# SERVICE BULLETIN

**Number: V2500-NAC-78-0203**

## Summary

**Date**: September 30, 2002

**ATA System:** 78-30

INTERNAL REFERENCE NO.

JG 02VN801

**SUBJECT:** THRUST REVERSER ASSEMBLY - BLOCKER DOOR - REPLACE THREADED BEARINGS WITH SWAGED BEARINGS

**BACKGROUND**

GENERAL:

Some operators have reported abnormal wear of the two-piece threaded blocker door bearings.

This service bulletin provides instructions to remove the two-piece threaded bearings and replace them with one-piece swaged-in bearings.

ACTION:

Remove the two-piece threaded bearings and replace them with one-piece swaged-in bearings.

COMPLIANCE:

Category 8

Accomplish based upon experience with the prior configuration.

EFFECTIVITY:

All V2500-D5 thrust reversers and spare blocker doors.

MANPOWER:

Refer to Paragraph 1.G.

MATERIAL INFORMATION:

Refer to paragraph 1.H.



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"MODIFICATION SERVICE BULLETIN" - "NACELLE - EXHAUST - THRUST REVERSER ASSEMBLY - BLOCKER DOOR - REPLACE THREADED BEARINGS WITH SWAGED BEARINGS"

1. PLANNING INFORMATION

A. Effectivity

(1) Airplane: MD-90

(2) Nacelle: All V2500-D5 thrust reversers and spare blocker doors.

B. Concurrent Requirements

None

C. Reason

(1) Problem

(a) Some operators have reported abnormal wear of the two-piece threaded blocker door bearings.

(2) Cause

(a) Environmental influences.

(3) Background

(a) Some operators have reported abnormal wear of the two-piece threaded blocker door bearings.

(4) Objective

(a) The changes in configuration recommended in this Service Bulletin are intended to maintain reliability of the nacelle by installing one-piece swaged-in blocker door bearings.

(5) Substantiation

(a) Not applicable.

D. Description

Remove the two-piece threaded bearings and replace them with one-



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piece swaged-in bearings.

E. Compliance

Category 8

Accomplish based upon experience with the prior configuration.

NOTE: You do not need to replace the two-piece blocker door bearings with one-piece bearings unless you have experienced abnormal wear or the two-piece bearings are no longer available.

F. Approval

Incorporation of this Service Bulletin must be accomplished only in conjunction with Boeing Service Bulletin MD90-78-055 which has received exclusive FAA approval for MD-90 Series aircraft.

G. Manpower

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

| VENUE | EST'D MAN HOURS |
|---|---|
| (1) In Shop | |
| (a) To modify the blocker door that does not require heat treat. | 1 hour per door |
| (2) In Shop | |
| (a) To modify the blocker door that requires heat treat. | 2 hours per door |

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



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H. Material Cost and Availability

Operators with units listed in Paragraph 1.A. should submit a 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:
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-78-0203)

NOTE: Please do not submit orders for service bulletin kits 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) |



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K. References

| Publication | Chapter/Section |
|---|---|
| IAE Standard Practices/Processes Manual (SPP-V2500-1IA) | 70-09-00<br>70-38-02 |
| Overhaul Processes and Consumable Index (PCI-V2500-1IA) | |
| Structural Repair Manual | 54-02-00 |
| ASTM E 1417 | |

L. Other Publications Affected

| Publication | Chapter/Section |
|---|---|
| Thrust Reverser Component Maintenance Manual (CMM-TR-V2500-3IA) | 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:

| NEW PART NO (ATA NO) | QTY | EST'D UNIT PRICE | KEYWORD | OLD PART NO (IPC NO) | INSTR/ DISPOS |
|---|---|---|---|---|---|
| V2578203-551 | 1 | $2978.04 | Kit | | (A) |
| consisting of: | | | | | |
| LNG04E-827 | 20 | | Bearing | - - - | |

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

C. Parts affected by this Service Bulletin:

| NEW PNUMBER (ATA NUMBER) | QTY | ESTD UNIT PRICE | KEYWORD | OLD PNNUMBER (IPC NUMBER) | INSTR/ DISPOS |
|---|---|---|---|---|---|
| 290-0659-509 | 1 | | Door Assy, Blocker | 290-0659-505 | (1D) (S2) |
| (78-32-20) | | | | (01-10) | |
| 290-0659-510 | 1 | | Door Assy, Blocker | 290-0659-506 | (1D) (S2) |
| (78-32-20) | | | | (01-11) (02-10) | |
| 290-0659-509 | 1 | | Door Assy, Blocker | 290-0659-507 | (1D) (S2) |



