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V2500-A1/A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits Revision 2 to Service Bulletin EV2500-72-0416 and Revision 1 to the Supplement

Document History

Service Bulletin Revision Status		Supplement Revision Status	
Initial Issue	Apr.22/02	Initial Issue	Mar.25/04
Revision 1	Mar.25/04		

Bulletin Revision 2

Remove	Incorporate	Reason for change
	Page 1 and 2 of the Summary	To add spacer to Material Information. To revise bolt part numbers on Figs 7 and 15. To revise brackets on Figs 18, 20, 27 and 29.
All pages of the Service Bulletin	Pages 1 to 81 of the Service Bulletin	To add spacer to Material Information. To revise bolt part numbers on Figs 7 and 15. To revise brackets on Figs 18, 20, 27 and 29.

Supplement Revision 1

Remove	Incorporate	Reason for change

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise Publication Services, Rolls-Royce plc, Derby, England

All pages	Page 1	To add spacer to Material Information. To revise bolt part numbers on Figs 7 and 15. To revise brackets on Figs 18, 20, 27 and 29.

LIST OF EFFECTIVE PAGES

The effective pages to this Service Bulletin following incorporation of Revision 2 to the Bulletin and Revision 1 to the Supplement are as follows:

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	Summary		
R	1	2	Oct.19/05
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	Bulletin		
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R	80	2	Oct.19/05
R	81	2	Oct.19/05
	Supplement		
R	1	1	Oct.19/05

International Aero Engines

SERVICE BULLETIN

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

SUMMARY

R 1. PLANNING

R A. EFFECTIVITY

R Engine

R V2500-A1
R V2500-A5
R V2500-D5

R B. CONCURRENT REQUIREMENTS

R None.

R C. REASON/PROBLEM

R Problem

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

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

R Background

R The problem has been experienced on engines in service.

R Substantiation

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

R Objective

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

R D. DESCRIPTION

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

R

R E. COMPLIANCE

R Category Code 6

R Accomplish when the sub-assembly (i.e. modules, accessories, components,
R components build groups) is disassembled sufficiently to afford access to the
R affected spare parts.

R F. MANPOWER

R In service - Not applicable.

R At overhaul - Not affected.

R G. INTERCHANGEABILITY OF PARTS

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

R A modification set may consist of modification Part or any combination of Parts
R 1, 2, 3, 4 or 5.

R 2. MATERIAL INFORMATION

R A. PARTS PRICES

R Part No.	Description	Unit Price US Dollars
R AS21008	Bolt	4.80
R AS21011	Bolt	4.80
R AS21013	Bolt	4.80
R AS43411	Bolt	23.90
R BA41252	Spacer	0.44
R UP10817	Dowel	18.10
R UP11019	Pin	18.50
R UP12203	Washer	2.79
R UP12204	Washer	2.79
R 6A7583	Dowel	80.00
R 6A7592	Dowel	80.00
R 6A7598	Dowel	80.00
R 6A7601	Bracket	205.00
R 6A7609	Bracket	367.00
R 6A7612	Washer	47.70
R 6A7621	Spacer	71.00
R 6A7859	Washer	47.70
R 6A7871	Dowel	46.50

International Aero Engines

SERVICE BULLETIN

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

1. Planning Information

A. Effectivity

(1) Airbus A319

V2522-A5, V2524-A5, V2527M-A5 Engines

(2) Airbus A320

V2500-A1 Engines

V2527-A5, V2527E-A5 Engines

(3) Airbus A321

V2530-A5, V2533-A5 Engines

(4) Boeing - Longbeach Division MD-90

V2525-D5, V2528-D5 Engines

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) Objective

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

(4) 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.

(5) Effect of Bulletin on:

(a) Operation

Not affected.

(b) Maintenance

Not affected.

(c) Overhaul

Not affected.

(d) Repair Schemes

Affected.

(e) Interchangeability

Affected (See 1.M. Interchangeability of Parts).

(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 in order 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 are introduced, 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 are introduced to provide an attaching feature for the bridge piece attaching bolts.

(iii) A pin is introduced 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 are introduced, similar to the existing items except for the introduction of a recess in the bracket bosses.

(b) Revised VIGV and Stage 3 bridge piece assemblies are introduced, similar to the existing items except for the following:

(i) The geometry has been revised to accept the revised dowel arrangement.

(ii) A step has been introduced to provide a location for the attaching bolt head.

(iii) A chamfer has been introduced to the dowel holes on the inner face of the bridge piece.

(c) Revised Stage 4 and Stage 5 bridge piece assemblies are introduced, 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 has been introduced to accept the dowels.

(d) Reduced length bolts have been introduced, to attach the bridge piece assemblies to the unison ring assemblies, to suit the revised dowel arrangement.

(e) The location dowels for the bridge piece attaching bolts are deleted.

(f) Washers are introduced beneath the attaching bolt heads on VIGV, Stage 3 and (dependent upon previous mod standard) Stage 4 and Stage 5.

(g) Revised strip washers are introduced to the Stage 4 and Stage 5 bridge pieces (dependent upon previous mod standard) beneath the attaching bolt heads, similar to the existing items except for the following:

(i) The profile has been revised to fit under two bolts instead of one.

(ii) A recess is introduced 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) Existing parts may be reworked.

(3) This Service Bulletin is in five parts as follows:

Part 1

Covers full embodiment of HP compressor VIGV, Stage 3, Stage 4 and Stage 5.

Part 2

Covers embodiment of HP compressor VIGV.

Part 3

Covers embodiment of HP compressor stage 3.

Part 4

Covers embodiment of HP compressor stage 4.

Part 5

Covers embodiment of HP compressor stage 5.

E. Compliance

Category Code 6

Accomplish when the sub-assembly (i.e. modules, accessories, components, components build groups) is disassembled sufficiently to afford access to the affected spare parts.

F. Approval

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.

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. Weight and Balance

(1) Weight Change

Minus 1.3 lb. (0,590 kg.)

(2) Moment Arm

5.0in. (127,0 mm.) rearwards of datum.

(3) Datum

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

I. Electrical Load Data

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

J. Software Accomplishment Summary

Not applicable.

K. References

(1) IAE V2500 Service Bulletin V2500-ENG-72-0027 (Introduction of reduced weight front compressor casing).

(2) IAE V2500 Service Bulletin V2500-ENG-72-0084 (Variable stator vanes reduced number of rigging pin brackets).

(3) IAE V2500 Service Bulletin V2500-ENG-72-0348 (Introduction of Stages 4 and 5 VSV bridge pieces with revised method of manufacture).

(4) IAE V2500 Service Bulletin V2500-ENG-72-0385 (Introduction of revised bridge piece assemblies and unison ring assemblies with increased dowel location - new production).

(5) IAE Engineering Change Number 01VR019.

(6) ATA Location

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L. Other Publications Affected

(1) Illustrated Parts Catalog (IPC), S-V2500-1IA, 2IA, 2IB, 3IA, 3IB, 5IA, 5IB, 6IA, 6IB, 7IA, 7IB, 72-41-34 will be revised.

(2) Engine Manual (E-V2500-1IA and E-V2500-3IA), Chapter/Section 72-41-00, 72-41-30, 72-41-34, Cleaning, Disassembly, Assembly, Inspection/Check and Repair.

(3) Aircraft Maintenance Manual (V2500-1IA), Chapter/Section 75-32-42, Removal/Installation.

(4) Aircraft Maintenance Manual (V2500-3IA), Chapter/Section 75-31-02, Removal/Installation.

M. Interchangeability of Parts

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

A modification set may consist of modification Part or any combination of Parts 1, 2, 3, 4 or 5.

2. Material Information

A. Parts required to accomplish the Service Bulletin:

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All Engines

Part 1 or Part 2 of Service Bulletin

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
02202	AS21013	6	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21020	(A)(S1)(1D)
02203	AS43411	2	.Bolt, wire lock double hex	-	AS43418	(A)(S1)(1D)
02205	UP12204	6	.Washer	-	-	(A)(B)
02207	UP12203	2	.Washer	-	-	(A)(B)
02502	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
02515	6A7871	1	..Dowel	-	-	(A)(B)(C)
02520	6A7583	3	..Dowel Assembly	-	-	(A)(B)(C)
02602	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
02615	6A7871	1	..Dowel	-	-	(A)(B)(C)
02620	6A7583	3	..Dowel Assembly	-	-	(A)(B)(C)

Part 1 or Part 3 of Service Bulletin

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03202	AS21013	4	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21020	(A)(S1)(1D)
03205	UP12204	4	.Washer	-	-	(A)(B)
03282	AS21013	4	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21020	(A)(S1)(1D)
03284	AS21008	1	.Bolt, bihex hd (0.250in. dia. x 0.500in.)	-	AS21014	(A)(S1)(1D)
03285	UP12204	4	.Washer	-	-	(A)(B)
03287	BA41252	1	.Spacer, washer	-	-	(A)(B)
03502	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
03530	6A7583	4	..Dowel Assembly	-	-	(A)(B)(C)
03602	UP11019	5	..Pin, headed, baulking	-	-	(A)(B)(C)
03630	6A7583	4	..Dowel Assembly	-	-	(A)(B)(C)
03640	6A7592	1	..Dowel Assembly	-	-	(A)(B)(C)

Part 1 or Part 4 of Service Bulletin

For Engines incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04202	AS21011	8	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21018	(A)(S1)(1D)

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04202	AS21011	8	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21014	(A)(S1)(1D)

For Engines incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04204	6A7859	4	.Washer, strip - Stage 4 - bridge piece	-	6A7414	(S1)(E)(2D)

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04205	UP12204	8	.Washer	-	-	(A)(B)

R All Engines

R FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
R 04225	6A7621	4	..Spacer	-	-	(A)(B)(C)

R

R

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R

For Engines incorporating Service Bulletin V2500-72-0444

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

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04502	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
04520	6A7598	4	..Dowel Assembly	-	-	(A)(B)(C)
04602	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
04620	6A7598	4	..Dowel Assembly	-	-	(A)(B)(C)
04630	6A7601	1	..Bracket assembly	-	-	(A)(B)(C)

Part 1 or Part 5 of Service Bulletin

For Engines incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05202	AS21013	8	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21018	(A)(S1)(1D)

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05202	AS21013	8	.Bolt, bihex hd (0.250in. dia. x 0.812in.)	-	AS21017	(A)(S1)(1D)

For Engines incorporating Service Bulletin V2500-72-0348

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

For Engines not incorporating Service Bulletin V2500-72-0438

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05205	UP12204	8	.Washer	-	-	(A)(B)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05225	6A7621	4	..Spacer	-	-	(A)(B)(C)

For Engines incorporating Service Bulletin V2500-72-0444

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

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05502	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
05520	6A7598	4	..Dowel Assembly	-	-	(A)(B)(C)
05580	6A7609	1	..Bracket Assembly	-	6A2895	(A)(C)(S1)
05602	UP11019	4	..Pin, headed, baulking	-	-	(A)(B)(C)
05630	6A7598	4	..Dowel Assembly	-	-	(A)(B)(C)

B. Parts to be reworked:

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Part 1 or Part 2 of Service Bulletin

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
02200	6A7847	2	.Bridge piece assembly - VIGV	-	6A2510	(S1)(3D)

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FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
02440	6A7849	1	.Ring assembly - VIGV, upper unison	-	6A3535	(S1)(3D)
02540	6A7851	1	.Ring assembly - VIGV, lower unison	-	6A3537	(S1)(3D)

Part 1 or Part 3 of Service Bulletin

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03200	6A7855	1	.Bridge piece assembly - Stage 3, port	-	6A2523	(S1)(3D)
03280	6A7853	1	.Bridge piece assembly - Stage 3, stbd	-	6A2521	(S1)(3D)
03440	6A7588	1	.Ring assembly - Stage 3, upper unison	-	6A3982	(S1)(3D)
03540	6A7590	1	.Ring assembly - Stage 3, lower unison	-	6A3987	(S1)(3D)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03440	6A7861	1	.Ring assembly - Stage 3, upper unison	-	6A3539	(S1)(3D)
03440	6A7863	1	.Ring assembly - Stage 3, upper unison	-	6A3753	(S1)(3D)
03540	6A7865	1	.Ring assembly - Stage 3, lower unison	-	6A3541	(S1)(3D)

All Engines

Part 1 or Part 4 of Service Bulletin

For Engines incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04200	6A7603	2	.Bridge piece assembly - Stage 4	-	6A7540	(S1)(3D)

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04200	6A7858	2	.Bridge piece assembly - Stage 4	-	6A4340	(S1)(3D)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04200	6A7866	2	.Bridge piece assembly - Stage 4	-	6A2528	(S1)(3D)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04440	6A7596	1	.Ring assembly - Stage 4, upper unison	-	6A3983	(S1)(3D)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04440	6A7868	1	.Ring assembly - Stage 4, upper unison	-	6A3543	(S1)(3D)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04540	6A7599	1	.Ring assembly - Stage 4, lower unison	-	6A3545	(S1)(3D)

Part 1 or Part 5 of Service Bulletin

For Engines incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05200	6A7611	2	.Bridge piece assembly - Stage 5	-	6A7539	(S1)(3D)

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05200	6A7860	2	.Bridge piece assembly - Stage 5	-	6A4333	(S1)(3D)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05200	6A7869	2	.Bridge piece assembly - Stage 5	-	6A2534	(S1)(3D)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05440	6A7605	1	.Ring assembly - Stage 5, upper unison	-	6A3984	(S1)(3D)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05440	6A8086	1	.Ring assembly - Stage 5, upper unison	-	6A3547	(S1)(3D)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05540	6A7607	1	.Ring assembly - Stage 5, lower unison	-	6A3549	(S1)(3D)

C. New production parts:

None.

D. Redundant parts:

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Part 1 or Part 2 of Service Bulletin

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
02206	-	6	.Dowel, hollow	-	6A2520	(E)
02208	-	2	.Dowel, hollow	-	6A2519	(E)
02470	-	1	..Bracket assembly - IGV Act. ring	-	6A2861	(E)
02490	-	1	..Bracket assembly - IGV Act. ring	-	6A2863	(E)
02570	-	1	..Bracket assembly - IGV Act. ring	-	6A2863	(E)
02590	-	1	..Bracket assembly - IGV Act. ring	-	6A2861	(E)

Part 1 or Part 3 of Service Bulletin

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03206	-	4	.Dowel, hollow	-	6A2520	(E)
03286	-	4	.Dowel, hollow	-	6A2520	(E)
03288	-	1	.Dowel, hollow	-	6A2527	(E)
03480	-	1	..Bracket assembly - Stage 3 conn.	-	6A3660	(E)
03490	-	1	..Bracket assembly - Stage 3 conn.	-	6A3662	(E)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03520	-	1	..Bracket assembly - Stage 3 rig pin	-	6A3678	(4D)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03580	-	1	..Bracket assembly	-	6A2877	(E)
03590	-	1	..Bracket assembly - Stage 3 Act. ring	-	6A2873	(E)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
03620	-	1	..Bracket assembly - Stage 3 rig pin, lower	-	6A3678	(E)

All Engines

Part 1 or Part 4 of Service Bulletin

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04206	-	8	.Dowel, hollow	-	6A2527	(E)

A1 Engines Only

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04470	-	2	..Bracket assembly	-	6A2881	(5D)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
04490	-	2	..Bracket assembly - Stage 4 Act. ring	-	6A2883	(E)
04570	-	1	..Bracket assembly - Stage 4 Act. ring	-	6A2881	(6D)
04590	-	2	..Bracket assembly - Stage 4 Act. ring	-	6A2883	(E)

Part 1 or Part 5 of Service Bulletin

For Engines not incorporating Service Bulletin V2500-72-0348

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05206	-	8	.Dowel, hollow	-	6A2536	(E)

All Engines

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
05490	-	2	..Bracket assembly - Stage 5 Act. ring	-	6A2891	(E)
05590	-	2	..Bracket assembly - Stage 5 Act. ring	-	6A2891	(E)

E. Instructions disposition codes:

(A) New part is currently available.

(B) Additional.

(C) New part is supplied for rework purposes only and will not be made available as a replenishment spare.

(E) Old part becomes redundant on accomplishment of this Service Bulletin.

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

(S1) Old and new parts are not interchangeable.

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

(2D) Quantity reduced from 8 to 4.

(3D) Old part may be reworked and re-identified to the new part number.

(4D) Quantity reduced from 2 to 1.

(5D) Quantity reduced from 4 to 2.

(6D) Quantity reduced from 3 to 2.

3. Accomplishment Instructions

A. Rework Instructions

(1) Rework the following parts:

Part No.	Description
6A3535	Ring assembly - VIGV, upper unison
6A3537	Ring assembly - VIGV, lower unison

Consumable Materials

CoMat 02-124	Marking ink
CoMat 06-022	Fluorescent penetrant
CoMat 03-366	Weld filler material

Standard Equipment

Vertical drilling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

Manual welding equipment

CAUTION: TITANIUM COMPONENT - YOU MUST USE SILICON CARBIDE TYPE ABRASIVE WHEELS, STONES AND PAPERS TO DRESS, BLEND AND POLISH THIS COMPONENT. AVOID BUILD UP OF HEAT BY APPLYING ONLY GENTLE PRESSURE AND KEEPING TOOL SPEED AS LOW AS POSSIBLE. YOU MUST ENSURE THAT NO SPARKS ARE PRODUCED WHEN YOU DRESS, BLEND OR POLISH THIS COMPONENT. IF THE MATERIAL SHOWS A CHANGE IN COLOUR, TO A DARKER THAN LIGHT STRAW COLOUR, THE COMPONENT MUST BE REJECTED.

PROCEDURE	RELATED DATA
(a) Remove brackets and discard	See Figures 1 and 2.
(b) Apply marking ink to the areas for rework	See Figures 3 and 4. Use CoMat 02-124 marking ink. Use standard workshop equipment.

(c) Mark the rework areas for the positions of location pin holes	See Figures 3 and 4. Use standard workshop equipment.
(d) Drill and countersink the location pin holes	See Figures 3 and 4. Use a vertical drilling machine, with standard workshop equipment.
(e) Remove sharp edges	Use standard workshop equipment.
(f) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(g) Visually examine and measure the dimensions of the reworked areas	See Figures 3 and 4. Use workshop inspection equipment.
(h) Install the dowels in the unison rings	
(i) Install the dowels in the unison rings at positions identified AR (2 off)	See Figures 3, 4 and 7. Use Dowel 6A7871 (2 off).
(ii) Install the dowel assemblies in the unison rings at positions identified AS (6 off)	See Figures 3, 4 and 8. Use Dowel Assembly 6A7583 (6 off). Position the inboard dowel assemblies first.
(iii) Install the location pins	See Figures 7 and 8. Use UP11019 location pin (8 off). Use standard workshop equipment.
(iv) Tack weld location pins	See Figures 7, 8 and 36. Refer to SPM TASK 70-31-02-310-501. Use 2 equi-spaced tacks per pin. Use CoMat 03-366 filler material if required.
(i) Do a visual inspection of the welds	Use workshop inspection equipment. Cracks are not permitted.

(j) Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A3535	6A7849
6A3537	6A7851

(2) Rework the following part:

Part No.	Description
6A2510	Bridge piece assembly - VIGV

Consumable Materials

CoMat 06-022	Fluorescent penetrant

Standard Equipment

Vertical drilling machine

Milling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

PROCEDURE	RELATED DATA
(a) Counterbore holes at positions identified AR (2 off)	See Figures 3 and 5. Use a milling machine, with standard workshop equipment.
(b) Drill and countersink holes at positions identified AS (6 off)	See Figures 3 and 6. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(c) Counterbore holes at positions identified AS (6 off)	See Figures 3 and 6. Use a milling machine, with standard workshop equipment.
(d) Remove sharp edges	Use standard workshop equipment.

(e)	Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(f)	Visually examine and measure the dimensions of the reworked areas	See Figures 3, 5 and 6. Use workshop inspection equipment.
(g)	Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A2510	6A7847

(3) Rework the following parts:

Part No.	Description
6A3982	Ring assembly - Stage 3, upper unison
6A3539	Ring assembly - Stage 3, upper unison - A1 engines only
6A3753	Ring assembly - Stage 3, upper unison - A1 engines only
6A3987	Ring assembly - Stage 3, lower unison
6A3541	Ring assembly - Stage 3, lower unison - A1 engines only

Consumable Materials

CoMat 02-124	Marking ink
CoMat 06-022	Fluorescent penetrant
CoMat 03-366	Weld filler material

Standard Equipment

Vertical drilling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

Manual welding equipment

CAUTION: TITANIUM COMPONENT - YOU MUST USE SILICON CARBIDE TYPE ABRASIVE WHEELS, STONES AND PAPERS TO DRESS, BLEND AND POLISH THIS COMPONENT. AVOID BUILD UP OF HEAT BY APPLYING ONLY GENTLE PRESSURE AND KEEPING TOOL SPEED AS LOW AS POSSIBLE. YOU MUST ENSURE THAT NO SPARKS ARE PRODUCED WHEN YOU DRESS, BLEND OR POLISH THIS COMPONENT. IF THE MATERIAL SHOWS A CHANGE IN COLOUR, TO A DARKER THAN LIGHT STRAW COLOUR, THE COMPONENT MUST BE REJECTED.

