V2500 International Aero Engines

Date: Oct.27/00

Subject: Transmittal of Revision 1 To Service Bulletin Number V25000-ENG-73-0139.

Service Bulletin Revision History:

Event	Date
Basic Issue	May4/99
Revision 1	Oct.27/00

Reason For Issuance Of Revision:

(1) To update Concurrent Requirements.

(2) To update Supplemental Information.

(3) To update Service Bulletin references.

(4) Reformatted to latest specifications.

Effect on Prior Compliance:

None.

List of Effective Pages:

Bulletin Page No.	Rev. No.	Effective Date
1 to 9	1	Oct.27/00
10	Basic	May4/99

V2500 International Aero Engines
SERVICE BULLETIN

ENGINE - FUEL AND CONTROL - REPLACE A FUEL NOZZLE SUPPLY MANIFOLD ASSEMBLY AND THE RELATED ATTACHING HARDWARE

MODEL APPLICATION

V2500-A1
V2522-A5
V2524-A5
V2527-A5
V2527E-A5
V2530-A5
V2533-A5

BULLETIN INDEX LOCATOR

73-00-00

Compliance Category Code

7

Internal Reference No.

96VA012J, 96VA012P

May4/99
Revision 1 Oct.27/00

ENGINE - FUEL AND CONTROL - REPLACE A FUEL NOZZLE SUPPLY MANIFOLD ASSEMBLY AND THE RELATED ATTACHING HARDWARE

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320, A321

(2) Engine: V2500-A1 Engines Before Serial No. V0362
V2522-A5 Engines before Serial No. V10489
V2524-A5 Engines before Serial No. V10489
V2527-A5 Engines before Serial No. V10489
V2527E-A5 Engines before Serial No. V10489
V2530-A5 Engines Before Serial No. V10489
V2533-A5 Engines Before Serial No. V10489

B. Concurrent Requirements

Service Bulletin V2500-ENG-72-0329 must be incorporated in conjunction with, or prior to, this Service Bulletin.

To obtain the maximum benefit also Incorporate Service Bulletin V2500-ENG-73-0131.

C. Reason

(1) Condition:

Several instances of cracking of the Fuel Manifold Assemblies have been reported from the field. The cracking has occurred in the ferrule-to-tube braze joint at the end of the manifold assembly that attaches to the Fuel Distribution Valve, and has led to fuel leakage. One instance has resulted in a fire.

(2) Background:

The cracking has been attributed to high stresses, and some instances of inadequate braze joints.

(3) Objective:

Provide a redesigned Fuel Manifold Assembly which features welded ferrules for increased durability and rerouted profiles for more flexibility. The new manifold assemblies are made of a nickel based alloy rather than stainless steel. New Bracketry is also provided to support the new manifold.

(4) Substantiation

This manifold has been extensively analyzed and instrumented. Back to back analysis shows significant improvements in both vibratory and steady stress over the present bill of material designs. These new manifolds were installed on a test engine which ran 47 hours and instrumentation data was recorded. The confirmed improvements were predicted in the analytical models. A nickel alloy is now the norm for small diameter tubes because of its increased strength. There is much experience on commercial, and military engines, using nickel based alloys in applications similar to the new fuel manifold.

(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

See Service Bulletin V2500-ENG-73-0134 for inspection of V2500-A1, A5 Fuel Manifolds for type of braze used at ferrule/manifold joint.

D. Description

(1) Replace one Fuel Manifold Assembly and related hardware at the applicable Location.

E. 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.

The 'compliance' statement and the procedures described 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.

F. Compliance

Category 7

Accomplish when supply of superseded parts has been depleted.

G. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	Not applicable
(2) At overhaul	Not applicable

H. Material - Price and Availability

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

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

I. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

J. Weight and Balance

(1)	Weight change	Plus 0.1 lb (0.05 kg)
(2)	Moment arm	No effect
(3)	Datum	Engine Front mount Centerline (Power Plant station (PPS) 100)

K. Electrical Load Data

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

L. References

(1) IAE V2500 Service Bulletins

V2500-ENG-73-0088 (Engine - Fuel And Control - Replace The Fuel Nozzle Supply Manifold Assemblies (For The V2500-A1, V2522-A5, V2527-A5, V2530-A5 and V2533-A5 Only) And Remove The Gasket Option And Change The Installation Procedure (For All Models)

V2500-ENG-72-0329 (Engine - Fuel And Control - Fuel Systems Air Tubes - Introduction Of Revised EEC Pipe Support Brackets)

V2500-ENG-73-0131 (Engine - Fuel And Control - Replace Certain Fuel Nozzle Supply Manifold Assemblies And The Related Hardware)

V2500-ENG-73-0134 (Engine - Inspection Of V2500-A1, A5 Fuel Manifolds For Type Of Braze Used At Ferrule/Manifold Joint)

(2) The V2500-A1 Engine Illustrated Parts Catalog (S-V2500-1IA), Chapter/Section 73-11-41

(3) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA, S-V2500-2IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, S-V2500-7IB), Chapter/Section 73-11-41

(4) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-00-40, Removal/Installation

M. Other Publications Affected

(1) The V2500-A1 Engine Illustrated Parts Catalog (S-V2500-1IA), Chapter/Section 72-40-00 and 73-11-41

(2) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA, S-V2500-5IA, S-V2500-6IA), Chapter/Section 72-40-00 and 73-11-41

(3) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA, S-V2500-2IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, S-V2500-7IB), Chapter/Section 72-00-40, Removal/Installation

(4) This Service Bulletin is subject of Airbus aircraft modification No. 28243

2. Material Information

A. Kit 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
Applicability: For each V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5 Engine to incorporate this Bulletin which incorporate V2500-ENG-73-0088.					
2A3257-01 (73-11-41)	1		.Manifold Assy.	2A3230-01 (01-160)	(S1)(A)(B)
			OR		
(73-11-41)	1		.Manifold Assy.	2A0508-01 (01-160)	(B)
ST2121-07 (73-11-41)	1	24.50	..Nut	- (01-200)	(A)
ST2121-08 (73-11-41)	2	24.50	..Nut	- (01-202)	(A)
354581 (73-11-41)	2		.Wire Thrust	- (01-245)	(A)
690704 (73-11-41)	1		.Wire Thrust	- (01-250)	(A)
2A3430 (73-11-41)	1		.Bracket Loop Clamp	2A3335 (01-258)	(S1)(A)(B)
2A3276 (72-40-00)	1		.Bracket Loop Clamp	2A1938-01 (01-140A)	(S1)(A)(B)
(72-40-00)	1		.Bracket Loop Clamp	2A1939 (01-80A)	(S1)(B)
ST1540-05 (73-11-41)	1	4.80	.Clamp Cushion Loop	- (01-365)	(S1)(A)(C)
4W0103 (73-11-41)	1	4.86	.Bolt	- (01-380)	(S1)(A)(C)
4W0001 (73-11-41)	1	2.80	.Nut Cushion Loop	- (01-420)	(S1)(A)(C)

C. Instructions/Disposition Code Statements:
(S1) The new parts coded (S1) must replace the Old Parts coded (S1) in complete sets per Engine.
(A) The new part is currently available.
(B) The old part will no longer be supplied.
(C) The quantity is increased by one units.

NOTE: The estimated 1998 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.

3. Accomplishment Instructions

A. Replace either the 2A3230-01 or the 2A0508-01 Fuel Nozzle Supply Manifold Assembly with the 2A3257-01 Fuel Nozzle Supply Manifold Assembly (1 off), with the parts specified in Figure 1 Sheets 1 and 2, by the procedure given in Reference 4, Engine Manual, Chapter/Section 72-00-40, Installation-07, and as follows:

(1) Use the procedure for the post V2500-ENG-73-0088 configuration except as follows:

(a) Install the bracket by Figure 1 and as specified.

NOTE: Remove the 2A1938-01 Bracket Assembly and the 2A1939 Bracket from the engine when the new configuration is installed. See Figure 1 (Sheets 1 and 2). Remove (2 off) MS122904 Clamps, (1 off) ST1540-05 Clamp, and retain related Bolts and Nuts for reuse.

