P U B L I C A T I O N T R A N S M I T T A L

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DATE: Nov.21/03

V2500-A1/A5/D5 SERIES PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits the Initial Issue of Service Bulletin EV2500-72-0462

Bulletin Initial Issue

Remove	Incorporate	Reason for change
	Pages 1 to 19 of the Service Bulletin	Initial issue

V2500-ENG-72-0462

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise Publication Services, Rolls-Royce plc, Derby, England

LIST OF EFFECTIVE PAGES

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ENGINE - LP COMPRESSOR - INTRODUCTION OF A REVISED HYDRAULIC SEAL AND A REVISED NO.2 BEARING OIL JET

1. Planning Information

A. Effectivity

(1) Airbus A319

(a) V2522-A5, V2524-A5 and V2527M-A5 Engines prior to Serial Number V11700

(2) Airbus A320

(a) V2500-A1 Engine prior to Serial Number V0362

(i) V2527-A5 and V2527E-A5 Engines prior to Serial Number V11700

(3) Airbus A321

(a) V2530-A5 and V2533-A5 Engines prior to Serial Number V11700

(4) Boeing - Longbeach Division MD-90

(a) V2525-D5 and V2528-D5 Engines prior to Serial Number V20286

B. Concurrent Requirements

(1) For V2500-A1:

This Bulletin must be incorporated after or concurrently with the IAE Service Bulletin No. V2500-ENG-79-0070 and V2500-ENG-79-0071.

(2) For V2522-A5, V2524-A5, V2527-A5, V2527E-A5 V2527M-A5, V2530-A5, V2533-A5, V2525-D5 and V2528-D5:

None.

C. Reason

(1) Problem

It was reported that cabin odour due to oil carbonization on the Hydraulic Seal Assembly.

(2) Background

Oil carbonisation occurs in the Hydraulic Seal Assembly due to high oil temperature in oil bath of the Hydraulic Seal. The oil carbonisation causes sticking of the Seal Ring on groove of the Hydraulic Seal and oil leaks to Front Bearing Compartment Weep Line through HPC Stub Shaft. When FBC Weep Line is clogged and the oil overflow from the weep line, the odour of the oil goes to the Cabin of the Aircraft.

(3) Objective

This Service Bulletin introduces cooling fins on the Hydraulic Seal Assembly to increase heat rejection, and enlarges diameter of the hole on the No.2 Bearing Oil Jet to increase oil flow. These redesigns prevent oil carbonization in the Hydraulic Seal.

(4) Substantiation

A 475 hours/2000 cycles endurance test has successfully been carried out. It is confirmed by a rig test and analysis that the introduction of this Service Bulletin reduces the oil temperature in the oil bath of the Hydraulic Seal Assembly.

(5) Effect of Bulletin on Workshop procedures:

(a) Removal/Installation

Affected (See Supplemental Information).

(b) Disassembly/Assembly

Not affected.

(c) Cleaning

Not affected

(d) Inspection/Check

Not affected.

(e) Repair

Not affected.

(f) Testing

Not affected.

(6) Supplemental Information

(a) The removal and installation of the Post-Service Bulletin configuration requires the revised procedures for removing and installing the Hydraulic Seal Assembly.

D. Description

(1) The changes introduced by this Service Bulletin are as follows:

(a) The Hydraulic Seal Assembly is revised to add cooling fins to improve heat radiation. Refer to Figure 1 and 5.

(b) The No.2 Bearing Oil Jet is revised to enlarge oil hole to increase oil flow to the Hydraulic Seal. Refer to Figure 2 and 6.

(2) New parts can not be obtained by rework of old parts.

(3) For relationship with other Service bulletins, see 1.K 'References' and Figure 3 and 4 'Family Tree'.

E. Compliance

Category Code 6

Accomplish when the subassembly (i.e., modules, accessories, and 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 modification described in Section 2 and 3 of this Modification Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA- APPROVED for the Engine Models listed.

G. Manpower

Estimated Man-hours to incorporate the full intent of this Service Bulletin:

(1) In Service

Not applicable.

(2) At overhaul

None.

NOTE: The parts affected by this service bulletin are accessible at overhaul.

H. Weight and Balance

(1) Weight Change

Plus 0.29 1b (0,13 kg)

(2) Moment Arm

None.

(3) Datum

Engine front mount centreline (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) Engineering Change No. 03VJ010.

(2) IAE Service Bulletin No. V2500-ENG-79-0070:

OIL - PRESSURE OIL TUBES - ENGINE - INTRODUCTION OF REVISED OIL FEED SYSTEM RESTRICTORS.

(3) IAE Service Bulletin No.V2500-ENG-79-0071:

ENGINE OIL - TO INTRODUCE AN UPGRADED OIL PRESSURE PUMP.

(4) V2500 Engine Illustrated Parts Catalog (A1/A5), Chapter/Section 72-32-17 and 72-32-19.

(5) V2500 Engine Manual (EM) (E-V2500-1IA), Chapter/Section 72-32-10, Assembly, Config-01 or Config-02.

(6) V2500 Engine Manual (EM) (E-V2500-3IA), Chapter/Section 72-32-10, Assembly.

(7) ATA Locator 72-32-00.