PROCEDURE	RELATED DATA
(a) Remove brackets and discard	See Figures 1 and 9.
(b) Apply marking ink to the areas for rework	See Figures 10, 11 and 12. Use CoMat 02-124 marking ink. Use standard workshop equipment.
(c) Mark the rework areas for the positions of location pin holes at positions identified AV and AX.	See Figures 10, 11 and 12. Use standard workshop equipment.
(d) Drill and countersink the location pin holes identified AW and AZ	See Figures 10, 11 and 12. Use a vertical drilling machine, with standard workshop equipment.
(e) Counterbore the location pin holes identified AW and AZ	See Figures 10, 11 and 12. Use a milling machine, with standard workshop equipment.
(f) Drill oversize dowel location holes at positions identified AV and AX	See Figures 10, 11 and 12. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(g) Remove sharp edges	Use standard workshop equipment.
(h) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.

(i) Visually examine and measure the dimensions of the reworked areas	See Figures 10, 11 and 12. Use workshop inspection equipment.
(j) Install the dowels in the unison rings	
(i) Install the dowels in the lower unison ring at position identified AX	See Figures 10, 12 and 16. Use Dowel assembly 6A7592 (1 off).
(ii) Install the dowel assemblies in the unison rings at positions identified AV	See Figures 10, 11 and 15. Use Dowel Assembly 6A7583 (8 off). Position the inboard dowel assemblies first.
(iii) Install the location pins at positions AW and AZ	See Figures 11, 12, 15 and 16. Use UP11019 location pin (9 off). Use standard workshop equipment.
(iv) Tack weld location pins	See Figures 14, 15 and 17. Refer to SPM TASK 70-31-02-310-501. Use 2 equi-spaced tacks per pin. Use CoMat 03-366 filler material if required. Weld not to protrude above pin head.
(k) Do a visual inspection of the welds	Use workshop inspection equipment. Cracks are not permitted.
(l) Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A3982	6A7588
6A3987	6A7590
6A3539	6A7861
6A3753	6A7863
6A3541	6A7865

(4) Rework the following parts:

Part No.	Description
6A2521	Bridge piece assembly - Stage 3 - Starboard
6A2523	Bridge piece assembly - Stage 3 - Port

Consumable Materials

CoMat 06-022	Fluorescent penetrant

Standard Equipment

Vertical drilling machine

Milling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

PROCEDURE	RELATED DATA
(a) Drill and countersink oversize holes at positions identified AV (8 off)	See Figures 10 and 13. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(b) Drill and countersink oversize hole at position identified AX (1 off)	See Figures 10 and 14. Use a vertical drilling machine, with standard workshop equipment. Hole to be positioned on centre of existing hole.
(c) Counterbore holes at positions identified AV (8 off)	See Figures 10 and 13. Use a milling machine, with standard workshop equipment.
(d) Counterbore hole at position identified AX (1 off)	See Figures 10 and 14. Use a milling machine, with standard workshop equipment.
(e) Remove sharp edges	Use standard workshop equipment.

(f)	Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(g)	Visually examine and measure the dimensions of the reworked areas	See Figures 10, 13 and 14. Use workshop inspection equipment.
(h)	Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A2521	6A7853
6A2523	6A7855

(5) Rework the following parts:

Part No.	Description
6A3983	Ring assembly - Stage 4, upper unison
6A3543	Ring assembly - Stage 4, upper unison - A1 engines only
6A3545	Ring assembly - Stage 4, lower unison

Consumable Materials

CoMat 02-124	Marking ink
CoMat 06-022	Fluorescent penetrant
CoMat 03-366	Weld filler material

Standard Equipment

Vertical drilling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

Manual welding equipment

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PROCEDURE	RELATED DATA
(a) Remove brackets and discard	See Figures 1, 18 and 20.
(b) Apply marking ink to the areas for rework	See Figures 19, 21 and 22. Use CoMat 02-124 marking ink. Use standard workshop equipment.
(c) Mark the rework areas for the positions of location pin holes	See Figures 19, 21 and 22. Use standard workshop equipment.
(d) Drill and countersink the location pin holes	See Figures 19, 21 and 22. Use a vertical drilling machine, with standard workshop equipment.
(e) Drill oversize dowel assembly holes	See Figures 19, 21 and 22. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(f) Remove sharp edges	Use standard workshop equipment.
(g) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.

	(h) Visually examine and measure the dimensions of the reworked areas	See Figures 19, 21 and 22. Use workshop inspection equipment.
	(i) Install the dowels in the unison rings	
	(i) Install the dowels in the unison rings	See Figures 19, 21, 22, 23, 24 and 26. Use Dowel assembly 6A7598 (8 off). Position the inboard dowel assemblies first.
	(ii) Install the location pins	See Figures 19, 21, 22, 24 and 26. Use UP11019 location pin (8 off). Use standard workshop equipment.
	(iii) Tack weld location pins	See Figures 24, 26 and 36. Refer to SPM TASK 70-31-02-310-501. Use 2 equi-spaced tacks per pin. Use CoMat 03-366 filler material if required.
	(j) Do a visual inspection of the welds	Use workshop inspection equipment. Cracks are not permitted.
R R R	(k) Install the Bracket Assembly	See Figures 1, 18 and 20. Use Bracket Assembly 6A7601 (1 off). Use standard workshop equipment.
	(l) Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A3543	6A7868
6A3545	6A7599
6A3983	6A7596

(6) Rework the following parts (Pre SB 72-0348)

Part No.	Description
6A2528	Bridge piece assembly - Stage 4 - A1 engines only
6A4340	Bridge piece assembly - Stage 4

Consumable Materials

CoMat 06-022 Fluorescent penetrant

Standard Equipment

Vertical drilling machine

Milling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

PROCEDURE	RELATED DATA
(a) Drill and countersink oversize holes (8 off)	See Figures 19 and 23. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(b) Counterbore holes (8 off)	See Figures 19 and 23. Use a milling machine, with standard workshop equipment. No witness of existing counterbore is permissable.
(c) Remove sharp edges	Use standard workshop equipment.
(d) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(e) Visually examine and measure the dimensions of the reworked areas	See Figures 19 and 23. Use workshop inspection equipment.

(f) Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.	
	EXISTING	RENUMBER
	6A2528	6A7866
	6A4340	6A7858

(7) Rework the following part (SB 72-0348)

Part No.	Description
6A7540	Bridge piece assembly - Stage 4

Consumable Materials

CoMat 06-022	Fluorescent penetrant

Standard Equipment

Vertical drilling machine

Milling machine

Portable grinding equipment

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

PROCEDURE	RELATED DATA
(a) Remove bridge piece end (4 positions)	See Figures 21 and 25. Use portable grinding equipment. A witness of weld on the bridge piece is permissable.
(b) Remove burrs	See Figure 25. Use standard workshop equipment.
(c) Remove spacers (8 off)	

(d)	Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(e)	Visually examine and measure the dimensions of the reworked areas	See Figures 21 and 25. Use workshop inspection equipment.
(f)	Install spacers	See Figure 25. Use Spacer 6A7621 (8 off). Ensure contact between spacer and bridge piece is achieved.
(g)	Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A7540	6A7603

(8) Rework the following parts:

Part No.	Description
6A3984	Ring assembly - Stage 5, upper unison
6A3547	Ring assembly - Stage 5, upper unison - A1 engines only
6A3549	Ring assembly - Stage 5, lower unison

Consumable Materials

CoMat 02-124	Marking ink
CoMat 06-022	Fluorescent penetrant
CoMat 03-366	Weld filler material

Standard Equipment

Vertical drilling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

Manual welding equipment

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PROCEDURE	RELATED DATA
(a) Remove brackets and discard	See Figures 1, 27 and 29.
(b) Apply marking ink to the areas for rework	See Figures 28, 30 and 31. Use CoMat 02-124 marking ink. Use standard workshop equipment.
(c) Mark the rework areas for the positions of location pin holes	See Figures 28, 30 and 31. Use standard workshop equipment.
(d) Drill and countersink the location pin holes	See Figures 28, 30 and 31. Use a vertical drilling machine, with standard workshop equipment.
(e) Drill oversize dowel assembly holes	See Figures 28, 30 and 31. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(f) Remove sharp edges	Use standard workshop equipment.
(g) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.

	(h) Visually examine and measure the dimensions of the reworked areas	See Figures 28, 30 and 31. Use workshop inspection equipment.
	(i) Install the dowels in the unison rings	
	(i) Install the dowels in the unison rings	See Figures 28, 30, 31, 33 and 35. Use Dowel assembly 6A7598 (8 off). Position the inboard dowel assemblies first.
	(ii) Install the location pins	See Figures 28, 30, 31, 33 and 35. Use UP11019 location pin (8 off). Use standard workshop equipment.
	(iii) Tack weld location pins	See Figures 33, 35 and 36. Refer to SPM TASK 70-31-02-310-501. Use 2 equi-spaced tacks per pin. Use CoMat 03-366 filler material if required.
	(j) Do a visual inspection of the welds	Use workshop inspection equipment. Cracks are not permitted.
R R R	(k) Install the Bracket Assembly	See Figures 1, 27 and 29. Use Bracket Assembly 6A7609 (1 off). Use standard workshop equipment.
	(l) Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A3984	6A7605
R 6A3547	6A8086
6A3549	6A7607

(9) Rework the following parts (Pre SB 72-0348)

Part No.	Description
6A2534	Bridge piece assembly - Stage 5 - A1 engines only
6A4333	Bridge piece assembly - Stage 5

Consumable Materials

CoMat 06-022 Fluorescent penetrant

Standard Equipment

Vertical drilling machine

Milling machine

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

PROCEDURE	RELATED DATA
(a) Drill and countersink oversize holes (8 off)	See Figures 28 and 32. Use a vertical drilling machine, with standard workshop equipment. Holes to be positioned on centre of existing holes.
(b) Counterbore holes (8 off)	See Figures 28 and 32. Use a milling machine, with standard workshop equipment. No witness of existing counterbore is permissable.
(c) Remove sharp edges	Use standard workshop equipment.
(d) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(e) Visually examine and measure the dimensions of the reworked areas	See Figures 28 and 32. Use workshop inspection equipment.
(f) Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A2534	6A7869
6A4333	6A7860

(10) Rework the following part (SB 72-0348)

Part No.	Description
6A7539	Bridge piece assembly - Stage 5

Consumable Materials

CoMat 06-022	Fluorescent penetrant

Standard Equipment

Vertical drilling machine

Milling machine

Portable grinding equipment

Standard workshop equipment

Penetrant crack test equipment

Workshop inspection equipment

Vibro-engraving tool

PROCEDURE	RELATED DATA
(a) Remove bridge piece end (4 positions)	See Figures 30 and 34. Use portable grinding equipment. A witness of weld on the bridge piece is permissable.
(b) Remove burrs	See Figure 34. Use standard workshop equipment.
(c) Remove spacers (8 off)	
(d) Do a local penetrant crack test of the reworked areas	Refer to SPM TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with penetrant crack test equipment. Cracks are not permitted.
(e) Visually examine and measure the dimensions of the reworked areas	See Figures 30 and 34. Use workshop inspection equipment.

(f)	Install spacers	See Figure 34. Use Spacer 6A7621 (8 off). Ensure contact between spacer and bridge piece is achieved.
(g)	Cancel the existing part number and re-identify with the new part number	Use vibro-engraving equipment. Refer to SPM TASK 70-09-00-400-501, SUBTASK 70-09-00-400-001.

EXISTING	RENUMBER
6A7539	6A7611

B. Assembly Instructions

For the correct installation procedures refer to the following publications:

(1) Engine Manual (EM) E-V2500-1IA Chapter/Section 72-41-00, Assembly-02, Config-01 and Config-02.

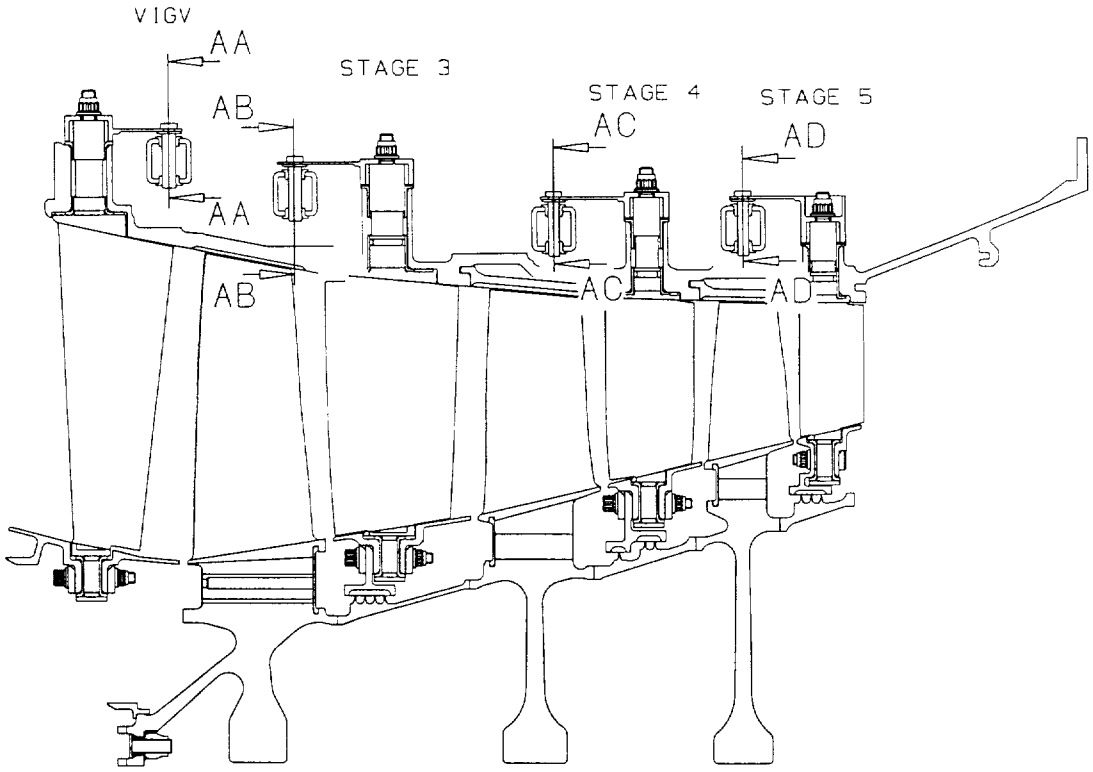
(2) Engine Manual (EM) E-V2500-3IA Chapter/Section 72-41-00, Assembly-02.

(3) Aircraft Maintenance Manual (AMM) V2500-1IA Chapter/Section 75-32-42, Removal/Installation, Config-01 and Config-02.

(4) Aircraft Maintenance Manual (AMM) V2500-3IA Chapter/Section 75-31-02, Removal/Installation.

C. Recording Instructions

A record of accomplishment is required.

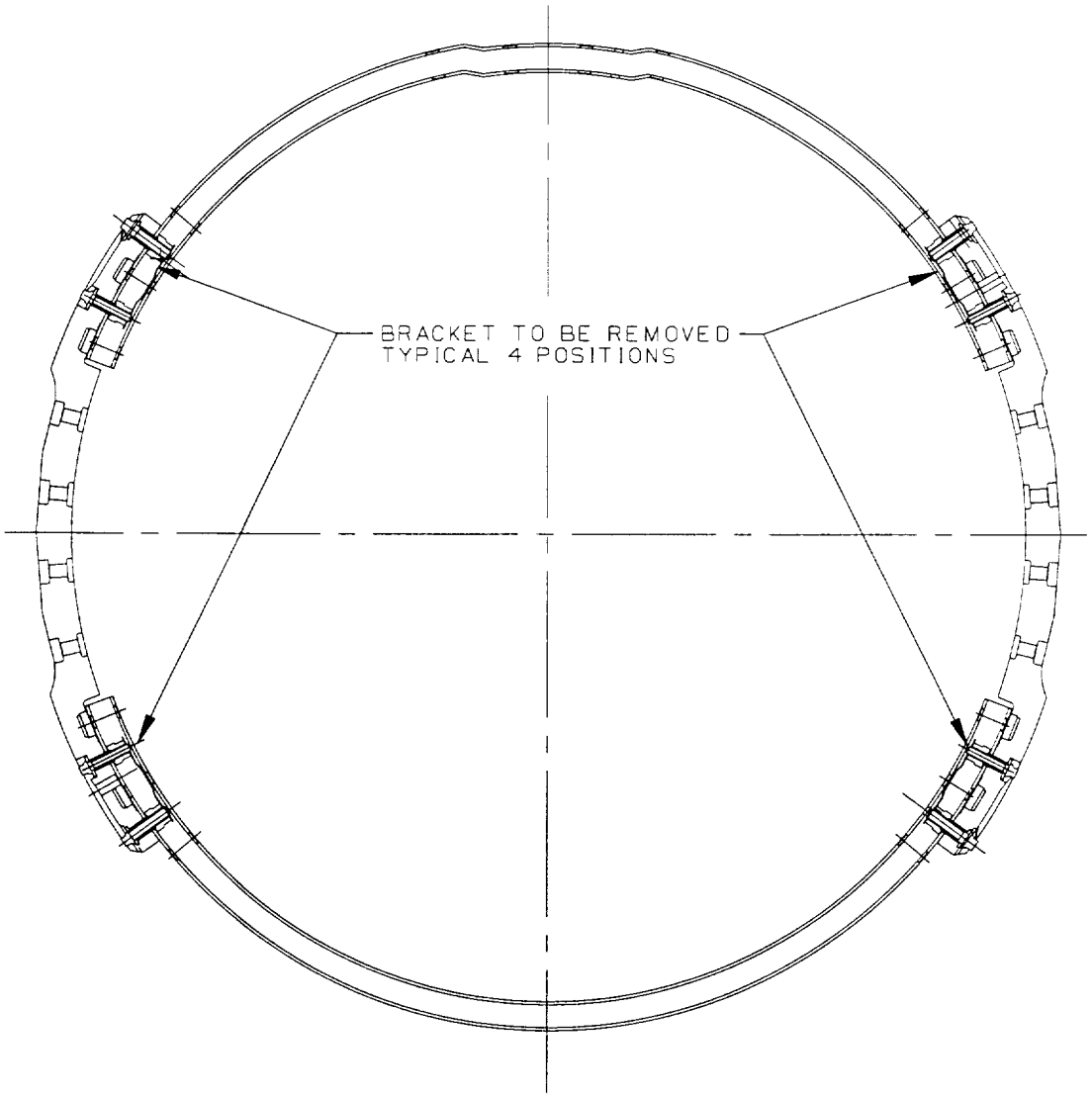


TYPICAL SECTION THRU HP COMPRESSOR

MACHINE WHERE MARKED ✓
REMOVE THE SHARP EDGES 0.012 ± 0.008in (0.30 ± 0.20mm)UNLESS SPECIFIED DIFFERENTLY.
THE MACHINED SURFACE FINISH TO BE 63 MICROINCHES(1.6 MICROMETRES)
THE GEOMETRIC SYMBOLS ARE GIVEN IN THE I.S.O. MANUAL (1101)
ANGLES ARE IN DEGREES AND DECIMAL PARTS OF A DEGREE

dem0000735

Typical section through HP Compressor
Fig. 1



SECTION AA

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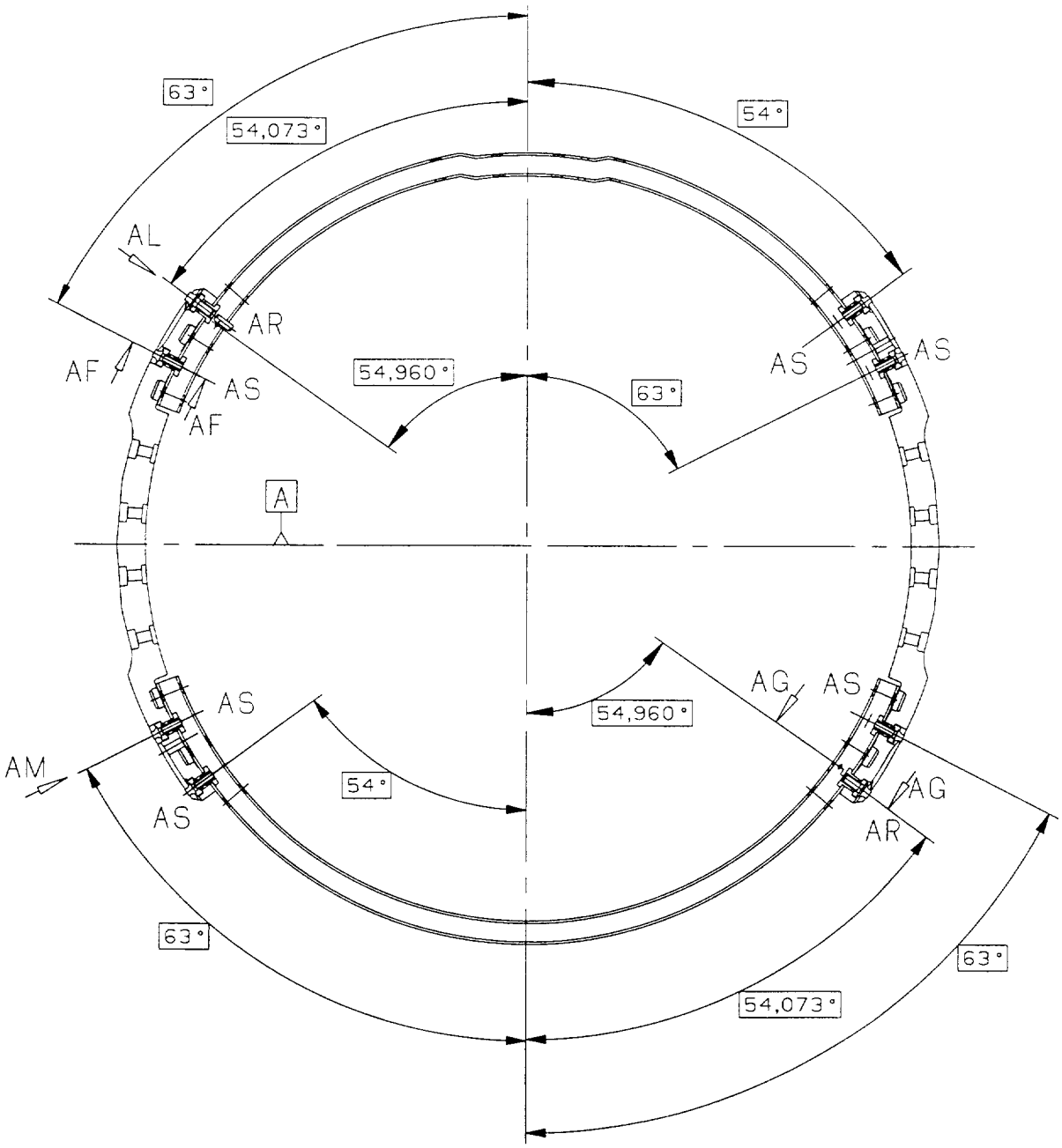
REMOVAL OF REDUNDANT BRACKETS
WITHIN REWOKING OF VIGV UNISON RINGS
AND BRIDGE PIECES

