International Aero Engines

SERVICE BULLETIN

AIR - REWORK OF STAGE 10 AIR SOLENOID VALVE MOUNT BRACKET - CATEGORY 3 - MOD.ENG-75-0003

1. Planning Information

A. Effectivity

(1) Aircraft: A320

(2) Engine: V2500-A1 Engine, Serial No.V0014

B. Reason

(1) Condition

Chafing may occur between the angled protrusion of the air solenoid valve mount bracket and the EEC fan harness due to the short distance between them.

(2) Background

A re-designed starter duct support system was introduced to improve the installation of the starter duct. Due to this revision the installation position of the EEC fan harness was changed from the angled protrusion of the air solenoid valve mount bracket to the re-designed starter air duct support, and it was found that the distance was short between the angled protrusion of the bracket and the EEC fan harness.

An introduction of the re-designed solenoid valve mount bracket was planned to prevent from chafing.

An incorporation of the re-designed solenoid valve mount bracket to Engine serial No.V0015 onward was accomplished.

On only Engine serial No.V0014 the re-designed solenoid valve mount bracket was not installed, and the re-designed starter air duct support was installed, then the possibility of the chafing still remains. (Refer to Figure 2, Sheet 2).

Objective

Rework the air solenoid valve mount bracket to get a sufficient clearance.

(4) Substantiation

Substantiation test is not required.

(5) Effects of Bulletin on the following shop functions:

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

C. Description

(1) The clearance between the solenoid valve mount bracket and the EED fan harness is to be increased as follows:

(a) The angled protrusion of the existing bracket is cut off, (Refer to Figure 1 and 6). This may give the sufficient clearance between the solenoid bracket and the EEC fan harness.

(2) The existing PN 5A9158 bracket can be reworked to a new configuration. (Refer to Figure 6).

(3) New solenoid valve mount bracket will be available for replacement purposes.

D. Approval

The Part number changes and part modifications described in Sections 2 and 3 of this Service Bulletin have ben shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model Listed.

E. Compliance

Category Code 3.

Accomplish prior to revenue service.

Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	
(a) To gain access	
(b) To embody	
(c) To return engine to flyable status	1 hours, 47 minutes
TOTAL	
(2) In shop	Not available

G. Material - Price and Availability

Modification Kit nor required, part is supplied as sing line item.

H. Tooling - Price and Avalability

Special tools are not required.

I. Weight and Balance

(1) Weight change .. .. .. None

(2) Moment arm .. .. No effect

(3) Datum .. .. Engine front centreline

J. Electrical Load Data

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

K. References

(1) Internal Reference No.

EC88VJ693

(2) Other References

V2500 Engine Illustrated Parts Catalog, Introduction, Appendix 5, Standard Parts Conversion Table, 75-23-52.

V2500 Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique, 70-23-15, Electrical Connectors, 71-00-00, Maintenance Practices, Adjustment/Test, 71-13-00, Maintenance Practices, Fan Cowls.

V2500 Standard Practices/Processes Manual, Locking Devices - Lock Wiring, IAE control No.70-42-05.

V2500 Overhaul Processes and Consumable Index.

L. Other Publications Affected

(1) V2500 Engine Illustrated Parts Catalog, 75-23-52.

(2) V2500 Aircraft Maintenance Manual, 75-23-52, Removal and Installation.

(3) V2500 Engine Manual, 72-00-32, Removal and Installation.

2. Accomplishment Instructions

A. Pre-requisite Instructions

Procedure	Supplementary Information
(1) Open the right fan cowl door.	Refer to the Aircraft Maintenance Manual, 71-13-00, Maintenance Practices, TASK 71-13-00-010-010.

NOTE: The following steps do not give the instructions for the removal of the clipping points except CP101.

NOTE: If you need to remove the clipping points before the removal of the solenoid valves and the mount bracket, make sure of the locations and the configurations of the clipping points on Figure 2 (sheet 1) and 3, and remove them.

(2) Remove the stage 10 air solenoid valve. Refer to Figure 4 and 5.

(a) Cut and discard the wire and disconnect the HP3 air outlet tube (4) from the stage 10 air solenoid valve.

(b) Cut and discard the wire and disconnect the HP3 air inlet tube (3) from the stage 10 air solenoid valve.

(c) Cut and discard the wire and disconnect the inlet tube (3) from the HP3 air tube (7).

(d) Remove the HP3 air inlet tube (3).

(e) Disconnect the electrical connector (5) from the stage 10 air solenoid valve.

(f) Remove the three PN 4W0108 bolts and PN 4W2621 washers which attach the stage 10 air solenoid valve to the mount bracket.

(g) Remove the stage 10 air solenoid valve.

(h) Put the applicable covers/caps/plugs on all of the opening.

(3) Remove the HPC stage 10 solenoid valve. Refer to Figure 4 and 5.

(a) Cut and discard the wire and disconnect the HP3 air outlet tube (2) from the HPC stage 10 solenoid valve.

(b) Cut and discard the wire and disconnect the HP3 air inlet tube (1) from the HPC stage 10 solenoid valve.

(c) Cut and discard the wire and disconnect the air inlet tube (1) from the HP3 air tube (7).

(d) Remove the HP3 air inlet tube (1).

(e) Disconnect the electrical connector (6) from the HPC stage 10 solenoid valve.

(f) Remove the three PN 4W0107 bolts and PN 4W2621 washers which attach the HPC stage 10 solenoid valve to the mount bracket.

