International Aero Engines

SERVICE BULLETIN

ENGINE - FUEL AND CONTROL - FUEL AND CONTROL - REWORK THE PS3 BURNER AIR TUBE ASSEMBLY TO INCORPORATE ENLARGED MOISTURE TRAP DRAIN HOLES - CATEGORY CODE 4 - MOD.ENG-73-0011

1. Planning Information

A. Effectivity

(1) AIRCRAFT: Airbus A320

(2) ENGINE: V2500-A1 Engines, Serial Number V0014 through V0106

B. Reason

(1) Condition

An accumulation of moisture/water could occur in the Ps3 Burner (PB) Air Tube A/O's (Fuel System Air Tubes) which run from the Engine Diffuser Case to the PB Sensor in the EEC.

This could cause the engine uncommanded power reduction and EPR limitation due to clogging the PB Air Tubes when the moisture/water in the tubes are frozen.

(2) Background

On some A320 Aircraft with V2500 engines, operators have experienced incidents of single engine uncommanded power reduction and EPR limitation during normal course of the flight and this resulted in asymmetric thrust conditions. In each case the engine has recovered to the commanded power level either during descent or upon landing.

Investigations have shown the presence of moisture/water in the PB Air Tubes though these tubes have the Moisture Traps with 0.016 - 0.019in. (0,4 - 0,5 mm) diameter drain holes. Also, investigation of an EEC recently removed showed the presence of white powdery contamination in the PB Sensor Screen of the EEC.

As a result of the investigations, it is concluded that an increase in the diameter of drain holes in the Moisture Traps in the PB Air Tubes will be of advantage to drain off the moisture/water and contaminants in the PB Air Tubes.

(3) Objective

The changes in configuration recommended in this Service Bulletin are intended to maintain engine reliability.

(4) Substantiation

The changes recommended in the Service Bulletin have been subjected to rig testing to ensure that the recommended diameters of the drain holes in the Moisture Traps in the PB Air Tubes are within acceptable maximum diameters.

(5) Effect of Bulletin on workshop procedure:

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 changes introduced by this Service Bulletin are as follows:

(a) The diameters of drain holes in the Moisture Traps in PB Air Tubes are increased from the existing 0.016 - 0.019 in. (0,4 - 0,5 mm) in diameter to the new 0.023 - 0.027in. (0,59 - 0,68 mm) in diameter to improve drainage of moisture/water in the PB Air Tubes. (See Figure 1).
(b) The existing Part Numbers of the Tube A/O's and the Moisture Traps are changed to the new Part Numbers.

(2) The existing PB Air Tube A/O's, PN 5A8735 and PN 5A8736 can be reworked to new configurations.

D. Approval

The Part Number changes and/or part modifications described in Sections 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 4.

Accomplish at the first visit of an engine or module to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action or the reason for engine removal.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue | Estimated Manhours

(1) In Service:

(a) To gain access

(b) To return engine to flyable status

Total: 57 mins

(2) At Overhaul: Not applicable.

G. Material - Price and Availability

(1) Modification Kit is not required. Parts supplied as single line items.

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

H. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

I. Weight and Balance

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

(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.

L. References

(1) Internal Reference No.

EC89VJ110

(2) Other References

Aircraft Maintenance Manual, 71-13-00, Maintenance Practices, 78-32-00, Maintenance Practices, 70-23-11, Torque Tightening Technique, and 70-40-11, Installation of Locking Devices.

V2500 Overhaul Processes and Consumable Index.

V2500 Standard Practices/Processes Manual, 70-09-00, Marking of Parts.

L. Other Publications Affected

(1) V2500 Power Plant Illustrated Parts Catalog, Chapter/Section 72-22-40, Figures 6 and 7.

(2) V2500 Engine Illustrated Parts Catalog, Chapter/Section 73-22-49, Figures 6 and 7.

(3) V2500 Component Maintenance Manual, 73-22-49, Fuel System Air Tubes - Inspection/Check, TASK 73-22-49-200-004.

2. Accomplishment Instructions

A. Prerequisite Instructions

(1) Open the Fan Cowls, (Refer to Aircraft Maintenance Manual, 71-13-00, Maintenance Manual, 71-13-00, Maintenance Practices, TASK 71-13-00-010-010).

(2) Open the Thrust Reverser Halves. (Refer to Aircraft Maintenance Manual, 78-32-00, Maintenance Practices, TASK 72-32-00-010-010).

B. Rework Instructions

(1) Find PN 5A8735 and PN 5A8736, PB Air Tube A/O's, which run from the Bifurcation Panel to the EEC. (Refer to Figure 2).

(2) Remove the Bolts, the Washers, the Nuts and the Clips at the clip positions CP0544, CP0565, CP1037 and CP0561. (Refer to Figure 2, Sheet 1).

(3) Cut the lockwire and disconnect the Nut on PN 5A8762, Tube A/O, from PN 5A8735, Tube A/O. (Refer to Figure 2, Sheet 1).

(4) Cut the lockwire and disconnect the Nut on PN 5A8735, Tube A/O, from PN 5A9093, Tube A/O. (Refer to Figure 2, Sheet 1).