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| NEW PNUMBER (ATA NUMBER) | QTY | ESTD UNIT PRICE | KEYWORD | OLD PNNUMBER (IPC NUMBER) | INSTR/ DISPOS |
|---|---|---|---|---|---|
| (78-32-20) | | | | (01-10) | |
| 290-0659-510 | 1 | | Door Assy, Blocker | 290-0659-508 | (1D) (S2) |
| (78-32-20) | | | | (01-11) (02-10) | |
| 290-0631-509 | 1 | | Door, Blocker | 290-0631-505 | (1D) |
| (78-32-20) | | | | (01-25) (02-26) | |
| 290-0631-510 | 1 | | Door, Blocker | 290-0631-506 | (1D) |
| (78-32-20) | | | | (01-26) (02-25 | |
| 290-0631-509 | 1 | | Door, Blocker | 290-0631-507 | (1D) |
| (78-32-20) | | | | (01-26) (02-26) | |
| 290-0631-510 | 1 | | Door, Blocker | 290-0631-508 | (1D) |
| (78-32-20) | | | | (01-26) (02-25 | |
| LNG04E-827 | 2 | | Bearing | P2A1100 | (S1) |
| (78-32-20) | | | | (01-27) (02-27) | |
| 290-0658-509 | 3 | | Door Assy, Blocker | 290-0658-505 | (1D) (S2) |
| (78-32-20) | | | | (01-30) (02-11) (02-30) | |



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| NEW PNUMBER (ATA NUMBER) | QTY | ESTD UNIT PRICE | KEYWORD | OLD PNNUMBER (IPC NUMBER) | INSTR/ DISPOS |
|---|---|---|---|---|---|
| 290-0658-509 | 3 | | Door Assy, Blocker | 290-0658-507 | (1D) (S2) |
| (78-32-20) | | | | (01-30) (02-11) (02-30) | |
| 290-0630-509 | 1 | | Door, Blocker | 290-0630-505 | (1D) |
| (78-32-20) | | | | (01-45) (02-45) | |
| 290-0630-509 | 1 | | Door, Blocker | 290-0630-507 | (1D) |
| (78-32-20) | | | | (01-45) (02-45) | |
| LNG04E-827 | 2 | | Bearing | P2A1100 | (S1) |
| (78-32-20) | | | | (01-48) (02-48) | |
| 290-0657-509 | 1 | | Door Assy, Blocker | 290-0657-505 | (1D) (S2) |
| (78-32-20) | | | | (01-50) (02-51) | |
| 290-0657-510 | 1 | | Door Assy, Blocker | 290-0657-506 | (1D) (S2) |
| (78-32-20) | | | | (01-51) (02-50) | |
| 290-0657-509 | 1 | | Door Assy, Blocker | 290-0657-507 | (1D) (S2) |
| (78-32-20) | | | | (01-50) (02-51) | |
| 290-0657-510 | 1 | | Door Assy, Blocker | 290-0657-508 | (1D) (S2) |



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| NEW PNUMBER (ATA NUMBER) | QTY | ESTD UNIT PRICE | KEYWORD | OLD PNNUMBER (IPC NUMBER) | INSTR/ DISPOS |
|---|---|---|---|---|---|
| (78-32-20) | | | | (01-51)<br>(02-50) | |
| 290-0629-509 | 1 | | Door, Blocker | 290-0629-505 | (1D) |
| (78-32-20) | | | | (01-70)<br>(02-72) | |
| 290-0629-510 | 1 | | Door, Blocker | 290-0629-506 | (1D) |
| (78-32-20) | | | | (01-72)<br>(02-70) | |
| 290-0629-509 | 1 | | Door, Blocker | 290-0629-507 | (1D) |
| (78-32-20) | | | | (01-70)<br>(02-72) | |
| 290-0629-510 | 1 | | Door, Blocker | 290-0629-508 | (1D) |
| (78-32-20) | | | | (01-72)<br>(02-70) | |
| LNG04E-827 | 2 | | Bearing | P2A1100 | (S1) |
| (78-32-20) | | | | (01-78)<br>(02-78) | |

D. Instructions/Disposition Codes:

(A) Kit will be available January 2003.

(1D) Re-work old part number and identify as new part number.

(S1) New part can replace old part but not vice-versa.

(S2) Old and new part numbers are freely and fully interchangeable.



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E. Tooling - Availability:

| Tool | Manufacturer |
|---|---|
| RST4183 Portable Roller Swaging Tool | Rexnord Corporation<br>Bearing Division<br>2400 Curtiss Street No. 1482<br>Downers Grove, IL 60515<br>(630) 969-1770 - phone<br>(630) 969-1612 - fax |

F. Materials Required to do this Service Bulletin:

| | |
|---|---|
| CoMat 01-438 | Solvent |
| CoMat 02-099 | Lint Free Cloth |

NOTE: Refer to the procedures referenced in Section 3 of this service bulletin for other materials that may be required.

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



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3. Accomplishment Instructions

A. For Blocker Door Assemblies with Part Numbers 290-0657-507, 290-0657-508, 290-0658-507, 290-0659-507, and 290-0659-508 and Blocker Doors with Part Numbers 290-0629-507, 290-0629-508, 290-0630-507, 290-0631-507, and 290-0631-508 - Replace the Bearings.

NOTE: Each blocker door assembly has two part numbers. One identifies the blocker door assembly and the other identifies the blocker door. For example, blocker door assembly 290-0659-507 will have both this part number and part number 290-0631-507 marked on it.

