

230 Forwarder

CALIFORNIA
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

 **WARNING**

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

Section 1 - Safety Rules

General Safety Precautions

TIMBERJACK'S basic policy is to produce products that are safe and reliable. However, even when using well engineered equipment, there will always be an element of risk in heavy-duty equipment operation.

To minimize the risks and promote safety at all times, this section of the operator's manual details a number of safety rules which should always be followed and obeyed.

The safety rules detailed highlight both the general and the specific measures the operator should be familiar with and adhere to. The more specific measures are illustrated with pictograms. These pictograms may also be attached to the machine in locations most pertinent to their respective messages.

Study all the safety messages carefully, remember them and apply them on the job.

WHEN IT COMES TO SAFETY, NOTHING WILL EVER REPLACE A CAREFUL OPERATOR.

1. YOU MUST BE FULLY TRAINED to operate this piece of equipment.



2. Get to know the capabilities and limitations of the equipment and learn the most efficient operating techniques.
3. Use recommended protective clothing and safety devices such as gloves, safety boots, safety hat, goggles and ear protection when necessary.
4. Operate the machine only when physically fit and not under the influence of alcohol or drugs.

5. When mounting and dismounting the machine, use the handrails and steps provided. Do not climb onto the machine in any other fashion.



6. Keep floors, steps and running boards clean and free of oil, ice, mud and loose objects.
7. Carry no passengers. The vehicle is provided and approved with seating for the operator only.
8. Never remove any elements of the engine's exhaust system or any safety covers or devices from the operational machine.
9. Keep a comprehensive and complete First Aid Kit in an easily accessible place on the vehicle at all times.
10. Inspect the machine daily for signs of damage, unusual wear, fluid leaks or faulty operation.
11. When moving the machine, watch that enough clearance is available on both sides and above the boom. Extra clearance may be required particularly where the ground is uneven.

IMPORTANT:

To prevent damage to the starter motor, crank the engine for 20 to 30 seconds only.

If the engine fails to start within 30 seconds, release starter button and allow the starter motor to cool two to three minutes. Repeat step 1 and 2.

NOTE:

No pre-heating is required when starting a warm engine, just depress the clutch pedal, press the starter button and depress accelerator as described above.

3. When the engine is running, observe that the oil pressure indicated on the pressure gauge (10) rises to the normal operating range. If "below normal" oil pressure is indicated, stop the engine and have the cause investigated and rectified.
4. When a cold engine is first started, leave it idling for a few minutes to allow the oil to warm up. Warm oil has a lower viscosity than cold oil and, therefore, flows more easily through engine filter with less chance of filter by-pass. If unfiltered oil is circulated, potentially harmful particles dispersed in the oil may cause premature wear of bearing surfaces, etc.

IMPORTANT:

If the engine stalls, re-energize the starter motor ONLY AFTER the engine has completely stopped.

5. When the engine runs smoothly, the vehicle may be set in motion. When the ambient temperature is above freezing, normal operating temperature will be reached after a few minutes of operation.

Cold-Weather Starting

Prior to starting and operating the machine in cold weather, ensure that the engine oil is of a suitable viscosity and that the diesel fuel used is of the proper grade. Refer to Lubrication Chart in Section 3 of this manual.

In very cold weather, an immersible type electrical coolant heater and an oil pan heater or other appropriate engine heaters should be used to pre-heat the engine prior to start-up. Disconnect or switch off the heaters when ready to start.

The procedure for starting the engine in cold weather is essentially the same as the normal starting procedure; however, below 0 deg. C (32 deg. F) the initial cranking time of the starter motor should be increased in order to pre-heat the cylinders sufficiently for combustion.

NOTE:

When the battery electrolyte is at a low temperature, the battery charge is reduced. Starting the engine in an extremely cold environment requires that the batteries are fully charged. To ensure this, remove and store them in a warm place when the machine is parked for prolonged periods of time.

Always ensure that the battery terminals and cable clamps are clean and have proper contact when the batteries are reinstalled.

