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: Nov.18/11

V2500-A5/D5 PROPULSION SYSTEMS SERVICE BULLETIN

This document transmits the Revision 1 of IAE Service Bulletin V2500-ENG-73-0223, the Initial Issue of Woodward Governor Company Service Bulletin 83724-73-0223 and the Initial Issue Woodward Governor Company Service Bulletin 83724-73-0006.

Document History

Service Bulletin Revision Status

Initial Issue	Feb.24/11.

Service Bulletin Revision 1

Remove	Incorporate	Reason for change
All pages of the IAE Service Bulletin.	Pages 1 to 17 of the IAE Service Bulletin V2500-ENG-73-0223.	To revise Chart 4. To add conversion instructions between hi/low flow (Woodward Governor Company Service Bulletin 83724-73-0006).

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

All pages of the Supplement.	Page 1 of the Supplement.	No change.
All pages of the Woodward Governor Company Service Bulletin.	Woodward Governor Company Service Bulletin 83724-73-0223.	No change.
	Woodward Governor Company Service Bulletin 83724-73-0006.	Initial Issue.

SERVICE BULLETIN

ENGINE – FUEL METERING UNIT (FMU) – SHUT– OFF VALVE MODIFICATIONS AND CONVERSION INSTRUCTIONS BETWEEN WOODWARD GOVERNOR FUEL METERING UNITS 8061–639 AND 8061–640

1. Planning Information

A. Effectivity

(1) Airbus A319

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. V15850 (A5 SelectOne™ Production Standard).

(a) Fuel Metering Unit (FMU) P/N 8061–636.

(2) Airbus A320

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. V15850 (A5 SelectOne™ Production Standard).

(a) Fuel Metering Unit (FMU) P/N 8061–636.

(3) Airbus A321

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. V15850 (A5 SelectOne™ Production Standard).

(a) Fuel Metering Unit (FMU) P/N 8061–637 and P/N 8061–632.

(4) Boeing MD–90

V2525–D5, V2528–D5 Engines prior to Serial No. V20286.

(a) Fuel Metering Unit (FMU) P/N 8061–632.

(5) ATA locator 73–22–52.

B. Concurrent Requirements

The Service Bulletin that follows must be done at the same time as this one:

V2500-ENG-73-0215 - ENGINE - FUEL METERING UNIT (FMU) - TURBINE OVER SPEED VALVE - INTRODUCTION OF A MODIFIED ELECTRO-HYDRAULIC SERVO VALVE COMPARTMENT HEAT SHIELD.

C. Reason

(1) Condition

There have been a number of occurrences where it was not possible to shut down the engine on ground by using the master control lever in the aircraft cockpit.

This has been identified as a fault of the dual airframe coil which controls the FMU shut off valve on a Woodward Governor Company Fuel Metering Unit. The dual airframe coils can exhibit environmentally induced magnet wire fractures due to internal construction features leading latent coil performance issues and the inability to shutdown the engine.

(2) Background

This has been experienced on engines in service.

(3) Objective

Incorporation of this Service Bulletin is designed to improve reliability.

(4) Substantiation

The changes introduced by this Service Bulletin have been 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

(1) This Service Bulletin introduces a Fuel Metering Unit (FMU) with four modified shut off valve coils.

The changes introduced are:

(a) The two lead wire jumpers on the airframe coil are extended over the bobbin centre flange, to make the parallel circuit.

(b) The current airframe and EEC coil wires bend 90 degrees to the bobbin barrel. This causes a point of stress. The 90 degree bend is deleted and a tangential start wire is installed.

(c) The magnet start wires are moved from the outer flange to the centre flange of the bobbin to provide a more stable condition.

(d) The process of manufacture for the coil has been changed:

(i) The eccoseal potting material has been deleted.

(ii) A thermal stabilisation process has been added for the coil bobbin.

(iii) The diode pack has been repositioned within the coil assembly.

NOTE: The changes to the shut off valve coils, change the part numbers for the existing three standards of Woodward Governor Company FMU. The new FMU part numbers include the revised FMU heat shield introduced by Service Bulletin V2500-ENG-73-0215.

E. Compliance

Category Code 6

Accomplish when the sub assembly (i.e. modules, accessories, components, build groups) is disassembled sufficiently to afford access to the affected part and to all affected spare 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.

R The technical content of this document is approved under the authority of DOA
R No. EASA.21J.031.

G. Manpower

(1) In service

2 hours.

(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 the supplement to this Service Bulletin.

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) A319/A320 Aircraft Maintenance Manual, Chapter 73-22-52, TASK 73-22-52-000-010.

(2) MD90 Aircraft Maintenance Manual, Chapter 73-21-52, PB401.

(3) IAE V2500 Engine Manual (E-V2500-1IA/3IA), Chapter 72-00-32.

(4) Internal Reference No.

Engineering Changes No.: 08VI005, 08VI005-01, 08VI005-02, 08VI005-03, 08VI005A and 08VI005B.

(5) This Service Bulletin is subject to Aircraft Modification No. 151096 and is covered by A/C Service Bulletin Number A320-73-1099.

Under no circumstances shall the modified equipment, resulting from the application of this SB, be installed on the aircraft type unless the corresponding modification, and if applicable, its aircraft SB are approved.

(6) ATA Locator - 73-22-52.

O. Other Publications Affected

(1) V2500 Engine Illustrated Parts Catalogs (S-V2500-2IB, S-V2500-2SB, S-V2500-5IB, S-V2500-5SB, S-V2500-6IB, S-V2500-6SB and S-V2500-7IB), Chapter 73-22-52 will be amended to incorporate the new part numbers (Refer to paragraph 2.Material Information).

P. Interchangeability of Parts

Not affected.

2. Material Information

A. The kit required consists of the following parts:

None.

B. Parts to be reworked:

None.

C. New production parts:

FIG ITEM NO.	NEW PART NO.	QTY	PART TITLE	MAT	OLD PART NO.	INSTR DISP
73-22-52						
A5 Models						
01-100	8061-639	1	Fuel Metering Unit (FMU)	-	8061-636	(A)(B)(1D)
01-100	8061-640	1	Fuel Metering Unit (FMU)	-	8061-637	(A)(B)(1D)
01-100	8061-638	1	Fuel Metering Unit (FMU)	-	8061-632	(A)(B)(1D)
D5 Models						
01-100	8061-638	1	Fuel Metering Unit (FMU)	-	8061-632	(A)(B)(1D)

D. Instructions disposition codes:

(A) New and old parts are freely and fully interchangeable.

(B) Part is currently available for sale.

(1D) The part can be reworked from the old standard to the new standard by the manufacturer or an authorized repair facility only.

3. Accomplishment Instructions

A. Rework Instructions

R (1) For the rework to the new Fuel Metering Unit (FMU) part number (8061-638,
R 8061-639 or 8061-640):

Refer to the attached Woodward Governor Company Service Bulletin 83724-73-0223.

R (2) For the conversion instructions between Fuel Metering Unit (FMU) part
R numbers (8061-639 and 8061-640):

R Refer to the attached Woodward Governor Company Service Bulletin
R 83724-73-0006.

B. Assembly Instructions

(1) Make a check that the data plate on the Fuel Metering Unit (FMU) does not contain V2500-ENG-73-0223.

(2) For the correct Removal/Installation procedure of the FMU, refer to one of the manuals that follow:

(a) A319/320/321 Aircraft Maintenance Manual, Chapter/Section 73-22-52, Removal/Installation.

(b) MD90 Aircraft Maintenance Manual, Chapter/Section 73-21-52, Removal/Installation.

(c) IAE V2500-A5/D5 Engine Manual, Chapter/Section 72-00-60, Removal/Installation.

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

(3) Remove the old FMU and return it to the manufacturer or authorized repair facility in accordance with the attached Woodward Governor Company Service Bulletin 83724-73-0223.

(4) Install a FMU modified in accordance with Service Bulletin V2500-ENG-73-0223.

