SERVICE BULLETIN REVISION NOTICE

NON.MODIFICATION SERVICE BULLETIN — ENGINE — NO. 5 OIL PRESSURE AND SCAVENGE TUBES, OIL JET, ELBOWS, FILTERS — REPLACEMENT AT FIXED INTERVALS, TO MITIGATE COKE AND CARBON BUILDUP.

Turbojet Engine Service Bulletin No. V2500-ENG-72-0660 Revision No. 2 dated May 10, 2019.

Revision History

Original Issue October 1, 2015

Revision 1 dated December 3, 2015

Revision 2 dated May 10, 2019

Reason for the Revision

Customer Technical Services received field and engine center data identifying typographical errors, incorrect sequential steps and other information to facilitate incorporation of this NMSB. Also, an optional tool (Puller) was developed. Customer requested that IAE Customer Technical Service make a revision to NMSB 72-0660 to make corrections and add the optional tool.

Effect of Revision on Prior Compliance

None.

This is a Complete Revision (Not Applicable to the SGML version)

The format of this Service Bulletin has been changed from previous versions. This revision shows flow bars and the revision date on the bottom of every page. Technical changes incorporated in this revision are marked with revision bars. The contents are in accordance with the list of effective pages.

MODEL APPLICATION

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

V2500 Series 72-0660

Page	Revision No.	Date
1 thru 48	2	May 10/19

A copy of this Revision Notice and any future revision notices must be filed as a permanent record with your copy of the subject bulletin.

SERVICE BULLETIN

NON.MODIFICATION SERVICE BULLETIN — ENGINE — NO. 5 OIL PRESSURE AND SCAVENGE TUBES, OIL JET, ELBOWS, FILTERS — REPLACEMENT AT FIXED INTERVALS, TO MITIGATE COKE AND CARBON BUILDUP.

MODEL APPLICATION

V2500-A1, V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE

V2500 Series 72-0660

ATA NUMBER

72-50-50

Compliance Category

3

P&W Distribution Code

V2500

Summary

The purpose of this Service Bulletin is to replace the No. 5 bearing internal pressure and No. 5 bearing scavenge tubes and the No. 5 oil jet assembly (No. 5 Bearing Nozzle, and No. 5 Bearing Packing Transfer Tube) with new or serviceable hardware to reduce the risk of No. 5 bearing compartment coking. Damage to the No. 5 compartment has occurred as a result of the buildup of coke and carbon. The Non Modification Service Bulletin (NMSB) will require removal and replacement of the No. 5 bearing internal pressure and No. 5 bearing scavenge tubes and the No. 5 oil jet assembly with new or serviceable hardware.

Planning Information

Effectivity Data

Engine Models Applicable

V2500-A1
Engine Serial No. — Engines that have incorporated Reference 9, Service Bulletin V2500-ENG-72-0063.

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5
Engine Serial No. — All Engines

V2525-D5, V2528-D5
Engine Serial No. — All Engines

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: To reduce the risk of No. 5 bearing compartment coking, this NMSB replaces the existing borescope inspection procedures as documented in Reference 10, NoN.modification Service Bulletin V2500-ENG-72-0461 for the No. 5 bearing internal pressure and No. 5 bearing scavenge tubes and the No. 5 bearing compartment, with the requirement to install new or serviceable hardware.
2. Background: Damage to the No. 5 bearing compartment has occurred as a result of coke and carbon buildup. This NMSB will require removal and replacement of the No. 5 bearing internal pressure and No. 5 bearing scavenge tubes and the No. 5 oil jet assembly with new or serviceable hardware.
3. Objective: To eliminate any misinterpretations of the presence of coking in the No. 5 bearing internal tubes and to avoid dislodging any existing coke build-up or debris which could enter the No. 5 oil jet assembly.
4. Substantiation: The impact of incorrect interpretation and dislodging coke can attribute to an oil starved condition. Eliminating the borescope inspection will insure coking will not be dislodging and enter into the No. 5 oil jet assembly.
5. Effects of Bulletin on:

   Removal/Installation: Not affected.

   Disassembly/Assembly: Not affected.

   Cleaning: Not affected.

   Inspection/Check: Not affected.

Repair: Not affected.

Testing: Not affected.

6. Supplemental Information

None.

Description

This NMSB will require removal, inspection and replacement of the No. 5 bearing internal pressure and scavenge tubes and the No. 5 oil jet assembly with new or serviceable hardware.

Compliance

Category 3

1. Accomplish this NMSB at the specified hours. Replace the components every 7500 hour or 5000 cycle intervals for Airbus and Boeing aircraft.

   NOTE: The 7500 hours or 5000 cycles interval may be applied since last incorporation of NMSB 72-0461 Rev 6 (Part I or Part II)

2. For SelectOne™ engines incorporating Electronic Engine Control (EEC) software SCN21 Reference 11 or higher, Service Bulletin V2500 ENG-73-0222, accomplish this Service Bulletin at the 7500 hour or 5000 cycles interval. For SelectOne™ engines that do not incorporate SCN21 Reference 11 or higher, accomplish this Service Bulletin at the 6000 hour interval.

3. If an engine experiences any of the following, refer to Reference 8, Aircraft Maintenance Manual for corrective action and if required, replace the No. 5 bearing tubes and or the No. 5 oil jet assembly before the next flight.

   A. Tail pipe smoke or fire

   B. Oil consumption outside the limits of Reference 8, Aircraft Maintenance Manual.

   C. Main oil pressure outside the limits of Reference 8, Aircraft Maintenance Manual.

   D. Oil filter clog warning during flight

CAUTION: IN ORDER TO REDUCE THE POTENTIAL RISK OF MULTIPLE ENGINE IN-FLIGHT SHUT DOWN, POWER LOSS, OR OTHER ANOMALIES DUE TO MAINTENANCE ERROR, AVOID PERFORMING MAINTENANCE ON BOTH ENGINES INSTALLED ON THE SAME AIRCRAFT AT THE SAME TIME. IF IT IS NOT POSSIBLE TO AVOID MAINTENANCE ON MORE THAN ONE ENGINE AT THE SAME TIME, IAE RECOMMENDS THAT ADDITIONAL CONTROLS BE APPLIED IN ORDER TO ENSURE THAT MAINTENANCE TASKS HAVE BEEN COMPLETED AS DEFINED. MAINTENANCE GUIDELINES SHOULD BE RAISED WHERE POSSIBLE, TO PROMOTE THIS RECOMMENDATION. NORMAL AMM POST-MAINTENANCE TESTING REQUIREMENTS MUST BE OBSERVED.

CAUTION: WHEN REMOVING AND INSTALLING THE EXTERNAL HARDWARE USE CAUTION TO AVOID DAMAGE TO THE TEC STIFFENING RAILS AND (TEC MOUNT LUGS FOR D5). CRACKING ON THE D5 TEC STIFFENING RAILS HAS BEEN OBSERVED IN AREAS WHERE MECHANICAL DAMAGE WAS FOUND.

Approval Data

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 model(s) 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 model listed.

The aircraft Type Certificate holder has been informed of this inspection

Manpower

1. In Service

   To gain access ..... 2 hours

   To replace components ..... 7 hours

   To close up ..... 3 hours

   Total Necessary Man-hours ..... 12 hours

2. At Overhaul

   ..... Not Applicable.

Weight and Balance

1. Weight Change

   None.

2. Moment Arm

   No Effect.

3. Datum

Electrical Load Data

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

Software Accomplishment Summary

Not Applicable.

References

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. ATA Locator — 72-50-52, 72-50-53, 72-58-02, 79-21-49, 79-22-49.
2. V2500 Standard Practices and Processes, P&W Ref. PN 2A4414, Chapter/Section 70-11-01, 70-11-03, 70-11-52, 70-12-07.
3. V2500-A1 Series Illustrated Parts Catalog, P&W Ref. PN 2A4427, Chapter/Section 72-50-52, 72-50-53, 72-58-02, 79-21-49, 79-22-49.
4. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428, Chapter/Section 72-50-52, 72-50-53, 72-58-02, 79-21-49, 79-22-49.
5. V2500-D5, Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 72-50-52, 72-50-53, 72-58-02, 79-21-49, 79-22-49.
6. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407, Chapter/Section 72-50-53, 72-58-02.
7. V2500-D5 Series Engine Manual, P&W Ref. PN 2A4416, Chapter/Section 72-50-53, 72-58-02.
8. V2500 Aircraft Maintenance Manual.
9. V2500 Service Bulletin V2500-ENG-72-0063 (Engine — LP Turbine Rotor And Stator Assembly — Introduce New Tube Assemblies Required For Modified Turbine Exhaust Case).
10. V2500 Service Bulletin V2500-ENG-72-0461 (NoN.modification Service Bulletin — Engine — Inspection Of The No. 5 Bearing Compartment (Oil Jet) And Oil Tubes For Coking).
11. V2500 Service Bulletin V2500-ENG-73-0222 (Engine — Fuel And Control — Provide A New Electronic Engine Control (EEC) With SCN21/AA Software).

Other Publications Affected

1. V2500 Aircraft Maintenance Manual.
2. V2500 Trouble Shooting Manual.
3. V2500 Fault Isolation Manual.

Interchangeability of Parts

Not Applicable.

Information in the Appendix

Alternate Accomplishment Instructions (No)

Progression Charts (No)

Added Data (Yes)

Revision to Table of Limits (No)

Inspection Procedures (No)

Material Information

Material — Price and Availability

1. There is no kit provided to do this Service Bulletin.
2. Part availability information is provided in material data Instructions — Disposition.

Industry Support Program

Not Applicable.

The material data that follows is for each engine.

For V2500-A1 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	1	1,469.00	TUBE — PRESS, NO. 5 BRG, ASSY OF	2A2231-01 (72-50-53-20-010)	(4)(X)
	1	25.60	WIRE, THRUST	ST1003-06 (72-50-53-20-170)	(E)
	1	2,263.00	TUBE — ASSEMBLY	2A3091-01 (72-50-53-20-176)	(4)(X)
	1	522.00	NIPPLE	2A2175 (72-50-53-20-290)	(4)(X)
	1	6.84	PACKING	ST1946-014 (72-50-53-20-300)	(E)
			OR		
	1	6.84	PACKING	AS3209-014 (72-50-53-20-300)	(E)
	1	2,086.00	TUBE, ELBOW, NO. 5 BEARING	2A2210 (72-50-53-20-320)	(4)(X)
	1	69.20	WIRE, THRUST	ST1003-07 (72-50-53-20-432)	(E)
	1	2,263.00	TUBE, ASSEMBLY	2A3092-01 (72-50-53-20-435)	(4)(X)
	1	86.70	ADAPTER	50P186 (72-50-53-20-560)	(4)(X)
	1	7.60	PACKING	ST1946-015 (72-50-53-20-570)	(E)
			OR		
	1	7.60	PACKING	AS3209-015 (72-50-53-20-570)	(E)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	2	1.41	WASHER — KEY	MS9581-10 (72-58-02-01-020)	(E)
	1	1,262.00	TUBE — TRANSFER, PACKING, NO. 5 BRG	2A1212 (72-58-02-01-030)	(4)(X)
	3	7.00	PACKING	ST1946-107 (72-58-02-01-040)	(E)
			OR		
	3	7.00	PACKING	AS3209-107 (72-58-02-01-040)	(E)
	1	1.716.00	NOZZLE — NO. 5 BRG	2A1211 (72-58-02-01-070)	(4)(X)
	1	8.05	PACKING	ST1946-110 (72-58-02-01-080)	(E)
			OR		
	1	8.05	PACKING	AS3209-110 (72-58-02-01-080)	(E)
	1	326.00	STRAINER — ELEMENT NO. 5 BRG	1A8420 (79-21-49-16-115)	(E)
	1	7.08	PACKING	ST1946-012 (79-21-49-16-117)	(E)
			OR		
	1	7.08	PACKING	AS3209-012 (79-21-49-16-117)	(E)
	1	170.00	GASKET	AS42714 (79-22-49-01-117)	(E)
	1	70.60	NUT-TUBE COUPLING	ST2121-06	(4)(X)
	1	68.35	NUT-TUBE COUPLING	493975	(4)(X)

The material data that follows is for each engine.

For V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	1	1,469.00	TUBE — PRESS, NO. 5 BRG, ASSY OF	2A2231-01 (72-50-53-20-010)	(4)(X)
	1	25.60	WIRE, THRUST	ST1003-06 (72-50-53-20-170)	(E)
	1	2,263.00	TUBE — ASSEMBLY	2A3091-01 (72-50-53-20-176)	(4)(X)
	1	522.00	NIPPLE	2A2175 (72-50-53-20-290)	(4)(X)
	1	6.84	PACKING	ST1946-014 (72-50-53-20-300)	(E)
			OR		
	1	6.84	PACKING	AS3209-014 (72-50-53-20-300)	(E)
	1	2,086.00	TUBE, ELBOW, NO. 5 BEARING	2A2210 (72-50-53-20-320)	(4)(X)
	1	69.20	WIRE, THRUST	ST1003-07 (72-50-53-20-432)	(E)
	1	2,263.00	TUBE, ASSEMBLY	2A3092-01 (72-50-53-20-435)	(4)(X)
	1	86.70	ADAPTER	50P186 (72-50-53-20-560)	(4)(X)
	1	7.60	PACKING	ST1946-015 (72-50-53-20-570)	(E)
			OR		
	1	7.60	PACKING	AS3209-015 (72-50-53-20-570)	(E)
	2	1.41	WASHER — KEY	MS9581-10 (72-58-02-01-020)	(E)
	1	1,262.00	TUBE — TRANSFER, PACKING, NO. 5 BRG	2A1212 (72-58-02-01-030)	(4)(X)
	3	7.00	PACKING	ST1946-107 (72-58-02-01-040)	(E)
			OR		

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	3	7.00	PACKING	AS3209-107 (72-58-02-01-040)	(E)
	1	1.716.00	NOZZLE — NO. 5 BRG	2A1211 (72-58-02-01-070)	(4)(X)
	1	8.05	PACKING	ST1946-110 (72-58-02-01-080)	(E)
			OR		
	1	8.05	PACKING	AS3209-110 (72-58-02-01-080)	(E)
	1	326.00	STRAINER — ELEMENT NO. 5 BRG	1A8420 (79-21-49-16-115)	(E)
	1	7.08	PACKING	ST1946-012 (79-21-49-16-117)	(E)
			OR		
	1	7.08	PACKING	AS3209-012 (79-21-49-16-117)	(E)
	1	170.00	GASKET	AS42714 (79-22-49-01-117)	(E)
	1	70.60	NUT-TUBE COUPLING	ST2121-06	(4)(X)
	1	68.35	NUT-TUBE COUPLING	493975	(4)(X)

The material data that follows is for each engine.

