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V2500-A1/A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits Revision 4 to Service Bulletin V2500-ENG-72-0334 and the Initial Issue of the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status
Initial Issue	Jan.22/99	
Revision 1	Feb.26/99	
Revision 2	Oct. 4/99	
Revision 3	Nov. 8/02	

Service Bulletin Revision 4

Remove	Incorporate	Reason for change
All pages of the Service Bulletin	Pages 1 to 24 of the Service Bulletin	To change the Compliance Category for A1 Model.

Supplement Initial Issue

Remove	Incorporate	Reason for change
	Page 1	To change the Compliance Category for A1 Model.

V2500-ENG-72-0334

International Aero Engines

SERVICE BULLETIN

ENGINE - ACTUATING MECHANISM HP COMPRESSOR VARIABLE VANES - INTRODUCTION OF REVISED STAGE 3 AND STAGE 4 VSV ACTUATOR RING LEVERS WITH INCREASED RADIUS

1. Planning Information

A. Effectivity

(1) Aircraft:

(a) Airbus A319

(b) Airbus A320

(c) Airbus A321

(d) Boeing - Long Beach Division MD-90

(2) Engines:

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

(b) V2522-A5 Engines prior to Serial No. V10535 but not V10522, V10528 to V10531 and V10533

(c) V2524-A5 Engines prior to Serial No. V10535 but not V10522, V10528 to V10531 and V10533

(d) V2527-A5 Engines prior to Serial No. V10535 but not V10522, V10528 to V10531 and V10533

(e) V2527E-A5 Engines prior to Serial No. V10535 but not V10522, V10528 to V10531 and V10533

(f) V2530-A5 Engines prior to Serial No. V10535 but not V10522, V10528 to V10531 and V10533

(g) V2533-A5 Engines prior to Serial No. V10535 but not V10522, V10528 to V10531 and V10533

(h) V2525-D5 Engines prior to Serial No. V20271

(i) V2528-D5 Engines prior to Serial No. V20271

B. Concurrent Requirements

It is recommended that this Service Bulletin should be installed at the same time as V2500 Service Bulletin ENG 72-0269. (Refer to 1. L.).

C. Reason

(1) Problem

Premature deterioration of the lever arm assemblies for the actuator-ring of the Variable Stator Vanes (VSV's) of the Stage 3 and Stage 4 HP Compressor can occur.

The problem is a result of High Cycle Fatigue (HCF) caused by vibration stresses in the lever arm radius adjacent to the lever arm boss.

(2) Evidence

R The problem has been found on A1/A5/D5 engines in service.

(3) Substantiation

A satisfactory engineering analysis has been done on the changes introduced by this Service Bulletin. In addition, a similar modification on the bridge lever assemblies of the Stage 3 VSV has been successfully introduced on V2500 engines in service.

(4) Objective

The purpose of this Service Bulletin is to maintain reliability.

(a) Operation:

Not affected.

(b) Maintenance

Not affected.

(c) Overhaul

Not affected.

(d) Repair Schemes

Not affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. Description

(1) The lever arm assemblies for the Stage 3 and Stage 4 VSV's have been revised, the changes are as follows:

(a) The bend radius on the lever arm has been increased from 1,20 mm. plus or minus 0,30 mm. to 5,00 mm. plus or minus 0,30 mm.

(b) The surface of the bend radius has been vapour blasted to improve the surface finish.

(2) This Service Bulletin is in four parts as follows:

(a) Part 1

Contains the full embodiment of the Stage 3 and Stage 4 VSV actuator arm assemblies of the HP Compressor

(b) Part 2

Contains the partial embodiment in service of accessible Stage 3 VSV actuator arm assemblies of the HP Compressor

(c) Part 3

Contains the partial embodiment in service of accessible Stage 3 and Stage 4 VSV actuator arm assemblies of the HP Compressor

(d) Part 4

Contains the embodiment of the remaining Stage 3 and Stage 4 VSV actuator arm assemblies of the HP Compressor after Parts 2 and 3 have been installed

NOTE: New production engines which have this modification embodied in full, will not be annotated with a modification part number and can be considered the same as Part 1

E. Compliance

R Category Code 4

R Accomplish at the first visit of an engine or module to a maintenance base that
R can comply with the accomplishment instructions. Accomplish regardless of the
R planned maintenance action or the reason for engine removal.

F. Approval

The part number changes and/or part modification are given in Sections 2 and 3 of this Service Bulletin. They comply with the applicable Federal Aviation Regulations and are FAA-approved for the engine model listed.

G. Manpower

Estimate of manhours necessary to embody this Service Bulletin in full:

(1) In Service - Part 1 only

(a) To gain access - 16 Minutes

(b) To embody - 33 Hours 00 Minutes

(c) To return the engine to a serviceable status - 20 Minutes

Total - 33 Hours 36 Minutes

(2) In Service - Part 2 only

(a) To gain access - 16 Minutes

(b) To embody - 12 Hours 00 Minutes

(c) To return the engine to a serviceable status - 20 Minutes

Total - 12 Hours 36 Minutes

(3) In Service - Part 3 only

(a) To gain access - 16 Minutes

(b) To embody - 21 Hours 00 Minutes

(c) To return the engine to a serviceable status - 20 Minutes

Total - 21 Hours 36 Minutes

(4) At overhaul or when engine is off-wing

Not affected

NOTE: It is possible to get access to the parts affected by this Service Bulletin at overhaul and when the engine is off-wing

H. Material - Price and Availability

(1) The Modification kits that follow are necesssary:

(a) All Models:

MKV802601 - For full modification at overhaul.

(b) A5 Models only:

(i) MKV802602 - For partial Stage 3 modification In-Service.

(ii) MKV802603 - For partial Stage 4 modification In-Service.

(iii) MKV802604 - For final embodiment of Stage 3 and Stage 4 after (i) and (ii) have been embodied.

(2) For operators of A5 and D5 engines, the kits listed in 2. Material Information at A. are available free of charge (FOC).

Operators should send an (FOC) Purchase Order (PO) for the applicable quantity. The Serial numbers of the affected engines and the IAE Tracking No. - S.459UI must be put on each PO. The PO(s) must be addressed to:

IAE Spares Division
400 Main Street
MS 121-10
East Hartford
CT 06108
USA

(3) The kits will be despatched within thirty days after the PO(s) have been received.

(4) The kits are available on an FOC basis between March 1999 and December 2002.

(5) Refer to 2. Material Information for prices and availability of future spares.

I. Tooling - Price and Availability

Special tools are not necessary.

J. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

Not effected.

(3) Datum

Engine front mount centreline (Power Plant Station - PPS 100).

