

**CHAPTER**

**29**

**HYDRAULIC POWER**



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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**CHAPTER 29**  
**HYDRAULIC POWER**

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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: A29001-1**

**NAME:** HOIST ADAPTER - AIR-DRIVEN HYDRAULIC PUMP

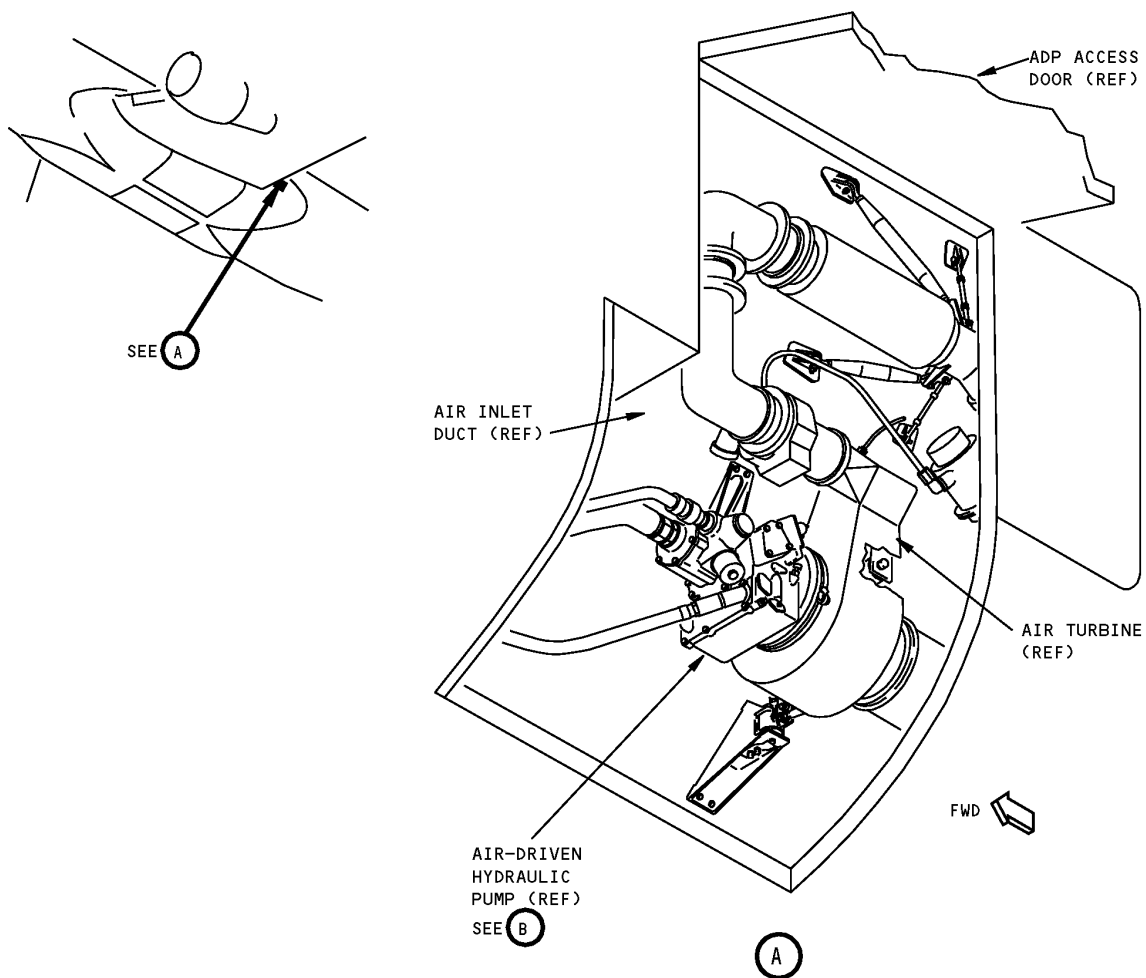
**AIRPLANE MAINTENANCE:** YES

**COMPONENT MAINTENANCE:** NO

**USAGE & DESCRIPTION:** This tool is used in conjunction with the A20001-1 hoist to lift and position the air-driven hydraulic pump during removal/installation. The tool consists of a welded structure with padded extensions that hold the pump in position while it is being removed or installed.

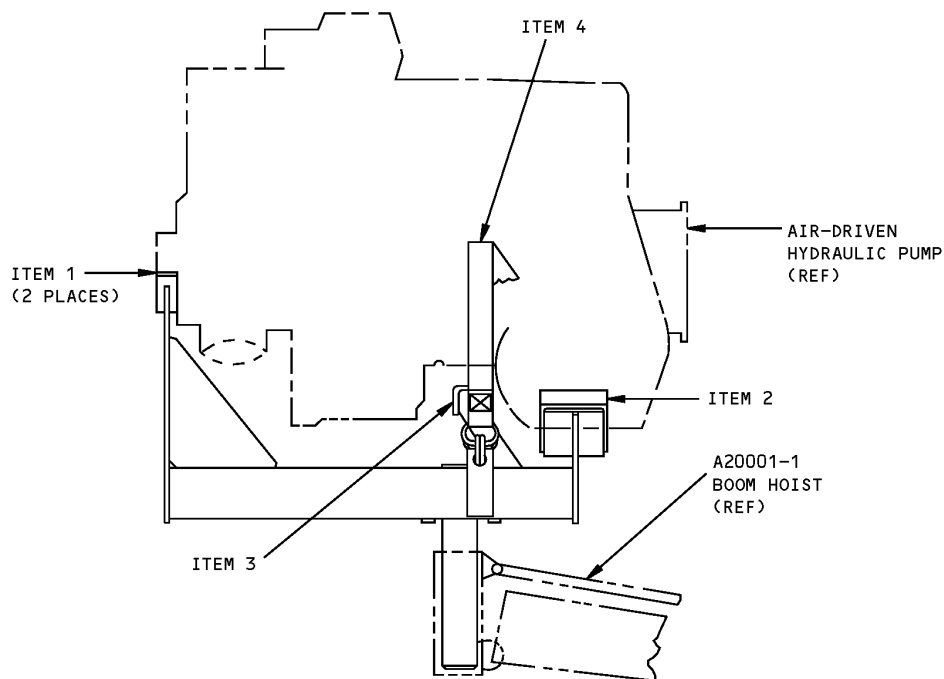
**WEIGHT:** 10 lbs (4.5 kg)

**DIMENSIONS:** 11 x 15.8 x 16.8 inches (279 x 401 x 427 mm)



**Air-Driven Hydraulic Pump Hoist Adapter  
Figure 1 (Sheet 1 of 2)**

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**Air-Driven Hydraulic Pump Hoist Adapter**  
**Figure 1 (Sheet 2 of 2)**

REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE
1	-14	PAD	
2	-15	PAD	
3	-16	PAD	
4	3101006L045-004	STRAP ASSY	V01276



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: A29002-6**

**NAME:** LOCKING PIN - VALVE, HYDRAULIC RESERVOIR PRESSURIZATION SHUTOFF

**AIRPLANE MAINTENANCE:** YES

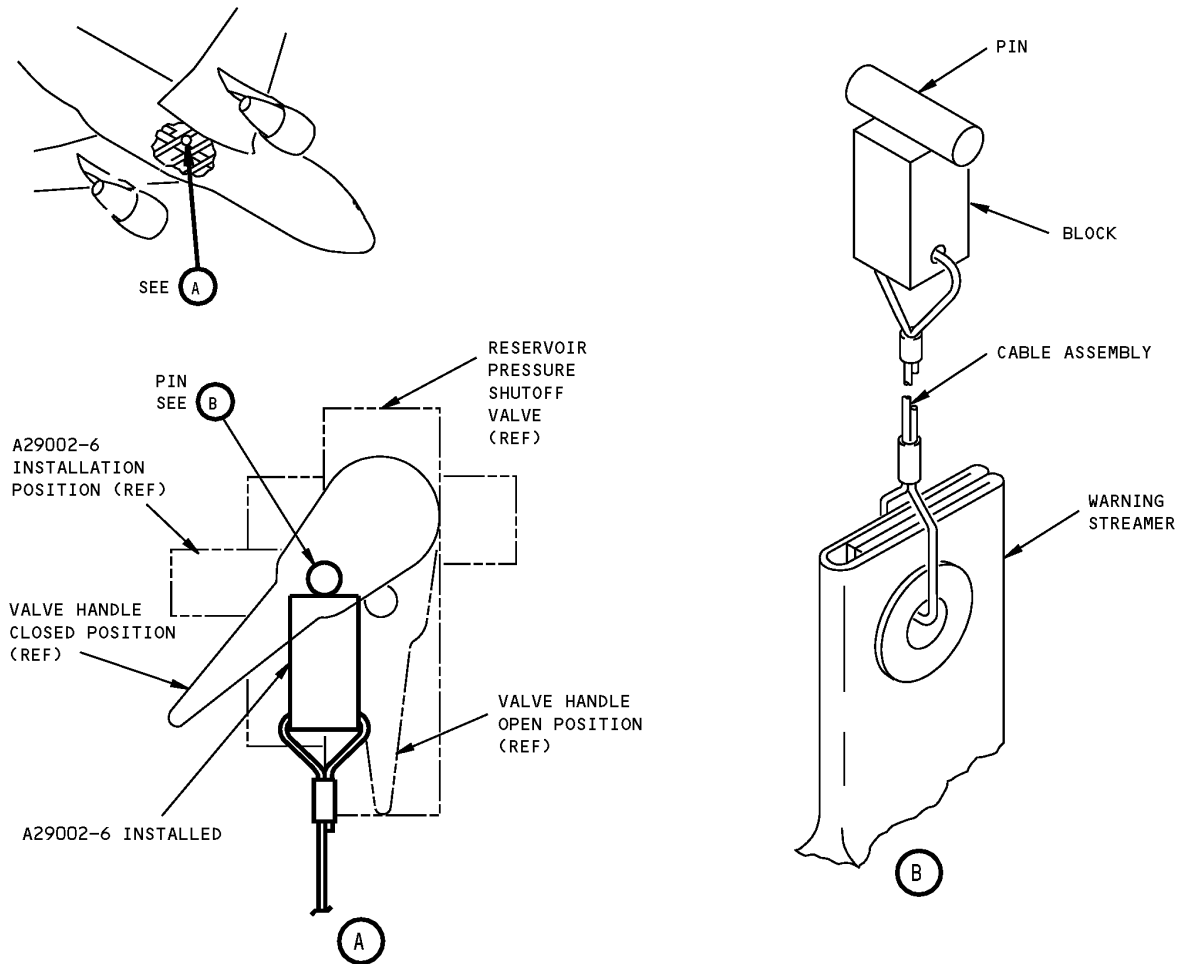
**COMPONENT MAINTENANCE:** NO

**USAGE & DESCRIPTION:** This tool is a locking pin, mounted on a block which is installed in the hydraulic reservoir system shutoff valve handle to hold the valve in the closed/off position. As the handle is moved into open or closed positions, the locking pin secures the handle. Refer to AMM 29-11-00 for complete usage instructions. Refer to drawing 271T4563 and 272T0170 for valve assembly. This tool consists of a pin assembly and a box.

