SERVICE BULLETIN REVISION NOTICE

ENGINE — FUEL AND CONTROL — DEDICATED ALTERNATOR DRIVE GEAR ASSEMBLY — INTRODUCTION OF REVISED STANDARD OF GEAR A/O PMA DRIVE AND NUT FOR THE ENGINE DEDICATED ALTERNATOR

Turbojet Engine Service Bulletin No. V2500-ENG-72-0616 Revision No. 1 dated January 11, 2021

Revision History

Original Issue May 12, 2012

Revision 1 dated January 11, 2021

Reason for the Revision

To correct the specified torque value for the installation of the Nut.

Effect of Revision on Prior Compliance

None.

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

The contents are in accordance with the list of effective pages. All pages have the current revision number. Technical changes are marked with black bars.

MODEL APPLICATION

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

BULLETIN ISSUE SEQUENCE

V2500 Series 72-0616

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1 thru 10	1	January 11/21

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.

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ENGINE — FUEL AND CONTROL — DEDICATED ALTERNATOR DRIVE GEAR ASSEMBLY — INTRODUCTION OF REVISED STANDARD OF GEAR A/O PMA DRIVE AND NUT FOR THE ENGINE DEDICATED ALTERNATOR

MODEL APPLICATION

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

BULLETIN ISSUE SEQUENCE

V2500 Series 72-0616

ATA NUMBER

72-60-33

Compliance Category

7

IAE Distribution Code

V2500

Summary

The purpose of this Service Bulletin is to provide a revised standard of gear A/O PMA drive and nut for the engine dedicated alternator.

Planning Information

Effectivity Data

Engine Models Applicable

V2500-A1
Engine Serial Nos. V0001 thru V0361

V2522-A5, V2524-A5, V2527M-A5, V2527-A5, V2527E-A5, V2530-A5, V2533-A5
Engine Serial Nos. V10001 thru V13190
Engine Serial Nos. V15001 thru V16153

Concurrent Requirements

There are no concurrent requirements.

Reason

1. Condition: Between 1999 and 2010, several instances of N2 signal loss occurred as a result of the Permanent Magnet Alternator (PMA) rotor shaft wear and release of the PMA drive gear.
2. Background: There can be conditions, operational temperatures together with manufacturing tolerances which can cause the PMA retention nut to become loose, with the result of PMA rotor shaft wear and the release of the PMA drive gear. The release of the PMA drive gear will result in the failure of the Electronic Engine Control (EEC) to receive the N2 signal, but the engine will continue operation in flight using a synthesized N2 signal (from N1).
3. Objective: The changes in configuration recommended in this Service Bulletin are intended to maintain engine reliability.
4. Substantiation: The changes introduced by this Service Bulletin were the subject of satisfactory analysis and test(s). This Service Bulletin complies with the applicable engine certification basis.
5. Effects of Bulletin on:

   Removal/Installation: Affected.

   Disassembly/Assembly: Affected.

   Cleaning: Not Affected.

   Inspection/Check: Not Affected.

   Repair: Affected.

   Testing: Not Affected.
6. Supplemental Information

   None.

Description

1. This Service Bulletin introduces a new PMA drive gear assembly, P/N 4A0359. This new assembly also includes a new A/O PMA drive gear, P/N 4B0361 and a new securing nut, P/N 4P0360.

   The new nut P/N 4P0360 has a Vespel™ locking feature which will restore nut retention reliability. The Vespel™ locking feature can operate in a temperature range of -40° to 348° F (-40° to 176° C).

2. Old PMA Assemblies can be reworked and re-identified with P/N 4A0359.

   NOTE: The Accomplishment Instruction of this Service Bulletin is divided into two INSTRUCTIONs as follows:

   INSTRUCTION I - Applicable for engines "In Service".

   INSTRUCTION II - Applicable for engines at "Overhaul/Shop Visit".

Compliance

Category 7

Accomplish when supply of superseded parts has been depleted.

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 aircraft Type Certificate (TC) holder has been informed of this change.

Manpower

1. In Service

   To get access ..... 20 Minutes.

   To embody ..... 1.5 Hours.

   To return to serviceable status ..... 1 Hour.

   Total Necessary Man-hours ..... 2 Hours, 50 Minutes.

2. At Overhaul

   ..... Not Applicable.

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

Weight and Balance

1. Weight Change

   None.

2. Moment Arm

   No Effect.

3. Datum

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

Electrical Load Data

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

Software Accomplishment Summary

Not Applicable.

References

1. Airbus A319/A320/A321 Aircraft Maintenance Manual (AMM).
2. V2500-A1 Series Illustrated Parts Catalog, P&W Ref. PN 2A4427.
3. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428.
4. V2500 A1/A5 Series Engine Manual, P&W Ref. PN 2A4407.
5. V2500 Standard Practices Manual (SPM), P&W Ref. PN 2A4414.

Other Publications Affected

1. V2500-A1 Series Illustrated Parts Catalog, P&W Ref. PN 2A4427.

   72-60-33
2. V2500-A5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4428.

   72-60-33
3. The following Repair Scheme will be revised to include the new parts introduced by this Service Bulletin: VRS5174.

Interchangeability of Parts

Old and new parts are interchangeable only in full sets.

