V2500 International Aero Engines

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

Date: April 17, 1998

Subject: Transmittal of Revision 1 to Service Bulletin Number V2500-NAC-78-0138

Service Bulletin Revision History:

Event	Date
Basic Issue	Dec. 04/97
Revision 1	Apr. 17/98

Reasons for Issuance of Revision

(1) To clarify the accomplishment instructions.

Effect on Past Compliance

(1) None.

List of Effective Pages:

Page No.	Rev. No.	Date
1 thru 31	1	Apr. 17/98

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

V2500 International Aero Engines

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

NACELLE - EXHAUST - LOWER THRUST REVERSER, CORE DRAIN MAST MODIFICATION OF

MODEL APPLICATION

V2500-D5

BULLETIN INDEX LOCATOR

78-00-00

Compliance Category Code

4

Internal Reference No.

JG 97VN300

December 4, 1997
Revision 1 - April 17, 1998

V2500-NAC-78-0138

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

1. Planning Information

A. Effectivity

(1) Airplane: MD-90

(2) Nacelle: V2500-D5 thrust reversers serial numbers 0021001 thru 0427001.

B. Reason

(1) Condition

The lower thrust reverser engine core drain mast has experienced tube wall failures due to vibration and wear. The core drain mast must provide adequate overboard drainage in the event of a major engine fuel leak.

(2) Background

Operators have experienced failed core drain mast assemblies. In some cases, components of the assembly have caused secondary damage to the thrust reverser.

(3) Objective

Modify the drain mast installation to prevent the possibility of tube wall failure and secondary damage.

(4) Substantiation

Not applicable.

(5) Impact of Bulletin on Workshop Procedures:

Removal/Installation	Affected
Disassembly/Assembly	Affected
Cleaning	Affected
Inspection/Repair	Affected
Repair	Affected
Testing	Not Affected

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

(6) Supplemental Information

None.

C. Description

The drain mast seal retainers and seal are removed. The drain mast lower fairing is removed. The drain mast upper fairing is shortened. The drain tube is shortened. A flange is installed in the shortened drain tube. The new removable drain mast subassembly is installed on the flanged tube. The drain mast seal and retainers are installed on the drain mast subassembly. A new lower fairing is installed.

NOTE: It is necessary to do this Service Bulletin for all thrust reversers listed in paragraph 1.A. This is true even if temporary repair VRS2599 has been done.

D. Approval

Incorporation of this Service Bulletin must be accomplished only in conjunction with Douglas Aircraft Company Service Bulletin MD-90-78-025 which has received exclusive FAA approval for MD-90 Series aircraft.

E. Compliance

Category 4

Accomplish at the first visit of the nacelle or nacelle component to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action for the nacelle or nacelle component.

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

F. Manpower

Estimated manhours to incorporate the full intent of this Bulletin for each nacelle:

VENUE			ESTIMATED MANHOURS
(1)	In Service		
	(a) To gain access		0.5 M/Hrs.
R	(b) To rework		9.0 M/Hrs.
	(c) To return to service		0.5 M/Hrs.
R		Total	10 M/Hrs.
(2)	In Shop		
R	(a) To Rework		9.0 M/Hrs.
R		Total	9.0 M/Hrs

NOTE: After incorporation of this modification, a maximum of
R 18.0 manhours for labor will be reimbursed by Rohr as a labor credit allowance per affected aircraft. To obtain a labor credit allowance after procurement of noted material, labor claims should reference this service bulletin number and aircraft fuselage number and be submitted to:

Rohr, Inc.
850 Lagoon Drive
Chula Vista, CA 91910-2098
Attn: Airline Account Manager, MZ 107A
(Ref. Service Bulletin V2500-NAC-78-0138)

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

G. Material - Cost and Availability

The parts to do this Service Bulletin are available from Rohr Inc. as kit V2578138-551 at no cost to the operator.

Operators with units shown in Paragraph 1.A. should submit a no charge purchase order for the applicable quantity of kits. The purchase order must give this Service Bulletin number with applicable operator serial numbers and list only the parts shown in reference kit. Operators will have one year from service bulletin issue date to place an order for the parts in applicable quantities. After one year operators will be required to purchase parts at the current catalog price, if they desire to incorporate this change.

Direct purchase order to:
Rohr, Inc
850 Lagoon Drive
Chula Vista, CA 91910-2098
Attn: Airline Account Manager, MZ 107A
(Ref. Service Bulletin No. V2500-NAC-78-0138)

H. Tooling - Cost and Availability

Not applicable.

I. Weight and Balance

(1) Weight change . . . . . 0.46 lb per nacelle

(2) Moment arm . . . . . None

(3) Datum . . . . . .Front Engine Mount Centerline . . . . . .(Power Plant Station (PPS) 100.0

J. Electrical Load Data

Not Applicable.

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

K. References

MD-90 Aircraft Maintenance Manual	78-32-00
IAE V2500 Standard Practices/Processes Manual (SPP-V2500-1IA)	70-09-00
Overhaul Processes/Consumable Index (PCI-V2500-1IA)	

L. Other Publications Affected

MD-90 Engine Illustrated Parts Catalog (S-V2500-3IA)	78-32-09
MD90/V2500D5 Thrust Reverser Component Maintenance Manual (CMM-TR-V2500-3IA)	78-32-00

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

2. Accomplishment Instructions

A. Pre-requisite Instructions

(1) Move the translating sleeves 8 to 10 inches (20.0 to 25.4 cm) from the stowed position to get access to the thrust reverser drain mast. Refer to the MD-90 Aircraft Maintenance Manual, Chapter 78-32-00, page block 201.

B. Modification Instructions

NOTE: This procedure is the same for the lower left and lower right thrust reverser.

NOTE: This procedure is the same for thrust reversers with and without VRS2599 except where noted.

R (1) Remove the six NAS8703U2 bolts and the 290-0200-1 lower fairing from the 290-0212-501 splice and 290-0204-501 closure. Discard the bolts and the lower fairing. Refer to Figure 1, sheet 2.

(2) For thrust reversers with repair VRS2599:

(a) Remove the NAS1922-150-3 clamp, the 290-0200-7 and 290-0200-8 retainers, the 290-0207-501 seal, the VRS2599-B retainers, and the 290-0205-501 spring from the VRS2599-A end fitting. Discard the VRS2599-B retainers and the spring. Refer to Figure 1, sheet 2.

(b) Remove the nut, bolt, and end fitting VRS2599-A from the tube assembly. Discard the nut, the bolt and the end fitting. Refer to Figure 1, sheet 2.

(3) For thrust reversers without repair VRS2599:

(a) Remove the NAS1922-150-3 clamp, the 290-0200-7 and 290-0200-8 retainers, and the 290-0207-503 seal from the 290-0203-501 tube assembly. Refer to Figure 1, sheet 2.

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

(b) Remove the three 290-0200-5 screws, the 290-0206-501 sleeve, and the 290-0205-501 spring from the 290-0203-501 tube assembly. Discard the screws, the sleeve, and the spring. Refer to Figure 1, sheet 2.

(5) Remove the rivets and the 290-0204-501 closure as shown in Figure 1, sheet 4.

(6) Remove 2.41 inches (61.2 mm) from the bottom aft edge of the 290-0202-501 fairing. Make sure the cut is perpendicular to the aft surface and does not affect the 290-0203-501 tube assembly. Remove all burrs and sharp corners. Refer to Figure 1, sheet 4.

(7) Re-identify the fairing from 290-0202-501 to 290-0199-3B. Use ink (CoMat 06-073) and a rubber stamp. Refer to the IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

(8) Remove material from the 290-0204-501 closure as shown in Figure 1, sheets 5 and 6. Remove all burrs and sharp corners.

(9) Reidentify the closure from 290-0204-501 to 290-0199-5B. Use ink (CoMat 06-073) and a rubber stamp. Refer to the IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

(10) Measure 0.25 inch (6.35 mm) up from the bottom of the flange and make a cut through the 290-0203-501 tube assembly. Make sure the cut is perpendicular to the tube centerline. Remove all burrs. Refer to Figure 1, sheet 6.

(11) Re-identify the tube assembly from 290-0203-501 to 290-0199-9B. Use ink (CoMat 06-073) and a rubber stamp. Refer to the IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

(12) Remove material from the 290-0208-507 bracket on the tube assembly. Remove all burrs and sharp corners. Refer to Figure 1, sheet 6.

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

WARNING: SOLVENT (COMAT 01-438) IS CLASSIFIED AS A HAZARDOUS MATERIAL WHICH MAY CAUSE INJURY OR ILLNESS IF NOT PROPERLY USED. THIS PRODUCTS SHOULD BE USED ONLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC SAFETY AND HEALTH RECOMMENDATIONS. PRIOR TO THE USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(13) Clean all modified areas with a clean lint free cloth (CoMat 02-099) made moist with solvent (CoMat 01-438). Wipe the surfaces dry before the solvent becomes dry.

