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DATE: Jul.12/05

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

Printed in Great Britain

This document transmits Revision 1 to Service Bulletin EV2500-72-0478 and Revision 1 to the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Jun.7/04	Initial Issue	Jun.7/04

Bulletin Revision 1

Remove	Incorporate	Reason for change
	Page 1 and 2 of the Summary	To revise effectivity data and format. To revise Accomplishment 1.C. To add summary.
All pages of the Service Bulletin	Pages 1 to 9 of the Service Bulletin	To revise effectivity data and format. To revise Accomplishment 1.C. To add summary.
All pages of Appendix 1	Page 1 and 2 of Appendix 1	To revise effectivity data and format. To revise Accomplishment 1.C. To add summary.

Supplement Revision 1

Remove	Incorporate	Reason for change

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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All pages	Page 1	To revise effectivity data and format. To revise Accomplishment 1.C. To add summary.

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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	Jul.12/05
R	2	1	Jul.12/05
	Bulletin		
R	1	1	Jul.12/05
R	2	1	Jul.12/05
R	3	1	Jul.12/05
R	4	1	Jul.12/05
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R	6	1	Jul.12/05
R	7	1	Jul.12/05
R	8	1	Jul.12/05
R	9	1	Jul.12/05
	Appendix 1		
R	1	1	Jul.12/05
R	2	1	Jul.12/05
	Supplement		
R	1	1	Jul.12/05

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International Aero Engines

SERVICE BULLETIN

ENGINE - REPLACE NUMBER 3 BEARING CARBON SEAL ASSEMBLY

SUMMARY

R 1. PLANNING

R A. EFFECTIVITY

R Engine V2500-A1 Serial Numbers V0001 thru V0361

R Engine V2500-A5 Serial Numbers V10001 thru V11896

R Engine V2500-D5 Serial Numbers V20001 thru V20285

R B. CONCURRENT REQUIREMENTS

R There are no concurrent requirements

R C. REASON

R Problem:

R Multiple engines have been found at overhaul with a severely worn carbon seal
R nose.

R Background:

R V2500 Operators have identified the No. 3 Carbon Seal nose wear as a
R maintenance cost driver. Currently the operators are forced to access the No. 3
R Carbon Seal to inspect it at each heavy maintenance overhaul. A redesigned seal
R with extended life could help to significantly reduce the V2500 maintenance
R cost.

R Objective:

R The seal has been redesigned using a recently developed Carbon Material that
R has been verified through rig and engine test to significantly decrease the
R nose wear rate. The decreased nose wear rate significantly increases the life
R of the component.

R D. DESCRIPTION

R Replace the number 3 Bearing Seal Assembly with a new designed Seal Assembly
R that has been developed with Carbon Material to significantly decrease the nose
R wear rate.

R E. COMPLIANCE

R Category Code 7

R Accomplish when supply of superseded parts has been depleted.

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R F. MANPOWER

R In Service

R Not Applicable

R At Overhaul

R Not Applicable

R 2. MATERIAL INFORMATION

R Parts Prices

R A. The estimated price of new material is $6,820.00 to do this Service
R Bulletin when the part modification procedure is used.

R B. The estimated price of new material to do this Service Bulletin using new
R replacement parts is $13,500.00.

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International Aero Engines

SERVICE BULLETIN

ENGINE - REPLACE NUMBER 3 BEARING CARBON SEAL ASSEMBLY

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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 V11896

(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 V11896

(3) (For Airbus A321)

Engine Models Applicable

V2530-A5, V2533-A5

R Engine Serial Nos. V10001 thru V11896

(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.

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C. Reason

(1) Problem: Multiple engines have been found at overhaul with a severely worn carbon seal nose.

(2) Background: V2500 Operators have identified the No. 3 Carbon Seal nose wear as a maintenance cost driver. Currently the operators are forced to access the No. 3 Carbon Seal to inspect it at each heavy maintenance overhaul. A redesigned seal with extended life could help to significantly reduce the V2500 maintenance cost.

