

International Aero Engines SERVICE BULLETIN

CONVERSION SERVICE BULLETIN - ENGINE – CONVERSION OF V2500 D528AQ04 TO
D528AQ03 MODEL

V2528-D5

BULLETIN INDEX LOCATOR

72-51-00

Compliance Category Code

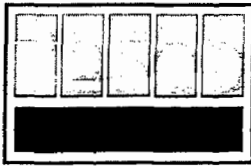
This Service Bulletin is introduced for Record Purpose Only

Feb.16/00

Reference Internal No.

EC00VR006

V2500-ENG-72-CN-01



International Aero Engines SERVICE BULLETIN

CONVERSION SERVICE BULLETIN - ENGINE – CONVERSION OF V2500 D528AQ04 TO D528AQ03 MODEL

1. Planning Information

A. Effectivity

(a) Boeing – Long Beach Division MD-90

(i) V2528-D5 Engines

(ii) V2500-D5 Nacelles

B. Concurrent Requirements

Upon application of this Conversion Service Bulletin, the resultant Propulsion System configuration (D528AQ03) must not incorporate IAE V2500 Nacelle Modification 96VN809, refer to 1.N. References.

Upon application of this Conversion Service Bulletin, the resultant Propulsion System configuration (D528AQ03) must only be installed on Boeing – Long Beach MD-90 aircraft which do not embody Boeing Service Bulletin WRO MD90-A0014, refer to 1.N. References.

C. Reason

To enable IAE V2528-D5 engines designated V2500 D528AQ04 to be used by airlines operating engines to V2500 D528AQ03 Configuration.

(1) Effect of Bulletin on Workshop Procedures :-

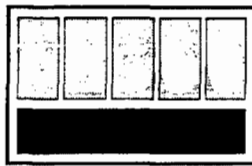
Removal/Installation	Not affected
Disassembly/Assembly	Not affected
Cleaning	Not affected
Inspection/Check	Not affected
Repair	Not affected
Testing	Not affected

(2) Supplemental Information

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

D. Description

(1) This Service Bulletin details the changes necessary to convert V2500 D528AQ04 Engines to V2500 D528AQ03 as follows:-



International Aero Engines SERVICE BULLETIN

- (a) The electrical wiring and clipping modifications introduced by IAE V2500 Service Bulletin 71-0187, which are required to connect the Intake Cowl mounted ice detector probe from the intake rear service panel to the aircraft pylon connector are deleted.
 - (b) On embodiment of this conversion modification the engine identification plate is to be endorsed AQ03 under "Installation Arrangement".
- (2) This Conversion from one certified engine configuration to another certified configuration is the responsibility of the operator and IAE using IAE V2500 Service Bulletins

The intermix of engines on an aircraft is responsibility of the airframe manufacturer, refer to Boeing – Long Beach Division.

When required new engine name plates are available from IAE.

E. Compliance

INFORMATION

This Service Bulletin is introduced for Record Purposes Only (RPO).

F. Approval

The part number changes and/or part modifications described in sections 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(s) listed.

G. Manpower

Estimate of man hours necessary to embody this Service Bulletin in full:

VENUE

ESTIMATED MANHOURS

(1) In Service

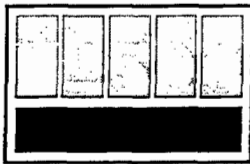
- (a) To effect conversion for a port and a starboard engine with nose cowl installed (an on-wing demountable Power Plant)
Total 12 man hours
(typically two men at 6 hours each)

- (2) At Overhaul No additional time is necessary to embody 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) Refer to 2. Material Information. Section for prices and availability of spares.



International Aero Engines SERVICE BULLETIN

I. Tooling Price and Availability

Special tools are not necessary.

J. Industry Support Information

Not applicable.

K. Weight and Balance

(1) Weight Change	..	..	..	Minus 1.0 lb (0,45 kg)
(2) Moment Arm`	..	..	..	20.0 in. (508 mm) forwards
(3) Datum	..	..	..	Engine front mount centerline Power Plant Station (PPS) 100.

L. Electrical Load Data

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

N. References

(1) IAE V2500 Reference Service Bulletins and Modifications :-

SBE 71-0187 Power Plant – General Services Harness (Loom D) – Introduction of Ice Detection System electrical harness and clipping

96VN809 Ice Detector for Saudia – Introduction of Inlet Cowl configuration

(3) Boeing – Long Beach Division Reference Aircraft Service Bulletin :-

WRO MD90-A0014 Inlet Ice Detector

O. Other Publications Affected

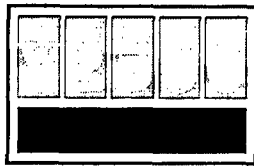
Illustrated Parts Catalogue (IPC) Chapter/Section/Subject 71-51-41, 71-51-55, 71-51-56, 71-51-61, 71-51-62, 71-51-63.

