

POWER PLANT – FUEL DRAIN TUBES (ENGINES) – REROUTED TUBES FROM OIL TANK FILLER DRAIN TO FAN COWL OVERBOARD VENT – CATEGORY CODE 6 – MOD.ENG-71-0121

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1. Planning Information

A. Effectivity

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

B. Reason

(1) Condition

A foul can occur with the scupper drain tubes which run from the gearbox oil filler drain to the overboard vent and the fan cowl doors.

(2) Background

During build of the V2500-D5 flight certification demountable power plants, insufficient clearance between the engine scupper drain tubes and the fan cowl doors was highlighted.

This Service Bulletin introduces new drain tubes which are rerouted to generally improve the clearances with the doors.

Limited access to the oil tank drain plug and filter end cover was evident. This is also addressed by the tube rerouting.

(3) Objective

Incorporation of this Service Bulletin is designed to provide adequate clearance between the fan cowls and the scupper drain tubes.

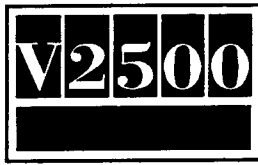
Improved access to the oil tank drain plug and the filter housing end cover is also achieved.

(4) Substantiation

A trial installation of the modified parts was carried out on a mock-up engine. Adequate clearance was demonstrated between the fan cowls and the scupper drain tube assemblies.

(5) Effect of Bulletin on Workshop Procedures:

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

## (6) Supplemental Information

None.

C. Description

## (1) This Service Bulletin introduces the following changes:

(a) Two new tube assemblies are introduced. One tube runs from the gearbox filler drain connection to a disconnect at the hydraulic pump mounting flange. The other tube runs from the disconnect to a position above the fan cowl vent.

## (b) Clipping point changes are as follows:

Existing Clip Points 2023, 2055, 2286, 2381, 2382, 2383, 2384, 2385 and 2386 are amended.

New Clip Points 2607, 2608, 2609, 2610, 2611 and 2612 are introduced.

Existing Clip Points 2495, 2497, 2498, 2499, 2500 and 2501 are deleted.

Existing Clip Point 2496 is transferred from the engine model to the nacelle model.

(c) The lead on EEC harness loom 'A' which ran alongside the oil drain tubes to the fire detection rail is rerouted round the flange between the oil tank and gearbox. This necessitates an increase in the length of the lead.

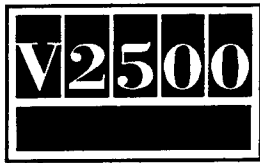
(d) Six new brackets are required to support tube and harness clips.

(e) Seven existing brackets are deleted.

## D. 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.

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## E. Compliance

Category Code 6

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

## F. Manpower

Estimated manhours to incorporate the full intent of this Bulletin:

| Venue           |    |    |    | Estimated Man-hours |
|-----------------|----|----|----|---------------------|
| (1) In service  | .. | .. | .. | Not applicable      |
| (2) At overhaul | .. | .. | .. | Not affected        |

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

## G. Material – Price and Availability

- (1) Modification Kit not required.
- (2) See "Material Information" section for prices and availability of future spares.

## H. Tooling – Price and Availability

Special tools are not required.

## I. Weight and Balance

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

## J. Electrical Load Data

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

## K. References

- (1) Internal Reference No.  
EC93VR063

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(2) Other References

The V2500 Engine Manual, Chapter/Section 72-00-32, Removal Installation.

L. Other Publications Affected

- (1) The V2500 Illustrated Parts Catalog, Chapter/Section 71-71-44.
- (2) The V2500 Engine Manual, Chapter/Section 72-00-32.
- (3) The Aircraft Maintenance Manual, Chapter/Section 71-51-51.