(1) Remove the two-piece bearings from the blocker door. Refer to Thrust Reverser Component Maintenance Manual, TASK 78-32-20-300-002. Discard the bearings.

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 bearing holes in the blocker door with solvent (CoMat 01-438) and a lint free cloth (CoMat 02-099). Wipe the surface dry before the solvent becomes dry.

(3) Inspect the bearing holes in the blocker door. Refer to Figure 1.

a. Inspect the diameter of the bearing holes. Use precision measuring tools to determine the largest diameter of each hole.

1. If the diameter of the hole is 0.7084 inch (18,00 mm) or less, continue with this procedure.

2. If the diameter of the hole is greater than 0.7084 inch (18,00 mm), refer to Component Maintenance Manual Repair VRS2449 for oversize bearing replacement.



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b. Do a liquid penetrant inspection of the lug for cracks. Refer to ASTM E 1417.

1. If no cracks are found, continue with this procedure.

2. If cracks are found, you must discard the blocker door.

(4) Install the new one-piece bearings in the blocker doors. Refer to Figure 2.

a. Install the bearing.

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1. Apply primer to the inner surface of the bearing holes in the blocker door.

2. Press the bearing into the blocker door hole. Apply force evenly over the entire circumference of the outer race. Do not press on the inner race. Do not apply impact force to the bearing. Refer to Figure 2.

3. Check the bearing outer race to make sure it is even with the surface of the lug or no more than 0.010 inch (0,25 mm) above or below the surface of the lug. Refer to Figure 2.

4. Swage the bearing into the lug. Use roller swaging tool RST4183. Refer to Figure 2.

(a) If you use a power tool to operate the swaging tool, set the speed of the power tool to a speed of approximately 100 RPM or less. Do not exceed 100 RPM.

(b) Use the minimum force required to swage the grooved lip of the bearing over the lug.



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(c) The swage is complete when the swaged lip of the bearing is in contact with the lug chamfer.

5. Examine the bearing installation. Refer to Figure 2.

(a) Visually examine the blocker door lug for cracks. Do a liquid penetrant inspection if cracks are suspected (Refer to ASTM E 1417). Reject any door with cracked lugs.

(b) Make sure the ball of the bearing turns freely after swaging. Reject any bearings that do not have a ball that turns freely. If you reject the bearing, repeat the installation procedure with a new bearing.

(c) Visually examine the swaged portion of the bearing for galling or cracks. Any crack or galling is cause for rejection of the installation. If you reject the installation, repeat the installation procedure with a new bearing.

(d) Measure the gap between the swaged portion of the bearing and the lug. A 0.005 inch (0,127 mm) gap is permitted in 40% or less of the swaged circumference. Too much gap is cause for rejection of the installation. If you reject the installation, repeat the installation procedure with a new bearing.

(5) Do an axial load proof test on the new bearings. Refer to Figure 3.

a. Apply a 1150 lbs (521 kg) axial load to the outer race on one side of the bearing and then on the other side.



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1. Any deflection between the bearing outer race and the blocker door lug is cause for rejection of the installation. If you reject the installation, repeat the installation procedure with a new bearing.

(6) Re-identify the blocker door assemblies and blocker doors. Use a rubber stamp and ink. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

NOTE: Each blocker door assembly has two part numbers. One identifies the blocker door assembly and the other identifies the blocker door. For example, blocker door assembly 290-0659-507 will have both this part number and part number 290-0631-507 marked on it.

a. Blocker Door Assemblies

1. Re-identify 290-0657-507 as 290-0657-509

2. Re-identify 290-0657-508 as 290-0657-510.

3. Re-identify 290-0658-507 as 290-0658-509.

4. Re-identify 290-0659-507 as 290-0659-509.

5. Re-identify 290-0659-508 as 290-0659-510.

b. Blocker Doors

1. Re-identify 290-0629-507 as 290-0629-509.

2. Re-identify 290-0629-508 as 290-0629-510.

3. Re-identify 290-0630-507 as 290-0630-509.

4. Re-identify 290-0631-507 as 290-0631-509.

5. Re-identify 290-0631-508 as 290-0631-510.



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B. For Blocker Door Assemblies with Part Numbers 290-0657-505, 290-0657-506, 290-0658-505, 290-0659-505, and 290-0659-506 and for Blocker Doors with Part Numbers 290-0629-505, 290-0629-506, 290-0630-505, 290-0631-505, and 290-0631-506 - Replace the Bearings.

NOTE: Each blocker door assembly has two part numbers. One identifies the blocker door assembly and the other identifies the blocker door. For example, blocker door assembly 290-0659-505 will have both this part number and part number 290-0631-505 marked on it.

(1) Remove the two-piece bearings from the blocker door. Refer to Thrust Reverser Component Maintenance Manual TASK 78-32-20-300-002. Discard the bearings.

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 bearing holes in the blocker door with solvent (CoMat 01-438) and a lint free cloth (CoMat 02-099). Wipe the surface dry before the solvent becomes dry.

