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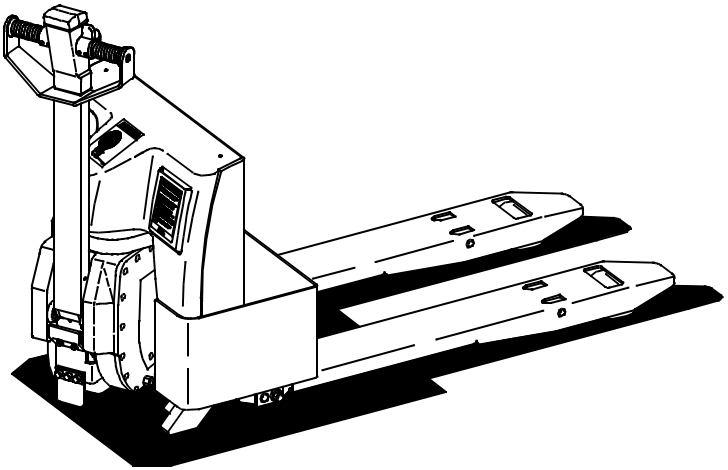
CLARK®

Operator's Manual

WP45

Electric Low Lift Pallet Truck



The operator must read and understand this manual before operating this truck.

⚠Warning Keep this **OPERATOR'S MANUAL** with unit at all times in place provided when not in use.

⚠Warning **DO NOT** operate this equipment unless all factory installed guards and shields are properly secured in place.

SM-698 Date: August 2002

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Clark Material Handling Company
2317 Alumni Park Plaza, Lexington, KY 40517
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Operator's warning

IMPORTANT NOTICE

This is the **"SAFETY ALERT SYMBOL"**. This symbol is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment. Please read these messages carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this truck.

Before operating truck:

1. The operator must be instructed on safe and correct use of this truck.

2. The operator must read and understand the **Operator's Manual** for this truck.

WARNING

BEFORE OPERATING TRUCK
STUDY OPERATOR'S MANUAL SAFETY MESSAGES.
READ ALL SAFETY DECALS ON TRUCK.
CLEAR THE AREA OF OTHER PERSONS.

LEARN AND PRACTICE USE OF CONTROLS BEFORE OPERATING.

IT IS YOUR RESPONSIBILITY TO UNDERSTAND AND FOLLOW MANUFACTURER'S INSTRUCTIONS ON TRUCK OPERATION AND TO OBSERVE PERTINENT LAWS AND REGULATIONS. OPERATOR MANUALS, PARTS MANUALS, AND SERVICE MANUALS MAY BE OBTAINED FROM YOUR CLARK DEALER.

Warning INJURY OR DEATH TO YOU OR OTHER PERSONNEL COULD OCCUR IF YOU DO NOT FOLLOW THESE INSTRUCTIONS AND MESSAGES.

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Foreword

It is important that you read and understand this Operator's Manual for your own safety and the safety of those who work with you!

Before you start to use this truck it is of extreme importance that you have **read** the contents of the entire Operator's Manual to be able to use the truck in a **safe** and **efficient** manner.

This Operator's Manual contains information on how you should use the truck and how to keep the truck in a safe condition by following daily service routines.

Only personnel that have been trained as a truck operator, for this type of truck, are permitted to use this truck.

It is your employer's responsibility to ensure that you have been trained to use your truck safely. Contact your supervisor if you feel uncertain about how to use this truck.

Always follow the warnings given in this Operator's Manual and on the truck to avoid accidents.

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Standard Compliance

This truck complies with the following standards and regulation in effect on the date the truck was manufactured:

- American Society of Mechanical Engineers (ASME) B56.1
- Underwriters Laboratory (UL) # 583
- Occupational Safety and Health Administration (OSHA) 29 C.F.R. Section 1910.178

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Warning symbols

Always follow the warnings given in this Operator's Manual and on the truck to avoid accidents from occurring.

Warning levels

Warning texts are given in four levels and provide information on the risks, describe the consequences, and instruct how to avoid accidents.

DANGER

Warns that an accident will occur if you do not follow the instructions.
The consequences are serious personal injury or possibly death, and/or extremely severe material damage.

WARNING

Warns that an accident can occur if the instructions are not followed.
The consequences are serious personal injury or possibly death, and/or severe material damage.

CAUTION

Warns that an accident can occur if the instructions are not followed.
The consequences are personal injury and/or material damage.

NOTE!

Marks the risk of a crash/breakdown if the instructions are not followed.

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Prohibitory symbols

NO SMOKING

If smoking occurs in situations where a restriction against smoking is stated, a serious accident can occur.

OPEN FLAMES PROHIBITED

If open flames are used in situations where open flames are prohibited, a serious accident can occur.

GENERAL PROHIBITION

If the prohibition is ignored, a serious accident can occur.

Ordinance symbols

SAFETY SHOES

When the directive for safety shoes is given, safety shoes shall always be worn to avoid personal injury.

PROTECTIVE GLASSES

When the directive for protective glasses is given, protective glasses shall always be worn to avoid personal injury.

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General safety regulations

Control

- Always carry out the daily service before the truck is used. The working order of all safety equipment, guards, and safety switches should be checked before you use the truck. Such safety equipment must not be disengaged or removed.

- The battery must be secured in its intended compartment. The battery shall have a weight that corresponds with the value stated on the truck's data plate.

- Read the nameplates. **Do not** operate the truck if there are any differences between the data stated on the nameplate and the truck.

- The truck must not be used if it is damaged or has faults that affect safety or its safe use. The truck may not be used if it has been repaired, modified, or adjusted unless it has been checked and approved by personnel authorized by **Clark Material Handling Co**.

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General safety regulations

Operating the truck

- The truck is designed and produced to be your tool when transporting goods to locations.

- If the truck is to be used in cold storage environments the truck must be especially built for this type of use.

- It is **not permitted** to use the truck for other purposes than it has been designed and produced for, for example the following applications:

  - In areas where the atmosphere contains gases that can cause fires or explosions.

  - As a towing truck for trailers.

  - To tow other trucks.

  - To transport/lift passengers.

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General safety regulations

Operator’s responsibility

- The truck shall only be driven by personnel that have been specially trained and that have permission to drive the truck.

- The truck shall only be driven with care, good judgement, and in a responsible manner.

- Each country (state) has its own safety regulations. It is the operator’s obligation to know and follow these. This also applies to local regulations and for different types of handling. If the recommendations in this manual deviate from your country’s, the local safety regulations should be followed.

- Any accidents or near accidents (incidents) must be reported to your supervisor.

- Local regulations regarding personal safety equipment shall be followed.

- The truck should not be driven with oily hands or oily shoes due to the risk of slipping.

- **DO NOT** place any part of body between moving and stationary objects.

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General safety regulations

Working area

- If there are marked truck routes these shall be used.
- The truck should only be driven on a dry, clean surface. **Do not** operate on wet, oily surfaces.
- The truck should only be driven on hard and even surfaces, for example concrete or asphalt.
- Ensure that the floor where the truck is to be used has sufficient load bearing capacity for **total weight** of the truck including the maximum load.
- Take special care if there are protruding parts from racks, shelves, or walls that can cause injury or damage the truck.
- It is forbidden for persons to be present in the area around the truck when there is a risk of personal injury, e.g. areas that can be reached by falling goods, lowering or falling lifting devices, or in the truck's maneuvering area.
- Grades, ramps, or inclines: This truck is designed for use on level floor operation. If it is necessary to operate on a grade, ramp, or incline on all grades, the truck shall be operated with load-engaging means downgrade.

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General safety regulations

Driving and conduct while driving

- Always drive the truck from the normal operator position.
- Always drive the truck in a responsible manner and with full control. Sudden starts and braking, as well as cornering at high speed, should be avoided.
- Drive at a reduced speed on inclines. Drive the truck straight up and down on inclines. It is **not** permitted to turn the truck on an incline.
- Reduce the speed if the surface is slippery to prevent the truck from sliding or overturning.
- Adapt your speed to the driving conditions, both to pedestrians and other trucks, in the working area. Reduce speed when the line of vision is limited and when pedestrians or other vehicles can be encountered.
- Pay particular attention to other personnel, as well as fixed and moving objects, within the working area and thereby avoid accidents.
- Always be prepared to stop if other personnel are in the working area.
- Keep a safe distance from all vehicles ahead.
- Always keep a safe distance from the edges of loading bays and loading ramps. Be attentive to marked risk areas.
- Sound the horn when overtaking other vehicles and when the attention of other personnel is required.
- Always give way to a loaded truck at junctions and in confined aisles.

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- **Never** allow passengers to ride on the truck.
- **Never** drive with any part of your body outside of the operator position.
- Before the truck is driven over a loading ramp ensure that the ramp is correctly secured and has the necessary load bearing capacity. Drive slowly and carefully across the ramp.
- When the truck is driven on to another vehicle make sure the vehicle is stable and that the brakes have been applied correctly and wheels chocked.
- Before you drive the truck into an elevator ensure that the elevator is approved for the total weight of the truck, the load, operator, and any other passengers in the elevator. Enter with the load first. No other personnel should be in the elevator when the load or truck enters or leaves.
- When the load impairs the line of vision, always drive with the load to the rear.
- **DO NOT** run over loose objects, uneven surfaces, or other obstructions on roadway surfaces.
- **DO NOT** smoke while working around truck.
- Look in the direction of travel and keep a clear view of the path of travel.
- Slow down and sound your horn at cross aisles and wherever vision is obstructed.

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General safety regulations

Handling loads

- Drive with care when collecting or leaving a load.
- Keep a safe distance from persons in the immediate area.
- Only handle loads that are within the truck's permitted lifting capacity.
- Only handle loads that are stable and arranged in a safe manner.
- Particular care should be exercised when handling long and high loads.
- Make sure that the truck is equipped with a suitable load support when handling high loads.
- Watch so that overhead obstructions such as lights, pipes, sprinkler systems, etc. are **NOT** contacted.
- The load shall **Only** be lifted vertically and **NEVER** dragged or pushed horizontally.

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General safety regulations

Parking the truck

- Always park in designated areas if available.
- **Never** leave the truck parked with the key still in the key switch.
- **Never** park the truck on an incline.
- **Never** park the truck so that it obstructs emergency exits.
- **Never** park the truck so that it obstructs traffic or work.

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General safety regulations

Handling the battery

- Always handle the battery and its connections with care. Read and follow the instructions for changing or recharging the battery carefully. See chapter **Battery**.

