

Operator's Manual



INTERNAL COMBUSTION LIFT TRUCKS

[Do not remove this manual from the truck]

S 20/25/30/35 D,L,G
S 20/25/30/32C L,G



CLARK
THE FORKLIFT

Part No. 8140450 (Eng)
Book No. OM 1067 (Rev 1.10)
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The first Section of the manual is devoted to a review, with illustrations and brief messages, of general safety rules and the major operating hazards you can encounter while operating a lift truck. Next, you will find descriptions of the components of your specific lift truck model and how the instruments, gauges, and controls operate. Then, you will find a discussion of safe and efficient operating procedures, followed by instructions on how to tow a disabled lift truck. The later sections of the manual are devoted to maintenance and truck specifications.

Take time to carefully read the “Operator Compartment and Controls” section. By acquiring a good basic understanding of your truck’s features, and how they function, you are better prepared to operate it both efficiently and safely.

In “Planned Maintenance and Lubrication,” you will find essential information for correct servicing and periodic maintenance of your truck, including charts with recommended maintenance intervals and component capacities. Carefully follow these instructions and procedures.

Each major Section has its own table of contents, so that you can find the various topics more easily. If you cannot find a topic in the table of contents, check the index at the back of the manual.

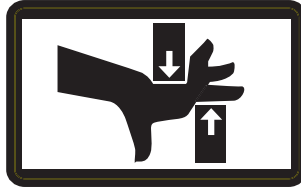
We urge you to first carefully read the manual from cover to cover. Take time to read and understand the information on general safety rules and operating hazards. Acquaint yourself with the various procedures in this manual. Understand how all gauges, indicator lights, and controls function. Please contact your authorized CLARK dealer for the answers to any questions you may have about your lift truck’s features, operation, or manuals.

Operate your lift truck safely; careful driving is your responsibility. Drive defensively and think about the safety of people who are working nearby. Know your truck’s capabilities and limitations. Follow all instructions in this manual, including all IMPORTANT, CAUTION, WARNING, and DANGER messages to avoid damage to your lift truck or the possibility of any harm to yourself or others.

This manual is intended to be a permanently attached part of your lift truck. Keep it on the truck as a ready reference for anyone who may drive or service it. If the truck you operate is not equipped with a manual, ask your supervisor to obtain one and have it attached to the truck. And, remember, your CLARK dealer is pleased to answer any questions about the operation and maintenance of your lift truck and will provide you with additional information should you require it.



Pinch Points



WARNING

Keep hands, feet and legs out of the upright.



WARNING

Don't use the upright as a ladder.



CAUTION

Never try to repair the upright, carriage, chain, or attachment yourself! Always get a trained mechanic.

Operating Hazards

Contents

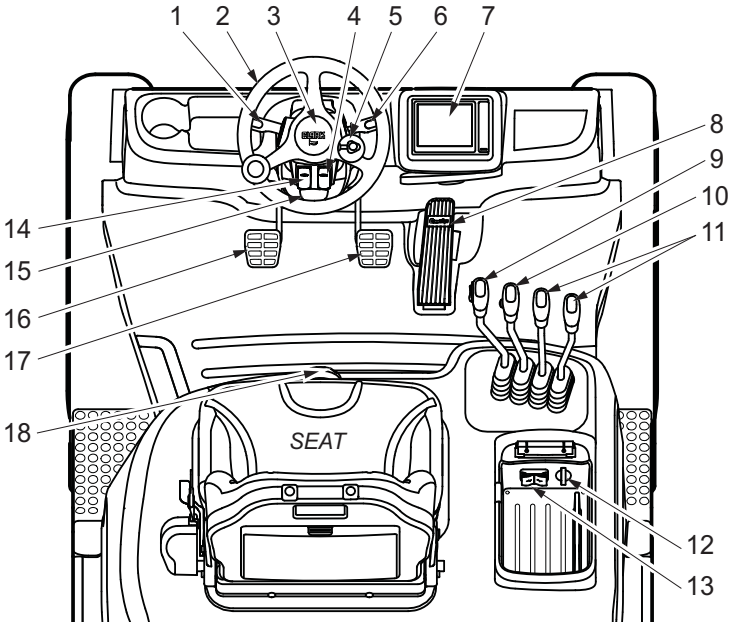
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IMPORTANT

This section shows some of the hazards that may cause you, or someone around you, to be killed or badly hurt. As the operator, you must look for other hazards. Get your supervisor to help you identify and avoid those hazards.



