

## **1 PREPARATION**

**Note that the barring engines must not be left unattended at any time when they are running and visitors are present.**

**It is acceptable to have one person supervising both engines.**

1. Check that the ball valve in the compressed air line, which joins the steam line just below steam valve S66 at the east end of the receiver gallery, is shut and then open valve S66.
2. Turn grease cups on main spur wheel shaft and one on small pinion one turn each. Fill with fresh grease if necessary, smearing any surplus grease on spur wheel.
3. Grease spur wheel if necessary with Total Multio MS2 grease.
4. Oil crossheads by filling the oil hole on each one.
5. Oil big ends by **filling the oil caps** on each one.
6. Oil three cups for main bearings to just below rim and replace caps.
7. Oil two cups for worm gear bearings located on casting below spur wheel to just below rim.
8. Oil ends of valve rods and the valve pivots. There are two oil holes at each location.
9. **Fill the cylinder lubrication cups on the top of each cylinder with steam oil (levers must be upright). Once cup is filled, open top valve on lubrication cup to permit oil to flow to centre compartment, close top valve, then open lower valve so that oil flows into cylinder.**

**Refill cylinder lubrication on duty barring engine after two main engine starts (during lunch break period).**

**Note - These valves are hot, it is advisable to wear suitable protective gloves. When the valve levers are parallel (vertical) to valve, the ports are closed.**

10. Check that grub screws on the ends of the valve rods are tight using  $\frac{1}{8}$  inch hexagon key. There are four screws on the outside and two on the inside of the engine.
11. Open  $\frac{3}{8}$ " drain valve on steam inlet line for 30 seconds or until condensate from line runs hot. It is essential to clear condensate from the incoming steam line before starting the barring engine.
12. Open bottom cylinder drains and valve chest drain and crack open steam valve to allow engine to turn over slowly to warm and clear condensate.
13. Close cylinder drains after a minute or so and continue slow running until whole engine is hot. This will take at least five minutes starting from cold.
14. Inform driver that barring engine is ready for use.

## **2 OPERATION**

1. Ensure that the barring engine has been prepared for use.
2. Remove the locking pin from fork to allow spur gear to engage with flywheel when required.

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3. **With the steam vane closed, push the spur wheel into a gap between the flywheel teeth. Crack open the steam valve so that the spur fully engages with the flywheel tooth then open the steam valve until the flywheel starts to turn.** The Triple is not perfectly balanced and the steam valve will need adjusting to prevent overspeeding or stalling of the barring engine as the Triple rotates. **DO NOT LET THE BARRING ENGINE RACE**
  4. If the barring engine stalls then shut the barring engine steam valve and **use the second barring engine if possible. Failing that,** turn the barring engine flywheel anti-clockwise, using a bar, to release the spur wheel from the main flywheel. It helps if you open the cylinder drain and vent valves to release pressure in the cylinders while barring the flywheel but watch for venting steam.
  5. Be prepared to repeat steps 2 to 4 as necessary until the Triple runs under its own steam.
  6. When the Triple is running under its own steam, the barring engine is automatically disengaged from flywheel.
  7. Shut the barring engine steam valve and replace the locking pin.