



ENGINE - NO.4 BEARING COMPARTMENT TUBES, REPLACEMENT OF OUTER SCAVENGE TUBE ASSEMBLY
SEAL RINGS, SEALING SLEEVE AND TUBE TO BOSS ELBOW - CATEGORY CODE 3 - MOD.ENG-72-0021

1. Planning Information

A. Effectivity

- (1) Aircraft: Airbus A320
- (2) Engine: V2500-A1 Engines Serial No.V0003 through V0039, except Serial No.V0007.

B. Reason

(1) Condition

Binding at the outer slip-joint attachment can result in a broken tube.

(2) Background

During the development tests a No.4 Bearing Scavenge Tube broke at the inner weld joint. After the tube was examined it was found that there were no weld problems but there was binding at the outer slip-joint.

The slip-joint binds when normal thermal growth occurs. Binding is relieved by a change in the design of the slip-joint to a spherical shape and the elimination of one Seal Ring.

(3) Objective

To prevent the possible breakage of the No.4 Bearing Scavenge Tube.

(4) Substantiation

Unnecessary

(5) Effect of Bulletin on the following shop functions:

Removal/Installation	Not affected
Disassembly/Assembly	Affected (see Supplemental Information)
Cleaning	Not affected
Inspection/Check	Affected (see Supplemental Information)
Repair	Not affected
Testing	Not affected

(6) Supplemental Information:

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- (a) The assembly and disassembly of the Post-Service Bulletin Configuration parts is different because the number of Seal Rings is decreased from two to one.
- (b) The Inspection/Check for the Post-Service Bulletin Configuration parts is revised to include the procedures for parts with coated contact surfaces.

C. Description

- (1) Eliminate binding between the Scavenge Tube Seal Ring and the expansion joint on the Tube as follows:
 - (a) Provide a new Elbow and Sealing Sleeve which have hard coated sealing surfaces and provision for one rather than two Seal Rings.
 - (b) Provide a new Seal Ring with a smaller outer diameter.

D. Approval

The Part Number changes and/or part modifications described in Sections 2 and 3 of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model listed.

E. Compliance

Category Code 3

Accomplish prior to revenue service.

F. Manpower

Estimated Manhours to incorporate the full intent of this bulletin:

Venue	Estimated Manhours
(1) In Service	TOTAL 2 hours 11 minutes
(a) To gain access	
(i) Open the left fan cowl door	7 minutes
TOTAL	7 minutes
(b) To embody	
(i) Remove the F.C.O.C. ..	45 minutes

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(ii)	Remove the old bracket	2 minutes
(iii)	Install the new bracket	2 minutes
(iv)	Install the F.C.O.C. ..	52 minutes
	TOTAL	1 hour 41 minutes

(c) To return to flyable status

(i)	Prime the engine ..	8 minutes
(ii)	Carry out a leak check on the engine oil system	8 minutes
(iii)	Close the fan cowl doors	7 minutes
	TOTAL	23 minutes

(2) At Overhaul Not applicable

NOTE: No additional time required to maintain the new configuration

G. Material Price and Availability

- (1) Modification Kit not required.
- (2) See "Material Information" section for prices and availability of future spares.

H. Tooling - Price and Availability

Tool No.	Qty	Description	Function	Avail.
1R18002	1	Wrench	Tube Nut Loosen/Tighten	(1)

- (1) Indicates that Tool Design Aperture card is currently available from IAE for use in the local manufacture of the Wrench.

I. Weight and Balance

- (1) Weight change None
- (2) Moment arm No effect
- (3) Datum Engine Front Centerline

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J. Electrical Load Data

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

K. References

- (1) Internal Reference No.

88VA315

88VA315A

- (2) Other References

V2500 Standard Practices Manual

L. Other Publications Affected

- (1) V2500 Engine Illustrated Parts Catalog, Chapter 72-42-20, Figure 01, to add the new parts.
- (2) V2500 Engine Manual, Chapter 72-42-20 cleaning will be revised to include the new parts.
- (3) V2500 Engine Manual Chapter 72-42-20 Inspection/Check will be revised to include inspection procedures for the new parts.
- (4) V2500 Engine Manual Chapter 72-42-00 Disassembly will be revised to include procedures for the new parts.
- (5) V2500 Engine Manual Chapter 72-42-00 Assembly will be revised to include procedures and fits and clearances for the new parts.