K. Electrical Load Data

The aircraft electrical load is not affected by this Service Bulletin.

L. References

(1) Internal Reference No.

R Engineering Change No. 98VR026, 98VR026-01, 98VR026-02 and 98VR026-03.

(2) V2500 Service Bulletin:

ENG 72-0269 - ENGINE - ACTUATING MECHANISM - HP COMPRESSOR VARIABLE VANES - INTRODUCTION OF REVISED STAGE 3 VSV ACTUATING LEVER WITH INCREASED RADIUS.

(3) A1/A5/D5 Engine Manual (EM), Chapter/Section 72-41-00 Assembly-02/Disassembly.

(4) A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Sections 74-11-38, 75-31-42 and 75-31-43, Removal/Installation.

(5) A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 71-00-00, TASK 71-00-00-710-013, Adjustment/Test.

(6) Airbus aircraft modification No. 28249.

M. Other Publications Affected

(1) Illustrated Parts Catalogue (IPC), Chapter/Section, 72-41-34.

(2) A1/A5/D5 Engine Manual (EM), Chapter/Section 72-41-34, Cleaning-01 and Inspection/Check-04.

2. Material Information

A. Kits necessary for this Service Bulletin:

(1) All Models:

(a) Part 1

MKV802601 - For full embodiment.

(2) A5 Models only:

(a) Part 2:

MKV802602 - Stage 3 embodiment, in-service.

(b) Part 3:

MKV802602 - Stage 3 embodiment, in-service.

MKV802603 - Stage 4 embodiment, in-service.

(c) Part 4:

For engines that embody Part 2:

MKV802603 - Stage 4 embodiment, in-service.

MKV802604 - Stage 3 and Stage 4 embodiment, make-up.

For engines that embody Part 3:

MKV802604 - Stage 3 and Stage 4 embodiment, make-up.

B. Parts affected by this Service Bulletin:

All Models:

72-41-34

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03100	6A7460	22	.Lever Assy, VSV - HP Compressor, Stage 3	-	6A3321	(A)(S1)
03140	6A7461	2	.Lever Assy, VSV Short - HP Compressor, Stage 3	-	6A3323	(A)(S1)
04100	6A7462	42	.Lever Assy, VSV - HP Compressor, Stage 4	-	6A3330	(A)(S1)
04120	6A7463	8	.Lever Assy, VSV Bridge - HP Compressor, Stage 4	-	6A4345	(A)(S1)

C. Instructions Disposition Codes:

(A) New part is available.

(S1) Old and new parts are freely and fully interchangeable.

3. Accomplishment Instructions

A. Rework Instructions

None.

B. Assembly Instructions - Part 1

(1) With modification kit MKV802601 embody the modification for engines not installed. For the correct removal/installation procedures, refer to the A1/A5/D5 Engine Manual (EM), Chapter/Section 72-41-00 Assembly-02/Disassembly.

C. Assembly Instructions - Part 2

(1) Embody the modification as follows. (Refer to Figures 1 and 2):

(a) Open and safety the C-Ducts.

(b) Release and move the fire detection harness and the core EEC harness clear of the Stage 3 and Stage 4 VSV mechanism where necessary. (Refer to the A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 71-52-42, Removal/Installation).

(c) Move the harness support raceways, 6A2153 and 6A5314 clear of the Stage 3 and Stage 4 VSV mechanism.

(d) Remove the LPC bleed master actuator and support bracket if necessary. (Refer to the A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 75-31-42, Removal/Installation).

(e) Remove the LPC bleed slave-actuator and support bracket, then remove the fuel drain tube (745 5279 503), clear of the VSV mechanism (Refer to the A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 75-31-43, Removal/Installation).

(f) Remove the igniter box and support brackets if necessary (Refer to the A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 74-11-38, Removal/Installation).

(2) For engines that embody Service Bulletin 72-0269, continue from D. Assembly Instructions - Part 3.

(3) For engines that do not embody Service Bulletin 72-0269, with the parts given in V2500 Service Bulletin ENG-72-0269, do the steps that follow:

(a) With the rigging pins, lock the VSV crankshaft and the Stage 3 VSV unison ring in position.

(b) Disconnect the Stage 3 actuator rod from the Stage 3 unison ring.

(c) Remove the right bridge pieces of the unison ring from Stage 3.

(i) Remove and discard the four bolts and four hollow dowels which attach the bridge piece to the unison ring.

(ii) Remove the bi-hexagonal nuts from the two lever arms located directly above the wear pads on the bridge piece.

(d) Remove the left bridge pieces of the unison ring from Stage 3.

(i) Remove and discard the five bolts and five hollow dowels which attach the bridge piece to the unison ring.

(ii) Remove the bi-hexagonal nuts from the two lever arms located directly above the wear pads on the bridge piece.

(e) To remove the two lever arms from each Stage 3 bridge piece, remove the wear pads. Then remove one at a time, each of the two remaining lever arms adjacent to the bridge piece positions on both sides of the front cases.

(f) Remove the spacer washers.

(i) Inspect the spacer washers for galling and scoring.

(ii) If any galling or scoring is found, reject the affected spacer washers.

(iii) Measure the thickness of the remaining spacer washers and then sort them into part numbers. (Refer to Table 1).

(g) Install the eight lever arms (6A6547) to the Stage 3 vanes adjacent to the left and right split lines of the HP Compressor case. Do not install the spacer washers. Safety the lever arms with the bi-hexagonal nuts (4W0002).

(h) Pull each lever arm away from the case. Measure the clearance between the base of the lever and the case. Identify each lever with its position and write down the dimension of the clearance.

(i) With the spacer washers removed at (3) (f), get the correct spacer from the range 6A2037C01 thru to 6A2037C09 to get a clearance between 0.003 and 0.005 in. for each lever arm. Use new parts if necessary.

(i) Remove the lever arms.

(j) Install the applicable lever arms (6A6457) and spacer washers to the correct Stage 3 vanes adjacent to the split lines of the front case.

(i) With a non-aerosol hand pump spray the pin end of the lever arm with Triflow lubricant (CoMat 10-108).

(ii) So that the lubricant can penetrate the vane spindles in the front case, spray the lubricant on the vane spindles.

(iii) With the new bi-hexagonal nuts (4W0002), safety the lever arms. Torque load the nuts to between 85 and 105 lbfin (10,00 and 12,00 Nm).

NOTE: When you torque the nuts, the lever arms must be parallel with the engine centre line. This is the null position.

(k) Install the applicable lever arms (6A6457) in the bridge pieces and replace the wear pads.

(i) With a non-aerosol hand pump spray the pin end of the lever arm with Triflow lubricant (CoMat 10-108).

