SERVICE BULLETIN REVISION NOTICE

ENGINE — STARTER AND TAI DUCT SYSTEM — INTRODUCTION OF NEW MORE DURABLE BEARING LINK ASSEMBLIES

Turbojet Engine Service Bulletin No. V2500-ENG-80-0022 Revision No. 1 dated October 29, 2014.

Revision History

Original Issue April 28, 2014

Revision 1 dated October 29, 2014

Reason for the Revision

(1) Section 1.A. “Effectivity Data” amended to include the A5 baseline engine serial numbers.

(2) Section 1.C.(5) para (e) ”Interchangeability” amended to clarify that the bearing links and turnbuckle links are fully interchangeable as a complete assembly.

(3) Section 1.H. “Material Price and Availability” amended to rename the company address to UTAS.

(4) Section 1.N.(6) ”References” supplemental EC No. 09VN322C added for alternative part number.

(5) Section 2.A. “Kits associated with this Bulletin”. Note added to stipulate that there is an acceptable alternative part number for the bearing link assembly.

(6) Section 2.B. “Parts affected by this Bulletin”. Alternative part added at four ATA locations.

(7) Section 2.C. “Instruction/Dispostion Code Statements” para (B) amended to clarify that the bearing links and turnbuckle links are fully interchangeable as a complete assembly.

(8) Section 2.C. “Instruction/Dispostion Code Statements” para (F) added for alternative part number.

(9) APPENDIX 1 amended to add note to stipulate that there is an acceptable alternative part number for the bearing link assembly.

Effect of Revision on Prior Compliance

None.

This is a Complete Revision (Not Applicable to the SGML version)

The contents are in accordance with the list of effective pages. All pages have the current revision number. Technical changes are marked with black bars.

MODEL APPLICATION

V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5

BULLETIN ISSUE SEQUENCE

V2500 Series 80-0022

Page	Revision No.	Date
1 thru 16	1	October 29/14

A copy of this Revision Notice and any future revision notices must be filed as a permanent record with your copy of the subject bulletin.

SERVICE BULLETIN

ENGINE — STARTER AND TAI DUCT SYSTEM — INTRODUCTION OF NEW MORE DURABLE BEARING LINK ASSEMBLIES

MODEL APPLICATION

V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5

BULLETIN ISSUE SEQUENCE

V2500 Series 80-0022

ATA NUMBER

80-00-00

Compliance Category

8

Summary

See the Reason.

Planning Information

Effectivity Data

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5
Engine Serial Nos. V10001 thru V13190
Engine Serial Nos. V15001 thru V16436

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Issue: There have been reports from operators of too much wear on the Starter Duct and Thermal Anti-Icing (TAI) link rod bearings.
2. Evidence: Operators have observed the issue in service.
3. Substantiation: This service bulletin gives instructions to install turnbuckle type linkages that have been tested in controlled service use conditions. The service use trial found that there was less vibration which increased the life of the link bearings.
4. Objective: This service bulletin gives the instructions to replace specified bearing links with turnbuckle type links, to reduce wear of the link bearings.
5. Effects of Bulletin on:

   Operation: Not affected.

   Maintenance: Affected.

   Overhaul: Not Affected.

   Repair Scheme: Not affected.

   Interchangeability: Fully intermixable and interchangeable.

   Fits and Clearances: Not affected.
6. Supplemental Information

   None.

Description

The changes introduced by this Service Bulletin are as follows:

1. The four bearing link assemblies on the LH or RH Air Starter system are removed according to the existing Maintenance Manual instructions. The ducting is allowed to settle in a state that is free of any tension.
2. The number one and two bearing link assemblies on the LH or RH Air Starter system are then replaced with turnbuckle link assemblies. The turnbuckle link assemblies are installed under torque controlled conditions to introduce positive axial pre-load in accordance with the accomplishment instructions in this Service Bulletin.

3. The existing number three and four bearing link assemblies are inspected for wear and if serviceable, are re-installed. The bearing link assemblies are then rigged in accordance with the accomplishment instructions in this Service Bulletin to introduce positive axial load.

4. The three bearing link assemblies on the LH or RH TAI system are removed in accordance with the existing Maintenance Manual instructions. The ducting is allowed to settle in a state that is free of any tension.

5. The number one and two bearing link assemblies on the LH or RH TAI system are replaced with turnbuckle link assemblies. The turnbuckle link assemblies are installed in accordance with the accomplishment instructions in this Service Bulletin.

