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

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DATE: Feb.11/11

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

This document transmits the Initial Issue of Service Bulletin V2500-ENG-72-0613.

Service Bulletin Initial Issue

Remove	Incorporate	Reason for change
	Pages 1 to 17 of the Service Bulletin.	Initial Issue.
	Page 1 of the Supplement.	Initial Issue.

V2500-ENG-72-0613

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

SERVICE BULLETIN

ENGINE – HIGH PRESSURE (HP) COMPRESSOR – INTRODUCTION OF A NEW HP COMPRESSOR REAR SHAFT ASSEMBLY WITH A RING NUT THAT IS SILVER PLATED ON THE THREAD AND ABUTMENT FACE TO THE CUP WASHER ONLY AND NUTS WHICH ARE SILVER PLATED ON THE THREADS ONLY

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. V15770 (A5 SelectOne™ Production Standard).

(2) Airbus A320

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

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

V2527-A5, V2527E-A5 Engines prior to Serial No. V15770 (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. V15770 (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/Condition

(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 nuts are fully silver plated and are now being replaced with partially silver plated nuts (internal thread only).

(2) Background

To use nuts with silver on the thread only when used close to titanium parts at elevated temperatures.

(3) Objective

Incorporation of this Service Bulletin is designed to let installation of nuts which are silver plated on the thread 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

Not affected.

(e) Interchangeability

Not affected.

(f) Fits and Clearances

Not affected.

D. Description

This Service Bulletin introduces new nuts for the High Pressure (HP) compressor inner shrouds, the HP compressor rear drum to shaft bolted joint and rear air seal that are silver plated on the threads only. The existing nuts are completely silver coated. The ring nut, part of the V2500-A1 shaft assembly additionally retains silver plating on the abutment face to the cup washer. The base material and the geometry of the nuts remains unchanged.

E. Compliance

Category Code 6

Accomplish when the subassembly (i.e. modules, accessories, components, build groups) is disassembled sufficiently to afford access to the affected parts.

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

(a) Applicable (hours not affected).

NOTE: The parts affected by this Service Bulletin are accessible at overhaul.

H. Material Price and Availability

A modification kit is not required; parts are supplied as single line items.

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

I. Tooling Availability

None.

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, 72-41-10, 72-41-13 and 72-41-30.

(2) Internal Reference No.

Engineering Change No. 10VR005.

(3) ATA Locators - 72-41-13 and 72-41-33.

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), Chapters 72-41-13 and 72-41-33 will be amended to incorporate the new part numbers (Refer to paragraph 2. Material Information).

(2) IAE V2500 Time Limits Manual (T-V2500-1IA) 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
For V2500-A1 Engines						
72-41-13						
01-850	6B1415	1	.High Pressure (HP) compressor rear shaft assembly	-	6A7707	(1D)(S1)
01-850	6B1424	1	.High Pressure (HP) compressor rear shaft assembly	-	6A3974	(1D)(S1)
01-850	6B1425	REF	.High Pressure (HP) compressor rear shaft assembly	-	6A3997	(1D)(S1)

C. New production parts:

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
For V2500-A1 Engines						
72-41-13						
01-850	6B1414	1	.High Pressure (HP) compressor rear shaft assembly	-	6A7707	(A)(S1)
01-852	U780602	40	.Nut	-	U755143	(A)(S2)
For V2500-A5 and V2500-D5 Engines						
01-852	U780603	28	.Nut	-	U755144	(A)(S2)

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
For V2500-A1 Engines						
01-872	6B1413	1	..Ring nut	-	UP10896	(A)(S1)
01-894	AS63483	18	..Self locking shank nut	-	AS27853	(A)(S2)
01-895	AS63487	18	..Self locking shank nut	-	AS27857	(A)(S2)
For V2500-A1, V2500-A5 and V2500-D5 Engines						
72-41-33						
01-130	AS63451	20	.Nut	-	4W0001	(A)(S2)
02-130	AS63451	16	.Nut	-	4W0001	(A)(S2)
03-130	AS63451	24	.Nut	-	4W0001	(A)(S2)
04-130	AS63451	32	.Nut	-	4W0001	(A)(S2)

D. Redundant parts:

None.

