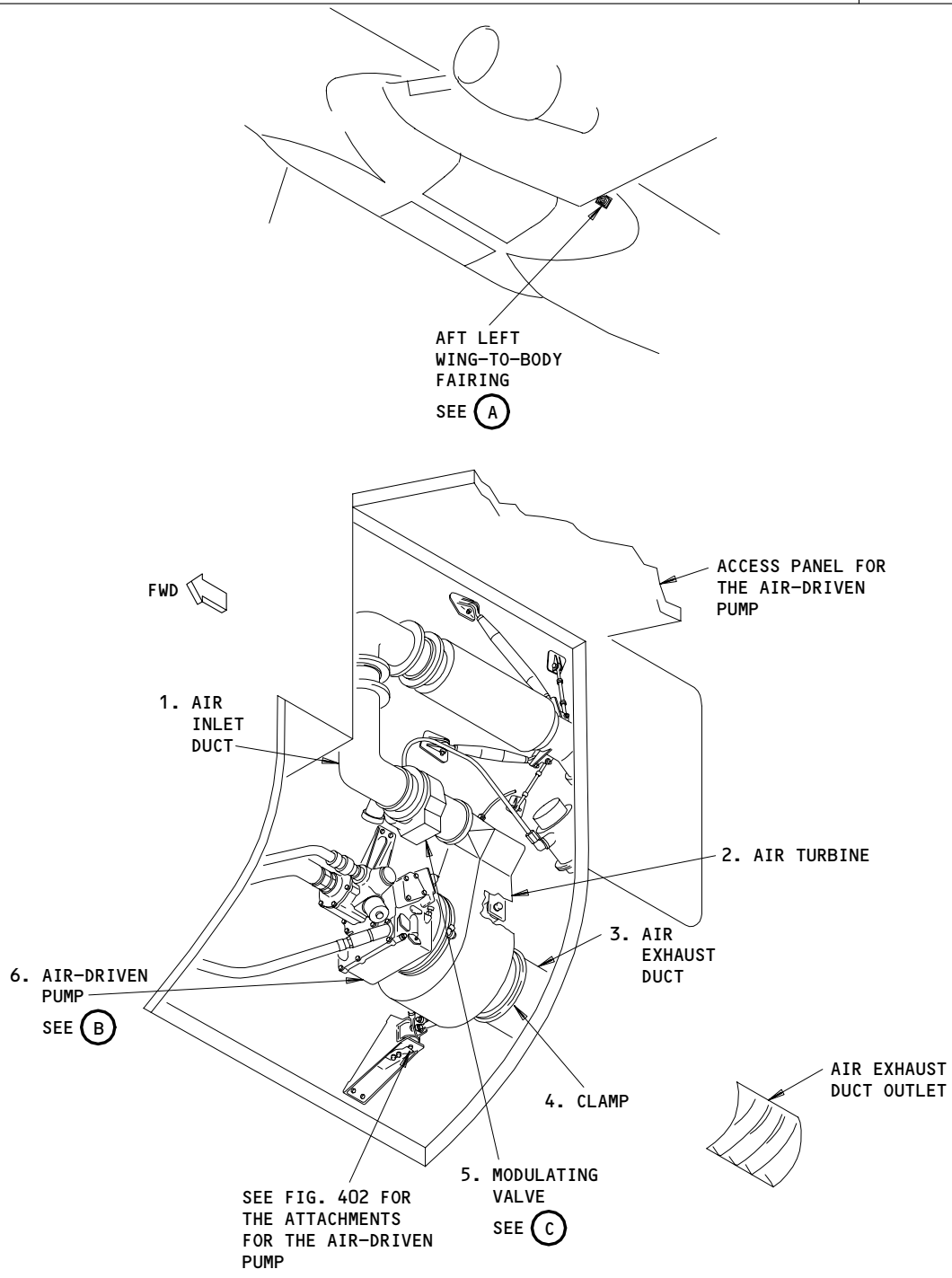
(46) Close the ADP access panel, 195SL, at the aft, left wing-body fairing (AMM 06-41-00/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(47) Remove the door lock for the landing gear door and close the door for the right wheel well (AMM 32-00-15/201).

(48) Remove the electrical power if it is not necessary (AMM 24-22-00/201).

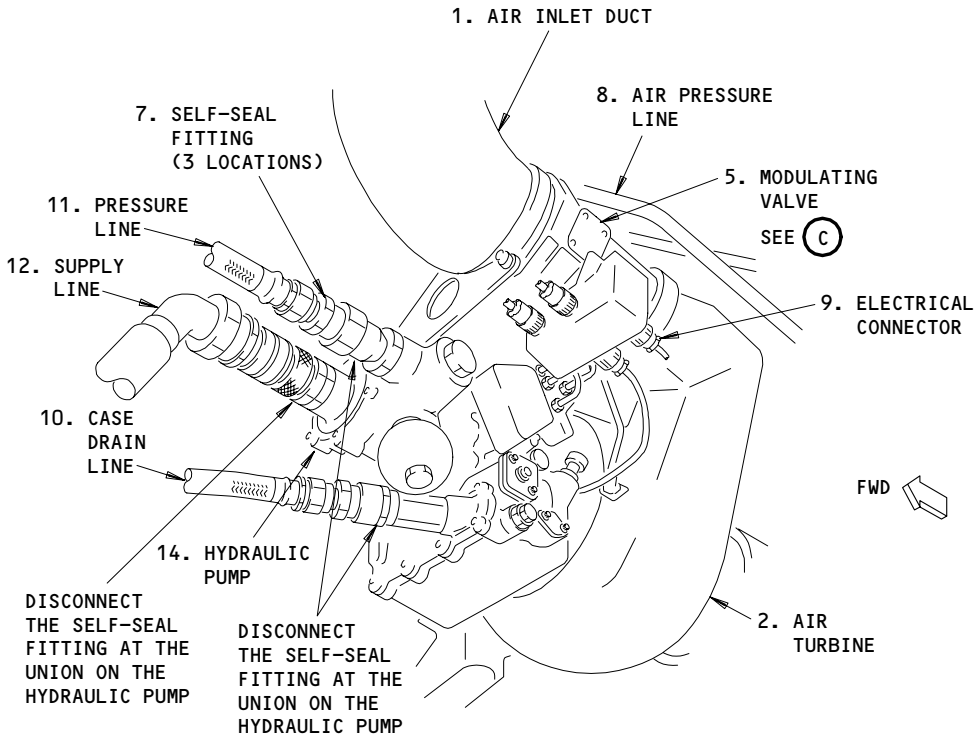
(49) Remove the pneumatic power if it is not necessary (AMM 36-00-00/201).



AFT LEFT WING-TO-BODY FAIRING

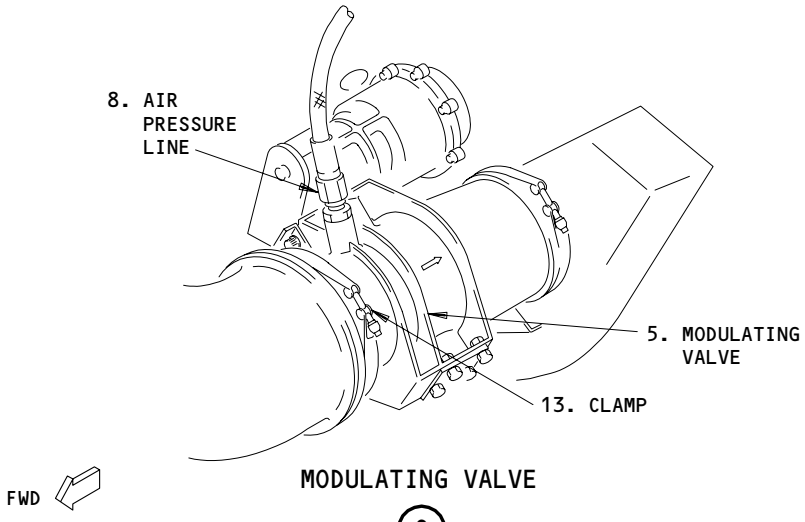
(A)

Air-Driven Pump (ADP) Installation
Figure 401 (Sheet 1)



AIR-DRIVEN PUMP

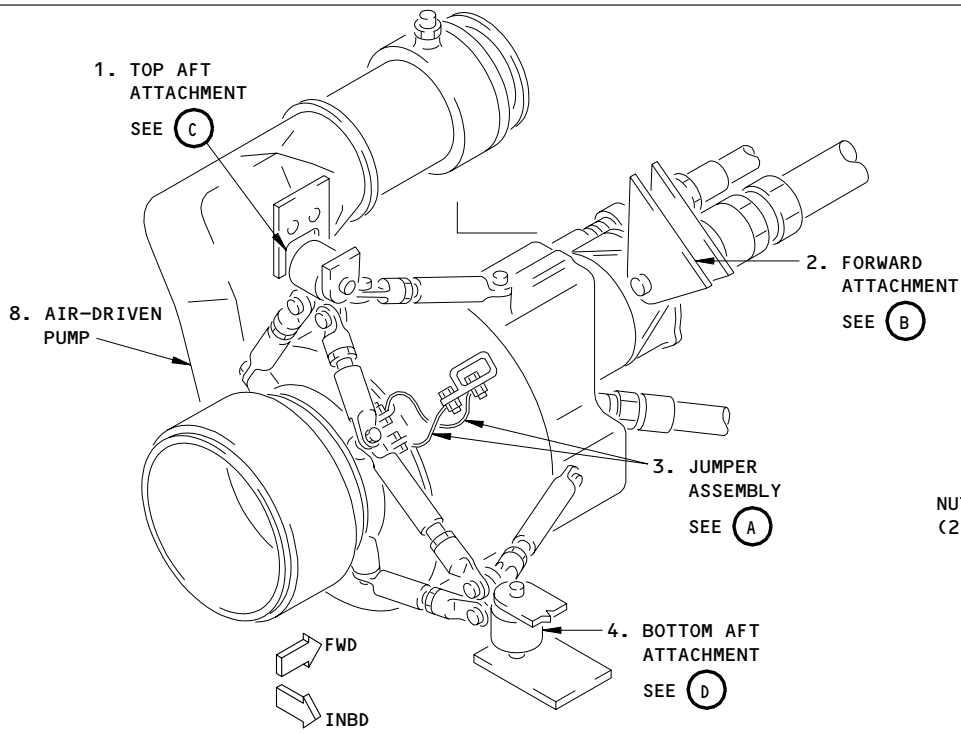
B



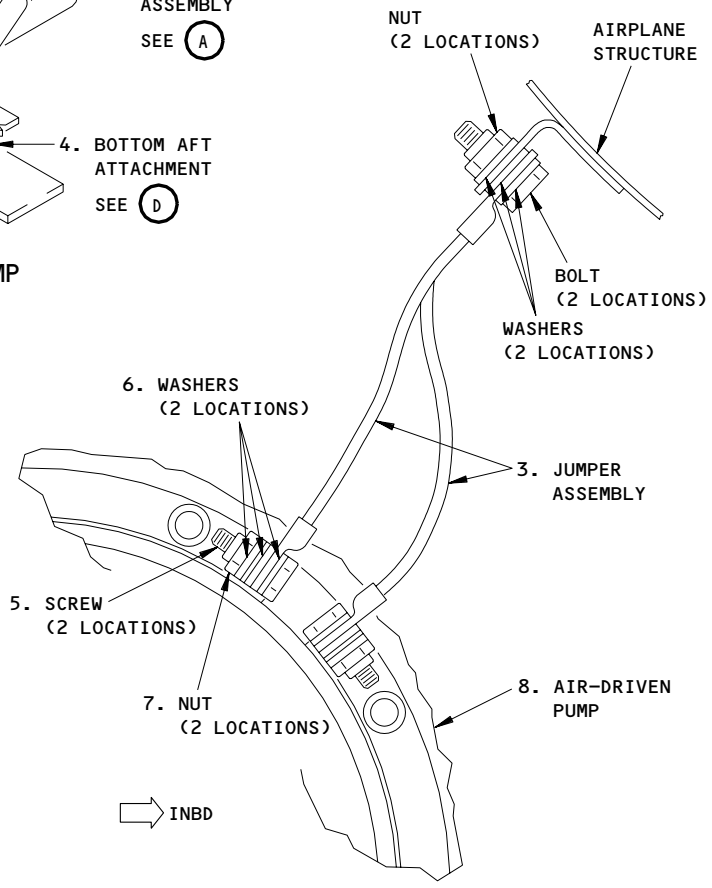
MODULATING VALVE

C

Air-Driven Pump (ADP) Installation
Figure 401 (Sheet 2)

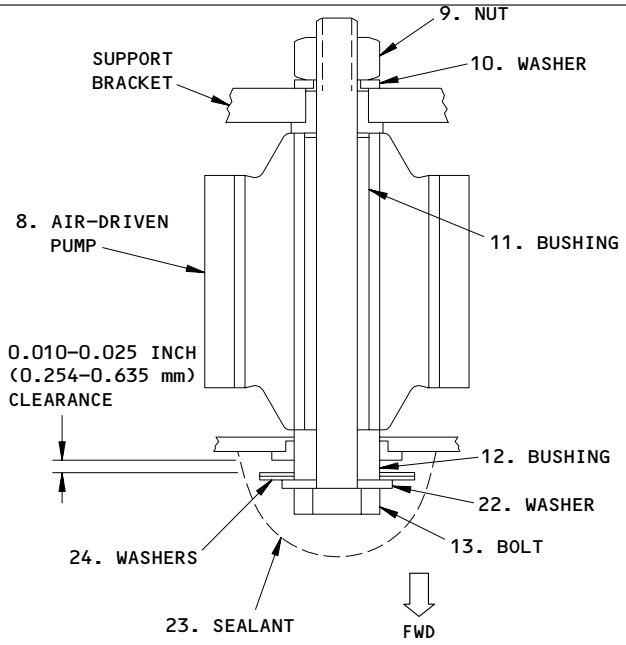


AIR-DRIVEN PUMP



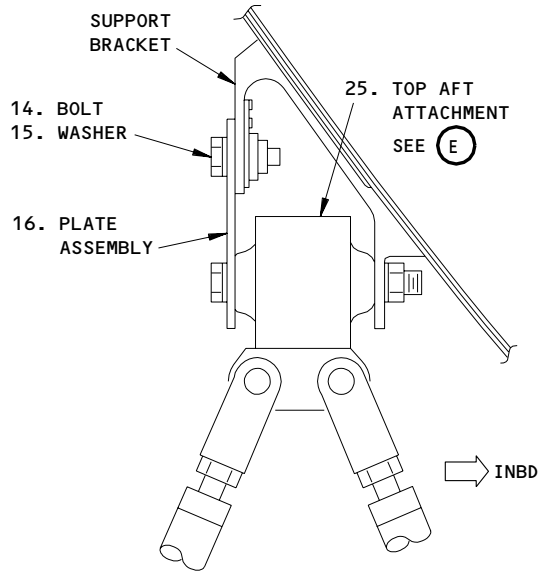
JUMPER ASSEMBLY
(VIEW IN THE FORWARD DIRECTION)
A

Air-Driven Pump (ADP) Attachments
Figure 402 (Sheet 1)



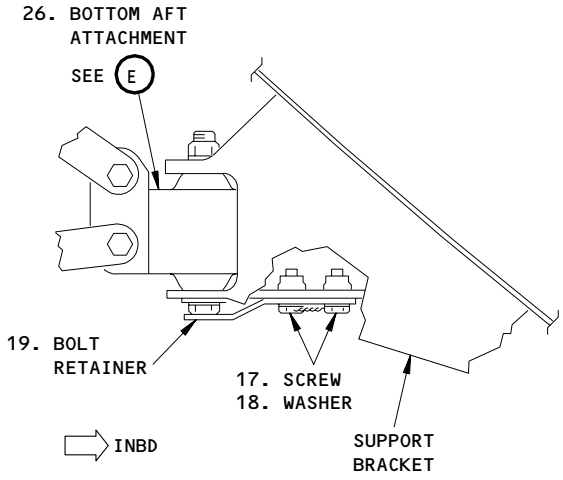
FORWARD ATTACHMENT

B



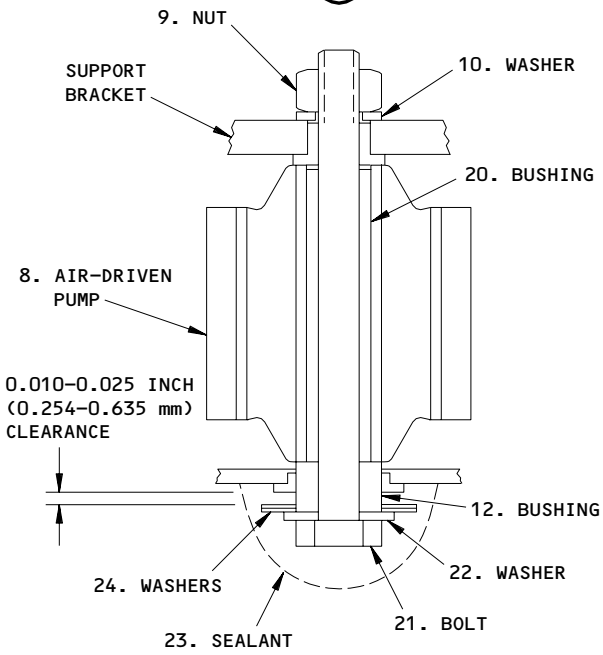
TOP AFT ATTACHMENT

C



BOTTOM AFT ATTACHMENT

D



TOP AND BOTTOM AFT ATTACHMENT

E

Air-Driven Pump (ADP) Attachments
Figure 402 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-R02
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ENGIN	ENGIN/STRUT				003	AUG 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	ENGINE DRIVEN HYDRAULIC PUMP (EDP)		ALL	ALL

ZONES	ACCESS PANELS
410 420	414AR 416AR 418AR 424AR 426AR 428AR

MECH	INSP	MPD ITEM NUMBER

REPLACE THE ENGINE-DRIVEN HYDRAULIC PUMP (EDP). 29-11-05-4A

THIS CARD IS NOT A SCHEDULED MAINTENANCE TASK. IT IS A COMPONENT CHANGE CARD AND IT IS PROVIDED FOR OPERATOR CONVENIENCE DURING UNSCHEDULED MAINTENANCE ACTIVITIES. SEE APPENDIX A OF THE 767 MAINTENANCE PLANNING DATA (MPD) DOCUMENT,D622T001, FOR A DESCRIPTION OF THE COMPONENT CHANGE CARDS.

1. Remove the Engine-Driven Pump (EDP) (Fig. 401)

A. Equipment

(1) Container (for hydraulic fluid), 1-gallon capacity - Commercially Available

B. References

(1) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(2) AMM 71-11-04/201, Fan Cowl Panels

(3) AMM 71-11-06/201, Core Cowl Panels

(4) AMM 78-31-00/201, Thrust Reverser System

C. Procedure

(1) Remove the pressure from the left and right hydraulic systems and reservoirs (AMM 29-11-00/201).

(2) Open these circuit breakers on the overhead panel, P11, and attach DO-NOT-CLOSE tags:

(a) 11L14, HYDRAULIC L ENG PUMP DEPRESS

MECH	INSP

(b) 11L23, HYDRAULIC R ENG PUMP DEPRESS

(3) Open the fan cowl panels (AMM 71-11-04/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(5) Open the core cowl panels (AMM 71-11-06/201).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU OPEN THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Open the thrust reverser (AMM 78-31-00/201).

(7) Disconnect the electrical connector (9) from the depressurization valve (8).

(8) Hold a container below the pump (4) to catch the hydraulic fluid if it drains from the pump hydraulic connections.

CAUTION: BE CAREFUL WHEN YOU DISCONNECT THE SUPPLY HOSE TO PREVENT KINKS AND A CLOSED HOSE. DO NOT COIL THE HOSE. A CLOSED HOSE CAN CAUSE FAILURE OF THE PUMP.

(9) AIRPLANES WITHOUT A RIPPLE DAMPER;

Disconnect the check valve (11) from the adapter (21) on the pump (4).

(10) AIRPLANES WITH A RIPPLE DAMPER;

Disconnect the check valve (11) from the ripple damper (28) on the pump.

MECH | INSP

NOTE: Do not disconnect the hydraulic hoses (1, 2, 3) from the check valves (11, 13) or the self-seal fitting (10). If you disconnect these hoses, hydraulic fluid can drain from the hoses.

(11) Disconnect the self-seal fitting (10) from the elbow (27) on the pump (4).

(12) Disconnect the case drain hose (3) from the adapter (17) on the pump (4).

CAUTION: DO NOT LET THE HYDRAULIC FLUID FLOW INTO THE GEARBOX. CONTAMINATION BY HYDRAULIC FLUID CAN CAUSE DAMAGE TO THE GEARBOX.

(13) Loosen the four nuts (7) which attach the pump (4) to the engine gearbox approximately three turns.

NOTE: If you must loosen the nuts (7) more than three turns, hit the shell of the nut to release the self-locking property of the nut.

(14) Turn the pump (4) clockwise until the nuts (7) can go through the larger ends of the slots on the pump.

(15) Remove the pump (4) from the engine gearbox.

(16) Remove the elbow (27) at the supply port of pump (4).

(17) AIRPLANES WITH A RIPPLE DAMPER;

Remove the ripple damper (28) from the pressure port of the pump (4).

(18) AIRPLANES WITHOUT A RIPPLE DAMPER;

Remove the adapter (21) from the pressure port of the pump (4).

(19) Remove the union (15) from the supply port on the pump (4).

(20) Remove the adapter (17) at the case drain port of the pump (4).

2. Install the Engine-Driven Pump (EDP) (Fig. 401)

A. Consumable Materials

(1) D00148 Hydraulic Fluid, BMS3-11, Type IV, Class I

(2) Engine Lubricating Oil:

(a) D00071 Lubricating Oil - MIL-L-7808

(b) D00068 Lubricating Oil - MIL-L-23699

B. Parts

AMM			AIPC		
FIG	ITEM	NOMENCLATURE	SUBJECT	FIG	ITEM
401	4	Pump	29-11-05	02	75
	5	Gasket			10
	6	Packing			40
	15	Union			20
	16	Packing (O-Ring)			35
	17	Adapter			25
	18	Packing (O-Ring)			45
	19	Ring			65
	20	Packing (O-Ring)			50
	21	Adapter			30
	22	Packing (O-Ring)			55
	23	Ring			70
	24	Packing (O-Ring)			60
	27	Elbow	29-11-51	25	110
	28	Dampener	29-11-05	02	120
	29	Packing (O-Ring)			55
	30	Ring			70
	31	Packing (O-Ring)			60

C. References

(1) AMM 12-12-01/301, Hydraulic Systems

(2) AMM 12-25-01/301, Exterior Cleaning

(3) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(4) AMM 71-00-00/501, Power Plant - General

(5) AMM 71-11-04/201, Fan Cowl Panels

(6) AMM 71-11-06/201, Core Cowl Panels

(7) AMM 78-31-00/201, Thrust Reverser System,

D. Procedure

(1) Lubricate the components which follow with hydraulic lubricant or hydraulic fluid:

(a) AIRPLANES WITHOUT A RIPPLE DAMPER;

O-rings (16, 18, 20, 22, 24)

(b) AIRPLANES WITH A RIPPLE DAMPER;

O-rings (16, 18, 20, 29, 31)

(c) AIRPLANES WITHOUT A RIPPLE DAMPER;

Backup rings (19, 23)

(d) AIRPLANES WITH A RIPPLE DAMPER;

Backup rings (19, 30)

(e) The threads on the union (15)

(f) AIRPLANES WITHOUT A RIPPLE DAMPER;

The threads on the adapter (21)

(g) AIRPLANES WITH A RIPPLE DAMPER;

The threads on the ripple damper (28)

(2) Install the O-ring (16) on the union (15).

(3) AIRPLANES WITHOUT A RIPPLE DAMPER;

Install the O-rings (22, 24) and backup ring (23) on the adapter (21).

(4) AIRPLANES WITH A RIPPLE DAMPER;

MECH | INSP

Install the O-rings (29, 33) and backup ring (30) on the ripple damper (28).

(5) Install the O-rings (18, 20) and backup ring (19) on the adapter (17).

(6) Install the union (15) in the supply port of the pump (4). Tighten the union (15) to 855-945 pound-inches (95-106 N.-m.).

(7) AIRPLANES WITHOUT A RIPPLE DAMPER;

Install the adapter (21) in the pressure port of the pump (4). Tighten the adapter (21) to 713-787 pound-inches (79-88 N.-m.).

(8) AIRPLANES WITH A RIPPLE DAMPER;

Install the ripple damper (28) in the pressure port of the pump (4). Tighten the ripple damper (28) to 713-787 pound-inches (79-88 N.-m.)

(9) Install the elbow (27) on the union (15) in the supply port of the pump (4). Tighten the elbow (27) to 855-945 pound-inches (95-106 N.-m.).

(10) Lubricate the O-ring (6) with engine oil.

CAUTION: MAKE SURE YOU INSTALL THE O-RING ON THE PUMP DRIVE SPLINE. THE O-RING PREVENTS LEAKAGE OF OIL FROM THE ENGINE GEARBOX.

(11) Install a new O-ring (6) on the pump drive spline.

NOTE: Do not put grease on the pump drive shaft, the engine oil lubricates the drive shaft spline.

(12) Make sure the seal drain adjacent to the pump (4) on the engine gearbox is clear.

(13) If necessary, clean the seal drain on the engine gearbox.

(14) Lubricate the surfaces of the pump (4) and the engine gearbox with silicone grease.

NOTE: The grease will prevent a bond between the gasket (5) and the surfaces of the pump (4) and the engine gearbox.

MECH | INSP

(15) Make sure the gasket (5) is in good condition.

(16) If necessary, install a new gasket (5) on the engine gearbox.

(17) If the pump (4) is not filled with hydraulic fluid, add fluid through the case drain port.

(18) Put the pump (4) on the engine gearbox and carefully engage the pump drive shaft with the engine drive shaft.

(19) Turn the pump (4) to let the nuts (7) go through the larger ends of the slots on the pump.

(20) Turn the pump (4) counterclockwise until the small ends of the slots in the pump are hard against the studs on the engine gearbox.

(21) Tighten the nuts (7) to 260-320 pound-inches (29-36 N.-m).

CAUTION: DO A CHECK OF THE EDP SUPPLY HOSE FOR A KINKED OR CLOSED CONDITION. DAMAGE TO THE HOSE IS NOT EASY TO FIND BECAUSE OF THE SHEATHING WHICH COVERS THE HOSE. A KINKED OR CLOSED HOSE CAN CAUSE FAILURE OF THE EDP.

MAKE SURE THE SELF-SEAL FITTINGS ON THE HYDRAULIC HOSES ARE TIGHTENED CORRECTLY. FITTINGS WHICH DO NOT HAVE SUFFICIENT TORQUE CAN LIMIT THE FLOW OF HYDRAULIC FLUID.

(22) Do the steps that follow to connect the hydraulic hoses (1, 2, 3) to the pump (4).

CAUTION: MAKE SURE THAT THE HYDRAULIC HOSES DO NOT RUB ON THE ADJACENT ENGINE COMPONENTS. IF THE HOSES RUB ON THE ENGINE COMPONENTS, THE WEAR CAN CAUSE LEAKAGE OF HYDRAULIC FLUID.

(a) Put each hydraulic hose (1, 2, 3) in a position which gives the maximum clearance between the hoses and the adjacent engine components.

NOTE: Make sure the minimum clearance between the EDP hoses and the engine components is 0.50 inches.

(b) Hold the hydraulic hoses (1, 2, 3) in position until you tighten the hose fittings.

(c) Tighten the self-seal fitting (10) on the supply hose (2) to 855-945 pound-inches (95-106 N.-m.).

(d) Tighten the elbow on the case drain hose (3) to 266-294 pound-inches (29-33 N.-m.).

NOTE: When you replace the case drain line together with the case drain check valve, please make sure the case drain check valve is installed near the EDP connection so that the flow direction arrow shows the flow out of the EDP. Otherwise the case drain check valve installed in the wrong place can block the fluid flow in the case drain and cause the EDP fault.

(e) AIRPLANES WITH A RIPPLE DAMPER;

Tighten the elbow on the pressure hose (1) to 713-787 pound-inches (79-88 N.-m.)

(f) AIRPLANES WITHOUT A RIPPLE DAMPER;

Tighten the check valve (11) on the pressure hose (1) to 713-787 pound-inches (79-88 N.-m.).

(23) Connect the electrical connector (9) to the pump depressurization valve (8).

(24) Make sure the hydraulic reservoir is full (AMM 12-12-01/301).

(25) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the overhead panel, P11:

(a) 11L14, HYDRAULIC L ENG PUMP DEPRESS

(b) 11L23, HYDRAULIC R ENG PUMP DEPRESS

CAUTION: QUICKLY CLEAN ALL HYDRAULIC FLUID FROM THE GEARBOX SURFACES. HYDRAULIC FLUID CAN CAUSE DAMAGE TO THE ENGINE GEARBOX HOUSING.

(26) Clean all hydraulic fluid from the engine and the engine area (AMM 12-25-01/301).

MECH	INSP

(27) Run the engine (AMM 71-00-00/501).

(28) Make sure these circuit breakers on the P11 panel are closed:

(a) 11L9, LEFT ENGINE OIL PRESS
or LEFT ENGINE OIL PRESS EICAS REF

(b) 11L36, RIGHT ENGINE OIL PRESS
or RIGHT ENGINE OIL PRESS EICAS REF

(c) EICAS (6 locations)

(29) Push the ELEC/HYD switch on the EICAS maintenance panel (P61) to show the ELEC/HYD Maintenance page on the lower EICAS display unit (P2 panel).

(30) Make sure the hydraulic system becomes stable at 2800 to 3200 psi.

(31) Make sure there are no leaks at the hydraulic hose or engine gearbox connections to the pump (4).

(32) Push the L (R) PRIMARY HYD PUMPS ENG switch to the OFF position.

(33) Let the hydraulic system pressure decrease.

(34) Make sure the engine driven pump PRESS indicator light comes on.

(35) Push the L (R) PRIMARY HYD PUMPS ENG switch to the ON position.

(36) Make sure the hydraulic pressure becomes stable at 2800 to 3200 psi.

(37) Make sure the engine driven pump PRESS indicator light goes off.

(38) If operation is not necessary, stop engine run (AMM 71-00-00/501).

WARNING: OBEY THE INSTRUCTIONS IN AMM 78-31-00/201 WHEN YOU CLOSE THE THRUST REVERSERS. IF YOU DO NOT OBEY THE INSTRUCTIONS INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(39) Close the thrust reverser (AMM 78-31-00/201).

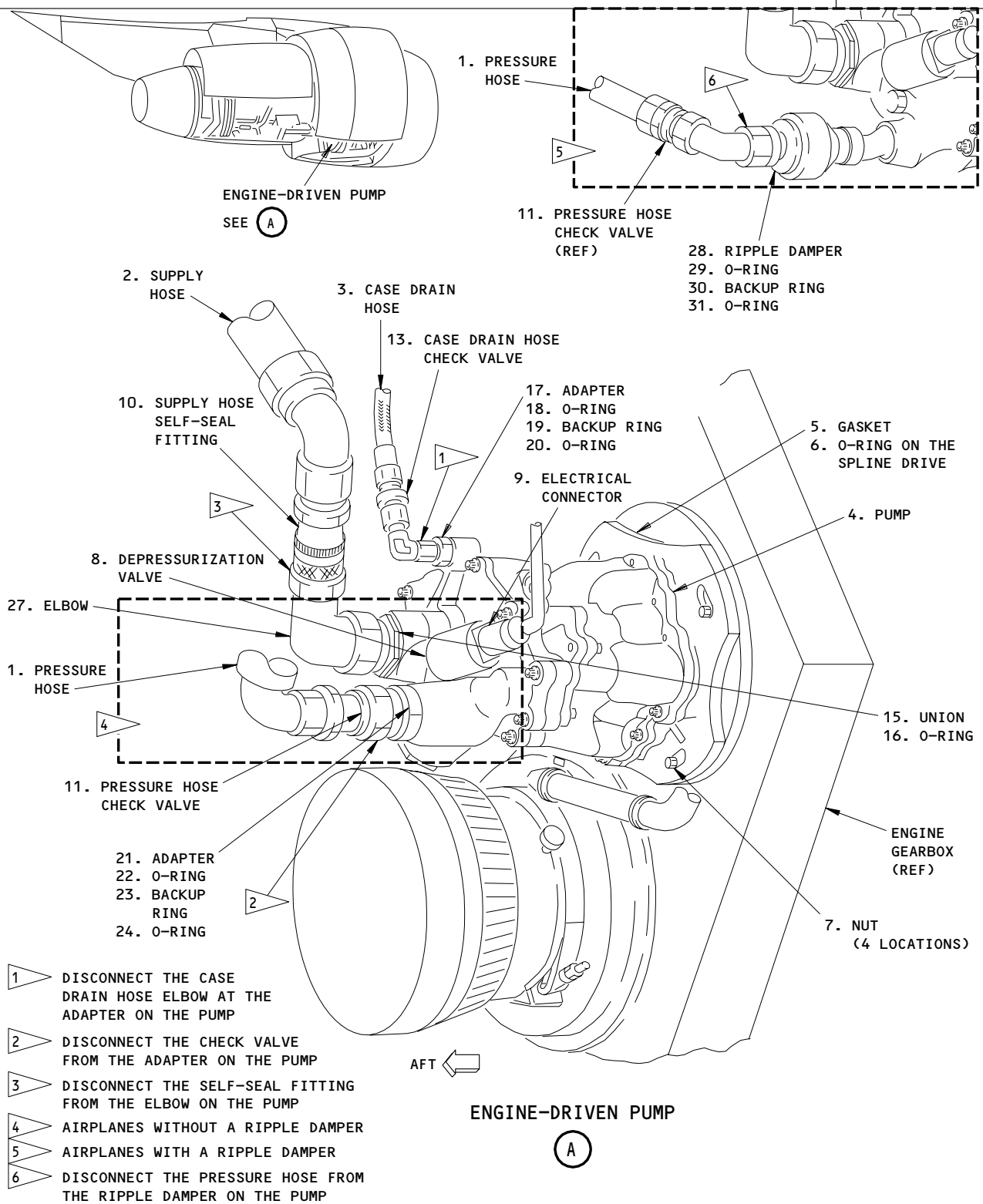
(40) Close the core cowl panels (AMM 71-11-06/201).

(41) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

MECH	INSP

(42) Close the fan cowl panels (AMM 71-11-04/201).

(43) If you replace the pump (4) because of mechanical failure, flush the left or right hydraulic system (AMM 29-11-00/201).



Engine-Driven Pump (EDP) Installation
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-R03
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	W/B FAIRING				003	APR 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
REPLACE	ADP PRESSURE REGULATOR & SOV		NOTE	ALL

ZONES	ACCESS PANELS
195	195TL

MECH	INSP	MPD ITEM NUMBER

REPLACE THE ADP PRESSURE REGULATOR AND SHUTOFF VALVE. 29-11-30-4A

THIS CARD IS NOT A SCHEDULED MAINTENANCE TASK. IT IS A COMPONENT CHANGE CARD AND IT IS PROVIDED FOR OPERATOR CONVENIENCE DURING UNSCHEDULED MAINTENANCE ACTIVITIES. SEE APPENDIX A OF THE 767 MAINTENANCE PLANNING DATA (MPD) DOCUMENT,D622T001, FOR A DESCRIPTION OF THE COMPONENT CHANGE CARDS.

AIRPLANE NOTE: THIS TASK IS APPLICABLE TO ALL AIRPLANE MODELS EXCEPT THE 767-400ER.

1. Remove the Regulator and Shutoff Valve (Fig. 401)

   A. References

      (1) AMM 06-41-00/201, Fuselage Access Doors and Panels

      (2) AMM 24-22-00/201, Electrical Power - Control

      (3) AMM 36-00-00/201, Pneumatic - General

   B. Procedure

      (1) Supply electrical power (AMM 24-22-00/201).

      (2) Put the C ISLN valve and the APU valve switches on the pilots' overhead panel, P5, to the OFF position.

      (3) Open these circuit breakers on the overhead panel, P11, and attach DO-NOT-CLOSE tags:

         (a) 11D31, HYDRAULIC AIR PUMP

         (b) 11S14, ISOL VALVE PWR C

(c) 11S23, APU BLEED POWER

(4) Remove pneumatic power (AMM 36-00-00/201).

(5) Remove the access panel, 195TL, for the regulator and shutoff valve (AMM 06-41-00/201).

(6) Open the access panel, 195SL, for the air driven pump (AMM 06-41-00/201).

(7) Pull the insulation flaps loose from the adhesive to remove the insulation jacket from the valve.

(8) Disconnect the electrical connector from the valve.

(9) Disconnect the bonding jumper(s) from the valve.

(10) Disconnect the air pressure line from the valve.

(11) Loosen the clamps at each end of the valve and remove the valve.

2. Install the Regulator and Shutoff Valve (Fig. 401)

A. Consumable Materials

(1) Adhesive (optional):

(a) A00087 Adhesive - RTV 102

(b) A00303 Adhesive - RTV 174

B. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

(2) AMM 24-22-00/201, Electrical Power

(3) AMM 36-00-00/201, Pneumatic

C. Procedure

(1) Put the regulator and shutoff valve in the position shown in Fig. 401, Detail D.

(2) Install the clamps at each end of the valve and tighten the clamps to 45-55 pound-inches.

MECH | INSP

(3) Connect the bonding jumper(s) to the valve.

(4) Connect the electrical connector to the valve.

(5) Connect the air pressure line to the valve.

(6) Put the insulation jacket around the valve with the insulation flap down.

(a) Attach the insulation jacket by pressing the hook and loop of the velcro tape together.

(b) If the insulation jacket does not have velcro tape, apply the adhesive to the flap along the joints in the insulation as shown in Fig. 401, Detail C.

(7) Supply pneumatic power (AMM 36-00-00/201).

(8) Supply electrical power (AMM 24-22-00/201).

(9) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the overhead panel, P11:

(a) 11D31, HYDRAULIC AIR PUMP

(b) 11S14, ISOL VALVE PWR C

(c) 11S23, APU BLEED POWER

(10) Push the ELEC/HYD switch on the EICAS maintenance panel.

(11) Put the C HYD PUMPS ELEC 1 and 2 switches on the hydraulic control panel to OFF.

(12) Put the C ISLN valve and the APU valve switches on the pilots' overhead panel, P5, to ON.

(13) Put the C HYD PUMPS AIR switch on the hydraulic control panel to ON.

(14) Make sure the center system pressure is 2800 to 3200 psi.

(15) Put the ADP TEST/RESET switch on the left miscellaneous equipment panel, P36, to the TEST position. Release the switch and let it go back to the NORMAL position.

(16) Make sure the ADP stops and does not start again.

MECH	INSP

(17) Put the ADP TEST/RESET switch on the P36 panel to the RESET position. Release the switch and let it go back to the NORMAL position.

(18) Make sure the center system pressure is 2800 to 3200 psi.

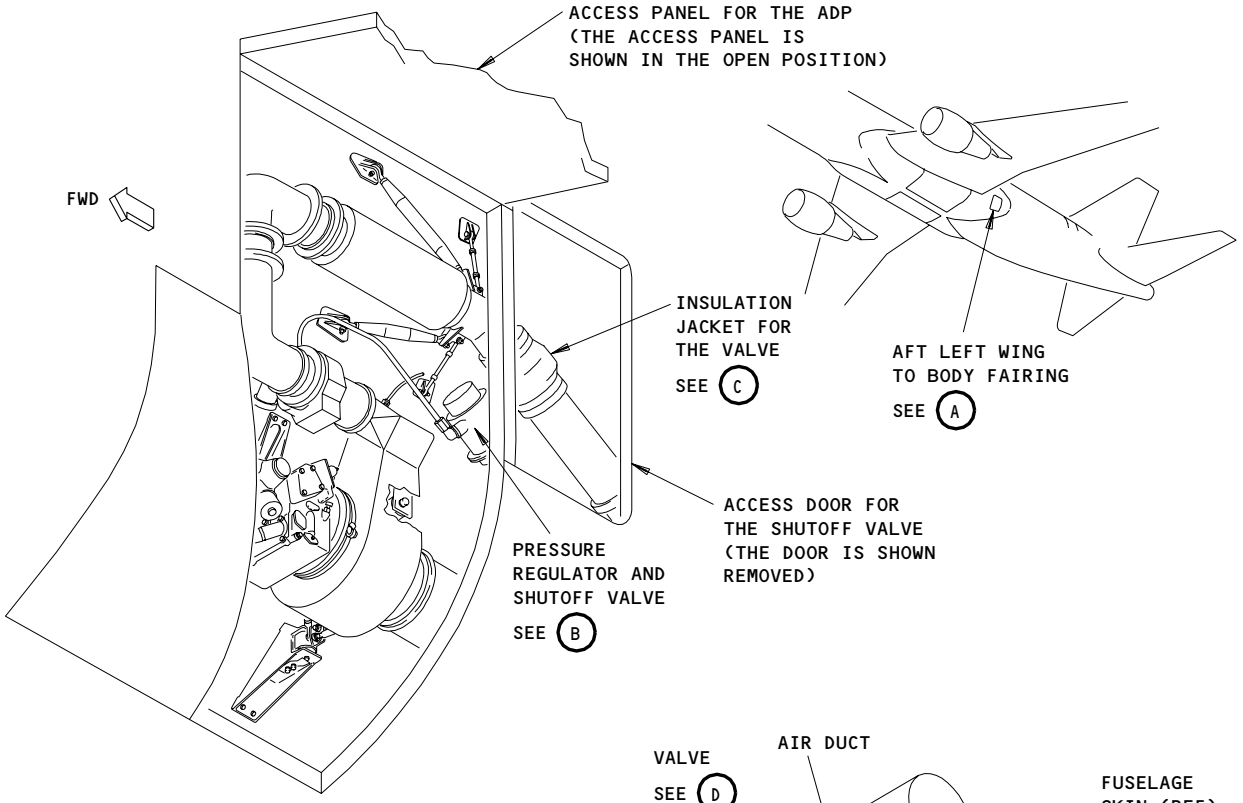
(19) Put the C HYD PUMPS AIR switch to OFF.

(20) Install the access panel, 195TL, for the regulator and shutoff valve (AMM 06-41-00/201).

(21) Close the ADP access panel, 195SL, for the air driven pump (AMM 06-41-00/201).

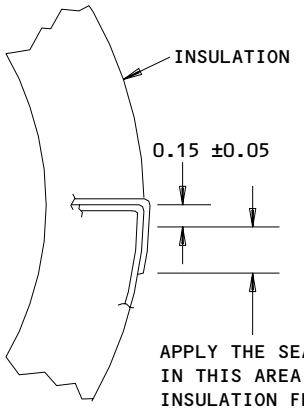
(22) Remove electrical power if it is not necessary (AMM 06-41-00/201).

(23) Remove pneumatic power if it is not necessary (AMM 06-41-00/201).