(ii) So that the lubricant can penetrate the vane spindles in the front case, spray the lubricant on the vane spindles.

(iii) Install the applicable spacer washers to the correct Stage 3 vanes at the remaining locations.

NOTE: Make sure that the spacer washers for the Stage 3 lever arms are not removed from their respective vane spindles.

Thickness of 6A2035 and 6A2037 spacer washers

TABLE 1

C01	0.500 - 0.526
C02	0.524 - 0.550
C03	0.550 - 0.576
C04	0.600 - 0.626
C05	0.650 - 0.676
C06	0.700 - 0.726
C07	0.750 - 0.776
C08	0.800 - 0.826
C09	0.824 - 0.850
C10	0.850 - 0.876

D. Assembly Instructions - Part 3

(1) For engines that embody Service Bulletin ENG-72-0269 or for engines that embody C. Assembly Instructions - Part 2 step (3), for Stage 3 and Stage 4, do steps (4) and (5) that follow.

(2) For Stage 3 only, with Mod Kit MKV802602 do step (4) that follows only.

(3) For Stage 4 only, with Mod Kit MKV802603 do step (5) that follows only.

NOTE: Stage 4 can only be modified if Stage 3 has been modified.

(4) For engines that embody Service Bulletin ENG-72-0269 or for engines that embody C. Assembly Instructions - Part 2 step (3), for Stage 3 with Mod Kit MKV802602 do the steps that follow:

(a) With the rigging pins, lock the VSV crankshaft and the Stage 3 VSV unison ring in position.

(b) Disconnect the Stage 3 actuator rod from the Stage 3 unison ring.

(c) Remove the right bridge pieces of the unison ring from Stage 3.

(i) Remove and discard the four bolts and four hollow dowels which attach the bridge piece to the unison ring.

(ii) Remove the bi-hexagonal nuts from the two lever arms located directly above the wear pads on the bridge piece.

(d) Remove the left bridge pieces of the unison ring from Stage 3.

(i) Remove and discard the five bolts and five hollow dowels which attach the bridge piece to the unison ring.

(ii) Remove the bi-hexagonal nuts from the two lever arms located directly above the wear pads on the bridge piece.

NOTE: Make sure that the spacer washers for the Stage 3 lever arms are not removed from their respective vane spindles.

(e) Remove one at a time the four Stage 3 lever arms immediately above the bridge piece location on both sides of the front case. Then remove one at a time the four Stage 3 lever arms immediately below the bridge piece location on both sides of the front case.

(f) Remove the spacer washers.

(i) Inspect the spacer washers for galling and scoring.

(ii) If any galling or scoring is found, reject the affected spacer washers.

(iii) Measure the thickness of the remaining spacer washers and then sort them into part numbers. (Refer to Table 1).

(g) Install the four lever arms (6A7460) to the Stage 3 vanes (see Figure 6) immediately above the bridge piece locations on both sides of the front case. Then install the four lever arms (6A7460) to the Stage 3 vanes immediately below the bridge piece locations on both sides of the front case. Do not install the spacer washers. Safety the lever arms with the bi-hexagonal nuts (4W0002).

(h) Pull each lever arm away from the case. Measure the clearance between the base of the lever and the case. Identify each lever with its position and write down the dimension of the clearance.

(i) With the spacer washers removed at (4)(f), get the correct spacer from the range 6A2037C01 thru to 6A2037C09 to get a clearance between 0.003 and 0.005 in. for each lever arm. Use new parts if necessary.

(i) Remove the lever arms.

(j) Install the applicable lever arms (6A7460) (see Figure 6) and spacer washers to the correct Stage 3 vanes on both sides of the front case.

(i) With a non-aerosol hand pump spray the pin end of the lever arm with Triflow lubricant (CoMat 10-108).

(ii) So that the lubricant can penetrate the vane spindles in the front case, spray the lubricant on the vane spindles.

(iii) Install the lever arms to the four locations above the bridge pieces.

(iv) Install the lever arms to the four locations below the bridge pieces.

(v) With the new bi-hexagonal nuts (4W0002), safety the lever arms. Torque load the nuts to between 85 and 105 lbfin (10,00 and 12,00 Nm).

NOTE: When you torque the nuts, the lever arms must be parallel with the engine centre line. This is the null position.

(k) Install the right Stage 3 bridge piece to the unison ring.

(i) Loosen the bi-hexagonal nuts that safety the two Stage 3 lever arms adjacent to the front case split lines.

(ii) Put the bridge piece in position and put the two lever arms (6A5467) on their respective spindles. Then install the four dowels (6A2520) and the dowel (6A2527) that hold the bridge piece in the correct position.

NOTE: Make sure that the bridge piece location dowels are seated correctly in the unison ring (see Figure 5).

(iii) Install the four bolts (AS21020) and the bolt (AS21014) that safety the bridge piece. Make sure the dowels are correctly located into the unison ring.

(iv) Torque load the bolts to between 85 and 105 lbf in. (10,00 and 12,00 Nm).

(v) Make sure the bridge piece is seated tightly against the unison ring; use a feeler gauge between 0.002 and 0.004 in. and check for gaps between the mating surfaces of the bridge piece and the unison ring. There should not be any gap between the mating surfaces (see Figure 5).

(l) Install the left Stage 3 bridge piece to the unison ring.

(i) Loosen the bi-hexagonal nuts that safety the two Stage 3 lever arms adjacent to the front case split lines.

(ii) Put the bridge piece in position and put the two lever arms (6A5467) on their respective spindles. Then install the four dowels (6A2520) that hold the bridge piece in the correct position.

NOTE: Make sure that the bridge piece location dowels are seated correctly in the unison ring (see Figure 5).

(iii) Install the four bolts (AS21020) that safety the bridge piece. Make sure the dowels are correctly located into the unison ring.

(iv) Torque load the bolts to between 85 and 105 lbf in. (10,00 and 12,00 Nm).

(v) Make sure the bridge piece is seated tightly against the unison ring; use a feeler gauge between 0.002 and 0.004 in. and check for gaps between the mating surfaces of the bridge piece and the unison ring. There should not be any gap between the mating surfaces (see Figure 5).

(m) Torque the nuts which attach the lever arms to the Stage 3 vane spindles. These are located adjacent to the front case split lines on both sides of the front case.

(i) Torque load the nuts to between 85 and 105 lbf in. (10,00 and 12,00 Nm).

NOTE: When you torque the nuts, the lever arms must be parallel with the engine centre line. This is the null position.

(n) For the Job Close-out instructions refer to Step (6).

