



400 MAIN STREET, MAIL STOP 121-10
EAST HARTFORD, CT 06108, USA.
TELEPHONE:- 860 565 5515
FAX:- 860 565 0600

DATE: Jul.12/04

P.O. BOX 31, DERBY
TELEGRAMS - 'ROYCAR' DERBY
TELEX - 37645
TELEPHONE:- 44 (0) 1332 242424
FAX:- 44 (0) 1332 249936

V2500-A1 SERIES PROPULSION SYSTEM SERVICE BULLETIN

Printed in Great Britain

This document transmits Revision 3 to Service Bulletin EV2500-72-0449

Document History

Service Bulletin Revision Status	Supplement Revision Status
Initial Issue Apr.25/03	
Revision 1 May 16/03	
Revision 2 Jul.5/04	

Bulletin Revision 3

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 9 of the Service Bulletin	To add an additional Description paragraph

V2500-ENG-72-0449

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	Jul.12/04
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R	5	3	Jul.12/04
R	6	3	Jul.12/04
R	7	3	Jul.12/04
R	8	3	Jul.12/04
R	9	3	Jul.12/04

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ENGINE – HP COMPRESSOR RING CASES – INTRODUCTION OF HPC STAGE 4 ROTOR PATH TRENCH
WITH INCREASED TIP CLEARANCE

1. Planning Information

A. Effectivity

(1) Airbus A320

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

B. Concurrent Requirements

None.

C. Reason

(1) Problem

Premature deterioration of the HP Compressor stage 4 blades may occur, which in extreme cases can result in release of the aerofoil.

The problem has been attributed to high cyclic fatigue in the first flap mode at sub idle speed, as a result of light tip rubbing.

(2) Evidence

The problem has been experienced on engines in service.

(3) Substantiation

The changes introduced by this Service Bulletin (Modification) have been the subject of extensive engineering analysis and a successful development engineering test.

(4) Objective

Incorporation of this Service Bulletin is designed to maintain reliability.

(5) Effect of Bulletin on:

(a) Operation

Not affected.

(b) Maintenance

Not affected.

(c) Overhaul

Affected (see 1.0. Other Publications Affected).

(d) Repair Schemes

Not affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Affected.

D. Description

(1) The changes introduced are:

A trench has been introduced to the HPC Stage 4 Rotor path across the full axial width of the liner to a nominal depth of 0.040in. (1,016 mm.).

R The Engine Manual piece-part inspection (FPI) is good at detecting cracks
R but it is not possible to detect 'blade tip rub-induced fatigue' damage on
R Stage 4 blades at overhaul. To prevent the fatigued blades from being
R returned to service it is recommended that you use a new full set of
R blades (38 off) the first time you do this Service Bulletin.

E. Compliance

Category Code 4.

Accomplish at the first shop visit of an engine or module to a maintenance base capable of compliance with the accomplishment instructions regardless of the planned maintenance action or the reason for engine removal.

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 model listed.

G. Manpower

(1) In service

Not Applicable.

(2) At overhaul

Not affected.

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

H. Material Price and Availability

Not applicable.

I. Tooling Price and Availability

New setting equipment is required for the revised rotor path diameter; Tool No. IAE1R18537 (issue C1) – Indexing Plate.

J. Industry Support Information

Not applicable.

K. Weight and Balance

(1) Weight Change

Minus 0.4 lb. (– 0,16 Kg.)

(2) Moment Arm

8.1in. (206 mm.) rearwards of datum

(3) Datum

Engine Front Mount Centreline (Power Plant Station PPS 100).

L. Electrical Load Data

The aircraft electrical load is not affected by this Service Bulletin.

M. Software Accomplishment Summary

Not applicable.

N. References

(1) IAE V2500 Service Bulletin:

ENG-72-0027 – ENGINE – HP COMPRESSOR – INTRODUCTION OF REDUCED WEIGHT FRONT COMPRESSOR CASING.

(2) Internal Reference No. EC02VR010.



(3) ATA Locator - 72-41-00.

0. Other Publications Affected

(1) Engine Manual, Chapter/Section 72-41-30, Assembly-02 Config-01 and Assembly-09 Config-01.

(2) EIPC Chapter/Section 72-41-15.

P. Interchangeability of Parts

Not affected.

2. Material Information

A. The kit required consists of the following parts:

None.

B. Parts to be reworked:

None.

C. New production parts:

None.

