



ENGINE - HIGH PRESSURE TURBINE - PROVIDE NEW STAGE 1 AND 2 HIGH PRESSURE TURBINE DUCT SEGMENTS - CATEGORY CODE 7 - MOD.ENG-72-0310

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1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A319, A320, A321  
McDonnell Douglas MD-90
- (2) Engine: V2500-A1 Engines Before Serial No. V0362  
V2522-A5 Engine Serial No. V10420 and Engines before Serial No. V10411 except V10397 and V10398  
V2524-A5 Engine Serial No. V10420 and Engines before Serial No. V10411 except V10397 and V10398  
V2527-A5 Engine Serial No. V10420 and Engines before Serial No. V10411 except V10397 and V10398  
V2527E-A5 Engine Serial No. V10420 and Engines before Serial No. V10411 except V10397 and V10398.  
V2530-A5 Engine Serial No. V10420 and Engines before Serial No. V10411 except V10397 and V10398.  
V2533-A5 Engine Serial No. V10420 and Engines before Serial No. V10411 except V10397 and V10398.  
V2525-D5 Engines before Serial No. V20225  
V2528-D5 Engines before Serial No. V20225

B. Reason

(1) Condition:

The gaspath surface of V2500-A1 Stage 1 and all model V2500 Stage 2 High Pressure Turbine Duct Segments are currently machined at assembly. The segments introduced by this Service Bulletin will be finish machined during their manufacture, eliminating the need to machine at assembly.

(2) Background:

Not Applicable.

(3) Objective:

Provide new duct segments that are finish machined at manufacture, eliminating the assembly machining (grind) operation.

NOTE: Only blades the length of newly manufactured blades can be installed with the segments being introduced without incurring a performance penalty (reduced EGT margin).

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## (4) Substantiation

The dimensions were taken from parts assemblies ground at various facilities, to assure that the detail ground part would be dimensionally identical to parts ground at assembly. This same process was used successfully in another engine program.

## (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) Install new Stage 1 and 2 Duct Assemblies which are finish machined in detail.

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 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
(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<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.

97VA019

- (2) Other References

IAE V2500 Service Bulletins:

V2500-ENG-72-0450 (Information - Engine - HP Turbine Rotor And Stator Assembly - To Announce The Availability Of A New Turbine Case And Vane Assembly)

V2500-ENG-72-0085 (Engine - HP Turbine Rotor and Stator Assembly - Provide New Stage 2 Duct Segments Incorporating Revised Coating Requirements)

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)

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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 Seals)

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)

The V2500 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-23.

The V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-23.

The V2500 Engine Manual (E-V2500-2IA), Chapter/Section 72-45-20, Assembly-01.

The V2500-D5 Engine Engine Manual (E-V2500-3IA), Chapter/Section 72-45-20, Assembly-01.

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

#### L. Other Publications Affected

- (1) The V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-23, to add the new parts.
- (2) The V2500 Engine Manual (E-V2500-2IA), Chapter/Section 72-45-23, Cleaning, to add the new part number.
- (3) The V2500 Engine Manual (E-V2500-2IA), Chapter/Section 72-45-23, Inspection, to add the new part number.
- (4) The V2500 Engine Manual (E-V2500-2IA), Chapter/Section 75-45-23, Repair, to add the new part number.
- (5) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-23, Cleaning, to add the new part number.
- (6) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-23, Inspection, to add the new part number.
- (7) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-23, Repair, to add the new part number.
- (8) The V2500 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-23, to add the new parts.

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- (9) The V2500-D5 Engine Engine Manual (E-V2500-3IA), Chapter/Section 72-45-20, Assembly-01.

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## 2. Accomplishment Instructions

- A. Install the 2A3361 (V2500-A1 Engines only) Stage 1 High Pressure Turbine Duct Segments (19 off) by the procedure specified in Reference (2) or (3), Chapter/Section 72-45-20 Assembly-01. See Figure 1.

- (1) Do not do the grind procedure specified in Reference (2), Chapter/Section 72-45-20, Assembly-01, Config-01, Subtask 72-44-20-440-061-002 for V2500-A1 engines.

NOTE: The new Stage 1 High Pressure Turbine Duct Segments are finish machined at manufacture, eliminating the need to machine (grind) at assembly.