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2. Accomplishment Instructions

A. Rework Instructions

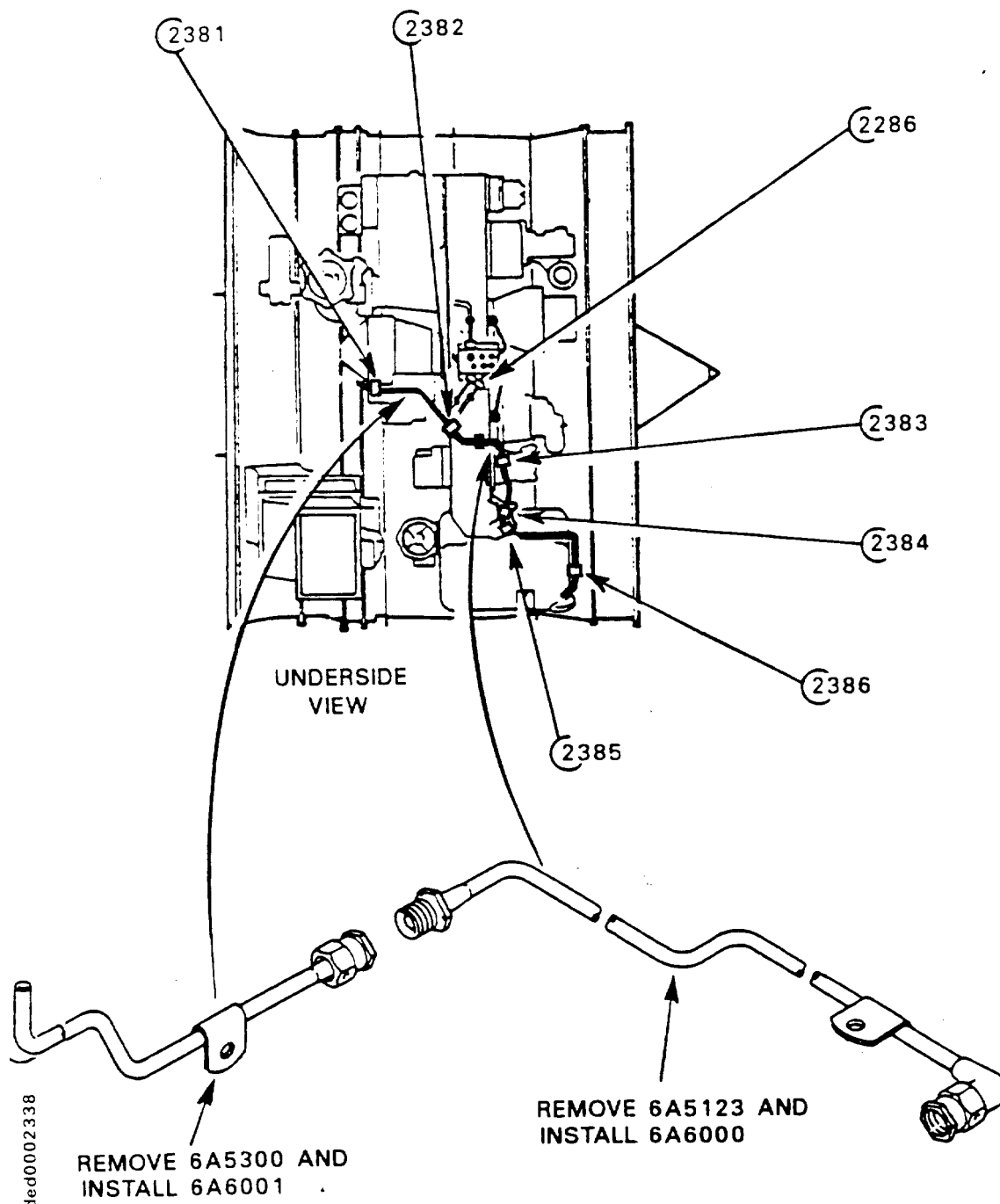
Not applicable.

B. Assembly Instructions

- (1) For the correct removal/installation procedures refer to the V2500-D5 Engine Manual (EM), Chapter/Section 72-00-32, Removal/Installation.
  - (a) Replace CPs 2495, 2497, 2498, 2499, 2500 and 2501 with CPs 2607, 2608, 2609, 2610, 2611 and 2612 (Refer to Figure 1).
  - (b) Install the new CPs with brackets 6A5728 (CP2607), 6A5727 (CP2608), 6A5730 (CP2385, CP2609 and CP2610) and 6A5731 (CP2054, CP2611 and CP2612).
  - (c) Replace brackets 6A4841 with bracket 6A5726 (CP2381) and 6A4844 with bracket 6A5729 (CP2386).
  - (d) Replace tube 6A5123 with 6A6000 and tube 6A5300 with 6A6001 (Refer to Figure 1).

