ENGINE - HP COMPRESSOR BLADES - INTRODUCTION OF REVISED LEFT HAND LOCK BLADES WITH INCREASED PLATFORM CROP - CATEGORY CODE 6 - MOD.ENG-72-0284

1. Planning Information

A. Effectivity

(1) Aircraft:
(a) Airbus A319
(b) Airbus A320
(c) Airbus A321
(d) McDonnell Douglas MD-90

(2) Engines
(a) V2500-A1 Engines prior to Serial No.V0362
(b) V2522-A5 Engines prior to Serial No.V10350
(c) V2524-A5 Engines prior to Serial No.V10350
(d) V2527-A5 Engines prior to Serial No.V10350
(e) V2527E-A5 Engines prior to Serial No.V10350
(f) V2530-A5 Engines prior to Serial No.V10350
(g) V2533-D5 Engines prior to Serial No.V10350
(h) V2525-A5 Engines prior to Serial No.V20225
(i) V2528-D5 Engines prior to Serial No.V20225

B. Concurrent Requirements

None.

C. Reason

(1) Condition

The platform of the left lock blades of the HP compressor can crack.

The problem is caused by excited platform vibration-modes which result in High Cycle Fatigue (HCF) cracks. The cracks start from the lock slot at the bottom of the platform overhang.

(2) Background

The problem has been found on two development engines and V2500 engines in service.

(3) Objective

The purpose of this modification is to maintain reliability.

(4) Substantiation

A satisfactory engineering analysis has been done on the changes in this Service Bulletin. The changes have solved the problem on the left lock blades of the stage 12 on A5 and D5 models.

(5) Effect of Bulletin on Workshop Procedures:

Removal/Installation	Not affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Not affected
Repair	Not affected
Testing	Not affected

(6) Supplemental Information

None.

D. Description

(1) The changes introduced are:

(a) A1 Model

The left lock blades for stages 10, 11 and 12 have changed. To reduce the amount of overhang on the blade platform, the crop has been increased.

A5 and D5 Models

The left lock blades for stages 9, 10 and 11 have changed. To reduce the amount of overhang on the blade platform, the crop has been increased.

(2) A1 Model

Stage 10, 11 and 12 left lock blades can be reworked, refer to Figures 1 and 2.

A5 and D5 Models

Stage 9, 10 and 11 left lock blades can be reworked, refer to Figures 1 and 2.

E. Approval

The part number and/or part modification are given in Section 2 and 3 of this Service Bulletin. They obey the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model listed.

F. Compliance

Category Code 6

This Service Bulletin can be done when the sub-assembly (that is modules, accessories, components, build groups) is disassembled sufficiently to get access to the affected parts.

G. Manpower

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

	Venue	Estimated Man-hours
(1)	In service	Not applicable
(2)	At overhaul	No additional time is necessary to do this Service Bulletin

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) See "Material Information" section for prices and availability of spares.

I. Tooling - Price and Availability

Special tools are not necessary

J. Weight and Balance

(1)	Weight change	None
(2)	Moment arm	No effect
(3)	Datum	Engine front mount centreline (Power Plant Station - PPS 100)

K. Electrical Load Data

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

L. References

(1) Internal Reference No.

EC95VR013

M. Other Publications Affected

(1) Illustrated Parts Catalog (IPC), Chapter/Section 72-41-15.

(2) V2500-A1, A5 or D5 Engine Manual (EM), Chapter/Section 72-00-41, Removal/Installation, 72-41-00 and 72-41-10, Disassembly/Assembly and 72-41-15 Inspection/Check.

2. Accomplishment Instructions

A. Rework Instructions

(1) Rework the parts that follow (A1 Engine)

6A5639, blade, locking LH compressor HPST10 (Refer to 72-41-15,02-570)
6A5641, blade, locking LH compressor HPST11 (Refer to 72-41-15,02-670)
6A5643, blade, locking LH compressor HPST12 (Refer to 72-41-15,02-770)

Standard Equipment

Chemical cleaning equipment
0.118in. (2,99 mm) slip
Grinding machine
Standard workshop equipment
Penetrant crack test equipment
Vibro-engraving equipment

Consumable materials

CoMat 06-022 Fluorescent penetrant

	Procedure	Supplementary Information
(a)	Chemical clean the blades	Use chemical cleaning equipment
(b)	Install the fixture on to the machine	Use IAE 3R19350 fixture and grind (6A5639), 1 off or IAE 3R19352 fixture and grind (6A5643), 1 off as necessary with a grinding machine
(c)	Set the height of the grinding fixture	Use a 0.118in. (2,99 mm) slip
(d)	Install the rotor blade in the grinding fixture	Make sure the rotor blade is installed correctly

CAUTION: CARE MUST BE TAKEN TO MAKE SURE THAT NO MARKS FROM THE PLATFORM MACHINING ARE ON THE ROTOR BLADE DOVETAIL.