For V2525-D5, V2528-D5 Engines:

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	1	1,469.00	TUBE — PRESS, NO. 5 BRG, ASSY OF	2A2231-01 (72-50-53-20-010)	(4)(X)
	1	25.60	WIRE — THRUST	ST1003-06 (72-50-53-20-170)	(E)
	1	2,263.00	TUBE — ASSY	2A3091-01 (72-50-53-20-176)	(4)(X)
	1	522.00	NIPPLE	2A2175 (72-50-53-20-290)	(4)(X)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	1	6.84	PACKING	ST1946-014 (72-50-53-20-300)	(E)
			OR		
	1	6.84	PACKING	AS3209-014 (72-50-53-20-300)	(E)
	1	69.20	WIRE — THRUST	ST1003-07 (72-50-53-20-432)	(E)
	1	2,263.00	TUBE — ASSY	2A3092-01 (72-50-53-20-435)	(4)(X)
	1	86.70	ADAPTER	50P186 (72-50-53-20-560)	(4)(X)
	1	7.60	PACKING	ST1946-015 (72-50-53-20-570)	(E)
			OR		
	1	7.60	PACKING	AS3209-015 (72-50-53-20-570)	(E)
	2	1.41	WASHER — KEY	MS9581-10 (72-58-02-01-020)	(E)
	1	1,262.00	TUBE — TRANSFER, PACKING, NO. 5 BRG	2A1212 (72-58-02-01-030)	(4)(X)
	3	7.00	PACKING	ST1946-107 (72-58-02-01-040)	(E)
			OR		
	3	7.00	PACKING	AS3209-107 (72-58-02-01-040)	(E)
	1	1,716.00	NOZZLE — NO. 5 BRG	2A1211 (72-58-02-01-070)	(4)(X)
	1	8.05	PACKING	ST1946-110 (72-58-02-01-080)	(E)
			OR		
	1	8.05	PACKING	AS3209-110 (72-58-02-01-080)	(E)
	1	326.00	STRAINER — ELEMENT NO. 5 BRG	1A8420 (79-21-49-15-515)	(E)

New PN	Qty	Estimate of Unit Price ($)	Keyword	Old PN	Instructions — Disposition
	1	7.08	PACKING	ST1946-012 (79-21-49-15-517)	(E)
			OR		
	1	7.08	PACKING	AS3209-012 (79-21-49-15-517)	(E)
	1	4,260.00	TUBE — A/O-OIL NO. 5 BEARING	6A6038 (79-22-49-01-100)	(4)(X)
	1	170.00	GASKET	AS42714 (72-51-41-400-010)	(E)
	1	70.60	NUT-TUBE COUPLING	ST2121-06	(4)(X)
	1	68.35	NUT-TUBE COUPLING	493975	(4)(X)

Instructions/Disposition Code Statements:

Parts Modification Conditions

Estimated part prices are provided when they are available at time of publication. The Estimate of Unit Price is only for planning purposes and does not constitute a firm quotation.

(4) Do an inspection as specified in the Accomplishment Instructions.

Spare Parts Availability

(E) The old part is an expendable item necessary to do this bulletin.

(X) See Reference 3, 4, or 5, Illustrated Parts Catalog for applicable replacement parts.

Vendor Services or Special Components/Materials

Consumable Materials

Specification	Name
CoMat 10-129	Anti Seize Paste
CoMat 02-119	Lockwire
CoMat 02-126	Lockwire
CoMat 02-141	Lockwire
CoMat 01-455	Alkaline Gel Carbon Remover
CoMat 01-456	Alkaline Gel Carbon Remover
See Standard Practices Source Code List	

Tooling — Price and Availability

Support Equipment available before

TOOL NUMBER	DESCRIPTION
IAE1P17038	Puller
IAE1P16624	Puller (optional)

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

For V2500-A1 (Reference 9, Post Service Bulletin V2500-ENG-72-0063) and V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 Engines:

1. GAIN ACCESS:

   WARNING: YOU MUST DEACTIVATE THE THRUST REVERSER HYDRAULIC CONTROL UNIT BEFORE YOU WORK ON OR AROUND THE THRUST REVERSER. IF YOU DO NOT DO THIS THE THRUST REVERSER CAN OPERATE ACCIDENTALLY AND CAUSE INJURY AND DAMAGE.

   NOTE: Airflow checking of the compartment is not practical due to the inaccuracy of results that may lead to inadvertently accepting partially blocked passageways. Airflow checking could also increase the possibility of dislodging carbon particles, if they are present, which could then migrate through the system, potentially leading to oil jet blockage.

   A. Open the engine fan cowls (Reference 8, Aircraft Maintenance Manual, Task 71-13-00-010-010).

   B. Deactivate the thrust reverser hydraulic control unit (Reference 8, Aircraft Maintenance Manual, Task 78-30-00-040-012).

   C. Open the thrust reverser halves (Reference 8, Aircraft Maintenance Manual, Task 78–32–00).

   D. Remove the exhaust cone as specified in Reference 8, Aircraft Maintenance Manual, Chapter/Section 78-11-12-000-010.

2. Remove the Tube Assembly, PN 2A3091-01 and details. See Figure 1, Sheets 1 and 2 and Figure 4.

   NOTE: The removed parts such as Tube Assembly, PN 2A3091-01, No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01, Nipple, PN 2A2175, No. 5 Bearing Packing Transfer Tube, PN 2A1212, No. 5 Bearing Strainer Element, PN 1A8420 / (2) PN 2A1264, and No. 5 Bearing Nozzle, PN 2A1211 can be cleaned per applicable Reference 6, Engine Manual tasks to restore the parts to serviceable condition or clean per Appendix 1.

   A. Loosen the outer Tube Nut, PN ST2121-06 that attaches the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 to the Tube Assembly, PN 2A3091-01.

   B. Remove the Thrust Wire, PN ST1003-06 and disconnect the Tube Nut, PN ST2121-06 at the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 connector of the Tube Assembly, PN 2A3091-01.

      NOTE: To remove the thrust wire from the nut, hold the drilled end and pull the wire out of the nut.

      NOTE: To ease the extraction of the thrust wire, lubrication may be applied into the thrust wire hole.

      NOTE: If the thrust wire is damaged or too tight, it will be necessary to cut the nut off of the tube end as follows.

      (1) Support the tube nut with an opposite force.

CAUTION: BE CAREFUL WITH THE CUT-OFF WHEEL NOT TO DAMAGE THE FERRULE OR FITTING ON THE TUBE.

(2) Use a high speed cut-off wheel to cut around the nut small distance outboard of the thrust wire, until the wire area is open.

(3) Remove the thrust wire and nut from the tube.

(4) Discard the thrust wire and nut.

(5) Examine the tube end for any damage.

C. Remove the two Bolts, PN 4W0107 and two Nuts, PN 4W0001 that attach the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 to the No. 5 Bearing Oil Feed Tube, PN 6A5013.

D. Remove the Clamp, PN MS122905, Bolt, PN 4W0103 and Nut, PN 4W0001 that attach to the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01.

E. Remove the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01.

F. Remove and discard the No. 5 Bearing Strainer Element, PN 1A8420 from the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01.

G. Remove and discard Packing, PN AS3209-012.

H. Remove the Bolt, PN 4W0106, two Washers, PN 4W2621 and Nut, PN 4W0001 from the Bracket, PN 2A2177.

I. Cut the lockwire holding the Shield, PN 2A2241 and remove the shield.

J. Disconnect the inner Tube Nut, PN MS9198-06 and carefully remove the Tube Assembly, PN 2A3091-01 from the Turbine Exhaust Case (TEC) strut at the No. 5 bearing compartment cover end of the strut.

K. Remove the Nipple, PN 2A2175

L. Remove and discard Packing, PN AS3209-014.

M. Remove the two Bolts, PN MS9452-05 and two Key Washers, PN MS9581-10, which attach the No. 5 Bearing Packing Transfer Tube, PN 2A1212 to the No. 5 Bearing Nozzle, PN 2A1211.

N. Remove the No. 5 Bearing Packing Transfer Tube, PN 2A1212 from the No. 5 Bearing Nozzle, PN 2A1211 using IAE1P16624 Puller (optional).

O. Remove and discard the three Packings, PN AS3209-107 from the No. 5 Bearing Packing Transfer Tube, PN 2A1212.

P. Remove the two Bolts, PN MS9886-07 that attach the No. 5 Bearing Nozzle, PN 2A1211 to the No. 5 bearing compartment.

Q. Remove the No. 5 Bearing Nozzle, PN 2A1211.

R. Remove and discard the Packing, PN AS3209-110.

3. Remove the Tube Assembly, PN 2A3092-01 and details. See Figure 2, Sheets 1 and 2.

NOTE: The removed parts such as Tube Assembly, PN 2A3092-01, No. 5 Bearing Elbow Tube, PN 2A2210 and Adapter, PN 50P186 can be cleaned as specified in Reference 6, Engine Manual tasks to restore the parts to serviceable condition or clean as specified in Appendix 1.

A. Loosen the Nut, PN 493975 at the No. 5 Bearing Elbow Tube, PN 2A2210 connector of the Tube Assembly, PN 2A3092-01.

B. Remove the Thrust Wire, PN ST1003-07 and disconnect the Tube Nut, PN 493975 at the No. 5 Bearing Scavenge Tube Assembly, PN 2A2209 connector of the Assembly, PN 2A3092-01.

NOTE: To remove the thrust wire from the nut, hold the drilled end and pull the wire out of the nut.

NOTE: To ease the extraction of the thrust wire, lubrication may be applied into the thrust wire hole.

NOTE: If the thrust wire is damaged or too tight, it will be necessary to cut the nut off of the tube end as follows.

(1) Support the tube nut with an opposite force.

CAUTION: BE CAREFUL WITH THE CUT-OFF WHEEL NOT TO DAMAGE THE FERRULE OR FITTING ON THE TUBE.

(2) Use a high speed cut-off wheel to cut around the nut small distance outboard of the thrust wire, until the wire area is open.

(3) Remove the thrust wire and nut from the tube.

(4) Discard the thrust wire and nut.

(5) Examine the tube end for any damage.

C. Remove the four Bolts, PN MS9566-11 and two Plates, PN 5T0057 from the upper flange connection of the connecting Tube, PN 5R8140.

D. Remove and discard Gasket, PN AS42714.

E. Remove the Bolt, PN 4W0165 and Nut, PN 4W0002 from the Bracket, PN 2A2212 to disconnect the No. 5 Bearing Elbow Tube, PN 2A2210.

F. Remove the No. 5 Bearing Elbow Tube, PN 2A2210.

G. Remove the Nut, PN 4W0001, two Washers, PN 4W2621 and Bolt, PN 4W0106 that attach Shield, PN 2A2242 to the Bracket, PN 2A2176.

H. Remove the lockwire that attaches the tube to the Shield, PN 2A2242 and remove the shield.

I. Disconnect the inner Tube Nut, PN MS9198-07 and carefully remove the Tube Assembly, PN 2A3092-01 from the TEC strut at the No. 5 bearing compartment cover end of the strut.

J. Remove the Adapter, PN 50P186.

K. Remove and discard the Packing, PN AS3209-015.

NOTE: There is a high risk to shear bolts during removal. Wait to cool down.

4. Remove No. 5 bearing compartment rear cover using IAE 1P17038 Puller. Refer to Reference 7, Aircraft Maintenance Manual, Chapter/Section TASK 72-51-41-000-010. See Figure 3, Sheet 1.

5. Do an inspection and clean the No. 5 Bearing housing oil return holes. See Figure 3, Sheets 1 and 2.

   NOTE: It is not necessary to inspect the cavity forward of the (21) oil return holes for coking. If coking is visible in this cavity, it is not necessary to clean or remove it.

   A. Remove the four Bolts, PN MS9886-08 that attach the two No. 5 Bearing Strainer Elements, PN 2A1264 to the No. 5 bearing housing.

   B. Remove the two No. 5 Bearing Strainer Elements, PN 2A1264.

   C. Inspect the No. 5 bearing housing for blockage of oil return holes (21 off).

      (1) If there is no blockage, proceed to Step 6.

      (2) If any hole was partially or fully blocked, proceed as follows:

         (a) Carefully clean using a pick to remove as much coke as possible to clear passages.

            NOTE: It is recommended to use vacuum cleaner while using pick to remove the coke. This process will make sure no debris has been pushed into the cavity.

         (b) Using vacuum, completely remove all loose particles from the No. 5 bearing compartment.

         (c) If the total area of at least two fully blocked holes were cleaned:

            1 Re-inspect No. 5 bearing compartment at no less than 650 hours and no greater than 750 hours using same criteria.

               NOTE: If the total area of less than two fully blocked holes were cleaned, then it is not required to re-inspect within 750 hours. This criteria also applies when the engine is placed on 750 hours inspection.

         (d) If unable to clear blockage of two or more oil return holes:

            1 It is recommended to remove the engine from service within 600 flight hours for removal and thorough cleaning of the TEC.

      (3) Inspect for blockage or debris in the oil flow (pressure and scavenge) passage areas of the TEC assembly. See Figure 5 for location. If the blockage was confirmed, carefully clean using an appropriate pick and vacuum to remove all the debris from the oil passage.

6. Install the two No. 5 Bearing Strainer Elements, PN 2A1264 on the No. 5 Bearing Retaining Plate, PN 2A1213. See Figure 3, Sheet 2.

   A. Install the two No. 5 Bearing Strainer Elements, PN 2A1264 on the No. 5 Bearing Retaining Plate, PN 2A1213. Align the holes with the cutout on the ends over the oil feed port.

   B. Install the four Bolts, PN MS9886-08 which attach the No. 5 bearing strainer elements and the No. 5 bearing retaining plate to the flange of the TEC.

   C. Torque the bolts between 85 – 105 lbf-in. (9.604 – 11.863 N.m).

7. Install the new or serviceable Tube Assembly, PN 2A3092-01. See Figure 2, Sheets 1 and 2.

CAUTION: BEFORE THE INSTALLATION OF SERVICEABLE TUBE ASSEMBLY, NO. 5 BEARING ELBOW TUBE AND ADAPTER; MAKE SURE THEY ARE FREE OF CARBON.

A. Install a new Packing, PN AS3209-015 to the Adapter, PN 50P186.

B. Install the Adapter, PN 50P186 to the scavenge port on the exhaust case housing.

(1) Torque the Adapter, PN 50P186 to 150 – 170 lbf-in. (16.948 – 19.207 N.m).

C. Carefully feed the Tube Assembly, PN 2A3092-01 through the TEC strut from the No. 5 bearing compartment.

D. Slide the Nut, PN 493975 over the lower end of the tube and install a new Thrust Wire, PN ST1003-07.

NOTE: During this procedure, make sure the tube is in the center of the turbine exhaust case opening.

NOTE: Install new thrust wire as follows:

(1) Always use a new thrust wire for each installation.

(2) Put the new nut in position on the end of the tube ferrule or fitting.

(3) Apply a small amount of engine oil to the new thrust wire.

(4) While you install the new thrust wire, hold the tube nut and support the tube nut with an opposite force.

CAUTION: BEFORE YOU PUSH THE THRUST WIRE INTO POSITION, MAKE SURE THAT THE THRUST WIRE IS ALIGNED WITH THE REAR RADIUS OF THE TUBE FERRULE OR FITTING. USE A STRONG LIGHT OR A SMALL TEST WIRE TO BE SURE THAT THE WIRE HOLE IN THE NUT WILL LET THE THRUST WIRE GO AGAINST (BUT NOT INTO) THE RADIUS ON THE FERRULE OR FITTING.

(5) With the new tube nut in position on the end of the tube, put the new thrust wire into position.

(6) If the thrust wire goes into the hole easily, tap the thrust wire into position with a brass (or other non-ferrous) mallet.

(7) Make sure the nut is held on the tube and the nut is able to turn smoothly.

(8) Examine the tube end for any damage or blockage.

E. Loosely connect the inner Tube Nut, PN MS9198-07.

F. Install the Shield, PN 2A2242 and secure the shield halves together with CoMat 02-141 lockwire.

G. Install the Bolt, PN 4W0106, two Washers, PN 4W2621 and Nut, PN 4W0001.

(1) Torque the Nut, PN 4W0001 between 36 – 40 lbf-in. (4 067 – 4.519 N.m).

