

# REPORT 5607

## ENGINEERING BULLETIN

### MK 7 MINECRUISER BRAKES

**Prepared for:** Industry

**Prepared by:** Ross Stutchbury

**Date:** 2/07/12



**ISSUED**

**. 2 JUL 2012**

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**Subject to this notice:** Minecruiser MK7

**Service Brake Failure**

Investigation into separate Mk7 Minecruiser brake issues has determined that a faulty master cylinder hydraulic seal 7-091035-703 (see Appendix A) has caused the service brake to fail. The seal failure has been recorded and shows the service brake pressure decaying over time in response to a steady pedal pressure signal (see appendix B).

The manufacturer of the master cylinder recently changed the supplier of the seal, whereafter failures have occurred. This quality issue will be addressed by the supplier, including an inspection and test program for all future units.

Since the change of supplier, 22 master cylinders have been supplied to Industrea, these units are traceable as follows:

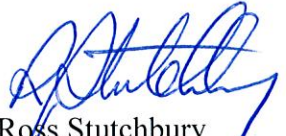
| Date       | Purchase Order No. | Qty | Effected Machines | Site                   | Inspection Date |
|------------|--------------------|-----|-------------------|------------------------|-----------------|
| 01.03.2012 | 126586             | 4   | CO440             | Ensham                 |                 |
|            |                    |     | CO441             | Ensham                 |                 |
| 13.03.2012 | 126955             | 6   | CO442             | Ensham                 |                 |
|            |                    |     | CO450             | Charbon - Centennial   |                 |
|            |                    |     | CO451             | Myuna - Centennial     | 22/06/2012      |
| 02.04.2012 | 127583             | 4   | CO452             | Mandalong - Centennial | 19/06/2012      |
|            |                    |     | CO460             | Mandalong - Centennial | 19/06/2012      |
| 05.04.2012 | 127982             | 6   | CO457             | Airly - Centennial     | 20/06/2012      |
|            |                    |     | CO458             | Airly - Centennial     | 20/06/2012      |
|            |                    |     | CO459             | Airly - Centennial     | 19/06/2012      |
| 15.05.2012 | 130574             | 2   | CO470             | Vehicle not released   | 19/06/2012      |
|            |                    |     | CO471             | Vehicle not released   | 19/06/2012      |
|            |                    |     | CO476             | Hire Vehicle           | 21/06/2012      |

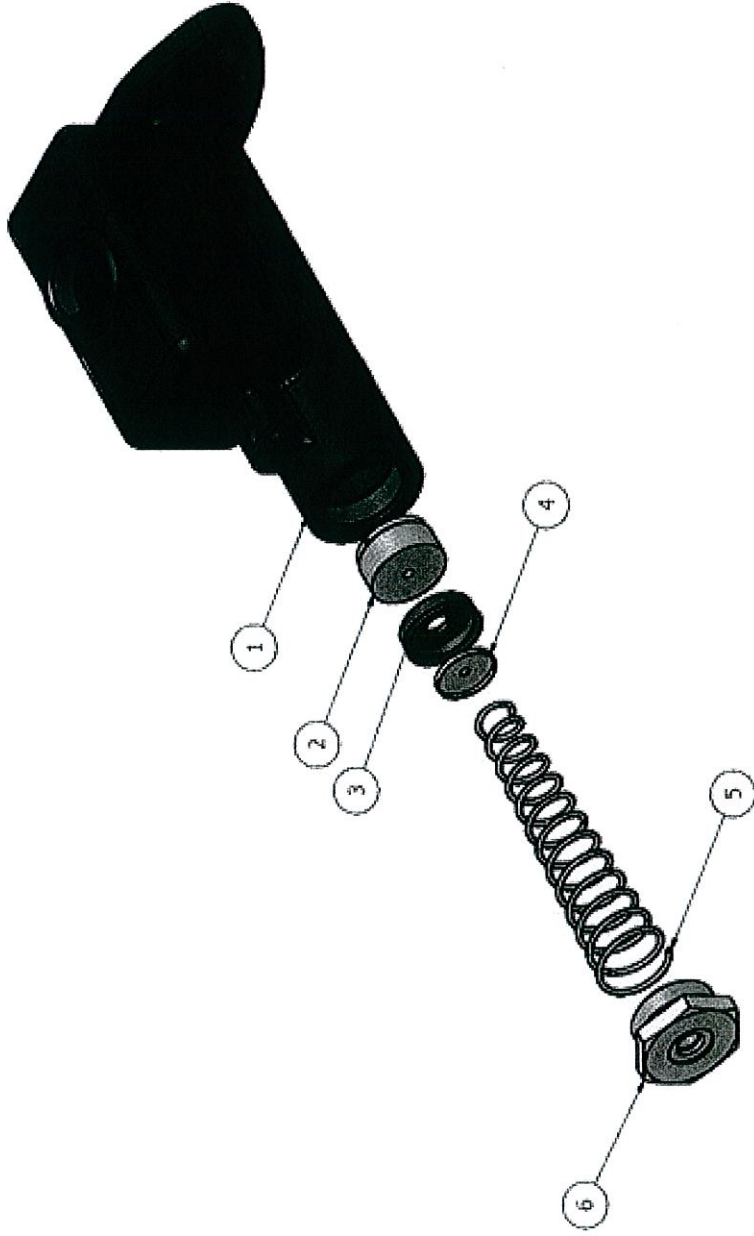
Industrea has made inspection of the effected batch as shown in the table above.

