

GBR Operator`s Manual

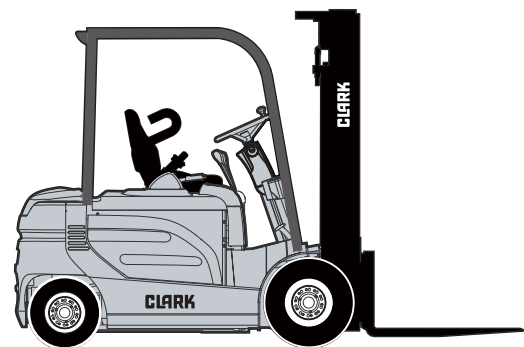
[Original instruction]

GEX 16/18/20s

GEX 20/25/30/30s/30L

GTX 16/18/20s

Rated Capacity : 1600 ~ 3000kg



Part No. 8116857

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Mar. 2015

Illustrations, descriptions, diagrams and other particulars only serve for elucidation and presentation of the text and cannot be taken as the basis for construction, installation and delivery. We do not accept any liability for the completeness and conformity of the contents with the respective legal provisions. This applies in particular to the information given in chapters "Safety Regulations" and "Daily Inspection". In addition, the national and local regulations must be observed. Subject to revision.

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All technical data and all illustrations in these Operating Instructions are without obligation.
We reserve the right to make alterations in the interests of technical progress

Foreword

The performance, economy and security of a forklift truck depend to a great extent on its proper handling as well as on regular maintenance and care. The following Operator Instructions should help you to make the best use of your CLARK forklift truck. Read through the instructions carefully and follow the given procedures strictly. Acquaint yourself with the controls and in particular observe all the safety regulations. Carry out all maintenance and care work at the recommended time intervals. CLARK forklift trucks are characterized by their easy maintenance design. You will therefore be able to carry out this work in a short time and without too much effort.

Regular maintenance and care of your forklift truck is recommended not just on economic ground because a faulty forklift truck represents a source of potential danger.

In addition you should observe the national regulations which provide inspections at set intervals of time. The contents and volume of the regulations could be different from country to country.

For any checkup, repair, maintenance and all other work concerning your forklift truck, please contact your CLARK dealer. Here, specially trained service personnel will be glad to help you at any time. Should you desire to carry out maintenance, repair and all other work on your forklift truck yourself, you can of course obtain all required spare parts and all necessary materials from your CLARK dealer. Please note: Only original CLARK spare parts guarantee the trouble free functioning and optimum economy of your forklift truck. Original CLARK spare parts are the best for your forklift truck. With their dimensional stability as well as their high material quality due to a continuous and strict quality control, they correspond to those parts used in the series production of our forklift trucks.

Finally we would like to draw your attention to the fact that any secondary damages due to improper handling, insufficient maintenance, wrong repairs or the use of other than original CLARK spare parts waive any liability by CLARK.

1. Safety Regulations

Guidelines for the due and correct use of CLARK forklift trucks

1. The forklift truck

- Use in accordance with the regulations
- Stability
- Driver's protection

2. Inspection

- Inspection prior to bringing into first use.
- Regular and statutory inspections

3. Operation

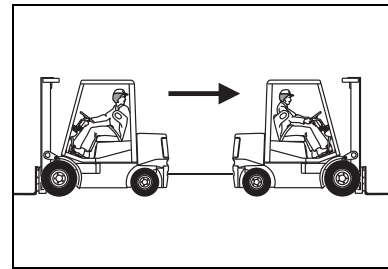
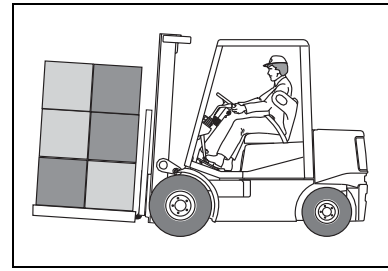
- The driver
- The work area
 - Operating aisles
 - Hazard areas
 - Traveling on public roads
- Handling of loads
 - Picking up and placing loads
- Travelling
 - Visibility
 - Stability
 - Gradients
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 - Shunting of rail vehicles
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 - Forklift trucks used for the transport of persons
 - Forklift trucks used for the transport of molten masses
 - Forklift trucks used for the transport of containers
 - Trailer operation
- Parking the forklift truck
- Charging batteries of electric-trucks
- Repairs

1. Safety Regulations

1. The forklift truck

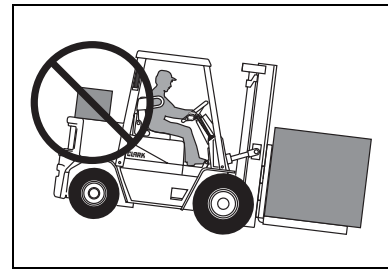
Use in accordance with the regulations.

- Forklift trucks may only be used in accordance with the regulations, following these operating instructions.
- Forklift trucks with fork arms are designed to take up, transport and stack individual loads and palletized goods.
- If a forklift truck is to be used for other purposes, permission must be gained from CLARK and if necessary from the supervisory authorities responsible, in order to prevent hazards arising.
- The use of attachments expands the possible uses of a forklift truck many times over. Refer to the attachments operating manual for correct use of the accessories in accordance with the regulations.
- No vehicles of whatever type may be pushed with the forklift truck. Nor may it be used as a towing machine for rail vehicles. These prohibitions do not apply if the forklift truck is especially equipped for these purposes.



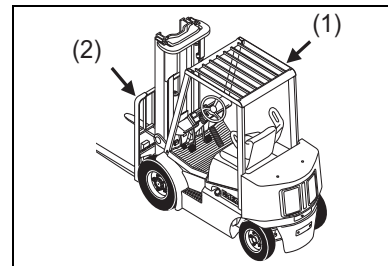
Stability

- CLARK forklift trucks are absolutely stable in the permitted working positions and when driving, if used with due care and attention and observing the maximum permissible loads.
- Proof of sufficient stability is given by CLARK through tests on a tiltable platform corresponding to the related regulations (EC guideline No. 2006/42/EC)
- Therefore, never overload your forklift truck. Take care as to the correct weight and load center of your load. The mounting of extra counter weights to increase the load capacity is not permitted. Memorize the maximum permissible rated capacities of your forklift truck and, if you use one or several attachments, also the remaining load capacities indicated separately for these attachments. The load capacity of a forklift truck is influenced by the load center and also the lift height.



Driver's protection

- When stacking above the eye level of the seated driver an overhead guard(1) must be used. If small parts are handled, a load backrest(2) must be present.

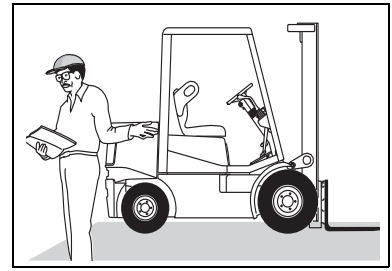


1. Safety Regulations

2. Inspection

Inspection prior to bringing into first use

- The forklift truck must be checked as to its functionability prior to taking it into operation. The working area to be used must be tested as to its ground conditions (carrying capacity, flatness, sufficient width).



Regular and statutory inspections

- Forklift trucks must be regularly checked by trained and authorized service personnel. The time intervals between the regular checks are often prescribed by a national authority. CLARK recommends an annual check-up based on an average operational performance.
- Statutory inspections are required, if for instance the operator adds an attachment to his forklift truck. Modifications to the forklift truck are prohibited.

Truck modification

Unauthorized truck modification is not permitted.

- A) Except where provided in “B)”, no modifications or alterations to a powered industrial truck, which may affect, for example, capacity, stability or safety requirements of the truck, shall be made without the prior written approval of the original truck manufacturer, its authorized representative, or a successor thereof.

This includes changes affecting, for example braking, steering, visibility and the addition of removable attachments. When the manufacturer or its successor approve a modification or alteration, they shall also make and approve appropriate changes to capacity plate, decals, tags and operation and maintenance handbooks.

- B) Only in the event that the truck manufacturer is no longer in business and there is no successor in the interest to the business, the user may arrange for a modification or alteration to a powered industrial truck, provided, however, that the user shall:
- Arrange for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety
 - Maintain a permanent record of the design, test(s) and implementation of the modification or alteration
 - Approve and make appropriate changes to the capacity plate(s), decals, tags and instruction handbook
 - Affix a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered together with the date of the modification or alteration, and the name and address of the organization that accomplished the tasks.

1. Safety Regulations

3. Operation

The driver

- Only trained and authorized personnel may be charged with driving a forklift truck. Please also observe the legal regulations in your country.
- The authorization of the supervisor shall be obtained for each, use about which the operator is not sure if it conforms to the intended use. In particularly difficult cases such as a simultaneous use of two forklift trucks for the transport of heavy or bulky loads, the supervisor himself shall be present at the site and, assume the responsibility and management for this transport.
- Please carefully read this User Manual and understand the contents.



- We strongly recommend that you wear safety clothes suited for your work. Any wide or loose clothing must be avoided. Always wear a hard hat, safety shoes and, if required, safety glasses.
- Never drive your forklift with wet or oily hands or shoes. If you slip off the brake pedal or the wheel, serious accidents and personal injury may occur.



The working area

Operating aisles

- Never drive in areas which are closed to forklift trucks, but only use aisles cleared for forklift truck operation. Traveling aisles and loading areas must be clearly identified and free of obstacles. Forklift trucks shall only be used on routes without sharp curves, excessive slopes and gates which are too narrow or too low. Watch the road surface - it must be sufficiently smooth and free of bumps, where possible. The floor within the working area for the stacking of loads must be even, horizontal and stable. The admissible area and point load of driving lanes or routes may not be exceeded. Please further observe the legal regulations in your country.

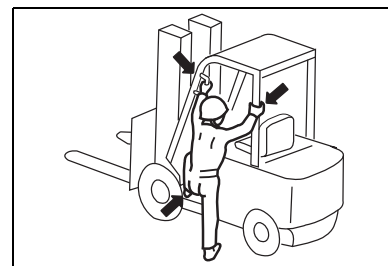


Hazard areas

- Forklift trucks which are to be used in flammable or explosive environments must be specially equipped for this purpose. The hazard areas must be identified accordingly.

Getting ON/OFF the Equipment

- It is very dangerous to jump on or off the equipment.
- To get on or off the equipment, stop the equipment and use guiderail or steps in order not to lose the balance of your body.
- The general rule is therefore that the operator shall always dismount when facing the truck.
- When getting on or off the equipment, do not grab the gear lever or steering wheel.
- Keep the guiderail or steps clean and well-maintained.



1. Safety Regulations

Traveling on public roads

- When traveling on public roads with the forklift truck, it must be equipped in accordance with the respective national regulations. The appropriate permission must be applied from the competent authority.

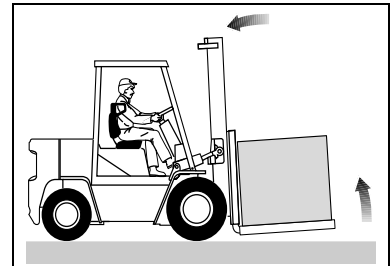
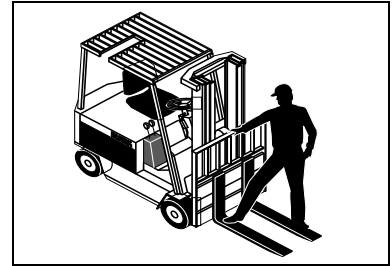
Electrostatic charge

- If an electrostatic charge occurs as a result of the type of the tyres and floor, an appropriate reduction in tension must be ensured.

Handling of loads

Picking up and placing of loads

- Forklift trucks must never be loaded in excess of their rated capacity. The values indicated on the name plate apply only when the upright is in a vertical position.
- Spread the forks as far as possible. Always position the forks under the load as far as is practicable. The load shall not protrude significantly over the fork tips and the fork tips shall not extend substantially beyond the load. Take care that the load is correctly balanced (centered) on both forks. Check the stability and balance of the load. Never lift a load with one fork only.
- When storing and stacking loads, correct placement is essential. Always place the loads carefully. Make sure that you do not exceed the maximum permissible stacking load when stacking and storing loads onto shelves.
- There shall be an adequate clearance between the highest parts of forklift trucks or the load and the fixed parts of the surrounding areas.
- Never move loads stacked higher than the carriage backrest. The simultaneous pickup of several unit loads is not advised. Defective unit loads should not be moved or stacked.
- The following procedure shall always be observed:
 - If another person comes close to the mast, the lifting or lowering movement shall be stopped immediately.
 - Drive directly to the stack with a lowered, tilted or reached-back load
 - Keep the mast in a vertical position
 - Raise the load to the stacking height
 - Drive the truck carefully forward until the load has entered the stack and, if necessary, push the load forward
 - Lower the load
 - Look backwards
 - Reverse the truck so that the fork arms can be lowered without touching the stack
 - Lower the fork arm to just above the floor and tilt the mast backwards
 - Only proceed with a lowered load in a tilted position and, if necessary, reached back (this does not apply for forklift trucks designed for driving with an elevated load)
 - Only tilt forward in front of or over the stack with a raised load lifting device if the forklift truck is intended for this purpose.
- If there is a risk of small loads falling through the struts of the overhead guard, an appropriate load protection screen or a supplementary screen shall be used on the operator's overhead guard. If there is a risk of raised, large compact load units falling on the operator's overhead guard, e.g. rolls of paper, it must be established whether the existing overhead guard is appropriate for this use. Appropriate measures shall be taken if necessary.



1. Safety Regulations

- Transport of swinging loads

The transport of swinging loads is only permitted with the consent and approval of the forklift truck manufacturer. The following points must be observed when transporting swinging loads:

- The swinging of the load shall be prevented by the right selection of speed and the way of driving (careful braking and steering). Jerky movements should always be avoided.
- Driving on inclines or slopes with a hanging load is forbidden.
- The fastening means of the suspended load shall not be unintentionally moved or loosened.
- It shall be ensured that there are no persons in the driving lane and in the driving direction
- It shall be ensured that no persons are in danger as a result of the swinging loads.
- If necessary, appropriate aids shall be made available (e.g. holding ropes or bars) and that they are used by the persons for guiding the load.
- A load restriction may be necessary depending on the length of the swinging load. The forklift truck manufacturer shall be contacted for this purpose.

- Transport of inflammable loads

The transport of molten loads is only permitted with the consent and approval of the forklift truck manufacturer. The following instructions must be observed if molten loads are being transported:

- A slopping over of the load must be prevented by a correct selection of speed and manner of driving (careful braking and steering). Jerky movements should always be avoided,
- Driving on inclines or slopes is forbidden with molten loads
- The lowering speed shall be limited if necessary.

When driving

Driving conduct

The operator shall comply with internal instructions on in-house traffic regulations and the relevant road traffic regulations on public roads. The speed of the forklift truck has to be adjusted to local conditions. For example, the operator shall drive slowly in bends, at and in narrow passageways or gates, when driving through swinging doors, at blind intersections or on uneven surfaces. He always shall keep a safe braking distance from vehicles or persons in front of him and he must always have his truck under control. Sudden stops, quick turns, overtaking at dangerous or blind intersections shall be avoided.

With the exception of forklift trucks specially fitted for this purpose, forklift trucks with a operator's seat or stand shall not be put in motion when the operator is not assuming the operating position.

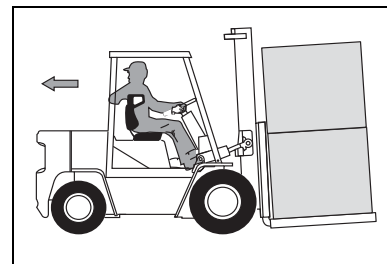
Whilst driving, it is forbidden, amongst other things:

- To put arms or legs outside the truck
- For the operator to lean over the edge of the forklift truck
- To move from one truck to another or to fixed parts of a building.

The operator shall bring his truck to a standstill as soon as possible if the power steering equipment is defective.

Visibility

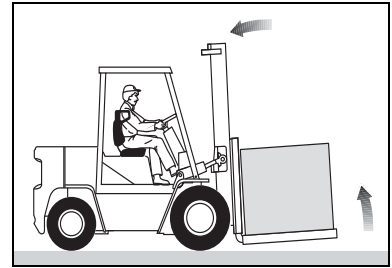
- Do not drive forwards if the load is hindering your view. In this instance, drive backwards.
- The operator shall always look in the driving direction even when reversing over a short distance.
- If, however, the view is still impaired, a banksman should be used to overcome the hindrance. The forklift truck may then only be driven at walking speed and with particular caution, see also page 1.9 "Behavior during Operation".
- Ensure that the working area of your forklift truck is adequately illuminated.



1. Safety Regulations

Stability

- Travel with the load tilted back and keep the load as low to the ground as possible (say 10 cm). This makes a better stability of the forklift truck. Keep in mind that an unladen forklift truck has a lower stability than a laden truck. Always use the same care when traveling whether laden or unladen.

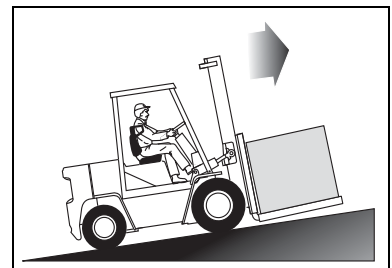


Braking

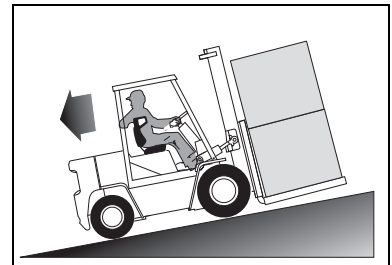
- The driving speed must be selected so that there is always an adequate braking distance in front of the truck. It should be noted in this respect that the pure braking distance increases at a higher rate than the speed and that the drive wheels may spin or the truck may overturn in case of sudden braking.
- A braking test shall be carried out after the forklift truck has been washed. If the brakes do not function properly from the operator's seat of the forklift truck, the truck must be brought to a standstill by applying the parking brake.

Gradients

- Always keep the load on the upper-side on gradients. This prevents the slipping of the load from the forks or the rolling over of the forklift truck. In a laden condition, travel uphill in forward direction and downhill in reverse direction. With restricted visibility always seek assistance when travelling on gradients. Do not turn when going up or down a ramp. Never drive diagonally across the gradient. The forklift truck can easily roll over in this case. Always reduce your speed and drive with special care.



- Gradients should always have a sufficiently rough surface. For smooth, and even travel avoid any load contact with the ground.
- Gradients used by forklift trucks shall not exceed the limits specified by the manufacturer.



Loading and unloading of vehicles

- Always approach the vehicle carefully. Make sure that load distribution is well-balanced when loading or unloading. If you have to travel onto a vehicle for the loading or unloading process take particular care not to exceed the maximum permissible load capacity of the vehicle floor and the bridge plate. Both must be able to support the weight of the truck and load. Bridge plates must be securely fixed and must not slip when being entered. Secure the vehicle you enter with blocks against rolling. When entering vehicles or traveling on bridge plates reduce speed and be particularly careful. Also be very careful when traveling on bridge plates, especially close to the ramp edges. Keep a safe distance from the ramp edges particularly if the surface is wet or slippery.



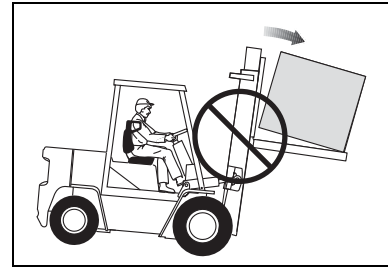
Driving in containers

- The forklift truck shall be suitable for driving in containers. The operator shall ensure that the container to be loaded or unloaded is sufficiently secured against rolling and that it can bear the load of the forklift truck.

1. Safety Regulations

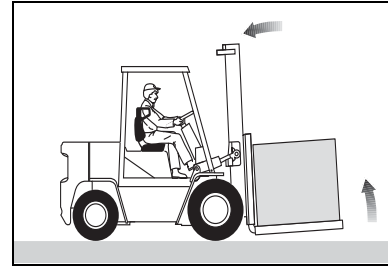
With raised forks

- Never move your forklift truck with the load raised and tilted forward. Your forklift truck can lose stability in this condition. Only travel with the upright extended in the immediate area for picking up and stacking the loads. When raising the forks watch for obstacles above.



Tilting the upright

- The upright should only be tilted forward directly above the stacking area when picking up or placing the load. Otherwise drive your forklift truck with the upright tilted back.



Climatic condition for Operation

- Maximum ambient temperature, short term (up to 1h) : + 40 °C
- Average ambient temperature for continuous duty : + 25 °C
- Lowest ambient temperature : - 20 °C
- Service altitude : up to 2000m above sea level
- Relative humidity : in the range 30 % to 95 % (non-condensing)

Tips for Operation according to the Weather

1) Hot Weather

- Driving in hot weather impairs driving ability and work efficiency. Take a rest at regular intervals.

2) Cold Weather

WARNING

Hydraulic systems respond to controls slowly in cold weather. It is strongly recommended to warm the equipment up before starting operation.

- Remove the ice, snow or frost on the cab window before start operation.
- Take utmost care when driving on an icy surface.
- Do not step on slippery surface when getting in or out of the equipment.
- Use an ice removing device equipped with a handle and ladder to remove ice. Snow or frost.
- Replace worn tires immediately. Especially, worn tires can cause serious accident on icy ground.
- Do not abruptly brake or start on icy ground.

WARNING

Do not expose bare skin to the cold, metal surface of the equipment. Otherwise, skin can be frozen and stick to the metal surface.

1. Safety Regulations

3) Rainy Weather

- Do not operate forklift truck without cab in outdoor environment when it rains.
Electric components may get wet by rain, and cause malfunction.

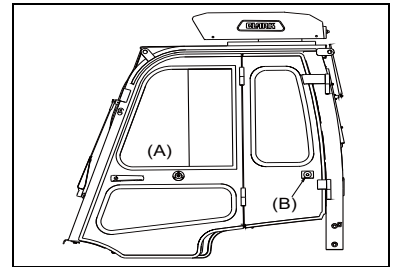


Operator Cabin

The operator cabin is optional equipment and could be provided with front and rear windows, emergency rear window, and cooling and heating system.

Observe following instructions when driving an equipment provided with an operator cabin.

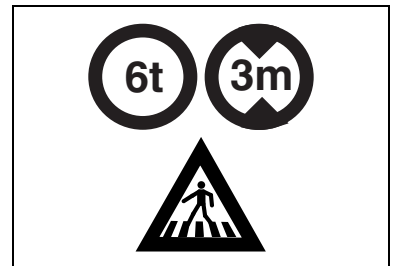
- Take appropriate measures to secure field of view when driving in bad weather, such as rain, snow, frost, etc.
- When operating with the cabin door (A) open, fix the door to the catch (B) firmly.



Behavior during operation

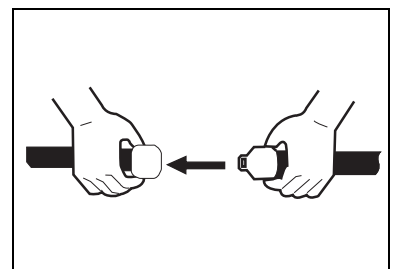
Traffic rules

- Observe all safety regulations and all warning signs. Always behave as if traveling on public roads. Reduce the speed of your forklift truck and use the horn near corners, entrances, exits and near people.



Safety Belt

- Wear the safety belt below your waist and minimize the movement.
- Be sure to wear the safety belt before starting the equipment.



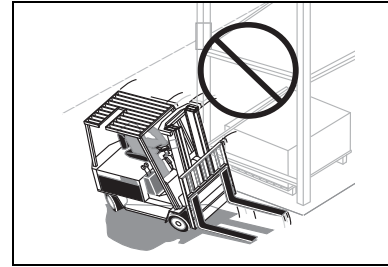
When driving

- Avoid any abrupt starting, excessive traveling speeds and sudden directional changes.
- Select the driving speed so that sufficient stopping distance is always available. It must be remembered that the net stopping distance increases by approximately the square of the speed and that sharp braking of the forklift truck can cause the drive wheels to slip and the truck to tip over. Braking on curves further increases the danger of the forklift truck tipping due to the tilting moment which occurs.



1. Safety Regulations

- Reduce speed before curves and ramps, in narrow passageways, on wet roads and restricted visibility.
- Always operate the truck carefully even without a load. An unladen forklift truck can roll over more quickly on curves than a load truck. Always operate your truck safely and avoid accidents.
- Always look in the driving direction. No parts of the body should extend outside the truck.
- Always keep a sufficient distance from other vehicles so as to be able to stop in time in case of danger.



Safety of people

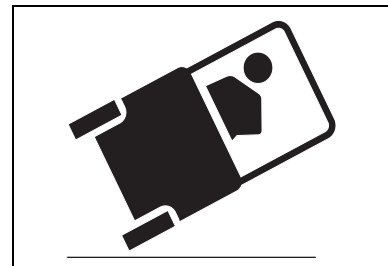
- Always make sure that there is nobody within the hazardous area of your forklift truck. Ask these people to leave the area immediately.
- Never use your forklift truck with persons within this area. Never allow anyone to stand under the lifted load or to pass under the load.
- Do not let other persons ride on the truck, on trailers or on the load.



Lift truck tip over

Lift trucks can be tipped over if not operated properly. Teach your operators that there are a number of things they must watch for that can cause a truck to tip over.

- Slow down before turning. Go into and out of turns slowly, using a slow rotation of the steering wheel.
- Drive with the forks or attachments lowered and tilted back only enough to stabilize the load.
- Raising a load high moves the center of gravity and lowers the capacity. Keep your loads down, with the masts vertical or tilted back only enough to stabilize the load. If you tilt a heavy load too far forward or back while it is raised, you can tip your truck over.
- Check capacities; don't overload the truck.
- Do not move unstable loads.
- Do not turn on down- and upslopes
- Do not drive with the load downhill on down- and upslopes
- Drive careful with swinging loads
- Drive careful and slowly at ramp edges or steps
- Move long, high, or wide loads slowly and carefully.
- Check your overhead clearance. Keep your truck at least 3m from any overhead electrical wires. Watch those overhead obstructions, like pipes and low doors. If you hit them while you are moving, you can tip a lift truck over.
- Don't forget, your lift truck has rear steering. A turn into a soft shoulder or off a dock can tip a truck over. Watch the steer end of your lift truck, and keep those steer tires on the road.
- Turn too sharply with forks raised and your truck can tip over, even at slow speeds and with no load. So take your time: slow down.
- You may find that you have some long runs where you operate the truck empty, close to its top speed. Slow way down before turning. Lift trucks are rear end heavy because of the counterweight used to offset loads. An empty lift truck can turn over just like a loaded truck



1. Safety Regulations

- Transporting spacious loads may in the result forklift truck tipping over in strong winds.
- When transporting liquids, a change in the centre of gravity within a picked-up container can result in the forklift truck tipping over as a result of the effects of inertia e.g. when starting or braking or cornering.

The operator must wear personal safety devices and follow the instructions for safety to prevent serious personal injury if the equipment overturns.

1. Wear safety belt.

Never jump off the equipment.



2. Hold the steering wheel firmly.

Stiffen your legs to support yourself.



3. Lean against the opposite side wall, as shown in the figure.

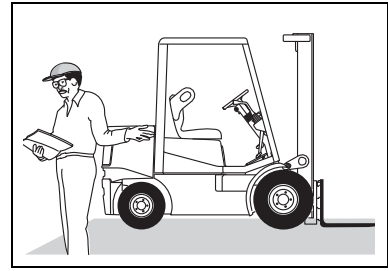


1. Safety Regulations

Troubleshooting

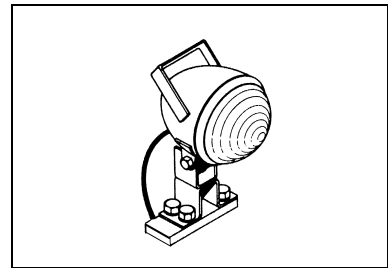
Daily inspection before operation

- Before starting to work check your forklift truck daily in accordance with the section "Daily Inspection". Always make sure that all safety systems are operating correctly. Never operate a truck which is damaged or not safe to operate. Check all warning and information signs. Any missing or damaged signs must be replaced immediately.
- Safety devices and switches may not be removed or rendered unusable. Predetermined set values may only be changed in agreement with the manufacturer. Damage and other faults must be reported immediately to the person in charge.



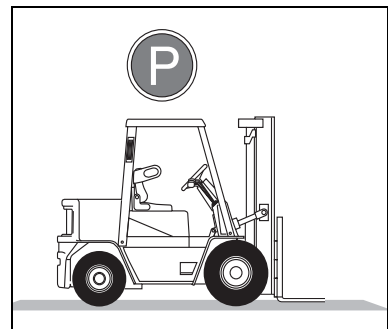
Illumination

- Forklift trucks used in poorly illuminated areas must be equipped with work lights.
- Forklift trucks used on public roads must be equipped with a lighting system in accordance with national regulations.



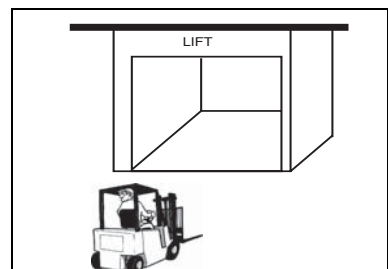
Leaving the forklift truck

- When leaving the forklift truck, shall be turned key off.
- Never leave the forklift truck with the upright raised.
- Lower the forks fully to the ground, tilt the upright forward, apply the parking brake, put the gear levers in the neutral position and secure your forklift truck against unauthorized use by third persons.
- Never park your forklift truck on gradients. But if this is necessary always secure the truck with wedges.



Transport of forklift trucks in elevators

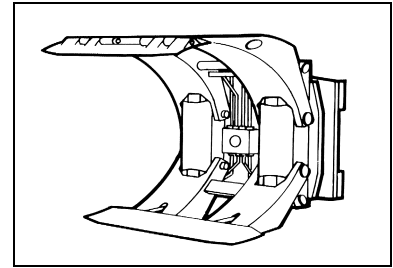
- The transport of forklift trucks in elevators is only permitted if the elevator has a sufficient load capacity and is designed for this purpose. The forklift truck must be secured in a way that it cannot touch the elevator walls and may not move inadvertently. All persons travelling with the forklift truck must enter the elevator after the forklift truck and must leave before the forklift truck.



