SERVICE BULLETIN REVISION NOTICE

ENGINE — HP TURBINE ROTOR ASSEMBLY — INTRODUCE NEW FIRST STAGE TURBINE BLADES AND STAGE 1 HPT COOLING DUCT ASSEMBLY WITH DECREASED FLOW

Turbojet Engine Service Bulletin No. V2500-ENG-72-0475 Revision No. 3 dated May 7, 2019.

Revision History

Original Issue July 30, 2004

Revision 1 dated May 4, 2005

Revision 2 dated February 20, 2006

Revision 3 dated May 7, 2019

Reason for the Revision

To update the Service Bulletin format to current standards.

To revise Figure 3, Sheet 3 and Figure 4, Sheet 4 to update the weld specification.

To remove the Revision to Table of Limits in the Added Data section.

Effect of Revision on Prior Compliance

None.

This is a Complete Revision (Not Applicable to the SGML version)

The format of this Service Bulletin has been changed from previous versions. This revision shows flow bars and the revision date on the bottom of every page. Technical changes incorporated in this revision are marked with revision bars. The contents are in accordance with the list of effective pages.

MODEL APPLICATION

V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

V2500 Series 72-0475

Page	Revision No.	Date
1 thru 34	3	May 7/19

A copy of this Revision Notice and any future revision notices must be filed as a permanent record with your copy of the subject bulletin.

SERVICE BULLETIN

ENGINE — HP TURBINE ROTOR ASSEMBLY — INTRODUCE NEW FIRST STAGE TURBINE BLADES AND STAGE 1 HPT COOLING DUCT ASSEMBLY WITH DECREASED FLOW

MODEL APPLICATION

V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

V2500 Series 72-0475

ATA NUMBER

72-00-00

Compliance Category

7

P&W Distribution Code

V2500

Summary

The purpose of this Service Bulletin is to replace 1st stage Blades and Stage 1 HPT Cooling Duct.

Planning Information

Effectivity Data

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard)
Engine Serial Nos. V10001 thru V12054
Engine Serial No. V12056
Engine Serial No. V12058
Engine Serial No. V12060
Engine Serial No. V12062
Engine Serial No. V12064
Engine Serial No. V12066
Engine Serial No. V12068

V2525-D5, V2528-D5
Engine Serial Nos. V20001 thru V20285

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: Field experience at both 28K and 33K thrust rating is showing the V2500 A5/D5 HPT 1st stage blade durability is limiting time on wing. Operators running 33K thrust rating shop visits are being driven by a lack of EGT margin due to 1st stage blade tip burning. Desert Operators running 28K thrust rating shop visits are being driven by 1st stage blade tip deterioration.
2. Background: Scrap rates exceed Specified Levels.
3. Objective: Redesigned 1st blade is to improve durability to extend time on wing and reduce scrap. Improve internal cooling, improve alloy to reduce corrosion, improve coatings, and add a sand purge feature.
4. Substantiation: V2500 A5/D5 analytical modeling and various testing have been performed. These test include SLA water flow testing, SLA air flow, quick look study, coat down study, long look/detailed porcupine test, inlet loss airfoil testing, final flow testing. Design and structural vibration analysis and vibration bench testing has been used to confirm the blade vibratory modes are not significantly affected by the new blade configuration. A rainbow wheel including 10 BOM blades is being tested in X804-26. A cyclic endurance test X804-26 simulates a 3/4 service interval and demonstrates improved durability of the new blade. No Effect on Performance.
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.

Description

Replace 1st stage Blades and Stage 1 HPT Cooling Duct.

Compliance

Category 7

Accomplish when supply of superseded parts has been depleted.

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 the Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model listed.

The aircraft Type Certificate (TC) holder has been informed of this change.

Manpower

1. In Service

..... Not Applicable.

2. At Overhaul

..... Not Applicable.

Weight and Balance

1. Weight Change

None.

2. Moment Arm

No Effect.

3. Datum

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

Electrical Load Data

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

Software Accomplishment Summary

Not Applicable.

References

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. V2500 Standard Practices and Processes, P&W Ref. PN 2A4414, Chapter/Section 70-09-00, 70-11-26, 70-23-03, and 70-31-13.
2. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428, Chapter/Section 72-44-50, 72-45-10, 72-45-14.
3. V2500-D5, Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 72-44-50, 72-45-10, 72-45-14.
4. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407, Chapter/Section 70-44-00.
5. V2500-D5 Series Engine Manual, P&W Ref. PN 2A4416, Chapter/Section 70-44-00.
6. V2500 A1/A5 Series Time Limits Manual, P&W Ref. PN 2A4408, Chapter/Section 72-45-00.
7. V2500-D5 Series Time Limits Manual, P&W Ref. PN 2A4417, Chapter/Section 72-45-00.
8. V2500 Service Bulletin V2500-ENG-72-0187 Engine - HP Turbine Rotor And Stator Assembly - Provide A New Stage 2 Turbine Blade (For Various Model Parts Commonality).
9. 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. V2500 Service Bulletin V2500-ENG-72-0241 Engine - Stage 1 Turbine Nozzle Assembly - Provide A New Stage 1 HPT Cooling Duct Assembly And Segments.
11. V2500 Service Bulletin V2500-ENG-72-0242 Engine - HP Turbine Rotor And Stator Assembly - Provide New Stage 1 HPT Blades.
12. V2500 Service Bulletin V2500-ENG-72-0357 Engine - HP Turbine Rotor Assembly - Introduce New First Stage Turbine Blades With Protective Coating On The Internal Cavities.
13. V2500 Service Bulletin V2500-ENG-72-0361 Engine - HP Turbine Rotor Assembly - Introduce New First Stage Turbine Blades With Blade Root Attachment Coating.
14. V2500 Service Bulletin V2500-ENG-72-0381 Engine - Provide New Stage 1 High Pressure Turbine (HPT) Cooling Air Duct Assembly With Decreased Honeycomb Surface.
15. V2500 Service Bulletin V2500-ENG-72-0412 Engine - Provide Additional Oil Drain Hole In 2nd Stage Turbine Air Seal.
16. V2500 Service Bulletin V2500-ENG-72-0451 Engine - High Pressure Turbine First Stage Disk Metering Plug Redesign.
17. Internal Reference No. - 00VA013S, 00VA013Y, 00VA013Y-02, 00VA013Y-04, 05VK002.

Other Publications Affected

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428, Chapter/Section 72-44-50, 72-45-10, 72-45-14.
2. V2500-D5, Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 72-44-50, 72-45-10, 72-45-14.
3. V2500 Engine Manuals (E-V2500-1IA and E-V2500-3IA), Chapter/Section 72-00-00 Cleaning, Inspection and Repair, to add the new part.

Interchangeability of Parts

Old and new parts are interchangeable only in complete sets.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Price and Availability

1. The estimated price of new material is $391,424.00 to do this Service Bulletin when the part modification procedure is used.
2. The estimated price of new material to do this Service Bulletin using new replacement parts is $467,944.00.
3. There is no kit provided to do this Service Bulletin.
4. Part availability information is provided in material data Instructions — Disposition.

Industry Support Program

Not Applicable.

The material data that follows is for each engine.

For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
2A3915	1	*	TURBINE NOZZLE GROUP	2A8600 (72-44-00-01-001)	(2)(N)
2A8600-005	1	*	TURBINE NOZZLE GROUP	2A8600 (72-44-00-01-001)	(1)(F)(N)
2A3914-01	1	*	.DUCT, COOLING,HPT, STAGE 1, ASSY	2A3487-01 (72-44-50-01-010)	(2)(B)(N1)(I)
2A9800	1	*	ROTOR AND STATOR ASSY	2A9300 (72-45-00-01-001)	(2)(F)(N)
2A9621	1	*	.TURBINE ROTOR ASSY	2A9521 (72-45-10-01-010)	(2)(F)(N)
2A9321	1	*	..BLADE, HPT, 1ST STAGE	2A9201 (72-45-14-01-010)	(1)(B)(N1)(I)
2A3914-01	1	*	.DUCT, COOLING, HPT, STAGE 1, ASSY	2A3487-01 (72-44-50-01-010)	(1)(B)(N1)(I)
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200-001 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200-002 (72-45-00-01-001)	(1)(M)(N)
			OR		

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200-003 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A8400-002	1	*	ROTOR AND STATOR ASSY	2A8400 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-005	1	*	ROTOR AND STATOR ASSY	2A7000-001 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-005	1	*	ROTOR AND STATOR ASSY	2A7000-002 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-005	1	*	ROTOR AND STATOR ASSY	2A7000-003 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-006	1	*	ROTOR AND STATOR ASSY	2A7000-004 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-007	1	*	ROTOR AND STATOR ASSY	2A7000 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A9300-002	1	*	ROTOR AND STATOR ASSY	2A9300 (72-45-00-01-001)	(1)(M)(N)
2A9621	1	*	.TURBINE ROTOR ASSY	2A9521 (72-45-10-01-010)	(1)(F)(N)
			OR		
2A9621-001	1	*	.TURBINE ROTOR ASSY	2A9031-010 (72-45-10-01-010)	(1)(M)(N)
			OR		
2A9621-001	1	*	.TURBINE ROTOR ASSY	2A9521-001 (72-45-10-01-010)	(1)(M)(N)
			OR		

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
2A9621-002	1	*	.TURBINE ROTOR ASSY	2A9521-002 (72-45-10-01-010)	(1)(4)(M)(N)
2A9321	1	*	..BLADE, HPT, 1ST STAGE	2A9201 (72-45-14-01-010)	(2)(B)(N1)(I)
			OR		
2A9321	1	*	..BLADE, HPT, 1ST STAGE	2A8701-002 (72-45-14-01-010)	(2)(B)(N1)(I)