Operator Compartment



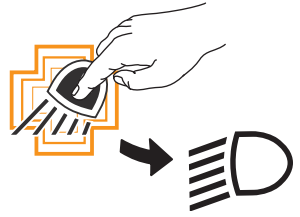
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- | | |
|----------------------------|------------------------------|
| 1. Forward / Reverse Lever | 10. Tilt Control Lever |
| 2. Steering Handwheel | 11. Auxiliary Control Lever |
| 3. Horn Button | 12. Power Socket (12V) |
| 4. Parking Brake Switch | 13. USB Charger |
| 5. Key Switch | 14. Hazard Switch |
| 6. Turn Signal Lever | 15. Column Adjust Button |
| 7. Instrument Pod | 16. Inching Pedal |
| 8. Accelerator Pedal | 17. Service Brake Pedal |
| 9. Lift Control Lever | 18. Driver's Weight Adjuster |

Rear Work Light Icon

There are three ways to turn ON/OFF the rear work light.

1. The rear work light is activated using the button.
Push the rear work light button to turn the light ON.
Push it again to turn the light OFF.
2. The rear work light is activated using the key switch. (when set in the menu)
By turning the key switch to the “ON” position, the rear work light is automatically activated.
By turning the key switch to the “OFF” position, the rear work light is deactivated.
3. The rear work light is activated when the directional lever is placed in reverse and then deactivated when it is moved out of reverse.

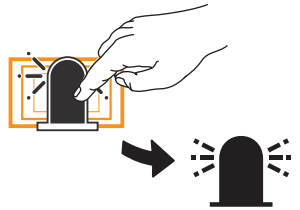


If the operator turns the switch OFF, the lights will be turned OFF automatically after 5 seconds.

Strobe Light Icon

There are two ways to turn ON/OFF the strobe light.

1. The strobe light is activated using the button.
Push the strobe light button to turn the light ON.
Push it again to turn the light OFF.
2. The strobe light is activated using the key switch. (when set in the menu)
By turning the key switch to the “ON” position, the strobe light is automatically activated.
By turning the key switch to the “OFF” position, the strobe light is deactivated.



Display Setup

Used to set options relevant to operation of the forklift truck.

A password is required, contact your dealer.

- Selecting operation hours and mileage
- Selecting display language (23 different languages)
- Setting vendor contact information marking
- Speed display ON/OFF

DISPLAY SETUP	
DISPLAY MODE	HOUR
LANGUAGE	ENG
DRIVER MONITOR	OFF
DRIVER ALARMLOG	OFF
DEALER INFORMATION	OFF

Hour Setup

Used to set operation hours and maintenance hours of the forklift truck. A password is required, contact your dealer.

- Setup path: Service Menu Mode, SETUP → HOUR SETUP

HOUR SETUP	
OPERATING HOUR	12345.6
KEY ON HOUR	12345.6
ENGINE HOUR	12345.6
MAINTENANCE TIME	500

(1) Operating hour

Operation hours are set based on the engine operation of the forklift truck.

(2) KEY ON hour

Setting key On hours of the forklift truck.

A password is required, contact your dealer.

(3) Setting total operation hours

NOTICE

Make use of Plus (+) buttons to increase the values. (Pressing the button for one seconds or longer rapidly increases the value.)

99999.9 is the max. value, and it is not allowed to change 99999.9 to 00000.0.

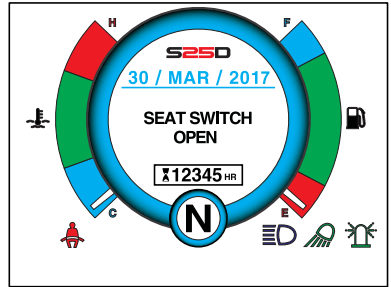


Seat Switch Open

Warning takes place when operator leaves the driver's seat.

