



POWER PLANT - VARIOUS - TO ANNOUNCE THE INTRODUCTION OF MODIFIED SUPPORT BRACKETS AND MOUNTING RAFTS ON THE FAN CASE - CATEGORY CODE 6 - MOD.ENG-71-0114

1. Planning Information

A. Effectivity

- (1) Aircraft: Boeing-Douglas Product Division MD-90
- (2) Engine: V2500-D5 Engines prior to Serial No.V20007
- (3) Nacelle: V2500-D5 Nacelles

B. Concurrent Requirements

None.

C. Reason

(1) Condition

See 'Background'

(2) Background

- (a) The clearance between the mounting rafts of the high energy igniter relay box and two tubes which are routed below it is not sufficient.
- (b) Vibration of the disconnect bracket of the harness loom which is bolted to a cross-raft supported from the relay-box mounting rafts, has been found.
- (c) The clearance between the mounting bracket of the oil scavenge-filter pressure-switch and adjacent tubes is not sufficient.
- (d) The securing bolt of the filter cover for the fuel cooled oil cooler (FCOC) nearest to the fan case flange cannot be removed until adjacent bracketry is removed.
- (e) The clip support brackets located at the left hand side and right hand side bifurcation box fire and fume seal have 0.250 in. mounting holes. The securing bolts (and bifurcation box anchor nuts) are 0.190 in. diameter.

So that the brackets can be installed on flight certification engines, spreader washers were installed under the bolt heads.

(3) Objective

V2500-ENG-71-0114



- (a) To provide improved clearance (Refer to (2)(a) and (2)(c)).
 - (b) To overcome vibration (Refer to (2)(b)).
 - (c) To make the removal and assembly of the FCOC fuel filter cover easier (Refer to (1)(d)).
 - (d) To introduce brackets with the correct mounting hole diameter Refer to (2)(e)).
- (4) Substantiation

Satisfactory tests of a strengthened harness loom disconnect bracket has been done.

Where necessary, assembly checks were done on a mock-up engine.

- (5) Effect of Bulletin on Workshop Procedures:

Removal/Installation	Affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Not affected
Repair	Not affected
Testing	Not affected

- (6) Supplemental Information

None.

D. Description

- (1) The angle brackets which support the forward end of the relay box mounting rafts are replaced by two brackets which are increased in height by 0.063 in. (1,6 mm).
- (2) A combined and strengthened disconnect bracket replaces the existing cross-raft and separate bracket.

The existing relay-box mounting rafts are replaced. The upper raft has two anchor nuts in a different position and the lower raft has two anchor nuts added.

Existing lower rafts can be reworked.

- (3) A different bracket for the oil scavenge-filter pressure-switch is introduced. The internal bend angle is increased from 85 degrees to 90 degrees.



SERVICE BULLETIN

- (4) A new harness-loom mounting raft between fan case flanges FA and FA1 and located at the FCOC fuel filter-cover is introduced. A new raft support bracket bolted to flange FA1 is also introduced. The raft and bracket have a cut-out so that the adjacent cover bolt can be removed without the need to remove the bracketry.

The affected support bracket is installed at 4 locations. The mounting raft is installed at 3 locations on LH installations and 4 locations on RH installations. So that all components are the same the revised raft and brackets are introduced at all positions.

Existing rafts can be reworked.

NOTE: A revised support bracket and a revised or reworked raft are necessary at the location nearest the FCOC fuel-filter cover (Refer to Figures 8, 9 and 19).

- (5) A revised clip support bracket with 0.190 in. dia. holes for the attachment bolts is introduced at the LH bifurcation box. The spreader washers used with the initial bracket are discarded. This change has also been done for the RH bifurcation box.

E. Approval

The part number changes and/or part modifications given in Section 2 and 3 of this Service Bulletin. They obey the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model listed.

F. Compliance

Category Code 6

This Service Bulletin can be done when the sub-assembly (That is modules, accessories, components, build groups) is disassembled sufficiently to get access to the affected parts.

G. Manpower

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

Venue	Estimated Manhours
(1) In service	Not applicable
(2) At Overhaul	No more time is necessary to do this Service Bulletin

NOTE: It is possible to get access to the parts affected by this Service Bulletin at overhaul.

V2500-ENG-71-0114



H. Material – Price and Availability

- (1) A modification kit is not necessary.
- (2) See "Material Information" section for prices and availability of new spares.

I. Tooling – Price and Availability

Special tools are not required.

J. Weight and Balance

- | | | | | | |
|-----|---------------|----|----|----|--|
| (1) | Weight change | .. | .. | .. | None |
| (2) | Moment arm | .. | .. | .. | No effect |
| (3) | Datum | .. | .. | .. | Engine front mount centerline
(Power Plant Station (PPS) 100) |

K. Electrical Load Data

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

L. References

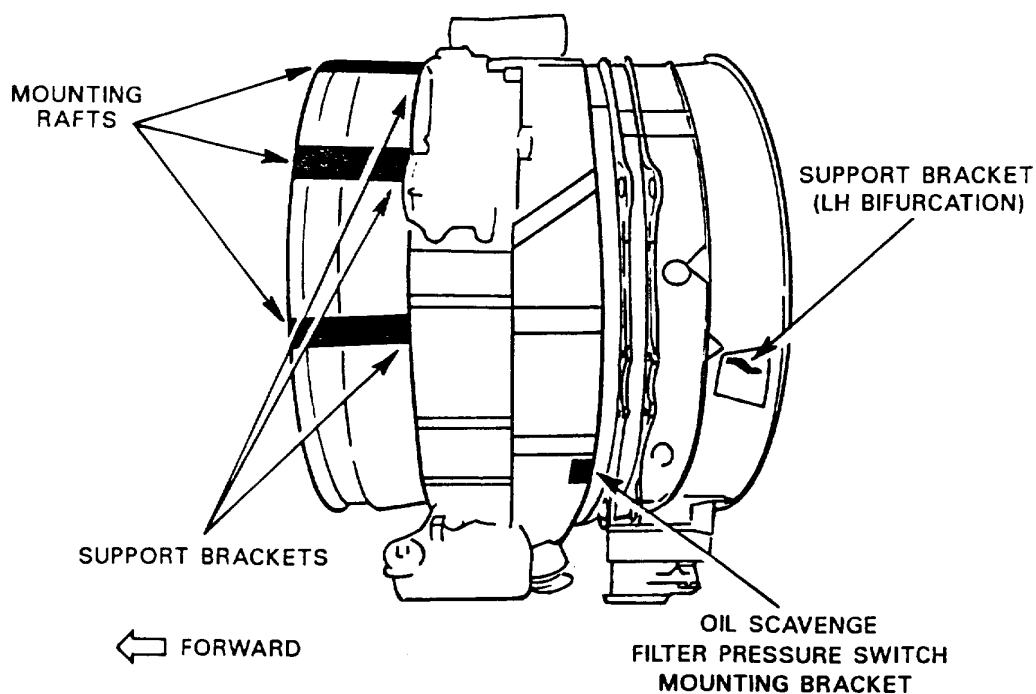
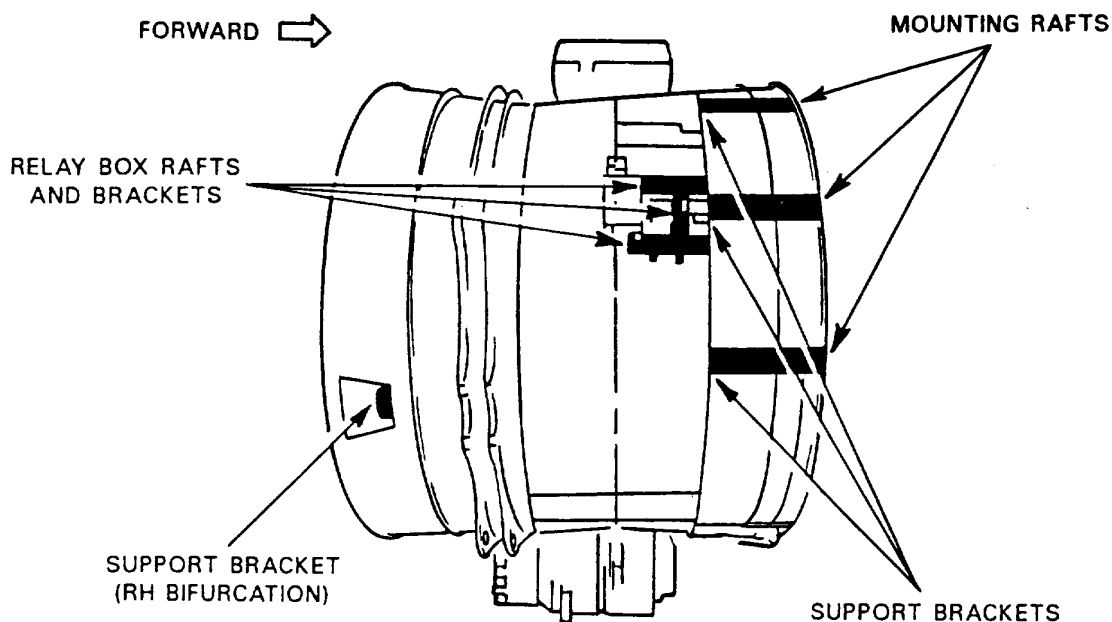
- (1) Internal Reference No.