1. Safety Regulations

Attachments

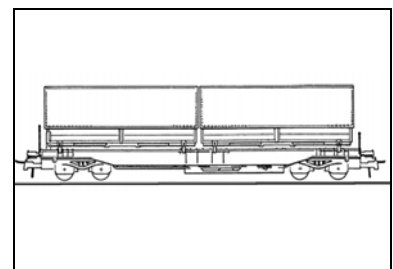
- Trucks can be fitted with one or more auxiliary hydraulic functions to operate attachments. The auxiliary hydraulics are indicated on the levers with Symbols or AUX 1,2.
- Attachments must fit the carriage without overlapping the carriage. The assembly of the attachment may only be carried out by trained and authorized personnel. If your fork-lift truck is equipped with one or several attachments, please read the respective operating instructions carefully.
- Use only exchangeable equipment where a risk analysis is carried out by the owner. Only use attachments that have been fitted for the purpose by the owner and do not restrict visibility in the travel direction. If visibility in the travel direction is limited, the operating company must determine and apply suitable measures to ensure the safe operation of the truck. Adapt the travel speeds to the visibility and load. Make sure you have sufficient visibility when reversing.
- Always observe the maximum permissible load capacity of your truck when fitted with an attachment.
- The attachment capacity plate is positioned directly beside the name plate of the forklift truck and indicates the load capacity with a central load pick-up. Only use the attachment for the function specified. Always pick up the load centrally and additionally secure it, if required, against falling, slipping, rolling, swinging or tilting. You must have been trained in using the attachment.
- If attachments are fitted, the residual load capacities must be obtained from the manufacturer and indicated on an additional capacity plate. Note that the load capacity decreases steadily with increasing height and off centre loading.
- Read the operating and maintenance instructions for the add-on unit carefully and make sure you are completely familiar with all hydraulic functions before transporting a load. Learn to use the hydraulics in a gentle and jolt-free manner.



Additional regulations for special tasks

Shunting of rail vehicles

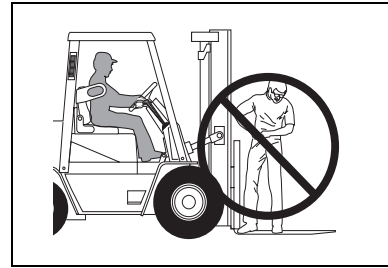
- Rail vehicles may only be moved by a forklift truck, if the latter is equipped for this purpose. Trucks may never be used to tow a vehicle from the front, they must always be at the side of the vehicle. The traveling road must be sufficiently firm.
- For moving rail vehicles no rigid linkage but only ropes may be used. The rope is to be attached at the rear eyelet on the last rail vehicle. The forklift truck must be equipped with a slip coupling. The slip coupling must open automatically at a traction angle of 45 degrees. Additionally, the driver must be able to manually open the slip coupling from the driver's seat in case of danger.
- When pushing rail vehicles, the forklift truck and rail vehicle may not be connected to each other. The forklift truck must be equipped with a bumper extending laterally. Only the last rail vehicle may be pushed.



1. Safety Regulations

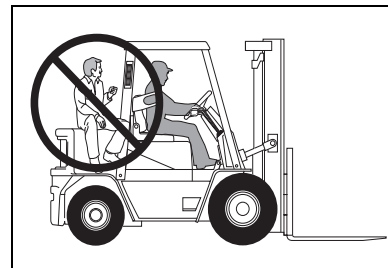
Forklift trucks used as working platforms

- Platforms on forklift trucks may only be used for occasional work which is fully supervised. This platform must be firmly connected to the forklift truck and with no extending parts. It must offer sufficient protection against the lifting mechanism and any persons on the platform must be secured against falling off. A working platform with persons on it may not be moved and the driver may not leave the forklift truck.
- In addition, observe the statutory regulations of your country.



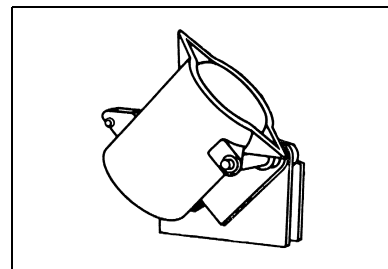
Forklift trucks used for the transport of persons

- The transport of persons by the forklift truck is only permissible, if the truck is equipped with appropriate seats or standing places and if the latter are designed for the transport of persons. Otherwise the transport of persons is prohibited.



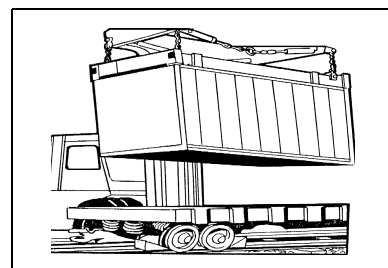
Forklift trucks used for the transport of molten masses

- Any containers for the transport of molten masses must be fixed to the forklift truck and with no extending parts. The inadvertent operation of rotating or tilting devices must be prevented. The stability of the forklift truck must be guaranteed and the energy supply lines must be protected against high temperatures. The driver of the truck must handle the load with special care.



Forklift trucks used for the transport of containers

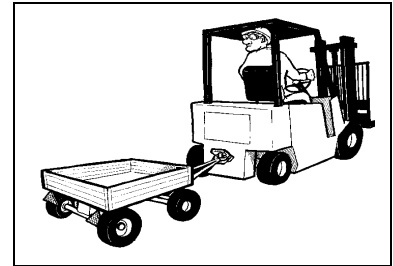
- Containers may be transported with forklift trucks only if the forklift trucks are specially designed for this purpose and are equipped with a spreader as a load pick-up device.



1. Safety Regulations

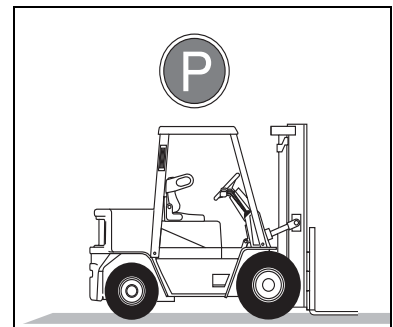
Trailer operation

- Trailers without a power-brake system may only be moved if the braking force of the towing forklift truck is sufficient for a safe stop. For the permissible trailer load please contact your CLARK dealer.
- The tow tractor must be operated in such away that safe driving and braking of the towed vehicle is ensured for all driving movements.
- Forklift trucks may only tow trailered loads, if they are specially equipped for this purpose. The regular towing of trailers may only be carried out with a special trailer coupling (not by means of a tow pin). Please observe the information on the name plate of the trailer coupling. Trailer loads effect the braking force of your forklift truck; this particularly applies to traveling on gradients. During the coupling process no persons are allowed between the trailer and the moving forklift truck.
- After each connection of trailers, the operator shall check before driving off, if
 1. the trailer coupling is secured against becoming loose,
 2. the existing connections for brakes and lighting are closed
 3. the existing brake power regulator has been adjusted to the actual hailing load
- Disconnected trailers shall be secured against unintentional movement (e.g. with blocks).
- If the forklift truck to be connected is operated from the outside, it shall be equipped for this purpose and the operator shall not step between the forklift truck and the trailer. If an assistant is used to connect trailers, the operator shall ensure that the person is not endangered during the coupling process.
- When driving through narrow road sections, the dimensions of the trailer and the load must be observed. In the case of forklift trucks with trailers, an adequate minimum distance to fixed components shall be ensured when turning and in curves.
- The admissible length of an forklift truck with trailers depends on the trailer or the truck and on the distance to be driven and shall be determined by means of a trial run, if necessary.
- The operators shall be informed of the admissible number of trailers and if necessary any speed reductions for individual stretches in the form of driving instructions. Adequate trial runs shall be made before commencing towing operations;
- Please observe the valid regulations of your country.



Parking the forklift truck

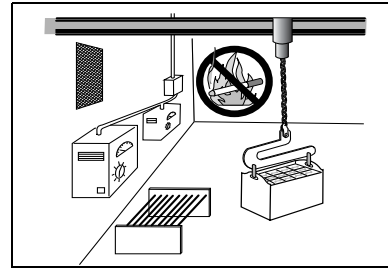
- Park your forklift truck in authorized areas only. For this purpose:
 - Fully lower the forks to the ground
 - Tilt the upright to the front
 - Apply the parking brake
 - Put the directional control lever in neutral position
 - Turn the key to "Off" position
 - Remove the key.



1. Safety Regulations

Charging batteries of electric trucks

- The charging and maintenance of batteries may only be carried out in rooms particularly designed for this purpose by qualified personnel. In case of automatic charging devices the batteries may also be recharged by the driver himself. Please carefully read the operating instructions of the charging set manufacturer.



- Smoking and handling of open fires in charging stations is prohibited. Please observe the valid legal regulations of your country.

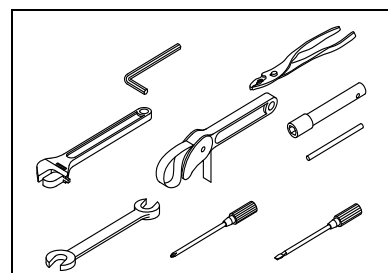
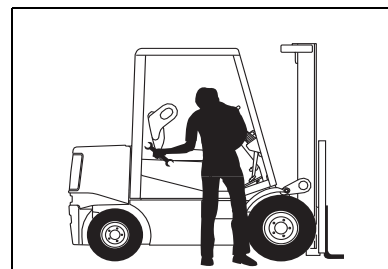


Repairs

- Never carry out any maintenance or repair work under lifted loads. If the carriage must be lifted for maintenance and repair work, the carriage and inner rails must always be secured against inadvertent lowering. This can be obtained by means of a crane or with suitably dimensioned wooden beams. The beams must be inserted under the inner rails in a way that they cannot tip over. Any maintenance and repair work may only be carried out by trained and authorized personnel.



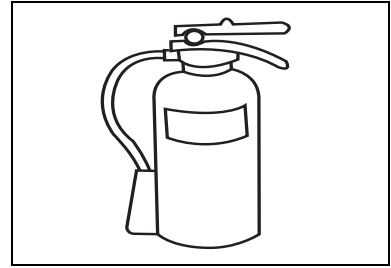
- Safety equipment and switches may not be removed or made inefficient. Factory set adjustment values may not be changed.
- For any checkup, repair, maintenance and all other work concerning your forklift truck, please contact your CLARK dealer. Here, specially trained service personnel will be glad to help you at any time. Should you desire to carry out maintenance, repair and all other work on your forklift truck yourself, you can of course obtain all required spare parts and all necessary materials from your CLARK dealer. Please note: Only original CLARK spare parts guarantee the trouble free functioning and optimum economy of your forklift truck. Original CLARK spare parts are the best for your forklift truck. With their dimensional stability as well as their high material quality due to a continuous and strict quality control, they correspond to those parts used in the series production of our forklift trucks.
- Finally we would like to draw your attention to the fact that any secondary damages due to improper handling, insufficient maintenance, wrong repairs or the use of other than original CLARK spare parts waive any liability by CLARK.



1. Safety Regulations

Fire Extinguisher

- Prepare a fire extinguisher at the designated place and learn how to use it to prepare for a fire accident.
- You must be well aware of the actions to take in a fire or other accident.
- Define the emergency contact and prepare communication means and contact information.

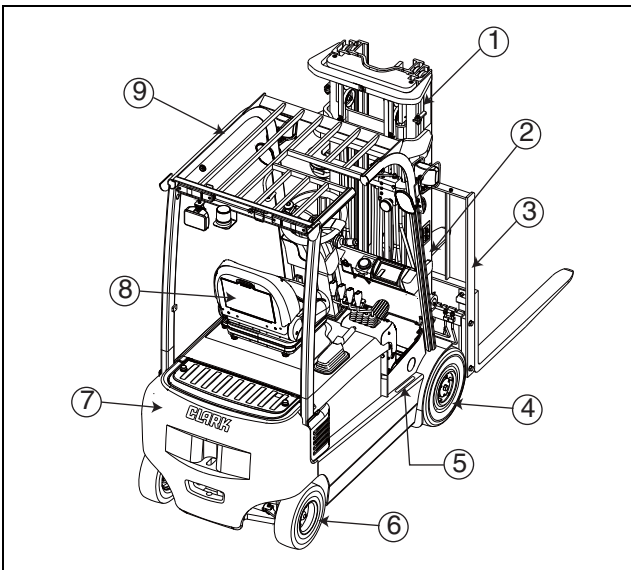


Waste Disposal

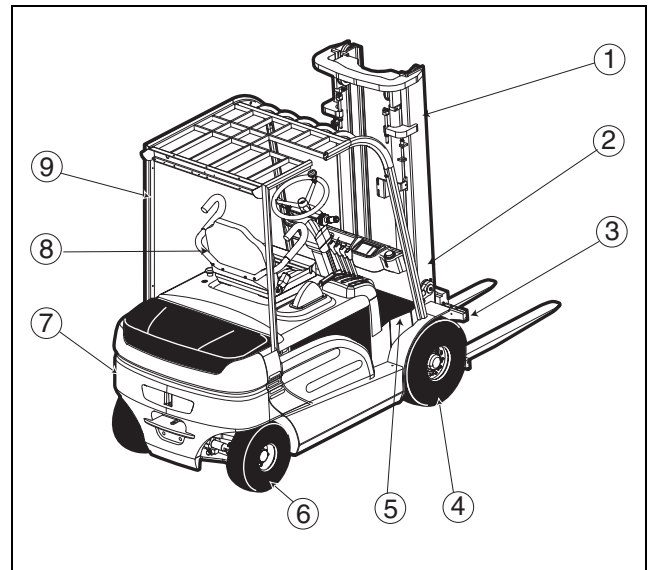
- Do not dump waste oil in sewer or river.
- Collect drain oil in an oil pan.
- Never spill waste oil on the ground.
- The waste materials from oil, filter or battery must be classified and kept at designated places and disposed of by an authorized disposal service provider or nearest A/S center.



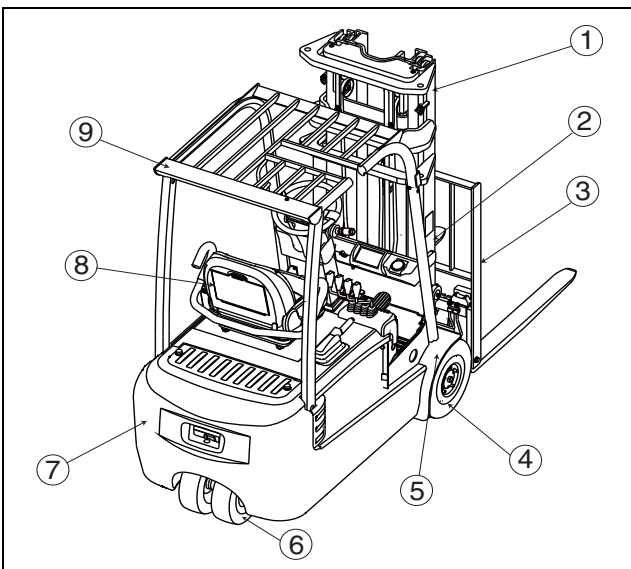
2. Know Your Forklift Truck



GEX16-20s



GEX20-30L

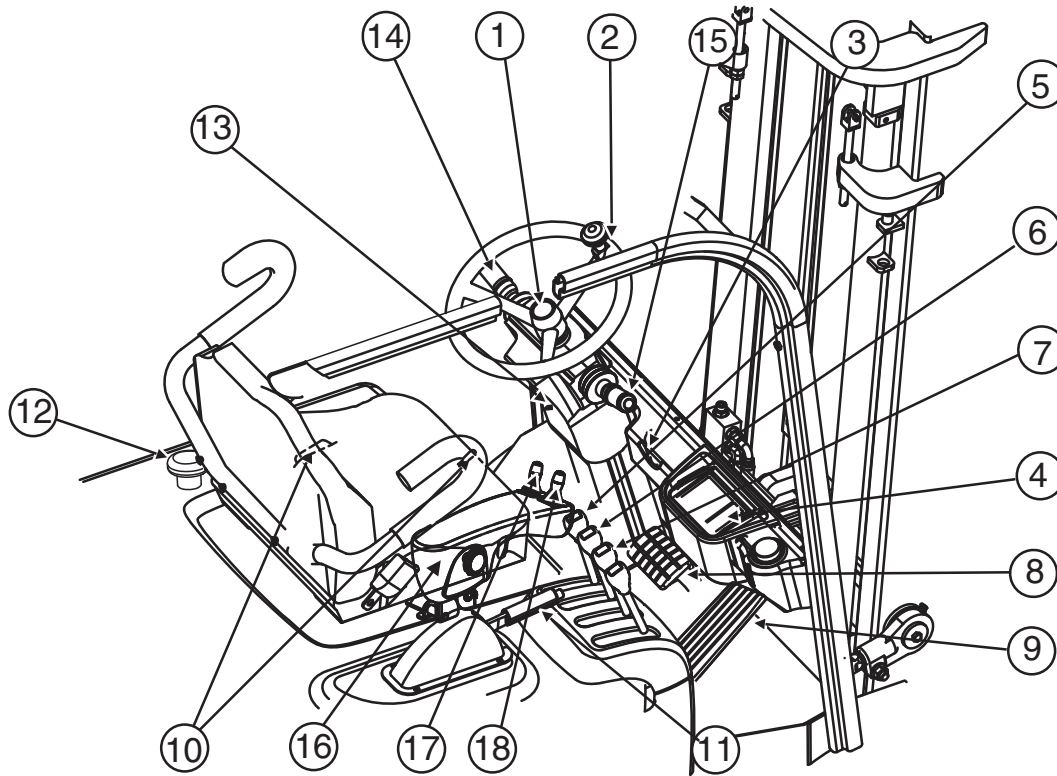


GTX16-20s

1. Upright
2. Upright deck number (necessary for ordering spare parts for the upright)
3. Fork carriage
4. Drive axle wheel
5. Truck serial number (necessary for ordering spare parts)
6. Steering axle wheel
7. Counterweight
8. Driver's seat
9. Driver's overhead guard

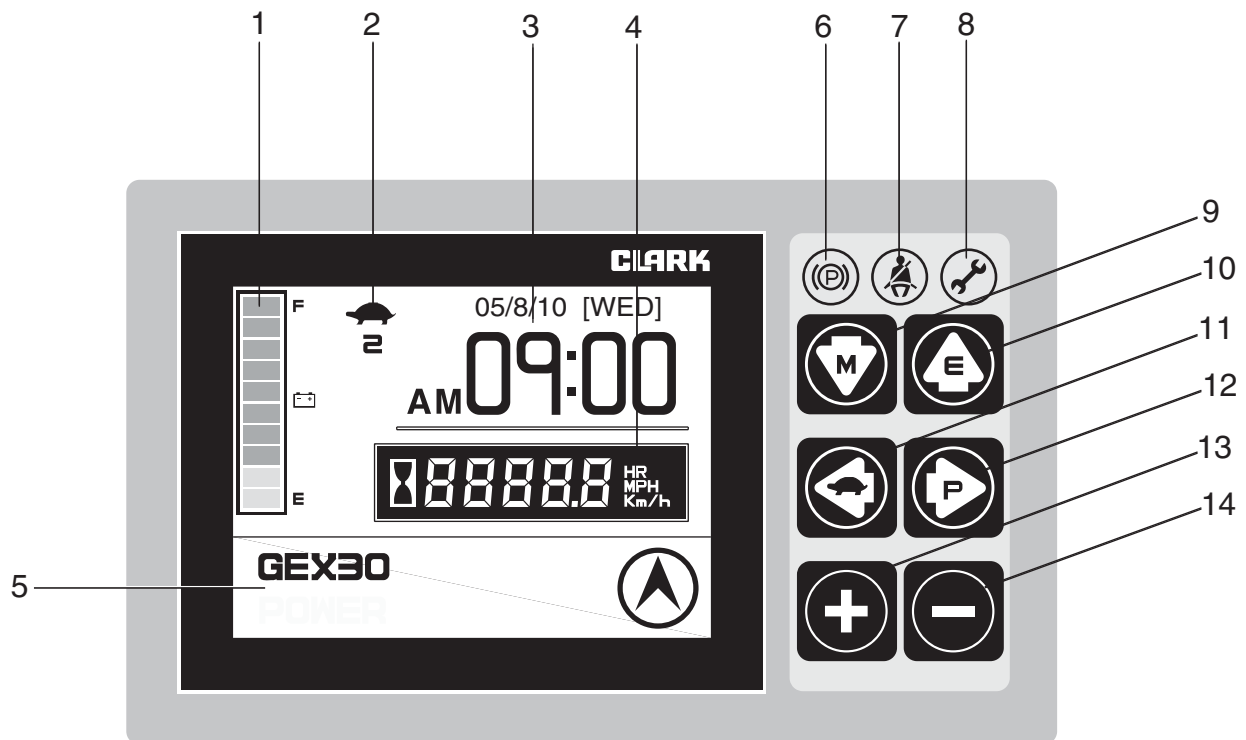
2. Know Your Forklift Truck

Operator' s Compartment and Controls



1. Horn button
2. Steering handwheel
3. Key switch
4. Dash display
5. Lift control lever
6. Tilt control lever
7. Auxiliary control lever
8. Brake pedal (pressing the pedal activates the brake)
9. Accelerator pedal (control of motor revolutions and thus the drive speed)
10. Seat adjustment lever
11. Parking brake lever
12. Emergency off switch
13. Pylon adjust button
14. Forward/Reverse lever
15. Turn signal lever
16. Armrest for driver's seat (Optional)
17. Control lever (Joystick) for working hydraulics (Optional)
18. Control lever (Joystick) for auxiliary working hydraulics (Optional)

2. Know Your Forklift Truck



Dash Display

The primary design of the Dash Display is to provide the operator with an easily understandable, visual feedback of the status of the truck and it's system components.

Standard Display

1. Battery discharge indicator
2. Maximum speed limit icon (Turtle shaped)
3. Date & Time
4. Hourmeter & Speed
5. Message display & Travel direction icon
6. Parking brake LED
7. Seat switch LED
8. Error and check LED
9. Down arrow button (Mode button)
10. Up arrow button (Enter button)
11. Left arrow button (Turtle button)
12. Right arrow button (Travel mode button)
13. Plus button
14. Minus button

Keep an eye on the warning lights and LC display, while you work with your forklift truck.

Get your forklift truck attended to immediately, if the warning lights or LC display show an irregularity.

2. Know Your Forklift Truck

Seat Belt



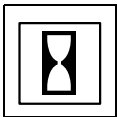
At start up this symbol displays along with an audio alarm for 4 seconds. This display reminds you to fasten your seat belt.

Parking Brake



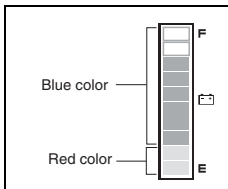
The symbol is displayed and "-01" status code appears on the numeric display when parking brake is applied. Release parking brake to operate truck.

Hour Meter



This indicating lamp shows that the working hour is counted. It flickers in a second cycle when the fork lift truck is working.

Battery discharge indicator



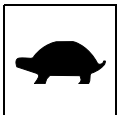
It displays the battery discharge condition of forklift truck.

The one bar indicates 10% charging condition.

If the battery is charged more than 20% (8 bars or more), blue LED is displayed, but it is less than 20% (2 bars or less), red LED is displayed.

If it is less than 10% (1 bar), it will flicker and buzzer sound.

Speed limit function indicator



This indicating lamp shows that the traveling speed limit. It will turn on when the traveling speed limit function of fork lift truck is working.

Maximum speed limit icon (Turtle shaped)



The traveling speed of truck is limited to set speed.

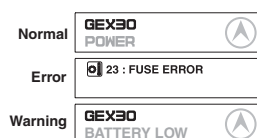
The upper mark is slow speed operating icon, and the figure shows the limited max. speed. (In upper example, the limited max. speed is 2km/h)

Hourmeter & Speed



- It displays the accumulated operating hours and travel speed of the truck.
- When the traveling speed is less than 0.5km/h, it displays the accumulated operating hour.
- When the traveling speed is more than 0.5km/h, it displays the traveling speed.

Message display



The model name, POWER selection, travel direction, warning and error message are displayed.

- In normal operating condition: Model name/POWER/Travel direction
- When several messages are simultaneously displayed, they will be displayed in the order of Error, Warning and Normal condition.

2. Know Your Forklift Truck

 **23 : FUSE ERROR**
 **56 : FET SHORT**

- If many error conditions are simultaneously occurred, the priority 2 Errors will be displayed. (The priority means Error number)

Travel direction icon



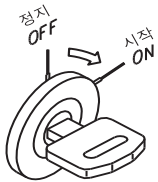
- It displays the traveling direction or angle of steering wheel.
- The direction icon rotates in 10 degree. (Total 36 icons)

Error icon



- When an error occurs this icon is displayed to easily distinguish the condition.
- When an error message is displayed, this icon is simultaneously displayed.

Check after Startup



Check the followings after starting.

- Check the controller lever and brake pedal.
- Check the various gauge indicator lamps and warning lamps for proper function.
- Check for abnormal noise or vibration

Traveling

- During traveling, tilt the mast backward and lift the forks up from the ground by about 30cm.
- Take off your foot from the brake pedal and push down the accelerator pedal slowly to start.
- Acceleration and deceleration can be controlled by the degree of pushing down the pedal.
- Take care to decelerate in the following cases : sharp turn, narrow passage, uneven ground.
- Observe speed limits, when operating indoors.
- To make a turn, slow down the speed, bring the forklift truck to the turning position, slightly turn the steering wheel, and then turn the forklift truck while paying attention not to hit anything with the rear side.
- For your safety, when climbing up a slope, Travel with the load in the front, and when coming down a slope, travel backward with the load to the rear.
- When starting on a slope, the parking brake can be used in place of the service brake pedal.

Halting

- To stop the equipment, remove your foot from the accelerator pedal and slowly push down on the service brake pedal slowly.



CAUTION

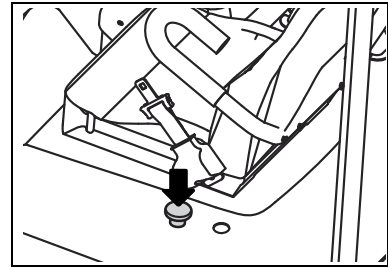
Do not step on the service brake pedal suddenly.

Otherwise, the equipment can tilt forward, or the load, if loaded, can fall down.

2. Know Your Forklift Truck

Emergency off switch

- When pressing the Emergency switch located to the left side of the operator's seat, the power supply will be cut off.
- The emergency off switch should only be used in dangerous situations and emergencies, so as not to damage the connector contacts.



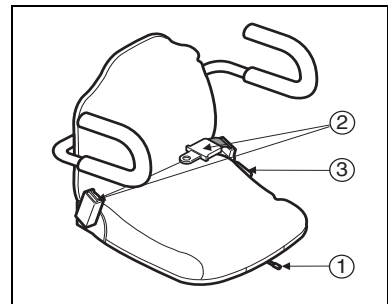
Seat switch

- The seat switch interrupts the driving current as soon as the driver's seat remains unloaded for about 2seconds.
- The driving current circuit is reconnected automatically when a load is applied to the driver's seat and the direction lever is set to the neutral position once and then back to forward / reverse position.



Seat adjustment

- The seat adjustment lever (1) is located under the seat. By pushing the lever to the side, the seat can be adjusted so that all controls may be comfortably reached. Once you have adjusted the seat to the desired position, release the lever.
- The back reclining adjustment lever(3) is located on the left side of seat cushion. Pull the lever up and adjust the back, release the lever.
- Be sure that the seat locking mechanism has engaged.
- Optional suspension seats can be adjusted for a comfortable ride.

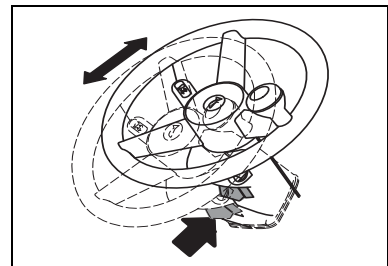


Safety belt

- Seat belt(2) must be worn at all times.

Adjusting the steering column

- The forklift truck is provided with an adjustable steering column.
- Release the locking lever by pushing it up. After adjusting the steering column, it must be relocked in place securely.



2. Know Your Forklift Truck

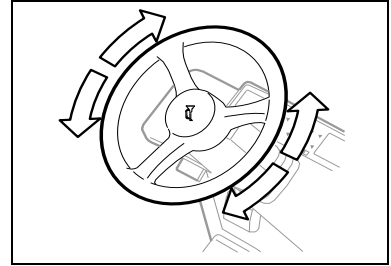
Steering system and horn

- The movements of the steering wheel are transferred to the steering axle hydraulically.

NOTE

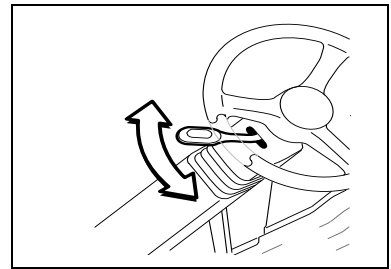
If the steering boost fails and when the motor is switched off, considerably more force must be applied for steering. Never drive a forklift truck which has a defect in the steering system. Observe the safety regulations outlined in "Section 1" of the operating instructions, especially "3. Operation".

- The horn button is located in the center hub of the steering hand-wheel.



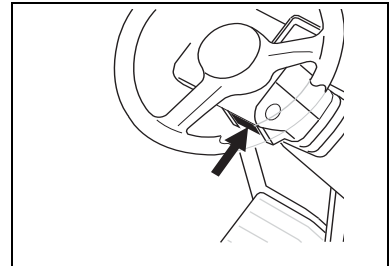
Direction Control Lever

- This lever is located adjacent to the steering column.
- For selection of the driving direction, the lever needs only to be pushed as far as the engaging point in the desired driving direction. When driving, observe the safety regulations described in Section 1.



