# 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: Aug.27/09



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

This document transmits the Initial Issue of IAE Service Bulletin V2500-ENG-75-0113 and the Initial Issue of Aero Engine Controls Service Bulletins 1666-75-8414, 1777-75-8416 and 1797-75-8416.

Service Bulletin Initial Issue

| Remove | Incorporate | Reason for change |
|---|---|---|
| | Pages 1 to 7 of the IAE Service Bulletin V2500-ENG-75-0113. | Initial Issue. |
| | Aero Engine Controls Service Bulletins 1666-75-8414, 1777-75-8416 and 1797-75-8416. | Initial Issue. |

International Aero Engines

SERVICE BULLETIN

# AIR - LOW PRESSURE (LP) COMPRESSOR MASTER BLEED ACTUATOR - INTRODUCTION OF SEAL HOUSING WHICH INCLUDES A CONSTANT PRESSURE VALVE (CPV) PISTON TRAVEL STOP



## 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 Master Bleed Actuator, P/N 1777MK2.

(2) Airbus A320

(a) All V2500-A1 Engines

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

(4) Boeing MD-90

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

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

B. Concurrent Requirements

None.

NOTE: If Service Bulletin V2500-ENG-75-0114 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 modified LP compressor master bleed actuator with a Constant Pressure Valve (CPV) travel stop.

(2) Background

The LP compressor master bleed actuator accurately controls the position of the engine's booster stage bleed valve. An engineering investigation identified that the CPV piston in the LP compressor master bleed actuator has the potential to over travel and latch closed on high life units.

(3) Objective

Introduction of this Service Bulletin is designed to improve 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

The function of the CPV is to maintain a constant pressure difference across the torque motor despite variations in the pressure difference across the LP compressor master bleed actuator. Wear at the base of the CPV piston can increase the rate of fuel leakage into the cavity at the base of the piston, the resultant pressure rise may cause the CPV to over travel in the closed direction. Once the spring compresses to its solid height, the CPV can become latched in this position. In the latched position, the CPV stops regulating the pressure difference across the torque motor and can result in an incorrect schedule of the LP compressor master bleed actuator.

E. Compliance

Category Code 6

Accomplish when the sub-assembly is disassembled sufficiently to afford access to the affected spare parts.

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 1666-75-8414, 1777-75-8416 and 1797-75-8416 dated Aug.26/09.

(5) Internal Reference No.:

Engineering Change No. 09VI002.

(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 1666-75-8414, 1777-75-8416 and 1797-75-8416.

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 1666-75-8414, 1777-75-8416 and 1797-75-8416.

C. Recording Instructions

(1) A record of accomplishment is required.

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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 1666-75-8414

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

Reason for issue

To introduce a seal housing (P/N 77157010) which includes a constant pressure valve piston travel stop.

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 1666-75-8414

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

INTRODUCTION OF SEAL HOUSING (P/N 77157010), WHICH INCLUDES A CONSTANT PRESSURE VALVE (CPV) PISTON TRAVEL STOP

1. Planning Information

A. Effectivity

LPC Bleed Master Actuator - Type: 1666 Mk5.

B. Concurrent Requirements

Not applicable.

C. Reason

(1) Problem

A number of VSVA 2607 units have been rejected from service due to incorrect VSVA scheduling events during engine operation.

(2) Cause

Engineering investigations on the rejected VSVA 2607 units, showed a number of high service life units to have VSVA scheduling problems during test. It was found that due to wear, the CPV piston had moved farther than was necessary and thus 'latched' in a position where it was not possible for the CPV to keep a constant pressure drop across the torque motor.

(3) Solution

To prevent the same problem occurring in the LPC Bleed Master Actuator, which operates in a similar way to the VSVA 2607, a new seal housing (P/N 77157010) has been introduced to include a travel stop that prevents movement of the CPV piston to a 'latched' position.

D. Description

This Service Bulletin gives details of the procedure to replace the seal housing (P/N 1655-1081) installed to the LPC Bleed Master Actuator 1666 Mk5 unit, with the new seal housing (P/N 77157010), at an approved maintenance facility.

E. Compliance

Category Code 6

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

F. Approval

Service Bulletin No 1666-75-8414 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 |
|---|---|---|---|
| 77157010 | Housing, Seal | 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 |
|---|---|---|---|---|
| 77157010 | Housing, Seal | 1655-1081 | 1 | 1 |

Instruction Notes:

1 Replace with new part

D. Reidentified Parts

Not applicable.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions.