For V2525-D5, V2528-D5 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
2A3915	1	*	TURBINE NOZZLE GROUP	2A8600 (72-44-00-01-001)	(2)(N)
2A8600-005	1	*	TURBINE NOZZLE GROUP	2A8600 (72-44-00-01-001)	(1)(F)(N)
2A3914-01	1	*	.DUCT, COOLING,HPT, STAGE 1, ASSY	2A3487-01 (72-44-50-01-010)	(2)(B)(N1)(I)
2A9800	1	*	.ROTOR AND STATOR ASSY	2A9300 (72-45-50-01-001)	(2)(F)(N)
2A9621	1	*	TURBINE ROTOR ASSY	2A9521 (72-45-10-01-010)	(2)(F)(N)
2A9321	1	*	.BLADE, HPT, 1ST STAGE	2A9201 (72-45-14-01-010)	(2)(B)(N1)(I)
2A3914-01	1	*	.DUCT, COOLING, HPT, STAGE 1, ASSY	2A3487-01 (72-44-50-01-010)	(1)(B)(N1)(I)
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200-001 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200-002 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200-003 (72-45-00-01-001)	(1)(M)(N)
			OR		

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
2A8400-002	1	*	ROTOR AND STATOR ASSY	2A8400 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A4200-005	1	*	ROTOR AND STATOR ASSY	2A4200 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-005	1	*	ROTOR AND STATOR ASSY	2A7000-001 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-005	1	*	ROTOR AND STATOR ASSY	2A7000-002 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-005	1	*	ROTOR AND STATOR ASSY	2A7000-003 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-006	1	*	ROTOR AND STATOR ASSY	2A7000-004 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A7000-007	1	*	ROTOR AND STATOR ASSY	2A7000 (72-45-00-01-001)	(1)(M)(N)
			OR		
2A9300-002	1	*	ROTOR AND STATOR ASSY	2A9300 (72-45-00-01-001)	(1)(M)(N)
2A9621	1	*	.TURBINE ROTOR ASSY	2A9521 (72-45-10-01-010)	(1)(F)(N)
			OR		
2A9621-001	1	*	.TURBINE ROTOR ASSY	2A9031-010 (72-45-10-01-010)	(1)(M)(N)
			OR		
2A9621-001	1	*	.TURBINE ROTOR ASSY	2A9521-001 (72-45-10-01-010)	(1)(M)(N)
			OR		
2A9621-002	1	*	.TURBINE ROTOR ASSY	2A9521-002 (72-45-10-01-010)	(1)(4)(M)(N)
2A9321	1	*	..BLADE, HPT, 1ST STAGE	2A9201 (72-45-14-01-010)	(2)(B)(N1)(I)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
			OR		
2A9321	1	*	..BLADE, HPT, 1ST STAGE	2A8701-002 (72-45-14-01-010)	(2)(B)(N1)(I)

Instructions/Disposition Code Statements:

Parts Modification Conditions

Estimated part prices are provided when they are available at time of publication. The Estimate of Unit Price is only for planning purposes and does not constitute a firm quotation. An asterisk (*) is shown where part pricing information was unavailable. In either case, contact IAE Spares for firm quotations.

(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.

(4) Do not use the new part in V2533-A5.

Spare Parts Availability

(B) The new part will be available approximately December, 2004

(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.

(N1) The old part will continue to be supplied until approximately December 31, 2007.

Cleaning, Inspection and Repair Information

(I) The cleaning, inspection and repair requirements are revised for the new part. See the applicable engine manual.

Vendor Services or Special Components/Materials

Not Applicable.

Tooling — Price and Availability

Special tools are not required to accomplish this Service Bulletin.

Reidentified Parts

Not Applicable.

Reidentified Parts Data

New PN	Keyword	Old PN
2A3914-01	DUCT, COOLING, HPT, STAGE 1 ASSY	2A3487-01
2A3915	TURBINE ROTOR GROUP	2A8600

New PN	Keyword	Old PN
2A4200-005	ROTOR AND STATOR ASSY	2A4200-001
2A4200-005	ROTOR AND STATOR ASSY	2A4200-002
2A4200-005	ROTOR AND STATOR ASSY	2A4200-003
2A7000-007	ROTOR AND STATOR ASSY	2A7000
2A7000-005	ROTOR AND STATOR ASSY	2A7000-001
2A7000-005	ROTOR AND STATOR ASSY	2A7000-002
2A7000-005	ROTOR AND STATOR ASSY	2A7000-003
2A7000-006	ROTOR AND STATOR ASSY	2A7000-004
2A8400-002	ROTOR AND STATOR ASSY	2A8400
2A8600-005	ROTOR AND STATOR ASSY	2A8600
2A9300-002	ROTOR AND STATOR ASSY	2A9300
2A9621	TURBINE ROTOR GROUP	2A9521
2A9621-001	TURBINE ROTOR GROUP	2A9031-010
2A9621-001	TURBINE ROTOR GROUP	2A9521-001
2A9621-002	TURBINE ROTOR GROUP	2A9521-002
2A9800	ROTOR AND STATOR ASSY	2A9300

Other Material Information Data

Not Applicable.

Accomplishment Instructions

1. Part 1 – Introduction of new First Stage Blades and Stage 1 HPT Cooling Duct Assembly.

   A. Replace the Stage 1 HPT Cooling Duct Assembly PN 2A3487-01 with PN 2A3914-01 by the procedure given in Reference 4 or 5, Chapter/Section 72-44-50.

      NOTE: Part 2 of the Accomplishment Instructions contain detailed instructions for the modification of PN 2A3487-01 Stage 1 HPT Cooling Duct Assembly.

   B. Replace the Stage 1 HPT Blades (64 off) by the approved procedure given in Reference 4 (for A5 engines) or Reference 5 (for D5 engines), Chapter/Section 72-45-10, Assembly-01.

   C. Mark all new reidentified Part Number adjacent to the existing Part Number. Use the vibration peen method. Refer to Reference 1, Task No. 70-09-00-400-501. See Figures 1 and 2.

   D. Recording Instructions

      (1) A record of accomplishment is required.

2. Part 2 - Reoperation of Stage 1 HPT Cooling Duct Assembly PN 2A3487-01 to PN 2A3914-01

   The Stage 1 HPT Cooling Duct Assembly 2A3914-01 has new air flow requirements. Overhaul and Repair shops which will be air flowing the 2A3914-01 HPT Cooling Duct need to have the IAE 2P16021 Airflow Master calibrated to the 2A3914-01 standards. Contact the following for quotation and instructions for re-calibration of the IAE 2P16021 Airflow Master:

   Pratt and Whitney

   New Business Office M/S 165-09

   400 Main Street

   East Hartford, Ct. 06108

   U.S.A.

   A. Do a modification of the 2A3418-01 Stage 1 High Pressure Turbine (HPT) Duct Assembly (1 off). See Reference 4 or 5, 72-44-50 Figure/Item No. 01-010.

      (1) Set-up and machine 3 holes 0.213 - 0.223 in (5.41 - 5.66 mm) diameter. Refer to Figure 3 (Sheets 1-5).

      (2) Inspect and verify all dimensions in Figure 3 (Sheets 1-5).

      (3) Do a modification to obtain the airflow level of 2A3914-01. Use the procedure given in Engine Manual TASK 72-44-50-300-010. Refer to Reference 4 or 5, Chapter/Section 72-44-50, Repair, VRS 3177.

         (a) Minimum Pressure Ratio is 1.515.

         (b) Maximum Pressure Ratio is 1.555.

         (c) Flow Parameter is 1.066.

      (4) Add plug welds as necessary by the procedure specified in Engine Manual TASK 72-44-50-300-010. Refer to Reference 4 or 5, Chapter/Section 72-44-50, Repair, VRS 3177.

(5) Do a fluorescent penetrant inspection by the procedure specified in Standard Practices/Processes Manual 70-23-03-230-501. No cracks are permitted. Refer to Figure 3 (Sheets 1-5). Refer to the approved procedure in Reference 1, Chapter/Section 70-23-03 Fluorescent Penetrant Inspection.

(6) Mark the new part number adjacent to the existing part number. Use the vibration peen method. Refer to Reference 1, Standard Practices/Processes Manual 70-09-00-400-501. See Reidentified Parts section for part numbers. See Figure 3 Sheet 1.

B. Recording Instructions

(1) A record of accomplishment is required.

3. Part 3 - Reoperation of Stage 1 HPT Cooling Duct Assembly PN 2A3914 to PN 2A3487.

A. Remove the locating Pin PN 2A0869 from the Duct Assembly.

B. Clean the area to be welded per Reference 1, Standard Practices/Processes Manual 70-11-26.

C. Plug weld three (3) holes at location AV per Reference 1, Standard Practices/Processes Manual 70-31-13. See Figure 4 (Sheets 1-5).

(1) Inspect and verify all dimensions in Figure 4 (Sheets 1-5).

(2) Do a modification to obtain the airflow level of 2A3487. Use the procedure given in Engine Manual 72-44-50-300-010. Refer to Reference 4 or 5, Chapter/Section 72-44-50, Repair, VRS 3177.

(a) Minimum Pressure Ratio is 1.508.

(b) Maximum Pressure Ratio is 1.558.

(c) Flow Parameter is 1.152.