L. Other Publications Affected

(1) V2500 Engine Illustrated Parts Catalog (A1/A5/D5), Chapter/Section 72-32-17 and 72-32-19 will be revised.

(2) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-17, Clearing-06 Config-01 will be revised.

(3) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-19, Clearing-01 Config-01 will be revised.

(4) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-17, Inspection-04 Config-01 will be revised.

(5) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-19, Inspection-01 Config-01 will be revised.

(6) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-19, Inspection-01 Config-02 will be added.

(7) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-17, Repair 002 (VRS1220) will be revised.

(8) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-19, Repair 003 (VRS1228), Repair 004 (VRS1229) and Repair 006 (VRS1233) will be revised.

(9) V2500 Engine Manual (EM) (E-V2500-1IA and 3IA), Chapter/Section 72-32-10, Disassembly will be revised.

(10) V2500 Engine Manual (EM) (E-V2500-1IA), Chapter/Section 72-32-10, Assembly Config-01 and config-02 will be revised.

(11) V2500 Engine Manual (EM) (E-V2500-3IA), Chapter/Section 72-32-10, Assembly will be revised.

M. Interchangeability of Parts

Not affected.

2. Material Information

A. Material - Price and Availability:

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 Catalog for current prices.

(1) Modification Kit

Modification kit is not required.

(2) New production:

Part Number	Qty	Unit Price	Comments
5RO293	1		
5A19001	1		

B. Industry Support Information:

None.

C. Kits necessary for this Service Bulletin:

None.

D. Parts affected by this Service Bulletin:

72-32-17

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
01700	5RO293	1	Oil Jet, A/O No.2 Bearing	-	5RO071	(A)(B) (S1)

72-32-19

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
01100	5A1900	1	Seal, A/O Hydraulic	-	5A1865	(A)(B) (S1)

E. Instruction Disposition Codes:

(A) New parts will be available in February 2004.

(B) Old parts are no longer available.

(S1) Old and new parts are freely and fully interchangeable, both physically and functionally.

F. Tooling - Price and Availability:

The following tools are required to accomplish this Service Bulletin when installation of the new Hydraulic Seal

Tool Number	Qty	Description	Function	Availability
IAE 1J12355	1	Wrench, Spanner Hydraulic Seal, Intermediate	1)	3)
IAE 1J12381	1	Bender, Tab Lock Plate, Hydraulic Seal, Intermediate	2)	3)

1) For installation or removal of the Hydraulic Seal Assembly to or from the No.3 Bearing Rotor Center.

2) For bending and bending back of the lock plates which lock the Hydraulic Seal Assembly and the No.3 Bearing Rotor Center.

3) Tool Design Aperture Card is currently available from IAE for use in the local manufacture of the Fixture.

3. Accomplishment Instructions

A. Rework Instructions

(1) None.

B. Assembly Instructions

(1) Tools

Refer to Section 2, para. F

(2) Install the Oil Jet. Refer to Figure 6 and EM (E-V2500-1IA) 72-32-10, Assembly, Config-01 or Config-02 or EM (E-V2500-3IA) Assembly, except:

(a) Use the new 5R0293 Oil Jet (72-32-17, 01-700).

(3) Assemble the Hydraulic Ring and Seal Ring into the Hydraulic Seal Assembly. Refer to Figure 5 and EM (E-V2500-1IA) 72-32-10, Assembly, Config-01 or Config-02 or EM (E-V2500-3IA) Assembly, except:

(a) Use the new 5A1900 Hydraulic Seal Assembly (72-32-19,01-100).

(4) Install the Hydraulic Seal Assembly on to the No. 3 Bearing and Support Assembly. Refer to Figure 7, 8, 9 and EM (E-V2500-1IA) 72-32-10, Assembly, Config-01 or Config-02 or EM (E-V2500-3IA) Assembly, except:

(a) Install IAE 1J12355 spanner wrench 1 off on to the Hydraulic Seal Assembly.

(b) Crimp the lock plate into the slots of the HPC front shaft.

(i) Use IAE 1J12381 tab bender 1 off.

(c) Turn the No. 3 bearing support and Hydraulic Seal Assembly.

(i) Use IAE 1J12381 tab bender.

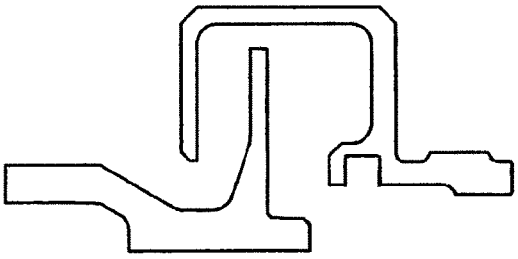
(ii) Tighten the four screws (part of the tab bender) to push the clamps (part of the tab bender) to the Hydraulic Seal Assembly and hold the Hydraulic Seal Assembly.

(d) Crimp the lock plate into the slots of the Hydraulic Seal Assembly.

(i) Use IAE 1J12381 tab bender.

