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Operation Manual

SH660 HD Roof Support Carrier

Serial Number 5004079

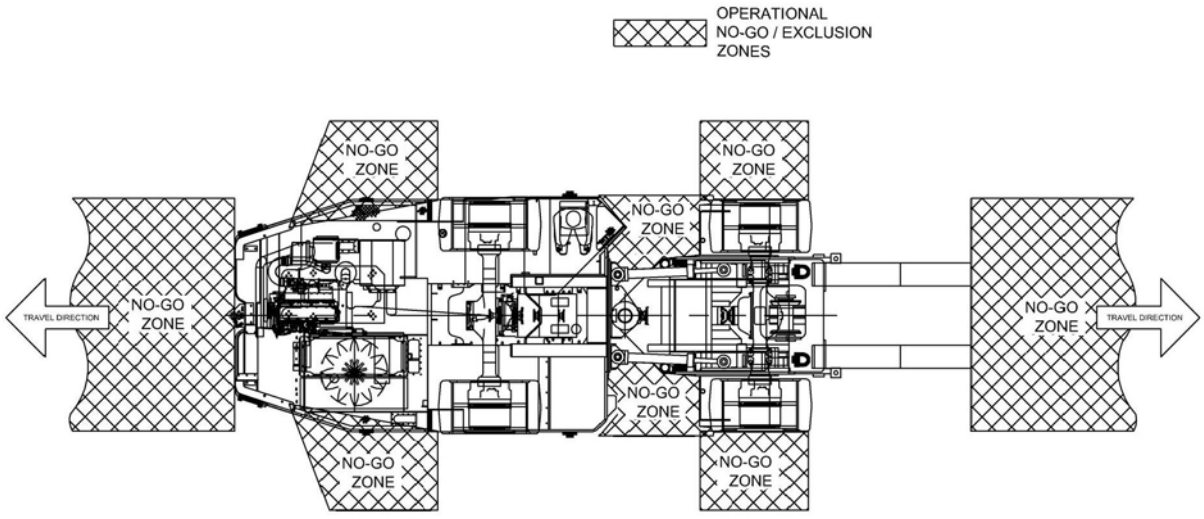
ALWAYS be aware of the impact of the payload on the visibility available to the operator. The recommended maximum speed when loaded is 10 km/h, however, the impact of the payload on the operator's field of vision must be considered when operating the machine with payload. Drive to the conditions.

NEVER operate the machine under unsecured roof.

- Keep your machine clean. A clean machine makes for a safer machine.
- No diesel engine should be operated underground if it is smoky, running unevenly, or if the exhaust system is leaking or not in good condition.
- In areas where auxiliary ventilation is used, the operator should make sure fans are operating before starting the machine.
- The engine shall not for any reason be left running unattended underground.
- The engine should not be shutdown from full load and must be allowed to idle for a few minutes before stopping.
- Never operate a machine that you feel is mechanically unsafe.

WARNING

Specific pedestrian danger areas exist as outlined on the following illustration while machine is operating. Do not allow personnel to enter these exclusions zones while in operation. If access is required to these exclusion zones communication must be made with the operator and appropriate isolation (Section 5) and hazard/risk assessments completed as required.



TRANSMISSION GEAR CONTROL LEVER

The transmission gear control lever has four positions, *first, second, third* and *fourth*. Shifting from one range to another can be made at any time conditions permitting. Momentarily decrease engine revs when selecting a higher gear. Momentarily increase engine revs when selecting a lower gear.

NOTICE

The transmission in the machine is modulated. This prevents severe shocks being transmitted through the drive train when the transmission direction is changed..

TRANSMISSION DIRECTIONAL CONTROL LEVER

A directional control lever controls the transmission. This lever has three positions, *forward, neutral* and reverse. The engine should be at low idle when the transmission is shifted from the *neutral* position to either *forward* or *reverse* direction.

NOTICE

The transmission must be placed in the *neutral* position for the starter motor to engage when starting the engine.

WARNING

If the engine starts when the transmission is not in neutral, the machine should be tagged out of service until the problem is rectified.

TRANSMISSION CONTROLS

LOAD INDICATOR GAUGE

This gauge indicates the load pressure at the cap end of the lift cylinders. Refer to the load indicator table below for the procedure to determine the load/ pressure relationship.

LOAD INDICATOR

WARNING

Do not operate the machine with a load greater than its rated capacity of 60T (210Bar load gauge pressure).

CAUTION

Overloading the machine beyond its rated load capacity could cause catastrophic machine failure, injury and even death.

