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## V2500-A1/A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

Printed in Great Britain

This document transmits Revision 3 to Service Bulletin EV2500-72-0385 and the Initial Issue of the Supplement

### Document History

Service Bulletin Revision Status	Supplement Revision Status
Initial Issue Jun.22/01	
Revision 1 Oct.16/01	
Revision 2 Nov.26/02	

### Bulletin Revision 3

Remove	Incorporate	Reason for change
Pages 1 to 10 of the Service Bulletin	Pages 1 to 12 of the Service Bulletin	To incorporate the removal of modification 72-0444 when this bulletin is introduced. Material Information updated. Parts Prices supplement added.

### Supplement Initial Issue

Remove	Incorporate	Reason for change

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To incorporate the removal  
of modification 72-0444  
when this bulletin is  
introduced. Material  
Information updated. Parts  
Prices supplement added.

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# LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 3 to the Bulletin and the Initial Issue of the Supplement are as follows:

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## Supplement

1

Mar.29/04





ENGINE – ACTUATING MECHANISM HP COMPRESSOR VARIABLE VANES – INTRODUCTION OF REVISED  
BRIDGE PIECE ASSEMBLIES AND UNISON RING ASSEMBLIES WITH INCREASED DOWEL LOCATION

1. Planning Information

A. Effectivity

(1) Airbus A319

V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No.V11100.

(2) Airbus A320

(a) V2500-A1 Engines prior to Serial No.V0362.

(b) V2527-A5, V2527E-A5 Engines prior to Serial No.V11100.

(3) Airbus A321

V2530-A5, V2533-A5 Engines prior to Serial No.V11100.

(4) Boeing – Longbeach Division MD-90

V2525-D5, V2528-D5 Engines prior to Serial No.V20286.

(5) ATA Locator 72-41-34

B. Concurrent Requirements

None

C. Reason

(1) Problem

Mis-alignment of the HP Compressor VSV bridge piece dowels may occur, causing the lever arms to bend.

The problem has been attributed to insufficient interlock between the bridge piece dowels and unison ring assemblies.

(2) Background

The problem has been experienced on engines in service.

(3) Substantiation

The changes introduced by this Service Bulletin have been the subject of extensive engineering analysis and a successful trial fit on a development module.



(4) Objective

Incorporation of the changes introduced by this Service Bulletin (Modification) is designed to maintain reliability and simplify build procedures.

(5) Effect of Bulletin on:

(a) Operation

Not affected

(b) Maintenance

Not affected

(c) Overhaul

Affected

(d) Repair Schemes

Affected

(e) Interchangeability

Affected (See Interchangeability of Parts 1.P)

(f) Fits and Clearances

Not affected

D. Description

- (1) This Service Bulletin introduces a revised dowel location arrangement between the unison ring assemblies and the bridge piece assemblies to reduce the risk of mis-alignment and facilitate the detection of mis-alignment if it does occur.

The changes introduced are:

- (a) Revised unison ring assemblies for VIGV, stage 3, stage 4 and stage 5 similar to the existing items except for the following:
- (i) The bracket assemblies on the inside of the unison rings which attach the bridge pieces to the unison rings are deleted.
  - (ii) Dowel assemblies to provide an attaching feature for the bridge piece attaching bolts.
  - (iii) A pin to retain each dowel assembly.



- (iv) The holes for the bridge piece attaching bolts have been increased in size to suit the revised dowel arrangement.
- (v) Revised bracket assemblies to attach the connector control rod brackets at stages 4 and 5 similar to the existing items except for a recess in the bracket bosses.
- (b) Revised VIGV and stage 3 bridge piece assemblies similar to the existing items except for the following:
  - (i) The geometry has been revised to accept the revised dowel arrangement.
  - (ii) A step to provide a location for the attaching bolt head.
  - (iii) A chamfer to the dowel holes on the inner face of the bridge piece.
- (c) Revised stage 4 and stage 5 bridge piece assemblies similar to the existing items except for the following:
  - (i) The geometry has been revised to accept the revised dowel arrangement.
  - (ii) A pressed in boss to accept the dowels.
  - (iii) Bolts reduced in length, to attach the bridge piece assemblies to the unison ring assemblies, to suit the revised dowel arrangement.
- (d) The location dowels for the bridge piece attaching bolts are deleted.
- (e) Revised strip washers to the stage 4 and stage 5 bridge pieces beneath the attaching bolt heads similar to the existing items except for:
  - (i) The profile has been revised to fit under two bolts instead of one.
  - (ii) A recess to allow for the protrusion through the bridge piece assembly of the pressed in boss.
  - (iii) The quantity has been reduced from 8 to 4.
- (2) This Service Bulletin is in parts as follows:
  - Part 1 Full embodiment of HP compressor stage VIGV, stage 3, stage 4 and stage 5.
  - Part 2 Embodiment of HP compressor stage VIGV.
  - Part 3 Embodiment of HP compressor stage 3.



Part 4 Embodiment of HP compressor stage 4.

