



ENGINE - HP TURBINE ROTOR AND STATOR ASSEMBLY - PROVIDE A NEW STAGE 1 TURBINE HUB -  
CATEGORY CODE 8 - MOD.ENG-72-0238

See Vendor Bulletin N

1. Planning Information

A. Effectivity

(1) Aircraft: Airbus A320, A321

McDonnell Douglas MD-90

(2) Engine: V2527-A5 Engines before Serial No V10198  
V2530-A5 Engines before Serial No V10198  
V2525-D5 Engines before Serial No. V20073  
V2528-D5 Engines before Serial No. V20073

B. Reason

(1) Condition:

Higher thrust versions of the V2500-A5 and V2500-D5 Engines result in a more severe operating environment for the High Pressure Turbine (HPT) Stage 1 Hub.

(2) Background:

Increased thrust versions of the V2500-A5 and V2500-D5 Engines result in higher HPT operating temperatures and rotational speeds. These higher speeds and temperatures increase the Stage 1 Turbine Hub's operating stresses which, in turn, result in reduced hub life.

(3) Objective

Provide a new Stage 1 Turbine Hub that is redesigned to reduce operating stresses in the more severe operating conditions of the higher thrust V2500-A5 and V2500-D5 engine models. This first stage hub will become the new standard for all V2500 engine models.

(4) Substantiation

The intent of this configuration was demonstrated in a test engine and satisfactorily completed by structural analytical review.

(5) Effects of Bulletin on Workshop Procedures;

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## SERVICE BULLETIN

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 1 Turbine Hub with one that is designed to operate in the new higher thrust versions of the V2500 engine.
- (2) For the effect on declared life, See Appendix 1 of this Service Bulletin. The limits given in this Appendix will be included as soon as possible in revisions of the V2500 Engine Manual (E-V2500-1I-A) and the V2500 Engine Manual (E-V2500-3I-A).

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 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

NOTE: The parts affected by this Service Bulletin are accessible at overhaul.

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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<br>(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.

95VA021D

- (2) Other References

IAE Service Bulletin:

V2500-ENG-72-0146 - Engine - HP Turbine Rotor and Stator Assembly -  
Provide New Stage 1 HPT Blades

V2500-ENG-72-0180 - Engine - HP Turbine Rotor and Stator Assembly -  
Introduce a New First Stage Turbine Outer Air Seal

V2500-Eng-72-0190 - Engine - HP Turbine Rotor and Stator Assembly -  
Introduce a New Stage 1 HPT Air Seal and A No. 4 Bearing Cooling  
Duct Assembly

V2500-ENG-72-0194 - Engine - HP Turbine Rotor and Stator Assembly -  
Introduce a New Stage 1 HP Turbine Air Seal

V2500 Standard Practices Manual (SPP-V2500-1I-A), 70-09-00, Marking  
of parts.

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V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-10 and 72-45-11

V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-10 and 72-45-11

V2500 Engine Manual (E-V2500-1I-A), 72-45-10, Assembly.

V2500 Engine Manual (E-V2500-3I-A), 72-45-10, Assembly.

L. Other Publications Affected

- (1) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-11, Cleaning to add the new part number.
- (2) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-11, Cleaning to add the new part number.
- (3) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-11, Inspection to add the new part number.
- (4) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-11, Inspection to add the new part number.
- (5) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-11, Repair to add the new part number.
- (6) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-11, Repair to add the new part number.
- (7) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 5-10-01, Group A Parts Lives to add the new part number.
- (8) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 5-10-01, Graoup A Parts Lives to add the new part number.
- (9) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-10, Figure-01 to add the new part.
- (10) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-11, Figure-01 to add the assembly.
- (11) The V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-10, Figure-01 to add the assembly.
- (12) The V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-11, Figure-01 to add the new part.



2. Accomplishment Instructions

A. Rework Instructions

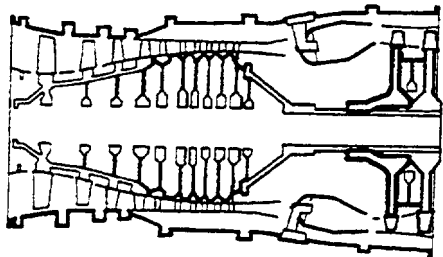
- (1) There are no rework instructions necessary to accomplish this Service Bulletin.