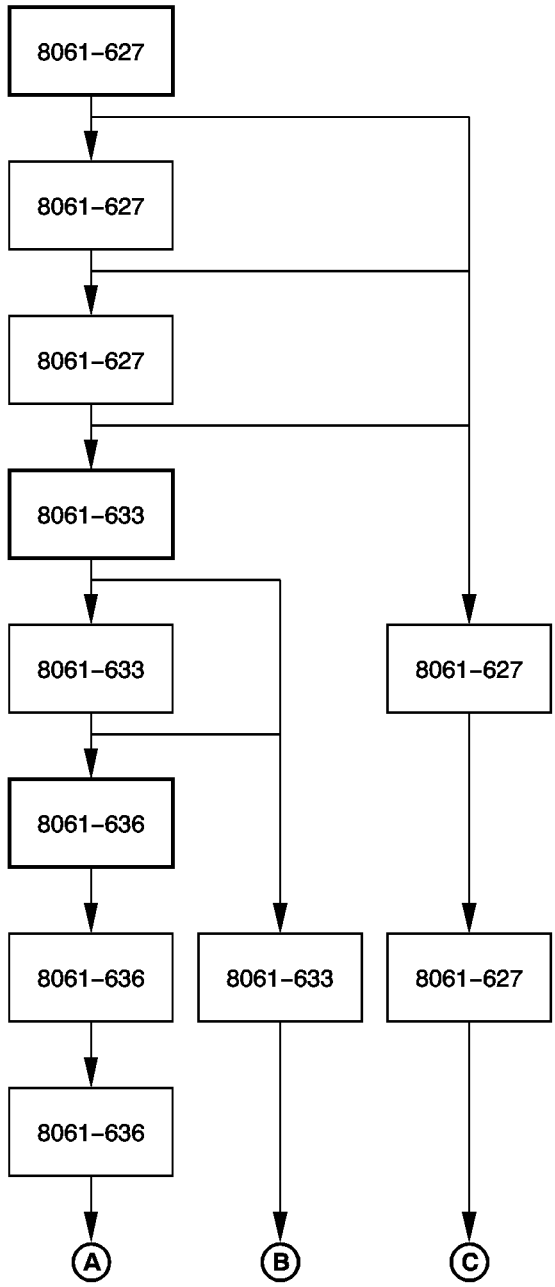
(5) For further information, refer to the attached Woodward Governor Company Service Bulletin 83724-73-0223.

C. Recording Instructions

(1) A record of accomplishment is required.

V2522–A5 and V2524–A5 FMU Family Tree*

Service Bulletin Number	Unit Mod Plate Endorsement
V2500–ENG–73–0097 Introduction of Woodward Governor Company (WGC) Fuel Metering Unit (FMU)	**NONE**
V2500–ENG–73–0101 Introduction of WGC FMU with strengthened housing	**ENG–73–0101**
V2500–ENG–73–0136 Introduction of WGC FMU with revised servovalve cover	**ENG–73–0136**
V2500–ENG–73–0158 Introduction of WGC FMU with revised max fuel flow stop (A319)	**NONE**
V2500–ENG–73–0151 Introduction of WGC FMU with revised microswitch	**ENG–73–0151**
V2500–ENG–73–0172 Introduction of WGC switchable FMU suitable for all V2500–A5 engine models	**NONE**
V2500–ENG–73–0179 Introduction of a WAES FMU with revised standard of Vespel ball Unit (FMU)	**ENG–73–0179**
V2500–ENG–73–0097 Introduction of a WAES FMU with revised FMV max. fuel flow stop & nameplate tamper proofing	**ENG–73–0182**



Continued on Sheet 2

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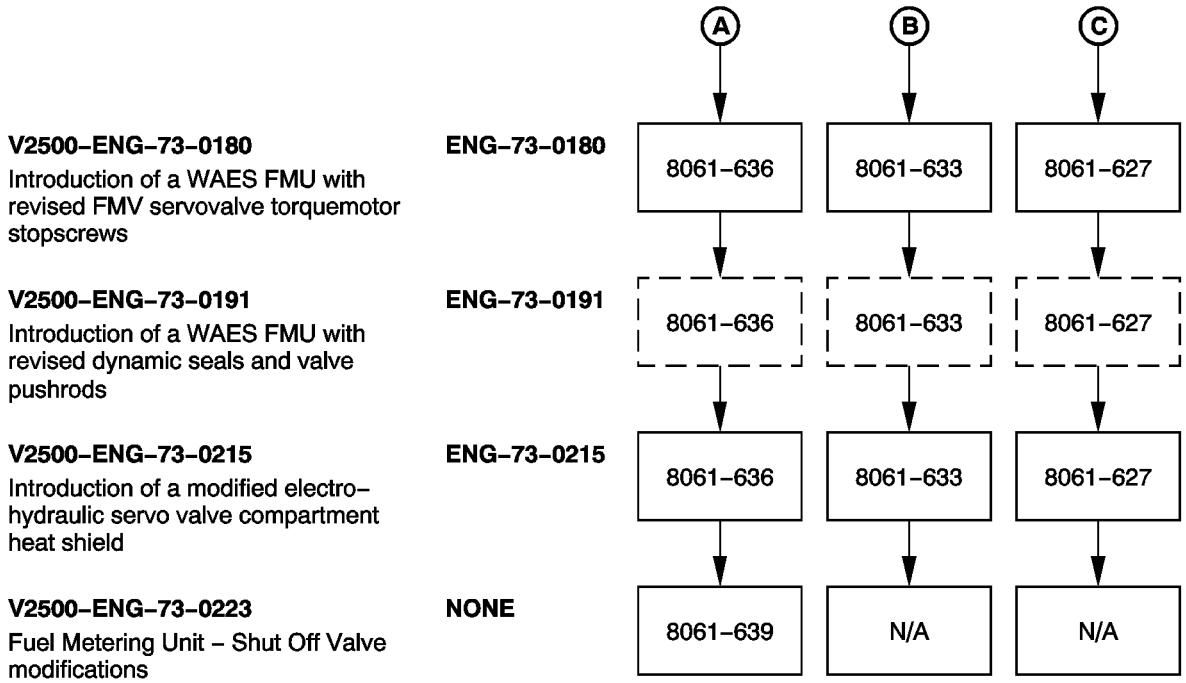
V2522–A5 and V2524–A5 FMU Family Tree
Chart 1 (sheet 1 of 2)

V2522–A5 and V2524–A5 FMU Family Tree*

Continued from Sheet 1



*This family tree is not intended to represent the combination of modifications fitted to units in service

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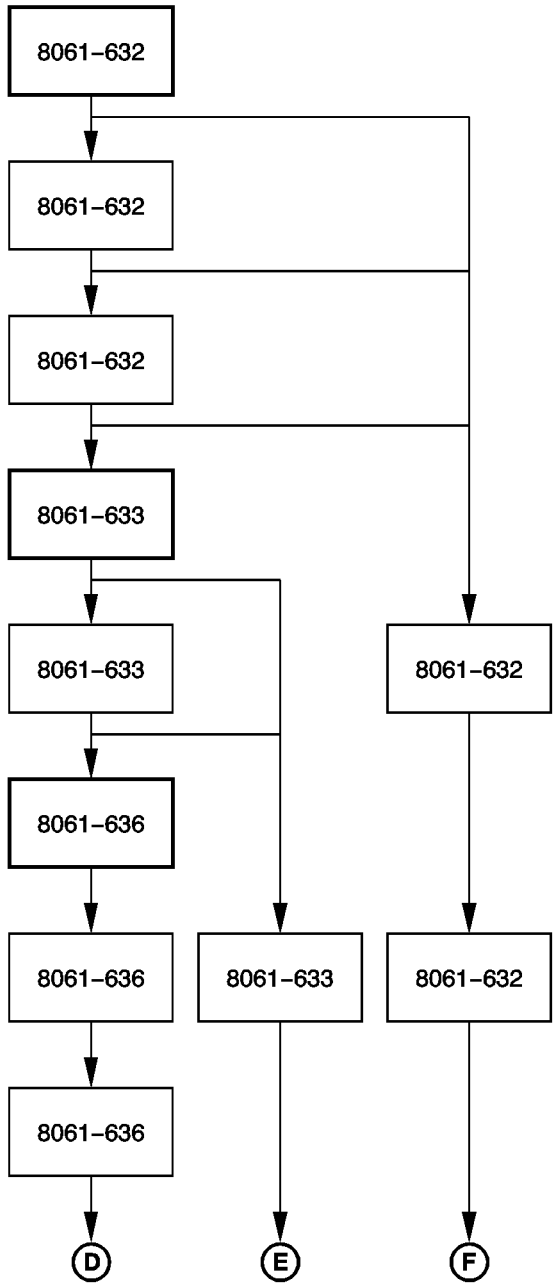
V2522–A5 and V2524–A5 FMU Family Tree
Chart 1 (sheet 2 of 2)

