

ALERT SERVICE BULLETIN

NON-MODIFICATION ALERT SERVICE BULLETIN — ENGINE FUEL AND CONTROL
— REPLACEMENT OF FUEL METERING VALVE DYNAMIC SEAL ON FUEL
METERING UNITS MANUFACTURED BY WOODWARD

MODEL APPLICATION
V2525-D5, V2528-D5

BULLETIN ISSUE SEQUENCE
V2500 Series 73-A0251

ATA NUMBER
73-22-52

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Compliance Category

3

P&W Distribution Code

V2500

November 19/19

V2500-ENG-73-A0251

Summary

The purpose of this Non-Modification Service Bulletin is to remove Fuel Metering Unit (FMU) manufactured by Woodward to have two (2) Dynamic Seals, PN 1382-222 replaced on the fuel metering Valve Assembly, PN 5225-888 piston prior to the time constraints outlined in the Compliance section of this Non-Modification Service Bulletin.

Planning Information

Effectivity Data

Engine Models Applicable

V2525-D5, V2528-D5

Engine Serial Nos. V20001 thru V20285 with FMU, PN 8061-632 or 8061-638 (Mfg. Woodward)

Concurrent Requirements

Reference 1, Non-Modification Alert Service Bulletin (NMASB) No. V2500-ENG-73-A0249 must be performed before compliance with this NMSB.

Reason

1. Condition: V2500-D5 engines have experienced three (3) loss of thrust control (LOTC) events where the engine has accelerated to maximum power with the inability for pilot to command engine to a lower power setting.
2. Background: The V2500-D5 engine has experienced three (3) events where the engine was unable to be pulled back from maximum power or have auto accelerated. Investigation of these events isolated the problem to the FMU Metering Valve Assembly, PN 5225-888, Reference 2, Component Maintenance Manual (CMM) Chapter/Section 73-28-06 Figure 3, item 380. The root cause is a worn Dynamic Seal, PN 1382-222, Reference 2, CMM Chapter/Section 73-28-06 Figure 3, Item 460 located on the resolver gear rack end of the Valve Assembly Piston, Reference 2, CMM Chapter/Section 73-28-06 Figure 3, Item 390. The dynamic seal was found to be worn through to the energization spring on the seal allowing leakage of metering valve inlet flow pressure in the valve to cross over to the valve piston positioning pressure side driving the valve assembly piston to the maximum flow stop.
3. Objective: Remove the Woodward Manufactured FMU, PN 8061-632 or 8016-638 from the engine every six thousand five hundred (6,500) hours after compliance with Reference 1, NMASB No. V2500-ENG-73-A0249 to have Valve Assembly Piston Dynamic Seals, PN 1382-222 replaced in accordance with Reference 2, CMM Chapter/Section 73-28-06 procedures. Remove from engine the identified FMU that has complied with Reference 1, NMASB No. V2500-ENG-73-A0249 and accumulated time of six thousand five hundred (6,500) hours on the dynamic seal by last shop visit (Time Since Repair (TSR), Time Since New (TSN) or Time Since Overhaul (TSO)). The removed FMU is to have two (2) dynamic seals replaced on the metering valve assembly piston. The seal replacement is to be accomplished in accordance with Reference 1, CMM Chapter/Section 73-28-06.
4. Substantiation: Investigation determined through FMU acceptance testing and disassembly inspection the root cause of a worn dynamic seal on the metering valve assembly piston. Replacement of the dynamic seals and repair of the FMU as specified in Reference 2, CMM Chapter/Section 73-28-06 procedures at the identified timeframe reduces risk to within acceptance criteria.

5. Effects of Bulletin on:
Removal/Installation: Not Affected.
Disassembly/Assembly: Not Affected.
Cleaning: Not Affected.
Inspection/Check: Not Affected.
Repair: Not Affected.
Testing: Not Affected.
6. Supplemental Information
None.

Description

Replace the FMU, manufactured by Woodward, for dynamic seal replacement as specified in Reference 2, CMM Chapter/Section 73-28-06.

Compliance

Category 3

Replace the two (2) Dynamic Seals, PN 1382-222 every six thousand five hundred (6,500) hours on FMU, PN 8061-632 or 8061-638.

NOTE: Reference 1, NMASB No. V2500-ENG-73-A0249 must be performed before compliance with this NMSB.

