



Technical Manual

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2. GENERAL SAFETY AND PRECAUTIONS

- **ALWAYS** travel at low speeds in congested areas. Slow down while travelling around corners and sound the horn frequently in areas of limited visibility.
- **ALWAYS** drive carefully, observing all traffic rules and regulations at your colliery and be in full control of the machine at all times.
- **ALWAYS** use extreme caution when moving or tramming the machine with the boom raised. Whenever possible lower the Boom to the “ Carry “ position before moving machine
- **ALWAYS** travel on inclines or declines with the front of the machine pointing down grade where possible. The forks can be lowered and dug into the ground to stop the vehicle in case of an emergency.
- **ALWAYS** follow the correct isolation and tag out procedure before performing any maintenance on the machine.
- **ALWAYS** operate carefully and in a responsible manner and observe all managers transport rules.
- **ALWAYS** Ensure sufficient ventilation is available to dilute exhaust gases. A nominal 8 m³/sec is recommended based on NSW mines regulations
- **ALWAYS** Be aware of the hazard sources on the MH-40
 - a) Engine coolant pressure (See Section 4)
 - b) Engine coolant temperature
 - c) Engine Exhaust temperature
 - d) Exhaust coolant temperature (See Section 4)
 - e) Rotating radiator fan
 - f) Stored Hydraulic pressure (See Section 4)
 - g) Stored air pressure (Air receiver)
 - h) Engine oil pressure / temperature
 - i) Transmission oil temperature
 - j) Articulation Area (See Section 4)
 - k) Lift arm area (See Section 4)
 - l) Machine mass
- **ALWAYS** keep head and arms inside the operator’s compartment at all times.

3.1.19 Transmission Oil Temperature Gauge

This gauge indicates the oil temperature in the transmission and torque converter Normal oil temperature is between 82°C - 93°C.

If the temperature should rise above 121°C, carry out the following procedure;

- (a) Bring the machine to a halt, lower the RAS attachments to the ground and apply the park brake.
- (b) Put the transmission in NEUTRAL and rev the engine to about half speed.

Observe the temperature gauge for about two minutes. If the temperature does not begin to fall within two minutes, shutdown the machine and do not attempt to operate it until corrective action has been taken. Immediately report the problem to service personnel.



CAUTION:

DO NOT operate the vehicle if the oil temperature is above 121°C.

3.1.20 Engine Water Temperature Gauge

This shows the coolant temperature circulating through the engine, exhaust and radiator systems. Normal operating temperature is between 80⁰- 95°C. The engine should not be operated under heavy load until it has time to warm-up approximately 5 minutes.



WARNING:

Shut off the engine immediately if the water temperature gauge goes above 105 °C. The engine safety shutdown system should shutdown the engine at 105 °C.

The engine must also be shut off and cooled when the coolant level is to be topped up.

3.1.21 Driver's Horn Button

Pushing this button sounds the air horns.



NOTE:

It is good operating procedure to sound the horn 2-3 seconds before an engine start or whenever approaching blind intersection.

Transmission Oil Temperature Gauge

Engine Coolant Temperature Gauge

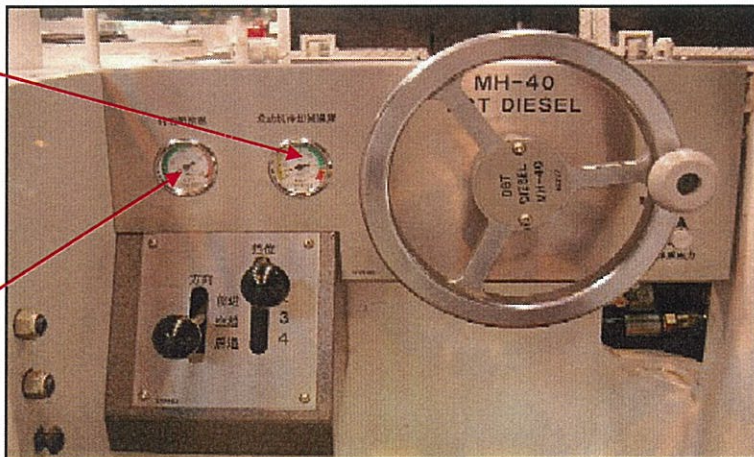


Figure 3.1.10 Left hand side operators panel

5. PRE-START PROCEDURE

Refer to preventive maintenance checklist in section 20.1.

