



International Aero Engines

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

This document transmits Revision 3 to Service Bulletin EV2500-72-0227

Document History

Service Bulletin Revision Status	
Initial Issue	Oct.31/95
Revision 1	Feb.28/96
Revision 2	Mar.25/97

Supplement Revision Status

Bulletin Revision 3

Remove	Incorporate	Reason for change
All pages of the	Pages 1 to 12 of the	To correct and add
Service Bulletin	Service Bulletin	instruction disposition
		codes. To make up effective
		engine models in
		'Effectivity', 'Parts
		affected by this Service
		Bulletin', 'Description'
		and 'Manpower' paragraphs.
		All pages re-issued and
		changed to new style format.

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Transmittal - Page 1 of 2

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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LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 3 are as follows:

<u>Page</u>		<u>Revision Number</u>	<u>Revision Date</u>
	Bulletin		
R	1	3	Jun.16/01
R	2	3	Jun.16/01
R	3	3	Jun.16/01
R	4	3	Jun.16/01
R	5	3	Jun.16/01
R	6	3	Jun.16/01
R	7	3	Jun.16/01
R	8	3	Jun.16/01
R	9	3	Jun.16/01
R	10	3	Jun.16/01
R	11	3	Jun.16/01
R	12	3	Jun.16/01

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ENGINE - LP TURBINE - PROVIDE A NEW BLIND CAP WITH DECREASED SEAL LAND HEIGHT

1. Planning Information

A. Effectivity

(1) Airbus A319

V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No.V10193

(2) Airbus A320

(a) V2500-A1 Engines prior to Serial No.V0362

(b) V2527-A5, V2527E-A5 Engines prior to Serial No.V10193

(3) Airbus A321

V2530-A5 Engines prior to Serial No.V10193

(4) Boeing Long Beach Division MD-90

V2525-D5, V2528-D5 Engines prior to Serial No.V20084

(5) ATA Location

72-50-00

B. Concurrent Requirements

For V2500-A1 Engines, this Service Bulletin must be incorporated subsequent to the accomplishment of Service Bulletin No.V2500-ENG-72-0037.

C. Reason

(1) Condition

It was confirmed that the distortion of the Sealing Ring can occur during installation of the Blind Cap and Sealing Ring Assembly into the LPT Shaft.

(2) Background

The distortion of the Sealing Ring resulted in oil leakage from the No.5 Bearing Compartment into the LPT Shaft and contamination of the Fan Blades.

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(3) Objective

To change the Blind Cap feature to prevent the distortion of the Sealing Ring during assembly procedure.

(4) Substantiation

The configuration change shown in this Service Bulletin has been subjected to an endurance testing on development engine and the satisfactory results were obtained.

(5) Effects of Bulletin on Workshop Procedures:

(a) Removal/Installation

Affected (See Supplemental Information).

(b) Disassembly/Assembly

Not affected.

(c) Cleaning

Not affected.

(d) Inspection/Check

Not affected.

(e) Repair

Not affected.

(f) Testing

Not affected.

(6) Supplemental Information

The installation of Post-Service Bulletin configuration requires instructions for installing the Sealing Ring to the new Blind Cap without using special tools.

D. Description

(1) The changes introduced are:

- (a) The rear height of rear Blind Cap Seal Land is reduced. Refer to Figure 1.



R

- (b) The Retaining Ring is radically widened related to the feature change of the Blind Cap. Refer to Figure 1.
- (2) For V2500-A1 Engines, the existing Blind Cap is reworkable. Refer to Figure 2. For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5 Engines, the existing Blind Cap is not reworkable.
- (3) The old Seal Ring and the new Seal Ring are distinguished by the following colors:

Engine Model	Area	New Part Color	Old Part Color
V2500-A1	Jacket	Yellow	Tan
V2500-A1	Spring	Brown	Silver
V2500-A5/D5	Jacket	Green	Tan
V2500-A5/D5	Spring	Brown	Silver

- (4) For V2500-A1 Engines, the Sealing Ring is introduced by the following Service Bulletins:

(a) V2500-ENG-72-0037

Replace the LP Turbine Shaft Rear End Sealing Ring

(b) V2500-ENG-70-0387

To announce the availability of a new LP Turbine Shaft Seal Assembly

This Service Bulletin must be incorporated subsequent to the accomplishment of V2500-ENG-72-0037 but can be incorporated subsequent or prior to the accomplishment of V2500-ENG-70-0387.

E. Compliance

Category Code 6

Accomplish when the subassembly (i.e. modules, accessories, components, build groups) is disassembled sufficiently to get access to the affected parts.

F. Approval

The part number changes and/or part modification described in Section 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Models listed.



