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

International Aero Engines

628 Hebron Avenue, Suite 400
Glastonbury, CT 06033, USA.
Tel: +1 (860) 368-3823
Fax: +1 (860) 755-6876

DATE: Nov.20/12

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

This document transmits the Initial Issue of Service Bulletin V2500-ENG-72-0633.

Service Bulletin Initial Issue

Remove	Incorporate	Reason for change
	Pages 1 to 11 of the Service Bulletin.	Initial Issue.

V2500-ENG-72-0633

CHECK THAT ALL PREVIOUS TRANSMITTALS HAVE BEEN INCORPORATED
If any have not been received please advise IAE International Aero Engines AG

SERVICE BULLETIN

ENGINE - ACTUATING MECHANISM HIGH PRESSURE (HP) COMPRESSOR VARIABLE VANES - CONTROL ROD LOCK NUT TORQUE INCREASE

1. Planning Information

A. Effectivity

(1) Airbus A319

(a) V2522-A5, V2524-A5, V2527M-A5 Engines from Serial No. V10001 to Serial No. V13190.

V2522-A5, V2524-A5, V2527M-A5 Engines from Serial No. V15001 to Serial No. V16549.

(2) Airbus A320

(a) V2500-A1 Engines from Serial No. V0001 to Serial No. V0361.

(b) V2527-A5, V2527E-A5 Engines from Serial No. V10001 to Serial No. V13190.

V2527-A5, V2527E-A5 Engines from Serial No. V15001 to Serial No. V16549.

(3) Airbus A321

(a) V2530-A5, V2533-A5 Engines from Serial No. V10001 to Serial No. V13190.

V2530-A5, V2533-A5 Engines from Serial no. V15001 to Serial No. V16549.

(4) Boeing MD-90

(a) V2525-D5, V2528-D5 Engines from Serial No. V20001 to Serial No. V20285.

B. Concurrent Requirements

None.

C. Reason

(1) Condition

The locking torque for the lock nuts on the Variable Stator Vane (VSV) control rod between the VSV actuator and the VSV crankshaft is too low.

(2) Background

Service experience has shown that the instructed locking torque is too low and in several cases has allowed the control rod end connected to the VSV actuator to loosen and rotate.

The attaching bolt on the rotated rod end can cause chafing on the VSV actuator High Pressure (HP) servo fuel supply tube.

(3) Substantiation

The changes introduced by this Service Bulletin were the subject of satisfactory engineering analysis. This Service Bulletin complies with the applicable engine certification basis.

(4) Objective

This Service Bulletin increases the locking torque to prevent loosening of the locknuts.

(5) Effect of Bulletin on:

(a) Operation

Not affected.

(b) Maintenance

Affected (Refer to paragraph 1.0. Other Publications Affected).

(c) Overhaul

Affected (Refer to paragraph 1.0. Other Publications Affected).

(d) Repair Schemes

Not affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. Description

The control rod is part of the VSV system and transmits the movement of the VSV actuator to the crankshaft assembly. The control rod is a turnbuckle which comprises two rod ends connected by a tie rod. The tie rod is locked in its installed position by two locknuts and lockwire.

This Service Bulletin instructs an increase in the cold build locking torque to prevent loosening of the locknuts.

E. Compliance

Category Code 4

Accomplish at the first visit of an engine to a maintenance base capable of compliance with the Accomplishment Instruction regardless of the planned maintenance action or the reason for engine removal.

F. Approval

The compliance statement in paragraph 1.E. and the procedures in part 3 Accomplishment Instructions of this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the Engine Model(s) listed.

G. Manpower

Estimated man-hours to incorporate the full intent of this Service Bulletin on one engine.

NOTE: Man-hours provided for planning purposes only.

(1) In Service

(a) To increase the torque: 30 minutes.

(2) At Overhaul

(a) Applicable (hours not affected).

H. Material Price and Availability

Not applicable.

I. Tooling Price and Availability

Special tools are not required.

J. Industry Support Information

Not applicable.

K. Weight and Balance

(1) Weight Change

None.

(2) Moment Arm

No effect.

(3) Datum

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

L. Electrical Load Data

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

M. Software Accomplishment Summary

Not applicable.

N. References

(1) Airbus A319/A320/A321 Aircraft Maintenance Manual, Chapters 70-23-11, 70-40-11, 71-13-00, 75-32-42 and 78-30-00.

