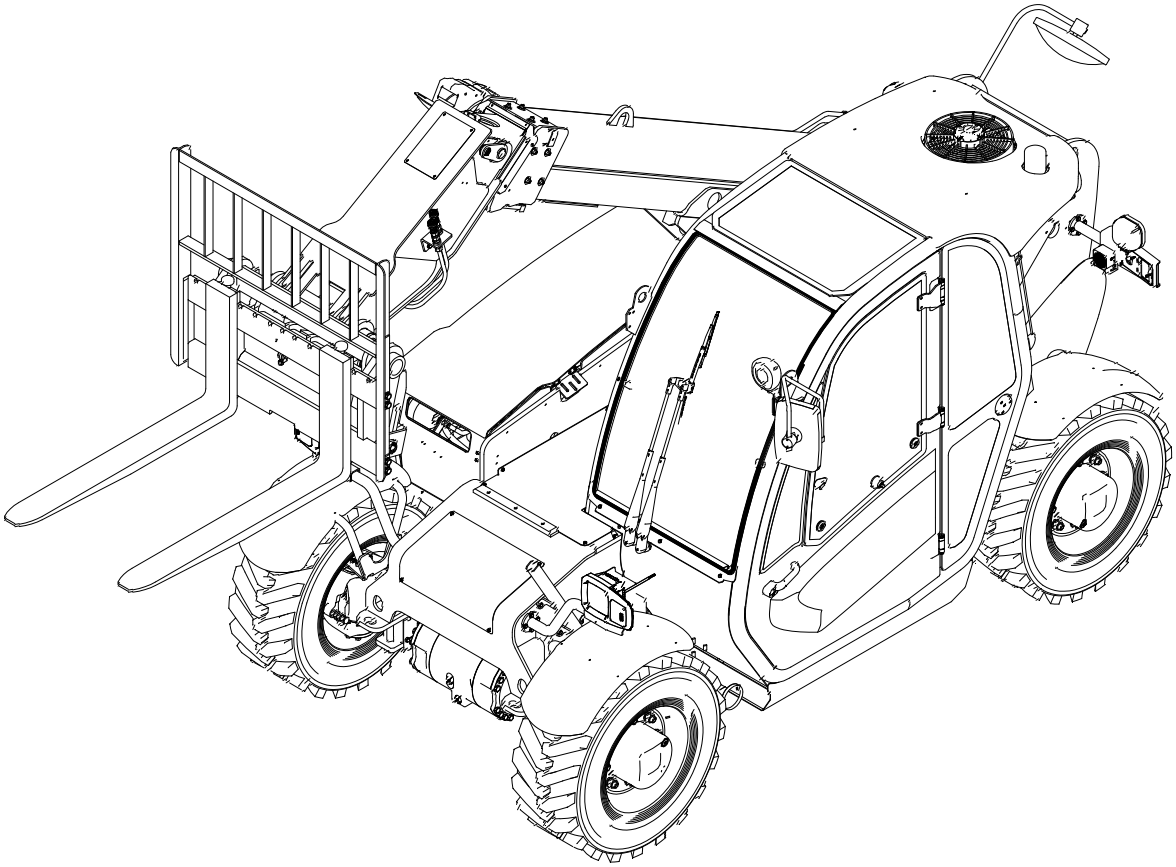
T Series

Telehandlers

T25-60XHYG
T35-100XHYG

Operation and maintenance Manual



HANGCHA GROUP CO., LTD.

Jan, 2025

Contents

Preface

Thank you very much for purchasing machines from Hangcha Group! Before using the machine, you should master the requirements for its use and operation! Any operation of the machine carries risks, and only by mastering safety rules and operating carefully and meticulously can we effectively prevent personal injury, property damage, and accidents. Your safety requires our joint efforts!

This manual introduces the safety, operation, transportation, lubrication, general structure, and maintenance methods of the telehandler. Drivers, maintenance personnel, and equipment management personnel must read and understand this manual thoroughly before use. Only trained and authorized personnel are allowed to operate this machine.

Due to continuous updates and improvements in product design, the content of this manual may differ from the device in your hands.

If there is anything unclear, please contact the sales company or agent of Hangcha Group Co., Ltd.

Hangcha Group has a national customer service hotline: 400-884-7888, which includes information about after-sales service, 3- after-sales service, 4- parts consultation. After you dial and follow the voice prompts, the operator will inform you of the specific contact information of the local Hangcha after-sales service branch or online store, and easily obtain the services you need nearby. For example, when you need to purchase accessories, press 4 and the operator will inform you of the nearest accessory supply point to contact. Please purchase Hangcha accessories.

Warning

a. For the following inspections, maintenance and repair situations, please be sure to consult and have Hangcha professional maintenance technicians provide on-site service

--Inspection, maintenance, repair, and replacement of high-voltage components, parts, and circuits;

--Inspect, maintain, and repair non high voltage components and circuits, but are affected by the assembly and disassembly of high voltage components, components, and circuits;

--The malfunction may be caused by high voltage or non high voltage crossing;

--Unable to determine whether the fault is caused by high voltage or not;

--Other items that require or may potentially touch high-voltage components or lines.

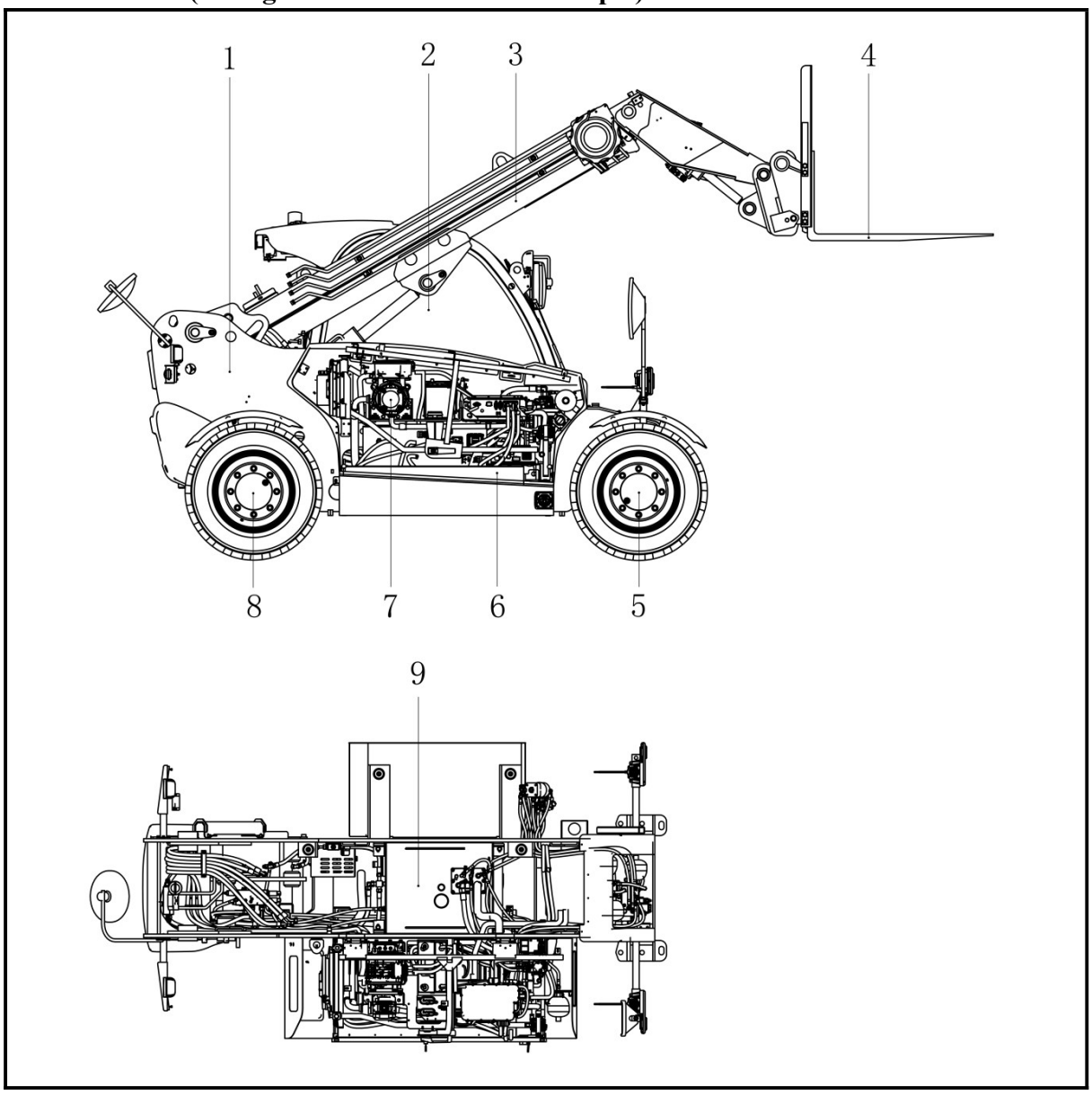
b. To inspect and repair the high-voltage parts, special training on high-voltage electrical knowledge should be provided and corresponding certificates should be obtained. The internal inspection and maintenance of lithium batteries must be completed by professional manufacturers.

c. Any inspection, maintenance, and repair should strictly comply with the relevant safety precautions, operating procedures, safety rules, and the use of safety protective equipment and tools in this manual.

Chapter 1 Product Introduction

1. 1. Machine illustration

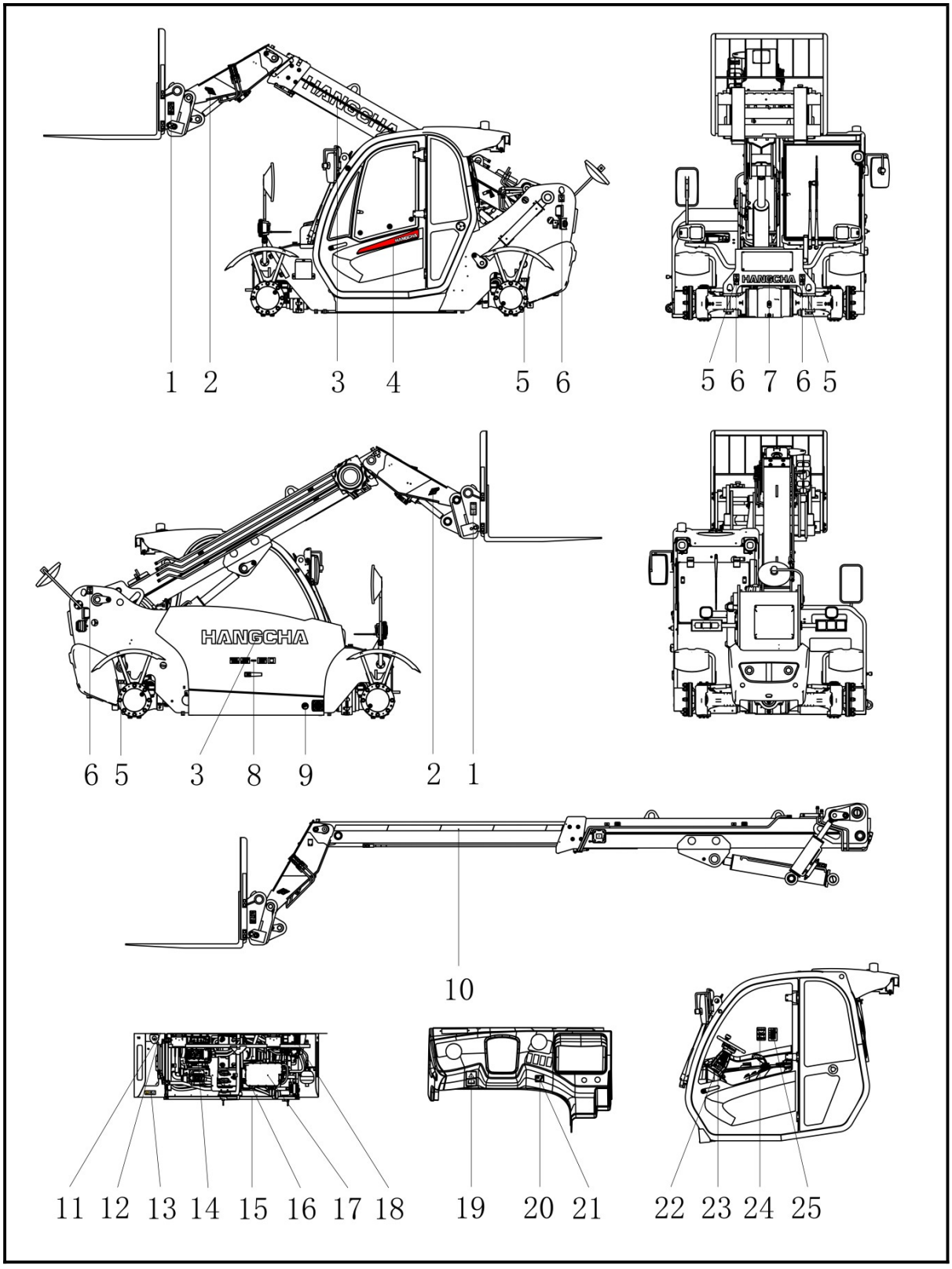
Electric model (taking T25-60XHYG as an example) machine illustration



No.	Name	No.	Name
1	Machine frame	6	Lithium batteries and the accessories
2	Driving cab	7	Electric motor and the accessories
3	Boom	8	Rear axle
4	Accessory (fork)	9	Hydraulic oil tank
5	Front axle		

1. 2. Machine signs and labels

Machine signs and labels (taking T25-60XHYG as an example)



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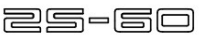
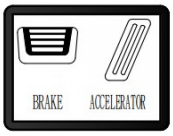
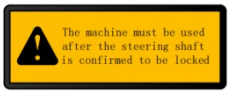
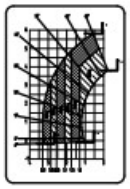
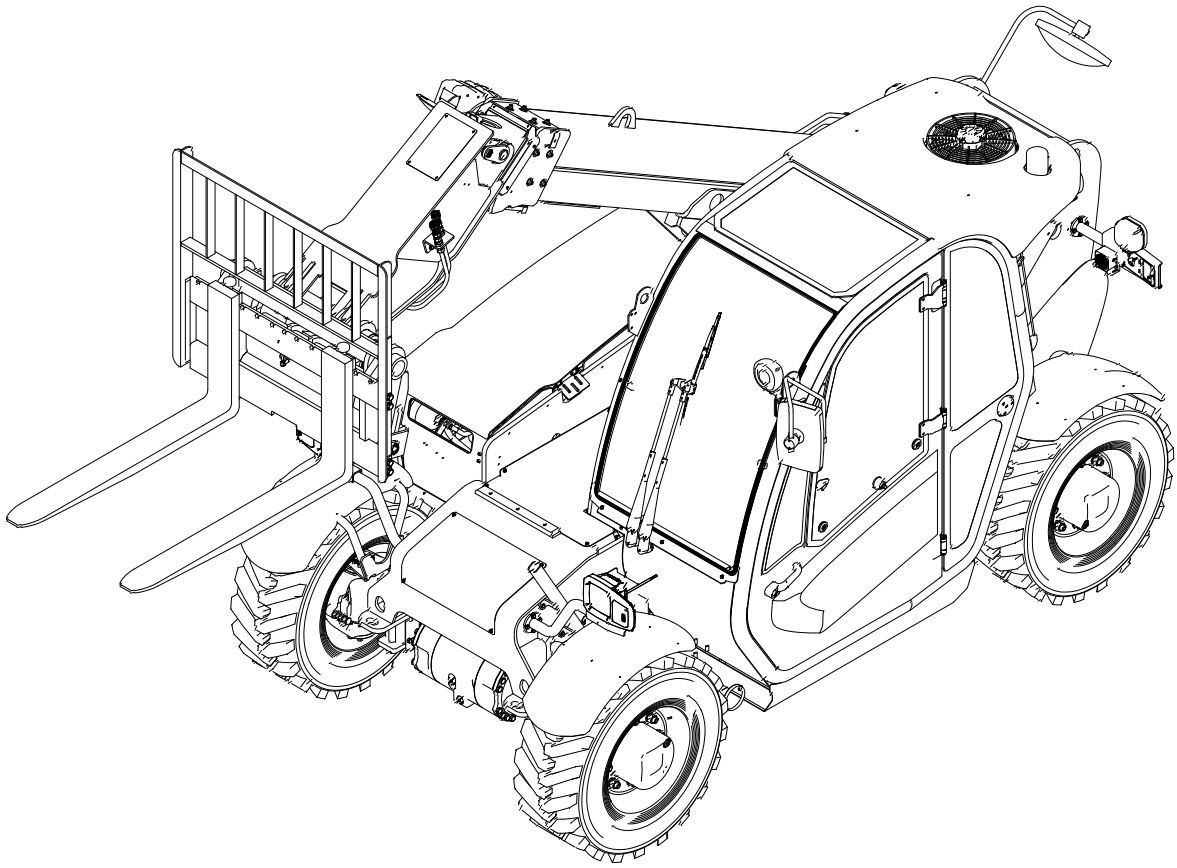
6	7	8	9	10
				
11	12	13	14	15
				
16	17	18	19	20
				
21	22	23	24	25
				

No.	Description	No.	Description
1	Squeeze warning label	14	High voltage electric shock hazard label
2	Hangcha Logo	15	Danger warning label
3	Hangcha label (large)	16	Warning labels for high-voltage components
4	Hangcha label (left of cab)	17	High voltage electric shock hazard label
5	Tie point label	18	Hydraulic oil label
6	Lifting label	19	Safety notice label
7	Hangcha label (small)	20	Manipulate tags (Chinese)
8	Tonnage label	21	Manipulate tags (English)
9	Charging label	22	Steering wheel warning label (Chinese)
10	2.15m extended warning label	23	Steering wheel warning label (English)
11	Antifreeze label (Chinese)	24	Handle manipulation label
12	Antifreeze label (English)	25	Load curve label
13	Hand cutting danger label		

1. 3. Machine Usage

This machine is a telescopic telehandler equipped with a telescopic arm, used for lifting, moving, and placing materials.



Warning

a. All other uses or modifications must be approved by Hangcha Group Co., Ltd.
b. It is not allowed to drive on soft, unstable, or cluttered ground.
c. It is strictly prohibited to use it in environments exceeding the maximum allowable wind speed, explosive environments, during storms, or in places with strong magnetic fields.

1. 4. Machine parameter

T25-60XHYG machine parameters

（1）Machine performance parameters

Item		Parameter	Item	Parameter
Rated load(kg)		2500	Main arm lifting time（s）	11
Rated load center distance（mm）		500	Main arm lowering time（s）	8
Weight(kg)		5500	Telescopic arm extension time （s）	9
Maximum working height(m)		5.8	Telescopic arm retraction time （s）	9
Maximum horizontal extension(m)		3.4	Leveling cylinder extension time（s）	4.5
Forward	First gear speed(km/h）	9	Leveling cylinder retraction time（s）	4.5
	Second gear speed(km/h）	18	Arm amplitude angle(°)	-2～68
	Third gear speed(km/h）	24.5	Carriage tilt angle(°)	-116～12
Backward	First gear speed(km/h）	9	Minimum turning radius（m）	3.3
	Second gear speed(km/h）	18	Maximum braking distance（m）	3.4
	Third gear speed(km/h）	24.5	Towing capacity（kN）	35
Driving Type		Four wheel driving Four wheel steering	Theoretical maximum climbing ability (unloaded)	45%

(1) Main dimensional parameters

Item	Parameter	Item	Parameter
Length（mm）	3950	Wheelbase（mm）	2300
Width（mm）	1820	Front overhang distance（mm）	1000
Height（mm）	2020	Wheel-track（mm）	1500
Cab width（mm）	810	Minimum ground clearance（mm）	260

(2) Transmission system

Item		Parameter/Content
Transfer case	Speed ratio	2.74
Front axle	Total speed ratio	18.48
	Braking form	Oil immersed multi disc hydraulic assisted braking

Rear axle	Total speed ratio	18.48
	Braking form	Oil immersed multi disc hydraulic assisted braking

(1) Wheel assembly

Tire type	Pneumatic Tire
Tire model	12-16.5-14PR
Inflation pressure（MPa）	0.62

(3) Hydraulic system

Item	Parameter/Content
Type	Load sensitivity
Hydraulic system flow rate（L/min）	75
Maximum working pressure（MPa）	24
Steer system pressure（MPa）	17.5
Brake system pressure（MPa）	5

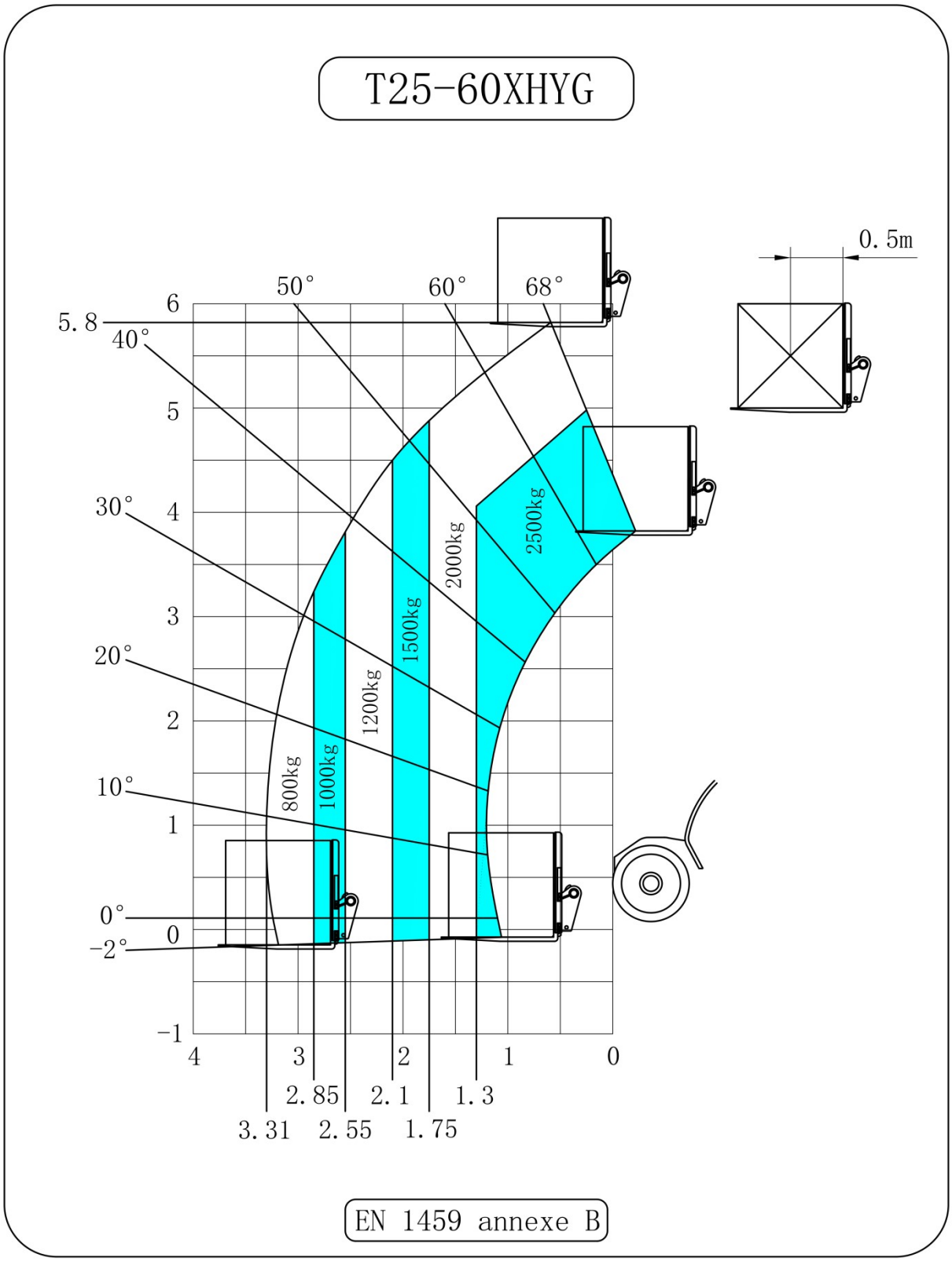
(4) Electrical system

Item	Unit	Parameter
Lithium battery	Output voltage（V）	310
	Capacity（Ah）	150
	Quantity of electricity(kWh)	46
Control system	Voltage（V）	12
Storage battery	Output voltage（V）	12
	Capacity（Ah）	90
Walking motor	Power（kW）	30
Pump motor	Power（kW）	35

(5) Refueling capacity

Item	Parameter	Item	Parameter
Front axle gear oil	6.1L	Hydraulic oil	60L
Rear axle gear oil	6.1L	Antifreeze	12L
Transfer case gear oil	1L		

(6) Scope of work diagram（T25-60XHYG）



T35-100XHYG Parameter

(2) Performance parameters

Item		Parameter	Item	Parameter
Rated load(kg)		3500	Main arm lifting time（s）	10
Rated load center distance（mm）		500	Main arm lowering time（s）	9
Weight(kg)		9600	Telescopic arm extension time（s）	15
Maximum working height(m)		9.8	Telescopic arm retraction time（s）	12
Maximum horizontal extension(m)		7.0	Leveling cylinder extension time（s）	6
Forward	First gear speed(km/h)	9	Leveling cylinder retraction time（s）	6
	Second gear speed(km/h)	18	Arm amplitude angle（°）	-3.5～62
	Third gear speed(km/h)	24.5	Carriage tilt angle(°)	-116～12
Backward	First gear speed(km/h)	9	Minimum turning radius（m）	3.7
	Second gear speed(km/h)	18	Maximum braking distance（m）	8.38
	Third gear speed(km/h)	24.5	Towing capacity（kN）	50
Left and right tilt angle of the frame（°）		±9	Bodywork leveling time（s）	10
Driving Type		Four wheel driving Four wheel steering	Theoretical maximum climbing ability (unloaded)	45%

(3) Main dimensional parameters

Item	Parameter	Item	Parameter
Length（mm）	5030	Wheelbase（mm）	2750
Width（mm）	2350	Front overhang distance（mm）	1240
Height（mm）	2320	Wheel-track（mm）	1850
Cab width（mm）	940	Minimum Ground clearance（mm）	400

