
Operation & Maintenance Manual

SWTH634

TELESCOPIC HANDLER

SUNWARD INTELLIGENT EQUIPMENT CO., LTD.

Preface

Copyright and Amendment

Text and illustrations herewith enclosed may not be or duplicated, not even in part and by any means. Even the title owner of the telescopic handlers just has the right of consulting this manual, this manual may not be supplied to any other third party for looking up, or anybody will be liable the above behavior.

Because of the possible time lag between the introduction of technical modifications (an on-going process the aim of which is to offer products which are being continually improved) and the latest up date of the manual, we must point out, for the sake of correctness, that the data contained in this edition is liable to change at any time and are therefore not binding.

Introduction

Our telescopic lift trucks have been designed to ensure convenient manoeuvres and easy maintenance.

Before operating the truck for the first time, the driver should read and become fully familiar with the various chapters in this manual.

These instructions have been prepared to provide all the information required for proper servicing and truck operation. By complying with these instructions, the truck driver will be able to get the best performances from his vehicle.

The terms “right” and “left”, “front” and “rear” used in this manual refer to positions viewed by the driver seated normally in the driving seat.

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1. SAFETY INSTRUCTIONS

1.1 ORIGINAL REPLACEMENT PARTS AND ATTACHMENTS

All maintenance on our lift trucks must be carried out using original parts.

By allowing non-original parts to be used, you run the risk:

- Legally, of being liable in the event of an accident.
- Technically, of causing breakdowns to occur or of reducing your lift truck's service life.
- Using counterfeit parts or components not approved by the manufacturer may put an end to contract warranty terms and lead the maker to withdraw the lift truck's certificate of compliance.

By using original parts during maintenance operations, you are legally covering yourself.

- Any user who procures parts from another quarter does so at his own risk.
- Any user who modifies his lift truck or has it modified by a service company, must consider that a new item of equipment has been brought into the market and therefore takes liability for it.
- Any user who copies original parts or has them copied is taking a risk from the legal viewpoint.
- The certificate of compliance only binds the maker for parts chosen or produced under the maker's control.
- The practicalities of maintenance terms are set out by the maker. The maker is in no way liable in the event of the user not complying with such terms.

The manufacturer brings to the user:

- His know-how and skill.
- Guaranteed quality work.
- Original replacement parts.
- Help with preventive maintenance.
- Effective help with diagnosing faults.
- Enhancements gained from feedback.
- Training for operating staff.
- Only the manufacturer knows the details of the lift truck design and therefore has the best technological capability to carry out maintenance.

Original replacement parts are distributed exclusively by SUNWARD and its dealer network.

1.2 DRIVER' S OPERATING INSTRUCTION.

Caution Whenever you see this symbol it means : “Warning! Be careful! Your safety or the safety of the lift truck is at risk.

- Most accidents connected with the use, maintenance and repair of the lift truck are due to non application of the basic safety instructions. By being aware of the risks to which you are exposed and by taking the necessary preventive measures, you should be able to avoid accidents occurring.
- Any operation or manoeuvre not described in the instructions is prohibited, however, any person who does use another method must first ensure that he is not putting himself, another person or the lift truck in danger.
- The manufacturer is not able to anticipate all possible risk situations. Therefore the safety instructions and notices given in the user manual and on the lift truck are not exhaustive.
- Any bending of the rules in safety notices or the user, maintenance or repair instructions for your lift truck may result in serious, or even fatal, accidents.

We would remind users of the risks in driving at excessive speed with regard to traffic conditions, particularly:

- Risk of loss of control on a poor-quality track.
- Increased stopping distance.
- The user must remain in full control of his lift truck and should:
- Adapt his speed to each situation in order to be maintain his own safety, that of others and of his

equipment.

- Always be aware of his stopping distance.
- On the basis of experience, there are a number of possible situations in which operating the lift truck is contra-indicated.
- Such foreseeable abnormal uses, the main ones being listed below, are strictly forbidden.
- The foreseeable abnormal behaviour resulting from ordinary neglect, but does not result from any wish to put the machinery to any improper use.
- The reflex reactions of a person in the event of a malfunction, incident, fault, etc. during operation of the lift truck.
- Behaviour resulting from application of the "principle of least action" when performing a task.
- For certain machines, the foreseeable behaviour of such persons as:
 - apprentices, teenagers, handicapped persons and trainees tempted to drive a lift truck. Truck drivers tempted to operate a truck to win a bet, in competition or for their own personal experience.
- The person in charge of the equipment must take these criteria into account when assessing whether or not a person will make a suitable driver.
 - Get to know the telescopic fork lift truck on the terrain where it is to be used.
 - Transport the load with the boom lowered and fully retracted.
 - Position the forks at right-angles to the load to be lifted.
 - Drive the truck at a speed appropriate to conditions and the state of the ground.
 - Never go too fast or brake sharply with a load.
 - When picking up a load, check that the ground is as even as possible.
 - When the load is lifted, make sure that no one can interfere with the operation and always adopt proper handling procedures only.
 - Never attempt to carry out operations which exceed the lift truck's capabilities.
 - Never raise a load in excess of the lift truck's capacity and never increase the size of the ballast.
 - Drive around obstacles.
 - Take care over electrical wires, trenches and recently-excavated or filled ground.
 - Never leave the engine running unattended.
 - Use the parking brake when depositing difficult loads or on sloping ground.
 - Never leave the truck parked with a raised load.
 - Never authorise anyone to approach or pass below a load.
 - Always think of safety and only transport well balanced loads.
 - Never lift a load using one fork only.
 - Drive with care and with reflexes alert.
 - When the lift truck is not in use, lower the forks to the ground and engage the parking brake.
 - Never leave the ignition key in the truck unattended.
 - Never leave the truck loaded on a gradient of over 15% even with the parking brake engaged.
 - When lifting a load, take care that nothing and no one interferes with the movement and adopt proper handling procedures only.
 - Comply with the data provided in the load diagrams.
 - Never transport another person on the lift truck.

Whenever an implement is changed, to prevent damage to the hydraulic unions always proceed as follows:

- Stop the engine
- Wait 1 minute for the circuit to depressurize Moreover check that the unions are clean.
- Ensure that the coupling faces are clean.

1.3 ENVIRONMENT.

- 1) A lift truck operating in an area without fire extinguishing equipment must be equipped with an individual extinguisher. There are optional solutions, consult your agent or dealer.
- 2) Take into account climatic and atmospheric conditions of the site of utilisation.
- 3) For operation under average climatic conditions, i.e.: between -15 °C and + 35 °C, correct levels of lubricants in all the circuits are checked in production. For operation under more severe climatic conditions, before starting up, it is necessary to drain all the circuits, then ensure correct levels of lubricants using lubricants properly suited to the relevant ambient temperatures. It is the same for the cooling liquid.
 - Protection against frost (See chapter: LUBRICANTS AND FUEL in paragraph: 3-MAINTENANCE).
 - Adaptation of lubricants (Ask your dealer for information).
 - Engine filtration.
 - Lighting (Working headlight).
- 4) Optional solutions exist, consult your dealer.
- 5) Use of a lift truck is prohibited in protected areas (e.g. refinery, explosive atmosphere). For use in these areas, specific equipment is available as an option. Consult your dealer.
If necessary, consult your dealer.

1.4 AUTHORIZATION TO OPERATE

- 1) Only qualified personnel may use the lift truck. Its use is subject to authorization to operate being given by the appropriate manager in the user establishment.
- 2) The user should always carry this authorization to operate with him while he is using the lift truck.
- 3) The driver is not competent to authorize the driving of the lift truck by another person.
- 4) In addition, the vehicle should be used in accordance with good practice for the profession.

1.5 OPERATING INSTRUCTIONS

- 1) Wear clothes suited for driving the lift truck, avoid loose clothes.
- 2) Never operate the vehicle when hands or feet are wet or soiled with greasy substances.
- 3) For increased comfort, adjust the driver's seat to your requirements and adopt the correct position in the driver's cab.
- 4) The operator must always be in his normal position in the driver's cab. It is prohibited to have arms or legs, or generally any part of the body, protruding from the driver's cab of the lift truck.
- 5) Always remember to fasten your seat belt and adjust it to your requirements.
- 6) The control units must never in any event be used for any other than their intended purposes (e.g. climbing onto or down from the lift truck, portmanteau, etc.).
- 7) If the control components are fitted with a forced operation (lever lock) device, it is forbidden to leave the cab without first putting these controls in neutral.
- 8) Never allow a passenger to travel on the lift truck in the driver's cab.
- 9) Before starting the lift truck , check the different levels:
 - Engine oil.
 - Hydraulic reservoir oil.
 - Transmission oil.
 - Cooling liquid.
- 10) Also check for possible leakage of oil, fuel or liquid from the lift truck.
- 11) Always drive the lift truck with the forks or attachment at approximately 300 mm from the ground, i.e. in the transport position.
- 12) Familiarise yourself with the terrain where the lift truck is to be used.

-
- 13) Ensure that the service brakes and the sound alarm are working properly.
 - 14) Drive according to, and at an appropriate speed for, the conditions and state of the terrain.
 - 15) Slow down before executing a turn.
 - 16) In all circumstances make sure you are in control of your speed.
 - 17) On damp, slippery or uneven terrain, drive slowly.
 - 18) Brake gently, never abruptly.
 - 19) Only use the lift truck's forward/reverse lever from a stationary position and never do so abruptly.
 - 20) Do not drive with your foot on the brake pedal or with the parking brake on.
 - 21) Always remember that hydrostatic type steering is extremely sensitive to movement of the steering wheel, so turn it gently and not jerkily.
 - 22) Never leave the I.C. engine on when the lift truck is unattended.
 - 23) Look in the direction you are traveling and always keep clear visibility of the road. Use the left and right rear view mirrors frequently and ensure that they are kept in good condition, are clean and correctly adjusted.
 - 24) Never use the truck in places poorly lighted.
 - 25) When working at night, ensure that your lift truck is fitted with full beam lights. There are optional solutions, consult your agent or dealer.
 - 26) Drive round obstacles.
 - 27) Check the closing and locking of the hood.
 - 28) Whatever his experience as a truck driver is, the operator is advised to familiarize himself with the position and operation of all the controls and instruments before operating the lift truck.

1.6 STOPPING THE TELESCOPIC HANDLER

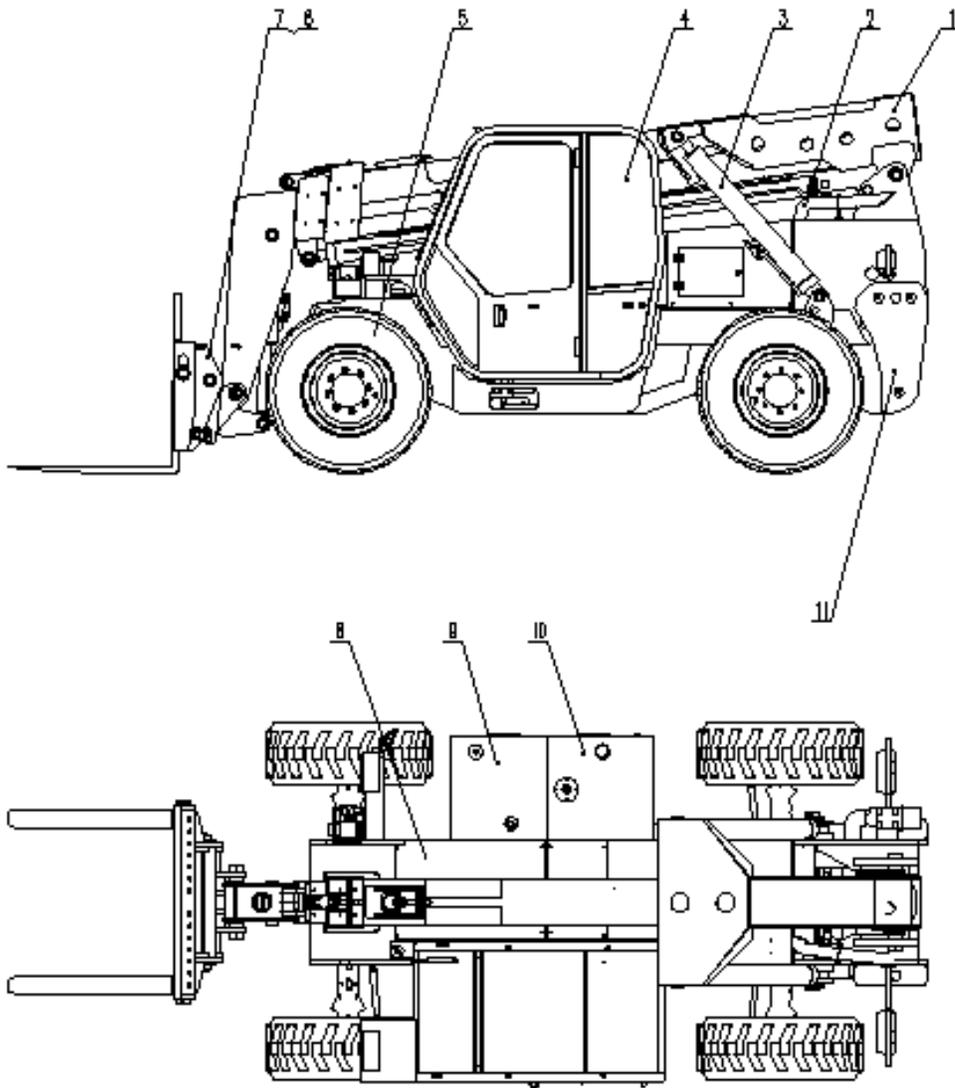
- 1) Ensure you comply with this safety notice as stopping the engine without allowing it to cool could cause damage to components damaging such parts.
- 2) Never leave the ignition key in the lift truck when the lift truck is unattended.
- 3) When the lift truck is stationary, place the forks or attachment on the ground, place the gear lever in neutral, apply the parking brake and put the forward / reverse lever in neutral.
- 4) If the driver has to leave his cab, even for a moment, it is essential to place the gear lever in neutral, apply the parking brake and put the forward/reverse lever in neutral.
- 5) Make sure that the lift truck is not stopped in any position that will interfere with the traffic flow and at less than one metre from the track of a railway.
- 6) In the event of prolonged parking on a site, protect the lift truck from bad weather, particularly from frost (Check the level of antifreeze), close the rear window, lock the cab door and ensure that the hood is properly secured.

