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V2500-A1/A5 SERIES PROPULSION SYSTEM SERVICE BULLETIN

This document transmits the Initial Issue of Service Bulletin V2500-ENG-73-0202.

Service Bulletin Initial Issue

Remove	Incorporate	Reason for change
	Pages 1 to 42 of the Service Bulletin.	Initial Issue.
	Pages 1 to 5 of the Appendix.	Initial Issue.
	Pages 1 to 2 of the Supplement.	Initial Issue.

V2500-ENG-73-0202
Transmittal - Page 1 of 1

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ENGINE – FUEL AND CONTROL – P4.9 TUBE ASSEMBLIES, PRESSURE CONTROL AND BOX AND CABLE,
TC – REPLACE THE P4.9 TUBE ASSEMBLIES TO PREVENT FRACTURES AND REPOSITION THE EXHAUST
GAS TEMPERATURE (EGT) CABLE TO PREVENT CHAFING

1. Planning Information

A. Effectivity Data

(1) Airbus A319

- (a) V2522-A5, V2524-A5, V2527M-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard) with Reference 3, Service Bulletin No. V2500-ENG-72-0063 incorporated.

Engines from Serial No. V10001 thru V13190* and V15001.

- (b) V2522-A5, V2524-A5, V2527M-A5 (A5 SelectOne™ Production Standard).

Engines from Serial No. V15002 thru V15316*.

(2) Airbus A320

- (a) V2500-A1 with Reference 3, Service Bulletin No. V2500-ENG-72-0063 incorporated.

Engine Serial Nos. V0001 thru V0361.

- (b) V2527-A5, V2527E-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard) with Reference 3, Service Bulletin No. V2500-ENG-72-0063 incorporated.

Engines from Serial No. V10001 thru V13190* and V15001.

- (c) V2527-A5, V2527E-A5 (A5 SelectOne™ Production Standard).

Engines from Serial No. V15002 thru V15316*.

(3) Airbus A321

- (a) V2530-A5, V2533-A5 (A5 Standard and A5 SelectOne™ Retrofit Standard) with Reference 3, Service Bulletin No. V2500-ENG-72-0063 incorporated.

Engines from Serial No. V10001 thru V13190 and V15001.

- (b) V2530-A5, V2533-A5 (A5 SelectOne™ Production Standard).

Engines from Serial No. V15002 thru V15316*.

*This estimate of engine serial numbers will be revised, if necessary, when parts are installed in engines at Pratt & Whitney.

B. Concurrent Requirements

This Service Bulletin must be done at the same time or after Reference 7, Service Bulletin No. Service Bulletin No. V2500-ENG-73-0094.

C. Reason**(1) Condition**

- (a) Clearance between the EGT harness and the nacelle heat shield is minimal. This is a result of engine thermal expansion which decreases clearance between the engine and nacelle components. This could create a harness chafing condition which may degrade the harness overbraid.
- (b) Analysis of the P4.9 left and right pressure control tube assemblies indicates that engine thermal expansion causes stress levels which may exceed allowable limits. Radial expansion of the engine may also result in a close clearance condition between the P4.9 sense line and the nacelle thermal blanket.

(2) Background

- (a) Insufficient EGT harness clearance with the nacelle is caused by engine thermal conditions.
- (b) The failure mode was determined to be low cycle fatigue caused by differential thermal growth between the turbine exhaust case and P4.9 sense line. At times, a lack of clearance between the pressure control tube assembly and the nacelle could cause insufficient clearance, which contributes to stress.

(3) Objective

- (a) Provide new brackets that will reposition the EGT harness to create additional clearance with the nacelle.
- (b) Provide redesigned left and right pressure control tube assemblies fabricated from nickel alloy rather than stainless steel to accommodate the predicted stresses. These tube assemblies have also been re-configured to increase clearance with the nacelle.

(4) Effects of Bulletin on:

Removal/Installation: Add new views and procedures to Reference 10, Engine Manual, Chapter/Section 72-00-50, Removal/Installation of the LP Turbine Module Components, External Harnesses and Tubes and Removal/Installation of the EGT Harness and Junction Box Assembly.

Disassembly/Assembly: Revise Reference 10, Engine Manual, Chapter/Section 72-50-50, Assembly.

Cleaning: Add part numbers to Reference 10, Engine Manual, Chapter/Section 73-22-51, Cleaning-00.

Inspection/Check: Add part numbers to Reference 10, Engine Manual, Chapter/Section 73-22-51, Inspection/Check-00.

Repair: Add part numbers and list material as 5581 in Reference 10, Engine Manual, Chapter/Section 73-22-51, VRS3276 and VRS3277.

Testing: Not affected.

(5) Supplemental Information

None.

D. Description

Replace the P4.9 left and right pressure control tube assemblies, and loop clamp brackets and loop clamps that secure the EGT harness.

E. Compliance

Part A - For Engines Installed on Aircraft:

Category 7

Accomplish when supply of superseded parts has been depleted.

NOTE: Service Bulletin incorporation on engines installed on aircraft may be desirable and should be individually evaluated.

Part B - For Engines Removed from Aircraft:

Category 6

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

F. Approval

The part number changes and/or part modifications specified in the Accomplishment Instructions and Material Information sections of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Models given.

The compliance statement and the procedures described in this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Models listed.

G. Manpower**(1) In Service**

To gain access: 20 mins

To remove tail cone: 15 mins

To remove the CNA: 1 hr 11 mins

To remove tubes, harnesses, clamps and brackets: 1 hr 30 mins

To install tubes, harnesses, clamps and brackets: 2 hrs 45 mins

To install the CNA: 1 hr 30 mins

To install tail cone: 30 mins

To run idle leak check: 15 mins

Return aircraft to flyable status: 20 mins

Total Necessary Man-hours: 8 hrs 36 mins

(2) At Overhaul

To remove tubes, harnesses, clamps and brackets: 1 hr 7 mins

To install tubes, harnesses, clamps and brackets: 2 hrs 20 mins

Total Necessary Man-hours: 3 hrs 27 mins

H. Weight and Balance**(1) Weight Change**

PLus 0.11 lb (0,05 kg)

(2) Moment Arm

No effect.

(3) Datum

Engine Front Mount Centerline (Power Plant Station (PPS) 100).

I. Electrical Load Data

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

J. Software Accomplishment Summary

Not applicable.

K. References

- (1) IAE V2500 Service Bulletin V2500-ENG-70-0245 (Engine - To Announce The Availability Of A New Turbine Exhaust Case Assembly).
- (2) IAE V2500 Service Bulletin V2500-ENG-70-0783 (Engine - Turbine Exhaust Case Group - To Announce The Availability Of A New Exhaust Case Assembly).
- (3) IAE V2500 Service Bulletin V2500-ENG-72-0063 (Engine - LP Turbine Rotor and Stator Assembly - Introduce New Tube Assemblies Required For Modified Turbine Exhaust Case - Category Code 8 - Mod.Eng-72-0063).
- (4) IAE V2500 Service Bulletin V2500-ENG-72-0192 (Engine - Turbine Exhaust Case Assembly And Fittings - Remove The Turbine Exhaust Case Fairing).
- (5) IAE V2500 Service Bulletin V2500-ENG-72-0480 (Engine - LP Turbine Module - To Announce The Availability Of A new Turbine Exhaust Case With Increased Thickness).
- (6) IAE V2500 Service Bulletin V2500-ENG-72-0590 (Engine - Case Assembly, Turbine Exhaust - Replacement Or Modification To Increase N1 Margin And Improve Performance During Take Off).
- (7) IAE V2500 Service Bulletin V2500-ENG-73-0094 (Engine - Fuel And Control - Reroute The Left And Right Pressure Control Tube Assemblies).
- (8) V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA and S-V2500-7IB), Chapter/Section 72-50-50, 73-22-51, 72-50-00, 77-21-43 and 72-50-53.
- (9) V2500 Engine Illustrated Parts Catalogs (S-V2500-2SA, S-V2500-2SB, S-V2500-5SA, S-V2500-5SB, S-V2500-6SA, S-V2500-6SB, S-V2500-7SA, S-V2500-7SB), Chapter/Section 72-50-50, 73-22-51, 72-50-00, 77-21-43 and 72-50-53.
- (10) V2500 Engine Manual (E-V2500-1IA), Chapter/Section 73-22-51, 72-00-50 and 72-50-50.
- (11) V2500 Standard Practices/Processes Manual (E-V2500-1IA), Chapter/Section 70-09-00.
- (12) V2500 Aircraft Maintenance Manual.
- (13) Internal Reference No. - 04VC175N.
- (14) ATA Locator - 73-22-51.

L. Other Publications Affected

- (1) V2500 Engine Illustrated Parts Catalogs (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-3IA, S-V2500-3IB, S-V2500-5IA, S-V2500-5IB, S-V2500-6IA, S-V2500-6IB, S-V2500-7IA and S-V2500-7IB), Chapter/Section 72-50-50, 73-22-51, 72-50-00, 77-21-43 and 72-50-53.
- (2) V2500 Engine Manual (E-V2500-1IA):

Chapter/Section 73-22-51, Cleaning, Inspection and Repair.

Chapter/Section 72-00-50, Removal/Installation.

Chapter/Section 72-50-50, Assembly.
- (3) V2500 Aircraft Maintenance Manual:

Chapter/Section 77-21-43, Removal of the EGT Harness and Junction Box.

Chapter/Section 77-21-43, Installation of the EGT Harness and Junction Box.

Chapter/Section 73-22-51, Removal of the P4.9 Sensor and Manifold 2004EM1, 2004EM2, 2004EM3.

Chapter/Section 73-22-51, Installation of the P4.9 Sensor and Manifold 2004EM1, 2004EM2, 2004EM3.

M. Interchangeability of Parts

Old and new parts are interchangeable only in full sets.

N. Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (Yes)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

2. Material Information

A. Material – Price and Availability

Modification kit is not required.

For Price and availability of spares refer to the supplement of this Service Bulletin.

B. Industry Support Program

Not applicable.

C. The material data that follows is for each engine.

For V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2522-A5 (SelectOne™), V2524-A5 (SelectOne™), V2527-A5 (SelectOne™), V2527E-A5 (SelectOne™), V2527M-A5 (SelectOne™), V2530-A5 (SelectOne™), V2533-A5 (SelectOne™) Engines:

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR – DISP
72-50-50						
01-001	2A1400	1	GROUP – TURBINE EXHAUST CASE OR	-	2A4260	(1)(M)(N)(R)
01-001	2A4261-001	1	GROUP – TURBINE EXHAUST CASE OR	-	2A4261	(1)(M)(N)(R)
01-001	2A8500-007	1	GROUP – TURBINE EXHAUST CASE OR	-	2A8500-005	(1)(M)(N)(R)
01-001	2A9500-004	1	GROUP – TURBINE EXHAUST CASE OR	-	2A9500	(1)(M)(N)(R)
01-001	2A8500-008	1	GROUP – TURBINE EXHAUST CASE OR	-	2A8500	(1)(M)(N)(R)
01-001	2A4700-005	1	GROUP – TURBINE EXHAUST CASE	-	2A4700	(1)(M)(N)(R)

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
73-22-51						
20-180 A	2A4035-01	1	.TUBE ASSEMBLY - LEFT PRESSURE CONTROL	-	2A3124-01	(2)(B)(L)(R)
	ST1885-04	1	..NUT	-		(D)
	360193	1	..THRUST WIRE	-		(D)
20-200	2A2256	2	.SEAL RING - METAL	-	2A2256	(E)
	4W2627	AR	.SAFETY WIRE OPTION	-	4W2627	(E)(01)
20-050 A	2A4036-01	1	.TUBE ASSEMBLY - RIGHT PRESSURE CONTROL	-	2A3125-01	(2)(B)(L)(R)
	ST1885-04	1	..NUT	-		(D)
	360193	1	..THRUST WIRE	-		(D)
20-070	2A2256	2	.SEAL RING - METAL	-	2A2256	(E)
	4W2627	AR	.SAFETY WIRE OPTION	-	4W2627	(E)(01)
20-323	2A4045-01	1	.BRACKET - LOOP CLAMP	-	2A1803-01	(2)(B)(L)(I)
20-325	594412	2	..NUT OPTION	-	4W0038	(C1)(D)(02)(03)
72-50-00						
01-390	2A4044	8	BRACKET - LOOP CLAMP	-	2A1629	(2)(B)(L)(I)
77-21-43						
01-360 A	2A4042-01	4	BRACKET ASSEMBLY - LOOP CLAMP	-	2A1854-01	(2)(B)(L)(I)

FIG- ITEM NUMBER	NEW PART NUMBER	QTY	PART TITLE	MAT	OLD PN	INSTR - DISP
01-420	2A4041-01	1	BRACKET ASSEMBLY - LOOP CLAMP	-	2A1763-01	(2)(B)(C1)(I)
01-276		1	CLAMP OR	-	277398	(N)
01-276 A		1	CLAMP - CUSHION LOOP	-	ST1428-02	(L)
01-286		1	CLAMP OR	-	277398	(N)
01-286 A		1	CLAMP - CUSHION LOOP	-	ST1428-02	(L)
72-50-53						
20-355	2A4080	1	BRACKET - LOOP CLAMP	-	2A3123	(2)(B)(L)(I)
20-020 A	2A4264	1	BRACKET - LOOP CLAMP	-	2A3120	(2)(B)(L)(I)

D. Instructions/Disposition Code Statements:

Parts Modification Conditions

- (1) The new part can be obtained by modification of the old part as specified in the Accomplishment Instructions.
- (2) The new part is a replacement part only, and cannot be obtained by modification of the old part.

Spare Parts Availability

- (B) The new part will be available approximately August 1, 2009.
- (D) The new part is a detail of the assembly. It will be available as a replacement part approximately December 1, 2009.
- (C1) The old part will continue to be supplied for use at other locations.
- (E) The old part is an expendable item necessary to do this bulletin.
- (L) The old part will be supplied until approximately December 31, 2009.
- (M) It is possible to get the new part only by modification.
- (N) The old part is not available.
- (01) Safety Wire Option, P/N 4W2627, consists of a Safety Wire, P/N AS3214-02 or P/N AS44725-2.
- (02) Nut Option, P/N 4W0038, consists of a Nut, P/N AS3262-03 or P/N AS46725.
- (03) Nut option, P/N 594412, consists of a Nut, P/N 594405 or P/N 594414.

Cleaning, Inspection and Repair Information

(I) The cleaning, inspection and repair requirements are the same for the old and new part. The applicable engine manuals will be revised.

(R) The cleaning, inspection and repair requirements are different for the old and new part. The applicable engine manuals will be revised to include the new requirements.

E. Tooling – Price and Availability

Special tools are not required to accomplish this Service Bulletin.

F. Reidentified Parts

Reidentified Parts Data

New P/N	Keyword	Old P/N
2A1400	Turbine Exhaust Case Group	2A4260
2A4261-001	Turbine Exhaust Case Group	2A4261
2A8500-007	Turbine Exhaust Case Group	2A8500-005
2A9500-004	Turbine Exhaust Case Group	2A9500
2A8500-008	Turbine Exhaust Case Group	2A8500
2A4700-005	Turbine Exhaust Case Group	2A4700

G. Other Material Information Data

Not applicable.

3. Accomplishment Instructions

A. Part A – For Engines Installed on Aircraft

NOTE: Service Bulletin incorporation on engines installed on aircraft may be desirable and should be individually evaluated.

- (1) Remove the engine exhaust cone as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 78-11-12, Removal of the Engine Exhaust Cone.
- (2) Remove the common nozzle assembly as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 78-11-11, Removal of the Common Nozzle Assembly.
- (3) Remove the parts shown in Figure 1, Sheet 1 as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 77-21-43, Removal of the EGT Harness and Junction Box.
 - (a) Replace eight Loop Clamp Brackets, P/N 2A1629 with P/N 2A4044. During installation, tighten the fasteners that attach the brackets to 85.0 – 95.0 lbf·in (9,604 – 10,734 Nm).
 - (b) Replace four Loop Clamp Bracket Assemblies, P/N 2A1854-01 with P/N 2A4042-01. During installation, tighten the fasteners that attach the bracket assemblies to 85.0 – 105.0 lbf·in (9,604 – 11,863 Nm).
 - (c) Replace Loop Clamp Bracket Assembly, P/N 2A1763-01 with P/N 2A4041-01. During installation, tighten the fasteners that attach the bracket assembly to 85.0 – 105.0 lbf·in (9,604 – 11,863 Nm).
 - (d) Discard two Clamps, P/N 277398 or two Cushion Loop Clamps, P/N ST1428-02.

NOTE: This Service Bulletin introduces new left and right pressure control tube assemblies. The new tube assemblies include integral clamps. The integral clamps perform the same function as the clamps removed by this step. See Figure 1, Sheets 2 and 3 for the location of the integral clamps.

The new EGT harness clamping and routing is described and illustrated subsequently in this section.

- (4) Install the new brackets as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 77-21-43, Installation of the EGT Harness and Junction Box.
- (5) Remove and discard Loop Clamp Bracket, P/N 2A3123. See Figure 2, Sheet 2 for the location of the bracket.

