



ENGINE - FUEL AND CONTROL - INTRODUCTION OF TUBES MADE OF IMPROVED FRETAGE RESISTANT  
MATERIAL - CATEGORY CODE 6 - MOD.ENG-73-0045

1. Planning Information

A. Effectivity

- (1) Aircraft : Airbus A320
- (2) Engine : V2500-A1 Engines prior to Serial No.V0326
- (3) Nacelle : V2500-A1 Nacelles

B. Concurrent Requirements

None

C. Reason

(1) Condition

Fretage can occur on titanium fuel and oil tubes at clipping point locations.

(2) Background

Fretage is being experienced on tubes which are manufactured in titanium.

Visual inspection of titanium fuel and oil tubes on development and service engines has identified varying degrees of wear. This Service Bulletin covers a change to steel material for 8 of these tubes and introduces improved type clips.

(3) Objective

To prevent tube fretage and maintain engine reliability.

(4) Substantiation

The wear between the current clips and titanium is caused by abrasive elements produced during mechanical interaction of the parts at elevated temperatures.

The improved type clip and steel tube combination is used extensively on the D5 model and to a lesser extent the A5 model. Development engine testing of this standard is considered acceptable with only light polishing taking place on the tubes.

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The routing of the steel tubes is identical to that of the titanium tubes and assembly checks are not considered necessary.

(5) Effect of Bulletin on Workshop Procedures:

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

(6) Supplemental Information

None

D. Description

This Service bulletin introduces 8 steel tubes to replace existing titanium tubes. The 'Adel' type clips used with the titanium tubes are replaced with clips from the 'AS' range. The 'AS' clips have marginally thicker lugs compared to the 'Adel' clips, and this has necessitated the use of longer bolts at clipping points 0305 and 0306 to maintain the minimum bolt protrusion.

Clipping arrangements remain unchanged except at CP0255 where a 5 mm spacer is introduced to improve the clipping at this location.

E. Approval

The part number changes and/or part modifications described in Section 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

F. Compliance

Category Code 6

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

G. Manpower

Estimated manhours to incorporate the full intent of this Bulletin:

Venue	Estimated Manhours
(1) In Service	Not applicable

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(2) At Overhaul Not affected

H. Material - Price and Availability

(1) Modification Kit not required.

(2) See 'Material Information' section for prices and availability of future spares.

I. Tooling - Price and Availability

Special tools are not required.

J. Weight and Balance

- |                   |  |
|-------------------|--|
| (1) Weight change | Plus 4.8 lbs (2,177 kg)  |
| (2) Moment arm    | 8 in. (203,2 mm) forward of datum.                               |
| (3) Datum         | Engine front mount centerline<br>(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.

