



ENGINE - HP TURBINE ROTOR AND STATOR ASSEMBLY - PROVIDE NEW STAGE 1 HPT DUCT SEGMENTS,  
BAND SEGMENTS, SUPPORTS, SEALS AND BOLTS - CATEGORY CODE 7 - MOD.ENG-72-0339

1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320, A321
- (2) Engine: V2500-A1 Engines Before Serial No. V0362\*

\*The serial Number data shown is of a preliminary nature and is provided for advanced planning only. A future revision to this Service Bulletin will confirm final serial number effectivity.

\*This Service Bulletin must be accomplished at the same time as V2500-ENG-72-0341.

B. Reason

- (1) Condition:

Service experience with the current Stage 1 High Pressure (HP) Turbine Outer Airseal (thick ceramic) has resulted in numerous instances of downstream damage and Stage 2 HPT Blade fractures. There have been at least fifteen instances of Stage 2 Blade fractures from ceramic impact damage and many more instances of impact damage to both the High Pressure Turbine and the Low Pressure Turbine.

- (2) Background:

Large pieces of ceramic from the current thick ceramic configuration have liberated causing downstream damage.

- (3) Objective:

A decrease in thickness of the ceramic coating will improve durability and performance retention.

- (4) Substantiation

The current A5/D5 Stage 1 Outer Air Seal is now the same configuration as the proposed configuration for the A1 model. The A5/D5 models do not have a Stage 2 blade impact and/or fracture problem similar to the current A1.

- (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) The purpose of this Service Bulletin is to install the new parts listed below:

(a) Stage 1 High Pressure Turbine Duct Segments which have thin ceramic coating.

(b) New Band Segments, Supports, Seals and Bolts, which are required as part of the installation for the new configuration.

D. Approval

The Part Number Changes and/or part modification 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.

The 'compliance' statement and the procedures described in paragraph F 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 7

Accomplish when supply of superseded parts has been depleted.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
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(1) In service	Not applicable
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(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.

97VC031

- (2) Other References

IAE V2500 Service Bulletins:

V2500-ENG-70-0450 (Information – Engine – HP Turbine Rotor And Stator Assembly To Announce The Availability Of A New Turbine Case And Vane Assembly)

V2500-ENG-72-0002 (Engine – Stage 1 Turbine Nozzle Assembly And HP Turbine Rotor And Stator Assembly – Incorporation Of Offset Supports)

V2500-ENG-72-0013 (Engine – Stage 1 Turbine Nozzle Assembly And HP Turbine Rotor And Stator Assembly – Replacement Of The Stage 1 HPT Duct Segment And The Stage 1 HPT Airseal)

V2500-ENG-72-0046 (Engine – HP Turbine Rotor And Stator Assembly – Provide New First HPT Cooling Duct Assembly)

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V2500-ENG-72-0092 (Engine - HP Turbine Provide A Turbine Case And Vane Assembly That Will Allow Individual First Stage Duct Replacement)

V2500-ENG-72-0108 (Engine - HP Turbine Rotor And Stator Assembly - Incorporate New Stage 1 Duct Segments With Improved Ceramic Coating)

V2500-ENG-72-0111 (Engine - HP Turbine Rotor And Stator Assembly - New Stage 1 HPT Air Seal)

V2500-ENG-72-0122 (Engine - HP Turbine Rotor And Stator Assembly - Provide New Stage 2 HPT Vane Assemblies, Stage 2 Air Sealing Ring Segment Assemblies And Stage 2 HPT Airseals)

V2500-ENG-72-0123 (Engine - HP Turbine Rotor And Stator Assembly - Provide A New Stage 1 HPT Metering Plug With A Smaller Metering Hole And Transfer The Hub Details To The Stage 1 Turbine Rotor Assembly)

V2500-ENG-72-0310 (Engine - High Pressure Turbine - Provide New Stage 1 And 2 High Pressure Turbine Duct Segments)

V2500-ENG-72-0341 (HP Turbine Rotor And Stator Assembly - Provide A New Stage 1 High Pressure Turbine Support Assembly Which Contains A New Seal)

The V2500 Engine Illustrated Parts Catalog (S-V2500-1IA), Chapter/Section 72-45-00, 72-45-00, 72-45-22 and 72-45-23 to add the new parts.

