International Aero Engines

SERVICE BULLETIN

ENGINE - HP TURBINE ROTOR AND STATOR ASSEMBLY - PROVIDE NEW STAGE 2 HIGH PRESSURE TURBINE VANES - CATEGORY CODE 8 - MOD.ENG-72-0259

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A319, A320, A321

McDonnell Douglas MD-90

(2) Engine: V2522-A5 Engines before Serial No. V10228
V2524-A5 Engines before Serial No. V10228
V2527-A5 Engines before Serial No. V10228
V2530-A5 Engines before Serial No. V10228
V2525-D5 Engines before Serial No. V20110
V2528-D5 Engines before Serial No. V20110

NOTE: This Service Bulletin must be incorporated at the same time as or after Service Bulletins V2500-ENG-72-0236 and, V2500-ENG-72-0237 specified in Reference (1).

B. Reason

(1) Condition

Potentially high operating temperatures in the front and rear knife edge cavities of the high pressure turbine scond stage air seal.

(2) Background

The possibility of increased high pressure turbine second stage air seal knife edge clearances in overhauled engines can lead to ingestion of hot, flowpath gases into the front and rear air seal cavities. This ingestion increases the operating temperatures of the second stage air seal and the second stage disk in the blade attachment area. An interim change to the second stage vanes was provided by V2500-ENG-72-0237, which increased the flow of cooling air being fed to the second stage air seal cavities through the vanes by providing an aditional machined-in hole adjacent to the cast-in cooling air feed hole.

(3) Objective:

Increase the flow of cooling air being fed to the second stage air seal cavities by providing a new second stage vane which incorporates a larger cast-in cooling air feed hole to replace the interim vane configuration with the additional machined-in hole.

(4) Substantiation

Design validation was successfully completed on a test engine followed by successful completion of 1000 endurance cycles and a pre-endurance calibration run.

(5) 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) Supplemental Information

None.

C. Description

(1) Replace the Stage 2 HPT Vanes which have machined-in cooling holes with Stage 2 HPT Vanes cast-in larger cooling holes.

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 8

Accomplish based upon experience with the prior configuration.

F. Manpower

Estimated manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In service	Not applicable
(2) At overhaul	Not applicable

G. Material - Price and Availability

(1) Modification kit is not required. Parts are supplied as single line items.

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

H. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

I. Weight and Balance

(1)	Weight change	None
(2)	Moment arm	No effect
(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.

95VA021I

(2) Other references

V2500-ENG-70-0428 - Engine - HP Turbine Rotor and Stator Assembly - To Announce The availability of New Stage 2 Turbine Vanes.

V2500-ENG-72-0236 - Engine - HP Turbine Rotor and Stator Assembly - Provide a New Orifice Plate With An Increased Opening size

V2500-ENG-72-0237 - Engine - HP Turbine Rotor and Stator Assembly - Provide New Stage 2 HPt Vanes

V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-24

V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-24

V2500 Engine Manual (E-V2500-1IA), 72-45-20 Assembly and 72-45-24, Cleaning, Inspection and Repair.

V2500 Engine Manual (E-V2500-3IA), 72-45-20 Assembly and 72-45-24, Cleaning, Inspection and Repair.

L. Other Publications Affected

(1) V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-24, Cleaning to add the new part number.

(2) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-24, Cleaning to add the new part number.

(3) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-24, Inspection to add the new part number.

(4) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-24, Inspection to add the new part number.

(5) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-24, Repair to add the new part number (VRS 3391).

(6) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-24, Repair to add the new part number (VRS 3391).

2. Accomplishment Instructions

A. Replace the 2A3832 Stage 2 HPT Vane Assembly (2 off) with the 2A340Z Stage 2 HPT Vane Assembly when you assemble the new Stage 2 HPT Ring Segment and Vane Cluster Assembly by the procedure specified in Reference (4) or (5), Chapter/Section 72-45-24 Repair 18 (VRS 3391).

NOTE: 2A3812 Ring Segment and Vane Cluster Assemblies can contain the Stage 2 HPT Vane Assembly or combination of Stage 2 HPT Vane Assemblies specified in Table 1, however, this Service bulletin is incorporated once a complete set of the new parts specified in step A. is installed.