Stop instructions.

- 1) Park the lift truck on flat ground or on an incline lower than 15 %.
- 2) Place the forward/reverse lever in neutral.
- 3) Apply the parking brake.
- 4) Completely retract the boom.
- 5) Lower the forks or attachment to rest on the ground.
- 6) Stop the I.C. engine
- 7) Remove the ignition key.
- 8) Check the closing and locking of door, rear window and hood.

Before leaving your driver's cabin, ensure that you have carried out all operations for stopping the lift truck, for your safety and the safety of others.

2. DESCRIPTION



1. Telescopic boom

2. Dynamical system

3. Hydraulic cylinder

4. Cab

5. Travelling system

6. Quick-change system

7. Attachment tool

8. Covering parts

9. Fuel tank

10. Hydraulic fluid tank

11. Chassis

2.1 INSTRUMENT PANEL

Fuel gage

Indicates the quantity of diesel available in the tank



Engine cooling water-thermometer dash unit

If the temperature reaches 103°C, the warning light turns on, immediately turn off the engine and troubleshoot the cause in the cooling circuit.



Load indicator

The indicator shows the machine load torque, when then load torque is bigger than the set value, the pointer will point to the red zone, built-in torque limiter will automatically cut off the action,that may cause the risk of tipping.



Engine speed indicator

Checking the rotation speed of engine.



1 Neutral position indicating light

Light on, the machine is in the neutral position.

2 Travel brake system pressure

3 Steering mode indicator light

4 Steering mode indicator light

5 Steering mode indicator light

6 Warning light for parking brake

When illuminated indicates that the parking brake is applied.

7 Engine preheat indicating light

This warning light comes on when the engine is preheated.

8 Alarm light for alternator excitation

This warning light comes on when the ignition is switched on and should go out when the engine is running. If the warning light should come on when the engine is running stop the engine immediately, and check the alternator belt and electrical circuit.

9 Left steering indicating light

Turn signal switch on, light on.

10 Right steering indicating light

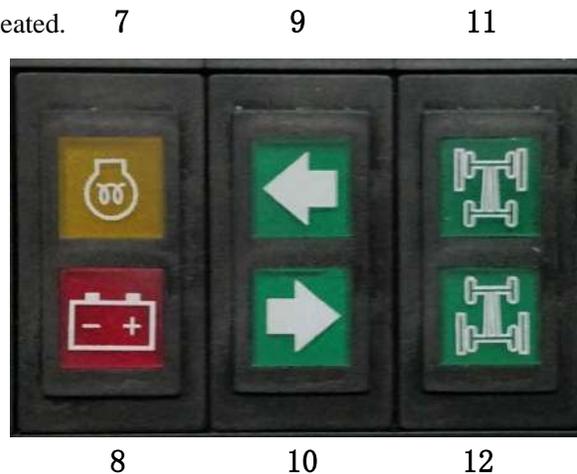
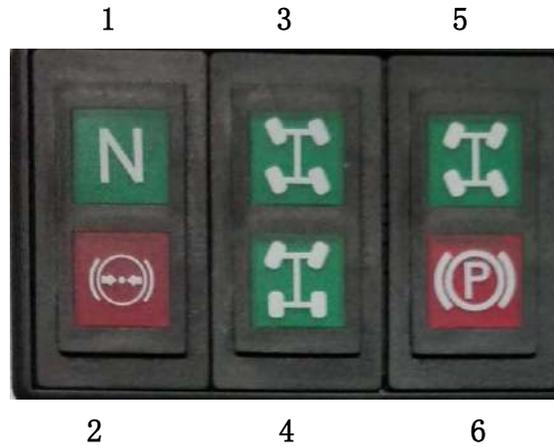
Turn signal switch on, light on.

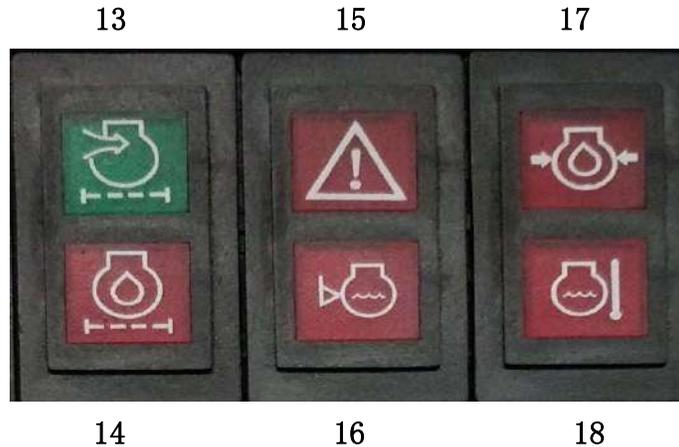
11 Fore wheel alignment indicated lamp

Light on, indicating that the fore wheel back to center.

12 Rear axle indicator light

Light on, indicating that the rear wheel back to center.





13 Air filter blocked indicator light

This warning light comes on when the ignition is switched on and should go out when the engine is running. If the warning light should come on when the engine is running stop the engine immediately, and check the alternator belt and electrical circuit.

14 Red warning light for the oil-water separator

15 Engine failure alarm indicated lamp

There are some failure on the Engine.

16 Red warning light for the high temperature and the level of the cooling liquid.

Light on, indicating that the temperature of the cooling liquid is too low or the level of cooling liquid is not suitable..

17 Red warning light for engine oil pressure

- This warning lights when the ignition is switched on and should go out when the engine is running.
- If this warning light should come on when operating the forklift switch off the engine immediately and investigate the cause (check the oil level in the engine sump)

18 Red warning light for the low temperature of the cooling liquid.

Light on, indicating that the temperature of the cooling liquid is too low..

2.2 ACCELERATOR PEDAL (PIC. B)

This pedal is used to vary the truck speed by modifying the engine rpm rate.



A

B

2.3 FOOT BRAKE (PIC. A)

The foot brake control the brake that acts on the front and rear wheels, thus slowing and stopping the lift truck.

2.4 STEERING WHEEL

Turning the steering wheel to control the direction of the machine. There are three different steering module to choose. You can use the regulating handle to adjust the height of the steering wheel.



2.5 KEY SWITCH

Turn the key clockwise to .

OFF —stop condition

ON—put through power supply

PREHEAT—preheat the engine

START—start the engine(plus:start the engine in the neutral gear).



2.6 EMERGENCY STOP SWITCH

- Press the emergency stop switch at any time to stop all machine functions.
- Turn switch clockwise to reset.



2.7 ROCKER SWITCH CONSLE

1. Steering mode switch

Press this switch to choose three different steering modes.

2. Attachment tool switch

Press this switch to control the attachment tool switch.

3. Signal switch

Press this switch to choose steering indicating light

4. Work light switch

Press this switch to control front high beam, frontlow beam.

5. Lamplet switch

Press this switch to control the lamplet.

6. Rotating beacon switch

Press this switch to control the rotating beacon.

7. Parking brake switch

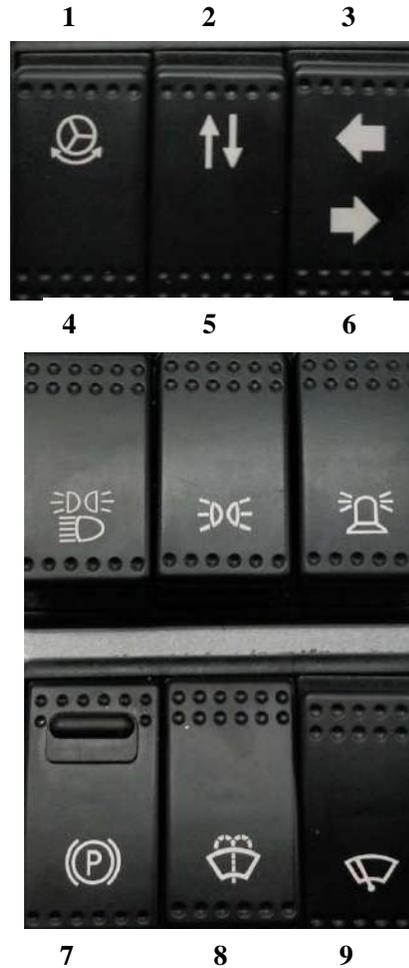
Push the switch down to park and push the switch up to unlock.

8. Washer switch (enclosed cab)

Press this switch to control the washer.

9. Wiper switch (enclosed cab)

Press this switch to control the wiper.



2.8 BATTERY MAIN SWITCH

Turn this switch to control the electric circuit.



2.9 COMBINATION CONTROL SWITCH



1. Gear select switch

There are three speed gear on this switch, turn the switch from 1 to 3 to adjust three different speed.

2. Reversing control switch

F=Forward gear push the knob forward (machine move forward)

N=Neutral gear the middle (machine stop)

R=Reverse gear push the knob backward (machine move backward)

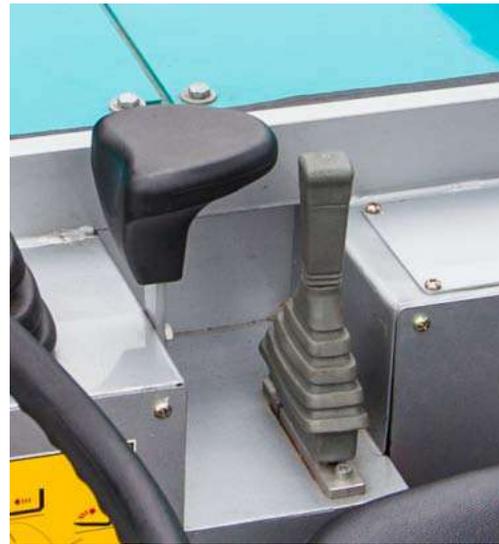
Attention:

- When started the engine, the reversing control switch must be the neutral gear.
- the reversing control switch can control the machine move.
- when the reversing control switch on the reverse gear, the aster buzzer will ring, the light will light.

2.10 ELECTRO-HYDRAULIC PROPORTIONAL SERVOCONTROLS



PIC. (A)



PIC. (B)

The servo control knob(PIC. A) can carry on 3 actions: lifting, tipping fork and extend/retract boom at the same time.

To lift load, pull the lever back

To lower load, push the lever forward

To tip the fork forward, push the lever left

To crowd the forks back, push the lever to the right.

To extend the boom, push the sliding wheel forward

To retract the boom, pull the sliding wheel back

Attention:

- The speed of this progress can be controlled by the distance of the shaking.
- At this progress, the attachment tool will be automatic leveling.

The servo control knob(PIC. B) can level the machine by shaking the knob.

2.11 SEAT

1. Headrest adjustment

Adjust the headrest to a suitable place

2. Armrest adjustment

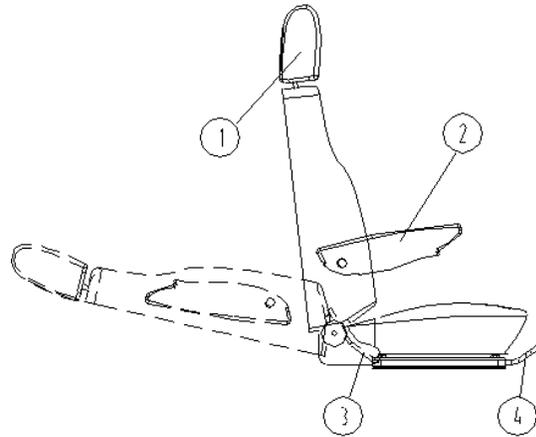
Adjust the armrest to a suitable place

3. Beckrest adjustment

Adjust the beckrest to a suitable place

4. Levelling adjustment

Adjust the seat to a suitable place.



2.12 SAFETY BELT

Before starting the engine,adjust the seat as necessary, and then adjust the safety belt as following procedure:

- Cheak the safety belt can work normally.
- Sit on the seat, fasten the belt.
- Make sure the belt is locked.

Warning:

- Safety belt is very important to protect the safety of the drive,When driving the machine without the belt,it may cause serious injury or death.