(g) Remove the HPC stage 10 solenoid valve.

(h) Put all the applicable covers/caps/plugs on all of the opening.

(4) Remove the solenoid valve mount bracket. Refer to Figure 3 (Sheet 1) and 4.

(a) Remove the five PN 4W0043 clipnuts from the mount bracket.

(b) Remove the PN 4W0104 bolt the PN 5W1086 washer and the PN4W0043 clipnut from the clipping point CP1010.

(c) Remove the PN 4W0104 bolt from the mount bracket and the air starter duct support.

(d) Remove the two PN 4W0168 bolts and the PN 4W0002 nuts from the mount bracket and the bracket A2.

(e) Remove the PN 4W0164 bolt and the PN4W0002 nut from the mount bracket and the flange FB.

(f) Remove the PN 5A9158 mount bracket from the flange FB and the starter air duct support.

B. Rework Instructions

Procedure	Supplementary Information	
(1) Cut off the angled protrusion from the bracket.	Refer to Figure 6.	
(2) Renumber by the vibro-peen adjacent to the old part number on the bracket.	Old Part Number 5A9158	New Part number 5A0292

C. Post-requisite Instructions

Procedure	Supplementary Information
NOTE: The following steps do not give the instructions for the installation of the clipping points except CP1010.	
NOTE: If the clipping points have been removed in step A, make sure of the locations and the configurations of the clipping points on Figure 2 (sheet 1) and 3, and install them.	
(1) Install the solenoid valve mount bracket.	Refer to Figure 3 (Sheet 1) and 4.
(a) Install the new PN 5A0292 mount bracket to the flange FB and the starter air duct support.	

(b) Attach the PN 4W0164 bolt and the PN 4W0002 nut to the mount bracket and the flange FB.

(c) Attach the two PN 4W0168 bolts and PN 4W0002 nuts to the mount bracket, the flange FB and the bracket A2.

(d) Attach the PN 4W0108 bolt to the mount bracket and the starter duct support.

(e) Torque the four bolts installed in steps (b), (c) and (d) to 100 lbfin (1,13 mdaN).

Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique.

(f) Attach the PN 4W0104 bolt the PN 5W1086 washer and the 4W0043 clipnut to the clipping point CP1010 and the mount bracket. Torque the bolt to 100 lbfin (1,13 mdaN).

Refer to Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique.

(g) Attach the five PN 4W0043 clipnuts to the mount bracket.

(2) Install the HPC stage 10 solenoid valve.

Refer to Figure 4 and 5.

(a) Remove all the covers/caps/plugs/ from the openings.

(b) Clean the mating faces.

WARNING: DO NOT GET CLEANING FLUID ON YOUR SKIN IN YOUR EYES OR IN YOUR MOUTH. CLEANING FLUID IS POISONOUS. FLUSH CLEANING FLUID FROM YOUR EYES, MOUTH OR SKIN WITH WATER. USE ONLY IN AN AREA OPEN TO THE AIR.

(C) Make a lint-free cloth moist with the cleaning fluid. Use the cloth to clean the HPC stage 10 solenoid valve and mount bracket faces.

CoMat 01-001 cleaning fluid.

(d) Attach the HPC stage 10 solenoid valve to the mount bracket with the three PN 4W2621 washers and PN 4W0107 bolts. Torque the three bolts to 40 lbfin (0,45 mdaN).	Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique.
(e) Attach the electrical connector (6) to the HPC stage 10 solenoid valve, Tighten the connector.	Refer to the Aircraft Maintenance Manual, 70-23-15, Electrical Connectors.
(f) Attach the air outlet tube (2) to the HPC stage 10 solenoid valve. Torque the connector to 170 lbfin 91.9 mdaN). Safety the connector with the lockwire.	Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique. Refer to the Standard Practices/Processes Manual, 70-42-05, Lock Wiring, CoMat 02-126 lockwire.
(g) Connect the HP3 air inlet tube (1) to the HPC stage 10 solenoid valve and the HP3 air tube (7). Torque the two connectors to 215 lbfin (2,4 mdaN). Safety the connectors with the lockwire.	Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique. Refer to the Standard Practices/Processes Manual, 70-42-05, Lock Wiring. CoMat 02-126 lockwire.
(3) Install the stage 10 air solenoid valve.	Refer to Figure 4 and 5.
(a) Remove all the covers/caps/plugs/ from the openings.	
(b) Clean the mating faces.	

