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## V2500-A1 SERIES PROPULSION SYSTEMS SERVICE BULLETIN

Printed in Great Britain

This document transmits the Revision 1 of Service Bulletin V2500-ENG-72-0548 and the Revision 1 of the Supplement

### Document History

Service Bulletin Revision Status	Supplement Revision Status
Initial Issue Jan.11/08	Initial Issue Jan.11/08

### Service Bulletin Revision 1

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 21 of the Service Bulletin.	To allow progression of Case & Vane and Rotor & Stators to facilitate Service Bulletin ENG-72-0542 Category Code 5.
All pages of the Appendix 1	Pages 1 to 9 of the Appendix 1 (Parts Progression Charts)	To allow progression of Case & Vane and Rotor & Stators to facilitate Service Bulletin ENG-72-0542 Category Code 5.

# V2500-ENG-72-0548

Transmittal - Page 1 of 2

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED  
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All pages of the  
Appendix 2

Page 1 of the  
Appendix 2  
(Added Data)

To allow progression of Case &  
Vane and Rotor & Stators to  
facilitate Service Bulletin  
ENG-72-0542 Category Code 5.

All pages of the  
Appendix 3

Page 1 of the  
Appendix 3  
(Revision to Table of  
Limits)

To allow progression of Case &  
Vane and Rotor & Stators to  
facilitate Service Bulletin  
ENG-72-0542 Category Code 5.

All pages of the  
Supplement

Page 1 of the  
Supplement

To allow progression of Case &  
Vane and Rotor & Stators to  
facilitate Service Bulletin  
ENG-72-0542 Category Code 5.

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ENGINE – PROVIDE NEW SECOND STAGE TURBINE AIR SEAL1. Planning InformationA. Effectivity

(1) Airbus A320

All V2500-A1 Engines.

B. Concurrent Requirements

This Service Bulletin must be done at the same time or after the Phoenix Package Reference (13), Service Bulletin No. V2500-ENG-72-0342, Reference (7), Service Bulletin No. V2500-ENG-72-0122 and Reference (11) Service Bulletin No. V2500-ENG-72-0340.

C. Reason

(1) Condition:

V2500-A1 Second Stage High Turbine Air Seal is experiencing cracking in the field. The fleet is being managed by a fleet management plan which includes vibration monitoring and replacing the seal per Reference (17) Service Bulletin No. V2500-ENG-72-0500, Reference (18) Service Bulletin No. V2500-ENG-72-0501 and Reference (19) Service Bulletin No. V2500-ENG-72-0502.

NOTE: The model V2500-A5/D5 is addressed in Reference (20) Service Bulletin No. V2500-ENG-72-0534.

(2) Background:

Root cause investigation has indicated hot gas path air is ingested into the Second Stage High Turbine Seal cavity, which increases stress in the region of the fillet where the cracking occurs. Decreasing the 2nd Vane Cluster Honey-comb Segment pretrench will reduce the amount of ingestion. This Service Bulletin redesigns the A1 2nd Stage High Turbine Seal by adding a compound radius in the fillet and increasing the forward flange thickness to reduce stress and redesign the 2nd Vane Cluster Segment to eliminate the honey-comb pretrench.

(3) Objective:

Redesign the A1 Second Stage High Turbine Seal to reduce stress to meet the current B.1 certified life of 10,000 cycles. Incorporate a compound radius in the fillet and increase the thickness of the forward flange. Add sutton barrel finish requirement to fillet area. Redesign the 2nd Vane Cluster Segment to eliminate the honey-comb pretrench.

(4) Substantiation:

The Second Stage Seal life is improved by reducing the stress in the fillet area.

(5) Effects of Bulletin on:

(a) Removal/Installation:

Not applicable.

(b) Disassembly/Assembly:

Not applicable.

(c) Cleaning:

Not applicable.

(d) Inspection/Check:

Not applicable.

(e) Repair:

Not applicable.

(f) Testing:

Not applicable.

(6) Supplemental Information

None.

D. Description

Replace the Second Stage High Turbine Seal.

E. Compliance

Category 6

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

**F. Approval Data**

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model given.

The compliance statement and the procedures described in this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model listed.

**G. Manpower****(1) In Service**

Not Applicable.

**(2) At Overhaul**

Not Applicable.

**H. Weight and Balance****(1) Weight Change**

+ 0.225 lb. (0.10 kg)

**(2) Moment Arm**

No Effect.

**(3) Datum**

Engine Front Mount Centerline (Power Plant Station (PPS) 100)

**I. Electrical Load Data**

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

**J. Software Accomplishment Summary**

Not Applicable.

**K. References**

1. IAE V2500 Service Bulletin V2500-ENG-70-0445 (Standard Practices - Engine - Information - Engine - HP Turbine Rotor And Stator Assembly - To Announce The Availability Of New Stage 2 Turbine Vanes With Improved Airfoil Coating - Category Code 7 - Mod.Eng-70-0445).

2. IAE V2500 Service Bulletin V2500-ENG-72-0002 (Engine - Stage 1 Turbine Nozzle Assembly And HP Turbine Rotor And Stator Assembly - Incorporation Of Offset Supports).
3. IAE V2500 Service Bulletin 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).
4. IAE V2500 Service Bulletin V2500-ENG-72-0046 (Engine - HP Turbine Rotor And Stator Assembly - Provide A New First Stage HPT Blade And First Stage HPT Cooling Duct Assembly ).
5. IAE V2500 Service Bulletin V2500-ENG-72-0111 (Engine - HP Turbine Rotor And Stator Assembly - New Stage 1 HPT Air Seal).
6. IAE V2500 Service Bulletin V2500-ENG-72-0121 (Engine - HP Turbine Rotor And Stator Assembly - Provide New Stage 2 HPT Air Seal Assembly - Category Code 8 - Mod.Eng-72-0121).
7. IAE V2500 Service Bulletin 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).
8. IAE V2500 Service Bulletin V2500-ENG-72-0123 (Engine - HP Turbine Rotor And Stator Assembly - Provide A New Stage 1 HPT Hub Metering Plug With A Smaller Metering Hole And Transfer The Hub Details To The Stage 1 Turbine Rotor Assembly).
9. IAE V2500 Service Bulletin V2500-ENG-72-0240 (Engine - High Pressure Turbine Rotor and Stator Assembly - Provide a New Stage 2 HPT Air Seal and New Stage 1 High Pressure Turbine HPT Hub Metering Plugs).
10. IAE V2500 Service Bulletin V2500-ENG-72-0339 (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).
11. IAE V2500 Service Bulletin V2500-ENG-72-0340 (Modification Service Bulletin - Engine - HP Turbine Rotor And Stator Assembly - Provide A New Single Fully Ceramic Coated Vane And A New Stage 1 High Pressure Turbine Cooling Duct Assembly).
12. IAE V2500 Service Bulletin V2500-Eng-72-0341 (Engine - HP Turbine Rotor And Stator Assembly - Provide A New Stage 1 High Pressure Turbine Support Assembly Which Contains A New Seal).
13. IAE V2500 Service Bulletin V2500-ENG-72-0342 (Engine - Provide The Requirements For Modification To The Phoenix Standard Configuration).

