International Aero Engines

SERVICE BULLETIN

AIR - INTRODUCTION OF ADDITIONAL ACC VALVE SUPPORTS AND NEW SLIDE TYPE HPT MANIFOLD JOINT (FOR CONTROLLED SERVICE USE) - NOT APPLICABLE - MOD.ENG-75-0024

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1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320

(2) Engine: Only those V2500-A1 Engines listed below:

Engine Serial - V0034, V0055, V0065 and V0104

B. Reason

To gain actual "In-Service" experience on following new ACC air valve support parts; additional two support linkages, improved valve rod support bracket and slide type HPT manifold joint. This configuration should prevent wear fretting on ACC system parts by reducing vibrations and operating load of ACC system.

C. Compliance

Category Code

Not applicable

This Service Bulletin is released for purposes of controlled service introduction.

D. Approval

The requirements specified in Paragraph F 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. Reference

(1) Internal Reference No.

EC90VJ005C

(2) Other References

A320 Aircraft Maintenance Manual

V2500 Standard Practices/Processes Manual

V2500 Engine Manual

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

V2500 Component Maintenance Manual

F. Action

(1) Open the Fan Cowls by the approved procedure in Reference (1), Chapter/Section 71-13-00, Maintenance Practices.

(2) Open the Thrust Reverser Halves by the approved procedure in Reference (1), Chapter/Section 78-32-00, Maintenance Practices.

WARNING: BE CAREFUL WHEN YOU WORK ON THE ENGINE COMPONENTS IMMEDIATELY AFTER THE ENGINE SHUTDOWN. THE ENGINE COMPONENTS CAN STAY HOT FOR UP TO ONE HOUR.

(3) Remove 5W2184, 5W2185, 5W2216, 5W2226, 5W2227, 5W2228 or 5W2229 HPT/LPT ACC Air Valve Assembly (75-24-51, 01-100) and superseded parts, refer to Figure 1.

(a) Disconnect 5W2060 Actuator Rod (75-24-51, 01-400) from the HPT/LPT ACC Air Valve.

(i) Remove MS24665-151 Cotter Pin (75-24-51, 01-110), MS9364-10 Nut (75-24-51, 01-115) and 5W2091 Bolt (75-24-51, 01-120). Discard the Cotter Pin.

(ii) Release the Actuator Rod from the HPT/LPT ACC Air Valve.

NOTE: Do not remove two bushes (75-24-51, 01-190) from the Actuator Rod.

(b) Remove MS24665-151 Cotter Pin (75-24-51, 01-136) and AN310C4 Nut (75-24-51, 01-140) which retain rod of the HPT/LPT ACC Air Valve and 5W8232 or 5W2096 Stator Rod (75-24-51, 01-485) to 5W1634 Crank (75-24-51, 01-155). Discard the Cotter Pin.

NOTE: Do not release the rod of HPT/LPT ACC Air Valve and Stator Rod from the Crank at this time.

CAUTION: HOLD THE HPT/LPT ACC AIR VALVE WHILE YOU REMOVE IT. THE VALVE WEIGHT COULD CAUSE DAMAGE OF ACC SYSTEM PARTS.

(c) Remove two 4W0002 Nuts (75-24-47, 01-320) and 4W0166 Bolts (75-24-47, 01-325) which retain LPT valve rear flange of the HPT/LPT ACC Air Valve to the 5W8456 or 5W2098 ACC Valve Bracket (75-24-47, 01-500) on FM flange.

(d) Release the Stator Rod and the rod of HPT/LPT ACC Air Valve from the Crank.

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CAUTION: BE CAREFUL WITH PARTS POSITIONED AROUND THE HPT/LPT ACC AIR VALVE TO PREVENT DAMAGE WHILE YOU DRAW OUT THE VALVE.

(e) Carefully draw out the HPT/LPT ACC Valve with 2A1428 ACC Rear Duct (75-24-47, 01-300) and 2A1412 ACC Spherical Joint (75-24-51, 01-275) from HP Turbine Cooling Manifold and LP Turbine Cooling Manifold.

(4) Remove ACC system parts from the HPT/LPT ACC Valve, refer to figure 2.

NOTE: If you remove 5W2216, 5W2226, 5W2227, 5W2228 or 5W2229 HPT/LPT ACC Air Valve Assembly (75-24-51, 01-100), following steps (b) to (d) are not required. Also assembly procedure (7),(d) to (7),(f) are not required.

(a) Remove 2A1412 ACC Spherical Joint (75-24-51, 01-275) from the HPT/LPT ACC Air Valve.

(i) Remove six 4W0164 Bolts (75-24-51, 01-290).

(b) Remove 2A1428 ACC Rear Duct (75-24-47, 01-300) from the HPT/LPT ACC Air Valve.

(i) Remove four 4W0002 Nuts (75-24-47, 01-310) and 4W0165 Bolts (75-24-47, 01-315).

(c) Remove 2A1481 Heat Shield (75-24-47, 01-190 from the HPT/LPT ACC Air Valve.

(i) Remove two 4W0001 Nuts (75-24-47, 01-110), two 4W0102 Bolts (75-24-47, 01-115), 5W1644 Clamp (75-24-47, 01-120) and 5W1635 Clamp (75-24-47, 01-125) which retain the Haet Shield to the rod of HPT/LPT ACC Air Valve.

(ii) Remove four 4W0001 Nuts (75-24-47, 01-200) and 4W0102 Bolts (75-24-47, 01-210) which retain the Heat Shield to the ACC Front Duct.

(d) Remove 2A0788 ACC Front Duct (75-24-47, 01-100) from the HPT/LPT ACC Air Valve.

(i) Remove 12 4W0002 Nuts (75-24-47, 01-135) and 4W0165 Bolts (75-24-47, 01-140).

(e) Remove 5W2059 Bush (75-024-51, 01-210) from the rod of HPT/LPT ACC Air Valve.

(f) Remove 5W2141 Rod Bracket (72-40-00, 01-790) and 5W1634 Crank (75-24-51, 01-155) from FK flange.

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(i) Remove two 4W0003 Nuts (72-40-00, 01-020) and 4W0649 Bolts (72-40-00, 01-050).

(5) Examine the parts before installation and record findings in the format in Figure 10 or equivalent.

Procedure	Supplemental information
(a) Visually examine HPT/LPT ACC valve actuator body for cracks	If body has any crack, remove HPT/LPT ACC Valve Actuator
(b) Visually examine HPT/LPT ACC air valve vanes for seal ring jamming and seal ring retaining pin for any damage	If seal ring jammed or seal ring retaining pin damaged, remove HPT/LPT ACC Air Valve
(c) Dimensionally examine joint section of HP turbine cooling manifold	Refer to figure 7 requirements. If the joint section of manifold shows wear more than .008in (0,2 mm), replace the manifold. Refer to Aircraft Maintenance Manual, 75-24-48, Removal/Installation.
(d) Visually examine all bearing balls for wear and peeling	If any of bearing balls has worn or peeled, remove the part. Refer to figure 8
(e) Visually examine all brackets and links supporting ACC Air Valve and Actuator for cracks	If any of brackets and link has cracked, remove the bracket and/or link. Refer to Figure 9

(6) Install new bracket to the FM flange, refer to Figure 3.

(a) Remove four 4W0003 Nuts (72-40-00, 05-040) and 4W0471 Bolts (72-40-00, 05-020) from the positions on FM flange which new brackets are to be installed.

(b) Install 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550) to the FM flange.

NOTE: Make sure that two 5W2059 Bushes (75-24-51, 02-130) have beforehand been installed to 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550).

(i) Lubricate threads of two 4W0471 Bolts (72-40-00, 05-020) with CoMat 10-039 Lubricant (Engine oil).

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(ii) Install 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550) to the FM flange with the Bolts and two 4W0003 Nuts (72-40-00, 05-040).

(iii) Torque the Nuts to 180 to 200 lbfin (20,34 to 22,59 Nm).

CAUTION: DO NOT EXCEED SHOWN TORQUE TIGHTENING VALUE WHEN YOU ALIGN THE SLOT OF AN310C4 NUT TO THE BOLT PIN HOLE. EXCEEDED TORQUE COULD LOSE MOVEMENT FROM MOBILE PARTS. IF YOU COULD NOT FIND ALIGNED POSITION WITHIN SHOWN TORQUE TIGHTENING VALUE, TURN THE NUT TO LOOSENING DIRECTION UNTIL NEXT ALIGNED POSITION.

(7) Prepare 5W2216, 5W2226, 5W2227, 5W2228 or 5W2229 HPT/LPT ACC Air Valve (75-24-51, 01-100) for installation, refer to Figures 4 and 5.

NOTE: IAE Service Bulletins No. V2500-ENG-75-0018 or No. V2500-ENG-75-0021, and No. V2500-ENG-72-0074 must be accomplished prior to or concurrently with this Service Bulletin.

CAUTION: BE CAREFUL WITH THE ACC SEAL TO PREVENT ANY SEAL DAMAGE.

(a) Assemble 2A1512 ACC Housing (75-24-51, 01-275), 2A1531 ACC Seal Retainer (75-24-51, 01-370), 2A1530 ACC Seal (75-24-51, 01-350) and 2A1514 Joint Heat Shield (75-24-51, 01-360), refer to Figure 4.

(i) Lubricate the threads of four 4W0103 Bolts (75-24-51, 01-375) with CoMat 10-039 Lubricant (Engine oil).

