

SERVICE BULLETIN REVISION NOTICE

ENGINE — VALVE RING ASSEMBLY — REPLACEMENT OF THE VALVE RING ASSEMBLY AND
ASSOCIATED HARDWARE TO IMPROVE DURABILITY

Turbojet Engine Service Bulletin No. V2500-ENG-72-0704 Revision No. 1 dated November 18, 2019.

Revision History

Original Issue April 26, 2019

Revision 1 dated November 18, 2019

Reason for the Revision

To revise the Material Information and Reidentified Parts sections.

To revise the Accomplishment Instructions for ease of use.

To update Figure 1 and Chart A to show progression from the Valve Ring Assembly, PN 5A1686 to PN 5A2225.

Effect of Revision on Prior Compliance

None.

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

The contents are in accordance with the list of effective pages. All pages have the current revision number. Technical changes are marked with black bars.

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 72-0704

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1 thru 16	1	November 18/19

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SERVICE BULLETIN

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AND ASSOCIATED HARDWARE TO IMPROVE DURABILITY

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 72-0704

ATA NUMBER

72-32-72

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

Compliance Category

6

P&W Distribution Code

V2500

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Summary

The purpose of this Service Bulletin is to replace the LP compressor stage 2.5 bleed valve ring assembly, to be referred to as valve ring assembly, and pins.

Planning Information

Effectivity Data

Engine Models Applicable

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5

Engine Serial Nos. V10001 thru V13190

Engine Serial Nos. V15001 thru V18949

V2525-D5, V2528-D5

Engine Serial Nos. V20001 thru V20285

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: This Service Bulletin replaces the valve ring assembly and pins with new. In addition to the changes in production hardware, the repair only parts corresponding to this design change are incorporated.
2. Background: Unscheduled Engine Removals (UERs) due to heavy wear of valve ring and detachment of retaining clip have been reported in field services. The root cause of these issues is considered the pin rotation result from valve movement. Rotation of the pin induces rotational force of bush and retaining clip. Once swaging became loose, bushing can be moved with pin rotation and heavy wear of valve hole may occur. Also, once retaining clip rotates along with the pin rotation, one end of the clip contacts the valve ring wall. It causes wear on the valve ring wall and/or detachment of clip from pin.
3. Objective: To introduce a new part number for the valve ring assembly and the pins.
4. Substantiation: Valve Ring Assembly, PN 5A2225, and Pins, PN 5A2229 and PN 5A2230 to resolve heavy wear issue. Therefore, there is no impact on hardware function and integrity of the part.
5. Effects of Bulletin on:
 - Removal/Installation: Not Affected.
 - Disassembly/Assembly: Not Affected.
 - Cleaning: Affected.
 - Inspection/Check: Affected.
 - Repair: Affected.
 - Testing: Not Affected.
6. Supplemental Information
 - None.

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Description

Replace the pins and replace or modify the valve ring assembly.

Compliance

Category 6

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

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 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 70-23-05 and 70-38-02.

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2. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428, Chapter/Section 72-32-70 and 72-32-72.
3. V2500-D5, Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 72-32-70 and 72-32-72.
4. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407, Chapter/Section 72-32-70 and 72-32-72.
5. V2500-D5 Series Engine Manual, P&W Ref. PN 2A4416, Chapter/Section 72-32-70 and 72-32-72.
6. V2500 Service Bulletin V2500-ENG-70-0470, Information — Engine — To Announce The Availability Of A New 2.5 Bleed Valve Ring.
7. V2500 Service Bulletin V2500-ENG-70-0824, Engine — LP — Compressor — Introduction Of Valve Ring With Solid Rivet.

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 72-32-70 and 72-32-72.
2. V2500-D5, Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 72-32-70 and 72-32-72.
3. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407, Chapter/Section 72-32-70 and 72-32-72.
4. V2500-D5 Series Engine Manual, P&W Ref. PN 2A4416, Chapter/Section 72-32-70 and 72-32-72.