EC92VR315

EC92VR388A

M. Other Publications Affected

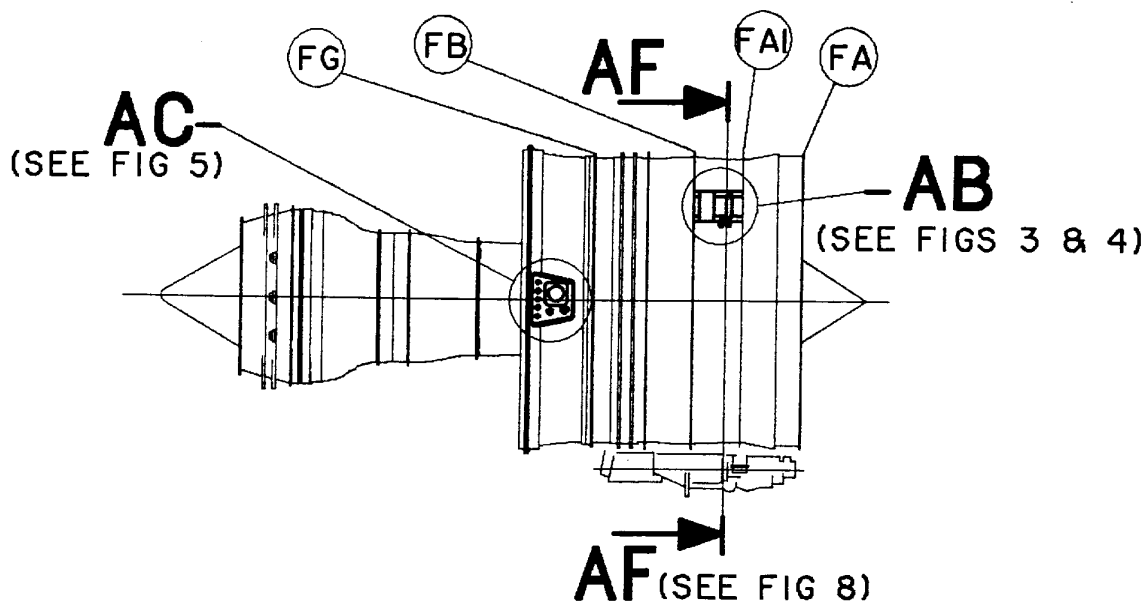
- (1) V2500 Engine Illustrated Parts Catalog (S-V2500-3IA), Chapter/Section 71-51-49, 71-51-51, 71-51-54, 71-51-55, 71-51-56, 71-51-63 and 79-35-16
- (2) V2500 Engine Manual (E-V2500-3IA), 72-00-32, Removal-05 and Installation-01.
- (3) V2500-D5 Component Maintenance Manuals, Chapter/Section 71-51-49, 71-51-51, 71-51-54, 71-51-55, 71-51-56, 71-51-63 and 79-35-16, Cleaning and Inspection/Check.



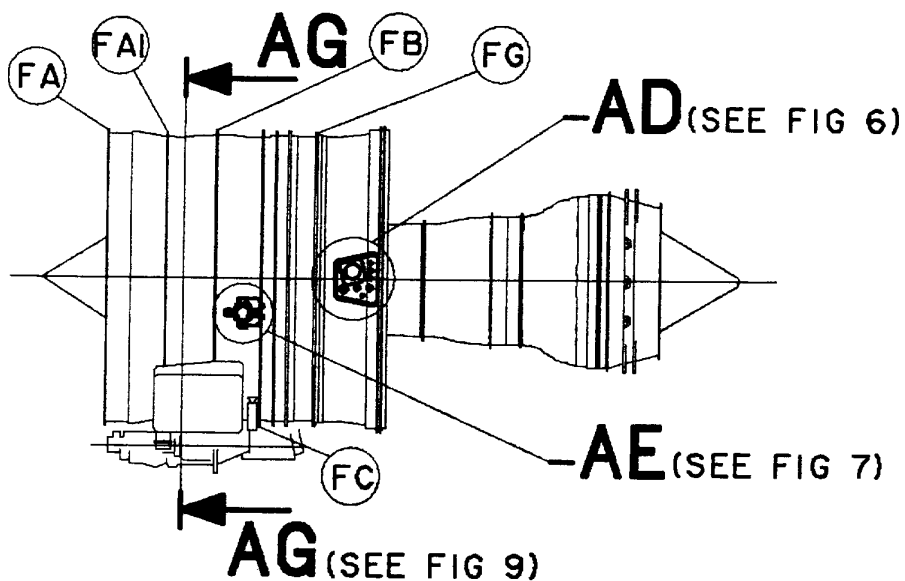
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Position of revised support brackets and mounting rafts
Fig.1