Removal of redundant brackets - Rework of VIGV unison rings and bridge pieces
Fig.2



SECTION AA

REWORKING OF VIGV UNISON
RINGS AND BRIDGE PIECES

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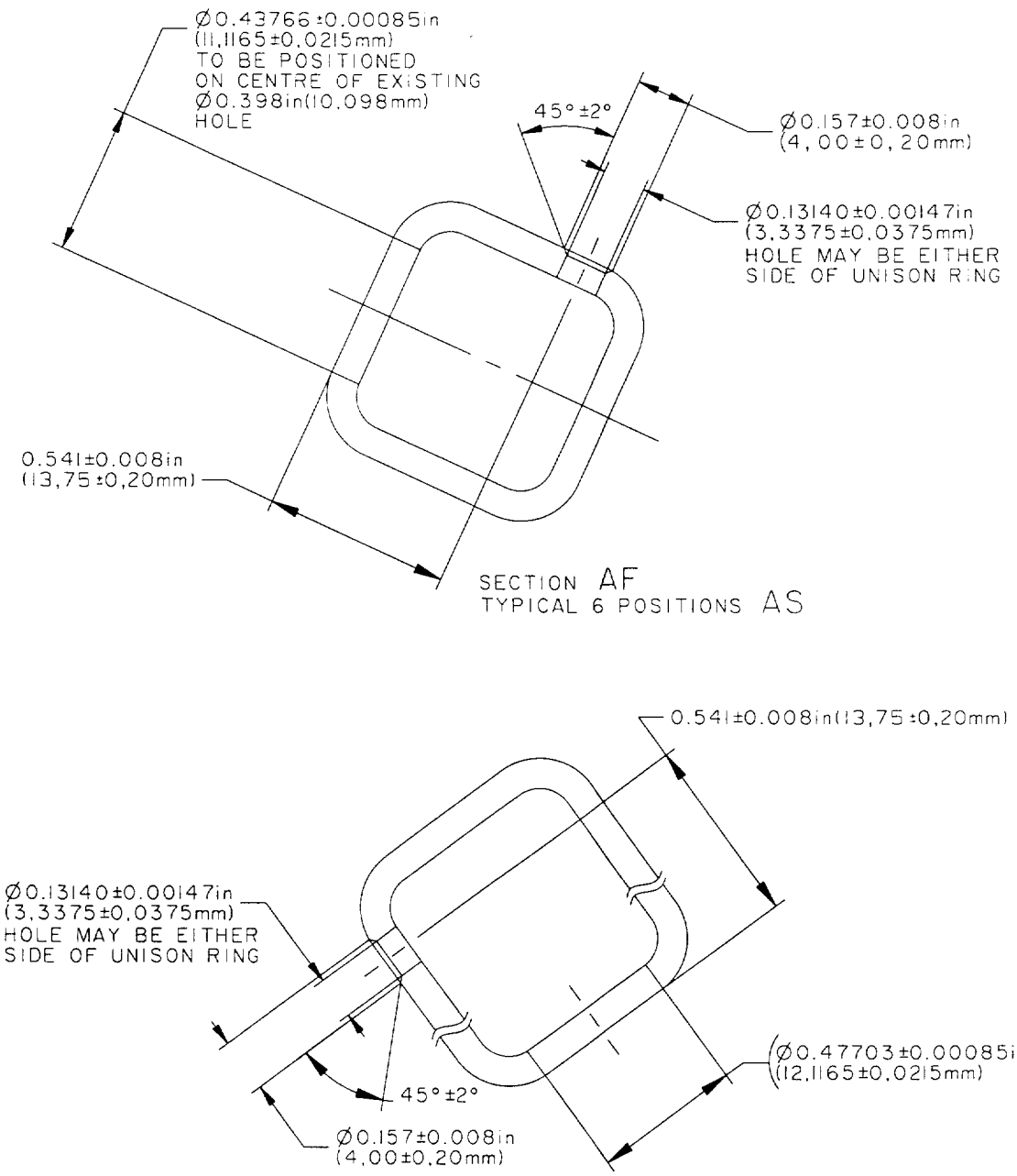
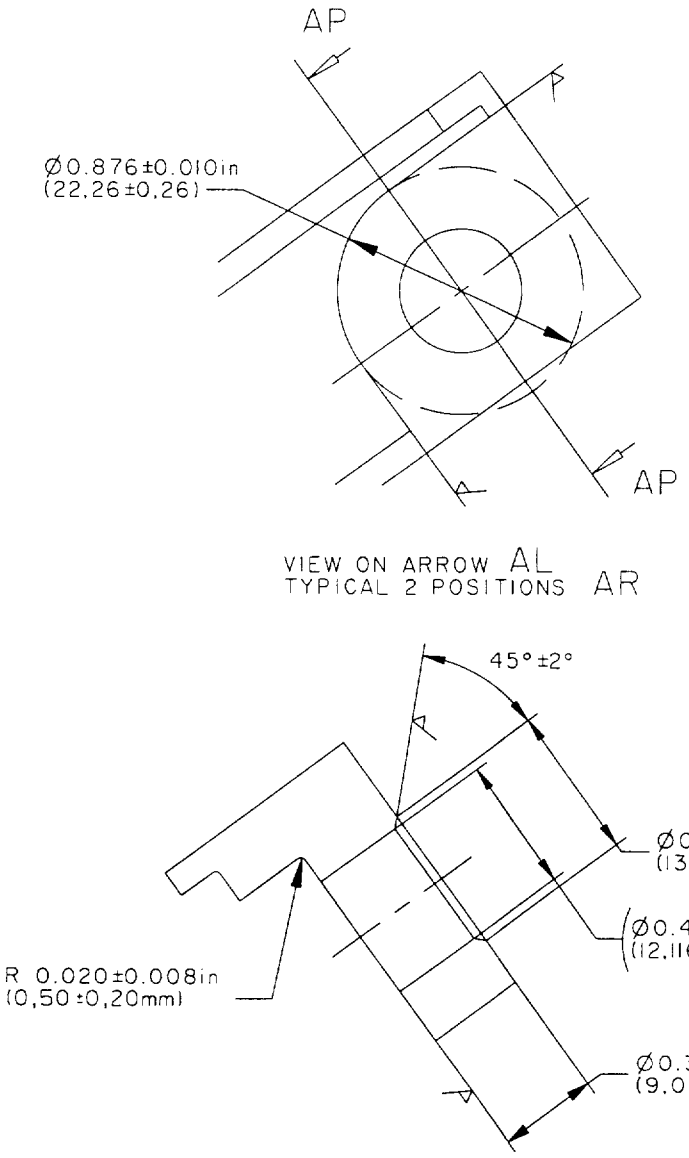
Rework of VIGV unison rings and bridge pieces
Fig.3

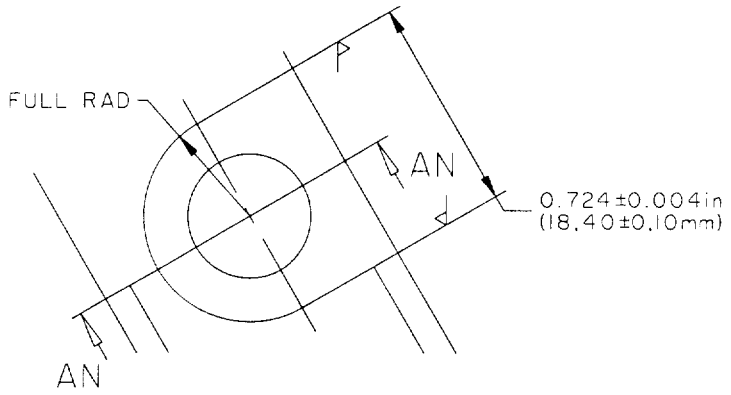


Rework of VIGV unison rings
Fig.4

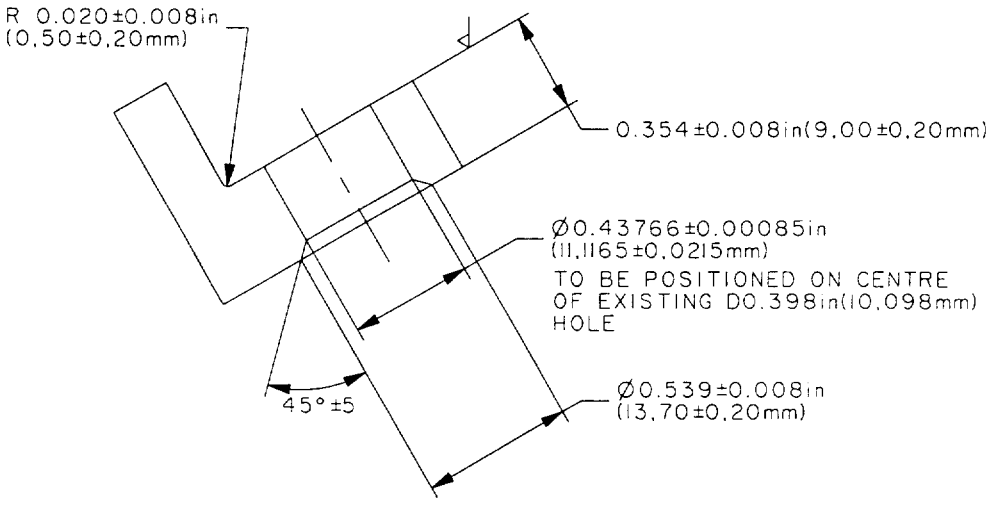


dem0000739

Rework of VIGV bridge pieces
Fig.5



VIEW ON ARROW AM
TYPICAL 6 POSITIONS AS

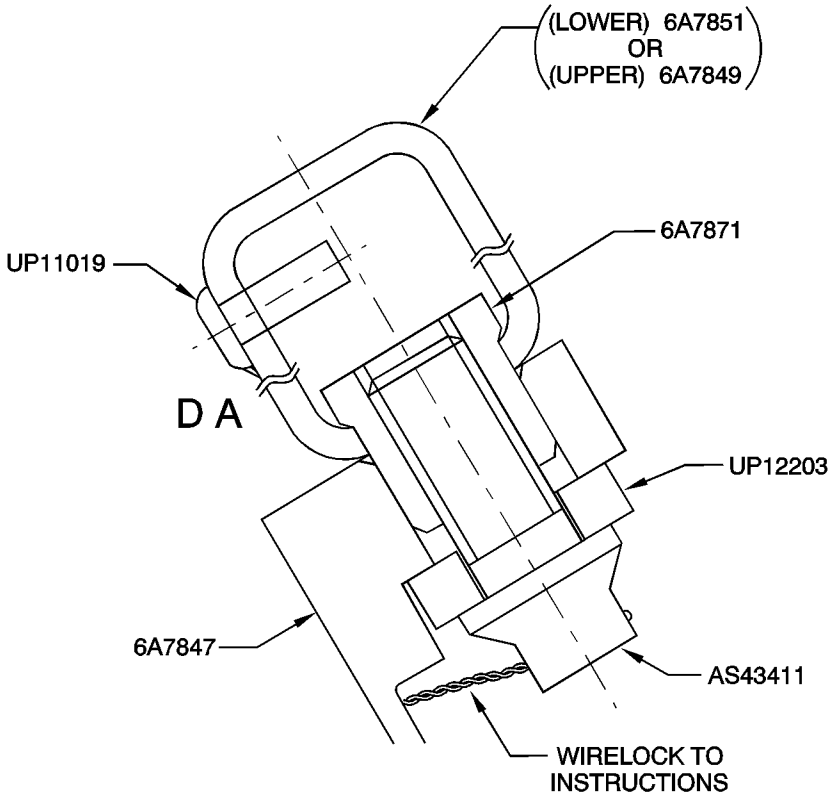


SECTION AN

REWORKING OF V.I.G.V. BRIDGE PIECES

dem0000740

Rework of VIGV bridge pieces
Fig.6

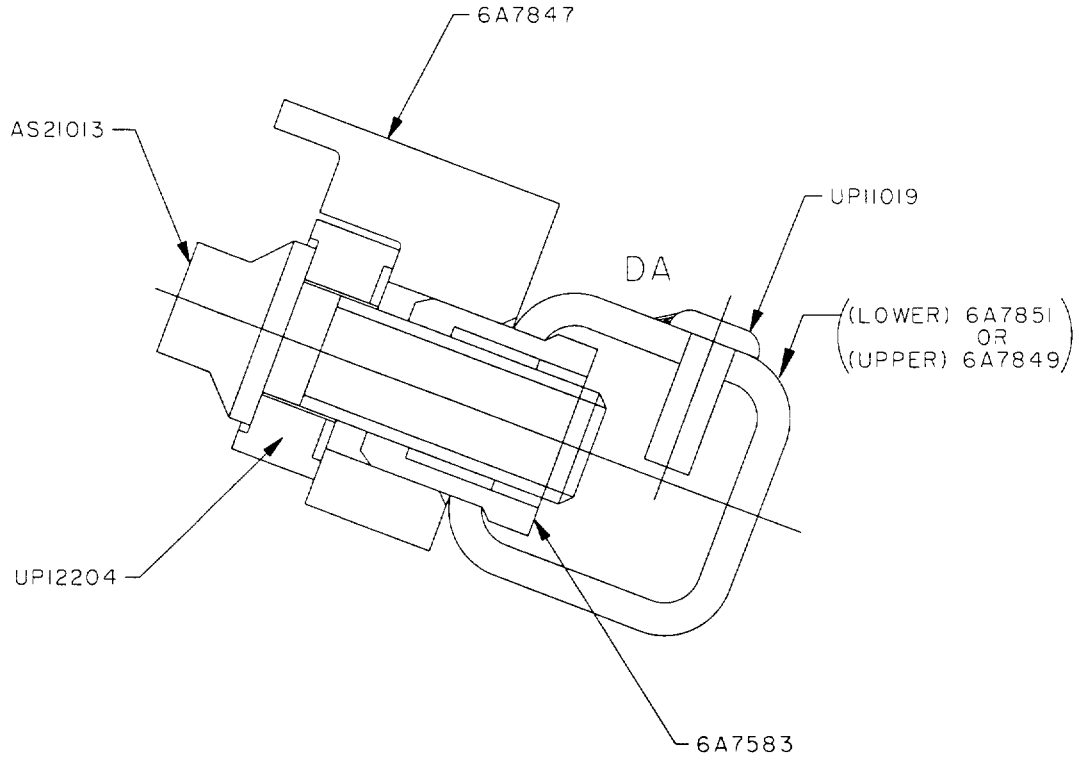


SECTION A G
TYPICAL 2 POSITIONS A R
SHOWING COMPLETE ASSEMBLY

POST MODIFICATION ASSEMBLY OF
VIGV UNISON RINGS AND BRIDGE PIECES

dem0000741a

R Post Modification assembly of VIGV unison rings and bridge pieces
R Fig.7

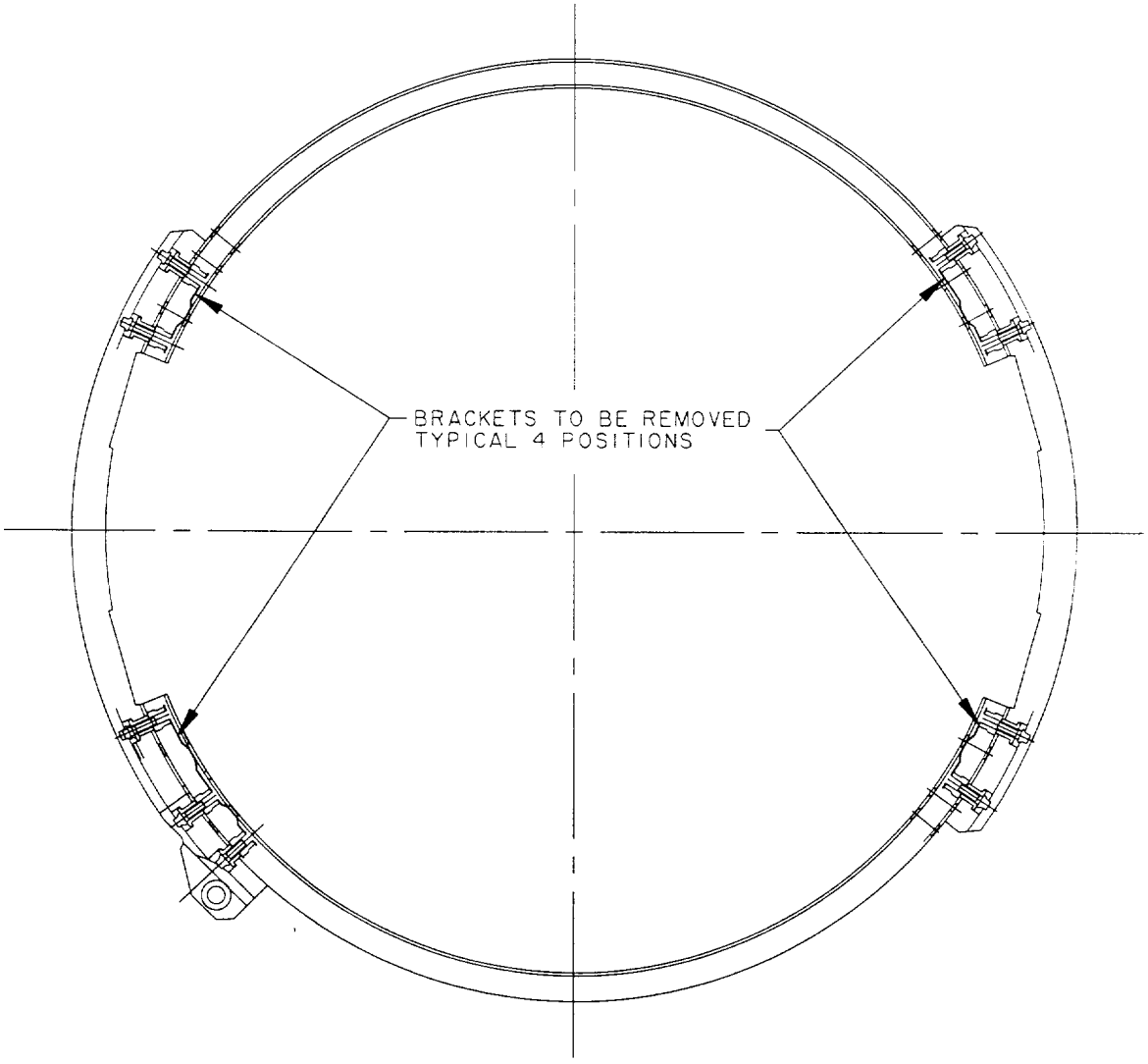


SECTION AF
SHOWING COMPLETE ASSEMBLY
TYPICAL 6 POSITIONS AS

dem0000742

POST MODIFICATION ASSEMBLY OF
VIGV UNISON RINGS AND BRIDGE PIECES

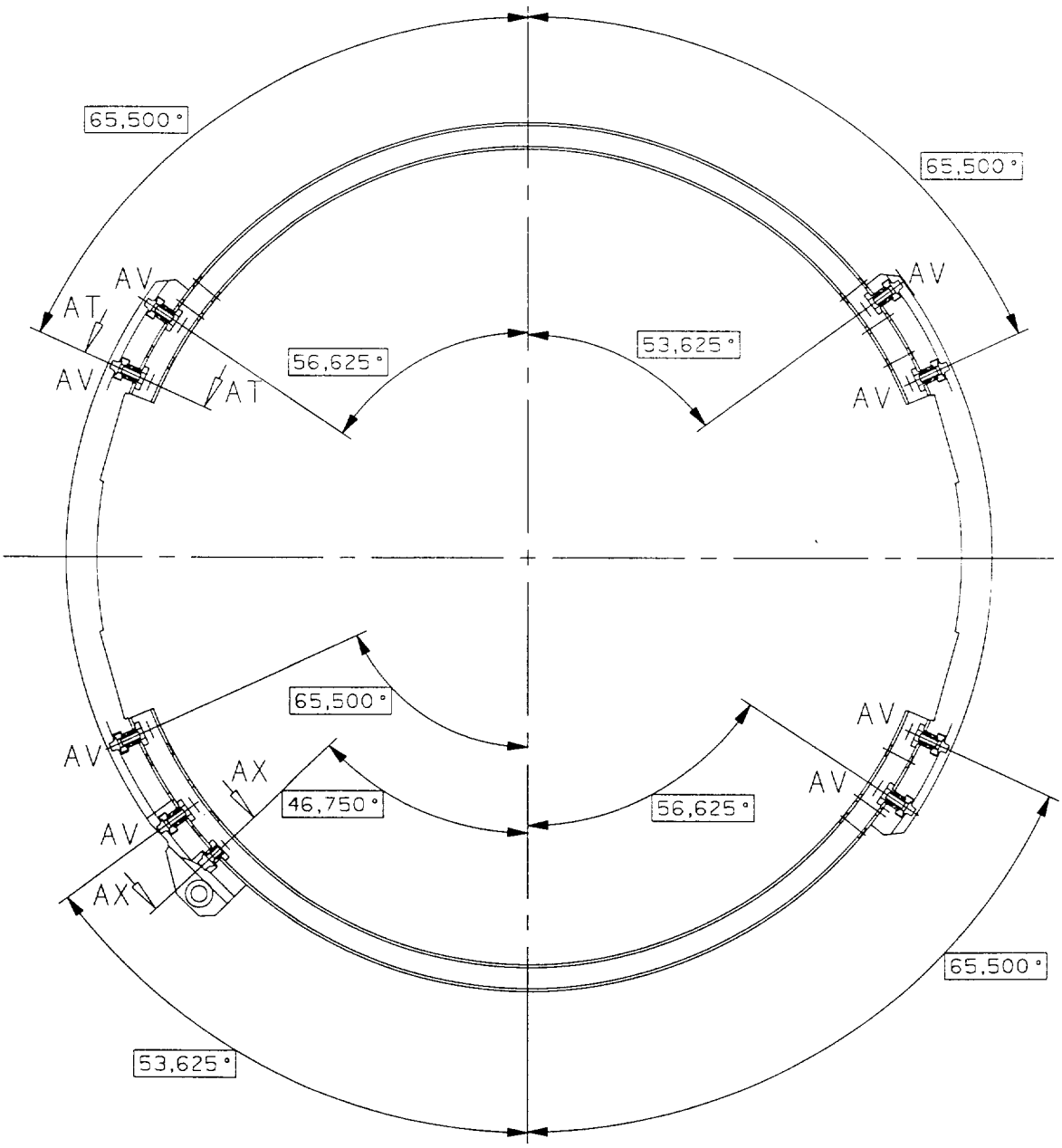
Post Modification assembly of VIGV unison rings and bridge pieces
Fig.8



