

POWER PLANT - GENERAL SERVICES HARNESS (LOOM D) - INTRODUCTION OF ICE DETECTION SYSTEM
ELECTRICAL HARNESS AND CLIPPING - CATEGORY CODE 7 - MOD.ENG-71-0187

1. Planning Information

A. Effectivity

- (1) Aircraft: (a) McDonnell Douglas MD-90
- (2) Engines: (a) V2528-D5 Engines prior to Serial No.V20136
- (3) Nacelles: (a) V2500-D5 Nacelles prior to Serial No.N20119

B. Concurrent Requirements

This Service Bulletin must only be installed to engines which have IAE V2500 Modification 96VN809 (See 1.L.).

This Service Bulletin must only be installed to aircraft which have McDonnell Douglas Modification WRO MD90-A0014 (See 1.L.).

C. Reason

(1) Condition

Operators have said an engine ice detector for the MD-90 aircraft is necessary.

(2) Background

(See Condition).

(3) Objective

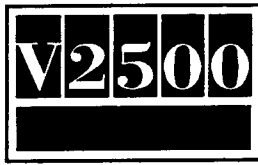
The purpose of this Service Bulletin is to given a solution to a problem identified by operators.

(4) Substantiation

A satisfactory engineering analysis has been done on the changes in this Service Bulletin. A satisfactory installation has also been done on a mock-up engine.

(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

When this Service Bulletin has been done, the Installation Arrangement Number (IAN) on the engine identification plate must be changed from AQ03 to AQ04. Refer to D.Description for the effectivity and the procedure to record this change.

Refer to IAE V2500 modification 96VN809 for the procedure to change the identification of the nacelle.

D. Description

- (1) The ice detection system is part of the aircraft systems. It is necessary to install a detector probe on the intake cowl. The detector probe has to be connected from the rear service panel of the intake to the aircraft pylon connector. This Service Bulletin contains the necessary electrical looms and clipping.

The changes contained in this Service Bulletin are as follows:

(a) The Loom D harness assembly has been changed as follows:

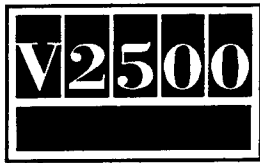
- (i) The quantity of contact pins at connector P1-869 has decreased from 10 to eight and at connector P1-873 from 24 to 20.
- (ii) The sealing plugs at P1-869 are deleted. At connector P1-873 the quantity has decreased from nine to five.
- (iii) Another harness assembly, Loom D1 has been added. This assembly has a connector (P1-8067) with 12 contact sockets, six sealing plugs, a backshell assembly and a bush. There are six cables each with a contact pin. Four of the pins connect to P1-873 and two connect to P1-869. The harness will be tied to Loom D. (Refer to Figure 5).

(b) The clip points that follow have changed:

CP2181, CP2253, CP2255, CP2260, CP2319, CP2320, CP2321, CP2322,
CP2323, CP2455, CP2458, CP2459, CP2460, CP2461, CP2462, CP2463,
CP2464, CP2465, CP2466, CP2467, CP2468, CP2469, CP2483, CP2487,
CP2489, CP2490, CP2548, CP2561, CP2591, CP2622, CP2623, CP2632.

(2) V2528-D5 Engines:

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When this Service Bulletin has been completed AQ04 must be put on the engine identification plate below "Installation Arrangement".

E. Approval

The part number changes and/or part modifications are 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 7.

Do this Service Bulletin where there are no initial parts remaining

G. Manpower

Estimate of man-hours necessary to complete 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.

H. Material – Price and Availability

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

I. Tooling – Price and Availability

Special tools are not necessary

J. Weight and Balance

(1) Weight change	Plus 0,45 kg (1.0 lb)
(2) Moment Arm	508 mm (20.0 in.) forwards
(3) Datum	Engine front mount centreline (Power Plant Station – PPS 100)

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K. Electrical Load Data

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

L. References

- (1) Internal Reference No.

EC96VR040

- (2) Other References

The IAE V2500 Modification that follows must be done at the same time as this Service Bulletin

96VN809 Ice Detector for Saudia – Introduction of inlet cowl configuration

The associated aircraft modification that follows must be installed with this modification:

WRO MD90-A0014 Inlet Ice Detector

M. Other Publications Affected

- (1) Illustrated Parts Catalog (IPC), Chapter/Sections: 72-51-55, 72-51-56, 72-51-62, 72-51-63 and 72-51-66.
- (2) The V2500 Engine Manual (EM), Chapter/Section 72-00-32, Removal/Installation.
- (3) The MD-90 Aircraft Maintenance Manual (AMM), Chapter/Section, 71-51-51, 71-51-54, 71-51-61 and 77-32-03, Installation.