Interchangeability of Parts

Old and new parts are interchangeable only in full 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. Part prices were not available at the time of Service Bulletin publication. Contact IAE Spares Management & Logistics for firm quotations.
2. There is no kit provided to do this Service Bulletin.
3. 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
5A2229	2	*	PIN	5A1820 (72-32-70-02-240)	(2)(A)(N)(S1)
5A2230	8	*	PIN	5A1821 (72-32-70-02-270)	(2)(A)(N)(S1)
5A2225	1	*	RING, A/O VALVE	5A1686 (72-32-72-02-100)	(1)(A)(N)(S1)
5A2225	1	*	RING, A/O VALVE	5A1872 (72-32-72-02-100)	(1)(A)(N)(S1)
5A2231	AR	*	.BUSH	5A1952 (72-32-72-02-118)	(2)(A)(N)(R)(S1)
5A2232	AR	*	.BUSH	5A1953 (72-32-72-02-120)	(2)(A)(N)(R)(S1)
5A2227	16	*	.BUSH	5A0469 (72-32-72-02-123)	(2)(A)(N)(D)(S1)
5A2228	4	*	.BUSH	5A0470 (72-32-72-02-125)	(2)(A)(N)(D)(S1)
5A2233	AR	*	.BUSH	5A1843 (72-32-72-02-127)	(2)(A)(N)(R)(S1)
5A2234	AR	*	.BUSH	5A1844 (72-32-72-02-129)	(2)(A)(N)(R)(S1)

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The material data that follows is for each engine.

For V2525-D5, V2528-D5 Engines:

New PN	Qty	Estimate of Unit Price (\$)	Keyword	Old PN	Instructions — Disposition
5A2229	2	*	PIN	5A1820 (72-32-70-02-240 B)	(2)(A)(N)(S1)
5A2230	8	*	PIN	5A1821 (72-32-70-02-270 B)	(2)(A)(N)(S1)
5A2225	1	*	RING, A/O VALVE	5A1686 (72-32-72-02-100 A)	(1)(A)(N)(S1)
5A2225	1	*	RING, A/O VALVE	5A1872 (72-32-72-02-100 B)	(1)(A)(N)(S1)
5A2231	AR	*	.BUSH	5A1952 (72-32-72-02-118)	(2)(A)(N)(R)(S1)
5A2232	AR	*	.BUSH	5A1953 (72-32-72-02-120)	(2)(A)(N)(R)(S1)
5A2227	16	*	.BUSH	5A0469 (72-32-72-02-123 A)	(2)(A)(N)(D)(S1)
5A2228	4	*	.BUSH	5A0470 (72-32-72-02-125 A)	(2)(A)(N)(D)(S1)
5A2233	AR	*	.BUSH	5A1843 (72-32-72-02-127)	(2)(A)(N)(R)(S1)
5A2234	AR	*	.BUSH	5A1844 (72-32-72-02-129)	(2)(A)(N)(R)(S1)

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.

Spare Parts Availability

- (A) The new part is available.
- (D) The new part is a detail of the assembly.
- (N) The old part is not available.
- (R) Repair only.

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(S1) New parts coded (S1) must replace old parts coded (S1) as a COMPLETE SET per Engine (or Nacelle).

Vendor Services or Special Components/Materials

Not Applicable.

Tooling — Price and Availability

Special tools are not required to accomplish this Service Bulletin.

Reidentified Parts

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

Reidentified Parts Data

New PN	Keyword	Old PN
5A2225	RING, A/O VALVE	5A1686
5A2225	RING, A/O VALVE	5A1872

For V2525-D5, V2528-D5 Engines:

Reidentified Parts Data

New PN	Keyword	Old PN
5A2225	RING, A/O VALVE	5A1686
5A2225	RING, A/O VALVE	5A1872

Other Material Information Data

Not Applicable.

Accomplishment Instructions

1. Replace the valve ring assembly as follows or continue to Step 2 for modification instructions. See Figure 1.
 - A. Replace the Valve Ring Assembly, PN 5A1872 or PN 5A1686 with PN 5A2225, as specified in Reference 4 or 5, Engine Manual, Chapter/Section 72-32-70, Disassembly-001 and Assembly-001. See Figure 1.
 - (1) Replace the Pins, PN 5A1820 and PN 5A1821 with Pins, PN 5A2229 and PN 5A2230. as specified in Reference 4 or 5, Engine Manual, Chapter/Section 72-32-70, Disassembly-001 and Assembly-001. See Figure 1.
2. Modify the Valve Ring Assembly, PN 5A1872 or PN 5A1686 as follows:
 - A. Remove the old bushes at ten (10) locations, as specified in Reference 4 or 5, Engine Manual, Chapter/Section 72-32-72, VRS1752.
 - B. Visually and dimensionally examine the bush holes.
 - (1) Identify the size of bush holes to install the corresponding new bushes.
 - (2) If the diameter of bush holes are beyond the repairable limits of Reference 4 or 5, Engine Manual, Chapter/Section 72-32-72, VRS1752, replace valve ring assembly as specified in Step 1.A.
 - C. Machine a scallop to the surfaces near all the bush holes. See Figure 3.
 - (1) If there was the scallop blended area, as specified in Reference 4 or 5, Engine Manual, Chapter/Section 72-32-72, VRS1750, machine the surface over the repaired area. See Figure 3.

