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V2500-A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

Printed in Great Britain

This document transmits Revision 4 to Service Bulletin EV2500-72-0357 and the Initial Issue of the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status
Initial Issue	Aug.16/99	
Revision 1	Dec.2/99	
Revision 2	Apr.17/02	
Revision 3	Jul.15/03	

Bulletin Revision 4

Remove	Incorporate	Reason for change
	Page 1 and 2 of the Summary	To revise the Material Information and Family Trees and to bring the document in line with the current template standard.
All pages of the Service Bulletin	Pages 1 to 10 of the Service Bulletin	To revise the Material Information and Family Trees and to bring the document in line with the current template standard.

V2500-ENG-72-0357

Transmittal - Page 1 of 3

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED

If any have not been received please advise Customer Data Services, Rolls-Royce plc, Derby, England

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All pages of
Appendix 1

Pages 1 to 3 of
Appendix 1

To revise the Material
Information and Family
Trees and to bring the
document in line with the
current template standard.

Supplement Initial Issue

Remove

Incorporate
Page 1

Reason for change
To revise the Material
Information and Family
Trees and to bring the
document in line with the
current template standard.

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LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 4 to the Bulletin and the Initial Issue of the Supplement are as follows:

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ENGINE – HP TURBINE ROTOR ASSEMBLY – INTRODUCE NEW FIRST STAGE TURBINE BLADES WITH
PROTECTIVE COATING ON THE INTERNAL CAVITIES

SUMMARY

R 1. PLANNING

R A. EFFECTIVITY

R Engine V2500–A5 Serial Numbers V10001 thru V10649, V10652, V10654, V10656,
R V10658, V10660

R Engine V2500–D5 Serial Numbers V20001 thru V20285

R B. CONCURRENT REQUIREMENTS

R This Service Bulletin must be incorporated concurrently with or subsequent
R to Service Bulletin V2500–ENG–72–0302.

R C. REASON/PROBLEM

R Problem: Recent service experience has found small cracks on V2500–A5/D5
R 1st Stage HPT Blade internal surfaces.

R Evidence: V2500–A5/D5 1st Stage HPT Blade material has been shown to be
R susceptible to corrosion and stress corrosion cracking upon exposure to
R corrosive agents typically found in service. The subject blade's internal
R cavity does not incorporate a protective coating.

R Objective: Apply a protective coating (PWA 275) to the 1st Stage HPT Blade
R internal cavity to provide protection for the base material from the
R effects of corrosion.

R D. DESCRIPTION

R Replace the Stage 1 HPT Blades with new Blades that have PWA 275 coating on
R the internal cavities.

R E. COMPLIANCE

R Category 5

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

R F. MANPOWER

R (1) In Service – Not Applicable.

R (2) At Overhaul – Not Applicable.



R Total necessary man-hours - Not Applicable.

R 2. MATERIAL INFORMATION

R Part Prices

R A. There is no new material cost to do this Service Bulletin when the part
R modification procedure is used.

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

ENGINE – HP TURBINE ROTOR ASSEMBLY – INTRODUCE NEW FIRST STAGE TURBINE BLADES WITH
PROTECTIVE COATING ON THE INTERNAL CAVITIES

1. Planning Information

A. Effectivity Data

(1) Airbus A319

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5

Engine Serial Nos. V10001 thru V10649, V10652, V10654, V10656, V10658, V10660

(2) Airbus A320

Engine Models Applicable

V2527-A5, V2527E-A5

Engine Serial Nos. V10001 thru V10649, V10652, V10654, V10656, V10658, V10660

(3) Airbus A321

Engine Models Applicable

V2530-A5, V2533-A5*

Engine Serial Nos. V10001 thru V10649, V10652, V10654, V10656, V10658, V10660

NOTE: * V2533-A5 Base Line Serial Number is V10198.