V2527–A5 and V2527E–A5 FMU Family Tree*

Service Bulletin Number	Unit Mod Plate Endorsement
V2500–ENG–73–0087 Introduction of Woodward Governor Company (WGC) Fuel Metering Unit (FMU)	**NONE**
V2500–ENG–73–0101 Introduction of WGC FMU with strengthened housing	**ENG–73–0101**
V2500–ENG–73–0136 Introduction of WGC FMU with revised servovalve cover	**ENG–73–0136**
V2500–ENG–73–0157 Introduction of WGC FMU with revised max fuel flow stop (A320)	**NONE**
V2500–ENG–73–0151 Introduction of WGC FMU with revised microswitch	**ENG–73–0151**
V2500–ENG–73–0172 Introduction of WGC switchable FMU suitable for all V2500–A5 engine models	**NONE**
V2500–ENG–73–0179 Introduction of a WAES FMU with revised standard of Vespel ball	**ENG–73–0179**
V2500–ENG–73–0182 Introduction of a WAES FMU with revised FMV max. fuel flow stop & nameplate tamper proofing	**ENG–73–0182**



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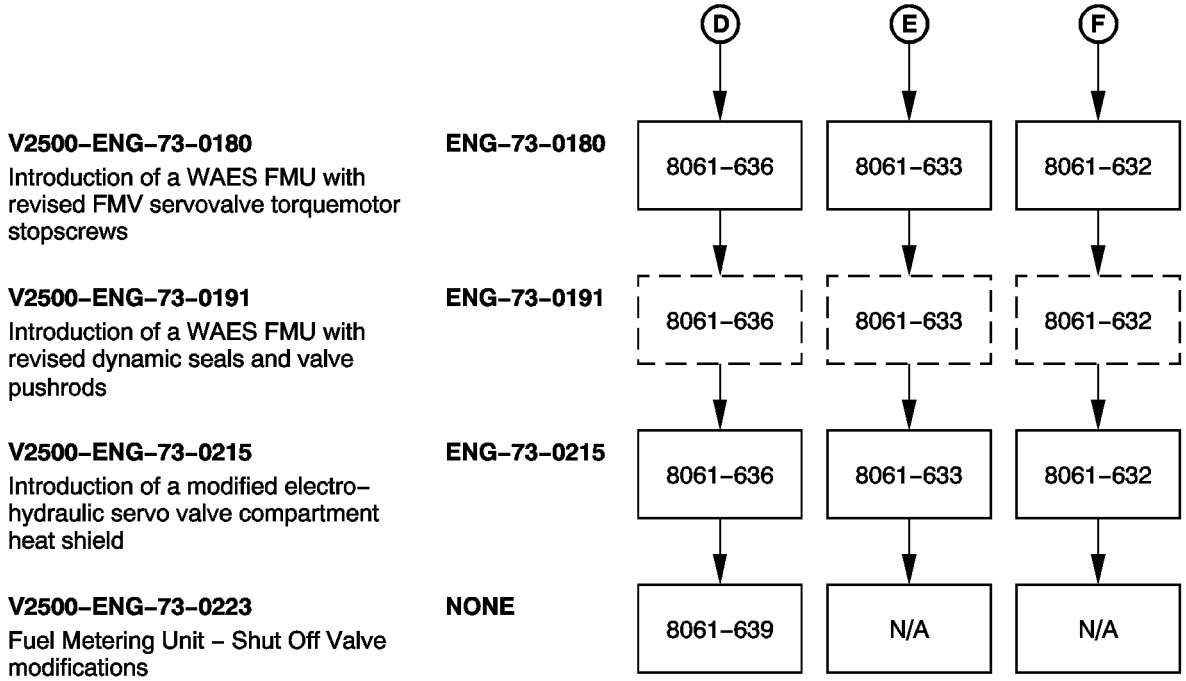
V2527–A5 and V2527E–A5 FMU Family Tree
Chart 2 (sheet 1 of 2)

V2527-A5 and V2527E-A5 FMU Family Tree*

Continued from Sheet 1



*This family tree is not intended to represent the combination of modifications fitted to units in service

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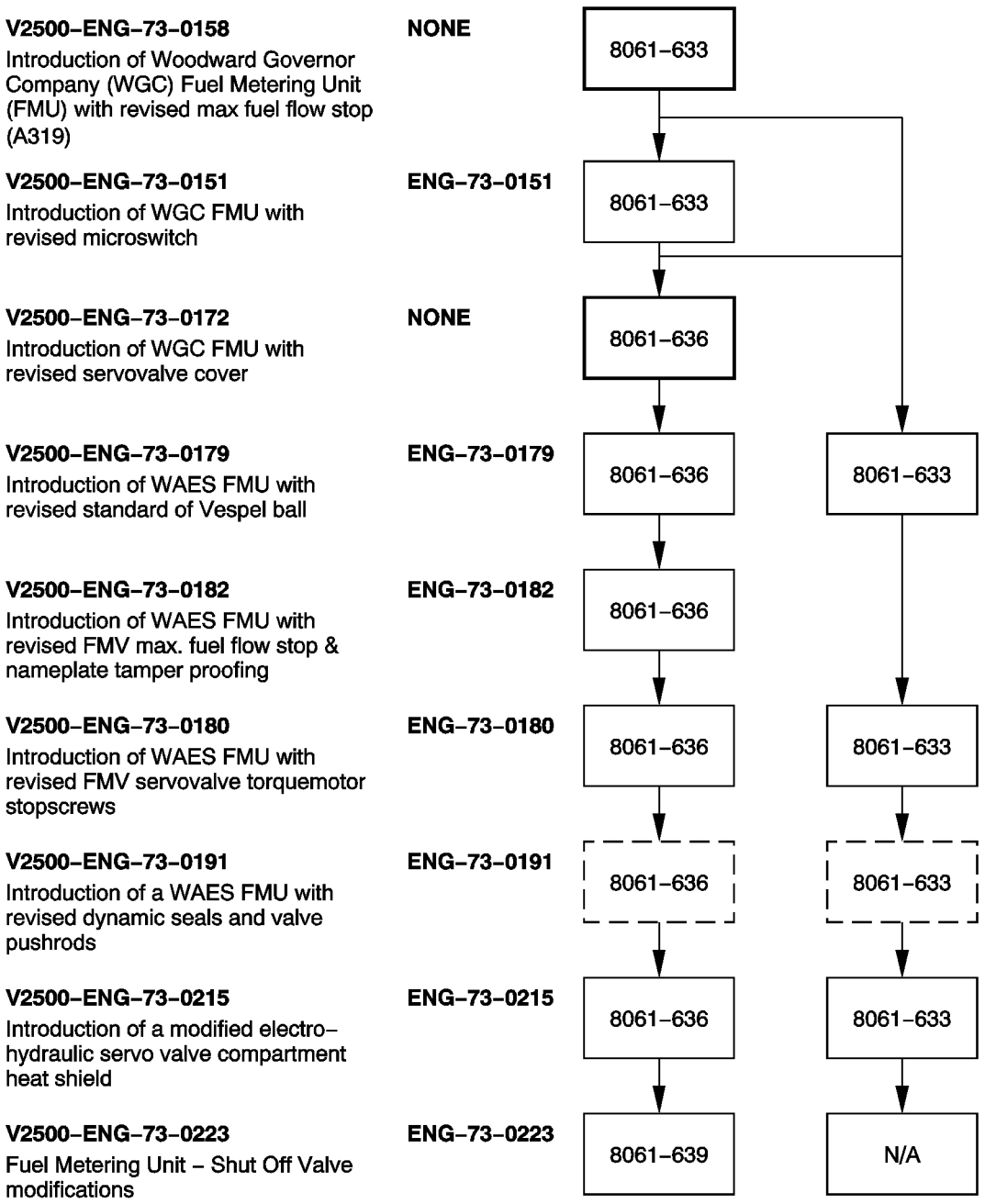
V2527-A5 and V2527E-A5 FMU Family Tree
Chart 2 (sheet 2 of 2)