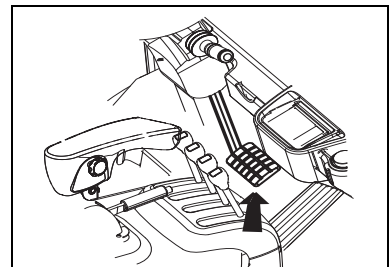
Steering Column Pylon

- The steering wheel can be tilted forward and backwards in small discrete movements.
- Push and hold pylon release, move the wheel to the desired position and release.



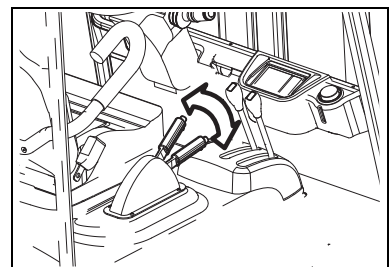
Service brake

- The brake pedal hydraulically actuates to the wet disc brake (or drum brake) of the front wheels.
- To apply the service brake push the brake pedal with your right foot until truck stops. When you remove your foot from the brake pedal, the service brake is released.



Parking brake

- It is released by pushing the button on top of the lever and then by moving the lever down.



2. Know Your Forklift Truck

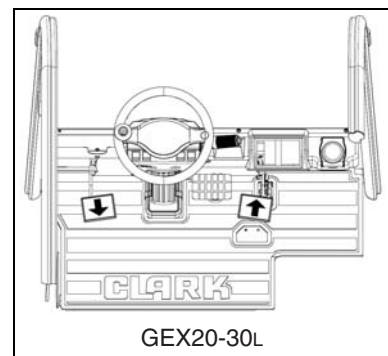
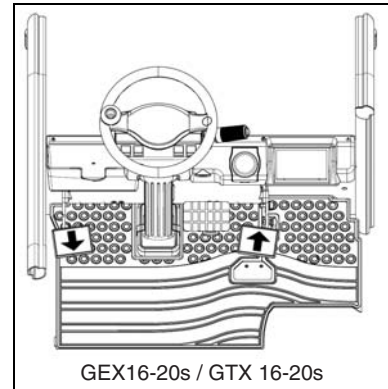
Dual Pedal (Optional)

Operation :

- In order to drive forwards you need to push the right pedal - just as it is with the original accelerator pedal. If you want to drive backwards you need to push the left pedal. This is also indicated by arrows on the pedal pads. The brake pedal remains in the same position as it is on the original truck.

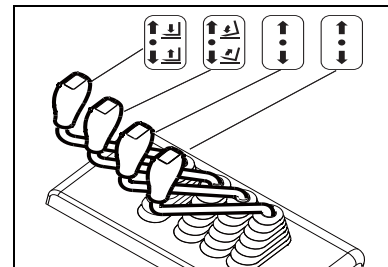


Operating these trucks with a Dual Pedal installed differs from operating the original truck quite significant. Instead of using the left hand lever to change the driving direction, you are only able to switch the direction by pushing the opposite pedal. Make sure you feel comfortable operating the truck with Dual Pedal installed before start working.



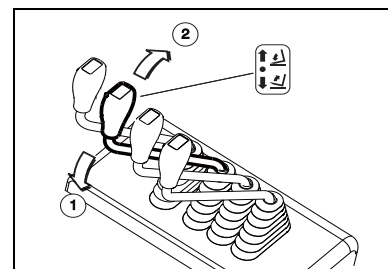
Hydraulic control levers

- The levers of the control valve activate the lift and tilt cylinders as well as any hydraulic attachments.
- The knobs on the levers have symbols on them, which makes their particular function clear.
- If the decals are not legible or have fallen off, replace them with new ones.



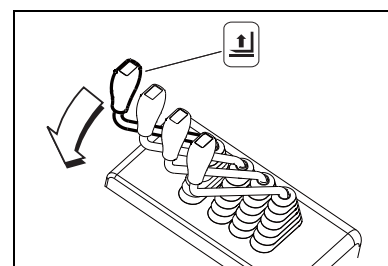
Tilt control lever

- You control the direction in which the upright is tilted with the tilt control lever.
- Pulling the lever backwards (1) causes the upright to tilt back.
- Pushing the lever forwards (2) tilts the upright forward.
- The tilting speed is controlled by the extent that the control lever is moved forwards or backwards.



Lift control lever

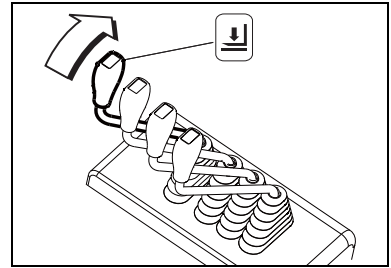
- You control the lifting and lowering of the fork carriage with the lift control lever.
- Pulling back the lever causes the fork carriage to be raised.
- The lifting speed is controlled by the extent the lever is moved backwards.



2. Know Your Forklift Truck

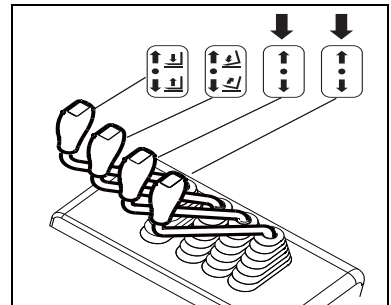
Control the speed of lowering

- The fork carriage moves down, when you push the lift control lever forward.
- You regulate the speed of lowering by the amount you push the lever forward.
- The maximum speed of lowering is determined by a lowering regulator valve.



Attachments

- Forklift trucks with hydraulic attachments are provided with one or two further control levers. These are fitted on the righthand side of the lift and tilt control levers.
- The function of these levers depends on the attachment, and the driver should be trained in the operation of these levers and the relevant attachment by customer service.
- Please check the attached plate indicating the load carrying capacity.
- Here, you will find the maximum load capacity of your forklift truck when fitted with the respective attachment.
- Read the operating instructions for the attachment carefully, and make yourself completely familiar with all hydraulic functions before carrying a load. Learn how to operate the hydraulics smoothly and without jerks.



Action to be taken in emergency

- Move the vehicle to a safe location and ask a CLARK dealer for repair.

If any phenomenon different from normal operations occurs (failure to run or the like) among others, should take place, ask a CLARK dealer for an inspection.

Joystick (Option)

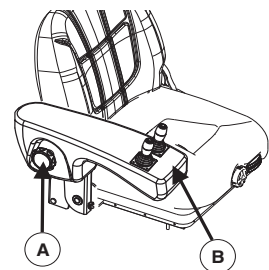
1. Adjusting the armrest of the driver's seat

- Loosen the armrest adjustment clamping screw (A).
- Move the armrest (B) to the desired position.
- Tighten the clamping screw (A) again.



WARNING

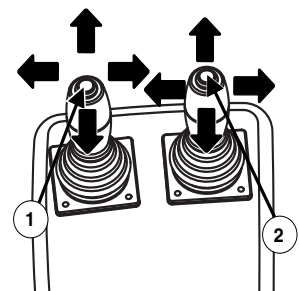
The clamping screw must be tightened securely.



2. Central control lever (joystick) operation of mast (1) and attachments (2)

ATTENTION

Use the lifting device and attachments only for authorized applications. The operator must be instructed in the handling of the lifting device and attachments. Observe the maximum lift height. Do not put your hands or any other part of the body into the lift mast or the space between the mast and truck.



2. Know Your Forklift Truck

Always operate the control levers smoothly; do not jerk.

The speed of lifting, lowering and tilting is determined by how far the lever is moved. The lever is designed to return to the neutral position when released.

NOTE

Note the operating symbols with arrows.

NOTE

On the single lever model both functions are operated simultaneously (e.g. lifting and tilting) when the control lever is moved to an intermediate position (about 45 °)

3. Tilting the mast forward

- Push the control lever (1) forward.

4. Tilting the mast back

- Pull the control lever (1) back.

5. Raising the fork carriage



WARNING

Do not stand on the raised forks. There is an increased danger of falling and being crushed or injured.

- Push control lever (1) to the right.

6. Lowering the fork carriage

- Push control lever (1) to the left.

7. Operating the attachments (Optional)

Attachments (e.g. sideshift, clamp, etc.) can be fitted on the lift truck as optional equipment. Observe the operating pressure and instructions for the attachment. One additional control lever is fitted for its operation.

NOTE

For each attachment, a load capacity label for the truck with attachment is affixed to the battery cover and a symbol label is affixed at the rear of the appropriate control lever.

8. Operating the sideshift (Optional)

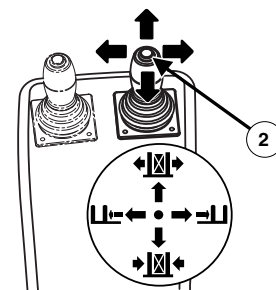
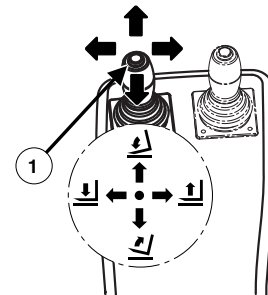
- Push control lever (2) to the left (this will move the sideshift to the left).
- Push control lever (2) to the right (this will move the sideshift to the right).

9. Operating the clamp (Optional)

- Push control lever (2) forward (this will open the clamp).
- Pull control lever (2) back (this will close the clamp).

ATTENTION

Attachments not supplied with the truck may only be employed if an authorized distributor ascertains that a safe operation is assured in respect to load capacity and stability.



2. Know Your Forklift Truck

Mini lever (Option)

1) Forward and Reverse switch

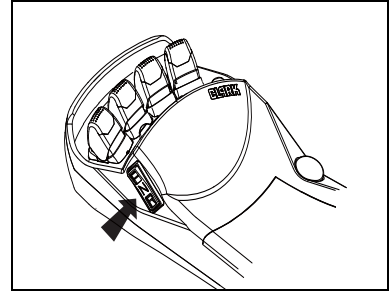
Switch for shifting between forward and reverse.

- **Forward**..... Push forward
- **Reverse**..... Push backward

The speed of forward and backward traveling can be adjusted by pressing the accelerator pedal.

NOTE

- **Stop the vehicle before shifting between forward and backward traveling.**
- **After the system has been activated, return the accelerator pedal to their neutral positions and return to the seat before recommencing operations.**
- **Always operate the control switch from a properly seated position.**



2) Lift lever

Raise and lower the forks for loading.

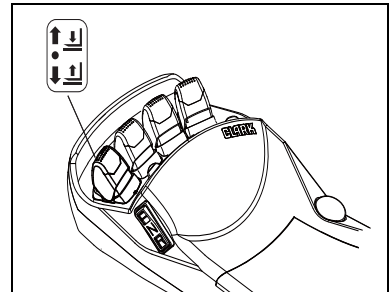
- **Raise**.....Pull backward
- **Lower**.....Push forward

Raising speed can be adjusted by the extent of pulling the lift lever.

Lowering speed can be adjusted by the extent of pushing the lift lever.

NOTE

- **After the system has been activated, return all of the levers to their neutral positions and return to the seat before recommencing operations.**
- **If you return to the seat while lowering the lift lever, the forks will not descend due to the return to neutral function.**



3) Tilt lever

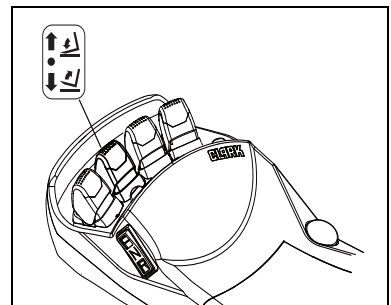
Tilt the mast forward and backward.

- **Forward** Push forward
- **Backward**..... Pull backward

Forward or backward tilting speed can be adjusted by the extent of operating the lever.

NOTE

After the system has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat before recommencing operations.



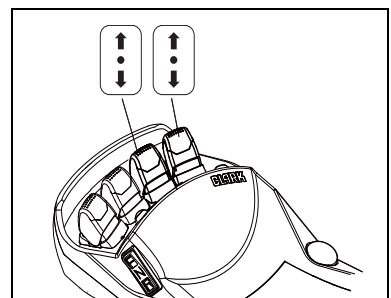
4) Attachment lever

Operates the attachment.

Attachment speed can be adjusted by the extent of operating the lever.

NOTE

After the system has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat position before recommencing operations.



2. Know Your Forklift Truck

5) Clamp lever lock switch

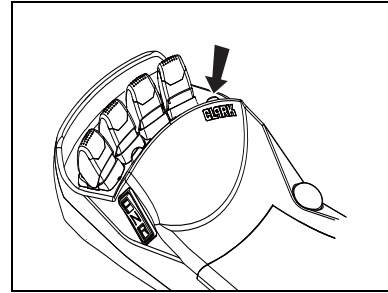
This switch allows attachment lever operations to be switched between the 3rd and 4th ways.

It is for 3rd or 4th clamp lever lock option when clamp release is not allowed, then pushing it with 3rd or 4th lever



CAUTION

Operate the attachment lever switch when attachment operations are stopped.



Safety instructions for sideshifter and fork positioner attachments

- With a side shifter, with two fork arms fitted, you can pick up a load (see carrying force diagram), carry it and shift it horizontally to the left and to the right.
- This makes it possible to pick up and set down the load precisely. Repeated shunting can thus be avoided.
- For attachments with the ability to move loads more than 100 mm either side of centre, the residual load capacities must be obtained from the manufacturer and indicated on an additional capacity plate.

Safety instructions for clamping attachments (e.g. clamps, etc.)

- Falling loads can cause accidents. This can result in malfunctions and the load can fall accidentally. Clamping attachments only be allowed on trucks which have a secondary function to prevent unintentional release of the load.

Safety instructions for rotary attachments

- A non-centred load centre of gravity can result in accidents. When using rotary devices and non-centred loads, the centre of gravity can be displaced from the centre with a high risk of accidents. Adapt the travel speed to the load. Lift the load from the centre.

Safety instructions for telescopic attachments

- Accident risk from increased tipover hazard and reduced residual capacity. There is a greater risk of tipover with extended telescopic attachments. Do not exceed the maximum loads specified on the capacity plate. Only use the telescopic function for stacking and retrieving. Retract the telescopic attachment fully during transport. Adapt the travel speed to changed load centre of gravity.

Safety instructions for attachments when transporting suspended loads

- Swinging loads and a reduced residual capacity can result in accidents. Transporting hanging loads can reduce the stability of the truck. Adapt the travel speed to the load, less than walking pace. Secure swinging loads for example with lifting slings. Reduce the residual capacity and have it certified by a expert. If the truck is to be operated with hanging loads, proof of sufficient safety distance under local operating conditions must be obtained from a specialist assessor.

2. Know Your Forklift Truck

Fork extension safety instructions

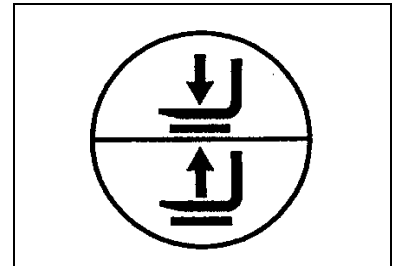
- Unsecured and oversized fork extensions can cause accidents. For fork extensions with an open cross sectional area, carry only loads that are resting along the entire length of the fork extension.
- The basic fork length must be at least 60% of the length of the fork extension. Use only fork extensions with the same fork cross section and minimum fork length of the truck and which comply with the details on the fork extension data plate. Lock the fork extensions onto the basic forks.
- Mark any fork extensions with an incomplete or faulty lock and take them out of service.

Symbols indicating the movement of attachments

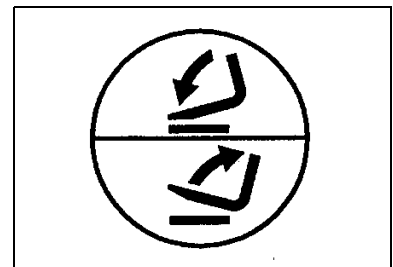
NOTE

The upper symbol indicates the movement of the attachment if the control lever is pushed forwards. The lower symbol indicates the movement of the attachment if the control lever is pulled back.

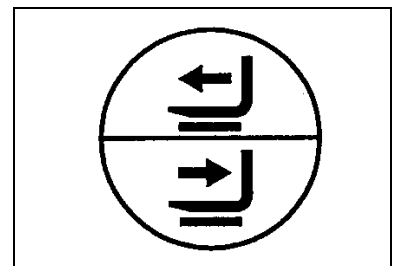
1. Lifting / lowering / forks or mast



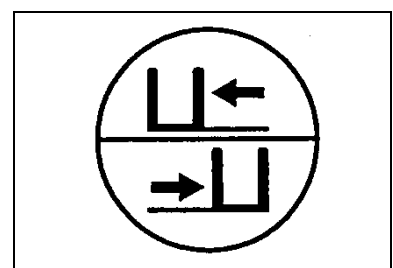
2. Tilting mast or forks forwards / back



3. Advancing / retracting reach frame or forks

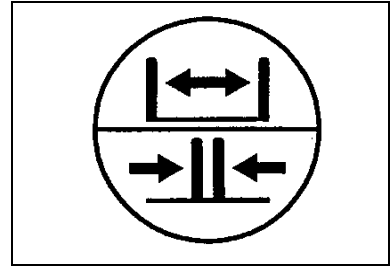


4. Side shifting to the left / right

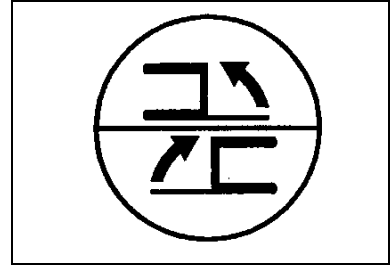


2. Know Your Forklift Truck

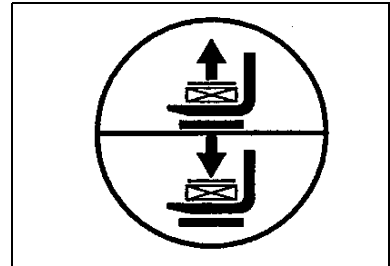
5. Increasing / reducing fork spread



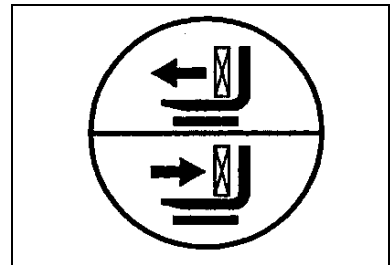
6. Rotating mast or forks to the left / right



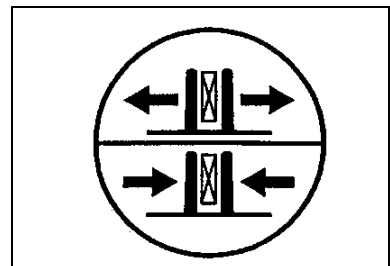
7. Actuating / releasing load holder



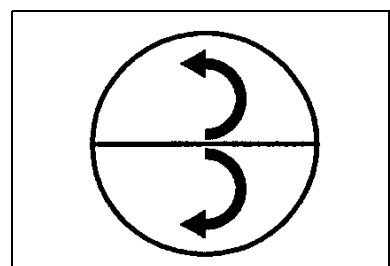
8. Pushing load off forks / pulling load on to forks



9. Opening / closing clamp

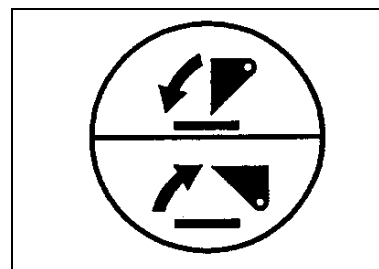


10. Rotating



2. Know Your Forklift Truck

11. Dumping / scooping with bucket



Battery Specifications

The information on the battery specifications is printed on the label affixed to the battery. See below for the specifications of the batteries for forklift models.

Model	Specification (standard)	Dimension (L x W x H)
GTX16	48V, 460AH	830 x 522 x 627
GTX18/20s	48V, 575AH	830 x 630 x 627
GEX16	48V, 460AH	830 x 522 x 627
GEX18/20s	48V, 575AH	830 x 630 x 627
GEX20/25/30s	80V, 620AH	1028 x 711 x 784
GEX30/30L	80V, 775AH	1028 x 855 x 784

Batteries with higher capacity or additional functions, other than those specified in the table above, are available. However, the outer dimensions must be observed. A different battery weight can affect the stability of the forklift. Therefore, use a battery whose weight falls within the allowable weight for the forklift.

Battery Recharging

To charge the batteries, park the forklift safely in the designated place, and ensure that it is sufficiently ventilated in order to remove the hazardous gas generated during battery charging.

During battery charging, make sure to open the top cover of the battery to provide sufficient ventilation of the gas generated during charging. Never place any metal tools or parts upon the battery during charging, as a metal object could result in a short-circuit.

Before starting to recharge the battery, make sure to check the battery cables, connectors and the battery cells for defective parts. Never place electrically conductive parts on the battery cell connectors.

- First, shut off the truck with the KEY switch
- Press the emergency stop button (for models equipped with the emergency stop button).
- Open the battery's top cover.
- Pull the battery connector out from the forklift connector.
- Connect the connector of the battery to the connector of the charger.
- Once charging is completed, disconnect the battery connector from that of the charger.
- Connect the battery connector to that of the forklift.
- Close the battery top cover and ensure that the battery cable will not be damaged.

The battery charger must be in compliance with the specifications provided by the manufacturer of the forklift or the battery. For further information on battery recharging, please refer to the technical documents provided by the supplier of the battery or charger.

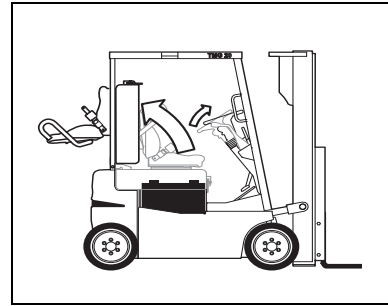
2. Know Your Forklift Truck

Battery Compartment Access

- The combination seat deck/battery compartment cover pivots upward to provide access to the battery compartment. You must move the seat to the rear most position release the steering column locking device and tilt the steering column as far forwards as it will go. Lock the steering column in this position. Release the compartment lock and lift the battery cover backwards.

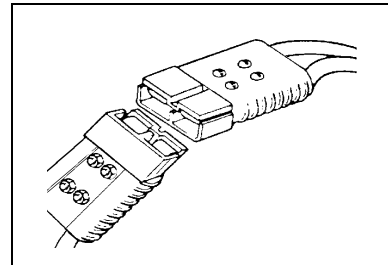


Take care that the locking lever locks back into place properly when the cover is closed, and the battery cables are not trapped.



Battery connector

- When inserting the battery connector, ensure that the battery cables remain free.



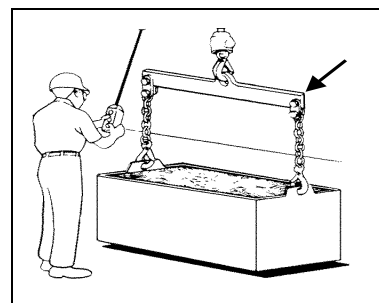
Battery exchange

- In some applications it may be necessary to replace a discharged battery with a charged one and recharge the removed battery outside the truck at a designated place.
- The battery retainer should be checked after each battery change and adjusted if necessary. In order to avoid dangers from unforeseen movements, batteries in the forklift truck shall be secured as specified by the forklift truck manufacturer.
- When removing and installing batteries, ensure that the battery cables are not damaged.
- Before exchanging the batteries, park the forklift safely in a designated place. How to park, refer to section "Parking".
- Please adhere to the following procedure:
 1. First shut off the truck with the KEY switch
 2. Press the emergency stop button (for models equipped with the emergency stop button).
 3. Open the battery's top cover.
 4. Disconnect the battery from the truck by pulling the battery connector out from the forklift connector.

2. Know Your Forklift Truck

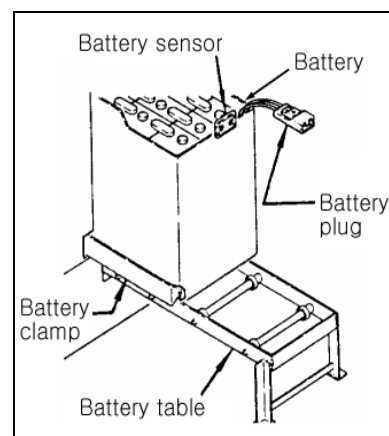
(Exchange with crane)

5. If the truck is fitted with a cabin roof , remove the cover at the overhead guard opening.
6. Remove the battery retainer .
7. In the event of a battery change with a hoisting gear, the lift should be vertical in order to ensure that the battery tray is not squeezed. Hooks shall be attached in such a way that they cannot fall on to the battery cells when the hoisting gear is slack. Make sure that the chains and safety hooks are checked and have sufficient load carrying capacity
8. When lifting the battery in and out, be careful not to damage the battery box by hitting the trucks chassis.
9. Place the battery carefully at the designated recharging place.
10. Remove the recharged battery and install in reverse order.
11. The forklift truck should only be restarted when the fastener, cables, connections, and covers have been returned to their normal operating condition.



(Exchange with side battery removal)

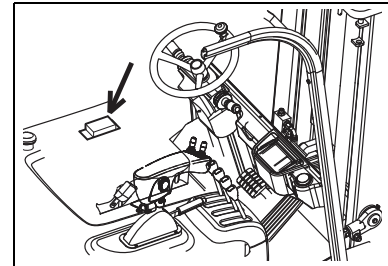
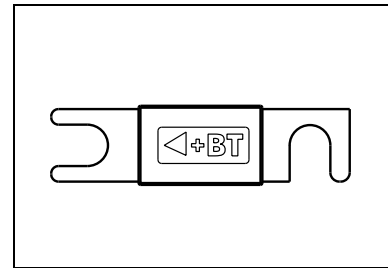
5. Make sure that the truck side frame is positioned close enough (<50 mm) to the battery exchange table frame.
6. The height of the exchange table must in line with the battery roller height in the forklift truck
7. Ensure that the forklift truck and the battery table are secured against unintentional movements that may occur when sliding the battery.
8. Remove the battery retainer.
9. Disconnect battery connector and pull the battery onto the exchange table and ensure that it is secured on the table to prevent unintentional movement.
10. Connect the truck with the cable extension.
Move the truck in slow / tortoise mode very carefully to next position.
11. Switch off truck, park the truck again, remove extension cable and push charged battery into trucks chassis.
12. The forklift truck shall only be restarted when the fastener, cables, connections, and covers, have been returned to their normal operating condition.



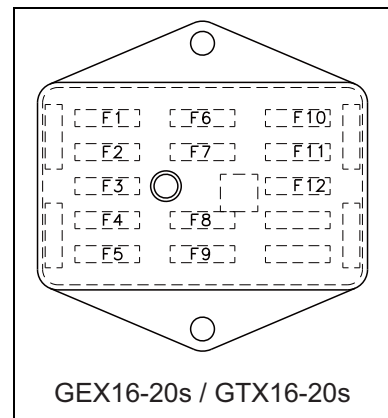
2. Know Your Forklift Truck

Fuses

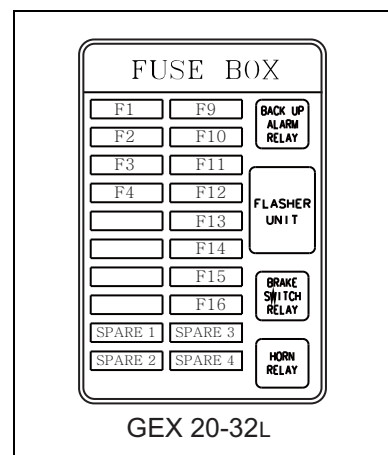
- The main fuses are located on the drive or pump control unit.
 - The respective control unit is installed in the rear of the forklift.
 - Note : For load capacities and positions of the fuses, see "4. Maintenance and Care" and "7. Technical Data".
 - Replace faulty fuses only with fuses of the same amperage.
 - If a fuse blows frequently, there is a fault in the electrical system. To rectify the fault, contact your CLARK dealer.
- Fuses are located at intermediate side when a floor plate is removed.
- The fuse ratings are clearly visible on the fuses.



GTX16-20s / GEX16-20s		
F1	Cold Storage	10 AMP
F2	Key S/W	10AMP
F3	DC-DC Converter	10AMP
F4	Converter Display	5AMP
F5	Head Light	10AMP
F6	Stop Light	10AMP
F7	T/Signal Lamp	10AMP
F8	Backup Relay	10AMP
F9	Strobe Light	10AMP
F10	Rear Work Light	10AMP
F11	Horn	10AMP
F12	Display	5AMP



GEX20-30L		
F1	Cold storage OPT.	10 AMP
F2	Key switch	10 AMP
F3	Converter Input	10 AMP
F4	Converter Display	5 AMP
F9	Head light	10 AMP
F10	Brake Lights	10 AMP
F11	Turn Signal	10 AMP
F12	Reverse Relay	10 AMP
F13	Strobe Light	10 AMP
F14	Rear working Lamp	10 AMP
F15	Horn	10 AMP
F16	Display	5 AMP
Spare1		10 AMP
Spare2		10 AMP
Spare3		10 AMP
Spare4		5 AMP



IMPORTANT

Never replace a faulty fuse with one of a higher rating.
 If a fuse persistently fails, there is a fault in the electrical system.
 You can contact your CLARK dealer with confidence to have the faults rectified.

2. Know Your Forklift Truck

Forklift with two-way radio or mobile phone

- For mobile phones and two way radios the usual regulations, as in the automotive sector, apply. High frequency transmission energy emitted by these and similar devices may cause malfunctions of the vehicle electronics.
- When installing such equipment, please contact your CLARK dealer for advice and assistance.



CE Marking, EMC Regulation

1) CE Marking (Declaration of Conformity)

The description below applies to the equipments sold in the EU/EEA market.

This equipment is indicated with the CE Marking which means that, at the time of the delivery, the equipment meets the essential health and safety requirements of the EU Machinery Directive 2006/42/EC. The responsibilities related with any remodeling of the equipment shall be born exclusively by the person or organization that performed the remodeling.



As an evidence of the conformity, the EU Declaration of Conformity Certificate is issued with the equipment. This Certificate must be transferred together with the equipment when the equipment is sold. If the equipment is used for a different use or attachments described in this User Manual, the user must take special care for safety.