2. Accomplishment Instructions

A. Rework Instructions

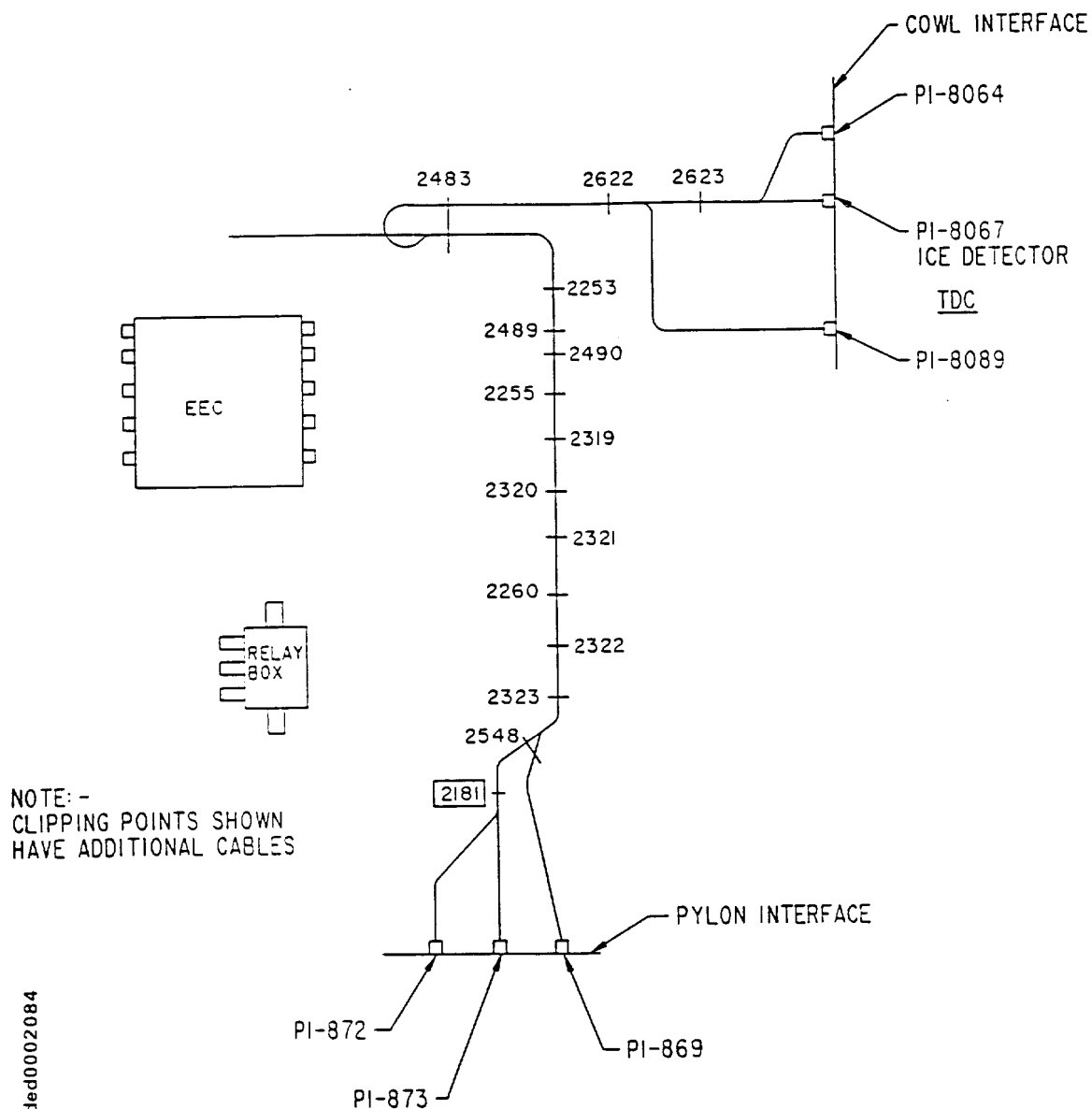
None.

B. Assembly Instructions

For the correct removal/installation procedures refer to the V2500-D5 Engine Manual (EM), Chapter/Section, 72-00-32, Removal/Installation or the MD-90 Aircraft Maintenance Manual (AMM), Chapter/Section, 71-51-51, 71-51-54, 71-51-61 and 77-32-03, Removal/Installation.

