ENGINE - HPC SHAFT - INCREASED LIFE REAR SHAFT - CATEGORY CODE 6 - MOD.ENG-72-0068

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320

(2) Engine: V2500-A1 Engines serial No.s before V0114 except V0102, V0104, V0106, V0107, V0108, V0110, V0111 and V0112.*

* The modification specified in V2500-ENG-72-0041 must be incorporated concurrently with this modification. To get the increase in the cycle life limit the modification specified in this Bulletin must be performed before the Rear Shaft Assembly reaches 5000 cycles.

B. Reason

(1) Condition

(1) The cycle life limit for the HPC shaft is less than it could be, because of an overweight condition which can cause stress around the bolt holes in the mini-disk flange.

(2) Background

The removal of metal from some areas on the HPC shaft reduces radial stresses and, as a result, the cycle life limit of the disk assembly can be increased.

(3) Objective

To increase the cycle life limit for the HPC shaft.

(4) Substantiation

This Service Bulletin has been substantiated anlytically and received FAA approval based on an approved lifing methodology.

(4) Effects 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) Supplmental Information

None

C. Description

(1) The axial length of the hammerhead on the mini-disk is reduced from the front face.

(2) The hard coating on the mini-disk outside diameter is deleted.

(3) A 40 degree chamfer is added to the front of the mini-disk.

(4) The outside diameter of the mini-disk is decreased for a part of its length and the remainder has relaxed tolerances.

D. Approval

The Part Number chambes and/or part modifications described in Sections 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 6

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

F. Manpower

Estimated manhours to incorporate the intent of this bulletin:

Venue	Estimated Manhours
(1) In service	Not applicable
(2) At overhaul (Note: The parts affected by this Service Bulletin are accessible at overhaul).	
(a) To accomplish the modification of the HPC Shaft Assembly	2 hours, 35 minutes

Total: 2 hours, 35 minutes

G. Material - Price and Availability

(1) Modification Kit not required.

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

H. Tooling - Price and Availability

Special tools are not required.

I. Weight and Balance

(1)	Weight change	Minus 0.7 lb (0,34 Kg)
(2)	Moment arm	29.2in (742 mm) rearward
(3)	Datum	Engine Front Mount Centreline (Powerplant Station P.P.S. 100)

J. Electrical Load Data

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

K. References

(1) Internal Reference No.

88VR020

(2) Other references

V2500-ENG-72-0041 (Engine - HP Compressor Introduction of Rear Brush Seal with a Reduced Diameter and a Stepped Inner Seal).

V2500 Illustrated Parts Catalog.

V2500 Engine Manual.

V2500 Standard Practices Manual.

L. Other Publications Affected

(1) The V2500 Illustrated Parts Catalog, Chapter/Section 72-41-13, Figure 1.

(2) The V2500 Engine Manual, Chapter/Section 72-41-13, Cleaning, to add the new parts.

(3) The V2500 Engine Manual, Chapter/Section 72-41-13, Inspection/Check, to add the new parts.

(4) The V2500 Engine Manual, Chapter/Section 72-41-13, Repair, to add the new parts.

(5) The V2500 Engine Manual, Chapter/Section 5-10-01, Group A Part Lives, to add the cycle life limits for the new parts.

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2. Accomplishment Instructions

A. Rework Instructions

(1) Do a modification to 2A1386 HPC Rear Shaft (see Reference (2) Chapter/Section 72-41-13, Figure/Item No.01-900) and identify as follows:

	Procedure	Supplementary Information
(a)	Set-up and machine the outside diameter and the front axial face of the mini-disk at the locations specified	Refer to Figure 2, Sheets 1 and 2, requirements.
(b)	Make a mark adjacent to the old part number to show the new part number. Use the vibro peen method.	Old Part Number 2A1386 New Part Number 2A1990 Refer to Reference (4), Control No./Task No. 70-09-00-400-501, Marking of Parts.

NOTE: The part number is to be followed by the letters "Assy".