If the equipment is used for a different use or attachments described in this User Manual, the user shall take the responsibility on such operation. A new CE Marking or new EU Declaration of Conformity may be necessary.

2) EU EMC Regulation

The electronic circuit and/or devices of the equipment may cause a dangerous condition due to electromagnetic interference with other electronic device(s).

If, electromagnetic fields (>10 V/m) occur in the area the forklift truck is used, the operator shall check whether the forklift truck is suitable for the intended work.

If very EMC sensitive equipment is present in the operating area of the truck it must be checked whether problems can occur with this equipment as a result of the operation of the forklift truck.

The EU EMC (Electro-Magnetic Compatibility) Directive 2014/30/EC describes the general matters on the safety requirements and the allowable range determined in compliance with related international standards.

The applicable equipment or device must obtain CE Marking Certificate by satisfying the requirements.

The equipments of CLARK have been tested for EMC and the CE Marking and Declaration of Conformity satisfies the EMC Regulation. If an additional electronic device is installed in the equipment, the device must obtain the CE Marking Certificate and pass the EMC test.

2. Know Your Forklift Truck

UL Classification Symbol

- Your forklift truck meets the a UL standard if the UL classification symbol is affixed (see fig.).
- If this symbol is absent, you may want to not place the forklift truck in service in your operation.



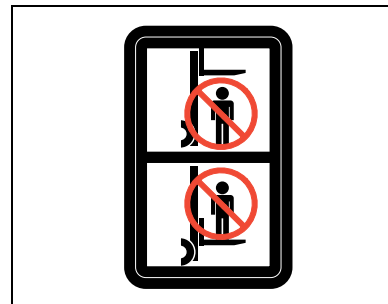
Warning plates

- Your forklift truck is fitted with warning plates. Make sure that these plates are always clearly visible.
- Defective, missing or illegible plates must be replaced immediately.



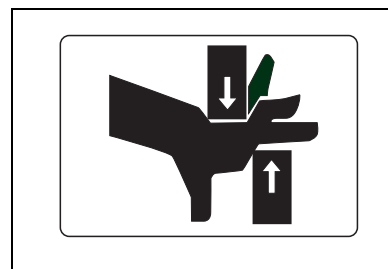
Remaining in area where a load is lifted is prohibited

- This warning plate must be fitted on the both sides side on the upright and has 2 meanings:
 1. Persons must not stand or walk beneath raised forks (including you as the driver).
 2. Persons may not be lifted or transported with the forklift truck.



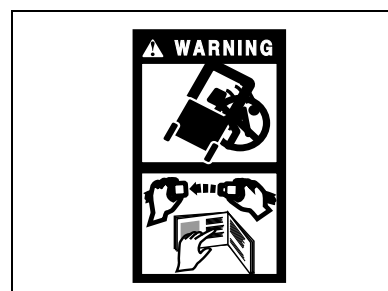
Crushing and shearing points

- This plate is fitted on the upright. It warns of the risk of injury which exists between crossbeams, chains, rope pulleys, fork carriage and other parts of the upright. Do not climb on the upright and do not reach inside. Be aware that you will be injured if any part of your body gets caught between moving parts of the upright.



Warning plate safety belt

- If the forklift should tip over, do not jump down from the forklift truck, it could kill you. You are safest if you stay in your driving position and tip over with the truck.
- When working with the fork lift truck, the seat belt must always be fitted correctly.
- Read the operating instructions if you are not familiar with operation of the forklift truck.



2. Know Your Forklift Truck

Transportation

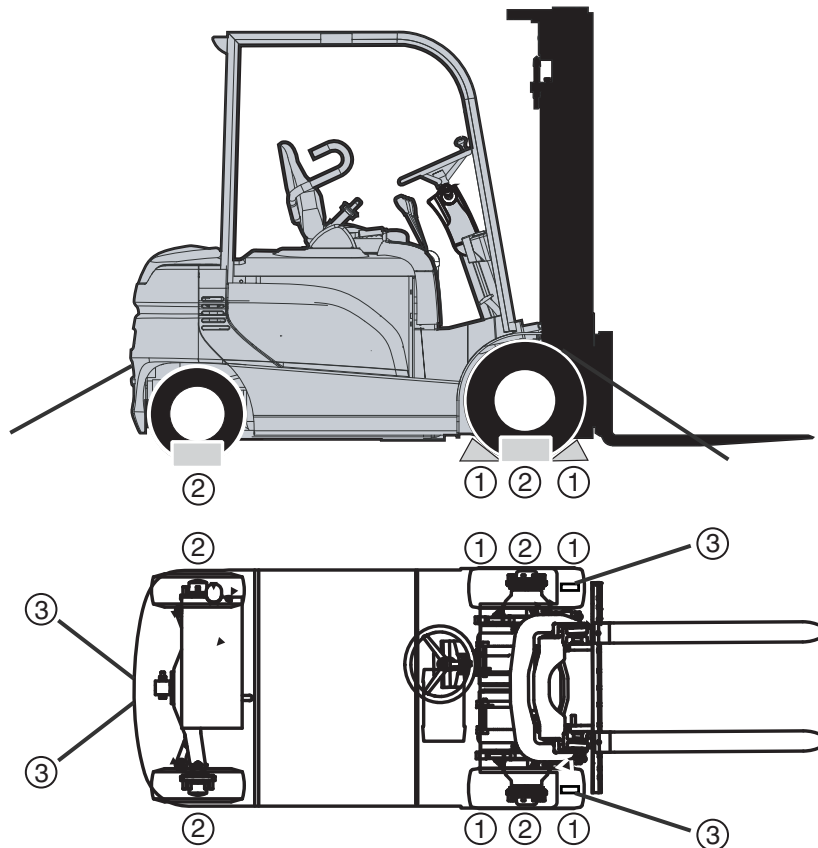
- When transporting the equipment on a vehicle (e.g., low loader), care should be taken to secure sufficient distance from edges, bridge plate, etc. When transporting the equipment on a flat bed loader, the ramp must have sufficient load bearing capacity.
- The fork lift truck can be loaded on a transportation trailer or a freight car. In such cases, observe the applicable laws and regulations.
- The dimensions (length, width, height) and load capacities of the fork lift truck are marked on the name plate.

CAUTION

The lifting chains and/or straps must satisfy the load lifting capacities in accordance with the applicable standards and technical requirements.

Equipment Loading

(1) Equipment having lifting eyes on the front



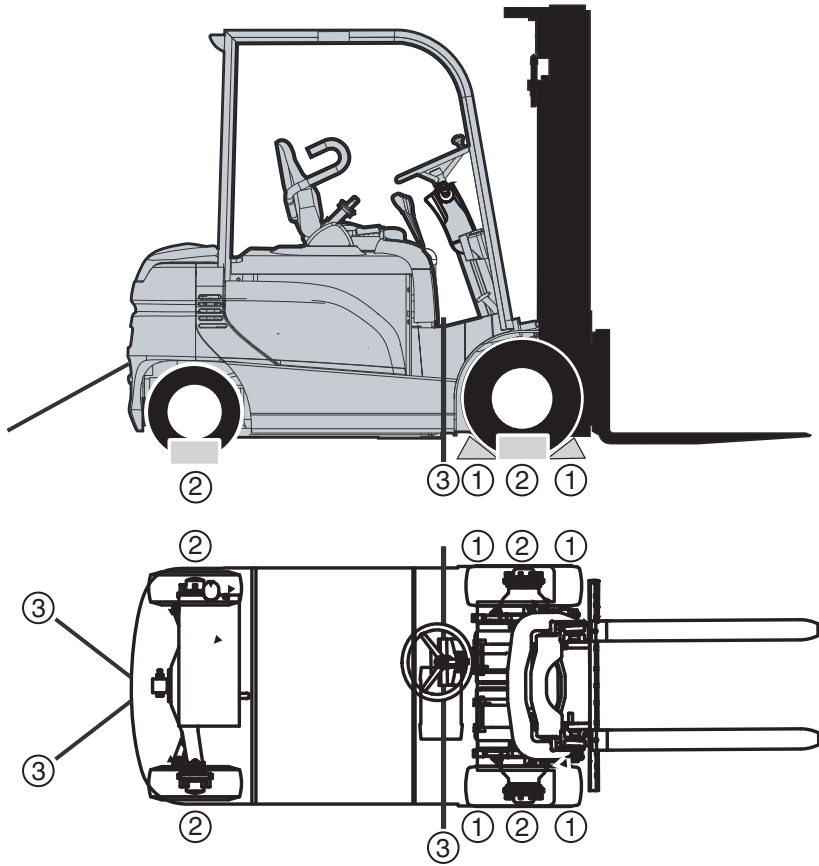
The procedures for loading the fork lift truck are as follows;

- Apply the parking brake.
- Put wheel chocks (1) at the front and rear sides of the front wheels to fix the equipment against lengthwise movement.
- Put wheel chocks (2) on the sides of all four wheels to fix the equipment against lateral movement.
- Install tension straps (3) at the front and rear sides of the equipment.
- Check that the tension straps are tied firmly.

Connect the tension straps to the lifting eyes at the front side and at the tow couplings on the rear side of the equipment. Tie the tension straps downward in the front and diagonally at the rear side of the equipment. Take care not to damage the tension straps.

2. Know Your Forklift Truck

(2) Equipments without lifting eyes



The procedures for loading the fork lift truck are as follows;

- Apply the parking brake.
- Put wheel chocks (1) at the front and rear sides of the front wheels to fix the equipment against lengthwise movement.
- Put wheel chocks (2) on the sides of all four wheels to fix the equipment against lateral movement.
- Install tension straps (3) at the front and rear sides of the equipment.
- Check that the tension straps are tied firmly.

Connect the tension straps across the floor board at the lifting eyes on the front side and at the tow couplings on the rear side of the equipment. Tie the tension straps downward in the front and diagonally at the rear side of the equipment. Take care not to damage the tension straps.

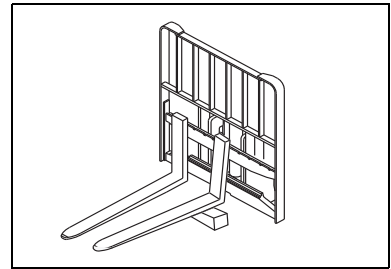
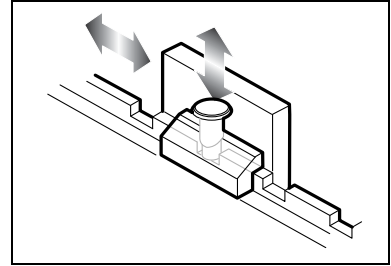


Use only tension straps which have sufficient load-bearing capacity in accordance with the technical requirements of the corresponding valid standards.

2. Know Your Forklift Truck

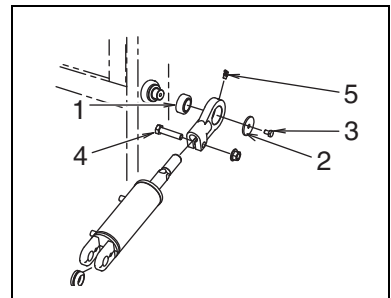
Attachment Disassembly

- When a truck can't be loaded in a container because of a high upright, the upright should be removed.
- Disassembling method is described below.



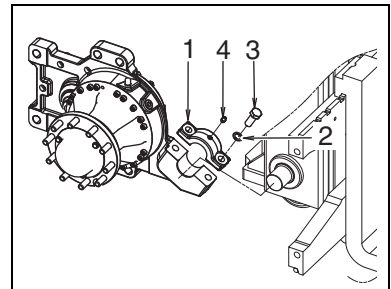
Tilt Cylinder Pin

No	Part Name	Q'ty	Remarks
1	Bearing	2	
2	Washer	2	
3	Bolt	2	40-45 N·m
4	Bolt	2	170-190 N·m
5	Nipple-grease	2	



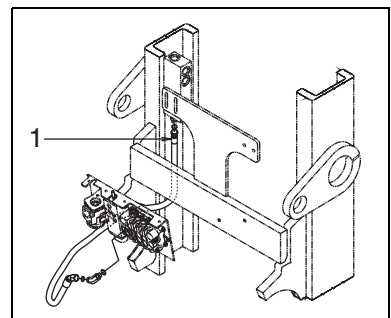
Upright mounting Bracket

No	Part Name	Q'ty	Remarks
1	Bracket	2	
2	Washer Spring	2	
3	Bolt	2	240-270 N·m
4	Nipple-grease	2	



Main Hose

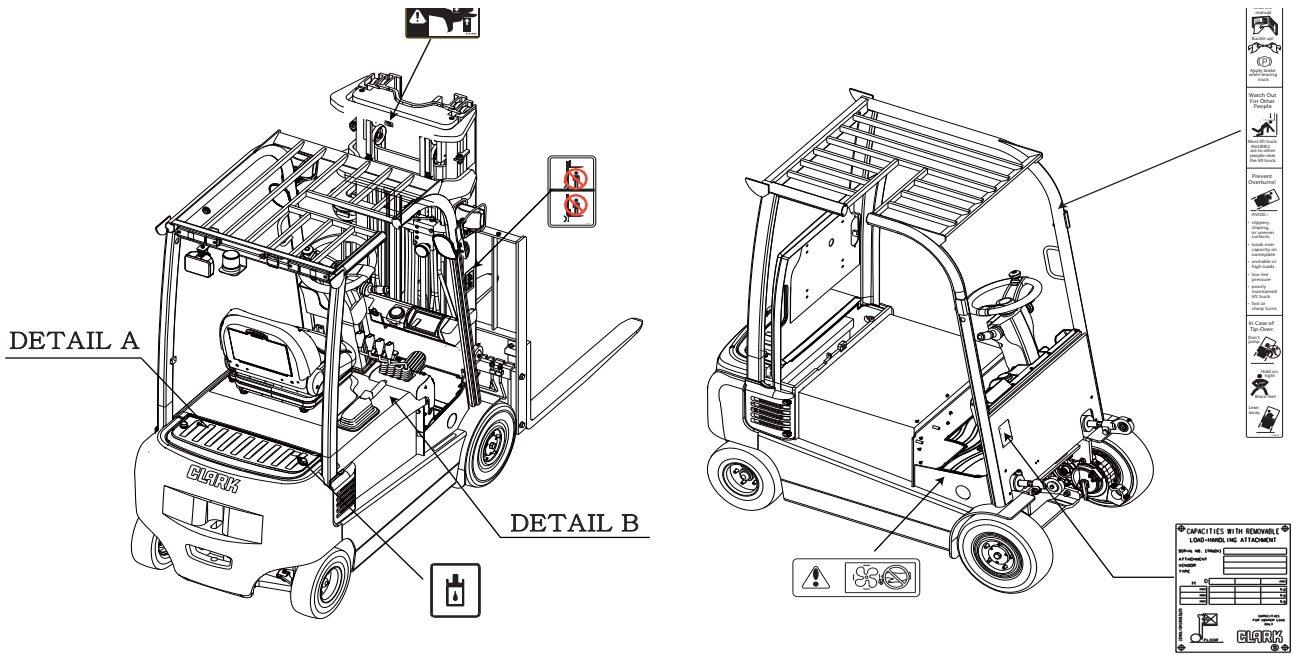
No	Part Name	Q'ty	Remarks
1	Hose Assy	2	69N·m



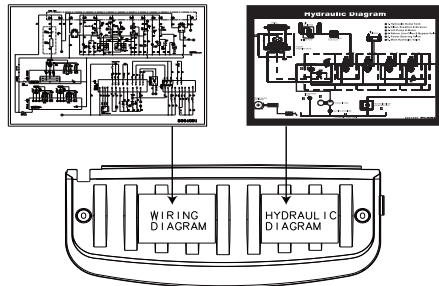
- Assembling is in reverse order to disassembling.

2. Know Your Forklift Truck

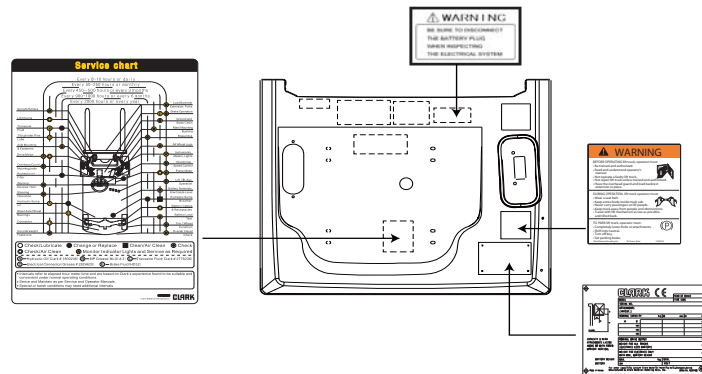
GEX 16-20s



DETAIL A



DETAIL B



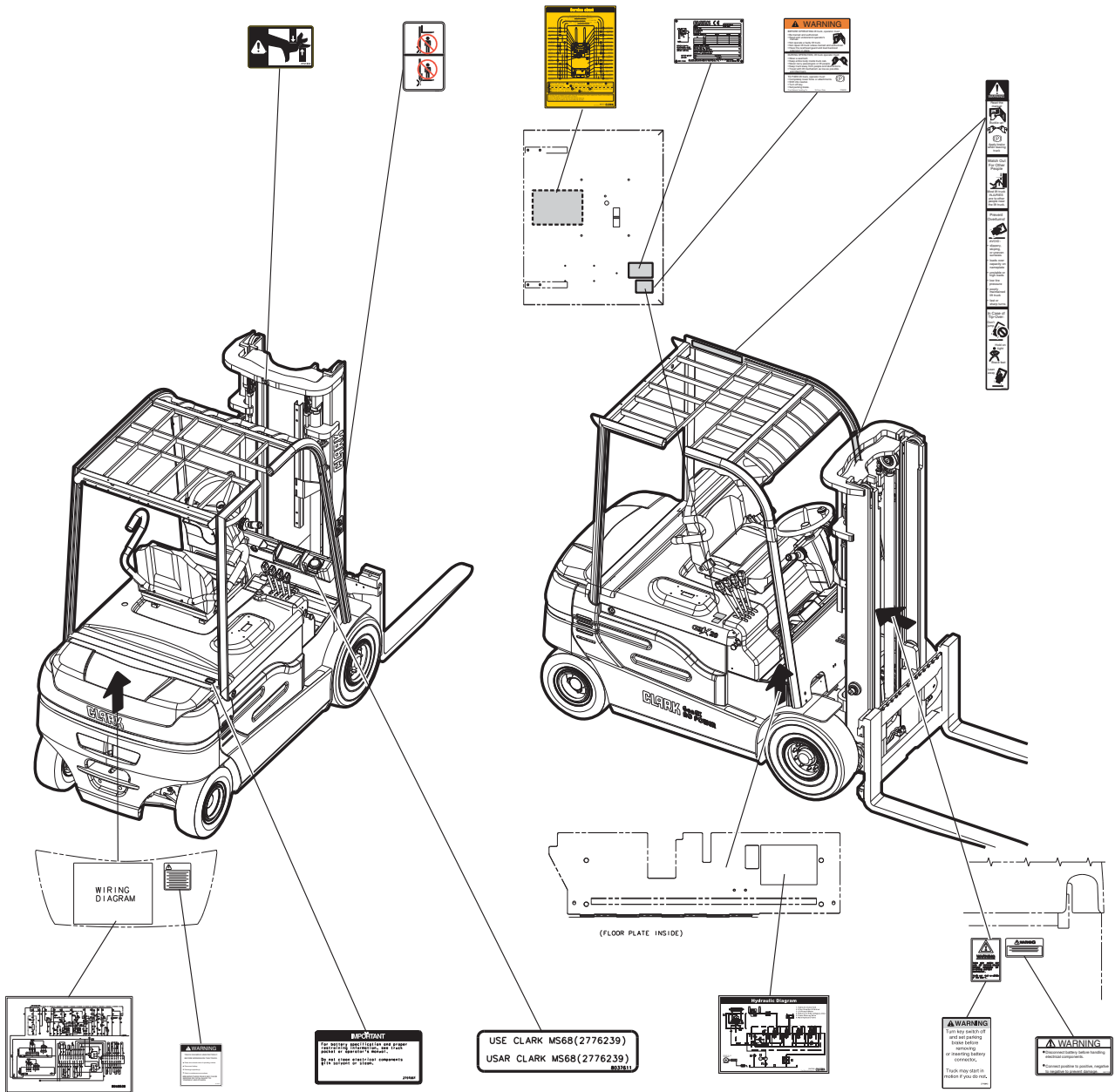
Attached Position of Safety Decals

 **CAUTION**

Do not operate a forklift truck with damaged or missing decals or data plates.
 Replace them immediately.
 Contact your local CLARK dealer to acquire new decals or data plates.

2. Know Your Forklift Truck

GEX 20-30L



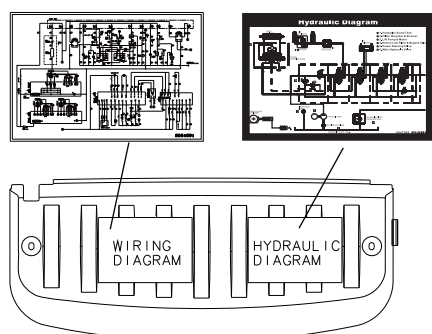
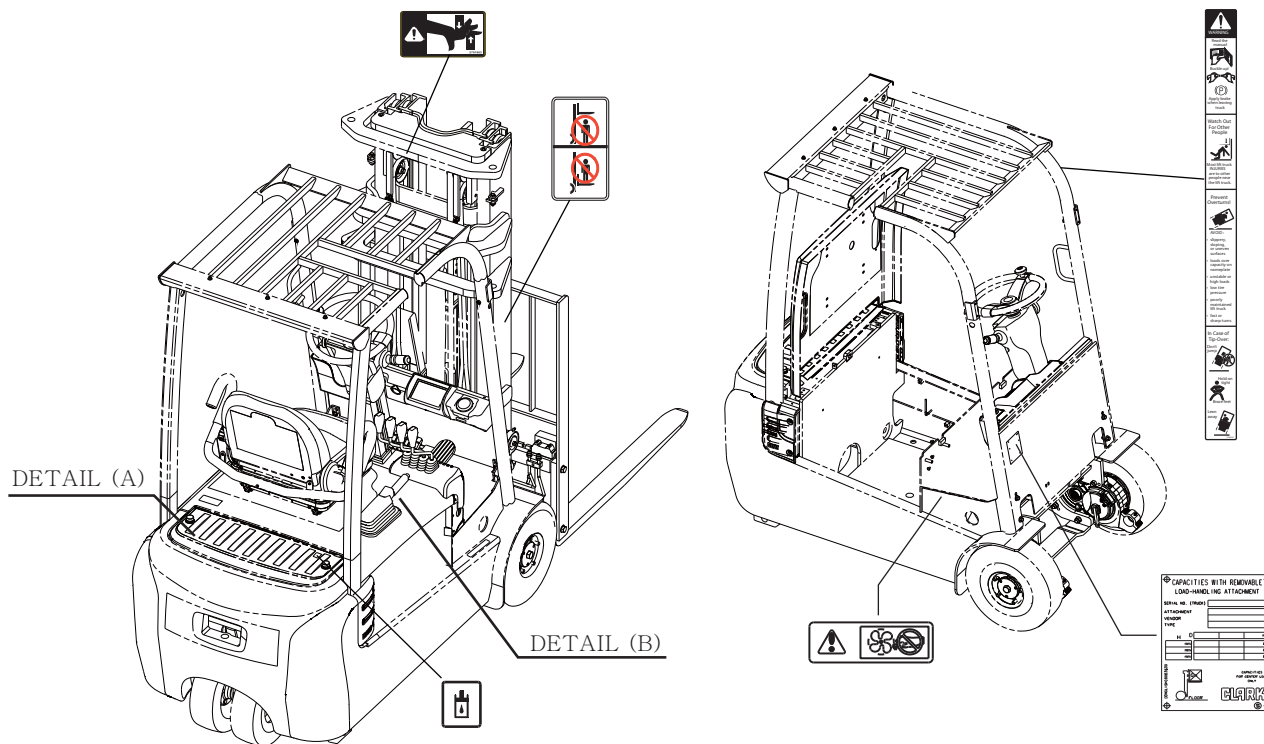
Attached Position of Safety Decals



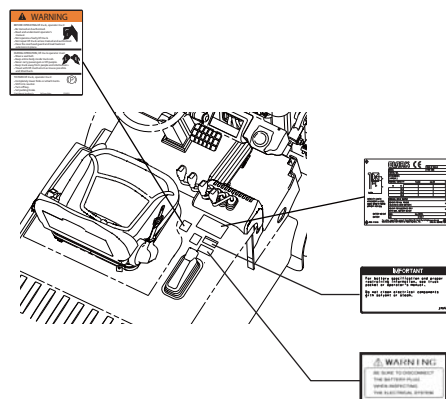
Do not operate a forklift truck with damaged or missing decals or data plates. Replace them immediately. Contact your local CLARK dealer to acquire new decals or data plates.

2. Know Your Forklift Truck

GTX 16-20s



DETAIL (A)



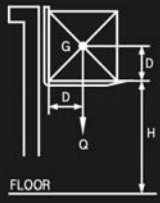
DETAIL (B)

Attached Position of Safety Decals



Do not operate a forklift truck with damaged or missing decals or data plates.
Replace them immediately.
Contact your local CLARK dealer to acquire new decals or data plates.

2. Know Your Forklift Truck



CLARK CE

MODEL		YEAR OF BUILD	
SERIAL NO.		TIRE CODE	
ATTACHMENTS (INTEGR.)			
NOMINAL CAPACITY		kg	D mm H mm
H	D		mm
mm			kg
mm			kg
mm			kg
NOMINAL DRIVE OUTPUT		kW	
WEIGHT FOR ALL TRUCKS (ELECTRICS LESS BATTERY)		kg	
WEIGHT FOR ELECTRICS ONLY WITH MAX. BATTERY WEIGHT		kg	
MAX.	kg	MIN.	kg
AH		VOLT	

CAPACITY Q WITH ATTACHMENTS LISTED ABOVE OR WITH FORKS-UPRIGHT VERTICAL

BATTERY WEIGHT BATTERY

OTHER CAPACITIES CONSULT CLARK MATERIAL HANDLING ASIA, CHANGWON, KOREA.

Made in Korea (ENGLISH 8032842)

Name plate

What you should know about your forklift truck :

1. The location of the model name.
2. The location of the serial number.
3. The description of the additional attachments (if any). Take note of the additional capacity load plate.
4. Which tire type (dimension, ply rating) to be used.

The type of tire (pneumatic/elastic) influences the static stability of the forklift truck.

For this reason only the tire types approved by the manufacturer may be used. Column 4 shows the tire types which are approved by the manufacturer.

Tire code :

- E = cushion
- L = pneumatic
- S = super elastic
- Z = twin tires
- R = radial

5. The year of build.
6. The capacity of the forklift truck with forks.
In this space the capacity, the load center and the lift height are stated. The specified maximum values must not be exceeded.

NOTE

For additional attachments there must be mounted an additional load capacity plate beside the name plate, which gives the permissible load capacity of your forklift truck for a CENTERED LOAD in conjunction with additional attachments. These load capacities must not be exceeded.

The subsequent mounting (not supplied by the manufacturer) of one or more additional attachments requires immediate mounting of a new capacity plate for the combination forklift truck / additional attachments. The customer must obtain this from the manufacturer or local dealer.

7. The forklift truck weight less load.
8. Where the nominal drive output is specified in "kW".

A damaged name plate or capacity plate must be replaced.

3. Daily Inspection

- Always check that your forklift truck is operationally safe. Never drive a forklift truck you have not checked. Before starting work, you should convince yourself that the forklift truck is in an operationally safe state. Carry out this inspection by the following list.

Daily inspection

	Page
Checking the forklift truck for any signs of damage and dirt	3.2
Check tires	3.2
Check wheel nuts for tightness	3.2
Check the display unit are working properly	3.3
Check horn is working properly	
Check service brake is working properly (pads are in good condition?)	3.3
Check parking brake is working properly and adjust if necessary	3.3
Check steering is working properly	
Check upright and hydraulic system are working properly	3.6
Check tension of lift chains is equal	
Check forks and fork locking device	3.6
Check that drivers overhead guard and load back rest are secured properly	
Check trailer coupling and safety device (if fitted)	
Check battery acid level and battery charge	
Check battery connectors are a tight fit	3.2
Check battery and wiring connectors are a tight fit	3.2
Check lighting (if any)	

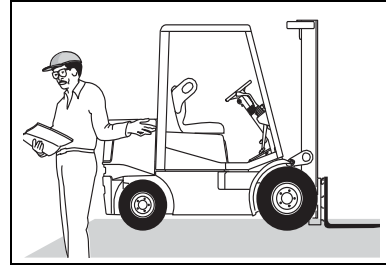
**Always check that your forklift truck is operationally safe.
Never drive a forklift truck you have not checked.**

3. Daily Inspection

Visual inspection

Walk around your forklift truck and look for any obvious signs of damage, leaks and dirt.

- The degree to which cleaning is required depends on the operating environment of the forklift truck. For operation in areas with large amounts of dust or paper, thorough cleaning is required after each operating shift, or several times a day. The same applies to operation with cement and chemicals. See also section "4. Maintenance and Care"



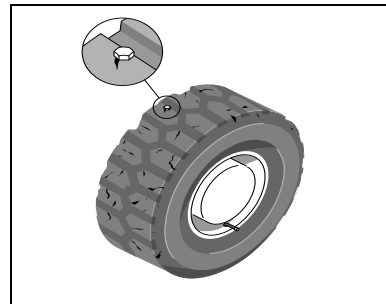
Wheels and tires

- Check the :
 - State of the drive wheels, the steer wheels and all tires.
 - Tight of wheel nuts.
See section "7. Technical Data" for tightening torques and tire pressure.



CAUTION

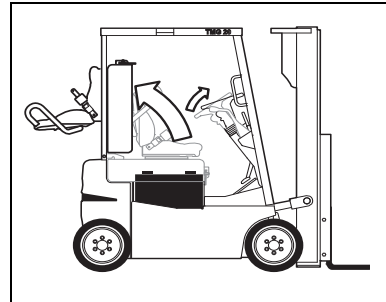
A wrong tire pressure influences the stability of the forklift-truck. If you change a tire, always change both tires on the axle.



