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DATE: Aug.27/09

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

This document transmits the Initial Issue of IAE Service Bulletin V2500-ENG-75-0114 and the Initial Issue of Aero Engine Controls Service Bulletins 1666-75-8412, 1777-75-8412 and 1797-75-8412.

Service Bulletin Initial Issue

Remove	Incorporate	Reason for change
	Pages 1 to 6 of the IAE Service Bulletin V2500-ENG-75-0114.	Initial Issue.
	Aero Engine Controls Service Bulletins 1666-75-8412, 1777-75-8412 and 1797-75-8412.	Initial Issue.

International Aero Engines

SERVICE BULLETIN

AIR – LOW PRESSURE (LP) COMPRESSOR MASTER BLEED ACTUATOR – CHANGE TO SERVO VALVE PORT FILTERS

Printed in Great Britain

1. Planning Information

A. Effectivity

(1) Airbus A319

(a) V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No. V13173 (A5 Standard and A5 SelectOne™ Retrofit Standard).

V2522-A5, V2524-A5, V2527M-A5 Engines prior to Serial No. V15214 (A5 SelectOne™ Production Standard).

(i) LP Compressor Bleed Master Actuator, P/N 1777MK2.

(2) Airbus A320

(a) All V2500-A1 Engines

(i) LP Compressor Bleed Master Actuator, P/N 1666MK5.

(b) V2524-A5, V2527-A5, V2527E-A5 Engines prior to Serial No. V13173 (A5 Standard and A5 SelectOne™ Retrofit Standard).

V2524-A5, V2527-A5, V2527E-A5 Engines prior to Serial No. V15214 (A5 SelectOne™ Production Standard).

(i) LP Compressor Bleed Master Actuator, P/N 1777MK2.

(3) Airbus A321

(a) V2530-A5, V2533-A5 Engines prior to Serial No. V13173 (A5 Standard and A5 SelectOne™ Retrofit Standard).

V2530-A5, V2533-A5 Engines prior to Serial No. V15214 (A5 SelectOne™ Production Standard).

(i) LP Compressor Bleed Master Actuator, P/N 1777MK2.

(4) Boeing MD-90

(a) All V2525-D5, V2528-D5 Engines.

(i) LP Compressor Bleed Master Actuator, P/N 1797MK2.

B. Concurrent Requirements

None.

NOTE: If Service Bulletin V2500-ENG-75-0113 has been embodied already, or will be embodied at the same time as this one, you must incorporate Service Bulletin V2500-ENG-75-0115.

C. Reason

(1) Condition

To introduce a new torque motor servo valve port filter with a nominal filtration of 50 microns.

(2) Background

A number of LP Compressor Bleed Master Actuator events have happened, mainly during Pass-Off-Testing, where the actuator lost positional control of its piston at low cyclic lives.

(3) Objective

Introduction of this Service Bulletin is designed to improve the reliability.

(4) Substantiation

The changes introduced by this Service Bulletin were the subject of satisfactory engineering analysis and testing. 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

A root cause investigation into the events has identified in-built contamination as the most probable cause. Contamination entering the torque motor can impede its functionality and the flow of fuel to either side of the actuator piston. The critical feature of the torque motor is the nozzle/flapper gap which has a nominal value of 50 microns. The filtration rating of the four torque motor port filters will be changed from 80 micron nominal to 50 micron nominal.

E. Compliance

Category Code 8

Accomplish based upon experience with the prior configuration.

F. Approval

The part number changes and/or part modification described in Section 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 affected.

(2) At Overhaul

Applicable (Hours not affected).

H. Material Price and Availability

Modification kit is not required; part supplied as single line items.

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 Centreline (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) Airbus A319/A320/A321 Aircraft Maintenance Manual, Chapter 75-31-42 Removal/Installation of LP Compressor Master Bleed Actuator.

(2) Boeing MD 90 Aircraft Maintenance Manual, Chapter 75-32-42 Removal/Installation of LP Compressor Master Bleed Actuator.

(3) IAE V2500-A1/A5/D5 Engine Manual (E-V2500-1IA, E-V2500-3IA), Chapter/Section 72-00-40, Removal/Installation of LP Compressor Master Bleed Actuator.