V2527M–A5 FMU Family Tree*



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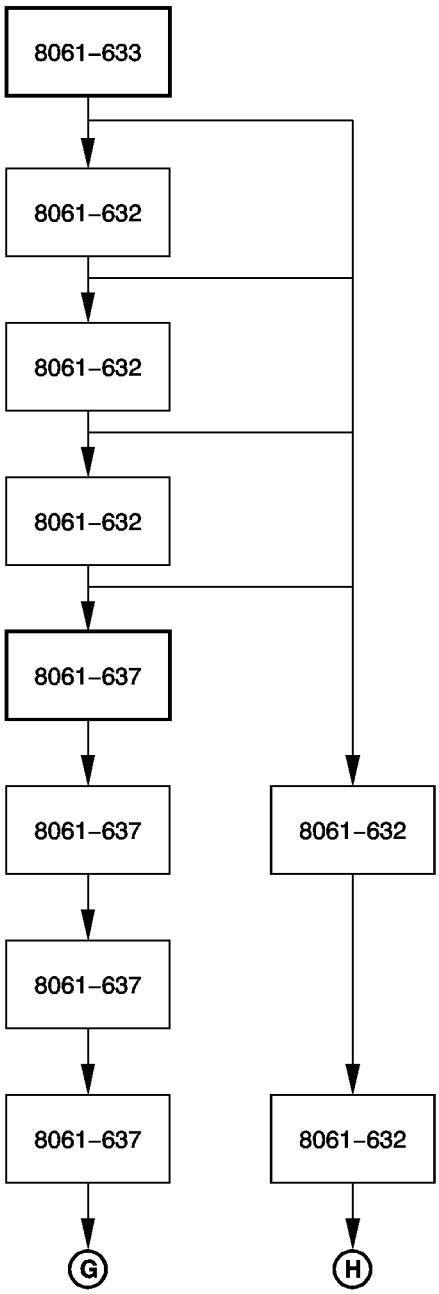
*This family tree is not intended to represent the combination of modifications fitted to units in service

V2527M–A5 FMU Family Tree
Chart 3 (sheet 1 of 1)

V2530–A5 and V2533–A5, FMU Family Tree*

Service Bulletin Number	Unit Mod Plate Endorsement
V2500–ENG–73–0087 Introduction of Woodward Governor Company (WGC) Fuel Metering Unit (FMU)	**NONE**
V2500–ENG–73–0101 Introduction of WGC FMU with strengthened housing	**ENG–73–0101**
V2500–ENG–73–0136 Introduction of WGC FMU with revised servovalve cover	**ENG–73–136**
V2500–ENG–73–0151 Introduction of WGS FMU with revised microswitch	**ENG–73–0151**
V2500–ENG–73–0172 Introduction of WGC switchable FMU suitable for all V2500–A5 engine models	**NONE**
V2500–ENG–73–0179 Introduction of WAES FMU with revised standard of Vespel ball	**ENG–73–0179**
V2500–ENG–73–0182 Introduction of a WAES FMU with revised FMV max. fuel flow stop & nameplate tamper proofing	**ENG–73–0182**
V2500–ENG–73–0180 Introduction of a WAES FMU with revised FMV servovalve torquemotor stopscrews	**ENG–73–0180**



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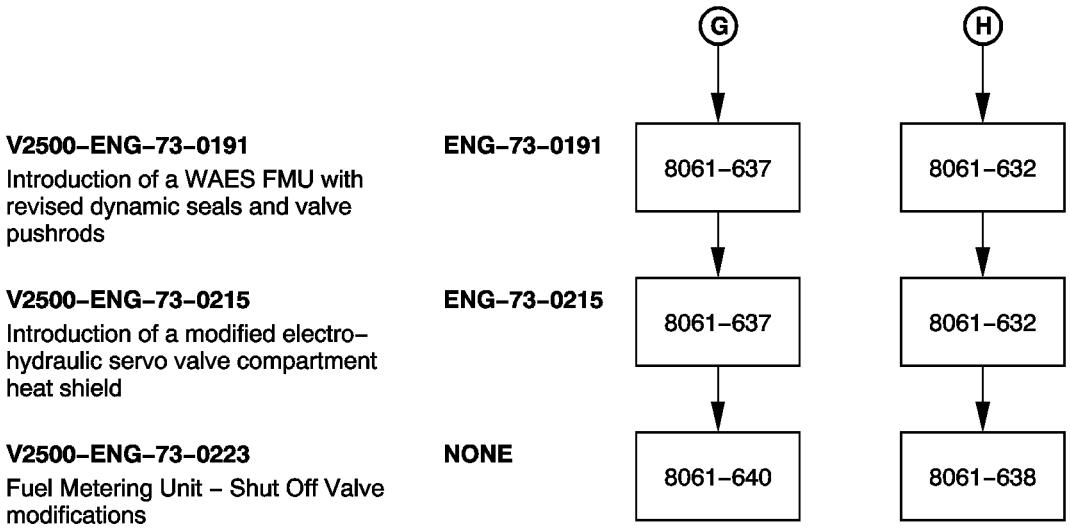
V2530–A5 and V2533–A5 FMU Family Tree
Chart 4 (sheet 1 of 2)

V2530–A5 and V2533–A5, FMU Family Tree*

Continued from Sheet 1



*This family tree is not intended to represent the combination of modifications fitted to units in service

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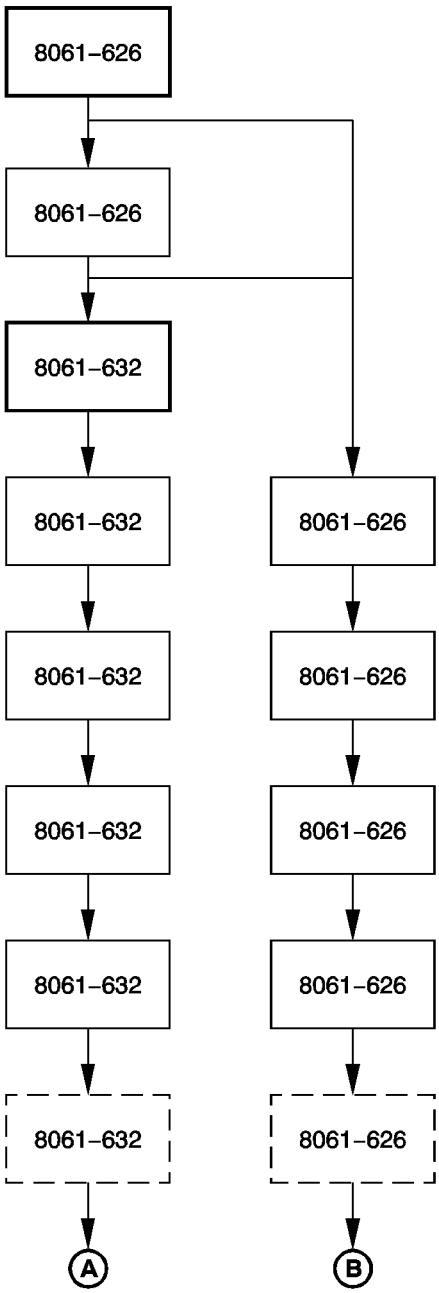
V2530–A5 and V2533–A5 FMU Family Tree
Chart 4 (sheet 2 of 2)

V2525-D5 and V2528-D5 FMU Family Tree*

Service Bulletin Number	Unit Mod Plate Endorsement
V2500-ENG-73-0085 Introduction of Woodward Governor Company (WGC) Fuel Metering Unit (FMU)	**NONE**
V2500-ENG-73-0101 Introduction of WGC FMU with strengthened housing	**ENG-73-0101**
V2500-ENG-73-0108 Introduction of WGC FMU with fuel flow straightener	**ENG-73-0108**
V2500-ENG-73-0136 Introduction of WGC FMU with revised servovalve cover	**ENG-73-0136**
V2500-ENG-73-0151 Introduction of WGC FMU with revised microswitch	**ENG-73-0151**
V2500-ENG-73-0179 Introduction of WAES FMU with revised standard of Vespell ball	**ENG-73-0179**
V2500-ENG-73-0180 Introduction of a WAES FMU with revised FMV servovalve torquemotor stopscrews	**ENG-73-0180**
V2500-ENG-73-0191 Introduction of a WAES FMU with revised dynamic seals and valve pushrods	**ENG-73-0191**



