**International Aero Engines****RR-DERBY**

400 MAIN STREET, MAIL STOP 121-10
 EAST HARTFORD, CT 06108, USA.
 TELEPHONE: 860 565 5515
 FAX: 860 565 0600

P.O. BOX 31, DERBY
 TELEGRAMS - 'ROYCAR' DERBY
 TELEX - 37645
 TELEPHONE - DERBY 242424

DATE ~~R~~ Sep. 4/03**V2500-D5 SERIES NACELLE SERVICE BULLETIN**

Printed in Great Britain

This document transmits Revision 4 to Service Bulletin NV2500-78-0184

Document History

Service Bulletin Revision Status

Initial Issue Feb.16/01

Revision 1 May 15/01

Revision 2 Jun.22/01

Revision 3 Jun.25/03

Supplement Revision Status

Bulletin Revision 4

Remove

All pages of the
 Service Bulletin

Incorporate

Pages 1 to 22 of the
 Service Bulletin

Reason for change

To update Sections 1.B.,
 1.E., 1.F., 1.K., and 2.B.,
 also to revise Fig.2 Sheets
 4 and 5.

V2500-NAC-78-0184

Transmittal - Page 1 of 2

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED

If any have not been received please advise Publication Services, Rolls-Royce plc, Derby, England

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LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 4 are as follows:

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NACELLE - EXHAUST - LANYARD, PRESSURE RELIEF DOOR, THRUST REVERSER - REPLACEMENT OF

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1. Planning Information

A. Effectivity

- (1) Airplane: MD-90
- (2) Nacelle: All V2500-D5 thrust reversers prior to serial number 0701001.

B. Concurrent Requirements

- R (1) This Service Bulletin must be performed concurrently with (and not prior
- R to) Boeing Service Bulletin MD90-78-048.

C. Reason

- (1) Problem
 - (a) The current pressure relief door lanyards do not meet certification requirements for burst duct condition.
- (2) Cause
 - (a) Not applicable.
- (3) Background
 - (a) Not applicable.
- (4) Objective
 - (a) To provide new pressure relief door lanyard assemblies which meet certification requirements for burst duct condition.
- (5) Substantiation
 - (a) Not applicable.
- (6) Supplemental Information
 - (a) This service bulletin supersedes the necessity for and intent of Alert Service Bulletin V2500-NAC-78-A0184.

D. Description

This service bulletin provides instructions for:

- (1) Removal of the existing pressure relief door lanyards.



(2) Modification of the pressure relief door to accept the new lanyard assemblies. Addition of instructional markings to the exterior of the pressure relief door.

(3) Replacement of the aft lanyard attach quick release pin.

(4) Replacement of the track beam lanyard attach lug bushing.

E. Compliance

R Federal Aviation Administration (FAA) Airworthiness Directive 2003-11-15 is
R related to the service bulletin.

F. Approval

R Incorporation of this Service Bulletin must be accomplished only in conjunction
R with Boeing Service Bulletin MD90-78-048 Revision 1 which has received
R exclusive FAA approval for MD90 Series aircraft.

R This Service Bulletin has been reviewed by Boeing and the FAA. The repairs and
R modifications herein comply with FAR Part 25 and are on record with the
R supplier as FAA approved for installation on the model MD90 aircraft.

G. Manpower

Estimated man-hours to incorporate the full intent of this Service Bulletin:

VENUE	EST'D MAN HOURS
(1) In Service	
(a) To embody	4.0
Total	4.0 hours per thrust reverser (8.0 hours per aircraft)

NOTE: Man hour estimate is provided for planning purposes only. No labor reimbursement is provided under the terms of this service bulletin offering.

H. Material Cost and Availability

Operators with units listed in Paragraph 1.A. should submit a no charge purchase order for the applicable quantity of kits.

The purchase order must specify this service bulletin number and only the kit part number listed herein. Operators will have one year from the issue date of this service bulletin to place an order. Upon receipt of purchase order, Rohr shall provide a delivery schedule for kits ordered. After one year, kits will no longer be available and operators will have to order parts individually at catalog prices if they desire to incorporate this change.

Direct Purchase Order to:

V2500-NAC-78-0184

Page 2



Rohr, Inc.

850 Lagoon Drive

Chula Vista, CA 91910-2098

U.S.A.

Attn.: Regional Business Manager – MZ 107A (Ref Service Bulletin
No.V2500-NAC-78-0184)

NOTE: Please do not submit orders for kit via the Spec 2000 ordering system.

I. Tooling

None.

J. Weight and Balance

1)	Weight change	None
2)	Moment Arm	No effect
3)	Datum	Engine front mount centreline (Powerplant Station PS 100)

K. References

R AD 2003-11-15.

Publication	Chapter/Section
MD-90 Aircraft Maintenance Manual	78-30-00
IAE Standard Practices/Processes Manual (SPP-V2500-1IA)	70-09-00
Overhaul Processes and Consumable Index (PCI-V2500-1IA)	
IAE Internal Reference No.	EC 00VN805
ATA Locator	78-00-00

Feb.16/01

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L. Other Publications Affected

Publication	Chapter/Section
Thrust Reverser Component Maintenance Manual (CMM-TR-V2500-31A)	78-30-00

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**2. Material Information****A. Material Requirements**

(1) The following is applicable to one thrust reverser:

B. Kits necessary for this Service Bulletin:

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	NEW P/N (ATA/IPC NO)	QTY	EST'D UNIT PRICE	KEYWORD	INSTR/ DISPOS
R	V2578184-551	1	\$ 7252	Kit	(A)
R	consisting of:		(2003)		
	290-0032-7	1		Aft Lanyard Assembly	
	290-0032-5	1		Forward Lanyard Assembly	
	290-0757-505	1		Bracket, Lanyard, Forward	
	290-0757-507	1		Bracket, Lanyard, Aft	
	S700B0116-21E013	1		Bushing	
	S700S0497-121	4		Laminated Shim	
	BLC4GT05L5C4	1		Pin	
	NAS1057T4-030	2		Spacer	
	NAS6304U18	2		Bolt	
	NAS1291C4M	2		Nut	
	NAS9307M4-05	1		Rivet	
	HL40-6-3	12		Pin	
	HL94DU-6	12		Collar	

NOTE: Please do not order kits via Spec 2000 ordering system.