demO000743

REMOVAL OF REDUNDANT BRACKETS
WITHIN REWORKING OF STAGE 3 UNISON RINGS
AND BRIDGE PIECES

Removal of redundant brackets - Rework of Stage 3 unison rings and bridge pieces
Fig.9

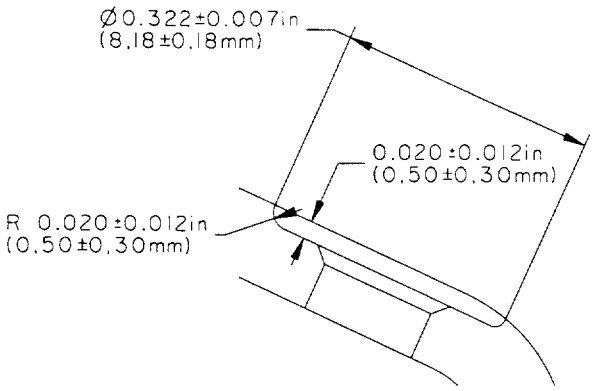


SECTION AB

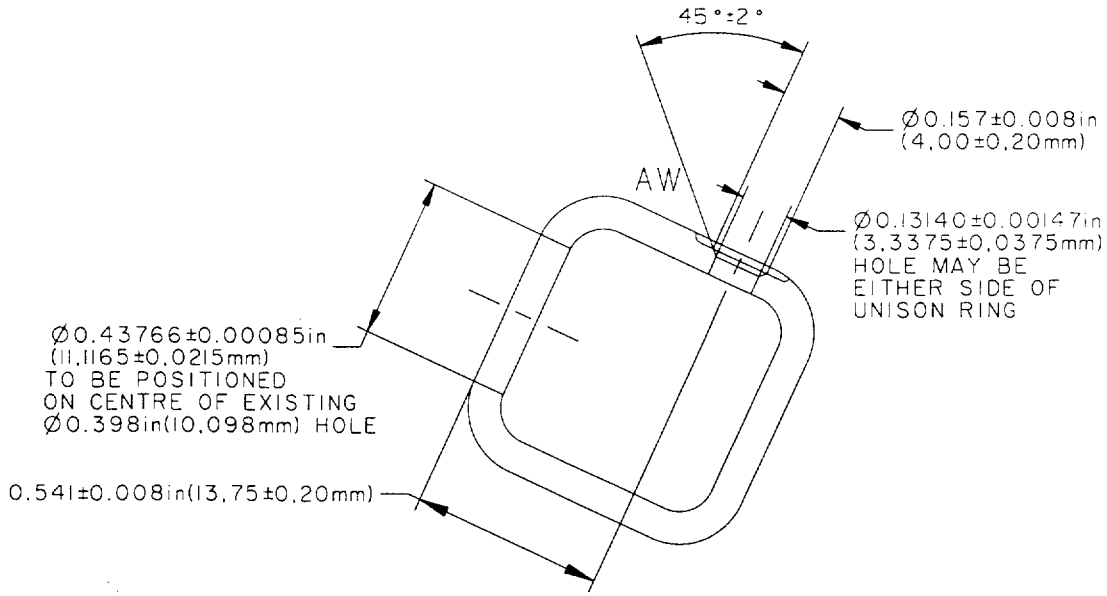
dem0000744

REWORKING OF STAGE 3 UNISON RINGS AND BRIDGE PIECES

Rework of Stage 3 unison rings and bridge pieces
Fig.10



VIEW AT AW

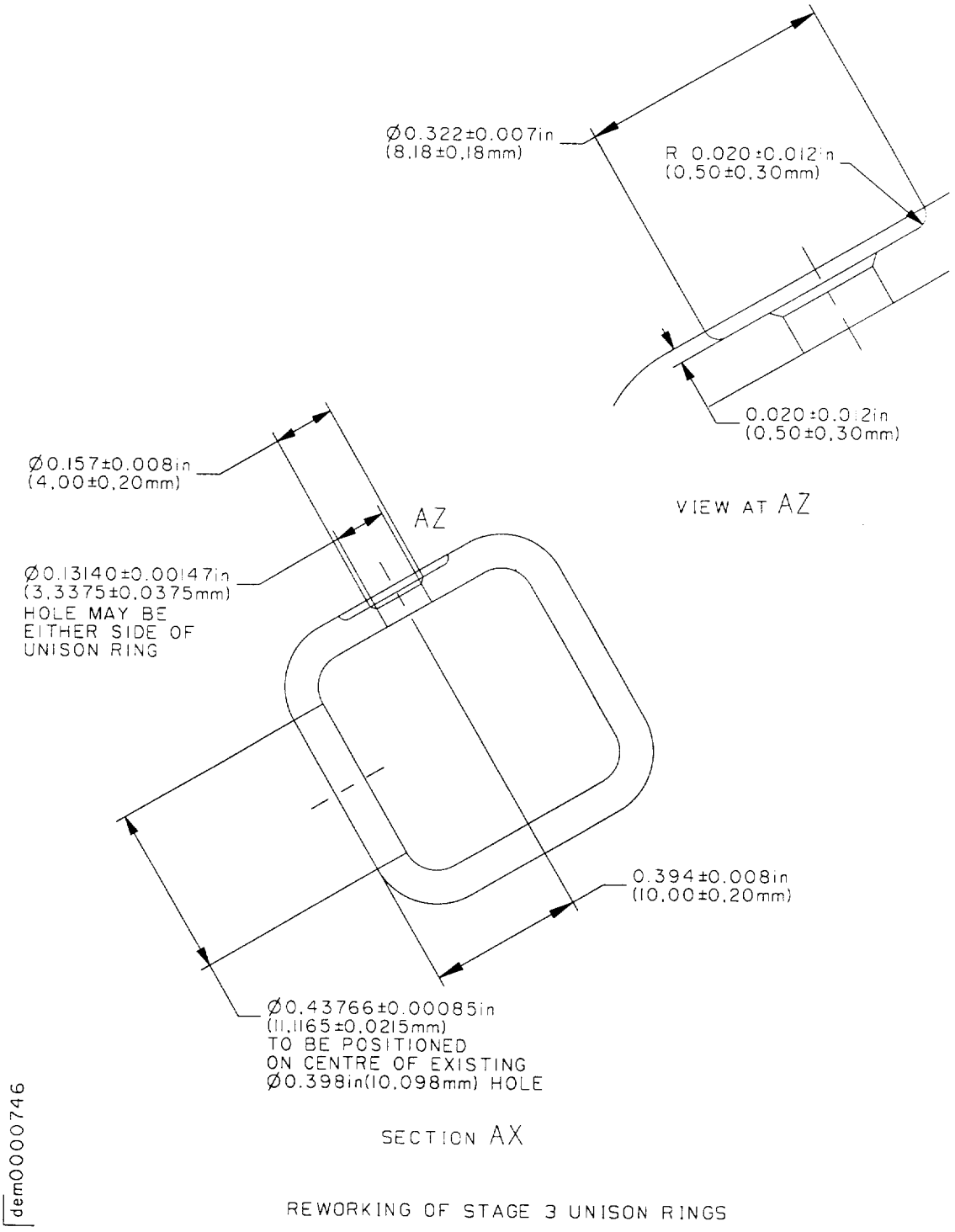


SECTION AT
TYPICAL 8 POSITIONS AV

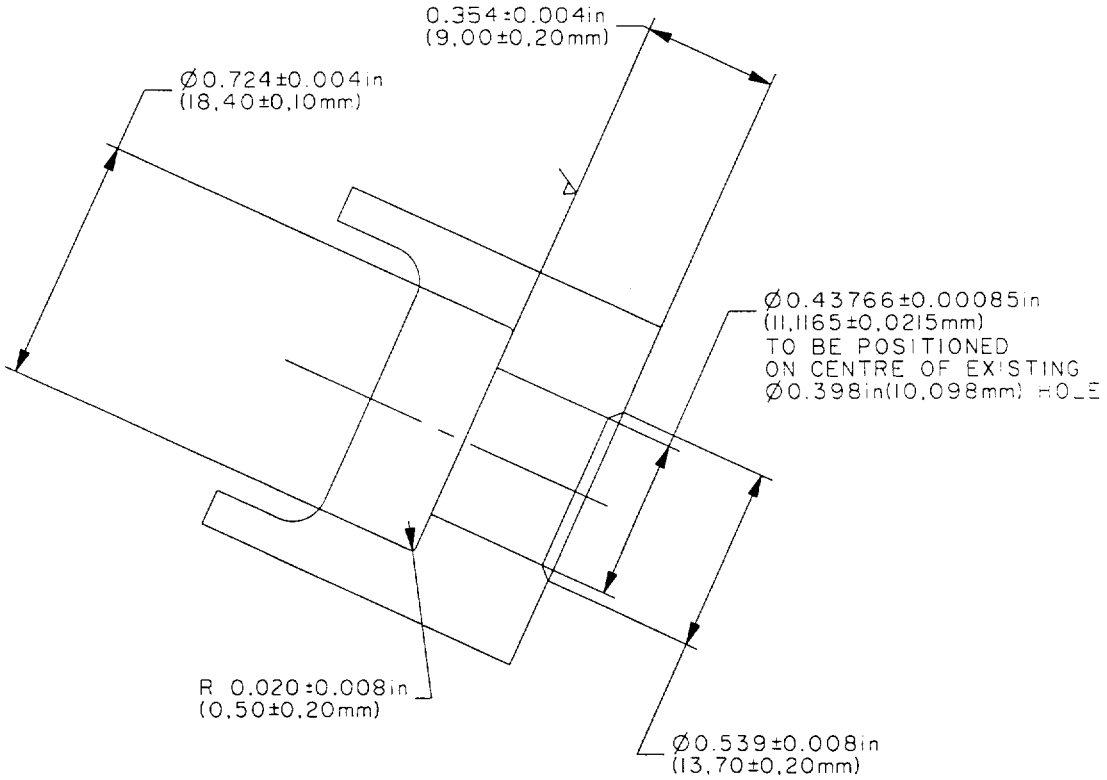
REWORKING OF STAGE 3 UNISON RINGS

dem0000745

Rework of Stage 3 unison rings
Fig.11



Rework of Stage 3 unison rings
Fig.12

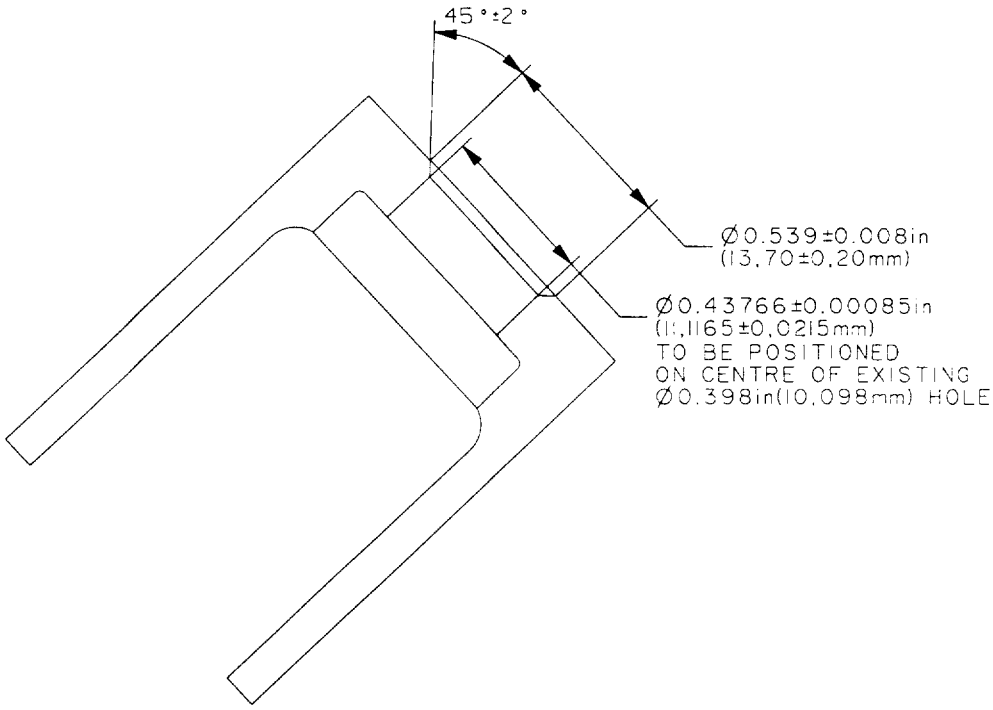


SECTION AT
TYPICAL 8 POSITIONS AV

dem0000747

REWORKING OF STAGE 3 BRIDGE PIECES

Rework of Stage 3 bridge pieces
Fig.13

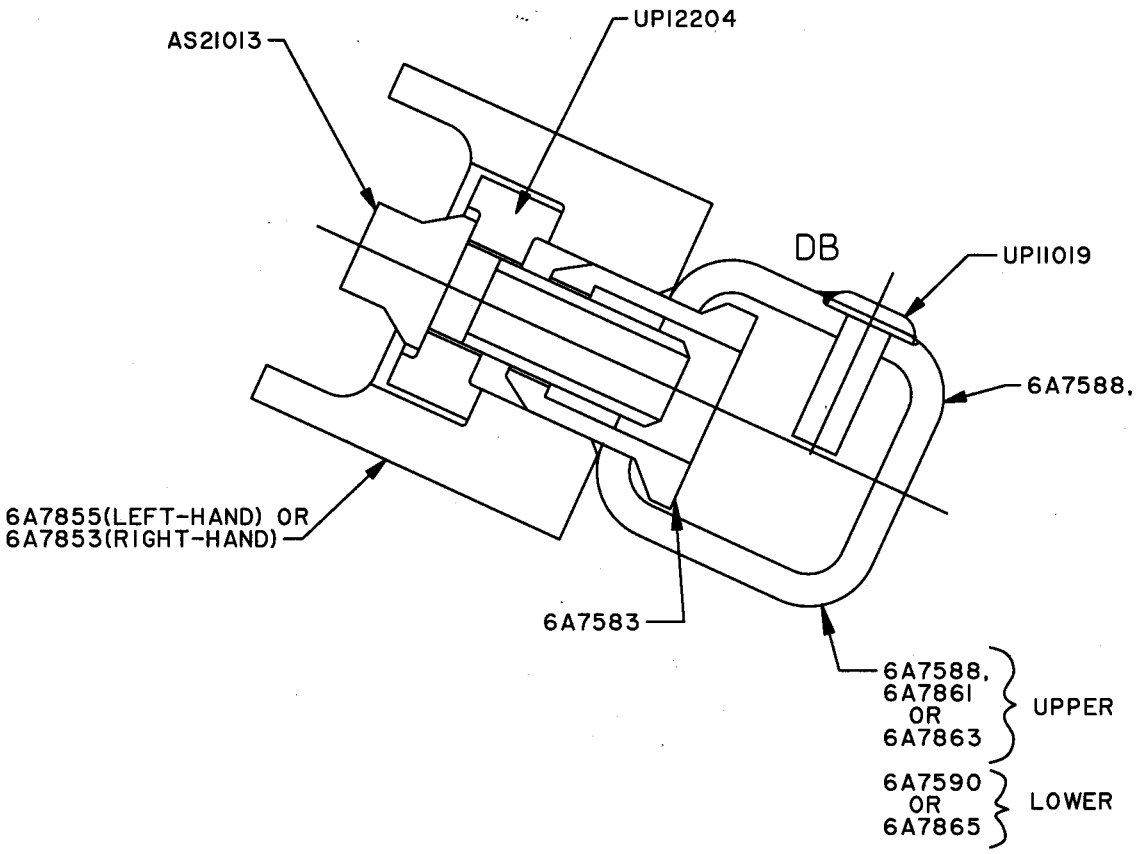


SECTION AX

dem0000748

REWORKING OF STAGE 3 BRIDGE PIECES

Rework of Stage 3 bridge pieces
Fig.14



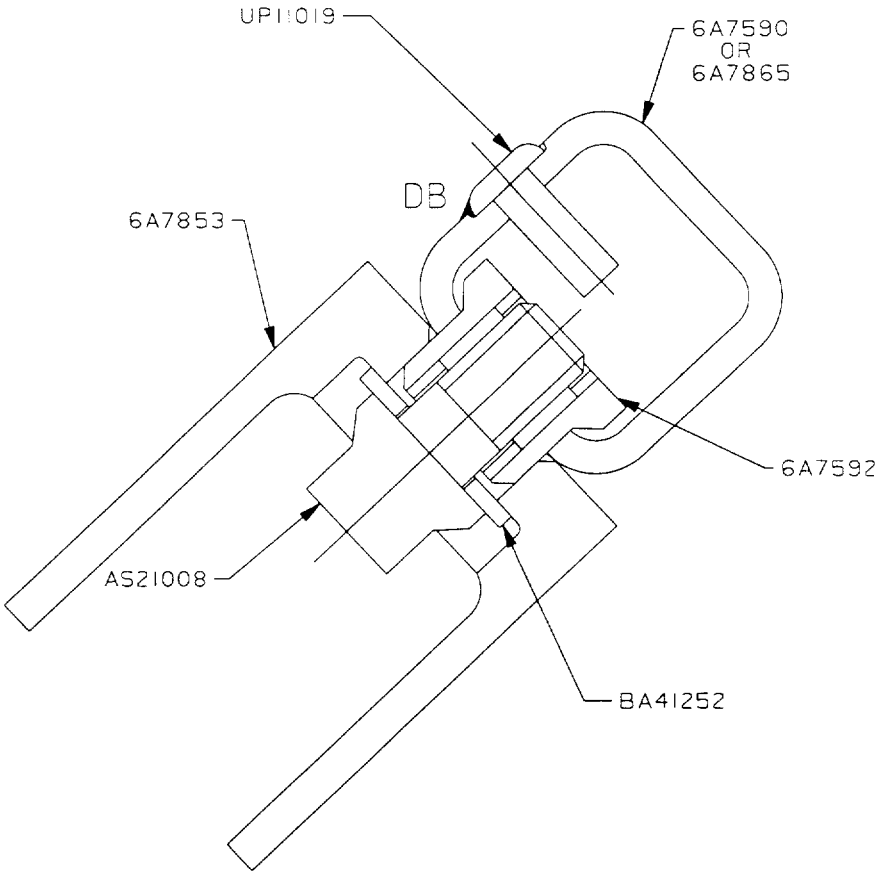
SECTION AT
SHOWING COMPLETE ASSEMBLY

TYPICAL 8 POSITIONS AV

POST MODIFICATION ASSEMBLY OF
STAGE 3 UNISON RINGS AND BRIDGE PIECES

dem0000749A

R Post Modification assembly of Stage 3 unison rings and bridge pieces
R Fig.15

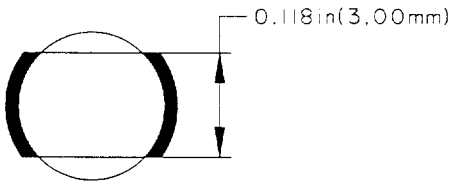


SECTION AX
SHOWING COMPLETE ASSEMBLY

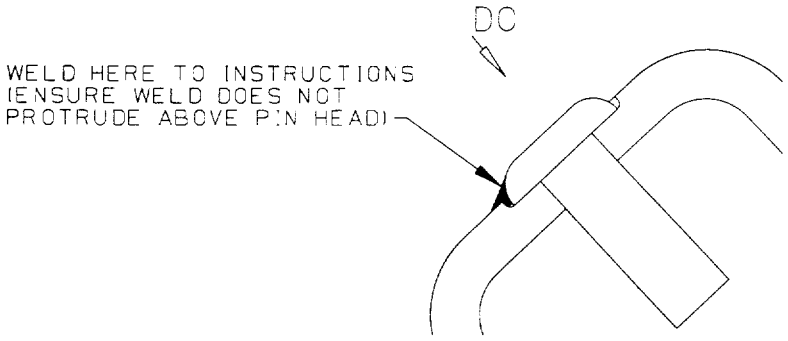
demO000750

POST MODIFICATION ASSEMBLY OF
