

TECHNICAL BULLETIN

Ref Document No.	TB15005	Issue No.	1
Subject	Turbo Impacting on Methane Junction Box Mounts		
Release Date	20 th October 2015		

Purpose – Advise COALTRAM® owners/operators of the possibility of the turbo impacting with the methane junction box mounts.

Applicability – All in service COALTRAM® models CT08, CT10 and CT10LP.

Background

A Coaltram with a C7 engine installed experienced a reportable exhaust gas leak from the exhaust manifold to turbo fixed joint.

Investigations/Findings

PPK attended site to view the exhaust leak and determine the cause.

Three of the four studs that are used to secure the turbo to the exhaust manifold were found to have come loose reducing the clamping force of the fixed joint. This allowed exhaust gas to escape through the mounting bolt holes on the turbo flange.

Impact marks were found on the turbo inlet snail water jacket. From the turbo's close proximity to the methane flameproof box mounting bracket it was determined that it had been frequently coming into contact with the nut and bolt that secure the methane system flameproof box to its mounting bracket (see Figure 1 and 2 below).



Figure 1

Impact marks on turbo water jacket

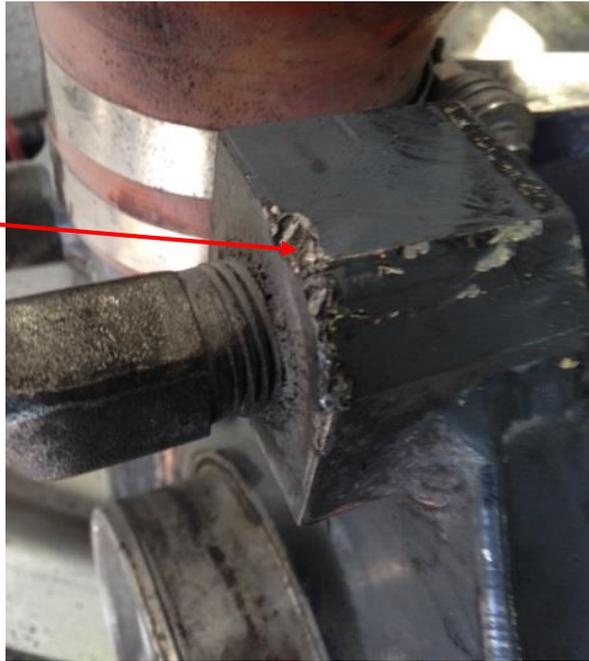


Figure 2

The impacts have been caused by the proximity of the methane flameproof box to the turbo. The engine mounts allow some movement of the engine to absorb vibration and engine torque. The resulting movement has allowed the turbo to impact with the methane flameproof enclosure. The engine mounts were inspected and deemed to be in an acceptable condition.

The exhaust pipe was confirmed for alignment between the turbo and exhaust conditioner to ensure it had been installed correctly and was not placing any loading on the turbo.

It is believed that the impact between the turbo and the mounting bolt and nut caused additional unforeseen stress on the joint causing the studs to come loose.

Due to manufacturing tolerances this will not be an issue on all Coaltrams. The problem arises when the tolerances for the engine mounts and the methane box bracket stack together. The bracket that the methane system flameproof box mounts on is bolted to the frame. If it is allowed to drop down towards the engine when being bolted in this will also reduce the gap between the turbo and the bracket.

PPK has designed a retrofit modification to the methane system box bracket to create more room between the turbo and the bracket and fasteners. The modification includes cutting away part of the mount, installing riser plates and installing a new cover because the junction box has been lifted. See figures 3 and 4 below.

