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V2500-A5/D5 SERIES PROPULSION SYSTEM SERVICE BULLETIN

This document transmits Revision 2 to Service Bulletin EV2500-72-0487 and Revision 2 to the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Jan.4/05	Initial Issue	Jan.4/05
Revision 1	Apr.13/05	Revision 1	Apr.13/05

Bulletin Revision 2

Remove	Incorporate	Reason for change
All pages of the Summary	Page 1 and 2 of the Summary	To revise engine incorporation information.
Pages 1 to 7 of the Service Bulletin	Pages 1 to 8 of the Service Bulletin	To revise engine incorporation information.

Supplement Revision 2

Remove	Incorporate	Reason for change
All pages	Page 1	To revise engine incorporation information.

V2500-ENG-72-0487

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 2 to the Bulletin and Revision 2 to the Supplement are as follows:

Page		Revision Number	Revision Date
	Summary		
R	1	2	Jun.17/05
R	2	2	Jun.17/05
	Bulletin		
R	1	2	Jun.17/05
R	2	2	Jun.17/05
R	3	2	Jun.17/05
R	4	2	Jun.17/05
R	5	2	Jun.17/05
R	6	2	Jun.17/05
R	7	2	Jun.17/05
R	8	2	Jun.17/05
	Supplement		
R	1	2	Jun.17/05

International Aero Engines

SERVICE BULLETIN

ENGINE - HP COMPRESSOR BLADES - INTRODUCTION OF A STAGE 3 BLADE WITH A REVISED CLAPPER - MOD 72-0487.

SUMMARY

Printed in Great Britain

1. PLANNING

A. EFFECTIVITY

R Engine

R V2500-A5 Engines Prior to Engine Serial No. V11944 and Engine Serial No.s
R V11945, V11946, V11961, V11969 and V11979

R V2500-D5 Engines prior to Engine Serial No. V20286

B. CONCURRENT REQUIREMENTS

None.

C. REASON/PROBLEM

Problem

Wear of the abutment faces of the HP Compressor Stage 3 Blade clappers may occur. In severe cases this can lead to premature fatigue deterioration of the blade.

The problem has been attributed to a combination of high stresses and differential movements between adjacent clappers.

Evidence

The problem has been experienced on engines in service.

Substantiation

The changes introduced by this Service Bulletin (Modification) have been the subject of extensive engineering analysis.

Objective

Incorporation of this Service Bulletin is designed to maintain engine reliability.

D. DESCRIPTION

A revised HP Compressor Stage 3 Blade is introduced, similar to the existing item except for the following:

The clapper thickness has been increased at the intersection between the blade aerofoil and the clapper aerofoil.

The thickness of the clapper is increased by 0,50mm.

The length of the abutment face is increased to a minimum of 13,00mm.

The clapper radii have been reduced from 2,50mm to 1,00mm.

The incidence angle of the suction side clapper angle is reduced by 0.8 degrees relative to the engine axis and the pressure side angle is increased by 1.0 degrees.

E. COMPLIANCE

Category Code 6

Accomplish when the sub-assembly (ie. Modules, accessories, components, build groups) is disassembled sufficiently to afford access to the affected part and to all affected spare parts.

F. MANPOWER

In service - Not applicable.

At overhaul - Not affected.

G. INTERCHANGEABILITY OF PARTS

Old and new parts are freely and fully interchangeable only as a set.

2. MATERIAL INFORMATION

A. PARTS PRICES

Part Number 6A8353 - Blade, Stage 3 - HP Compressor - US $ 1880.00

International Aero Engines

SERVICE BULLETIN

ENGINE - HP COMPRESSOR BLADES - INTRODUCTION OF A STAGE 3 BLADE WITH A REVISED CLAPPER - MOD 72-0487.

1. Planning Information

A. Effectivity

(1) Airbus A319

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5

R Prior to Engine Serial No. V11944 and Engine Serial No.s V11945, V11946,
R V11961, V11969 and V11979

(2) Airbus A320

Engine Models Applicable

V2527-A5, V2527E-A5

R Prior to Engine Serial No. V11944 and Engine Serial No.s V11945, V11946,
R V11961, V11969 and V11979

(3) Airbus A321

Engine Models Applicable

V2530-A5, V2533-A5

R Prior to Engine Serial No. V11944 and Engine Serial No.s V11945, V11946,
R V11961, V11969 and V11979

(4) Boeing - Longbeach Division MD-90

Engine Models Applicable

V2525-D5, V2528-D5

Prior to Engine Serial No. V20286

B. Concurrent Requirements

None.

