



**International
Aero Engines**

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

Date: May 20, 1999

Subject: Transmittal of Revision 6 to Service Bulletin Number V2500-NAC-78-0132

Service Bulletin Revision History:

<u>Event</u>	<u>Date</u>
Basic Issue	Mar. 21/97
Revision 1	Apr. 10/97
Revision 2	Apr. 22/97
Revision 3	Jun. 20/97
Revision 4	Aug. 28/97
Revision 5	Mar. 13/98
Revision 6	May 20/99

Reasons for Issuance of Revision

- (1) To revise Paragraph 3.B. to change the IPC locations of the parts affected by this service bulletin.

Effect on Past Compliance

- (1) None.

List of Effective Pages:

<u>Page No.</u>	<u>Rev. No.</u>	<u>Date</u>
1	6	May 20/99
2 thru 22	5	Mar. 13/98
23 and 24	6	May 20/99
25	5	Mar. 13/98

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Transmittal
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NACELLE - EXHAUST - BLOCKER DOOR HINGE, TRANSLATING SLEEVE -
REPLACEMENT OF

MODEL APPLICATION

V2500-D5

BULLETIN INDEX LOCATOR

78-32-00

Compliance Category Code

6

Internal Reference No.

JG/LL 96VN314

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1. Planning Information

A. Effectivity

(1) Aircraft:

(a) MD90

(2) Nacelle: V2500 D5 thrust reverser serial numbers 0021001 thru 0208001.

B. Reason

(1) Condition

The translating sleeve blocker door hinge has been found to wear prematurely. A worn hinge allows excessive blocker door vibration and can result in damage to the blocker door link.

(2) Background

Operators have experienced premature wear of the translating sleeve blocker door hinges.

(3) Objective

Replace the existing translating sleeve blocker door hinges with new hinges made of a more wear resistant material.

(4) Substantiation

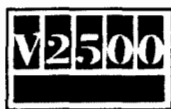
Not applicable.

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(5) Impact 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

None.

C. Description

The translating sleeve blocker door hinge is removed and the new hinge installed.

D. Approval

Incorporation of this Service Bulletin must be accomplished only in conjunction with Douglas Aircraft Company Service Bulletin MD90 78-016 which has received exclusive FAA approval for MD-90 Series Aircraft.

E. Compliance maintenance action for the nacelle or nacelle component.

Category 6

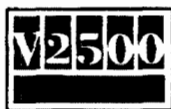
Accomplish when the Nacelle subassembly (i.e., accessories, components) is disassembled sufficiently to afford access to the affected part and to all affected spare parts.

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F. Manpower

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

<u>VENUE</u>	<u>ESTIMATED MANHOURS</u>
(1) In Service	Not Applicable
(2) In Shop	
(a) To Rework	<u>16.0 M/Hrs.</u>
Total	16.0 M/Hrs

NOTE: After incorporaton of this modification, a maximum of 32.0 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:

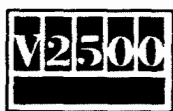
Rohr, Inc.
850 Lagoon Drive
Chula Vista, CA 91910-2098
Attn: Airline Support Manager, MZ 107A
Warranty Department
(Ref. Service Bulletin V2500-NAC-78-0132)

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G. Material - Cost and Availability

The parts to do this Service Bulletin are available from Rohr, Inc. as kit V2578132-551 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 the reference kit. Operators will have one year from service bulletin issue date to place an order for 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

USA

Attn: Airline Account Manager, MZ 107A

(Ref. Service Bulletin No. V2500-NAC-78-0132)

H. Tooling - Cost and Availability

None required.

I. Weight and Balance

(1) Weight changeNone

(2) Moment armNone

(3) DatumFront Engine Mount Centerline

.....(Power Plant Station (PPS) 100.00)

J. Electrical Load Data

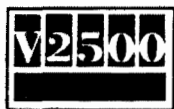
Not Applicable.

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K. References

Chapter/Section

Overhaul Processes and Consumable
Index (PCI-V2500-1IA)

IAE V2500 Standard Practices/Processes
Manual (SPP-V2500-1IA)

70-09-00

MD90/V2500D5 Thrust Reverser Component
Maintenance Manual (CMM-TR-V2500-3IA)

78-32-16

L. Other Publications Affected

MD-90 Engine Illustrated Parts Catalog
(S-V2500-3IA)

78-32-16

MD90/V2500D5 Thrust Reverser Component
Maintenance Manual (CMM-TR-V2500-3IA)

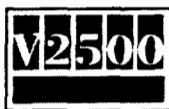
78-32-16

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2. Accomplishment Instructions

A. Pre-requisite Instructions

- (1) Remove the blocker door from the translating sleeve. Refer to the MD90/V2500D5 Thrust Reverser Component Maintenance Manual, Chapter 78-32-16.

B. Rework or Modification Instructions

- (1) Remove the seal on the translating sleeve above the hinges to permit access to the hinge attaching hardware. Refer to Figure 1 (Sheet 5).

R NOTE: The seal is bonded with adhesive to the block seals
R at each end. Do not damage the seal or block seals.

- R (2) Remove the pins, collars, and 290-0564 and 290-0565 hinges
R from the translating sleeve. Take care not to damage the
R fastener holes in the translating sleeve. If there is a
R shim between the hinge and the translating sleeve, do not
R remove the shim. Refer to Figure 1 (Sheet 6).