**WEIGHT:** 2.5 lbs (1.1 kg)

**DIMENSIONS:** 4 x 6 x 8 inches (102 x 152 x 203 mm)

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**Hydraulic Reservoir Pressurization Valve Shutoff Locking Pin**  
**Figure 1**



# ILLUSTRATED TOOL AND EQUIPMENT MANUAL

**PART NUMBER: B29001-23, -46**

**NAME:** SCREEN EQUIPMENT - RAM AIR TURBINE

**AIRPLANE MAINTENANCE:** YES

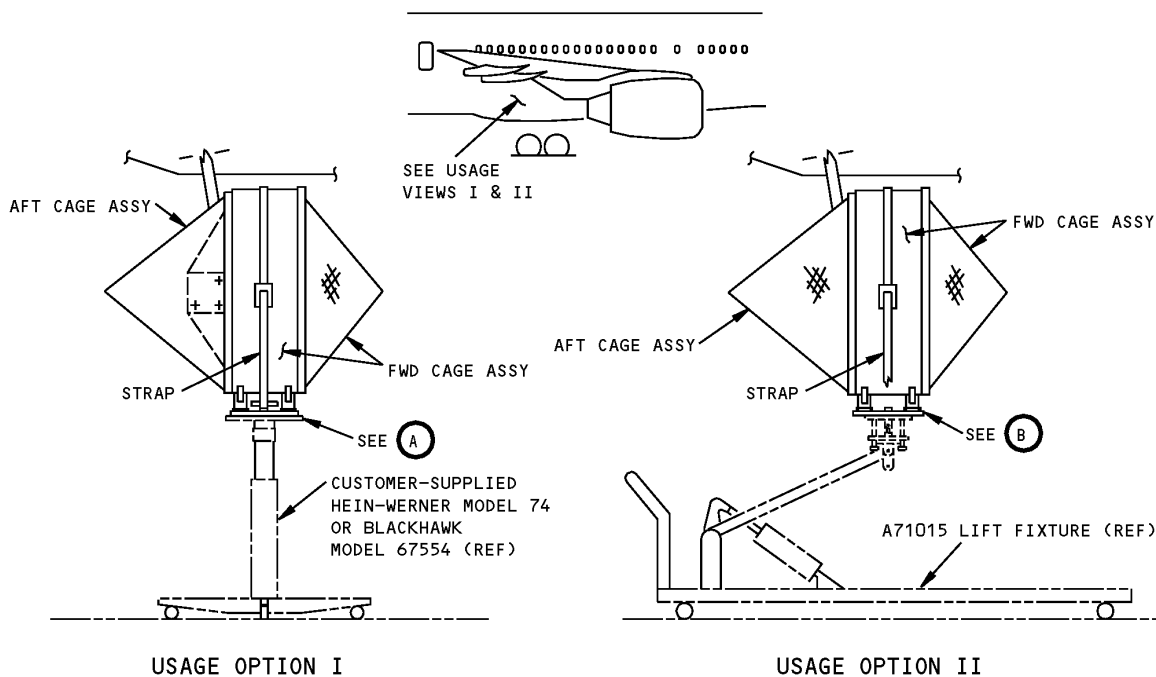
**COMPONENT MAINTENANCE:** NO

**USAGE & DESCRIPTION:** This tool is used to protect personnel during Ram Air Turbine (RAT) testing. The -46 is used with either a Hein-Werner Model 74 or Blackhawk Model 67554 customer furnished jack. The -23 adapter assembly is an option for use with -46 and A71015 lift fixture. The tool consists of a forward and aft cage assembly with attach fitting for use with lift devices.

**WEIGHT:** 125 lbs (57 kg)

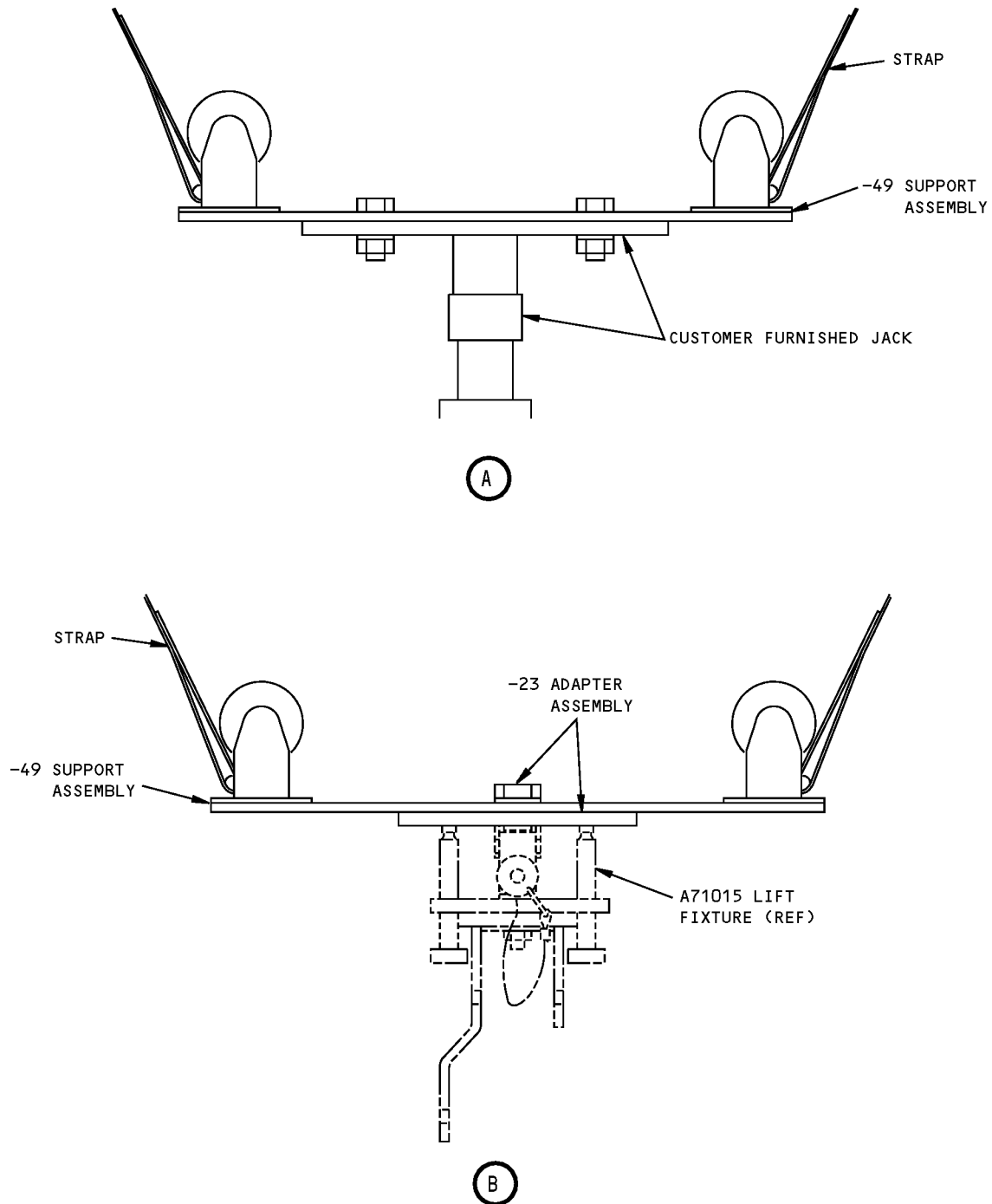
**DIMENSIONS:** 36 x 36 x 48 inches (914 x 914 x 1219 mm)

**NOTE:**  
B29001-46 supersedes B29001-42  
B29001-42 supersedes B29001-27  
B29001-27 supersedes B29001-1



**Ram Air Turbine Screen Equipment  
Figure 1 (Sheet 1 of 2)**

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**Ram Air Turbine Screen Equipment**  
**Figure 1 (Sheet 2 of 2)**



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## ILLUSTRATED TOOL AND EQUIPMENT MANUAL

**PART NUMBER: A29003-49**

**NAME:** TOOL SET - HYDRAULIC FILTER OVERHAUL

**AIRPLANE MAINTENANCE:** NO

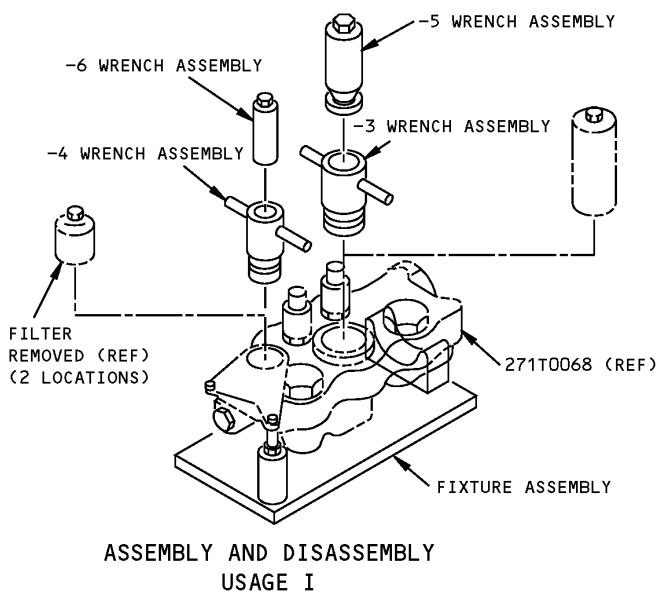
**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This tool set is used to assemble/disassemble and functional test hydraulic filter modules 271T0042 and 271T0068. The set consists of a fixture assembly for 271T0068 only, plug assemblies, dummy filter assemblies, check valve and wrenches. For additional usage information see CMM 29-11-41 and 29-11-46

