International Aero Engines

SERVICE BULLETIN

# ENGINE - LP COMPRESSOR - PROVIDE A NEW FAN CASE ASSEMBLY THAT ELIMINATES THE PROVISIONS FOR A TRANSITION RING - CATEGORY CODE 7 - MOD.ENG-72-0160



## 1. Planning Information

### A. Effectivity

(1) Aircraft: Airbus A321

(2) Engine: (a) V2527 - A5 Engines prior to serial number V10010
(b) V2530 - A5 Engines prior to serial number V10010

### B. Concurrent Requirements:

None

### C. Reason

(1) Condition

Current A5 Fan Case has the spigot feature at flexible ring for the purpose of supporting transition ring which was being axially compressed by intake rear end.

(2) Background

The spigot feature is not necessary in current configuration.

(3) Objective

(a) To reduce the weight of the Fan Case Assembly.

(b) To provide a Fan Case Assembly capable of accepting related future design changes.

(c) To reroute the PMA Cooling Air Tubes.

(4) Substantiation

Substantiation is completed analytically.

(5) Effects of Bulletin on Workshop Procedures:

| | |
|---|---|
| Removal/Installation | Affected (See supplemental information) |
| Disassembly/Assembly | Affected (See supplemental information) |
| Cleaning | Not affected |
| Inspection/Check | Not affected |
| Repair | Not affected |
| Testing | Not affected |

(6) Supplemental Information

(a) The Disassembly/Assembly procedures will be revised to add the new configuration of this Service Bulletin.

(b) The Removal/Installation procedures will be revised to add the new configuration of this Service Bulletin.

D. Description

(1) The spigot feature at front portion is eliminated. Refer to Figure 1.

(2) Scallops are changed and holes are added on FB and FC flanges in the Fan Case Assembly. Refer to Figure 2.

(3) PMA Cooling Air Tubes are rerouted to the new Intermediate Case Module. Refer to Figures 3 and 4.

(4) The module part number of the Intermediate Case was changed from 5W0130 to 5W0150.

E. Approval

The Part Number Changes and 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.

F. Compliance

Category Code 7

Accomplish when supply of superseded parts has been depleted.

G. Manpower

| Venue | Estimated Manhours |
|---|---|
| (1) In Service | Not applicable |
| (2) At Overhaul | Not applicable |

NOTE: No additional time will be required to maintain the new configuration.

H. Material - Price and Availability

(1) Modification Kit not required

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

I. Tooling

Special tools are not required to accomplish this Service Bulletin.

J. Weight and Balance

| | | |
|---|---|---|
| (1) | Weight Change | Minus 2.0 lb (0,91 kg) |
| (2) | Moment Arm | No effect |
| (3) | Datum | Engine front mount centerline (Power Plant Station (P.P.S.) 100) |

K. Electrical Load Data

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

L. Reference

(1) Internal Reference No.

92VJ042

92VJ105

93VR029

(2) Other References

V2500 Engine Illustrated Parts Catalog

V2500 Engine Manual

V2500 Standard Practises/Processes Manual

M. Other Publications Affected

(1) V2500 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 71-51-41, 72-32-00, 72-32-85, 73-11-47 and 75-22-49 will be revised to incorporate the new part.

(2) V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-00-32 and 72-32-00 will be revised to incorporate the new part.

2. Accomplishment Instructions

A. Rework Instructions

There are no rework instructions necessary to accomplish this Service Bulletin.

B. Assembly Instructions

(1) Assemble the 5W0149 Fan Case Assembly by the approved procedures. Refer to 1.L. (2), TASK 72-32-00-430-000.

(2) Install the brackets (75-22-49, 15-085, 15-090, 15-095 and 16-070). See figures 5 to 7.

To make sure Lubricate all threads and abutment faces of nuts and bolts with CoMat 10-077 approved engine oil.

(a) Install the bracket (75-22-49, 15-085, P/N 6A5669) with bracket (71-51-42, 05-830) at the holes 50 and 51 of flange FC with the two bolts and two nuts as figure 5 on Detail C. TORQUE the nuts to between 85 and 105 lbfin (10 and 12 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(b) Install the bracket (75-22-49, 15-090, P/N 6A5670) with bracket (71-51-42, 05-280) at the holes 56 and 57 of flange FC with the two bolts and two nuts as figure 6 on Detail D. TORQUE the nuts to between 85 and 105 lbfin (10 and 12 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(c) Install the bracket (75-22-49, 15-095, P/N 6A5671) with bracket (71-51-43, 05-985) at the holes 130 and 131 of flange FC with the two bolts and two nuts as figure 7 on Detail E. TORQUE the nuts to between 85 and 105 lbfin (10 and 12 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(d) Install the bracket (75-22-49, 16-070, P/N 6A5671) with bracket (71-51-43, 05-970) at the holes 123 and 125 of flange FC with the three bolts and three nuts as figure 7 on Detail F. TORQUE the nuts to between 85 and 105 lbfin (10 and 12 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(3) Install the PMA Cooling Air Tubes (75-22-49, 15-100, 16-100 and 16-500). See Figures 3, 4 and 8 to 10. Lubricate all threads and abutment faces of nuts and bolts with CoMat 10-077 approved engine oil

(a) Install the 6A5386 tube to the fan exit pressure boss (72-32-00, 02-100). Hand tighten the tube nut.

(b) Install the clips, the bolts, the washers and the nuts at the clip positions 1114, 1115, 1179, 1180 and 1181. TORQUE the bolts to between 36 and 45 lbfin (4 and 5 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(c) TORQUE the 6A5386 tube nut at the fan exit pressure boss to between 230 and 248 lbfin (26 and 28 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(d) Connect the 6A5387 tube to the 6A5386 tube. Hand tighten the tube nut.

(e) Install the clips, the bolts, the washers, the spacers and the nuts at the clip positions 0851, 0853, 1122 and 1182. TORQUE the bolts to between 36 and 45 lbfin (4 and 5 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(f) TORQUE the 6A5386 tube nut at the 6A5387 tube to between 283 and 310 lbfin (32 and 35 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(g) Connect the 6A5388 tube to the 6A5387 tube and to the dedicated alternator stator (73-22-38, 01-100). Hand tighten the both end of tube nuts.

(h) Install the clips, the bolts, the washers, the spacers and the nuts at the clip positions 0779, 0845, 0847 and 0849. TORQUE the bolts to between 36 and 45 lbfin (4 and 5 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(i) TORQUE the 6A5387 tube nut at the dedicated alternator stator to between 283 and 310 lbfin (32 and 35 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

(j) TORQUE the 6A5388 tube nut at the dedicated alternator stator to between 283 and 310 lbfin (32 and 35 Nm). Refer to 1.L. (3), TASK 70-41-00-400-501.