H. Install Gasket, PN AS42714 at the correct position.

I. Install four Bolts, PN MS9566-11 and two Plates, PN 5T0057.

(1) Torque the nut between 85 – 105 lbf-in. (9.604 – 11.863 N.m). Safety the bolts with CoMat 02-119 lockwire.

J. Loosely connect the Nut, PN 493975 to the No. 5 Bearing Elbow Tube, PN 2A2210. Secure the No. 5 Bearing Elbow Tube, PN 2A2210 to the Bracket, PN 2A2212 with the Bolt, PN 4W0165 and Nut, PN 4W0002.

(1) Torque between 86 – 95 lbf-in. (9.717 – 10.734 N.m).

K. Torque the inner Tube Nut, PN MS9198-07 between 225 – 250 lbf-in. (25.422 – 28.246 N.m).

L. Torque the outer Tube Nut, PN 493975 between 320 – 350 lbf-in. (36.155 – 39.545 N.m).

M. Lockwire the tube nuts, adapter, thrust wire and No. 5 Bearing Elbow Tube with CoMat 02-141.

8. Install the No. 5 Bearing Nozzle, PN 2A1211. See Figure 4.

CAUTION: BEFORE THE INSTALLATION OF SERVICEABLE NO. 5 BEARING NOZZLE AND NO. 5 BEARING PACKING TRANSFER TUBE, MAKE SURE THEY ARE FREE OF CARBON.

A. Install three new Packings, PN AS3209-107 on the No. 5 Bearing Packing Transfer Tube, PN 2A1212.

B. Install the new Packing, PN AS3209-110 on to the No. 5 Bearing Nozzle, PN 2A1211.

C. Install the No. 5 Bearing Nozzle, PN 2A1211 into the No. 5 bearing compartment.

D. Attach the No. 5 Bearing Nozzle, PN 2A1211 with two Bolts, PN MS9886-07.

(1) Torque the bolts between 85 – 105 lbf-in. (9.604 – 11.863 N.m).

E. Install the No. 5 Bearing Packing Transfer Tube, PN 2A1212 into the No. 5 Bearing Nozzle, PN 2A1211.

F. Attach the No. 5 Bearing Packing Transfer Tube, PN 2A1212 to the No. 5 Bearing Nozzle, PN 2A1211 with the two new Key Washers, PN MS9581-10 and two Bolts, PN MS9452-05.

(1) Torque the bolts between 85 – 105 lbf-in. (9.604 – 11.863 N.m).

G. Crimp key washer tabs.

9. Install the Tube Assembly, PN 2A3091-01. See Figure 1, Sheets 1 and 2.

CAUTION: BEFORE THE INSTALLATION OF SERVICEABLE TUBE ASSEMBLY, NO. 5 BEARING PRESSURE TUBE ASSEMBLY AND NIPPLE, MAKE SURE THEY ARE FREE OF CARBON.

A. Install the Nipple, PN 2A2175 and new Packing, PN AS3209-014.

(1) Torque the nipple between 110 – 120 lbf-in. (12.428 – 13.558 N.m).

B. Carefully feed the Tube Assembly, PN 2A3091-01 through the TEC strut from the No. 5 bearing compartment.

C. Slide the Tube Nut, PN ST2121-06 over the lower end of the tube and install a new Thrust Wire, PN ST1003-06.

NOTE: Install thrust wire as follows:

(1) Always use a new thrust wire for each installation.

(2) Put the new nut in position on the end of the tube ferrule or fitting.

(3) Apply a small amount of engine oil to the new thrust wire.

(4) While you install the new thrust wire, hold the tube nut and support the tube nut with an opposite force.

CAUTION: BEFORE YOU PUSH THE THRUST WIRE INTO POSITION, MAKE SURE THAT THE THRUST WIRE IS ALIGNED WITH THE REAR RADIUS OF THE TUBE FERRULE OR FITTING. USE A STRONG LIGHT OR A SMALL TEST WIRE TO BE SURE THAT THE WIRE HOLE IN THE NUT WILL LET THE THRUST WIRE GO AGAINST (BUT NOT INTO) THE RADIUS ON THE FERRULE OR FITTING.

(5) With the new tube nut in position on the end of the tube, put the new thrust wire into position.

(6) If the thrust wire goes into the hole easily, tap the thrust wire into position with a brass (or other non-ferrous) mallet.

(7) Make sure the nut is held on the tube and the nut is able to turn smoothly.

(8) Examine the tube end for any damage or blockage.

D. Loosely connect the inner Tube Nut, PN MS9198-06 to the Nipple, PN 2A2175.

E. Loosely connect the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 to the Tube Assembly, PN 2A3091-01. Attach the No. 5 Bearing Pressure Tube Assembly to the Bracket, PN 2A2232 with Clamp, PN MS122905, Bolt, PN 4W0103, and Nut, PN 4W0001.

NOTE: During this procedure, make sure the tube is in the center of the turbine exhaust case strut opening.

F. Torque the inner Tube Nut, PN MS9198-06 between 200 – 225 lbf-in. (22.597 – 25.422 N.m).

(1) Lockwire the inner tube nut and the nipple.

G. Torque the outer Tube Nut, PN ST2121-06 between 200 – 225 lbf-in. (22.597 – 25.422 N.m).

(1) Lockwire the tube nut, thrust wire and No. 5 Bearing Pressure Tube Assembly.

H. Torque the Nut, PN 4W0001 which holds the No. 5 Bearing Pressure Tube Assembly to the clamp to 36 – 40 lbf-in. (4.067 – 4.519 N.m).

I. Install the Shield, PN 2A2241 upper and lower halves.

J. Install the Bolt, PN 4W0106, two Washers, PN 4W2621, and Nut, PN 4W0001 to secure the shield to the Bracket, PN 2A2177 on the inner housing.

K. Lockwire the upper and lower shields together with CoMat 02-141 lockwire.

L. Install No. 5 Bearing Strainer Element, PN 1A8420 and the new Packing, PN AS3209-012 in the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 at the correct position.

M. Install the two Bolts, PN 4W0107 and the two Nuts, PN 4W0001 that secures the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 and No. 5 Bearing Oil Feed Tube, PN 6A5013.

N. Torque the nuts to 85 – 105 lbf-in. (9.604 – 11.863 N.m).

10. Close up.

    A. Install the No.5 bearing compartment cover. Refer to Reference 8, Aircraft Maintenance Manual, Chapter/Section TASK 72-51-41-400-010.

    NOTE: Leak check must be performed prior to reinstallation of exhaust cone.

11. Recording Instructions

    A. A record of accomplishment is required.

For V2525-D5, V2528-D5 Engines:

1. GAIN ACCESS:

    WARNING: YOU MUST DEACTIVATE THE THRUST REVERSER HYDRAULIC CONTROL UNIT BEFORE YOU WORK ON OR AROUND THE THRUST REVERSER. IF YOU DO NOT DO THIS THE THRUST REVERSER CAN OPERATE ACCIDENTALLY AND CAUSE INJURY AND DAMAGE.

    NOTE: Airflow checking of the compartment is not practical due to the inaccuracy of results that may lead to inadvertently accepting partially blocked passageways. Airflow checking could also increase the possibility of dislodging carbon particles, if they are present, which could then migrate through the system, potentially leading to oil jet blockage.

    A. Open the engine fan cowls (Reference 8, Aircraft Maintenance Manual, Chapter/Section 71-13-00).

    B. Deactivate the thrust reverser hydraulic control unit (Reference 8, Aircraft Maintenance Manual, Chapter/Section 78-30-00).

    C. Open the thrust reverser halves (Reference 8, Aircraft Maintenance Manual, Task 78–32–00).

    D. Remove the exhaust cone as specified in Reference 8, Aircraft Maintenance Manual, Chapter/Section 78-10-02.

    E. Remove No. 5 bearing compartment rear cover using IAE 1P17038 Puller. Refer to Reference 8, Aircraft Maintenance Manual, Chapter/Section 72-50-01. See Figure 8, Sheet 1.

2. Remove the Tube Assembly, PN 2A3091-01 and details. See Figure 6, Sheets 1 and 2 and Figure 9.

    NOTE: The removed parts such as Tube Assembly, PN 2A3091-01, No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01, Nipple, PN 2A2175, No. 5 Bearing Packing Transfer Tube, PN 2A1212, No. 5 Bearing Strainer Element, PN 1A8420 / (2) PN 2A1264, and No. 5 Bearing Nozzle, PN 2A1211 can be cleaned as specified in Reference 7, Engine Manual tasks to restore the parts to serviceable condition or clean as specified in Appendix 1.

    A. Loosen the outer Tube Nut, PN ST2121-06 that attaches the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 to the Tube Assembly, PN 2A3091-01.

B. Remove the Thrust Wire, PN ST1003-06 and disconnect the Tube Nut, PN ST2121-06 at the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 connector of the Tube Assembly, PN 2A3091-01.

NOTE: To remove the thrust wire from the nut, hold the drilled end and pull the wire out of the nut.

NOTE: To ease the extraction of the thrust wire, lubrication may be applied into the thrust wire hole.

NOTE: If the thrust wire is damaged or too tight, it will be necessary to cut the nut off of the tube end as follows.

(1) Support the tube nut with an opposite force.

CAUTION: BE CAREFUL WITH THE CUT-OFF WHEEL NOT TO DAMAGE THE FERRULE OR FITTING ON THE TUBE.

(2) Use a high speed cut-off wheel to cut around the nut small distance outboard of the thrust wire, until the wire area is open.

(3) Remove the thrust wire and nut from the tube.

(4) Discard the thrust wire and nut.

(5) Examine the tube end for any damage.

C. Remove the two Bolts, PN 4W0107 and two Nuts, PN 4W0001 that attach the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 to the external Tube, PN 6A5145.

D. Remove the Clamp, PN MS122905, Bolt, PN 4W0103 and Nut, PN 4W0001 that attach to the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01.

E. Remove the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01.

F. Remove and discard the No. 5 Bearing Strainer Element, PN 1A8420 from the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01.

G. Remove and discard Packing, PN AS3209-012.

H. Remove the Bolt, PN 4W0106, two Washers, PN 4W2621 and Nut, PN 4W0001 from the Bracket, PN 2A2177.

I. Cut the lockwire holding the Shield, PN 2A2241 and remove the shield.

J. Disconnect the inner Tube Nut, PN MS9198-06 and carefully remove the Tube Assembly, PN 2A3091-01 from the TEC strut at the No. 5 bearing compartment cover end of the strut.

K. Remove the Nipple, PN 2A2175.

L. Remove and discard and Packing, PN AS3209-014.

M. Remove the two Bolts, PN MS9452-05 and two Key Washers, PN MS9581-10, which attach the No. 5 Bearing Packing Transfer Tube, PN 2A1212 to the No. 5 Bearing Nozzle, PN 2A1211.

N. Remove the No. 5 Bearing Packing Transfer Tube, PN 2A1212 from the No. 5 Bearing Nozzle, PN 2A1211 using IAE1P16624 Puller (optional).

O. Remove and discard the three Packings, PN AS3209-107 from the No. 5 Bearing Packing Transfer Tube, PN 2A1212.

P. Remove the two Bolts, PN MS9886-07 that attach the No. 5 Bearing Nozzle, PN 2A1211 to the No. 5 bearing compartment.

Q. Remove the No. 5 Bearing Nozzle, PN 2A1211.

R. Remove and discard the Packing, PN AS3209-110.

3. Remove the Tube Assembly, PN 2A3092-01 and details. See Figure 7, Sheets 1 and 2.

NOTE: The removed parts such as Tube Assembly, PN 2A3092-01, No. 5 Bearing Oil Tube, PN 6A6038 and Adapter, PN 50P186 can be cleaned as specified in Reference 7, Engine Manual tasks to restore the parts to serviceable condition or clean as specified in Appendix 1.

A. Loosen the Nut, PN 493975 at the Elbow Connector, PN 6A4576 of the Tube Assembly, PN 2A3092-01.

B. Remove the Thrust Wire, PN ST1003-07 and disconnect Nut, PN 493975.

NOTE: To remove the thrust wire from the nut, hold the drilled end and pull the wire out of the nut.

NOTE: To ease the extraction of the thrust wire, lubrication may be applied into the thrust wire hole.

NOTE: If the thrust wire is damaged or too tight, it will be necessary to cut the nut off of the tube end as follows.

(1) Support the tube nut with an opposite force.

CAUTION: BE CAREFUL WITH THE CUT-OFF WHEEL NOT TO DAMAGE THE FERRULE OR FITTING ON THE TUBE.

(2) Use a high speed cut-off wheel to cut around the nut small distance outboard of the thrust wire, until the wire area is open.

(3) Remove the thrust wire and nut from the tube.

(4) Discard the thrust wire and nut.

(5) Examine the tube end for any damage.

C. Remove the Bolt, PN 4W0102, the Clip, PN 5W1112 the Nut, PN 4W0043 and Bolt, PN 4W0102, Clip, PN 5W1115, Nut, PN 4W0043.

D. Remove the Bolt, PN 4W0102 the Clamp, PN TA025022-12 the Nut, PN 4W0043 and Bracket, PN 6A4769.

E. Remove the No. 5 Bearing Oil Tube, PN 6A6038 at Elbow Connector, PN 6A4576 from the turbine exhaust case connector.

F. Disconnect the No. 5 Bearing Oil Tube, PN 6A6038 from the Tube, PN 6A6042.

G. Remove the No. 5 Bearing Oil Tube, PN 6A6038 from the engine.

H. Remove the Nut, PN 4W0001, two Washers, PN 4W2621 and Bolt, PN 4W0106 that attach Shield, PN 2A2242 to the Bracket, PN 2A2176.

I. Remove the lockwire that attaches the tube to the Shield, PN 2A2242 and remove the shield.

J. Disconnect the inner Tube Nut, PN MS9198-07 and carefully remove the Tube Assembly, PN 2A3092-01 from the TEC strut at the No. 5 bearing compartment cover end of the strut.

K. Remove the Adapter, PN 50P186.

L. Remove and discard the Packing, PN AS3209-015.

4. Do an inspection and clean the No. 5 Bearing housing oil return holes. See Figure 8, Sheets 1 and 2 and Figure 10.

NOTE: It is not necessary to inspect the cavity forward of the (21) oil return holes for coking. If coking is visible in this cavity, it is not necessary to clean or remove it.

A. Remove the four Bolts, PN MS9886-08 that attach the two No. 5 Bearing Strainer Elements, PN 2A1264 to the No. 5 bearing housing.

B. Remove the two No. 5 Bearing Strainer Elements, PN 2A1264.

C. Inspect the No. 5 bearing housing for blockage of oil return holes (21 off).

(1) If any hole were partially or fully blocked proceed as follows: If there is no blockage, proceed to Step 5.

(a) Carefully clean using a pick to remove as much coke as possible to clear passages.

NOTE: It is recommended to use vacuum cleaner while using pick to remove the coke. This process will make sure no debris has been pushed into the cavity.

(b) Using vacuum, completely remove all loose particles from the No. 5 bearing compartment.

(c) If the total area of at least two fully blocked holes were cleaned:

1 Re-inspect No. 5 bearing compartment at no less than 650 hours and no greater than 750 hours using same criteria.

NOTE: If the total area of less than two fully blocked holes were cleaned, then it is not required to re-inspect within 750 hours. This criteria also applies when the engine is placed on 750 hours inspection.