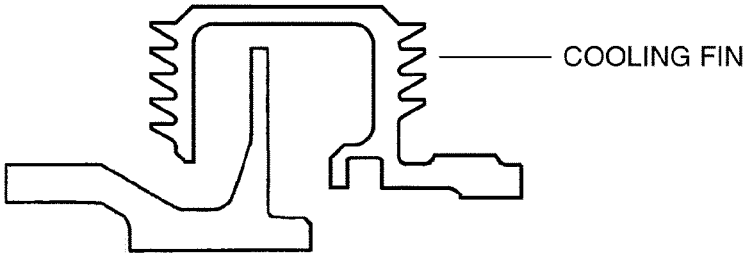
C. Recording Instructions

A record of accomplishment is required.



HYDRAULIC SEAL

BEFORE ALTERATION



HYDRAULIC SEAL

AFTER ALTERATION

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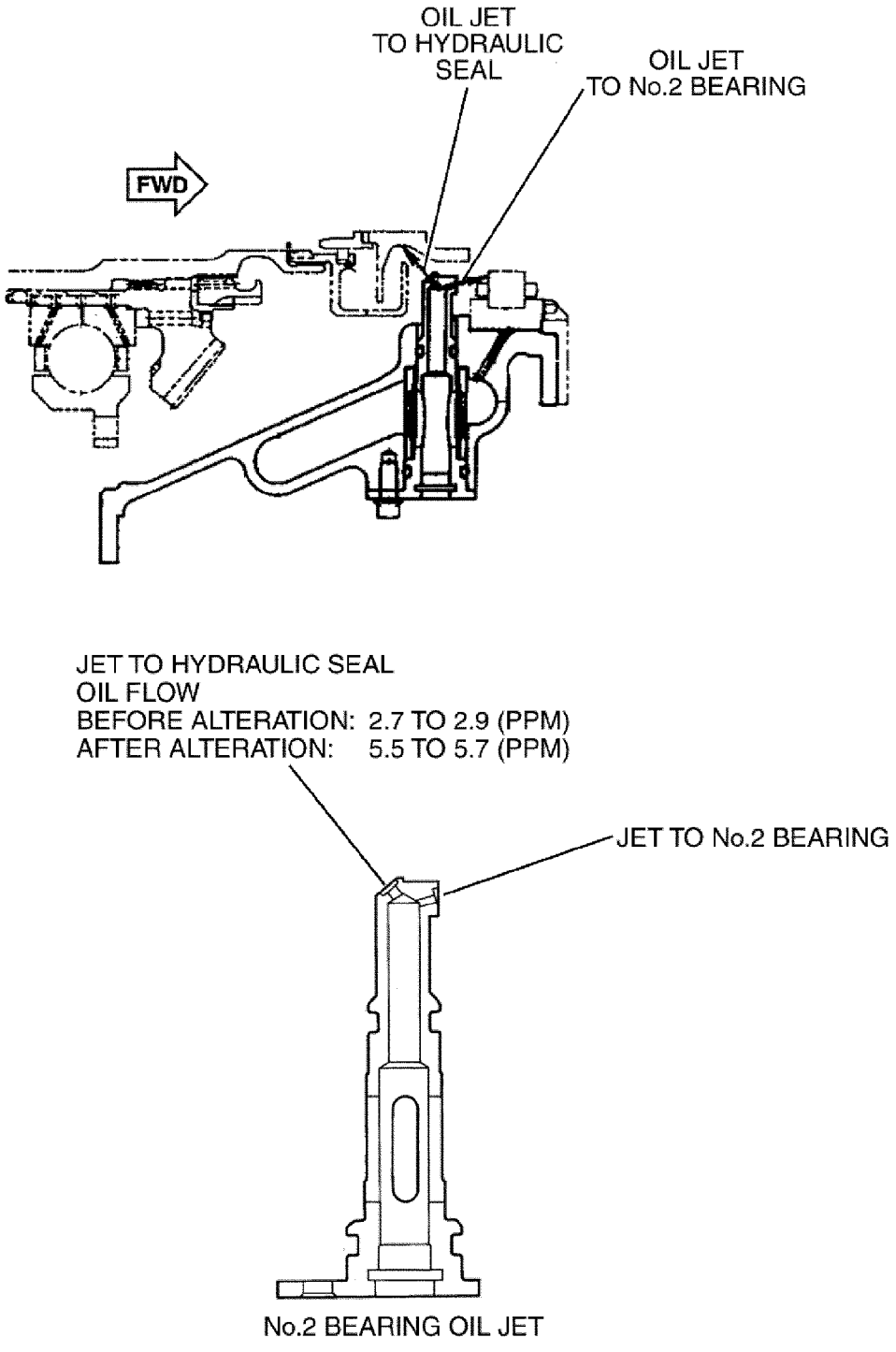
Before and after alteration of Hydraulic Seal
Figure 1



