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: Aug.17/01

V2500A5/D5 PROPULSION SYSTEM SERVICE BULLETIN

This document transmits the Initial Issue of Service Bulletin EV2500-72-0295

Bulletin Initial Issue

Remove	Incorporate	Reason for change
	Pages 1 to 8 of the Service Bulletin	Initial issue

V2500-ENG-72-0295

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
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LIST OF EFFECTIVE PAGES

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ENGINE HP COMPRESSOR BLADES INTRODUCTION OF A REDESIGNED STAGE 4 BLADE ASSEMBLY

1. Planning Information

A. Effectivity

(1) Airbus A319

V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No.V11100.

(2) Airbus A320

V2527-A5, V2527E-A5 Engines prior to Serial No.V11100.

(3) Airbus A321

V2530-A5, V2533-A5 Engines prior to Serial No.V11100.

(4) Boeing-Longbeach Division MD-90

V2525-D5, V2528-D5 Engines prior to Serial No.V20286.

(5) ATA Locator 72-41-15

B. Concurrent Requirements

None

C. Reason

(1) Problem

Failure through the root of the HP compressor stage 4 blades may occur, causing release of the platform and aerofoil. This has resulted in secondary damage to the HP Compressor.

The problem is attributed to High Cyclic Fatigue (HCF), with the crack initiating either from the front of the root closest to the pressure side edge of bedding or a similar position on the suction side of the root. Subsequent analysis has confirmed the principal cause to be a high vibration response under specific operating conditions.

(2) Background

To date there have been twelve events on engines in service, five rejections following ultrasonic probe inspection and one identified during engine overhaul.

(3) Objective

Incorporation of this modification is designed to maintain reliability.

(4) Substantiation

The changes introduced by this Service Bulletin have been the subject of extensive engineering assessment, model analysis and successful development engine testing.

(5) Effect of Bulletin on:

(a) Operation

Not affected

(b) Maintenance

Not affected

(c) Overhaul

Affected

(d) Repair Schemes

Affected.

(e) Interchangeability

Affected (See 1.P. Interchangeability of Parts).

(f) Fits and Clearances

Not affected.

D. Description

This Service Bulletin introduces a HP Compressor Stage 4 blade which has been designed to be resistant to this mode of failure by separation of mode 3 and mode 11 frequencies, and lower stresses in the blade root.

The changes introduced are:

(1) A revised HP compressor stage 4 blade assembly similar to the existing item except for:

(a) A 10 degree tangential lean is introduced to the tip of the aerofoil.

(b) The aerofoil is recambered over its full height, by 4 degrees at the hub and approximately 3.5 degrees over the top 25 percent.

(c) The hub of the aerofoil has been increased in thickness.

(d) The thickness/chord ratio now decreases rapidly over the inner and outer thirds of the aerofoil height.

(e) The thickness of the platform behind the root has been increased by 1,00mm. Towards the front of the platform, either side of the root and immediately behind the locking plate groove, additional machining reduces the platform thickness to a minimum of 0,90mm.

(f) A revised sealing strip is introduced similar to the existing item except for a reduction in length to suit the new under platform profile.

(2) The static tip clearance is increased at the trailing edge by 0,40mm in order to maintain the existing running tip clearance due to the different manner in which the revised blade untwists.

(3) New tip measurement and tip grinding data.

(4) It is recommended that the rotor assembly is downground with the drum assembly rotating in the direction of engine rotation.

E. Compliance

Category Code 6

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

(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

Modification kit not required. Refer to paragraph 2.B.

I. Tooling Price and Availability

Special tools are not required

J. Industry Support Information

None

K. Weight and Balance

(1) Weight Change

Plus 0.1lb (0.06kg).

(2) Moment Arm

8.2in (208mm) rearwards of datum.

(3) Datum

Engine front mount centreline (Power Plant Station (PPS100)).

