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DATE: May 24/11

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

This document transmits the Revision 2 of Service Bulletin V2500-ENG-72-0606.

Document History

Service Bulletin Revision Status

Initial Issue. Apr.19/10

Revision 1 Jun. 1/10

Service Bulletin Revision 2

Remove	Incorporate	Reason for change
All Pages of the Service Bulletin.	Pages 1 to 15 of the Service Bulletin.	To include Rework Instructions. To update the references. Minor editorial changes.
All Pages of the Supplement.	Page 1 of the Supplement.	To add availability statement.

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Transmittal - Page 1 of 1

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

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ENGINE – HIGH PRESSURE (HP) COMPRESSOR DISCS (STAGES 3–8) – REPLACEMENT OF SILVER
PLATED SHANK NUTS

1. Planning Information

A. Effectivity

(1) Airbus A319

- (a) V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No. V13191 (A5 Standard and A5 SelectOne™ Retrofit Standard).

V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No. V15575 (A5 SelectOne™ Production Standard).

(2) Airbus A320

- (a) V2500-A1 Engines prior to Serial No. V0362.

- (b) V2524-A5, V2527-A5, V2527E-A5 Engines prior to Serial No. V13191 (A5 Standard and A5 SelectOne™ Retrofit Standard).

V2524-A5, V2527-A5, V2527E-A5 Engines prior to Serial No. V15575 (A5 SelectOne™ Production Standard).

(3) Airbus A321

- (a) V2530-A5, V2533-A5 Engines prior to Serial No. V13191 (A5 Standard and A5 SelectOne™ Retrofit Standard).

V2530-A5, V2533-A5 Engines prior to Serial No. V15575 (A5 SelectOne™ Production Standard).

(4) Boeing MD-90

- (a) V2525-D5, V2528-D5 Engines prior to Serial No. V20286.

B. Concurrent Requirements

None.

C. Reason

R (1) Condition

Silver plating is applied to engine nuts to act as a lubricant. The nuts are used at several locations in the High Pressure Compressor (HPC). The current nut is fully silver plated and is being replaced with partially silver plated nuts (internal thread only).

R (2) Background

R Areas with titanium parts at elevated temperatures, require nuts with
R silver plating on threads only.

(3) Objective

Incorporation of this Service Bulletin is designed to let installation of shank nuts which are silver plated on the threads only.

(4) 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.

(5) Effect of Bulletin on:

(a) Operation

Not affected.

(b) Maintenance

Not affected.

(c) Overhaul

Not affected.

(d) Repair Schemes

Affected (Repair Scheme VRS6220 will be updated).

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. Description

This Service Bulletin introduces a set of new shank nuts for the bolted joint between the HP compressor front shaft and the HP compressor stages 3–8 drum assembly. The new nuts are silver plated only on the threads. The existing nuts are fully silver plated. The base material and the geometry of the new nuts are unchanged.

E. Compliance

Category Code 6

Accomplish when the sub-assembly (ie modules, accessories, components, build groups) is disassembled sufficiently to get access to the affected part and to all affected spare parts.

NOTE: IAE recommends the incorporation of this Service Bulletin only for HP compressor stages 3-8 drum assemblies where there is the need for a shank nut replacement for any reason.

F. 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 models listed.

G. Manpower

(1) In Service

Not applicable.

(2) At Overhaul

Applicable (hours not affected).

H. Material Price and Availability

Modification kit is not required; parts supplied as single line items.

For prices and availability of spares, refer to supplement to this Service Bulletin.

I. Tooling Price and Availability

R Refer to the included Rework Instruction.

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) IAE V2500 Engine Manual (E-V2500-1IA/3IA), Chapters 72-00-40, 72-00-41, 72-41-00 and 72-41-10.

(2) Internal Reference No.

Engineering Change No. 09VR010.

R (3) FAA AD 2010-06-18.

(4) ATA Locator - 72-41-11.