- (6) Remove and discard Loop Clamp Bracket, P/N 2A3120. See Figure 3, Sheet 2 for the location of the bracket.
- (7) Loosen the fasteners that attach the loop clamps to the two Loop Clamp Brackets, P/N 2A3119. See Figure 4.
- (8) Remove the parts shown in Figure 4 as specified in Reference 12, Aircraft maintenance Manual, Chapter/Section 73-22-51, Removal of the P4.9 Sensor and Manifold.
 - (a) Replace the Left Pressure Control Tube Assembly, P/N 2A3124-01 with P/N 2A4035-01.
 - (b) Replace the Right Pressure Control Tube Assembly, P/N 2A3125-01 with P/N 2A4036-01.
 - (c) Replace Loop Clamp Bracket, P/N 2A1803-01 with P/N 2A4045-01. During installation, tighten the fasteners that attach the bracket to 85.9 - 105.9 lbfin (9,604 - 11,863 Nm).
- (9) Install two new Metal Seal Rings, P/N 2A2256 on Left Pressure Control Tube Assembly, P/N 2A4035-01.
- (10) Install two new Metal Seal Rings, P/N 2A2256 on Right Pressure Control Tube Assembly, P/N 2A4036-01.
- (11) Install the new tubes and brackets as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 73-22-51, Installation of the P4.9 Sensor and Manifold. See Figure 1, Sheets 2 and 3 for EGT harness clamping and routing.
- (12) Install Safety Wire, P/N 4W2627 on the bolts that attach the new tubes at one end and on the nuts that connect the new tubes at the other end. See Reference 12, Aircraft Maintenance Manual, Chapter/Section 70-40-11, Installation of Locking Devices - Maintenance Practices.
- (13) Tighten the fasteners that attach the loop clamps to the two Loop Clamp Brackets, P/N 2A3119 to 36.0 - 45.0 lbfin (4,067 - 5,084 Nm). See Figure 4.
- (14) Install a new Loop Clamp Bracket, P/N 2A4080 where P/N 2A3123 was previously installed. Tighten the fasteners that attach the bracket to 85.0 - 105.0 lbfin (9,604 - 11,863 Nm). See Figure 2, Sheet 2 for the location of the bracket.
- (15) Install a new Loop Clamp Bracket, P/N 2A4264 where P/N 2A3120 was previously installed. Tighten the fasteners that attach the bracket to 85.0 - 105.0 lbfin (9,604 - 11,863 Nm). See Figure 3, Sheet 2 for the location of the bracket.

- (16) Identify the turbine exhaust case group as shown in Table 1. Mark the part number in the same location of the existing part number and maintain the same serial number. See Figure 5 for the location of the marking.

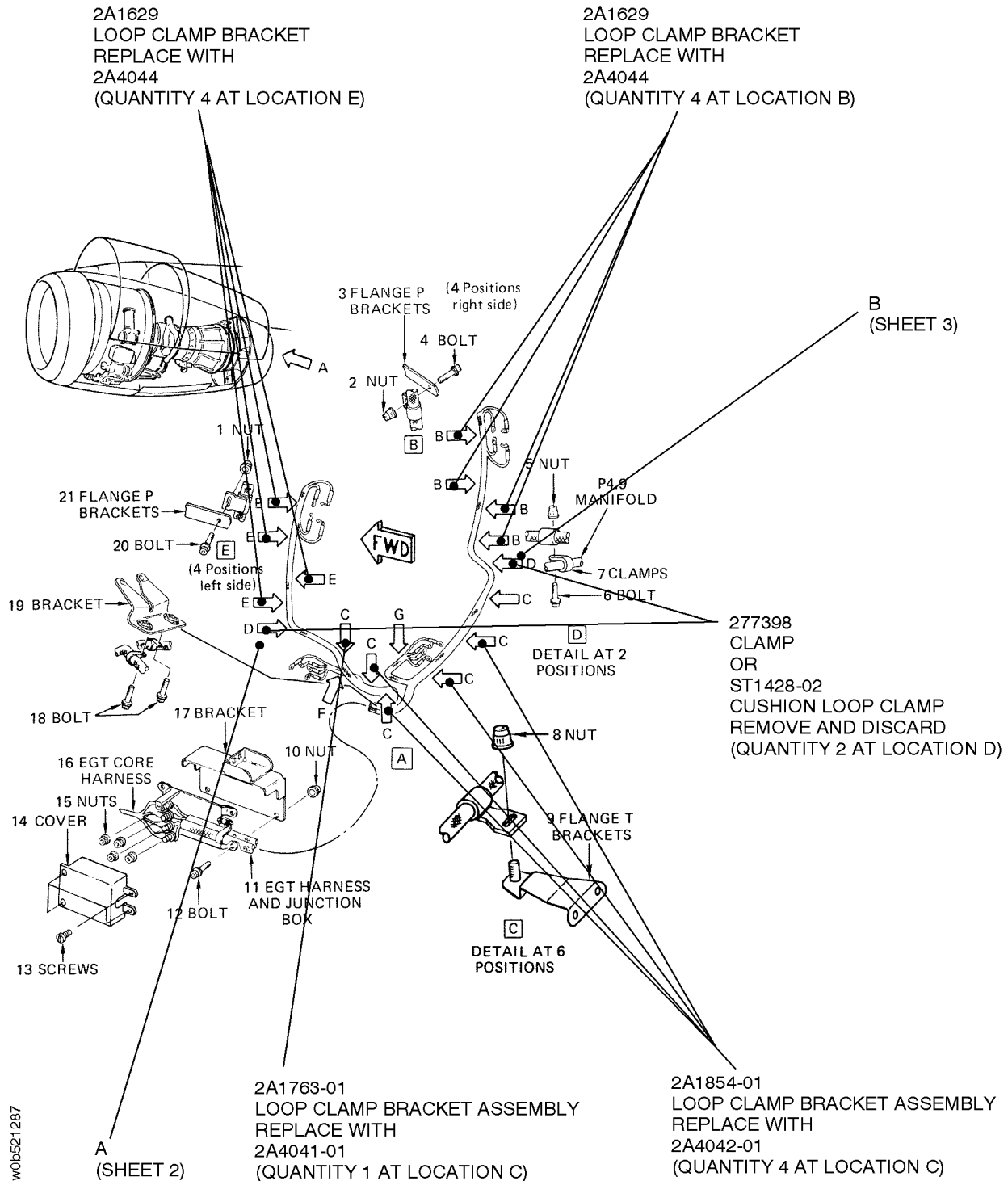
Use the vibration peen method as follows:

- (a) Symbols are made with the vibration of a radius-tipped conical tool as follows:
- (i) Manual: the tool is hand-operated. It has one tip.
 - (ii) Mechanical: the tool is mechanically operated. It has one or more tips which make one or more symbols at the same time.
- (b) Depth of marks for vibration peen, Manual and Mechanical – 0.006 in. (0,152 mm).

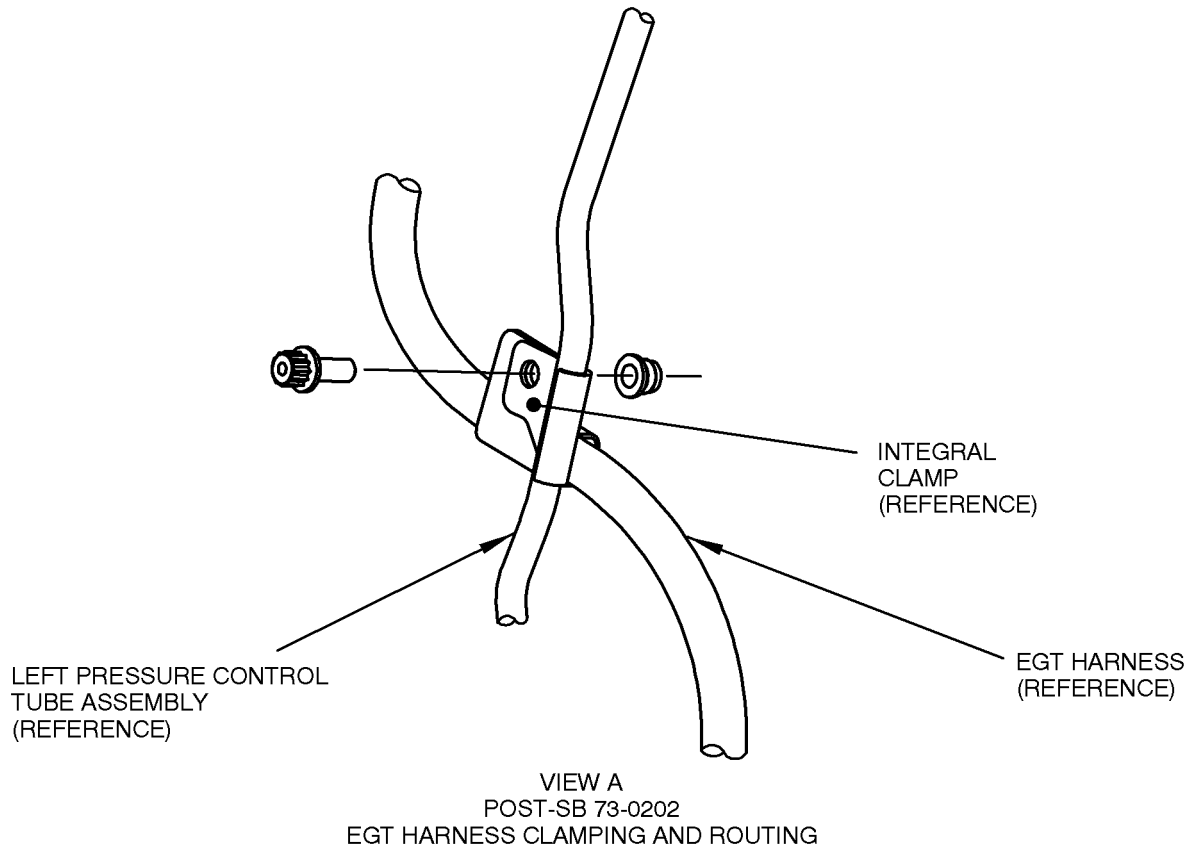
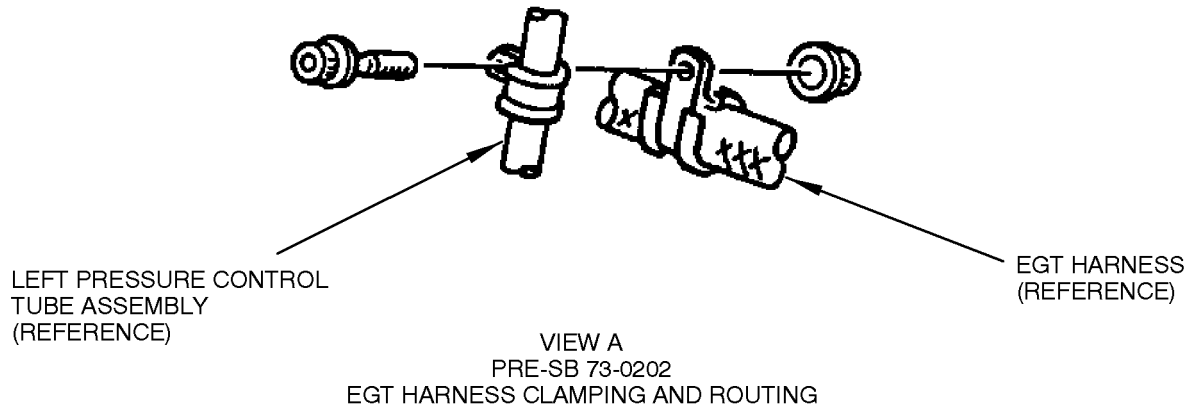
Table 1

New P/N	Keyword	Old P/N
2A1400	Turbine Exhaust Case Group	2A4260
2A4261-001	Turbine Exhaust Case Group	2A4261
2A8500-007	Turbine Exhaust Case Group	2A8500-005
2A9500-004	Turbine Exhaust Case Group	2A9500
2A8500-008	Turbine Exhaust Case Group	2A8500
2A4700-005	Turbine Exhaust Case Group	2A4700

- (17) Install the common nozzle assembly as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 78-11-11, Installation of the Common Nozzle Assembly (CNA).
- (18) Install the engine exhaust cone as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 78-11-12, Installation of the Engine Exhaust Cone.
- (19) Do a Leak check as specified in Reference 12, Aircraft Maintenance Manual, Chapter/Section 71-00-00, Test No.3: Idle Leak Check.

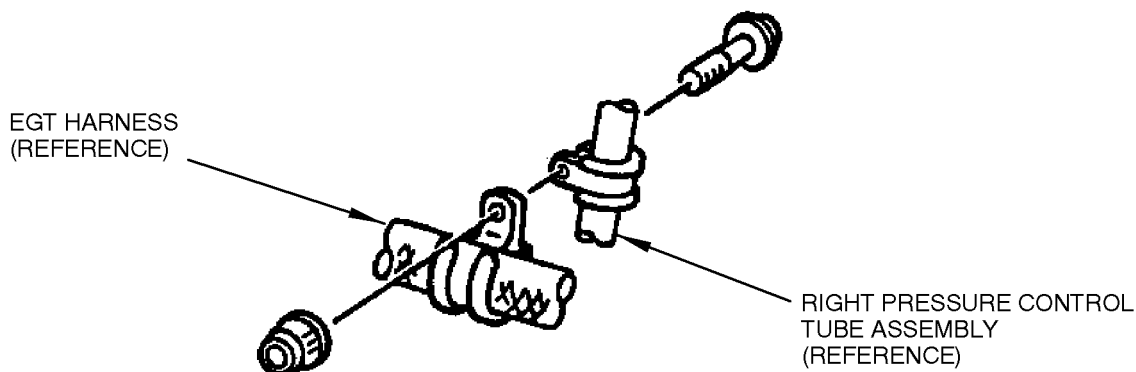


REPLACEMENT OF EGT HARNESS BRACKETS AND EGT HARNESS CLAMPING AND ROUTING
FIGURE 1, SHEET 1

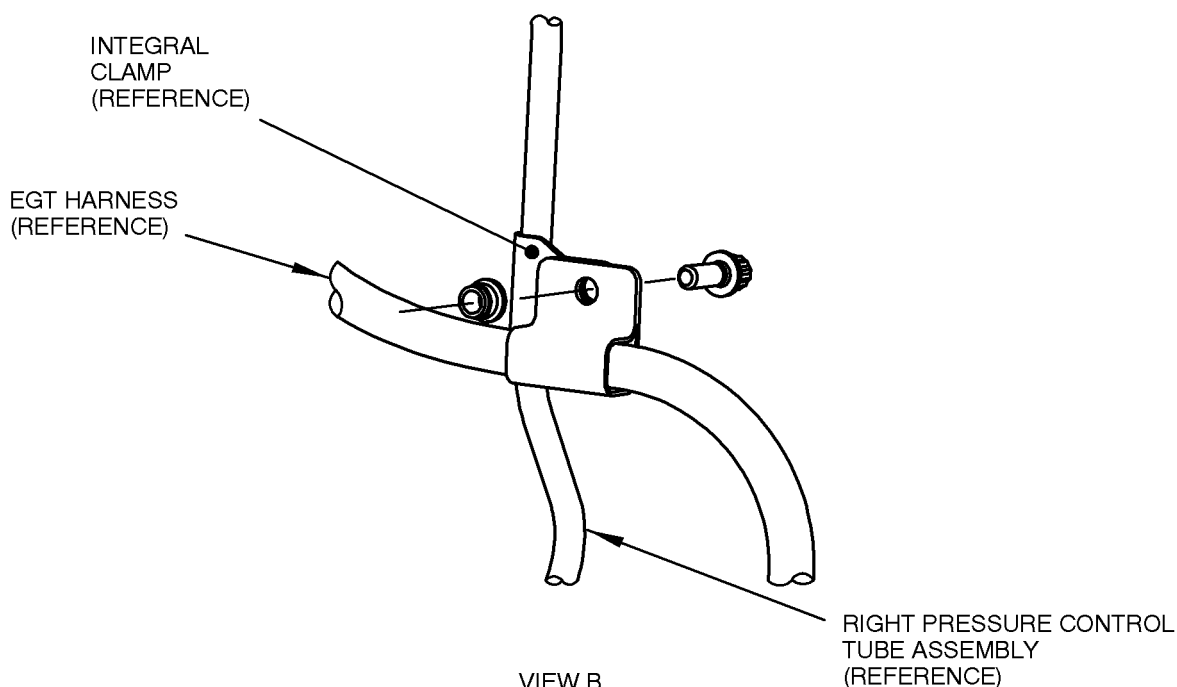


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REPLACEMENT OF EGT HARNESS BRACKETS AND EGT HARNESS CLAMPING AND ROUTING
FIGURE 1, SHEET 2