- R (3) Prepare the replacement 290-0565 hinges for installation.
R Refer to Figure 1 (Sheet 6).

- R (a) Hold the new hinge in place on the translating sleeve
R with the one existing (pre-drilled) hole over the
R appropriate hole in the translating sleeve. Make sure
R the hinge is in the correct position and install a
R temporary fastener to hold it in position.

- R (b) Temporarily install the blocker door on the hinges
R and make sure there is an even space all around the
R blocker door within its cavity and in the translating
R sleeve.

- R (c) Drill three 0.05 inch (1.27 mm) pilot holes in the
R hinge. Use a pilot drill bushing to hold the drill
R straight. Use the existing holes in the translating
R sleeve as a guide.

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- R (d) Remove the blocker door from the hinges.
- R (e) Drill and ream the four holes in the hinge to a final
R diameter of 0.1850-0.1870 inch (4,70-4,75 mm).
- R (f) Remove the hinge from the translating sleeve.
- R (g) Remove the burrs from the holes in the hinge.
- R (4) Prepare the replacement 290-0564 hinges for installation.
R Refer to Figure 1 (Sheet 7).
- R (a) Hold the new hinge in place on the translating sleeve
R with the one existing (pre-drilled) hole over the
R appropriate hole in the translating sleeve. Make sure
R the hinge is in the correct position and install a
R temporary fastener to hold it in position.
- R (b) Temporarily install the blocker door on the hinges
R and make sure there is an even space all around the
R blocker door within its cavity and in the translating
R sleeve.
- R (c) Drill two 0.05 inch (1.27 mm) pilot holes in the
R hinge. Use a pilot drill bushing to hold the drill
R straight. Use the existing holes in the translating
R sleeve as a guide.
- R (d) Remove the blocker door from the hinges.
- R (e) Drill and ream the three holes to the finish
R diameters. Refer to Figure 1 (Sheet 7).
- R (f) Remove the hinge from the translating sleeve.
- R (g) Remove the burrs from the holes in the hinge.

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(5) Install the 290-0564 and 290-0565 hinges. Refer to Figure 1 (Sheets 6 and 7).

(a) Make the surface of the liquid shim (if any) on the translating sleeve rough with silicon carbide abrasive paper (CoMat 05-081).

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. 02-099) and solvent (01-438). Dry the surfaces before the solvent becomes dry.

(b) Clean the liquid shim with a lint free cloth (CoMat, 02-099) made moist with solvent (CoMat 01-438).

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.

(c) Mix the adhesive (CoMat 08-021). Refer to the manufacturer's instructions.

(d) Apply a thin layer of the adhesive (CoMat 08-021) to the liquid shim.

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WARNING: THINNER (COMAT 07-116), CATALYST (COMAT 07-139) AND EPOXY PRIMER (COMAT 07-140) 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.

- (e) Mix the thinner (CoMat 07-116), catalyst (CoMat 07-139), and epoxy primer (CoMat 07-140). Refer to the manufacturer's instructions.
- (f) Cover the mating surfaces of the hinges with release agent (CoMat 02-158).
- (g) Install the 290-0564 hinges on the translating sleeve with three pins and collars. Wet install the pins and collars with the primer mix. Refer to Figure 1 (Sheet 7).
- (h) Install the 290-0565 hinges on the translating sleeve with four pins and collars. Wet install the pins and collars with primer mix. Refer to Figure 1 (Sheet 6).
- (6) Install the seal on the translating sleeve above the hinges.
 - (a) Make the mating surfaces of the seal and the seal carrier rough. Use silicon carbide abrasive paper (CoMat 05-081).
 - (b) Clean the surfaces of the seal and the seal carrier with a lint free cloth (CoMat 02-099) and solvent (01-438).

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WARNING: PRIMER (COMAT 08-032) IS CLASSIFIED AS A HAZARDOUS MATERIAL WHICH 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.

CAUTION: Do not apply primer (CoMat 08-032) to the lower outer duct seal.

(c) Apply a thin layer of primer (CoMat 08-032) to the mating surface of the seal carrier. Refer to the manufacturer's instructions.

(d) Cure the primer. Refer to the manufacturer's instructions.

WARNING: SILICONE RUBBER COMPOUND (COMAT 08-031) IS CLASSIFIED AS A HAZARDOUS MATERIAL WHICH 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.

(e) Apply the silicone rubber compound (CoMat 08-031) to the mating surfaces of the seal, the seal blocks, and the seal carrier. Refer to the manufacturer's instructions.

(f) Install the lower outer duct seal in the seal carrier and on the seal blocks. Make sure the vent holes face forward.

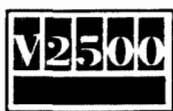
(g) Remove unwanted silicone rubber compound with a lint free cloth (CoMat 02-099) made moist with solvent (CoMat 01-438).

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- R (h) Cure the silicone rubber compound. Refer to the
R manufacturer's instructions.
- R (7) Re-indentify the 290-0565-9 and -10 hinges to 290-0565-507
and -508 respectively. Re-indentify the 290-0564-15 and -
16 hinges to 290-0564-505 and -506 respectively.