STAGE 3 UNISON RINGS AND BRIDGE PIECES

Post Modification assembly of Stage 3 unison rings and bridge pieces
Fig.16



VIEW ON ARROW DC



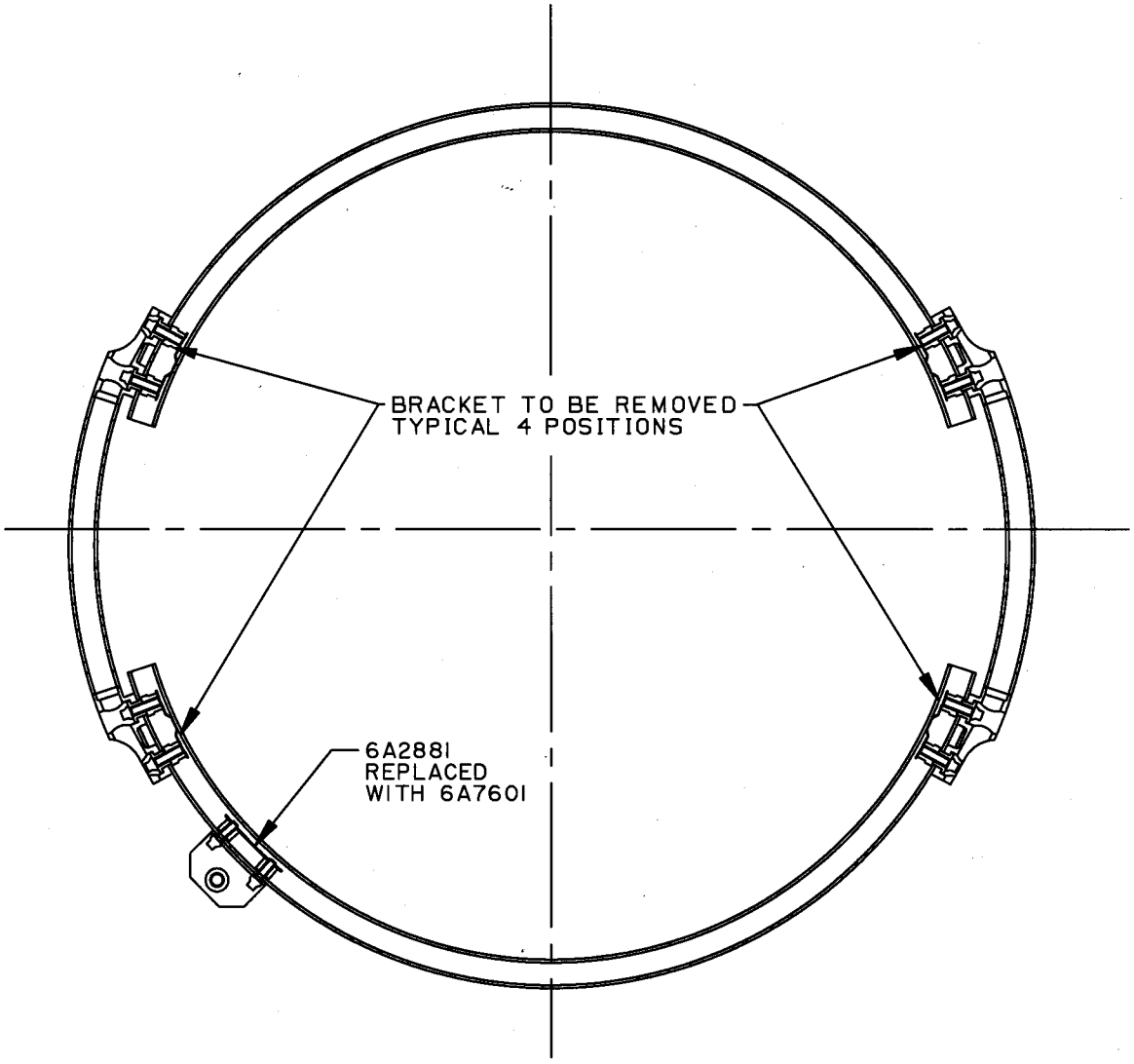
VIEW AT DB
TYPICAL 9 POSITIONS

REWORKING OF STAGE 3 UNISON RINGS

dem0000751

Rework of Stage 3 unison rings
Fig.17

R



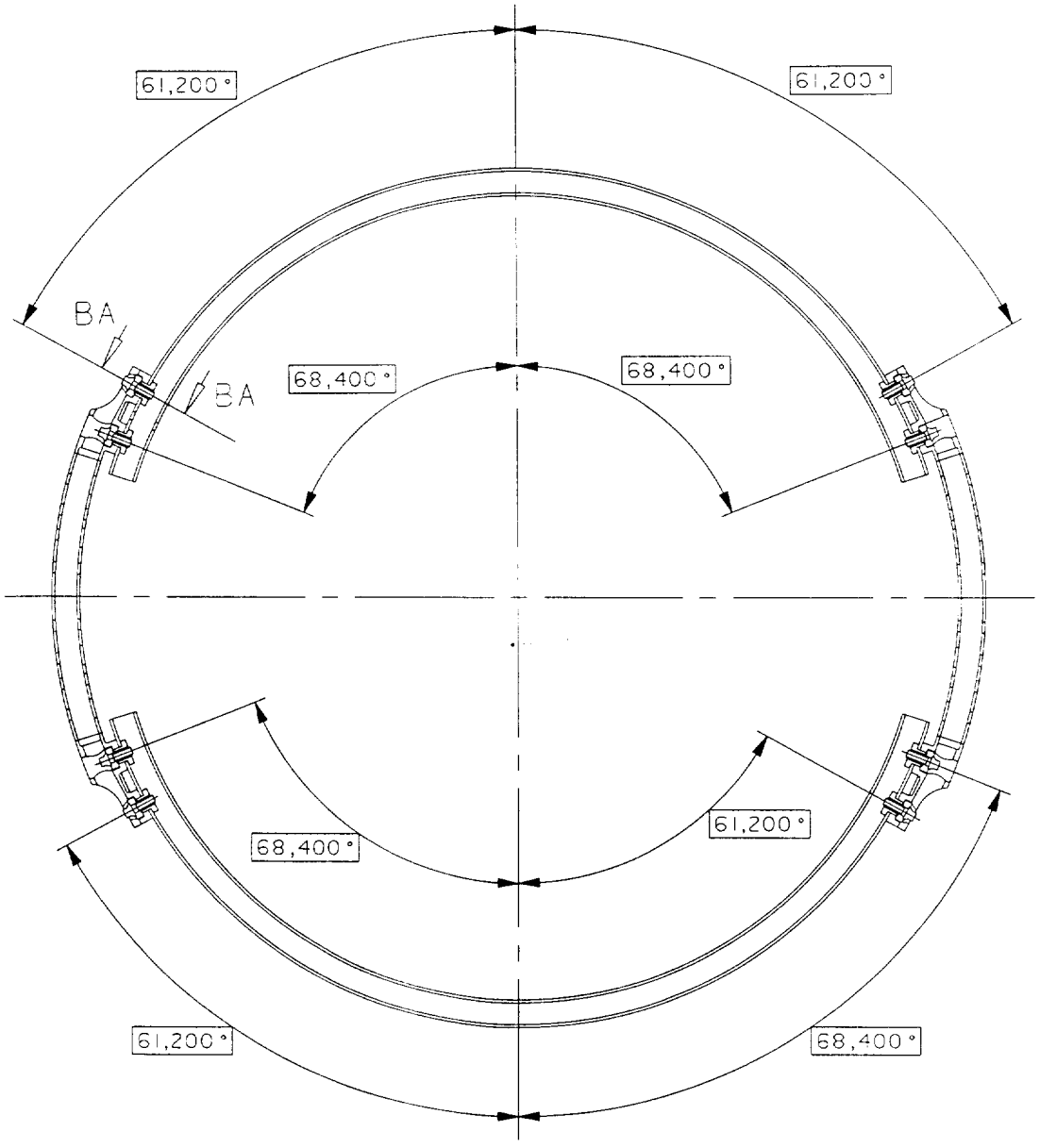
SECTION AC

REMOVAL OF REDUNDANT BRACKETS
WITHIN REWORKING OF STAGE 4 UNISON
RINGS AND BRIDGE PIECES.
(PRE SB 72-0348 STANDARD)

dem0000752A

R Removal of redundant brackets - Rework Stage 4 unison rings and bridge pieces (Pre SB 72-0348 standard)

R Fig.18



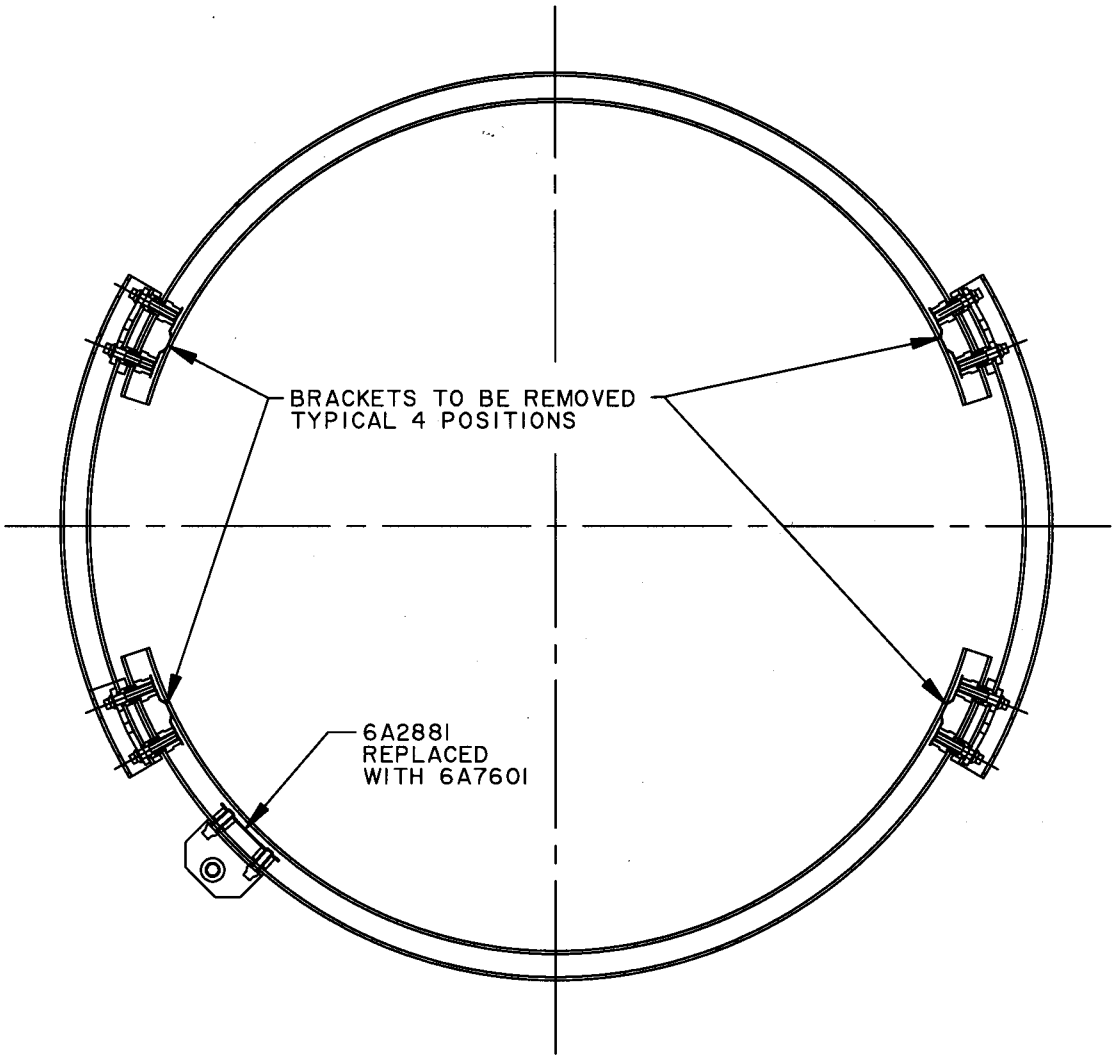
SECTION AC

REWORKING OF STAGE 4 UNISON RINGS
AND BRIDGE PIECES
(PRE SB 72-0348 STANDARD)

dem0000753

Rework of Stage 4 unison rings and bridge pieces (Pre SB 72-0348 standard)
Fig.19

R



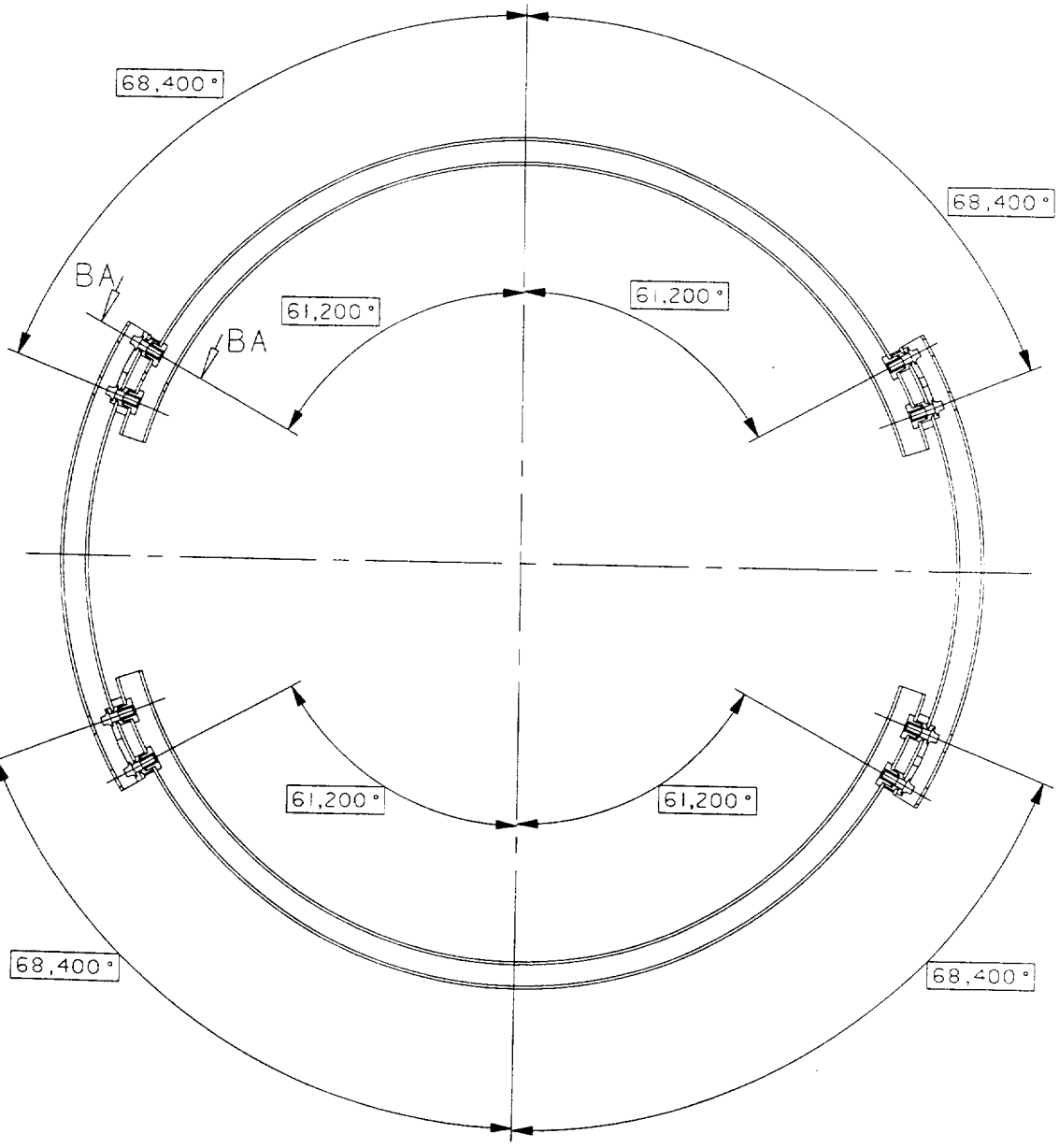
SECTION AC

REMOVAL OF REDUNDANT BRACKETS
WITHIN REWORKING OF STAGE 4 UNISON RINGS
AND BRIDGE PIECES
(POST SB 72-0348 STANDARD)

dem0000754A

R Removal of redundant brackets - Rework Stage 4 unison rings and bridge pieces (SB 72-0348 standard)

R Fig.20

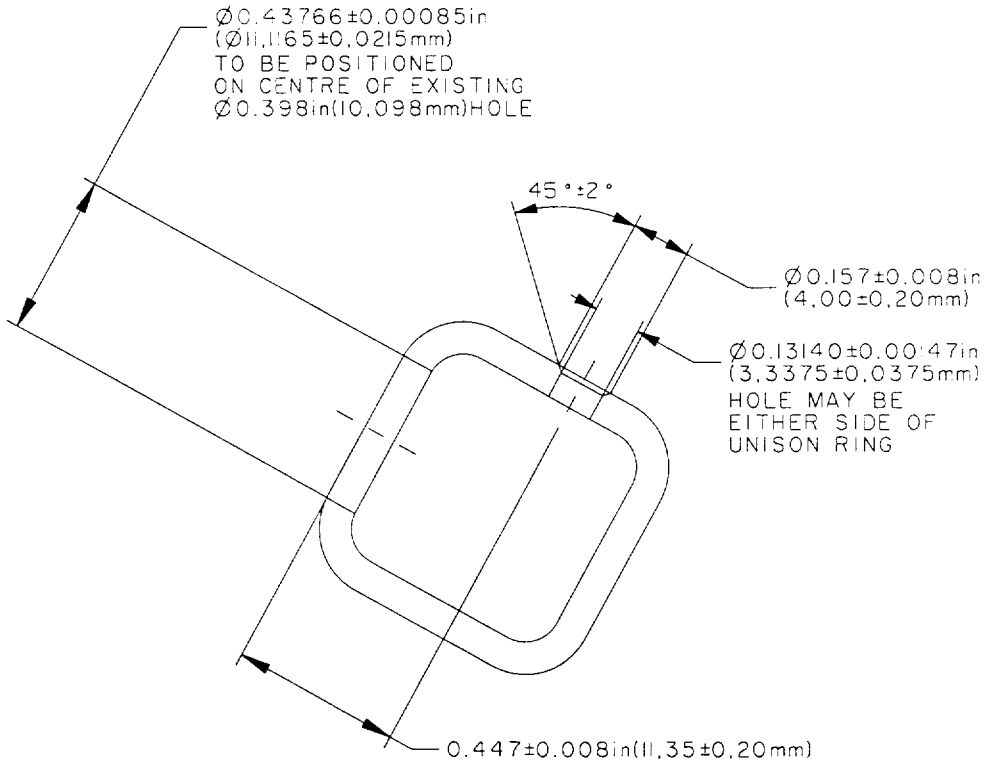


SECTION AC

REWORKING OF STAGE 4 UNISON RINGS
AND BRIDGE PIECES
(POST SB 72-0348 STANDARD)

dem0000755

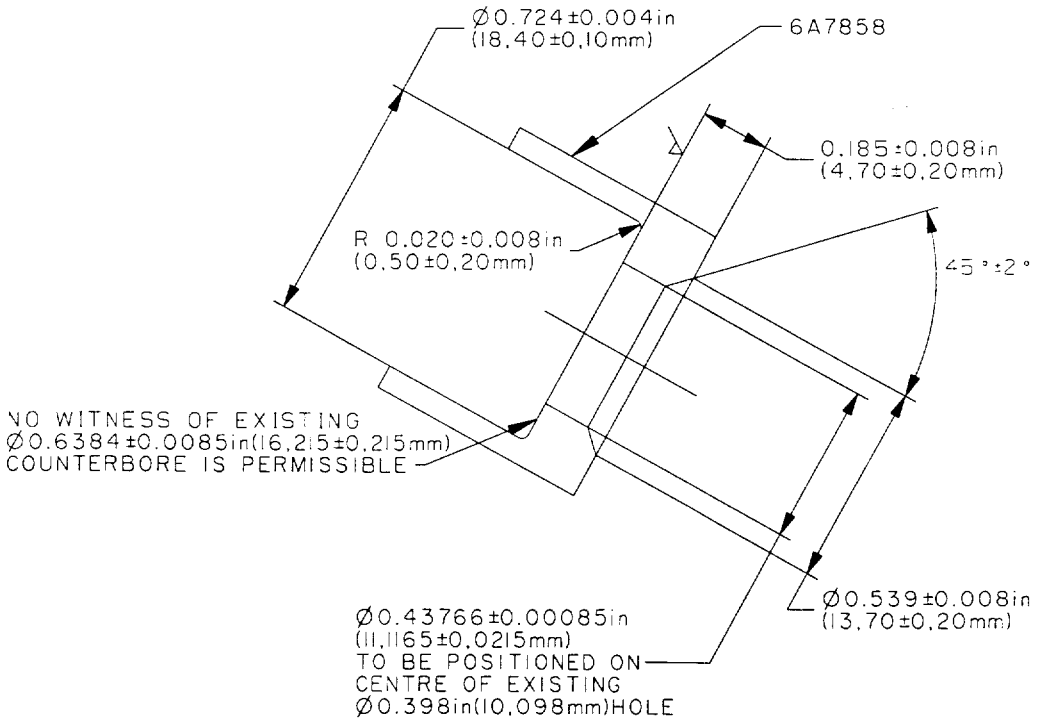
Rework of Stage 4 unison rings and bridge pieces (SB 72-0348 standard)
Fig.21