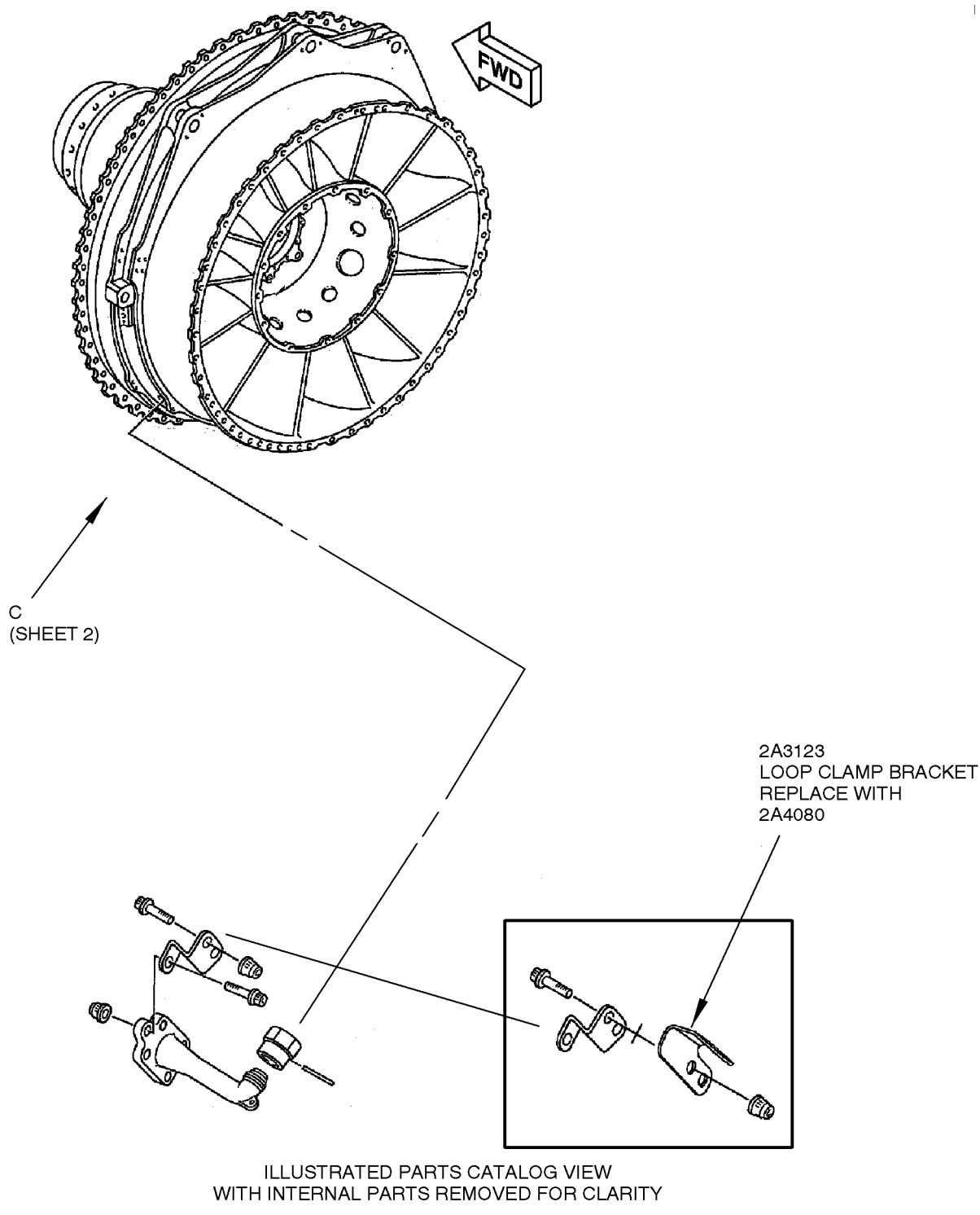


VIEW B
PRE-SB 73-0202
EGT HARNESS CLAMPING AND ROUTING

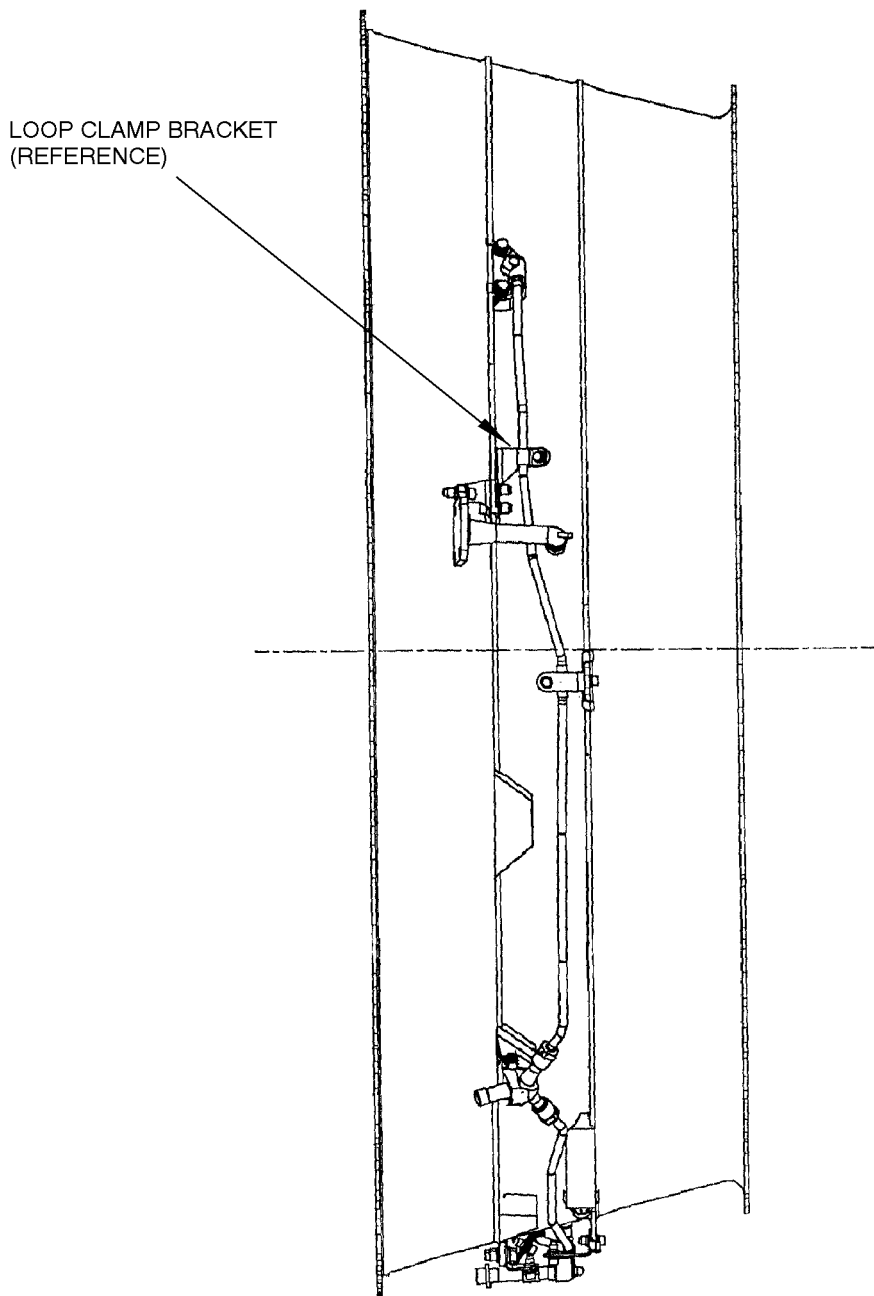


VIEW B
POST-SB 73-0202
EGT HARNESS CLAMPING AND ROUTING

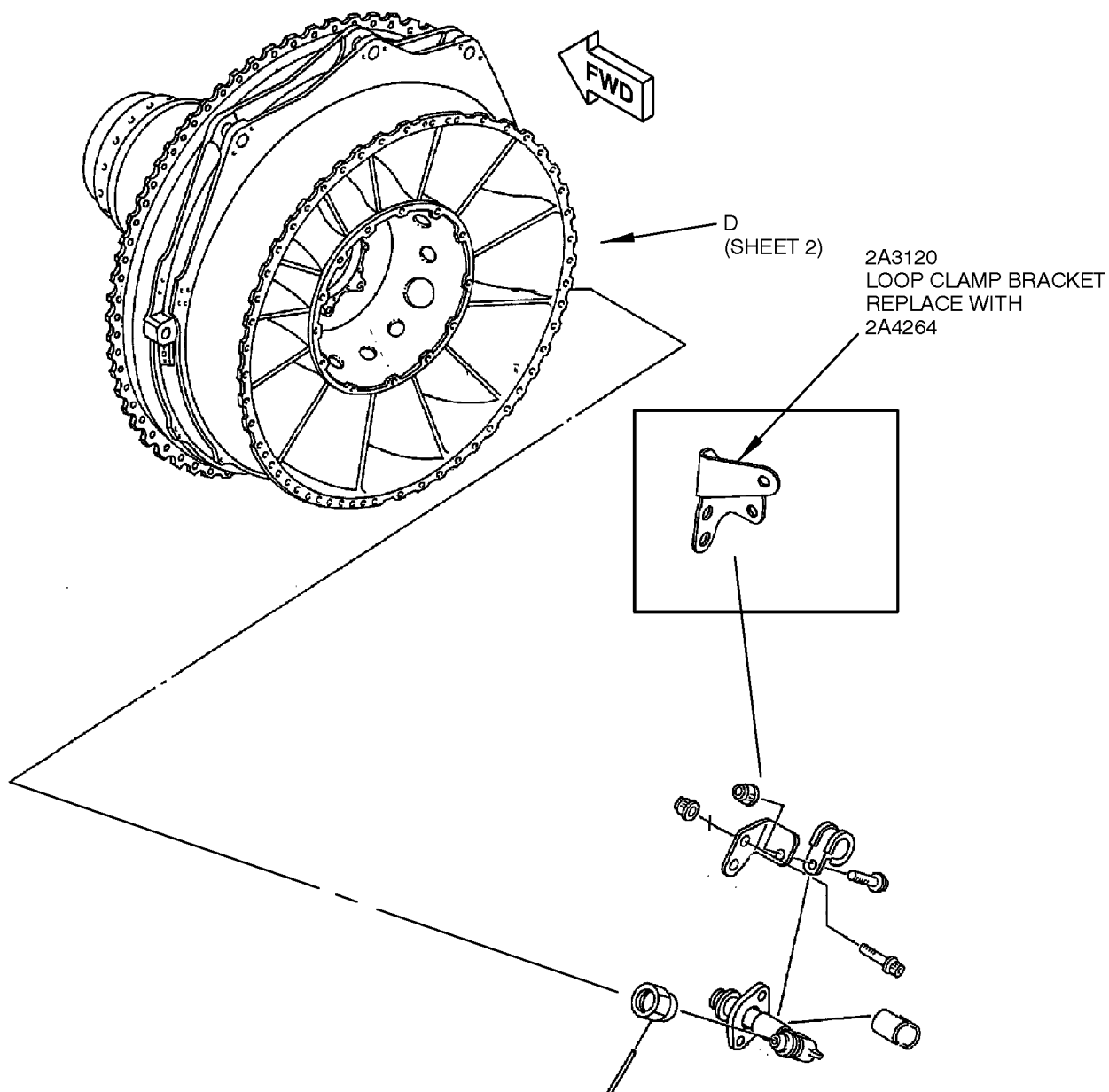
REPLACEMENT OF EGT HARNESS BRACKETS AND EGT HARNESS CLAMPING AND ROUTING
FIGURE 1, SHEET 3