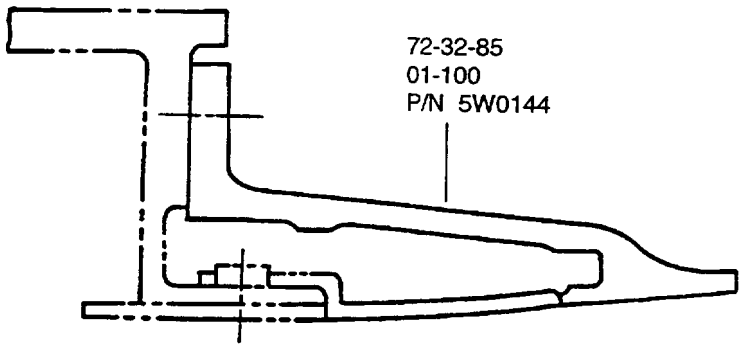
(k) Safety all the tube nuts installed in this procedures with CoMat 02-126 lockwire by the approved procedures in the reference 1.L. (3), TASL 70-42-05-400-501.

| Procedure | Supplementary Information |
|---|---|
| (4) Replace the Module Identification Plate in accordance with following procedures | See Figure 11 |

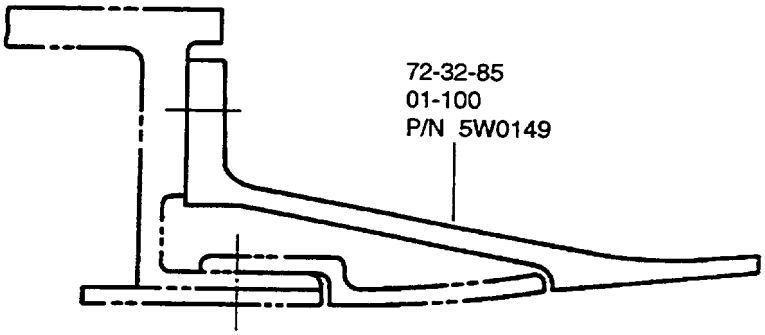
| | | |
|---|---|---|
| (a) Find the existing 5A2189, module identification plate on the LP Compressor/Intermediate Module and make sure that module assembly number is 5W0130. | | |
| (b) Remove the two bolts and existing module identification plate. | | |
| (c) Discard the existing module identification plate. | | |
| (d) Make a mark of the new module assembly part number 5W0150, and existing serial number to the new 5A2189, module identification plate. | New P/N 5W0150 | Existing P/N 5W0130<br><br>Refer to 1.L. (3), Chapter/Section 70-09-00, Marking of Parts |
| (e) Install the marked new module identification plate with the two 4W0102, Bolts into sufficient position | | |
| (f) TORQUE the bolts. | | Between 36 and 45 lbfin (4,0 and 5,0 Nm)<br>Use CoMat 10-077 approved engine oil |

D. Recording Instructions

(1) A record of accomplishment is necessary.