1 Install the 2A3430 Loop Clamp Bracket (1 off) at the No. 3 Fuel nozzle.

NOTE: The 2A3430 Bracket is located on top of the 2A1466 Bracket. Two of the holes in the diffuser case pad are used for bolts that attach both of the brackets.

a Install the MS9575-13 Bolts (3 off) that hold the brackets to the diffuser case assembly with your fingers.

(b) Install 2A3276 Bracket on "K" flange by figure 1 and as specified.

1 Replace 2A1938-01 Loop Clamp Bracket (1 off) at hole locations 89, 90, and 91.

a Install the 4W0649 Bolts (3 off) through the bolt holes in the flange and the bracket.

b Install the 4W0003 Nuts (3 off) on the bolts with your fingers.

(c) Install the 2A3257-01 (tube AL) Fuel Nozzle Supply Manifold Assembly (1 off) by the procedure given in Reference (4), Engine Manual, Chapter/Section 72-00-40, Installation-07, and as follows:

NOTE: You can remove and install 2A3258 or 2A3259-01 Fuel Nozzle Manifold Supply or disconnect and connect the Loop Clamps for ease of accomplishment.

1 Install ST1540-05 Loop Clamps (3 off) at the Bracket location and position it so the bolt hole lines up with the bolt hole in the bracket.

2 Install the 4W0103 Bolts (3 off) to attach the loop clamp to the bracket.

3 Install the 4W0001 Nuts (3 off) to the bolt and tighten it with your fingers.

(d) Torque the flange nuts by the procedure specified in Reference (4) Engine Manual, Chapter Section 70-00-42, Installation-01.

(e) Torque the Attachment bolts by the procedure specified in Reference (4) Engine Manual, Chapter/Section 70-00-42, Installation-01.

(f) Complete the installation by the procedure given in Reference (4), Engine Manual, Chapter/Section 72-00-40, Installation-07.

