P U B L I C A T I O N T R A N S M I T T A L

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DATE: Jan. 7/09

V2500-A1 SERIES PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits the Revision 1 of Service Bulletin V2500-ENG-72-0542 and the Revision 1 of the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Aug. 7/07	Initial Issue	Aug. 7/07

Service Bulletin Revision 1

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 23 of the Service Bulletin	To revise the Category Code from 7 to 5.
All pages of the Supplement	Page 1 of the Supplement	To revise the Category Code from 7 to 5.

V2500-ENG-72-0542

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise Customer Data Services, Rolls-Royce plc, Derby, England

International Aero Engines

SERVICE BULLETIN

ENGINE - NEW FIRST STAGE DUCT SEGMENTS AND HPT VANE SUPPORT

1. Planning Information

A. Effectivity

(1) Airbus A320.

(a) V2500-A1 Engines prior to Serial No. V0362.

B. Concurrent Requirements

The Service Bulletin that follows must be done before or or at the same time with this one:

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

C. Reason

(1) Condition:

Field experience has shown that the 1st Stage Blade Outer Air Seal Segments (BOAS) can develop axial cracking and inward, radial bowing.

R Due to an increase in A1 1st BOAS distress, the category code is being
R revised to Cat. 5 to facilitate an urgent replacement of the old design.
R IAE recommends not repairing or installing pre SB ENG-72-0542 (A1) 1st
R Stage BOAS. The Field has experienced release of 1st BOAS into gaspath
R resulting in various operational impacts and collateral damage.

(2) Background:

This condition could result in an interaction between the BOAS Segments and the 1st Stage Blades. This interaction may contribute to increased blade tip clearance and reduced time on-wing. Desert operators have experienced sand plugging which aggravates the distress.

(3) Objective:

Redesign the BOAS to improve durability by enhancing the cooling distribution of the component and increasing the air allocation. This helps alleviate the seal distress and distortion. The BOAS was redesigned with larger film cooling holes and more holes in the impingement plate. This provides increased cooling to the component. The larger film cooling holes will mitigate the sand plugging encountered by the sand operators.

A re-designed 1st Stage Vane Support is introduced with increase flow to the 1st BOAS.

(4) Substantiation:

The component was allocated an additional amount of Turbine Cooling Air. Both bill of material and redesigned First Outer Air Seals were run in the test engine X808-17, which ran approximately 100 cycles and validated the system air change.

(5) Effects of Bulletin on:

(a) Removal/Installation

Not affected.

(b) Disassembly/Assembly

Not affected.

(c) Cleaning

Not affected.

(d) Inspection/Check

Not affected.

(e) Repair Schemes

Not affected.

(f) Testing

Not affected.

(6) Supplemental Information

Based on similarity of V2500-A5/D5 First Outer Air Seal redesign experience, the redesigned V2500-A1 First Outer Air Seal incorporates durability enhancements that reduce the axial distress - inward radial bowing.

A performance analysis identified a 0.2% increase in mission fuel burn, 2.5°C EGT margin reduction and negligible HPC and LPC stability margin impact. The redesigned Outer Air Seal has improved EGT margin retention which will offset the initial (test cell) impact on performance.

D. Description

Replace the 1st Stage Duct Segments and HPT Vane Support with new design parts that provide greater cooling.

E. Compliance

R Category 5

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

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

Estimate of Man hours to incorporate the full intent of this Service Bulletin:

(1) In Service

Not Applicable.

(2) At Overhaul

Total - 2 Hours 45 Minutes

(a) To rework - 2 Hours 45 Minutes

(b) To assemble - Applicable (Hours not affected)

(c) To record - Applicable (Hours not affected)

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

H. Material Price and Availability

Modification kit not required.

For the prices and availability of future spares, refer to supplement to this Service Bulletin.

I. Tooling Price and Availability

Special tools are not required.

J. Industry Support Information

Not applicable.

K. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

No Effect.

(3) Datum

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

L. Electrical Load Data

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

M. Software Accomplishment Summary

Not Applicable.

N. References

(1) IAE V2500 Service Bulletin V2500-ENG-70-0823 (Information - Engine - Provide Identification For Cast To Size Duct Segments).

(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-72-0108 (Engine - H.P. Turbine Rotor And Stator Assembly - Incorporate New Stage 1 Duct Segments With Improved Ceramic Coating).

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

(7) 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).

(8) IAE V2500 Service Bulletin V2500-ENG-72-0310 (Engine - High Pressure Turbine - Provide New Stage 1 And 2 High Pressure Turbine Duct Segments).

(9) 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).

(10) 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).

(11) IAE V2500 Service Bulletin V2500-ENG-72-0364 (Engine - High Pressure Turbine - Provide New Stage 2 High Pressure Turbine Duct Segments).

(12) IAE V2500 Service Bulletin V2500-ENG-72-0365 (Engine - Provide Pretrenched Second Stage HPT Air Sealing Ring Segments).

(13) IAE V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA), Chapter/Section 72-44-10 Figure 1 Item 010 and 72-45-23 Figure 01 Items 060 and 062.