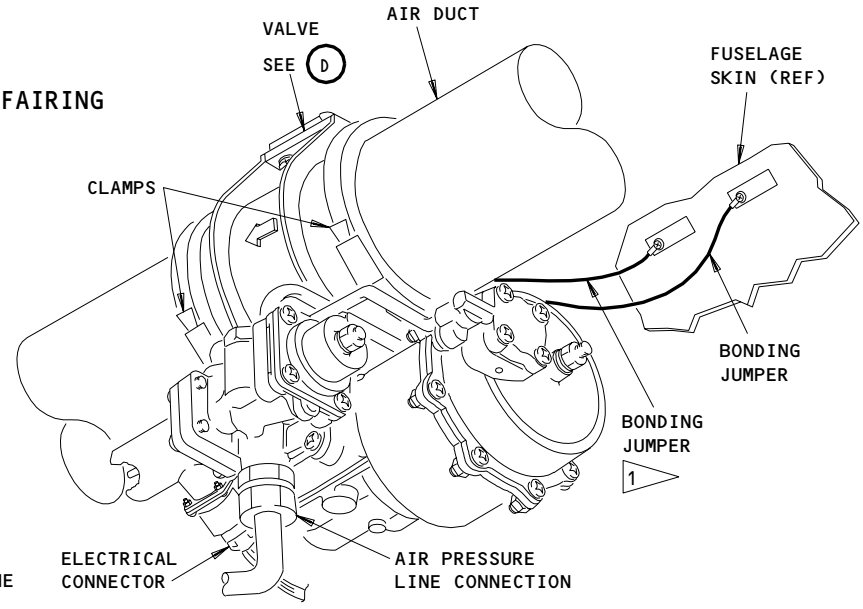
AFT LEFT WING TO BODY FAIRING

A



SIDE AND END JOINTS
IN THE INSULATION JACKET
(EXAMPLE)

C

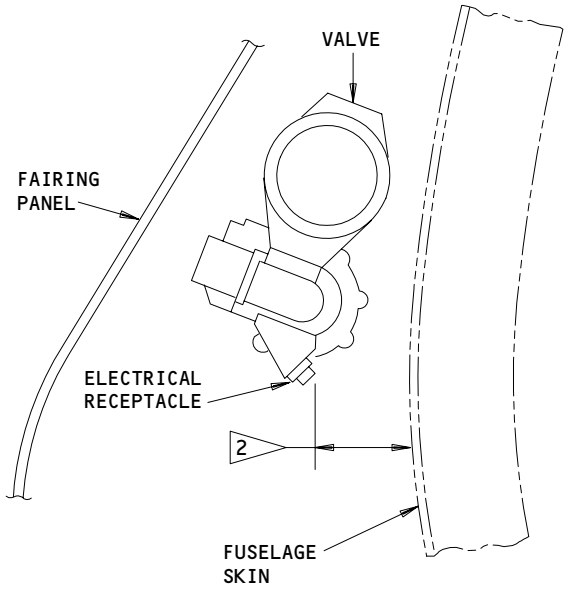


PRESSURE REGULATOR AND SHUTOFF VALVE

B

1 ON AIRPLANES WITH TWO BONDING JUMPERS

ADP Pressure Regulator and Shutoff Valve Installation
Figure 401 (Sheet 1)



2 INSTALL THE VALVE WITH THE FACE OF THE ELECTRICAL RECEPTACLE 5 ±0.25 INCHES FROM THE FUSELAGE SKIN

VALVE
D

ADP Pressure Regulator and Shutoff Valve Installation
Figure 401 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-001-C1-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STRUT 1		1C	11212	011	DEC 22/03

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS L EDP/ACMP PRESS & RETURN FILTER		ALL	ALL

ZONES	ACCESS PANELS
437	437BL 437BR

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM L HYDRAULIC EDP & ACMP PRESSURE FILTERS DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6A 29-11-00-6A 29-11-00-6E

INSPECT SYSTEM L HYDRAULIC RETURN FILTER MODULES DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6E

1. Differential Pressure Indicators Inspection For the Pressure Filters of the Engine-Driven Pump (EDP), Alternating Current Motor Pump (ACMP), and Air-Driven Pump (ADP) and For the Return Filters in the Left, Right, and Center Hydraulic Systems

A. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 29-11-15/401, Left and Right System Return Filter Module and Components

(3) AMM 29-11-16/401, Center System Return Filter Module and Components

(4) AMM 29-11-17/401, Left and Right System Engine-Driven Pump (EDP) Pressure/Case Drain Filter Module and Components

(5) AMM 29-11-18/401, Alternating Current Motor Pump (ACMP) Pressure/Case Drain Filter Module and Components

(6) AMM 29-11-19/401, Center System Air-Driven Pump (ADP) Pressure/Case Drain Filter Module and Components

(7) AMM 32-00-15/201, Landing Gear Door Locks

(8) AMM 32-00-20/201, Landing Gear Downlocks

B. Procedure

MECH	INSP

(1) For the center hydraulic system,
make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE TO INSTALL THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system,
open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) For the left hydraulic system,
open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right hydraulic system,
open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

(5) Make sure the red indicator button did not come out on each differential pressure indicator.

(6) If the indicator button came out, replace the filter element and reset the indicator button as follows:

(a) EDP filter element (AMM 29-11-17/401).

(b) ACMP filter element (AMM 29-11-18/401)

(c) ADP filter element (AMM 29-11-19/401)

(d) Return filter in the left and right system (AMM 29-11-15/401)

(e) Return filter in the center system (AMM 29-11-16/401)

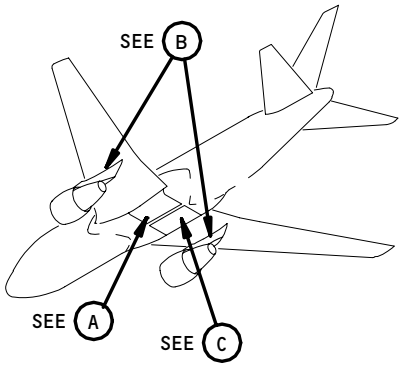
(7) For the left hydraulic system,
close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

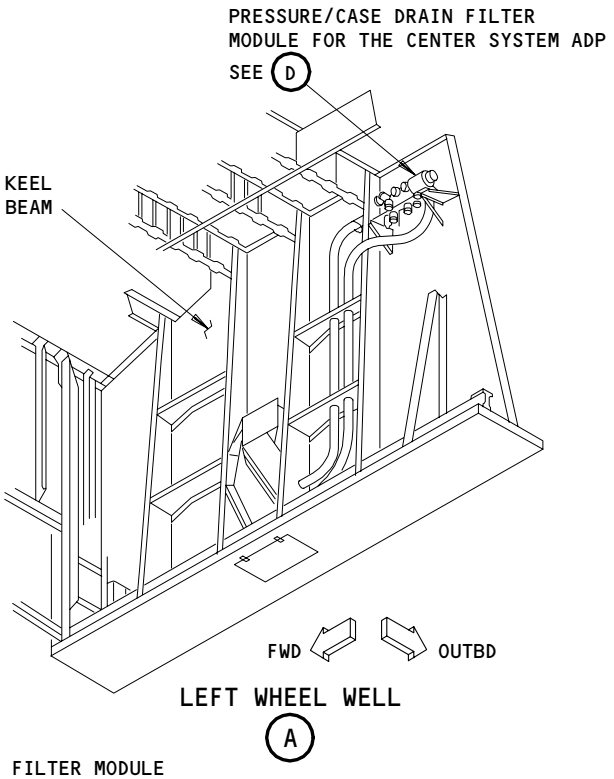
(8) For the right hydraulic system,
close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

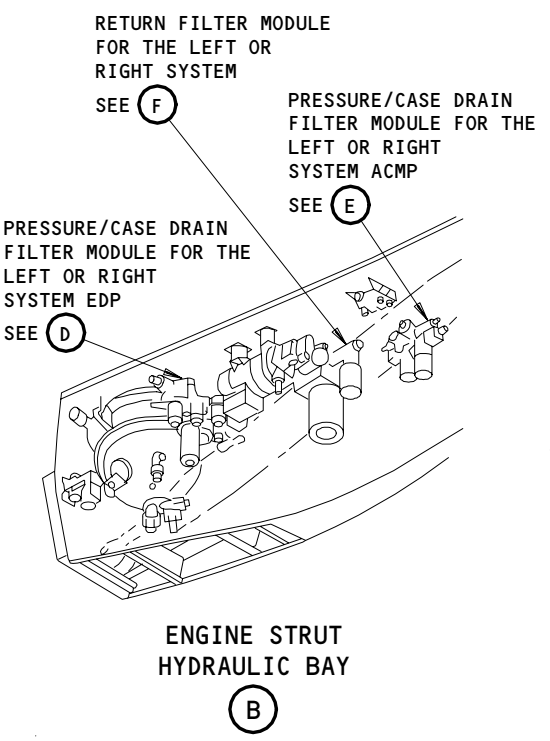
MECH	INSP

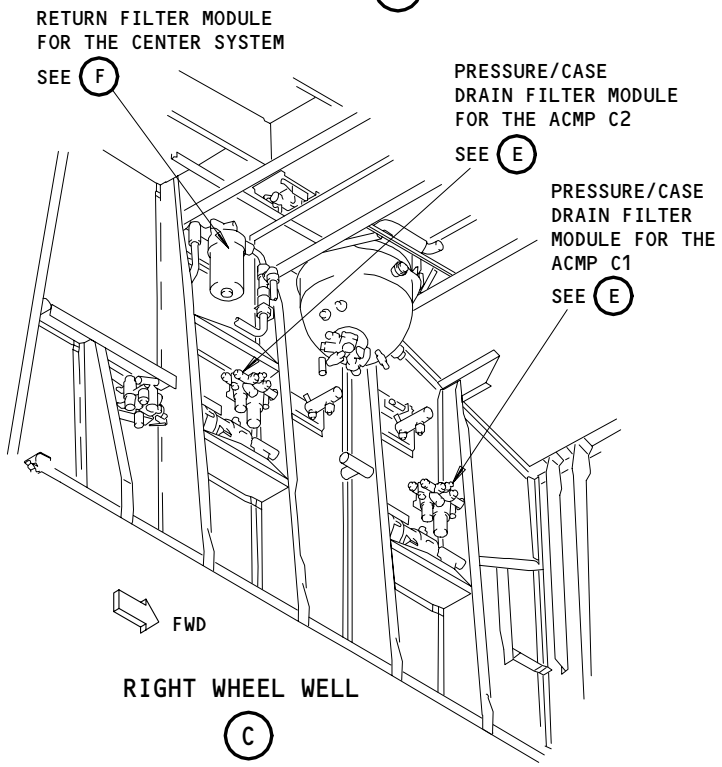
WARNING: USE THE PROCEDURE TO REMOVE THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

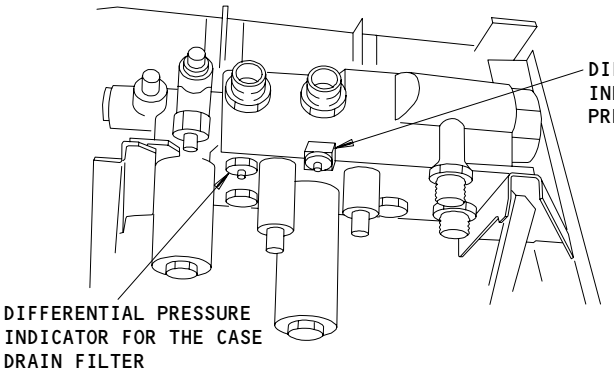






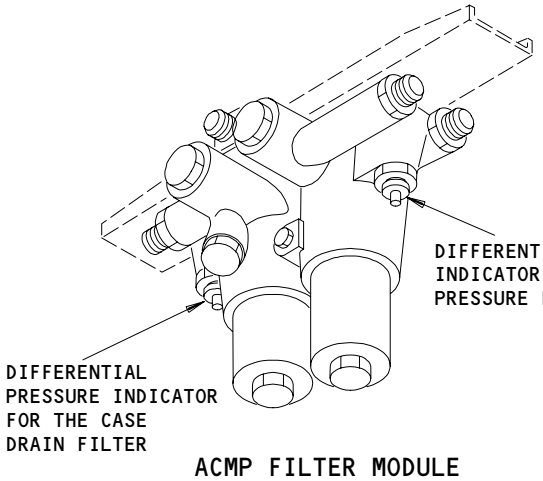


Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 1)



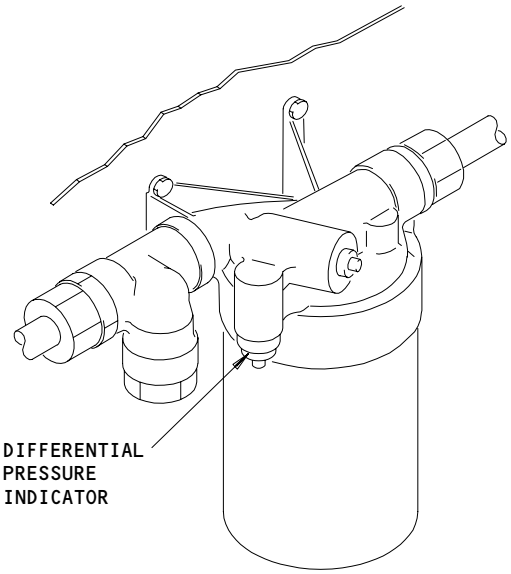
EDP OR ADP FILTER MODULE

(D)



ACMP FILTER MODULE
(EXAMPLE)

(E)



RETURN FILTER MODULE
(EXAMPLE)

(F)

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-001-C1-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STRUT 2		1C	11212	011	DEC 22/03

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS R EDP/ACMP PRESS & RETURN FILTER		ALL	ALL

ZONES	ACCESS PANELS
447	447BL 447BR

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM R HYDRAULIC EDP & ACMP PRESSURE FILTERS DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6A 29-11-00-6A 29-11-00-6E

INSPECT SYSTEM R HYDRAULIC RETURN FILTER MODULES DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6E

1. Differential Pressure Indicators Inspection For the Pressure Filters of the Engine-Driven Pump (EDP), Alternating Current Motor Pump (ACMP), and Air-Driven Pump (ADP) and For the Return Filters in the Left, Right, and Center Hydraulic Systems

A. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 29-11-15/401, Left and Right System Return Filter Module and Components

(3) AMM 29-11-16/401, Center System Return Filter Module and Components

(4) AMM 29-11-17/401, Left and Right System Engine-Driven Pump (EDP) Pressure/Case Drain Filter Module and Components

(5) AMM 29-11-18/401, Alternating Current Motor Pump (ACMP) Pressure/Case Drain Filter Module and Components

(6) AMM 29-11-19/401, Center System Air-Driven Pump (ADP) Pressure/Case Drain Filter Module and Components

(7) AMM 32-00-15/201, Landing Gear Door Locks

(8) AMM 32-00-20/201, Landing Gear Downlocks

B. Procedure

MECH | INSP

(1) For the center hydraulic system,
make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE TO INSTALL THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system,
open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) For the left hydraulic system,
open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right hydraulic system,
open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

(5) Make sure the red indicator button did not come out on each differential pressure indicator.

(6) If the indicator button came out, replace the filter element and reset the indicator button as follows:

(a) EDP filter element (AMM 29-11-17/401).

(b) ACMP filter element (AMM 29-11-18/401)

(c) ADP filter element (AMM 29-11-19/401)

(d) Return filter in the left and right system (AMM 29-11-15/401)

(e) Return filter in the center system (AMM 29-11-16/401)

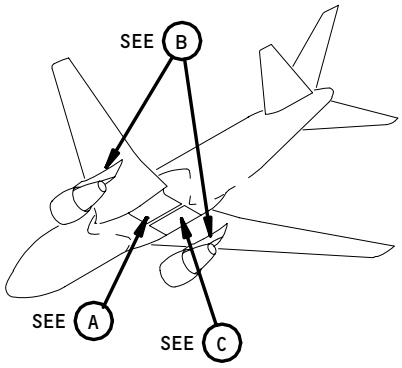
(7) For the left hydraulic system,
close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

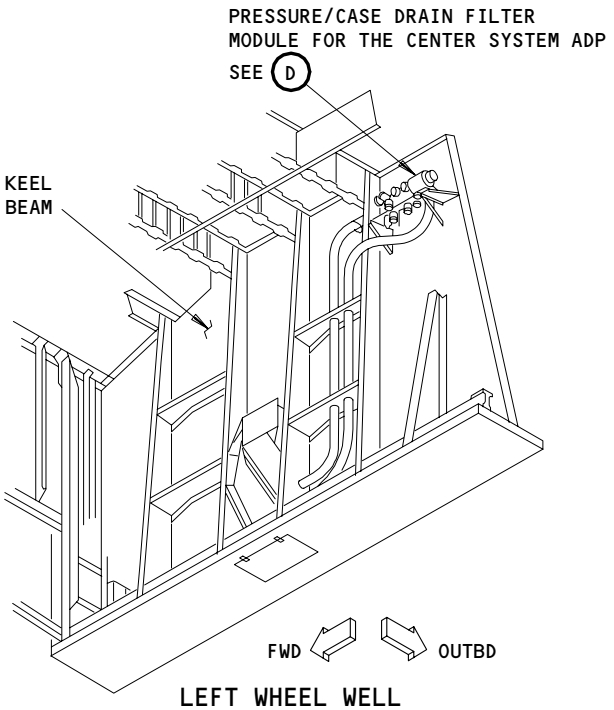
(8) For the right hydraulic system,
close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

MECH	INSP

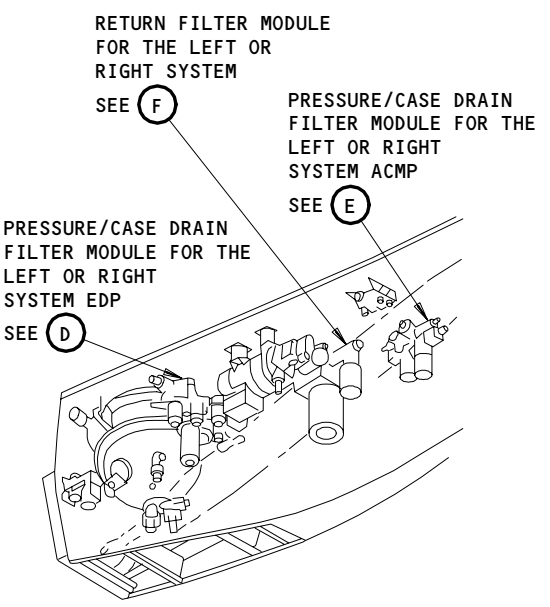
WARNING: USE THE PROCEDURE TO REMOVE THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

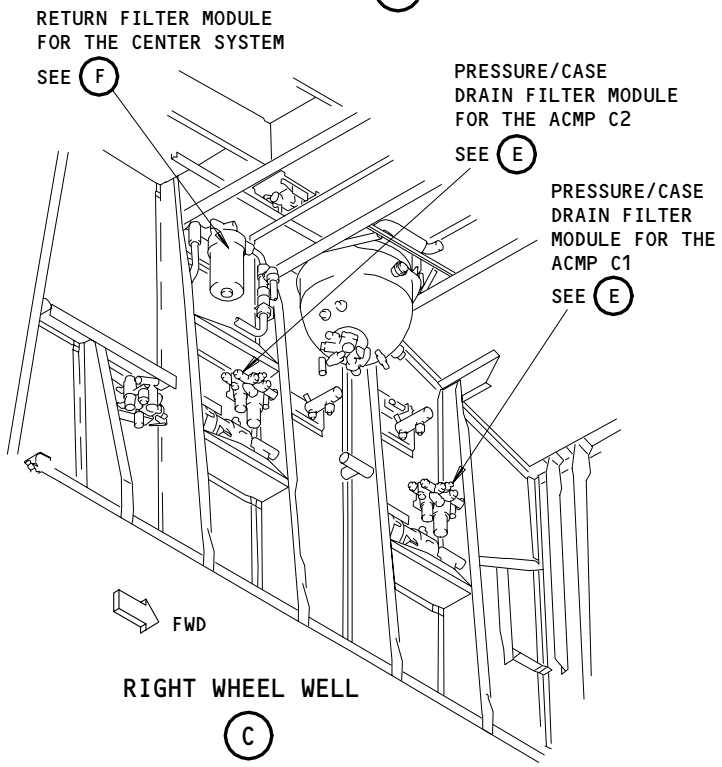




LEFT WHEEL WELL
A

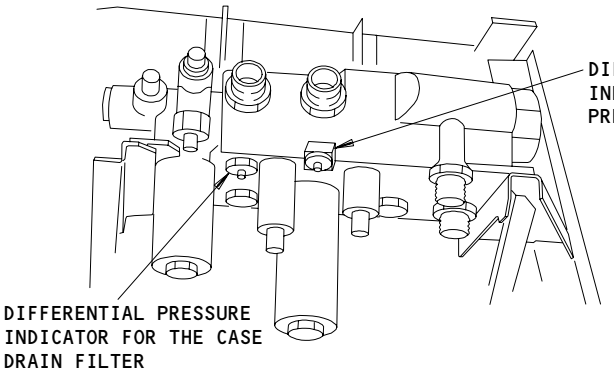


ENGINE STRUT
HYDRAULIC BAY
B



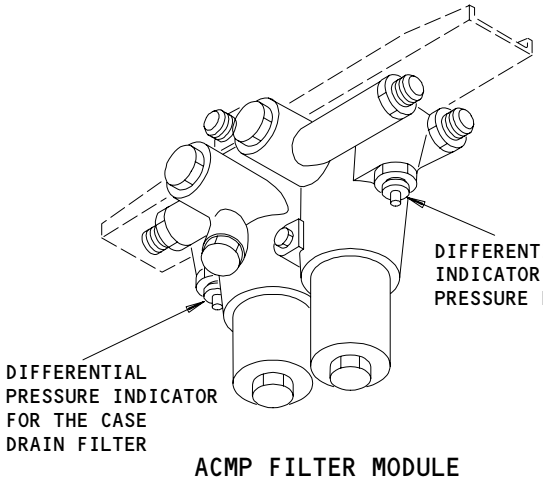
RIGHT WHEEL WELL
C

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 1)



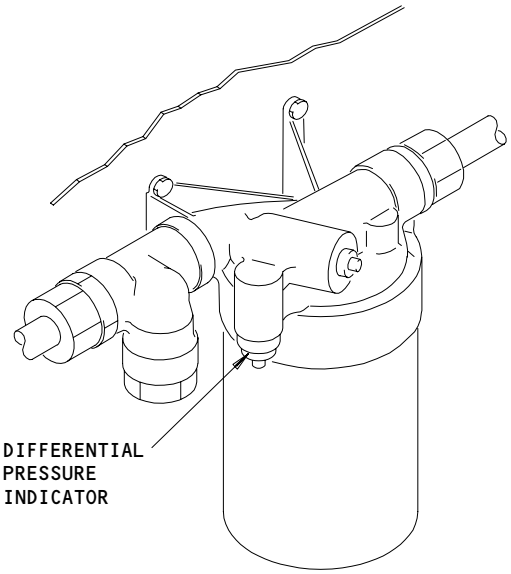
EDP OR ADP FILTER MODULE

(D)



ACMP FILTER MODULE
(EXAMPLE)

(E)



RETURN FILTER MODULE
(EXAMPLE)

(F)

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-002-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STRUT 1		3C	13636	002	DEC 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CLEAN	SYS L HYD RESERVOIR PRESS AIR FILTER		ALL	ALL

ZONES	ACCESS PANELS
437	437BL 437BR

MECH	INSP	MPD ITEM NUMBER

CLEAN SYSTEM L HYDRAULIC RESERVOIR PRESSURIZATION MODULE AIR FILTER. 29-11-25-4A

1. Remove the Filter Element from the Reservoir Pressurization Module

A. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(3) AMM 36-00-00/201, Pneumatic - General

(4) AMM 78-31-00/201, Thrust Reverser System

B. Prepare for Removal

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(2) Remove pneumatic power (AMM 36-00-00/201).

(3) For the left system, open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right system, open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

(5) Remove the pressure from the left and right hydraulic systems and the reservoirs (AMM 29-11-00/201).

C. Remove the Filter Element (Fig. 401)

(1) Remove the cap from the reservior pressurization module.

(2) Remove the filter element.

2. Install the Filter Element in the Reservoir Pressurization Module

A. Consumable Materials

(1) D00054 Hydraulic System Lubricant, MCS 352B

(2) B01003 Solvent - General Cleaning of Composites (Series 83)

(3) A00363 Sealant - RTV 162

B. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 20-30-83/201, Airplane Structure Cleaning Solvents (Series 83)

(3) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(4) AMM 36-00-00/201, Pneumatic - General

(5) AMM 78-31-00/201, Thrust Reverser System

C. Install the Filter Element (Fig. 401)

(1) Remove the sealant remaining on the filter cap and the adjacent surface of the reservoir pressurization module.

(2) Clean the hole in the reservoir pressurization module for the filter element.

(3) Clean the filter element with solvent, Series 83 (AMM 20-30-83/201) and fully dry the filter element.

(4) Apply hydraulic lubricant to the new O-rings and the threads of the cap.

(5) Assemble the filter element, the O-ring, and the filter sleeve.

MECH	INSP

(6) Install the filter assembly into the reservoir pressurization module.

(7) Install the cap on the reservoir pressurization module.

(8) Tighten the cap to 75-95 pound-inches.

(9) Safety the cap with wire.

(10) Apply a bead of sealant to the joint between the cap and the reservoir pressurization module.

D. Put the Airplane Back to Its Usual Condition

(1) Pressurize the reservoir in the left or right system (AMM 29-11-00/201).

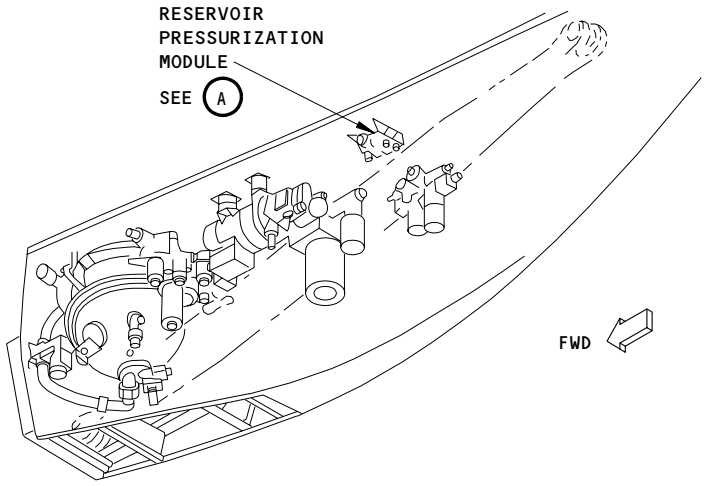
(2) Make sure there are no air pressure leaks at the cap on the reservoir pressurization module.

(3) Remove the air source which you used to pressurize the reservoir (AMM 29-11-00/201).

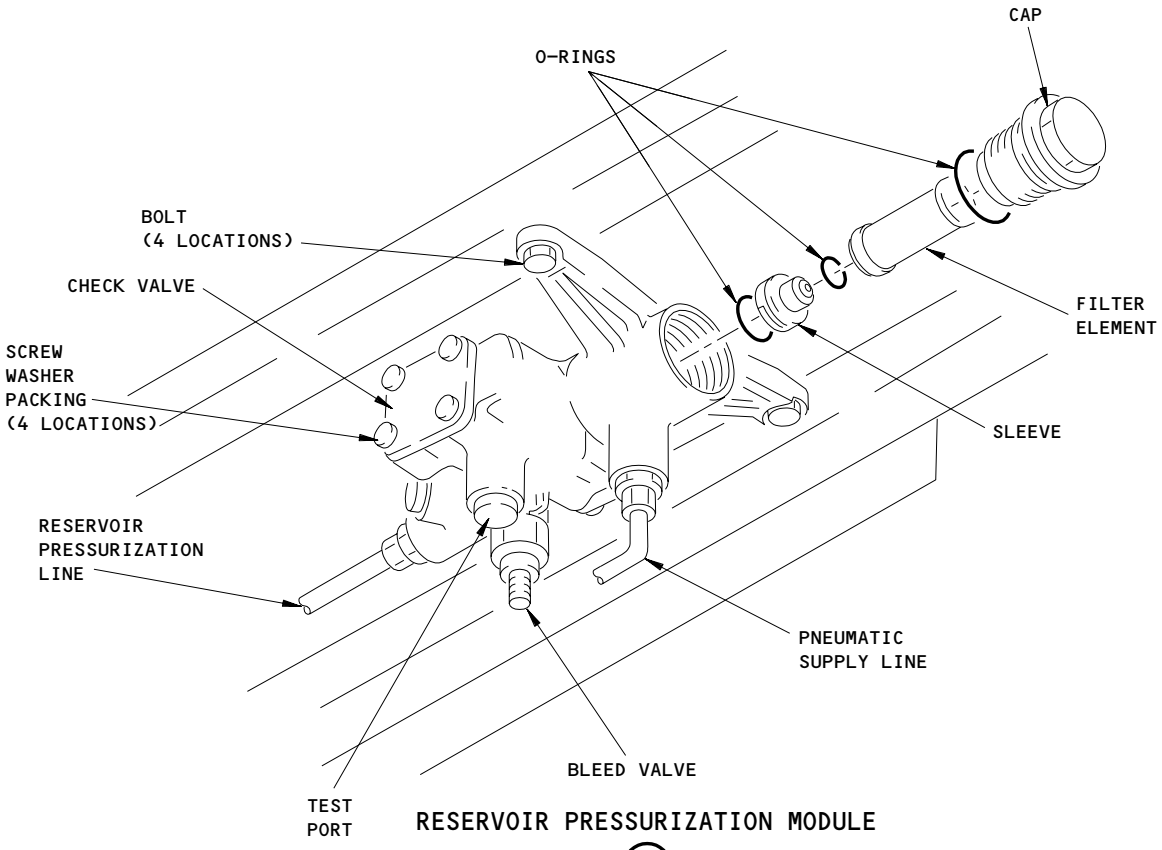
(4) For the left system, close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(5) For the right system, close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).



HYDRAULIC BAY OF THE ENGINE STRUT (EXAMPLE)



RESERVOIR PRESSURIZATION MODULE
A

Reservoir Pressurization Module Installation
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-002-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STRUT 2		3C	13636	002	DEC 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CLEAN	SYS R HYD RESERVOIR PRESS AIR FILTER		ALL	ALL

ZONES	ACCESS PANELS
447	447BL 447BR

MECH	INSP	MPD ITEM NUMBER

CLEAN SYSTEM R HYDRAULIC RESERVOIR PRESSURIZATION MODULE AIR FILTER. 29-11-25-4A

1. Remove the Filter Element from the Reservoir Pressurization Module

A. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(3) AMM 36-00-00/201, Pneumatic - General

(4) AMM 78-31-00/201, Thrust Reverser System

B. Prepare for Removal

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(2) Remove pneumatic power (AMM 36-00-00/201).

(3) For the left system, open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right system, open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

MECH | INSP

(5) Remove the pressure from the left and right hydraulic systems and the reservoirs (AMM 29-11-00/201).

C. Remove the Filter Element (Fig. 401)

(1) Remove the cap from the reservior pressurization module.

(2) Remove the filter element.

2. Install the Filter Element in the Reservoir Pressurization Module

A. Consumable Materials

(1) D00054 Hydraulic System Lubricant, MCS 352B

(2) B01003 Solvent - General Cleaning of Composites (Series 83)

(3) A00363 Sealant - RTV 162

B. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 20-30-83/201, Airplane Structure Cleaning Solvents (Series 83)

(3) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(4) AMM 36-00-00/201, Pneumatic - General

(5) AMM 78-31-00/201, Thrust Reverser System

C. Install the Filter Element (Fig. 401)

(1) Remove the sealant remaining on the filter cap and the adjacent surface of the reservoir pressurization module.

(2) Clean the hole in the reservoir pressurization module for the filter element.

(3) Clean the filter element with solvent, Series 83 (AMM 20-30-83/201) and fully dry the filter element.

(4) Apply hydraulic lubricant to the new O-rings and the threads of the cap.

(5) Assemble the filter element, the O-ring, and the filter sleeve.

MECH | INSP

(6) Install the filter assembly into the reservoir pressurization module.

(7) Install the cap on the reservoir pressurization module.

(8) Tighten the cap to 75-95 pound-inches.

(9) Safety the cap with wire.

(10) Apply a bead of sealant to the joint between the cap and the reservoir pressurization module.

D. Put the Airplane Back to Its Usual Condition

(1) Pressurize the reservoir in the left or right system (AMM 29-11-00/201).

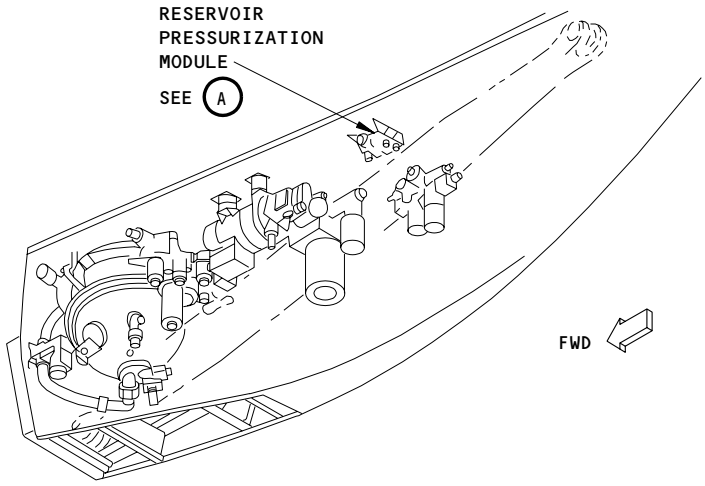
(2) Make sure there are no air pressure leaks at the cap on the reservoir pressurization module.

(3) Remove the air source which you used to pressurize the reservoir (AMM 29-11-00/201).

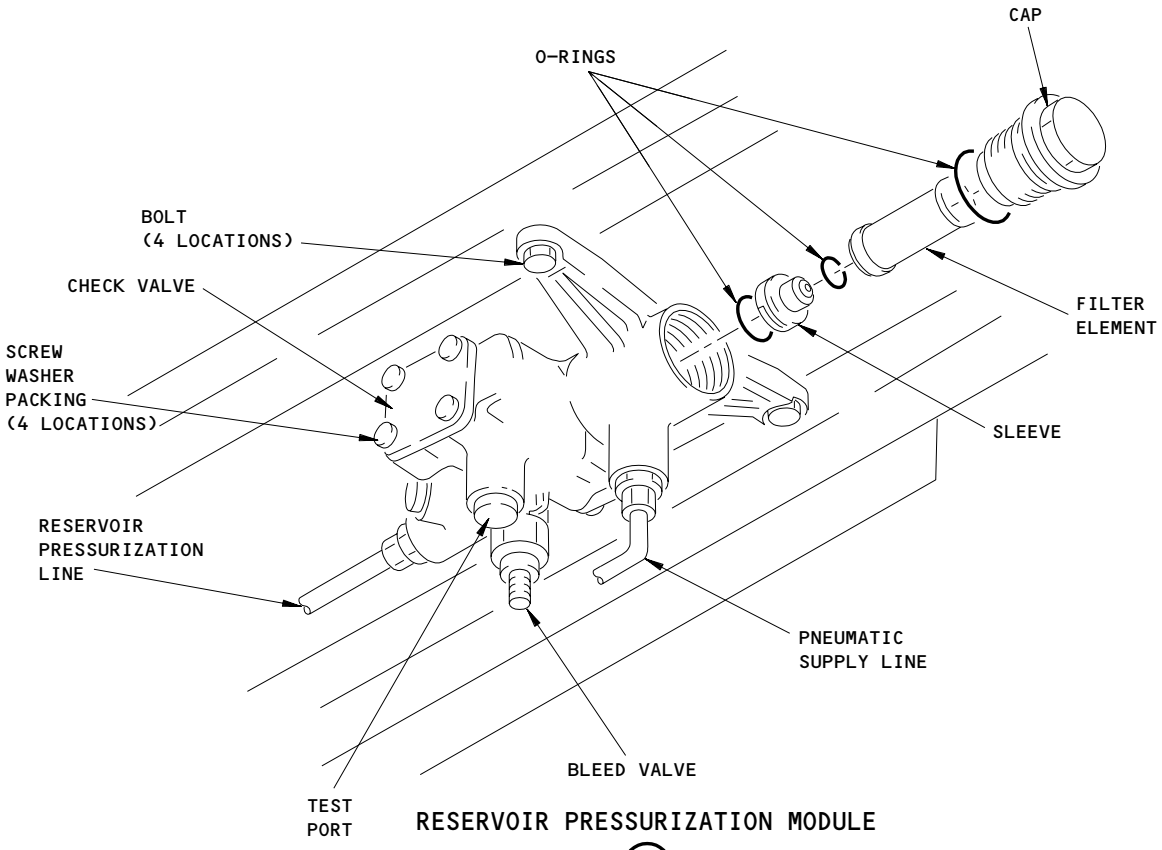
(4) For the left system, close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(5) For the right system, close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

(6) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).



HYDRAULIC BAY OF THE ENGINE STRUT (EXAMPLE)



RESERVOIR PRESSURIZATION MODULE
A

Reservoir Pressurization Module Installation
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-003-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	CREW CABIN		2C (#)	12424	013	AUG 22/07

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
FUNCTIONAL	HYDRAULIC SYSTEMS (INTERNAL LEAKAGE)		ALL	ALL

ZONES	ACCESS PANELS
211 437 447	149BL 437BR 447BR

MECH	INSP	MPD ITEM NUMBER

CHECK GROSS INTERNAL LEAKAGE OF EACH HYDRAULIC SYSTEM (LEFT, CENTER & RIGHT). 29-11-00-6F

(#) CMR FREQUENCY IS 12000 HOURS.
MSG-3 ANALYSIS FREQUENCY OF 2C APPLIES AND MAY BE ADJUSTED AS ANY MRB ITEM UNTIL THE 12000-HOUR CMR DEVELOPED FREQUENCY IS REACHED.

NOTE: EXCEPT FOR THE 767-400ER, THE INTERNAL LEAKAGE LIMIT FOR THE LEFT, CENTER, AND RIGHT HYDRAULIC SYSTEMS IS 4.5 GPM. THIS RATE PERMITS THE LEAKAGE TO INCREASE BEFORE A SUBSEQUENT LEAKAGE CHECK AND NOT BECOME MORE THAN THE 6.0 GPM APPROVED LIMIT.

FOR THE 767-400ER, THE INTERNAL LEAKAGE LIMITS FOR THE LEFT AND RIGHT SYSTEMS ARE THE SAME AS FOR THE OTHER 767 MODELS. THE INTERNAL LEAKAGE LIMIT FOR THE CENTER HYDRAULIC SYSTEM IS 2.5 GPM. THIS RATE PERMITS THE LEAKAGE TO INCREASE BEFORE A SUBSEQUENT LEAKAGE CHECK AND NOT BECOME MORE THAN THE 4.0 GPM APPROVED LIMIT.

1. Hydraulic System Gross Internal Leakage Check

A. General

(1) This procedure does a gross internal leakage check for each hydraulic system. The total system leakage rate for each hydraulic system must not be more than the approved leakage flow rates. If a system has more than the approved leakage flow rates replace or repair components until the leakage is less than the approved limits. The sequence in which you do a test of the left, center, and right hydraulic systems is not important. When the leak check of a system is started, do not stop until the procedure is completed, to get correct results.

(2) There are two techniques to measure flow rates; the multimeter technique and the flowmeter technique.

(a) Multimeter technique

1) The multimeter technique uses the alternating current motor pumps (ACMP) to measure the hydraulic flow rate.

2) A clamp-on ac current probe is installed around one wire at the ACMP ELCU in the P31 or P32 panel. The multimeter is then connected to the current probe to measure the current that flows in the wire to the pump motor. A graph shown in Fig. 607 changes the current to a hydraulic flow rate.

(b) Flowmeter technique

1) The flowmeter technique uses a flowmeter to measure flow rates directly while the system is pressurized with an ACMP or a hydraulic service cart. The flowmeter is installed in the pressure line between the pressure source and the pressure filter module (Fig. 603A).

2) If you use the flowmeter technique, write the flowmeter values and ignore the multimeter values specified in the procedure steps.

B. Equipment

(1) This equipment is used with the multimeter technique:

(a) Digital Multimeter - John Fluke Model 27 YEL, or equivalent

(b) Clamp-on AC Current Probe - John Fluke Model 80i 600

NOTE: The ac current probe is used with the multimeter.

(2) This equipment is used with the flowmeter technique (optional to the multimeter technique:

(a) Flowmeter - commercially available, 0.2 to 7.0 GPM range with a precision of ±3% of the indication, specified for operation at 3000 psi

MECH | INSP

(b) Hydraulic service cart - commercially available, with 15 micron full filter, which can supply 6 GPM at 3000 psi, with hydraulic fluid, fire resistant, BMS 3-11.

NOTE: The service cart is not necessary if the ACMP is used to pressurize the hydraulic system.

C. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

(2) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(3) AMM 24-22-00/201, Electrical Power - Control

(4) AMM 29-11-00/201, Main (Left, Right, and Center) Hydraulic Systems

(5) AMM 32-00-15/201, Landing Gear Door Locks

(6) AMM 32-00-20/201, Landing Gear Downlocks

(7) AMM 32-44-00/501, Parking Brake System

(8) AMM 34-21-00/201, Inertial Reference System

D. Prepare for Gross Internal Leakage Check

(1) Look at the nameplate on the ACMPs and make a record of the manufacturer.

NOTE: "Abex" pumps may have Abex, Parker or Parker/Abex on the nameplate. "Vickers" pumps may have Eaton or Eaton/Vickers on the nameplate.

(2) Make sure all hydraulic pump switches on the pilots' overhead panel, P5, are in the OFF position.

(3) Supply electrical power (AMM 24-22-00/201).

(4) Make sure the persons on the ground can speak with those in the control cabin.

(5) Make sure landing gear downlocks are installed (AMM 32-00-20/201).

MECH	INSP

(6) Put chocks on the main landing gear.

(7) Make sure the flaps and slats are fully retracted.

(8) Make sure the thrust reversers are retracted and the thrust reverser levers are in the retracted position.

CAUTION: DO NOT OPERATE THE HYDRAULIC PUMPS WITHOUT A MINIMUM QUANTITY OF FUEL IN THE TANKS OR AFTER THE OVERHEAT LIGHT COMES ON. IF THE HYDRAULIC SYSTEM HEAT EXCHANGERS ARE NOT COVERED WITH FUEL, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

(9) Make sure the left and right main fuel tanks each contain at least 600 gallons of fuel.

(10) Make sure the brakes are released.

(11) Make sure the RESERVE BKS & STRG switch on the main instrument panel, P1, is in the OFF position and the amber VALVE light is off.

(12) Make sure the speedbrake handle on the control stand panel, P10, is in the DN position.

(13) Make sure these circuit breakers on the overhead panel, P11, are closed:

(a) EICAS (6 locations)

(14) Do the EICAS Message Display Procedure to show alert, status, and maintenance message lists (AMM 31-41-00/201).

NOTE: The above referenced procedure will provide instructions on how to show EICAS messages and hydraulic quantity, pressure and temperature on data on EICAS.

(15) Align the inertial reference system to permit the autopilot to be engaged during some leak check procedures (AMM 34-21-00/201).

(16) Open this circuit breaker on the main power distribution panel, P6, and attach a DO-NOT-CLOSE tag:

(a) 6J8, RAM AIR TURBINE PWR

E. Left Hydraulic System Gross Internal Leakage Check

MECH | INSP

(1) If the multimeter technique is used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS INSTALLED INTO THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to install the multimeter and the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Get access to the left system ACMP ELCU M895 in the P32 panel.

3) Put the clamp-on ac current probe around one of the three wires which connect to the load side of the ELCU.

4) Connect the multimeter to the clamp-on ac current probe.

5) If necessary, supply electrical power (AMM 24-22-00/201).

(2) If the flowmeter technique is used, do these steps:

(a) Remove the pressure from the left hydraulic system and reservoir (AMM 29-11-00/201).

(b) Open the aft strut hydraulic access panel, 437BR (AMM 06-43-00/201).

(c) If the ACMP will be used to pressurize the system, then install the flowmeter in the pressure line between the left system ACMP and the ACMP pressure/case drain filter module.

(d) If the hydraulic service cart will be used to pressurize the hydraulic system, then connect the service cart pressure and return lines to the left system ground power connections with a flowmeter installed in the cart pressure line (Fig. 603A).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM HYDRAULIC COMPONENTS THAT CAN MOVE. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

MECH | INSP

(3) Pressurize the left hydraulic system:

(a) To pressurize the hydraulic system with the ACMP, put the L HYD PUMP-ELEC pump switch to the ON position.

(b) To pressurize the hydraulic system with the service cart, operate the hydraulic service cart to pressurize the left system to 3000 psi.

(4) Put the LEFT STAB TRIM valve switch on the P10 panel to CUTOUT.

(5) Put the YAW DAMPER R switch on the P5 panel to ON.

(6) Put the WING and TAIL FLT CONTROL SHUTOFF switches L on the P61 panel to ON.

(7) Push the A/P ENGAGE L CMD switch on the mode control panel on the P55 panel.

(8) Put the LEFT STAB TRIM VALVE switch on the P10 panel to NORM.

(9) Make sure the left thrust reverser is retracted and the thrust reverser lever is in the retract position.

(10) For the multimeter technique, write the multimeter value and find the equivalent flow from figure 607.

NOTE: This multimeter value is eqivalent to the total left system leakage.

(11) For the flowmeter technique, write the flowmeter value.

NOTE: The flowmeter value is the total left system leakage.

(12) Push the A/P DISENGAGE switch on the mode control panel on the P55 panel.

(13) Put the YAW DAMPER R switch on the P5 panel to OFF.

(14) If the total left system leakage is more than 4.5 GPM, do the Full Hydraulic System Internal Leakage Check and Isolation of Components with High Leakage procedure.

MECH | INSP

(15) Replace components as necessary to decrease the gross system leakage below 4.5 GPM.

NOTE: This leakage rate permits the leakage to increase before a subsequent leakage check and not become more than the 6.0 GPM approved limit.

(16) After the components are replaced, do the Left Hydraulic System Gross Internal Leakage Check again to make sure the leakage rate is less than 4.5 GPM.

(17) Remove the pressure from the hydraulic system:

(a) If the hydraulic system was pressurized with the ACMP, then put the L HYD PUMP-ELEC pump switch to the OFF position.

(b) If the hydraulic system was pressurized with the service cart, operate the hydraulic service cart to decrease the pressure in the system to zero.

(18) If the flowmeter technique was used, do these steps:

(a) If the hydraulic system was pressurized with the ACMP, then remove the flowmeter from the ACMP pressure line and reconnect the ACMP pressure line.

(b) If the hydraulic system was pressurized with the cart, then disconnect the service cart and flowmeter and install the caps on the airplane ground power connections.

(c) Close the aft strut hydraulic access panel, 437BR (AMM 06-43-00/201).

