



A Textron Company

ALERT SERVICE BULLETIN

407-16-114

7 October 2016

Revision A, 8 December 2016

Revision B, 16 January 2017

Revision C, 3 March 2017

**MODEL AFFECTED:** 407

**SUBJECT:** ENGINE, COMBUSTION ASSEMBLY - INSPECTION OF OUTER COMBUSTION CASE P/N M250-10404

**HELICOPTERS AFFECTED:** Serial number 54155, 54158, 54160, 54478 through 54484, 54487, 54488, 54490, 54496, 54497, 54499 through 54566, 54568 through 54657, 54659, 54660, 54662 through 54668, and 54670 through 54693.

[Serial numbers 54567, 54658, 54661, 54669, and 54694 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

[Serial numbers 53000 through 53900, 53911 through 54154, 54156, 54157, 54159, 54161 through 54299, 54300 through 54477, 54485, 54486, 54489, 54491 through 54495, and 54498 should verify parts installed for applicability of the CEB requirements.]

**COMPLIANCE:** Refer to attached Rolls-Royce Corporation (RRC) Revision 3 of the ALERT Commercial Engine Bulletin CEB A-72-6085, dated February 2, 2017.

**DESCRIPTION:**

The purpose of Revision C of this bulletin is to achieve complete distribution of the attached Revision 3 of supplier bulletin to the current affected model Technical Publications distribution list on record by Bell Helicopter Textron. Applicability of this bulletin to any spare part shall be determined prior to its installation on an affected helicopter.

**APPROVAL:**

Refer to attached Rolls-Royce Corporation (RRC) Revision 3 of the ALERT Commercial Engine Bulletin CEB A-72-6085, dated February 2, 2017.

**CONTACT INFO:**

For any questions regarding this bulletin, please contact:

Rolls-Royce M250 Customer Support Group

Email: [helicoptercustsupp@rolls-royce.com](mailto:helicoptercustsupp@rolls-royce.com)

Phone: +1 (317) 230-2720 or inside North America: 1-888-255-4766



## ENGINE, COMBUSTION ASSEMBLY - INSPECTION OF OUTER COMBUSTION CASE P/N M250-10404

### 1. PLANNING INFORMATION

#### A. Effectivity

##### (1) Engines

All Rolls-Royce M250<sup>®</sup>-C28 Series, M250-C30 Series, M250-C40B, M250-C47 Series, and M250-C47E Series engines with M250-10404 outer combustion case installed are affected by this bulletin.

##### (2) Spares - Affected

#### B. Reason

Rolls-Royce has become aware of the potential of M250-10404 outer combustion cases to crack in some locations. This commercial engine bulletin (CEB) is being released to further decrease the inspection interval to 25 hours in order to discover cracks that could lead to potential power and performance reduction.

#### C. Description

This CEB provides the instructions for operators to perform a repetitive visual and Leak-Tec inspection at every 25 flight hours.

#### D. Approval

Technical aspects are FAA approved.

#### E. Compliance

##### (1) Compliance for Inspection:

Compliance Code 2. To be complied with within 25 flight hours after receipt of this bulletin and every 25 flight hours thereafter.

- (a) For an Outer Combustion Case (OCC) that complies with the minimum weld size requirements in [2.A.\(2\)](#), the 25 hour repetitive inspection per this CEB is no longer required. Refer to the applicable Operations and Maintenance Manual for recommended inspection intervals.
- (b) For operators in remote locations with no maintenance personnel available, the inspection can be extended to a maximum of 50 hours after receipt of Revision 1 of this bulletin and 25 hours thereafter.

##### (2) Compliance for Repair if required per [section 2.A.\(3\)](#):

Compliance Code 6. For an Outer Combustion Case (OCC) that does not comply with the minimum weld size requirements of [2.A.\(2\)](#), the OCC must be removed and repaired at the next turbine overhaul.