(14) IAE V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-44-10, 72-45-23, and 72-45-23.

(15) IAE V2500 Standard Practices/Processes Manual (SPP-V2500-1IA), Chapter/Section 70-09-00-400-501.

(16) Internal Reference No.:

Engineering Change No. 03VA013.

R (17) Internal Reference No.:

R Engineering Change No. 08VA052.

(18) ATA Locator - 72-44-00 and 72-45-00.

O. Other Publications Affected

None.

P. Interchangeability of Parts

Old and new parts are directly interchangeable in complete sets.

Q. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

2. Material Information

A. Industry Support Program

Not Applicable.

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

72-44-00

FIG-ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PART NUMBER	INSTR-DISP
01-001	2A4120	1	Turbine Nozzle Group	-	2A3800	(NP)
			OR			
01-001	2A5000-001	1	Turbine Nozzle Group	-	2A5000	(3)(NP)

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

72-44-10

FIG-ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PART NUMBER	INSTR-DISP
01-010	2A4027	1	.Support, HPT, 1st Stg, Assy Of	-	2A3360	(1)(B)(N1)
01-015	2A4026	1	..Support	-	2A3327	(2)(NP)
			OR			
01-015	2A3327-001	1	..Support	-	2A3327	(1)(NP)
			OR			
01-015	2A1359-002	1	..Support	-	2A1359-001	(1)(NP)

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

72-45-00

FIG-ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PART NUMBER	INSTR-DISP
01-001	2A4110	1	Rotor & Stator Assy, HPT Module	-	2A6700	(F)
			OR			
01-001	2A5800-001	1	Rotor & Stator Assy, HPT Module	-	2A5800	(3)
			OR			
01-001	2A6200-001	1	Rotor & Stator Assy, HPT Module	-	2A6200	(3)
			OR			

FIG-ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PART NUMBER	INSTR-DISP
01-001	2A6300-001	1	Rotor & Stator Assy, HPT Module	-	2A6300	(3)
			OR			
01-001	2A6500-001	1	Rotor & Stator Assy, HPT Module	-	2A6500	(3)
			OR			
01-001	2A6600-001	1	Rotor & Stator Assy, HPT Module	-	2A6600	(3)

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

72-45-20

FIG-ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PART NUMBER	INSTR-DISP
01-005	2A4099	1	.Case & Vane Assy	-	2A3415	(1)(F)(N1)
			OR			
01-005	2A3304-002	1	.Case & Vane Assy	-	2A3304	(3)(N)
			OR			
01-005	2A3304-003	1	.Case & Vane Assy	-	2A3304-001	(3)(N)
			OR			
01-005	2A3468-001	1	.Case & Vane Assy	-	2A3468	(3)(N)

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

72-45-23

FIG-ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PART NUMBER	INSTR-DISP
01-060	2A3954-01	38	.Duct Segment, 1st Stg Assy Of	-	2A3515-01	(2)(B)(N1) (I)
			OR			
01-060	2A3954-01	38	.Duct Segment, 1st Stg Assy Of	-	2A3295-01	(2)(B)(N) (I)
01-062	2A3955	38	..Cover, HPT Duct Segment	-	2A3561	(2)(B)(N1) (I)

G. 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.

(3) The new part is a field identification of an assembly incorporating this Service Bulletin.

(4) The new part can be obtained by modification of the old part as specified in V2500-ENG-72-0341 then follow these Accomplishment Instructions.

Spare Parts Availability

(A) The new part is available.

(B) The new part will be available approximately September 1, 2007.

(F) The new part will be available on a Full Manufacturing lead time quote basis only.

(N) The old part is not available.

(N1) The old part will continue to be supplied until approximately September 1, 2007.

(N2) The old part will continue to be supplied.

(NP) The part is an item that is usually not procured as a spare item.

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.

H. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

I. Reidentified Parts

Reidentified Parts Data

NEW PART NUMBER	Keyword	OLD PART NUMBER
2A4120	Turbine Nozzle Group	2A3800
2A5000-001	Turbine Nozzle Group	2A5000
2A4027	Support, HPT, 1st Stg, Assy of	2A3360
2A3327-001	Support	2A3327
2A1359-002 *	Support	2A1359-001
2A4110	Rotor & Stator Assy, HPT Module	2A6700
2A5800-001	Rotor & Stator Assy, HPT Module	2A5800
2A6200-001	Rotor & Stator Assy, HPT Module	2A6200
2A6300-001	Rotor & Stator Assy, HPT Module	2A6300
2A6500-001	Rotor & Stator Assy, HPT Module	2A6500
2A6600-001	Rotor & Stator Assy, HPT Module	2A6600
2A4099	Case and Vane Assy, Turbine	2A3415
2A3304-002	Case and Vane Assy, Turbine	2A3304
2A3304-003	Case and Vane Assy, Turbine	2A3304-001
2A3468-001	Case and Vane Assy, Turbine	2A3468

* Incorporating V2500-ENG-72-0341.

J. Other Material Information Data

Not Applicable.