(ii) Assemble the ACC Housing, the ACC Seal, the ACC Seal Retainer and the Joint Heat Shield with the Bolts.

(iii) Torque the Bolts to 36 to 45 lbfin (4,0 to 5,0 Nm).

(b) Install 5W2239 ACC HPT Valve Link (75-24-51, 02-100) to 2A1512 ACC Housing (75-24-51, 01-275), refer to Figure 4.

(i) Install two 5W2059 Bushes (75-24-51, 02-160) to 2A1512 ACC Housing (75-24-51, 01-275). Put 5W2239 ACC HPT Valve Link (75-24-51, 02-100) to a position, the bearing ball of ACC HPT Valve Link lies between the Bushes. Make sure the Bushes in touch with faces of the bearing ball.

(ii) Install NAS6704DU12 Bolts (75-24-51, 02-150) and AN310C4 Nut (75-24-51, 02-145).

(iii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of Nut with the pin hole of Bolt.

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

(iv) Safety the Nut with two new MS24665-151 Cotter Pin (75-24-51, 02-140).

(c) Install 5W2235 ACC HPT Valve Link (75-24-51, 02-250) to 2A1512 ACC Housing (75-24-51, 01-275), refer to Figure 4.

NOTE: Make sure that two 5W2059 Bushes (75-24-51, 02-310) have beforehand been installed to 5W2235 ACC HPT Valve Link (75-24-51, 02-250).

(i) Install two 5W2059 bushes (75-24-51, 02-380) to 2A1512 ACC Housing (75-24-51, 01-275). Put 5W2235 ACC HPT Valve Link (75-24-51, 02-250) to a position, the bearing ball of ACC HPT Valve Link lies between the Bushes. Make sure the Bushes in touch with faces of the bearing ball.

(ii) Install NAS6704DU12 Bolt (75-24-51, 02-300) and AN310C4 Nut (75-24-51, 02-295).

(iii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of the Nut with the pin hole of the Bolt.

(iv) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 02-290).

(d) Install 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) to 5W2235 ACC HPT Valve Link (75-24-51, 02-250), refer to Figure 4.

(i) Put 5W2235 ACC HPT Valve link (75-24-51, 02-250) to a position, the bearing ball of 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) lies between the Bushes. Make sure the Bushes in touch with faces of the bearing ball.

(ii) Install NAS6704DU12 Bolt (75-24-51, 02-270) and AN310C4 Nut (75-24-51, 02-265).

(iii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of the Nut with the pin hole of the Bolt.

(iv) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 02-260).

(e) Install 2A0788 ACC Front Duct (75-24-47, 01-100) to the HPT/LPT ACC Air Valve.

(i) Lubricate threads of 12 4W0165 Bolts (75-24-47, 01-140) with CoMat 10-039 Lubricant (Engine Oil).

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(ii) Install the ACC Front Duct to the front side flanges of HPT/LPT ACC Air Valve with the Bolts and 12 4W0002 Nuts (75-24-47, 01-135).

(iii) Torque the Nuts to 85 to 105 lbfin (10,0 to 12,0 Nm).

(f) Install 2A1481 Heat Shield (75-24-47, 01-190) to the HPT/LPT ACC Air Valve.

(i) Lubricate threads of four 4W0102 Bolts (75-24-47, 01-210) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install the Heat shield to the ACC Front Duct with the Bolts and four 4W0001 Nuts, (75-24-47, 01-200) .

(iii) Torque the Nuts to 36 to 45 lbfin (4,0 to 5,0 Nm).

(iv) Lubricate threads of two 4W0102 Bolts (75-24-57, 01-115) with CoMat 10-039 Lubricant (Engine oil).

(v) Install the Heat Shield to the rod of HPT/LPT ACC Air Valve with the Bolts, 5W1644 Clamp (75-24-47, 01-120), 5W1635 Clamp (75-24-47, 01-125) and two 4W0001 Nuts (75-24-47, 01-110).

(vi) Torque the Nuts to 36 to 45 lbfin (4,0 to 5,0 Nm).

(g) Install 2A1428 ACC Rear Duct (75-24-47, 01-300) to the HPT/LPT ACC Air Valve.

(i) Lubricate threads of four 4W0165 Bolts (75-24-47, 01-315) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install the ACC Rear Duct to the LPT valve rear flange of HPT/LPT ACC Air Valve with the Bolts and four 4W0002 Nuts (75-24-47, 01-310).

(iii) Torque the Nuts to 85 to 105 lbfin (10,0 to 12,0 Nm).

(h) Install assembly of 2A1512 ACC Housing (75-24-51, 01-275), 2A1531 ACC Seal Retainer (75-24-51, 01-370), 2A1530 ACC Seal (75-24-51, 01-350), 2A1514 Joint Heat Shield (75-24-51, 01-360), 5W2235 ACC HPT Valve link (75-24-51, 02-250), 5W2239 ACC HPT Valve Link (75-24-51, 02-100) and 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) to the HPT/LPT ACC Air Valve.

(i) Lubricate threads of five 4W0162 Bolts (75-24-51, 01-290) with CoMat 10-039 Lubricant (Engine oil).

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

(ii) Install the assembly of ACC Housing, ACC Seal Retainer, ACC Seal, Joint Heat Shield, and ACC HPT Valve links to the HPT valve rear flange of HPT/LPT ACC Air Valve with the Bolts.

(iii) Torque the Bolts to 85 to 105 lbfin (10,0 to 12,0 Nm).

(i) Install two 5W2059 Bushes (75-24-51, 01-210) to the rod of HPT/LPT ACC Air Valve.

CAUTION: HOLD THE HPT/LPT ACC AIR VALVE WHILE YOU INSTALL IT. THE VALVE WEIGHT COULD CAUSE DAMAGE OF ACC SYSTEM PARTS.

CAUTION: BE CAREFUL WITH PARTS POSITIONED AROUND THE HPT/LPT ACC AIR VALVE TO PREVENT DAMAGE WHILE YOU INSTALL THE VALVE.

CAUTION: DO NOT EXCEED SHOWN TORQUE TIGHTENING VALUE WHEN YOU ALIGN THE SLOT OF AN310C4 NUT AND MS9364-10 NUT TO THE BOLT PIN HOLE. EXCEEDED TORQUE COULD LOSE MOVEMENT FROM MOBILE PARTS. IF YOU COULD NOT FIND ALIGNED POSITION WITHIN SHOWN TORQUE TIGHTENING VALUE, TURN THE NUT TO LOOSENING DIRECTION UNTIL NEXT ALIGNED POSITION.

(8) Install the HPT/LPT ACC Air Valve to the engine, refer to Figure 6.

(a) Extract the valve rod until HPT vane becomes full open position.

CAUTION: LOOK THE POSITION OF ACC SEAL FROM FRONT SIDE THROUGH THE VALVE BODY TO PREVENT DAMAGE OF THE SEAL WHILE YOU INSERT THE HPT/LPT ACC AIR VALVE TO THE HP TURBINE COOLING MANIFOLD.

CAUTION: BE CAREFUL WITH THE POSITIONS OF SEALS, ACC SEAL AND LPT MANIFOLD PERISEAL. TO PREVENT DAMAGE.

(b) Insert the HPT/LPT ACC Air Valve to the HP turbine cooling manifold and LP turbine cooling manifold. Move the position of the ACC Seal to connect the valve to the manifold if necessary.

(c) Install the LPT valve rear flange of HPT/LPT ACC Air Valve to 5W8456 or 5W2098 ACC Valve Bracket (75-24-47, 01-500) on FM flange.

(i) Lubricate threads of two 4W0166 Bolts (75-24-47, 01-325) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install the LPT valve rear flange of HPT/LPT ACC Valve to 5W8456 or 5W2098 ACC Valve Bracket (75-24-47, 01-500) on FM flange with the bolts and two 4W0002 Nuts (75-24-47, 01-320).

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(iii) Torque the Nuts to 85 to 105 lbfin (10,0 to 12,0 Nm).

(d) Install 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) to the FM flange, refer to figure 6.

(i) Lubricate threads of two 4W0471 Bolts (72-40-00, 05-020) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) to the FM flange with the Bolts and two 4W0003 Nuts (72-40-00, 05-040).

(iii) Torque the Nuts to 180 to 200 lbfin (20,34 to 22,59 Nm).

(e) Install 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) to the FK flange.

(i) Lubricate threads of two 4W0649 Bolts (72-40-00, 01-050) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) to the FK flange with the Bolts and two 4W0003 Nuts (72-40-00, 01-030).

(iii) Torque the Nuts to 180 to 220 lbfin (20,34 to 24,86 Nm).

(f) Install the rod of HPT/LPT ACC Air Valve and 5W8232 or 5W2096 Stator Rod (75-24-51, 01-485) to the 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) on FK flange.

(i) Install the rod of HPT/LPT ACC Air Valve and 5W8232 or 5W2096 Stator Rod (75-24-51, 01-485) to the 5W2242 ACC Rod Bracket (72-40-00, 01-790) on FK flange with NAS6704DU14 Bolt (75-24-51, 01-155) and AN310C4 Nut (75-24-51, 01-140).

(ii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of the Nut with the pin hole of the Bolt.

(iii) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 01-136).

(g) Install 5W2239 ACC HPT Valve Link (75-24-51, 02-100) installed to the HPT/LPT ACC Air Valve to 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550) on "FM" flange, refer to Figure 6.

NOTE: Make sure that two 5W2059 Bushes (75-24-51, 02-130) have beforehand been installed to 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550).