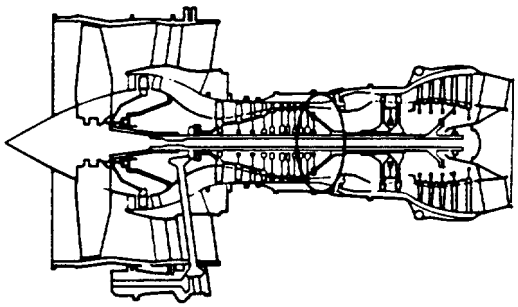
B. Assembly Instructions

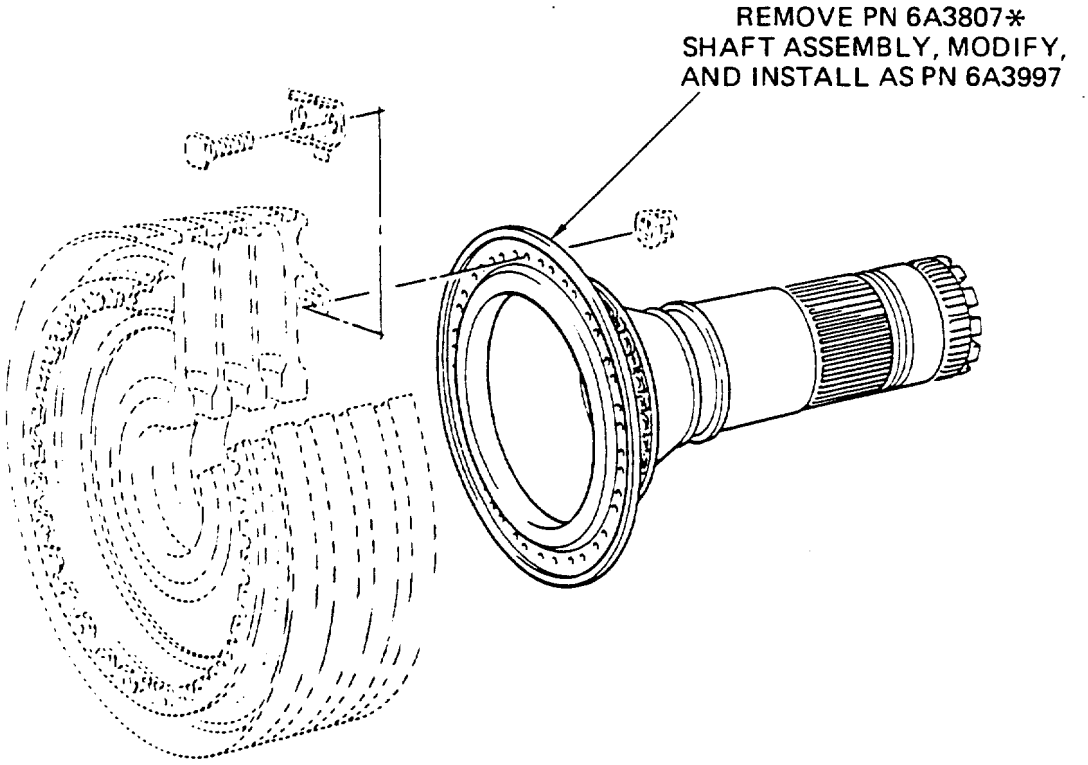
(1) Assemble the HP Compressor Rear Shaft Assembly by the approved procedure specified in Reference (3), Chapter/Section 72-41-13, Sub-Assembly.

(a) Identify the modified 6A3807 HPC Shaft Assembly as 6A3997. Use the vibro peen method given in Reference (4), Task No.70-09-00-400-501, Marking of Parts.

C. Recording Instructions

(1) A record of accomplishment is necessary.