LOCATION OF THE LOOP CLAMP BRACKET
72-50-53
FIGURE 2, SHEET 1



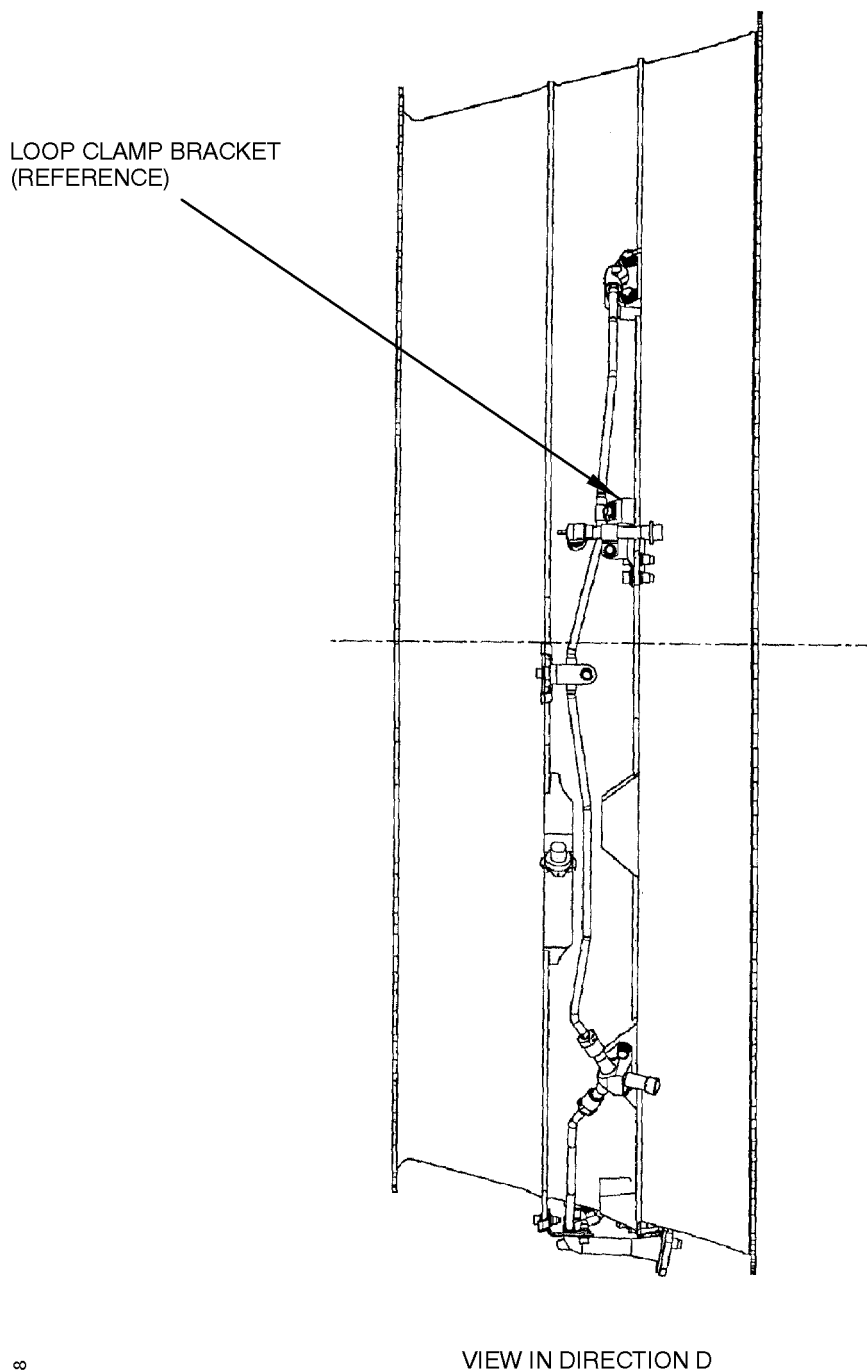
LOCATION OF THE LOOP CLAMP BRACKET
FIGURE 2, SHEET 2



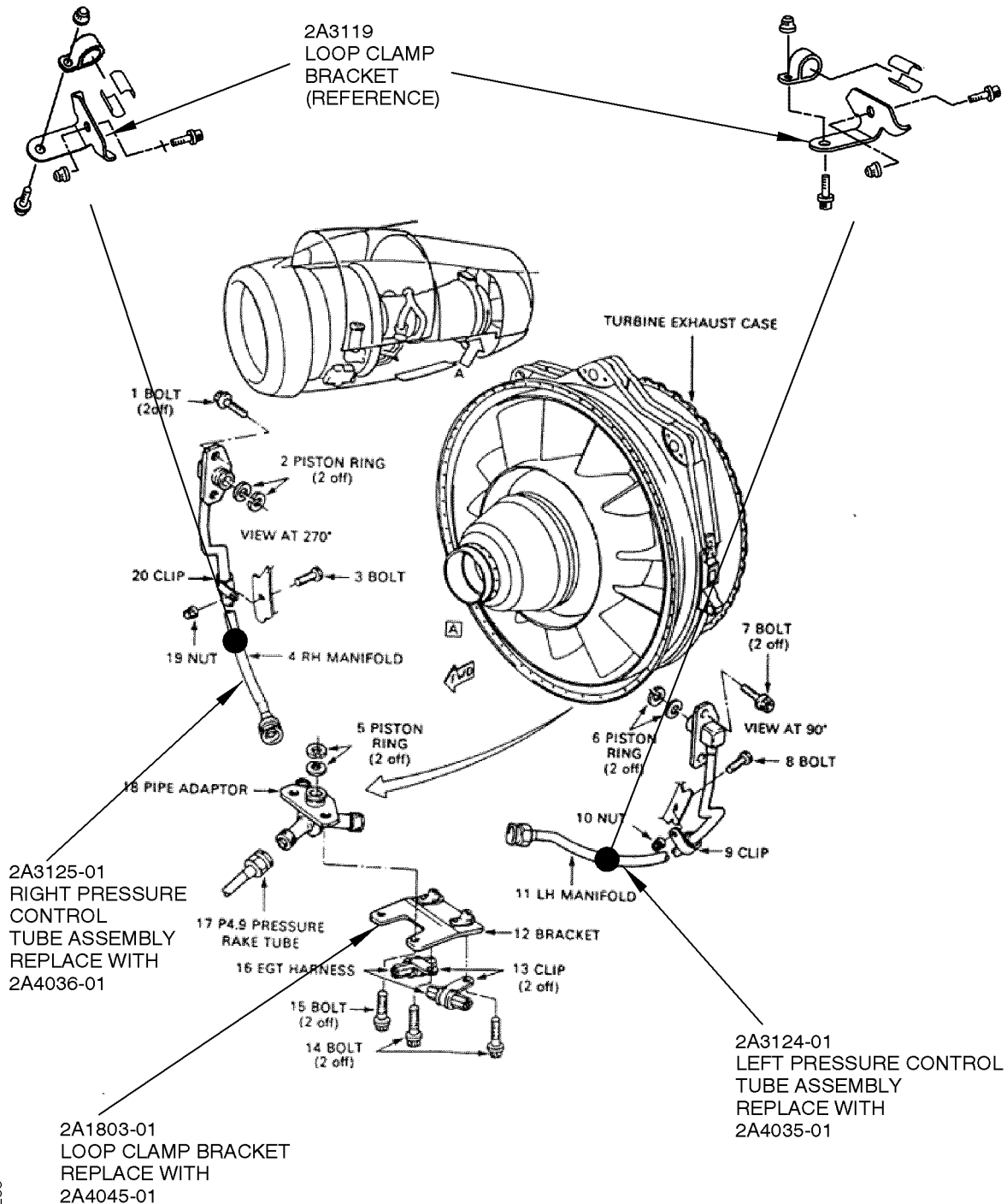
ILLUSTRATED PARTS CATALOG VIEW
WITH INTERNAL PARTS REMOVED FOR CLARITY

LOCATION OF THE LOOP CLAMP BRACKET
72-50-53
FIGURE 3, SHEET 1

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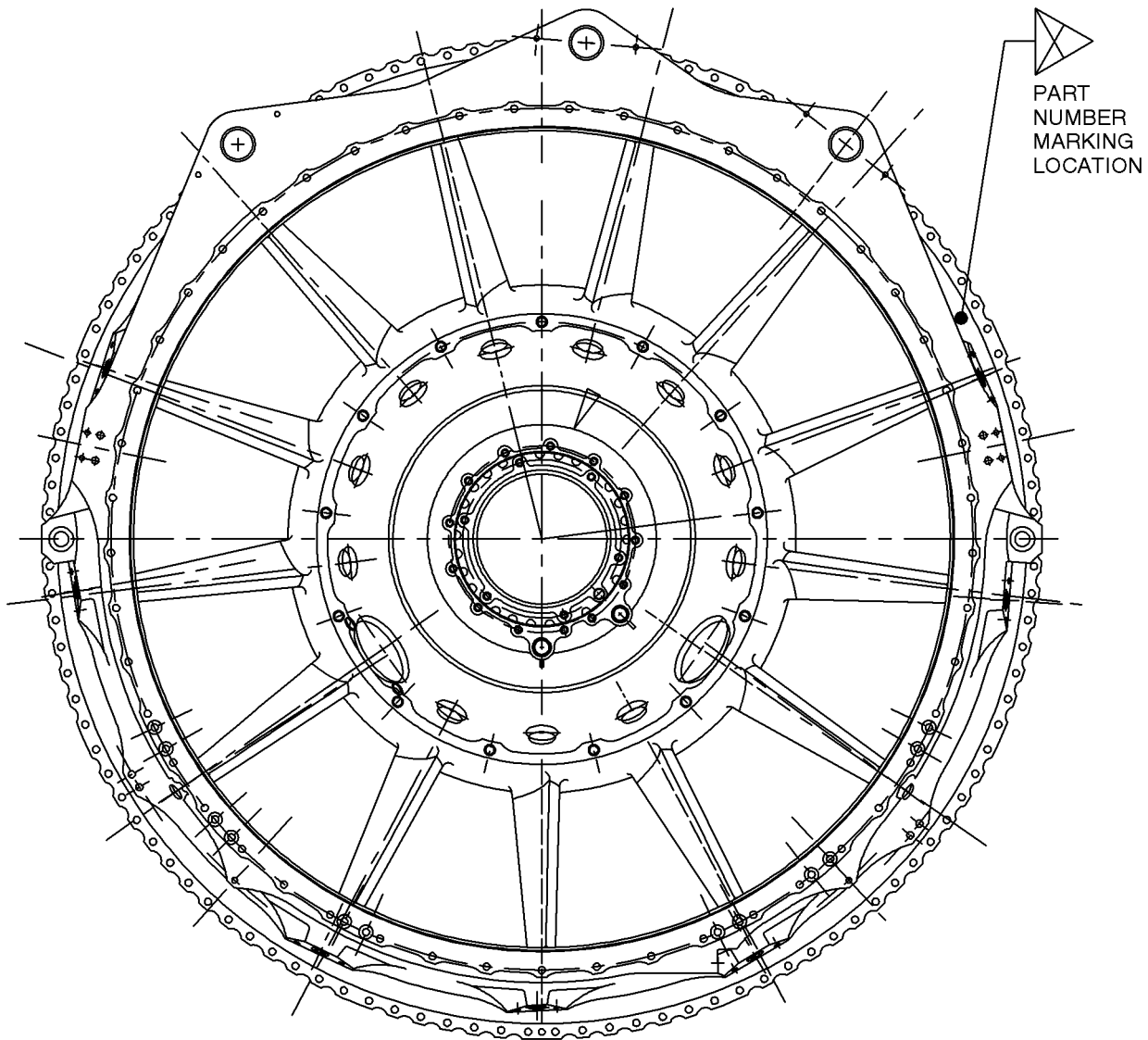


LOCATION OF THE LOOP CLAMP BRACKET
FIGURE 3, SHEET 2



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REPLACEMENT OF P4.9 BRACKET AND TUBE ASSEMBLIES
FIGURE 4



TURBINE EXHAUST CASE GROUP
AFT LOOKING FORWARD

IDENTIFICATION OF THE MODIFIED TURBINE EXHAUST CASE GROUP
FIGURE 5

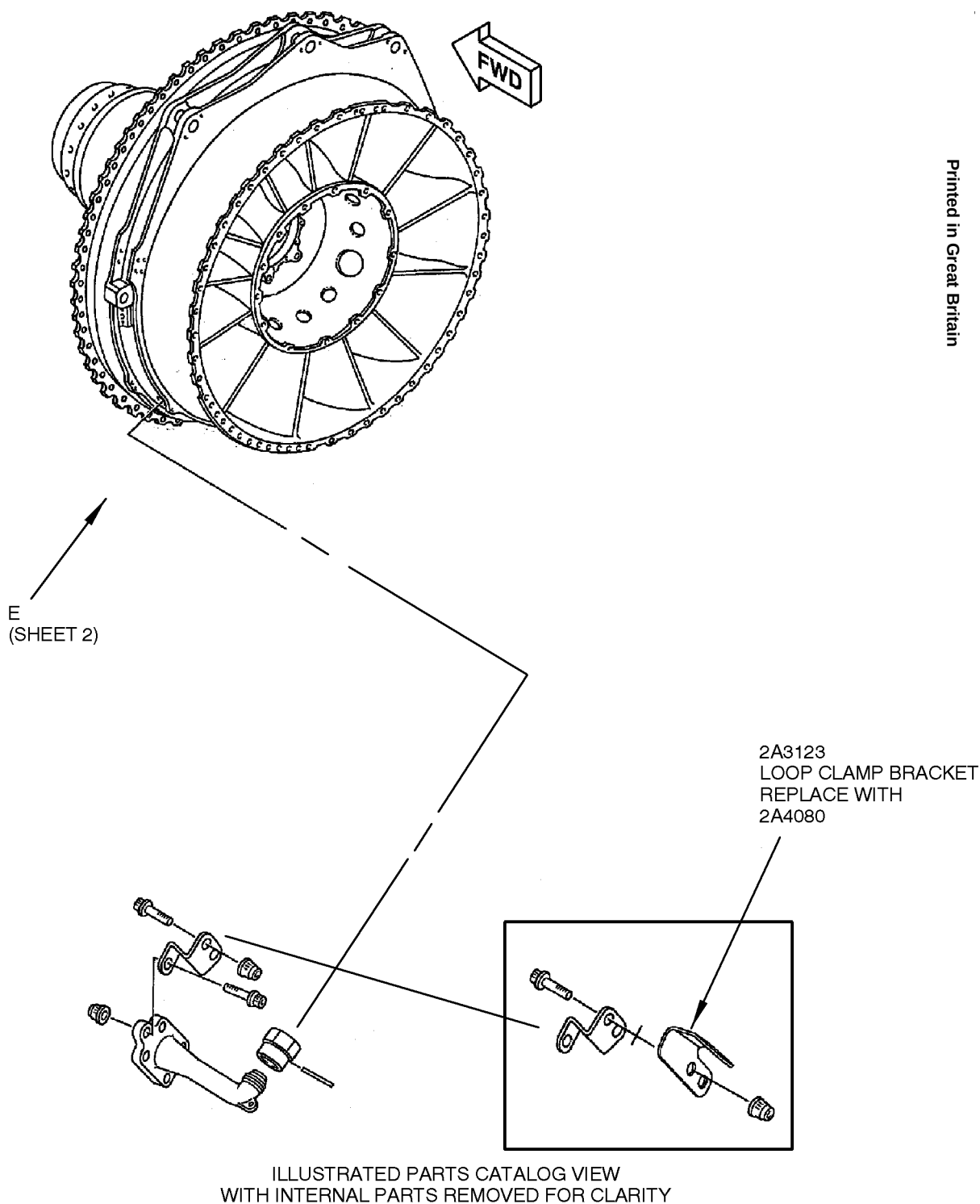
B. Part B – For Engines Removed from Aircraft:

- (1) Do the following procedures on the left side of the turbine exhaust case group during engine assembly:
- (a) Replace Loop Clamp Bracket, P/N 2A3123 with P/N 2A4080. See Figure 6, Sheet 2 for the location of the bracket.
 - (b) Replace the Left Pressure Control Tube Assembly, P/N 2A3124-01 with P/N 2A4035-01. See Figure 7 for the location of the tube assembly.

Do the following during tube installation:

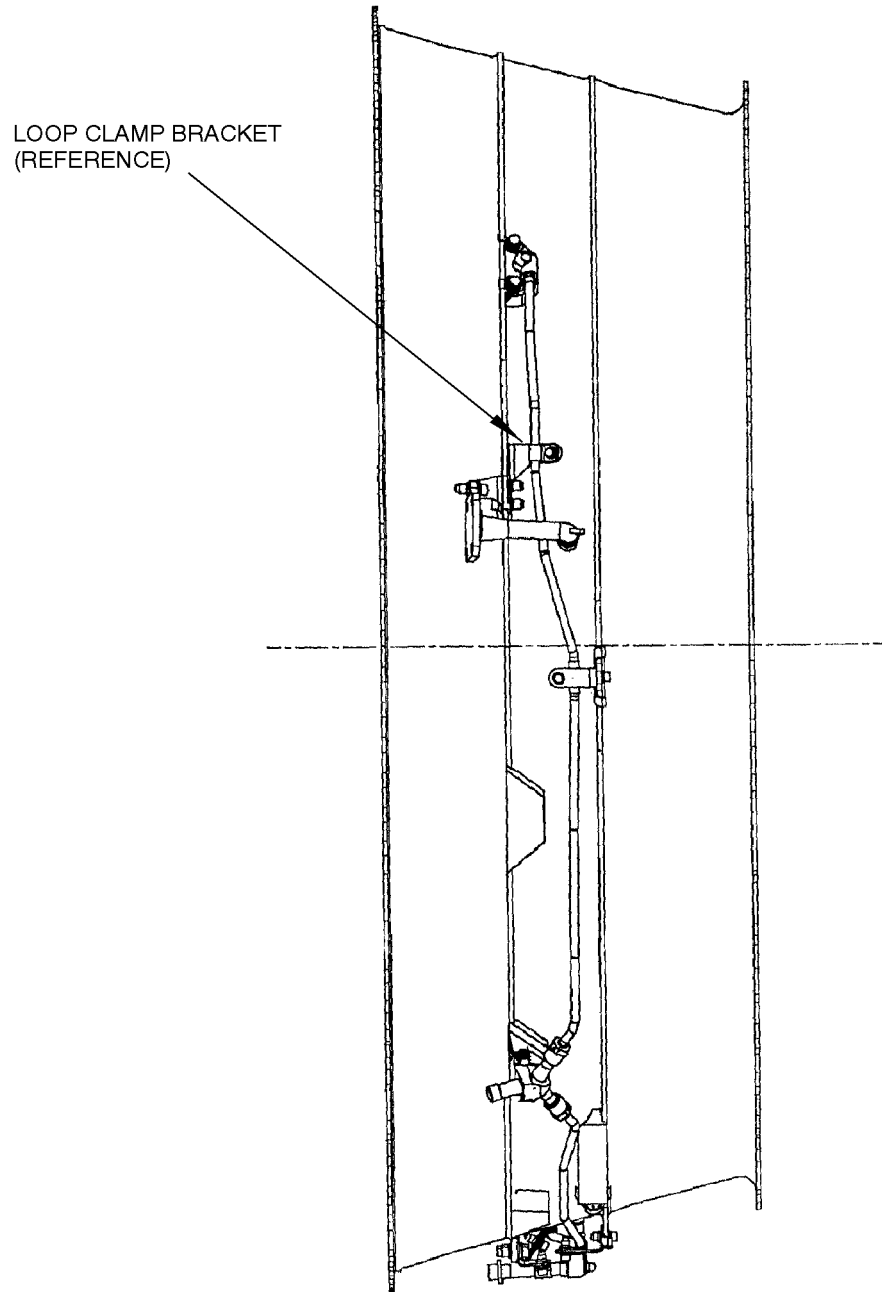
- (i) Install two new Metal Seal Rings, P/N 2A2256 on Left Pressure Control Tube Assembly, P/N 2A4035-01.
 - (ii) Install Safety Wire, P/N 4W2627 on the bolts that attach the new tube at one end and on the nut that connects the new tube at the other end. See Reference 11, Standard Practices Manual, Chapter/Section 70-42-05, General Instructions for the Uses of Lockwire.
- (c) Replace four Loop Clamp Brackets, P/N 2A1629 with P/N 2A4044. See Figure 8 for the location of the brackets.
 - (d) Replace two Loop Clamp Bracket Assemblies, P/N 2A1854-01 with P/N 2A4042-01. See Figure 9 for the location of the brackets.
 - (e) Replace Loop Clamp bracket Assembly, P/N 2A1763-01 with P/N 2A4041-01. See Figure 9 for the location of the bracket.
 - (f) Discard Clamp, P/N 277398 or Cushion Loop Clamp, P/N ST1428-02. See Figure 10, Sheet 1 for the location of the clamp. See Figure 10, Sheet 2 for EGT harness clamping and routing.

NOTE: This Service Bulletin introduces a new left pressure control tube assembly. The new tube assembly includes an integral clamp. The integral clamp performs the same function as the clamp removed by this step. See Figure 10, Sheet 2 for location of the integral clamp.