WARNING: CONVERSION COATING (COMAT 07-106) IS CLASSIFIED AS A HAZARDOUS MATERIAL AND MAY CAUSE INJURY OR ILLNESS IF NOT PROPERLY USED. THIS PRODUCT SHOULD BE USED ONLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC SAFETY AND HEALTH RECOMMENDATIONS. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(14) Apply conversion coating (CoMat 07-106) to the exposed aluminum surfaces. Refer to the manufacturer's instructions.

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

WARNING: PRIMER CONVERTER (COMAT 07-115), THINNER (COMAT 07-116), AND PRIMER BASE (COMAT 08-093) ARE CLASSIFIED AS HAZARDOUS MATERIALS AND MAY CAUSE INJURY OR ILLNESS IF NOT PROPERLY USED. THESE PRODUCTS SHOULD BE USED ONLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC SAFETY AND HEALTH RECOMMENDATIONS. PRIOR TO USE OF THESE PRODUCTS, CAREFULLY READ THE APPLICABLE "MATERIAL SAFETY DATA SHEETS" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(15) Mix the primer converter (CoMat 07-115), thinner (CoMat 07-116), and primer base (CoMat 08-093). Refer to the manufacturer's instructions.

(16) Apply the primer mix to the exposed aluminum surfaces. Allow the primer to dry. Refer to the manufacturer's instructions.

NOTE: Keep some of the primer mix for installation of fasteners.

(17) Install two MS21076L3N nut plates on the 290-0199-5B closure assembly with the MS20427M3 rivets. Use existing fastener locations to locate nutplates. Wet install the rivets with the primer mix. Refer to Figure 1, sheet 5.

(18) Put the 290-0199-1B flange into the 290-0199-9B tube assembly. Make sure the fastener holes which are 1.09 inches (27.69 mm) apart are pointed aft. Drill holes for and install three CR3523-5-2 rivets. Wet install the rivets with primer mix. Refer to Figure 1, sheets 7, 8, 9, and 16.

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

(19) Put the 290-0199-7B bracket into position on the 290-0199-9B tube assembly bracket. Make sure equal space exists between the 290-0199-3B fairing and the 290-0199-7B bracket on both sides of the bracket. Drill holes for and install four CR3523-5-2 rivets through the 290-0199-7B bracket and the bracket on the tube assembly. Wet install the rivets. Refer to Figure 1, sheets 11, 12, and 13.

R NOTE: If necessary for access, you may lower the location
R of all four fastener holes. Be sure to maintain
R correct fastener edge distance.

R (20) Install the 290-0199-5B closure with the MS3522-5-3
R rivets. Wet install the rivets with primer mix. Refer to
R Figure 1, sheet 10.

R NOTE: You will need to get some MS3522-5-3 rivets because
R there are note enough in the kit. You can order the
R rivets from Rohr, or, get the rivets locally and
R include the price of the rivets in your warranty
R claim for this service bulletin.

(21) Put two MS21076L3N nutplates on the 290-0199-7B bracket over the existing holes. Drill holes for and install four
R MS20427M3-3 nutplate attach rivets. Wet install the rivets
R with primer mix. Refer to Figure 1, sheet 12.

WARNING: ADHESIVE (COMAT 08-104) IS CLASSIFIED AS A HAZARDOUS MATERIAL AND MAY CAUSE INJURY OR ILLNESS IF NOT PROPERLY USED. THIS PRODUCT SHOULD BE USED ONLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC SAFETY AND HEALTH RECOMMENDATIONS. PRIOR TO USE OF THIS PRODUCT, CAREFULLY READ THE APPLICABLE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(22) Put the 290-0212-503 splice into position. Drill holes for and install the six CR3522-5-3 and two CR3522-5-4 rivets. Wet install the rivets with primer mix. Refer to Figure 1, sheet 10. Fill spaces up to 0.030 inch (0.762 mm) between the 290-0212-503 splice and the 290-0199-7B bracket with

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

liquid shim (CoMat 08-104). Fill spaces from 0.030 to 0.060 inch (0.762 to 1.52 mm) with liquid shim (CoMat 08-104) and
R S700S0497-83 (MIL-S-22499) laminated shim. Taper the laminated shim as required. Use liquid shim up to 0.030 inch (0.762 mm) maximum thickness. Fill spaces between the 290-0212-503 splice and the 290-0199-3B fairing and the 290-0199-5B closure with liquid shim (CoMat 08-104) only.

(23) Attach the 290-0921-501 drain mast subassembly to the 290-0199-1B flange with four NAS6303-3 bolts, AN960C10L washers, and MS21043-3 nuts. Refer to Figure 1, sheet 16.

(24) Install the 290-0207-503 seal, 290-0200-7 and 290-0200-8 seal retainers, and NAS1922-150-3 clamp on the drain mast subassembly. Refer to Figure 1, sheet 3.

(25) Install the 290-0200-9 lower fairing with four NAS8703-2 bolts and two NAS8703-3 bolts. Refer to Figure 1, sheet 17.

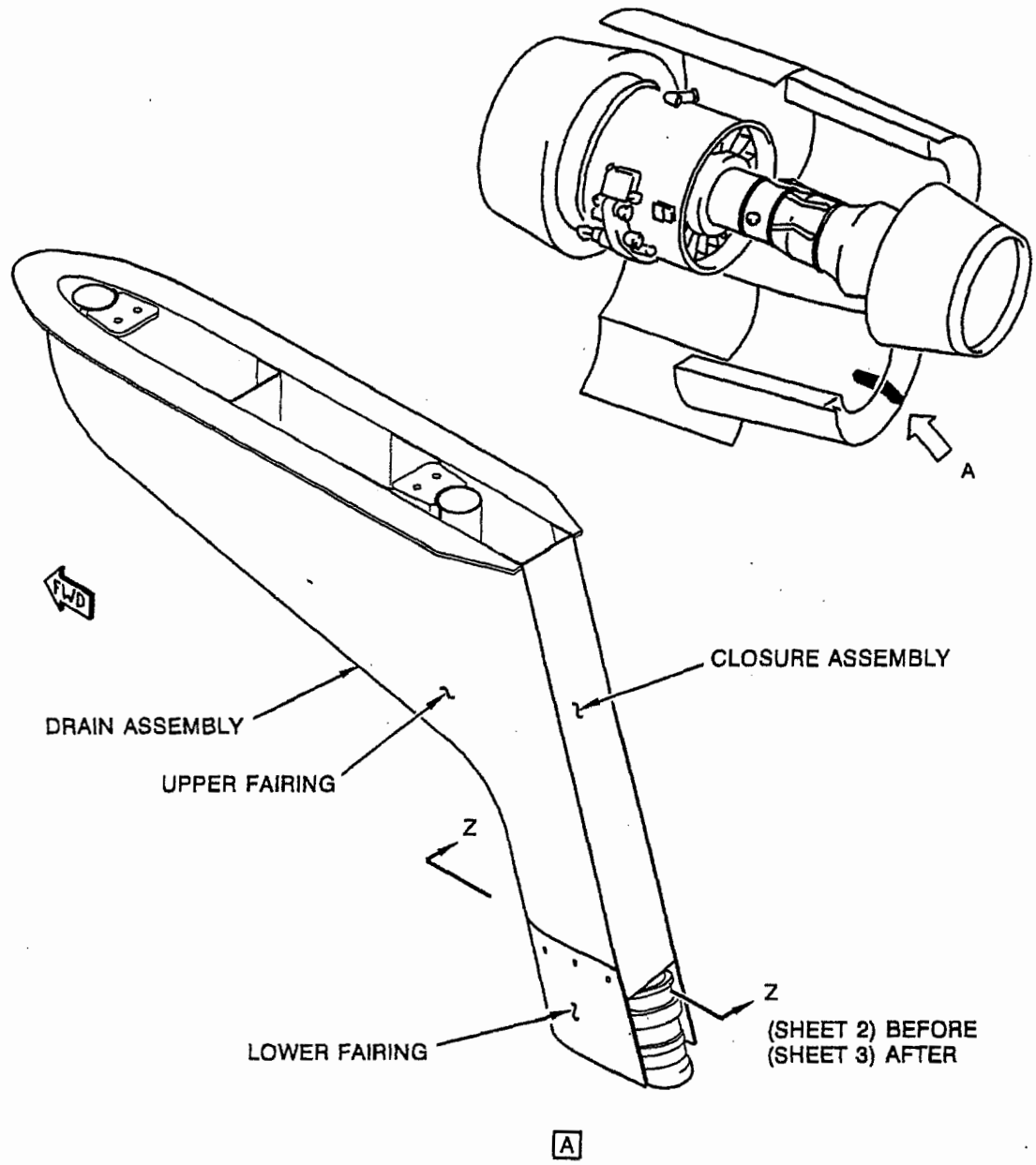
D. Post-requisite Instructions

(1) Move the translating sleeves to the fully stowed position. Refer to the MD-90 Aircraft Maintenance Manual, Chapter 78-32-00, page block 201.