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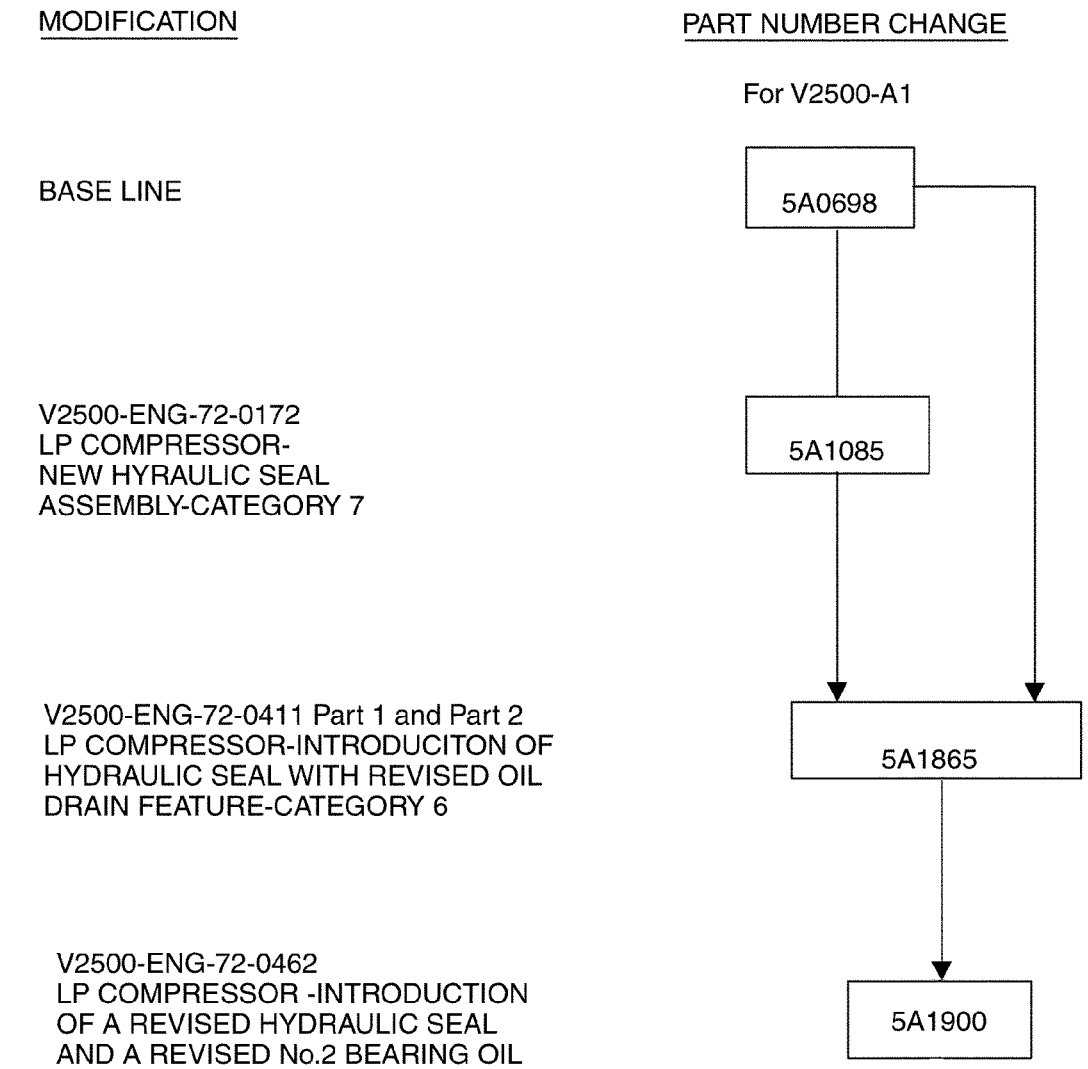
Before and after alteration of No.2 Bearing Oil Jet
Figure 2



Family Tree - Seal, A/O Hydraulic (72-32-19, Fig 01 Item 100)
Figure 3 (Sheet 1 of 2)

MODIFICATION	PART NUMBER CHANGE
	For V2522-A5, V2524-A5, V2527-A5 V2527E-A5, V2527M-A5, V2530-A5 V2533-A5, V2525-D5 and V2528-D5
BASE LINE	5A1085
V2500-ENG-72-0411 Part 1 and Part 2 LP COMPRESSOR-INTRODUCITON OF HYDRAULIC SEAL WITH REVISED OIL DRAIN FEATURE-CATEGORY 6	5A1865
V2500-ENG-72-0462 LP COMPRESSOR - INTRODUCTION OF A REVISED HYDRAULIC SEAL AND A REVISED No.2 BEARING OIL JET - CATEGORY 6	5A1900

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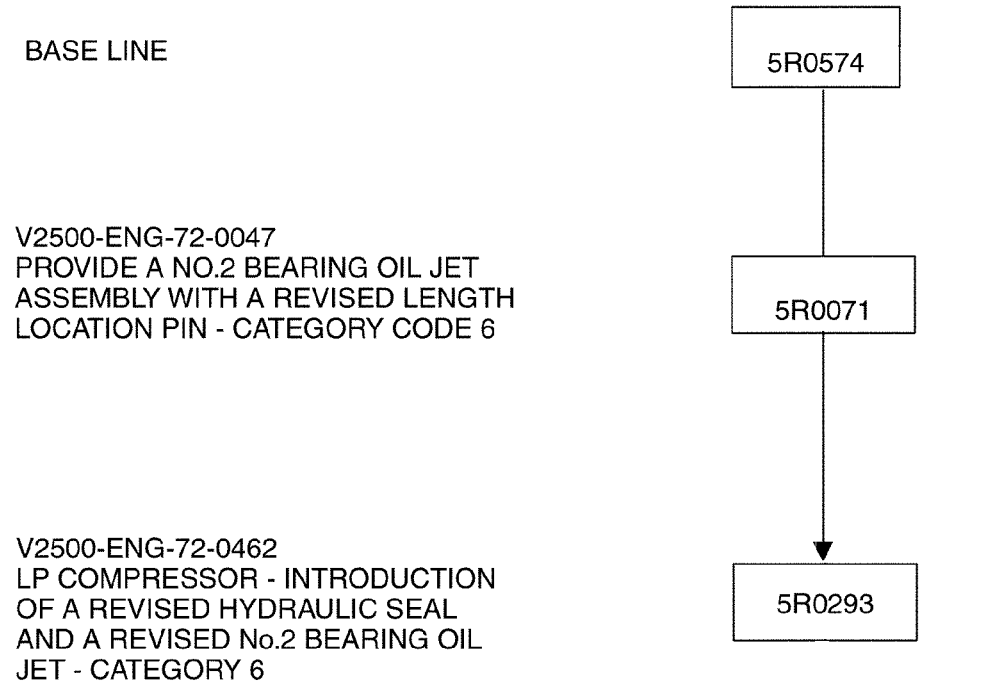
Family Tree - Seal, A/O Hydraulic (72-32-19, Fig 01 Item 100)
Figure 3 (Sheet 2 of 2)