NOTE: The machined area in Figure 3 is to be larger than the repaired area as specified in Reference 4 or 5, Engine Manual, Chapter/Section 72-32-72, VRS1750.
 - D. Visually and dimensionally examine the scalloped areas.
 - (1) Visually examine the scalloped areas.
 - (a) Make sure that there are no burrs, nicks and scratches to the scalloped areas.
 - (b) Use a 10X magnifying glass.
 - (2) Dimensionally inspect the scalloped areas.
 - (a) Make sure the scalloped areas satisfy the requirements in Figure 3.
 - E. Fluorescent penetrant examine the scalloped areas, as specified in Reference 1, SPM, Chapter/Section 70-23-05.
 - (1) Make sure that there are no cracks to the scalloped area.
 - F. Apply the chromate conversion coating to the scalloped areas, as specified in Reference 1, SPM, Chapter/Section 70-38-02.
 - G. Install the new bushes to the modified valve ring assembly, as specified in Reference 4 or 5, Engine Manual, Chapter/Section 72-32-72, VRS1752, as follows.
 - (1) Install the new Bushes, PN 5A2227, PN 5A2228, PN 5A2231, PN 5A2232, PN 5A2233, or PN 5A2234 to the bush holes of the corresponding size. See Figure 2.

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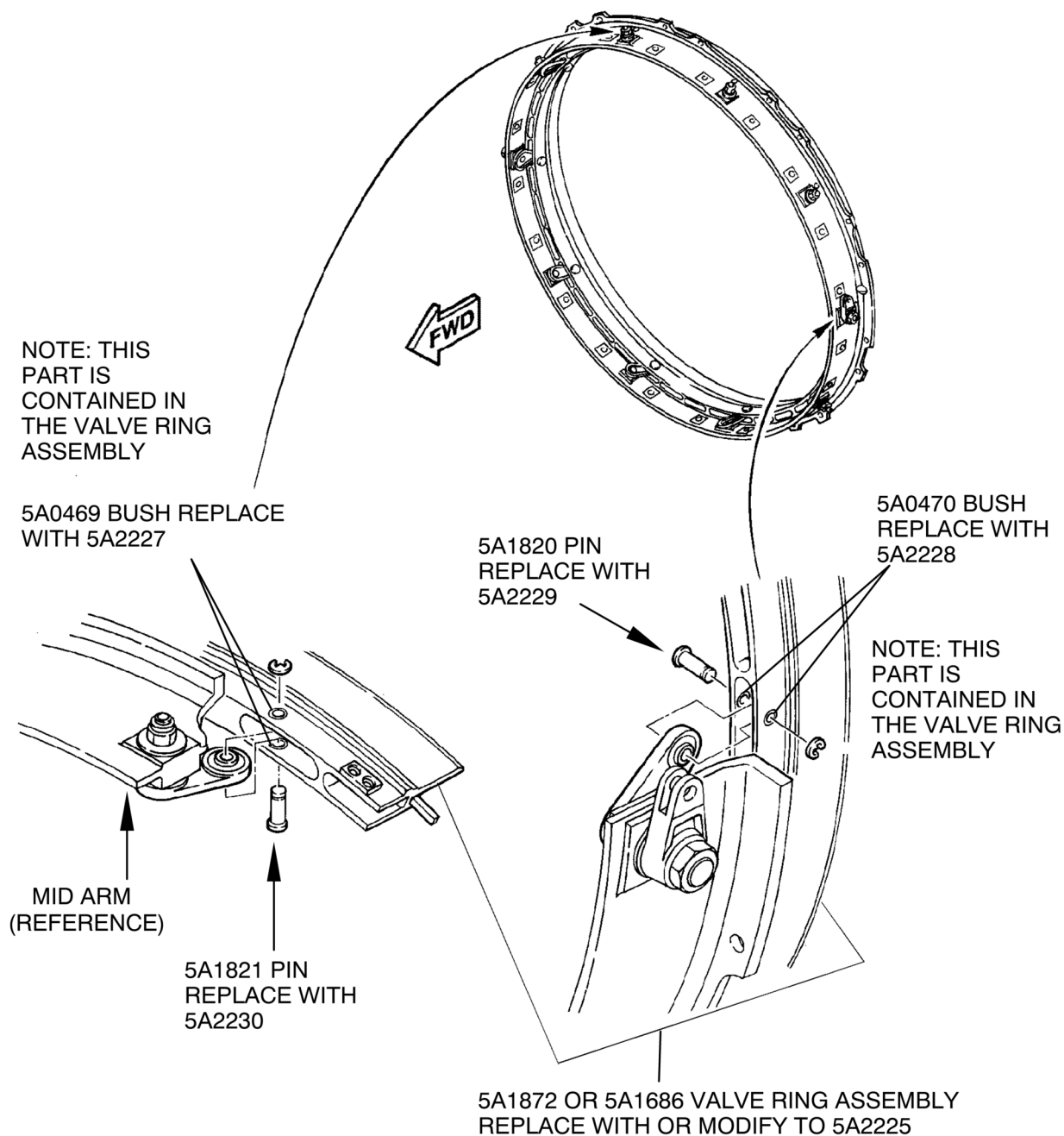
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- H. Re-identify the part number of the valve ring assembly.
 - (1) Cross the existing part number "5A1686" or "5A1872".
 - (2) Use vibro-peen and mark the part with the new part number "5A2225" adjacent to the crossed out part number, as specified in Reference 1, SPM, Chapter/Section 70-09-00.
 - (3) Apply the chromate conversion coating to the marked area, as specified in Reference 1, SPM, Chapter/Section 70-38-02.
 - I. Replace the Pins, PN 5A1820 and PN 5A1821 with Pins, PN 5A2229 and PN 5A2230. Reference 4 or 5, Engine Manual, Chapter/Section 72-32-70, Disassembly-001 and Assembly-001. See Figure 1.
3. Recording Instructions
- A. A record of accomplishment is required.