**WEIGHT:** 22 lbs (10 kg)

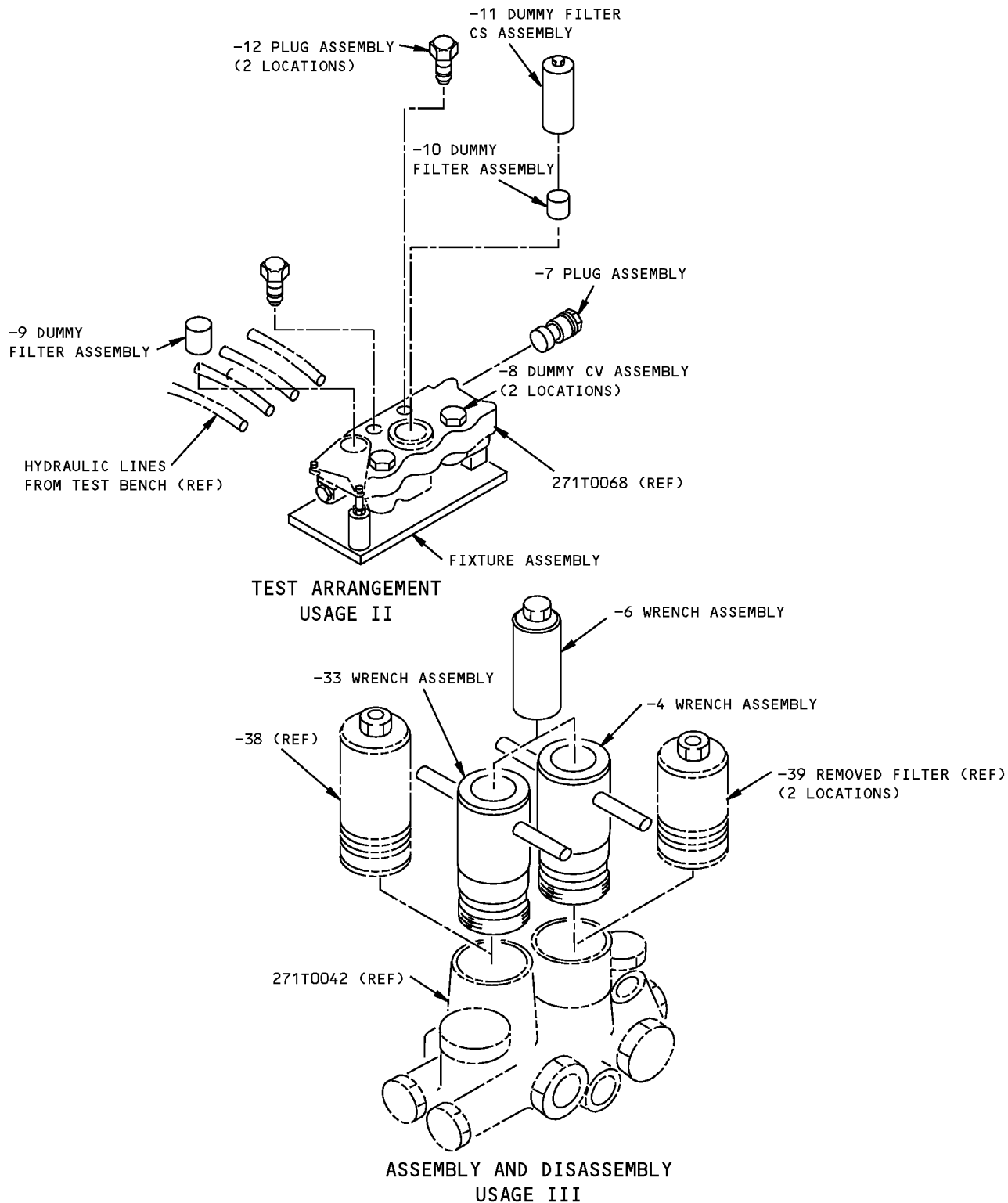
**DIMENSIONS:** 8 x 8 x 17 inches (203 x 203 x 432 mm)

**NOTE:** A29003-49 supersedes A29003-1.

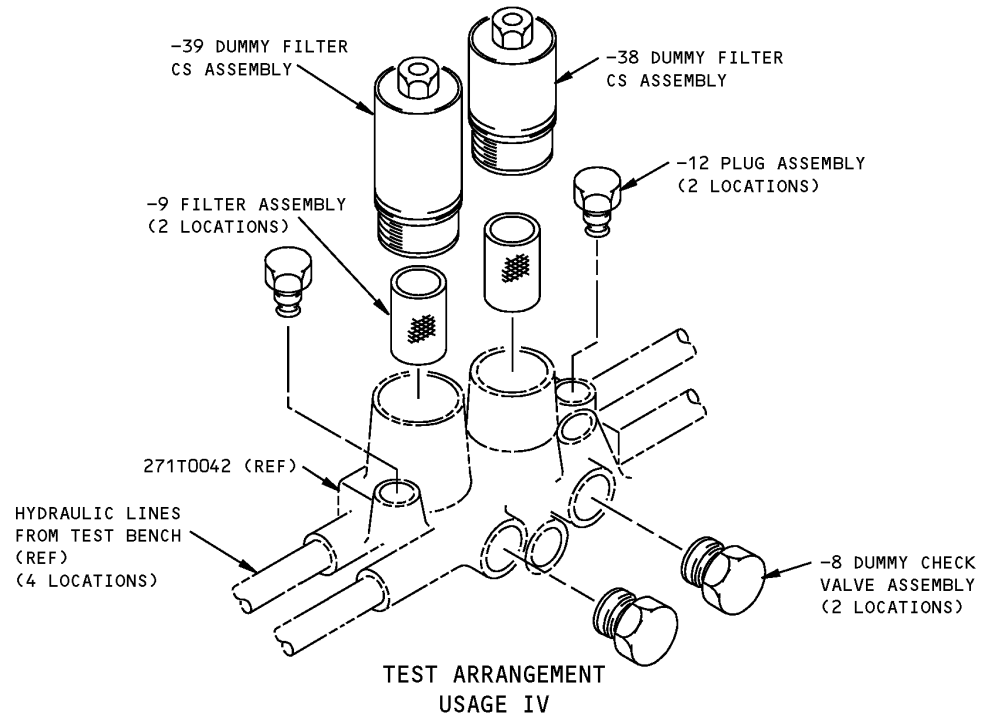


**Hydraulic Filter Overhaul Tool Set**  
**Figure 1 (Sheet 1 of 3)**

# ILLUSTRATED TOOL AND EQUIPMENT MANUAL



Hydraulic Filter Overhaul Tool Set  
Figure 1 (Sheet 2 of 3)



**Hydraulic Filter Overhaul Tool Set**  
**Figure 1 (Sheet 3 of 3)**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: A29004-1**

**NAME:** TOOL SET - HYDRAULIC FILTER MODULE OVERHAUL

**AIRPLANE MAINTENANCE:** NO

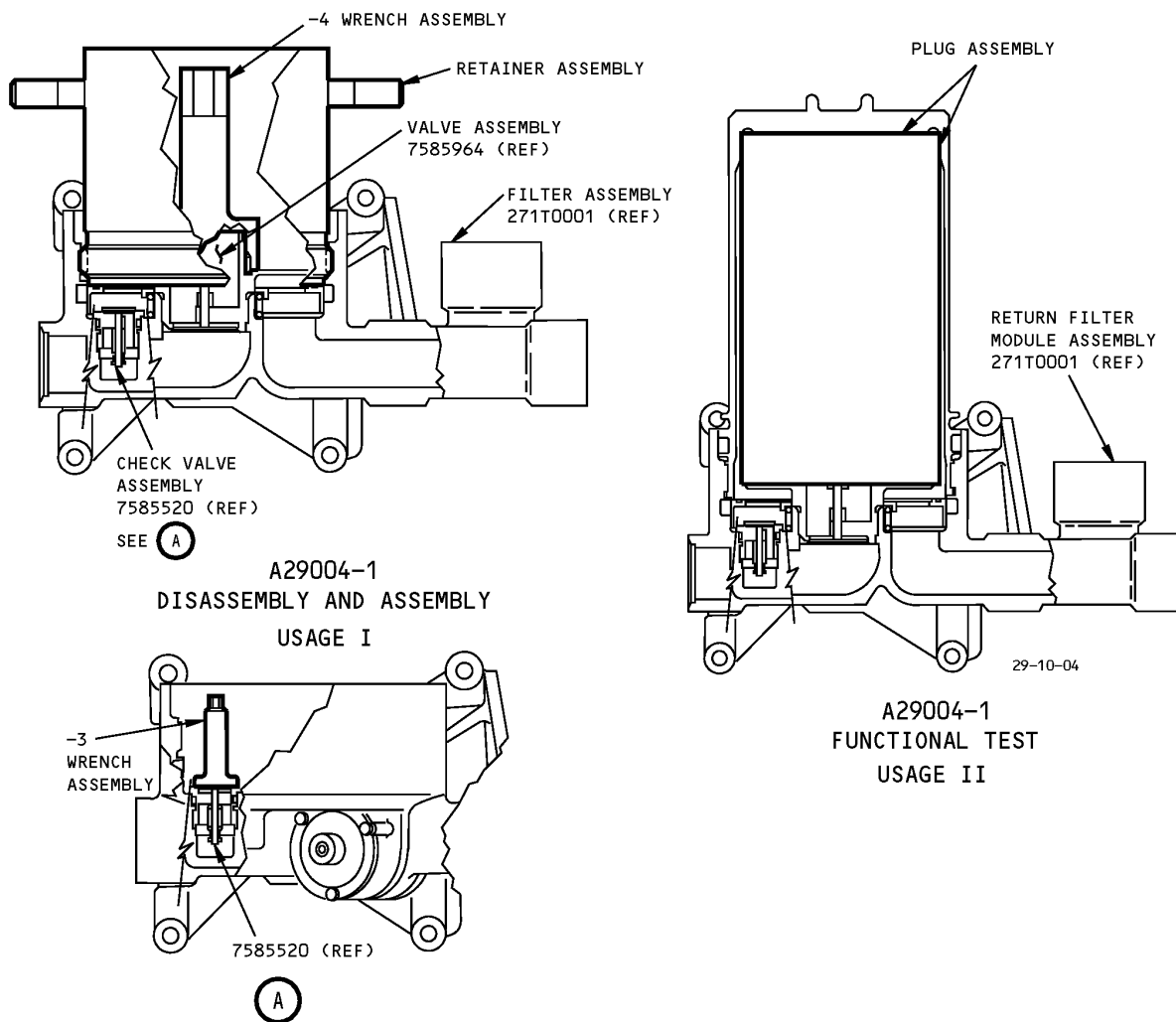
**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This tool set consists of two wrench assemblies, two punches, a die set, dummy plug assembly and a retainer. The wrench assemblies remove/install the filter module valves, the punches expand the valves to prevent leaking and the dummy plug is used during functional test of the hydraulic return filter module assembly. For additional usage information see CMM 29-11-35.