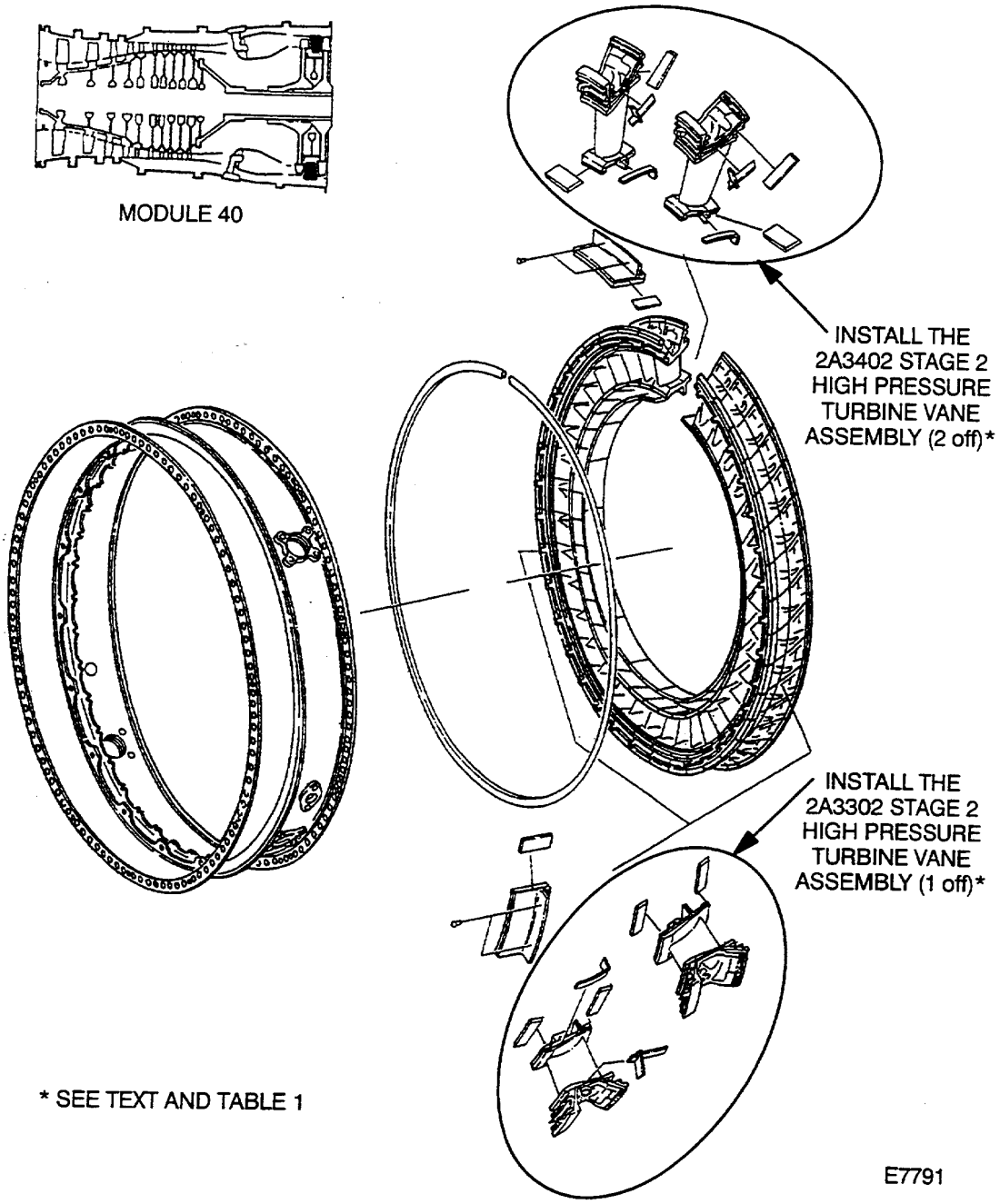
B. Replace the 2A3842 Stage 2 HPT Vane Assembly (1 off) with the 2A330Z Stage 2 HPT Vane Assembly when you assemble the new Stage 2 HPT Ring Segment and Vane Cluster Assembly by the procedure specified in Reference (4) or (5), Chapter/Section 72-45-24 Repair 18 (VRS 3391).

NOTE: 2A3822 Ring Segment and Vane Cluster Assemblies can contain any of the combinations of Stage 2 HPT Vane Assemblies specified in Table 1, however, this Service Bulletin is incorporated once a complete set of the new parts specified in step B. is installed.

Ring Segment & Vane Cluster Assy.	Stage 2 HPT Vane Assy.	Quantity
2A3812	2A340Z	(2 off)
	OR	
	2A3832	(1 off)
	&	
	2A340Z	(1 off)
2A3822	2A3842	(1 off)
	&	
	2A340Z	(1 off)
	OR	
	2A3832	(1 off)
	&	
	2A330Z	(1 off)
	OR	

2A3832	(1 off)
&	
2A3402	(1 off)

