



Date: Jan.15/97

Subject: Transmittal of Revision 1 to Service Bulletin Number
V2500-ENG-72-0240..

Service Bulletin Revision History:

<u>Event</u>	<u>Date</u>
Basic Issue	Aug.15/96
Revision 1	Jan.15/97

Reasons For Issuance Of Revision:

- (1) To add an additional rework vendor.
- (2) To correct the engine effectivity for the 2A8721-001 Stage 1 Turbine Rotor Assembly on page 15, Material Information, by removing the D5 engine models.
- (3) To add price information for the 2A3182 Metering Plug.
- (4) To revise the Source Demonstration information.

Effect On Past Compliance:

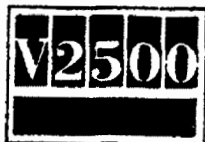
None

List Of Effective Pages:

	<u>Bulletin</u> <u>Page No.</u>	<u>Rev.</u> <u>No.</u>	<u>Effective</u> <u>Date</u>
R	1	1	Jan.15/97
	2 and 6	Basic	Aug.15/96
R	7 to 22	1	Jan.15/97

	<u>Appendix</u> <u>Page No.</u>	<u>Rev.</u> <u>No.</u>	<u>Effective</u> <u>Date</u>
	1	Basic	Aug.15/96

V2500 – ENG – 72 – 0240
Transmittal
Page 1 of 1



International Aero Engines SERVICE BULLETIN

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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

MODEL APPLICATION

V2500-A1
V2527-A5
V2530-A5
V2525-D5
V2528-D5

BULLETIN INDEX LOCATOR

72-45-00

Compliance Category Code

8

Internal Reference No.

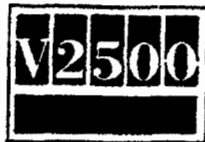
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Aug.15/96

R Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 1 of 22



International Aero Engines SERVICE BULLETIN

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1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320, A321
McDonnell Douglas MD-90
- (2) Engine: V2500-A1 Engines before Serial No. V0362
V2527-A5 Engines before Serial No. V10198
V2530-A5 Engines before Serial No. V10198
V2525-D5 Engines before Serial No. V20073
V2528-D5 Engines before Serial No. V20073

For V2527-A5 and V2530-A5 Engines

NOTE: This Service Bulletin must be incorporated at the same time as or subsequent to Service Bulletins V2500-ENG-72-0239 and V2500-ENG-75-0062 as specified in Reference (1).

For V2525-D5 and V2528-D5 Engines

NOTE: This Service Bulletin must be incorporated at the same time as or subsequent to Service Bulletin V2500-ENG-72-0239 specified in Reference (1).

B. Reason

(1) Condition:

Higher thrust versions of the V2500 Engine result in a more severe operating environment for the high pressure turbine (HPT) second stage air seal outer cavities.

(2) Background:

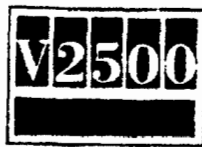
Increased thrust versions of the V2500 Engine result in higher HPT operating temperatures. These higher temperatures directly cause higher operating temperatures of the Stage 2 Air Seal and Stage 2 Hub.

(3) Objective:

Provide a new Stage 2 High Pressure Turbine (HPT) Air Seal that has additional cooling holes and one less knife edge to reduce heat pick up. New Stage 1 HPT Metering Plugs are also required. This will aid in reducing the operating temperatures in the area of the Stage 2 Air Seal outer cavities. The new Stage 2 Air Seal in combination with the new Stage 1 Hub Metering Plugs, will become the new standard for V2500-A5/D5 Engine Models. A new air seal assembly will also be provided for V2500-A1 Engines to retain part commonality.

(4) Substantiation

Satisfactorily completed by structural analytical review. Design validation testing was satisfactorily completed on a test engine.



International Aero Engines

SERVICE BULLETIN

(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 a new Stage 2 High Pressure Turbine Air seal and new Stage 1 High Pressure Turbine (HPT) Metering Plugs.
- (2) For the effect on declared life, See Appendix 1 of this Service Bulletin. The limits given in this Appendix will be included as soon as possible in revisions of the V2500 Engine Manual (E-V2500-1I-A) and the V2500 Engine Manual (E-V2500-3I-A).

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 8

Accomplish based upon experience with the prior configuration.

F. Manpower

Estimated Manhours to incorporate the full intent of this Bulletin:

<u>Venue</u>	<u>Estimated Manhours</u>
(1) In service	Not applicable
(2) At overhaul	2 hours 44 minutes

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

- (a) To make modification to Air Seal assembly and reidentify. 2 hours 44 minutes

TOTAL: 2 hours 44 minutes

Aug.15/96

V2500-ENG-72-0240

Page 3



International Aero Engines

SERVICE BULLETIN

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) IAE V2500 Service Bulletins:

V2500-ENG-72-0121 - Engine - HP Turbine Rotor and Stator Assembly -
Provide New Stage 2 HPT Air Seal Assembly

V2500-ENG-72-0146 - Engine - HP Turbine Rotor and Stator Assembly -
Provide New Stage 1 HPT Blades

V2500-ENG-72-0180 - Engine - HP Turbine Rotor and Stator Assembly -
Introduce a New First Stage Turbine Outer Air Seal

V2500-ENG-72-0190 - Engine - HP Turbine Rotor and Stator Assembly -
Introduce a New Stage 1 HPT Air Seal And a New No. 4 Bearing Rear
Cooling Duct Assembly

V2500-ENG-72-0194 - Engine - HP Turbine Rotor and Stator Assembly -
Introduce a New Stage 1 HP Turbine Air Seal

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

V2500-ENG-72-0238 - Engine - HP Turbine Rotor and Stator Assembly -
Provide A New Stage 1 Turbine Hub

V2500-ENG-72-0239 - Engine - HP Turbine Rotor and Stator Assembly -
Provide New Diffuser group Adapters and Tube Assemblies

V2500-ENG-75-0062 - Nacelle - ACAC Exhaust Duct Redesign - 58%
Increase In Exhaust Area.