**WEIGHT:** 28 lbs (13 kg)

**DIMENSIONS:** 6 x 10 x 12 inches (152 x 254 x 305 mm)

**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Hydraulic Filter Overhaul Tool Set  
Figure 1**



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## ILLUSTRATED TOOL AND EQUIPMENT MANUAL

**PART NUMBER: J29005-30**

**NAME:** PLUG SET - PRESSURE TEST, HYDRAULIC RESERVOIR ASSEMBLY

**AIRPLANE MAINTENANCE:** NO

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This tool is used to seal various ports on the hydraulic reservoirs during flushing and pressure testing. Refer to CMM 29-11-20 for further usage instructions. This tool is used on the 767-400 airplanes. This tool consists of the following:

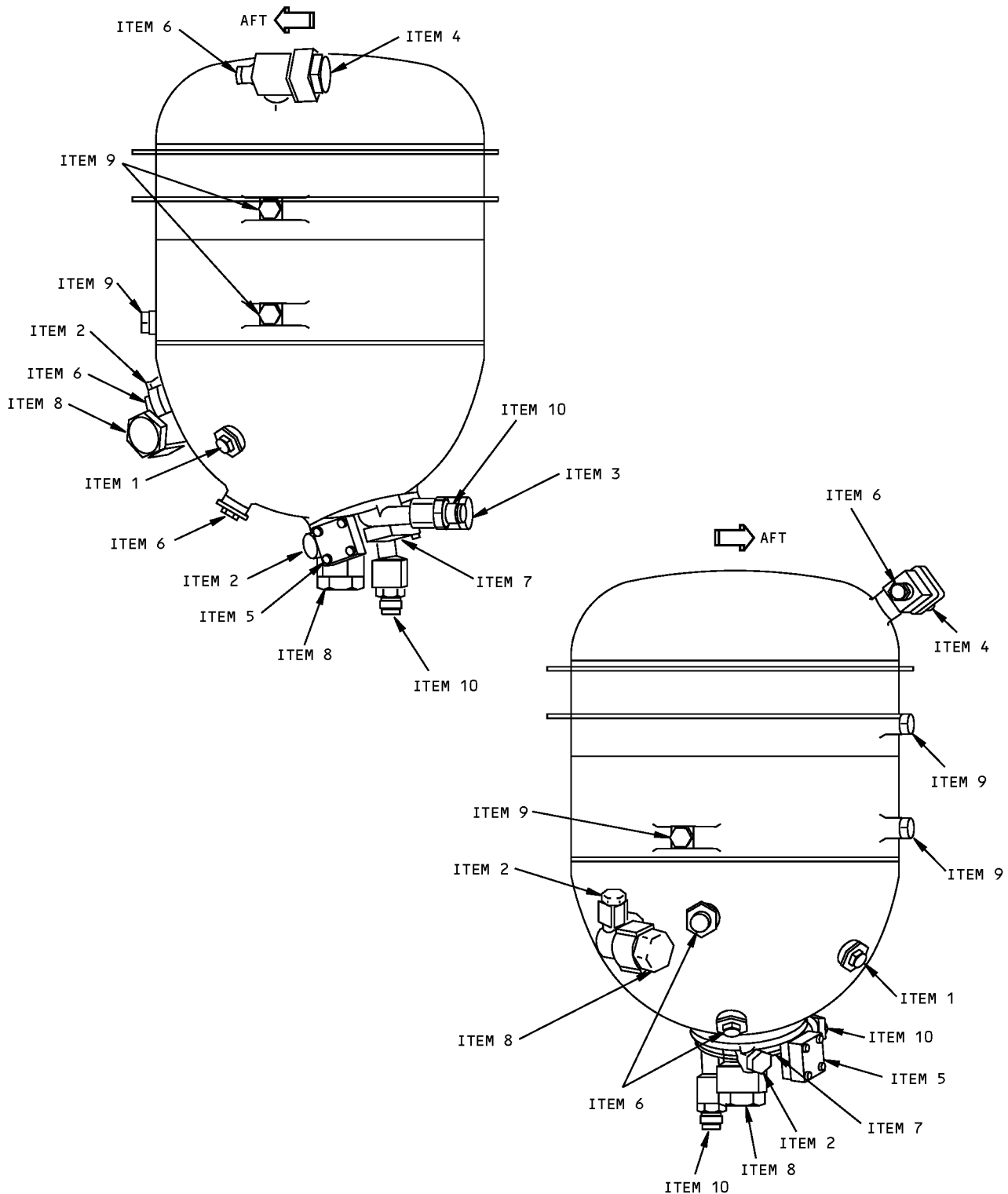
J29005-30		
QUANTITY	NOMENCLATURE	PART NUMBER
1	PLUG ASSEMBLY-A	J29005-2
2	PLUG ASSEMBLY-B	J29005-3
1	PLUG ASSEMBLY-C	J29005-4
1	PLUG ASSEMBLY-D	J29005-5
1	PLUG ASSEMBLY-E	J29005-6
3	PLUG ASSEMBLY-F	J29005-7
1	PLUG ASSEMBLY-G	J29005-8
2	PLUG ASSEMBLY-J	J29005-10
3	PLUG ASSEMBLY-K	J29005-11
2	ADAPTER ASSEMBLY-M	J29005-13
1	STORAGE BOX ASSEMBLY	J29005-31

**WEIGHT:** 3.5 lbs (1.6 kg)

**DIMENSIONS:** 2 x 14 x 14 inches (51 x 356 x 356 mm)



# ILLUSTRATED TOOL AND EQUIPMENT MANUAL



**Hydraulic Reservoir Assembly Pressure Test Plug Set**  
**Figure 1**



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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE
1	-2	PLUG ASSEMBLY-A	
2	-3	PLUG ASSEMBLY-B	
3	-4	PLUG ASSEMBLY-C	
4	-5	PLUG ASSEMBLY-D	
5	-6	PLUG ASSEMBLY-E	
6	-7	PLUG ASSEMBLY-F	
7	-8	PLUG ASSEMBLY-G	
8	-10	PLUG ASSEMBLY-J	
9	-11	PLUG ASSEMBLY-K	
10	-13	ADAPTER ASSEMBLY-M	



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: WAS-33662**

**NAME:** WRENCH - RAT HUB BEARING INSTALLATION/REMOVAL

**AIRPLANE MAINTENANCE:** NO

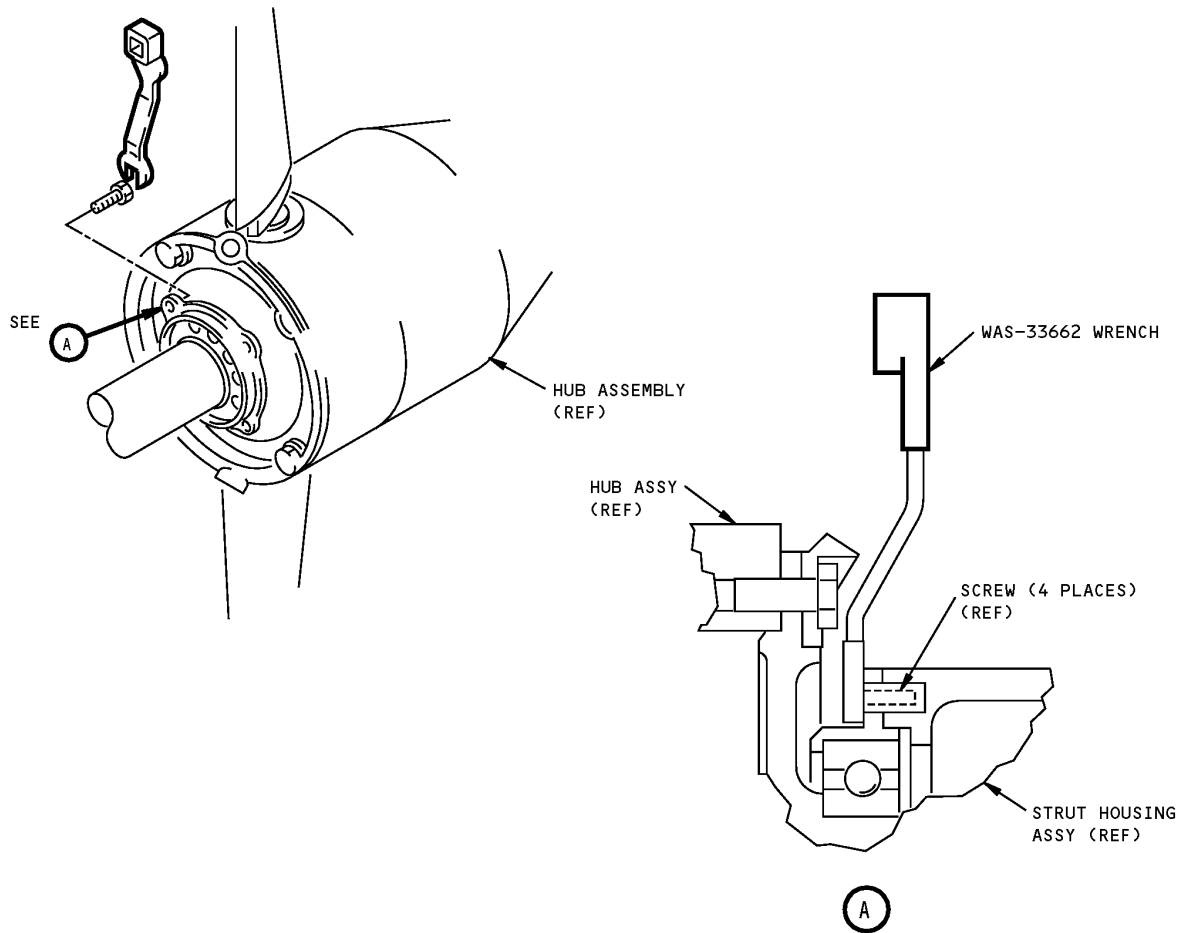
**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This tool is used to remove, install and torque the screws mounting the bearing support to the turbine assembly.