TABLE 1



Location of the Stage 2 High Pressure Turbine (HPT) Vane Assemblies
Fig.1

3. Material Information

A. Kits associated with this Bulletin:

None

B. Parts affected by this Bulletin:

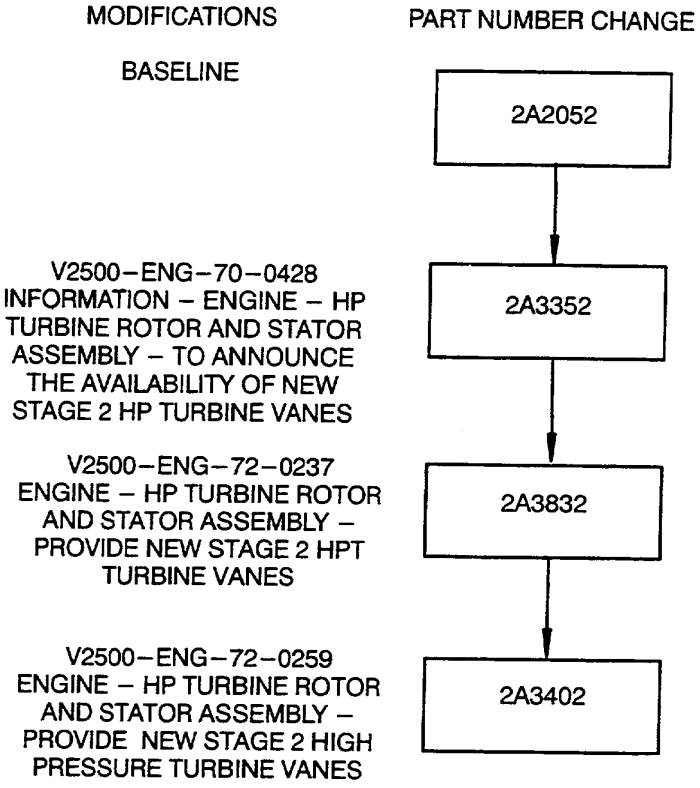
New Part No. (ATA No.)	Qty	Est'd Unit Price ($)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
Applicability: For each V2522-A5, V2524-A5, V2527-A5, V2530-A5, V2525-D5, V2528-D5 Engine to incorporate this Bulletin.					
2A3402 (72-45-24)	2		Stage 2 HPT Vane Assey.	2A3832 (02-130)	(S1)(A)(B)
2A3302 (72-45-24)	1		Stage 2 HPT Vane Assy.	2A3842 (02-420)	(S1)(A)(B)

C. Consumable Materials

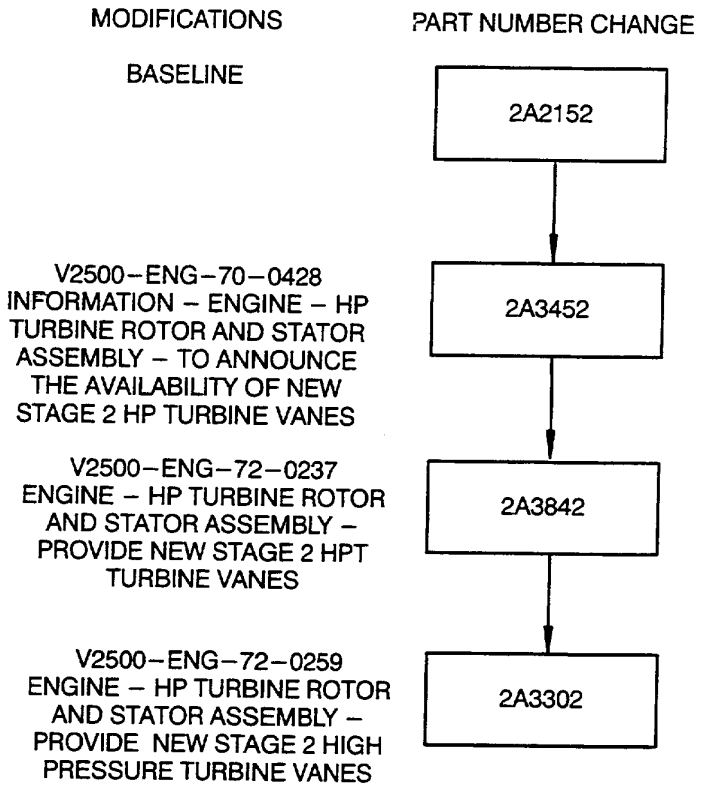
D. Instructions/Disposition Code Statements:

(S1) Old and New Parts are freely and fully interchangeable
(B) The old part will no longer be supplied.
(A) The new part is currently available.

NOTE: The estimated 1997 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.



Family Tree- Stage 2 High Pressure Turbine Vane Assembly Ref. Catalog Sequence No. 72-45-24. Fig. 02 Items 130 and 350
Fig.2



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Family Tree - Stage 2 High Pressure Turbine Vane Assembly Ref. Catalog Sequence No. 72-45-24. Fig. 02 Item 420
Fig.3

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