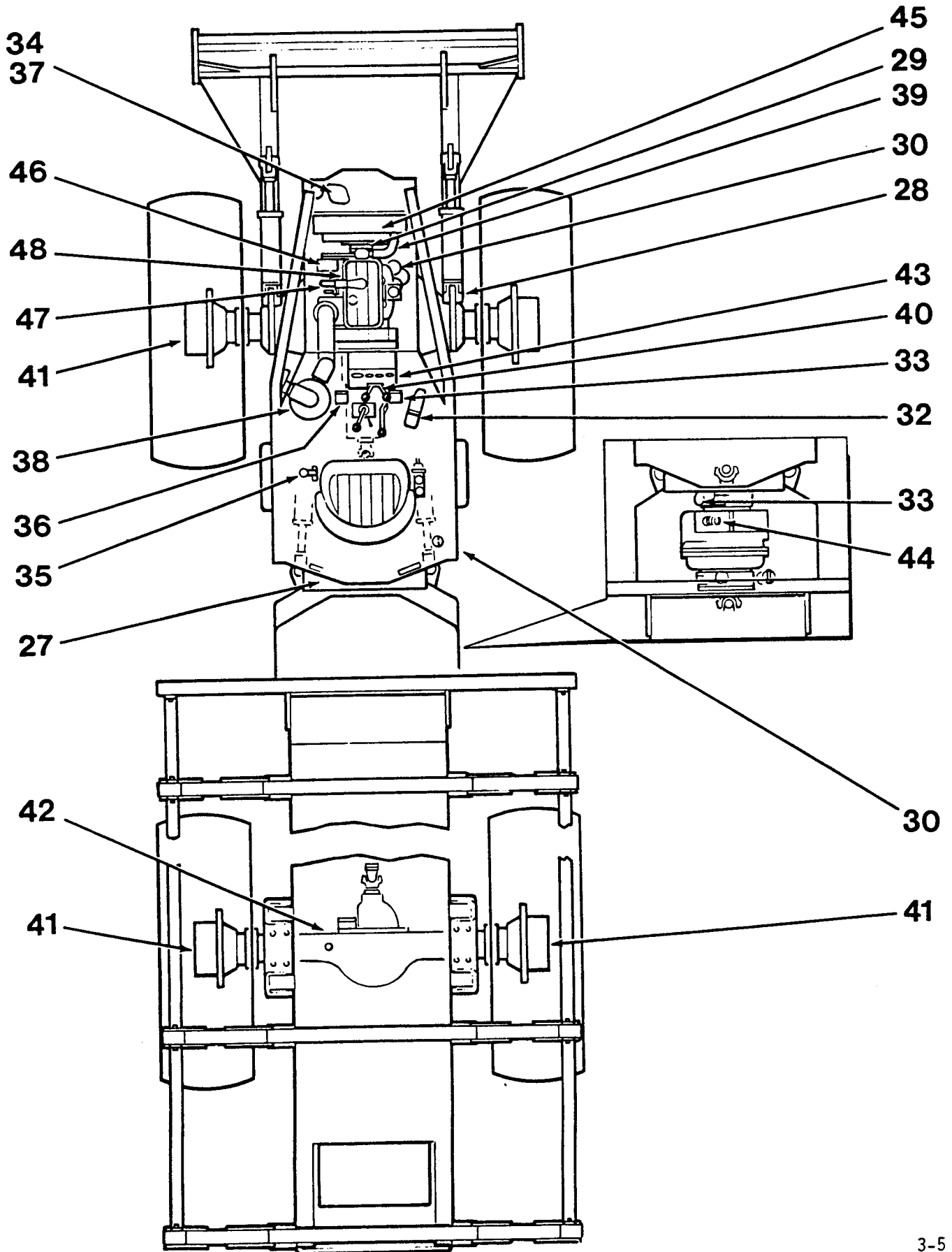
Heater blankets or heater plates may also be used to maintain the charge of the batteries at a satisfactory level.