C. Recording Instructions

- (1) A record of accomplishment is necessary. Write in the
applicable records and metal stamp, vibroetch, or
electroetch on the thrust reverser data plate that Service
Bulletin V2500-NAC-78-0132 has been done. Refer to the IAE
V2500 Standard Practices/Processes Manual, Chapter 70-09-
00.

D. Post-requisite Instructions

- (1) Install the blocker door on the translating sleeve. Refer
to the MD90/V2500D5 Thrust Reverser Component Maintenance
Manual, Chapter 78-32-16.

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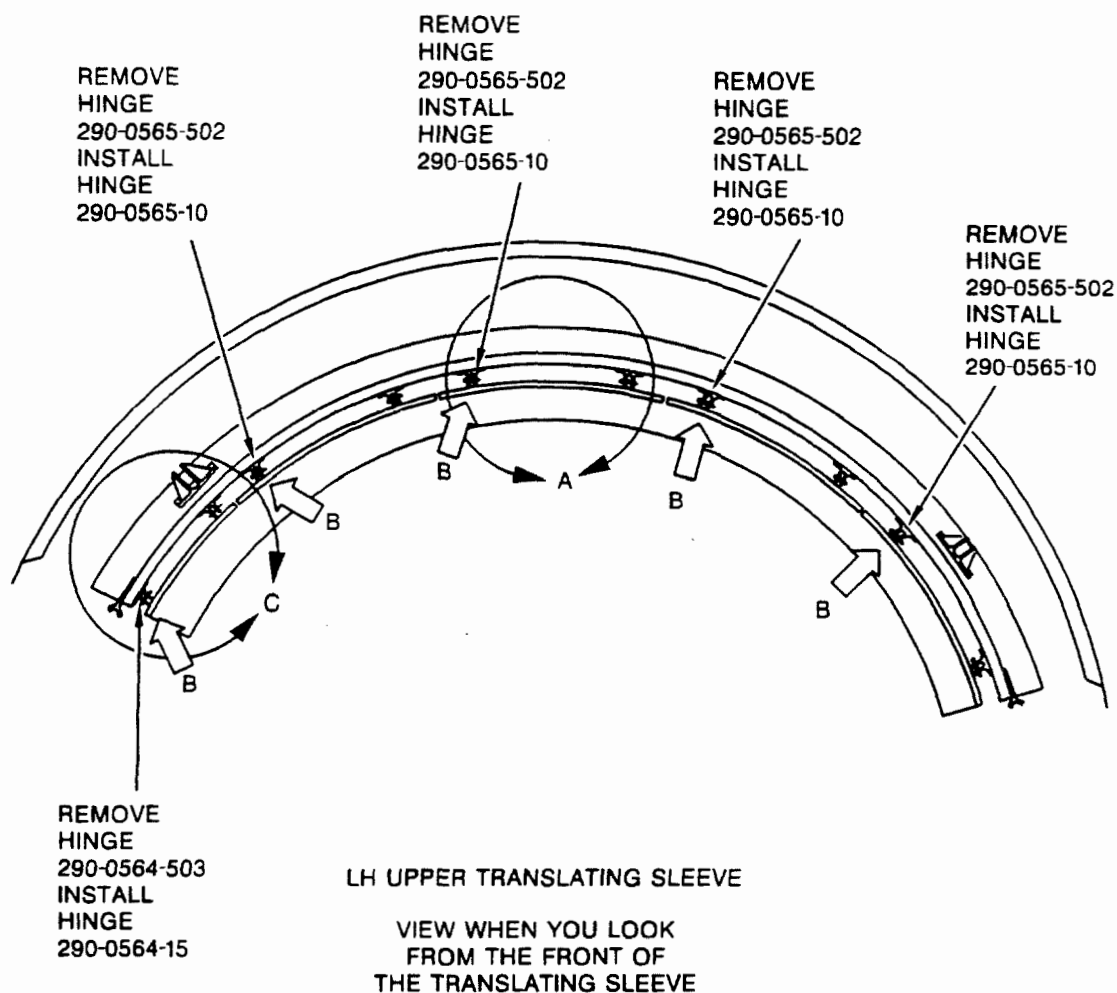
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VS529A

Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 1)