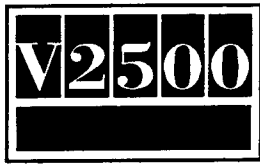
The V2500 Engine Manual (E-V2500-1IA), 72-45-20, Assembly.

The V2500 Standard Practices/Processes Manual (SPP-V2500-1IA), 70-09-00 Marking of Parts

#### L. Other Publications Affected

- (1) The V2500 Engine Illustrated Parts Catalog, Chapter/Section 72-45-20, 72-45-22 and 72-45-23 to add the new parts.
- (2) The V2500 Engine Manual (E-V2500-1IA), 72-45-20, 72-45-22 and 72-45-23, Cleaning to add the new parts.
- (3) The V2500 Engine Manual (E-V2500-1IA), 72-45-20, 72-45-22 and 72-45-23, Inspection to add the new parts.
- (4) The V2500 Engine Manual (E-V2500-1IA), 72-44-20 and 72-44-50, Repair to add the new parts.
- (5) The V2500 Engine Manual (E-V2500-1IA), 72-44-00, Assembly.

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## 2. Accomplishment Instructions

### A. Installation Instructions

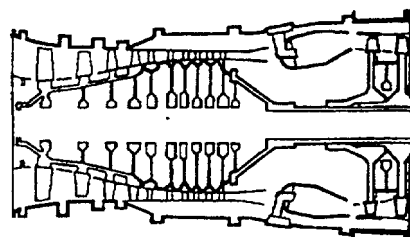
NOTE: This Service Bulletin must be accomplished at the same time as V2500-ENG-72-0341.

- (1) Replace the parts listed below when you assemble the High Pressure Turbine (HPT) Case and Vane Assembly by the procedure specified in Reference (3) Engine Manual, Chapter/Section 72-45-20 Assembly-01. See Figures 1 and 2.
  - (a) Replace the 2A3361 Stage 1 HPT Duct Segments with the 2A3295-01 Stage 1 HPT Duct Segments (38 off).
  - (b) Replace the 2A0183 Stage 1 HPT Duct Seals with the 2A1701 Stage 1 HPT Duct Seals (38 off).
  - (c) Replace the 2A0184-01 and the 2A0187-01 Stage 1 HPT Band Segments with the 2A3297-01 Stage 1 HPT Band Segments (3 off).
  - (d) Replace the 2A0180 and the 2A0181 Stage 1 HPT Duct Support Seals with the 2A3299 Stage 1 HPT Duct Support Seals (19 off).
  - (e) Replace the 2A1313 Stage 1 HPT Duct Supports with the 2A3296 Stage 1 HPT Duct Supports (19 off).
  - (f) Replace the ST1359-12 Bolts with the 2A1704 Bolts (19 off).
- (2) Identify the new Stage 1 Turbine Case And Vane Assembly.
  - (a) Mark the new part number adjacent to the existing part number by the procedure specified in Reference (4), Standard Practices Manual, Chapter/Section 70-09-00, Marking of Parts and by the list that follows:

Old Part Number	New Part Number
2A3365	2A3304

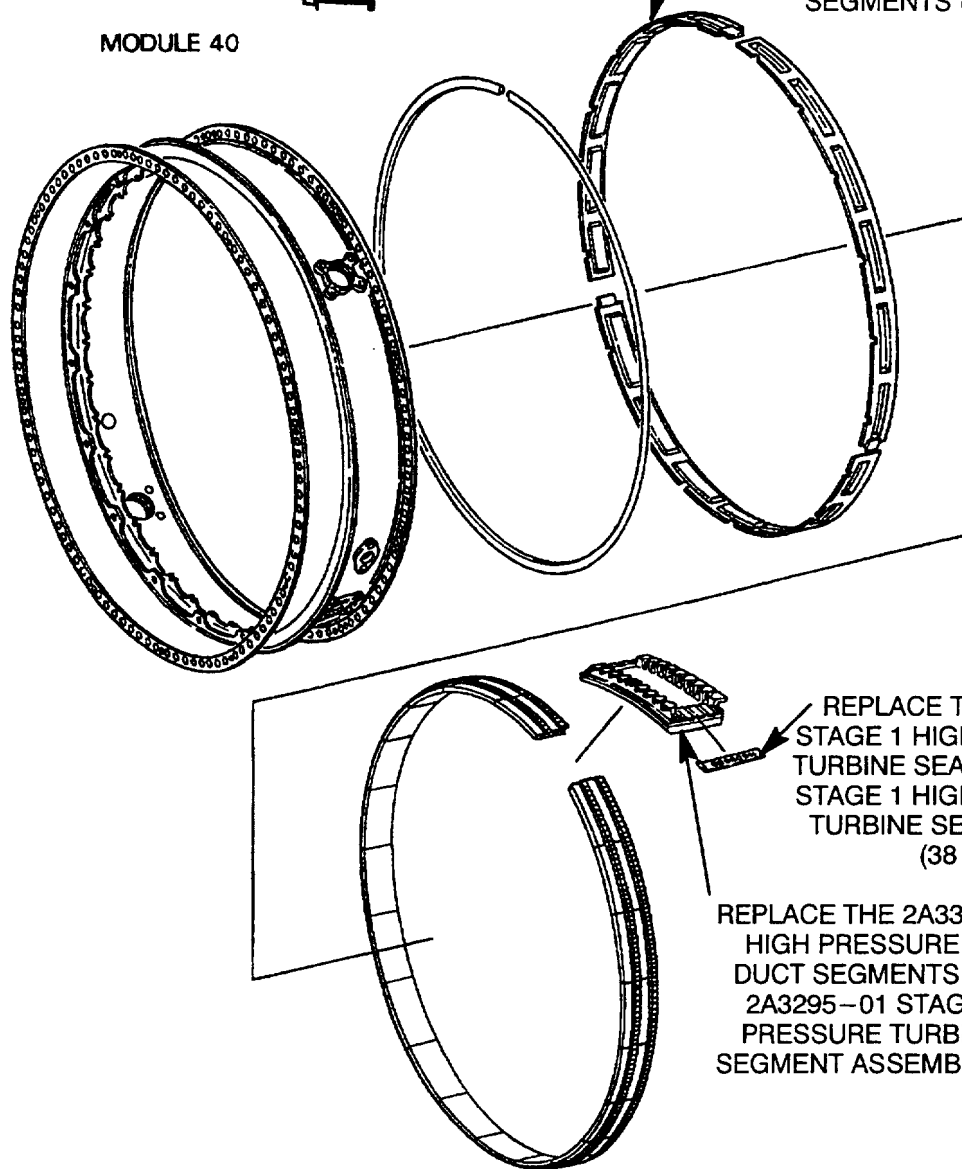


## SERVICE BULLETIN



MODULE 40

REPLACE THE 2A0184-01 AND  
THE 2A0187-01 STAGE 1 HIGH  
PRESSURE TURBINE BAND  
SEGMENTS WITH THE  
2A3297-01 STAGE 1 HIGH  
PRESSURE TURBINE DUCT  
SEGMENTS (3 off)

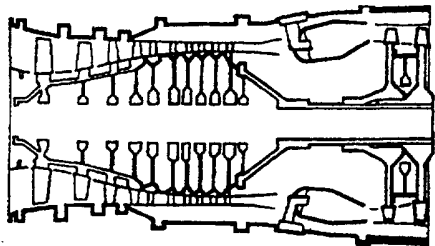


Location of the Stage 1 High Pressure Turbine Duct Segments And Band Segments  
Fig.1