B. Install the new Stage 1 Turbine Hub by the steps that follow for V2527-A5 and V2530-A5 engines.

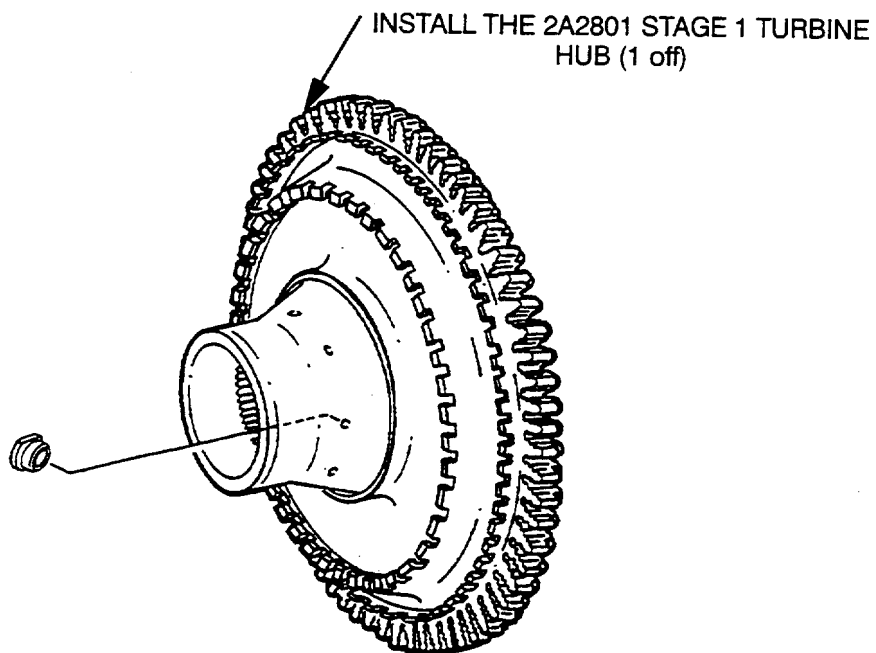
- (1) Install the 2A2801 Stage 1 Turbine Hub by the procedure given in Reference (5), Chapter/Section 72-45-10, Assembly.

C. Install the new Stage 1 Turbine Hub by the steps that follow for V2525-D5 and V2528-D5 engines.

- (1) Install the 2A2801 Stage 1 Turbine Hub by the procedure given in Reference (6), Chapter/Section 72-45-10, Assembly.



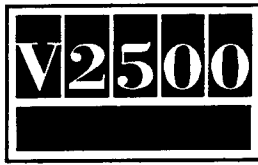
MODULE 40



E7654

Location of the Stage 1 Turbine Hub  
Fig.1

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### 3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

#### A. Kit 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
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Applicability: For each V2500 Engine to incorporate this Service Bulletin

2A3301 (72-45-10)	1		Turbine Rotor Assembly	2A8921 (01-010)	(A)(B)(S1)
2A2801 (72-45-11)	1		Hub Turbine Stage 1	2A2201 (01-011)	(B)(C)(S1)

#### C. Consumable Materials

#### D. Instructions/Disposition Code Statements:

(S1) Old and New Parts are freely and fully interchangeable

(A) The new part is currently available on a lead time quotation basis only.

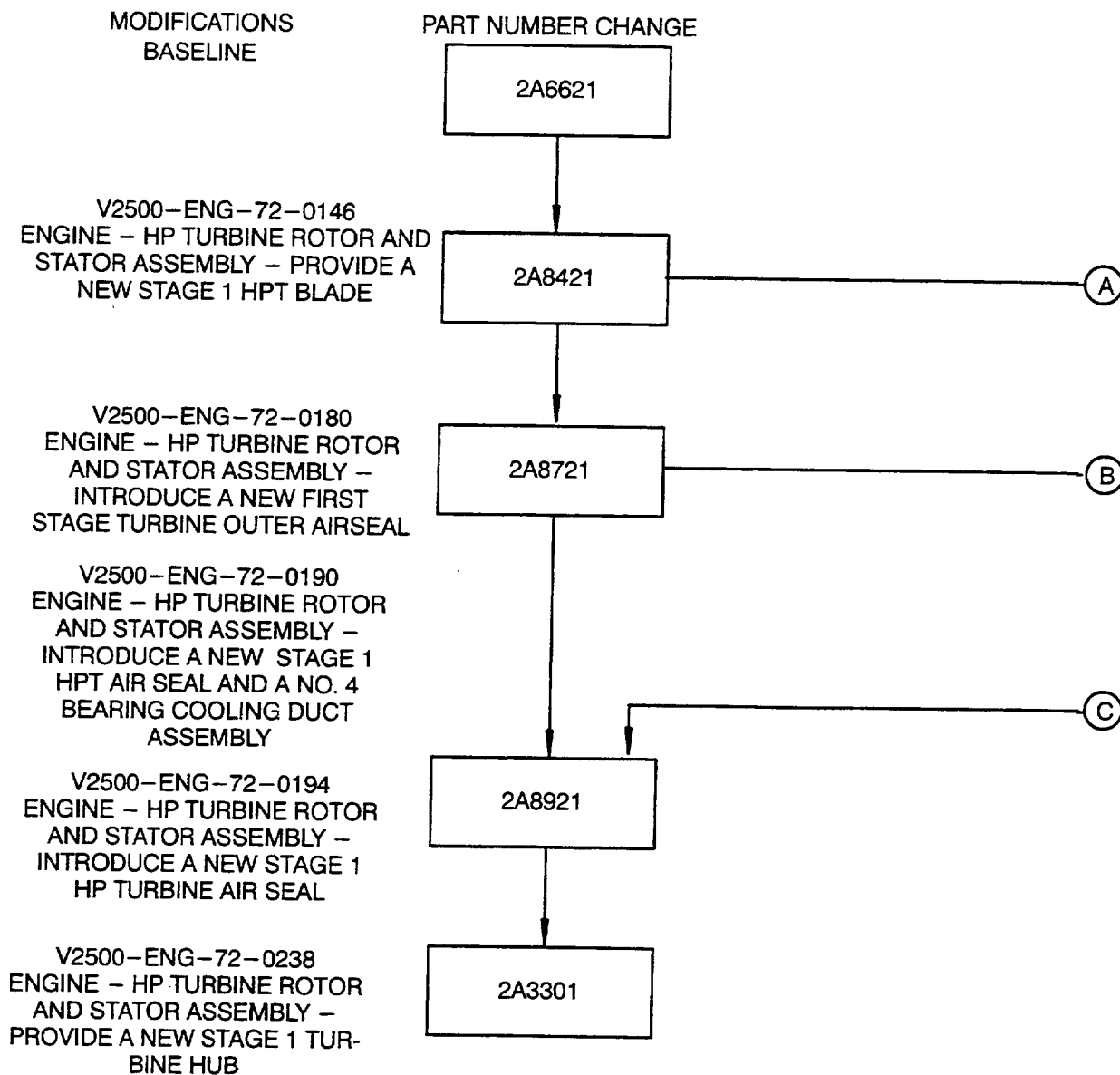
(B) The old part will no longer be supplied.