- (2) V2500 Standard Practices Manual (SPP-V2500-11-A), 70-09-00, Marking
of Parts; 70-38-13 Surface Treatment; 70-35-19 Hole Blending ; and
70-23-03 Fluorescent Penetrant Inspection.

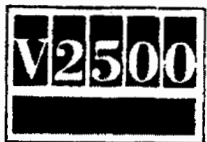
- (3) V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA),
Chapter/Section 72-45-10 and 72-45-11

Printed in Great Britain

Aug.15/96

V2500-ENG-72-0240

Page 4



International Aero Engines

SERVICE BULLETIN

- (4) V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-10 and 72-45-11
- (5) V2500 Engine Manual (E-V2500-1I-A), 72-45-00, Assembly.
- (6) V2500 Engine Manual (E-V2500-3I-A), 72-45-00, Assembly.

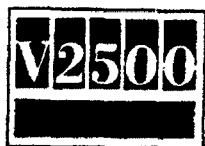
L. Other Publications Affected

- (1) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-00, Cleaning-00 to add the new part number.
- (2) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-00, Cleaning-00 to add the new part number.
- (3) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-00, Inspection/Check-00 to add the new part number.
- (4) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-00, Inspection/Check-00 to add the new part number.
- (5) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-00, Repair VRS3207, VRS3208, VRS3209, VRS3314, VRS3315 and VRS3335 to add the new part number.
- (6) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-00, Repair VRS3207, VRS3208, VRS3209, VRS3314, VRS3315 and VRS3335 to add the new part number.
- (7) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 72-45-11, Repair-02 VRS3187 to add the new part number.
- (8) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 72-45-11, Repair-02 VRS3187 to add the new part number.
- (9) The V2500 Engine Manual (E-V2500-1IA), Chapter/Section 5-10-01, Group A Parts Lives to add the new part number.
- (10) The V2500 Engine Manual (E-V2500-3IA), Chapter/Section 5-10-01, Group A Parts Lives to add the new part number.
- (11) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-00, Figure-01 to add the new part.
- (12) The V2500-A5 Engine Illustrated Parts Catalog (S-V2500-2IA), Chapter/Section 72-45-11, Figure-01 to add the new part.
- (13) The V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-00, Figure-01 to add the new part.
- (14) The V2500-D5 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 72-45-11, Figure-01 to add the new part.