14. IAE V2500 Service Bulletin V2500-ENG-72-0207 (Engine - HP Turbine Rotor And Stator Assembly - Provide A New Stage 2 HPT Air Seal Assembly Featuring Recontoured Forward And Rearward Mating Surfaces And A Tapered Web) Category 8 Modification.
15. IAE V2500 Service Bulletin V2500-ENG-72-0364 (Engine - High Pressure Turbine - Provide New Stage 2 High Pressure Turbine Duct Segments).
16. IAE V2500 Service Bulletin V2500-ENG-72-0365 (Engine - Provide Pretrenched Second Stage HPT Air Sealing Ring Segments).
17. IAE V2500 Service Bulletin V2500-ENG-72-0500 (Non - Modification Service Bulletin - N2 Vibration Monitoring For The High Pressure Turbine (HPT) Stage 2 Air Seal).
18. IAE V2500 Service Bulletin V2500-ENG-72-0501 (Non - Modification Service Bulletin - N2 Vibration Monitoring For The High Pressure Turbine (HPT) Stage 2 Air Seal).
19. IAE V2500 Service Bulletin V2500-ENG-72-0502 (Non-Modification Service Bulletin - Replacement Of High Pressure Turbine (HPT) Stage 2 Air Seal).
20. IAE V2500 Service Bulletin V2500-ENG-72-0534 (Engine - Provide New Second Stage Turbine Air Seal).
21. IAE V2500 Service Bulletin V2500-ENG-72-0542 (Engine - New First Stage Duct Segments And HPT Vane Support).
22. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA).
23. V2500 Engine Manual (E-V2500-1IA).
24. V2500 Standard Practices/Processes Manual (E-V2500-1IA) 70-09-00 Marking of Parts.
25. Internal Reference No. - 06VA034.
- R 26. Internal Reference No. - EC 08VA052.
27. ATA Locator - 72-45-00.

L. Other Publications Affected

1. V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA), Chapter/Section 72-45-00. To add the new part(s).
2. V2500 Engine Manuals (E-V2500-1IA), Chapter/Section 72-45-00 Cleaning, Inspection and Repair, to add the new part(s).

**M. Interchangeability of Parts**

Old and new parts are not directly interchangeable.

This Service Bulletin must be done at the same time or after the Phoenix Package Reference (13), Service Bulletin No. V2500-ENG-72-0342, Reference (7), Service Bulletin No. V2500-ENG-72-0122 and Reference (11) Service Bulletin No. V2500-ENG-72-0340.

**N. Information in the Appendix**

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (Yes)

Inspection Procedures (No)



## 2. Material Information

### A. Material – Price and Availability

Modification kit is not required.

For price and availability of spares refer to the supplement of this service bulletin.

### B. Industry Support Program

Not Applicable.

### C. The material data that follows is for each engine.

72-45-00

For V2500-A1 Production Engines:

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR – DISP
01-001	2A4223	1	Rotor and Stator Assembly – HPT Module	-	2A4110	(1)(F) (N)(I)
01-080	2A4196	1	.Seal Assy -Air, HPT, 2nd Stage	-	2A3185	(2)(B) (I)(C)

### D. The material data that follows is for each engine.

72-45-20

For V2500-A1 Production Engines:

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR – DISP
01-005	2A4203	1	.Case and Vane Assy – Turbine	-	2A4099	(1)(F) (N)(I)

E. The material data that follows is for each engine.

72-45-24

For V2500-A1 Production Engines:

FIG- NUMBER	ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
02-050		2A3272 CL37	17	..Ring Segment and Vane Cluster Assy - HPT 2nd Stg	-	2A5002 CL37	(1)(B) (I)(C)
02-120		2A1106-01	1	...Ring Segment, Assy of Air Sealing - HPT 2nd Stg	-	2A3431-01	(1)(B) (I)(C)
02-260		2A3172 CL37	2	..Ring Segment and Vane Cluster Assy - HPT 2nd Stg	-	2A4902 CL37	(1)(B) (I)(C)
02-320		2A1106-01	1	...Ring Segment, Assy of Air Sealing, HPT 2nd Stg	-	2A3431-01	(1)(B) (I)(C)

F. The material data that follows is for each engine.

72-45-00

For V2500-A1 Delivered Engines:

FIG- NUMBER	ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
	01-001	2A4223	1	Rotor and Stator Assy - HPT OR	-	2A4110	(1)(F) (N)(I)
R	01-001	2A4110-001	1	Rotor and Stator Assy - HPT OR	-	2A4110	(1)(F) (N)(I)
R	01-001	2A5800-003	1	Rotor and Stator Assy - HPT OR	-	2A5800	(1)(M) (N)(I)
R	01-001	2A6500-003	1	Rotor and Stator Assy - HPT OR	-	2A6500	(1)(M) (N)(I)
R	01-001	2A6200-003	1	Rotor and Stator Assy - HPT OR	-	2A6200	(1)(M) (N)(I)

	FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
R	01-001	2A6600-003	1	Rotor and Stator Assy - HPT OR	-	2A6600	(1)(M) (N)(I)
R	01-001	2A6300-003	1	Rotor and Stator Assy - HPT OR	-	2A6300	(1)(M) (N)(I)
	01-001	2A5800-003	1	Rotor and Stator Assy - HPT OR	-	2A5800-001	(1)(M) (N)(I)
	01-001	2A6500-003	1	Rotor and Stator Assy - HPT OR	-	2A6500-001	(1)(M) (N)(I)
	01-001	2A6200-003	1	Rotor and Stator Assy - HPT OR	-	2A6200-001	(1)(M) (N)(I)
	01-001	2A6600-003	1	Rotor and Stator Assy - HPT OR	-	2A6600-001	(1)(M) (N)(I)
	01-001	2A6300-003	1	Rotor and Stator Assy - HPT OR	-	2A6300-001	(1)(M) (N)(I)
	01-001	2A6700-001	1	Rotor and Stator Assy - HPT OR	-	2A6700	(1)(M) (N)(I)
	01-001	2A5400-001	1	Rotor and Stator Assy - HPT OR	-	2A5400	(1)(M) (N)(I)
	01-001	2A5500-001	1	Rotor and Stator Assy - HPT OR	-	2A5500	(1)(M) (N)(I)
	01-001	2A4400-001	1	Rotor and Stator Assy - HPT OR	-	2A4400	(1)(M) (N)(I)
	01-001	2A5100-001	1	Rotor and Stator Assy - HPT OR	-	2A5100	(1)(M) (N)(I)
	01-001	2A5200-001	1	Rotor and Stator Assy - HPT OR	-	2A5200	(1)(M) (N)(I)
	01-001	2A1700-001	1	Rotor and Stator Assy - HPT	-	2A1700	(1)(M) (N)(I)
	01-080	2A4196	1	.Seal Assy - Air, HPT, 2nd Stage OR	-	2A3185	(2)(B) (I)(C)
	01-080	2A4196	1	.Seal Assy - Air, HPT, 2nd Stage	-	2A1160	(2)(B) (N)(I)

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
01-080	2A4196	1	OR .Seal Assy - Air, HPT, 2nd Stage	-	2A0487	(2)(B) (N)(I)
01-080	2A4196	1	OR .Seal Assy - Air, HPT, 2nd Stage	-	2A3108	(2)(B) (N)(I)

G. The material data that follows is for each engine.

72-45-20

For V2500-A1 Delivered Engines:

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
01-005	2A4203	1	.Case and Vane Assy, Turbine	-	2A4099	(1)(F) (N)(I)
01-005	2A4099-001	1	OR .Case and Vane Assy, Turbine	-	2A4099	(1)(M) (N)(I)
R 01-005	2A3304	1	OR .Case and Vane Assy, Turbine	-	2A3304	(1)(M) (N)(I)
R 01-005	2A3304-001	1	OR .Case and Vane Assy, Turbine	-	2A3304-001	(1)(M) (N)(I)
R 01-005	2A3304-002	1	OR .Case and Vane Assy, Turbine	-	2A3304-002	(1)(M) (N)(I)
R 01-005	2A3304-003	1	OR .Case and Vane Assy, Turbine	-	2A3304-003	(1)(M) (N)(I)
01-005	2A3415-001	1	OR .Case and Vane Assy, Turbine	-	2A3415	(1)(M) (N)(I)
01-005	2A3468-002	1	OR .Case and Vane Assy, Turbine	-	2A3468	(1)(M) (N)(I)
01-005	2A3468-003	1	OR .Case and Vane Assy, Turbine	-	2A3468-001	(1)(M) (N)(I)

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H. The material data that follows is for each engine.