Warning message is displayed, "Seat Icon" blinks, and the buzzer sounds.

Warning is removed when operator sits on the seat.

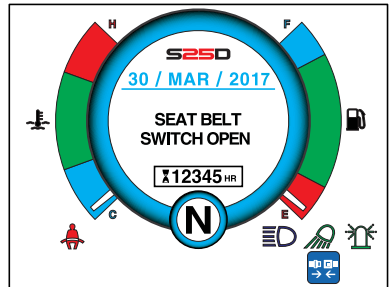


Seat Belt Switch Open (optional)

Warning takes place when operator releases the seat belt with the gear lever shifted out of the neutral position.

Warning message is displayed, "Seat Icon and Seat belt Icon" blink, and the buzzer sounds three times.

The warning is removed immediately when operator wears seat belt.

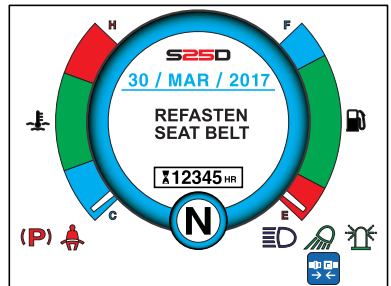


Refasten Seat Belt Smart Interlock (optional)

Warning message is displayed, "Seat Icon and Seat belt Icon" blink, and the buzzer sounds three times.

(1) When the smart interlock function is turned on;

1. The key switch is turned on. (KEY ON)
2. Operator sits on the seat. (Seat switch ON)



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Hour Meter

Starting the engine also starts the operating hour meter. Use the hour meter reading to perform prescribed maintenance.

Steering System

The steering handwheel operates a steering control valve that directs the oil flow to the steering cylinder connected to the steer axle. The steering control valve can also act as a pump to provide manual steering if the hydraulic pump stops.



Horn Button

The horn button is located in the center hub of the steering handwheel. Depressing the button will sound the horn.

- **Note** : Separate horn buttons may be available as options, on the lift lever and/or rear handle.

Brake Pedals

The left brake pedal (inching pedal) has two functions in order to improve handling and efficiency. While pressing the inching pedal the first part of its movement interrupts the power from the engine to the transmission. The level of disengagement is dependent on the movement of the pedal. The last part of the travel applies the brake system. In this way you are able to lift a load rapidly with full engine RPM while controlling slow driving speed with the inching pedal like a clutch. This is very useful in confined working spaces.

On ramps or inclines the right brake pedal only should be used. When using the inching pedal on slopes the lift truck could move backwards or forwards unintentionally.

Direction Control Lever

This lever is typically on the left side of the steering column. When changing the direction of travel, make sure that your lift truck has come to a complete stop before moving the lever to the other position.



CAUTION

If the truck will start with the direction control lever in either forward or reverse, there is a problem with the neutral start switch and it must be repaired.



Truck Data and Capacity Plate

1. Truck model number or registered name.
2. Truck serial number - An identification number assigned to this particular truck and should be used when requesting information or ordering service parts for this truck from your authorized CLARK dealer.

3. Attachment description (if any installed) - The user must see that the truck is marked to identify the attachment(s), including the weight of the truck/attachment combination and truck capacity with the attachment.
4. Capacity rating, load center, and lifting height data - Shows the maximum load capacity of this truck with relation to load centers and fork heights (see diagram on plate). Personal injury and damage to the truck can occur if these capacities are exceeded. **Do not exceed the maximum capacity specified.**
5. Truck weight - The weight of the truck without a load on the forks. This weight plus the weight of the load must be considered when operating on elevators, elevated floors, etc. to be sure they are safe.

CAUTION

When attachments are added or if the truck is modified, the capacity of the truck may be affected. Contact your authorized CLARK dealer for a new nameplate showing the revised capacity.

IMPORTANT

OSHA and international standards requires prior written approval from the manufacturer before any modifications affecting capacity or safety may be made.