C. Recording Instructions

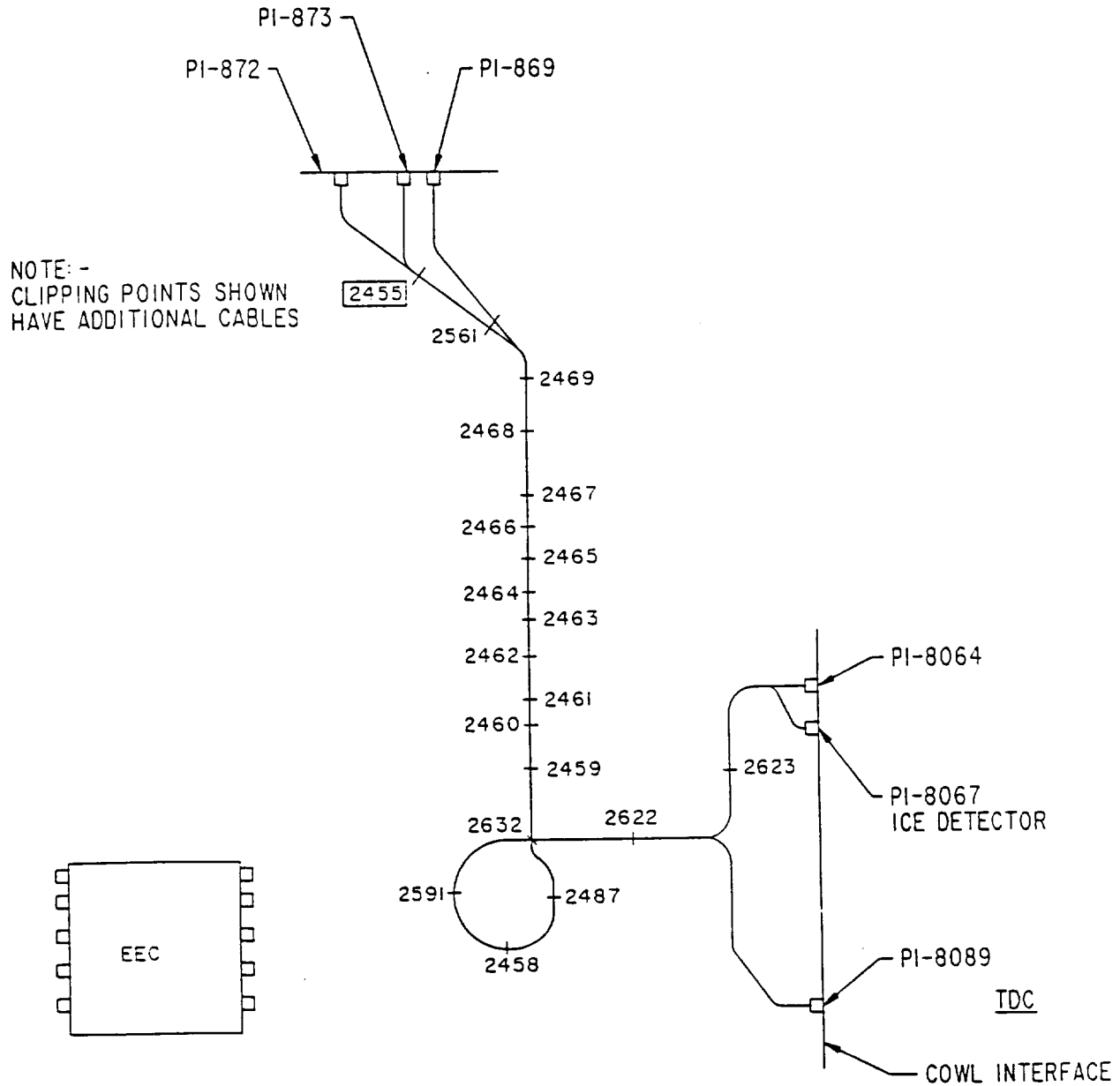
A record of accomplishment is necessary.



Schematic view of part of harness Loom D - Left hand installation
Fig.1

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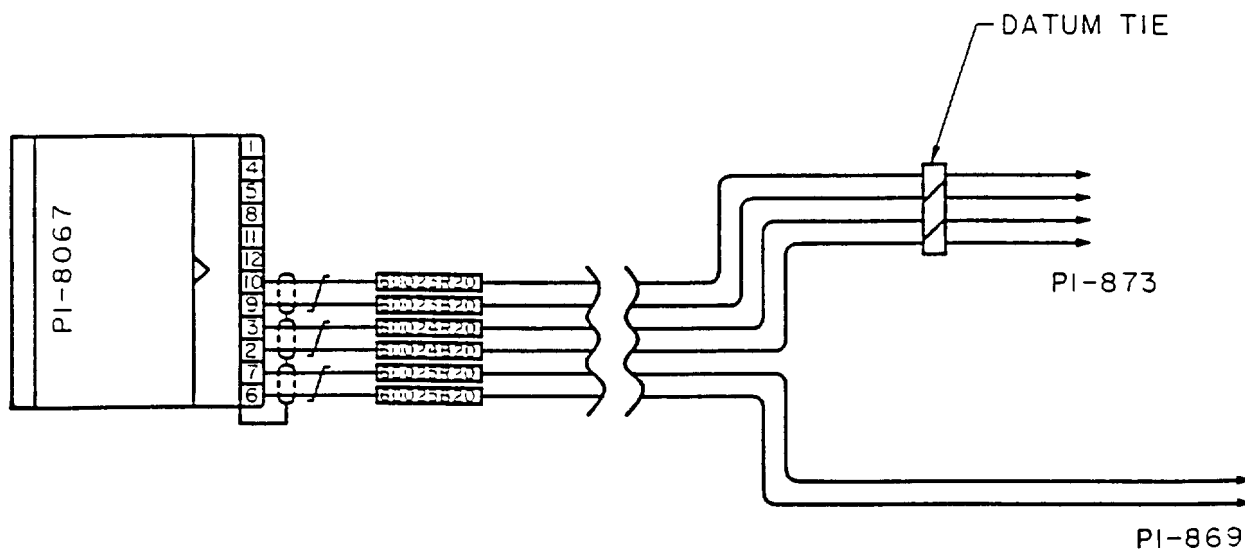
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Schematic view of part of harness Loom D - Right hand installation
Fig.2