FBL-55

LOAD INDICATOR TABLE

INSTRUCTIONS

1 RAISE LOAD APPROX 100mm OFF THE GROUND & LEVEL IT
2 COMPARE THE GAUGE PRESSURE WITH THE LOAD

WARNING

DO NOT OPERATE THE MACHINE OVERLOADED

LOAD GAUGE PRESSURE	LOAD @ 700mm FROM FORK FACE
210 BAR	60000 kg
180 BAR	50000 kg
150 BAR	40000 kg
116 BAR	30000 kg
85 BAR	20000 kg
55 BAR	10000 kg
20 BAR	0 kg

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HYDRAULIC ISOLATION

To isolate the hydraulic system perform the following procedure:

1. Ensure the area is clear of any obstruction and area is fit for carrying out safe operation and maintenance.
2. Lower the lift arms to the ground, shutdown the engine, fit a danger tag to the on/off toggle switch, connect the articulation lock and chock the wheels.
3. Depress the attachment quick connects button located in the operator's compartment. This will remove any residual pressure stored in the PTO lines.
4. Observe both steering and brake pressure gauges located in the operator's compartment. The hydraulic system features a steering and brake accumulator. The brake/steer control manifold bleeds accumulator pressure over time, once the machine has been shutdown. To aid in the removal of residual pressure, prior to exiting the operator’s compartment and with the door closed turn the steering wheel from side to side and observe the steering accumulator pressure gauge return to zero.
5. Remove hydraulic tank pre-charge pressure (50 kPa) by cracking the hydraulic tank filler cap.

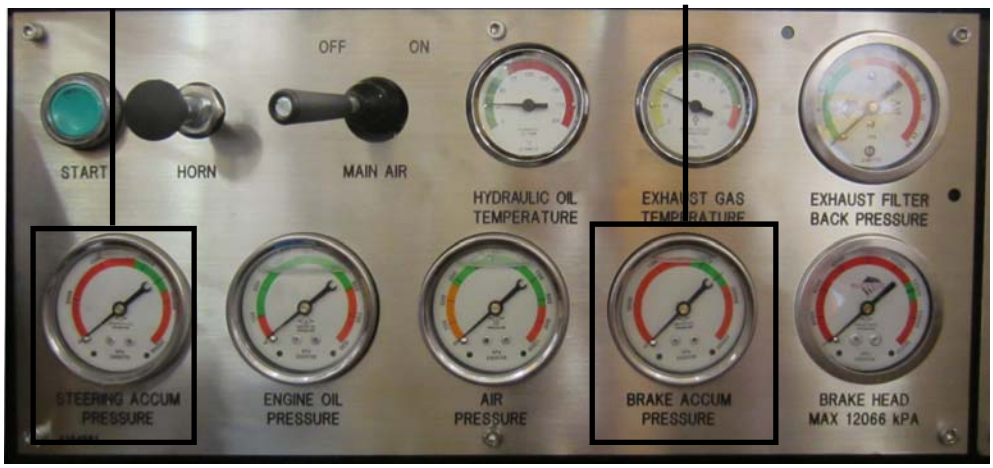
Serious injuries can occur from hydraulic oil under pressure. Ensure all loads are mechanically supported before removal of any hydraulic lines. Always assume there is hydraulic pressure in hydraulic lines or components unless it has been isolated by yourself. Hydraulic fluid may be hot. Wear personal protective equipment such as safety glasses, long sleeve shirt and gloves.

Crack hose end fitting (if pressure is present in line tighten fitting and remove pressure as above) but do not remove till any residual pressure is removed.

Ensure the machine is clear of pedestrians and equipment when undertaking this procedures.

Steering Accumulator Pressure Gauge

Brake Accumulator Pressure Gauge



RIGHT HAND SIDE OPERATOR’S DISPLAY PANEL

Check the fuel level:

1. Gauge fitted to the fuel tank.
2. Check the filler cap is secure, not damaged and seal is in place.
3. Ensure the filler cap seal is in place.

To fill the fuel tank:

1. Ensure the area is clear of any obstruction and the area is fit for carrying out safe operation and maintenance.
2. Locate the fuel tank filler cap on the driver's side of the machine.
3. Release the filler cap lock by pulling the Lock away from the centre of the cap.
4. Lift the filler cap and insert the fuel filler/nozzle and fill the tank.

WARNING

Do not allow the fuel tank to overflow as diesel fuel is a fire hazard. Clean any excess fuel away immediately and dispose of in an appropriate manner.

5. Once the tank is full, close the fuel tank filler cap and allow the filler cap lock to spring into position over the cap.
6. The fuel level gauge will indicate the tank is full.