- Always wear protective glasses when working with the battery.

- Make sure the battery in the truck is of a weight that corresponds with the information on the truck’s data plate.

- Make sure the battery is secured in its compartment.

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General safety regulations

Maintenance and repair

Maintenance instructions should be followed to prevent faults and accidents. See the chapter covering **Maintenance**. Only qualified and trained personnel are permitted to maintain, adjust, or repair the truck.

All replacement parts shall be **CLARK** approved spare parts.

Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturer's prior written approval. Capacity, operation, and maintenance instruction plate, tags, or decals shall be changed accordingly.

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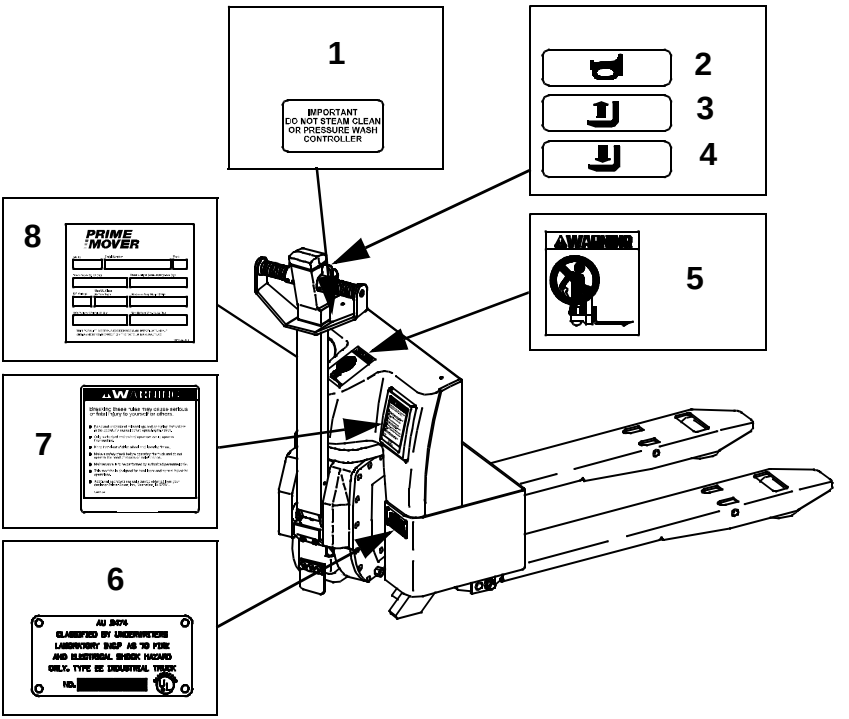
Warning and information decals

The figure shows the position and significance of the location of signs on the truck.

1. Warning decal: Do Not Steam Clean
2. Horn: Control handle Horn sign
3. Hydraulic control: Control handle Raising sign
4. Hydraulic control: Control handle Lowering sign
5. Warning decal: No Riding
6. U.L. listing
7. Warning decal
8. Truck data plate



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Warning and information decals

Warning decals

Clean or replace all safety and instruction decals that cannot be read.

When you clean decals use only a cloth, soap, and water. **DO NOT** use solvent, gasoline, etc.

You must replace a decal if the decal is damaged, missing, or cannot be read.

If a decal is on a part that is replaced, make sure you install a new decal on the new part. New warning decals can be obtained from your **CLARK Dealer**.

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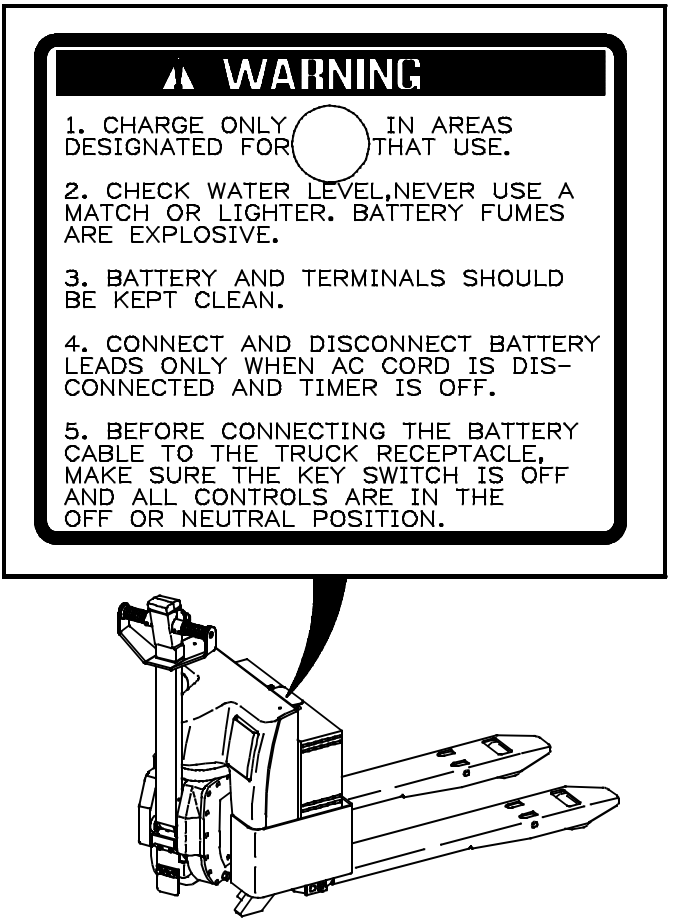
Warning and information signs

Battery Pack Warnings

The **Battery Pack Warnings** decal is located directly under the battery charger access door. This decal describes basic warnings for safe operation of charger and batteries. Carefully read the decal and make sure you understand the warning instructions.



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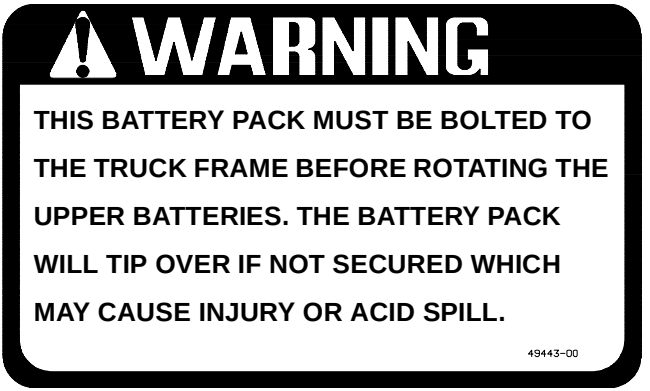
Battery Pack Warnings

This decal is located on the battery swing out tray to warn the service department that the battery pack must be mounted to the truck frame to avoid batteries from falling out or spilling battery acid.



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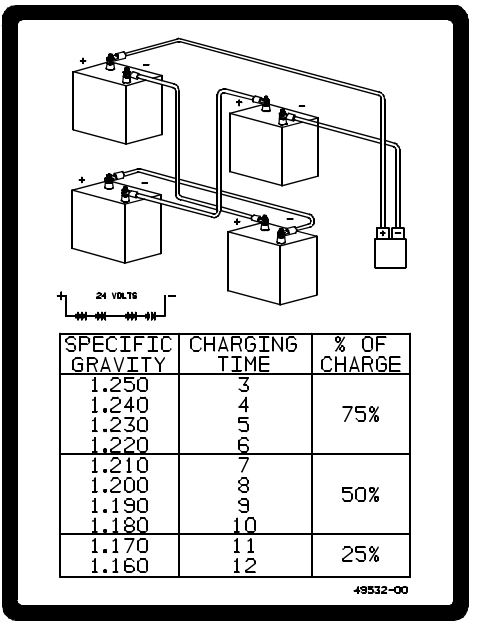
Battery Pack Instructions

The **Battery Pack Instruction** decal is located directly in front of the battery pack once the battery pack wrapper has been removed. This decal describes specific gravity, charging time, percentage of charge, and a cable routing when needed. Only one of the decals are on a unit. Carefully read the decal and make sure you understand the tables and charts of instructions.

Knowing the information and specifications of the battery will help your Dealer service technician to make repairs much faster.

For further information and specifications on the battery review the section on battery at the end of this manual.

If you are in need of further information about battery pack/ charger or any other part of this unit, contact your **CLARK Dealer.**



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Presentation of truck

CLARK's truck program is intended for handling pallets indoors. The **WP45** trucks are operated by a walking operator. This **CLARK** truck has available different fork lengths and lifting capacities. Refer to the truck's data plate for this information.

The maximum lifting capacity on **WP45** is 4500 lb [2043 kg].

Refer to the truck's data plate for this information on lifting capacities.

The **WP45** trucks are equipped with a 24 volt electrical system. The travel speeds are regulated by means of a transistor controller to provide gentle control of acceleration and speed while operating.

The forks are raised by means of a hydraulic pump unit. Both raising and lowering are done electrically with separate push buttons on the control handle.

The truck can be fitted with different accessories including an battery pack with built-in battery charger, an hourmeter/battery discharge indicator, an hourmeter/battery discharge indicator with lift cutout, and a package guard on the backrest. The truck can also be fitted with plated axles and low temperature oil for use in cool and humid conditions.

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Application area for CLARK trucks

CLARK trucks are solely designed and manufactured to handle goods. The truck should be fitted with the appropriate accessories relevant to the application.

Prohibited applications for CLARK trucks.

The trucks are designed for handling goods indoors. It is not permitted to use the trucks for other purposes including the following:

- **Do not** use in areas that contain gases which can cause fires or explosions
- **Do not** use as a towing truck for trailers
- **Do not** use to tow other trucks
- **Do not** use to transport/lift passengers
- **Do not** use to drive on gravel or grass

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Truck data

The table provides information regarding some technical data which is of value with daily use of the truck.

Truck type	WP45
Voltage	24
Operating speed without load	3.7 mph [5.9 km/h]
Operating speed with classified load	3.3 mph [5.3 km/h]
Maximum operating gradient with load, %	0
Continuous noise level. dB (A)	<80

The truck's lifting capacity and weight can be found on the truck's data plate.

Truck battery dimensions

Truck battery dimensions
Important Use only batteries that meet the following specifications: Compartment Size: Minimum Maximum Deep 7.6 in. [193 mm] 8.1 in. [206 mm] Wide 27.7 in. [704 mm] 28.2 in. [716 mm] Battery Weight (Consult Data plate on truck) For smaller industrial battery sizes, provide blocking to restrain the battery from moving not more than 0.5 in. [12.7 mm] in any horizontal direction.