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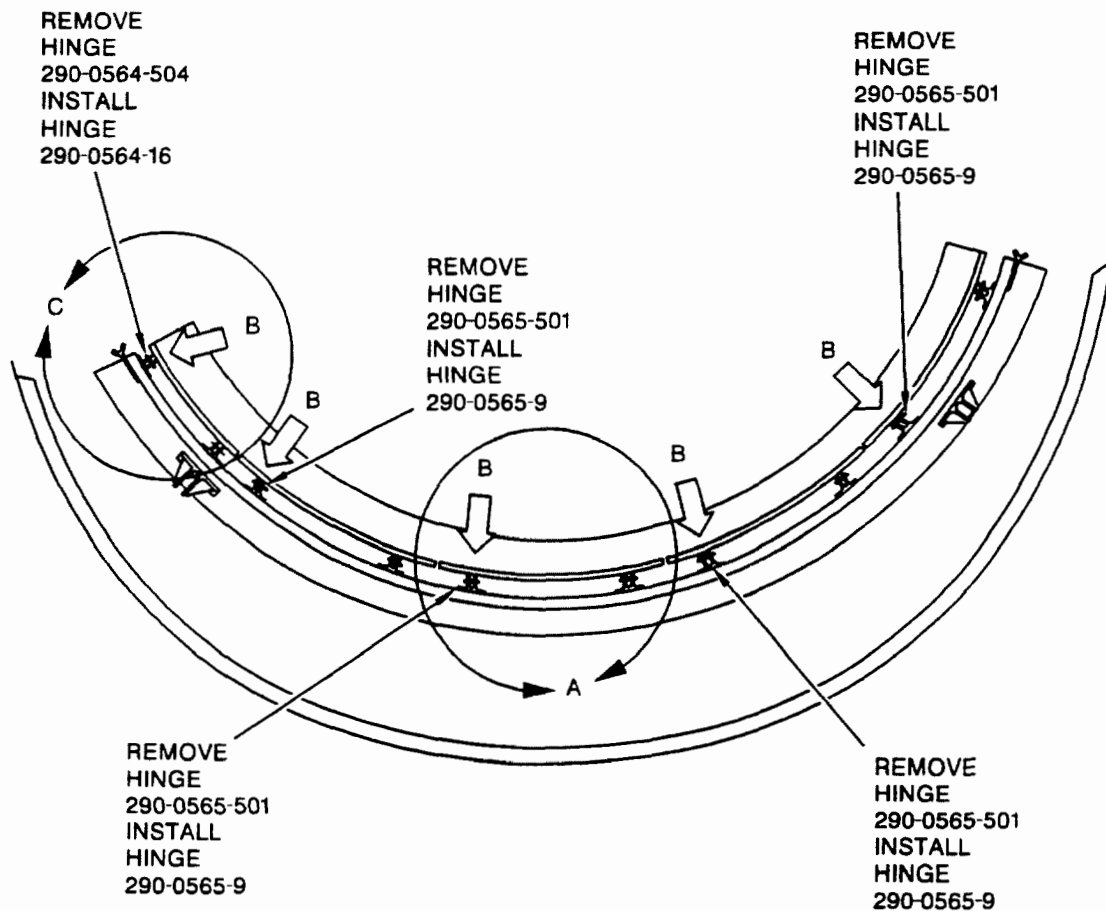
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LH LOWER TRANSLATING SLEEVE

VIEW WHEN YOU LOOK
FROM THE FRONT OF
THE TRANSLATING SLEEVE

VSB495A

Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 2)

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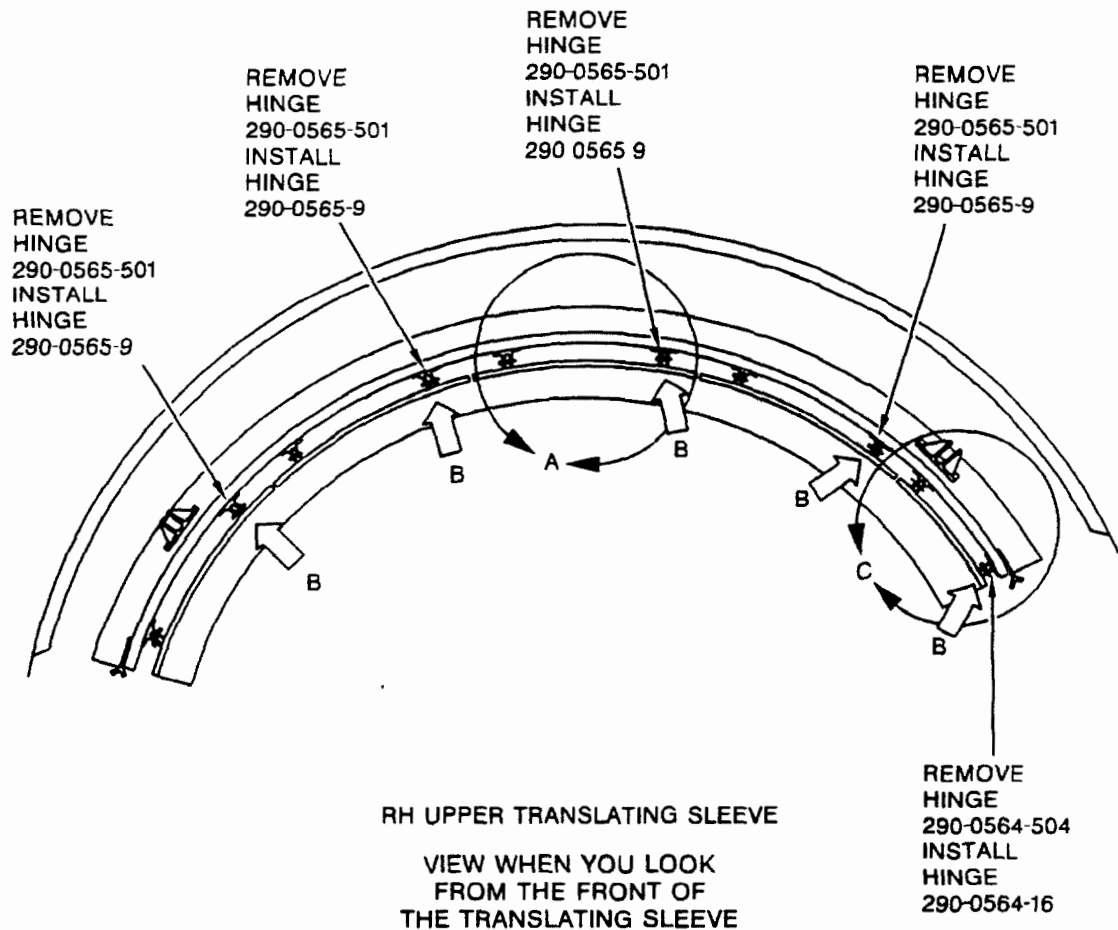
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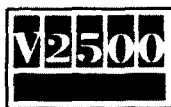
VS528A

Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 3)

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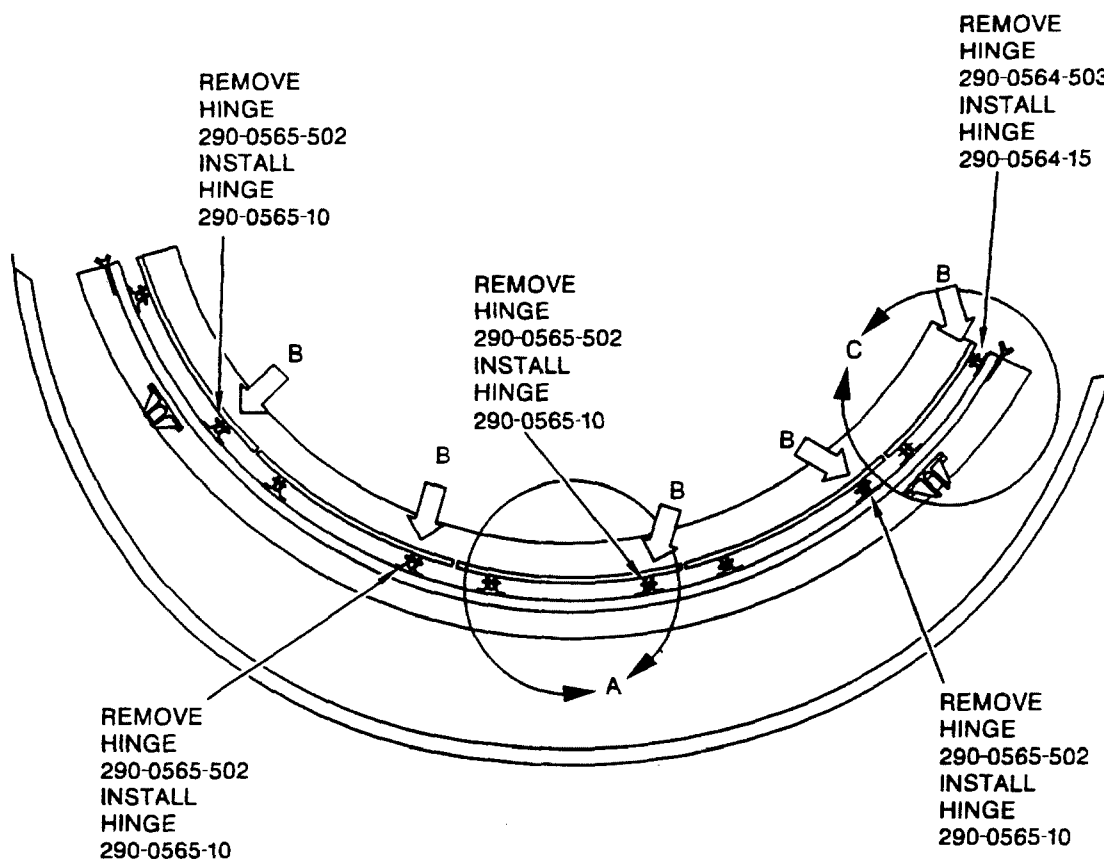
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RH LOWER TRANSLATING SLEEVE

VIEW WHEN YOU LOOK
FROM THE FRONT OF
THE TRANSLATING SLEEVE

VSB525A

Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 4)

