

SERVICE BULLETIN

DATE: 3 MARCH 2010

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* Supersedes SB600N-050 dated 16 March 2009. Revised to add latest revision of Rolls-Royce Commercial Engine Bulletin.

GOVERNOR ELECTRONIC CONTROL UNIT (ECU) REPLACEMENT

1. PLANNING INFORMATION

A. Aircraft Affected:

MD Helicopters, Inc. (MDHI) Model 600N Helicopters, serial number RN003 thru RN077.

B. Assembly/Components Affected By This Bulletin:

600N8500 Engine Control Installation. Custom Aircraft Interiors MD600-6200-138 ECU harness cover, if installed.

C. Reason:

Rolls-Royce Corporation has made a product improvement to the Model 250 Series IV FADEC single engine control system with the addition of a Reversionary Governor to the EMC-35A ECU. This improvement will reduce the possibility of a reversion to manual mode. The new ECU will be designated EMC-35R.

D. Description:

Procedures in this bulletin give owners and operators data about Rolls-Royce commercial engine bulletin CEB 73-6048 ENGINE FUEL AND CONTROL - INTRODUCTION OF REVERSIONARY GOVERNOR ELECTRONIC CONTROL UNIT (ECU).

This bulletin also has instructions to modify the Custom Aircraft Interiors MD600-6200-138 ECU harness cover, if installed.

E. FAA Approval:

The technical design aspects of this bulletin are FAA Approved.

F. Time of Compliance:

This bulletin must be completed when Rolls-Royce CEB 73-6048 is completed.

G. Manpower:

5 man-hours for ECU replacement.

2 man-hours for ECU harness cover modification.

H. Interchangeability:

None

I. Material/Part Availability:

Contact Rolls-Royce Corporation.

J. Warranty Policy:

N/A

K. Tooling:

N/A

L. Weight and Balance:

Incorporation of the airframe changes included in this Service Bulletin have a negligible impact on aircraft weight and balance. Incorporation of Rolls-Royce CEB 73-6048 will add 2.5 pounds at aircraft FS 119.28 and RBL 11.20.

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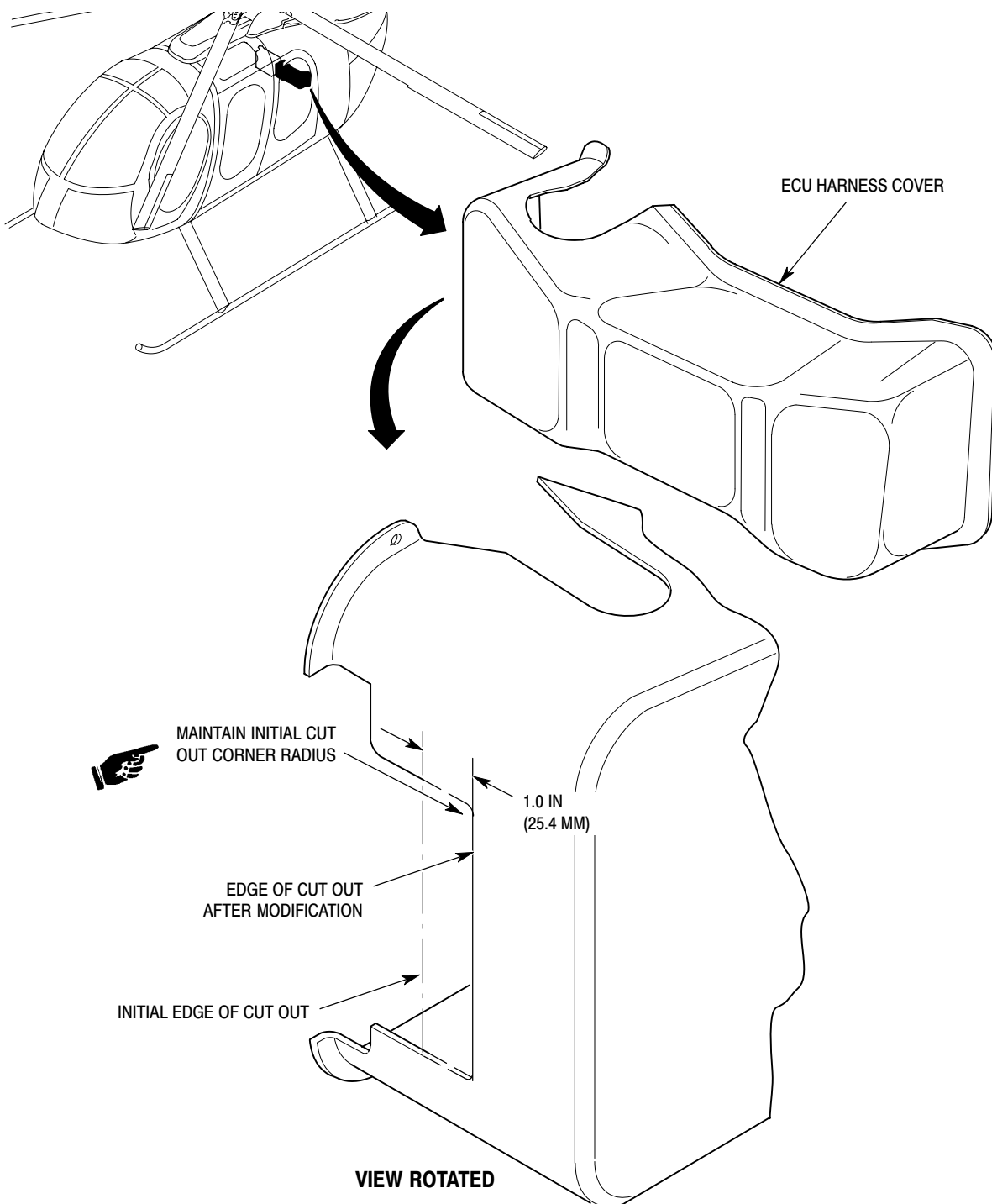
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88-824A