Aug.15/96

V2500-ENG-72-0240

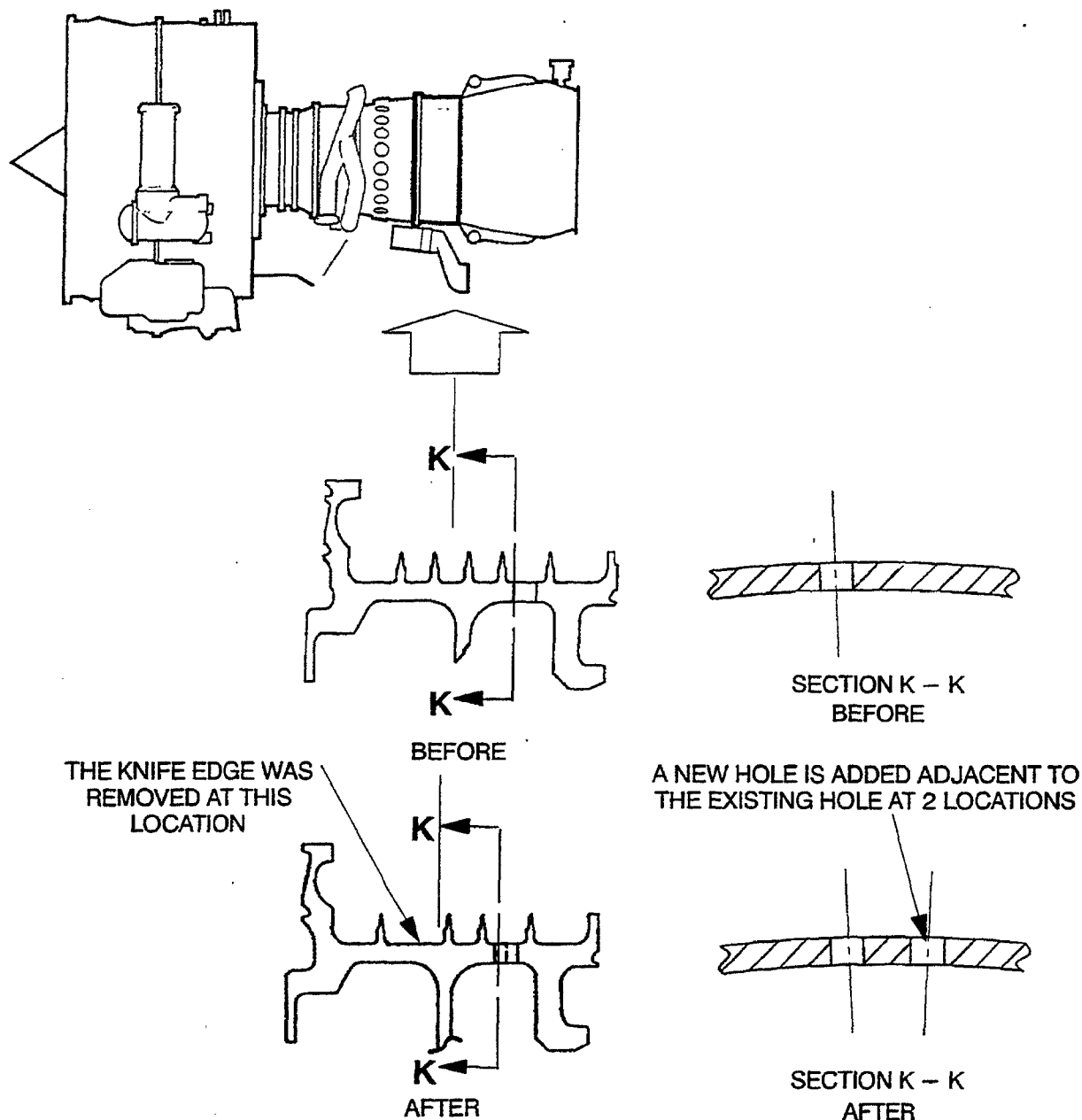
Page 5



International Aero Engines

SERVICE BULLETIN

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CROSS SECTION THROUGH STAGE 2 HIGH
PRESSURE TURBINE AIR SEAL ASSEMBLY

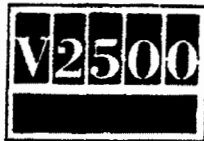
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Before and After Views of Configuration Changes That Affect The Stage 2 High
Pressure Turbine (HPT) Air Seal Assembly
Figure 1

Aug.15/96

V2500-ENG-72-0240

Page 6



International Aero Engines SERVICE BULLETIN

2. Accomplishment Instructions

- R A. The Source Demonstration requirements of this rework means that any
R 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.
- R IAE-INTERNATIONAL AERO ENGINES AG
R 400 Main Street M/S 121-10
R East Hartford, CT 06108 USA
- B. Authorized Rework Vendors for this bulletin are listed below.
- Pratt & Whitney Overhaul & Repair Center
Airfoil Repair Technology
415 Washington Ave.
R North Haven, CT 06473 USA
- OR
- R Pratt & Whitney
R Military & Commercial Item Repair
R 400 Main Street
R Well #14
R East Hartford, CT 06108 USA
- C. 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.
- D. Do a modification of the 2A3108 Stage 2 High Pressure Turbine (HPT) Air
Seal Assembly (1 off). See Reference (3) or (4), 72-45-00 Figure/Item
No. 01-080).

Procedure

Supplementary Information

NOTE: It is permissible to for modified air seals to
have a 0.0125 - 0.0133 (3,175 - 3,178 mm) by 0.123
- 0.133 (3,12 - 3,38 mm) groove, located at the
intersection of surfaces F and AR.

- (a) Remove two plugs that you Refer to Figure 2.
will not install again
after modification.

NOTE: New plugs 2A1158 (4 off) will be installed at
assembly of the 2A3185 Stage 2 HPT Seal Assemblies that
will be used in V2500-A1 ENGINES ONLY.

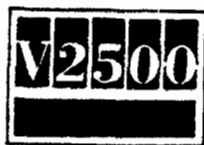
- (b) Set-up and machine to Refer to Figures 1 through 3.
remove the knife edge
seal.

Aug.15/96

R Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 7



International Aero Engines

SERVICE BULLETIN

Procedure

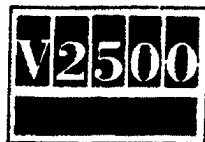
Supplementary Information

- R (c) Set-up and machine two 0.206 - 0.216 in. (5,23 - 5,49 mm) diameter holes. Refer to Figure 4.
- R (d) Finish the holes by the procedure specified in TASK 70-35-19-350-501. Refer to the approved procedure in Reference (2), Chapter/Section 70-35-19 Hole Blending. Manual butterfly polish is allowed.
- (e) Do a fluorescent penetrant inspection by the procedure specified in TASK 70-23-04-230-501 or by the procedure specified in TASK 70-23-05-230-501. No cracks are permitted. Refer to Figure 4. Refer to the approved procedure in Reference (2), Chapter/Section 70-23-04 or Chapter/Section 70-23-05 Fluorescent Penetrant Inspection.
- (f) Shotpeen in the areas specified to an intensity of 4A using SAE 170 maximum cast steel shot (Hardness 45 HRC or equivalent) by TASK 70-38-13-380-501 (AMS 2430). Refer to Figure 4. Refer to the approved procedure in Reference (2), Chapter/Section 70-38-13 Surface Treating.
- NOTE:** Minimum intensity is waived in area AP, but complete coverage is necessary.
- (g) Mark the new part number adjacent to the existing part number. Use the vibration peen method.
- | <u>Existing</u> | <u>New Part Number</u> |
|-----------------|------------------------|
| 2A3108 Assy. | 2A3179 |
| 2A3107 | |

Refer to Reference (2), Control No./Task No. 70-09-00-400-501.

For V2500-A1 Engines Only

- E. Do the assembly procedures that follow:
- (1) Install the 2A1158 Metering Plugs (4 off) in the 2A3179 Stage 2 HPT Air Seal.
 - (2) Identify the new Stage 2 HPT Air Seal Assembly as 2A3185 by the procedure specified in Reference (2), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501).
 - (3) Install the 2A3185 Stage 2 High Pressure Turbine (HPT) Air Seal Assembly (1 off) by the procedure given in Reference (1), Chapter/Section 72-45-00, Assembly for V2500-A1.