5.1 Walk around the machine

- Check condition of all tyres. Inspect for sidewall cuts, tread cuts and separation.
- Look for damaged or missing wheel nuts and studs.
- Check for loose wheel nuts
- Guards and covers are in place and secure
- Missing or loose bolts
- Oil leaks

5.2 Check the following

5.2.1 Hydraulic reservoir oil level.

- Be sure the machine is level when checking fluid level.
- Check the level at normal operating temperature.
- When the fluid level has dropped below the full mark, add hydraulic oil to restore the proper operating level.
- The Reservoir fill cap is located on the off drivers side of the machine on the side of the hydraulic reservoir

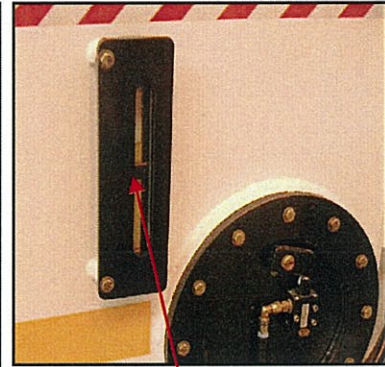


Figure 5.2.1 Hydraulic level sight gauge

5.2.3 Check the engine oil level

- Stop the engine
- If required the engine should be filled to the full mark on the engine dip stick.
- Insure the correct engine oil is used ,Oil specifications are listed in the Fluid specifications table section. 22
- Do not over fill



NOTE:

The oil level CAN NOT be checked with the engine running

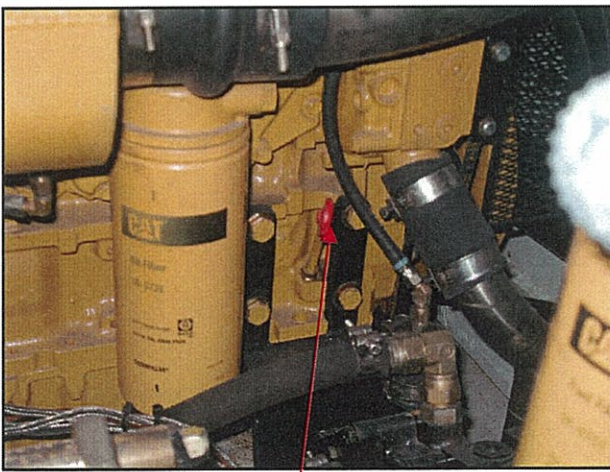


Figure 5.2.2 Engine oil Dipstick

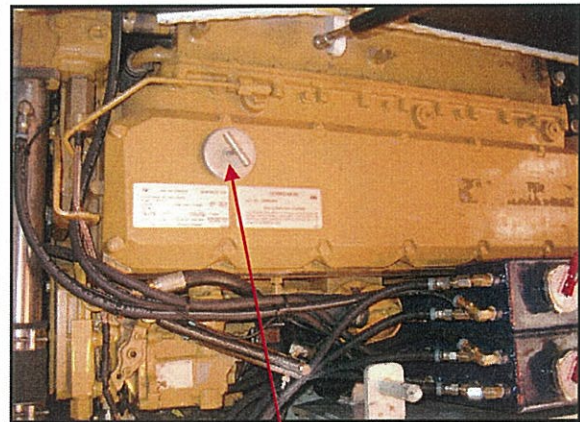


Figure 5.2.3 Engine oil Fill point

9. TRAMMING THE MACHINE

- The MH-40 is designed to travel in both forward or reverse direction with equal ease and performance.
- The transmission is controlled by a DIRECTION CONTROL LEVER and a SPEED CONTROL LEVER.
- The machine has the same gear ratios in forward and reverse. This is to provide equal speeds and performance in each direction.
- The engine should be at idle and the vehicle stationary when either FORWARD or REVERSE gears are selected.
- Always start in the low speed and shift into the next higher speed as the vehicle accelerates, and as conditions permit.



WARNING:

DO NOT coast the vehicle in NEUTRAL. Excessive speed may result in an uncontrollable “run-away”.

- Use the transmission to slow the vehicle whenever possible, as this avoids excessive service brake wear.



DO NOT:

Down shift the transmission unless the machine is travelling at a speed suitable for the lower range.



CAUTION

ALWAYS Ensure that the transmission control levers are fully shifted.

- Shifting from one range to another can be made at any time conditions permitting. Momentarily decrease engine revs. when selecting a lower gear.
- If the transmission should over heat:-
 - a) Stop machine and apply park brake,
 - b) Select NEUTRAL and run the engine at half speed until the oil temperature has dropped to a safe operating level.
 - c) If this does not work follow the shutdown procedure and advise the maintenance department.



WARNING:

Hearing and eye protection shall be worn by the driver of this machine at all times whilst the engine is running.



NOTE:

The vehicle speed can be regulated by using the service brakes, the engine throttle or by changing up and down gear ratios.

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