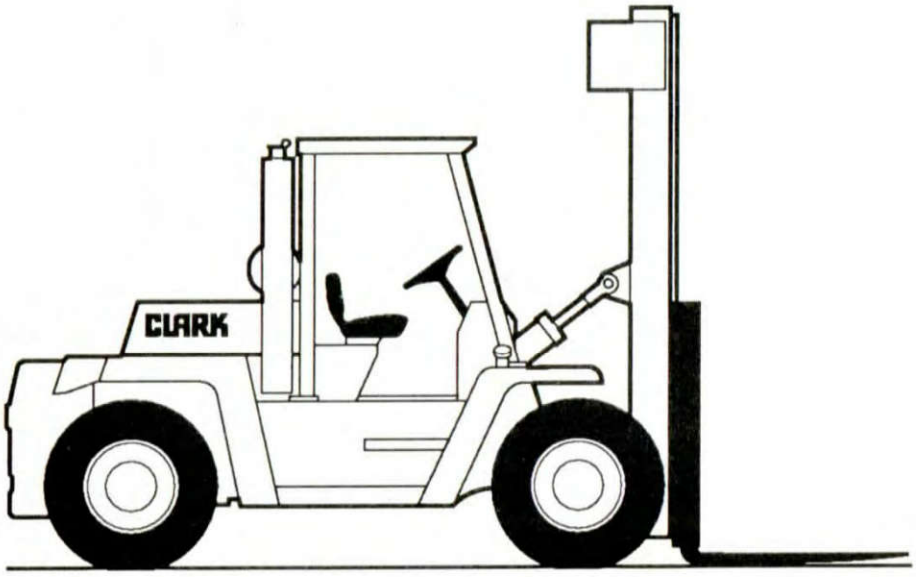
Operator's Manual

Do not remove this manual from the truck.



C500 Y 180-200-225S-225L-250S-250L-300S-300L-350

CLARK

Book No. 2780514
OM-575 Rev. 1

Safety Signs and Safety Messages

Improper or careless techniques cause accidents. Don't take chances with incorrect or damaged equipment. **Read** and **understand** the procedures for safe driving and maintenance outlined in this manual. Don't hesitate to ask for help. **Stay alert!** Follow safety rules, regulations and procedures. Accidents can be avoided by recognizing dangerous procedures or situations before they occur. **Drive and work safely** and follow the safety signs and their messages displayed on the truck and in this manual.

Safety signs and messages are placed in this manual and also on the lift truck to provide instructions and to identify specific areas where potential hazards exist and special precautions should be taken. Be sure you know and understand the meaning of these instructions, signs and messages. Damage to the truck or death or serious injury to you or other persons may result if these messages are not followed. If warning decals are damaged they must be replaced. Contact your Clark dealer for replacements.

NOTICE

This message is used when special information, instructions or identification is required relating to procedures, equipment, tools, pressures, capacities and other special data.

IMPORTANT

This message is used when special precautions should be taken to ensure a correct action or to avoid damage to or malfunction of the truck or a compartment.

CAUTION

This message is used as a reminder of safety practices which can result in personal injury if proper precautions are not taken.

WARNING

This message is used when a hazard exists which can result in injury or death, if proper precautions are not taken.