6. The existing number three bearing link assembly is inspected for wear and if serviceable, is re-installed. The bearing link assembly is then rigged in accordance with the accomplishment instructions in this Service Bulletin.

Compliance

Category 8

Accomplish based upon experience with the prior configuration.

Approval Data

The technical content under the JAR 25 regulation of this document is approved under the authority of DOA Number EASA.21J.031.

Manpower

Estimated man-hours to incorporate the intent of this Service Bulletin on each engine:

1. In Service

VENUE	ESTIMATED MAN-HOURS
To gain access	0.25 M/Hr
To remove the bolts, bushes and link arms	2.25 M/Hr
To install the bolts, bushes and link arms	2.25 M/Hr
To return the A/C to service	0.25 M/Hr
Total	5.00 M/Hrs per engine.

NOTE: Man-hour estimate is provided for planning purposes only. No labour reimbursement is provided under the terms of this Service Bulletin offering.

2. At Overhaul

..... Not Applicable.

Weight and Balance

1. Weight Change

None.

2. Moment Arm

None.

3. Datum

Nacelle Front Mount Centreline (Powerplant Station PPS 100.00)

Electrical Load Data

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

Software Accomplishment Summary

Not Applicable.

References

1. This Service Bulletin is subject to aircraft Modification Number 152291 P12535 (classified minor), 152291 P12534 (classified minor). Under no circumstances shall the modified equipment, resulting from the application of this SB, be installed on the aircraft type unless the corresponding modification, and if applicable, its aircraft SB are approved.
2. A319/A320/A321/V2500-A5 Aircraft Maintenance Manual, Chapter/Section 30-21- 49, 70-23-11, 70-40-11, 71-13-00 and 80-13-49.
3. V2500 Overhaul Processes and Consumable Index (PCI-V2500-1IA).
4. Bombardier Aerospace-Shorts Modification Number, D1252.
5. Bombardier Aerospace- EC Number, 09VN322A.
6. Bombardier Aerospace-Shorts Test Report MPE/RS/1323.
7. Bombardier Aerospace- EC Number, 09VN322C.

Other Publications Affected

1. A319/A320/A321/V2500-A5 Aircraft Maintenance Manual.
2. A320/V2500-A1/A5 Engine Illustrated Parts Catalog.
3. E-V2500-1IA Engine Manual.

Interchangeability of Parts

Fully interchangeable as a complete set. Bearing link assembly can be replaced with a turnbuckle link assembly or vice-versa.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (No)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Price and Availability

1. The Operator with one of the units listed in Effectivity Data should submit a purchase order for the parts required. The purchase order must specify this Service Bulletin number and the ATA location of the Bearing Links.

   Direct request to:

   Rohr, Inc., a UTC Aerospace Systems Company — Aerostructures

   850 Lagoon Drive

   Chula Vista, CA 91910-2098 USA

   Attn: Regional Account Manager — MZ107A (Reference Service Bulletin No. V2500-ENG-80-0022).

2. There is kit, number V2580022-551 or V2580022-553 to do this Service Bulletin. One of each kit required for one V2500-A5 Engine to incorporate this Service Bulletin.

3. Part availability information is provided in material data Instructions — Disposition.

Industry Support Program

Not Applicable.

The material data that follows is for each engine.

Kits associated with this Bulletin:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
V2580022-551 Consisting of:	1		MOD KIT (STARTER DUCTS)		(A)
B0308015L*	2		BEARING LINK		
745-5125-501	1		ROD		
745-5125-503	1		ROD		
A105GTL	2		NUT		
MS9276-11	4		WASHER, TAB		
V2580022-553 Consisting of:	1		MOD KIT (TAI DUCTS)		(A)
B0308015L*	2		BEARING LINK		
745-5125-505	1		ROD		
745-5125-507	1		ROD		
A105GTL	2		NUT		
MS9276-11	4		WASHER, TAB		

NOTE: Parts supplemented with (*) have an acceptable alternative part number P3A1830L.