September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002

F. Interchangeability - Not affected

G. Material Availability

NEW P/N	NAME	QTY/ENG
M250-10404	Case Assy, Outer Combustion	1

H. Tooling - Not affected

I. Weight and Balance - Not affected

J. Electrical Load Data - Not affected

K. References

- (1) 16W2 Operation and Maintenance Manual, Turboshaft M250-C28B, -C28C.
- (2) 14W2 Operation and Maintenance Manual, Turboshaft M250-C30, -C30S, -C30G, -C30G/2, -C30P, -C30M (OMM).
- (3) CSP21003 Operation and Maintenance Manual, Turboshaft M250-C30R/3 (OMM).
- (4) CSP21004 Operation and Maintenance Manual, Turboshaft M250-C47M (OMM).
- (5) CSP21001 Operation and Maintenance Manual, Turboshaft M250-C47B (OMM).
- (6) CSP21000 Operation and Maintenance Manual, Turboshaft M250-C40B (OMM).
- (7) CSP21006 Operation and Maintenance Manual, Turboshaft M250-C30R/3M (OMM).
- (8) CSP21011 Operation and Maintenance Manual, Turboshaft M250-C47E.

L. Other Publications - Not affected

M. Prerequisites - None

## 2. ACCOMPLISHMENT INSTRUCTIONS

A. Inspect the inner fuel nozzle boss doubler weld size on the external surface of the OCC.

**NOTE:** If due to installation constraints, the weld cannot be fully inspected in accordance with section A.(1) below, then skip to [section 2.B.](#) and complete the visual and Leak-Tec inspection.

- (1) The inner fuel nozzle boss weld depicted in [Fig. 1](#) must be at least 0.085 in. (2.2 mm) in height as measured from the fuel nozzle boss doubler.

**NOTE:** Additional clarification on the acceptance criteria is shown in [Fig. 2](#). The figure contains examples of weld sizes and can be used as a guide to interpret the measurement requirements. The figure does not provide accept or reject criteria.

- (2) If the leg of the weld meets the minimum size requirements at all circumferential locations around the fuel nozzle boss:
  - (a) Mark the letters CW adjacent to the part number in accordance with AS478-2D1 shallow vibro-peen to track bulletin compliance.

September 1, 2016  
 Revision 3  
 February 2, 2017

M250-C28 Series    CEB A-72-2218  
 M250-C30 Series    CEB A-72-3303  
 M250-C47 Series    CEB A-72-6085  
 M250-C40B            CEB A-72-5070  
 M250-C47E Series    CEB A-72-7002

## COMMERCIAL ENGINE BULLETIN

- (b) Proceed to
- [Section 2.C](#)

**NOTE:** If this specific OCC qualifies for this alternate compliance method, then the requirement for Visual and Leak-Tec inspections every 25 hours is lifted and the inspection interval returns to the Operations and Maintenance Manual specified inspection interval.

- (3) If the fuel nozzle boss inner weld does not meet the size requirements in
- [Fig 1:](#)

- (a) Comply with inspection criteria in
- [section 2.B.\(1\)](#)
- and
- [2.B.\(2\)](#)

**NOTE:** OCCs that do not meet the definition in Fig.1 are required to continue the recurring 25 hour inspection requirement.

- (b) Remove and repair OCC within compliance interval listed in
- [section 1.E.](#)
- of this bulletin. Contact Roll-Royce Customer Support at
- [helicoptercustsupp@rolls-royce.com](mailto:helicoptercustsupp@rolls-royce.com)
- for approved repair facilities.

- B. Inspection – Accomplishment of both items (1) and (2) must be completed at time of compliance.

- (1) With a bright light (flashlight or equivalent) and mirror, inspect all the welds on the OCC (see
- [Fig. 3](#)
- ). No cracks are allowed. An outer combustion case that is cracked must be removed from service and repaired. Welded areas are:

- (a) Horizontal butt welds on outer surface and between the air discharge tube attachment flanges and gas producer attachment flange on forward side.
- (b) Both forward and aft circumferential seam welds between outer case and inner liner.
- (c) Welds for attaching bosses for fuel nozzle, both combustion case drain valves, both igniter plugs.

**NOTE:** Pay particular attention to the welds in areas that surround the threaded fuel nozzle boss.

- (2) With the Leak-Tec (step 2.B.(2)(a)) or fluorescent penetrant inspection (step 2.B.(2)(b)) method, inspect the above designated areas (steps 2.B.(1)(a) thru 2.B.(1)(c)). No cracks are allowed. An OCC that is cracked must be removed from service and repaired. Inspect the designated areas with one of the two methods that follow:

**CAUTION:** DO NOT APPLY LEAK-TEC TO A HOT ENGINE. DAMAGE TO THE ENGINE CAN OCCUR. THE ENGINE TEMPERATURE IS SATISFACTORY FOR INSPECTION WHEN THE BARE HAND CAN BE PLACED ON THE OUTER COMBUSTION CASE WITHOUT DISCOMFORT.