L. Electrical Load Data

The aircraft electrical load is not affected by this Service Bulletin

M. Software Accomplishment Summary

Not applicable

N. References

(1) Internal reference 00VR010

(2) Engine Manual, 72-41-10, Disassembly and Assembly-03, Assembly-04, Config-2

(3) Airbus aircraft modification No. 31677

O. Other Publications Affected

(1) Illustrated Parts Catalogue 2IA, 2IB, 3IA, 3IB, 5IA, 5IB, 6IA, 6IB, 7IA, 7IB, 72-41-15 will be revised.

(2) Engine Manual, 72-41-15:

(a) Cleaning-02, Config-1 (A5)

(b) Inspection/Check-02, Config-3 (A5)

(c) Repairs (A5)

(d) Cleaning-02, Config-1 (D5)

(e) Inspection/Check-02, Config-2 (D5)

(f) Repairs (D5)

(g) Disassembly and Assembly-04, 72-41-10 (D5)

(h) Disassembly, Config-2 and Assembly-04, Config-2, 72-41-10 (A5)

P. Interchangeability of Parts

The HP compressor stage 4 blade assemblies introduced by this Service Bulletin are only interchangeable as a complete engine set.

2. Material Information

A. The kit required consists of the following parts:

None

B. New production parts:

PART NO.	QTY	UNIT PRICE US DOLLARS
6A7635	38	534.00
6A7646	38	6.30

NOTE: The unit prices, if shown, are an estimate and they are given for the purpose of planning only. For actual prices, refer to the IAE Price Catalogue or contact IAE's spare parts sales department.

C. Parts affected by this bulletin:

All Engines

72-41-15

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
01500	6A7635	38	Blade assy - Stage 4 - compressor	HP-	6A4254	(A) (S1)
01520	6A7646	38	Strip, sealing	-	6A4256	(A) (S2)

D. Instruction disposition codes:

(A) New part will be made available from June 2001.

(S1) New parts coded (S1) must replace old parts coded (S1) as a complete engine set.

(S2) Old and new parts are not interchangeable.

3. Accomplishment Instructions

A. Rework Instructions

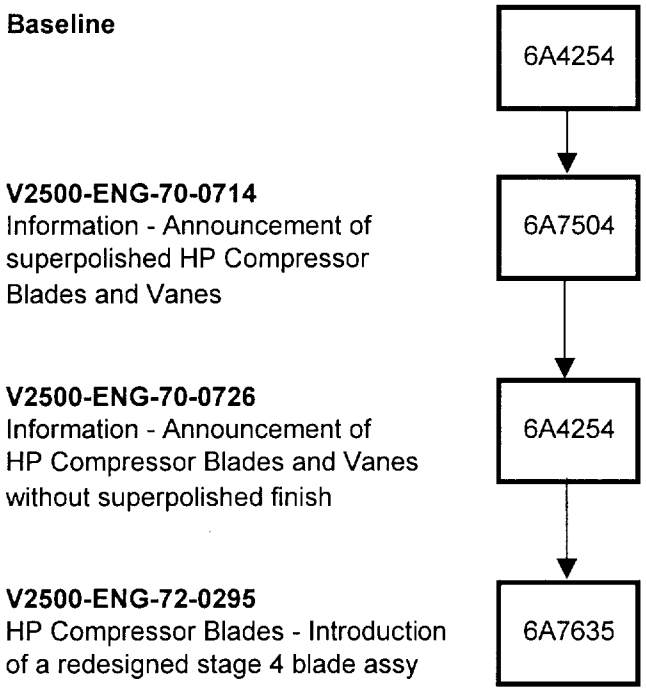
None

B. Assembly Instructions

The stage 4 compressor blades introduced by this Service Bulletin are interchangeable as a complete set. Remove and install in accordance with current overhaul procedures (Engine Manual, 72-41-10, Disassembly and Assembly-03, Assembly-04, Config-2).

C. Recording Instructions

(1) A record of accomplishment is required.



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HP compressor stage 4 blade assembly family tree
Fig 1