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DATE: Mar.22/06

V2500-A1/A5/D5 SERIES PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits Revision 1 to Service Bulletin EV2500-72-0497 and Revision 1 to the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Oct.10/05	Initial Issue	Oct.10/05

Bulletin Revision 1

Remove	Incorporate	Reason for change
All pages of the Summary	Pages 1 to 3 of the Summary	To revise the Effectivity.
All pages of the Service Bulletin	Pages 1 to 9 of the Service Bulletin	To revise the Effectivity.
All pages of Appendix 1	Page 1 and 2 of Appendix 1	To revise the Effectivity.

Supplement Revision 1

Remove	Incorporate	Reason for change
All pages	Page 1	To revise the Effectivity.

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise Customer Data Services, Rolls-Royce plc, Derby, England

LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 1 to the Bulletin and Revision 1 to the Supplement are as follows:

	Page	Revision Number	Revision Date
	Summary		
R	1	1	Mar.22/06
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R	1	1	Mar.22/06

International Aero Engines

SERVICE BULLETIN

ENGINE - REDESIGNED NUMBER 4 BEARING COMPARTMENT OIL NOZZLE BOLT RETENTION

SUMMARY

1. PLANNING

A. EFFECTIVITY

Engine V2500-A1 Serial Numbers V0001 thru V0361

R Engine V2500-A5 Serial Numbers V10001 thru V12256 and V12258, V12260,
R V12262.

Engine V2500-D5 Serial Numbers V20001 thru V20285

B. CONCURRENT REQUIREMENTS

There are no concurrent requirements.

C. REASON/PROBLEM

Problem: A liberated Number 4 Bearing Compartment Oil Nozzle Bolt has been reported on five first-run engines in revenue service. The liberated bolt could cause damage to other bearing compartment components, which could result in oil loss and High Pressure Turbine (HPT) thermal distress.

Evidence: Five first run engines in revenue service have reported a liberated number 4 Bearing Compartment Oil Nozzle Bolt. This liberated bolt could cause damage and result in oil loss and HPT thermal distress.

Objective: Redesign the tab-washer locating feature to prevent liberation of the nozzle retention bolts during engine operation. Production assembly sheets were modified and over inspection was added to ensure bolts are at the proper torque and tab-washers are bent correctly. Additional assembly instructions will be added to the engine manual. Two nozzle configurations are possible.

1.) Rework of existing nozzle to add two holes to locate the tab-washer pre-bent tang.

2.) New production parts that add two holes to locate the tab-washer pre-bent tang and extend the nozzle length to ensure the pre-bent tab is installed in the locating hole. As part of this change safety wire was removed from the new nozzle assembly.

Substantiation: Similarity to the nozzle bolt retention feature in other PW commercial engines that have 50+ million hours of experience with no reports of loose bolts. The use of thread locking and retaining compound in place of safety wire as a method of assembly has been used successfully in other Pratt and Whitney products. This compound has an allowable continuous temperature limit that exceeds both the oil coking threshold and maximum allowable temperature of the O-ring packing material.

D. DESCRIPTION

Provide a new Number 4 Bearing Nozzle Assembly that will aid in the positive bolt retention.

E. COMPLIANCE

Category 5

Accomplish when the engine is disassembled sufficiently to afford access to the affected subassembly (i.e., modules, accessories, components, build groups) and to all affected spare subassemblies.

F. MANPOWER

(1)In Service

Not applicable

(2)At Overhaul

NOTE: The parts affected by this Service Bulletin are accessible at overhaul.

(1) Accomplishment Instructions 1A and 1B.

2 Minutes 30 Seconds

(2) Accomplishment Instructions 1C thru 1H.

26 Minutes 30 Seconds

(3) Accomplishment Instructions 1L .

3 Minutes

Total Necessary Man-hours

32 Minutes

2. MATERIAL INFORMATION

Part Prices

A. There is no new material cost to do this Service Bulletin when the part modification procedure is used.

B. The estimated price of new material is $1302.00 to do this Service Bulletin when the part modification procedure is used.