(4) Transmission system

Item		Parameter/Content
Transfer case	Speed ratio	5
Front axle	Total speed ratio	15.42
	Braking form	Oil immersed multi disc hydraulic assisted braking
Rear axle	Total speed ratio	15.42
	Braking form	Oil immersed multi disc hydraulic assisted braking

(5) Wheel assembly

Tire type	Pneumatic Tire
Tire model	400/80-24
Inflation pressure（MPa）	0.5

(6) Hydraulic system

Item	Parameter/Content
Type	Load sensitivity
Hydraulic system flow rate（L/min）	75
Maximum working pressure（MPa）	24.5
Steer system pressure（MPa）	17.5
Brake system pressure（MPa）	5

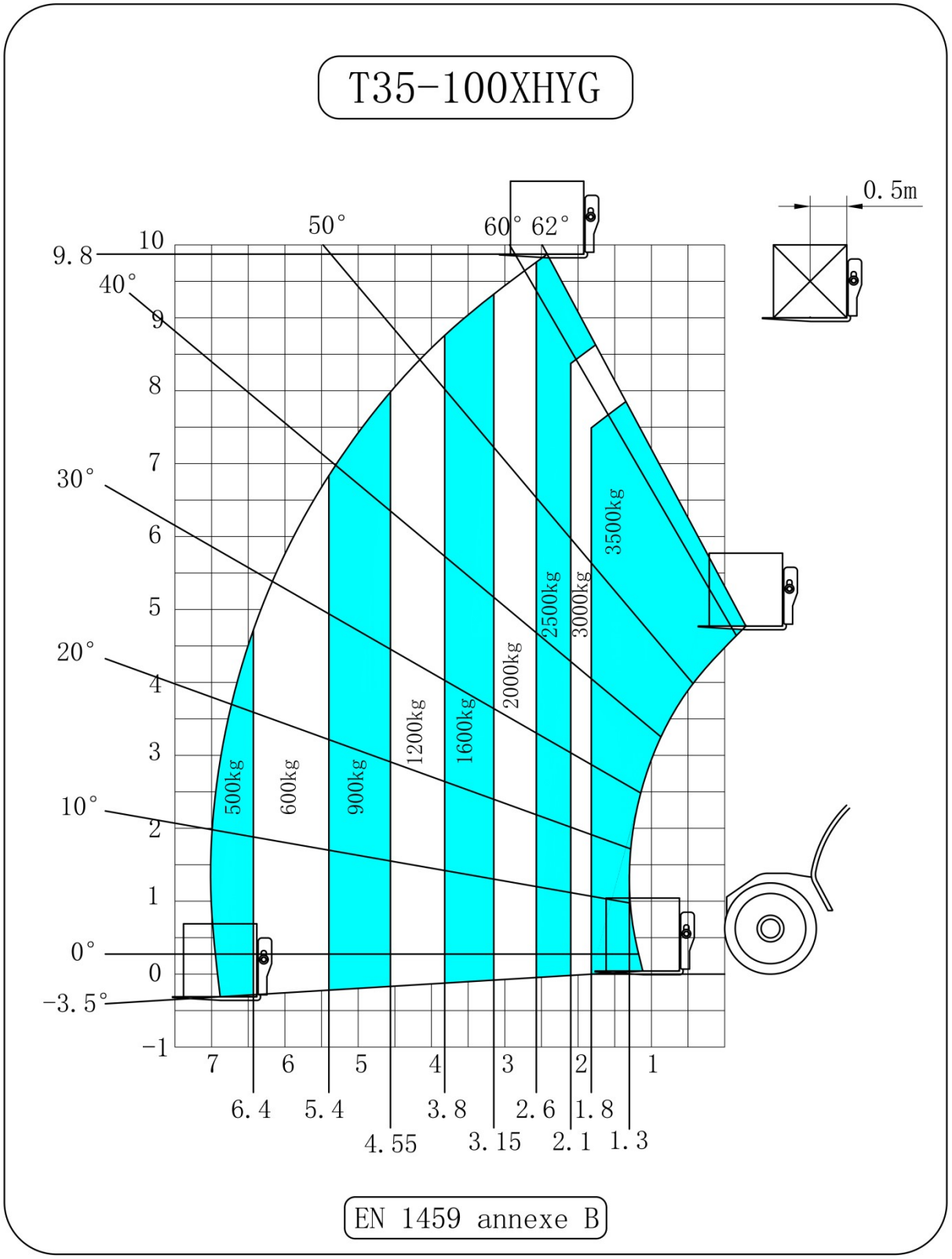
(7) Electrical system

Item	Unit	Parameter
Lithium battery	Output voltage（V）	310
	Capacity（Ah）	173
	Quantity of electricity（kWh）	53
Control system	Voltage（V）	12
Storage battery	Output voltage（V）	12
	Capacity（Ah）	90
Walking motor	Power（kW）	45
Pump motor	Power（kW）	35

(8) Refueling capacity

Item	Parameter	Item	Parameter
Front axle gear oil	8.5L	Hydraulic oil	120L
Rear axle gear oil	8.5L	Antifreeze	12L
Transfer case gear oil	1L		

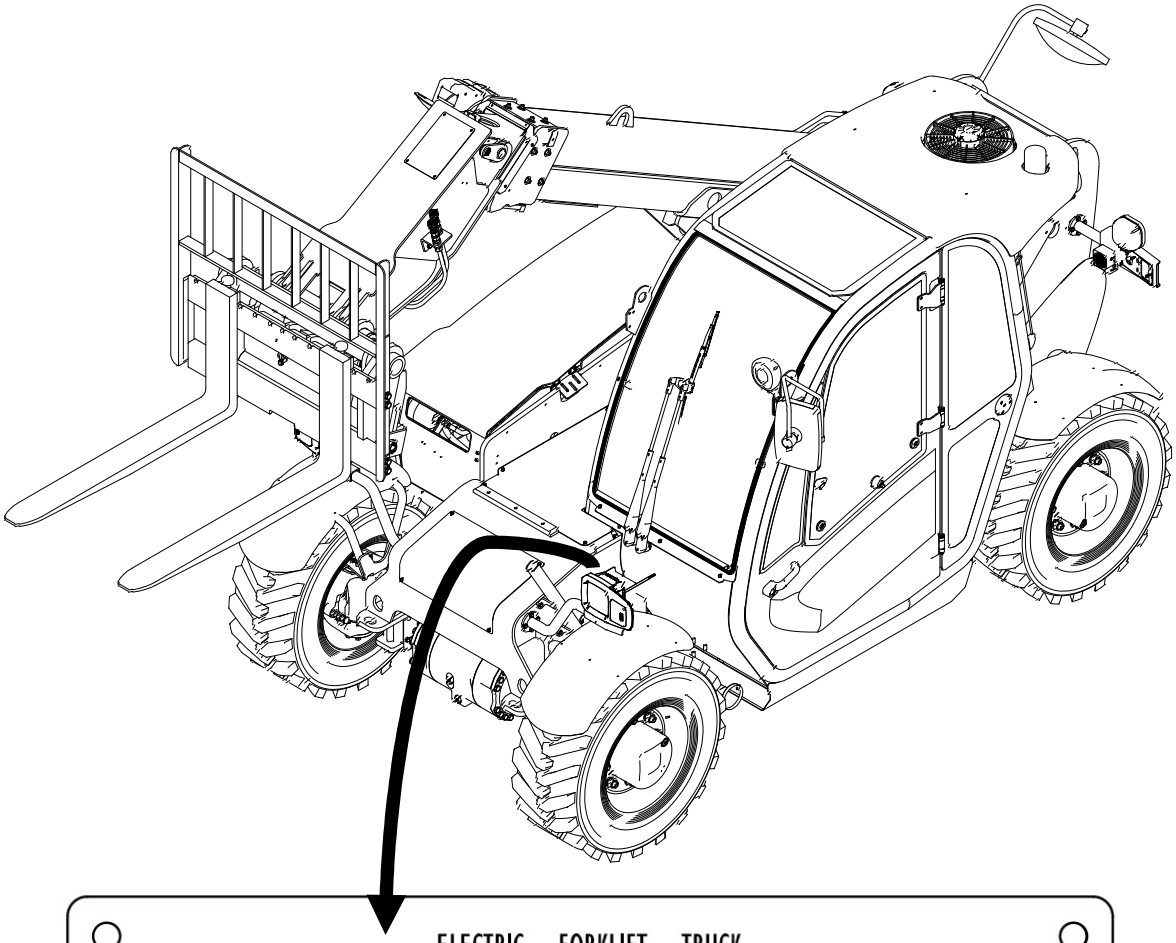
(9) Scope of work diagram（T35-100XHYG）



1.5. Machine number

Machine nameplate

The machine nameplate is located on the side surface of the frame in front of the cab (taking T25-60XHYG as an example)

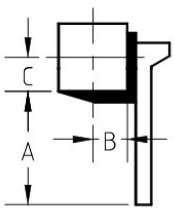


ELECTRIC FORKLIFT TRUCK

MODEL-TYPE	T25-60XHYG		SERIAL NO.	86BD00001			
ATTACHMENT	/				FORK LENGTH	1070	mm
NOMINAL LOAD CENTER	500	mm	MASS WITHOUT BATTERY	5055	kg	RATED CAPACITY	2500 kg
SYSTEM VOLTAGE	310	V	MAX.BATTERY MASS	445	kg	MIN.BATTERY MASS	445 kg
YEAR OF MANUFACTURE	2025		RATED CAPACITY OF TRAVELING MOTOR	30	kW		

Capacity with mast vertical or mast tilted forward and equipped as shown

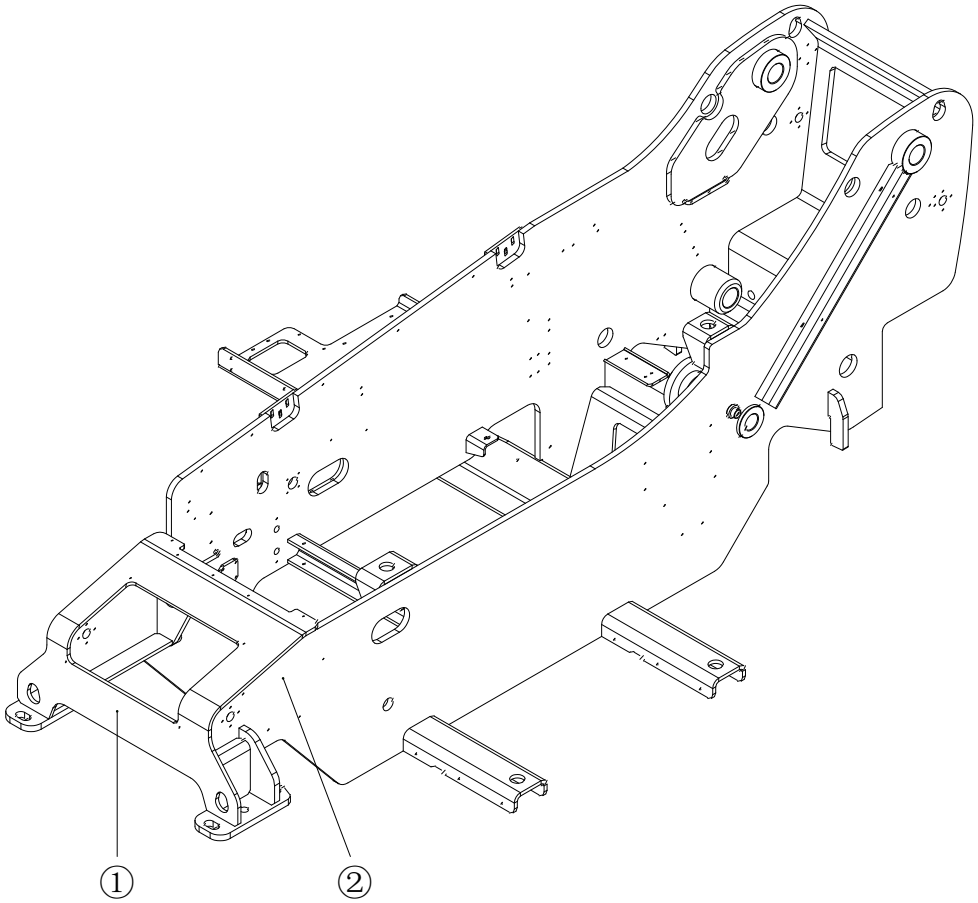
Load Height Dim A	Maximum Capacity Mast Vertical	Maximum Capacity Mast Fwd Tilted	Load Center Dim B	Load Center Dim C
5800 mm	2000 kg	2000 kg	500 mm	500 mm
4900 mm	2500 kg	2500 kg	500 mm	500 mm
mm	kg	kg	mm	mm
mm	kg	kg	mm	mm



HANGCHA GROUP CO.,LTD.
Add: 666 Xiangfu Road, Hangzhou,Zhejiang,China(311305)

Frame number

Each machine is uniquely printed with a frame number (serial number), which is printed directly in front of the frame (①). For some models, the frame number is located next to the nameplate on the left side of the frame (②).



Chapter 2 Important Safety Instructions

Warning

a. Not following the instructions and safety rules in this manual will result in the occurrence of personal injury incidents.
b. It is strictly prohibited for alcoholics, drug users, and those taking inhibitory drugs to approach and operate machines.
c. Do not operate the machine unless:

- You have learned and practiced the machine safety operation principles contained in this manual:

1) Avoid dangerous situations;
2) Always perform pre operation checks;
3) Always perform functional testing before use;
4) Inspect the workplace;
5) Use the machine only according to its intended use.

- You have read, understood, and complied with all applicable national or local laws and regulations.
- You have received appropriate training on safe operation of the machine and have been authorized accordingly.
- You have read, understood, and complied with the user safety rules and workplace regulations.
- You are equipped with personal protective equipment such as helmets, seat belts, safety shoes, goggles, protective gloves, etc., and have maintained good physical condition.

1.6. Unauthorized Installation

Any modification may lead to danger. Before modifying the machine, please consult Hangcha Group Co., Ltd.

Hangcha Group Co., Ltd. shall not be held responsible for any damage caused by unauthorized modifications.

1.7. Accident Notification

Once any accidents involving machines of Hangcha Group Co., Ltd. occur, our company should be notified immediately.

Even if there is no personal injury or property damage in the accident, it is necessary to contact Hangcha Group Co., Ltd. by phone and provide all necessary details.

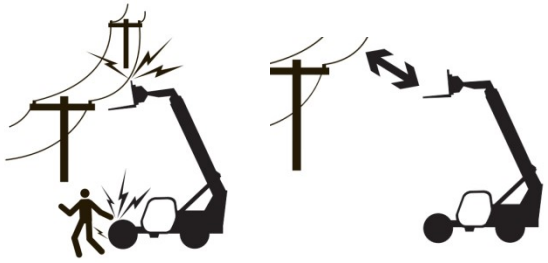
If the manufacturer is not notified within 48 hours after the accident involving the machine of Hangcha Group Co., Ltd., it may result in the warranty of the product being invalidated.

Warning

After any accident occurs, the machine and its functions should be thoroughly inspected. Do not lift the telehandler until all damages and faults have been repaired.

1.8. Classification of Hazardous Situations

Electric shock hazard:



- This machine is not electrically insulated and is not equipped with electric shock protection function.
- National or local regulations on the minimum safe distance for charged bodies above ground level should be followed. If there are no such requirements, the minimum safe distance for charged bodies in the table below should be followed.

Table 2.3-1 Minimum Safety Distance for Charged Bodies

Voltage range (phase to phase)	Minimum approaching distance
0～50kV	3m(10ft)
50kV～200kV	5m(15ft)
200kV～350kV	6m(20ft)
350kV～500kV	8m(25ft)
500kV～750kV	11m(35ft)
750kV～1000kV	14m(45ft)

- Pallet fork movement, wire swinging or sagging should be taken into account, and precautions should be taken against strong winds or gusts.
- When the machine comes into contact with live wires, please stay away from the machine. Before cutting off the corresponding power supply, personnel are prohibited from touching or operating the machine.
- Do not operate the machine during lightning or storm periods.
- Do not use the machine as a welding ground wire.
- It is strictly prohibited to touch the lithium battery case at any time to prevent electric shock.
- It is prohibited to touch high-voltage cables and live objects without confirming the power outage of the equipment.
- Before maintenance, the MSD maintenance switch on the lithium battery main box must be unplugged and wait for 15 to 20 minutes for the high-voltage system to be powered off.
- During the electrical system maintenance process, it is necessary to wear protective equipment and use insulated tools.
- During the maintenance process, it is prohibited to wear any metal jewelry to avoid accidental short circuits that may cause personal injury or death.

⚠ Risk of tipping over:

- According to the load range diagram, ensure that the load mass is within the rated load range of the machine.
- Strictly follow the load curve to increase the load.
- The center distance of the loaded load should be less than or equal to the rated load center distance indicated on the load range diagram.
- All loads displayed on the load range diagram are based on the premise that the machine is located on a solid ground, the frame should be in a horizontal state, the pallet forks should be evenly arranged on the pallet fork frame, the center of gravity of the load is at the center of the pallet forks, the tire size is correct and has been inflated correctly, and the telehandler is in good working condition.
- Ensure that the ground can withstand all forces applied by the machine, otherwise do not lift the load.
- The horizontal level reading of the machine should be 0° (machine horizontal). Do not lift the boom unless the machine is in a horizontal state.
- Do not use support legs or leveling cylinders to flip the machine. Leveling cylinders and support legs are only used to level the machine.
- When starting and stopping the machine, the action should be smooth.
- Be extra careful and move slowly when driving the machine through uneven terrain such as gravel, unstable or slippery surfaces, and near openings and steep slopes.
- When the lifting angle of the boom exceeds 30 ° or the force limit ratio exceeds 70%, the maximum driving speed of the machine cannot exceed 9km/h.
- In high-speed driving mode, only front wheel steering can be used.
- Always keep the tire pressure within the normal range.
- Do not replace the original tires of the machine with tires of different specifications or grades.
- Do not increase the surface area of the pallet fork frame or load exposed to the wind, as this will reduce the stability of the machine.
- Do not use this machine in

environments with wind speeds above level 6.

Table 2.3-2 Beaufort Wind Scale

Wind scale	Description	Wind speed (m/s)	wind speed (mile/h)	Ground conditions
0	calm	＜0.3	0-0.5	No wind, smoke rising vertically.
1	Soft wind	0.3-1.5	1-3	Smoke column can reflect wind direction.
2	breeze	1.6-3.3	4-7	Bare skin feels windy. The leaves make a slight noise.
3	breeze	3.4-5.4	8-12	Leaves and small branches keep shaking;
4	gentle breeze	5.5-7.9	13-18	Dust and paper are blown up by the wind; Small tree branches bending
5	cool breeze	8-10.7	19-24	The small tree sways back and forth; Ripples appear on the lake surface
6	strong breeze	10.8-13.8	25-31	Big tree branches sway; Sound coming from electrical wires and ventilation ducts; Difficulty holding an umbrella
7	strong wind	13.9-17.1	32-38	The whole tree shakes; Difficulty walking against the wind
8	strong wind	17.2-20.7	39～46	A branch has broken; The vehicle was blown off course by the wind
9	strong wind	20.8-24.4	47～54	The building suffered minor damage;

⚠ Falling hazard:

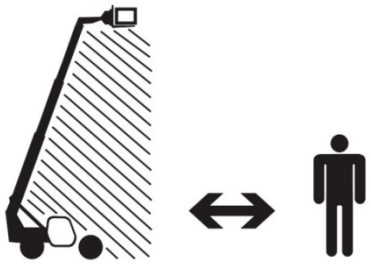
- Use appropriate handrails and steps to enter the cab; Always maintain three-point contact (hands and feet) on the handrails and steps to safely enter and exit the cab.
- Do not use the steering wheel or any control devices as armrests or support points.
- When operating the machine, the operator should not leave the cab at will and should always fasten their seat belt.

- If the machine is not equipped with qualified work platform accessories, do not use the telehandler to lift personnel.
- Do not allow anyone to ride on the machine.

- Ensure that the center of gravity of the load is close to the inside of the pallet fork.
- Before lifting the load, please ensure that the load is correctly positioned on the pallet fork or securely fixed to the accessory.
- When operating the machine to lift the load, the machine speed should be controlled to keep the load in a controlled state.
- When operating the machine, sudden start stop and turning should be avoided, and the operation should be kept smooth to prevent the load from tipping over and falling off.
- Do not drill holes on the pallet forks, and do not heat or weld the pallet forks.

Risk of collision:

- Do not place the gear shift switch in neutral unless the parking brake has been activated.
- Do not allow other personnel or equipment to enter the work area.
- Before lifting or lowering the boom or driving, please check the work area and whether there are any obstacles below and around the boom.



- Personnel are prohibited from working, standing, or walking under the raised boom. If someone is located below or near the raised boom, the machine must not be operated regardless of whether it is in a load-bearing state.
- When the machine is in motion, non operators are advised to stay away from the machine.
- When the machine is in motion, the position of the arm should be adjusted to provide the best possible field of view and avoid blind spots in the field of view.
- When operating the machine, the operator must wear the seat belt.
- It is prohibited to extend any part of the body out of the window while the machine is in motion.

- When driving, the impact of braking distance, environmental visibility, and blind spots on safety should be considered.
- If visibility is greatly limited, such as in heavy fog or snow, do not operate the machine.
- Do not operate the machine in low light conditions.
- Do not operate the machine without mudguards to avoid flying debris smashing glass or injuring operators.
- Do not operate the machine when the reverse alarm is malfunctioning.

⚠ Squeezing hazard:

- When inspecting and repairing the machine under the boom, please use the maintenance arm equipped on the telehandler.

- When operating the machine, please stay away from movable parts and any parts that may cause compression risks, such as fans, tires, telescopic arms, etc.
- Before leaving the machine, please activate the parking brake, place the gear shift switch in neutral, and lower the pallet forks or other attachments to a position close to the ground.

⚠ Danger during driving:

- When the machine lifts the load, it should always keep the boom lifted and move forward; When the machine is unloaded, the attachments should be kept close to the ground during operation.
- Please plan the machine's driving path based on ground conditions, traction, slope, personnel location, and any other potential hazards, and limit the machine's speed.
- Please check the working condition of the rearview mirror and ensure that the mirrors at all positions are functioning properly.
- Before driving the machine, please ensure that the road surface is clear and sound the horn to indicate.
- The machine steering mode can only be switched when the machine is stationary and the wheels are aligned.
- Do not place the gear shift switch in neutral when going uphill or downhill.
- When turning, it is necessary to control the speed of the machine. Do not

operate the machine to turn on a slope.

- It is prohibited to operate machines on slopes that exceed their rated slope.
- It is prohibited to operate the machine on unstable ground for work.
- Machines are prohibited from going downhill at high speeds.
- Do not drive quickly in narrow or cluttered areas.

⚠ Burn hazard:

- Lead acid batteries contain acidic substances. When maintaining the battery, protective clothing and goggles should be worn.
- Acidic substances in the battery should be avoided from overflowing or coming into contact with it. If necessary, a mixed solution of baking soda and water can be used to neutralize the overflowing acidic substances.
- Before touching or repairing the components of the telehandler, please wait for the corresponding components to cool down.
- When the telehandler is just completed, the temperature of the liquid in each component is still high and there is still residual pressure. Do not open the radiator cap, drain oil and water, or replace the filter at this time, as it may cause serious burn accidents. The above operation can only be carried out after the temperature drops, and corresponding regulations should be followed.

⚠ **Danger of explosion/fire:**

- Do not operate the machine in an environment with flammable or explosive gases or particles.
- Please repair the machine and charge the battery in a well ventilated open area.

- Do not expose batteries or other electrical components to water (high-pressure water guns or rainwater).
- The hydraulic accumulator installed on the telehandler belongs to the pressurization device. Dismantling the

accumulator and its piping system is a dangerous operation that must be performed by authorized technicians.

- Before maintenance, the pressure in the accumulator of the braking system should be released: park the machine on a solid horizontal ground, retract and lower the arm, and place pads under the wheels; Repeatedly press and release the service brake pedal multiple times; Repeatedly turn on and off the parking brake multiple times.

⚠ Chemical hazards:

- Do not attempt to repair or disassemble any pipelines or joints in the hydraulic system while the machine is running or the hydraulic system is under pressure.
- Do not check the hydraulic system for leaks by hand. You can use cardboard or paper to check the leakage point of the hydraulic system.
- When inspecting the hydraulic system, protective devices such as gloves and goggles should be worn to prevent personal injury caused by liquid splashing.

⚠ Misuse danger:

- Prohibit the use of faulty or poorly maintained machines.
- Prohibit the use of defective or damaged machines.
- Do not use this machine to support other structures to enhance their stability.
- Do not carry personnel or heavy objects on the hood.
- It is prohibited to replace parts that are crucial to the stability of the machine with parts of different specifications.
- It is prohibited to change or disable any components that affect the safety and stability of the machine.
- It is prohibited to replace the manufacturer's original tires with tires of different specifications or layers.
- Do not suddenly start, stop, turn or perform arm movements.
- When cleaning the machine, it is forbidden to directly aim the water gun at the battery and electrical components.

⚠ Uncontrolled movement danger:

- Do not use machines that are faulty or damaged
- If a machine malfunction is detected, it should be immediately stopped from use.
- Please maintain sufficient distance from high-voltage transmission lines.
- Please maintain sufficient distance from

electromagnetic interference sources such as generators, radar, and electromagnetic fields.

General danger:

- Please use spare parts approved by the manufacturer.
- When operating the machine, the cab door should be closed to reduce noise.
- The seat is an important device for reducing the vibration transmitted to the operator. If you need to replace the seat, please consult the manufacturer.
- The ambient temperature for machine use is -20 ℃ -40 ℃, and the relative humidity should not exceed 90% (at 20 ℃).

Chapter 3 Machine Usage Instructions

Figure 3.1 Car Door

Figure 3.1.1 Door switch (exterior)

Figure 3.1.2 Door switch (interior)

3.1. Doors and windows

Warning

Do not drive before the car door is closed!

