

Date: April 24th 2012
Subject : Condensation water in charge air duct

Engine type: **M25 / M25C**
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Condensation water formation in the charge air duct

This Service Information is primarily intended for customers whose ships are equipped with MaK M 25 (C) main propulsion plants and frequently sailing in tropical waters.

Operating an engine in tropical climate, particularly under high load, may lead to an extreme formation of condensation water in the charge air cooler. This may cause corrosive damage to engine components such as charge air cooler, engine block, and inlet valve stems which, in turn, will affect their operational safety.

We, therefore, recommend to watch out for the formation of condensation water during engine operation.

In case of an extreme amount of condensation water in the charge air duct, which can be recognized by water leaking out of the two permanently open water detection points on the engine we recommend to raise the charge air temperature so that no more condensation water will be visibly leaking out.

When doing so, please take into account that an increase in charge air temperature will also subject engine components to higher thermal load and that limits such as charge air temperature at engine inlet and exhaust gas temperature after turbocharger must not be exceeded. Furthermore, the following notes and data from the engine operating instructions (chapter A1.06 - Temperatures of operating media) are to be observed.

If the LT cooling water system is equipped with a charge air temperature controller, the charge air temperature is adjusted by changing the setpoint of this controller. When doing so, the maximum charge air temperature of the engine of 60 °C must not be exceeded.

If the LT cooling water system is equipped with a powered flap valve, the charge air temperature can be adjusted by throttling the LT cooling water flow preferably after charge air cooler (connection point C15) while observing the a.m. limits.

If, depending on local conditions, this measure should not be feasible, the charge air temperature can be adjusted by means of the shut-off valve before charge air cooler inlet (connection point C14) in small steps while observing the a.m. limits. Please note that when applying this throttling method a minimum cooling water pressure alarm may be triggered (shut-off valve nearly fully closed).

For all marine main propulsion plants the following measures may be appropriate in this context:

- **Engine** = Retrofit of a condensation water drain in the area of the charge air cooler (please refer to pages 2 and 3 for details).
- **LT cooling water system with powered flap valve** = Change over to electronic charge air temperature control. This requires individual adjustments to the pipe system, an adjusting valve (CR1), and an electronic controller (see schema on page 4).

For detailed information / service offer please contact your CAT/MaK service representation without commitment.

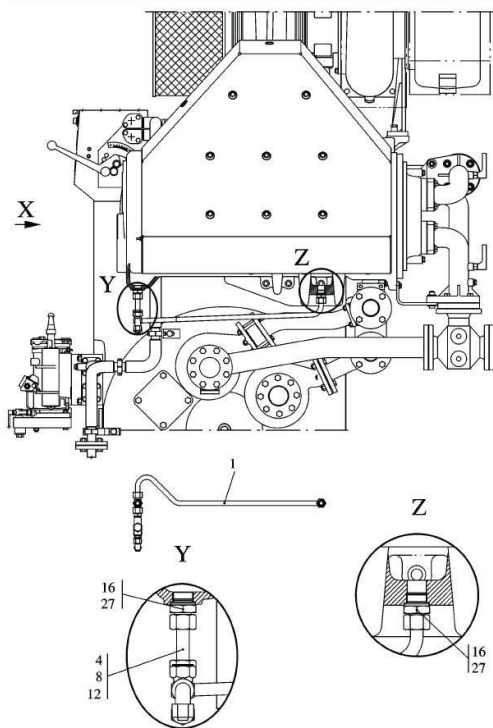
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Drain pipe - installation for turbocharging group at the free end

Mak Entwässerungsleitung-Anbau B1.05.09. 258392 AA
Drain Pipe Mounting

M25



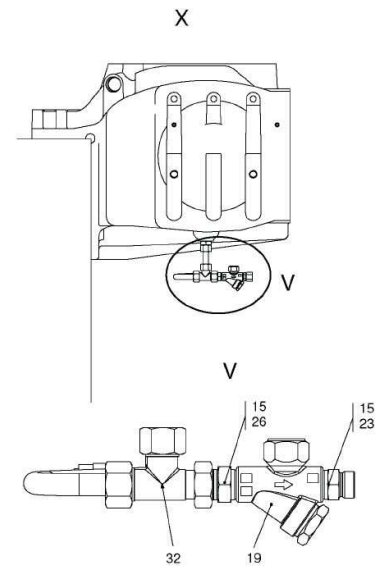
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Mak Entwässerungsleitung-Anbau B1.05.09. 258392 AA
Drain Pipe Mounting

