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DATE: Jul.26/06

V2500-A1/A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits Revision 2 to Service Bulletin EV2500-72-0381 and the Initial Issue of the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status
Initial Issue	Jan.12/01	
Revision 1	Dec.19/01	

Bulletin Revision 2

Remove	Incorporate	Reason for change
	Page 1 and 2 of the Summary	To correct dimension in Figure 2 Sheet 2 and to bring the Service Bulletin in line with the new format.
All pages of the Service Bulletin	Pages 1 to 13 of the Service Bulletin	To correct dimension in Figure 2 Sheet 2 and to bring the Service Bulletin in line with the new format.
	Pages 1 to 3 and 5 of Appendix 1	To correct dimension in Figure 2 Sheet 2 and to bring the Service Bulletin in line with the new format.

Supplement Initial Issue

Remove	Incorporate	Reason for change
	Page 1	To correct dimension in Figure 2 Sheet 2 and to bring the Service Bulletin in line with the new format.

LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 2 to the Bulletin and the Initial Issue of the Supplement are as follows:

	Page	Revision Number	Revision Date
	Summary		
R	1	2	Jul.26/06
R	2	2	Jul.26/06
	Bulletin		
R	1	2	Jul.26/06
R	2	2	Jul.26/06
R	3	2	Jul.26/06
R	4	2	Jul.26/06
R	5	2	Jul.26/06
R	6	2	Jul.26/06
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R	10	2	Jul.26/06
R	11	2	Jul.26/06
R	12	2	Jul.26/06
R	13	2	Jul.26/06
	Appendix 1		
R	1	2	Jul.26/06
R	2	2	Jul.26/06
R	3	2	Jul.26/06
R	5	2	Jul.26/06
	Supplement		
	1		Jul.26/06

International Aero Engines

SERVICE BULLETIN

ENGINE – PROVIDE NEW STAGE 1 HIGH PRESSURE TURBINE (HPT) COOLING AIR DUCT ASSEMBLY WITH DECREASED HONEYCOMB SURFACE

SUMMARY

R 1. PLANNING

R A. EFFECTIVITY

R Engine V2500-A1 Serial Numbers V0001 through V0361.

R Engine V2500-A5 Serial Numbers V10001 through V10896 and V10898, V10900,
R V10902, V10904, V10906 and V10908.

R Engine V2500-D5 Serial Numbers V20001 through V20285.

R B. CONCURRENT REQUIREMENTS

R There are no concurrent requirements.

R C. REASON

R Problem:

R Oil accumulation in the HPT Stage 1 cooling duct honeycomb at the 6 o'clock
R position can ignite during engine operation and contribute to HP turbine
R distress related to increased hardware operating temperatures.

R Evidence:

R Oil leakage from the number 4 bearing compartment accumulates in the Stage
R 1 cooling duct honeycomb and, because there are no features to allow the
R oil to drain, ignites during subsequent engine operation. This oil ignition
R contributes to HP turbine distress.

R Objective:

R One of the corrective actions addressing oil ignition is the elimination of
R one of the three knife edges on the Stage 1 inner rotating air seal. The
R knife edge removal allows the removal of corresponding honeycomb, resulting
R in less honeycomb available for oil to accumulate. Minimizing oil
R accumulation minimizes the potential for hardware distress due to oil
R ignition.

R Substantiation:

R Elimination of the unused portion of the ID honeycomb and incorporation of
R a positive drainage path will minimize oil accumulation, thereby reducing
R the potential for ignition in the HPT. Substantiation of the new features
R was accomplished on the basis of the design analysis.

R D. DESCRIPTION

R Install a new Stage 1 HPT Cooling Duct Assembly.

R E. COMPLIANCE

R Category 4

R Accomplish at the first visit of an engine or module to a maintenance base
R capable of compliance with the Accomplishment Instructions regardless of
R the planned maintenance action or the reason for engine removal.

R F. MANPOWER

R (1)In Service

R Not applicable

R (2)At Overhaul

R Total - 2 Hours 45 Minutes

R Total Necessary Man-hours - 2 Hours 45 Minutes

R G. INTERCHANGEABILITY OF PARTS

R Old and new parts are directly interchangeable.

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.