(e)	Grind back the rotor blade platform, where shown	See Figure 2 and 3, as necessary, Use a grinding machine
(f)	Remove sharp edges	See Figure 2 and 3. Use standard workshop equipment
(g)	Etch the repaired area with cold ferric chloride	Refer to SPM TASK 70-11-39-300-503, SUBTASK 70-11-39-300-001. Use chemical cleaning equipment

(h)	Do a local penetrant crack test on the repaired area	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant, with penetrant crack test equipment. Cracks are not permitted
(i)	Measure the dimensions	See Figures 2 and 3, as necessary
(j)	Cancel the old part number and identify with the new part number	Old Part No. / New Part No. 6A5639 / 6A6563 6A5641 / 6A6564 6A5643 / 6A6565 Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001. Use vibro-engraving equipment

(2) Rework the parts that follow (A5/D5 Engines)

6A4726, blade, locking LH compressor HPST9 (Refer to 72-41-15,02-470)
6A4727, blade, locking LH compressor HPST10 (Refer to 72-41-15,02-570)
6A4728, blade, locking LH compressor HPST11 (Refer to 72-41-15,02-670)

Standard Equipment

Chemical cleaning equipment
0.118in. (2,99 mm) slip
Grinding machine
Standard workshop equipment
Penetrant crack test equipment
Vibro-engraving equipment

Consumable materials

CoMat 06-022 Fluorescent penetrant

	Procedure	Supplementary Information
(a)	Chemical clean the blades	Use chemical cleaning equipment
(b)	Install the fixture on to the machine	Use IAE 3R19353 fixture, grind (6A4726), 1 off or IAE 3R19356 fixture and grind (6A4728), 1 off as necessary with a grinding machine
(c)	Set the height of the grinding fixture	Use a 0.118in. (2,99 mm) slip
(d)	Install the rotor blade in the grinding fixture	Make sure the rotor blade is installed correctly

CAUTION: CARE MUST BE TAKEN TO MAKE SURE THAT NO MARKS FROM THE PLATFORM MACHINING ARE ON THE ROTOR BLADE DOVETAIL.

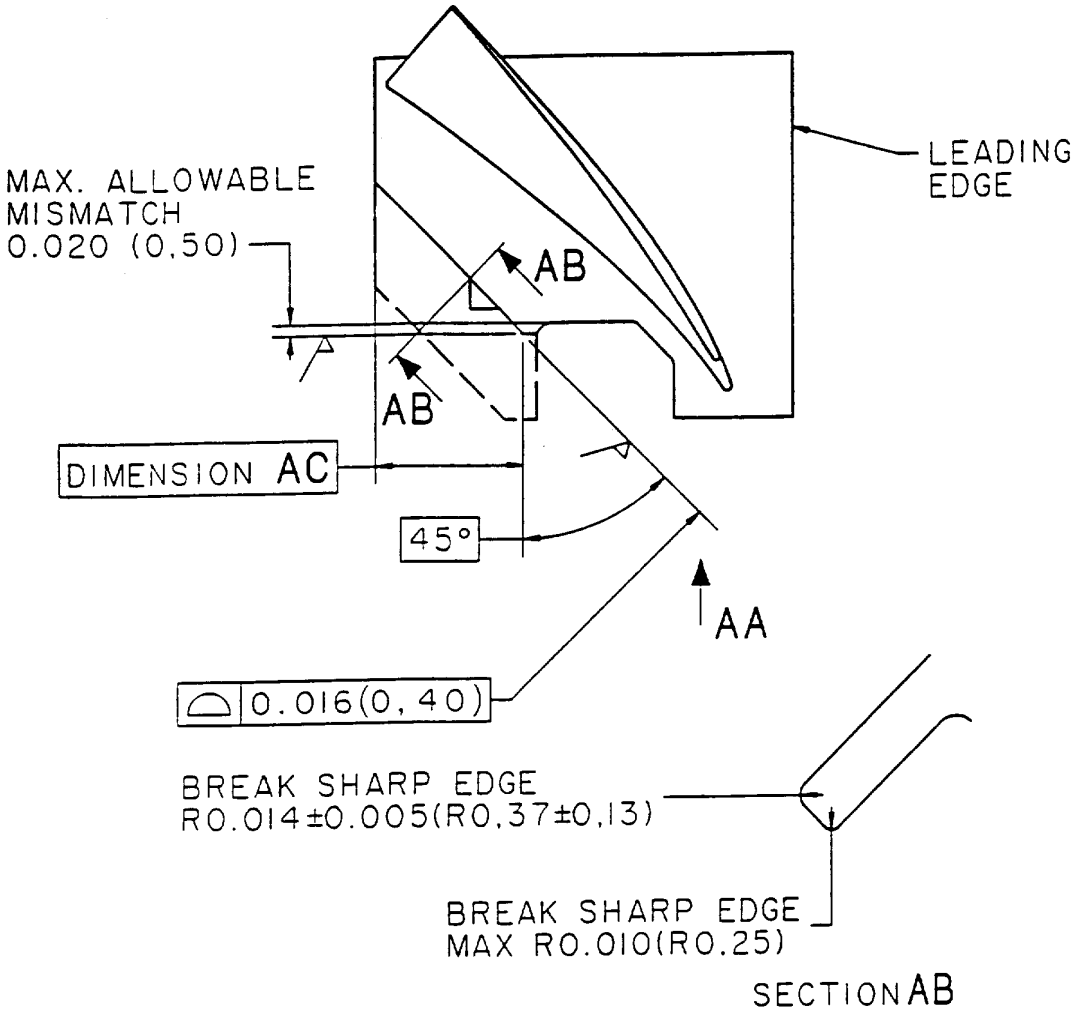
(e)	Grind back the rotor blade platform, where shown	See Figure 2 and 3, as necessary, Use a grinding machine
(f)	Remove sharp edges	See Figure 2 and 3. Use standard workshop equipment
(g)	Etch the repaired area with cold ferric chloride	Refer to SPM TASK 70-11-39-300-503, SUBTASK 70-11-39-300-001. Use chemical cleaning equipment
(h)	Do a local penetrant crack test on the repaired area	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant, with penetrant crack test equipment. Cracks are not permitted
(i)	Measure the dimensions	See Figures 2 and 3, as necessary
(j)	Cancel the old part number and identify with the new part number	Old Part No. / New Part No. 6A4726 / 6A6566 6A4727 / 6A6567 6A4728 / 6A6568 Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001. Use vibro-engraving equipment