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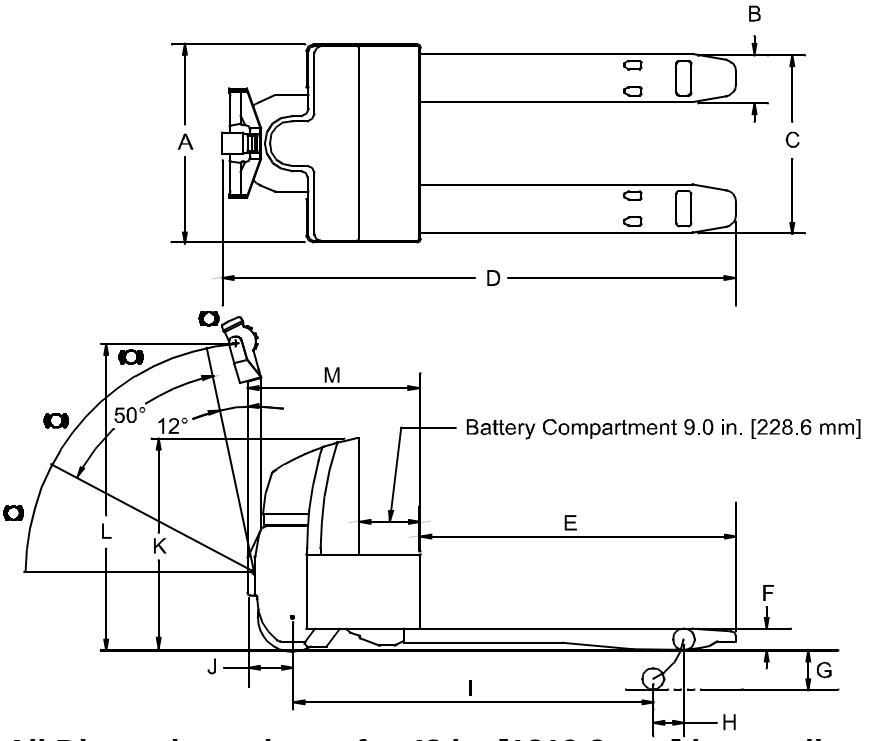
WP45 truck dimensions

The following diagrams show external dimensions for the WP45 trucks in its standard design.



All Dimensions shown for 48 in. [1219.2 mm] long pallet

A	30 in. [762 mm]	H	4 in. [101.6 mm]
B	7.3 in. [185.4 mm]	I	55.1 in. [1399.5 mm]
C	27 in. [685.8 mm]	J	6.7 in. [170.18 mm]
D	78 in. [1981.2 mm]	K	33 in. [838.2 mm]
E	48 in. [1219.2 mm]	L	46.5 in. [1181.1 mm]
F	3.25 in. [82.55 mm]	M	26.3 in. [668.02 mm]
G	6 in. [152.4 mm]		

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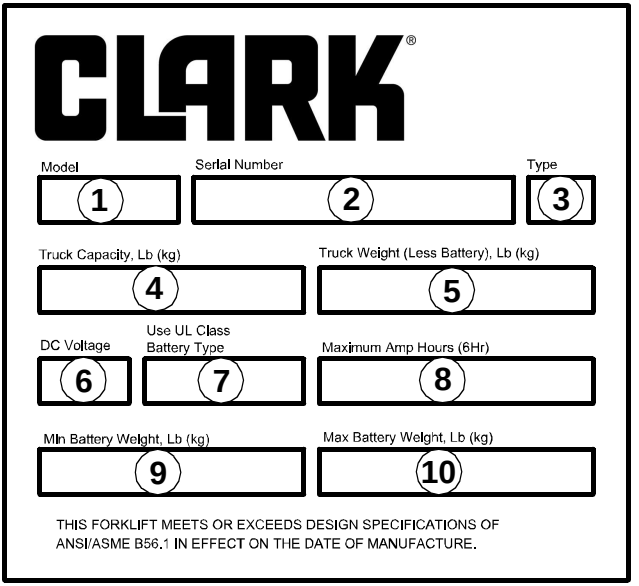
Data plate

Know the rated capacity on the data plate and understand areas 1 through 10 as shown in the illustration.

1.Truck model number
2.Truck serial number
3.Truck type
4.Truck capacity
5.Truck weight
6. Truck voltage
7. Use UL Class Battery type
8. Battery maximum AMP hours
9. Minimum battery weight
10. Maximum battery weight



This data plate is located on the left side of dash panel. Knowing the model and serial numbers for this unit are very helpful when ordering repair parts. For further information and specifications on this unit or any other, contact your local **Clark dealer.**

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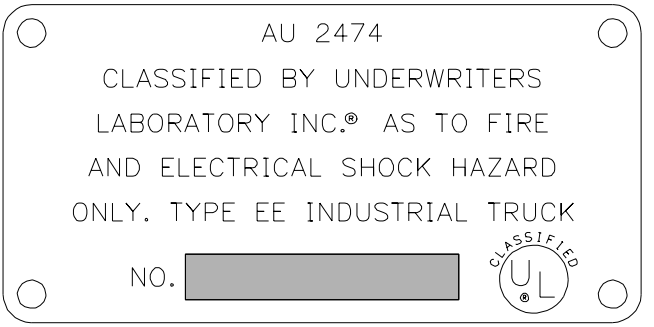
U.L. construction type

Know the U.L. construction type of this truck and make certain that trucks of this type may be operated in restricted areas before you enter. Never take an unauthorized truck in restricted or hazardous areas.



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Presentation of main components

1. **Reverser switch**
   The end of the control handle is equipped with a red automatic reversing switch which causes the truck to travel in the rearward direction when activated
2. **Travel speed / direction selection**
   To select direction rotate in the direction you wish to move. The further in that direction you rotate the faster you move.
3. **Fork lower switch**
   The forks will lower when switch is pressed or until lower stops are reached.
4. **Fork raise switch**
   The forks will raise when switch is pressed or until lift stops are reached.
5. **Horn switch**
   The horn sounds to warn others of your position.
6. **Battery**
   24 volt with different capacities and weights.
7. **Load wheel**
   Lubricated load wheels to prevent wheels from locking up.
8. **Drive unit with brake**
   Fixed drive unit with a spring applied brake, drive motor, gear box and drive wheel combined into a compact unit. The steering bearings are at the top of the drive unit.
9. **Electric panel**
   24 volt electrical system. Vehicle speed is regulated by means of a transistor controller.
10. **Circuit breaker**
    15A, Control circuit breaker part number 25275-06.
    80A, Power circuit breaker part number 301890-002.
11. **Cover**
    Removable to provide good accessibility when servicing.

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12. Steering pivot point
Lubricate pivot point to prevent stiff steering.

13. Hydraulic unit
Pump motor, pump, electric valves and oil tank integrated in a compact unit.

14. Hydraulic electric solenoid valve
For controlling lifting and lowering function with electric solenoid valve.

15. Steering control handle
The truck is to be controlled by the operator with 180 degree steering angle.
The brake is applied in the upper and lower position of the steering control handle.

16. Key switch (toggle switch)
Shuts off electrical power to control system.

17. Gauge
Combined hourmeter/battery indicator, hourmeter/battery indicator with lift cutout, or hourmeter only.

18. Master control on/off switch
This stop switch will stop all control functions.

19. Emergency battery disconnect
Pulling the battery connector will shut off all electrical power to the truck.

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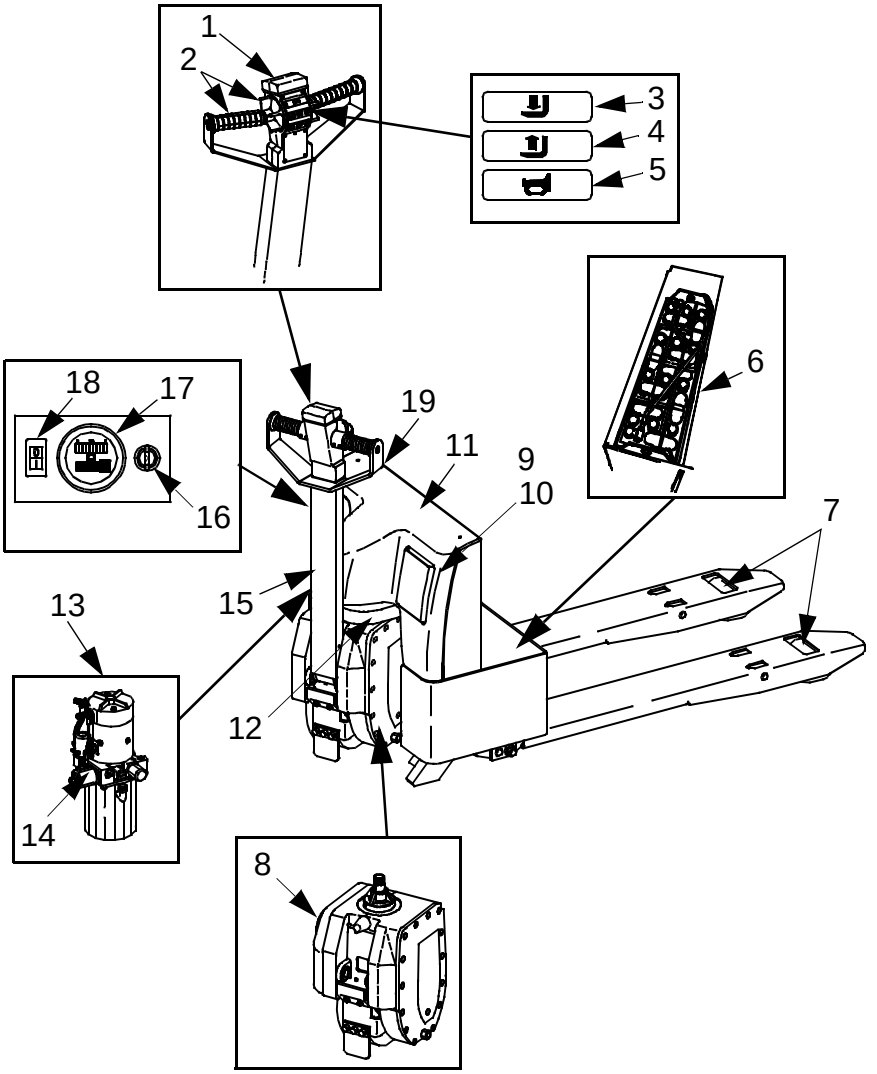
Presentation of main components



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Controls and instruments

Guards and shields have been provided on the truck for your protection.