EC92VR360

(2) Other References

None

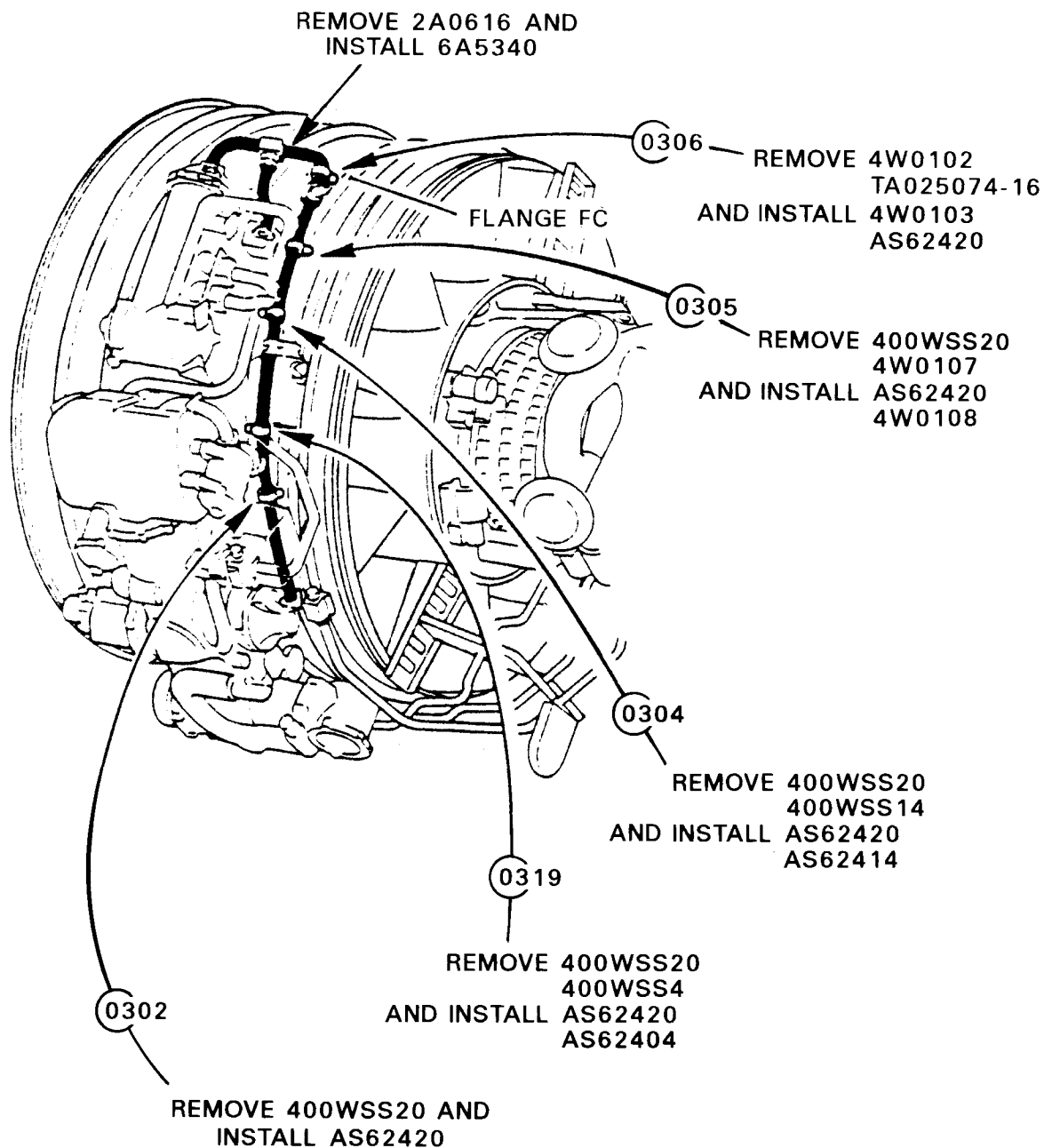
M. Other Publications Affected

- (1) V2500 Engine Illustrated Parts Catalog (S-V2500-1IA), Chapter/Section 71-51-50, 73-11-49, 79-21-49 and 79-22-49.
- (2) V2500 Engine Manual (E-V2500-1IA), 72-00-32, Removal-13 and Installation-13.
- (3) V2500 Component Maintenance Manual (CMM-THD-V2500-1IA), 73-11-49, Cleaning-00, -01 and -04, Inspection/Check-00, -02, -04 and -05.
- (4) V2500 Component Maintenance Manual (CMM-THD-V2500-1IA), 79-21-49, Cleaning-00 and -03, Inspection/Check-00 and -02.

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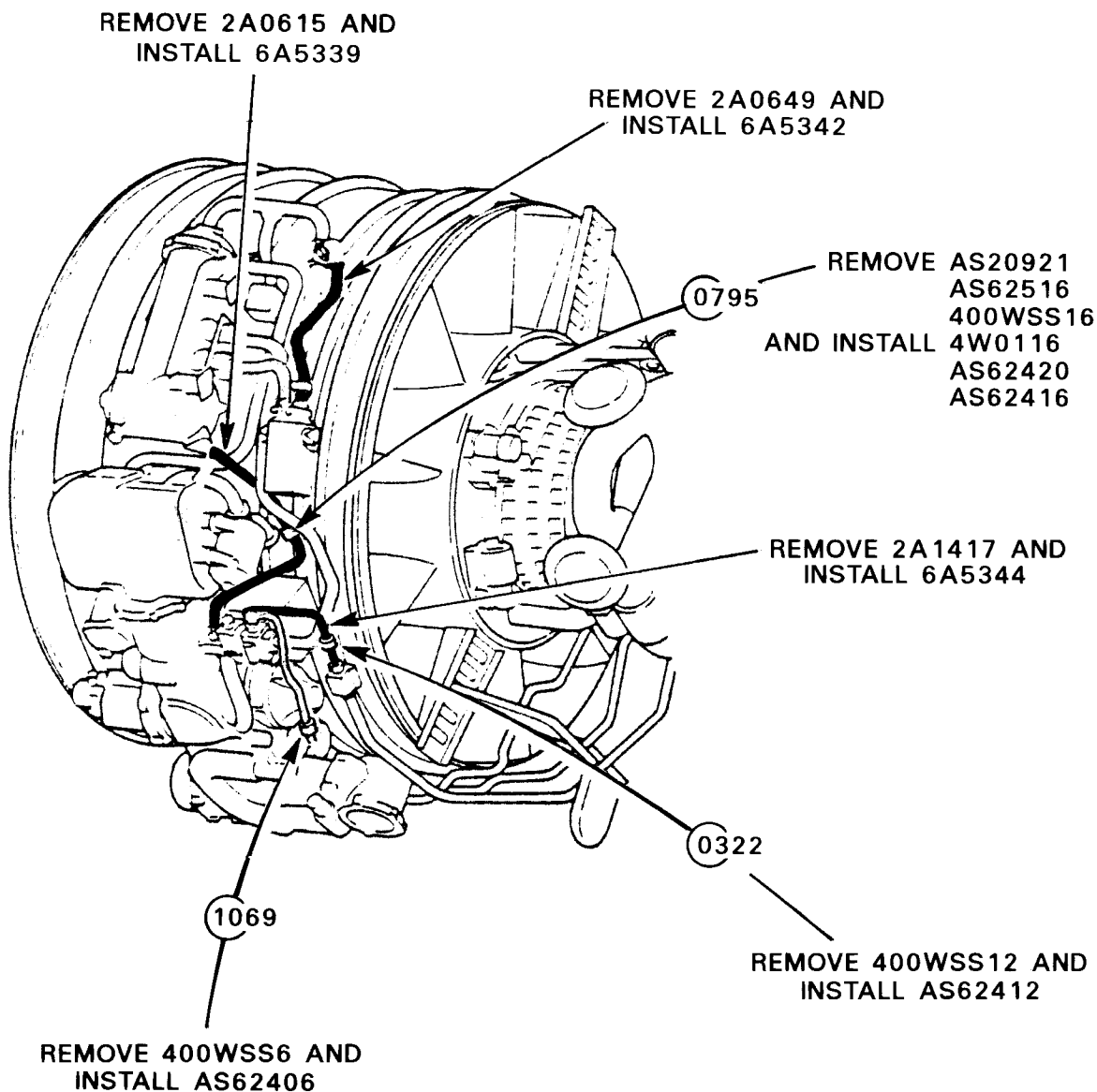
Location of clip points 0302, 0304, 0305, 0306 and 0319  
Fig.1, Sheet 1 of 4