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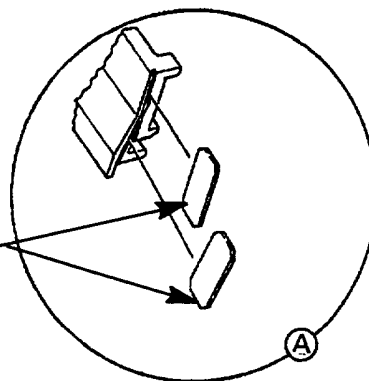
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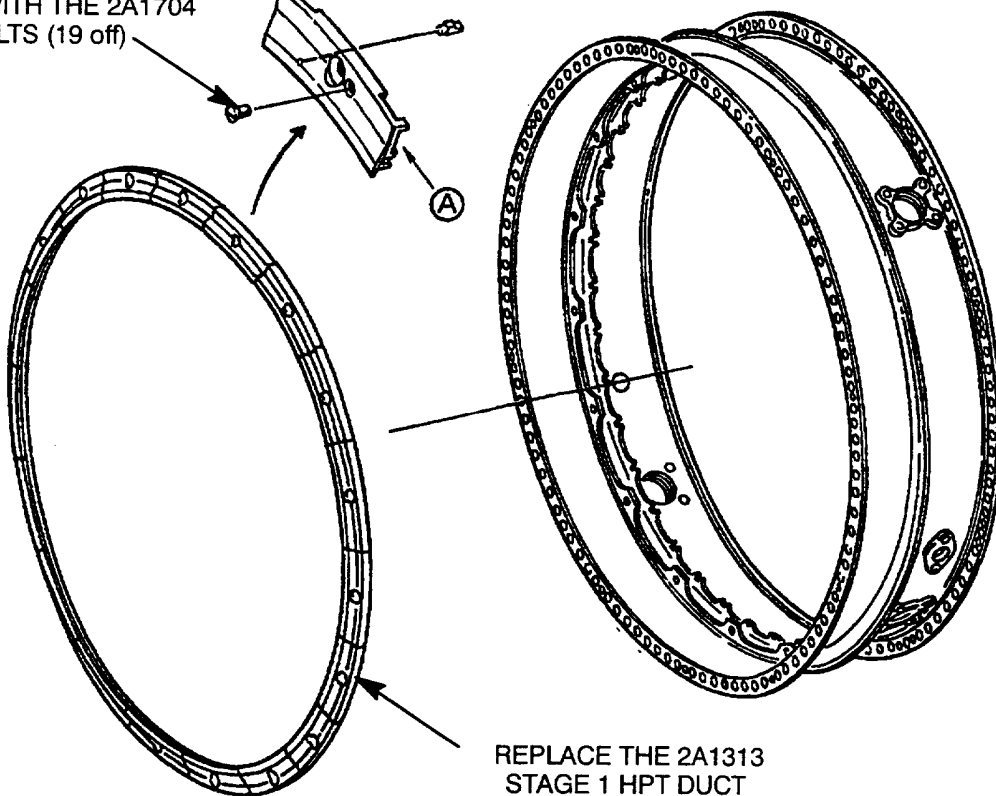
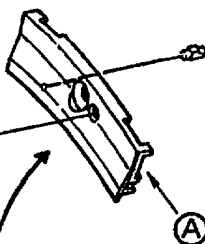


MODULE 40

REPLACE THE 2A0180-01  
AND THE 2A0181-01  
SEALS WITH THE 2A3299  
SEALS (19 off)



REPLACE THE ST1359-12  
BOLTS WITH THE 2A1704  
BOLTS (19 off)



REPLACE THE 2A1313  
STAGE 1 HPT DUCT  
SUPPORTS WITH THE  
2A3296 STAGE 1 HPT  
DUCT SUPPORTS (19 off)

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Location of the Stage 1 High Pressure Turbine Cooling Duct Assembly  
Fig.2



## SERVICE BULLETIN

3. Material InformationA. 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-A1 Engine to incorporate this Service Bulletin

2A3304 (72-45-20)	1		.Case & Vane Assy.	2A3365 (01-005)	(S1)(A)(B)
2A3296 (72-45-22)	19	2647.00	.Seal HPT Duct Supt. Stage 1	2A1313 (01-010)	(S1)(C)(E)
2A3299 (72-45-22)	19	4.30	.Seal HPT Duct Supt. Stage 1	2A0180 (01-060)	(S1)(C)(E)
(72-45-22)	19		.Seal HPT Duct Supt. Stage 1	2A0181 (01-080)	(S1)(C)(E)
2A1704 (72-45-22)	19	13.00	.Seal HPT Duct Supt.	ST1359-12 (01-100)	(S1)(C)(E)
2A3297-01 (72-45-23)	3		.Band Segment Stage 1 HPT	(01-020)	(S1)(E)(F)
(72-45-23)	2		.Band Seg. Assy. Stage 1 HPT	2A0184-01 (01-020)	(C)(G)
(72-45-23)	1		.Band Seg. Assy. Stage 1 HPT	2A0187-01 (01-040)	(C)(G)
(72-45-23)	19		.Duct Seg. Stage 1 HPT	2A3361 (01-060)	(C)
2A3295-01	38	2113.00	.Duct Seg. Stage 1 HPT		(S1)(E)(F)
2A3062 (72-45-23)	1	11.40	..Pin	(01-066)	(S1)(E)(H)
(72-45-23)	19		.Seal Stage 1 HPT Duct	2A0183 (01-080)	(C)
2A1701 (72-45-23)	38	5.68	.Seal Stage 1 HPT Duct	(01-080)	(S1)(E)(F)
(72-45-24)	1		.Gasket Opt.	2A1960 (02-010)	(C)
(72-45-24)	1		.Gasket	2A0988 (02-010)	(B)