(C) The new part is currently available.

NOTE: The estimated 1996 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.



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IT IS NOT NECESSARY TO IDENTIFY THE ROTOR ASSEMBLY WITH A NEW NUMBER. THIS PART PROGRESSION IS SHOWN FOR INFORMATION ONLY

(A) (B) CONTINUED ON SHEET 2

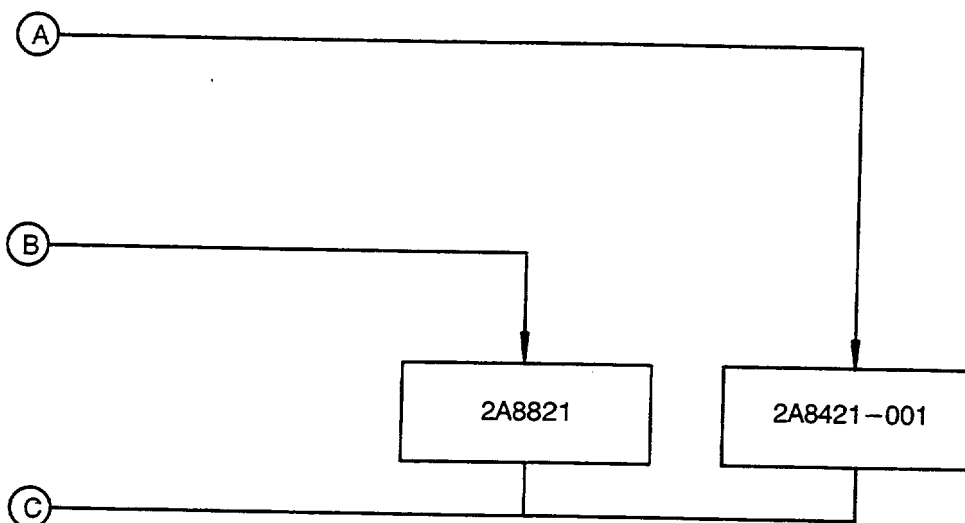
E7655

Family Tree - Stage 1 Turbine Rotor Assembly Ref. Catalog Sequence No 72-45-10. Fig. 01 Item 010  
Fig.2 (Sheet 1)

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PART NUMBER CHANGE



Ⓒ CONTINUED ON SHEET 1

Ⓐ AND Ⓑ CONTINUED FROM SHEET 1

E7709

Family Tree - Stage 1 Turbine Rotor Assembly Ref. Catalog Sequence No 72-45-10. Fig.  
01 Item 010  
Fig.2 (Sheet 2)

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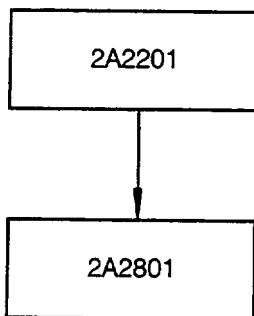


MODIFICATIONS

BASELINE

V2500-ENG-72-0238  
ENGINE - HP TURBINE ROTOR  
AND STATOR ASSEMBLY -  
PROVIDE A NEW STAGE 1 TUR-  
BINE HUB

PART NUMBER CHANGE



E7656

Family Tree - Stage 1 Turbine Hub Ref. Catalog Sequence No 72-45-11. Fig. 01 Item 011  
Fig.3

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**International Aero Engines**

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## APPENDIX 1

1. The cyclic limit for the 2A2801 Stage 1 Turbine Hub is as follows:

REFERENCE	NAME	PART NUMBER	MODELS	CYCLES MAX.
1600	Hub, Turbine Sage 1	2A2801	V2527-A5 V2530-A5 V2525-D5 V2528-D5	15000

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