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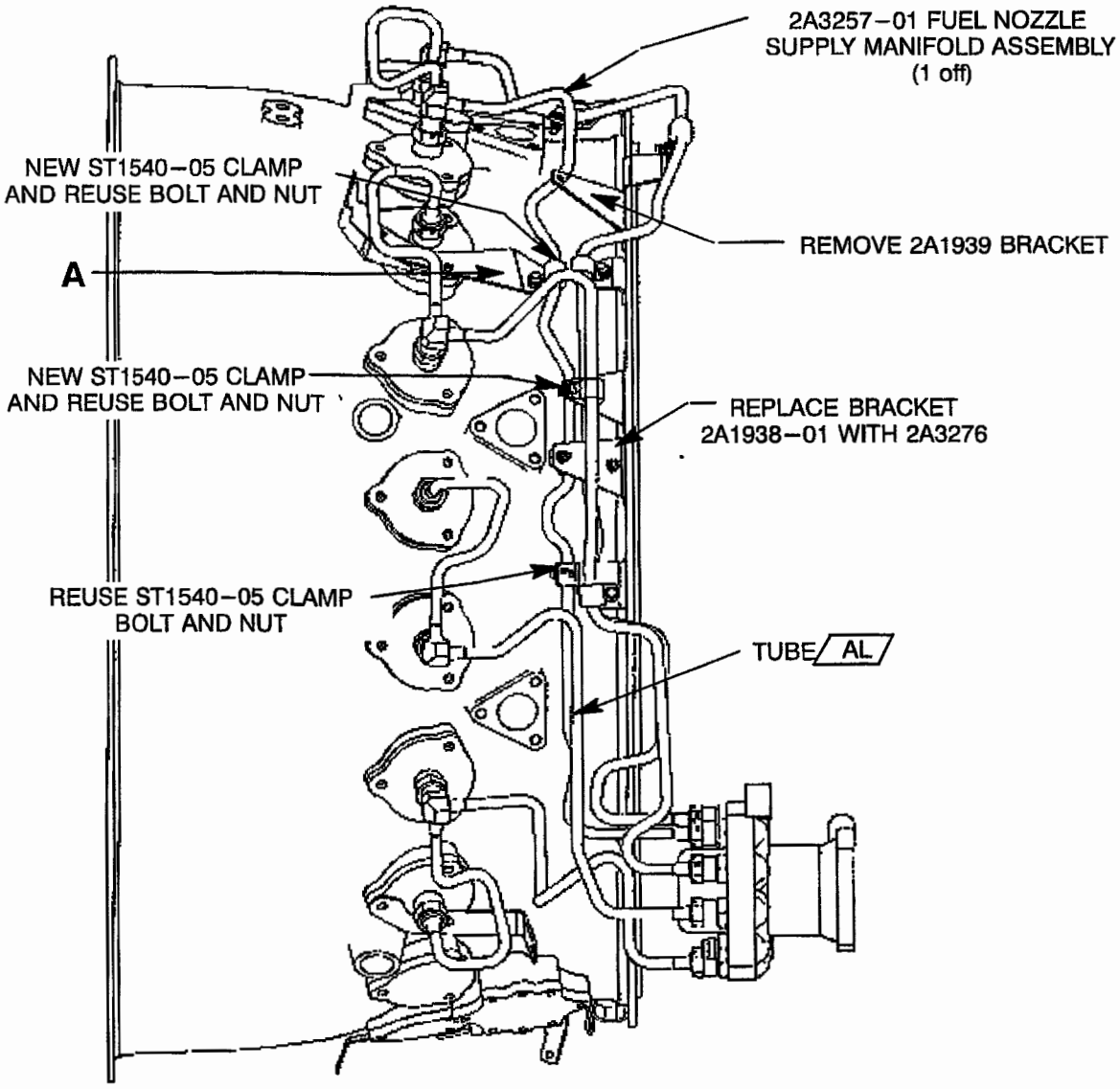
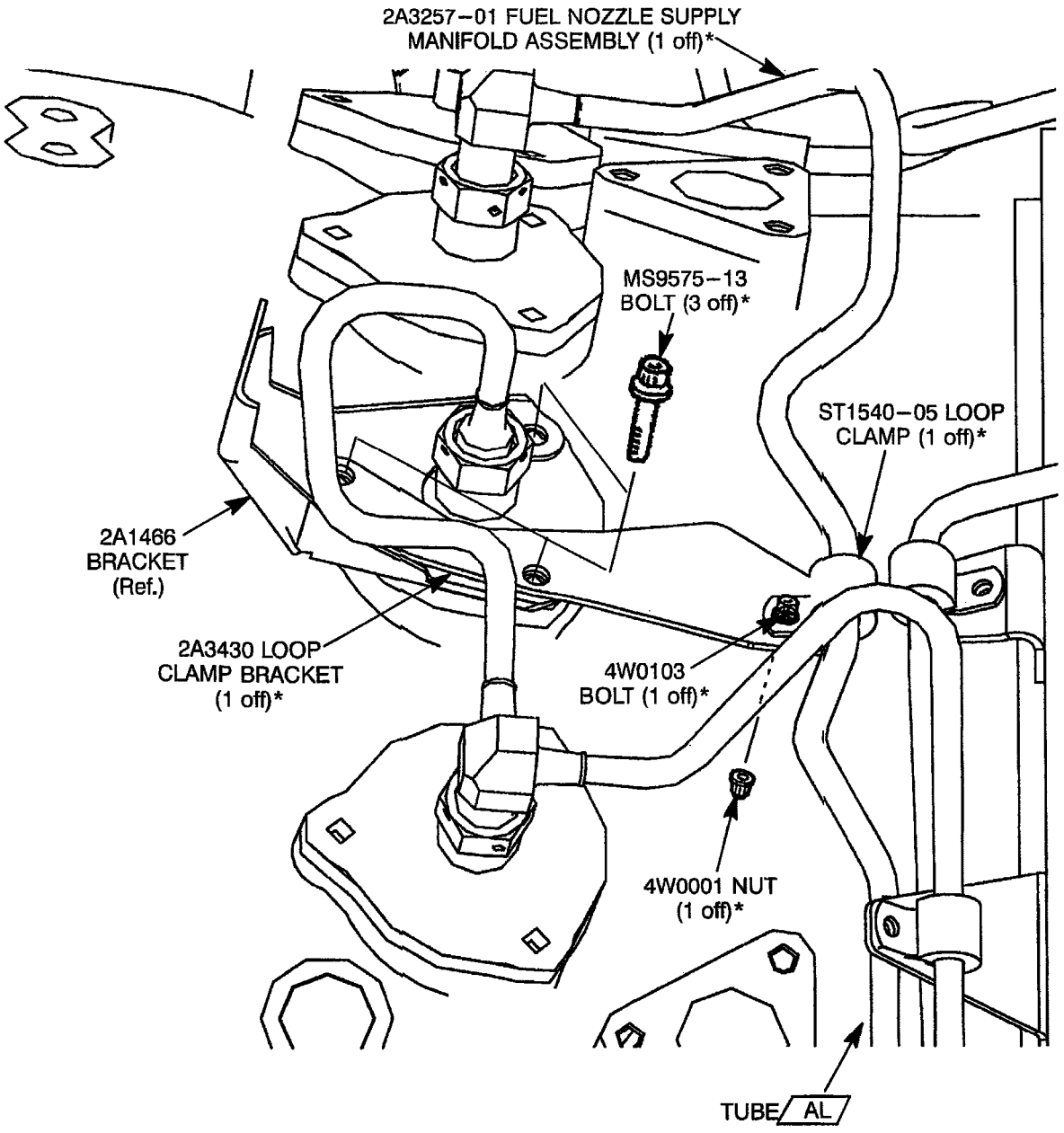
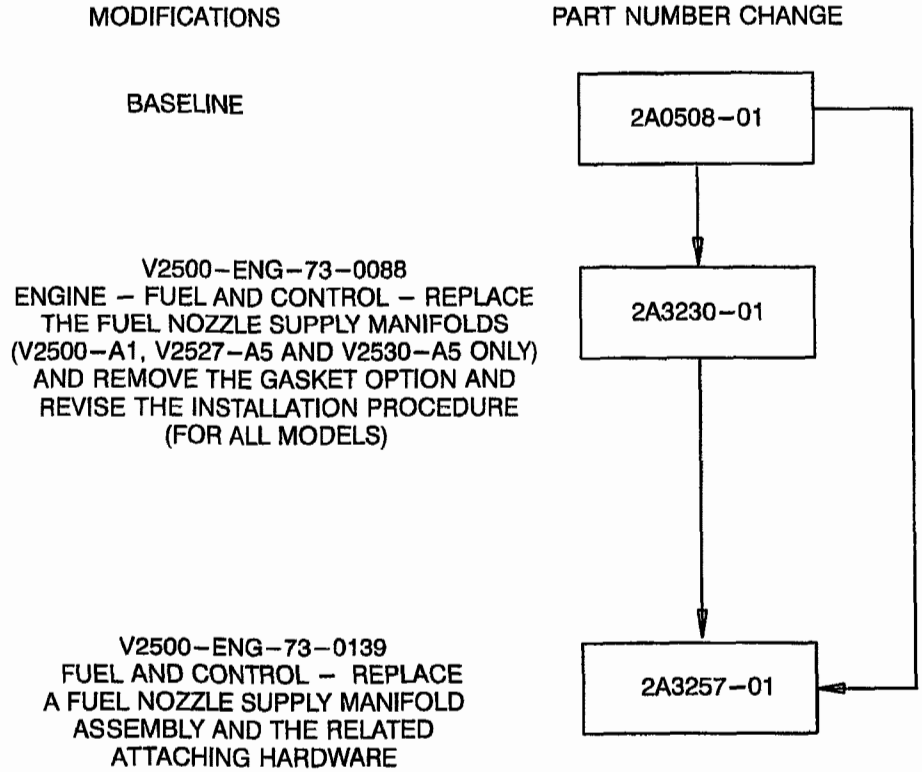


Location of the Fuel Nozzle Supply Manifold Assembly
Figure 1 (Sheet 1)



Location of the Fuel Nozzle Supply Manifold Assembly
Figure 1 (Sheet 2)



Family Tree - Ref. Catalog Sequence No 73-11-41. Fig. 01 Item 160
Figure 2