72-45-24

For V2500-A1 Delivered Engines:

FIG- NUMBER	ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
02-050		2A3272 CL37	17	..Ring Segment and Vane Cluster Assy - HPT 2nd Stg	-	2A5002 CL37	(1)(B) (C)(I)
02-050		2A3272 CL37	17	..Ring Segment and Vane Cluster Assy - HPT 2nd Stg (Std)	-	2A3272-001	(1)(B) (N)(I)
02-120		2A1106-01	1	...Ring Segment, Assy of Air Sealing - HPT 2nd Stg	-	2A3431-01	(1)(B) (C)(I)
02-260		2A3172 CL37	2	..Ring Segment and Vane Cluster Assy - HPT 2nd Stg (Bor)	-	2A4902 CL37	(1)(B) (C)(I)
02-260		2A3172 CL37	2	..Ring Segment and Vane Cluster Assy - HPT 2nd Stg (Bor)	-	2A3172-001	(1)(B) (N)(I)
02-320		2A1106-01	1	...Ring Segment, Assy of Air Sealing, HPT 2nd Stg	-	2A3431-01	(1)(B) (C)(I)

I. Instructions/Disposition Code Statements:

## Parts Modification Conditions

- (1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.
- (2) The new part is a replacement part only, and cannot be obtained by modification of the old part.

## Spare Parts Availability

- (B) The new part will be available approximately February 2008.
- (C) The old part will continue to be supplied until the new part is available.
- (F) The new part will be available on a Full Manufacturing Lead time quote basis only.
- (M) It is possible to get the new part only by modification.

(N) The old part is not available.

#### Cleaning, Inspection and Repair Information

(I) The cleaning, inspection and repair requirements are the same for the old and new part. The applicable engine manuals will be revised.

#### J. Tooling – Price and Availability

Special tools are not required to accomplish this Service Bulletin.

#### K. Reidentified Parts

R R	New PN	Keyword	Old PN
	2A1700-001	Rotor and Stator Assembly	2A1700
	2A4223	Rotor and Stator Assembly	2A4110
	2A4110-001	Rotor and Stator Assembly	2A4110
	2A4400-001	Rotor and Stator Assembly	2A4400
	2A5100-001	Rotor and Stator Assembly	2A5100
	2A5200-001	Rotor and Stator Assembly	2A5200
	2A5400-001	Rotor and Stator Assembly	2A5400
	2A5500-001	Rotor and Stator Assembly	2A5500
	2A5800-002	Rotor and Stator Assembly	2A5800
	2A5800-003	Rotor and Stator Assembly	2A5800-001
	2A6200-002	Rotor and Stator Assembly	2A6200
	2A6200-003	Rotor and Stator Assembly	2A6200-001
	2A6300-002	Rotor and Stator Assembly	2A6300
	2A6300-003	Rotor and Stator Assembly	2A6300-001
	2A6500-002	Rotor and Stator Assembly	2A6500
	2A6500-003	Rotor and Stator Assembly	2A6500-001
	2A6600-002	Rotor and Stator Assembly	2A6600

	New PN	Keyword	Old PN
	2A6600-003	Rotor and Stator Assembly	2A6600-001
	2A6700-001	Rotor and Stator Assembly	2A6700
	2A4223	Rotor and Stator Assembly	2A4110
	2A3415-001	Case and Vane Assembly	2A3415
R	2A3304-002	Case and Vane Assembly	2A3304-002
R	2A3304-003	Case and Vane Assembly	2A3304-003
	2A3468-002	Case and Vane Assembly	2A3468
	2A3468-003	Case and Vane Assembly	2A3468-001
	2A4203	Case and Vane Assembly	2A4099
	2A4099-001	Case and Vane Assembly	2A4099
R	2A3304	Case and Vane Assembly	2A3304
R	2A3304-001	Case and Vane Assembly	2A3304-001
	2A3368-002	Case and Vane Assembly	2A3368
	2A1106-01	Ring Segment Assy	2A3431-01
	2A3272	Ring Segment Assy Non-Borescope	2A5002
	2A3272	Ring Segment Assy Non-Borescope	2A3272-001
	2A3172	Ring Segment Assy Non-Borescope	2A4902
	2A3172	Ring Segment Assy Non-Borescope	2A3172-001

#### L. Other Material Information Data

Not Applicable.

### 3. Accomplishment Instructions

- (1) Provide new Second Stage Turbine Air Seal. See Figure 1.

**NOTE:** This Service Bulletin must be done after Reference (10) Service Bulletin V2500-ENG-72-0339 (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), Reference (11) Service Bulletin V2500-ENG-72-0340 (Modification Service Bulletin - Engine - HP Turbine Rotor And Stator Assembly - Provide A New Single Fully Ceramic Coated Vane And A New Stage 1 High Pressure Turbine Cooling Duct Assembly) and Reference (12) Service Bulletin V2500-Eng-72-0341 (Engine - HP Turbine Rotor And Stator Assembly - Provide A New Stage 1 High Pressure Turbine Support Assembly Which Contains A New Seal).

- (2) Clean per Reference (24) Standard Practices Manual, Chapter/Section 70-10-00-100-501.
- (3) Inspect and repair per Reference (23) Engine Manual, Chapter/Section 72-45-24-100.
- (4) Disassemble per Reference (23) Engine Manual, Chapter/Section 72-45-00-030-001.
- (5) Discard Seal-Air Turbine Assy, 2 Stage PN 2A1160 or PN 2A3108 or PN 2A0487 or PN 2A3185 and replace with PN 2A4196.
- (6) Discard Vane Cluster Assembly and replace with PN 2A3272 (standard) and PN 2A3172 (boroscope) or re-operate per the following:
- (a) Replace ring segment if pre-trenched honeycomb exist, by one of two methods
- (i) Replace part number 2A3431-01 with 2A1106-01
- (ii) Re-operate 2A3431-01 by removing pre-trenched honeycomb and replace with non trenched honey comb per Reference (23) Engine Manual, Chapter/Section 72-45-24-300-016, Repair-016.
- (iii) Mark the ring segment re-identification part number using the vibration peen method specified per Reference (24), Standard Practices Manual, Chapter/Section 70-09-00, marking of parts. See Figure 1 for the area to mark the part. The re-identification part number is as follows (per Table 1).

TABLE 1 (RING SEGMENT)

OLD PART NO.	NEW PART NO.
2A3431-01	2A1106-01



(b) Assemble ring segment and vane cluster using re-operated vane assembly (per 3.5) and replaced or re-operated ring segment (per 3.4 / sht 3) by the procedure specified per Reference (23) Engine Manual, Chapter/Section 72-45-24, Repair-18 (vrs 3391).

(i) Mark the ring segment and vane cluster re-identification part number using the vibration peen method specified in Reference (24), Standard Practices Manual, Chapter/Section 70-09-00, marking of parts. See Figure 2 for the area to mark the part. The re-identification part number is as follows (Table 2 and 3):

TABLE 2 RING SEGMENT and VANE CLUSTER ASSEMBLY (NON-BORESCOPE)

OLD PART NO.	NEW PART NO.
2A5002	2A3272
2A3272-001	2A3272

TABLE 3 RING SEGMENT and VANE CLUSTER ASSEMBLY (BORESCOPE)

OLD PART NO.	NEW PART NO.
2A4902	2A3172
2A3172-001	2A3172

(7) Assemble the case and vane assy by the procedure specified per Reference (23) Engine Manual, Chapter/Section 72-45-20-440.

(a) Use re-operated vane clusters (per 3.5) and/or production cluster PN 2A3172 (borescope) and/or PN 2A3272 (non borescope).

