

Date: August 30, 2017
Subject: Turbocharger KBB R-4-3; Containment; Parts availability
Engine type: M20

Caterpillar confidential: green

Containment level enhancement parts for turbocharger type R4-3 available

The turbocharger maker KBB informed us about the release of **Service information exhaust gas turbocharger S110 (06/2017)**. This service information informs operators about availability of containment enhancement parts.

The bearing casing, compressor casing and related assembly parts were improved to meet current containment requirements. The following sets are available:

- **Bearing casing, compressor casing and related assembly parts**
- **Complete cartridge with compressor casing and related assembly parts**
- **Complete R4-3 turbocharger**

In case single parts for R4-3 turbocharger are required and no containment enhancement set is ordered at the same occasion, parts can only be sold and delivered if the receipt of this service letter and its attachment is confirmed by returning the signed page 2 by fax or e-mail to Caterpillar Motoren GmbH & Co.KG

Fax: +49 (0) 431 3995-3894
E-mail: ju_tecservice@cat.com

Thank you for your understanding and for your good support.

Please note:

- Please send your confirmation of receipt also together with your turbocharger parts order to your local MaK Service facility.
- New containment enhancement sets for turbocharger **type R3-2 and R4-2** are still under development. Nevertheless, from now on any spare parts for these turbocharger types can only be sold and delivered after the receipt of the signed page 2 of service letter No.0002M20 as well, until the respective containment enhancement set will be available and has been retrofitted.
- Containment level enhancement sets for the very small population of R4-3VRT and R5-3VRT turbocharger will not be developed.

2 Attachments: KBB Service information exhaust gas turbocharger S096 (06/2016) and S110 (06/2017)

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Acknowledgement of receipt KBB Service information exhaust gas turbocharger S096 (06/2016) and S110 (06/20176)

To:

Your local MaK service facility
AND
Caterpillar Motoren
Fax: +49 (0) 431 3995-3894
or
E-mail: ju_tecservice@cat.com

KBB Service information exhaust gas turbocharger S096 (06/2016) and S110 (06/2017) received and read:

Company: _____

Name: _____

Engine serial No. (s): _____

Turbocharger serial No.(s): _____

Date and place: _____

Signature: _____

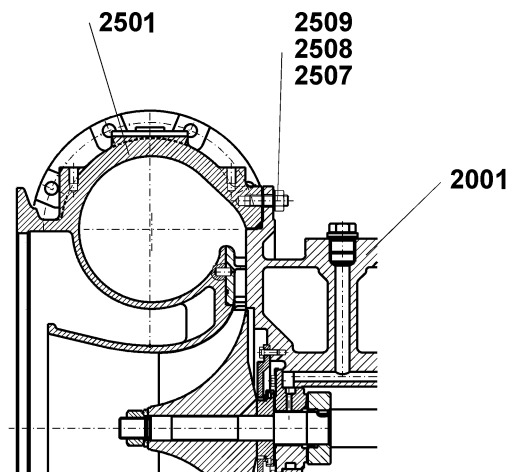
Subject: Bearing casing – compressor casing connection

Valid for TC types: R4-3

Valid for engines: CAT / MAK - M20 & M25

1 Explanation

The changes described in this Service Information refer to the explanations in Service Information S096. The materials of the bearing casing (2001), compressor casing (2501), stud bolts (2507) and nuts (2508) have been changed as a result of a safety-relevant development process. A conversion set is offered to implement this change.



Converted turbochargers will be given a new nameplate with an "old" specification number and a "new" serial number!

Always perform a complete conversion during repair / service work on turbochargers with an old serial number!

Always use compressor casings and connecting elements of the "new" design when installing cartridges of the new design!

A conversion set containing the following parts is offered for the conversion:

- Bearing casing (2001)
- Compressor casing (2501) with new nameplate
- 12 x nuts (2508)
- Gaskets (9802)
- Locking elements (9803)

2 Identification

Casing:

The casings can be identified by the blank number:

	"old" blank number	"new" blank number
Bearing casing:	2.448-20010.51:01R	2.448-20010.55:01R
Compressor casing:	2.448-25000.01:01R	2.448-25000.51:01R
	2.448-25000.02:01R	2.448-25000.52:01R
	2.448-25000.03:01R	2.448-25000.53:01R

Converted turbocharger:

Converted turbochargers are fitted with a new nameplate bearing an "old" specification number and a "new" serial number. The serial number is advanced by "2000".

	"old" serial number	"new" serial number
Example serial number:	0738	2738

New turbocharger:

The serial number of new turbochargers which have been delivered in the "new" design is greater than 2933.

3 Change of spare parts

Only bearing casings (2001), compressor casings (2501), cartridges and connecting elements of the "new" design will be delivered as spare parts in the future.

Scrap all bearing casings (2001), compressor casings (2501) and connecting elements of the "old" design!

4 Introduction

The changes are introduced with the following serial numbers:

Turbocharger: as of 2934

5 Measures



Please inform KBB about every conversion and communicate the new serial number!

- ☒ Immediately convert cartridges and turbochargers of the "old" design!
- ☒ Render the bearing casings (2001) and compressor casings (2501) of the "old" design unusable. Then clearly document the "unusable" state by taking a photo. Send the photo documentation to service-24/7@kbb-turbo.com by e-mail.
- ☒ Scrap bearing casings (2001), compressor casings (2501) and connecting elements of the "old" design!
- ☒ No longer use the "old" design.

Subject: Safety Information

Valid for TC types: R3-2, R4-2, R4-3, R5-3

Valid for engines: M20, M25

This safety information is addressed to Caterpillar Motoren GmbH & Co. KG (Caterpillar Motoren) and aimed to be forwarded to all customers and operators of engines with R3-2, R4-2, R4-3, R5-3 type turbochargers.

As a supplier of high performance turbocharger products for more than 60 years KBB feels highly responsible to ensure customer satisfaction and operational reliability over the whole life cycle of our products. In this regard operator's safety has always been on the top of the focus.

The R-type turbochargers have been developed more than 20 years ago according to the existing classification rules that have been state of the art and accepted in those days. Since that time the awareness and responsibility for containment safety raised and ends up in strict containment rules by legislation and classification.

In this regard we would like to inform you that the R-type turbochargers do not provide the same level of containment safety as current turbocharger types and may not comply with the very latest containment safety rules.

In the very unlikely case of a rotor failure due to not permitted but possible turbocharger operation in extreme load conditions such as surge of compressor or over-speed, the R-type compressor casing is possibly not able to resist a compressor wheel breakage and to avoid the risk of released fragments.

KBB seriously takes the responsibility for the health of the operation staff and recommends following mandatory actions:

- strictly avoid turbocharger operation under not-permitted load conditions such as compressor surge and over-speed
- usage of compressor and turbine cleaning strictly according to the manual
- strictly adhere to the service intervals given in the manual
- use original KBB spare parts and service by authorized and certified service personnel only
- strictly comply with the safety instructions of the manual
- make sure that the operation personnel should not unnecessarily stay in the vicinity of the turbocharger. At least do not permit to enter the engine room if the engine is running above 85% MCR.

Under a mid-term perspective KBB and Caterpillar Motoren jointly will offer several turbocharger upgrade kits to the customer to improve the containment safety.

If you need further detailed information please contact your Caterpillar Motoren - or KBB-representative.

Please be sure that KBB seriously regret the inconvenience and is always at your disposal to ensure your satisfaction and safety.