REWORKING OF STAGE 4 UNISON RINGS

dem0000756

Rework of Stage 4 unison rings
Fig.22

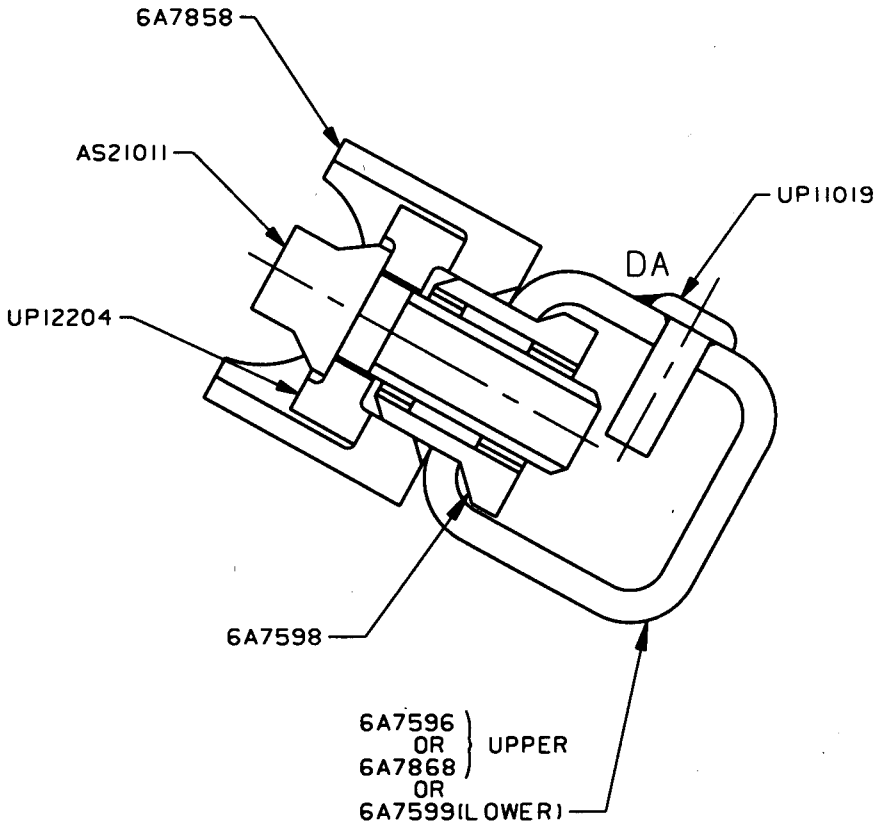


SECTION BA
TYPICAL 8 POSITIONS

REWORKING OF STAGE 4 BRIDGE PIECES
(PRE SB 72-0348 STANDARD)

dem0000757

Rework of Stage 4 bridge pieces (Pre SB 72-0348 standard)
Fig.23

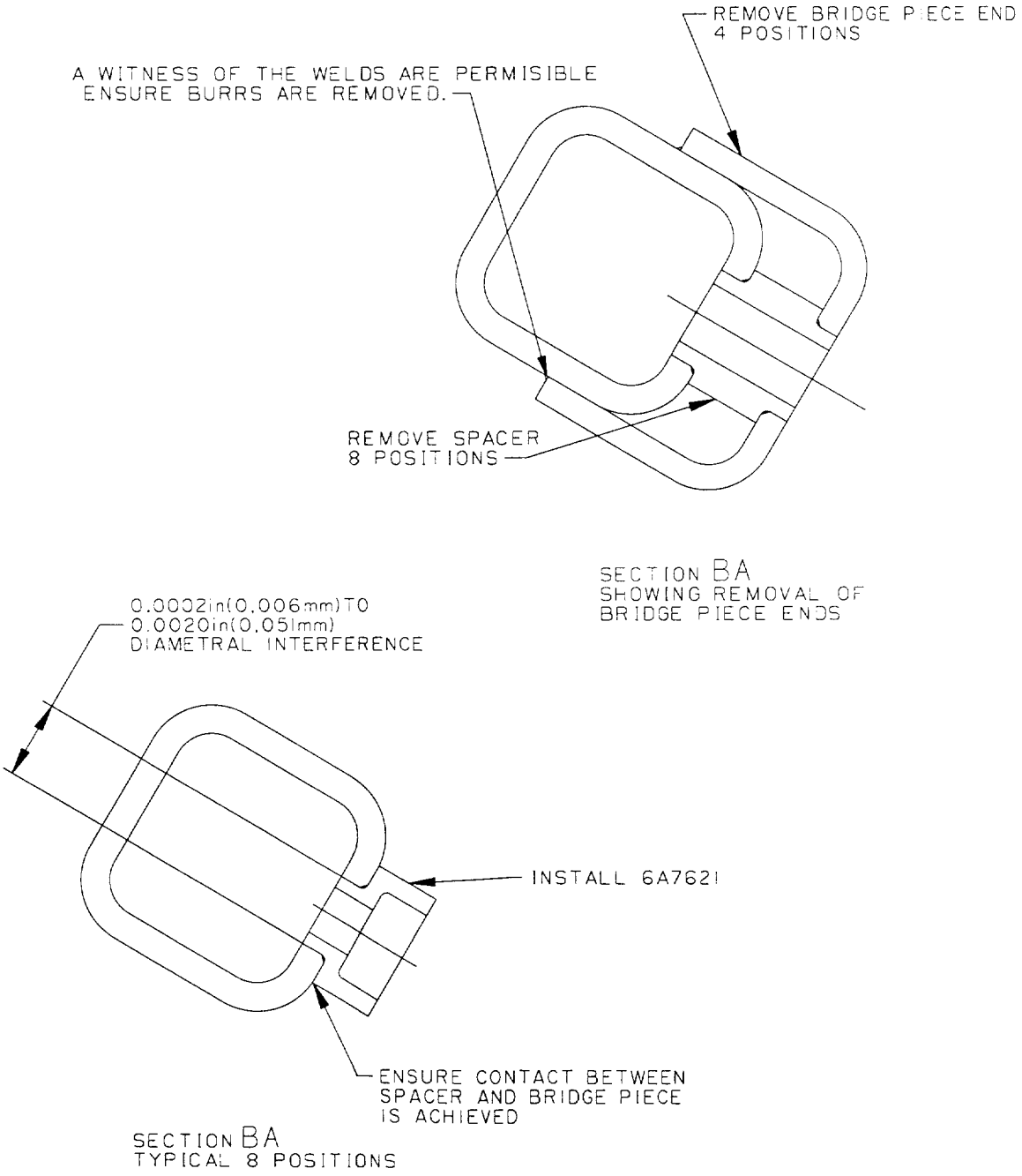


SECTION BA
SHOWING COMPLETE ASSEMBLY
TYPICAL 8 POSITIONS

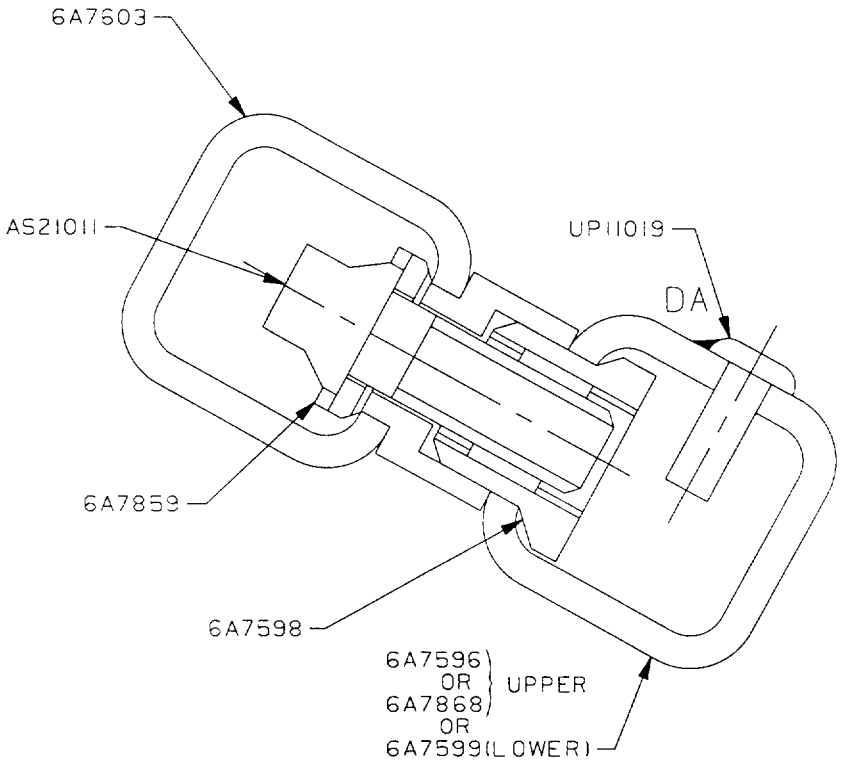
demO000758A

POST MODIFICATION ASSEMBLY OF
STAGE 4 UNISON RINGS AND BRIDGE PIECES
(PRE SB 72-0348 STANDARD)

Post Modification assembly of Stage 4 unison rings and bridge pieces (Pre SB 72-0348 standard)
Fig.24



Rework of Stage 4 bridge pieces (SB 72-0348 standard)
Fig.25

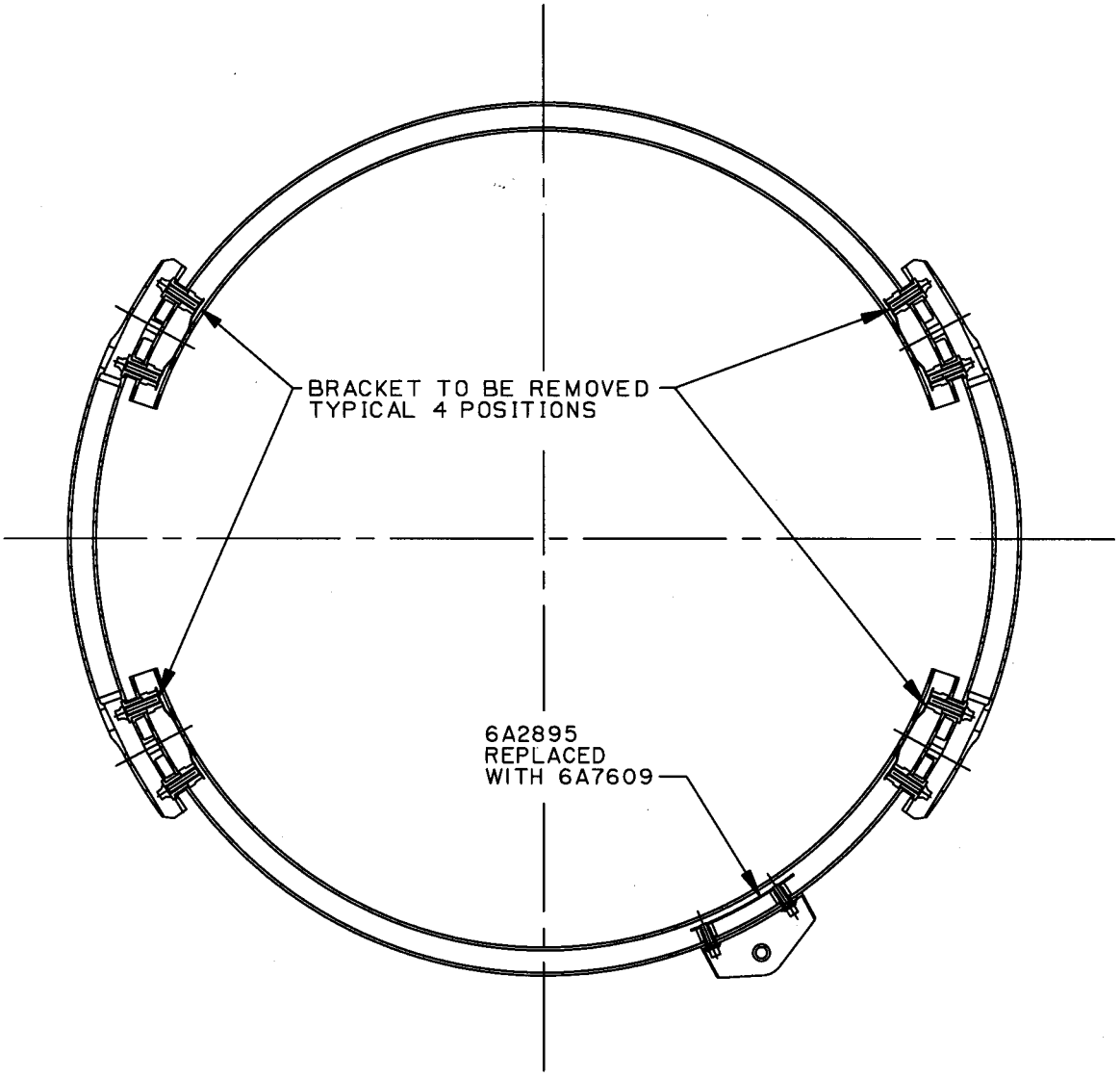


SECTION BA
SHOWING COMPLETE ASSEMBLY
TYPICAL 8 POSITIONS

dem0000760

POST MODIFICATION ASSEMBLY OF
STAGE 4 UNISON RINGS AND BRIDGE PIECES
(POST SB 72-0348 STANDARD)

Post Modification assembly of Stage 4 unison rings and bridge pieces (SB 72-0348 standard)
Fig.26

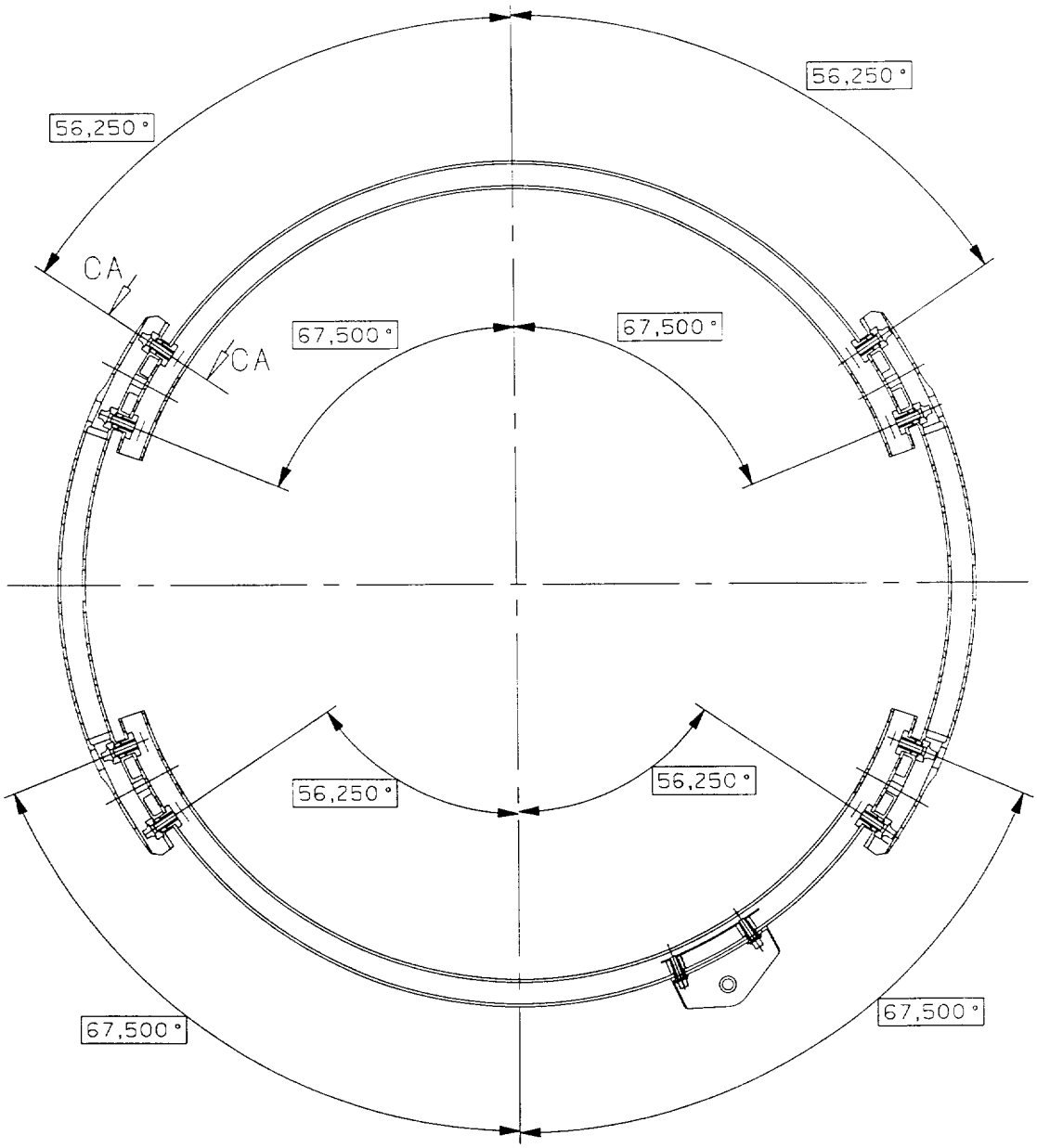


SECTION AD

REMOVAL OF REDUNDANT BRACKETS
WITHIN REWORKING OF STG 5 UNISON RINGS
AND BRIDGE PIECES
(PRE SB 72-0348)

dem0000761A

R Removal of redundant brackets - Rework of Stage 5 unison rings and bridge pieces
(Pre SB 72-0348 standard)
R Fig.27