V2500-ENG-71-0114

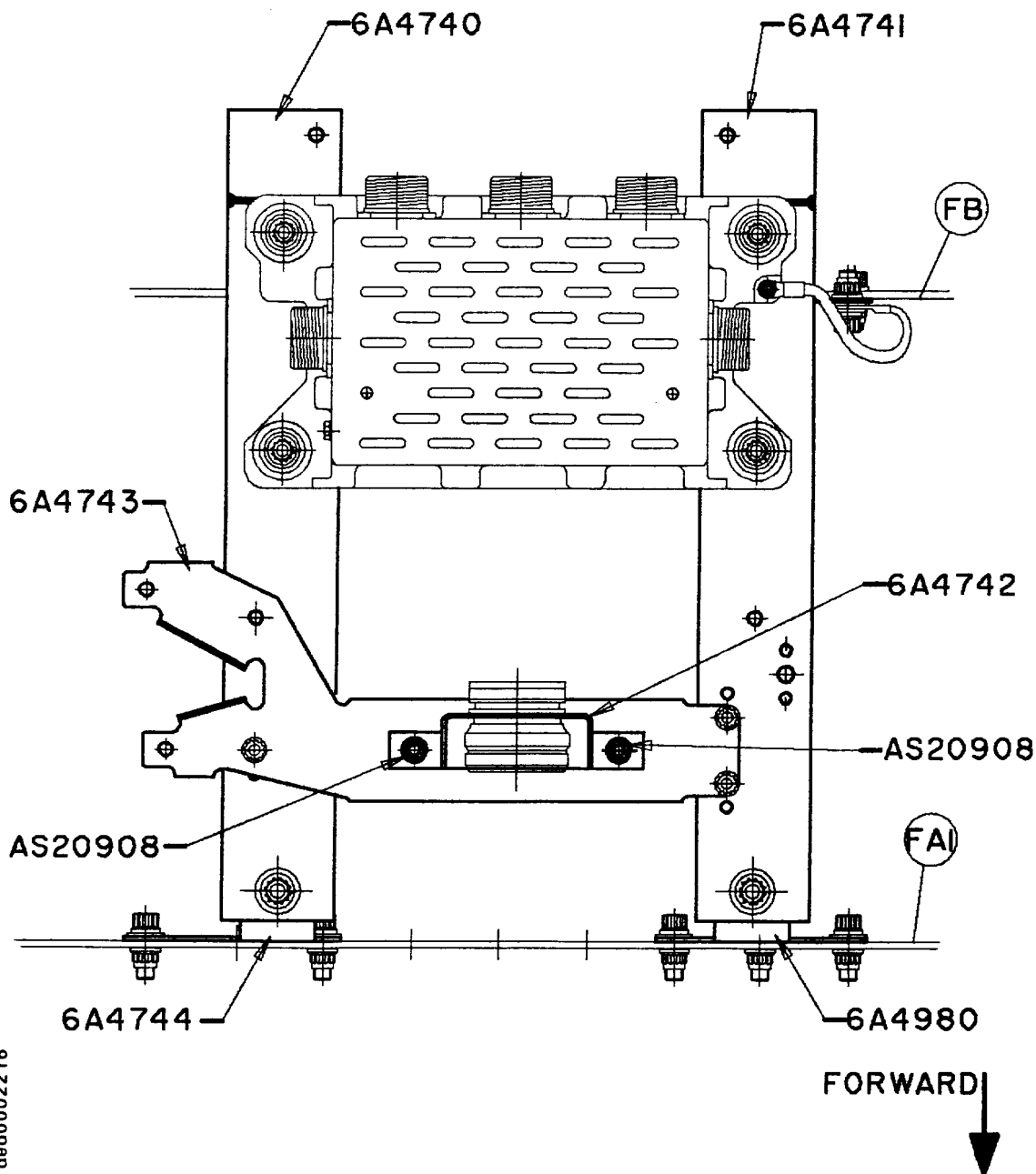


DIAGRAMMATIC VIEW ON RIGHT HAND SIDE OF ENGINE



Diagrammatic views on right hand side and left hand side of engine
Fig.2

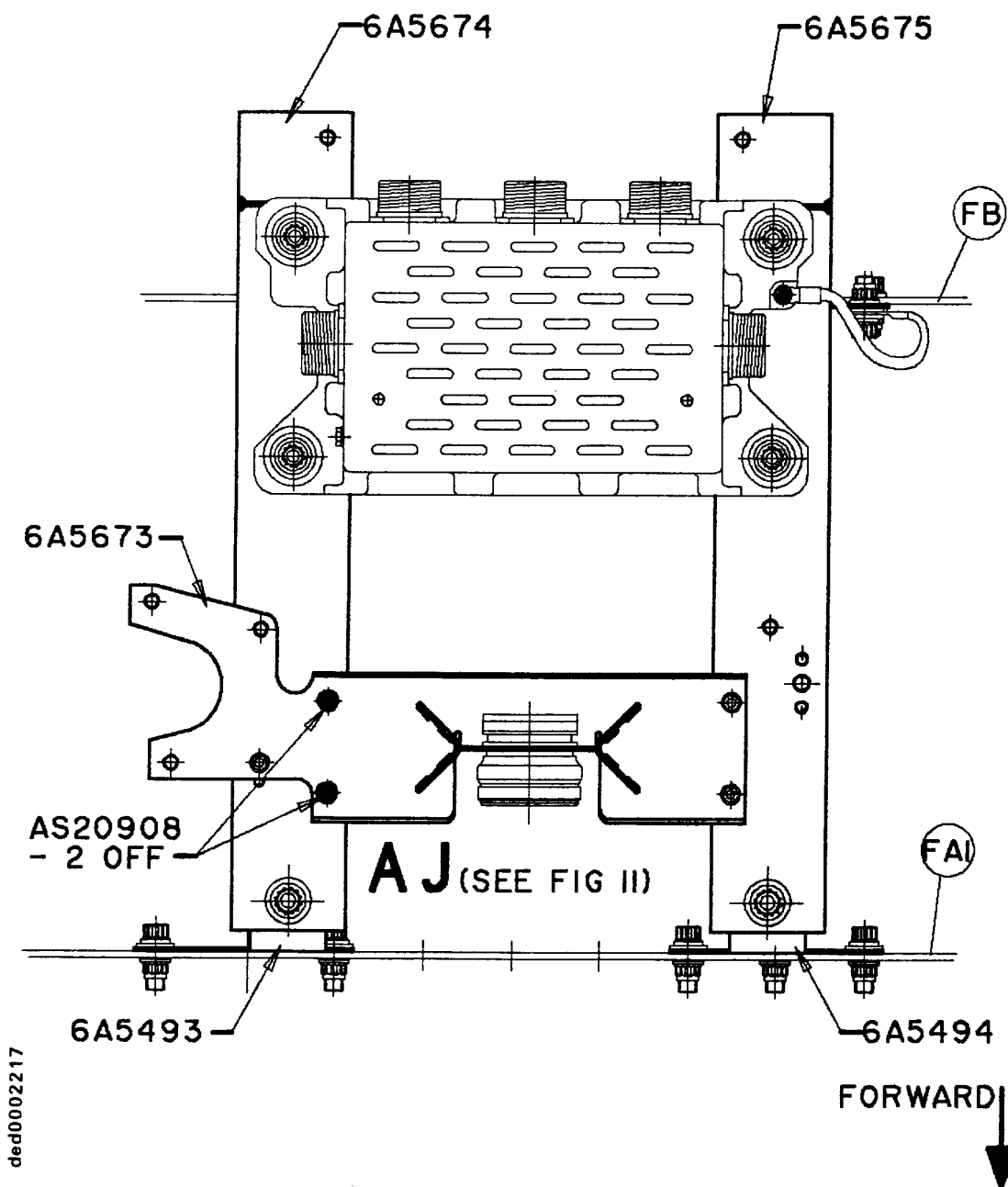
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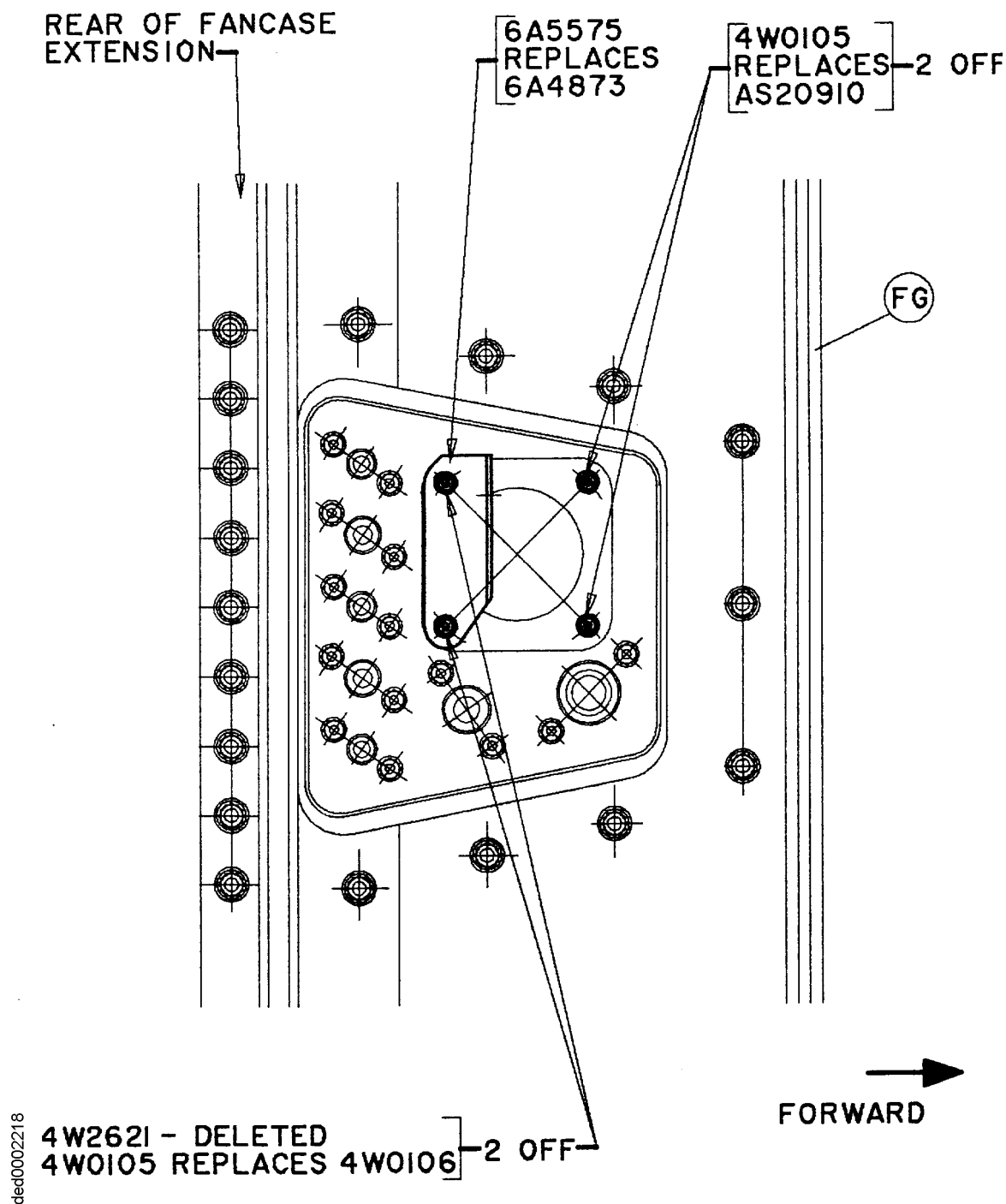