2.13 REARVIEW MIRROR

There are three rearview mirrors on the machine,two on the each side of the cab,the last one is on the right front of the machine.

Attention:

- Before start the machine,make sure you have the best vision.



3. MACHINE OPERATION

3.1 AUTHORIZED OPERATION

- 1) Wear clothes suited for driving the lift truck, avoid loose clothes.
- 2) Never operate the vehicle when hands or feet are wet or soiled with greasy substances.
- 3) For increased comfort, adjust the driver's seat to your requirements and adopt the correct position in the driver's cab.
- 4) The operator must always be in his normal position in the driver's cab. It is prohibited to have arms or legs, or generally any part of the body, protruding from the driver's cab of the lift truck.
- 5) Always remember to fasten your seat belt and adjust it to your requirements.
- 6) The control units must never in any event be used for any other than their intended purposes (e.g. climbing onto or down from the lift truck, portmanteau, etc.).
- 7) If the control components are fitted with a forced operation (lever lock) device, it is forbidden to leave the cab without first putting these controls in neutral.
- 8) Never allow a passenger to travel on the lift truck in the driver's cab.

3.2 BEFORE STARTING THE LIFT TRUCK.

- 1) If the lift truck is new, refer to chapter: BEFORE STARTING UP A NEW LIFT TRUCK in paragraph: 1 – OPERATING AND SAFETY INSTRUCTIONS.
- 2) Check the condition of the tyres and the tyre pressures (See chapter: CHARACTERISTICS in paragraph: 2 - DESCRIPTION).
- 3) Before starting the lift truck, check the different levels:
 - Engine oil.
 - Hydraulic reservoir oil.
 - Transmission oil.
 - Cooling liquid.
- 4) Also check for possible leakage of oil, fuel or liquid from the lift truck.
- 5) Check all control instruments immediately after starting up, when the I.C. engine is warm and at regular intervals during use, so as to quickly detect any faults and to be able to correct them without any delay. If an instrument does not show the correct display, stop the I.C. engine and immediately carry out the necessary operations.

3.3 START THE ENGINE

- 1) Into the cab, adjust the seat.
- 2) Adjust the rearview mirrors to get the best vision.
- 3) Fasten the belt.
- 4) Make ssre the reversing contol switch is on the neutral gear.
- 5) Turn the key to start the engine.

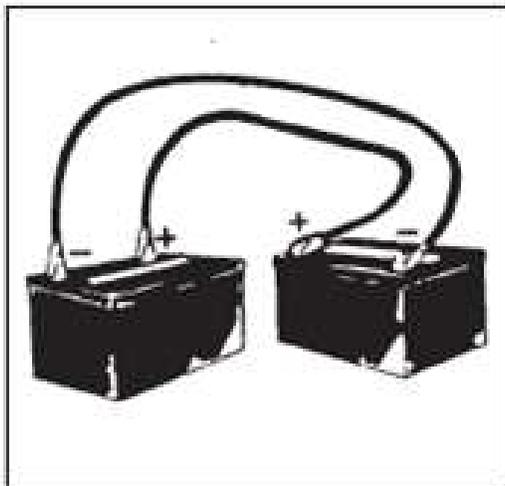
Important! Do not start the engine twice in 30s.

- 6) After start the engine, make the engine run in the low speed about 30~60s .

3.4 ALTERNATOR

The alternator is installed on the left hand side of the engine. The alternator and regulator are designed to operate in a system which is polarized in one direction only. It is therefore necessary to take the following precautions when working on the battery charging circuit, otherwise serious damage may be caused to the electrical equipment:

- Do not operate with an open circuit.
- Always ensure that all terminals are well tightened.
- Never demount the terminals at the rear of the alternator while the engine is running otherwise the alternator will be damaged.
- When a battery is installed, ensure that the connections are correctly polarized.
- It is essential for the cable marked (+) to be connected to the positive battery terminal (+), the cable marked (-) to be connected to the negative battery terminal (-) and to ground the equipment.
- If a second battery is used to start the engine, always connect terminals of identical polarity (Fig. A).
- Any battery used in this way must be of the same voltage as that fitted to the truck.
- When using an external battery charger, always connect the charger positive (+) lead to the positive (+) battery terminal and the charger negative lead (-) to the negative battery terminal (-) and ground. Never ever short-circuit or ground the alternator terminals.
- Never invert the alternator connection on the battery and never remove or replace an electrical connection while the engine is running.
- When carrying out electrical welding operations on the truck, connect the negative lead of the welder straight on to the part being welded to prevent high voltage current from passing through the alternator, and disconnect the battery.



3.5 DRIVE

- 1) Fasten the belt, start the engine, push the foot brake and then loosen the hand brake.
- 2) Choose the suitable gear.
- 3) Adjust the reversing control switch.
- 4) Loosen the foot brake and push the accelerator pedal.

3.6 STEER

- Push the foot brake to slow down the machine.
- Adjust the reversing control switch to change as you like.

3.7 STOPPING THE LIFT TRUCK

- Park the lift truck on flat ground or on an incline lower than 15 %.
 - Place the forward/reverse lever in neutral.
 - Apply the parking brake.
 - Completely retract the boom.
 - Lower the forks or attachment to rest on the ground.
 - Stop the I.C. engine
 - Remove the ignition key.
 - Check the closing and locking of door, rear window and hood
- Before leaving your driver's cabin, ensure that you have carried out all operations for stopping the lift truck, for your safety and the safety of others.**

3.8 STEERING MODE

IMPORTANT! DO NOT CHANGE THE STEERING MODE BEFORE THE MACHINE STOPPED.

There are three different steering modes:

- Four-wheel steer
- Front-wheel steer
- Crab row to steer

You can use the steering mode switch to choose steering mode.

1. Four-wheel steer

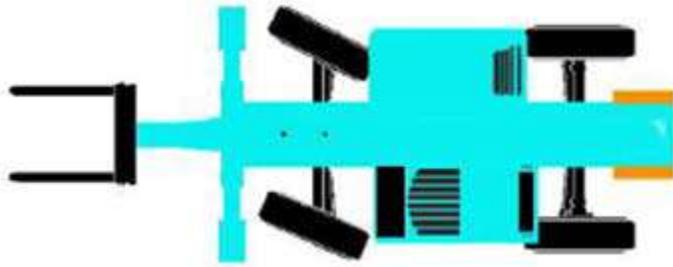
Warning: Never use this mode in the high speed when the machine is in the high speed, please use the front-wheel steer.

This steering will provide a small turning radius, the rear-wheel will follow the path of the front-wheel, it also provide advantages in the mud and sand pavement.



2. Front-wheel steer

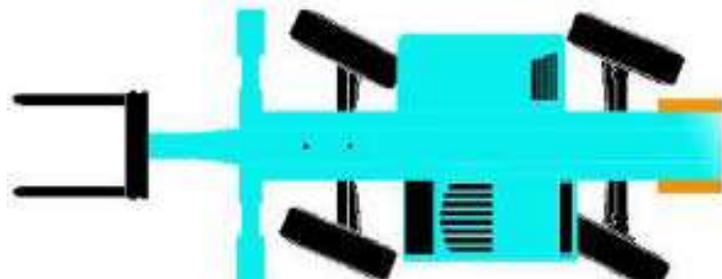
This mode can be used in many different kinds of driving conditions.



3. Crab row to steer

Warning: Never use this mode in the high speed. when the machine is in the high speed, please use the front-wheel steer.

This mode can be very useful in the actual working conditions, it must make you work be easier.



3.9 MOUNT THE ACCESSORY WITH MANUAL LOCK

A Engaging the accessory

- Check that the accessory is in a position which simplifies connection of the snap coupling. If it is improperly positioned, take the necessary precautions and adapt it to the conditions of maximum safety.
- Check that the locking pin is engaged in the support provided on the frame.
- Position the lift-truck with the boom lowered squarely in front of and parallel to the accessory and tilt the quick coupling forward(Fig.A).
- Bring the quick coupling into position below the accessory's connection pipe, raise the boom slightly and tilt the connection backwards to position the accessory (Fig.B).
- Raise the accessory off the ground for easier engagement.

B Manual locking

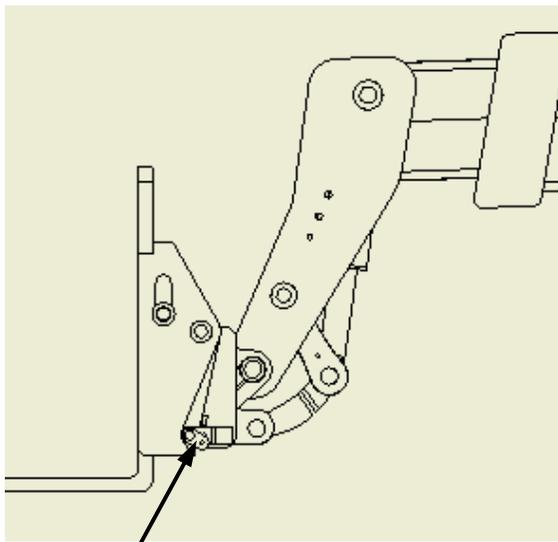
- Take the locking pin on the support and fit it into the hole of the quick coupling in order to lock the accessory in place (Fig. C).
- Do not forget to fit on the split pin

C Manual release

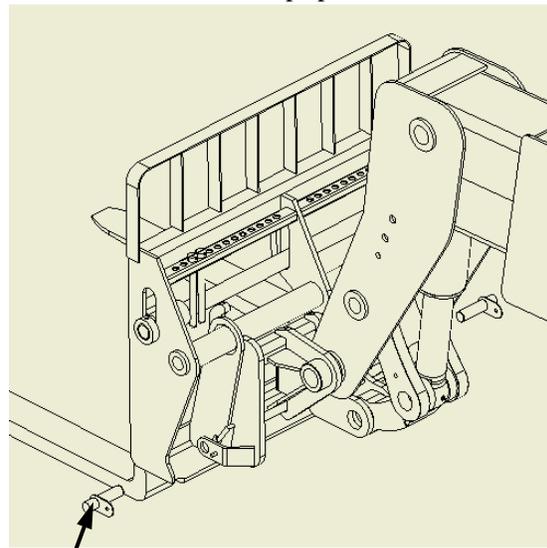
- Proceed in reverse direction to the MANUAL LOCKING procedure, do not forget to replace the locking pin in the support on the frame.

D Removing (and putting down) the accessory.

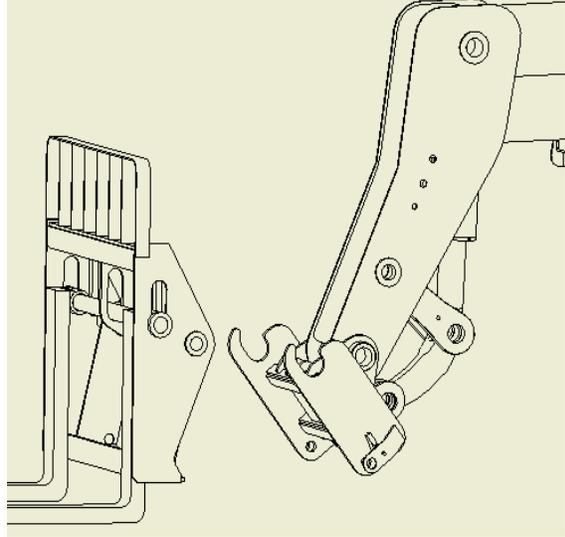
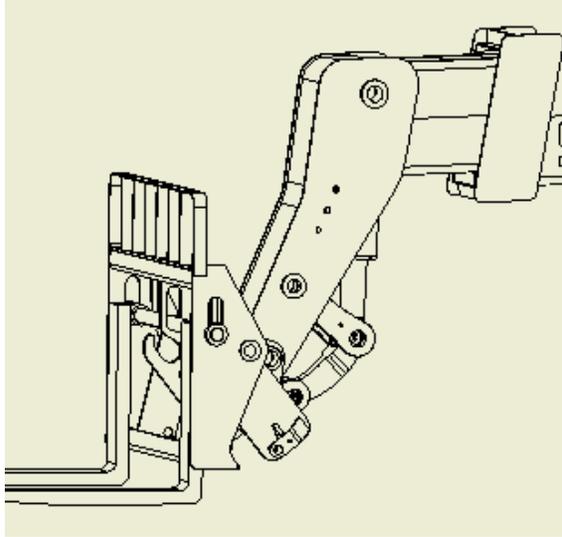
- Proceed with the ACCESSORY
- HITCHING instructions in reverse order.
- Make sure that the actual accessory is placed in a safe position on compact, flat ground.
- If the accessory has a hydraulic circuit, connect the quick couplings or uncouple them if the accessory is being demounted after having relieved the pressure from the circuit.
- Keep the snap couplings clean and protect the unused orifices with the caps provided.



