ENGINE - H.P. COMPRESSOR - STAGE 9 COMPRESSOR ROTOR BLADE WITH CUT BACK PLATFORM - CATEGORY CODE 5 - MOD.ENG-72-0109

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320

(2) Engine: V2500 A1 Engines prior to Serial No.V0166 except V0164

B. Reason

(1) Condition

Stage 9 H.P. compressor rotor blade platforms have a resonant vibratory condition which may be induced by the stage 8 stator vanes.

(2) Background

A development engine endurance test and further static frequency testing has highlighted the need to increase the stage 9 H.P. compressor rotor blade platform resonance frequency.

(3) Objective

The changes incorporated in this Service Bulletin are designed to increase the reliability of the stage 9 H.P. compressor rotor blade.

(4) Substantiation

Stress modelling of the new stage 9 rotor blade revealed an increase in blade platform resonant frequency and a substantial reduction in stress levels.

As a result of the stress modelling work outlined above and the confirmation of the results by rig testing, it can be seen that the cut back on the blade platform will increase the blade reliability.

(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

C. Description

This Service Bulletin introduces stage 9 H.P. compressor rotor blades with the platform cut back at the trailing edge corner on the pressure side of the blade.

An additional dressing operation is required to radius the cusp created on the L.H. locking blade by the rear edge of the blade dovetail and the trailing corner at the locking slot.

D. 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 listed.

E. Compliance

Category code 5

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

F. Manpower

Estimated manhours to incorporate the full intent of this Bulletin:

	Venue	Estimated Manhours
(1)	In service	Not applicable
(2)	In shop	Total: 24 hours 12 mins
(3)	To gain access	Not applicable
		Total: 24 hours 12 mins

Remarks: Time allowed is for the machining of 90 off blades.

G. Material - Price and Availability

(1) Modification kit not required.

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

H. Tooling - Price and Availability

The following tool is required to accomplish Sub-division 2 of this Service Bulletin:

Special Tools:

Tool No.	Qty	Description	Function	Avail.
IAE 3R19009	1	Grinding fixture	Rework HPC Stage 9 Rotor Blades	(1)

(1) Indicates that Tool Design Aperture Cards are currently available from I.A.E.

I. Weight and Balance

(1) Weight change .. .. .. None

(2) Moment arm .. .. .. None

(3) Datum .. .. Engine front mount centerline (Power Plant Station (PPS)100)

J. Electrical Load Data

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

K. References

(1) Internal Reference No.

90VR023

L. Other Publications Affected

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

(2) V2500 Engine Manual, 72-41-15, Cleaning, Inspection/Check and Rework.

2. Acccomplishment Instructions

A. Rework Instructions

(1) Rework the following parts

6A3252, blade, locking L.H. comp HPST9 (Refer to 72-41-15, Fig./Item 02-470)
6A3253, blade, locking L.H. comp HPST9 (Refer to 72-41-15, Fig./Item 02-485)
6A3251C01, blade, comp HPST9 (Refer to 72-41-15, Fig./Item 02-500)
6A3251C01, blade, comp HPST9 (Refer to 72-41-15, Fig./Item 02-515) and
6A3251C02, blade, comp HPST9 (Refer to 72-41-15, Fig./Item 02-517) and identify as follows:

Standard Equipment

0.1in. (2,54 mm) slip
Grinding machine
Basic workshop tools
Vibro-engraving equipment

Consumable Materials

Not necessary

Procedure		Supplementary Information
(a)	Install fixture onto the table of an applicable grinding machine	Use IAE 3R19009 grinding fixture, 1 off
(b)	Set height of grinding fixutre	Use a 0.1in. (2,54 mm) slip
(c)	Install blade onto fixture	
(D)	Cut back blade platform where shown	See Figures 2, 4 or 5 as applicable
(e)	Remove sharp edges	See Figures 2, 3, 4 or 5 as applicable. Use basic workshop tools
(f)	Remove material to form radii on L.H. locking blade	See Figures 2 and 3 as applicable. Use basic workshop tools
(g)	Measure the dimensions	See Figures 2, 3, 4 or 5 as applicable

(h) (i) This procedure is alternative to step (h)(ii). Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001. Old Part No. — New Part No. 6A3252 — 6A4366 6A3253 — 6A4367 6A3251C01 — 6A4365C01 6A3251C02 — 6A4365C02	
(ii) This procedure is alternative to step (h)(i). It is permissible to re-identify the blade by adding the symbol as shown in Figure 6. Do not delete the existing part number if you use this procedure.	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.	