(5) For engines that have had the modification embodied to the Stage 3. To embody the modification to the Stage 4, with Mod Kit MKV802603 do the steps that follow:

(a) With the rigging pins, lock the Stage 4 VSV unison ring in position.

(b) Disconnect the Stage 4 actuator rod from the Stage 4 unison ring.

(c) Remove the Stage 4 bridge pieces of the unison ring.

(i) Remove and discard the four bolts and four hollow dowels which attach the bridge piece to the unison ring.

(ii) Remove the bi-hexagonal nuts from the two lever arms located directly above the wear pads on the bridge piece.

(d) To remove the two lever arms from each Stage 4 bridge piece, remove the wear pads. Then remove one at a time, each of the two remaining lever arms adjacent to the bridge piece positions on both sides of the front case.

(e) Remove one at a time the seven Stage 4 lever arms immediately above the bridge piece location on both sides of the front case. Then remove one at a time the eight Stage 4 lever arms immediately below the bridge piece location on both sides of the front case.

(f) Remove the spacer washers.

(i) Inspect the spacer washers for galling and scoring.

(ii) If any galling or scoring is found, reject the affected spacer washers.

(iii) Measure the thickness of the remaining spacer washers and then sort them into part numbers. (Refer to Table 1).

(g) Install the eight lever arms (6A7463)(see Figure 6) to the Stage 4 adjacent to the left and right split lines of the front cases. Then install the seven lever arms (6A7462) to the Stage 4 vanes immediately above the bridge piece locations on both sides of the front cases. Then install the eight lever arms (6A7462) to the Stage 4 vanes immediately below the bridge piece locations on both sides of the front cases. Do not install the spacer washers. Safety the lever arms with the bi-hexagonal nuts (4W0002).

(h) Pull each lever arm away from the case. Measure the clearance between the base of the lever and the case. Identify each lever with its position and write down the dimension of the clearance.

(i) With the spacer washers removed at (5) (f), get the correct spacer from the range 6A2035C01 thru to 6A2035C10 to get a clearance between 0.003 and 0.005 in. for each lever arm. Use new parts if necessary.

(i) Remove the lever arms.

(j) Install the applicable lever arms (6A7462) and spacer washers to the correct Stage 4 vanes on both sides of the front cases.

(i) With a non-aerosol hand pump spray the pin end of the lever arm with Triflow lubricant (CoMat 10-108).

(ii) So that the lubricant can penetrate the vane spindles in the front case, spray the lubricant on the vane spindles.

(iii) Install the lever arms to the seven locations above the bridge pieces.

(iv) Install the lever arms to the eight locations below the bridge pieces.

(v) With the new bi-hexagonal nuts (4W0002), safety the lever arms. Torque load the nuts to between 85 and 105 lbfin (10,00 and 12,00 Nm).

NOTE: When you torque the nuts, the lever arms must be parallel with the engine centre line. This is the null position.

(k) Install the applicable lever arms (6A7463)(see Figure 6) and spacer washers to the correct Stage 4 vanes adjacent to the split lines on both sides of the front cases.

(i) With a non-aerosol hand pump spray the pin end of the lever arm with Triflow lubricant (CoMat 10-108).

(ii) So that the lubricant can penetrate the vane spindles in the front case, spray the lubricant on the vane spindles.

(iii) With the new bi-hexagonal nuts (4W0002), safety the lever arms. Torque load the nuts to between 85 and 105 lbfin (10,00 and 12,00 Nm).

NOTE: When you torque the nuts, the lever arms must be parallel with the engine centre line. This is the null position.

(l) Install the applicable lever arms (6A7463)(see Figure 6) in the bridge pieces and replace the wear pads.

(i) With a non-aerosol hand pump spray the pin end of the lever arm with Triflow lubricant (CoMat 10-108).

(ii) So that the lubricant can penetrate the vane spindles in the front case, spray the lubricant on the vane spindles.

(iii) Install the applicable spacer washers to the correct Stage 4 vanes at the remaining locations.

(m) Install the right Stage 4 bridge pieces to the unison rings.

(i) Loosen the bi-hexagonal nuts that safety the two Stage 4 lever arms adjacent to the front case split lines on both sides of the cases.

(ii) Put the bridge piece in position and put the two lever arms (6A7463) on their respective spindles. Then install the four dowels (6A2527) that hold the bridge piece in the correct position.

NOTE: Make sure that the bridge piece location dowels are seated correctly in the unison ring (see Figure 5).

(iii) Install the four bolts (AS21014) that safety the bridge piece. Make sure the dowels are correctly located into the unison ring.

(iv) Torque load the bolts to between 85 and 105 lbf in. (10,00 and 12,00 Nm).

(v) Make sure the bridge piece is seated tightly against the unison ring; use a feeler gauge between 0.002 and 0.004 in. and check for gaps between the mating surfaces of the bridge piece and the unison ring. There should not be any gap between the mating surfaces (see Figure 5).

(n) Install the left Stage 4 bridge piece to the unison ring.

(i) Do steps (m) (ii) thru to (v) again.

(6) Job Close-up instructions

(a) Remove the VSV rigging pins.

(b) Install the igniter box and support brackets if necessary. (Refer to the Aircraft Maintenance Manual (AMM), Chapter/Section 74-11-38 (A1/A5), Removal/Installation.

(c) Install the support bracket of the LPC bleed slave-actuator if necessary. Install the LPC bleed slave-actuator. Use new packers (MS9967-011) on the adjacent tubes and a new lock washer (AS44692) on the actuator rod pin. (Refer to the Aircraft Maintenance Manual (AMM), Chapter/Section 75-31-43 (A1/A5), Removal/Installation.

(d) Install the support bracket of the LPC bleed master-actuator if necessary. Install the LPC bleed master-actuator. Use new packers (MS9967-011 thru to MS9967-012) on the adjacent tubes and a new lock washer (AS44692) on the actuator rod pin. (Refer to the Aircraft Maintenance Manual (AMM), Chapter/Section 75-31-42 (A1/A5), Removal/Installation.

(e) Install the harness support raceways 6A2153 and 6A5314 if necessary.

(f) Safety the fire detection harness and the core EEC harness if necessary. (Refer to the Aircraft Maintenance Manual (AMM), Chapter/Section 71-51-43 (A1/A5), Removal/Installation.

(g) Close and lock the C-Ducts.