V2500 D5 series Engine Manual (EM) 72-00-32 Removal and Installation.

MD-90 Aircraft Maintenance Manual (AMM) Chapter/Section/Subject 71-51-51, 71-51-54, 71-51-61 and 77-32-03.

P. Interchangeability of Parts

Not affected.



International Aero Engines SERVICE BULLETIN

2. Material Information

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
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Applicability : For each V2500 engine to incorporate this Bulletin

The prices as 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..

A. Kits associated with this Bulletin:-

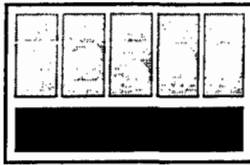
None.

B. Parts affected by this Bulletin:-

6A5821 (71-51-61)	1	22280.00	.Harness Assy – Loom 'D'	6A6541 (1D) (01.005)	
ESC30P20BC (71-51-41)	4	1.78	..Contact	ESC30P20BC (04.018)	(2D)
ESC30P16BC (71-51-61)	2	0.75	..Contact	ESC30P16BC (04.043)	(3D)
- (71-51-61)	1		..Harness Assy-Ice Detector, Loom 'D1'	6A6542 (04.900)	(B) (C)
- (71-51-61)	1		...Bush	ESC53-27 (04.938)	(B) (D)
- (71-51-61)	1		...Connector	ESC10SE61212SN0 (04.940)	(B) (D)
- (71-51-61)	12		...Contact, socket	ESC30S20BC (04.941)	(B) (D)
- (71-51-61)	1		...Clamp, backshell	ESC65E12 (04.942)	(B) (D)
- (71-51-61)	2		...Contact	ESC30P16BC (04.943)	(B) (D)

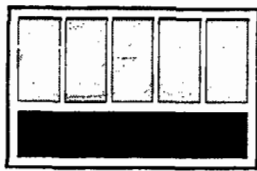
Feb.16/00

V2500-ENG-72-CN-01



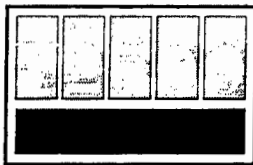
International Aero Engines SERVICE BULLETIN

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
- (71-51-61)	4		...Contact	ESC30P20BC (04.944)	(B) (D)
- (71-51-61)	6		...Plug, sealing	ESC36-20 (04.949)	(B) (D)
3400-152-020 (71-51-61)	4		..Plug, sealing	3400-152-020 (04.980)	(C) (F) (4D)
BT4020-60P (71-51-61)	4		..Plug Assy	BT4020-60P (04.980)	(C) (F) (4D)
BT4016-60P (71-51-61)	2	1.22	..Plug	(04.981)	(C) (G) (H)
3400-152-016 (71-51-61)	2		..Plug	- (04.981)	(C) (G) (H)
<u>No.1 (Port) position only</u>					
4W0103 (71-51-55)	1	5.40	. Bolt (.190 dia x .500) (CP2253)	4W0104 (01.237)	(A)
4W0102 (71-51-55)	1	5.40	.Bolt (.190 dia x .438) (CP2483)	4W0103 (01.245)	(A)
AS62515 (71-51-55)	1	13.80	.Clamp.loop,style,cushion (0.938 dia) (CP2483)	AS62516 (01.248)	(A)
AS62509 (71-51-62)	1	12.10	.Clamp,loop,style,cushion (0.562 dia) (CP2181)	AS62511 (01.144)	(A)
AS62512 (71-51-62)	1	12.70	.Clamp,loop,style,cushion (0.750 dia) (CP2323)	AS62513 (01.152)	(A)
AS20907 (71-51-62)	1	4.24	.Bolt, bihex hd (.190 dia x .438) (CP2322)	4W0102 (01.157)	(A)



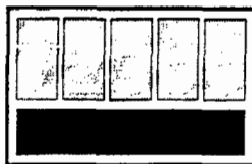
International Aero Engines SERVICE BULLETIN

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2322)	AS62513 (01.160)	(A)
AS20909 (71-52-62)	1	4.23	.Bolt, bihex hd (.190 dia x .562) (CP2260)	4W0104 (01.165)	(A)
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2260)	AS62513 (01.168)	(A)
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2260)	AS62513 (01.176)	(A)
AS20907 (71-51-62)	1		.Bolt, bihex hd (.190 dia x .438) (CP2320)	4W0102 (01.181)	(A)
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2320)	AS62513 (01.184)	(A)
AS20907 (71-51-62)	1		.Bolt, bihex hd (.190 dia x .438) (CP2319)	4W0102 (01.189)	(A)
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2319)	AS62513 (01.192)	(A)
AS20909 (71-51-62)	1		.Bolt, bihex hd (.190 dia x .562) (CP2255)	4W0104 (01.197)	(A)
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2255)	AS62513 (01.200)	(A)
AS20907 (71-51-62)	1	11.20	.Bolt, bihex hd (.190 dia x .438) (CP2462)	4W0102 (01.205)	(A)
AS62512 (71-51-62)	1		.Clamp,loop,style,cushion (0.750 dia) (CP2490)	AS62513 (01.208)	(A)
AS62512 (71-51-62)	1		Clamp, loop, style, cushion (0.750 dia) (CP2489)	AS62513 (01-216)	(A)



International Aero Engines SERVICE BULLETIN

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
AS62512 (71-51-62)	1		Clamp, loop, style, cushion (0.750 dia) (CP2253)	AS62513 (01-224)	(A)
AS62512 (71-51-62)	1		Clamp, loop, style, cushion (0.750 dia) (CP2483)	AS62513 (01-232)	(A)
AS62505 (71-51-62)	1	10.80	Clamp, loop, style, cushion (0.312 dia) (CP2548)	AS62506 (01-239)	(A)
AS62509 (71-51-62)	1		Clamp, loop, style, cushion (0.562 dia) (CP2548)	AS62511 (01-240)	(A)
AS62507 (71-51-62)	1		Clamp, loop, style, cushion (0.438 dia) (CP2622)	AS62508 (01-300)	(A)
AS62505 (71-51-62)	1		Clamp, loop, style, cushion (0.312 dia) (CP2623)	AS62506 (01-308)	(A)
<u>No. 2 (Starboard) position only</u>					
4W0102 (71-51-56)	1		Bolt (.190 dia x .438) (CP2487)	4W0103 (01-213)	(A)
AS62518 (71-51-56)	1	15.50	Clamp, loop, style, cushion (1.125 dia) (CP2591)	AS62519 (01-480)	(A)
AS62509 (71-51-56)	1		Clamp, loop, style, cushion (0.562 dia) (CP2632)	AS62510 (01-496)	(A)
AS21414 (71-51-63)	1	8.70	Bolt, bihex hd (.190 dia x .875) (CP2469)	4W0109 (01-141)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2469)	AS62513 (01-144)	(A)
AS62509 (71-51-63)	1		Clamp, loop, style, cushion (0.562 dia) (CP2455)	AS62511 (01-152)	(A)



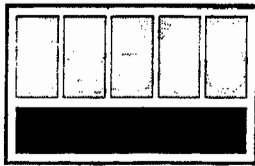
International Aero Engines SERVICE BULLETIN

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
AS20907 (71-51-63)	1		Bolt, bihex hd (.190 dia x .438) (CP2468)	4W0102 (01-157)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2468)	AS62513 (01-160)	(A)
AS20907 (71-51-63)	1		Bolt, machine double hex (.190 dia x .438) (CP2467)	4W0102 (01-165)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2467)	AS62513 (01-168)	(A)
AS20909 (71-51-63)	1		Bolt, bihex hd (.190 dia x .562) (CP2466)	4W0104 (01-173)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2466)	AS62513 (01-176)	(A)
AS20907 (71-51-63)	1		Bolt, bihex hd (.190 dia x .438) (CP2465)	4W0102 (01-181)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2465)	AS62513 (01-184)	(A)
AS20907 (71-51-63)	1		Bolt, bihex hd (.190 dia x .438) (CP2464)	4W0102 (01-189)	(A)
AS61512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2464)	AS61513 (01-192)	(A)
AS20907 (71-51-63)	1		Bolt, bihex hd (.190 dia x .438) (CP2463)	4W0102 (01-197)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2463)	AS62513 (01-200)	(A)
AS20907 (71-51-63)	1		Bolt, bihex hd (.190 dia x .438) (CP2462)	4W0102 (01-205)	(A)