C. Parts affected by this Service Bulletin:

78-32-09

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
01255	290-0032-7		Aft Lanyard Assembly	-	(C)(S1) (S3)
01250	290-0032-5		Forward Lanyard Assembly	-	(C)(S1) (S3)
01010	290-0032-505		Pressure Relief Door	290-0032-503	(B)(C) (S1)
01012	290-0032-506		Pressure Relief Door	290-0032-504	(B)(C) (S1)
01203	290-0757-505		Bracket,Lanyard,Forward	-	(B)(C) (S1)
01204	290-0757-507		Bracket,Lanyard,Aft	-	(B)(C) (S1)
01180	-		Bracket Assy,Lanyard,Forward	290-0887-501	(B)
01185	-		Bracket Assy,Lanyard,Aft	290-0887-503	(B)
01080	-		Lanyard,Aft	S700M1392A161	(B)(S3)
01070	-		Lanyard,Forward	S700M1392A170	(B)(S3)
01085	-		Terminal	290-0890-501	(B)
01065	-		Bolt	290-0889-503	(S1)
01067	NAS6304U18		Bolt	290-0889-503	(S2)
01069	NAS1057T4-030		Spacer	-	(S1)

78-32-23

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
18259	S700B0116 -21E013		Bushing	S700B0116 -5C13	(S2)
03030	BLC5GT05L5C4		Pin	BLC5GT05L5	(B)(C)
03026	BLC4GT05L5C4		Pin	BLC5GT05L5	(S2)
18250	290-0152-515		Track Assy, LH Side	290-0152-513	(S2)
18255	290-0152-516		Track Assy, RH Side	290-0152-514	(S2)
44220	290-0817-195		Heat Shield, LH	290-0817-113	(S2)
44230	290-0817-196		Heat Shield, RH	290-0817-114	(S2)

**D. Instructions/Disposition Codes:**

(A) Kit will be available February 2001.

(B) Old part number will no longer be available.

(C) New part will be available February 2001.

(S1) Old and new parts coded (S1) must be used in sets.

(S2) Old and new parts coded (S2) must be used in sets.

(S3) New Lanyard Assembly supercedes Old Lanyard but it is not a one-for-one replacement of New part for Old part.

R **NOTE:** The Estimated Unit Price shown is provided for planning purposes only
R and does not constitute a firm quote. For firm prices, refer to the
R Goodrich Catalog or contact the Goodrich spares parts sales department.

E. Tooling - Price and Availability:

None.

F. Materials Required to do this Service Bulletin:

CoMat 01-438	Solvent
CoMat 02-099	Lint Free Cloth
CoMat 07-076	Thinner
CoMat 07-077	Catalyst
CoMat 07-078	Gloss Base
CoMat 07-096	Thinner
CoMat 07-097	Catalyst
CoMat 07-098	Polyurethane Base
CoMat 07-106	Conversion Coating for Aluminum
CoMat 07-139	Catalyst
CoMat 07-140	Primer
CoMat 07-144	Thinner
CoMat 08-021	Adhesive
CoMat 08-030	Sealant
CoMat 08-032	Primer



3. Accomplishment Instructions

A. Pre-requisite Instructions

- (1) Remove the thrust reverser pressure relief door. Refer to the MD-90 Aircraft Maintenance Manual.

B. Remove the pressure relief door lanyards. Discard the lanyards and attach hardware. Refer to Figure 1.

C. Modify the pressure relief door. Refer to Figure 2.

- (1) Remove the brackets and any liquid shim from the pressure relief door. Discard the brackets and attaching parts. Refer to Figure 2 (sheet 3).

WARNING:

SOLVENT (COMAT 01-438) 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.

- (2) Clean the mating surface of the pressure relief door with a 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.

- (3) Apply conversion coating (CoMat 07-106) to any bare metal in the modification area. Refer to the manufacturer's instructions.

WARNING:

CATALYST (COMAT 07-139), PRIMER (COMAT 07-140), AND THINNER (COMAT 07-144) 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 SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.



- (4) Mix the catalyst (CoMat 07-139), epoxy primer (CoMat 07-140) and thinner (CoMat 07-144). Refer to the manufacturer's instructions.
- (5) Apply primer to the conversion coated surfaces in the modification area. Refer to the manufacturer's instructions.
- (6) Install the new brackets on the pressure relief door. Refer to Figure 2 (sheet 3).

- (a) Put the 290-0757-505 bracket into position at the forward end of the door. Align the pilot hole with the lower existing bracket attach hole on the door.

NOTE: The bracket will sit on top of two fasteners on the door. This is acceptable.

NOTE: Position the HINGE placard on the bracket toward the hinge on the door and the LATCH placard toward the latch on the door.

- (b) Put the 290-0757-507 bracket into position at the aft end of the door. Align the pilot hole with the lower existing bracket attach hole on the door.

NOTE: The bracket will sit on top of two fasteners on the door. This is acceptable.

NOTE: Position the HINGE placard on the bracket toward the hinge on the door and the LATCH placard toward the latch on the door.

- (c) Drill the holes for the fasteners.

WARNING:

ADHESIVE (COMAT 08-021) 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.

- (d) Use adhesive (liquid shim)(CoMat 08-021) and/or laminated shim S700S0497-121 to fill the spaces between the brackets and the pressure relief door. Refer to the manufacturer's instructions.