E. Assembly Instructions - Part 4

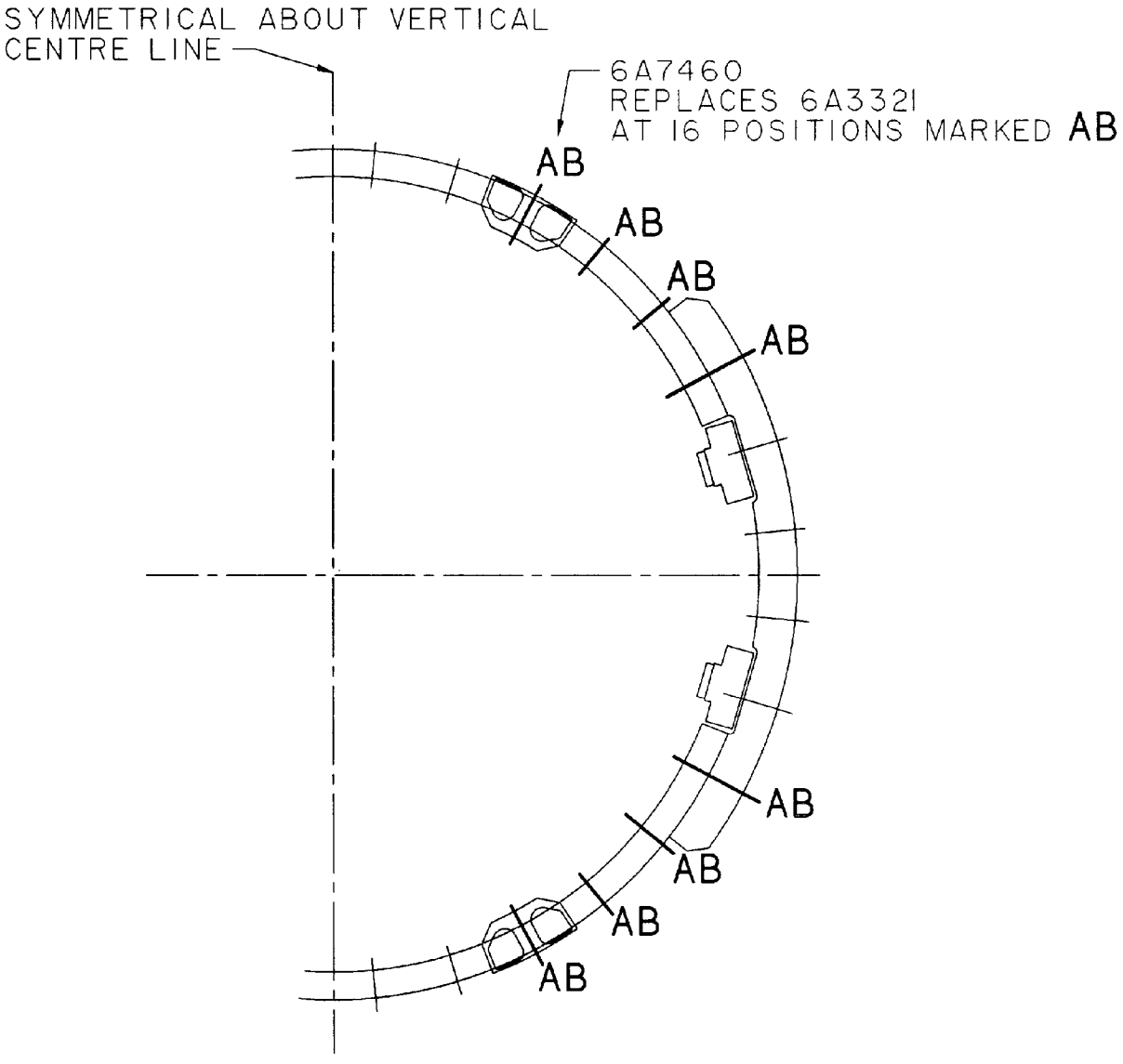
(1) For engines not installed, that have had modification kits MKV802602 and MKV802603 embodied on-wing, with modification kit MKV802604 embody the modification. For the correct removal/installation procedures, refer to the A5 Engine Manual (EM), Chapter/Section 72-41-00, Disassembly/Assembly-02.

F. Testing

(1) For engines that have been modified In-Service, a Power Assurance Test can be necessary. (Refer to the A319/A320/A321) Aircraft Maintenance Manual (AMM), Chapter/Section 71-00-00, TASK 71-00-00710-013, Adjustment/Test).

G. Recording Instructions

A record of accomplishment is necessary.