(d) If unable to clear blockage of two or more oil return holes:

1 It is recommended to remove the engine from service within 600 flight hours for removal and thorough cleaning of the TEC.

(2) Inspect for blockage or debris in the oil flow (pressure and scavenge) passage areas of the TEC assembly. See Figure 10 for location. If the blockage was confirmed, carefully clean using an appropriate pick and vacuum to remove all the debris from the oil passage.

5. Install the two No. 5 Bearing Strainer Elements, PN 2A1264 on the Retaining Plate, PN 2A1213. See Figure 8, Sheet 2.

A. Install the two No. 5 Bearing Strainer Elements, PN 2A1264 on the Retaining Plate, PN 2A1213. Align the holes with the cutout on the ends over the oil feed port.

B. Install the four Bolts, PN MS9886-08 which attach the two No. 5 Bearing Strainer Elements and the retaining plate to the flange of the TEC while removing the locating pins.

C. Torque the bolts between 85 – 105 lbf-in. (9.604 – 11.863 N.m).

6. Install the new or serviceable Tube Assembly, PN 2A3092-01 (internal tube and external tube). See Figure 7, Sheets 1 and 2.

CAUTION: BEFORE THE INSTALLATION OF SERVICEABLE TUBE ASSEMBLY (INTERNAL AND EXTERNAL) AND ADAPTER; MAKE SURE THEY ARE FREE OF CARBON.

A. Install a new Packing, PN AS3209-015 to the Adapter, PN 50P186.

B. Install the Adapter, PN 50P186 to the scavenge port on the exhaust case housing.

(1) Torque the adapter to 150 – 170 lbf-in. (16.948 – 19.207 N.m).

C. Carefully feed the cleaned or new Tube Assembly, PN 2A3092-01 through the TEC strut from the No. 5 bearing compartment.

D. Slide the Nut, PN 493975 over the lower end of the tube and install a new Thrust Wire, PN ST1003-07.

NOTE: During this procedure, make sure the tube is in the center of the turbine exhaust case opening.

NOTE: Install thrust wire as follows:

(1) Always use a new thrust wire for each installation.

(2) Put the new nut in position on the end of the tube ferrule or fitting.

(3) Apply a small amount of engine oil to the new thrust wire.

(4) While you install the new thrust wire, hold the tube nut and support the tube nut with an opposite force.

CAUTION: BEFORE YOU PUSH THE THRUST WIRE INTO POSITION, MAKE SURE THAT THE THRUST WIRE IS ALIGNED WITH THE REAR RADIUS OF THE TUBE FERRULE OR FITTING. USE A STRONG LIGHT OR A SMALL TEST WIRE TO BE SURE THAT THE WIRE HOLE IN THE NUT WILL LET THE THRUST WIRE GO AGAINST (BUT NOT INTO) THE RADIUS ON THE FERRULE OR FITTING.

(5) With the new tube nut in position on the end of the tube, put the new thrust wire into position.

(6) If the thrust wire goes into the hole easily, tap the thrust wire into position with a brass (or other non-ferrous) mallet.

(7) Make sure the nut is held on the tube and the nut is able to turn smoothly.

(8) Examine the tube end for any damage or blockage.

E. Loosely connect the inner Tube Nut, PN MS9198-07.

F. Install the Shied, PN 2A2242 and secure the shield halves together with CoMat 02-141 lockwire.

G. Install the Bolt, PN 4W0106, two Washers, PN 4W2621 and Nut, PN 4W0001.

(1) Torque the Nut, PN 4W0001 between 36 – 40 lbf-in. (4.067 – 4.519 N.m).

H. Put the cleaned or new No. 5 Bearing Oil Tube, PN 6A6038 in position on the engine.

I. Loosely connect the Elbow Connector, PN 6A4576 to the Tube Assembly, PN 2A3092-01 by securing the outer Tube Nut, PN 493975.

J. Connect the No. 5 Bearing Oil Tube, PN 6A6038 to the turbine exhaust case connector at Elbow Connector, PN 6A4576.

K. Torque the tube nut between 204 – 221 lbf-in. (23.049 – 24.970 N.m) and safety with CoMat 02-126 lockwire.

L. Connect the No. 5 Bearing Oil Tube, PN 6A6038 to the Tube, PN 6A6042.

M. Torque the tube nut between 398 – 434 lbf-in. (44.968 – 49.035 N.m) and safety with CoMat 02-126 lockwire.

N. Install the Bolt, PN 4W0102, the Clip, PN 5W1112 the Nut, PN 4W0043, Bolt, PN 4W0102, Clip, PN 5W1115, Nut, PN 4W0043 and Bolt, PN 4W0102, the Clamp, PN TA025022-12 the Nut, PN 4W0043.

(1) Torque the bolts between 36 – 45 lbf-in. (4.067 – 5.084 N.m).

O. Lockwire the tube nut, thrust wire and elbow connector with CoMat 02-141.

7. Install the No. 5 Bearing Nozzle, PN 2A1211. See Figure 9.

CAUTION: BEFORE THE INSTALLATION OF SERVICEABLE NO. 5 BEARING NOZZLE AND NO. 5 BEARING PACKING TRANSFER TUBE, MAKE SURE THEY ARE FREE OF CARBON.

A. Install three new Packings, PN AS3209-107 on the No. 5 Bearing Packing Transfer Tube, PN 2A1212.

B. Install the new Packing, PN AS3209-110 on to the No. 5 Bearing Nozzle, PN 2A1211.

C. Install the No. 5 Bearing Nozzle, PN 2A1211 into the No. 5 bearing compartment.

D. Attach the No. 5 Bearing Nozzle, PN 2A1211 with two Bolts, PN MS9886-07.

(1) Torque the bolts between 85 – 105 lbf-in. (9.604 – 11.863 N.m).

E. Install the No. 5 Bearing Packing Transfer Tube, PN 2A1212 into the No. 5 Bearing Nozzle, PN 2A1211.

F. Attach the No. 5 Bearing Packing Transfer Tube, PN 2A1212 to the No. 5 Bearing Nozzle, PN 2A1211 with the two new Key Washers, PN MS9581-10 and two Bolts, PN MS9452-05.

(1) Torque the bolts between 85 – 105 lbf-in. (9.604 – 11.863 N.m).

G. Crimp key washer tabs.

8. Install the cleaned or new Tube Assembly, PN 2A3091-01. See Figure 6 Sheets 1 and 2.

CAUTION: BEFORE THE INSTALLATION OF SERVICEABLE TUBE ASSEMBLY, NO. 5 BEARING PRESSURE TUBE ASSEMBLY AND NIPPLE, MAKE SURE THEY ARE FREE OF CARBON.

A. Install the Nipple, PN 2A2175 and new Packing, PN AS3209-014.

(1) Torque the nipple between 110 – 120 lbf-in. (12.428 – 13.558 N.m).

B. Carefully feed the cleaned or new Tube Assembly, PN 2A3091-01 through the TEC strut from the No. 5 bearing compartment.

C. Slide the Tube Nut, PN ST2121-06 over the lower end of the tube and install a new Thrust Wire, PN ST1003-06.

NOTE: Install thrust wire as follows:

(1) Always use a new thrust wire for each installation.

(2) Put the new nut in position on the end of the tube ferrule or fitting.

(3) Apply a small amount of engine oil to the new thrust wire.

(4) While you install the new thrust wire, hold the tube nut and support the tube nut with an opposite force.

CAUTION: BEFORE YOU PUSH THE THRUST WIRE INTO POSITION, MAKE SURE THE THRUST WIRE IS ALIGNED WITH THE REAR RADIUS OF THE TUBE FERRULE OR FITTING. USE A STRONG LIGHT OR A SMALL TEST WIRE TO BE SURE THAT THE WIRE HOLE IN THE NUT WILL LET THE THRUST WIRE GO AGAINST (BUT NOT INTO) THE RADIUS ON THE FERRULE OR FITTING.

(5) With the new tube nut in position on the end of the tube, put the new thrust wire into position.

(6) If the thrust wire goes into the hole easily, tap the thrust wire into position with a brass (or other non-ferrous) mallet.

(7) Make sure the nut is held on the tube and the nut is able to turn smoothly.

(8) Examine the tube end for any damage or blockage.

D. Loosely connect the inner Tube Nut, PN MS9198-06 to the Nipple, PN 2A2175.

E. Loosely connect the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 to the Tube Assembly, PN 2A3091-01. Attach the No. 5 Bearing Pressure Tube Assembly to the Bracket, PN 2A2232 with Clamp, PN MS122905, Bolt, PN 4W0103, and Nut, PN 4W0001.

NOTE: During this procedure, make sure the tube is in the center of the turbine exhaust case opening.

F. Torque the inner Tube Nut, PN MS9198-06 between 200 – 225 lbf-in. (22.597 – 25.422 N.m).

(1) Lockwire the inner tube nut and the nipple.

G. Torque the outer Tube Nut, PN ST2121-06 between 200 – 225 lbf-in. (22.597 – 25.422 N.m).

(1) Lockwire the tube nut, thrust wire and No. 5 Bearing Pressure Tube Assembly.

H. Torque the Nut, PN 4W0001 which holds the No. 5 Bearing Pressure Tube Assembly to the clamp to 36 – 40 lbf-in. (4.067 – 4.519 N.m).

I. Install the Shield, PN 2A2241 and secure the shield halves together with CoMat 02-141 lockwire.

J. Install the Bolt, PN 4W0106, two Washers, PN 4W2621, and Nut, PN 4W0001 to secure the shield to the Bracket, PN 2A2177 on the inner housing.

(1) Torque the Nut, PN 4W0001 between 36 – 40 lbf-in. (4.067 – 4.519 N.m).

K. Put the No. 5 Bearing Strainer Element, PN 1A8420 and the new Packing, PN AS3209-012 in the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 at the correct position.

L. Install the two Bolts, PN 4W0107 and the two Nuts, PN 4W0001 that secures the No. 5 Bearing Pressure Tube Assembly, PN 2A2231-01 and Tube, PN 6A5145.

M. Torque the nuts to 85 – 105 lbf-in. (9.604 – 11.863 N.m).

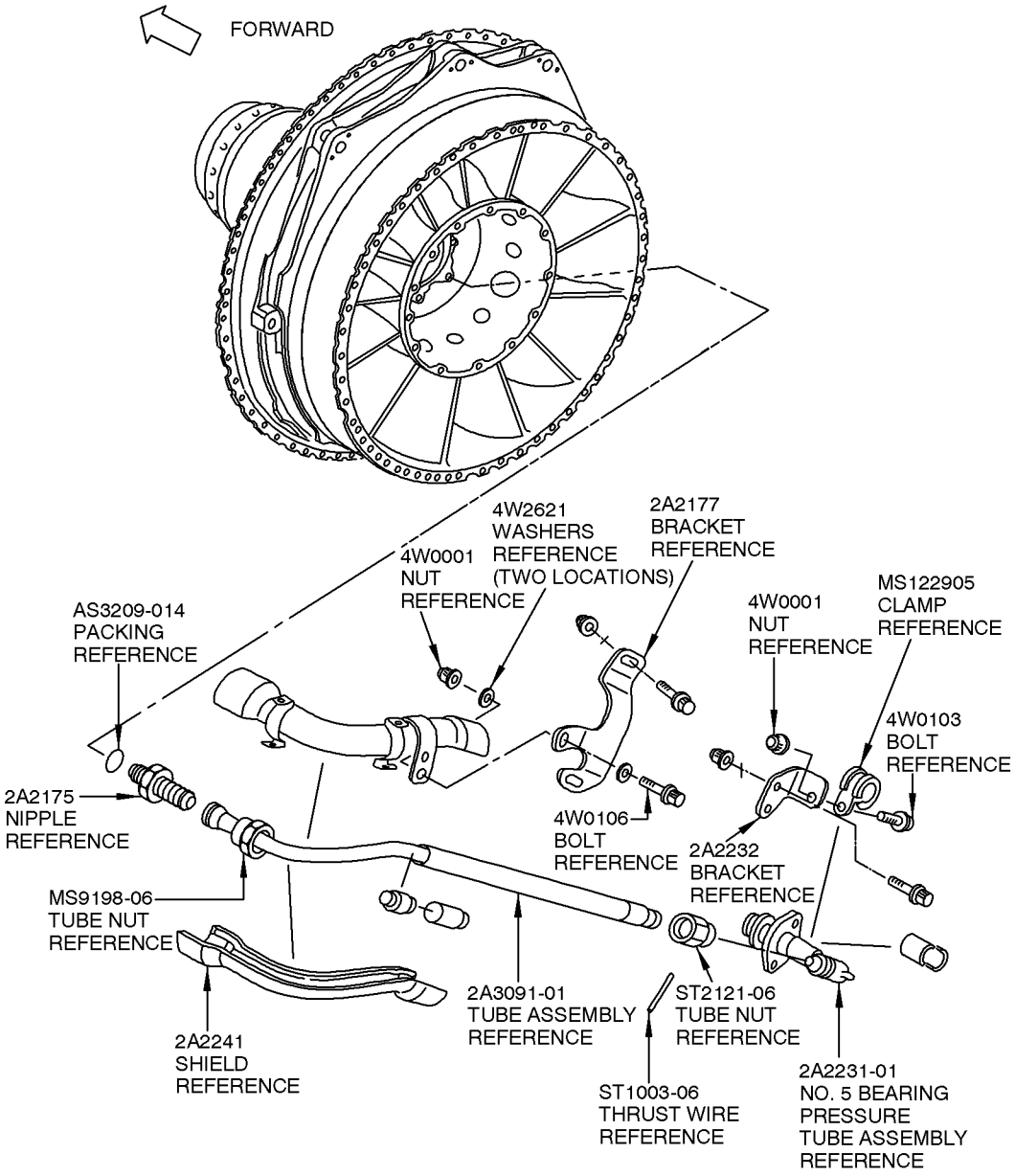
9. Close up.

A. Install the No.5 bearing compartment cover. Refer to Reference 8, Aircraft Maintenance Manual, Chapter/Section Task 72-51-41-400-010. See Figure 3.

NOTE: Leak check must be performed prior to reinstallation of exhaust cone.