D. Reference Instructions:

All Engines

72-41-15

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
99301	6A8140	Ref	.Instruction, setting	-	6A7632	-
99302	6A8141	Ref	.Drawing, radial clearance	-	6A7631	-

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FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
99151	6A8138	Ref	.Instruction, machining	-	6A3981	-
99151	6A8139	Ref	.Instruction, machining	-	6A3027	-
99302	6A8141	Ref	.Drawing, radial clearance	-	6A7631	-

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FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
99302	6A8141	Ref	.Drawing, radial clearance	-	6A7631	-

72-41-32

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
99302	6A8141	Ref	.Drawing, radial clearance	-	6A7631	-

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3. Accomplishment Instructions

A. Rework Instructions

None.

B. Assembly Instructions

For the correct assembly instructions refer to Engine Manual (EM), Chapter/Section 72-41-30, Assembly-02 Config-01 and Assembly-09 Config-01 (see NOTE below)

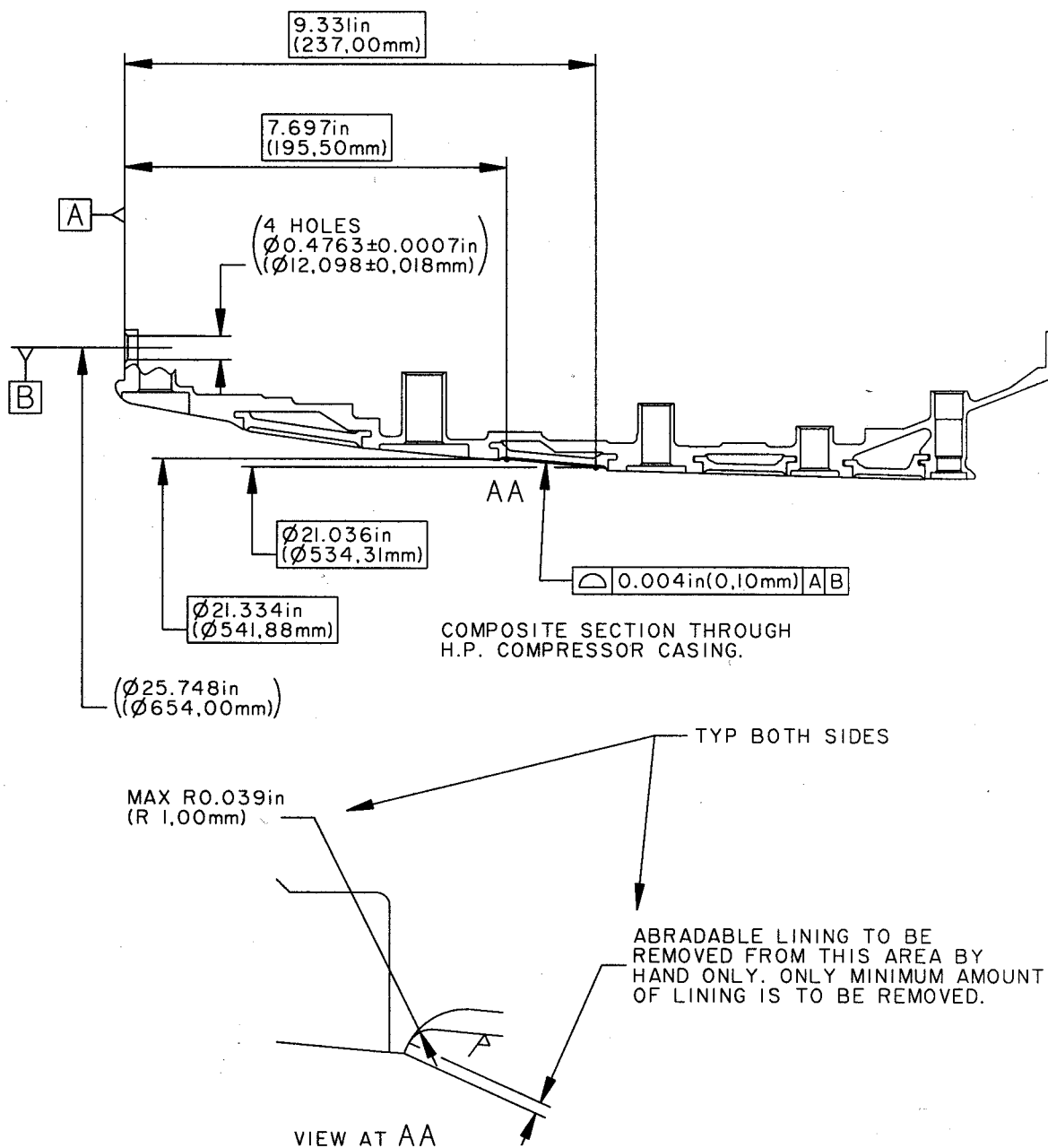
NOTE: For Subtask 72-41-30-324-052-A00 Para 13.E, refer to Figure 1 of this Service Bulletin for dimensional profile of Stage 4 Rotor Path.