International Aero Engines

SERVICE BULLETIN

ENGINE - PROVIDE NEW STAGE 1 HIGH PRESSURE TURBINE (HPT) COOLING AIR DUCT ASSEMBLY WITH DECREASED HONEYCOMB SURFACE

1. Planning Information

A. Effectivity

(1) Airbus A319

V2522-A5, V2524-A5, V2527M-A5 Engines Serial No. V10001 thru V10896 and including V10898, V10900, V10902, V10904, V10906 and V10908.

(2) Airbus A320

V2500-A1 Engines Serial No. V0001 thru V0361.

V2527-A5, V2527E-A5 Engines Serial No. V10001 thru V10896 and including V10898, V10900, V10902, V10904, V10906 and V10908.

(3) Airbus A321

V2530-A5, V2533-A5 Engines Serial No. V10001 thru V10896 and including V10898, V10900, V10902, V10904, V10906 and V10908.

(4) Boeing Longbeach MD-90

V2525-D5, V2528-D5 Engines Serial No. V20001 thru V20285.

B. Concurrent Requirements

There are no concurrent requirements.

C. Reason

R (1) Problem:

Oil accumulation in the HPT Stage 1 cooling duct honeycomb at the 6 o'clock position can ignite during engine operation and contribute to HP turbine distress related to increased hardware operating temperatures.

R (2) Evidence:

Oil leakage from the number 4 bearing compartment accumulates in the Stage 1 cooling duct honeycomb and, because there are no features to allow the oil to drain, ignites during subsequent engine operation. This oil ignition contributes to HP turbine distress.

(3) Objective:

One of the corrective actions addressing oil ignition is the elimination of one of the three knife edges on the Stage 1 inner rotating air seal. The knife edge removal allows the removal of corresponding honeycomb, resulting in less honeycomb available for oil to accumulate. Minimizing oil accumulation minimizes the potential for hardware distress due to oil ignition.

(4) Substantiation:

Elimination of the unused portion of the ID honeycomb and incorporation of a positive drainage path will minimize oil accumulation, thereby reducing the potential for ignition in the HPT. Substantiation of the new features was accomplished on the basis of the design analysis.

(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

Install a new Stage 1 HPT Cooling Duct Assembly.

E. Compliance

Category 4

Accomplish at the first visit of an engine or module to a maintenance base capable of compliance with the Accomplishment Instructions regardless of the planned maintenance action or the reason for engine removal.

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.

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

G. Manpower

R (1) In Service

R Not Applicable

R (2) At Overhaul

R Total - 2 Hours 45 Minutes

R H. Material - Price and Availability

R (1) There is no kit provided to do this Service Bulletin.

R (2) Part availability information is provided in material data
R Instructions-Disposition.

R I. Tooling - Price and Availability

R Special tools are not required to accomplish this Service Bulletin.

J. Weight and Balance

R (1) Weight Change

R None

R (2) Moment

R No Effect

R (3) Datum

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

K. Electrical Load Data

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

L. Software Accomplishment Summary

Not Applicable.

M. References

R (1) IAE V2500 Service Bulletin V2500-ENG-72-0046 (Engine - HP Turbine Rotor
R and Stator Assembly - Provide a New Stage First Stage HPT Blade and First
R Stage HPT Cooling Duct assembly).

R (2) IAE V2500 Service Bulletin V2500-ENG-72-0241 (Engine - Stage 1 Turbine
R Nozzle Assembly - Provide a New Stage 1 HPT Cooling Duct Assembly and
R Segments).

R (3) IAE V2500 Service Bulletin V2500-ENG-72-0340 (Engine - HP Turbine Rotor
R and Stator Assembly - Provide a New Single Fully Ceramic Coated Vane and a
R New Stage 1 HP Turbine Cooling Duct Assembly).

R (4) V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA,
R S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB,
R S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section
R 72-44-50.

R (5) V2500 Engine Manual (E-V2500-1I-A), Chapter/Section 72-44-00, Assembly and
R 72-44-50, Repair.

R (6) V2500 Engine Manual (E-V2500-3I-A), Chapter/Section 72-44-00, Assembly and
R 72-44-50, Repair.