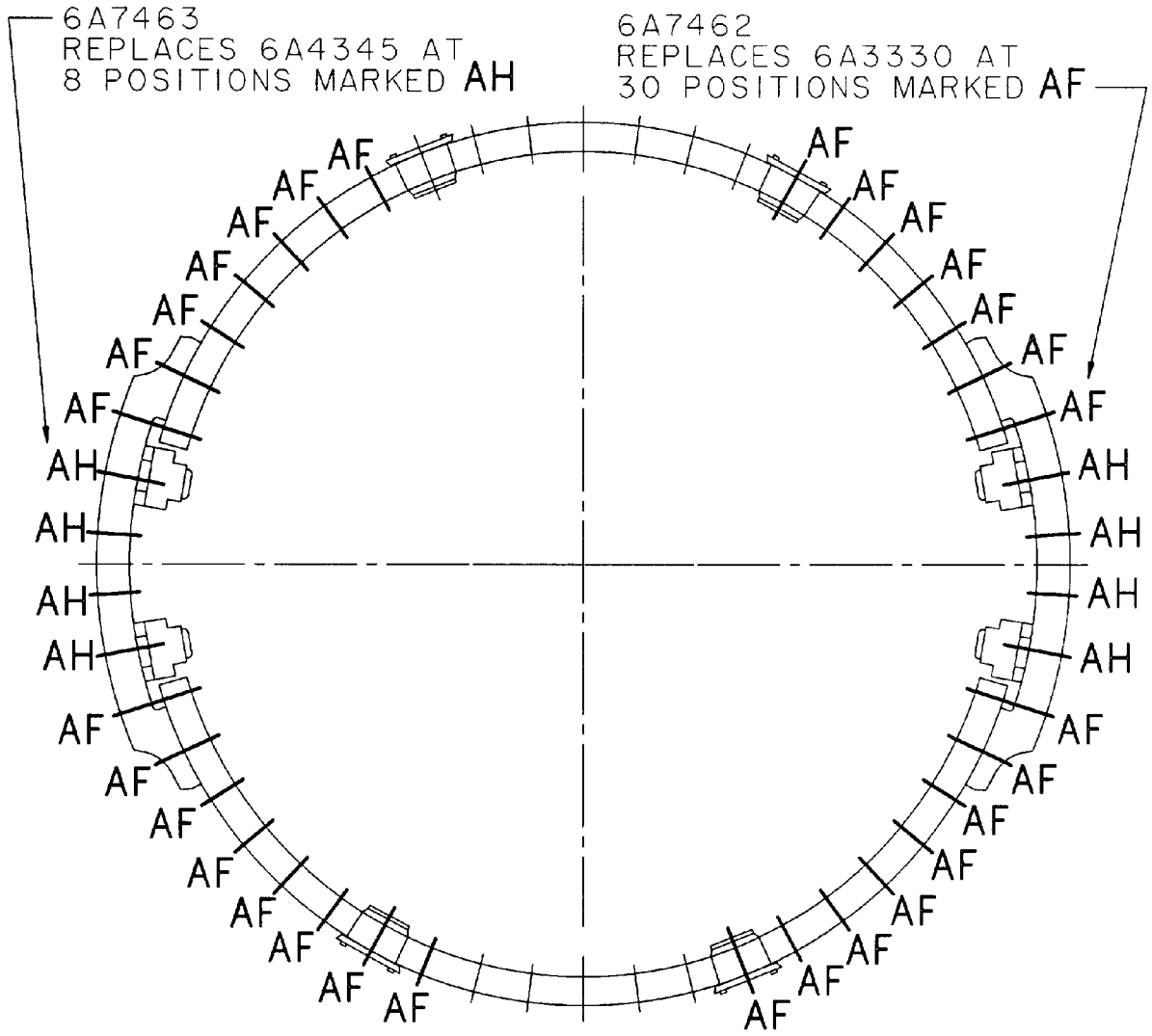


DIAGRAMMATIC VIEW OF
STAGE 3 VSV MECHANISM
SHOWING LEVER POSITIONS

PART 2

ded0003016

Lever positions - Stage 3 VSV mechanism - Parts 2 and 3
Figure 1



DIAGRAMMATIC VIEW
LOOKING REARWARDS ON
STAGE 4 VSV MECHANISM
SHOWING LEVER POSITIONS

PART 2

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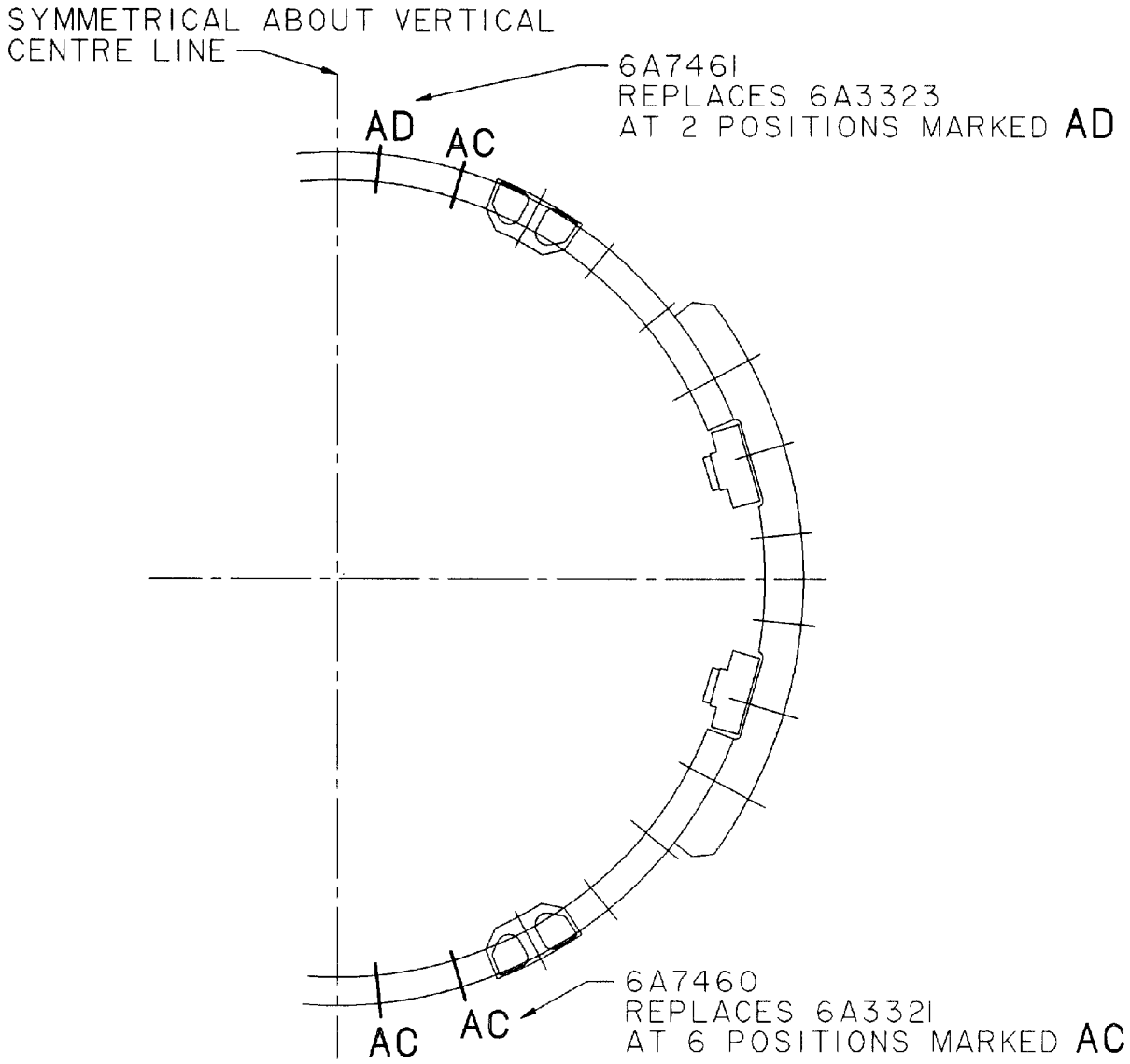
Lever positions - Stage 4 VSV mechanism - View to the rear - Part 3
Figure 2