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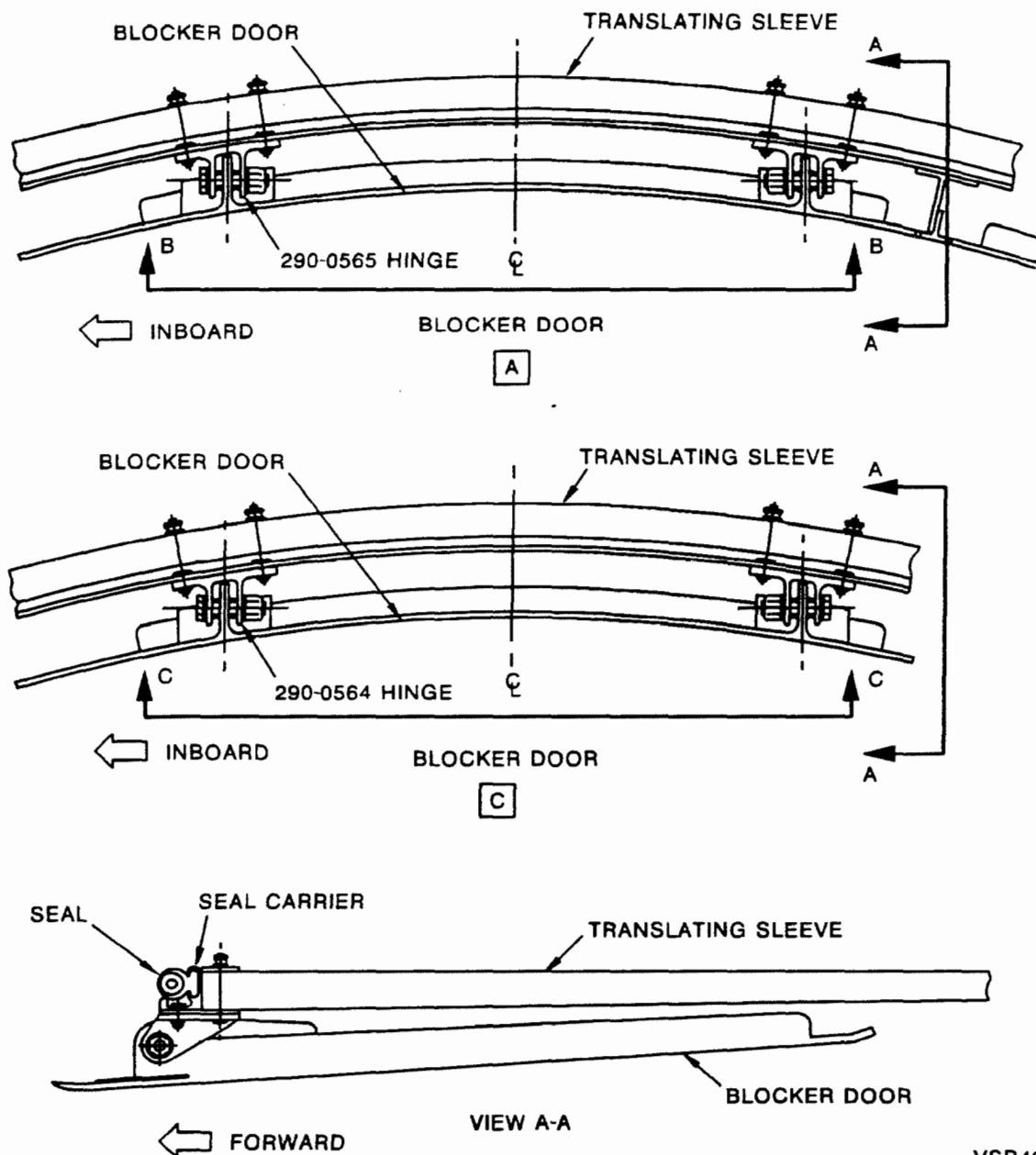
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VSB494

Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 5)

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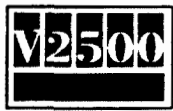
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Figure 1 (Sheet 6)

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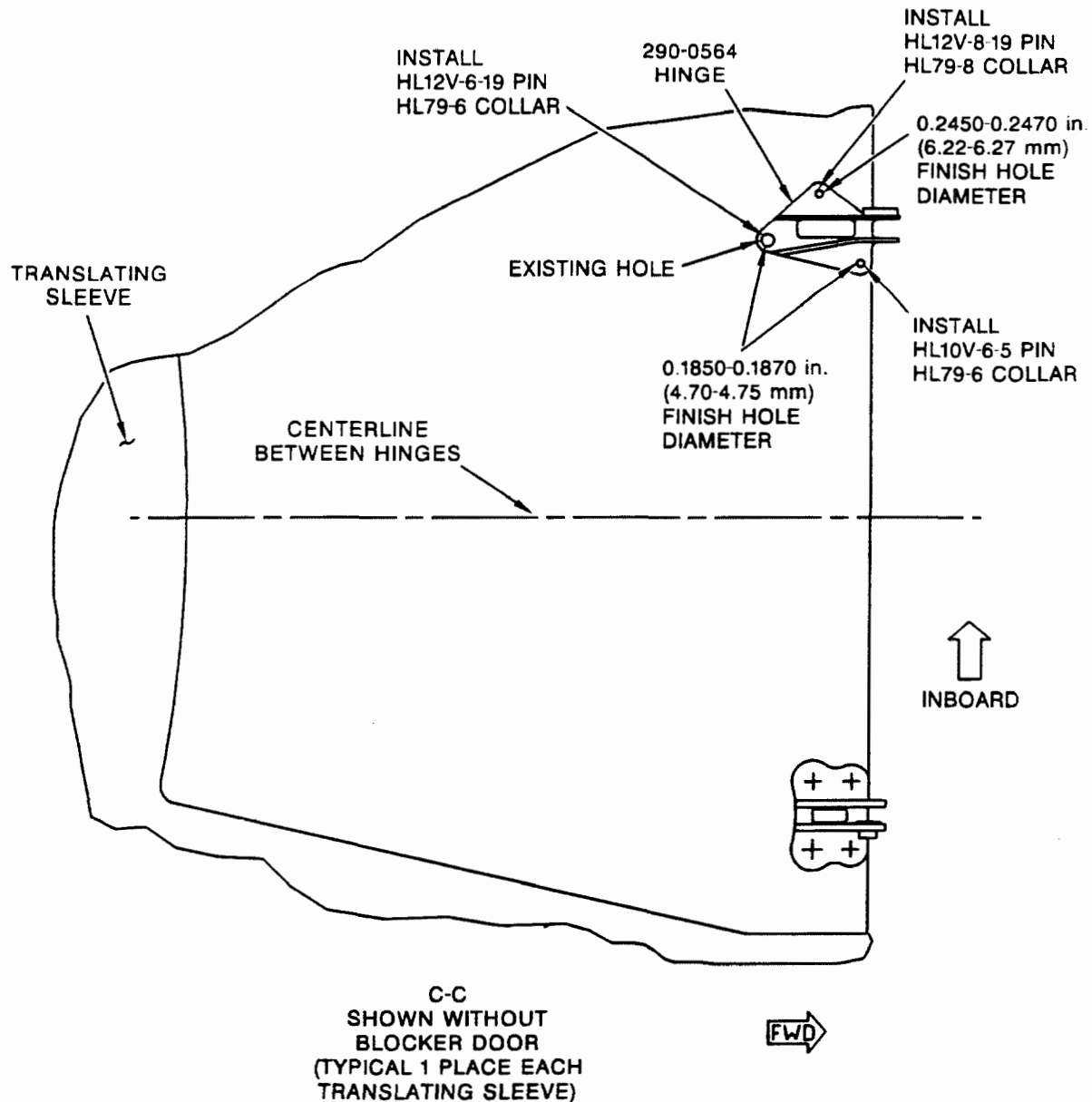
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VSB631

Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement Figure 1 (Sheet 7)

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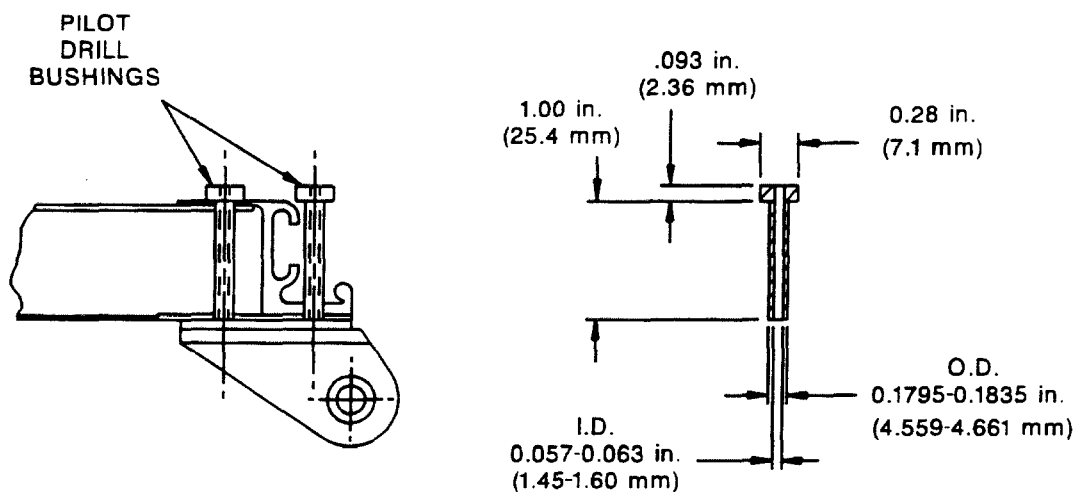
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PILOT DRILL BUSHING DETAIL.

VSB493

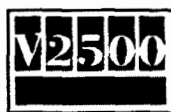
Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 8)

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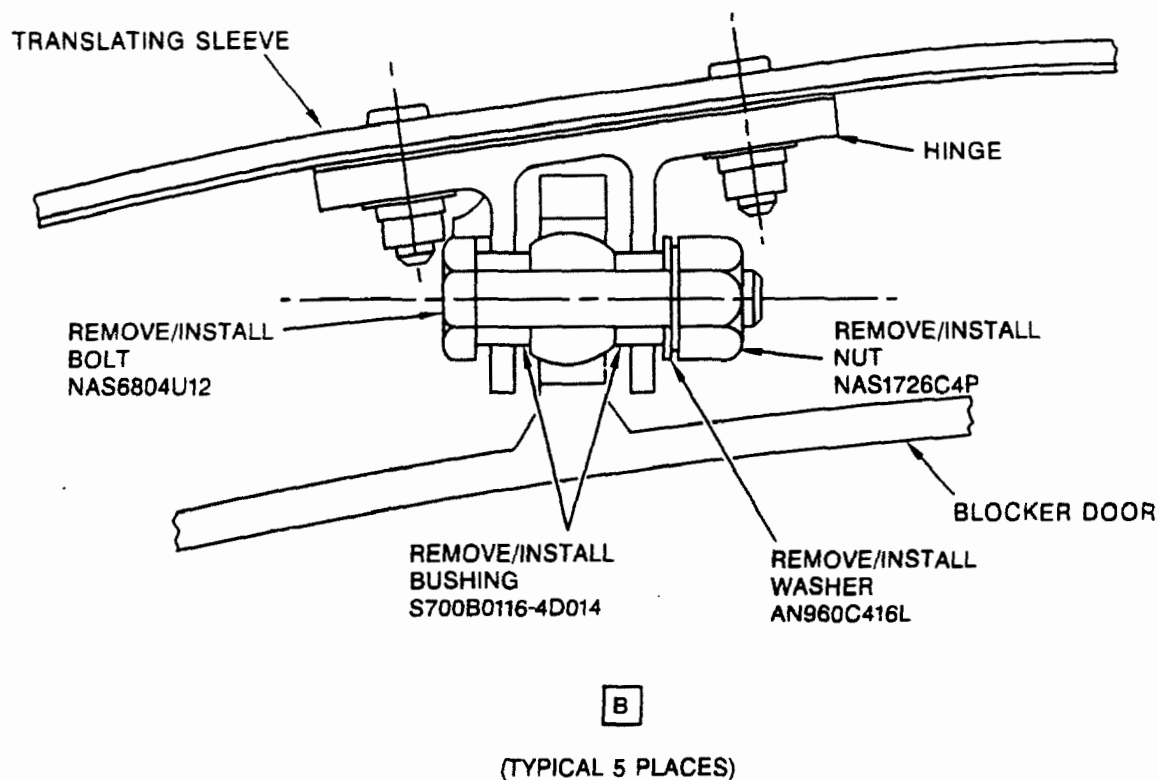
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VSB496

