P U B L I C A T I O N T R A N S M I T T A L

RR-DERBY

V2500 International Aero Engines

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

P.O. BOX 31, DERBY
TELEGRAMS - 'ROYCAR' DERBY
TELEX - 37645
TELEPHONE - DERBY 242424

DATE R Feb.21/02

V2500-A1 SERIES PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits Revision 1 to Service Bulletin EV2500-72-0370

Document History

Service Bulletin Revision Status	Supplement Revision Status
Initial Issue Mar.2/00	

Bulletin Revision 1

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 7 of the Service Bulletin	To revise Compliance Category

V2500-ENG-72-0370

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

LIST OF EFFECTIVE PAGES

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

	Page	Revision Number	Revision Date
	Bulletin		
R	1	1	Feb.21/02
R	2	1	Feb.21/02
R	3	1	Feb.21/02
R	4	1	Feb.21/02
R	5	1	Feb.21/02
R	6	1	Feb.21/02
R	7	1	Feb.21/02

ENGINE- HP COMPRESSOR BLADES - INTRODUCTION OF INCREASED STAGE 4 ROTOR BLADE TIP CLEARANCE

1. Planning Information

R A. Effectivity

(1) Airbus A320

(a) V2500-A1 Engines prior to Serial Number V0362

(2) ATA Location

72-41-00

B. Concurrent Requirements

None.

C. Reason

(1) Condition

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

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

(2) Background

The problem has been experienced on engines in service.

(3) Objective

Incorporation of this Service Bulletin is designed to maintain reliability.

(4) Substantiation

The changes introduced by this Service Bulletin have been the subject of satisfactory engineering assessment and extensive performance analysis.

(5) Effect of Bulletin on Workshop Procedures:

Removal/Installation	Not affected
Disassembly/Assembly	Affected (See Supplemental Information)
Cleaning	Not affected
Inspection/Check	Not affected

Repair	Not affected
Testing	Not affected

D. Supplemental Information

(1) A new Assembly Subtask (for the SB 72-0370 Configuration) for rotor tip grinding will be published in a subsequent transmittal of the Engine Manual.

E. Description

(1) This Service Bulletin introduces an increased HP Compressor stage 4 cold build tip clearance in order to reduce rotor tip rubbing with the rotor path liner at sub idle speeds.

The changes introduced are:-

(a) The tip clearance is increased by 0.01in (0,254mm) and will be achieved by grinding extra material from the end of the blade during the compressor build procedure, hence no new part number is introduced. Refer to Figure 1 and 2 (Before and after alteration).

F. Compliance

R Category Code 5

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

G. Approval

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

H. Manpower

Estimate of man hours necessary to embody this Service Bulletin in full:

(1) In Service

(a) Not applicable

(2) At Overhaul

No additional time is necessary to embody this Service Bulletin.

NOTE: It is possible to get access to the parts affected by this Service Bulletin at overhaul.

I. Weight and Balance

Weight change	None
Moment arm	No effect
Datum	Engine front mount centerline (Powerplant station PPS100)

J. Electrical Load Data

Not affected

K. Software Accomplishment Summary

Not affected

L. References

IAE Engineering change number 00VR005.

M. Other Publications Affected

Engine Manual (A1 Series), 72-41-10, Disassembly - Config. 01 TASK 72-41-10-040-A00

Engine Manual (A1 Series), 72-41-10, Assembly 04 - Config. 01, TASK 72-41-10-440-004-A00

N. Interchangeability of Parts

Not affected

2. Material Information

R A. Material Price and Availability

The prices as 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 kits not required, existing parts can be reworked.

Applicability : For each V2500 Engine to incorporate this Service Bulletin

Refer to the referenced Engine Manual Task and Figure 2 in this Service Bulletin.

R B. Tooling Price and Availability

Refer to the Special tools given in the referenced Engine Manual Task to accomplish this Service Bulletin. See Section 3. Accomplishment Instructions.

3. Accomplishment Instructions

A. Rework Instructions

None

B. Assembly Instructions

(1) For the correct Disassembly/Assembly procedure refer to Engine Manual (A1 series) Chapter/Section/Subject 72-41-00 Disassembly/Assembly.