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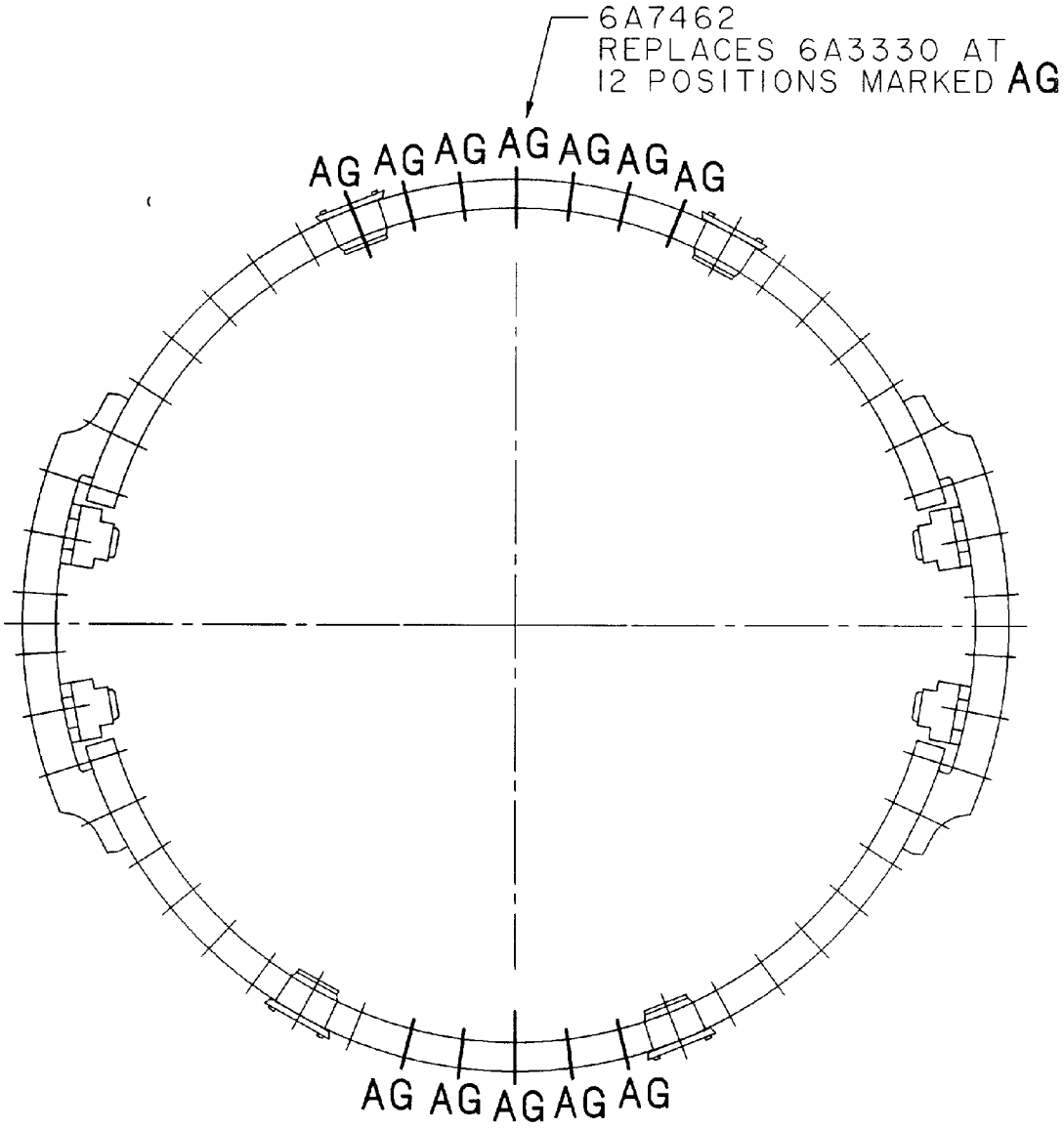
DIAGRAMMATIC VIEW OF
STAGE 3 VSV MECHANISM
SHOWING LEVER POSITIONS

PART 3

Lever positions - Stage 3 VSV mechanism - Part 4
Figure 3



DIAGRAMMATIC VIEW
LOOKING REARWARDS ON
STAGE 4 VSV MECHANISM
SHOWING LEVER POSITIONS

PART 3

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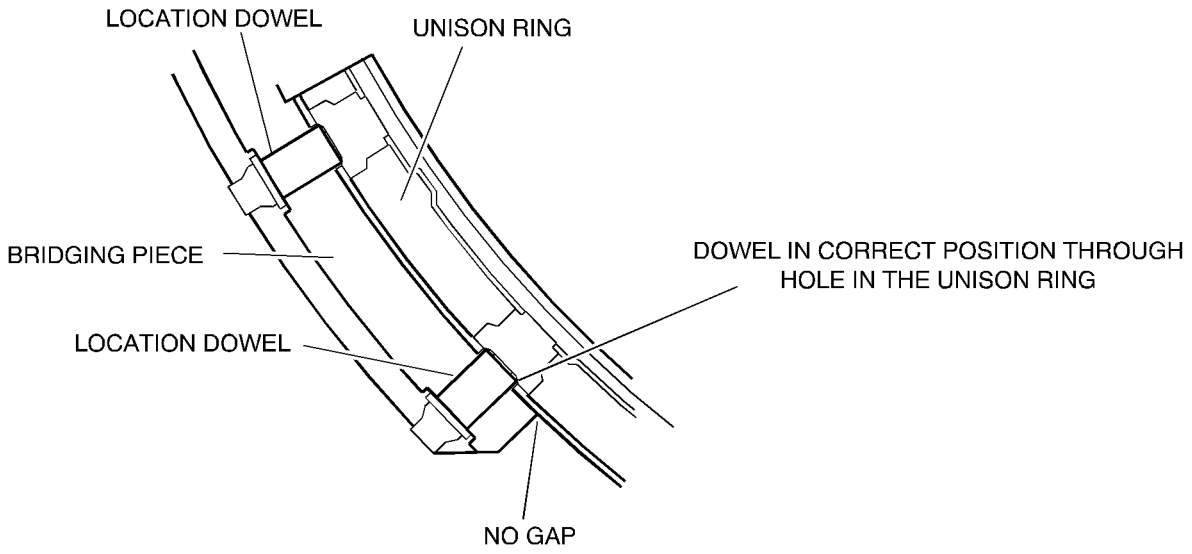
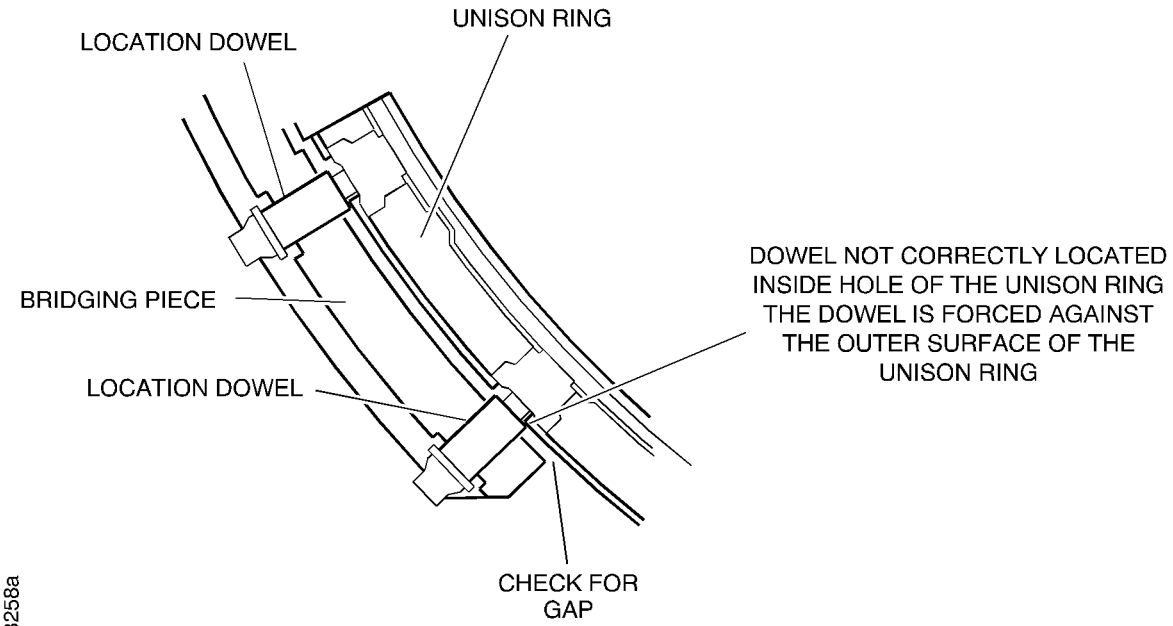
Lever positions - Stage 4 VSV mechanism - View to the rear - Part 4
Figure 4