(3) Inspect the bearing holes in the blocker door. Refer to Figure 1.

a. Inspect the diameter of the bearing holes. Use precision measuring tools to determine the largest diameter of each hole.

1. If the diameter of the hole is 0.7084 inch (18,00 mm) or less, continue with this procedure.

2. If the diameter of the hole is greater than 0.7084 inch (18,00 mm), refer to Component Maintenance Manual Repair VRS2449 for oversize bearing replacement.



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b. Do a liquid penetrant inspection of the lugs for cracks. Refer to ASTM E 1417.

1. If no cracks are found, continue with this procedure.

2. If cracks are found, you must discard the blocker door.

(4) Remove the springs from the blocker door. Refer to Thrust Reverser Component Maintenance Manual TASK 78-32-20-300-003. Keep the springs if serviceable.

(5) Remove the anti-rotation bushings and pin from the blocker door. Refer to Thrust Reverser Component Maintenance Manual TASK 78-32-20-300-004. Keep the bushings and the pin if serviceable.

(6) Remove the paint from the blocker door.

(7) Precipitation Harden the 2024-T351 blocker doors to 2024-T851.

a. Identify the blocker doors with temperature sensitive ink.

b. Make sure the blocker doors are clean and free of moisture before you put them into the oven.

c. Put the blocker doors into the oven so the air can move freely around them. Do not stack the blocker doors. Minimum space between the blocker doors must be 2 inches (50,8 mm).

d. Heat the blocker doors in the oven for 10-12 hours minimum (12.5 hours maximum) at 370-380 deg F (188-193 deg C).

NOTE: Soak time at temperature is measured from when the coldest working zone or load thermocouple reaches the minimum limit of the specified temperature range.

e. Test all hardened blocker doors for Rockwell Hardness B 74 minimum (Rockwell Hardness E 99 minimum).



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WARNING: CONVERSION COATING 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.

(8) Apply conversion coating to the blocker doors. Refer to the Standard Practices Manual, Chapter 70-38-02.

WARNING: PRIMER 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.

(9) Apply primer to the blocker doors. Refer to the Structural Repair Manual, Chapter 54-02-00, General Repair Procedures.

(10) Inspect the bearing holes in the blocker door. Refer to Figure 1.

a. Inspect the diameter of the bearing holes. Use precision measuring tools to determine the largest diameter of each hole.

1. If the diameter of the hole is 0.7084 inch (18,00 mm) or less, continue with this procedure.

2. If the diameter of the hole is greater than 0.7084 inch (18,00 mm), refer to Component Maintenance Manual Repair VRS2449 for oversize bearing replacement.



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(11) Install the new one-piece bearings in the blocker door. Refer to Figure 2.

a. Install the bearing.

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1. Apply primer to the inner surface of the bearing holes in the blocker door.

2. Press the bearing into the blocker door hole. Apply force evenly over the entire circumference of the outer race. Do not press on the inner race. Do not apply impact force to the bearing. Refer to Figure 2.

3. Check the bearing outer race to make sure it is even with the surface of the lug or no more than 0.010 inch (0,25 mm) above or below the surface of the lug.

4. Swage the bearing into the lug. Use roller swaging tool RST4183. Refer to Figure 2.

   (a) If you use a power tool to operate the swaging tool, set the speed of the power tool to a speed of approximately 100 RPM or less. Do not exceed 100 RPM.

   (b) Use the minimum force required to swage the grooved lip of the bearing over the lug.

   (c) The swage is complete when the swaged lip of the bearing is in contact with the lug chamfer.



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5. Examine the bearing installation. Refer to Figure 2.

   (a) Visually examine the blocker door lug for cracks. Do a liquid penetrant inspection if cracks are suspected (refer to ASTM E 1417). Reject any door with cracked lugs.

   (b) Make sure the ball of the bearing turns freely after swaging. Reject any bearings that do not have a ball that turns freely. If you reject the bearing, repeat the installation procedure with a new bearing.

   (c) Visually examine the swaged portion of the bearing for galling or cracks. Any crack or galling is cause for rejection of the installation. If you reject the installation, repeat the installation procedure with a new bearing.

   (d) Measure the gap between the swaged portion of the bearing and the lug. A 0.005 inch (0,127 mm) gap is permitted in 40% or less of the swaged circumference. Too much gap is cause for rejection of the installation. If you reject the installation, repeat the installation procedure with a new bearing.

(12) Do a axial load proof test on the new bearings. Refer to Figure 3.

   a. Apply a 1150 lbs (521 kg) axial load to the outer race on one side of the bearing and then on the other side.

      1. Any deflection between the bearing outer race and the blocker door lug is cause for rejection of the installation. If you reject the installation, repeat the installation procedure with a new bearing.

(13) Install the anti-rotation bushings and pin on the blocker door. Refer to Thrust Reverser Component Maintenance Manual, TASK 78-32-20-300-004.

(14) Install the springs on the blocker door. Refer to Thrust Reverser Component Maintenance Manual, TASK 78-32-20-300-003.