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Family Tree - Oil Jet, A/O No.2 Bearing(72-32-17, Fig 01 Item 700)
Figure 4 (Sheet 1 of 2)

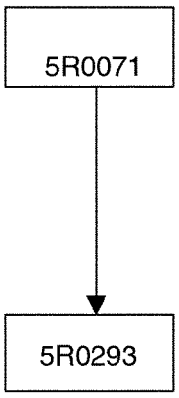
MODIFICATION

V2500-ENG-72-0462
LP COMPRESSOR - INTRODUCTION
OF A REVISED HYDRAULIC SEAL
AND A REVISED No.2 BEARING OIL
JET - CATEGORY 6

PART NUMBER CHANGE

For V2522-A5, V2524-A5, V2527-A5
V2527E-A5, V2527M-A5, V2530-A5
V2533-A5, V2525-D5 and V2528-D5

BASE LINE



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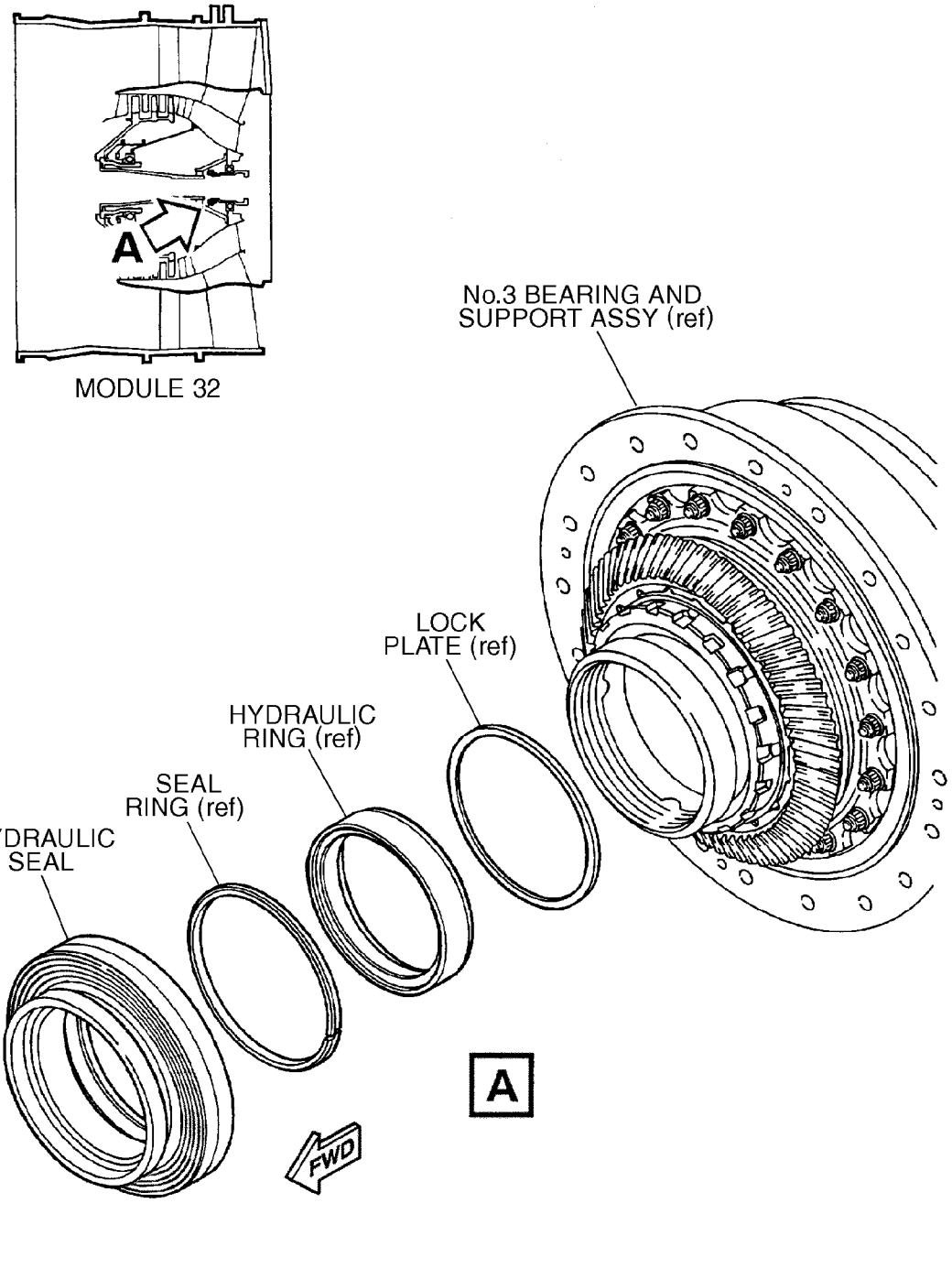
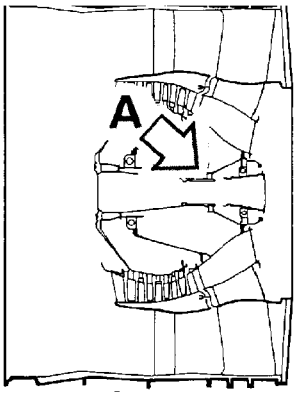
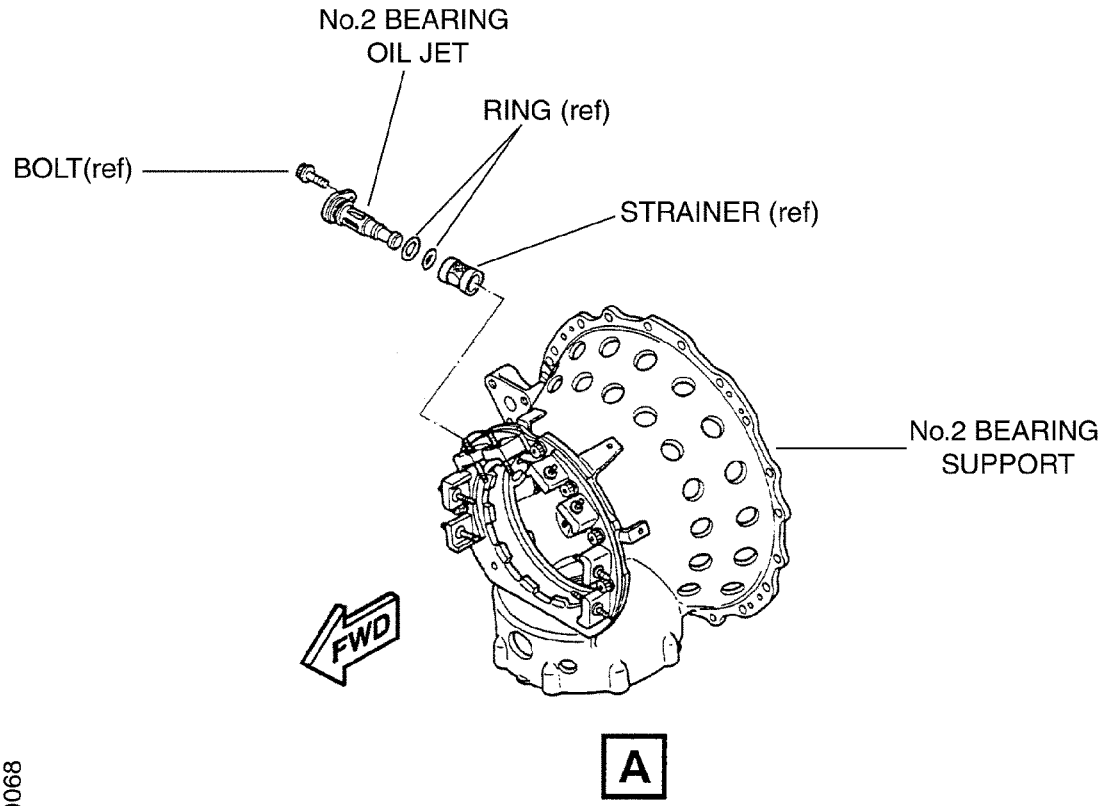
Family Tree - Oil Jet, A/O No.2 Bearing(72-32-17, Fig 01 Item 700)
Figure 4 (Sheet 2 of 2)