DANGER

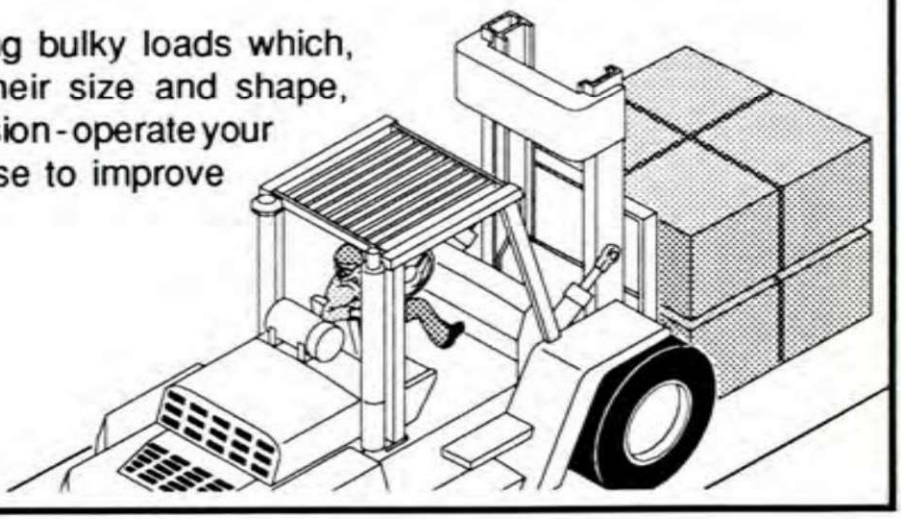
This message is used when an extreme hazard exists.

Travel

Travel with load near operating surface and with upright tilted back to cradle load whenever possible.

Never lift or lower load when truck is in motion.

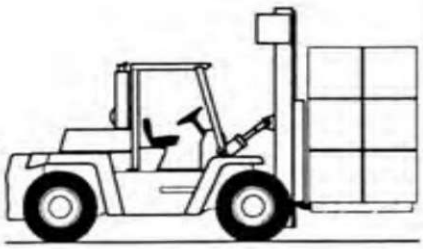
When handling bulky loads which, because of their size and shape, restrict your vision - operate your truck in reverse to improve visibility.



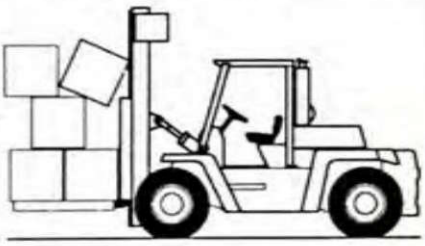
Unstable loads are a hazard to you and to your fellow workers. Always make certain that your load is well stacked and evenly positioned across both forks. Never attempt to lift a load with only one fork.

Never turn on a grade, either loaded or unloaded.