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(15) Re-identify the blocker door assemblies and blocker doors. Use a rubber stamp and ink. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.

NOTE: Each blocker door assembly has two part numbers. One identifies the blocker door assembly and the other identifies the blocker door. For example, blocker door assembly 290-0659-505 will have both this part number and part number 290-0631-505 marked on it.

a. Blocker Door Assemblies

1. Re-identify 290-0657-505 as 290-0657-509

2. Re-identify 290-0657-506 as 290-0657-510.

3. Re-identify 290-0658-505 as 290-0657-509.

4. Re-identify 290-0659-505 as 290-0659-509.

5. Re-identify 290-0659-506 as 290-0659-510.

b. Blocker Doors

1. Re-identify 290-0629-505 as 290-0629-509.

2. Re-identify 290-0629-506 as 290-0629-510.

3. Re-identify 290-0630-505 as 290-0630-509.

4. Re-identify 290-0631-505 as 290-0631-509.

5. Re-identify 290-0631-506 as 290-0631-510.

C. Recording Instructions

(1) A record of accomplishment is required. Write in the applicable records and rubber stamp on the blocker door that Service Bulletin V2500-NAC-78-0203 has been done. Refer to the Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter 70-09-00.



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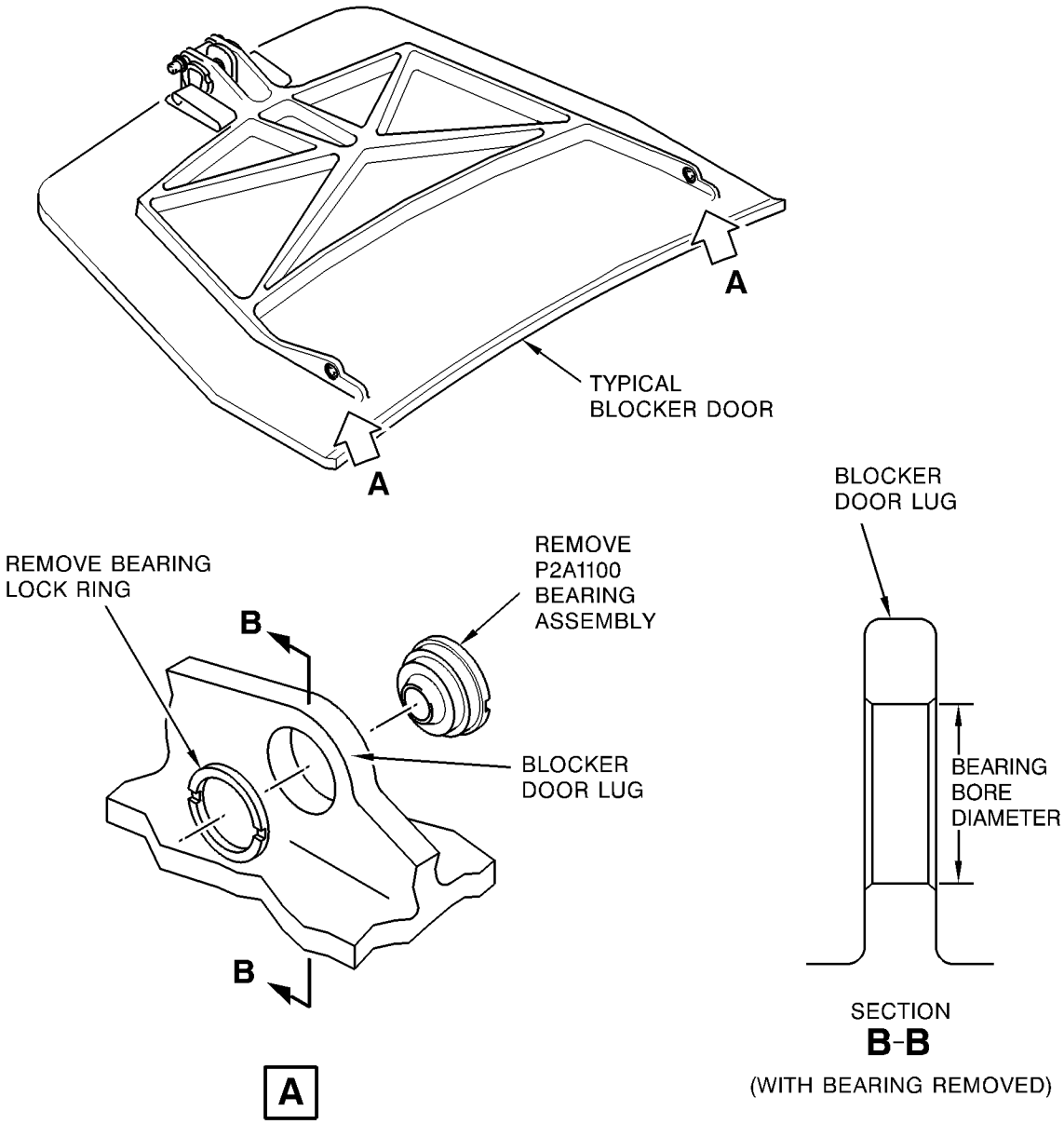