In course of this investigation it was also found that the Brake jacking screws were adjusted incorrectly, causing reduced brake torque on application. Please refer to Appendix C for the correct 34 mm adjustment procedure that will allow full compression of the axle brake.

Severity of the service brake is set by regulated air pressure. Industrea recommend that the regulator be set at 350 kPa.

For further information please contact Industrea Mining Equipment.

  
Ross Stutchbury  
Product Line Manager  
INDUSTREA MINING EQUIPMENT



ISSUED 26 JUN 2012

DISASSEMBLE FRONT SECTION

- Remove Item 6. Warning - this part is under spring compression tension from item 5. While work can be performed by hand, some caution must be taken.
- Remove Item 5.
- Remove Items 4, 5 and 2 as one assembly.

ASSEMBLY:

- Ensure that all components are clean.
- Coat Items 2, 3 and 4 with a mineral based hydraulic oil.
- Slide Items 2, 3 and 4 into the bore of the master cylinder.
- Ensure that Item 4 remains inside the cup section of Item 3.
- Use Item 5 and push Items 2, 3 and 4 all the way into the bore.
- Install Item 6 and torque to 75Nm.
- Some caution must be taken with the tension in the spring. Items 5 while assembling Item 6.

UN INDICATED TOLERANCES:  
JS12 FOR MACHINING, JS14 FOR FABRICATION & ± 0.5° FOR ANGLE

|   |               |   |               |
|---|---------------|---|---------------|
| ⊥ | PERPENDICULAR | ⊙ | CONCENTRICITY |
| ∥ | PARALLELISM   | ⊖ | FLATNESS      |
| ⊘ | BOR OUT       | ⊕ | STRAIGHT      |
| ⊙ | TRUE POSITION | ⊖ | MAX MATERIAL  |
|   |               | ⊕ | PRODUCED IOL  |

DO NOT SCALE  
IF IN DOUBT, ASK

|     |          |             |       |         |
|-----|----------|-------------|-------|---------|
| REV | DATE     | DESCRIPTION | DRAWN | CHECKED |
| 1   | 26.06.12 | ISSUED      |       |         |

|      |                      |     |              |       |          |            |     |      |
|------|----------------------|-----|--------------|-------|----------|------------|-----|------|
| ITEM | DESCRIPTION          | QTY | PART NUMBER  | SHEET | MATERIAL | DIMENSIONS | REV | ASST |
| 1    | MASTER CYLINDER BODY | 1   | 7-091035-700 | 1     |          | 3.32       |     |      |
| 2    | PISTON               | 1   | 7-091035-702 | 1     |          | 0.20       |     |      |
| 3    | CUP                  | 1   | 7-091035-703 | 1     |          | 0.06       |     |      |
| 4    | SPRING SEAT          | 1   | 7-091035-704 | 1     |          | 0.01       |     |      |
| 5    | SPRING               | 1   | 7-091035-705 | 1     |          | 0.54       |     |      |
| 6    | END CAP              | 1   | 7-091035-706 | 1     |          | 0.20       |     |      |