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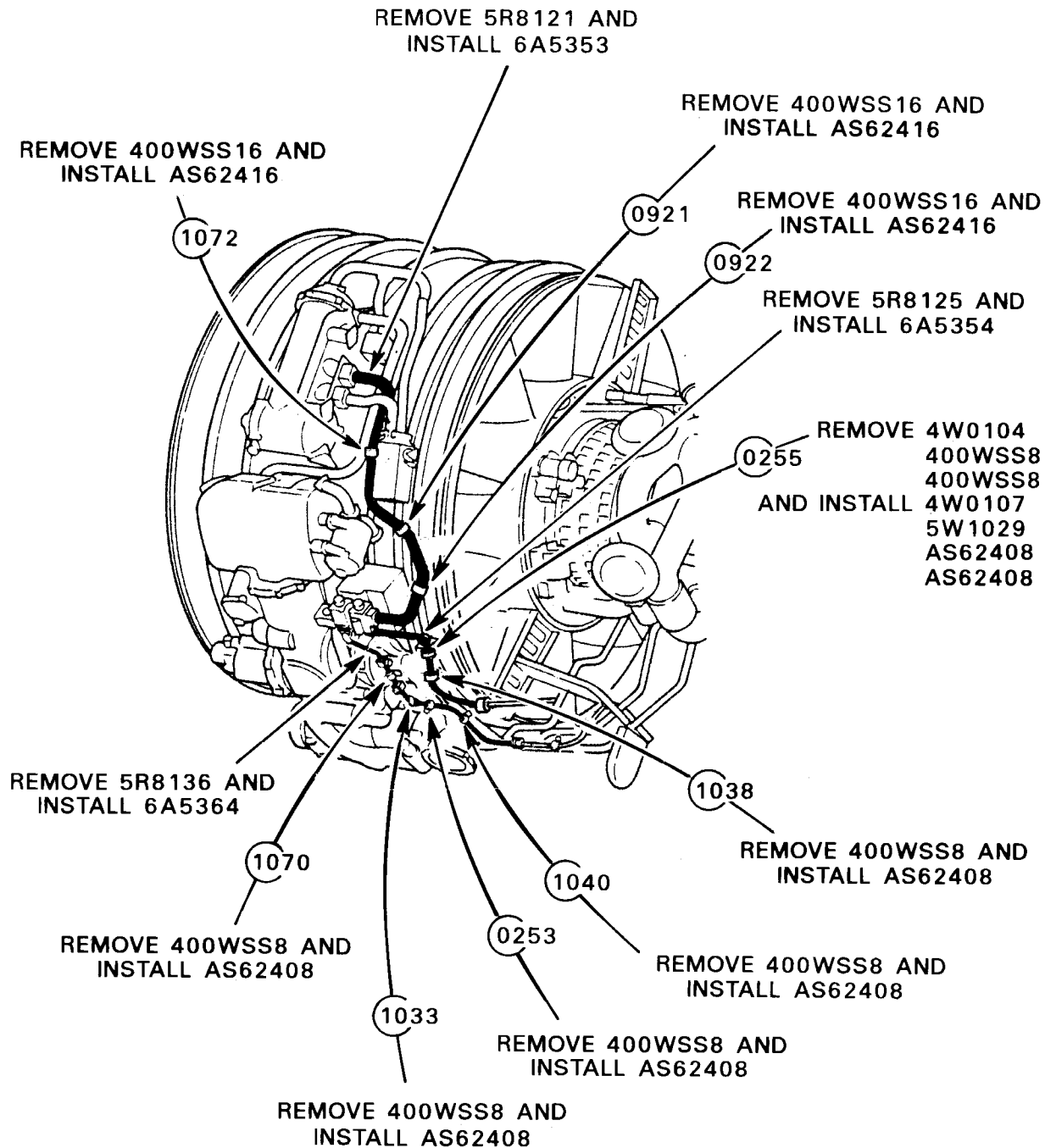
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Location of ID generator FCOC fuel tube assembly and clip points 0322, 0795 and 1069  
Fig.1, Sheet 2 of 4