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(72-45-24)

1

.Gasket

2A0984  
(02-010)

(B)

C. Instructions/Disposition Code Statements:

- (S1) New Parts coded (S1) must replace Old Parts coded (S1) in complete sets per Engine.
- (A) The old part will no longer be supplied.
  - (B) The old part will continue to be supplied until stock is exhausted.
  - (C) The new part is currently available.
  - (E) The quantity of the new part is an increase to (38 off) from (19 off) at this location, when the new configuration is installed.
  - (F) 2A3297-01 Stage 1 High Pressure Turbine Band Segments (3 off) replace the 2A0184-01 Stage 1 High Pressure Turbine Band Segments (2 off) and the 2A0187-01 Stage 1 High Pressure Turbine Band Segment (1 off) at this location, when the new configuration is installed.
  - (G) The new part is available in classes 1 through 4 (including P3 and P5 oversizes).
  - (H) The old part will continue to be supplied for use at other locations.

NOTE: The estimated 1998 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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## SERVICE BULLETIN

## MODIFICATIONS

## BASE LINE

V2500-ENG-72-0002  
ENGINE- STAGE 1 TURBINE  
NOZZLE ASSEMBLY AND HP  
TURBINE ROTOR AND STATOR  
ASSEMBLY - INCORPORATION OF  
OFFSET SUPPORTS

V2500-ENG-72-0092  
ENGINE - HP TURBINE - PROVIDE  
A TURBINE CASE AND VANE  
ASSEMBLY THAT WILL ALLOW  
INDIVIDUAL FIRST STAGE DUCT  
REPLACEMENT

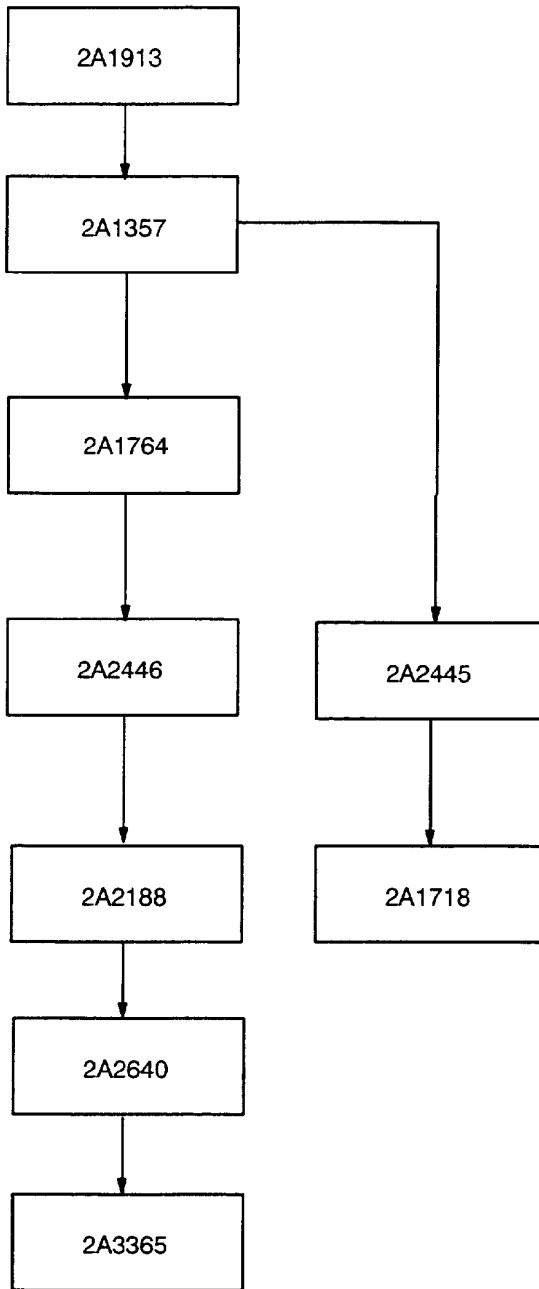
V2500-ENG-72-0122 PART 1  
NEW STAGE 2 HPT AIR SEALING  
RING SEGMENT ASSEMBLY AND  
FEATHERSEALS

