International Aero Engines

SERVICE BULLETIN

ENGINE – FUEL AND CONTROL – ENGINE FUEL AND CONTROL – FUEL METERING UNIT (FMU) – INTRODUCTION OF REVISED FMU WITH OSV AND PRSOV PUSH-RODS COATED WITH TUNGSTEN CARBIDE – LUCAS AEROSPACE SB FMU 530-73-8061 – CATEGORY CODE 6 – MOD.ENG-73-0123

See Vendor Bulletin FMU530-73-8061

1. Planning Information

A. Effectivity

(1) Aircraft
(a) Airbus A319
(b) Airbus A320
(c) Airbus A321
(d) Boeing-Douglas Product Division MD-90

(2) Engines
(a) V2522-A5 Engines prior to Serial No.V10425
(b) V2524-A5 Engines prior to Serial No.V10425
(c) V2527-A5 Engines prior to Serial No.V10425
(d) V2527E-A5 Engines prior to Serial No.V10425
(e) V2530-A5 Engines prior to Serial No.V10425
(f) V2533-A5 Engines prior to Serial No.V10425
(g) V2525-D5 Engines prior to Serial No.V20250
(h) V2528-D5 Engines prior to Serial No.V20250

B. Concurrent Requirements

None.

C. Reason

(1) Condition

During FMU operation, debris from inside the FMU can cause damage to the microswitch actuation push-rods and seals of the SOV/PRSOV. This can result in fuel leaks from the FMU at the overboard drains.

(2) Background

The problem has been found on in-service units during normal static engine checks.

(3) Substantiation

A satisfactory engineering analysis and vendor rig tests have been done on the changes introduced by this Service Bulletin.

(4) Objective

The purpose of this Service Bulletin is to improve unit reliability.

(5) Effect of this Servic 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 contains the installation of an FMU which has the Lucas Aerospace Modification CP8061. (Refer to L. (1)).

(2) The changes to the FMU are as follows:

(a) The OSV/PRSOV push-rods have been coated with Tungsten Chromium Carbide. The diameter of the heads of the pushrods has increased.

(b) The PRSOV spring seat has been modified so that the revised PRSOV push-rod can be installed.

(c) To reduce the production of debris, the shim pack under the PRSOV spring seat has been replaced by a steel spacer.

(3) CP8061 will be added to the modification plate of the units which have had this Service Bulletin done.

E. Compliance

Category Code 6

This Service Bulletin can be done when the sub-assembly (That is modules, accessories, components, build groups) is disassembled sufficiently to get access to the affected parts.

F. Approval

The part number changes and/or part modification are given in Section 2 and 3 of this Service Bulletin. They obey the applicable Federal Aviation Regulations and are FAA-APPROVED for the engine models listed.

G. Manpower

Estimate of man-hours necessary to do this Service Bulletin in full:

Venue	Estimated Man-hours
In Service	Not applicable
At Overhaul	No more time is necessary to do this Service Bulletin

NOTE: It is possible to get access to the parts affected by this Service Bulletin at overhaul.

H. Material - Price and Availability

(1) A modification kit is not necessary.

(2) Refer to Section 3. Material Information for the prices and availability of future spares.

I. Tooling Price - and Availability

Special tools are not necessary.

J. Weight and Balance

(1) Weight Change

Not affected

(2) Moment Arm

Not affected.

(3) Datum

Engine front mount centreline (Power Plant Station (PPS 100)).

K. Electrical Load Data

This Service Bulletin has no effect on aircraft electrical load.

L. References

(1) Internal Reference No.

EC97VI009

(2) Other References

Lucas Service Bulletin:

FMU 530-73-8061 ENGINE - FUEL AND CONTROL - COATING OF THE PUSH ROD WITH TUNGSTEN/CHROMIUM CARBIDE SDG 2005

The A5 Engine Manual (EM), Chapter/Section 72-00-60, Removal-06 CONFIG-02 and Installation-06 CONFIG-02.

The D5 Engine Manual (EM), Chapter/Section 72-00-60, Removal/Installation-06.

The A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 73-22-52, Removal/Installation CONFIG-02.

The MD-90 Aircraft Maintenance Manual (AMM), Chapter/Section 72-21-52, Removal/Installation

Airbus Aircraft Modification No.21820

M. Other Publications Affected

(1) Illustrated Parts Catalogue (IPC), Chapter/Section 73-22-52

2. Accomplish Instructions

A. Rework Instructions

None

B. Assembly Instructions

(1) For the correct Removal/Installation procedures refer to the manuals that follow:

(a) The A5 Engine Manual (EM), Chapter/Section 72-00-60, Removal-06 CONFIG-02 and Installation-06 CONFIG-02.