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. Part prices were not available at the time of Service Bulletin publication. Contact IAE Spares Management & Logistics for firm quotations.
2. There is no kit provided to do this Service Bulletin.
3. 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
4A0359	1	*	GEAR, ASSEMBLY DRIVE PMA	4A0322 (72-60-33-01-001)	(C)(D)(1D)
4P0360	1	*	.NUT	NAS1291C7 (72-60-33-01-100)	(A)(B)(S1)(S2)
4B0361	1	*	.GEAR, A/O PMA DRIVE	4B0286 (72-60-33-01-120)	(B)(C)(S1)(S2)

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
4A0359	1	*	GEAR, ASSEMBLY DRIVE PMA	4A0322 (72-60-33-01-001)	(C)(D)(1D)
4P0360	1	*	.NUT	NAS1291C7 (72-60-33-01-100)	(A)(B)(S1)(S2)
4B0361	1	*	.GEAR, A/O PMA DRIVE	4B0286 (72-60-33-01-120)	(B)(C)(S1)(S2)

Modification and Spares Information

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. An asterisk (*) is shown where part pricing information was unavailable. In either case, contact IAE Spares for firm quotations.

Spare Parts Availability

(A) The old part will continue to be available.

(B) The new part is available for sale.

(C) The old part will be discontinued.

(D) The new part will be available in approximately May 2012.

(S1) New parts coded (S1) can replace old parts coded (S1), but old part cannot replace new part.

(S2) New parts coded (S2) must be introduced as a set.

(1D) Old part can be reworked and re-identified with new part number.

Vendor Services or Special Components/Materials

Not Applicable.

Tooling — Price and Availability

Special tools are not required to accomplish this Service Bulletin.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

1. Rework Instructions

A. Re-identify the reworked PMA drive gear assembly:

Cross out the old part number and adjacent to re-identify with vibro engraving equipment as specified in Reference 5, SPM, TASK 70-09-00-400-501.

OLD PN	NEW PN
4A0322	4A0359

2. Assembly Instructions

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

(1) General

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

(b) Consumable Materials

1 Refer to the related Manual tasks given in this instruction.

(c) Tools and Equipment

1 Refer to the related Manual tasks given in this instruction.

(2) Get access to the Permanent Magnet Alternator (PMA) drive gear assembly on the external gearbox.

(a) Open the fan cowl doors as specified in Reference 1, AMM. TASK 71-13-00-010-010.

(3) Remove the Engine Dedicated Alternator (EDA) stator from the external gearbox as specified in Reference 1, AMM, TASK 73-22-38-000-010.

(4) Remove the old PMA drive gear assembly, P/N 4A0322 from the external gearbox as specified in Reference 1, AMM, TASK 72-60-33-000-010.

(5) Install the new PMA drive gear assembly, P/N 4A0359 on the external gearbox as specified in Reference 1, AMM, TASK 72-60-33-400-010.

(6) Install the EDA stator on the external gearbox as specified in Reference 1, AMM, TASK 73-22-38-000-010.

(7) Close Up as specified in Reference 1, AMM, TASK 73-22-38-410-051.

(8) Do an Electronic Engine Control (EEC) System Idle Test as specified in Reference 1, AMM, TASK 71-00-00-710-022.

B. 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) Consumable Materials

1 Refer to the related Manual tasks given in this instruction.

(c) Tools and Equipment

1 Refer to the related Manual tasks given in this instruction.

(2) Remove the old PMA drive gear assembly, P/N 4A0322 from the external gearbox as specified in Reference 4, EM, TASK 72-00-60-050-012-C00.

(3) For PMA drive gear assemblies to be reworked:

(a) Disassemble the PMA drive gear assembly, P/N 4A0322 as specified in Reference 4, EM, TASK 72-60-33-040-001.

1 Remove the old nut, P/N NAS1291C7 and the old drive gear, P/N 4B0286 from the PMA rotor shaft.

(b) Assemble the PMA drive gear assembly as specified in Reference 4, EM, TASK 72-60-33-440-001.

1 Install the new drive gear, P/N 4B0361 on the PMA rotor shaft.

2 Install the new nut, P/N 4P0360 on the PMA rotor shaft.

a Measure and record the prevailing torque of the nut, if the torque is not between 8.9 and 115 lbf-in (1.0 and 13.0 N.m) discard the nut.

3 Torque the nut to between 376.2 and 420.4 lbf-in (42.5 and 47.5 N.m) plus the prevailing torque measured in the previous step.

(c) Re-identify the reworked PMA drive gear assembly in accordance with the Rework Instructions (Refer to Step 1 of the Accomplishment Instructions section.

(4) Install the new or reworked PMA drive gear assembly, P/N 4A0359 on the external gearbox as specified in Reference 4, EM, TASK 72-00-60-450-012-C00.

3. Recording Instructions

A. A record of accomplishment is necessary.

Appendix

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EC07VF004	RR
1	EC07VF004	AVIO

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

To calculate part life, include the hours and/or cycles since the part was made. Use the total hours or cycles to calculate life limits that are the result of part modification, a part used in an engine with different thrust, or for some other reason.

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
CMM-EHC — A1, A5	All	EHC-V2500-1IA	2A4409
CMM-FN — A1, A5	All	FN-V2500-1IA	2A4410
CMM-MMC — A1, A5	All	MECH-V2500-1IA	2A4411
CMM-THD — A1, A5	All	THD-V2500-1IA	2A4412
TLM — A1, A5	All	T-V2500-1IA	2A4408
ENGINE MANUAL — D5	All	E-V2500-3IA	2A4416
CMM-EHC — D5	All	EHC-V2500-31A	2A4418
CMM-FN — D5	All	FN-V2500-3IA	2A4419
CMM-MMC — D5	All	MECH-V2500-3IA	2A4420
CMM-THD — D5	All	THD-V2500-3IA	2A4423
TLM — D5	All	T-V2500-3IA	2A4417
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	