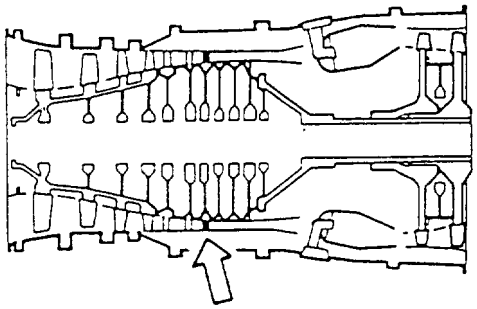
B. Assembly Instructions

(1) New 6A4366, 6A367, 6A4365C01 and 6A4365C01 or C02 stage 9 H.P. compressor blades are only interchangeable as a COMPLETE SET with in use blades.

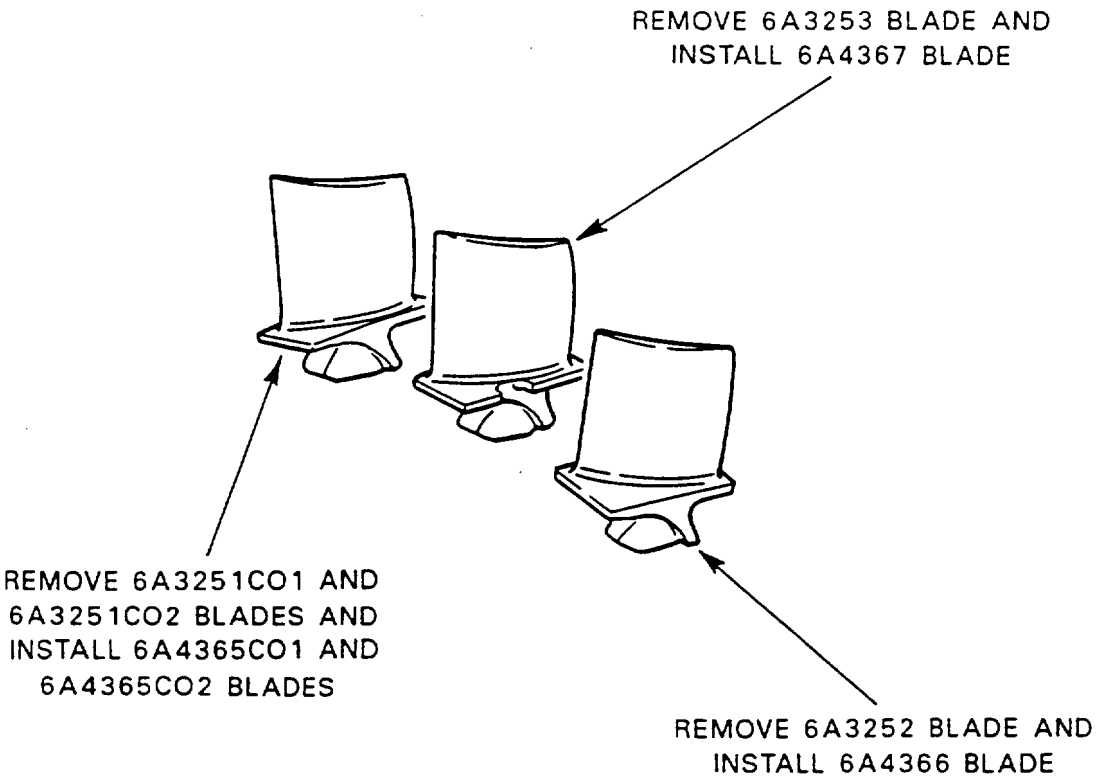
(2) Assemble new or re-identified 6A4366, 6A4367, 6A365C01 and 6A4365C01 or C02 stage 9 H.P. compressor blades by use of approved procedures, Engine Manual, 72-41-10, Assembly.

C. Recording Instructions

(1) A record of accomplishment is necessary.