R (7) V2500 Standard Practices/Process Manual (SPP-V2500-1I-A), 70-09-00 Marking
R of Parts, 70-23-03, Fluorescent Penetrant Inspection and 70-32-03, Finish
R by Electrochemical or Electrodischarge Metal Removal.

R (8) Internal references - 00VA005, 00VA005A.

R (9) ATA locator - 72-44-50.

N. Other Publications Affected

R (1) V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA,
R S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB,
R S-V2500-6IA, S-V2500-6IB, S-V2500-7IA, and S-V2500-7IB), Chapter/Section
R 72-44-50. Figure 1 to add the new part.

R (2) V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section
R 72-44-50 Cleaning, Inspection and Repair, to add the new part.

O. Interchangeability of Parts

Old and new parts are directly interchangeable.

P. 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.

R For V2500-A1 Engines:

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
R	72-44-50					
R	01-010	2A3491-01	1	.Duct, Assy of Cooling, HPT, Stage 1	2A3329-01	(1)(A)(N)
R	01-010	2A1997-003	1	.Duct, Assy of Cooling, HPT, Stage 1	2A1997-001	(1)

R For V2500-A1 Engines Incorporating Service Bulletin 72-0046 But Not Incorporating Service Bulletin 72-0340:

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
R	72-44-50					
R	01-010	2A1997-002	1	.Duct, Assy of Cooling, HPT, Stage 1	2A1997-01	(1)

R For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5,
R V2525-D5, V2528-D5 Engines:

	FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	OLD PART NO.	INSTR DISP
R	72-44-50					
R	01-010	2A3487-01	1	.Duct, Assy of Cooling, HPT, Stage 1	2A3180-01	(1)(A)(N)

C. Instructions/Disposition Code Statements:

(1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.
(A) The new part is available.
(N) The old part is not available.

D. Other Material Information Data

Not applicable.

E. Material Data for Each Spare Engine

The material for each spare engine is as stated in the preceding Material Information section.

F. Reidentified Parts

Re-identified Parts Data

New PN	Keyword	Old PN
2A1997-002	Duct Assy	2A1997-01
2A1997-003	Duct Assy	2A1997-001
2A3487-01	Duct Assy	2A3180-01
2A3491-01	Duct Assy	2A3329-01

3. Accomplishment Instructions

(1) Do a modification of the PN, 2A1997-01, 2A1997-001, 2A3180-01 or 2A3329-01 Stage 1 High Pressure Turbine (HPT) Duct Assembly (1 off). See Reference (4), 72-44-50, Figure/Item No. 01-010).

(a) Set-up and remove the honeycomb per the dimensions shown in Section A-A Sheet 2. Refer to Figure 2 (Sheet 3).

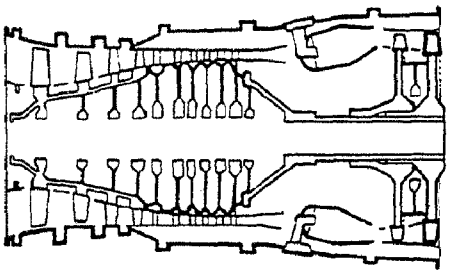
(b) Set-up and machine a slot at bottom dead centre to the dimensions shown in Section B-B Sheet 3 and View C Sheet 4. Refer to Figure 2 (Sheets 3 and 4).

After modification identify PN, 2A1997-01, 2A1997-001, 2A3180-01 or 2A3329-01 as PN, 2A1997-002, 2A1997-003, 2A3487-01 or 2A3491-01 respectively.