(b) Mark the case and vane assy re-identification part number using the vibration peen method specified in Reference (24), Standard Practices Manual, Chapter/Section, 70-09-00, marking of parts. See Figure 3 for the area to mark the part. The re-identification part number is as follows (Table 4):

TABLE 4 (CASE AND VANE ASSEMBLY)

OLD PART NO.	NEW PART NO.	REMARKS
2A3415	2A3415-001	
2A3304-002	2A3304-002	Verify Part Marking Non-Trench Ring Seg (2A1106) Config
2A3304-003	2A3304-003	Verify Part Marking Non-Trench Ring Seg (2A1106) Config
2A3468	2A3468-002	
2A3468-001	2A3468-003	
2A4099	2A4099-001	
2A4099	2A4203	
2A3304	2A3304	Verify Part Marking Non-Trench Ring Seg (2A1106) Config

R

2A3304-001	2A3304-001	Verify Part Marking Non-Trench Ring Seg (2A1106) Config
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(8) Assemble Rotor and Stator per Reference (23) Engine Manual 72-45-00-430

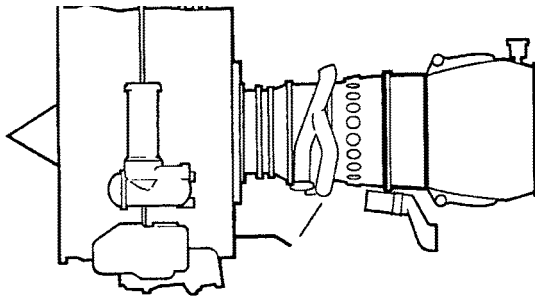
- (a) Mark the Rotor and Stator data plate per PWA 310, Class 39 per Reference (24) Standard Practices Manual, Section 70-09-00-400-501, method. See Figure 4 for the area to mark the part. Permissible to install new data plate 2A1122 if no room to mark exist. The re-identification part number is as follows (Table 5):

TABLE 5 (ROTOR AND STATOR)

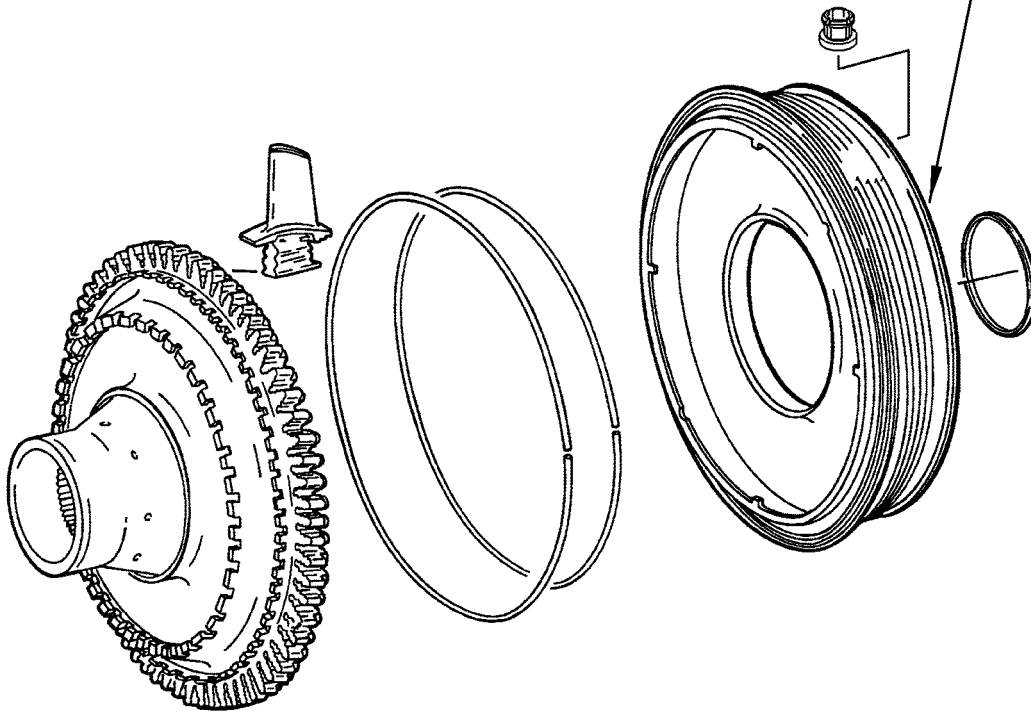
OLD PART NO.	NEW PART NO.
2A1700	2A1700-001
2A4110	2A4223
2A4110	2A4110-001
2A4400	2A4400-001
2A5100	2A5100-001
2A5200	2A5200-001
2A5400	2A5400-001
2A5500	2A5500-001
2A5800	2A5800-002
2A5800-001	2A5800-003
2A6200	2A6200-002
2A6200-001	2A6200-003
2A6300	2A6300-002
2A6300-001	2A6300-003
2A6500	2A6500-002
2A6500-001	2A6500-003
2A6600	2A6600-002
2A6600-001	2A6600-003
2A6700	2A6700-001

R

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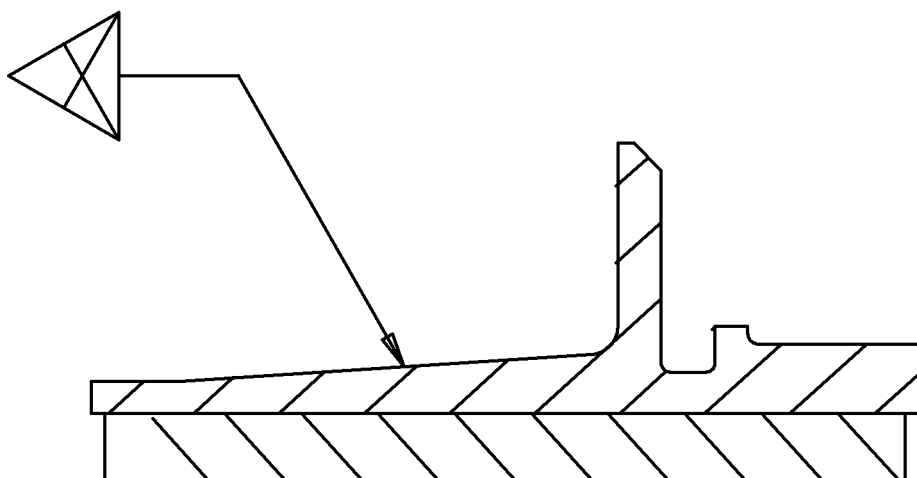


INSTALL THE 2A4196  
STAGE 2 HIGH PRESSURE  
TURBINE AIR SEAL (1OFF)