EXAMPLE OF CORRECT INSTALLATION



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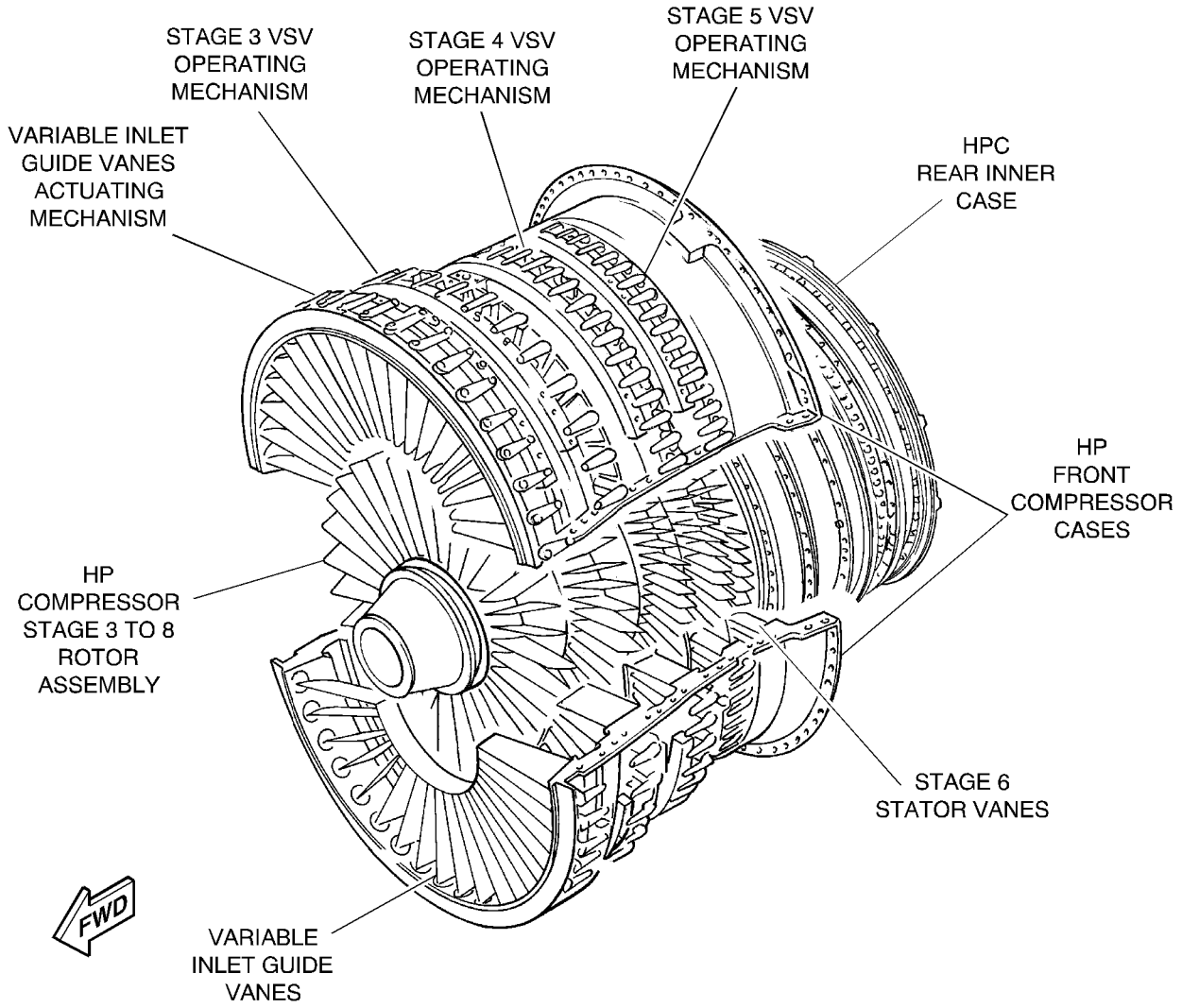
TYPICAL EXAMPLE OF MIS-LOCATED DOWELS

Example of mis-located dowels
Figure 5



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Locations of Stages 3, 4 and 5 VSV operating mechanism
Figure 6

International Aero Engines

SERVICE BULLETIN

ENGINE - ACTUATING MECHANISM HP COMPRESSOR VARIABLE VANES - INTRODUCTION OF REVISED STAGE 3 AND STAGE 4 VSV ACTUATOR RING LEVERS WITH INCREASED RADIUS

SUPPLEMENT - PRICES AND AVAILABILITY

The prices shown are for estimating purposes only and as such are given in good faith without commercial liability, for advanced planning purposes only. Refer to IAE Spares and/or current Price Catalogue for current prices.

1. Modification Kits

	Part No.	Desc.	Unit Price US Dollars
R	MKV802601	Kit	18,840.00
R	MKV802602	Kit	4,434.00
R	MKV802603	Kit	9,596.00
R	MKV802604	Kit	4,812.00

2. New Production or Rework Parts

	Part No.	Desc.	Unit Price US Dollars
R	6A7460	Lever assy	226.00
R	6A7461	Lever assy	226.00
R	6A7462	Lever Assy	226.00
R	6A7463	Lever assy	226.00