(4) Boeing MD-90

Engine Models Applicable

V2525-D5, V2528-D5

Engine Serial Nos. V20001 thru V20285

B. Concurrent Requirements

This Service Bulletin must be incorporated concurrently with or subsequent to Service Bulletin V2500-ENG-72-0302.

C. Reason

- (1) **Problem:** Recent service experience has found small cracks on V2500-A5/D5 1st Stage HPT Blade internal surfaces.
- (2) **Evidence:** V2500-A5/D5 1st Stage HPT Blade material has been shown to be susceptible to corrosion and stress corrosion cracking upon exposure to corrosive agents typically found in service. The subject blade's internal cavity does not incorporate a protective coating.
- (3) **Objective:** Apply a protective coating (PWA 275) to the 1st Stage HPT Blade internal cavity to provide protection for the base material from the effects of corrosion.
- (4) **Substantiation:** Field experience on other engine models has shown that the addition of internal PWA 275 coating has improved corrosion resistance.
- (5) **Effects of Bulletin on:**
 - 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.

D. Description

Replace the Stage 1 HPT Blades with new Blades that have PWA 275 coating on the internal cavities.

E. Compliance

Category 5

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

Estimated man-hours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
In Service	Not Applicable
At Overhaul	Not Applicable

H. Weight and Balance

Weight Change	None
Moment	No Effect
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

- R (1) IAE V2500 Service Bulletin V2500-ENG-72-0302 (Engine - HP Turbine Rotor
R And Stator Assembly - Introduce New First and Second Stage Turbine Blades
R Which Have Protective Coating in the Damper Pocket Area Under the
R Platform).



- R (2) The V2500 Engine Illustrated Parts Catalogs (S-V2500-2IA, S-V2500-2IB,
R S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA,
R S-V2500-6IB, S-V2500-7IA, S-V2500-7IB), Chapter/Section 72-45-10,
R 72-45-14, 72-45-30 and 72-45-32.
- R (3) V2500 Standard Practices Manual (SPP-V2500-1I-A), 70-09-00, Marking of
R Parts.
- R (4) V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-10, 72-45-14,
R 72-45-30 and 72-45-32.
- R (5) V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-10, 72-45-14,
R 72-45-30 and 72-45-32.
- R (6) Internal reference numbers: 99VC042A, 99VC042C, 99VC024, 99VA024A,
R 99VA024B, 99VA024C, 99VA024D, 99VA024E, 99VA024N, 99VA024O and 99VA024S.
- R (7) ATA Locator - 72-45-00

L. Other Publications Affected

- R (1) The V2500 Engine Illustrated Parts Catalogs (S-V2500-2IA, S-V2500-2IB,
R S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA,
R S-V2500-6IB, S-V2500-7IA, S-V2500-7IB), Chapter/Section 72-45-14 and
R 72-45-32.
- R (2) V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section
R 72-45-14 and 72-45-32 Cleaning, Inspection and Repair, to add the new
R part.

M. Interchangeability of Parts

Old and new parts are directly interchangeable.

N. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

R Added Data (No)

Revision to Table of Limits (No)

Inspection Procedures (No)

2. Material Information

A. Material – Price and Availability

- (1) Part prices were not available at the time of Service Bulletin publication. Contact IAE's Spare Parts Sales Department for firm quotations.
- (2) Part availability information is provided in material data Inst-Disp.

B. Industry Support Program

Not Applicable.

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

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	For V2533-A5 Engines:						
R	72-45-10						
R	01-010	2A9031	1	.Turbine Rotor Assy, 1st Stage	-	2A9021	(S1)(A)(C)
R	72-45-14						
R	01-010	2A9101	64	.Blade – HPT, Stage 1	-	2A9001	(S1)(A)(C)
R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5, V2528-D5 Engines:						
R	72-45-10						
R	01-010	2A9031	1	.Turbine Rotor Assy, 1st Stage	-	2A9021	(S1)(A)(C)
R				OR			
R	01-010	2A9031-001	1	.Turbine Rotor Assy, 1st Stage	-	2A9021	(S1)(A)(C)
R				OR			
R	01-010	2A9031-002	1	.Turbine Rotor Assy, 1st Stage	-	2A9021	(S1)(A)(C)
R							