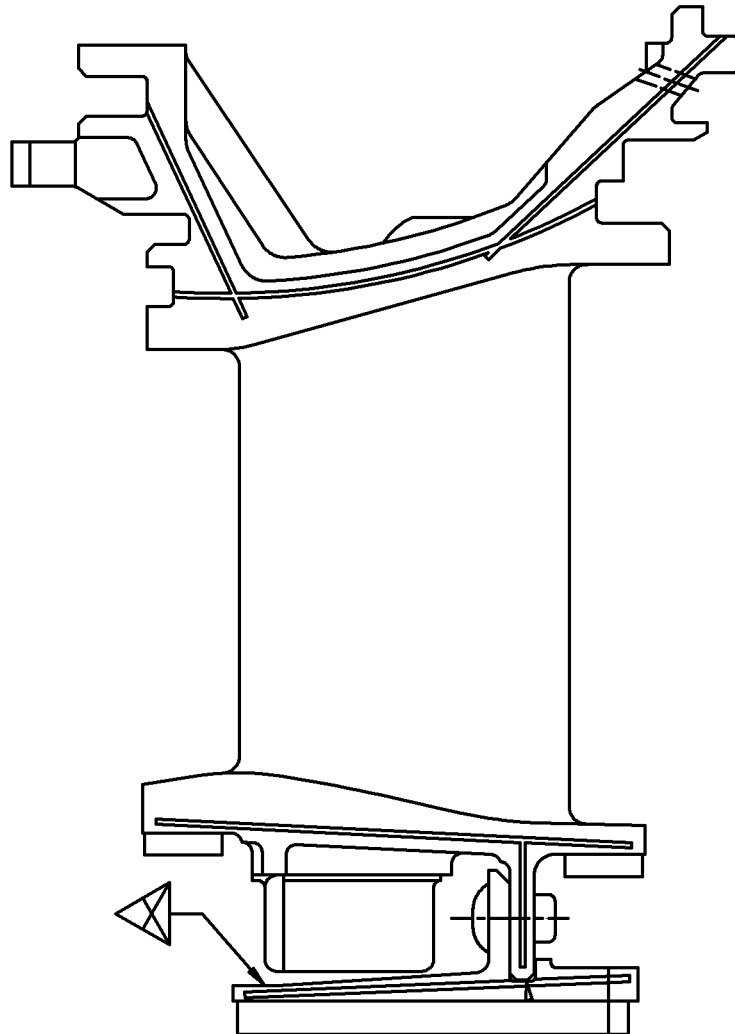


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LOCATION OF THE STAGE 2 HIGH PRESSURE TURBINE AIR SEALS  
FIGURE 1

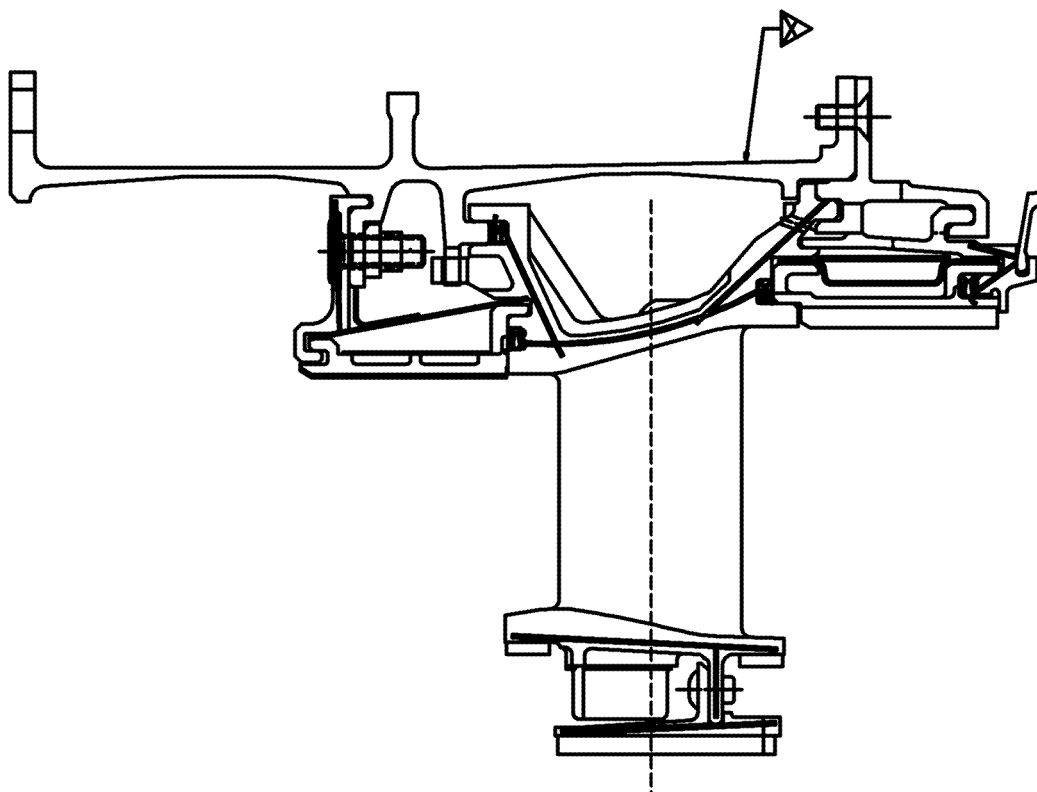


RE-IDENT RING ASSEMBLY  
FIGURE 2

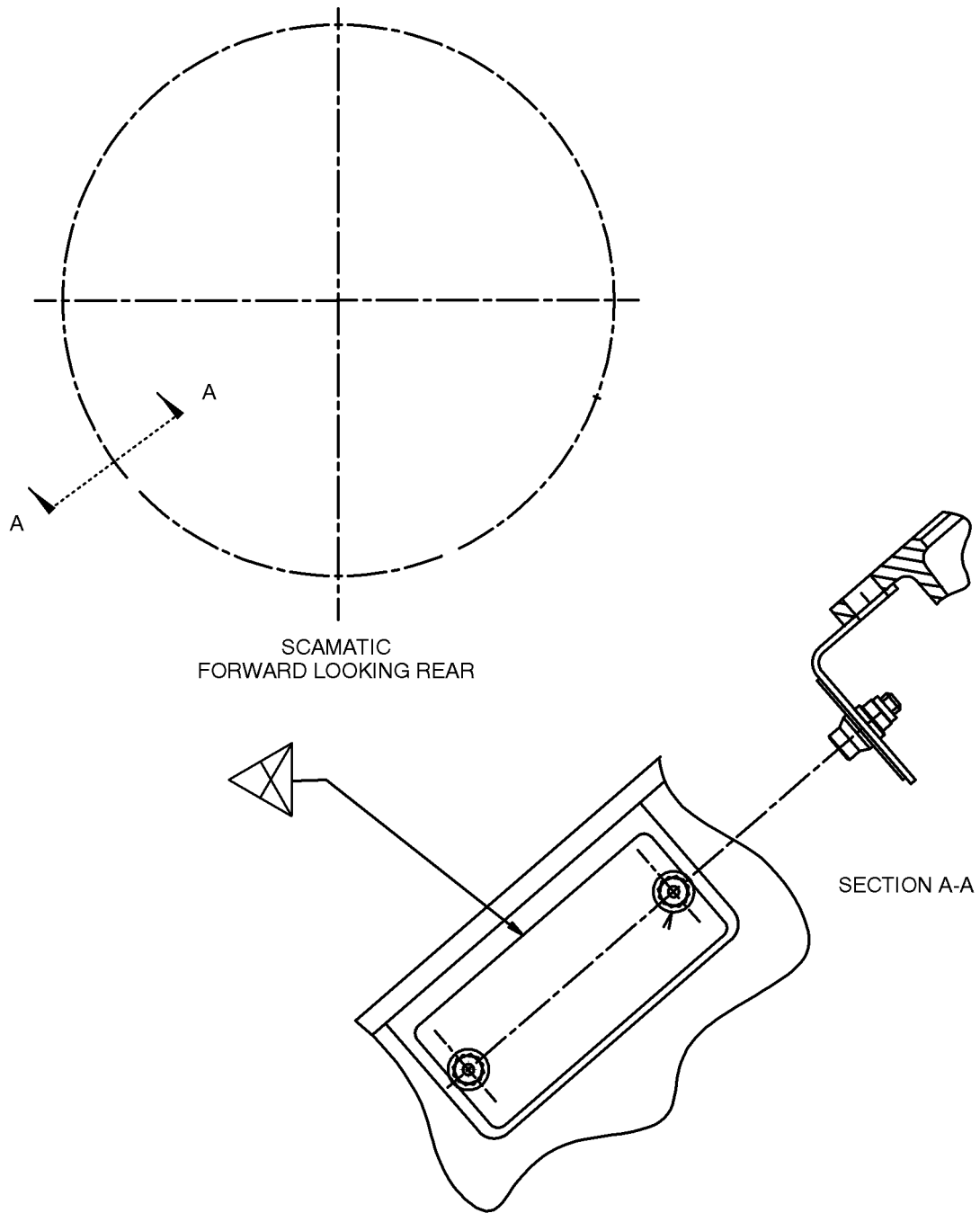


pw0b519647

RE-IDENT VANE CLUSTER  
FIGURE 3



RE-IDENT CASE AND VANE ASSEMBLY  
FIGURE 4



pw0b519650

ROTOR AND STATOR DATA PLATE  
FIGURE 5



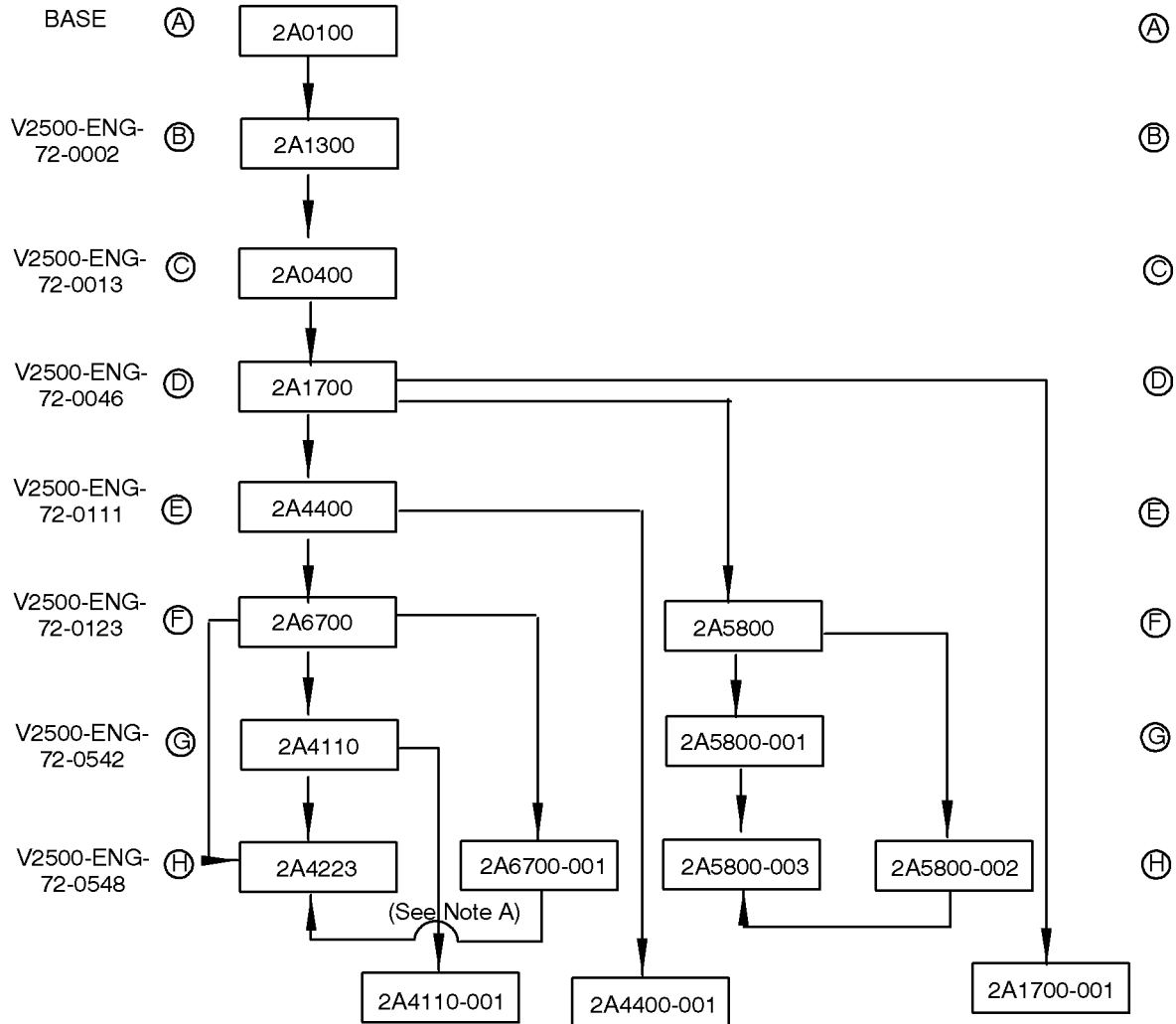


APPENDIX 1Parts Progression To Show the Changed Part in Relation to Other Parts

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## MODIFICATIONS

## PART NUMBER CHANGE



- \* No procedure for advancement.