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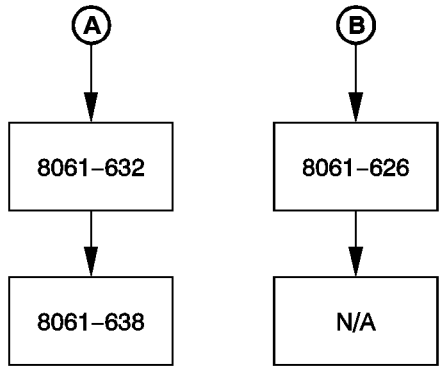
V2525-D5 and V2528-D5 FMU Family Tree
Chart 5 (sheet 1 of 2)

V2525–D5 and V2528–D5 FMU Family Tree*

Continued from Sheet 1



V2500–ENG–73–0215
Introduction of a modified electro–hydraulic servo valve compartment heat shield

ENG–73–0215

V2500–ENG–73–0223
Fuel Metering Unit – Shut Off Valve modifications

NONE

*This family tree is not intended to represent the combination of modifications fitted to units in service

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V2525–D5 and V2528–D5 FMU Family Tree
Chart 5 (sheet 2 of 2)

SERVICE BULLETIN

ENGINE – FUEL METERING UNIT (FMU) – SHUT– OFF VALVE MODIFICATIONS AND CONVERSION INSTRUCTIONS BETWEEN WOODWARD GOVERNOR FUEL METERING UNITS 8061–639 AND 8061–640

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
8061–638	.Fuel Metering Unit (FMU)	172,731.00
8061–639	.Fuel Metering Unit (FMU)	172,731.00
8061–640	.Fuel Metering Unit (FMU)	172,731.00

3. Tools

   None.

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PO Box 7001
Rockford, Illinois 61125, USA

ENGINE FUEL AND CONTROL - FUEL METERING UNIT (FMU) - Incorporation of Modified Shutoff (SOV) Servo Valve. Introduction of New Models 8061-638, 8061-639 & 8061-640

1. Planning Information

A. Effectivity

This Service Bulletin affects the following Fuel Metering Units (FMUs) manufactured by Woodward Aircraft Engine Systems: 8061-626, 8061-627, 8061-632, 8061-633, 8061-636 and 8061-637.

The V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5, V2525-D5, and V2528-D5 engines are affected.

B. Concurrent Requirements

Prior to the accomplishment of this service bulletin, model numbers 8061-626*, 8061-627, and 8061-633 require conversion to one of the following model numbers: 8061-632, 8061-636, or 8061-637.

NOTE: * See Material Information section in this document for details on the 8061-626 FMU models.

The following service bulletins must be completed prior to accomplishment of this service bulletin:

- SB 83724-73-0151 Replacement of Switches, P/N 1715-254
- SB 83724-73-0179 Replacement of Vespel Balls, P/N 1419-240
- SB 83724-73-0180 Incorporation of Modified Fuel Metering Valve (FMV) Servovalve
- SB 83724-73-0182 Incorporation of Improved Tamper proofing for the Switchable FMU
- SB 83724-73-0191 Incorporation of Pressure Raising Valve switch activation rod and dry drain seals, and Overspeed Valve switch actuation rod
- SB 83724-73-0215 Incorporation of Electrical Cover.

C. Reason

Objective: To introduce an improved PRSOV servo valve.

Condition: Several field returns for coil resistance out of tolerance related to the airframe (A/F) shutoff coil in the servo valve, which may result in the need to use an authorized alternative shutdown method.

Cause: The shutoff A/F coil can exhibit environmentally induced magnet wire fractures due to internal construction features leading latent coil performance issues and the inability to shutdown the engine.

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PO Box 7001
Rockford, Illinois 61125, USA

Improvement: A new A/F coil with improvements made to manufacture including but not limited to, jumper wire gauge, start winding orientation, impregnation changes, strain relief, and solder joint locations. Similar improvements made to the EEC coils concurrently where applicable.

Substantiation: The coil and servo valve performed and successfully completed testing set forth by IAE Engineering. Testing confirmed that the proposed design will provide sufficient additional performance margin with no change to the function and reliability of the SOV servo valve.

D. Description

This Service Bulletin introduces a new replacement SOV servo valve for all Woodward V2500 FMU's.

E. Compliance

Category 6 -Accomplish when the servo valve P/N 1886-374 is unserviceable or at the request of the customer during any shop visit. Woodward no longer supports servo valve P/N 1886-374, therefore, P/N 1886-374 will require replacement by servo valve P/N 1350-5078 per this service bulletin.

F. Approval

S/B 83724-73-0223 has been technically approved by IAE on February 22, 2011 in accordance with appropriate FAR regulations and the technical data is FAA approved for those units listed herein.

G. Manpower

An estimated 1.0 hour, not including test, is required to perform this service bulletin at an authorized repair facility on a unit which has been removed from engine.

H. Weight and Balance

There is no change in weight and balance.

I. Electrical Load Data

Not applicable.

J. Software Accomplishment Summary

Not applicable.

Woodward, Inc.
5001 North Second Street
PO Box 7001
Rockford, Illinois 61125, USA

K. References

Woodward Aircraft Engine Systems Component Maintenance Manual 73-28-06. Woodward Aircraft Engine Systems Engineering Change E/C R- 1138407 (for internal use only).

L. Other Publications Affected

Not applicable.

2. Material Information

A. Material - Price and Availability

NOTE: Conversion instructions are not available to update an 8061-626 model number FMU. Therefore, if an 8061-626 model FMU requires the replacement of an 1886-374 servo valve, the FMU shall be returned to Woodward for exchange. Contact Woodward Aircraft Engine Systems for part availability and pricing.

A servo valve exchange program is available to accomplish this service bulletin. Affected servo valves must be returned to Woodward to receive exchange hardware. Contact Woodward Aircraft Engine Systems for part availability and pricing.

Woodward Aircraft Engine Services
5001 North Second Street
P.O. Box 7001
Rockford, IL 61125-7001
USA
Telephone: 815-877-7441

or

Woodward Aircraft Engine Services Prestwick
5 Shawfarm Road
Prestwick
Ayrshire, Scotland KA9 2TR

B. Industry Support Information

Not applicable.

Woodward, Inc.
5001 North Second Street
PO Box 7001
Rockford, Illinois 61125, USA

C. Material Necessary for Each Aircraft/Engine/Component

Part Name	Replacement Part Number	IPL Figure and Item Number	Number of Replacement Parts Needed for Each Affected Component
Cover Packing	1355-794	1 100	1
Shutoff Servo Valve	1350-5078	1 280A	1
Shutoff Valve Packing	182748	1 310	5
Pin Contacts	1633-678	1 190	2
Pin Contacts	1633-710	1 140	4
Strap	1608-500	1 360	4
Strap	1609-548	1 370	2
Nameplate	3082-284 or 3082-308	1 400/400A 1 400B	1 1
Dataplate	3081-568	1 420	1

D. Material Necessary for Each Spare

Part Name	Replacement Part Number	IPL Figure and Item Number	Number of Replacement Parts Needed for Each Affected Component
Cover Packing	1355-794	1 100	1
Shutoff Servo Valve	1350-5078	1 280A	1
Shutoff Valve Packing	182748	1 310	5
Pin Contacts	1633-678	1 190	2
Pin Contacts	1633-710	1 140	4
Strap	1608-500	1 360	4
Strap	1609-548	1 370	2
Nameplate	3082-284 or 3082-308	1 400/400A 1 400B	1 1
Dataplate	3081-568	1 420	1

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E. Reidentified Parts

Old Control Part Number	New Control Part Number
8061-632	8061-638
8061-636	8061-639
8061-637	8061-640

F. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions

NOTE: Service Bulletins listed in Concurrent Requirements section must be completed prior to this service bulletin.