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

(i) Put 5W2239 ACC HPT Valve Link (75-24-51, 02-100) to a position, the bearing balls of ACC HPT Valve Link lies between the Bushes. Make sure the Bushes in touch with faces of the bearing ball.

(ii) Install NAS6704DU12 Bolt (75-24-51, 02-120) and AN310C4 Nut (75-24-51, 02-115).

(iii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of the Nut with the pin hole of the Bolt.

NOTE: Installed ACC HPT Valve Link must not interfere with adjacent external parts (Most close part is 5A9060 P4.9 Air Tube (73-22-49, 01-500).

(iv) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 02-110).

(h) Connect 5W2060 Actuator Rod (75-24-51, 01-400) to the HPT/LPT ACC Air Valve.

(i) Retract the valve rod to a position, the Actuator Rod can be connected.

(ii) Connect 5W2060 Actuator Rod (75-24-51, 01-400) to the valve rod of HPT/LPT ACC Air Valve with 5W2091 Bolt (75-24-51, 01-120) and MS9364-10 Nut (75-24-51, 01-115).

(iii) Torque the Nut to 22.5 to 30 lbfin (2,55 to 3,38 Nm) and align the slot of the Nut with the pin hole of the Bolt.

(iv) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 01-110).

(9) Close the Thrust Reverser Halves by the approved procedure in Reference (1), Chapter/Section 78-32-00, Maintenance Practices.

(10) Close the Fan Cowl by the approved procedure in Reference (1), Chapter/Section 71-13-00, Maintenance Practices.

(11) Remove the HPT/LPT ACC Air Valve and examine condition of the ACC system parts at each "2A Check" by following procedures (12) to (14).

WARNING: BE CAREFUL WHEN YOU WORK ON THE ENGINE COMPONENTS IMMEDIATELY AFTER THE ENGINE SHUTDOWN. THE ENGINE COMPONENTS CAN STAY HOT FOR UP TO ONE HOUR.

CAUTION: HOLD THE HPT/LPT ACC AIR VALVE WHILE YOU REMOVE IT. THE VALVE WEIGHT COULD CAUSE DAMAGE OF ACC SYSTEM PARTS.

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(12) Remove the HPT/LPT ACC Air Valve (75-24-51, 01-100) from the Engine.

(a) Disconnect the Actuator Rod (75-24-51, 01-400) from the HPT/LPT ACC Air Valve.

(i) Remove MS24665-151 Cotter Pin (75-24-51, 01-110). MS9364-10 Nut (75-24-51, 01-115) and 5W2091 Bolt (75-24-51, 01-120). Discard the Cotter pin.

NOTE: Do not remove two Bushes (75-24-51, 01-190) from the Actuator Rod.

(b) Release the Stator Rod (75-24-51, 01-485) and the Rod of HPT/LPT ACC Air Valve from the ACC Valve Rod Bracket (72-40-00, 01-790).

(i) Remove MS24665-151 Cotter Pin (75-24-51, 01-136), AN310C4 Nut (75-24-51, 01-140) and NAS6704DU14 Bolt (75-24-51, 01-155). Discard the Cotter Pin.

NOTE: Do not remove two Bushes (75-24-51, 01-210) from the rod of HPT/LPT ACC Air Valve.

(c) Remove 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) from FK flange.

(i) Remove two 4W0003 Nuts (72-40-00, 01-030) and 4W0649 Bolts (72-40-00, 01-050).

(d) Remove 5W2239 ACC HPT Valve Link (75-24-51, 02-100) from 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550) on FM flange.

(i) Remove MS24665-151 Cotter Pin (5-24-51, 02-110). AN310C4 Nut (75-24-51, 02-115) and NAS6704DU12 Bolt (75-24-51, 02-120). Discard the Cotter Pin.

NOTE: Do not remove two Bushes (75-24-51, 02-130) from the ACC HPT Valve Bracket.

(e) Remove the LPT valve rear flange of HPT/LPT ACC Air Valve from 5W8456 or 5W2098 ACC Valve Bracket (75-24-47, 01-500) on FK flange.

(i) Remove two 4W0002 Nuts (75-24-47, 01-320) and 4W0166 Bolts (75-24-47, 01-325).

(f) Remove 5W2237 ACC HPT Valve Bracket from FM flange.

(i) Remove two 4W0003 Nuts (72-40-00, 01-790) and 4W0471 Bolts (72-40-00, 05-020).

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

CAUTION: BE CAREFUL WITH PARTS POSITIONED AROUND THE HPT/LPT ACC AIR VALVE TO PREVENT DAMAGE WHILE YOU DRAW OUT THE VALVE.

(g) Carefully draw out the HPT/LPT ACC Air Valve (75-24-51, 01-100) with 2A1428 ACC Rear Duct and ACC Seal containing parts from HP Turbine Cooling Manifold and LP Turbine Cooling Manifold.

(13) Examine ACC system parts as following and record findings in the format in Figure 10 or equivalent:

NOTE: If any of parts introduced by this Service Bulletin has been rejected, return the ACC system to the Pre-Service Bulletin configuration and contact your IAE representative.

Procedure	Supplemental information
(a) Visually examine HPT/LPT ACC valve actuator body for cracks	If body has any crack, remove HPT/LPT ACC Valve Actuator
(b) Visually examine HPT/LPT ACC air valve vanes for seal ring jamming and seal ring retaining pin for any damage	If seal ring jammed or seal ring , retaining pin damaged, remove HPT/LPT ACC Air Valve
(c) Dimensionally examine joint section of HP turbine cooling manifold	Refer to figure 7 requirements
(d) Dimensionally examine inner diameter and Visually examine surface of ACC Seal	Refer to figure 7 requirements If Seal has any cut and/or any deformed portion, reject the ACC Seal
(e) Visually examine all bearings balls for wear and peeling	If any of bearing balls has worn or peeled, remove the part. Refer to figure 8
(f) Visually examine all brackets and links supporting ACC Air Valve and Actuator for cracks	If any of brackets and links has cracked, remove the bracket and/or link. Refer to Figure 9

(14) Install the HPT/LPYT ACC Air Valve to the engine.

(a) Extract the valve rod until HPT valve vane becomes full open position.

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CAUTION: LOOK THE POSITION OF ACC SEAL FROM FRONT SIDE THROUGH THE VALVE BODY TO PREVENT DAMAGE OF THE SEAL WHILE YOU INSERT THE HPT/LPT ACC AIR VALVE TO THE HP TURBINE COOLING MANIFOLD.

CAUTION: BE CAREFUL WITH THE POSITIONS OF SEALS, ACC SEAL AND LPT MANIFOLD PERISEAL, TO PREVENT DAMAGE.

(b) Insert the HPT/LPT ACC Air Valve to the HP turbine cooling manifold and LP turbine cooling manifold. Move the position of the ACC Seal to connect the valve to the manifold if necessary.

(c) Install the LPT valve rear flange of HPT/LPT ACC Air Valve to 5W8456 or 5W2098 ACC Valve Bracket (75-24-47, 01-500) on FM flange.

(i) Lubricate threads of two 4W0166 Bolts (75-24-47, 01-325) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install the LPT valve rear flange of HPT/LPT ACC Air Valve to 5W8456 or 5W2098 ACC Valve Bracket (75-24-47, 01-500) on FM flange with the bolts and two 4W0002 Nuts (75-024-47, 01-320).

(iii) Torque the Nuts to 85 to 105 lbfin (10,0 to 12,0 Nm).

(d) Install 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) to the FM flange.

(i) Lubricate threads of two 4W0471 Bolts (72-40-00, 05-020) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install 5W2237 ACC HPT Valve Bracket (72-40-00, 05-570) to the FM flange with the Bolts and two 4W0003 Nuts (72-40-00, 05-040).

(iii) Torque the Nuts to 180 to 200 lbfin (20,34 to 22,59 Nm).

(e) Install 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) to the FK flange.

(i) Lubricate threads of two 4W0649 Bolts (72-40-00, 01-050) with CoMat 10-039 Lubricant (Engine oil).

(ii) Install 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) to the FK flange with the Bolts and two 4W0003 Nuts (72-40-00, 01-030).

(iii) Torque the Nuts to 180 to 220 lbfin (20,34 to 24,86 Nm).

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

(f) Install the rod of HPT/LPT ACC Air Valve and 5W8232 or 5W2096 Stator Rod (75-24-51, 01-485) to the 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) on FK flange.

(i) Install the rod of HPT/LPT ACC Air Valve and 5W8232 or 5W2096 Stator Rod (75-24-51, 01-485) to the 5W2242 ACC Valve Rod Bracket (72-40-00, 01-790) on FK flange with NAS6704DU14 Bolt (75-24-51, 01-155) and AN310C4 Nut (75-24-51, 01-140).

(ii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of the Nut with the pin hole of the Bolt.

(iii) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 01-136).

(g) Install 5W2239 ACC HPT Valve Link (75-24-51, 02-100) installed to the HPT/LPT ACC Air Valve to 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550) on "FM" flange.

NOTE: Make sure that two 5W2059 Bushes (75-24-51, 02-130) have beforehand been installed to 5W2241 ACC HPT Valve Bracket (72-40-00, 05-550).

(i) Put 5W2239 ACC HPT Valve Link (75-24-51, 02-100) to a position, the bearing balls of ACC HPT Valve Link lies between the Bushes. Make sure the Bushes in touch with faces of the bearing ball.

(ii) Install NAS6704DU12 Bolt (75-24-51, 02-120) and AN310C4 Nut (75-24-51, 02-115).