Location of Hydraulic Seal
Figure 5



MODULE 32



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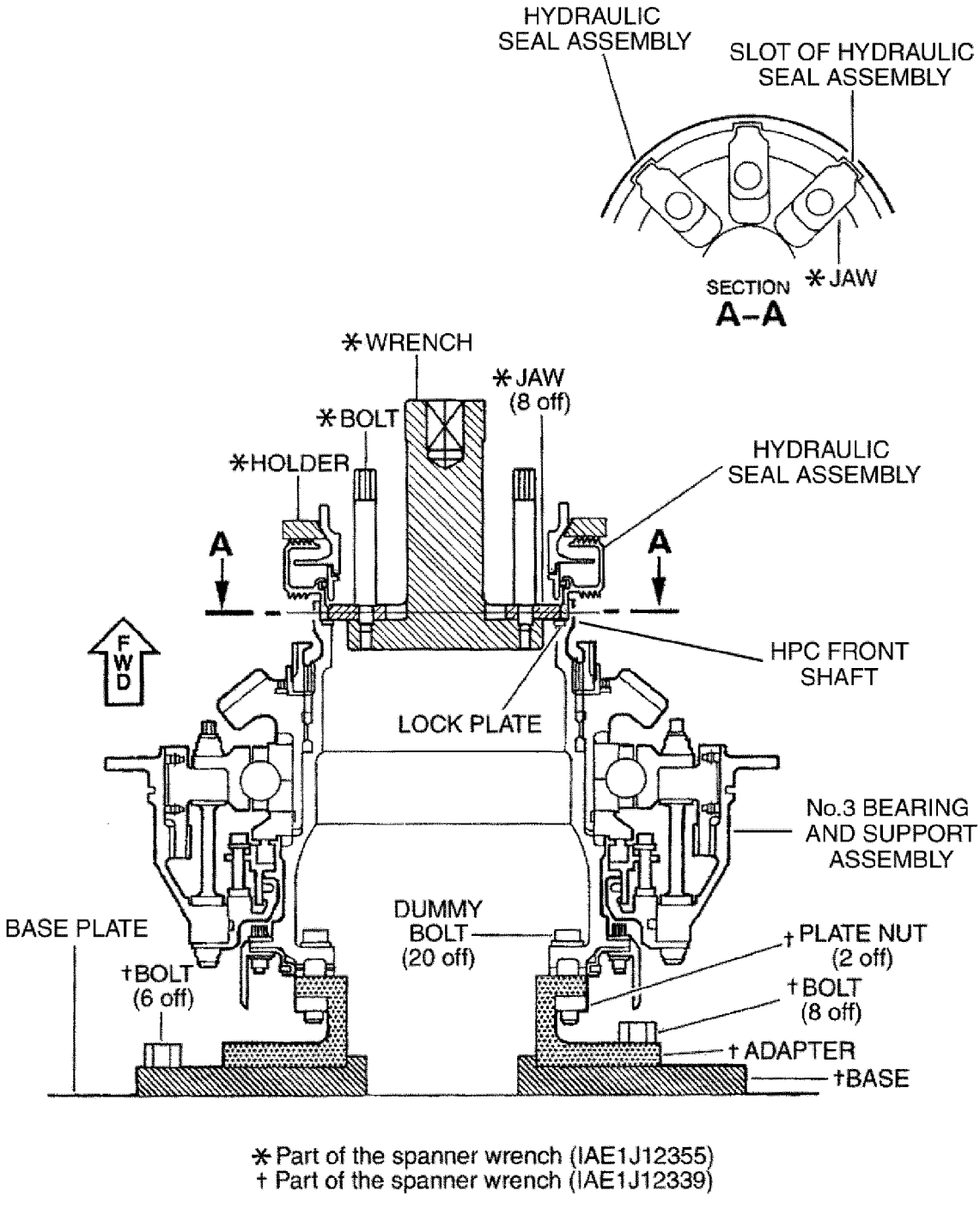
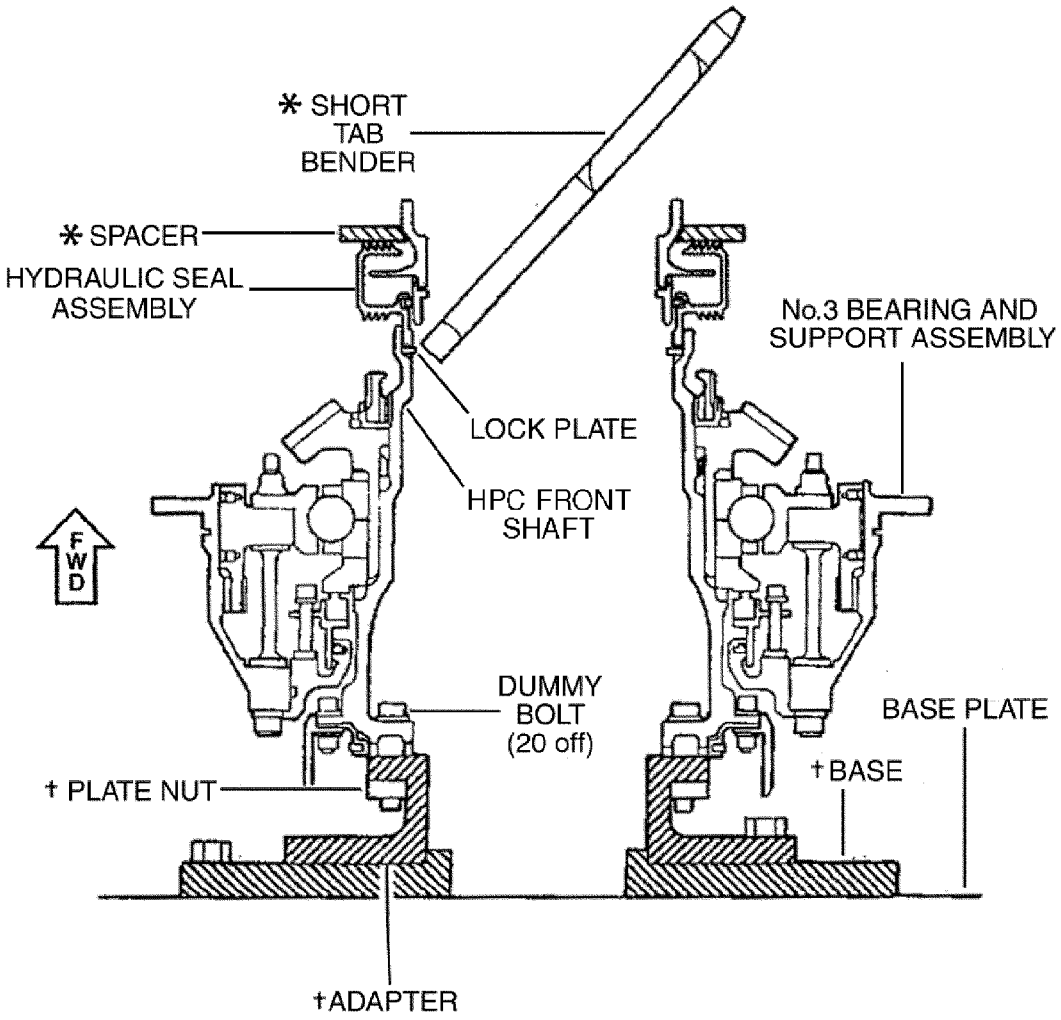
Location of No.2 Bearing Oil Jet
Figure 6