(4) Aero Engine Controls Service Bulletins 1666-75-8412, 1777-75-8412 and 1797-75-8412 dated Aug.26/09.

(5) Internal Reference No.:

Engineering Change No. 09VI003

(6) ATA Locator - 75-31-42.

O. Other Publications Affected

None.

P. Interchangeability of Parts

Not affected.

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
75-31-42						
A1 Models:						
01-100	1666MK5	1	.Low Pressure (LP) compressor master bleed actuator	-	1666MK5	(A)
A5 Models:						
01-100	1777MK2	1	.Low Pressure (LP) compressor master bleed actuator	-	1777MK2	(A)
D5 Models:						
01-100	1797MK2	1	.Low Pressure (LP) compressor master bleed actuator	-	1797MK2	(A)

C. Instructions disposition codes:

(A) Part number not changed with this modification.

3. Accomplishment Instructions

A. Rework Instructions

Refer to the attached Aero Engine Controls Service Bulletins 1666-75-8412, 1777-75-8412 and 1797-75-8412.

B. Assembly Instructions

(1) For the correct Removal/Installation procedures of the LP compressor master bleed actuator, refer to one of the manuals that follow:

(a) A319/320/321 Aircraft Maintenance Manual, Chapter/Section 75-31-42, Removal/Installation.

(b) MD90 Aircraft Maintenance Manual, Chapter/Section 75-32-42, Removal/Installation.

(c) IAE V2500-A1/A5/D5 Engine Manual, Chapter/Section 72-00-40, Removal/Installation.

(2) For further information, refer to the attached Aero Engine Controls Service Bulletins 1666-75-8412, 1777-75-8412 and 1797-75-8412.

C. Recording Instructions

(1) A record of accomplishment is required.

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A Rolls-Royce plc and Goodrich Corporation joint venture

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SERVICE BULLETIN TRANSMITTAL

LPC BLEED MASTER ACTUATOR, TYPE: 1666 MK5

ATA REF 75-31-42

THIS PAGE TRANSMITS THE INITIAL ISSUE OF SERVICE BULLETIN 1666-75-8412

Please note the Company name has changed from Goodrich Engine Control Systems to Aero Engine Controls.

Reason for issue

To introduce a torque motor (P/N 77879549) with 50 micron absolute filters.

Action

Keep this SB with the Component Maintenance Manual. Put in this SB Transmittal page and the SB pages 1 thru 4 dated Aug 26/09.

APPROVED FOR GOODRICH ENGINE CONTROL SYSTEMS

Signed: A Kennedy Date: Aug 26/09

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SERVICE BULLETIN

SERVICE BULLETIN NUMBER 1666-75-8412

ENGINE COMPRESSOR CONTROL - LPC BLEED MASTER ACTUATOR, TYPE: 1666 MK5

INTRODUCTION OF TORQUE MOTOR (P/N 77879549) WITH 50 MICRON ABSOLUTE FILTERS

1. Planning Information

A. Effectivity

LPC Bleed Master Actuator - Type: 1666 MK5.

B. Concurrent Requirements

Not applicable.

C. Reason

(1) Problem

A number of LPC Bleed Master Actuator units have been rejected from service due to incorrect LPC Bleed Master Actuator scheduling events during initial engine operation.

(2) Cause

Investigation has shown that if particles of debris are present in the torque motor, it is possible that they can move into the nozzle flapper gap, thus the LPC Bleed Master Actuator will not be in control of the servo valve piston.

(3) Solution

To decrease the risk of particle contamination, torque motor (P/N 77879549) has been introduced, which includes new servo flow port filters. The new servo flow port filters have a filtration rating of 50 micron glass bead absolute, to replace the filters installed before, rated at 80 micron glass bead absolute.

D. Description

This Service Bulletin gives details of the procedure to replace the torque motor installed to a LPC Bleed Master Actuator Type 1666 MK5 unit, with the new torque motor (P/N 77879549), at an approved maintenance facility.

E. Compliance

Category Code 8

Accomplish based upon experience with the prior configuration.

F. Approval

Service Bulletin No 1666-75-8412 was technically approved by IAE on Aug 25/09. The procedures described in this bulletin have been shown to comply with the appropriate Federal Aviation Regulations and are FAA approved for those unit types listed in this bulletin.