C. The estimated price of new material to do this Service Bulletin using new replacement parts is $3211.00.

International Aero Engines

SERVICE BULLETIN

ENGINE - REDESIGNED NUMBER 4 BEARING COMPARTMENT OIL NOZZLE BOLT RETENTION

Printed in Great Britain

1. Planning Information

A. Effectivity Data

(1) (For Airbus A319)

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5

R Engine Serial Nos.V10001 thru V12256

R Engine Serial No.V12258

R Engine Serial No.V12260

R Engine Serial No.V12262

(2) (For Airbus A320)

Engine Models Applicable

V2500-A1

Engine Serial Nos.V0001 thru V0361

V2527-A5, V2527E-A5

R Engine Serial Nos.V10001 thru V12256

R Engine Serial No.V12258

R Engine Serial No.V12260

R Engine Serial No.V12262

(3) (For Airbus A321)

Engine Models Applicable

V2530-A5, V2533-A5

R Engine Serial Nos.V10001 thru V12256

R Engine Serial No.V12258

R Engine Serial No.V12260

R Engine Serial No.V12262

(4) (For Boeing MD-90)

Engine Models Applicable

V2525-D5, V2528-D5

Engine Serial Nos.V20001 thru V20285

B. Concurrent Requirements

There are no concurrent requirements.

C. Reason

(1) Problem: A liberated Number 4 Bearing Compartment Oil Nozzle Bolt has been reported on five first-run engines in revenue service. The liberated bolt could cause damage to other bearing compartment components, which could result in oil loss and High Pressure Turbine (HPT) thermal distress.

(2) Evidence: Five first run engines in revenue service have reported a liberated number 4 Bearing Compartment Oil Nozzle Bolt. This liberated bolt could cause damage and result in oil loss and HPT thermal distress.

(3) Objective: Redesign the tab-washer locating feature to prevent liberation of the nozzle retention bolts during engine operation. Production assembly sheets were modified and over inspection was added to ensure bolts are at the proper torque and tab-washers are bent correctly. Additional assembly instructions will be added to the engine manual. Two nozzle configurations are possible.

1.) Rework of existing nozzle to add two holes to locate the tab-washer pre-bent tang.

2.) New production parts that add two holes to locate the tab-washer pre-bent tang and extend the nozzle length to ensure the pre-bent tab is installed in the locating hole. As part of this change safety wire was removed from the new nozzle assembly.

(4) Substantiation: Similarity to the nozzle bolt retention feature in other PW commercial engines that have 50+ million hours of experience with no reports of loose bolts. The use of thread locking and retaining compound in place of safety wire as a method of assembly has been used successfully in other Pratt and Whitney products. This compound has an allowable continuous temperature limit that exceeds both the oil coking threshold and maximum allowable temperature of the O-ring packing material.

(5) Effects of Bulletin on:

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.

D. Description

Provide a new Number 4 Bearing Nozzle Assembly that will aid in the positive bolt retention.

E. Compliance

Category 5

Accomplish when the engine is disassembled sufficiently to afford access to the affected subassembly (i.e., modules, accessories, components, build groups) and to all affected spare subassemblies.

F. Approval Data

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model(s) given.

The compliance statement and the procedures described in this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

G. Manpower

(1) In Service

Not Applicable.

(2) At Overhaul

NOTE: The parts affected by this Service Bulletin are accessible at overhaul.

(a) Accomplishment Instructions 1A and 1B.

2 Minutes 30 Seconds

(b) Accomplishment Instructions 1C thru 1H.

26 Minutes 30 Seconds

(c) Accomplishment Instructions 1L .

3 Minutes

Total

32 Minutes

H. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

No Effect.

(3) Datum

Engine Front Mount Centerline (Power Plant Station (PPS) 100)

I. Electrical Load Data

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

J. Software Accomplishment Summary

Not Applicable.

K. References

1. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-71B), Chapter/Section 72-42-34.

2. V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-42-34.

3. V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-42-34.

4. V2500 Standard Practices/Processes Manual (E-V2500-1IA), Chapter/Section 70-09-00.

5. V2500 Standard Practices/Processes Manual (E-V2500-3IA), Chapter/Section 70-09-00.

R 6. Internal Reference No. - 04VB010, 04VB010-02.

7. ATA Locator - 72-42-00.

L. Other Publications Affected

1. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section 72-42-34.

2. V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section 72-42-34Cleaning, Inspection and Repair, to add the new part.

M. Interchangeability of Parts

Old and new parts are directly interchangeable.

N. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

2. Material Information

A. Industry Support Program

Not Applicable.

B. The material data that follows is for each engine.

72-42-34

For V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5 Engines:

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
01-010	2A3966-01	1	.Housing, No. 4 Brg Nozzle, Assembly	-	2A0896	(2) (B) (N) (I)
01-060	2A3968-01	1	..Nozzle Assembly	-	2A0121	(2) (B) (N) (I)
			OR			
01-010	2A0896-001	1	.Housing, No. 4 Brg Nozzle, Assembly	-	2A0896	(1) (N) (I)
01-060	2A0121	1	..Nozzle Assembly	-	2A0121	(N) (I)
			OR			
01-060	2A3968-01	1	..Nozzle Assembly	-	2A0121	(2) (B) (N) (I)

C. Instructions/Disposition Code Statements:

Parts Modification Conditions

(1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.
(2) The new part is a replacement part only, and cannot be obtained by modification of the old part.