pin



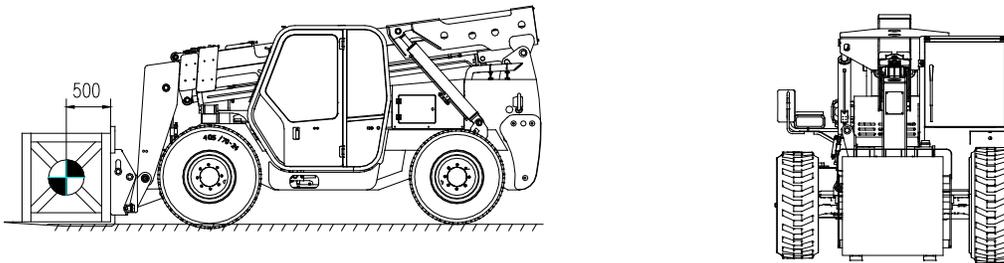
pin



3.10 LOAD HANDLING

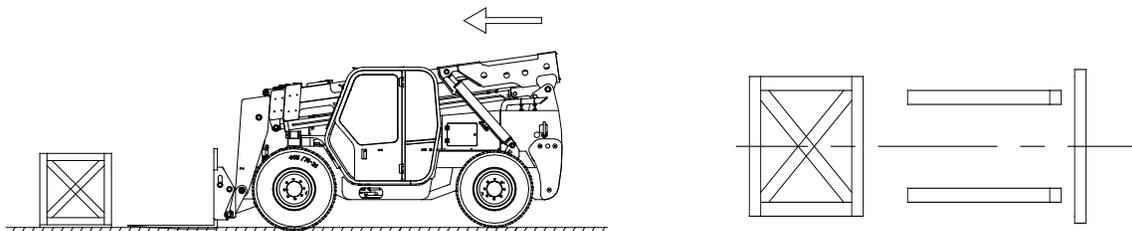
1. Weight of load and center of gravity

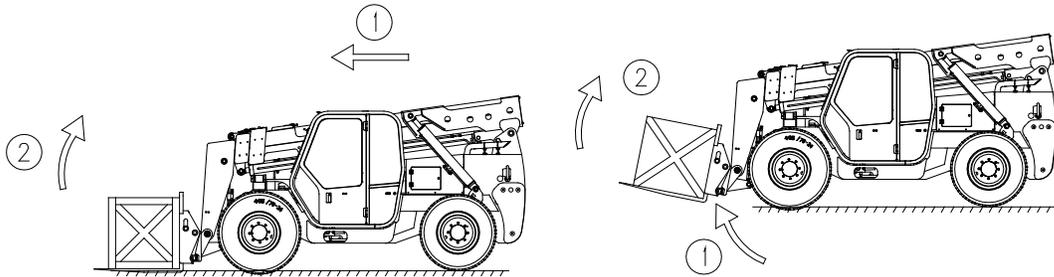
- 1) Carrying a load greater than the rated capacity for the lift truck or for the attachment is prohibited.
- 2) Before taking up a load, you must know its weight and its center of gravity.
- 3) The load chart relating to your lift truck is valid for a weight with its center of gravity 500 mm from the heel of the forks. For a load with a higher center of gravity, consult your agent or dealer.
- 4) For irregular loads, determine the center of gravity in the transverse direction before handling.
- 1) For loads with a moving center of gravity (e.g. liquids), take account of the variations in the center of gravity in order to determine the load to be handled (Consult your agent or dealer) and be vigilant and take extra care to limit these variations as far as possible.



2. Taking up a load on the ground.

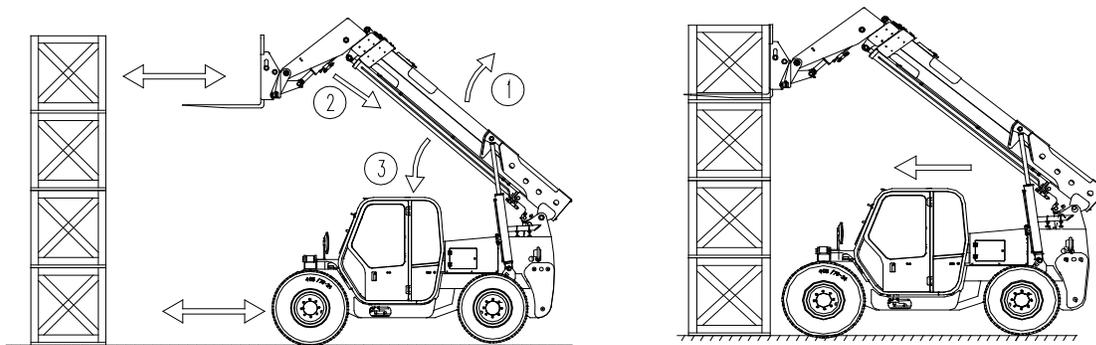
- 1) Position the lift truck perpendicular to the load, with the jib retracted and the forks in a horizontal position.
- 2) Adjust the fork spread and centering in connection with the load (Optional solutions exist, consult your dealer).
- 3) Beware of the risks of trapping or squashing limbs when manually adjusting the forks. Always maintain an equal distance between the forks and the center of the carriage in order to keep the load completely stable.
- 4) Slowly move the lift truck forward (1) and stop with the forks in front of the load, if necessary, slightly lift the jib (2) while taking up the load.
- 5) Apply the parking brake and place the forward/reverse lever in neutral.
- 6) Slightly lift the load (1), tilt the carriage backwards (2) in the transport position.
- 1) Tilt the carriage sufficiently backwards to ensure the load's stability when braking whilst maintaining the load balance.

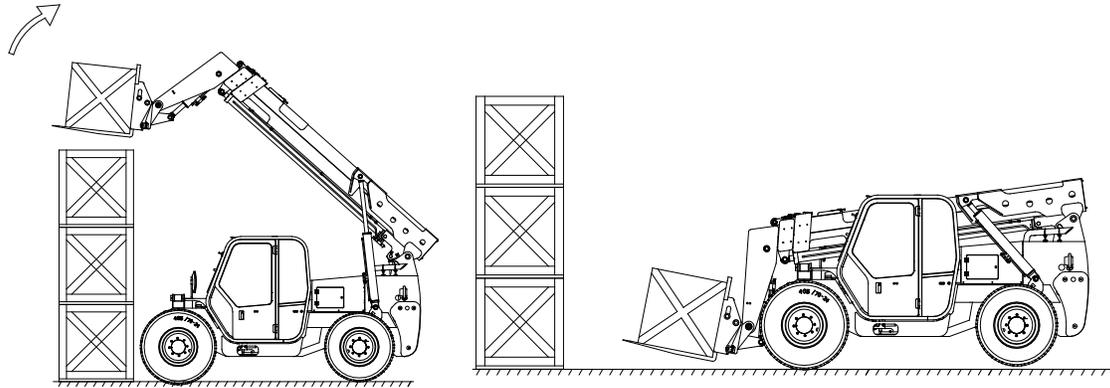




3. Taking up a high load on tyres

- 1) Under no circumstances should you pick up a load if the lift truck is not in a horizontal position. (See paragraph: G -HORIZONTAL POSITION OF THE LIFT TRUCK in the chapter: LOAD HANDLING).
 - Ensure that the forks will easily pass under the load.
 - Position the lift truck perpendicular to the load with the forks in a horizontal position manoeuvring gently and carefully (See paragraph: E – VISIBILITY in the chapter: HANDLING INSTRUCTIONS for visibility of the road).
- 2) Always think about keeping the distance necessary to fit the forks under the load, between the pile and the lift truck and use the shortest possible length of jib.
 - Stop with the forks in front of the load. Apply the parking brake and place the forward/reverse lever in neutral.
 - Slightly lift the load (1) and incline the forks carriage (2) backwards to stabilize the load.
- 3) Tilt the load sufficiently backwards to ensure its stability (loss of load on braking) without upsetting the balance of the load in so doing.
 - If possible lower the load without shifting the lift truck. Lift the jib (1) to release the load, retract (2) and lower the jib (3) to bring the load into the transport position.
 - If this is not possible, back the lift truck up. Manoeuvring very gently and carefully (See paragraph: E – VISIBILITY in the chapter : HANDLING INSTRUCTIONS for visibility of the road), back up the lift truck (1) to release the load, retract (2) and lower the jib (3) to bring the load into the transport position.

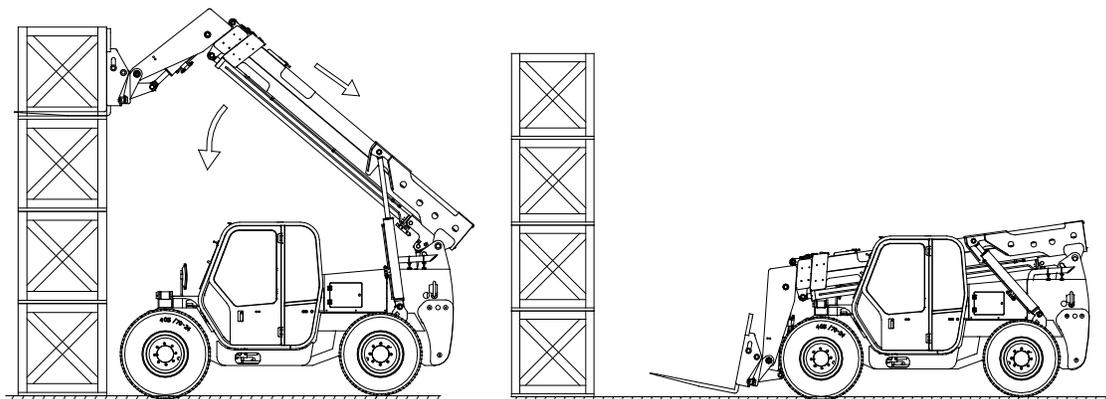
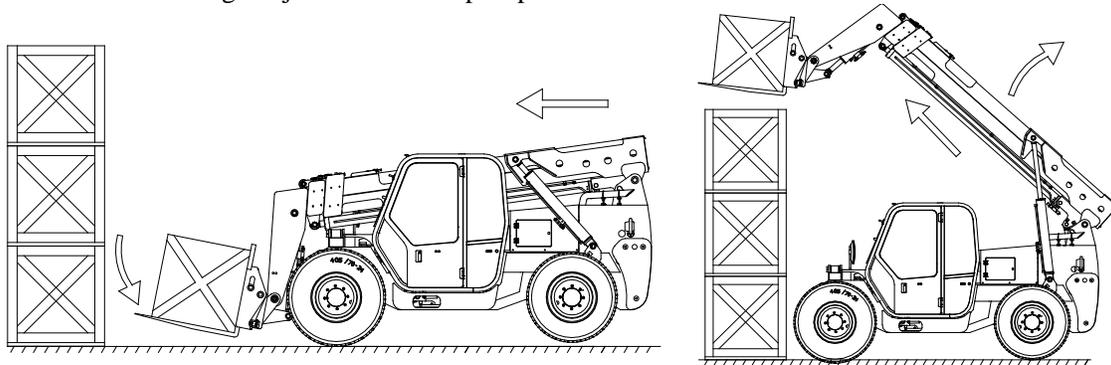




4. Laying a high load on tyres

Under no circumstances should you lay down a load if the lift truck is not a horizontal position. (See paragraph: G - HORIZONTAL POSITION OF THE LIFT TRUCK in the chapter: LOAD HANDLING).

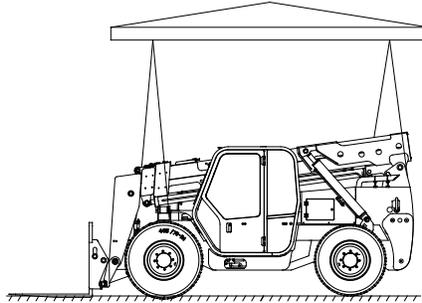
- 1) Approach the load in the transport position in front of the pile.
- 2) Lift and extend the jib until the load is above the pile, if necessary move the lift truck forward (3) manoeuvring very gently and carefully (See paragraph: E - VISIBILITY in the chapter: HANDLING INSTRUCTIONS for visibility of the road).
- 3) Apply the parking brake and place the forward/reverse lever in neutral.
- 4) Place the load in a horizontal position and lay it down on the pile by lowering and retracting the jib in order to position the load correctly.
- 5) Free the forks by alternately retracting and lifting the jib (3) or, if possible, by reversing the lift truck. Then bring the jib into the transport position.



4. TRANSPORT AND STORE

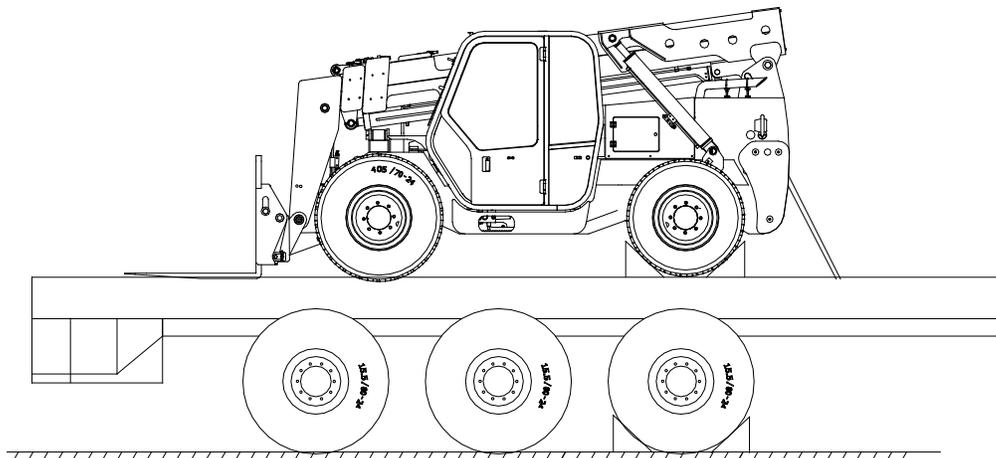
4.1 SLING THE LIFT TRUCK

- Take into account the position of the lift truck gravity center for lifting.