R	FIG	NEW	QTY	PART TITLE	MAT	OLD	INSTR
R	ITEM	PART				PART	DISP
R	NO.	NO.				NO.	
R	For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2525-D5,						
R	V2528-D5 Engines:						
R	72-45-10						
R				OR			
R	01-010	2A9031-003	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R				OR			
R	01-010	2A9031-004	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R				OR			
R	01-010	2A9031-005	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R				OR			
R	01-010	2A9031-006	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R				OR			
R	01-010	2A9031-007	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R				OR			
R	01-010	2A9031-008	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R				OR			
R	01-010	2A9031-009	1	.Turbine Rotor Assy, 1st	-	2A9021	(S1)(A)(C)
R				Stage			
R	72-45-14						
R	01-010	2A9101	64	.Blade - HPT, Stage 1	-	2A9001	(S1)(A)(C)
R				OR			
R	01-010	2A8721-002	64	.Blade - HPT, Stage 1	-	2A8721-001	(S1)(A)(C)
R				OR			
R	01-010	2A8701-002	64	.Blade - HPT, Stage 1	-	2A8701-001	(S1)(A)(C)
R				OR			
R	01-010	2A8521-005	64	.Blade - HPT, Stage 1	-	2A8521-003	(S1)(A)(C)
R				OR			
R	01-010	2A8321-004	64	.Blade - HPT, Stage 1	-	2A8321-002	(S1)(A)(C)
R				OR			
R	01-010	2A8321-004	64	.Blade - HPT, Stage 1	-	2A8321-003	(S1)(A)(C)
R				OR			
R	01-010	2A2621-004	64	.Blade - HPT, Stage 1	-	2A2621-002	(S1)(A)(C)
R				OR			
R	01-010	2A2621-004	64	.Blade - HPT, Stage 1	-	2A2621-003	(S1)(A)(C)

D. Instructions/Disposition Code Statements:

- (S1) Old and New Parts are freely and fully interchangeable.
(A) The old part will no longer be supplied.
(C) The new part is obtained by identification in the field and is not supplied by spares.

E. Tooling - Price and Availability

Special tools are not required to accomplish this Service Bulletin.

F. Reidentified Parts

Reidentified Parts Data For First Stage Turbine Rotor Assembly

New PN	Keyword	Old PN
--------	---------	--------

2A9031	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-001*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-003*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-004*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-005*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-006*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-002*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-007*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-008*	Turbine Rotor Assy, 1 Stage	2A9021
2A9031-009*	Turbine Rotor Assy, 1 Stage	2A9021

Reidentified Parts Data For First Stage HPT Blade

New PN	Keyword	Old PN
--------	---------	--------

2A9101	Blade, First stage HPT	2A9001
2A2621-004*	Blade, First stage HPT	2A2621-002*
2A2621-004*	Blade, First stage HPT	2A2621-003*
2A8321-004*	Blade, First stage HPT	2A8321-002*
2A8321-004*	Blade, First stage HPT	2A8321-003*
2A8521-004*	Blade, First stage HPT	2A8521-002*
2A8521-005	Blade, First stage HPT	2A8521-003
2A8701-002*	Blade, First stage HPT	2A8701-001*

NOTE: * Do Not Use in V2533-A5 Engines.

G. Other Material Information Data

Not Applicable.

3. Accomplishment Instructions

- (1) The Source Demonstration requirements of this rework means that any facility not authorized to accomplish this rework either utilize the Authorized Vendors listed below or contact IAE Manager Maintenance Operations to determine if a qualification program can be initiated at their facility.

(a) IAE-INTERNATIONAL AERO ENGINES AG400 Main Street M/S 121-10 East
Hartford, CT 06108, USA

- (2) Authorized Rework Vendors for this bulletin are listed below.

