ENGINE - HIGH PRESSURE SYSTEM MODULE - PROVIDE NEW BRCKETS AND CLAMPING AT FLANGE K AND NEW FUEL FLOW DIVIDER VALVE BRACKETS - CATEGORY CODE 3 - MOD.ENG-72-0119

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320

(2) Engine: V2500-A1 Engines before Serial No. V0235*

*The Serial Number data shown is of a preliminary nature and is provided for advanced planning only. A future revision to this Service Bulletin will confirm final serial number effectivity.

B. Reason

(1) Condition

The present Fuel Manifold Brackets and Fuel Flow Divider Valve Brackets do not provide sufficient stiffness. This can cause fuel manifold cracks.

(2) Background

The new bracket and support arrangement provides stiffer retention for the Fuel Manifolds and the Fuel Flow Divider Valve Assembly. The new replacement brackets, support and the added brackets make it less possible for vibrations to affect fuel system function.

(3) Objective

To improve the brackets and clamping which support the Fuel Manifolds and the Fuel Flow Divider Valve.

(4) Substantiation

Many hours of testing.

(5) Effects of Bulletin on Workshop Procedures:

Removal/Installation	Not affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Not affected
Repair	Not affected
Testing	Not affected

(6) Supplemental Information

None.

C. Description

(1) The new brackets and Fuel Flow Divider Valve Front Support decrease the movement of the Fuel Flow Divider Valve that can result from vibration.

(2) The changes introduced by this Service Bulletin are as follows:

(a) Replace various manifold support brackets.

(b) Add new manifold support brackets at some locations.

(c) Replace the Front Fuel Flow Divider Valve Bracket Assembly with a Front Fuel Flow Divider Valve Support.

D. Approval

The Part Number Changes and/or part modifications described in Section 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

E. Compliance

Category Code 3.

Accomplish within 350 hours from receipt of the hardware, but not later than April 30/92.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue		Estimated Manhours
(1) In service		TOTAL: 15 hours, 25 minutes
(a) To gain access		
1 Install warning notices ..		5 minutes
2 Open the fan cowls		17 minutes
3 Open the thrust reverser "C" ducts		18 minutes
	TOTAL	40 minutes
(b) To embody	TOTAL	14 hours

(c) To return engine to flyable status

1	Close the thrust reverser "C" ducts	21 minutes
2	Close the fan cowls	19 minutes
3	Remove the warning notices.	5 minutes
	TOTAL	45 minutes

(2) At overhaul Not applicable

(Note: The Parts affected by this Service Bulletin are accessible at Overhaul.)

G. Material - Price and Availability

(1) Modification Kit not required.

(2) See "Material Information" section for prices and availability of future spares.

H. Tooling - Price and Availability

Tool No.	Qty.	Description	Function	Avail
IAE1P16042	1	Test Adapter	Leak check	(1)
IAE1P16139	1	Wrench	Tighten/loosen Fuel Manifold Nuts	(1)

(1) Indicates that Tool Design Aperture Cards are currently available from IAE.

I. Weight and Balance

(1)	Weight change	Plus 1.025 lb (0,46 kg)
(2)	Moment arm	No effect
(3)	Datum	Engine front mount centerline (Powerplant station (P.P.S.) 100)

J. Electrical Load Data

This Service Bulletin has no effect on the aircraft electrical load.

K. Reference

(1) Internal Reference No.

91VA081A

(2) Other References

V2500 Aircraft Maintenance Manual

V2500-ENG-72-0078 (Engine - HP Compressor - Rework the fuel Flow Divider Mount Bracket Assemblies to Provide Additional Clearance)

L. Other Publications Affected

(1) V2500 Illustrated Parts Catalog, Chapter/Section 72-40-00, Figure 1, Chapter/Section 72-41-00 Figure 3 and Chapter/Section 73-11-41 Figures 1 and 3, to add the new parts.

(2) The V2500 Engine Manual, Chapter/Section 72-40-00, Cleaning, to add the new parts.

(3) The V2500 Engine Manual, Chapter/Section 72-40-00, Inspection, to add the new parts.

(4) The V2500 Engine Manual, Chapter/Section 72-41-00, Cleaning, to add the new parts.

(5) The V2500 Engine Manual, Chapter/Section 72-41-00, Inspection, to add the new parts.

(6) The V2500 Engine Manual, Chapter/Section 72-42-00, Assembly, to add the new parts.

(7) The V2500 Engine Manual, Chapter/Section 72-00-40, Installation-07, to add the new parts.

(8) The V2500 Aircraft maintenance Manual, Chapter/Section 73-11-41, Removal/Installation, to add the new parts.

(9) The V2500 Aircraft maintenance Manual, Chapter/Section 73-13-43, Removal/Installation, to add the new parts.

2. Accomplishment Instructions

A. Rework Instructions

(1) None

B. Pre-Requisite Instructions

(1) On the aircraft panel 115VU, put a warning notice to tell the persons not to start the engine.

(2) On the aircraft panel 50VU, make sure that the ON legend on the EDG FADEC GND PWR push button switch is OFF and install a warning notice.

(3) Open the Fan Cowls by the use of the approved procedures in Reference (1), Control No./TASK No. 71-13-00-010-010.

(4) Open the Thrust Reverser Halves by the use of the approved procedures in Reference (1), Control No./TASK No. 78-32-00-010-010.

C. Removal Instructions

NOTE: Locations given in steps (1) through (3) are on the left side of the engine at Flange K and fuel nozzles, when you look from the rear.

(1) Remove the Loop Clamp from the 2A0406 Loop Clamp Bracket at hole locations 91 and 92. Refer to Figure 1.

(a) Remove the loop clamp Nut and Bolt from the bracket.

(b) Remove the loop clamp from the Fuel Manifold and discard the loop clamp. Do not use the removed loop clamp.

(2) Remove the loop clamps from the 2A1196 Loop Clamp Bracket at hole locations 81 and 82. Refer to Figure 1.

(a) Remove the loop clamp nut and bolt from the bracket.

(b) Remove the two loop clamps from the fuel manifolds and discard the loop clamps. Do not use the removed loop clamps.

(3) Remove the 2A0897 Loop Clamp Bracket Assembly at hole locations 65 and 66. Refer to Figure 1.

(a) Remove the loop clamp nuts and bolts from the bracket.

(b) Remove the three loop clamps from the fuel manifolds and discard the loop clamps. Do not use the removed loop clamps.

(c) Remove the two nuts and bolts and remove the bracket.

NOTE: Locations given in steps (4) through (9) are on the right side of the engine at Flange K, when you look from the rear.

(4) Remove the loop clamp from the 2A1225 Loop Clamp Bracket at hole locations 1 and 2. Refer to Figure 2.

(a) Remove the loop clamp nut and bolt from the bracket.

(b) Remove the loop clamp from the fuel manifold and discard the loop clamp. Do not use the removed loop clamp.

(5) Remove the 2A0876 Loop Clamp Bracket attached to Flange K at hole locations 12 and 13. Refer to Figure 2.

(a) Remove the loop clamp nuts and bolts from the bracket.

(b) Remove the two loop clamps from the fuel manifold and discard the loop clamps. Do not use the removed loop clamps.

(c) Remove the nuts and bolts and remove the Bracket.

(6) Remove the 2A0878 Loop Clamp Bracket Assembly attached to Flange K at hole locations 24 and 25. Refer to Figure 2.

(a) Remove the loop clamp nuts and bolts from the bracket.

(b) Remove the three loop clamps from the fuel manifolds and discard the loop clamps. Do not use the removed loop clamps.

(c) Remove the two nuts and bolts and remove the bracket.

(7) Remove the 2A0929 Loop Clamp Bracket Assembly at hole locations 53 and 54. Refer to Figure 1.

(a) Remove the loop clamp nuts and bolts from the bracket.

(b) Remove the four loop clamps from the fuel manifolds and discard the loop clamps. do not use the removed loop clamps.

(c) Remove the two nuts and bolts and remove the bracket.

(8) Remove the nuts and Bolts from Flange K at bolt hole locations 14, 26, 27, 28, 29, 30, 34, 35, 52 and 55. Refer to Figure 3.

(9) Disconnect the ten Fuel Nozzle Supply Manifolds from the Fuel Flow Divider Valve Adapters. Refer to Figure 4.

(a) Remove the wire from the tube nuts.

(b) Disconnect the tube nuts from the adapters.

(c) Remove the transfer tubes from the adapters or manifolds.

(d) Remove the twenty packings from the ten transfer tubes and discard the packings.

(e) Remove the ten metal gaskets from the adapters or manifolds and discard the gaskets.

(10) Remove the front Fuel Supply Tube from the engine. Refer to Figure 5.

(a) Remove the three bolts at the front of the fuel Flow Divider Valve.

(b) Remove the nut, washer and bolt that attaches the two loop clamps to the clip position 5700 above the Bifurcation Panel. Do not remove the loop clamps.

(c) Remove the wire from the tube nut.

(d) Disconnect the tube nut from the adapter.

(e) Remove the tube from the engine.

(f) Remove the packing from the adapter and discard the packing.

(g) Remove the seal ring from the fuel supply tube and discard the seal ring.

(11) Remove the Fuel Flow Divider Valve from the engine. Refer to Figure 4.

(a) Remove the four bolts which old the valve to the front and rear brackets.

(b) Remove the valve.

(12) Remove the 2A1903-01 or the 2A2073-01 Fuel Flow Divider Valve Rear Bracket. Refer to Figure 4.

(a) Remove the five nuts and bolts that hold the bracket to Flange K.

(b) Remove the bracket.

(13) Remove the 2A1696-01 or the 2A1729-01 Fuel Flow Divider Valve Front bracket.

(a) Loosen the two loop clamp bolts at clip positions 5640 and 5643 that hold the four loop clamps of the Stage 7A and 7C HPC Bleed Valve Air Tubes. Refer to Figure 6.

(b) Remove the the Stage 7D HPC Bleed Valve Air Tube loop clamp bolt and washer from the bracket. Do not remove the loop clamp. See Figure 4.

(c) Remove the two nuts and three bolts from Flange J and remove the bracket. Refer to Figure 4.

(14) Remove the four Bolts from the Stage 7D HPC Bleed Valve Support at the 5 o'clock through the 8 o'clock positions. Refer to Figure 7.

D. Installation Instructions

NOTE: Locations given in steps (1) through (3) are on the left side of the engine at Flange K, when you look from the rear.

(1) Install the Loop Clamp on the 2A0406 Loop Clamp Bracket at hole locations 91 and 92. Refer to Figures 3 and 8.

(a) Install the new MS122904 loop clamp (1 off) to the fuel manifold.

(b) Install the bolt (1 off) through the bracket and loop clamp and attach the nut (1 off) to the bolt, finger tight.

(2) Install the Loop Clamps on the 2A1196 Loop Clamp Bracket at hole locations 81 and 82. Refer to Figures 3 and 8.

(a) Install the new MS122904 loop clamps (2 off) to the two fuel manifolds.

(b) Install the bolt (1 off) through the loop clamp, bracket and loop clamp and attach the nut (1 off) to the bolt, finger tight.