E. Recording Instructions

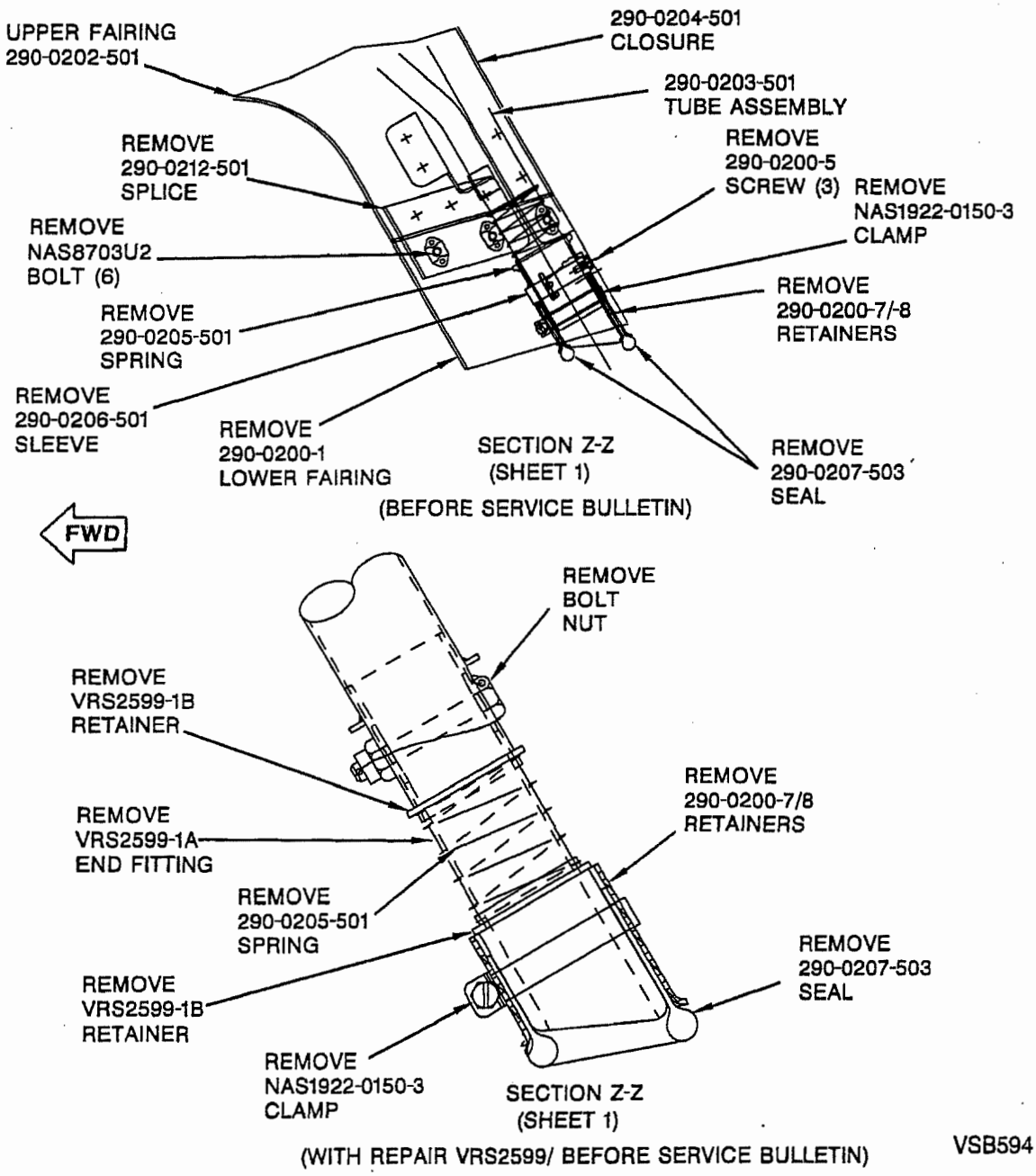
(1) A record of accomplishment is necessary. Write in the aircraft log and metal stamp, vibroetch, or electroetch on the thrust reverser assembly data plate that Service Bulletin V2500-NAC-78-0138 has been done. Refer to the IAE V2500 Standard Practices/Processes Manual, Chapter 70-09-00.

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



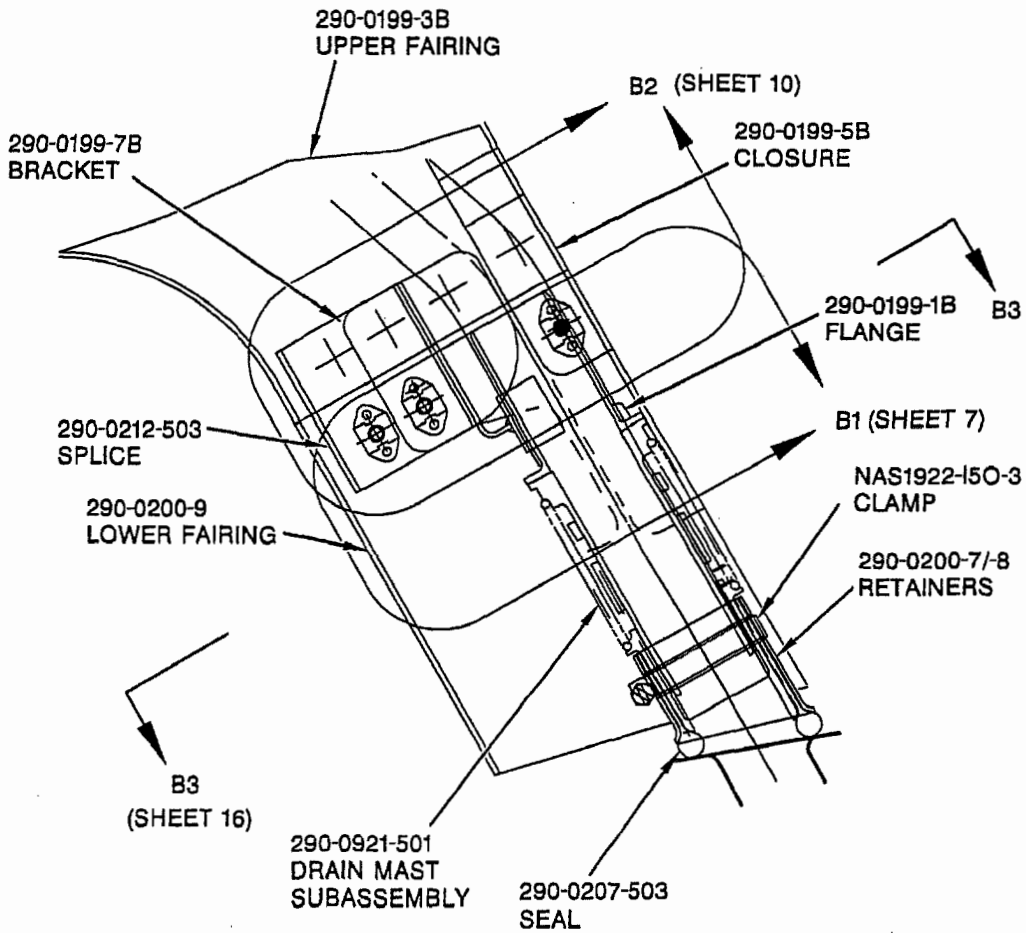
Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 1)

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



Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 2)