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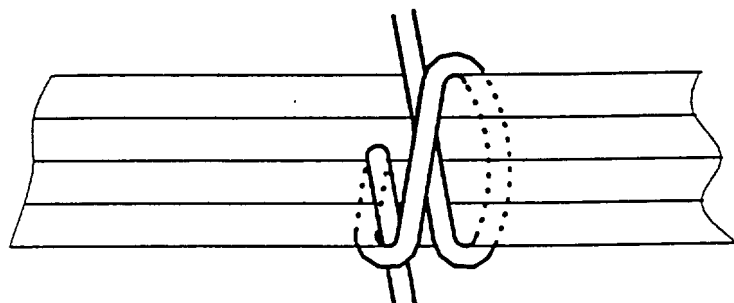
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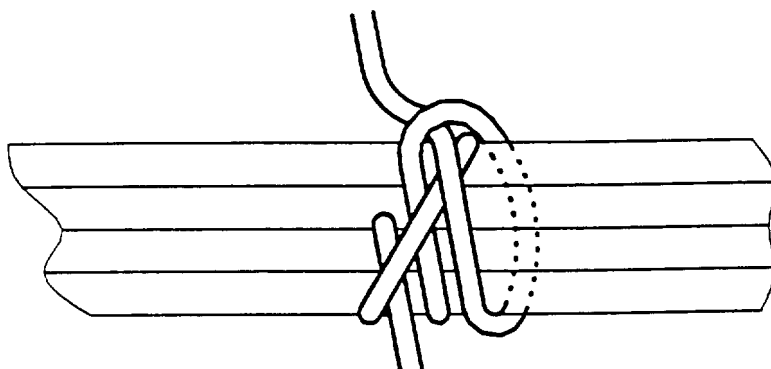


Wiring diagram of Loom D - New wiring only
Fig.3

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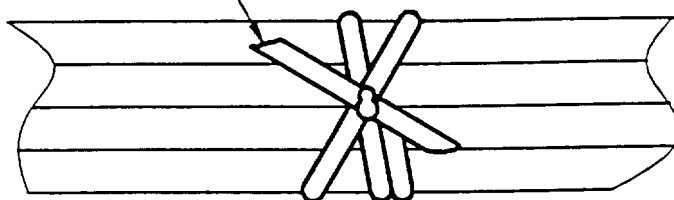


STEP 1



STEP 2

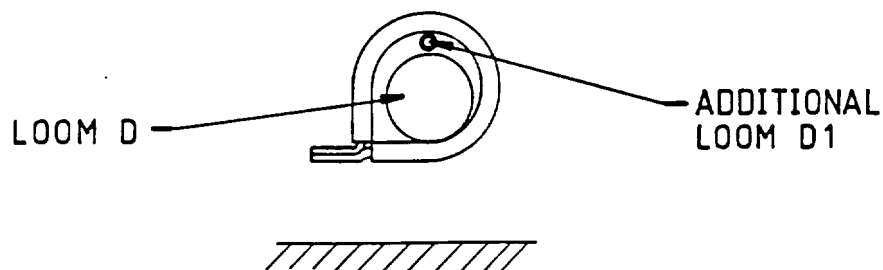
TIE ENDS
0.315in(8.00mm)



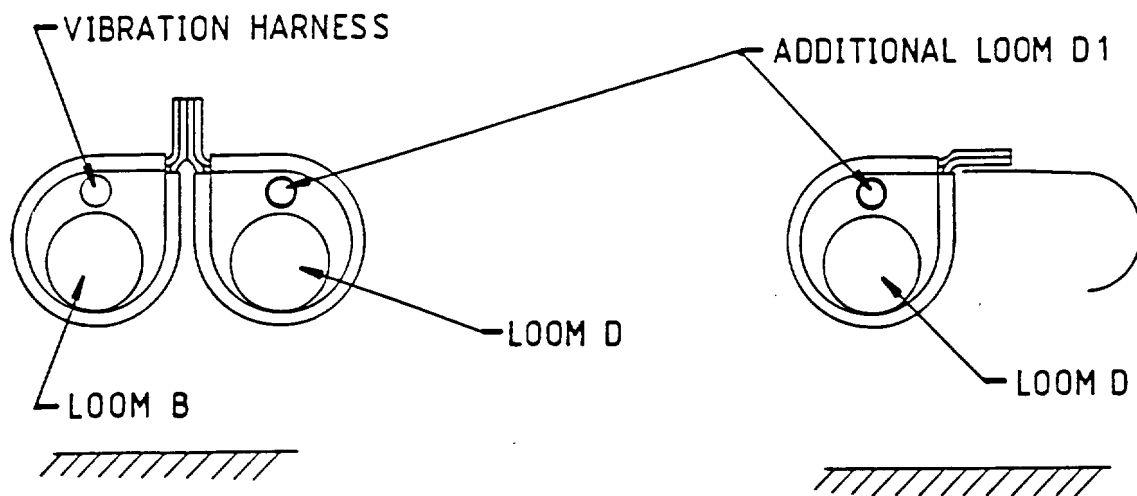
STEP 3

Procedure to attach lacing tape to harness
Fig.4

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TYPICAL VIEW OF CP2181 CP2253 CP2255 CP2260
 CP2322 CP2489 CP2490 } LEFT HAND INSTALLATION
 CP2455 CP2458 CP2459 CP2460 } RIGHT HAND INSTALLATION
 CP2461 CP2466 }