(5) Remove two PN 4W0163, Bolts and two PN 4W0002, Nuts which attach the PN 5A8735, Tube A/O, to the Bifurcation Panel. (Refer to Figure 2, Sheet 1).

(6) Remove PN 5A8735, Tube A/O, from the engine.

(7) Write a note on CoMat 02-092, Identification Tag, and install it onto PN 5A8735, Tube A/O, which removed from the engine. (Refer to Figure 3, Sheet 1, and Overhaul processes and Consumable Index).

(8) Remove the Bolts, the Washers, the Nut, the Clip Nut and the Clips at the clip positions CP1027 and CP1028. (Refer to Figure 2, Sheet 2).

(9) Cut the lockwire and disconnect the Nut on PN 5A8736, Tube A/O, from PN 5A9093, Tube A/O. (Refer to Figure 2, Sheet 2).

(10) Cut the lockwire and disconnect the Nut on PN5A9166, Flexible Hose, from PN 5A8376, Tube A/O. (Refer to Figure 2, Sheet 2).

(11) Cut the lockwire and remove PN MS9201-04, Locknut, from PN 5A9169, Bracket A/O, and remove PN 5A8736, Tube A/O, from the engine. (Refer to Figure 2, Sheet 2).

(12) Write a note on CoMat 02-092, Identification Tag, and install it onto PN 5A8736, Tube A/O, which removed from the engine. (Refer to Figure 3, Sheet 1, and Overhaul processes and Consumable Index).

(13) Send the removed PN 5A8735 and PN 5A8736, Tube A/O's to the workshop where the Tube A/O's are reworked by this Service Bulletin.

(14) Increase the diameter of each drain hole in PN 5A9375 and PN 9374, Moisture Traps, in PN 5A8735 and PN 8736, Tube A/O's, from existing 0.016 - 0.019in. (0,4 - 0,5 mm) in diameter to new 0.023 - 0.027in. (0,59 - 0,68 mm) in diameter which the Electric Discharge machine (EDM). Refer to Figure 3, Sheets 2 and 3).

(15) Renumber each Part Number of the Tube A/O's and the Moisture Traps as follows:

	Existing	Renumber
Tube A/O	5A8735	5A0446 (See Note 1)
Moisture Trap	5A9375	5A0447 (See Note 2)
Tube A/O	5A8736	5A0448 (See Note 1)
Moisture Trap	5A9374	5A0449 (See Note 2)

NOTE 1: Use the Electrochemical Etching to renumber the Part Number of the Tube A/O.

NOTE 2: Use the Vibro-Peen to renumber the Part Number of the Moisture Trap.

(Refer to Figure 3, Sheets 2 and 3, and Standard Practices/Processes Manual, 70-09-00, Marking of Parts, TASK 70-09-00-400-501).

(16) Purge the insides of reworked PN 5A0446 and PN 5A0448, Tube A/O's, with the Nitrogen or the Dry air with tapping the sides of Moisture Traps to discharge any contaminants and/or moisture/water remained in the tubes.

(17) Send the reworked PN 5A0446 and PN 5A0448, Tube A/O's, back to the engine, and remove each CoMat 02-092, Identification Tag, from the reworked Tube A/O's.

(18) Install PN 5A0448, Tube A/O, to PN 5A9169, Bracket A/O, with PN MS9201-04, Locknut. (Refer to Figure 2, Sheet 2).

(19) Connect the Nut on PN 5A0448, Tube A/O, to PN 5A9093, Tube A/O. (Refer to Figure 2, Sheet 2).

(20) Install the Bolts, the Washers, the Nut, the Clip Nut and the Clips at the clip positions CP1027 and CP1028. (Refer to Figure 2, Sheet 2).

(21) Torque PN MS9201-04, Locknut, to 145 - 155 lbfin (16,38 - 17,51 Nm). (Refer to Figure 2, Sheet 2, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

(22) Safety PN MS9201-04, Locknut, with CoMat 02-126, Lockwire. (Refer to Figure 2, Sheet 2, and Overhaul Processes and Consumable Index, and Aircraft Maintenance Manual, 70-40-11, Installation of Locking Devices TASK 70-40-11-911-012).

(23) Torque the Nut on PN 5A0448, Tube A/0, to 165 - 185 lbfin (18,64 - 20,90 Nm). (Refer to Figure 2, Sheet 2, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

(24) Safety the Nut on PN 5A0448, Tube A/0, with CoMat 02-126, Lockwire. (Refer to Figure 2, Sheet 2, and Overhaul Processes and Consumable Index, and Aircraft Maintenance Manual, 70-40-11, Installation of Locking Devices TASK 70-40-11-911-012).

(25) Connect the Connector on PN 5A9166, Flexible Hose, to PN 5A0448, Tube A/0, and torque the Connector on PN 5A9166, Flexible Hose, to 145 - 155 lbfin (16,38 - 17,51 Nm). (Refer to Figure 2, Sheet 2, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

(26) Safety the Connector on PN 5A9166, Flexible Hose, with CoMat 02-126, Lockwire. (Refer to Figure 2, Sheet 2, and Overhaul Processes and Consumable Index, and Aircraft Maintenance Manual, 70-40-11, Installation of Locking Devices, TASK 70-40-11-911-012).