industrea mining equipment

MASTER CYLINDER  
MINECRUISER

DATE: 26/6/12

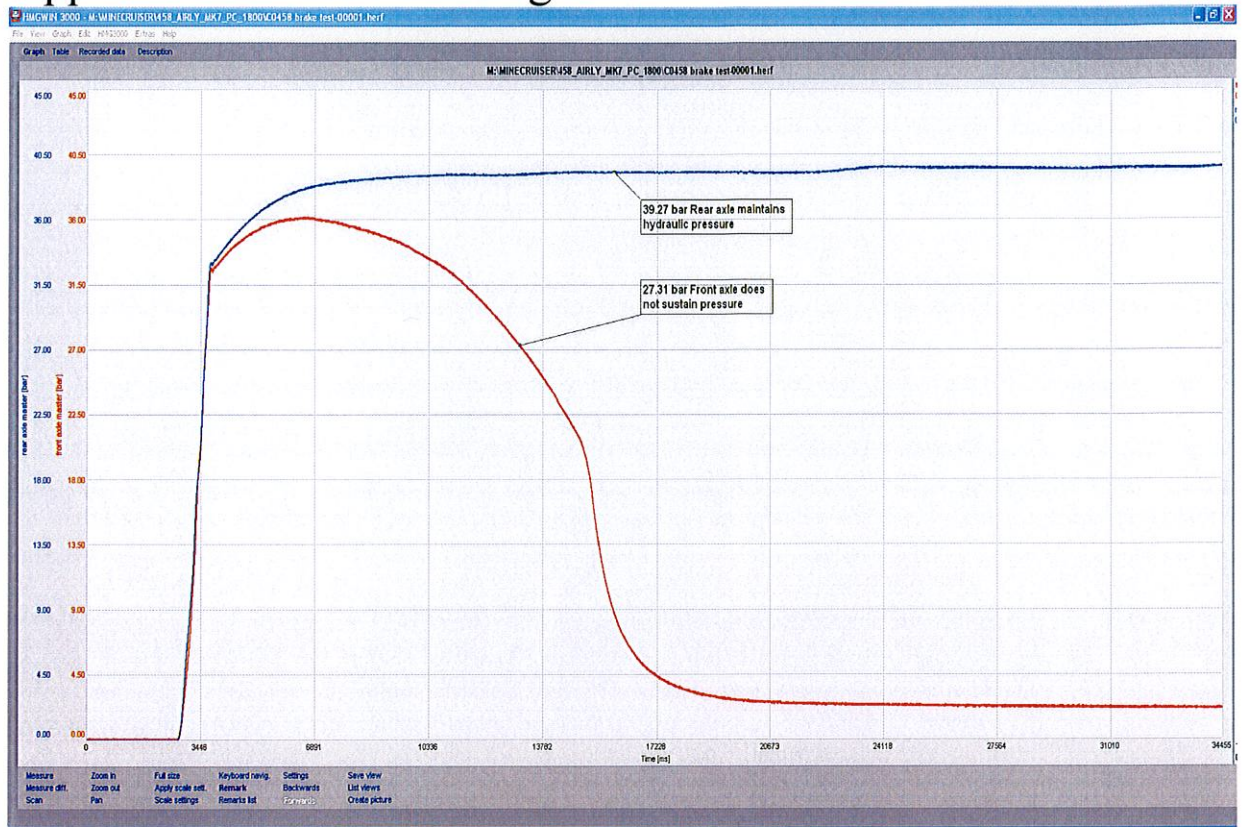
SCALE: 1:1

SHEET 1 OF 1

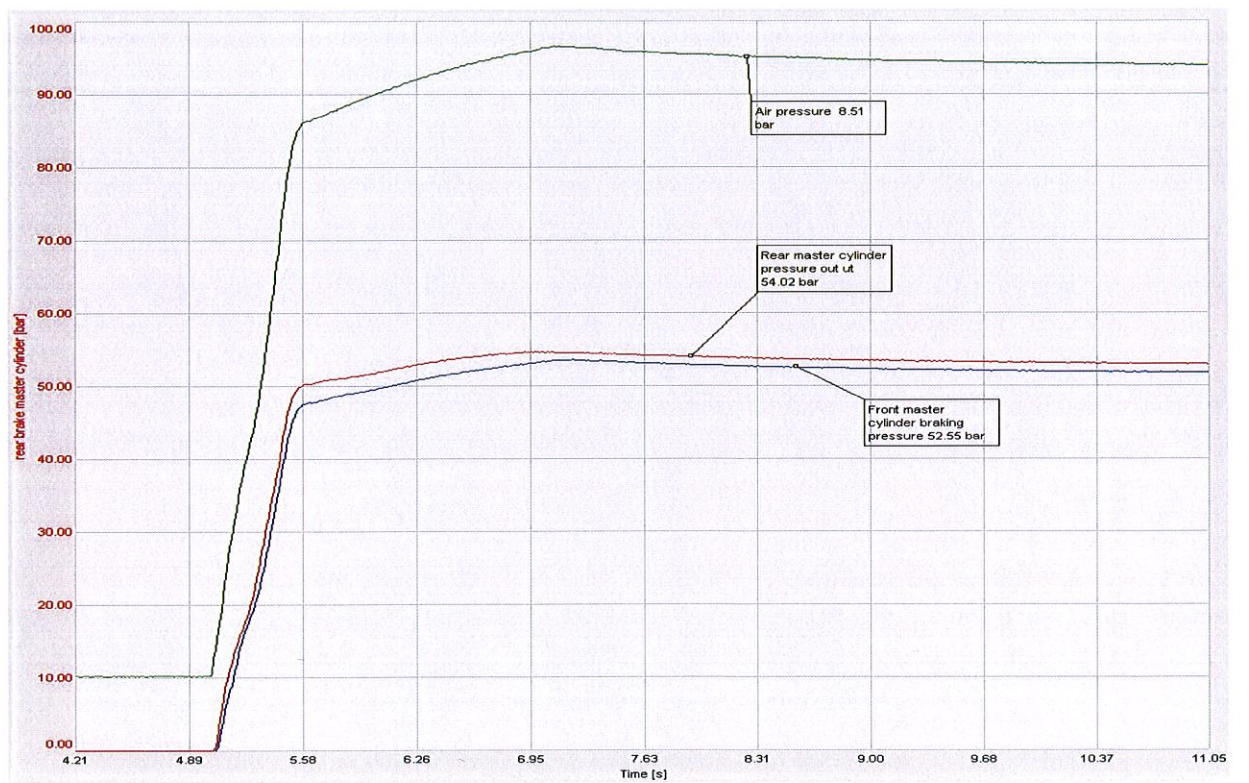
REV. 7-091035-700 A

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# Appendix B Data Recordings



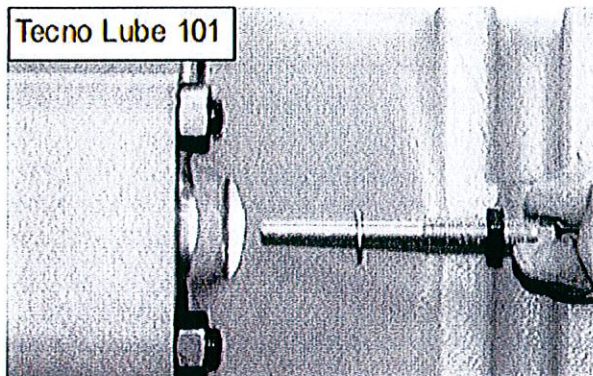
Graph 1. Data Log showing master cylinder seal failure recording



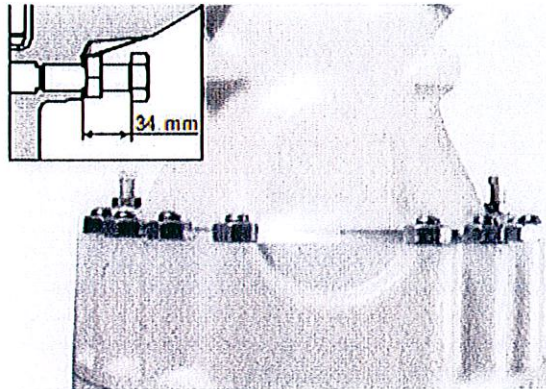
Graph 2. Data log showing master cylinder correct operation after seal replacement.

## Appendix C Brake Jacking Screw Adjustment

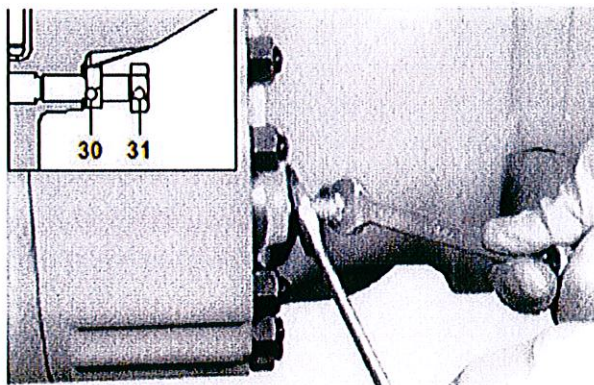
### ADJUSTMENT



**FIGURE 4:** Remove screws complete with nuts and seals. Replace seals, apply silicone-based Tecno Lube/101 grease to the screws and install all parts into the arm.



**FIGURE 5:** Adjust screws (31) to obtain a distance of  $34 \pm 0.5$  mm between axle machined surface and screw underhead.



**FIGURE 6:** Lock into position with nuts (30).

#### **CAUTION**

Hold screws (31) into position while locking the nuts (30); after locking, check the distance of screws (31) once more.

**Brake Jacking screw adjustment for normal operation.**