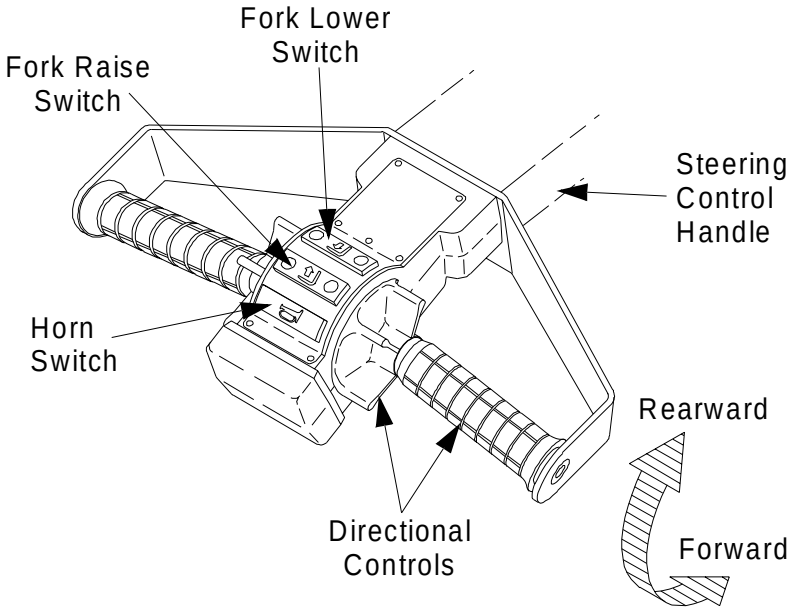
> **Warning** **DO NOT** operate this truck unless all factory installed guards and shields are properly secured in place.

Decals are also provided to warn of potential danger as well as to display special operating procedures.

> **Warning** Read and observe all warnings on this unit before operating it.

Control handle

The control handle is used to provide hand brake, direction, speed, and horn on this truck.



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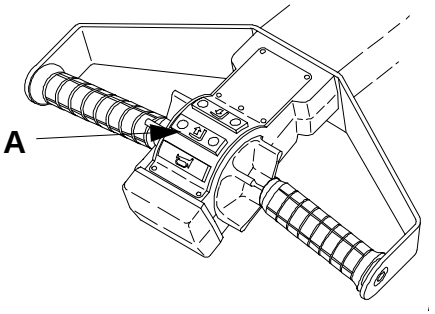
Control for raising the forks

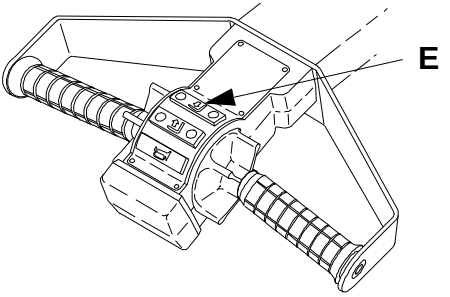


The control button activates a micro switch to start the pump motor with lifting.

The diagram illustrates the controls as seen from the operator's position. Lift the forks by pressing 'A'.

NOTE! The forks cannot be raised with the key switch in Off position.

Control for lowering the forks



Lower the forks by pressing 'E'. The lowering speed of the forks is controlled by a flow control valve.

NOTE! The forks cannot be lowered with the key switch in Off position.

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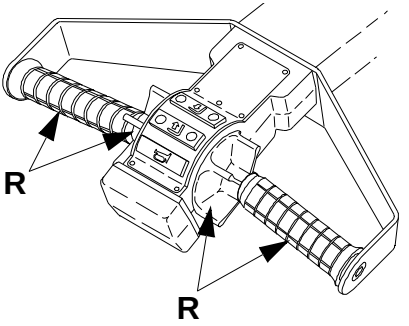
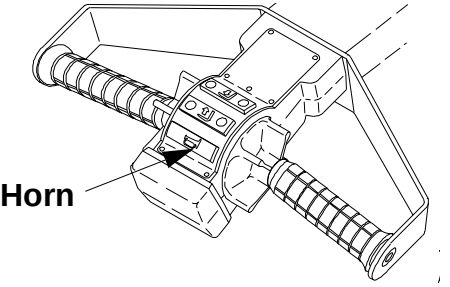
Travel direction selector and speed control



Select the travel direction by rotating ‘R’ in the required direction. The speed is controlled variably based on the position of the lever.

This truck is equipped with a thumb control and optional picking knob for speed and direction control. Rotating control in the forward or rearward direction will select that direction of travel. The truck speed will progressively increase as the control is rotated. Reversing the control can be used to quickly decrease speed or brake the truck.

Horn



The horn sounds as long as the button is pressed.

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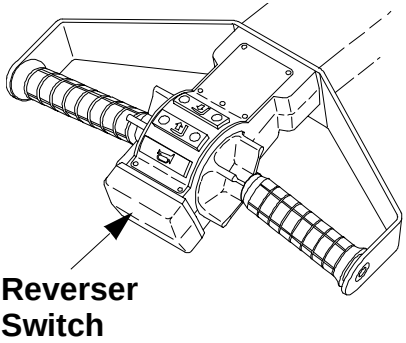
Reverser switch



The end of the control handle is equipped with a red automatic reversing switch which causes the truck to travel in the rearward direction when activated. Its function is to prevent the operator from being pinched between the handle and obstruction when traveling in the forward direction.

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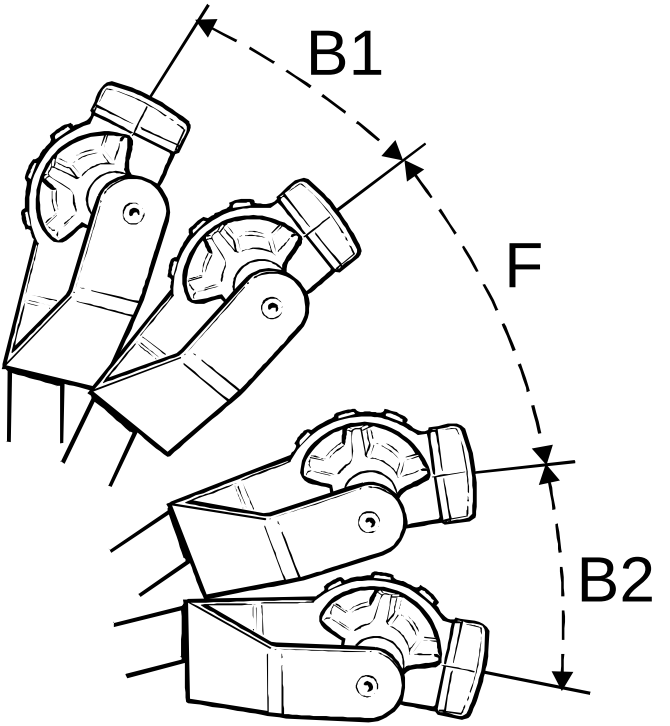
Steering control handle/brake control



Operate the truck with the steering control handle in the center range, F.

The brake is activated mechanically by the steering control handle/brake control. The brake is applied in two ranges, B1 and B2.

Parking brake (B1):

The arm automatically returns to position B1 when released.

Travel brake (B2):

Apply the brake by pushing the steering control handle downwards.

The brake function should always be checked before using this unit.

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Braking using plugging function

- The truck is equipped with plug braking. This method involves reversing the travel control to the opposite direction **without** applying the brake causing the truck to decelerate smoothly. The operator may choose to continue holding the controls in the opposite direction. This will start the truck moving in that direction or the operator may release the handle and allow the truck to come to a complete halt. Releasing the steering control handle will allow the parking brake to become automatically applied.

THE CONTROL HANDLE MUST NOT BE PLACED IN THE BRAKE POSITION DURING THE PLUG BRAKING OPERATION.

- When using plug braking the operator may regulate, within the programmed capabilities, the severity of the **plugging** force and distance travelled during plugging. For the lightest **plugging** force, and the longest distance, the travel control should be operated only to the **creep** position in the opposite direction. For the strongest **plugging** power, and the shortest distance, the travel control should be operated to full speed in the opposite direction. Plug braking may be regulated with the control handle at any point between the **creep** position and full speed.

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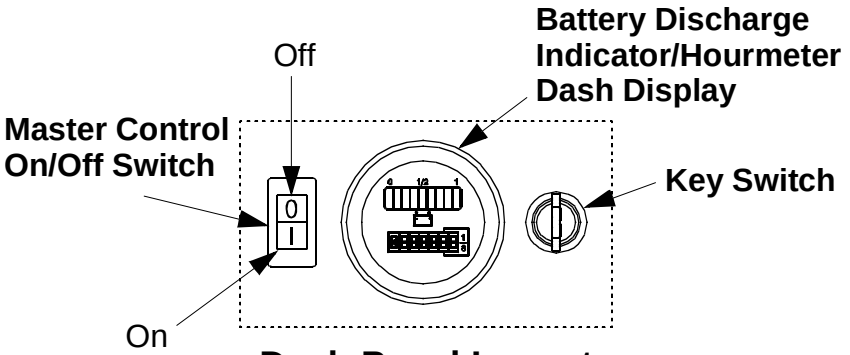

Dash Panel Layout

Key switch

A **key switch** is provided to prevent unauthorized use of this unit. The key switch is located on the control panel cover.

The key switch has two (2) positions: **OFF and ON**.

1. **Off Position:** Turning the key to **"OFF"** will stop all electrical power from going to the control circuit from the battery.

2. **On Position:** Turn the key to **"ON"** to check function of the hourmeter and battery discharge indicator. The key switch must be in this position to provide power to the control circuit when unit is operated.

Master control on/off switch

The master control on/off switch will cut off electrical power to the control functions on the truck when pushed. To reset switch turn key switch to **OFF** position, repair, push switch on. The master control on/off switch is physically located on the opposite side of the dash from the key switch.

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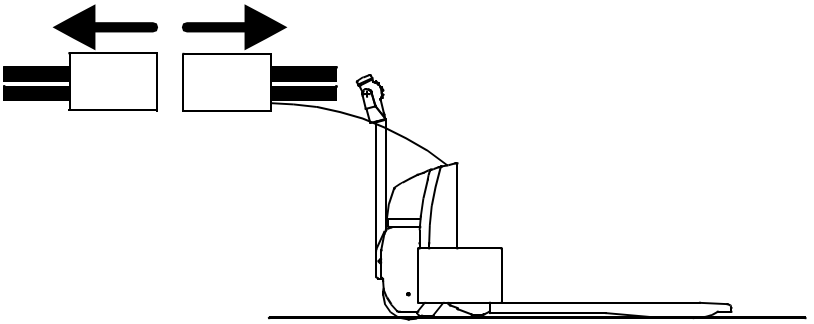
Emergency battery disconnect

In an emergency, first push the master control on/off switch to **OFF** this will disable all controls under normal circumstances. Then disconnect the battery connector, this will cut all electrical power to the truck. Preform all repairs before using and reconnecting battery after emergency.