- \*\* Engines not incorporating 72-0111
- \*\*\* Engines incorporating 72-0111

NOTE A: Engines which have incorporated SB 72-0542 (1st OAS) may replace 2A6700-001 with 2A4223.

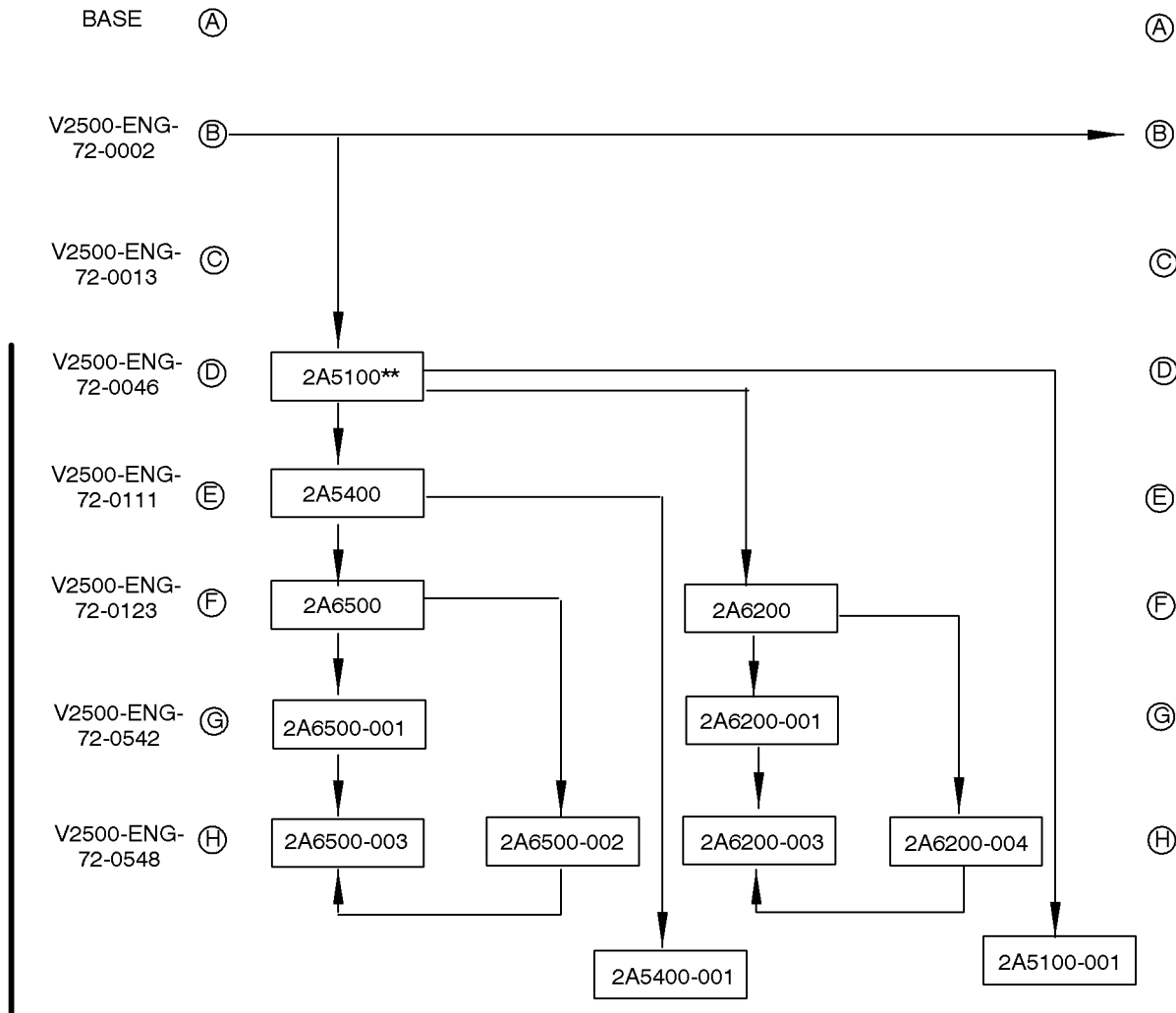
FAMILY TREE – ROTOR AND STATOR ASSEMBLY  
REF. CATALOG SEQUENCE NO. 72-45-00 FIGURE 01 ITEM 001  
CHART A (Sheet 1 of 3)

MODIFICATIONS

PART NUMBER CHANGE

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- \* No procedure for advancement.
- \*\* Engines not incorporating 72-0111
- \*\*\* Engines incorporating 72-0111

FAMILY TREE – ROTOR AND STATOR ASSEMBLY  
REF. CATALOG SEQUENCE NO. 72-45-00 FIGURE 01 ITEM 001  
CHART A (Sheet 2 of 3)