Engine Idling

Avoid unnecessary engine idling. During long idling periods, the engine coolant temperature will fall below the normal operating range. This can cause incomplete combustion and result in sticking piston rings and carbonized valves as well as oil dilution from unburned fuel "washed" into the crank case thus resulting in rapid wear of the engine components.

When prolonged engine idling is unavoidable, maintain the engine speed above 1000 rpm.

Maintenance Schedule



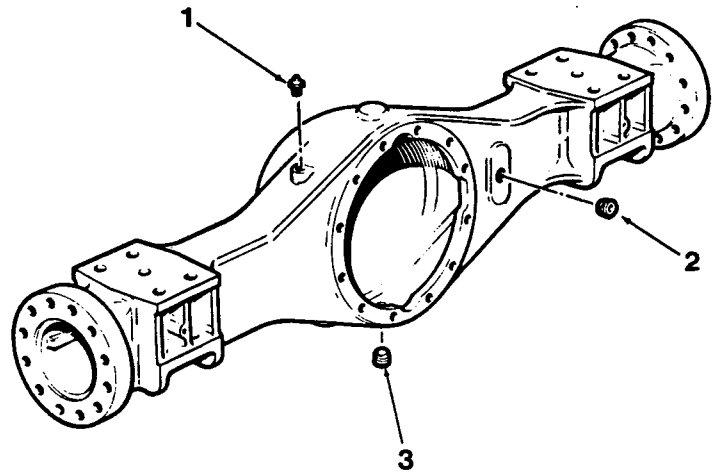
ITEM 20. AXLE DIFFERENTIAL OIL CHECK

Check the oil level when the vehicle is parked on level ground. Thoroughly clean the area around the plugs to prevent dirt from entering the differential.

Remove the level plug (2) and check that the oil level is flush with the bottom of the hole. If required, add oil of the correct type and viscosity. See table 3-1. Oil can be added through the level check hole.

WARNING:

BEFORE WORKING UNDER THE MACHINE, MAKE SURE THAT IT IS PARKED ON LEVEL GROUND, THE PARKING BRAKE IS ON, THE DOZER BLADE IS LOWERED TO THE GROUND, AND THAT THE ENGINE IS STOPPED. FAILURE TO OBSERVE APPROPRIATE SAFETY PRECAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURIES.



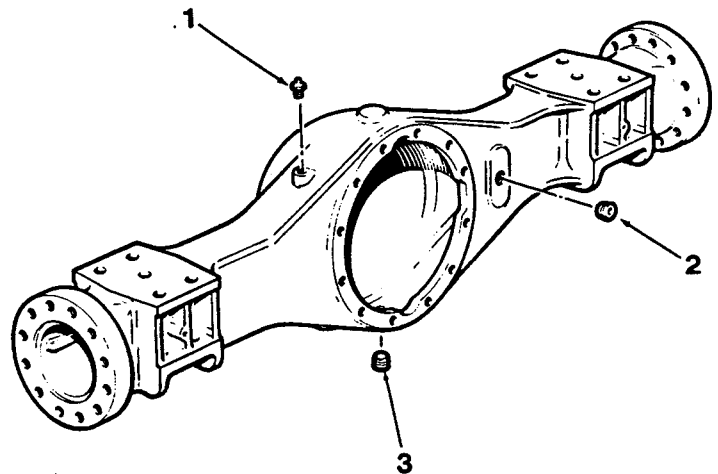
399c

DIFFERENTIAL OIL CHECK
FIGURE 3-20

ITEM 21. AXLE BREATHER CHECK

Check and, if necessary, clean the axle breathers (1), reference fig. 3-21. Also clean the area around each breather.

Breathers are installed on each axle to equalize the pressure inside the housing with the outside environment. Failure to keep the breathers and surrounding areas clean will lead to pressure build-up which may cause oil seal leakage.