3.1.1. Use the door switch from outside the car

As shown in Figure 3.1.1:

Open the car door: The car door is in a non locked state. Pull the handle outward to open the car door; If the car door is in the locked state, insert the key, rotate it clockwise 180 degrees, and then pull the handle outward to open the door.

Close the car door: Push the car door inward until it locks, and you can close the car door directly.

Lock the car door: After closing the car door, insert the key, turn it counterclockwise 180 degrees, and then remove the key. After locking, pulling the external handle cannot open the car door.

3.1.2. Use the door switch from inside the car

As shown in Figure 3.1.2:

Open the car door: Press the internal door lock block upwards and then push the car door outward to open the car door.

Close the car door: Pull the car door inward until it locks, and you can close the car door directly.

Figure 3.1.3-1 Cab side window handle

Figure 3.1.3-2 Side window door suction head and suction cup

Figure 3.1.4 Rear window handle

3.1.3 Door side window

Open the side window: First lift the handle backwards to turn on the lock switch, then lift the handle horizontally to open the side window outwards.

Fully open the side window: After opening the side window, rotate it 180 ° to lock the door suction head on the side window glass after it contacts the suction cup on the rear glass, and then the door side window can be fully opened.

Close the side window: unlock the door suction head and suction cup, simply turn the red lever on the suction cup to the right; Then turn the car window to the side door, use the side window handle to close and lock the side window.

Attention !

a. The side windows open and close should be done when the machine is stationary.

b. When leave the machine, please make sure that the doors and windows are closed and locked.

c. Valuable items should be carried with you and not placed in the cab.

3.1.4. Rear window handle

The rear window handle is located inside the cab at the rear window. Rotate the handle upwards (counterclockwise) to open the cab rear window outward.

In an emergency situation, if the car door cannot be opened to leave the cab, you can open the rear window handle and push open the rear window, using it as an emergency exit.

1. Seat weight adjustment knob
2. Seat front and after adjustment handle
3. Backrest angle adjustment handle

Figure 3.2.1-1 Seat

3.2. Internal devices in the cab

3.2.1. Seat

Warning

a. Before adjusting the seat, the key switch must be turned off.
b. The position of the seat can only be adjusted when the machine is stationary.

T25-60XHYG is equipped with armless seats, and the seat adjustment operation method is as follows:

1) Shock absorption effect adjustment: According to the driver's weight and road conditions, rotate the weight adjustment knob 1 and adjust it to the appropriate position.
2) Forward and backward slip adjustment: Lift up the forward and backward adjustment handle 2, adjust the seat cushion to the desired position, and release the slide rail handle.
3) Backrest angle adjustment: Turn up/down adjustment handle 3 to adjust the backrest to the desired position, then release the handle.
4) Seat cleaning: Dirt may have a negative impact on the normal functioning of the seat, please keep the seat clean.

Figure 3.2.1-2 Seat (with armrest)

T35-100XHYG is equipped with seats with armrests, and the seat adjustment operation method is as follows:

1) Shock absorption effect adjustment: According to the driver's weight and road conditions, rotate the weight adjustment knob 1 and adjust it to the appropriate position.

2) Forward and backward slip adjustment: Lift up the forward and backward adjustment handle 2, adjust the seat cushion to the desired position, and release the slide rail handle.

3) Backrest angle adjustment: Turn up/down adjustment handle 3 to adjust the backrest to the desired position, then release the handle.

4) Armrest angle adjustment: Rotate the armrest angle adjustment knob to fine tune the armrest angle to the desired position

5) Seat cleaning: Dirt may have a negative impact on the normal functioning of the seat, please keep the seat clean.

Table 3.2.1 Main Parameters of Seats

Item	Parameter
Seat width	444mm
Seat height	625mm
Forward and backward adjustment stroke	±90mm
Backrest angle adjustment	Anteversion65°
	Tilt back38°
Weight regulation range	50～130kg
Shock absorption adjustment range	±35mm
Armrest adjustment range	Anteversion90°
	Tilt back10°

Figure 3.2.2-1 Telescopic Seat Belt

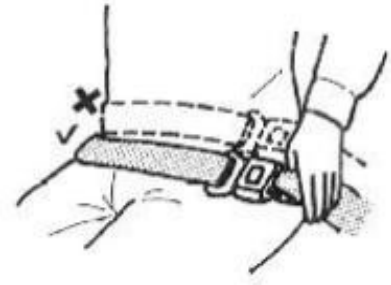


Figure 3.2.2-2 Fasten seat belt

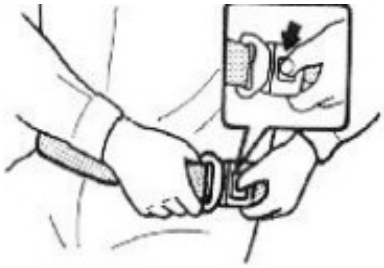


Figure 3.2.2-3 Unfasten seat belt

3.2.2. Safety belt

Fasten seat belt

- When fastening the seat belt on the car, the back and waist of the body should be as close to the seat as possible. Do not fasten the seat belt on the abdomen.
- Do not tilt the seat back too much, otherwise the seat belt will not extend correctly.
- Do not use knots or entanglements with straps.

Unfastening seat belt

- Press the red button (with the word PRESS) on the seat belt socket to unlock it.

Check seat belt

- Regularly check if the seat belt fixing bolts are loose.
- Do not let the seat belt be pressed against hard or fragile objects, and do not rub against sharp blades to avoid damage.
- All components on the seat belt must not be disassembled arbitrarily.
- Frequent use of seat belts requires regular visual inspections. If any abnormalities are found, the belts should be replaced immediately. The lifespan of seat belts is 3 years, and any abnormalities should be scrapped in advance.

Warning

In any case, if there is a defect in the safety belt of the telehandler (such as locking, cutting, tearing, etc.), the telehander should be immediately stopped, and the safety belt should be repaired or replaced.

Figure 3.2.3 Key switch

Figure 3.2.4-1 Main Power Switch

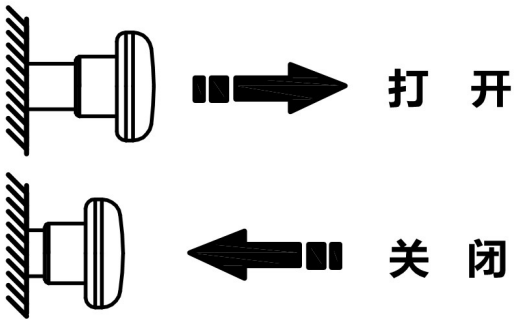


Figure 3.2.4-2 Schematic diagram of switch

3.2.3. key switch

Connect and interrupt the control current. Removing the switch key ensures that the machine will not start accidentally.

	Electric model
Model	T25-60XHYG/T35-100XHYG
Close gear	Initial Position
Running gear	Machine start

3.2.4. Main power switch

Once a dangerous situation occurs, press the main power switch, and the telehandler will immediately cut off power and stop all actions.

Before restarting the vehicle, the main power switch must be reset, otherwise it cannot be started.

The main power switch of the T25-60XHYG model is located on the right side of the cab, under the dashboard.

The main power switch of the T35-100XHYG model is located on the left front of the cab, on the left side of the steering column.

Warning

a. Before pressing this button, be sure to be prepared for all hydraulic actions to suddenly stop.

b. When conducting circuit inspections or welding operations, the main power switch should be disconnected.

c. When the machine is not in use for a long time, please turn off the main power switch to avoid accidents.

3.2.5. Instrumentation panel

After the system is powered on, the display will automatically jump to the initial interface, as shown in Figure 3.2.6-1; After 3 seconds of power on, it automatically switches to the main interface, as shown in Figure 3.2.6-2.

Figure 3.2.5-1 Initial Interface

Figure 3.2.5-2 Main Interface

3.2.5.1. Main Interface Description

1. Main interface parameter description

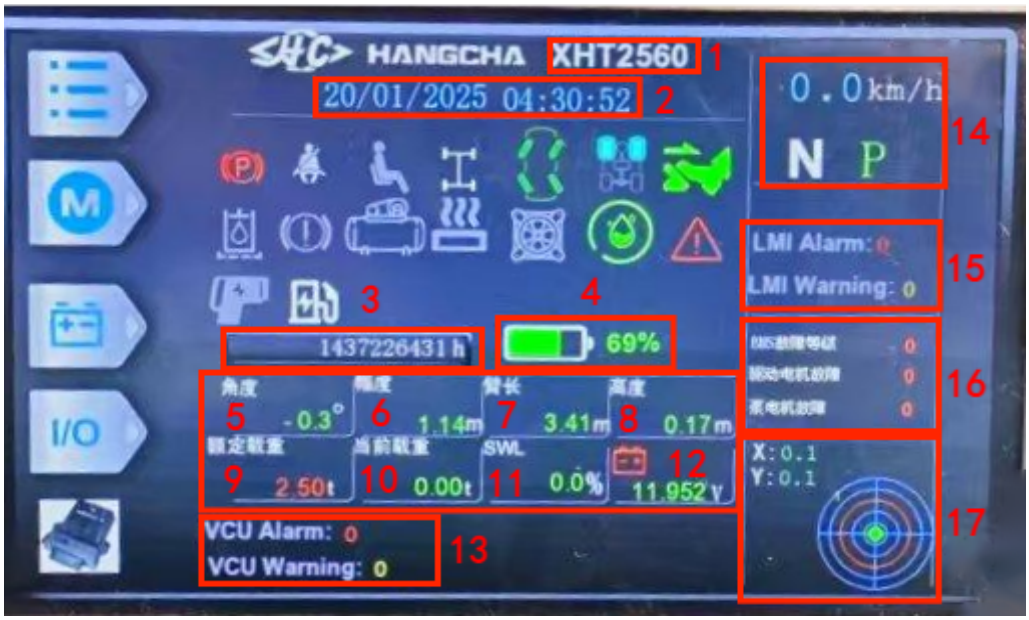


Figure 3.2.5.1 Schematic diagram of main interface parameters

Table 3.2.5.1-1 Main Interface Parameters Table

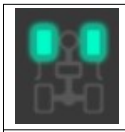
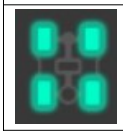
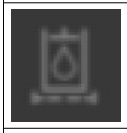
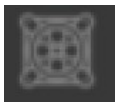
No.	Item	Description
1	Current machine model	XHT2560/XHT3560/XT4031 etc
2	Current date and time	Default is Beijing time
3	Accumulated working time	Accumulated working hours of machines, unit: h
4	Battery level	Percentage of remaining battery power
5	Boom lifting angle	Boom relative angle, unit: °
6	Horizontal extension distance of boom	Unit：m
7	Current boom length	Unit：m
8	Boom lift height	Unit：m
9	Rated load	Unit：t
10	Current load	Unit：t
11	SWL	Load ratio, the ratio of existing load to rated load
12	Control system voltage	Unit：V
13	VCU faults and alarm prompts	Red: VCU has a serious malfunction, and after the fault is resolved, it needs to be powered off and restarted Yellow: VCU alarm. After the fault is resolved, the prompt message is eliminated
14	Machine walking information	Machine current gear, speed, and driving mode

15	Fault and alarm prompt of torque limiter	Red: The torque limiter has a serious malfunction and needs to be powered off and restarted after the fault is resolved Yellow: Torque limiter alarm. After the fault is resolved, the prompt message is eliminated
16	BMS、 Pump motor and walking motor fault prompt	When the value is 0, there is no fault
17	Machine chassis tilt angle display	Display the longitudinal and lateral tilt angles of the vehicle chassis

2. Description of main interface symbols

Table 3.2.5.1-2 Main Interface Indicator Table

Symbolic schemes	Item	Description
	Parking status	Red P status, parking brake activated; Gray P status, parking brake off
	Seat belt status	Red flashing status, not fastening a seat belt; Gray status, seat belt fastened
	Person in seat state	Green status, there is someone on the seat; Gray status, no one on the seat
	Front wheel alignment	The front wheels are aligned with the body of the machine
	Rear wheel alignment	The rear wheels are aligned with the body of the machine
	Front and rear wheels are aligned	The front and rear wheels are aligned with the body, and the machine steering mode can be switched at the time
	Front and rear wheels not aligned	The front and rear wheels are not aligned with the body of the vehicle
	Front wheel steering mode	Front wheel steering, rear wheel centering
	Crab shaped steering mode	The steering direction of the front and rear wheels is the same
	Front and rear wheel steering mode	The front and rear wheels turn in opposite directions

	Two wheel drive mode	The front wheels are driving wheels, and the rear wheels are driven wheels
	Four wheel drive mode	Both front and rear wheels are drive wheels
	Braking status	Green status, no brake applied; Gray status, brake applied
	Oil filter malfunction status	Red status, oil filter malfunction; Gray state, normal oil filter
	Accumulator malfunction state	Red status, accumulator malfunction; Gray state, normal accumulator
	Air compressor status	Green status, indicating that the air compressor is turned on; Gray status, air compressor turned off
	PTC status	Green status, PTC on; Gray status, PTC turned off
	Cooling fan status	Green status, the cooling fan is turned on; Gray status, fan turned off
	Water cooling system status	Green status, water cooling system turned on; Gray status, water cooling system turned off
	System fault status	Red status, battery, pump motor or drive motor malfunction; Gray status, fault resolved
	Charging status	Green status, battery charging; Gray status, battery not charged
	SAR anti overturning system	SAR anti overturning system activated
	Torque limiter system	The torque limiter system is activated

3. Main interface button instructions

Figure 3.2.5.1-2 Schematic diagram of main interface buttons

The button functions in the main interface are as follows:

- F1: Enter the main menu interface;
- F2: Enter the walking display interface;
- F3: Enter the battery display interface;
- F4: Enter the vehicle controller diagnostic interface;
- F6: Switch the vehicle's driving speed to three gears: slow (E), normal (P), and fast (S);

Attention !

When on the main interface, except for the above buttons, all other buttons are invalid.

3.2.5.2. Main menu description

1. Menu button:

Figure 3.2.5.2-1 Schematic diagram of menu buttons

(1) Cursor up key; (2) Cursor down key; (3) Return to the main interface;

(4) Return to the previous interface; (5) Modify the confirmation key.

2. Main menu interface:

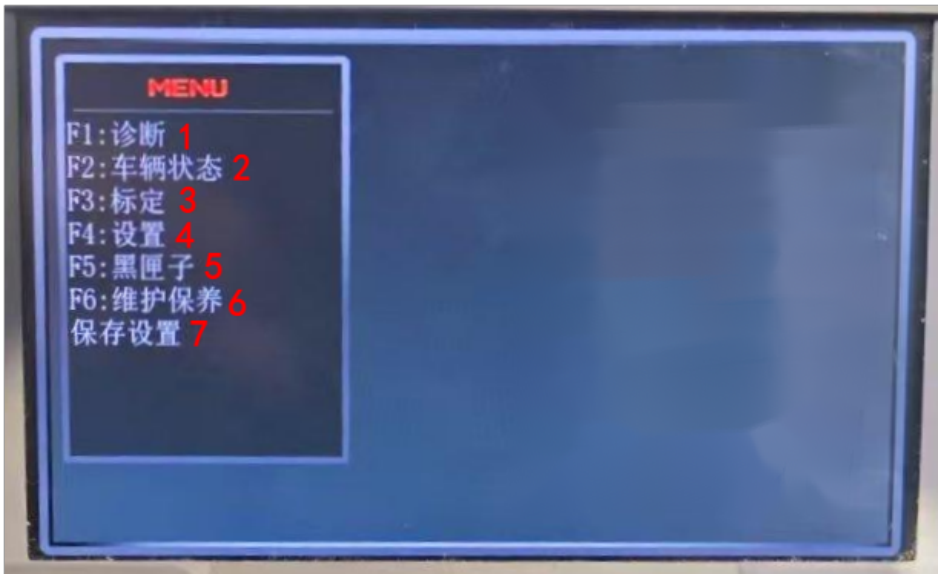


Figure 3.2.5.2-2 Schematic diagram of the main menu interface

1) Place the cursor at position 1 by pressing the up and down keys, and enter the "diagnostic interface" by pressing the confirm key or F1.

2) Place the cursor at position 2 by pressing the up and down keys, and enter the "Vehicle Status Interface" by pressing the confirm key or F2.

3) Place the cursor at position 3 by pressing the up and down keys, and enter the "LMI interface" by pressing the confirm key or F3.

4) Place the cursor at position 4 by pressing the up and down keys, and enter the "Settings interface" by pressing the confirm key or F4.

5) Place the cursor at position 5 by pressing the up and down keys, and enter the "black box interface" by pressing the confirm key or F5.

6) Place the cursor at position 6 by pressing the up and down keys, and enter the "maintenance interface" by pressing the confirm key or F6.

7) Place the cursor at position 7 using the up and down keys, press the confirm key to save the settings, and enter the save function. The display will show a prompt saying "Parameter Save...".

Attention !

After modifying the parameter settings on the monitor, a save operation must be performed before powering off, otherwise the modifications will be invalid.

3. Diagnostic interface description:

There are a total of 4 diagnostic interfaces, and the input and output pin status of the VCU and LMI controllers can be diagnosed online through the parameters in each interface.

Figure 3.2.5.2-3 Schematic diagram of diagnostic interface

4. Vehicle status interface:

The vehicle status interface displays the version codes of the vehicle rated load table, display screen software, main controller software, and force limit controller software.

Figure 3.2.5.2-4 Schematic diagram of vehicle status interface

5. Calibration interface:

The calibration interface requires entering a password to enter. The password interface is shown in Figure 3.2.5.2-5 below:

Figure 3.2.5.2-5 Schematic diagram of password interface

Warning

Sensors and LMI calibration are directly related to machine stability and are not allowed to be modified or calibrated without authorization. If modification or calibration is required, please contact our service personnel.

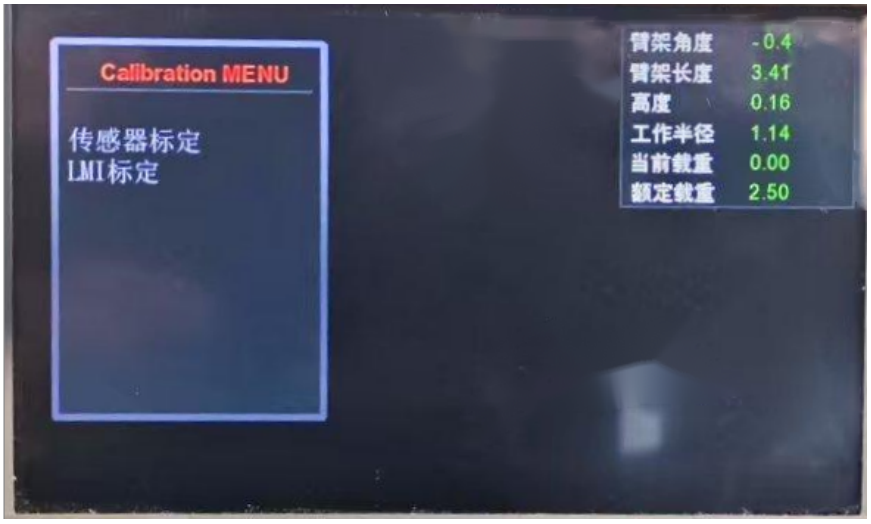


Figure 3.2.5.2-6 Schematic diagram of calibration interface

1) Sensor calibration:

The sensor calibration can be selected by pressing the up and down keys on the cursor. Clicking the enter key will display the interface shown in Figure 3.2.5.2-7, and then the corresponding calibration function can be selected by pressing the up and down keys on the cursor.

For example, if "Angle 0-point calibration (13)" is selected in the following figure, the boom needs to be adjusted to a horizontal position. After confirmation, press the enter key to start the boom 0-degree calibration. The command value is 13. After completing the calibration, save the settings, otherwise the modifications will be invalid after power failure.

Figure 3.2.5.2-7 Schematic diagram of sensor calibration interface

1) LMI calibration:

Press the "up and down" keys to select sensor calibration. Click the enter key, as shown in Figure 3.2.5.2-8, and then use the "up and down" keys to select the corresponding calibration function.

Attention !

The prerequisite for LMI calibration is to correctly complete sensor calibration, otherwise LMI calibration is invalid.

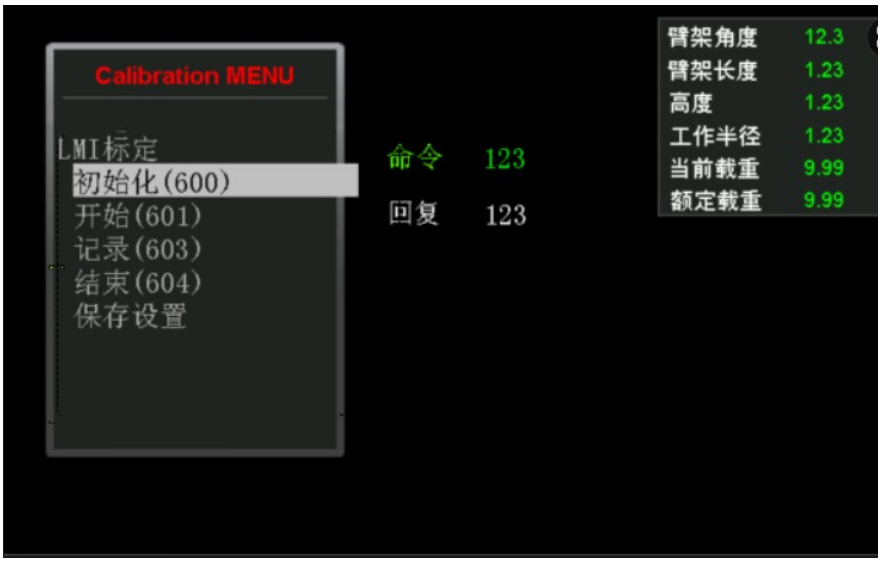


Figure 3.2.5.2-8 Schematic diagram of LMI calibration interface

LMI calibration steps instructions:

1) Use the up and down keys to move the cursor and select the function to be executed. Power off is prohibited during the calibration process, otherwise a restart is required.

2) Before each LMI calibration needs to be restarted, the "initialization" function operation needs to be performed first.

3) During the calibration process, it is forbidden for the boom to reach its limit position and be in a state of pressure buildup, otherwise it will cause calculation deviation and affect the accuracy of weighing measurement.

4) After the above calibration is completed, a save operation must be performed, otherwise the calibration will be invalid after power failure.

5. Setting interface

To access the settings interface, a password is required. The settings interface is shown in Figure 3.2.5.2-9 below:

1) Place the cursor at position 1 by pressing the up and down keys, and enter the "Parameter Settings" interface by pressing the confirm key or F1;

2)Place the cursor at position 2 by pressing the up and down keys, and enter the "Language Settings" interface by pressing the confirm key or F2;

3) Place the cursor at position 3 by pressing the up and down keys, and enter the "Time Settings" interface by pressing the confirm key or F3;

4) Place the cursor at position 4 by pressing the up and down keys, and enter the "Torque Limit Selection" interface by pressing the confirm key or F4;

5) Place the cursor at position 5 by pressing the up and down keys, and enter the "Model Selection" interface by pressing the confirm key or F5;

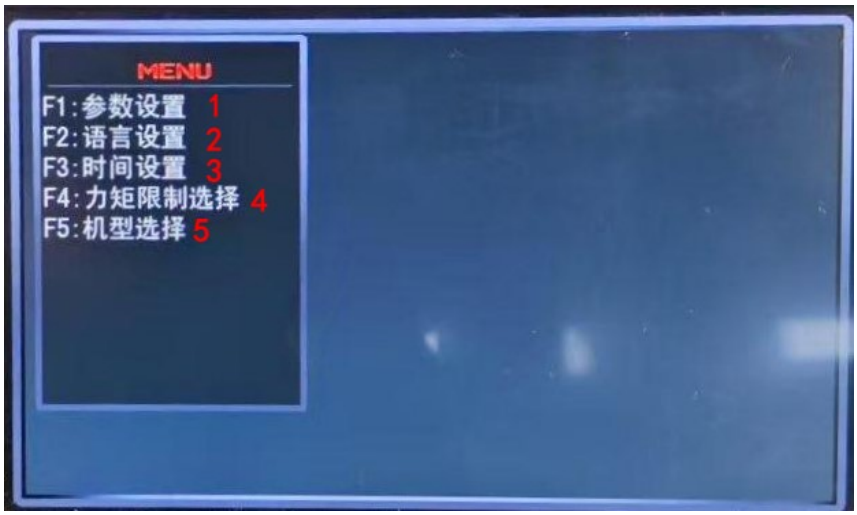


Figure 3.2.5.2-9 Schematic diagram of calibration interface

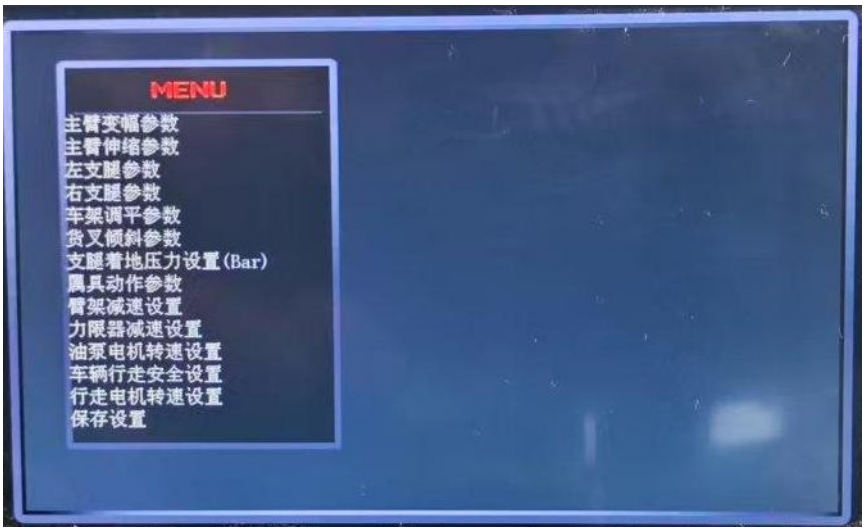


Figure 3.2.5.2-10 Parameter Setting Interface

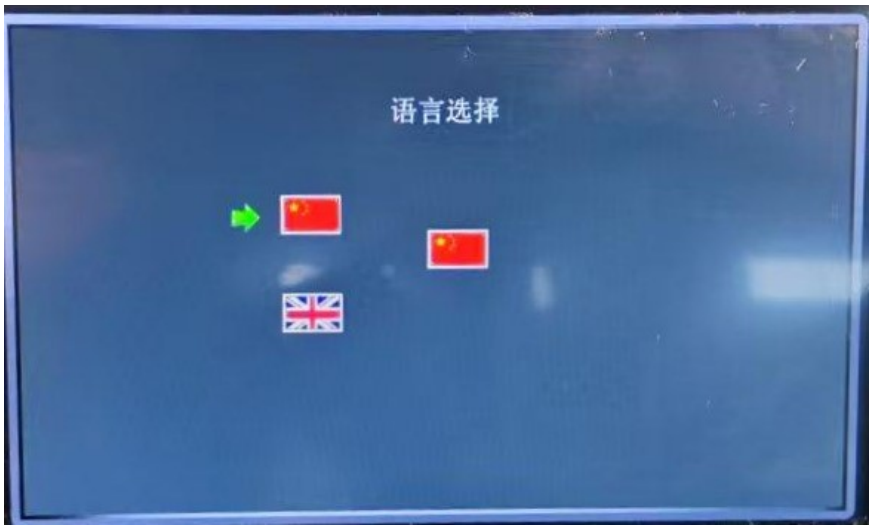


Figure 3.2.5.2-11 Language Setting Interface

Figure 3.2.5.2-12 Time Setting Interface

Figure 3.2.5.2-13 Torque Limit Selection Interface

Figure 3.2.5.2-14 Model Selection Interface

5. Black box interface

The black box interface requires a password to enter, as shown in Figure 3.2.5.2-15:

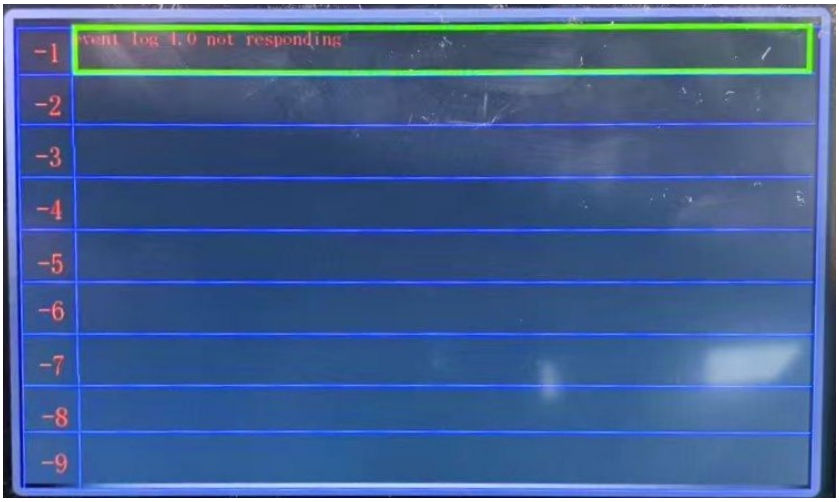


Figure 3.2.5.2-15 Black Box Interface

The black box interface records and saves the vehicle's driving data, and historical driving data of the vehicle can be queried through this interface.