G. Manpower

(1) In Service

Not applicable.

(2) In Repair

Not applicable.

H. Weight and Balance

No change.

I. Electrical Load Data

Not applicable.

J. Software Accomplishment Summary

Not applicable.

K. References

Aero Engine Controls Component Maintenance Manual (CMM) 75-31-42.

L. Other Publications Affected

None.

M. Interchangeability or Intermixability of Parts

Not applicable.

2. Material Information

A. Material - Price and Availability

NOTE: If necessary, use the equivalent alternatives for the items given in the table below:

P/N	Description	Availability	List Price
77879549	Motor, Torque	TBA	TBA

B. Industry Support Information.

The cost to accomplish this Service Bulletin will be charged to the operator.

C. Material Necessary for Each Unit

NOTE: If necessary, use the equivalent alternatives for the items given in the table below

New P/N	Description	Old P/N	Qty	Instruction
77879549	Motor, Torque	1656-1054	1	1
77879549	Motor, Torque	1727-4008	1	1
77879549	Motor, Torque	1777-9000	1	1
77879549	Motor, Torque	1777-9001	1	1

Instruction Notes:

1 Replace with torque motor (P/N 77879549) and if applicable, send the old part to the address shown in Para. 3.A.(1).

D. Reidentified Parts

Not applicable.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions.

A. General

(1) If the torque motor removed in Para. 3.B.(1) is suitable for an applicable re-work, send it to the address that follows, for the attention of the Repair Co-ordinator:

Moog Controls Ltd
Ashchurch
Tewkesbury
Gloucestershire
GL20 8NA
UK

B. Procedure (Ref. Aero Engine Controls Component Maintenance Manual (CMM) 75-31-42)

(1) Disassemble the LPC Bleed Master Actuator unit sufficiently to remove and discard the torque motor (2-100), Ref. DISASSEMBLY section.

(2) Install a torque motor (P/N 77879549) to the LPC Bleed Master Actuator unit, Ref. ASSEMBLY section.

(3) Assemble the LPC Bleed Master Actuator unit fully, Ref. ASSEMBLY section.

(4) Test the LPC Bleed Master Actuator unit, Ref. TESTING AND TROUBLE SHOOTING section.

C. Recording Action

(1) Remove the identification plate (P/N 215-4009 or 0215-4028), Ref. DISASSEMBLY section.

(2) Use the applicable procedure to make sure modification number CP8412 is shown on the identification plate (P/N 215-4009 or 0215-4028), Ref ASSEMBLY section.

(3) Install the identification plate (P/N 215-4009 or 0215-4028), Ref. ASSEMBLY section.

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SERVICE BULLETIN TRANSMITTAL

LPC BLEED MASTER ACTUATOR, TYPE: 1777 MK2

ATA REF 75-38-02

THIS PAGE TRANSMITS THE INITIAL ISSUE OF SERVICE BULLETIN 1777-75-8412

Please note the Company name has changed from Goodrich Engine Control Systems to Aero Engine Controls.

Reason for issue

To introduce a torque motor (P/N 77879549) with 50 micron absolute filters.

Action

Keep this SB with the Component Maintenance Manual. Put in this SB Transmittal page and the SB pages 1 thru 4 dated Aug 26/09.

APPROVED FOR GOODRICH ENGINE CONTROL SYSTEMS

Signed: A Kennedy Date: Aug 26/09

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SERVICE BULLETIN

SERVICE BULLETIN NUMBER 1777-75-8412

ENGINE COMPRESSOR CONTROL - LPC BLEED MASTER ACTUATOR, TYPE: 1777 MK2

INTRODUCTION OF TORQUE MOTOR (P/N 77879549) WITH 50 MICRON ABSOLUTE FILTERS

1. Planning Information

A. Effectivity

LPC Bleed Master Actuator - Type: 1777 Mk2**.**

B. Concurrent Requirements

Not applicable.

C. Reason

(1) Problem

A number of LPC Bleed Master Actuator units have been rejected from service due to incorrect LPC Bleed Master Actuator scheduling events during initial engine operation.

(2) Cause

Investigation has shown that if particles of debris are present in the torque motor, it is possible that they can move into the nozzle flapper gap, thus the LPC Bleed Master Actuator will not be in control of the servo valve piston.