(3) Objective: The seal has been redesigned using a recently developed Carbon Material that has been verified through rig and engine test to significantly decrease the nose wear rate. The decreased nose wear rate significantly increases the life of the component.

(4) Substantiation: the redesign V2500 No. 3 carbon seal has been validated by performing rig and engine testing.

The rig test was comprised of two seal component tests. One specimen accumulated 50 hours of performance testing and 200 hours of endurance testing. The other accumulated 200 hrs of endurance testing. There was also 50 hours of performance and 100 hours of endurance testing performed on the current BOM design for comparison purposes.

The engine test accumulated 841 hrs and 2631 engine cycles.

(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

Replace the number 3 Bearing Seal Assembly with a new designed Seal Assembly that has been developed with Carbon Material to significantly decrease the nose wear rate.

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E. Compliance

Category 7

Accomplish when supply of superseded parts has been depleted.

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

Not Applicable.

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.

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K. References

1. IAE V2500 Service Bulletin V2500-ENG-72-0010 (Engine - LP Compressor - Replacement Of The No. 3 Bearing Seal Ring Holder).

2. IAE V2500 Service Bulletin V2500-ENG-72-0132 (Engine - LP Compressor - Removal Of Stage 6 Buffer Air System).

3. 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 72-32-25 Figure 2..

4. V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-32-25.

5. V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-32-25.

6. V2500 Standard Practices/Processes Manual (E-V2500-1IA), Chapter/Section 70-09-00-400-501.

7. V2500 Standard Practices/Processes Manual (E-V2500-3IA), Chapter/Section 70-09-00-400-501.

R 8. Internal Reference No. - 01VC243, 01VC243-01.

9. ATA Locator - 72-32-00.

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 72-32-25 Figure 2 Item 100 and 150, to add the new part.

2. V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section 72-32-25 Cleaning, Inspection and Repair, to add the new part.

M. Interchangeability of Parts

Old and new parts are directly interchangeable.

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N. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (No)

Revision to Table of Limits (No)

Inspection Procedures (No)

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2. Material Information

A. Material - Price and Availability

1. The estimated price of new material is $6,820.00 to do this Service Bulletin when the part modification procedure is used.

2. The estimated price of new material to do this Service Bulletin using new replacement parts is $13,500.00.

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

4. Part availability information is provided in material data Instructions - Disposition.

B. Industry Support Program

Not Applicable.

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

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.

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

72-32-25

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
	02-100	2A3891	1	.Seal, Assy, No.3 Bearing	2A2370	(1)(B)(I)
	02-150	2A3854	1	..Seal, Assy Of, Face	2A1786	(1)(B)(I)
R	02-180	2A3853	1	...Seal Face	2A1784	(NP)

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D. 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.

Spare Parts Availability

(B) The new part will be available approximately October 2004
R (NP) The part is an item that is not procured as a spare item.

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.

E. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

F. Reidentified Parts

Reidentified Parts Data

New PN	Keyword	Old PN
2A3891	Seal, Assy, No.3 Bearing	2A2370
2A3854	Seal, Assy Of, Face	2A1786

G. Other Material Information Data

Not Applicable.

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3. Accomplishment Instructions

(1) Modification of Seal Assembly and Seal Face Assembly

(a) Remove the number 3 bearing seal assembly from the front bearing compartment per:

(i) V2500-A1 Pre Service Bulletin 72-0132 Engine Manual Subtask 72-32-20-040-052-A00.

(ii) V2500-A1 Post Service Bulletin 72-0132 Engine Manual Subtask 72-32-20-040-052-B00.

(iii) V2500-A5 Service Bulletin 72-0132 Engine Manual Subtask 72-32-20-040-052-C00.

(iv) V2500-D5 Engine Manual Task 72-32-20-040-001 Subtask 72-32-20-040-052.