(3) Install the 2A1952-01 Loop Clamp Bracket Assembly (1 off) at hole locations 65 and 66. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (2 off) and attach the nuts (2 off) to the bolts, finger tight.

(b) Install the new MS122904 loop clamps (3 off) to the three fuel manifolds.

(c) Install the bolt (1 off) through the lower bracket hole and loop clamp and attach the nut (1 off) to the bolt, finger tight.

(d) Install the bolt (1 off) through the loop clamp, upper bracket hole and loop clamp and attach the nut (1 off), finger tight.

NOTE: Locations given in steps (4) through (12) are on the right side of the engine at Flange K, when you look from the rear.

(4) Install the Loop Clamp on the 2A1225 Loop Clamp Bracket at hole locations 1 and 2. Refer to Figures 3 and 8.

(a) Install the new MS122904 loop clamp (1 off) to the fuel manifold.

(b) Install the bolt (1 off) through the bracket and loop clamp and attach the nut (1 off) to the bolt, finger tight.

(5) Install the 2A1939 Loop Clamp Bracket (1 off) at hole locations 12, 13 and 14. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (3 off) and attach the nuts (3 off) to the bolts, finger tight.

(b) Install the new MS122904 loop clamps (2 off) to the two fuel manifolds.

(c) Install the bolts (2 off), one through each bracket hole and loop clamp and attach the nuts (2 off), one to each bolt, finger tight.

(6) Install the 2A1938-01 Loop Clamp Bracket Assembly (1 off) at hole locations 24, 25 and 26. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (3 off) and attach the nuts (3 off) to the bolts, finger tight.

(b) Install the new MS122904 loop clamps (3 off), one to each of the three fuel manifolds.

(c) Install the loop clamp bolts (2 off) and nuts (2 off) in the bracket as follows:

1 Put one bolt (1 off) through the inner bracket hole and loop clamp and attach the nut (1 off) to the bolt, finger tight.

2 Put one bolt (1 off) through the loop clamp, outer bracket hole and loop clamp and attach the nut (1 off) to the bolt, finger tight.

(7) Install the 2A2537 Loop Clamp Bracket (1 off) at hole locations 27 and 28. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (2 off) and attach the nuts (2 off) to the bolts, finger tight.

(b) Install the ST1540-05 loop clamp (1 off), to the 2A0504-01 fuel manifold.

(c) Install the 4W0103 bolt (1 off) through the bracket and loop clamp and attach the 4W0001 nut (1 off) to the bolt, finger tight.

(8) Install the 2A2529-01 Loop Clamp Bracket Assembly (1 off) at hole locations 29 and 30. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (2 off) and attach the nuts (2 off) to the bolts, finger tight.

(b) Install the ST1540-05 loop clamps (2 off), one each to the 2A0508-01 and 2A0509-01 fuel manifolds.

(c) Install the loop clamps to the bracket as follows:

1 Install the 4W0103 bolt (1 off) through the lower bracket hole and loop clamp and attach the 4W0001 nut (1 off) to the bolt, finger tight.

2 Install the 4W0103 bolt (1 off) through the upper bracket hole and the loop clamp and attach the 4W0001 nut (1 off) to each bolt, finger tight.

(9) Remove, turn and install the Loop Clamp on the No.2 Ignition Lead at clip position 5759. Refer to Figure 9.

(a) Remove the bolt and washer from the ignition lead bracket and loop clamp.

(b) Remove the loop clamp from the lead and turn the clamp 180 degrees around the bolt hole centerline and install the loop clamp.

(c) Install the bolt and washer through the loop clamp and bracket.

(d) Tighten and torque the bolt to between 36 and 45 lbfin (0,4 and 0,5 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(10) Install the 2A2546 Loop Clamp Bracket (1 off) at hole locations 34 and 35. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (2 off) and attach the nuts (2 off) to the bolts, finger tight.

(b) Install the ST1540-05 loop clamps (2 off), one each, to the 2A0509-01 and 2A0510-01 fuel manifolds.

(c) Install the loop clamps to the brackets as follows:

1 Install the 4W0103 bolt (1 off) through the loop clamp and the inner bracket hole and attach the 4W0001 nut (1 off) to each bolt, finger tight.

2 Install the 4W0103 bolt (1 off) through the outer bracket hole and the loop clamp and attach the 4W0001 nut (1 off) to each bolt, finger tight.

(11) Install the 2A1963 Loop Clamp Bracket (1 off) at hole locations 52 and 53. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (2 off) and attach the nuts (2 off) to the bolts, finger tight.

(b) Install the new MS122904 loop clamps (2 off), one to each of the two fuel manifolds.

(c) Install the loop clamp bolt (1 off) through the loop clamp, bracket hole and loop clamp and attach the nut (1 off) to the bolt, finger tight.

(12) Install the 2A1964 Loop Clamp Bracket (1 off) at hole locations 54 and 55. Refer to Figures 3 and 8.

(a) Install the bracket to the flange with the bolts (2 off) and attach the nuts (2 off) to the bolts, finger tight.

(b) Install the new MS122904 loop clamps (2 off), one each to the two fuel manifolds.

(c) Install the bolt (1 off) through the loop clamp, bracket and loop clamp and attach the nut (1 off) to the bolt, finger tight.

CAUTION: DO AN INSPECTION TO MAKE SURE THAT DIMENSION W FOR ALL 2A2073-01 FUELD FLOW DIVIDER VALVE REAR BRACKET ASSEMBLIES IS IN THE LIMIT. BRACKET ASSEMBLIES WHICH ARE NOT IN THE LIMIT MUST NOT BE USED, BECAUSE INTERFERENCE WITH A FUEL MANIFOLD CAN OCCUR.

(13) Install a 2A2073-01 that was reworked by Reference (2) or inspect and install a new 2A2073-01 Fuel Flow Divider Valve Rear Bracket Assembly as follows:

(a) Install the reworked 2A2073-01 Fuel Flow Divider Valve Rear Bracket Assembly (1 off) and the bolts (5 off) on Flange K at hole locations 36, 37, 38, 43 and 44. Attach the nuts (5 off) to the bolts, finger tight. Refer to Figures 3 and 10.

NOTE: Use a bracket which incorporates Reference (2).

(b) Do an inspection of a new 2A2073-01 Fuel Flow Divider Valve Rear Bracket Assembly to find if Dimension W (on the two bolt hole side) is in the limit. Refer to Figure 11.

(c) Install only an accepted new 2A2073-01 Fuel Flow Divider Valve Rear Bracket Assembly (1 off) and the bolts (5 off) on Flange K at hole locations 36, 37, 38, 43 and 44. Attach the nuts (5 off) to the bolts, finger tight. Refer to Figures 3 and 10.

(d) Send all parts, which are not in the limit of the inspection given in Step (13) (b), to the address specified in Paragraph 3, Material Information.

(14) Install the 2A2535 Fuel Flow Divider Valve Support (1 off) to the Fuel Flow Divider Valve. Refer to Figure 10.

(a) Install the body of the bracket to the two front mounting holes on the valve.

(b) Install the 4W0228 Bolts (2 off), finger tight.

(c) Torque the upper bolt to between 180 and 200 lbfin (2,04 and 2,26 mdaN. Do not torque the lower bolt. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(15) Install the Transfer Tubes to the Fuel Flow Divider Valve. Refer to Figure 10.

(a) Apply CoMat 10-041 white petrolatum to the AS3209-010 transfer tube packings (20 off). Refer to the approved procedure in Reference (1) Control No./TASK No. 70-23-13-911-010.

(b) Install two packings to each of the transfer tubes. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-13-911-010.

(c) Install each transfer tube to each of the adapters on the fuel flow divider valve.

(16) Install the new Gaskets on the Fuel Flow Divider Valve Adapters. Refer to Figure 10.

(a) Install the new ST2229-07 gaskets (10 off), one each to the adapter concial seats. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-13-911-010.

NOTE: Petrolatum can be used to hold the gaskets in place.

(17) Install the Fuel Flow Divider Valve. Refer to Figure 10.

(a) Install the valve to the rear bracket located on Flange K and the Stage 7D HPC Air Bleed Valve Flange.

(b) Lubricate the rear flange valve mount bolt threads (2 off) with CoMat 10-039 Lubricant (engine oil). Refer to Reference (1), Control No./TASK No. 70-30-00.

(c) Install the Bolts (2 off) which attaches the valve to the rear bracket, located on Flange K. Tighten the bolts until all the parts touch. Loosen the bolts three complete turns.

(d) Lubricate the AS21015 bolts threads (4 off) with CoMat 10-039 Lubricant (engine oil). Refer to Reference (1), Control No./TASK No. 70-30-00.

(e) Install the bolts through the 2A2535 support and the Stage 7D support flange. Align the bolts hole on the support with the bolts holes on the stage 7 HPC air bleed valve flange and tighten with your fingers.

(18) Connect the Fuel Nozzle Supply Manifolds to the Fuel Flow Divider Valve Adapters. Refer to Figure 10.

(a) Apply CoMat 10-031 Anti-galling Compound to the shoulder on each of the ten fuel manifold tubes. Refer to Reference (1), Control No./TASK No. 70-30-00.

(b) Connect the tubes to the adapter and tighten the tube nuts with your fingers.

CAUTION: THIS PRESSURE TEST MUST BE DONE TO MAKE SURE THAT THE TRANSFER TUBE PACKINGS ARE NOT DAMAGED AND THAT NO LEAKS RESULT FROM DAMAGED PACKINGS. THIS PROCEDURE IS MANDATORY. UNLESS THIS PROCEDURE IS DONE, IT IS NOT POSSIBLE TO FIND DEFECTS CAUSED BY IMPROPER ASSEMBLY.

(19) Pressurize the system and check for leaks.

(a) Install the IAE 1P16042 Test Adapter to the front end of the fuel flow divider valve and attach with the bolts. Tighten the bolts with your hand.

(b) Attach a 100 PSIG (689,5 kPa) air source to the test adapter.

(c) Pressurize the system to 95 to 105 PSIG (655,0 to 723,9 kPa).

(d) Check the fuel manifold coupling nuts for leaks at the fuel flow divider valve with CoMat 10-045 Leak Tec Fluid. Refer to Reference (1), Control No./TASK No. 70-30-00.

(e) Hold the pressure for 5 minutes. No leakage from any surface, or joint, or connection is permitted. Repair any leaks you find.

(f) Decrease the air pressure to zero and remove the air pressure source from the test adapter.

(g) Remove the three bolts which secure the test adapter and remove the test adapter from the valve.

(20) Torque the five Fuel Flow Divider Rear Bracket Bolts on Flange K to between 180 and 200 lbfin (2,03 and 2,26 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(21) Torque the two Fuel Flow Divider Rear Mount Bolts to between 180 and 200 lbfin (2,04 and 2,226 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010. Refer to Figure 10.

(22) Torque the lower bolt that attaches the forward Fuel Flow Divider Support to the Fuel Flow Divider Valve to between 180 and 200 lbfin (2,04 and 2,26 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010. Refer to Figure 10.