Jan.11/08  
Jan. 7/09 Revision 1

V2500-ENG-72-0548  
Appendix 1 – Page 3

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Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

## MODIFICATIONS

## PART NUMBER CHANGE

BASE (A)

V2500-ENG-72-0002 (B)

V2500-ENG-72-0013 (C)

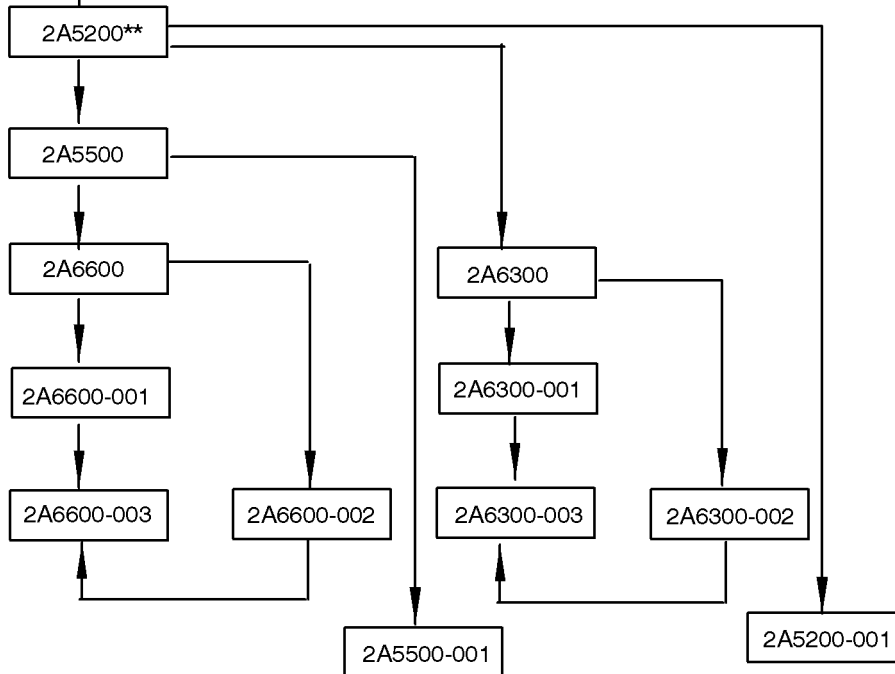
V2500-ENG-72-0046 (D)

V2500-ENG-72-0111 (E)

V2500-ENG-72-0123 (F)

V2500-ENG-72-0542 (G)

V2500-ENG-72-0548 (H)



- \* No procedure for advancement.
- \*\* Engines not incorporating 72-0111
- \*\*\* Engines incorporating 72-0111

**FAMILY TREE – ROTOR AND STATOR ASSEMBLY**  
 REF. CATALOG SEQUENCE NO. 72-45-00 FIGURE 01 ITEM 001  
 CHART A (Sheet 3 of 3)

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 Jan. 7/09 Revision 1

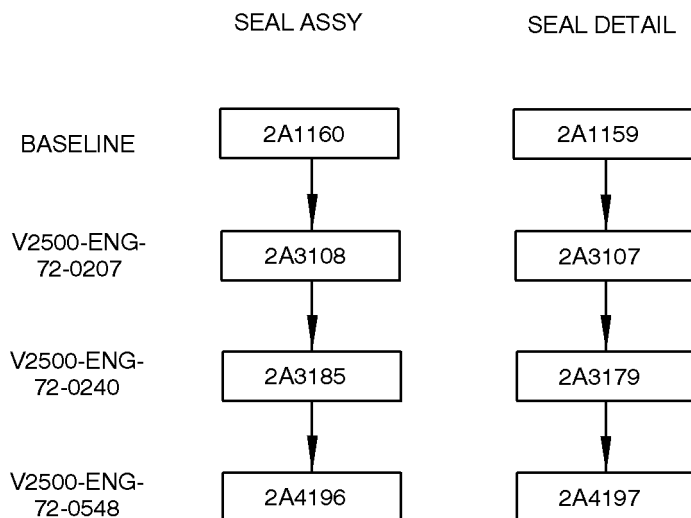
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**V2500-ENG-72-0548**  
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MODIFICATION

PART NUMBER CHANGE

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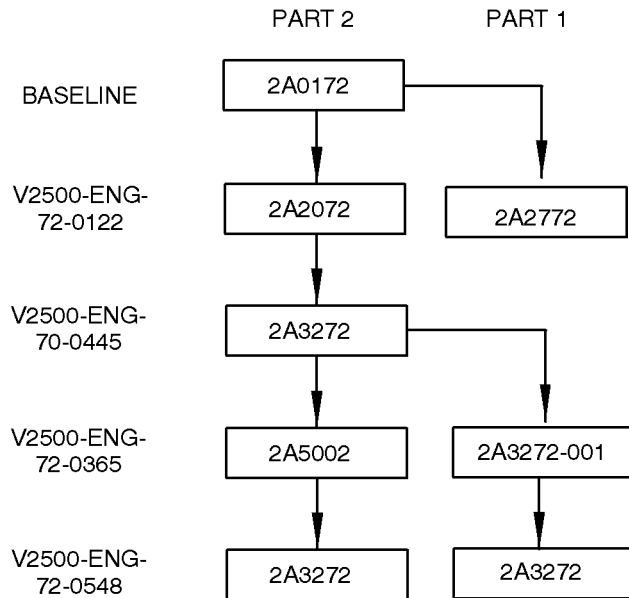


pw0b519662

FAMILY TREE - STAGE 2 HIGH PRESSURE TURBINE AIR SEAL  
REF. CATALOG SEQUENCE NO. 72-45-00 FIGURE 01 ITEM 082  
CHART B

MODIFICATION

PART NUMBER CHANGE



#### PART 1

A NEW ONE PIECE STAGE 2 HPT SEAL (FEATHERSEAL)

A NEW LONGER STAGE 2 HPT SEAL RING SEG ASSY AND SEAL (FEATHERSEAL)

#### PART 2

A NEW ONE PIECE 2 HPT SEAL (FEATHERSEAL)

A NEW LONGER STAGE 2 HPT SEAL RING SEG ASSY &amp; SEAL

A NEW STAGE 2 VANE COVER WITH DIRECTIONAL FLOW CAVITY

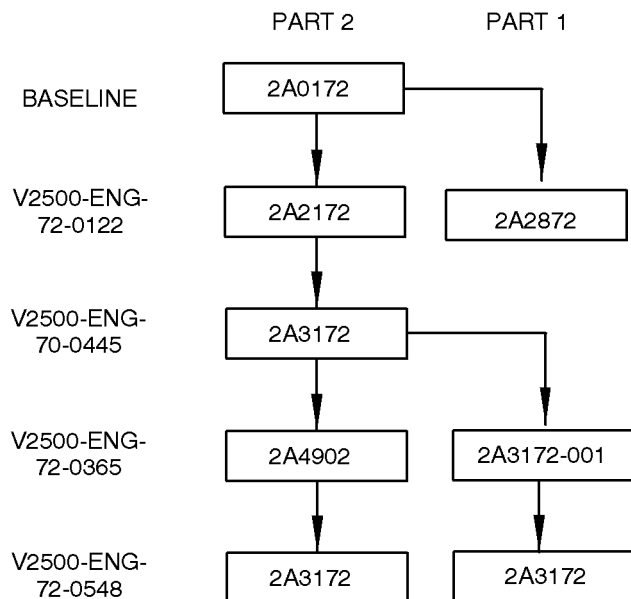
A NEW SMALLER METERING HOLE IN REAR OUTER LEG OF VANE

FAMILY TREE – STAGE 2 RING SEGMENT & VANE CLUSTER ASSEMBLY  
REF. CATALOG SEQUENCE NO. 72-45-24 FIGURE 02 ITEM 050  
CHART C (Sheet 1 of 2) – Non-Borescope

MODIFICATION

PART NUMBER CHANGE

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PART 1  
A NEW ONE PIECE STAGE 2 HPT SEAL (FEATHERSEAL)  
A NEW LONGER STAGE 2 HPT SEAL RING SEG ASSY AND SEAL (FEATHERSEAL)