(19) If the multimeter technique was used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS REMOVED FROM THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to remove the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Remove the clamp-on ac current probe from the wire at the ACMP ELCU and close up the P32 panel.

F. Center Hydraulic System Gross Internal Leakage Check

(1) If the flowmeter technique is used, do these steps:

(a) Remove the pressure from the center hydraulic system and reservoir (AMM 29-11-00/201).

(b) If the ACMP is used to pressurize the system, do these steps:

WARNING: REFER TO AMM 32-00-15/201 FOR THE LOCK INSTALLATION PROCEDURE. FAST MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT IF THE LOCKS ARE NOT INSTALLED CORRECTLY.

1) Open the right wheel well door and install the landing gear door lock (AMM 32-00-15/201).

2) Install the flowmeter in the pressure line between the center system ACMP C1 and the ACMP C1 pressure/case drain filter module.

(c) If the hydraulic service cart is used, do these steps:

1) Open the access panel 149BL on the keel beam between the main wheel wells for access to the center system ground power connections (AMM 06-41-00/201).

2) Connect the service cart pressure and return lines to the center system ground power connections with a flowmeter installed in the cart pressure line (Fig. 603A).

(2) If the multimeter technique is used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS INSTALLED INTO THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to install the multimeter and the clamp-on ac current probe:

MECH | INSP

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Get access to the center system ACMP ELCU M897 in the P31 panel.

3) Put the clamp-on ac current probe around one of the three wires which connect to the load side of the ELCU.

4) Connect the multimeter to the clamp-on ac current probe.

5) If necessary, supply electrical power (AMM 24-22-00/201).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM HYDRAULIC COMPONENTS THAT CAN MOVE. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Pressurize the center hydraulic system:

(a) To pressurize the hydraulic system with the ACMP, put the C HYD PUMP-ELEC 1 pump switch to the ON position.

(b) To pressurize the hydraulic system with the service cart, operate the hydraulic service cart to pressurize the center system to 3000 psi.

(4) Push the A/P DISENGAGE switch on the mode control panel on the P55 panel.

(5) Put the WING FLT CONTROL SHUTOFF switch C on the P61 panel to OFF.

(6) Turn the control wheel fully left and then fully right.

(7) Make sure the ailerons do not move.

(8) Put the TAIL FLT CONTROL SHUTOFF switch C on the P61 panel to ON.

(9) Put the C STAB TRIM valve switch on the P10 panel to CUT OUT.

(10) Make sure the towing handle on the nose gear metering valve module is in the bypass position. If necessary, put the nose gear wheels in the center position.

MECH | INSP

(11) Put the YAW DAMPER L switch on the P5 panel to ON.

(12) Put the WING FLIGHT CONTROL SHUTOFF switch C on the P61 panel to ON.

(13) Push the A/P ENGAGE C CMD switch on the mode control panel on the P55 panel.

(14) Put the C STAB TRIM valve switch on the P10 panel to NORM.

(15) For the multimeter technique, write the multimeter value and find the equivalent flow from figure 607.

NOTE: This multimeter value is eqivalent to the total center system leakage.

(16) For the flowmeter technique, write the flowmeter value.

NOTE: The flowmeter value is the total center system leakage.

(17) Push the A/P DISENGAGE switch on the mode control panel on the P55 panel.

(18) Put the YAW DAMPER L switch to OFF on the P5 panel to OFF.

(19) If the total center system leakage is more than 4.5 GPM, do the Full Hydraulic System Internal Leakage Check and Isolation of Components with High Leakage procedure.

(20) Replace components as necessary to decrease the gross system leakage below 4.5 GPM.

NOTE: This leakage rate permits the leakage to increase before a subsequent leakage check and not become more than the 6.0 GPM approved limit.

(21) After the components are replaced, do the Center Hydraulic System Gross Internal Leakage Check again to make sure the leakage rate is less than 4.5 GPM.

(22) Remove the pressure from the hydraulic system:

MECH | INSP

(a) If the hydraulic system was pressurized with the ACMP, put the C HYD PUMPS-ELEC 1 pump switch to the OFF position.

(b) If the hydraulic system was pressurized with the service cart, operate the hydraulic service cart to decrease the pressure in the system to zero.

(23) If the flowmeter technique was used, do these steps:

(a) If the ACMP was used to pressurize the system, do these steps:

1) Remove the flowmeter from the ACMP pressure line and connect the ACMP pressure line.

WARNING: REFER TO AMM 32-00-15/201 FOR THE LOCK REMOVAL PROCEDURE. FAST MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

2) Remove the landing gear door lock and close the right wheel door (AMM 32-00-15/201).

(b) If the hydraulic service cart was used to pressurize the system, do these steps:

1) Disconnect the service cart and install the caps on the airplane ground power connections.

2) Close access panel 149BL on the keel beam between the main wheel wells (AMM 06-41-00/201).

(24) If the multimeter technique was used, do these steps:

(a) Do these steps to remove the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Remove the clamp-on ac current probe from the wire at the ACMP ELCU and close up the P31 panel.

G. Right Hydraulic System Gross Internal Leakage Check

(1) If the flowmeter technique is used, do these steps:

MECH | INSP

(a) Remove the pressure from the right hydraulic system and reservoir (AMM 29-11-00/201).

(b) Open the aft strut hydraulic access panel 447BR (AMM 06-43-00/201).

(c) If the ACMP will be used to pressurize the system, then install the flowmeter in the pressure line between the right system ACMP and the ACMP pressure/case drain filter module.

(d) If the hydraulic service cart will be used to pressurize the hydraulic system, then connect the service cart pressure and return lines to the right system ground power connections with a flowmeter installed in the cart pressure line (Fig. 603A).

(2) If the multimeter technique is used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS INSTALLED INTO THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to install the multimeter and the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Get access to the right system ACMP ELCU M896 in the P31 panel.

3) Put the clamp-on ac current probe around one of the three wires which connect to the load side of the ELCU.

4) Connect the multimeter to the clamp-on ac current probe.

5) If necessary, supply electrical power (AMM 24-22-00/201).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM HYDRAULIC COMPONENTS THAT CAN MOVE. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Pressurize the right hydraulic system:

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(a) To pressurize the hydraulic system with the ACMP, put the R HYD PUMP-ELEC pump switch to the ON position.

(b) To pressurize the hydraulic system with the service cart, operate the hydraulic service cart to pressurize the right system to 3000 psi.

(4) Put the WING and TAIL FLT CONTROL SHUTOFF switch R on the P61 panel to ON.

(5) Push the A/P ENGAGE R CMD switch on the mode control panel on the P55 panel.

(6) Make sure the right thrust reverser is retracted and the thrust reverser lever on the pilots control stand is in the retract position.

(7) For the multimeter technique, write the multimeter value and find the equivalent flow from figure 607.

NOTE: This multimeter value is eqivalent to the total right system leakage.

(8) For the flowmeter technique, write the flowmeter value.

NOTE: The flowmeter value is the total right system leakage.

(9) If the total right system leakage is more than 4.5 GPM, do the Full Hydraulic System Internal Leakage Check and Isolation of Components with High Leakage procedure.

(10) Replace components as necessary to decrease the gross system leakage below 4.5 GPM.

NOTE: This leakage rate permits the leakage to increase before a subsequent leakage check and not become more than the 6.0 GPM approved limit.

(11) After the components are replaced, do the Right Hydraulic System Gross Internal Leakage Check again to make sure the leakage rate is less than 4.5 GPM.

(12) Push the A/P DISENGAGE switch on the mode control panel on the P55 panel.

MECH | INSP

(13) Remove the pressure from the hydraulic system:

(a) If the hydraulic system was pressurized with the ACMP, then put the R HYD PUMP-ELEC pump switch to the OFF position.

(b) If the hydraulic system was pressurized with the service cart, operate the hydraulic service cart to decrease the pressure in the system to zero.

(14) If the flowmeter technique was used, do these steps:

(a) If the hydraulic system was pressurized with the ACMP, then remove the flowmeter from the ACMP pressure line and reconnect the ACMP pressure line.

(b) If the hydraulic system was pressurized with the cart, then disconnect the hydraulic service cart and install the caps on the airplane ground power connections.

(c) Close the aft strut hydraulic access panel, 447BR (AMM 06-43-00/201).

(15) If the multimeter technique was used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS REMOVED FROM THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to remove the clamp-on ac current probe:

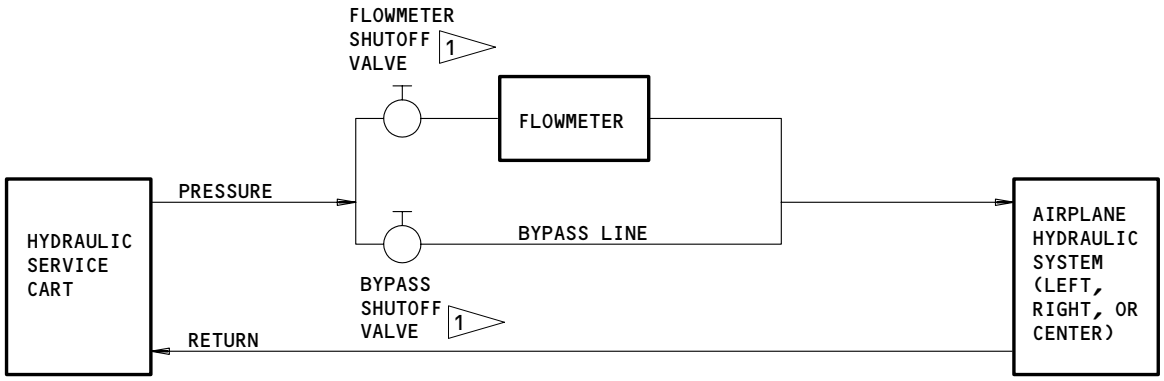
1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

(b) Remove the clamp-on ac current probe from the wire at the ACMP ELCU and close up the P31 panel.

(16) Remove electrical power, if it is not necessary (AMM 24-22-00/201).

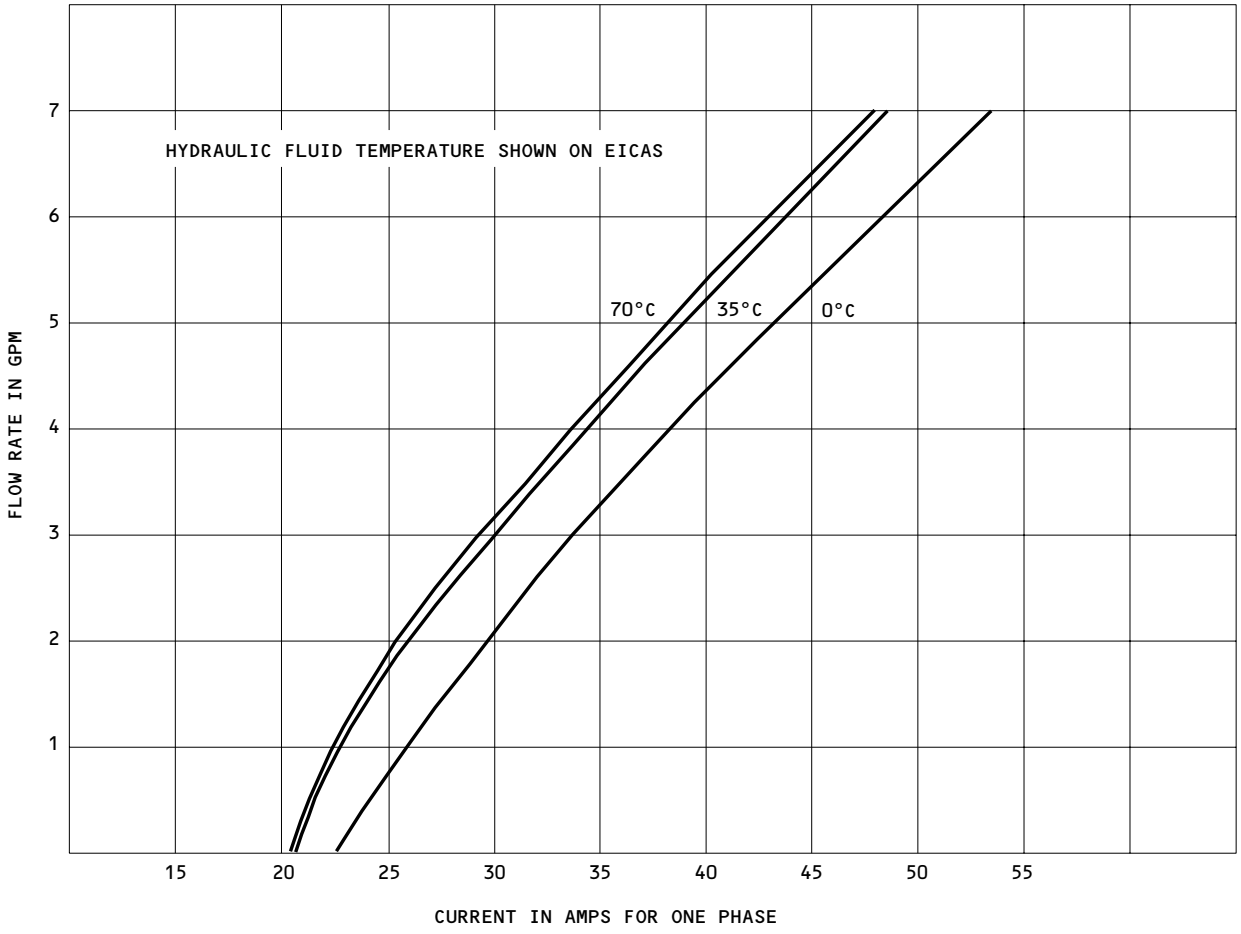
(17) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P6 panel:

(a) 6J8, RAM AIR TURBINE PWR



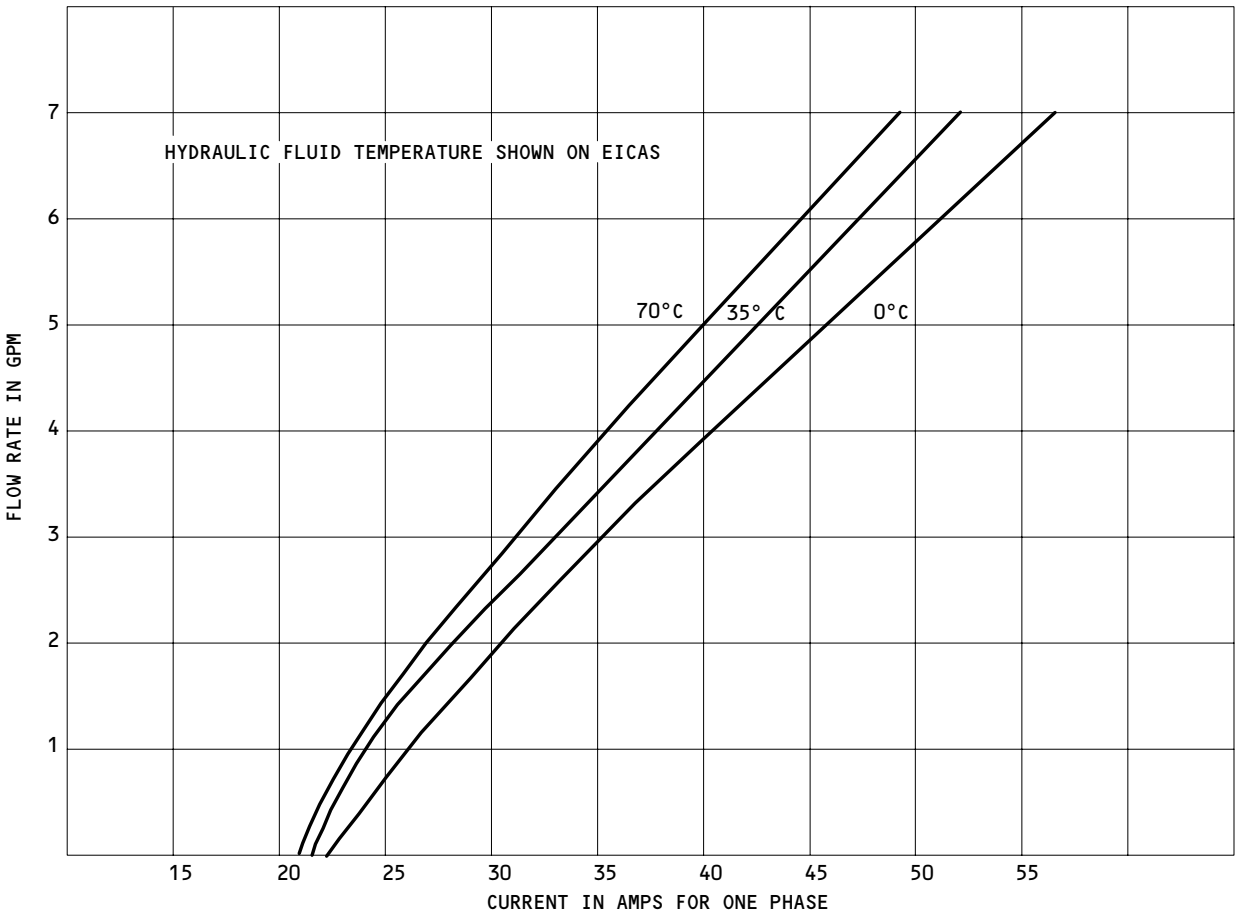
1 OPEN THE BYPASS SHUTOFF VALVE AND CLOSE THE FLOWMETER SHUTOFF VALVE WHEN THE FLIGHT CONTROL SURFACES ARE MOVED. THIS WILL PREVENT A FLOW THROUGH THE FLOWMETER WHICH IS MORE THAN ITS CAPACITY. OPEN THE FLOWMETER SHUTOFF VALVE AND CLOSE THE BYPASS SHUTOFF VALVE BEFORE YOU MEASURE A FLOW RATE

Hydraulic Flowmeter and Bypass Circuit
Figure 603A



(VICKERS PUMPS)

Electric Pump Flow and Multimeter Value
Figure 607 (Sheet 1)



(ABEX PUMPS)
Electric Pump Flow and Multimeter Value
Figure 607 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-003-02
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	CREW CABIN		2C (#)	12424	017	APR 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
FUNCTIONAL	ELEVATOR AND RUDDER PCA'S		ALL	ALL

ZONES	ACCESS PANELS
211 324 335 345	324GL 324JL 324LL 335EB 335GB 335HB 345EB 345GB 345HB

MECH	INSP	MPD ITEM NUMBER

CHECK INTERNAL LEAKAGE OF ELEVATOR AND RUDDER POWER CONTROL ACTUATORS (LEFT, CENTER, AND RIGHT). 29-11-00-6G

(#) CMR FREQUENCY IS 12000 HOURS.
MSG-3 ANALYSIS FREQUENCY OF 2C APPLIES AND MAY BE ADJUSTED AS ANY MRB ITEM UNTIL THE 12000-HOUR CMR DEVELOPED FREQUENCY IS REACHED.

1. Hydraulic System Internal Leakage Check of Elevator and Rudder Power Control Actuators

A. General

(1) The leakage check procedure using the rudder actuator lock set calculates the sum of the leakages in the empennage with the rudder and elevator PCAs off null for each hydraulic system. The leakage rates must not be more than the approved leakage flow rates. If a system has more than the approved leakage flow rates, replace or repair components until the leakage is less than the approved limits. The sequence in which you do a test of the left, right, and center hydraulic systems is not important. When the leak check of a system is started, do not stop until the procedure is completed, to obtain correct results.

(2) When you do trouble-shooting, it is not necessary to do a check of all the systems. In the system with high leakage, feel for hot tubing or actuators and listen for fluid leakage. This method will isolate the defective components in a subsystem which has too much internal leakage. Use approved tools to find heat, vibration, or sound. Before you do an internal leakage check, make sure persons will not be injured or equipment will not be damaged when the powered components move.

(3) There are two techniques to measure flow rates, the multimeter technique and the flowmeter technique.

(a) Multimeter technique

1) The multimeter technique uses the alternating current motor pumps (ACMP) to measure the hydraulic flow rate.

2) A clamp-on ac current probe is installed around one wire at the ACMP ELCU in the P31 or P32 panel. The multimeter is then connected to the current probe to measure the current that flows in the wire to the pump motor. A graph shown in Fig. 607 changes the current to a hydraulic flow rate.

(b) Flowmeter technique

1) The flowmeter technique uses a flowmeter to measure flow rates directly while the system is pressurized with an ACMP or a hydraulic service cart. The flowmeter is installed in the pressure line between the pressure source and the pressure filter module (Fig 603A).

2) If you use the flowmeter technique, write the flowmeter values as flow numbers and ignore the multimeter values specified in the procedure.

B. Equipment

(1) This equipment is used with the multimeter technique:

(a) Digital Multimeter - John Fluke Model 27 YEL, or equivalent

(b) Clamp-on AC Current Probe - John Fluke Model 80i 600.

NOTE: The ac current probe is used with the multimeter.

(2) This equipment is used with the flowmeter technique (optional to the multimeter technique):

(a) Flowmeter - commercially available, 0.2 to 7.0 GPM range with a precision of ±3% of the indication, specified for operation at 3000 psi

(b) Hydraulic service cart - commercially available, with 15 micron absolute filter, which can supply 6 GPM at 3000 psi, with hydraulic fluid, fire resistant, BMS 3-11.

NOTE: The service cart is not necessary if the ACMP is used to pressurize the hydraulic system.

(3) Rudder Actuator Lock Set - A27003-23

NOTE: The rudder actuator lock set is used only in the left hydraulic system because the ratio changer, which is in series with the center rudder PCA, can not command the center rudder PCA control valve to an over travel position.

(4) Mechanic's Stethoscope, GA 111 D, Snap-On-Tools Corporation, Kenosha, Wisconsin

C. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels.

(2) AMM 06-42-00/201, Empennage Access Doors and Panels

(3) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(4) AMM 24-22-00/201, Electrical Power - Control

(5) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(6) AMM 32-00-15/201, Landing Gear Door Locks

(7) AMM 32-00-20/201, Landing Gear Downlocks

D. Prepare for Internal Leakage Check

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(1) Look at the nameplate on the ACMPs and make a record of the manufacturer.

NOTE: "Abex" pumps may have Abex, Parker or Parker/Abex on the nameplate. "Vickers" pumps may have Eaton or Eaton/Vickers on the nameplate.

(2) Make sure all hydraulic pump switches on the pilots' overhead panel, P5, are in the OFF position.

(3) Supply electrical power (AMM 24-22-00/201).

(4) Make sure the persons on the ground can speak with those in the control cabin.

(5) Make sure the landing gear downlocks are installed (AMM 32-00-20/201).

(6) Put chocks on the main landing gear.

(7) Make sure the flaps and slats are fully retracted.

(8) Make sure the thrust reversers are retracted and the thrust reverser levers are in the retracted position.

CAUTION: DO NOT OPERATE THE HYDRAULIC PUMPS WITHOUT A MINIMUM QUANTITY OF FUEL IN THE TANKS OR AFTER THE OVERHEAT LIGHT COMES ON. IF THE HYDRAULIC SYSTEM HEAT EXCHANGERS ARE NOT COVERED WITH FUEL, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

(9) Before you pressurize the hydraulic systems with the ACMPs, make sure the left and right main fuel tanks each contain at least 600 gallons of fuel so that the heat exchangers in the fuel tanks do not become too hot.

NOTE: This minimum fuel requirement is not applicable when the hydraulic systems are pressurized with an external ground service cart.

(10) Make sure the brakes are released.

(11) Make sure the RESERVE BKS & STRG switch on the main instrument panel, P1, is in the OFF position and the amber VALVE light is off.

(12) Make sure the speedbrake handle on the control stand panel, P10, is in the DN position.

(13) Make sure these circuit breakers on the overhead panel, P11, are closed:

(a) 11C6, FLT CONT ELEC 1L AC

(b) 11C7, FLT CONT ELEC 1L DC

(c) 11C8, FLT CONT ELEC 2L AC

(d) 11C9, FLT CONT ELEC 2L DC

(e) 11G10, RUDDER RATIO

(f) 11G17, FLT CONT ELEC 1R AC

(g) 11G18, FLT CONT ELEC 1R DC

(h) 11G26, FLT CONT ELEC 2R AC

(i) 11G27, FLT CONT ELEC 2R DC

(j) 11H14, SLAT SHUTOFF

(k) 11J14, FLAP SHUTOFF

(l) EICAS (6 locations)

(14) Push the ELEC/HYD switch on the engine indicating and crew alerting system EICAS maintenance panel.

E. Left Hydraulic System Internal Leakage Check of Elevator and Rudder PCAs Using a Rudder Actuator Lock Set (Fig. 604)

NOTE: This procedure calculates the sum of the leakages in the empennage with the rudder and elevators off null. The off null leakage can change with the direction of surface movement.

(1) Open access panels 324LL, 324JL, and 324GL for the rudder PCAs (AMM 06-42-00/201).

MECH | INSP

(2) Install the locks on all three rudder power control actuators PCAs (Fig. 603) (AMM 27-21-02/201).

NOTE: You must use only PCA locks that have flanges at the two ends.

(3) If the multimeter technique is used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS INSTALLED INTO THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to install the multimeter and the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Get access to the left system ACMP ELCU M895 in the P32 panel.

3) Put the clamp-on ac current probe around one of the three wires which are connected to the load side of the ELCU.

4) Connect the multimeter to the clamp-on ac current probe.

5) If necessary, supply electrical power (AMM 24-22-00/201).

(4) If the flowmeter technique is used, do these steps:

(a) Remove the pressure from the left hydraulic system and reservoir (AMM 29-11-00/201).

(b) Open the aft strut hydraulic access panel, 437BR (AMM 06-43-00/201).

(c) If the ACMP will be used to pressurize the system, then install the flowmeter in the pressure line between the left system ACMP and the ACMP pressure/case drain filter module.

MECH | INSP

(d) If the hydraulic service cart will be used to pressurize the hydraulic system, then connect the service cart pressure and return lines to the left system ground power connections with a flowmeter installed in the cart pressure line (Fig. 603A).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM HYDRAULIC COMPONENTS THAT CAN MOVE. INJURY TO A PERSON OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

CAUTION: PRESSURIZE ONLY THE LEFT HYDRAULIC SYSTEM WHILE THE RUDDER PCA LOCKS ARE INSTALLED TO DECREASE THE LOADS ON THE RUDDER PCA LOCKS.

(5) Pressurize the left hydraulic system:

(a) To pressurize the hydraulic system with the ACMP, put the L HYD PUMP-ELEC pump switch to the ON position.

(b) To pressurize the hydraulic system with the service cart, operate the hydraulic service cart to pressurize the left system to 3000 psi.

(6) Put the YAW DAMPER L switch on the yaw damper control panel on overhead panel, P5, to the INOP position.

(7) Push the A/P DISENGAGE switch on the mode control panel on the center glareshield panel, P55.

(8) Put the WING FLT CONTROL SHUTOFF switch L on right side panel, P61, to OFF. Make sure the amber switch light is on.

(9) Make sure the TAIL FLT CONTROL SHUTOFF switch L on the P61 panel is ON.

(10) Put the LEFT STAB TRIM valve switch on the P10 panel to CUTOUT.

(11) Pull the control column fully aft.

MECH | INSP

(12) For the multimeter technique, write the multimeter value as Value No. 1 and find the equivalent Flow No. 1 from figure 607.

NOTE: Make sure the recorded multimeter value is the stabilized value, and not the transitional value.

(13) For the flowmeter technique, write the flowmeter value as Flow No. 1.

NOTE: Make sure the recorded flowmeter value is the stabilized value, and not the transitional value.

(14) Put the control column to the neutral position.

(15) Push the control column fully forward.

(16) For the multimeter technique, write the multimeter value as Value No. 2 and find the equivalent Flow No. 2 from figure 607.

NOTE: Make sure the recorded multimeter value is the stabilized value, and not the transitional value.

(17) For the flowmeter technique, write the flowmeter value as Flow No. 2.

NOTE: Make sure the recorded flowmeter value is the stabilized value, and not the transitional value.

(18) Put the control column to the neutral position.

(19) Open this circuit breaker on the P11 panel and attach DO-NOT-CLOSE tag:

(a) 11G10, RUDDER RATIO

(20) Put the TAIL FLT CONTROL SHUTOFF switch L on the P61 panel to OFF.

(21) For the multimeter technique, write the multimeter value as Value No. 3 and find the equivalent Flow No. 3 from figure 607.

NOTE: Make sure the recorded multimeter value is the stabilized value, and not the transitional value.

MECH	INSP

(22) For the flowmeter technique, write the flowmeter value as Flow No. 3.

NOTE: Make sure the recorded flowmeter value is the stabilized value, and not the transitional value.

(23) Calculate the empennage off null leakage for the elevators with the trailing edge down (Fig. 604, Step 1).

(24) Calculate the empennage off null leakage for the elevators with the trailing edge up (Fig. 604, Step 2).

NOTE: The calculated leakage is the sum of the leaks through these components:
- elevator feel unit
- rudder ratio changer actuator
- piston seals
- load relief valves
- anticavitation check valves of the elevator and rudder PCAs
- autopilot and yaw damper shutoff valves.

NOTE: A large negative value shows there are leaks through the tail flight control shutoff valves to the return line when they are closed. The location of the internal leak usually releases heat and/or flow noise when the elevators are off null.

(25) If the empennage off null leakage is more than 1.0 GPM, a test of each of the PCAs is necessary. If a PCA has a leakage rate more than 1.0 GPM, the PCA must be replaced. Component leakage can be isolated by the procedure which follows:

(a) Remove the pressure from the left hydraulic system and reservoir (AMM 29-11-00/201).

(b) Disconnect the hydraulic pressure line from a PCA and install a plug which can hold 3000 psi in the pressure line.

(c) Install a cap on the PCA pressure port.

(d) Do the left hydraulic system empennage off null leakage check again. This leakage value will be smaller than the leakage value which was calculated before. The difference between these leakage values is the leakage rate of the PCA which is disconnected.

MECH | INSP

(26) Remove the pressure from the hydraulic system:

(a) If the hydraulic system was pressurized with the ACMP, then put the L HYD PUMP-ELEC pump switch to the OFF position.

(b) If the hydraulic system was pressurized with the service cart, operate the hydraulic service cart to decrease the pressure in the system to zero.

(27) If the multimeter technique was used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS REMOVED FROM THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to remove the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Remove the clamp-on ac current probe from the wire at the ACMP ELCU and close up the P32 panel.

(28) If the flowmeter technique was used, do these steps:

(a) If the hydraulic system was pressurized with the ACMP, then remove the flowmeter from the ACMP pressure line and reconnect the ACMP pressure line.

(b) If the hydraulic system was pressurized with the cart, then disconnect the service cart and flowmeter and install the caps on the airplane ground power connections.

(c) Close the aft strut hydraulic access panel, 437BR (AMM 06-43-00/201).

(29) Put the YAW DAMPER L switch on the P5 panel to ON.

(30) Put the WING and TAIL FLT CONTROL SHUTOFF switches L on the P61 panel to ON.

(31) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

MECH | INSP

(a) 11G10, RUDDER RATIO

(32) Put the LEFT STAB TRIM VALVE switch on the P10 panel to NORM.

(33) Remove the rudder lock set tool from all rudder PCAs (Fig. 603). (AMM 27-21-02/201).

(34) Install access panels 324LL, 324JL, and 324GL (AMM 06-42-00/201).

F. Center Hydraulic System Internal Leakage Check of Elevator and Rudder PCAs (Fig. 605)

NOTE: This procedure calculates the sum of the leakage in the empennage with the rudder and elevators off null. When you operate the rudder pedals, push at the pedal pivot points (The bottoms of the pedals) to prevent brake operation. The off null leakage can change with the direction of surface movement.

(1) If the flowmeter technique is used, do these steps:

(a) Remove the pressure from the center hydraulic system and reservoir (AMM 29-11-00/201).

(b) If the ACMP is used to pressurize the system, do these steps:

WARNING: REFER TO AMM 32-00-15/201 FOR THE LOCK INSTALLATION PROCEDURE. FAST MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT IF THE LOCKS ARE NOT INSTALLED CORRECTLY.

1) Open the right wheel well door and install the landing gear door lock (AMM 32-00-15/201).

2) Install the flowmeter in the pressure line between the center system ACMP C1 and the ACMP C1 pressure/case drain filter module.

(c) If the hydraulic service cart is used, do these steps:

1) Open the access panel 149BL on the keel beam between the main wheel wells for access to the center system ground power connections (AMM 06-41-00/201).

MECH | INSP

2) Connect the service cart pressure and return lines to the center system ground power connections with a flowmeter installed in the cart pressure line (Fig. 603A).

(2) If the multimeter technique is used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS INSTALLED INTO THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to install the multimeter and the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Get access to the center system ACMP C1 ELCU M897 in the P31 panel.

3) Put the clamp-on ac current probe around one of the three wires which connect to the load side of the ELCU.

4) Connect the multimeter to the clamp-on ac current probe.

5) If necessary, supply electrical power (AMM 24-22-00/201).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM HYDRAULIC COMPONENTS THAT CAN MOVE. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Pressurize the center hydraulic system:

(a) To pressurize the hydraulic system with the ACMP, put the C HYD PUMP-ELEC 1 pump switch to the ON position.

(b) To pressurize the hydraulic system with the service cart, operate the hydraulic service cart to pressurize the center system to 3000 psi.

(4) Push the A/P DISENGAGE switch on the mode control panel on the P55 panel.

MECH | INSP

(5) Put the WING FLT CONTROL SHUTOFF switch C on the P61 panel to OFF.

(6) Turn the control wheel fully left and then fully right through five cycles to bleed remaining pressure that is downstream of the shutoff valve.

(7) After you have bled the remaining pressure, make sure that the ailerons do not move when you move the control wheel.

(8) Put the TAIL FLT CONTROL SHUTOFF switch C on the P61 panel to ON.

(9) Put the C STAB TRIM valve switch on the P10 panel to CUTOUT.

(10) Make sure the towing handle on the nose gear metering valve module is in the usual position. If necessary, put the nose landing gear wheels in the center position.

(11) Push the left rudder pedal fully forward and pull the control column fully aft and hold.

(12) For the multimeter technique, write the multimeter value as Value No. 1 and find the equivalent Flow No. 1 from figure 607.

NOTE: Make sure the recorded multimeter value is the stabilized value, and not the transitional value.

(13) For the flowmeter technique, write the flowmeter value as Flow No. 1.

NOTE: Make sure the recorded flowmeter value is the stabilized value, and not the transitional value.

(14) Put the rudder pedal and the control column to the neutral position.

(15) Push the right rudder pedal fully forward and push the control column fully forward and hold.

(16) For the multimeter technique, write the multimeter value as Value No. 2 and find the equivalent Flow No. 2 from figure 607.

NOTE: Make sure the recorded multimeter value is the stabilized value, and not the transitional value.

MECH | INSP

(17) For the flowmeter technique, write the flowmeter value as Flow No. 2.

NOTE: Make sure the recorded flowmeter value is the stabilized value, and not the transitional value.

(18) Put the rudder pedal and the control column to the neutral position.

(19) Put the TAIL FLT CONTROL SHUTOFF switch C on the P61 panel to OFF.

(20) Move the control column forward and then aft to bleed remaining pressure that is downstream of the shutoff valve.

(21) After you have bled the pressure, make sure the elevators do not move while you move the control column.

(22) For the multimeter technique, write the multimeter value as Value No. 3 and find the equivalent Flow No. 3 from figure 607.

NOTE: Make sure the recorded multimeter value is the stabilized value, and not the transitional value.

(23) For the flowmeter technique, write the flowmeter value as Flow No. 3.

NOTE: Make sure the recorded flowmeter value is the stabilized value, and not the transitional value.

(24) Calculate the empennage off null down/right leakage (Fig. 605, Step 1).

MECH | INSP

(25) Calculate the empennage off null up/left leakage (Fig. 605, Step 2).

NOTE: The calculated leakages are the sum of the leakages through these components:
- elevator feel computer
- piston seals
- load relief and anticavitation check valves of the rudder and elevator PCAs
- autopilot and yaw damper shutoff valves.

NOTE: The location of the internal leak usually releases heat and/or flow noise when the tail flight control surfaces are off null. A large negative value shows that there are leaks through the tail flight control shutoff valves to the return line when they are closed.

(26) If the empennage off null leakage is more than 1.0 GPM, a test of each of the PCAs is necessary. If a PCA has a leakage rate of more than 1.0 GPM, the PCA must be replaced. Component leakage can be isolated by the procedure which follows:

(a) Remove the pressure from the center hydraulic system and reservoirs (AMM 29-11-00/201).

(b) Disconnect the hydraulic pressure line from a PCA and install a plug which can hold 3000 psi in the pressure line.

(c) Install a cap on the PCA pressure port.

(d) Do the center hydraulic system empennage off null leakage check again. This leakage value will be smaller than the leakage value which was calculated before. The difference between these leakage values is the leakage rate of the PCA which is disconnected.

(27) Remove the pressure from the hydraulic system:

(a) If the hydraulic system was pressurized with the ACMP, then put the C HYD PUMP-ELEC 1 pump switch to the OFF position.

(b) If the hydraulic system was pressurized with the service cart, operate the hydraulic service cart to decrease the pressure in the system to zero.

(28) If the flowmeter technique was used, do these steps:

MECH | INSP

(a) If the ACMP was used to pressurize the system, do these steps:

1) Remove the flowmeter from the ACMP pressure line and connect the ACMP pressure line.

WARNING: REFER TO AMM 32-00-15/201 FOR THE LOCK REMOVAL PROCEDURE. FAST MOVEMENT OF THE DOORS CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

2) Remove the landing gear door lock and close the right wheel well door (AMM 32-00-15/201).

(b) If the hydraulic service cart was used to pressurize the system, do these steps:

1) Disconnect the service cart and install the caps on the airplane ground power connections.

2) Close the access panel 149BL on the keel beam between the main wheel wells (AMM 06-41-00/201).

(29) If the multimeter technique was used, do these steps:

(a) Do these steps to remove the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Remove the clamp-on ac current probe from the wire at the ACMP ELCU and close up the P31 panel.

(30) Put the YAW DAMPER R switch on the P5 panel to ON.

(31) Put the WING and TAIL FLIGHT CONTROL SHUTOFF switches C on the P61 panel to ON.

(32) Put the C STAB TRIM valve switch on the P10 panel to NORM.

MECH | INSP

G. Right Hydraulic System Internal Leakage Check of Elevator and Rudder PCAs

NOTE: This procedure calculates the sum of the leakages in the empennage with the rudders and elevators off null. When you operate the rudder pedals, push at the pedal pivot points (the bottoms of the pedals) to prevent brake operation. The off null leakage can change with the direction of surface movement.

(1) If the flowmeter technique is used, do these steps:

(a) Remove the pressure from the right hydraulic system and reservoir (AMM 29-11-00/201).

(b) Open the aft strut hydraulic access panel 447BR (AMM 06-43-00/201).

(c) If the ACMP will be used to pressurize the system, then install the flowmeter in the pressure line between the right system ACMP and the ACMP pressure/case drain filter module.

(d) If the hydraulic service cart will be used to pressurize the system, then connect the service cart pressure and return lines to the right system ground power connections with a flowmeter installed in the cart pressure line (Fig. 603A).

(2) If the multimeter technique is used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS INSTALLED INTO THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to install the multimeter and the clamp-on ac current probe:

1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Get access to the right system ACMP ELCU M896 in the P31 panel.

3) Put the clamp-on ac current probe around one of the three wires which connect to the load side of the ELCU.

4) Connect the multimeter to the clamp-on ac current probe.

5) If necessary, supply electrical power (AMM 24-22-00/201).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM HYDRAULIC COMPONENTS THAT CAN MOVE. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Pressurize the right hydraulic system:

(a) To pressurize the hydraulic system with the ACMP, put the R HYD PUMP-ELEC pump switch to the ON position.

(b) To pressurize the hydraulic system with the service cart, operate the hydraulic service cart to pressurize the right system to 3000 psi.

(4) Push the A/P DISENGAGE switch on the mode control panel on the P55 panel.

(5) Put the WING FLT CONTROL SHUTOFF switch R on the P61 panel to OFF.

(6) Turn the control wheel fully left and then fully right.

(7) Make sure the ailerons do not move.

(8) Make sure the TAIL FLT CONTROL SHUTOFF switch R on the P61 panel is ON.

(9) Push the left rudder pedal fully forward and pull the control column fully aft and hold.

(10) For the multimeter technique, write the multimeter value as Value No. 1 and find the equivalent Flow No. 1 from figure 607.

(11) For the flowneter technique, write the flowmeter value as Flow No. 1.

(12) Put the rudder pedals and the control column to the neutral position.

(13) Push the right rudder pedal fully forward and push the control column fully forward and hold.

MECH | INSP

(14) For the multimeter technique, write the multimeter value as Value No. 2 and find the equivalent Flow No. 2 from figure 607.

(15) For the flowneter technique, write the flowmeter value as Flow No. 2.

(16) Put the rudder pedals and the control column to the neutral position.

(17) Put the TAIL FLT CONTROL SHUTOFF switch R on the P61 panel to OFF.

(18) Push one rudder pedal and then the other and make sure the rudder does not move.

(19) For the multimeter technique, write the multimeter value as Value No. 3 and find the equivalent Flow No. 3 from figure 607.

(20) For the flowneter technique, write the flowmeter value as Flow No. 3.

(21) Calculate the empennage off null down/right leakage (Fig. 606, Step 1).

(22) Calculate the empennage off null up/left leakage (Fig. 606, Step 2).

NOTE: The calculated leakages are the sum of the leakages through these components:
- piston seals
- load relief and anticavitation check valves of the rudder and elevator PCAs
- autopilot servos and shutoff valves.

NOTE: A large negative value shows that there are leaks through the tail flight control valves to the return line when they are closed. The location of the internal leak usually releases heat and/or flow noise when the tail flight control surfaces are off null.

(23) If the empennage off null leakage is more than 1.0 GPM, a test of each of the PCAs is necessary. If a PCA has a leakage rate of more than 1.0 GPM, the PCA must be replaced. Component leakage can be isolated by the procedure which follows:

(a) Remove the pressure from the right hydraulic system and reservoirs (AMM 29-11-00/201).

(b) Disconnect the hydraulic pressure line from a PCA and install a plug which can hold 3000 psi in the pressure line.

(c) Install a cap on the PCA pressure port.

(d) Do the right hydraulic system empennage off null leakage check again. This leakage value will be smaller than the leakage value which was calculated before. The difference between these leakage values is the leakage rate of the PCA which is disconnected.

(e) Push the A/P DISENGAGE Switch on the mode control panel, on the P55 panel, to return the A/P DISENGAGE switch to the normal position.

(24) Remove the pressure from the hydraulic system:

(a) If the hydraulic system was pressurized with the ACMP, then put the R HYD PUMP-ELEC pump switch to the OFF position.

(b) If the hydraulic system was pressurized with the service cart, operate the hydraulic service cart to decrease the pressure in the system to zero.

(25) If the flowmeter technique was used, do these steps:

(a) If the hydraulic system was pressurized with the ACMP, then remove the flowmeter from the ACMP pressure line and reconnect the ACMP pressure line.

(b) If the hydraulic system was pressurized with the cart, then disconnect the hydraulic service cart and flowmeter and install the caps on the airplane ground power connections.

(c) Close the aft strut hydraulic access panel, 447BR (AMM 06-41-00/201).