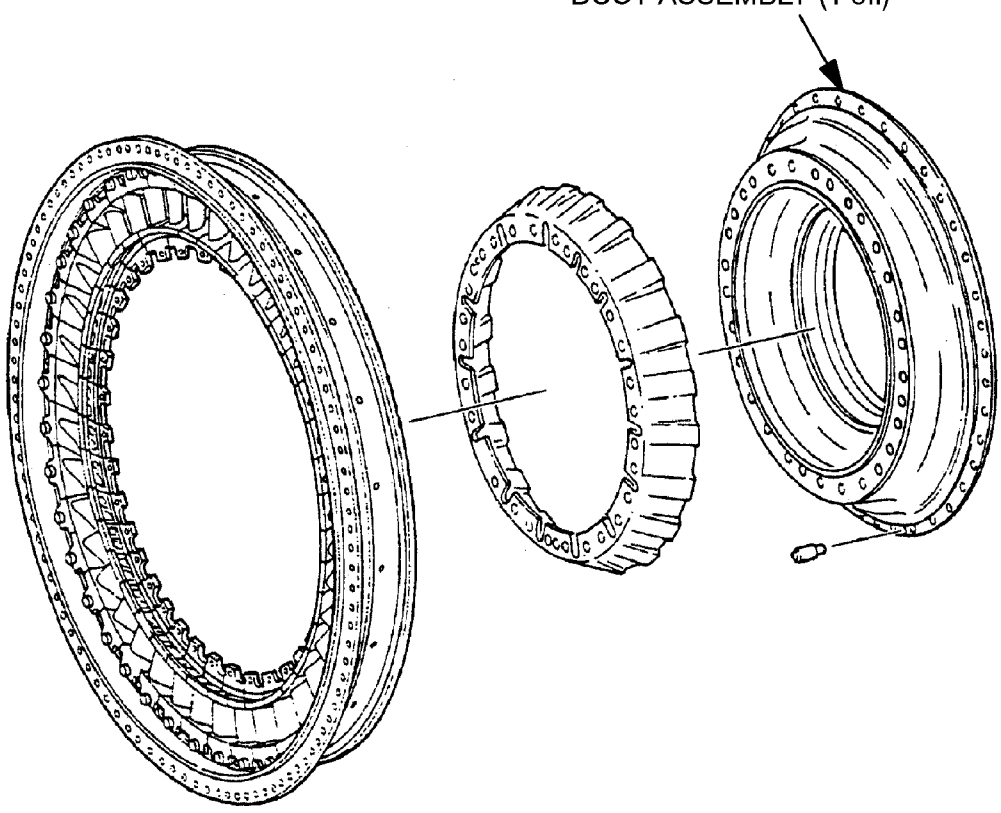
(c) Mark the new Part Number adjacent to the existing Part Number. Use the vibration peen method. Refer to Reference (7), Control No./Task No. 70-09-00-400-501.

R (2) Recording Instructions

R (a) A record of accomplishment is required.



MODULE 40



R

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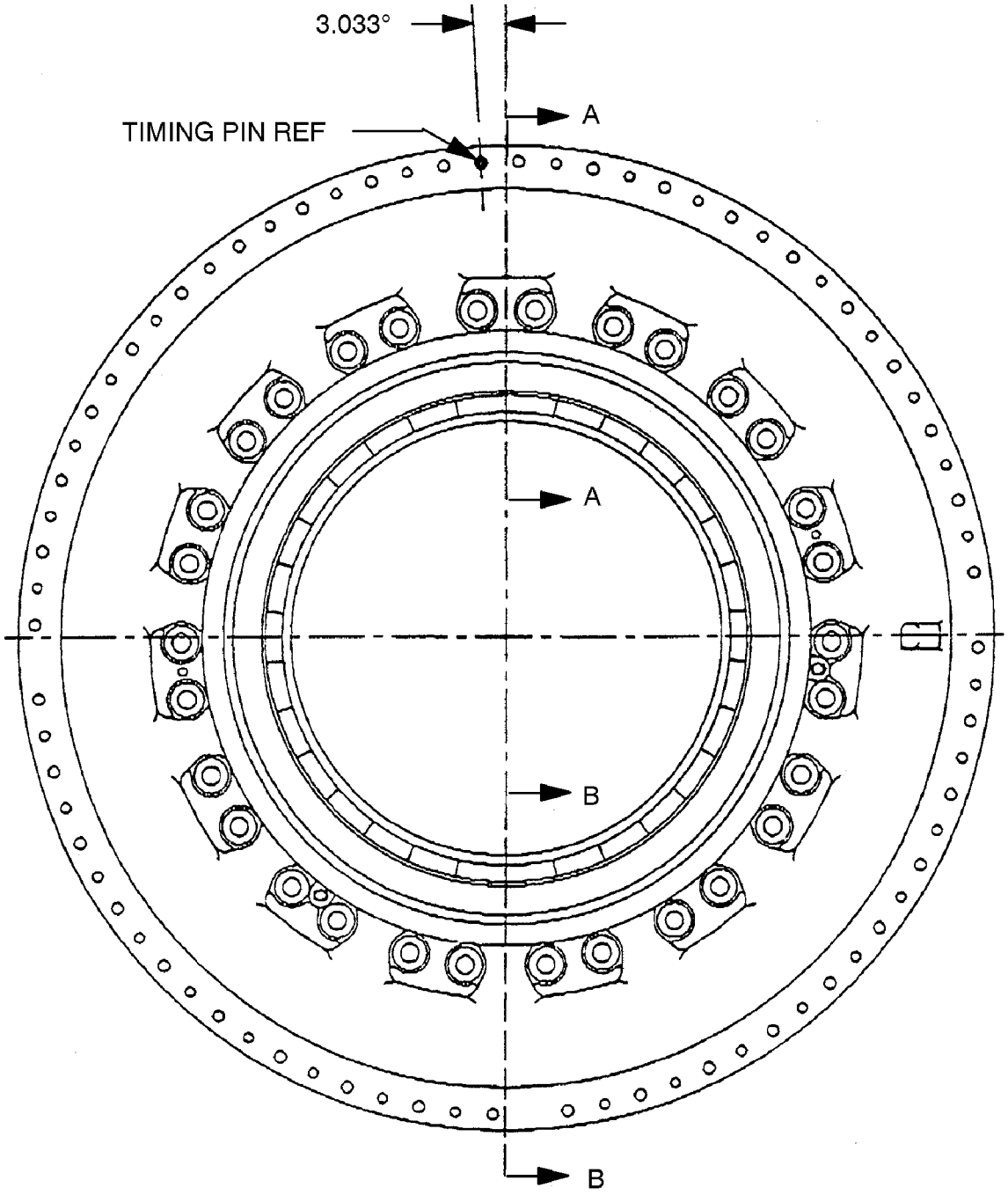
R Location of the Stage 1 High Pressure Turbine Duct Assembly
R Figure 1