(2) Boeing MD-90 Aircraft Maintenance Manual, Chapters 70-23-11, 70-40-11, 71-13-00, 75-33-44 and 78-30-00.

(3) IAE V2500 Engine Manual (E-V2500-1IA/3IA), Chapters 70-41-00 and 72-00-40.

(4) Internal Reference No.

Engineering Change No. 12VR003.

(5) ATA Locator 75-32-41.

O. Other Publications Affected

(1) IAE Engine Manuals E-V2500-1IA/3IA will be revised to include the increased cold build locking torque.

(2) The A319/A320/A321/MD90 Aircraft Maintenance Manuals will be revised to include the increased cold build locking torque.

P. Interchangeability of Parts

Not interchangeable.

2. Material Information

A. The material data that follows is for each engine:

This Service Bulletin introduces an increased tightening torque to make sure an increased and acceptable end load is maintained throughout the entire flight cycle.

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
75-32-41						
99-300	4W6527	REF	Variable Stator Vane (VSV) actuator setting instruction	-	4W6201	(A)

B. Instructions/Disposition Code Statements:

(A) When setting instruction 4W6527 has been applied, it is recommended not to re-apply setting instruction 4W6201.

C. Spare Parts Availability

None.

D. Re-identified Parts:

Not applicable.

E. Other Material Information Data:

Not applicable.

3. Accomplishment Instructions

A. INSTRUCTION I - APPLICABLE FOR ENGINES "IN SERVICE"

(1) General

CAUTION: IN ORDER TO REDUCE THE POTENTIAL FOR MULTIPLE ENGINE IN-FLIGHT SHUT DOWN, POWER LOSS, OR OTHER ANOMALIES DUE TO MAINTENANCE ERROR, IAE RECOMMENDS THAT OPERATORS AVOID PERFORMING MAINTENANCE ON MULTIPLE 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 REVISED WHERE POSSIBLE, TO PROMOTE THIS RECOMMENDATION.

WARNING: YOU MUST BE CAREFUL WHEN YOU DO WORK ON THE ENGINE PARTS AFTER THE ENGINE IS STOPPED. THE ENGINE PARTS CAN STAY HOT FOR ALMOST ONE HOUR.

WARNING: DO NOT TOUCH HOT PARTS WITHOUT APPLICABLE GLOVES. HOT PARTS CAN CAUSE AN INJURY.

(a) Obey all WARNINGS and CAUTIONS in the procedures that are referred to.

(b) Refer to the Aircraft Maintenance Manual, Chapter 70-23-11, for General Torque Tightening Techniques.

(c) Consumable Materials

(i) Refer to the table that follows:

MATERIAL NO.	DESIGNATION
V02-126	Lockwire

For the details of the consumable materials given in the table above refer to the Overhaul Processes and Consumables Index.

(ii) For further consumable materials refer also to the related Manual tasks given in this instruction.

(d) Tools and Equipment

(i) Refer to the related Manual tasks given in this instruction.

(2) Get access to the Variable Stator Vane (VSV) actuator that is installed on the lower left side of the core engine

(a) Open the applicable cowl doors (Refer to the Aircraft Maintenance Manual, Chapter 71-13-00 Opening/Closing).

(b) On the centre pedestal, on the engine panel 115 VU: Put a warning notice to tell persons not to start the engine.

(c) On the overhead maintenance panel 50 VU: Make sure that the legend of the ENG/FADEC GND PWR/1(2) pushbutton switch is OFF. Put a warning notice to tell persons not to energise the FADEC 1(2).

(d) Deactivate the thrust reverser Hydraulic Control Unit (HCU) (refer to the Aircraft Maintenance Manual, Chapter 78-30-00).

(e) Open the thrust reverser halves (Refer to the Aircraft Maintenance Manual, Chapter 78-32-00).

(3) Remove the VSV actuator control rod

(a) For V2500-A1/A5 engines (Refer to the Aircraft Maintenance Manual, Chapter 75-32-42 Removal/Installation).

(b) For V2500-D5 engines (Refer to the Aircraft Maintenance Manual, Chapter 75-33-44 Removal/Installation).

(4) Disassemble the VSV actuator control rod

(a) For V2500-A1/A5/D5 engines:

(i) Cut and remove the lockwire the safeties the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) to the control rod bearings.

(ii) Loosen the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) from the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095).

(iii) Remove the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) from the control rod (72-41-34, 07-100).

(iv) Remove the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) from the control rod (72-41-34, 07-100).