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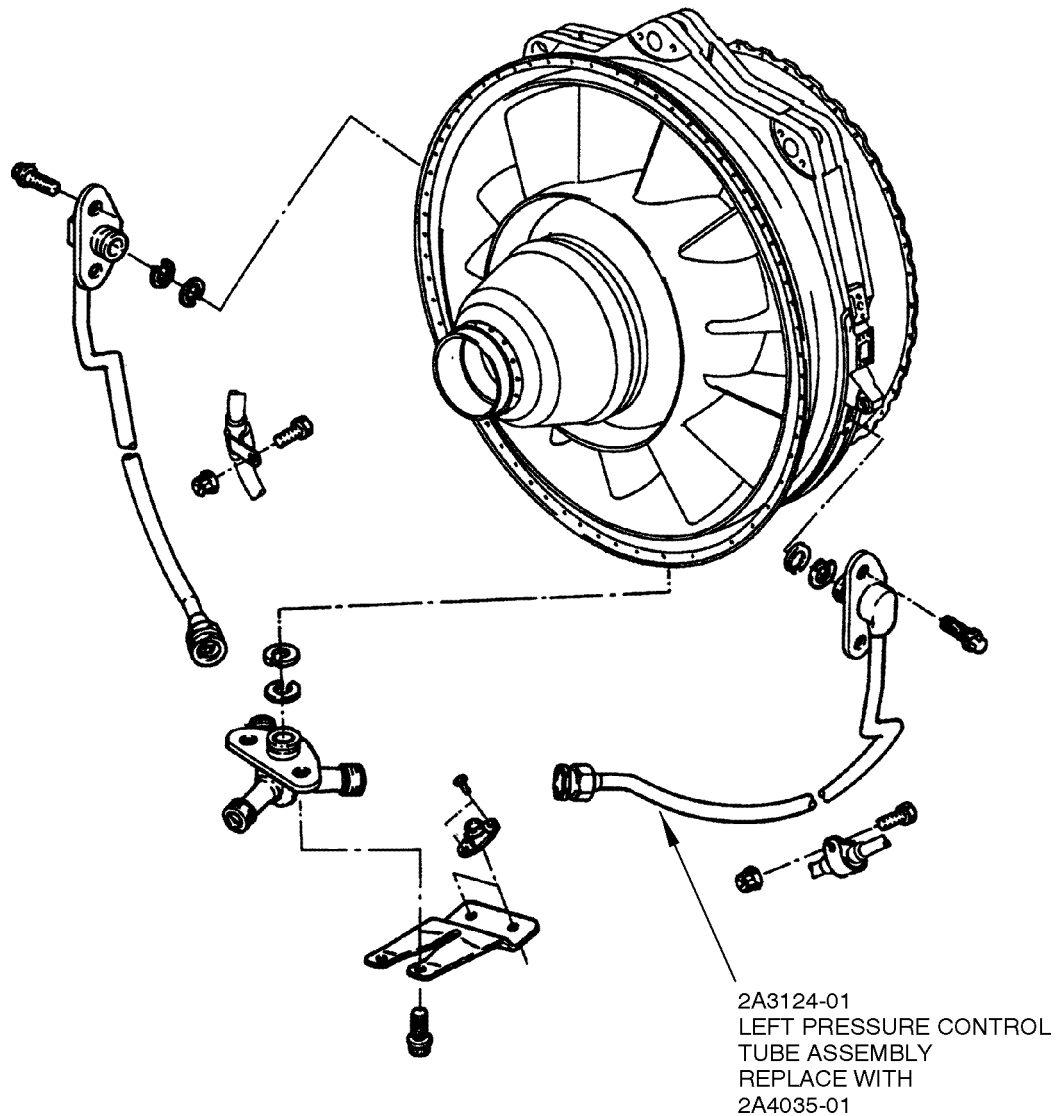
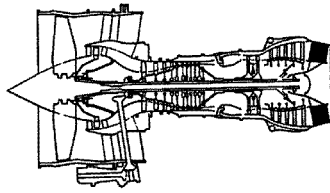
LOCATION OF THE LOOP CLAMP BRACKET
72-50-53
FIGURE 6, SHEET 1



VIEW IN DIRECTION E

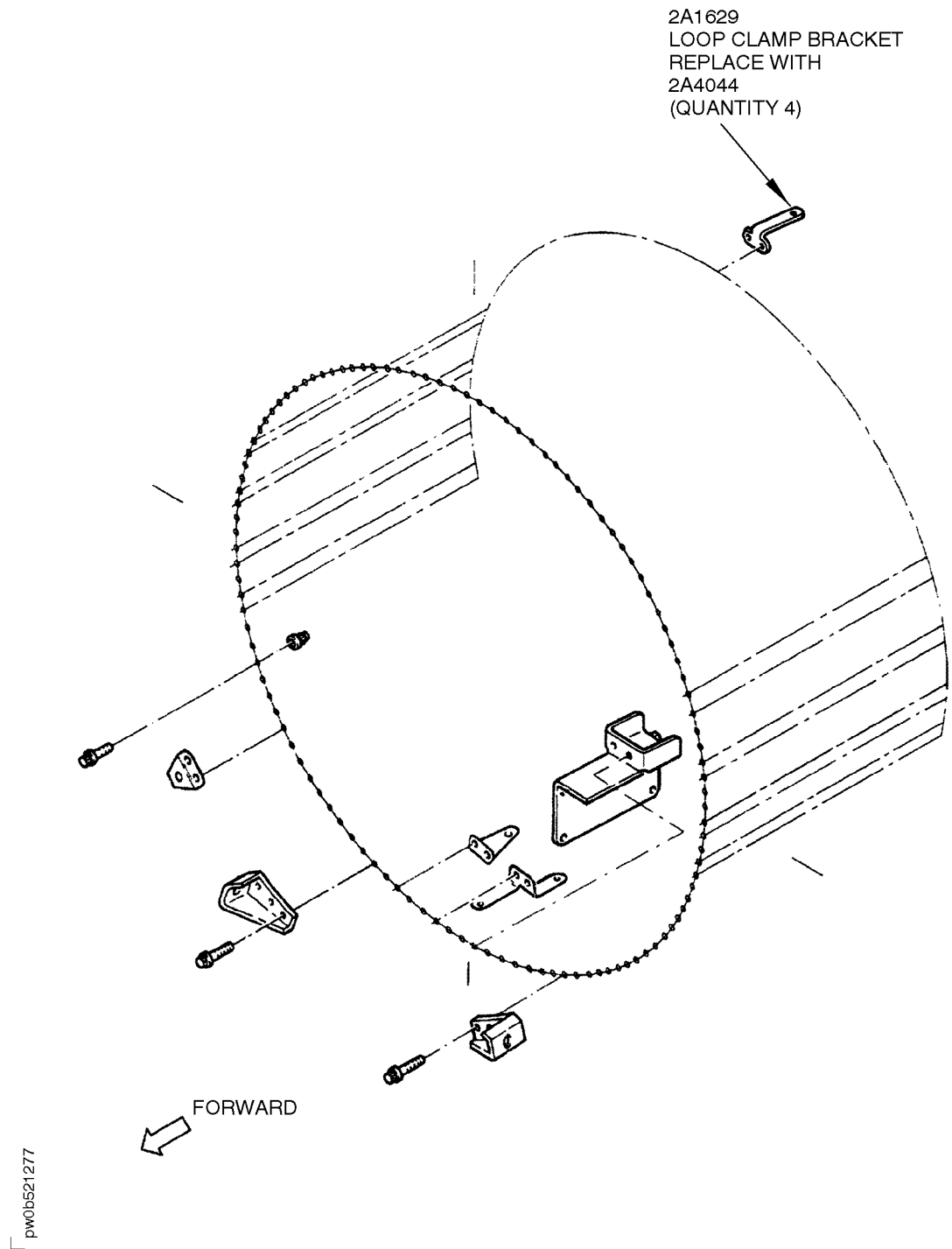
LOCATION OF THE LOOP CLAMP BRACKET
FIGURE 6, SHEET 2

pw0b521370

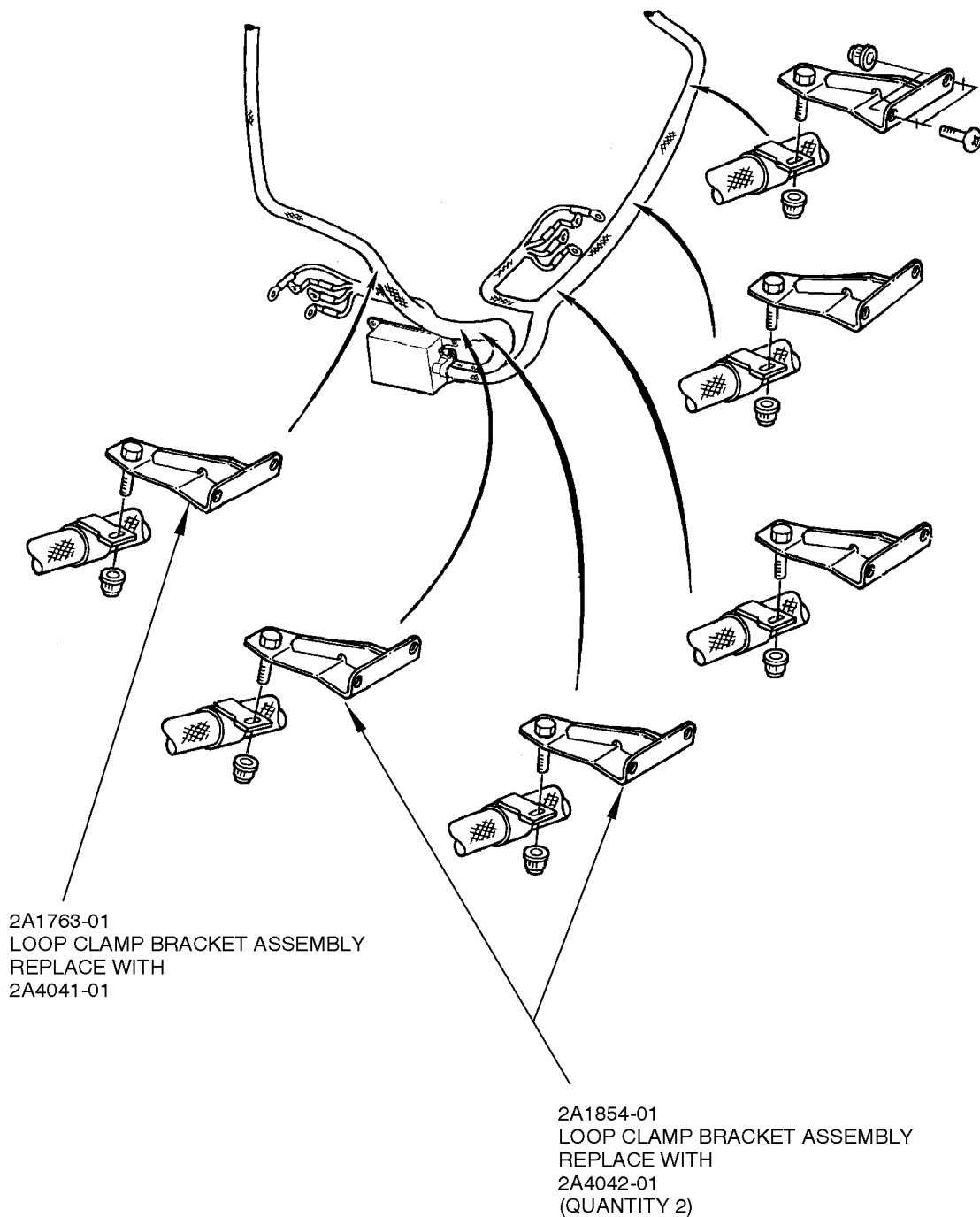


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LOCATION OF THE LEFT PRESSURE CONTROL TUBE ASSEMBLY
73-22-51
FIGURE 7



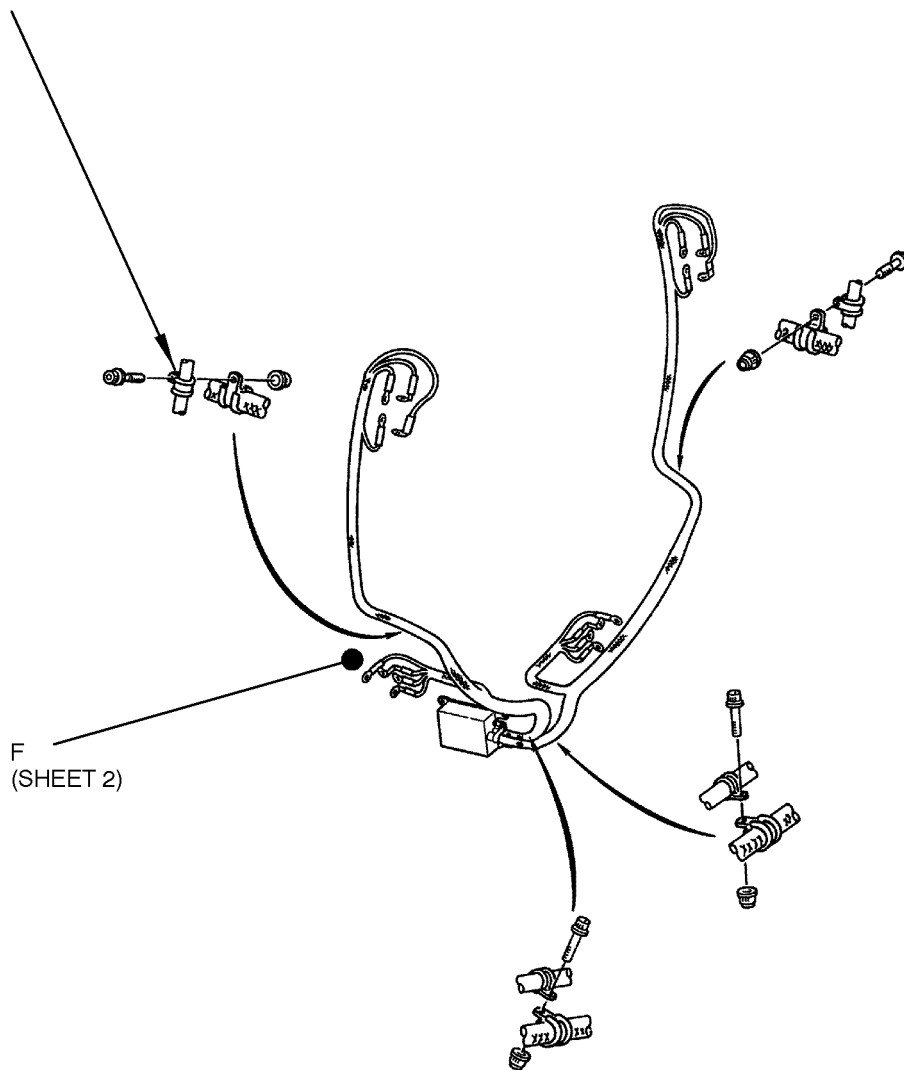
LOCATION OF THE LOOP CLAMP BRACKETS
72-50-00
FIGURE 8



pw0b521275

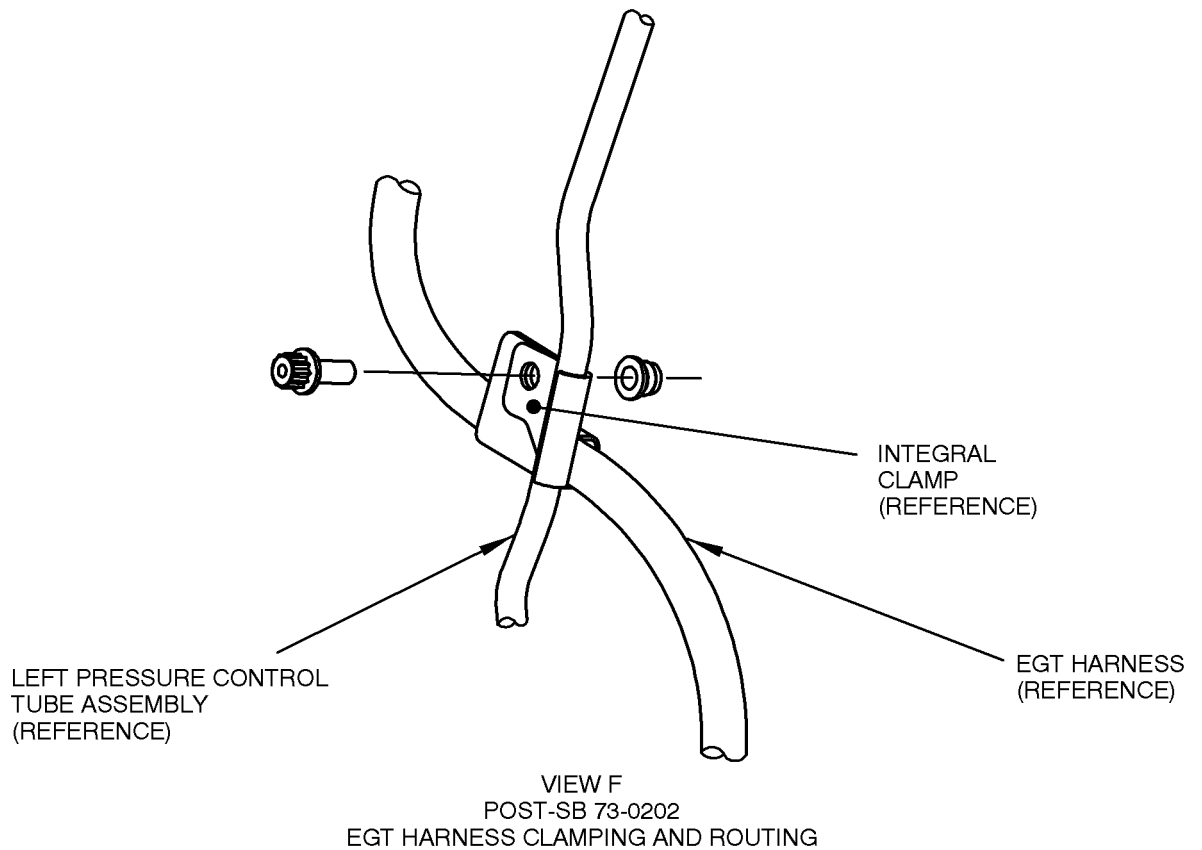
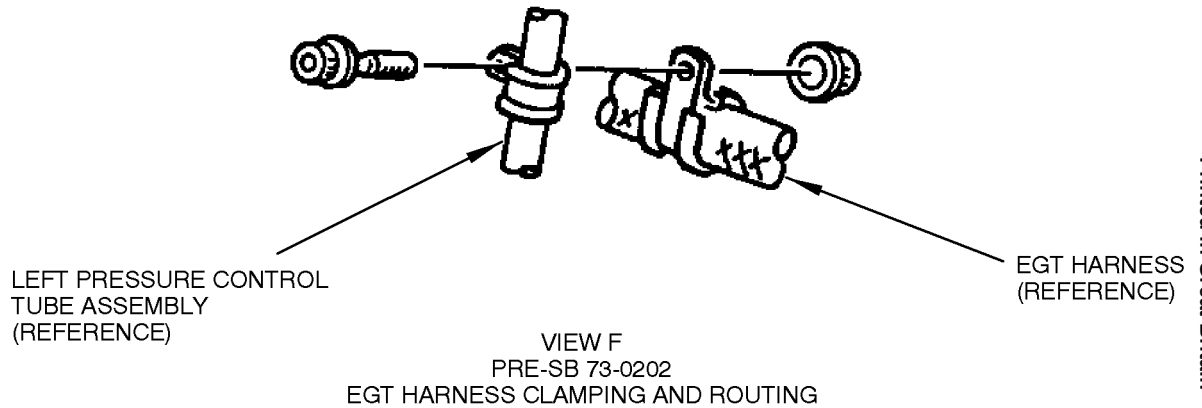
LOCATION OF THE LOOP CLAMP BRACKETS
77-21-43
FIGURE 9