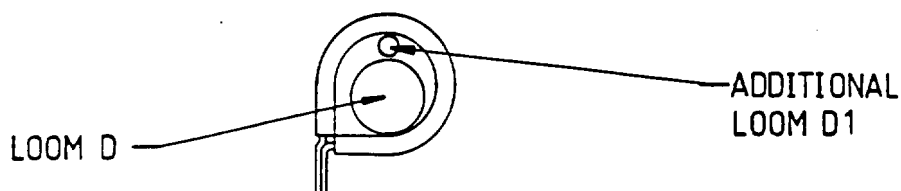
CP2489 RIGHT HAND INSTALLATION

CP2323 LEFT HAND INSTALLATION

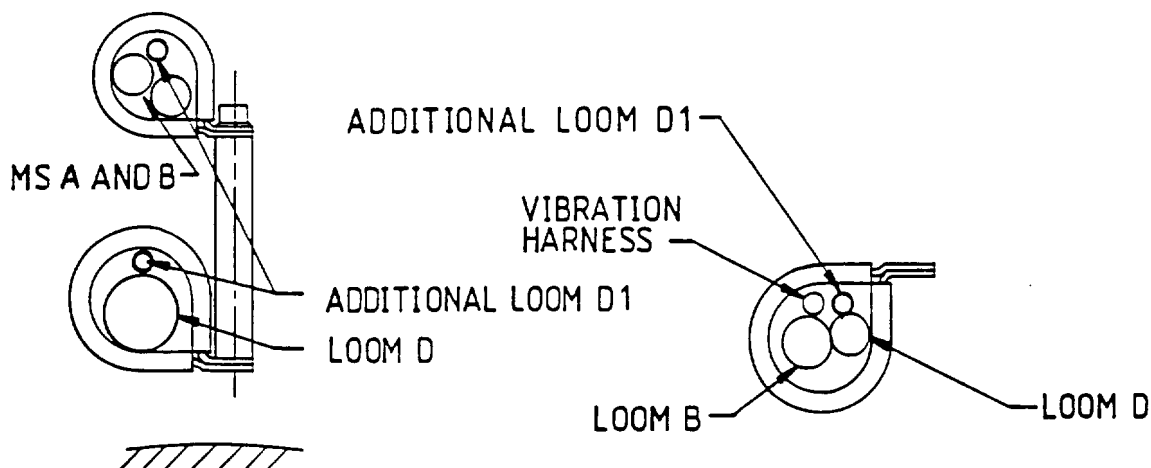
View of the position of additional cable
 Fig.5



SERVICE BULLETIN



TYPICAL VIEW OF CP2462 CP2463 CP2464 CP2465 } RIGHT HAND
 CP2467 CP2468 CP2469 } INSTALLATION
 CP2319 CP2320 CP2321 — LEFT HAND
 INSTALLATION



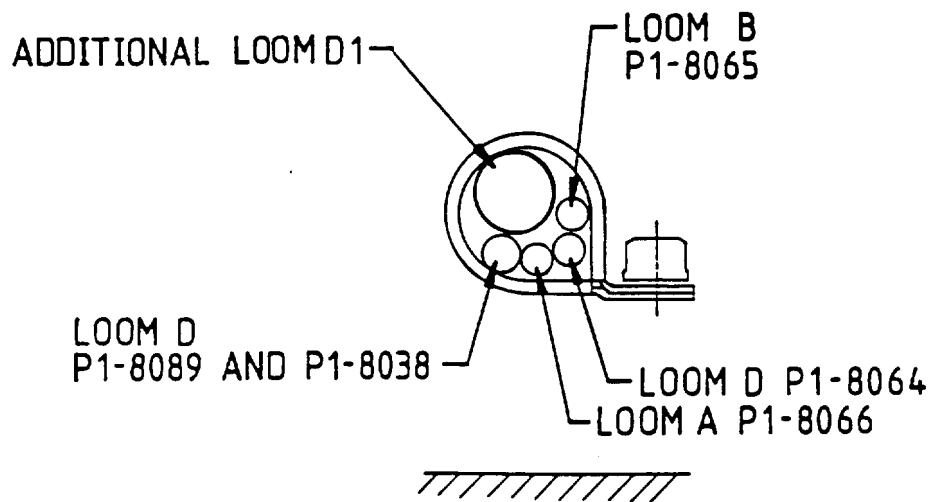
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View of the position of additional cable
 Fig.6

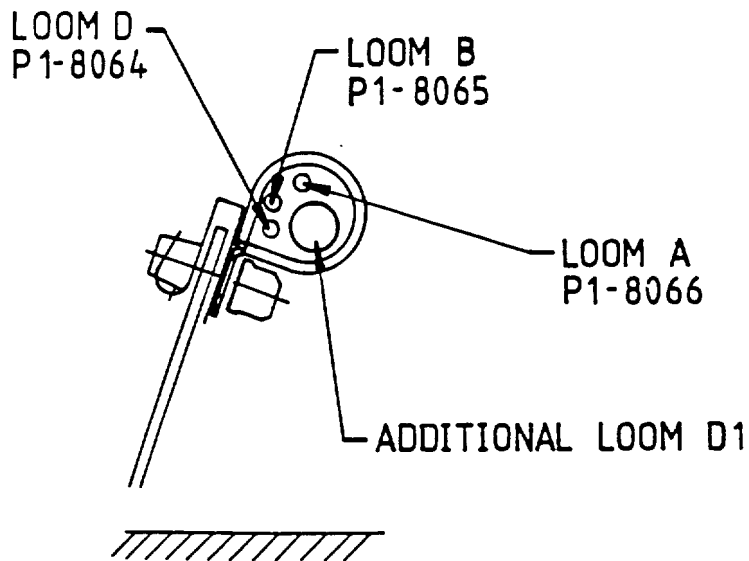
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SERVICE BULLETIN