**NOTE:** This tool is a supplier proprietary item and can only be obtained from Sundstrand Aviation Operation, 4747 Harrison Ave, P.O. Box 7002, Rockford, Illinois 61125

**DIMENSIONS:** 1 x 2 x 6 inches (25 x 51 x 152 mm)

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**RAT Hub Bearing Installation/Removal Wrench**  
**Figure 1**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: 732021**

**NAME:** COVER - RAT TURBINE BLADE

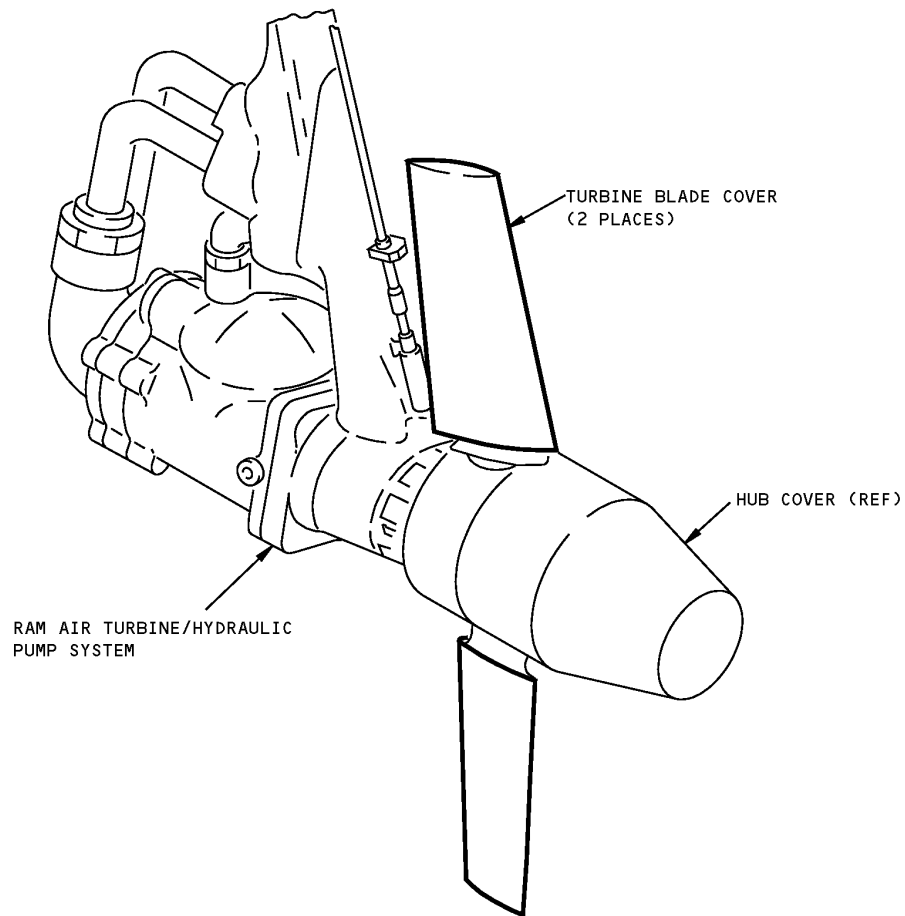
**AIRPLANE MAINTENANCE:** NO

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This tool is a pair of protective covers for the blades of the ram air turbine (RAT), during maintenance and shipping.

**NOTE:** This tool is a supplier proprietary item and can only be obtained from Sundstrand Aviation, Division of Sundstrand Corporation, 4747 Harrison Ave, P.O. Box 7002, Rockford, Illinois 61101. Vendor code: V99167.

**DIMENSIONS:** 2 x 6 x 18 inches (51 x 152 x 457 mm)



**RAT Turbine Blade Cover**  
**Figure 1**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: 734734**

**NAME:** PROTECTIVE COVER - RAT HUB

**AIRPLANE MAINTENANCE:** NO

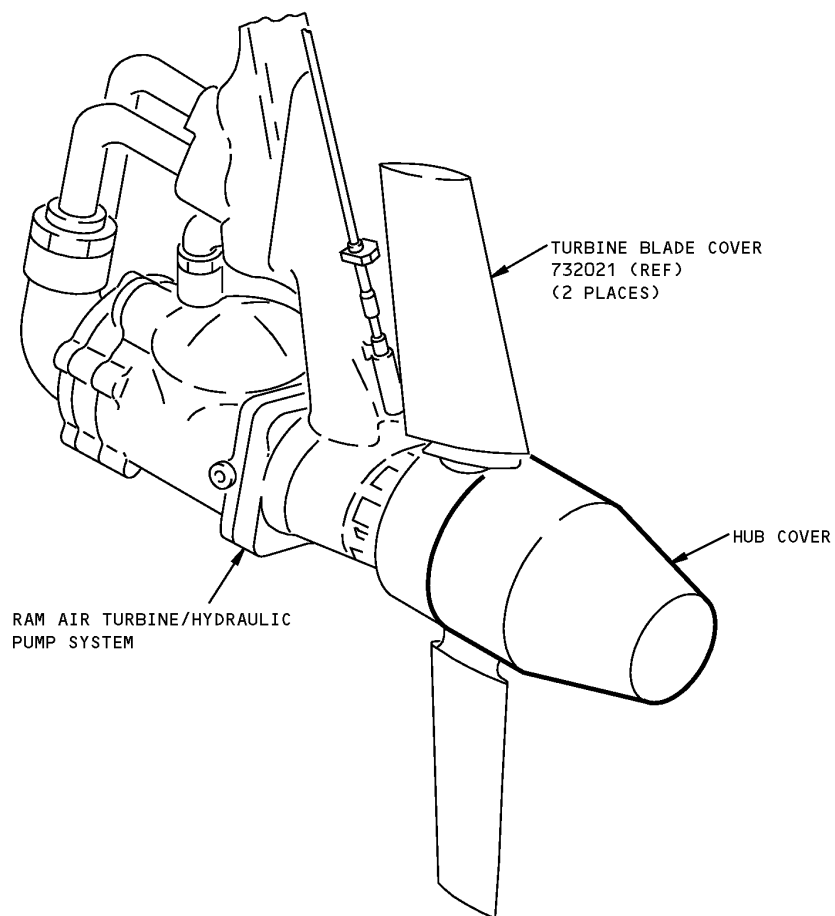
**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This cover protects the hub of the ram air turbine (RAT), during maintenance and shipping.

**NOTE:** This tool is a supplier proprietary item and can only be obtained from Sundstrand Aviation, Division of Sundstrand Corporation, 4747 Harrison Ave, P.O. Box 7002, Rockford, Illinois 61101. Vendor code: V99167.

**DIMENSIONS:** 16 x 16 x 18 inches (406 x 406 x 457 mm)

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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**RAT Hub Protective Cover**  
**Figure 1**





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## ILLUSTRATED TOOL AND EQUIPMENT MANUAL