PART 2  
A NEW ONE PIECE 2 HPT SEAL (FEATHERSEAL)  
A NEW LONGER STAGE 2 HPT SEAL RING SEG ASSY & SEAL  
A NEW STAGE 2 VANE COVER WITH DIRECTIONAL FLOW CAVITY  
A NEW SMALLER METERING HOLE IN REAR OUTER LEG OF VANE

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FAMILY TREE - STAGE 2 RING SEGMENT & VANE CLUSTER ASSEMBLY  
REF. CATALOG SEQUENCE NO. 72-45-24 FIGURE 02 ITEM 050  
CHART C (Sheet 2 of 2) - Borescope

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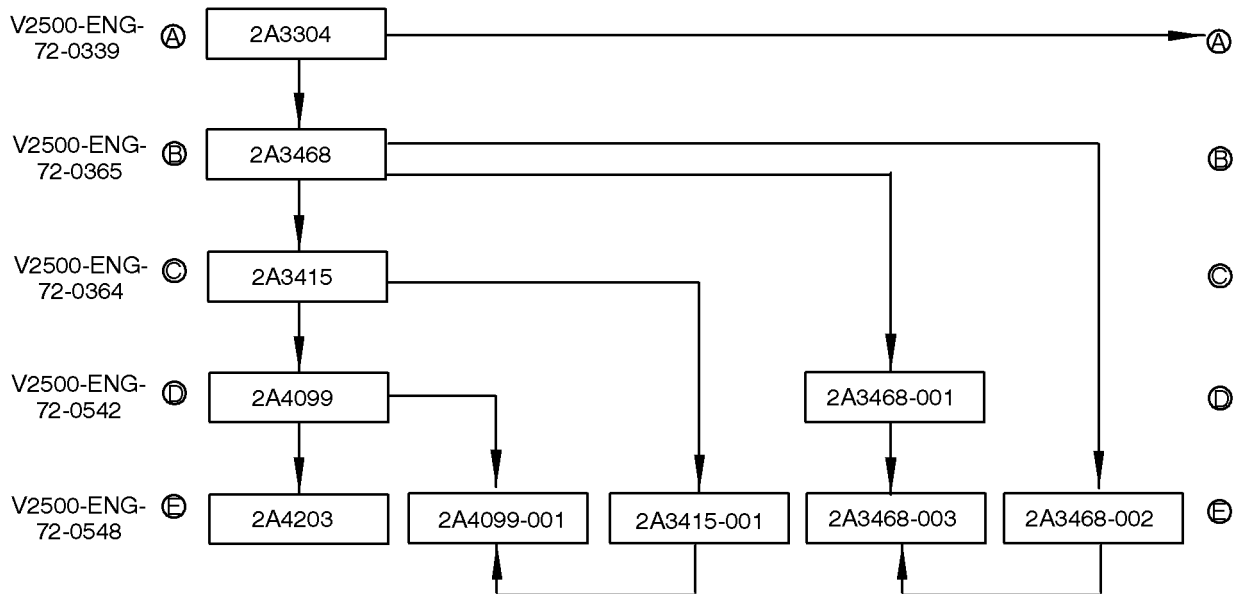
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MODIFICATION

PART NUMBER CHANGE



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R

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R  
R  
R

FAMILY TREE – STAGE 2 RING SEGMENT & VANE ASSEMBLY  
REF. CATALOG SEQUENCE NO. 72-45-20 FIGURE 01 ITEM 005  
CHART D (Sheet 1 of 2)

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Jan. 7/09 Revision 1

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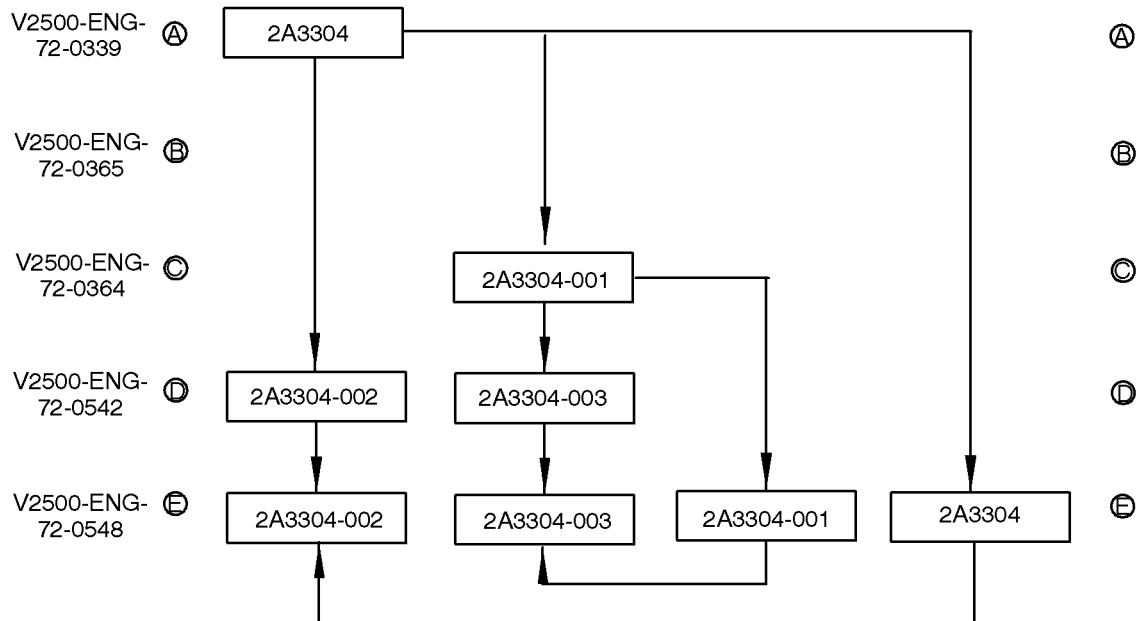
Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).



MODIFICATION

PART NUMBER CHANGE

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R

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FAMILY TREE - STAGE 2 RING SEGMENT & VANE ASSEMBLY  
REF. CATALOG SEQUENCE NO. 72-45-20 FIGURE 01 ITEM 005  
CHART D (Sheet 2 of 2)

R  
R  
R

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APPENDIX 2

Added Data

Number values shown in parentheses adjacent to U.S. values are International System of units (SI) equivalents.

To calculate part life, include the hours and/or cycles since the part was made. Use the total hours or cycles to calculate life limits that are the result of part modification, a part used in an engine with different thrust, or for some other reason.

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R Internal Reference Information

R	Revision No.	Reference Document	Origination
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R	1	EC 08VA052	BB/TR
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APPENDIX 3

Revision to Table of Limits

Engine Manual(s), Chapter/Section 05-10-01, A1/A5 Revision 69 and D5 Revision 49, dated August 1, 2007 is scheduled to incorporate the Part Service Life Limits related to this Service Bulletin and will take precedence over the Service Bulletin.

Revision to Table of Limits life cycles is as follows:

CL	REF	AFFECTED PARTS	PART # / CL	MODEL	REPLACE IF EITHER	
					LIMIT EXCEED	
					CYCLE MAX	HRS MAX
W	690	SEAL - AIR, HPT, 1 - 2A4197 2 STG		V2500-A1	10,000	



ENGINE – PROVIDE NEW SECOND STAGE TURBINE AIR SEALSupplement

V2500 ALL

1. Modification Kit

A. There is no kit provided to do this Service Bulletin.

2. Material Cost

NOTE: The prices shown are for estimating purposes only and as such are given in good faith without commercial liability for advanced planning purposes only. Refer to IAE Spares and/or current Price Catalog for current prices.

A. The estimated price of new material is \$106,380 to do this Service Bulletin when the part modification procedure is used.

B. There is no kit provided to do this Service Bulletin.

3. New Production Parts

New Production Part Number	Description	Unit Price US Dollars
2A4196	Seal Assy – Air, HPT 2nd Stage	106,380.00