(27) Torque the Nut and the Bolt to 36 - 40 lbfin (4,07 - 4,52 Nm) at the clip positions CP1027 and CP1028, (Refer to Figure 2, Sheet 2, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

(28) Install PN 5A0446, Tube A/0, to the Bifurcation Panel with two PN 4W0163, Bolts and two PN 4W0002, Nuts. Torque the two Nuts to 85 - 95 lbfin (9,60 - 10,73 Nm). (Refer to Figure 2, Sheet 1, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

(29) Install the Bolts, the Washers, the Nuts and the Clips at the clip positions CP0561, CP1037, CP0565 and CP0544. (Refer to Figure 2, Sheet 1).

(30) Connect the Nut on PN 5A0446, Tube A/0, to PN 5A9093, Tube A/0. (Refer to Figure 2, Sheet 1).

(31) Connect the Nut on PN 5A8762, Tube A/0, to PN 5A0446, Tube A/0. (Refer to Figure 2, Sheet 2).

(32) Torque each Nut on PN 5A9093 and PN 5A8762, Tube A/0's, to 165 - 185 lbfin (18,64 - 20,90 Nm). (Refer to Figure 2, Sheet 2, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

(33) Safety each Nut on PN 5A9093 and PN 5A8762, Tube A/O's with CoMat 02-126, Lockwire. (Refer to Figure 2, Sheet 2, and Overhaul Processes and Consumable Index, and Aircraft Maintenance Manual, 70-40-11, Installation of Locking Devices, TASK 70-40-11-911-012).

(34) Torque the Nuts to 36 - 40 lbfin (4,07 - 4,52 Nm) at the clip positions CP0561, CP1037, CP0565 and CP0544. (Refer to Figure 2, Sheet 2, and Aircraft Maintenance Manual, 70-23-11, Torque Tightening Technique).

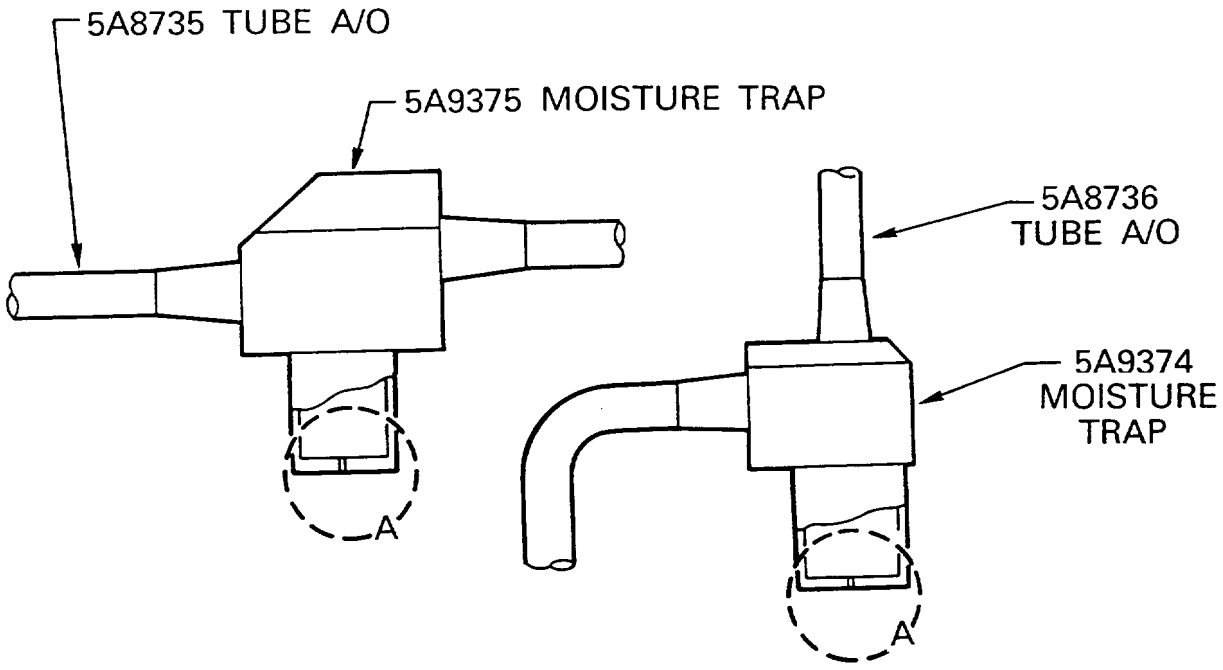
C. Postrequisite Instructions

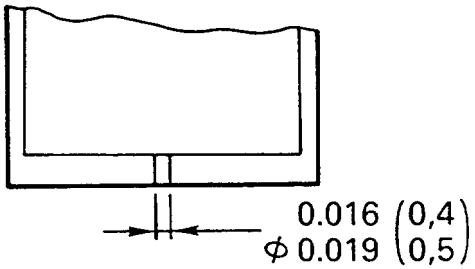
(1) Close the Thrust Reverser Halves. (Refer to Aircraft Maintenance Manual, 78-32-00, Maintenance Practices, TASK 78-32-00-410-010).