Figure 1. ECU Harness Cover Modification

3. DISPOSITION OF PARTS REMOVED

N/A

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Bulletin Completed Record

SB600N-050, Governor Electronic Control Unit (ECU) Replacement

FAX this form to MDHI (480) 346-6813 or
Email to ServiceEngineering@mdhelicopters.com

MD Helicopters, Inc.
Field Service Department
4555 E. McDowell Road
Mesa, AZ 85215-9734

800-388-3378 phone (U.S. and Canada)
480-346-6387 phone (International)
480-346-6813 Fax

Dear Sir:

This is to tell you that this service bulletin has been completed as shown below:

Owner/Operator: _____

Aircraft Serial No: _____

Address: _____

Phone: _____

E-mail address: _____

Helicopter Total Time: _____ Date: _____

Location: _____

This bulletin is complete: _____

(Signature)

(Print Name)

(Title)

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Rolls-Royce Corporation
P.O. BOX 420
Indianapolis, IN 46206 USA
Phone: 317-230-3774
Fax: 317-230-6084
email: indy.pubs.services@rolls-royce.com



Rolls-Royce

P U B L I C A T I O N T R A N S M I T T A L

January 18, 2010

TO: Recipients of 250-C47B, -C47M Commercial Engine Bulletins

SUBJECT: ENGINE, FUEL AND CONTROL - INTRODUCTION OF
 REVERSIONARY GOVERNOR ELECTRONIC CONTROL UNIT (ECU)

This letter transmits Revision 4 to the subject commercial engine bulletins:

<u>Model</u>	<u>Bulletin Number</u>
250-C47B	CEB 73-6048
250-C47M	CEB 73-6048

This is a complete revision. Replace the Revision 3 issue with this Revision 4.

Revision 4 changes the Planning Information, Accomplishment Instructions, and Material Information sections.

The following list includes the original issue date and all revisions to this bulletin:

Original issue	January 29, 2007
Revision 1	March 30, 2007
Revision 2	December 5, 2008
Revision 3	March 16, 2009
Revision 4	January 18, 2010

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ENGINE, FUEL AND CONTROL - INTRODUCTION OF REVERSIONARY GOVERNOR ELECTRONIC CONTROL UNIT (ECU)

1. PLANNING INFORMATION

A. Effectivity

(1) Engines

All Rolls-Royce Model 250-C47B engines installed on Bell 407 aircraft and 250-C47M engines installed on MD Helicopters Model 600N aircraft with Goodrich Pump and Engine Control Systems, Inc. Model EMC-35A Electronic Control Units (ECUs) are affected by this bulletin.

(2) Spares - Affected.