3. Accomplishment Instructions

(1) Rework Instructions

(a) Do a modification of the Stage 1 HPT Support Assembly (72-44-10, 01-010), P/N 2A3360

(i) Remove the Stage 1 HPT Seal (72-44-10, 01-060), P/N 2A3328 (Refer to Figure 1 and 2).

(ii) It is recommended that the 40 nuts (72-44-10, 01-020), P/N 743645 be removed to avoid damage to the nuts during modification (Refer to Figure 2).

(iii) Enlarge hole "F" 20 places in nonprocureable Stage 1 HPT Vane Support, P/N 2A3327 or P/N 2A1359-001 (Refer to Figure 2).

(b) Mark the new part numbers on all affected parts. Use the Deep Electro Etch, Metal Stamping, or Vibration Peen method (Refer to Standard Practices/Process Manual, Chapter 70-09-00)

(i) Identify nonprocureable Stage 1 HPT Vane Support old P/N 2A3327 as new P/N 2A3327-001 after modification (Refer to Figure 2)

OR

(ii) Identify nonprocureable Stage 1 HPT Vane Support old P/N 2A1359-001 as new P/N 2A1359-002 after modification (Refer to Figure 2).

(iii) Identify Stage 1 HPT Support Assembly old P/N 2A3360 as new P/N 2A4027 after modification (Refer to Figure 2).

(iv) Identify the Turbine Nozzle Group old P/N 2A3800 as new P/N 2A4120 after modification (Refer to Figure 3).

OR

(v) Identify the Turbine Nozzle Group old P/N 2A5000 as P/N 2A5000-001 after modification (Refer to Figure 3).

(2) Assembly Instructions

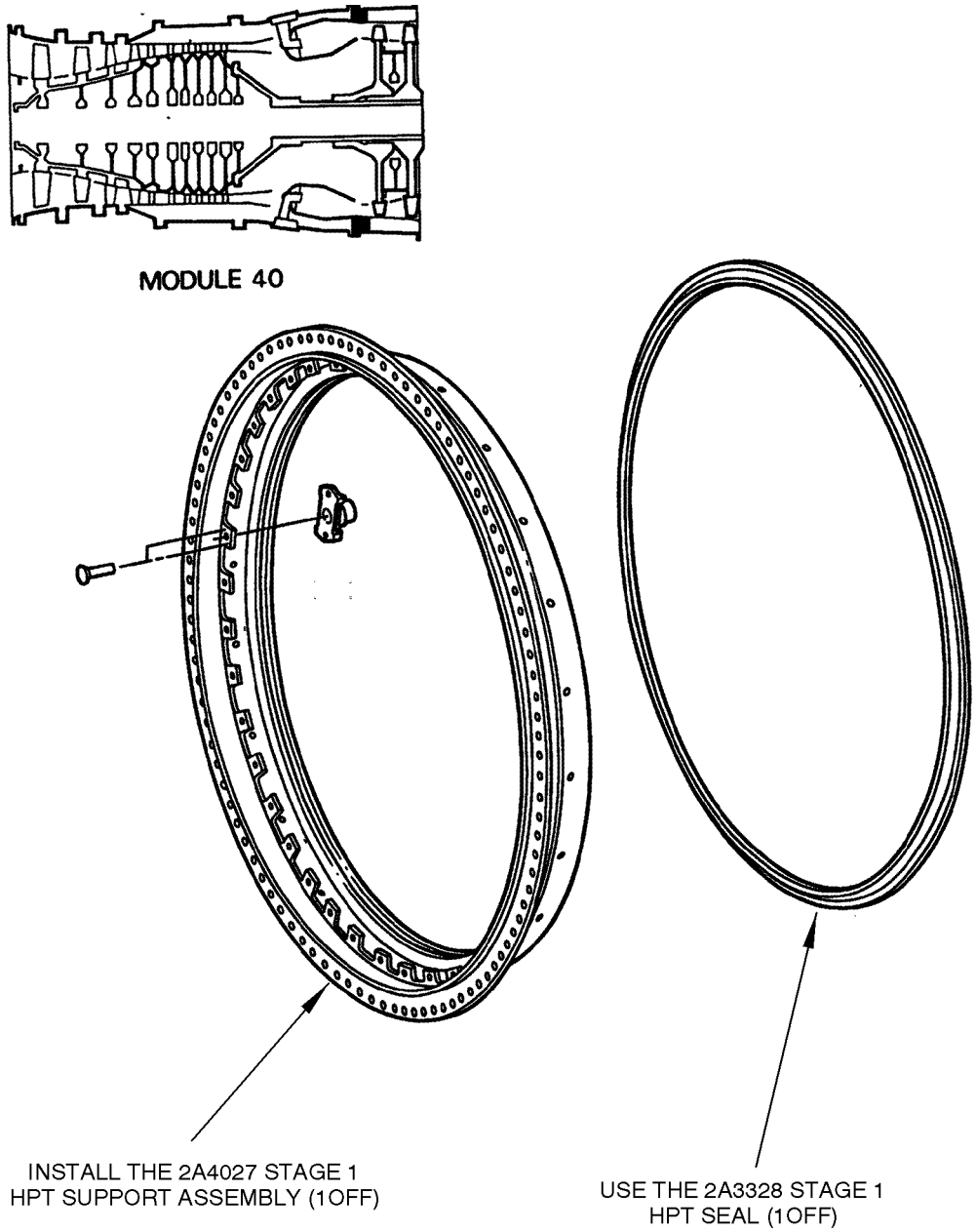
(a) Assemble the engine by using a new 1 st Stage Duct Segments (outer air seal) and reworked Stage 1 HPT Vane Support Assembly (72-44-10, 01-010), P/N 2A4027.