(23) Torque the four Fuel Flow Divider Support Bolts on the Stage 7D Air Bleed Valve Flange to between 85 and 105 lbfin (1,0 and 1,2 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010. Refer to Figure 10.

(24) Torque and safety the ten Fuel Manifold Coupling Nuts on the Fuel Flow Divider Valve Adapters. Refer to Figure 10.

CAUTION: MAKE SURE YOU USE THE PROCEDURE THAT FOLLOWS TO CORRECTLY TORQUE THE FUEL MANIFOLD COUPLING NUTS. INCORRECT TORQUE COULD RESULT IN DAMAGE TO ENGINE PARTS.

(a) Torque the coupling nuts by the following steps:

1 Torque the coupling nuts with the IAE 1P16139 Wrench to between 150 and 165 lbfin (1,69 and 1,86 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010 for the use of torque wrenches with adapters.

2 Continue to torque the applicable coupling nuts until the nuts hold the necessary torque. If a nut will not hold torque after four torque procedures, replace or repair the tubes or seats.

(b) Safety the coupling nuts in pairs with CoMat 02-141 wire. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-40-11-911-010 and Control No./TASK No. 70-30-00.

(25) Install the Fuel Supply Tube to the Fuel Flow Divider Valve and the Bifurcation Panel. Refer to Figure 5.

(a) Apply CoMat 10-041 white petrolatum to the new AS43013-116 Ring (1 off). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-13-911-010 and Control No./TASK No. 70-30-00.

(b) Install the new ring in the groove on the flanged end of the fuel supply tube.

(c) Apply CoMat 10-041 White Petrolatum to the MS9966-10 Packing (1 off). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-13-911-010 and Control No./TASK No. 70-30-00.

(d) Install a MS9966-10 packing to adapter at the bifurcation panel.

(e) Connect the supply tube nut to the adapter and tighten with your hand.

(f) Install the fuel supply tube to the front end of the fuel flow divider valve.

(g) Lubricate the bolt threads (3 off) with CoMat 10-039 Lubricant (engine oil). Refer to Reference (1), Control No./TASK NO. 70-30-00.

(h) Install the three bolts.

(i) Torque the bolts to between 85 to 105 lbfin (1,0 and 1,2 mdaN. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(j) Tighten and torque the supply tube nut to between 1150 and 1250 lbfin (13,0 to 14,1 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(k) Safety the tube nut with CoMat 02-141 wire. Refer to Reference (1), Control No./TASK No. 70-40-11-911-010.

(1) Attach the tube at clip position 5700.

1 Install the bolt (1 off) and washer (1 off) through the two loop clamps and raceway clip and attach with the nut (1 off)

2 Torque the nut to between 36 and 45 lbfin (0,4 and 0,5 mdaN. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(26) Install the 2A2542-01 Loop Clamp Bracket Assembly (1 off) to Flange J. Refer to Figure 10.

(a) Install the bolts (2 off) and bracket to the flange at the lower two of the three open flange holes and attached the nuts (2 off) to the bolts.

(b) Torque the bracket bolts to between 180 and 200 lbfin (2,03 and 2,26 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(c) Install the AS21114 bolt (1 off) through the open Flange J hole and attached the bolt with a 4W0003 nut (1 off).

(d) Torque the bolt to between 180 and 220 lbfin (2,03 and 2,48 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(e) Install the 4W0104 (1 off) bolt through the washer and the stage 7 air bleed tube clamp and bracket and attach the 4W0001 nut (1 off) to the bolt.

(f) Torque the bolt to between 36 and 45 lbfin (0,4 and 0,5 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(27) Torque the Flange K Bolts that attach the Loop Clamp Brackets to the flange at hole locations 1, 2, 12, 13, 14, 24, 25, 26, 27, 28, 29, 30, 34, 35, 52, 53, 54, 55, 65, 66, 81, 82, 91 and 92. Also torque the Nuts that attach the loop clamps to the loop clamp brackets. Refer to Figures 3 and 8.

(a) Torque the flange K bolts to between 180 and 200 lbfin (2,03 and 2,26 mdaN). Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(b) Torque the loop clamp nuts to between 36 and 45 lbfin (0,4 and 0,5 mdaN. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010.

(28) Torque the Loop Clamp Nuts at Clip Positions 5640 and 5643, one at each location to between 36 and 45 lbfin (0,4 and 0,5 mdaN. Refer to the approved procedure in Reference (1), Control No./TASK No. 70-23-11-911-010. Refer to Figure 6.

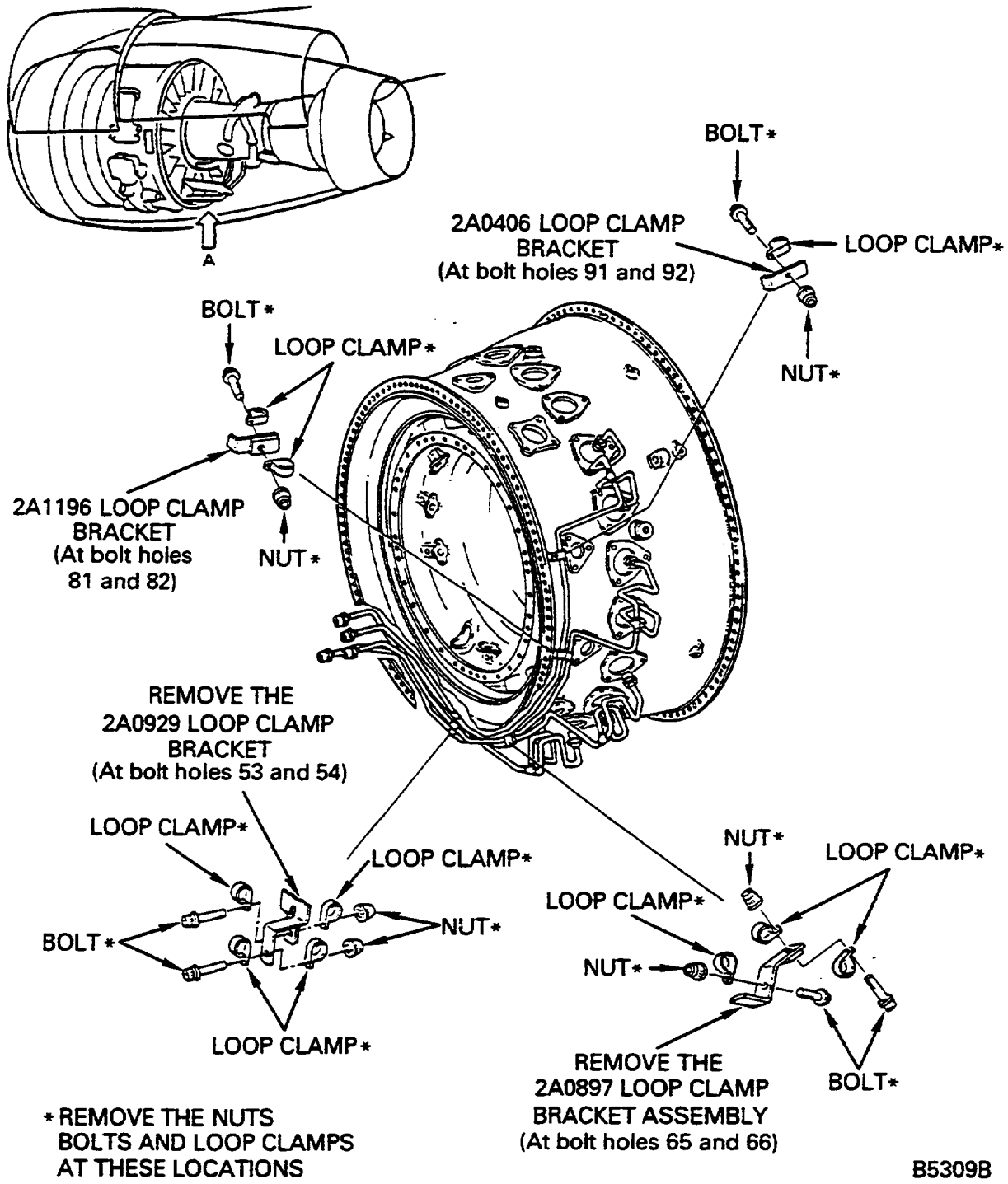
E. Post-Requisite Instructions

(1) Close the Thrust Reverser Halves by the use of the approved procedures in Reference (1), Control No./TASK No. 78-32-00-410-010.

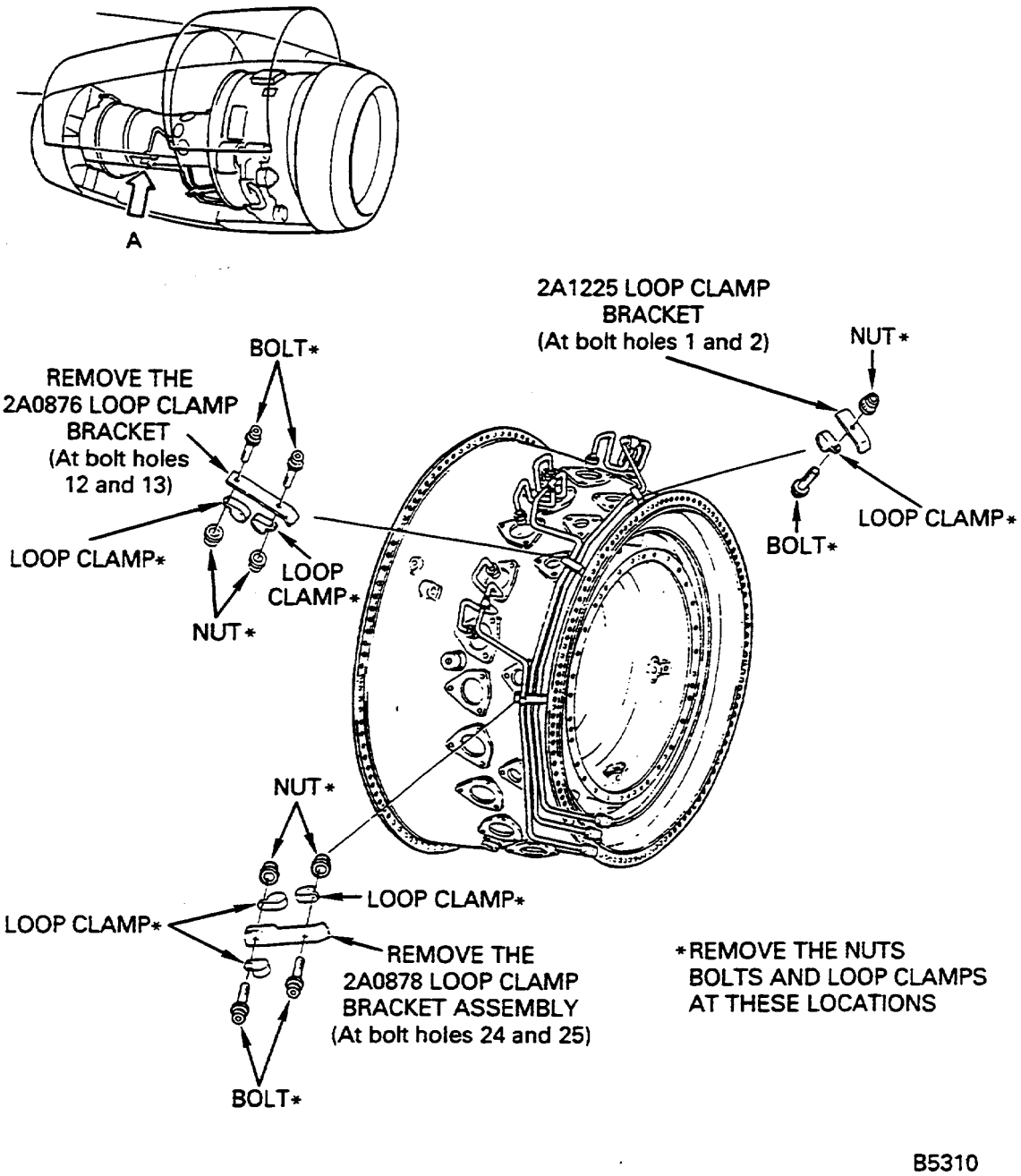
(2) Close the Fan Cowls by the use of the approved procedures in Reference (1), Control No./TASK No. 71-13-00-410-010.

(3) Remove the warning notices.

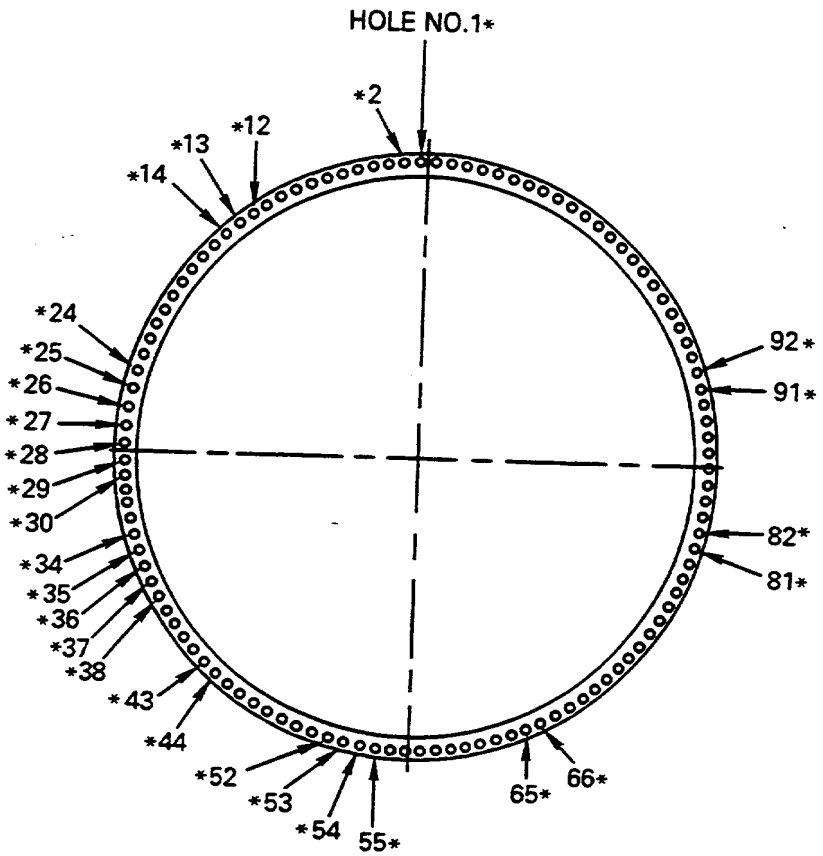
(4) Do a fuel leak test. Refer to the approved procedures given in Reference (1), Control No./TASK No. 71-00-00-710-012 or Control No./TASK No. 71-00-00-710-046.