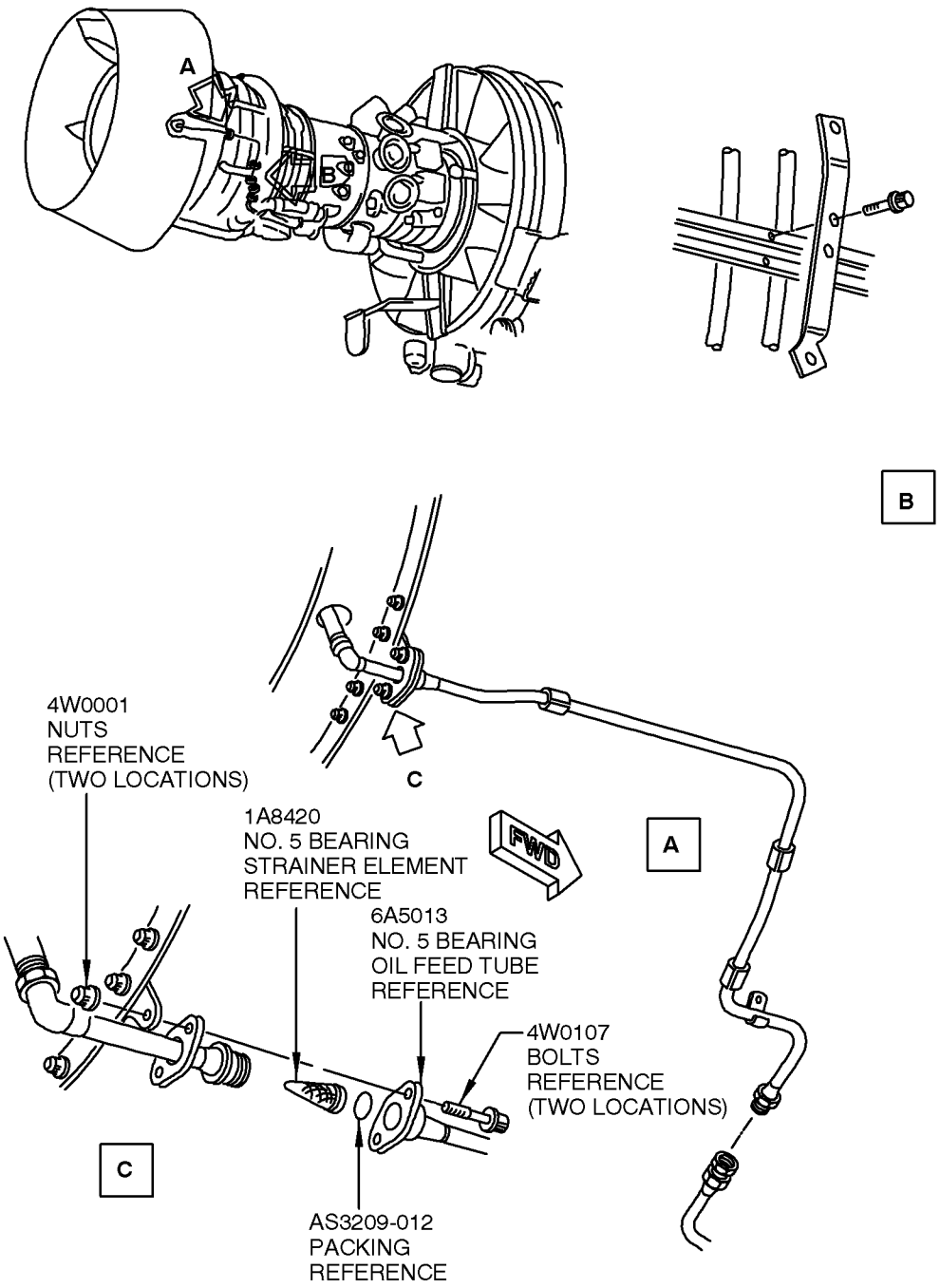
10. Recording Instructions

A. A record of accomplishment is required.



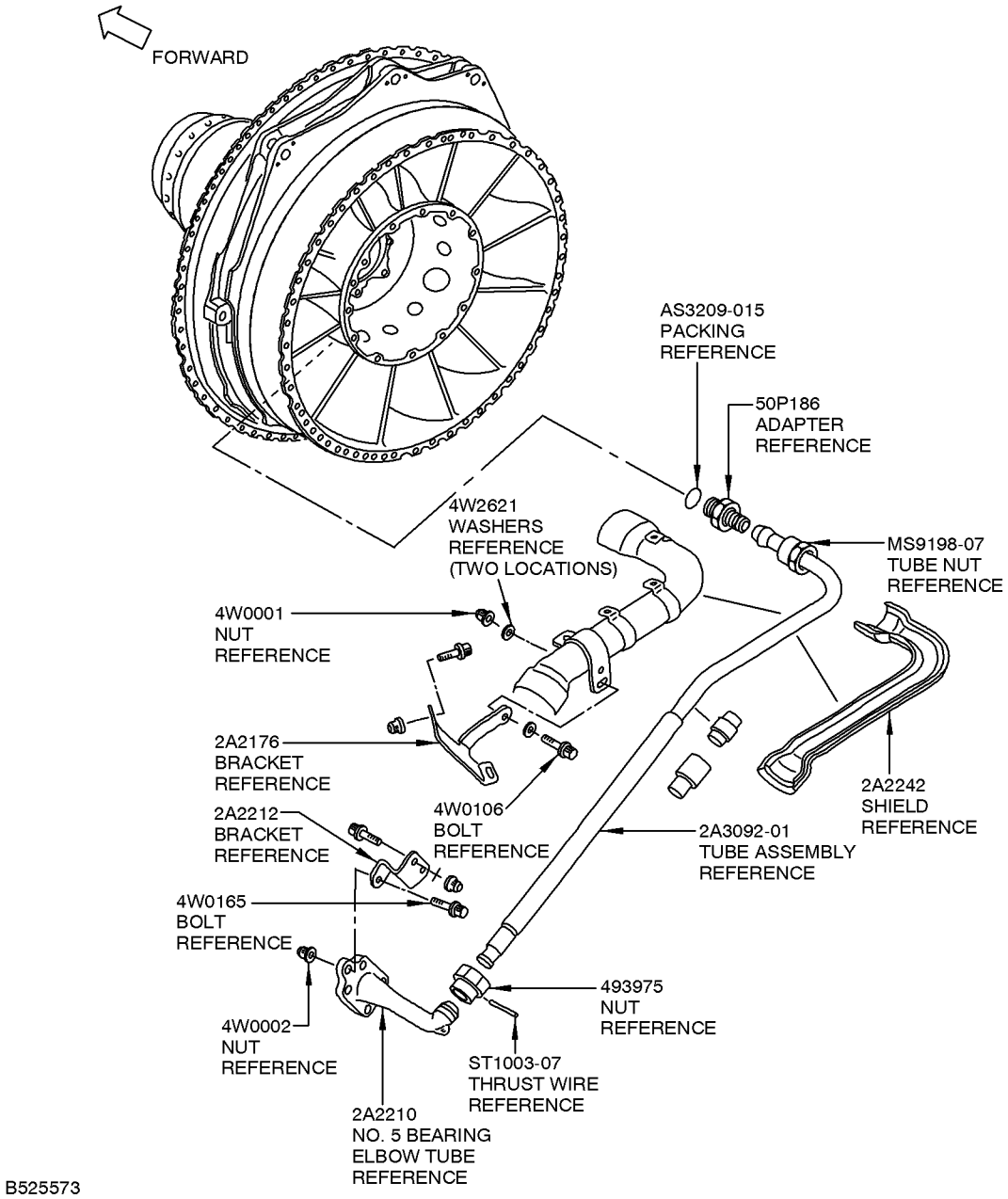
B525571

TUBE ASSEMBLY FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
72-50-53
FIGURE 1, SHEET 1

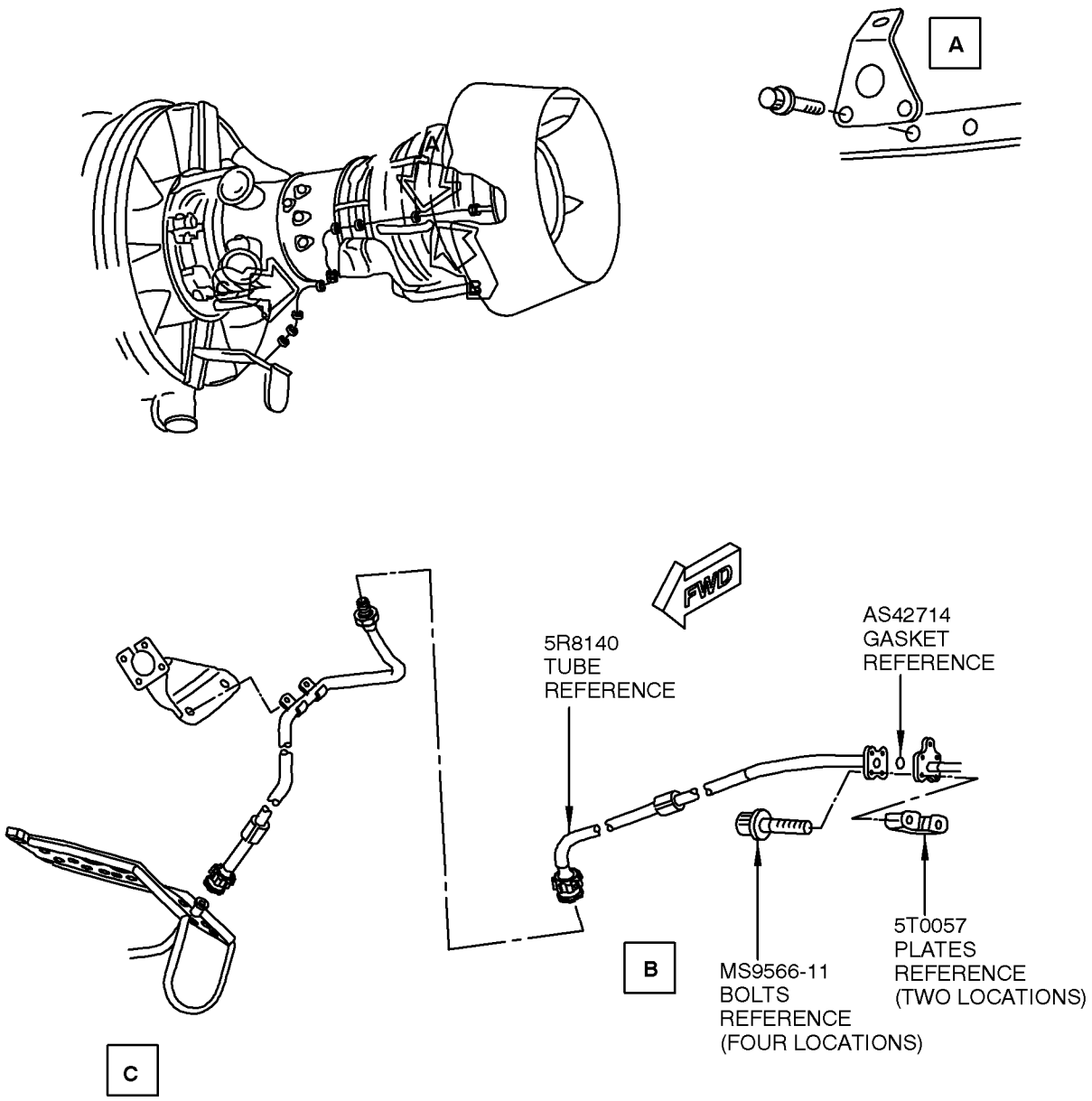


B525572

TUBE ASSEMBLY FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
79-21-49
FIGURE 1, SHEET 2

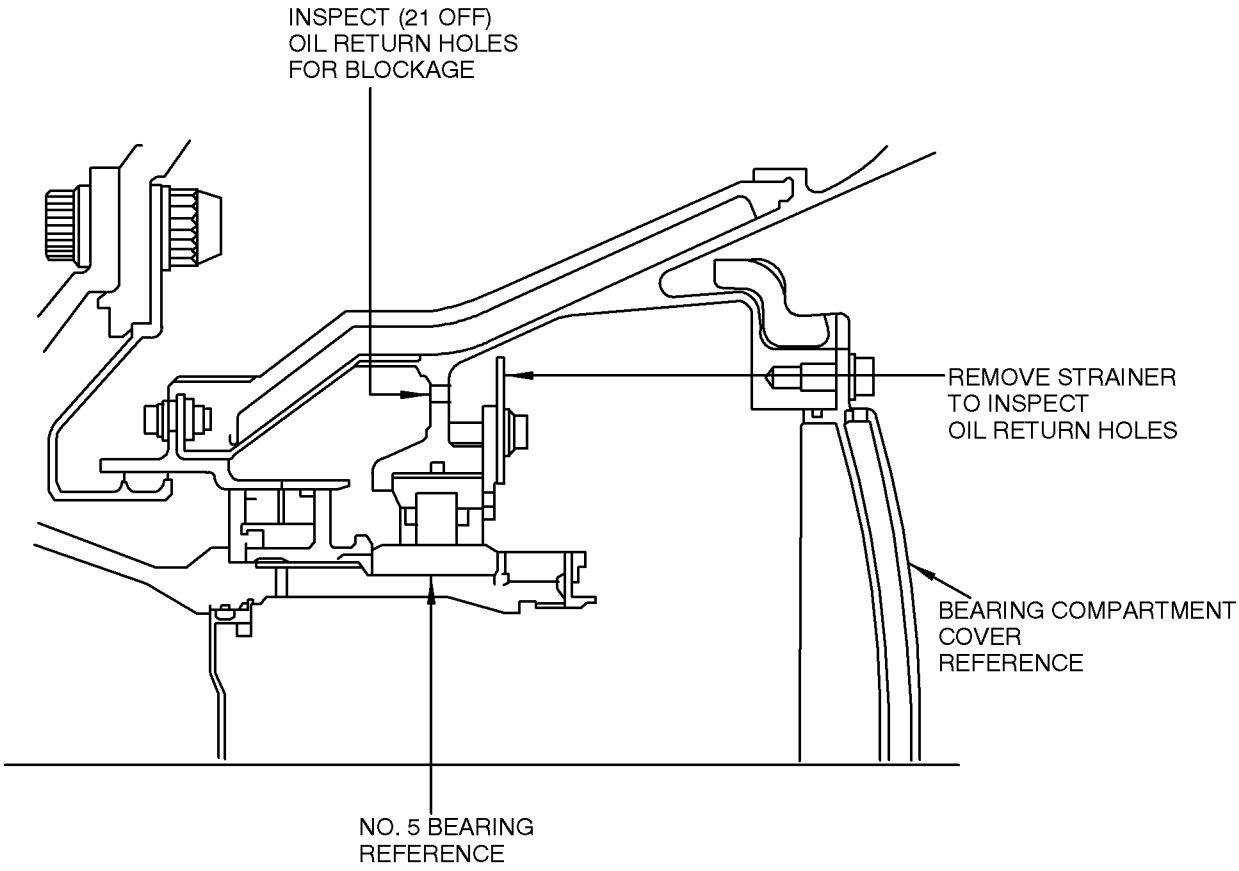


TUBE ASSEMBLY FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
72-50-53
FIGURE 2, SHEET 1