O. Other Publications Affected

(1) IAE V2500 Engine Illustrated Parts Catalogues (S-V2500-1IA, S-V2500-2IA, S-V2500-2IB, S-V2500-2SA, S-V2500-2SB, S-V2500-3IA, S-V2500-3IB, S-V2500-3IC, S-V2500-5IA, S-V2500-5IB, S-V2500-5SA, S-V2500-5SB, S-V2500-6IA, S-V2500-6IB, S-V2500-6SA, S-V2500-6SB, S-V2500-7IA, S-V2500-7IB, S-V2500-7SA and S-V2500-7SB), Chapter 72-41-11 will be amended to incorporate the new part numbers (Refer to paragraph 2. Material Information).

P. Interchangeability of Parts

Affected (Refer to paragraph 2.E. Instruction disposition codes).

2. Material Information

A. The kit required consists of the following parts:

None.

B. Parts to be reworked:

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
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For all engines:

01-200	6B1384	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7401	(S1)(A)
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For A1, A5 Standard and D5 engines:

R	01-200	6B1380	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7385	(S1)(A)
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R	01-200	6B1379	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7384	(S1)(A)
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For A5 Standard, A5 SelectOne™ and D5 engines:

01-200	6B1385	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7705	(S1)
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01-200	6B1386	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A8316	(S1)
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For A5 Standard and D5 engines:

R	01-200	6B1387	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7383	(S1)(A)
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FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
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For A1 engines:

01-200	6B1401	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A8236	(S1)
01-200	6B1402	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A8350	(S1)
01-200	6B1381	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7379	(S1)
01-200	6B1382	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7380	(S1)
01-200	6B1383	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A7382	(S1)
01-200	6B1403	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A8318	(S1)

C. New production parts:

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
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For A5 Standard and A5 SelectOne™ and D5 engines:

01-200	6B1404	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A8316	(S1)
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FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
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For A1 engines:

01-200	6B1406	1	.High Pressure (HP) compressor stages 3-8 drum assembly	-	6A8318	(S1)
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For all engines:

01-238	AS63492	20	..Self locking shank nut	-	AS27862	(S2)
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D. Redundant parts:

None.

E. Instruction disposition codes:

(S1) The old and new parts are interchangeable, but once the new part has been installed it is not permitted to re-install the old part.

(S2) The old and new parts are interchangeable as a set only.

(A) The old Part Number is subject to FAA AD 2010-06-18.

3. Accomplishment Instructions

A. Rework Instructions

R HIGH PRESSURE (HP) COMPRESSOR DISCS (STAGE 3-8) – REPLACEMENT OF SILVER PLATED
R SHANK NUTS

R (1) Effectivity

ENGINE MARK	FIG/ITEM	PART No.
A1	01-200	6A7379
A1	01-200	6A7380
A1	01-200	6A7382
A5, D5	01-200	6A7383
A1, A5, D5	01-200	6A7384
A1, A5, D5	01-200	6A7385
A1, A5, D5	01-200	6A7401
A5, D5	01-200	6A7705
A1	01-200	6A8236
A5, D5	01-200	6A8316
A1	01-200	6A8318
A1	01-200	6A8350

R (2) Standard Equipment

R Drilling machine

R Standard workshop equipment

R Penetrant crack test equipment

R (3) Consumable Material

CoMat NUMBER	PART TITLE
CoMat 06-022	Fluorescent Penetrant

R **NOTE:** It is possible that some material in the Consumable Materials chart
R cannot be used for some or all of the necessary applications.
R Before you use the materials, make sure the types, quantities and
R applications of the materials necessary are legally permitted in
R your location. All persons must obey all applicable federal, state,
R local and provincial laws and regulations when it is necessary to
R work with these materials.

R **NOTE:** To identify the consumable materials refer to the Overhaul
R Processes and Consumables index (PCI).

R **NOTE:** Other necessary consumable materials are referred to in the SPP
R TASKS.

(4) Special Tools

TOOL NUMBER	PART TITLE
IAE 3R18718	Tool bolt
IAE 3R18719	Swage bush

(5) Expendable Parts

None.