(2) Close the Fan Cowls. (Refer to Aircraft Maintenance Manual, 71-13-00, Maintenance Practices, TASK 71-13-00-410-010).

D. Recording Instructions

A record of accomplishment is necessary.

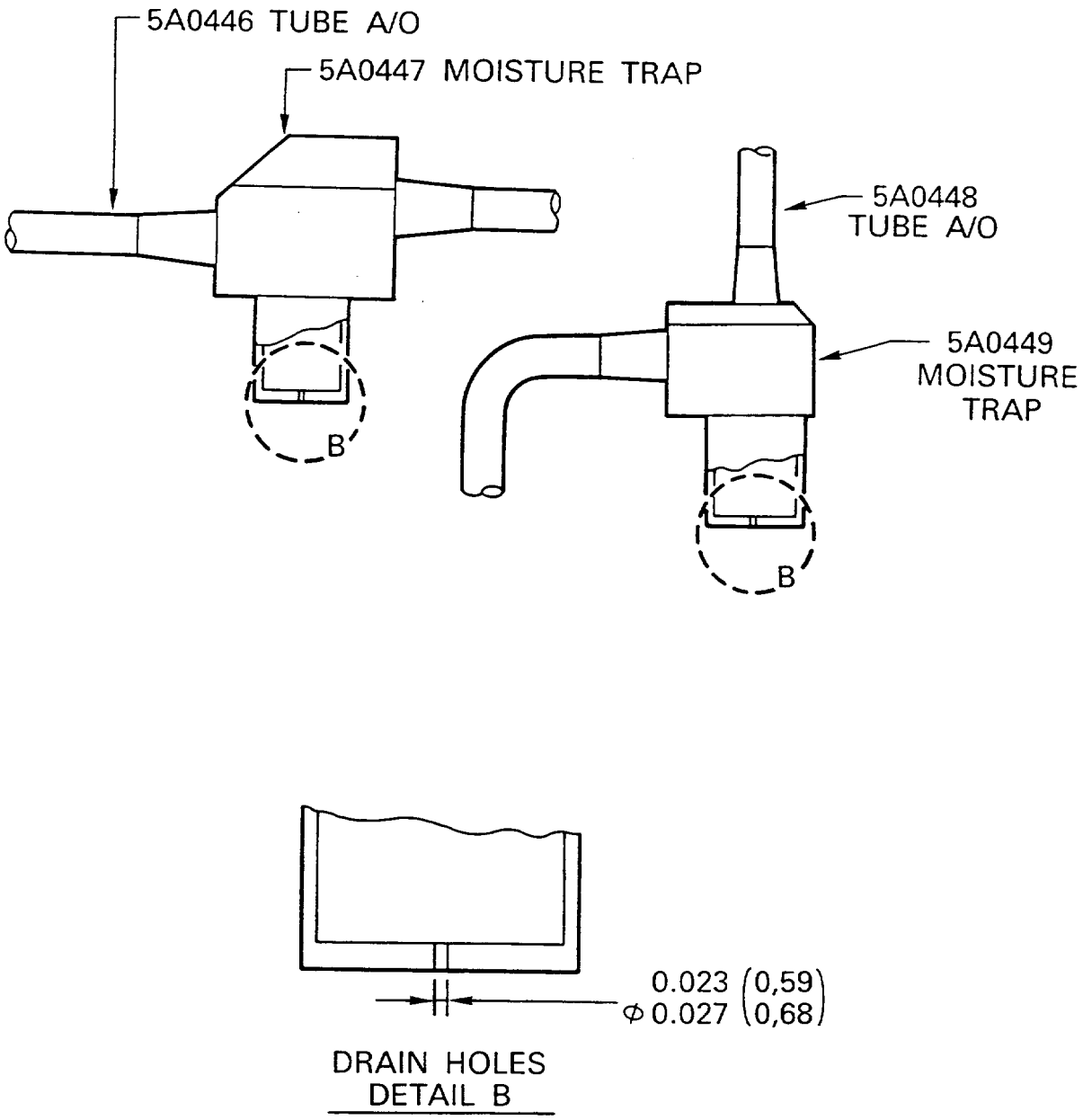




DRAIN HOLES
DETAIL A

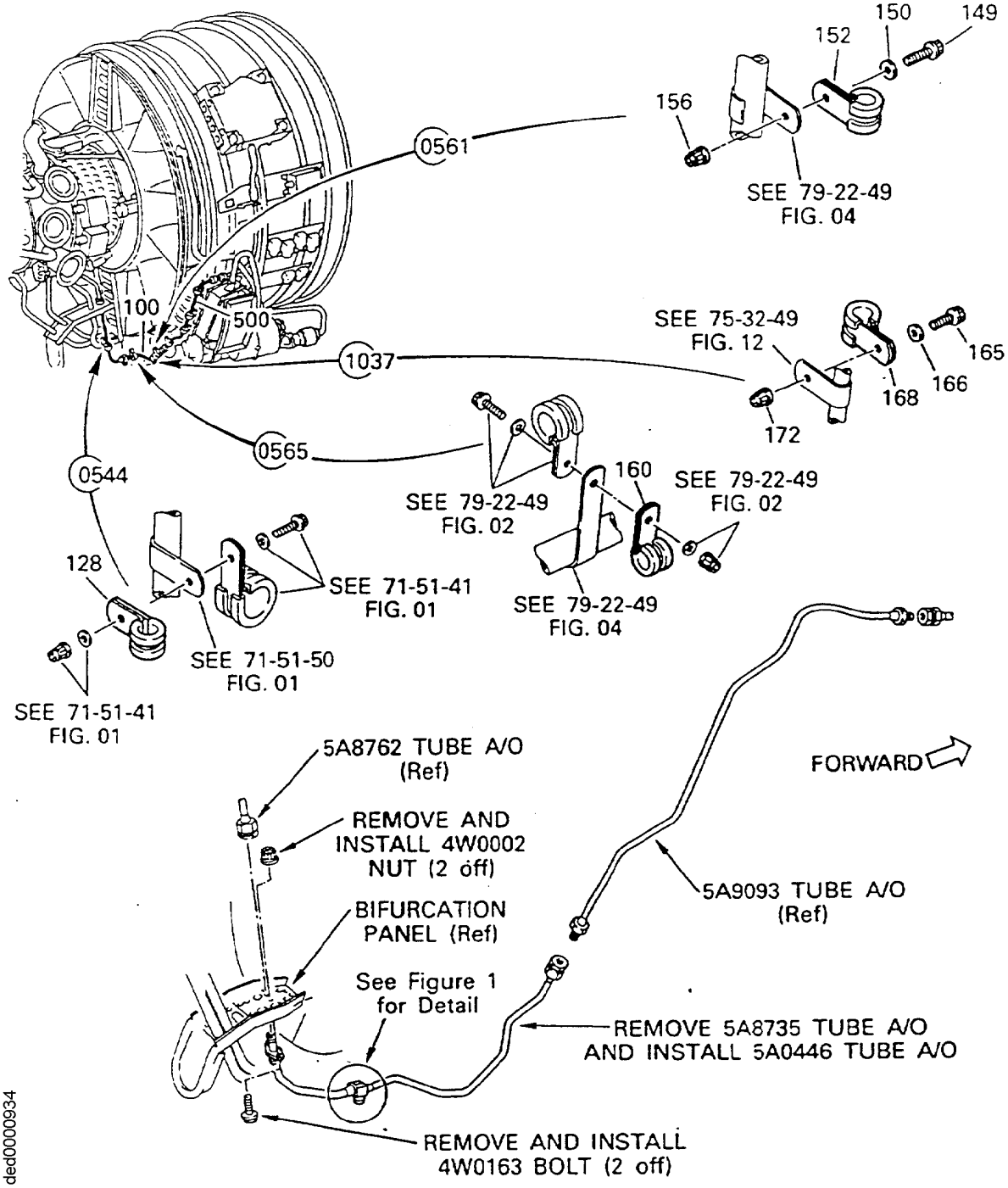
ded0000932

Moisture Traps in the PB Air Tubes (Fuel System Air Tubes) - Before alteration
Fig.1 Sheet 1 of 2