(2) To effect HP Compressor increased tip clearance, refer to Engine Manual (A1 series) Chapter/Section/Subject 72-41-00 Assembly, TASK 72-41-10-440-004-A00, (Config-01 Assembly-04) Grind the Tips of the HP Compressor Blades.

(3) Use the procedure given in this referenced TASK in conjunction with Figure 2 (SB 72-0370 - HPC rotor blade grinding dimensions) given in this Service Bulletin.

C. Recording Instructions

A record of accomplishment is necessary.

BLADE STAGE NUMBER	AXIAL DIMENSION (Dimension AA)	BLADE TIP RADIUS (Dimension AB) MINIMUM	MAXIMUM	BLADE ANGLE (Angle AC)
3	2.3154 in. (58,81 mm.)	11.0421 in. (280,47 mm.)	11.0471 in. (280,60 mm.)	8.285 degrees
4	7.4453 in. (189,11 mm.)	10.5090 in. (266,93 mm.)	10.5170 in. (267,13 mm.)	5.188 degrees
5	11.1941 in. (284,33 mm.)	10.3360 in. (262,53 mm.)	10.3439 in. (262,73 mm.)	1.560 degrees
6	14.0925 in. (357,95 mm.)	10.2700 in. (260,86 mm.)	10.2771 in. (261,04 mm.)	0.834 degrees
7	16.3931 in. (416,384 mm.)	10.2420 in. (260,15 mm.)	10.2495 in. (260,34 mm.)	0.807 degrees
8	18.8611 in. (479,071 mm.)	10.2180 in. (259,54 mm.)	10.2261 in (259,74 mm.)	0.000 degrees
9	21.0941 in. (535,789 mm.)	10.1940 in. (258,93 mm.)	10.2016 in. (259,12 mm.)	0.000 degrees
10	22.8761 in. (581,052 mm.)	10.1890 in. (258,80 mm.)	10.1967 in. (259,00 mm.)	0.000 degrees
11	24.7851 in. (629,541 mm.)	10.1570 in. (257,99 mm.)	10.1646 in. (258,18 mm.)	0.000 degrees
12	26.5306 in. (673,877 mm.)	10.1450 in. (257,68 mm.)	10.1529 in. (257,88 mm.)	0.000 degrees

B1133E

Figure 1
Before alteration : Pre SB 72-0370 - HP compressor rotor blade grinding dimensions

BLADE STAGE NUMBER	AXIAL DIMENSION (Dimension AA)	BLADE TIP RADIUS (Dimension AB) MINIMUM	BLADE TIP RADIUS (Dimension AB) MAXIMUM	BLADE ANGLE (Angle AC)
3	2.3154 in (58,81 mm)	11.0421 in (280,47 mm)	11.0471 in (280,60 mm)	8.285 degrees
4	7.4453 in (189,11 mm)	10.4992 in (266,680 mm)	10.5072 in (266,885 mm)	5.188 degrees
5	11.1941 in (284,33 mm)	10.3360 in (262,53 mm)	10.3439 in (262,73 mm)	1.560 degrees
6	14.0925 in (357,95 mm)	10.2700 in (260,86 mm)	10.2771 in (261,04 mm)	0.834 degrees
7	16.3931 in (416,384 mm)	10.2420 in (260,15 mm)	10.2495 in (260,34 mm)	0.807 degrees
8	18.8611 in (479,071 mm)	10.2180 in (259,54 mm)	10.2261 in (259,74 mm)	0.000 degrees
9	21.0941 in (535,789 mm)	10.1940 in (258,93 mm)	10.2016 in (259,12 mm)	0.000 degrees
10	22.8761 in (581,052 mm)	10.1890 in (258,80 mm)	10.1967 in (259,00 mm)	0.000 degrees
11	24.7851 in (629,541 mm)	10.1570 in (257,99 mm)	10.1646 in (258,18 mm)	0.000 degrees
12	26.5306 in (673,877 mm)	10.1450 in (257,68 mm)	10.1529 in (257,88 mm)	0.000 degrees

ded0003532

Figure 2
After alteration : SB 72-0370 - HP compressor rotor blade grinding dimensions