MODULE 40



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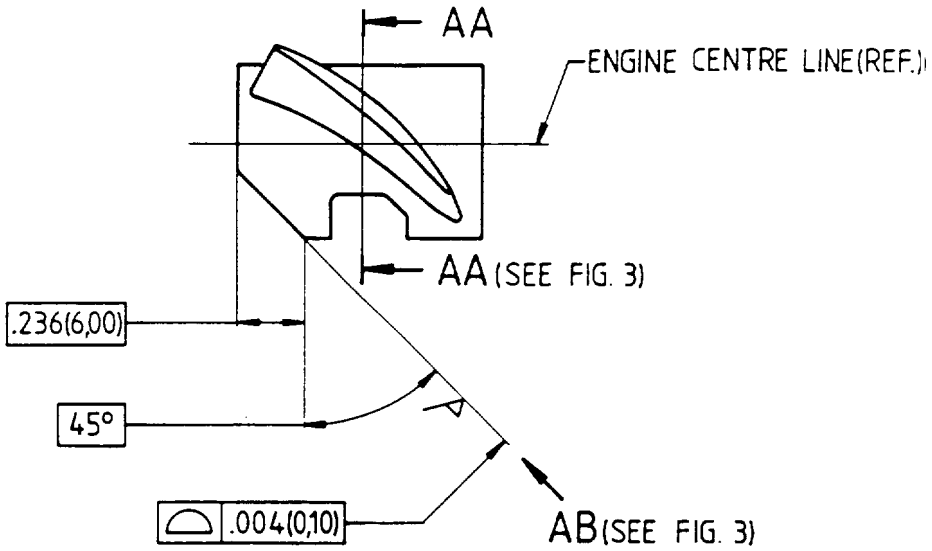
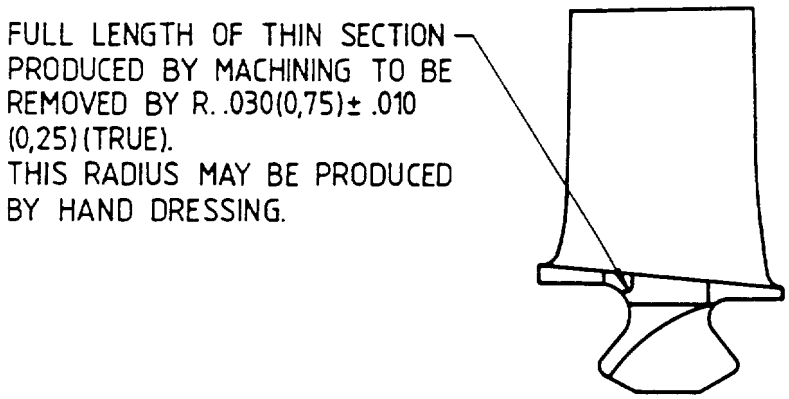
Location of stage 9 compressor blade
Fig.1





ALL DIMENSIONS ARE IN INCHES(MILLIMETRES)
ANGULAR DIMENSIONS ARE IN DEGREES AND DECIMAL PARTS OF A DEGREE.
GEOMETRIC SYMBOLS CONFORM TO I.S.O. R1101-1969.
MACHINE SURFACE FINISH TO BE 125 MICROINCHES(3,2 MICROMETRES) U.O.S.
MACHINE WHERE MARKED ✓
BREAK SHARP EDGES .012(0,30) ± .008(0,20) U.O.S.

REWORKING OF EXISTING H.P. COMPRESSOR

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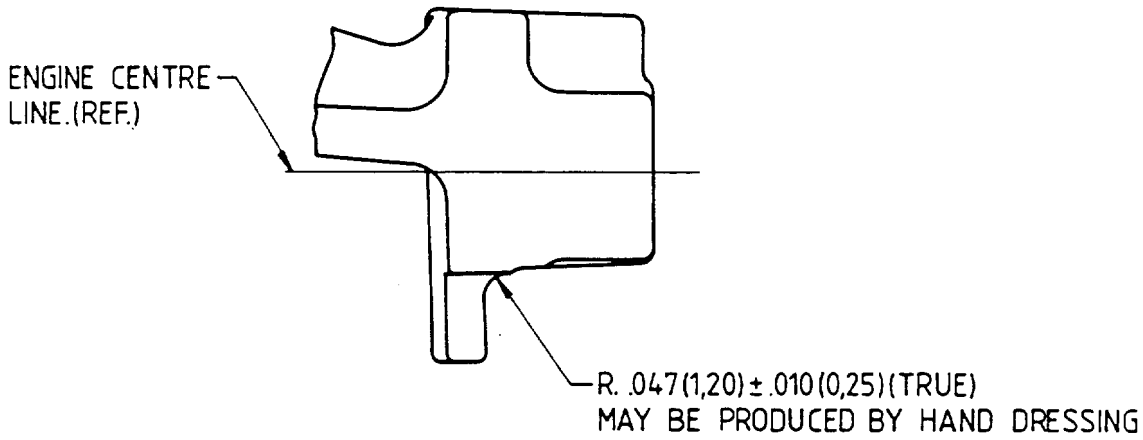
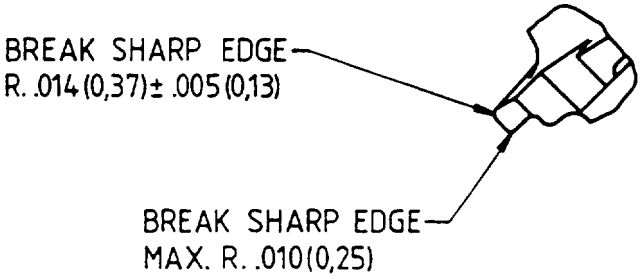
H.P. compressor stage 9 left-hand locking plates
Fig.2