Blocker Door Modification
Figure 1 (sheet 1)



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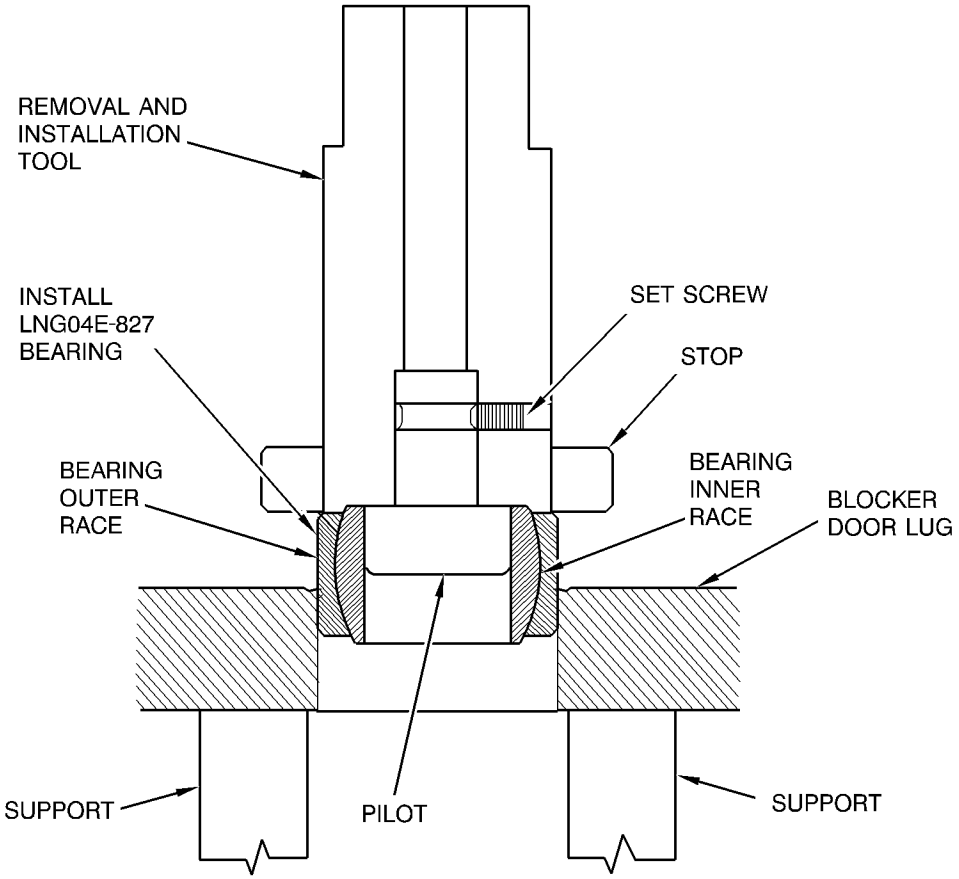
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).




VSB925

Blocker Door Modification
Figure 1 (sheet 2)



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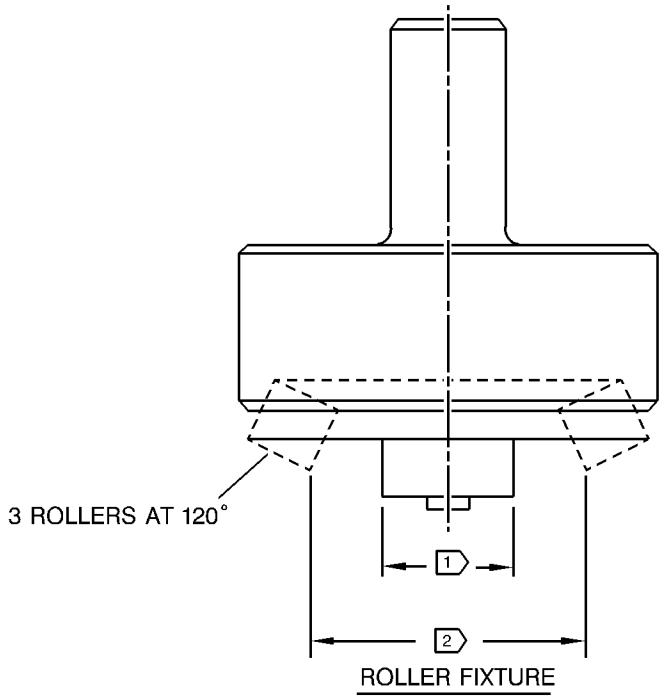
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).




1 PILOT DIAMETERS: 0.0015 in. (0,038 mm) MINIMUM CLEARANCE WITH BEARING BORE.
2 PITCH DIAMETER: MAXIMUM SWAGING GROOVE PITCH DIAMETER +0.010 in. (0,25 mm), -0.005 in. (0,127 mm)
3 OTHER DIMENSIONS TO SUIT BEARING SIZE.