NOTE: Use liquid shim for shimming requirements of less than 0.030 inch (0,76 mm).

- (e) Put the brackets into position and wet install the fasteners with the primer mix.



(f) Make the instructional marking on the exterior surface of the pressure relief door. Refer to Figure 3.

(i) Clean the exterior surface of the pressure relief door with a lint free cloth (CoMat 02-099) made moist with solvent (CoMat 01-438). Rub the surface dry before the solvent becomes dry.

(ii) Make the stencil. Use the text shown in Figure 3.

WARNING:

GLOSS BASE (COMAT 07-078), CATALYST (COMAT 07-077) AND THINNER (COMAT 07-076) 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 SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(iii) Mix the gloss base (CoMat 07-078), catalyst (CoMat 07-077), and thinner (CoMat 07-076). Refer to the manufacturer's instructions.

(iv) Use the stencil and the paint to make the marking on the external surface of the pressure relief door.

(v) Cure the paint. Refer to the manufacturer's instructions.

WARNING:

POLYURETHANE BASE (COMAT 07-098), CATALYST (COMAT 07-097) AND THINNER (COMAT 07-096) 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 SHEET' AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

(vi) Mix the polyurethane base (CoMat 07-098), catalyst (CoMat 07-097), and thinner (CoMat 07-096). Refer to the manufacturer's instructions.

(vii) Apply a layer of the polyurethane protective finish over the marking.

(viii) Cure the polyurethane protective layer. Refer to the manufacturer's instructions.



(g) Reidentify the 290-0032-503 pressure relief door as 290-0032-505.
Reidentify the 290-0032-504 pressure relief door as 290-0032-506. Use a rubber stamp and ink. Refer to the IAE Standard Practices/Processes Manual, Chapter 70-09-00.

- D. Remove the two 290-0890 terminals from the lower track beam. Discard the terminals. Refer to Figure 1 (sheet 2).
- E. Remove the rivet and the quick release pin from the aft position on the lower track beam. Refer to Figure 1 (sheet 3).
- F. Modify the aft quick release pin lug on the lower track beam. Refer to Figure 1 (sheet 3).

NOTE: If you do not find a bushing in the lug, use a magnet to determine if the lug is made of steel. If the lug is made of steel, do the procedures in paragraph (1) and (3). If the lug is not made of steel, do the procedures in paragraph (2) and (3).

(1) For steel lugs:

- (a) Make the hole in the lug 0.4371 to 0.4380 in. (11.10 - 11.13 mm) diameter.
- (b) Install the S700B0116-21E013 bushing in the lug.

NOTE: The bushing will extend beyond the surface of the lug on both sides. Center the bushing in the lug.

(2) For aluminum lugs:

- (a) Remove the S700B0116-5C13 bushing from the lug.
- (b) Install the S700B0116-21E013 bushing in the lug.

(3) Reidentify the 290-0152-513 track beam as 290-0152-515. Reidentify the 290-0152-514 track beam as 290-0152-516. Use a rubber stamp and ink. Refer to the IAE Standard Practices/Processes Manual, Chapter 70-09-00.

- G. Install the new quick release pin on the track beam. Refer to Figure 1 (sheet 3).
- (1) Install the BLC4GT05L5C4 quick release pin at the aft position on the track beam. Wet install the rivet with primer mix.



H. Modify the heat shield on the lanyard assembly attach lugs.

- (1) Remove material from the heat shield to the dimensions shown in Figure 2 (sheets 4 and 5).
- (2) Clean the cut edges of the heat shield with a lint free cloth (CoMat 02-099) and solvent (CoMat 01-438).

WARNING:

PRIMER (COMAT 08-032) 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.

- (3) Apply primer (CoMat 08-032) to the cut edges of the heat shield.

WARNING:

SEALANT (COMAT 08-030) 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.

- (4) Apply sealant (CoMat 08-030) to the cut edges of the heat shield to make a heat barrier.

I. Install the pressure relief door. Refer to the MD-90 Aircraft Maintenance Manual.

J. Install the new lanyard assemblies. Refer to Figure 2.

- (1) Install the 290-0032-5 assembly at the forward end of the pressure relief door. Make sure the short lanyard is in the outboard position.
- (2) Install the 290-0032-7 assembly at the aft end of the pressure relief door. Make sure the short lanyard is in the outboard position.