R

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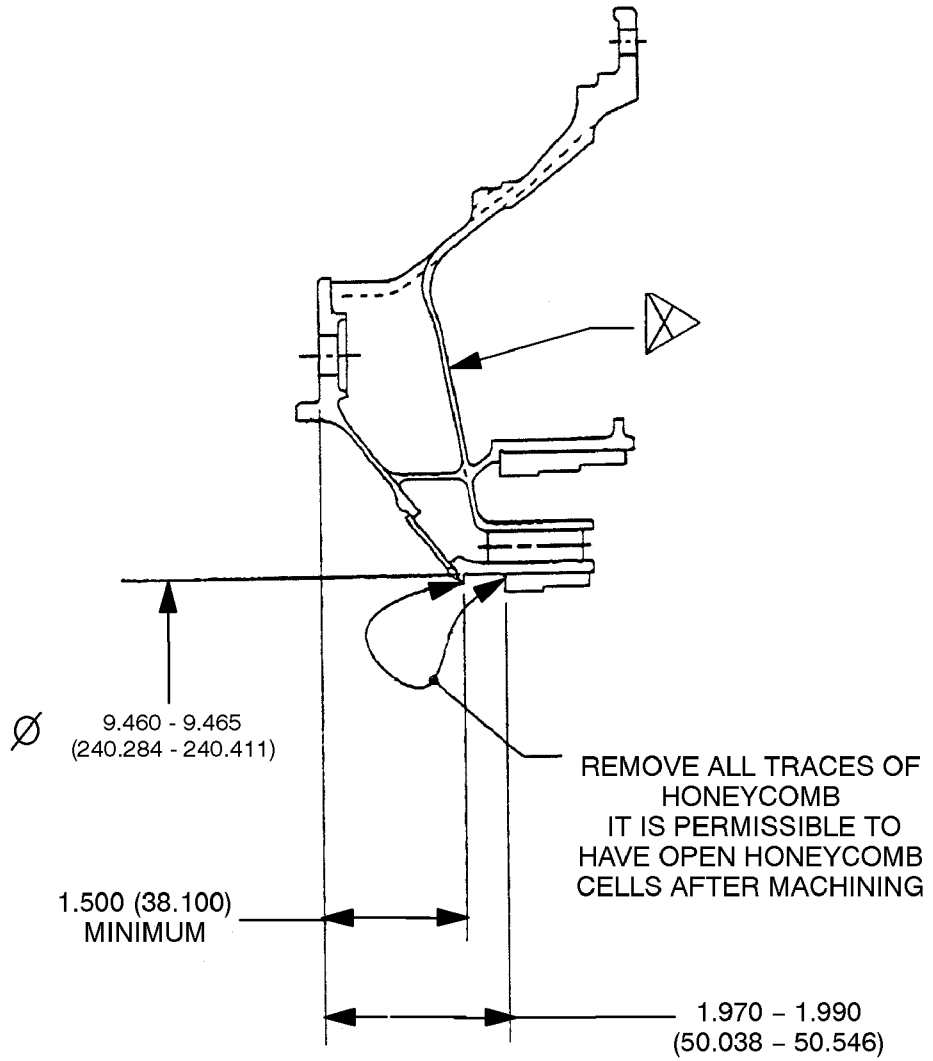
R Modification of the Stage 1 High Pressure Turbine Duct Assembly
R Figure 2 (Sheet 1 of 4)