(26) If the multimeter technique was used, do these steps:

WARNING: BE CAREFUL WHEN THE CLAMP-ON AC CURRENT PROBE IS REMOVED FROM THE POWER PANEL. HIGH VOLTAGES CAN BE PRESENT IN THE POWER PANELS. CONTACT WITH HIGH VOLTAGE CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a) Do these steps to remove the clamp-on ac current probe:

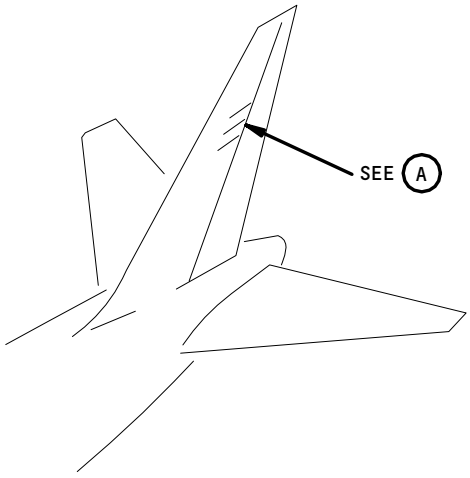
MECH	INSP

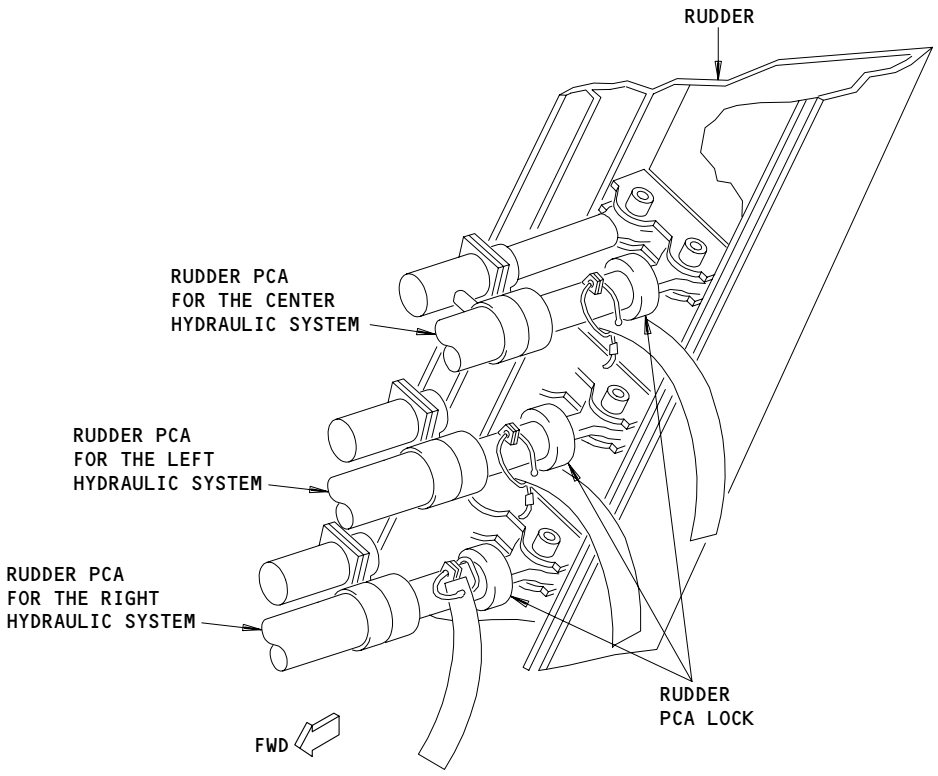
1) If practical, remove electrical power while you access the power panel (AMM 24-22-00/201).

2) Remove the clamp-on ac current probe from the wire at the ACMP ELCU and close up the P31 panel.

(27) Put the WING and TAIL FLT CONTROL SHUTOFF switch R on the P61 panel to ON.

(28) Remove electrical power, if it is not necessary (AMM 24-22-00/201).



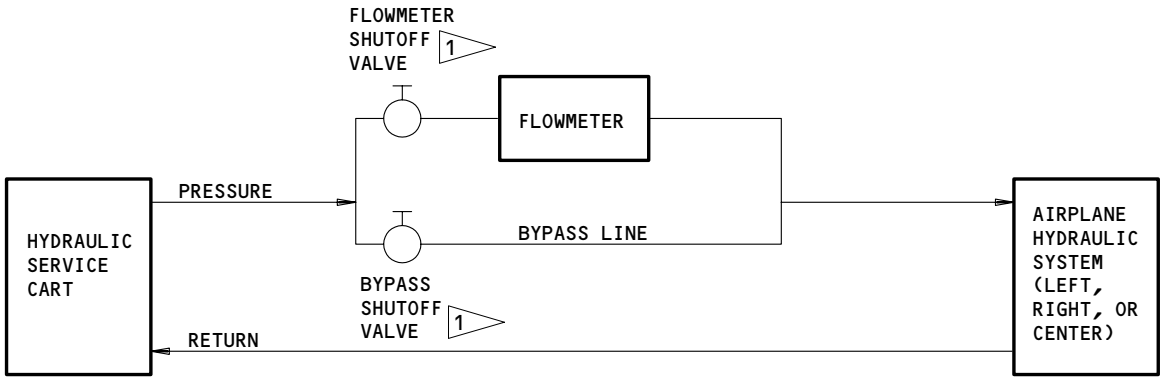


PCA LOCKS 1

A

1 YOU MUST USE PCA LOCKS THAT HAVE FLANGES AT THE TWO ENDS.

Lock Set for the Rudder Actuator
Figure 603



1 OPEN THE BYPASS SHUTOFF VALVE AND CLOSE THE FLOWMETER SHUTOFF VALVE WHEN THE FLIGHT CONTROL SURFACES ARE MOVED. THIS WILL PREVENT A FLOW THROUGH THE FLOWMETER WHICH IS MORE THAN ITS CAPACITY. OPEN THE FLOWMETER SHUTOFF VALVE AND CLOSE THE BYPASS SHUTOFF VALVE BEFORE YOU MEASURE A FLOW RATE

Hydraulic Flowmeter and Bypass Circuit
Figure 603A

Write the Multimeter Value and the Flow Data:

Value No.	Flow No.	Value No.	Flow No.
1 _____	1 _____	16 _____	16 _____
2 _____	2 _____	17 _____	17 _____
3 _____	3 _____	18 _____	18 _____
4 _____	4 _____	19 _____	19 _____
5 _____	5 _____	20 _____	20 _____
6 _____	6 _____	21 _____	21 _____
7 _____	7 _____	22 _____	22 _____
8 _____	8 _____	23 _____	23 _____
9 _____	9 _____	24 _____	24 _____
10 _____	10 _____	25 _____	25 _____
11 _____	11 _____	26 _____	26 _____
12 _____	12 _____	27 _____	27 _____
13 _____	13 _____	28 _____	28 _____
14 _____	14 _____	29 _____	29 _____
15 _____	15 _____	30 _____	30 _____

Calculate the Component Leakage Values:

Step No.		Leakage Flow	Approved Leakage Flow Limit
1.	Empennage Off Null TE Down Leakage (Flow No. 2 _____) - (Flow No. 3 _____) =	_____	1.0 GPM
2.	Empennage Off Null TE Up Leakage (Flow No. 1 _____) - (Flow No. 3 _____) =	_____	1.0 GPM
3.	Total Left System Leakage Flow No. 4 =	_____	4.5 GPM 1
4.	System Relief, EDP Check, Shutoff and Isolation Valves Leakage Flow No. 5 =	_____	1.0 GPM

1 The 4.5 GPM gives an allowance which permits the leakage to increase before a subsequent check and not become more than the 6.0 GPM approved limit.

Left Hydraulic System Leakage Check
Figure 604 (Sheet 1)

Write the Multimeter Value and Flow Data:

Value No.	Flow No.	Value No.	Flow No.
1 _____	1 _____	21 _____	21 _____
2 _____	2 _____	22 _____	22 _____
3 _____	3 _____	23 _____	23 _____
4 _____	4 _____	24 _____	24 _____
5 _____	5 _____	25 _____	25 _____
6 _____	6 _____	26 _____	26 _____
7 _____	7 _____	27 _____	27 _____
8 _____	8 _____	28 _____	28 _____
9 _____	9 _____	29 _____	29 _____
10 _____	10 _____	30 _____	30 _____
11 _____	11 _____	31 _____	31 _____
12 _____	12 _____	32 _____	32 _____
13 _____	13 _____	33 _____	33 _____
14 _____	14 _____	34 _____	34 _____
15 _____	15 _____	35 _____	35 _____
16 _____	16 _____	36 _____	36 _____
17 _____	17 _____	37 _____	37 _____
18 _____	18 _____		
19 _____	19 _____		
20 _____	20 _____		

Calculate the Component Leakage Values:

Step No.		Leakage Flow	Approved Leakage Flow Limit
1.	Empennage Off Null Dn/Right Leakage (Flow No. 2 _____) - (Flow No. 3 _____) =	_____	1.0 GPM
2.	Empennage Off Null Up/Left Leakage (Flow No. 1 _____) - (Flow No. 3 _____) =	_____	1.0 GPM

Center Hydraulic System Leakage Check
Figure 605 (Sheet 1)

Write the Multimeter Value and Flow Data:

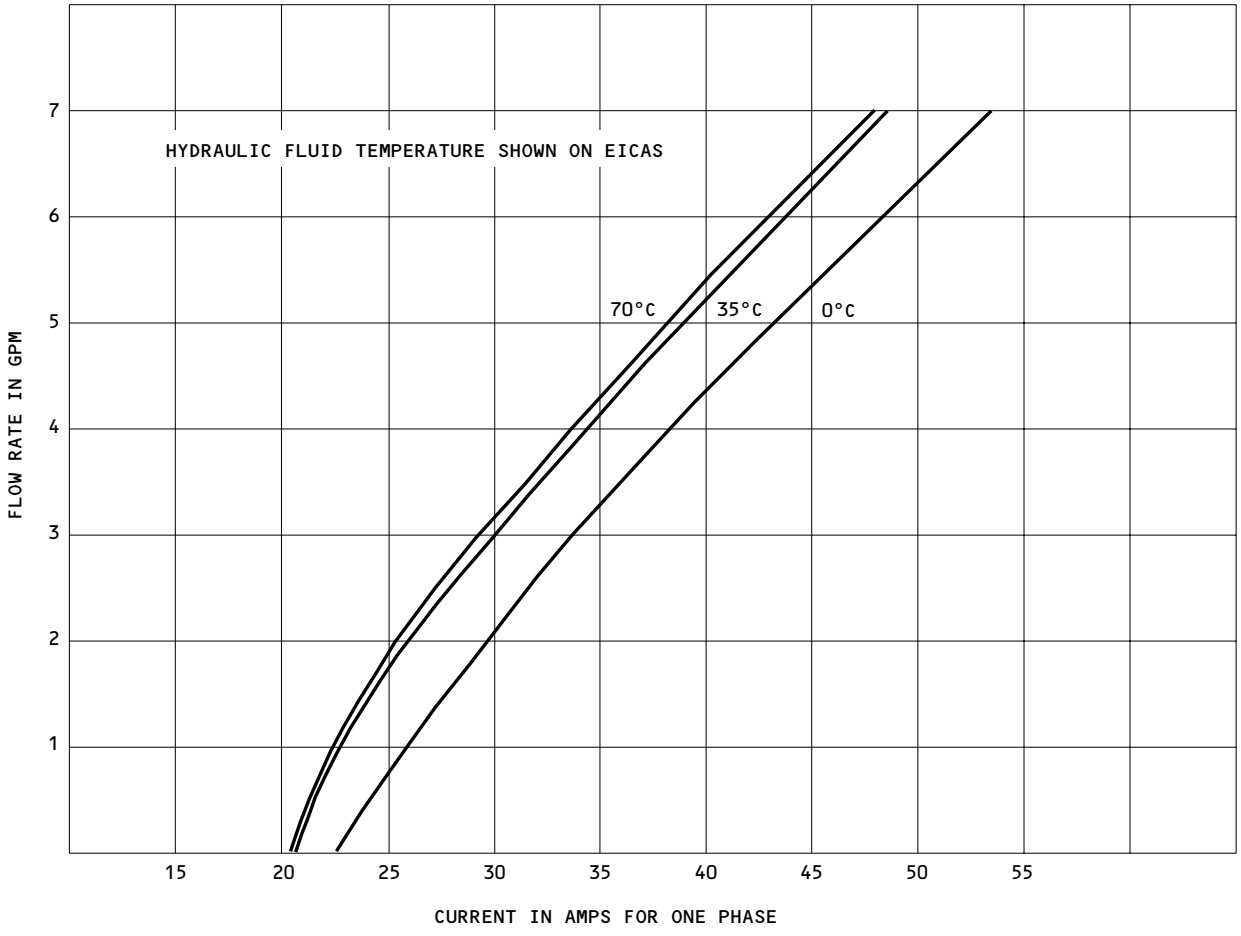
Value No.	Flow No.	Value No.	Flow No.
1 _____	1 _____	13 _____	13 _____
2 _____	2 _____	14 _____	14 _____
3 _____	3 _____	15 _____	15 _____
4 _____	4 _____	16 _____	16 _____
5 _____	5 _____	17 _____	17 _____
6 _____	6 _____	18 _____	18 _____
7 _____	7 _____	19 _____	19 _____
8 _____	8 _____	20 _____	20 _____
9 _____	9 _____	21 _____	21 _____
10 _____	10 _____	22 _____	22 _____
11 _____	11 _____	23 _____	23 _____
12 _____	12 _____		

Calculate the Component Leakage Values:

Step No.		Leakage Flow	Approved Leakage Flow Limit
1.	Empennage Off Null Dn/Right Leakage (Flow No. 2 _____) - (Flow No. 3 _____) =	_____	1.0 GPM
2.	Empennage Off Null Up/Left Leakage (Flow No. 1 _____) - (Flow No. 3 _____) =	_____	1.0 GPM
3.	Total Right System Leakage Flow No. 4 =	_____	4.5 GPM 1
4.	Shutoff and Isolation Valve Leakage Flow No. 5 =	_____	1.0 GPM
5.	Right Inboard Aileron Null Leakage (Flow No. 6 _____) - (Flow No. 7 _____) =	_____	0.8 GPM
6.	Left Outboard Aileron Null Leakage (Flow No. 7 _____) - (Flow No. 8 _____) =	_____	0.66 GPM

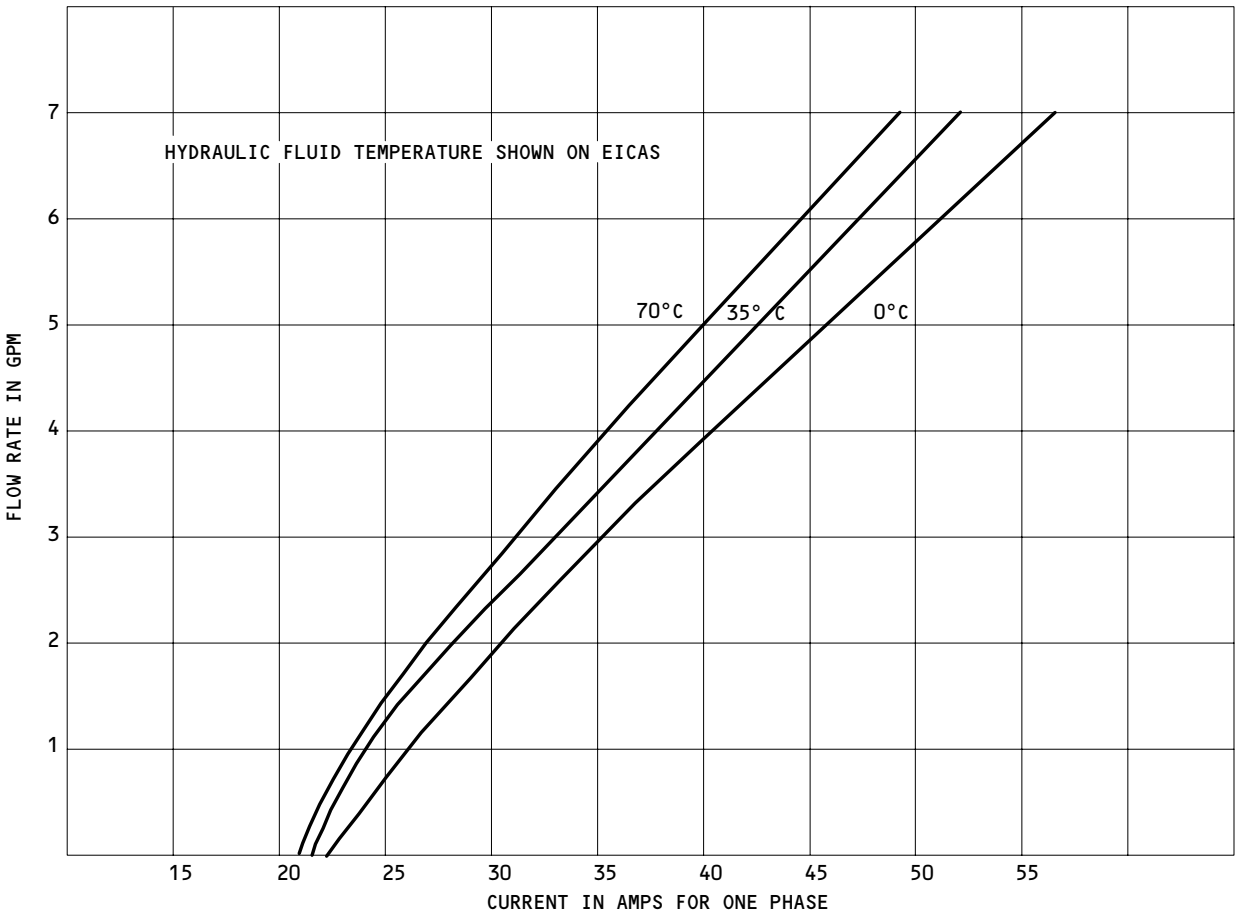
1 The 4.5 GPM gives an allowance which permits the leakage to increase before a subsequent check and not become more than the 6.0 GPM approved limit.

Right Hydraulic System Leakage Check
Figure 606 (Sheet 1)



(VICKERS PUMPS)

Electric Pump Flow and Multimeter Value
Figure 607 (Sheet 1)



(ABEX PUMPS)
Electric Pump Flow and Multimeter Value
Figure 607 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-004-01-1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STRUT 1	W-29-001-C1-1	4A	10404	011	AUG 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS L HYD EDP/ACMP CASE DRAIN FILTER		ALL	ALL

ZONES	ACCESS PANELS
437	437BL 437BR

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM L HYDRAULIC EDP & ACMP CASE DRAIN FILTERS DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6B

1. Differential Pressure Indicators Inspection For the Case Drain Filters of the Engine-Driven Pump (EDP), Alternating Current Motor Pump (ACMP), and Air-Driven Pump (ADP) in the Left, Right, and Center Hydraulic Systems

   A. References

      (1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

      (2) AMM 29-11-01/401, Left and Right System Alternating Current Motor Pump (ACMP)

      (3) AMM 29-11-02/401, Center System Alternating Current Motor Pump (ACMP)

      (4) AMM 29-11-03/401, Center System Air-Driven Pump (ADP)

      (5) AMM 29-11-17/401, Left and Right System Engine-Driven Pump (EDP) Pressure/Case Drain Filter Module and Components

      (6) AMM 29-11-18/401, Alternating Current Motor Pump (ACMP) Pressure/Case Drain Filter Module and Components

      (7) AMM 29-11-19/401, Center System Air-Driven Pump (ADP) Pressure/Case Drain Filter Module and Components

      (8) AMM 32-00-15/201, Landing Gear Door Locks

      (9) AMM 32-00-20/201, Landing Gear Downlocks

   B. Prepare for Inspection

MECH | INSP

(1) For the center hydraulic system,
make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system,
open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) For the left hydraulic system,
open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right hydraulic system,
open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

C. Inspect the Differential Pressure Indicator for the Case Drain Filter

(1) Examine the position of the red indicator button on the differential pressure indicator for each pump's case drain filter.

(2) If the red indicator button has extended out of the differential pressure indicator for a pump's case drain filter, do these steps:

(a) Remove the case drain filter element for the applicable pump:

1) EDP case drain filter element (AMM 29-11-17/401)

2) ACMP case drain filter element (AMM 29-11-18/401)

3) ADP case drain filter element (AMM 29-11-19/401)

(b) Examine the case drain filter element, filter bowl and the fluid in the filter bowl for metal contamination to determine if you also need to replace the applicable hydraulic pump.

NOTE: The criteria for determination of hydraulic pump replacement is in each pump's case drain filter element removal procedure (see previous step).

MECH	INSP

(c) Install a new serviceable case drain filter element for the applicable pump.

1) EDP case drain filter element (AMM 29-11-17/401)

2) ACMP case drain filter element (AMM 29-11-18/401)

3) ADP case drain filter element (AMM 29-11-19/401)

(d) Push the red indicator button to reset its position into the differential pressure indicator for the case drain filter.

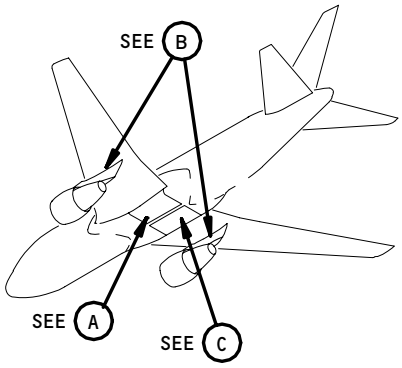
D. Return the Airplane to Normal Configuration

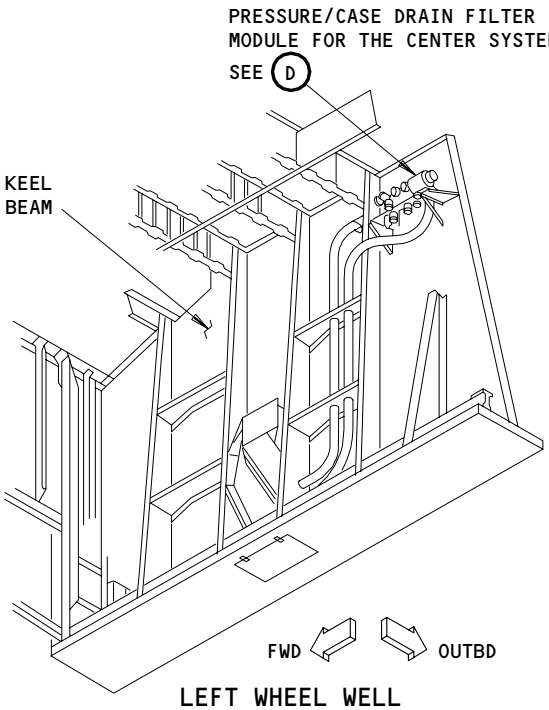
(1) For the left hydraulic system,
close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(2) For the right hydraulic system,
close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

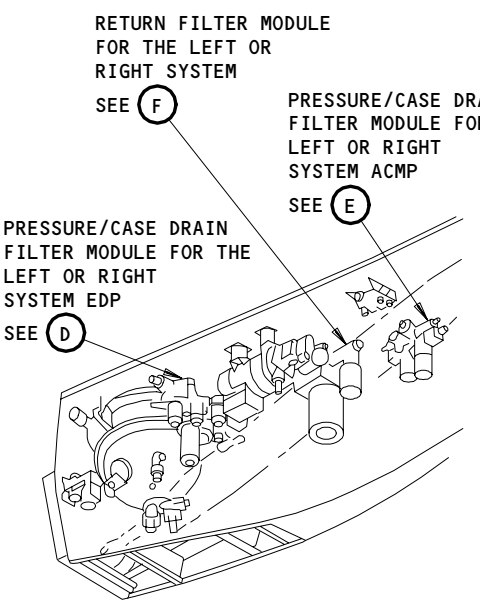
WARNING: USE THE PROCEDURE TO REMOVE THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system,
remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201)

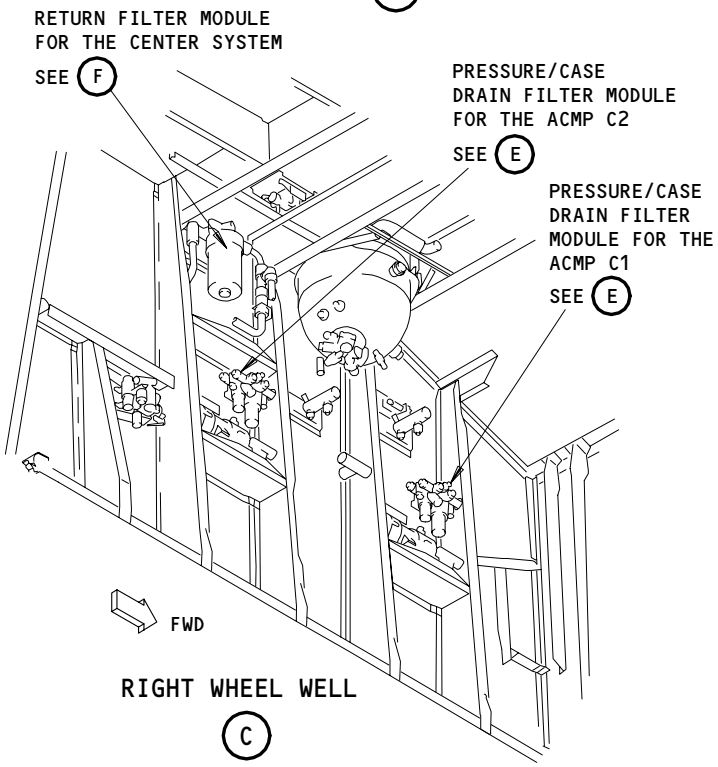




LEFT WHEEL WELL
A

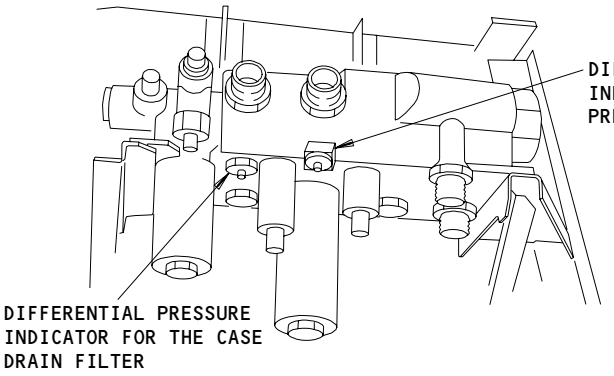


ENGINE STRUT
HYDRAULIC BAY
B



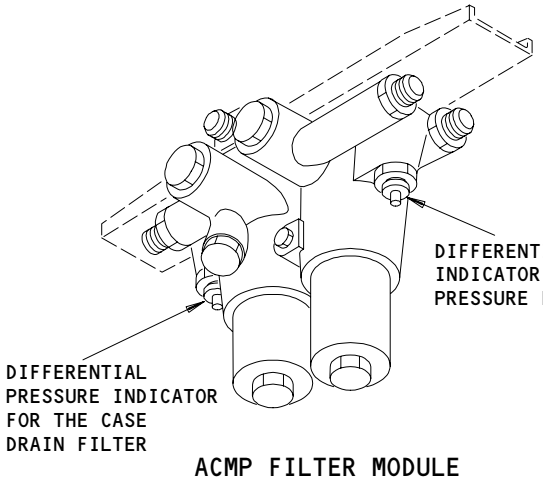
RIGHT WHEEL WELL
C

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 1)



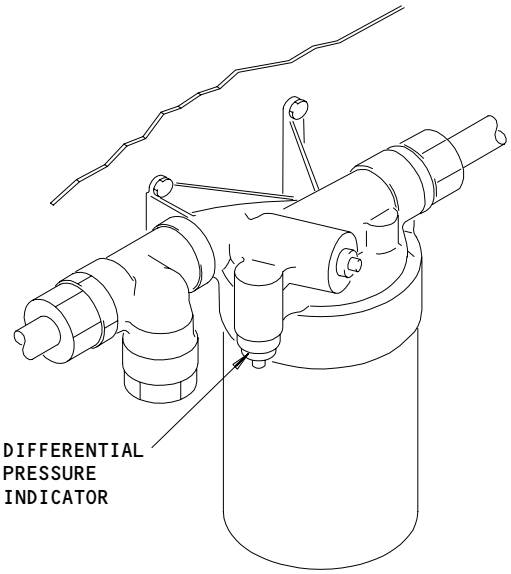
EDP OR ADP FILTER MODULE

(D)



ACMP FILTER MODULE
(EXAMPLE)

(E)



RETURN FILTER MODULE
(EXAMPLE)

(F)

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-004-01-2
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STRUT 2	W-29-001-C1-2	4A	10404	011	AUG 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS R HYD EDP/ACMP CASE DRAIN FILTER		ALL	ALL

ZONES	ACCESS PANELS
447	447BL 447BR

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM R HYDRAULIC EDP & ACMP CASE DRAIN FILTERS DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6B

1. Differential Pressure Indicators Inspection For the Case Drain Filters of the Engine-Driven Pump (EDP), Alternating Current Motor Pump (ACMP), and Air-Driven Pump (ADP) in the Left, Right, and Center Hydraulic Systems

   A. References

      (1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

      (2) AMM 29-11-01/401, Left and Right System Alternating Current Motor Pump (ACMP)

      (3) AMM 29-11-02/401, Center System Alternating Current Motor Pump (ACMP)

      (4) AMM 29-11-03/401, Center System Air-Driven Pump (ADP)

      (5) AMM 29-11-17/401, Left and Right System Engine-Driven Pump (EDP) Pressure/Case Drain Filter Module and Components

      (6) AMM 29-11-18/401, Alternating Current Motor Pump (ACMP) Pressure/Case Drain Filter Module and Components

      (7) AMM 29-11-19/401, Center System Air-Driven Pump (ADP) Pressure/Case Drain Filter Module and Components

      (8) AMM 32-00-15/201, Landing Gear Door Locks

      (9) AMM 32-00-20/201, Landing Gear Downlocks

   B. Prepare for Inspection

MECH | INSP

(1) For the center hydraulic system,
make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system,
open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) For the left hydraulic system,
open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right hydraulic system,
open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

C. Inspect the Differential Pressure Indicator for the Case Drain Filter

(1) Examine the position of the red indicator button on the differential pressure indicator for each pump's case drain filter.

(2) If the red indicator button has extended out of the differential pressure indicator for a pump's case drain filter, do these steps:

(a) Remove the case drain filter element for the applicable pump:

1) EDP case drain filter element (AMM 29-11-17/401)

2) ACMP case drain filter element (AMM 29-11-18/401)

3) ADP case drain filter element (AMM 29-11-19/401)

(b) Examine the case drain filter element, filter bowl and the fluid in the filter bowl for metal contamination to determine if you also need to replace the applicable hydraulic pump.

NOTE: The criteria for determination of hydraulic pump replacement is in each pump's case drain filter element removal procedure (see previous step).

MECH | INSP

(c) Install a new serviceable case drain filter element for the applicable pump.

1) EDP case drain filter element (AMM 29-11-17/401)

2) ACMP case drain filter element (AMM 29-11-18/401)

3) ADP case drain filter element (AMM 29-11-19/401)

(d) Push the red indicator button to reset its position into the differential pressure indicator for the case drain filter.

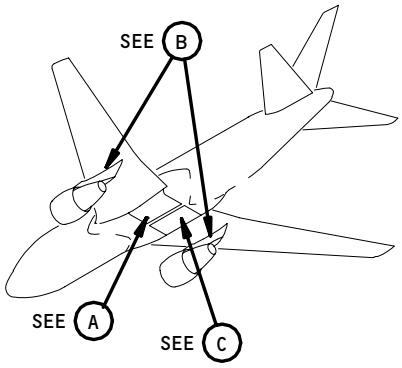
D. Return the Airplane to Normal Configuration

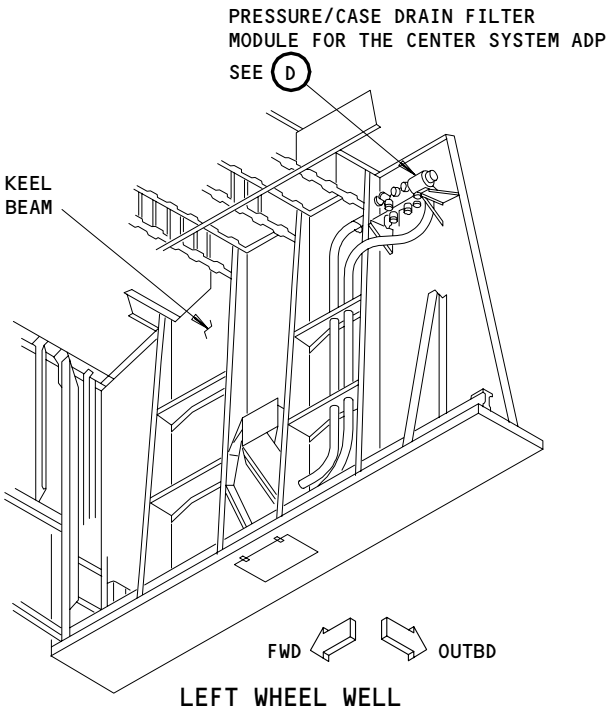
(1) For the left hydraulic system,
close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(2) For the right hydraulic system,
close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

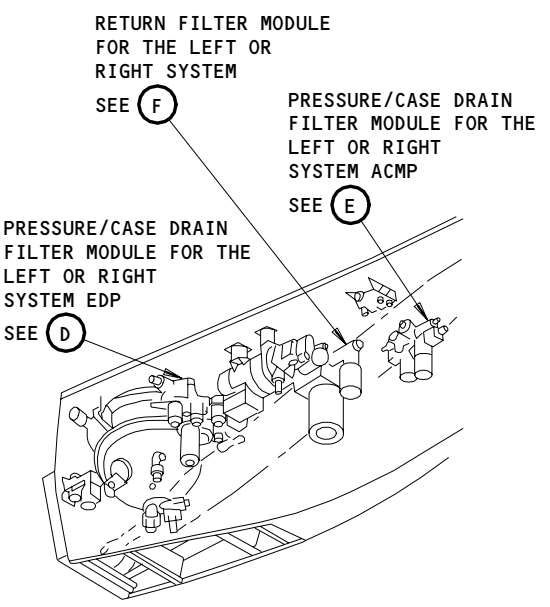
WARNING: USE THE PROCEDURE TO REMOVE THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system,
remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201)

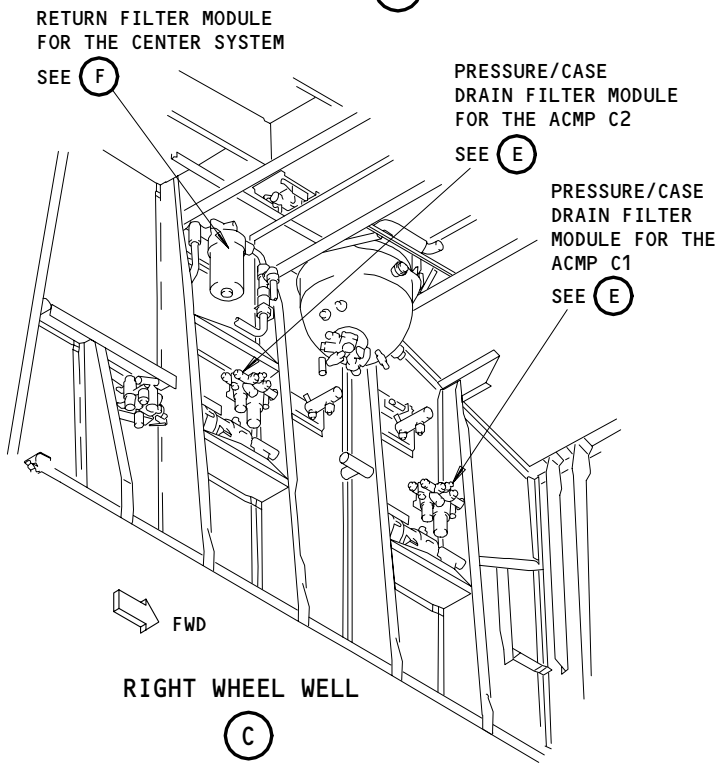




LEFT WHEEL WELL
A

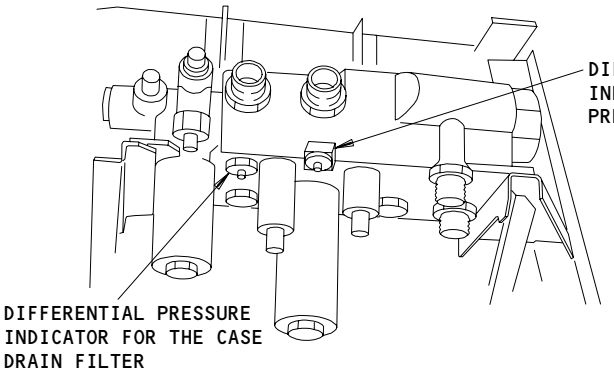


ENGINE STRUT
HYDRAULIC BAY
B



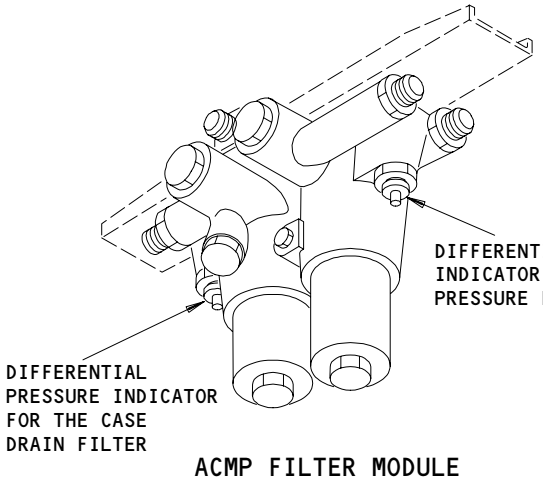
RIGHT WHEEL WELL
C

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 1)



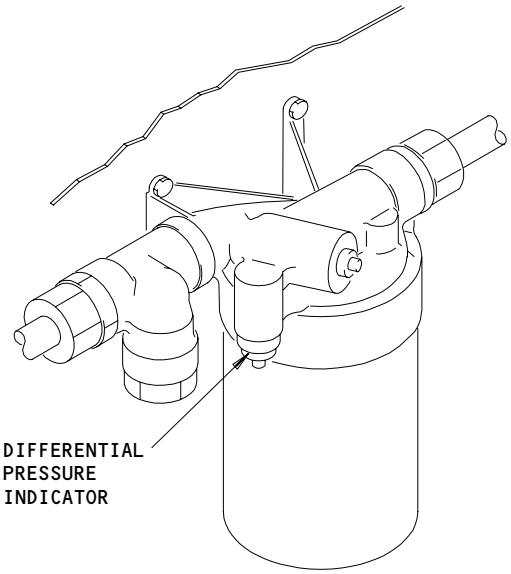
EDP OR ADP FILTER MODULE

(D)



ACMP FILTER MODULE
(EXAMPLE)

(E)



RETURN FILTER MODULE
(EXAMPLE)

(F)

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-005-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	W/B FAIRING		1A	10101	002	DEC 22/05

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS C HYDRAULIC ADP OIL LEVEL		NOTE	ALL

ZONES	ACCESS PANELS
195	195SL

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM C HYDRAULIC ADP FOR PROPER GEARBOX OIL LEVEL AND DIFFERENTIAL PRESSURE INDICATOR. 12-13-05-3A

AIRPLANE NOTE: THIS TASK IS APPLICABLE TO ALL AIRPLANE MODELS EXCEPT THE 767-400ER.

1. Add Oil to the Gearbox of the Air Driven Pump (Fig. 301)

A. General

(1) The oil reservoir is in the bottom of the gearbox between the hydraulic pump and the air turbine. The oil capacity of the gearbox is approximately 1100 cc (36 fl. oz.). If you can see the button on the differential pressure indicator on the oil filter, you must replace the oil filter (AMM 29-11-31/401).

B. Consumable Materials

(1) D00071 Lubricating Oil, MIL-PRF-7808
(optional to MIL-PRF-23699)

(2) D00068 Lubricating Oil, MIL-PRF-23699
(optional to MIL-PRF-7808)

C. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

D. Access

(1) Location Zone
195 Wing-to-Body - Aft Lower Half (Left)

MECH | INSP

(2) Access Panel
195SL Air Driven Pump

E. Procedure

(1) Open this circuit breaker on the overhead panel, P11, and attach a DO-NOT-CLOSE tag:

(a) 11D31, HYDRAULIC AIR PUMP

(2) Open the access panel, 195SL, for the air driven pump (AMM 06-41-00/201).

(3) Remove the dipstick from the fill port.

(4) Make sure the oil level on the dipstick is correct.

(5) If it is necessary to add oil, put the oil into the fill port.

NOTE: Do not overfill the ADP reservoir. If you overfill, oil should be drained back out.

(6) Do a check of the oil level on the dipstick again.

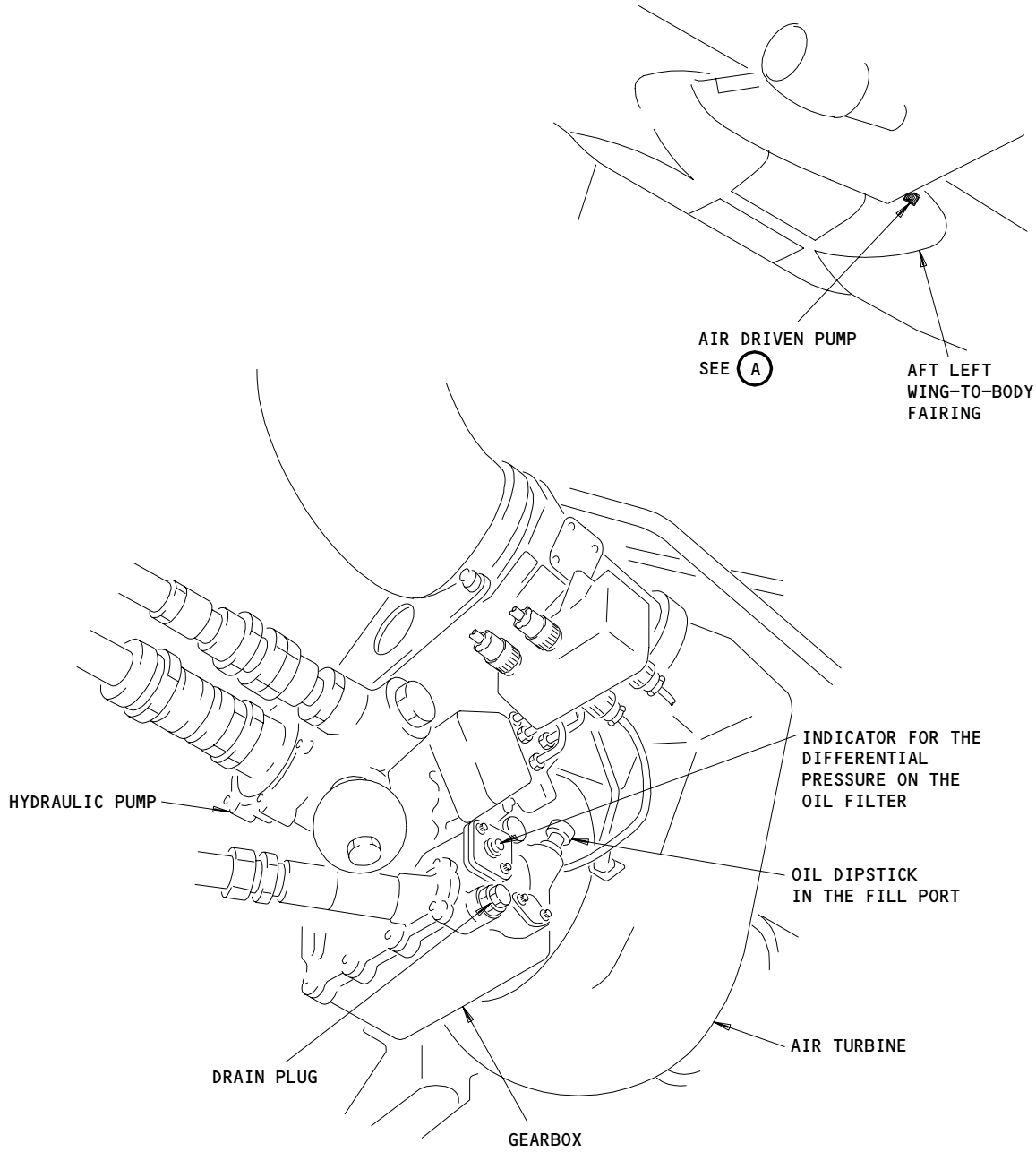
(7) Install the dipstick in the fill port.

(8) Remove the unwanted oil on the gearbox with a rag.

(9) Close the access panel, 195SL, for the air driven pump (AMM 06-41-00/201).

(10) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

(a) 11D31, HYDRAULIC AIR PUMP



AIR DRIVEN PUMP

(A)

Air Driven Pump
Figure 301

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-006-C1
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	R MAIN GEAR		1C	11212	002	DEC 22/03

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS C ACMP/ADP PRESS & RETURN FILTER		ALL	ALL

ZONES	ACCESS PANELS
144 195	195SL 742

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM C HYDRAULIC ACMP & ADP PRESSURE FILTERS DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6C 29-11-00-6C 29-11-00-6E

INSPECT SYSTEM C HYDRAULIC RETURN FILTER MODULES DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6E

1. Differential Pressure Indicators Inspection For the Pressure Filters of the Engine-Driven Pump (EDP), Alternating Current Motor Pump (ACMP), and Air-Driven Pump (ADP) and For the Return Filters in the Left, Right, and Center Hydraulic Systems

A. References

(1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(2) AMM 29-11-15/401, Left and Right System Return Filter Module and Components

(3) AMM 29-11-16/401, Center System Return Filter Module and Components

(4) AMM 29-11-17/401, Left and Right System Engine-Driven Pump (EDP) Pressure/Case Drain Filter Module and Components

(5) AMM 29-11-18/401, Alternating Current Motor Pump (ACMP) Pressure/Case Drain Filter Module and Components

(6) AMM 29-11-19/401, Center System Air-Driven Pump (ADP) Pressure/Case Drain Filter Module and Components

(7) AMM 32-00-15/201, Landing Gear Door Locks

(8) AMM 32-00-20/201, Landing Gear Downlocks

B. Procedure

MECH	INSP

(1) For the center hydraulic system,
make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE TO INSTALL THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system,
open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) For the left hydraulic system,
open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right hydraulic system,
open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

(5) Make sure the red indicator button did not come out on each differential pressure indicator.