**PART NUMBER: BLS-34529**

**NAME:** ASSEMBLY BULLET

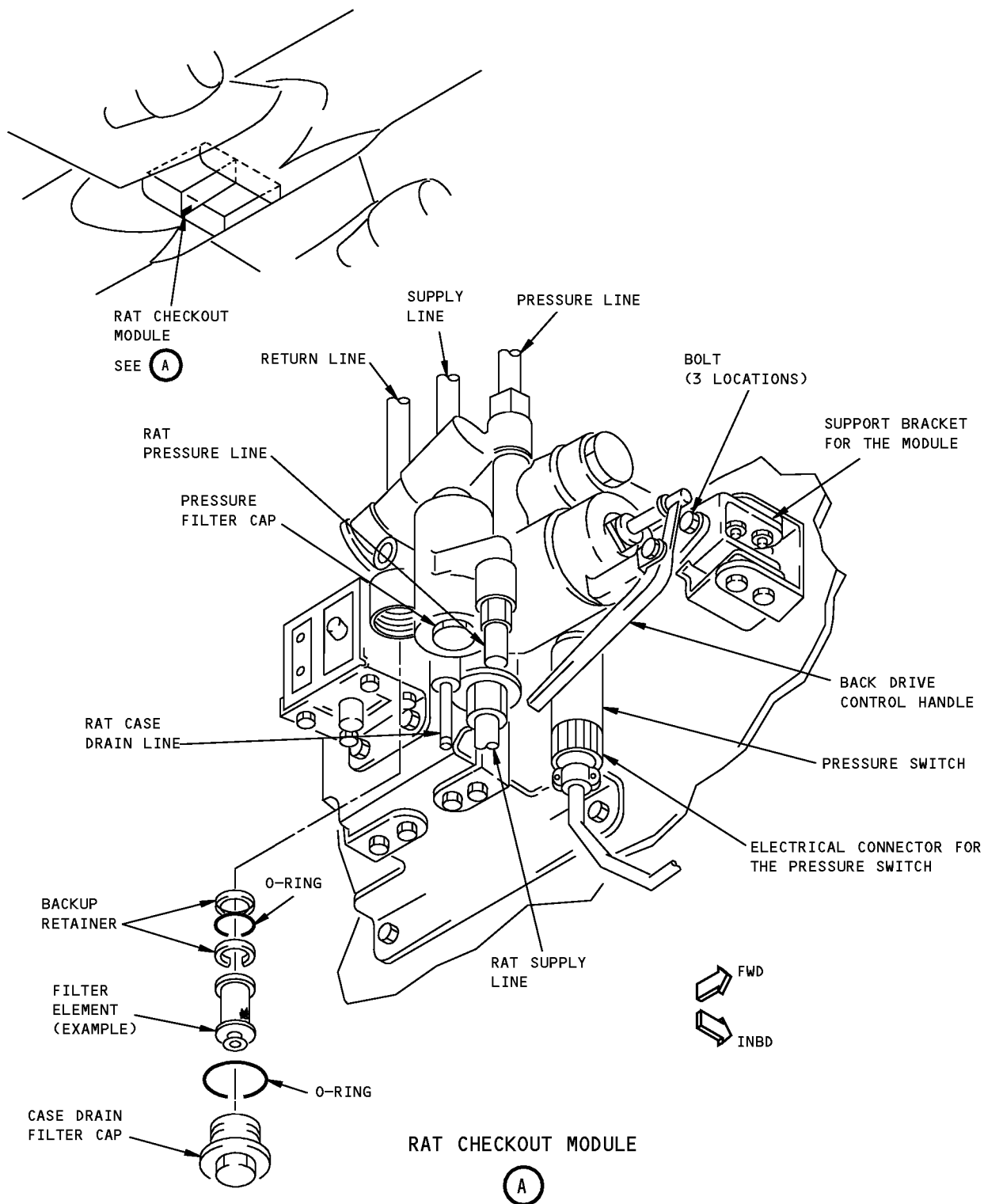
**AIRPLANE MAINTENANCE:** YES

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** The BLS-34529 assembly bullet is used on all 767 airplanes. The tool is used to install the O-ring (P/N NAS1611-012) and backup retainers (P/N MS27595-012) on the case drain filter element (P/N AC8818E1, 7553574, 11-10106) of the ram air turbine checkout module (P/N 729550A, 729550B, 729550C, 729550D). Refer to CMM 29-21-02 and AMM 29-21-11 for further usage instructions.

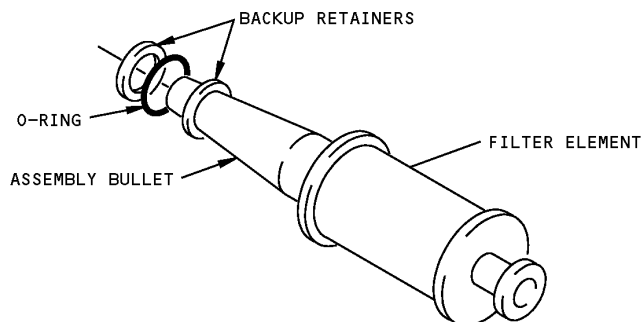
**NOTE:** This tool is a supplier proprietary item and can only be obtained from Hamilton Sundstrand Corporation, 4747 Harrison Ave, Rockford, Illinois 61125.

**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Ram Air Turbine (RAT) Checkout Module Location**  
**Figure 1**

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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Assembly Bullet**  
**Figure 2**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: BLS-34533**

**NAME:** ASSEMBLY BULLET

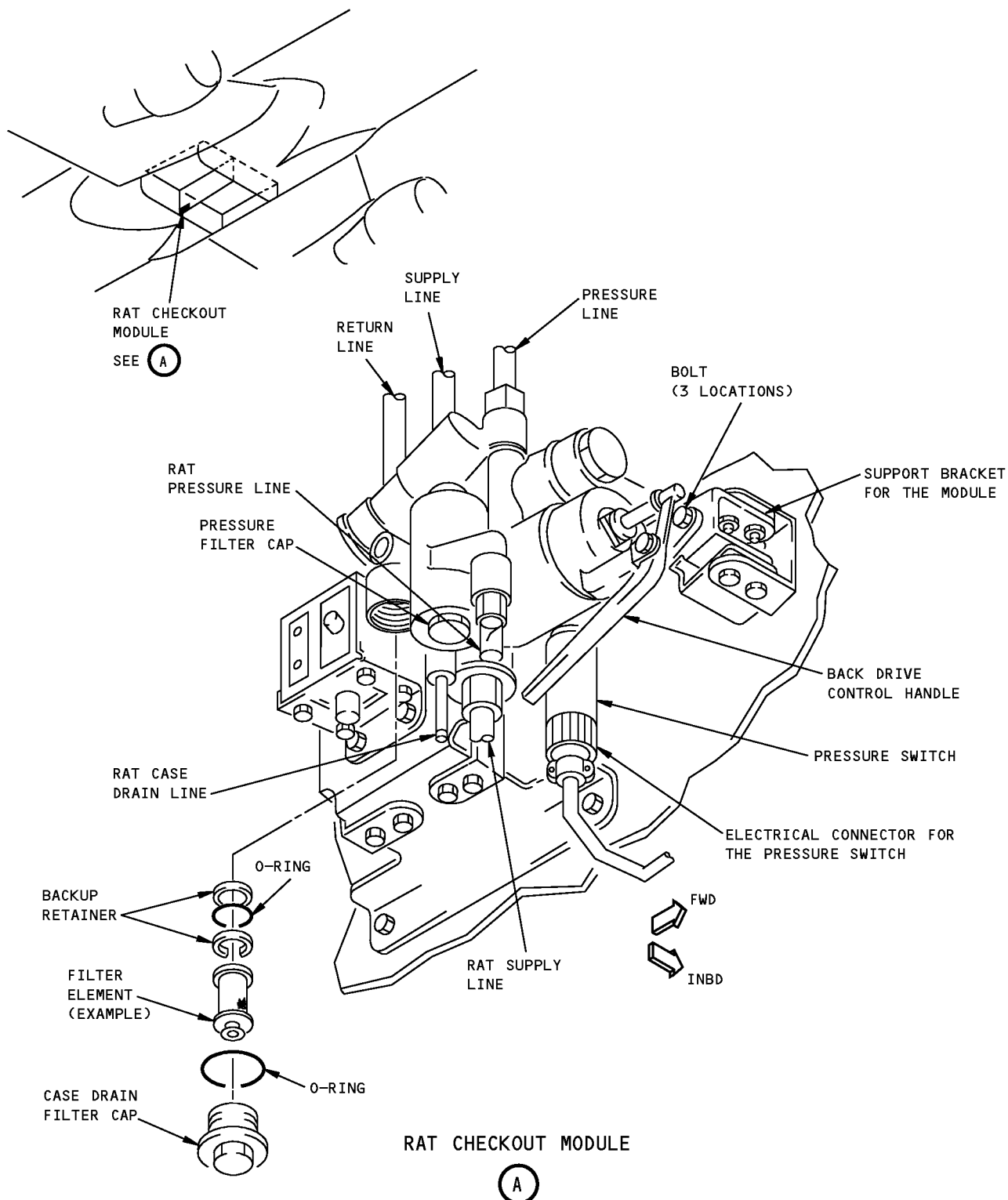
**AIRPLANE MAINTENANCE:** YES

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** The BLS-34533 assembly bullet is used on all 767 airplanes. The tool is used to install the O-ring (P/N NAS 1611-116) and backup retainers (P/N MS27595-116) on the pressure filter element (P/N AC8818E2, 7553575, 11-10107) of the ram air turbine ground checkout module (P/N 729550A, 729550B, 729550C, 729550D). Refer to CMM 29-21-02 and AMM 29-21-11 for further usage instructions.

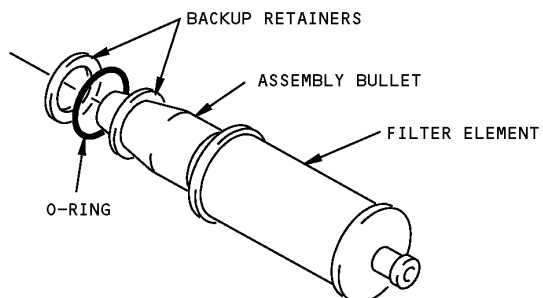
**NOTE:** This tool is a supplier proprietary item and can only be obtained from Hamilton Sundstrand Corporation, 4747 Harrison Ave, Rockford, Illinois 61125

**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Ram Air Turbine (RAT) Checkout Module Location**  
**Figure 1**

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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Assembly Bullet**  
**Figure 2**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: DAS-34530**