Lifting up the battery compartment

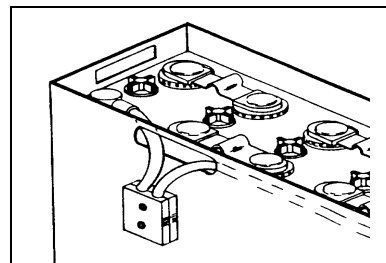
(See also page 2.14)

- You must move the seat to the rear most position release the steering column locking device and tilt the steering column as far forwards as it will go.
- Lock the steering column in this position.
- Release the compartment lock and lift the battery cover backwards.
- Carry out the checks on the battery according to the following paragraph.



Checking the battery and cables

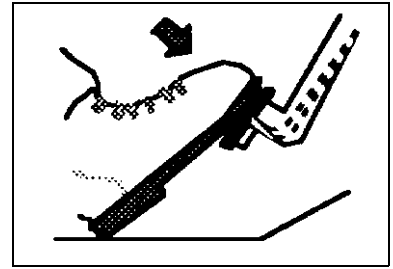
- Check for visible damage such as:
 - Loose connection cables
 - Broken battery connectors
 - Contamination and corrosion of the battery parts and electronics
 - Damaged cable insulation
 - Trapped cables.
- Clamps and cable shoes shall be kept clean and coated slightly with terminal grease.
- Have faults repaired immediately by a qualified and authorized person.
- Check for damage of cables and terminals every 500 working hours.
- If a truck is operated with the old cables, the insulation of the cable may be hardened or cracked. In that case, the cables should be replaced with new cables having over 90°C temperature rating.
(Inquire about cables at an authorized service agency)



3. Daily Inspection

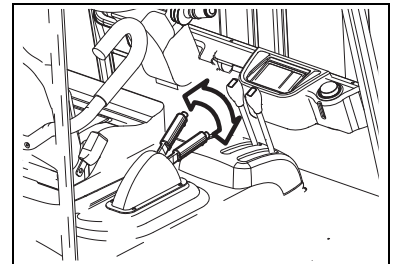
Checking the service brakes

- Depress the brake pedal with your foot to check whether a firm resistance can be felt.
The pedal must not feel spongy or give way. If it does, the forklift truck must not be used under any circumstances. Instead, you should arrange for the brake system to be serviced immediately.
- The pedal pad should also be replaced, if it no longer provides a good grip.



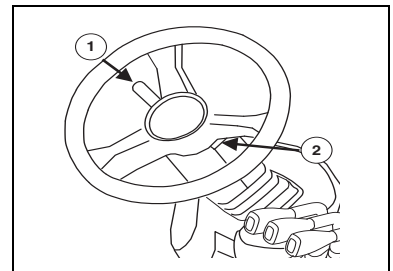
Checking the parking brake

- The brake is applied by moving the lever backwards and released by moving it forwards.
- To check parking brake holding capability, park the lift truck on a grade and apply the parking brake.



Starting the Truck

- Before you start the truck, make sure that you have taken all the above-mentioned precautions and that the directional control (1) is in NEUTRAL. To start the truck, turn the key switch (2) clockwise to the ON position.



Using the Display

LCD Back Light

- LCD back light is connected through the Key switch.
 - When the start key is turned on, power is applied to the display.
 - Whenever the power is applied, the LCD back light will turn on.

DISPLAY Initial Start-up

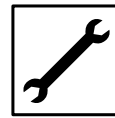
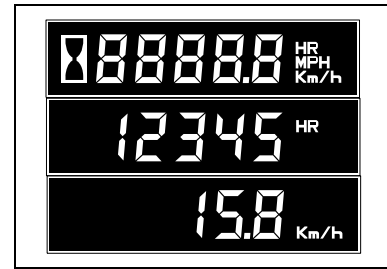
- KEY ON
 - All the Icons and Buzzers will be ON for 1second to check the indicating conditions.
 - Seat belt warning mode (5 seconds) after Icon turns off for 1second: It is always indicated regardless of communication conditions; When this mode is working, all the indicating data should be in normal conditions. "(Working hour/speed, Battery discharging rate, Speed limit rate, Parking)"
- After the seat belt warning mode is completed and data supplied from the controller will be indicated.
- The display should turn "ON", all symbols and "8888" appear on numeric display for about 2 seconds when the key switch is first turned "ON". After 2 seconds, all displays should return to normal operating conditions except the seat belt reminder symbol which will continue to be displayed for 2 additional (4 seconds total) while the seat belt buzzer (alarm) sounds.



3. Daily Inspection

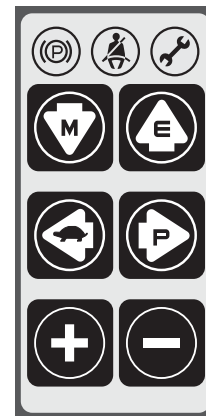
Working hour/speed indicating algorithm

- Working hour/speed will be indicated in the same window.
- The indicating data is displayed based on traveling speed.
- If the traveling speed exceeds 0.5km/h, the current traveling speed will be indicated "km/h" icon turn on. When the speed gets lower than 0.5km/h, traveling speed indicator will be released "km/h" icon turn off.
- The current working hour is indicated when the traveling speed is lower than 0.5km/h, and the "sandglass" icon flickers in a second cycle.
- When the traveling speed is more than 0.5km/h, the working hour indicator is released (converted to speed indicator), and the "sandglass" icon will turn off.
- If the wrench symbol comes on, a status code appears on the digital readout. The status code may indicate an easily correctable "operator fault" or it may indicate that you need to have the truck serviced.



MODE SELECTION BUTTON

- 6 mode selection buttons are located on right side of LCD.
- Each button has a specific function, and some have multiple functions.



Down arrow button (Mode button)

1. Pressing this button in normal operating condition, it will move to Menu mode.
2. Pressing it in Menu mode, it will move to lower menu.
3. Pressing it in the lowest mode, there will be no change.



Up arrow button (Enter button)

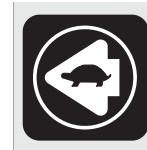
1. Pressing this button, it will move to the upper menu.
2. It will also take the role of an "Enter" button when confirming a changed password or main parameter.



3. Daily Inspection

Left arrow button (Turtle button)

1. Pressing this button, it will move to left menu.
2. In normal operating condition, it will select/release Slow speed.
 - When pressing, the following figure will be displayed and Slow speed selected.
 - Press once more to release.
 - The figure will disappear and Slow speed is released.
3. Change of slow speed
 - Use "+/-" buttons to change the set speed while the Slow speed is selected. After adjusting the speed, press "Enter" (Up arrow) button to store it. The speed can be set from 2 km/h to 9km/h with unit of 1km/h.



Right arrow button (Travel mode button)

1. Pressing this button, it will move to right menu.
2. In normal operating condition, it will select/release Power.
 - Travel mode is composed of 3 steps, and it can be adjusted by use of "+/-" buttons. After adjusting the speed, press "Enter" (Up arrow) button to store it.
 - Travel mode
In the order of Economy → Normal → Power : Pressing "+" button to move right, and "-" left.
 - Economy : It is Slow speed mode to save the battery consumption as minimizing the acceleration function.
 - Normal : It is normal operating mode, and smooth acceleration can be done.
 - Power : Powerful acceleration is possible and the work ability will be improved.



Plus(+) button

1. Increase the data value in the current Menu mode.



Minus(-) button

1. Decrease the data value in the current Menu mode.



Code	Condition	Likely Corrective Action
-001	Seat switch open	Sit in seat
-061, -065, -140, -203, -207	Overheat of motor and controller	Restart after cooling down
-066, -208	Low battery voltage	Replace with a charged battery
-079	Started with wrong sequence	Before starting, place the Forward/Reverse lever to N position Before starting, release the accelerator pedal.
-217,-245	Wrong set battery	Replace the battery with a correct battery
-255	Parking brake applied	Release the parking brake
Other	Truck needs service.	Call service technician.

3. Daily Inspection

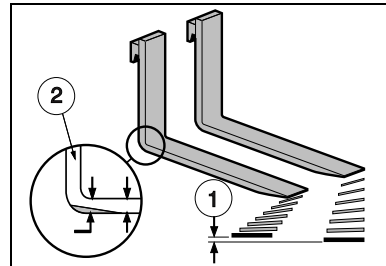
Checking the uprights/hydraulic system function

- Check for obvious signs of damage, leaks and dirt. If necessary, carry out maintenance and service work in accordance with section 4.
- The uprights should be raised to maximum height at least once a week, in order to check that the hoist function is fully operational. In addition, this allows full lubrication of the lift piston rod and the lift cylinder wall.
- Observe the safety regulations outlined in section 1.



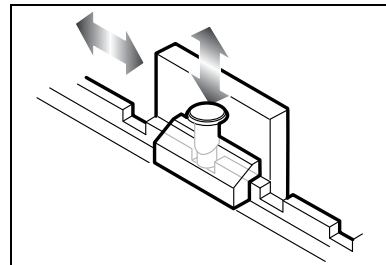
Checking the forks of the fork carriage

- The forks should be checked using the following list.
- They must be replaced immediately if the given specifications are not met
 2. Measure the distance from the fork tips to the ground. The height difference between the forks tips should be no more than 1.5% of the blade length.
 3. The blades of the forks must not be worn down by more than 10% at the heel and the forks must not be bent.



Checking the forks are locked

- Check whether the device, which locks the forks into position, has engaged properly, so that the forks cannot slide.
- Check whether the forks are correctly positioned in the fork carriage and cannot unhinge themselves.
- Check whether the lateral fork limit stop is tightened securely.



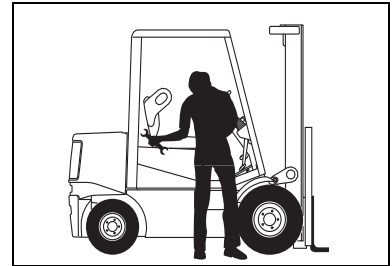
Checking the traction and hydraulic cables

- Check for damage of cables and terminals at every scheduled PM(500 hrs)
- During inspection, check the following cable conditions
 - Terminals for loosening or corrosion
 - Insulation for hardening and cracking
 - Evidence of over heating
 - Worn or thin insulation
- Do not repair a cable by cutting out the damaged section and splicing.
- When required entire cable for traction and pump motors should be replaced with new cables having over 90°C temperature rating.(Inquire about cable at an authorized CLARK service agency)

3. Daily Inspection

Operational safety of the forklift-truck

- Do not start using any forklift truck, which is not in a safe operational state.
- Forklift trucks should only be repaired by competent and authorized persons.



Checklist after Equipment Deployment

Check followings after deploying the equipment;

- Check travel motor, hydraulic motor, and steering motor for proper functions
- Check the function of the battery charger
- Check various contacts for function and contact point condition
- Check braking distance and abnormal noise
- Check brake pedal force and clearance
- Check parking brake
- Check tire air pressure and tread wear
- Check battery fluid and terminals
- Check instrument gauges and warning lamps
- Check the function of head lights and lamps
- Check the function of various levers
- Check hydraulic oil condition and leakage
- Check front/rear tilting angles of the mast
- Check tension and lubrication of the lift chain
- Check function of the upright

Safety is

Life



4. Maintenance and Care

1) General

Persons to be appointed for maintenance and recurring inspections

Only qualified and authorized persons are allowed to carry out maintenance work. Periodic inspections shall be carried out by a technical expert. The aforesaid technical expert shall submit his expert opinion and evaluation only from the point of view of safety without being influenced by company and economic circumstances. He shall have sufficient knowledge and experience in order to be able to assess the status and condition of the forklift truck and the effectiveness of the protective equipment in accordance with the latest state of the art and the basic principles for the inspection of forklift trucks. The forklift truck manufacturer has trained staff available for maintenance and periodic inspections.

Intervals for maintenance work

The maintenance work shall be carried out in intervals specified in Chapter 5. Important is to carry out the safety check in accordance with national regulations. Clark recommends checks in accordance with the FEM 4.004. The truck must be inspected at least annually (consider national regulations) or after any unusual event by a qualified inspector. The owner is responsible for ensuring that faults are immediately rectified. The service intervals stated are based on single shift operation under normal operating conditions. They must be reduced accordingly if the truck is to be used in conditions of extreme dust, temperature fluctuations or multiple shifts

Periodic inspections

A periodic inspection shall be carried out in the EU member states in accordance with directive 95/63/EC (Directive on Minimum Regulations for Safety and Health Protection) then equipment is used by employees at work. The relevant national regulations shall be observed with regard to non-EU states. A periodic inspection by a technical expert shall include an examination of the current state of the components, equipment and installations, together with the completeness and effectiveness of the safety devices. The forklift truck also shall be thoroughly examined for any damages or impediments caused by possible improper use. A test record must be issued. The results of the tests must be kept until the next examination at the latest. The operator shall ensure that defects are rectified as soon as possible.

Quality and quantity of the required oils and lubricants

Only the oils and lubricants stated in the operating instructions shall be used.

Spare parts

Only those spare parts shall be used which are specified by the manufacturer. If spare parts are used which have not been approved by the forklift truck manufacturer, the risk of accidents can increase due to inadequate quality or an incorrect connection. If inadmissible spare parts are used, the user shall assume full and unlimited responsibility for any damage sustained. The CE Declaration of Conformity of the manufacturer ceases to be valid if spare parts not approved by the manufacturer are used.

Servicing for which no special qualification is required

Simple servicing such as checking the oil level or checking the level of liquid in the battery lay also be carried out by the operator. Additional details can be found in the operating instructions.

Safety installations

All safety devices shall be re-installed after servicing and repairs and shall be checked for proper functioning.

Settings

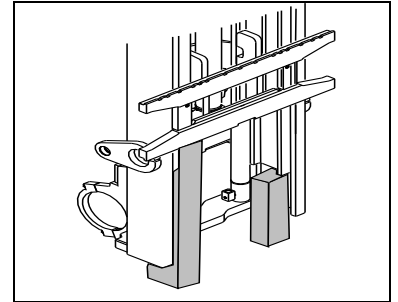
If hydraulic and electric components are repaired or replaced, the equipment related settings shall be observed.

4. Maintenance and Care

2) Safety tips

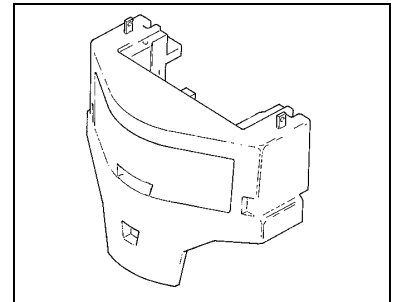
Safety tips

- Make sure that any unintentional movement or unintentional starting up of the forklift truck is prevented. (disconnect the battery plug on electric trucks).
- The forklift truck should be secured by activating the parking brake and by inserting chocks under the wheels in order to avoid unintentional movements.
- When working under a raised fork carriage, never forget to secure the fork carriage and the inner rail (both inner rails on a Triple upright) with sufficiently sized wooden beams and chains.
- The forklift truck can be secured against accidental motion by applying the parking brake and by placing wedges under the wheels.



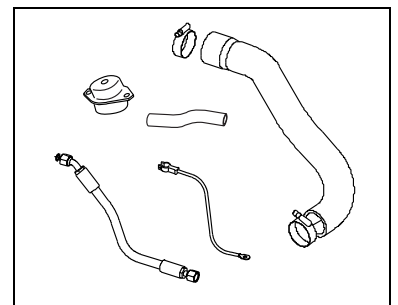
Counterweight

- If the counterweight has to be removed for repair work, you must take its weight with a crane before undoing the mounting bolts. The counterweight is only held on by the mounting bolts and would otherwise fall off, when these were undone. This could, at the very least, lead to serious injuries.



Hoses, cables and rubber parts

- Hydraulic lines must be depressurized.
- Hoses, cables and rubber parts succumb to a natural process of ageing, which is dependent on outside influences (e.g., temperature, environmental factors, etc.).
- At every maintenance, check all hoses, cables and rubber parts for damage and ageing.
- Replace all defective parts.



Disposing of lubricants, filters and batteries

- Used parts and lubricants which arise during repair work must be stored safely until they can be disposed of in accordance with the regulations. In this respect, follow the regulations applicable in your country.



4. Maintenance and Care

3) Maintenance

Electronic system

WARNING

Work on the electric equipment of forklift trucks shall only be carried out in a powerfree condition. Work on live components for functional testing, checks and adjustments shall only be carried out by instructed and authorized persons taking the appropriate precautionary measures. Before carrying out any maintenance work on electrical components, always disconnect the battery and take off watches, jewelry, rings or other metal objects.

High-performance, modern controls are equipped with capacitors. Residual voltage can still be present after the battery has been disconnected.

For this reason, undertake the following measures before servicing:

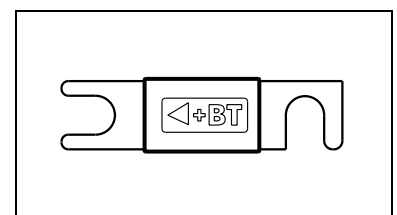
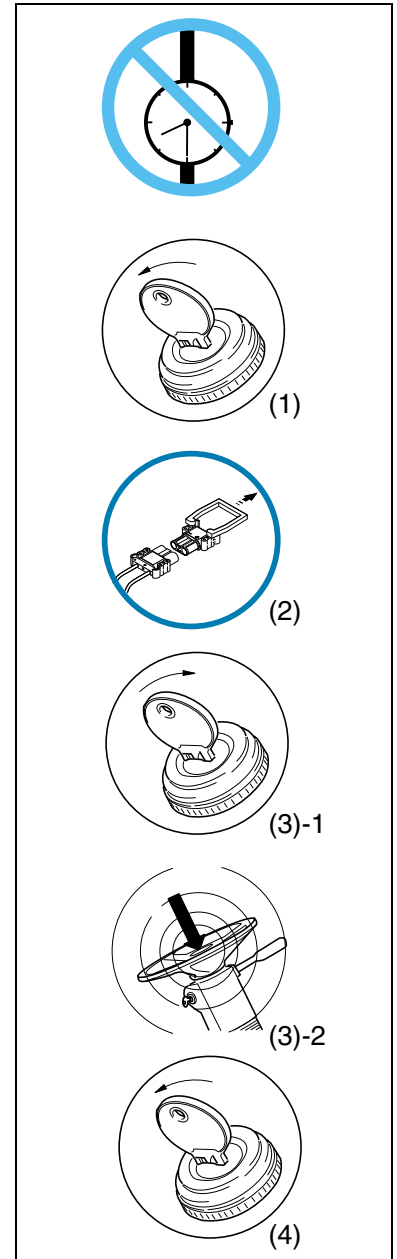
1. Switch off.
2. Disconnect the battery connector.
3. Switch on the ignition and wait until the display lights go out. Activate the horn for approx. 5 seconds.
4. Switch off.

Before calling customer service at your CLARK dealer because of a performance drop or total failure of your forklift truck, please check the following points:

1. Is the battery sufficiently charged?
2. Is the battery connector connected correctly and securely?
3. Are there any foreign particles in the operating panel?
4. Are all wires, cables and plug connections securely connected and damage free?
5. Are all fuses in working order?
(Check the fuse connections for corrosion).

Fuses

- The main fuses are located on the pulse controller. The pulse controller is installed in the rear section of the forklift.
- If you suspect a fuse has burnt out, this can best be checked using an ohm meter.



4. Maintenance and Care

Electric-motors

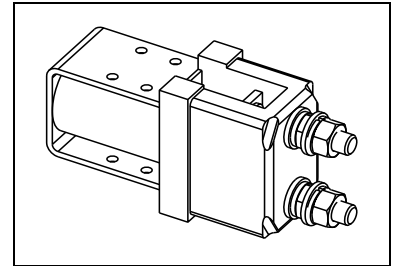
General visual check

- Check for damage to terminal boards. Check for damage to encoder connector and temperature sensor connector.



Contactors

- If the contact surface of a contactor become rough, polish it out with sandpaper.



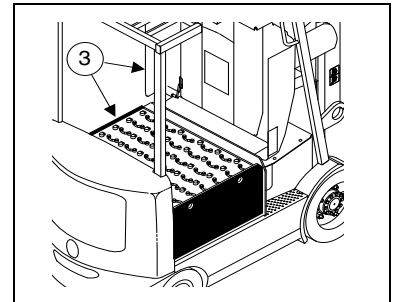
Batteries - General information

Always observe the instructions provided by the battery and charger manufacturers.

1. Charging and maintenance operations are to be performed exclusively by qualified personnel working in well ventilated areas. Never smoke or use exposed light sources when working on the batteries, as the emerging gases can cause an explosion.



2. Never place electrically conductive parts on the battery cell connectors.



3. Always observe the following during both charging and the subsequent gas generation phase:

- Battery cover open.
- Battery plugs removed if the batteries are not equipped with a forced ventilation system (consult battery manual).
- Remove all cover plates.
- Check electrolyte level.
- Switch off charger immediately when connection between charger and battery is interrupted.

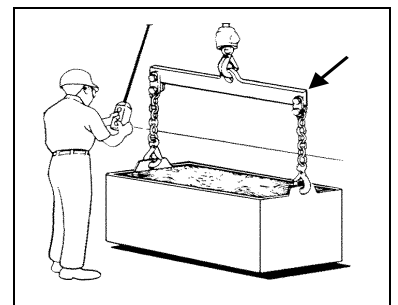
4. Replace damaged cells.

5. Ensure that cables remain free and are not crimped

6. Always wash hands thoroughly after working with batteries (health and safety precaution).

7. For lifting out the batteries, a special device must be used (see figure).

- Make sure that the chains and safety hooks are checked and offer a sufficient load carrying capacity. Never use chains fixed to a centre ring. These chains will pull the compartment walls to the inside, thus damaging the battery cells.



8. The battery fastener shall be checked after each battery change and adjusted, if needed. In order to avoid dangers from unforeseen movement, batteries in the forklift truck shall be secured as specified by the forklift truck manufacturer.

4. Maintenance and Care

Operator restraint system

Visually inspect and check safety function of restraint system.

e.g.) lap belt, when duo-sensitive belt is fitted, check whether it is arrested with seat when seat is at a specified angle.

Battery restraint

Visually inspect the battery restraint according to specifications of industrial truck manufacturer.

Battery data

Check battery voltage and weight (on the battery data plate) against truck manufacturer's data plate on the truck.

Emergency shut-off

Check control function of the emergency shut-off (separate switch or battery connector).

Electrical fuses

Visually check electrical fuse for damage

- Park the truck securely.
- Remove the key from the key switch and open the fuse cover of the truck
- Check condition and rating of the fuses in accordance with the table.
- Replace any damaged fuses in accordance with the table.

Safety switches on tiller

When the tiller is released on pedestrian controlled trucks, the power to the drive unit must be switched off.

Check emergency reverse switch for correct function.

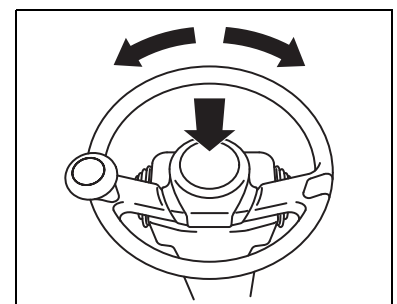
Steering System

The steering system, steer axle, and steering linkage on your truck should be inspected periodically for abnormal looseness and damage, leaking seals, etc. Also, be alert for any changes in steering action. Hard steering, excessive freeplay (looseness), or unusual sound when turning or maneuvering indicates a need for inspection or servicing. Never operate a truck that has a steering system fault.

Steering wheel inspection

Perform the inspection after starting the Forklift.

1. Check the steering wheel play with the rear wheel set in the straight traveling direction
2. Turn the steering wheel in the circumferential direction and also move it up and down to check there is no looseness.
3. Push the horn button to check if the horn sounds normally.
4. If any abnormality is found, ask a CLARK dealer for inspection.



4. Maintenance and Care

Instrument inspection

Start the Forklift and see that instrument operate properly.

Mounting points

Visually check the mounting points for the mast, counterweight, steering axle, overhead guard, tilt cylinder etc.

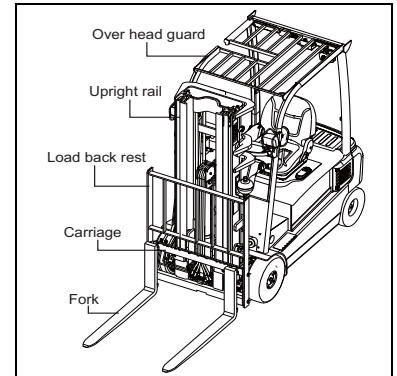
Overhead Guard

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

Inspect welds and structural members for cracks or other damage. Also check for loose or missing fasteners.

Carriage, Load Backrest, and Upright

Inspect the welds on the carriage, load backrest, and upright for cracks. Be sure that the mounting fasteners are in place and tight.



Check attachments

Check attachments for damage, excessive wear, leaks, security of mounting and safe function according to specifications.

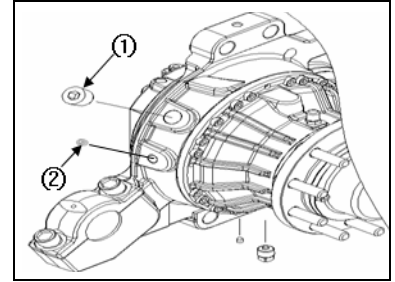
Check Optional equipment

Check optional equipment such as lighting, mirrors, windshield wipers etc. for correct function.

4. Maintenance and Care

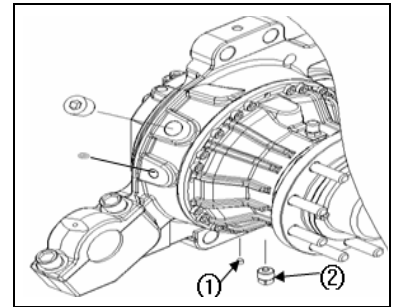
Checking the drive axle oil level

- Park the forklift truck on a flat surface.
- Apply the parking brake and put wedges under the drive wheels in order to secure the forklift truck from accidental motion.
- Remove the oil inlet plug(1) and oil level plug(2). The drive axle oil must reach up to the lower edge of the oil level port.
- Please remember : You must check both right and left drive axle.



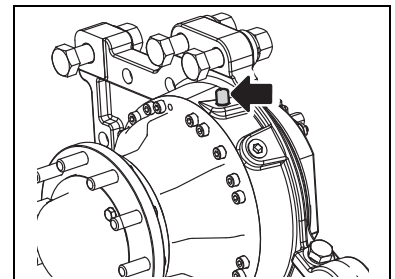
Changing the drive axle oil

- Proceed as described under “Checking the oil level”. Slide a flat oil pan (with a capacity of at least 3 liters) below the drive axle and unscrew the drain plug(1) & magnetic plug(2). After having drained the oil, Screw in the drain plug(1) & magnetic plug (2) and fill up with new drive axle oil, until it flows out of the oil level port.
- Please remember : You must change both right and left drive axle oil.



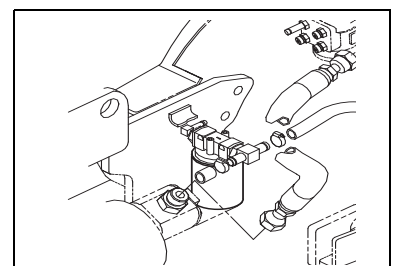
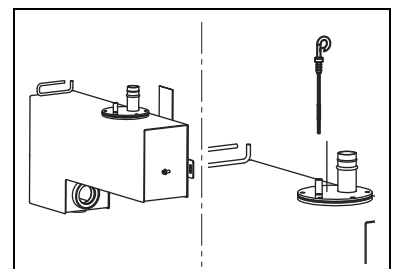
Checking the air breather filter

- The air breather is installed on the top of each drive axle. Check the air breather for clogging each time when changing the oil.
- Please remember : You must check both right and left drive axle.



Hydraulic sump tank

- Check the hydraulic sump tank fluid level. Correct fluid level is important for proper system operation. Low fluid level can cause pump damage. Overfilling can cause loss of fluid or lift system malfunction.
- Hydraulic fluid expands as its temperature rises. Therefore, it is preferable to check the fluid level at operating temperature (after approximately 30 minutes of truck operation).
- To check the fluid level, first park the truck on a level surface and apply the parking brake. Put the upright in a vertical position and lower the fork carriage fully down.
- Oil level marks: Pull out the dipstick for the hydraulic oil.
- The oil level must be between the Min. and Max. marks.



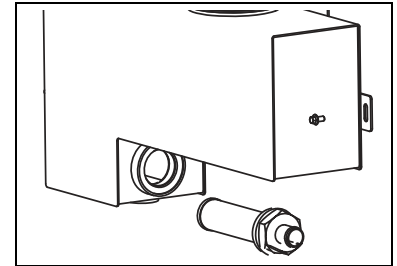
NOTE

The dipstick must be screwed in for this measurement. Do not simply insert it into the tank lid.

4. Maintenance and Care

Hydraulic Fluid and Filter Change

- Drain and replace the hydraulic sump fluid every 2000 operating hours. (Severe service or adverse conditions may require more frequent fluid change).
- Replace the hydraulic oil filters elements at every oil change.
- 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.

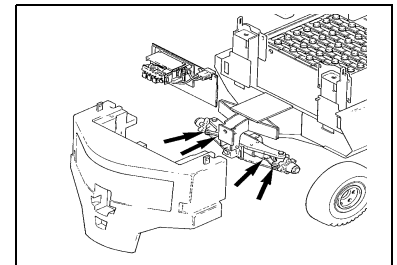


CAUTION

Take care that no oil runs onto the motor.

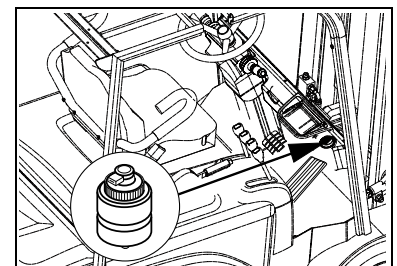
Greasing

- Grease your forklift truck carefully in accordance with the greasing and lubrication schedule.
- Clean the grease nipples before greasing, and after lubricating. Remove any excess grease which has come out at the greasing points.