277398
CLAMP
OR
ST1428-02
CUSHION LOOP CLAMP
DISCARD



pw0b521276

LOCATION OF THE CLAMP OR CUSHION LOOP CLAMP AND EGT HARNESS CLAMPING AND ROUTING 77-21-43
FIGURE 10, SHEET 1



LOCATION OF THE CLAMP OR CUSHION LOOP CLAMP AND EGT HARNESS CLAMPING AND ROUTING
FIGURE 10, SHEET 2

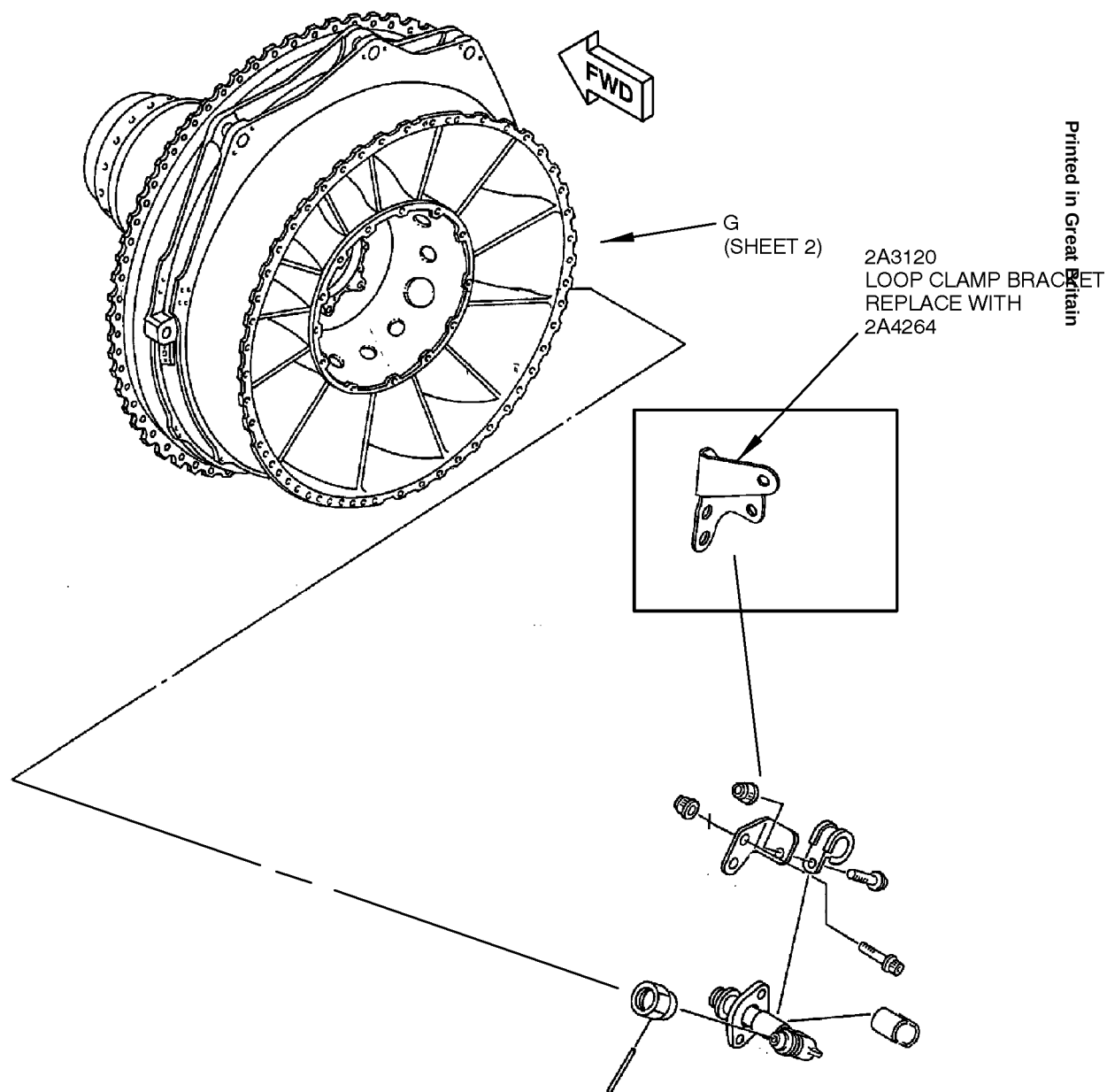
pw0b521314

- (2) Do the following procedures on the right side of the turbine exhaust case group during engine assembly:
- (a) Replace Loop Clamp Bracket, P/N 2A3120 with P/N 2A4264. See Figure 11, Sheet 2 for the location of the bracket.
 - (b) Replace the Right Pressure Control Tube Assembly, P/N 2A3125-01 with P/N 2A4036-01. See Figure 12 for the location of the tube assembly.

Do the following during tube installation:

- (i) Install two new Metal Seal Rings, P/N 2A2256 on Right Pressure Control Tube Assembly, P/N 2A4036-01.
 - (ii) Install Safety Wire, P/N 4W2627 on the bolts that attach the new tube at one end and on the nut that connects the new tube at the other end. See Reference 11, Standard Practices Manual, Chapter/Section 70-42-05, General Instructions for the Uses of Lockwire.
- (c) Replace four Loop Clamp Brackets, P/N 2A1629 with P/N 2A4044. See Figure 13 for the location of the brackets.
 - (d) Replace two Loop Clamp Bracket Assemblies, P/N 2A1854-01 with P/N 2A4042-01. See Figure 14 for the location of the brackets.
 - (e) Discard Clamp, P/N 277398 or Cushion Loop Clamp, P/N ST1428-02. See Figure 15, Sheet 1 for the location of the clamp. See Figure 15, Sheet 2 for EGT harness clamping and routing.

NOTE: This Service Bulletin introduces a new right pressure control tube assembly. The new tube assembly includes an integral clamp. The integral clamp performs the same function as the clamp removed by this step. See Figure 15, Sheet 2 for location of the integral clamp.



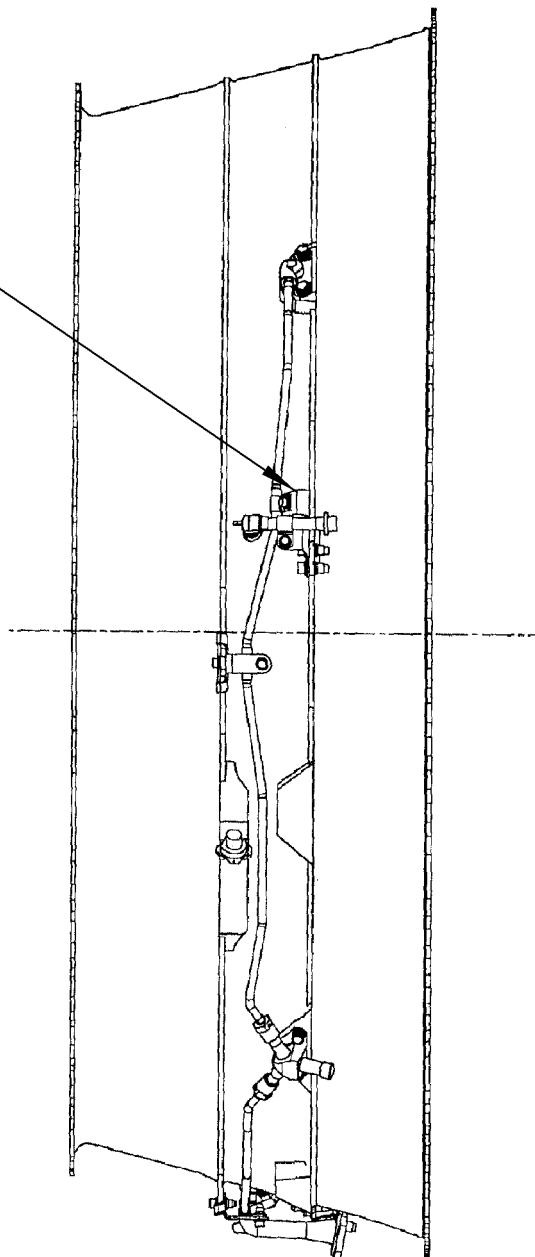
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ILLUSTRATED PARTS CATALOG VIEW
WITH INTERNAL PARTS REMOVED FOR CLARITY

pw0b521278

LOCATION OF THE LOOP CLAMP BRACKET
72-50-53
FIGURE 11, SHEET 1

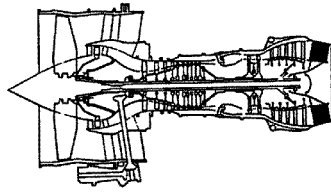
LOOP CLAMP BRACKET
(REFERENCE)



