MT PRODUCT INFORMATION
A10V140 PUMP ADJUSTMENT (E7C)

DOCUMENT	**A10V 140 PUMP ADJUSTMENT AND CALIBRATION**
MACHINE/ GROUP	**RCS 5 E7C SIMBA**
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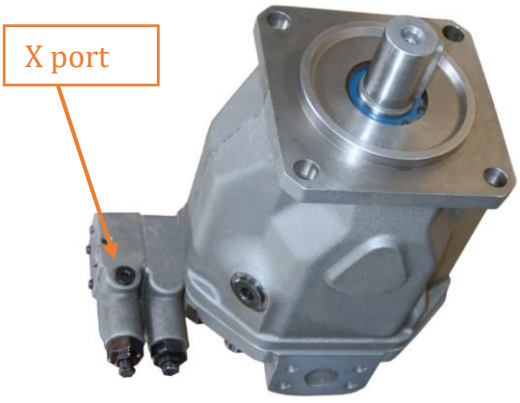


Background

The RCS5 E7C is equipped with a 140cc positioning pump.
The 140cc pump is also used as the percussion pump on the E7C and many other Epiroc machines. This is in contrast to S and M Simba machines that use a 100cc positioning pump. The 140cc pump is also used as a dedicated percussion pump on many machines.
The 140cc pumps DFR controller/compensator does not allow the minimum pressure to be adjusted above 160bar. Therefore, the recommended method of winding the minimum pressure adjuster in to load the pump and setting the maximum pressure relief will not work on these pumps.

Later model drill rigs also use the rig control system (RCS) to proportionally control a loading valve, which requires calibration within the control system.

This calibration will often fail if the pump is adjusted as per OEM spec due to the system requiring the pump transducer to reach 230bar during calibration.
If the pump maximum pressure relief is set anything below 230 bar, the calibration sequence cannot be completed.

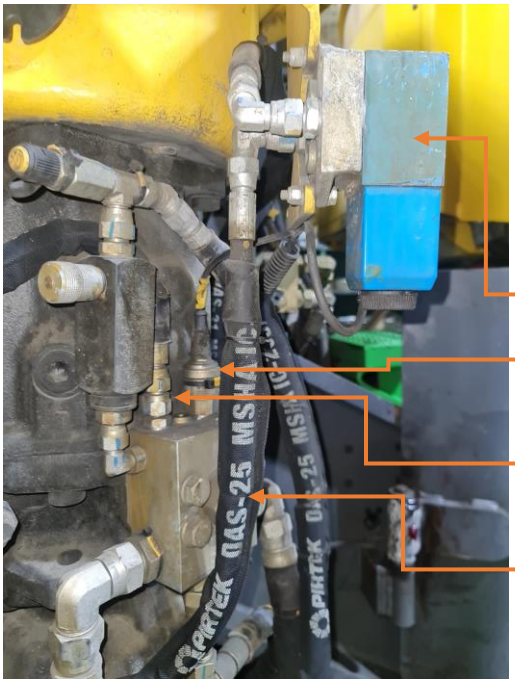
The following procedure allows setting of the 140cc pump and calibration of the RCS system.

FOLLOW ALL SITE SAFETY AND ISOLATION PROCEDURES BEFORE MAKING ANY ADJUSTMENTS

Required items

Spanner set
Digital pressure gauge with Test 12 hose
-6 plug and cap

Safe Work Instructions



1. Install a digital pressure gauge to the pump

2. Adjustment Min/Standby Pressure - plug and cap the load sense line from the pump outlet to the compensator. This will cause the pump to unload.
(Leave the compensator x port open to atmosphere)
Start the pumps and adjust the min/standby pressure to 18 bar

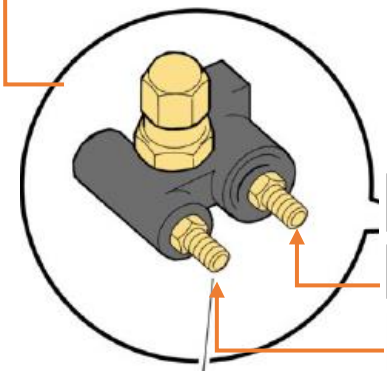
Proportional unloading valve

Pressure transducer 0-350 BAR

Loading line restrictor 0.8mm

Test point Test 12

3. Adjust Pump Max Pressure - plug and cap the load sense line from the compensator to the control valve.
Cap the compensator x port
This will cause the pump to load.
Wind the Max pressure adjuster out fully.
Start the pumps and wind in the maximum pressure relief in until the reading on the digital pressure gauge reaches 235 bar.
Stop the pumps and reconnect the load sense line.