- B. Install the 2A2362 (V2500-A1) or 2A3363 (all except V2500-A1) Stage 2 High Pressure Turbine Duct Segments (19 off) by the procedure specified in Reference (2) or (3), Chapter/Section 72-45-20 Assembly-01. See Figure 2.

- (1) Do not do the grind procedure specified in Reference (2) or (3), Chapter/Section 72-45-20, Assembly-01. See the applicable subtask for the particular engine model.

NOTE: The new Stage 2 High Pressure Turbine Duct Segments are finish machined at manufacture eliminating, the need to machine (grind) at assembly.

- C. Identify the new Case and Vane Assembly by the procedure specified in Reference (6) Chapter/Section 70-09-00, Marking of Parts, and as follows:

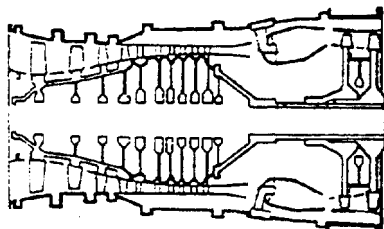
Old Part Number	New Part Number
2A2640	2A3365
2A3219	2A3364
2A3215-001	2A3215-002

- D. Install either new blades or repaired blades that are marked with k, l, or m, when Stage 1 High Pressure Turbine Blades are installed by the procedure specified in Reference (2) or (3), Chapter/Section 72-45-10, Assembly-01.

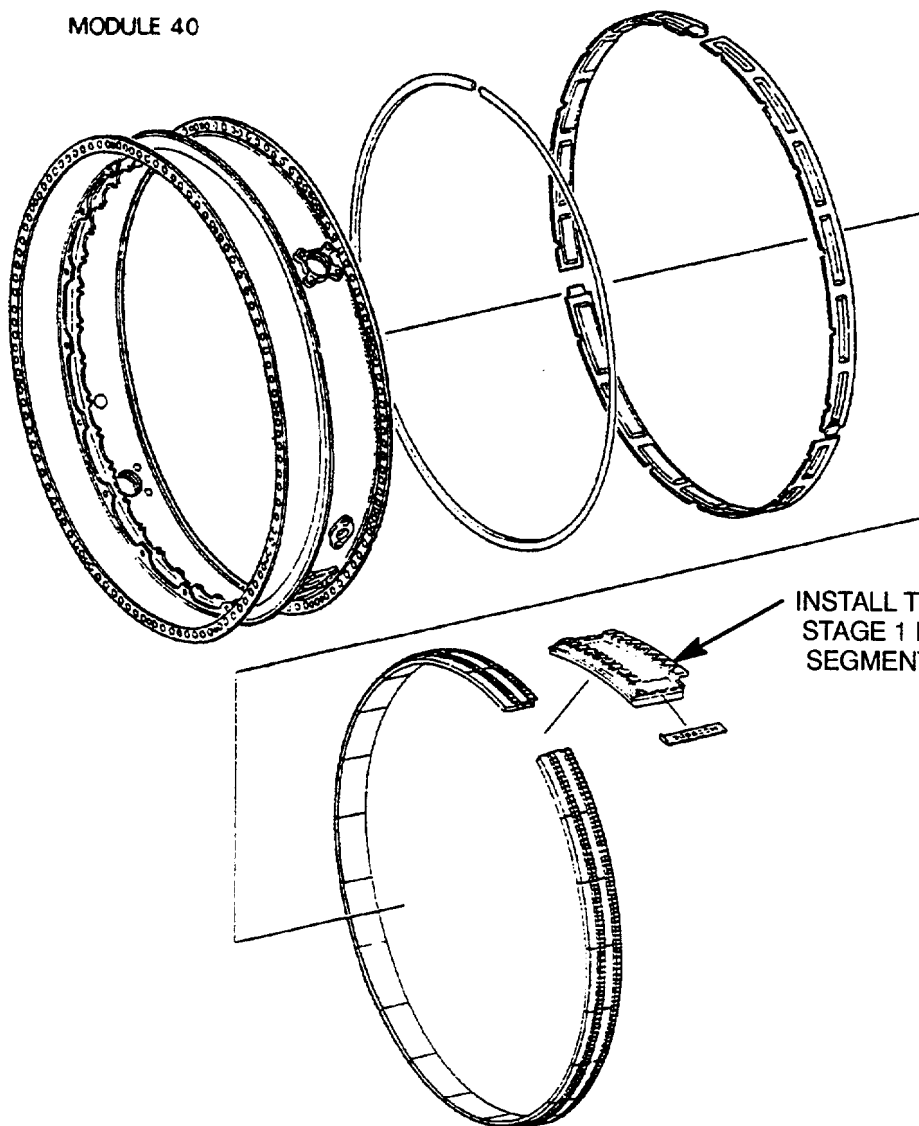
NOTE: The installation of blades marked k5, l5, m5, k10, l10 or m10 is permitted, however, operation with this configuration will result in a performance penalty (reduced EGT margin).