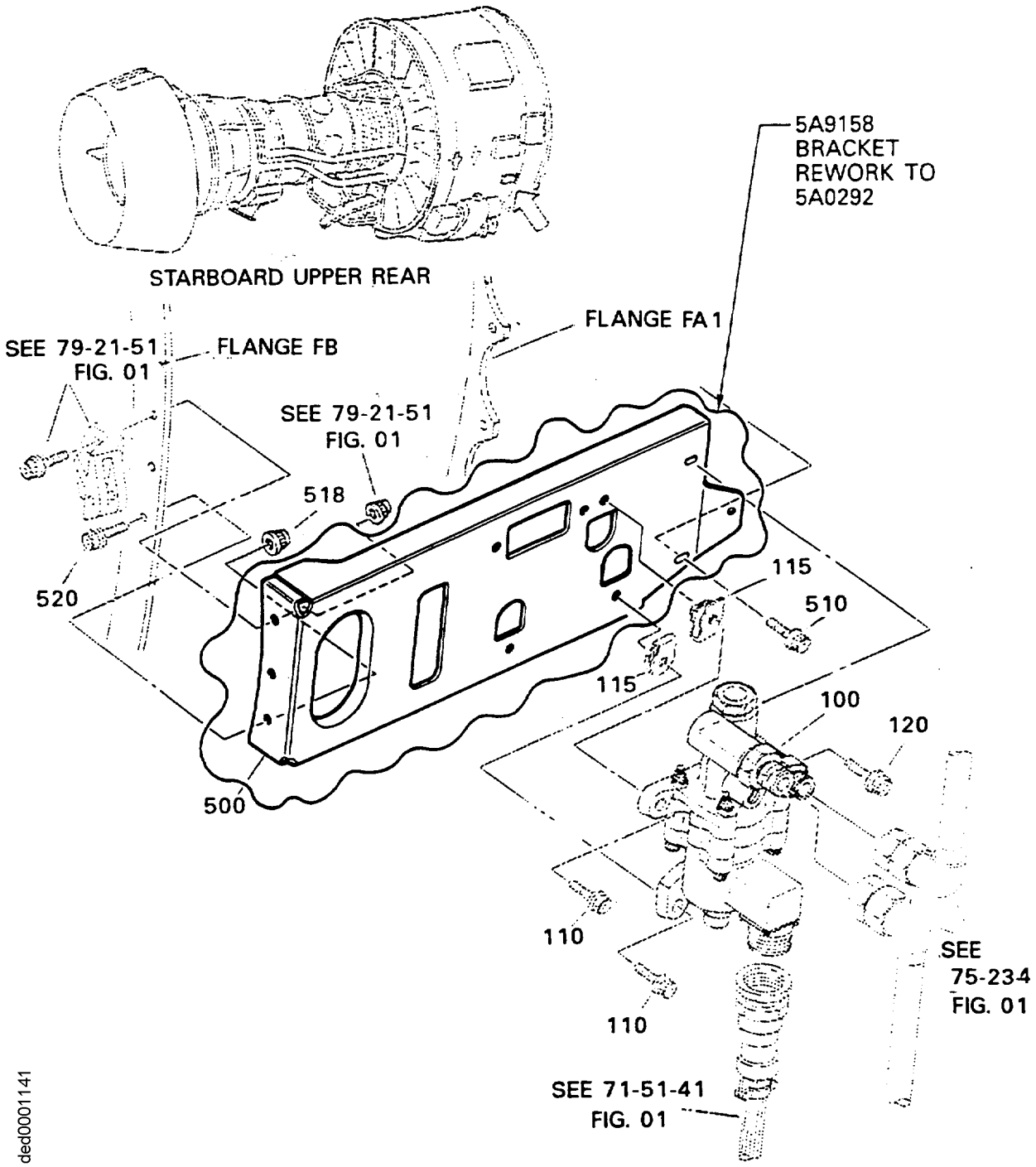
WARNING: DO NOT GET CLEANING FLUID ON YOUR SKIN IN YOUR EYES OR IN YOUR MOUTH. CLEANING FLUID IS POISONOUS. FLUSH CLEANING FLUID FROM YOUR EYES, MOUTH OR SKIN WITH WATER. USE ONLY IN AN AREA OPEN TO THE AREA.

(c) Make a lint-free cloth moist with the cleaning fluid. Use the cloth to clean the stage 10 air solenoid valve and mount bracket faces.	CoMat 01-001 cleaning fluid.

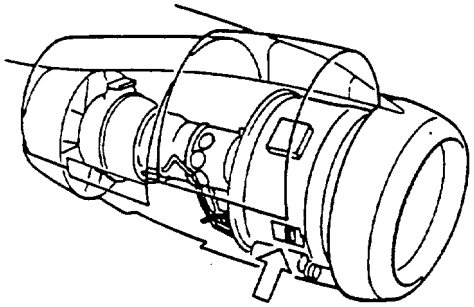
(d) Attach the stage 10 air solenoid valve to the mount bracket with the three PN 4W2621 washers and PN 4W0108 bolts. Torque the three bolts to 40 Ibfin 90,45 mdaN).	Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique.
(e) Attach the electrical connector (5) to the stage 10 air solenoid valve. Tighten the connector.	Refer to the Aircraft Maintenance Manual, 70-23-15, Electrical Connectors.
(f) Attach the air outlet tube (4) to the stage 10 air solenoid valve. Torque the connector to 170 lbfin 91.9 mdaN). Safety the connector with the lockwire.	Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique. Refer to the Standard Practices/Processes Manual, 70-42-05, Lock Wiring. CoMat 02-126 lockwire.
(g) Connect the HP3 air inlet tube (3) to the stage 10 air solenoid valve and the HP3 air tube (7). Torque the two connectors to 215 lbfin (2,4 mdaN). Safety the connectors with the lockwire.	Refer to the Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique. Refer to the Standard Practices/Processes Manual, 70-42-05, Lock Wiring. coMat 02-126 lockwire.
(4) Do the test of the stage 10 air solenoid valve and the HPC stage 10 solenoid valve.	Refer to the Aircraft Maintenance Manual, 71-00-00, Maintenance Practices, Test No.5, EEC system Static Test, TASK 71-00-00-700-019.
(5) Close the right fan cowl door.	Refer to the Aircraft Maintenance Manual, 71-13-00, Maintenance Practices, TASK 71-13-00-410-010.