View AB (Figure 2) - Relay box mounting bracket (Rotated thru 90 degrees for convenience) - Before alteration
Fig.3

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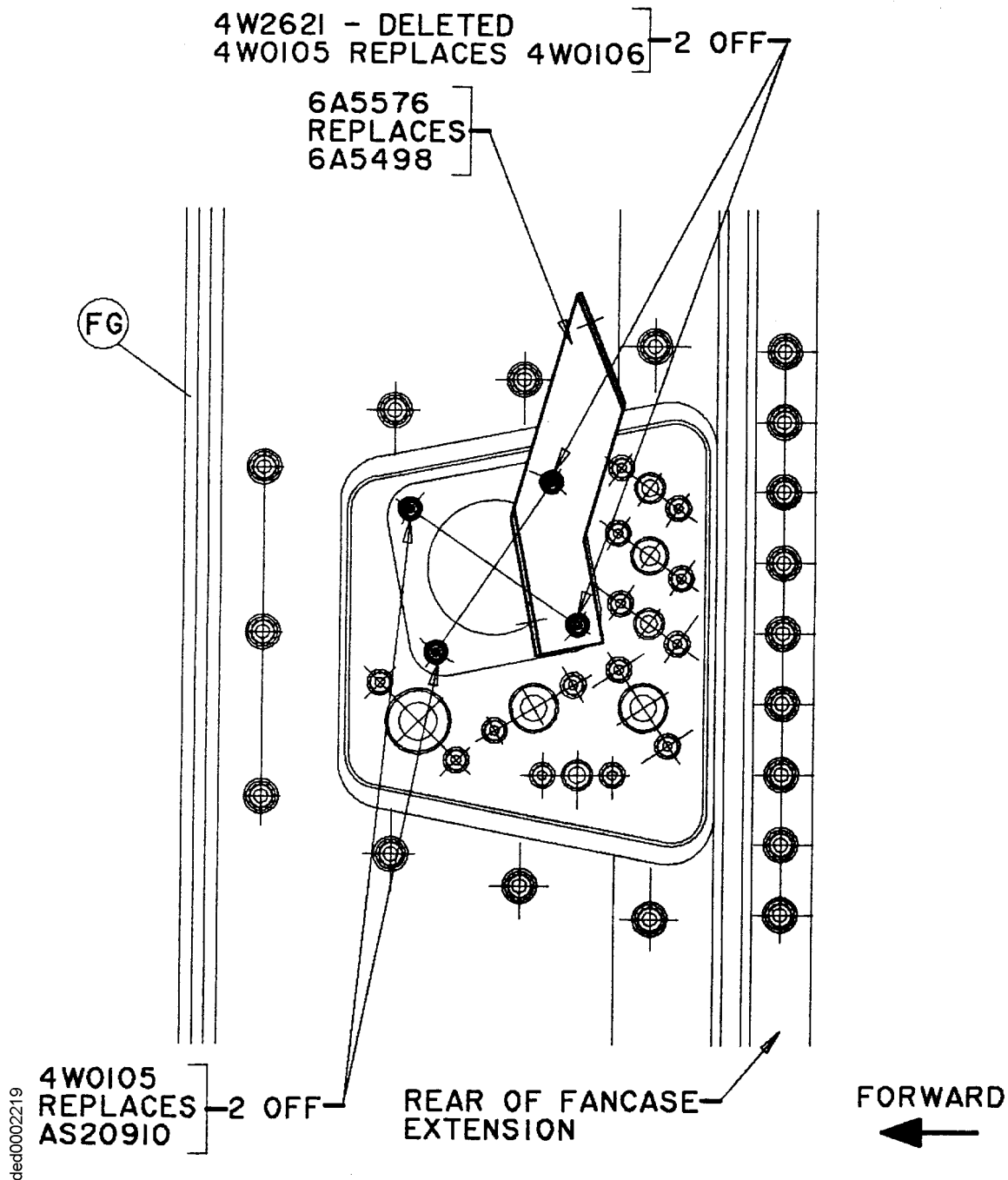
View AB (Figure 2) - Relay box mounting bracket (Rotated thru 90 degrees for convenience) - After alteration
Fig.4