- E. Recording Instructions

- (1) A record of accomplishment is necessary.

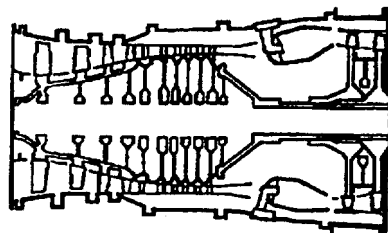


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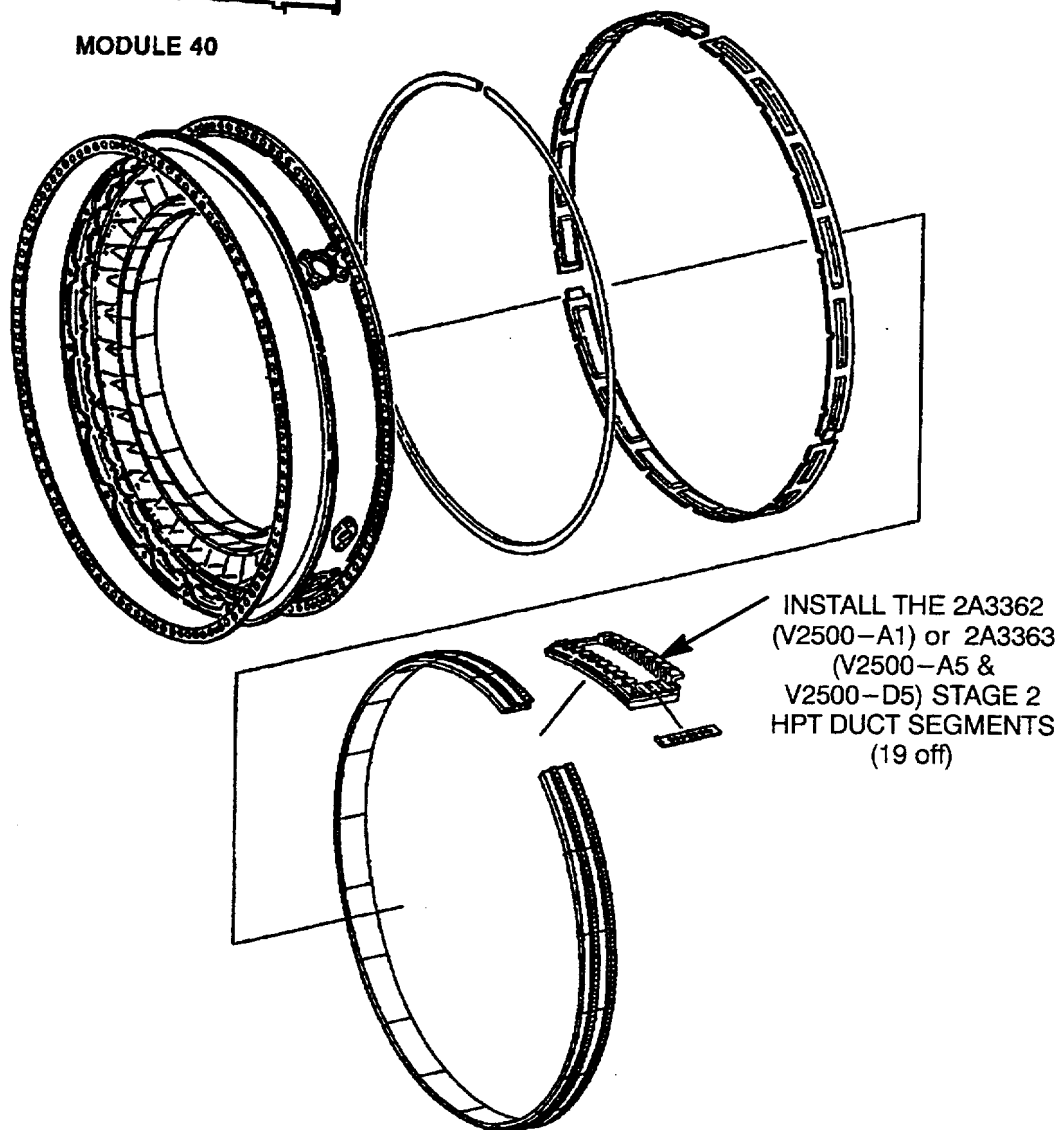