**NAME:** SIZING DIE

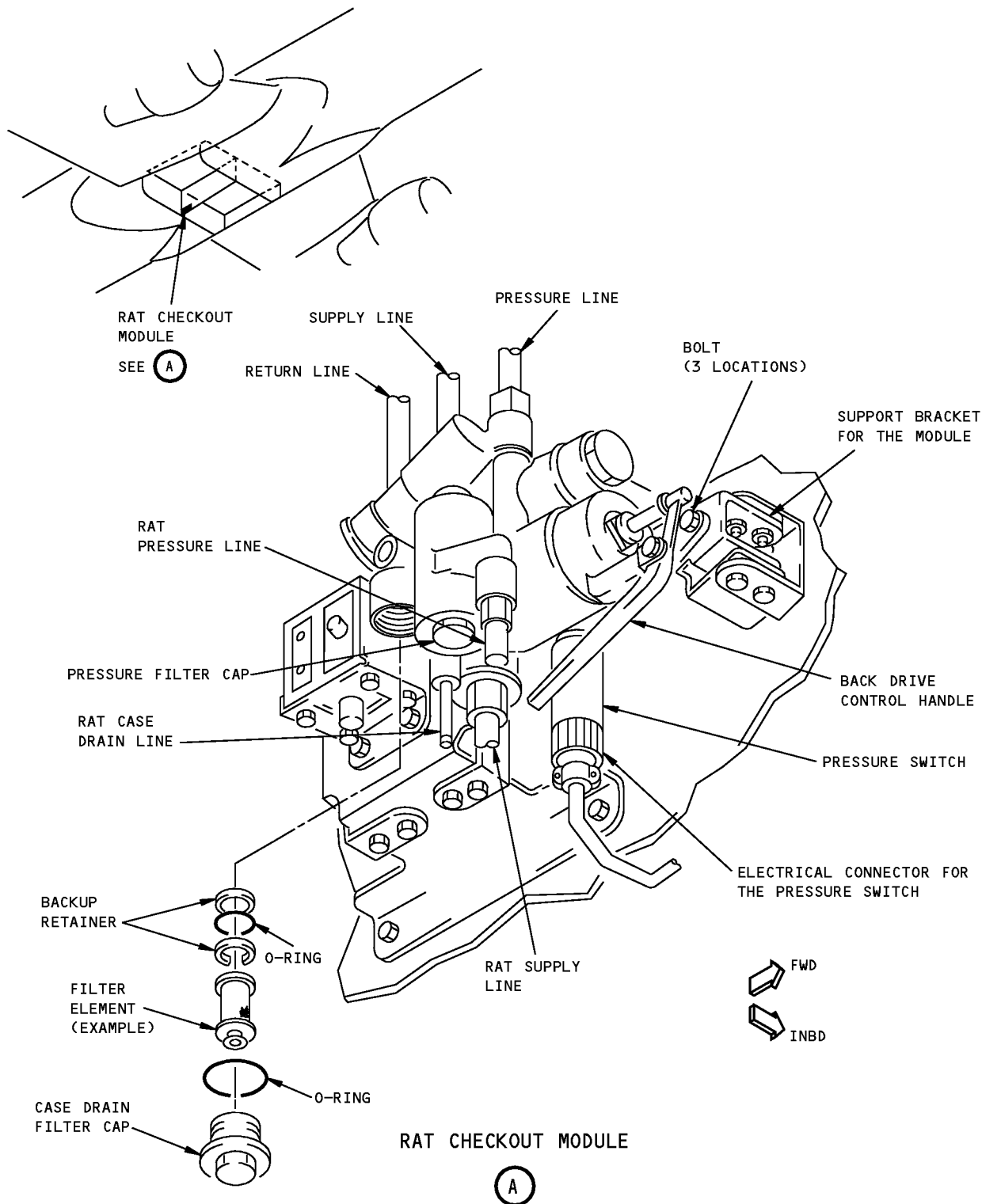
**AIRPLANE MAINTENANCE:** YES

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** The DAS-34530 sizing die is used on all 767 airplanes. The tool is used to size the backup retainers (P/N MS27595-012) on the case drain filter element (P/N AC8818E1, 7553574, 11-10106) of the ram air turbine checkout module (P/N 729550A, 729550B, 729550C, 729550D). Refer to CMM 29-21-02 and AMM 29-21-11 for further instructions.

**NOTE:** This tool is a supplier proprietary item and can only be obtained from Hamilton Sundstrand Corporation, 4747 Harrison Ave, Rockford, Illinois 61125

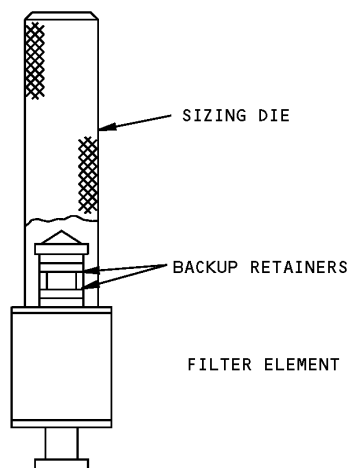
**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Ram Air Turbine (RAT) Checkout Module Location**  
**Figure 1**



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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Sizing Die**  
**Figure 2**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: DAS-34534**

**NAME:** SIZING DIE

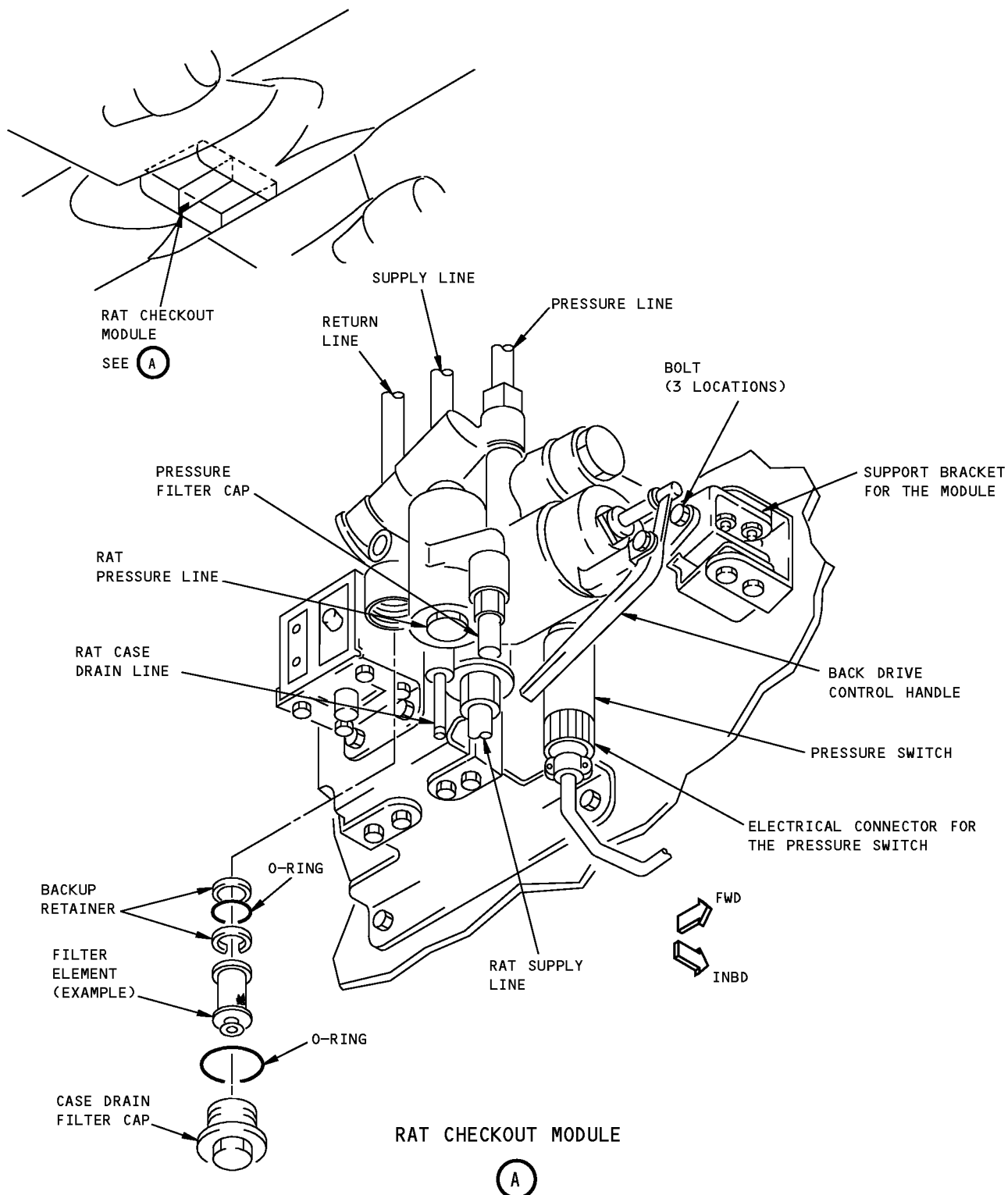
**AIRPLANE MAINTENANCE:** YES

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** The DAS-34534 sizing die is used on all 767 airplanes. The tool is used to size the backup retainers (PN MS27595-116) on the pressure filter element (P/N AC8818E2, 753575, 11-10107) of the ram air turbine checkout module (P/N 72955A, 72955B, 72955C, 72955D). Refer to CMM 29-21-02 and AMM 29-21-11 for further instructions.

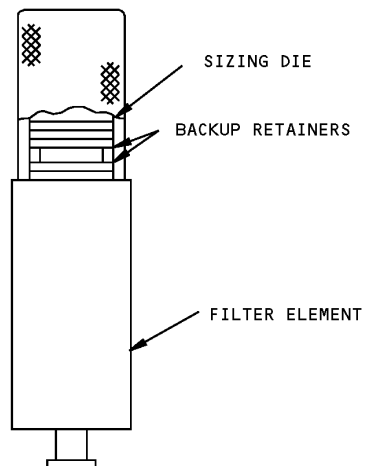
**NOTE:** This tool is a supplier proprietary item and can only be obtained from Hamilton Sundstrand Corporation, 4747 Harrison Ave, Rockford, Illinois 61125.