Checking the brake fluid level

- If the brake fluid level is too low, the brake system must be examined by an expert.
- Brake fluid absorbs moisture from the air (hygroscopic) and must therefore be changed every year.



Brakes

- In more demanding operating conditions, the brake linings may become worn more quickly. It may therefore be necessary to check the brake system between the intervals prescribed in the service schedule.
- New brake linings must get "worn in" and therefore do not have the optimum frictional force initially. The slightly diminished braking effect which results when the brakes are first applied can be overcome by applying the brake pedal harder.

Disposing of lubricants, filters and batteries

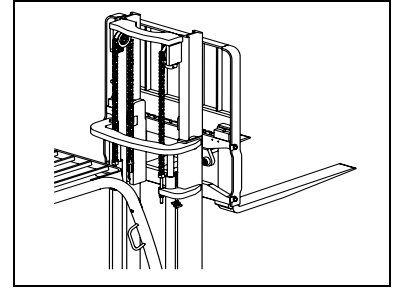
- Used parts and lubricants which arise during repair work must be stored safely until they can be disposed of in accordance with the regulations.
- In this respect, follow the regulations applicable in your country.



4. Maintenance and Care

Clean the lift chains

- Never clean the lifting chains with a steam cleaner. Clean the chains with a self-lubricating cleaner (e.g. diesel fuel).



Lubricate the lift chains

- The lift chains are subjected to heavy loading and therefore can only attain their maximum life if they are oiled regularly and adequately. Oiling the lift chains is therefore an important part of the maintenance work. You can carry out this work quickly and correctly with chain lube, see lubricant recommendations.

Lubricate the Upright inside rails, rollers and side-shifter

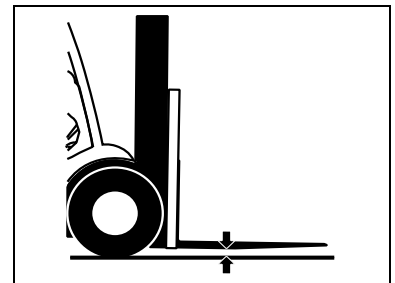
- Clean and lubricate the upright inside rails, rollers and side shifter (if fitted). Use only suitable lubricants in accordance with the recommended lubricants list. For add-on equipment the service instructions of the manufacturer, see separate operating manual, must be observed.

Check the lift chain adjustment

- Lift the rated load of the forklift on the forks. Bring the upright to the vertical and lower the carriage completely. The underside of the forks at the heel must be 10 mm above the floor.

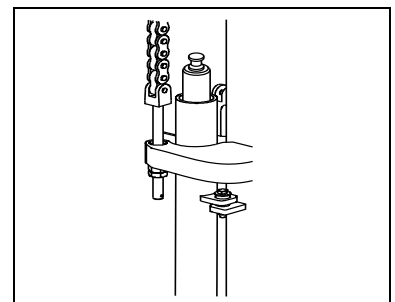
NOTE

It is important to use a load equal to the rated capacity of the forklift when checking the lift chains, since any stretch of the chains is then allowed for.



Adjust the lift chains

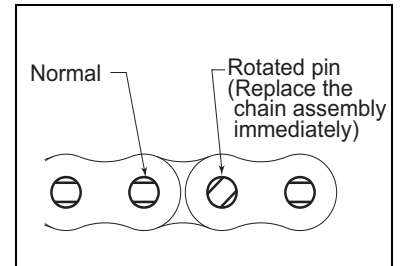
- The lift chains are adjusted at the chain anchors. For this, the locknuts must be undone and, depending on the required setting, the top nut screwed up or down. After the adjustment has been made, the locknuts must be tightened up again.
- If the lift chains stretch by more than 3% of their original length, they must be replaced for safety reasons. Observe the statutory regulations of your country. You can contact your CLARK dealer with confidence for this.



4. Maintenance and Care

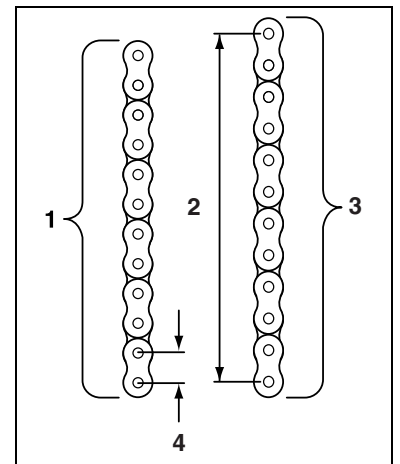
Chain pin rotating or protruding

- If high-load tension is applied to the chain in an inappropriate state of lubrication, this may cause abnormal frictional force between the link plate and the pin, and the pin may rotate if the fixing force is exceeded.
- If a rotated pin is detected during the regular inspection, immediately replace the chain assembly.



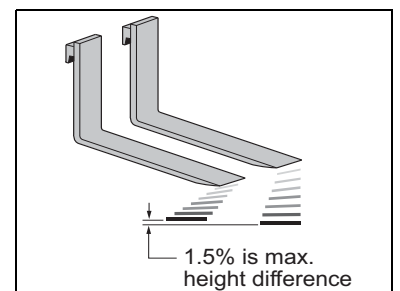
Lift Chain Wear and Replacement Criteria

1. (NEW CHAIN LENGTH) The distance from the first pin counted to the last pin counted in a span while the chains are lifting a small load.
 2. (WORN CHAIN LENGTH) The distance from the first pin counted to the last pin counted in a span while the chains are lifting a small load
 3. (SPAN) The number of pins in the length (segment) of chain to be measured.
 4. (PITCH) The distance from the center of one pin to the center of the next pin.
- All chains must be replaced if any link has wear of 3% or more, or if any of the damaged conditions noted above are found during inspection. Order replacement chains from your CLARK dealer.
 - Replace all chains as a set. Do not remove factory lubrication or paint new chains. Replace anchor pins and worn or broken anchors when installing new chains. Adjust tension on new chains. Lubricate chains when they are installed on the upright



Fork Alignment

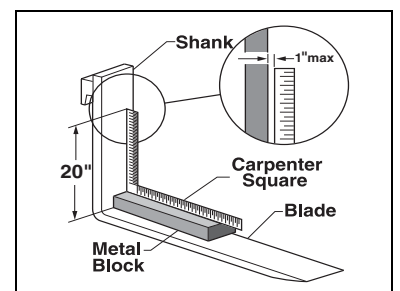
1. Park the truck on a flat, even surface, tilt upright to vertical position, and set forks 25-50 mm (1-2 in) above the ground.
2. Compare fork arms to be sure they are straight, on the same plane (level), and the same length.
3. Measure the distance from the fork tips to the ground. The height difference between the forks tips should be no more than 1.5% of the blade length.
4. If the fork tips are not aligned within the specified 1.5% difference, the cause of the problem must be determined and corrected before returning the truck to service. If replacement is necessary, always replace the forks in a set.



Fork Bending

Overloading, glancing blows against solid objects, or picking up loads unevenly can bend or twist a fork. Use the following procedure to check for fork bending.

1. Place a 50 x 100 x 610 mm (2 x 4 x 24 in) wood block flat on the fork. Make sure the block is not resting on the heel radius.
2. Set a carpenter's square on the block against the fork shank
3. Check the fork 508 mm (20 in) above the blade to make sure it is not bent more than 14.5 mm (0.6 in) at the maximum.
4. If blades are bent over the 14.5 mm (0.6 in) allowance they should be replaced as a set.



4. Maintenance and Care

Fork Fatigue

Fatigue cracks normally start in the heel area or on the underside of the top hanger. If cracks are found, the fork should be replaced. Dye penetrants or magnaflux can be used for a more accurate inspection.

Rollers Inspection

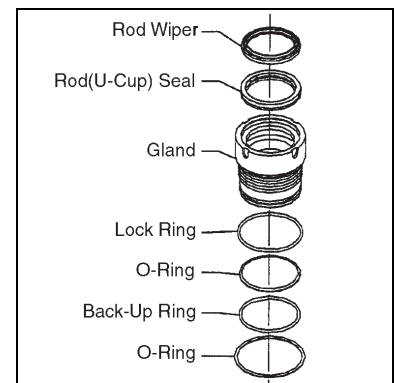
Inspect the upright and carriage rollers for :

- Broken or loose rollers.
- Loose, broken, or misadjusted thrust roller on the carriage.
- Obvious signs of failed bearing seals.
- Excessive looseness in carriage or upright roller shimming.

Cylinder Leakage

To check for leakage on the cylinder:

1. Clean the top of the gland and rod to remove any buildup of debris.
2. Check rod surface for defects or unusual wear.
3. Check for external leakage from the cylinder barrel, gland O-rings and backup ring, and the rod seal.
4. After cleaning the top of the gland and the barrel, cycle the upright 5-10 times. If a ring of oil forms to run 3 mm (0.125 in) down the rod, the cylinder must be overhauled or replaced.



Steer Wheel Bearing Check and Lubrication

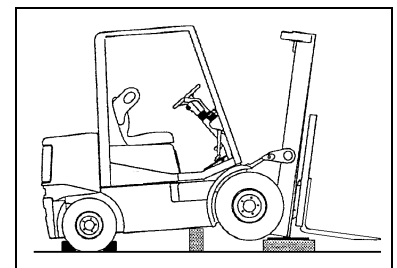
To check the steer wheel bearings for excessive free play or looseness :

- Grasp the wheel with both hands and try to move it by a rocking motion top-to-bottom.
- Try to pull it in and out along the wheel spindle.

Watch for excessive free movement in wheel bearings or steering knuckle bearings. There should be a small amount of free movement. If the wheel has excessive free movement, the bearings require adjustment and lubrication

Changing the drive wheels

- The quality of tyres influences the stability and driving behaviour of forklift trucks. Changes shall only be made after prior consultation with the forklift truck manufacturer. When changing wheels or tyres, care shall be taken to ensure that the forklift truck is not in a sloping position (wheel changes always on the left and right simultaneously, for example). When using wheels with divided wheel disks, special measure shall be observed when changing the tyres. The air pressure stated in the operating instructions shall be observed.

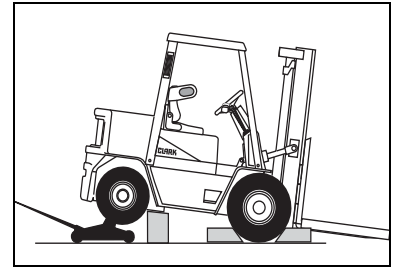


- Before lifting, the forklift must be secured against rolling by means of chocks at the front and rear of the steer wheels.
- To change the drive wheels, the forklift-truck must be lifted using the upright. For this purpose, tilt the upright backwards up to the stop. Lay wooden beams and steel sheets under the upright. Then tilt the upright forwards to a vertical position. The drive wheels are now free and can be dismantled.

4. Maintenance and Care

Changing a steer wheel

- Never lift the forklift truck below the counterweight
- The quality of tyres influences the stability and driving behaviour of forklift trucks. Changes shall only be made after prior consultation with the forklift truck manufacturer. When changing wheels or tyres, care shall be taken to ensure that the forklift truck is not in a sloping position (wheel changes always on the left and right simultaneously, for example). When using wheels with split rims, special measure shall be observed when changing the tyres. The air pressure stated in the operating instructions shall be observed.
- Before lifting the truck, slightly loosen the wheel bolts, apply the parking brake and secure the forklift truck against any accidental forward motion by putting wooden wedges in front of the driving wheels. Moreover, lift the fork carriage off the ground by approx. 10 cm.
- Now, lift the forklift truck, until wooden beams with a sufficient load capacity can be pushed under both sides of the frame but not under the counterweight. With the forklift truck secured in this way, you can now remove the devices and the hoist tool to dismount a steer wheel safely.



CAUTION

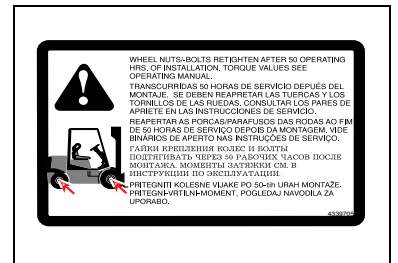
When refitting the wheels, ensure correct seating of the valve. It must lock into the grooves of the wheel hub. Tighten the wheel nuts evenly at the specified tightening torque. Check the tyre pressure.



NOTE

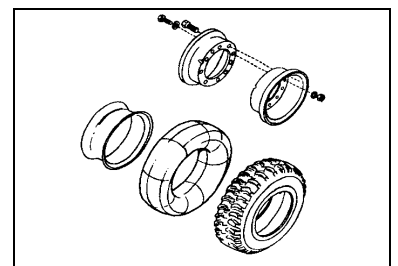
Wheel bolts and nuts need time to settle into their correct location while driving under load.

It is therefore essential to retighten the wheel bolts/nuts with the prescribed torque values after 50 operation hours on new machines and every wheel change.



Disassembling the split-rim wheel.

- When you disassemble the split-rim wheel, NEVER remove the tire before you deflate the tire pressure.
- First, remove the tire pressure and then loosen the wheel bolts and nuts.
- Failure to do so could result in serious personal injury.
- This operation shall be performed by the certified mechanic only.



4. Maintenance and Care

4) Towing the fork lift truck

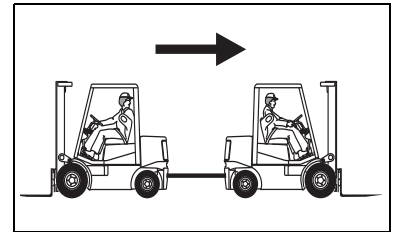
- Towing on ramps and steep inclines, whether in the upward or downward direction, is PROHIBITED.
- While you are working around the inoperative fork lift truck, the parking brake must always be applied or the drive wheels blocked.



CAUTION

When the engine is not running, the powerassisted steering and brake of the forklift truck being towed will not function either. Turning of the steering wheel and braking will then be more difficult. The towing speed must not be more than walking speed 3~4 km/h. The towing distance should be as short as possible (approx. 500 m)

- If your fork lift truck must be towed the following measures should be taken:
 1. The lifting framework (the forks) of the fork lift truck should, if possible, be raised around 300 mm above floor level. Secure the lifting framework with a chain. If this is not possible, remove the fork arms from the fork carrier.
 2. The towing vehicle must have sufficient towing and braking force.
 3. Attach the towing vehicle to the trailer pin of the fork lift truck with an approved tow-bar.
 4. Tow the inoperative fork lift truck backwards. There must always be a driver in the fork lift truck being towed.
 5. Park the inoperative fork lift truck only in areas provided for this purpose (see also page 1.15 "parking the fork lift truck").

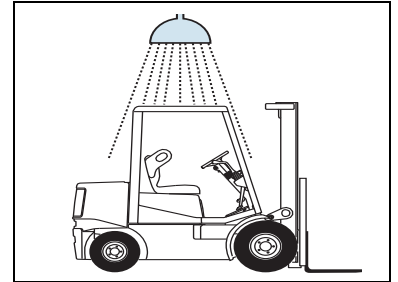


4. Maintenance and Care

5) Cleaning and Storage

Cleaning the fork lift truck

- Cleaning work may only be carried out in locations provided for this purpose. Ensure that pollution is avoided as far as possible.
- All areas which must be kept free of water, steam jet or cleaning agent, for functional or safety reasons, must be protected by covers or by taping them up. This applies, for example, for the electronic system.
- Electric and electronic components shall be cleaned with weak compressed air and metal free brushes.
- Only brand name, stipulated cleaning agents may be used. Do not use petrol or diesel under any circumstances.
- Once the forklift truck has been cleaned, remove all covers and tape.
- Lubricate the forklift truck in accordance with the lubrication plan.
- A braking test shall be carried out after the forklift truck has been washed. If the brakes do not function properly from the operator's seat of the forklift truck, the truck must be brought to a standstill by applying the parking brake.



Measures for longer lay-off periods, storage

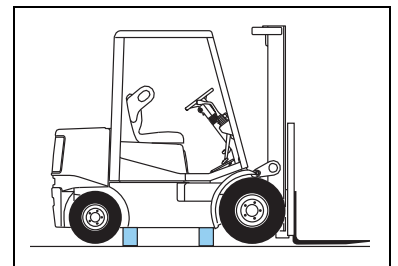
(> 1 months)

- The following measures must be carried out :
 - Remove the battery : Disconnect the (-) cable

If the forklift truck is stored without disconnecting (-) cable of battery for a long time, it will not be started due to the discharged battery.

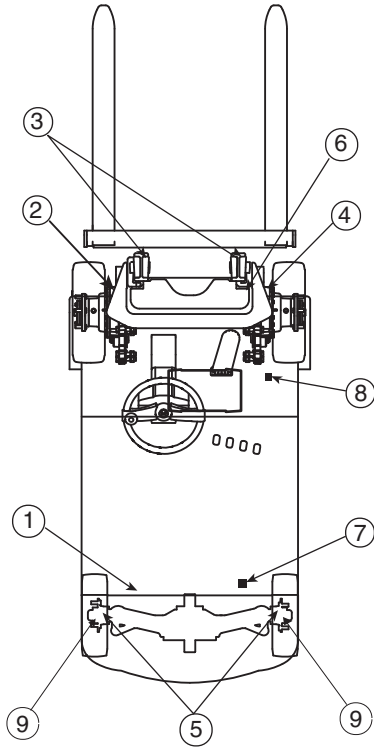
(> 6 months)

- The following measures must be carried out:
 - Clean the fork lift truck and grease the piston rods.
 - Remove the battery.
 - Jack up the fork lift truck to prevent the tyres going flat.
 - All lubricants must be replaced before recommissioning.
 - Be sure to recharge a battery regularly(2 times/a month)

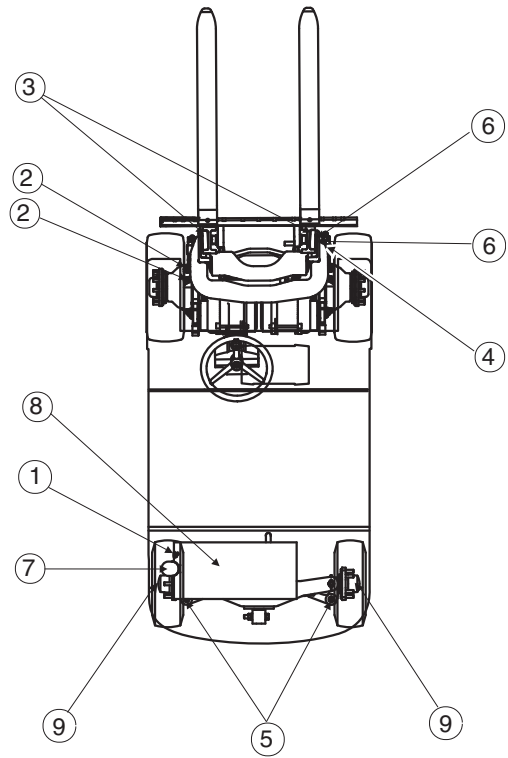


5. Lubrication and Maintenance Plan

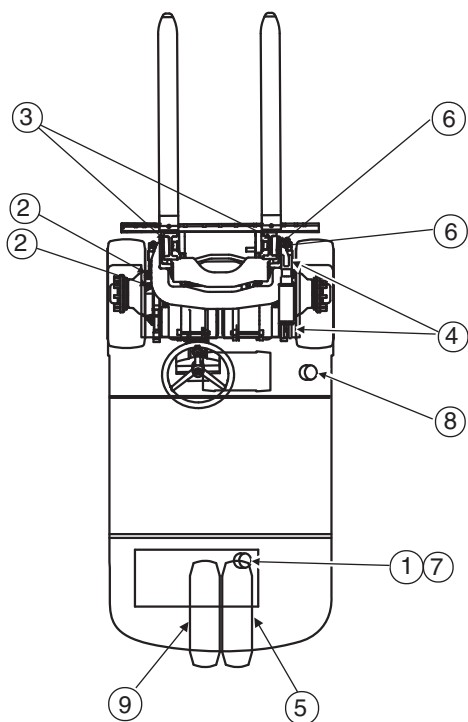
GEX16-20s



GEX20-30L



GTX16-20s



5. Lubrication and Maintenance Plan

Service to be done in accordance of list (1/3)

Type of lubricant				working hours			
				Weekly by driver	450 ~ 500	900 ~ 1000	2000
B	Brake fluid			a)	b)	c)	d)
C	Chain Lube						
G	Multipurpose Grease						
G1	Inside rail lubricants	Type of lubricant					
H	Hydraulic Oil	Item number in the drawing					
T	Drive axle oil	Page number in the Operator Instruction					
1) Lifting device							
	Forks thickness at heel	3.6				X	
	Forks permanent deformation, left and right forks uniformity	4.10				X	
	Forks cracks at heel and mountings	4.10			X		
	Chains length over at least 6 pitches	4.10			X		
	Check tension of lift chains	4.9	6		X		
	Elongation of chain				X		
	Check chain anchor bolt condition			X			
	Oil lift chains	4.9	6	C	X		
	Grease tilt cylinder bearings and upright mounting		4	G	X		
	Cleaning, checking and lubricating the upright inside rails, rollers and side loader	4.9	3		X		
	Mast, mast mounting and lift bracket deformation, damage and cracks in welded portion				X		
	Mast and lift bracket looseness			X			
	Mast strip wear and damage				X		
	Roller and roller pin wear, damage and rotating condition			X			
	Different attachments (Option) abnormalities and mounting condition			X			
	Cylinder leakage, deformation, mounting looseness, uneven movement and damages			X			
2) Drive unit and brakes							
	Service brakes, braking performance			X			
	Parking brakes, braking performance			X			
	Brake system check damgaes on hoses, piping, linkage and cable looseness				X		
	Brake system check functionality, distance and wear on drum and shoes					X	
	Brake system check return spring and automatic adjusting function					X	
	Check rim and tyre condition (Damage, tread depth, screws and nuts, air pressure, abnormal noise)			X			
	Check brake fluid level			X			
	Wet disc brake check oil leakage				X		
	Wet disc brake check wear on brake pads					X	
	Replace drive axle oil	4.7	2	T		X	
	Check drive axle oil level (First : 50 hours)				X		
	Check drive axle mounting and fasteners		2			X	
	Replace brake fluid	4.9		B		X	

5. Lubrication and Maintenance Plan

Service to be done in accordance of list (2/3)

Type of lubricant	working hours					
	Weekly by driver	450 ~ 500	900 ~ 1000	2000		
B Brake fluid						
C Chain Lube						
G Multipurpose Grease						
G1 Inside rail lubricants						
H Hydraulic Oil						
T Drive axle oil						
	Type of lubricant					
	Item number in the drawing					
	Page number in the Operator Instruction					
	a)	b)	c)	d)		
3) Operator seat and controls						
Operator restraint system		X				
Seat mounting and adjustment function		X				
Control lever linkage looseness and functionality		X				
Check rear view mirror		X				
4) Electrical equipment						
Battery condition, restraint and data		X				
Emergency shut off		X				
Electrical wiring and fuses		X				
Lightning system functionality and mounting		X				
Horn functionality		X				
Instrumentation functionality		X				
5) Hydraulic system						
Lift system creep test			X			
Tilt system creep test			X			
Oil leakage and damage, unusual noise			X			
Check hydraulic oil level and oil contamination	4.7	1	H	X		
Replace hydraulic sump oil filter and hydraulic tank air breather	4.7	7			X	
Replace hydraulic oil and hydraulic oil filter (filter ; First 50 hours)	4.8	8,10	H			X
Relief pressure measurement					X	
Relief valve and tilt lock valve function					X	
Check oil pressure piping deformation, damage and linakge looseness				X		
6) Vehicle frame and safety equipment						
Mounting points					X	
Frame, overhead guard and safety equipment check deformation, damage and welded portion cracking					X	
Visually check Trailer coupling for safe operation					X	
Hood lock - check for function and security					X	
7) Steer system						
Check steer oil leakage (steer valve and power steering)				X		
Grease steering link pin and steering knuckle	4.8	5	G	X		
Check / lubricate steer axle wheel bearings		9	G			X

5. Lubrication and Maintenance Plan

Service to be done in accordance of list (3/3)

Type of lubricant				working hours			
				Weekly by driver	450 ~ 500	900 ~ 1000	2000
B	Brake fluid			a)	b)	c)	d)
C	Chain Lube						
G	Multipurpose Grease						
G1	Inside rail lubricants	Type of lubricant					
H	Hydraulic Oil	Item number in the drawing					
T	Drive axle oil	Page number in the Operator Instruction					
	Steer axle beam cracks, damage and deformation					X	
	Steer axle beam forward and backward direction looseness				X		
	Steering wheel loosens and play, functionality	4.5		X			
	Check damages on steer hoses			X			
8)	Miscellaneous and special equipment						
	Check safety marking and Labelling					X	
	Operating instructions					X	
	Check Attachments					X	
	Check Optional equipment					X	
9)	Cabin (Option)						
	Deformation, cracks, damage and cracks in weld						X
	Wear on PVC doors, sealing and rubber material						X
10)	Speed limit system						
	Check functionality of speed limit system			X			
11)	Other inspections						
	Check the tightening torque of critical fastening elements	7.1		X			

NOTES: a) Weekly by driver c) 900~1000 hours or every 6 months
 b) 450~500 hours or every 3 months d) 2000 hours or every year
 ★ In heavy conditions the service intervals could be reduced

6. Lubricant Recommendations

H Hydraulic fluid

- RANDO HD32 or NUTO H32
In accordance with CLARK specification MS-68 (CLARK #2776239)
- RANDO HDCZ(ISO VG 46) : COLD STORAGE TYPE

T Drive axle oil

- MOBIL FLUID #424

G Multipurpose grease

In accordance with CLARK specification MS-9 or MS-107C

e.g.) BP	: Multipurpose grease L2	FINA	: Marson EPL2
MOBIL	: Mobilgrease MP	SHELL	: Alkvania grease EP2
DEFROL	: M2F 2 EP 2	GULF	: Crow Grease EP 2
CHEVRON	: Dura-Lit EP 2		

G1 Inside rail lubricants

In accordance with CLARK # 886396 specifications

B Brake fluid

- RANDO HD32 or NUTO H32
In accordance with CLARK specification MS-68 (CLARK #2776239)
- RANDO HDCZ(ISO VG 46) : COLD STORAGE TYPE

C Chain lube

In accordance with CLARK # 886399 specifications

7. Technical Data

Filling quantities

GEX16-20s / GTX16-20s

Drive axle	2 litres
Hydraulic tank	15 litres
Brake system	2 litres

GEX20-30L

Drive axle	Each 1 litres (2 litres)
Hydraulic tank	25 litres
Brake system	2 litres

Fuses

Main fuses (Traction) - GEX16-20s, GTX16-20s	400 Amp
Main fuses (Traction) - GEX20-30L	355 Amp
Main fuses (Pump,48V) - GEX16-20s, GTX16-20s	300 Amp
Main fuses (Pump) - GEX20-30L	350 Amp
Blade fuses - GEX16-30L, GTX16-20s	10 Amp
Blade fuses - GEX16-30L, GTX16-20s	5 Amp
Blade fuses - GEX16-20s, GTX16-20s	15 Amp

Torques

GEX16-20s / GTX16-20s

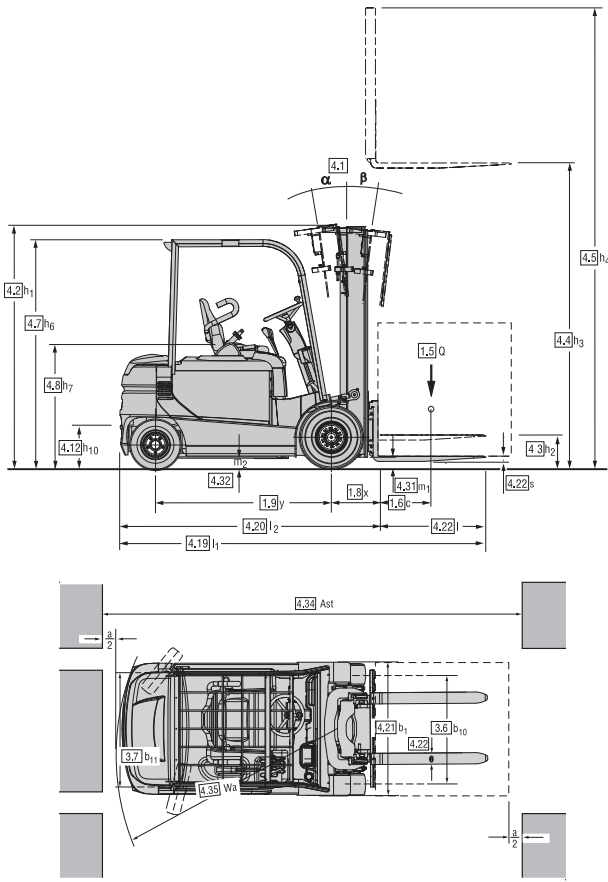
Drive axle and frame	410 - 470 N.m (41.8-47.9 kg-m)
Driver's overhead guard	100 - 110 N.m (10.2-11.2 kg-m)
Counterweight (all screws).....	340 - 380 N.m (34.7-38.7 kg-m)
Tilt cylinder joke clamp Bolts device	170 - 190 N.m (17.3-19.4 kg-m)
Tilt cylinder self-aligning bearing safety device	20 - 25 N.m (2.0-2.5 kg-m)
Main bearings of upright	25 - 30 N.m (2.5-3.0 kg-m)
Wheel mounting bolts drive axle	155 - 180 N.m (15.8-18.3 kg-m)
Wheel mounting bolts steer axle	155 - 180 N.m (15.8-18.3 kg-m)

GEX20-30L

Drive axle and frame	450 - 500 N.m (45.9-51.0 kg-m)
Driver's overhead guard	100 - 110 N.m (10.2-11.2 kg-m)
Counterweight (all screws).....	340 - 380 N.m (34.7-38.7 kg-m)
Counterweight Cover	70 - 80 N.m (7.1-8.2 kg-m)
Tilt cylinder pin retainer bolts.....	8 - 10 N.m (0.8-1.0 kg-m)
Tilt cylinder joke clamp Bolts device	166 - 193 N.m (16.9-19.7 kg-m)
Main bearings of upright (Loctite 271 CLARK No. 1802302).....	75 - 80 N.m (7.6-8.2 kg-m)
Wheel mounting bolts drive axle	155 - 180 N.m (15.8-18.3 kg-m)
Wheel mounting bolts steer axle	225 - 250 N.m (23.0-25.5 kg-m)

8. Specification

Dimensions (GEX16-20s)



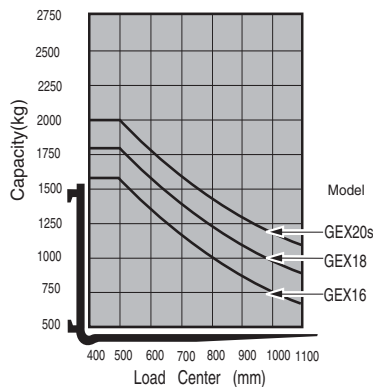
□ For data see corresponding number in chart "Product Specifications"

Product Specifications

Specifications	1.1	Manufacturer (Abbreviation)	
	1.2	Manufacturer's designation	
	1.3	Drive unit Diesel, L.P. Gas	
	1.4	Operator type stand on / driver seated	
	1.5	Load capacity / rated load	Q kg
	1.6	Load centre distance	c (mm)
	1.8	Load centre distance, centre of drive axle to fork face	x (mm)
	1.9	Wheelbase	y (mm)
	WT	2.1	Service weight
2.2		Axle loading, laden front / rear	kg
2.3		Axle loading, unladen front / rear	kg
Tyres, Chassis	3.1	Tyre type, P = pneumatic, SE = superelastic, C = cushion	
	3.2	Tyre size, front	
	3.3	Tyre size, rear	
	3.5	Wheels, number front/rear (x = drive wheels)	
	3.6	Tread, front	b10(mm)
	3.7	Tread, rear	b11(mm)
	Dimensions	4.1	Tilt of upright/fork carriage, α / β
4.2		Height, upright lowered	h1(mm)
4.3		Freelift	h2(mm)
4.4		Lift height 1)	h3(mm)
4.5		Height, upright extended 2)	h4(mm)
4.7		Height overheadguard (cab); Std / Container	h6(mm)
4.19		Overall length	l1(mm)
4.20		Length to face of forks	l2(mm)
4.21		Width	b1(mm)
4.22		Fork dimensions	s • e • l (mm)
4.23		Fork carriage ISO 2328, A, B	
4.24		Fork carriage width	b3(mm)
4.31		Ground clearance minimum, laden	m(mm)
4.32	Ground clearance centre of wheelbase	m2(mm)	
4.35	Turning radius	Wa (mm)	
4.36	Internal turning radius	b13 (mm)	
Performances	5.1	Travel speed laden/unladen	km/h
	5.2	Lift speed laden/unladen	m/s
	5.3	Lowering speed laden/unladen	m/s
	5.8	Max. gradeability laden/unladen 4)	%
Drive line	7.1	Type of battery	
	7.2	Maximum capacity of battery (6hr.rate)	AH/5hr
	7.3	Minimum weight of battery	kg
	7.4	Power of drive motor	Kw
	7.5	Power of hydraulic motor	Kw
	7.6	Drive motor control	
	7.7	Speed control	
	7.8	Hydraulic motor control	
Miscellaneous	8.1	Operating pressure for attachments	bar
	8.2	Sound level, driver's ear 3)	dB (A)
	8.3	Vibration in accordance with EN 13059	m/s ²

Truck Capacities

Capacity at different load centres



Note:

The listed capacities are valid only for the standard upright in vertical position with standard fork carriage and standard forks, up to max. lifting height of GEX16-20s ; 3085mm.