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



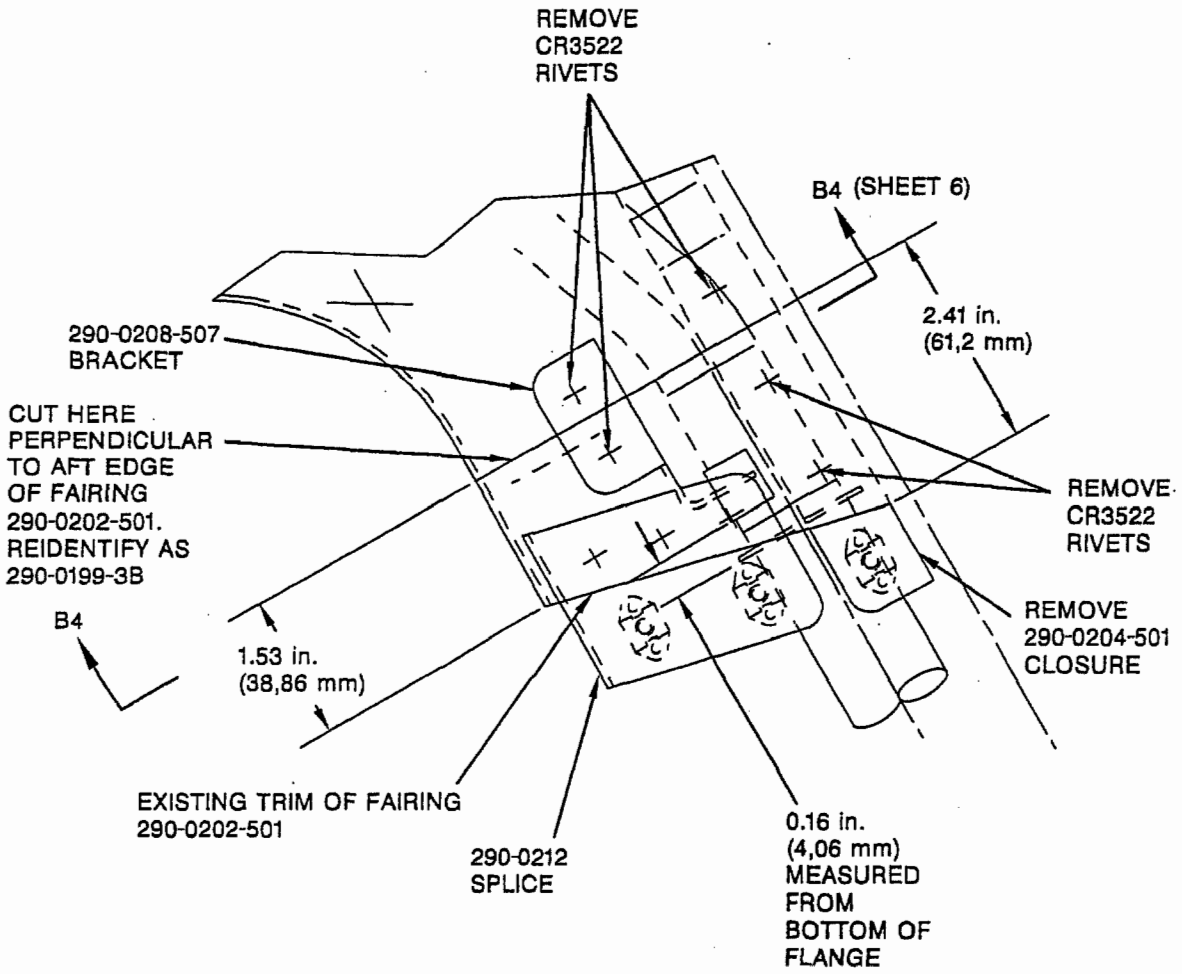
SECTION Z-Z
(SHEET1)

(AFTER SERVICE BULLETIN)

VSB595

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 3)

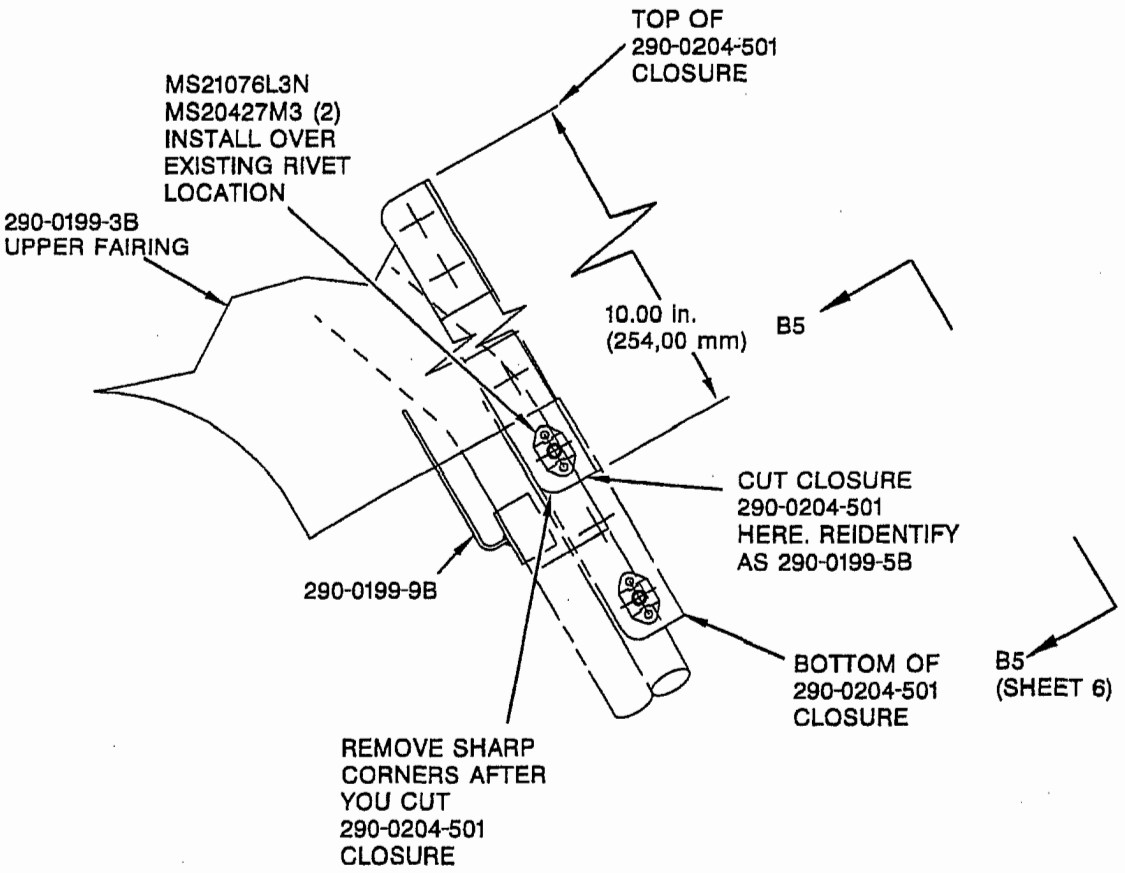
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB596

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 4)

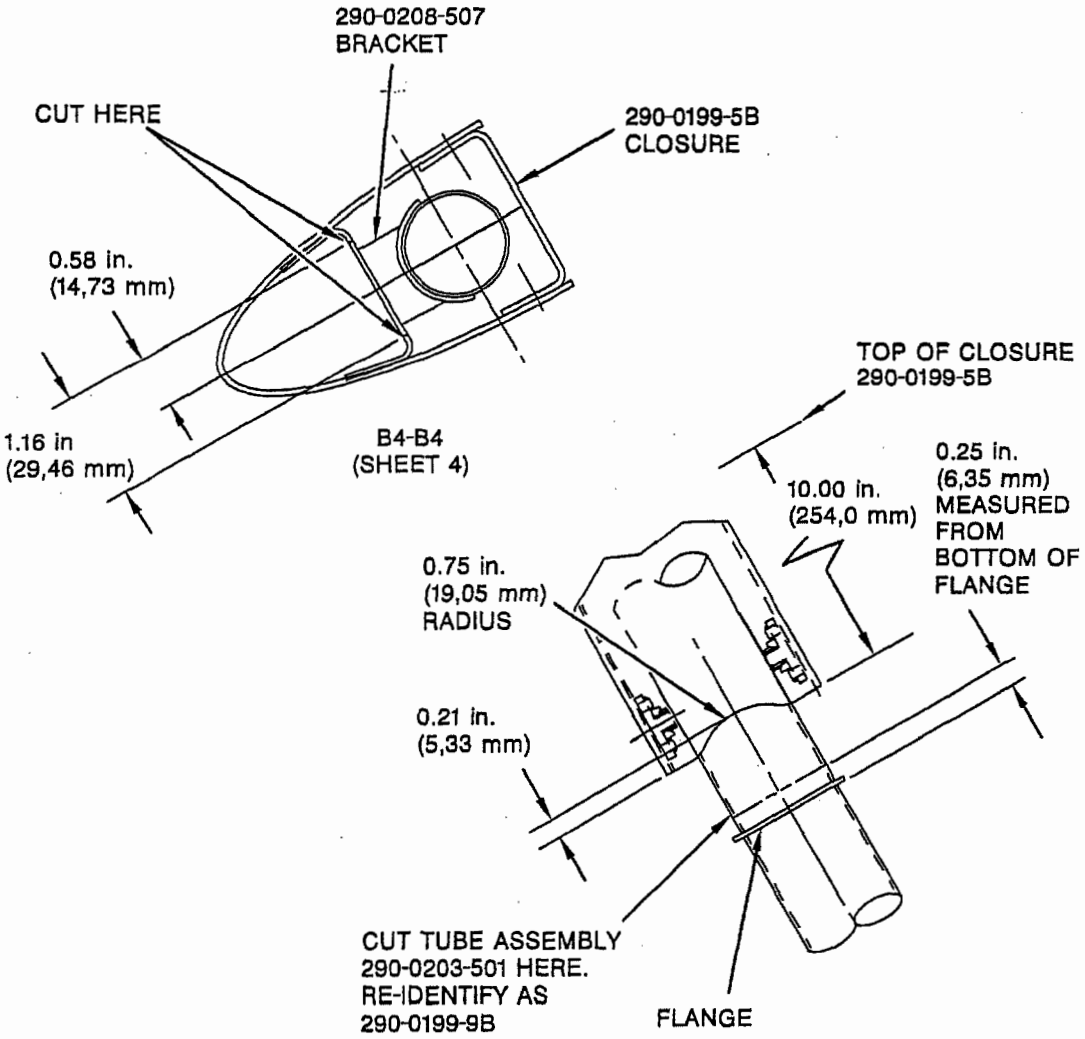
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB597