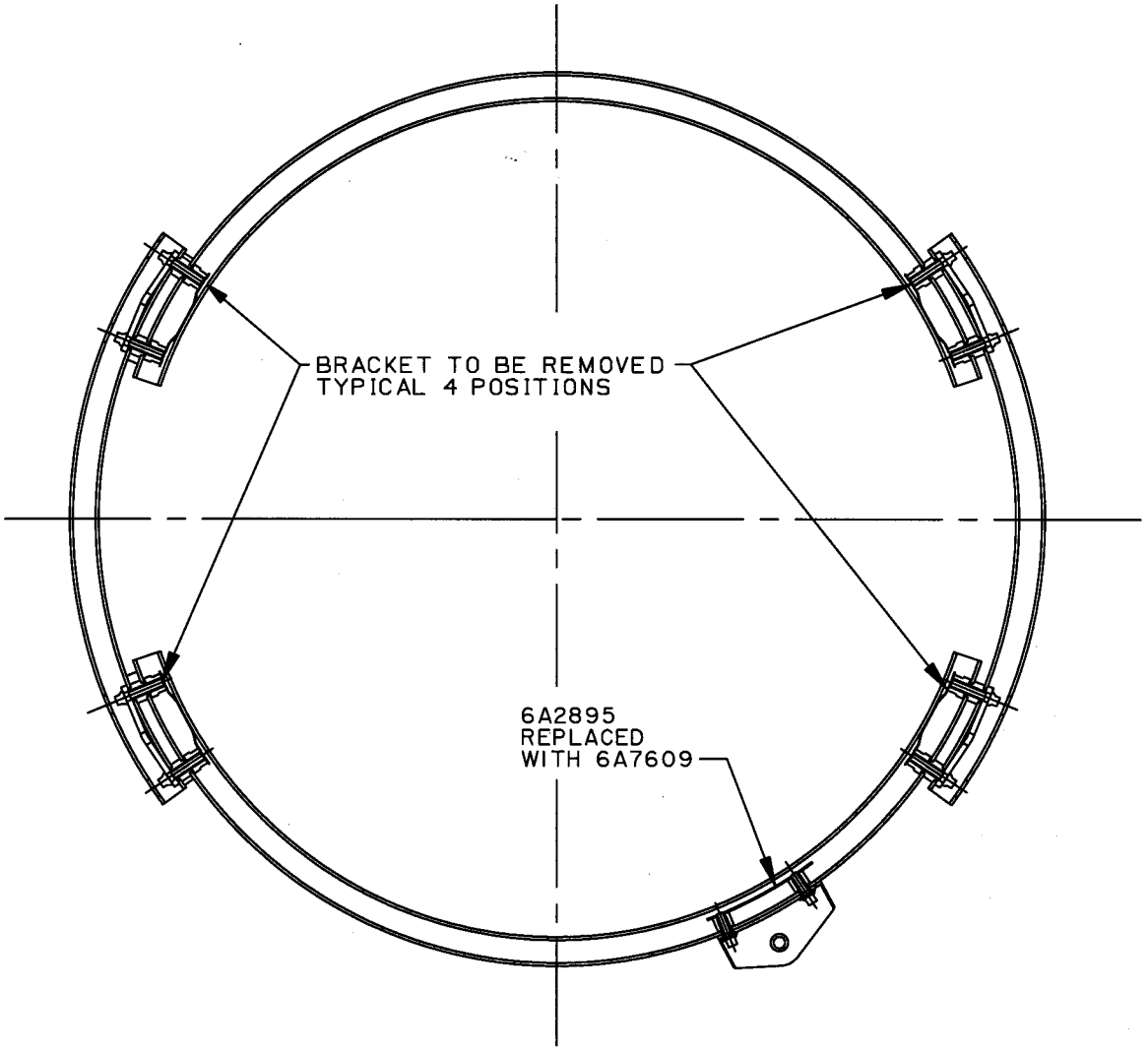
SECTION AD

REWORKING OF STAGE 5 UNISON RINGS
AND BRIDGE PIECES
(PRE SB 72-0348 STANDARD)

dem0000762

Rework of Stage 5 unison rings and bridge pieces (Pre SB 72-0348 standard)
Fig.28

R

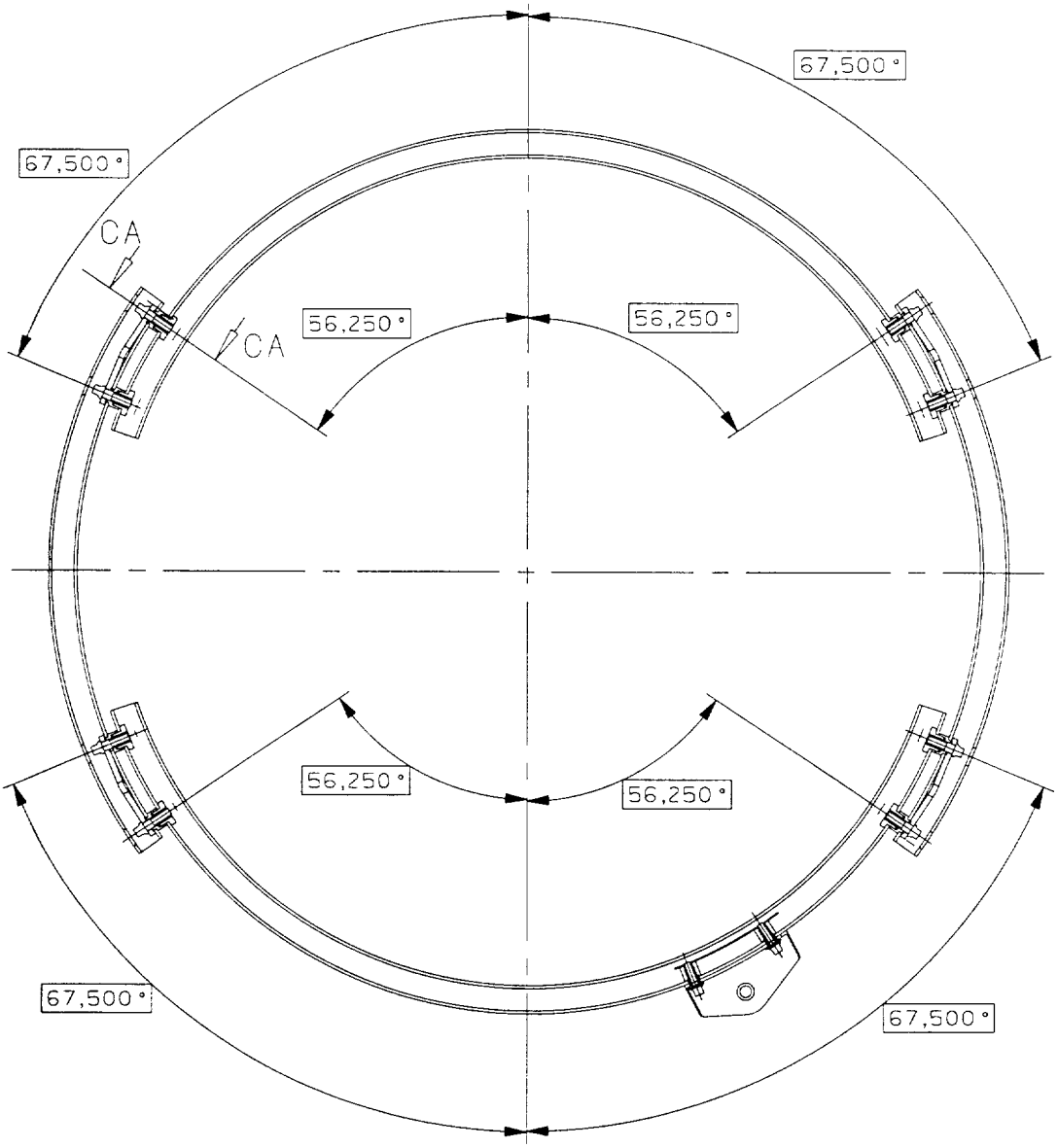


SECTION AD

REMOVAL OF REDUNDANT BRACKETS
WITHIN REWORKING OF STG 5 UNISON RINGS
AND BRIDGE PIECES
(POST SB 72-0348)

dem0000763A

R Removal of redundant brackets - Rework of Stage 5 unison rings and bridge pieces (SB 72-0348 standard)
R Fig.29

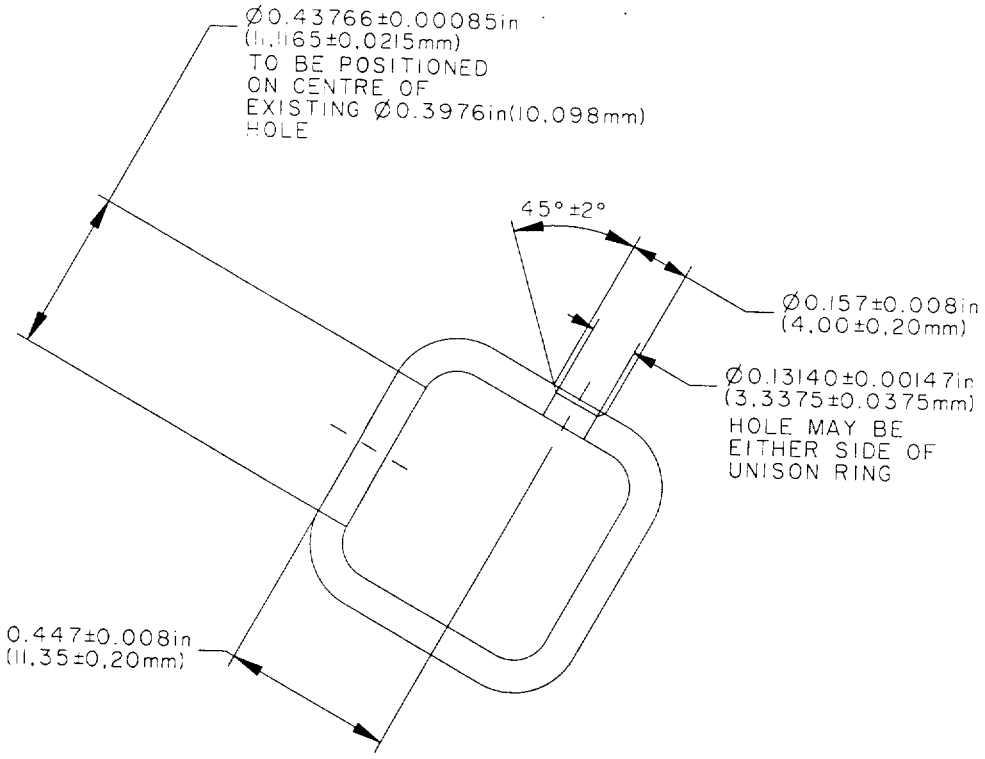


SECTION AD

dem0000764

REWORKING OF STAGE 5 UNISON RINGS
AND BRIDGE PIECES
(POST SB 72-0348 STANDARD)

Rework of Stage 5 unison rings and bridge pieces (SB 72-0348 standard)
Fig.30

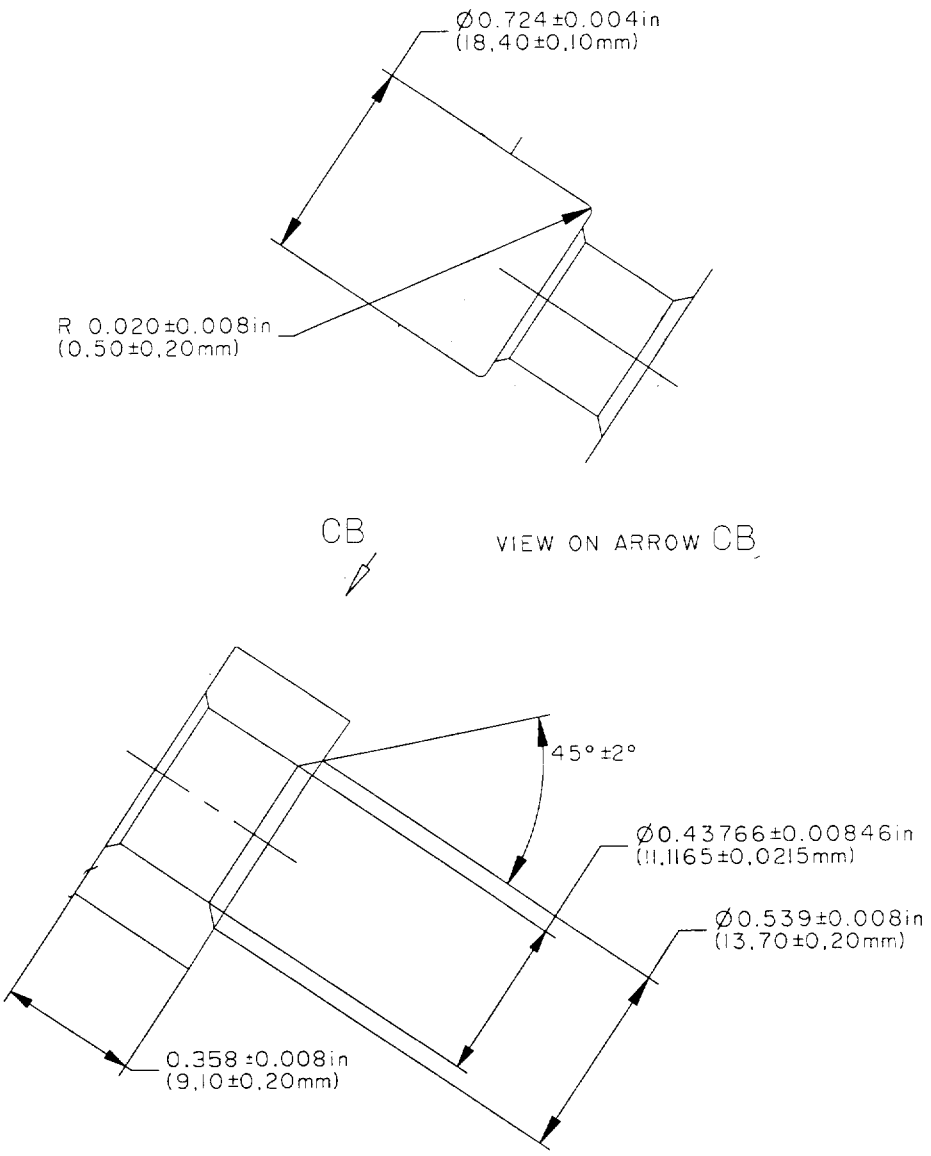


SECTION CA
TYPICAL 8 POSITIONS

REWORKING OF STAGE 5 UNISON RINGS

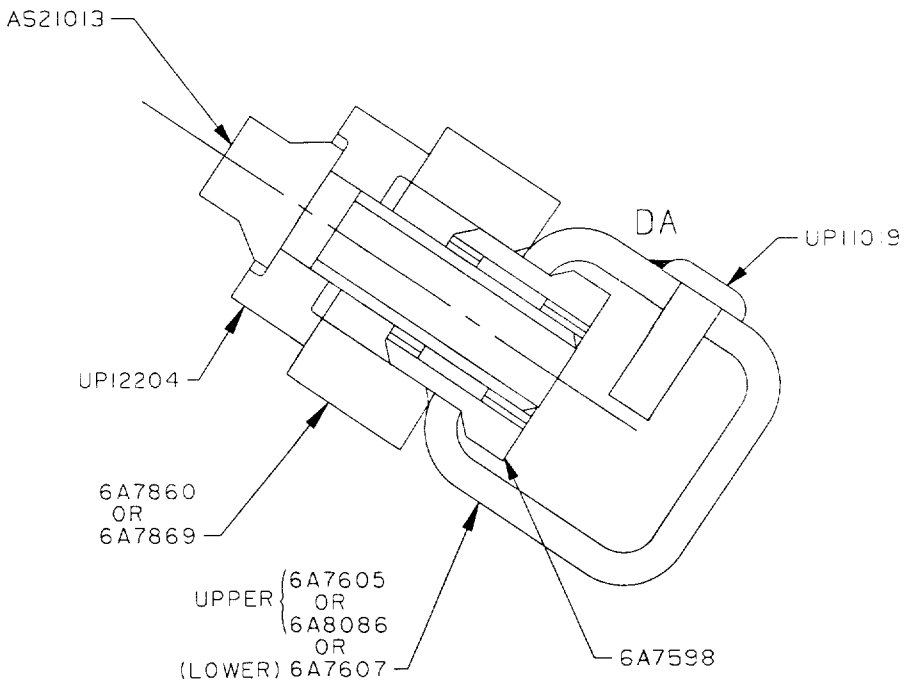
dem0000765

Rework of Stage 5 unison rings
Fig.31



dem0000766

Rework of Stage 5 unison rings and bridge pieces (Pre SB 72-0348 standard)
Fig.32

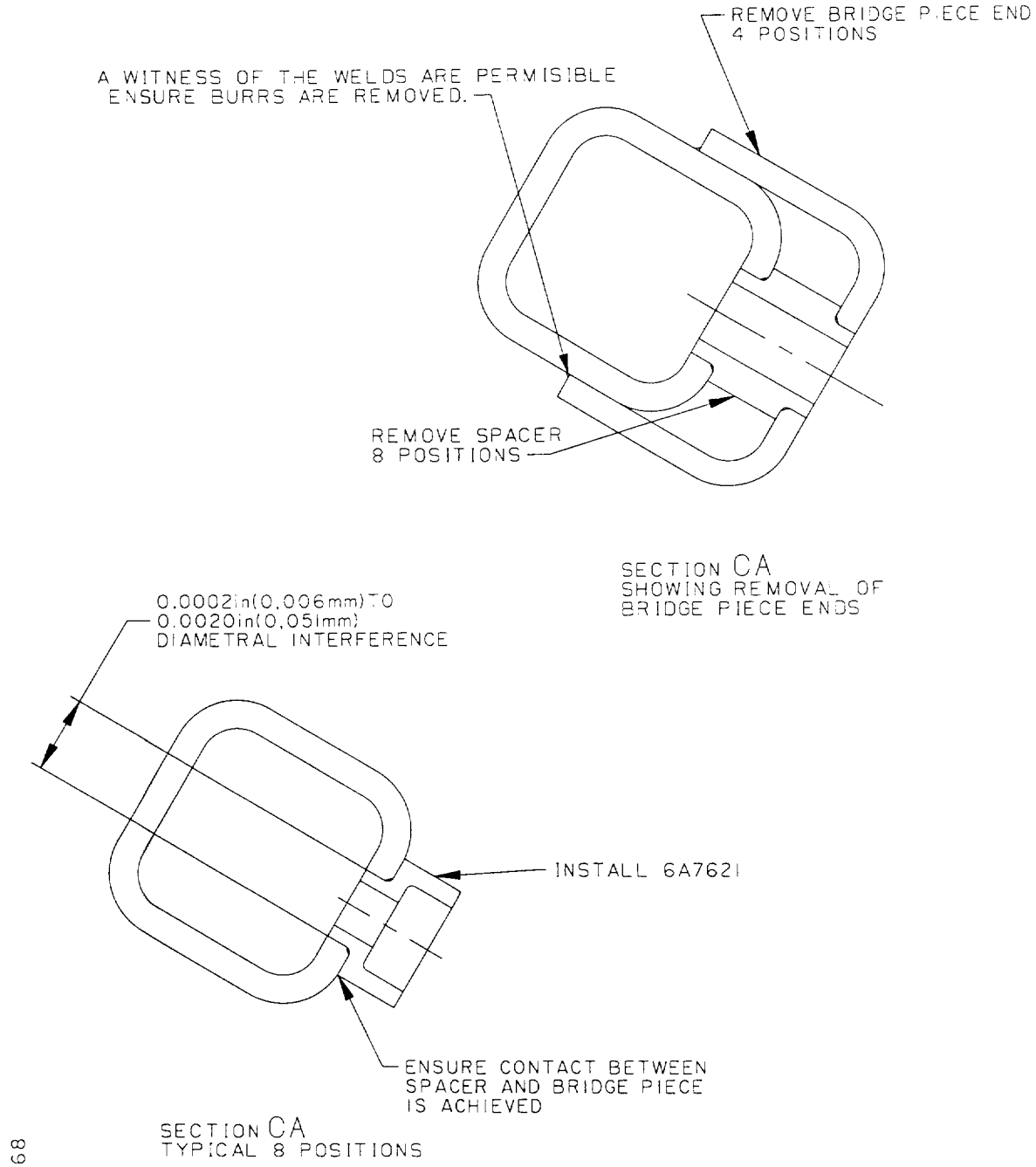


SECTION CA
SHOWING COMPLETE ASSEMBLY

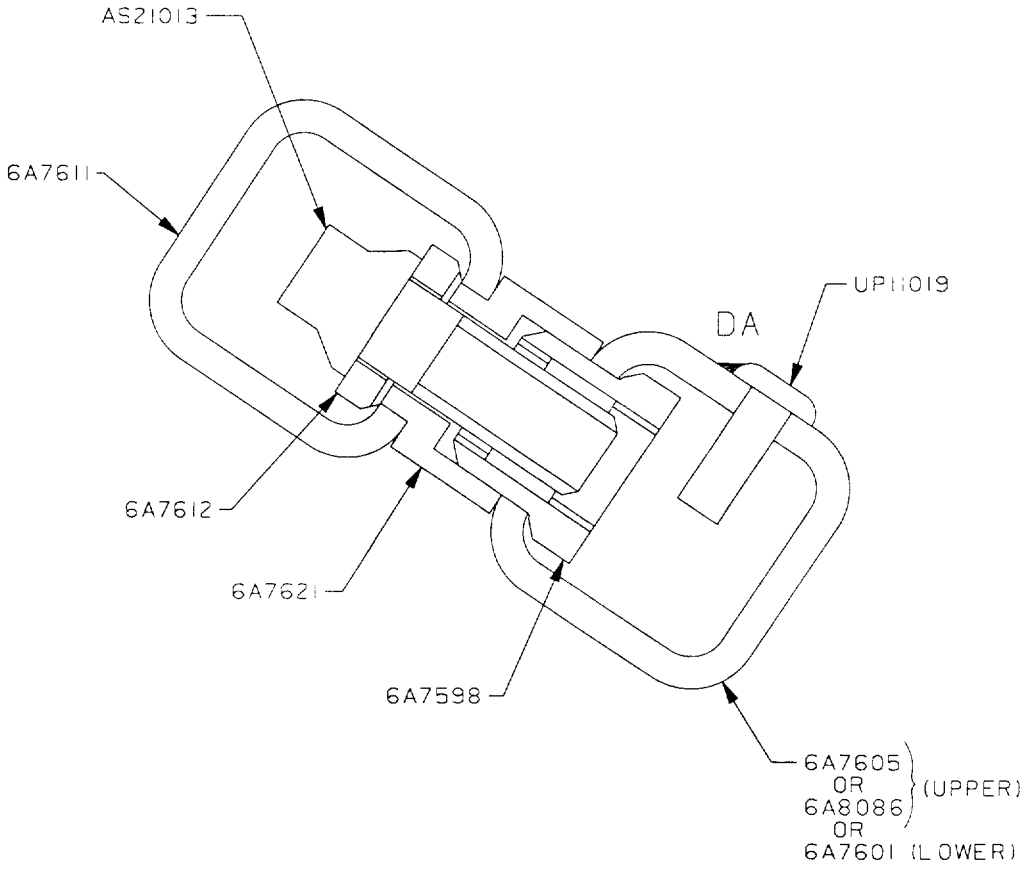
dem0000767

POST MODIFICATION ASSEMBLY OF STAGE 5
UNISON RINGS AND BRIDGE PIECES
(PRE SB 72-0348 STANDARD)