The centre of gravity of the load may be displaced by max.

100 mm against the longitudinal centre line of the truck. Load centre is determined from top and front face of forks. The values are based on a 1000 mm cube load configuration with the centre of gravity at the true centre of the cube. With upright tilted forward lower capacity values are valid.

Attachments, longer forks, exceptional load dimensions and higher lifting heights may reduce the capacity.

Please contact your CLARK dealer if you require further information

1) Further lift heights see upright table

2) Without load backrest

3) Equivalent permanent sound-pressure level $L_{pAeq,T}$ in accordance with EN 12053

4) Without load at friction coefficient $\mu = 0.6$

8. Specification

CLARK	CLARK	CLARK	1.1
GEX 16	GEX 18	GEX 20s	1.2
Electric-48v	Electric-48v	Electric-48v	1.3
	Rider counter balanced		1.4
1600	1800	2000	1.5
500	500	500	1.6
358	358	358	1.8
1312	1420	1420	1.9
3132	3235	3409	2.1
3979 / 753	4373 / 662	4759 / 650	2.2
1416 / 1716	1490 / 1745	1559 / 1850	2.3
SE	SE	SE	3.1
18x7-8	18x7-8	200/50-10	3.2
15x4.5x8	15x4.5x8	15x4.5x8	3.3
2x / 2	2x / 2	2x / 2	3.5
905	905	905	3.6
870	870	870	3.7
6 / 6	6 / 6	6 / 6	4.1
2060	2060	2060	4.2
132	132	132	4.3
3085	3085	3085	4.4
4323	4323	4323	4.5
2055	2055	2059	4.7
3048	3156	3156	4.19
1978	2086	2086	4.20
1059	1059	1122	4.21
40x100x1070	40x100x1070	40x100x1070	4.22
CL IIA	CL IIA	CL IIA	4.23
940	940	940	4.24
85	85	85	4.31
84	84	87	4.32
1638	1746	1746	4.35
-	-	-	4.36
15.0 / 16.0	15.0 / 16.0	15.0 / 16.0	5.1
0.40 / 0.50	0.37 / 0.50	0.35 / 0.50	5.2
0.57 / 0.52	0.57 / 0.52	0.57 / 0.52	5.3
37.7 / 21.3	35.2 / 22.1	31.8 / 22.4	5.8
DIN43531A	DIN43531A	DIN43531A	7.1
460	575	575	7.2
708	856	856	7.3
2 x 4.4	2 x 4.4	2 x 4.4	7.4
15.2	15.2	15.2	7.5
Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	7.6
Solid state	Solid state	Solid state	7.7
Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	7.8
158	158	158	8.1
72	72	72	8.2
1.22	1.22	1.22	8.3

Note:

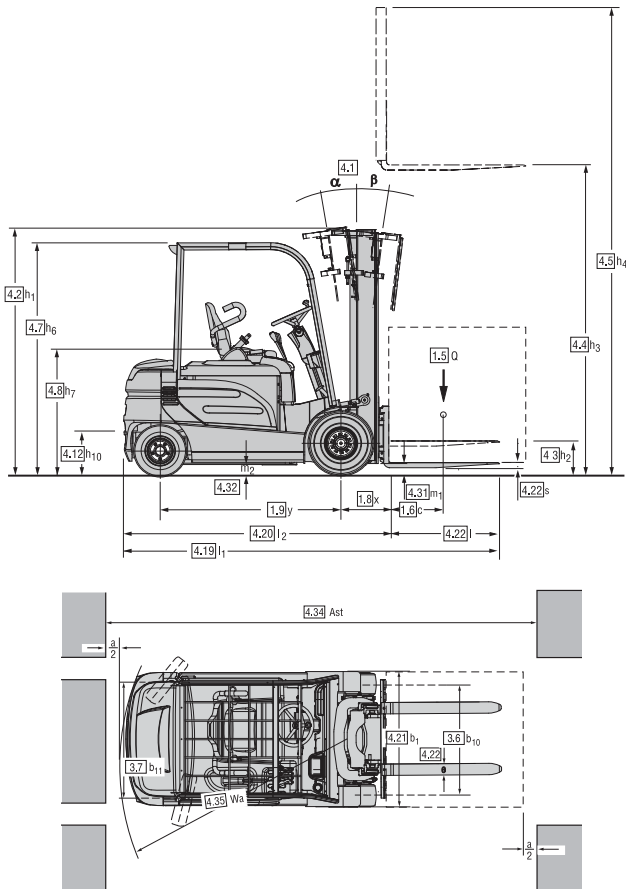
All values shown are for standard lift truck with standard equipment.

If the truck is supplied with option, values may change.

All values given may vary +5% and -10% due the motor and system tolerances and represent nominal values obtained under typical operating conditions.

8. Specification

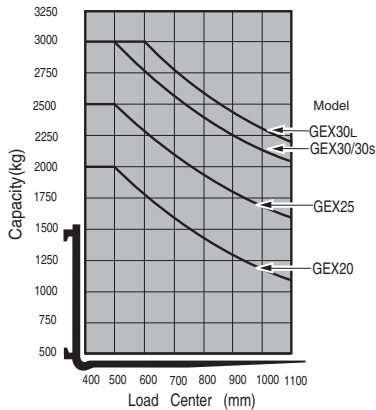
Dimensions (GEX20-30L)



□ For data see corresponding number in chart "Product Specifications"

Truck Capacities

Capacity at different load centres



Note:

The listed capacities are valid only for the standard upright in vertical position with standard fork carriage and standard forks, up to max. lifting height of GEX20-30L : 3195mm.

The centre of gravity of the load may be displaced by max.

100 mm against the longitudinal centre line of the truck. Load centre is determined from top and front face of forks. The values are based on a 1000 mm cube load configuration with the centre of gravity at the true centre of the cube. With upright tilted forward lower capacity values are valid.

Attachments, longer forks, exceptional load dimensions and higher lifting heights may reduce the capacity.

Please contact your CLARK dealer if you require further information

Product Specifications

Specifications	1.1	Manufacturer (Abbreviation)	
	1.2	Manufacturer's designation	
	1.3	Drive unit Diesel, L.P. Gas	
	1.4	Operator type stand on / driver seated	
	1.5	Load capacity / rated load	Q kg
	1.6	Load centre distance	c (mm)
	1.8	Load centre distance, centre of drive axle to fork face	x (mm)
	1.9	Wheelbase	y (mm)
	WT	2.1	Service weight
2.2		Axle loading, laden front / rear	kg
2.3		Axle loading, unladen front / rear	kg
Tyres, Chassis	3.1	Tyre type, P = pneumatic, SE = superelastic, C = cushion	
	3.2	Tyre size, front	
	3.3	Tyre size, rear	
	3.5	Wheels, number front/rear (x = drive wheels)	
	3.6	Tread, front	b10(mm)
	3.7	Tread, rear	b11(mm)
	Dimensions	4.1	Tilt of upright/fork carriage, α / β
4.2		Height, upright lowered	h1(mm)
4.3		Freelift	h2(mm)
4.4		Lift height 1)	h3(mm)
4.5		Height, upright extended 2)	h4(mm)
4.7		Height overheadguard (cab); Std / Container	h6(mm)
4.19		Overall length	l1(mm)
4.20		Length to face of forks	l2(mm)
4.21		Width	b1(mm)
4.22		Fork dimensions	s • e • l (mm)
4.23		Fork carriage ISO 2328, A, B	
4.24		Fork carriage width	b3(mm)
4.31		Ground clearance minimum, laden	m(mm)
4.32	Ground clearance centre of wheelbase	m2(mm)	
4.35	Turning radius	Wa (mm)	
4.36	Internal turning radius	b13 (mm)	
Performances	5.1	Travel speed laden/unladen	km/h
	5.2	Lift speed laden/unladen	m/s
	5.3	Lowering speed laden/unladen	m/s
	5.8	Max. gradeability laden/unladen 4)	%
Drive line	7.1	Type of battery	
	7.2	Maximum capacity of battery (6hr.rate)	AH/5hr
	7.3	Minimum weight of battery	kg
	7.4	Power of drive motor	Kw
	7.5	Power of hydraulic motor	Kw
	7.6	Drive motor control	
	7.7	Speed control	
	7.8	Hydraulic motor control	
Miscellaneous	8.1	Operating pressure for attachments	bar
	8.2	Sound level, driver's ear 3)	dB (A)
	8.3	Vibration in accordance with EN 13059	m/s ²

1) Further lift heights see upright table

2) Without load backrest

3) Equivalent permanent sound-pressure level $L_{pAeq,T}$ in accordance with EN 12053

4) Without load at friction coefficient $\mu = 0.6$

8. Specification

CLARK	CLARK	CLARK	CLARK	CLARK	1.1
GEX 20	GEX 25	GEX 30	GEX 30s	GEX 30L	1.2
Electric-80v	Electric-80v	Electric-80v	Electric-80v	Electric-80v	1.3
Rider counter balanced			Rider counter balanced		1.4
2000	2500	3000	3000	3000	1.5
500	500	500	500	600	1.6
415	415	420	420	435	1.8
1610	1610	1750	1610	1750	1.9
4148	4348	4382	4581	4952	2.1
5276 / 872	6107 / 741	6805 / 577	6904 / 677	7214 / 738	2.2
2139 / 2009	2186 / 2161	2228 / 2154	2190 / 2391	2439 / 2513	2.3
SE(P)	SE(P)	SE(P)	SE(P)	SE(P)	3.1
23x9-10 (23x9x10-16PR)			23x9-10 (23x9x10-16PR)		3.2
18x7-8 (18x7x8-16PR)			18x7-8 (18x7x8-16PR)		3.3
2x / 2	2x / 2	2x / 2	2x / 2	2x / 2	3.5
1005	1005	1005	1005	1005	3.6
989	989	989	989	989	3.7
8 / 8	8 / 8	8 / 8	8 / 8	8 / 8	4.1
2165	2165	2165	2165	2165	4.2
110	110	110	110	110	4.3
3195	3195	3195	3195	3195	4.4
3792	3792	3862	3862	3857	4.5
2148	2148	2148	2148	2148	4.7
3410	3410	3547	3415	3562	4.19
2343	2343	2480	2348	2495	4.20
1230	1230	1230	1230	1230	4.21
45x100x1070	45x100x1070	45x122x1070	45x122x1070	45x122x1070	4.22
CL IIA	CL IIA	CL IIIA	CL IIA	CL IIIA	4.23
1041	1041	1041	1041	1041	4.24
135	135	135	135	135	4.31
114	114	114	114	114	4.32
1925	1925	2087	1925	2087	4.35
-	-	-	-	-	4.36
15.7 / 16.7	15.4 / 16.7	15.2 / 16.6	15.2 / 16.6	15.2 / 16.6	5.1
0.48 / 0.54	0.41 / 0.54	0.38 / 0.50	0.38 / 0.50	0.38 / 0.50	5.2
0.47 / 0.43	0.47 / 0.43	0.47 / 0.43	0.47 / 0.43	0.47 / 0.43	5.3
35.9 / 25.3	32.2 / 24.7	29.6 / 25.0	28.1 / 23.8	26.6 / 24.5	5.8
Lead-acid	Lead-acid	Lead-acid	Lead-acid	Lead-acid	7.1
620	620	775	620	775	7.2
1558	1558	1863	1558	1863	7.3
2 x 7.8	2 x 7.8	2 x 7.8	2 x 7.8	2 x 7.8	7.4
19.1	19.1	19.1	19.1	19.1	7.5
Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	7.6
Solid state	Solid state	Solid state	Solid state	Solid state	7.7
Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	Mosfet Inverter	7.8
140	140	140	140	140	8.1
73	73	73	73	73	8.2
1.14	1.14	1.14	1.14	1.14	8.3

Note:

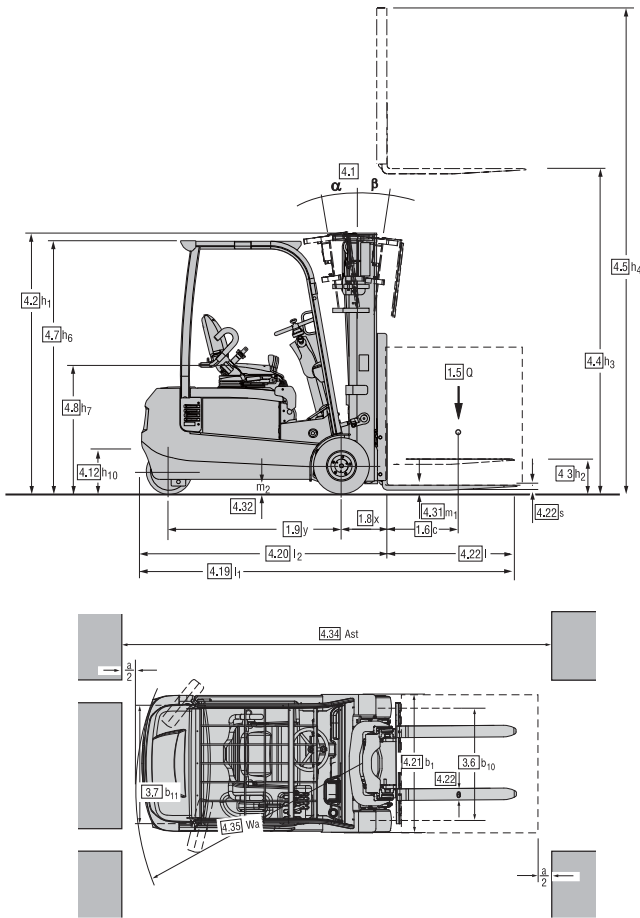
All values shown are for standard lift truck with standard equipment.

If the truck is supplied with option, values may change.

All values given may vary +5% and -10% due the motor and system tolerances and represent nominal values obtained under typical operating conditions.

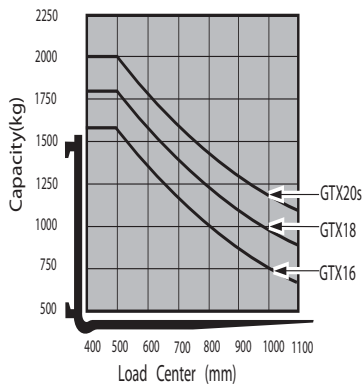
8. Specification

Dimensions (GTX)



Truck Capacities

Capacity at different load centres



Note:

The listed capacities are valid only for the standard upright in vertical position with standard fork carriage and standard forks, up to max. lifting height of 3085mm.

The centre of gravity of the load may be displaced by max. 100 mm against the longitudinal centre line of the truck. Load centre is determined from top and front face of forks. The values are based on a 1000 mm cube load configuration with the centre of gravity at the true centre of the cube. With upright tilted forward lower capacity values are valid.

Attachments, longer forks, exceptional load dimensions and higher lifting heights may reduce the capacity.

Please contact your CLARK dealer if you require further information.

Product Specifications

Specifications	1.1	Manufacturer (Abbreviation)	
	1.2	Manufacturer's designation	
	1.3	Drive unit Diesel, L.P. Gas	
	1.4	Operator type stand on / driver seated	
	1.5	Load capacity / rated load	Q kg
	1.6	Load centre distance	c (mm)
	1.8	Load centre distance, centre of drive axle to fork face	x (mm)
	1.9	Wheelbase	y (mm)
	WT	2.1	Service weight
2.2		Axle loading, laden front / rear	kg
2.3		Axle loading, unladen front / rear	kg
Tyres, Chassis	3.1	Tyre type, P = pneumatic, SE = superelastic, C = cushion	
	3.2	Tyre size, front	
	3.3	Tyre size, rear	
	3.5	Wheels, number front/rear (x = drive wheels)	
	3.6	Tread, front	b10(mm)
	3.7	Tread, rear	b11(mm)
	Dimensions	4.1	Tilt of upright/fork carriage, α / β
4.2		Height, upright lowered	h1(mm)
4.3		Freelift	h2(mm)
4.4		Lift height 1)	h3(mm)
4.5		Height, upright extended 2)	h4(mm)
4.7		Height overheadguard (cab); Std / Container	h6(mm)
4.19		Overall length	l1(mm)
4.20		Length to face of forks	l2(mm)
4.21		Width	b1(mm)
4.22		Fork dimensions	s • e • l (mm)
4.23		Fork carriage ISO 2328, A, B	
4.24		Fork carriage width	b3(mm)
4.31		Ground clearance minimum, laden	m(mm)
4.32	Ground clearance centre of wheelbase	m2(mm)	
4.35	Turning radius	Wa (mm)	
4.36	Internal turning radius	b13 (mm)	
Performances	5.1	Travel speed laden/unladen	km/h
	5.2	Lift speed laden/unladen	m/s
	5.3	Lowering speed laden/unladen	m/s
	5.8	Max. gradeability laden/unladen 4)	%
	Drive line	7.1	Type of battery
7.2		Maximum capacity of battery (6hr.rate)	AH/5hr
7.3		Minimum weight of battery	kg
7.4		Power of drive motor	Kw
7.5		Power of hydraulic motor	Kw
7.6		Drive motor control	
7.7		Speed control	
7.8		Hydraulic motor control	
Miscellaneous	8.1	Operating pressure for attachments	bar
	8.2	Sound level, driver's ear 3)	dB (A)
	8.3	Vibration in accordance with EN 13059	m/s ²

1) Further lift heights see upright table

2) Without load backrest

3) Equivalent permanent sound-pressure level $L_{pAeq,T}$ in accordance with EN 12053

4) Without load at friction coefficient $\mu = 0.6$

8. Specification

CLARK	CLARK	CLARK	1.1
GTX 16	GTX 18	GTX 20s	1.2
Electric-48V	Electric-48V	Electric-48V	1.3
Rider Seated	Rider Seated	Rider Seated	1.4
1600	1800	2000	1.5
500	500	500	1.6
358	358	358	1.8
1312	1420	1420	1.9
3051	3182	3375	2.1
4170 / 481	4444 / 539	4791 / 584	2.2
1610 / 1441	1564 / 1618	1591 / 1784	2.3
SE	SE	SE	3.1
18x7-8	18x7-8	200/50-10	3.2
15x4.5x8	15x4.5x8	15x4.5x8	3.3
2x / 2	2x / 2	2x / 2	3.5
905	905	915	3.6
194	194	194	3.7
6 / 6	6 / 6	6 / 6	4.1
2060	2060	2060	4.2
132	132	132	4.3
3085	3085	3085	4.4
3693	3693	3693	4.5
2066	2066	2066	4.7
2968	3076	3146	4.19
1898	2006	2046	4.20
1059	1059	1122	4.21
40x100x1070	40x100x1070	40x100x1070	4.22
IIA	IIA	IIA	4.23
940	940	940	4.24
85	85	85	4.31
100	100	100	4.32
1522	1630	1630	4.35
			4.36
15 / 16	15 / 16	15 / 16	5.1
0.40 / 0.50	0.37 / 0.50	0.35 / 0.50	5.2
0.57 / 0.52	0.57 / 0.52	0.57 / 0.52	5.3
27.3 / 38.5	25.7 / 35.7	24.7 / 32.0	5.8
DIN 43531A	DIN 43531A	DIN 43531A	7.1
460 (500)	575 (625)	575 (625)	7.2
708	856	856	7.3
2 x 5.2	2 x 5.2	2 x 5.2	7.4
15.2	15.2	15.2	7.5
Invertor	Invertor	Invertor	7.6
Mosfet	Mosfet	Mosfet	7.7
Mosfet	Mosfet	Mosfet	7.8
143	143	143	8.1
68	68	68	8.2
1.20	1.20	1.20	8.3

Note:

All values shown are for standard lift truck with standard equipment.

If the truck is supplied with option, values may change.

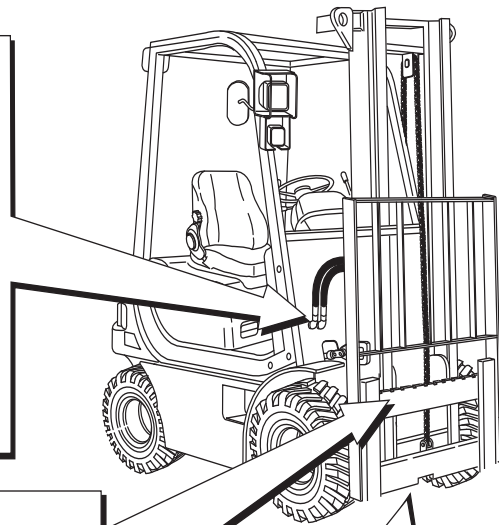
All values given may vary +5% and -10% due the motor and system tolerances and represent nominal values obtained under typical operating conditions.

9. Side shifter and Fork Positioner

Truck Requirements

1) Hydraulic Pressure				
	Recommended	: 140 bar		
	Maximum	: 160 bar		
2) Hydraulic Flow				
		Minimum	Recommended	Maximum
Side Shift	Class2	8L/min	10L/min	12L/min
	Class3	12L/min	16L/min	19L/min
	Class4	38L/min	42L/min	46L/min
Fork- Positioner	Class2	19L/min	27L/min	31L/min
	Class3	19L/min	27L/min	31L/min
	Class4	38L/min	42L/min	46L/min

	<u>Minimum</u>	<u>Maximum</u>
Class 2	380.0 mm	381.0 mm
Class 3	474.5 mm	476.0 mm
Class 4	595.5 mm	597.0 mm

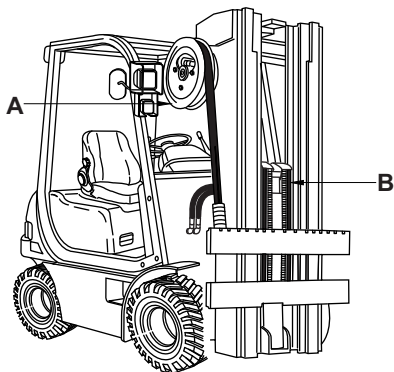


Clean carriage bars and inspect for damaged notches.

Hydraulics

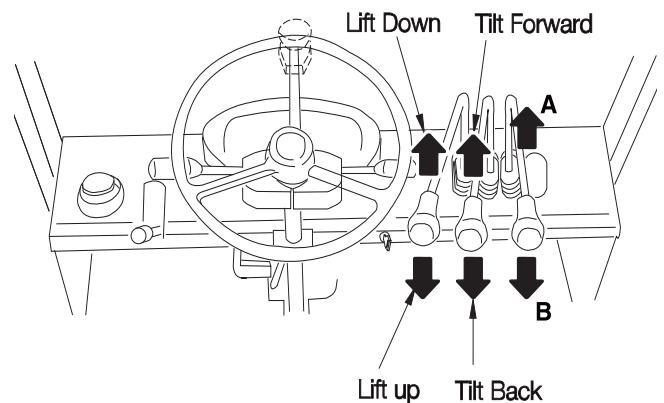
The sidershifter requires one more of the hydraulic supply arrangements shown below.

- Hose Size : No.4 SAE 100 R1 Minimum fitting orifice-1/4 inch (6.35mm)
- A. RH THINLINE" 2-Port Hose Reel Supply Group, or
- B. Mast Internal Hose Reeving



Auxiliary Valve Functions

- A. Sideshift Left
- B. Sideshift Right



9. Side shifter and Fork Positioner

Installation of Side shifter carriage

The attachments and the connection of power supplies for powered attachments may only be made by specialists in accordance with the specifications of the manufacturer. The proper functioning of the attachments shall be checked after each installation before initial use.

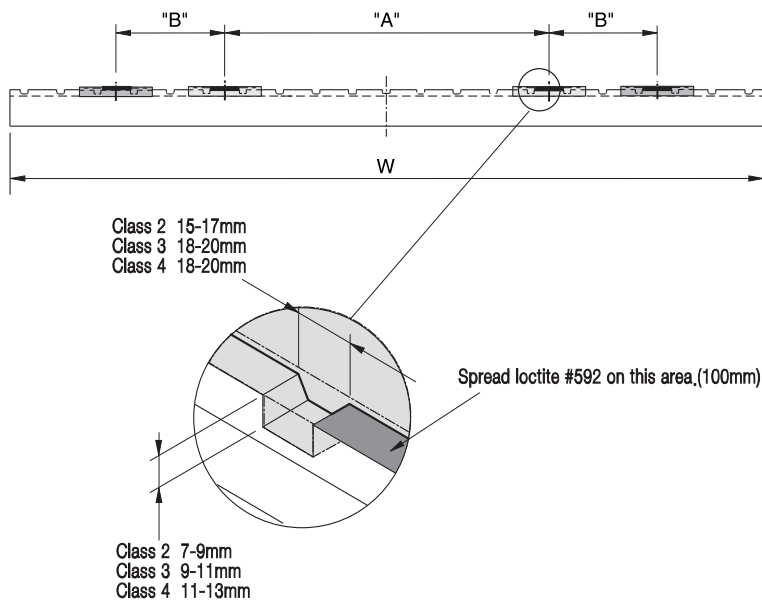
1. Put upper sliders in the top fork bar notches.