V2500-ENG-72-0122 PART 2  
NEW STAGE 2 HPT AIR SEALING  
RING SEGMENT ASSEMBLY VANE  
COVERS AND FEATHERSEALS

V2500-ENG-70-0450  
INFORMATION ENGINE - HP  
TURBINE ROTOR AND STATOR  
ASSEMBLY - ANNOUNCE THE  
AVAILABILITY OF A NEW TURBINE  
CASE AND VANE ASSEMBLY

V2500-ENG-72-0310  
ENGINE - HIGH PRESSURE  
TURBINE - PROVIDE NEW HIGH  
PRESSURE TURBINE STAGE 1 AND  
2 DUCT SEGMENTS

## PART NUMBER CHANGE



(A) CONTINUED ON SHEET 2

Family Tree - High Pressure Turbine Case And Vane Assembly Ref. Catalog Sequence No.  
72-45-20. Fig. 01 Item 005  
Fig.3 (Sheet 1)

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MODIFICATIONS

PART NUMBER CHANGE

CONTINUED FROM SHEET 1

(A)



2A3304

V2500-ENG-72-0339  
ENGINE - HP TURBINE ROTOR AND  
STATOR ASSEMBLY - PROVIDE  
NEW STAGE 1 HPT DUCT SEG-  
MENTS, BAND SEGMENTS, SUP-  
PORTS, SEALS AND BOLTS

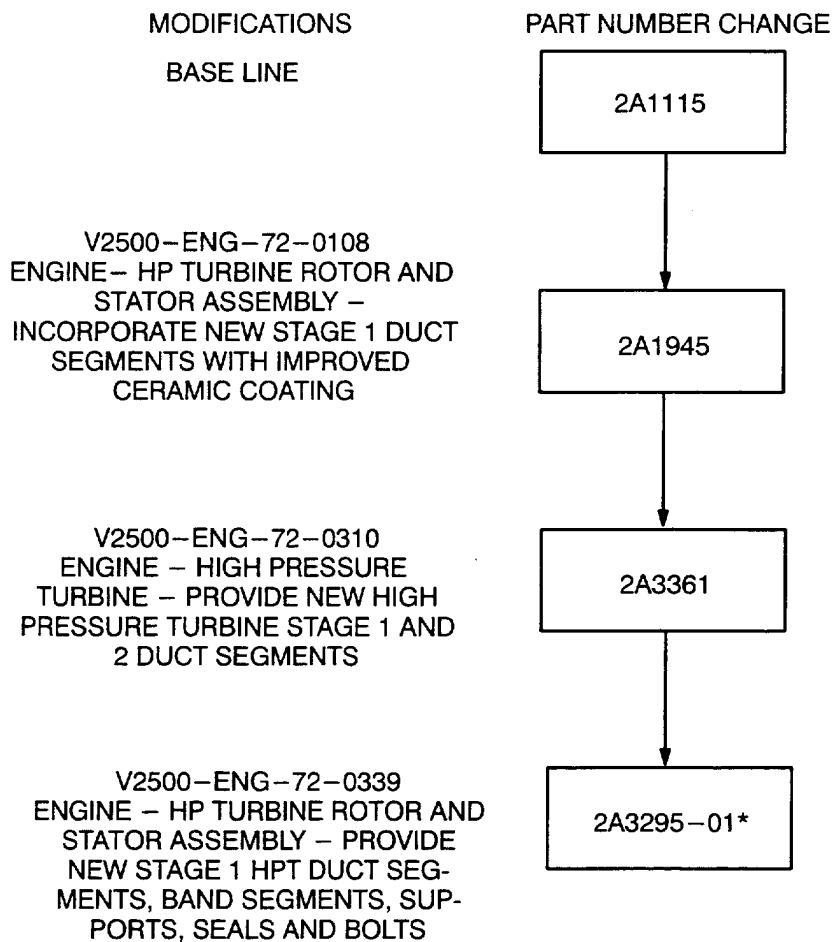
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Family Tree - High Pressure Turbine Case And Vane Assembly Ref. Catalog Sequence No.  
72-45-20. Fig. 01 Item 005  
Fig.3 (Sheet 2)