(b) Disassemble the number 3 bearing seal assembly per Engine Manual Task 72-32-25-040-001 Subtask 72-32-25-040-051 (All Models).

R (c) Send the number 3 bearing Seal Face Assembly PN 2A1786 to one of the
R authorized repair facilities referenced in 72-32-25-300-007 (VRS3393)
R for carbon seal detail replacement.

R (2) Identify the re-operated part per the Re-identified Section.

(a) Mark per Standard Practices/Procedures, Chapter/Section 70-09-00-400-501 in Publication SSP-V2500-1IA

(3) Assemble the number 3 bearing seal assembly per Engine Manual Task 72-32-25-440-001 (All Models).

(4) Identify the reoperated part per the Reidentified Section.

(a) Mark per Standard Practices/Procedures, Chapter/Section 70-09-400-501 in Publication SSP-V2500-1IA

(5) Recording Instructions

(a) A record of accomplishment is required.

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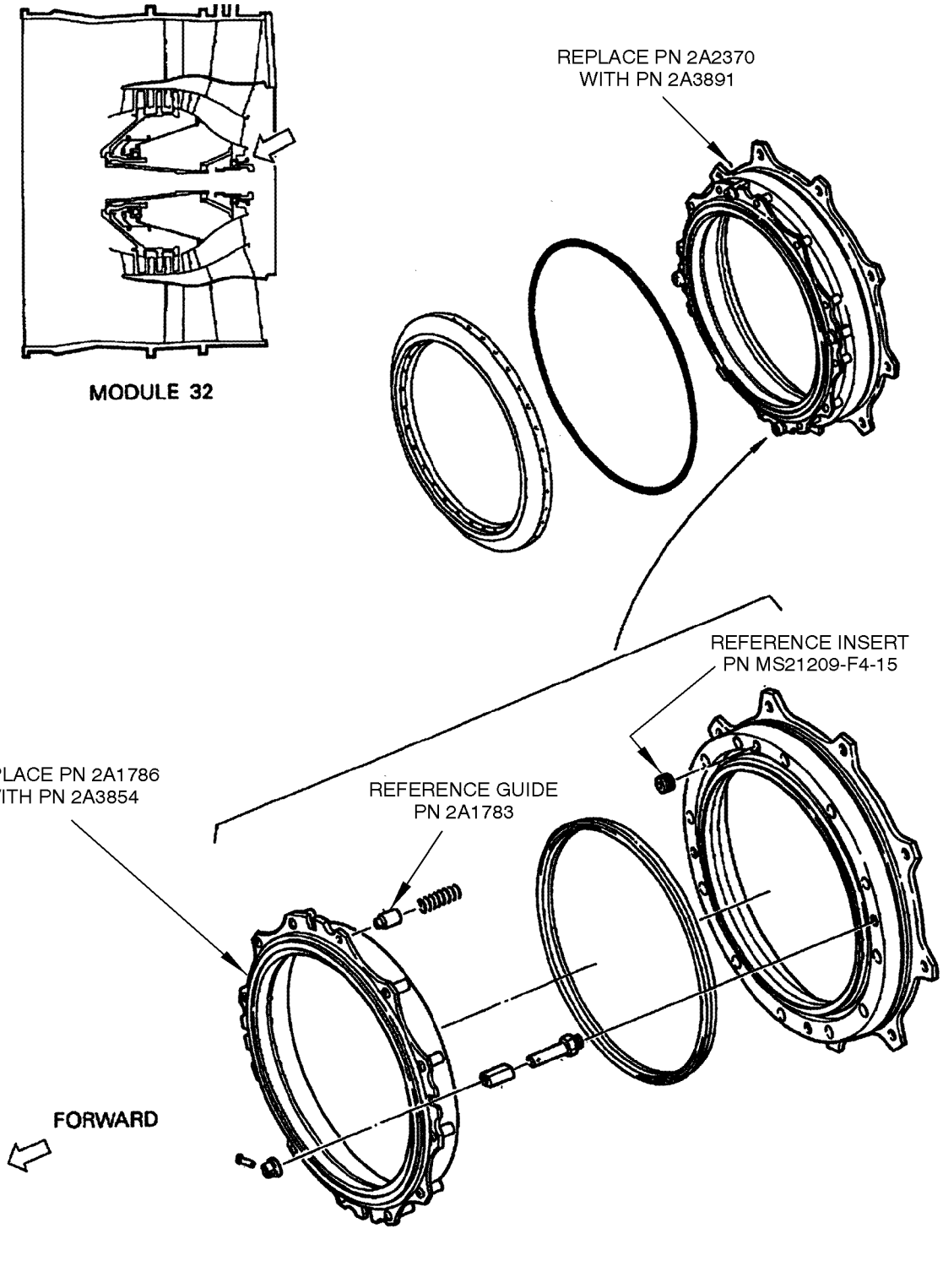