(iii) Torque the Nut to 32.5 to 42.5 lbfin (3,67 to 4,80 Nm) and align the slot of the Nut with the pin hole of the bolt.

NOTE: Installed ACC HPT Valve Link must not interfere with adjacent external parts (Most close part is 5A9060 P4.9 Air Tube (73-22-49, 01-500)).

(iv) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 02-110).

(h) Connect 5W2060 Actuator Rod (75-24-51, 01-400) to the HPT/LPT ACC Air Valve.

(i) Retract the valve rod to a position, the Actuator Rod can be connected.

(ii) Connect 5W2060 Actuator Rod (75-24-51, 01-400) to the valve rod of HPT/LPT ACC Air Valve with 5W2091 Bolt (75-24-51, 01-120) and MS9364-10 Nut (75-24-51, 01-115).

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(iii) Torque the Nut to 22.5 to 30 lbfin (2,55 to 3,38 Nm) and align the slot of the Nut with the pin hole of the Bolt.

(iv) Safety the Nut with new MS24665-151 Cotter Pin (75-24-51, 01-110).

(15) At next shop visit of the engine do the following steps.

(a) Replace all parts introduced by this Bulletin with ordinary serviceable parts by the approved procedure in Reference (3).

(b) Send all removed parts together with parts time and cycle history to your IAE representative for return to International Aero Engines.

(c) Examine all ACC system parts other than in (a) by the approved procedure in Reference (3), Chapter/Section 72-40-00, inspection/check, and Reference (4), Chapter/Section 75-24-47, 75-24-48, 75-24-51 and 75-24-52, Inspection/Check.

NOTE: If any damage is detected on the parts examined in (c), please supply parts condition informations to your IAE representative.

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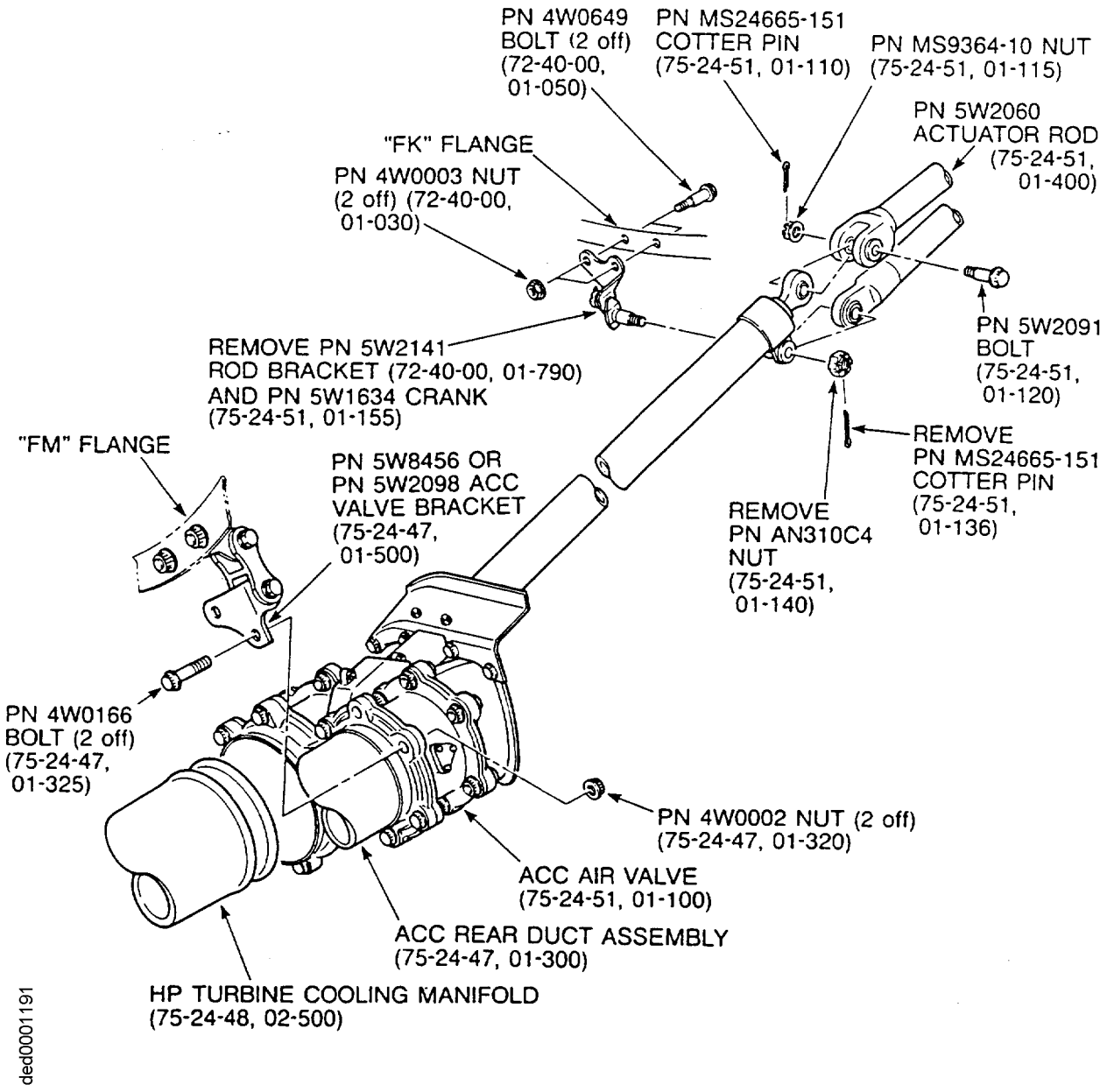

Removal of HPT/LPT ACC Air Valve
Fig.1

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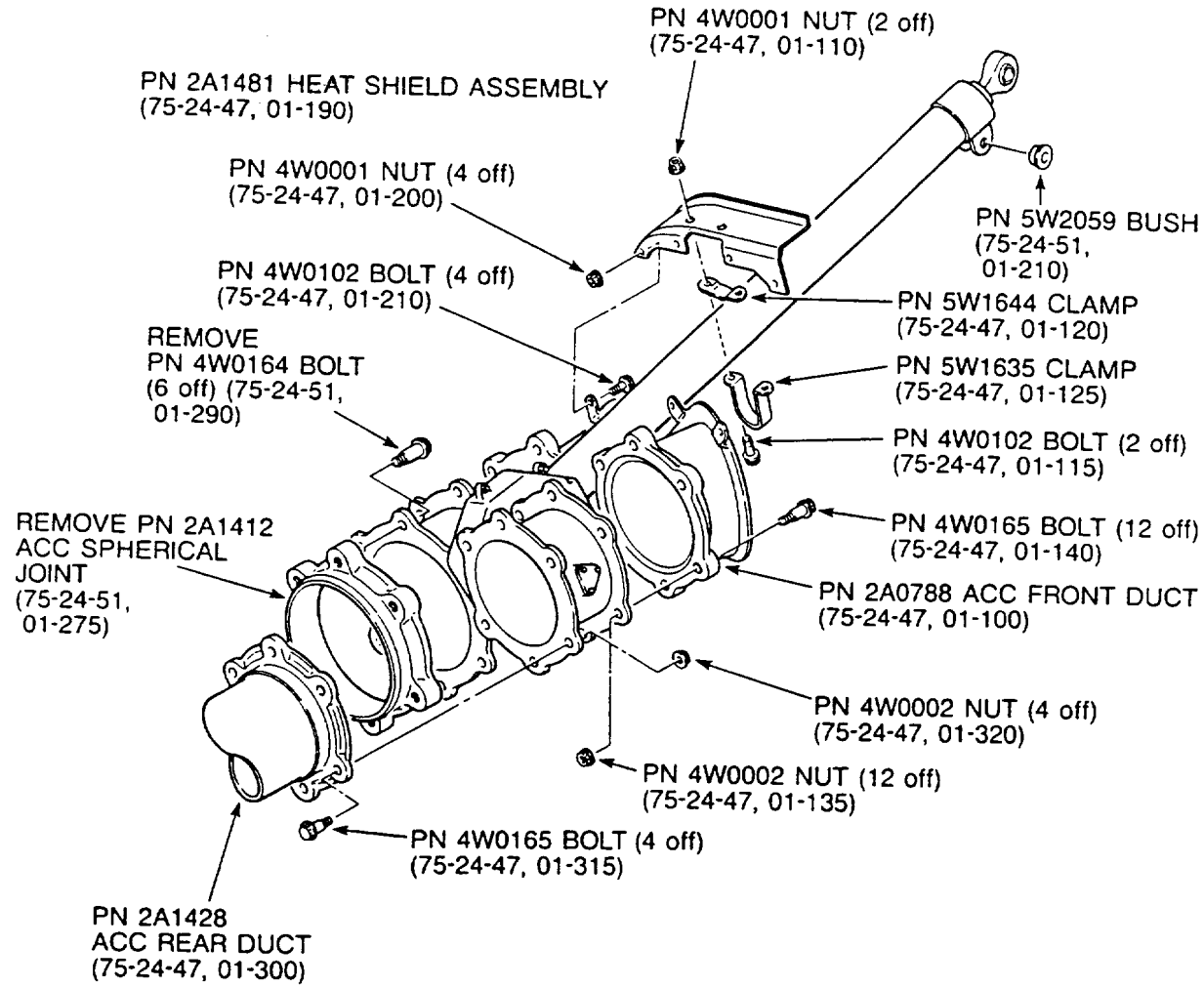