E. Instruction disposition codes:

(A) Part is currently available for sale.

(S1) Not interchangeable, but the new part may be fitted in lieu of the superseded part but not vice versa.

(S2) Not interchangeable, but a complete item number location group or set of new parts may be installed in lieu of a set of replaced parts but not vice versa.

(1D) Rework old part number and re-identify to the new part number.

3. Accomplishment Instructions

A. Rework Instructions

(1) Effectivity

ENGINE MARK	FIG/ITEM	PART NO.
A1	01-850	6A3974
A1	01-850	6A3997
A1	01-850	6A7707

(2) Standard Equipment:

Drilling machine.

Drill 0.220 in (5.60 mm) diameter.

Drill 0.315 in (8.00 mm) diameter.

Standard workshop equipment.

Penetrant crack test equipment.

(3) Consumable Material

CoMat NUMBER	PART TITLE
CoMat 06-022	Fluorescent Penetrant

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

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

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

(4) Special Tools

TOOL NUMBER	PART TITLE
IAE 3R19066	Tool bolt
IAE 3R19067	Swage bush
IAE 3R18718	Tool bolt

IAE 3R18737	Swage bush

(5) Expendable Parts

None.

(6) Rework Parts

FIG/ITEM	PART TITLE	PART NO.	QTY
01-894	Self-Locking Shank Nut	AS63483	18
01-895	Self-Locking Shank Nut	AS63487	18
01-872	Ring Nut	6B1413	1

(7) General Data

(a) This Rework Instruction requires two parts to be accomplished:

(i) To replace all 36-off self locking nuts located on the bolting flange for the rear air seal. Parts to be replaced are AS27853 and AS27857 self-locking shank nuts with new AS63483 and AS63487 self-locking nuts, respectively.

(ii) To replace the Ring Nut located in the inner bore of the rear shaft. Part number UP10896 is to be replaced with new part number 6B1413.

(b) Material of components

PART IDENT	MATERIAL
HP Compressor - Rear shaft assembly	Inconel 718
Self Locking Shank Nut	Heat Resisting Steel
Ring Nut	Inconel 718

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

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

(8) Remove the Ring Nut

(a) Refer to Figure 1.

PROCEDURE	RELATED DATA
(b) Remove the ring nut from the shaft assembly.	Refer to EM TASK 72-41-13 HP Compressor Shaft - Disassembly, accomplish all SUBTASKs therein. Remove the Ring Nut (72-41-13, 01-872) part number UP10896 and discard.

(9) Remove All Shank Nuts

(a) Refer to Figure 1, Figure 2 and Figure 3.

PROCEDURE	RELATED DATA
(b) Drill the flare section AB, until the nut is released.	Refer to SPP TASK 70-35-11-300-501. Use a drilling machine with a 0.220 in (5.60 mm) diameter drill.

PROCEDURE	RELATED DATA
(c) Drill the flare section AC, 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.

PROCEDURE	RELATED DATA
(d) Remove all 36 shank nuts.	

PROCEDURE	RELATED DATA
(e) Remove the sharp edges around the nut location holes.	Use standard workshop equipment.

(10) Examine the Shank Nut Location Holes

(a) Refer to Figure 1, Figure 2 and Figure 3.

PROCEDURE	RELATED DATA
(b) Visually examine and check the dimensions of the nut location holes.	Ensure all dimensions are within the limits shown.

(11) Chemically Clean

PROCEDURE	RELATED DATA
(a) Clean the shank nut location holes.	Refer to SPP TASK 70-11-26-300-503. Use a soft, clean cloth and also remove particles with air.

(12) Do a Crack Test

PROCEDURE	RELATED DATA
(a) Do a local penetrant crack test in the area of the rework.	Refer to SPP TASK 70-23-05-230-501. Use CoMat 06-022 fluorescent penetrant with crack test equipment. Cracks are not permitted.

(13) Chemically Clean

PROCEDURE	RELATED DATA
(a) Chemically clean to remove florescent penetrant.	Refer to SPP TASK 70-11-26-300-503. Use chemical cleaning equipment.