For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
B0308015	1	*	.BEARING, LINK, FEMALE	B0308015 (30-21-49-01-170 B)	(B)(C)
B0308015L (P3A1830L) (30-21-49-01-175)	1	*	.BEARING, LINK, FEMALE		(E)(F)
745-5125-505	1	*	.ROD, CONNECTING	740-5123-503 (30-21-49-01-180)	(B)
MS9276-11	2	*	.WASHER, TAB	SP108G (30-21-49-01-183)	(B)
A105GTL (30-21-49-01-185)	1	*	.NUT		(E)
B0308015L (P3A1830L)	1	*	.BEARING, LINK, FEMALE	B0308015 (30-21-49-02-180 B)	(B)(F)
A105GT	1	*	.NUT	A105GT (30-21-49-02-182)	(B)(C)
MS9276-11	2	*	.WASHER, TAB	SP108G (30-21-49-02-183)	(B)(D)
745-5125-507	1	*	.ROD, CONNECTING	745-5123-501 (30-21-49-02-185)	(B)
A105GTL (30-21-49-02-186)	1	*	.NUT		(E)
B0308015	1	*	.BEARING, LINK, FEMALE	B0308015 (80-13-49-01-125 B)	(B)(C)
B0308015L (P3A1830L) (80-13-49-01-127)	1	*	.BEARING, LINK, FEMALE		(E)(F)
745-5125-503	1	*	.ROD, CONNECTING	740-5123-503 (80-13-49-01-130)	(B)
MS9276-11	2	*	.WASHER, TAB	SP108G (80-13-49-01-133)	(B)
A105GTL (80-13-49-01-136)	1	*	.NUT		(E)
B0308015	1	*	.BEARING, LINK, FEMALE	B0308015 (80-13-49-01-180 B)	(B)(C)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
B0308015L (P3A1830L) (80-13-49-01-182)	1	*	.BEARING, LINK, FEMALE		(E)(F)
745-5125-501	1	*	.ROD, CONNECTING	740-5123-505 (80-13-49-01-190)	(B)
MS9276-11	2	*	.WASHER, TAB	SP108G (80-13-49-01-193)	(B)
A105GTL (80-13-49-01-196)	1	*	.NUT		(E)

Instructions/Disposition Code Statements:

Parts Modification Conditions

Estimated part prices are provided when they are available at time of publication. The Estimate of Unit Price is only for planning purposes and does not constitute a firm quotation. An asterisk (*) is shown where part pricing information was unavailable.

Spare Parts Availability

(A) Kit is currently available.

(B) Fully interchangeable as a complete set. Bearing link assembly can be replaced with a turnbuckle link assembly or vice-versa.

(C) Part number quantity was 2-off, now 1-off at this location.

(D) Part number quantity was 1-off, now 2-off at this location.

(E) New part at this location.

(F) Alternative part number at this ATA location.

Vendor Services or Special Components/Materials

Materials required to incorporate this Bulletin

Specification	Name
CoMat 02-099	Lint free cloth
CoMat 01-076	Solvent
OR	
CoMat 01-438	Solvent
CoMat 10-039	Engine Oil
OR	
CoMat 10-040	Engine Oil
NOTE: To identify consumable materials, refer to the Overhaul Processes and Consumable Index (PCI-V2500-1IA).	

Tooling — Price and Availability

Special tools are not required to accomplish this Service Bulletin.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

1. Rework Instructions

NOTE: These instructions are written on the basis that the aircraft has been made safe for maintenance.

WARNING: BE CAREFUL WHEN YOU WORK ON THE ENGINE COMPONENTS IMMEDIATELY AFTER THE ENGINE IS SHUT DOWN. THE ENGINE COMPONENTS CAN STAY HOT FOR UP TO ONE HOUR.

PART A — Replacement of the bearing link assemblies on the Air Starter — LH or RH Engine (Refer to Figure 1)

A. Open the Fan Cowls as instructed in the V2500-A5 Aircraft Maintenance Manual, Task 71-13-00-010-010.

WARNING: SOLVENT IS FLAMMABLE AND THE VAPOUR IS HARMFUL. USE IN A WELL VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPOURS OR PROLONGED OR REPEATED CONTACT WITH SKIN. HIGH CONCENTRATIONS MAY CAUSE IMPAIRED JUDGEMENT. PROTECTIVE GLOVES SHOULD BE WORN DURING USE.MAY CAUSE DERMATITIS BY REMOVING SKIN OILS. PRIOR TO USE OF THIS PRODUCT, READ THE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

B. Clean the Link Arm assemblies and attaching bolts with a lint free cloth (CoMat 02-099) made moist with Solvent (CoMat 01-076) or (CoMat 01-438). Wipe the area dry with a lint free cloth before the solvent evaporates. Refer to the Processes and Consumable Index (PCIV2500- 1IA).