(3) Solution

To decrease the risk of particle contamination, torque motor (P/N 77879549) has been introduced, which includes new servo flow port filters. The new servo flow port filters have a filtration rating of 50 micron glass bead absolute, to replace the filters installed before, rated at 80 micron glass bead absolute.

D. Description

This Service Bulletin gives details of the procedure to replace the torque motor installed to a LPC Bleed Master Actuator Type 1777 Mk2 unit, with the new torque motor (P/N 77879549), at an approved maintenance facility.

E. Compliance

Category Code 8

Accomplish based upon experience with the prior configuration.

F. Approval

Service Bulletin No 1777-75-8412 was technically approved by IAE on Aug 08/09. The procedures described in this bulletin have been shown to comply with the appropriate Federal Aviation Regulations and are FAA approved for those unit types listed in this bulletin.

G. Manpower

(1) In Service

Not applicable.

(2) In Repair

Not applicable.

H. Weight and Balance

No change.

I. Electrical Load Data

Not applicable.

J. Software Accomplishment Summary

Not applicable.

K. References

Aero Engine Controls Component Maintenance Manual (CMM) 75-38-02.

L. Other Publications Affected

None.

M. Interchangeability or Intermixability of Parts

Not applicable.

2. Material Information

A. Material - Price and Availability

NOTE: If necessary, use the equivalent alternatives for the items given in the table below:

P/N	Description	Availability	List Price
77879549	Motor, Torque	TBA	TBA

B. Industry Support Information.

The cost to accomplish this Service Bulletin will be charged to the operator.

C. Material Necessary for Each Unit

NOTE: If necessary, use the equivalent alternatives for the items given in the table below

New P/N	Description	Old P/N	Qty	Instruction
77879549	Motor, Torque	1656-1054	1	1
77879549	Motor, Torque	1727-4008	1	1
77879549	Motor, Torque	1777-9000	1	1
77879549	Motor, Torque	1777-9001	1	1

Instruction Notes:

1 Replace with torque motor (P/N 77879549) and if applicable, send the old part to the address shown in Para. 3.A.(1).

D. Reidentified Parts

Not applicable.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions.

A. General

(1) If the torque motor removed in Para. 3.B.(1) is suitable for an applicable re-work, send it to the address that follows, for the attention of the Repair Co-ordinator:

Moog Controls Ltd
Ashchurch
Tewkesbury
Gloucestershire
GL20 8NA
UK

B. Procedure (Ref. Aero Engine Controls Component Maintenance Manual (CMM) 75-38-02)

(1) Disassemble the LPC Bleed Master Actuator unit sufficiently to remove and discard the torque motor (2-120), Ref. DISASSEMBLY section.

(2) Install a torque motor (P/N 77879549) to the LPC Bleed Master Actuator unit, Ref. ASSEMBLY section.

(3) Assemble the LPC Bleed Master Actuator unit fully, Ref. ASSEMBLY section.

(4) Test the LPC Bleed Master Actuator unit, Ref. TESTING AND TROUBLE SHOOTING section.

C. Recording Action

(1) Remove the identification plate (P/N 215-4009 or 0215-4028), Ref. DISASSEMBLY section.

(2) Use the applicable procedure to make sure modification number CP8412 is shown on the identification plate (P/N 215-4009 or 0215-4028), Ref ASSEMBLY section.

(3) Install the identification plate (P/N 215-4009 or 0215-4028), Ref. ASSEMBLY section.

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SERVICE BULLETIN TRANSMITTAL

LPC BLEED MASTER ACTUATOR, TYPE: 1797 MK2

ATA REF 75-38-22

THIS PAGE TRANSMITS THE INITIAL ISSUE OF SERVICE BULLETIN 1797-75-8412

Please note the Company name has changed from Goodrich Engine Control Systems to Aero Engine Controls.

Reason for issue

To introduce a torque motor (P/N 77879550) with 50 micron absolute filters.

Action

Keep this SB with the Component Maintenance Manual. Put in this SB Transmittal page and the SB pages 1 thru 4 dated Aug 26/09.