CP 2622-LEFT AND RIGHT HAND INSTALLATIONS



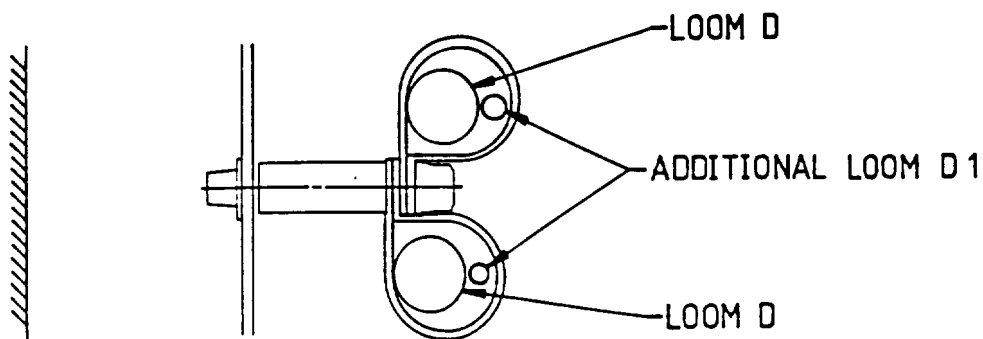
CP 2623-LEFT AND RIGHT HAND INSTALLATIONS

Clipping points CP2622 and CP2623
Fig.7

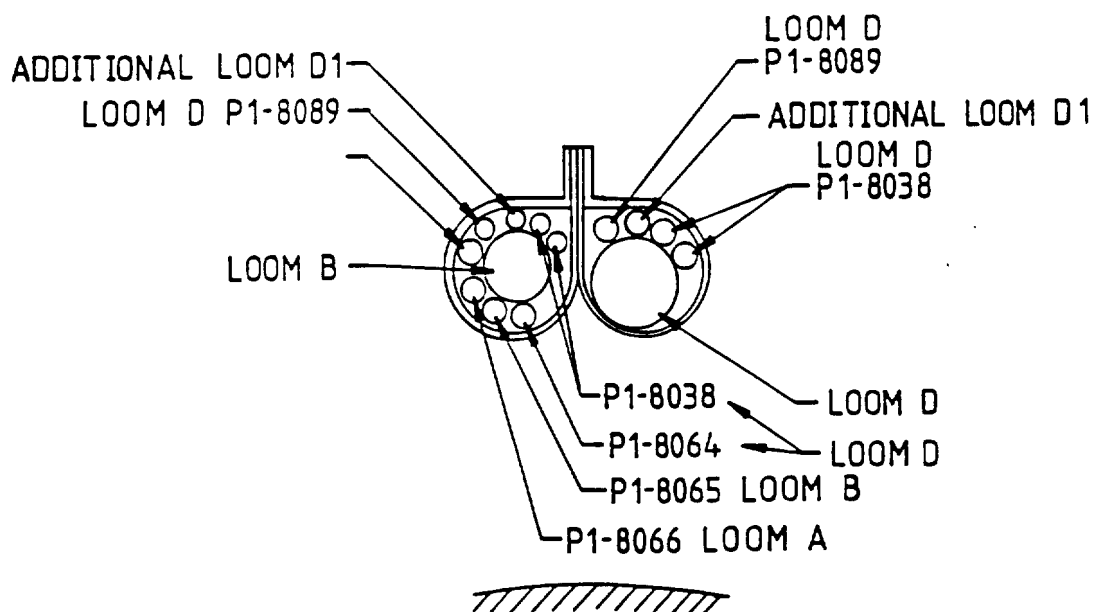
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CP 2548-LEFT HAND INSTALLATION



CP 2483-LEFT HAND INSTALLATION
LOOKING FORWARD

Clipping points CP2548 and CP2483
Fig.8

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SERVICE BULLETIN

3. Material Information

Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

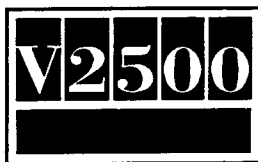
None

B. Parts affected by this Bulletin:

New Part No. (ATA No.)	Qty	Est'd Unit Price (\$)	Keyword	Old Part No. (IPC No.)	Instructions Disposition
6A6541 (71-51-61)	1	21260.00	Harness Assy - Loom D	6A5821 (01-005)	(A)(B)(S1)
-	4		Contact	ESC30P20BC (04-018)	(J)(2D)
- (71-51-61)	2		Contact	ESC30P16BC (04-043)	(J)(3D)
6A6542 (71-51-61)	1	1993.00	Harness Assy - Ice Detector, Loom D1	- (04-900)	(A)(C) (J)
ESC53-27 (71-51-61)	1		Bush	- (04-938)	(A)(C) (K)
ESC10E 61212SNO (71-51-61)	1	Quote	Connector	- (04-940)	(A)(C) (K)
ESC3020BC (71-51-61)	12	2.22	Contact, socket	- (04-941)	(A)(C) (K)
ESC65E12 (71-51-61)	1	136.00	Clamp, backshell	- (04-942)	(A)(C) (K)
ESC30P16BC (71-51-61)	2	0.65	Contact	- (04-943)	(A)(C) (K)
ESC30P20BC (71-51-61)	4	1.54	Contact	- (04-944)	(A)(C) (K)
ESC36-20 (71-51-61)	6	Quote	Plug, sealing	- (04-949)	(A)(C) (K)