Part 5 Embodiment of HP compressor stage 5.

NOTE: New production engines that fully embody this Service Bulletin will not be annotated with a mod part and can be considered equivalent to Part 1.

E. Compliance

Category Code 7

Accomplish when supply of superseded parts has been depleted.

F. Approval

The Compliance statement at 1.E. and the procedures in sections 2 and 3 of this Service Bulletin Comply with the Federal Aviation Regulations and are FAA approved for the engine models listed.

G. Manpower

(1) In service

Not applicable

(2) At overhaul

Not affected

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

H. Material Price and Availability

Modification kit not required; parts supplied as single line items.

For prices and availability of future spares refer to 2. Material Information

I. Tooling Price and Availability

No special tools are required

J. Industry Support Information

Not applicable





K. Weight and Balance

(1) Weight Change

Minus 1.3lb (0.590kg)

(2) Moment Arm

5.0in. (127,00mm) rearwards

(3) Datum

Engine front mount centreline (Power Plant Station PPS 100)

L. Electrical Load Data

The aircraft electrical load is not affected by this Service Bulletin

M. Software Accomplishment Summary

Not applicable

N. References

R (1) V2500 Service Bulletin:

R ENG-72-0444 - Engine - Actuating Mechanism HP Compressor Variable Vanes -  
R Introduction of Stage 4 and 5 Connector Bracket Dowels with Reduced Length

(2) Internal reference 00VR009

(3) Engine Manual, 72-41-00, 72-41-30, Disassembly and Assembly

R (4) ATA Locator - 72-41-34

O. Other Publications Affected

(1) Illustrated Parts Catalogue (IPC) 72-41-34, 1IA, 2IA, 2IB, 3IA, 3IB, 5IA, 5IB, 6IA, 6IB, 7IA, and 7IB will be revised.

(2) Engine Manual:

(a) 72-41-00, Assembly-02, Config-01, Config-02, Disassembly, Config-01, Config-02

(b) 72-41-34, Cleaning-00, 02 Config-01, 04 Config-01, Inspection/Check-00, 05 to 13 and 21 Config-01

(c) 72-41-30, Assembly-03 to 06, 08 and 10 Configs-01 and 02, Disassembly Configs-01 and 02



P. Interchangeability of Parts

The parts introduced by this Service Bulletin must be fitted as a Service Bulletin set.

A Service Bulletin set may consist of Service Bulletin Parts 1, 2, 3, 4 or 5.

**2. Material Information****A. The kit required consists of the following parts:**

None

**B. Parts to be reworked:**

None

**C. New production parts:**

All Engines

72-41-34

Part 1 and Part 2

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
02200	6A7586	2	Bridge piece assy-VIGV	-	6A2510	(A)(C)(S1)
02202	AS21013	6	Bolt, bihex hd (0.250in. dia x 0.812in.)	-	AS21020	(B)(S1) (1D)
02203	AS43411	2	Bolt, wire lock double hex	-	AS43418	(B)(S1) (1D)
02206	-	6	Dowel, hollow	-	6A2520	(C)
02208	-	2	Dowel, hollow	-	6A2519	(C)
02440	6A7580	1	Ring assy - VIGV, upper unison	-	6A3535	(A)(C)(S1)
02470	-	1	Bracket assy - IGV act. ring	-	6A2861	(C)
02490	-	1	Bracket assy - IGV act. ring	-	6A2863	(C)
02540	6A7584	1	Ring assy - VIGV, lower unison	-	6A3537	(A)(C)(S1)
02570	-	1	Bracket assy - IGV act. ring	-	6A2863	(C)
02573	-		Insert, screw thread (0.250in. x 1.5D)	-	AGS3732	(1D)
02590	-	1	Bracket assy - IGV act. ring	-	6A2861	(C)
02593	-	1	Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)

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## Part 1 and Part 3

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03200	6A7594	1	Bridge piece assy - Stg 3, - port		6A2523	(A)(C)(S1)
03202	AS21013	4	Bolt, bihex hd (0.250in. dia x 0.812in.)	-	AS21020	(B)(S1) (1D)
03206	-	4	Dowel, hollow	-	6A2520	(C)
03280	6A7593	1	Bridge piece assy - Stg 3,- stbd		6A2521	(A)(C)(S1)
03282	AS21013	4	Bolt, bihex hd (0.250in. dia x 0.812in.)	-	AS21020	(B)(S1) (1D)
03284	AS21008	1	Bolt, bihex hd (0.250in. dia x 0.500in.)	-	AS21014	(B)(S1) (1D)
03286	-	4	Dowel, hollow	-	6A2520	(C)
03287	BA41252	1	Spacer, washer	-	-	(A)(E)
03288	-	1	Dowel, hollow	-	6A2527	(C)
03440	6A7588	1	Ring assy - Stg 3, upper unison	-	6A3982	(A)(C) (S1)
03480	-	1	Bracket assy - Stg 3 conn	-	6A3660	(C)
03483	-		Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)
03490	-	1	Bracket assy - Stg 3 conn	-	6A3662	(C)
03493	-		Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)
03540	6A7590	1	Ring assy - Stg 3, lower unison	-	6A3987	(A)(C) (S1)
03580	-	1	Bracket assy	-	6A2877	(C)
03583	-		Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)
03590	-	1	Bracket assy - Stg 3 act. ring	-	6A2873	(C)
03593	-	2	Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)