International Aero Engines

SERVICE BULLETIN

R

For V2527-A5, V2530-A5, V2525-D5 And V2528-D5 Engines

CAUTION: METERING PLUGS MUST NOT BE INSTALLED IN THE STAGE 2 HPT AIR SEAL FOR THE CONFIGURATION THAT WILL BE USED IN V2527-A5, V2530-A5, V2525-D5 AND V2528-D5 MODELS OR PART DAMAGE CAN RESULT.

R

F. Do the assembly procedures that follow:

- (1) Install the 2A3179 Stage 2 High Pressure Turbine (HPT) Air Seal Assembly (1 off) by the procedure given in Reference (1), Chapter/Section 72-45-00, Assembly (for V2527-A5 and V2530-A5 Engines) or Reference (2), Chapter/Section 72-45-00, Assembly (for V2525-D5 and V2528-D5 Engines).
- (2) Replace the 2A2354 Stage 1 High Pressure Turbine (HPT) Hub Metering Plugs (24 off) with 2A3182 by the procedure given in Reference (1), Chapter/Section 72-45-11, Repair-02 VRS3187 (for V2527-A5 and V2530-A5 Engines) or Reference (2), Chapter/Section 72-45-11, Repair-02 VRS3187 (for V2525-D5 and V2528-D5 Engines). See Figure 3.
- (3) Identify the new Stage 1 Turbine Rotor Assembly by the procedure specified in Reference (2), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501) and as follows.
 - (a) Mark the new part number adjacent to the existing part number.
 - (b) Identify by applicable by the list given below.

<u>Existing</u>	<u>New Part Number</u>
2A3301	2A3401
2A8721	2A8721-001
2A8421-001	2A8421-002
2A8821	2A8821-001
2A8921	2A8921-001

- (4) When you install the Stage 1 Turbine Rotor Assembly in the Rotor and Stator Assembly, identify the new Rotor and Stator Assembly by the procedure specified in Reference (2), Chapter/Section 70-09-00 Marking of Parts (Control No./Task No. 70-09-00-400-501) and as follows:
 - (a) Mark the new part number adjacent to the existing part number.
 - (b) Identify as applicable by the list given below.

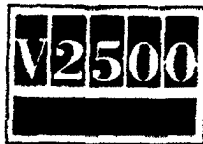
<u>Existing</u>	<u>New Part Number</u>
2A7000*	2A8800*
2A7000	2A7000-001
2A4200	2A4200-001

Aug.15/96

R Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 9



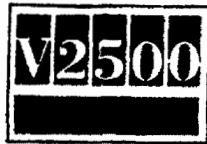
International Aero Engines

SERVICE BULLETIN

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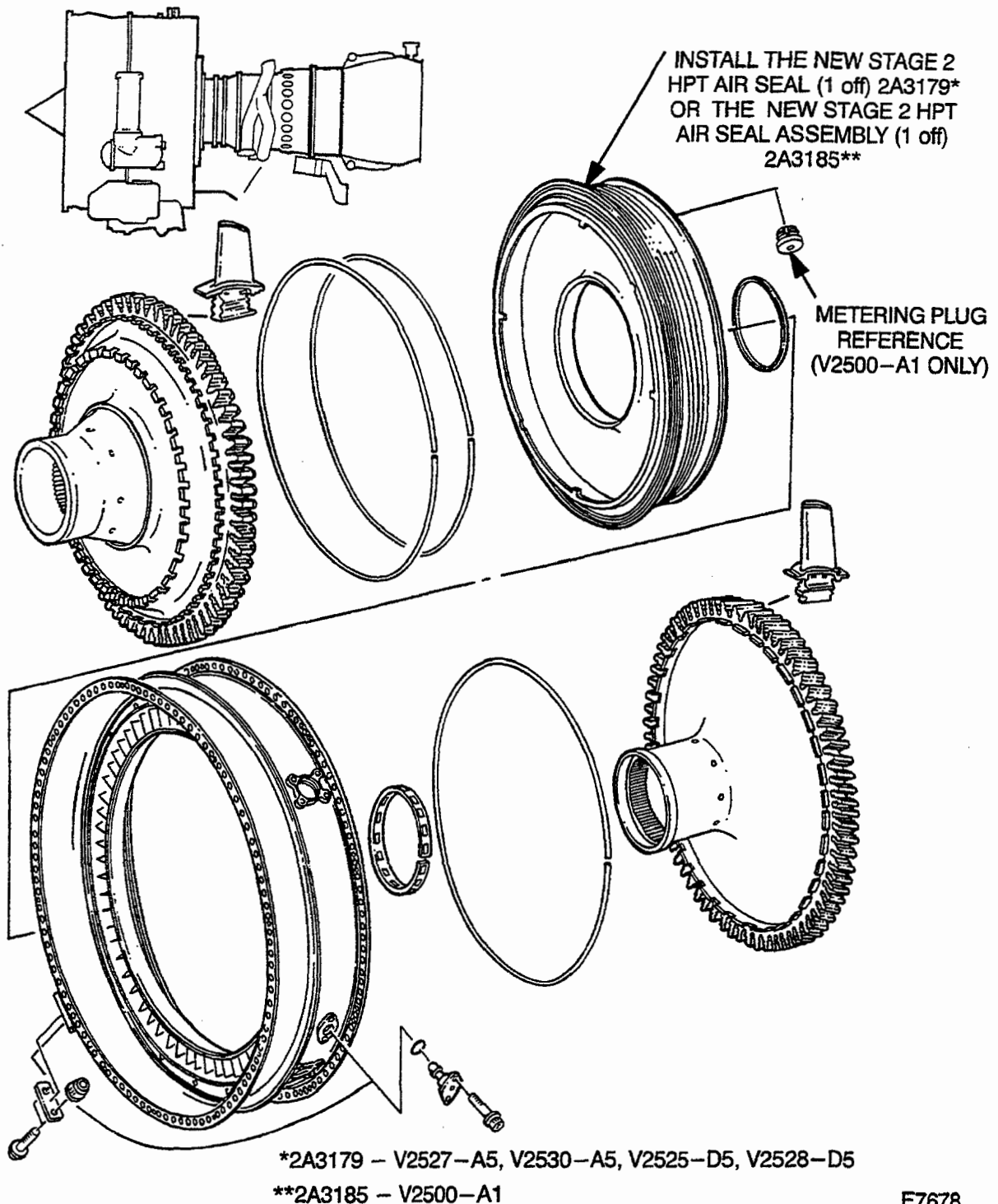
NOTE: *This part number is only used for the configuration that follows: V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that incorporates Service Bulletin V2500-ENG-72-0146, V2500-ENG-72-0180, V2500-ENG-72-0194, and V2500-ENG-72-0238, but does not incorporate V2500-ENG-72-0190. All other configurations will use either 2A4200-001 or 2A7000-001 Rotor and Stator Assembly.