- (a) Apply Leak-Tec to the above designated areas (steps 2.B.(1)(a) thru 2.B.(1)(c)) and with a suitable power source, motor the engine without starting to approximately 20% N1 (or as close as possible with the power available) and look for bubbles. No bubbles (crack indication) are allowed.

**NOTE:** Observe the duty cycle time on the starter-generator.

- (b) Fluorescent penetrant inspect the above designated areas (steps 2.B.(1)(a) thru 2.B.(1)(c)) with a light source for cracks. No crack indications are allowed.

**NOTE:** Refer to Customer Support Video instructions for the Leak-Tec inspection method. <https://youtu.be/Ju4arLnmmGc>

September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002

# ALERT

## Rolls-Royce

### COMMERCIAL ENGINE BULLETIN

C. Record compliance in the Engine Log Books, Engine Assembly, and Turbine Assembly pages as applicable with the documents that follow:

M250-C28 Series	CEB 72-2218
M250-C30 Series	CEB 72-3303
M250-C47 Series	CEB 72-6085
M250-C40B	CEB 72-5070
M250-C47E Series	CEB 72-7002

**NOTE:** Additional blank CEB Compliance log book pages are available from Aviall.

**NOTE:** Notify Rolls-Royce Customer support via e-mail at [Helicoptercustsupp@rolls-royce.com](mailto:Helicoptercustsupp@rolls-royce.com) of an OCC which has CW added in accordance with [step 2.A.\(2\)\(a\)](#) and the OCC serial number.

### 3. MATERIAL INFORMATION

#### A. Configuration Chart

NEW P/N	QTY/ ENG	NAME	OLD P/N	QTY/ ENG	INSTRUCTIONS/ DISPOSITION
M250-10404	1	Case Assy, Outer Combustion	M250-10404	1	1, 2
M250-10404 CW	1	Case Assy, Outer Combustion	M250-10404	1	3
M250-10896	1	Case Assy, Outer Combustion, Service Release	M250-10404	1	4
23030910 23030911 M250-10867	1	Case Assy, Outer Combustion	M250-10404	1	5

#### INSTRUCTIONS/DISPOSITION NOTES

1. New or inspected item
2. Remove and send to Rolls-Royce approved facility for rework
3. Passed inspection - alleviates inspections per this CEB
4. Service Release part - alleviates inspections per this CEB
5. Part Number not affected by this CEB.

September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002

**ALERT**  
**Rolls-Royce**  
COMMERCIAL ENGINE BULLETIN

4. INSTRUCTIONS/DISPOSITION NOTES:

A. Inspected Item

If the Outer Combustion Case is found to have a crack, remove and replace the component, and email the information that follows to Rolls-Royce at [helicoptercustsupp@rolls-royce.com](mailto:helicoptercustsupp@rolls-royce.com):

- Operator:
- Engine S/N:
- OCC P/N Removed:
- OCC S/N Removed:
- OCC Hours:
- OCC Cycles:
- Date of Compliance:
- Photo of the crack in the component