A. 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 seal housing (P/N 1655-1081), Ref. DISASSEMBLY section.

(2) Install a new seal housing (P/N 77157010) 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.

B. 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 CP8414 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 1777-75-8416

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

Reason for issue

To introduce a seal housing (P/N 77157086) which includes a constant pressure valve piston travel stop.

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 1777-75-8416

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

INTRODUCTION OF SEAL HOUSING (P/N 77157086), WHICH INCLUDES A CONSTANT PRESSURE VALVE (CPV) PISTON TRAVEL STOP

1. Planning Information

A. Effectivity

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

B. Concurrent Requirements

Not applicable.

C. Reason

(1) Problem

A number of VSVA 2607 units have been rejected from service due to incorrect VSVA scheduling events during engine operation.

(2) Cause

Engineering investigations on the rejected VSVA 2607 units, showed a number of high service life units to have VSVA scheduling problems during test. It was found that due to wear, the CPV piston had moved farther than was necessary and thus 'latched' in a position where it was not possible for the CPV to keep a constant pressure drop across the torque motor.

(3) Solution

To prevent the same problem occurring in the LPC Bleed Master Actuator, which operates in a similar way to the VSVA 2607, a new seal housing (P/N 77157086) has been introduced to include a travel stop that prevents movement of the CPV piston to a 'latched' position.

D. Description

This Service Bulletin gives details of the procedure to replace the seal housing (P/N 1685-4034) installed to the LPC Bleed Master Actuator 1777 Mk2 unit, with the new seal housing (P/N 77157086), at an approved maintenance facility.

E. Compliance

Category Code 6

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

F. Approval

Service Bulletin No 1777-75-8416 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) 75-38-02.

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 |
|---|---|---|---|
| 77157086 | Housing, Seal | 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 |
|---|---|---|---|---|
| 77157086 | Housing, Seal | 1685-4034 | 1 | 1 |

Instruction Notes:

1 Replace with new part

D. Reidentified Parts

Not applicable.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions.

A. 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 seal housing (P/N 1685-4034), Ref. DISASSEMBLY section.

(2) Install a new seal housing (P/N 77157086) 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.

B. 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 CP8416 is shown on the identification plate (P/N 215-4009 or 0215-4028), Ref ASSEMBY 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 1797-75-8416

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

Reason for issue

To introduce a seal housing (P/N 77157086) which includes a constant pressure valve piston travel stop.

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.

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Signed: A Kennedy Date: Aug 26/09

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# SERVICE BULLETIN

SERVICE BULLETIN NUMBER 1797-75-8416

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

INTRODUCTION OF SEAL HOUSING (P/N 77157086), WHICH INCLUDES A CONSTANT PRESSURE VALVE (CPV) PISTON TRAVEL STOP

1. Planning Information

A. Effectivity

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

B. Concurrent Requirements

Not applicable.

C. Reason

(1) Problem

A number of VSVA 2607 units have been rejected from service due to incorrect VSVA scheduling events during engine operation.

(2) Cause

Engineering investigations on the rejected VSVA 2607 units, showed a number of high service life units to have VSVA scheduling problems during test. It was found that due to wear, the CPV piston had moved farther than was necessary and thus 'latched' in a position where it was not possible for the CPV to keep a constant pressure drop across the torque motor.

(3) Solution

To prevent the same problem occurring in the LPC Bleed Master Actuator, which operates in a similar way to the VSVA 2607, a new seal housing (P/N 77157086) has been introduced to include a travel stop that prevents movement of the CPV piston to a 'latched' position.

D. Description

This Service Bulletin gives details of the procedure to replace the seal housing (P/N 1685-4034) installed to the LPC Bleed Master Actuator 1797 Mk2 unit, with the new seal housing (P/N 77157086), at an approved maintenance facility.

E. Compliance

Category Code 6

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

F. Approval

Service Bulletin No 1797-75-8416 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 |
|---|---|---|---|
| 77157086 | Housing, Seal | 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 |
|---|---|---|---|---|
| 77157086 | Housing, Seal | 1685-4034 | 1 | 1 |

Instruction Notes:

1 Replace with new part

D. Reidentified Parts

Not applicable.

E. Tooling - Price and Availability

Not applicable.

3. Accomplishment Instructions.

A. 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 seal housing (P/N 1685-4034), Ref. DISASSEMBLY section.

(2) Install a new seal housing (P/N 77157086) 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.

B. 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 CP8416 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.