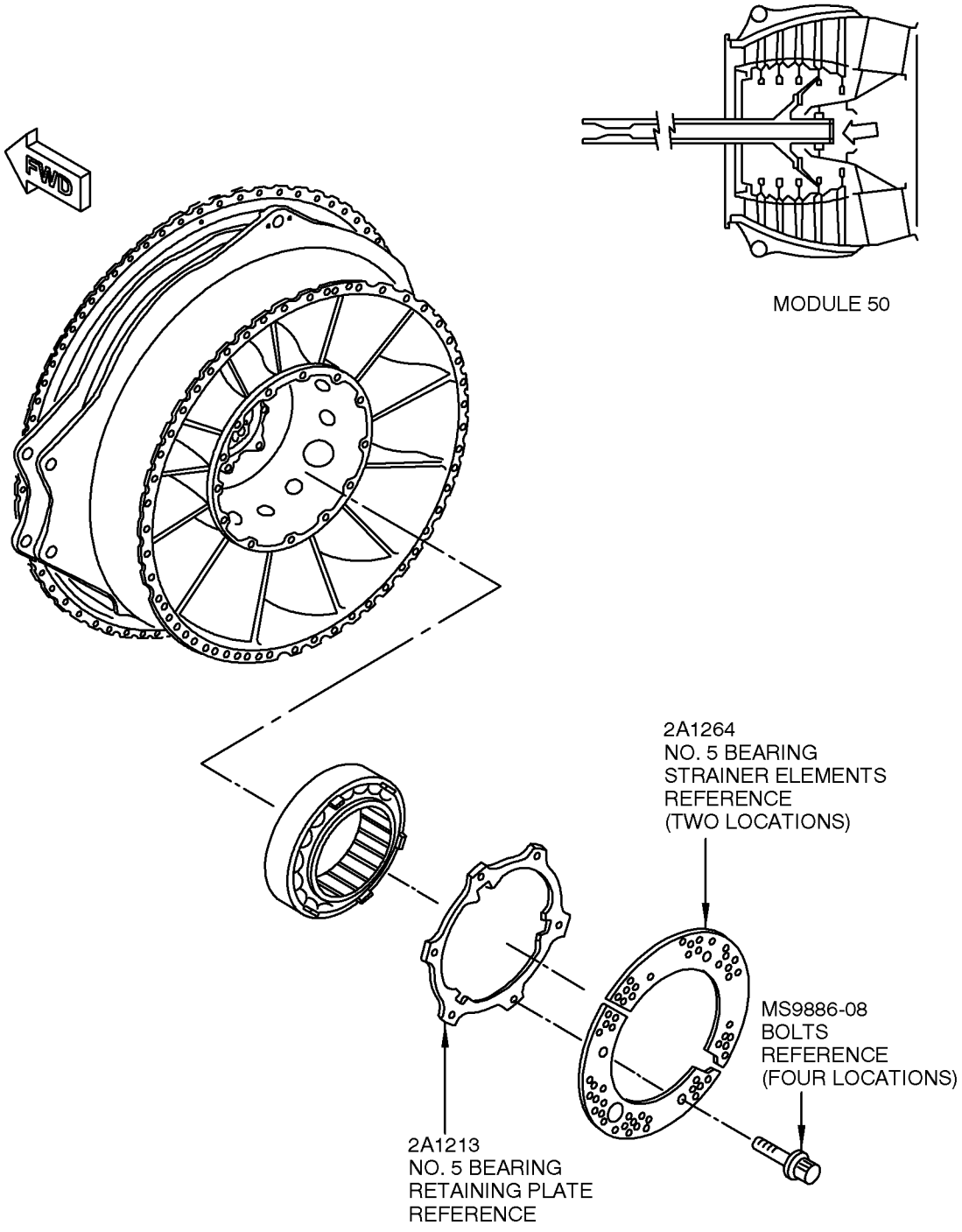
B525574

TUBE ASSEMBLY FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
79-22-49
FIGURE 2, SHEET 2



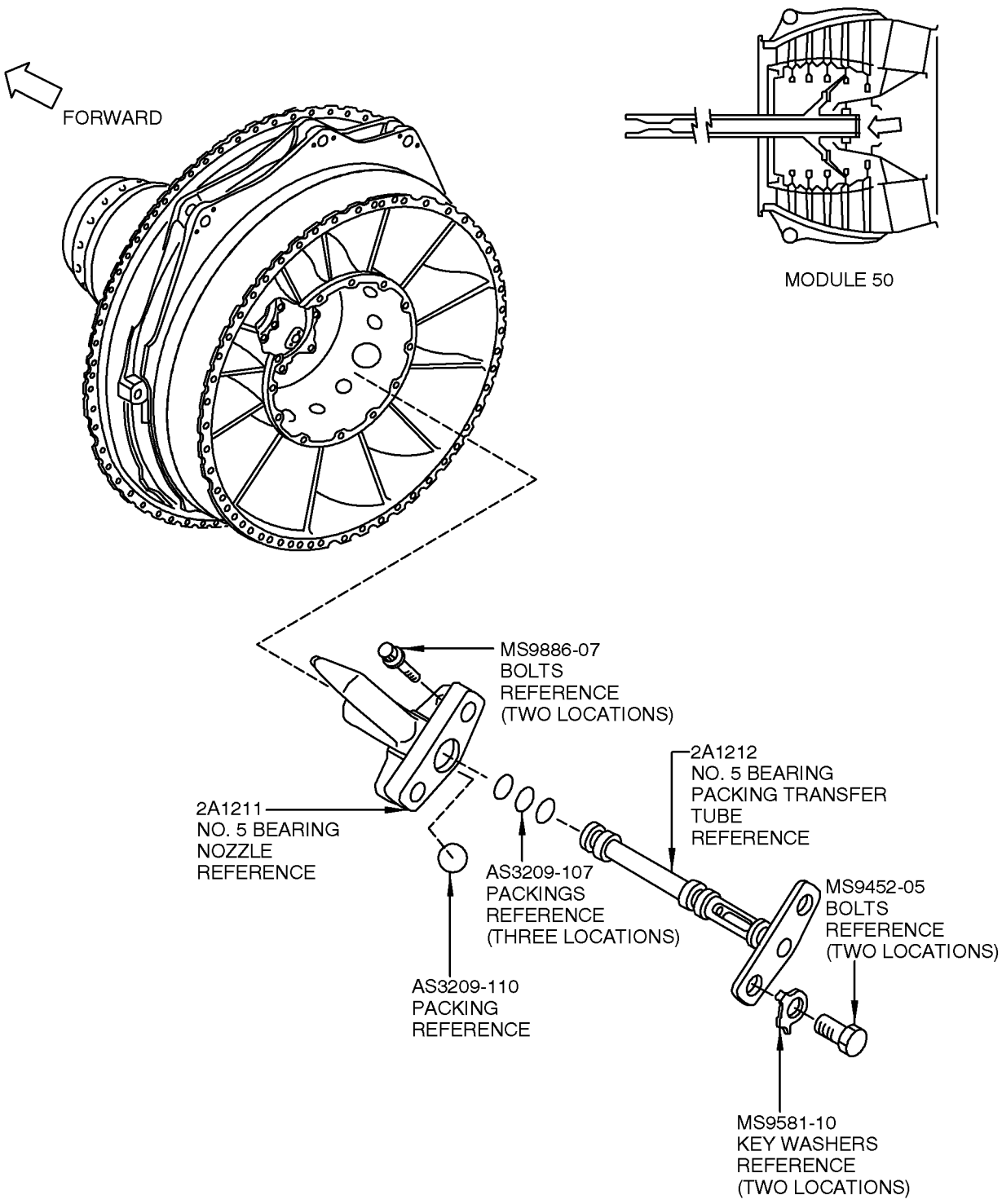
B525575

NO. 5 BEARING SUPPORT FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
FIGURE 3, SHEET 1



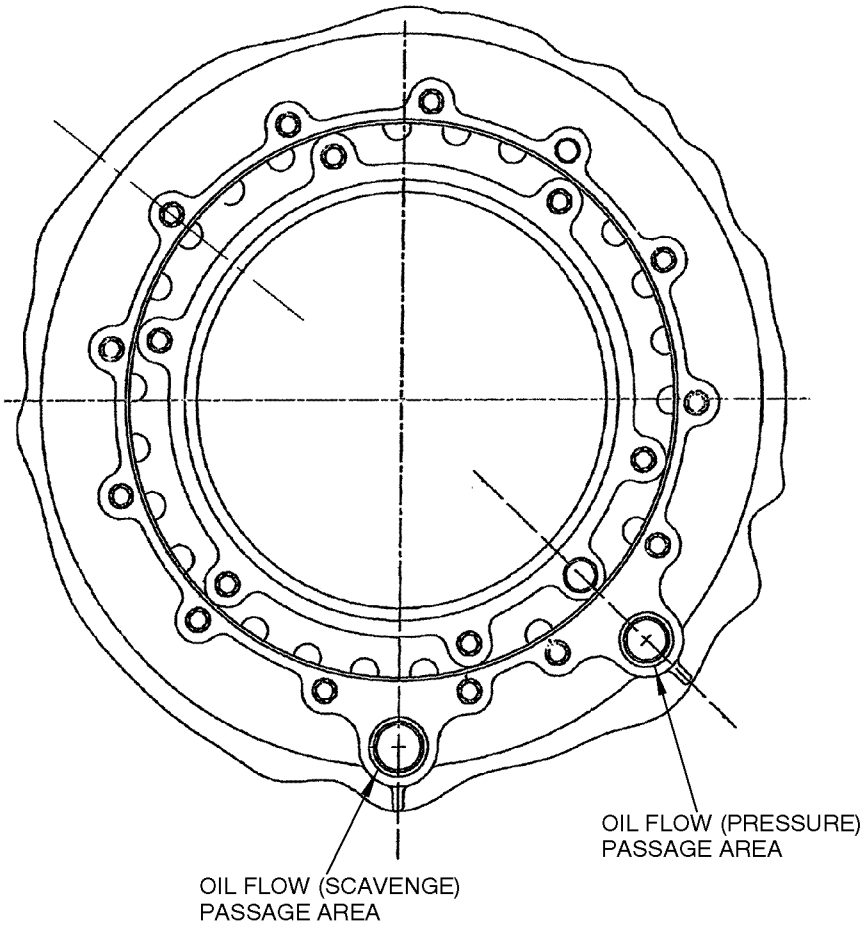
B525576

NO. 5 BEARING SUPPORT FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
72-50-52
FIGURE 3, SHEET 2



B525577

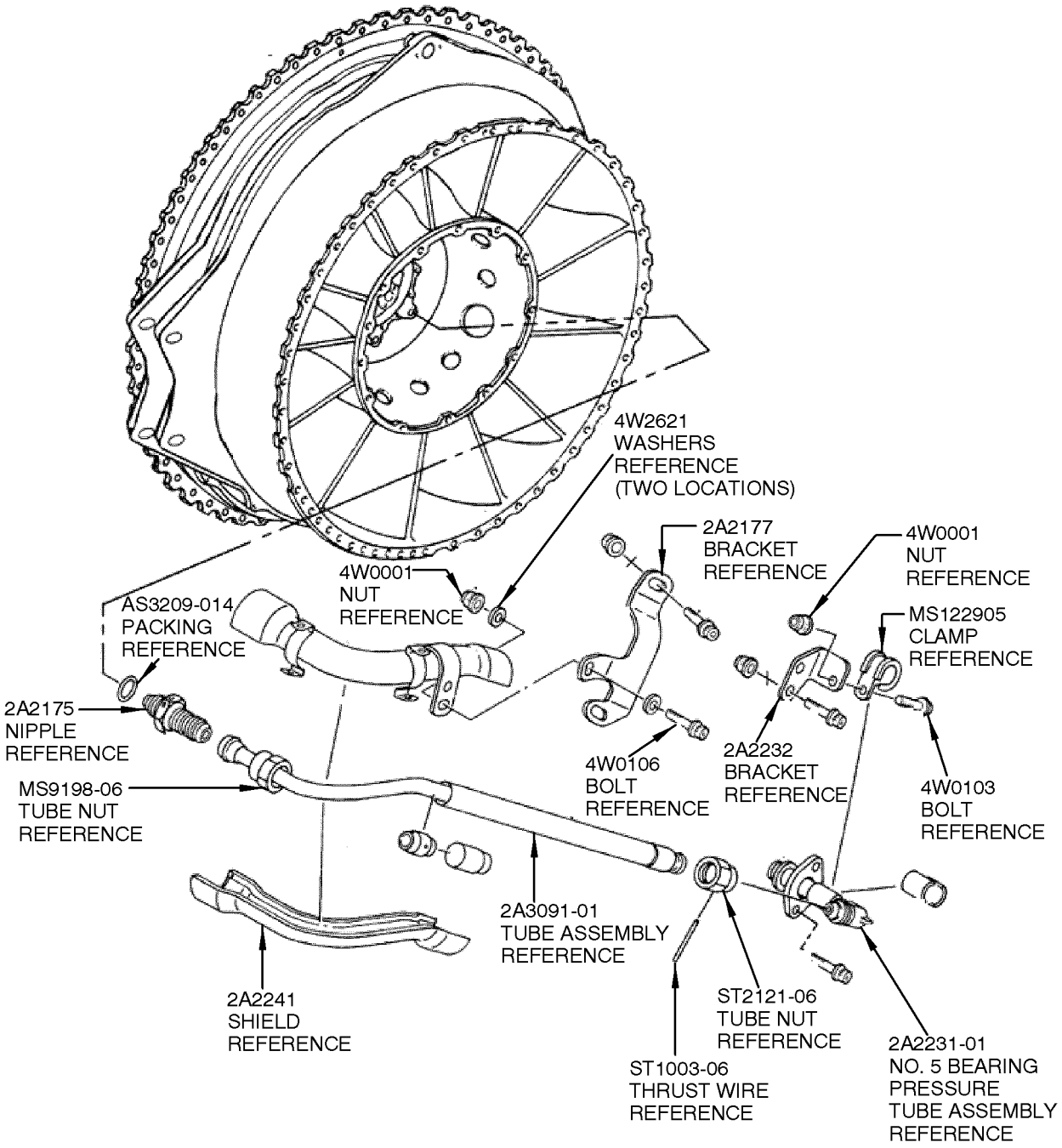
NO. 5 BEARING NOZZLE FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
72-58-02
FIGURE 4



TURBINE EXHAUST CASE ASSEMBLY - REAR VIEW

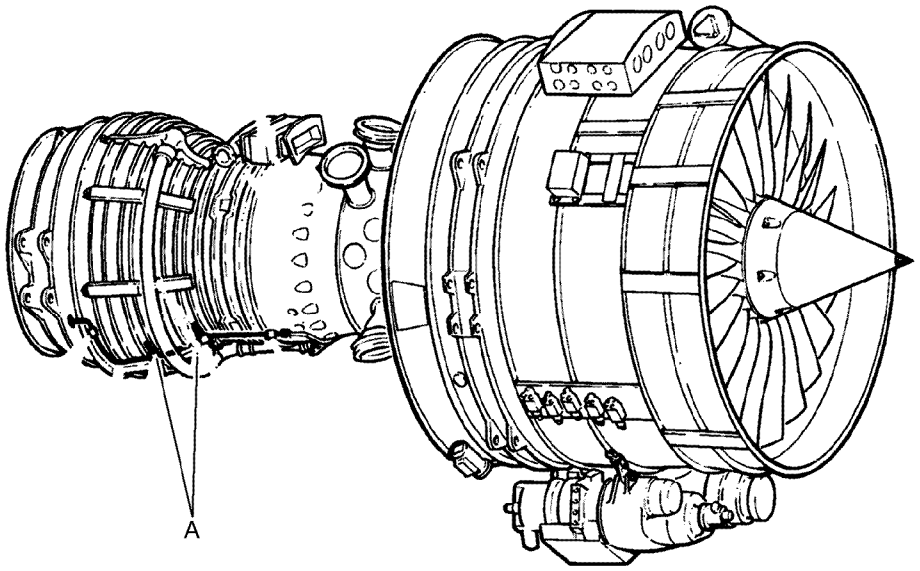
B525586

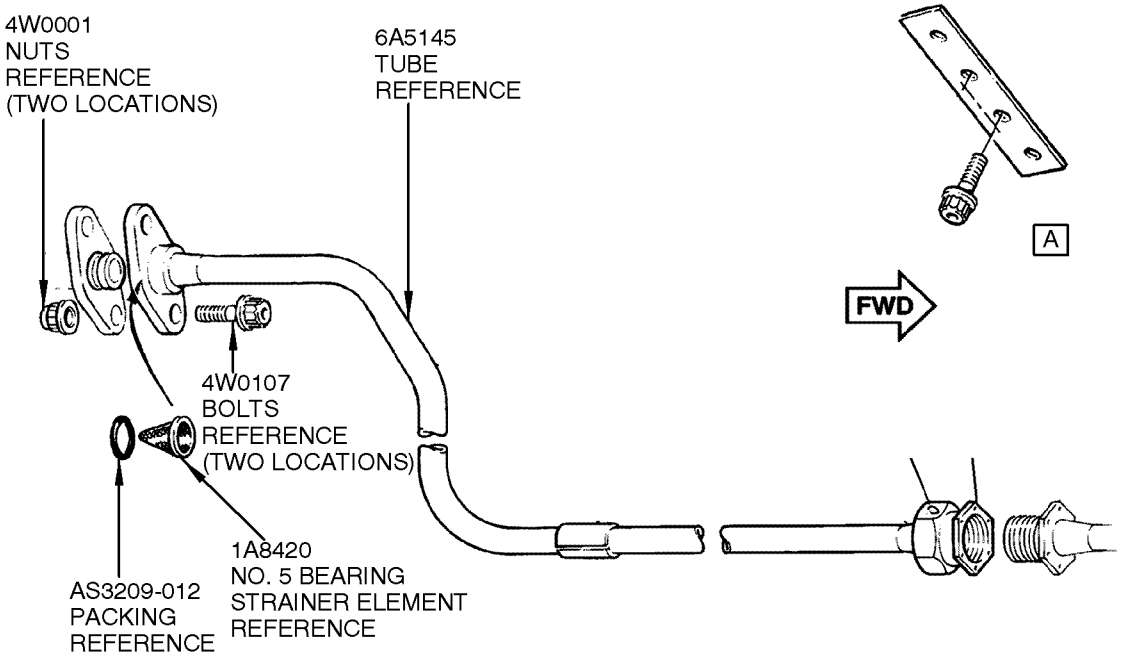
INSPECTION OF THE TEC OIL PASSAGE AREAS FOR COKING FOR V2500-A1 (REFERENCE 9, POST SERVICE BULLETIN V2500-ENG-72-0063) AND A5 ENGINE MODELS
FIGURE 5