2. Accomplishment Instructions

A. Rework Instructions

There are no rework instructions required for this Service Bulletin.

B. Disassembly/Assembly Instructions

(1) Remove the old parts as follows:

- (a) Remove the lockwire from the Tube Nuts. See Figure 1.
- (b) Disconnect the Tube Nuts which hold the No.4 Bearing Scavenge Tube Assembly with the IAE 1R18002 Wrench.
- (c) Remove the No.4 Bearing Scavenge Tube Assembly.
- (d) Remove the lockwire from the Bolts which hold the Sealing Sleeve to the diffuser case boss. See Figure 2.
- (e) Remove the Sealing Sleeve and Gasket.
- (f) Remove the lockwire from the Bolts which hold the Elbow to the diffuser case boss.
- (g) Remove the Bolts, Elbow, Seal Rings, Gasket and Locks.

(2) Install the new parts as follows:

- (a) Install the PN 2A1972 Seal Ring (1 off) into the PN 2A1977 Tube to Boss Elbow (1 off). See Figure 2.
- (b) Lubricate the Bolts (4 off), which will secure the Elbow, with CoMat 10-039 Engine Oil.
- (c) Install the upper and lower Locks (flat face in) to the groove at the end of the No.4 Bearing Scavenge Tube Assembly.
- (d) While you hold the Locks in place install the new PN 2A0347 (1 off) Gasket (raised area in) and the PN 2A1977 Elbow (1 off).
- (e) Install the Bolts (4 off) which hold the Elbow to the Locks.
- (f) Tighten the Bolts with your hand.
- (g) Install a new PN ST 1141-52 Gasket (1 off) in the inner diameter (at the flanged end) of the PN 2A1979 Sealing Sleeve (1 off).
- (h) Hold the Gasket in place with CoMat 01-223 Wax.