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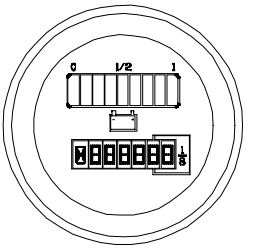
BDI/hourmeter with lift interrupt

1 Fully-charged battery

1/2 Half-charged battery

0 Discharged battery

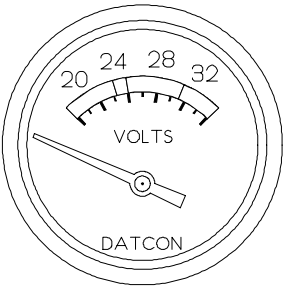


The battery indicator shows the actual charge level of the truck's battery.

The battery indicator has an integrated lift interrupt that disables the truck's lift function when a preset discharge level is reached. This prevents damage to the battery and increases the running economy of the truck. When the battery has reached a charge level equivalent to 70 percent discharge a warning signal is given by a flashing light. A further 10 percent of the battery's capacity can be used before the battery indicator interrupts the lifting function.

The hourmeter displays the time the drive motor is operating.

Battery discharge indicator (BDI)



The battery discharge indicator **(BDI)** is used to indicate the degree the battery has been drained of charge. The **BDI** is to be read when unit is at rest with the key switch **"ON"** and with **NO** motors running.

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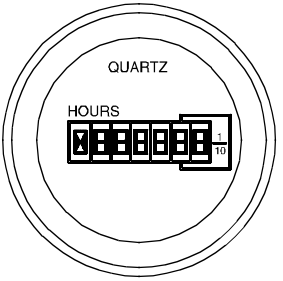
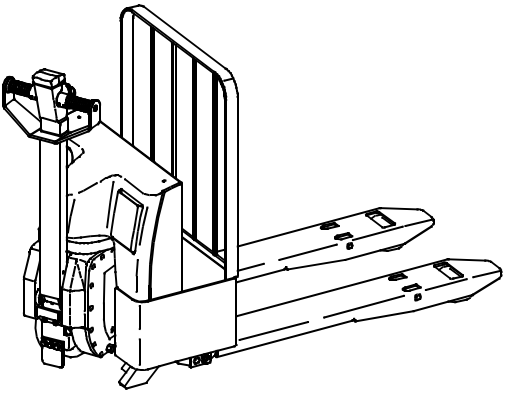
Hourmeter



The hourmeter displays the time the drive motor and/or the pump motor are operating.

Load backrest (optional)

This device is intended to be used whenever handling high loads.



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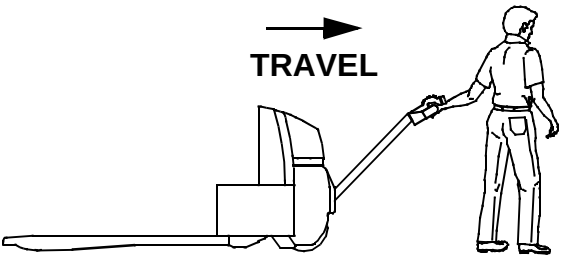
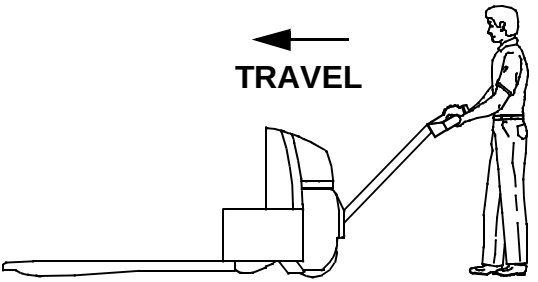
Driving

There are certain hazards that cannot be avoided solely by mechanical means in the everyday use of material handling trucks. Only the intelligence, good sense and care of the operator, along with proper maintenance, will assure trucks are operated properly. It is important to have trained, reliable personnel operating trucks. If at any time the operator finds that the unit is not performing properly, discontinue operation of the truck and report the condition to his supervisor for correction.

The proper operator position for this truck is shown and described below.



Proper operation of this unit is with forks trailing when possible. Steering the truck is easier with the forks trailing. Always look in the direction of travel.



When forks are first to enter a confined area or elevator or on an incline, keep both hands on the control handle. Keep both hands within the handle guard and always look in the direction of travel.

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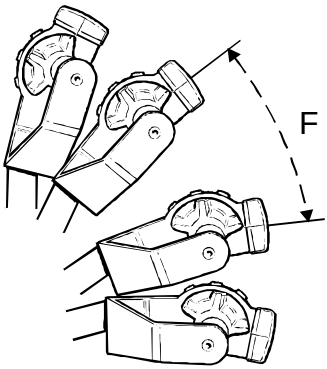
Starting the Truck

- Ensure battery connector is connected to truck.
- Master control on/off switch is in the on position. Turn key switch to position I. The instrument lighting comes on.
- Make sure battery indicator indicates a sufficient charge level (1/2 - 1) to operate truck.

NOTE!
Low charge level.
Prolonged operation with a low battery charge level can result in damage to the battery.
Do not drive without first recharging battery.



- Move the control handle to the drive position (F). The parking brake is released when the control handle is moved to the drive position (F).
- Move the travel direction selector/speed control in the desired direction.

⚠Warning Function failure.
Safety can be jeopardized.
Always check the following safety functions before starting the day's work.

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- Horn functions correctly.
- Steering functions correctly.
- Brakes function correctly.

• Start gently by accelerating slowly until the desired speed is reached.

Warning	Dangerous driving. Accidents can occur. Always drive with care, good judgement and responsibility as set out in the general safety guidelines.

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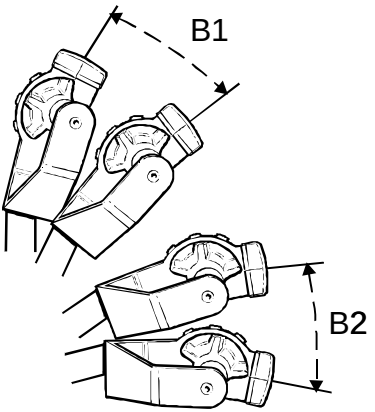
Braking



- Brake by moving the arm to the B2 position will apply the travel brake. Release of the tiller arm automatically returns it to the parking brake position (B1).

- The truck is equipped with plug braking. This method involves reversing the travel control to the opposite direction **without** applying the brake causing the truck to decelerate smoothly. The operator may choose to continue holding the controls in the opposite direction. This will start the truck moving in that direction or the operator may release the handle and allow the truck to come to a complete halt. Releasing the steering control handle will allow the parking brake to become automatically applied.

THE CONTROL HANDLE MUST NOT BE PLACED IN THE BRAKE POSITION DURING THE PLUG BRAKING OPERATION.

- When using plug braking the operator may regulate, within the programmed capabilities, the severity of the **plugging** force and distance travelled during plugging. For the lightest **plugging** force, and longest distance, the travel control should be operated only to the **creep** position in the

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opposite direction. For the strongest **plugging** power, and shortest distance, the travel control should be operated to full speed in the opposite direction. Plug braking may be regulated with the control handle at any point between the **creep** position and full speed.

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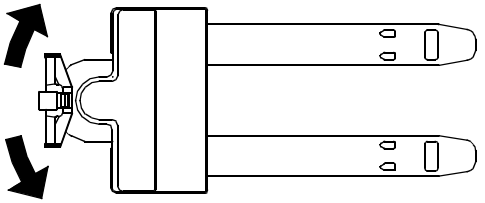
Steering



- Steer by means of the control handle.

- If the truck gets caught against an obstacle do not use more force to steer than used when steering the truck under normal conditions. When this occurs try to free the truck by carefully driving forwards and backwards and at the same time carefully moving the control handle.

Warning Risk of slipping.
If hands or shoes are oily there is a risk of slipping causing loss of control of truck. Always dry hands and shoes before driving.

Parking the Truck

- Stop truck and disengage travel direction selector.

- Release steering control handle. The handle will automatically return to the parking brake position and brakes are applied.

- Turn key switch to the Off position.

Warning Unauthorized use.
Accidents can occur.
Always remove key from key switch when truck is left unattended.

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Transporting loads

General

The weight of the load should be within the truck's permitted lifting capacity. See the truck's data plate.

⚠Warning	**Risk of overturning.** **The lifting capacity is reduced if additional equipment is attached to the truck.** **Always check the truck's overall lifting capacity.**

- Only handle loads that are stable and arranged safely. Take particular care when handling high and long loads.
- Make sure that the truck is equipped with a suitable load support when handling high loads.
- Always drive with the forks fully lowered except when collecting or leaving a load.

⚠Warning	**Lost stability.** **High loads can fall when cornering at high speed or cause tipover.** **Drive slowly and carefully when cornering and travel with loads in lowered position.**

⚠Warning	**Protruding loads.** **The load can collide with personnel, fixed or moving objects.** **A truck with a protruding load requires more room when cornering.**

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NOTE!
Increased machine width.
The load can collide with fixed objects.
A truck with wide loads requires a greater operating area.

- Drive the truck with the load trailing when the load impairs the line of vision.

- If necessary, when the operator's vision is impaired, ask someone to direct operations so that transportation can take place without the risk of causing personal injury or material damage.

- **DO NOT** use the truck on grades, ramps, or inclines.

- Before the truck is driven into an elevator ensure that the elevator is approved for the overall load (the truck's weight and the load). Enter with the load first. **DO NOT** permit other personnel to be in the elevator while entering or leaving.

Warning	**Risk of overturning.** **A loaded truck can overturn when attempting to turn on an incline.** **Never turn a loaded truck on an incline.**

Warning	**Increased braking distance.** **The braking distance is increased when traveling grade.** **Drive at a reduced speed, using the truck's motor brake.**

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Transporting loads

Warning **Risk of overloading the elevator.**
An overloaded elevator can fall out of control down the elevator shaft.
Always check the capacity of the elevator before driving in with the truck.