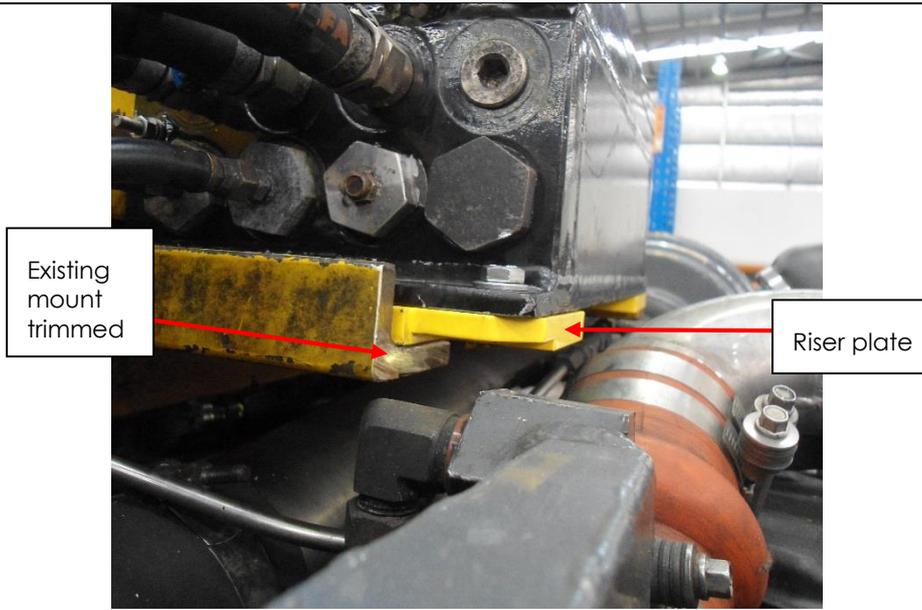


Figure 3: Riser plates installed

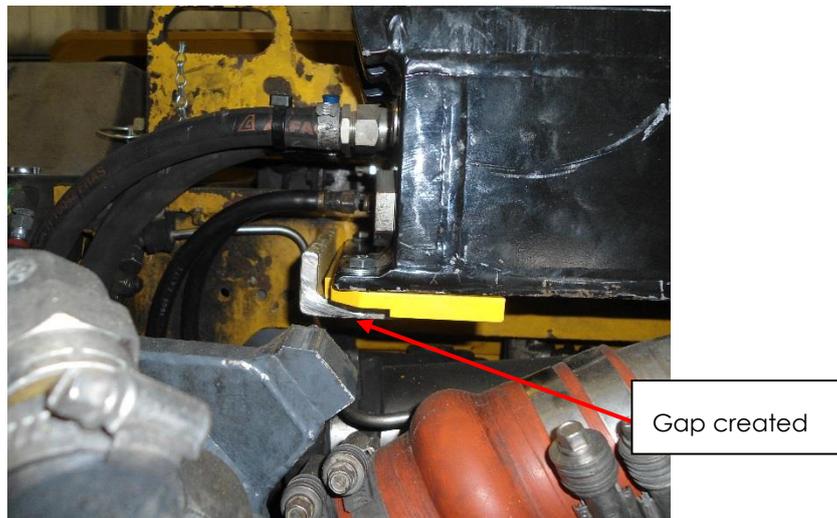


Figure 4: Riser plates installed

Recommendations

1. PPK recommends Coaltram owners/operators inspect their Coaltrams at the next available service for impact between the turbo intake water jacket and the methane system flameproof box bracket and securing fasteners.
2. If there are impact marks present between the turbo water jacket and mount bracket or fastener, or the gap between them is 10mm or less PPK recommend carrying out the modifications as shown above at the next convenience.
3. If the turbo is impacting on the fastener only, the fastener should be removed until the riser plates can be installed.
4. Please contact your PPK service centre for the modification to be carried out if required, or follow SWP CT8.34 for the recommended installation procedure. Parts required: Methane cover (5520002654), methane riser brackets (5520009767 & 5520009768) and M8x25 bolts (4 off – 0147132503).

Ashley Ryan
Mechanical Engineer

PPK Mining Equipment Pty Ltd

T: +612 4964 5400

E: a.ryan@ppkgroup.com.au

www.ppkgroup.com.au



GROUP LIMITED