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SERVICE BULLETIN



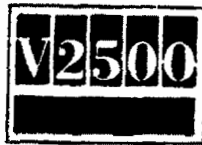
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Location of the Stage 2 High Pressure Turbine (HPT) Air Seal (Assembly)
Figure 2

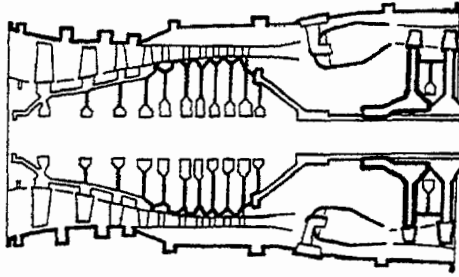
Aug.15/96
Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 11

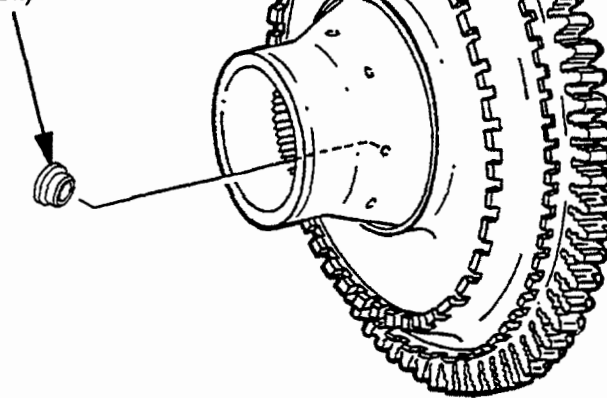


International Aero Engines SERVICE BULLETIN



MODULE 40

REPLACE THE 2A2354 STAGE 1
HIGH PRESSURE TURBINE (HPT)
METERING PLUGS WITH 2A3182
(24 off)



E7679

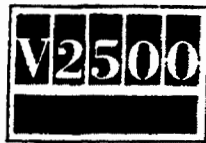
Location of the Stage 1 High Pressure Turbine (HPT) Metering Plugs
Figure 3