(a) PWAS - Connecticut Airfoil Repair Operations, 400 Main Street, East
Hartford, CT 06108 USA

Cage Code: 8N802

(b) Japan Turbine Technologies Co., Ltd. Taiei Town, Chiba, Japan

Cage Code: C0044

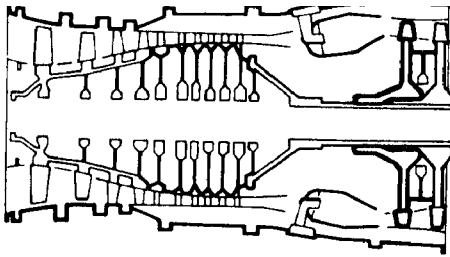
- (3) The designation by IAE of an authorized rework vendor indicates that the vendor has demonstrated the necessary capability to enable it to carry out the rework. However, IAE makes no warranties or representations concerning the qualifications or quality standards of the vendors to carry out the rework, and accepts no responsibility whatsoever for any work that may be carried out by a rework vendor, other than when IAE is listed as the vendor. Authorized rework vendors do not act as agents or representatives of IAE.

- (4) Modification Procedure

(a) To modify service run Blades for additional use send the 2A9001, 2A2621-002, 2A2621-003, 2A8321-002, 2A8321-003, 2A8521-002, 2A8521-003, and 2A8701-001 Stage 1 HPT Blades to the approved vendor listed in 2. A. for modification and identification to the applicable new part number, as shown in the Material Information section Reidentified Parts Data for First Stage HPT Blade.

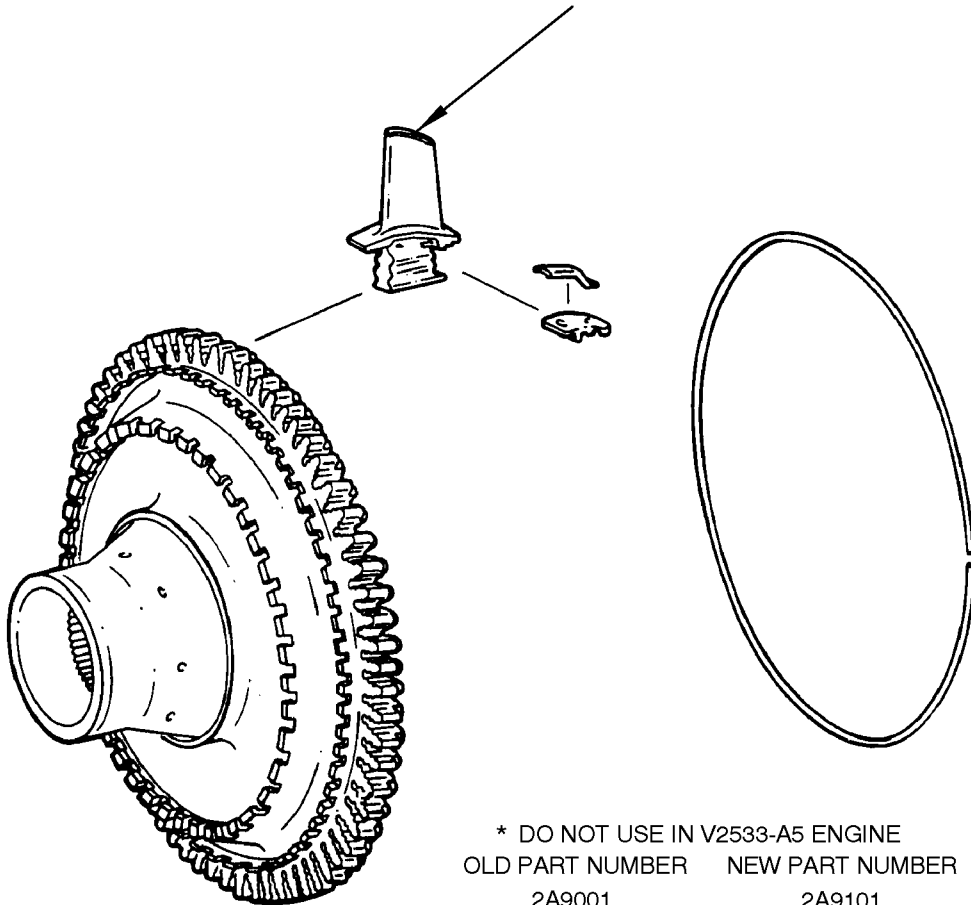
- (i) Identify as the new part number by the procedure specified in Reference (3), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501).