C. Remove the Starter Duct bearing links, nuts, bolts and washers that attach the duct at all four positions. This will let the ducts become stable and free of tension. Refer to the Aircraft Maintenance Manual, TASK 80-13-49-000-010.

D. Install and Rig the Starter Duct turnbuckle/bearing links with the nuts, bolts and washers removed in the previous step. Refer to the Aircraft Maintenance Manual, TASK 80-13-49-400-010 and TASK 80-13-49-820-010 except as follows:

NOTE: Make sure that the threads on all link assemblies are free to adjust with no interference that may result in incorrect indications of preload/ torque values.

NOTE: For the new turnbuckle locations by part number refer to Appendix 1.

(1) Adjust the central connecting rod nut at position one to make the overall length of the turnbuckle link an approximate nominal length of 4.65 in (118.00 mm).

(2) Adjust the central connecting rod nut at position two to make the overall length of the turnbuckle link an approximate nominal length of 5.55 in (141.00 mm).

(3) Make further adjustments to the turnbuckle link at position one to set the link to a length that just permits you to put in the bolts at the end of the turnbuckle link. Tighten the turnbuckle link bolts in accordance with the Aircraft Maintenance Manual, TASK 80-13-49-400-010.

(4) Make further adjustments to the turnbuckle link at position two to set the link to a length that just permits you to put in the bolts at the end of the turnbuckle link. Tighten the turnbuckle link bolts in accordance with the Aircraft Maintenance Manual, TASK 80-13-49-400-010.

(5) Torque the central adjustment nut on the connecting rod at position one to 25 lbf in (2.8 Nm). Apply the torque so that it will reduce the length of the turnbuckle link. Refer to the Aircraft Maintenance Manual, TASK 70-23-11-911-013.

(6) Torque the central adjustment nut on the connecting rod at position two to 25 lbf in (2.8 Nm). Apply the torque so that it will reduce the length of the turnbuckle link. Refer to the Aircraft Maintenance Manual, TASK 70-23-11-911-013.

(7) Tighten the turnbuckle link nuts either side of the central adjustment nut at position one and bend the washer tabs to secure in position. Refer to the Aircraft Maintenance Manual, TASK 70-40-11-911-014.

(8) Tighten the turnbuckle link nuts either side of the central adjustment nut at position two and bend the washer tabs to secure in position. Refer to the Aircraft Maintenance Manual, TASK 70-40-11-911-014.

(9) Visually inspect the bearing link assemblies at positions three and four for wear. If serviceable, undo the lock nuts to permit the adjustment of the bearing links.

(10) Adjust the length of the bearing link at position three to the nominal length of 3.04 in (77.4 mm) as shown.

NOTE: The male/female bearing link at position three may require full adjustment to make the total length of the link as short as possible.

(11) Adjust the length of the bearing link at position four to the nominal length of 4.59 in (116.5 mm) as shown.

(12) Make further adjustment to the bearing link at position three to set the link to a length that just permits you to put in the bolts at the end of the bearing link.

(13) Make further adjustment to the bearing link at position four to set the link to a length that just permits you to put in the bolts at the end of the bearing link.

(14) Shorten the length of the bearing link at position three by the application of a half turn (180 degrees) in a clockwise direction.

NOTE: Make sure you make a reference mark on the bearing link before you make the following adjustments.

(15) Shorten the length of the bearing link at position four by the application of a full turn (360 degrees) in a clockwise direction.

(16) Install the bearing links at positions three and four. Tighten the lock nuts at each end of the bearing links and bend the washer tabs to make sure the lock nuts are tight.

PART B — Replacement of the bearing link assemblies on the TAI Ducts — LH or RH Engine (Refer to Figure 2)

WARNING: SOLVENT IS FLAMMABLE AND THE VAPOUR IS HARMFUL. USE IN A WELL VENTILATED AREA. AVOID PROLONGED BREATHING OF VAPOURS OR PROLONGED OR REPEATED CONTACT WITH SKIN. HIGH CONCENTRATIONS MAY CAUSE IMPAIRED JUDGEMENT. PROTECTIVE GLOVES SHOULD BE WORN DURING USE.MAY CAUSE DERMATITIS BY REMOVING SKIN OILS. PRIOR TO USE OF THIS PRODUCT, READ THE "MATERIAL SAFETY DATA SHEET" AND FOLLOW ALL LISTED SAFETY AND HEALTH PRECAUTIONS.