SECTION AA (SEE FIG. 2)



VIEW → AB (SEE FIG. 2)

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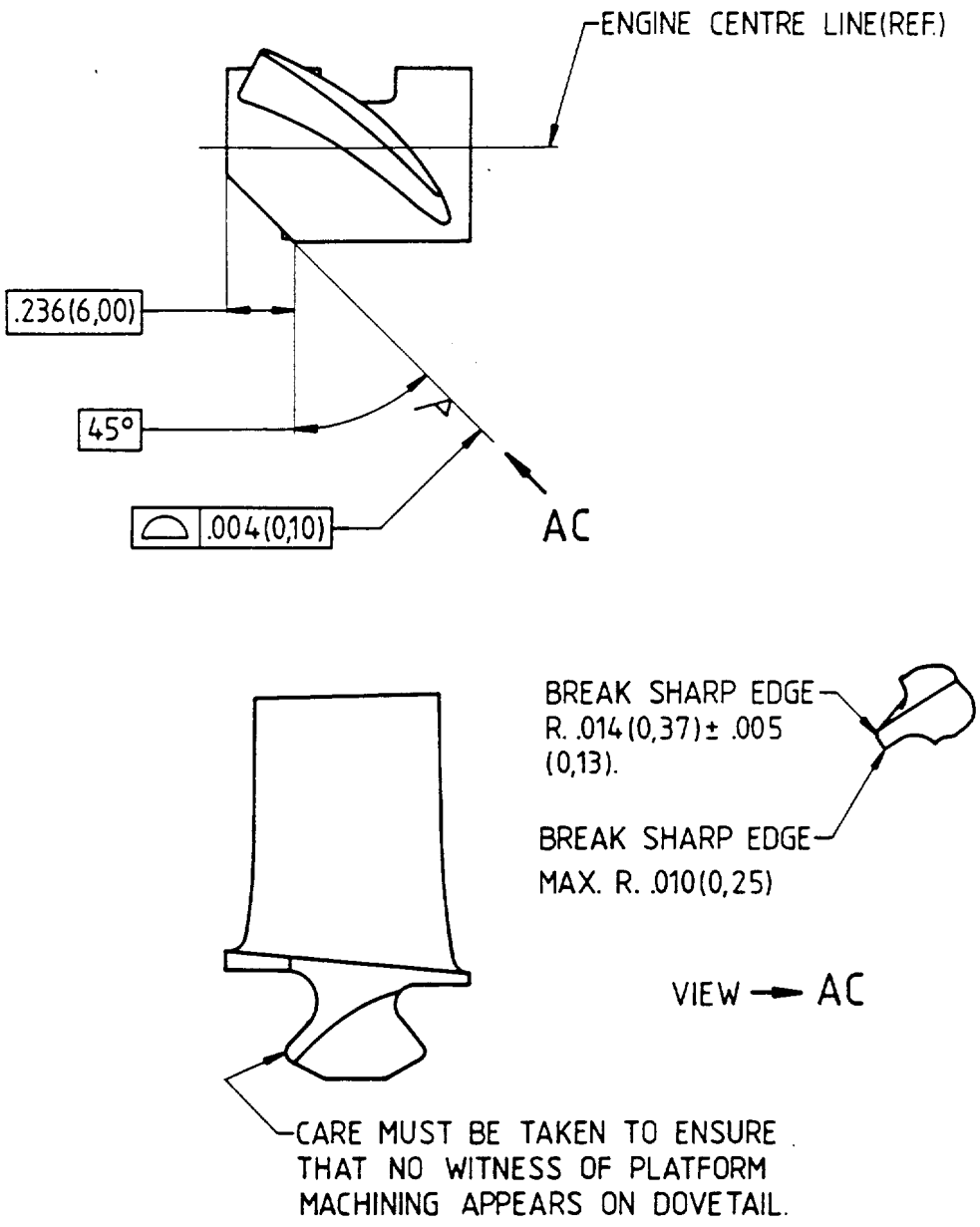
H.P. compressor stage 9 left-hand locking blades
Fig.3