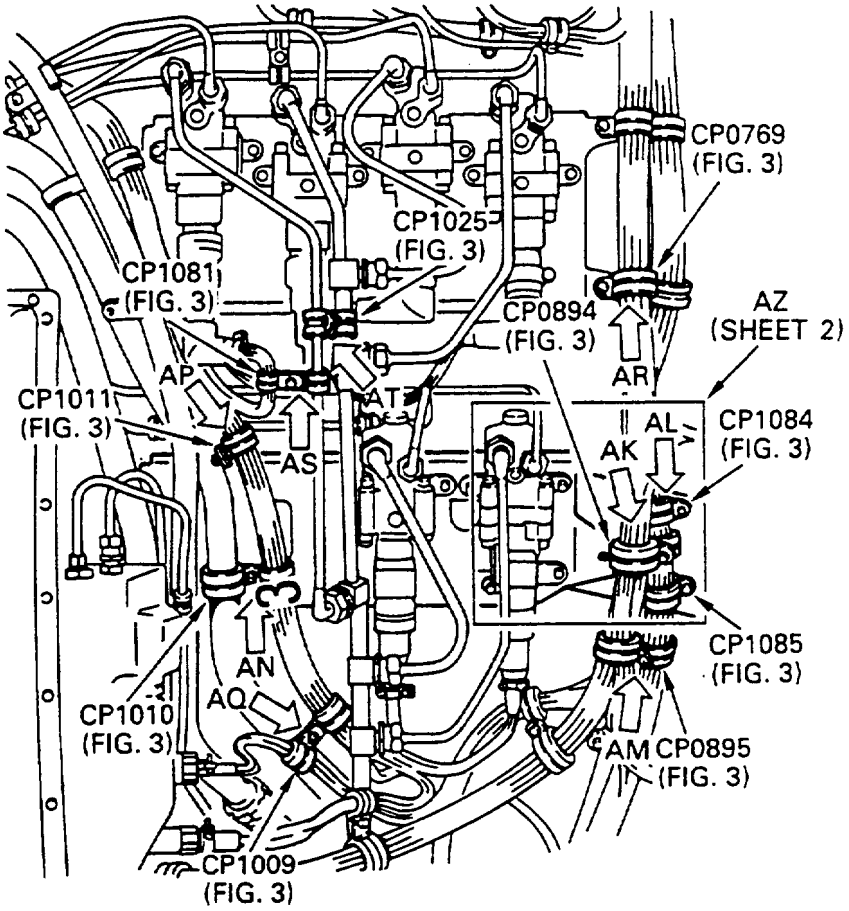
D. Recording Instructions

(1) A record of accomplishment is necessary.



Location of the bracket
Fig.1





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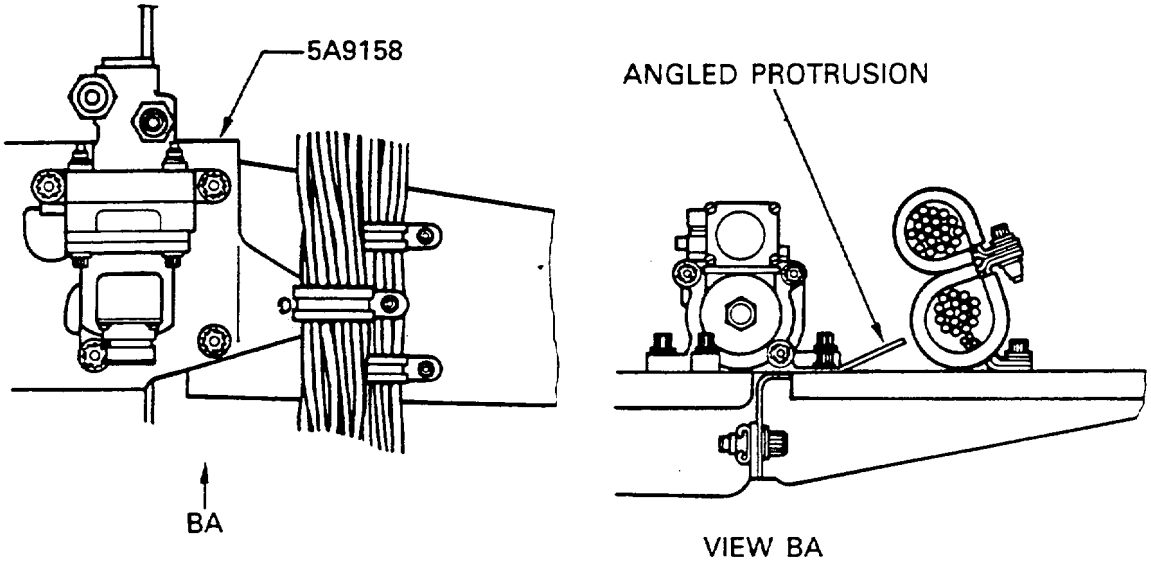
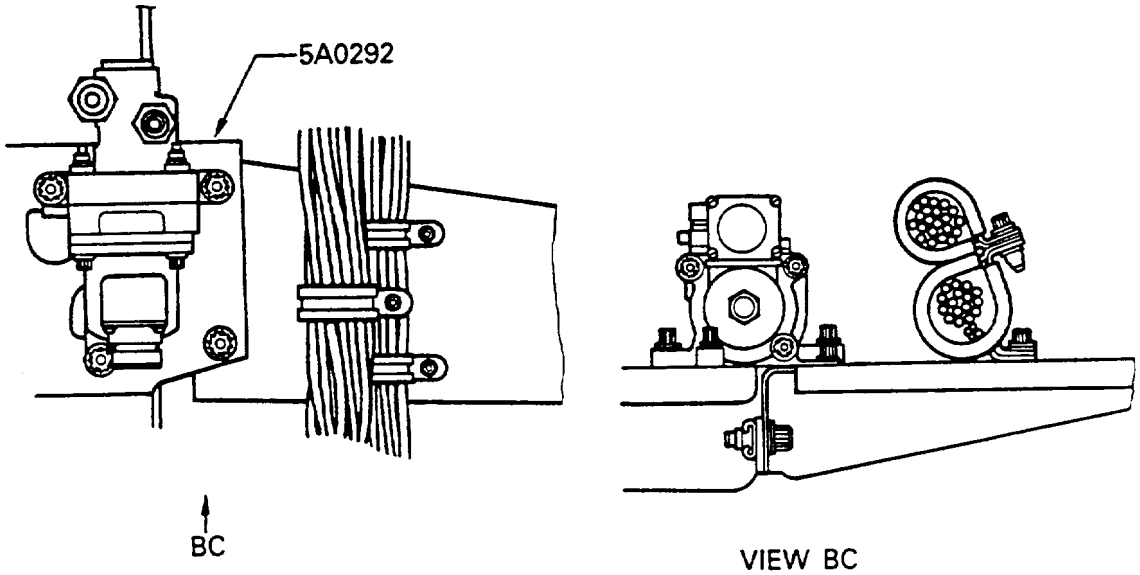
View on right-side of the fan case - Before and after alteration
Fig.2 (Sheet 1 of 2)