(6) Rework Parts

FIG/ITEM	PART TITLE	PART No.	QTY
01-238	Self-Locking Shank Nut	AS63492	20 AR
01-240	Anti-Fretage Plate	6A1130	4 AR

(7) General Data

(a) This Rework Instruction gives the procedure to replace all 20 off AS27862 part number, self-locking shank nuts with new AS63492 part number, self-locking shank nuts.

(b) Material of components

PART IDENT	MATERIAL
HP Compressor stage 3-8 disks shaft assembly	Titanium alloy
Self Locking Shank Nut	Austenitic heat resisting steel
Anti-fretage plate	Chromium-nickel (18/8) stabilized steel

(c) TASK identified by SPP TASK are in the Standard Practices Manual.

(d) TASKS identified by EM TASK are in the Engine Manual.

(8) Remove all shank nuts

(a) Refer to Figure 1 and Figure 2

PROCEDURE

RELATED DATA

(b) Drill the flare until the nut is released

Refer to SPP TASK 70-35-11-300-501. Use a drilling machine with a 0.315 in. (8,00 mm) diameter drill.

(c) Remove all 20 off nuts

PROCEDURE

RELATED DATA

- | | | |
|------------------|--|--|
| R
R
R | (d) Remove the sharp edges around the nut location holes and anti frettage plate | Use standard workshop equipment. |
| R
R
R | (e) Clean the nut locations | Refer to SPP TASK 70-11-26-300-503.
Use a soft, clean cloth and also remove particles with air. |
| R | (9) Inspect the Anti-frettage Plate and Nut Location Hole | |
| R | (a) Refer to Figure 1 and Figure 2 | |
| R
R | (b) Examine the anti-frettage plates | If damaged, reject the plates. |
| R | (c) Examine the nut location holes | Make sure all sharp edges are removed |
| R | (10) Do a Crack Test | |
| R
R
R
R | (a) Do a local penetrant crack test in the area of the repair | Refer to SPP TASK 70-23-05-230-501.
Use CoMat 06-022 fluorescent penetrant with crack test equipment.
Cracks are not permitted |
| R | (11) Chemically Clean | |
| R
R
R | (a) Chemically clean the repaired area to remove fluorescent penetrant | Refer to SPP TASK 70-11-26-300-503.
Use chemical cleaning equipment |
| R | (12) Install the New Shank Nuts | |
| R
R | <u>CAUTION:</u> CLEAN ALL TOOLING PRIOR TO INSTALLATION OF SHANK NUTS. MAKE SURE THERE IS NO REMNANTS OF SILVER COATING ON THE TOOLING. | |
| R | (a) Figure 1 and Figure 2 | |
| R
R
R
R | (b) Install the new nut and anti-frettage plate into the location hole | Use self-locking shank nut - AS63492 with anti-frettage plate - 6A1130.
Make sure the shank nut is installed correctly |
| R
R | (c) Hold the nut and swage the flare | Use IAE 3R18718 (tool bolt) 1 off and IAE 3R18719 (swage bush) 1 off |