(14) Install the New Shank Nuts

CAUTION: BEFORE INSTALLATION OF SHANK NUTS, ENSURE THAT THE MATING FACES OF THE ASSEMBLY TOOLING AND THE ADJACENT SURFACES OF THE SHAFT ASSEMBLY ARE FREE FROM SILVER OR OTHER CONTAMINATION.

(a) Refer to Figure 1, Figure 2 and Figure 3.

PROCEDURE	RELATED DATA
(b) Install new nuts into their respective location holes.	Use self-locking shank nuts - AS63483 Qty 18 and AS63487 Qty 18. Make sure the shank nuts are installed correctly into the correct holes.

PROCEDURE	RELATED DATA
(c) Hold the nut and swage the flare.	Use IAE 3R19066 (tool bolt) 1 off and IAE 3R19067 (swage bush) 1 off and/or IAE 3R18718 (tool bolt) with IAE 3R18737 (swage bush) 1 off.

PROCEDURE	RELATED DATA
(d) Examine the installed nuts.	Make sure the shank nuts are installed correctly.

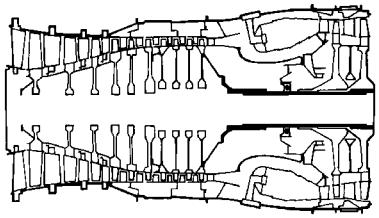
(15) Replace the Ring Nut

PROCEDURE	RELATED DATA
(a) Fit new ring nut 6B1413 into the shaft assembly.	Refer to EM TASK 72-41-13 - Assemble the HP Compressor Rear Shaft Assembly, accomplish all SUBTASKS therein. Install the new Ring Nut (72-41-13, 01-872) part number 6B1413. Ensure the old Ring Nut UP10896 is not used.