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## SERVICE BULLETIN



\*ASSEMBLY PART NUMBER

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Family Tree - Stage 1 High Pressure Turbine Duct Segment Ref. Catalog Sequence No.  
72-45-23. Fig. 01 Item 060  
Fig.4

V2500-ENG-72-0339

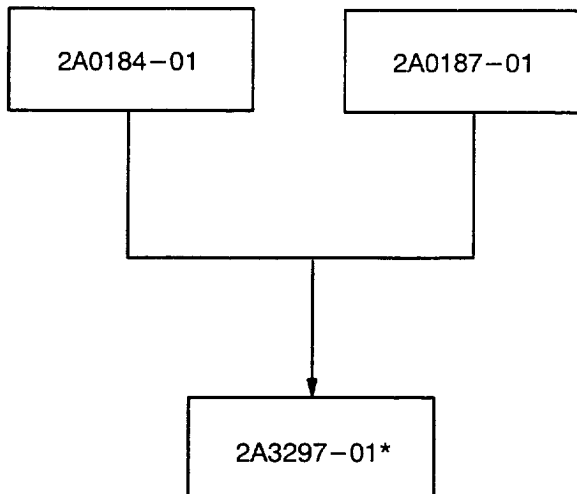


## SERVICE BULLETIN

### MODIFICATIONS

#### BASE LINE

### PART NUMBER CHANGE



V2500-ENG-72-0339  
ENGINE - HP TURBINE ROTOR AND  
STATOR ASSEMBLY - PROVIDE  
NEW STAGE 1 HPT DUCT SEG-  
MENTS, BAND SEGMENTS, SUP-  
PORTS, SEALS AND BOLTS

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Family Tree - Stage 1 High Pressure Turbine Band Segment Ref. Catalog Sequence No.  
72-45-23. Fig. 01 Item 020  
Fig.5

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MODIFICATIONS

BASE LINE

PART NUMBER CHANGE

2A1313



2A3296

V2500-ENG-72-0339  
ENGINE - HP TURBINE ROTOR AND  
STATOR ASSEMBLY - PROVIDE  
NEW STAGE 1 HPT DUCT SEG-  
MENTS, BAND SEGMENTS, SUP-  
PORTS, SEALS AND BOLTS

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Family Tree - Stage 1 High Pressure Turbine Support Ref. Catalog Sequence No.  
72-45-22. Fig. 01 Item 010  
Fig.6

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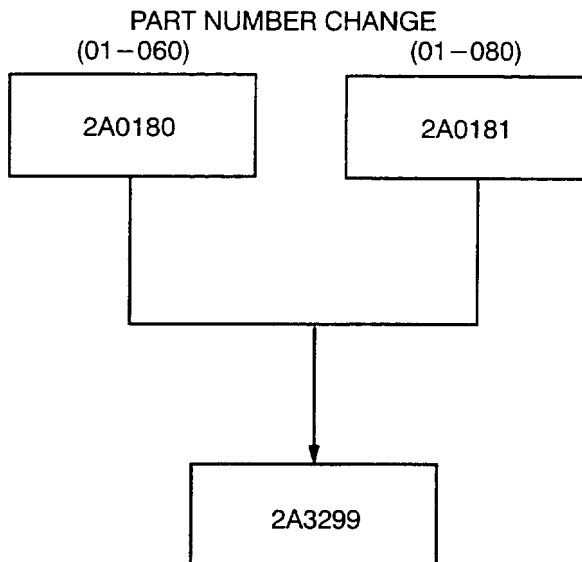
## SERVICE BULLETIN

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## MODIFICATIONS

## BASE LINE

V2500-ENG-72-0339  
ENGINE - HP TURBINE ROTOR AND  
STATOR ASSEMBLY - PROVIDE  
NEW STAGE 1 HPT DUCT  
SEGMENTS, BAND SEGMENTS,  
SUPPORTS, SEALS AND BOLTS



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Family Tree - Stage 1 High Pressure Turbine Seals Ref. Catalog Sequence No. 72-45-23.  
Fig. 01 Items 060 and 080  
Fig.7

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