4.2 TRANSPORT THE LIFT TRUCK ON A PLATFORM

- Ensure that the safety instructions connected to the platform are respected before the loading of the lift truck and that the driver of the means of transport is informed about the dimensions and the weight of the lift truck (See chapter: CHARACTERISTICS in paragraph: 2 - DESCRIPTION).
- Ensure that the platform has got dimensions and a load capacity sufficient for transporting the lift truck. Check also the pressure on the contact surface allowable for the platform in connection with the lift truck.
- Load the lift truck
- Block the wheels of the platform.
- Fix the loading ramps so that you obtain an angle as little as possible to lift the lift truck.
- Load the lift truck parallel to the platform.
- Stop the lift truck
- Stow the lift truck
- Fix the chocks to the platform at the front and at the back of each tyre.
- Stow the lift truck on the platform with enough resisting ropes. At the front of the lift truck, on the fastening points 1 and 2
- Tighten the ropes



4.3 STORAGE

4.3.1 Long-term storage

- When you want to store the machine for a long time, please put the piston rod into the cylinder to protect the wear of the rod and please clean the covers of the machine.

4.3.2 Before storage

- Add lubrication into each part
- Replace the engine oil.
- Add lubrication on the wear of the rod.
- Fuel tank filled with fuel.
- Choose a suitable place to store. Please place the machine in the interior, if placed in outdoor, you need some cover to cover the machine.

4.3.3 During storage

- Please run the machine every one month.

4.3.4 After storage

- Clean the wear of the rod.
- Add lubrication into each part.
- Check the engine oil.

5. MAINTENANCE

5.1 FILTERING ELEMENTS AND BELTS

1		Engine oil filter	Every 250 H, replace
2		Air filter cartridges	Every 500 H, clean
3		Transmission oil filter	Every 500 H, replace
4		Hydraulic oil filter cartridge	Every 500 H, replace
5		Engine belt	Every 1000 H, check
6		Hydraulic oil tank vent	Every 500 H, check
7		Hydraulic driver oil filter element	Every 500 H, replace

5.2 LUBRICANT

LUBRICATED PART	CAPACITY	RECOMMENDED PRODUCT
Engine	7.5 L	oil RIMULA X OIL 15W/40
Hydraulic oil tank and transmission	140L	oil SHELL TELLUS T46
Front/rear differential axle	11 L	oil SHELL DONAX TD
Brake part rotation reducer	2.8 L	oil SHELL DONAX TD
Front/rear wheel final reducers	1.6 L	oil SHELL DONAX TD
General greasing		Grease SHELL SUPER GREASE EP2
Telescopic boom lubrication		Grease SHELL SUPER GREASE G2
Pivot		Grease SHELL SUPER GREASE G2
Chain lubrication		motor oil SAE 30/40 W
Cooling system antifreeze	25 L	SHELL ANTIFREEZE
Fuel tank	140 L	Diesel fuel

5.3 SERVICING SCHEDULE CONTENT

A – EVERY DAY OR EVERY 10 HOURS SERVICE

- A1-- Engine oil level.
- A2-- Check the cooling fluid level.
- A3-- Check the fuel prefilter.
- A4-- Cheak the level of the hydraulic driver oil

B -- EVERY 50 HOURS SERVICE

- B1-- Clean the air filter.
- B2-- Check the hydraulic oil level.
- B3-- Check the tyre pressure and wheel nut torque.
- B4-- Clean the radiator.
- B5-- Clean and grease the telescopic boom pads.

C -- EVERY 250 HOURS SERVICE

- C1-- Alternator-fan-camshaft belt tension.
- C2-- Check the oil level in the axle differential front and rear.
- C3-- Check the oil level in the front and rear wheel final drivers
- C4-- Check the oil in the 2 speed reduction gear on the front axle.
- C5-- Grease the pivot pin of telescopic boom.
- C6-- Grease the pivot pin of quick coupling.
- C7-- Grease the pins of fork tilting cylinder foot and rod.
- C8-- Grease the pins of lifting cylinder foot and rod.
- C9-- Grease the pins of front and rear axle.
- C10-- Grease the pins of front and rear axle soleplate
- C11-- Grease the pins of the cardan jiont.
- C12-- Grease the pins of the leveling cylinder.
- C13-- Check,clean and lubricate the outside chains of the boom.
- C14--cheak the chains tension
- C15-- Replace the engine oil filter.and drain and replace the engine oil.

D -- EVERY 500 HOURS SERVICE OR EACH YEAR

- D1 -- Replace the air filter cartridge.
- D2 -- Replace the primary fuel filter/water separator
- D3 -- Replace the secondary fuel filter.
- D4 -- Replace the hydraulic oil filter cartridge.
- D5 -- Replace the hydraulic and transmission oil vent.
- D6 -- Replacethe hydraulic driver oil and the element.

E -- EVERY 1000 HOURS SERVICE OR EACH YEAR

- E1 -- Change the hydraulic and transmission oil
- E2 -- Change the oil in the front and rear axle differential.
- E3 -- Change the oil in the front and rear wheel final driver
- E4 -- Change the oil in the front axle reduction gear.
- E5 -- Change the fuel and clean the fuel tank.
- E6 -- Change the engine belt
- E7 -- Control the telescopic sliding block wear *

F-- EVERY 2000 HOURS SERVICE

- F1 -- Check the valve clearance.
- F2 -- Check the oil injectors.
- F3 -- Check the alternator and starter motor.
- F4 -- Check the turbocompressor.

G -- EVERY 5000 HOURS SERVICE

- G1 -- Check interior chain wear
- G2 -- Check for stretching due to wear

G3 -- Check the plate profile for wear

G4 -- Check wear on the side of the chain

H -- OCCASIONAL MAINTENANCE

H1: Engine maintenance

H2: Change a wheel

Periodically check to make sure that the anti-tipping safety system operates correctly whenever maintenance work is carried out.

5.4 SERVICING SCHEDULE DESCRIPTION

5.4.1 EVERY DAY OR EVERY 10 HOURS SERVICE

A1: Engine oil level

Before checking the oil level, make sure that the engine is off and that the truck is on a flat surface. To obtain an accurate indication, wait a few minutes after the engine has been switched off to allow the oil to flow into the crankcase. Remove dipstick, after having cleaned it, check the level of the oil. Top up through fill hole 2 if necessary.



A2: Check the cooling fluid level

- Set the truck on level ground, switch off the engine and allow it to cool.
- Slowly turn the plug of radiator 1 in an anticlockwise direction until reaching the safety stop. Allow the pressure and steam to escape.
- Push the plug downwards and turn it to remove. If necessary, add cooling fluid until the level is 0.472 in. below fill hole 2, Lightly lubricate the lip of the fill hole to facilitate radiator plug entry.
- Never add cold cooling liquid to a hot engine. This series of operations must be performed when necessary or once a year prior to the winter.



Replacing the cooling fluid

These operations should be carried out whenever necessary, or once a year before winter starts. Set the truck on a perfectly horizontal surface, switch off the engine and allow it to cool.

- Remove fill plug of the radiator.
- Allow the cooling system to completely drain, checking that the drain holes do not become clogged.
- Check the state of the hoses and their fittings. Replace the hoses if necessary.
- Flush the system with clean water and use a detergent if necessary.
- Tighten drain plugs again.
- Prepare the cooling fluid (consult schedule).
- Slowly fill the cooling system until the fluid reaches 0.472 in. below the filling neck.
- Screw fill plug back on again.
- Allow the engine to idle for a few minutes.

- Check that there are no leaks.

A3: Check the fuel prefilter.

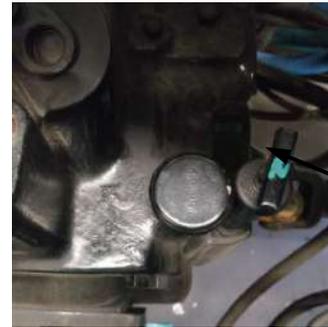
- Check the fuel oil level.
- Stop the engine, turn the port at the bottom of the filter counterclockwise, exhaust the water from the filter until the fuel flows out.

Attention: After exhausting the water, you need exhaust the air from the fuel system.



A4: Check the level of the hydraulic driver oil

- Park the machine on ground.
- The engine idling, let the engine and transmission reach working temperature.
- Check the level of the hydraulic driver oil, add some oil as necessary.



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5. 4. 2 EVERY 50 HOURS SERVICE

B1: Clean the air filter

- Take down the end cover of the filter.
- Take down the external filter.
- Gently pat the external filter.
- Use compressed air to blow the filter from the opposite direction.
- Clean the cover and the inside of the shell.
- Install the external filter.
- Install the end cover of the filter.



Attention: A clean filter can protect the engine better from the dust.

B2: Check the hydraulic oil level.

- Set the truck on a flat surface with the engine off and the telescopic boom retracted and as low as possible.
- Check the hydraulic oil level, add some hydraulic oil as necessary.
- Turn the end cover of the air filter at the top of the tank counterclockwise.
- Add some hydraulic oil into the tank. The oil should always be kept to its maximum level.
- Tighten the cover.



B3: Check the tyre pressure and wheel nut torque.

- Check and adjust the tyre pressure
- Check the condition of the tyres. There should be no cuts, signs of wear, etc.
- Check that the wheel nuts are correctly torqued

Attention: Failure to comply with these instructions could lead to damage and breakage of the wheel studs and distortion of the wheels themselves.

Wheel nut torque: 550Nm

B4: Clean the radiator.

To prevent the radiator from clogging, it must be cleaned with a jet of compressed air from the inside towards the outside ,This is the only way to clean off the debris.



B5: Clean and grease the telescopic boom pads

- Completely extend the telescopic boom.
- Clean the surface of the telescopes
- Using a brush, apply a layer of grease (see “LUBRICANT” chart) on all 4 sides of the telescopic boom .
- Operate the telescopic boom several times to evenly distribute the grease.
- Remove any excess grease.



5. 4. 3 EVERY 250 HOURS SERVICE

C1: Alternator belt tension

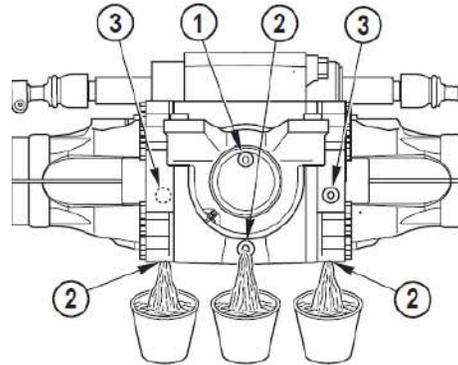
- The tension of the alternator fan belt must be adjusted, by exercising a normal pressure with the thumb, the belt flexure is about 0.394 in.
- If the tension is wrong, slacken screws 1 and 2 by 2 or 3 turns and turn the alternator unit so that the belt tension is correct. Tighten screws 1 and 2 again .
- Check the condition of the belt (signs of wear or cracks) and replace it if necessary.



C2: Check the oil level in the front and rear wheel

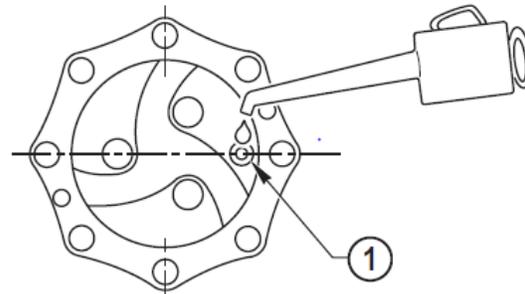
final drivers

- Set the truck on a horizontal surface and switch off the engine.
- Set fill plug 1 (fig. C3) in a horizontal position.
- Remove the plug: the oil must reach the edge of the hole.
- Add oil if necessary (see “LUBRICANTL” chart).
- Repeat these operations for the each final drives. .



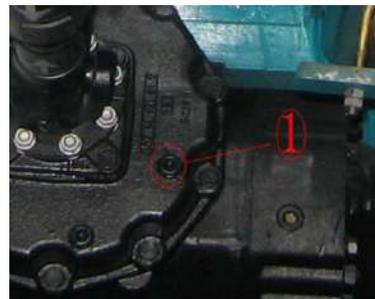
C3: Check the oil level in the front and rear wheel final drivers

- Set the truck on a horizontal surface and switch off the engine.
- Set fill plug 1 in a horizontal position.
- Remove the plug: the oil must reach the edge of the hole.
- Add oil if necessary (see “LUBRICANTL” chart).
- Repeat these operations for the each final drives.



C4: Check the oil in the 2 speed reduction gear on the front axle

- Place the truck on a horizontal surface with the engine off and the oil in the reduction gear still hot.
- Remove the level and filler plug 1: the oil should appear at the surface of the hole.
- Add oil if necessary (see “SUPPLY TABLE”)
- Replace and tighten the level and filling plug 1 .