(6) If the indicator button came out, replace the filter element and reset the indicator button as follows:

(a) EDP filter element (AMM 29-11-17/401).

(b) ACMP filter element (AMM 29-11-18/401)

(c) ADP filter element (AMM 29-11-19/401)

(d) Return filter in the left and right system (AMM 29-11-15/401)

(e) Return filter in the center system (AMM 29-11-16/401)

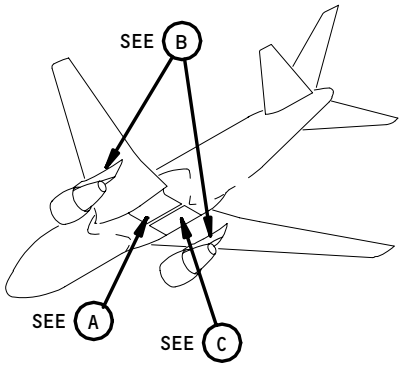
(7) For the left hydraulic system,
close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

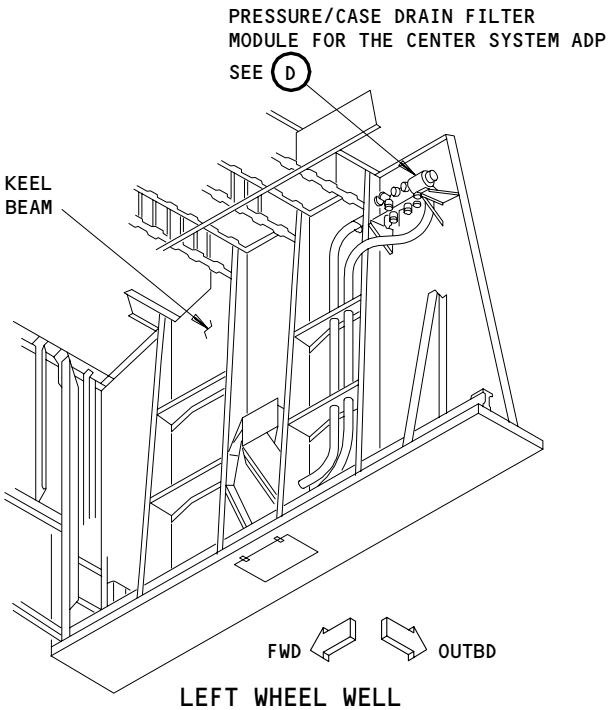
(8) For the right hydraulic system,
close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

MECH	INSP

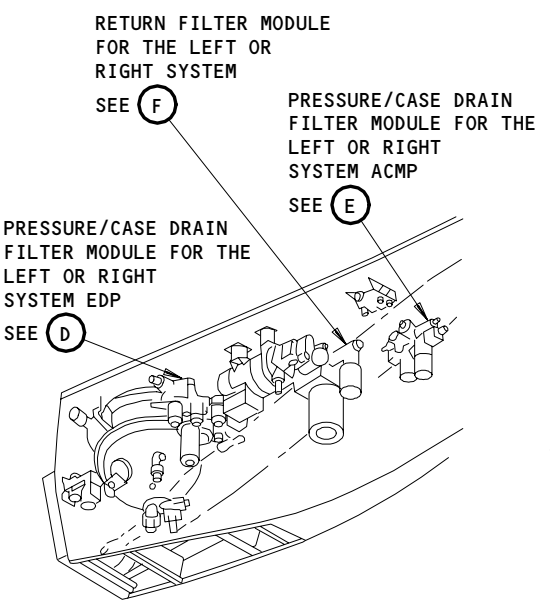
WARNING: USE THE PROCEDURE TO REMOVE THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(9) For the center hydraulic system, remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

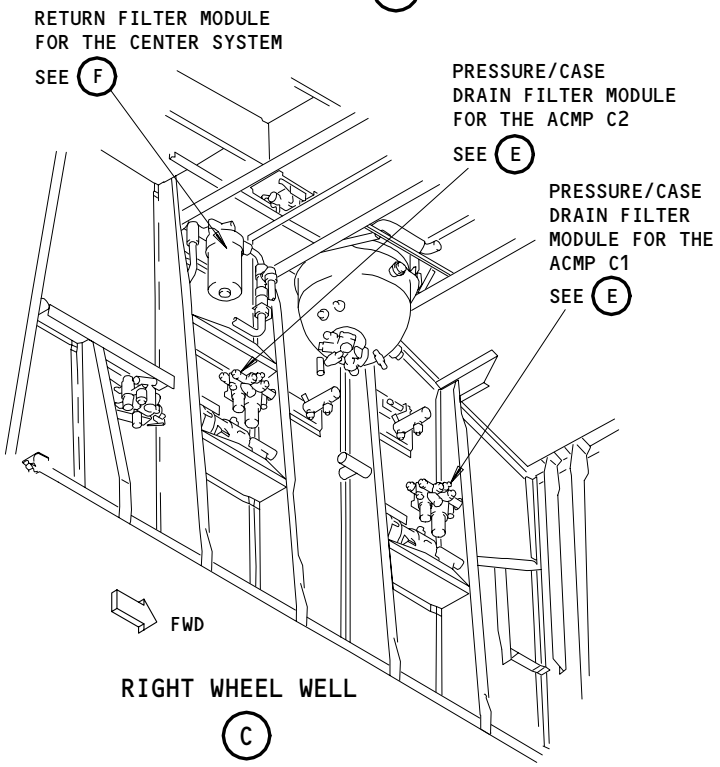




LEFT WHEEL WELL
A

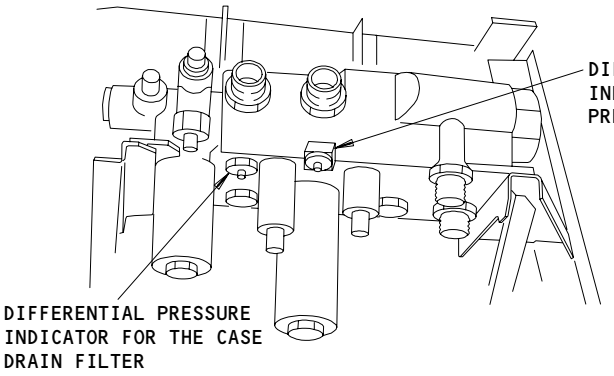


ENGINE STRUT
HYDRAULIC BAY
B



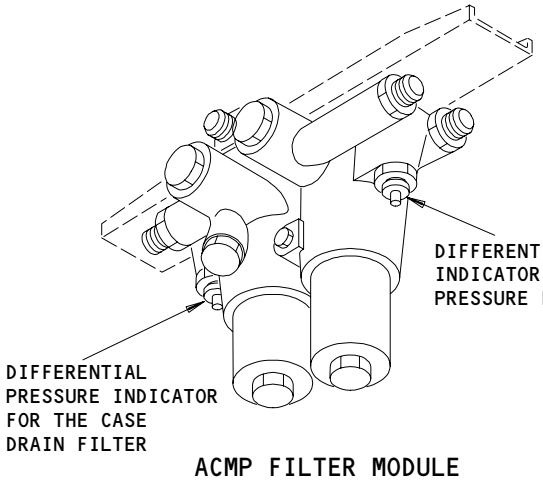
RIGHT WHEEL WELL
C

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 1)



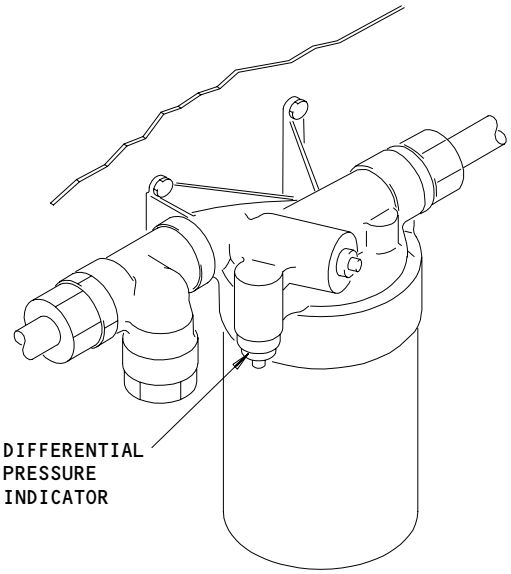
EDP OR ADP FILTER MODULE

(D)



ACMP FILTER MODULE
(EXAMPLE)

(E)



RETURN FILTER MODULE
(EXAMPLE)

(F)

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-007-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	R MAIN W/W		3C	13636	002	DEC 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CLEAN	SYS C HYD RESERVOIR PRESS AIR FILTER		ALL	ALL

ZONES	ACCESS PANELS
144	742

MECH	INSP	MPD ITEM NUMBER

CLEAN SYSTEM C HYDRAULIC RESERVOIR PRESSURIZATION MODULE AIR FILTER. 29-11-26-4A

1. Remove the Filter Element from the Reservoir Pressurization Module

A. References

(1) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(2) AMM 32-00-15/201, Landing Gear Door Locks

(3) AMM 32-00-20/201, Landing Gear Downlocks

B. Prepare for Removal

(1) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) Remove the pressure from the center hydraulic system and the reservoir (AMM 29-11-00/201).

C. Remove the Filter Element (Fig. 401)

(1) Remove the cap from the reservoir pressurization module.

(2) Remove the filter element.

MECH | INSP

2. Install the Filter Element in the Reservoir Pressurization Module

A. Consumable Materials

(1) D00054 Hydraulic System Lubricant - MCS 352B

(2) B01003 Solvent - General Cleaning of Composites (Series 83)

(3) A00363 Sealant - RTV 162

B. References

(1) AMM 20-30-83/201, Airplane Structure Cleaning Solvents (Series 83)

(2) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(3) AMM 32-00-15/201, Landing Gear Door Locks

C. Install the Filter Element (Fig. 401)

(1) Remove the sealant remaining on the cap and the adjacent surface of the reservoir pressurization module.

(2) Clean the hole in the reservoir pressurization module for the filter element.

(3) Clean the filter element with solvent, Series 83 (AMM 20-30-83/201) and fully dry the filter element.

(4) Apply hydraulic lubricant to the new O-rings and the threads of the cap.

(5) Assemble the filter element, the O-ring and the filter sleeve.

(6) Install the filter unit assembly into the reservoir pressurization module.

(7) Install the cap on the reservoir pressurization module.

(8) Tighten the cap to 75-95 pound-inches.

(9) Pressurize the reservoir in the center system (AMM 29-11-00/201).

(10) Make sure there are no air pressure leaks at the cap on the reservoir pressurization module.

(11) Safety the cap with a lockwire.

MECH	INSP

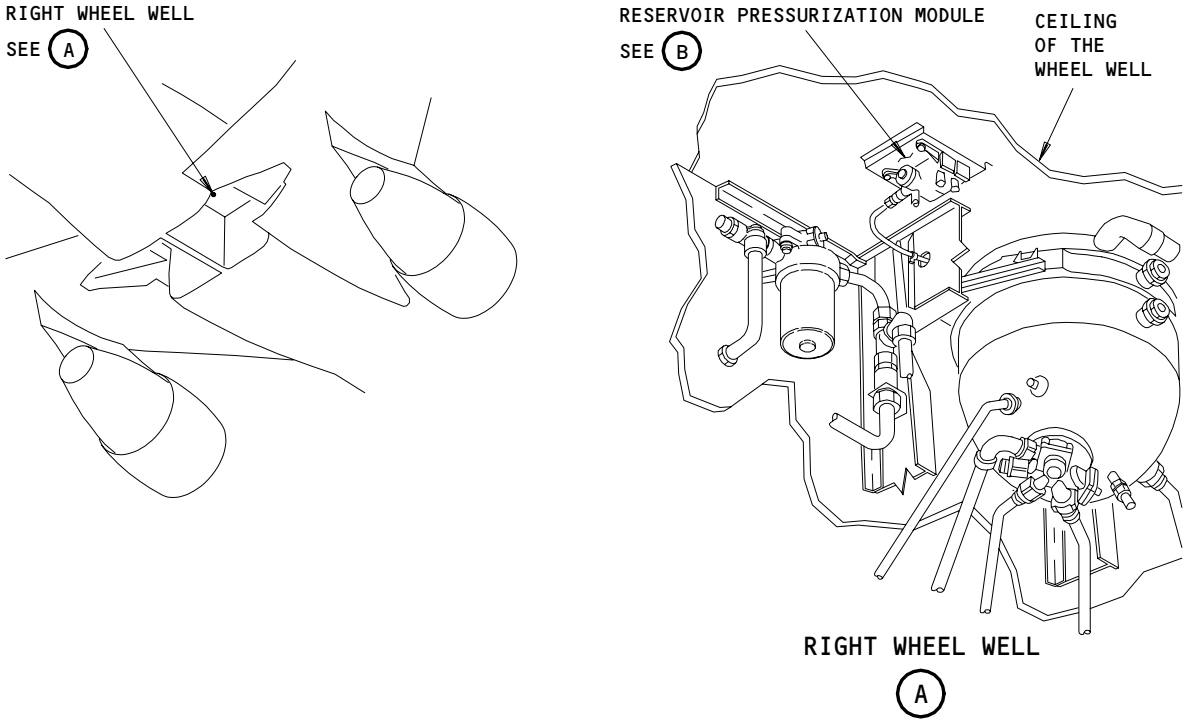
(12) Apply a bead of sealant to the joint between the cap and the reservoir pressurization module.

D. Put the Airplane Back to Its Usual Condition

(1) Remove the air source which you used to pressurize the center reservoir (AMM 29-11-00/201).

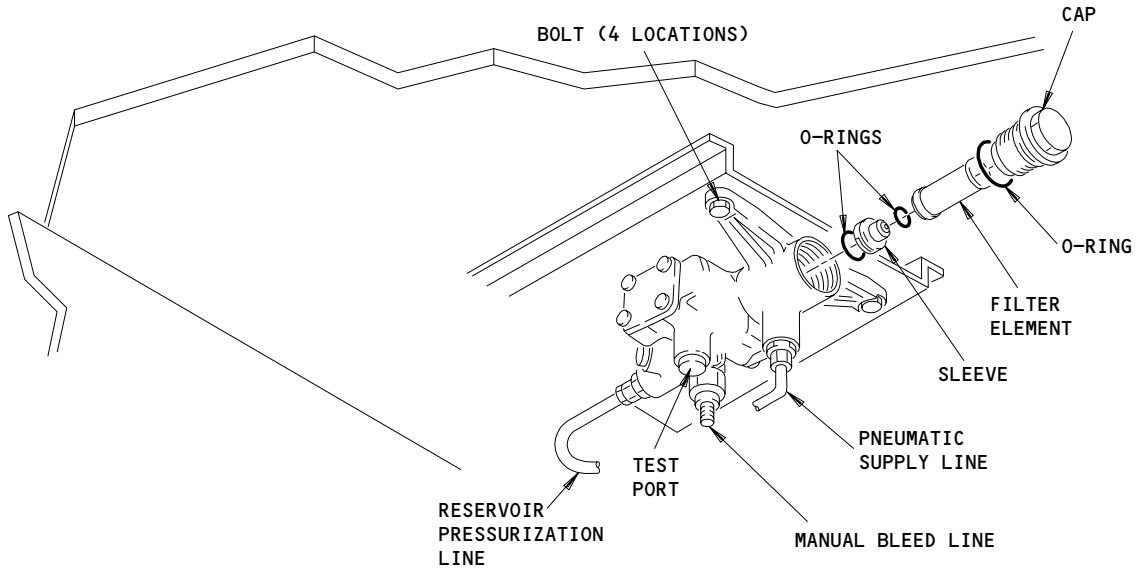
WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).



RIGHT WHEEL WELL

A



RESERVOIR PRESSURIZATION MODULE

B

Reservoir Pressurization Module Installation
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-009-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	R MAIN W/W	W-29-005-01	4A	10404	010	AUG 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	SYS C HYD ACMP/ADP CASE DRAIN FILTER		ALL	ALL

ZONES	ACCESS PANELS
144 195	195SL 742

MECH	INSP	MPD ITEM NUMBER

INSPECT SYSTEM C HYDRAULIC ACMP & ADP CASE DRAIN FILTERS DIFFERENTIAL PRESSURE INDICATORS. 29-11-00-6D

1. Differential Pressure Indicators Inspection For the Case Drain Filters of the Engine-Driven Pump (EDP), Alternating Current Motor Pump (ACMP), and Air-Driven Pump (ADP) in the Left, Right, and Center Hydraulic Systems

   A. References

      (1) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

      (2) AMM 29-11-01/401, Left and Right System Alternating Current Motor Pump (ACMP)

      (3) AMM 29-11-02/401, Center System Alternating Current Motor Pump (ACMP)

      (4) AMM 29-11-03/401, Center System Air-Driven Pump (ADP)

      (5) AMM 29-11-17/401, Left and Right System Engine-Driven Pump (EDP) Pressure/Case Drain Filter Module and Components

      (6) AMM 29-11-18/401, Alternating Current Motor Pump (ACMP) Pressure/Case Drain Filter Module and Components

      (7) AMM 29-11-19/401, Center System Air-Driven Pump (ADP) Pressure/Case Drain Filter Module and Components

      (8) AMM 32-00-15/201, Landing Gear Door Locks

      (9) AMM 32-00-20/201, Landing Gear Downlocks

   B. Prepare for Inspection

MECH | INSP

(1) For the center hydraulic system,
make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) For the center hydraulic system,
open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) For the left hydraulic system,
open the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(4) For the right hydraulic system,
open the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

C. Inspect the Differential Pressure Indicator for the Case Drain Filter

(1) Examine the position of the red indicator button on the differential pressure indicator for each pump's case drain filter.

(2) If the red indicator button has extended out of the differential pressure indicator for a pump's case drain filter, do these steps:

(a) Remove the case drain filter element for the applicable pump:

1) EDP case drain filter element (AMM 29-11-17/401)

2) ACMP case drain filter element (AMM 29-11-18/401)

3) ADP case drain filter element (AMM 29-11-19/401)

(b) Examine the case drain filter element, filter bowl and the fluid in the filter bowl for metal contamination to determine if you also need to replace the applicable hydraulic pump.

NOTE: The criteria for determination of hydraulic pump replacement is in each pump's case drain filter element removal procedure (see previous step).

MECH | INSP

(c) Install a new serviceable case drain filter element for the applicable pump.

1) EDP case drain filter element (AMM 29-11-17/401)

2) ACMP case drain filter element (AMM 29-11-18/401)

3) ADP case drain filter element (AMM 29-11-19/401)

(d) Push the red indicator button to reset its position into the differential pressure indicator for the case drain filter.

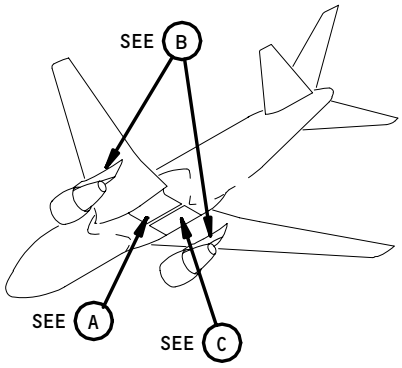
D. Return the Airplane to Normal Configuration

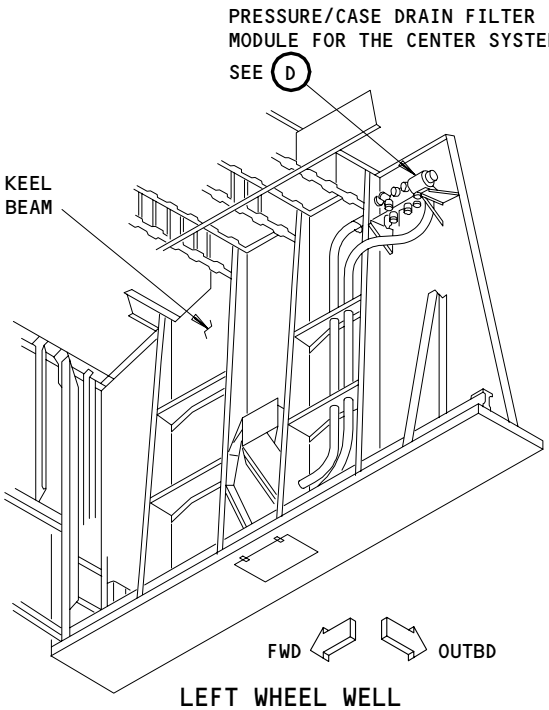
(1) For the left hydraulic system, close the access panels, 437BL and 437BR, for the hydraulic system (AMM 06-43-00/201).

(2) For the right hydraulic system, close the access panels, 447BL and 447BR, for the hydraulic system (AMM 06-43-00/201).

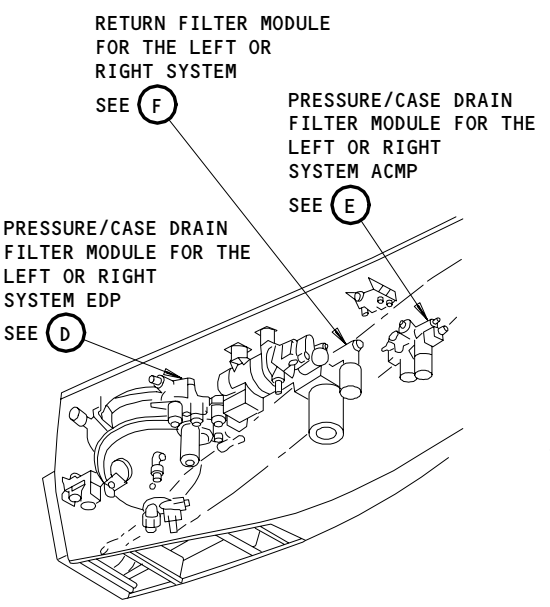
WARNING: USE THE PROCEDURE TO REMOVE THE DOOR LOCKS (AMM 32-00-15/201). THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) For the center hydraulic system, remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201)

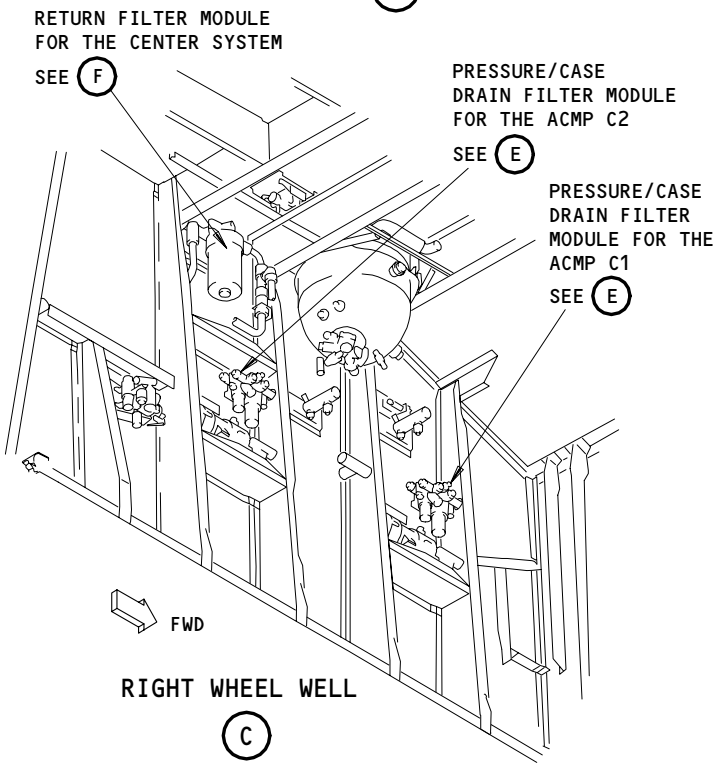




LEFT WHEEL WELL
A

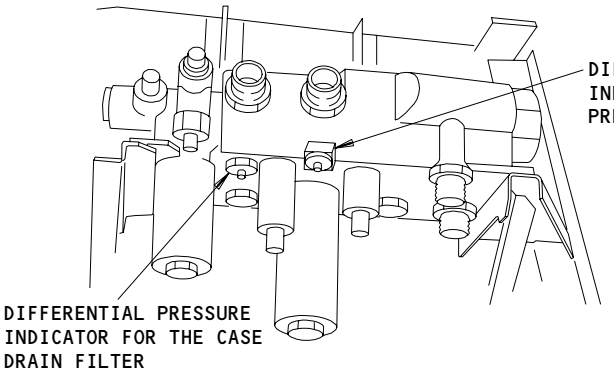


ENGINE STRUT
HYDRAULIC BAY
B



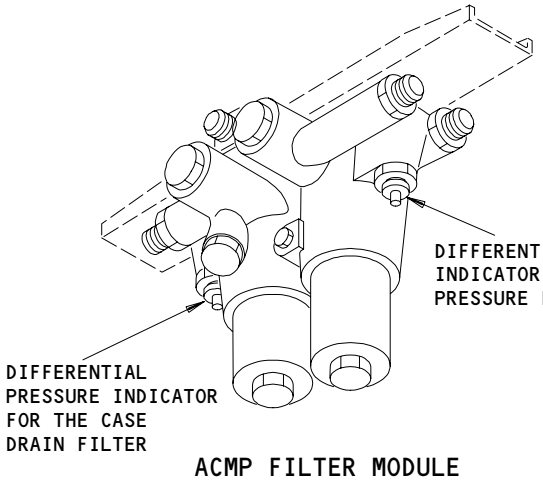
RIGHT WHEEL WELL
C

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 1)



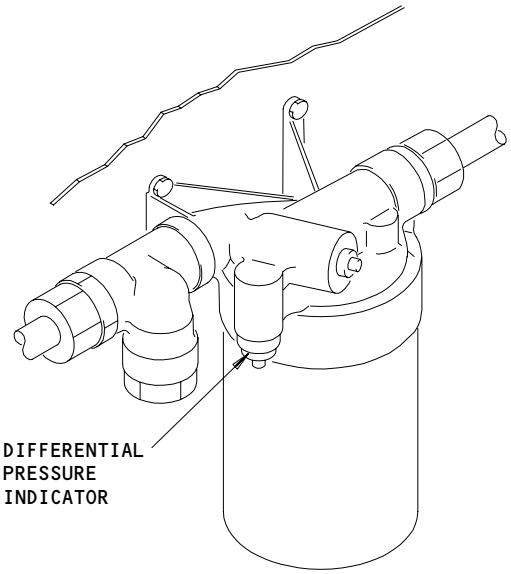
EDP OR ADP FILTER MODULE

(D)



ACMP FILTER MODULE
(EXAMPLE)

(E)



RETURN FILTER MODULE
(EXAMPLE)

(F)

Differential Pressure Indicators on the Filter Modules
Figure 601 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-010-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	CREW CABIN		NOTE (#)	99XXX	013	DEC 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	ADP SPEED TOPPING SHUTDOWN CIRCUITRY		NOTE	ALL

ZONES	ACCESS PANELS
195 211	195SL

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK ADP SPEED TOPPING SHUTDOWN CIRCUITRY. 29-11-00-5A
(#) CMR FREQUENCY IS 4000 HOURS.

AIRPLANE NOTE: APPLICABLE TO ALL 767 MODELS EXCEPT FOR THE 767-400ER.

INTERVAL NOTE: SB 767-29-4. CMR FREQUENCY OF 4000 HOURS IS APPLICABLE TO AIRPLANE LINE NUMBERS 7 THROUGH 13, 15 THROUGH 18, 20, AND 21 THAT HAVE NOT INCORPORATED SB 767-29-4 OR EQUIVALENT. THE MSG-3 FREQUENCY OF 3C APPLIES TO OTHER AIRPLANES.

1. Operational Test - Air-Driven Pump (ADP) Speed Topping Shutdown (Fig. 501)

A. Equipment

(1) Generator - Signal, Sinewave, Adjustable from 5 Hz to 2 MHz - HP3325B
Hewlett Packard (Recommended)

Generator - Adjustable from 5 Hz to 2 Mhz - Commercially Available (Alternative)

(2) Digital Multi-meter (True RMS reading,5Hz to 10 KHz)

B. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

(2) AMM 12-12-01/301, Hydraulic Systems

(3) AMM 24-22-00/201, Electrical Power

(4) AMM 31-41-00/201, EICAS

MECH | INSP

(5) AMM 36-00-00/201, Pneumatic - General

C. Prepare for the Operational Test

(1) Supply electrical power (AMM 24-22-00/201).

(2) Push the ELEC/HYD switch on the EICAS maintenance panel on the right side panel, P61.

(3) Make sure the reservoir in each hydraulic system is full (AMM 12-12-01/301).

D. Air-Driven Pump (ADP) Speed Topping Shutdown Test (Not to be confused with Overspeed Shutdown Test).

(1) Supply pneumatic power (AMM 36-00-00/201).

(2) Open the access panel, 195SL, for the air-driven pump (AMM 06-41-00/201).

(3) Remove the electrical connector for the monopole sensor at the electrical receptacle box on the ADP modulating valve.

(4) Connect the signal generator to the pins 1 and 3 on the electrical receptacle box on the ADP modulating valve.

(a) Connect a True RMS reading volt meter to monitor the signal generator output amplitude.

(5) Set the signal generator to produce a 0.90 volt RMS 4000 Hz sine wave; ensure that the signal generator is not set for a DC offset nor has an output terminal that is connected to chassis ground.

NOTE: 0.90 volts RMS is equivalent to 2.55 volts peak-to-peak or 1.27 volts zero-to-peak.

(6) Do the steps which follow with the C DEMAND HYD PUMPS AIR switch in the ON position and then do these steps again with this switch in the AUTO position:

(a) Make sure these lights, on the hydraulic control panel, are off:

1) SYS PRESS light for the center system

2) PRESS light for the ADP.

MECH | INSP

(b) Slowly increase the frequency of the signal generator to 5150 Hz while maintaining the amplitude within 0.75 to 0.95 volts RMS (2.12 to 2.70 volts peak-to-peak).

(c) Make sure the ADP stops at a frequency between 4400 and 5150 Hz.

(d) Make sure the air-driven pump PRESS light is on.

(e) Slowly decrease the frequency of the signal generator to 4400 Hz while maintaining the amplitude within 0.75 to 0.95 volts RMS (2.12 to 2.70 volts peak-to-peak).

(f) Make sure the ADP starts and operates at a frequency between 4400 and 5150 Hz.

(7) Put the C DEMAND HYD PUMPS AIR switch to the OFF position.

(8) Remove the signal generator from the electrical receptacle box on the ADP modulating valve.

(9) Install the electrical connector, for the monopole sensor, on the electical receptacle box on the ADP modulating valve.

(10) Close the access panel, 195SL, for the air-driven pump (AMM 06-41-00/201).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND WHEEL WELLS WHEN HYDRAULIC POWER IS SUPPLIED. AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND STABILIZER ARE FULLY POWERED SURFACES. WHEN YOU MOVE THE FLAP CONTROL LEVER WITH THE HYDRAULIC SYSTEM PRESSURIZED, THE FLAPS AND FLAP DRIVE MECHANISMS WILL MOVE QUICKLY. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(11) Put the C DEMAND HYD PUMP AIR switch in the AUTO position.

NOTE: This will ensure that the flap position and the flap control lever (commanded position) agree.

(12) Remove pneumatic power, if it is not necessary (AMM 36-00-00/201).

(13) Remove electrical power, if it is not necessary (AMM 24-22-00/201).

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-013-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ELECT	CREW CABIN		1C	11212	002	AUG 22/03

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	ISOLATED ACMP SUPPLY SHUTOFF VALVE		NOTE	ALL

ZONES	ACCESS PANELS
211	

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK ISOLATED ACMP SUPPLY SHUTOFF VALVE. 29-11-07-4A

AIRPLANE NOTE: THIS TASK IS APPLICABLE TO ALL 767 AIRPLANE MODELS EXCEPT FOR THE 767-400ER.

1. Operational Test - Supply Shutoff Valve (Fig. 401)

A. References

(1) AMM 24-22-00/201, Electrical Power

(2) AMM 32-00-15/201, Landing Gear Door Locks

(3) AMM 32-00-20/201, Landing Gear Downlocks

B. Procedure

(1) Supply electrical power (AMM 24-22-00/201).

(2) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN (AMM 32-00-15) TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Open the doors for the landing gear and install the door locks (AMM/32-00-15/201).

MECH | INSP

CAUTION: DO NOT OPERATE THE HYDRAULIC PUMPS AFTER THE HYDRAULIC TEMPERATURE INDICATION IS MORE THAN 100°C (212°F) OR AFTER THE PUMP OVERHEAT LIGHT COMES ON. IF YOU CONTINUE TO OPERATE THE PUMPS, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

(4) Make sure there is not less than 600 gallons (4020 pounds/1827 kilograms) of fuel in each main fuel tank.

(5) If the fuel tank contains less than 4020 pounds of fuel, do these steps:

(a) Stop the operation of the pump if the hydraulic temperature indication is more than 100°C (212°F) or if the pump overheat light comes on.

(b) Do not operate the hydraulic pump more than 10 minutes.

(c) After the operation of the pump, let the temperature of the pump decrease for 20 minutes with the pump off.

(6) Put the RESERVE BKS & STRG switch on the P1 panel to the ON (closed) position.

NOTE: When the switch is in the ON position position, the ACMP C1 in the center hydraulic system will operate.

(7) Make sure the position indicators on the supply and pressure shutoff valves, for the isolated ACMP, move to position 2.

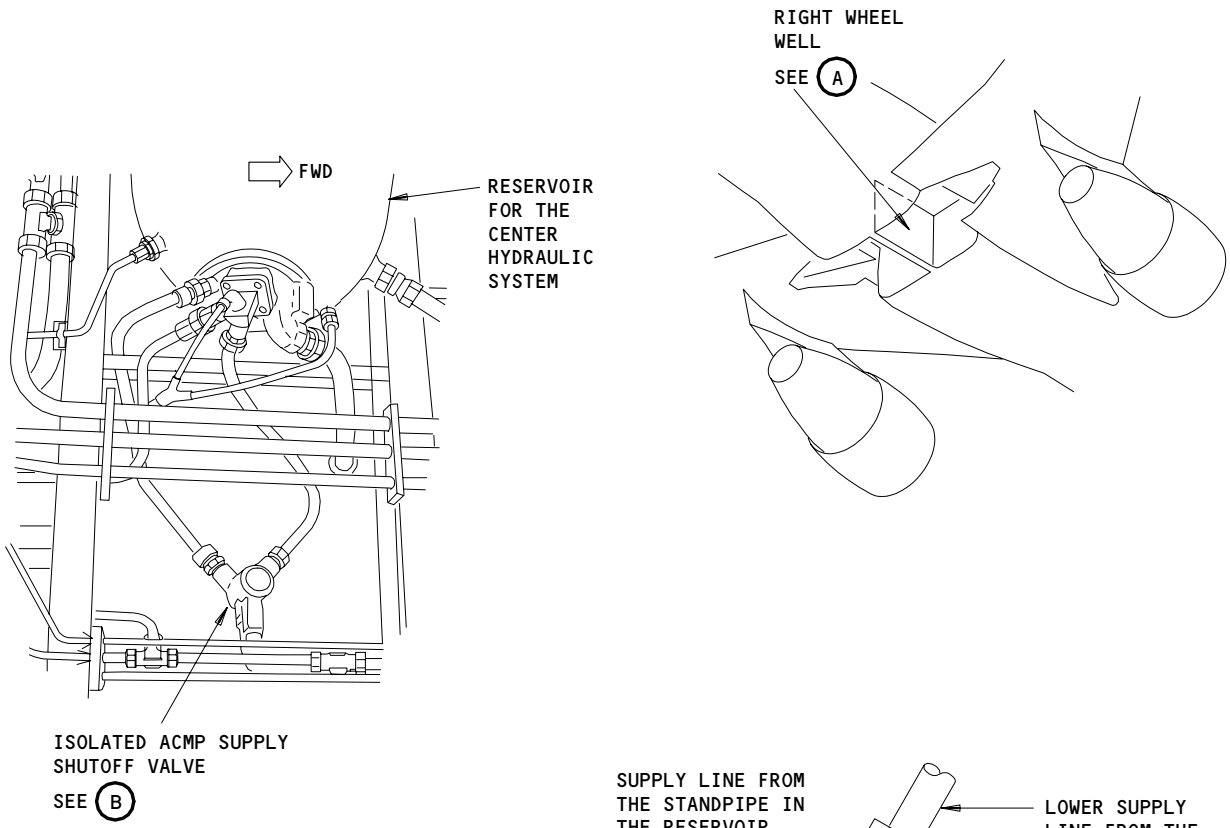
(8) Put the RESERVE BKS & STRG switch to the off (open) position.

(9) Make sure the position indicators on the supply and pressure shutoff valves, for the isolated ACMP, move to position 1.

WARNING: USE THE PROCEDURE IN (AMM 32-00-15) TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(10) Remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

(11) Remove electrical power if it is not necessary (AMM 24-22-00/201).



Isolated ACMP Supply Shutoff Valve
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-013-02
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
ELECT	CREW CABIN		1C	11212	002	AUG 22/03

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	ISOLATED ACMP PRESSURE SHUTOFF VALVE		ALL	ALL

ZONES	ACCESS PANELS
211	

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK ISOLATED ACMP PRESSURE SHUTOFF VALVE. 29-11-08-4A

1. Operational Test - Pressure Shutoff Valve (Fig. 401)

A. References

(1) AMM 32-00-15/201, Landing Gear Door Locks

(2) AMM 32-00-20/201, Landing Gear Downlocks

B. Procedure

(1) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) Supply electrical power (AMM 24-22-00/201).

(4) Do the EICAS Message Display Procedure to show alert, status, and maintenance message lists (AMM 31-41-00/201).

NOTE: The above referenced procedure will provide instructions on how to show EICAS messages and hydraulic quantity, pressure and temperature data on EICAS.

MECH | INSP

CAUTION: DO NOT OPERATE THE HYDRAULIC PUMPS AFTER THE HYDRAULIC TEMPERATURE INDICATION SHOWS MORE THAN 100°C (212°F) OR AFTER THE PUMP OVERHEAT LIGHT COMES ON. IF YOU CONTINUE TO OPERATE THE PUMPS, THE HYDRAULIC FLUID CAN BECOME TOO HOT.

(5) Make sure there is not less than 600 gallons (4020 pounds/1827 kilograms) of fuel in each main fuel tank.

(6) If the fuel tank contains less than 4020 pounds of fuel, do these steps:

(a) Stop the operation of the pump if the hydraulic temperature indication shows more than 100°C (212°F) or if the pump overheat light comes on.

(b) Do not operate the hydraulic pump more than 10 minutes.

(c) After the operation of the pump, let the temperature of the pump decrease for 20 minutes with the pump off.

(7) Put the RESERVE BKS & STRG switch on the P1 panel to the ON (closed) position.

NOTE: When the switch is in the ON position position, the ACMP C1 in the center hydraulic system will operate.

(8) Make sure the position indicators on the supply and pressure shutoff valves, for the isolated ACMP, move to POSITION 2.

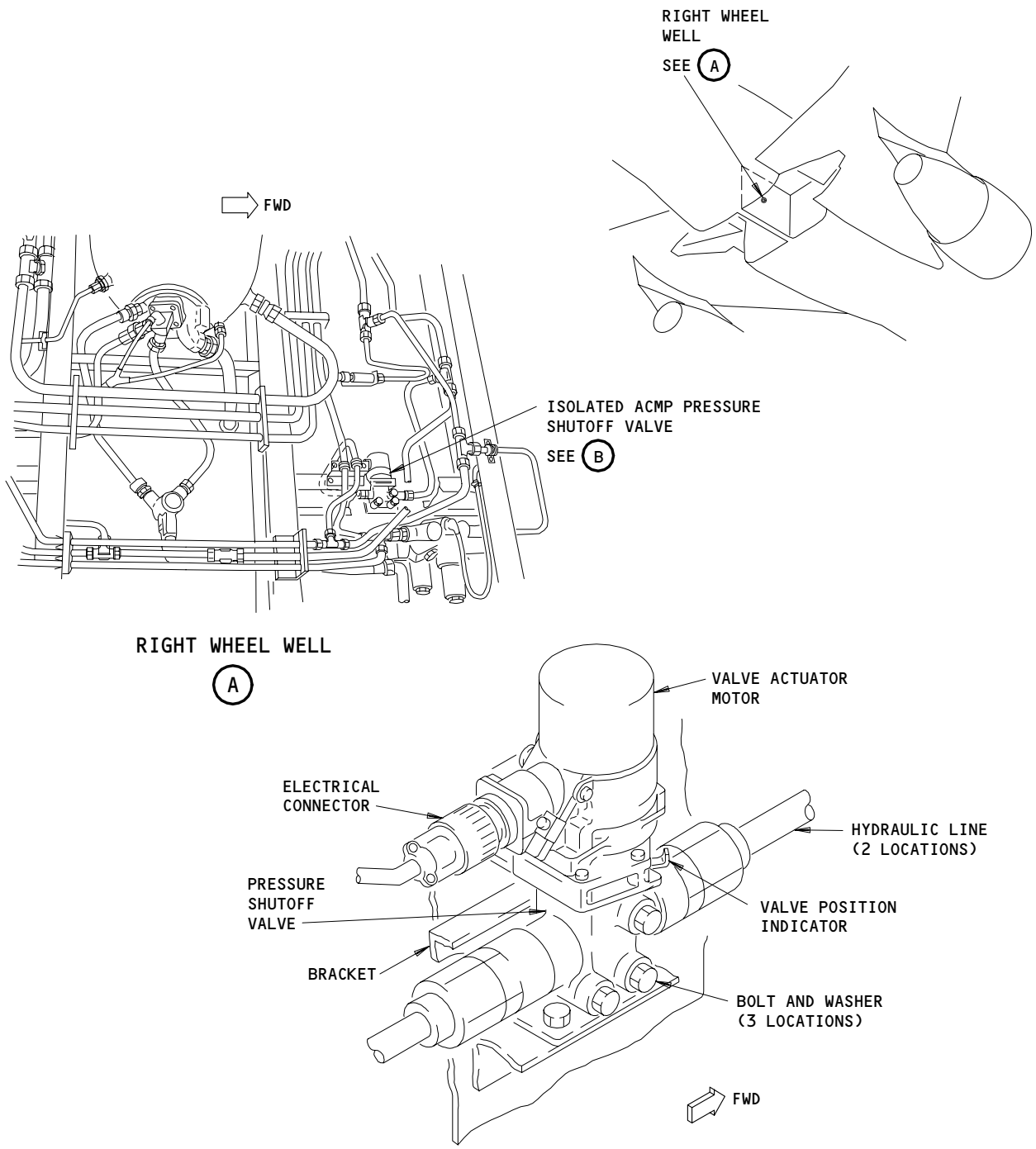
(9) Put the RESERVE BKS & STRG switch to the off (open) position.

(10) Make sure the position indicators on the supply and pressure shutoff valves, for the isolated ACMP, move to POSITION 1.

WARNING: USE THE PROCEDURE AMM 32-00-15/201 TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(11) Remove the door locks from the landing gear and close the doors (AMM 32-00-15/201).

(12) Remove electrical power if it is not necessary (AMM 24-22-00/201).



Isolated ACMP Pressure Shutoff Valve Installation
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-015-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL		PHASE	MPD REV	TASK CARD REVISION
AIRPL	CREW CABIN	B-29-018-01	1C	(#)	11212	014	DEC 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	AUTO & MANUAL RAT DEPLOYMENT SYSTEMS		ALL	ALL

ZONES	ACCESS PANELS
144 198 211	1981 742 NOTE

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK AUTO AND MANUAL RAT DEPLOYMENT SYSTEMS, 29-21-00-5A
RAT HYDRAULIC PUMP AND DRIVE SYSTEM.
(#) CMR FREQUENCY IS 6000 HOURS.
THE MSG-3 FREQUENCY OF 1C APPLIES AND MAY BE ADJUSTED AS ANY MRB ITEM UNTIL THE 6000 HOUR CMR-DEVELOPED FREQUENCY IS REACHED.

ACCESS NOTE: SPECIAL ACCESS 1981 REQUIRES DEPLOYMENT/ RETRACTION OF THE RAM AIR TURBINE PER MM REF 29-21-00.

1. <u>System Test - RAT Hydraulic Pump System</u>

A. Equipment

(1) RAT Safety Screen - B29001-46

(2) RAT Safety Screen Adapter - B29001-23
(Necessary when lifting fixture - A71015 is used).

(3) Lifting Fixture - Engine Accessory, A71015-87; or
Lifting Fixture, Hein-Werner Model 74; or
Lifting Fixture, Black Hawk Model 67554.

(4) RAT Circuit Breaker Lock Set A27010-11 (or Commercially Available)

(5) Stroboscopes (Optional)

(a) Digital Stroboscope - Type 4913
Bruel and Kjaer Instruments, Inc.,
185 Forest Street
Marlborough, Ma., 01752 (Recommended)

Digital Stroboscope - Commercially Available
(Alternative)

MECH | INSP

(b) Electronic Stroboscope - Type 1531-AB
Genrad, Inc.,
EMT Electronic Test Mfg. Group
300 Barker Ave., Concord Ma., 01742 (Recommended)

Electronic Stroboscope - Commercially Available
(Alternative)

(c) Slip-Sync Stroboscope - Strobex Model 109
Chadwick-Helmuth Co., Inc.,
111 East Railroad Ave., Monrovia, Ca. 91016
(Recommended)

Slip-Sync Stroboscope - Commercially Available
(Alternative)

(d) Stroboscope - Ametek Model 1965
Ametek, Inc., Mansfield and Green Div.
8600 Sommerset Drive
Largo, FL 34643
or stroboscope with equivalent operating features capable of measuring a minimum of 11,000 RPM

B. Consumable Materials

(1) G00270 Tape - Scotch Flatback Masking Tape 250

(2) Masking Tape - local purchase

C. References

(1) AMM 24-22-00/201, Electrical Power

(2) AMM 29-11-00/201, Main (Left, Right, and Center) Hydraulic Systems

(3) AMM 32-00-15/201, Landing Gear Door Locks

(4) AMM 32-00-20/201, Landing Gear Downlocks

D. Access

E. Prepare for Test

(1) Supply electrical power (AMM 24-22-00/201)

MECH | INSP

(2) Make sure these circuit breakers on the main power distribution panel, P6, are closed:

(a) 6C1, RAM AIR TURB MAN

(b) 6C2, RAM AIR TURB AUTO

(c) 6J8, RAM AIR TURBINE PWR

(3) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Open the doors for the main landing gear and install the door locks (AMM 32-00-15/201).

F. Do the RAT Hydraulic Pump System Test

CAUTION: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE RAT AREA BEFORE RAT RETRACTION OR EXTENSION. MOVEMENT OF THE RAT AND DOOR CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Push the RAM AIR TURB manual select switch on the pilot's overhead panel, P5, to extend the RAT.

(2) After the RAT is fully extended, push the RAM AIR TURB manual select switch to the OFF position.

(3) Open these circuit breakers on the P6 panel and insert the RAT circuit breaker lock set:

(a) 6C1, RAM AIR TURB MAN

(b) 6C2, RAM AIR TURB AUTO

(c) 6J8, RAM AIR TURBINE PWR

(4) Push forward on the RAT with your hand to make sure the RAT is locked in the extended position.

NOTE: To back-drive the RAT, the preferred method is to use the safety screen around the RAT blades. However, an optional, alternate method may be used in place place of the safety screen. This method uses rope to secure the area below the RAT compartment, by roping off with a 20-foot (6 meter) diameter area. This will keep personnel from entering area close to RAT blades.

WARNING: BEFORE THE RAT IS BACK-DRIVEN, INSTALL THE SAFETY SCREEN (PREFERRED), OR PUT A 20-FOOT (6 METER) DIAMETER SECURED/ROPED-OFF AREA (ALTERNATE) BELOW THE RAT COMPARTMETN DOOR TO PREVENT PERSONNEL ENTRY. THE FAST MOVEMENT OF THE TURBINE BLADES CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) If your use the alternate method, put a 20 foot (6 meter) diameter secured/roped-off area below the RAT compartment door to prevent personnel entry. If you use the RAT safety screen method (preferred), do these steps to install the RAT safety screen (Fig. 501):

(a) If the lifting fixture A71015 is used, secure the adapter to the safety screen support with a nut and washer.

(b) Attach the safety screen support to the lifting fixture.

(c) Put the safety screen on the support and tighten the strap around the safety screen.

(d) Remove the bolts and move apart the forward and aft cages of the safety screen.

(e) Remove the top bolt, spacer, and nut from the brace which is in the aft cage.

(f) Loosen the knurled retainer nut on the adjustment screw on each side of the brace in the aft cage.

MECH | INSP

(g) Turn both adjustment screws to retract the pads on the end of the adjustment screws.

NOTE: This will give clearance to install the aft cage on the RAT hydraulic pump.

(h) Put the aft cage on the RAT hydraulic pump.

(i) Install the top bolt, spacer, and nut in the brace to attach the aft cage to the RAT.

(j) Turn both adjustment screws on the aft-cage brace until the adjustment-screw pads are tight against the RAT hydraulic pump.

(k) Tighten the knurled retainer nuts to lock the adjustment screws in position.

CAUTION: SET THE SAFETY SCREEN FORWARD CAGE TO THE CORRECT HEIGHT BEFORE YOU MOVE IT INTO POSITION. IF THE CAGE TOUCHES THE TURBINE BLADES, IT CAN CAUSE DAMAGE TO THE BLADES OR THE GOVERNER MECHANISM.

(l) Raise the forward cage to the correct height with the lifting fixture.

(m) Carefully move the forward cage into position around the RAT so that the cage does not hit the turbine blades.

(n) Install the bolts to connect the forward and aft cages of the safety screen.

(o) Loosen the strap and remove it from around the safety screen.

(p) Lower the lifting fixture and move the fixture away from the safety screen.

(6) Pressurize the center hydraulic system (AMM 29-11-00/201).

NOTE: Do not use the ACMP's to pressurize the center system. The ACMP's do not supply sufficient capacity to backdrive the RAT.

MECH | INSP

CAUTION: QUICKLY RELEASE THE GROUND-CHECKOUT-MODULE HANDLE IF THE TACHOMETER OVER-SPEED LIGHT COMES ON. IF THE SPEED BECOMES TOO HIGH, DAMAGE TO EQUIPMENT CAN OCCUR.

(7) Move the control handle on the RAT checkout module in the right wheel well to the back-drive position.

(8) Push and hold the lamp test switch on the RAT tachometer.

(9) Make sure the red and green lights on the RAT tachometer are both on.

(10) Release the lamp test switch on the RAT tachometer.

(11) When the turbine blade speed has become stable, make sure the green light on the RAT tachometer is on, and the red light is off.

(12) If the RAT tachometer red overspeed light comes on, quickly release the Ground-Checkout-module handle and consult the Fault Isolation section, under the heading "RAT overspeed light on while performing RAT system test.

(13) If the green light on the RAT tachometer does not operate, you can do these steps to do a check of the speed of the RAT turbine blades:

(a) Release the control handle from the back-drive position.

(b) Remove the power from the center hydraulic system (AMM 29-11-00/201).

(c) Move the lifting fixture below the safety screen.

(d) Lift the safety screen support with the lifting fixture until the support touches the screen.

(e) Put the strap around the safety screen and tighten the strap.

(f) Remove the bolts and move apart the forward and aft cages of the safety screen.

CAUTION: REMOVE THE SAFETY SCREEN FORWARD CAGE CAREFULLY. IF THE CAGE TOUCHES THE TURBINE BLADES IT CAN CAUSE DAMAGE TO THE BLADES OR THE GOVERNER MECHANISM.

MECH	INSP

(g) Move the forward cage away from the RAT with the lifting fixture.

(h) Apply a strip of tape that is 1/2 by 2 inches, at one of these locations:

1) On the RAT turbine hub, from the center to the edge

2) On the end of one RAT turbine blade.

CAUTION: SET THE SAFETY SCREEN FORWARD CAGE TO THE CORRECT HEIGHT BEFORE YOU MOVE IT INTO POSITION. IF THE CAGE TOUCHES THE TURBINE BLADES, IT CAN CAUSE DAMAGE TO THE BLADES OR THE GOVERNER MECHANISM.

(i) Raise the forward cage to the correct height with the lifting fixture.

(j) Carefully move the forward cage into position around the RAT so that the cage does not hit the turbine blades.

(k) Install the bolts to connect the forward and aft cages of the safety screen.

(l) Loosen the strap and remove it from around the safety screen.

(m) Lower the lifting fixture and move the fixture away from the safety screen.

(n) Pressurize the center hydraulic system (AMM 29-11-00/201).

NOTE: Do not use the ACMP's to pressurize the center system. The ACMP's do not supply sufficient capacity to backdrive the RAT.

(o) Move the control handle on the RAT checkout module, in the right wheel well, to the back-drive position.

(p) Set the stroboscope to less than 1500 rpm.

(q) Monitor the speed of the RAT turbine blades while you increase the adjustment of the stroboscope from 1500 rpm to 9440 rpm.

MECH | INSP

(r) Make a record of the highest speed at which the strip of tape shows as one stable mark in the light of the stroboscope.

(s) Make sure this speed is between 3980 and 4720 rpm.

NOTE: If the governor in the RAT hub does not control the speed corectly, a speed in the range of 1500 to 7500 rpm can occur.

(14) Do these steps as quickly as possible to do an accurate check of the RAT pressure light:

(a) Release the control handle from the back-drive position.

(b) Remove the pressure from the center hydraulic system (AMM 29-11-00/201).

(c) Make sure the RAT green pressure light on the P5 panel is on until the center system pressure decreases to 1200 +/-300 psi.

(15) Make sure the RAT blades and hub stop.

NOTE: It is possible that the RAT blades and hub will continue to turn slowly after you release the control handle. The cause of this condition is a check valve, in the RAT strut, which did not open while the speed of the RAT blades decreased. The check valve will open when you remove the hydraulic pressure. When you supply hydraulic pressure again, the RAT blades will not move. It is not necessary to reject parts because of this condition.

(16) If the RAT blades and hub continue to turn slowly when the handle is not in the back-drive position, do these steps:

(a) Keep the center hydraulic system without pressure for not less than 2 minutes to permit the pressure to bleed from the RAT.

(b) Do these steps:

1) Pressurize the center hydraulic system (AMM 29-11-00/201).

2) Make sure the RAT turbine blades and hub do not turn.

3) If the turbine blades and hub turn, remove the pressure from the center hydraulic system and permit the pressure to fully bleed from the RAT.

MECH | INSP

(c) Do the above steps until the RAT turbine blades and hub do not turn when the center hydraulic system is pressurized.

(d) Remove power from the center hydraulic system (AMM 29-11-00/201).

(17) Move the back-drive handle to the back-drive position and then release the handle.

(18) Make sure the spring puts the handle back in the usual position, quickly and smoothly, without binding or flutter.

(19) Safety the handle with wire.

(20) Make sure there is no leakage at the RAT swivel valves or hydraulic connections on the RAT and the checkout module.

(21) Make sure the RAT shaft seal leakage is no more than one drop in 30 minutes with the RAT not in operation.

CAUTION: REMOVE THE RAT SAFETY SCREEN BEFORE YOU RETRACT THE RAT. IF THE RAT IS RETRACTED WITH THE SAFETY SCREEN IN POSITION, EQUIPMENT DAMAGE CAN OCCUR.

(22) If you used the alternate method of roping off the area, remove the rope. If you used the RAT safety screen method, do these steps to remove the safety screen (Fig. 501):

(a) Move the lifting fixture below the safety screen.

(b) Lift the safety screen support with the lifting fixture until the support touches the screen.

(c) Put the strap around the safety screen and tighten the strap.

(d) Remove the bolts and move apart the forward and aft cages of the safety screen.

CAUTION: REMOVE THE SAFETY SCREEN FORWARD CAGE CAREFULLY. IF THE CAGE TOUCHES THE TURBINE BLADES IT CAN CAUSE DAMAGE TO THE BLADES OR THE GOVERNER MECHANISM.

MECH | INSP

(e) Move the forward cage away from the RAT and lower the cage with the lifting fixture.

(f) Loosen the knurled retainer nut on the adjustment screw on each side of the brace in the aft cage.

(g) Turn both adjustment screws to retract the pads on the end of the adjustment screws.

NOTE: This will give clearance to remove the aft cage from the RAT hydraulic pump.

(h) Hold the aft cage and remove the top bolt, spacer, and nut from the brace inside the cage.

(i) Remove the aft cage from the RAT.

(j) Install the top bolt, spacer, and nut in the brace which is in the aft cage.

(k) Put the forward and aft cages together and install the attach bolts.

(23) Remove RAT circuit breaker lock set and close these circuit breakers on the P6 panel:

(a) 6C1, RAM AIR TURB MAN

(b) 6C2, RAM AIR TURB AUTO

(c) 6J8, RAM AIR TURBINE PWR

(24) If you installed tape on the hub or blade of the RAT turbine, remove the tape.

(25) Do these steps to make sure the RAT turbine blades turn freely:

(a) Manually twist the RAT turbine blades to the fine-pitch position. The blades should move under opposing spring pressure to the fine pitch stop.

(b) Release manual force applied to oppose the spring pressure and allow the RAT turbine blades to turn fully back to the coarse-pitch position. If the blades fail to return to the coarse-pitch stop with only spring load, replace the RAT (AMM 29-21-01/401). Do not apply manual force to assist in returning the blades to the coarse-pitch position except as noted below.

NOTE: The RAT turbine blades must be in the coarse-pitch position to make sure that RAT operates correctly when it is deployed and it does not interfere with other airplane structure when RAT is stowed. You can apply manual force to turn the RAT turbine blades back to the coarse-pitch stop as necessary when stowing an unserviceable RAT and moving the aircraft to a location where the RAT can be removed for repair. Application of manual force is not allowed for parts being returned to service.

(26) Manually move the turbine hub to align the index mark on the hub with the index mark on the strut.

NOTE: Two persons are necessary to do the RAT retraction procedure. One person operates the RAT retraction switch. The other person monitors the RAT movement to make sure the RAT blades do not touch the airplane structure.

CAUTION: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE RAT AREA BEFORE RAT RETRACTION. MOVEMENT OF THE RAT AND DOOR CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(27) Retract the RAT with the RAT retraction switch in increments of approximately 1/4 to 1/2 second.

NOTE: The RAM AIR TURB switch on the P5 panel must be in the OFF position before the RAT can be retracted.

If the blade-lock plunger does not engage the hub-lock collar, the RAT will not retract more than approximately 16 degrees.

MECH | INSP

(28) Stop the RAT retraction when the RAT is approximately 15 degrees from the fully extended position.

(29) Make sure the blade-lock plunger has locked the turbine hub.

(30) Retract the RAT with the retraction switch until the RAT is fully retracted.

(31) Make sure the RAT unlocked light on the P5 panel is off.

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(32) Remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

(33) Remove electrical power, if it is not necessary (AMM 24-22-00/201).

2. System Test-RAT Deployment System

A. Equipment

(1) Protractor, commercially available

(2) Proximity Sensor Actuator/Deactuator Set - A27092-84 (2 rectangular sensor actuators are necessary)

B. References

(1) AMM 24-22-00/201, Electrical Power

(2) AMM 27-61-00/201, Spoiler/Speedbrake Control System

(3) AMM 29-21-17/201, Ram Air Turbine (RAT) Proximity Switches

(4) AMM 32-00-15/201, Landing Gear Door Locks

(5) AMM 32-00-20/201, Landing Gear Downlocks

MECH | INSP

(6) AMM 32-09-02/201, Air/Ground Relays

(7) AMM 34-11-00/201, Pitot-Static System

C. Prepare for Test

(1) Make sure these circuit breakers on the main power distribution panel, P6, are closed:

(a) 6C1, RAM AIR TURB MAN

(b) 6C2, RAM AIR TURB AUTO

(c) 6J8, RAM AIR TURBINE PWR

(2) Make sure these circuit breakers on the overhead panel, P11, are closed:

(a) 11U23 or 11U24, LANDING GEAR POSITION AIR/GND SYS 2

NOTE: When more than one grid location is provided, you must find the named circuit breaker at one of these locations.

(3) Supply electrical power (AMM 24-22-00/201).

(4) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Open the doors for the landing gear and install the door locks (AMM 32-00-15/201)

(6) Make sure the engines are not in operation.

D. Do the RAT Deployment System Test

MECH	INSP

CAUTION: MAKE SURE THAT THE PITOT LINE PRESSURE IS EQUIVALENT OR MORE THAN THE STATIC LINE PRESSURE. KEEP THE PITOT PRESSURE CHANGE BELOW 300 KNOTS FOR EACH MINUTE. MAKE SURE THAT DIFFERENTIAL PRESSURE STAYS BETWEEN 0 AND 10.19 INCHES OF MERCURY. YOU CAN CAUSE DAMAGE TO THE PITOT-STATIC SYSTEM.

(1) Connect the pitot test set to the right auxiliary pitot probe (AMM 34-11-00/201).

(2) Adjust the pitot test set to a pressure equivalent to 50 ±10 knots (AMM 34-11-00/201).

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS OR MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SPOILERS. THE SPOILERS CAN RETRACT QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Do the deactivation procedure for the spoilers (AMM 27-61-00/201) or move all persons and equipment away from the spoilers.

WARNING: MAKE SURE YOU DO THE FLIGHT MODE SIMULATION CORRECTLY. IF THE PROCEDURE IS NOT DONE CORRECTLY, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Do the Flight Mode Simulation procedure for the No. 2 air/ground system. Use the technique which puts actuators on the main gear tilt sensors and the nose gear not-compressed sensors (AMM 32-09-02/201).

(5) Make sure these circuit breakers on the main power distribution panel, P6, are closed:

(a) 6C1, RAM AIR TURB MAN

(b) 6C2, RAM AIR TURB AUTO

(c) 6J8, RAM AIR TURBINE PWR

(6) Make sure that the RAT does not extend.

MECH | INSP

(7) Remove the proximity switch actuators from these landing gear sensors:

(a) S267, Left Main Gear Tilt Sensor

(b) S268, Right Main Gear Tilt Sensor

(8) Adjust the pitot test set to a pressure equivalent to an airspeed of 100 ±10 knots (AMM 34-11-00/201).

(9) Put the proximity switch actuator on this landing gear sensor:

(a) S267, Left Main Gear Tilt Sensor

(10) Make sure the RAT extends in less than two seconds.

(11) Remove the proximity switch actuator from this landing gear sensor:

(a) S267, Left Main Gear Tilt Sensor

(12) Manually turn the turbine hub to align the index mark arrow on the hub with the index mark arrow on the strut.

CAUTION: MAKE SURE THAT THERE ARE NO PERSONS OR EQUIPMENT IN THE RAT AREA BEFORE RAT RETRACTION. THE MOVEMENT OF THE RAT AND DOOR CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(13) Retract the RAT with the RAT retraction switch in increments of approximately 1/4 to 1/2 second.

NOTE: The RAM AIR TURB switch on the P5 panel must be in the OFF position before the RAT can be retracted.

If the blade-lock plunger does not engage the hub-lock collar, the RAT will not retract more than approximately 16 degrees.

(14) Stop the RAT retraction when the RAT is approximately 15 degrees from the fully extended position.

(15) Make sure the blade-lock plunger has locked the turbine hub.

(16) Retract the RAT with the retraction switch until the RAT is fully retracted.

MECH	INSP

(17) Put the proximity switch actuator on this landing gear sensor:

(a) S268, Right Main Gear Tilt Sensor

(18) Make sure the RAT extends in less than two seconds.

(19) Make sure the clearance between the RAT actuator arm and the downstop is as shown in Fig. 502.

(20) If the clearance is not correct, adjust the RAT downlimit switch (AMM 29-21-17/201).

(21) Disconnect the pitot test set (AMM 34-11-00/201).

(22) Put the airplane back to the ground mode (AMM 32-09-02/201).

(23) Do the activation procedure for the spoilers if you did the deactivation procedure (AMM 27-61-00/201).

(24) Manually move the turbine hub to align the index mark arrow on the hub with the index mark arrow on the strut.

(25) Retract the RAT with the RAT retraction switch in increments of approximately 1/4 to 1/2 second.

NOTE: The RAM AIR TURB switch on the P5 panel must be in the OFF position before the RAT can be retracted.

If the blade-lock plunger does not engage the hub-lock collar, the RAT will not retract more than approximately 16 degrees.

(26) Stop the RAT retraction when the RAT is approximately 15 degrees from the fully extended position.

(27) Make sure the blade-lock plunger has locked the turbine hub.

(28) Retract the RAT with the retraction switch until the RAT is fully retracted.

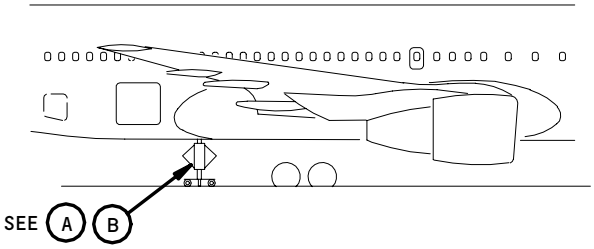
(29) Make sure the RAT UNLOCKED light on the P5 panel is off.

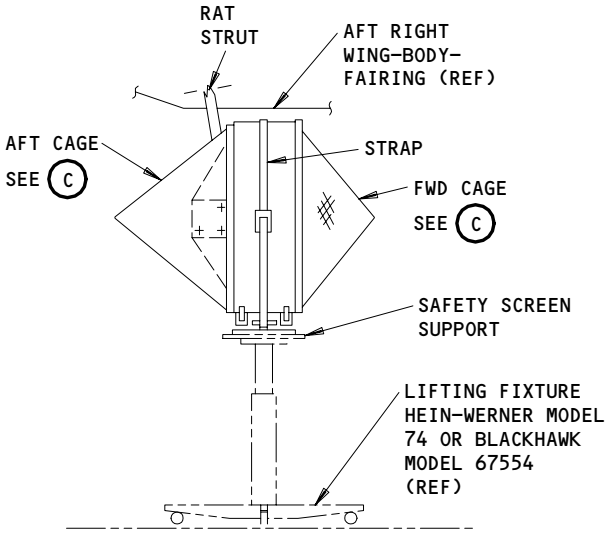
MECH	INSP

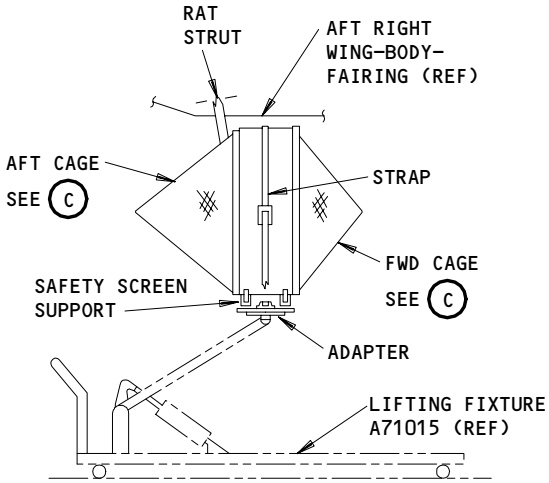
WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

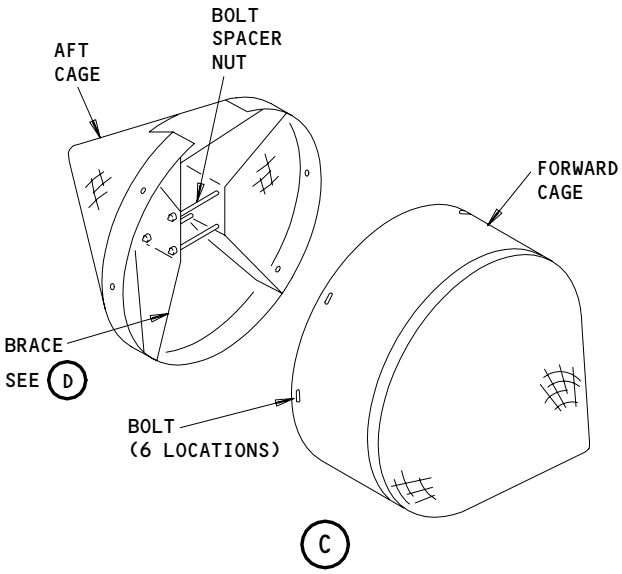
(30) Remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

(31) Remove electrical power, if it is not necessary (AMM 24-22-00/201).

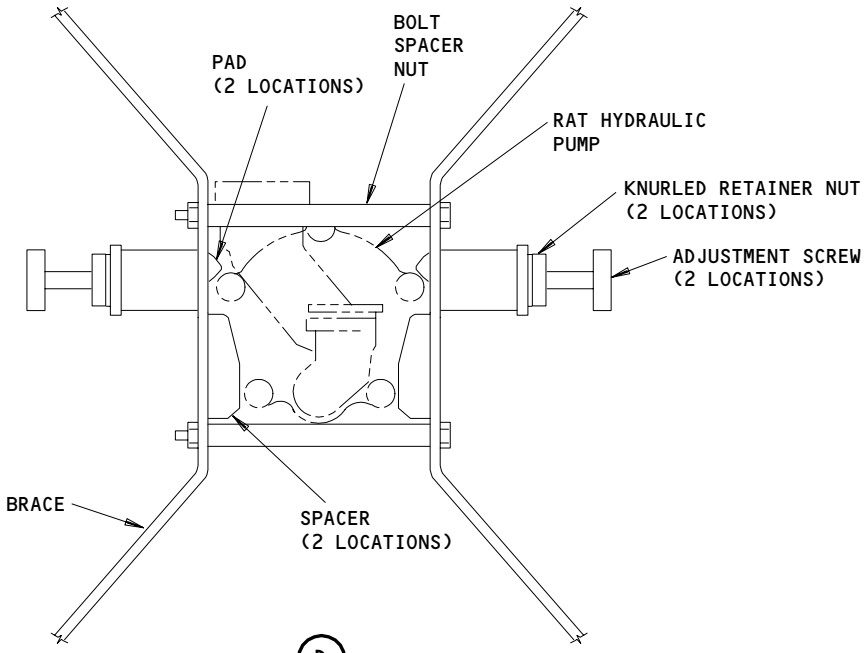




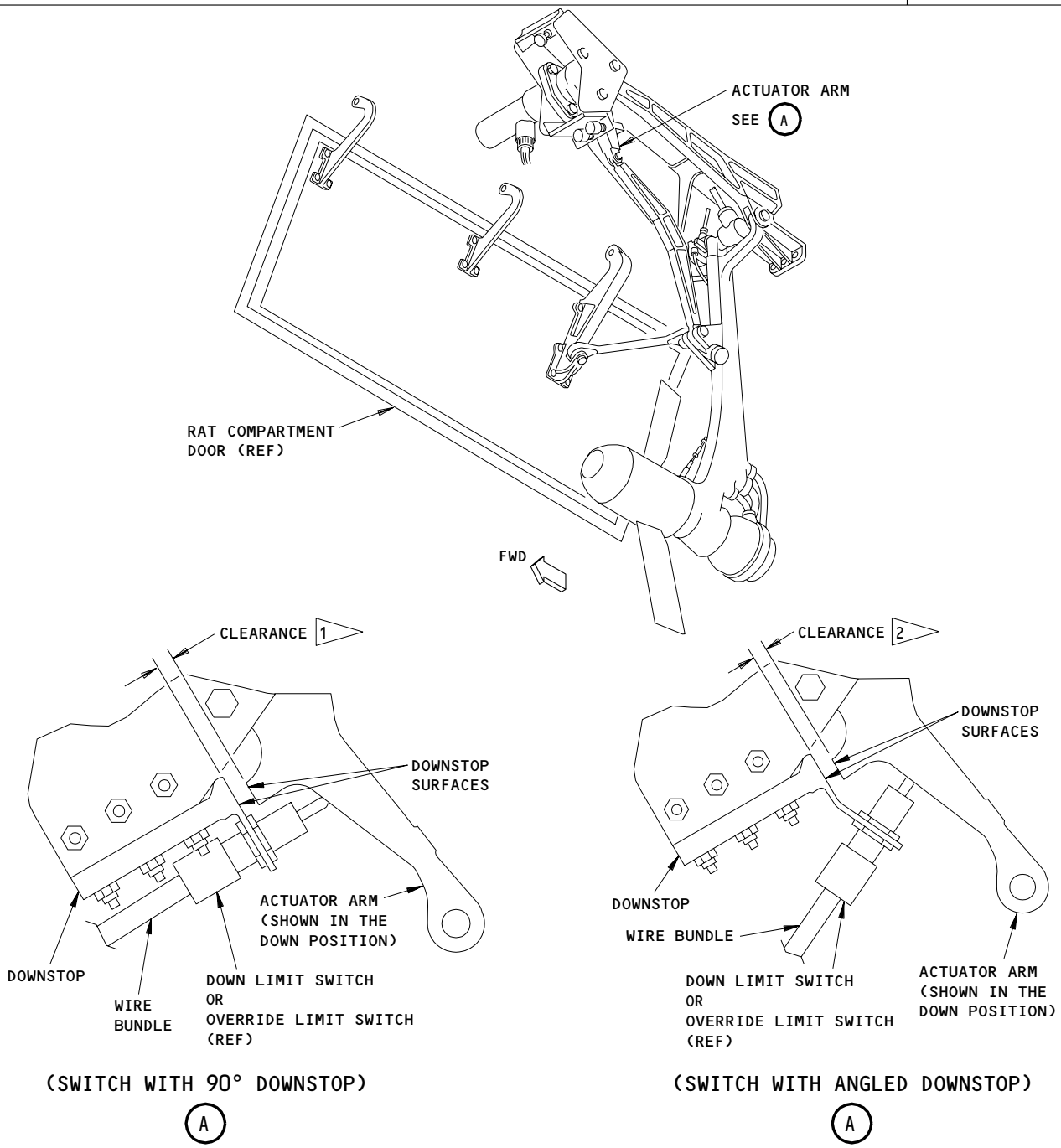




Ram Air Turbine Safety Screen
Figure 501 (Sheet 1)



Ram Air Turbine Safety Screen
Figure 501 (Sheet 2)



1 FOR SWITCH P/N 1EN61-6, CLEARANCE IS 0.06-0.20 INCH.
FOR SWITCH P/N 1EN575-6 WITH 90 DEGREE DOWNSTOP, CLEARANCE IS 0.15-0.25 INCH.

2 FOR SWITCH P/N 1EN575-6 WITH ANGLED DOWNSTOP, CLEARANCE IS 0.06-0.50 INCH.

RAT Actuator Arm Downstop Clearance
Figure 502

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-018-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	W/B FAIRING	A-29-015-01	2C	12424	013	APR 22/08

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	RAT CHECKOUT MODULE FILTERS		ALL	ALL

ZONES	ACCESS PANELS
144	742

MECH | INSP

MPD ITEM NUMBER

INSPECT THE RAT CHECKOUT MODULE CASE DRAIN AND PRESSURE FILTERS. 29-21-11-4A

(1) Safety the drain valve handle with wire.

1. Remove the Filter Element From the RAT Checkout Module

A. References

(1) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(2) AMM 32-00-15/201, Landing Gear Door Locks

(3) AMM 32-00-20/201, Landing Gear Downlocks

B. Prepare For Removal

(1) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN (AMM 32-00-15) TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(3) Remove the pressure from the center hydraulic system and the reservoir (AMM 29-11-00/201).

(4) Open these circuit breakers on the overhead panel, P11, and attach DO-NOT-CLOSE tags:

(a) 11D31, HYDRAULIC AIR PUMP

(b) 11L15, HYDRAULIC ELEC PUMP CTR 1

(c) 11L24, HYDRAULIC ELEC PUMP CTR 2

C. Remove the Filter Element (Fig. 401)

(1) Remove the filter cap from the checkout module.

(2) Remove the filter element from the module.

2. Install the Filter Element on the RAT Checkout Module

A. Equipment

(1) Ultrasonic Cleaner - Commercially Available

(2) Assembly Bullet, BLS-34533, Sundstrand Corp., 4747 Harrison Ave., Rockford, Illinois

(3) Assembly Bullet, BLS-34529, Sundstrand Corp., 4747 Harrison Ave., Rockford, Illinois

(4) Sizing Die, DAS-34534, Sundstrand Corp., 4747 Harrison Ave., Rockford, Illinois

(5) Sizing Die, DAS-34530, Sundstrand Corp., 4747 Harrison Ave., Rockford, Illinois

B. Consumable Materials

(1) D00054 Hydraulic System Lubricant - MCS 352B

(2) Solvents (Optional)

(a) B00521 Solvent - Freon TMS (Preferred)

(b) B00175 Solvent - Trichloroethylene, stabilized - ASTM D4080 (Optional)

(c) B00019 Solvent - Alcohol - TT-I-735 (Optional)

C. References

(1) AMM 12-25-01/301, Exterior Cleaning

(2) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

MECH | INSP

(3) AMM 29-21-00/501, Ram Air Turbine System

(4) AMM 29-21-01/401, RAT Assembly and Components

(5) AMM 32-00-15/201, Landing Gear Door Locks

D. Install the Filter Element (Fig. 401)

(1) Do a check of the condition of the filter.

(a) Examine the filter for bright metal particles that you can identify as broken pieces which are not very small flakes or slivers caused by usual wear.

(b) If you find a large quantity of bright metal particles, replace the hydraulic pump of the ram air turbine (AMM 29-21-01/401).

(c) Examine the filter for pieces of the filter screen from the orifice plug in the checkout module.

(d) If you find pieces of the filter screen, replace the checkout module.

(2) Clean the filter element with an ultrasonic cleaner which contains solvent.

(3) If you cannot remove the contamination or if the filter element has damage, replace the filter element.

(4) Apply hydraulic system lubricant or hydraulic fluid to the O-rings, the backup retainers, and the threads on the filter cap.

(5) Install a new O-ring on the filter cap.

(6) Use the assembly bullet as follows to install the O-ring and the backup retainers on the filter element (Fig. 402).

(a) Use the assembly bullet BLS-34533 on the pressure filter element.

(b) Use the assembly bullet BLS-34529 on the case drain filter element.

(7) Use the sizing die as follows to compress the backup retainers into the groove of the filter element (Fig. 402).

(a) Use the sizing die DAS-34534 on the pressure filter element.

MECH	INSP

(b) Use the sizing die DAS-34530 on the case drain filter element.

(8) Install the filter element in the checkout module.

(9) Install the filter cap on the module.

(10) Tighten the pressure filter cap to 30-35 pound-feet.

(11) Tighten the case drain filter cap to 15-20 pound-feet.

(12) Safety the two filter caps with wire.

E. Put the Airplane Back to Its Usual Condition

(1) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the overhead panel, P11:

(a) 11D31, HYDRAULIC AIR PUMP

(b) 11L15, HYDRAULIC ELEC PUMP CTR 1

(c) 11L24, HYDRAULIC ELEC PUMP CTR 2

(2) Pressurize the center hydraulic system and the reservoir (AMM 29-11-00/201).

(3) Do the RAT hydraulic pump system test (AMM 29-21-00/501).

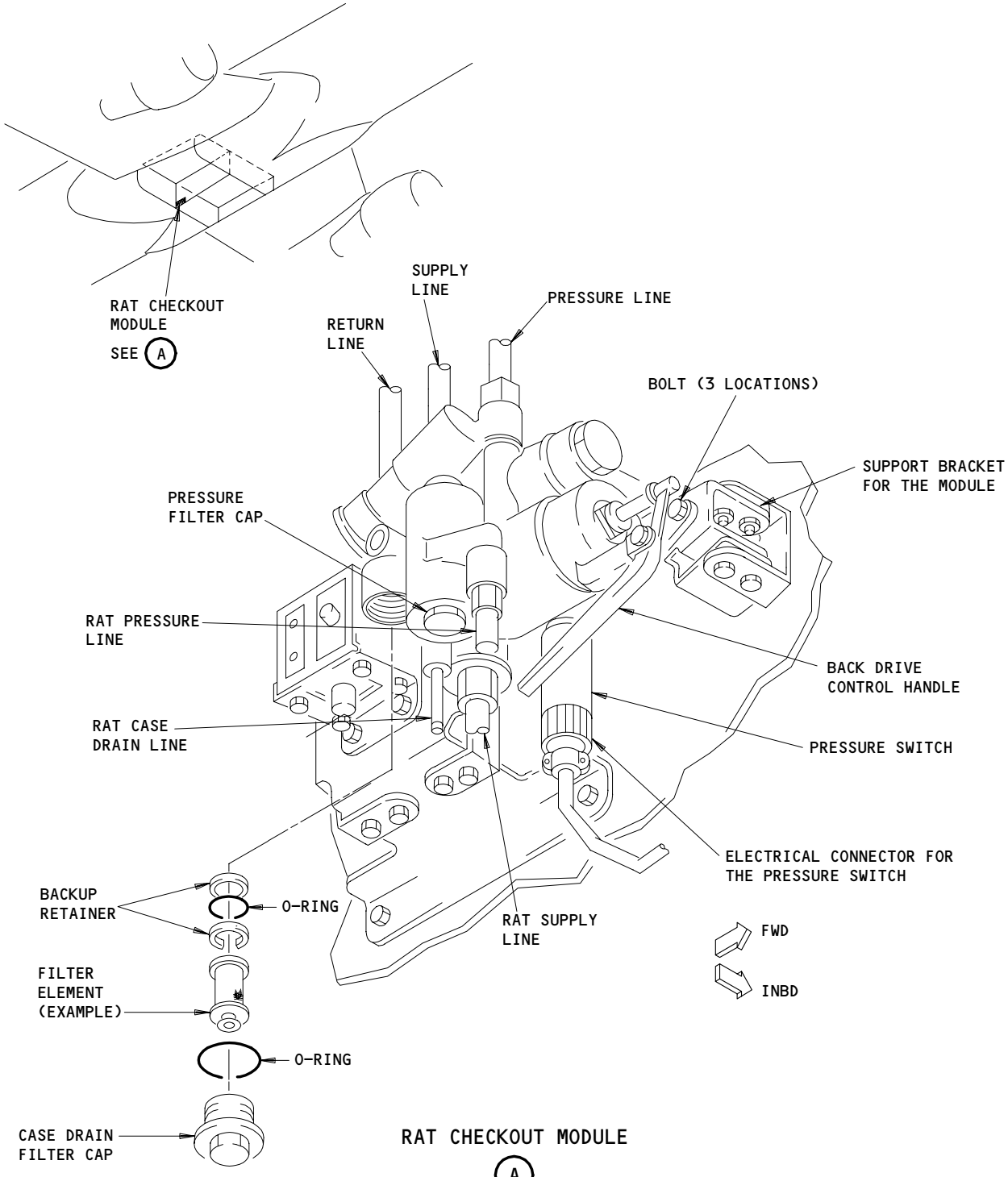
(4) Make sure there are no leaks at the filter caps and the hydraulic line connections on the module.

(5) Clean all hydraulic fluid from the area of the module (AMM 12-25-01/301).

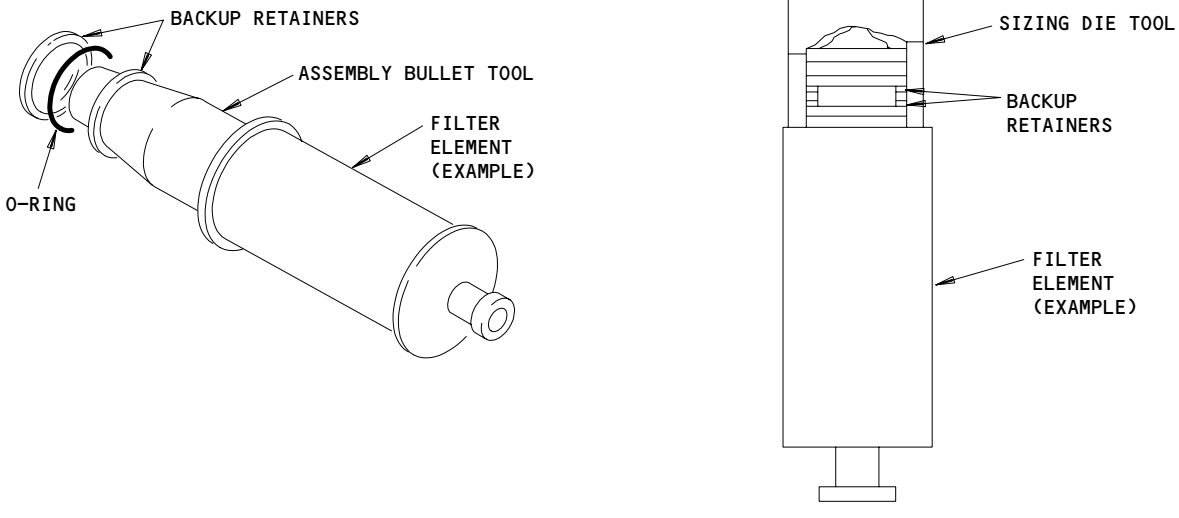
WARNING: USE THE PROCEDURE IN AMM 32-00-15/201 TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

(7) Remove hydraulic power if it is not necessary (AMM 29-11-00/201).



Ram Air Turbine (RAT) Checkout Module Installation
Figure 401



Filter Element O-Ring and Backup Retainers Installation
Figure 402

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-019-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	CREW CABIN		1C	11212	012	AUG 22/01

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	HYDRAULIC RESERVOIR QUANTITY - L,R,C		ALL	NOTE

ZONES	ACCESS PANELS
144 198 212 437 447	1004 198CR 437BL 447BR 742 NOTE

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK THE SYSTEM L, R, AND C HYDRAULIC RESERVOIR QUANTITY INDICATING SYSTEMS BY COMPARING HYDRAULIC QUANTITY INDICATION ON THE EICAS/REMOTE GAGE WITH THE RESERVOIR SIGHT GLASS. 29-33-00-5A

ENGINE NOTE: THIS TASK IS APPLICABLE TO AIRPLANES EQUIPPED WITH 4000, 7R4, 80A AND 80C ENGINES.

ACCESS NOTE: SPECIAL ACCESS 1004 REQUIRES OPENING THE LANDING GEAR DOORS AND INSTALLING SAFETY LOCKS IN ACCORDANCE WITH MAINTENANCE MANUAL PROCEDURE 32-00-15.

1. Operational Test - Hydraulic Fluid Quantity Indicating System

A. References

(1) AMM 06-41-00/201, Fuselage Access Doors and Panels

(2) AMM 06-43-00/201, Engine and Nacelle Strut Access Doors and Panels

(3) AMM 24-22-00/201, Electrical Power - Control

(4) AMM 32-00-15/201, Landing Gear Door Locks

(5) AMM 32-00-20/201, Landing Gear Downlocks

(6) AMM 78-31-00/201, Thrust Reverser System

B. Access

(1) Location Zones

144	Right MLG Wheel Well
198	Wing to Body - Aft Lower Half
437/447	Aft Nacelle Strut Fairing

MECH | INSP

(2) Access Panels
198CR Hydraulic Service Center
437BL Hydraulic System
447BR Hydraulic System

C. Prepare for Operational Test

(1) Supply electrical power (AMM 24-22-00/201).

WARNING: DO THE THRUST REVERSER DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this procedure: Thrust Reverser Deactivation for Ground Maintenance (AMM 78-31-00/201).

(3) For the left system, open the hydraulic system access panel, 437BL (AMM 06-43-00/201).

(4) For the right system, open the hydraulic system access panel, 447BR (AMM 06-43-00/201).

(5) For the center system, make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

WARNING: USE THE PROCEDURE IN (AMM 32-00-15/201) TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) For the center system, open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

(7) Open the hydraulic service center door, 198CR (AMM 06-41-00/201).

(8) Make sure these circuit breakers on the overhead panel, P11, are closed:

(a) 11L20, HYDRAULIC QTY

D. Do the Hydraulic Fluid Quantity Indicating System Operational Test.

MECH	INSP

(1) Push the ELEC/HYD switch on the EICAS maintenance panel.

(2) Move the fill selector valve to the position for the hydraulic system (L, R, or C) on which you do the test.

(3) Make sure you can see the fluid level in the reservoir at the refill sight glass. Make sure you can not see the fluid level at the overfill sight glass.

(4) Make sure the HYD QTY (L, R, or C) indication on the flight deck display is between 0.65 and 1.24.

(5) Make sure the indication on the hydraulic quantity indicator on the service panel is between 0.65 and 1.20.

(6) Move the fill selector valve to the OFF position.

E. Put the Airplane back to Its Initial Condition.

(1) Close the hydraulic service center door, 198CR (AMM 06-41-00/201).

(2) For the right system, close the hydraulic system access panel, 447BR (AMM 06-43-00/201).

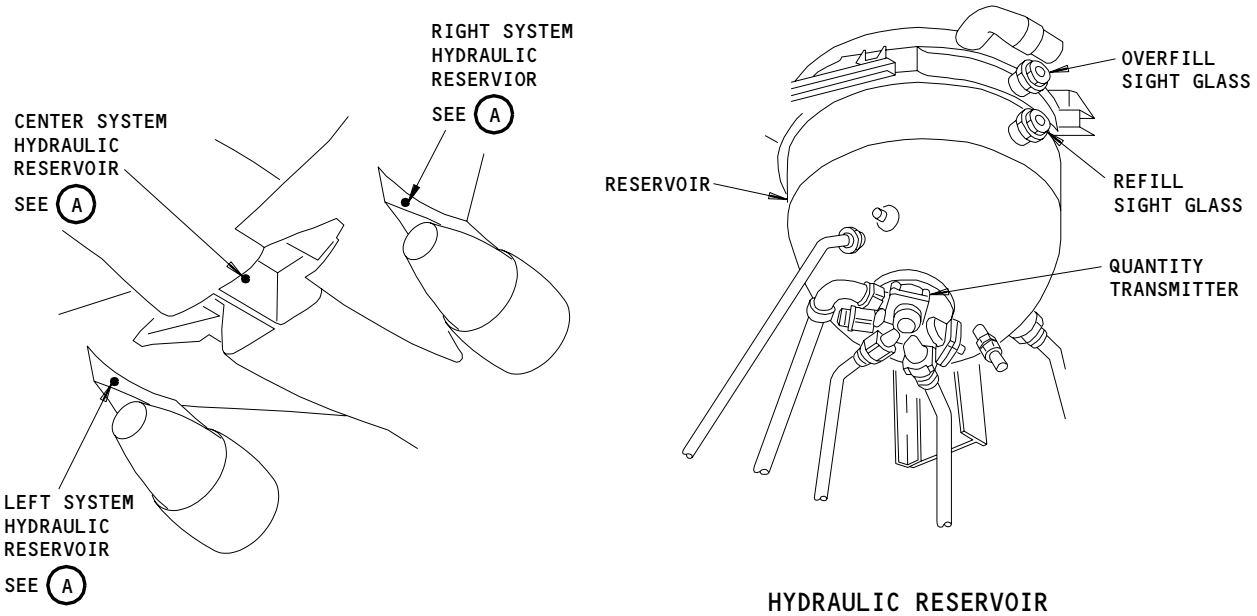
(3) For the left system, close the hydraulic system access door, 437BL (AMM 06-43-00/201).