Truck Model		Unit	"A"	"B"
CQ20/25	41" W	mm	514	-
CQ20/25	61" W	mm	422	300
CQ30	41" W	mm	374	-
CQ30	61" W	mm	484	300
CMP40/45/50s	1800mm W	mm	522	300
CMP50/60/70/75s	2040mm W	mm	810	-
C50/60/70/75/80	2040mm W	mm	810	-
C35K/40K/45K	1348mm W	mm	642	-
C40/45/50s	1678mm W	mm	372	291
C45K/50K, C55s	1348mm W	mm	542	-
	1678mm W	mm	872	-
GEX40/45/50	1324mm W	mm	642	-
	1438mm W	mm	732	-

* C15~35, TMX, ECX, EPX, GTS, GEX, GTX

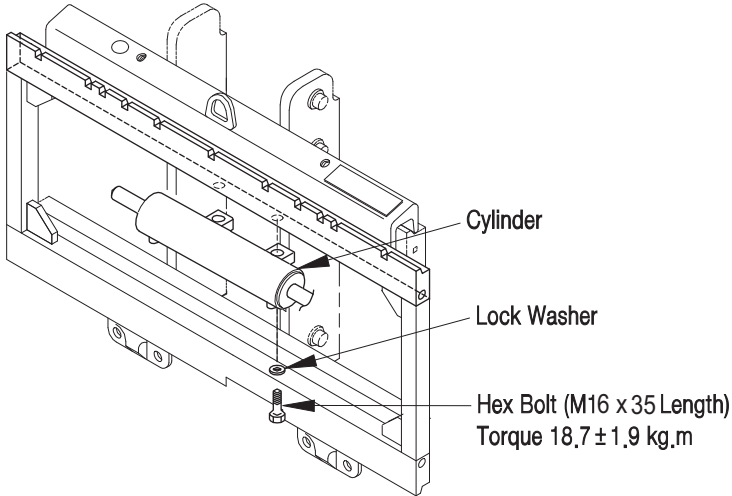
Truck Capa.		Unit	"A"	"B"
2.75 ton below	31"/37"/41" W	mm	440	-
	49" W	mm	596	-
	61" W	mm	440	231
2.8 ton~ 3.2 ton	37"/41" W	mm	420	-
	49" W	mm	622	-
	61" W	mm	420	252
3.3 ton ~3.5 ton	37"/41" W	mm	420	-
	45"/49" W	mm	622	-
	61" W	mm	420	252

Mount on lift truck

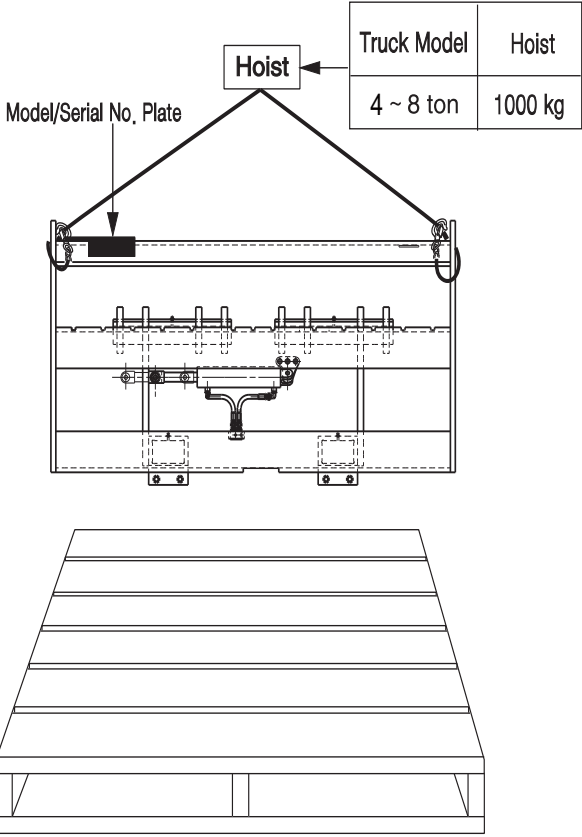
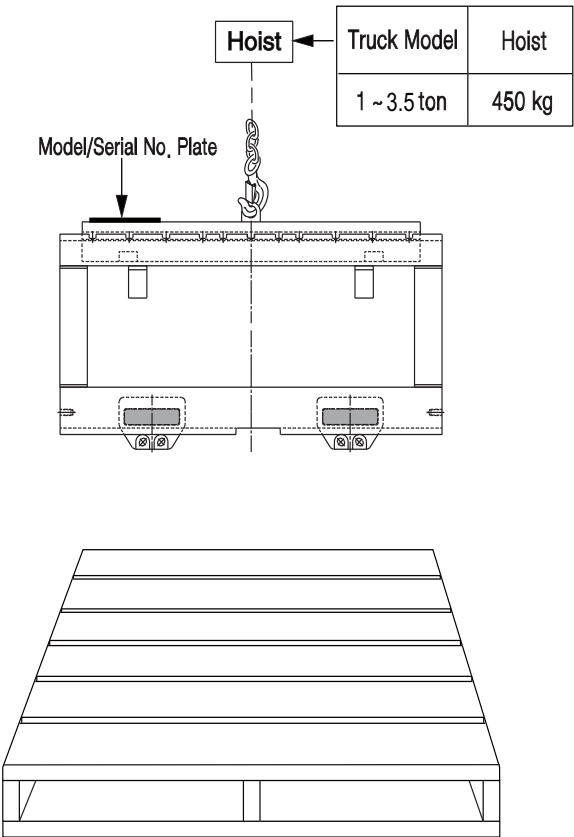


9. Side shifter and Fork Positioner

2. Cylinder mounting of top fork bar's bottom

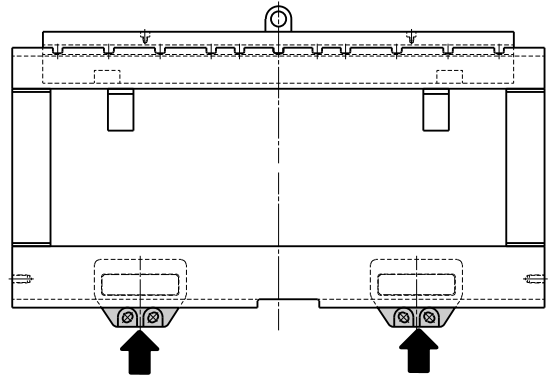


3. Remove from pallet

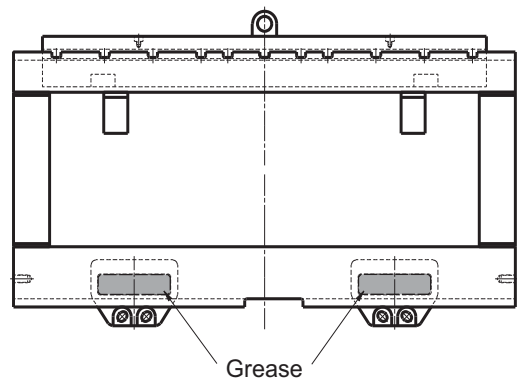


9. Side shifter and Fork Positioner

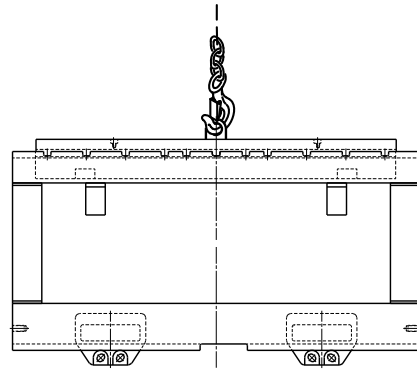
4. Remove lower hooks



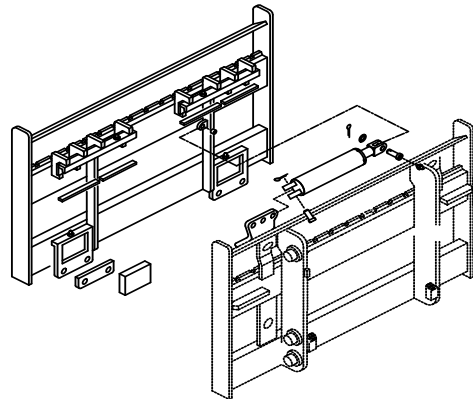
5. Lower slider lubrication



6. Mount on lift truck

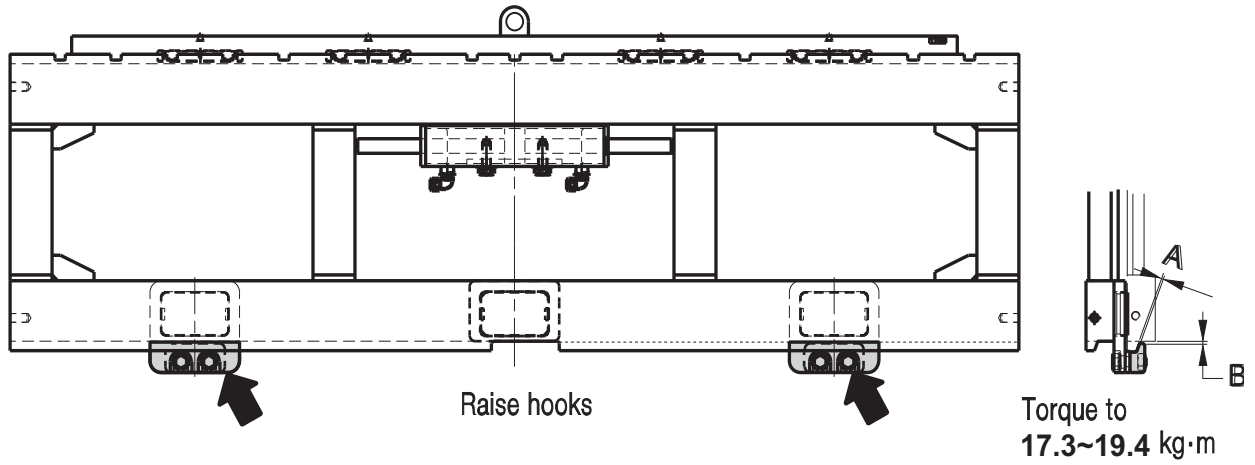


7. CMP50~75s, C50~80 Cylinder mounting



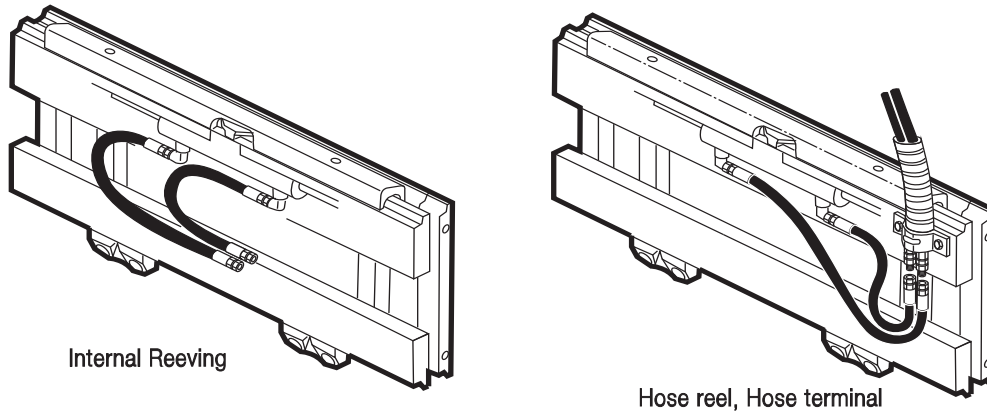
9. Side shifter and Fork Positioner

8. Install lower hooks



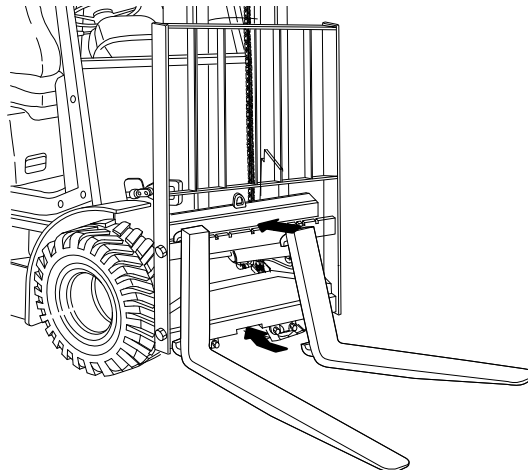
TON	1~2.5 CLASS2	3 CLASS3	3.5~4.5 CLASS3	4.5~5 CLASS4	5.5~8 CLASS4
A	1~1.5mm	1~1.5mm	1~1.5mm	1.5~2mm	1.5~2mm
B	1~2mm	1~2mm	3~4mm	4~6mm	4~6mm

9. Install hoses



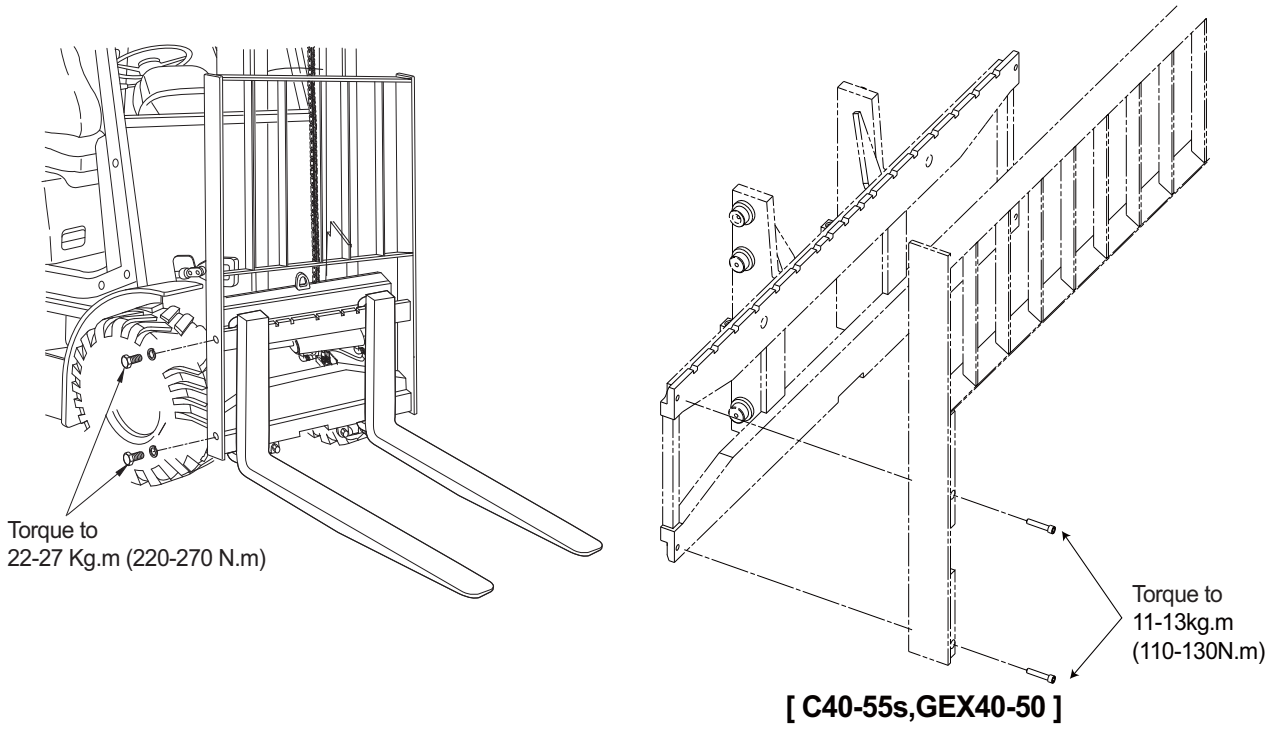
1. Flush truck supply hoses to remove air and debris
2. Install hoses

10. Install forks



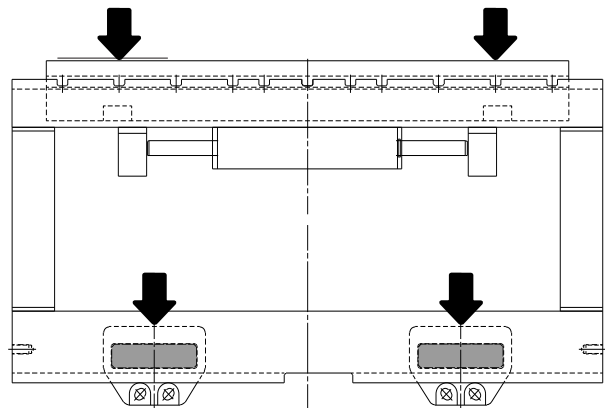
9. Side shifter and Fork Positioner

11. Install backrest



12. Lubrication Points

- Lubricate every 500 hours with chassis grease.

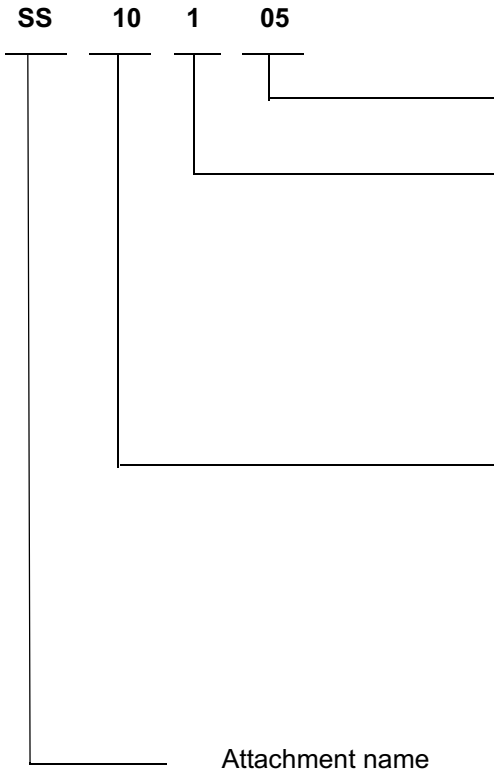


* OPTIONAL ; For the lower bearing, apply the grease to the inner fork bar.

9. Side shifter and Fork Positioner

13. About the catalogue number

CATALOGUE NUMBER 모델		<input type="text"/>		CLARK Material Handling Asia CE	
SERIAL NUMBER AND YEAR WAS POSITIONED ON THE LEFT OF NAMEPLATE. 일련번호는 네임플레이트 좌측에 타각되어 있음.					
RATED CAPACITY	지체용량	<input type="text"/>	kg	AT	로드센터
CENTER OF GRAVITY	지체중심	<input type="text"/>	mm	WEIGHT	중량
RECOMMENDED OPERATION PRESSURE	상용압력	<input type="text"/>	kg/cm ²	MAXIMUM	최대압력
WARNING ATTACHMENT 장착후 정격용량은 장비의 NAMEPLATE를 참조하십시오. CAPACITY OF TRUCK ATTACHMENT COMBINATION MAY BE LESS THAN ATTACHMENT CAPACITY SHOWN CONSULT TRUCK NAMEPLATE.					



Option Number
(01, 02, 03, 04, 05)

Moving Type

- 1 : Basic (Excluding clamp)
- 2 : Independent Type
- 3 : Non side shift (Only clamp)
- 4 : Side shift type
(Excluding side shift carriage)
- 5 : Revolving Type

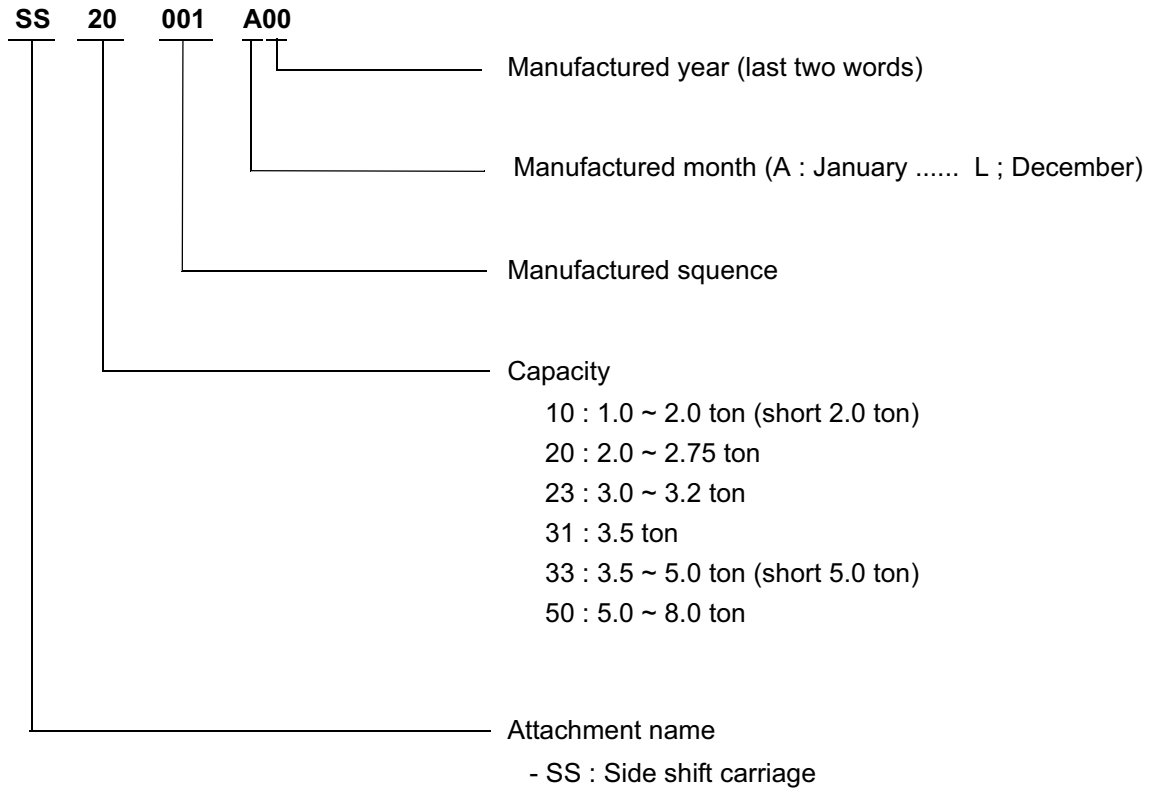
Capacity

- 10 : 1 ~ 2ton (short 2.0ton)
- 20 : 2 ~ 2.75ton
- 23 : 3 ~ 3.2ton
- 31 : Only 3.5ton
- 33 : 3.5 ~ 5ton (short 5.0ton)
- 50 : 5.0 ~ 8.0ton

SS	SIDE SHIFT CARRIAGE	BC	BLOCK CLAMP	FP	FORK POSITIONER
LS	LOAD STABILIZER	TF	TURN-A FORK	PH	1~2 PALLET HANDLER
HB	HINGED BUCKET	TL	TURN-A LOAD	LE	LOAD EXTEND
HF	HINGED FORK	RF	ROTATING FORK	DH	DRUM HANDLER
SC	BALE CLAMP	RC	PAPER ROLL CLAMP		
MC	MULTI CLAMP	PP	LOAD PUSH PULL		
DC	DRUM CLAMP	IP	INVERT PUSH CLAMP		
CC	CARTON CLAMP	3F	3 WAY HEAD FORK	SR	SALES REQUEST
FC	FORK CLAMP	RM	RAM		

9. Side shifter and Fork Positioner

14. About side shifter serial number



WARNING

Rated capacity of the truck & attachment combination is a responsibility of the original truck manufacturer and may be less than shown on the attachment nameplate. Consult the truck nameplate.



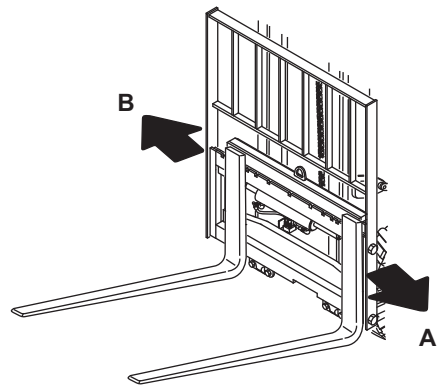
WARNING

Do not operate this attachment unless you are a trained and authorized lift truck driver.

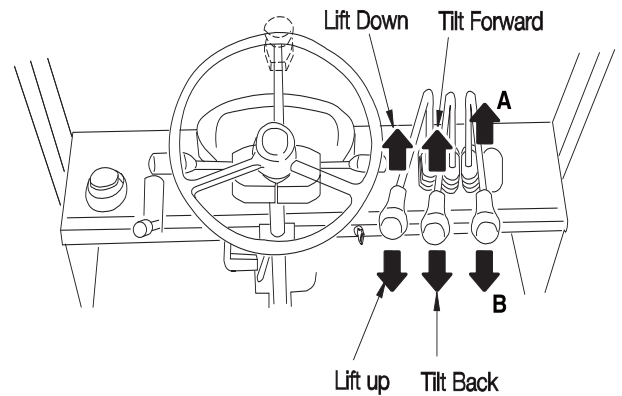
9. Side shifter and Fork Positioner

Side shifter Operation

- A - Sideshift Left
- B - Sideshift Right

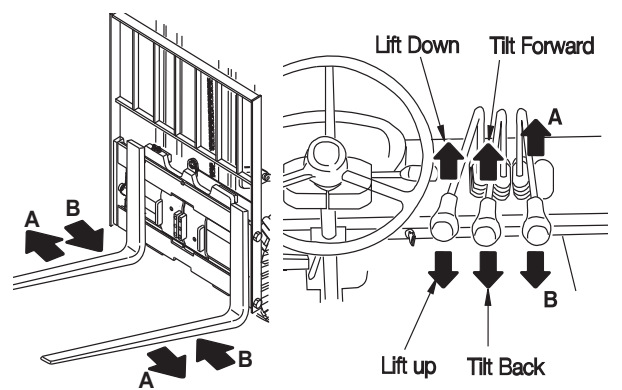


Auxiliary Valve Functions



Fork Positioner Operation

- 1) Basic Type fork positioner
 - * Fork Positioner operation
 - A - Forks Out
 - B - Forks In

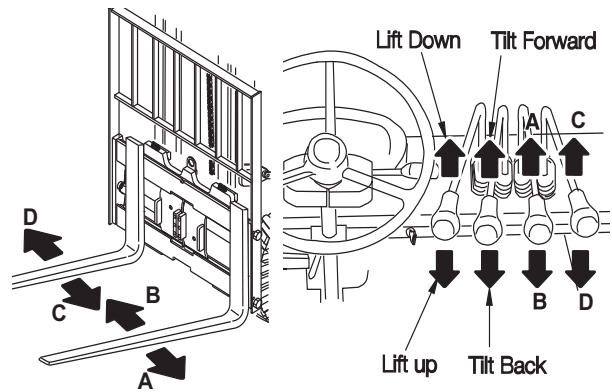


9. Side shifter and Fork Positioner

2) Independent Type fork positioner

* Fork Positioner operation

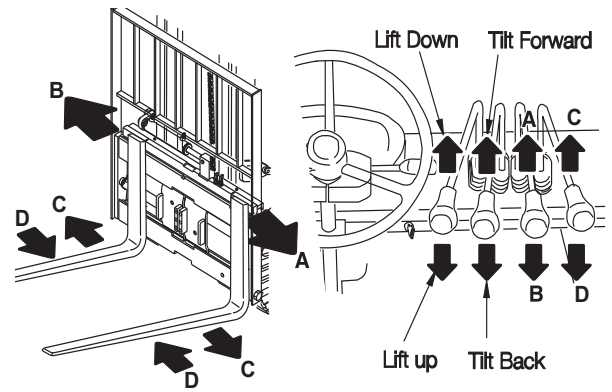
- A - Sideshift Left
- B - Sideshift Right
- C - Sideshift Left
- D - Sideshift Right



3) Shift Type fork positioner

* Fork Positioner operation

- A - Sideshift Left
- B - Sideshift Right
- C - Forks Out
- D - Forks In



9. Side shifter and Fork Positioner

Inspection & Maintenance

WARNING

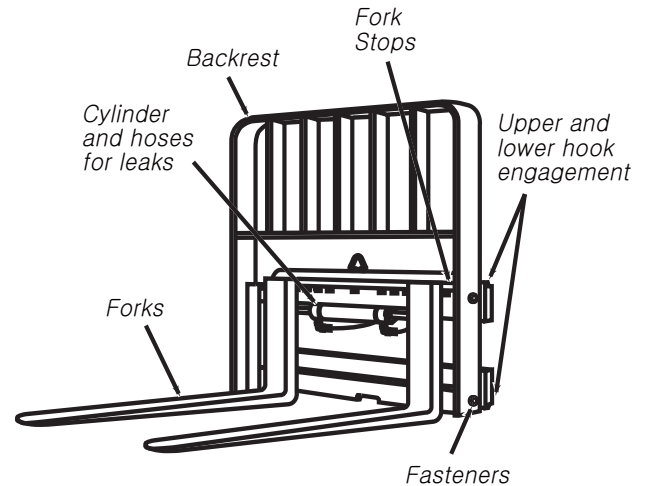
After completing any service procedure, always test the sideshifter through five complete cycles. First test with no load, then test with a load to make sure the attachment operates correctly before returning it to the job.

Daily

Check items shown each day.

Report problems to your supervisor.

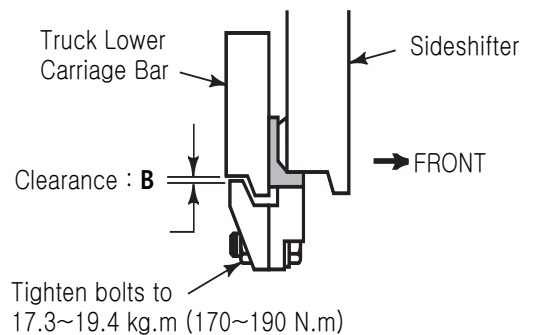
See Service Manual for troubleshooting, maintenance and repair procedures.



100-Hour

Every time the lift truck is serviced or every 100 hours of truck operation, whichever comes first, complete the following maintenance procedures :

- Check for loose or missing bolts, worn or damaged hoses, hydraulic leaks, and damaged or missing fork stops.
- Inspect lower hooks for wear and proper clearance. Adjust if necessary (see Page 9.5 step 8). Tighten lower hook capscrews to 17.3~19.4 kg.m (170~190 N.m).



Install lower hooks (Bolt-on)

* Clearance ; B

TON	1~2.5 CLASS2	3 CLASS3	3.5~4.5 CLASS3	4.5~5 CLASS4	5.5~8 CLASS4
B	1 ~2mm	1 ~2mm	3 ~4mm	4 ~6mm	4 ~6mm

300-Hour

After each 300 hours of truck operation, in addition to the 100-hour maintenance, perform the following procedures :

- Tighten backrest capscrews to 22~27kg.m (220~270 N.m).
- Only for C40-55s / GEX40-50 model to applies 11-13 kg.m (110 ~ 130 N.m)
- Apply general-purpose lithium-based chassis grease to Sideshifter upper and lower bearings.

9. Side shifter and Fork Positioner

1000-Hour

After each 1000 hours of truck operation, in addition to the 100 and 300-hour maintenance, perform the following procedures :

Inspect upper and lower bearings for wear. If any bearing is worn to less than 3/38 in. (2 mm) thickness, replace the entire bearing set. See Service Manual for replacement procedure.

2000-Hour

After 2000 hours of truck operation, in addition to the 100, 300 and 1000-hour maintenance, forks in use shall be inspected at intervals of not more than 12 months (for single shift operations) or whenever any defect or permanent deformation is detected. Severe applications will require more frequent inspection.

Fork inspection shall be carried out by trained personnel to detect any damage that might impair safe use. Any fork that is defective shall be removed from service.

Reference ANSI B56.1-2005.

2000-Hour (Continued)

inspect for the following defects :

- Surface cracks
- Straightness of blade and shank
- Fork angle
- Difference in height of fork tips
- Positioning lock
- Wear on fork blade and shank
- Wear on fork hooks
- Legibility of marking