C5:Grease the pivot pin of telescopic boom.

C6:Grease the pivot pin of quick coupling.

C7:Grease the pins of fork tilting cylinder foot and rod.

C8:Grease the pins of lifting cylinder foot and rod.

C9:Grease the pins of front and rear axle.

C10:Grease the pins of front and rear axle soleplate

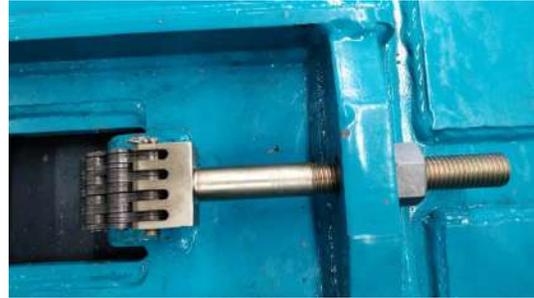
C11:Grease the pins of the cardan joint.

C12:Grease the pins of the leveling cylinder.

C13:Check, clean and lubricate the outside chains of the boom.

- Completely extend the telescopic boom.
- Clean the surface of the telescopes
- Using a brush, apply a layer of grease (see “LUBRICANT” chart) on all 4 sides of the telescopic boom
- Operate the telescopic boom several times to evenly distribute the grease.
- Remove any excess grease





C14: Check the chains tension

Inspect the leaf chains for wear. Run the boom out slowly to inspect. Conditions to look for include: cracked or broken plates, protruding or turned pins, and excessive wear. With a steel tape, measure 16 links of the strand that flexes over the sheaves. If the section measures 10.3in. or more, the chain should be replaced. DO NOT repair sections of a chain. Replace the complete chain

C15: Replace the engine oil filter and drain and replace the engine oil.

- Set the truck on a flat surface, allow the engine to idle for a few minutes and then switch it off.
 - Draining the crankcase
 - Place a vessel under drain plug and unscrew the plug.
 - Remove fill plug to facilitate the draining process.
 - Replacing the filter
 - Remove oil filter .
 - Discard the filter and relative seal.
 - Clean the filter bracket with a clean cloth. Lightly lubricate the new seal.
 - Fit the oil filter back on its bracket.
 - Lightly lubricate the new seal.
 - Mount a new filter with the same characteristics.
 - Tighten the oil filter by hand only and lock the filter in place by a quarter turn.
 - Filling the crankcase. Refit and tighten drain plug .
 - Fill up with oil (see “LUBRICANT” chart) through fill hole.

 - Wait a few minutes to allow the oil to flow into the crankcase.
 - Start the engine and allow it to idle for a few minutes.
 - Check that there are no leaks from the drain hole or oil filter.
 - Stop the engine, wait a few minutes and then check the level using the relative dipstick .
- Top up if necessary.

5. 4. 4 EVERY 500 HOURS SERVICE

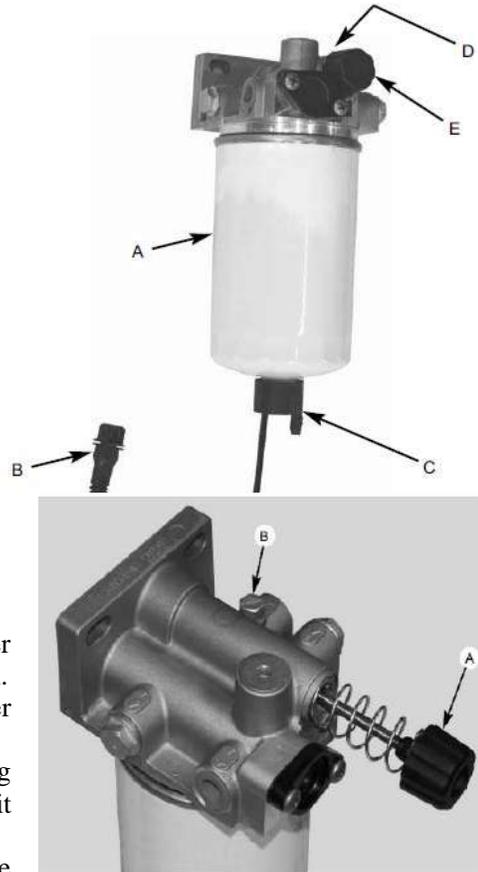
D1: Replace the air filter cartridge

- The air used to burn the fuel is purified by a dry air filter. The lift truck should never ever be used if the air filter has been removed or is damaged.
- Slacken the shackle, remove cover.
- Now unscrew nut that fixes filtering cartridge, remove this latter and discard.
- Clean the inside part of the filter with a damp, clean lint-free cloth.
- Never ever use compressed air!
- Fit a new cartridge in place of the old one and fix it with shackle .Replace cover with the valve pointing downwards and lock it.



D2: Replace the primary fuel filter/water separator

- Thoroughly clean fuel filter assembly and surrounding area.
- Loosen vent screw (D) on the top of the filter head several turns.
- Disconnect water sensor wiring (B) from the (A)filter.
- Loosen drain plug (C) and drain fuel into a suitable container.
- When fuel has drained, turn the drain plug out completely.
- Using a filter wrench, remove the filter (A) from the filter head.
- Inspect filter head for cleanliness. Clean as required..
- Apply a small amount of fuel to the sealing gasket of the replacement filter.
- Turn replacement filter onto filter head until the filter contacts the filter head, then turn an additional 3/4 turn.
- Turn drain plug into filter and re-connect the water sensor wire.
- To release the fuel priming pump, grasp fuel priming pump knob (A) and push in while turning it counter-clockwise.
- Operate the priming pump until fuel flows from the vent screw (B) on the top of the filter head.
- Return the priming pump to the locked position by pushing it fully in and turning it clockwise.
- Then tighten the vent screw (B).



D3: Replace the secondary fuel filter

- Thoroughly clean fuel filter assembly and surrounding area.
- Using a filter wrench, remove the filter from the filter head.
- Inspect filter head for cleanliness. Clean as required.
- Apply a small amount of fuel to the sealing gasket of the replacement filter.
- Turn replacement filter onto filter head until the filter contacts the filter head, then turn an additional 3/4 turn.
- Loosen vent screw (A) on the top of the filter head several turns.
- Turn the ignition key to the “ON” position until fuel flows from the vent screw.
- Tighten the vent screw.



D3: Replace the hydraulic oil filter cartridge

- Slacken the 4 screws that fix the cover of filter, remove the old cartridge and replace it with a new one see ("SCHEDULE MAINTENANCE").
- Before fitting the cover of filter 1 back on. check that the cartridge has been correctly installed.

D4: Replace the air filter

- Slacken the 4 screws that fix the cover of filter, remove the cartridge and replace it with a new one see ("SCHEDULE MAINTENANCE").
- Before fitting the cover of filter 1 back on. check that the cartridge has been correctly installed



old

D5: Replace the hydraulic and transmission oil vent

- Slacken the 4 screws that fix the cover of filter , remove the old cartridge and replace it with a new one see ("SCHEDULE MAINTENANCE").
- Before fitting the cover of filter 1 back on , check that the cartridge has been correctly installed.



Exhaust hole



Transmission oil filter

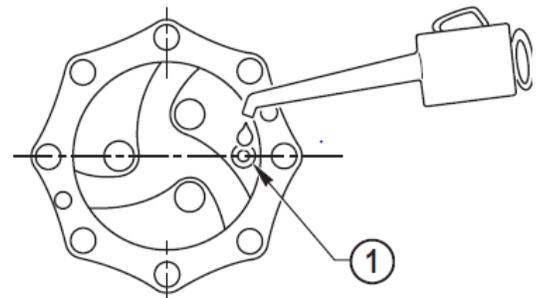
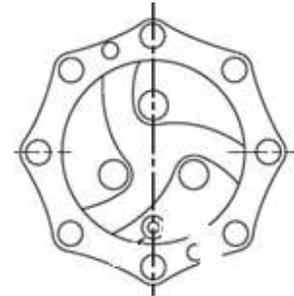
5. 4. 5 EVERY 1000 HOURS SERVICE

E1: Replace the hydraulic oil

- Before proceeding with these operations, check that the truck is standing on a perfectly horizontal surface and that the engine is off.
- Place a receptacle under drain plug.
- Remove the plug and allow the oil to flow out.
- Remove fill plug to speed up the operation.
- When the tank is empty, remove the hydraulic oil filter by unscrewing the four fixing screws for access to the suction cartridge.

E2: Change the oil in the front and rear axle differential

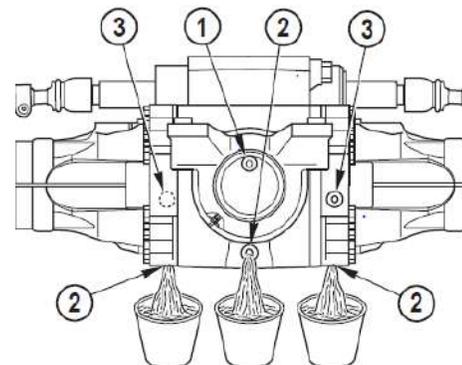
- Put the truck on a horizontal surface with the engine off and the oil in differential axle still warm.
- Drain the oil from the front axle differential.
- Place a can under drain plugs and allow the oil to drain out.
- Remove level plug and fill plug to ensure that all oil drains out.
- Refit and tighten plugs.
- Fill with oil (see “LUBRICANT” chart) through fill hole.
- The level is correct when the oil reaches the top of level hole.
- Check for any leaks from the drain plugs.
- Refit and tighten level plug and fill plug
- Repeat these operations for the rear axle.



E3: Change the oil in the front and rear wheel

final driver

- Put the truck on a flat surface, with the engine off and the oil in the final drives still hot.
- Unload the front wheel final drives.
- Refit drain and level plug in position A (at the bottom).
- Place a receptacle under the drain plug and unscrew it. Allow all the oil to drain out. Set the outlet hole to position B (horizontal), i.e. in the level position.
- Fill with oil (see “LUBRICANT” chart) through level hole.
- The level is correct when the oil reaches the top of hole.
- Refit drain plug and tighten it.



Repeat this operation for all the final drives.

E4: Change the oil in the front axle reduction gear

- Set the truck on a horizontal surface with the engine off and the oil in the reduction gear still hot. Place a receptacle under drain plug. Remove plug 1 and allow the oil to drain out. Remove fill and level plug to ensure that all oil has drained out.
- Refit and tighten plug
- Fill with oil (see “LUBRICANT” chart) through fill and level plug .
- The level is correct when flush with the top of the hole.
- Refit and tighten fill and level plug.
- Check for any leaks from the drain plug.

E5: Empty and clean the fuel tank

- Never smoke or work near a flame during these operations.
- Set the truck on a horizontal surface with the engine off.
- Place a receptacle under drain plug and unscrew the plug.
- Allow the fuel to drain out and clean with 10 liters of clean fuel poured through fill hole
- Refit and tighten drain plug.
- Fill the tank with clean fuel filtered through a filter or clean cloth, then refit plug..
- Fix valve for fuel pump
- Bleed the system is necessary.

E6: Change the alternator belt/crankshaft

- 2 or 3 thread turns and rotate the position of the alternator to loosen the tension of the belt so that it can be removed from the pulleys.
- Replace the belt with another one with similar features (see “FILTERING ELEMENT AND BELT TABLE”) and rotate the position of the alternator to apply the correct tension to the belt.
- Tighten the set screw of the belt tensioner and the alternator connection screws.
- Check the belt tension again to make sure it is still correct.
- It is recommended to check the belt tension again every 20 hours of service from when the belt was replaced.

E7: Wear of the boom telescopic pads

For these operations, consult your agent or dealer.

5. 4. 6 EVERY 2000 HOURS SERVICE

- F1 -- Check the valve clearance.
- F2 -- Check the injectors.
- F3 -- Check the alternator and starter electric motor.
- F4 -- Check the turbocompressor..
- Consult your agent or dealer for these operation.

5. 4. 7 EVERY 5000 HOURS SERVICE

- G1 -- Check interior chain wear
- G2 -- Check for stretching due to wear
- G3 -- Check the plate profile for wear
- G4 -- Check wear on the side of the chain.
- Consult your agent or dealer for these operation.