G. Manpower

Estimated manhours to incorporate the full intent of this Bulletin:

(1) For V2500-A1 Engines

(a) In Service

Not applicable.

(b) At Overhaul

(i) To rework and reidentify the existing Blind Cap:

28 minutes.

(ii) Total: 28 minutes.

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

(2) For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5 Engines:

(a) In Service

Not applicable.

(b) At Overhaul

Not affected.

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

H. Material - Price and Availability

(1) A modification kit is not necessary.

(2) Refer to 2. Material Information for the prices and availability of future spares.

I. Tooling - Price and Availability

Special tools are not required.

J. Weight and Balance

(1) Weight change

None.



(2) Moment Arm

No effect.

(3) Datum

Engine front mount centerline (Power Plant Station PPS 100).

K. Electrical Load Data

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

R L. Software Accomplishment Summary

R Not applicable.

M. References

(1) Internal reference 94VJ018 and 95VJ031

R (2) V2500 Engine Illustrated Parts Catalogs (V2500-A1, V2522-A5, V2524-A5,
R V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5),
Chapter/Section 72-50-41.

(3) V2500 Engine Manuals (E-V2500-1IA), Chapter/Section 72-00-50,
Installation-02.

(4) V2500 Engine Manuals (E-V2500-3IA), Chapter/Section 72-00-50,
Installation-02.

(5) V2500 Standard Practices/Process Manual, TASK 70-09-00-400-501 Marking of
Parts.

(6) IAE Service Bulletin No.V2500-ENG-72-0037, Replace the LP Turbine Shaft
Rear End Sealing Ring (V2500-A1).

(7) IAE Service Bulletin No.V2500-ENG-70-0387, To announce the availability of
a new LP Turbine Shaft Seal Assembly (V2500-A1).

N. Other Publications Affected

R (1) V2500 Engine Illustrated Parts Catalogs (V2500-A1, V2522-A5, V2524-A5,
R V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5),
Chapter/Section 72-50-41 will be revised to the new parts.

(2) V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section
72-00-50, Installation-02, Installation-04 and Installation-05 and
Chapter/Section 72-50-00, Storage-02 will be revised to the new
procedures.

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R 0. Interchangeability of Parts

R Affected – Refer to Section 2. Material Information.

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2. Material Information

A. Material – Price and Availability

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.

(1) Modification kit

(a) Modification kit not required.

R B. New production parts:

PART NO.	QTY	UNIT PRICE
5A1702	1	4.80
5A1703	1	282.00
5A1704	1	9.97
5A1705	1	327.00
5A1696	1	744.00

R C. Industry Support Information

R None.

D. Kits associated with this Service Bulletin:

None.

E. Parts affected by this Service Bulletin:

Applicability: For each V2500 Engine to incorporate this Bulletin:

V2500-A1 Engines

72-50-41

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
R	01-100	5A1702	1	Ring, retaining int.	RR295	(A)(B)(S1)(2D)
R	01-150	5A1703	1	Cap, blind	5A0386	(A)(B)(S2)(1D)



R V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5 Engines

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	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
R	01-100	5A1704	1	Ring, retaining int.	RR312	(C)(D)(S1) (2D)
R	01-150	5A1705	1	Cap, blind	5A1040	(C)(D)(S2) (2D)
R	01-160	5A1696	1	Ring, sealing	5A1516	(C)(D)(S3) (2D)

F. Instruction Disposition Codes

(A) New part will be available in May 1996.

(B) Old part is no longer available for sale.

(C) New part will be available in June 1996.

(D) Old part continues to be supplied until the new part will be available.

(S1) New or old part can be used with old part coded (S2).

(S2) New part can be used only with new part coded (S1).

(S3) New and old parts are freely and fully interchangeable, both physically and functionally.

(1D) New part can be obtained from rework and reidentification of old part.

R (2D) New part can not be obtained from rework of old part.



3. Accomplishment Instructions

A. Rework Instructions

- R (1) The existing 5A0386, Blind Cap for V2500-A1 Engines is reworkable and the existing 5A1040, Blind Cap for V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5 Engines are not reworkable.

Do a modification on the 5A0386, Blind Cap for V2500-A1 Engines and re-identify to the New Part Number 5A1703 as follows:

PROCEDURE

RELATED DATA

- | | | | | | | | |
|--|---|----------|-----------|--------|--------|--|--|
| (a) Set the 5A0386, Blind Cap on the lathe | Refer to Figure 2 | | | | | | |
| (b) Machine the Rear Seal Land | Refer to Figure 2 | | | | | | |
| (c) Break sharp edges, make chamfer and blend corner | Refer to Figure 2 | | | | | | |
| (d) Renumber the new part number adjacent to the existing number by permanent marking method. Erase the existing part number by a solid line | <table border="0"><tr><td>Existing</td><td>Re-number</td></tr><tr><td>5A0386</td><td>5A1703</td></tr><tr><td colspan="2">Refer to 1.M.(5) TASK 70-09-00-400-501</td></tr></table> | Existing | Re-number | 5A0386 | 5A1703 | Refer to 1.M.(5) TASK 70-09-00-400-501 | |
| Existing | Re-number | | | | | | |
| 5A0386 | 5A1703 | | | | | | |
| Refer to 1.M.(5) TASK 70-09-00-400-501 | | | | | | | |

B. Assembly Instructions

- R (1) Install the 5A1515 or 5A1697, Sealing Ring to the 5A1703, Blind Cap for V2500-A1 Engines and install the 5A1696, Sealing Ring to 5A1705, Blind Cap for V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5 and V2528-D5 Engines as follow:

- (a) Put the Blind Cap with front end down on to a work bench.
- (b) Lubricate the Sealing Ring with CoMat 10-077 approved engine oil.
- (c) Lubricate the outer diameter face of the Blind Cap with CoMat 10-077 approved engine oil.
- (d) Put the Sealing Ring on the outer diameter of the Blind Cap. The open side of the Sealing Ring must be in up direction.
- (e) Slowly push the Sealing Ring down with four or more fingers until it is installed in to the groove of the Blind Cap.

CAUTION: DO NOT EXTEND THE SEALING RING TOO MUCH. TOO MUCH EXTENSION CAN CAUSE PERMANENT DEFORMATION OF THE SEALING RING. ANY DEFORMATION OF THE SEALING RING CAN CAUSE OIL LEAK.

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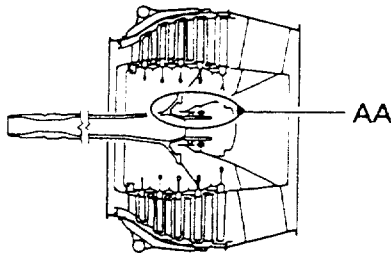


- (2) Examine the Sealing Ring for damage, deformation and twist by the approved procedures in 1.K.(2), Chapter/Section 72-00-50, Installation-02.
- (3) Install the Blind Cap to the LP Turbine Shaft by the approved procedures in 1.K.(2), Chapter/Section 72-00-50, Installation-02.
- (4) Install the Retaining Ring by the approved procedures in 1.K.(2), Chapter/Section 72-00-50, Installation-02.

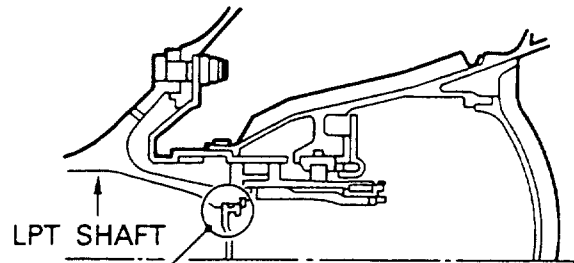
CAUTION: DO NOT USE THE RR295, OLD RETAINING RING WITH THE 5A1703, NEW BLIND CAP.

C. Recording Instructions

A record of accomplishment is necessary.



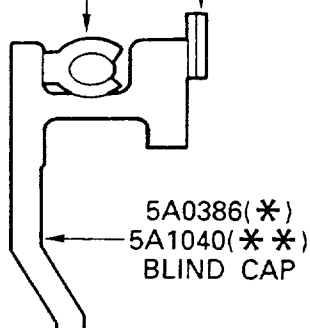
MODULE 50



VIEW ON AA

5A1515(*) OR 5A1697(*)
5A1516(**)
SEALING RING

RR295(*)
RR312(**)
RETAINING RING



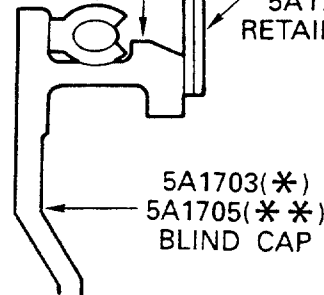
BEFORE ALTERATION

5A0386(*)
5A1040(**)
BLIND CAP

5A1515(*) OR 5A1697(*)
5A1696(**)
SEALING RING

SEAL LAND HEIGHT
REDUCED

5A1702(*)
5A1704(**)
RETAINING RING



AFTER ALTERATION

5A1703(*)
5A1705(**)
BLIND CAP

TOOLS (SLIDER AND RESIZER)
REQUIRED TO ASSEMBLE
THE SEALING RING

NO TOOL REQUIRED TO ASSEMBLE
THE SEALING RING

VIEW ON BB

(*) : Part No. for V2500-A1 Engines

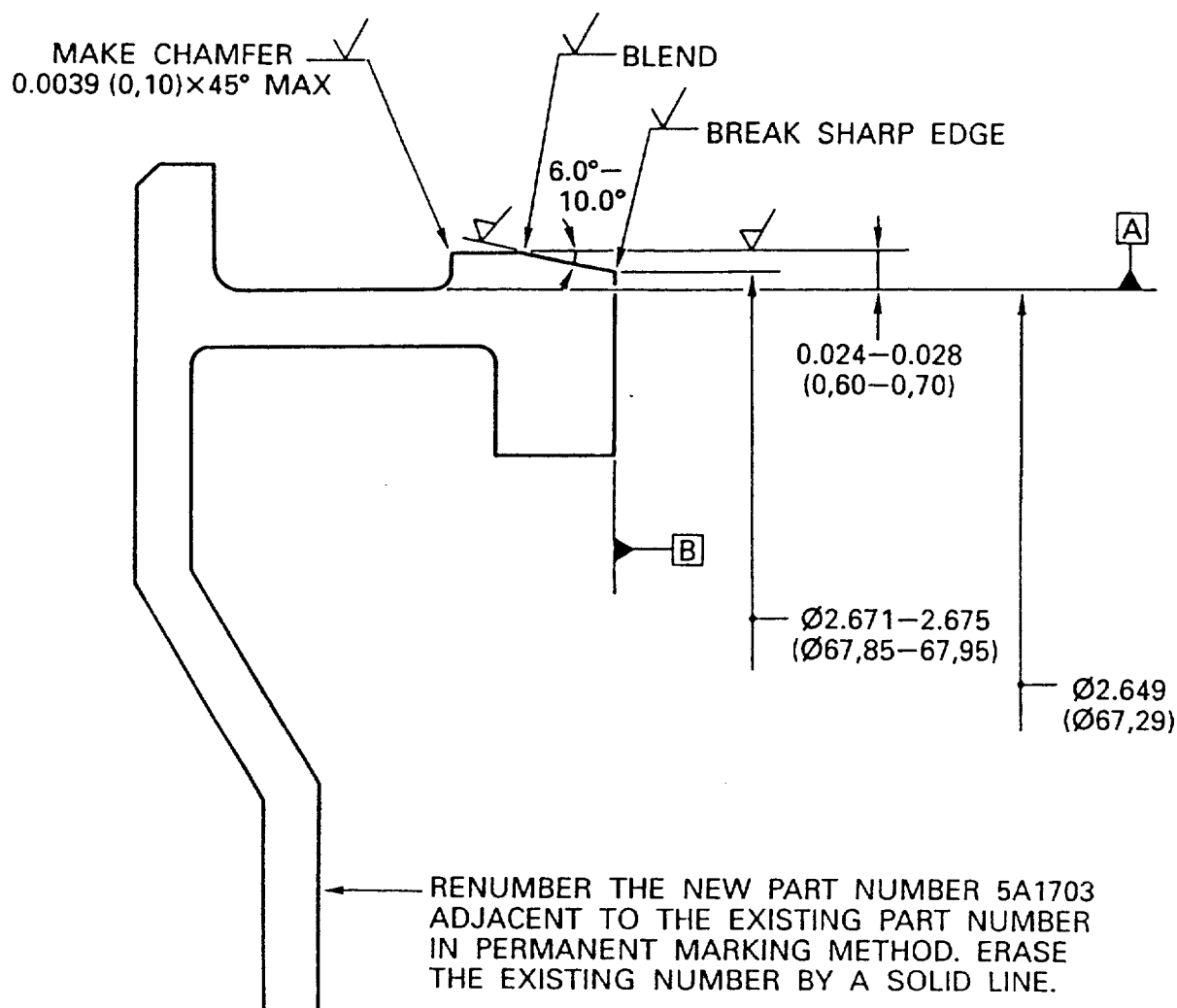
(**): Part No. for V2500-A5/D5 Engines

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NOTE: The 5A1515(*), Sealing Ring for "BEFORE ALTERNATION" has incorporated Service Bulletin No. V2500-ENG-72-0037, and the 5A1697(*), Sealing Ring for "BEFORE ALTERNATION" has incorporated Service Bulletin No. V2500-ENG-70-0387.

Before and after alteration of blind cap and retaining ring
Fig 1



ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)
ANGULAR DIMENSION IS IN DEGREE.
MACHINE WHERE MARKED "✓". SURFACE
ROUGHNESS IN 63 MICROINCHES (1,6 MICROMETERS)
FINISH WHERE MARKED "✓" BY ANY PRODUCTION METHOD.

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Machining of the blind cap (for V2500-A1 engines)
Fig 2

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