VIEW AT AZ (SHEET 1)
BEFORE ALTERATION



AFTER ALTERATION

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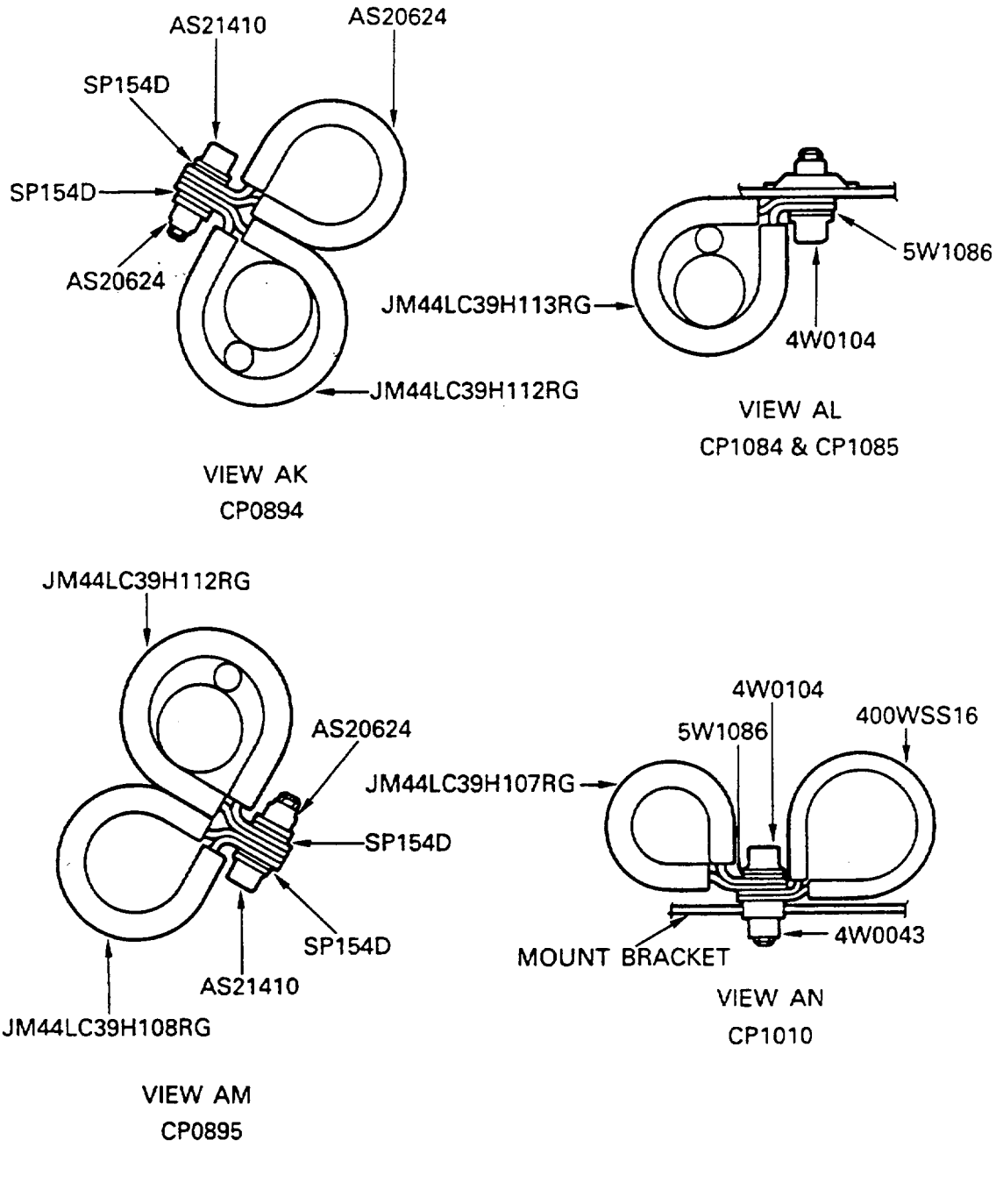
View on right-side of the fan case - Before and after alteration
Fig.2 (Sheet 2 of 2)



