

Date: February 12, 2018
Subject: Junction box
Engine type: M20C, M25C, M32C, VM32C, M43C, M46DF, VM43C, VM46DF

Caterpillar confidential: green

Engine junction box; unexpected engine shut down

Current engine junction boxes are equipped with resilient rubber mountings at the top and at the bottom. The junction box itself is reinforced by screwed-on steel plates. These junction boxes fulfil protection class IP 44 certified by TÜV NORD CERT GmbH.

In the past junction boxes with different resilient mounting system were used. Compared to the current junction box design the older reinforcement steel plates and the junction boxes had a different hole pattern.

During the transition time from the old to the new design, new reinforcement steel plates were used with old design junction boxes.

Recently we were informed about an unexpected engine shut down due to a short circuit in the engine junction box caused by water while testing firefighting systems.

Deeper investigation revealed that after longer times of continuous water spray on such "transition time junction boxes" water crept under the reinforcement steel plates (figure 1 and 2) and entered the terminals. Such "transition time junction box" can be identified by unused bore holes (figure 3).

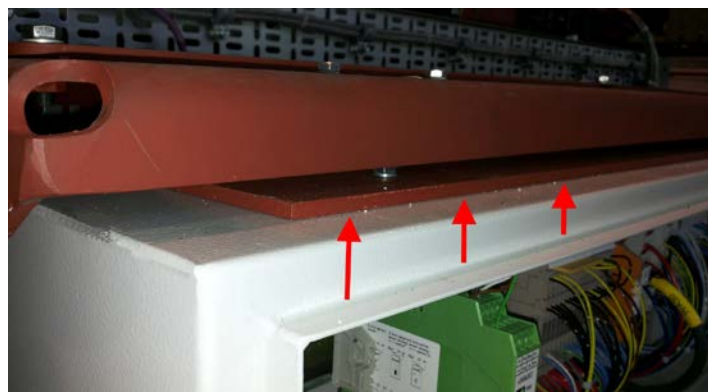


figure 1



figure 2



figure 3

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In case of installed water sprinkler systems in the engine rooms we recommend increasing the water resistance level of the affected "transition time junction boxes" by applying silicone sealing compound to the upper and lower reinforcement steel plates (figure 4) and to unused bore holes (figure 5). Please follow the application instructions of the sealing compound (degreasing, cleaning....).



figure 4

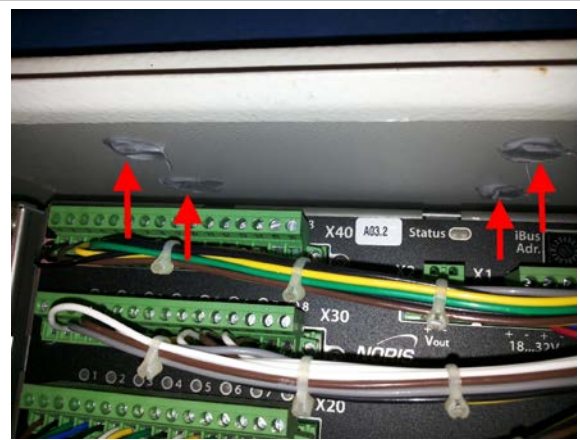


figure 5