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LOCATION OF VALVE RING ASSEMBLY, PINS AND BUSHES
72-32-70
FIGURE 1

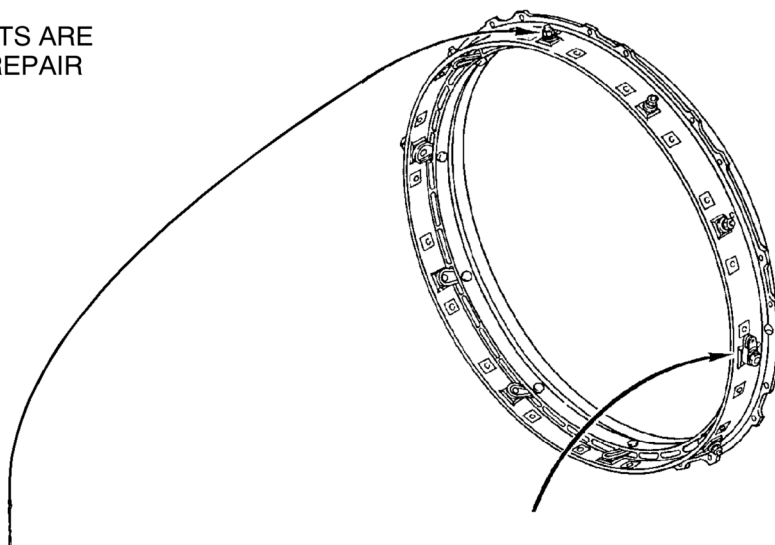
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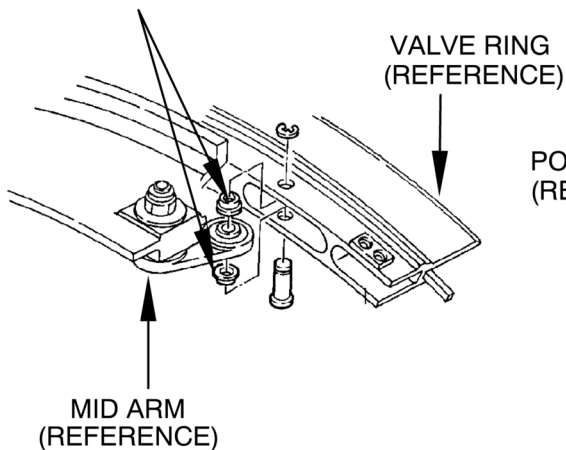
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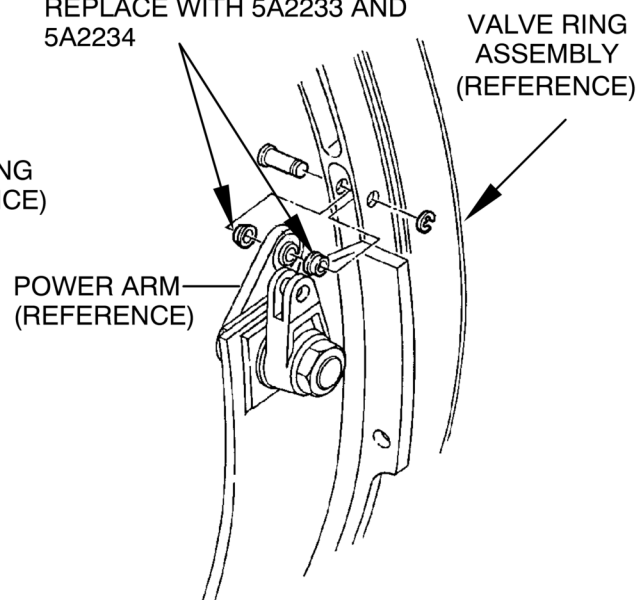
NOTE: THESE PARTS ARE
USED FOR BUSH REPAIR
PER VRS1752.