(1) Remove electrical cover 3550-1563, as specified in CMM 73-28-06, to gain access to shutoff servo valve 1886-374.

(2) Remove 1355-794 cover packing and discard.

(3) Remove 1608-500 (quantity 4) and 1609-548 (quantity 2) straps and discard.

(4) Remove SOV servo valve 1886-374 and discard or return to Woodward.

(5) Remove 182748 (quantity 5) packings and discard.

(6) Install new 182748 (quantity 5) packings.

(7) Install new 1633-678 (quantity 2) and new 1633-710 (quantity 4) contacts.

(8) Install new SOV servo valve 1350-5078.

(9) Install new 1608-500 (quantity 4) and new 1609-548 (quantity 2) straps.

(10) Install new 1355-794 cover packing.

(11) Install electrical cover 3550-1563.

(12) Finish assemble the FMU.

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(13) Test the FMU as specified in TESTING AND FAULT ISOLATION. Testing shall be completed per the predecessor model shown in the Reidentified Parts table (see above) until the CMM has been updated to include the newest model part numbers.

(14) Replace nameplate 3082-284 or 3082-308 with a new one. Mark control part number information.

(15) Replace dataplate 3081-568 with a new one. Do not mark any service bulletin numbers. Leave blank except for FMU serial number.

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Fuel and Control - Fuel Metering Unit (FMU) - Conversion Instructions for 8061-639/8061-640

1. Planning Information

A. Effectivity

This Service Bulletin affects the following Fuel Metering Units manufactured by Woodward Aircraft Engine Systems: 8061-639 and 8061-640. The following V2500-A5 engine models are affected: V2522, V2524, V2527, V2527M, V2527E, V2530, and V2533.

B. Concurrent Requirements

Not applicable.

C. Reason

This Service Bulletin provides instructions for FMU models 8061-639/8061-640 that allow either unit to be reset to the alternative model.

D. Description

Model 8061-639 may be converted into 8061-640 (and vice versa) as described in the Accomplishment Instructions of this document.

E. Compliance

Category code 7 in accordance with customer requirements.

F. Approval

S/B 83724-73-0006 has been technically approved by IAE on September 23, 2011 in accordance with appropriate FAR regulations and is FAA approved for those units listed herein.

G. Manpower

An estimated 20 minutes is required to perform this service bulletin.

H. Weight and Balance

Not applicable.

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I. Electrical Load Data

Not applicable.

J. Software Accomplishment Summary

Not applicable.

K. References

Woodward Aircraft Engine Systems Component Maintenance Manual, 73-28-06.

Woodward Aircraft Engine Systems S/B 83724-73-0005.

IAE S/B V2500-ENG-73-0172.

IAE S/B V2500-ENG-73-0223.

SAE AS567, Safety Cable, Safety Wire, Key Washers, and Cotter Pins for Propulsion Systems.

L. Other Publications Affected

None.

2. Material Information

A. Material - Price and Availability

Not applicable. All materials needed are commercially available.

B. Industry Support Information

Not applicable.

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C. Material Necessary for Each Aircraft/Engine/Component

Materials

Material	Description	Quantity	Source
Seal	P/N 67	2	Stoffel Seals Corporation Nyack, NY
Safety Wire	0.020 inch (0,51 mm) ±0.001 inch (0,03 mm) SAE AS567	As Required (3 feet maximum)	Commercially Available
Safety Wire	0.025 inch (0,64 mm) ±0.001 inch (0,03 mm) SAE AS567	As Required (3 feet maximum)	Commercially Available

D. Material Necessary for Each Spare

Materials

Material	Description	Quantity	Source
Seal	P/N 67	2	Stoffel Seals Corporation Nyack, NY
Safety Wire	0.020 inch (0,51 mm) ±0.001 inch (0,03 mm) SAE AS567	As Required (3 feet maximum)	Commercially Available
Safety Wire	0.025 inch (0,64 mm) ±0.001 inch (0,03 mm) SAE AS567	As Required (3 feet maximum)	Commercially Available

E. Reidentified Parts

Not applicable.

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F. Tooling - Price and Availability

Tools

Description	Source
WT-140418	Woodward Aircraft Engine Systems

G. Other

Not applicable.

3. Accomplishment Instructions

A. Converting from 8061-639 to 8061-640

NOTE: The FMU fuel system must be de-pressurized before instructions can be accomplished.

WARNING: BE CAREFUL WHEN REMOVING SAFETY WIRE. IF SAFETY WIRE IS PULLED WITH FORCE FROM THE COMPONENTS, IT CAN CAUSE INJURY TO PERSONS.

(1) Remove safety wire from plug assembly (10, sheet 1).

(2) Pull out pin (5) from plug assembly (10).

CAUTION: DO NOT EXCEED 50 LB. IN. (5,65 N.m) OF TORQUE DURING THIS PROCEDURE.

(3) Use hex tool to rotate detent (15) clockwise until there is sufficient clearance between the top of the detent (15) and the cap (20) to allow movement of the cap.

(4) Insert a hex tool into the larger internal hex on shaft (25). Rotate counterclockwise until the letter X is centered in the switch window.

(5) Using a hex tool, rotate detent (15) counterclockwise and torque counterclockwise to 19-22 lb. in. (2,15-2,48 N.m). Ensure that detent (15) prevents cap (20) from rotating.

(6) Install pin (5) into its original location. Be sure pin (5) is secure in the hexagon. Pin (5) should be pushed in until it springs/clicks fully into place.

(7) Remove safety wire from screw (30, sheet 3).

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(8) Remove 2 screws (30) from nameplate (35).

(9) Inspect nameplate (35) for damage. If damage is excessive, replace nameplate (35) as shown in REPAIR section of CMM 73-28-06.

NOTE: It is normal for the nameplate to have some markings and material deformation caused by the screws. Nameplate has identification markings on both sides.

(10) Attach nameplate (35), with side indicating part number 8061-640 visible, with 2 screws (30). If run-on torque is less than 10 oz. in. (0,07 N.m), replace 2 screws (30). If run-on torque still is inadequate, then replace inserts as shown in REPAIR section of CMM 73-28-06. Torque 2 screws (30) to 5.5-6.0 lb. in. (0,62-0,68 N.m).

(11) Confirm that the letter X shows in the switch window and confirm that the nameplate (35) indicates the part number is 8061-640.

(12) Install 0.025 inch (0,64 mm) safety wire into eyelet of pin (5, sheet 2). Bend wire back on itself.

(13) Twist the 2 wires (using standard double twist method) per SAE AS567, or equivalent. Route the twisted wire under pin (5) and around the plug assembly (10). Be sure that wire is as taut as possible.

(14) Use one strand of safety wire to loop through the eyelet of pin (5). Twist the wire pair again to be sure that the wire is firmly attached to the eyelet of pin (5).

(15) Attach one seal (40) per SAE AS567, or equivalent, and apply end twists. Use WT-140418 assembly tool to crimp seal (40) or use method in CMM 73-28-06 ASSEMBLY. Tie down the pigtail of the safety wire to the safety wire underneath.

(16) Install 0.020 inch (0,51 mm) safety wire in screw (30, sheet 3).

(17) Twist and loop safety wire underneath LP pump inlet boss. Route twisted safety wire back over the top of the LP pump inlet boss.

(18) Stop twist of the wires at intersection where the two wires meet. Loop the two wire strands around the twisted safety wire.

(19) Twist the wire, after the loop, such that the two sets of safety wire are attached. Install one seal (40, sheet 4) per SAE AS567. Use WT-140418 assembly tool to crimp seal (40) or use method in CMM 73-28-06 ASSEMBLY.

(20) Finish wire twists and tie down safety wire to screw (30).

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(21) Do the checks that follow:

- Check nameplate to make sure part number 8061-640 is visible.
- Make sure the stop setting letter is X.
- Make sure the lock pin is fully installed.
- Make sure the FMU serial number on nameplate and modification plate match.
- Check to be sure both seals are correctly installed.
- Check to be sure that seals bear either the # or W mark. These are the only acceptable marks.
  NOTE: The W mark will only be used by the original equipment manufacturer.
- Where applicable refer to the IAE SB 73-0172 for additional engine related checks

B. Converting from 8061-640 to 8061-639

NOTE: The FMU fuel system must be de-pressurized before instructions can be accomplished.