(5) Assemble the VSV actuator control rod

(a) For V2500-A1/A5/D5 engines:

(i) Install the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) on the control rod (72-41-34, 07-100).

(ii) Install the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) on the control rod (72-41-34, 07-100).

(6) Install the VSV actuator control rod

(a) For V2500-A1/A5 engines:

(Refer to the Aircraft Maintenance Manual, Chapter 75-32-42 Removal/Installation).

(i) Tighten and torque the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) on the VSV actuator control rod to 205 to 220 lbf in. (23 to 25 Nm).

(ii) Safety the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) to the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) with corrosion resistant steel lockwire (Material No. V02-126) (Ref TASK 70-40-11-911-014).

(b) For V2500-D5 engines:

(Refer to the Aircraft Maintenance Manual, Chapter 75-33-44 Removal/Installation).

(i) Tighten and torque the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) on the VSV actuator control rod to 205 to 220 lbf in. (23 to 25 Nm).

(ii) Safety the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) to the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) with corrosion resistant steel lockwire (Material No. V02-126) (Ref TASK 70-40-11-911-803).

B. Make sure that the work area is clean and clear of tools, equipment and other unwanted materials.

C. Close the access to the VSV actuator

(1) Close the thrust reverser halves (Refer to the Aircraft Maintenance Manual, Chapter 78-32-00).

(2) Activate the thrust reverser HCU (Refer to the Aircraft Maintenance Manual, Chapter 78-30-00).

(3) Close the applicable cowl doors (Refer to the Aircraft Maintenance Manual, Chapter 71-13-00 Opening/Closing).

(4) Remove the warning notices.

D. Recording Instructions

(1) Record the incorporation Service Bulletin V2500-ENG-72-0633 in the applicable engine record.

E. INSTRUCTION II - APPLICABLE FOR ENGINES "AT OVERHAUL/SHOP VISIT"

(1) General

(a) Obey all the WARNINGS and CAUTIONS in the procedures that are referred to.

(b) Refer to the Standard Practices Manual TASK 70-41-00-400-501 for General Torque Tightening Techniques.

(c) Consumable Materials

(i) Refer to the table that follows:

MATERIAL NO.	DESIGNATION
V02-126	Lockwire

For the details of the consumable materials given in the table above refer to the Overhaul Processes and Consumables Index.

(ii) For further consumable materials refer also to the related Manual tasks given in this instruction.

(d) Tools and Equipment

(i) Refer to the related Manual tasks given in this instruction.

(2) Get access to the VSV actuator that is installed on the lower left side of the core engine.

(3) Remove the VSV actuator control rod (Refer to the Engine Manual, Chapter 72-00-40 Removal/Installation)

(4) Disassemble the VSV actuator control rod

(a) Cut and remove the lockwire the safeties the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) to the control rod bearings.

(b) Loosen the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) from the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095).

(c) Remove the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) from the control rod (72-41-34, 07-100).

(d) Remove the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) from the control rod (72-41-34, 07-100).

(5) Assemble the VSV actuator control rod

(a) Install the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) on the control rod (72-41-34, 07-100).

(b) Install the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) on the control rod (72-41-34, 07-100).

(6) Install the VSV actuator control rod (Refer to the Engine Manual, Chapter 72-00-40 Removal/Installation)