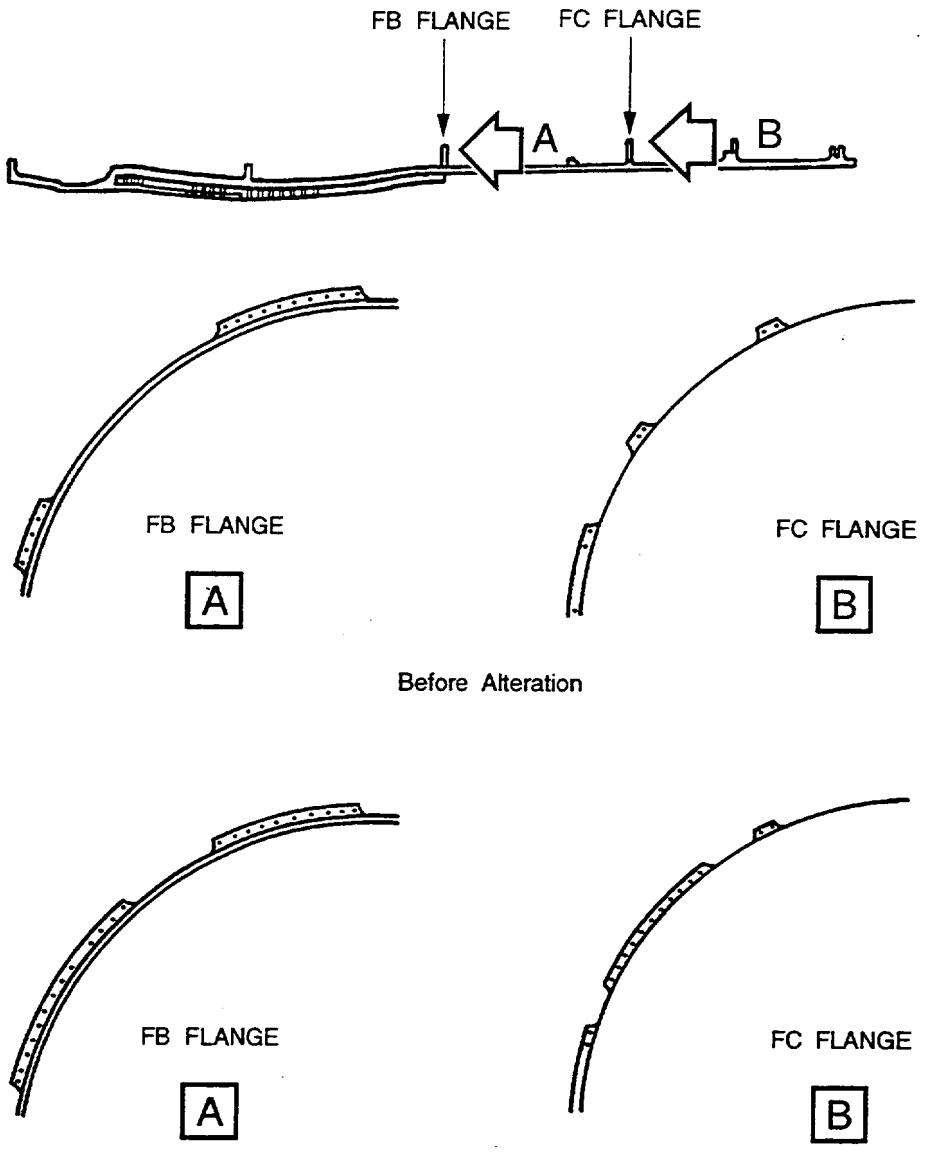

Before Alteration




After Alteration

ded0000731

Before and after the alteration of the Fan Case Assembly
Fig.1

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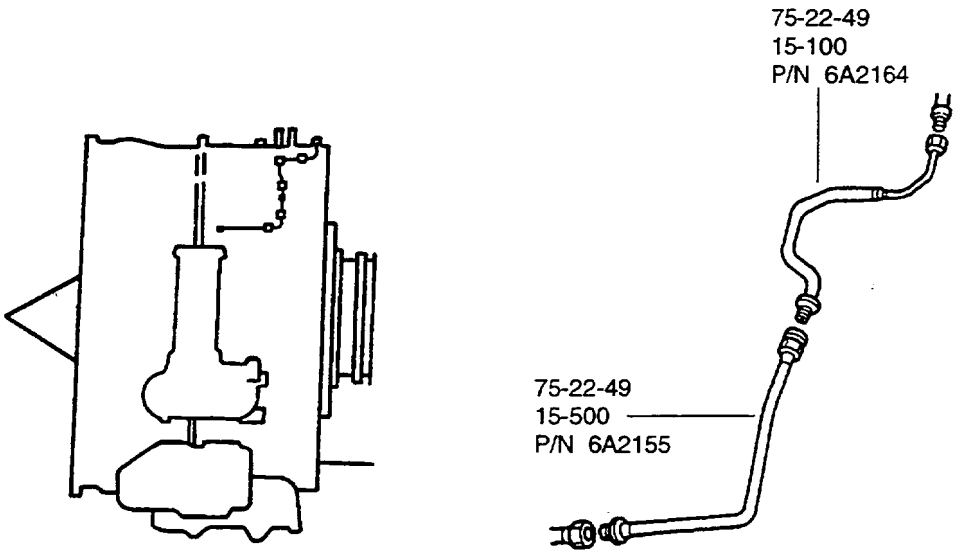
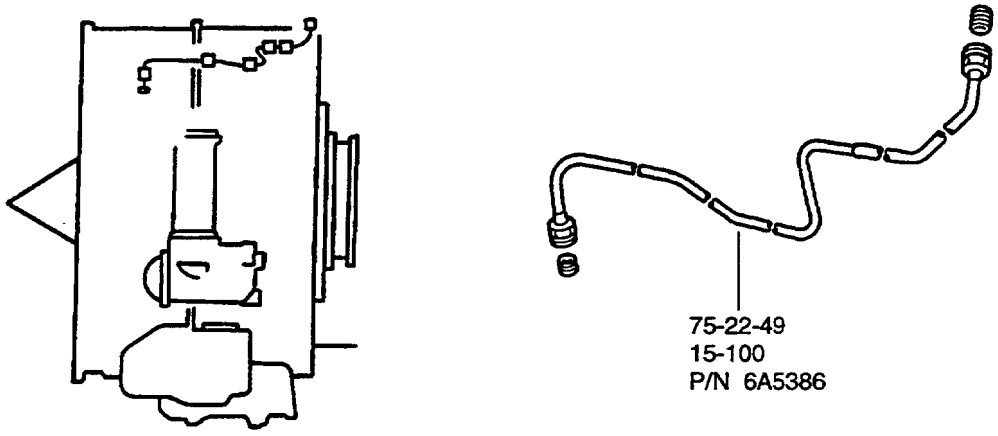
Before and after the alteration of the Fan Case Assembly
Fig.2




Before Alteration




After Alteration

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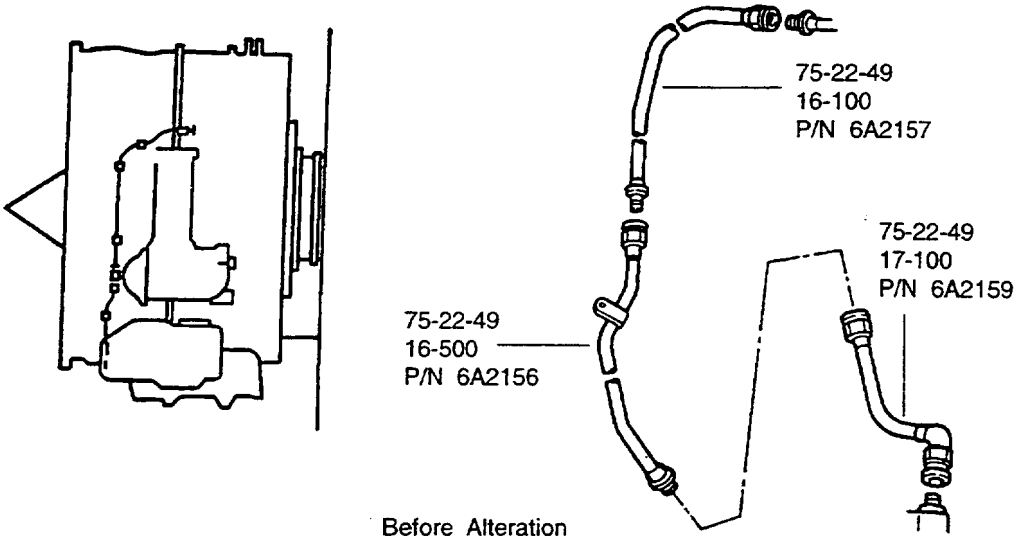
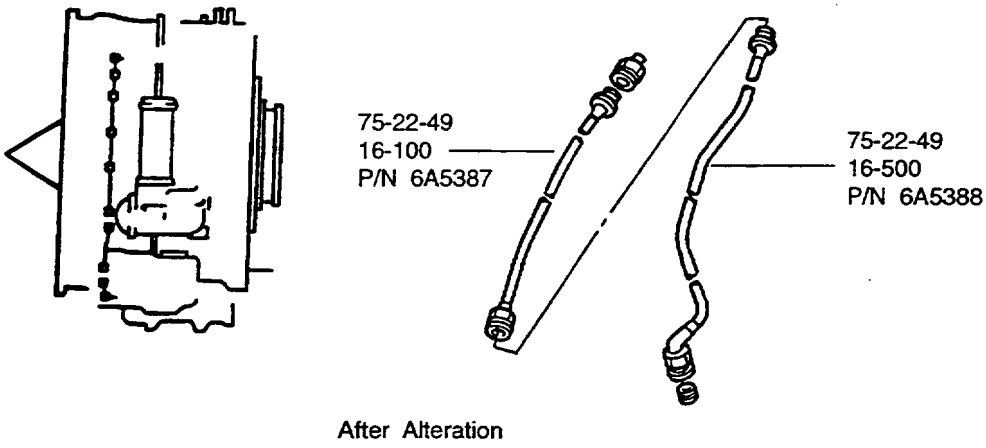
Before and after the alteration of the PMA Cooling Air Tubes
Fig.3