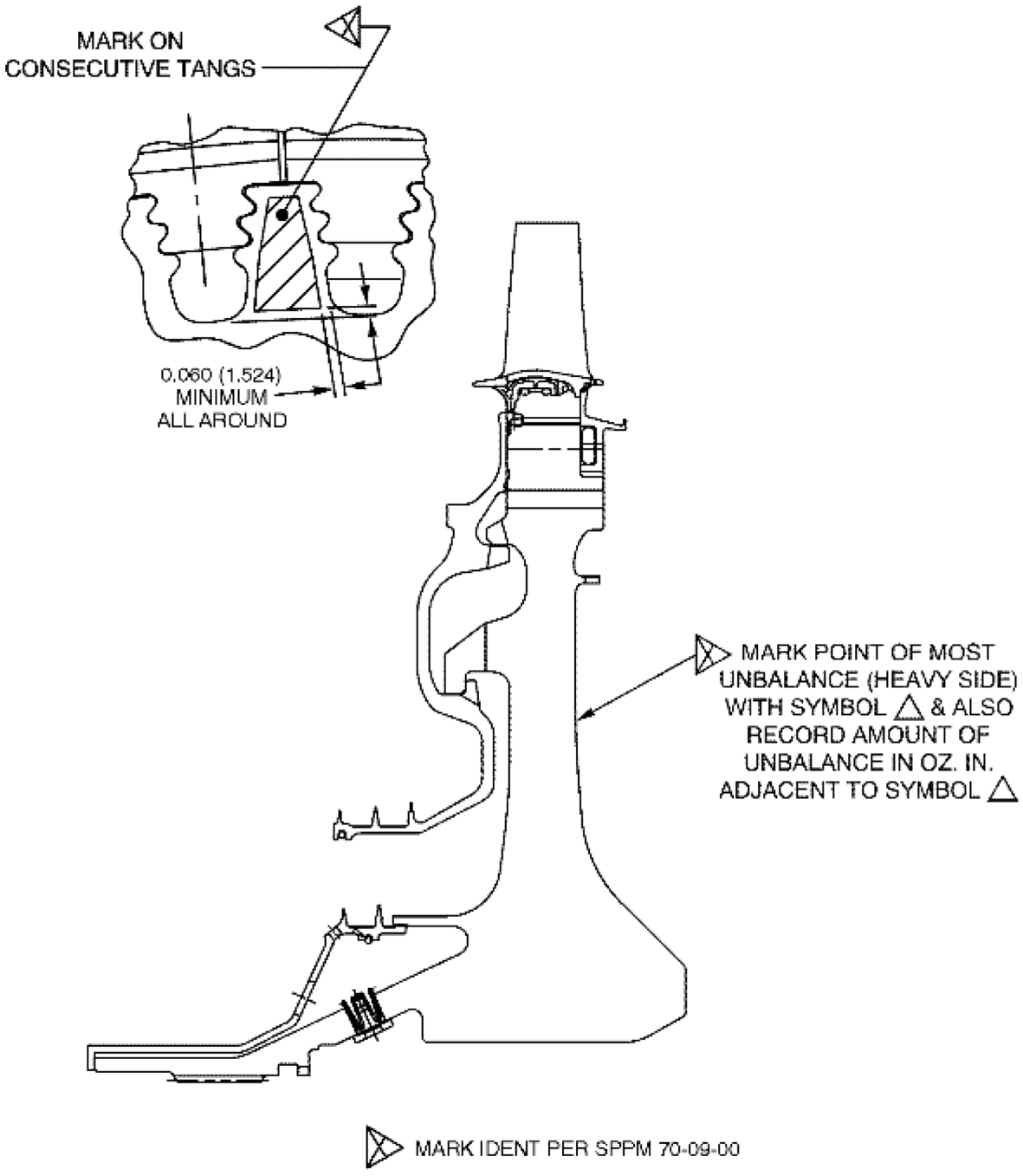
(3) To achieve the required flow grind or machine the plug welds as necessary by the procedure specified in Engine Manual 72-44-50-300-010. Refer to Reference 4 or 5, Chapter/Section 72-44-50, Repair, VRS 3177.

(4) Do a fluorescent penetrant inspection by the procedure specified in Reference 1, Standard Practices/Processes Manual 70-23-03-230-501. No cracks are permitted. Refer to Figure 4 (Sheets 1-5). Refer to the approved procedure in Reference 1, Chapter/Section 70-23-03 Fluorescent Penetrant Inspection.

(5) Mark the new part number adjacent to the existing part number. Use the vibration peen method. Refer to Reference 1, Standard Practices/Processes Manual, 70-09-00-400-501. See Reidentified Parts section for part numbers. See Figure 4 Sheet 1.

4. Recording Instructions

A. A record of accomplishment is required.



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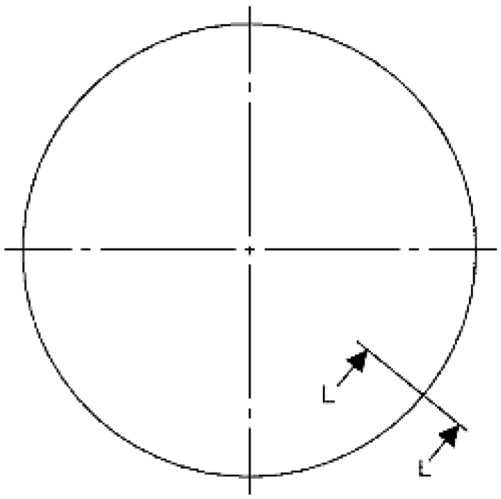
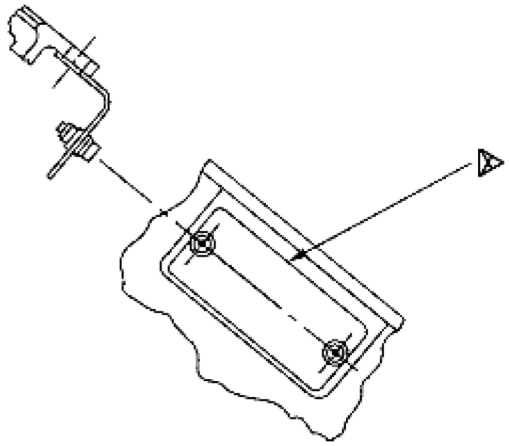
TURBINE ROTOR ASSEMBLY PART MARKING
FIGURE 1



SCHEMATIC
FRONT VIEW
SCALE: NONE



SECTION L–L

MARK IDENT PER SPPM 70-09-00

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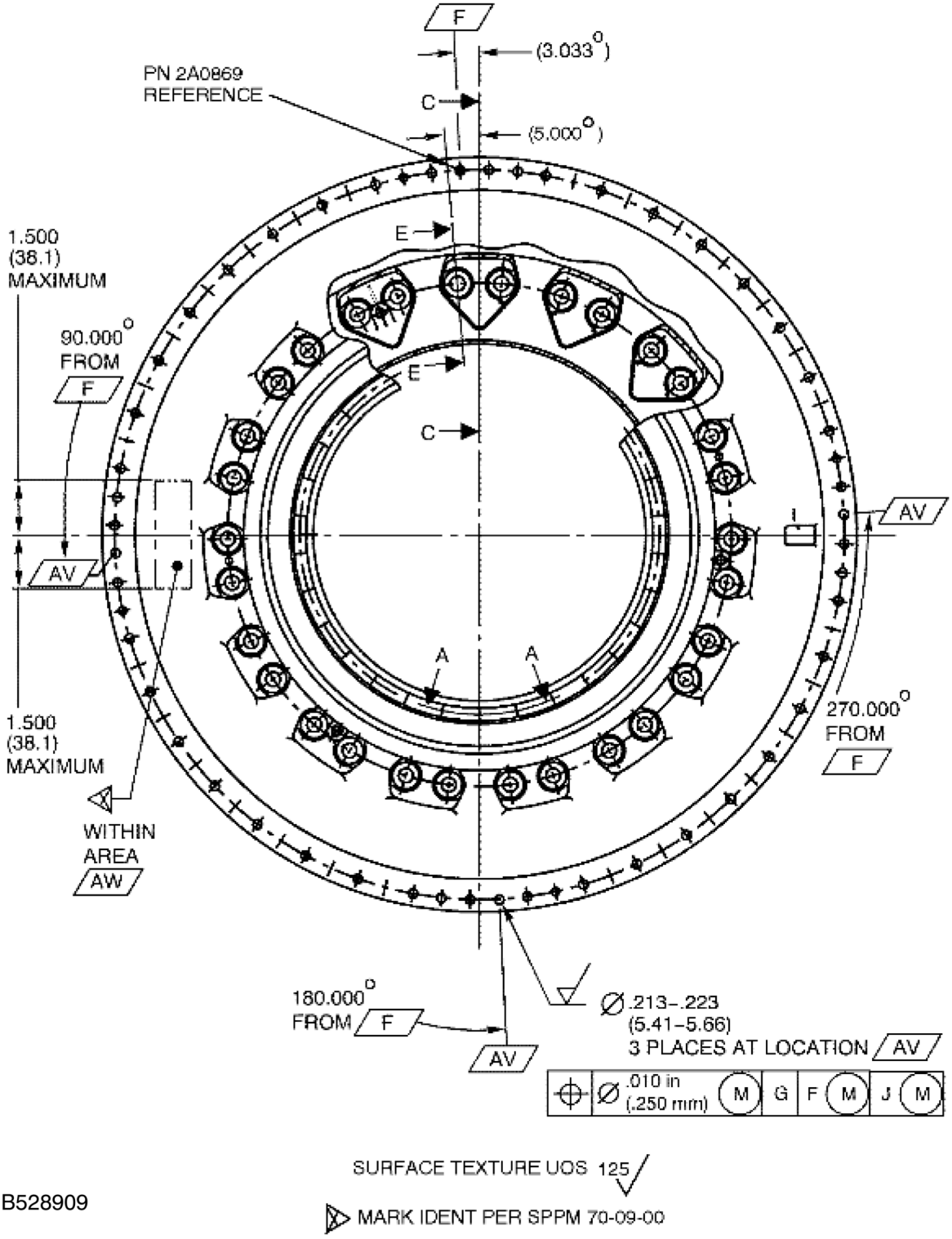
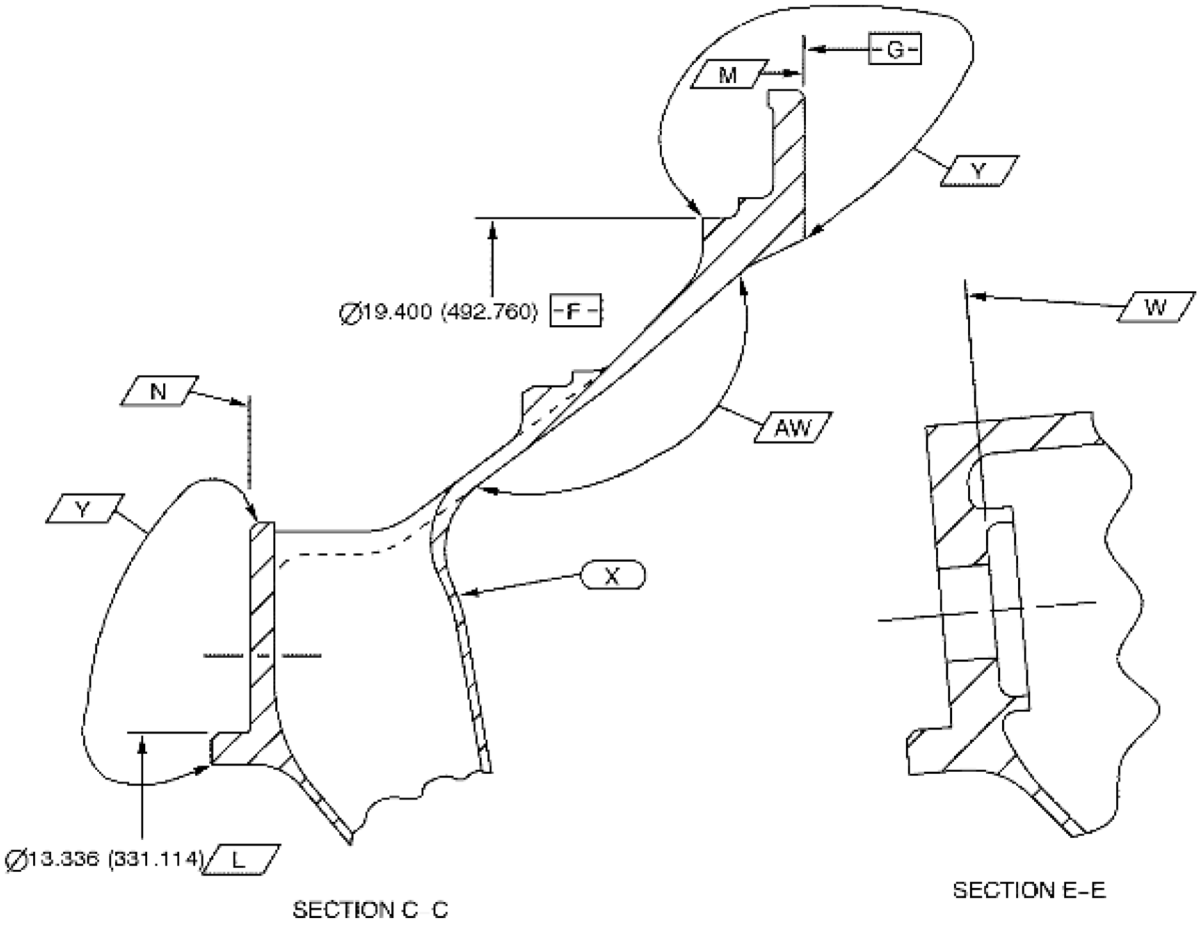
TURBINE CASE PART MARKING
FIGURE 2