R (13) Identify the Re-work

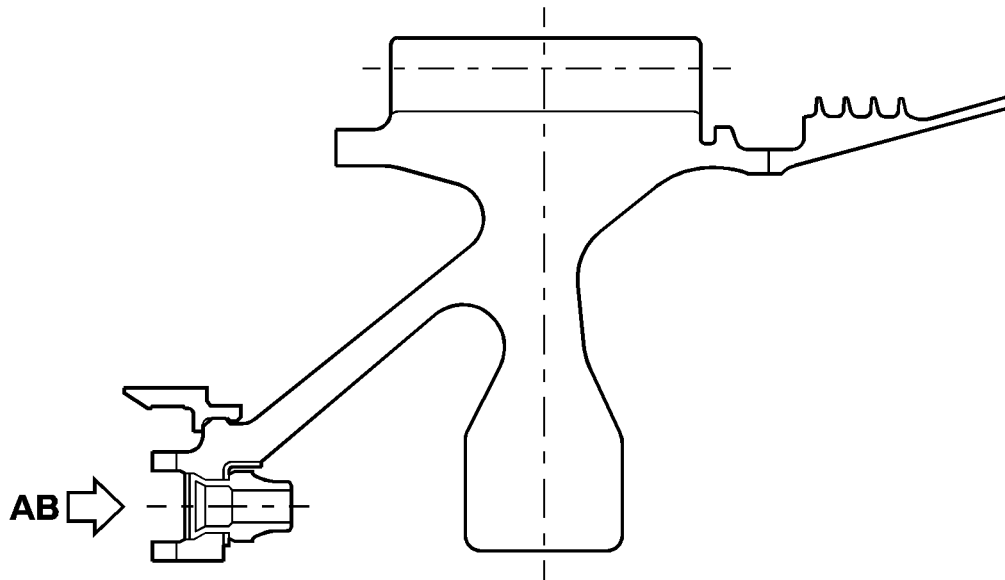
PROCEDURE

RELATED DATA

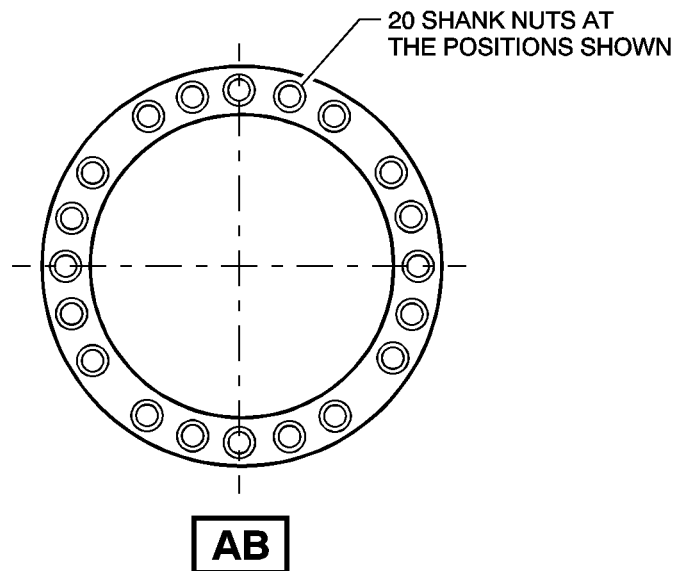
R (a) Cancel the existing part
R number and re-identify the HP
R Compressor Stage 3-8 Disks
R Shaft Assy

Refer to SPP TASK 70-09-00-400-001
Use Vibro-engraving equipment.

Existing	Re-number
6A7379	6B1381
6A7380	6B1382
6A7382	6B1383
6A7383	6B1387
6A7384	6B1379
6A7385	6B1380
6A7401	6B1384
6A7705	6B1385
6A8236	6B1401
6A8316	6B1386
6A8318	6B1403
6A8350	6B1402