NOTE: It is also recommended that a new Stage 1 HPT Seal (72-44-10, 01-060), P/N 2A3328 be used.

(b) Identify the applicable Rotor and Stator Assembly and Case and Vane Assembly after modification. (Refer to paragraph 2.I. Reidentified Parts).

(3) Recording Instructions

(a) A record of accomplishment is required.



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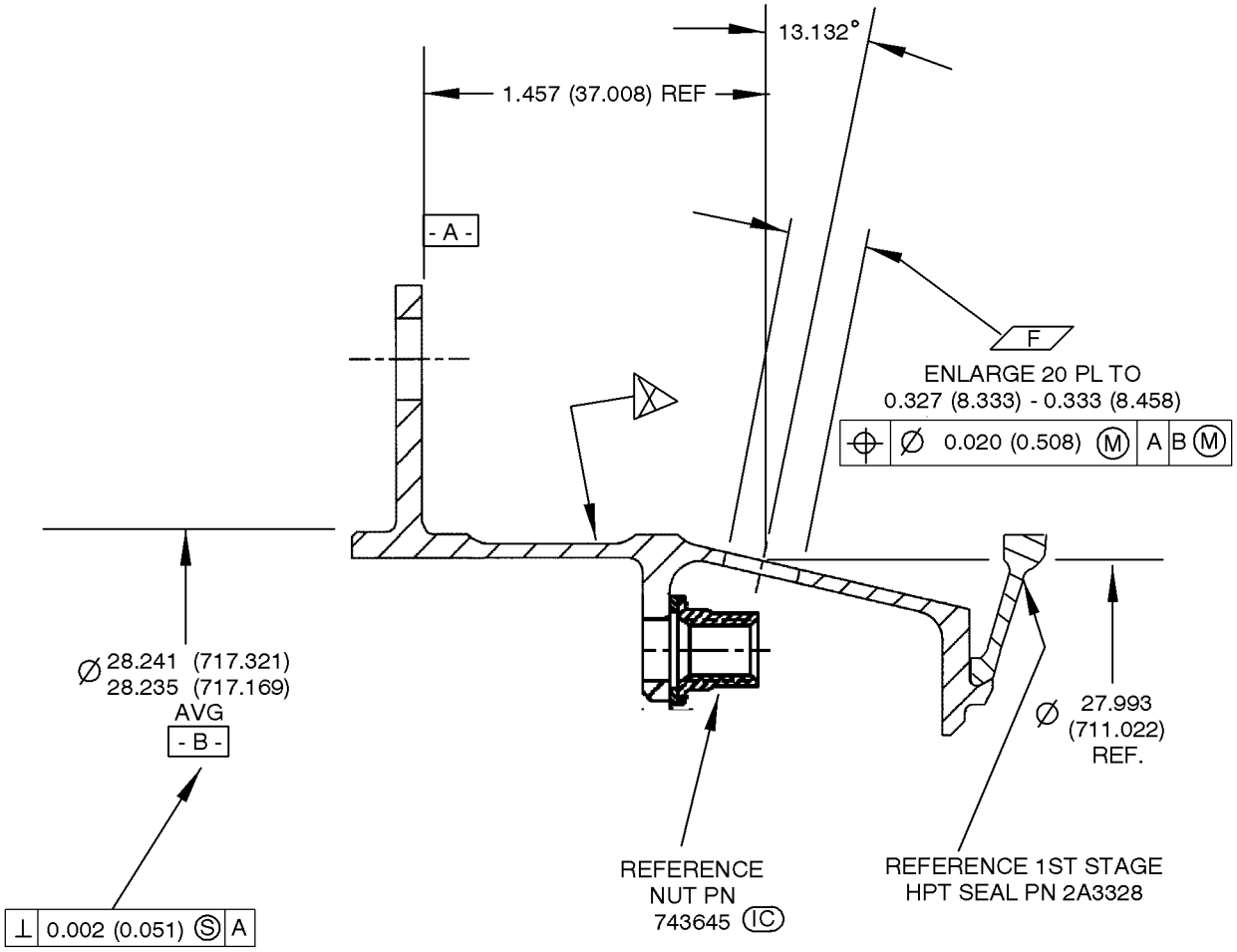
LOCATION OF THE STAGE 1 HIGH PRESSURE TURBINE SUPPORT ASSEMBLY
Figure 1



INSTALLATION CONTROL NUMBER FOR OPTIONAL PARTS (IC)

UNLESS OTHERWISE SPECIFIED BREAK EDGES .003 - .015.