- Before you drive the truck over a loading ramp ensure that the ramp is correctly secured and that it has the necessary load bearing capacity. The truck should be driven slowly and carefully across the ramp and at a safe distance from the edges.

Warning **Risk of tipping.**
The truck can tip over.
Always check the ramp's load bearing capacity and that it is secured correctly. Drive at a safe distance from the edges.

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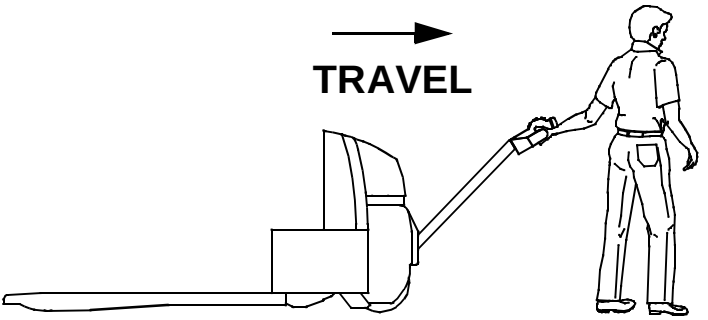
Collecting a load

- Slow down and position the truck carefully in front of the load.
- Lower the forks to the fully down position.
- Drive the truck rearward so that the forks are positioned in the center and as far as possible under the load.
- Lift the forks so that the load is lifted free of the floor.
- Drive carefully away. Start slowly and then increase the speed.



Caution Lost stability.
Lifting a loaded pallet when truck is still moving can result in load falling off the pallet.
Never lift a load if truck is moving.

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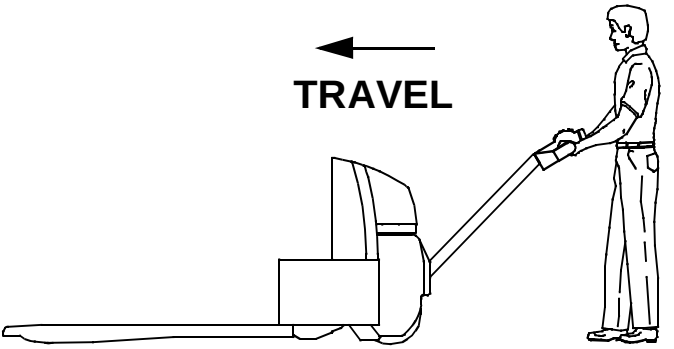
Leaving a load

- Slow down and position truck carefully where load is to be left.
- Lower the forks to the fully down position so that they clear the load.
- Drive carefully away from the load. Start slowly and then increase the speed.



Caution Lost stability.
Lifting a loaded pallet when truck is still moving can result in load falling off the pallet.
Never lift a load if truck is moving.

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Battery

Type of battery

- Check that the battery used in this truck is the correct voltage as shown on the truck's data plate. Use a traction battery having a weight within the minimum/maximum values stated on the data plate.

Changing the battery

- Only replace the battery with a battery of the same weight as the original. The battery weight affects the truck's stability and its braking capacity. Information on the lowest permitted battery weight can be found on the truck's data plate.

Warning	Risk of moving the center of gravity. A battery weight that is too low gives impaired stability and braking capacity. The battery weight must be in accordance with the information on the truck's data plate.

When changing the battery proceed as follows:

- Park truck at battery removal station.
- Turn **OFF** key and remove.
- Push the master control on/off switch to the **OFF** position to stop hourmeter from running.
- Disconnect the battery connector from the battery.
- Remove battery stops.

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- Slide out the discharged/old battery, then slide in the new battery.
- Connect battery and truck connectors.
- Connect the battery connector and truck connector.

NOTE!
Risk of short-circuiting.
The cables can be damaged and cause a short-circuit.
Ensure the battery cables are not crushed.

- Push the master control on/off switch to the **ON** position.
- Install battery stops.

Warning
Falling battery.
If the truck should tip over the battery can fall out if the battery stops have not been installed.
Make sure the battery stops have been installed.

Warning
Falling battery.
When charging the battery, it can be dropped.
Always lift battery using an approved lifting device, and use a battery yoke intended for the battery.

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Charging the battery

General prohibition

When recharging the battery it is absolutely forbidden to smoke or use an open flame.

Use an automatic charger intended for recharging traction batteries.

The charger must have an automatic maintenance charging feature for a certain period after the main charging period has been completed. This eliminates the risk of over charging the battery and the need to monitor the charging procedure is reduced to a minimum.

The charger shall have a minimum charging current of:

Battery (Ah)	Charger (A)
300-480	50-70
480-730	80-110
730-900	130-150

⚠Warning **Corrosive acid.**
The battery fluid contains sulfuric acid. Fluid spilled on skin should be rinsed OFF immediately. Wash thoroughly with soap and water.
If the fluid has come into contact with the eyes, wash the eyes immediately using an eye shower. Contact a doctor.

ALWAYS WEAR PROTECTIVE GLASSES AND PROTECTIVE GLOVES WHEN CHECKING THE BATTERY.

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Pre-charging

- Park the truck in the assigned charging area.
- Ensure nothing prevents ventilation above the battery.
- Turn key switch to the **OFF** position.
- Remove the battery connector from the truck's connector.
- Make sure the battery charger is switched **OFF**.
- Connect the **battery connector to charger** connector.
- **Never** connect charger connector to truck connector.
- Switch **ON** the battery charger.

⚠ Warning	**During the charging process oxygen and hydrogen gases are always formed in the battery.** **Short circuits, open flames, and sparks in the vicinity of the battery can cause an EXPLOSION.** **Always switch OFF the charger current BEFORE removing the battery connector.** **Provide good ventilation, especially if the battery is recharged in a confined area.**

During charging

- After approximately ten minutes make sure that the ammeter indicates a normal reading and that the control lamp is **ON**.

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After charging

- Make sure that the ammeter indicates an insignificant or no reading and that maintenance charge lamp is **ON**, if equipped.

- Switch **OFF** the charger.

- Disconnect the battery connector from charger connector.

NOTE!
Risk of short circuiting.
The terminals can otherwise be damaged inside and result in a subsequent short circuit.
Do not pull the cables to disconnect from the charger.

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Battery maintenance

Carry out battery maintenance after recharging.

Warning **Corrosive acid.**
The battery fluid contains sulfuric acid. Fluid spilled on skin should be rinsed OFF immediately. Wash thoroughly with soap and water.
If the fluid has come into contact with the eyes, wash the eyes immediately using an eye shower. Contact a doctor.

ALWAYS WEAR PROTECTIVE GLASSES AND PROTECTIVE GLOVES WHEN CHECKING THE BATTERY.

Each week:

- Remove all cell caps.

NOTE! This does not apply to batteries with level caps or central filling.

- Check the fluid level in the cells and note any cells that consume more than a normal amount of fluid.
- Fill using distilled water. The fluid level should be 1/4 in. [10-15 mm] above the cell plates.
- Refit all of the cell caps.
- Rinse off and dry the battery.

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Each month:

- Measure the temperature in one of the center cells immediately after charging. The temperature should not exceed 122°F [50°C.]

- Measure the density of the battery fluid using an acid tester. Hold the acid tester absolutely vertical and extract sufficient fluid so that the hydrometer float moves freely.

- Adjust specific gravity with temperatures based on the chart below.

Temperature	Gravity
77°F [25.2°C]	1.280

Warning Battery manufactures maintenance and charging procedures must be followed. Battery acid is very corrosive and must be immediately cleaned up after spillage.

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Daily service/safety checks

- The operator is responsible for the daily service and care of the truck.
- Carry out the daily service at the start of the day or shift, before the truck is used. The daily service is a simple safety and function control as shown in the chart.
- You need no tools to carry out the service checks.
- If you fail to carry out the daily service the safety and reliability of the truck can be affected.

Warning **Never neglect the daily service and safety checks. Serious accidents can occur. Always report any faults or damage to your supervisor without delay. Never use a truck that does not function properly.**

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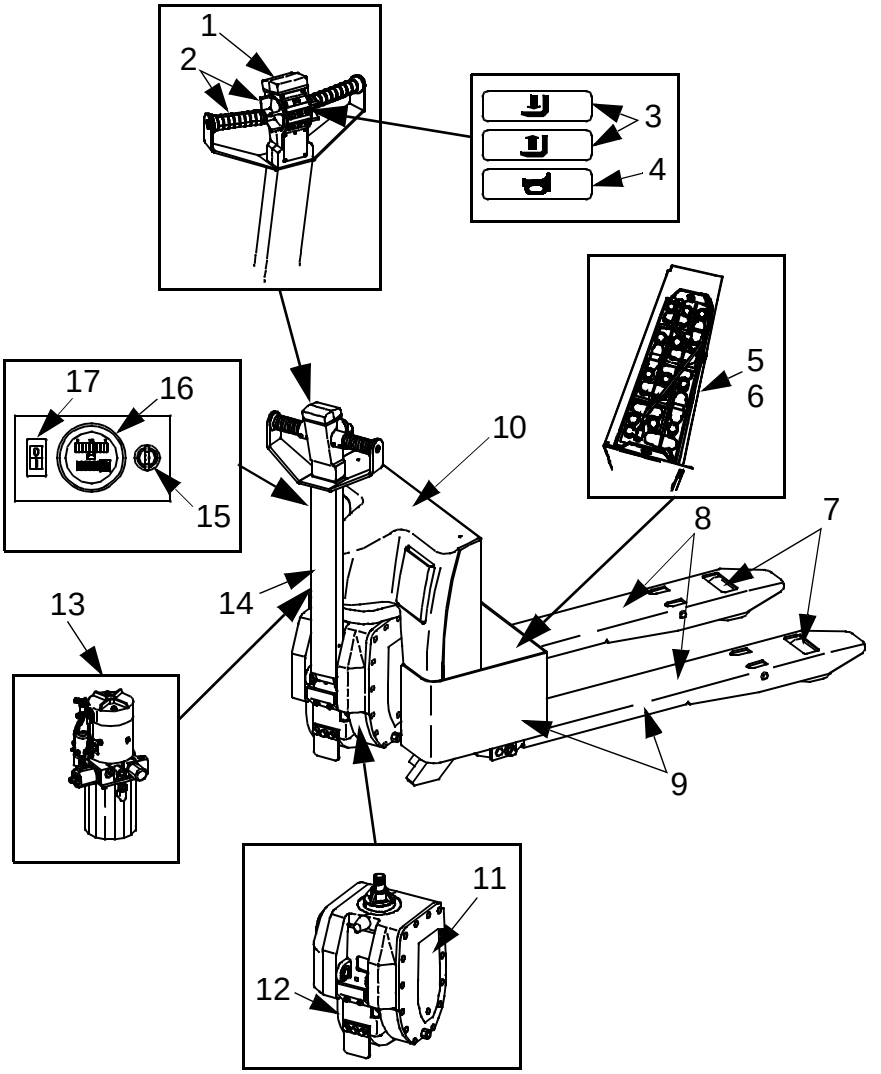
Daily service/safety checks drawing