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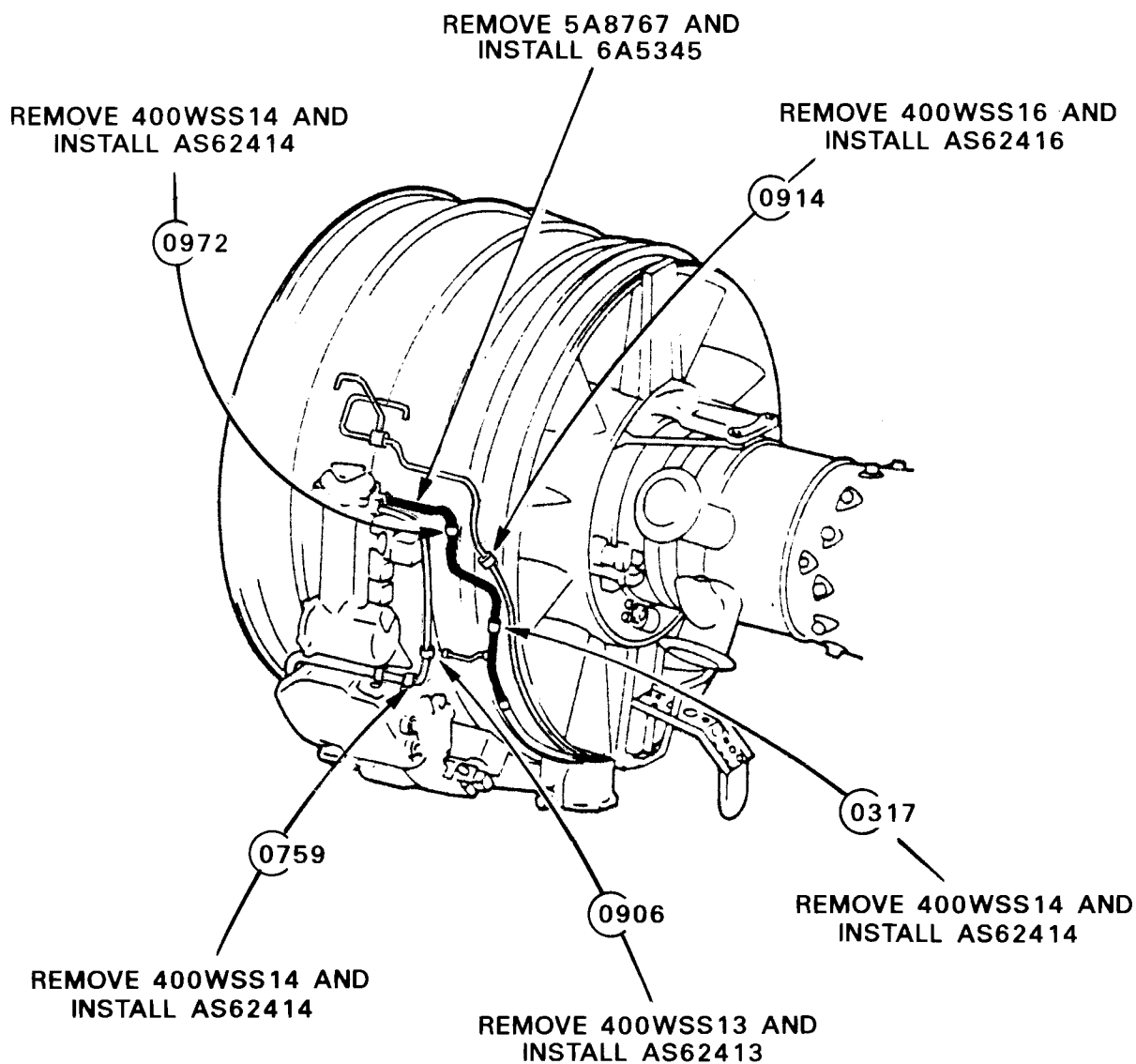
and 4 Location of clip points 0253, 0255, 0921, 0922, 1033, 1038, 1040, 1070 and 1072  
Fig.1, Sheet 3

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# SERVICE BULLETIN

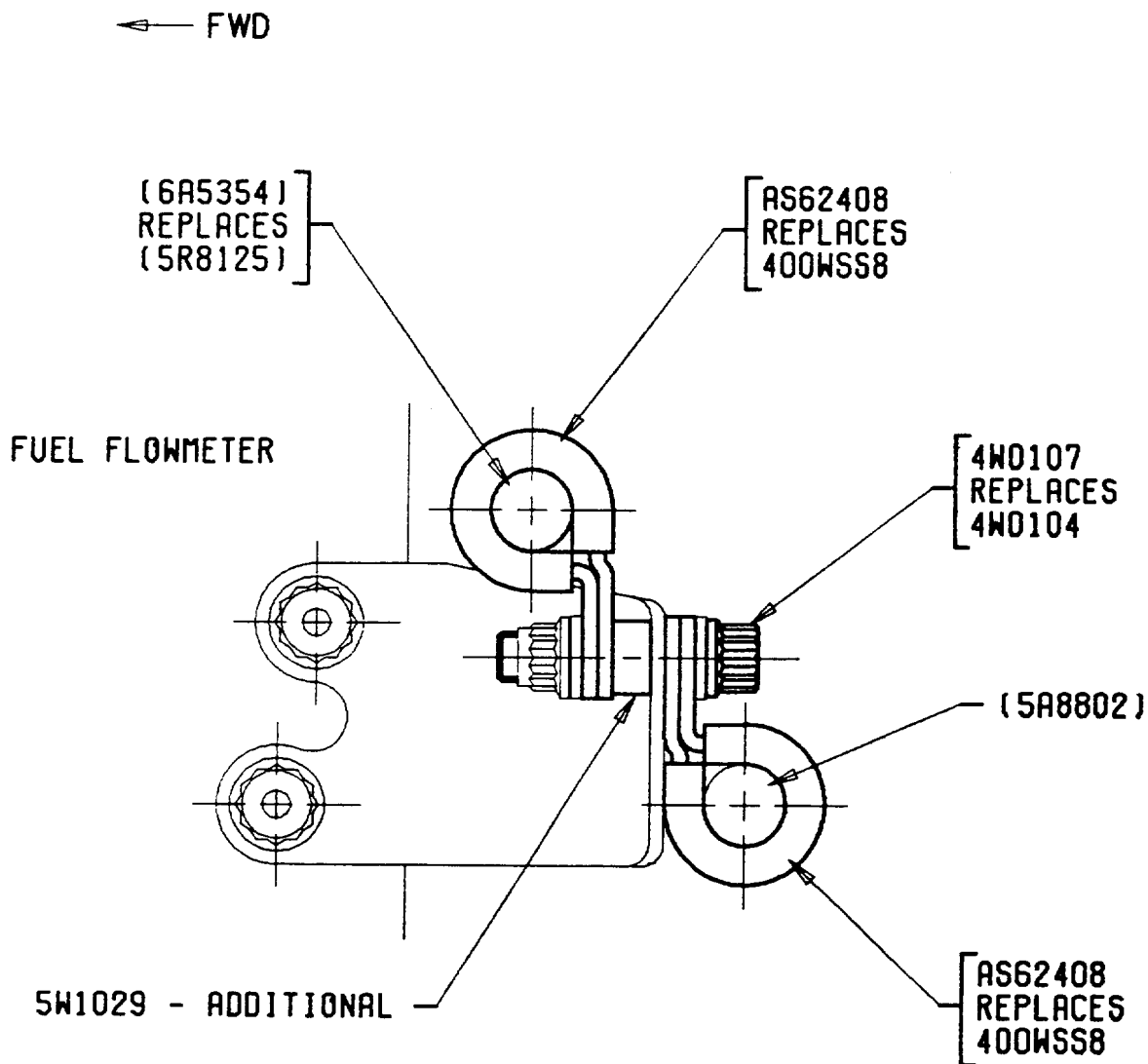
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Location of clip points 0317, 0759, 0906, 0914 and 0972  
Fig.1, Sheet 4 of 4