Location of the Stage 1 High Pressure Turbine Duct Segments  
Figure 1

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Location of the Stage 2 High Pressure Turbine Duct Segments  
Figure 2

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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
-----					
Applicability: For each V2500-A1 Engine to incorporate this Service Bulletin					
2A3365 (72-45-20)	1		Case & Vane Assembly	2A2640 (01-005)	(S1)(B)(C)
2A3361 (72-45-23)	19		Stage 1 HPT Duct Segment	2A1945 (01-060)	(S1)(A)(D)

Applicability: For each V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2530-A5 and V2533-A5 Engine to incorporate this Service Bulletin

2A3364 (72-45-20)	1		Case & Vane Assembly	2A3219 (01-005)	(S1)(B)(C)
or					
2A3215-002 (72-45-20)	1		Case & Vane Assembly	2A3215-001 (01-005)	(S1)(1D)

Applicability: For each V2500-A1 Engine to incorporate this Service Bulletin

2A3362 (72-45-25)	19		Stage 2 HPT Duct Segment	2A1944 (01-060)	(S1)(A)(D)
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Applicability: For each V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5 V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin

2A3363 (72-45-25)	19		Stage 2 HPT Duct Segment	2A1606 (01-060)	(S1)(A)(D)
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C. Consumable Materials

Not applicable

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

- (S1) New Parts coded (S1) must replace Old Parts coded (S1) in a COMPLETE SET per engine.
- (1D) The new assembly is obtained by modification and identification with the new part number.
- (A) The new part will be available approximately July 1998.
- (B) The new part will be supplied on a lead time quotation basis only.
- (C) The old part is no longer available.
- (D) The old part will continue to be supplied until supply is used up.

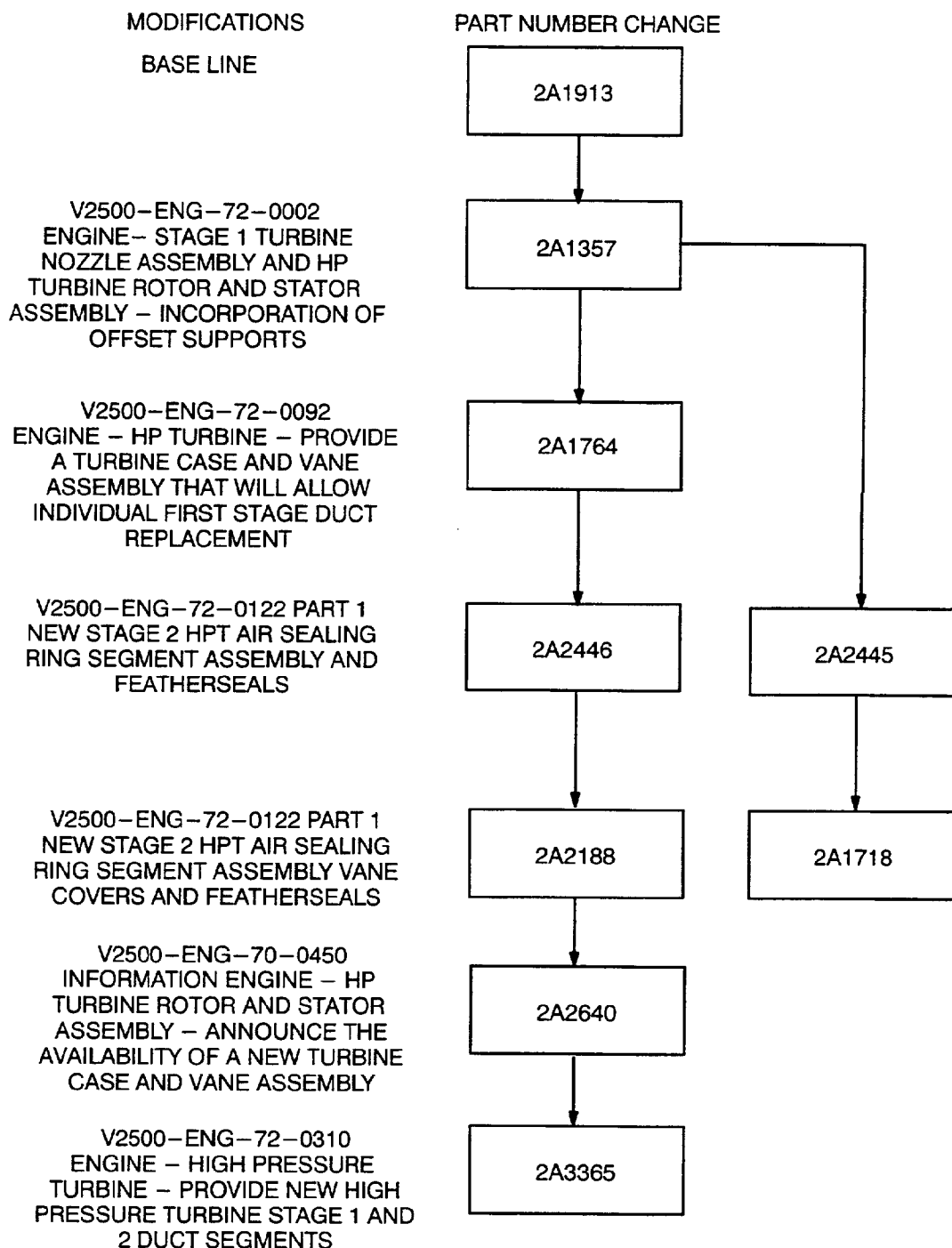
NOTE: The estimated 1998 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Price Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.