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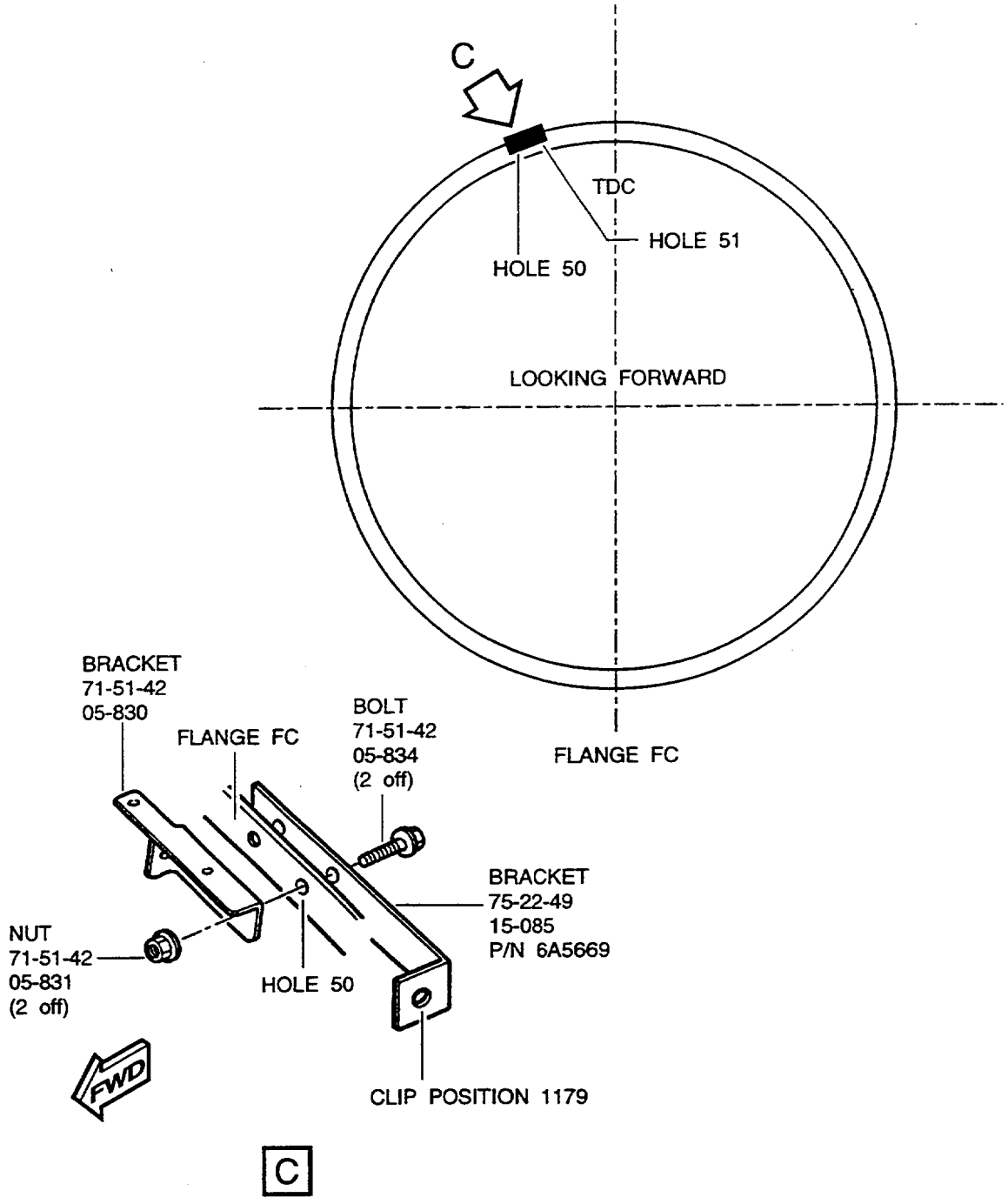
Before and after the alteration of the PMA Cooling Air Tubes
Fig.4

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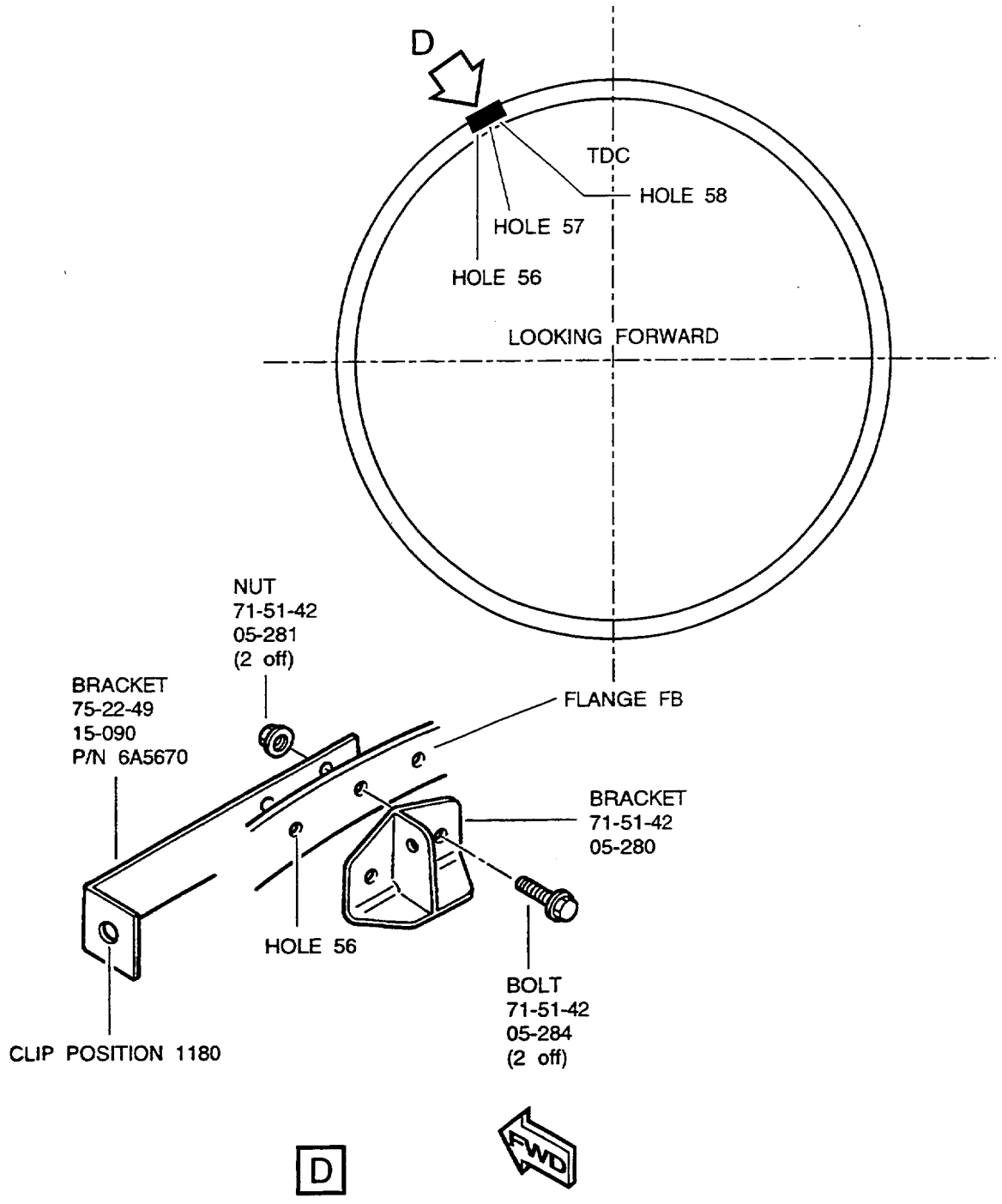
Install the bracket at the flange FC
Fig.5