WARNING: BE CAREFUL WHEN REMOVING SAFETY WIRE. IF SAFETY WIRE IS PULLED WITH FORCE FROM THE COMPONENTS, IT CAN CAUSE INJURY TO PERSONS.

(1) Remove safety wire from plug assembly (10, sheet 1).

(2) Pull out pin (5) from plug assembly (10).

CAUTION: DO NOT EXCEED 50 LB. IN. (5,65 N.m) OF TORQUE DURING THIS PROCEDURE.

(3) Use hex tool to rotate detent (15) clockwise until there is sufficient clearance between the top of the detent (15) and the cap (20) to allow movement of the cap.

(4) Insert a hex tool into the larger internal hex on shaft (25). Rotate clockwise until the letter O is centered in the switch window.

(5) Using a hex tool, rotate detent (15) counterclockwise and torque counterclockwise to 19-22 lb. in. (2,15-2,48 N.m). Ensure that detent (15) prevents cap (20) from rotating.

(6) Install pin (5) into its original location. Be sure pin (5) is secure in the hexagon. Pin (5) should be pushed in until it springs/clicks fully into place.

(7) Remove safety wire from screw (30, sheet 3).

(8) Remove 2 screws (30) from nameplate (25).

(9) Inspect nameplate (35) for damage. If damage is excessive, replace nameplate (35) as shown in REPAIR section of CMM 73-28-06.

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NOTE: It is normal for the nameplate to have some markings and material deformation caused by the screws. Nameplate has identification markings on both sides.

(10) Attach nameplate (35), with the side indicating item number 8061-639 visible, with 2 screws (30). If run-on torque is less than 10 oz. in. (0,07 N.m), replace 2 screws (30). If run-on torque still is inadequate, then replace inserts as shown in REPAIR section of CMM 73-28-06. Torque 2 screws (30) to 5.5 - 6.0 lb. in. (0,62-0,68 N.m).

(11) Confirm that the letter O is showing in the switch window, and confirm that the nameplate (35) indicates the part number is 8061-639. Install 0.025 inch (0,64 mm) safety wire into eyelet of pin (5, sheet 2). Bend wire back on itself.

(12) Twist the 2 wires (using standard double twist method) per SAE AS567, or equivalent. Route the twisted wire under pin (5) and around the plug assembly (10). Be sure that wire is as taut as possible.Use one strand of safety wire to loop through the eyelet of pin (5). Twist the wire pair again to be sure that the wire is firmly attached to the eyelet of pin (5).

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(14) Install 0.020 inch (0,51 mm) safety wire in screw (30, sheet 3).

(15) Twist and loop safety wire underneath LP pump inlet boss. Route twisted safety wire back over the top of the LP pump inlet boss.

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(18) Finish wire twists and tie down safety wire to screw (30).

(19) Do the checks that follow:

- Check nameplate to make sure part number 8061-639 is visible.
- Make sure the stop setting letter is O.
- Make sure the lock pin is fully installed.
- Make sure the FMU serial number on nameplate and modification plate match.
- Check to be sure both seals are correctly installed.
- Check to be sure that seals bear either the # or W mark. These are the only acceptable marks.

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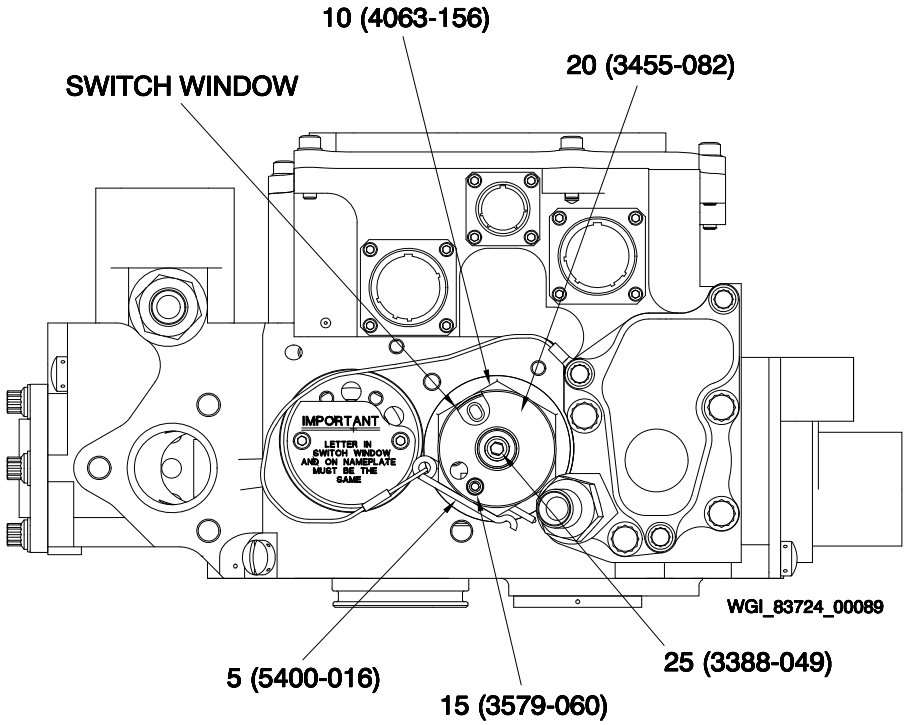
NOTE: The W mark will only be used by the original equipment manufacturer.

- Where applicable refer to the IAE SB 73-0172 for additional engine related checks.



Conversion Procedures
(Sheet 1 of 4)

LEGEND
5 PIN (P/N 3190-120)
10 PLUG ASSEMBLY (P/N 4063-156)
15 DETENT (P/N 3579-060)
20 CAP (P/N 3455-082)
25 SHAFT (P/N 3388-049)
30 SCREW (2) (P/N 218814)
35 NAMEPLATE (P/N 3082-308)
40 SEAL (2) (P/N 218006)

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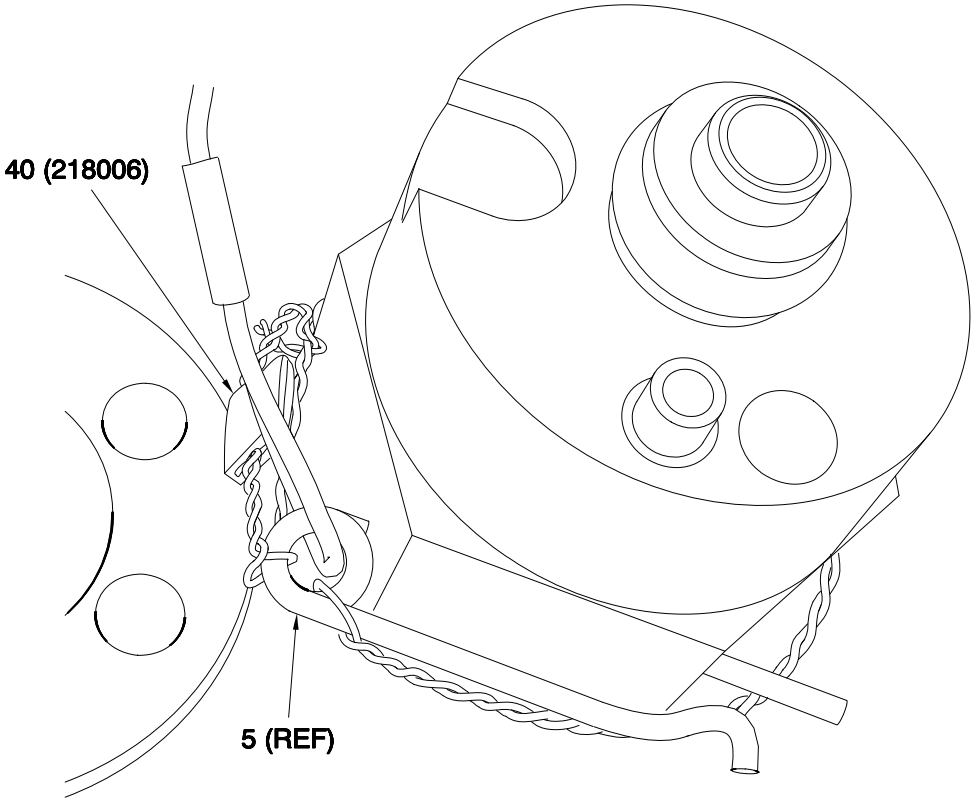