International Aero Engines SERVICE BULLETIN

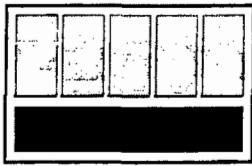
NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE (\$)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2462)	AS62513 (01-208)	(A)
4W0103 (71-51-63)	1		Bolt (.190 dia x .500) (CP2461)	4W0104 (01-213)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2461)	AS62513 (01-216)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2460)	AS62513 (01-224)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2459)	AS62513 (01-232)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2487)	AS62513 (01-248)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2458)	AS62513 (01-256)	(A)
AS62505 (71-51-63)	1		Clamp, loop, style, cushion (0.312 dia) (CP2561)	AS62506 (01-271)	(A)
AS62509 (71-51-63)	1		Clamp, loop, style, cushion (0.562 dia) (CP2561)	AS62511 (01-272)	(A)
AS62512 (71-51-63)	1		Clamp, loop, style, cushion (0.750 dia) (CP2632)	AS62513 (01-308)	(A)
AS62507 (71-51-63)	1		Clamp, loop, style, cushion (0.438 dia) (CP2622)	AS62508 (01-316)	(A)
AS62505 (71-51-63)	1		Clamp, loop, style, cushion (0.312 dia) (CP2623)	AS62506 (01-324)	(A)



International Aero Engines SERVICE BULLETIN

C. Instruction Disposition Codes

- (A) Old Part may be used up on other applications.
- (B) Redundant.
- (C) Part of harness assy at ATA Chapter 71-51-61 fig/item 01.005.
- (D) Part of harness assy at ATA Chapter 71-51-61 fig item 04.900.
- (F) Parts coded (F) are Alternatives.
- (G) Parts coded (G) are Alternatives.
- (H) Additional part.
- (1D) Old part may be reworked and re-numbered to new part number (Refer to section 3.A).
- (2D) Quantity increased from 20 off to 24 off.
- (3D) Quantity increased from 8 off to 10 off.
- (4D) Quantity increased from 5 off to 9 off.



International Aero Engines SERVICE BULLETIN

3. Accomplishment Instructions

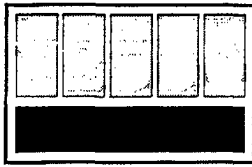
A. Rework Instructions

The following procedure is given to enable IAE V2528-D5 engines designated V2500 D528AQ04 to be converted, by the operator, to the V2500 D528AQ03 Configuration.

V2500 D528AQ04 model is identical to V2500 D528AQ03 except that it includes additional electrical wiring to support an ice detection system. This wiring is part of the General Services Harness (Loom D) on the fan case. To convert from V2500 D528AQ04 to V2500 D528AQ03 it will be necessary to remove the plugs and wiring which are specific to the ice detection system.

Loom D (part number 6A6541) must be modified to remove the redundant parts. This is accomplished by removing those parts introduced by Service Bulletin 71-0187. The modified harness is re-identified as part number 6A5821. It will also be necessary to modify the affected clipping points. Figures 1 and 2 are schematics of the portion of harness to be modified.

- (1) Locate plug PI-8067 (close to top dead centre at the cowl interface).
- (2) Plug PI-8067 and all cables that run to it are to be removed, as described below.
- (3) At all positions where the cables are tied to the parent harness:
 - i. Remove the cable tie. Take care not to damage the cables.
 - ii. Separate the cables that are being removed from the parent harness.
 - iii. Tie the remaining harness bundle (refer to SPP TASK 70-43-02-400-501, SUBTASK 70-43-02-400-015).
- (4) At all positions where the cables are clipped:
 - i. Remove the P-clip.
 - ii. Refer to Section 2. Material Information of this Service Bulletin for details of changes (if any) to the bolt and P-clip at this clip point. If necessary, replace the bolt and/ or P-clip.
 - iii. Re-assemble the clip point with the remaining harness bundle (refer to SPP TASK 70-43-02-400-501, SUBTASK 70-43-02-400-004).
- (5) The cables being removed terminate at the pylon interface connectors PI-869 and PI-873. It is necessary to remove the relevant cables and pins from these connectors, and insert blanks. Two (2) cables terminate at connector PI-869. Four (4) cables terminate at connector PI-873.
 - i. Remove the relevant pins (contacts) from connectors PI-869 and PI-873. (ref EMM 71-50-21, sections 4.D & 4.E.
 - ii. Insert a suitable sealing plug into the locations where the pins (contacts) were removed.
 - iii. Re-install the backshells on the connectors (ref. EMM 71-50-21, Removal/Installation, Sections 4.L, 4.M & 4.O).