C. Reason

(1) Problem

Wear of the abutment faces of the HP Compressor Stage 3 Blade clappers may occur. In severe cases this can lead to premature fatigue deterioration of the blade.

The problem has been attributed to a combination of high stresses and differential movements between adjacent clappers.

(2) Evidence

The problem has been experienced on engines in service.

(3) Substantiation

The changes introduced by this modification have been the subject of extensive engineering analysis.

(4) Objective

Incorporation of this modification is designed to maintain reliability.

(5) Effect of Bulletin on:

(a) Operation

Not affected.

(b) Maintenance

Not affected.

(c) Overhaul

Not affected.

(d) Repair Schemes

Affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. Description

(1) The changes introduced are:

(a) A revised HP Compressor Stage 3 Blade is introduced, similar to the existing item except for the following:

(i) The clapper thickness have been increased at the intersection between the blade aerofoil and the clapper aerofoil.

(ii) The thickness of the clapper is increased by 0,50mm.

(iii) The length of the clapper abutment face is increased to a minimum of 13,00mm.

(iv) The clapper radii has been reduced from 2,50mm to 1,00mm.

(v) The incidence angle of the suction side clapper angle is reduced by 0.8 degrees relative to the engine axis and the pressure side angle is increased by 1.0 degrees.

E. Compliance

Category Code 6

Accomplish when the sub-assembly (ie. 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 modifications 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(s) 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; parts supplied as single line items.

For prices and availabilty of future spares see supplement to this bulletin.

I. Tooling Price and Availability

Special tools are not required.

J. Industry Support Information

Not applicable.

K. Weight and Balance

(1) Weight Change

None

(2) Moment Arm

No Effect.

(3) Datum

Engine Front Mount Centreline (Power Plant Station PPS100).

L. Electrical Load Data

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

M. Software Accomplishment Summary

Not applicable.

N. References

(1) Internal Reference No.

EC03VR010

(2) V2500 Engine Manual, E-V2500-1IA, E-V2500-3IA

(3) ATA Locator - 72-41-15

O. Other Publications Affected

(1) V2500 Illustrated Parts Catalog, 72-41-15

(2) V2500 Engine Manual, E-V2500-1IA, EV2500-3IA, inspection/check, cleaning, Assembly

P. Interchangeability of Parts

Old and new parts are only freely and fully interchangeable as a complete engine set.

2. Material Information

A. The kit required consists of the following parts:

None.

B. Parts to be reworked:

None.

C. New production parts:

72-41-15

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
01-200	6A8353	31	.Blade, Stage 3 - HP Compressor		6A5942	(A) (B) (S1)

D. Instruction Disposition Codes:

(A) New part will be available from January 2005.

(B) Old part will be discontinued.

(S1) Old and new parts are only interchangeable as a complete engine set.

3. Accomplishment Instructions

A. Rework Instructions

(1) None.

B. Assembly Instructions

(1) Refer to figure 1. New 6A8353 stage 3 HP compressor blades are only interchangeable as a complete set with existing stage 3 HP compressor blades.

(2) Assemble in accordance with approved procedures, Engine Manual, 72-41-10, 72-41-00, Assembly.

C. Recording Instructions

(1) A record of accomplishment is necessary.

HP Compressor Stage 3 Rotor Blade Family Tree

V2500 A5 and D5 Engines

Baseline

6A4188

V2500-ENG-72-0201
Engine - HP Compressor - Introduce A New Stage 3 Rotor Blade With A Cut Back Clapper

6A5942

V2500-ENG-70-0714
Information - Announcement Of Super Polished HP Compressor Blades And Vanes

6A7503

V2500-ENG-70-0726
Information - Announcement Of HP Compressor Blades And Vanes Without Super Polished Finish

6A5942

V2500-ENG-72-0481
Engine - HP Compressor Blades - Introduction Of Part Number To Re-identify EDM Manufactured Stage 3 Blades.

6A8398

V2500-ENG-72-0487
Engine - HP Compressor Blades - Introduction Of A Stage 3 Blade With A Revised Clapper

6A8353

ded0006062

HP Compressor Stage 3 Rotor Blade Family Tree
Fig. 1

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SERVICE BULLETIN

ENGINE - HP COMPRESSOR BLADES - INTRODUCTION OF A STAGE 3 BLADE WITH A REVISED CLAPPER - MOD 72-0487.

SUPPLEMENT - PRICES AND AVAILABILITY

Printed in Great Britain

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. New Production Parts:

Part No.	Desc.	Unit Price US Dollars
6A8353	Blade, Stage 3 - HP Compressor	1880.00