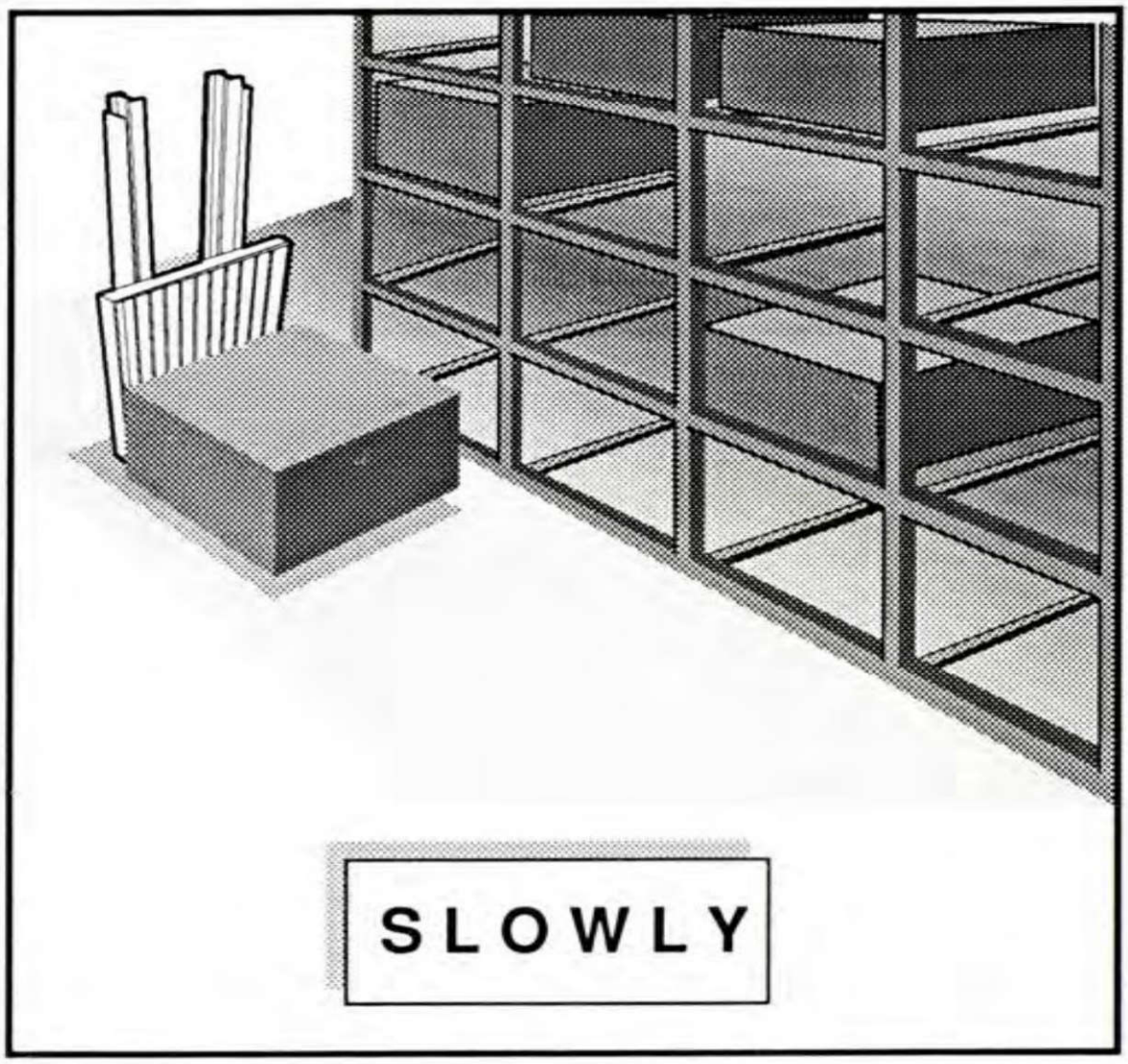
Right



Wrong



Right-Angle Stacking

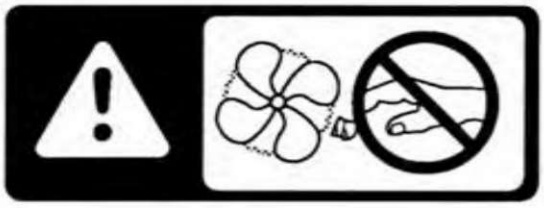


When right-angle stacking or moving with a raised load to clear low objects, avoid sharp turns and move slowly.

Safety and Warning Decals

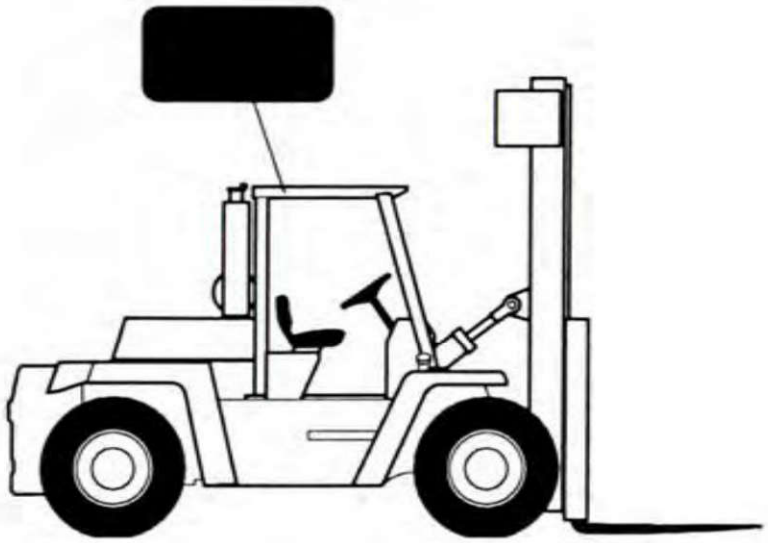
Fan Warning Decal

This safety decal is displayed on thecooling fan shroud of the radiator to warn of the danger of injury from turning fan blades when the engine is running. Be sure that you keep your hands, fingers, arms and clothing away from a spinning fan. Don't stand in line with a spinning fan. Ban blades can break at high speed and be thrown out of the engine compartment.