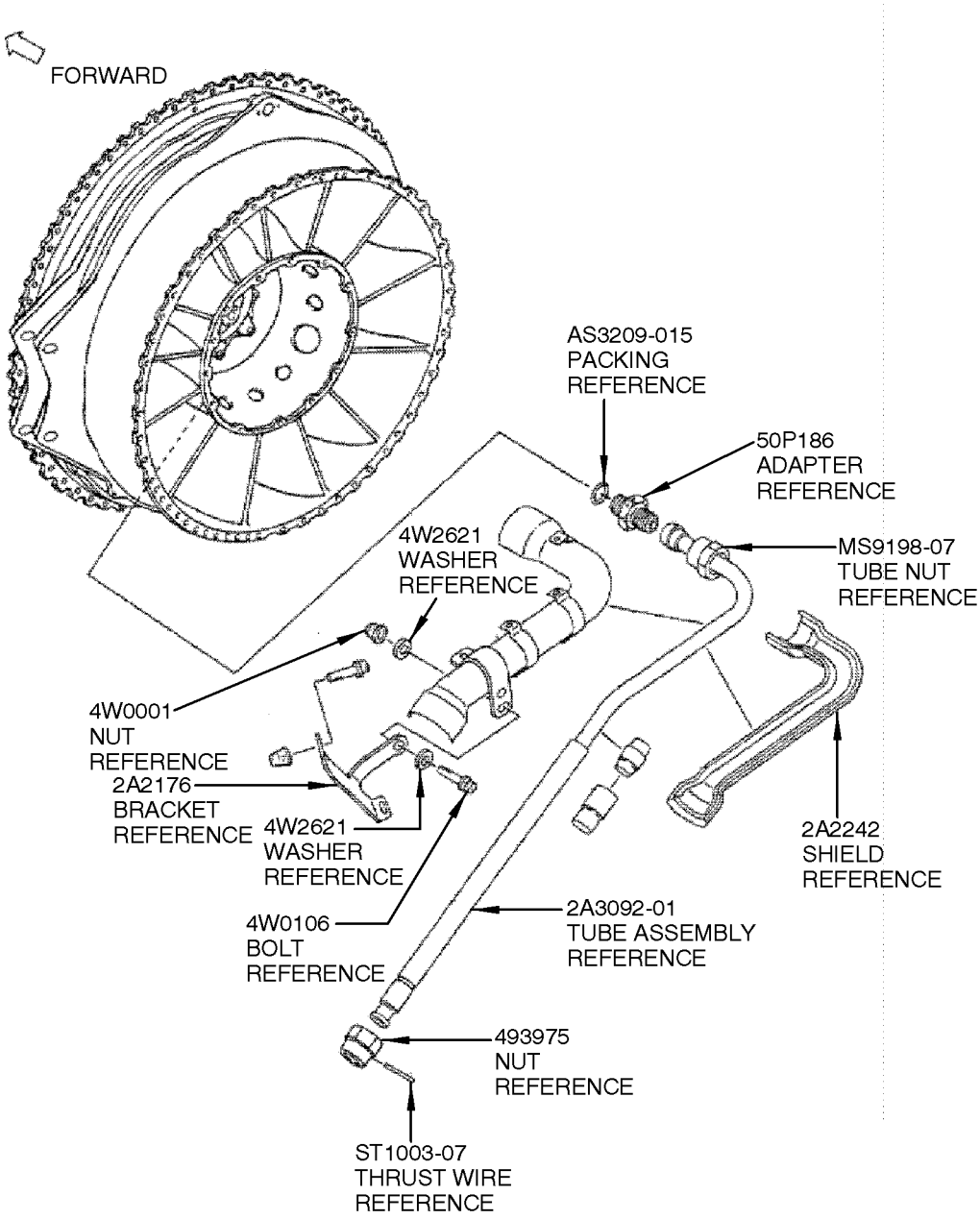
B525578

TUBE ASSEMBLY FOR V2500-D5 ENGINE MODELS
72-50-53
FIGURE 6, SHEET 1



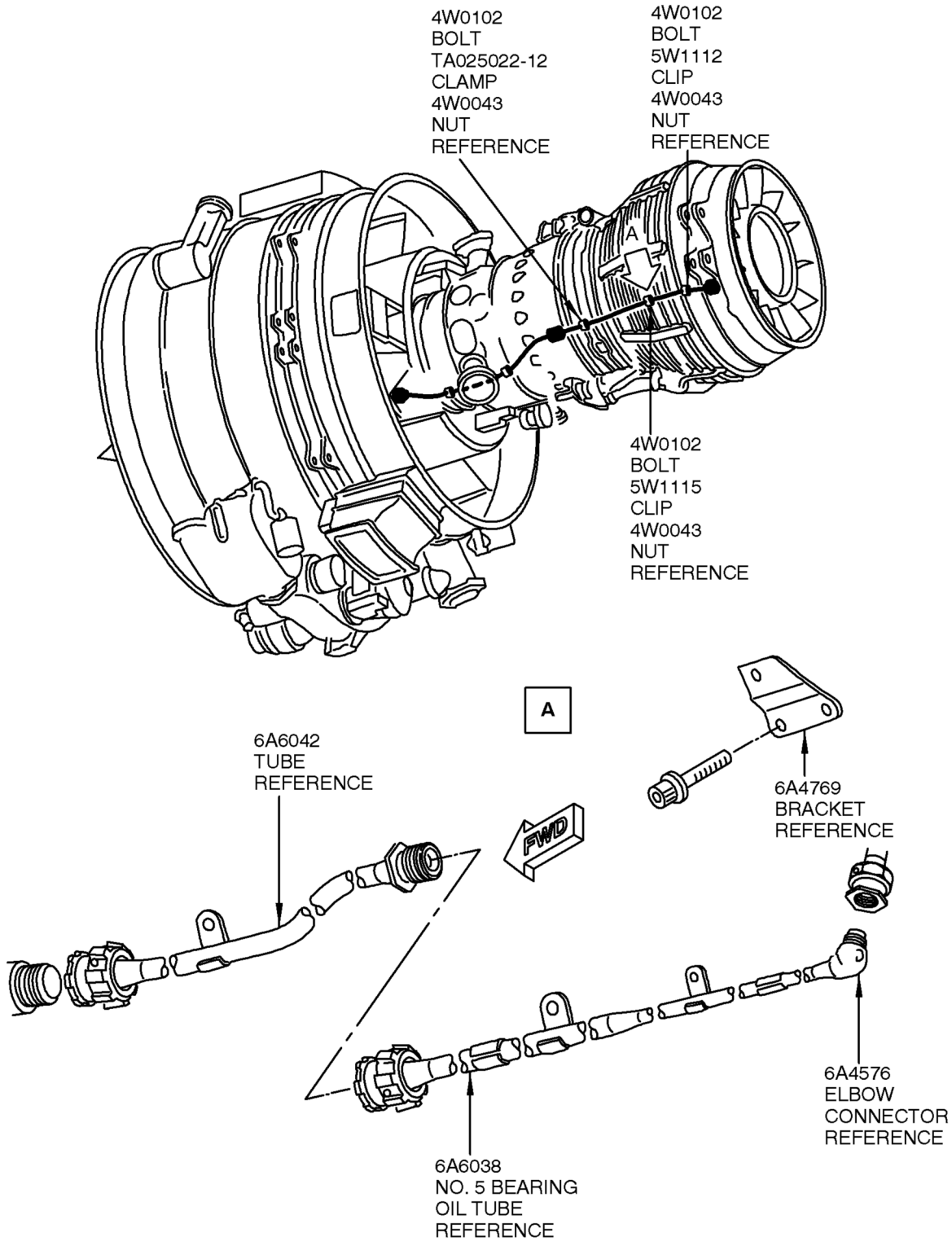


TUBE ASSEMBLY FOR V2500-D5 ENGINE MODELS
79-21-49
FIGURE 6, SHEET 2

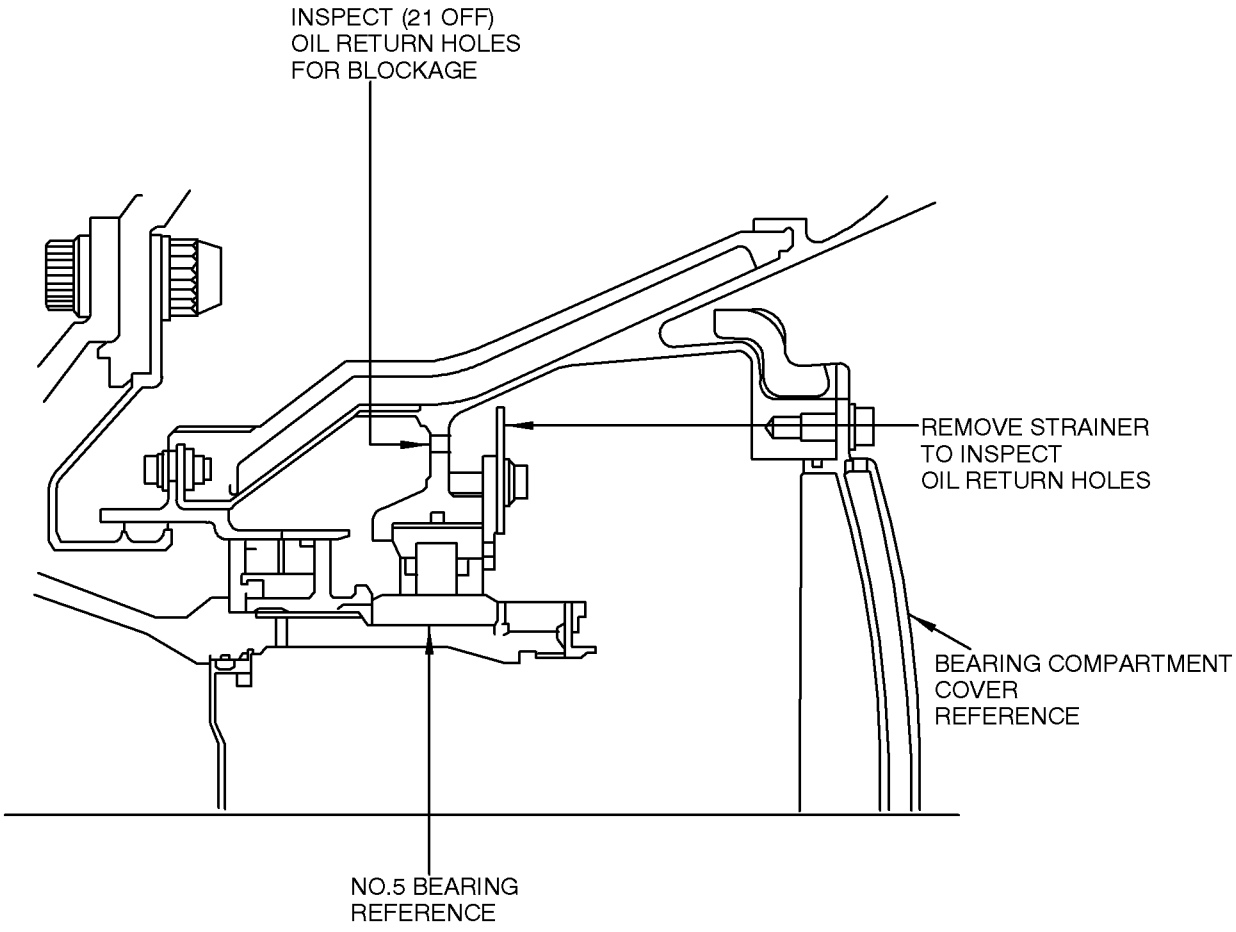


B525579

TUBE ASSEMBLY FOR V2500-D5 ENGINE MODELS
72-50-53
FIGURE 7, SHEET 1

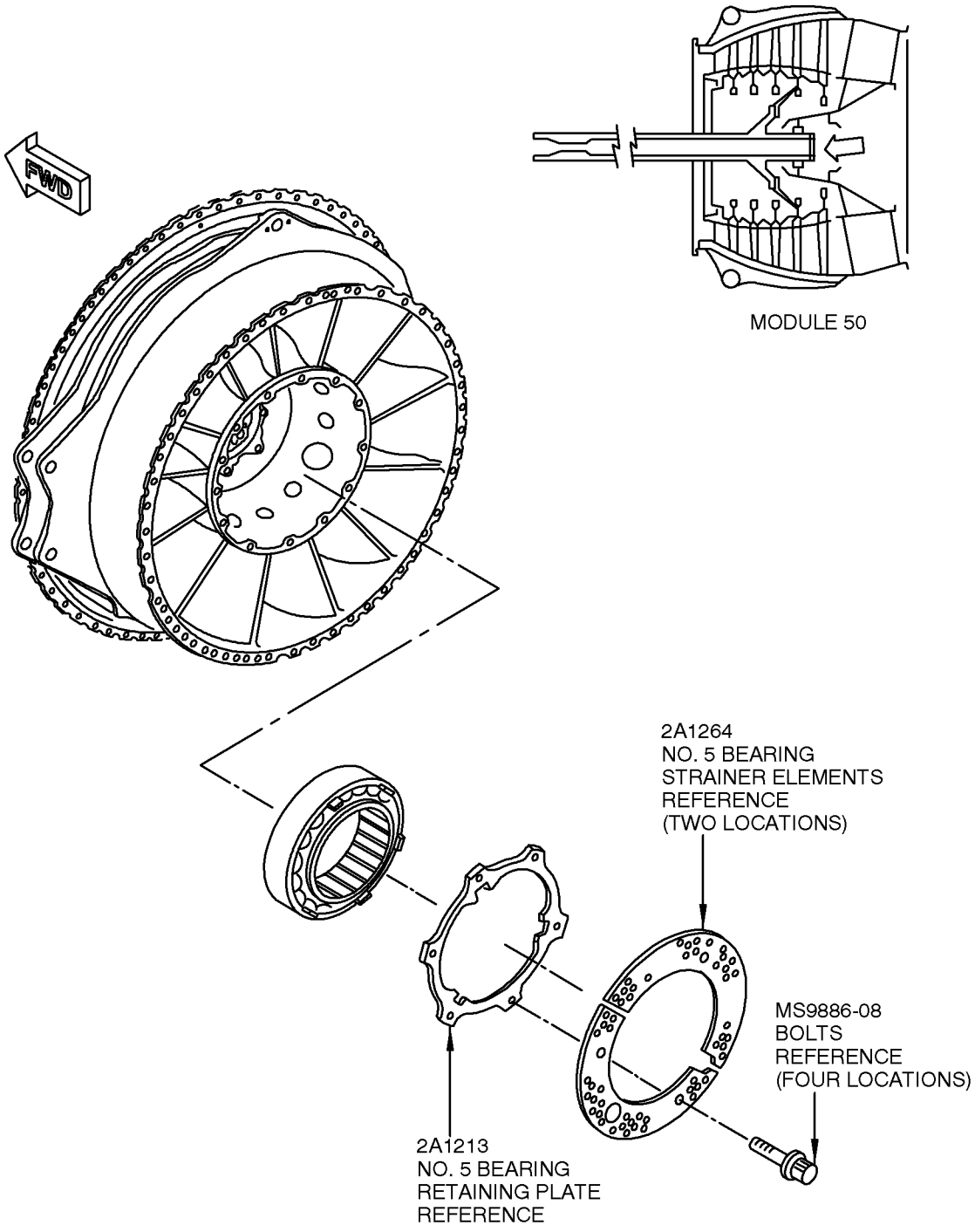


TUBE ASSEMBLY FOR V2500-D5 ENGINE MODELS
79-22-49
FIGURE 7, SHEET 2



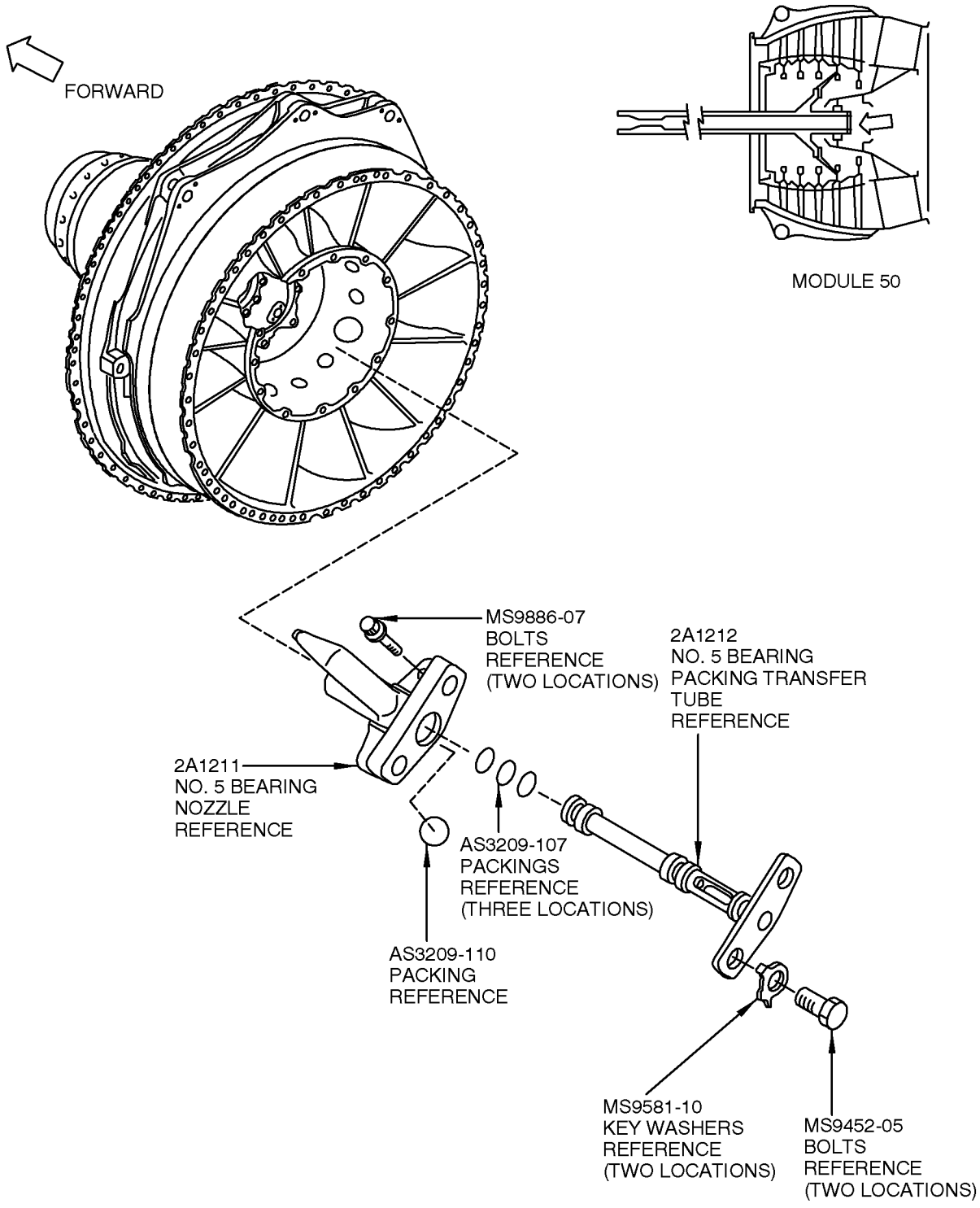
B525581

NO. 5 BEARING SUPPORT FOR V2500-D5 ENGINE MODELS
FIGURE 8, SHEET 1

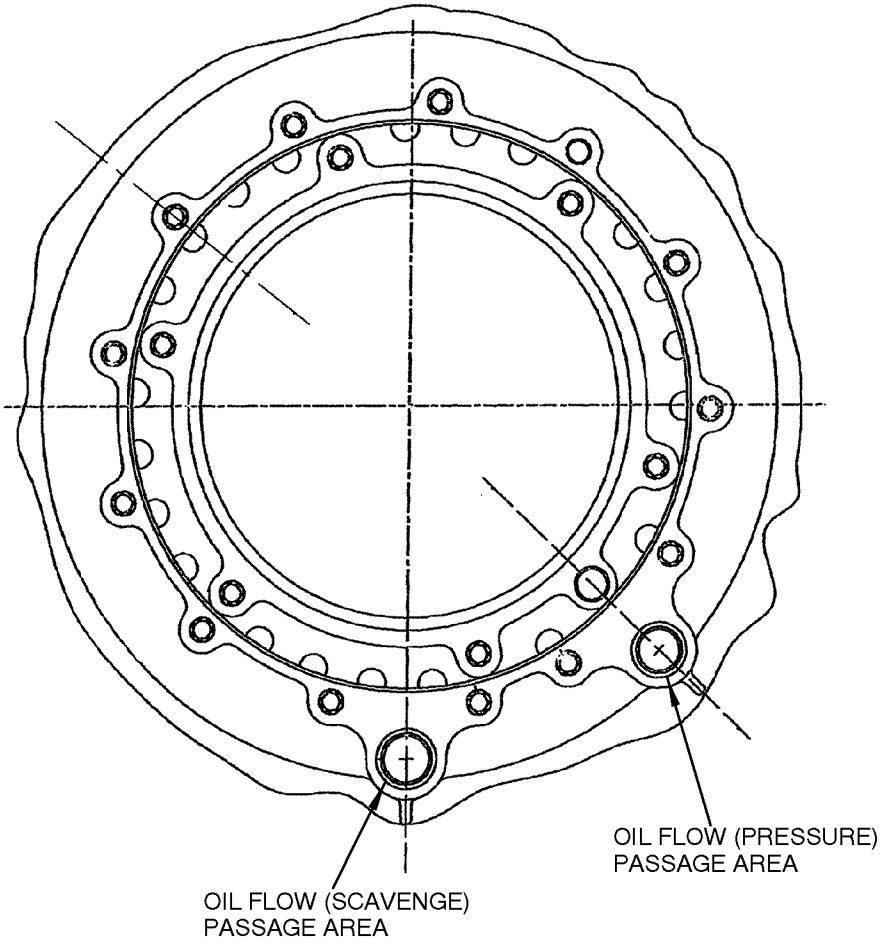


B525582

NO. 5 BEARING SUPPORT FOR V2500-D5 ENGINE MODELS
72-50-52
FIGURE 8, SHEET 2



NO. 5 BEARING NOZZLE FOR V2500-D5 ENGINE MODELS
72-58-02
FIGURE 9



TURBINE EXHAUST CASE ASSEMBLY - REAR VIEW

B526002

INSPECTION OF THE TEC OIL PASSAGE AREAS FOR COKING FOR V2500-D5 ENGINE MODELS
FIGURE 10

Appendix

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EA14VC270	DM/IEL
1	EA14VC270	DM/MS
2	EA14VC270	DM/RCM

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

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, the following Technical Publications cross reference table is provided.

Technical Publications Cross Reference Table

Publication	Engine Model(s)	IAE IETM Pub Ref	P&W Part Number
ENGINE MANUAL — A1, A5	All	E-V2500-1IA	2A4407
ENGINE MANUAL — D5	All	E-V2500-3IA	2A4416
SPPM (SPM) — A1, A5, D5	All	SPP-V2500-1IA	2A4414
EIPC — A1	V2500-A1102Q00	S-V2500-1IA	2A4427

Publication	Engine Model(s)	IAE IETM Pub Ref	P&W Part Number
EIPC — A5	V2522/V2524/V2527M-AQ02	S-V2500-6IA	2A4428
	V2522/V2524/V2527M-AQ03	S-V2500-6IB	
	V2522/V2524/V2527M-SQ02	S-V2500-6SA	
	V2522/V2524/V2527M-SQ03	S-V2500-6SB	
	V2522/V2524/V2527M-SQ04	S-V2500-6NA	
	V2522/V2524/V2527M-SQ05	S-V2500-6NB	
	V2527/V2527E-AQ02	S-V2500-7IA	
	V2527/V2527E-AQ03	S-V2500-7IB	
	V2527/V2527E-SQ02	S-V2500-7SA	
	V2527/V2527E-SQ03	S-V2500-7SB	
	V2527/V2527E-SQ04	S-V2500-7NA	
	V2527/V2527E-SQ05	S-V2500-7NB	
	V2530-AQ02	S-V2500-2IA	
	V2530-AQ03	S-V2500-2IB	
	V2530-SQ02	S-V2500-2SA	
	V2530-SQ03	S-V2500-2SB	
	V2530-SQ04	S-V2500-2NA	
	V2530-SQ05	S-V2500-2NB	
	V2533-AQ02	S-V2500-5IA	
	V2533-AQ03	S-V2500-5IB	
	V2533-SQ02	S-V2500-5SA	
	V2533-SQ03	S-V2500-5SB	
	V2533-SQ04	S-V2500-5NA	
	V2533-SQ05	S-V2500-5NB	
EIPC — D5	V2525/V2528-AQ02	S-V2500-3IA	2A4426
	V2525/V2528-AQ03	S-V2500-3IB	
	V2525/V2528-AQ04	S-V2500-3IC	

Appendix 1

1. Appendix 1 — Cleaning Methods

WARNING: REFER TO THE MANUFACTURER'S MATERIAL SAFETY DATA SHEETS FOR CONSUMABLE MATERIAL INFORMATION. THIS INCLUDES HAZARDOUS INGREDIENTS, PHYSICAL AND CHEMICAL CHARACTERISTICS, FIRE, EXPLOSION, REACTIVITY, HEALTH HAZARD DATA, PRECAUTIONS FOR SAFE HANDLING AND USE OF CONTROL MEASURES.

CAUTION: DO NOT USE THIS PROCEDURE ON CARBON SEALS OR ENGINE BEARINGS.