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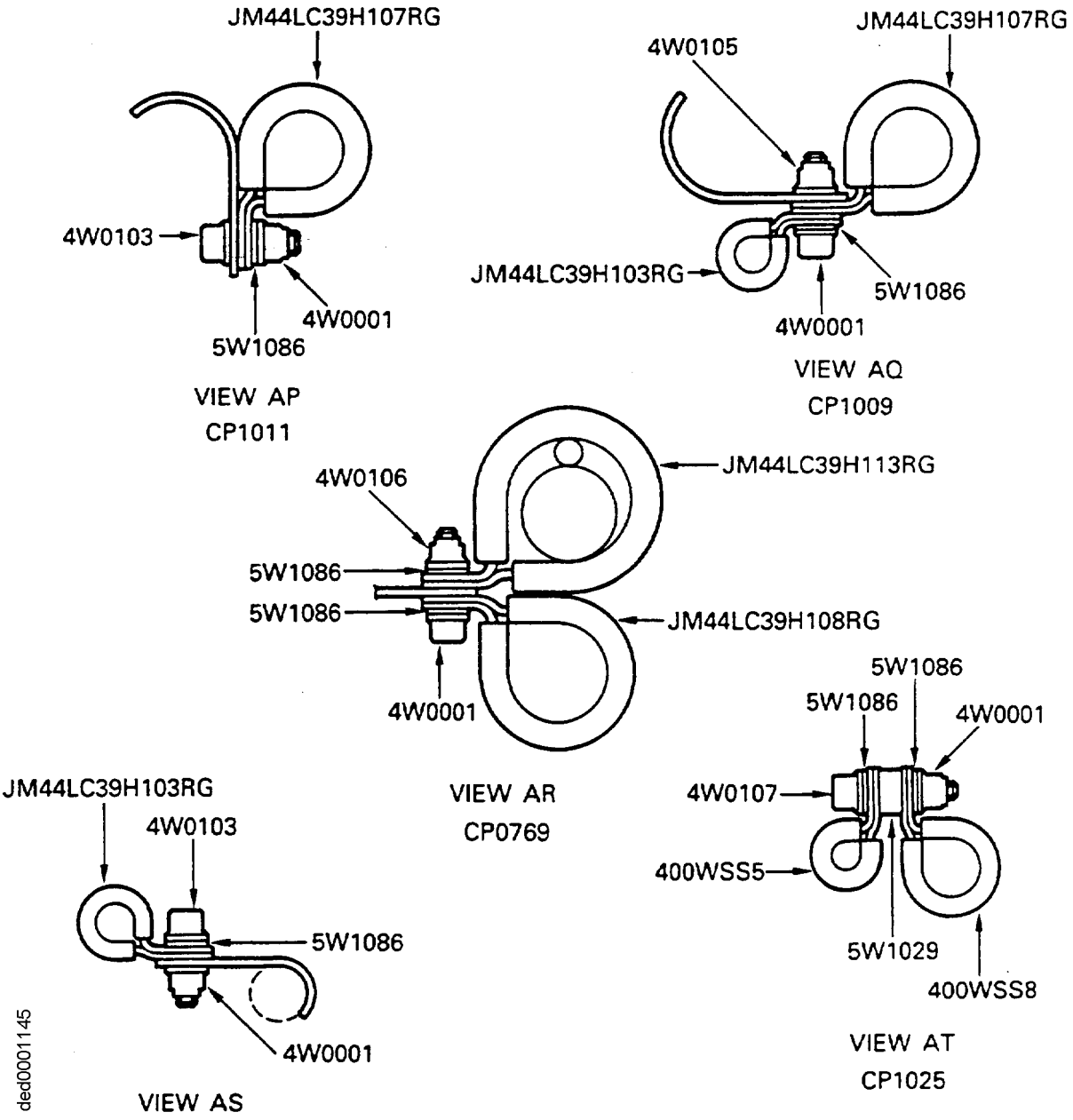
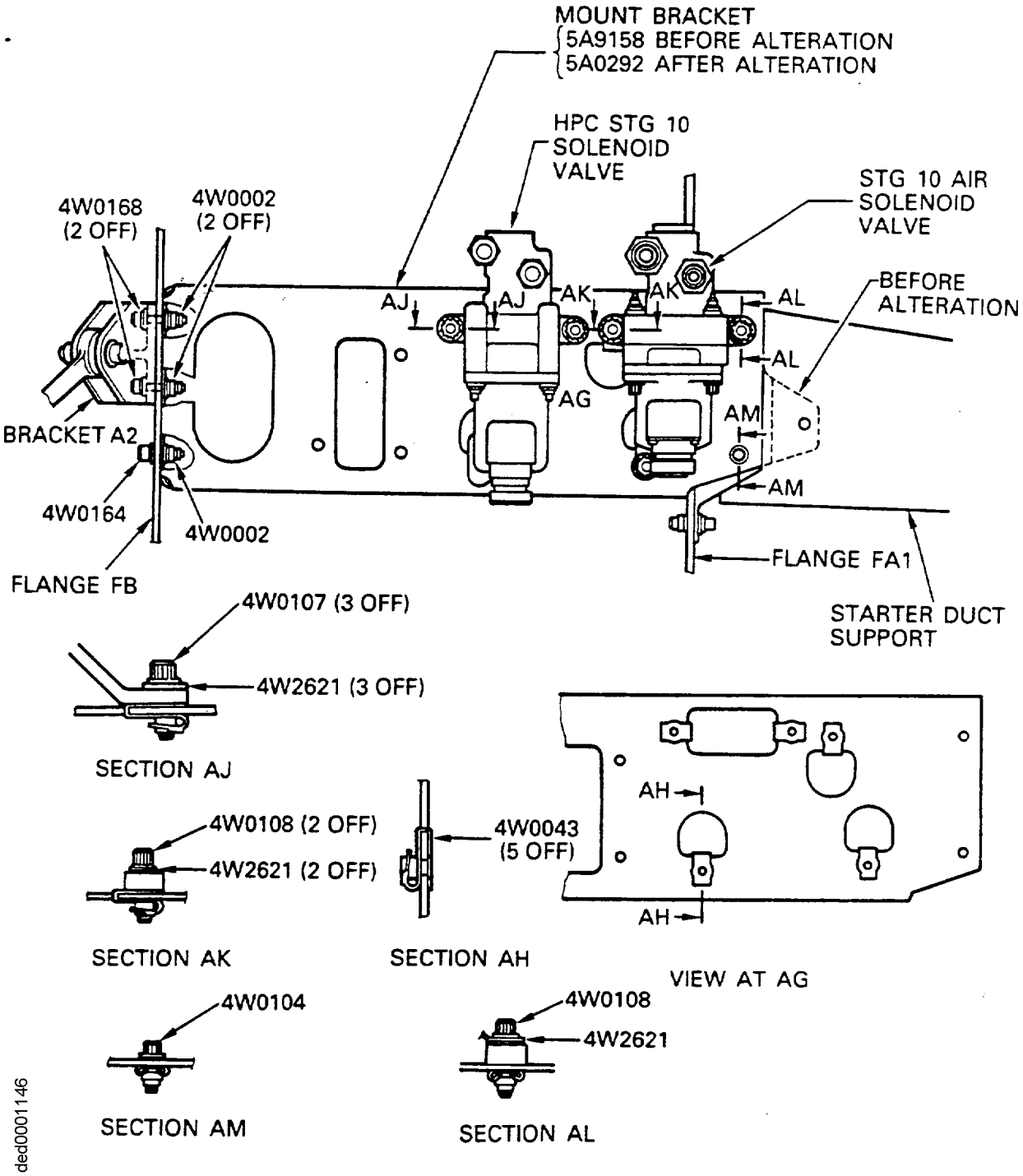