Install the Hydraulic Seal Assembly on to the HP Compressor Front Shaft
Figure 7



† Part of the spanner wrench (IAE1J12339)
* Part of the tab bender (IAE1J12381)

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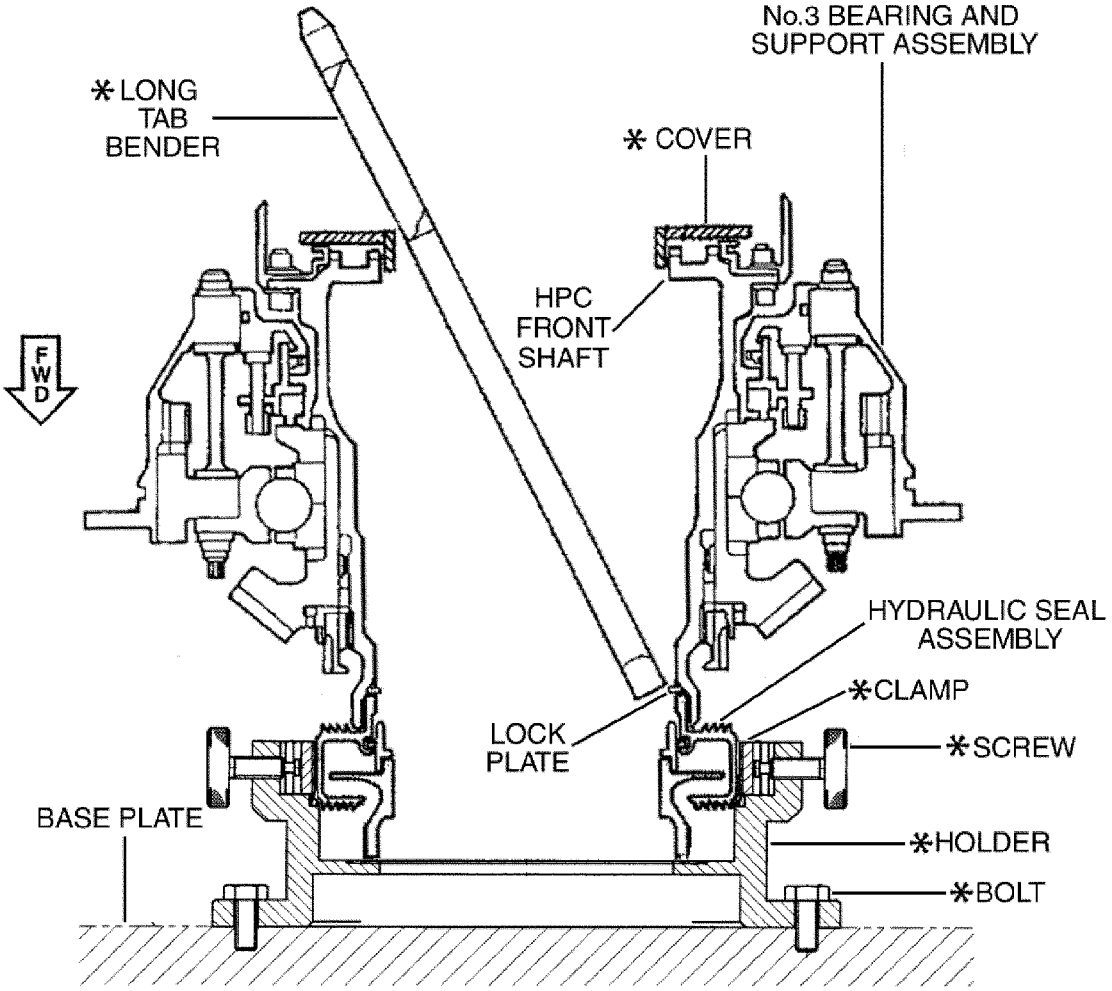
Crimp the Lock Plate in to the slots of the HP Compressor Front Shaft
Figure 8



* Part of the tab bender (IAE1J12381)

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Crimp the Lock Plate in to the slots of the Hydraulic Seal Assembly
Figure 9