Aug.15/96
R Revision 1 Jan.15/97

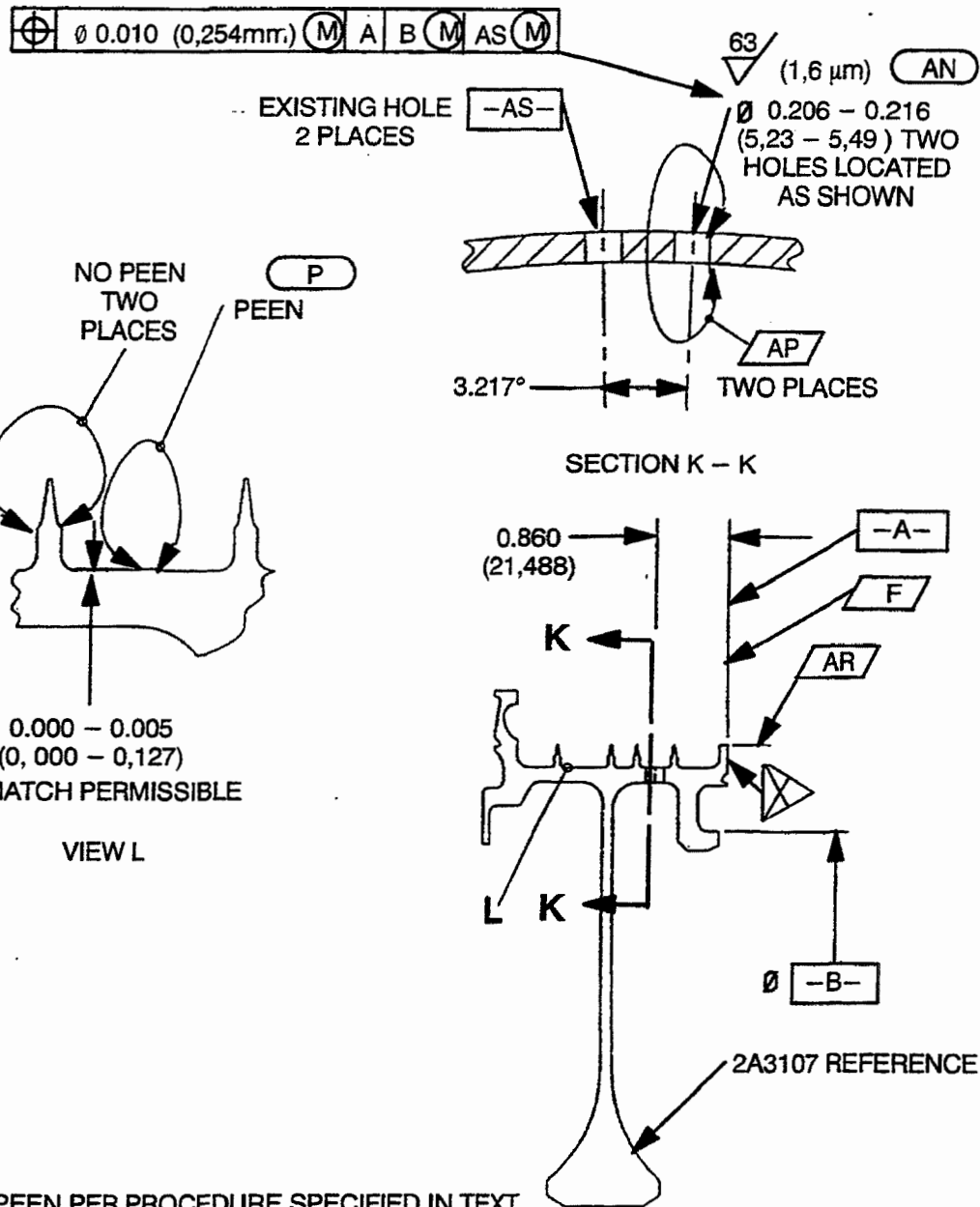
V2500-ENG-72-0240

Page 12

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International Aero Engines SERVICE BULLETIN



(P) SHOT PEEN PER PROCEDURE SPECIFIED IN TEXT

(AN) FINISH SURFACE OF THIS PART BY THE PROCEDURE GIVEN IN THE TEXT

UNLESS DIFFERENTLY SPECIFIED BREAK SHARP EDGES 0.003 - 0.015 (0,08 - 0,38)

UNLESS DIFFERENTLY SPECIFIED ALL SURFACE TEXTURES ARE TO BE 125 (3,2 μm)

MARK IDENTIFICATION AT THIS LOCATION BY PROCEDURE SPECIFIED IN TEXT

E7680

Modification of the Stage 2 High Pressure Turbine (HPT) Air Seal Assembly
Figure 4

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SERVICE BULLETIN

3. Material Information

A. 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 V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that incorporates V2500-ENG-72-0207.

2A3179 (72-45-00)	1		.Seal Assy. HPT, Stage 2	2A3108 (01-080)	(A)(B)(1D)
(72-45-00)	2		..Metering Plug, HPT Seal, Stage 2	2A1158 (01-084)	(F)

Applicability: For each V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that does not incorporate V2500-ENG-72-0207.

2A3179 (72-45-00)	1		.Seal Assy. HPT, Stage 2	2A1160 (01-080)	(A)(B)(1D)
(72-45-00)	2		..Metering Plug, HPT Seal, Stage 2	2A1158 (01-084)	(F)

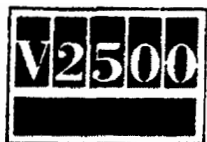
Applicability: For each V2500-A1 Engine to incorporate this Service Bulletin that incorporates V2500-ENG-72-0121 and V2500-ENG-72-0207.

2A3185 (72-45-00)	1		.Seal Assy. HPT, Stage 2	2A3108 (01-080)	(A)(B)(S1)(1D)
(72-45-00)	2		..Metering Plug, HPT Seal, Stage 2	2A1158 (01-084)	(F)
2A1158 (72-45-00)	4		..Metering Plug, HPT Seal, Stage 2	- (01-084)	(A)(E)

Applicability: For each V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that incorporates Service Bulletin V2500-ENG-72-0146, V2500-ENG-72-0180, V2500-ENG-72-0194 and V2500-ENG-72-0238 but does not incorporate V2500-ENG-72-0190.

2A3401 (72-45-10)	1		Turbine Rotor Assy. Stage 1	2A3301 (01-010)	(B)(C)(1D)
2A3182 (72-45-11)	24	33.10	..Metering Plug, HPT Hub, Stage 1	2A2354 (01-040)	(A)(F)

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International Aero Engines

SERVICE BULLETIN

New Part No. (ATA No.)	Qty	Est'd Unit Price(\$)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
------------------------------	-----	----------------------------	---------	------------------------------	-----------------------------

R Applicability: For each V2527-A5 and V2530-A5 Engine to incorporate this Service Bulletin that incorporates Service Bulletin V2500-ENG-72-0146, V2500-ENG-72-0180 but does not incorporate V2500-ENG-72-0190, V2500-ENG-72-0194 and V2500-ENG-72-0238.

2A8721-001	1		.Turbine Rotor	2A8721	(C)(1D)
(72-45-10)			Assy. Stage 1	(01-010)	
R 2A3182	24	33.10	.Metering	2A2354	(A)(F)
(72-45-11)			Plug, HPT	(01-040)	
			Hub, Stage 1		

Applicability: For each V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that incorporates Service Bulletin V2500-ENG-72-0146 and V2500-ENG-72-0190 but does not incorporate V2500-ENG-72-0180, V2500-ENG-72-0194 and V2500-ENG-72-0238.