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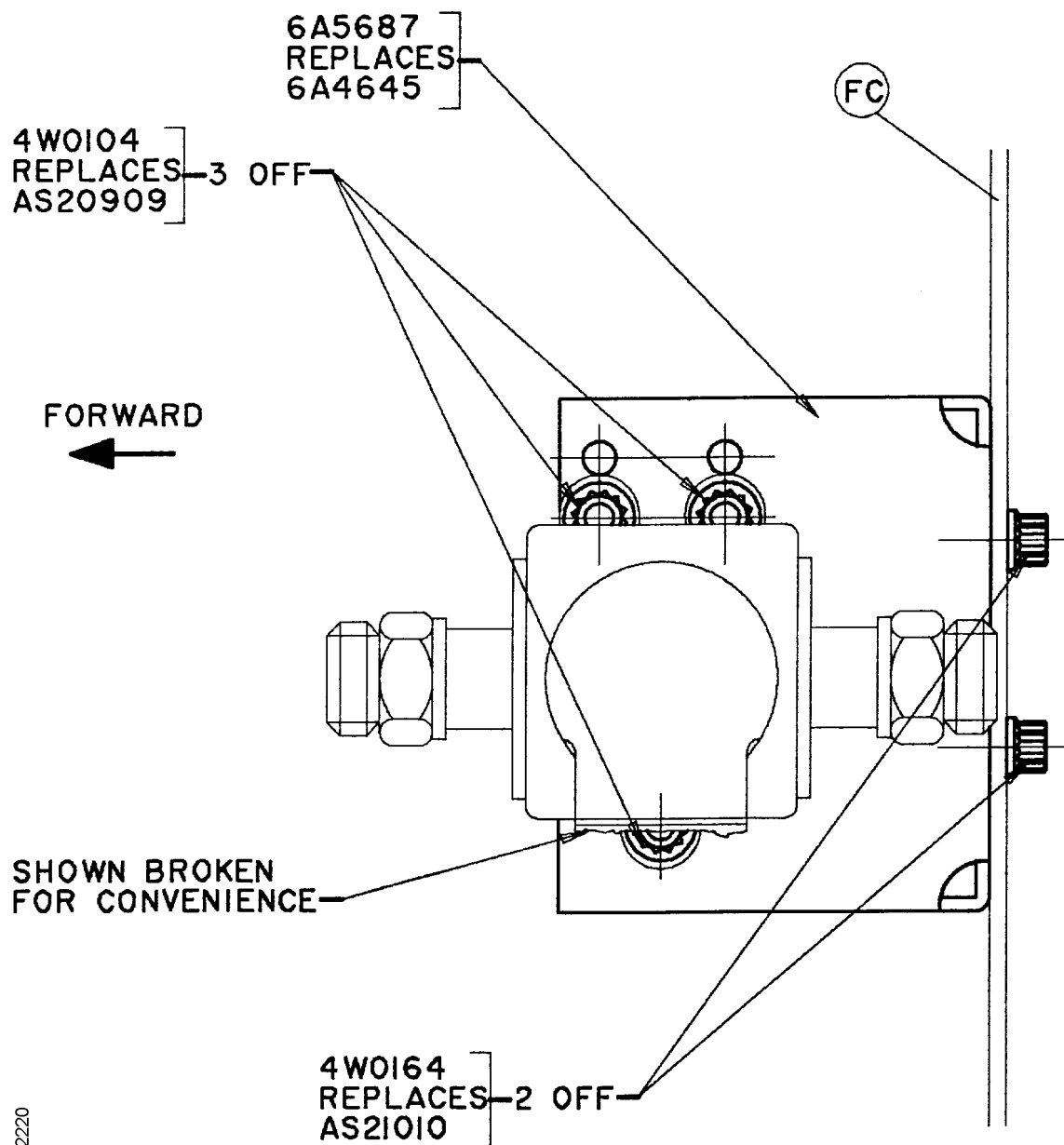
View AC (Figure 2) - Clipping bracket at right hand bifurcation - Before and after alteration
Fig.5

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View AD (Figure 2) - Clipping bracket at left hand bifurcation - Before and after alteration
Fig.6

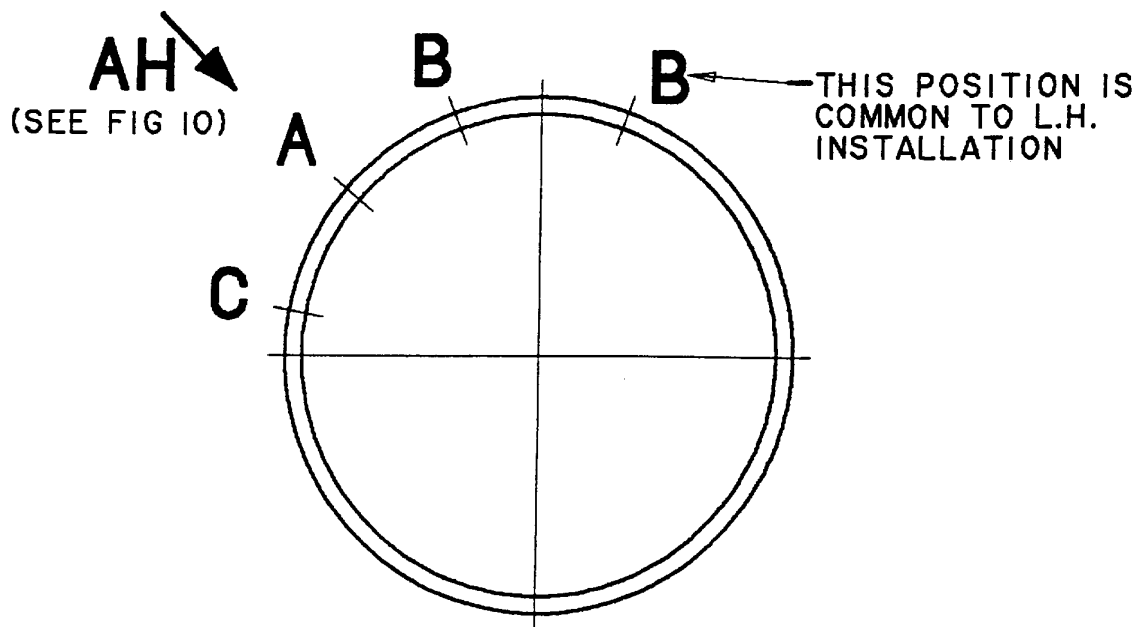
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View AE (Figure 2) - Mounting bracket for pressure switch - Before and after alteration
Fig.7