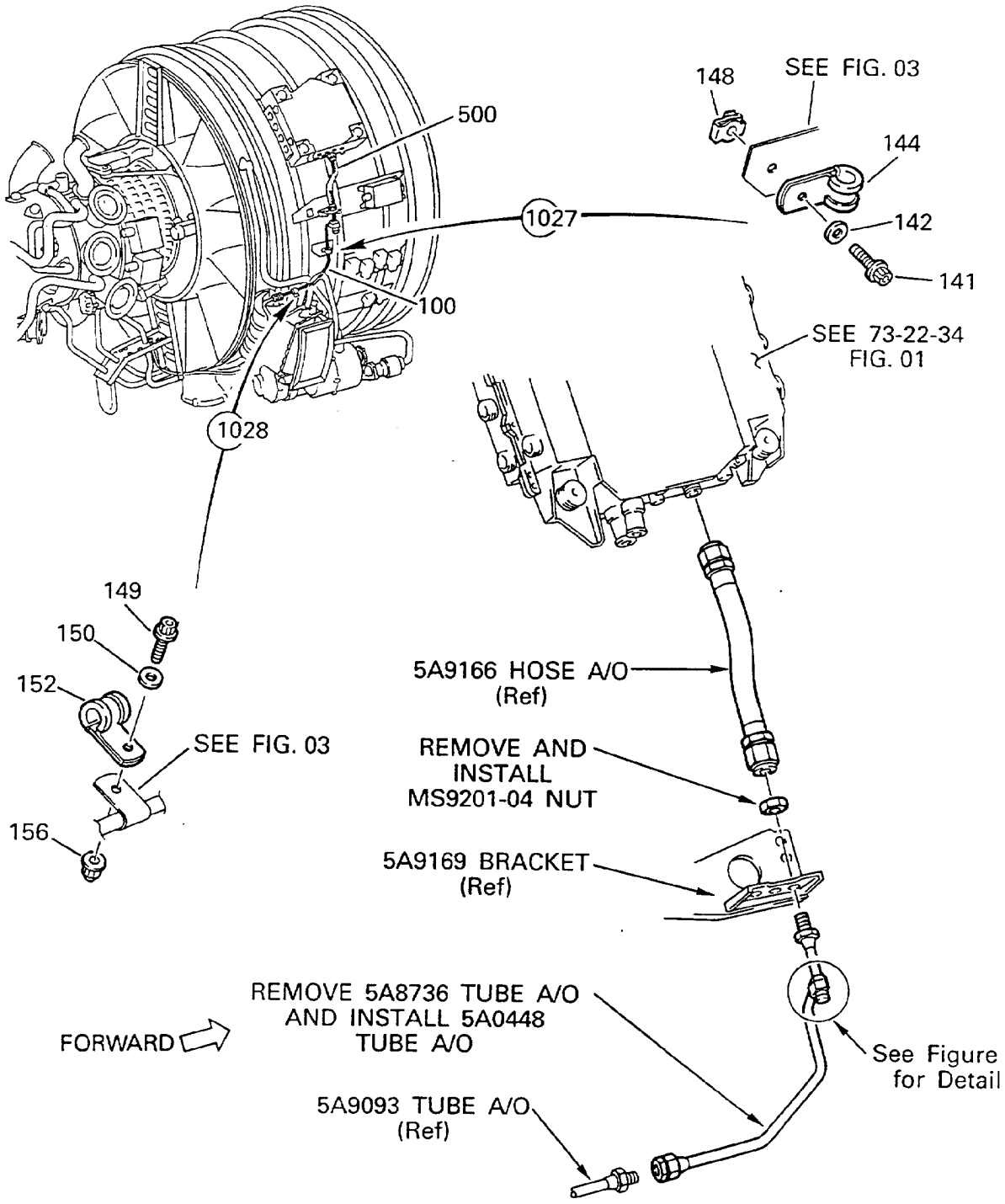


ded0000933

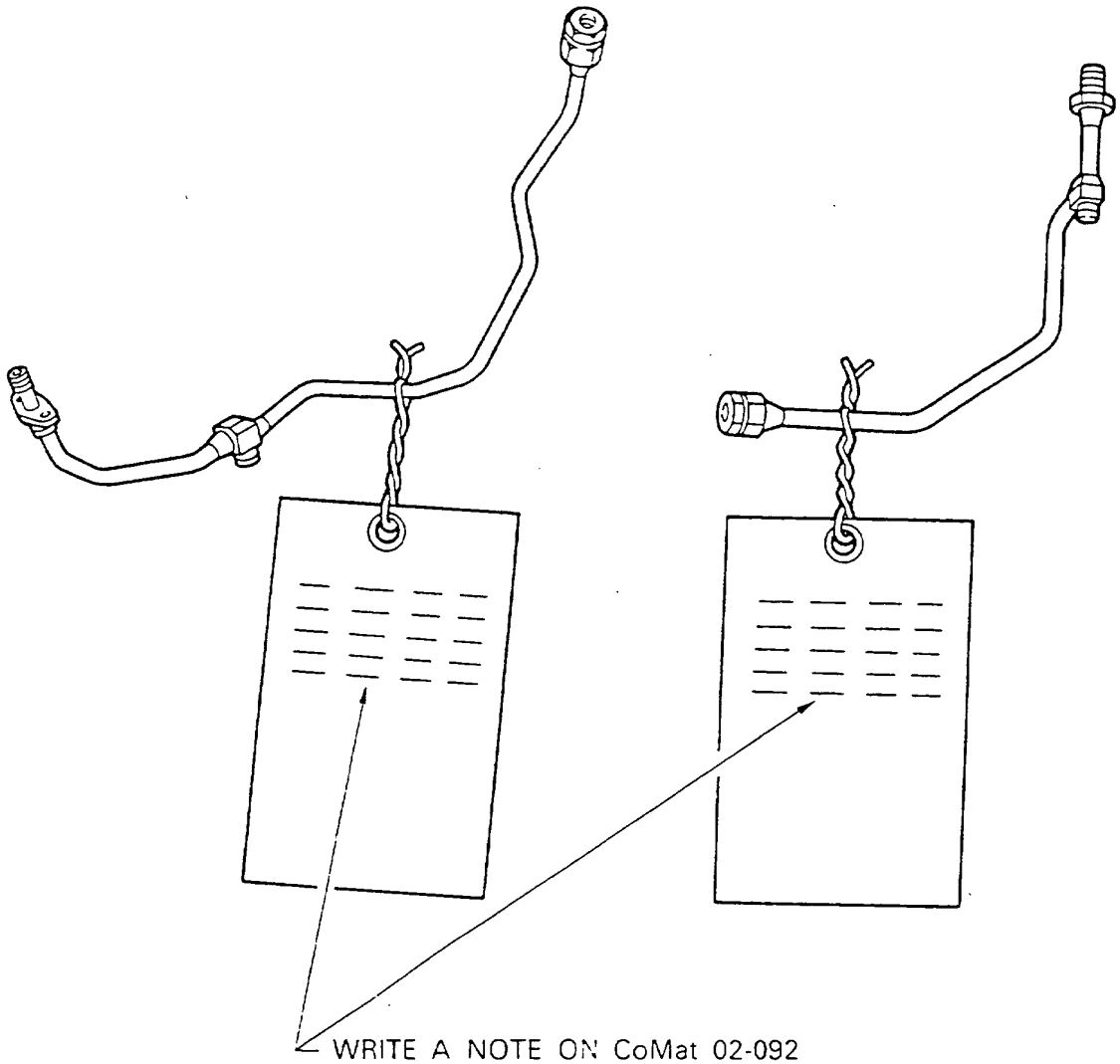
Moisture Traps in the PB Air Tubes (Fuel System Air Tubes) - After alteration
Fig.1 Sheet 2 of 2