Spare Parts Availability

(B) The new part will be available approximately March 15, 2006.
(N) The old part is not available.

Cleaning, Inspection and Repair Information

(I) The cleaning, inspection and repair requirements are the same for the old and new part. The applicable engine manuals will be revised.

D. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

E. Reidentified Parts

Reidentified Parts Data

New PN	Keyword	Old PN
2A0896-001	Housing, No. 4 Bearing Nozzle, Assembly	2A0896

F. Other Material Information Data

Not Applicable.

3. Accomplishment Instructions

A. Modification of 2A0896 Housing, No. 4 Bearing Nozzle Assembly

(1) Disassemble Diffuser and Combustion Group per V2500 Engine Manual (EM) Task 72-42-00-040-001, and remove the No. 4 Bearing per V2500 EM task 72-00-43-020-001 (all models)

(a) Remove the No. 4 Bearing Nozzle Assembly. Refer To V2500 EM Task 72-42-30-040-001, Subtask 72-42-30-040-056.

(b) Visually Examine the No. 4 Bearing Nozzle Assembly for Damage, Corrosion, and wear. Refer to the V2500 Standard Practices and Procedures Manual (SPPM) for data on these Items. For definitions of damage, See V2500 EM Task 72-42-34-200-001, Subtask 72-42-34-220-051

(c) Cover oil inlet hole to prevent chips from entering the orifices and drill locking tab locating holes thru as specified in Figure 1.

(d) Break edges .003 - 0.015 (0.08 - 0.38 mm) .

(e) Clean per V2500 EM Task 72-42-34-100-001. Examine per V2500 EM Task 72-42-34-200-001.

(f) Chromate conversion coat bare surfaces per V2500 SPPM Task 70-38-02-300-503, Subtask 70-38-02-300-002.

(g) Clean per V2500 EM TASK 72-42-34-100-001. Examine per V2500 EM TASK 72-42-34-200-001.

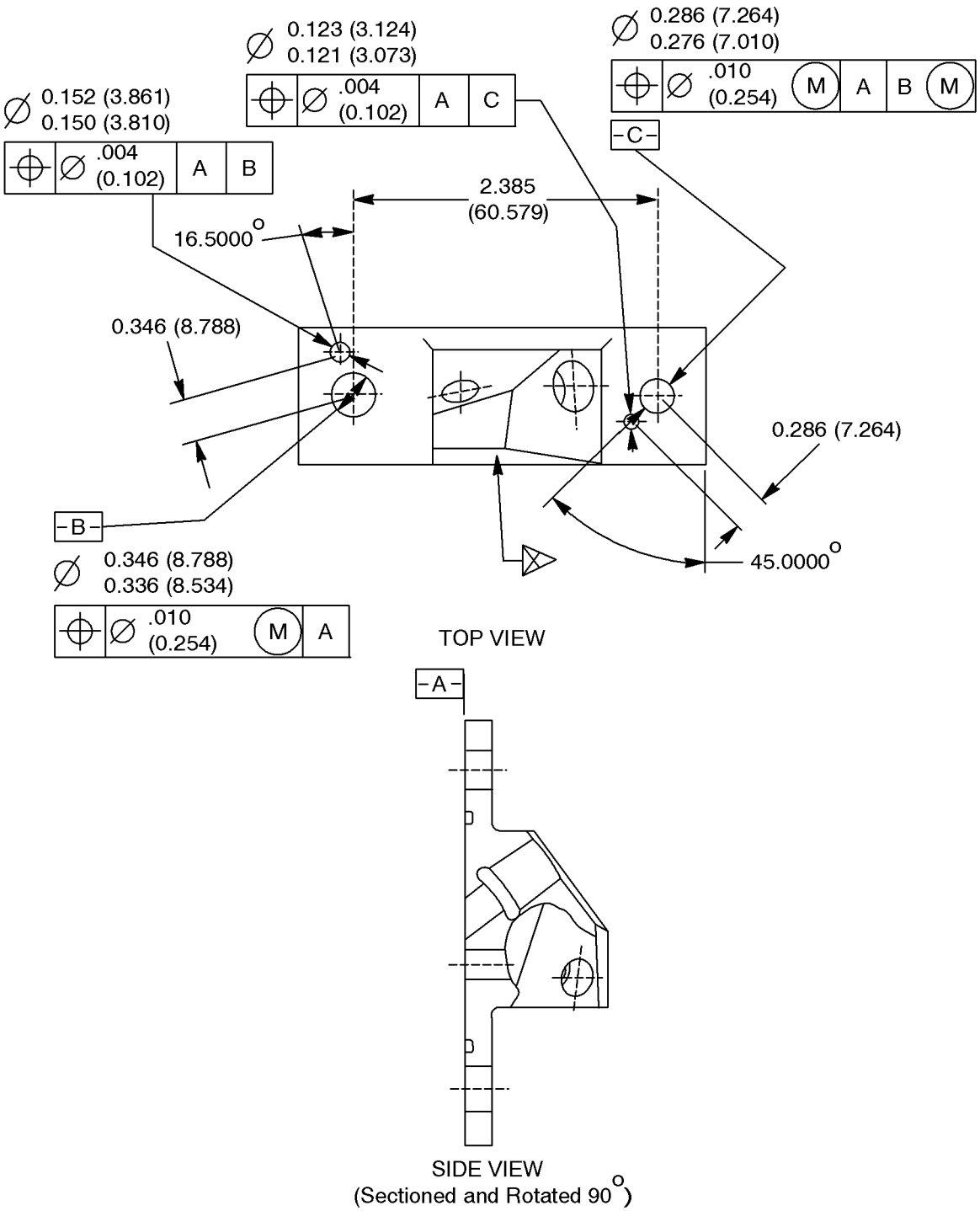
(h) Identify the Housing, No. 4 Nozzle Assembly PN 2A0896 as 2A0896-001 per V2500 SPPM Task 70-09-00-400-501, Subtask 70-09-00-400-001 in area adjacent to existing marking.