HPT DUCT REOPERATION PN 2A3487-01 TO PN 2A3914-01 (PART II)
FIGURE 3, SHEET 1



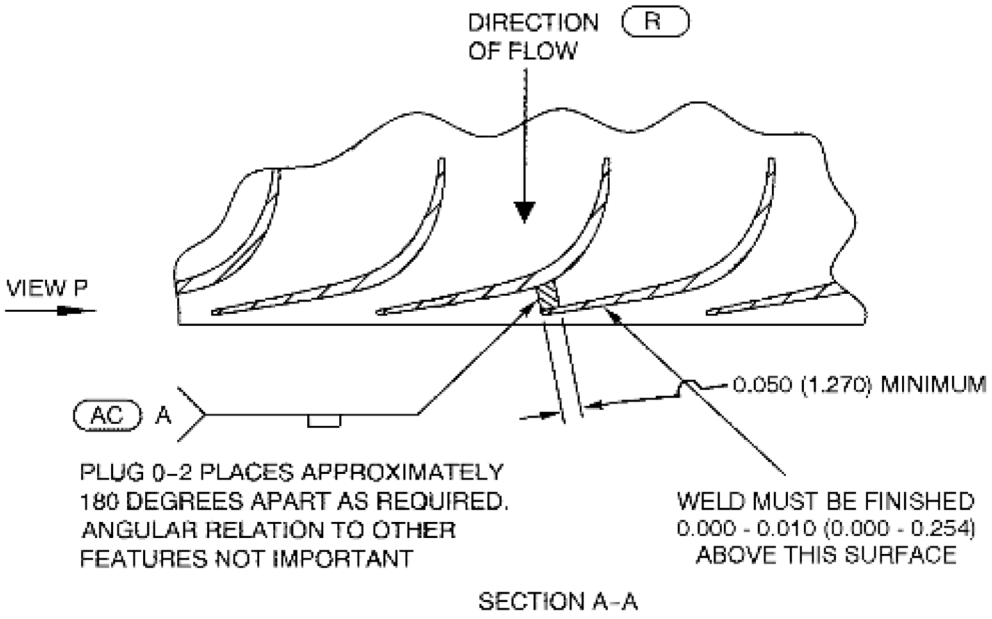
UOS ALL DIM APPLY WHEN SURF N IS ▱ 0.002 (0.051) & Ø L MAINTAINS A CL ENV OF Ø 13.040 (331.216) IN FREE STATE OR CONSTRAINED. CONSTRAINT CONTACT ALLOWED ONLY ON SURF N, M, W, & Ø L.

IN FREE STATE SURF N IS ▱ 0.005 (0.127) & Ø L.

(X) FINISH SURF OF THIS PART PER SPPM 70-23-00 GRADE C EXCEPT GRADE B IN AREAS Y.

B528910

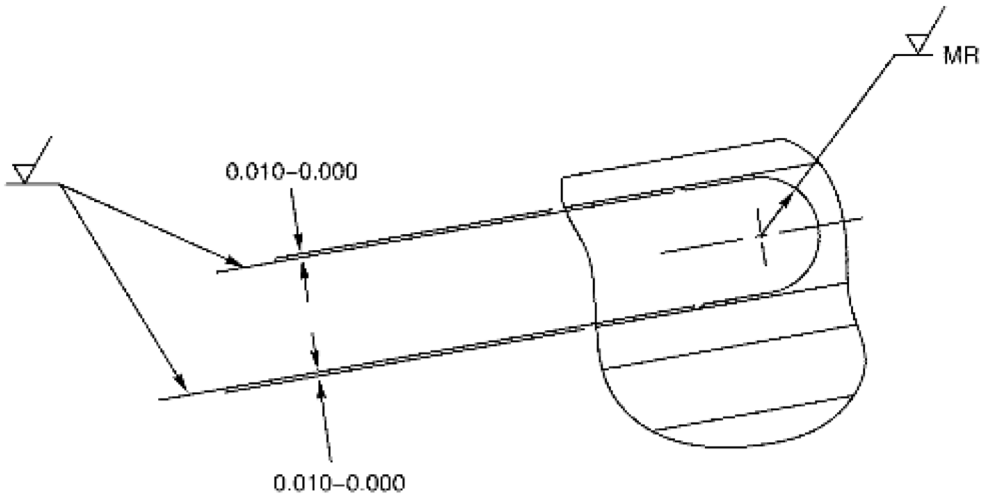
HPT DUCT REOPERATION PN 2A3487-01 TO PN 2A3914-01 (PART II)
FIGURE 3, SHEET 2



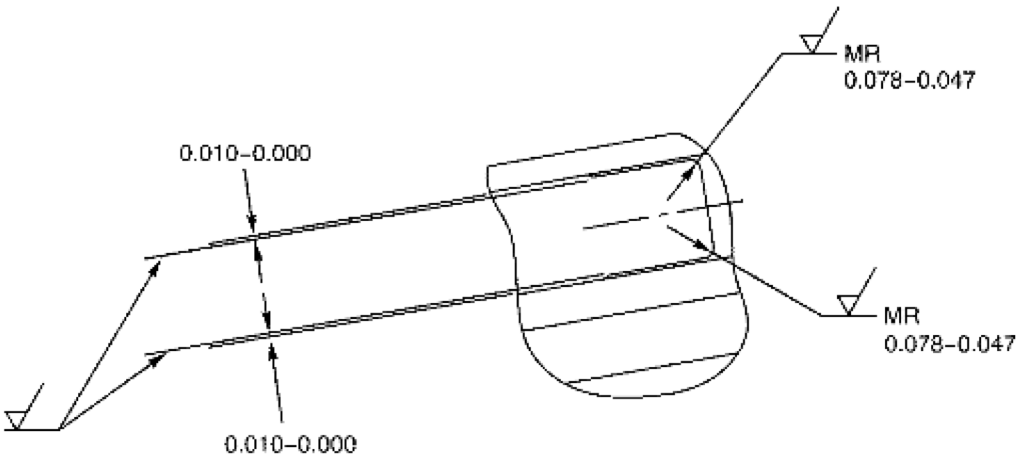
AC WELD PER EM 72-44-50-300-010-REPAIR 010 (VRS3177)