- (b) Blades 2A9001 that have never been engine run may be sent to the approved vendor listed in 2. A. for modification and identification to the applicable new part number, as shown in the Material Information section Reidentified Parts Data for First Stage HPT Blade.
 - (i) Identify as the new part number by the procedure specified in Reference (3), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501).
- (5) Assembly Procedure
- (a) For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, and V2533-A5 Engines. Replace the Stage 1 HPT Blades (64 off) by the approved procedure given in Reference (4), Chapter/Section 72-45-10, Assembly-01 and Figure 1.
 - (i) Identify the assembled Turbine Rotor Assembly to the new part number, as shown in the Material Information section Reidentified Parts Data for Turbine Rotor Assembly by the procedure specified in Reference (3), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501).
 - (b) For V2525-D5 and V2528-D5 Engines. Replace the Stage 1 HPT Blades (64 off) by the approved procedure given in Reference (5), Chapter/Section 72-45-10, Assembly-01 and Figure 1.
 - (i) Identify the assembled Turbine Rotor Assembly to the new part number, as shown in the Material Information section Reidentified Parts Data for Turbine Rotor Assembly by the procedure specified in Reference (3), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501).
- (6) Recording Instructions
- (a) A record of accomplishment is required.



MODULE 40

REPLACE THE STAGE 1 HPT BLADE
WITH THE APPLICABLE NEW
STAGE 1 HPT BLADE



* DO NOT USE IN V2533-A5 ENGINE

OLD PART NUMBER	NEW PART NUMBER
2A9001	2A9101
2A2621-004*	2A2621-002*
2A2621-004*	2A2621-003*
2A8321-004*	2A8321-002*
2A8321-004*	2A8321-003*
2A8521-004*	2A8521-002*
2A8521-003	2A8521-005
2A8701-002*	2A8721-001*

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Location of the Stage 1 HPT Blade
Figure 1