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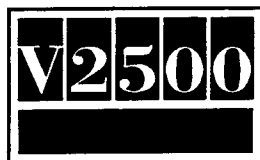
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- (71-51-61)	4	Plug, sealing	3400-152 020 (04-980)	(H)(J)(4D)
- (71-51-61)	Ref	Plug Assy	BT4020-60P (04-980)	(H)(J)
- (71-51-61) or -	2 Ref	Plug Plug	BT4016-60P (04-981) 3400-152 016 (04-981)	(F)(H)(J) (F)(H)(J)

No.1 (Port) position only

4W0104 (71-51-55)	1	4.63	Bolt, machine double hex (0.190 dia x 0.562 in.) (CP2253)	4W0103 (01-237)	(A)(S1) (1D)
4W0103 (71-51-55)	1	4.63	Bolt, machine double hex (0.190 dia x 0.500 in.) (CP2483)	4W0102 (01-245)	(A)(S1) (1D)
AS62516 (71-51-51)	1	11.90	Clamp, loop, style, cushion (1.000 in. dia) (CP2483)	AS62515 (01-248)	(A)(S1) (1D)
6A6541 (71-51-62)	Ref		Harness Assy - Loom D	6A5821 (01-005)	(A)(B) (G)(S1)
AS62511 (71-51-62)	1	10.80	Clamp, loop, style, cushion (0.375 in. dia) (CP2181)	AS62509 (01-144)	(A)(S1) (1D)
AS62513 (71-51-62)	1	11.50	Clamp, loop, style, cushion (0.812 in. dia) (CP2323)	AS62512 (01-152)	(A)(S1) (1D)
4W0102 (71-51-62)	1	4.63	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2322)	AS20907 (01-157)	(A)(S2) (1D)
AS62513 (71-51-62)	1	11.50	Clamp, loop, style, cushion (0.812 in. dia) (CP2322)	AS62512 (01-160)	(A)(S1) (1D)
4W0104 (71-51-62)	1		Bolt, machine double hex (0.190 dia x 0.562 in.) (CP2260)	AS20909 (01-165)	(A)(S2) (1D)

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AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2260)	AS62512 (01-168)	(A)(S1) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2321)	AS62512 (01-176)	(A)(S1) (1D)
4W0102 (71-51-62)	1	4.63	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2320)	AS20907 (01-181)	(A)(S2) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2320)	AS62512 (01-184)	(A)(S1) (1D)
4W0102 (71-51-62)	1		Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2319)	AS20907 (01-189)	(A)(S2) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2319)	AS62512 (01-192)	(A)(S1) (1D)
4W0104 (71-51-62)	1		Bolt, machine double hex (0.190 dia x 0.562 in.) (CP2255)	AS20909 (01-197)	(A)(S2) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2255)	AS62512 (01200)	(A)(S1) (1D)
4W0102 (71-51-62)	1		Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2462)	AS20907 (01-205)	(A)(S2) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2490)	AS62512 (01-208)	(A)(S1) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2489)	AS62512 (01-216)	(A)(S1) (1D)
AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2253)	AS62512 (01-224)	(A)(S1) (1D)

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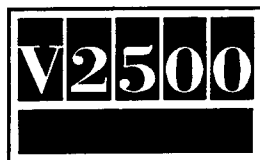
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AS62513 (71-51-62)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2483)	AS62512 (01-232)	(A)(S1) (1D)
AS62506 (71-51-62)	1	9.31	Clamp, loop, style, cushion (0.250 in. dia) (CP2548)	AS62505 (01-239)	(A)(S1) (1D)
AS62511 (71-51-62)	1	10.80	Clamp, loop, style, cushion (0.688 in. dia) (CP2548)	AS62509 (01-240)	(A)(S1) (1D)
AS62508 (71-51-62)	1	9.87	Clamp, loop, style, cushion (0.500 in. dia) (CP2622)	AS62507 (01-300)	(A)(S1) (1D)
AS62506 (71-51-62)	1	9.31	Clamp, loop, style, cushion (0.375 in. dia) (CP2623)	AS62505 (01-308)	(A)(S1) (1D)
No.2 (Starboard) position only)					
4W0103 (71-51-56)	1	4.63	Bolt, machine double hex (0.190 dia x 0.500 in.) (CP2487)	4W0102 (01-213)	(A)(S1) (1D)
AS62519 (71-51-56)	1	13.50	Clamp, loop, style, cushion (1.188 in. dia) (CP2591)	AS62518 (01-480)	(A)(S1) (1D)
AS62510 (71-51-56)	1	10.50	Clamp, loop, style, cushion (0.625 in. dia) (CP2632)	AS62509 (01-496)	(A)(S1) (1D)
6A6541 (71-51-63)	Ref		Harness Assy - Loom D	6A5821 (01-005)	(A)(B) (G)(S1)
4W0109 (71-51-63)	1	4.43	Bolt, machine double hex (0.190 dia x 0.875 in.) (CP2469)	AS21414 (01-141)	(A)(S2) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2469)	AS62512 (01-44)	(A)(S1) (1D)
AS62511 (71-51063)	1	10.80	Clamp, loop, style, cushion (0.375 dia) (CP2455)	AS62509 (01-152)	(A)(S1) (1D)