(i) Install the reidentified Nozzle Assembly. Refer to V2500 EM Task 72-42-30-440-001, Subtask 72-42-30-440-053.

NOTE: The pre-bent tabs on the tab washers must be placed in the locating holes in the Nozzle Assembly before the bolts are torqued. After torquing, the locking tabs must be bent tight against the bolt heads, with no gap between the tab and the bolt head.

(j) Install No. 4 bearing per V2500 EM Task 72-00-43-420-001 (all models)

(k) Assemble the diffuser and combustion group per V2500 EM Task 72-42-00-430-01 (all models).



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MARK IDENT PER V2500 SPPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001 IN AREA ADJACENT TO EXISTING MARKING

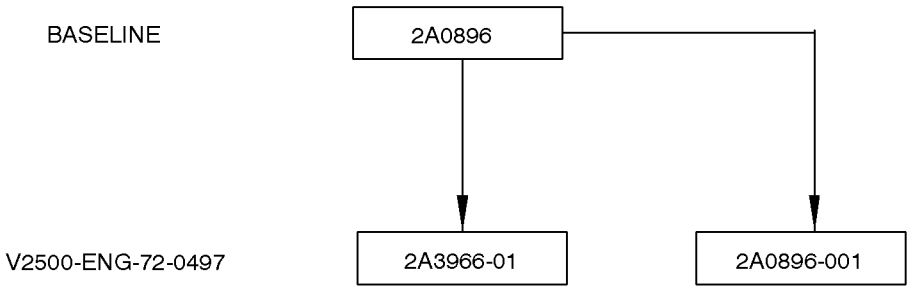
NUMBER 4 BEARING NOZZLE ASSEMBLY
Figure 1

APPENDIX 1

Parts Progression To Show the Changed Part in Relation to Other Parts

Added Data

Number values shown in parentheses adjacent to U.S. values are International System of units (SI) equivalents.



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FAMILY TREE - HOUSING, NO.4 BRG NOZZLE, ASSY CATALOG SEQUENCE 72-42-34 FIGURE 01
ITEM 010
Chart A

International Aero Engines

SERVICE BULLETIN

ENGINE - REDESIGNED NUMBER 4 BEARING COMPARTMENT OIL NOZZLE BOLT RETENTION

Supplement

V2500 All

1. Modification Kit

   A. There is no kit provided to do this Service Bulletin.

2. Material Cost

   NOTE: The prices shown are for estimating purposes only and as such are given in good faith without commercial liability for advanced planning purposes only. Refer to IAE Spares and/or current Price Catalog for current prices.

   A. There is no new material cost to do this Service Bulletin when the part modification procedure is used.

   B. The estimated price of new material to do this Service Bulletin using new replacement parts is $3211.00.

   C. There is no kit provided to do this Service Bulletin.

3. New Production Parts

New Production Part Number	Description	Unit Price US Dollars
2A3966-01	Housing, No. 4 Brg Nozzle Assembly	1909.00
2A3968-01	Nozzle Assembly	1302.00