3.2.5.3. Motor display interface

The motor display interface displays the specific status of the walking motor and the pump motor, and the walking motor interface and the pump motor interface can be switched by pressing the cursor "up and down keys".

The walking motor interface displays the specific status of the walking motor (speed, torque, temperature, faults, etc.) and the vehicle's walking speed parameters, as shown in Figure 3.2.5.3-1.

Figure 3.2.5.3-1 Walking Display Interface

The pump motor interface displays the specific status of the pump motor (speed, torque, temperature, fault, etc.), as shown in Figure 3.2.5.3-2.

Figure 3.2.5.3 Walking Display Interface

3.2.5.4. Battery display interface

The battery display interface displays the specific status of the battery (voltage, current, SOC, etc.), as shown in Figure 3.2.5.3.

Figure 3.2.5.2-15 Battery Display Interface

3.2.5.5. Vehicle controller diagnostic interface

The diagnostic interface can be accessed by pressing the "F4" key on the main interface, or by pressing the "F1" key on the main menu.

There are a total of 4 diagnostic interfaces, and the input and output pin status of the VCU and LMI controllers can be diagnosed online through the parameters in each interface.

Figure 3.2.5.2-15 Diagnostic Interface

3.2.5.6. Fault codes

(1) VCU Alarm prompt code

VCU Alarm

No.	Name	Description
1	ACO1_VPWAOfF	Controller output power supply 1 open circuit
2	AC02_VPWBOfF	Controller output power supply 2 open circuit
3	AC03_VPWCDOff	Controller output power supply 34 open circuit
4	AC04_JoystickOff	Controller bus disconnected
5	AC05_ACQ CanbusOff	ACQ bus disconnected
6	AC06_TC_CanbusOff	Transmission bus disconnected
7	AC07_RH_StabilizerJoyOff	Right leg handle disconnected
8	AC08_LH_StabilizerjoyOff	Left leg handle disconnected
9	AC09_LevelingJoy_Off	The body leveling handle disconnected
10	AC10_MidacOff	LMI controller bus disconnected
11	AC11_LH_Alarm	Left leg misoperation
12	AC12_RH_Alarm	Right leg misoperation
13	AC13_SAR_CanOff	SAR bus disconnected

VCU Warning

No.	Name	Description
1	WC01_ByPassOp	The forced switch has been turned on
2	WC02_Sarcutoff	SAR cut-off
3	WC03_FuelLevelLow	Low fuel level
4	WC04_FuelSensorFaulty	Fuel sensor malfunction
5	WC05_EnergyWarning	Fault alarm of accumulator
6	WCO6_LMIL_CutOff	Force limiter cut-off alarm
7	WC07_LH_StabSensorFaulty INT	Left leg pressure sensor malfunction
8	WC08_RH_StabSensorFaulty INT	Right leg pressure sensor malfunction
9	WC09_SwlOver95	Torque percentage exceeds 95%
10	WC10_OilFilterWarning	Oil filter alarm
11	WC11_AirFilterWarning	Air filter alarm
12	WC12_StabDwTravel	Leg not retracted walking alarm

(2) BMS system fault level code

No.	Fault name	Fault handling methods
1	Total undervoltage	Power limit
2		Request parking
3	Individual discharge under voltage	Power limit
4		Request parking
5	High temperature discharge	Power limit
6		Request parking
7	Low temperature discharge	Power limit
8		Request parking
9	Discharge overcurrent	Request parking
10	Discharge cell pressure difference	Power limit
11	Discharge temperature difference	Power limit
12	SOC too low	Power limit
13	Feedback overcurrent	Request parking
14	Single discharge overvoltage	Power limit
15		Request parking
16	Total pressure overvoltage	Power limit
17		Request parking
18	Charging unit too high	Stop charging
19	Charging socket high temperature	Charging reduces current by 50%
20		Stop charging
21	Charging unit too low	Stop charging
22	Charging at high temperature	Stop charging
23	Charging at low temperature	Stop charging
24	Charging overcurrent	Stop charging
25	Charging temperature difference	Charging reduces current by 50%
26	Charging voltage difference	Charging reduces current by 50%
27	Voltage cable detachment	Request parking or Stop charging
28	Temperature sensing cable detached	Request parking or Stop charging
29	Current collection cable detached	Request parking or Stop charging
30	BMU communication interruption	Request parking or Stop charging
31	Charging positive relay adhesion	Stop charging
32	Discharge positive relay adhesion	Request parking
33	Discharge negative relay adhesion	Request parking
34	Insulation fault	Request parking or Stop charging
35	Charge heating relay adhesion	Stop charging
36	Discharge heating relay adhesion	Request parking
37	High voltage interlock fault	Request parking or Stop charging
38	Low voltage power supply abnormality	Request parking or Stop charging

(3) Motor fault code (drive motor and pump motor fault)

No.	Fault name	Fault handling methods
2	Power tube direct connect fault	shutdown
3	Zero drift fault of current sensor	shutdown
4	MCU undervoltage fault	shutdown
5	MCU overvoltage fault	shutdown
7	Encoder failed	shutdown
8	Fault in current sampling circuit	shutdown
9	Hardware overcurrent	shutdown
10	Controller overheating fault	Execute zero torque
11	Motor overheating fault	Execute zero torque
12	Phase current software overcurrent	Execute zero torque
13	Motor overspeed	Execute zero torque
14	Motor stalling	Reduce torque to 50% of maximum torque
15	MC feedback torque and torque command verification error	Execute zero torque
16	Motor temperature sensor malfunction	Reduce torque to 50% of maximum torque
17	Controller temperature sensor malfunction	Reduce torque to 50% of maximum torque
18	BusOff fault	Execute zero torque
19	I2C verification fault	
20	VCU communication loss fault	Execute zero torque
21	Battery malfunction	Execute zero torque
22	Bus voltage sampling circuit fault	Torque derating
45	MCU undervoltage warning	Torque derating
46	MCU overvoltage warning	Torque derating
47	Controller overheating warning	Torque derating
48	Motor overheating warning	shutdown

(4) Force limit alarm prompt code (LMI Alarm and LMI Warning)

No.	Name	Description	Method
1	AL_E2promAlarm	MIDAC PLUS controller E2PROM malfunction	Power off and restart
2	AL_Can1_InitErr	MIDAC PLUS controller CAN LINE 1 initialization error	Power off and restart
3	AL_Can0_InitErr	MIDAC PLUS controller CAN LINE 0 initialization error	Power off and restart
4	AL_Mds_InitErr	MIDACPLUS controller low-level software configuration MDS unit initialization error	Power off and restart
5	AL_E2P_InitErr	MIDAC PLUS controller E2PROM initialization error	Power off and restart
6	AL_DataExc_InitErr	Initialization error of data exchange between master and slave CPUs in MIDAC PLUS controller	Power off and restart
7	AL_Task1_InitErr	TASK 1 initialization error of MIDAC PLUS controller main CPU	Power off and restart
8	AL_Task2_InitErr	TASK 2 initialization error of MIDAC PLUS controller main CPU	Power off and restart
9	AL_Task3_InitErr	TASK 3 initialization error of MIDAC PLUS controller main CPU	Power off and restart
10	AL_Task4_InitErr	TASK 4 initialization error of MIDAC PLUS controller main CPU	Power off and restart
11	AL_FlashInt_InitError	Initialization error of internal FLASH storage chip in MIDAC PLUS controller	Power off and restart
12	AL_ERam_NError	MIDAC PLUS controller RAM self-test error	Power off and restart
13	AL_DExc_Error	MIDAC PLUS controller master-slave CPU data exchange error	Power off and restart
14	AL_CFlash_NError	MIDAC PLUS controller FLASH EP100 storage chip error	Power off and restart
15	AL_TWdo_VIn_A	MIDAC PLUS controller watchdog supply voltage below 8vdc	Power off and restart
16	AL_TIn_Error	MIDAC PLUS controller input terminal low-level detection error	Power off and restart
17	AL_Outputs_Error	MIDAC PLUS controller output terminal low-level detection error	Power off and restart
18	AL_TWdo_Reset	MIDAC PLUS controller disconnected due to watchdog APP layer requirements	Power off and restart
40	AL_C1_InitRamAlarm	MIDAC PLUS controller CPU1 RAM initialization error	Power off and restart
41	AL_C1_IntFlashCRCError	MIDAC PLUS controller CPU1 FLASH chip CRC error	Power off and restart
42	AL_C1_IOSysTaskStatus	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart

43	AL_C1_E2promAlarm	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
44	AL_C1_CAN_Init_ErrorCode	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
45	AL_C1_DataExc_InitError	Initialization error of data exchange between master and slave CPUs in MIDAC PLUS controller	Power off and restart
46	AL_C1_DExc_FrmError	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
47	AL_C1_DExc_NCrcError	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
48	AL_C1_DaM_Idle_RunError	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
49	AL_C1_DaM_Task3_RunError	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
50	AL_C1_SqM_Error	MIDAC PLUS controller CPU1 underlying hardware failure	Power off and restart
101	LM_MCyl_PL_A_Fault_TMin	Main cylinder rodless chamber channel A open circuit (analog value below 3000)	Power off and restart
102	LM_MCyl_PL_A_Fault_TMax	Main cylinder rodless chamber channel A short circuit (analog value above 21000)	Power off and restart
103	LM_MCyl_PH_A_Fault_TMin	Main cylinder rod chamber channel A open circuit (analog value below 3000)	Power off and restart
104	LM_MCyl_PH_A_Fault_TMax	Main cylinder rod chamber channel A short circuit(analog value higher than 21000)	Power off and restart
105	LM_MCyl_PL_B_Fault_TMin	Main cylinder rodless chamber channel B open circuit (analog value below 3000)	Power off and restart
106	LM_MCyl_PL_B_Fault_TMax	Main cylinder rodless chamber channel B short circuit (analog value above 21000)	Power off and restart
107	LM_MCyl_PH_B_Fault_TMin	Main cylinder rod chamber channel B open circuit (analog value below 3000)	Power off and restart
108	LM_MCyl_PH_B_Fault_TMax	Main cylinder rod chamber channel B short circuit (analog value higher than 21000)	Power off and restart
109	LM_CCyl_PL_A_Fault_TMin	Compensation cylinder rodless chamber channel A open circuit (analog value below 3000)	Power off and restart
110	LM_CCyl_PL_A_Fault_TMax	Compensation cylinder rodless chamber channel A short circuit (analog value higher than 21000)	Power off and restart
111	LM_CCyl_PH_A_Fault_TMin	Compensation cylinder rod chamber channel A open circuit (analog value below 3000)	Power off and restart
112	LM_CCyl_PH_A_Fault_TMax	Compensation cylinder rod channel A short circuit (analog value higher than 21000)	Power off and restart
113	LM_CCyl_PL_B_Fault_TMin	Compensation cylinder rodless chamber channel B open circuit (analog value below 3000)	Power off and restart
114	LM_CCyl_PL_B_Fault_TMax	Compensation cylinder rodless chamber channel B short circuit (analog value higher than 21000)	Power off and restart

115	LM_CCyl_PH_B_Fault_TMin	Compensation cylinder rod chamber channel B open circuit (analog value below 3000)	Power off and restart
116	LM_CCyl_PH_B_Fault_TMax	Compensation cylinder rod chamber channel B short circuit (analog value higher than 21000)	Power off and restart
117	LM_MCyl_PL_D_Fault_MaxDiff	Main cylinder rodless chamber redundancy fault	Power off and restart
118	LM_MCyl_PH_D_Fault_MaxDiff	Main cylinder rod chamber redundancy fault	Power off and restart
119	LM_CCyl_PL_D_Fault_MaxDiff	Compensation cylinder rodless chamber redundancy fault	Power off and restart
120	LM_CCyl_PH_D_Fault_MaxDiff	Compensation cylinder rod chamber redundancy fault	Power off and restart
121	LM_A1A_Fault_RMin	The angle value of arm angle channel A relative to the chassis is lower than the minimum angle	Power off and restart
122	LM_A1A_Fault_RMax	The angle value of arm angle channel A relative to the chassis is higher than the maximum angle	Power off and restart
123	LM_A1B_Fault_RMin	The angle value of arm angle channel B relative to the chassis is lower than the minimum angle	Power off and restart
124	LM_A1B_Fault_RMax	The angle value of arm angle channel B relative to the chassis is higher than the maximum angle	Power off and restart
125	LM_A1D_Fault_MaxDiff	Boom angle dual channel redundant fault	Self reset
126	LM_S1A_Fault_TMin	The analog value of arm length channel A is below the minimum value of 20	Power off and restart
127	LM_S1A_Fault_TMax	The analog value of arm length channel A is higher than the maximum value by 1000	Power off and restart
128	LM_S1A_Fault_RMin	The calibration value of arm length channel A is lower than the minimum length value	Power off and restart
129	LM_S1A_Fault_RMax	The calibration value of arm length channel A is higher than the maximum length value	Power off and restart
130	LM_S1B_Fault_TMin	The analog value of arm length channel B is below the minimum value of 20	Power off and restart
131	LM_S1B_Fault_TMax	The analog value of arm length channel B is higher than the maximum value by 1000	Power off and restart
132	LM_S1B_Fault_RMin	The calibration value of arm length channel B is lower than the minimum length value	Power off and restart
133	LM_S1B_Fault_RMax	The calibration value of arm length channel B is higher than the maximum length value	Power off and restart
134	LM_S1D_Fault_MaxDiff	Arm length dual channel redundant fault	Self reset
135	LM_AL_TOut_U2AMU_C1_A	U2AMU tilt sensor channel A bus timeout	Power off and restart
136	LM_AL_TOut_U2AMU_C1_B	U2AMU tilt sensor channel B bus timeout	Power off and restart

137	LM_AL_C1_A_Fault	U2AMU tilt sensor channel A fault	Power off and restart
138	LM_AL_C1_B_Fault	U2AMU tilt sensor channel B fault	Power off and restart
139	LM_ACXD_Fault_MaxDiff	U2AMU tilt angle X-axis dual channel redundant fault	Power off and restart
140	LM_ACYD_Fault_MaxDiff	U2AMU tilt Y-axis dual channel redundant fault	Power off and restart
149	LM_AL_TOut_Acq1A	Length angle sensor channel A bus timeout	Power off and restart
150	LM_AL_TOut_Acq1B	Length angle sensor channel A bus timeout	Power off and restart

3.2.6. Indicator symbol for rocker switch

3.2.6.1. T25-60XHYG rocker switch

Figure 3.2.6.1 T25-60XHYG rocker switch

Table 3.2.6.1 T25-60XHYG rocker switch description

No.	Name	Status	Function	Remark
1	Parking brake switch	0	Parking brake closed	
		1	Parking brake activated	
2	Alarm light rocker switch	0	Manually turn off the top warning light of the cab	
		1	Manually turn on the top warning light of the cab	
3	Double flashing light rocker switch	0	Turn off the flashing lights	
		1	Turn on the dual flashing lights	
4	Steering mode rocker switch	0	Four wheel steering mode	
		1	Front wheel steering mode	
		2	Crab steering mode	
5	Drive mode rocker switch	0	Two wheel drive mode	
		1	Four wheel drive mode	
6	Alarm indicator light		Display whether the vehicle has triggered an alarm	

7	Front work light rocker switch	0	Front work light function turned off	
		1	Front work light function activated	
8	Rear work light rocker switch	0	Rear work light function turned off	
		1	Rear work light function activated	
9	Arm work light rocker switch	0	Arm work light function turned off	
		1	Arm work light function activated	
10	Front window wiper rocker switch	0	Front window wiper off	
		1	Front window wiper on	
11	Front window wash rocker switch	0	Front window washing closed	
		1	Front window washing on	
12	Rear window wiper wash rocker switch	0	Rear window wiper off	
		1	Rear window wiper on	
		2	Rear window washing open	This feature is an optional item
13	USB interface		USB charging interface	

3.2.6.2. T35-100XHYG Rocker switch

Figure 3.2.6.2 T35-100XHYG rocker switch

Table 3.2.6.2 T35-100XHYG rocker switch description

No.	Name	Status	Function	Remark
1	Front work light rocker switch	0	Front work light function turned off	
		1	Front work light function activated	

2	Rear work light rocker switch	0	Rear work light function turned off	
		1	Rear work light function activated	
3	Arm work light rocker switch	0	Arm work light function turned off	
		1	Arm work light function activated	
4	Double flashing light rocker switch	0	Turn off the dual flashing lights	
		1	Turn on the dual flashing lights	
5	Alarm light rocker switch	0	Manually turn off the top warning light of the cab	
		1	Manually turn on the top warning light of the cab	
6	Parking brake switch	0	Parking brake closed	
		1	Parking brake activated	
7	Drive mode rocker switch	0	Two wheel drive mode	
		1	Four wheel drive mode	
8	Steering mode rocker switch	0	Four wheel steering mode	
		1	Front wheel steering mode	
		2	Crab steering mode	
9	Alarm indicator light		Display whether the vehicle has triggered an alarm	
10	Front window wiper rocker switch	0	Front window wiper off	
		1	Front window wiper on	
11	Front window wash rocker switch	0	Front window washing closed	
		1	Front window washing on	
12	Rear window wiper wash rocker switch	0	Rear window wiper off	
		1	Rear window wiper on	
		2	Rear window washing open	Optional items
13	USB interface		USB charging interface	

Figure 3.2.7 Steering Wheel

Figure 3.2.8.1 Combination Switch - Headlights

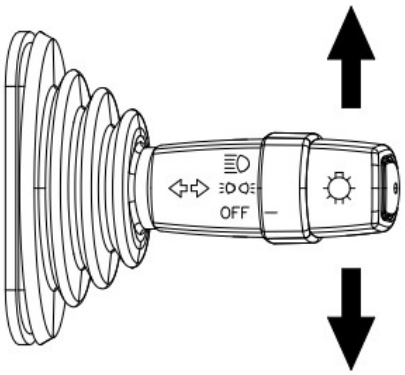


Figure 3.2.8.2 Combination Switch - Turn light

3.2.7. Steering wheel

The steering wheel controls the left and right running direction of the vehicle.

1) Rotate counterclockwise, the vehicle moves to the left;

2) Rotate clockwise, and the vehicle moves to the right.

Warning

Telehandlers use fully hydraulic steering, making it difficult to turn when the vehicle is turned off.

The horn button is located at the center of the steering wheel, and when pressed, the horn will sound.

3.2.8. Combination switch

3.2.8.1. Headlights

The headlight knob of the rotary combination switch can adjust the on and off of the vehicle's headlights:

(1) Upward position, turn on high and low beams;

(2) In middle position, turn on low beam;

(3) Down position, turn off the headlights.

3.2.8.2. Turn light

Toggle the combination switch handle can adjust the on and off of the vehicle's turn signal lights:

(1) Toggle up to turn on the left turn light;

(2) In middle position, turn off the turn light;

(3) Toggle down to turn on the right turn light.

Figure 3.2.9-1 Shift Switch

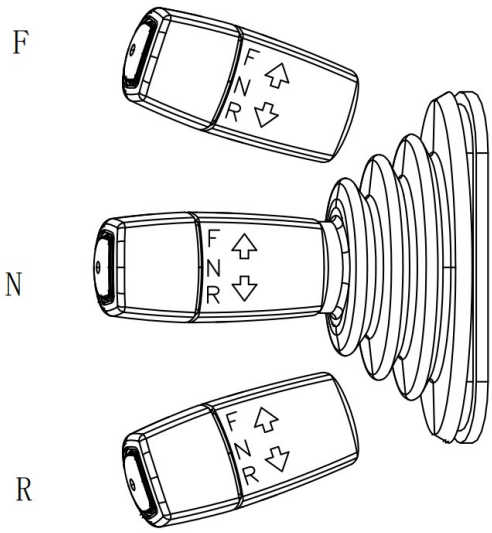


Figure 3.2.9-2: Forward, Neutral, and Reverse Gears

3.2.9.Forward/Neutral/Reverse gear

Forward gear (F gear)

Move the gear shift switch forward from neutral (middle position) to switch to forward gear.

Neutral gear (N gear)

If the shift switch remains in the middle position, it is neutral.

Reverse gear (R gear)

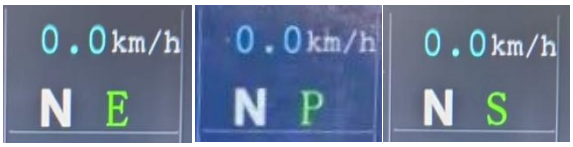
Turn the gear shift switch from neutral (middle position) to reverse gear, and the reverse lights and alarm will turn on at the same time, indicating that the vehicle is reversing.

Attention !

When shifting gears, the vehicle should be kept stationary. After pressing the service brake pedal, switch gears again.

Figure 3.2.10-1 Instrument panel shift

Figure 3.2.10-2 "F6" key



(1) Slow mode (2) Normal mode (3) Fast mode

Figure 3.2.10-3 Walking mode indicator light 、

Figure 3.2.11 Locking handle

3.2.10. Speed gear

Attention !

The gear should be selected correctly according to the vehicle model and operating conditions. Improper selection may lead to a rapid increase in transmission oil temperature and damage to the transmission.

For electric vehicles, use the "F6" key on the instrument panel to switch the vehicle's speed, equipped with three speed gears (initially in P gear):

- On flat roads, **normal mode (P)** can be used; If the road conditions permit, the **fast mode (S)** can be used;
- When on bumpy roads, use **normal mode (P);**
- When the trailer is on the road, use **slow mode (E);**
- When transporting goods, use **slow mode (E).**

3.2.11. Locking handle

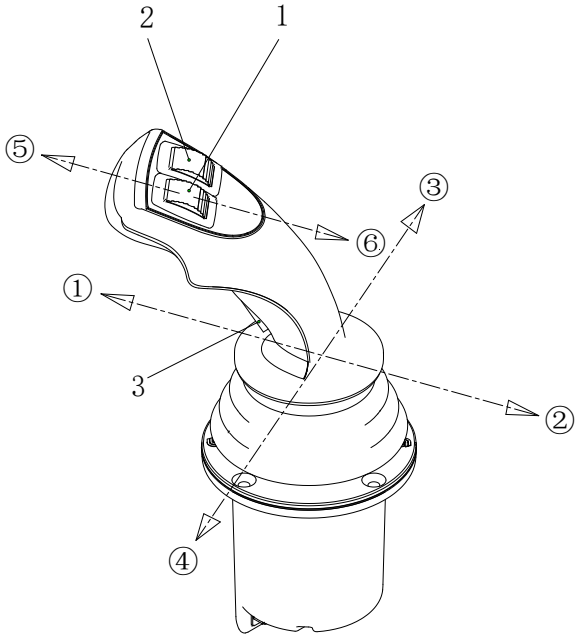
Rotate the locking handle to release the steering column clamping device, adjust the front and rear positions of the steering column to the appropriate position, and then rotate the locking handle in the opposite direction to lock the position of the steering column.