B528911

HPT DUCT REOPERATION PN 2A3487-01 TO PN 2A3914-01 (PART II)
FIGURE 3, SHEET 3



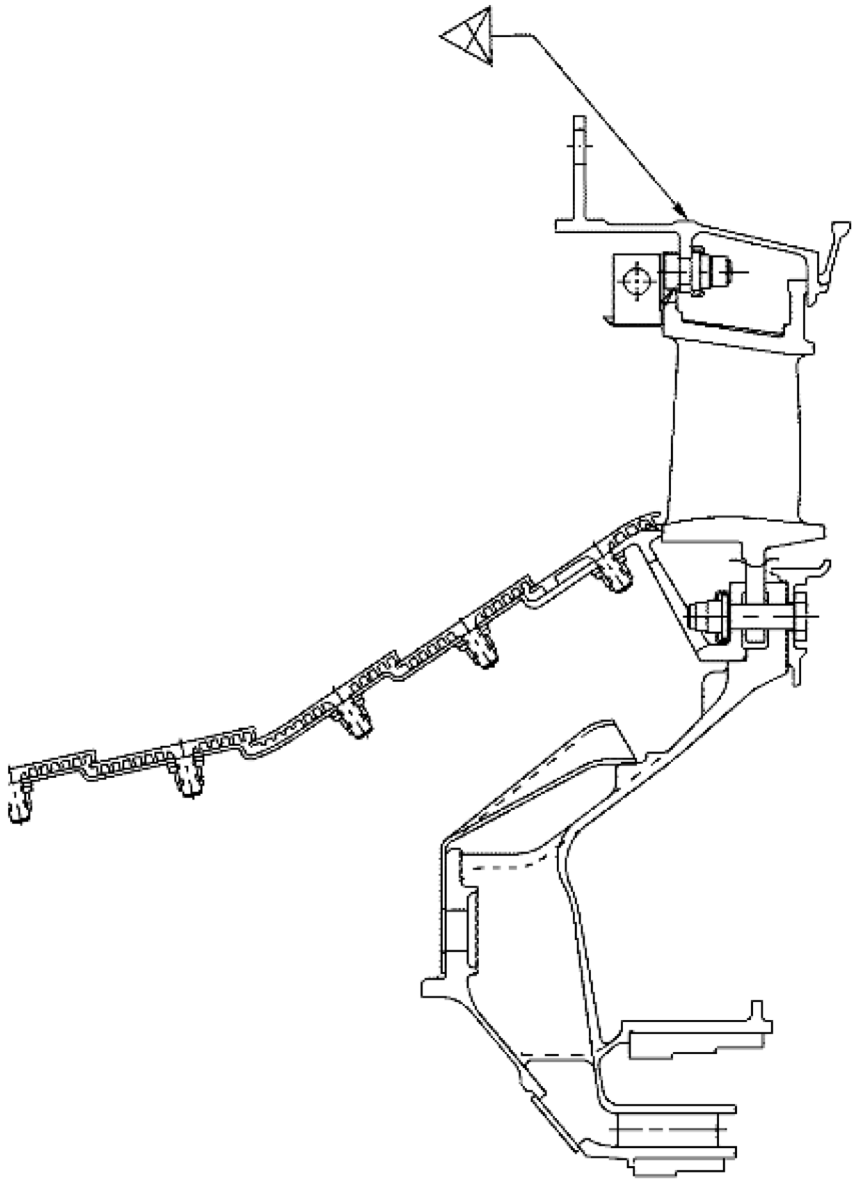
VIEW P



VIEW P
(OPTIONAL METHOD OF MACHINING)

B528912

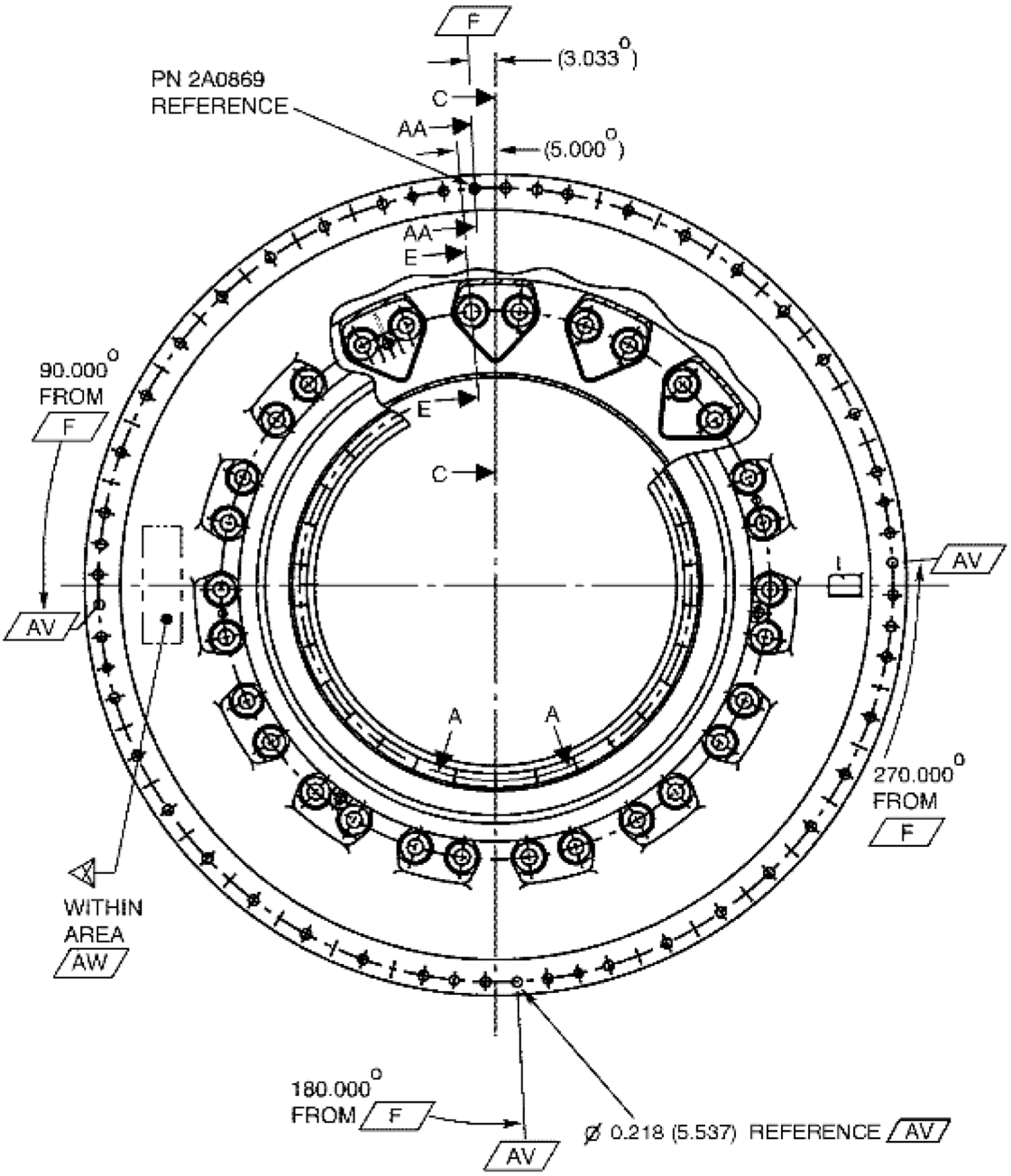
HPT DUCT REOPERATION PN 2A3487-01 TO PN 2A3914-01 (PART II)
FIGURE 3, SHEET 4