5A1952 AND 5A1953 BUSH
REPLACE WITH 5A2231 AND
5A2232



5A1843 AND 5A1844 BUSH
REPLACE WITH 5A2233 AND
5A2234



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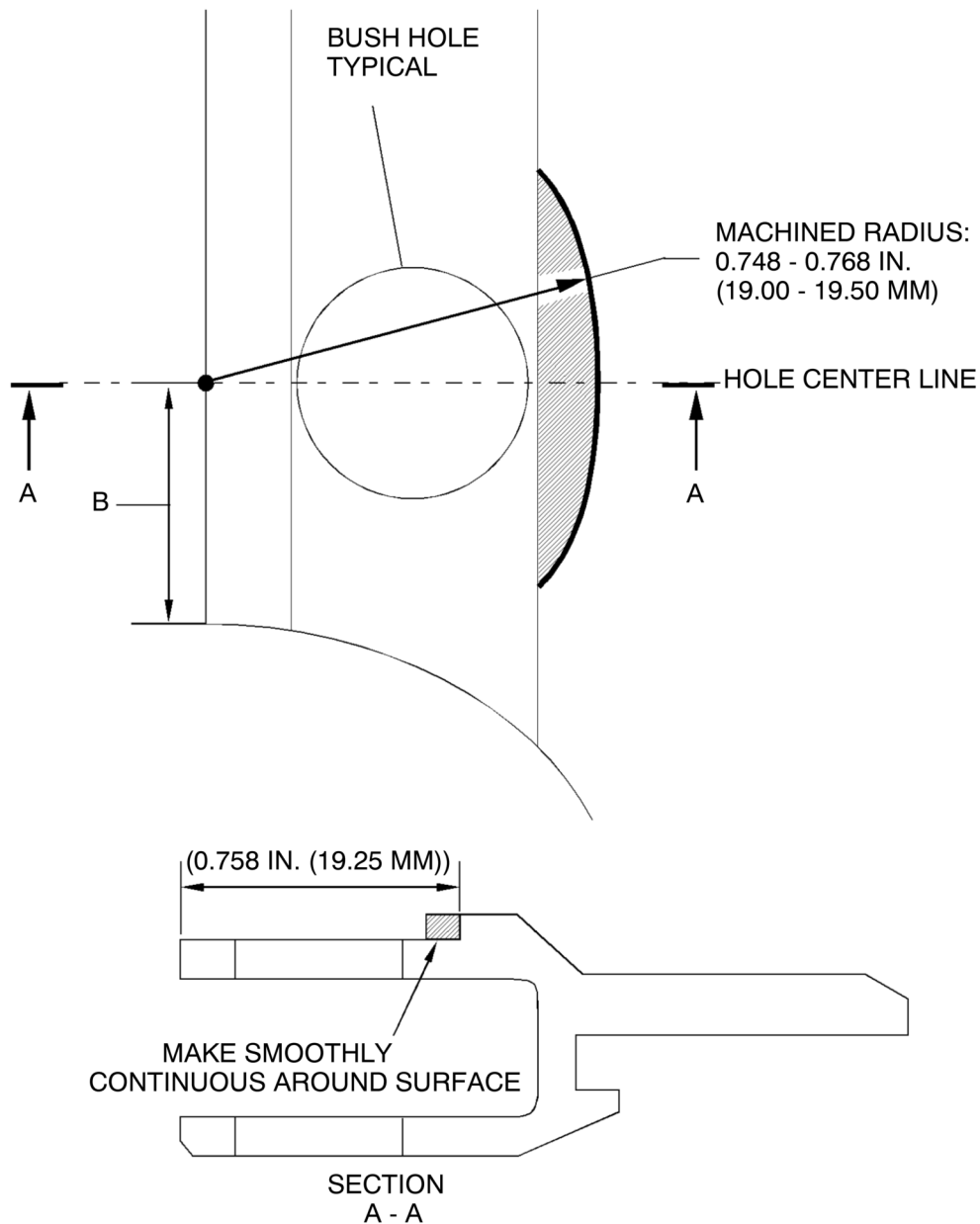
LOCATION OF BUSHES
72-32-72
FIGURE 2