WARNING: USE THE PROCEDURE IN (AMM 32-00-15/201) TO REMOVE THE DOOR LOCKS. THE DOORS CAN OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

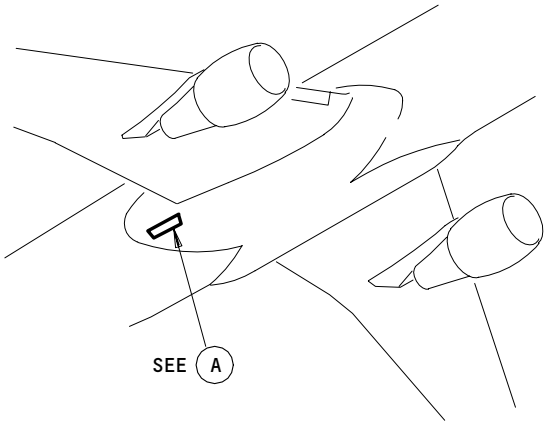
(4) For the center system, remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

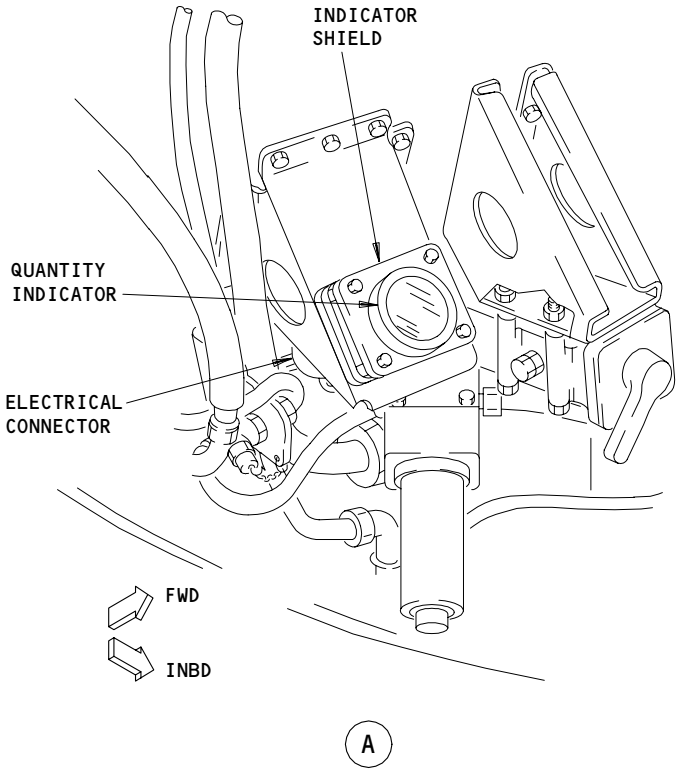
(5) Do the activation procedure for the thrust reverser (AMM 78-31-00/201).

(6) Remove electrical power if it is not necessary (AMM 24-22-00/201).



Sight Glasses for the Hydraulic Reservoir
Figure 501





Reservoir Quantity Indicator
Figure 502

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-020-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	L MAIN W/W		4C	14848	007	APR 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
DISCARD	RAM AIR TURBINE ISOLATION CHK VALVE		ALL	ALL

ZONES	ACCESS PANELS
143	732

MECH	INSP	MPD ITEM NUMBER

DISCARD RAM AIR TURBINE ISOLATION CHECK VALVE TO ENSURE PROPER OPERATION. 29-21-19-4A

THE FOLLOWING PROCEDURE APPLIES TO THE ON-AIRCRAFT PORTION OF THIS TASK (REMOVAL/INSTALLATION):

1. Remove the RAT Isolation-Check Valve

   A. References

      (1) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

      (2) AMM 32-00-15/201, Landing Gear Door Locks

      (3) AMM 32-00-20/201, Landing Gear Downlocks

   B. Prepare For Removal

      (1) Make sure the downlocks are installed on the nose and main landing gear (AMM 32-00-20/201).

      WARNING: USE THE PROCEDURE IN (AMM 32-00-15) TO INSTALL THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

      (2) Open the doors for the landing gear and install the door locks (AMM 32-00-15/201).

      (3) Remove the pressure from the center hydraulic system and reservoir (AMM 29-11-00/201).

   C. Remove the RAT Isolation-Check Valve (Fig. 401)

MECH | INSP

(1) Disconnect the hydraulic line and the tee fitting from the check valve.

(2) Remove the bolt from the tab on the check valve and remove the check valve.

2. Install the RAT Isolation-Check Valve

A. Consumable Materials

(1) D00054 Hydraulic System Lubricant - MCS 352B

B. References

(1) AMM 12-12-01/301, Hydraulic Systems

(2) AMM 12-25-01/301, Exterior Cleaning

(3) AMM 24-22-00/201, Electrical Power - Control

(4) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(5) AMM 32-00-15/201, Landing Gear Door Locks

C. Install the RAT Isolation-Check Valve (Fig. 401)

(1) Apply hydraulic system lubricant or hydraulic fluid to the check valve threads before installation.

(2) Put the check valve in position on the support bracket.

(3) Install the bolt and washer in the tab on the check valve.

(4) Connect the hydraulic line and the tee fitting to the check valve.

D. Put the Airplane Back to Its Usual Condition

(1) Supply electrical power (AMM 24-22-00/201).

(2) Fill the hydraulic reservoir (AMM 12-12-01/301).

(3) Pressurize the center hydraulic system and reservoir (AMM 29-11-00/201).

(4) Make sure there are no leaks at the check valve connections.

MECH	INSP

CAUTION: QUICKLY CLEAN THE AREA OF ALL HYDRAULIC FLUID. HYDRAULIC FLUID CAN CAUSE DAMAGE TO THE AIRPLANE EQUIPMENT.

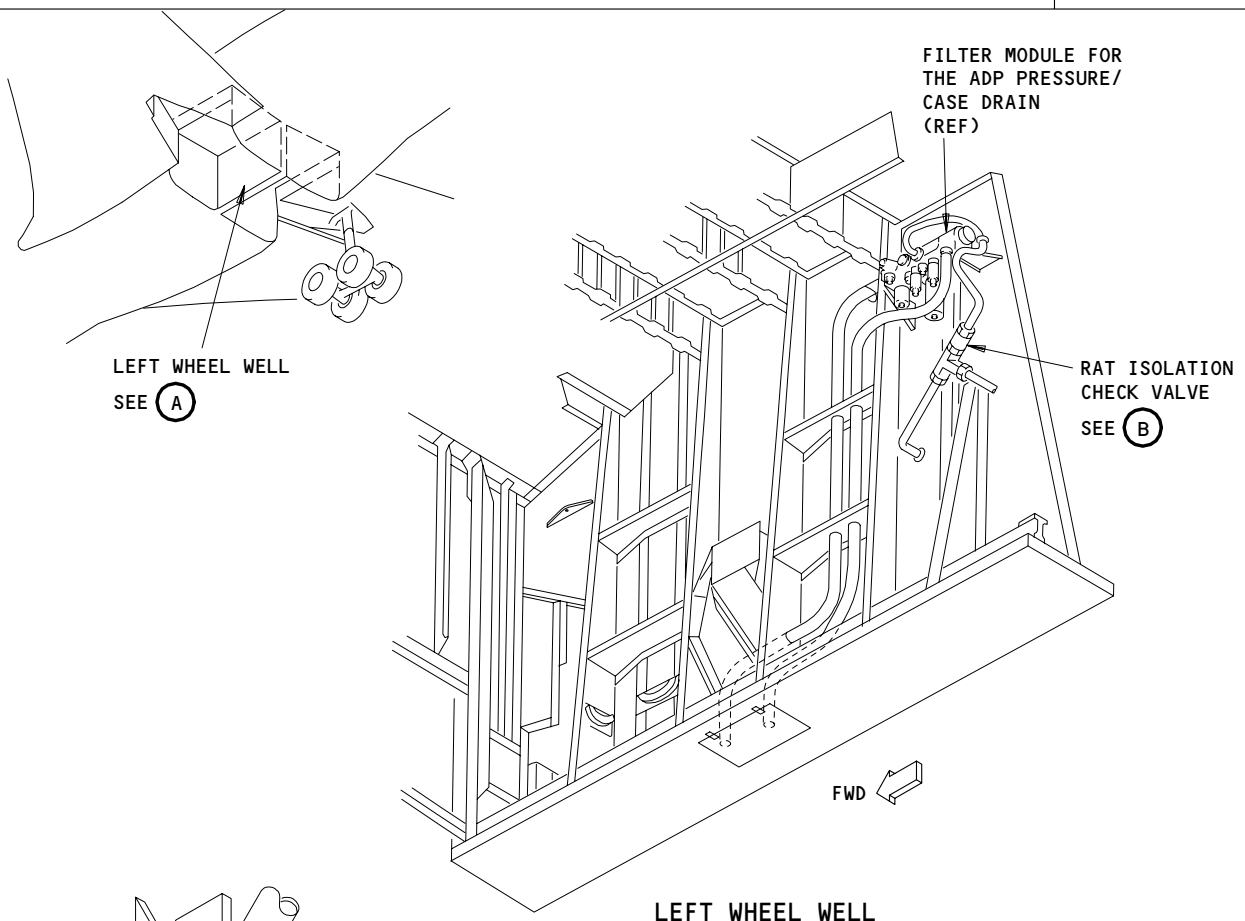
(5) Clean all hydraulic fluid from the area of the relief valve (AMM 12-25-01/301).

WARNING: USE THE PROCEDURE IN (AMM 32-00-15) TO REMOVE THE DOOR LOCKS. THE DOORS OPEN AND CLOSE QUICKLY AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

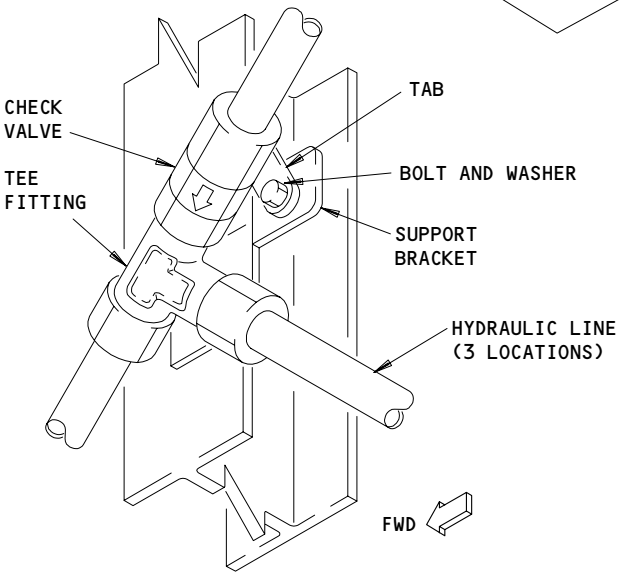
(6) Remove the door locks from the landing gear doors and close the doors (AMM 32-00-15/201).

(7) Remove hydraulic power if it is not necessary (AMM 29-11-00/201).

(8) Remove electrical power if it is not necessary (AMM 24-22-00/201).



LEFT WHEEL WELL
A



RAT ISOLATION CHECK VALVE
B

Ram Air Turbine (Rat) Isolation-Check Valve
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-021-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STAB COMPT		1C	11212	009	AUG 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	POWER TRANSFER UNIT (PTU) SYSTEM		NOTE	ALL

ZONES	ACCESS PANELS
211 312	312AR

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK THE HYDRAULIC POWER TRANSFER UNIT (PTU) SYSTEM. 29-22-00-5A

AIRPLANE NOTE: SB 767-29A0039. APPLICABLE TO AIRPLANE LINE NUMBERS 158, 165, 202 AND ON AND THOSE INCORPORATING THIS SERVICE BULLETIN OR EQUIVALENT.

1. Operational Test - Hydraulic Power Transfer Unit (PTU) System

A. General

(1) This procedure does an operational test of the Hydraulic Power Transfer Unit (PTU).

B. References

(1) AMM 06-42-00/201, Empennage Access Panels and Doors

(2) AMM 24-22-00/201, Electrical Power

(3) AMM 27-61-00/201, Spoiler/Speedbrake Control System

(4) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

(5) AMM 32-09-02/201, Air/Ground Relays

(6) WDM 29-33-11

C. PTU Operation Test (Method 1)

(1) Supply electrical power (AMM 24-22-00/201).

(2) Close the following circuit breakers:

(a) 11L10, HYDRAULICS PTU CONT

MECH | INSP

(b) 11H11, LEFT STAB TRIM CONT

(3) Pressurize the left, center and right hydraulic systems (AMM 29-11-00/201).

(4) Set the following switches on the P61 panel to "ON":

(a) L FLT CONT SHUTOFF - TAIL

(b) C FLT CONT SHUTOFF - TAIL

(c) R FLT CONT SHUTOFF - TAIL

(5) Set the "STAB TRIM L" and the "STAB TRIM C" switches to "NORM".

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(6) Position the Stabilizer at 6 to 7 units of trim.

(7) Open the following circuit breakers:

(a) 11U23 or 11U24, LDG GR POS AIR/GND SYS 2

(8) Depressurize the left and center hydraulic systems (AMM 29-11-00/201).

(9) Verify that the left system Isolation Shutoff Valve (V150) is in the closed position - "POS 2"

(10) Operate the Captain's Stabilizer Trim Switch for 5 seconds in the Nose Down direction and then for 5 seconds in the Nose Up direction and verify that the PTU operates.

NOTE: PTU operation is verified by Stabilizer movement. If there is no Stabilizer motion, PTU does not operate!

(11) Verify that the following light on the Hydraulic System Control panel M10 is not illuminated:

(a) HYD SYS L RESVR QTY (L10)

MECH | INSP

(12) If the light is illuminated, open the following circuit breaker:

(a) 11L20, HYDRAULIC QTY

(13) Pressurize the left hydraulic system and wait 20 seconds for the Isolation Valve to open (AMM 29-11-00/201).

(14) Operate the Captain's Stabilizer Trim Switch for 5 seconds in the Nose Down direction and then for 5 seconds in the Nose Up direction and verify that the Stabilizer operates but the PTU does not operate.

NOTE: PTU operation can be detected by listening to the noise of the PTU motor and pump.

(15) Close the following circuit breaker:

(a) 11L15, HYDRAULIC ELEC PUMP CTR1

(16) Install a temporary ground wire from Terminal G154 of TB176 in the E2-4 Shelf (WDM 29-33-11 sh2).

(17) Close this circuit breaker if it is open:

(a) 11L20, HYDRAULIC QTY

(18) Operate the Captain's Stabilizer Trim Switch for 5 seconds in the Nose Down direction and then for 5 seconds in the Nose Up direction and verify that the PTU operates.

(19) Open the following circuit breakers:

(a) 11H11, LEFT STAB TRIM CONT

(b) 11H20, STAB TRIM CONT R

(20) Operate the Captain's Stabilizer Trim Switch for 5 seconds in the Nose Down direction and the for 5 seconds in the nose up direction and verify that the PTU does not operate.

(21) Close the following circuit breakers:

(a) 11H11, LEFT STAB TRIM CONT

(b) 11H20, STAB TRIM CONT R

(22) Open the following circuit breaker:

(a) 11L10, HYDRAULIC PTU CONT

(23) Operate the Captain's Stabilizer Trim Switch for 5 seconds in the Nose Down direction and the for 5 seconds in the nose up direction and verify that the PTU does not operate.

(24) Close the following circuit breakers:

(a) 11L10, HYDRAULIC PTU CONT

(b) 11U23 or 11U24, LDG GR POS AIR/GND SYS 2

(25) Remove the temporary ground wire from Terminal G154 of TB176 in the E2-4 shelf (if installed).

D. PTU Operation Test (Method 2)

(1) Close the following circuit breakers.

(a) 11L10 HYDRAULICS PTU CONT

(b) 11H11 LEFT STAB TRIM CONT

(2) Supply electrical power (AMM 24-22-00/201).

WARNING: STAY OFF THE SERVICE ACCESS DOOR 312AR AND THE ELEVATOR CONTROL ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

(3) Open the access door, 312AR, for the pitch enhancement system (AMM 06-42-00/201).

(4) Pressurize the left, right and center hydraulic systems (AMM 29-11-00/201).

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

MECH | INSP

(5) Operate the stabilizer trim through two full cycles with the Captain's or First Officer's stabilizer trim control wheel switches (Fig. 501) and do the steps which follow:

NOTE: One cycle is a stabilizer movement from 1 unit of trim to 12 units of trim and back to 1 unit of trim on the stabilizer position indicator on the control stand panel, P10.

(a) Make sure the stabilizer trim position indicator on the P10 panel moves.

(b) Listen to the PTU in the stabilizer compartment to make sure it does not operate.

(6) Remove the power from the left and center hydraulic systems (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Operate the Captains stabilizer trim control wheel switches and make sure the stabilizer position indicator on the P10 panel does not move.

(8) Operate the First Officers stabilizer trim control wheel switches and make sure the stabilizer position indicator on the P10 panel does not move.

(9) Operate the stabilizer trim levers or the alternate stabilizer trim switches on the control stand and make sure that the stabilizer position indicator on the P10 panel does not move.

(10) Pressurize the left and center hydraulic systems (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

MECH | INSP

WARNING: DO THE DEACTIVATION PROCEDURE FOR THE SPOILERS OR MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE SPOILERS. THE SPOILERS CAN RETRACT QUICKLY AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(11) Do the deactivation procedure for the spoilers (AMM 27-61-00/201) or move all persons and equipment away from the spoilers.

WARNING: MAKE SURE YOU DO THE FLIGHT MODE SIMULATION CORRECTLY. IF THE PROCEDURE IS NOT DONE CORRECTLY, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(12) Do the Flight Mode Simulation procedure for the No. 2 air/ground system (AMM 32-09-02/201).

TABLE 501
Captain's stabilizer trim control wheel switches First Officer's stabilizer trim control wheel switches Stabilizer trim levers or the alternate stabilizer trim switches on the control stand

(13) Operate the stabilizer trim through 2 units of trim with each of the switches in Table 501, one at a time, and do the steps which follow:

(a) Make sure the stabilizer position indicator on the control stand P10 panel moves.

(b) Listen to the PTU in the stabilizer compartment to make sure it does not operate.

(14) Remove power from the left and center hydraulic systems (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

MECH | INSP

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(15) Operate the Captains stabilizer trim control wheel switches and make sure the stabilizer position indicator on the P10 panel moves.

(16) Operate the First Officers stabilizer trim control wheel switches and make sure the stabilizer position indicator on the P10 panel moves.

(17) Operate the stabilizer trim levers or the alternate stabilizer trim switches on the control stand and make sure that the stabilizer position indicator on the P10 panel does not move.

(18) Pressurize the left hydraulic system (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(19) Operate the stabilizer trim through 2 units of trim with each of the switches in Table 501, one at a time, and do the steps which follow:

(a) Make sure the stabilizer trim indicator on the P10 panel moves.

(b) Listen to the PTU in the stabilizer compartment to make sure it does not operate.

(20) Remove power from the left hydraulic system. Pressurize the center hydraulic system (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

MECH | INSP

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(21) Operate the stabilizer trim through 2 units of trim with each of the switches in Table 501, one at a time, and do the steps which follow:

(a) Make sure the stabilizer trim indicator on the P10 panel moves.

(b) Listen to the PTU in the stabilizer compartment to make sure it does not operate.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(22) Operate the stabilizer trim with the Captain's or First Officer's stabilizer trim control wheel switches. While you operate the stabilizer trim, remove power from the center hydraulic system (AMM 29-11-00/201).

(23) After a short time for the center system pressure to decrease, do the steps which follow:

(a) Listen to the PTU in the stabilizer compartment to make sure it operates.

(b) Monitor the movement of the stabilizer trim position indicator on the P10 panel to make sure the stabilizer trim rate decreases.

(24) Release the Captain's and First Officer's stabilizer trim control wheel switches.

(25) Listen to the PTU in the stabilizer compartment to make sure it stops when you release the stabilizer trim switches.

(26) Pressurize the left hydraulic system (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

MECH	INSP

(27) Stop for a minimum of 20 seconds, then do this step:

(a) Make sure the position indicator and manual override lever on the left system isolation valve, in the stabilizer compartment, is in the position 1 (open position).

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(28) Operate the stabilizer trim with the Captain's or First Officer's stabilizer trim control wheel switches. While you operate the stabilizer trim, remove power from the left hydraulic system (AMM 29-11-00/201).

(29) After a short time for the left hydraulic system pressure to decrease, do the steps which follow:

(a) Listen to the PTU in the stabilizer compartment to make sure it operates.

(b) Monitor the movement of the stabilizer trim position indicator on the P10 panel to make sure the stabilizer trim rate decreases.

(30) Release the Captain's or First Officer's stabilizer trim control wheel switches.

(31) Listen to the PTU in the stabilizer compartment to make sure it stops when you release the stabilizer trim switches.

(32) Pressurize the left hydraulic system (AMM 29-11-00/201).

NOTE: Keep the right hydraulic system pressurized.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

MECH	INSP

(33) Operate the stabilizer trim with the Captain's or First Officer's stabilizer trim control wheel switches. While you operate the stabilizer trim, do the steps which follow:

(a) Disconnect the connector D38 at the Quantity Transmitter for the left hydraulic system, M338 (WDM 29-33-11).

NOTE: This gives a signal of a left reservoir low quantity.

(b) Listen to the PTU in the stabilizer compartment to make sure it operates.

(34) Release the Captain's or First Officer's stabilizer trim control wheel switches.

(35) Listen to the PTU in the stabilizer compartment to make sure it stops when you release the stabilizer trim switches.

(36) Remove power from the left and right hydraulic systems (AMM 29-11-00/201)

(37) Connect the Connector D38 for the Quantity Transmitter, M338, for the left hydraulic system (WDM 29-33-11).

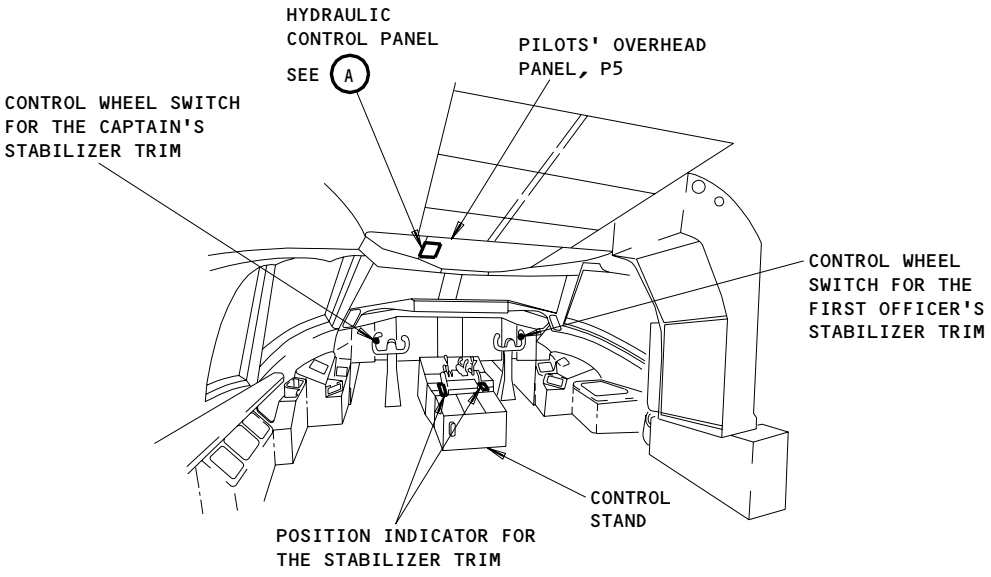
(38) After at least 20 seconds, make sure the position indicator and manual override lever on the left system isolation valve in the stabilizer compartment is in position 2 (closed position).

(39) Put the airplane back to the ground mode (AMM 32-09-02/201).

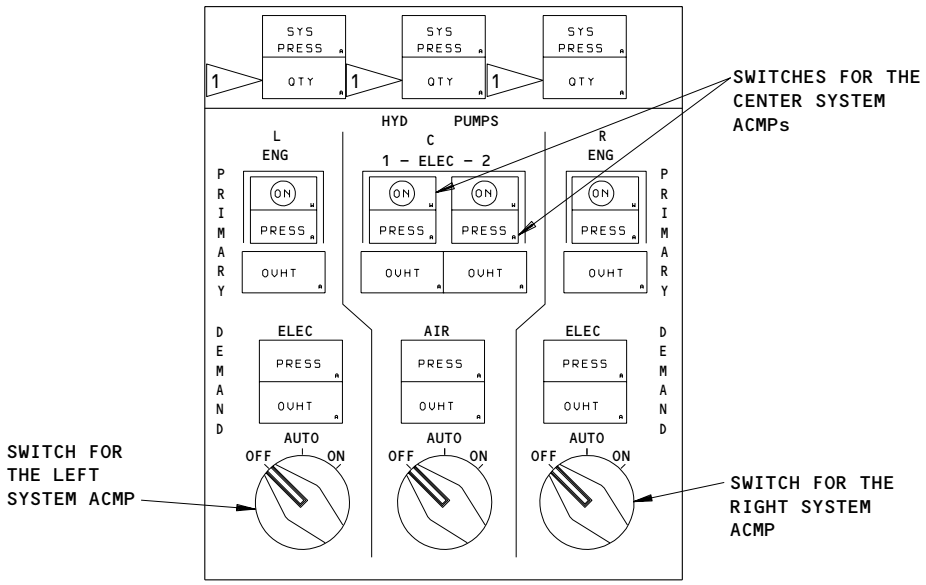
(40) Do the activation procedure for the spoilers if you did the deactivation procedure (AMM 27-61-00/201).

(41) Close the access door, 312AR, for the pitch enhancement system (AMM 06-42-00/201).

(42) Remove electrical power, if it is not necessary (AMM 24-22-00/201).



FLIGHT COMPARTMENT

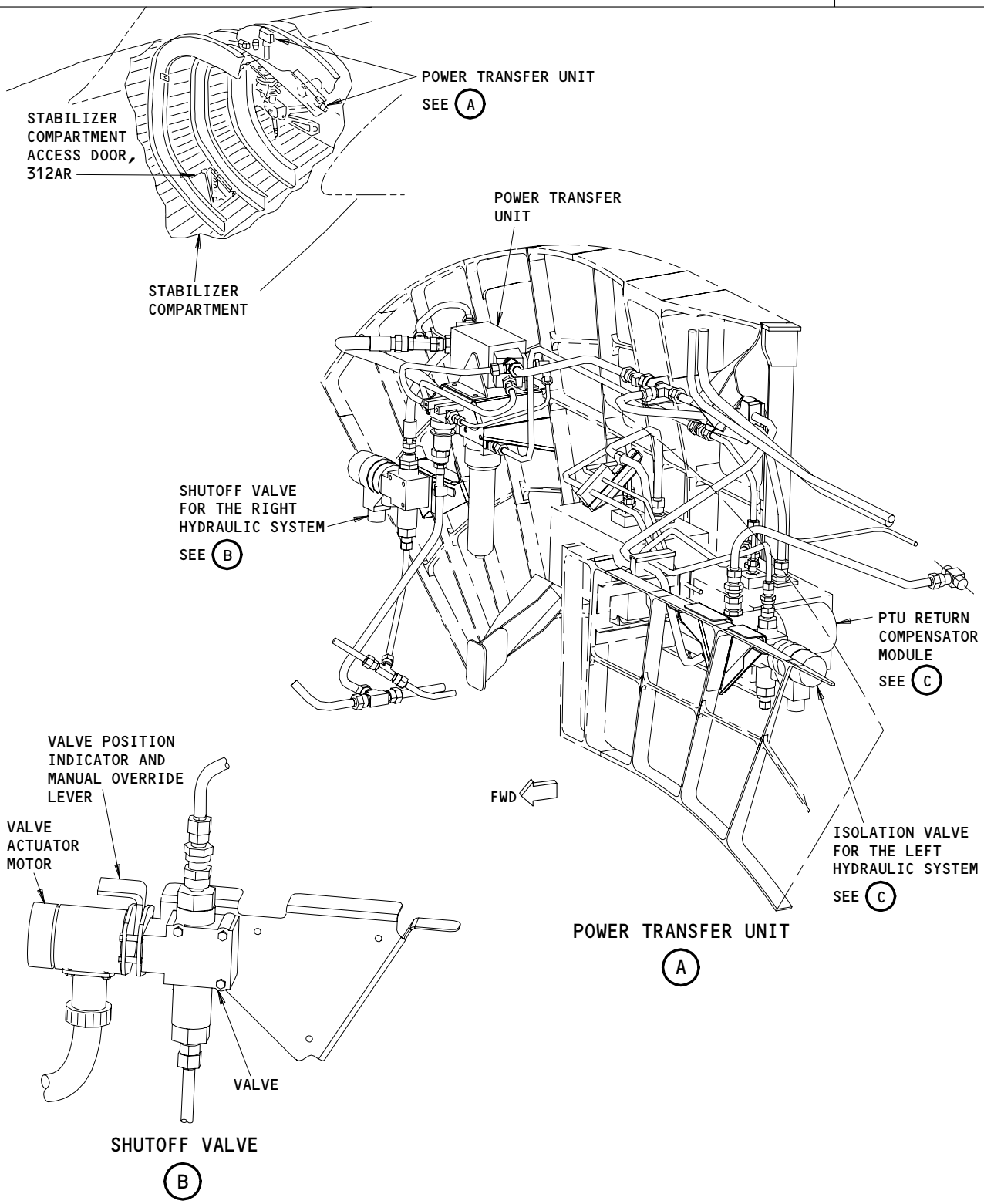


HYDRAULIC CONTROL PANEL

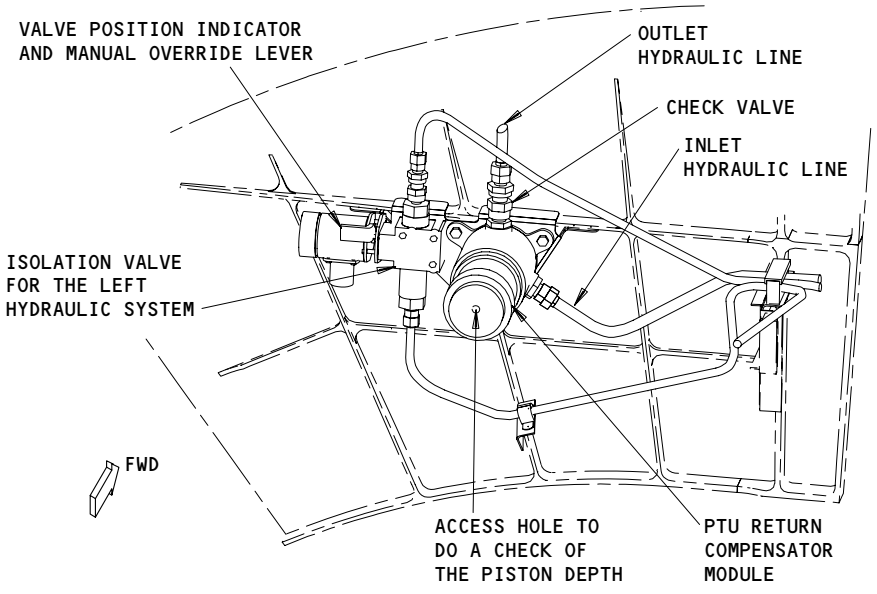
A

1 THE LABEL "RSVR" IS OPTIONAL TO "QTY"

Flight Compartment Components
Figure 501



Pitch Enhancement System (PES) Components
Figure 502 (Sheet 1)



ISOLATION VALVE

C

Pitch Enhancement System (PES) Components
Figure 502 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-022-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STAB COMPT		4C	14848	006	AUG 22/09

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
FUNCTIONAL	PTU SYSTEM RETURN COMPENSATOR MODULE		NOTE	ALL

ZONES	ACCESS PANELS
211 312	312AR

MECH	INSP	MPD ITEM NUMBER

FUNCTIONALLY CHECK THE PTU SYSTEM RETURN COMPENSATOR MODULE. 29-22-00-5B

AIRPLANE NOTE: SB 767-29A0039. APPLICABLE TO AIRPLANE LINE NUMBERS 158, 165, 202 AND ON AND THOSE INCORPORATING THIS SERVICE BULLETIN OR EQUIVALENT.

A. Equipment

(1) Metal rod - commercially available, 0.125-inch diameter, 6 inches long

B. References

(1) AMM 06-42-00/201, Empennage Access Panels and Doors

(2) AMM 24-22-00/201, Electrical Power

(3) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic System

(4) AMM 29-22-00/201, Pitch Enhancement System (PES)

C. Procedure (Fig 502)

NOTE: The pitch enhancement system must be at ambient temperature before you start this test. If the operation of the system increases the temperature of the hydraulic fluid, thermal contraction of the fluid when the temperature decreases can cause failure of this test.

(1) Supply electrical power (AMM 24-22-00/201).

MECH | INSP

WARNING: STAY OFF THE SERVICE ACCESS DOOR 312AR AND THE ELEVATOR CONTROL ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

(2) Open the access door, 312AR, for the pitch enhancement system (AMM 06-42-00/201).

(3) Pressurize the left hydraulic system (AMM 29-11-00/201).

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(4) Operate the stabilizer trim from 1 unit of trim to 12 units of trim and back to 1 unit of trim on the stabilizer position indicator on the control stand panel, P10 (Fig. 501). Use the Captain's or First Officer's control wheel switches.

(5) Remove pressure from the left hydraulic system (AMM 29-11-00/201).

(6) Put a metal rod into the access hole in the center of the housing of the PTU return compensator.

(7) Keep a record of the depth of the piston in the housing.

(8) Open this circuit breaker on the overhead panel, P11, and attach a DO-NOT-CLOSE tag:

(a) 11L10, HYDRAULICS PTU CONT

(9) Move the position indicator and manual override lever on the left hydraulic system isolation valve to position 2 (closed position).

(10) Do not operate the hydraulic system or the stabilizer trim for one hour.

(11) Put a metal rod into the access hole in the center of the housing of the PTU return compensator.

(12) Keep a record of the depth of the piston in the housing.

MECH | INSP

(13) Compare this piston depth with the depth you wrote one hour before.

(14) The piston depth must not increase more than 0.25 inch.

(a) If the piston depth increases more than 0.25 inch, replace the PTU Return Compensator Module per AMM 29-22-02/401 or repair it per CMM 29-10-24.

(15) Remove the DO-NOT-CLOSE tag and close this circuit breaker on the P11 panel:

(a) 11L10, HYDRAULICS PTU CONT

(16) Pressurize the left hydraulic system (AMM 29-11-00/201).

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE AWAY FROM THE STABILIZER IN THE STABILIZER COMPARTMENT BEFORE YOU OPERATE THE STABILIZER TRIM. MOVEMENT OF THE STABILIZER CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(17) Operate the stabilizer trim through two full cycles with the Captain's or First Officer's stabilizer trim control wheel switches.

NOTE: One cycle is a stabilizer movement from 1 unit of trim to 12 units of trim and back to 1 unit of trim on the stabilizer position indicator on the P10 panel.

(18) Remove pressure from the left hydraulic system (AMM 29-11-00/201).

(19) Put a metal rod into the access hole in the center of the housing of the PTU return compensator.

(20) Keep a record of the depth of the piston in the housing.

WARNING: BE CAREFUL WHEN YOU LOOSEN THE HYDRAULIC LINE CONNECTIONS. THE REMAINING PRESSURE IN THE PITCH ENHANCEMENT SYSTEM (PES) CAN BE AS HIGH AS 100 PSI AND HAVE A FLUID VOLUME OF AS MUCH AS 5 CUBIC INCHES. A SPRAY OF FLUID FROM A CONNECTION CAN CAUSE INJURY TO PERSONS.

MECH | INSP

(21) Slowly loosen the hydraulic line connection at the inlet port of the return compensator module to let the fluid, which is pressurized, bleed from the PTU system.

(22) After the hydraulic fluid drains, tighten the hydraulic line connection at the inlet port of the return compensator module.

(23) Put a metal rod into the access hole in the center of the housing of the PTU return compensator.

(24) Keep a record of the depth of the piston in the housing.

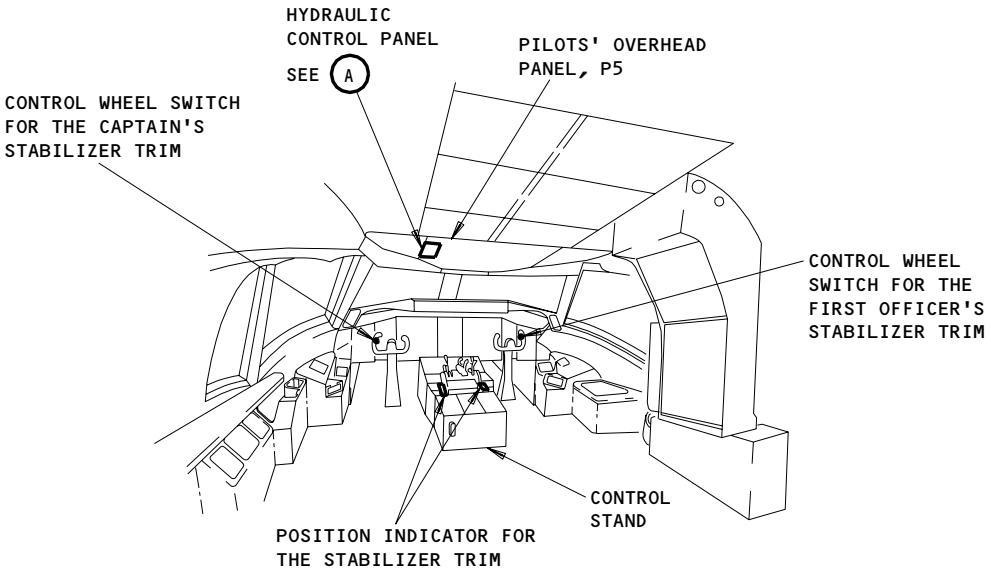
(25) Compare this piston depth with the depth you wrote before you bled the fluid from the compensator. The piston depth must increase by 1.0 ±0.1 inches.

(a) If the piston depth does not increase by 1.0 ± 0.1 inches, replace the PTU Return Compensator Module per AMM 29-22-02/401 or repair it per CMM 29-10-24.

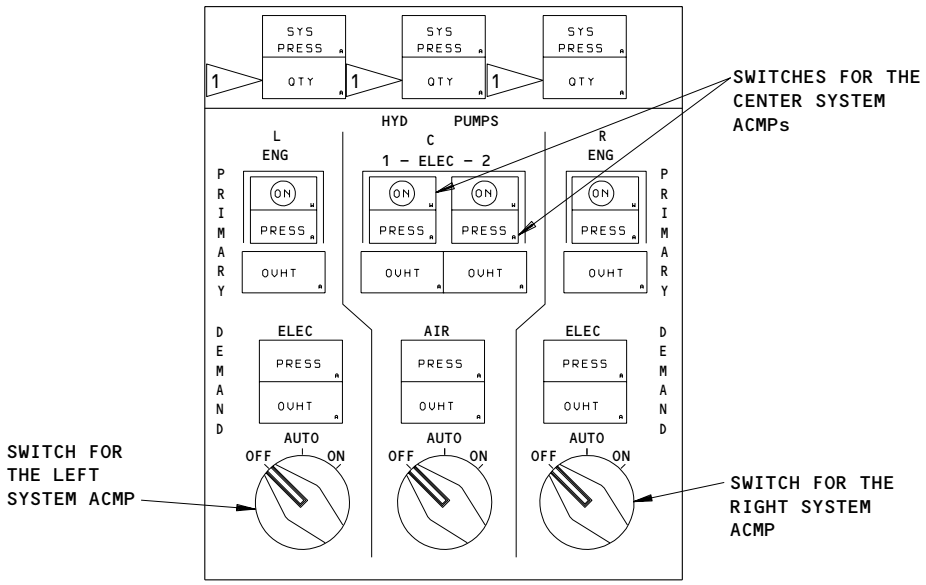
(26) Do the PES system fill and bleed procedure (AMM 29-22-00/201).

(27) Close the access door, 312AR, for the pitch enhancement system (AMM 06-42-00/201).

(28) Remove electrical power if it is not necessary (AMM 24-22-00/201).



FLIGHT COMPARTMENT

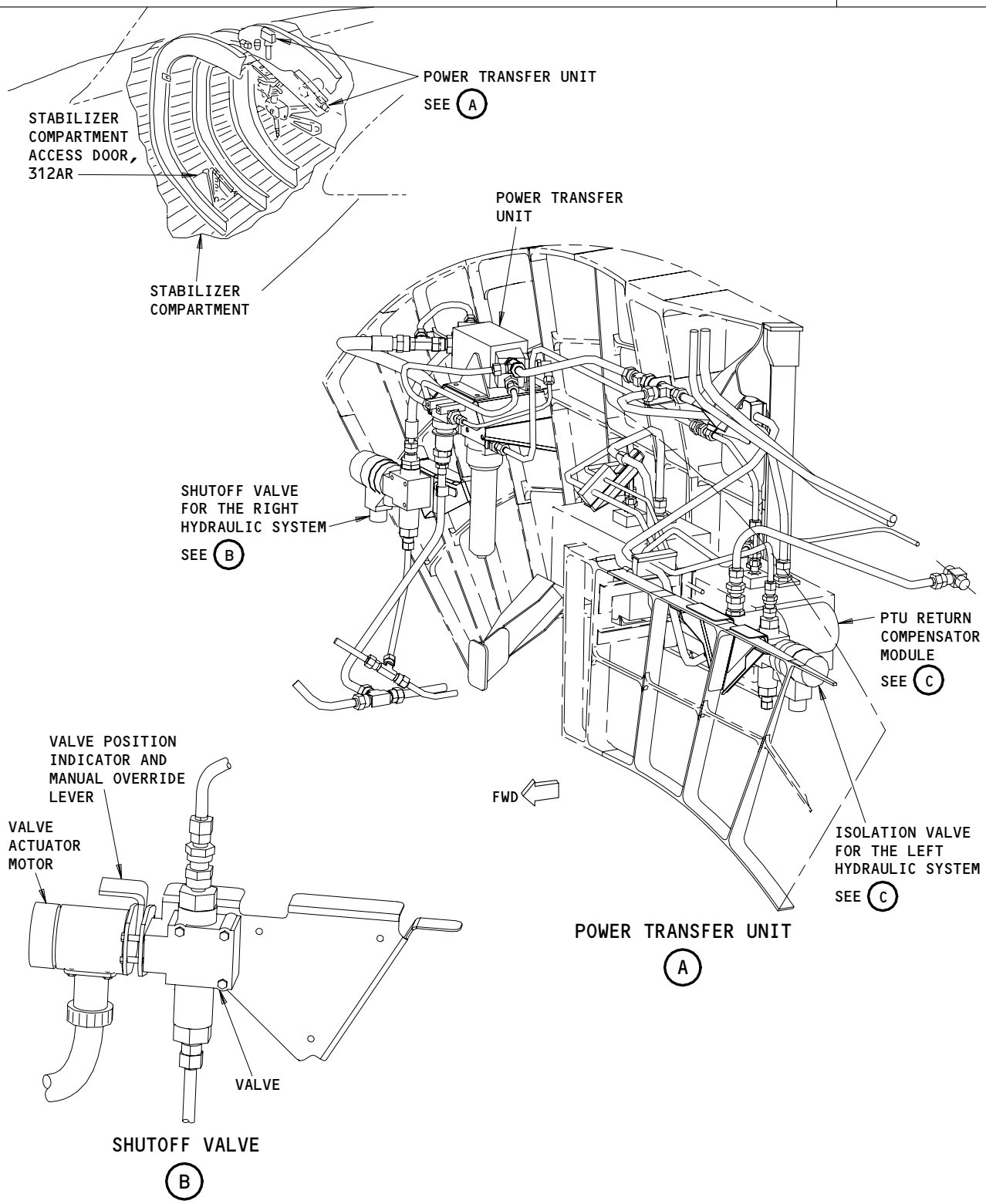


HYDRAULIC CONTROL PANEL

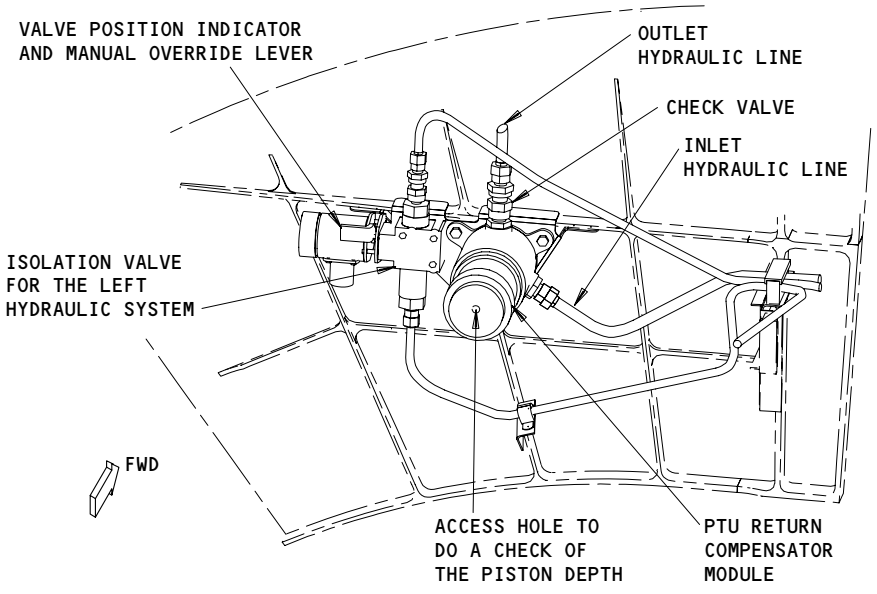
A

1 THE LABEL "RSVR" IS OPTIONAL TO "QTY"

Flight Compartment Components
Figure 501



Pitch Enhancement System (PES) Components
Figure 502 (Sheet 1)



ISOLATION VALVE

C

Pitch Enhancement System (PES) Components
Figure 502 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-023-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STAB COMPT		4C	14848	009	APR 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
CHECK/INSP	PTU CASE DRAIN FILTER		NOTE	ALL

ZONES	ACCESS PANELS
312	312AR

MECH	INSP	MPD ITEM NUMBER
		29-22-03-4A

VISUALLY CHECK AND, IF NECESSARY, CLEAN THE PTU CASE DRAIN FILTER ELEMENT AFTER THE PTU HYDRAULIC SYSTEM OPERATIONAL CHECK IS COMPLETED.