R



SECTION A–A

MARK IDENTIFICATION AT THIS LOCATION BY PROCEDURE SPECIFIED IN TEXT

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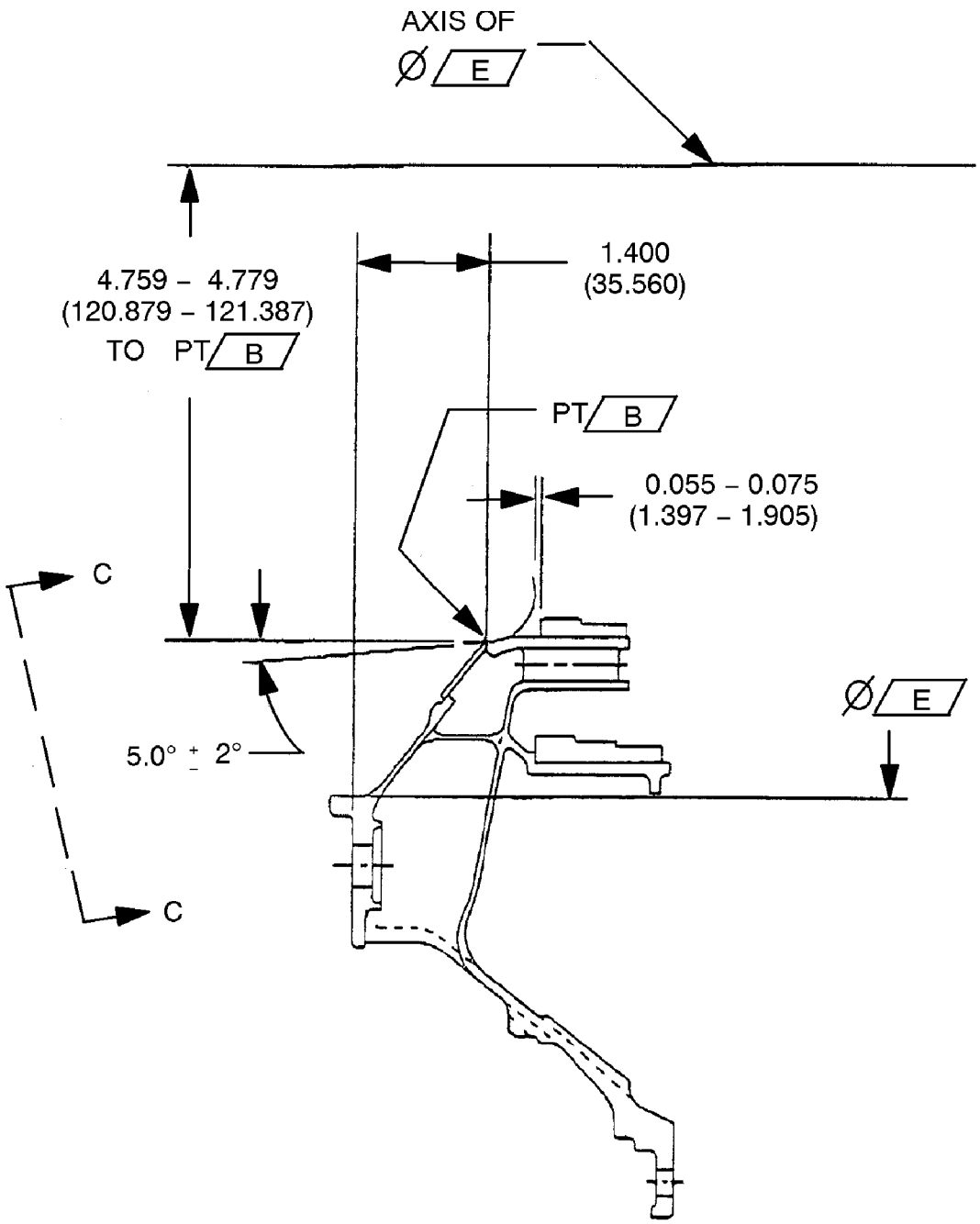
R Modification of the Stage 1 High Pressure Turbine Duct Assembly
R Figure 2 (Sheet 2 of 4)