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Removal of ACC system parts from HPT/LPT ACC Air Valve
Fig.2

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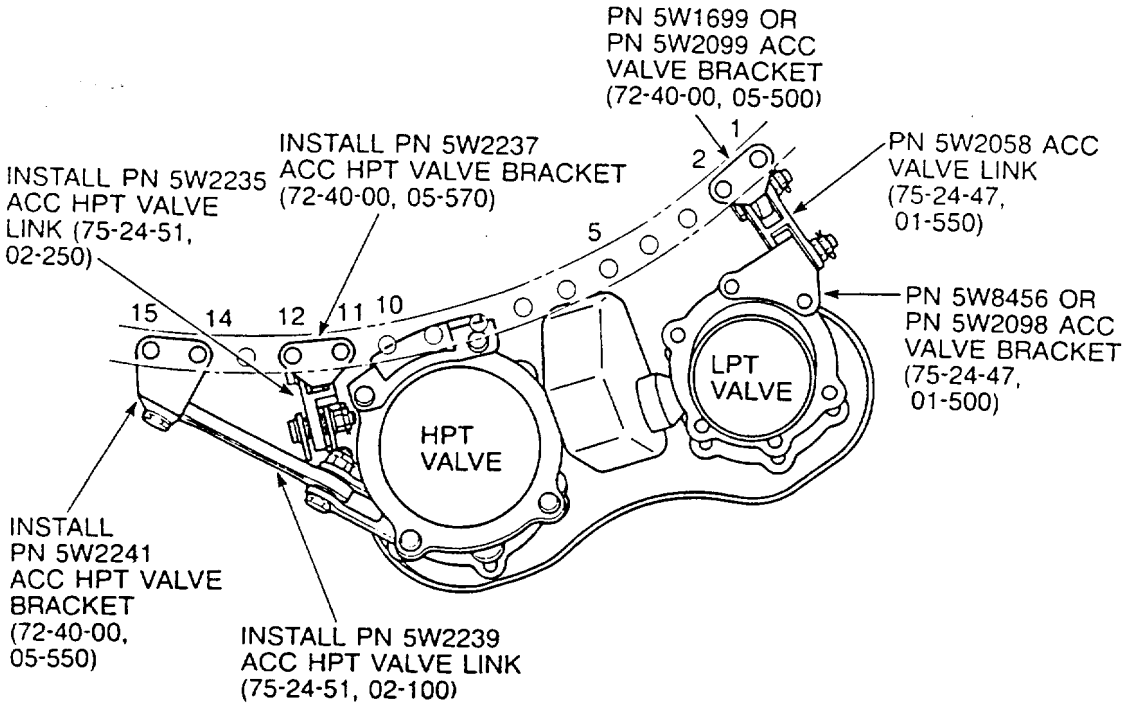

"FM" FLANGE VIEW FROM REAR OF THE ENGINE
(After Modification)
ALL BRACKETS ARE INSTALLED TO FRONT SIDE
OF THE FLANGE

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Installation location of new brackets
Fig.3

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

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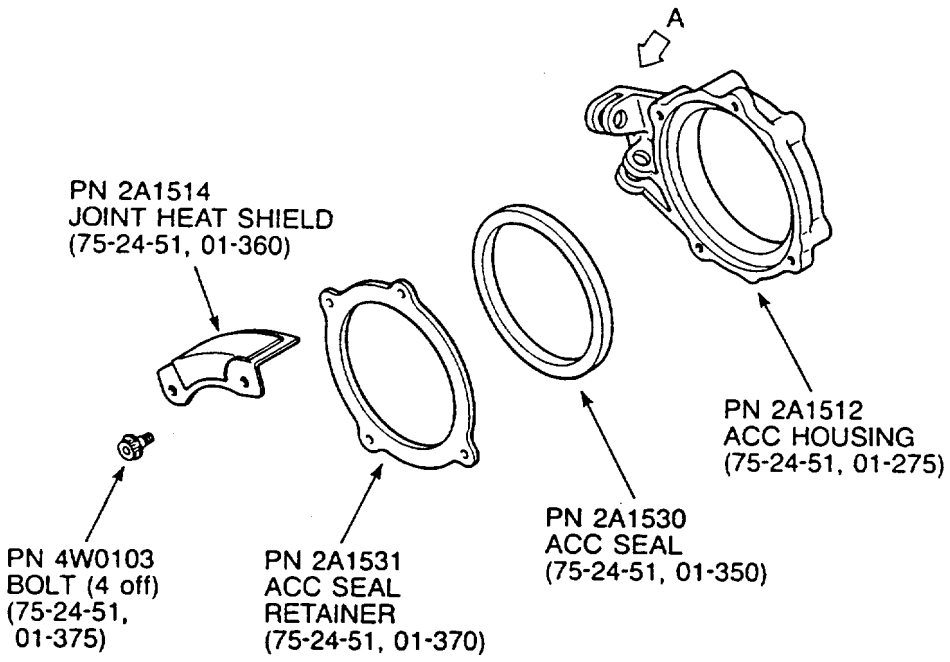
FOR THE ASSEMBLY OF LINKS AND BRACKET
REFER TO THE SHEET 2



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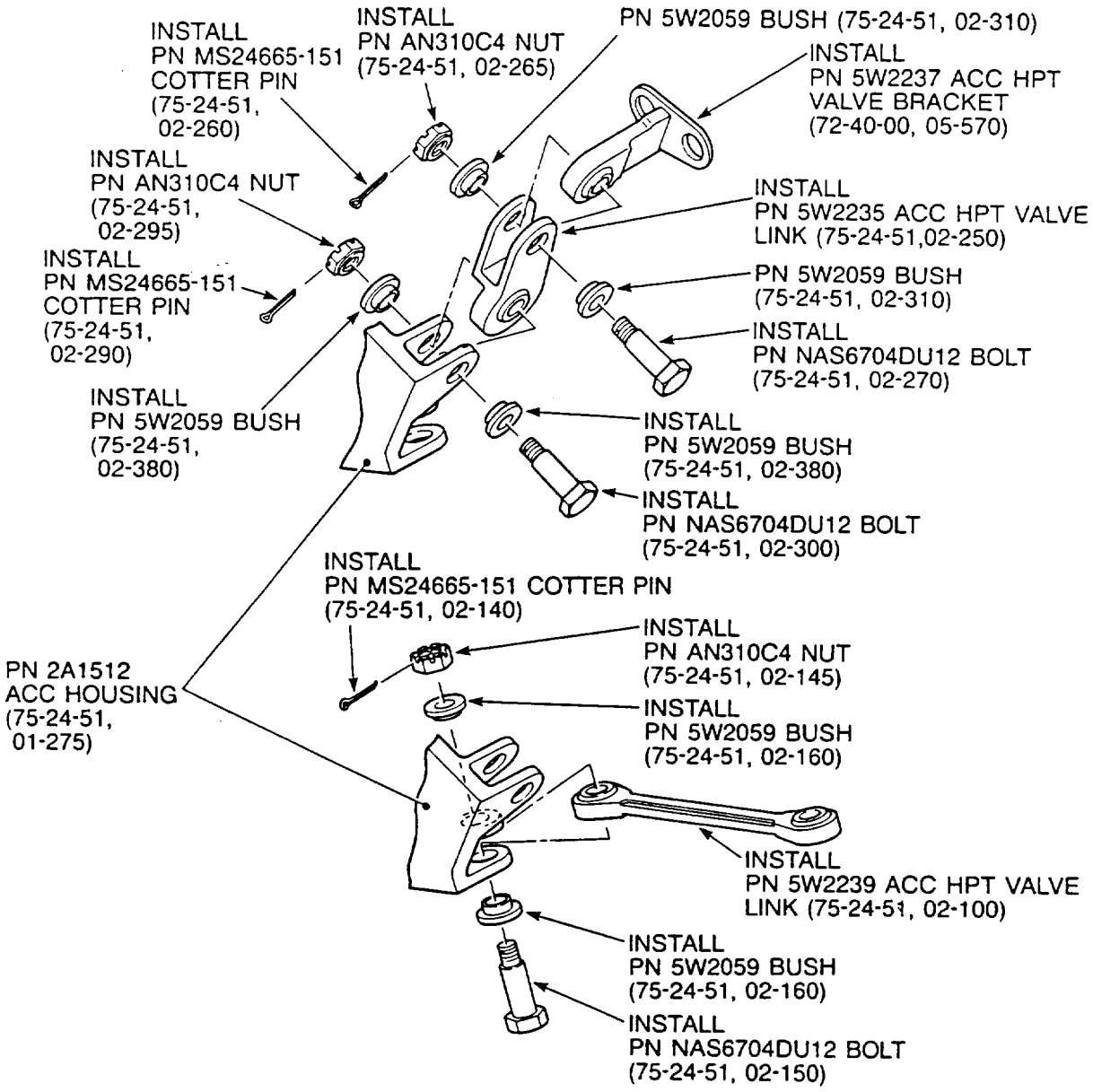
Assembly of new HPT manifold joint and support parts
Fig.4 (sheet 1 of 2)

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



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Assembly of new HPT manifold joint and support parts
Fig.4 (sheet 2 of 2)