Post Modification assembly of Stage 5 unison rings and bridge pieces (Pre SB 72-0348 standard)
Fig.33



Rework of Stage 5 bridge pieces (SB 72-0348 standard)
Fig.34

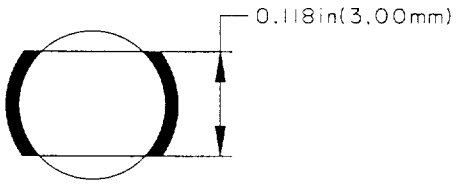


SECTION CA
TYPICAL 8 POSITIONS

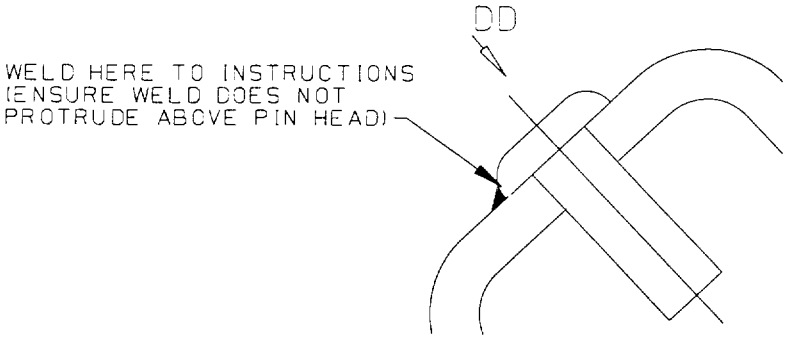
dem0000769

POST MODIFICATION ASSEMBLY OF STAGE 5
UNISON RINGS AND BRIDGE PIECES
(POST SB 72-0348 STANDARD)

Post Modification assembly of Stage 5 unison rings and bridge pieces (SB 72-0348 standard)
Fig.35



VIEW ON ARROW DD



VIEW AT DA

demOOOO770

REWORKING OF VIGV,STAGE4 AND STAGE 5 UNISON RINGS

Rework of VIGV, Stage 4 and Stage 5 unison rings
Fig.36

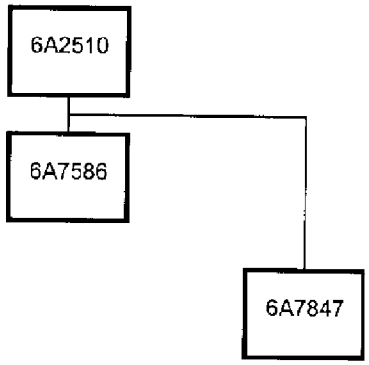
All V2500 Engines

Bridge Piece Assembly, VIGV

Baseline

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

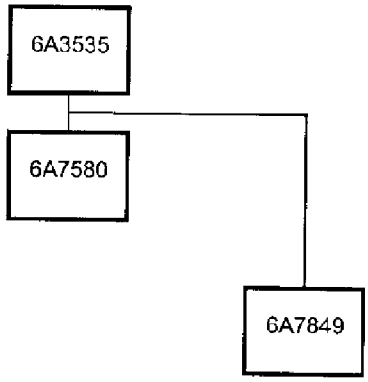


Ring Assy, VIGV, Upper Unison

Baseline

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

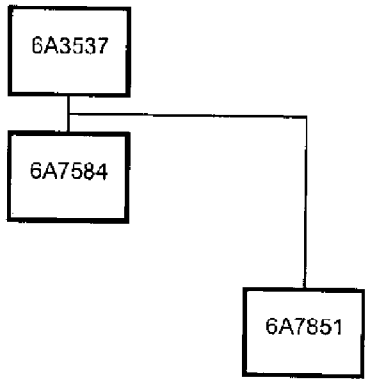


Ring Assy, VIGV, Lower Unison

Baseline

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

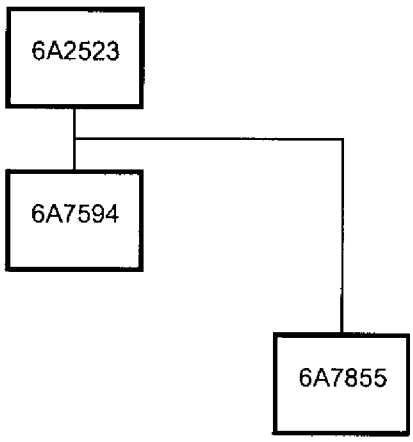


Family tree
Fig.37

All V2500 Engines

Bridge Piece Assembly, Stage 3 Port

Baseline

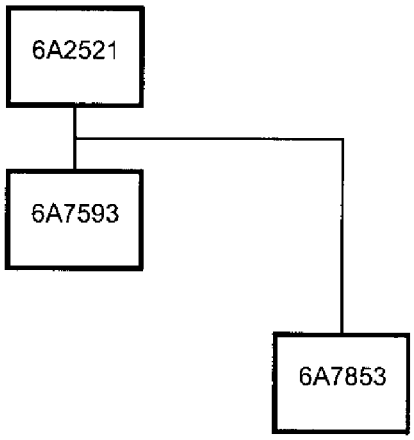


V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

Bridge Piece Assembly, Stage 3 Stbd

Baseline



V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

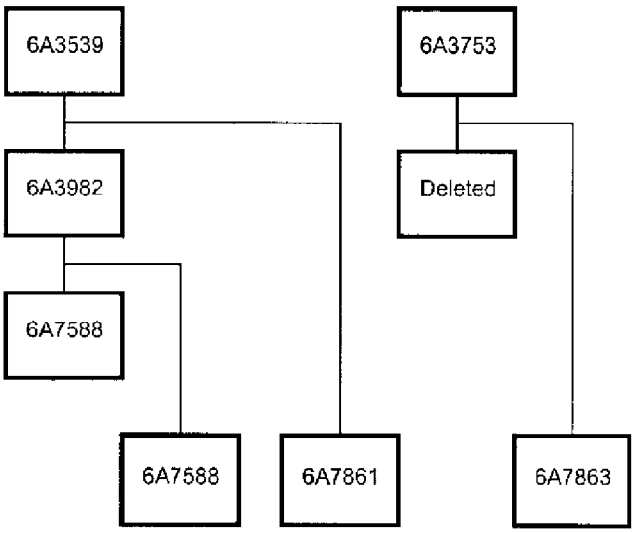
ded00004295

Family tree
Fig.38

Ring Assy, Stage 3, Upper Unison

V2500 - A1 Engines

Baseline



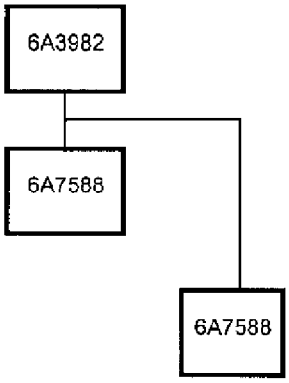
V2500-ENG-72-0084
Variable Stator Vanes Reduced Number of Rigging Pin Brackets

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

V2500 - A5 / D5 Engines

Baseline



V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

ded0004296

Family tree
Fig.39

Ring Assy, Stage 3, Lower Unison

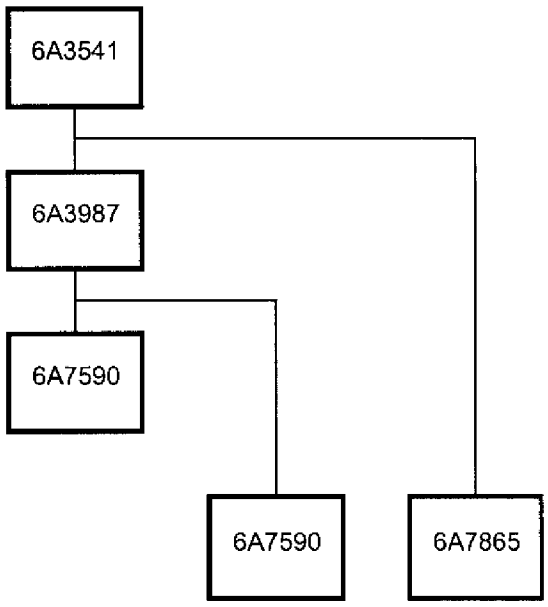
V2500 - A1 Engines

Baseline

V2500-ENG-72-0084
Variable Stator Vanes Reduced Number of Rigging Pin Brackets

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

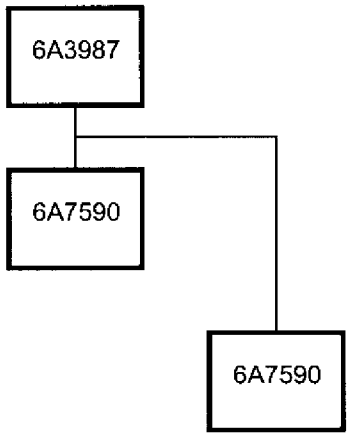


V2500 - A1 Engines

Baseline

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)



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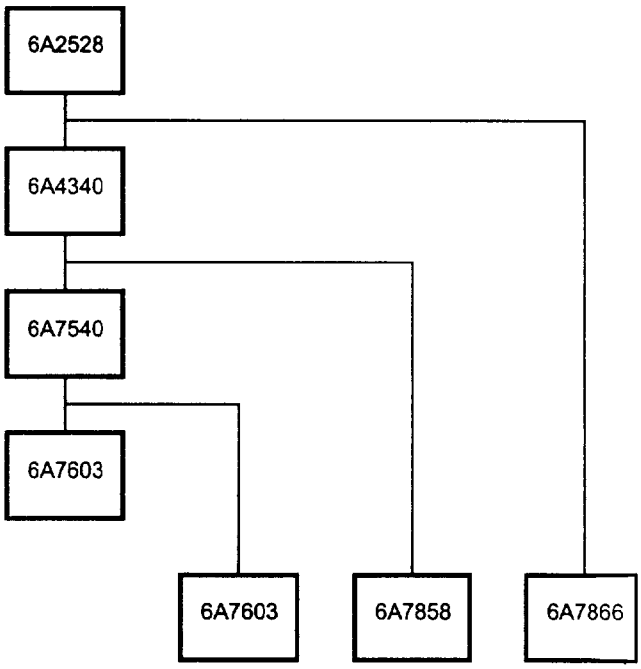
Family tree
Fig.40

Bridge Piece Assembly, Stage 4

V2500 - A1 Engines

Baseline



V2500-ENG-72-0027
Introduction of Reduced Weight Front Compressor Casing

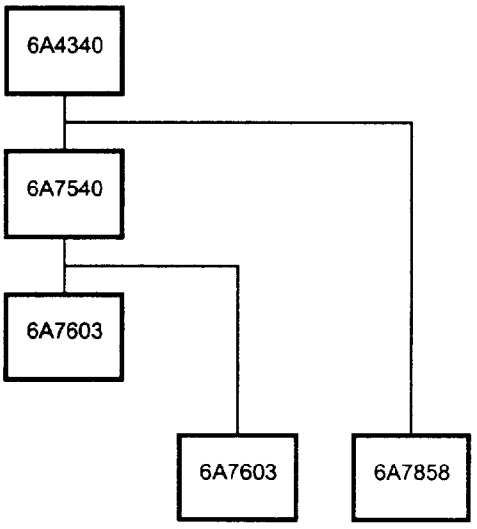
V2500-ENG-72-0348
Introduction of Stages 4 & 5 VSV Bridge Pieces with Revised Method of Manufacture

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

V2500 - A5 / D5 Engines

Baseline



V2500-ENG-72-0348
Introduction of Stages 4 & 5 VSV Bridge Pieces with Revised Method of Manufacture

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

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Family tree
Fig.41

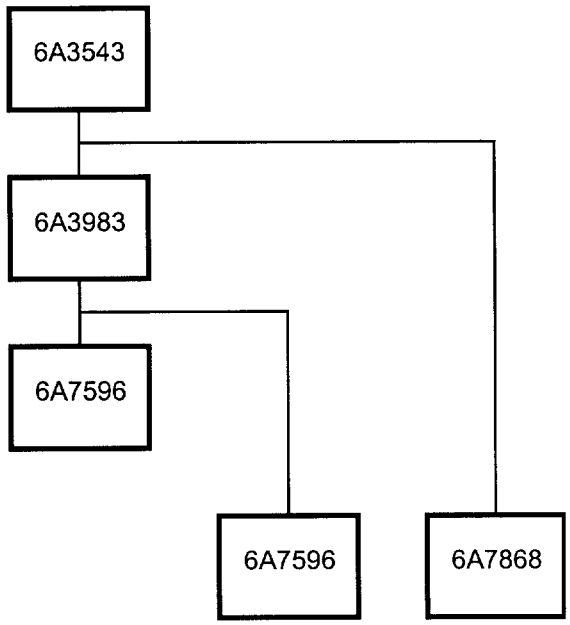
V2500 - A1 Engines

Baseline

V2500-ENG-72-0084
Variable Stator Vanes Reduced Number of Rigging Pin Brackets

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

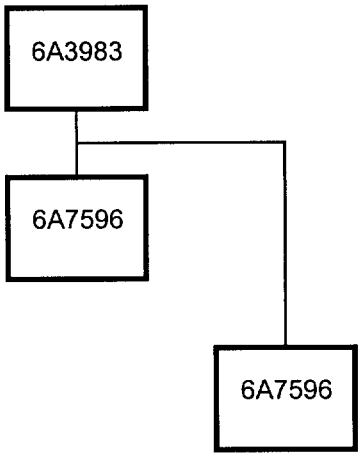


V2500 - A5 / D5 Engines

Baseline

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)



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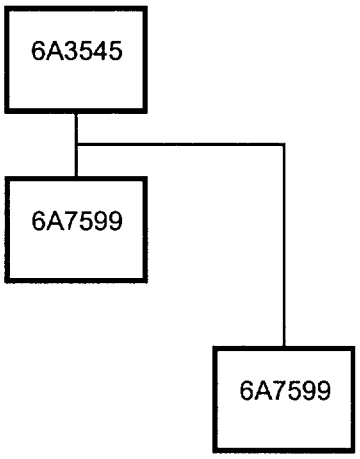
Family tree
Fig.42

Ring Assy, Stage 4, Lower Unison

All V2500 Engines

Baseline



V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

Family tree
Fig.43

Bridge Piece Assembly, Stage 5

V2500 - A1 Engines

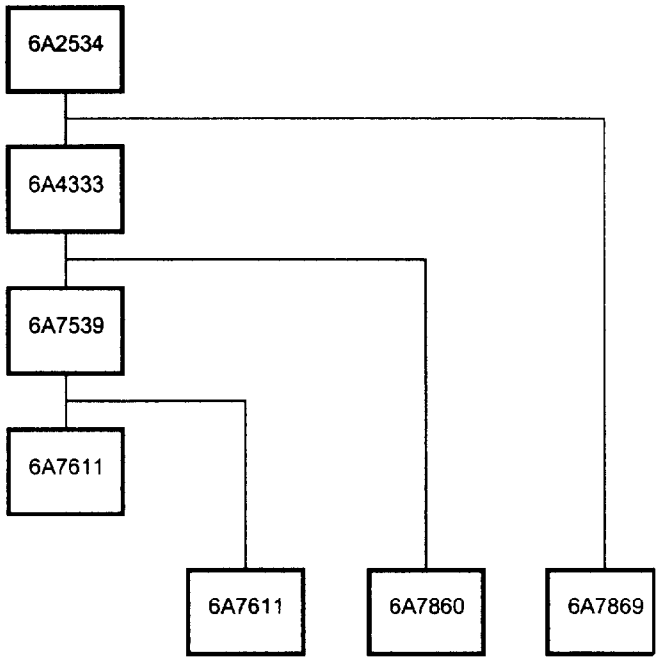
Baseline

V2500-ENG-72-0027
Introduction of Reduced Weight Front Compressor Casing

V2500-ENG-72-0348
Introduction of Stages 4 & 5 VSV Bridge Pieces with Revised Method of Manufacture

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)



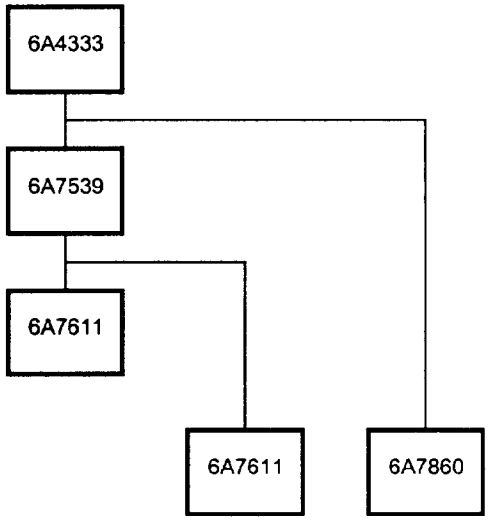
V2500 - A5 / D5 Engines

Baseline

V2500-ENG-72-0348
Introduction of Stages 4 & 5 VSV Bridge Pieces with Revised Method of Manufacture

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)



Family tree
Fig.44

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Ring Assy, Stage 5, Upper Unison

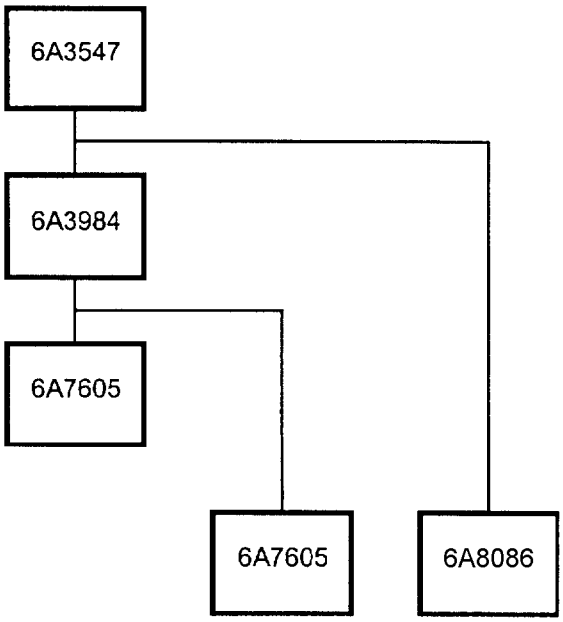
V2500 - A1 Engines

Baseline

V2500-ENG-72-0084
Variable Stator Vanes Reduced Number of Rigging Pin Brackets

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

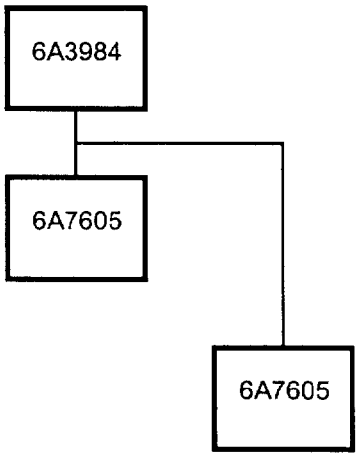


V2500 - A5 / D5 Engines

Baseline

V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)



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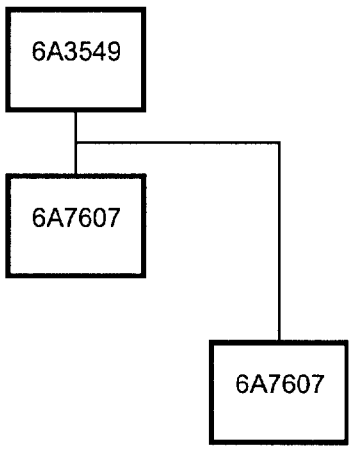
Family tree
Fig.45

Ring Assy, Stage 5, Lower Unison

All V2500 Engines

Baseline



V2500-ENG-72-0385
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (New Production)

V2500-ENG-72-0416
Introduction of Revised Bridge Piece Assemblies and Unison Ring Assemblies with Increased Dowel Location (Rework)

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Family tree
Fig.46

International Aero Engines

SERVICE BULLETIN

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

SUPPLEMENT - PRICES AND AVAILABILITY

The prices (if 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 Kit:

Not applicable.

2. Parts required:

	Part No.	Description	Unit Price US Dollars
	AS21008	Bolt	4.80
	AS21011	Bolt	4.80
	AS21013	Bolt	4.80
	AS43411	Bolt	23.90
	BA41252	Spacer	0.44
	UP10817	Dowel	18.10
	UP11019	Pin	18.50
	UP12203	Washer	2.79
	UP12204	Washer	2.79
	6A7583	Dowel	80.00
	6A7592	Dowel	80.00
	6A7598	Dowel	80.00
	6A7601	Bracket	205.00
	6A7609	Bracket	367.00
	6A7612	Washer	47.70
R	6A7621	Spacer	71.00
	6A7859	Washer	47.70
	6A7871	Dowel	46.50