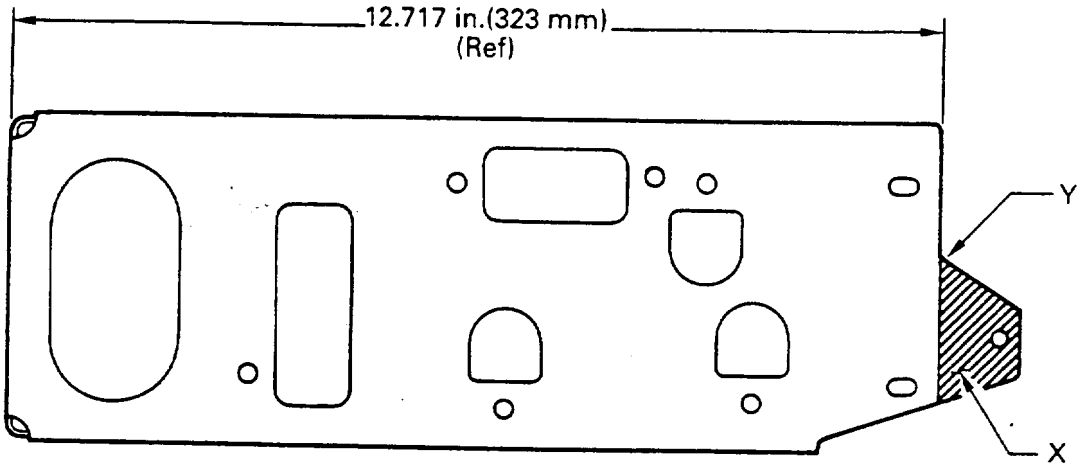
Details of the clipping points - Before and after alteration
Fig.3 (Sheet 1 of 2)