APPROVED FOR GOODRICH ENGINE CONTROL SYSTEMS

Signed: A Kennedy Date: Aug 26/09

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SERVICE BULLETIN

SERVICE BULLETIN NUMBER 1797-75-8412

ENGINE COMPRESSOR CONTROL - LPC BLEED MASTER ACTUATOR, TYPE: 1797 MK2

INTRODUCTION OF TORQUE MOTOR (P/N 77879550) WITH 50 MICRON ABSOLUTE FILTERS

1. Planning Information

A. Effectivity

LPC Bleed Master Actuator - Type: 1797 Mk2**.**

B. Concurrent Requirements

Not applicable.

C. Reason

(1) Problem

A number of LPC Bleed Master Actuator units have been rejected from service due to incorrect LPC Bleed Master Actuator scheduling events during initial engine operation.

(2) Cause

Investigation has shown that if particles of debris are present in the torque motor, it is possible that they can move into the nozzle flapper gap, thus the LPC Bleed Master Actuator will not be in control of the servo valve piston.

(3) Solution

To decrease the risk of particle contamination, torque motor (P/N 77879550) has been introduced, which includes new servo flow port filters. The new servo flow port filters have a filtration rating of 50 micron glass bead absolute, to replace the filters installed before, rated at 80 micron glass bead absolute.

D. Description

This Service Bulletin gives details of the procedure to replace the torque motor installed to a LPC Bleed Master Actuator Type 1797 Mk2 unit, with the new torque motor (P/N 77879550), at an approved maintenance facility.

E. Compliance

Category Code 8

Accomplish based upon experience with the prior configuration.

F. Approval

Service Bulletin No 1797-75-8412 was technically approved by IAE on Aug 25/09. The procedures described in this bulletin have been shown to comply with the appropriate Federal Aviation Regulations and are FAA approved for those unit types listed in this bulletin.

G. Manpower

(1) In Service

Not applicable.

(2) In Repair

Not applicable.

H. Weight and Balance

No change.

I. Electrical Load Data

Not applicable.

J. Software Accomplishment Summary

Not applicable.

K. References

Aero Engine Controls Component Maintenance Manual (CMM) 75-38-22.

L. Other Publications Affected

None.

M. Interchangeability or Intermixability of Parts

Not applicable.

2. Material Information

A. Material - Price and Availability

NOTE: If necessary, use the equivalent alternatives for the items given in the table below:

P/N	Description	Availability	List Price
77879550	Motor, Torque	TBA	TBA

B. Industry Support Information.

The cost to accomplish this Service Bulletin will be charged to the operator.

C. Material Necessary for Each Unit

NOTE: If necessary, use the equivalent alternatives for the items given in the table below

New P/N	Description	Old P/N	Qty	Instruction
77879550	Motor, Torque	1767-4001	1	1
77879550	Motor, Torque	1777-9000	1	1

Instruction Notes:

1 Replace with torque motor (P/N 77879550) and if applicable, send the old part to the address shown in Para. 3.A.(1).

D. Reidentified Parts

Not applicable.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions.

A. General

(1) If the torque motor removed in Para. 3.B.(1) is suitable for an applicable re-work, send it to the address that follows, for the attention of the Repair Co-ordinator:

Moog Controls Ltd
Ashchurch
Tewkesbury
Gloucestershire
GL20 8NA
UK

B. Procedure (Ref. Aero Engine Controls Component Maintenance Manual (CMM) 75-38-22)

(1) Disassemble the LPC Bleed Master Actuator unit sufficiently to remove and discard the torque motor (2-120), Ref. DISASSEMBLY section.

(2) Install a torque motor (P/N 77879550) to the LPC Bleed Master Actuator unit, Ref. ASSEMBLY section.

(3) Assemble the LPC Bleed Master Actuator unit fully, Ref. ASSEMBLY section.

(4) Test the LPC Bleed Master Actuator unit, Ref. TESTING AND TROUBLE SHOOTING section.

C. Recording Action

(1) Remove the identification plate (P/N 215-4009 or 0215-4028), Ref. DISASSEMBLY section.

(2) Use the applicable procedure to make sure modification number CP8412 is shown on the identification plate (P/N 215-4009 or 0215-4028), Ref ASSEMBLY section.

(3) Install the identification plate (P/N 215-4009 or 0215-4028), Ref. ASSEMBLY section.