Location of the fuel nozzle supply manifold attaching brackets
Fig.1



Location of the fuel nozzle supply manifold attaching brackets
Fig.2

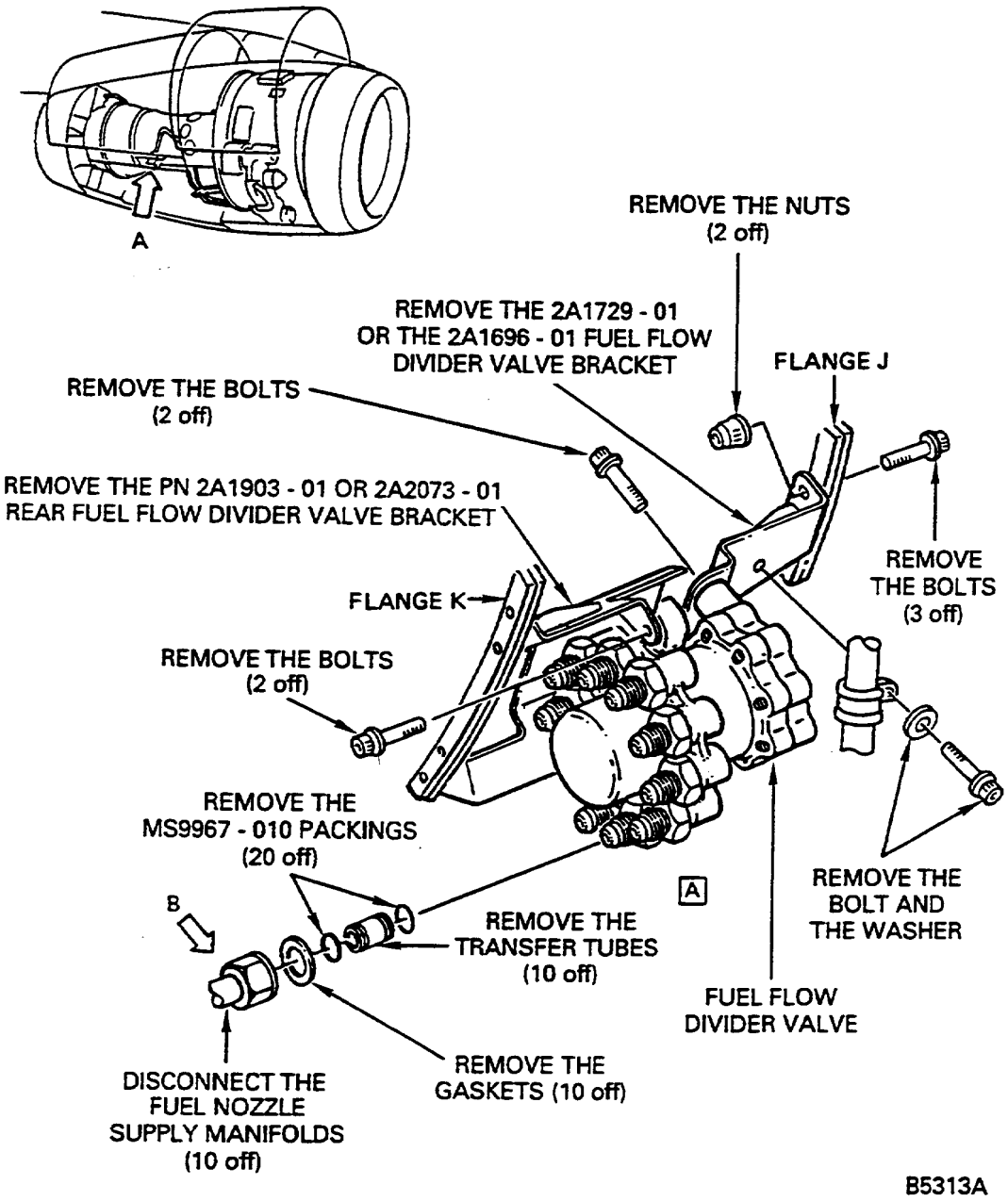


K FLANGE WHEN YOU LOOK FROM THE FRONT

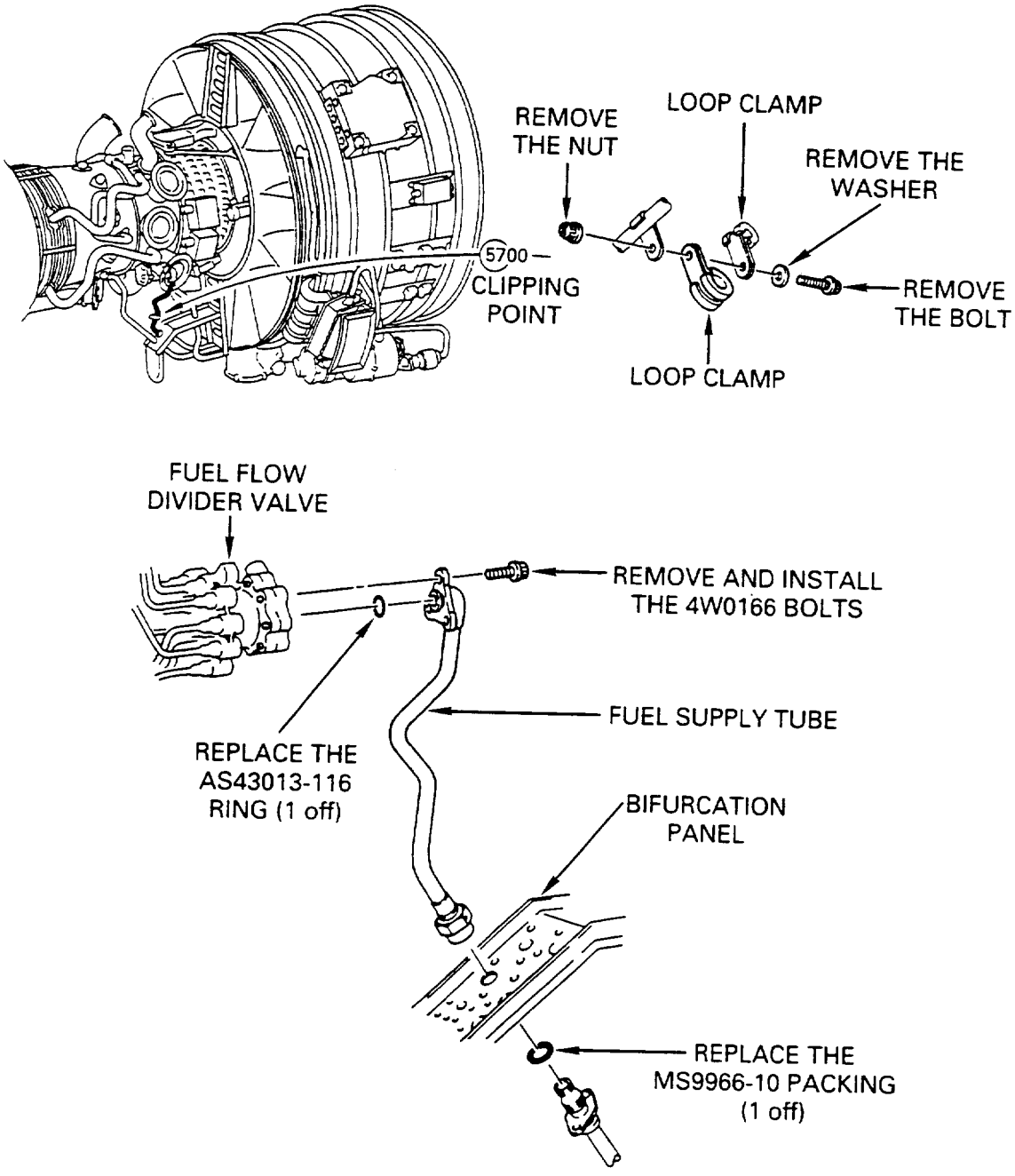
*NOTE: HOLE NUMBER AND LOCATION

B5315

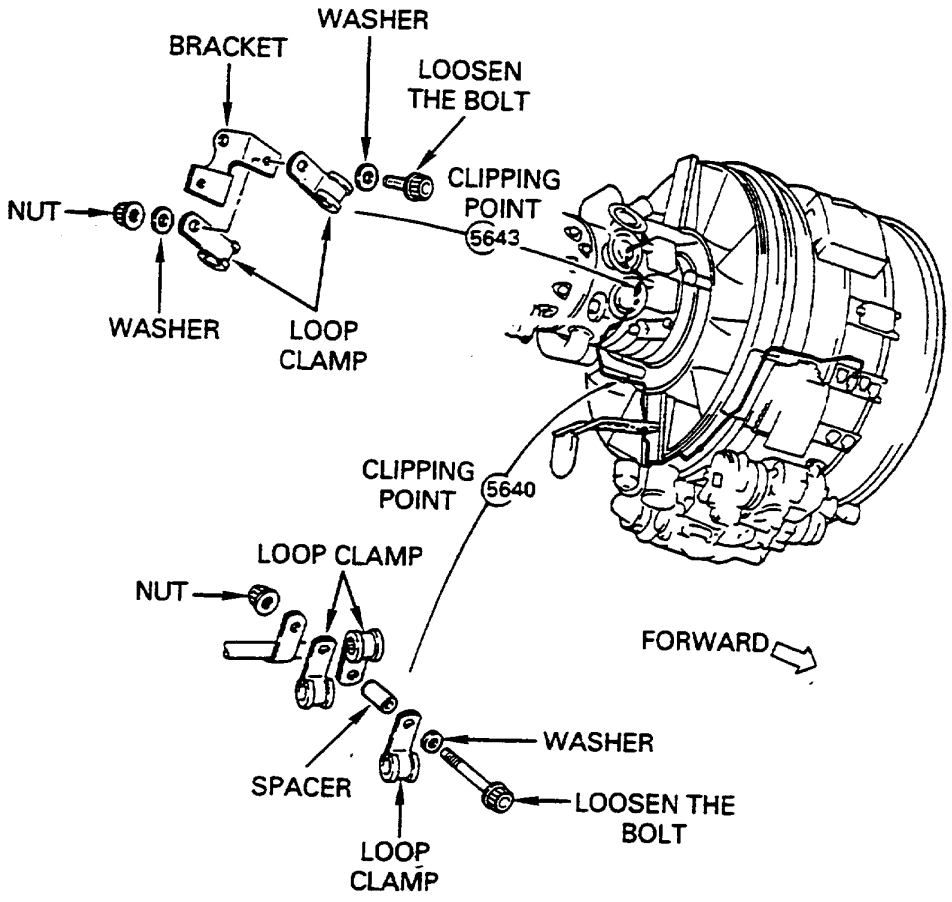
Location of the flange K bolt holes
Fig.3



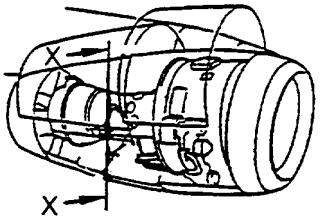
Location of fuel divider valve
Fig.4

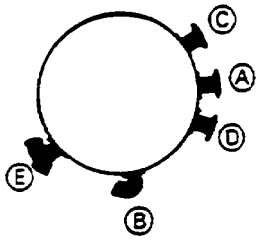


Location of the front fuel supply tube
Fig.5

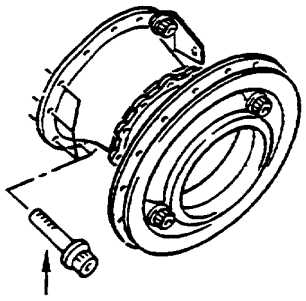


Location of clipping points CP5640 and CP5643
Fig.6





DIAGRAMMATIC VIEW
LOOKING FORWARD
ON X - X

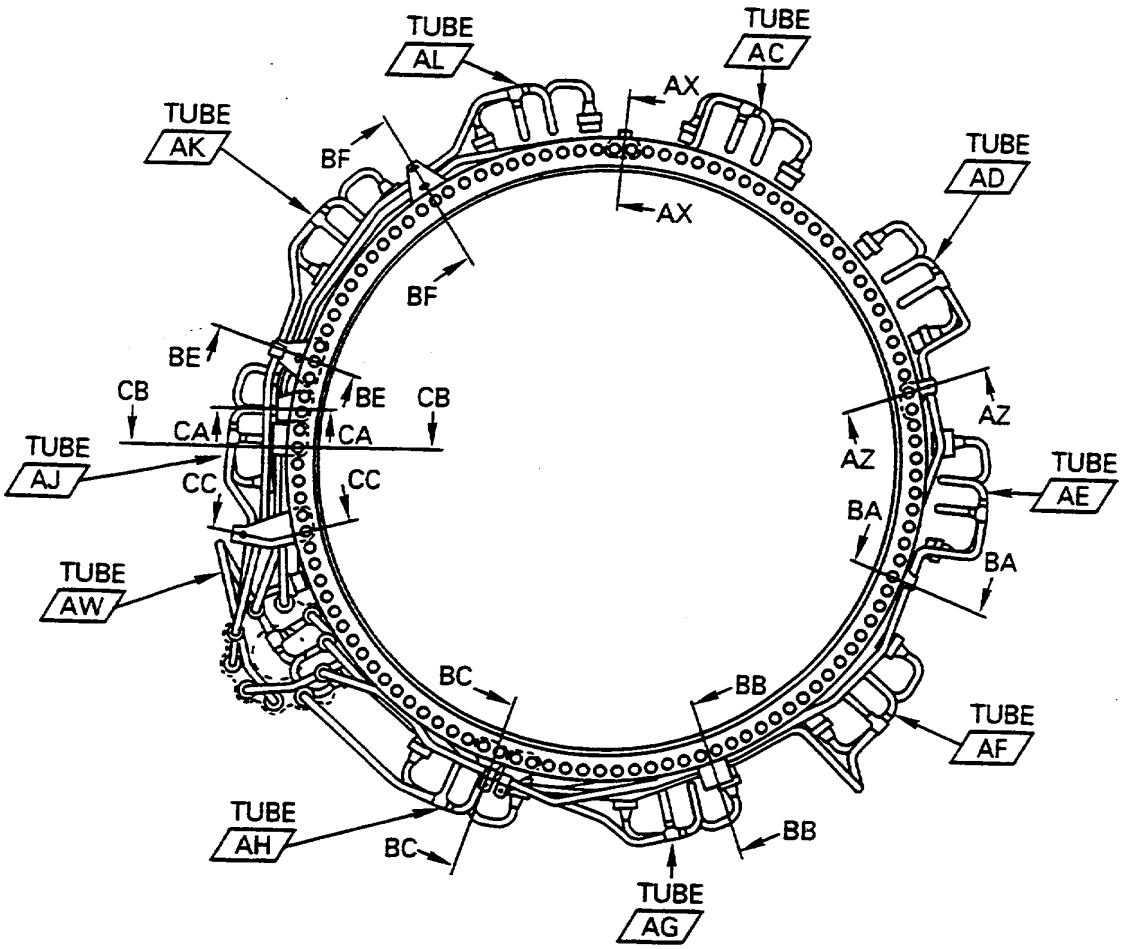


REMOVE FOUR OF THE BOLTS
THAT HOLD THE STAGE 7D HPC
BLEED VALVE ASSEMBLY TO THE
INTERMEDIATE CASE ASSEMBLY
(At the 5, 6, 7 and 8 o'clock locations)