A. Clean the Link Arm assemblies and attaching bolts with a lint free cloth (CoMat 02-099) made moist with Solvent (CoMat 01-076) or (CoMat 01-438). Wipe the area dry with a lint free cloth before the solvent evaporates. Refer to the Processes and Consumable Index (PCIV2500- 1IA).

B. Remove the Thermal Anti-Icing (TAI) bearing links, nuts, bolts and washers that attach the duct at all three positions to let the ducts become stable and free of tension. Refer to the Aircraft Maintenance Manual, TASKS 30-21-49-000-012 and 30-21-49-000-013.

NOTE: Make sure the insulation is not damaged when you remove the Thermal Anti-Icing (TAI) hardware.

C. Install and Rig the TAI duct turnbuckle/bearing links with the nuts, bolts and washers removed in the previous step. Refer to the Aircraft Maintenance Manual, TASKS 30-21-49- 400-012, 30-21-49-400-013 and TASK 30-21-49-820-001.

NOTE: For the new turnbuckle locations by part number refer to Appendix 1.

(1) Adjust the central connecting rod nut at position one to make the overall length of the turnbuckle link an approximate nominal length of 5.37 in (136.5 mm).

(2) Adjust the central connecting rod nut at position two to make the overall length of the turnbuckle link an approximate nominal length of 5.84 in (148.34 mm).

(3) Make further adjustments to the turnbuckle link at position one to set the link to a length that just permits you to put in the bolts at the end of the turnbuckle link. Tighten the turnbuckle link bolts in accordance with the Aircraft Maintenance Manual, TASK 80-13-49-400-010.

(4) Make further adjustments to the turnbuckle link at position two to set the link to a length that just permits you to put in the bolts at the end of the turnbuckle link. Tighten the turnbuckle link bolts in accordance with the Aircraft Maintenance Manual, TASK 80-13-49-400-010.

NOTE: Make sure that there is a minimum clearance of 0.23 in (6.0 mm) between the gimble insulation and the fan case after link adjustment.

(5) Tighten the turnbuckle link nuts either side of the central adjustment nut at position one and bend the washer tabs to secure in position. Refer to the Aircraft Maintenance Manual. Refer to the Aircraft Maintenance Manual, TASK 70-40-11-911-014.

(6) Tighten the turnbuckle link nuts either side of the central adjustment nut at position two and bend the washer tabs to secure in position. Refer to the Aircraft Maintenance Manual, TASK 70-40-11-911-014.

(7) Visually inspect the bearing link assemblies at position three. If serviceable, undo the lock nuts to permit the adjustment of the bearing link.

(8) Adjust the length of the bearing link at position three to the nominal length of 4.20 in (106.68 mm) as shown.