Warning

Only when the position of the steering column is locked, can the steering wheel be used to drive the vehicle.

Figure 3.2.12-1 Hydraulic Control Handle

Figure 3.2.12-2 Enable Button



1. Forward and backward tilt adjustment roller;
2. Backup roller;
3. Enable button

Figure 3.2.12-3 Hydraulic Control Handle

3.2.12. Hydraulic control handle

Enable button

When performing boom amplitude, boom extension, pallet fork adjustment and other operations, the enable button needs to be pressed.

Attention !

When the enable button is released, any operation of the hydraulic control handle is invalid.

Boom lift (amplitude)

Press and hold the enable button (3):
① Move the hydraulic control handle forward to lower the boom;
② Move the hydraulic control handle backwards to lift the boom.

Boom telescopic

Press and hold the enable button (3):
③ Move the hydraulic control handle to the right, and the boom will extend;
④ Move the hydraulic control handle to the left, and the boom will retract.

Pallet fork leveling

Press and hold the enable button (3):
⑤ Roll the accessory forward and backward tilt adjustment roller (1) counterclockwise, and the pallet fork frame will tilt forward (counterclockwise).
⑥ Roll the accessory's tilt adjustment roller (1) backwards (clockwise), and the pallet fork frame will tilt backwards (clockwise).

Figure 3.2.13-1 Bodywork Leveling Switch

Figure 3.2.13-2 Bodywork Leveling

Figure 3.2.14 Accelerator Pedal

Figure 3.2.15 Service Brake Pedal

3.2.13. Bodywork leveling switch

T35-100XHYG By using the car body leveling switch on the right side of the cab to level the car body.

Bodywork leveling operation:

1) Move the body leveling switch forward to tilt the telehandler body to the left;
2) Move the body leveling switch backwards to tilt the telehandler body to the right;
3) Reasonably use the car body leveling function and adjust the horizontal level of the car body in combination with the horizontal level.

Attention !

The following conditions must be met for the vehicle body leveling operation:

a. The amplitude angle of the arm frame is less than 20 °;
b. The extension length of the arm frame is less than 5m;
c. The arm frame is not in motion (telescopic, variable amplitude);
d. The vehicle is not in motion;
e. The vehicle's battery level is greater than 15%.

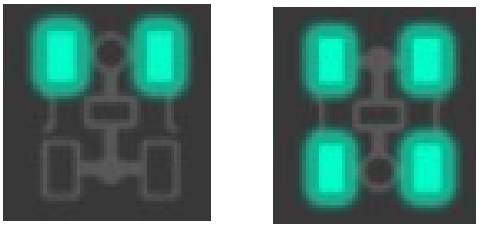
3.2.14. Accelerator pedal

The accelerator pedal controls the vehicle's driving speed.

3.2.15. Service brake pedal

The service brake pedal acts on the front and rear wheels through a hydraulic assisted braking system, slowing down or stopping the vehicle.

Figure 3.2.16-1 Drive Mode Switch



(1) Two wheel drive (2) Four wheel drive

Figure 3.2.16-2 Drive mode indicator light

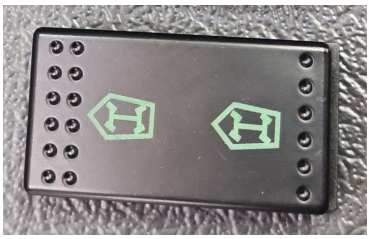
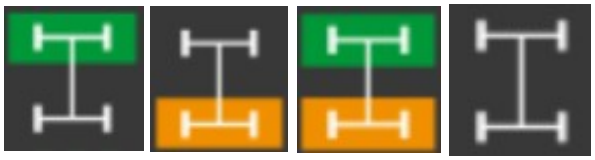
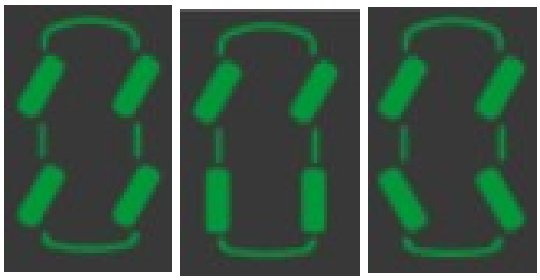


Figure 3.2.17-1 Steering Mode Switch



Front wheel aligned, rear wheel aligned, front and rear wheelsets, front and rear wheels not aligned

Figure 3.2.17-2 Wheel alignment indicator light



(1) Crab steering (2) Front wheel steering (3) Four wheel steering

Figure 3.2.17-3 Steering Diagram

3.2.16. Drive mode

1. Drive mode switch

1) Press forward is two wheel drive mode;
2) Press backward is four wheel drive mode.

2. Drive mode indicator light

1) Two wheel drive: The front wheels are the driving wheels.
2) Front wheel steering: Both front and rear are driving wheels.

3.2.17. Steering mode

1. Steering mode switch

1) Press forward for four wheel steer mode;
2) Press backward is crab steering mode;
3) Centered state is front wheel steer mode.

2. Wheel alignment indicator light

The wheel alignment indicator light indicates the positioning status of the wheels relative to the bodywork as shown in Figure 3.2.17-2:

3. Steering mode indicator light

1) Crab steering: The front and rear wheels turn in the same direction.
2) Front wheel steering: Front wheel steering, rear wheel centering.
3) Four wheel steering: The front and rear wheels turn in opposite directions.

Attention !

a. Only when the current rear wheel centering indicator light is on, indicating that both the front and rear wheels are aligned with the body, can the vehicle steering mode be switched.
b. When machine switching between driving or steering modes, please ensure that the vehicle has come to a complete stop.

Figure 3.2.18-1 Parking Brake Switch

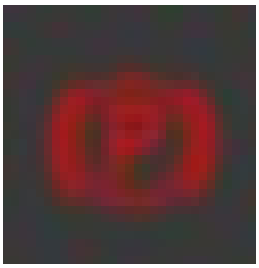


Figure 3.2.18-2 Parking brake indicator light

3.2.18. Parking brake switch

Parking brake switch (located on the right side of the driver's seat)

1) Move forward to turn off parking brake;

2) Pull back to activate the parking brake.

Parking brake indicator light (located on the dashboard in the driver's cabin)

1) The red P status indicates that the parking brake has been activated;

2) Gray P status indicates that the parking brake has been released.

Warning

a. When starting the vehicle, if the parking brake is in the off state, the vehicle will sound an alarm. The parking brake needs to be reactivated to release the alarm before the parking brake can be turned off and the vehicle can be used normally;

b. Do not start the vehicle until the parking brake indicator light is off!

Figure 3.2.19 Bypass Switch

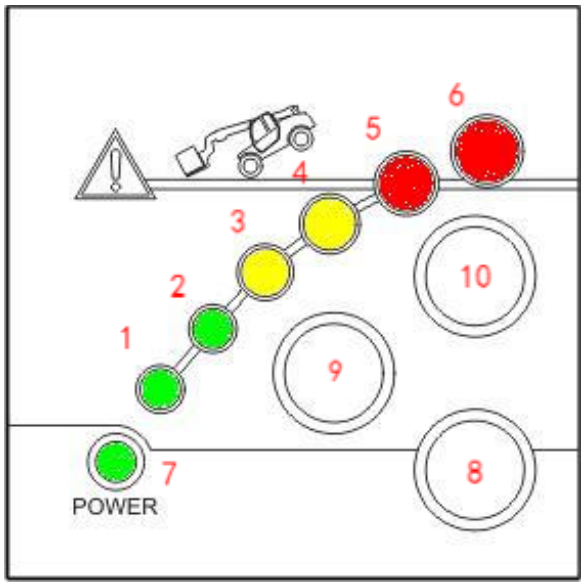
3.2.19. Bypass switch

When the vehicle alarms and restricts movement, turning on the bypass switch can force the vehicle to move.

Warning

When forcing the vehicle to move, it is not allowed to operate the vehicle for dangerous actions, such as extending the boom or lowering the boom before fully retracting it.

Figure 3.2.20-1 Longitudinal Stability Limiting Device (SAR)



7. Power indicator light: displays the power status;

8. Interaction key: Confirm key;

9. Reduce key;

10. Add key/leg indicator light: displays whether the leg is touching the ground.

Figure 3.2.20-2 Longitudinal Stability Panel

3.2.20. Longitudinal stability limiting device

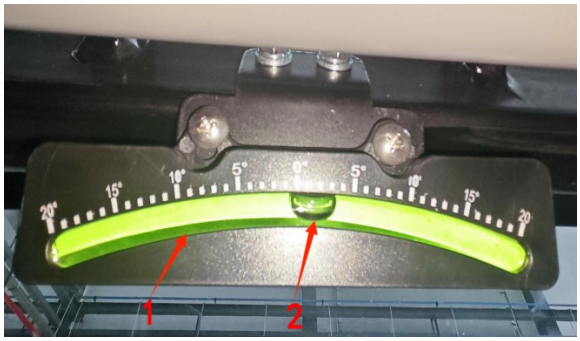
The longitudinal stability limiting device is located on the front right side of the cab, displaying the longitudinal stability status of the vehicle. The various states of the device under different load ranges are as follows:

1. **The green indicator light** is on, there is no sound, and the vehicle is not overloaded;
2. **The green indicator light** is on, there is no sound, and the vehicle is not overloaded;
3. **The yellow indicator light** is on, the alarm sounds intermittently, and the vehicle is approaching overload;
4. **The yellow indicator light** is on, the alarm sounds intermittently, and the vehicle is very close to overloading;
5. **The red indicator light** is on, the alarm sounds continuously, and the vehicle is overloaded;
6. **The red indicator light** is on, and the alarm sounds continuously, indicating that the vehicle is severely overloaded;

Warning

a. When the vehicle is overloaded, it is prohibited to operate the boom to lower it; The boom should be fully retracted first, and the boom can only be lowered after the overload alarm is lifted.

b. The longitudinal stability limiting device is directly related to the stability of the machine and cannot be modified or calibrated without authorization. If modification or calibration is required, please contact our service personnel.



(1) Angle indicator disc (2) rolling liquid beads

Figure 3.2.21 lateral level

Figure 3.2.22 Cab Light Switch

Figure 3.2.23 Fan

3.2.21. Lateral level

The lateral level display is located above the front window of the cab, with a measurement angle range of ± 20 °, and the displayed value is the lateral horizontal inclination angle of the cab.

Suggest using the lateral angle of the vehicle body measured by the horizontal level to assist telehandler operation.

Warning

The boom can only be operated when the value of the horizontal level gauge is 0 (horizontal of the frame).

3.2.22. Cab light switch

The cab light switch is located at the right rear of the cab and is used to turn on and off the lighting inside the cab.

1) Press up: the interior lighting of the cab will be turned off;

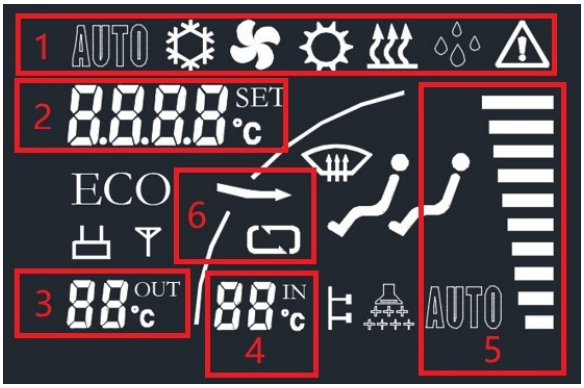
2) Press down: The interior lighting of the cab will turn on.

3.2.23. Fan

The fan inside the cab is located at the right rear of the cab, and you can turn it on or off by turning the switch (1).

1. **Key:** Turn on/off the air conditioning.
2. **Wind volume selection key:** Cycle to switch wind speed;
3. **Wind door switch key:** open and close fresh air mode;
4. **Up button:** Adjust the set temperature of the air conditioner upwards;
5. **Mode selection key:** Switch the air conditioning working mode;
6. **Down button:** Adjust the air conditioning set temperature downwards.

Figure 3.2.24-1 Air Conditioning Button



1. **Status indicator light:** indicates the operating mode and faults of the air conditioner;
2. **Numerical and code display area:** displays fault codes, set temperatures, and other numerical values;
3. **Numerical display area:** displays the temperature value of the external sensor of the vehicle;
4. **Numerical display area:** displays the temperature value of the return air sensor;
5. **Wind speed display area:** display wind speed in levels 1-5 and automatic wind speed;
6. **External circulation display area:** displays the status of fresh air on;

Figure 3.2.24-2 Air conditioning panel

3.2.24. Air-conditioner

Air conditioning operation

1) Turn on/off air conditioning: Press the **on/off** button to turn on the air conditioning, press the **on/off** button again to turn off the air conditioning;
2) Set temperature:

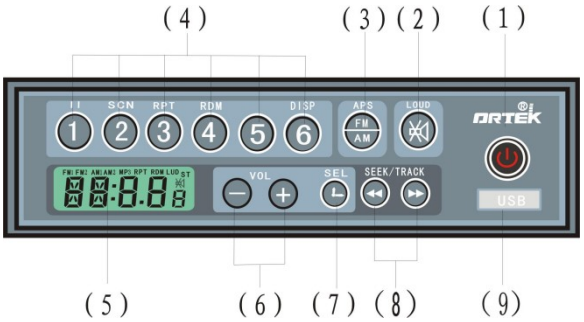
- After the panel is turned on, press the **up or down** button to modify the set temperature value;
- Temperature setting range: 15-35 ℃ for cooling; Heating at 15-26 ℃.

3) Mode switching: Press the **mode key** to switch modes, which will cycle in the order of "automatic cooling → cooling → ventilation → heating → automatic cooling", with mode memory function;
4) Wind speed switching: Press the **wind speed key** to switch wind speed, which will cycle in the order of "1 → 2 → 3 → 4 → 5 → 1", with wind speed memory function;
5) Wind door switching: Press the **wind door switching button** to cycle between opening and closing fresh air.

Table 3.2.23-1

Air Conditioning Fault Code Table (Type 1)

Fault code	Fault description
OPE.1	Return air temperature sensor open circuit
SHr.1	Return air temperature sensor short circuit
OPE.2	Defrost temperature sensor open circuit
SHr.2	Defrost temperature sensor short circuit
SPE.r	Abnormal system pressure
OLE.r	Compressor overcurrent
CAN.E	Compressor communication failure
bpp.E	Compressor voltage overvoltage or undervoltage
Ptc.E	PTC overheating fault



(1) Power switch/mode conversion key
(2) Mute/Equal Loudness Key
(3) APS automatic storage/band key
(4) Preset radio button
(5) LCD display screen
(6) VOL+/- volume adjustment key
(7) SEL sound effect/clock setting key
(8) Radio search/track selection key
(9) USB port

Figure 3.2.25 Radio Panel

3.2.25. Radio

Operating instructions

1) Power/mode conversion key

- Power switch, short press to turn on the device, and long press to turn off the device while it is turned on.

(Short press: less than 2 seconds, long press: greater than 2 seconds)

2) Mute/Equal Loudness Key

- Short press: mute on/off
- Long press: turn on/off at equal volume.

3) Band/automatic storage button

- Short press to switch bands between FM1/FM2/AM1/AM2.
- Long press to automatically search for radio stations from the low end of the frequency in the current band, and the found radio stations will be stored in the preset radio stations one by one.

4) Preset radio button

- When receiving audio, short press to select the corresponding preset radio station to listen to. Long press to save the listening frequency to the corresponding preset radio station.

5) VOL+/- volume adjustment key

- Press the VOL+/- key to increase or decrease the volume.

6) SEL sound effect/clock setting key

- Short press to display clock, press this button for 5 seconds to enter sound effect settings.
- When the clock is displayed, long press this button to enter clock adjustment.
- If no button is pressed within 5 seconds, return to the playback information display.

7) Radio search and MP3 song selection key

- When listening to a radio station, it is used to search forward and backward.

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Figure 3.3.1-1 Front combination headlight/driver's cab front work light

Figure 3.3.1-2 Rear Combination Headlights/Vehicle Rear Work Lights

Figure 3.3.1-3 Rear work lights in the cab/alarm lights/boom work lights

Figure 3.3.2-1 Rear View Mirror

Figure 3.3.2-2 Wide angle lens

3.3. External devices of the cab

3.3.1. Work lights

1. Front combination headlights (including turn signals, low beams, and high beams);
2. Front work lights in the driver's cab;
3. Rear combination headlights (including position lights, brake lights, reverse lights, and turn signals);
4. Rear work lights of the vehicle body;
5. Rear work lights in the cab;
6. Alarm lights;
7. Arm frame work light.

3.3.2. Rear view mirror and wide-angle lens

1. Rear view mirrors: located on the left and right sides in front of the driver's cab. Before driving, the position of the rear view mirror should be adjusted to the appropriate angle.
2. Wide angle lens: located in the middle of the rear of the vehicle.

Figure 3.3.3 Traction Pin

Figure 3.3.4 Glass Water Tank

Figure 3.3.5 Cooling Water Tank

3.3.3. Traction pin

This device is located at the rear of the telehandler and is used to connect trailers and tow loads.

Before using a telehandler to tow a trailer, it is necessary to check whether the trailer's working condition is normal (tire condition, electrical connections, braking system, etc.).

Attention !

a. Do not tow trailers that are in poor working condition.
b. Under harsh conditions, towing a trailer can affect the steering and braking performance of the telehandler, thereby affecting safety.

3.3.4. Glass water tank

The glass water tank is located at the front frame of the cab, and the liquid level of the glass water should not be lower than 1/4.

Attention !

Ordinary water or other cleaning solutions must not be added, professional windshield washer fluid must be added.

3.3.5. Cooling water tank

The cooling water tank is located next to the cooler inside the casing, and the liquid level of the cooling water should be between the "High" and "Low" positions.

Figure 3.3.6 Hood Assembly

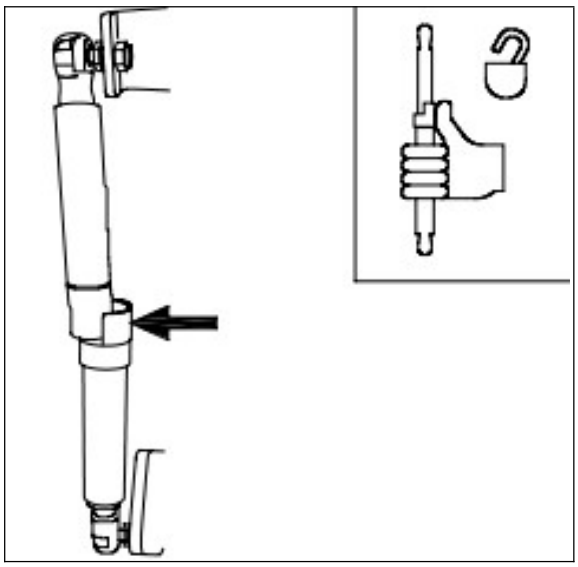


Figure 3.3.7 Gas Spring

Figure 3.3.8 Latch

3.3.6. Hood

The telehandler is equipped with a large opening hood for easy maintenance and repair services.

1) Open: With the help of the gas springs on both sides inside the hood, a small force can be used to fully open the hood upwards.
2) Close: First press the red button on one side of the gas spring cylinder, then slightly press down on the hood; Then press the red button on the other side of the gas spring again, and all the locks will be released. Press down firmly on the hood to close it. After hearing a clicking sound, it means that the hood is locked.

Warning

Do not step on the hood, as it cannot carry cargo.

3.3.7. Gas Spring

When the hood is opened, it is used to support the hood. When closing the hood, press the red button in the direction of the arrow shown in the diagram, and at the same time, press down firmly on the hood.

3.3.8. Latch

To prevent the hood from being opened arbitrarily, the machine is equipped with a locking component. To open the hood, the locking component button must be pressed first to unlock the hood.

Figure 3.3.9-1 Slow Charging Interface (T25-60XHYG)

Figure 3.3.9-2 Fast Charging Interface (T25-60XHYG)

Figure 3.3.9-3 Fast Charging and Slow Charging Interface (T35-100XHYG)

3.3.9. Charging interface

Slow charging interface

XT25-60XHYG model: Open the right side cover of the vehicle, and the slow charging interface is located inside the right box (upper right of the lithium battery);

XT35-100XHYG model: Open the right side cover of the vehicle, and the slow charging interface is located inside the right box (directly above the lithium battery);

Fast charging interface

XT25-60XHYG model: No need to open the cover, located in the lower right corner of the right box of the vehicle;

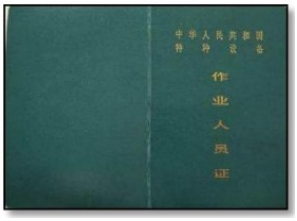
XT35-100XHYG model: Open the right side cover of the vehicle, and the slow charging interface is located directly above the lithium battery (next to the slow charging interface);

Chapter 4 Lithium Battery

4.1. Safety Notice

1) It is strictly prohibited to touch the battery box at any time to prevent electric shock. Before coming into contact with lithium batteries in special circumstances, insulated gloves and shoes should be worn.

2) Maintenance personnel are required to hold a qualified electrician certificate issued by the Safety Supervision Bureau and ENEROC maintenance authorization in order to carry out maintenance operations.



3) Insulated gloves must be worn when operating and maintaining the battery system, and wearing metal jewelry such as watches is strictly prohibited.

4) When cleaning the vehicle, it is forbidden to directly flush the battery system to prevent it from malfunctioning due to water ingress.

4.2. Installation Instructions

4.2.1. Installation Requirements

- Installation personnel must hold certificates, wear personal protective equipment, and pay attention to safety protection.
- Before installing the battery system, ensure that the low-voltage plug of the battery system is disconnected from the vehicle components.
- Attention should be paid to safety protection when connecting high-voltage power to prevent electric shock to installation personnel during the installation process.
- When installing the battery system, mechanical lifting should be used to slowly install it into the vehicle battery compartment, and attention should be

paid to not squeezing or damaging the electrical box and external cables.

- When connecting the battery system, avoid phenomena such as reverse polarity and short circuit of high-voltage positive and negative poles.
- If the battery system needs to be removed from the entire vehicle, ensure that the vehicle key is turned off and the high-voltage cables, low-voltage connectors, and the entire vehicle are disconnected.

4.2.2. Post installation inspection

- After installing the battery system, check the limit pins and fixing bolts of the battery system to confirm that they meet the installation requirements of the battery system.
- Check that the high-voltage cables and low-voltage connectors are connected correctly and securely.
- Turn the vehicle key switch to the ON position, and the relay should be able to close normally without any battery alarm. If there is a battery failure alarm, the power should be cut off immediately and our after-sales service department should be notified for resolution.

Warning

a. Wear protective equipment and use insulated tools during all disassembly and assembly processes; Before maintenance, the MSD maintenance switch on the lithium battery main box must be unplugged and wait for 15 to 20 minutes for the high-voltage system to be powered off.
b. During the entire battery system maintenance process, it is prohibited to wear any metal jewelry to avoid accidental short circuits that may cause personal injury or death.
c. When disassembling and assembling, it is necessary to make marks and install in order.
d. If a battery failure alarm occurs, the power supply must be cut off immediately.

4.3. Basic terminology of lithium batteries

- **Battery system:** usually includes one or more battery modules, battery management system, thermal management system, high and low voltage wiring harness, connectors, and energy storage devices composed of structural components.
- **SOC:** Refers to the percentage of remaining battery power.

- **Rated voltage:** an appropriate approximate value used to represent the battery voltage.
- **Rated capacity:** The capacity value indicated by the manufacturer that the battery can provide when fully charged under specified conditions.
- **Overdischarge:** The state in which the battery voltage is below the discharge cut-off voltage, usually referring to the state in which the battery enters after being completely discharged.
- **Overcharging:** When the battery voltage is higher than the maximum charging voltage, it is usually considered that the battery has entered an overcharged state.
- **Explosion:** The outer shell of the battery ruptures, and solid material inside rushes out of the battery, making a sound.
- **Fire:** Open flames are emitted from the battery casing.
- **Leakage:** The internal components of the battery (electrolyte or other substances) leak out from the storage tank.
- **CAN communication:** Control Area Network， Controller Area Network.

4.4. Instructions for use

- Battery temperature characteristics:

1) Allowable charging temperature:

0～55 ℃;

2) Allowable discharge temperature:

- 28～55℃；

3) Storage environment temperature:

- 28～55 ℃.

- Pre use inspection:

1) After the vehicle key switch is closed, confirm that there is no battery system alarm information on the dashboard.

2) Before use, please check the remaining battery level. It is recommended to use SOC between 50% and 100%.

3) When the SOC is below 30%, it is not recommended to continue using it. Please charge it as soon as possible.

- Charging instructions:

1) If the SOC of the battery system is below 20%, please charge it in a timely manner.

2) Please use the specialized charging equipment authorized by the manufacturer for charging.

3) If a fault alarm occurs during the charging process, both the battery system and the charger will stop charging.

4) The charging environment should be dry and ventilated, with no flammable or

explosive materials around.

5) The battery system should be fully charged once a week.

- Long term storage:

1) Before long-term storage, it should be confirmed that the battery system's power level is not less than 50%.

2) Charging maintenance should be carried out every three months: the battery should be charged to 100%.

3) If stored for more than three months, please confirm if there are any fault alarms in the power battery system before using it again. If there are, please contact our after-sales service department for maintenance.

4) The battery storage environment should be kept as dry and ventilated as possible, away from heat sources.

Attention !

When the ambient temperature is low, the charging time of the battery system will be extended, which is a normal phenomenon.

The battery management system will automatically adjust the charging time according to temperature changes to ensure optimal performance of the battery system.

4.5. First aid for electrical accidents

4.5.1. Emergency treatment for electric shock accidents

When rescuing injured personnel in electrical accidents, it is absolutely forbidden to directly touch any person who has contact with electricity.

If possible, the electrical system should be immediately powered off, and any insulating objects (such as wooden strips, bamboo poles, etc.) should be used to separate the accident victims or conductors from the discharge bodies.