AIRPLANE NOTE: SB 767-29A0039. APPLICABLE TO AIRPLANE LINE NUMBERS 158, 165, 202 AND ON AND THOSE INCORPORATING THIS SERVICE BULLETIN OR EQUIVALENT.

1. Remove the Case Drain Filter Element

A. References

(1) AMM 06-42-00/201, Empennage Access Panels and Doors

(2) AMM 29-11-00/201, Main (Left, Right and Center) Hydraulic Systems

B. Prepare for Removal

(1) Remove the pressure from the left, right, and center hydraulic systems and the left system reservoir (AMM 29-11-00/201).

WARNING: STAY OFF THE SERVICE ACCESS DOOR 312AR AND THE ELEVATOR CONTROL ACCESS DOOR, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

(2) Open the access door, 312AR, for the pitch enhancement system (PES) (AMM 06-42-00/201).

C. Remove the Case Drain Filter Element (Fig. 401)

MECH | INSP

WARNING: BE CAREFUL WHEN YOU LOOSEN THE FILTER BOWL. THE REMAINING PRESSURE IN THE PES CAN BE AS HIGH AS 100 PSI AND HAVE A FLUID VOLUME OF AS MUCH AS 5 CUBIC INCHES. A SPRAY OF FLUID FROM THE FILTER BOWL CONNECTION CAN CAUSE INJURY TO PERSONS.

(1) Slowly loosen the filter bowl to let the fluid, which is pressurized, bleed from the PES.

(2) Remove the filter bowl from the filter head.

(3) Remove the filter element.

2. Install the Case Drain Filter Element

A. Equipment

(1) Ultrasonic Cleaner - Commercially Available

B. Consumable Materials

(1) D00054 Hydraulic System Lubricant - MCS 352B

C. References

(1) AMM 06-42-00/201, Empennage Access Panels and Doors

(2) AMM 12-25-01/301, Exterior Cleaning

(3) AMM 29-22-00/201, Pitch Enhancement System (PES)

D. Install the Case Drain Filter Element (Fig. 401)

(1) Clean the filter element, for the case drain, in an ultrasonic cleaner.

(2) Examine the filter element for damage.

(3) If you can not remove the contamination or if the filter element has damage, replace the filter element.

(4) Apply hydraulic lubricant or hydraulic fluid to the O-rings and the threads of the filter bowl and the filter head before installation.

(5) Install new O-rings in the filter element and on the filter bowl.

MECH | INSP

(6) Install the filter element in the filter head.

(7) Install the filter bowl in the filter head, and tighten the filter bowl to 75-100 pound-inches.

(8) Safety the filter bowl with wire.

E. Put the Airplane Back to Its Usual Condition

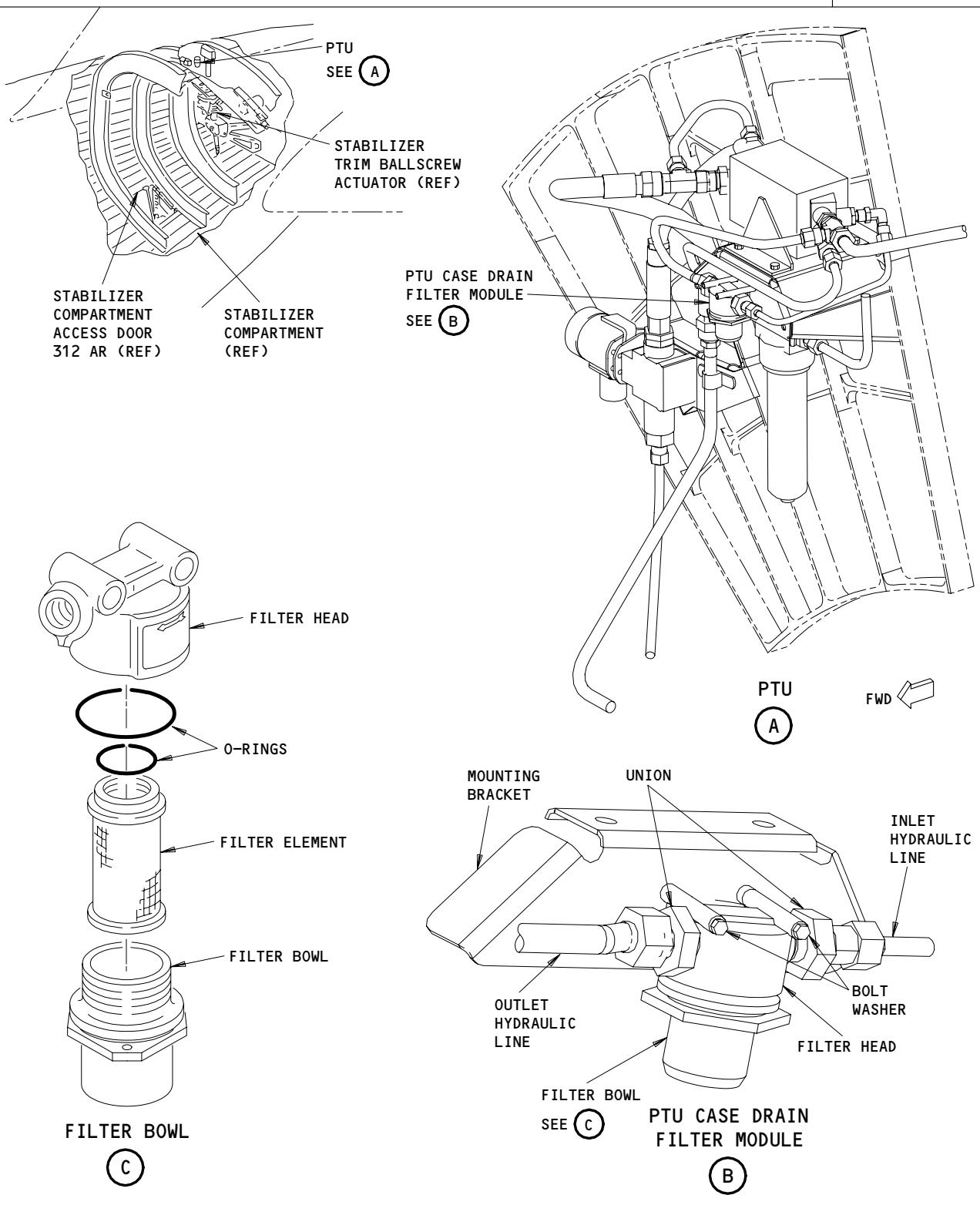
(1) Do the fill and bleed procedure for the pitch enhancement system (AMM 29-22-00/201).

(2) Make sure there are no leaks at the hydraulic line and filter bowl connections to the filter head.

CAUTION: QUICKLY CLEAN THE AREA OF ALL HYDRAULIC FLUID. HYDRAULIC FLUID CAN CAUSE DAMAGE TO THE AIRPLANE EQUIPMENT.

(3) Clean all hydraulic fluid from the area of the filter module (AMM 12-25-01/301).

(4) Close the access door, 312AR, for the pitch enhancement system (AMM 06-42-00/201).



Power Transfer Unit (PTU) Case Drain Filter Module Installation
Figure 401

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-024-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	STAB COMPT		4C	14848	009	APR 22/01

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
FUNCTIONAL	STABILIZER TRIM RATE RELIEF VALVE		NOTE	ALL

ZONES	ACCESS PANELS
211 312	312AR

MECH	INSP	MPD ITEM NUMBER

FUNCTIONALLY CHECK THE STABILIZER TRIM RATE RELIEF VALVE (INSTALLED ONLY ON AIRPLANES WITH PTU SYSTEM). 27-41-00-5E

AIRPLANE NOTE: SB 767-29A0039. APPLICABLE TO AIRPLANE LINE NUMBERS 158, 165, 202 AND ON AND THOSE INCORPORATING THIS SERVICE BULLETIN OR EQUIVALENT.

1. Stabilizer Trim Relief Valve Test

NOTE: This is a scheduled maintenance task.

A. Equipment

(1) Hand Pump, Positive Displacement - Commercially Available

(2) Shutoff Valve (2 Necessary) - Commercially Available

(3) Pressure Gauge, 200 psi (1400 kPa) capacity - Commercially Available

(4) Hose, 1/4 inch (6.4 millimeter) diameter - Commercially Available

(5) Union, Flareless Tube - MS21902

(6) Beaker with 1/4 cc graduations - Commercially Available

B. References

(1) AMM 06-42-00/201, Empennage Access Doors and Panels

(2) AMM 24-22-00/201, Electrical Power - Control

MECH | INSP

(3) AMM 29-11-00/201, Main (Left, Right, and Center) Hydraulic System

(4) AMM 34-11-00/201, Pitot Static Systems

C. Access

(1) Location Zones
211/212 Control Cabin
312 Area Aft of Pressure Bulkhead to BS 1725 (Right)

(2) Access Panel
312AR Stabilizer Trim Ballscrew Actuator

D. Prepare for the Test

(1) Supply electrical power (AMM 24-22-00/201).

WARNING: STAY OFF THE SERVICE ACCESS DOOR, 312AR, AND THE ACCESS DOOR FOR THE CONTROLS BAY, 313AL. YOUR WEIGHT CAN CAUSE THE SPRING-LOADED LATCHES TO RELEASE. IF YOU FALL THROUGH THE DOOR, INJURY CAN OCCUR.

(2) Open the access panel, 312AR, for the stabilizer trim ballscrew actuator (AMM 06-42-00/201).

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES WHEN HYDRAULIC POWER IS SUPPLIED. AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND STABILIZER ARE FULLY POWERED SURFACES. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Supply power to the left hydraulic system (AMM 29-11-00/201).

(4) Make sure the RIGHT and CENTER FLT CONT SHUTOFF TAIL valve switches on the P61 panel are OFF.

(5) Put the LEFT FLT CONT SHUTOFF TAIL valve switch on the P61 panel to the ON position.

E. Stabilizer Trim Relief Valve Test

MECH	INSP

(1) Do the steps that follow to make sure the relief valve is open in the free flow direction:

(a) Put the LEFT STAB TRIM SHUTOFF valve switch on the P10 panel in the NORM position.

(b) Put the CENTER STAB TRIM SHUTOFF valve switch on the P10 panel in the CUTOUT position.

(c) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:

1) 11C13, STAB TRIM SHUTOFF CENTER

(d) Make sure that this circuit breaker on the P11 panel is closed:

1) 11C12, STAB TRIM SHUTOFF L

(e) Do the steps that follow while the stabilizer is operated through one full up/down cycle (approximately 1 unit of trim to 12 units of trim and back):

1) Slowly pressurize auxiliary pitot system No. 1 to change the simulated air speed from zero to 300 knots (AMM 34-11-00/201).

2) Make sure that the stabilizer trim rate decreases as the pitot-static pressure increases.

3) Slowly remove the pressure from auxiliary pitot system No. 1 until the pressure is zero (AMM 34-11-00/201).

4) Make sure that the stabilizer trim rate increases as the pitot-static pressure decreases.

(2) Do the steps that follow to make sure there is no leakage through the relief valve below the re-seat pressure:

(3) Make sure that LEFT, RIGHT, and CENTER FLT CONT SHUTOFF TAIL valve switches on the P61 panel are OFF.

(a) Put the LEFT STAB TRIM SHUTOFF valve switch on the P10 panel in the CUTOUT position.

(b) Open this circuit breaker on the P11 panel and attach a DO-NOT-CLOSE tag:

MECH | INSP

1) 11C12, STAB TRIM SHUTOFF L

(c) Remove the power from the left and center hydraulic systems (AMM 29-11-00/201).

WARNING: CAREFULLY LOOSEN THE HYDRAULIC RETURN LINE ON THE LEFT STCM. THE PTU SYSTEM CAN CAUSE A PRESSURE AS HIGH AS 100 PSI AND A FLUID VOLUME AS MUCH AS 5 CUBIC INCHES TO STAY IN THE LINE. A SPRAY OF FLUID FROM THE CONNECTION CAN CAUSE INJURY TO PERSONS.

(d) At the relief valve end, slowly loosen the retaining nut of the hydraulic line which connects the left STCM to the relief valve and let the pressure decrease.

(e) Disconnect the hydraulic line at the relief valve and seal the hydraulic line with a cap.

(f) Connect the hand pump with a shutoff valve to the relief valve inlet as shown (Fig. 506).

(g) Disconnect the other hydraulic line connected to the relief valve and move it out of the way.

(h) AIRPLANES WITH RELIEF VALVES S/N 516 AND BEFORE;
Do the steps that follow:

1) Use the hand pump to pressurize the relief valve until it opens (105 - 110 psi (724 - 758 kPa)).

2) Allow the pressure to reduce to 90 +/- 5 psi (621 +/- 34 kPa), and use the hand pump to maintain this pressure.

(i) AIRPLANES WITH RELIEF VALVES S/N 517 OR GREATER;
Do the steps that follow:

1) Use the hand pump to pressurize the relief valve until it opens (130 psi (896 kPa)).

2) Allow the pressure to reduce to 105 psi (724 kPa), and use the hand pump to maintain this pressure.

(j) Maintain pressure on the valve for 10 minutes. Use a beaker to capture the hydraulic fluid that drips from the relief valve.

MECH | INSP

(k) Make sure the amount of hydraulic fluid captured in the beaker is less than 1.5 cc's.

(l) If the amount of hydraulic fluid captured in the beaker is more than 1.5 cc's, replace the pressure relief valve (AMM 27-41-19/401).

F. Put the Airplane Back to Its Usual Condition

(1) Remove the hand pump from the relief valve inlet.

(2) Connect the hydraulic line to the relief valve.

(3) Remove the DO-NOT-CLOSE tags and close these circuit breakers on the P11 panel:

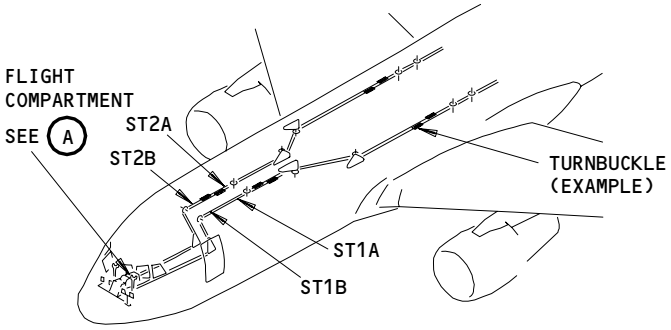
(a) 11C12, STAB TRIM SHUTOFF L

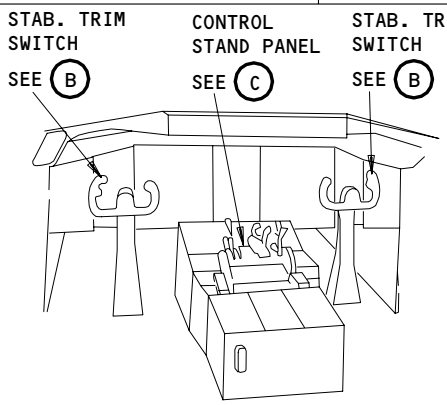
(b) 11C13, STAB TRIM SHUTOFF CENTER

(4) Put the LEFT and CENTER STAB TRIM SHUTOFF valve switches on the P10 panel in the NORM position.

(5) Remove electrical power (AMM 24-22-00/201).

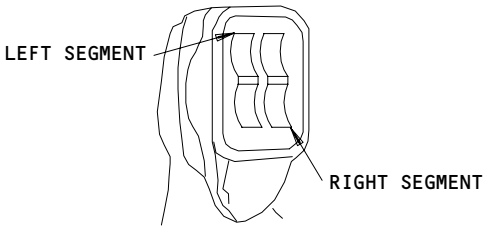
(6) Close the access door, 312AR (AMM 06-42-00/201).





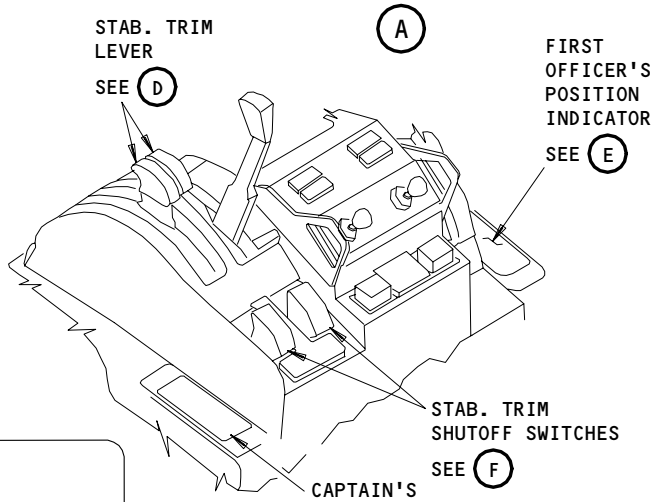
FLIGHT COMPARTMENT

A



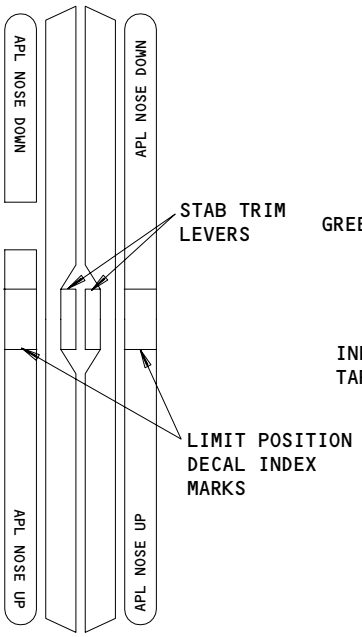
STAB. TRIM SWITCH (EXAMPLE)

B



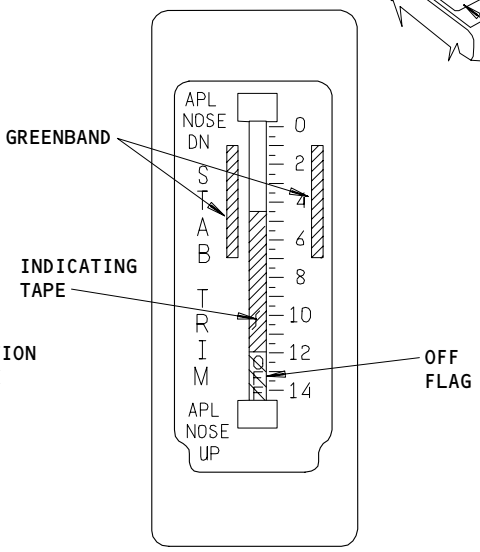
CONTROL STAND PANEL (P10)

C



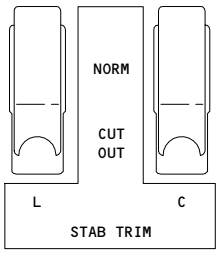
STAB. TRIM LEVERS

D



STAB. POSITION INDICATOR

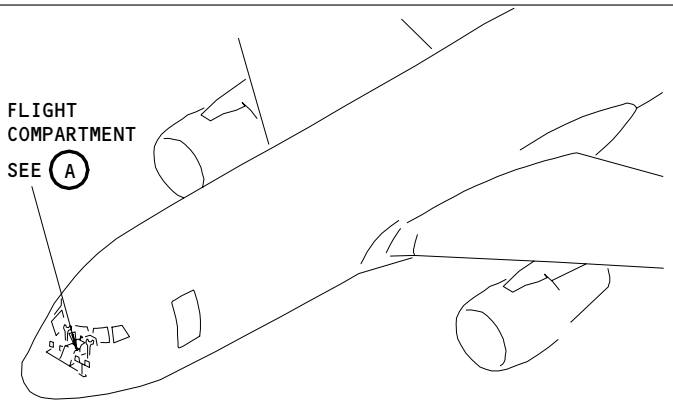
E

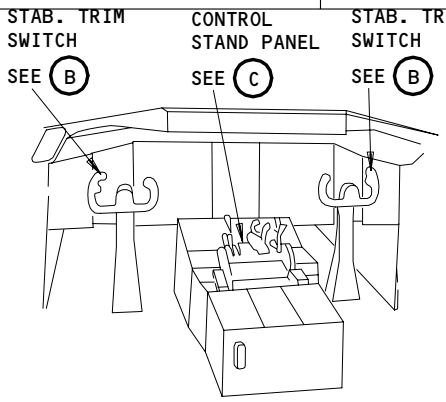


STAB. TRIM SHUTOFF SWITCHES

F

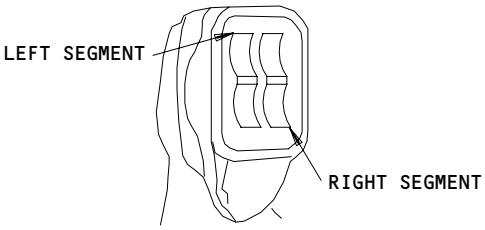
Horizontal Stabilizer Trim Control
Figure 501 (Sheet 1)





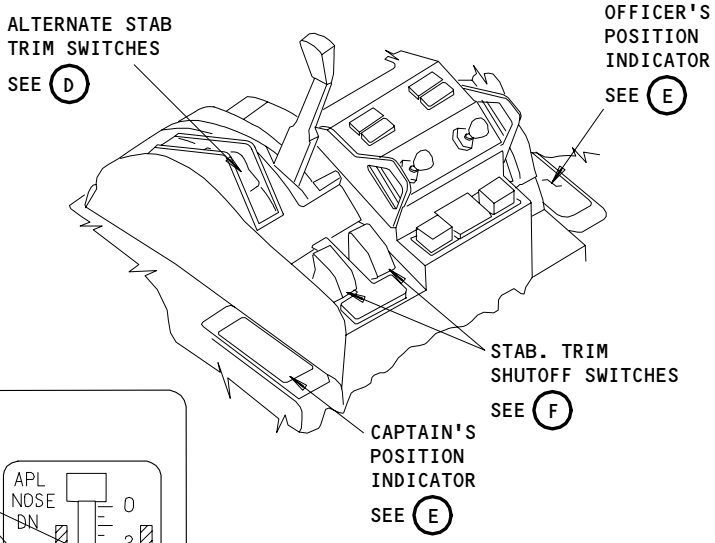
FLIGHT COMPARTMENT

A



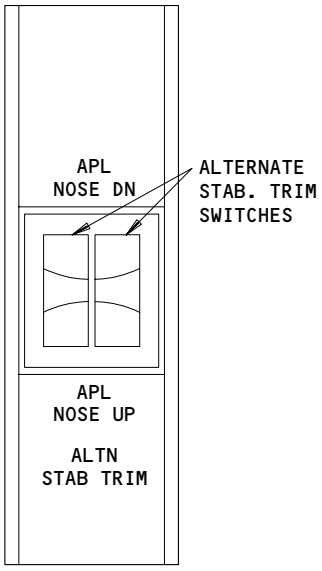
STAB. TRIM SWITCH (EXAMPLE)

B



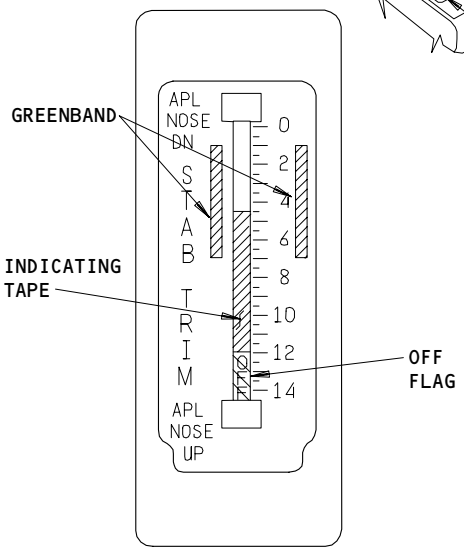
CONTROL STAND PANEL (P10)

C



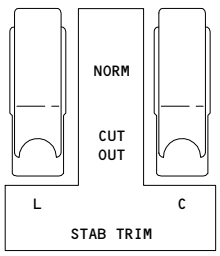
ALTERNATE STAB. TRIM SWITCHES

D



STAB. POSITION INDICATOR

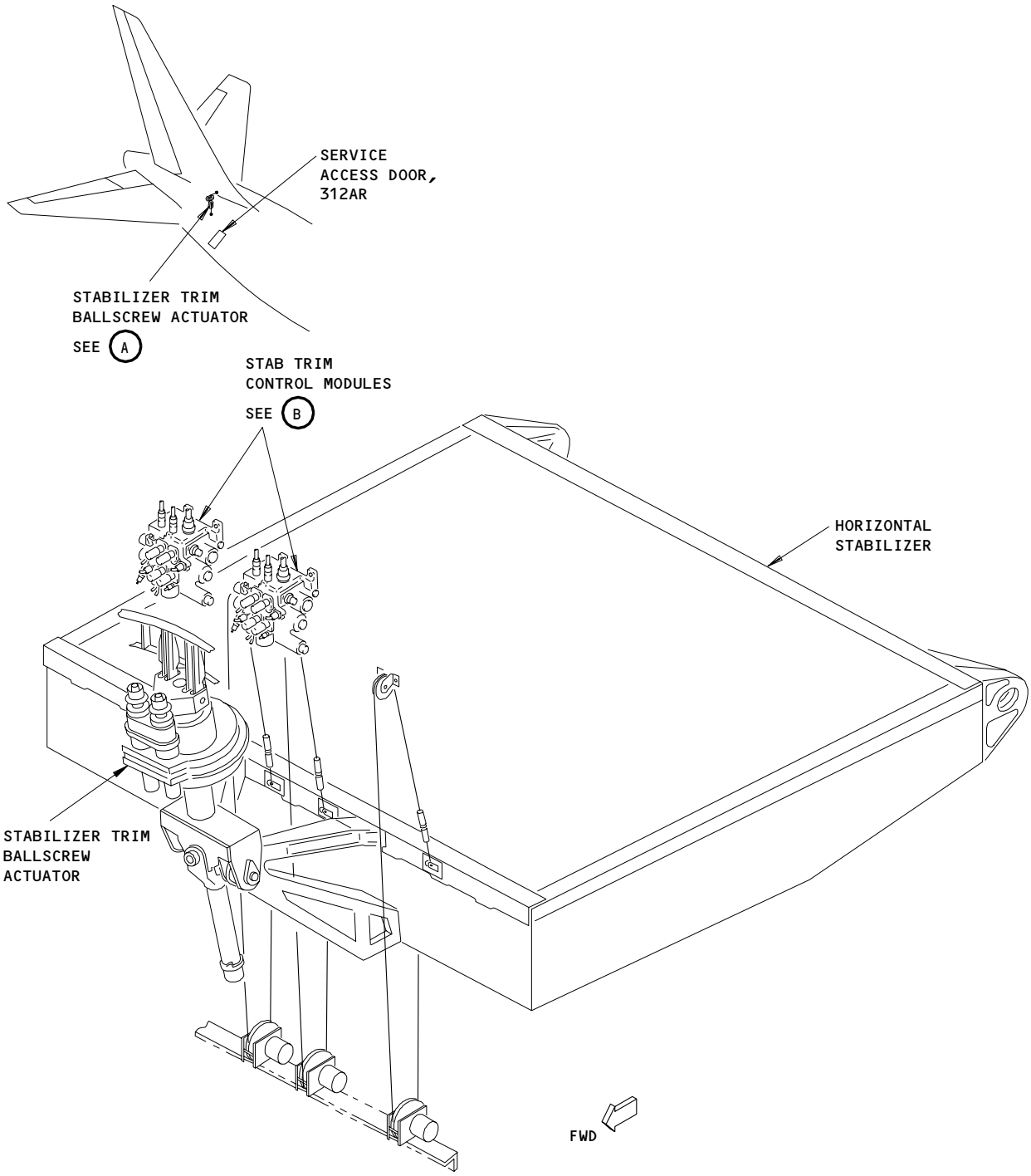
E



STAB. TRIM SHUTOFF SWITCHES

F

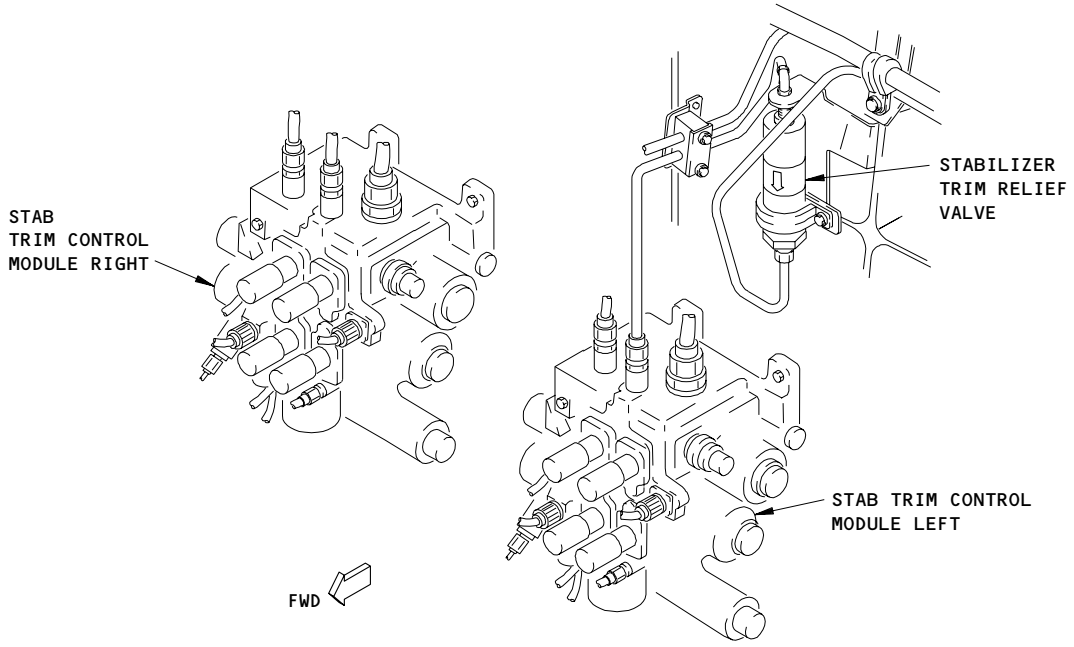
Horizontal Stabilizer Trim Control
Figure 501 (Sheet 2)



STABILIZER TRIM BALLSCREW ACTUATOR

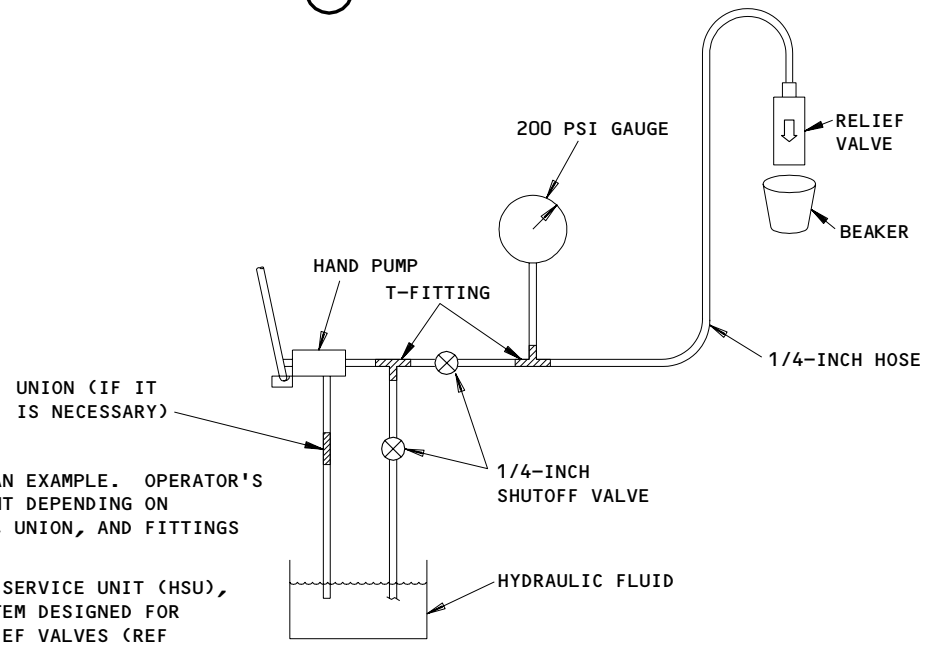
A

Test of the Stabilizer Trim Relief Valve
Figure 506 (Sheet 1)



STAB TRIM CONTROL MODULES

B



NOTE: TEST SETUP SHOWN IS AN EXAMPLE. OPERATOR'S SETUP MAY BE DIFFERENT DEPENDING ON OPERATOR'S EQUIPMENT, UNION, AND FITTINGS USED TO CONNECT THEM.

OPTIONAL – HYDRAULIC SERVICE UNIT (HSU), A SELF CONTAINED SYSTEM DESIGNED FOR TESTING PRESSURE RELIEF VALVES (REF EQUIPMENT LIST)

SETUP FOR THE OPERATIONAL TEST OF
THE STABILIZER TRIM RELIEF VALVE

Test of the Stabilizer Trim Relief Valve
Figure 506 (Sheet 2)

STATION		BOEING CARD NO.
TAIL NO.	SAS BOEING 767 TASK CARD	29-028-01
DATE		AIRLINE CARD NO.

SKILL	WORK AREA	RELATED TASK	INTERVAL	PHASE	MPD REV	TASK CARD REVISION
AIRPL	R MAIN W/W		4C	14848	001	APR 22/06

TASK	TITLE	STRUCTURAL ILLUSTRATION REFERENCE	APPLICABILITY AIRPLANE	APPLICABILITY ENGINE
OPERATIONAL	SYST. C RESERVOIR PRESS. S-O VALVE		ALL	ALL

ZONES	ACCESS PANELS
144	

MECH	INSP	MPD ITEM NUMBER

OPERATIONALLY CHECK SYSTEM C RESERVOIR PRESSURIZATION SHUTOFF VALVE. 29-11-28-5A

1. Center Hydraulic Reservoir Pressurization Shutoff Valve Operational Test

A. General

(1) This procedure will make sure the center hydraulic system reservoir can be pressurized when the reservoir pressurization shutoff valve is in the normal 'open' position.

B. References

(1) AMM 36-00-00/201, Pneumatics

C. Access

(1) Location Zones
143 Main Landing Gear Wheel Well (Left)
144 Main Landing Gear Wheel Well (Right)

D. Procedure

(1) Depressurize the pneumatic system (AMM 36-00-00/201).

(2) Depressurize the center hydraulic system reservoir:

MECH | INSP

(a) Locate the reservoir pressurization module in the right main landing gear wheel well.

NOTE: A depressurization valve (manual bleed valve) is in the bleed 'BLD' port on the pressurization module. The pressurized air in the reservoir will vent out thru the depressurization valve when it is pushed.

WARNING: PUT A RAG OVER THE RESERVOIR DEPRESSURIZATION VALVE ON THE RESERVOIR PRESSURIZATION MODULE TO CATCH A SPRAY OF HYDRAULIC FLUID. A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS. IF THE HYDRAULIC FLUID TOUCHES YOUR SKIN, FLUSH THE SKIN WITH WATER. IF THE HYDRAULIC FLUID TOUCHES YOUR EYES, FLUSH THE EYES WITH WATER AND GET MEDICAL AID.

(b) Put a rag over the reservoir depressurization valve to catch a spray of hydraulic fluid before you depressurize the reservoir.

(c) Push the reservoir depressurization valve until the reservoir is fully depressurized (no longer hear sound of venting air).

(3) Locate the reservoir pressurization shutoff valve in the right main landing gear wheel well.

(a) Manually turn the handle of the reservoir pressurization shutoff valve to the actuated 'closed' position.

(b) Release the handle and make sure it returns to the fully normal 'open' position under spring action.

(c) Make sure the handle operates smoothly with no tendency to stick or bind.

(4) Pressurize the pneumatic system (AMM 36-00-00/201).

MECH | INSP

(a) Make sure there are no external air leaks in the pneumatic line between the reservoir pressurization module and the shutoff valve (in the right main landing gear wheel well) and the APU pneumatic duct (in the left main landing gear wheel well).

NOTE: There should be no air leaks in the pneumatic lines except at the bleed orifice cap located in the left main landing gear wheel well. The cap has a small diameter hole (orifice) to constantly drain any water in the pneumatic lines.

(b) Manually turn the handle on the reservoir pressurization shutoff valve to the actuated 'closed' position and engage the lockpin.

(c) Depressurize the center hydraulic system reservoir again:

WARNING: PUT A RAG AROUND THE RESERVOIR DEPRESSURIZATION VALVE ON THE RESERVOIR PRESSURIZATION MODULE TO CATCH A SPRAY OF HYDRAULIC FLUID. A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS. IF THE HYDRAULIC FLUID TOUCHES YOUR SKIN, FLUSH THE SKIN WITH WATER. IF THE HYDRAULIC FLUID TOUCHES YOUR EYES, FLUSH THE EYES WITH WATER AND GET MEDICAL AID.

1) Put a rag over the reservoir depressurization valve to catch a spray of hydraulic fluid before you depressurize the reservoir.

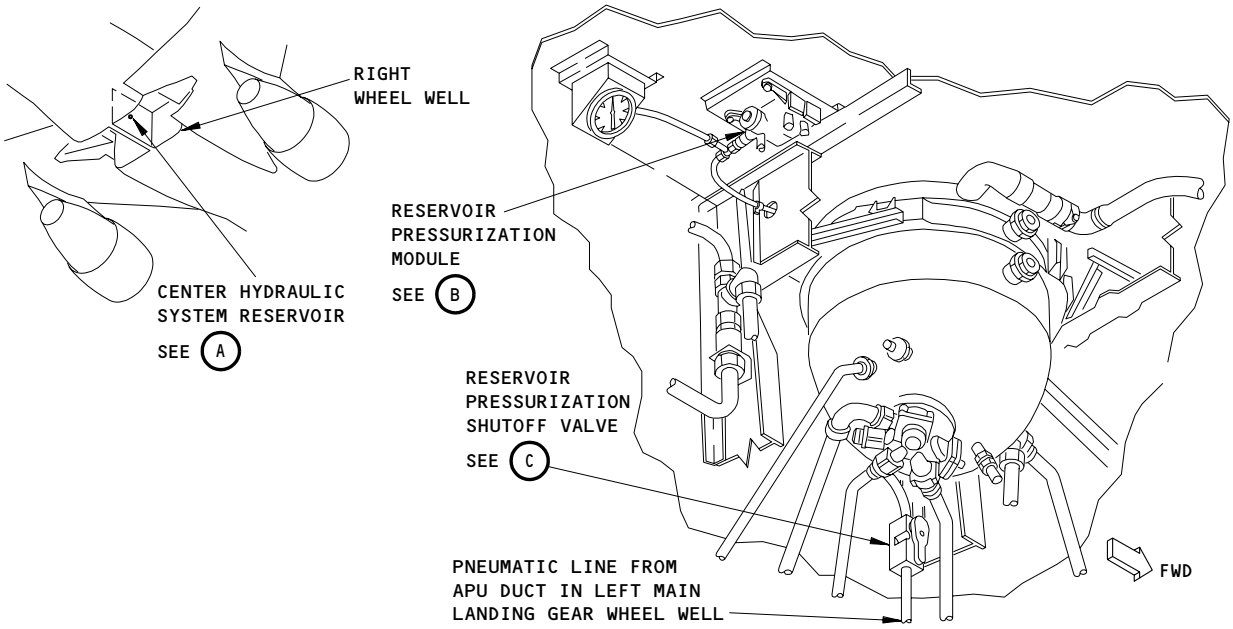
2) Push the reservoir depressurization valve (manual bleed valve) for 60-70 seconds, and make sure the manual bleed valve vents air to the ambient.

NOTE: If the reservoir pressurization shutoff valve was open prior to pneumatic system pressurization, the manual bleed valve should vent air which indicates the reservoir was pressurized. If the manual bleed valve does not vent air, then the shutoff valve was closed prior to pneumatic system pressurization which indicates the reservoir was not pressurized.

MECH	INSP

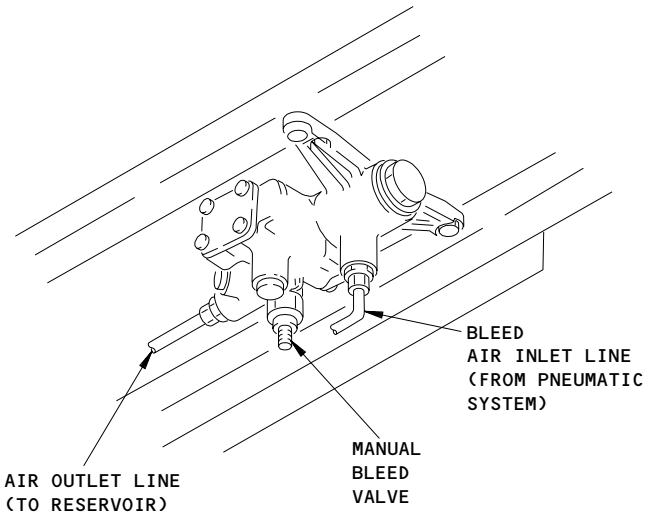
(d) Release the lockpin and the handle on the reservoir pressurization shutoff valve and make sure the handle returns to the fully normal 'open' position under spring action.

(5) Depressurize the pneumatic system (AMM 36-00-00/201).



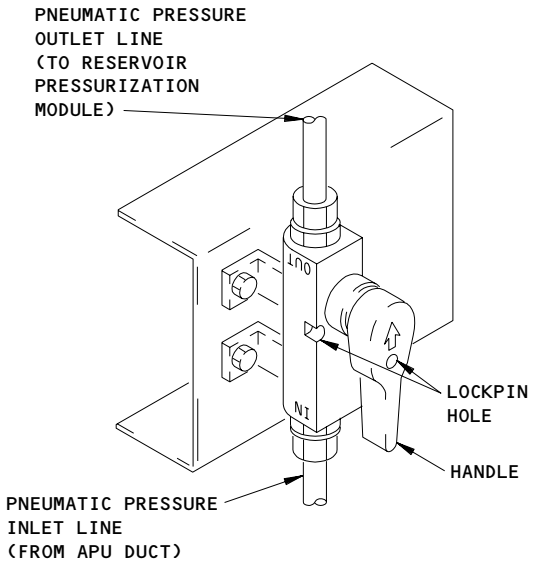
CENTER HYDRAULIC SYSTEM RESERVOIR

A



RESERVOIR PRESSURIZATION MODULE

B



RESERVOIR PRESSURIZATION SHUTOFF VALVE

C

Center Hydraulic System Reservoir Pressurization Shutoff Valve
Figure 501