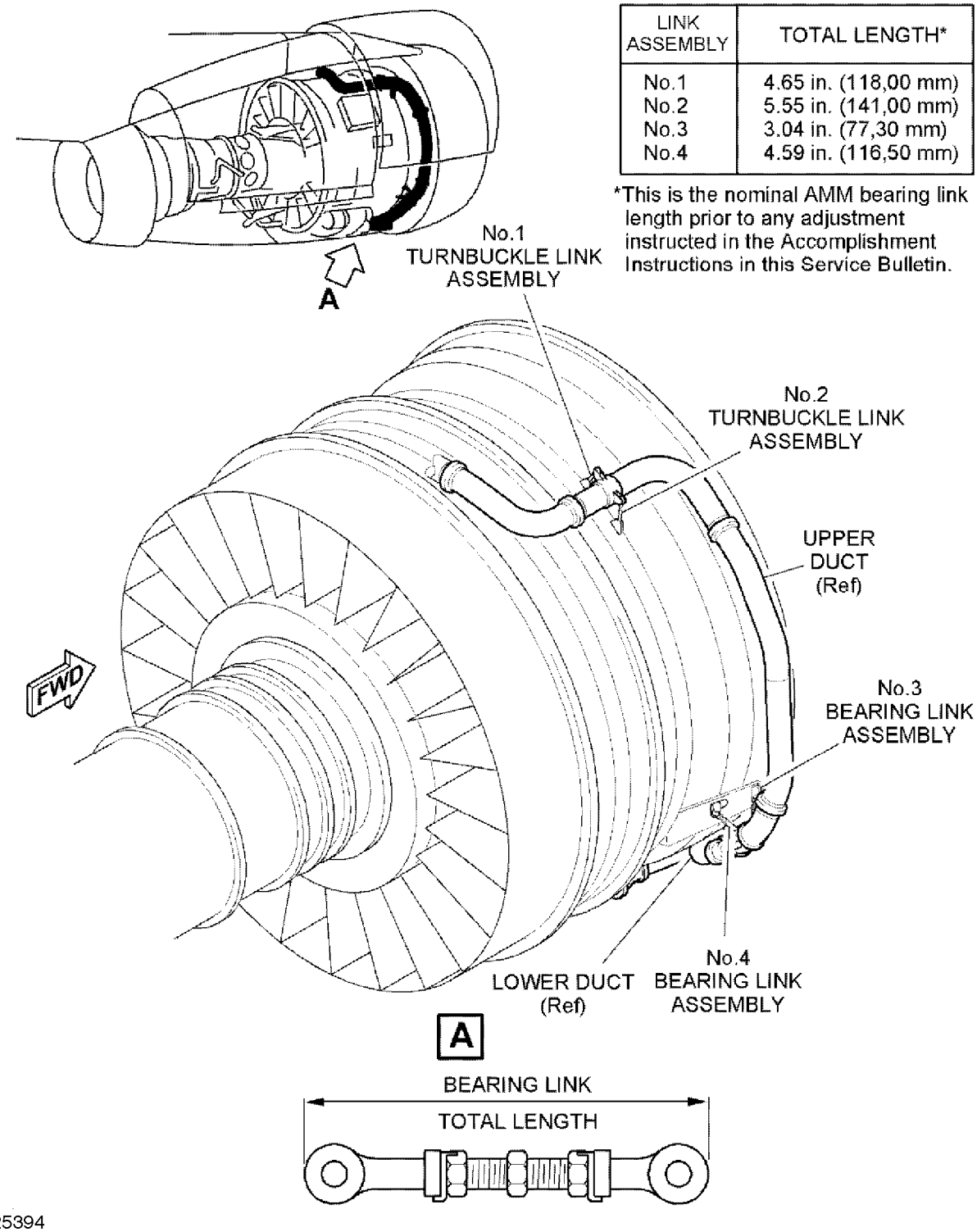
(9) Shorten the length of the bearing link at position three by the application of a half turn (180 degrees) in a clockwise direction.

(10) Install the bearing link at position three. Tighten the lock nuts at each end of the bearing link and bend the washer tab to secure in position.