International Aero Engines SERVICE BULLETIN

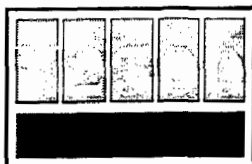
- (6) Re-identify the harness:
- i. Wrap CoMat 01-148 adhesive tape (electrical) over the old part number (6A5821).
 - ii. Use a CoMat 06-131 marking pen to re-identify with the new part number 6A6541. (refer SPP TASK 70-09-00-400-501).
- (7) Mark the Engine Identification Plate. Change the "Installation Arrangement" endorsement from V2500 D528AQ04 to V2500 D528AQ03 (refer SPP TASK 70-09-00-400-501).

B. Assembly Instructions

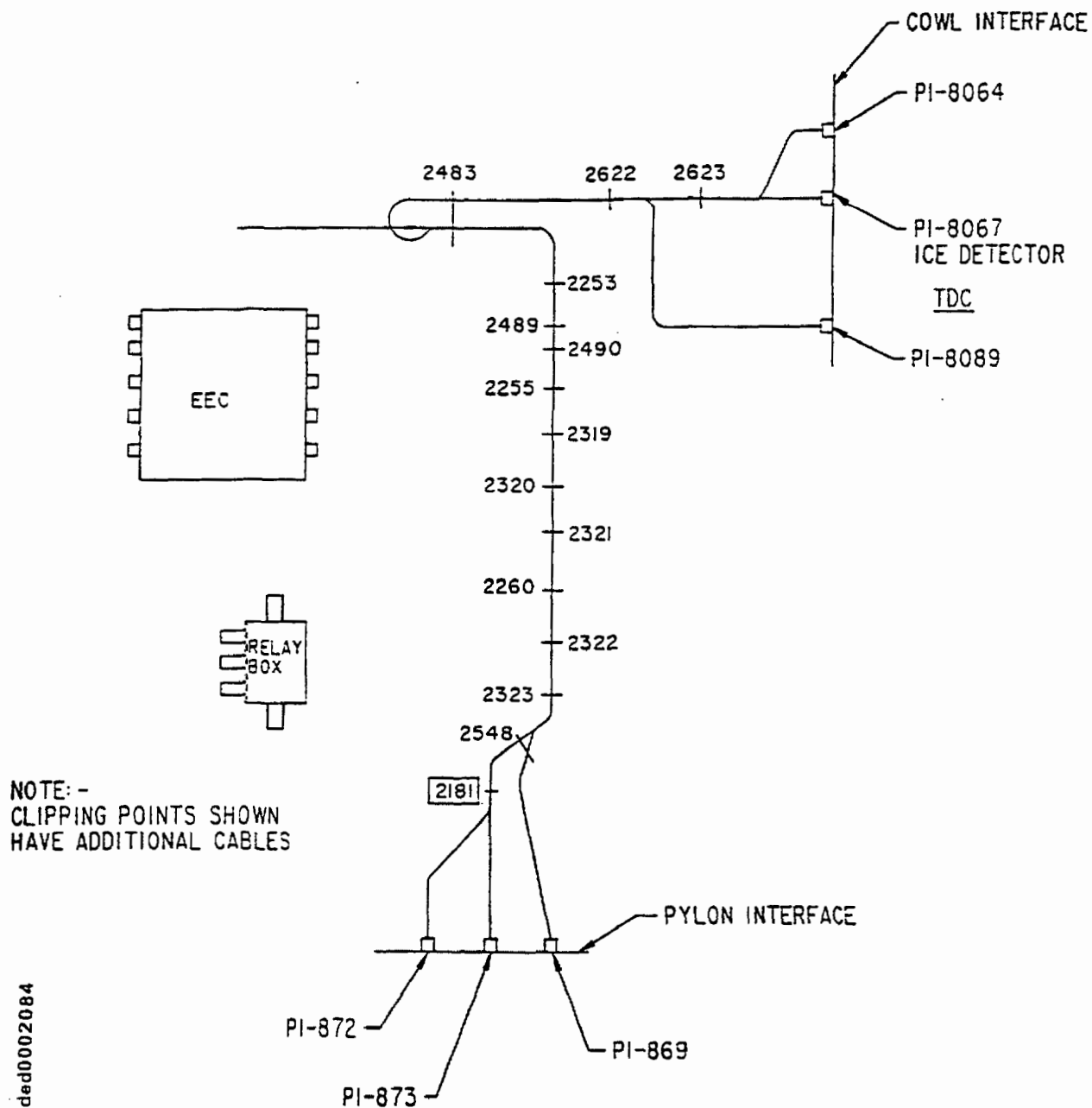
Refer to Section 1. Other Publications Affected.