## Part 1 and Part 4

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04200	6A7603	2	Bridge piece assy - Stg 4	-	6A7540	(A)(C) (S1)
04202	AS21013	8	Bolt, bihex hd (0.250in. dia x 0.812in.)	-	AS21018	(B)(S1) (1D)

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FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04204	6A7604	4	Washer, strip - Stg 4 bridge piece	-	6A7414	(A)(C) (S1) (2D)

R For Engines incorporating 72-0444

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04366	UP10817	2	.Dowel, hollow securing	-	6A8208	(B)(S1)

R All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04440	6A7596	1	Ring assy - Stg 4, upper unison	-	6A3983	(A)(C) (S1)
04490	-	2	Bracket assy - Stg 4, act. ring	-	6A2883	(C)
04493	-	2	Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)
04540	6A7599	1	Ring assy - Stg 4, lower unison	-	6A3545	(A)(C) (S1)
04570	-	1	Bracket assy - Stg 4, act ring	-	6A2881	(3D)
04590	-	2	Bracket assy - Stg 4, act ring	-	6A2883	(C)
04593	-	2	Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)
04630	6A7601	1	Bracket assy - Stg 4, lower unison	-	-	(A)(E)

Part 1 and Part 5

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05200	6A7611	2	Bridge piece assy - Stg 5	-	6A7539	(A)(C) (S1)
05202	AS21013	8	Bolt, bihex hd (0.250in. dia x 0.812in.)	-	AS21018	(B)(S1) (1D)



FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05204	6A7612	4	Washer, strip - Stg 5 bridge piece	-	6A7414	(A)(C) (S1) (2D)

R For Engines Incorporating 72-0444

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05366	UP10817	2	.Dowel, hollow securing	-	6A8208	(B)(S1)

R All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05440	6A7605	1	Ring assy - Stg 5 upper unison	-	6A3984	(A)(C) (S1)
05490	-	2	Bracket assy - Stg 5, act ring	-	6A2891	(C)
05493	-	2	Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)
05540	6A7607	1	Ring assy - Stg 5, lower unison	-	6A3549	(A)(C) (S1)
05580	6A7609	1	Bracket assy - Stg 5, lower- unison	-	6A2895	(A)(C) (S1)
05590	-	2	Bracket assy - Stg.5 act ring	-	6A2891	(C)
05593	-	2	Insert, screw thread (0.250in. dia x 1.5D)	-	AGS3732	(1D)

#### D. Instructions disposition codes:

(A) New part will be made available from November 2000.

(B) New part is currently available.

(C) Old part becomes redundant upon embodiment of this modification.

(E) Additional.

(S1) Old and new parts are not interchangeable.

(1D) Old part may be used up on other applications.



(2D) Old part quantity was 8.

(3D) Quantity reduced from 3 to 2.

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### 3. Accomplishment Instructions

#### A. Rework Instructions

None

#### B. Assembly Instructions

The revised dowel location arrangement introduced by this Service Bulletin must be fitted as a set. Remove and install in accordance with current overhaul procedures (Engine Manual, 72-41-00, 72-41-30, Disassembly and Assembly).

#### C. Recording Instructions

A record of accomplishment is required.





ENGINE - ACTUATING MECHANISM HP COMPRESSOR VARIABLE VANES - INTRODUCTION OF REVISED  
BRIDGE PIECE ASSEMBLIES AND UNISON RING ASSEMBLIES WITH INCREASED DOWEL LOCATION

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 1. Modification Kit:

R Not applicable.

R 2. Parts required:

R			Unit Price
R	Part No.	Description	US Dollars
R	AS21008	Bolt	4.80
R	AS21013	Bolt	4.80
R	AS43411	Bolt	23.90
R	BA41252	Spacer	0.44
R	UP10817	Dowel	18.10
R	6A7580	Ring assy	9,149.00
R	6A7584	Ring assy	9,095.00
R	6A7586	Bridge Piece	4,431.00
R	6A7588	Ring assy	8,767.00
R	6A7590	Ring assy	8,554.00
R	6A7593	Bridge Piece	5,165.00
R	6A7594	Bridge Piece	4,012.00
R	6A7596	Ring assy	8,803.00
R	6A7599	Ring assy	8,920.00
R	6A7601	Bracket	205.00
R	6A7603	Bridge Piece	3,807.00
R	6A7604	Washer	47.70
R	6A7605	Ring assy	8,822.00
R	6A7607	Ring assy	9,160.00
R	6A7609	Bracket	367.00
R	6A7611	Bridge Piece	4,192.00
R	6A7612	Washer	47.70

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