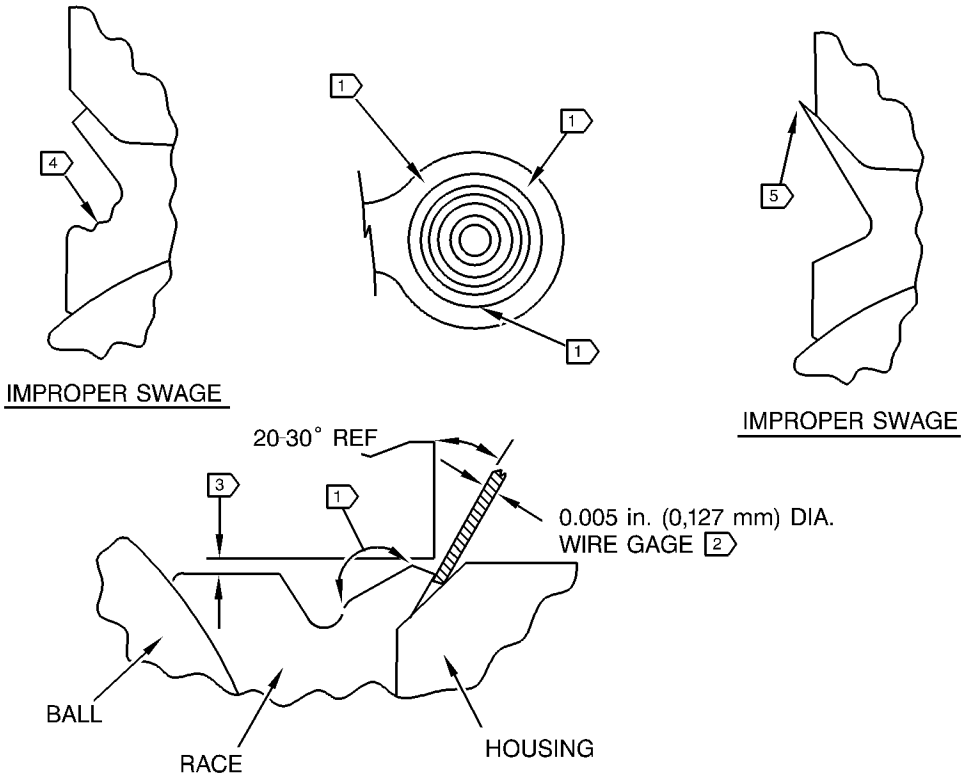
VSB926

Blocker Door Modification
Figure 2 (sheet1)



Rohr, Inc., a subsidiary of the BFGoodrich Company, operating as BFGoodrich Aerospace/Aerostructures Group

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




INSPECTION OF SWAGED V-GROOVE BEARINGS SHALL BE AS FOLLOWS:

1. VISUALLY INSPECT THIS CIRCUMFERENTIAL AREA FOR CRACKS AND SEPARATIONS.
2. INSPECT CIRCUMFERENCE OF THE GAP IN THE SWAGED LIP AS SHOWN WITH 0.005 in. (0,127 mm) FEELER GAGE. A PROPERLY SWAGED BEARING IN AN OPTIMALLY PREPARED HOUSING WILL NOT ACCEPT THE FEELER GAGE, HOWEVER, NO MORE THAN 40% OF THE CIRCUMFERENCE MAY ACCEPT THE GAGE.
3. BEARING RACE FACE TO BE FLUSH WITH HOUSING +0.000/-0.010 in.(+0,00/-0,25mm)
4. VISUALLY INSPECT INNER FACE OF BEARING GROOVE TO ASSURE THERE IS NO EVIDENCE OF ROLLER CONTACT DURING THE SWAGING OPERATION.
5. VISUALLY INSPECT THE SWAGED PORTION OF THE SWAGED LIP TO ASSURE THAT OVER-SWAGING HAS NOT OCCURRED.

VSB927

Blocker Door Modification
Figure 2 (sheet 2)



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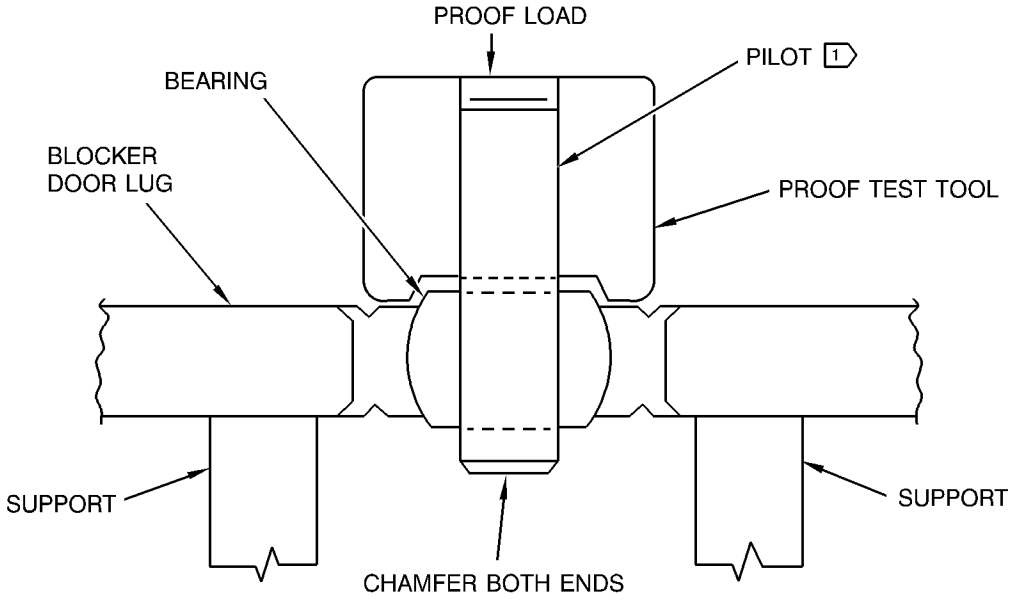
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).