PART SECTION THROUGH THE DISC ASSEMBLY



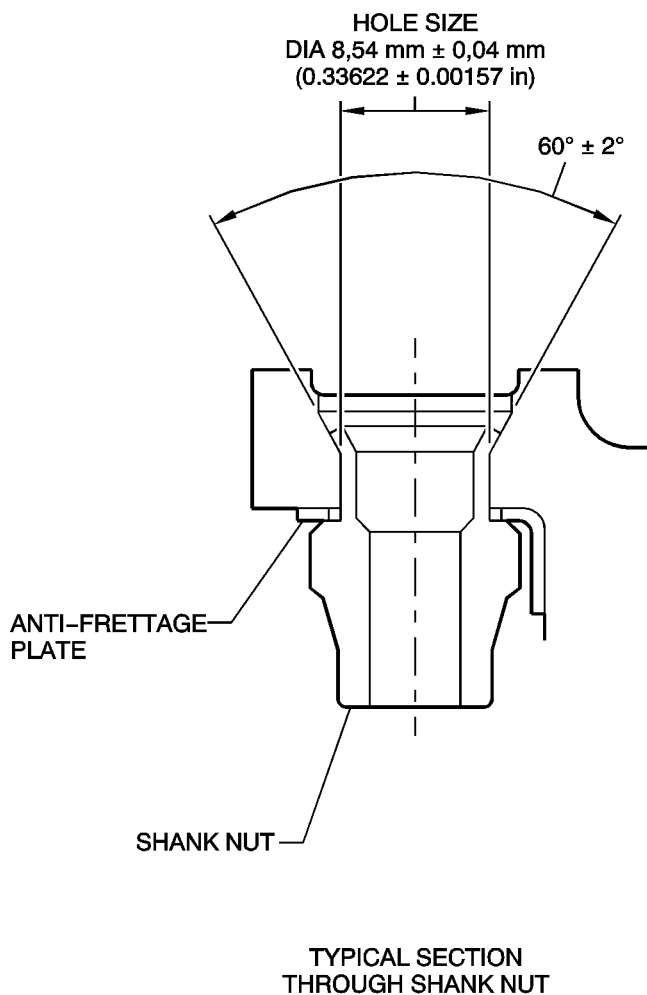
Repair Details and Dimensions
Figure 1

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Repair Details and Dimensions
Figure 2

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B. Assembly Instructions**(1) General**

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

(b) Consumable Materials

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

(c) Tools and Equipment

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

(2) Get access to the bolted joint between the HP compressor front shaft and the HP compressor stages 3-8 drum assembly.

(3) Remove the HP system module (Refer to the Engine Manual, Chapter 72-00-40).

(4) Remove the HP compressor assembly (Refer to the Engine Manual, Chapter 72-00-41).

(5) Disassemble the HP compressor assembly (Refer to the Engine Manual, Chapter 72-41-00).

(6) Disassemble the HP compressor rotor assembly (Refer to the Engine Manual, Chapter 72-41-10).

For V2500-A1 Engines, V2500-A5 Engines and V2500-D5 Engines:

(a) Remove the HP compressor stages 3-8 drum assembly (72-41-11, 01-200), with the 20 old self locking shank nuts (72-41-11, 01-238), P/N AS27862.

(b) Rework the applicable HP compressor stages 3-8 drum assembly (72-41-11, 01-200) in accordance with the included Rework Instruction 72-0606.

(7) Assemble the HP compressor rotor assembly (Refer to the Engine Manual, Chapter 72-41-10).

For V2500-A1 Engines, V2500-A5 Engines and V2500-D5 Engines:

(a) Install the HP compressor stages 3-8 drum assembly (72-41-11, 01-200), with the 20 new self locking shank nuts (72-41-11, 01-238), P/N AS63492.

(8) Assemble the HP compressor assembly (Refer to the Engine Manual, Chapter 72-41-00).

- (9) Install the HP compressor assembly (Refer to the Engine Manual, Chapter 72-00-41).
- (10) Install the HP system module (Refer to the Engine Manual, Chapter 72-00-40).
- (11) Make sure that the work area is clean and clear of tools, equipment and other unwanted materials.

C. Recording Instructions

- R (1) A record of accomplishment is required.

ENGINE – HIGH PRESSURE (HP) COMPRESSOR DISCS (STAGES 3–8) – REPLACEMENT OF SILVER
PLATED SHANK NUTS

SUPPLEMENT – PRICES AND AVAILABILITY

The prices (if 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 catalogue for current prices.

1. Modification Kit:

Not applicable.

2. New Production Parts:

Part No.	Description	Unit Price US Dollars
AS63492	Self locking shank nut	\$ 36.20
6B1404	High Pressure (HP) compressor stages 3–8 drum assembly	\$ 180,820.00
6B1406	High Pressure (HP) compressor stages 3–8 drum assembly	\$ 180,820.00

R Parts are currently available.

3. Tools

R None.