SURFACE TEXTURE PER SPPM 70-35-09
UNLESS OTHERWISE SPECIFIED ALL SURFACE 125√

MARK NEW PART NUMBER

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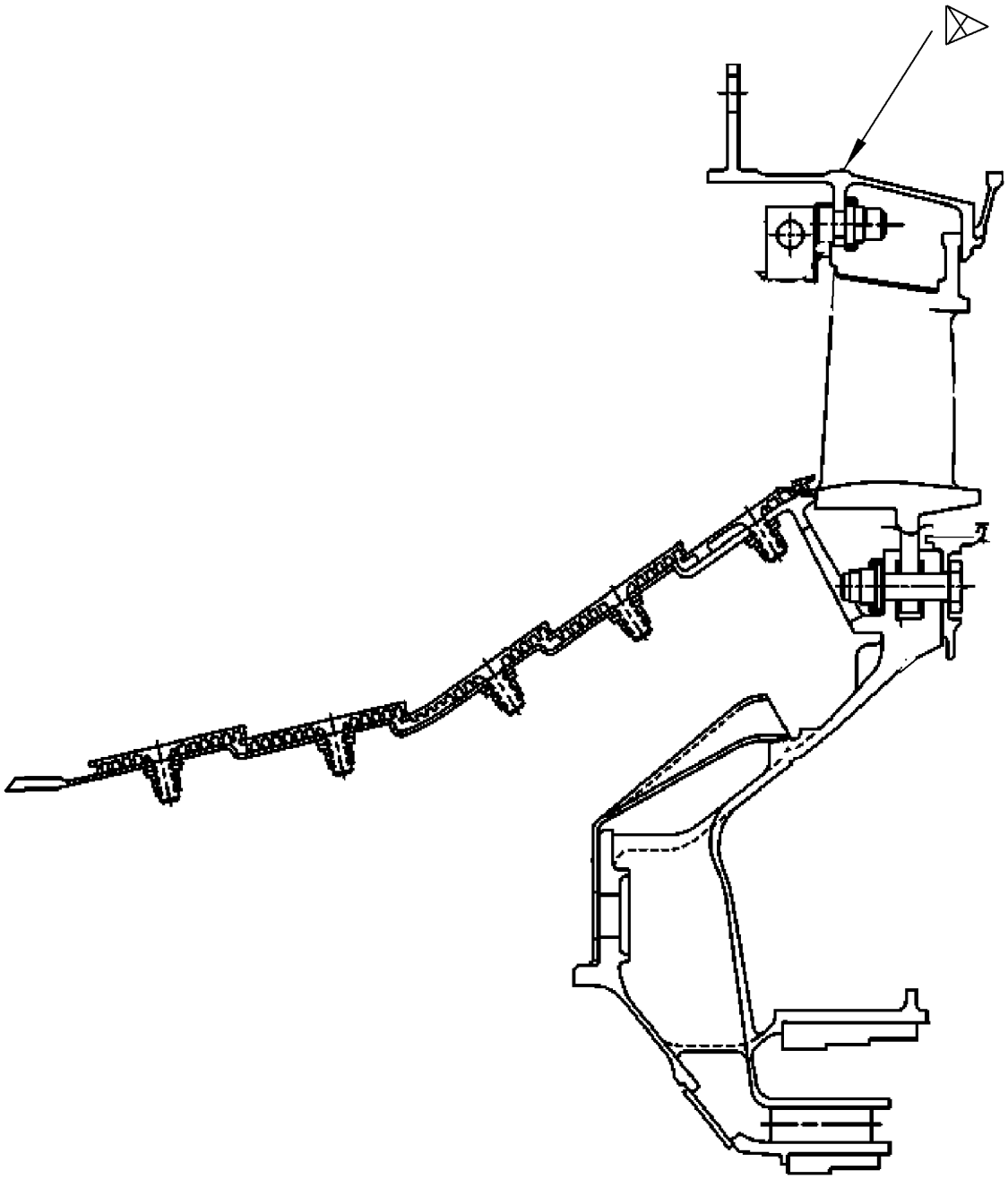
MODIFICATION OF P/N 2A3360 STAGE 1 HIGH PRESSURE TURBINE SUPPORT ASSEMBLY
Figure 2



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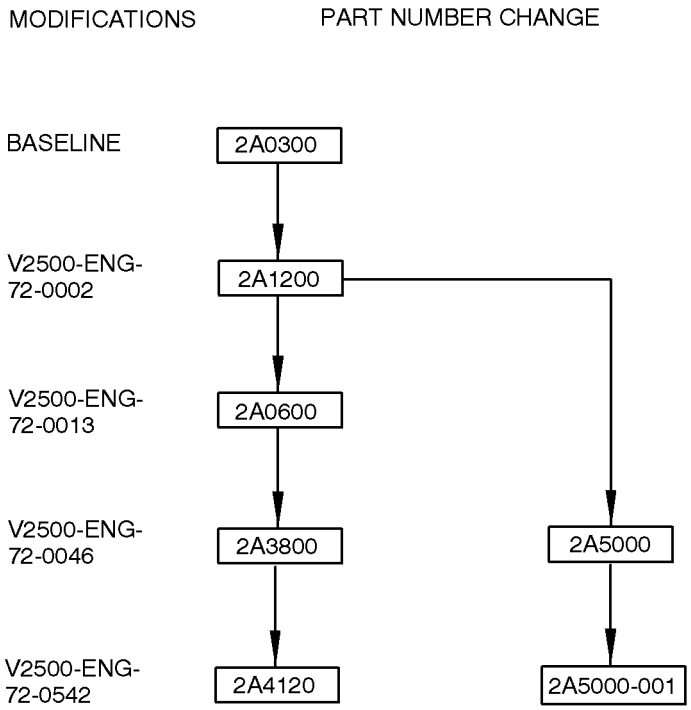
MARK NEW PART NUMBER