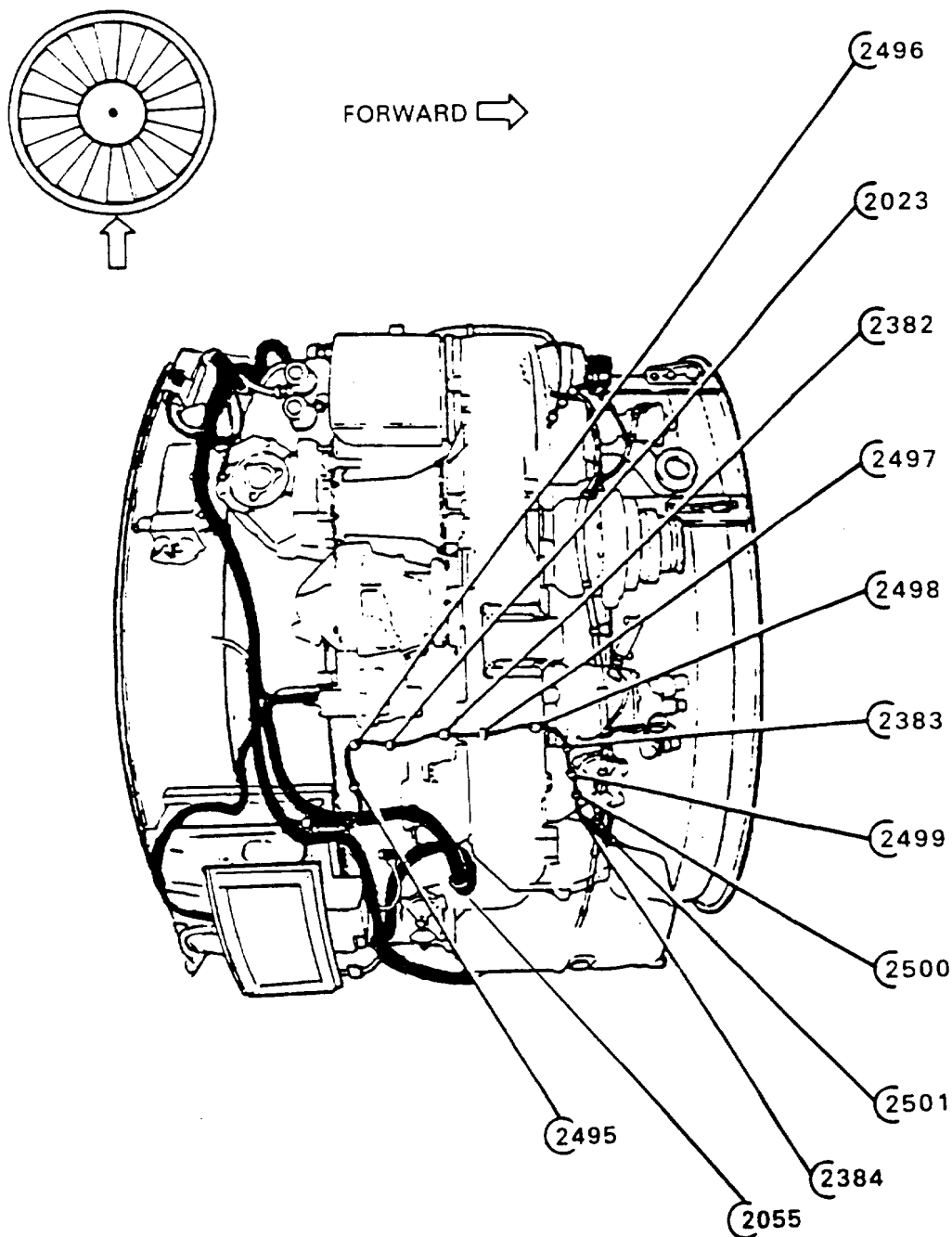
C. Recording Instructions

- (1) A record of accomplishment is necessary.