V2500-ENG-71-0114



6A576I REPLACES 6A4953 (SEE FIG 10) AT POSITIONS **A** AND **B**

6A576O REPLACES 6A4952 (SEE FIG 10) AT POSITIONS **A**, **B**
AND **C**

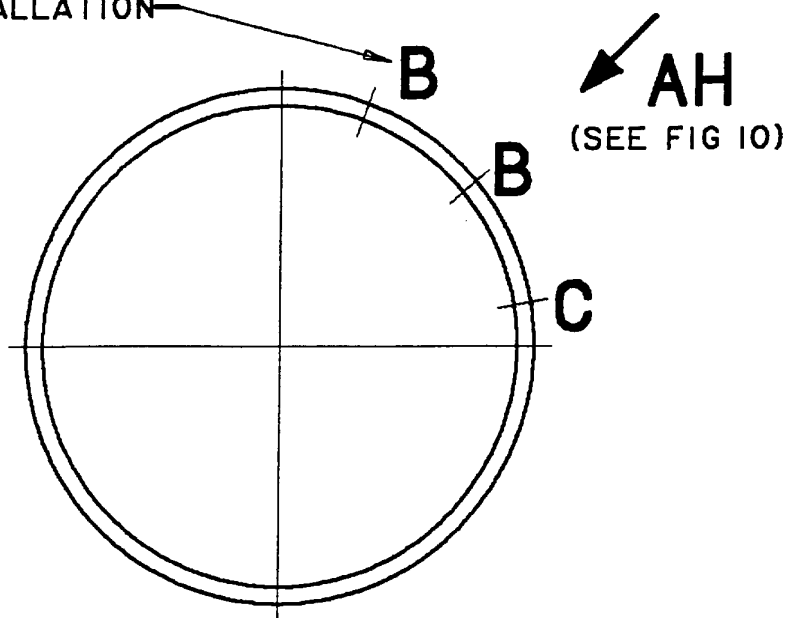
NOTE :- FITMENT OF A NEW OR REWORKED 6A576I AND 6A576O
IS ESSENTIAL AT POSITION **A** ONLY

Diagrammatic section AF (Figure 2) - Position of raft brackets (RH installation only)
Fig.8

V2500-ENG-71-0114



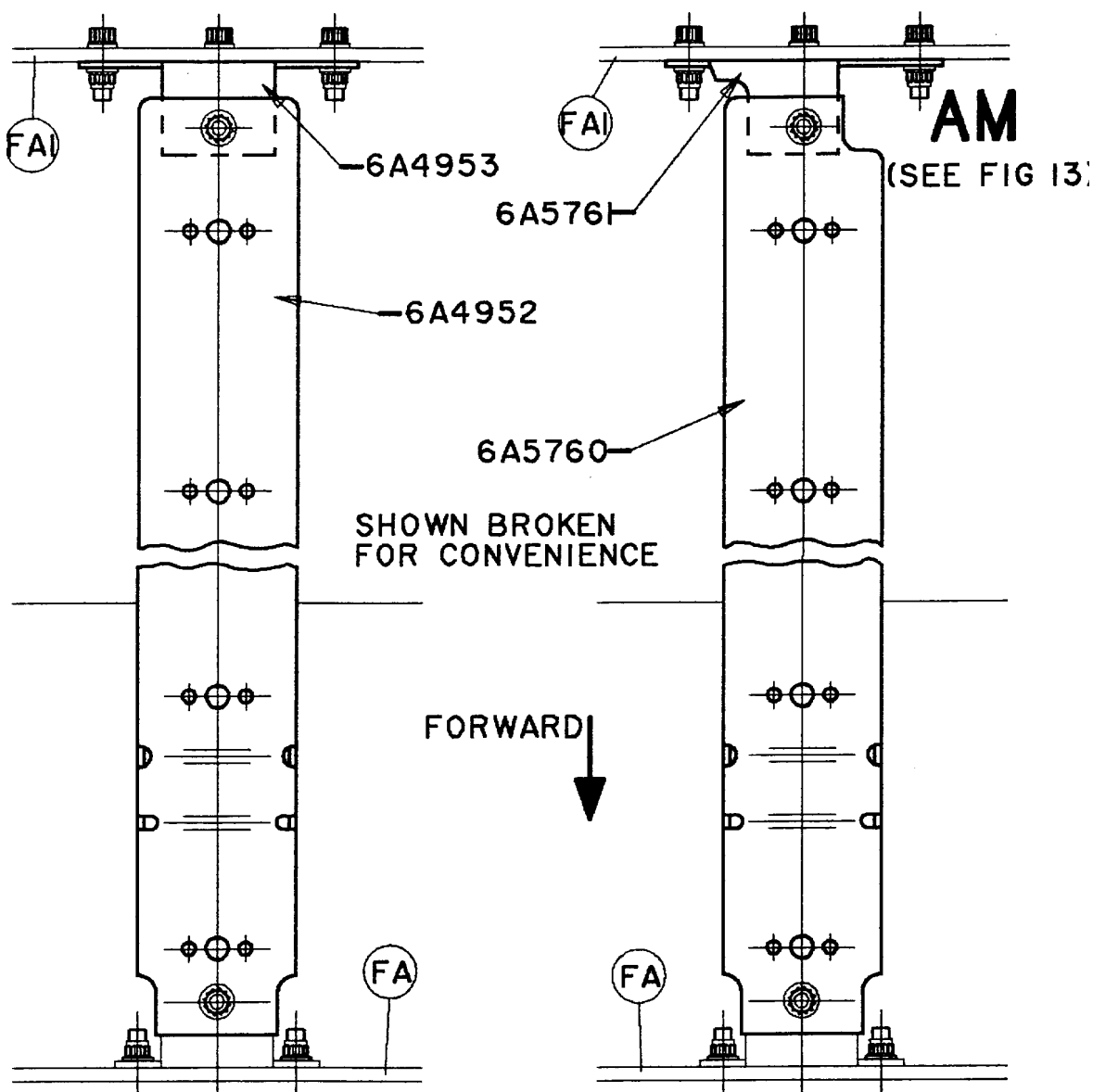
THIS POSITION IS
COMMON TO R.H.
INSTALLATION



6A576I REPLACES 6A4953 (SEE FIG 10) AT POSITIONS **B**
6A576O REPLACES 6A4952 (SEE FIG 10) AT POSITIONS **B** AND **C**

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Diagrammatic section AG (Figure 2) - Position of raft bracket (LH installation only)
Fig.9



VIEW ON ARROW **AH**
(SEE FIG 8 AND 9)

BEFORE ALTERATION

VIEW ON ARROW **AH**
(SEE FIG 8 AND 9)