▷MARK IDENT PER SPPM 70-09-00

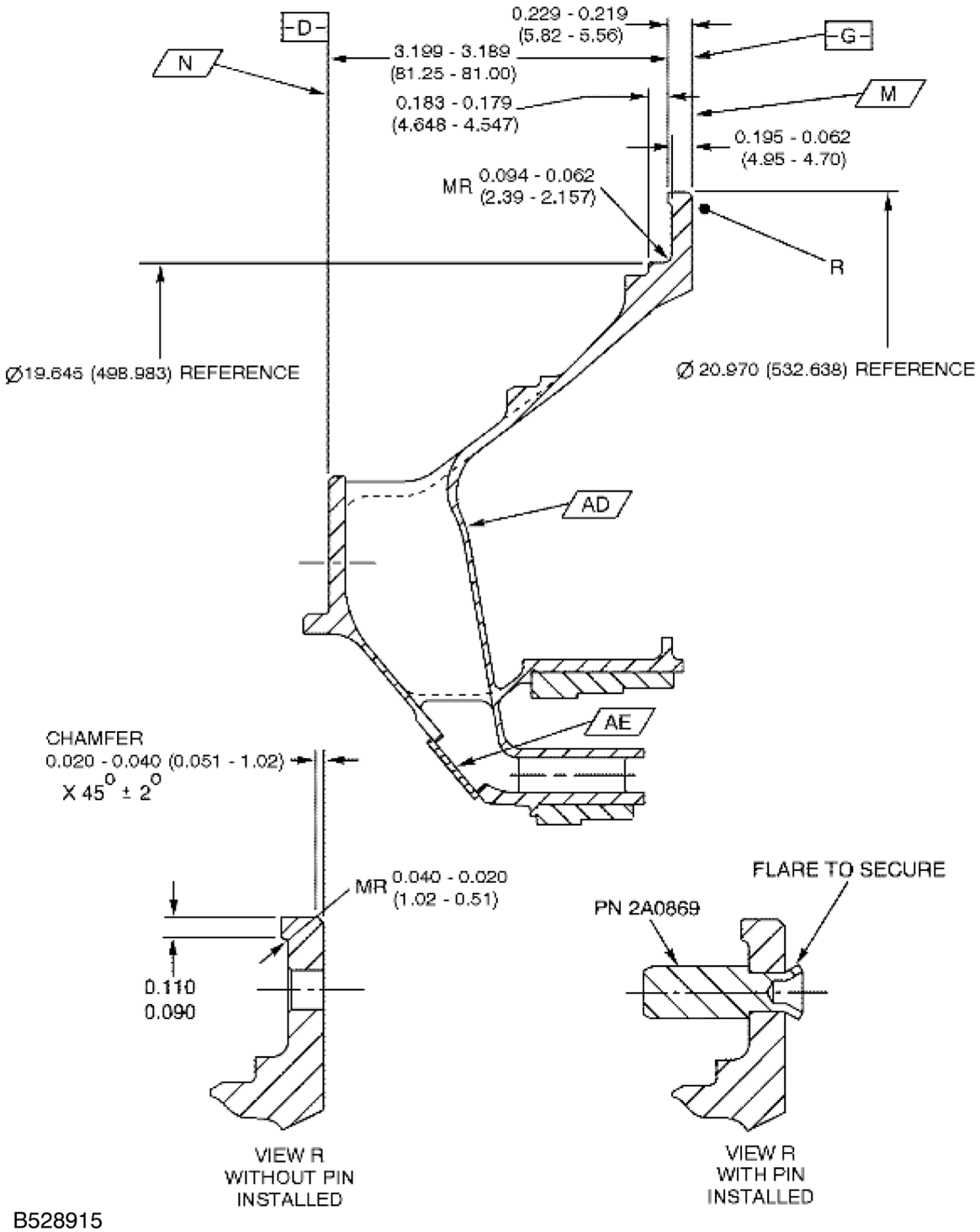
B528913

HPT DUCT REOPERATION PN 2A3487-01 TO PN 2A3914-01 (PART II)
FIGURE 3, SHEET 5

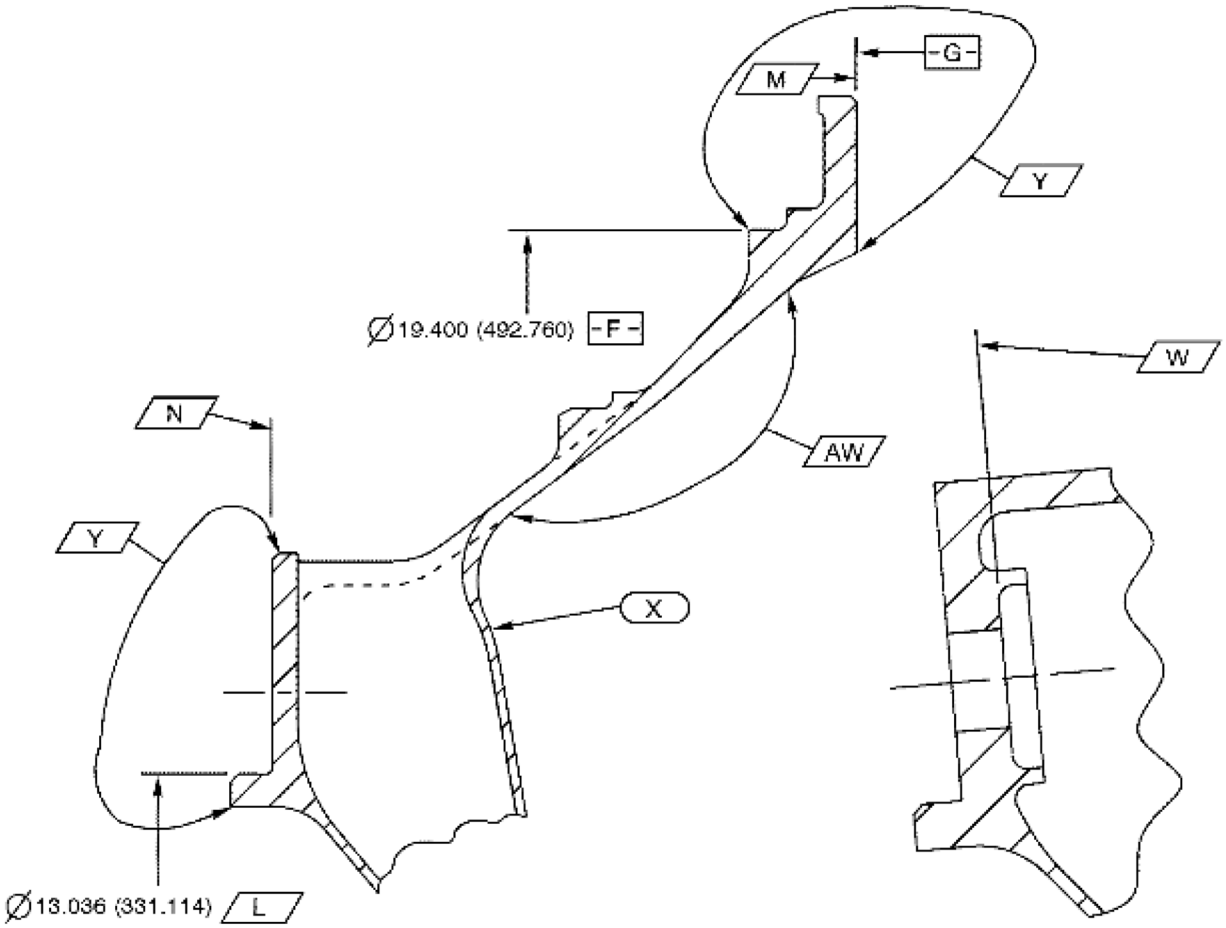


B528914

HPT DUCT REOPERATION PN 2A3914-01 TO PN 2A3487-01 (PART III)
FIGURE 4, SHEET 1



HPT DUCT REOPERATION PN 2A3914-01 TO PN 2A3487-01 (PART III)
FIGURE 4, SHEET 2



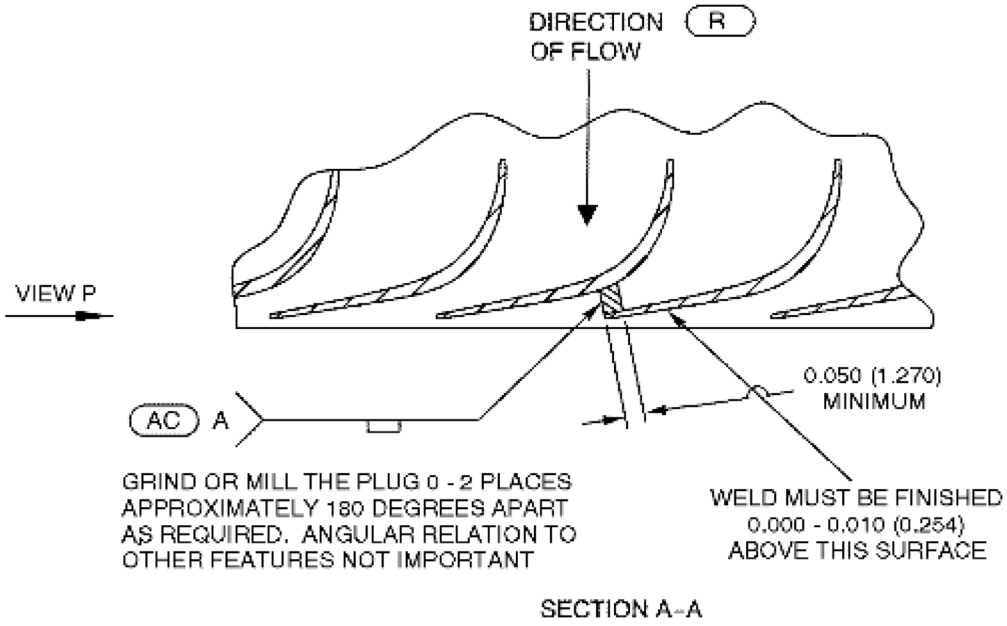
UOS ALL DIM APPLY WHEN SURF N IS ⏥ 0.002 (0.051) & Ø L
MAINTAINS A CL ENV OF Ø 13.040 (331.216) IN FREE STATE OR CONSTRAINED.
CONSTRAINT CONTACT ALLOWED ONLY ON SURF N, M, W & Ø L.

IN FREE STATE SURF N IS ⏥ 0.005 (0.127) & L IS 13.028 - 13.044 (330.91 - 331.32).

(X) FINISH SURF OF THIS PART PER SPPM 70-23-00 GRADE C EXCEPT GRADE B IN AREA Y.