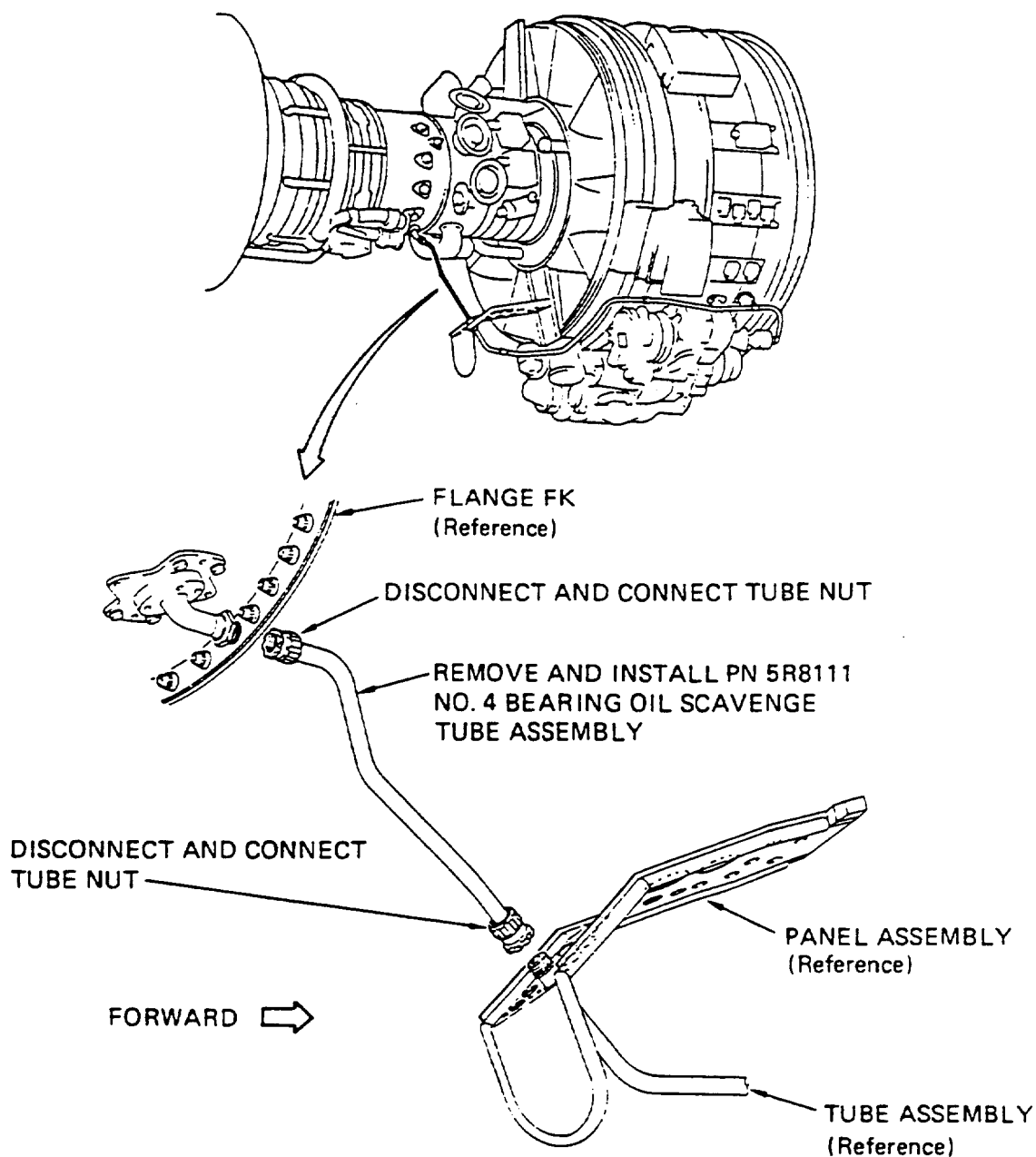
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- (i) Lubricate the Bolts (6 off), which will secure the Sealing Sleeve, with CoMat 10-039 Engine Oil.
- (j) Install the Sealing Sleeve (large O.D. toward the diffuser) and Gasket, over the Elbow and against the Sealing Sleeve (inner).
- (k) Install the Bolts (6 off) and tighten them with your hand.
- (l) Torque the Bolts (6 off) which attach the Sealing Sleeve to the Diffuser Case Assembly 75 to 85 lbfin (8,474 to 9,604 Nm). (see Reference (1) 70-41-00 Torque Tightening Technique).
- (m) Lock the Bolts with CoMat 02-141 Lockwire.
- (n) Torque the Bolts (4 off) that attach the Elbow to the Scavenge Tube 75 to 85 lbfin (8,474 to 9,604 Nm). (See Reference (1) 70-41-00 Torque Tightening Technique).
- (o) Lock the Bolts with CoMat 02-141 Lockwire.
- (p) Install the No.4 Bearing Scavenge Tube Assembly. See Figure 1.
- (q) While you hold the Adapter with a wrench tighten and Torque the Nut 566 to 611 lbfin. (64 to 69 Nm) with the IAE 1R18002 Wrench. (See Reference (1) 70-41-00 Torque Tightening Technique).
- (r) Loosen the Nut approximately one half turn.
- (s) Torque again to the limit given in step (q).
- (t) Do the procedure again, a minimum of two times.
- (u) Get the third and final torque without a stop before you get to the limit given in step (q).
- (v) Do steps (q) through (u) again for the second Tube Nut.
- (w) Lock the Tube Nuts with CoMat 02-126 Lockwire.