Location of tubes and clipping points  
Fig.1 (Sheet 1 of 2)

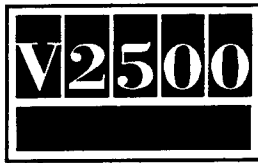
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Location of tubes and clipping points  
Fig.1 (Sheet 2 of 2)

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3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

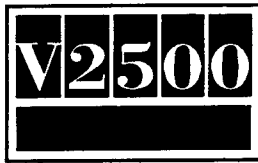
None

B. Parts affected by this Bulletin:

| New<br>Part No.<br>(ATA No.) | Qty | Est'd<br>Unit<br>Price (\$) | Keyword                                                                |        | Old<br>Part No.<br>(IPC No.) | Instructions<br>Disposition |
|------------------------------|-----|-----------------------------|------------------------------------------------------------------------|--------|------------------------------|-----------------------------|
| 6A5728<br>(71-71-42)         | 1   | 72.10                       | Bracket, support)                                                      | )      | -<br>(02-110)                | (A)(C)                      |
| -<br>(71-71-42)              | 1   |                             | Bolt, bihex                                                            | )      | CP2607 4W0167<br>(02-120)    | (D)(E)                      |
| 4W0168<br>(71-71-42)         | 1   | 6.65                        | Bolt, bihex                                                            | )      | -<br>(02-121)                | (A)(C)                      |
| 4W0111<br>(71-71-42)         | 1   | 4.07                        | Bolt, bihex                                                            | )      | AS20918<br>(02-164)          | (A)(D)(S1)                  |
| LK53193<br>(71-71-42)        | 1   | 10-70                       | Spacer                                                                 | )      | CP2286 UP10480<br>(02-166)   | (A)(D)(S1)                  |
| 4W0102<br>(71-71-49)         | 1   | 4.39                        | Bolt, bihex                                                            | )      | -<br>(06-141)                | (A)(C)                      |
| 4W0001<br>(71-71-49)         | 1   | 2.53                        | Nut, bihex                                                             | )      | CP2023 -<br>(06-148)         | (A)(C)                      |
| 4W0113<br>(71-71-49)         | 1   | 8.24                        | Bolt, bihex                                                            | )      | AS20932<br>(06-149)          | (A)(D)(S1)                  |
| -<br>(71-71-49)              | 1   |                             | Spacer                                                                 | )      | CP2382 UP10481<br>(06-154)   | (D)                         |
| 6A6001<br>(71-71-49)         | 1   | 295.00                      | Tube assy - Disconnect to<br>overboard vent - Oil tank<br>filler drain |        | 6A5300<br>(07-100)           | (A)(B)(S1)                  |
| 4W0043<br>(71-71-49)         | 1   | 2.34                        | Nut, clip                                                              | CP2381 | 4W0001<br>(07-132)           | (A)(D)(S1)                  |

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|                       |   |        |                                                                  |          |                     |            |
|-----------------------|---|--------|------------------------------------------------------------------|----------|---------------------|------------|
| -                     | 1 |        | Clip, loop                                                       | CP2382   | AS62406<br>(07-136) | (D)        |
| 4W0103<br>(71-71-49)  | 1 | 4.39   | Bolt, bihex                                                      | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-149)            |            |
|                       |   |        | )                                                                |          |                     |            |
| AS62412<br>(71-71-49) | 1 | 24.90  | Clip, loop                                                       | ) CP2607 | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-152)            |            |
|                       |   |        | )                                                                |          |                     |            |
| 4W0001<br>(71-71-49)  | 1 |        | Nut, bihex                                                       | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-156)            |            |
| 4W0102<br>(71-71-49)  | 1 |        | Bolt, bihex                                                      | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-157)            |            |
|                       |   |        | )                                                                |          |                     |            |
| AS62412<br>(71-71-49) | 1 |        | Clip, loop                                                       | ) CP2608 | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-160)            |            |
|                       |   |        | )                                                                |          |                     |            |
| 4W0043<br>(71-71-49)  | 1 |        | Nut, clip                                                        | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-164)            |            |
| 6A6000                | 1 | 407.00 | Tube assy - Oil tank to<br>disconnect - Oil tank<br>filler drain |          | 6A5123<br>(07-500)  | (A)(B)(S1) |
| 4W0102<br>(71-71-49)  | 1 |        | Bolt, bihex                                                      | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-525)            |            |
|                       |   |        | )                                                                | CP2383   |                     |            |
| 4W0001<br>(71-71-49)  | 1 |        | Nut, bihex                                                       | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-532)            |            |
| 4W0104<br>(71-71-49)  | 1 | 4.39   | Bolt, bihex                                                      | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-533)            |            |
|                       |   |        | )                                                                | CP2384   |                     |            |
| 4W0001<br>(71-71-49)  | 1 |        | Nut, bihex                                                       | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-540)            |            |
| 4W0043<br>(71-71-49)  | 1 |        | Nut, clip                                                        | CP2386   | 4W0001<br>(07-556)  | (A)(D)(S1) |
| 6A4842<br>(71-71-49)  | 1 | 39.60  | Bracket, support)                                                |          | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-650)            |            |
|                       |   |        | )                                                                | CP2383   |                     |            |
| 4W0165<br>(71-71-49)  | 2 | 5.21   | Bolt, bihex                                                      | )        | -                   | (A)(C)     |
|                       |   |        | )                                                                |          | (07-652)            |            |

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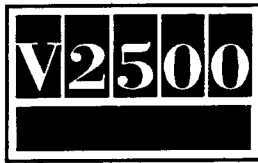


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|            |   |             |   |                 |     |
|------------|---|-------------|---|-----------------|-----|
| -          | 1 | Bolt, bihex | ) | AS20907         | (D) |
| (71-51-51) |   |             | ) | (01-825)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Clip, loop  | ) | CP2500 AS62502  | (D) |
| (71-51-51) |   |             | ) | (01-828)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Nut, clip   | ) | 4W0043          | (D) |
| (71-51-51) |   |             | ) | (01-832)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Bolt, bihex | ) | AS20922         | (D) |
| (71-51-51) |   |             | ) | (01-833)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Clip, loop  | ) | AS62501         | (D) |
| (71-51-51) |   |             | ) | CP2384 (01-836) |     |
|            |   |             | ) |                 |     |
|            |   |             | ) |                 |     |
| -          | 1 | Spacer      | ) | UP10481         | (D) |
| (71-51-51) |   |             | ) | (01-838)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Nut, bihex  | ) | 4W0001          | (D) |
| (71-51-51) |   |             | ) | (01-840)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Bolt, bihex | ) | AS20907         | (D) |
| (71-51-51) |   |             | ) | (01-841)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Clip, loop  | ) | CP2501 AS62502  | (D) |
| (71-51-51) |   |             | ) | (01-844)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Nut, clip   | ) | 4W0043          | (D) |
| (71-51-51) |   |             | ) | (01-848)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Bolt, bihex | ) | AS20907         | (D) |
| (71-51-51) |   |             | ) | (01-869)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Clip, loop  | ) | AS62502         | (D) |
| (71-51-51) |   |             | ) | CP2496 (01-872) |     |
|            |   |             | ) |                 |     |
| -          | 1 | Nut, bihex  | ) | 4W0001          | (D) |
| (71-51-51) |   |             | ) | (01-874)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Bolt, bihex | ) | AS20907         | (D) |
| (71-51-51) |   |             | ) | (01-877)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Clip, loop  | ) | CP2947 AS62502  | (D) |
| (71-51-51) |   |             | ) | (01-880)        |     |
|            |   |             | ) |                 |     |
| -          | 1 | Nut, clip   | ) | 4W0043          | (D) |
| (71-51-51) |   |             | ) | (01-884)        |     |

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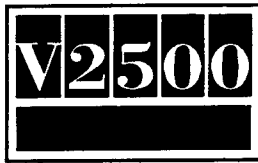