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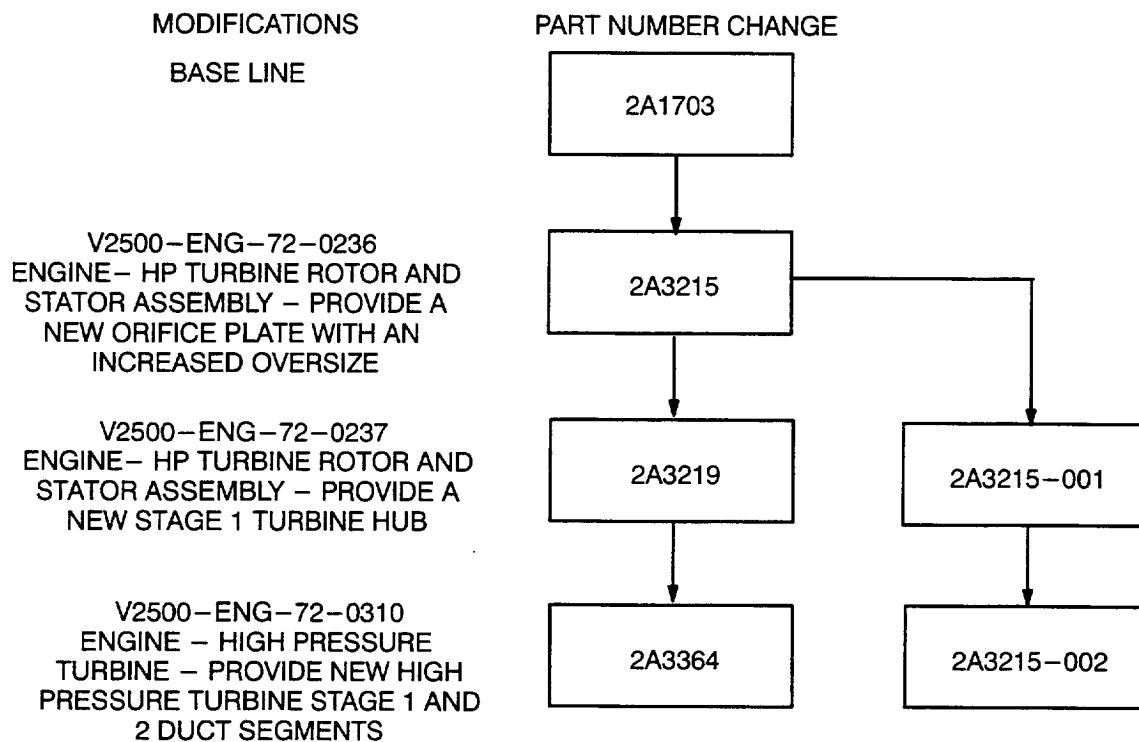