**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Ram Air Turbine (RAT) Checkout Module Location**  
**Figure 1**

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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



**Sizing Die**  
**Figure 2**



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## **ILLUSTRATED TOOL AND EQUIPMENT MANUAL**

**PART NUMBER: A29005-1**

**NAME:** SEALING CAP - PRESSURE TRANSMITTER MOUNT

**AIRPLANE MAINTENANCE:** NO

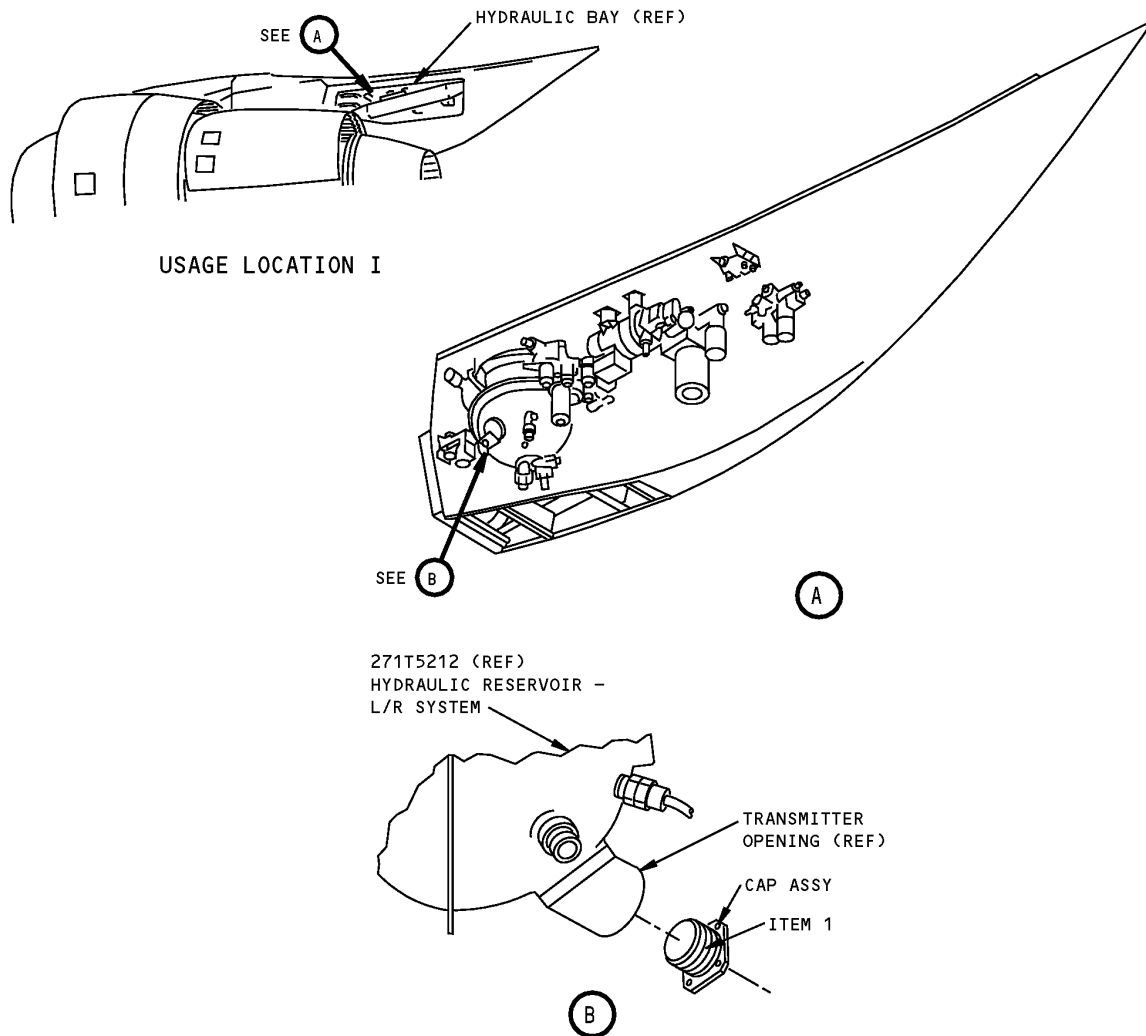
**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This tool is a machined steel plug that uses existing airplane fasteners to seal the hydraulic reservoir quantity transmitter during reservoir flushing.

**WEIGHT:** 1.5 lbs (0.7 kg)

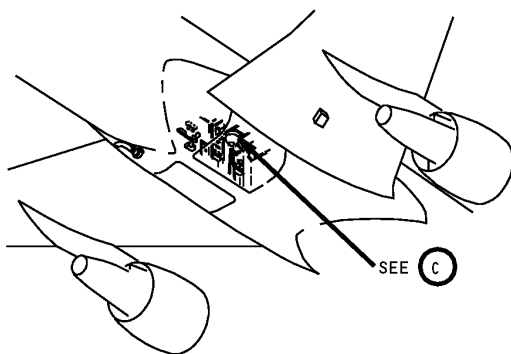
**DIMENSIONS:** 1.2 x 2.4 x 2.4 inches (30 x 60 x 60 mm)

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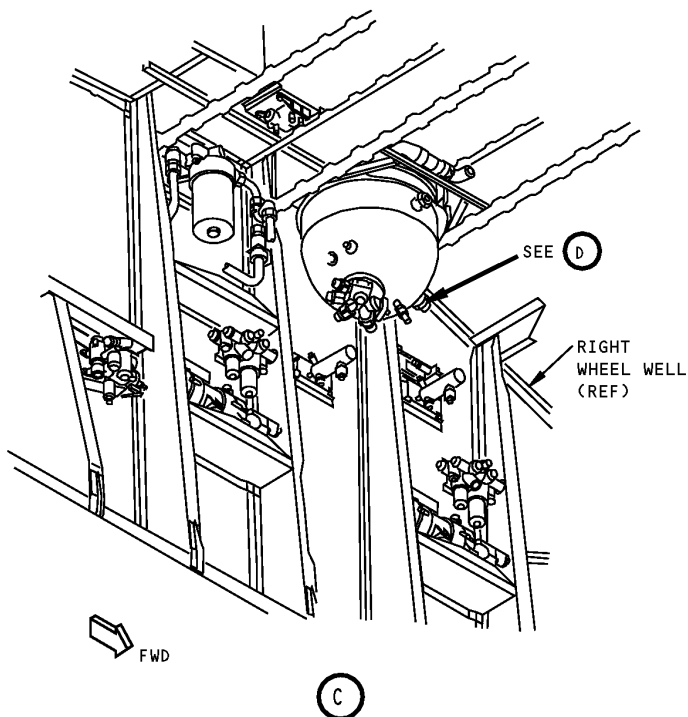
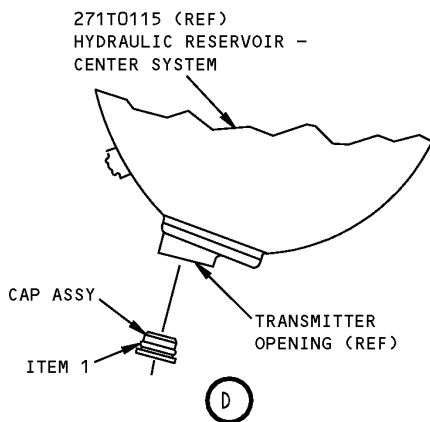


**Pressure Transmitter Mount Sealing Cap**  
**Figure 1 (Sheet 1 of 2)**

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**ILLUSTRATED TOOL AND EQUIPMENT MANUAL**



USAGE LOCATION II



**Pressure Transmitter Mount Sealing Cap**  
**Figure 1 (Sheet 2 of 2)**

REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE
1	2-224E515-80	O-RING	V17506

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## ILLUSTRATED TOOL AND EQUIPMENT MANUAL

**PART NUMBER: A29006-19**

**NAME:** TEST BOX - PRESSURE/THERMAL SWITCH

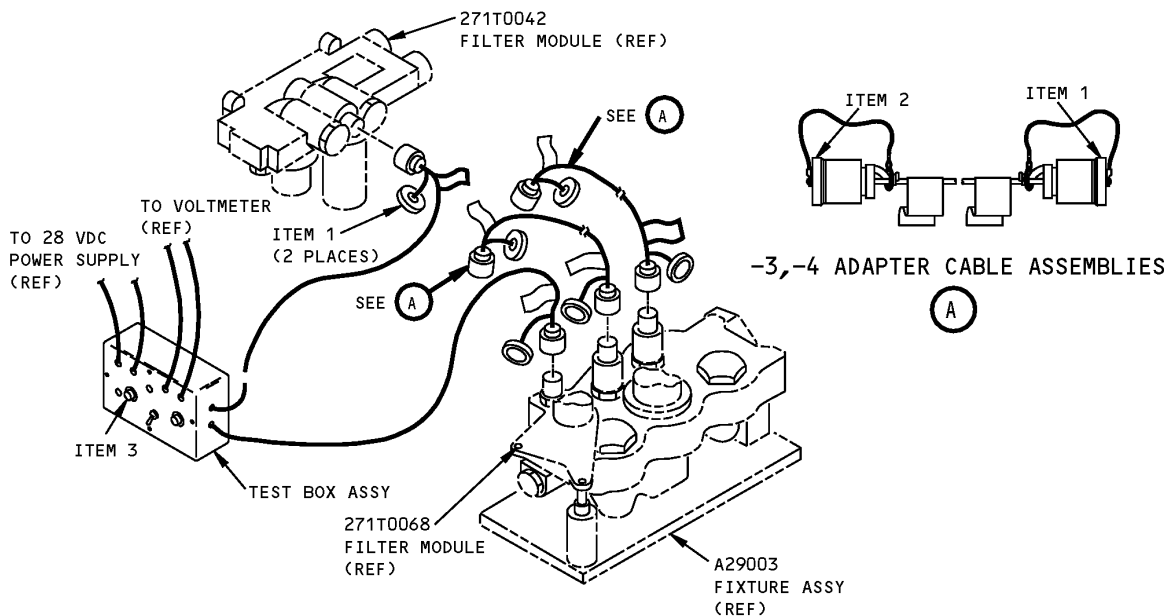
**AIRPLANE MAINTENANCE:** NO

**COMPONENT MAINTENANCE:** YES

**USAGE & DESCRIPTION:** This test box assembly consists of a test box and two adapter cables. The cables connect the hydraulic filter module pressure switches, 271T0042 and the 271T0068 thermal switch for functional testing. This tool is used with the A29003 hydraulic filter tool set.

**WEIGHT:** 8 lbs (3.6 kg)

**DIMENSIONS:** 3 x 10 x 12 inches (76 x 254 x 305 mm)



**Pressure/Thermal Switch Test Box**  
**Figure 1**

REPAIRABLE/REPLACEABLE PARTS			
ITEM NO.	PART NO.	NOMENCLATURE	VENDOR CODE
1	MS27292-2	DUST CAP	
2	MS27294-2	DUST CAP	
3	MS25331-2-313	INDICATOR LIGHT ASSY	