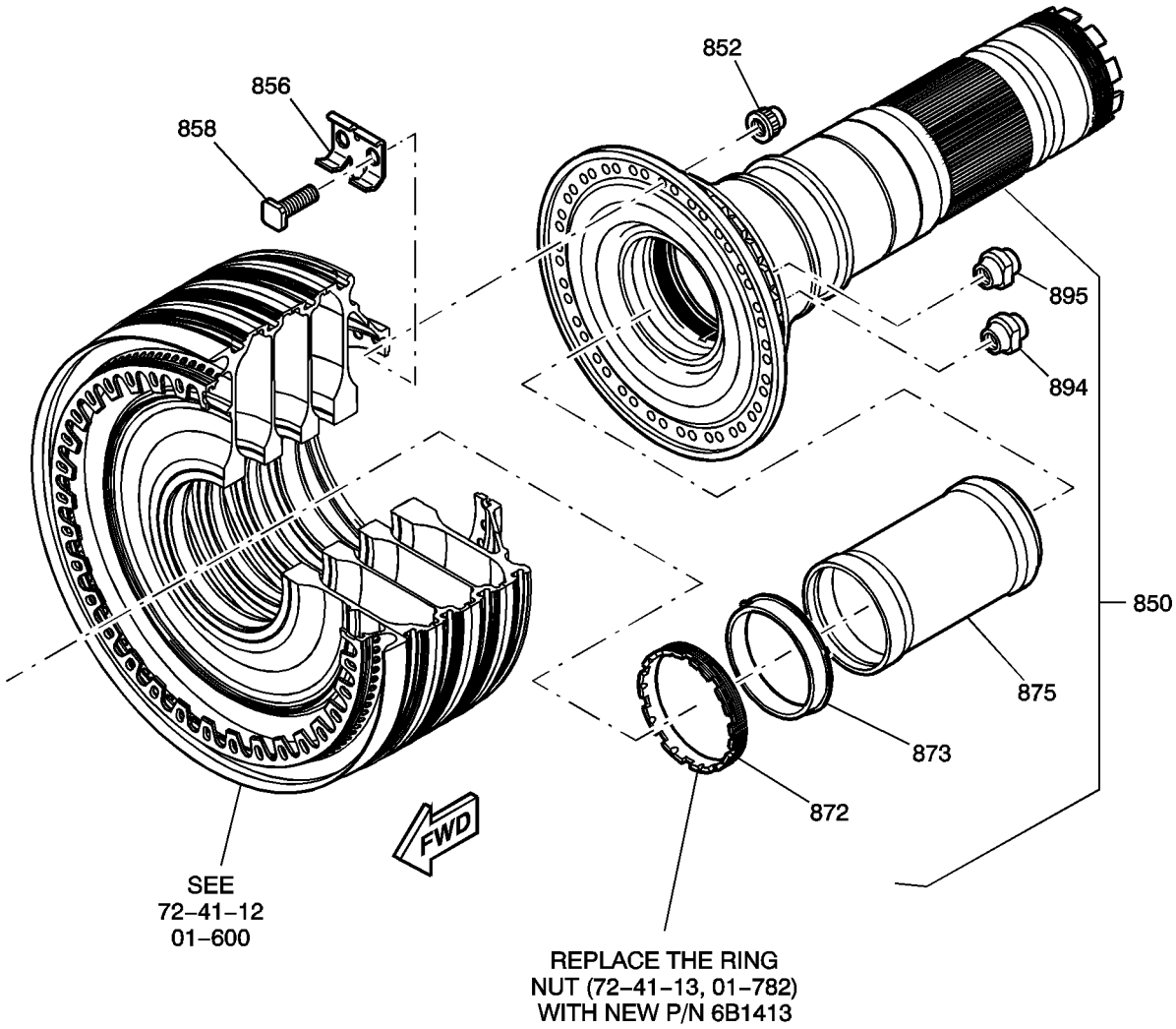
(16) Identify the Rework

PROCEDURE	RELATED DATA
(a) Cancel the existing part number and re-identify the HP Compressor Rear Shaft Assy.	Refer to SPP TASK 70-09-00-400-001. Use Vibro-engraving equipment.

Existing	Re-number
6A3974	6B1424
6A3997	6B1425
6A7707	6B1415



MODULE 40



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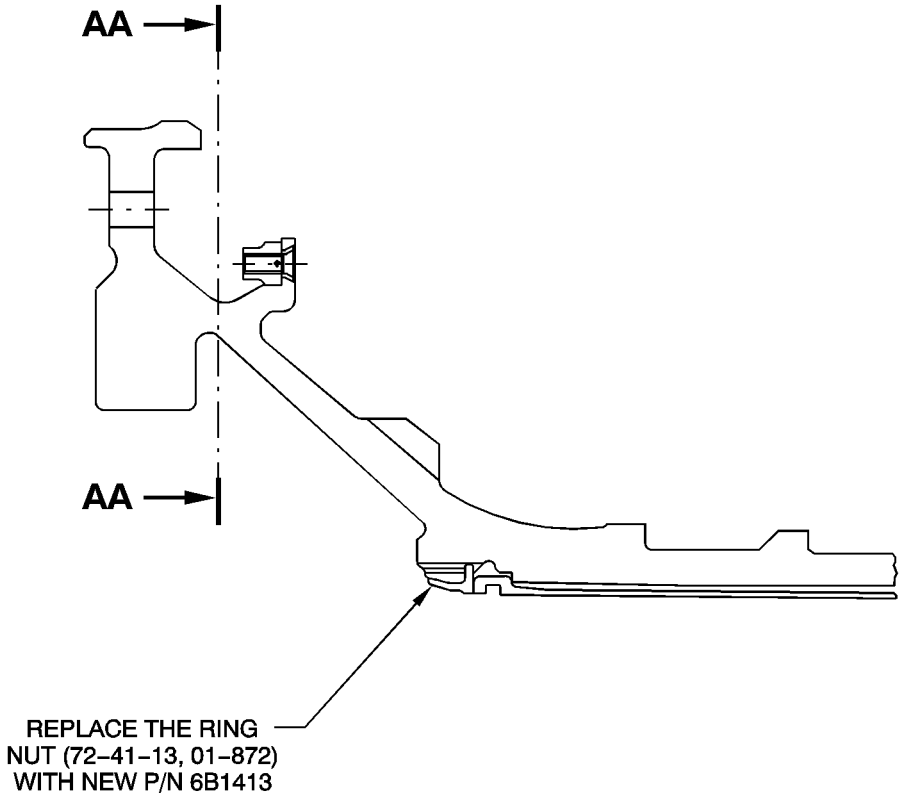
Rework details and dimensions
General View