M25



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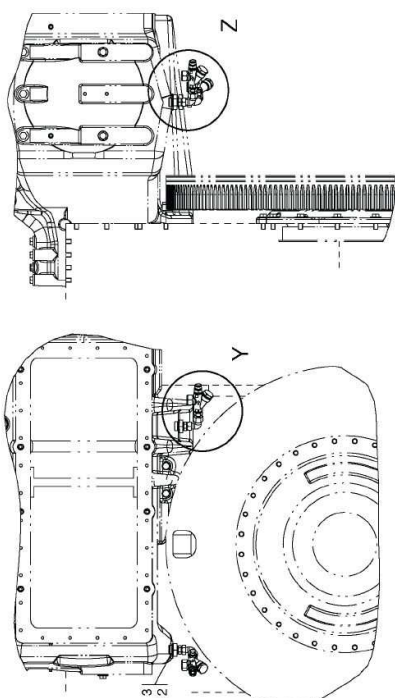
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Drain pipe - installation for turbocharging group at the driving end

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 Drain Pipe Mounting

M25

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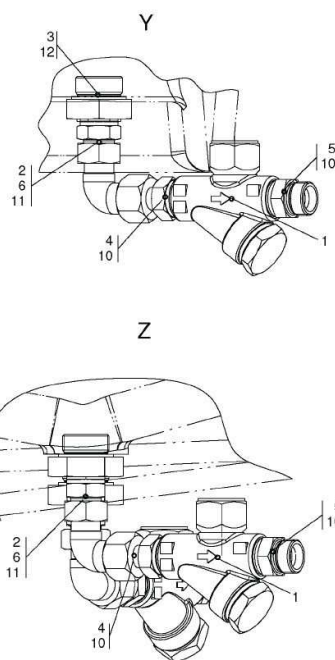
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Mak Entwässerungsleitung-Anbau B1.05.09. 258392 BB
 Drain Pipe Mounting

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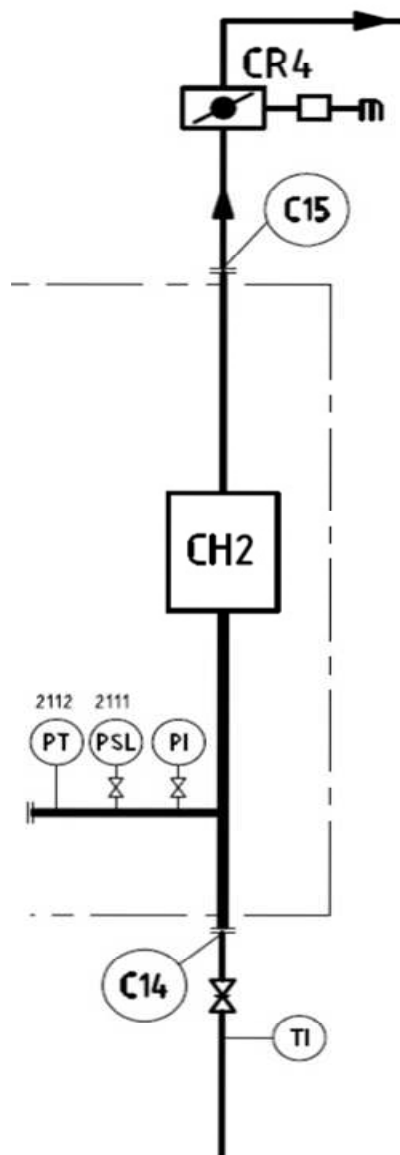


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Schemas

Powered flap valve CR4
with connection point C14



Charge air temperature control
with powered valve CR1