Family Tree - High Pressure Turbine Case and Vane Assembly (V2500-A1) Ref. Catalog  
Sequence No. 72-45-20. Fig. 01 Item 005  
Figure 3

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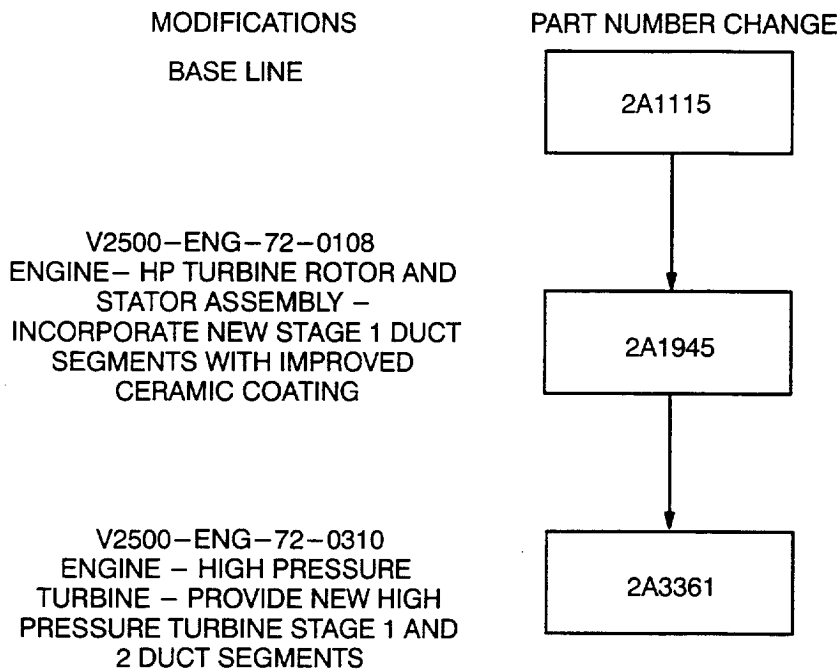
Family Tree - High Pressure Turbine Case and Vane Assembly (All V2500-A5 and V2500-D5 Engines) Ref. Catalog Sequence No. 72-45-20. Fig. 01 Item 005  
Figure 4

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Family Tree - Stage 1 High Pressure Turbine Duct Segment Ref. Catalog Sequence No.  
72-45-23. Fig. 01 Item 060  
Figure 5

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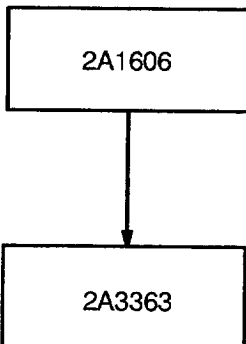


MODIFICATIONS

PART NUMBER CHANGE

BASE LINE

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



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Family Tree - Stage 2 High Pressure Turbine Duct Segment (All V2500-A5 and V2500-D5 Engines) Ref. Catalog Sequence No. 72-45-25. Fig. 01 Item 060  
Figure 6

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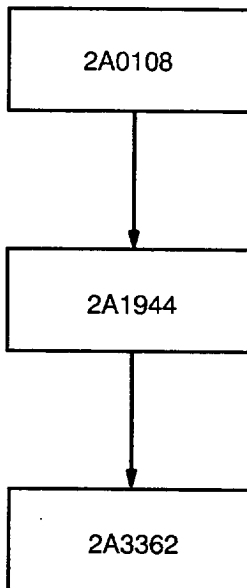
## MODIFICATIONS

## BASE LINE

V2500-ENG-72-0085  
ENGINE - HP TURBINE ROTOR AND  
STATOR ASSEMBLY -  
PROVIDE NEW STAGE 2 DUCT  
INCORPORATING REVISED  
COATING REQUIREMENTS

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

## PART NUMBER CHANGE



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Family Tree - Stage 2 High Pressure Turbine Duct Segment (V2500-A1) Ref. Catalog  
Sequence No. 72-45-25. Fig. 01 Item 060  
Figure 7

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