B528916

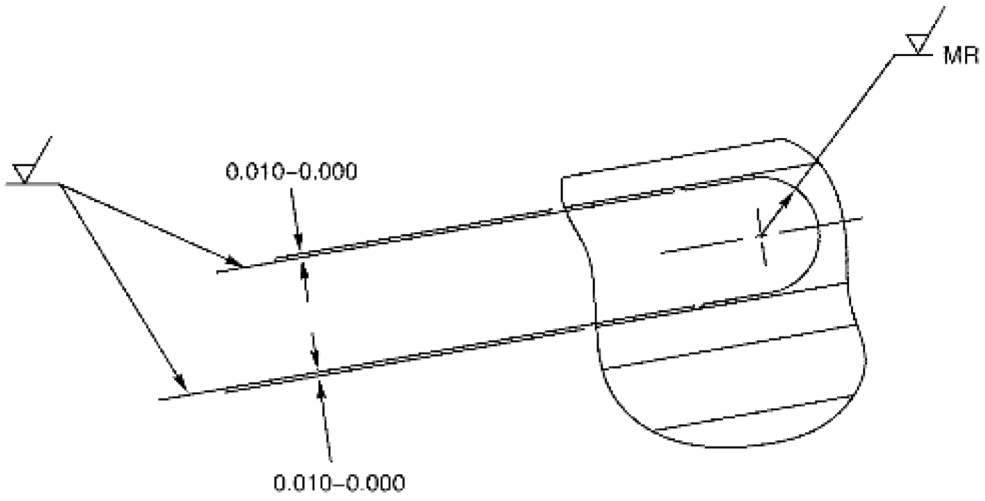
HPT DUCT REOPERATION PN 2A3914-01 TO PN 2A3487-01 (PART III)
FIGURE 4, SHEET 3



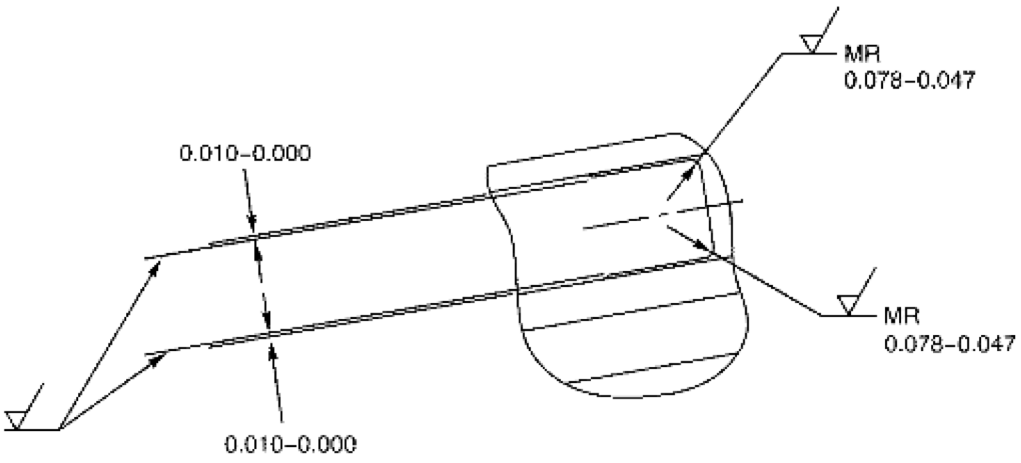
AC WELD PER EM 72-44-50-300-010-REPAIR 010 (VRS3177)

B528917

HPT DUCT REOPERATION PN 2A3914-01 TO PN 2A3487-01 (PART III)
FIGURE 4, SHEET 4



VIEW P



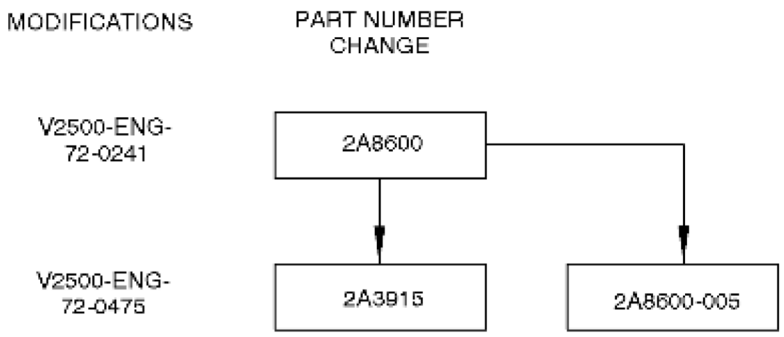
VIEW P
(OPTIONAL METHOD OF MACHINING)