MARKING LOCATION FOR TURBINE NOZZLE GROUP
Figure 3

Appendix

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



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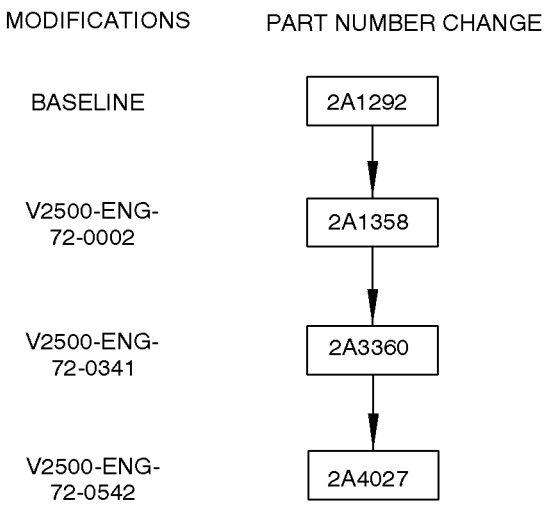
FAMILY TREE - TURBINE NOZZLE GROUP
REF. CATALOG SEQUENCE NO. 72-44-00 FIGURE 01 ITEM 001
Chart A



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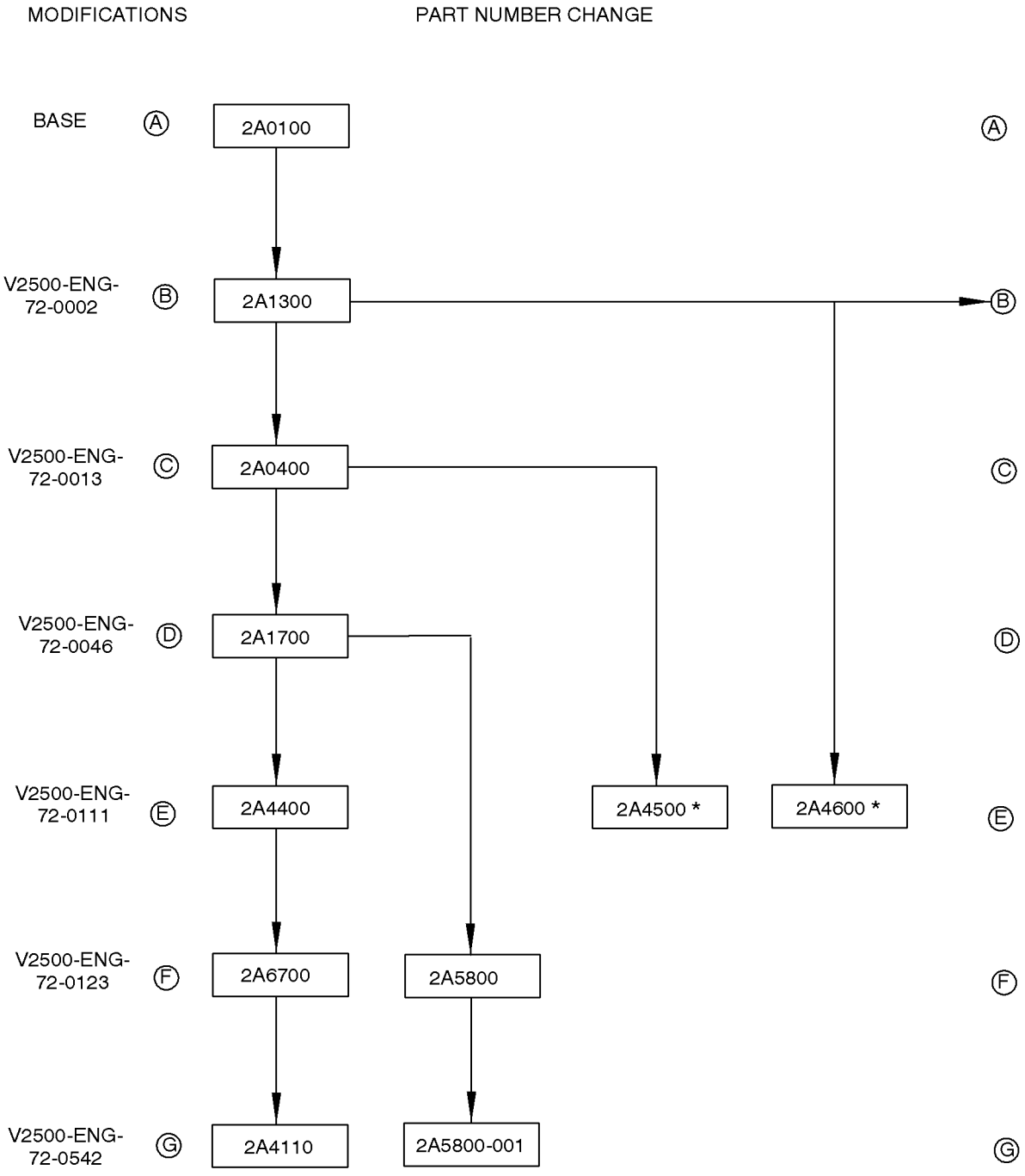
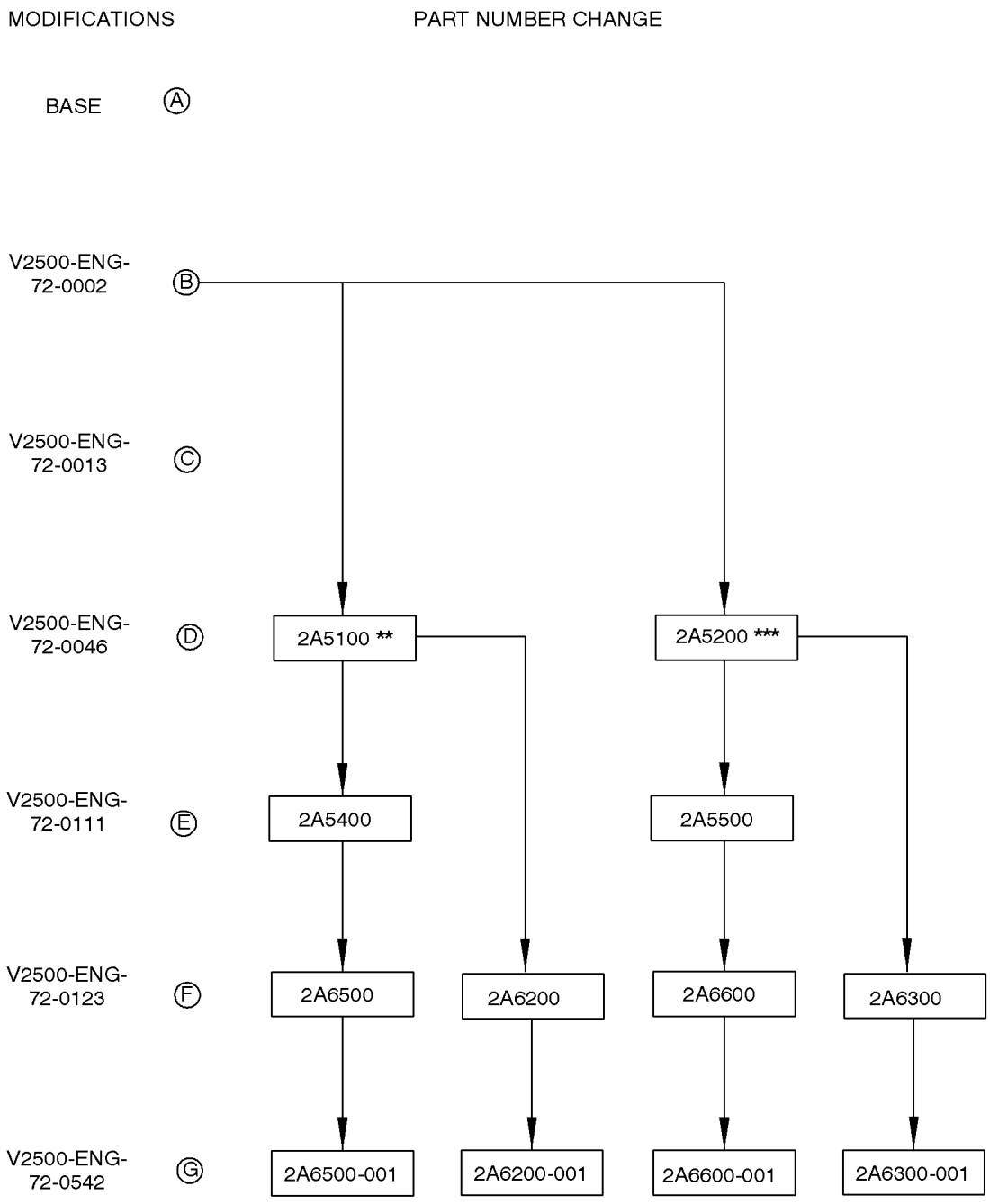
FAMILY TREE - STAGE 1 HPT SUPPORT ASSEMBLY
REF. CATALOG SEQUENCE-NO. 72-44-10 FIGURE 01 ITEM 010
Chart B



FAMILY TREE - ROTOR AND STATOR ASSEMBLY
REF. CATALOG SEQUENCE NO. 72-45-00 FIGURE 01 ITEM 001
Chart C (Sheet 1 of 2)