2A8421-002	1		Turbine Rotor	2A8421-001	(C)(1D)
(72-45-10)			Assy. Stage 1	(01-010)	
R 2A3182	24	33.10	.Metering	2A2354	(A)(F)
(72-45-11)			Plug, HPT	(01-040)	
			Hub, Stage 1		

Applicability: For each V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that incorporates Service Bulletin V2500-ENG-72-0146, V2500-ENG-72-0180 and V2500-ENG-72-0190 but does not incorporate V2500-ENG-72-0194 and V2500-ENG-72-0238.

2A8821-001	1		Turbine Rotor	2A8821	(C)(1D)
(72-45-10)			Assy. Stage 1	(01-010)	
R 2A3182	24	33.10	.Metering	2A2354	(A)(F)
(72-45-11)			Plug, HPT	(01-040)	
			Hub, Stage 1		

Applicability: For each V2527-A5, V2530-A5, V2525-D5 and V2528-D5 Engine to incorporate this Service Bulletin that incorporates Service Bulletin V2500-ENG-72-0146, V2500-ENG-72-0180 and V2500-ENG-72-0194 but does not incorporate V2500-ENG-72-0238.

2A8921-001	1		Turbine Rotor	2A8921	(C)(1D)
(72-45-10)			Assy. Stage 1	(01-010)	
R 2A3182	24	33.10	.Metering	2A2354	(A)(F)
(72-45-11)			Plug, HPT	(01-040)	
			Hub, Stage 1		

C. Consumable Materials

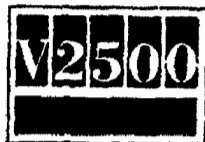
D. Instructions/Disposition Code Statements:

- (S1)The old parts and new parts are directly interchangeable, both physically and functionally.
- (1D)You can obtain the new part by modification of the old part and identification to the new part number.
- (A) The new part is currently available.
- (B) 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.

Aug.15/96

R Revision 1 Jan.15/97

V2500-ENG-72-0240



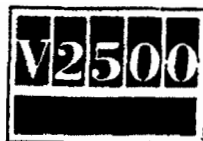
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SERVICE BULLETIN

- (E) The quantity of the new part is increased from two to four units at this location.
- (F) Old Part will continue to be supplied.

NOTE: The estimated 1996 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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MODIFICATIONS

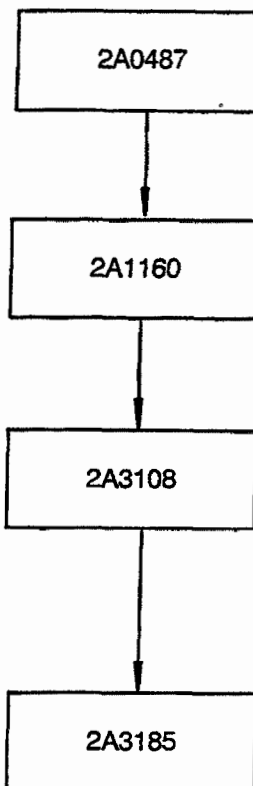
BASELINE

V2500-ENG-72-0121
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 2 HPT
AIR SEAL ASSEMBLY

V2500-ENG-72-0207
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 2 HPT
AIR SEAL ASSEMBLY FEATUR-
ING RECONTOURED FORWARD
AND REARWARD MATING SUR-
FACES AND A TAPERED WEB

V2500-ENG-72-0240
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 1 TUR-
BINE HUB

PART NUMBER CHANGE



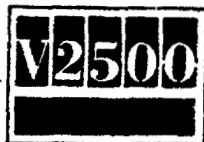
E7681

Family Tree - Stage 2 HPT Air Seal Assembly For The V2500-A1 Engine Model
Ref. Catalog Sequence No. 72-45-00. Fig. 01 Item 080
Figure 5

Aug.15/96
R Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 17



International Aero Engines SERVICE BULLETIN

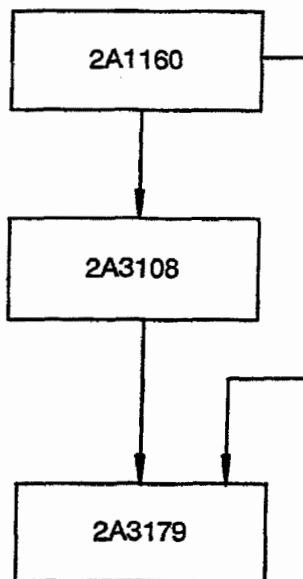
MODIFICATIONS

BASELINE

V2500-ENG-72-0207
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 2 HPT
AIR SEAL ASSEMBLY FEATUR-
ING RECONTOURED FORWARD
AND REARWARD MATING SUR-
FACES AND A TAPERED WEB

V2500-ENG-72-0240
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 1 TUR-
BINE HUB

PART NUMBER CHANGE



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E7682

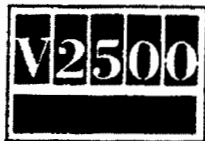
Family Tree - Stage 2 HPT Air Seal Assembly For The V2527-A5, V2530-A5, V2525-D5
and V2528-D5 Engines

Ref. Catalog Sequence No. 72-45-00. Fig. 01 Item 080
Figure 6

Aug.15/96
R Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 18



International Aero Engines SERVICE BULLETIN

MODIFICATIONS
BASELINE

PART NUMBER CHANGE

V2500-ENG-72-0146
ENGINE - HP TURBINE ROTOR AND
STATOR ASSEMBLY - PROVIDE A
NEW STAGE 1 HPT BLADE

V2500-ENG-72-0180
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
INTRODUCE A NEW FIRST
STAGE TURBINE OUTER AIRSEAL