WARNING

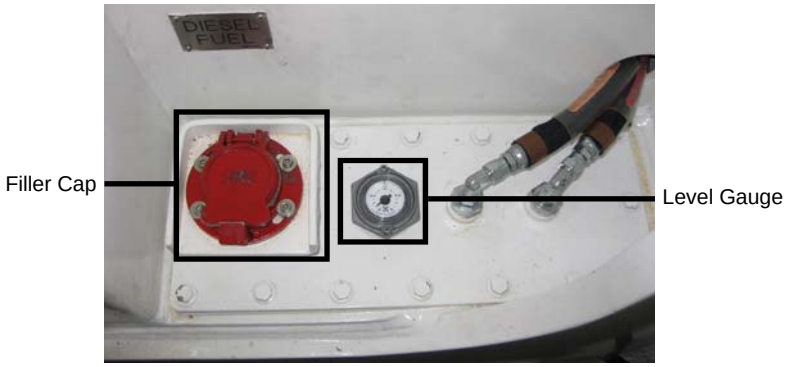
Always ensure the machine is correctly isolated before undertaking any tasks.

CAUTION

Do not operate the machine with the fuel level below empty level on the fuel tank. It is a recommended procedure to fill the fuel tanks at the end of each shift to drive out moisture laden air and to prevent condensation. Do not overfill the tank. Use caution when refuelling an engine. Ensure appropriate PPE is worn.

CAUTION

Always use quality fuel to the specification shown in Section 21 - Fluid Specification Table.



FUEL TANKINSPECTION COVER AND LEVEL GAUGE, DRAIN PLUG UNDERNEATH

Section 8
Post Start Checks

The following tests are required to be performed with the engine running:

Check all gauges are on correct operational pressure:

1. Gauges are colour coded (should read in *green* area).

Check function of lift arm assembly hydraulic system.

Check steering function.

Check park brake operation:

1. Ensure brake head pressure gauge reads 11377 kPa-12756 kPa when brake is released.
2. Ensure brake head pressure gauge and primary park brake valve gauge read zero when park brake is applied.

The machine must not be used under any circumstance if gauges do not indicate zero pressure.

The primary park brake valve gauge maybe located undercover within the machine adjacent to the operator's compartment. Refer to image on next page to identify the park brake valve gauge.

Check that all of the lights are working:

1. There are two forward and rear facing headlights.
2. Light switch is operational, (manual or auto directional).

Check the transmission oil level:

1. Always check when the transmission is warm.
2. Once the correct transmission oil temperature has been reached park the machine on flat, level ground and leave it running.
3. Place the machine in *neutral* and apply the park brake.
4. Access the dipstick under the transmission cover. This panel is located between the operator's compartment and the hydraulic tank.
5. The engine should be idling at 750 RPM-850 RPM.
6. Remove the dipstick by pulling upwards and wipe with a clean, lint free cloth.
7. Reinsert the dipstick into the spout, push it all the way home.
8. Withdraw the dipstick and check the oil level. The level is to be maintained at the *full* mark.

Always use the specified oil for the application and the region's seasonal temperatures. (See Section 21).

Section 12
Driving on a Ramp

1. Stop and shift into first gear, and check the brakes before travelling up or down a ramp.
2. Always use a low gear when travelling down a ramp.
3. Avoid changing gears while travelling on a steep ramp.
4. If you have a mechanical or brake failure:

    a. Immediately apply the brakes.
    b. If they do not function, apply park brake.
    c. If the machine does not stop, turn the machine into the rib.

The machine should not be operated on more than the recommended grades (Section 1).

Operators must be competent in Emergency Stop Procedure (Section 11).

Always be aware of the impact of the payload on the visibility available to the operator. The recommended maximum speed when loaded is 10 km/h, however, the impact of the payload on the operator's field of vision must be considered when operating the machine with payload. Drive to the conditions.

Section 17
Towing with the Machine

The transmission will not hold the machine when the spring applied park brakes are bypassed by the hydraulic hand pump pressure.

Maximum towing speed is 3 kph.

1. Ensure the machine is parked and isolated prior to connecting the trailer or load, park brake *on*.
2. Attach the load to the rear tow hitch, ensure tow pin is secure.
3. The trailer or load should be secured by 2 x 16000 kg safety chains in a straight line pull in addition to a rated draw bar for the task.
4. Both chains must be used and adjusted to ensure an even pull.
5. Both chains have a combined loading of 32000 kg in a straight line.
6. Both chains must be used for maximum tractive effort pull.
7. Ensure all connections on the towed piece are in good condition and rated for the maximum pull.
8. Ensure all holding devices and hitches are in good condition and rated for the maximum pull before connecting the machine.
9. Always ensure that the trailer and load are secure before towing, and prior to releasing the park brake.
10. Travel at a speed that is suitable to conditions and load.
11. Ensure trailer or load has wheels chocked prior to removal from the machine.

Always connect the trailer or load before releasing the park brakes. Make sure the park brake is reapplied before the towing machine is disconnected

For towing braked trailer masses consult the Dealer.

Failure to comply to these procedures may result in serious personal injury or damage to the equipment.