When implementing first aid after an electric shock accident, if the accident victim does not respond, the following first aid measures should be taken:

1) Firstly, determine whether the victim has any signs of life, such as pulse and breathing;
2) Call the emergency doctor immediately, or have someone nearby call immediately;
3) Perform artificial respiration and cardiopulmonary compression until the doctor arrives;
4) If breathing stops, use non professional defibrillators (if available) for rescue.

If the accident victim can respond to inquiries, the following first aid measures should be taken:

1) Cool down the burn area and wrap it with sterilized lint free cloth;
2) Even if the accident victim refuses, they should be required to receive treatment (to avoid long-term sequelae).

4.5.2. Emergency treatment for high-voltage battery accidents

Warning

If the lithium-ion power battery system is soaked in water due to weather or special reasons, it is forbidden to power on the battery system, otherwise it may cause safety risks.

- When a telehandler or high-voltage battery catches fire, please perform the following operations according to the actual situation:

1) Turn off the vehicle key switch and disconnect the 12V battery if conditions permit;
2) Disconnect the maintenance switch;
3) Find a fire extinguisher nearby (excluding water-based fire extinguishers);
4) If the vehicle catches fire and the fire is small and slow, please use a dry powder fire extinguisher to extinguish the fire and immediately call for help;
5) If the fire is large and developing rapidly, please immediately stay away from vehicles and call the fire alarm to wait for rescue.

- If the high-voltage battery leaks (with obvious liquid flowing out), perform the following operations:

1) Turn off the vehicle's return key switch and disconnect the 12V battery if conditions permit.
2) Disconnect the maintenance switch.
3) When a small amount of leakage occurs, please stay away from the fire source, use a absorbent cloth to absorb and place it in a closed container, or dispose of it by incineration. Wear acid and alkali resistant gloves before operation.
4) When a large amount of leakage occurs, please collect it uniformly and handle it according to hazardous chemicals. Calcium gluconate solution can be added to treat the generated gas.
5) When the human body accidentally comes into contact with leaked liquid, it should be immediately rinsed with plenty of water for 10-15 minutes. If

there is pain, 2.5% calcium gluconate ointment can be applied, or 2% -2.5% calcium gluconate solution can be soaked to relieve pain. If there is no improvement or discomfort symptoms occur, please seek medical attention immediately.

4.6. MSD usage: Open and close

4.6.1. MSD on lithium battery main box

The MSD is located on the right side of the lithium battery main box. After opening the lithium battery door, the MSD maintenance switch can be seen.

The MSD maintenance switch is used to cut off the high-voltage circuit, that is, to cut off the high voltage between the battery and the whole machine. When the vehicle is maintained, inspected, repaired, or in other emergency situations such as electric shock, rain, flood, etc., please unplug the switch and wait for 15 to 20 minutes for the high-voltage system to power off.

4.6.2. MSD cutting steps

The following figure shows the position of the MSD maintenance switch installed on the lithium battery main box:

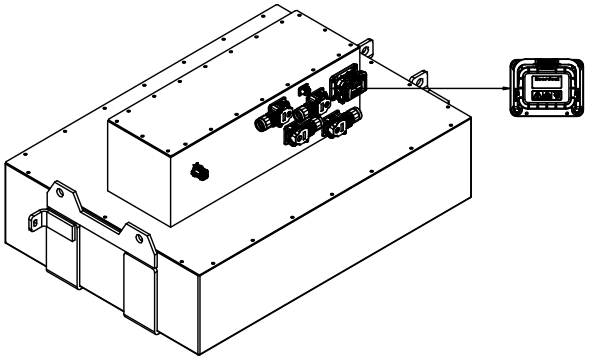


Figure 4.6.2 MSD Position

1) Pull out the locking terminal of the MSD handle, as shown in the figure:

2）Rotate the MSD black handle to the position shown in the following image.

3）Press the MSD buckle.

4)Pull out the MSD switch with force to disconnect the MSD.

5)MSD installation can be carried out in the order of steps 4/3/2/1.

4.7. Safety operation standards

4.7.1. Safety operation standards before maintenance

1) This battery operates at a maximum DC voltage of approximately 310V and has a large current during operation. Its high-voltage connection wire is orange and the high-voltage components are marked with warning signs.
2) Maintenance personnel must obtain authorization from Hangcha Group and possess a national special occupational certificate. In addition, maintenance personnel must strictly follow the operating requirements and standardize maintenance operations.

Figure 8.7.1 Warning Signs and Orange High Voltage Connection Lines

3) Before maintenance, a safety isolation area should be established and warning signs should be erected to alert personnel and avoid safety accidents.

4) Before repairing the battery pack, gloves, shoes, goggles, etc. composed of insulating protective equipment must be worn;
5) It is strictly prohibited to wear metal decorations during maintenance work;
6) Before inspecting the battery pack, ensure that all interfaces of the vehicle have been disconnected from the external high-voltage power supply;
7) Before repairing the battery pack, turn off the key switch and remove the MSD maintenance switch. Be sure to disconnect the high-voltage power battery power output line to prevent short circuits;
8) The maintenance site should be equipped with fire-fighting equipment, the battery pack storage area should be ventilated and dry, and there should be no combustibles around.

4.7.2. Safety operation standards during maintenance

1) Clearly identify the maintenance personnel for the high-voltage system and prevent unrelated personnel from touching the battery box during maintenance
2) If the repair cannot be completed in a short period of time, a "High Voltage Danger" label should be affixed to the high-voltage system components;
3) If the power battery is severely damaged, deformed, damaged or cracked, do not touch the power battery without wearing insulation protective equipment;
4) After disconnecting the high-voltage components, immediately wrap the exposed ends of the copper busbar and the high-voltage components with electrical insulation cloth, and perform insulation treatment;
5) During maintenance, it is necessary to keep the power battery box clean and dry, and mark the disassembled components for accurate and error free installation;
6) Disassemble the power battery box according to the correct steps, and the disassembled components must be properly stored in a dedicated area;
7) It is strictly prohibited to inspect and repair the power battery box while the high-voltage relay is closed to prevent electric shock to personnel.

Warning

a. Wear protective equipment and use insulated tools during all disassembly and assembly processes; Before maintenance, the MSD maintenance switch must be unplugged and wait for 15 to 20 minutes to power off the high-voltage system.
b. During the maintenance process, it is prohibited to wear any metal jewelry to avoid accidental short circuits that may cause personal injury or death.
c. When disassembling and assembling, it is necessary to make marks and install in order.

4.8. Operation and safety precautions

- Before coming into contact with lithium batteries in special circumstances, insulated gloves and shoes should be worn.
- It is not allowed to open the lithium battery box cover for maintenance. If the lithium battery has a malfunction, please contact the production enterprise in a timely manner.
- Reverse charging of batteries is strictly prohibited.
- Whether charging or discharging, it should be ensured that the battery management system is correctly connected and working normally to ensure normal communication of the battery management system.
- Do not use in places with strong static electricity and strong magnetic fields, otherwise it may damage the battery safety protection device and bring safety hazards.
- The battery system or battery box should be kept away from heat and fire sources, and avoid prolonged direct sunlight. Lithium batteries should not be directly baked or heated with hot water, otherwise it may cause explosions. It is not allowed to work in high-temperature environments.
- Do not place the battery pack in water or high humidity environments to avoid leakage or insulation failure.
- When working in a low-temperature environment, a slight decrease in battery system capacity is a normal phenomenon, and its performance will recover after the ambient temperature rises.
- It is prohibited to modify or dissect the battery system and battery box without authorization to avoid danger. Non professionals are not allowed to

disassemble the battery pack without authorization to prevent foreign objects from entering and causing combustion and explosion.

- Lithium batteries have dedicated chargers and should not be charged with other types of chargers to avoid damaging the lithium battery.
- It is prohibited to use this series of products in series or parallel with other models or types of batteries.
- Do not directly connect the positive and negative terminals of the battery box or battery system with metal or other conductors to avoid sparking or short circuiting; It is also prohibited to come into contact with or mix the battery pack with items that can cause short circuits.
- Avoid mechanical damage to the battery box, such as compression, puncture, vibration, impact, etc.
- If there is dust, metal shavings or other debris on the cover and pole of the battery pack, use compressed air or dry cloth to clean it in a timely manner. It is forbidden to use water or water soaked objects for cleaning.
- Configure dry powder fire extinguishers in the working environment.
- If the battery system experiences a sudden increase in temperature or abnormal odor, it should be stopped immediately and the power should be turned off. If smoking or fire occurs, stop the vehicle, turn off the power, and use a dry powder fire extinguisher to extinguish the fire while ensuring the safety of personnel.
- Charge in a well ventilated and dry environment.

4.9. Daily maintenance and storage of lithium batteries

Daily maintenance:

Check for any deformation in appearance, oxidation or paint peeling on the surface, offset in installation position, and damage to the casing.

Weekly maintenance:

Clean the lithium battery and its accessories with a dry cloth or compressed air.

Monthly maintenance

1) Check for water or foreign objects inside the plug and socket, and inspect for rust or burning.

2) Check for cable damage, loose joints, etc.

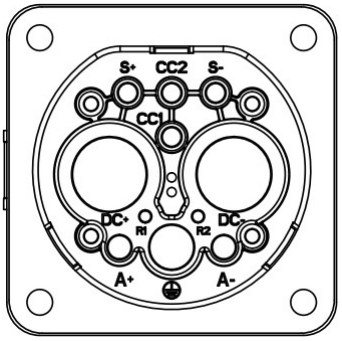
3) Check for any abnormal conditions such as cracks, deformation, swelling, etc. on the battery casing.

Storage:

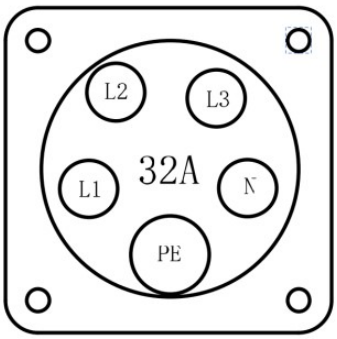
1) Store the battery in a clean, dry, and ventilated indoor environment with an ambient temperature of 20 ℃± 5 ℃. Do not invert it to avoid mechanical impact and heavy pressure.
2) Charge once a month.
3) The positive and negative terminals of the battery box are wrapped with high-voltage insulation sleeves or other insulation materials to ensure that no metal parts are exposed outside, in order to prevent short circuits. The diagnostic port should be dust-free and properly wrapped or covered.

4.9. Charging of lithium batteries

The electric telehandler is equipped with two charging interfaces: fast charging and slow charging.



(1) Fast charging interface



(2) Slow charging interface

Figure 4.10-1 Charging Interface

1) Fast charging interface: DC input;
2) Slow charging interface: 220V/380V AC input.

Figure 4.10-2 Schematic diagram of button lock

In order to ensure the reliable connection between the charging gun plug and the lithium battery socket, and to prevent the loosening of the lithium battery gun during the charging process, a lock buckle is installed on the lithium battery charging gun, which cannot be pulled out even with force.

Only by pressing the button on the charging gun and loosening the lock can the lithium battery charging gun be smoothly pulled out, otherwise it will cause the charging gun to malfunction.

Warning

a. When charging, please turn off the main power switch of the telehandler.
b. Do not charge when the following conditions exist:
- Battery damage or deformation;
- Charging cable detachment, twisting or deformation;
- Unstable charging voltage;
- There is water or foreign matter at the charging interface;
- The metal terminals of the charging interface are corroded.

c. It is prohibited to modify or dismantle the charging interface and its related equipment, as this may result in charging failures and accidents.
d. If abnormal odors or smoke are detected while charging the machine, please stop charging immediately.
e. Please use the charging gun correctly to avoid damaging parts or causing personal injury accidents:
- Prohibit oblique insertion of charging guns;
- Do not touch the charging gun barrel;
- Prohibit placing charging guns at will;
- Do not remove the charging gun while charging.

f. Do not touch the metal terminals in the charging port.
g. Do not plug the discharge plug of the battery into the charging socket, otherwise there will be no power supply in the vehicle circuit.

Attention !

- When the telehandler instrument displays 1 to 2 grids of electricity (i.e. 20% to 30% electricity), please charge it in a timely manner.
- Check the charging gun and lithium battery charging socket to ensure that there is no water or foreign matter in each port, and that the metal terminals are not damaged or affected by rust or corrosion.
- Please charge the battery in a relatively safe (such as away from liquids, sources of fire, etc.) and well ventilated environment.
- Please use the correct input voltage indicated on the charger for charging.
- Please use the specialized charging equipment authorized by the manufacturer for charging.
- Strictly charge the machine according to the requirements of the charging station and relevant laws and regulations.
- Please stay away from machines that are charging.
- After the battery is fully charged, the system will automatically stop charging.
- To stop charging, please turn off the power first, and then disconnect the charger from the charging interface.
- After charging is complete, do not cut off the charger with wet hands or standing in water.
- Before driving the machine, ensure that the charging gun is disconnected from the charging interface.
- When the temperature of the power battery is below -30 ℃ or above 65 ℃, the power battery cannot start charging. Only after preheating or cooling the power battery to a suitable temperature can it be charged normally.

On-board charger

Item	Parameter indicators	
	Three phase 3P	Single phase 1P
Charger model	FST-C-31030-3CF	
Enter technical parameters		
Input voltage	380VAC	110/220VAC
Input Current	30A	30A
Power	10.5kW	3/6kW
Frequency	45～65Hz	
Power factor	≥0.99	
Output technical parameters		
Rated output voltage	310VDC	
Rated output current	30A	
Output voltage accuracy	0.5%	
Output current accuracy	0.5%	
Efficiency	MAX 96%	
Working environment conditions		
Ambient Temperature	Full power operation at -40-50 ℃, linear power reduction operation at 55-65 ℃, shutdown above 65 ℃	
Storage temperature	-40～70℃	
Working altitude	≤4000m	
Protection function		
Input protection	Input overvoltage and undervoltage protection	
Output Protection	Output overvoltage and undervoltage protection	
Main power input current protection	Fuse protection	
Overcurrent protection	When the current is too high, reduce the current or turn off the charger	
Over temperature protection (derating)	When the temperature reaches the specified temperature limit, the power (derating) will be reduced	
Short circuit protection	Fuse protection	
Anti surge	Anti Surge protector	
Appearance and Protection		
Chassis size	Dimensions: 295 (length) x 298 (width) x 136 (height)	
Protection grade	IP67	
Other		
Communication	CAN communication	
Heat dissipation method	Fan cooled	
Noise	≤45dB	

Charger fault code

Fault code	Item	Handling measures
1	Battery overvoltage	Stop charging and check if the battery is overvoltage
2	Battery undervoltage	Stop charging and check if the battery is under voltage
3	Gun head lock malfunction	Stop charging and replace the output gun head of the charger
4	Gun tip overheating	Stop charging and wait for the charger output gun head to cool down
5	AC input overvoltage	Stop charging
6	AC input undervoltage	Stop charging
7	AC input phase missing (Three phase input only)	Stop charging and check if the input terminal wiring of the charger is loose, and if all three phases have voltage
8	Output voltage overvoltage	Stop charging and limit the output voltage of the charger
9	Output current overcurrent	Stop charging and limit the output current of the charger
10	Output short circuit fault	Stop charging and check if the positive and negative poles of the output are connected
11	Battery reverse connection fault	Stop charging and contact BMS manufacturer to check the positive and negative terminals of the battery
12	Charger overheating	Stop charging and wait for the charger to cool down
13	Insulation fault	Stop charging and check if the charger harness has come loose
14	Hardware fault	Stop charging, contact the charger manufacturer
15	Fan fault	Stop charging and check if the fan can rotate normally
16	Other hardware malfunctions	Stop charging, contact the charger manufacturer for checking

Chapter 5 lead-acid battery

5.1. Lead acid batteries and their applications

As a starting power source for engines, batteries are used for voltage stabilization and as a substitute for overloaded generators. They have the characteristics of low internal resistance, stable terminal voltage, high power supply current, low water consumption, large capacity, good low-temperature starting performance, light pole corrosion, small size, light weight, low failure rate, and easy use and maintenance.

The maintenance free battery is equipped with a power display (electric eye) and two ventilation holes on the side (allowing a small amount of gas generated by the battery to overflow). In addition, all maintenance free batteries are sealed. There is also a battery level display on the maintenance battery, and a liquid filling port is left on the battery cover, equipped with corresponding vent plugs.

5.2. Storage and maintenance of batteries

5.2.1. Battery Storage

When the vehicle is stopped, the battery needs to be removed from the vehicle and stored in a clean, dry, and ventilated environment, and the battery needs to be charged every 3 months.

5.2.2. Battery maintenance

- Ensure that the battery terminals are not corroded, the connection parts are not loose, there are no cracks on the outside, and the fixing clips are not loose.
- Regularly check and clean the battery vent holes to ensure that they are not blocked. In winter, it is also necessary to regularly check and clean the accumulated water in the vent holes to prevent them from being blocked by ice water.

5.3. Inspection and maintenance of batteries

Inspection of maintenance free batteries

The maintenance free battery is equipped with a power display:

1. When the battery capacity is normal and the electrolyte density meets the standard, observe that the display status of the electric eye turns green;

2. When the battery capacity is insufficient and the density of the electrolyte decreases, observe that the display status of the electric eye turns white;

3. If the display status of the electric eye turns red, it indicates a severe shortage of electrolyte, and the casing should be carefully inspected for any cracks, leaks, or battery malfunctions.

Figure 7.2.2-2 Battery Display

4. The display status of lead-acid batteries can be found in the instructions on the battery label.

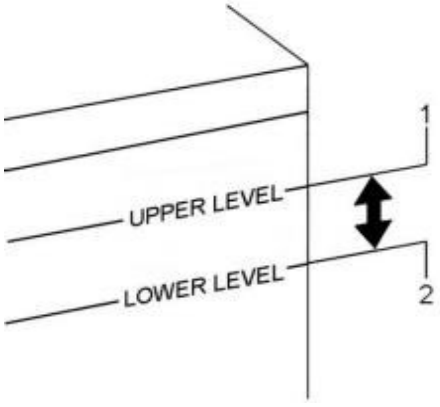
Maintenance of maintenance free batteries

1) Ensure that the green status is visible on the built-in power display (electric eye) of the lead-acid battery;
2) Disconnect the negative grounding wire of the battery to prevent battery discharge caused by additional current discharge;
3) When the battery cannot be removed from the vehicle, it should be kept fully charged;
4) Develop a regular schedule to charge the battery every 30-45 days;
5) When the green status cannot be seen through the electric eye, the battery should be checked, charged or replaced.

Maintenance free battery inspection

Due to the high temperature environment in which telehandlers are used, the battery is prone to water consumption. Please pay attention to the liquid level during use.

The battery cover has a liquid filling port. When the liquid level is below LOWER LEVEL, please add distilled water to UPPER LEVEL. Do not add too much, otherwise the electrolyte will overflow and corrode the vehicle!



1: High position; 2: Low position

Figure 7.2.2-1 Liquid Level Diagram

Check the liquid level is between UPPER LEVEL and LOWER LEVEL. If the liquid level is at or below the low level, distilled water needs to be added.

There is also a battery level display on the maintenance free battery:

1. When the battery capacity is normal and the electrolyte density meets the standard, observe that the display status of the electric eye turns green;

2. When the battery capacity is insufficient and the density of the electrolyte decreases, observe that the display status of the electric eye turns white;

3. If the display status of the electric eye turns red, it indicates a severe shortage of electrolyte, and the casing should be carefully inspected for any cracks, leaks, or battery malfunctions.

4. For the display status of lead-acid batteries, please refer to the instructions on the battery label.

Maintenance free batteries

1) Ensure that the electrolyte level of the lead-acid battery is at UPPER LEVEL and the green status is visible on the power display (eye);
2) Disconnect the negative grounding wire of the battery to prevent battery discharge caused by additional current discharge;
3) When the battery cannot be removed from the vehicle, it should be kept fully charged;
4) Develop a regular schedule to charge the battery every 30-45 days;
5) When the electrolyte level of the lead-acid battery is lower than the lowest level LOWER LEVEL, please add distilled water to the highest level UPPER LEVEL, then reinstall the vent plug and tighten it.

Attention !

When adding distilled water, avoid adding too much, otherwise water may overflow during the recharging process and cause corrosion.

5.3.1. Before recharging

When recharging, the hydrogen gas generated by the battery is a flammable and explosive gas. Therefore, the following precautions should be taken before operation：

1) If recharging the battery still installed in the vehicle, be sure to disconnect the grounding cable.
2) When connecting or disconnecting the charger cable connected to the battery, ensure that the power switch on the charger is turned off.

Attention !

a. The safe place for battery charging should be in an open area. Do not

charge batteries in poorly ventilated garages or enclosed rooms.

b. Do not charge the battery while the engine is running. Be sure to close all attachments.

5.4. Precautions for battery use

Batteries can produce explosive gases, the electrolyte is corrosive, and the battery can generate a current that can burn the skin. When handling or working near batteries,the following precautions should be followed:

Warning

a. When working near batteries, safety goggles should be worn.
b. Do not use tools to touch the battery terminals and generate sparks.
c. Do not expose the battery to open flames and sparks.
d. When connecting the battery to electrical equipment, attention should be paid to the correct connection of the positive and negative poles of the electrical equipment and the battery to prevent burning out the electrical equipment or battery.
e. Do not cover the battery with conductive materials to prevent short circuits.
f. Avoid splashing electrolyte onto eyes, skin, or clothing.
g. Do not let children get close to the battery.

Emergency measures for electrolyte

1) If the electrolyte accidentally splashes into the eyes:

Rinse your eyes with clean water for at least 15 minutes and seek medical attention immediately. If possible, continue to use absorbent sponges or cloths to clean the eyes during medical treatment.

2) If the electrolyte splashes onto the skin:

Thoroughly clean the area. If there is burning pain, seek medical attention immediately.

3) If the electrolyte splashes onto clothes:

It may penetrate clothing and stick to the skin. Take off your clothes immediately and take the above measures if necessary.

Chapter 6 Operating instructions

6.1. Precautions

- Regular daily maintenance.
- Ensure that the car lights, indicator lights, windshield, and wipers are working properly.
- Ensure that the rearview mirror is in good working condition, clean, and positioned correctly.
- Ensure that the horn is working properly.
- When entering and leaving the cab, always face the vehicle and maintain three-point contact (hands and feet).
- Do not use headphones when operating the machine.
- Do not operate the machine when oily substances are stuck on your hands or feet.
- It is prohibited to adjust the seat status while the vehicle is in motion.
- Do not extend your arms, legs, or any part of your body out of the cab while operating the machine.
- When operating the machine, it is necessary to wear a safety belt.
- Prohibit carrying additional personnel on telehandler.
- No one is allowed to approach the working area of the telehandler or pass under the arm and load.
- Before lifting or removing the load, ensure that the ground beneath the wheels and legs is stable and firm.
- Do not stack goods on sloping ground, otherwise the goods may overturn.

6.2. Pre operation inspection

Basic principle

- Pre operation inspection and routine maintenance are the responsibilities of operators.
- The pre operation inspection is a very intuitive inspection process, which is performed by the operator before each job change. The purpose of inspection is to detect any obvious problems with the machine before use.
- Pre operation checks can also be used to determine whether routine maintenance procedures are required. Operators can only perform routine maintenance tasks as specified in the manual.
- Please review and check each item in this chapter.
- If the machine is found to be damaged or has any unauthorized changes that differ from its factory condition, the use of the machine should be recorded and stopped.

- Only qualified maintenance technicians can repair machines. After the repair is completed, it is necessary to perform a pre operation inspection.
- According to the manufacturer's regulations and the requirements listed in the manual, regular maintenance checks should be performed by qualified maintenance technicians.

Pre operation inspection items

- Ensure that the manual is complete, easy to read, and properly stored. If you need to replace the manual, please contact the customer service personnel of Hangcha Group Co., Ltd.
- Ensure that all markings are clear, easy to read, and positioned appropriately. Please refer to the "1.2 Whole Machine Identification" section for the location and form of the identification. If you need to change the logo, please contact the customer service personnel of Hangcha Group Co., Ltd.
- Please refer to the "Maintenance" section to check for hydraulic oil leaks and the appropriate oil level, and add hydraulic oil as needed.
- Check if the battery fluid leaks and if the wiring is secure.
- Please refer to the "Maintenance" section to check if the engine oil leaks and if the oil level is appropriate, and add oil as needed.
- Check whether the engine fuel leaks and whether the fuel level is appropriate. When the fuel level is low, please add fuel in a timely manner.
- Check the engine malfunction indicator light. If the indicator light is on, immediately shut down the engine and record the machine malfunction. Contact service personnel for checking.
- Please refer to the "Maintenance" section to check if the engine coolant is leaking and if the coolant level is appropriate. Add coolant as needed.
- Check the following components for damage, improper installation, looseness, loss, and unauthorized changes:

1) Electrical plugs, wiring, and cables;
2) Control handle, rocker switch;
3) Tilt angle sensor, long angle sensor, pressure sensor;
4) Display screen, alarm indicator light, warning light, horn;
5) Valve block, hose, hydraulic connector, oil cylinder, motor; Reducer;
6) Hydraulic oil tank, cooling water tank, glass water tank;

7) Arm slider, tire pressure, slewing support;
8) Front and rear axles;
9) Support legs;
10) Batteries and their accessories;
11) Rear view mirror;
12) Pallet forks and other accessories;
13) Nuts, bolts, and other fasteners.

- Check the entire machine to find:

1) Cracks in welds or structural components;
2) Dents or damage to the machine;
3) Severe rusting, corrosion, or oxidation phenomena.

- Ensure that all structural components and other critical parts are intact, all relevant fasteners and pins are in the correct position and tightened, and after inspection, ensure that the hood is properly positioned and locked.

6.3. Workplace Inspection

Basic principle

- Workplace inspections help operators determine whether the workplace can ensure safe operation of machines. Before moving the machine to the workplace, the operator should first perform this task.
- Understanding and remembering the hazards in the workplace is the responsibility of operators, who should pay attention to and avoid these issues when moving, installing, and operating machines.