B. Reason

Rolls-Royce Corporation is introducing a product improvement for the Model 250 Series IV FADEC single engine control system with the addition of a Reversionary Governor to the EMC-35A Electronic Control Unit (ECU) to reduce the frequency of reversions to manual mode. This new ECU will be designated EMC-35R. A software upgrade from EMC-35R (designated 35R+) will be available shortly for the C47B and C47M engines. This upgrade will be a software upgrade accomplished in the field by qualified Goodrich representatives or qualified Rolls-Royce representatives. This EMC-35R+ upgrade will eliminate the various nuisance faults experienced in the field with the EMC-35R units (Ref. CSL 6125 for C47B and CSL 6137 for C47M).

C. Description

This commercial engine bulletin gives you the procedure to remove the current ECU (P/N 23072790, 23071644 or 23072949) and install the new ECU (P/N 23088856, 23088484, 23088905 or 23089311) or have a software upgrade performed on ECU P/N 23080491 or 23080490.

D. Approval

Technical aspects are FAA approved.

E. Compliance

Compliance Code 5: To be complied with upon receipt of replacement unit or notification from a Goodrich or Rolls-Royce Representative of availability of new software.

F. Interchangeability - Not Affected.

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G. Material Availability

NEW P/N	NAME	MODEL	QTY/ENG
23088484 23088856	Electronic Control Unit	C47B	1
23088905 23089311	Electronic Control units	C47M	1
23089160	Software, FADEC Maintenance	C47M	1
23088466	Software, FADEC Maintenance	C47B	1
23088465	Kit, FADEC Maintenance	C47B	1
23089161	Kit, FADEC Maintenance	C47M	1

H. Tooling

- (1) C47M Maintenance Terminal Software (23089160). Software consists of:
 - (a) C-557-0201 Program Disc (Same as used with 6.002 software).
 - (b) C-562-0301 Data Disk (New Disk - includes 6.002, 6.111 and 6.112).
- (2) C47B Maintenance Terminal Software (23088466). Software consists of:
 - (a) C-557-0201 Program Disc (Same as used with 5.202 software).
 - (b) C-561-0303 Data Disk (New Disk - includes 5.202, 5.356, and 5.358 data files).
- (3) Personal computer (PC) with Windows 95 or higher.
- (4) Interface EMIT Cable (provided at original aircraft delivery).
 - (a) C47B - 23070858
 - (b) C47M - 23070859

I. Weight and Balance

Engine weight can increase by 2.5 lbs (1 Kg) when you incorporate this bulletin.

J. Electrical Load Data - Not affected.

K. References

- (1) Advance Engineering Memorandum (AEM), CW500009775199, CW124725.
NOTE: The documents above are referenced for the internal use of Rolls-Royce only.
- (2) CSP 21001 Operation and Maintenance Manual, Turboshaft Model 250-C47B (OMM).
- (3) CSP 21004 Operation and Maintenance Manual, Turboshaft Model 250-C47M (OMM).
- (4) CSP 23001 Illustrated Parts Catalog, Turboshaft Models 250-C40B, -C47B, -C47M (IPC).
- (5) 250-C30 CSL-3208/C47 CSL-6113.

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L. Other Publications Affected

- (1) CSP 21001 Operation and Maintenance Manual, Turboshaft Model 250-C47B (OMM).
- (2) CSP 21004 Operation and Maintenance Manual, Turboshaft Model 250-C47M (OMM).
- (3) CSP 23001 Illustrated Parts Catalog, Turboshaft Models 250-C40B, -C47B, -C47M (IPC).

M. Prerequisites

- (1) C47B - Bell Technical Bulletin 407-07-75 must be incorporated at the same time.
- (2) C47M - MD Service Bulletin SB600N-050 must be incorporated at the same time.

2. ACCOMPLISHMENT INSTRUCTIONS

A. If you comply with the software upgrade of the C47B ECU P/N 23080490 or C47M ECU P/N 23080491, performed by either a Goodrich or Rolls-Royce representative, only step 2.F., and 2.G. will need to be accomplished in the section.

B. Record the following information for each engine before old ECU removal:

NOTE: Do not electronically download this information. The information must be manually loaded in a future step.