Conversion Procedures
Conversion Procedures (Sheet 2 of 4)

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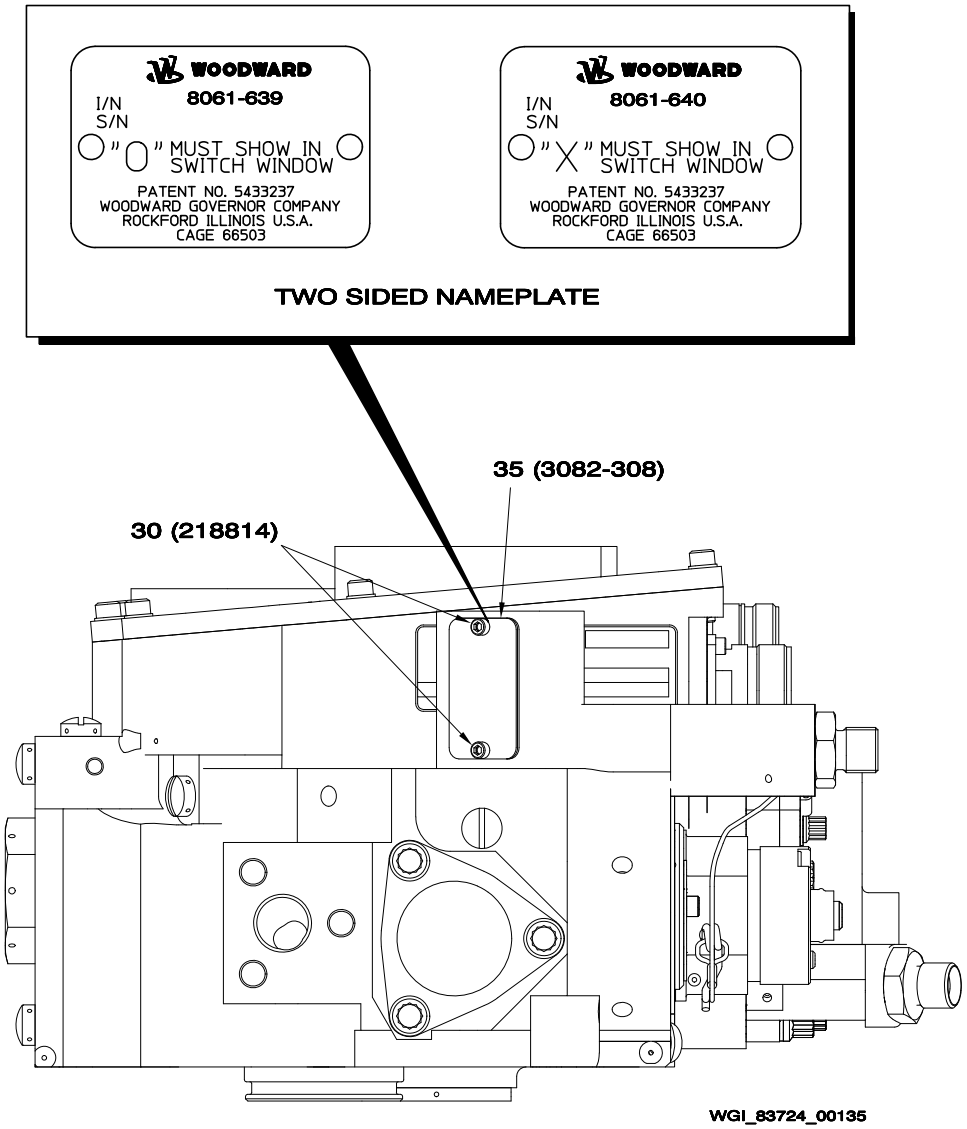

Conversion Procedures
Conversion Procedures (Sheet 3 of 4)

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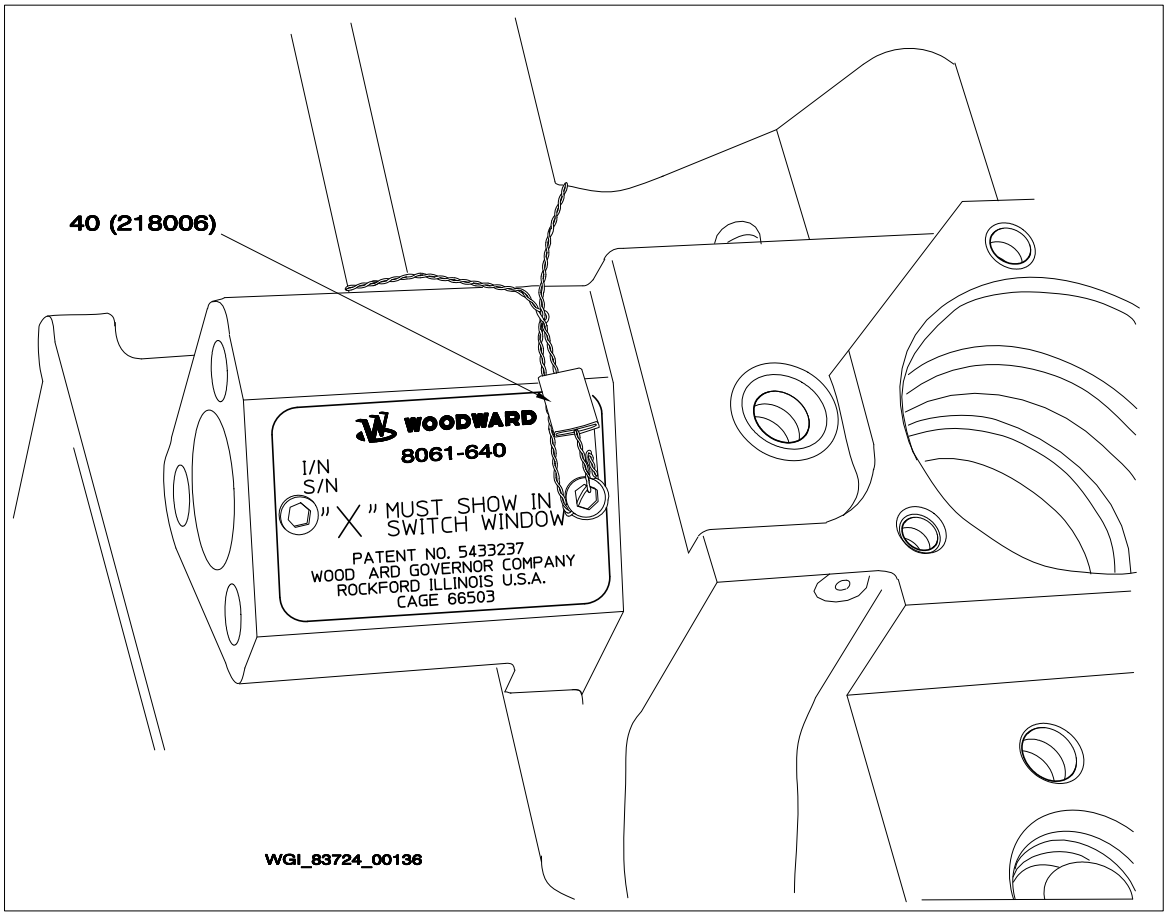

Conversion Procedures
Conversion Procedures (Sheet 4 of 4)

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Please use this form to give feedback on the quality of this Service Bulletin. The input you provide will be used to analyse areas of improvement and to take action to further improve on the quality of our Service Bulletins.

We thank you for the time you spent in completing this form.

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

If you have had difficulties to perform this Service Bulletin please quote below the area(s) and give a short description of the issue:

Planning Information Section:		Material Information Section:	Accomplishment Instruction Section:
☐ 1.A.	☐ 1.I.	☐ 2.A.	☐ General
☐ 1.B.	☐ 1.J.	☐ 2.B.	☐ Get Access
☐ 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
☐ 1.H	☐ 1.P.		

Explanatory notes:

Operator:	Overhaul Site:
Name/Title:	Date:

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