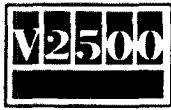
Thrust Reverser Translating Sleeve Blocker Door Hinge Replacement
Figure 1 (Sheet 9)

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3. Material Information

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

A. Kits associated with this Bulletin:

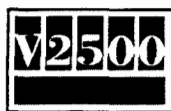
<u>NEW PART NO</u> <u>(ATA NO)</u>	<u>QTY</u>	<u>EST'D</u> <u>UNIT</u> <u>PRICE</u>	<u>KEYWORD</u>	<u>OLD PART NO</u> <u>(IPC NO)</u>	<u>INSTR/</u> <u>DISPOS</u>
V2578132-551 Consisting of	1		Kit		(A)
290-0565-9	4		Hinge		
290-0565-10	4		Hinge		
290-0564-15	1		Hinge		
290-0564-16	1		Hinge		
HL10V-6-5	18		Pin		
HL10V-6-14	16		Pin		
HL79-6	36		Collar		
HL12V-6-19 (alternate for HL12VAZ6-19)	2		Pin		
HL12VAZ6-19 (alternate for HL12V-6-19)	2		Pin		
HL12V-8-19	2		Pin		
HL79-8	2		Collar		
S700B0116-4D014	20		Bushing		

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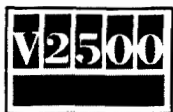
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B. Parts affected by this Bulletin:

	<u>NEW PART NO</u> <u>(ATA NO)</u>	<u>QTY</u>	<u>EST'D</u> <u>UNIT</u> <u>PRICE</u>	<u>KEYWORD</u>	<u>OLD PART NO</u> <u>(IPC NO)</u>	<u>INSTR/</u> <u>DISPOS</u>
R R	290-0564-505 (78-32-16)	1		Hinge	290-0564-503 (05-591) (08-555)	(B)(C)(D) (1D)(S1)
R R	290-0564-506 (78-32-16)	1		Hinge	290-0564-504 (06-591) (07-555)	(B)(C)(D) (1D)(S1)
R R	290-0565-507 (78-32-16)	4		Hinge	290-0565-501 (06-765) (07-735)	(B)(C)(D) (1D)(S1)
R R	290-0565-508 (78-32-16)	4		Hinge	290-0565-502 (05-765) (08-735)	(B)(C)(D) (1D)(S1)
R R	290-0565-509 (78-32-16)	3		Hinge	290-0565-503 (05-770) (08-740)	(B)(C) (1D)(S1)
R R	290-0565-510 (78-32-16)	3		Hinge	290-0565-504 (06-770) (07-740)	(B)(C) (1D)(S1)
R R	290-0565-511 (78-32-16)	1		Hinge	290-0565-505 (05-775) (08-745)	(B)(C) (1D)(S1)
R R	290-0565-512 (78-32-16)	1		Hinge	290-0565-506 (06-775) (07-745)	(B)(C) (1D)(S1)

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	NEW PART NO (ATA NO)	QTY	EST'D UNIT PRICE	KEYWORD	OLD PART NO (IPC NO)	INSTR/ DISPOS
R	290-0566-503	1		Hinge	290-0566-501	(B)(C)
R	(78-32-16)				(05-780)	(1D)(S1)
					(08-750)	
R	290-0566-504	1		Hinge	290-0566-502	(B)(C)
R	(78-32-16)				(06-780)	(1D)(S1)
					(07-750)	

C. Instructions/Disposition Code Statements:

- (A) Kit will be available April 1997.
- (B) New part will be available April 1997.
- (C) Old part will no longer be available.
- (D) New part supplied as a detail of the kit.
- (1D) Discard old part.
- (S1) New part number is acceptable replacement for the old or new part number.

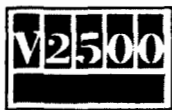
D. Materials Required to Incorporate This Bulletin

CoMat 01-438	Solvent
CoMat 02-099	Lint Free Cloth
CoMat 02-158	Release Agent
CoMat 05-081	Silicon Carbide Abrasive Paper
CoMat 07-116	Thinner
CoMat 07-139	Catalyst
CoMat 07-140	Epoxy Primer
CoMat 08-021	Adhesive
CoMat 08-031	Silicone Rubber Compound
CoMat 08-032	Primer

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**International
Aero Engines**

V2500 Propulsion System — Nacelle

SERVICE BULLETIN

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

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