Overhead Guard Conformance Plate

This plate is permanently attached to the overhead guard top to confirm that the overhead guard assembly design has been tested and conforms to the requirements of ANSI B56.1 safety standards.



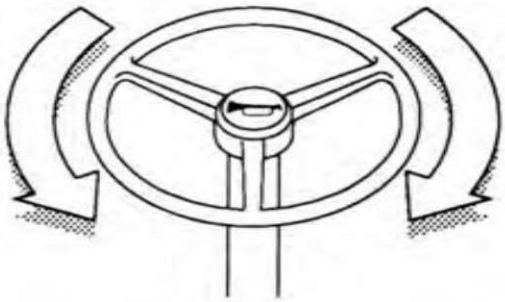
How Your Lift Truck Operates

Power Steering System

With engine running, the steering system uses hydraulic power to position the rear wheels. A dual action hydraulic steering actuator, mounted on the steering axle, extends left or right for turns or centered for straight-ahead driving. By turning the steering handwheel, which is connected to the steering gearbox control valve, hydraulic pressure is directed to the respective side of the steering actuator.

Horn Button

The horn button is located in the center hub of the steering handwheel and is electrically connected by contacts and wiring to the horn assembly installed in the dash of the truck.



Main Hydraulic System / Power Steering System

Flow and pressure are only generated when the engine is running. The circuit is totally enclosed and self purging. Fluid is drawn from the reservoir sump, filtered, and pressurized by two engine driven pumps. One pump provides hydraulic pressure for steering. The other pump provides hydraulic pressure for lift carriage and upright operation. A separate line connects the pumps to the reservoir to allow for the return of excess fluid.

Fluid from the pump is metered as it flows through the steering gearbox, pressurizing the selected side of the power steering cylinder. The opposing side of the cylinder allows fluid to return to the reservoir through the steering gearbox.

CAUTION

If the engine quits, while traveling, steering effort will increase.

Lift carriage and upright control valves port metered fluid under pressure, when selected, to their respective actuators and allow fluid to return to system reservoir thru piping. The tilt cylinders are double action, pressured in either direction for forward and back tilt. The lift cylinder is a single action two stage telescoping actuator, pressurized for elevation and free fall for lowering. In addition, single and double auxiliary valves are available as optional equipment for use with various optional equipment attachments.

RECOMMENDED SAFETY MAINTENANCE PROCEDURE FOR LP GAS FUELED FORKLIFT TRUCKS

WARNING: LP GAS is a combustible fuel that is heavier than air. Escaping gas may accumulate in low areas. The fuel cylinder should be mounted so that it does not extend outside the truck and should also be properly positioned by using the locating pin or key way.

The fuel valve should be turned off when the machine is not in service.

Cast fittings should not be used in the LP-GAS system.

Use only Underwriters Laboratories or Factory Mutual listed LP-GAS hose assemblies where pressure fuel lines are required.

All pipe threaded fittings should be installed using an approved sealing compound.

Fuel lines should be supported by clamps to minimize chafing and wear.

The LP-GAS solenoid valve should be wired to an automatic shut off switch (oil pressure or vacuum) to prevent leakage of gas in the event the ignition is on without the engine running.

Check the propane solenoid or vacuum shutoff valve for leakage as follow:

1. Turn fuel cylinder valve off, start and run engine until it stops.
2. Install a 0 to 30 psi pressure gauge per instruction A or B.
   A. Primary test port of single units consisting of primary and secondary regulators.
   B. Between the primary and secondary stage regulators when the propane system consists of two regulators.
3. Turn cylinder fuel valve on. The pressure gauge should maintain a zero reading. If it does not, the solenoid valve or vacuum shutoff valve must be repaired or replaced. An odor is added to LP-GAS to help detect leaks. If gas odor is detected the fuel cylinder supply valve and engine should be turned off. Remove all sources of ignition, and ventilate the area. Make all of the necessary repairs before you turn the fuel supply on. The complete LP-GAS system should be inspected periodically. Check all hoses for wear, connections for leaks, and all parts for damage.