5. 4. 8 OCCASIONAL MAINTENANCE

H1:Engine maintenance

Please read the operation manual of Deutz

H2: Change a wheel

- In the event of a wheel being changed on the public highway, make sure of the following points :
 - Stop the lift truck, if possible on even and hard ground.
 - To pass on stop of lift truck (See chapter :DRIVING INSTRUCTIONS in paragraph :

1 - OPERATING AND SAFETY INSTRUCTIONS

- Action the parking brake
- Put the warning lights on.
- Immobilise the lift truck in both directions on the axle opposite to the wheel to be changed.
- Unlock the nuts of the wheel to be changed.
- Place the jack under the flared axle tube, as near as possible to the wheel and adjust the jack.
- Lift the wheel until it comes off the ground and put in place the safety support under the axle.
- For this operation, we advise you to use the hydraulic jack and the safety support.
 - Completely unscrew the wheel nuts and remove them.
 - Free the wheel by reciprocating movements and roll it to the side.
 - Slip the new wheel on the wheel hub.
 - Refit the nuts by hand, if necessary grease them.
 - Remove the safety support and lower the lift truck with the jack.
 - Tighten the wheel nuts with a torque wrench



6. DESCRIPTION

6.1 SPECIFICATION

6.1.1 Engine

Manufacturer.....Deutz Rated power.....55.4kW
Rated speed.....2300rpm Series.....TCD3.6 L4 HT

6.1.2 Chassis

Transmission.....Hydrodynamic drive
Max. diving speed.....18 mph
Steering mode.....4-wheel/2-wheel/ Crab row
Hydraulic built-in wet disc brak.....4-wheel
Bridge.....Dana

6.1.3 Type

Series.....16/70-20

6.1.4 Hydraulic circuit

Pump.....gear pump
The max flow.....110 l/min
Preesure.....207 bar
Hydraulic oil tank.....29 gal

6.2 SPECIFICATIONS

6.2.1 Performance

Rated load	6000 lbs
Max. height	34.5 ft.
Rated load at the max. height	4001 lbs
Max. forward distance	22.97 ft.

6.2.2 Parameter

Total weight	16534.7 lbs
Total length	16.08 ft.
Total width	7.61 ft.
Ground clearance	13.78 in.
Wheel base	9.19 ft.
Turn radius	12.47 ft.
Total height	7.87 ft.
Frame leveling	$\pm 10^\circ$
Fuel tank	29 gal

6.2.3 Gradeability

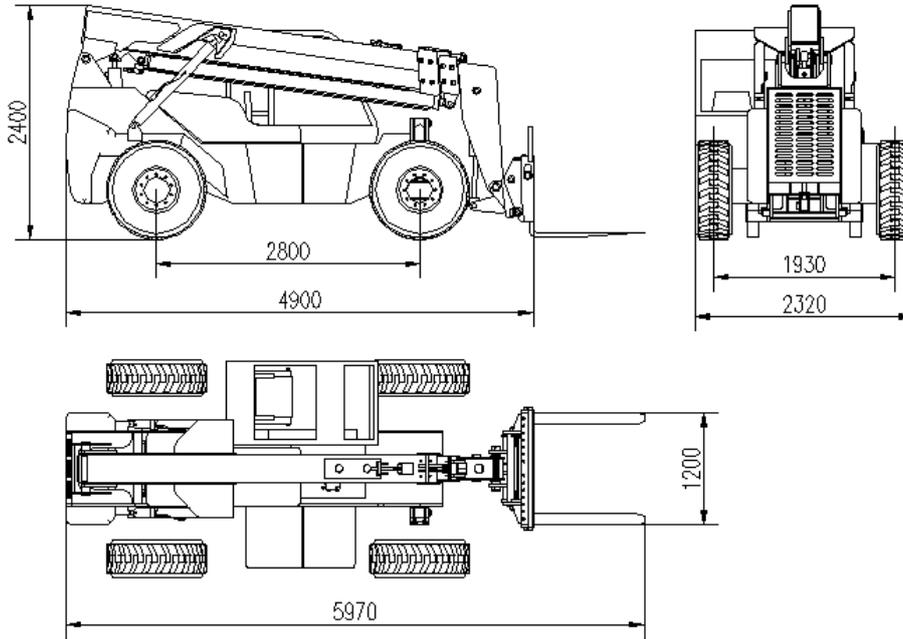
Unloaded	60%
Loaded	45%

6.2.4 Noise level (in accordance with 86/662/EEC)

Noise outside	L _{wA} 103 dB
Noise inside of the cab (Closed cab)	L _{pA} 80.8 dB

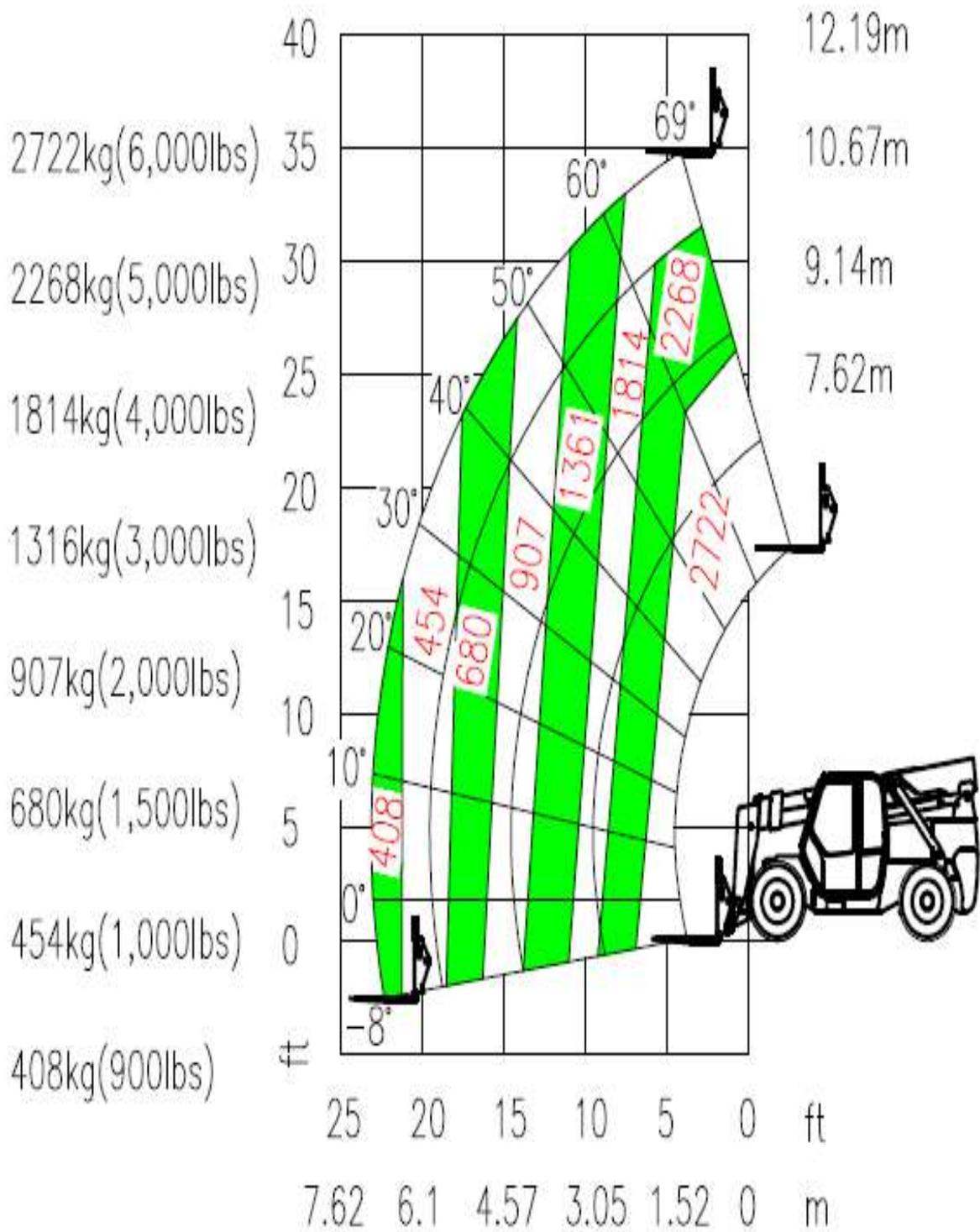
6.3 DIMENSION AND LOAD CHARTS

6.3.1 DIMENSION



A Height.....	7.87 ft.
B Width.....	7.61 ft.
C Track.....	6.33 ft.
D Length.....	19.59 ft.
E Length at fork-holder plate.....	16.08 ft.
F Wheelbase.....	9.19 ft.

6. 3. 2 LOAD CHARTS



The load capacity diagrams are only valid with the safety system properly activated

7. ATTACHMENT TOOL

7.1 ATTENTIONS

- Follow the data provided in the load diagram. Never attempt to raise loads greater than those permitted in the load charts supplied with the machine.
- Transport the load in low position with the telescopic boom fully retracted.
- Drive the truck at a speed suitable to the conditions and the state of the ground.
- When the truck is empty, travel with the telescopic boom lowered and fully retracted.
- Never go too fast or brake sharply with a load.
- When the load is lifted, check that no-one can get in the way of the operation and take care not to carry out incorrect procedures.
- Never attempt operations which exceed the lift-truck's capacity.
- Take care over electrical cables.
- Never leave the truck parked with a raised load.
- Never authorise anyone to approach or pass under the load.
- Always think of safety and only transport well balanced loads.
- Never leave the truck loaded with the parking brake engaged on gradients exceeding 15%.
- With the winch or equipment with a load hanging from the hook, always adopt the following precautions:
 - Position the winch perpendicular to the load to be lifted.
 - The empty hook must be lowered slowly (gently) since if it is operated too quickly, the cable wound round the drum may become slack, causing serious problems for the cable, the limit stop device, etc.
 - If the cable tends to become twisted around the block, release the fixed end hook, pull the cable in the opposite direction until the twisting is eliminated, then re-connect the end unit.
 - Operate the control lever gently to prevent jerking of the load and possible problems in the winding of the cable onto the drum.
 - Raise the load vertically, avoiding swaying and slanting lifting.
 - Check the cable daily; if it is worn or damaged or has even one broken strand (see ISO 4309) replace it immediately (contact your dealer).
 - Check if the hydraulic hook raising and lowering limit stop is in good working order and if the brake holds with load is applied.
 - Oil the revolving part of the hook periodically.
 - Check periodically that the cable is winding onto the drum correctly.
 - The following accessories are not intended for systems of lifting or moving people.
 - Before putting the winch or any other equipment in which the load hangs from a hook into service, report it to the relative authority (ISPEL) in your zone for checking (for China only).
 - Every year, remember to request your local health authority (USL) for a visit of inspection (Italy only).
- Before putting the winch into operation on the lift-truck check that the machine is compatible and that its safety system is set appropriately for the type of winch required.
- Incorrect setting of the safety system may put your safety at serious risk; if in doubt, do not hesitate

to contact your dealer immediately.

- In view of their size, when the boom is lowered and retracted, some accessories may interfere with the front tyres and damage them if the board is tilted downward.
- To eliminate this risk, extend the telescopic system far enough to eliminate, the interference (the distance will depend on the truck and the accessory).
- The maximum loads are defined by the lift-truck’s capacity, bearing in mind the weight and centre of gravity of the accessory. If the capacity of the accessory is below that of the lift-truck, never exceed this limit.
- Before putting any type of accessory into operation on the fork-lift truck, check the machine’s compatibility and the calibration of the safety system with regard to the accessory used.

7.2 ATTACHMENT TOOL

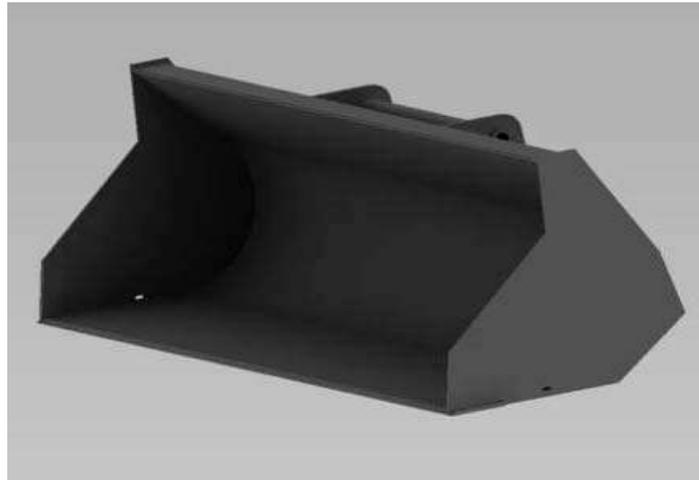
- This machine can use many kinds of attachment tool to adapt to different working environment.
- Sunward can design the attachment tool to meet the customers.