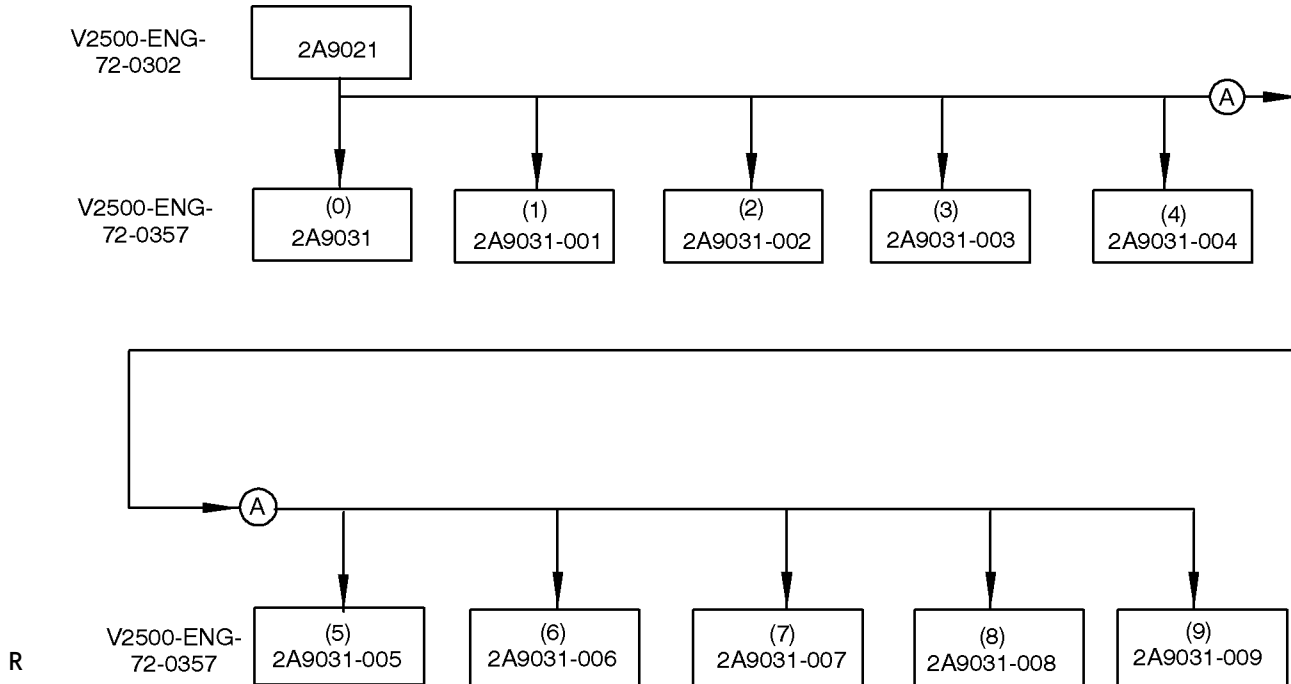
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APPENDIX 1Parts Progression To Show the Changed Part in Relation to Other Parts

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MODIFICATIONS

PART NUMBER CHANGE



- (0) CONTAINS 64 BLADES 2A9101 (ALL A5/D5 ENGINES)
- (1) CONTAINS 64 BLADES *2A2621-004 (ALL A5/D5 ENGINES EXCEPT A5-33)
- (2) CONTAINS 64 BLADES 2A8521-005 ALL A5/D5 ENGINES EXCEPT A5-33)
- (3) CONTAINS 64 BLADES *2A2621-004 (ALL A5/D5 ENGINES EXCEPT A5-33)
- (4) CONTAINS 64 BLADES 2A8321-004 (ALL A5/D5 ENGINES EXCEPT A5-33)
- (5) CONTAINS 64 BLADES 2A8321-004 (ALL A5/D5 ENGINES EXCEPT A5-33))
- (6) CONTAINS 64 BLADES 2A8521-004 (ALL A5/D5 ENGINES EXCEPT A5-33)
- (7) CONTAINES 64 BLADES 2A8701-002 (ALL A5/D5 ENGINES EXCEPT A5-33)
- (8) MAY CONTAIN ANY MIXTURE OF 2A9101, *2A2621-004, 2A8321-004, 2A8521-004, 2A8521-005, OR 2A8701-002 (ALL A5/D5 ENGINES EXCEPT A5-33)
- (9) MAY CONTAIN ANY MIXTURE OF 2A9101 OR 2A8521-005 (ALL A5/D5 ENGINES EXCEPT A5-33)