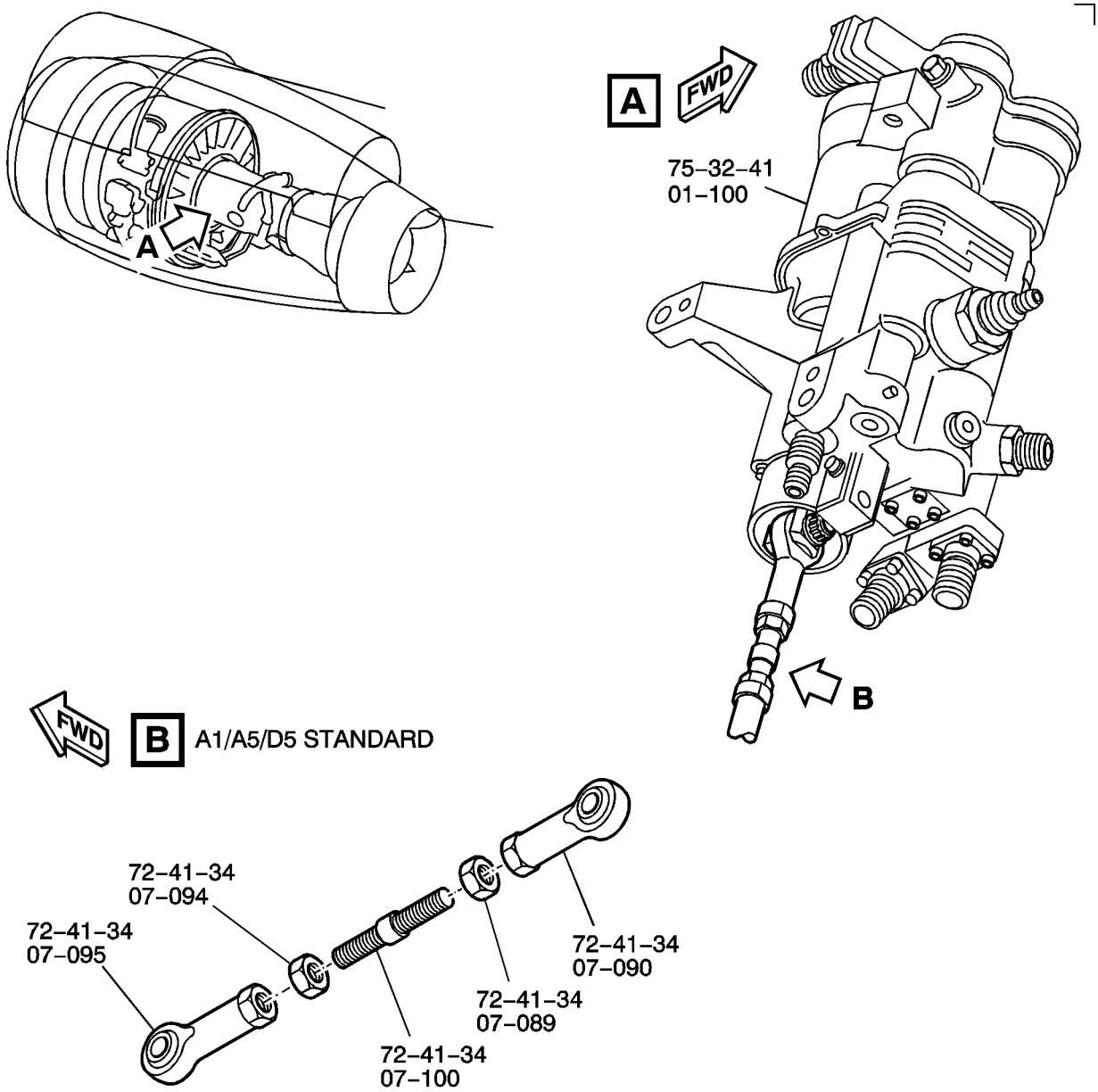
(a) Tighten and torque the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) on the VSV actuator control rod to 205 to 220 lbf in. (23 to 25 Nm).

(b) Safety the locknuts (72-41-34, 07-089) and (72-41-34, 07-094) to the control rod bearings (72-41-34, 07-090) and (72-41-34, 07-095) with corrosion resistant steel lockwire (Material No. V02-126) (Ref TASK 70-40-11-911-014 or TASK 70-40-11-911-803).

F. Make sure that the work area is clean and clear of tools, equipment and other unwanted materials.

G. Recording Instructions

(1) Record the incorporation of Service Bulletin V2500-ENG-72-0633 in the applicable engine record.



NOTE: SOME DETAILS NOT SHOWN FOR CLARITY.

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Variable Stator Vane (VSV) Actuator Control Rod
Figure 1

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Please rate on a scale of 1 to 5, with 5 being the highest score:

- General quality rating of this Service Bulletin	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
- Quality rating of the Accomplishment Instructions	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
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- Is this Service Bulletin easy to understand ?	☐ Yes ☐ No

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Planning Information Section:		Material Information Section:	Accomplishment Instruction Section:
☐ 1.A.	☐ 1.I.	☐ 2.A.	☐ General
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☐ 1.C.	☐ 1.K.	☐ 2.C.	☐ Removal/Installation
☐ 1.D.	☐ 1.L.	☐ 2.D.	☐ Inspection
☐ 1.E.	☐ 1.M.	☐ 2.E.	☐ Test
☐ 1.F.	☐ 1.N.	☐ 2.F.	☐ Close the Access
☐ 1.G.	☐ 1.O.		☐ Log Book Entry
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Explanatory notes:			

Operator:	Overhaul Site:
Name/Title:	Date:

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