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|                       |   |       |             |   |                 |        |
|-----------------------|---|-------|-------------|---|-----------------|--------|
| 4W0102<br>(71-51-51)  | 1 |       | Bolt, bihex | ) | -               | (A)(C) |
|                       |   |       |             | ) | (01-989)        |        |
|                       |   |       |             | ) |                 |        |
| AS62501<br>(71-51-51) | 1 | 7.99  | Clip, loop  | ) | CP2609 -        | (A)(C) |
|                       |   |       |             | ) | (01-992)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0043<br>(71-51-51)  | 1 |       | Nut, clip   | ) | -               | (A)(C) |
|                       |   |       |             | ) | (01-996)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0108<br>(71-51-51)  | 1 | 7.95  | Bolt, bihex | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-125)        |        |
|                       |   |       |             | ) |                 |        |
| AS62501<br>(71-51-51) | 1 |       | Clamp, loop | ) | -               | (A)(C) |
|                       |   |       |             | ) | CP2610 (02-028) |        |
|                       |   |       |             | ) |                 |        |
| UP10479<br>(71-51-51) | 1 |       | Spacer      | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-030)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0043<br>(71-51-51)  | 1 |       | Nut, clip   | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-032)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0108<br>(71-51-51)  | 1 |       | Bolt, bihex | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-033)        |        |
|                       |   |       |             | ) |                 |        |
| AS62501<br>(71-51-51) | 1 |       | Clamp, loop | ) | CP2611 -        | (A)(C) |
|                       |   |       |             | ) | (02-036)        |        |
|                       |   |       |             | ) |                 |        |
| UP10479<br>(71-51-51) | 1 | 10.40 | Spacer      | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-038)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0043<br>(71-51-51)  | 1 |       | Nut, clip   | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-040)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0102<br>(71-51-51)  | 1 |       | Bolt, bihex | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-041)        |        |
|                       |   |       |             | ) |                 |        |
| AS62501<br>(71-51-51) | 1 |       | Clamp, loop | ) | CP2612 -        | (A)(C) |
|                       |   |       |             | ) | (02-044)        |        |
|                       |   |       |             | ) |                 |        |
| 4W0043<br>(71-51-51)  | 1 |       | Nut, clip   | ) | -               | (A)(C) |
|                       |   |       |             | ) | (02-048)        |        |
|                       |   |       |             | ) |                 |        |
| AS62501<br>(71-51-51) | 1 |       | Clamp, loop |   | CP2385 -        | (A)(C) |
|                       |   |       |             |   | (02-125)        |        |

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|                       |   |        |                  |                               |                     |            |
|-----------------------|---|--------|------------------|-------------------------------|---------------------|------------|
| -<br>(71-51-51)       | 1 |        | Bracket          | )                             | 6A4842<br>(05-155)  | (B)        |
|                       |   |        |                  | ) CP2383                      |                     |            |
| -<br>(71-51-51)       | 2 |        | Bolt, bihex      | )                             | 4W0165<br>(05-157)  | (D)        |
|                       |   |        |                  | )                             |                     |            |
| 4W0116<br>(71-51-54)  | 1 | 11.80  | Bolt, bihex      | )                             | 4W0103<br>(01-505)  | (A)(D)(S1) |
|                       |   |        |                  | ) CP2385                      |                     |            |
| UP10481<br>(71-51-54) | 1 | 12.50  | Spacer           | )                             | -<br>(01-510)       | (A)        |
|                       |   |        |                  | )                             |                     |            |
| 4W0103<br>(71-51-54)  | 1 | 4.39   | Bolt, bihex      | )                             | AS20907<br>(01-757) | (A)(D)(S1) |
|                       |   |        |                  | ) CP2055                      |                     |            |
| 4W0001<br>(71-51-54)  | 1 |        | Nut, bihex       | )                             | 4W0043<br>(01-764)  | (A)(D)(S1) |
|                       |   |        |                  | )                             |                     |            |
| 6A5727<br>(73-11-49)  | 1 | 41.70  | Bracket, support | CP2608                        | -<br>(05-495)       | (A)        |
|                       |   |        |                  |                               |                     |            |
| 6A5726<br>(73-11-49)  | 1 | 45.70  | Bracket, support | CP2381                        | 6A4841<br>(26-095)  | (A)(B)(S1) |
|                       |   |        |                  |                               |                     |            |
| 6A5730<br>(79-11-41)  | 1 | 124.00 | Bracket, support | (CP2385<br>(CP2609<br>(CP2610 | 6A4843<br>(01-053)  | (A)(B)(S1) |
|                       |   |        |                  |                               |                     |            |
| 6A5731<br>(79-11-41)  | 1 | 124.00 | Bracket, support | (CP2054<br>(CP2611<br>(CP2612 | 6A4948<br>(01-060)  | (A)(B)(S1) |
|                       |   |        |                  |                               |                     |            |
| 6A5729<br>(79-11-41)  | 1 | 47.00  | Bracket, support | CP2386                        | 6A4844<br>(01-416)  | (A)(B)(S1) |
|                       |   |        |                  |                               |                     |            |

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) Additional part
- (D) Old part can be used up in other applications
- (E) Leaves quantity 3 off
- (S1) Old and new parts are not physically interchangeable

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