B. Assembly Instructions

For the correct removal/installation procedures, refer to applicable V2500 Engine Manual (EM), Chapter/Section 72-41-00, Disassembly/Assembly.

C. Recording Instructions

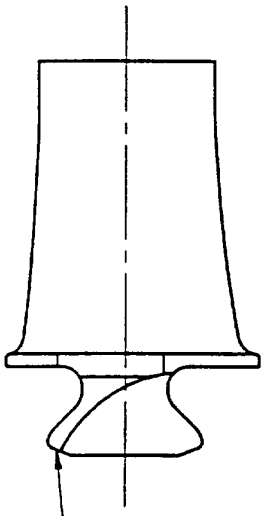
(1) A record of accomplishment is necessary.



ALL DIMENSIONS ARE IN INCHES (MILLIMETRES).
ANGULAR DIMENSIONS ARE IN DEGREES AND DECIMAL PARTS OF A DEGREE.
MACHINE SURFACE FINISH TO BE 125 MICROINCHES (3,2 MICROMETRES) U.O.S
MACHINE WHERE MARKED ✓
BREAK SHARP EDGES 0.012(0,30)±0.008(0,20) U.O.S.

ded0002303

Rework of initial HP compressor LH lock blades
Fig.1



CARE MUST BE TAKEN TO ENSURE THAT NO WITNESS OF PLATFORM MACHINING APPEARS ON DOVETAIL

VIEW ON ARROW AA

PART N°	DIM. AC
6A6563	0.2538 (6,448)
6A6564	0.2694 (6,845)
6A6565	0.2320 (5,895)
6A6566	0.2699 (6.857)
6A6567	0.2451 (6,227)
6A6568	0.2146 (5,453)

LH lock blades - View on arrow AA
Fig.2

3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None

B. Parts affected by this Bulletin:

New Part No. (ATA No.)	Qty	Est'd Unit Price ($)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
A1 Model					
6A6563 (72-41-15)	2	300.00	Blade, stage 10 - Lock - LH, HPC	6A5639 (02-570)	(A)(B)(S1) (1D)
6A6564 (72-41-15)	2	300.00	Blade, stage 11 - Lock - LH, HPC	6A5641 (02-670)	(A)(B)(S1) (1D)
6A6565 (72-41-15)	2	300.00	Blade, stage 12 - Lock - LH, HPC	6A5643 (02-770)	(A)(B)(S1) (1D)
A5 and D5 Models					
6A6566 (72-41-15)	2	333.00	Blade, stage 9 - Lock - LH, HPC	6A4726 (02-470)	(A)(B)(S1) (1D)
6A6567 (72-41-15)	2	333.00	Blade, stage 10 - Lock - LH, HPC	6A4727 (02-570)	(A)(B)(S1) (1D)
6A6568 (72-41-15)	2	333.00	Blade, stage 11 - Lock - LH, HPC	6A4728 (02-670)	(A)(B)(S1) (1D)

NOTE: The unit prices, if shown, are an estimate and they are given for the purpose of planning only. For information about actual prices, refer to the IAE Price Catalog or contact IAE's Spare Parts Sales Department.

C. Instructions Disposition Codes:

(A) New part is currently available.
(B) Old part will be discontinued,
(S1) Old and new parts are freely and fully interchangeable.
(1D) Old part may be reworked and re-identified to the new part number. See Figures 1 and 2.