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 5)

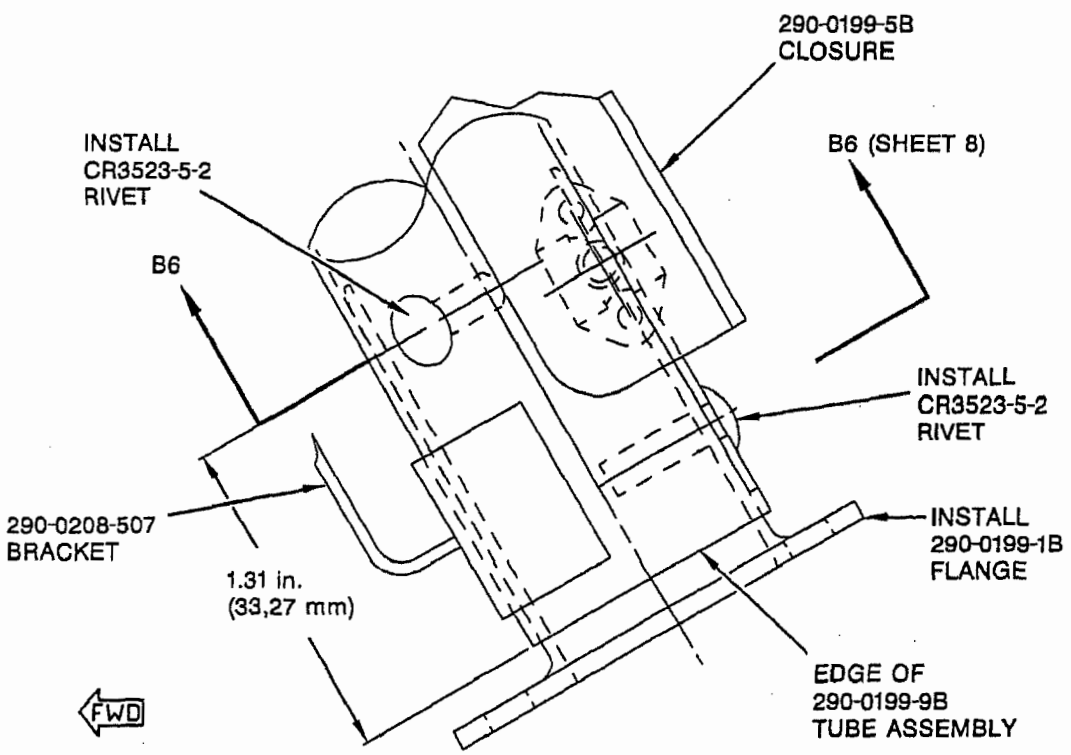
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB598

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 6)

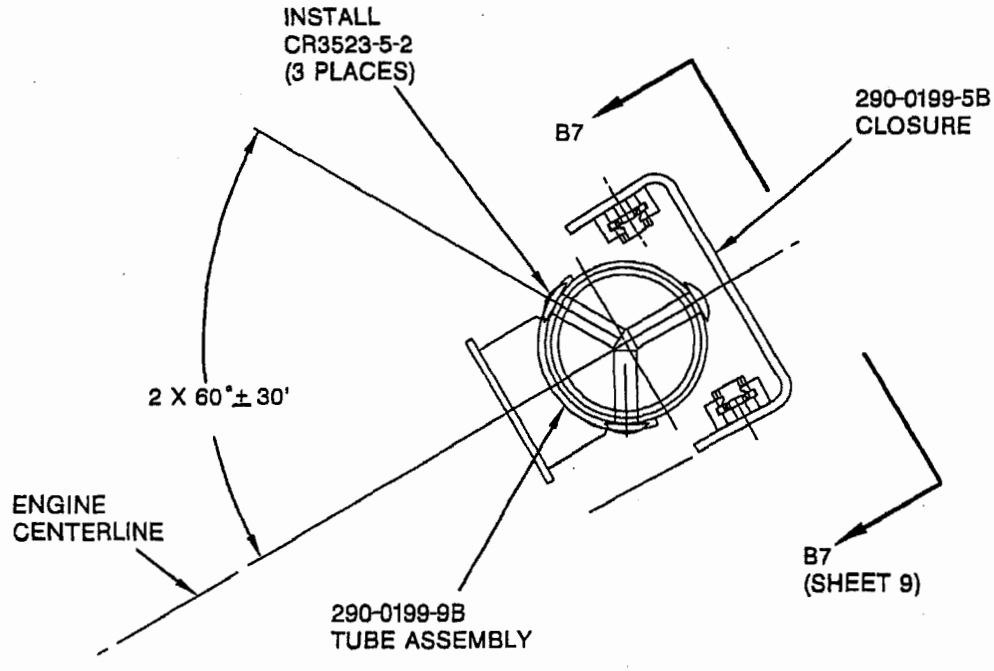
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB599

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 7)

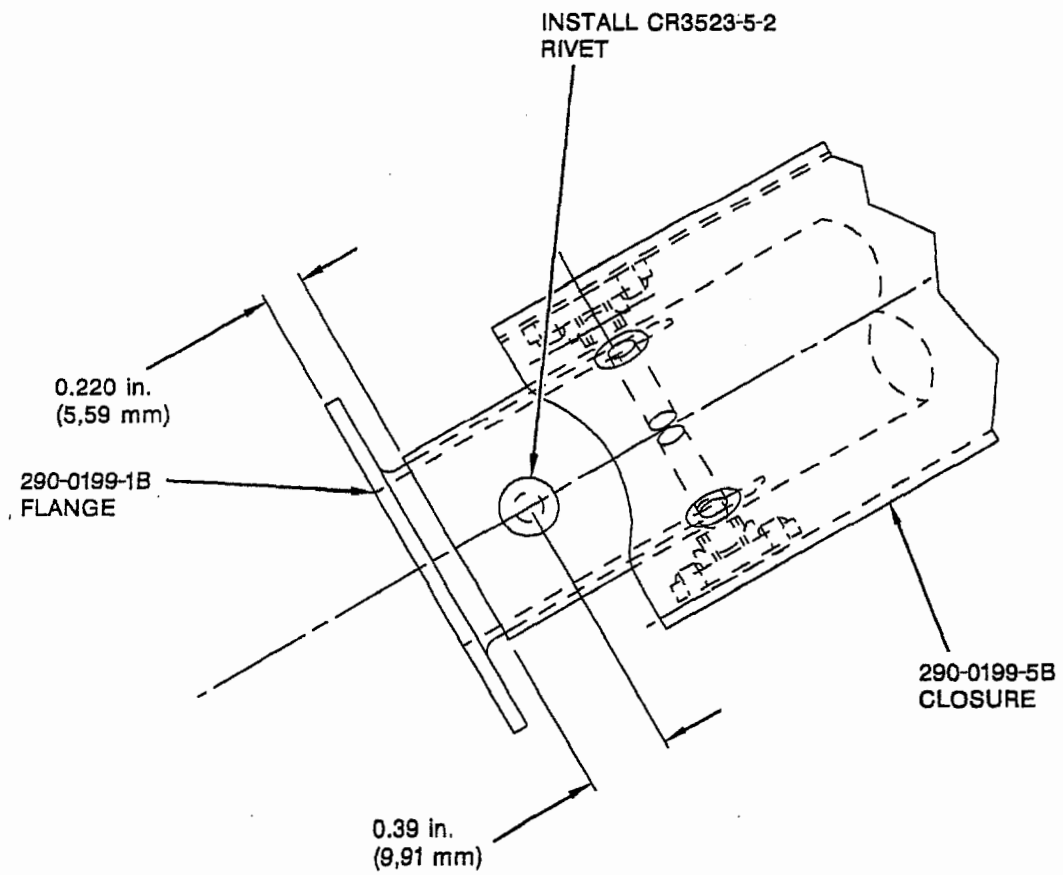
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB600

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 8)

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



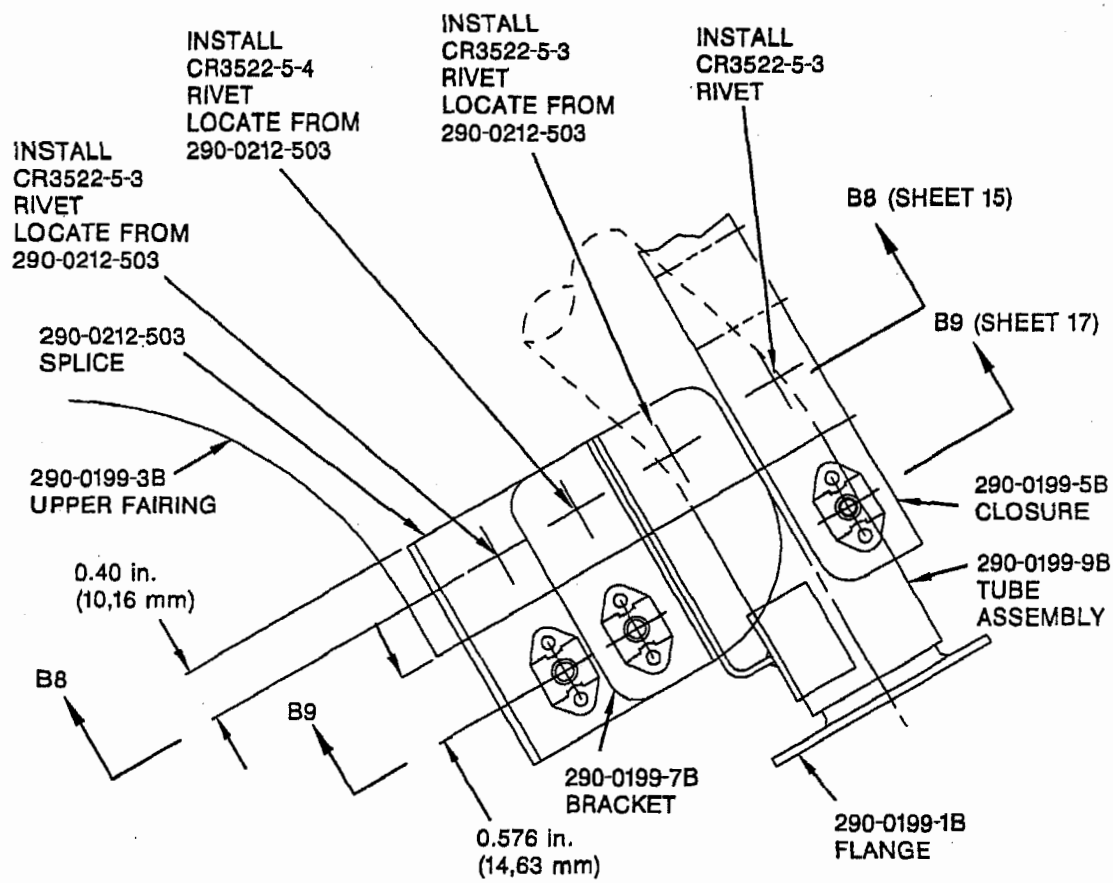
B7-B7
(SHEET 8)

LOOKING FORWARD

VSB601

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 9)

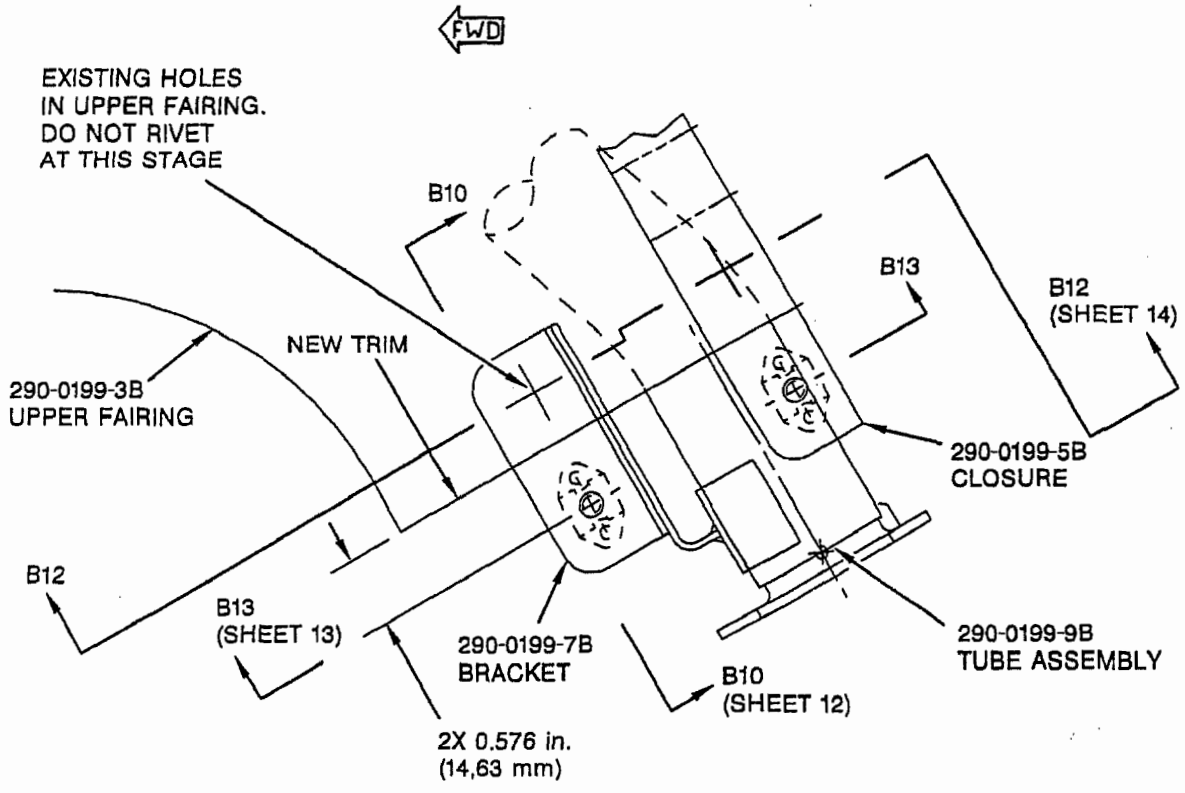
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB602

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 10)

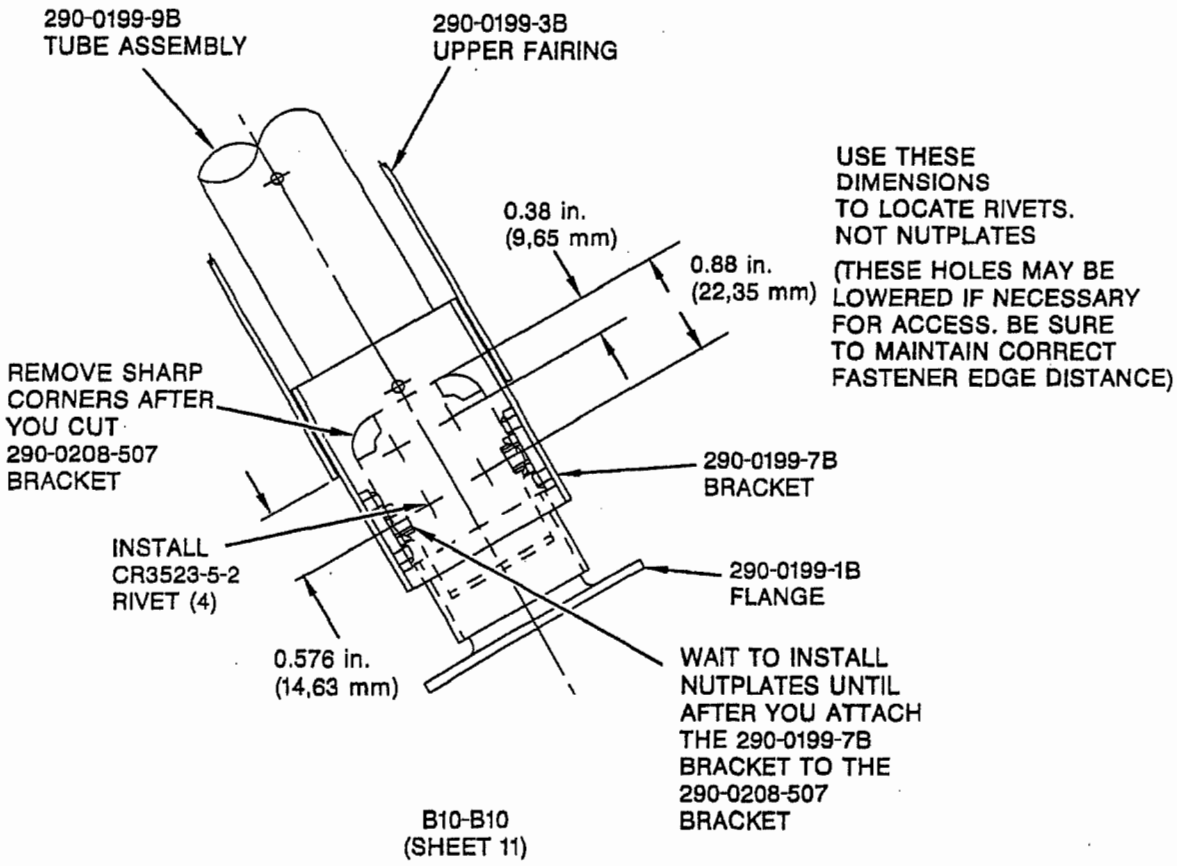
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB603