Removal/Installation of the PB Air Tubes
Fig.2 Sheet 1 of 2



Removal/Installation of the PB Air Tubes
Fig.2 Sheet 2 of 2



WRITE A NOTE ON CoMat 02-092
IDENTIFICATION TAG AS FOLLOWS:

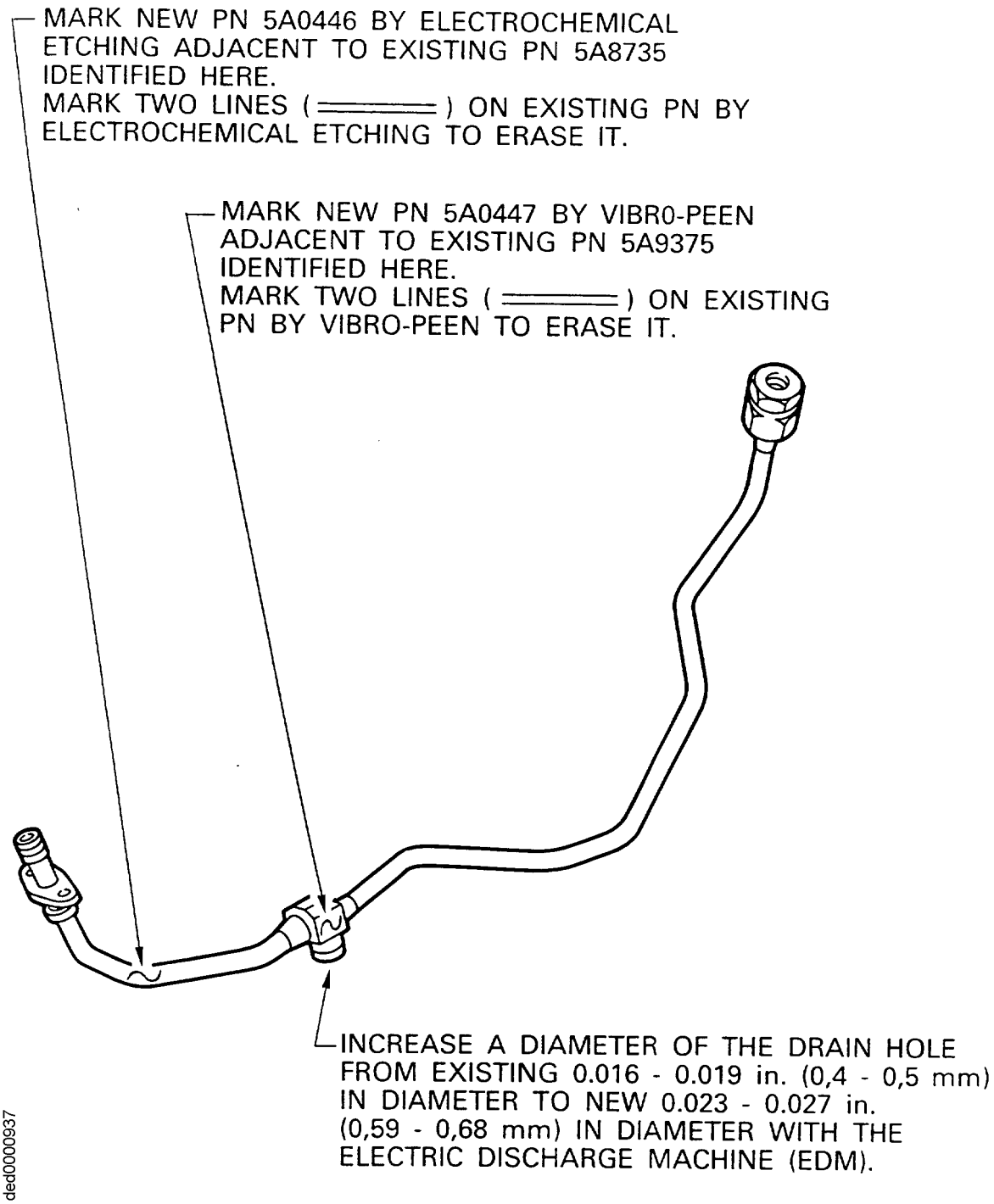
IMPORTANT!