ENGINE - NUMBER 3 BEARING REAR OIL SEAL
Figure 1

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APPENDIX 1

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

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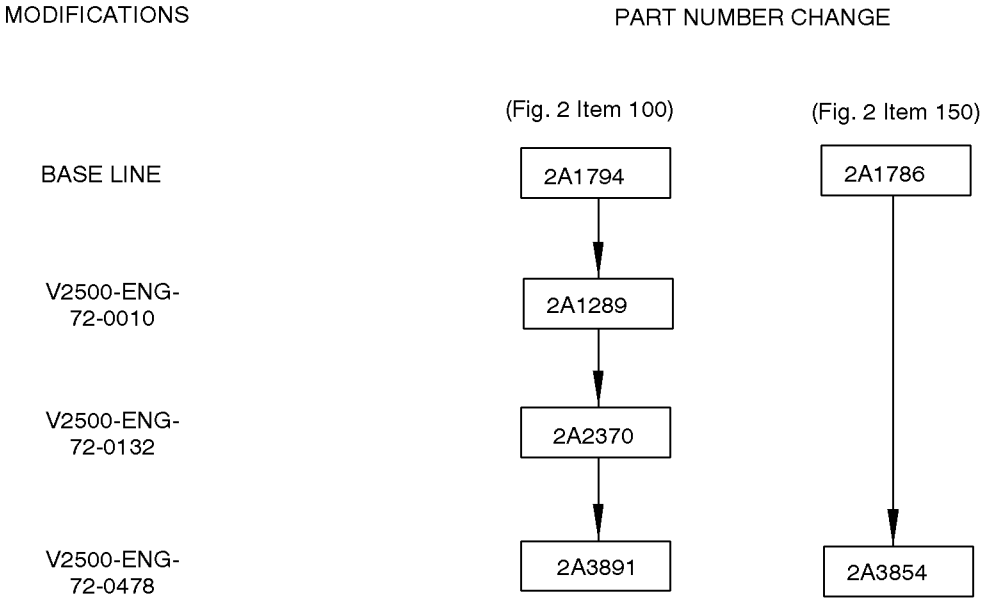

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FAMILY TREE - SEAL ASSEMBLY REF. CATALOG SEQUENCE 72-32-25 FIG. 02 ITEM 100 AND SEAL ASSEMBLY FACE REF. CATALOG SEQUENCE 72-32-25 FIG.02 ITEM 150
Chart A

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SERVICE BULLETIN

ENGINE - REPLACE NUMBER 3 BEARING CARBON SEAL ASSEMBLY

SUPPLEMENT - PRICES AND AVAILABILITY

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The prices (if 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 catalogue for current prices.

1. Modification Kit:

Not applicable.

2. Parts required:

Part No.	Description	Unit Price US Dollars
2A3891	Seal, Assy, No.3 Bearing	13,500.00
2A3854	Seal, Assy Of, Face	6,820.00

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