Ⓓ
BLEED VALVE ASSEMBLY
SHOWN OUT OF POSITION

B5375

Location of the stage 7 HPC bleed valve
Fig.7



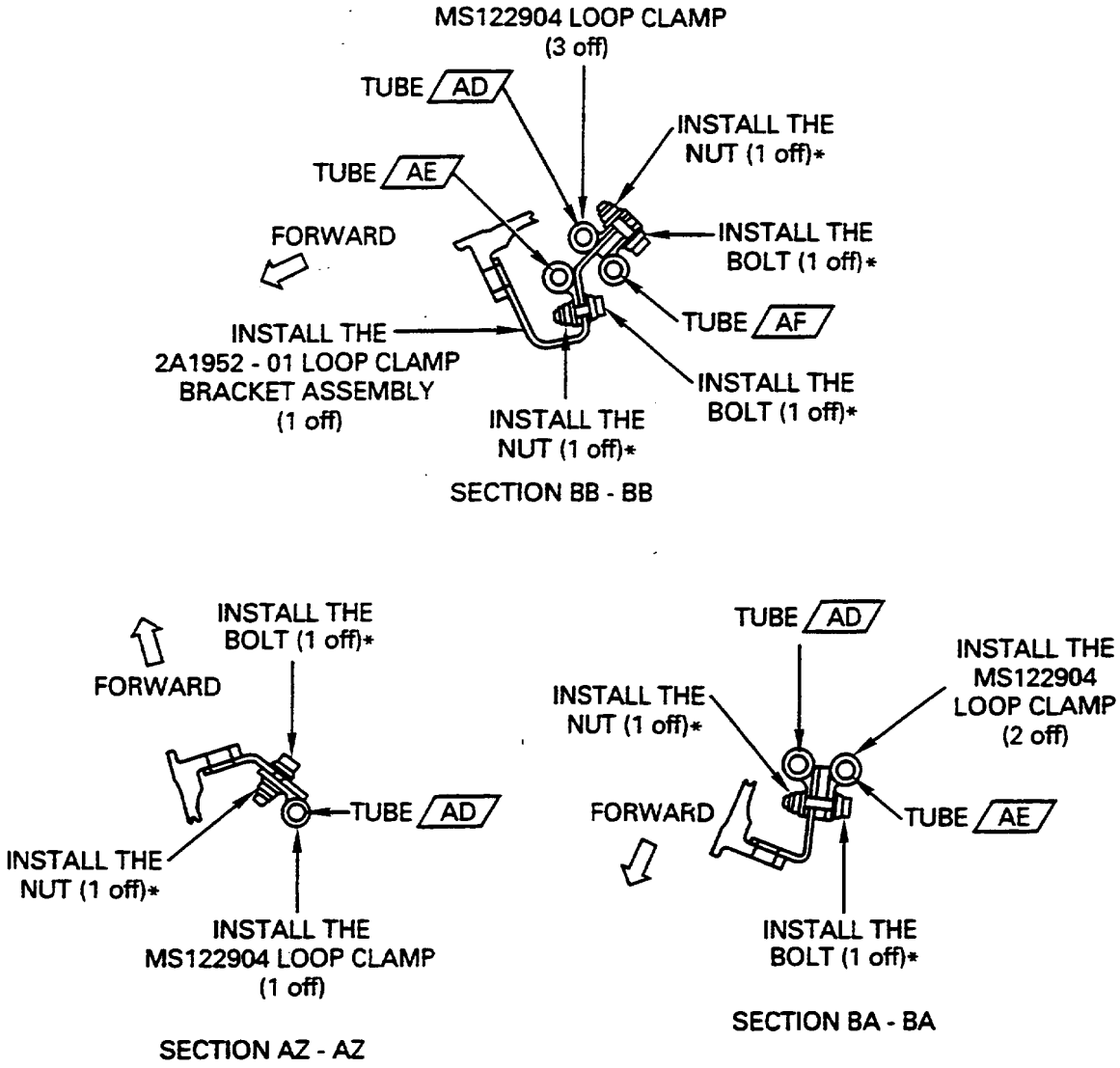
FRONT VIEW AT FLANGE K

TUBE	PART NO.
AD	2A1389 - 01
AE	2A0513 - 01
AF	2A1229 - 01
AG	2A0515 - 01
AH	2A0516 - 01

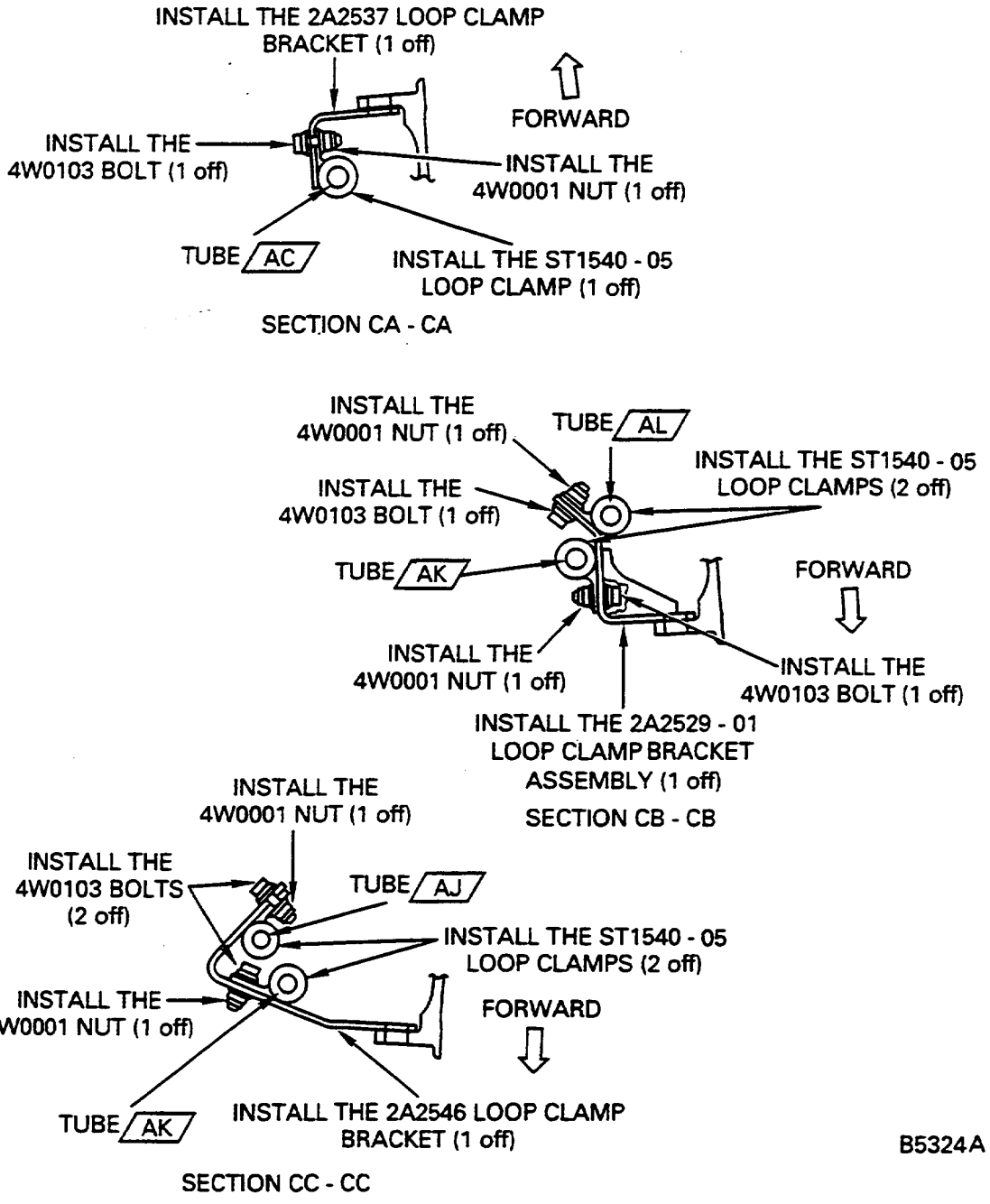
TUBE	PART NO.
AW	2A0511 - 01
AJ	2A0510 - 01
AK	2A0509 - 01
AL	2A0508 - 01
AC	2A0504 - 01

B5322B

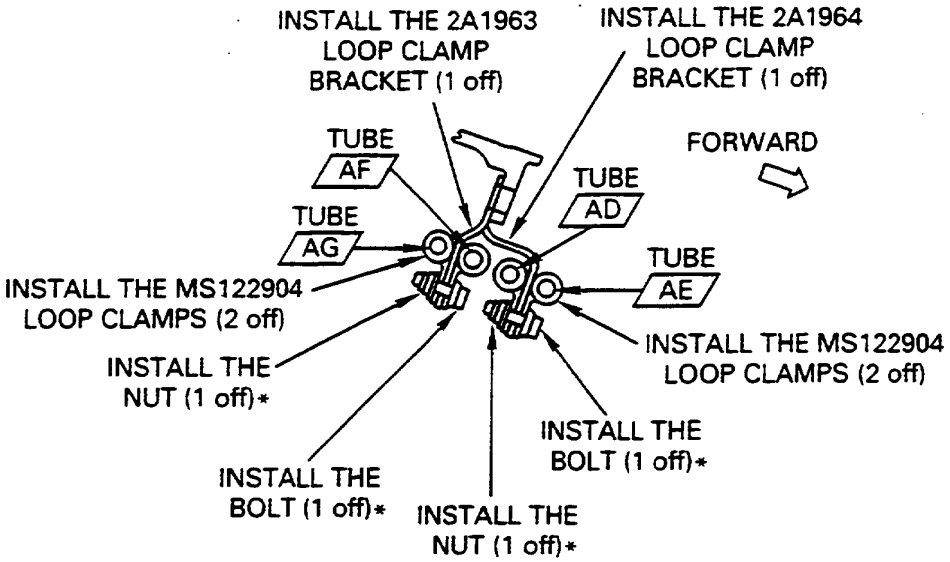
Installation of the flange K brackets
Fig.8 Sheet 1 of 5



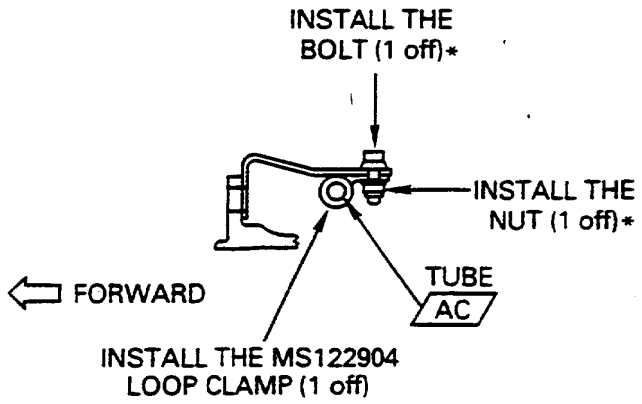
Installation of the flange K brackets
Fig.8 Sheet 2 of 5