* BLADES 2A2621-004 MUST BE USED WITH TOBI DUCT 2A2141-01

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R
R
R

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

Aug. 16/99
R Nov. 15/06

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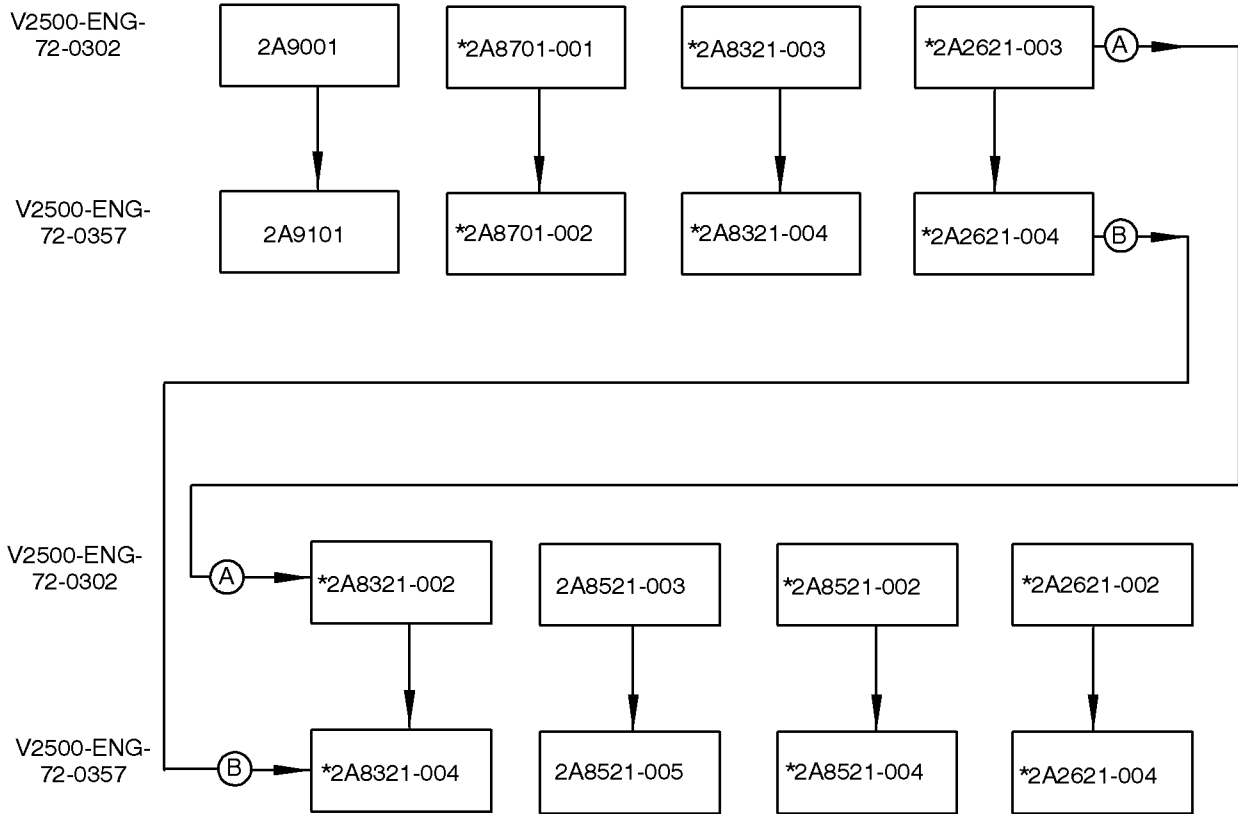
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Not subject to the EAR per 15 C.F.R. Chapter 1, Part 734.3(b)(3).

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MODIFICATIONS

PART NUMBER CHANGE



* DO NOT USE THIS BLADE IN V2533-A5 ENGINE

Family Tree - Stage 1 HPT Blade
Ref. Catalog Sequence No. 72-45-14. Fig. 01 Item 010
Figure 3

ENGINE – HP TURBINE ROTOR ASSEMBLY – INTRODUCE NEW FIRST STAGE TURBINE BLADES WITH
PROTECTIVE COATING ON THE INTERNAL CAVITIES

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R Supplement

R V2500 ALL

R 1. Modification Kit

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

R 2. Material Cost

R A. There is no new material cost to do this Service Bulletin when the part
R modification procedure is used.

R B. Contact IAE for current price of new material.

R 3. New Production Parts

R	New Production	Description	Unit Price US
R	Part Number		Dollars
R	2A9031	Turbine Rotor Assy, Contact IAE	
R		1 Stage	
R	2A9101	Blade – HPT, Stage 1 Contact IAE	