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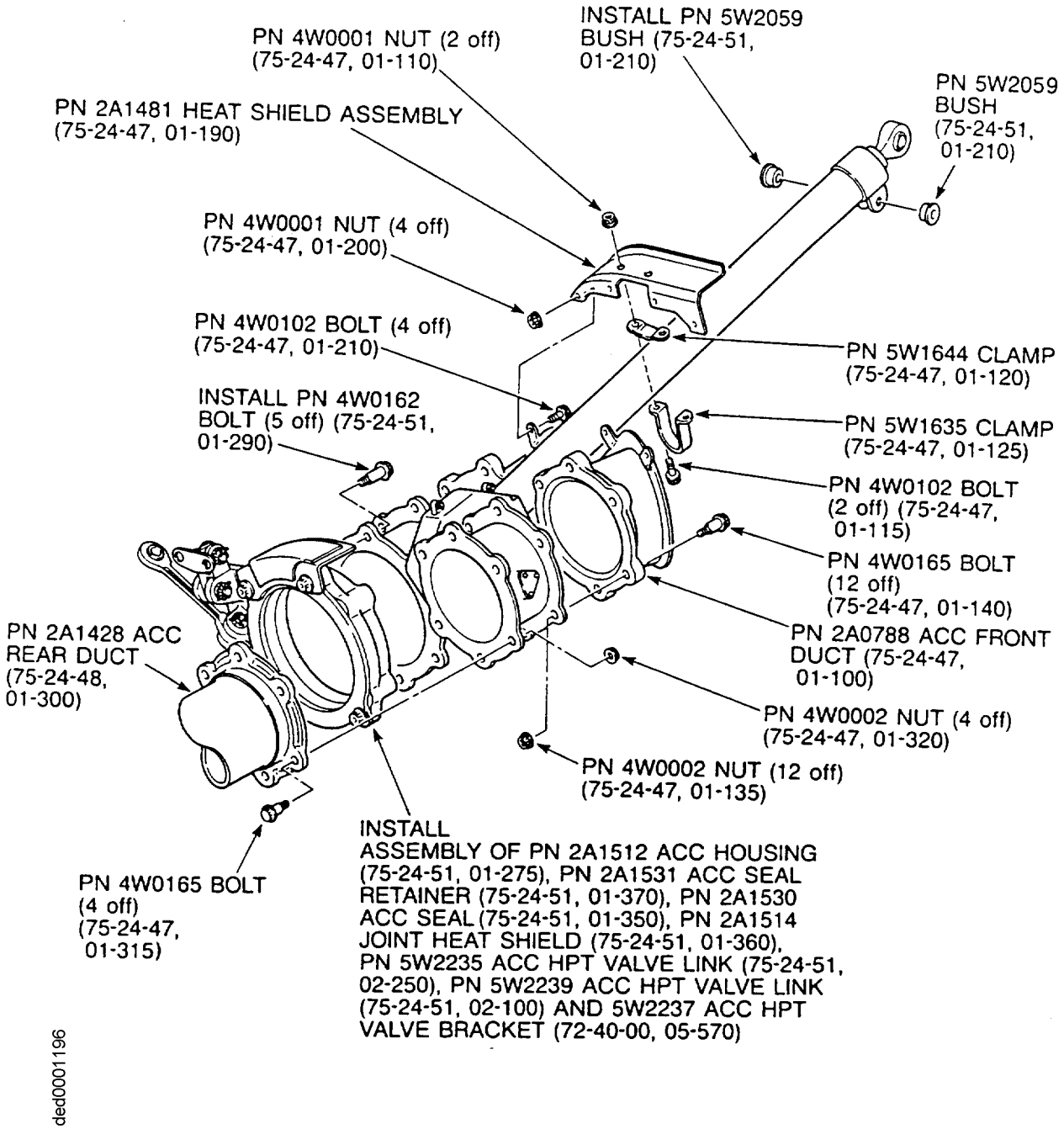
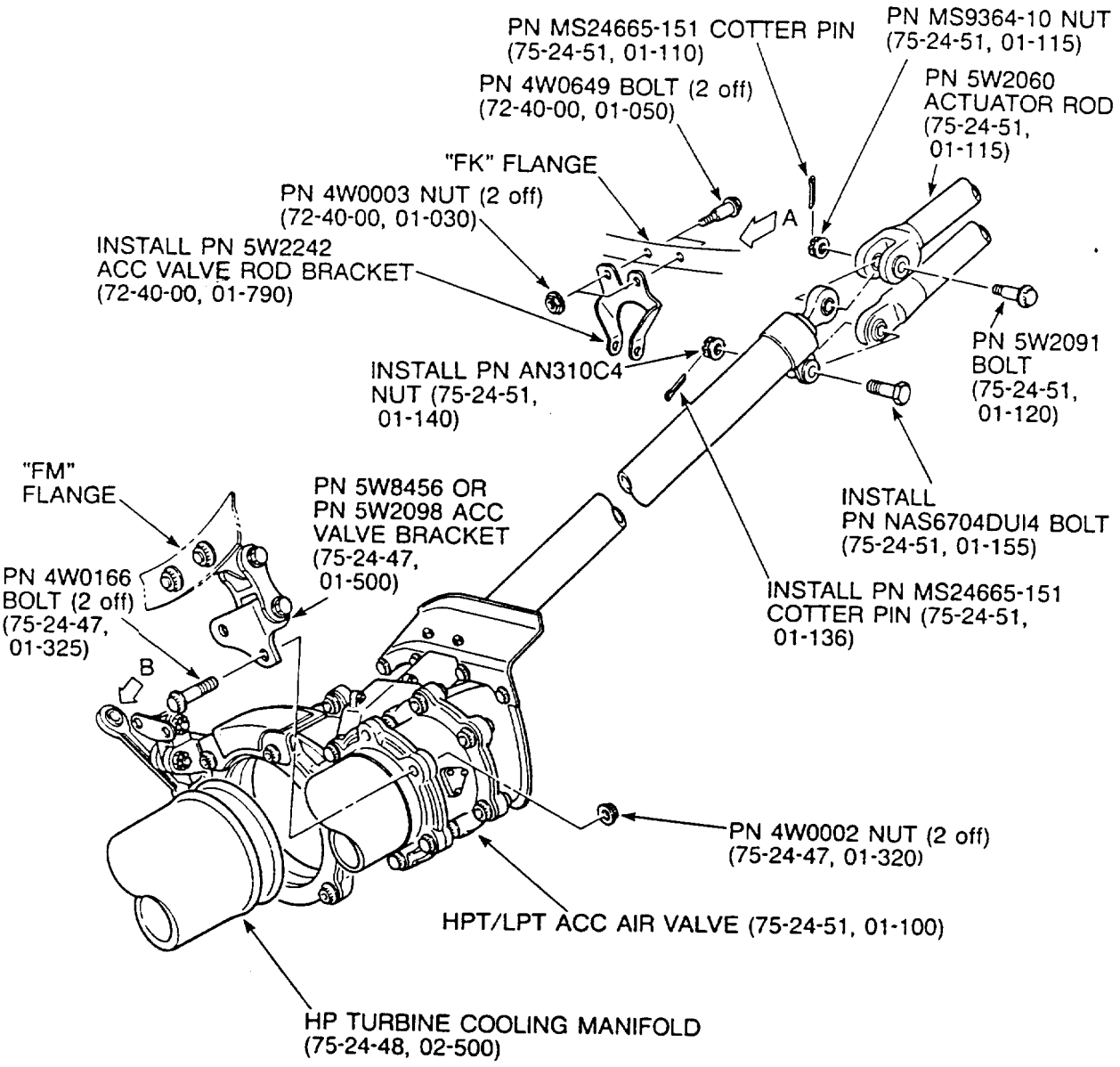


Installation of new ACC system parts to HPT/LPT ACC Air Valve
Fig.5

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



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Installation of HPT/LPT ACC Air Valve
Fig.6 (Sheet 1 of 2)

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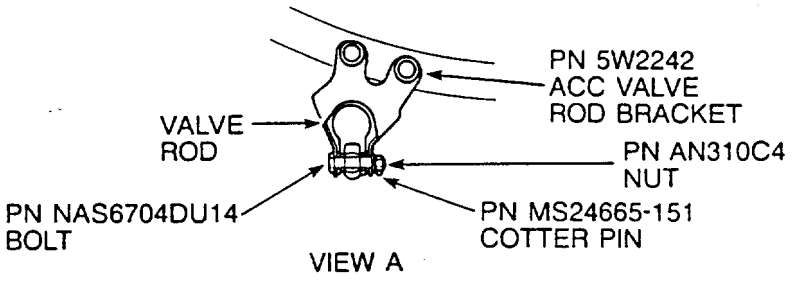
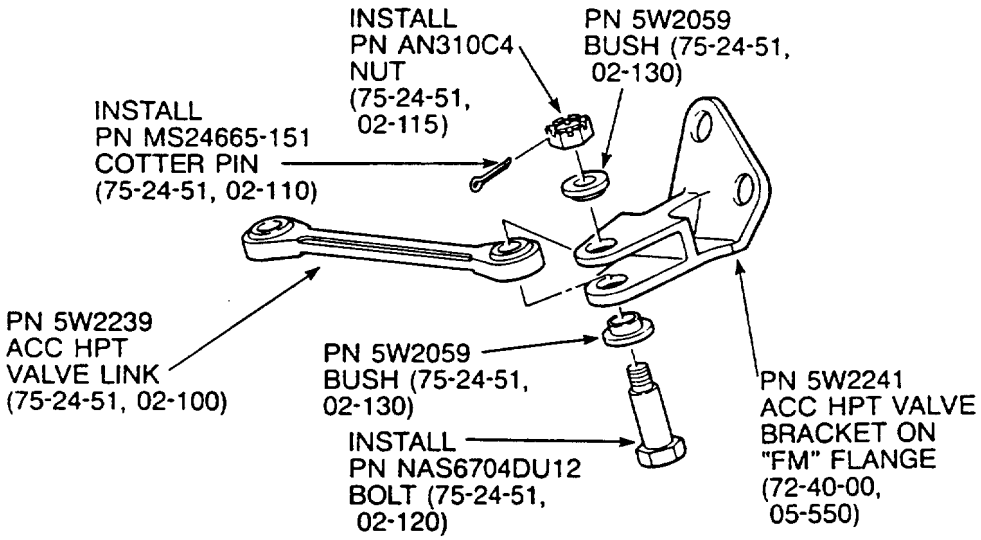