TO PERSONS WHO ACCOMPLISH THIS
S.B. NO: V2500-ENG-73-0011

1. SEND THIS TUBE TO A SHOP WHERE IT IS TO BE REWORKED.
2. DO NOT REMOVE THIS TAG UNTIL THE MODIFICATION BY THIS S.B. IS COMPLETED.

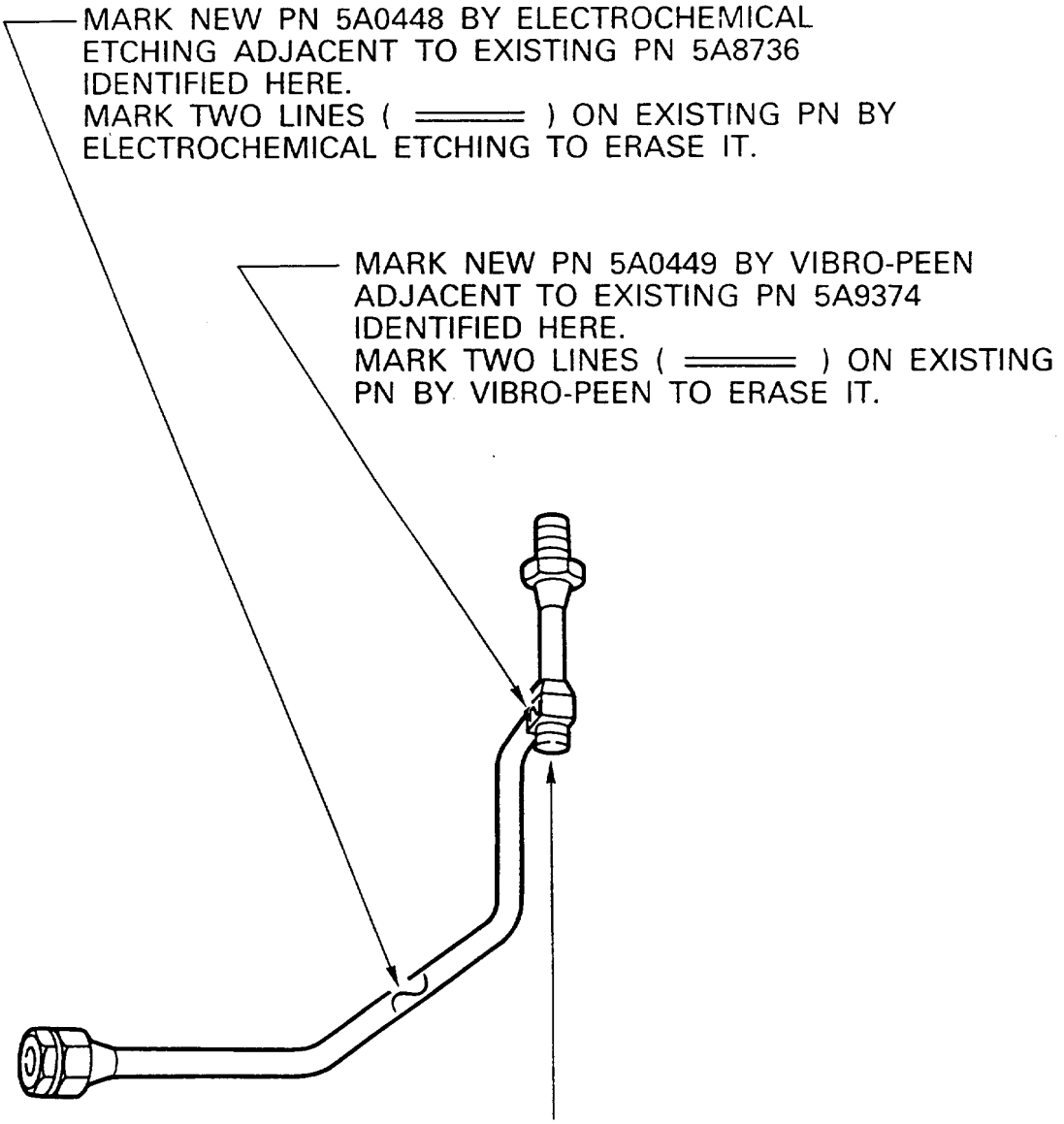
ded0000936

Rework of the PB Air Tubes
Fig.3 Sheet 1 of 3



ded0000937

Rework of the PB Air Tubes
Fig.3 Sheet 2 of 3



ded0000938

Rework of the PB Air Tubes
Fig.3 Sheet 3 of 3

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:					
None					
B. Parts affected by this Bulletin:					
5A0446 (73-22-49)	1		Tube, A/O	5A8735 (06-100)	(A)(B)(S1) (1D)
5A0448 (73-22-49)	1		Tube, A/O	5A8736 (07-100)	(A)(B)(S1) (1D)

C. Instruction/Disposition Code Statements:

(A) New part will be available approximately October 1989.
(B) Old part will no longer be available for sale.
(S1) New part may be used in place of old part, but not vice-versa.
(1D) Old part can be reworked and reidentified to the New Part Number.

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.