Warning **DO NOT continue to operate the truck when it is not functioning properly.**

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Daily service/safety checks

Item #	Check points	Action
1	Reverser switch	Check its function
2	Direction / speed control	Check its function
3	Hydraulic function	Check its function
4	Horn	Check its function
5	Battery	Check acid level, charge, and condition. See **"Battery Maintenance"** section
6	Battery cables and connections	Check for breakage, cutting, or damage
7	Load wheels	Check for damage, remove oil, metal chips, and debris
8	Lifting device	Check for damage, noise function
9	Chassis	Check for damage, remove dirt and debris
10	Covers / guards	Check for damage, ensure placement
11	Drive unit	Inspect abnormal noises and leakage
12	Drive wheel	Check for damage, remove oil, metal chips, and debris
13	Hydraulic system	Check for oil leakage, hoses, and floor
14	Hand brake	Check its function
15	Key switch (toggle switch)	Check its function
16	Running time	Inform your supervisor if your truck is ready for a schedule maintenance check. See **"Maintenance"** section
17	Master control on/off switch	Check its function

If any of the functions fail to operate properly, inform your supervisor or maintenance personnel to have the truck repaired.

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Special equipment

Your truck may have been fitted with optional or special equipment that requires a routine check. To ensure safe operation consult with your supervisor and your **CLARK** dealer representative about routine checks.

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Maintenance

General information

- Under normal conditions ensure the truck is given a regular maintenance service (see Maintenance chart on pg70). The truck's safety, efficiency, and service life is dependent on the service and maintenance it is given.

- Only use **genuine CLARK** approved spare parts when service and repair work are carried out.

- **CLARK** recommends that you contact your **local CLARK dealer** representative to set up a service and maintenance agreement to ensure your truck's operating economy and safety.

Safety regulations with maintenance work

- Only personnel that have been trained in the service and repair of this type of truck are authorized to carry out service and repair work.

- Do not carry out any maintenance work on the truck unless you have the correct training and knowledge to do so.

- Keep the area where you carry out service clean. Oil or water makes the floor slippery.

- Never wear loose objects or jewelry when working on the truck.

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Warning Short-circuiting/burns.
When working with the truck's electrical system short circuiting/burns can occur if a metal object comes into contact with live electrical connections.
Remove watches, rings, or other types of metal jewelry.

- Always switch **OFF** the truck's power supply before opening the covers on the drive unit or electrical systems.
- Always disconnect the battery by pulling out the battery connector when carrying out maintenance work on the truck unless otherwise stated in this publication or the **Service Manual**.
- Relieve the system pressure slowly before starting work on the truck's hydraulic systems.
- Use paper or a rigid sheet of cardboard when checking for oil leakage. **Never** use your hand.
- Bear in mind that the oil in the transmission or the hydraulic system can be **hot**.

Warning Risk of burns.
Hot transmission and hydraulic oil.
Let the truck cool before changing the oil.

- Only fill the hydraulic system with new clean oil. Oil should meet **CLARK's** cleanliness specification 12-00-002. Contact your **CLARK dealer** representative for assistance or more information.

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Warning The hydraulic system can be damaged.
If oil is contaminated hydraulic components can be damaged.
Always use new and clean oil in the hydraulic system.

- Store and dispose of changed oil in accordance with local regulations.

- **Do not** dump solvents, which are used for cleaning/ washing, into drains that are not intended for this purpose. Follow the local regulations that apply for disposal.

- When working underneath the truck support the truck on trestle-blocks.

Warning Risk of crushing.
A badly supported truck can fall.
Never work under a truck that is not supported on trestle-blocks and secured by a lifting device.

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Maintenance that can be carried out by driver

The **Daily service/Safety checks** as set out in the check list.

Maintenance points with intervals **1 day and 1 week**, as set out in the **Maintenance chart** may be carried out by the driver without more knowledge than that provided by the **Operator's Manual**.

Other maintenance points as set out in the **Maintenance chart** may only be carried out by personnel who have completed maintenance training for this type of truck.

Maintenance that may be carried out by trained maintenance personnel

All maintenance points as set out in the **Maintenance chart**.

If you are uncertain regarding working procedures consult the **Service Manual** for the truck.

Other service and repair work

- In addition to the maintenance points in the **Maintenance chart** all service and repair work should be carried out by personnel with special training for this type of truck.

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Cleaning and washing

General

Cleaning and washing the truck is important to ensure the truck will operate safely and reliably.

- Carry out general cleaning and washing weekly.

NOTE!
Risk of short circuiting.
The electrical system can be damaged.
Disconnect the battery before washing by pulling out the battery connector. Do not spray water directly into the electrical compartments of the truck.

External cleaning

- Remove debris, etc. from the wheels daily.
- Use a degreasing agent diluted to a suitable concentration.
- Rinse off loose grime using warm water.

NOTE!
Mechanical components can be damaged.
After washing, the truck should be lubricated as set out in the chapter Maintenance and Lubrication chart.

Cleaning the motor compartment

- Cover the electric motors, electrical compartments, connectors, and valves before washing.

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- Clean carefully using the minimum of water and detergent. **Never pressure wash** or **steam clean** in the compartments.

NOTE!
Risk of short-circuiting.
The electrical system can be damaged.
Electrical components must not be cleaned with a high pressure washing unit.

- Clean the motor compartment using a degreasing agent diluted to a suitable concentration.

- Rinse off loose grime using warm water.

Electrical components

- Blow electric motors dry using compressed air.

> **Warning** Compressed air used for cleaning **MUST** be reduced to less than 30 psi [207 kPa], and then only with effective chip-guarding and personal protective equipment.

- Clean the electrical panels, electronic boards, contacts, connector, solenoid valves, etc. using a damp cloth and a cleaning agent.

- **Do not spray or pressure wash** in the compartment.

NOTE!
Risk of short-circuiting.
Electrical components can be damaged.
Do not break the warranty seal on the electronic board.

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Maintenance chart

PM Interval:

A=8 Hours or 1 Day

B=30 Hours or 1 Week

C=120 Hours or 1 Month

D=360 Hours or 3 Months

E=720 Hours or 6 Months

F=1440 Hours or 12 Months

G=4320 Hours or 36 Months

No.	Action	A	B	C	D	E	F	G
1.0	Chassis							
1.1	Check that the truck's data plate is legible					X		
1.2	Check the cover screws					X		
1.3	Check door lock					X		
1.4	Check wear on battery stop					X		
1.5	Check for damage and crack formation					X		
1.6	Check fork frame mounting					X		
2.0	Motors							
2.1	Check for loose connections			X		X		
2.2	Clean motor			X		X		
2.3	Check torque of motor bolts			X		X		
2.4	Check for abnormal bearing noise			X		X		
2.5	Check brush wear					X		
3.0	Drive unit							
3.1	Check for leakage					X		
3.2	Check oil level					X		
3.3	Check for noises					X		
3.4	Check the mounting on support				X			
4.0	Wheels							
4.1	Remove string & debris	X						
4.2	Check all wheels for wear	X						
4.3	Check that all wheels rotate and axles are fitted correctly					X		
4.4	Check all wheels for loose screws					X		

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No.	Action	A	B	C	D	E	F	G
4.5	Grease load wheel bearings				X			
4.6	Grease caster and caster wheels				X			
4.7	Dismantle and lubricate all wheel bearings.							X
5.0	Brake							
5.1	Clean dust and debris			X		X		
5.2	Check shoes and discs for wear					X		
5.3	Check correct clearance brake					X		
5.4	Check brake operation	X						
6.0	Electrical panel							
6.1	Clean and check the mounting					X		
6.2	Tighten cable connections				X			
6.3	Check main contactor function					X		
6.4	Check all cable insulation for damage					X		
7.0	Electronic card							
7.1	Check for connections in harness connectors					X		
8.0	Electronic control system							
8.1	Check key switch	X						
8.2	Check brake switch					X		
8.3	Check control wiring harness for proper routing					X		
9.0	Battery							
9.1	Check electrolyte level, 1/2 - 5/8 in. [10-15 mm] above cell plate		X					
9.2	Check the connections on battery, truck, and charger		X					
9.3	Check all cells and pole guards			X				
9.4	Check the fluid density and temperature			X				
9.5	Check power cables are not cut or frayed	X						

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No.	Action	A	B	C	D	E	F	G
10.0	Hydraulic system							
10.1	Check hoses and connections for leakage					X		
10.2	Check hoses for wear and damage					X		
10.3	Check oil tank for cracks, leaks, and mounting					X		
10.4	Check oil level					X		
10.5	Change oil						X	
11.0	Cylinder							
11.1	Check for leakage					X		
11.2	Check the mountings					X		
12.0	Lift devices							
12.1	Check for damage and cracks					X		
12.2	Check for play on the pull rods					X		
12.3	Check the electrical limit switch function	X						
12.4	Check for wear to the forks and other lifting devices					X		
12.5	Lube all grease fittings				X			
13.0	Controls							
13.1	Check handle mounting	X						
13.2	Check the handle brake lever switches	X						
13.3	Check travel direction/speed control	X						
13.4	Check horn button function	X						
13.5	Check hydraulic button functions	X						
13.6	Check the handle control switches	X						
14.0	Gauge							
14.1	Check dash display	X						
15.0	Brake Levers							
15.2	Check handle brake levers	X						
16.0	Key switch (toggle switch)							
16.1	Check switch function	X						

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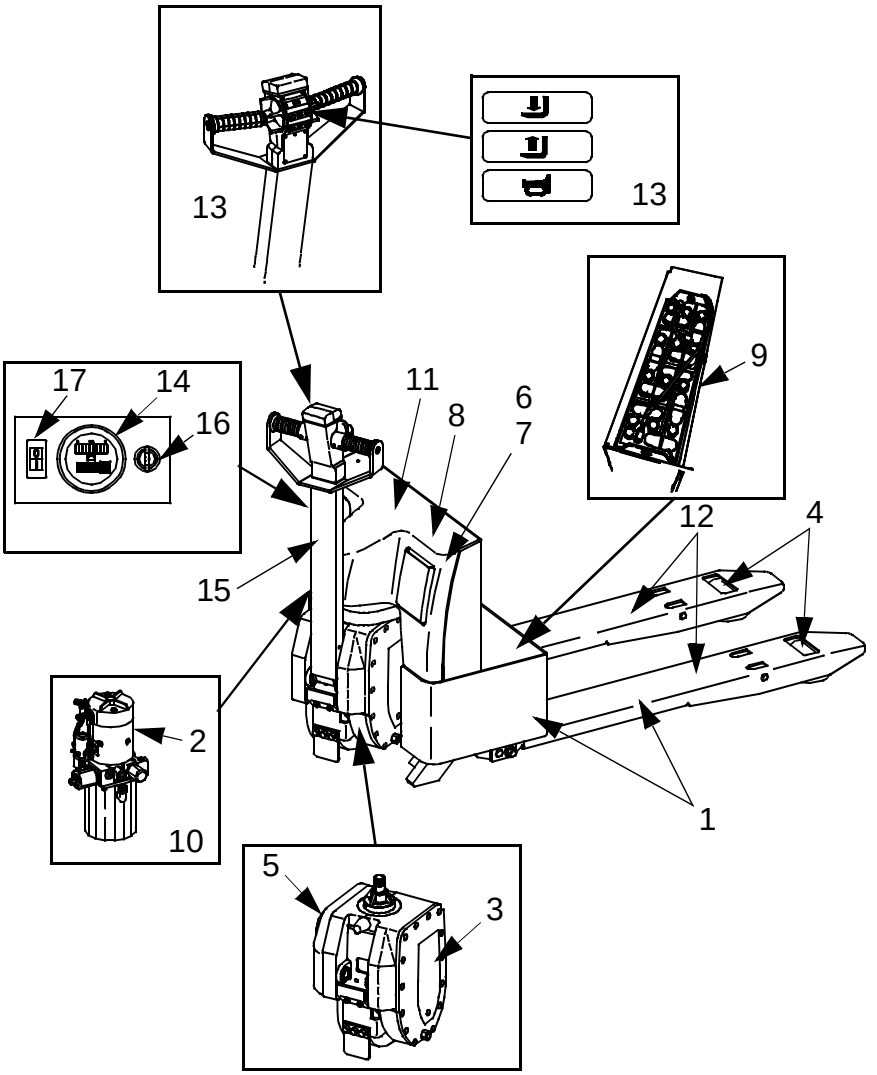
No.	Action	A	B	C	D	E	F	G
17.0	Master control on/off switch							
17.1	Check the function of switch	X						



Maintenance chart drawing

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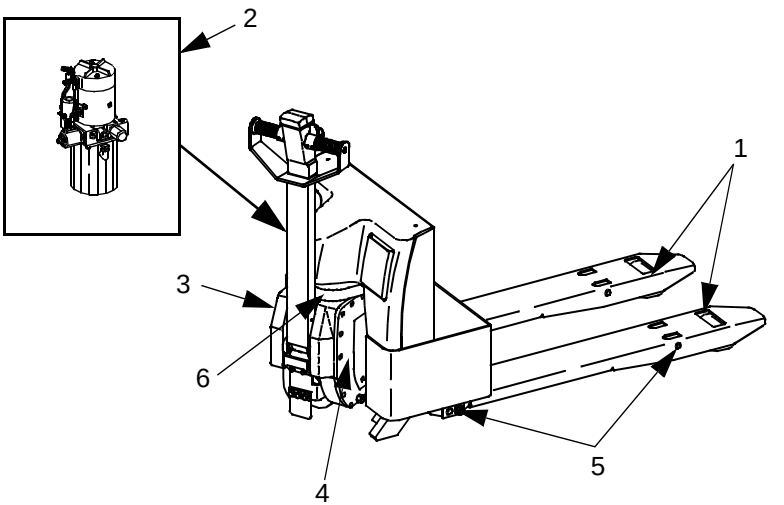
Lubrication chart

Pos No.	Service point	Interval/Running hours			Lubricant
		500h	1000h	3000h	
1	Wheel bearings			L	A
2	Hydraulic system	C	O		B
3	Travel brake	C			
4	Drive gear	C		O	C
5	Hinges		L		D
6	Steering bearings		L		A

L=Lubrication **C**=Check **O**=Oil change



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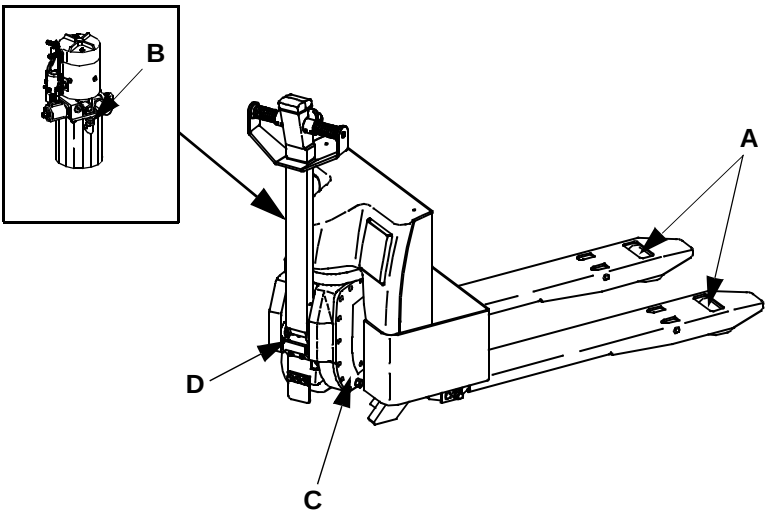
Approved Oils and Grease

Pos.	Lubricant	Specification			Application area
		Above 5°F [-15°C]	Below 5°F [-15°C]	Below -10°F [-23°C]	
A	Grease	Tex. Ref. C & C #880	Tex. Ref. C & C #880	Tex. Ref. C & C #880	Bearings and bushings
B	Hydraulic oil	Sunoco TH	Sunoco TH	Texaco 15	Hydraulic system
C	Transmission oil	SAE 80W/90	SAE 75W	SAE 75W	Gears
D	Motor oil	SAE 40	SAE5W-20	SAE5W-20	Pivot

Oil should meet **CLARK's** cleanliness specification 12-00-002. Contact your **CLARK dealer** representative for assistance or for more information.



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Transporting and storing the truck

Truck’s standard dimensions and weight

NOTE! The truck’s dimensions and weight can vary with different accessories.

Truck’s dimensions and weight

Truck data	WP45
Height	50.4 in. [1280 mm]
Width	30.0 in. [762 mm]
Length (this length is with 48 in. [1219.2 mm] forks)	77.6 in. [1971 mm]
Minimum battery weight	200 lb [90.7 kg]
Service weight without battery (this weight is with 48 in. [1219.2 mm] forks)	800 lb [362.8 kg]

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Towing and transporting a disabled truck

Warning **DO NOT** tow a disabled truck.

It is not recommended to tow a disabled lift truck.

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Storing the truck

Take the following action if the truck is not used for **one week** or more:

Battery

- Recharge the battery fully and carry out usual battery maintenance.

- Maintenance charge the battery every **3rd month** and check the fluid level.

Hydraulic system

- Change the oil in the hydraulic system when stored for periods longer then **1 year**. See the oil specification in the section **Maintenance and lubrication chart**.

Drive unit

- Block up the truck's drive section to take the load off the drive wheel and load wheels when storing for periods longer than **one week**.

Starting after a period of disuse

- Before the truck is put into operation after a period of disuse it should undergo a function and safety check as stated in the section **Daily service/safety checks**.

- When stored for a period **greater** then **3 months** carry out preventive maintenance as stated in the instructions **500 hours interval**.

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APPENDIX A - Selected OSHA Regulations

The use of forklift trucks in the workplace is governed by various regulations. In the United States, the Department of Labor Occupational Safety and Health Administration (OSHA) has issued regulations which cover the majority of workplaces. In addition, several states have implemented regulations which apply instead of the Department of Labor regulations. Check with your local OSHA office or provincial Labor Bureau to confirm which regulations govern your workplace. Because of their wide applicability, this section of your manual lists several parts of the Department of Labor OSHA regulations which may be of particular importance to your workplace. The full text of the Department of Labor regulations may be found in the Code of Department of Labor Regulations at 29 CFR Section 1910.178. The selections cited below and on the next page are followed by a reference to the appropriate subparagraph of the regulations.

- Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly. (a) (3)
- The user shall see that all nameplates and markings are in place and are maintained in a legible condition. (a) (6)
- The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this paragraph. (l) (1) (i)
- Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer shall ensure that each operator has successfully completed the training required by this paragraph. (l) (1) (ii)

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- Trainees may operate a powered industrial truck only under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence and where such operation does not endanger the trainee or other employees. (l) (2) (i) (A) (B)
- Training shall consist of a combination of formal instruction (e.g. lecture, discussion, interactive computer learning, videotape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace. (l) (2) (B) (ii) (**Editorial Note:** For required Training program content, refer to (l) (3) (i) (A-M) and (l) (3) (ii) (A-I).)
- Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by paragraph (l) (4) (ii) to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely. (l) (4) (i)
- An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years. (l) (4) (iii)
- The employer shall certify that each operator has been trained and evaluated as required by this paragraph (l). The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation. (l) (6)
- The employer shall prohibit arms or legs from being placed between the uprights of the mast or outside the running lines of the truck. (m) (4)

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- Brakes shall be set and wheel blocks shall be in place to prevent movement of trucks, trailers or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semitrailer when the trailer is not coupled to a tractor. The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are driven into. (m) (7)
- Only approved industrial trucks shall be used in hazardous locations. (m) (11)
- All traffic regulations shall be observed, including authorized plant speed limits. A safe distance shall be maintained approximately three truck lengths from the truck ahead, and the truck shall be kept under control at all times. (n) (1)
- The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing. (n) (4)
- Under all travel conditions the truck shall be operated at a speed that will permit it to be brought to a stop in a safe manner. (n) (8)
- Stunt driving and horseplay shall not be permitted. (n) (9)
- If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition. (p) (1)
- Any power-operated industrial truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel. (q) (1)
- All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design. (q) (5)

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- Industrial trucks shall be examined before being placed in service, and shall not be placed in service if the examination shows any condition adversely affecting the safety of the truck. Such examination shall be made at least daily. Where powered industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected. (q) (7)

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