VIEW A



VIEW B

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Installation of HPT/LPT ACC Air Valve
Fig.6 (Sheet 2 of 2)

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

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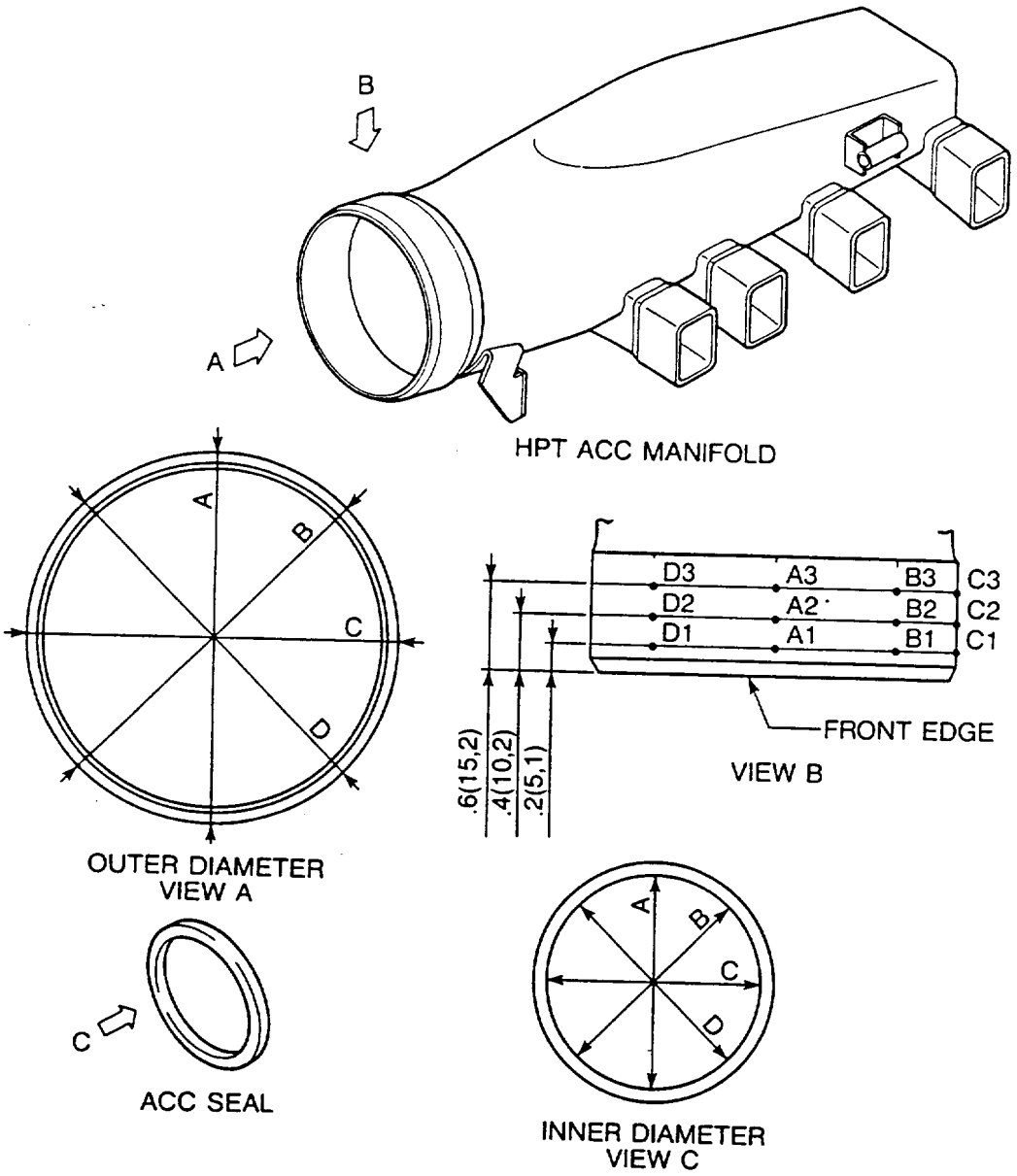

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Dimensional check of HPT manifold joint portion and ACC Seal
Fig.7

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

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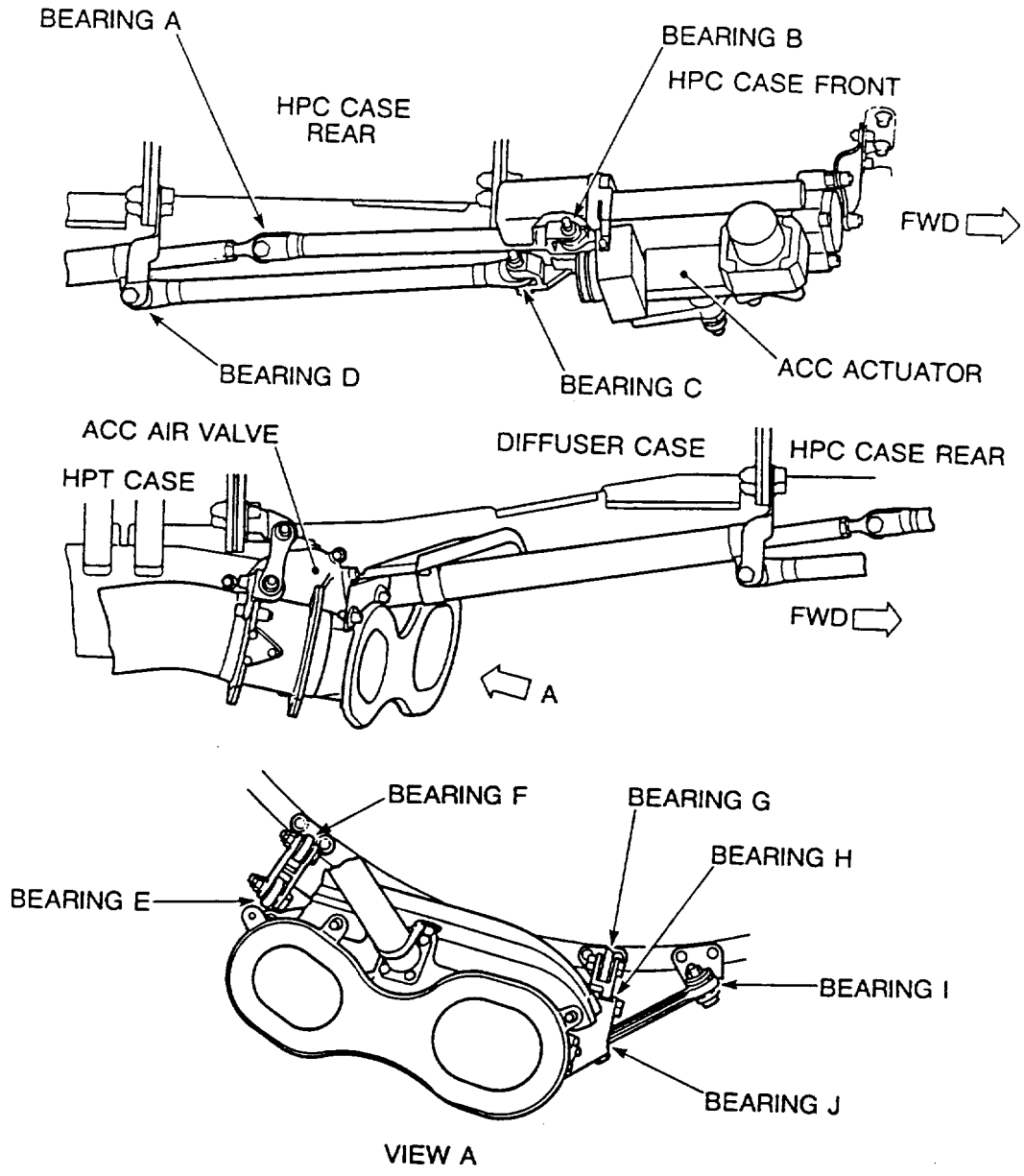