Location of the flange K brackets
Fig.8 Sheet 3 of 5



SECTION BC - BC

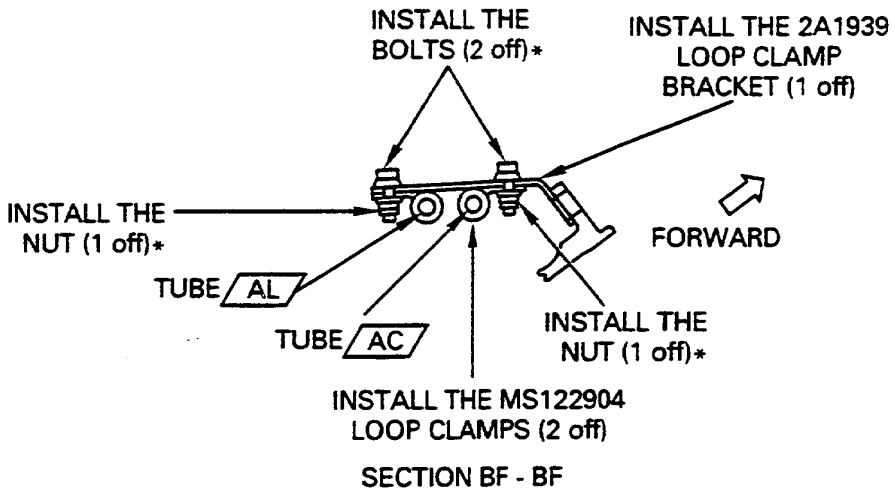


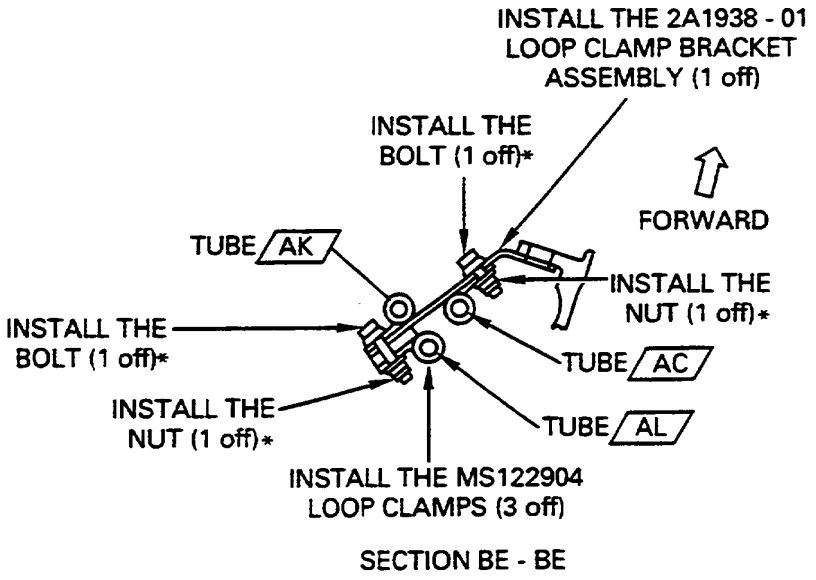
SECTION AX - AX

*NOTE : NUTS AND BOLTS THAT WERE REMOVED BEFORE

B5325

Location of the flange K brackets
Fig.8 Sheet 4 of 5

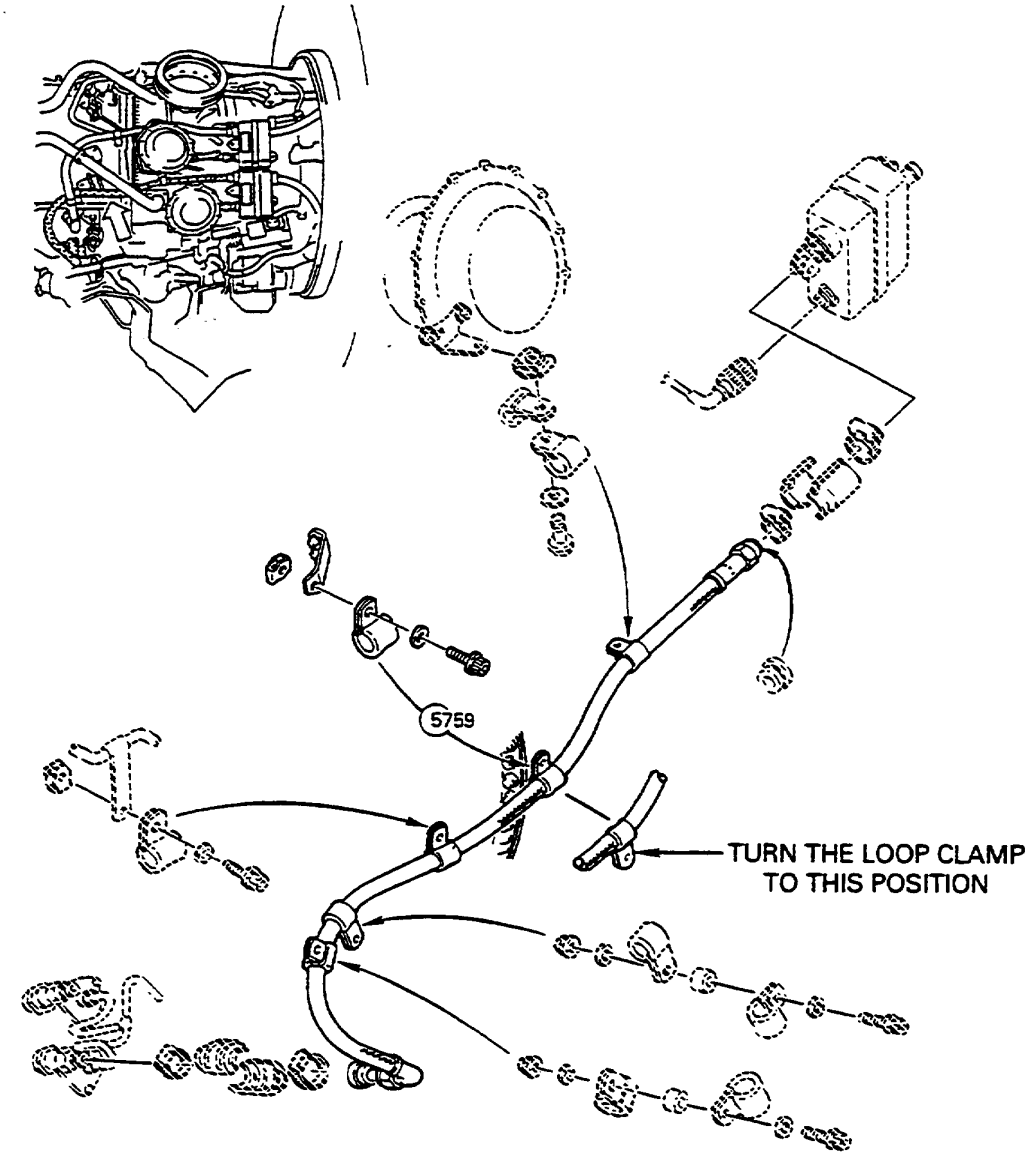




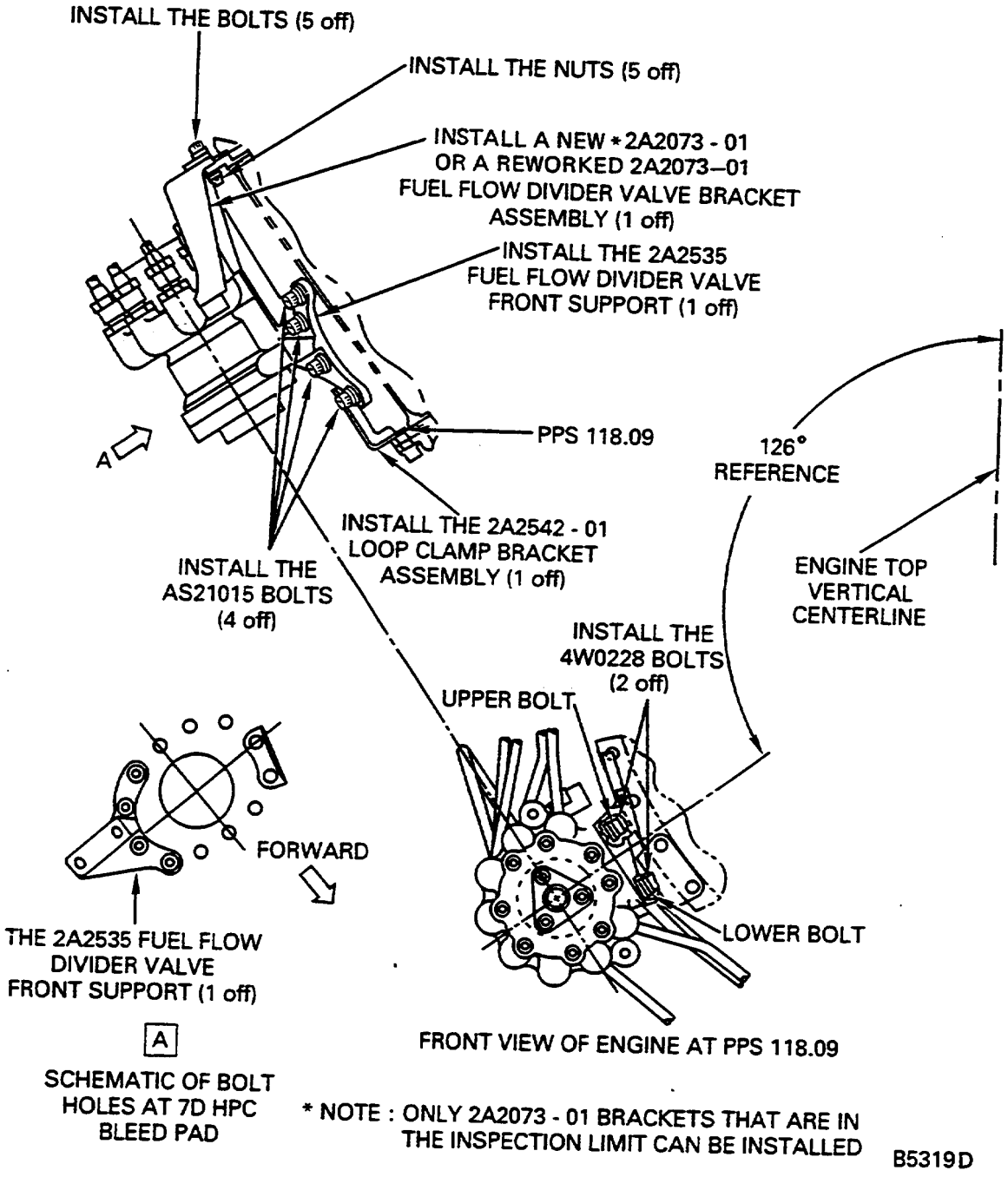
*NOTE : NUTS AND BOLTS THAT WERE
REMOVED BEFORE

B5326

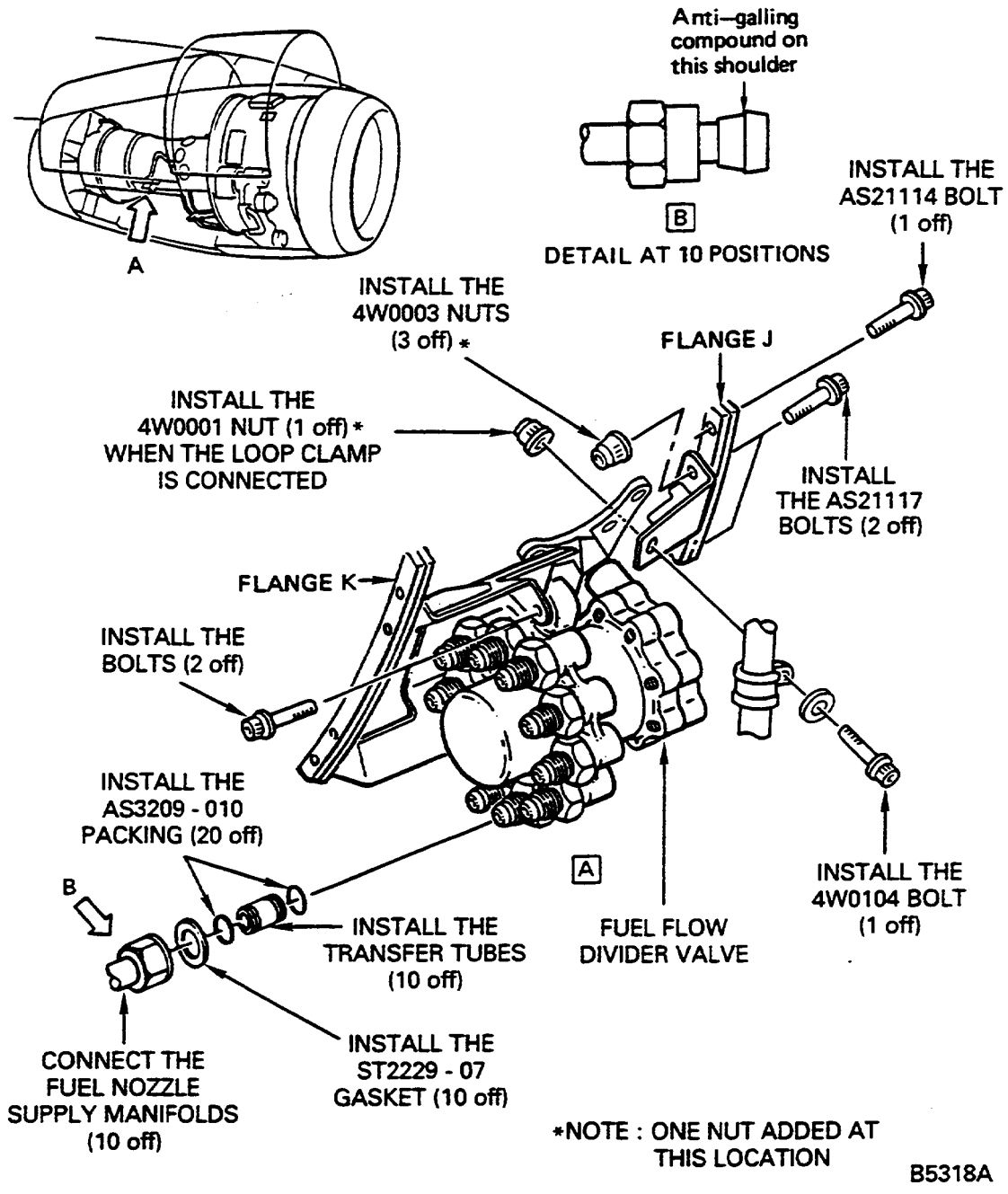
Location of the flange K brackets
Fig.8 Sheet 5 of 5