ENGINE	
Total Time	
Number of Starts	
Engine Serial Number	
Compressor Serial Number	
Gearbox Serial Number	
Turbine Serial Number	
Hydromechanical Unit (HMU) Serial Number	
Aircraft Serial Number	

C. Remove the old ECU (C47B - P/N 23072790, 23071644 or 23080490; C47M - P/N 23072949 or 23080491) (Ref. Bell 407 Manual or MDHI 600N Manual as applicable).

NOTE: Comply with the appropriate procedures in the referenced Operation and Maintenance Manual and Illustrated Parts Catalog.

D. Install the new ECU (C47B - P/N 23088484 or 23088856; C47M - P/N 23088905 or 23089311) (Ref. Bell 407 Manual or MDHI 600N Manual as applicable).

E. Program new ECU:

- (1) Install the new maintenance terminal data disc (C47B - P/N 23088466, C47M - P/N 23089160) on the PC.
- (2) Connect interface EMIT cable (C47B - P/N 23070858) or (C47M - P/N 23070859) to ECU and to PC serial port.
- (3) Energize the ECU with airframe power.
- (4) Enter the information recorded in step 2.B manually. Do not electronically transfer information from the removed EMC-35A unit.
- (5) De-energize the ECU from airframe power.
- (6) Disconnect interface EMIT cable.

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- F. Perform the following operational check:
 - (1) Perform engine start per applicable aircraft Flight Manual.
 - (2) Check all engine instruments to verify proper operation.
 - (3) In AUTO MODE, increase throttle position to 100% N_p.
 - (4) Return throttle position to IDLE.
 - (5) Change from AUTO MODE to MANUAL MODE. Verify that MANUAL and AUTO RELIGHT (C47B engine only) lights are ON.
 - (6) Increase throttle to 90% N_p to verify engine response.
 - (7) Return throttle position to IDLE.
 - (8) Change from MANUAL MODE to AUTO MODE.
 - (9) Shut down engine using overspeed shutdown test.
- G. Record compliance in the applicable Engine Log Book pages, Part III, Modification Record, as applicable with the following:

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250-C47M	CEB 73-6048

- H. Return ECU to Goodrich Engine and Control Systems, Inc. via Rolls-Royce provided instructions. Make sure that the ECU accessory log card(s) are returned with the unit. The accessory log cards must show total time and reason for removal. PLEASE EXPEDITE RETURN OF UNITS. (A prepaid return shipping label will be provided.) In order to manage the distribution of ECUs for compliance with this bulletin, please provide the following information for your aircraft and engine, after the replacement EMC-35R ECU has been installed and this CEB is signed off. Please FAX the information below to Model 250 customer support @ (317) 230-3381, or email to the following addresses:

Model250custsupp@rolls-royce.com (C47B and C47M Engines)
 pselight@bellhelicopter.textron.com (C47B engines only)
 ServiceEngineering@mdhelicopters.com (C47M engines only)

Owner / Operator Name	
Aircraft Serial Number	
Aircraft Base	
Maintenance Point of Contact (POC)	
POC Phone Number	
POC Fax Number	
POC E-Mail Address	
Shipping Address	
Engine Serial Number	
ECU Serial Number	
HMU Serial Number	
HMU Part Number	
Engine Total Time	

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3. MATERIAL INFORMATION

A. Configuration Chart

NEW P/N	QTY/ ENG	NAME	OLD P/N	QTY/ ENG	INSTRUCTIONS/ DISPOSITION
23088905 23089311	1	Electronic Control Unit, 250-C47M	23072949 23080491	1	1,2
23089160	1	Software, FADEC Maintenance, 250-C47M	23072392 23080740	1	2
23088466	1	Software, FADEC Maintenance, 250-C47B	23080741	1	2
23088484 23088856	1	Electronic Control Unit, 250-C47B	23080490 23072790 23071644	1	3 1,2 1,2

INSTRUCTIONS/DISPOSITION NOTES:

1. Return to Goodrich Engine and Control Systems, Inc. for inspection and rework to new part number.
2. New Item.

NOTE: Make sure that Log Book accessory cards are returned with the ECU. The log cards must show total time and reason for removal. Example: ECU removed for compliance with CEB-73-6048. This will be a software upgrade only, that will be performed in the field by either a representative from Goodrich or Rolls-Royce.

3. This will be a software upgrade only, that will be performed in the field by either a representative from Goodrich or Rolls-Royce.

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