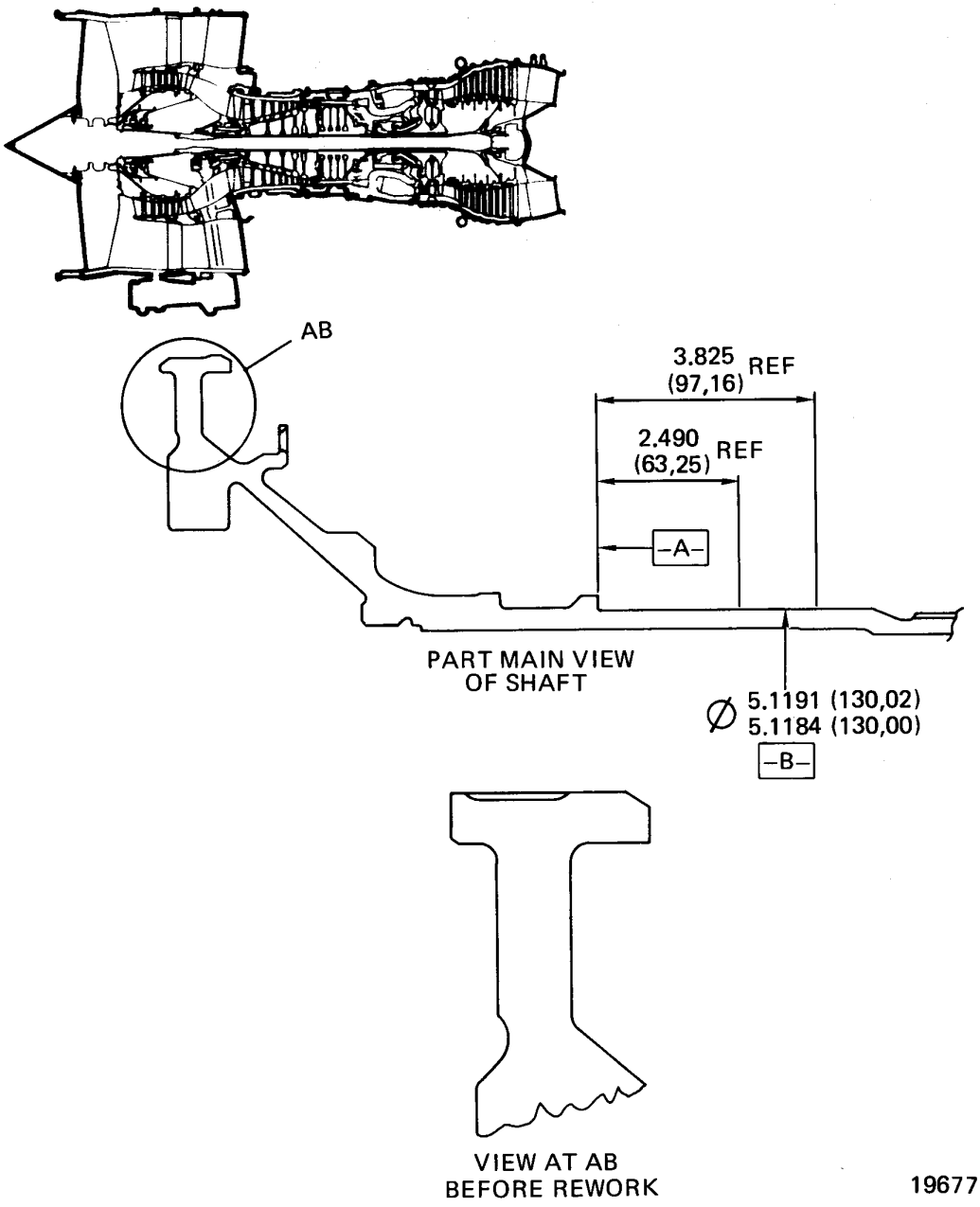




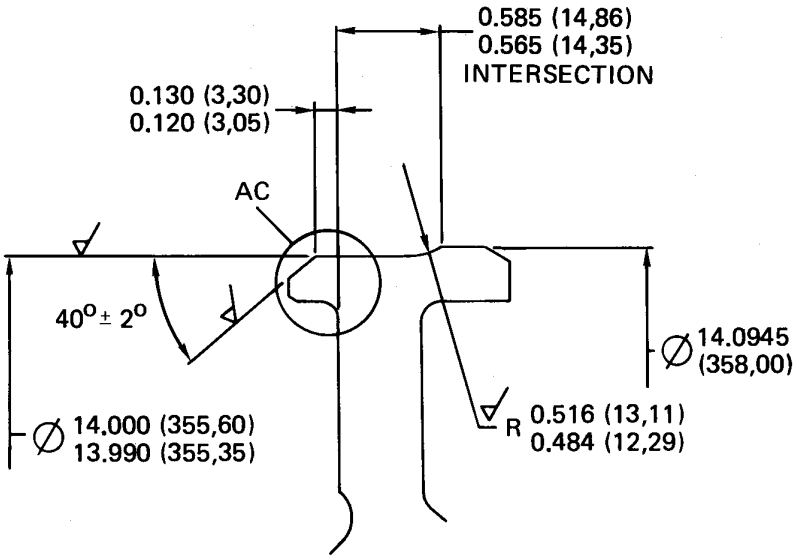
*NOTE: PN 6A3807 SHAFT ASSEMBLY CAN ALSO BE REPLACED BY PN 6A3974 (WHICH IS NOT OBTAINED BY MODIFICATION)

19676

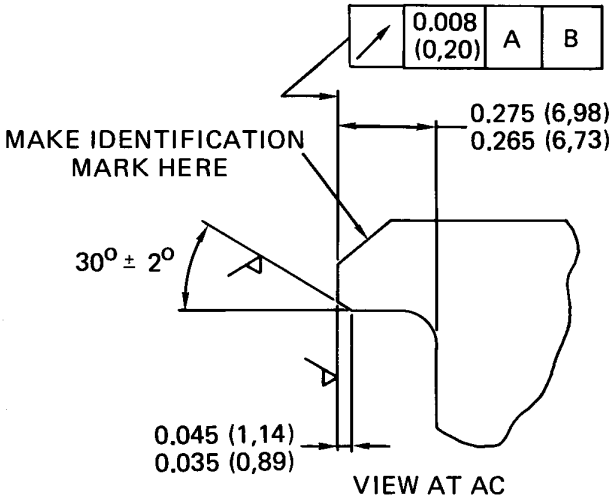
Location of HPC rear shaft
Fig.1



Modification of rear HP compressor shaft assembly
Fig.2 Sheet 1 of 2



VIEW AT AB
AFTER REWORK



VIEW AT AC

NOTE: BREAK ALL SHARP EDGES 0.005–0.015 (0,13–0,38)
UNLESS DIFFERENTLY SPECIFIED ALL MACHINED
SURFACES HAVE A FINISH OF 125 MICROINCHES 3,2 MICROMETERS) 19678

Modification of rear HP compressor shaft assembly
Fig.2 Sheet 2 of 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
6A3974 (72-41-13)	1		Shaft Assembly, Rear - HPC	6A3807 (01-850)	(S1)(A) (B)
2A1967 (72-41-13)	1		.Shaft - Rear HPC	2A1386 (01-900)	(C)
6A3997 (72-41-13)	1		Shaft Assembly, Rear - HPC	6A3807 (01-850)	(S1)(1D)
2A1990 (72-41-13)	1		.Shaft - Rear HPC	2A1386 (01-900)	(1D)(C)

C. Instruction/Dispostion Code Statements:

(S1) All Old and New Parts Coded (S1) are freely and fully interchangeable.
(1D) A modification can be made to the Old Part Number and it can identified as the New Part Number.
(A) New Part currently available for sale.
(B) Old Part will no longer be available for sale.
(c) Part is a nonprovisioned item not normally stocked as a spare item.

NOTE: The estimated 1990 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Price Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.