AFTER ALTERATION

View AH (Figures 8 and 9) – Before and after alteration
Fig.10

V2500-ENG-71-0114



2. Accomplishment Instructions

A. Rework Instructions

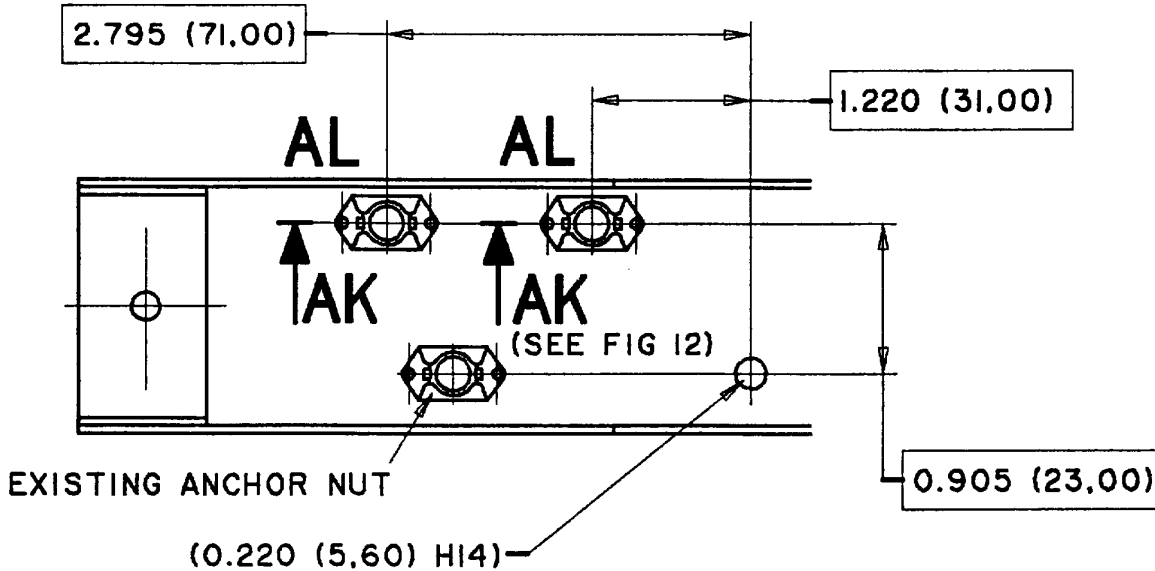
- (1) Rework the lower mounting rafts of the relay box.
 - (a) Refer to Figures 11 and 12.
- (2) Rework the mounting rafts of the harness loom.
 - (a) Refer to Figure 13.

B. Assembly Instructions

For the correct Removal/Installation procedures, refer to the V2500-D5 Engine Manual (EM), Chapter/Section 72-00-32, Removal-05 and Installation-01.

C. Recording Instructions

- (1) A record of accomplishment is necessary.

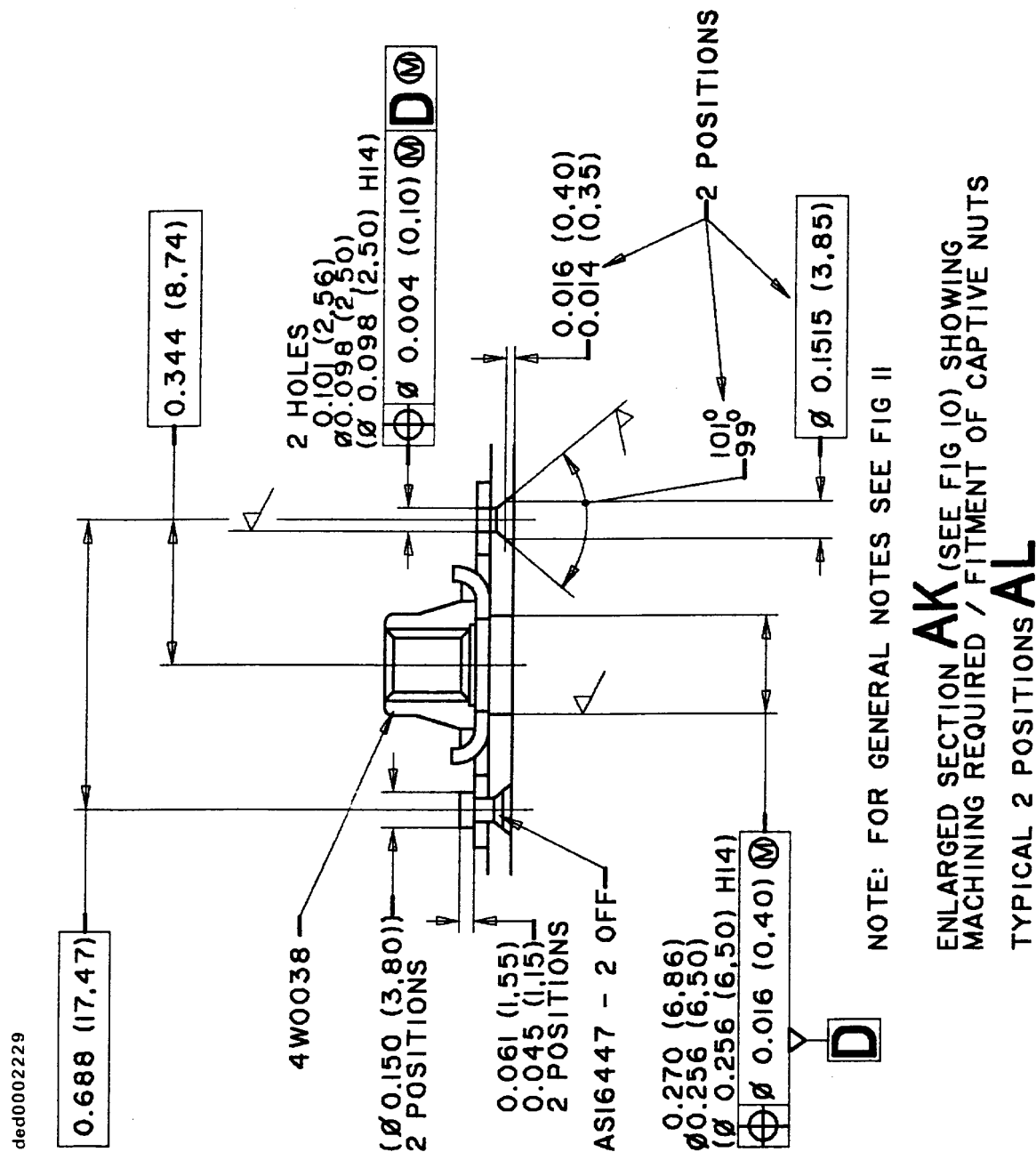


BREAK SHARP EDGES
 ALL DIMENSIONS IN INCHES (MILLIMETRES)
 ANGLES ARE IN DEGREES AND DECIMAL PARTS OF A DEGREE
 GEOMETRIC SYMBOLS CONFORM TO I.S.O. R1101 - 1969
 MACHINE WHERE MARKED ✓