B528918

HPT DUCT REOPERATION PN 2A3914-01 TO PN 2A3487-01 (PART III)
FIGURE 4, SHEET 5

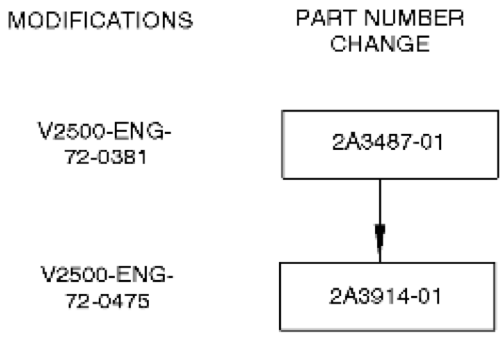
Appendix

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



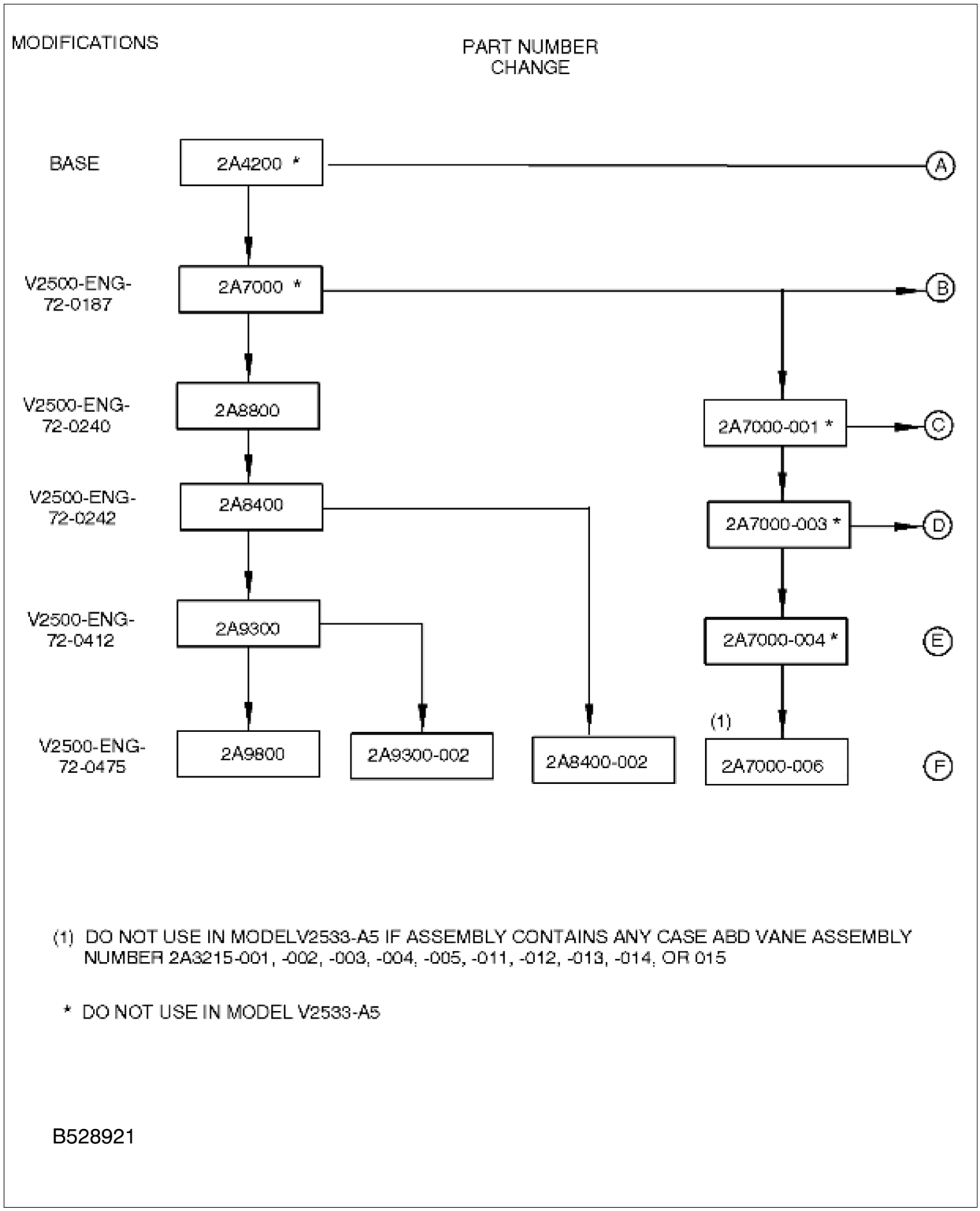
B528919

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

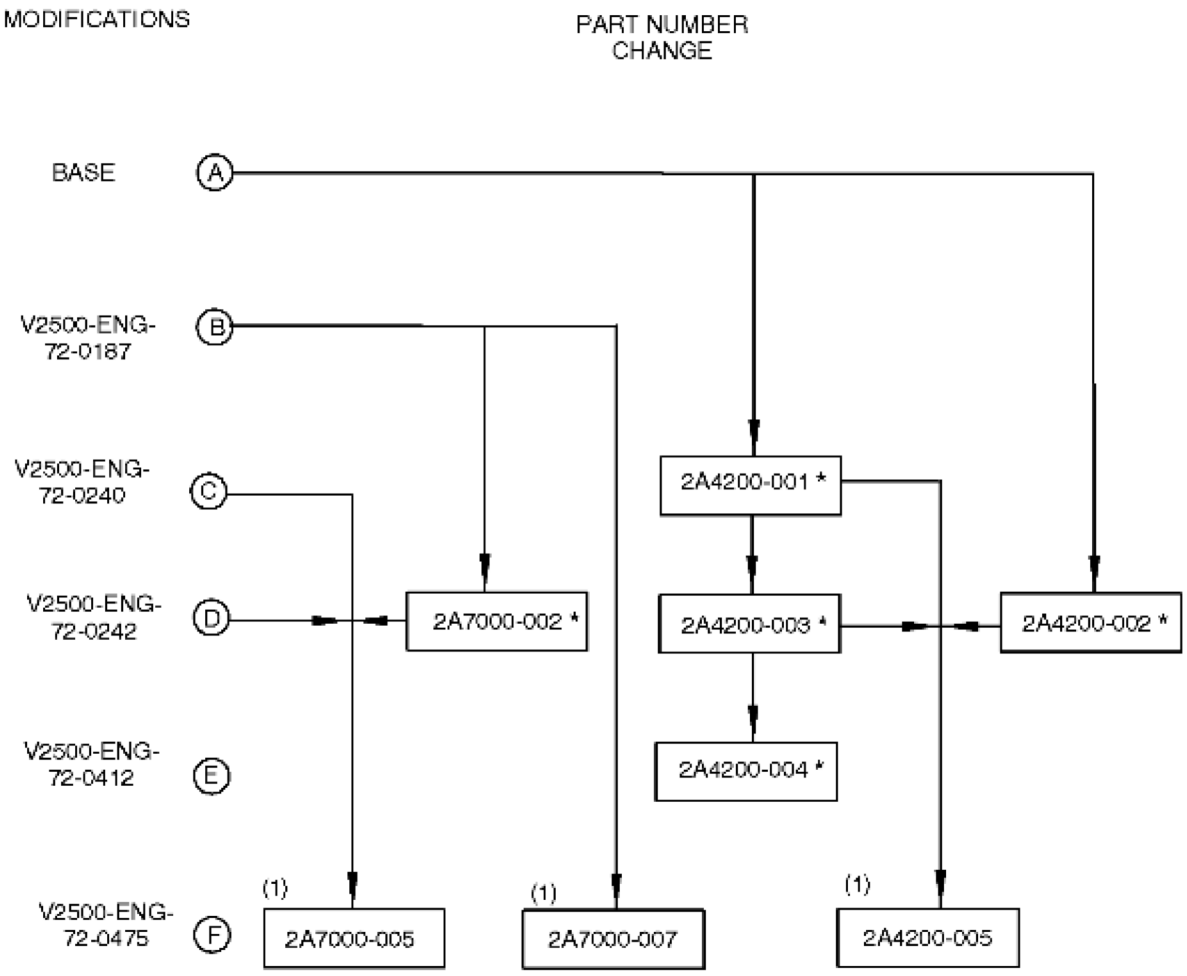


B528920

FAMILY TREE - HIGH PRESSURE TURBINE COOLING DUCT ASSEMBLY REF. CATALOG SEQUENCE NO. 72-44-50 FIG. 01 ITEM 010
CHART B



FAMILY TREE - ROTOR AND STATOR ASSEMBLY REF. CATALOG SEQUENCE NO. 72-45-00 FIG. 01 ITEM 010
CHART C, SHEET 1



(1) DO NOT USE IN MODEL V2533-A5 IF ASSEMBLY CONTAINS ANY CASE AND VANE ASSEMBLY NUMBER 2A3215-001, -002, -003, -004, -005, -011, -012, -013, -014, OR -015.

* DO NOT USE IN MODEL V2533-A5

B528922

FAMILY TREE - ROTOR AND STATOR ASSEMBLY REF. CATALOG SEQUENCE NO. 72-45-00 FIG. 01 ITEM 010
CHART C, SHEET 2

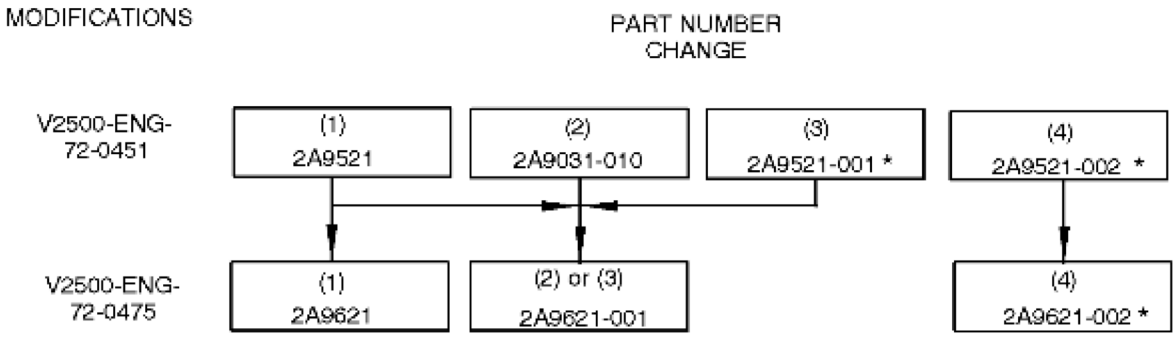


CHART D LEGEND

ROTOR	HUB P/N	PLUG P/N	BLADE P/N PRE SB 72-0475	BLADE P/N POST SB 72-0475
(1)	2A5001	2A3847	2A9201	2A9321
(2)	2A2801 or 2A5001	2A3847	LIST A	2A9321
(3)	2A2801 or 2A5001	2A3847	LIST A & B	2A9321
(4)	*2A2201	2A3182	LIST A & B	2A9321

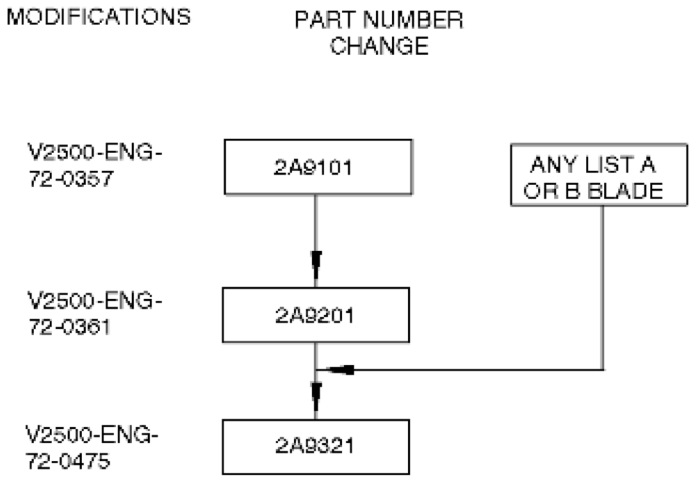
* DO NOT USE IN MODEL V2533-A5

BLADE LIST A ALL MODELS	BLADE LIST B NON 33K MODELS
2A9201	2A8701-002
2A9101	2A8721-001
2A9001	2A8521-004
2A8521-005	2A8521-002
2A8521-003	2A8521-004
	2A8321-003
	2A8321-002

ANY MIXTURE OF BLADES WITHIN LIST A OR B MAY BE PRESENT

B528923

FAMILY TREE - TURBINE ROTOR 1ST STAGE ASSEMBLY REF.CATALOG SEQUENCE NO.72-45-10 FIG.01 ITEM 010 CHART D



BLADE LIST A ALL MODELS	BLADE LIST B NON 33K MODELS
2A9201	2A8701-002
2A9101	2A8721-001
2A9001	2A8521-004
2A8521-005	2A8521-002
2A8521-003	2A8521-004
	2A8321-003
	2A8321-002

ANY MIXTURE OF BLADES WITHIN LIST A OR B MAY BE PRESENT

B528924

FAMILY TREE - BLADE, HPT, 1ST STAGE REF.CATALOG SEQUENCE NO.72-45-14 FIG.01 ITEM 010
CHART E

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EA00VA0134-02	MN/BB
1	EA00VA0134-04	MN/BB
2	EA05VK002	MN/BB
3	EA17VC038	JO/RCM

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.

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, the following Technical Publications cross reference table is provided.

Technical Publications Cross Reference Table

Publication	Engine Model(s)	IAE IETM Pub Ref	P&W Part Number
ENGINE MANUAL — A1, A5	All	E-V2500-1IA	2A4407
CMM-EHC — A1, A5	All	EHC-V2500-1IA	2A4409
CMM-FN — A1, A5	All	FN-V2500-1IA	2A4410
CMM-MMC — A1, A5	All	MECH-V2500-1IA	2A4411
CMM-THD — A1, A5	All	THD-V2500-1IA	2A4412
TLM — A1, A5	All	T-V2500-1IA	2A4408
ENGINE MANUAL — D5	All	E-V2500-3IA	2A4416
CMM-EHC — D5	All	EHC-V2500-31A	2A4418
CMM-FN — D5	All	FN-V2500-3IA	2A4419
CMM-MMC — D5	All	MECH-V2500-3IA	2A4420
CMM-THD — D5	All	THD-V2500-3IA	2A4423
TLM — D5	All	T-V2500-3IA	2A4417
SPPM (SPM) — A1, A5, D5	All	SPP-V2500-1IA	2A4414
EIPC — A1	V2500-A1102Q00	S-V2500-1IA	2A4427

Publication	Engine Model(s)	IAE IETM Pub Ref	P&W Part Number
EIPC — A5	V2522/V2524/V2527M-AQ02	S-V2500-6IA	2A4428
	V2522/V2524/V2527M-AQ03	S-V2500-6IB	
	V2522/V2524/V2527M-SQ02	S-V2500-6SA	
	V2522/V2524/V2527M-SQ03	S-V2500-6SB	
	V2522/V2524/V2527M-SQ04	S-V2500-6NA	
	V2522/V2524/V2527M-SQ05	S-V2500-6NB	
	V2527/V2527E-AQ02	S-V2500-7IA	
	V2527/V2527E-AQ03	S-V2500-7IB	
	V2527/V2527E-SQ02	S-V2500-7SA	
	V2527/V2527E-SQ03	S-V2500-7SB	
	V2527/V2527E-SQ04	S-V2500-7NA	
	V2527/V2527E-SQ05	S-V2500-7NB	
	V2530-AQ02	S-V2500-2IA	
	V2530-AQ03	S-V2500-2IB	
	V2530-SQ02	S-V2500-2SA	
	V2530-SQ03	S-V2500-2SB	
	V2530-SQ04	S-V2500-2NA	
	V2530-SQ05	S-V2500-2NB	
	V2533-AQ02	S-V2500-5IA	
	V2533-AQ03	S-V2500-5IB	
	V2533-SQ02	S-V2500-5SA	
	V2533-SQ03	S-V2500-5SB	
	V2533-SQ04	S-V2500-5NA	
	V2533-SQ05	S-V2500-5NB	
EIPC — D5	V2525/V2528-AQ02	S-V2500-3IA	2A4426
	V2525/V2528-AQ03	S-V2500-3IB	
	V2525/V2528-AQ04	S-V2500-3IC	