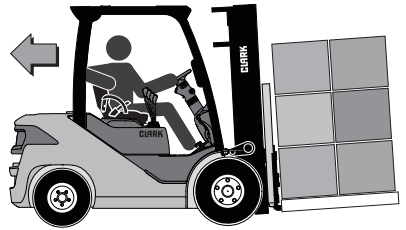
Operating Safely

IMPORTANT

Safe operation is the responsibility of the operator. Watch where you are going. Don't go if you can't see.

Before driving, check all around to be sure that your intended path of travel is clear of obstructions and pedestrians.

While driving, be alert for pedestrians, other vehicles or obstructions in your path of travel.



Watch people. Do not allow anyone to stand or pass under the load or raised forks. Watch for people in your work area even if your truck has warning lights or alarms. They may not watch for you.

Sound horn at intersections and wherever vision is obstructed. Do not drive a truck up to anyone standing in front of an object.

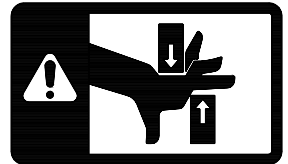
Protect yourself and those around you...

Operate the truck only from the designated operator's position. Stay within the confines of the lift truck profile dimensions. Keep arms, legs and hands inside the operator's compartment and away from the danger of passing obstructions. Keep under the overhead guard.

NOTICE

An overhead guard is intended to offer protection to the operator from falling objects, but cannot protect against every possible impact. Therefore, it should not be considered a substitute for good judgement and care in loading, handling, storage, etc..

Keep clear of the upright and lift mechanism. NEVER reach into or put hands, arms, legs or head into or through the upright structure or near the carriage or lift chains. Never put any part of your body between the upright and the truck. Don't use the upright as a ladder.



Operator Maintenance and Care

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NOTICE

The Occupational Safety and Health Act (OSHA) requires that truck users examine their trucks before each shift to be sure they are in safe working order. Defects when found shall be immediately reported and corrected. The truck shall be taken out of service until it has been restored to safe operating condition.



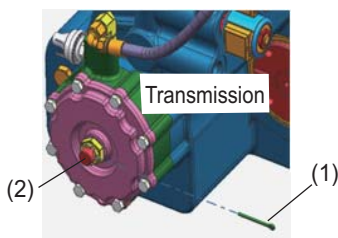
The parking brake automatically applies.

- **How to manually release the parking brake :**



Block the drive wheels before attempting to release the brake.

- Remove the floor plate.
- Prepare 27mm socket, socket wrench, and long-nose pliers.
- Check positions of nut(2) and cotter pin(1) of the parking brake assembled on the transmission.



- Make use of long-nose pliers to remove cotter pin(1) first.
- Turn the nut(2) clockwise by hand until it touches the cover.
- Rotate the nut(2) one turn further clockwise with 27mm socket wrench, the parking brake will be released.

- **Preparing the truck to return to service :**

- A trained forklift technician must reset the brake and prepare the truck to return to service. Refer to the Service Manual 23-6-3 page for details.

7. Transmission control is in neutral.

NOTICE

Department of Transportation approved towing equipment may be available from your CLARK dealer.

- Tow the disabled truck backward. **An operator must be on the towed truck.** Tow the truck slowly. Careful towing is necessary to prevent injury to personnel or damage to the truck. The truck should be towed at a speed of less than 5 kph (3 mph) with a driver in the seat. Do not lift the truck or any wheels off the floor or ground while the truck is being towed.

14. Fuel systems must be checked for leaks and condition of parts. Extra special consideration must be given in the case of a leak in the fuel system. Action must be taken to prevent the use of the truck until the leak has been corrected.
15. All hydraulic systems must be regularly inspected and maintained in conformance with good practice. Tilt and lift cylinders, valves, and other parts must be checked to assure that "drift" or leakage has not developed to the extent that it would create a hazard.
16. When working on the hydraulic system, be sure the engine is turned off, upright is in the fully-lowered position, and hydraulic pressure is relieved in hoses and tubing.



WARNING

Always put hardwood blocks under the carriage and upright rails when it is necessary to work with the upright in an elevated position.

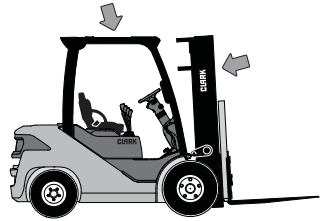
17. The truck manufacturer's capacity, operation, and maintenance instruction plates, tags, or decals must be maintained in legible condition.
18. Batteries, limit switches, protective devices, electrical conductors, and connections must be maintained in conformance with good practice. Special attention must be paid to the condition of electrical insulation.
19. To avoid injury to personnel or damage to the equipment, consult the manufacturer's procedures in replacing contacts on any battery connection.
20. Industrial trucks must be kept in a clean condition to minimize fire hazards and help in detection of loose or defective parts.
21. Modifications and additions that affect capacity and safe truck operation must not be done without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly.

Overhead Guard

Be sure that the driver's overhead guard and any safety devices are in place, undamaged, and attached securely.

Check the overhead guard for damage. Be sure that it is properly positioned and all mounting fasteners are in place and tight.

The overhead guard must not be modified from CLARK specification.



Load Handling Components

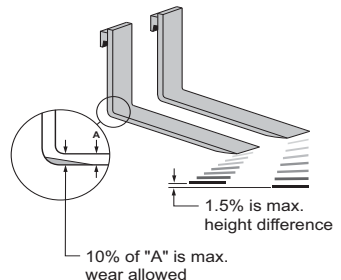
Inspect the upright assembly, load backrest (LBR), rails, carriage, rollers, lift chains, and lift and tilt cylinders. Look for obvious wear and maintenance problems and damaged or missing parts. Check for any loose parts or fittings. Check for leaks, damaged or loose rollers, and rail wear (metal flaking). Carefully check the lift chains for wear, rust, corrosion, cracked or broken links, stretching, etc. Check that the lift and carriage chains are correctly adjusted to have equal tension. Check that the lift chain anchor fasteners and locking means are in place and tight. Inspect all lift line hydraulic connections for leaks.

IMPORTANT

Uprights and lift chains require special attention and maintenance to remain in safe operating condition. Refer to "Lift Chain Maintenance" in this Section for additional information.

Forks

Inspect the load forks for cracks, breaks, bending, and wear. The fork top surfaces should be level and even with each other. The height difference between both fork tips should be no more than 1.5% of the blade length.



Engine Oil Performance Designation

: Refer to the “Engine Oil” in Section 8.

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 block the drive wheels. 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 filter elements at every oil change. Remove, clean, and reinstall the hydraulic and steer system suction line screens at time of fluid change. Check for leaks after installation of the filters. Also, check that the hydraulic line connections at the filter adapter are tightened correctly. The procedure for draining hydraulic sump tank is in your Service Manual.

Cooling System

Automotive type crossflow radiator.

Cooling system pressure (radiator cap): 88 kPa nominal, 12.8psi

Thermostat: Diesel, 82°C (180°F), fully open 95°C (200°F),
Gas/LPG 82°C (180°F), fully open 95°C (200°F)

Power Train (Transmission / Drive Axle)

- Gear Ratio
 - Pneumatic truck : 1.16
 - Cushion truck : 0.9818
 - Drive Axle : 14.2
 - Total :
 - Pneumatic truck : 16.472
 - Cushion truck : 13.942
- Torque Converter Stall Ratio : 3.3
- Differential : 4-Pinion
- Brake (Service / Parking) : Wet disk brake

Wheels and Tires

Drive S20-25	7.0x12-14PR.....	895kPa (130psi)
	7.0x12-14PR (MITCO).....	1000kPa (145psi)
S30	28x9x15-14PR.....	1000kPa (145psi)
	28x9x15-14PR (MITCO).....	1050kPa (152psi)
S30 Dual	7.0x12-14PR.....	895kPa (130psi)
	7.0x12-14PR (MITCO).....	1000kPa (145psi)
S35	250x15-18PR.....	965kPa (140psi)
	250x15-20PR (MITCO).....	1000kPa (145psi)
S35 Dual	28x9x15-14PR.....	1000kPa (145psi)
	28x9x15-14PR (MITCO).....	1050kPa (152psi)
S20-25C	21x7x15	
S30C	21x8x15	
S32C	21x9x15	

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