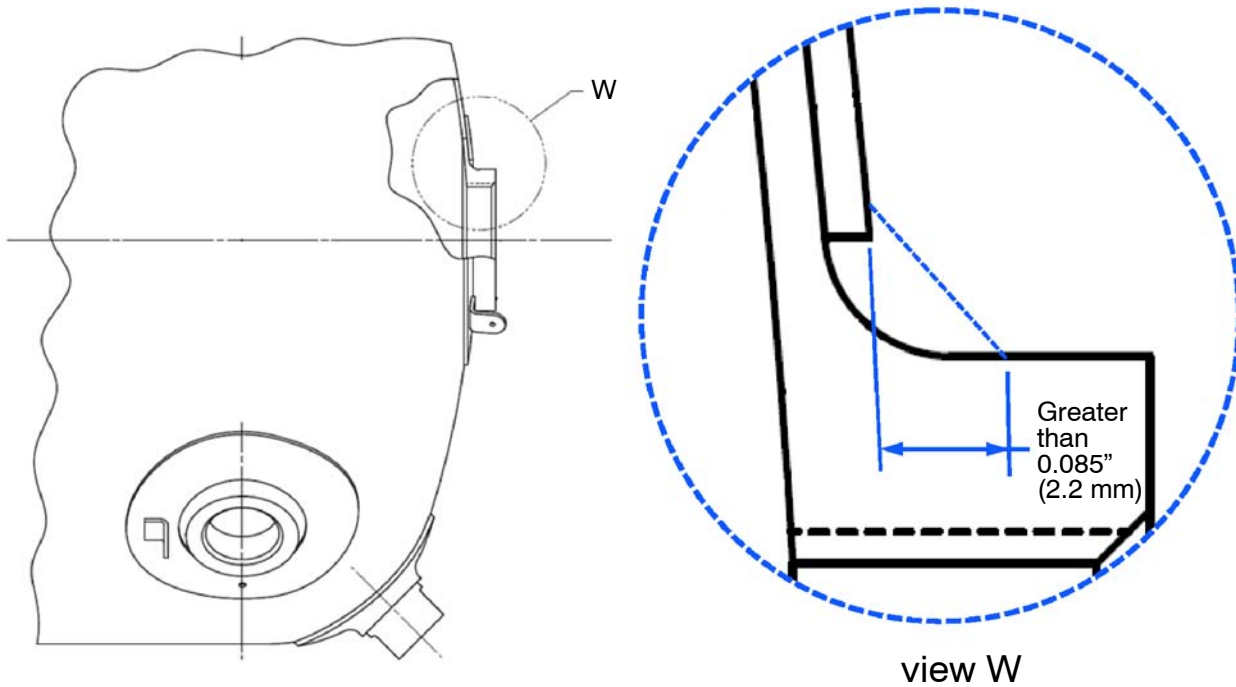
CUSTOMER SUPPORT  
ROLLS-ROYCE

September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002

# ALERT

Rolls-Royce  
COMMERCIAL ENGINE BULLETIN



Examples of Acceptable Weld Sizes  
FIG. 1

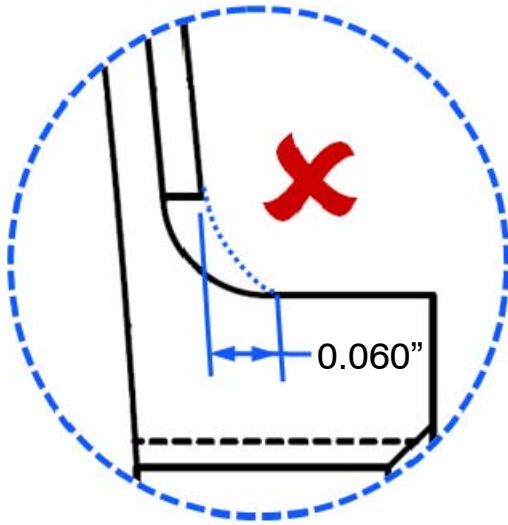
September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002

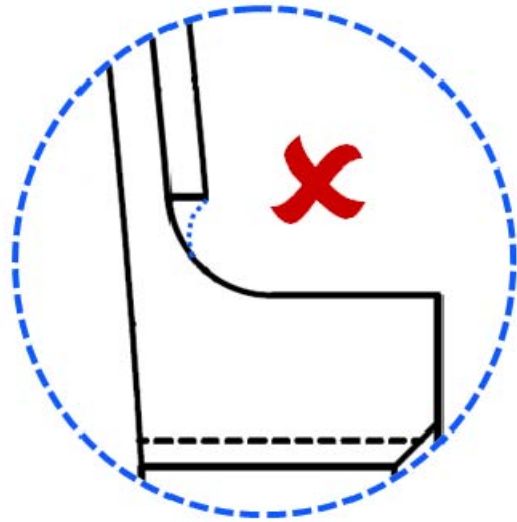


# ALERT

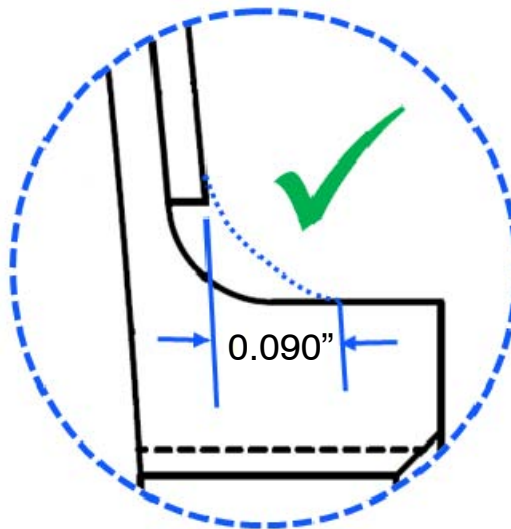
**Rolls-Royce**  
COMMERCIAL ENGINE BULLETIN