SECTION B – B

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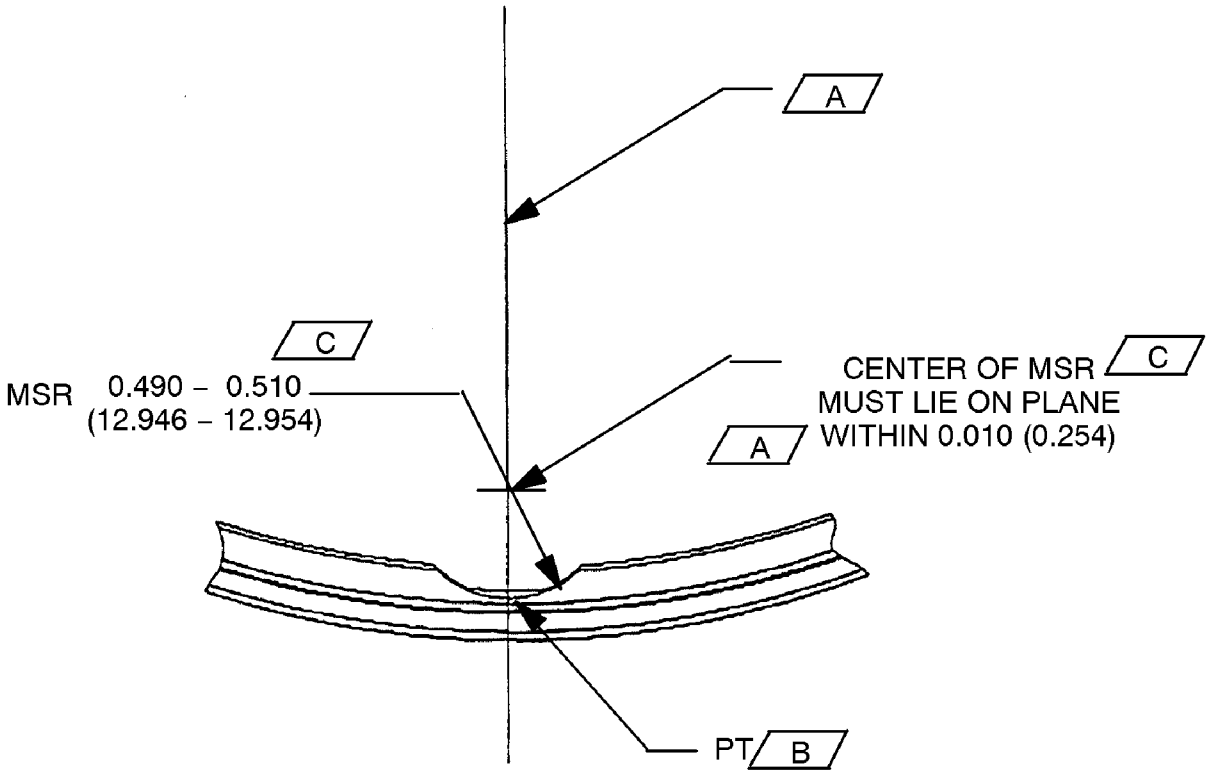
R Modification of the Stage 1 High Pressure Turbine Duct Assembly
R Figure 2 (Sheet 3 of 4)