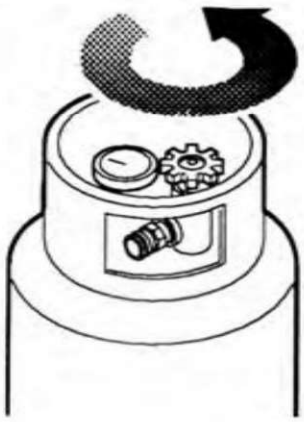
NOTE: Fuel hoses have a limited life expectancy. They should be checked for cracking and drying due to age. Hoses with visible signs of age should be replaced. Use only Underwriters Laboratories or Factory Mutual listed LP-GAS parts for replacements.

NOTE: The above information is provided as a guide. Consult NFPA 58 for the safe storage and handling of liquefied petroleum gases. Governmental safety regulations in your locality could vary. Check with authority having jurisdiction to be sure that you meet all of their requirements. Contact the manufacturer for detailed service information.

SERVICE WORK SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY.

How To Start Your Truck

Before starting an **LPG engine**, open the tank shut-off valve slowly.



NOTICE

If this valve is opened too quickly, the automatic safety check valve will close. If this happens, close the shut-off valve and wait 2-3 minutes. Then, open the shut-off valve slowly.

To start an **LPG engine**, follow the starting procedure for a gasoline engine lift truck, with the exception that no choke control is required with LPG engines.

To stop an LPG engine safely, follow this shut-down procedure:

1. Stop the truck with the service brakes.
2. Apply the parking brake.
3. Let the engine run at low idle speed.
4. Close the shut-off valve at the LPG tanks.
5. Wait until the engine uses (burns up) the supply of LPG remaining in the fuel system.
6. When the engine stops running, turn the ignition key switch to the "OFF" position.

How To Operate Your Truck

likely to tip up. Lift and lower with the upright mast vertical or tilted slightly back...**NEVER TILTED FORWARD**. Operate lift and tilt controls slowly and smoothly. Never tilt forward when carriage (load) is raised except to pick up or deposit a load over a rack or stack.

⚠ WARNING

Slack chains mean rail or carriage hang-up. Raise the upright before you move. If the upright malfunctions in any way or becomes stuck in a raised position, operate the lift control to eliminate any slack chains. DO NOT go under a raised upright or forks to attempt repairs.

Remember -- Your lift truck is designed to carry loads forward of the front wheels, so that the weight of the load is counter-balanced by the weight of the truck. The farther the load is carried from the pivot point (center of front wheels) the greater will be the uplift at the rear of the truck. Therefore, always carry the load as close to the front wheels as possible (back and flush against the face of the forks). The capacity load shown on the nameplate is represented by a cube in which the weight is evenly distributed, with the center of gravity located a standard distance from the face of the forks. If the weight of the actual load to be handled is not evenly distributed, put the heaviest part closest to the carriage.

Traveling

Travel with load or carriage as low as possible and tilted back. Never travel with the load or carriage raised (elevated) in a high position. Do not elevate the load except during stacking.

Observe all traffic regulations and watch for other traffic, pedestrians and safe clearances. Always look in the direction of travel. Keep a clear view of the path of travel and when load blocks your visibility, travel in reverse with load trailing (except when climbing an incline). Avoid sudden movements when carrying a load -- start, stop, travel, steer and brake smoothly. Steer clear of bumps, holes and loose materials or debris on the ground. Lift and tilt slowly and smoothly. Go slowly when turning. Cross railroad tracks at an angle whenever possible.

Index

1. Powered industrial trucks can become hazardous if maintenance is neglected. Therefore, suitable maintenance facilities, trained personnel and procedures shall be provided.

2. Maintenance and inspection of all powered industrial trucks shall be done in conformance with the manufacturer's recommendations.