GENERAL VIEW OF THE REAR
H.P.C. SHAFT ASSEMBLY

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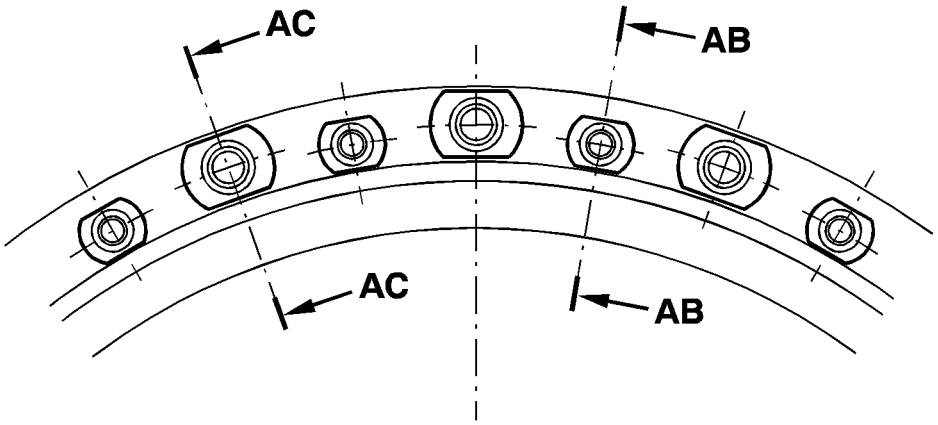
Rework details and dimensions
Figure 1



PART SECTION
AA–AA

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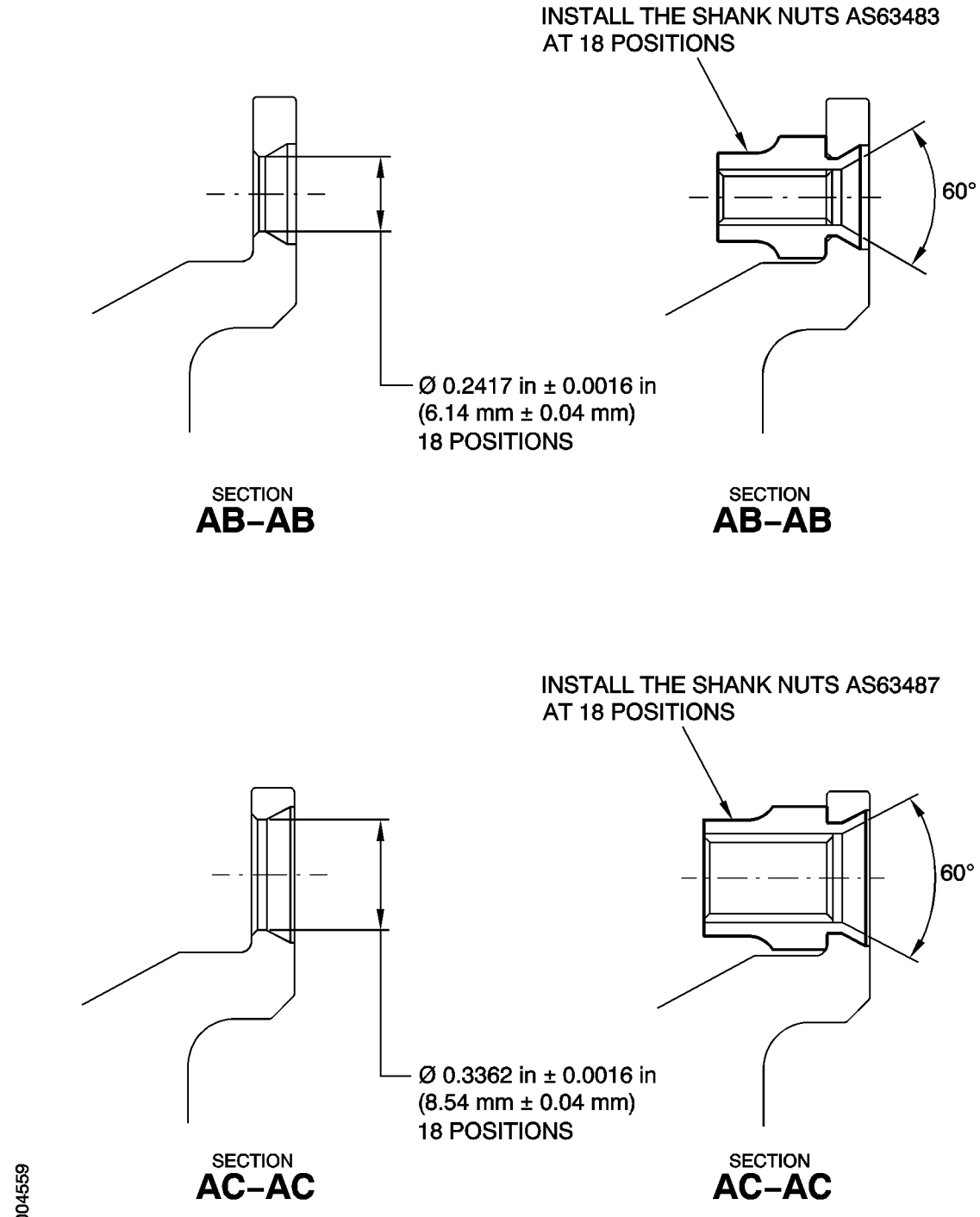
Rework details and dimensions
Figure 2