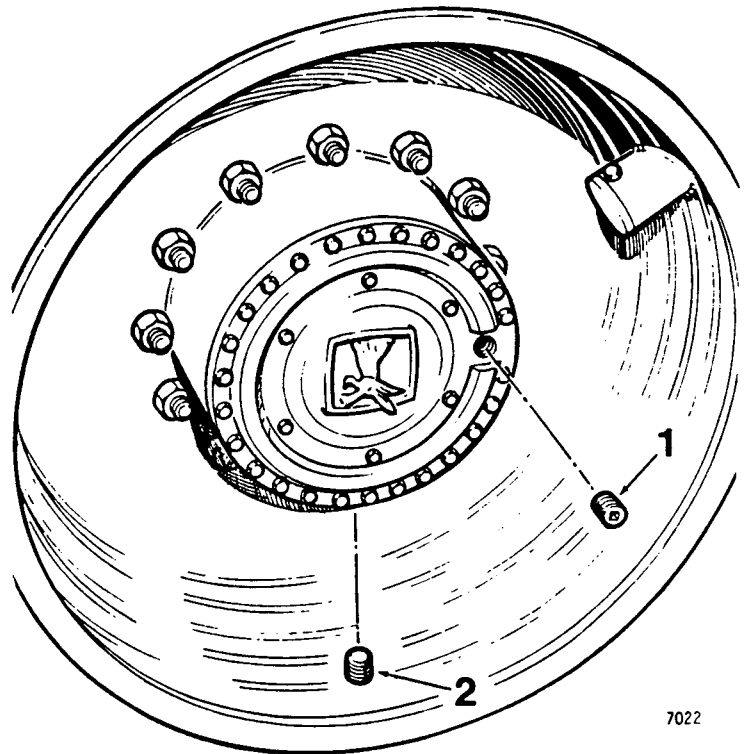
399c

AXLE BREATHER OIL CHECK
FIGURE 3-21

ITEM 41. PLANETARY HUB OIL CHANGE.

Position the wheel with the level plug (1) and the filler/drain plug (2) as shown in fig. 3-38. Remove both plugs and drain the oil into a suitable container.

Turn the wheel hub 180 degrees so that the drain hole is now at the top and is now used as a filler hole. Add oil as specified in table 3-1 until it is level with the bottom of the level plug hole. Clean both plugs and reinstall them.



7022

NOTE:

The oil will drain faster if the machine has been run long enough to warm up the oil.

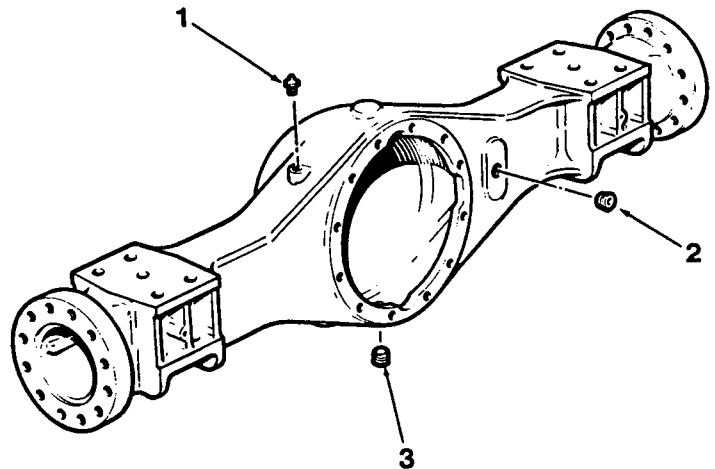
ITEM 42. DIFFERENTIAL OIL CHANGE.

WARNING:

BEFORE WORKING UNDER THE MACHINE, MAKE SURE THAT IT IS PARKED ON LEVEL GROUND, THE PARKING BRAKE IS ON, THE DOZER BLADE IS LOWERED TO THE GROUND, AND THAT THE ENGINE IS STOPPED. FAILURE TO OBSERVE APPROPRIATE SAFETY PRECAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURIES.

Remove both the level plug (2) and drain plug (3). Drain the oil into a suitable container. When the oil has finished draining clean and reinstall the drain plug.