DO NOT IMMERSE INSULATED TUBES.

DO NOT USE THIS ON TUBES WITH ALUMINIUM FITTINGS.

DO NOT USE A METAL BRUSH TO CLEAN THE TUBE BORES. WIRE BRUSHING CAN CAUSE SCRATCHES THAT ROUGHEN THE SURFACE AND INCREASE THE POSSIBILITY OF COKE FORMATION. SCRATCHES CAN ALSO CAUSE CRACKS TO FORM, WHICH COULD RESULT IN TUBE FAILURE.

A. Method 1 — Local Removal of Carbon by Alkaline Gel

Equipment and Material

CoMat 01-455 and 01-456 — Carbon remover — Alkaline gel

Procedure

NOTE: This procedure is approved for use on magnesium, steel, nickel, cobalt and titanium. It is not recommended for tubes, jets or fittings that are completely blocked with coke. This cleaning is most effective to alleviate moderate coking encountered with routine periodic maintenance and has been found to be non-aggressive to parent metals.

(1) Mask or plug the part.

(2) Apply CoMat 01-455 and 01-456 Alkaline Gel Carbon Remover as received, 100 percent by volume, at ambient temperature to the part. Soak for 10 minutes to 12 hours. For more effective removal of heavy accumulations of coke, soak in two hour increments, fully flush with cold or hot water pressure spray, and repeat.

(3) Fully flush with cold or hot water pressure spray.

(4) Borescope the tubes to make sure they are totally free from coke/carbon build up.

(5) If coke/carbon is still present, repeat the procedure.

NOTE: Following a maximum soak time of 24 hours, if carbon remains, it may be more cost effective to replace hardware.

B. Method 2 — Oven Bake (Refer to Reference 2, Standard Practices Manual, Chapter/Section 70-11-52)

Equipment and Material

Consumable Materials — none.

WARNING: IT IS THE RESPONSIBILITY OF THE OPERATOR TO OBTAIN AND OBSERVE THE MANUFACTURERS MATERIAL SAFETY DATA SHEETS FOR CONSUMABLE MATERIALS INFORMATION SUCH AS HAZARDOUS INGREDIENTS, PHYSICAL/CHEMICAL CHARACTERISTICS, FIRE, EXPLOSION, REACTIVITY, HEALTH HAZARD DATA, PRECAUTION FOR SAFE HANDLING, USE AND CONTROL, MEASURES AND ALSO TO TAKE LOCAL REGULATIONS INTO CONSIDERATION.

Procedure

(1) Degrease the tubes. Refer to Reference 2, Standard Practices Manual, Chapter/Section 70-11-01 or Chapter/Section 70-11-03.

(2) Heat in oven, at 800 – 900 deg. F (427 – 482 deg. C) for one hour.

(3) Blow clean with air.

(4) Inspect with a borescope to confirm all the carbon has been removed. If carbon remains, put a plastic flexible rod through the tube. Inspect again with borescope.

(5) If necessary, repeat Steps 1.B.(2) through 1.B.(4).

C. Method 3 — Plastic Media Shot Blast Method

(1) Remove carbon by plastic media blasting. Refer to Reference 2, Standard Practices Manual, Chapter/Section 70-12-07.

(2) Inspect tube with borescope to confirm all carbon has been removed. If carbon remains, repeat procedure until clean.