C. Recording Instructions

- (1) A record of accomplishment is necessary.



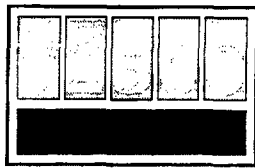
International Aero Engines SERVICE BULLETIN



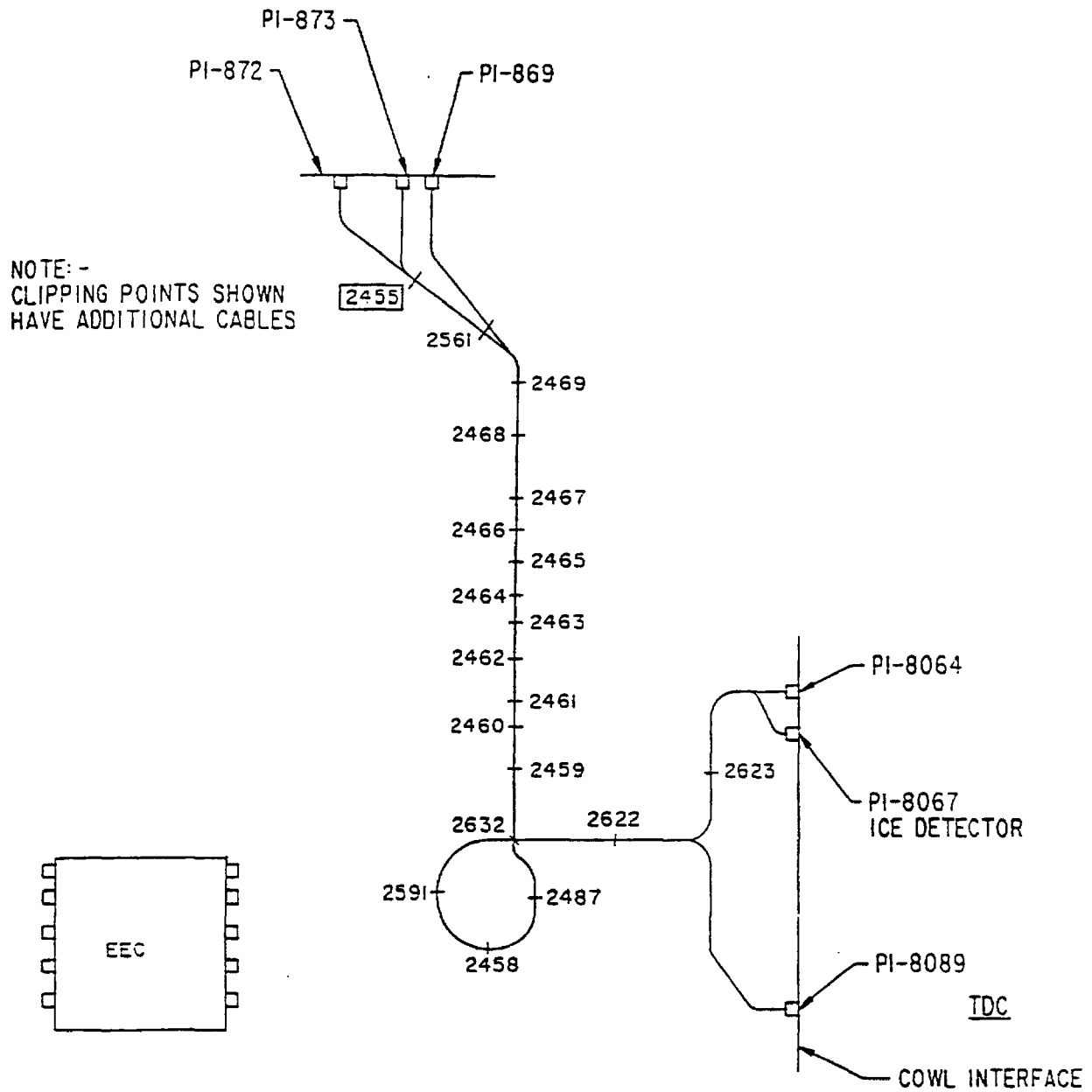
Schematic view of part of harness Loom D - Left hand installation
Figure 1

Feb.16/00

V2500-ENG-72-CN-01



International Aero Engines SERVICE BULLETIN



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

Feb.16/00

V2500-ENG-72-CN-01