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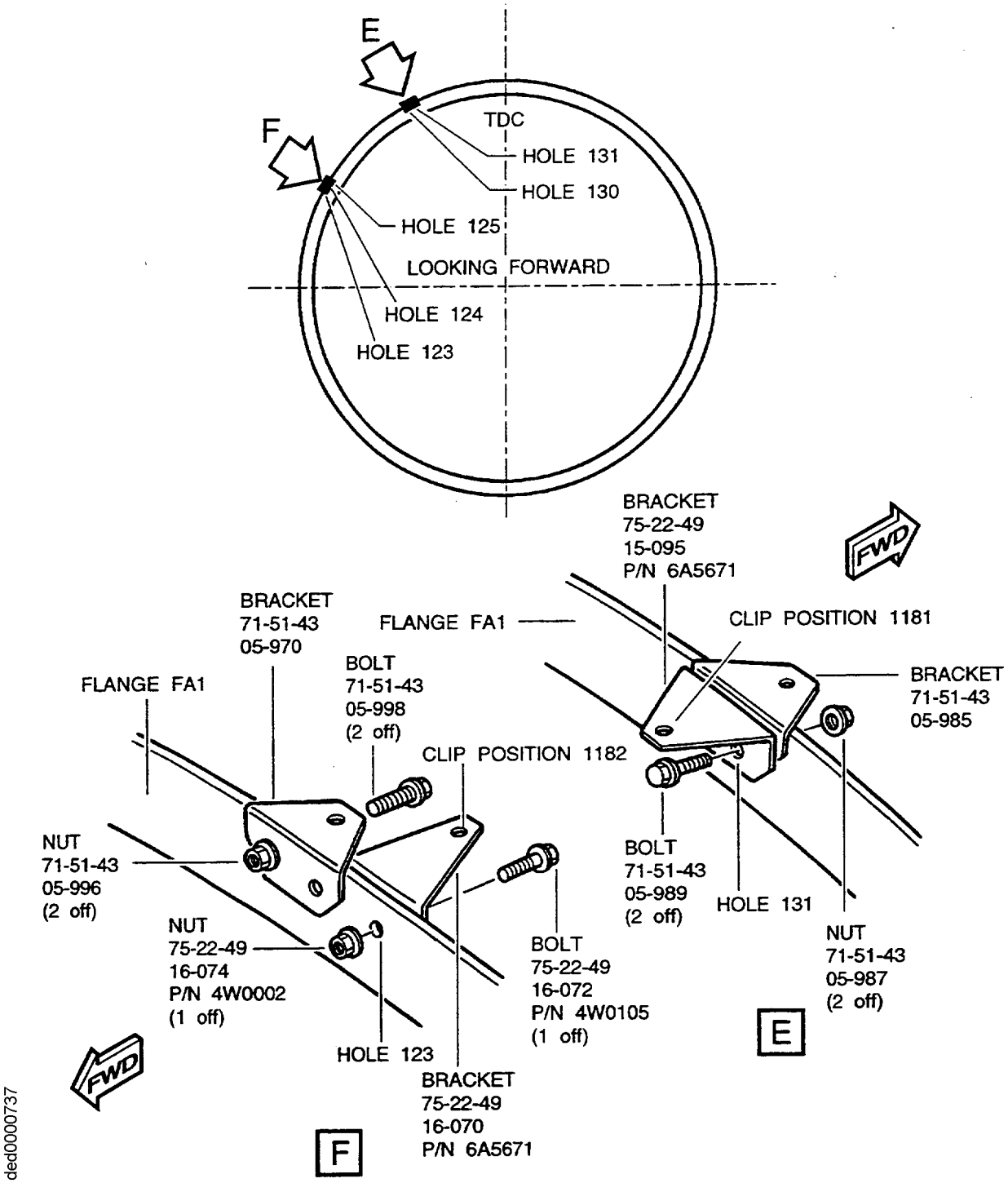
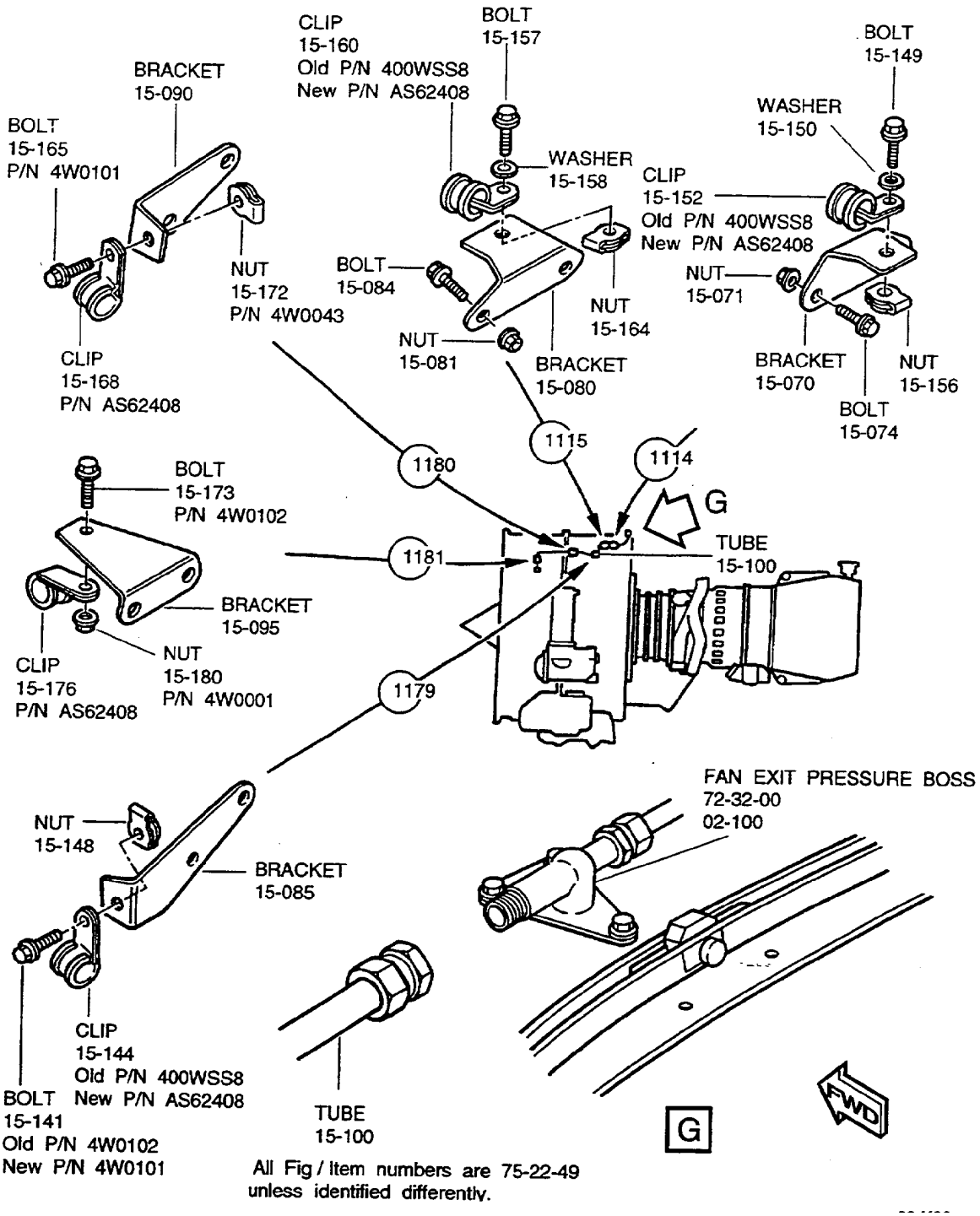
Install the bracket at the flange FB
Fig.6