(b) The D5 Engine Manual (EM), Chapter/Section 72-00-60, Removal/Installation-06.

(c) The A319/A320/A321 Aircraft Maintenance Manual (AMM), Chapter/Section 73-22-52, Removal/Installation CONFIG-02.

(d) The MD-90 Aircraft Maintenance Manual (AMM), Chapter/Section 73-21-52, Removal/Installation.

C. Recording Instructions

(1) A record of accomplishment is necessary. (Refer to the vendor Service Bulletin given in L.(1)).

3. Material Information

Applicability: For each V2500 engine for which this Service Bulletin is applicable.

A. Kits necessary for this Service Bulletin.

None.

B. Units affected by this Service Bulletin:

NEW PART No. (ATA No.)	QTY	EST'D UNIT PRICE ($)	PART TITLE	OLD PART No. (IPC No.)	INSTR DISP
V2522-A5 and V2524-A5 Models					
FMU540MK2 (73-22-52)	1		Meter - unit, fuel	FMU540MK2 (01-100)	(A)(B)(S1)
V2527-A5, V2527E-A5, V2530-A5, V2533-A5, V2525-D5 & V2528-D5 Models					
FMU530MK2 (73-22-52)	1		Meter - unit, fuel	FMU530MK2 (01-100)	(A)(B)(S1)

NOTE: The unit prices, if shown, are an estimate and they are given for the purpose of planning only. For information about actual prices, refer to IAE Price Catalog or contact IAE's spare parts Sales Department.

C. Instruction/Disposition Codes

(A) New part is available.
(B) Old part will be discontinued.
(S1) Old and new parts are freely and fully interchangeable.

IAE
73-0123

Lucas Aerospace

SERVICE BULLETIN

PUBLICATION TRANSMITTAL

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Date: 26 Jul 1999

FUEL METERING UNIT
TYPE FMU 540

THIS DOCUMENT TRANSMITS SERVICE BULLETIN FMU 530-73-8061.

Remove	Insert	Reason
	Service Bulletin FMU 540-73-8061Pages 1 thru 6 dated Jul 26/99	This modification introduces Tungsten/Chromium Carbide coated push rods to reduce the wear rate on the push rod and seals. Ground spacers replace the multiple shims.

CHECK THAT ANY PREVIOUS REVISIONS HAVE BEEN INCORPORATED

If any have not been received please advise Technical Publications Department, Lucas Aerospace, Birmingham B28 8SW, ENGLAND. Telephone: 0121-707-7111

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SERVICE BULLETINS

FUEL METERING UNIT, TYPE FMU 540

BULLETIN INDEX SHEET

SERVICE BULLETIN NUMBER	MOD CP NUMBER	DESCRIPTION	DATE OF ISSUE	DATE OF LAST REVISION
FMU 540-73-8061	8061	This Modification Introduces Tungsten/ Chromimum Carbide coated push rods and seals. Ground spacer replaces the multiple shims	July 26/99	-

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EDL 206186 IH

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Printed in Great Britain - V2500
EDL 206186 IH

Lucas Aerospace
SERVICE BULLETIN

Date 26/7/99

NUMBER FMU 540-73-8061

ENGINE - FUEL AND CONTROL - FUEL METERING UNIT - COATING OF THE PUSH ROD WITH TUNGSTEN/CHROMIUM CARBIDE SDG 2005

MOD NO CP8061

1. Planning Information

A. Effectivity

(1) Aircraft:

(a) Airbus A319.

(2) Engine:

(a) V2500-A5 V2522 & V2524 Only.

(3) Equipment:

(a) Fuel Metering Unit - Type FMU 540 Mk2.

B. Reason

(1) Condition

Dry drain leakage occurs due to wear of the seal and scoring of the seal contact area on the push rod in the Pressure Raising and Shut-off Valve (PRSOV) or Overspeed Valve (OSV).

(2) Background

Service experience of the FMU 530 Units has shown 17 occurrences of drain fuel leakage in 1.3 million hours as a result of either PRSOV push rod seal leakage, OSV push rod seals or both. The FMU 530 is of similar design to the FMU 540.

(3) Objective

Incorporation of this modification is designed to improve unit reliability.

(4) Substantiation

The change introduced by this Service Bulletin/Modification has shown, by engineering assessment and extensive rig testing, to alleviate the condition.

C. Description

This modification introduces Tungsten/Chromium Carbide coated push rods to reduce the wear rate on the push rod and seals. Ground spacers replace the multiple shims.

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D. Approval

Service Bulletin No. FMU 540-73-8061 (Mod CP8061) was technically agreed by IAE on Jun 9/99. The procedures described in this bulletin have been shown to comply with the appropriate Federal Aviation Regulations, and are FAA approved for those units listed in this bulletin.

E. Compliance

Category Code 6

Accomplish when the subassembly (i.e., modules, accessories, components) is disassembled sufficiently to afford access to the affected part and to all affected spare parts.

F. Manpower

Estimated manhours:

(1) In Service ..... Not applicable

(2) At Overhaul Facility:

(a) To gain access ..... No change.

(b) To embody ..... No change.

(c) To return the unit to flyable status ..... No change.

G. Material - Price and Availability

Modification CP8061 is required (see Section 3 of this Bulletin for details).

For price and availability see Supplement to this Bulletin.

H. Tooling - Price and Availability

Additional special tools are not required.

I. Weight

(1) Unit weight change ..... None.

(2) Engine weight arm change ..... Not affected.

(3) Datum ..... Engine front mount centreline Power Plant Station (PPS)100.

J. Electrical Load Data

No change.

K. References

(1) Lucas Fuel Metering Unit Component Maintenance Manual Ref FMU 540 Chapter 73-28-07.

(2) IAE Service Bulletin SB-ENG-73-0123.

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EDL 206186 IH

L. Other Publications Affected

None.

M. Family Tree Charts

Not applicable.

2. Accomplishment Instructions (Refer to Fig 1)

A. Disassembly

Disassemble the unit as detailed in the relevant Component Maintenance Manual.

B. Assembly

Assemble Post CP8061 modification kit parts to the FMU in accordance with the relevant Component Maintenance Manual (Ref 1. K. References (1)). All checks, setting and testing procedures must be performed.

The spacer part no 77152971 that replaces the shims part no 77231833/36 is to be ground to the same thickness of the shims removed.

(1) Use a micrometer to measure the thickness of shims part no 77231833/36 and grind the Spacer (Pt. No 77152971) to the same thickness of the shims removed.

WARNING: OBEY THE MANUFACTURERS INSTRUCTIONS WHEN YOU USE GRINDING MACHINERY.

(a) Refer to Fig 2 for the machining instructions for the spacer.

(b) Clean the spacer after machining as detailed in the relevant Component Maintenance Manual.

(c) Demagnetise the spacer using an approved process

NOTE: It is permissible to adjust the thickness of the spacer (Pt No 77152971) to achieve the Minimum Servo Pressure Test requirement (Ref CMM TESTING AND TROUBLESHOOTING).

NOTE: The minimum permissible thickness of the spacer is 0,508 mm (0.020 in.)

(d) Discard the shims 77231833/36.

C. Recording Action

(1) Fuel Metering Unit

On accomplishment of this modification, endorse the unit modification plate with Mod. CP8061.

(2) Engine

A record of accomplishment is required.

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3. Material Information

This is a technical document, not a quotation. Prices are FOB UK and are for budgetary purposes only and are in US dollars ($).

NOTE: The tabulation below includes code numbers in the 'Instructions/Dispositions' column identified as 'I/D Code'. These code numbers designate the following dispositions:

1-Added Part

2-Scrap Part

3-Return to Lucas for Rework and Re-identify the Part

4-Use for Other Applications.

A. New Parts Required for Modification Only

New P/N	Qty	Unit Price	Lead Time	Nomenclature	Old P/N	I/D Code
77152968	1	TBA	TBA	Rod, Push OSV		1
	1			Rod, Push OSV	77139334	2
77152970	1	TBA	TBA	Seat, Spring PRV		1
	1			Seat, Spring PRV	77139797	2
	A/R			Washers, Shim	77231833/36	2
77152971	1	TBA	TBA	Spacer		1
77152966	1	TBA	TBA	Rod, Push PRV		1
	1	TBA	TBA	Rod, Push PRV	77139798	2

B. Parts to be reworked and re-identified:

None

C. Consumable Parts

Part Number	Qty	Nomenclature	Part Number	Qty	Nomenclature
PRV			**OSV**		
GTS345-026	1	Ring, Sealing	GTS345-125	1	Ring, Sealing
77878585	1	Seal	GTS345-010	1	Ring, Sealing
77151553	1	Gasket	77878585	1	Seal
GTS345-026	1	Ring, Sealing	77151553	1	Gasket

D. New production parts available as future spares in addition to those listed under A.

None

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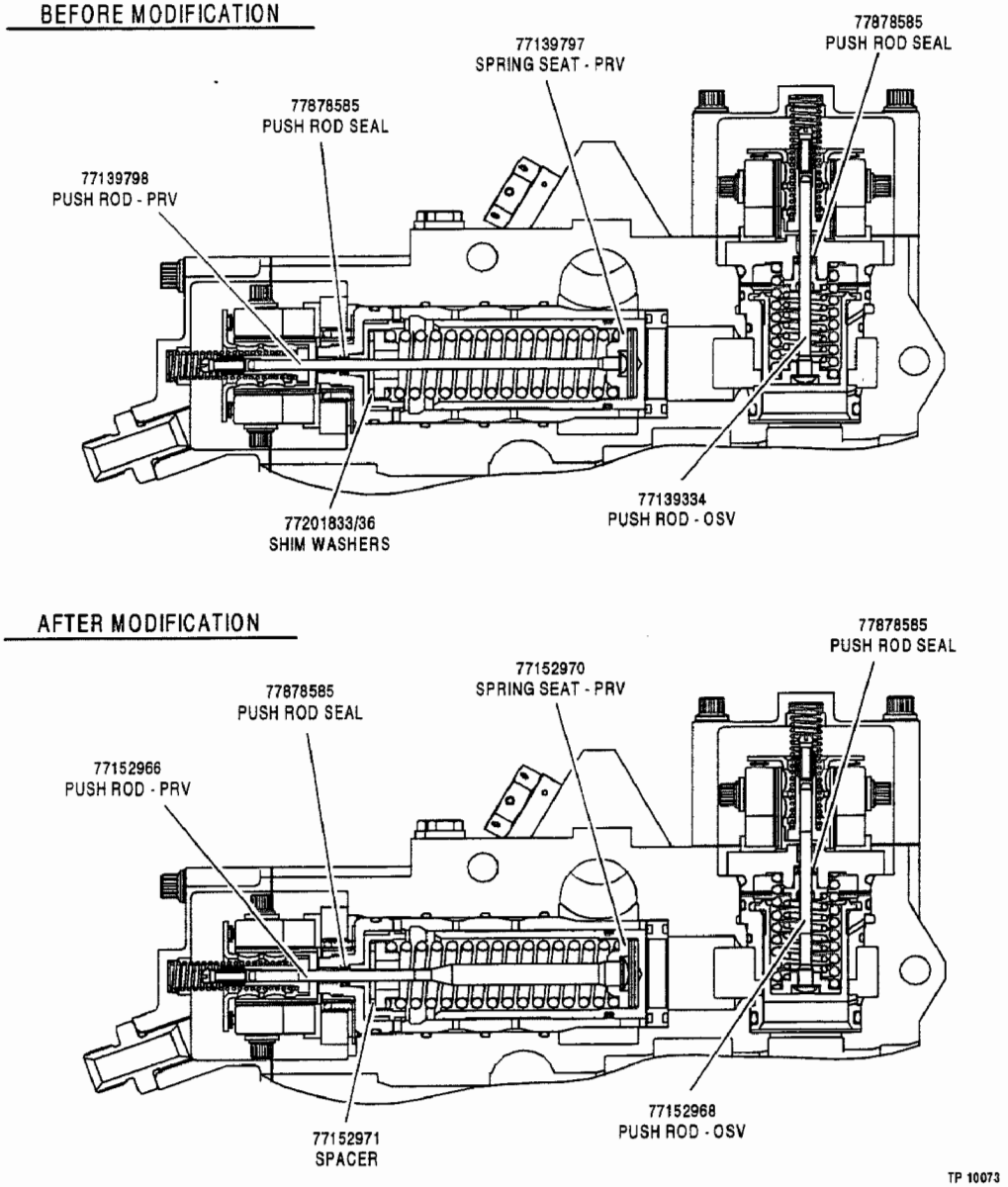
E. The type of equipment affected by this modification is:

Description	Type No
Fuel Metering Unit	FMU 540 Mk2



Before and After Modification
Figure 1

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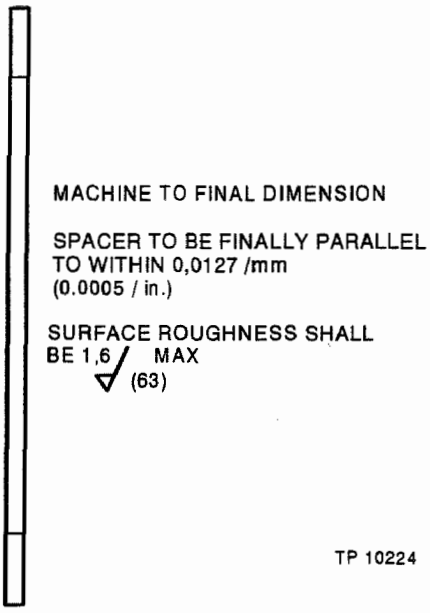

Spacer Machining Details
Figure 2

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