



# **PRODUCT TECHNICAL BULLETIN 36001**

## **MineCruiser Mk7 - Third Gear**

### **Declutch Pilot Valve**

Date: 25-02-2020

Prepared for: AME MineCruiser Mk7 Owners & End Users

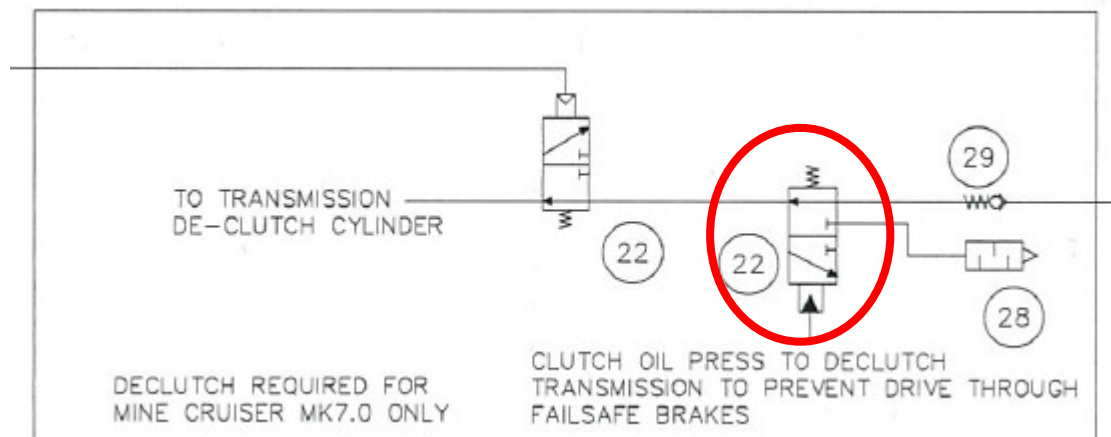
Prepared by: Australian Mining Equipment

Applicable Machines: MineCruiser Mk7s

Revision: A

## Communication: MineCruiser Mk7 - Third Gear Declutch Pilot Valve

The Minecruiser Mk7 is installed with a registered braking system described by MDR 095324 TBS. The registered design has a declutching function that disengages drive for 1<sup>st</sup> and 2<sup>nd</sup> Gear for the Mk7 variant. This is due to ability of the Mk7 to drive thru the park brake in 1<sup>st</sup> and 2<sup>nd</sup> gear if drive is available.



**Figure 1: AR00199 / AR00067 item 22 declutch function (3<sup>rd</sup> gear only) Extract from MC49200 sheet 4 MineCruiser Mk6 & Mk7 registration drawing**

Original design:

The original design as per the registered schematic shows the valve as a normally open 3/2 pilot operated valve, requiring clutch oil pressure at the pilot to change state, with a spring return 3/2 pneumatically operated valve.

The function of the valve is to prevent air supply to the declutching cylinder when 3<sup>rd</sup> gear is selected. This allows the cylinder to remain declutched or driving when the park brake is applied in 3<sup>rd</sup> gear.

The valve to the right (also an AR00199 or AR00067) performs the same function but with a different pilot signal, being from the park brake pneumatic release pressure.

When the transmission is in 1<sup>st</sup> or 2<sup>nd</sup> gear no air can be supplied, providing the actuator of the roller cam is correctly installed and not depressed in when a direction is selected.

The valve fails to safe if the pilot signal is lost (air pressure is supplied to declutch cylinder therefore no drive is available).

As the pilot pressure for this valve is taken from the transmission pressure, it is somewhat higher than the pneumatic system pressure. This has led to reports of the valves failing due to pilot pressures that exceed the valves specified operating parameters.

---

## Alternative valve: 7-180405-711

Due to these failures, an alternative valve has been reviewed and tested in the installation, replacing the existing AR00199 valve as identified in figure 1.

The alternate valve tested, 7-180405-711 performed the function successfully and is recommended as an alternate valve for this function.

This alternate valve does not impact the operation of the brake system in any other scenario and the failure modes and controls of this valve installation are the same as the original valve. The increased pressure and temperature rating make this valve more suited to the application in which it is used.

As the original valve is specified on the design registration drawing, amendment of the registration will be sought to capture this OEM recommended design change. Further information may be released in regards to the amended design documentation and revised registration drawing MC49200 sheet 4.

## Recommended actions

- At the next available service opportunity, replacement of the existing valve used in the 3<sup>rd</sup> gear declutch function AR00199 / AR0067 is recommended with the new valve 7-180405-711
- Maintenance and inspection of the valve are recommended at 1000hr intervals. The Valve should be inspected for leaking / contamination and the breather cleaned.
- The valve should be replaced at maximum of approximately 4000hrs of operation.
- This valve can be tested daily by attempting to drive thru the brakes with 3<sup>rd</sup> gear selected and the park brake applied. This test is specified as part of the In service braking test procedure for the MineCruiser in section 7.2 of document EB0022. As mentioned in the DFMEA, this is a crude park brake test only and is not a substitute for dynamic brake testing of the secondary/park brake.
- If the transmission does not engage, tag the machine appropriately and follow the mines defect management plan to investigate the issue.

---

Please distribute this bulletin to all relevant personnel

## Australian Mining Equipment Contacts in respect to this bulletin:

Product Engineer  
Workshop Manager NSW  
Engineering and compliance manager

Bill Davidson 0409 562 385  
Garrad Latham 0407 272 296  
Kevin McCosh 0437 933 945

## References

MC49200 sheet 4 MineCruiser Mk6 & Mk7 registration drawing  
EB0022 MineCruiser in-service Brake test procedure