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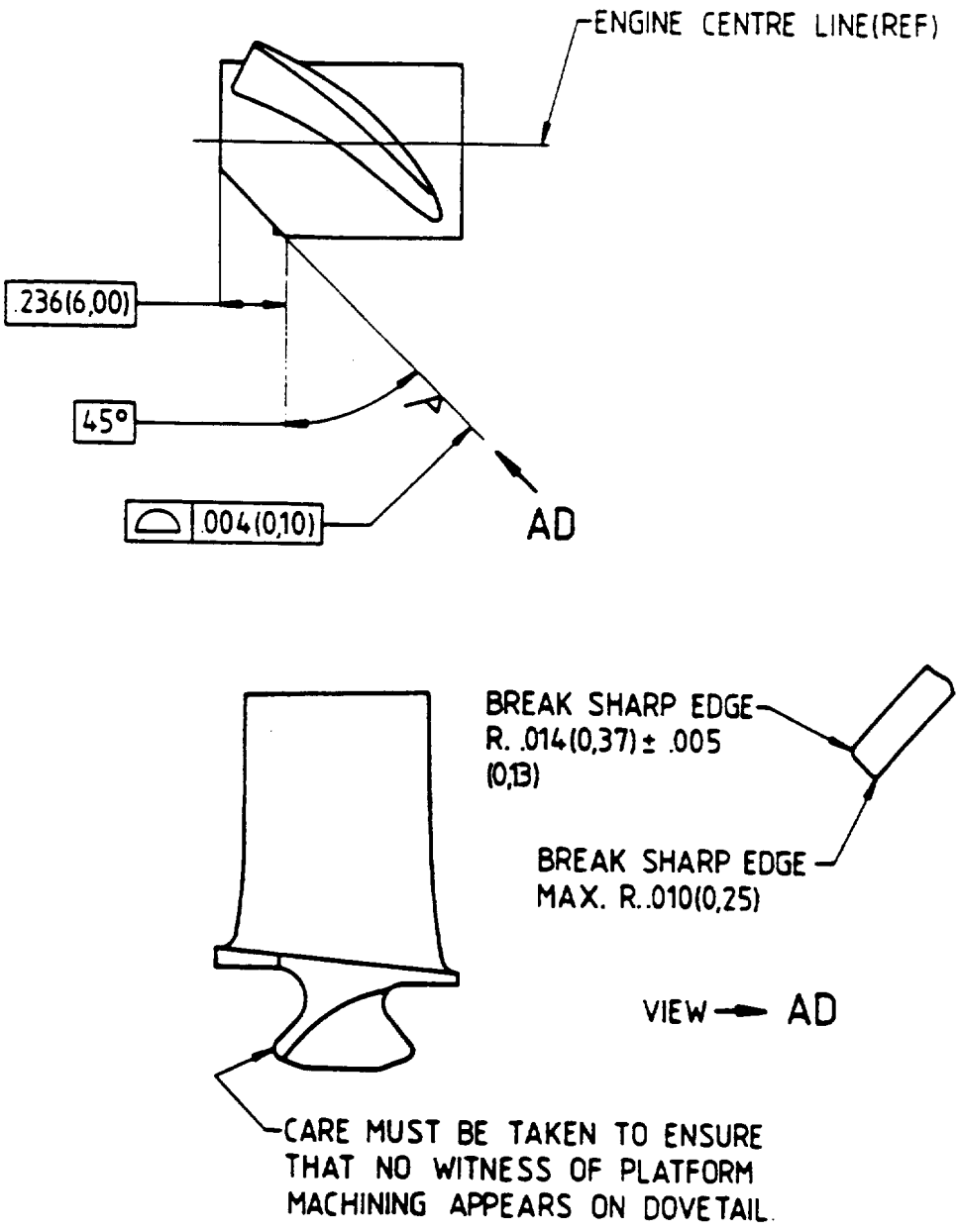
H.P. compressor stage 9 right-hand locking blades
Fig.4