Workplace inspection items

- Pay attention to and avoid the following dangerous situations:

(1) Steep slopes or openings;
(2) Protrusions, ground obstacles, or debris;
(3) Sloping surfaces that exceed the vehicle's leveling capability;
(4) Unstable or slippery surfaces;
(5) Aerial obstacles and high-voltage power lines;
(6) A surface support that is insufficient to withstand all the load force applied by the machine;
(7) Wind conditions with excessive instantaneous wind speed;
(8) The environmental temperature and humidity do not meet the requirements;
(9) Unauthorized personnel are present in the work area;
(10) Other possible unsafe situations.

6.4. Startup

6.4.1. Safety precautions

1) Only when the operator is sitting in the cab, adjusting and fastening the seat belt, can the telehandler be started or operated;

2) Do not start the telehandler by pushing or pulling it. This operation may cause serious damage to the gearbox. If necessary, when towing a telehandler in emergency situations, the gearbox must be placed in neutral;

3) If an emergency battery is needed, please use a battery with the same characteristics as the original battery. First, disconnect the power switch and pay attention to the polarity of the battery when connecting. Connect the positive terminal first and then the negative terminal;

4) Check the closure and locking of the engine hood;

5) Check if the cab door is completely closed;

6) Check if the shift switch is in neutral.

6.4.2.Startup steps

Electric type:

1) Place the gear shift switch in neutral position;

2) Turn the key switch to start the electrical system and preheat (automatic preheating);

3) Check whether the dashboard indicator symbols, longitudinal stability limits, and alarm devices are normal. If they are not normal, please troubleshoot before starting the machine.

4) After starting the vehicle, if any malfunction is displayed on the instrument panel, please immediately perform the necessary response operations.

6.5. Driving

6.5.1. Safety precautions

1) Please comply with local traffic rules;

2) It is prohibited to operate beyond the rated load of the telehandler or the carrying capacity of the pallet fork;

3) Retract the arm and lower the accessory close to the ground;

4) Only load balanced and correctly positioned or fixed loads on attachments to avoid load shedding;

5) When loading goods or lifting the arm at an angle greater than 30 °, the traveling speed of the telehandler cannot exceed 10Km/h;

6) Do not operate the boom while the

vehicle is in motion;

7) Do not change the steering mode while the vehicle is in motion;

8) Do not change the forward/reverse gear of the shift switch while the vehicle is in motion;

9) When braking, the service brake pedal should be used reasonably according to the actual situation, and sudden braking should be avoided;

10) Do not drive on the edge of ditches or steep slopes;

11) Drive slowly on damp, slippery, or uneven terrain;

12) Ensure that the service brakes are working properly.

6.5.2. Driving

1) Retract and lower the arm frame;

2) Choose the appropriate gear;

3) Select the appropriate steering mode. Before changing the steering mode, please align the wheels. For the operation of wheel alignment, please refer to section 3.2.17 on steering modes;

4) Press the horn before driving to alert others that the vehicle is about to start;

5) Step on the service brake pedal;

6) Turn off the parking brake;

7) According to the direction of travel, select the forward/reverse mode, slowly release the service brake pedal, the vehicle obtains initial speed, and then slowly accelerates, using lights and rearview mirrors reasonably.

6.5.3. Braking

Attention !

a. When the vehicle comes to a stop, the parking brake must be activated!
b. Do not start the vehicle until the parking brake indicator is turned off!
c. In some cases, the braking force of the parking brake may not be sufficient to stop a fully loaded vehicle on a slope, so when parking on a slope, use pads to cushion the wheels.

To make the vehicle stop smoothly, the following steps should be followed:

1) When driving, if braking is required, the accelerator pedal should be released first to reduce the speed of the vehicle;

2) As you approach the parking spot, gently step on the service brake pedal to bring the vehicle to a slow stop;

3) After the vehicle comes to a complete stop, first apply the parking brake and then place the gear shift switch in neutral position.

When braking, pay attention to the following:

1) When braking, if there is no emergency situation, sudden braking should be avoided. If the service brake pedal is rapidly and violently pressed to the bottom without being released, it may cause vehicle accidents, resulting in component damage or personal injury;
2) During driving, if the fault indicator light of the brake system's accumulator lights up, the vehicle should be stopped immediately, and the problem should be found and resolved.

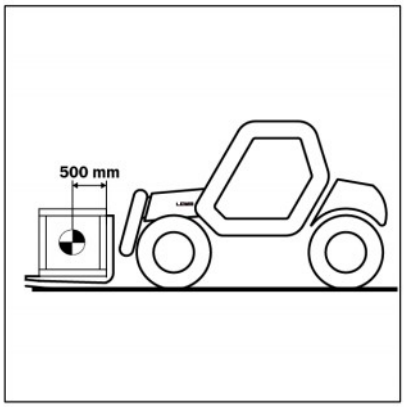
6.6. Parking

1) Park the vehicle steadily and activate the parking brake;
2) Place the gear shift switch in neutral position;
3) Fully retract the boom and lower the pallet fork to the ground;
4) Turn off the vehicle lights;
5) Turn off the vehicle, remove the key, and lock the doors.

6.7. Loading

6.7.1. Mass and center of gravity of the load

1) Before transporting goods, you must know its approximate mass and center of gravity position;



2) The load chart is applicable to loads where the longitudinal position of the center of gravity and the distance between the pallet forks are less than or equal to 500mm.

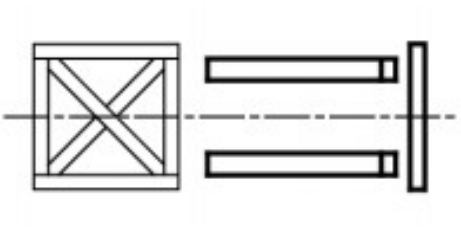
Warning

a. It is prohibited to move the weight beyond the load specified on the telehandler load gauge.
b. For loads with a moving center of gravity (such as liquids), the change in center of gravity should be considered.
c. When picking up and placing goods, always pay attention to the lateral stability and longitudinal stability alarm devices of the vehicle.

6.7.2. Loading and unloading ground goods

1) Retract and lower the arm frame to make the pallet forks horizontal, and

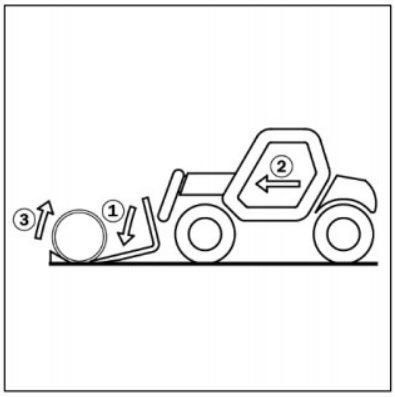
adjust the pallet forks spacing according to the load situation;



Warning

Do not use a single pallet fork to lift goods.

2) Slowly move the telehandler forward and slightly lift the boom to the transport position. Tilt the pallet fork backwards to ensure the stability of the cargo;



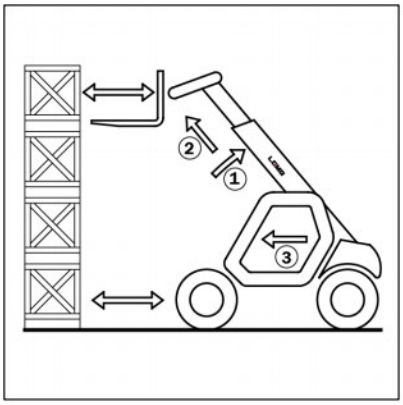
3) For non pallet loads: Before lifting the load, tilt the fork pallets forward, insert the pallet fork under the load, and then tilt the fork backward to lift the load (if necessary, measures should be taken to prevent the load from moving).

6.7.3. Lifting and Placing High Altitude Goods

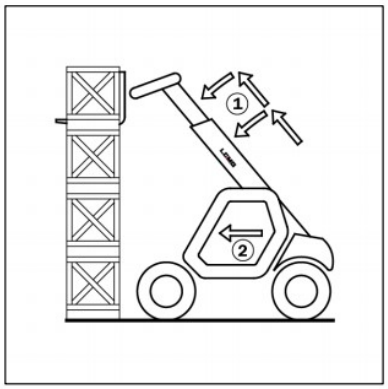
Attention !

Before lifting the boom, the lateral position of the telehandler should be checked to ensure it is level.

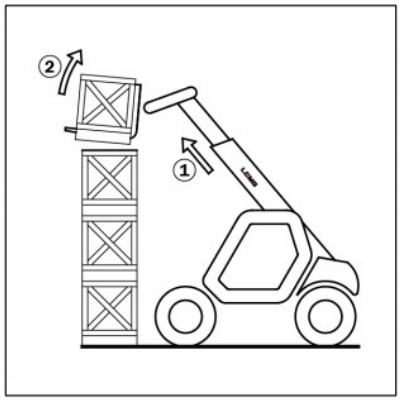
Lifting goods:



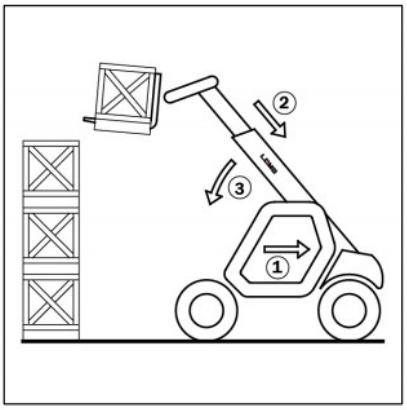
1) Lift and extend the boom until the pallet fork is level with the load, and if necessary, slowly move the telehandler forward;
2) Always maintain a certain distance between the goods and the telehandler, and minimize the extension length of the boom;



3) By alternately extending and retracting the boom or moving the telehandler forward, insert the pallet fork into the bottom of the cargo, then activate the parking brake and place the shift switch in neutral;

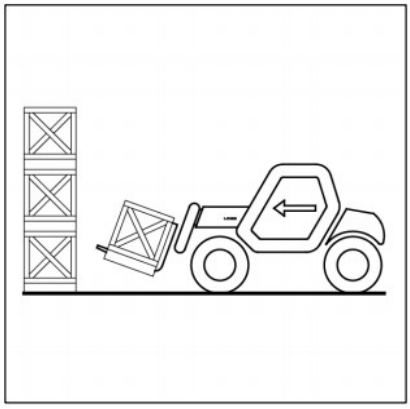


4) Slightly increase the load and tilt the fork backwards to stabilize the load. If the load is too heavy, it should be returned to its original position;

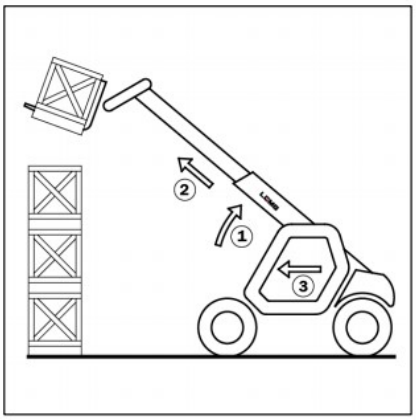


5) Move the vehicle backwards (if necessary), retract and lower the boom to bring the goods into the transport position.

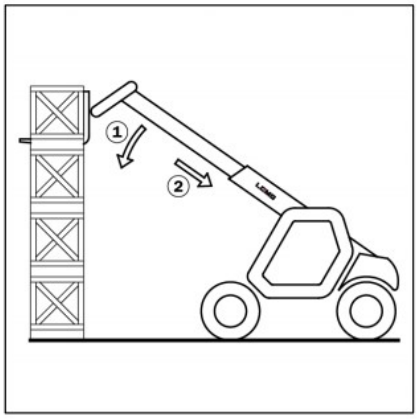
Placing goods:



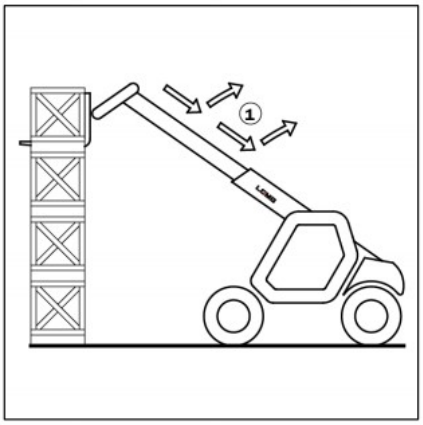
1) Drive the machine close to the place where goods need to be placed;
2) Activate the parking brake and set the gear shift switch to neutral;



3) Lift and extend the arm until the pallet fork reaches above the loading position, allowing the vehicle to move forward;



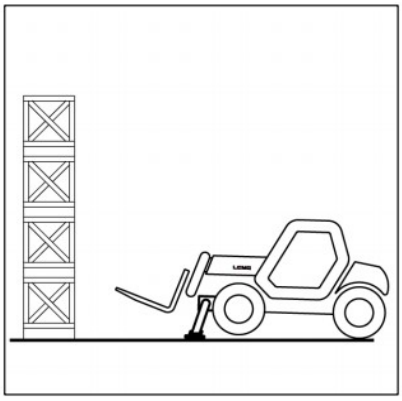
4) Keep the load in a horizontal position. Place goods by lowering and retracting the arm frame;



5) Retract and lower the arm to retract the fork, allowing the goods to reach the transport position and move the vehicle backwards

6.7.4. Leg usage

Raise the legs when the pallet fork is in the transport position:

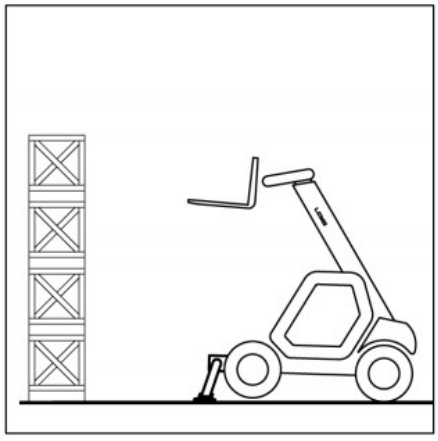


1) Adequate distance should be maintained between the vehicle and the cargo;
2) Activate the parking brake and set the gear shift switch to neutral;
3) Raise the support legs to keep the front wheels off the ground and level the vehicle body;
4) Pick up or release goods.

Warning

When raising the support legs and lifting the boom, the telehandler should be kept in a stable horizontal position.

Raise the support legs in the raised state of the arm frame:

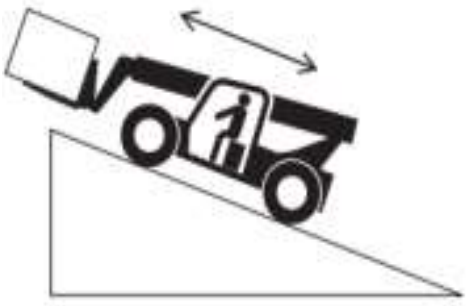


1) Keep the boom raised and fully retracted;
2) Activate the parking brake and set the gear shift switch to neutral;
3) Slowly raise the legs and maintain a horizontal position horizontally;
4) Pick up or release goods.

6.8. Operating on a slope

To ensure sufficient traction and braking performance of the telehandler when driving on a slope, please follow the instructions below:

1) Reasonably control the force of stepping on the accelerator and brake pedals when going up and down hills;



2) When going uphill, whether in an unloaded or loaded state, the direction along the fork should be uphill;

3) When going downhill, if it is empty, go downhill in the direction of the pallet fork downwards; If there is a load, descend the slope in the upward direction along the pallet fork.

Attention !

a. When going downhill, the vehicle speed gear should be lowered and the service brake should be used if necessary to maintain low-speed driving.
b. If the vehicle must be parked on a slope, it is necessary to use pads to support the wheels.

6.9. Use of Security Support

Instructions for using safety support

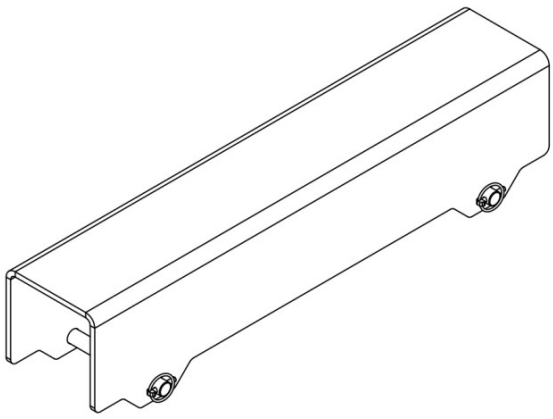


Figure 4.9-1 Arm Safety Support

Telehandler are equipped with boom safety supports. When working in the area below the boom, it must be installed on the piston rod of the main slewing oil cylinder.

Install safety support:

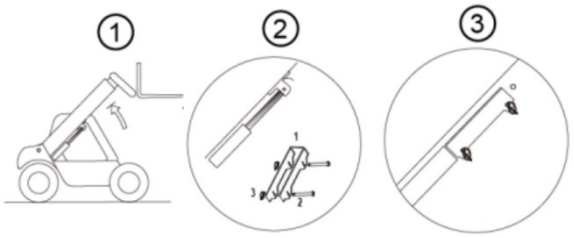


Figure 4.9-2 Safety Support Usage Instructions

1) Fully raise the arm frame;
2) Assemble the safety support on the piston rod of the main variable amplitude oil cylinder and fix it with a pin shaft;
3) Slowly lower the boom and stop the descent before the boom comes into contact with the safety support, allowing the safety support to provide protection.

6.10. Scrap description

Metal

- The metal on the vehicle can be 100% recycled.

Plastics

- Most plastic components on vehicles are made of "thermoplastic" plastics, which are easy to recycle through melting and granulation.

Rubber

- Tires and seals can be ground to obtain reusable particles or used to manufacture cement.

Glass

- Glass products can be disassembled, removed, and collected for recycling by glass processing plants.

Worn or damaged parts

- Prohibited from being discarded at will.
- Please handle worn or damaged parts in an environmentally friendly manner.

Oils

- Do not dump at will.
- Please handle the oil in an environmentally friendly manner.

Battery

- Do not dispose of batteries at will, as they contain metals that are harmful to the environment.
- Please dispose of the battery in an environmentally friendly manner.

Chapter 7 Maintenance

Serious and comprehensive maintenance can keep the telehandler in good working condition, ensuring the safety of the telehandler and ensuring your work and life safety.

7.1. Maintenance Overview

(1) Telehandler need regular inspection and maintenance to keep them in good performance condition.

(2) Inspection and maintenance are often overlooked, and problems should be detected early and resolved promptly.

(3) Use genuine spare parts from Hangcha Group.

(4) Do not use different types of oil when replacing or adding oil.

(5) The replaced waste oil and cooling waste liquid should not be dumped at will and should be disposed of in accordance with local environmental laws and regulations.

(6) Develop a comprehensive maintenance and repair plan.

(7) A complete record should be kept after each maintenance and repair.

(8) Without training, repairing telehandler is prohibited.

(9) Modifying telehandler by users may introduce hazards or risks that the manufacturer has not considered, rendering existing risk assessments ineffective. Telehandler modification outside of Europe must comply with regional requirements (see ISO/TS3691-8).

Attention !

a. Smoking is strictly prohibited!
b. Before maintenance, the key switch should be turned off first. (Except for partial obstacle elimination examinations).
c. Please use compressed air to clean the electrical parts, do not clean with water.
d. Do not insert your hands, feet, or any part of your body between the door frame and the dashboard.

7.2.Regular maintenance schedule

D=Every 8 hours of operation (or every day)

W=Every 40 hours of operation (or every week)

M=Every 250 hours of operation (or every one and a half months)

T=Every 500 hours of operation (or every three months)

S=Every 1000 hours of operation (or every six months)

Y=Every 2000 hours of operation (or annually)

2Y=Every 4000 hours of operation (or every 2 years)

○—Check, calibrate, adjust ×—Replace

Electrical system

Lithium battery

Item	Content	Tool	D	W	M	T	S	Y	2Y
Lithium battery	Tightening situation of lithium battery installation		○	○	○	○	○	○	○
	Cleaning of lithium battery charging socket				○	○	○	○	○
	The contact of the lithium battery charging socket is damaged or corroded		○	○	○	○	○	○	○
	Is there water in the contacts of the lithium battery charging socket? Remove it		○	○	○	○	○	○	○
	Is the dust cover of the lithium battery charging socket intact				○	○	○	○	○
	Is the lithium battery casing damaged		○	○	○	○	○	○	○
	Battery level		○	○	○	○	○	○	○
	Stay away from fireworks		○	○	○	○	○	○	○

Attention !

Inspection and maintenance should only be carried out when there is a power outage, and safety precautions and operating procedures should comply with the safety precautions and operating procedures of telehandler.

Cooling system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Cooling system	Coolant volume		○	○	○	○	○	○	○
	Leakage situation		○	○	○	○	○	○	○
	Replace the coolant							×	×
	Clean the exterior of the water tank (do not rinse with water)				○[1]	○	○	○	○
	Performance and installation of water tank cover			○	○	○	○	○	○
	Aging condition of inlet and outlet pipes					○	○	○	○

Note: During summer, clean the exterior of the water tank once a month.

Attention !

Inspection and maintenance should only be carried out when there is a power outage, and safety precautions and operating procedures should comply with the safety precautions and operating procedures of telehandler.

Motor and its controller

Item	Content	Tool	D	W	M	T	S	Y	2Y
Two in one motor controller	Check if the high-voltage harness connector is loose					○	○	○	○
	Visually inspect the integrity of insulation protection					○	○	○	○
Controller	Check if the connection between the battery and the controller is in good condition					○	○	○	○
	Check the controller for faults and determine if the system is functioning properly								○
Motor	Remove foreign objects from the motor casing (do not rinse with water)				○	○	○	○	○

Attention !

Inspection and maintenance should only be carried out when there is a power outage, and safety precautions and operating procedures should comply with the safety precautions and operating procedures of telehandler.

Electrical system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Emergency power off Button	Work and installation situation		○	○	○	○	○	○	○
Seat perception system	Work and installation situation		○	○	○	○	○	○	○
Rocker switch	Work and installation situation		○	○	○	○	○	○	○
Reverser	Work and installation situation		○	○	○	○	○	○	○
Combination switch (steering, lighting)	Working condition of left and right steering switches		○	○	○	○	○	○	○
	Light level and working condition		○	○	○	○	○	○	○
Horn	Work and installation situation		○	○	○	○	○	○	○
Lights and bulbs	Work and installation situation		○	○	○	○	○	○	○
Reverse buzzer	Work and installation situation		○	○	○	○	○	○	○
Instrument	Instrument operation status		○	○	○	○	○	○	○
Low voltage wiring harness	Damage and looseness of wiring harness		○	○	○	○	○	○	○
	Loose circuit connections		○	○	○	○	○	○	○
High voltage cable	Cable damage and aging situation		○	○	○	○	○	○	○
	Loose cable connections		○	○	○	○	○	○	○

Attention !

Inspection and maintenance should only be carried out when there is a power outage, and safety precautions and operating procedures should comply with the safety precautions and operating procedures of telehandler.

Vehicle body system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Frame and side doors	Is the frame cracked				○	○	○	○	○
	Is the right door lock buckle component working properly		○	○	○	○	○	○	○
	Is the right door open properly				○	○	○	○	○
	Tightening condition of protective pole		○	○	○	○	○	○	○
Overhead guard	Is the installation secure	Testing hammer	○	○	○	○	○	○	○
	Check for deformation, cracking, and damage		○	○	○	○	○	○	○
Seat	Check if the bolts are damaged or loose					○	○	○	○
	Check if the seat belt is loose, damaged, or broken		○	○	○	○	○	○	○
Balance weight	Check for loose bolts at the connection with the frame				○	○	○	○	○

Wheels (front and rear)

Item	Content	Tool	D	W	M	T	S	Y	2Y
Tire	Inflation pressure	Barometer	○	○	○	○	○	○	○
	Wear, cracks or damage		○	○	○	○	○	○	○
	Are there nails, stones, or other foreign objects on the tires				○	○	○	○	○
	Wheel rim damage situation		○	○	○	○	○	○	○
	Check the tightening torque of the rear wheel nut T=596-714N · m	Torque wrench	○	○	○	○	○	○	○

Steering and transmission system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Steering wheel	Check the gap		○	○	○	○	○	○	○
	Check for axial looseness		○	○	○	○	○	○	○
	Check for radial looseness		○	○	○	○	○	○	○
	Check the operation status		○	○	○	○	○	○	○
Steering gear	Check if the installation bolts are loose				○	○	○	○	○
Steering knuckle	Check if the kingpin are loose or damaged				○	○	○	○	○
	Check for bending, deformation, cracks, or damage				○	○	○	○	○
	Check the installation status	Testing hammer			○	○	○	○	○
Steering cylinder	Check the operation status		○	○	○	○	○	○	○
	Check for leakage		○	○	○	○	○	○	○
	Check for looseness during installation and articulation				○	○	○	○	○
Steering drive axle	Is there any noise		○	○	○	○	○	○	○
	Check for leakage		○	○	○	○	○	○	○
	Replace gear oil (axle, gearbox, main reducer)						×[1]	×	×
	Check for loose wheel hub bearings and noise			○	○	○	○	○	○
	Check the deformation, cracks or damage of the bridge body				○	○	○	○	○
	Check for loose bolts at the connection with the frame				○	○	○	○	○

Note: 1. The first time to replace the steering drive axle gear oil：50 hours.