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Location of bearings
Fig.8

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

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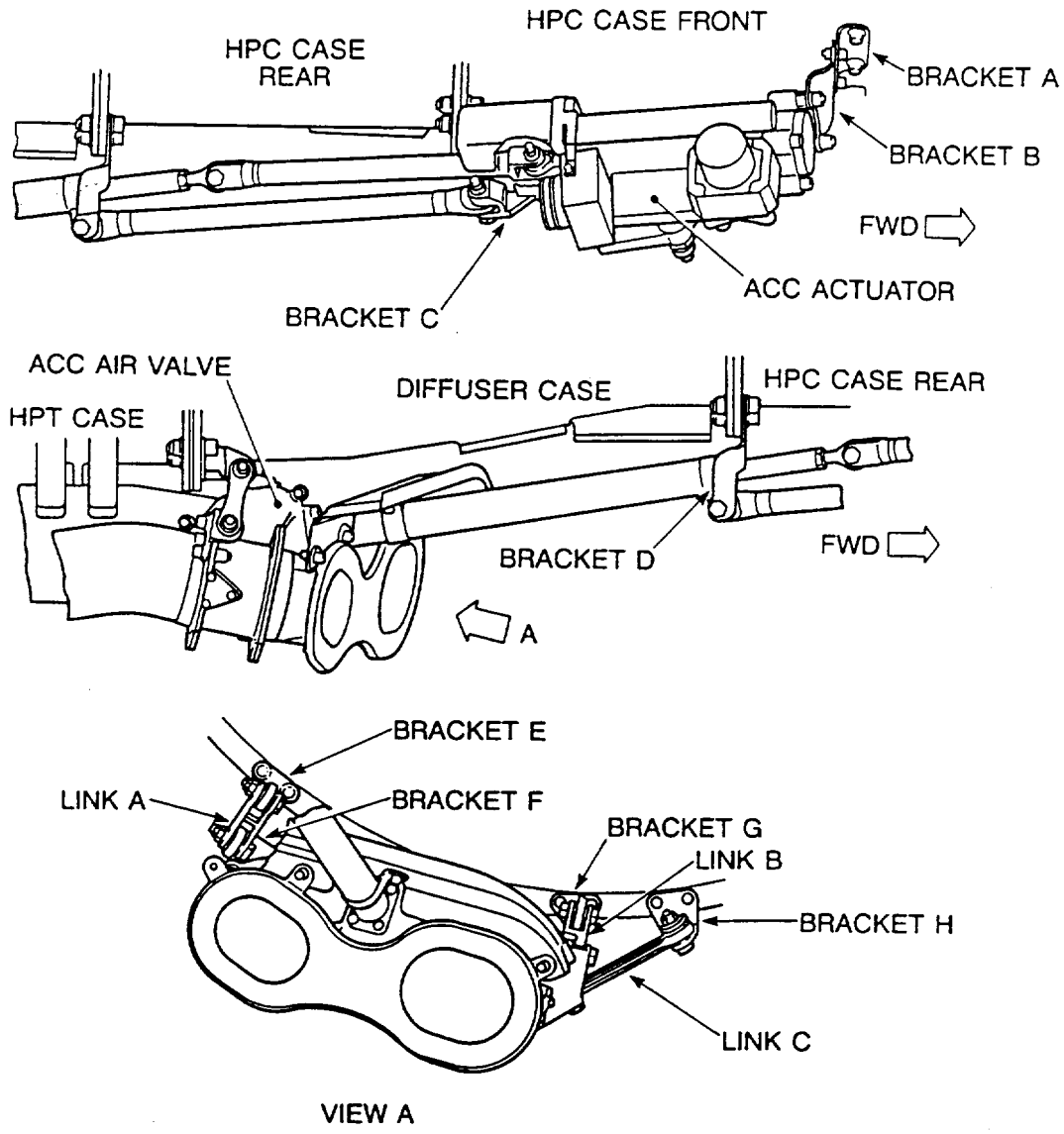

VIEW A

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Location of brackets and links
Fig.9

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

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EXAMINATION DATE : ___/___/199_ ENGINE SER. NO. : V____ A/C REG. NO. : _____
ENGINE POSITION : NO.__ ENGINE RUN TIME : _____ ENGINE RUN CYCLE : _____

POSITION TO BE EXAMINED	PHENOMENON	FINDINGS
ACC ACTUATOR BODY	CRACK	
HPT ACC VALVE VANE	JAMMING & PIN DAMAGE	
LPT ACC VALVE VANE	JAMMING & PIN DAMAGE	
HPT MANIFOLD JOINT O/D	DIMENSION A1	
	DIMENSION A2	
	DIMENSION A3	
	DIMENSION B1	
	DIMENSION B2	
	DIMENSION B3	
	DIMENSION C1	
	DIMENSION C2	
	DIMENSION C3	
	DIMENSION D1	
	DIMENSION D2	
	DIMENSION D3	
ACC SEAL SURFACE	CUT & DEFORMATION	
ACC SEAL I/D	DIMENSION A	
	DIMENSION B	
	DIMENSION C	
	DIMENSION D	
BEARING BALL A	WEAR & PEELING	
BEARING BALL B	WEAR & PEELING	
BEARING BALL C	WEAR & PEELING	
BEARING BALL D	WEAR & PEELING	
BEARING BALL E	WEAR & PEELING	
BEARING BALL F	WEAR & PEELING	
BEARING BALL G	WEAR & PEELING	
BEARING BALL H	WEAR & PEELING	
BEARING BALL I	WEAR & PEELING	
BEARING BALL J	WEAR & PEELING	
BRACKET A	CRACK	
BRACKET B	CRACK	
BRACKET C	CRACK	
BRACKET D	CRACK	
BRACKET E	CRACK	
BRACKET F	CRACK	
BRACKET G	CRACK	
BRACKET H	CRACK	
LINK A	CRACK	
LINK B	CRACK	
LINK C	CRACK	

ded0001202

Examination record table
Fig.10

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

2. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with the 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
5W2242 (72-40-00)	1		.Bracket, Rod Valve, ACC	5W2141 (01-790)	(S1)(1D)(A) (B)
5W2237 (72-40-00)	1		.Bracket, A/O Valve HPT, ACC	(05-570)	(S1)(A)
5W2241 (72-40-00)	1		.Bracket, Valve HPT, ACC	(05-550)	(S1)(A)
(75-24-51)	1		.Pin, Cotter	MS24665-151 (01-145)	(1D)(B)
(75-24-51)	1		.Nut, Castellated	AN310C4 (02-150)	(1D)(B)
NAS6704DU14 (75-24-51)	1		.Bolt, Reamer	5W1634 (01-155)	(S1)(1D)(A) (B)
(75-24-51)	1		.Bush	5W2087 (01-200)	(1D)(B)
5W2059 (75-24-51)	2	18.30	.Bush	5W2059 (01-210)	(S1)(2D)(A)
2A1512 (75-24-51)	1		.Housing, A/O ACC	2A1412 (01-275)	(S1)(1D)(A) (B)
4W0162 (75-24-51)	5	9.98	.Bolt	4W0164 (01-290)	(S1)(1D)(A) (B)
2A1530 (75-24-51)	1		.Seal, ACC	(01-350)	(S1)(A)
2A1514 (75-24-51)	1		.Shield, Heat A/O Joint	(01-360)	(S1)(A)

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2A1531	1		.Retainer, Seal ACC	(S1)(A)
(75-24-51)			(01-370)	
4W0103	4	10.60	.Bolt	(S1)(A)
(75-24-51)			(01-375)	
5W2235	1		.Link, A/O Valve HPT, ACC	(S1)(A)
(75-24-51)			(02-250)	
5W2239	1		.Link, A/O Valve HPT, ACC	(S1)(A)
(75-24-51)			(02-100)	
MS24665-151	1	.19	.Pin, Cotter	(S1)(A)
(75-24-51)			(02-110)	
AN310C4	1	.63	.Nut, Catellated	(S1)(A)
(75-24-51)			(02-115)	
NAS6704DU12	1	8.32	.Bolt, Reamer	(S1)(A)
(75-24-51)			(02-120)	
5W2059	2	18.30	.Bush	(S1)(A)
(75-24-51)			(02-130)	
MS24665-151	1	.19	.Pin, Cotter	(S1)(A)
(75-24-51)			(02-140)	
AN310C4	1	.63	.Nut, Castellated	(S1)(A)
(75-24-51)			(02-145)	
NAS6704DU12	1	8.32	.Bolt, Reamer	(S1)(A)
(75-24-51)			(02-150)	
5W2059	2	18.30	.Bush	(S1)(A)
(75-24-51)			(02-160)	
MS24665-151	1	.19	.Pin, Cotter	(S1)(A)
(75-24-51)			(02-260)	
AN310C4	1	.63	.Nut, Castellated	(S1)(A)
(75-24-51)			(02-265)	
NAS6704DU12	1	8.32	.Bolt, Reamer	(S1)(A)
(75-24-51)			(02-270)	
MS24665-151	1	.19	.Pin, Cotter	(S1)(A)
(75-24-51)			(02-290)	
AN310C4	1	.63	.Nut, Castellated	(S1)(A)
(75-24-51)			(02-295)	

Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

NAS6704DU12	1	8.32	.Bolt, Reamer		(S1)(A)
(75-24-51)				(02-300)	
5W2059	2	18.30	.Bush		(S1)(A)
(75-24-51)				(02-310)	
5W2059	2	18.30	.Bush		(S1)(A)
(75-24-51)				(02-380)	

C. Instruction/Disposition Code Statements

(A) Obtain the new part from the IAE representative.
(B) Old part will continue to be available.
(S1) New parts must be fited as a COMPLETE SET per engine. Mixing of old and new parts is not permissible.
(1D) Old part is still usable.
(2D) Quanity of Part No. increased.

D. Expendable Parts required to incorporate this bulletin (for initial installation)

MS24665-151	6	Pin, Cotter

NOTE: The quantity is including additional four Cotter pins introduced by this Bulletin.

E. Consumables required to incorporate this bulletin

Co-Mat 10-077 Lubricant (Engine oil)

NOTE: The estiomated 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 Part Sales Department for information concerning firm prices.

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