7.2.1 Floating goods fork



Feature							
Name	Serial number	Rated load (lbs.)	Dimension (ft.)			Gravity center (ft.)	Weight (lbs.)
			Length	Width	Height		
Floating goods fork	815307000000	7716	4.88	3.85	3.7	1.64	628

7. 2. 2 Light bucket



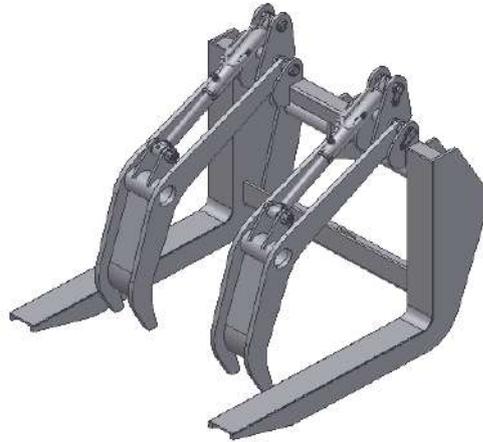
Feature						
Name	Serial number	Rated dipper capacity(gar)	Dimension (ft.)			Weight (lbs.)
			Length	Width	Height	
Light bucket	815314000000	206.8	2.89	7.55	2.64	809

7. 2. 3 Clip with bucket



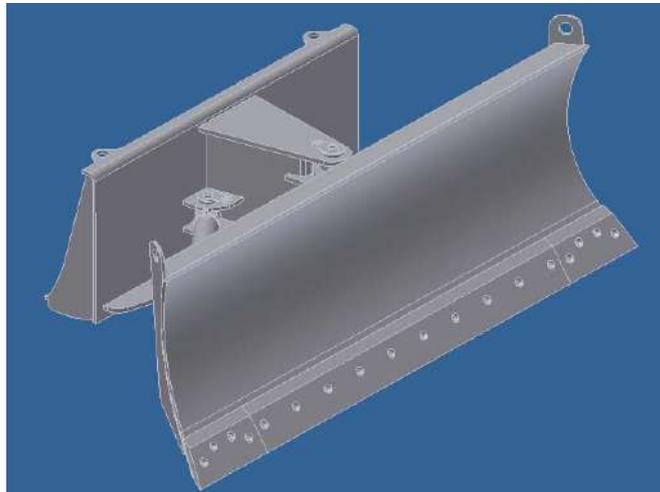
Feature							
Name	Serial number	Rated dipper capacity(gar)	Dimension (ft.)				Weight (lbs.)
			Length	Width	Height	Max. distance	
Clip with bucket	815324000000	198	2.89	7.55	2.64	3.69	1155

7.2.4 Clipping fork



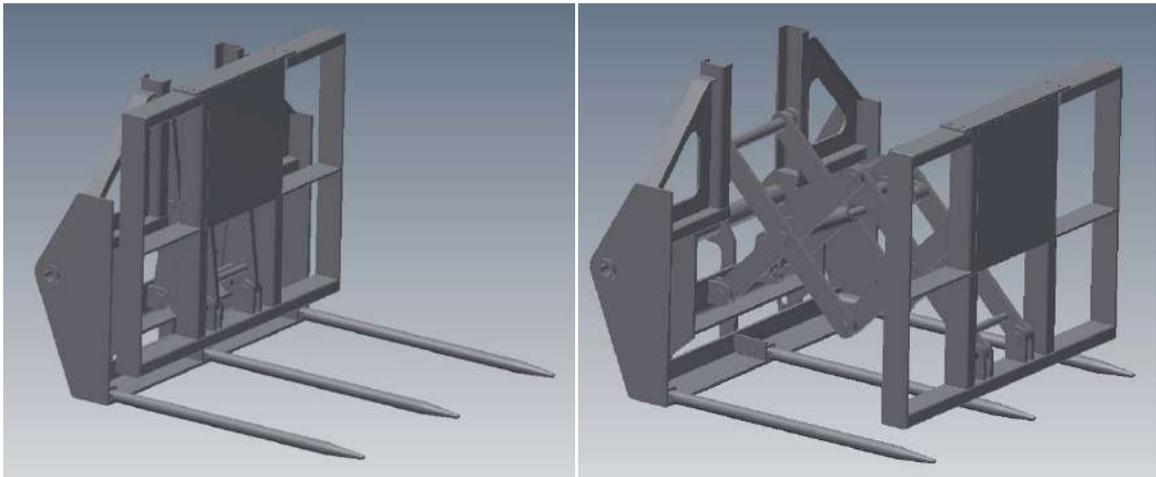
Feature							
Name	Serial number	Rated load (lbs.)	Dimension (ft.)				Weight (lbs.)
			Length	Width	Height	Max. distance	
Clipping fork	815325000000	4409	4.23	3.69	3.7	4.27	375

7.2.5 Dozer blade



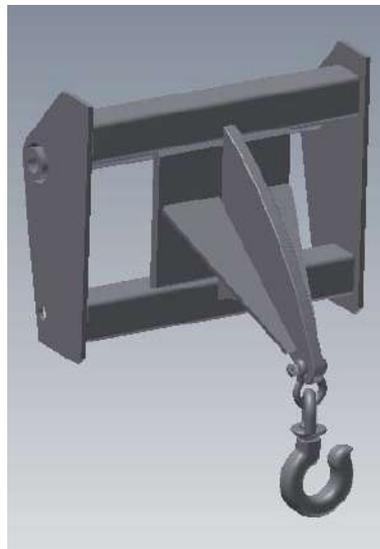
Feature						
Name	Serial number	Deflection angle	Dimension (ft.)			Weight (lbs.)
			Length	Width	Height	
Dozer blade	815321000000	$\pm 20^\circ$	3.02	7.55	2.3	529

7.2.6 Hay fork



Feature						
Name	Serial number	Rated load (lbs.)	Dimension (ft.)			Weight (lbs.)
			Length	Width	Height	
Hay fork	815323000000	2205	4.56	4	3.61	838

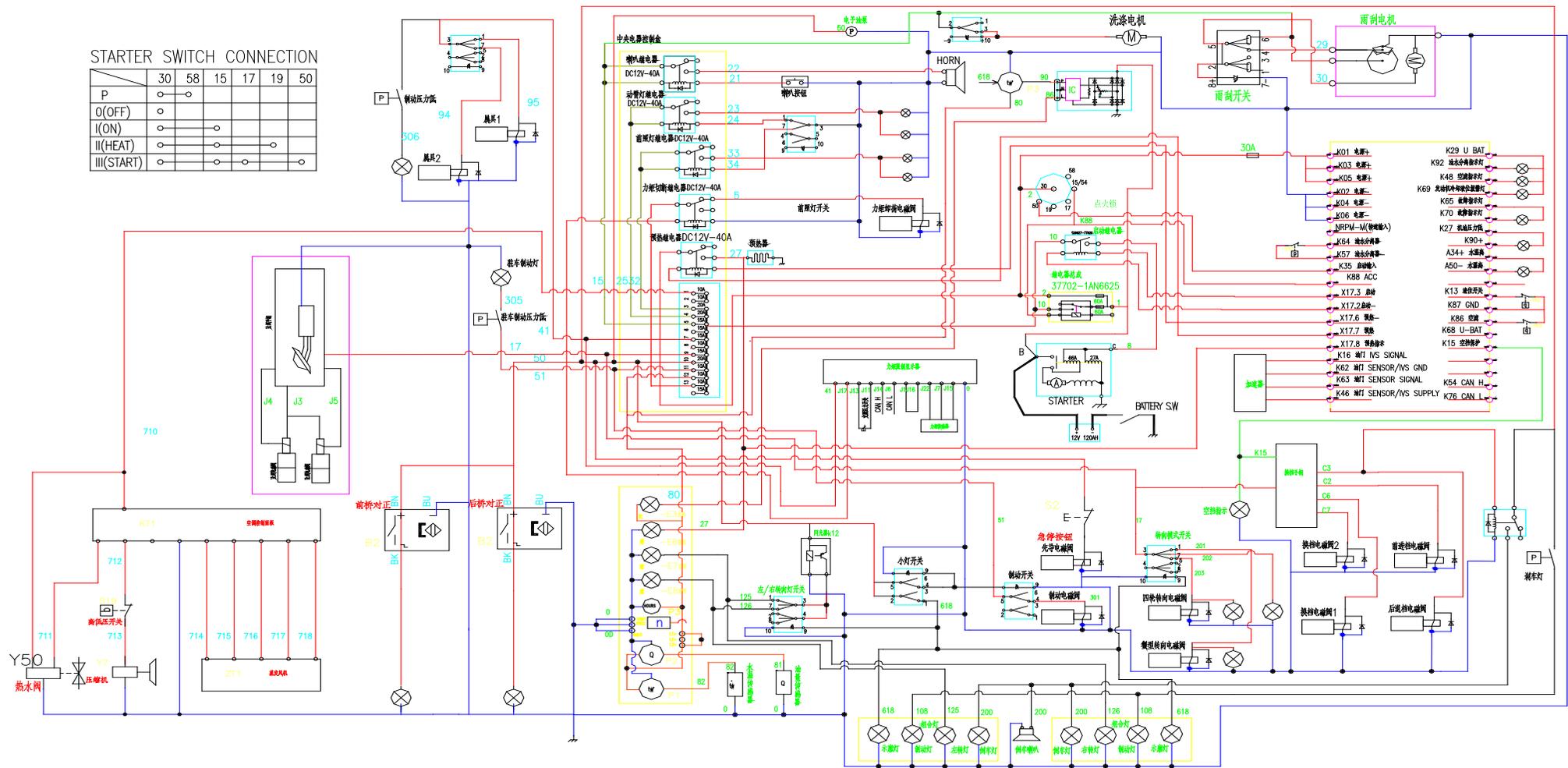
7.2.7 Simple sling



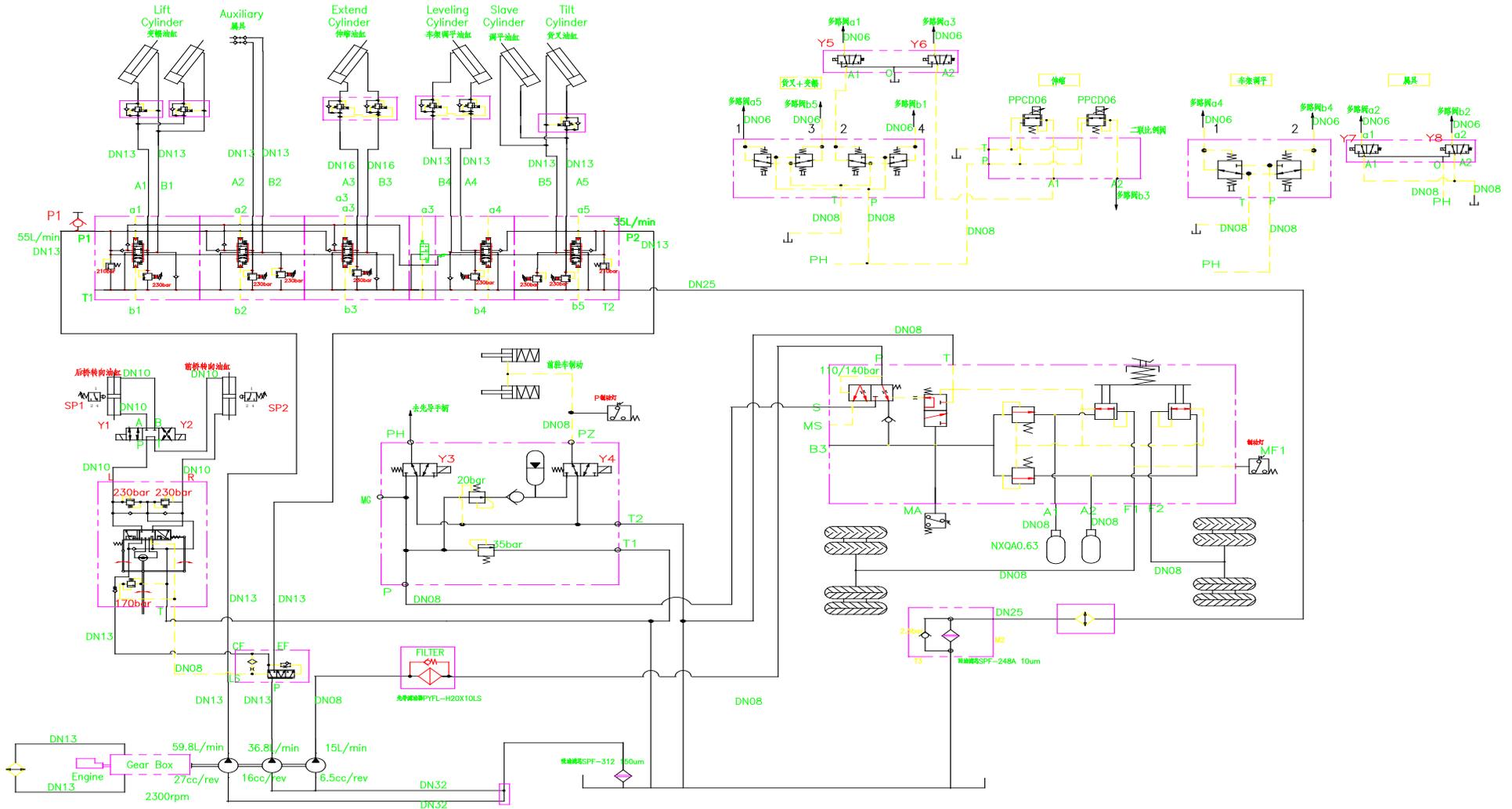
Feature						
Name	Serial number	Rated load (lbs.)	Dimension (ft.)			Weight (lbs.)
			Length	Width	Height	
Simple sling	815320000001	7716	2.35	2.56	2.1	364

8. APPENDIX

8.1 ELECTRICAL SCHEMATIC DIAGRAM



8.2 HYDRAULIC SYSTEM DIAGRAM



9. MANUFACTURER DATA

Company: SUNWARD`

Trade mark: 

Add: Sunward Intelligent Industrial Park III ,Dongba Road,Xingsha,Changsha,Hunan,
China.

Tel: 0086-0731-83572372

Maintenance point: our office in various area

Distributor information:

Distributor information:	
Distributor	
Add:	
Tel:	
Fax:	
Email:	
Contact:	
Remark:	