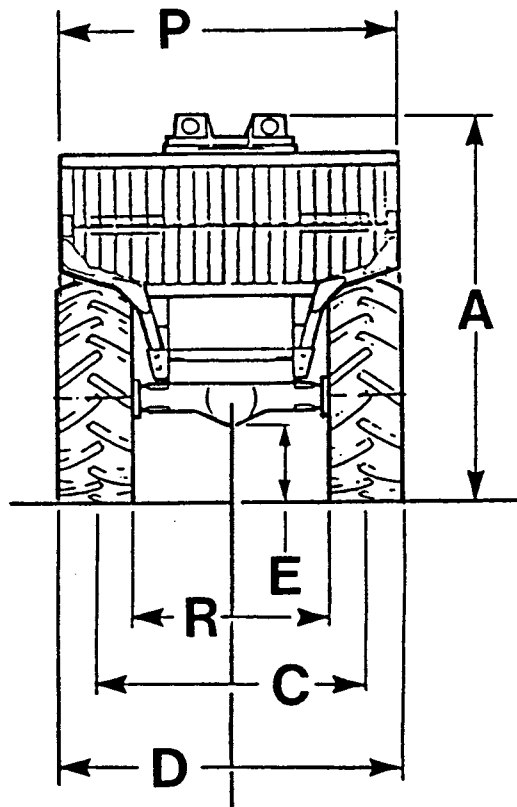
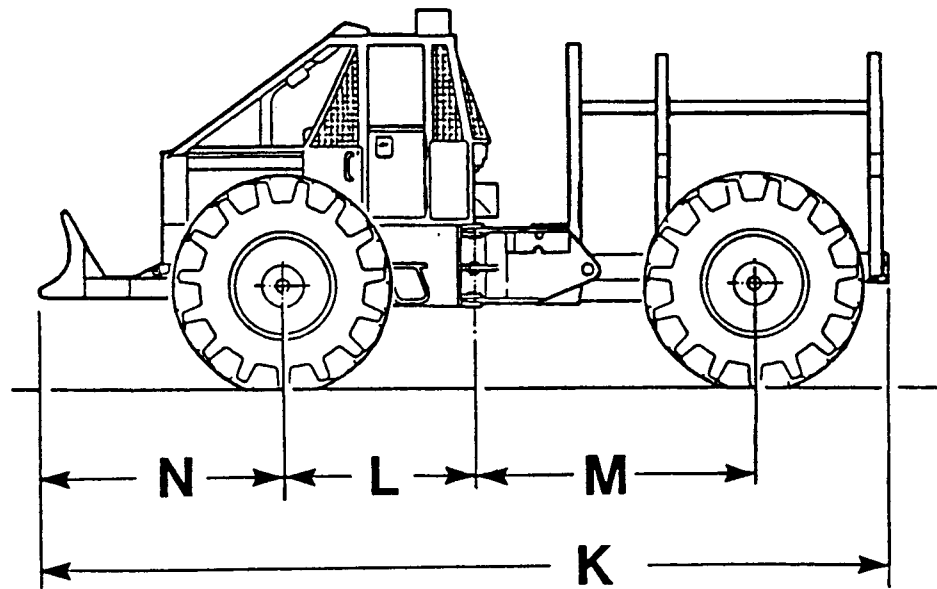
Use the level plug hole to fill to fill the differential with fresh fluid until it is level with the bottom of the hole. See table 3-1 for correct oil specifications. Reinstall the level plug when finished.



399C

DIFFERENTIAL OIL CHANGE
FIGURE 3-39

Section 4 - Equipment Data



7057

Model 230 5 Ton

A = 124.5" (3162 mm)
 B = 86" (2184 mm)
 C = 111.2" (2825 mm)
 D = 110.0" (2794 mm)

E = 23.9" (607 mm)
 F = 367.5" (9335 mm)
 G1 = 66.6" (1692 mm)
 G2 = 144" (3658 mm)

H = 74.4" (1890 mm)
 J = 10" (254 mm)
 K = 52.5" (1334 mm)

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below



- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL