

ENGINEERING BULLETIN

Ref Document No.	EB15002	Issue No.	2
Subject	Load Frame Pins		
Release Date	3 rd September 2015		

Purpose – Advise COALTRAM® owner's of a revision to the recommended replacement intervals for load frame pins and split cap bolts.

Applicability – COALTRAM® models CT10, CT10LP and CT08

Description

Engineering Bulletin EB15002 rev 1 was released to control an issue that was identified after the failure of a pin on a Coaltram CT10. At the time of the pin failure there was no documented recommendation for the life cycle management of pins installed on the Coaltram. Since that time PPK has continued to analyse and review the position put forward.

The pin failure occurred on a Coaltram CT10 reported to have completed over 13,000 hours of operation. The pin that failed was at the connection between the dog bone and master hitch as shown in figure 1 below. This pin is the same used across all Coaltram CT10 master hitch's; QDS, KAT, RAS

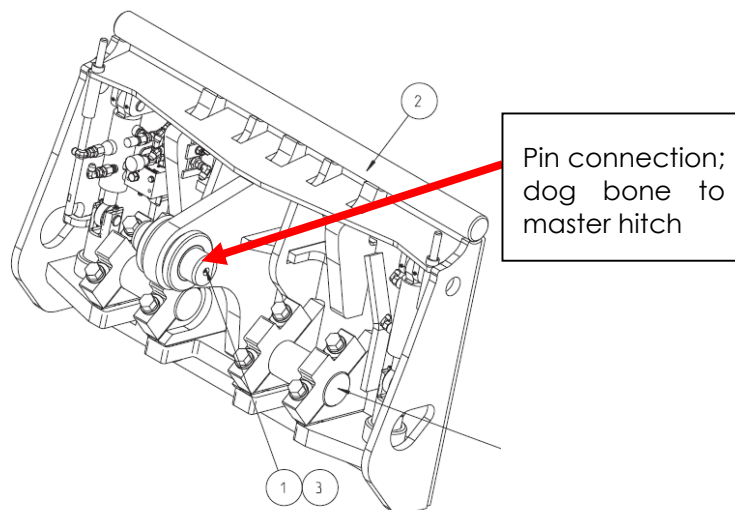


Figure 1: Location of pin failure

The pin failed due to fatigue with cracks beginning from the grease points (see figure 2). The original design of the pin had the grease porting drilled through the whole diameter of the pin and the orientation of the grease port was located at the position of maximum bending stress. The design of the pin has been revised, re-orienting the grease porting to the position of least bending stress and the porting is now drilled to exit on one side of the pin only (see figure 3).



Figure 2: Fracture face of broken pin

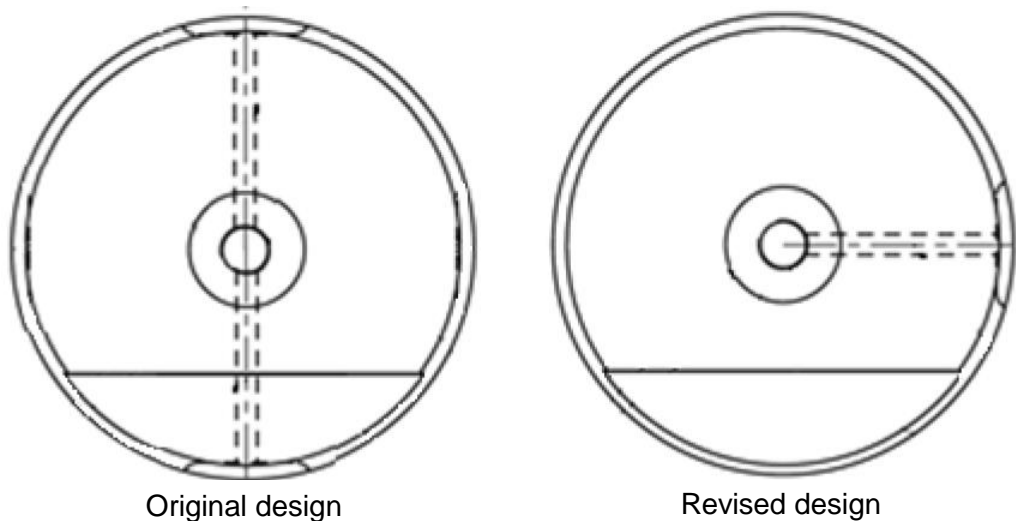


Figure 3: Original and revised pin designs

The Coaltram CT10 has a different crowd mechanism to the Coaltram CT08 and CT10LP vehicles. The CT10 crowd cylinder attaches to and operates through a Z-bar arrangement using additional linkages and pins to attach to the master hitch. The CT08 and CT10LP crowd cylinder connects directly to the master hitch. The differences are illustrated in figure 4 and 5 below. There has not been any recorded failures of pins on the CT08 or CT10LP vehicles.

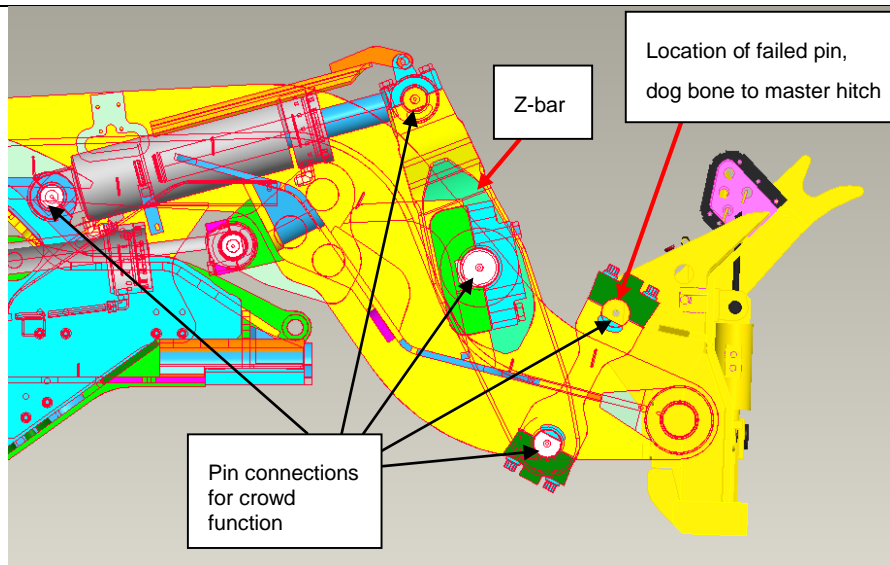


Figure 4: CT10 Crowd Linkage

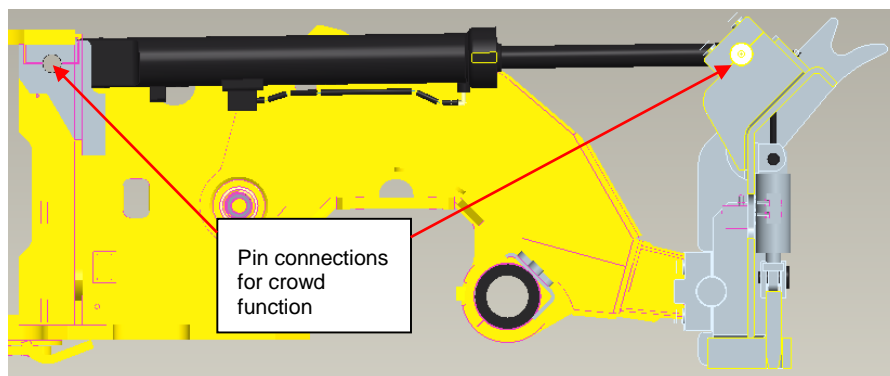


Figure 5: CT08/CT10LP Crowd Linkage

Through analysis and consultation, PPK has defined a new set of recommendations detailed below for the life cycle management of pins and split cap bolts for all Coaltram.

Recommendations

Coaltram CT10

1. CT10 - 8,000 hour service:
 - a. Crowd cylinder pins should be ultrasonic tested for cracking and inspected for wear. This includes all pins between the crowd cylinder and attachment to the master hitch. If the pins are **not** ultrasonic or non-destructive tested, they should be replaced.
 - b. **IMPORTANT** - If ultrasonic testing reveals grease porting drilled all the way through the diameter of the pin, the pin should be replaced.
 - c. All split cap bolts used for retaining pins relating to master hitch crowd function should be replaced. (Split cap bolt kit part number 5520009362).

2. CT10 - 12,000 hours:
 - a. Ultrasonic testing of all pins for cracking and inspection for wear. If Ultrasonic testing is not completed, PPK recommend replacing all pins.
 - b. Replacement of all split cap bolts, excluding crowd cylinder split cap bolts. (Split cap bolt kit part number 5520009704)
3. CT10 - 16,000 hours:
 - a. Replace all connection pins. (Pin kit part number 5520009581 – kit contains pins and seals. Bushes should be inspected and replaced as required).
 - b. All split cap bolts used for retaining pins relating to master hitch crowd function should be replaced. (Split cap bolt kit part number 5520009362).
4. Follow PPK service sheets for all other recommended maintenance.

Coaltram CT08/CT10LP

5. CT08/CT10LP - 8,000 hour service:
 - a. Crowd cylinder pins should be ultrasonic tested for cracking and inspected for wear. If the pins are **not** ultrasonic or non-destructive tested, they should be replaced.
 - b. Crowd cylinder split cap bolts should be replaced. (Split cap bolt kit part number 5520009361).
6. CT08/CT10LP - 12,000 hours:
 - a. Ultrasonic testing of all pins for cracking and inspection for wear. If Ultrasonic testing is not completed, PPK recommend replacing all pins.
 - b. Replacement of all split cap bolts, excluding crowd cylinder split cap bolts. (Split cap bolt kit part number 5520009705).
7. CT08/CT10LP 16,000 hours:
 - a. Replace all connection pins. (Pin kit part number 5520009580 – kit contains pins and seals. Bushes should be inspected and replaced as required).
 - b. Crowd cylinder split cap bolts should be replaced. (Split cap bolt kit part number 5520009361)
8. Follow PPK service sheets for all other recommended maintenance.

An updated copy of the 8,000 hour service sheet has been attached to this bulletin.

Ashley Ryan
Mechanical Engineer

PPK Mining Equipment Pty Ltd

T: +612 4964 5400

E: a.ryan@ppkgroup.com.au

www.ppkgroup.com.au