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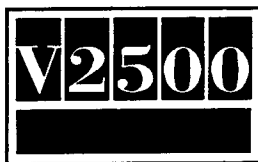


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4W0102 (71-51-63)	1	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2468)	AS20907 (01-157)	(A)(S2) (1D)
AS62513 (71-51-63)	1	Clamp, loop, style, cushion (0.812 in. dia) (CP2468)	AS62512 (01-160)	(A)(S1) (1D)
4W0102 (71-51-63)	1	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2467)	AS20907 (01-165)	(A)(S2) (1D)
AS62513 (71-51-63)	1	Clamp, loop, style, cushion (0.812 in. dia) (CP2467)	AS62512 (01-168)	(A)(S1) (1D)
4W0104 (71-51-63)	1	Bolt, machine double hex (0.190 dia x 0.562 in.) (CP2466)	AS20909 (01-173)	(A)(S2) (1D)
AS62513 (71-51-63)	1	Clamp, loop, style, cushion (0.812 in. dia) (CP2466)	AS62512 (01-176)	(A)(S1) (1D)
4W0102 (71-51-63)	1	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2465)	AS20907 (01-181)	(A)(S2) (1D)
AS62513 (71-51-63)	1	Clamp, loop, style, cushion (0.812 in. dia) (CP2465)	AS62512 (01-184)	(A)(S1) (1D)
4W0102 (71-51-63)	1	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2464)	AS20907 (01-189)	(A)(S2) (1D)
AS61513 (71-51-63)	1	Clamp, loop, style, cushion (0.812 in. dia) (CP2464)	AS61512 (01-192)	(A)(S1) (1D)
4W0102 (71-51-63)	1	Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2463)	AS20907 (01-197)	(A)(S2) (A)(S2)
AS62513 (71-51-63)	1	Clamp, loop, style, cushion (0.812 in. dia) (CP2463)	AS62512 (01-200)	(A)(S1) (1D)

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4W0102 (71-51-63)	1		Bolt, machine double hex (0.190 dia x 0.438 in.) (CP2462)	AS20907 (01-205)	(A)(S2) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2462)	AS62512 (01-208)	(A)(S1) (1D)
4W0104 (71-51-63)	1		Bolt, machine double hex (0.190 dia x 0.562 in.) (CP2461)	4W0103 (01-213)	(A)(S2) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2461)	AS62512 (01-216)	(A)(S1) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2460)	AS62512 (01-224)	(A)(S1) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2459)	AS62512 (01-232)	(A)(S1) (1D)
AS62513 (71-51-63)			Clamp, loop, style, cushion (0.812 in. dia) (CP2487)	AS62512 (01-248)	(A)(S1) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2458)	AS62512 (01-256)	(A)(S1) (1D)
AS62506 (71-51-63)	1	9.31	Clamp, loop, style, cushion (0.250 in. dia) (CP2561)	AS62505 (01-271)	(A)(S1) (1D)
AS62511 (71-51-63)	1		Clamp, loop, style, cushion (0.688 in. dia) (CP2561)	AS62509 (01-272)	(A)(S1) (1D)
AS62513 (71-51-63)	1		Clamp, loop, style, cushion (0.812 in. dia) (CP2632)	AS62512 (01-308)	(A)(S1) (1D)
AS62508 (71-51-63)	1		Clamp, loop, style, cushion (0.500 in. dia) (CP2622)	AS62507 (01-316)	(A)(S1) (1D)

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AS62506 1
(71-51-63)

Clamp, loop, style, AS62505 (A)(S1)
cushion (0.375 in. dia) (01-324) (1D)
(CP2623)

NOTE: The 1997 unit prices 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. Instruction Disposition Codes:

- (A) New part is currently available.
- (B) Old part will continue to be available.
- (C) Additional part.
- (E) Alternative to part number 3400-152-020.
- (F) Redundant part.
- (G) Reference at this position, see ATA chapter 71-51-61 fig/item 01-005.
- (H) Alternatives.
- (J) Part of Harness Assembly at ATA chapter 71-51-61 fig/item 01-005.
- (K) Part of Harness Assembly at ATA chapter 71-51-61 fig/item 04-900
- (S1) New and old parts are not interchangeable.
- (S2) New and old parts are freely and fully interchangeable.
- (1D) Old part can be used up on other applications.
- (2D) Quantity decreased from 24 off to 20 off.
- (3D) Quantity decreased from 10 off to 8 off.
- (4D) Quantity decreased from 9 off to 5 off.

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