C. Recording Instructions

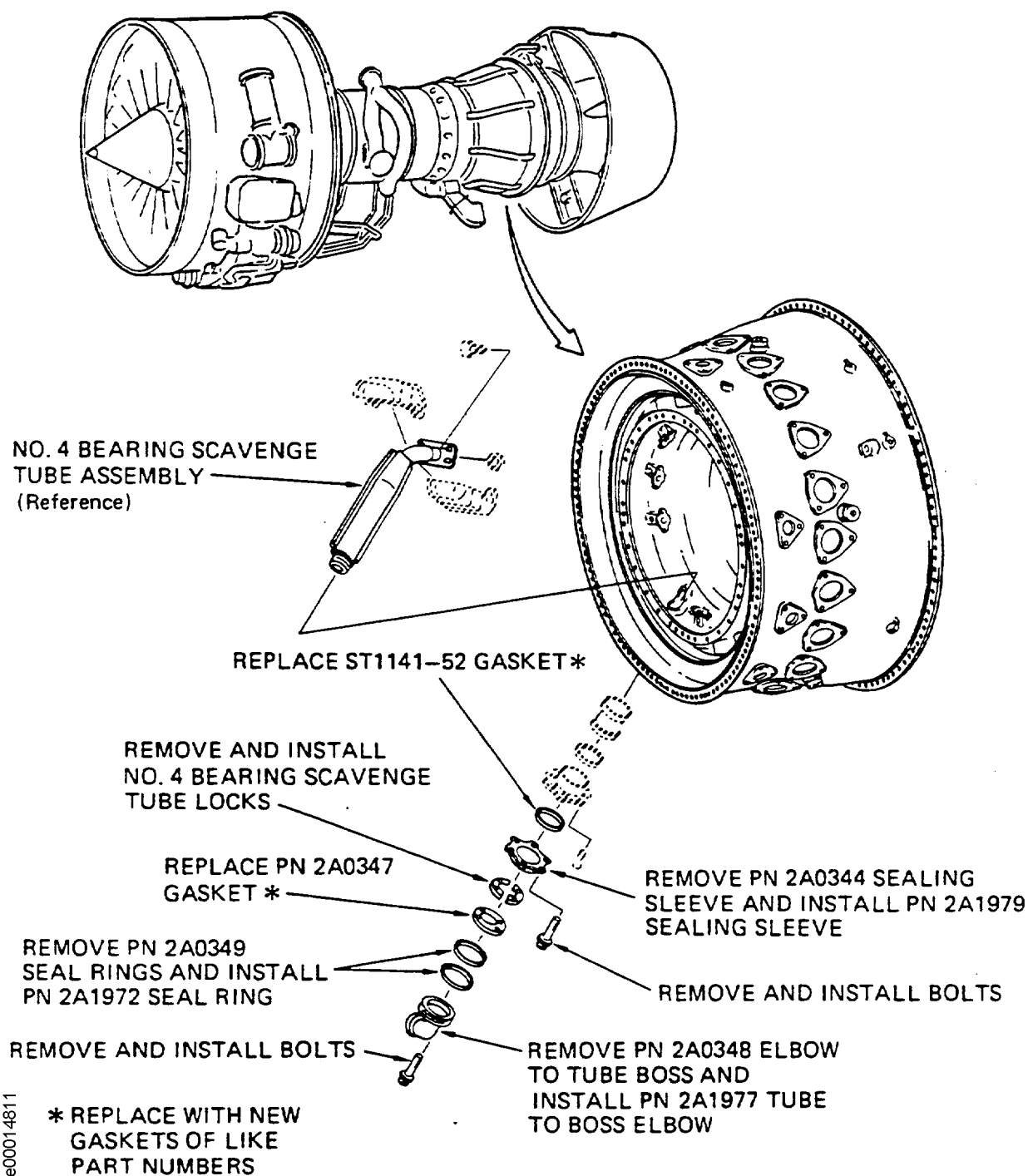
- (1) A record of accomplishment is required.



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Removal/Installation of the No.4 bearing scavenge tube assembly
Fig.1

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Replacement of the seal rings, sealing sleeve and tube to boss elbow
Fig.2

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3. Material Information

NEW PART NO. (ATA NO.)	QTY	EST'D UNIT PRICE (\$)	KEYWORD	OLD PART NO. (IPC NO.)	INSTRUCTIONS DISPOSITION
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Applicability: For each V2500 Engine to incorporate this Bulletin.

A. Kits associated with this Bulletin:

None

B. Parts affected by this Bulletin:

2A1977 (72-42-20)	1	594.00	Elbow-tube to boss	2A0348 (02-340)	(S1)(A)(B)
2A1979 (72-42-20)	1	350.00	Sleeve-sealing, No.4 bearing scavenge tube	2A0344 (02-260)	(S1)(A)(B)
2A1972 (72-42-20)	1	114.00	Seal ring	2A0349 (02-320)	(S1)(A)(B) (C)

NOTE: The estimated 1989 unit prices shown are provided for planning purposes only and do not constitute a firm quotation. Contact IAE's Spare Parts Sales Department for information concerning firm prices.

C. Instruction/Disposition Code Statements:

- (S1) New Parts Coded (S1) must replace Old Parts coded (S1) as a COMPLETE SET per Engine.
- (A) New Part currently available.
- (B) Old Parts will be scrapped.
- (C) Two Seal Rings will be removed and replaced by only one Seal Ring.

NOTE: The expendables necessary to accomplish this job are:
PN 2A0347 Gasket (1 off) and PN ST1141-52 Gasket (1 off).

The consumables necessary to accomplish this job are:
CoMat 02-141 Lockwire, CoMat 02-126 Lockwire, CoMat 10-039
Engine Oil and CoMat 01-223 Wax.

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