Rework details and dimensions
Figure 3

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 High Pressure (HP) compressor 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)

(a) Remove the 20 old nuts, (72-41-33, 01-130), P/N 4W0001.

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

(a) For V2500-A1 engines:

Remove the 40 old nuts, (72-41-13, 01-852), P/N U755143.

(b) For V2500-A5/D5 engines:

Remove the 28 old nuts, (72-41-13, 01-852), P/N U755144.

(7) Disassemble the HP compressor rear shaft assembly (Refer to the Engine Manual, Chapter 72-41-13)

(a) For V2500-A1 engines only:

Remove the old HP compressor rear shaft assembly, (72-41-13, 01-850), P/N 6A7707.

(8) Disassemble the HP compressor upper and lower half front cases (Refer to the Engine Manual, Chapter 72-41-30)

(a) Remove the 32 old nuts (72-41-33, 04-130), P/N 4W0001.

(b) Remove the 24 old nuts (72-41-33, 03-130), P/N 4W0001.

(c) Remove the 16 old nuts (72-41-33, 02-130), P/N 4W0001.

(9) Assemble the HP compressor upper and lower half front cases (Refer to the Engine Manual, Chapter 72-41-30)

(a) Install the 16 new nuts (72-41-33, 02-130), P/N AS63451.

(b) Install the 24 new nuts (72-41-33, 03-130), P/N AS63451.

(c) Install the 32 new nuts (72-41-33, 04-130), P/N AS63451.

(10) Assemble the HP compressor rear shaft assembly (Refer to the Engine Manual, Chapter 72-41-13)

(a) For V2500-A1 engines only:

Install the new HP compressor rear shaft assembly, (72-41-13, 01-850), P/N 6B1414.

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

(a) For V2500-A1 engines:

Install the 40 new nuts, (72-41-13, 01-852), P/N U780602.

(b) For V2500-A5/D5 engines:

Install the 28 new nuts, (72-41-13, 01-852), P/N U780603.

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

(a) Install the 20 new nuts, (72-41-33, 01-130), P/N AS63451.

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

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

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

C. Recording Instructions

(1) A record of accomplishment is necessary.

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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
6B1414	.High Pressure (HP) compressor rear shaft assembly	113,230.00
6B1413	..Ring nut	3,287.00
AS63451	.Nut	5.13
AS63483	..Shank nut	11.40
AS63487	..Shank nut	21.40
U780602	.Nut	48.80
U780603	.Nut	39.36

   Parts are currently available for sale.

3. Tools

   None.