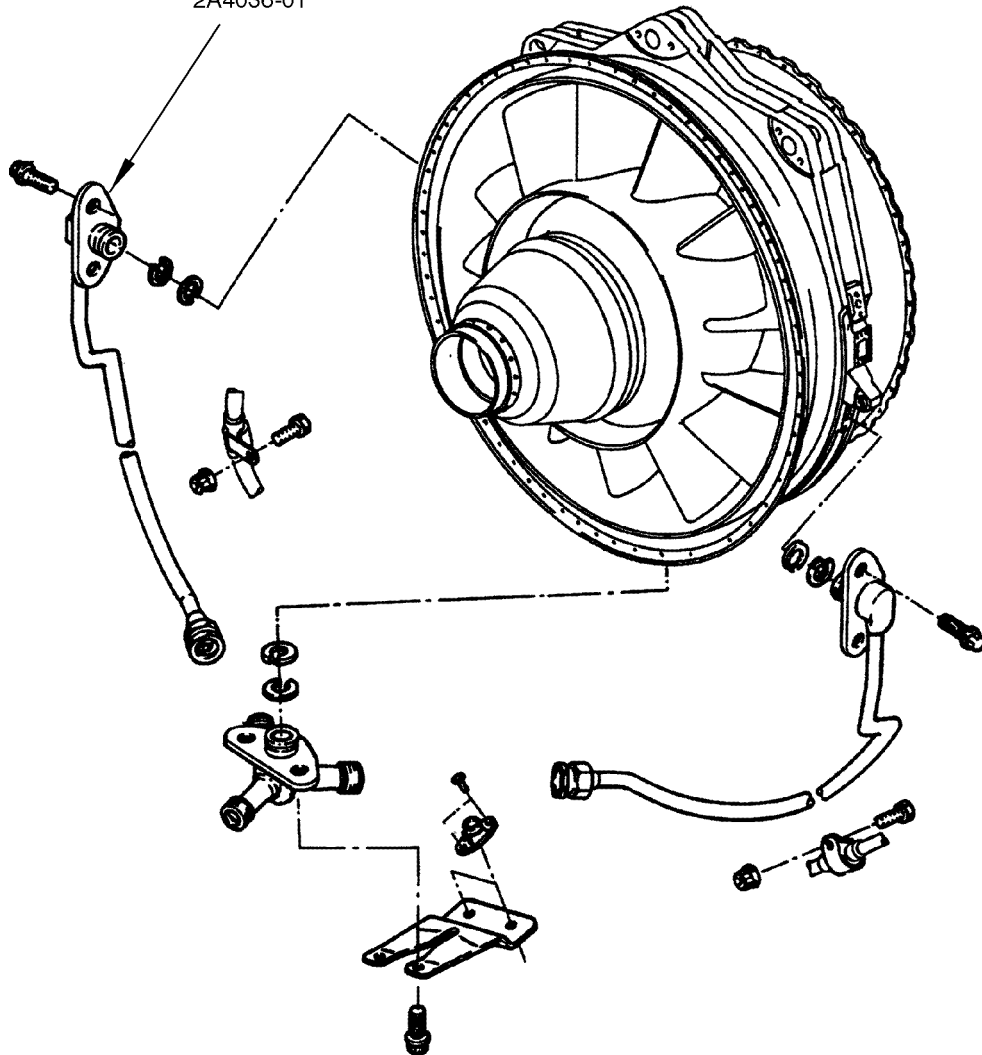
VIEW IN DIRECTION G

pw0b521372

LOCATION OF THE LOOP CLAMP BRACKET
FIGURE 11, SHEET 2

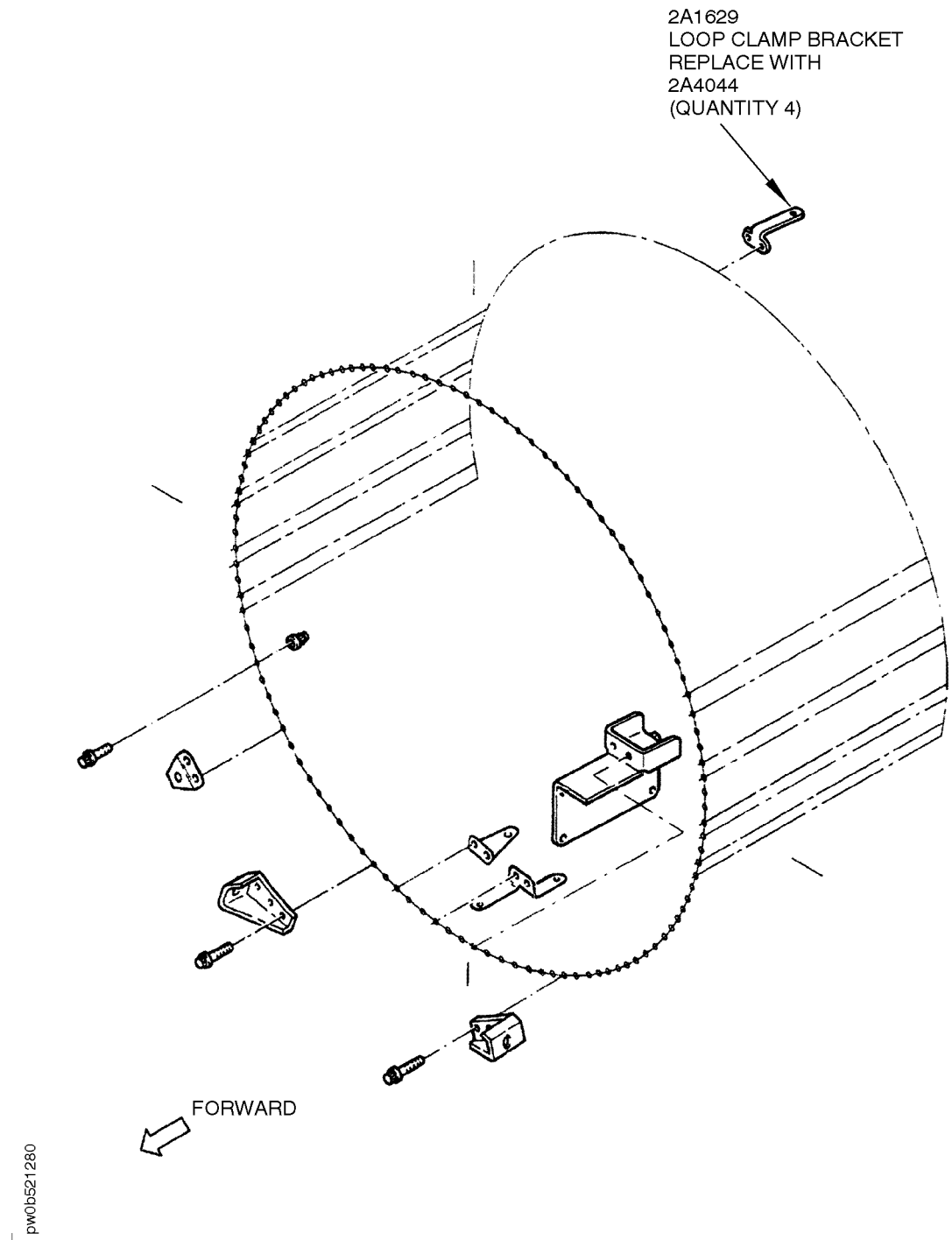


2A3125-01
RIGHT PRESSURE CONTROL
TUBE ASSEMBLY
REPLACE WITH
2A4036-01

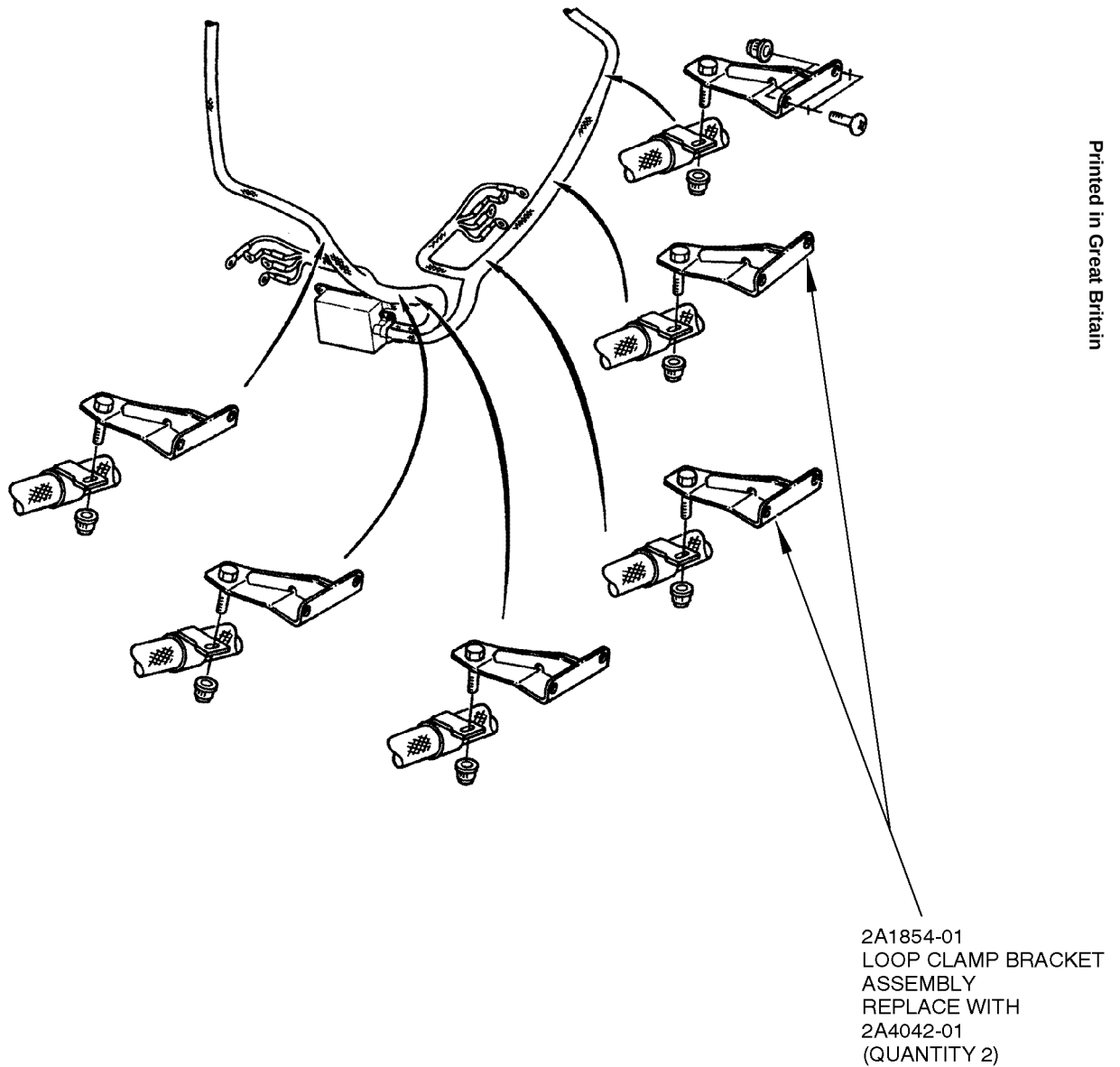


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LOCATION OF THE RIGHT PRESSURE CONTROL TUBE ASSEMBLY
73-22-51
FIGURE 12

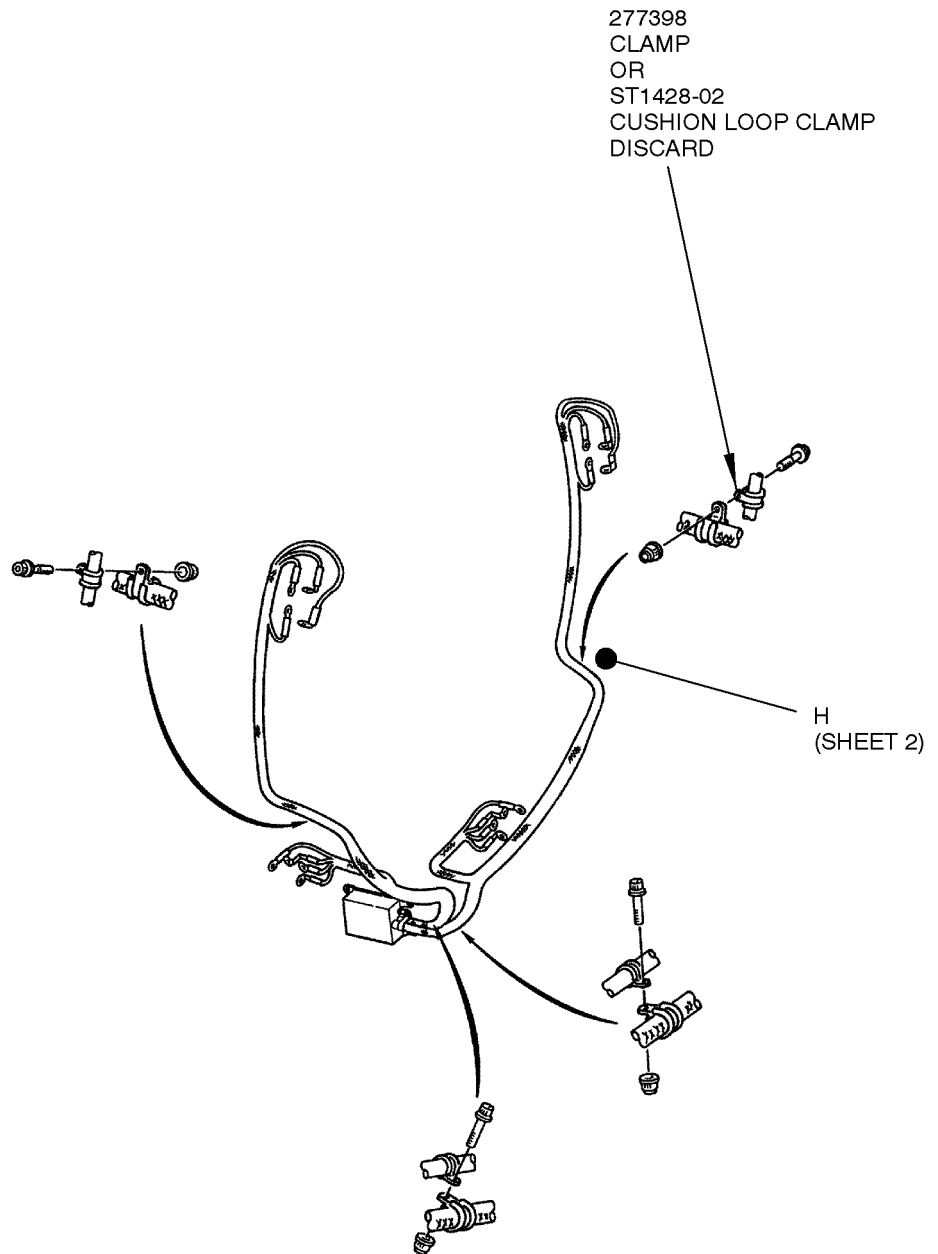


LOCATION OF THE LOOP CLAMP BRACKETS
72-50-00
FIGURE 13



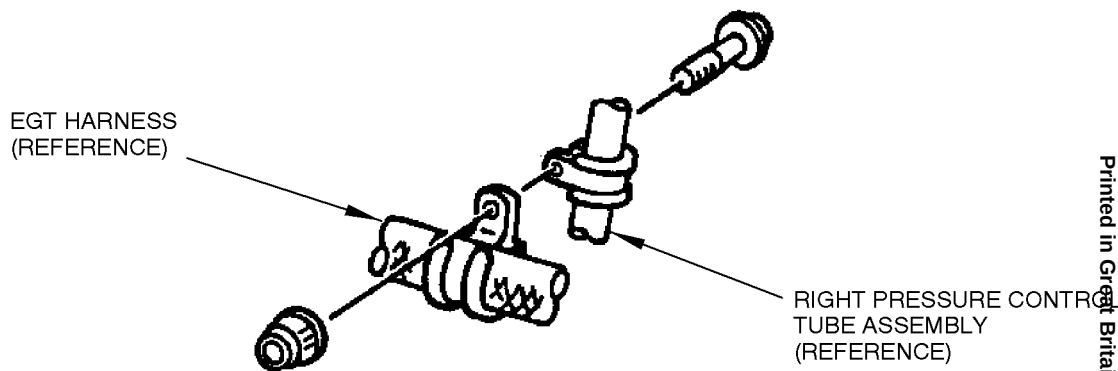
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LOCATION OF THE LOOP CLAMP BRACKETS
77-21-43
FIGURE 14

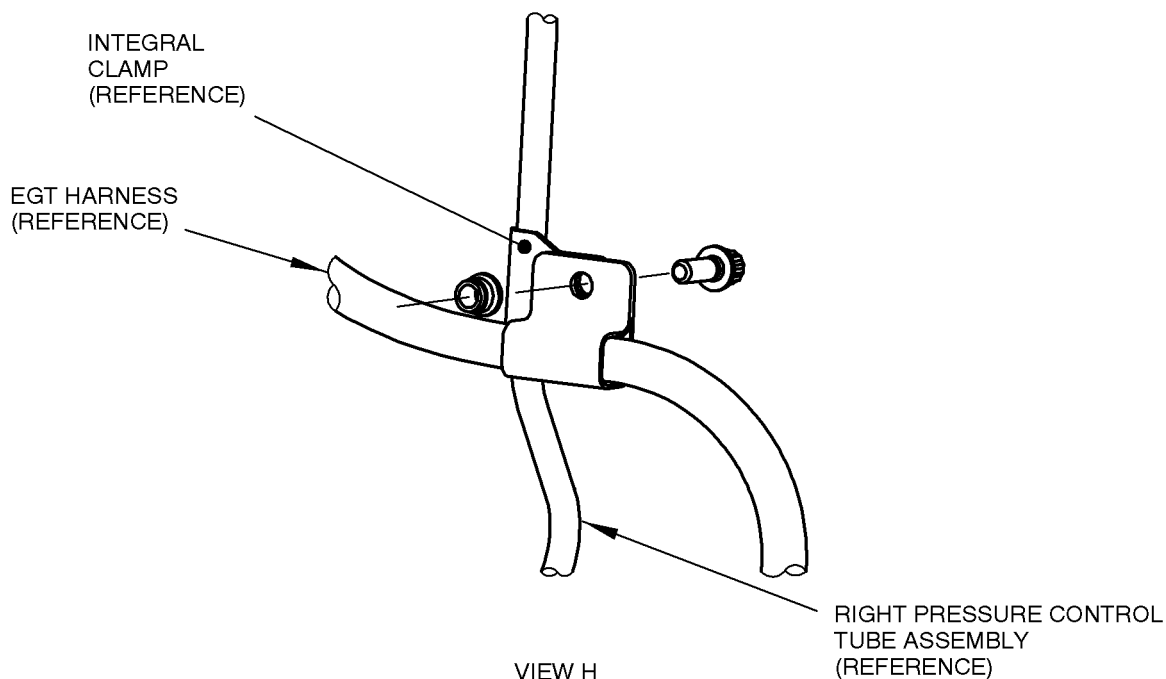


pw0b521284

LOCATION OF THE CLAMP OR CUSHION LOOP CLAMP AND EGT HARNESS CLAMPING AND ROUTING 77-21-43 FIGURE 15, SHEET 1



VIEW H
PRE-SB 73-0202
EGT HARNESS CLAMPING AND ROUTING



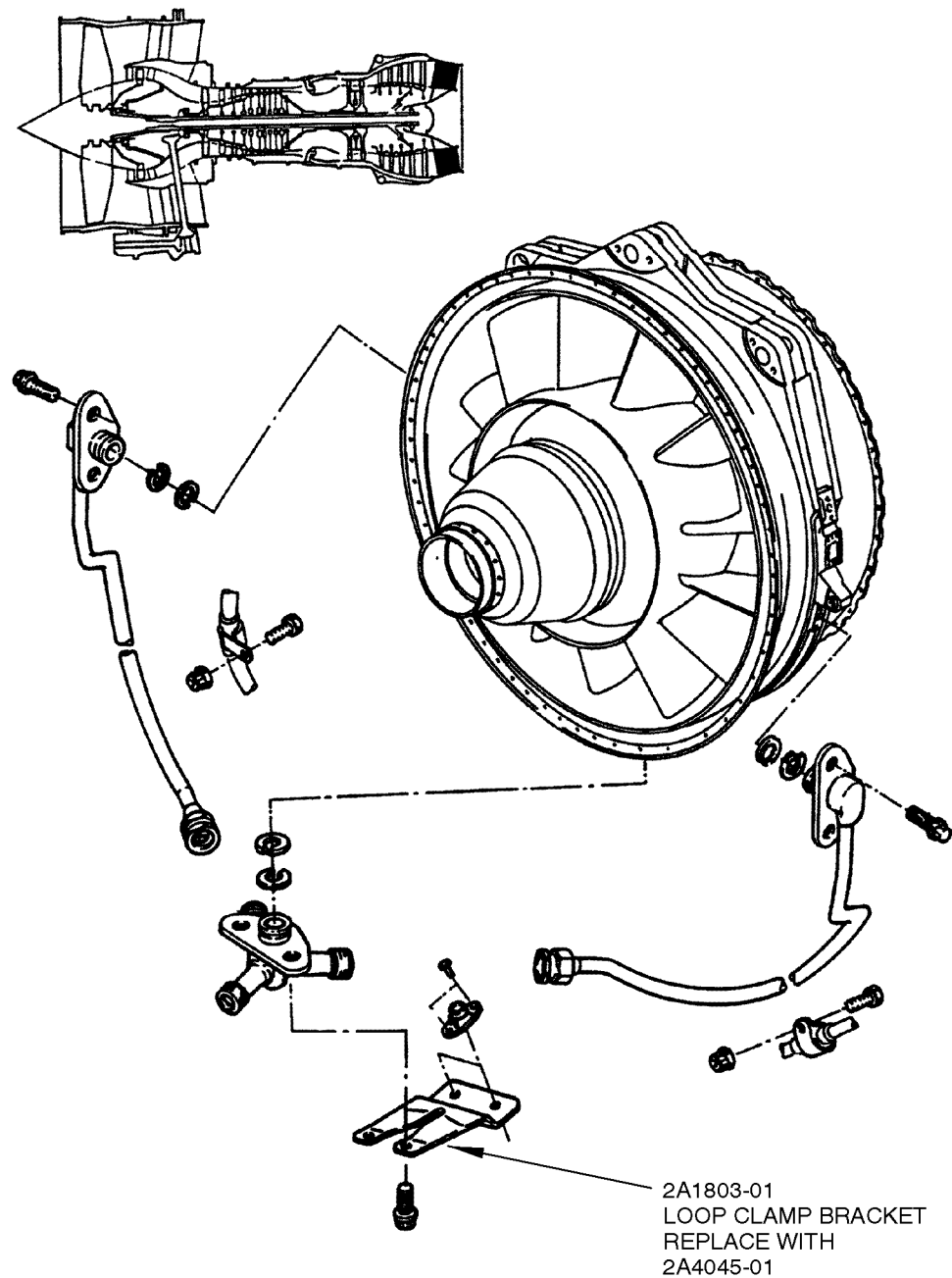
VIEW H
POST-SB 73-0202
EGT HARNESS CLAMPING AND ROUTING

LOCATION OF THE CLAMP OR CUSHION LOOP CLAMP AND EGT HARNESS CLAMPING AND ROUTING
FIGURE 15, SHEET 2

pw0b521316

(3) Do the following procedure at the bottom of the turbine exhaust case group during engine assembly:

(a) Replace Loop Clamp Bracket, P/N 2A1803-01 with P/N 2A4045-01. See Figure 16 for the location of the bracket.



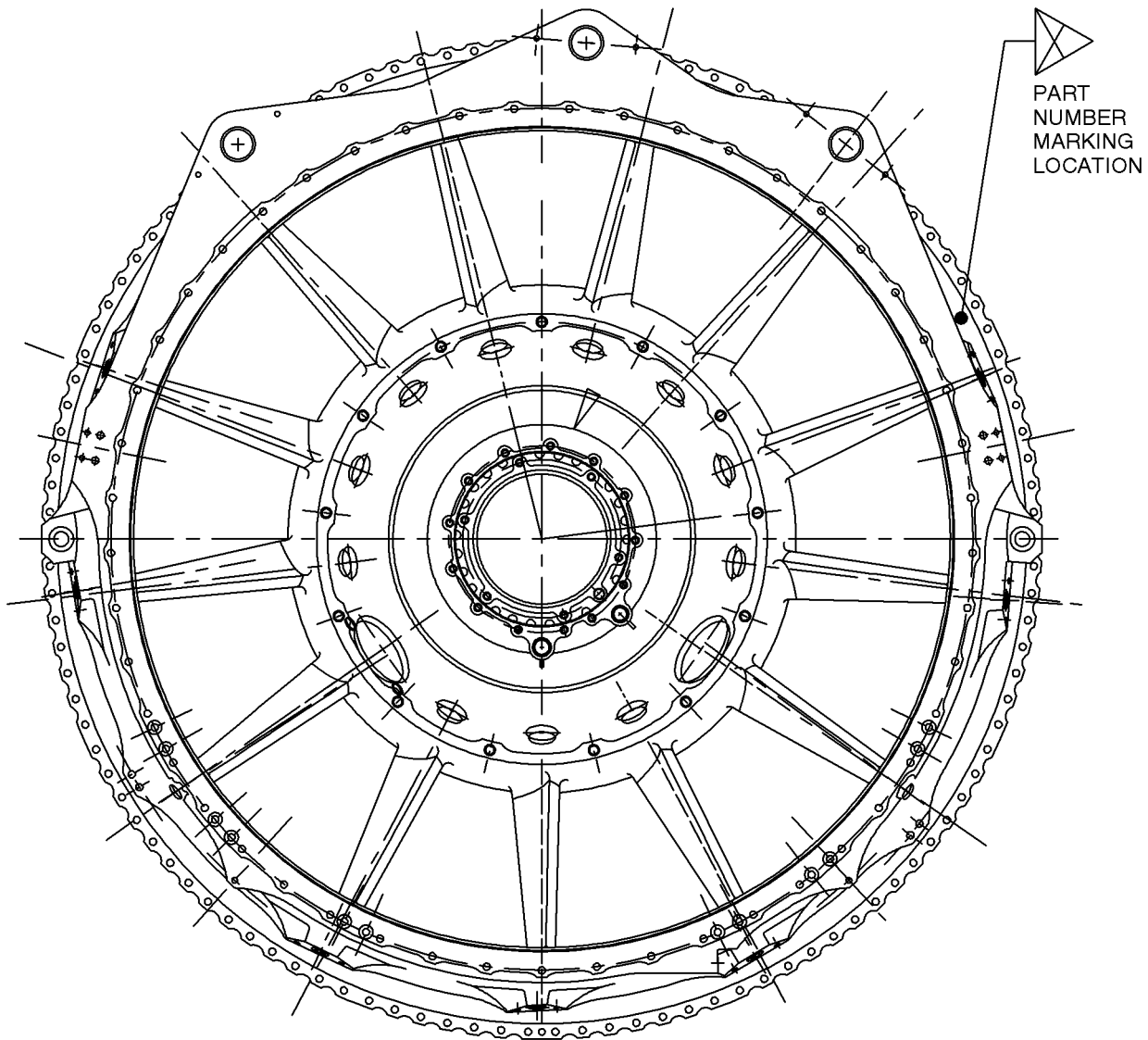
pw06521282

LOCATION OF THE LOOP CLAMP BRACKET
73-22-51
FIGURE 16

- (4) Identify the turbine exhaust case group as shown in Table 2. Mark the new part number as specified in Reference 11, Standard Practices Manual, Chapter/Section 70-09-00, vibration peen method. Mark the part number in the same location of the existing part number and maintain the same serial number. See Figure 17 for the location of the marking.

Table 2

New P/N	Keyword	Old P/N
2A1400	Turbine Exhaust Case Group	2A4260
2A4261-001	Turbine Exhaust Case Group	2A4261
2A8500-007	Turbine Exhaust Case Group	2A8500-005
2A9500-004	Turbine Exhaust Case Group	2A9500
2A8500-008	Turbine Exhaust Case Group	2A8500
2A4700-005	Turbine Exhaust Case Group	2A4700



TURBINE EXHAUST CASE GROUP
AFT LOOKING FORWARD

IDENTIFICATION OF THE MODIFIED TURBINE EXHAUST CASE GROUP
FIGURE 17

APPENDIXParts Progression To Show the Changed Part in Relation to Other Parts

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V2500-ENG-72-0063
ENGINE - LP TURBINE ROTOR
AND STATOR ASSEMBLY - INTRODUCE
NEW TUBE ASSEMBLIES REQUIRED
FOR MODIFIED TURBINE EXHAUST
CASE - CATEGORY CODE 8 - MOD.ENG-72-0063

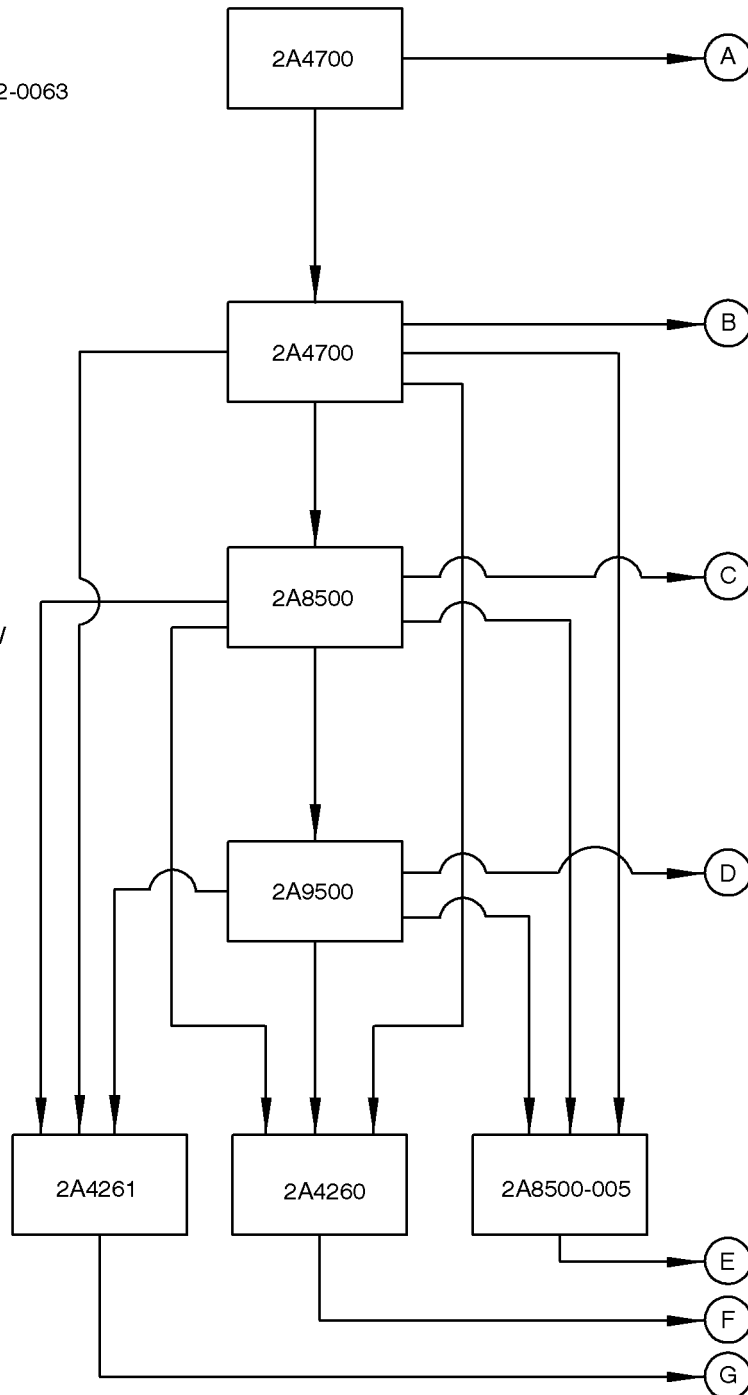
V2500-ENG-70-0245
ENGINE - TO ANNOUNCE
THE AVAILABILITY OF A
NEW TURBINE EXHAUST
CASE ASSEMBLY

V2500-ENG-72-0192
ENGINE - TURBINE EXHAUST
CASE ASSEMBLY AND FITTINGS -
REMOVE THE TURBINE EXHAUST
CASE FAIRING

V2500-ENG-70-0480
ENGINE - LP TURBINE MODULE - TO
ANNOUNCE THE AVAILABILITY OF A NEW
TURBINE EXHAUST CASE
WITH INCREASED THICKNESS

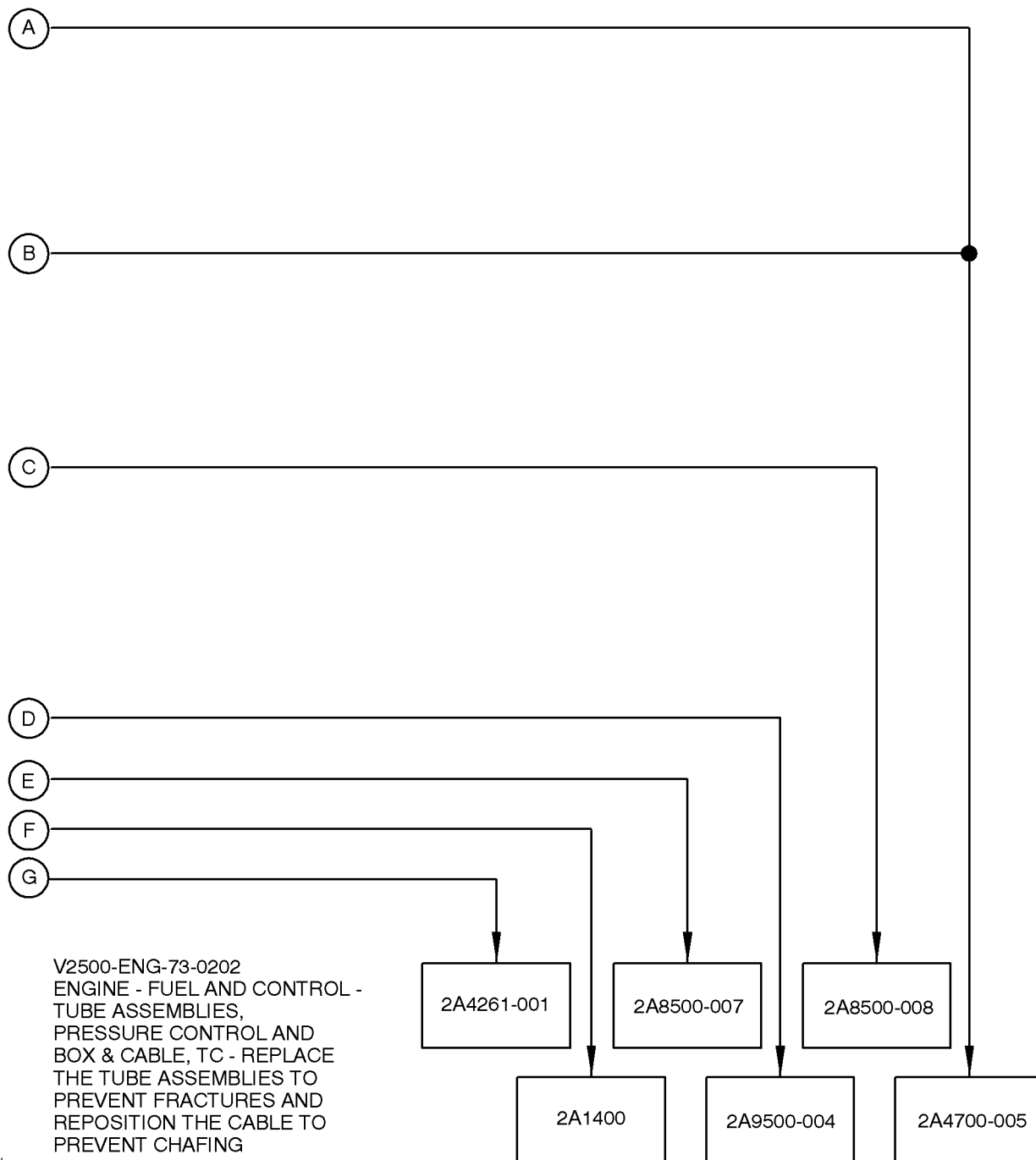
V2500-ENG-70-0783
ENGINE - TURBINE EXHAUST
CASE GROUP - TO ANNOUNCE
THE AVAILABILITY OF A NEW
TURBINE EXHAUST CASE
ASSEMBLY

V2500-ENG-72-0590
ENGINE - CASE ASSEMBLY,
TURBINE EXHAUST -
REPLACEMENT OR MODIFICATION
TO INCREASE N1 MARGIN
AND IMPROVE PERFORMANCE
DURING TAKE OFF



FAMILY TREE - TURBINE EXHAUST CASE GROUP, REF. CATALOG SEQUENCE
NO. 72-50-50 FIGURE 1, ITEM 001
CHART A (SHEET 1 OF 2)

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pw0b521302

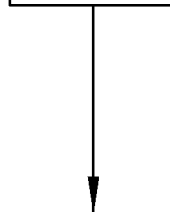
FAMILY TREE - TURBINE EXHAUST CASE GROUP, REF. CATALOG SEQUENCE
NO. 72-50-50 FIGURE 1, ITEM 001
CHART A (SHEET 2 OF 2)

V2500-ENG-73-0094
ENGINE - FUEL AND CONTROL
- REROUTE THE LEFT AND
RIGHT PRESSURE CONTROL
TUBE ASSEMBLIES

V2500-ENG-73-0202
ENGINE - FUEL AND CONTROL -
TUBE ASSEMBLIES,
PRESSURE CONTROL AND
BOX & CABLE, TC - REPLACE
THE TUBE ASSEMBLIES TO
PREVENT FRACTURES AND
REPOSITION THE CABLE TO
PREVENT CHAFING

LEFT
PRESSURE CONTROL
TUBE ASSEMBLY

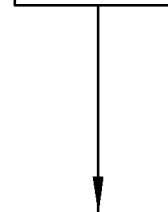
2A3124-01



2A4035-01

RIGHT
PRESSURE CONTROL
TUBE ASSEMBLY

2A3125-01



2A4036-01

FAMILY TREE - LEFT AND RIGHT PRESSURE CONTROL TUBE ASSEMBLIES, REF.
CATALOG SEQUENCE NO. 73-22-51 FIGURE 20, ITEMS 180 AND 050
CHART B

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EC 04VC175N	AR/JDH

Number values shown in parantheses adjacent to U.S. values are International System of units (SI) equivalents.

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ENGINE - FUEL AND CONTROL - P4.9 TUBE ASSEMBLIES, PRESSURE CONTROL AND BOX AND CABLE,
TC - REPLACE THE P4.9 TUBE ASSEMBLIES TO PREVENT FRACTURES AND REPOSITION THE EXHAUST
GAS TEMPERATURE (EGT) CABLE TO PREVENT CHAFING

SUPPLEMENT - PRICES AND AVAILABILITY

V2500 ALL

1. Modification Kit

A. There is no kit provided to do this Service Bulletin.

2. Material Cost

NOTE: The prices 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 Catalog for current prices.

A. The estimated price of new material to do this Service Bulletin using new replacement parts is \$ 9,268.00.

B. There is no kit provided to do this Service Bulletin.

3. New Production Parts

New Production Part Number	Description	Unit Price US Dollars
2A4035-01	Left Pressure Control Tube Assembly	3,610.00
2A4036-01	Right Pressure Control Tube Assembly	2,484.00
2A2256	Metal Seal Ring	54.00
4W2627	Safety Wire	0.17 per foot
2A4045-01	Loop Clamp Bracket	244.00
2A4044	Loop Clamp Bracket	37.30
2A4042-01	Loop Clamp Bracket Assembly	219.00
2A4041-01	Loop Clamp Bracket Assembly	487.00
2A4080	Loop Clamp Bracket	576.00

New Production Part Number	Description	Unit Price US Dollars
2A4264	Loop Clamp Bracket	476.00