Approval Data

The compliance statement and the procedures described in this Service Bulletin have been shown to comply with the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine model listed.

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

Manpower

1. For Engines Installed On Aircraft
 - A. To Gain/Close Access 0.8 hours.
 - B. To Remove and Replace FMU 2.0 hours.
 - C. Total Necessary Man-Hours 2.8 hours.
2. For Engines Not Installed On Aircraft
 - A. To Remove and Replace FMU 2.0 hours.

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

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. NMASB V2500-ENG-73-A0249.
2. Woodward Component Maintenance Manual (CMM), Chapter/Section 73-28-06.
3. V2500 Standard Practices and Processes, P&W Ref. PN 2A4414, Chapter/Section 70-01-00.
4. V2500-D5 Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 73-22-52.
5. V2500-D5 Series Engine Manual, P&W Ref. PN 2A4416, Chapter/Section 72-00-60.
6. V2500-D5 Aircraft Maintenance Manual (AMM), Chapter/Section 73-21-52.

Other Publications Affected

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, a Technical Publications conversion table is provided in the Appendix.

1. V2500-D5, Series Illustrated Parts Catalog, P&W Ref. PN 2A4426, Chapter/Section 73-22-52.

Interchangeability of Parts

Interchangeability of the FMU, PN 8061-632 or PN 8061-638 between engine models; V2500-A5 and V2500-D5, is prohibited unless the Dynamic Seals, PN 1382-222 are replaced in compliance with this NMSB.

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 NMSB publication. Contact IAE Spares Management & Logistics for firm quotations.
2. There is no kit provided to do this NMSB.
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 V2525-D5, V2528-D5 Engines:

New PN	Qty	Estimate of Unit Price (\$)	Keyword	Old PN	Instructions — Disposition
	1	*	FUEL METERING UNIT	8061-632 (73-22-52-01-100 B) (73-22-52-01-100 D) (73-22-52-01-100 E) (73-22-52-01-100 J) (73-22-52-01-100 L)	(4)(P)(X)
	1	*	FUEL METERING UNIT	8061-638 (73-22-52-01-100 N)	(4)(P)(X)

Instructions/Disposition Code Statements:

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.

(4) Do an inspection as specified in the Accomplishment Instructions.

Spare Parts Availability

(P) Procure the part directly from the Supplier referenced in Vendor Services or Special Components.

(X) See Reference 4, V2500-D5 Series Illustrated Parts Catalog for applicable replacement parts.

NOTE: For part numbers 8061-632 and 8061-638, replace with either part number with TSN or TSO = 0:00 or have last shop visit that replaced the Dynamic Seals, PN 1382-222 at last repair or per this NMSB.

Vendor Services or Special Components/Materials

P&W Designation	Vendor Designation	Name	Vendor Name & Address
8061-632	8061-632	FUEL METERING UNIT	Woodward Aircraft Engine Services 5001 North Second Street P.O. Box 7001 Rockford, IL 61125-7001 USA Telephone: 815-877-7441
8061-638	8061-638		
Vendor Manufacturer's Code: 66503 See Illustrated Parts Catalog Vendor Manufacturer's Code List			

NOTE: EXCEPT FOR WORK OR SUPPLIES TO BE PERFORMED OR FURNISHED BY IAE, IT IS UNDERSTOOD THAT IAE DOES NOT ENDORSE THE WORK PERFORMED BY THE COMPANY OR COMPANIES NAMED HEREIN OR ANY OTHER COMPANY AND DOES NOT ACCEPT RESPONSIBILITY TO ANY DEGREE FOR THE SELECTION OF SUCH COMPANY OR COMPANIES FOR THE PERFORMANCE OF ANY WORK OR PROCUREMENT OF SUPPLIES.

Tooling — Price and Availability

Special tools are not required to accomplish this NMSB.

Reidentified Parts

Not Applicable.

Other Material Information Data

Not Applicable.

Accomplishment Instructions

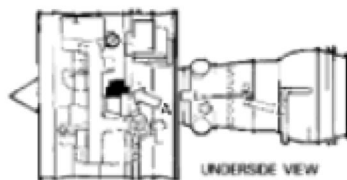
For Engines Installed On Aircraft:

NOTE: NMSB incorporation on engines installed on aircraft may be desirable and should be individually evaluated.