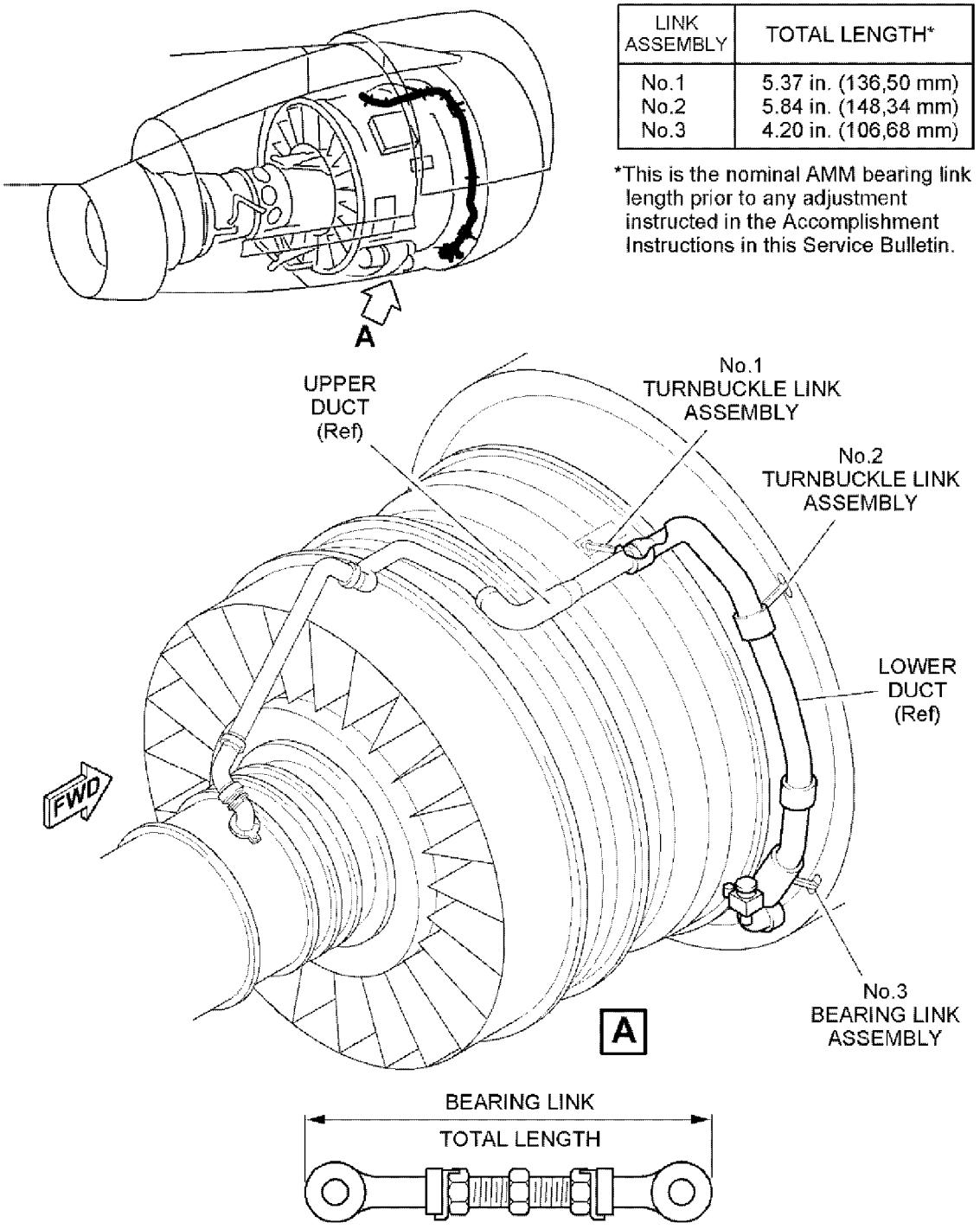
D. Close the Fan Cowl Doors as instructed in the V2500-A5 Aircraft Maintenance Manual, Task 71-13-00-410-010.

2. Record of Accomplishment

A. A record of accomplishment is necessary. Write in the applicable records that Service Bulletin V2500-ENG-80-0022 PART A and/or PART B have been done.



REPLACEMENT OF STARTER DUCT BEARING LINK ASSEMBLIES
FIGURE 1



LINK ASSEMBLY	TOTAL LENGTH*
No.1	5.37 in. (136,50 mm)
No.2	5.84 in. (148,34 mm)
No.3	4.20 in. (106,68 mm)

*This is the nominal AMM bearing link length prior to any adjustment instructed in the Accomplishment Instructions in this Service Bulletin.

B525395

REPLACEMENT OF TAI BEARING LINK ASSEMBLIES
FIGURE 2

Appendix

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	REA14VC079	ARO/IEL
1	REA14VC079	ARO/MJS

Appendix 1

Part Number	Qty	Keyword	Install Location	
Starter Duct — Turnbuckle Location by Part Number				
B0308015	1	Bearing Link	Figure 1	Turnbuckle Assembly No. 1
B0308015L*	1	Bearing Link		
745-5125-501	1	Rod		
A105GT	1	Nut		
A105GTL	1	Nut		
MS9276-11	2	Washer, tab		
B0308015	1	Bearing Link	Figure 1	Turnbuckle Assembly No. 2
B0308015L*	1	Bearing Link		
745-5125-503	1	Rod		
A105GT	1	Nut		
A105GTL	1	Nut		
MS9276-11	2	Washer, tab		
TAI Duct – Turnbuckle Location by Part Number				
B0308015	1	Bearing Link	Figure 2	Turnbuckle Assembly No. 1
B0308015L*	1	Bearing Link		
745-5125-505	1	Rod		
A105GT	1	Nut		
A105GTL	1	Nut		
MS9276-11	2	Washer, tab		
B0308015	1	Bearing Link	Figure 2	Turnbuckle Assembly No. 2
B0308015L*	1	Bearing Link		
745-5125-507	1	Rod		
A105GT	1	Nut		
A105GTL	1	Nut		
MS9276-11	2	Washer, tab		

NOTE: Parts supplemented with (*) have an acceptable alternative part number P3A1830L.