1 PILOT DIAMETER IS SUCH THAT 0.0015 in. (0,038 mm) MIN. CLEARANCE WITH BEARING BORE EXISTS

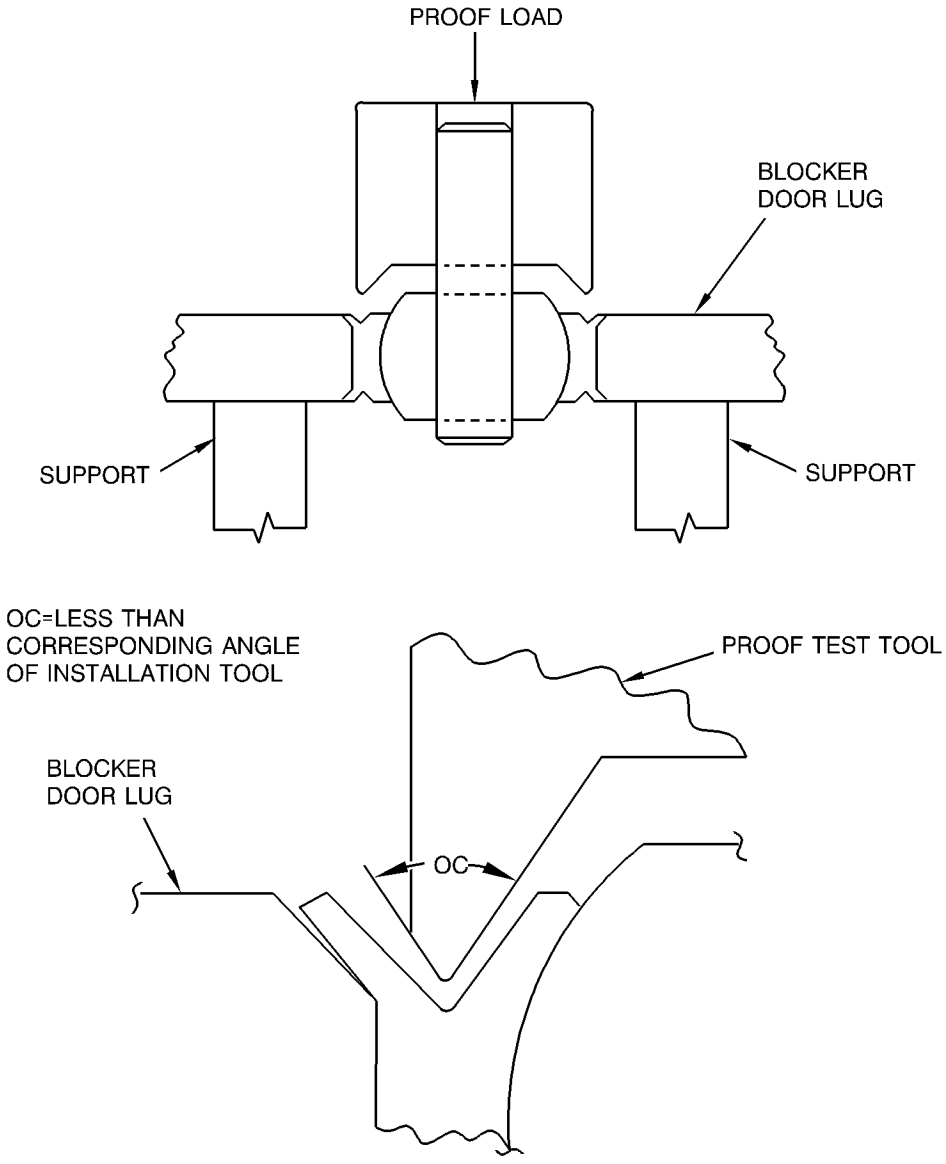
VSB928

Blocker Door Modification
Figure 3 (sheet 1)



Rohr, Inc., a subsidiary of the BFGoodrich Company, operating as BFGoodrich Aerospace/Aerostructures Group

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




Blocker Door Modification
Figure 3 (sheet 2)



Rohr, Inc., a subsidiary of the BFGoodrich Company, operating as BFGoodrich Aerospace/Aerostructures Group

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