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CLIPPING POINT 0255  
BEFORE AND AFTER ALTERATION

Details of clip point 0255 - Before and after alteration  
Fig.2

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2. Accomplishment Instructions

A. Rework Instructions

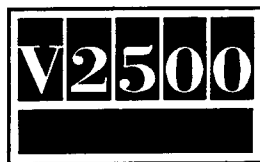
Not applicable

B. Assembly Instructions

- (1) Install the new fuel tubes by use of approved procedures, Engine Manual, 72-00-32 Installation.

C. Recording Instructions

- (1) A record of accomplishment is necessary.



## SERVICE BULLETIN

3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None

B. Parts affected by this Bulletin:

New Part No. (ATA No.)	Qty	Est'd Unit Price (\$)	Keyword		Old Part No. (IPC No.)	Instructions Disposition
AS62408 (71-51-50)	1	19.70	Clip	CP0255	400WSS8 (01-112)	(A)(1D)(S1)
AS62420 (73-11-49)	1	23.90	Clip	CP0302	400WSS20 (02-128)	(A)(1D)(S1)
AS62420 (73-11-49)	1	23.90	Clip	CP0319	400WSS20 (02-136)	(A)(1D)(S1)
AS62420 (73-11-49)	1	23.90	Clip	CP0304	400WSS20 (02-144)	(A)(1D)(S1)
AS62420 (73-11-49)	1	23.90	Clip	CP0305	400WSS20 (02-152)	(A)(1D)(S1)
6A5340 (73-11-49)	1	2359.00	Tube assy, fuel - LP pump to FCOC fuel return valve		2A0616 (02-100)	(A)(B)(S1)
4W0108 (73-11-49)	1	7.15	Bolt, bi-hex	CP0305	4W0107 (02-149)	(A)(1D)(S2)
4W0103 (73-11-49)	1	3.95	Bolt, bi-hex	CP0306	4W0102 (02-157)	(A)(1D)(S2)
AS62420 (73-11-49)	1	23.90	Clip	CP0306	TA025074-16 (02-160)	(A)(1D)(S1)
6A5342 (73-11-49)	1	1243.00	Tube assy, fuel - Disconnect to ID generator FCOC		2A0649 (03-100)	(A)(B)(S1)
6A5339 (73-11-49)	1	1242.00	Tube assy, fuel - FCOC to HP fuel pump		2A0615 (05-100)	(A)(B)(S1)

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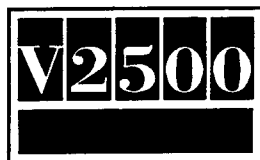