V2500-ENG-72-0190
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
INTRODUCE A NEW STAGE 1
SATGE 1 HPT AIR SEAL AND A
NO. 4 BEARING COOLING DUCT
ASSEMBLY

V2500-ENG-72-0194
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
INTRODUCE A NEW STAGE 1
HP TURBINE AIR SEAL

V2500-ENG-72-0238
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 1 TUR-
BINE HUB

V2500-ENG-72-0240
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 2 HIGH
PRESSURE TURBINE (HPT) AIR
SEAL AND NEW STAGE 1 HIGH
PRESSURE TURBINE (HPT) ME-
TERING PLUGS

2A6621

2A8421

2A8721*

2A8921

2A3301

2A3401

(A) (B) CONTINUED ON SHEET 2

(C) CONTINUED FROM SHEET 2

(A)

(B)

(C)

2A8921-001

2A8721-001

*FOR V2527-A5 AND V2530-A5 ENGINES

E7683

Family Tree - Stage 1 Turbine Rotor Assembly
Ref. Catalog Sequence No. 72-45-10. Fig. 01 Item 010
Figure 7 (Sheet 1)

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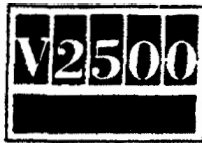
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(C) CONTINUED ON SHEET 1

Aug.15/96
Revision 1 Jan.15/97

Page 20



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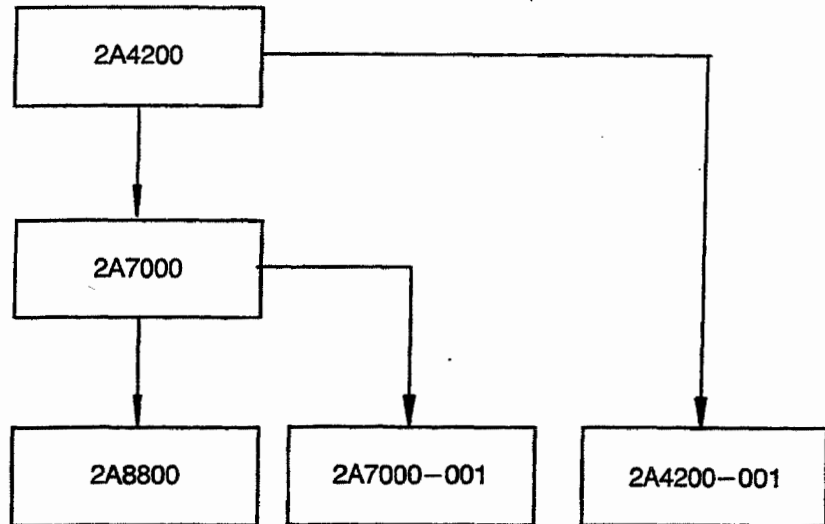
MODIFICATIONS

BASELINE

V2500-ENG-72-0187
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE A NEW STAGE 2
TURBINE BLADE (FOR VARIOUS
MODEL PARTS COMMONALITY

V2500-ENG-72-0240
ENGINE - HP TURBINE
ROTOR AND STATOR
ASSEMBLY - PROVIDE
NEW STAGE 1 HPT
BLADES

PART NUMBER CHANGE



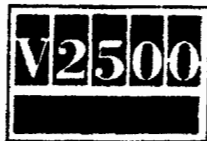
E-7707

Family Tree - Rotor And Stator Assembly HPT Module V2527-A5 and V2530-A5 Engines
Ref. Catalog Sequence No. 72-45-00. Fig. 01 Item 001
Figure 8

Aug.15/96
R Revision 1 Jan.15/97

V2500-ENG-72-0240

Page 21



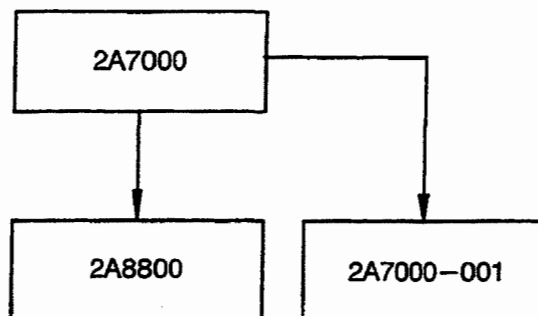
International Aero Engines SERVICE BULLETIN

MODIFICATIONS

BASELINE

V2500-ENG-72-0240
ENGINE - HP TURBINE ROTOR
AND STATOR ASSEMBLY -
PROVIDE NEW STAGE 1 HPT
BLADES

PART NUMBER CHANGE



E7708

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Family Tree - Rotor And Stator Assembly HPT Module V2525-D5 and V2528-D5 Engines
Ref. Catalog Sequence No. 72-45-00. Fig. 01 Item 001
Figure 9



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SERVICE BULLETIN

APPENDIX 1

1. The cyclic limit for the 2A2801 Stage 1 Turbine Hub is as follows:

REFERENCE	NAME	PART NUMBER	MODELS	CYCLES MAX.
1602	Stage 2 HPT Air Seal As- sembly	2A3185	V2500-A1	15000
1602	Stage 2 HPT Air Seal As- sembly	2A3179	V2527-A5 V2530-A5 V2525-D5 V2528-D5	15000

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V2500-ENG-72-0240

Appendix 1

Page 1 of 1