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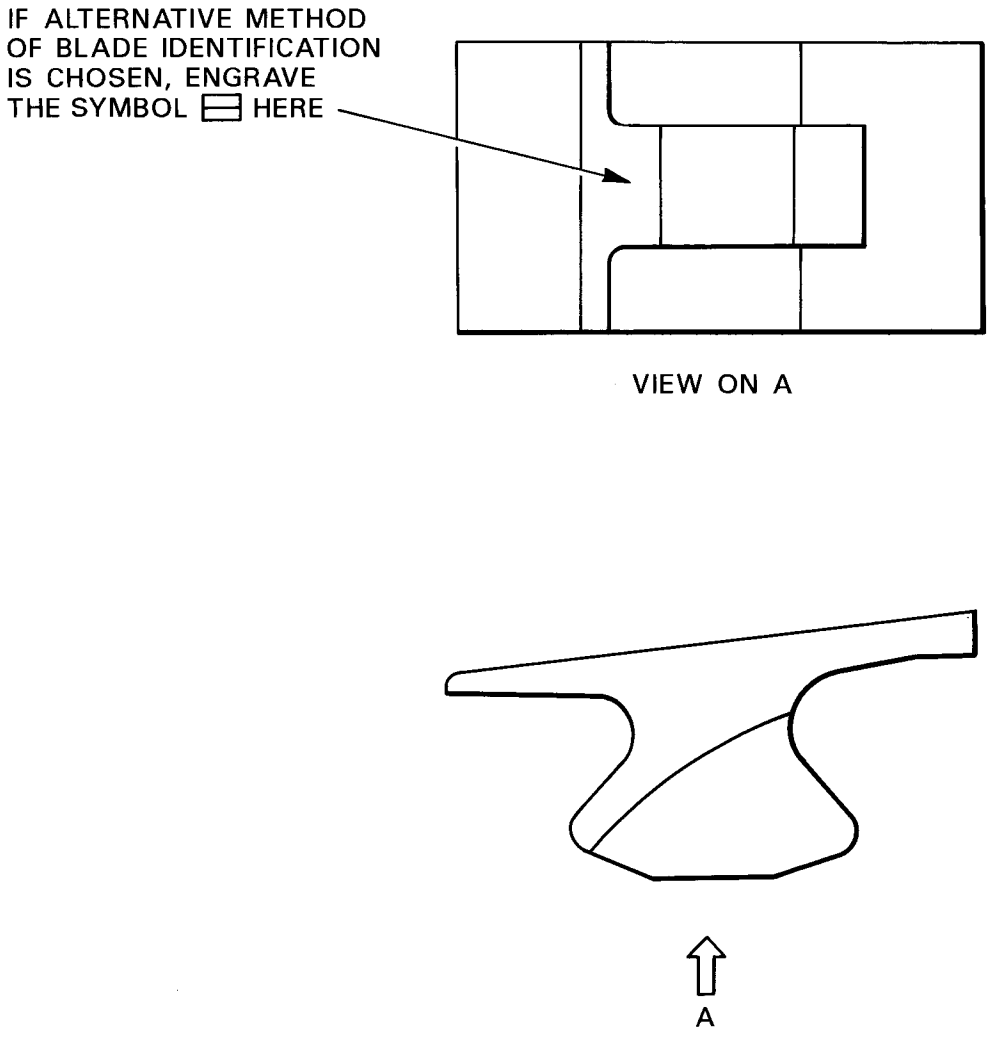
H.P. compressor stage 9 blades (C01 and C02)
Fig.5



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Reworking of existing stage 9 rotor blades
Fig.6

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
6A4366 (72-41-15)	2		Blade, lckng LH comp HPST 9	6A3252 (02 470)	(A)(B)(S1) (1D)
6A4367 (72-41-15)	2		Blade, lckng LH comp HPST 9	6A3253 (02 485)	(A)(B)(S1) (1D)
6A4365C01 (72-41-15)	64		Blade, Comp HP STG 9	6A3251C01 (02 500)	(A)(B)(S1) (1D)
6A4365C01 (72-41-15)	25		Blade, Comp HP STG 9	6A3251C01 (02 515)	(A)(B)(S1) (1D)
6A4365C02 (72-41-15)	25		Blade, Comp HP STG 9	6A3251C02 (02 517)	(A)(B)(S1) (1D)

C. Instructions/Disposition Code Statements:

(A) New part currently available.
(B) Old part is no longer available.
(S1) New parts coded (S1) must replace old parts (S1) as a COMPLETE SET per engine.
(S2) Alternative parts.
(1D) Old part may be reworked and re-identified to the new part number.

NOTE: The estimated 1991 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Pricing Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.