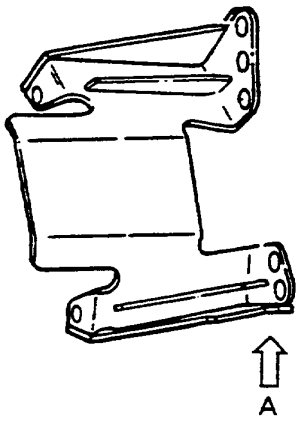
Turn the loop clamp at clipping point 5759
Fig.9



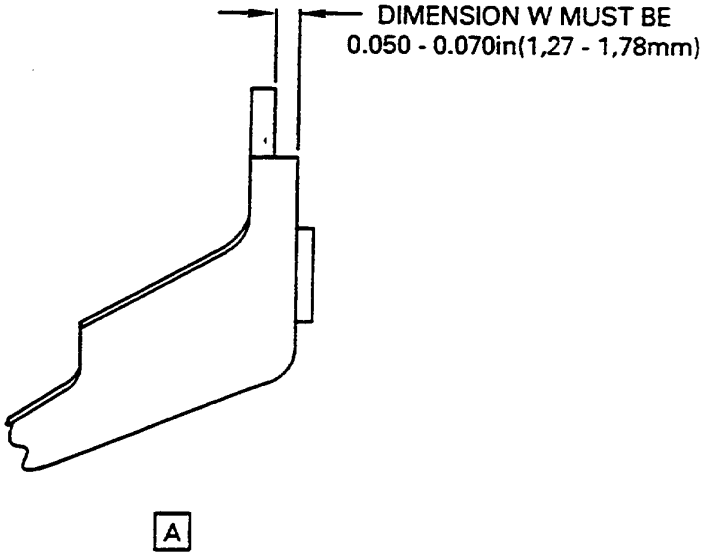
Installation of the fuel flow divider valve bracket assemblies
Fig.10 Sheet 1 of 2



Installation of the fuel flow divider valve bracket assemblies
Fig.10 Sheet 2 of 2



FUEL FLOW DIVIDER VALVE BRACKET ASSEMBLY
(2A2073 - 01)



B5441

Inspection of the rear fuel flow divider valve bracket assembly
Fig.11

3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None.

B. Parts affected by this Bulletin:

New Part No. (ATA No.)	Qty.	Est'd Unit Price ($)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
2A1938-01 (72-40-00)	1		Bracket - Loop Clamp, Assembly	2A0878 (01-140)	(S1) (A) (B)
2A1939 (72-40-00)	1		Bracket - Loop Clamp	2A0876 (01-080)	(S1) (A) (B)
- (72-40-00)			Bracket - Loop Clamp	2A0929 (01-160)	(B)
2A1963 (72-40-00)	1		Bracket - Loop Clamp	- (01-160)	(S1) (A)
2A1964 (72-40-00)	1		Bracket - Loop Clamp	- (01-161)	(S1) (A)
2A1952 (72-40-00)	1		Bracket - Loop Clamp, Assembly	2A0897 (01-170)	(S1) (A)
2A2529-01 (72-40-00)	1		Bracket - Loop Clamp, Assembly	- (01-194)	(S1) (A)
2A2537 (72-40-00)	1		Bracket, Loop Clamp	- (01-197)	(S1) (A)
2A2542-01 (72-40-00)	1		Bracket - Loop Clamp Assembly	- (01-435)	(S1) (A)
2A2546 (72-40-00)	1		Bracket, Loop Clamp	- (01-250)	(S1) (A)
4W0003 (72-41-00)	54		Nut Option Consisting of:	- (01-302)	(S1) (A) (C)
AS20626 or AS3066-11 or AS3067-11 or AS3068-11 or AS3069-11 or AS3070-11			.Nut .Nut .Nut .Nut .Nut	-	
- (72-41-00)	4		Bolt	AS21117 (01-314)	(S1) (B) (E)
AS21114	50		Bolt	-	(S1) (A)

(72-41-00)			(01-308)	(F)
-		Bolt Option	4W0102	(S1) (G)
(75-32-49)		Consisting of:	(15-557)	
		.Bolt	AS21407	
			or	
		.Bolt	MS9556-05	
4W0104	1	Bolt Option	-	(S1) (A)
(75-32-49)		Consisting of:	(15-557)	
AS21409		.Bolt		
or				
MS9556-07		.Bolt		
-		Bolt Option	4W0223	(S1) (B)
(73-13-43)		Consisting of:	(01-040)	
		.Bolt	AS21610	
			or	
		.Bolt	MS9558-06	
4W0228	2	Bolt Option	-	(S1) (A)
(73-13-43)		Consisting of:	(01-040)	
AS21615		.Bolt		
or				
MS9558-11		.Bolt		

For Engines that incorporate V2500-ENG-72-0078.

-		Bracket - Fuel Flow	2A1729-01	(B)
(72-41-00)		Divider Valve Assembly	(03-400)	
-	1	Nut Option	594412	(B)
(72-41-00)		Consisting of:	(03-415)	
-		.Nut-Self Locking,	594405	
		Plate	or	
-		.Nut-Self Locking,	594413	
		Plate	or	
-		.Nut-Self Locking,	594414	
		Plate,	or	
-	2	Rivet	AN123469	(B)
(72-41-00)			(03-420)	
-	2	Rivet	AN123487	(B)
(72-41-00)			(03-430)	
-	1	Nut Option	728665	(B)
(72-41-00)		Consisting of:	(03-425)	
-		Nut-Self Locking,	728666	
		Plate	or	
-		Nut-Self Locking,	728667	
		Plate	or	
-		Nut-Self Locking,	728679	
		Plate		
2A2535	1	Support - Fuel Flow	-	(S1) (A)
(73-13-43)		Divider Valve, Front	(01-042)	

For Engines that do not incorporate V2500-ENG-72-0078.

-		Bracket - Fuel Flow	2A1696-01	(B)
(72-41-00)		Divider Valve Assembly	(03-400)	
-	1	Nut Option	594412	(B)
(72-41-00)		Consisting of:	(03-415)	
-		.Nut-Self Locking, Plate	594405 or	
-		.Nut-Self Locking, Plate	594413 or	
-		.Nut-Self Locking, Plate,	594414	
-	2	Rivet	AN123469	(B)
(72-41-00)			(03-420)	
-	2	Rivet	AN123487	(B)
(72-41-00)			(03-430)	
-	1	Nut Option	728665	(B)
(72-41-00)		Consisting of:	(03-425)	
-		Nut-Self Locking, Plate,	728666 or	
-		Nut-Self Locking, Plate	728667 or	
-		Nut-Self Locking, Plate	728679 or	
2A2073-01	1	Bracket - Fuel Flow	2A1903-01	(S1) (A) (M)
(72-40-00)		Divider Valve Assembly	(01-260)	
2A2535	1	Support - Fuel Flow	-	(S1) (A)
(73-13-43)		Divider Valve, Front	(01-042)	

For each V2500 Engine to incorporate this Service Bulletin

ST1540-05		Clamp - Loop, Cushion	-	(S1) (A)
(73-11-41)	4		(01-365)	
	1		(02-360)	
4W0103		Bolt Option	-	(S1) (A)
(73-11-41)	8	Consisting of:	(01-380)	(H)
	2		(02-380)	(J)
AS21408		.Bolt		
or				
MS9556-06		.Bolt		
4W0001		Nut Option	-	(S1) (A)
(73-11-41)	9	Consisting of:	(01-420)	(K)
	2		(02-420)	(J)
AS20624		.Nut		
or				
AS3066-09		.Nut		
or				
AS3067-09		.Nut		
or				
AS3068-09		.Nut		
or				
AS3069-09		.Nut		

or				
AS3070-09		.Nut		
4W0001	1	Nut Option	4W0043	(S1) (A)
(75-32-49)		Consisting of:	(15-564)	
		See previous breakout		
-	20	Bolt	AS21011	(G) (L)
(75-00-49)			(01-102)	
AS21015	4	Bolt	-	(A)
(75-00-49)			(01-106)	

NOTE: Replace the discarded 16 MS122904 Loop Clamps with new MS122904 Clamps.

C. Instruction/Disposition Code Statements:

(S1) New Parts coded (S1) must replace old Parts coded (S1) in a COMPLETE SET per engine.
(A) New Part is currently available.
(B) Old Part will no longer be available.
(C) Quantity of Part No. increased from 53 to 54.
(E) Quantity of Part No. decreased from 5 to 4.
(F) Quantity of Part No. increased from 49 to 50.
(g) Old Part will continue to be available at other locations.
(H) Quantity of Part No. increased from 4 to 8.
(J) Quantity of Part No. increased from 1 to 2.
(K) Quantity of Part No. increased from 5 to 9.
(L) Quantity of Part No. decreased from 24 to 20.
(M) The new 2A2073-01 Rear Fuel Flow Divider Valve Bracket Assembly can be used only if it is in the limit specified by the inspection given in this Service Bulletin. The 2A2073-01 Rear Fuel Flow Divider Valve Brackets which are not in the limit specifed must have a tag put on the part with "RMR 12208" marked on the tag and sent to:

Pratt and Whitney
Customer Support Materials Control
Well 2
400 Main Street
East Hartford, Ct. 06108 USA

D. Expendable parts required to incorporate this Service Bulletin

Part No.	ATA/IPC No.	Qty	Keyword
MS9966-10	73-11-49-08-090	1	Packing, Preformed
AS43013-116	73-11-49-09-116	1	Ring
AS3209-010	73-11-41-01-010	6	Packing, Preformed
AS3209-010	73-11-41-02-001	6	Packing, Preformed
AS3209-010	73-11-41-03-001	8	Packing, Preformed
ST2229-07	73-11-41-01-040	3	Gasket Option
ST2229-07	73-11-41-01-040	3	Gasket Option
ST2229-07	73-11-41-01-040	4	Gasket Option

E. Consumable parts required to incorporate this Service Bulletin

CoMat 02-141 Lockwire
CoMat 10-031 Anti-galling Compound
CoMat 10-039 Lubricant (engine oil)
CoMat 10-041 White Petrolatum
CoMat 10-045 Leak Tec Fluid

NOTE: The estimated 1992 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Price Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.