Details of the clipping points - Before and after alteration
Fig.3 (Sheet 2 of 2)



Securing details of the solenoid valve mount bracket - Before and after alteration
Fig.4

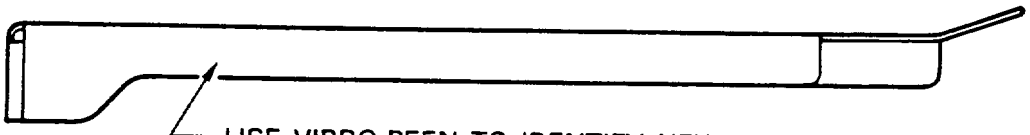


REWORK INSTRUCTIONS

1 Cut off the shaded portion X of the Bracket with a handsaw or a wire electro discharge machine.

2 Blend mismatch at the intersection Y with a file or an abrasive stone.

3 Break the sharp edges in the limits between 0.002 in.(0,05 mm) and 0.019 in.(0,50 mm), with a file or an abrasive stone.



USE VIBRO-PEEN TO IDENTIFY NEW PN 5A0292 ADJACENT TO EXISTING PN 5A9158 IDENTIFIED HERE.
MARK TWO LINES (=) ON EXISTING PN WITH VIBRO-PEEN TO ERASE IT.

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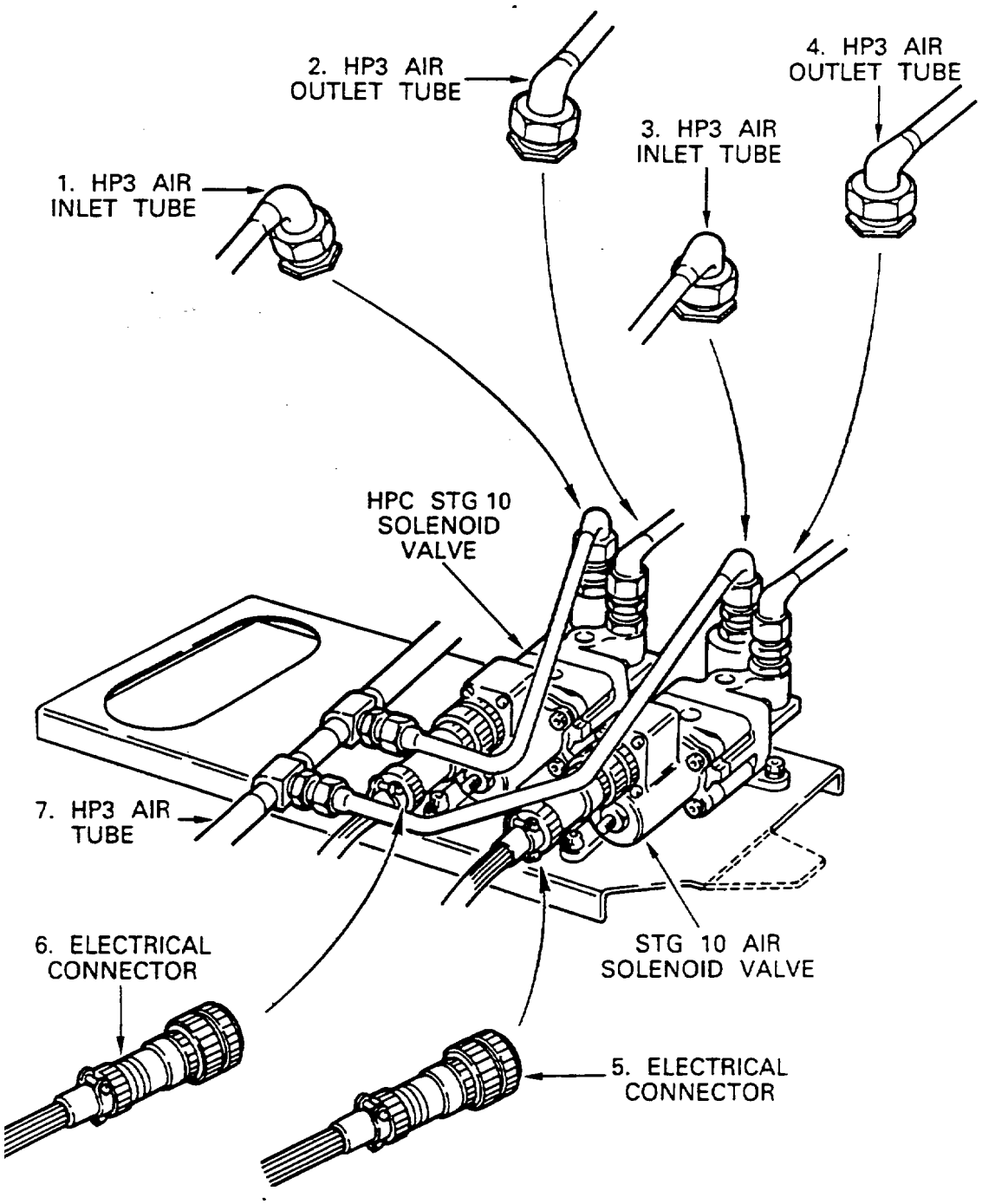
HP3 air tubes and electrical connector - Before and after alteration
Fig.5



Rework of the mount bracket
Fig.6

3. Material Information

New Part No. (ATA No.)	Qty	Est'd Unit Price ($)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
Applicability: For each V2500 Engine to incorporate this Bulletin.					
A. Kits associated with this Bulletin:					
5A0292 (72-23-52)	1	258.00	Bracket	5A9158 (01-500)	(1D)(A)(B)

C. Instruction/Disposition Code Statements:

(1D) Old Part can be reworked and reidentified to the New Part Number.
(A) New Part currently available for sale.
(B) Old part is no longer available for sale.

NOTE: The estimated 1989 Unit Prices shown are provided for planning purposes only and do not constitute a firm quotation. Contact IAE's Spare Parts Sales Department for information concerning firm prices.