Requires repetitive inspection



Requires repetitive inspection



Weld Acceptable  
Return to OMM Inspection Criteria

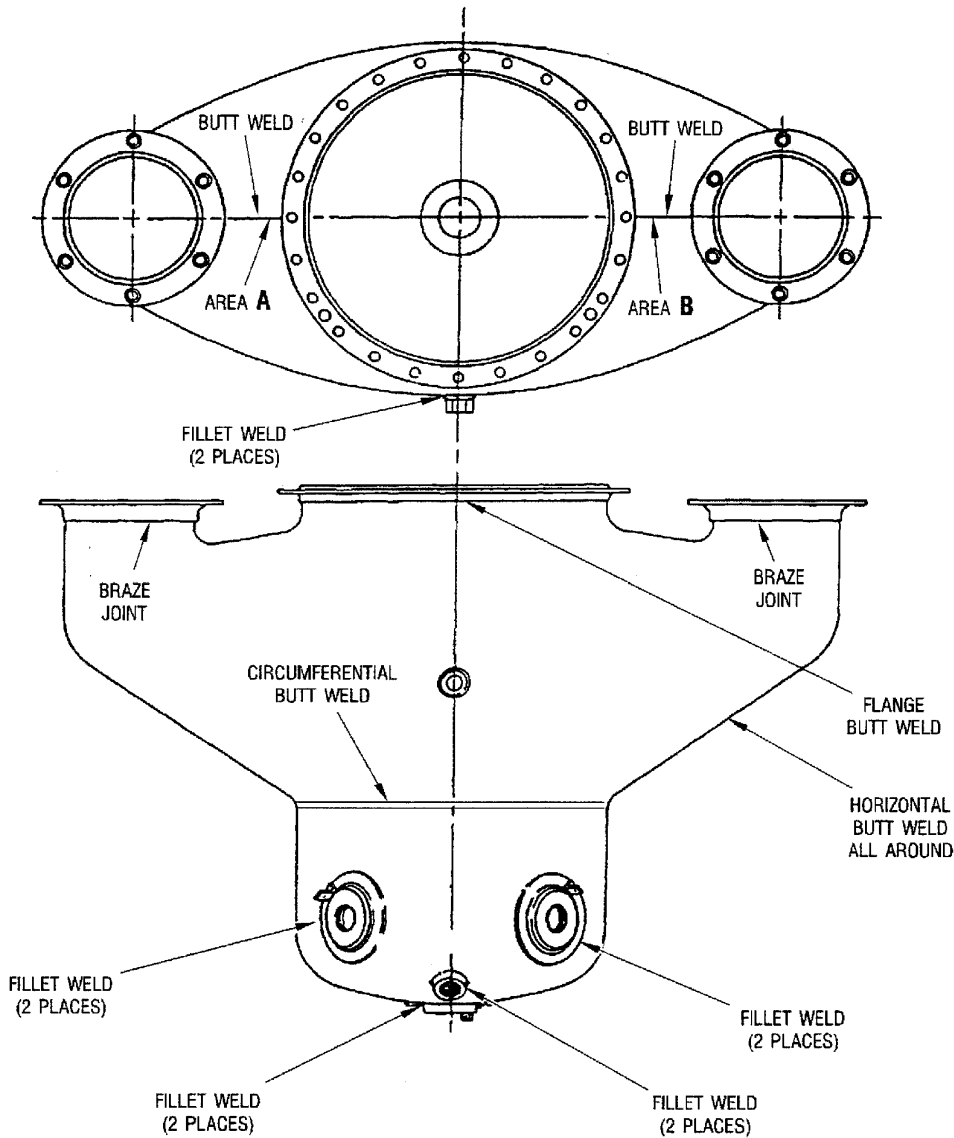
Examples of Weld Sizes for Recurring Inspection  
FIG. 2

September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002

# ALERT

Rolls-Royce  
COMMERCIAL ENGINE BULLETIN



ii00034287

Visual Inspection Areas of the Combustion Case  
FIG. 3

September 1, 2016  
Revision 3  
February 2, 2017

M250-C28 Series	CEB A-72-2218
M250-C30 Series	CEB A-72-3303
M250-C47 Series	CEB A-72-6085
M250-C40B	CEB A-72-5070
M250-C47E Series	CEB A-72-7002