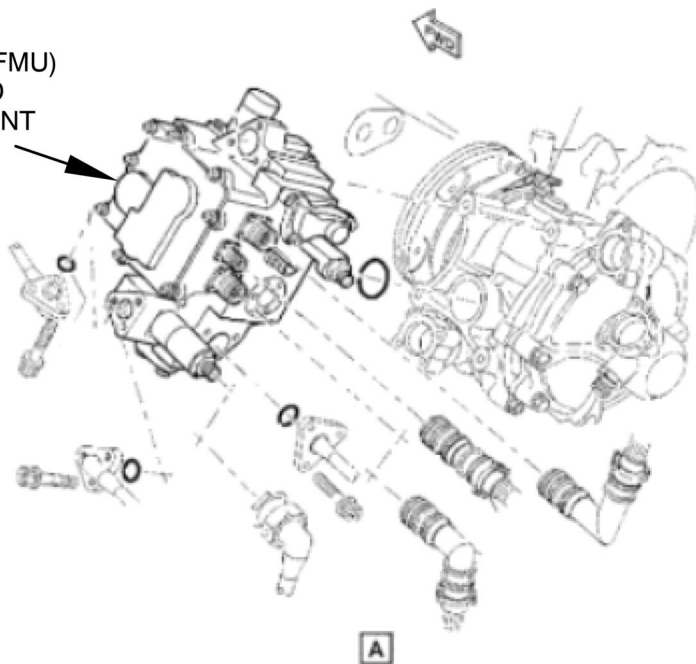
1. Replace the FMU, PN 8061-632 or PN 8061-638 with an FMU, that meets the compliance requirements of this NMSB.
 - A. Remove the FMU as specified in Reference 6, with Aircraft Maintenance Manual TASK 73-21-52-020-801.
 - B. Install replacement FMU as specified in Referenc. 6, with Aircraft Maintenance Manual, Task 73-21-52-420-801.
2. Return the removed FMU to a shop capable of performing the work to the FMU as specified in Reference 2, CMM Chapter/Section 73-28-06, to replace the two (2) Dynamic Seals, PN 1382-222 located on Fuel Metering Valve Assembly, PN 5225-888, Reference 2, CMM 73-28-06 Figure 3, Item 380, and the piston, Reference 2, CMM 73-28-06 Figure 3, Item 390.
3. Recording Instructions
 - A. A record of accomplishment is required. Operators must track replacement of dynamic seal against respective FMU serial numbers. Reset Dynamic Seal, PN 1382-222 time to zero after every replacement of the seal.

For Engines Not Installed On Aircraft:

1. Replace the FMU, PN 8061-632 or PN 8061-638, with an FMU that meet the compliance requirements of this NMSB.
 - A. Remove the FMU as specified in Reference 5, V2500-D5 Series Engine Manual, Task 72-00-60-050-002. Refer to Figure 1.
 - B. Install replacement FMU as specified in Reference. 5, V2500-D5 Series Engine Manual, TASK 72-00-60-450-002. Refer to Figure 1.
2. Return the removed FMU to a shop capable of performing the work to the FMU as specified in Reference 2, CMM Chapter/Section 73-28-06, to replace the two (2) Dynamic Seals, PN 1382-222 located on Fuel Metering Valve Assembly, PN 5225-888, Reference 2, CMM 73-28-06 Figure 3, Item 380, and the piston, Reference 2, CMM 73-28-06 Figure 3, Item 390.
3. Recording Instructions
 - A. A record of accomplishment is required. Operators must track replacement of dynamic seal against respective FMU serial numbers. Reset Dynamic Seal, PN 1382-222 time to zero after every replacement of the seal.



8061-632 OR 8061-638
FUEL METERING UNIT (FMU)
REPLACE AS SPECIFIED
IN THE ACCOMPLISHMENT
INSTRUCTIONS



B529151

LOCATION OF THE FUEL METERING UNIT
FIGURE 1

November 19/19

V2500-ENG-73-A0251

Page 8

Appendix

Added Data

Internal Reference Information

Revision No.	Reference Document	Origination
Original	EA19VC519	RG/RCM

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.

NOTE: In 2014 IAE converted the V2500 Technical Publications to a new system. As a result of the conversion, some manuals were consolidated. All manuals received new P&W part numbers. To facilitate the use of this Service Bulletin, the following Technical Publications cross reference table is provided.

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-V2500-3IA	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	