Install the bracket at the flange FA1
Fig.7

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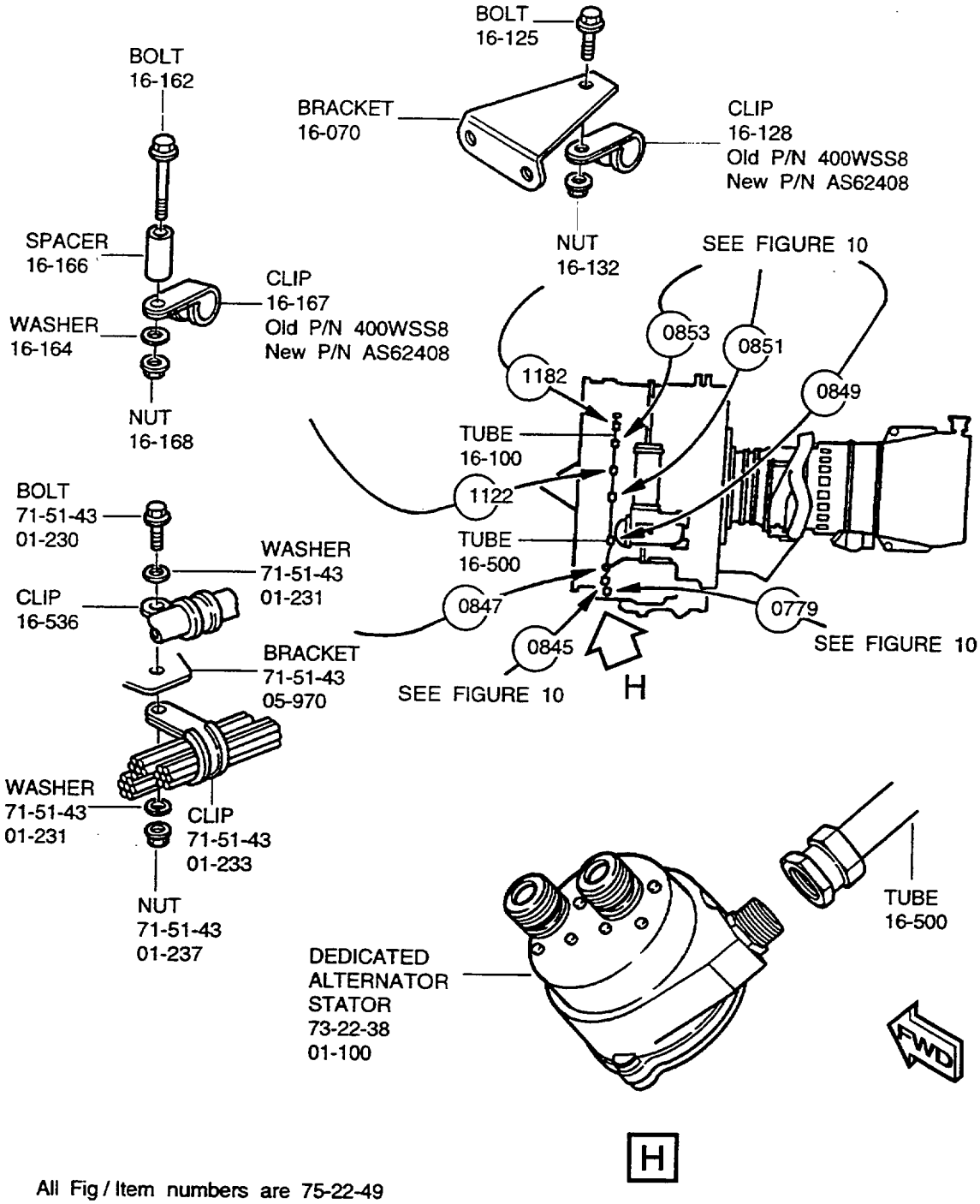
Install the PMA cooling air tube
Fig.8