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4W0116 (73-11-49)	1	10.60	Bolt, bi-hex	CP0795	AS20921 (05-133)	(A)(1D)(S2)
AS62420 (73-11-49)	1	23.90	Clip	CP0795	AS62516 (05-136)	(A)(1D)(S1)
AS62406 (73-11-49)	1	19.10	Clip	CP1069	400WSS6 (06-536)	(A)(1D)(S1)
6A5344 (73-11-49)	1	695.00	Tube assy, fuel - Fuel metering unit to fuel flowmeter		2A1417 (07-100)	(A)(B)(S1)
AS62412 (73-11-49)	1	21.20	Clip	CP0322	400WSS12 (07-128)	(A)(1D)(S1)
6A5364 (73-11-49)	1	1352.00	Tube assy, fuel - Fuel metering unit to disconnect		5R8136 (10-100)	(A)(B)(S1)
AS62408 (73-11-49)	1	19.70	Clip	CP0253	400WSS8 (10-128)	(A)(1D)(S1)
AS62408 (73-11-49)	1	19.70	Clip	CP1033	400WSS8 (10-136)	(A)(1D)(S1)
AS62408 (73-11-49)	1	19.70	Clip	CP1040	400WSS8 (10-144)	(A)(1D)(S1)
AS62408 (73-11-49)	1	19.70	Clip	CP1070	400WSS8 (10-152)	(A)(1D)(S1)
6A5354 (73-11-49)	1	1106.00	Tube assy, fuel - Disconnect to fuel metering unit		5R8125 (20-500)	(A)(B)(S1)
4W0107 (73-11-49)	1	4.29	Bolt, bi-hex	CP0255	4W0104 (20-533)	(A)(1D)(S2)
5W1029 (73-11-49)	1	9.56	Spacer	CP0255	- (20-535)	(A)(C)(S1)
AS62408 (73-11-49)	1	19.70	Clip	CP0255	400WSS8 (20-536)	(A)(1D)(S1)
AS62408 (73-11-49)	1	19.70	Clip	CP1038	400WSS8 (20-552)	(A)(1D)(S1)

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6A5353 (73-11-49)	1	2402.00	Tube assy, fuel - Fuel metering unit to fuel diverter valve	5R8121 (26-100)	(A)(B)(S1)
AS62416 (73-11-49)	1	22.60	Clip	CP0795 400WSS16 (26-152)	(A)(1D)(S1)
AS62416 (73-11-49)	1	22.60	Clip	CP1072 400WSS16 (26-176)	(A)(1D)(S1)
AS62416 (73-11-49)	1	22.60	Clip	CP0922 400WSS16 (26-168)	(A)(1D)(S1)
AS62414 (79-21-49)	1	21.80	Clip	CP0759 400WSS14 (03-136)	(A)(1D)(S1)
AS62413 (73-21-49)	1	-	Clip	CP0906 400WSS13 (03-144)	(A)(1D)(S1)
6A5345 (79-21-49)	1	1596.00	Tube assy, oil feed - FCOC to disconnect	5A8767 (03-500)	(A)(B)(S1)
AS62414 (79-21-49)	1	21.80	Clip	CP0304 400WSS14 (03-528)	(A)(1D)(S1)
AS62414 (79-21-49)	1	21.80	Clip	CP0317 400WSS14 (03-536)	(A)(1D)(S1)
AS62414 (79-21-49)	1	21.80	Clip	CP0972 400WSS14 (03-552)	(A)(1D)(S1)
AS62404 (79-21-49)	1	18.30	Clip	CP0319 400WSS4 (05-144)	(A)(1D)(S1)
AS62416 (79-21-49)	1	22.60	Clip	CP0914 400WSS16 (17-592)	(A)(1D)(S1)
AS62416 (79-22-49)	1	22.60	Clip	CP0921 400WSS16 (12-576)	(A)(1D)(S1)

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**C. Instructions/Disposition Code Statements:**

- (A) New parts are currently available.
- (B) Old parts are no longer available.
- (C) Additional part.
- (1D) Old part may be used up in other applications.

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(S1) New tubes and associated clipping are physically but not functionally interchangeable with old tubes and associated clipping.

(S2) Not interchangeable.

NOTE: The estimated 1995 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Consult the IAE Price Catalog or contact IAE's Spare Parts Sales Department for information concerning firm prices.