3. A scheduled planned maintenance, lubrication and inspection system shall be followed.

4. Only trained and authorized personnel shall be permitted to maintain, repair, adjust and inspect industrial trucks and in accordance with the manufacturer's specifications.

5. Properly ventilate work area, vent exhaust fumes and keep shop clean and floors dry.

6. Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check for level or leakage fuel, electrolyte or coolant. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.

7. Before starting work on truck:
   a. Raise drive wheels free of floor and use blocks or ther positive truck positioning devices.
   b. Put blocks under the load-engaging means, innermasts or chassis before work on them.
   c. Disconnect battery before working on the electrical system.

NOTE: Refer to the Jacking and Blocking Section in SM-575 for proper procedures.

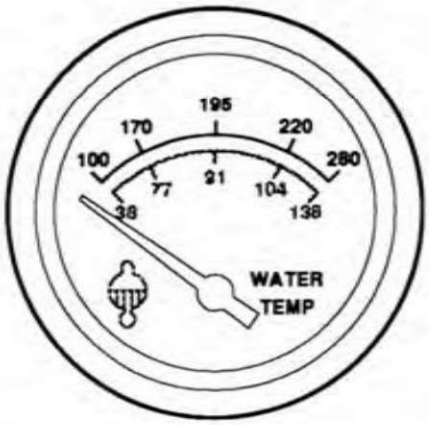
8. Operation of the truck to check performance must be conducted in an authorized, safe, clear area.

9. Before Starting To Drive Truck:
   a. Be in operating position.
   b. Make sure parking brake is applied.
   c. Put direction control in neutral.
   d. Start engine.
   e. Check functioning of lift and tilt systems, directional and speed controls, steering, brakes, warning devices and any load handling attachments.

PM Program

Water Temperature Gauge

Indicates temperature of engine coolant water in degrees (F). 100° F to 280°F. Water temperature should be about 180°F after 10 minutes of operation. If the indicator registers in the "hot" zone, turn off engine until trouble is located and corrected.



Oil Pressure Gauge

Indicates engine lubricating oil pressure in PSI 0 - 100 PSI at maximum engine speed. Oil pressure should be between 30 and 60 PSI on the oil pressure gauge at normal engine operating speeds. At idle, pressure should not fall below 5 PSI. If pressure is low or erratic, shut down engine until trouble is located and corrected.

Hour Meter

Indicates total engine operating time in hours and tenths. The indicated hours are used for planned maintenance. The total hours should be recorded at the beginning and end of each shift.

PM Program

Hydraulic Sump Tank

Check the hydraulic sump tank fluid level. Correct fluid level is important for proper system operation. Low fluid level can cause pump damage. Overfilling can cause loss of fluid or lift system malfunction.

Hydraulic fluid expands as its temperature rises. Therefore, it is preferable to check the fluid level at operating temperature (after approximately 30 minutes of truck operation). To check the fluid level, first park the truck on a level surface and apply the parking brake. Put the upright in a vertical position and lower the fork carriage fully down. Pull the dipstick out, (attached to the sump breather) wipe it with a clean wiper and reinsert it. Remove dipstick and check oil level. Keep the oil level above the LOW mark on the dipstick by adding recommended hydraulic fluid only, as required. DO NOT OVERFILL.

Check the condition of the hydraulic fluid (age, color or clarity, contamination). Change (replace) the oil as necessary.

Hydraulic Fluid and Filter Change

Drain and replace the hydraulic sump fluid every 2000 operating hours. (Severe service or adverse conditions may require more frequent fluid change). Replace the hydraulic oil filters elements at every oil change. Remove, clean and reinstall the hydraulic and steer system suction line screens at first PM and every 500 hours thereafter. Check for leaks after installation of the filters. Also, check that the hydraulic line connections at the filter adapter are tightened correctly. For procedure for draining hydraulic sump tank, refer to Service Manual number SM-575.

Sump Tank Breather Maintenance and Inspection

Remove the sump tank fill cap/breather and inspect for excessive (obvious) contamination and damage. Clean or replace the fill cap/breather, per recommended PM schedule or as required by operating conditions.