K. Post-requisite Instructions

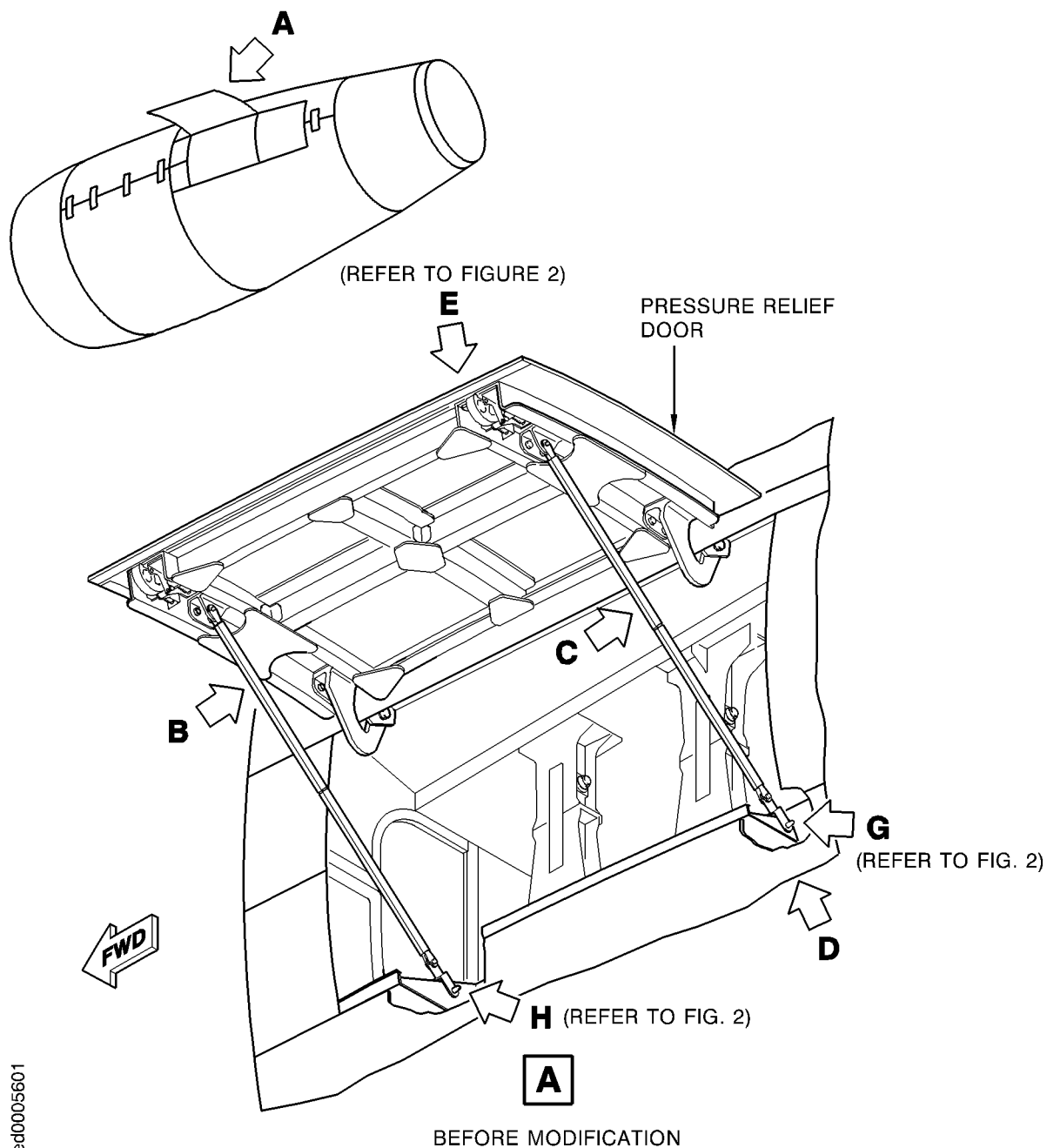
- (1) Close the pressure relief door. Refer to the MD-90 Aircraft Maintenance Manual, Chapter 78-32-00, Page Block 201.



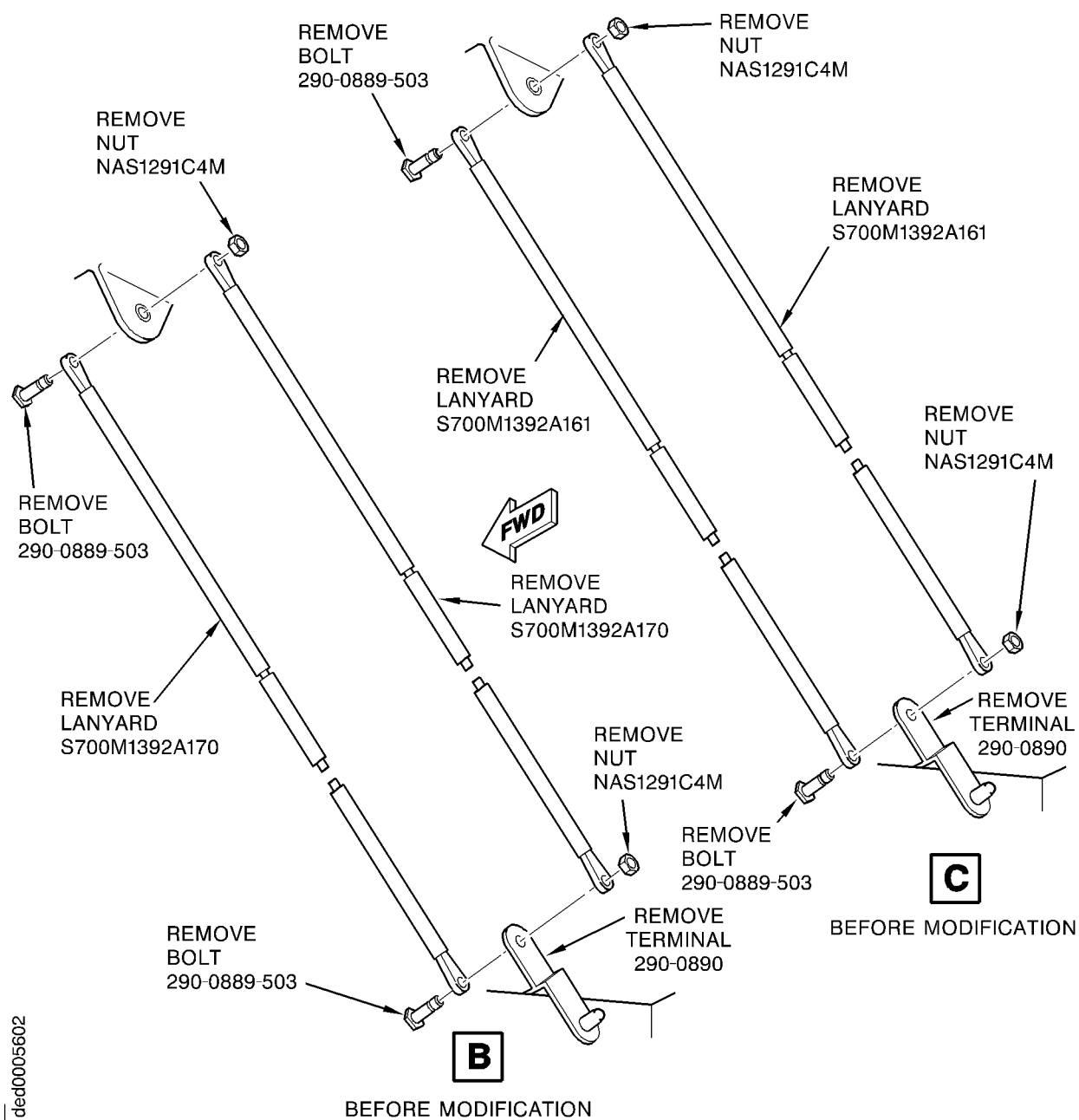
L. Recording Instructions

- (1) A record of accomplishment is required. Write in the applicable records and metal stamp, electroetch, or vibroetch on the thrust reverser data plate that Service Bulletin V2500-NAC-78-0184 has been done. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

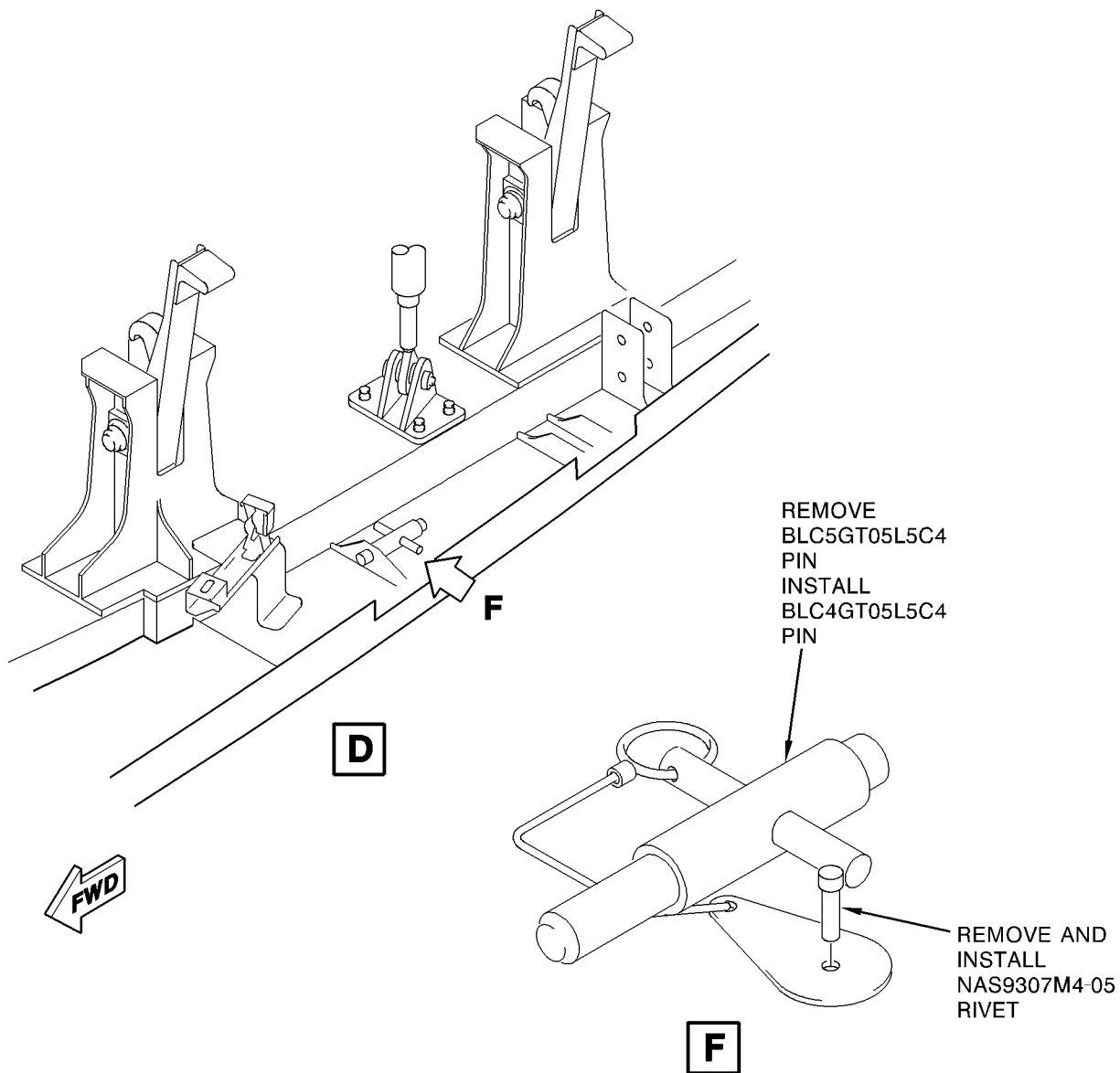
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Pressure Relief Door Lanyard Replacement
Figure 1 (sheet 1)

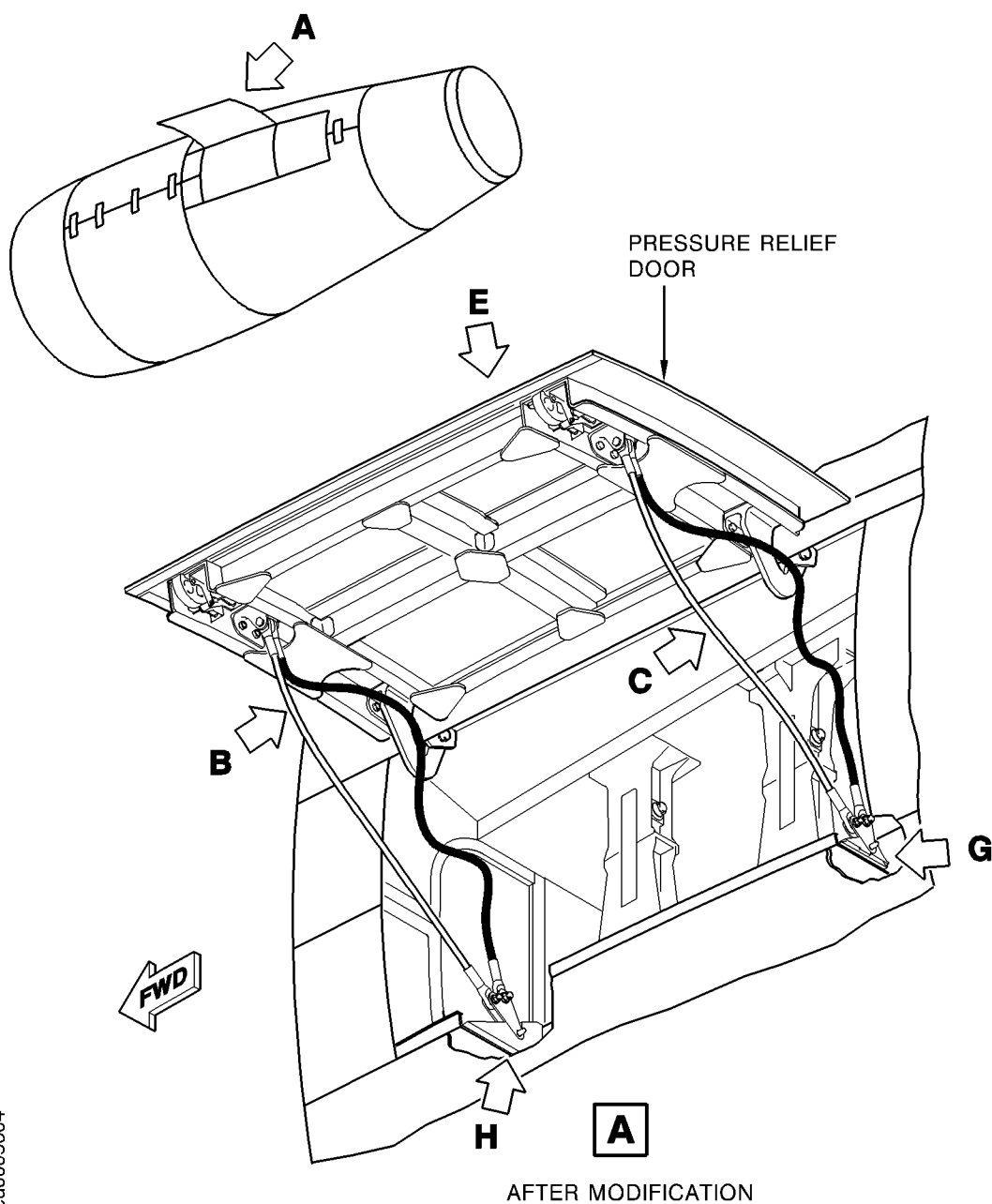


Pressure Relief Door Lanyard Replacement
Figure 1 (sheet 2)

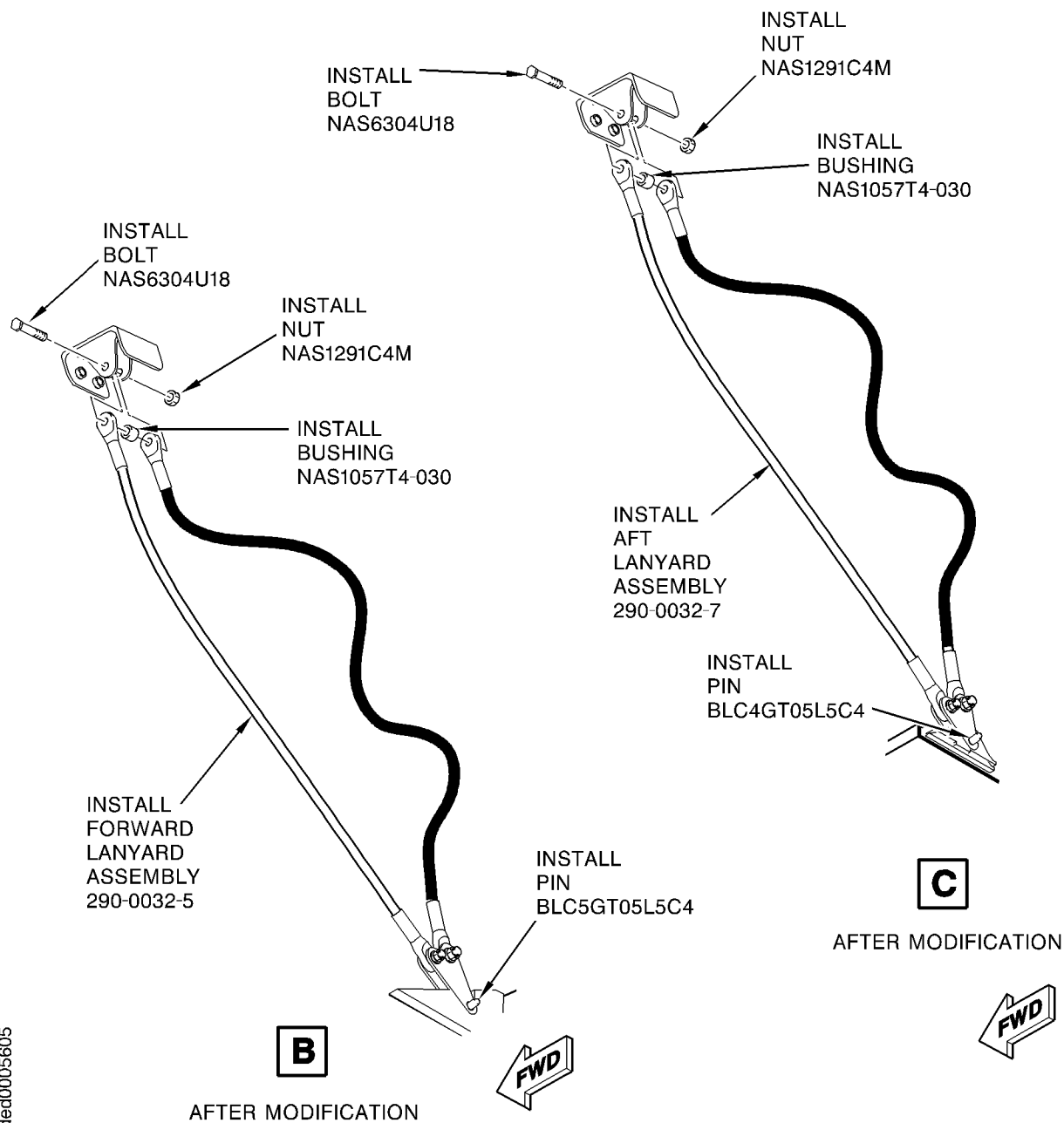


Pressure Relief Door Lanyard Replacement
Figure 1 (sheet 3)

V2500-NAC-78-0184

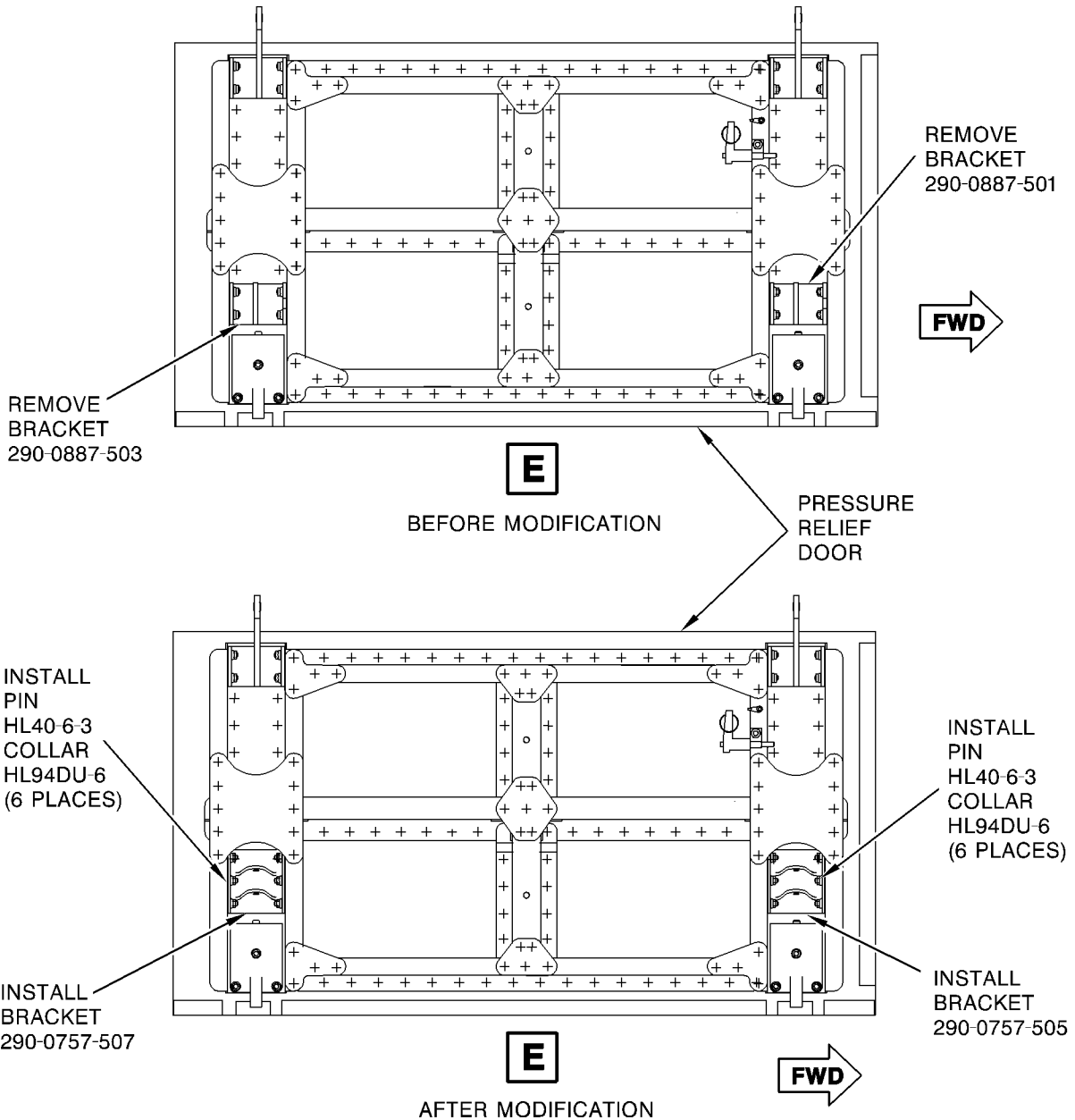


Pressure Relief Door Lanyard Replacement
Figure 2 (sheet 1)

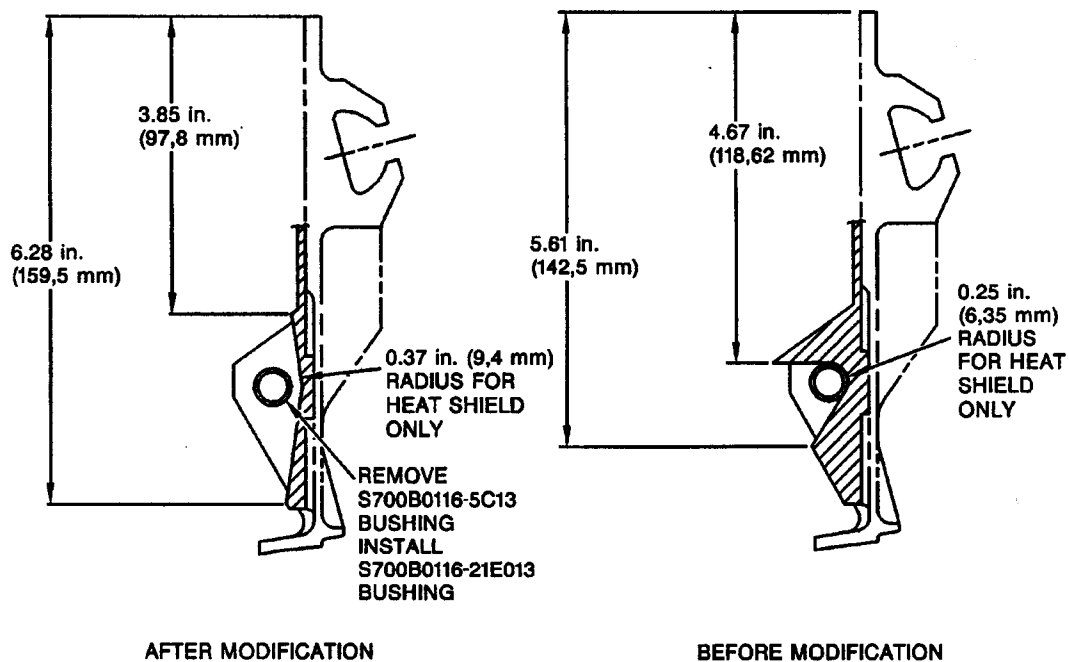


Pressure Relief Door Lanyard Replacement
Figure 2 (sheet 2)

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Pressure Relief Door Lanyard Replacement
Figure 2 (sheet 3)



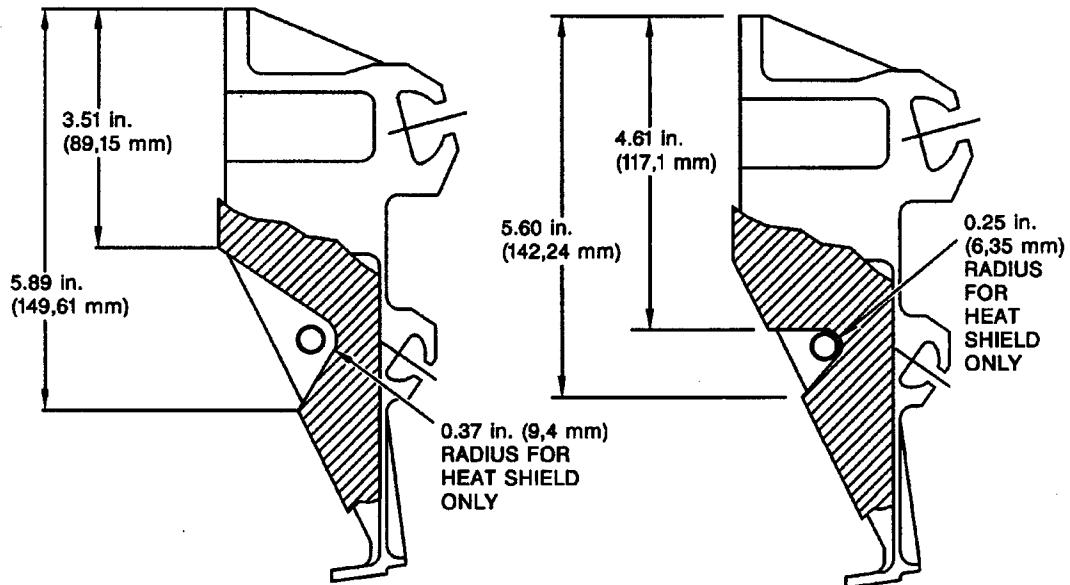
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Pressure Relief Door Lanyard Replacement
Figure 2 (sheet 4)

V2500-NAC-78-0184



R



AFTER MODIFICATION

BEFORE MODIFICATION



VSB809

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R
R

Pressure Relief Door Lanyard Replacement
Figure 2 (sheet 5)

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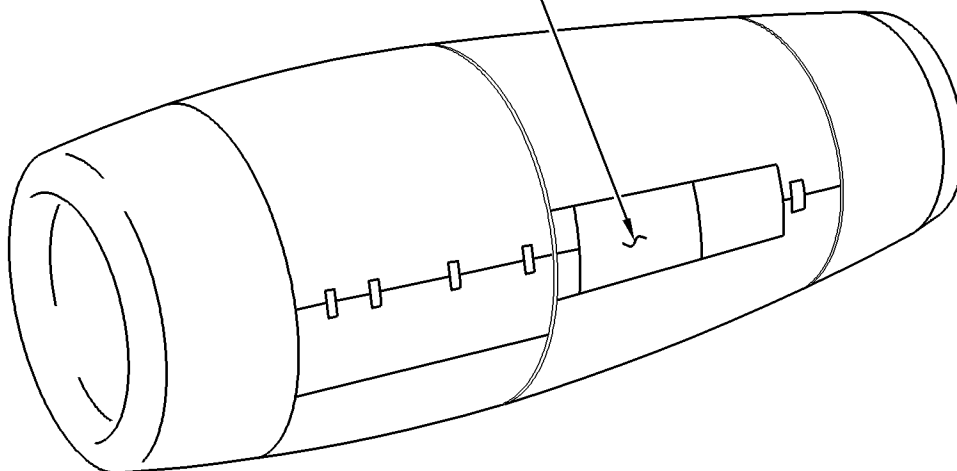
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Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



CAUTION

PRESSURE RELIEF DOOR - IF
FOUND OPEN AFTER FLIGHT
REFER TO AMM 05-51-20



Pressure Relief Door Lanyard Replacement
Figure 3

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