R



VIEW C – C

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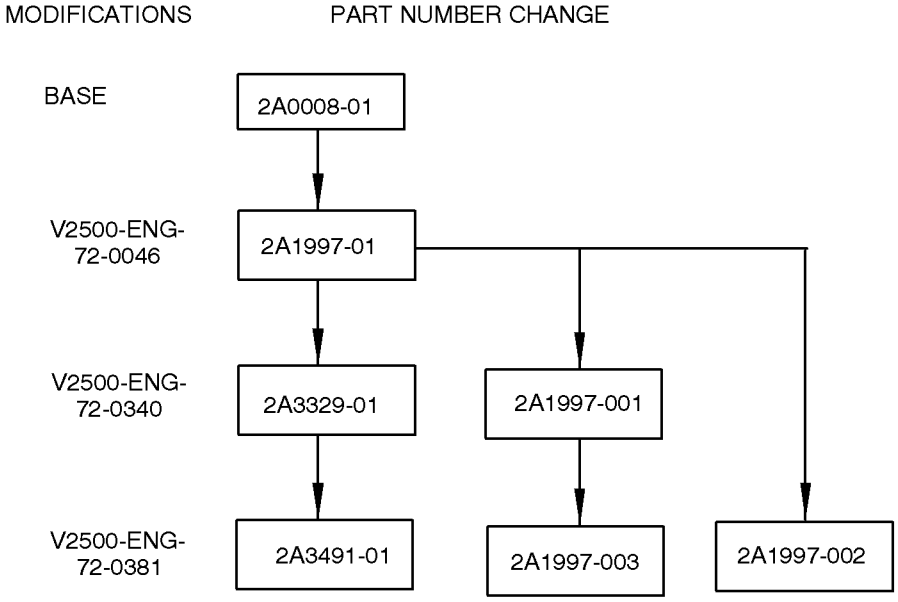
R Modification of the Stage 1 High Pressure Turbine Duct Assembly
R Figure 2 (Sheet 4 of 4)

APPENDIX 1

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



R

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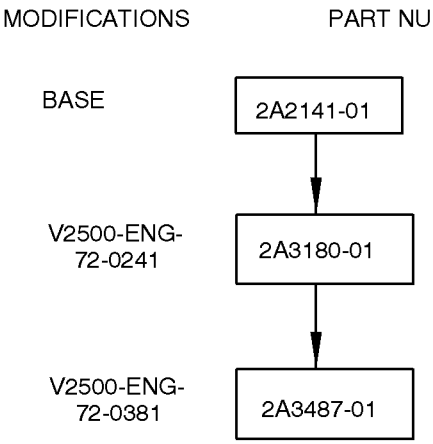
R Family Tree - V2500-A1 High Pressure Turbine (HPT) Cooling Duct Assembly Ref. Catalog sequence No. 72-44-50, Fig. 01, Item 010

R Figure 3 (Sheet 1 of 2)



R

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R Family Tree - V2500-A5/D5 High Pressure Turbine (HPT) Cooling Duct Assembly Ref. Catalog sequence No. 72-44-50, Fig. 01, Item 010

R Figure 3 (Sheet 2 of 2)

R Added Data

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

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

International Aero Engines

SERVICE BULLETIN

ENGINE - PROVIDE NEW STAGE 1 HIGH PRESSURE TURBINE (HPT) COOLING AIR DUCT ASSEMBLY WITH DECREASED HONEYCOMB SURFACE

Printed in Great Britain

R SUPPLEMENT - PRICES AND AVAILABILITY

R The prices (if shown) are for estimating purposes only and as such are given in good R faith, without commercial liability for advanced planning purposes only. Refer to R IAE Spares and/or current price catalogue for current prices.

R The estimated price of new material to do this Service Bulletin using new R replacement parts is $118,140.00.

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

R 1. Modification Kit:

R Not applicable.

R 2. Parts required:

R	Part No.	Description	Unit Price US Dollars
R	2A3491-01	.Duct, Assy of Cooling, HPT, Stage 1	52,600.00
R	2A3487-01	.Duct, Assy of Cooling, HPT, Stage 1	65,540.00