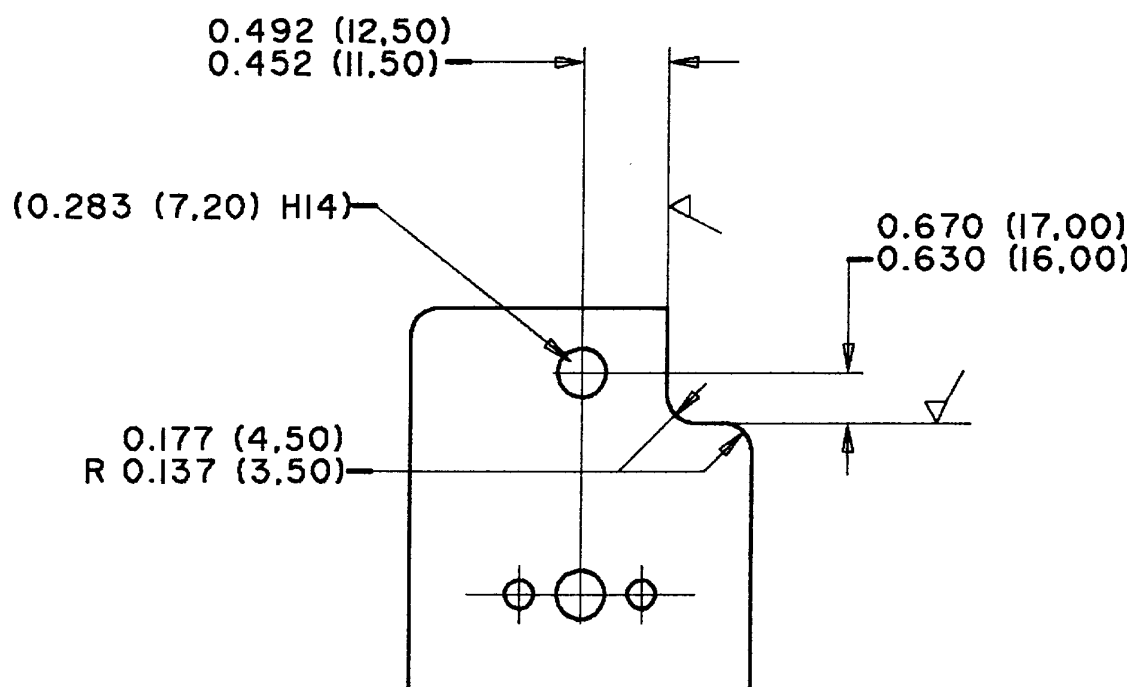
ENLARGED VIEW AT **AJ** (SEE FIG 4)
 ON UNDER SIDE OF RELAY BOX MOUNTING
 BRACKET

Rework of relay-box mounting brackets (6A4740)
 Fig.11

V2500-ENG-71-0114



Rework of relay-box mounting brackets (6A4740)
Fig.12



NOTE: FOR GENERAL NOTES SEE FIG II

View AM (Figure 10) - Rework of raft brackets (6A4952)
Fig.13

V2500-ENG-71-0114



SERVICE BULLETIN

3. Material Information

New Part No. (ATA No.)	Qty	Est'd Unit Price (\$)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
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Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

4W0038 (71-51-49)	2	Anchor, nut	- (01-636)	(A)(E)
AS16447 (71-51-49)	4	Rivet	- (01-638)	(A)(E)

B. Parts affected by this Bulletin:

6A5674 (71-51-49)	1	Raft assy, mounting - Igniter relay box	6A4740 (01-610)	(A)(B)(S1) (1D)
6A5675 (71-51-49)	1	Raft assy, mounting - Igniter relay box	6A4741 (01-650)	(A)(B)(S1)
- (71-51-49)	1	Bracket assy, support - Harness loom disconnect	6A4742 (01-740)	(B)
- (71-51-49)	2	Bolt, bi-hex	AS20908 (01-742)	(D)
6A5673 (71-51-49)	1	Bracket assy, support - Harness loom disconnect	6A4743 (01-744)	(A)(B)(S1)
AS20908 (71-51-49)	2	Bolt bi-hex	- (01-746)	(A)(C)
6A5493 (71-51-49)	1	Bracket assy, support - Relay box mounting raft	6A4744 (01-680)	(A)(B)(S2)
6A5494 (71-51-49)	1	Bracket assy, support - Relay box mounting raft	6A4980 (01-710)	(A)(B)(S2)
4W0105 (71-51-51)	2	Bolt bi-hex - Fume seal	AS20910 (01-038)	(A)(D)
6A5575 (71-51-51)	1	Bracket, support - CP2505	6A4873 (01-040)	(A)(B)
4W01015 (71-51-51)	2	Bolt, bi-hex - Bracket and fume seal	4W0106 (01-048)	(A)(D)
- (71-51-51)	2	Washer, spreader	4W2621 (01-050)	(D)
4W0105 (71-51-54)	2	Bolt bi-hex - Fume seal	AS20910 (01-038)	(A)(D)
6A5576 (71-51-54)	1	Bracket, support - CP2504 and CP2577	6A5498 (01-040)	(A)(B)
4W0105 (71-51-54)	2	Bolt, bi-hex - Bracket and fume seal	4W0106 (01-048)	(A)(D)
- (71-51-54)	2	Washer, spreader	4W2621 (01-050)	(D)
6A5761	1	Bracket assy - Raft	6A4953	(A)(B)(S3)

V2500-ENG-71-0114



SERVICE BULLETIN

(71-51-54)		support	(05-515)	
6A5761	1	Bracket assy - Raft	6A4953	(A)(B)(S3)
(71-51-54)		support	(05-530)	
6A5761	1	Bracket assy - Raft	6A4953	(A)(B)(S3)
(71-51-54)		support	(05-545)	
6A5761	1	Bracket assy - Raft	6A4953	(A)(B)(S3)
(71-51-54)		support	(05-560)	
6A5760	3	Raft assy	6A4952	(A)(B)(S3)
(71-51-55)			(05-170)	(1D)
6A5760	3	Raft assy	6A4952	(A)(B)(S3)
(71-51-56)			(05-170)	(1D)
6A5760	1	Raft assy	6A4952	(A)(B)(S3)
(71-51-63)			(05-170)	(1D)
6A5687	1	Bracket assy, mounting -	6A4645	(A)(B)
(79-35-16)		Oil scavenge filter	(01-050)	
		pressure switch		
4W0164	2	Bolt, bi-hex - Bracket	AS21010	(A)(D)
(79-35-16)		securing	(01-060)	
4W0104	3	Bolt, bi-hex - Switch	AS20909	(A)(D)
(79-35-16)		securing	(01-120)	

NOTE: The unit prices, if shown, are an estimate and they are given for the purpose of planning only. For information about actual prices, refer to the IAE Price Catalog or contact IAE's Spare Parts Sales Department.

C. Instructions/Disposition Code Statements:

- (A) New parts are currently available.
- (B) Old parts are no longer available.
- (C) Quantity increased from 3 to 5.
- (D) Old parts can be used up in other applications.
- (E) Required for reworking of mounting bracket.
- (S1) Old and new parts are not interchangeable.
- (S2) Old and new parts are not interchangeable.
- (S3) Old and new parts are not interchangeable.
- (1D) Old part can be reworked and re-identified to the new part number.