Pump Compensator

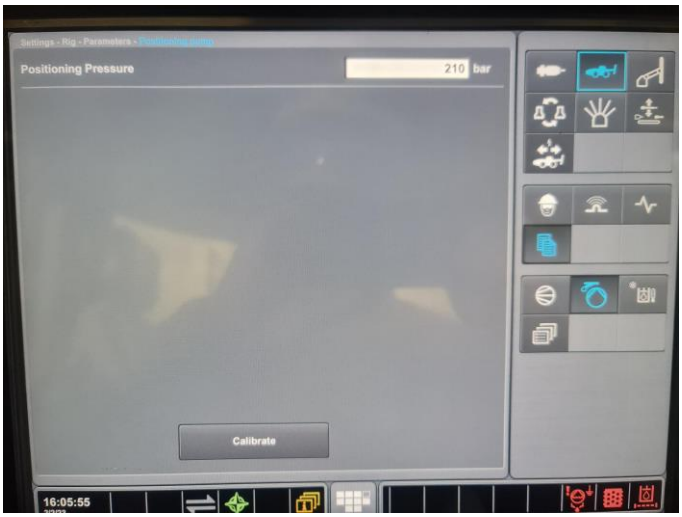
MAX pressure adjustment

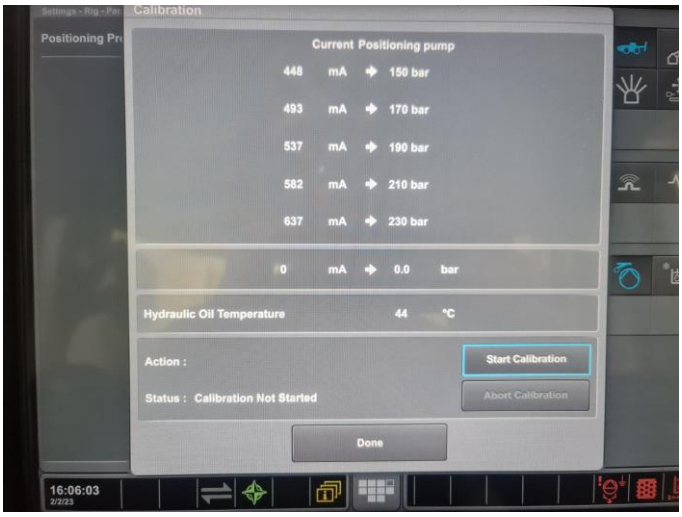
MIN pressure adjustment

Test/Adjust the positioning pressure transducer calibration.
Navigate the RCS Menus to – RIG – PARAMETERS – POSITIONING PUMP
Install a digital pressure gauge to the pump outlet.
Ensure the pressure reading on the screen reads zero with the machine off. If the pressure reads above zero, calibrate the sensor using the set to zero button on the RCS screen.
Start the pumps, then check (when loaded) that the pump outlet pressure on the digital pressure gauge and transducer pressure reading on the screen are within 2 bar.
If the reading is outside +/- 2 bar, adjust the coefficient to align the screen value with the Gauge reading.

Standard Transducer Setting for 0- 350 BAR pressure transducers

RCS3/4	OFFSET – 102	COEFFICIENT - .427
RCS5	OFFSET – 408	COEFFICIENT - .066





Calibrating the pump positioning pump loading valve.
Navigate to the RCS menu SETTINGS– RIG – PARAMETERS – POSITIONING PRESSURE
The pump parameter should be set to 220 BAR.

Select CALIBRATE at the bottom of the screen.

Start the pumps and activate the drilling function.
Select - start calibration.
The system will load the pump from 18bar to 230bar and then back to 18Bar. If successful, the screen will automatically update its loading output milliamp (ma) table.

If unsuccessful, check the following.

- That the pump can achieve min and max pressure via the process to set the pump.
- That the 0.8mm load sense restrictor at the pump outlet is clear.
- That the loading valve needle and seat is clear and there is no damage to the needle face.
- That the load sense coil is 24 Ohm +/- 4 Ohm.
- Manually actuate the valve from the RCS screen to 1000ma and check if the coil magnetizes.