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

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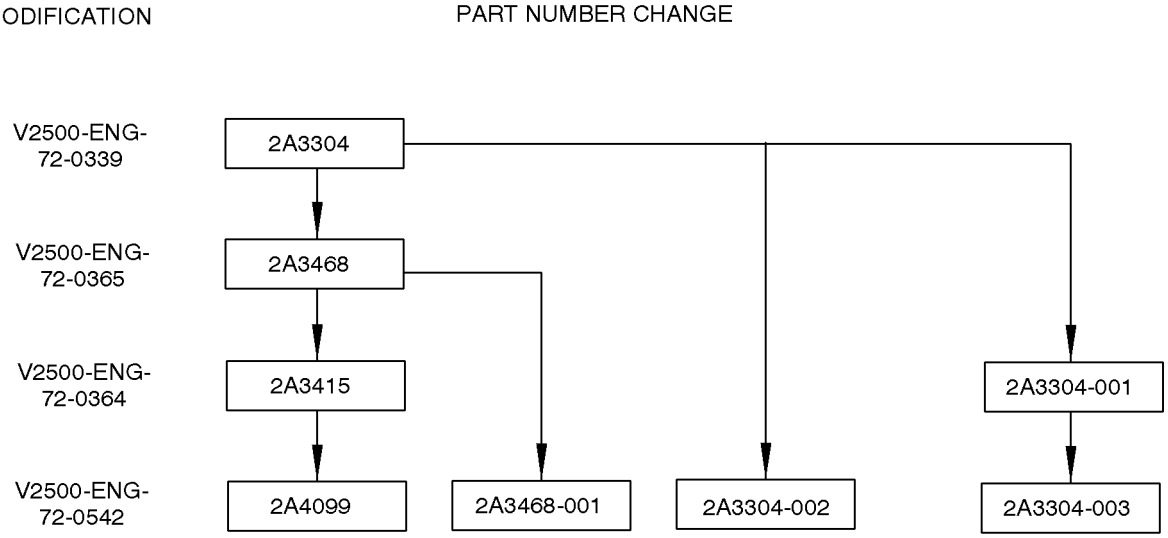
FAMILY TREE - ROTOR AND STATOR ASSEMBLY
REF. CATALOG SEQUENCE NO. 72-45-00 FIGURE 01 ITEM 001
Chart C (Sheet 2 of 2)



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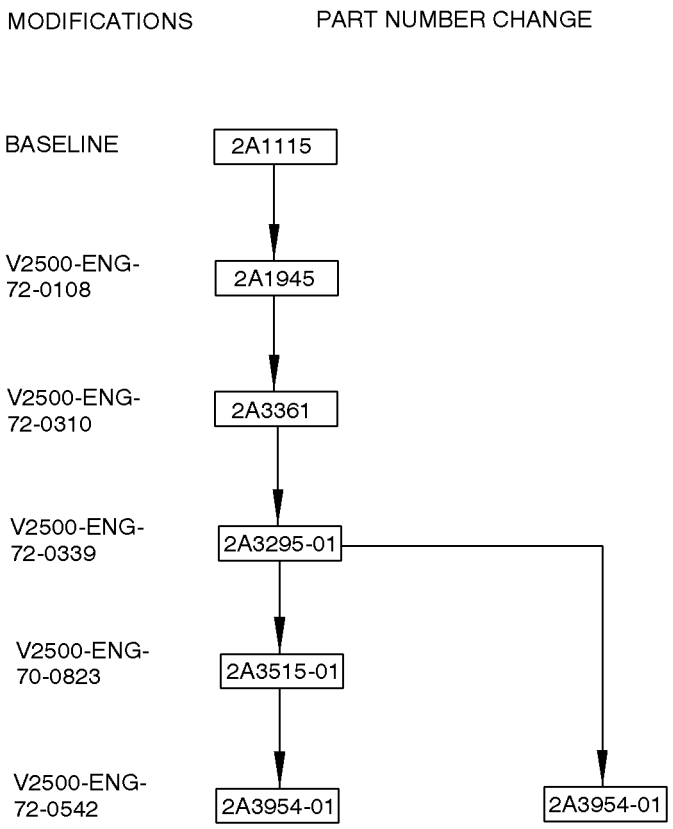
FAMILY TREE - CASE AND VANE ASSEMBLY
REF. CATALOG SEQUENCE NO. 72-45-20 FIGURE 01 ITEM 005
Chart D



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FAMILY TREE - DUCT SEGMENT FIRST STAGE ASSEMBLY
REF. CATALOG SEQUENCE NO. 72-45-23 FIGURE 01 ITEM 060
Chart E

Added Data

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

R Internal Reference Information

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

International Aero Engines

SERVICE BULLETIN

ENGINE - NEW FIRST STAGE DUCT SEGMENTS AND HPT VANE SUPPORT

Supplement

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 $150,882.00 to do this Service Bulletin when the part modification procedure is used.

3. New Production Parts

New Production Part Number	Decription	Unit Price US Dollars
2A4027	Support, HPT, 1stg Assy Of	48,790.00
2A3954-01	Duct Segment, 1stg Assy Of	3,282.00