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LOCATION	B
	+0.04/-0.04 IN. (+1.0/-1.0 MM)
HOLE NO. 1 & 6	0.39 IN. (10 MM)
8 POSITIONS EXCEPT HOLE NO. 1 & 6	0.16 IN. (4 MM)

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SCALLOPING REWORK
FIGURE 3

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Appendix

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

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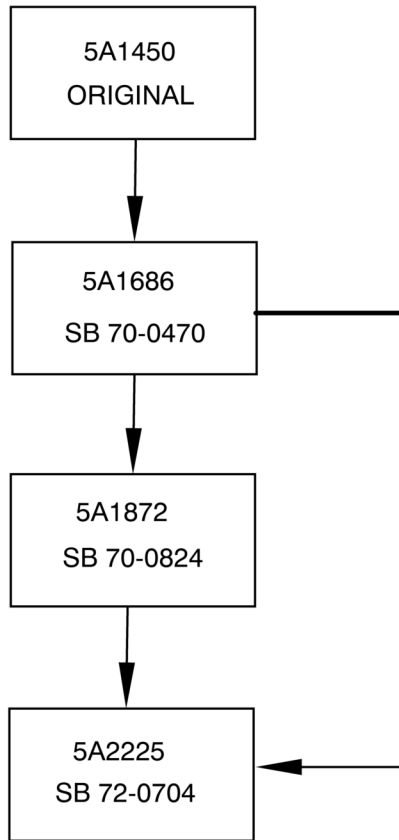
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VALVE RING ASSEMBLY
CHART A

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Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EC18VJ004	JAEC
1	EC18VJ004A	JAEC/RCM

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

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Technical Publications Cross Reference Table

Publication	Engine Model(s)	IAE IETM Pub Ref	P&W Part Number
ENGINE MANUAL — A1, A5	All	E-V2500-11A	2A4407
CMM-EHC — A1, A5	All	EHC-V2500-11A	2A4409
CMM-FN — A1, A5	All	FN-V2500-11A	2A4410
CMM-MMC — A1, A5	All	MECH-V2500-11A	2A4411
CMM-THD — A1, A5	All	THD-V2500-11A	2A4412
TLM — A1, A5	All	T-V2500-11A	2A4408
ENGINE MANUAL — D5	All	E-V2500-31A	2A4416
CMM-EHC — D5	All	EHC-V2500-31A	2A4418
CMM-FN — D5	All	FN-V2500-31A	2A4419
CMM-MMC — D5	All	MECH-V2500-31A	2A4420
CMM-THD — D5	All	THD-V2500-31A	2A4423
TLM — D5	All	T-V2500-31A	2A4417
SPPM (SPM) — A1, A5, D5	All	SPP-V2500-11A	2A4414
EIPC — A1	V2500-A1102Q00	S-V2500-11A	2A4427

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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	