For Subtask 72-41-30-324-052-B00 Para 14.E, refer to Figure 2 of this Service Bulletin for dimensional profile of Stage 4 Rotor Path.

R It is very important that the HPC Stage 4 Blades (38 off) are replaced with new
R blades the first time you do this Service Bulletin.

C. Recording Instructions

A record of accomplishment is necessary.

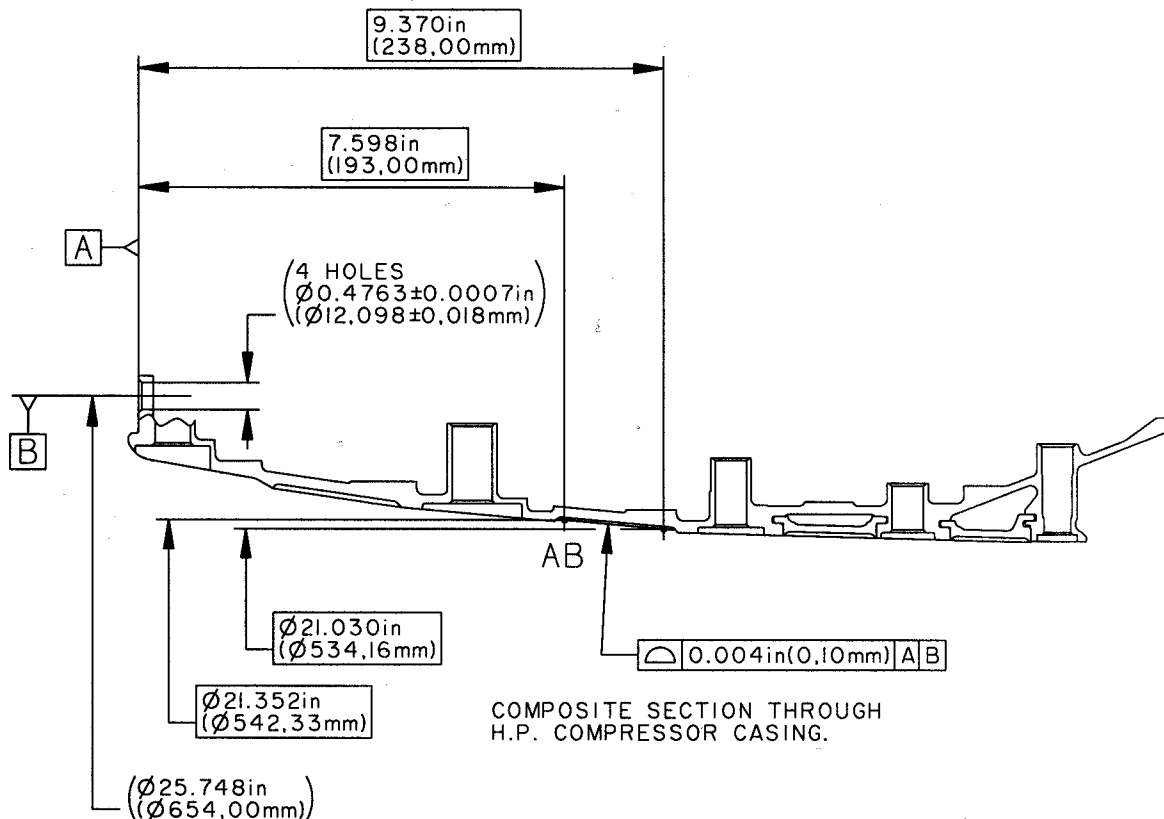


FOR ENGINES NOT INCORPORATING SB 72-0027

MACHINE WHERE MARKED ✓
MACHINED SURFACE FINISH TO BE 126 MICROINCHES (3.2 MICROMETRES).
THE GEOMETRIC SYMBOLS ARE AS GIVEN IN THE ISO MANUAL (R1101).

Assembly Instructions
Figure 1

V2500-ENG-72-0449



MAX R0.039in
(R 1,00mm)

TYP BOTH SIDES

ABRADABLE LINING TO BE
REMOVED FROM THIS AREA BY
HAND ONLY. ONLY MINIMUM AMOUNT
OF LINING IS TO BE REMOVED.

VIEW AT AB

FOR ENGINES INCORPORATING SB 72-0027

MACHINE WHERE MARKED ✓
MACHINED SURFACE FINISH TO BE 126 MICROINCHES(3,2 MICROMETRES).
THE GEOMETRIC SYMBOLS ARE AS GIVEN IN THE ISO MANUAL (R1101).

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Assembly Instructions
Figure 2