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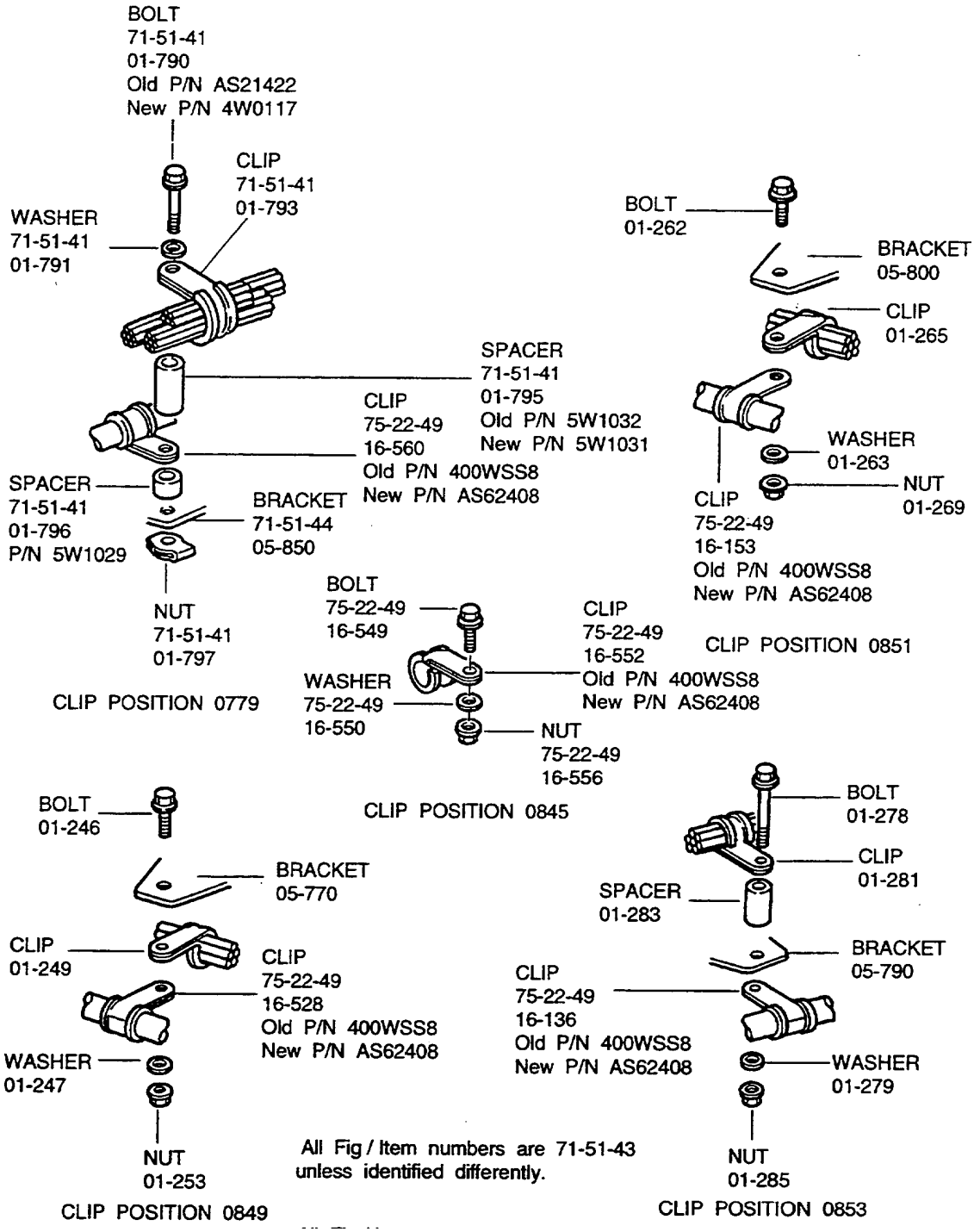
All Fig / Item numbers are 75-22-49 unless identified differently.

Install the PMA cooling air tube
Fig.9

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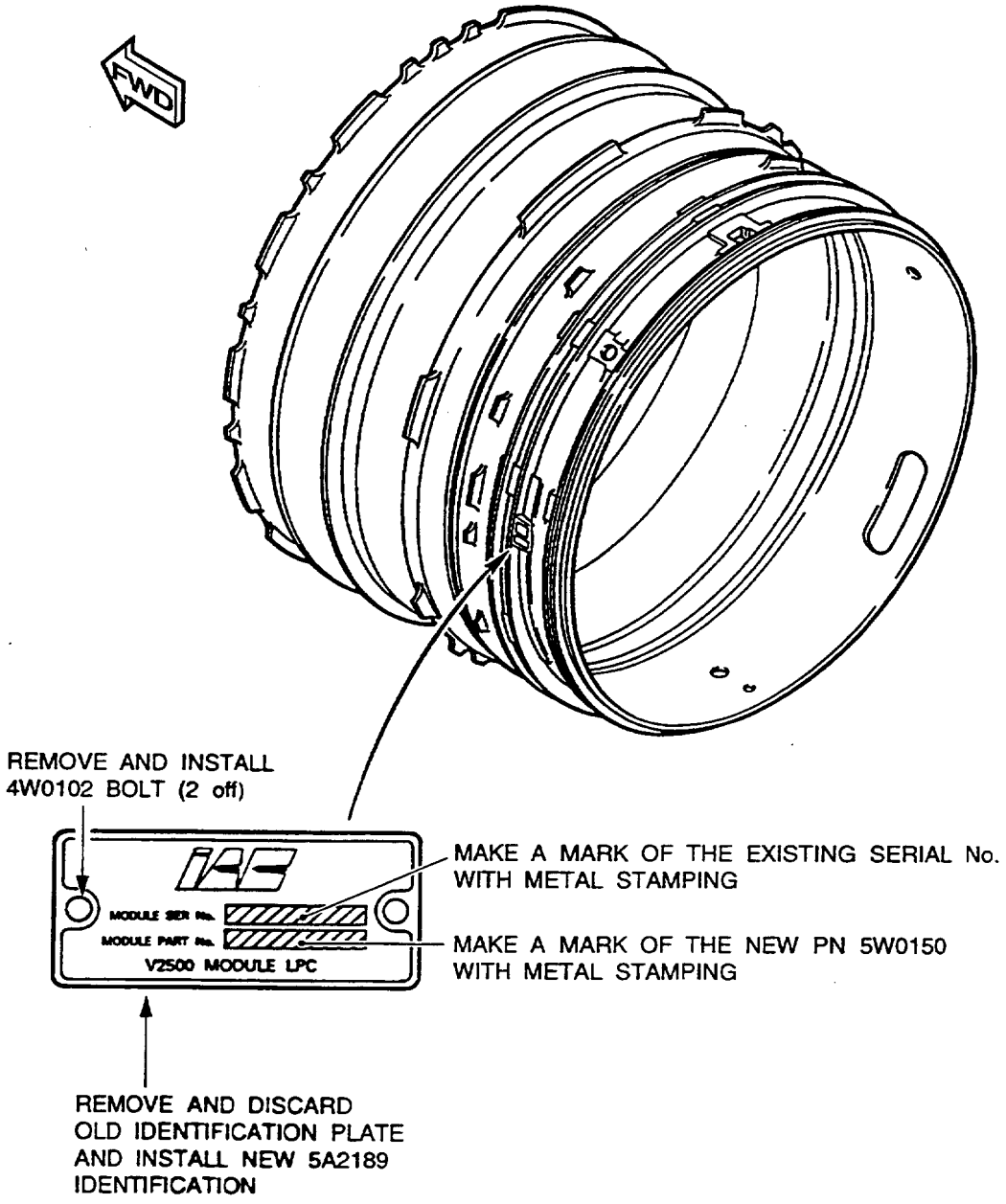
Install the PMA cooling air tube
Fig.10

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Reidentification of the new module identification plate
Fig.11

3. Material Information

Applicability: For each V2527-A5 and V2500-A5 Engines to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None