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 11)

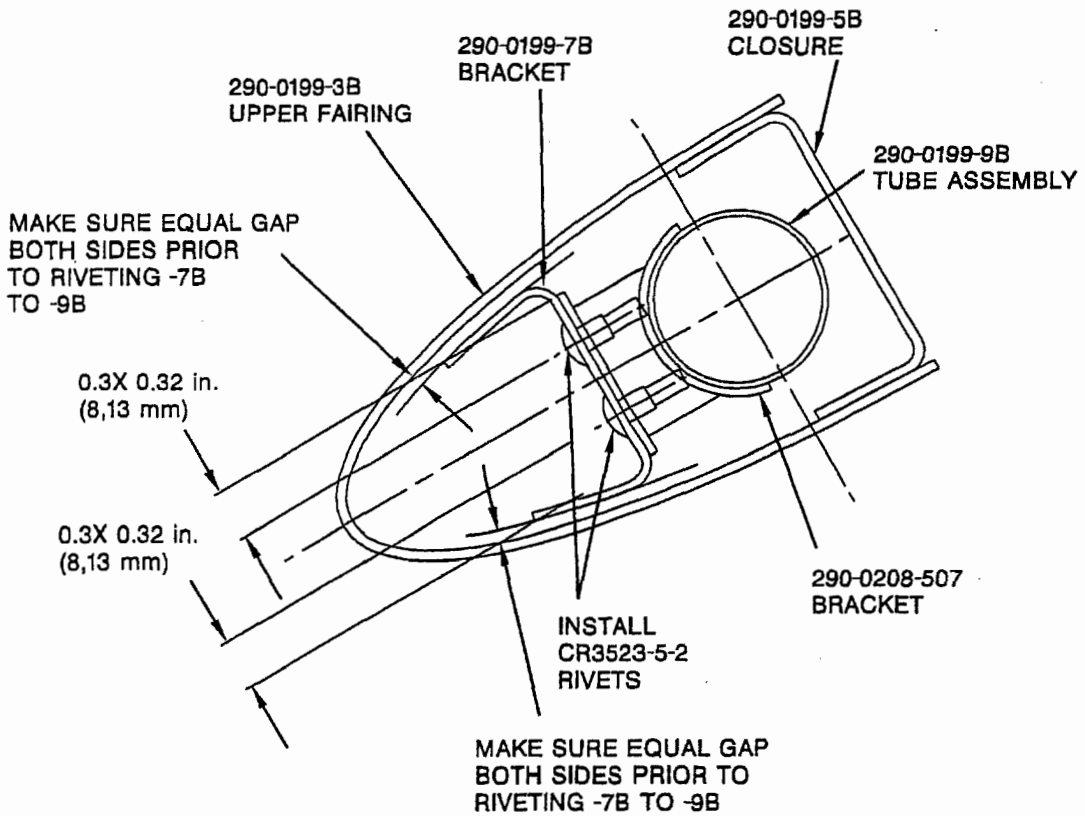
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB604

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 12)

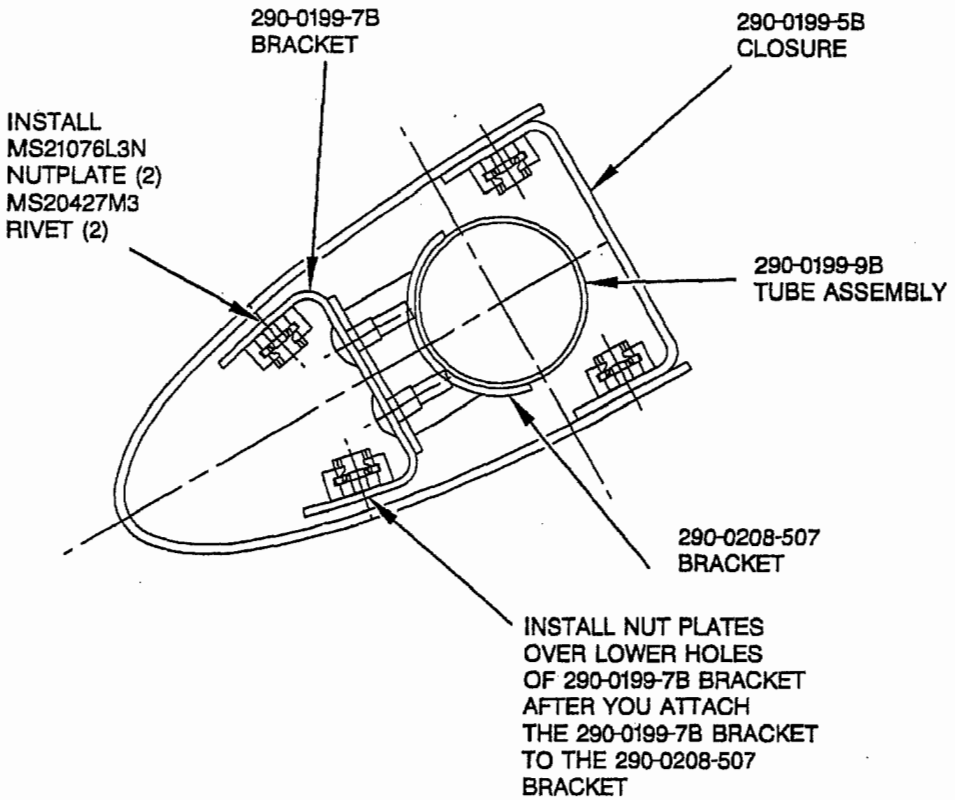
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB605

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 13)

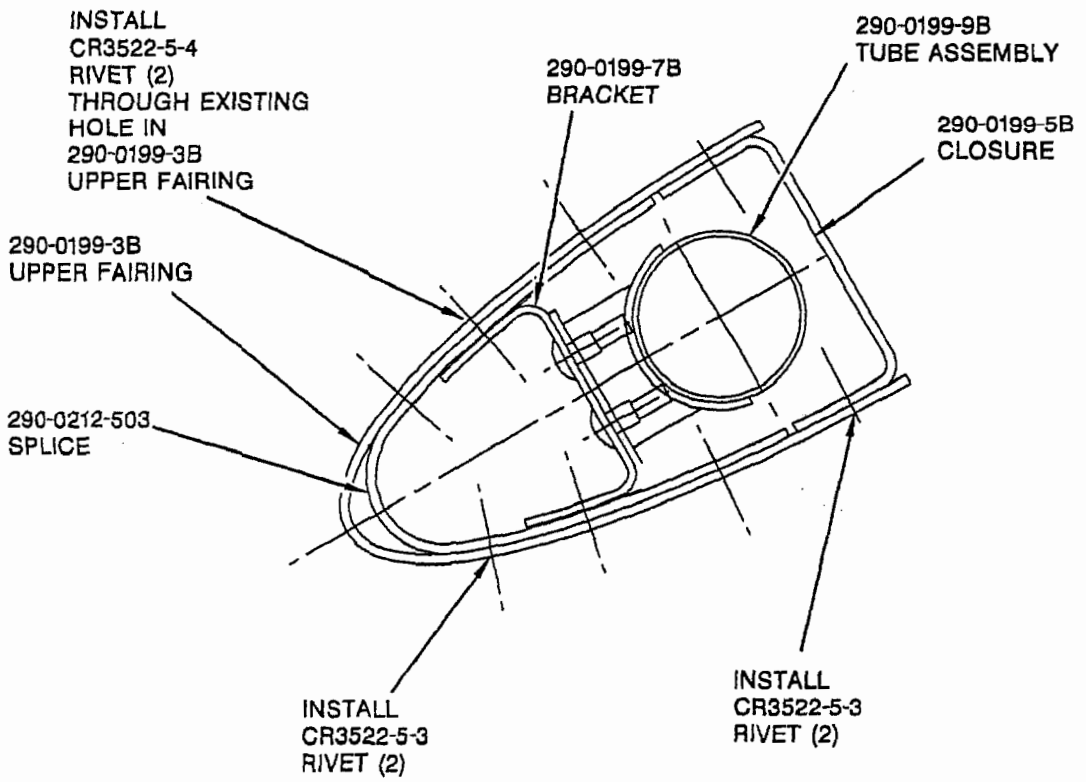
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB606

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 14)

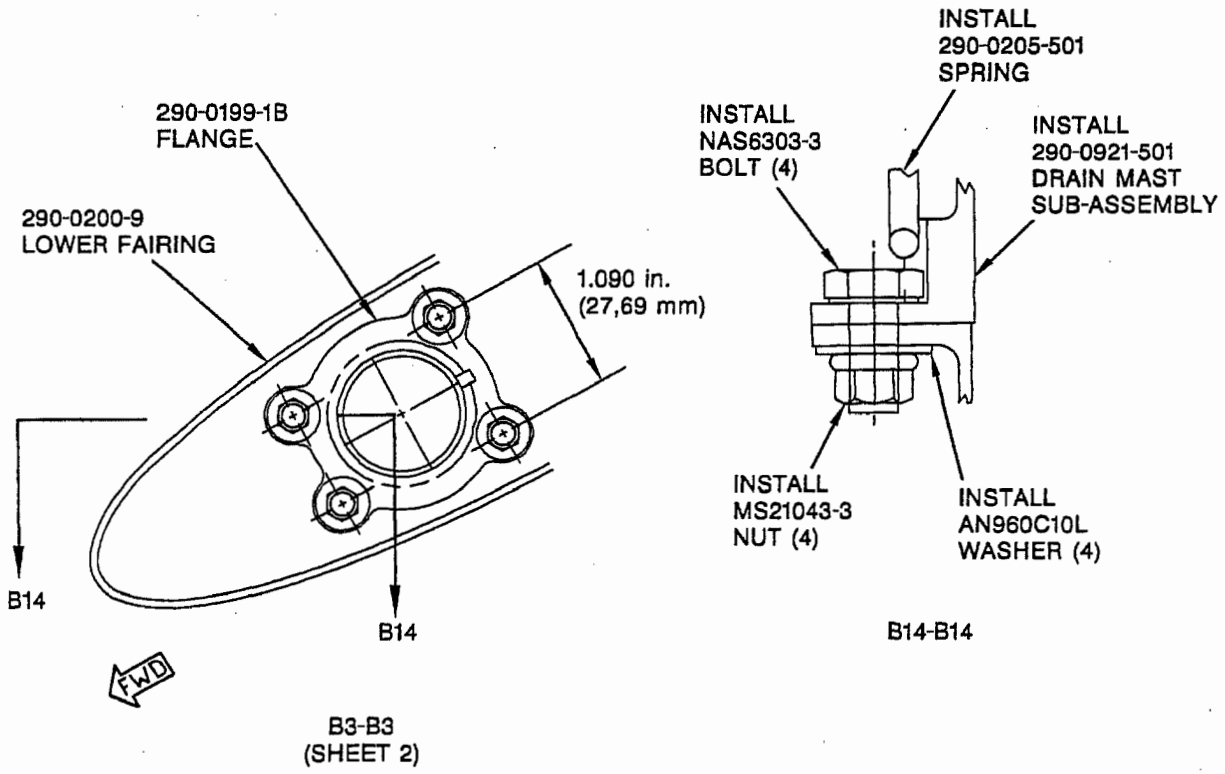
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB607

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 15)

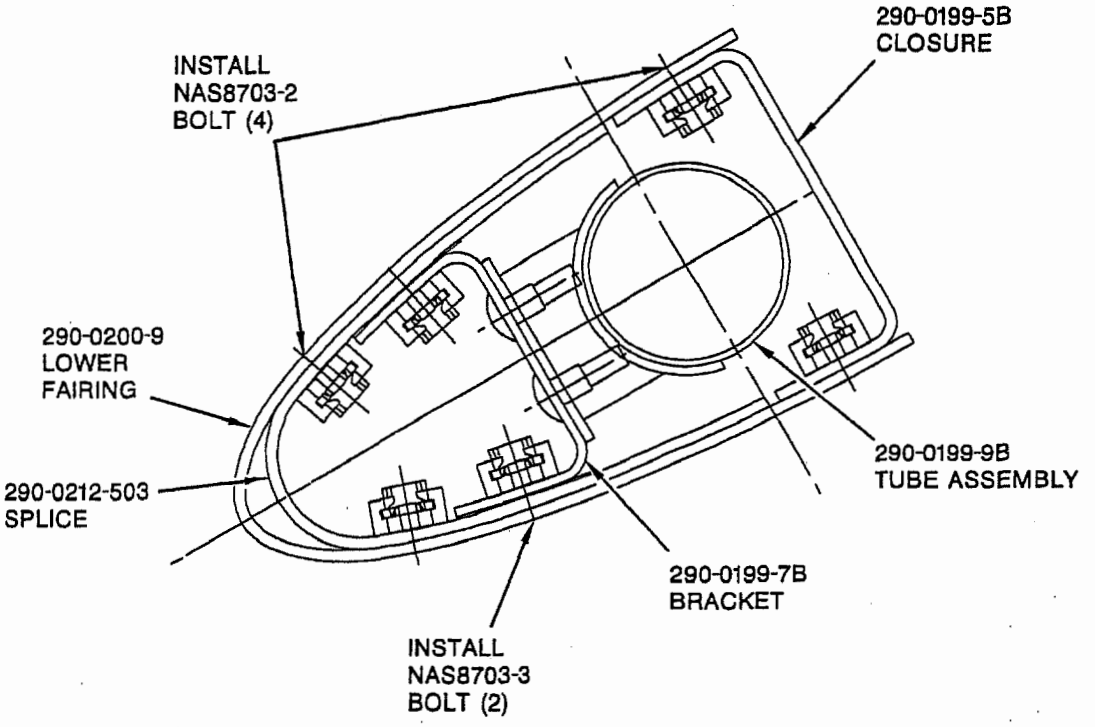
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



VSB608

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 16)

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



VSB609

Lower Thrust Reverser Core Drain Mast Tube Assembly Modification
Figure 1 (Sheet 17)

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

3. Material Information

Applicability: For each V2500-D5 Nacelle to incorporate this Bulletin.

A. Kits associated with this Bulletin:

NEW PART NO. (ATA NO.)	QTY	EST'D UNIT PRICE	KEYWORD	OLD PART NO. (IPC NO.)	INSTR/ DISPOS
V2578138-551 consisting of:	1		Kit		(A)
290-0199-1B	1		Flanged Tube		
290-0199-7B	1		Bracket		
290-0200-9	1		Fairing		
290-0207-503	1		Seal		
290-0212-503	1		Splice Assembly		
290-0921-501	1		Drain Mast Sub-Assembly		
AN960C10L	4		Washer		
CR3522-5-3	6		Rivet		
CR3522-5-4	2		Rivet		
CR3523-5-2	7		Rivet		
MS20427M3-4	8		Rivet		
MS21043-3	4		Nut		
MS21076L3N	4		Nutplate		
NAS6303-3	4		Bolt		
NAS8703U2	4		Bolt		
NAS8703U3	2		Bolt		
S700S0497-83	2		Shim, Laminated		

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

B. Parts Affected by this Bulletin:

NEW PART NO. (ATA NO.)	QTY	EST'D UNIT PRICE	KEYWORD	OLD PART NO. (IPC NO.)	INSTR/ DISPOS
290-0200-9 (78-32-23)	1		Fairing Assembly	--- (40-070)	
NAS7803U2 (78-32-23	1		Bolt	--- (40-080)	
NAS8703U2 (78-32-16)	1		Bolt	290-0651-507 (40-090)	
290-0921-501 (78-32-16)	1		Drain Mast Subassy	--- (40-130)	

C. Instruction/Disposition Code Statements

(A) Kit will be available February 1998.

NOTE: The estimated 1998 unit prices shown are provided for planning purposes only and do not constitute a firm quotation . Consult the Rohr Price Catalog or contact Rohr's Customer Support Department for information concerning firm prices.

D. Materials Required to Incorporate this Service Bulletin:

CoMat 01-438	Solvent
CoMat 02-099	Lint Free Cloth
CoMat 06-073	Metal Marking Ink
CoMat 07-106	Chromate Conversion Coating for Aluminum
CoMat 07-115	Primer Converter
CoMat 07-116	Thinner
CoMat 08-093	Primer Base
CoMat 08-104	Adhesive

NOTE: To identify the consumable materials, refer to the Overhaul Processes and Consumable Index PCI-V2500-1IA.

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