B. Consumable material

CoMat 02-126 Lockwire
CoMat 10-077 Approved engine oil

C. Parts affected by this Bulletin:

| New Part No. (ATA No.) | Qty | Est'd Unit Price ($) | Keyword | Old Part No. (IPC No.) | Instructions Disposition |
|---|---|---|---|---|---|
| 4W0117 (71-51-41) | 1 | | .Bolt, Machine Double HEX | AS21422 (01-790) | (A)(B)(4D) (S2)(S4) |
| 5W1031 (71-51-41) | 1 | | .Spacer, Sleeve | 5W1032 (01-795) | (A)(B)(4D) (S2)(S4) |
| 5W1029 (71-51-41) | 1 | | .Spacer, Sleeve | - (01-796) | (A)(S2) |
| 5W0150 (72-32-00) | REF | | Comp, Assy LPC/ Interm. Case | 5W0130 (00-001) | (S1)(S4) |
| 5W0149 (72-32-85) | 1 | | .Case, A/O Fan | 5W0144 (01-100) | (A)(B)(S2) (S4) |
| 5A2189 (72-32-85) | 1 | | .Plate, LPC Module | 5A2189 (03-100) | (A)(5D) |
| - (73-11-47) | - | | .Bracket | 6A2158 (01-940) | (B)(4D) |
| 6A3126 (75-22-49) | 1 | | .Bracket | 6A3126 (15-070) | (A)(B)(1D) (4D)(S2) |
| 4W0002 (75-22-49) | 2 | | .Nut, Self Locking DBL HEX | 4W0002 (15-071) | (A)(B)(2D) (4D)(S2) |
| 4W0164 (75-22-49) | 2 | | .Bolt, Option | 4W0164 (15-074) | (A)(B)(3D) (4D)(S2) |

| | | | | |
|---|---|---|---|---|
| 6A5669 (75-22-49) | 1 | .Bracket, Clipping | - (15-085) | (A)(S2) |
| 6A5670 (75-22-49) | 1 | .Bracket, Clipping | - (15-090) | (A)(S2) |
| 6A5671 (75-22-49) | 1 | .Bracket, Clipping | - (15-095) | (A)(S2) |
| 6A5386 (75-22-49) | 1 | .Tube A/O, Fan case to PMA | 6A2164 (15-100) | (A)(B)(S2) (S4) |
| 4W0101 (75-22-49) | 1 | .Bolt, Machine Double HEX HD | 4W0102 (15-141) | (A)(B)(4D) (S2)(S4) |
| - (75-22-49) | - | .Washer | K8831 (15-142) | (B)(4D) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (15-144) | (A)(B)(4D) (S2)(S4) |
| 4W0043 (75-22-49) | 1 | .Nut, A/O Self Locking | 4W0043 (15-148) | (4D)(S2)(S3) |
| AS62408 (75-22-49) | 1 | .Clip, Loop Type | 400WSS8 (15-152) | (A)(B)(4D) (S2)(S4) |
| AS62408 (75-22-49) | 1 | .Clip, Loop Type | 400WSS8 (15-160) | (A)(B)(4D) (S2)(S4) |
| 4W0101 (75-22-49) | 1 | .Bolt, Machine Double HEX HD | - (15-165) | (A)(S2) |
| AS62408 (75-22-49) | 1 | .Clip | - (15-168) | (A)(S2) |
| 4W0043 (75-22-49) | 1 | .Nut, A/O Self Locking | - (15-172) | (A)(S2) |
| 4W0102 (75-22-49) | 1 | .Bolt, Machine Double HEX HD | - (15-173) | (A)(S2) |
| AS62408 (75-22-49) | 1 | .Clip | - (15-176) | (A)(S2) |
| 4W0001 (75-22-49) | 1 | .Nut, Option | - (15-180) | (A)(S2) |
| - (75-22-49) | - | .Tube A/O, Cooling Air | 6A2155 (15-500) | (B) |

| | | | | |
|---|---|---|---|---|
| - (75-22-49) | - | .Bolt, Machine Double HEX | 4W0102 (15-525) | (B)(4D) |
| - (75-22-49) | - | .Washer | K8831 (15-526) | (B)(4D) |
| - (75-22-49) | - | .Clip, Loop Type | 400WSS8 (15-528) | (B)(4D) |
| - (75-22-49) | - | .Nut, A/O Self Locking | 4W0043 (15-532) | (B)(4D) |
| - (75-22-49) | - | .Bolt, Machine Double HEX | 4W0102 (15-533) | (B)(4D) |
| - (75-22-49) | - | .Washer | K8831 (15-534) | (B)(4D) |
| - (75-22-49) | - | .Clip, Loop Type | 400WSS8 (15-536) | (B)(4D) |
| - (75-22-49) | - | .Nut, A/O Self Locking | 4W0043 (15-540) | (B)(4D) |
| 6A5671 (75-22-49) | 1 | .Bracket, Clipping Locking | - (16-070) | (A)(S2) |
| 4W0164 (75-22-49) | 1 | .Bolt, Machine Double HEX | - (16-072) | (A)(S2) |
| 4W0002 (75-22-49) | 1 | .Nut, Self Locking Double HEX | - (16-074) | (A)(S2) |
| 6A5387 (75-22-49) | 1 | .Tube A/O, Fan Case to PMA | A2157 (16-100) | (A)(B)(4D) (S2)(S4) |
| 4W0102 (75-22-49) | 1 | .Bolt, Machine Double HEX | 4W0102 (16-125) | (4D)(S2)(S3) |
| - (75-22-49) | - | .Washer | K8831 (16-126) | (B)(4D) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 16-128) | (A)(B)(S2) (S4) |
| 4W0001 (75-22-49) | 1 | .Nut, Option | 4W0001 (16-132) | (4D)(S2)(S3) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-136) | (A)(B)(4D) (S2)(S4) |

| | | | | |
|---|---|---|---|---|
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-152) | (A)(B)(4D) (S2)(S4) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-167) | (A)(B)(4D) (S2)(S4) |
| 6A5388 (75-22-49) | 1 | .Tube, A/O | 6A2156 (16-500) | (A)(B)(S2) (S4) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-528) | (A)(B)(4D) (S2)(S4) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-536) | (A)(B)(4D) (S2)(S4) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-552) | (A)(B)(4D) (S2)(S4) |
| AS62408 (75-22-49) | 1 | .Clip | 400WSS8 (16-560) | (A)(B)(4D) (S2)(S4) |
| - (75-22-49) | 1 | .Tube A/O, Cooling Air | 6A2159 (17-100) | (B) |

D. Instruction/Disposition Code Statements:

(1D) Quantity of part No. 6A3126 decreased from 3 to 1.
(2D) Quantity of part No. 4W0002 decreased from 6 to 2.
(3D) Quantity of part No. 4W0164 decreased from 6 to 2.
(4D) Old part can be used up on other applications.
(5D) Discard the old part.
(A) New part is currently available for sale.
(B) Old part will no longer be available for sale.
(S1) New part coded (S1) must replace old part coded (S1) as a COMPLETE SET per engine.
(S2) New parts must be fitted as a COMPLETE SET per engine. Mixing of old and new parts are not permissible.
(S3) New part may be used in lieu of old part but not vice-versa.
(S4) Old and new parts are not interchangeable, either physically and functionally.

NOTE: The estimated 1996 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.