Braking system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Brake pedal	Noncutting stroke	Dividing rule	○	○	○	○	○	○	○
	Pedal stroke		○	○	○	○	○	○	○
	Operation situation		○	○	○	○	○	○	○
	Is there air in the brake pipeline		○	○	○	○	○	○	○
Parking brake control	Is the braking safe, reliable, and has sufficient travel		○	○	○	○	○	○	○
	Maneuverability		○	○	○	○	○	○	○
Pole, cable, etc	Maneuverability				○	○	○	○	○
	Is the connection loose				○	○	○	○	○
	Wear condition of the connection joint with the gearbox					○	○	○	○
Piping	Damage, leakage, and rupture				○	○	○	○	○
	Connection, clamping position, and looseness situation				○	○	○	○	○
Brake master cylinder sub cylinder	Leakage situation		○	○	○	○	○	○	○
	Check the oil level and change the oil		○	○	○	○	×	×	×
	Action status of master cylinder and sub pump					○	○	○	○
	Leakage and damage of the main and sub pumps					○	○	○	○
	Replace the worn and damaged piston cups and one-way valves of the master cylinder and sub cylinder							×	×
Wet brake	Brake performance inspection		○	○	○	○	○	○	○
	Damage, leakage, and rupture			○	○	○	○	○	○
	Friction pad and brake pad assembly inspection								×

Lifting system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Arm frame and pallet fork frame	Is there any cracking or damage at the welding point between the lifting cylinder bracket and the boom		○	○	○	○	○	○	○
	Is there any poor welding, cracking, or damage at the welding point between the compensating oil cylinder bracket and the arm bracket		○	○	○	○	○	○	○
	Are there any poor welding, cracking, or damage to the arm supports at all levels		○	○	○	○	○	○	○
	Is the pallet fork frame poorly welded, cracked, or damaged		○	○	○	○	○	○	○
	Arm lubrication		○	○	○	○	○	○	○
	Is the roller loose		○	○	○	○	○	○	○
	Wear and damage of each supporting bearing of the arm frame		○	○	○	○	○	○	○
	Is the fixing bolt of the arm frame slider loose	Testing hammer	○	○	○	○	○	○	○
	Are the ear plate fixing bolts of the lifting cylinder and compensating cylinder pin shaft loose	Testing hammer	○	○	○	○	○	○	○
	Cracking and damage of rollers, shafts, and welding parts		○	○	○	○	○	○	○
Chain sprocket	Check the tension status of the chain, whether it is deformed, damaged, or corroded		○	○	○	○	○	○	○
	Chain lubrication		○	○	○	○	○	○	○
	Rivet pins and looseness situation		○	○	○	○	○	○	○
	Deformation and damage of sprocket				○	○	○	○	○
	Is the sprocket bearing loose				○	○	○	○	○
Attached Tools	Check if the status is normal				○	○	○	○	○
Pallet forks	Damage, deformation, and wear of pallet forks		○	○	○	○	○	○	○
	Damage and wear of positioning pins		○	○	○	○	○	○	○
	Cracking and wear of the welding part of the hook at the base of the pallet forks		○	○	○	○	○	○	○

Lifting components	Check the looseness of the fixing bolts				○	○	○	○	○
Shelves and roof protectors	Is the installation secure	Testing hammer	○	○	○	○	○	○	○
	Check for deformation, cracking, and damage		○	○	○	○	○	○	○
Hydraulic cylinder	Whether the piston rod, piston rod threads, and connections are loose, deformed, or damaged	Testing hammer	○	○	○	○	○	○	○
	Operation situation		○	○	○	○	○	○	○
	Leakage situation		○	○	○	○	○	○	○
	Wear and damage of steel back bearings in kingpin and oil cylinders		○	○	○	○	○	○	○

Hydraulic system

Item	Content	Tool	D	W	M	T	S	Y	2Y
Hydraulic oil tank	Oil level check and oil change		○	○	○	○	○	×	×
	Clean the oil suction filter element						○	○	○
	Replace the return oil filter						×	×	×
	Remove foreign objects						○	○	○
Control valve stem	Is the connection loose		○	○	○	○	○	○	○
	Operation situation		○	○	○	○	○	○	○
Multi-way valve	Oil leakage		○	○	○	○	○	○	○
	Operation status of safety valve and tilt self-locking valve				○	○	○	○	○
	Measure the pressure of the safety valve	Oil pressure gauge	○	○	○	○	○	○	○
Pipeline joint	Leakage, looseness, rupture, deformation, and damage				○	○	○	○	○
	Replace the pipe								×
Hydraulic pump	Is there any oil leakage or noise in the hydraulic pump		○	○	○	○	○	○	○

7.3. Regularly replace critical safety components

1) Some parts may be difficult to detect damage or damage through regular maintenance. In order to further improve safety, users should replace the parts listed in the table regularly.
2) If these parts become abnormal before the replacement time arrives, they should be replaced immediately.

Critical safety components name	Service life (years)
Brake hose or hard pipe	1～2
Hydraulic hose for lifting system	1～2
Lifting chain	2～4
High pressure rubber hoses and hoses for hydraulic systems	2
Brake master cylinder head and dust cover	1
Internal seals and rubber components of hydraulic system	2

7.4.Tightening torque of bolts

Table 7.4 List of Bolt Tightening Torque

Unit：N·m

Nominal diameter of bolt mm	Bolt strength grade			
	6.8	8.8	10.9	12.9
6	7～9	9～12	13～16	16～21
8	17～23	22～30	30～36	38～51
10	33～45	45～59	65～78	75～100
12	58～78	78～104	110～130	131～175
14	93～124	124～165	180～201	209～278
16	145～193	193～257	280～330	326～434
18	199～264	264～354	380～450	448～597
20	282～376	376～502	540～650	635～847
22	384～512	512～683	740～880	864～1152
24	488～650	651～868	940～1120	1098～1464
27	714～952	952～1269	1400～1650	1606～2142
30	969～1293	1293～1723	1700～2000	2181～2908
33	1319～1759	1759～2345	2473～3298	2968～3958
36	1694～2259	2259～3012	2800～3350	3812～5082
39	1559～2079	2923～3898	3812～5082	4933～6577

Attention !

a. All important connections are inspected with 12.9 level screws

b. The bolt grade can be found at the head, otherwise it is 8.8 grade

7.5. Telehandler oil

Model	Name	Brand and code	Capacity (L)	Remark
T25-60XHYG	Hydraulic oil	Typical season: L-HV46 High cold environment: L-HV32	60	
	Gear oil	Mobil Fluid 424	13.2	5L each for the front and rear axle reducers 4 wheel reducers, each 0.55L Transfer case 1L
	Coolant	Caltex antifreeze	12	A mixed solution of 50% water and 50% ethylene glycol
	Grease	3 # General lithium based lubricating grease for automobiles		Each lubrication point
T35-100XHYG	Hydraulic oil	Typical season: L-HV46 High cold environment: L-HV32	120	
	Gear oil	Mobil Fluid 424	18	6.5L each for the front and rear axle reducers 4 wheel reducers, each 1L Transfer case 1L
	Coolant	Caltex antifreeze	12	A mixed solution of 50% water and 50% ethylene glycol
	Grease	3 # General lithium based lubricating grease for automobiles		Each lubrication point

Replace hydraulic oil

Hydraulic oil is usually replaced once a year. Vehicles in dusty environments or with high usage frequency should be replaced six months in advance.

Operation steps:

1) Safely park telehandler according to regulations;
2) Dismantle the attachments and tilt the transition frame forward to the bottom;
3) Fully retract and lower the arm frame;
4) Unscrew the hydraulic oil tank cover and dipstick assembly;
5) Place an oil pan under the frame, unscrew the oil drain plug and sealing gasket at the bottom of the frame, and drain all the old oil;
6) Take away the oil pan and dispose of the waste oil according to local environmental regulations. Do not dump it arbitrarily;
7) Unscrew the drain plug and sealing gasket, add new hydraulic oil, and check for leaks;
8) Start the telehandler, lift and extend the boom 3-5 times, and tilt the pallet fork forward and backward 3-5 times;
9) Add hydraulic oil to the specified mark (the minimum liquid level shall not be lower than the L mark, and the maximum liquid level shall not be higher than the H mark).

Arm frame lubrication

According to the regular maintenance schedule, regularly apply lubricating grease to the upper and lower slide rails of each level of arm support.

The interval of lubrication should be adjusted according to the operating conditions. During busy months of homework, the frequency of lubricating components should be increased.

Appropriately extend the boom and cooperate with the lifting and other operations of the telehandler, evenly apply a layer of lubricating grease on the contact track surfaces of the upper and lower sliders and the boom (i.e. the upper and lower surfaces of the boom).

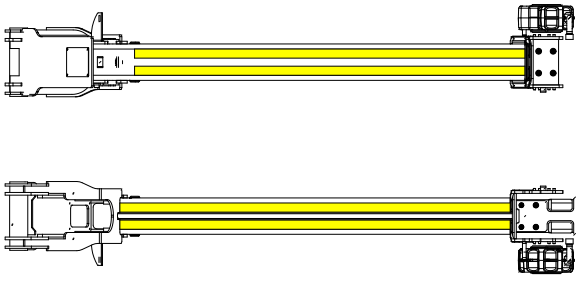


Figure 7.5 Arm frame lubrication (upper and lower surfaces)

Warning

a. When adding lubricating grease, the vehicle must be parked on a flat road

surface, the parking brake must be turned on, and the main power switch must be turned off.

b. When adding lubricating grease, prevent hands and body from getting caught, and prevent falling during high-level lubrication.

Chain lubrication

Spray the chain directly with chain spray or take a brush to stick engine oil on both sides of the chain.

7.6. Tire replacement

When the tire is worn to the limit or damaged, it should be replaced in a timely manner, and the tire can only be replaced in pairs. After replacing the tire and running for 10 hours, it is necessary to check whether the wheel nuts are tightened.

Attention !

a. Ensure that the minimum load-bearing capacity of the jack is 2/3 of the total weight of the telehandler.

b. Suitable tools such as wedges, hardwood supports, etc. must be used to secure the jack in place to prevent the risk of accidental rolling or tipping over.

Replace any pair of tires:

Park the telehandler on a level and solid ground, apply the parking brake, and place wooden pads behind the other pair of wheels to prevent the telehandler from moving;

1) Place the jack under the center of the axle or at the cut surface at the bottom of the counterweight, and slowly lift the telehandler with the jack until the pair of wheels are completely off the ground;

2) Place sturdy wooden blocks under the frame to support it;

Warning

a. When removing the tire from the wheel hub, the wheel rim bolts and nuts can only be removed after deflation;

b. Ensure that the wooden pad used to support the telehandler is a single piece and sufficiently solid.

c. When only using wooden blocks to support the telehandler, personnel must not enter under the telehandler.

3) Loosen the wheel hub nut, remove the wheel, and replace it with a new tire;

4) Install the new wheel onto the hub and tighten the hub nut symmetrically and cross (T=596-714N · m);

5) Remove the wooden blocks under the frame, slowly lower the telehandler to the ground, and remove the wooden pads and jacks at the rear of the other pair of wheels.

7.7. Inspection and maintenance of cooling system

Warning

The inspection and maintenance of the cooling system require unplugging the MSD maintenance switch and waiting for 15-20 minutes for the high-voltage system to be powered off!

Check the coolant volume of the cooling system

Observe the position of the coolant in the attached water tank while the motor is cooling. If it is below the "MIN" position, add it to the "MAX" position. If there is no liquid in the attached water tank, the coolant level in the tank should be checked. If the coolant level in the water tank is insufficient, the coolant should be replenished to the water tank cover, with a freezing point of -36.5 ℃. At the same time, the coolant should be replenished to the "MAX" position in the attached water tank. The position of the attached water tank is as shown

Attention !

a. Add coolant to the attached water tank, which is a mixture of 50% water and 50% ethylene glycol.
b. During hot seasons, special attention should be paid to the water tank and cooling system.
c. The diameter of solid particles in the coolant is not allowed to exceed 0.45mm, and the weight of pollutants in the waterway is not allowed to exceed 30mg.

Replace the coolant

1) Open the water tank cover and drain plug, drain the coolant, and then flush the cooling system.
2) Tighten the drain plug.
3) Add coolant to the water tank until the filling port is reached.

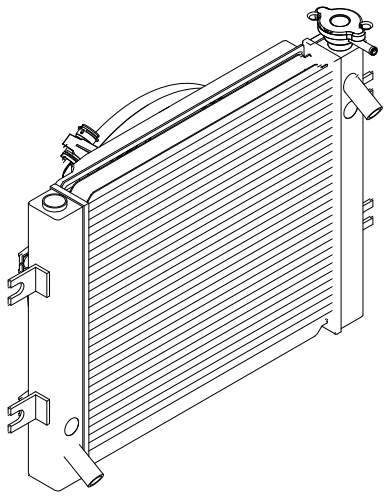


Figure 7.7-1 Schematic diagram of cooler

4) Let the motor run fully.
5) Stop the motor and wait for it to cool completely. Then, add coolant to the water tank until it reaches the filling port, and add coolant to the storage tank until it reaches the "MAX" position.
6) Check if there is any leakage in the drain plug.

Warning

a. Do not open the water tank cover when the coolant temperature is above 70 ℃. Press the lid and slowly turn left to let the steam overflow. Place a thin cloth on it and unscrew it.
b. Wear gloves to twist the water tank cover to prevent burns from high-pressure hot water during accidental operation.
c. The coolant contains harmful substances to the human body. If accidentally swallowed, induce vomiting immediately and seek medical attention.
d. Do not allow unauthorized personnel to approach the coolant.

Clean the heat sink

If the heat sink is blocked, it will cause overheating, so if necessary, compressed air or water should be used to clean the heat sink.

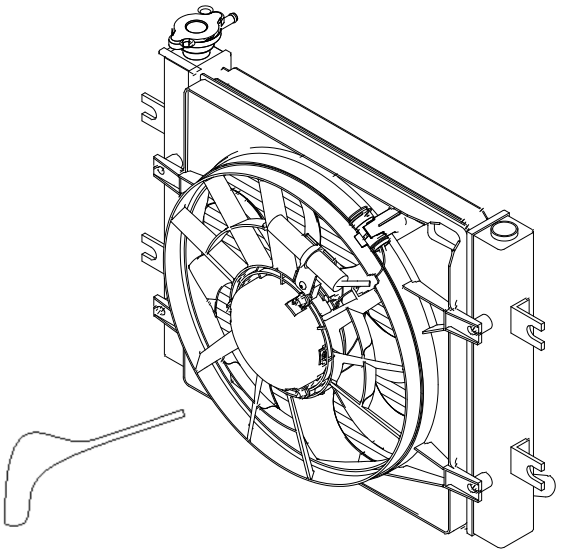


Figure 7.7-2 cleaning the heat sink

Warning

When cleaning the heat sink, dust may enter the eyes, so protective goggles or dust goggles should be worn.

Attention !

When cleaning the heat sink with compressed air, align the nozzle at a right angle to the heat sink.

Chapter 8 Storage

8.1. Daily storage

Daily storage steps:

1) Stop the telehandler at the designated position and use wedges to cushion the wheels;
2) Set the gear shift lever to neutral;
3) Activate the parking brake;
4) Turn off the power of the entire machine;
5) Remove the key and store it in a safe place.

Warning

Once a telehandler malfunction is detected, it should be reported to the management personnel and repaired immediately.

Daily storage requires the following maintenance:

- Clean the oil and grease on the vehicle body with a cloth and water.
- Check the overall condition of the vehicle, especially whether the tires are damaged and whether foreign objects such as iron nails are embedded.
- Fill the fuel tank with the specified fuel.
- Check for leaks in hydraulic oil, engine oil, fuel, and coolant.
- Add lubricating grease.
- Check whether the joint surface of the wheel hub nut and the oil cylinder piston rod is loose, and whether there are scratches on the surface of the piston rod.
- Check if the rollers in the boom rotate smoothly.
- Lift the lifting cylinder to the top to fill it with oil.
- In winter or cold environments, long-lasting antifreeze does not need to be drained. If it is coolant, it needs to be drained.

8.2. Long term storage

Attention !

The long-term storage time of the machine generally cannot exceed 12 months. If the storage time of the machine exceeds 12 months, the long-term storage maintenance program needs to be executed again.

On the basis of daily storage and maintenance, perform the following checks and maintenance:

Clean telehandler

- Inspect and repair any areas where hydraulic oil, engine oil, coolant, or other fluids may leak.
- Clean the dust on the paint surface of the telehandler and touch up the paint if

necessary.

Machine Safeguarding

- Wooden blocks should be used to cushion the rear of the telehandler and the balance weight to reduce the load on the rear wheels.

Warning

a. The wooden block must be strong enough to support the weight of the telehandler.
b. Do not use wooden blocks taller than 300mm (11.81 inches).
c. Raise the vehicle just enough to place it on the supporting wooden block. Place wooden blocks of the same size under the counterweight and the left and right sides of the frame.
d. After supporting the telehandler with wooden blocks, swing the telehandler back, forth, left, and right to check for safety.

- If necessary, the telehandler can be placed on the axle frame so that the tires do not touch the ground and the parking brake can be turned off.
- Ensure that the amplitude cylinder is in the retracted position, and then release the pressure in the hydraulic circuit.
- Remove the battery from the telehandler and place it in a dry and cool place. Charge it once a month.
- Apply rust proof oil to exposed components such as piston rods and shafts that may rust.
- Cover the vehicle with waterproof cloth to prevent moisture.
- During summer, vehicles should not be parked on asphalt roads.

Reuse after long-term storage

- Remove the waterproof cloth.
- Remove the rust proof oil from exposed parts.
- Drain the gear oil from each transmission component, clean the interior, and add new oil.
- Remove foreign objects and water from hydraulic oil tanks and other enclosures.
- Add coolant to the specified mark.
- Charge, reinstall, and reconnect the battery.
- Activate the parking brake and remove the axle frame and axle bracket.
- Fully lubricate the telehandler.
- Execute daily maintenance procedures.
- Carefully conduct a pre start inspection to check the starting, forward, backward, steering, lifting, lowering, forward and backward tilting functions of the telehandler. Test run all hydraulic movements, preferably reaching the limit position.

Chapter 9 Transportation

9.1. Lifting

Lifting machine:

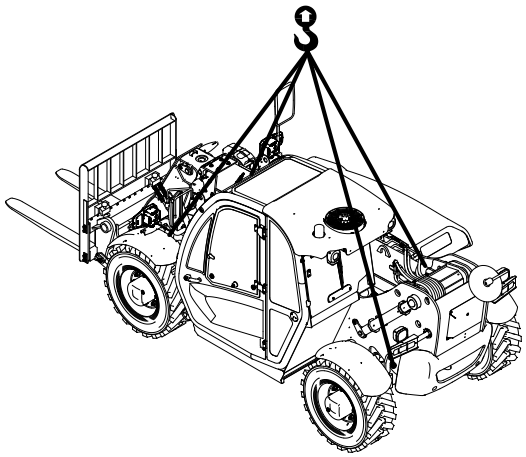


Figure 9.1-1 Lifting Diagram (Taking T25-60XHYG as an Example)

1) Only qualified crane and rigging assemblers can assemble rigging and hoist machines;
2) Ensure that the lifting capacity of the crane is sufficient to lift the machine, and that the ropes or chains are sufficient to support the weight of the machine. Please refer to the "nameplate" for the specific weight of the machine;
3) Retract and lower the arm frame to bring the accessory close to the ground, and remove all parts and items on the machine that may accidentally move;
4) Connect the rigging to the designated lifting points on the machine body (4 in total);
5) Adjust the position of the rigging to keep the machine level and avoid damaging the machine;
6) After ensuring reliable connection, slowly lift the vehicle.

The center of gravity position of the telehandler is shown in the following table:

Table 9.1 Center of gravity position of telehandler

Model	A	B
T25-60XHYG	1120mm	700mm
T35-100XHYG	1920mm	830mm

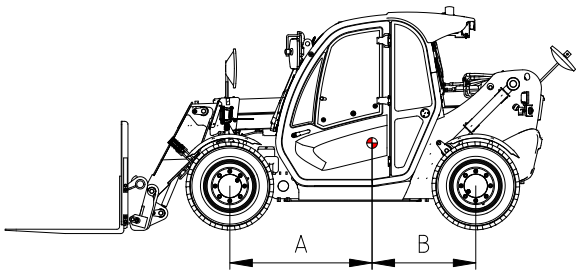


Figure 9.1-2 Schematic diagram of the center of gravity position of the telehandler

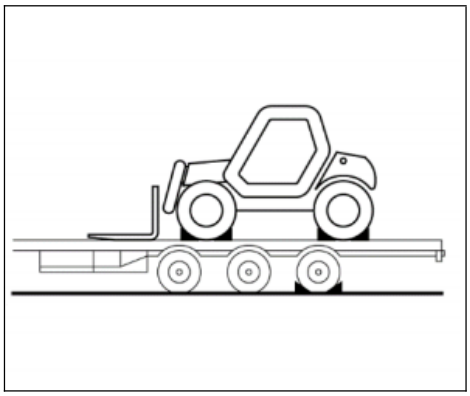
Warning

a. Only use lifting tools with sufficient load capacity.
b. When lifting the vehicle, be sure not to wrap the wire rope and the roof guard together.
c. The steel wire rope and lifting device should be very sturdy enough to safely support the vehicle.
d. Do not use the cab frame (roof guard) to lift the vehicle.
e. When lifting a telehandler, do not enter under the vehicle.

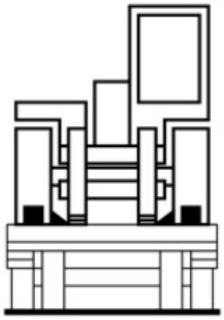
9.2. Transport

Telehandlers are generally used for loading and unloading as well as short distance transportation, and are not suitable for long-distance transportation. To transport telehandlers over long distances, ships, trains, or heavy-duty vehicles that can carry the weight of the telehandlers are required for handling.

1) Fix the cushion block on the platform in front and behind each tire;

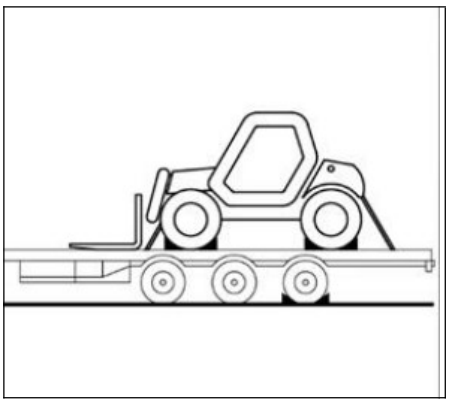


2) Fix the cushion block on the inner side of each tire on the platform;



3) Use sufficiently sturdy ropes;

4) Use ropes to connect the front and rear fastening points of the telehandler to the transport platform;



5) Tighten the ropes and secure the telehandler onto the platform.

Warning

a. When fixing telehandlers, effective measures must be taken according to specific situations to ensure transportation safety.
b. Telehandler must be properly secured when using trucks or trailers for transportation.
c. Secure the telehandler with wedges to prevent accidental movement.
d. Only tension belts or tight belts with sufficient nominal strength can be used to secure telehandlers.

9.3. Traction

The towing pin device is located at the rear of the telehandler and is used to connect the trailer and tow the load.

When towing, it is necessary to first pull out the towing pin, then install the steel wire rope, and finally reinstall the towing pin.

9.3.1. Towing a trailer

Before using a telehandler to tow a trailer, it is necessary to check whether the trailer's working condition is normal (tire condition, electrical connections, steering system, braking system, etc.).

Attention !

a. Do not tow trailers that are in poor working condition.
b. Under harsh conditions, towing a trailer can affect the steering and braking performance of the telehandler, thereby affecting safety.

9.3.2.Traction telehandler

Warning

a. Do not tow telehandler with abnormal steering systems or damaged braking systems.
b. Do not suddenly apply a load on the steel wire rope.
c. When the vehicle is powered on, towing the telehandler may damage the controller.
d. Do not tie the steel wire rope to non designated positions.

When the telehandler cannot be moved due to malfunctions or other reasons, if possible, the machine should be repaired on site.

Forcefully towing the vehicle may cause serious damage to the transmission, so only when other options are not feasible, should the towing telehandler be chosen:

1) When the telehandler is suddenly damaged on the work road, it is necessary to urgently move the telehandler;
2) Telehandlers are stuck and cannot be driven out of trouble (such as wheels getting stuck in potholes).

If it is necessary to tow the vehicle:

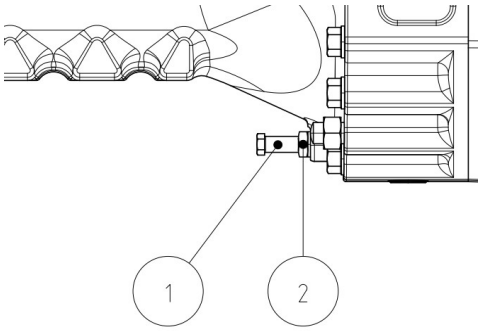
1) Turn off the parking brake;
2) Set the gear shift switch to neutral;
3) Select the two wheel steering mode;
4) Connect the rigid traction device to the traction point position on the frame;
5) Traction of vehicles at low speeds (≤ 5km/h) and short distances.
6) If the parking brake cannot be turned off through the control system of the faulty vehicle, it should be manually unlocked.

Attention !

After disabling the parking brake, mechanical devices such as gear blocks should be used reasonably to fix the wheels and prevent accidental movement of the vehicle.

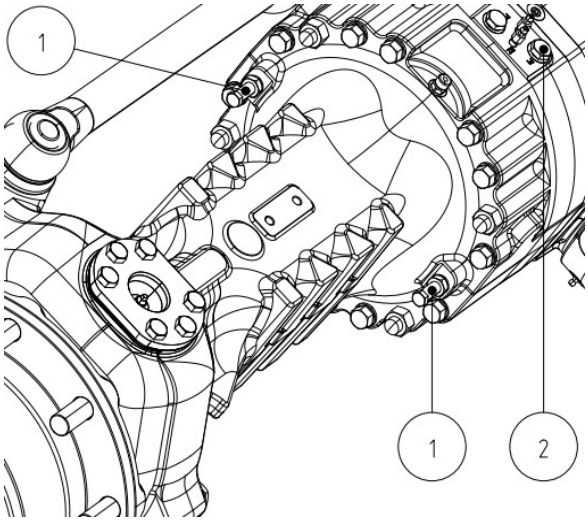
Manually unlock the parking brake of the

faulty machine:



①Parking brake release bolt；②Tighten the nut
Figure 4.9-1 Parking brake release bolt and fastening nut

1) Loosen the fastening nut ② counterclockwise and move the nut back about 8mm;



①Parking brake release bolt；②Oil injection port
Figure 4.9-2 Parking Brake Release Bolt

2) Tighten the parking brake release bolt ① clockwise (4 on both sides) to release the brake disc, tightening 1/4 turn each time until the torque suddenly drops and the wheels can rotate freely.

Re activate the parking brake:

1) Loosen the release bolt ① counterclockwise to allow the brake disc to resume operation, with a torque that can be easily loosened by hand;
2) Tighten the fastening nut ② clockwise with a torque of 45N · m.

Chapter 10 Attachments

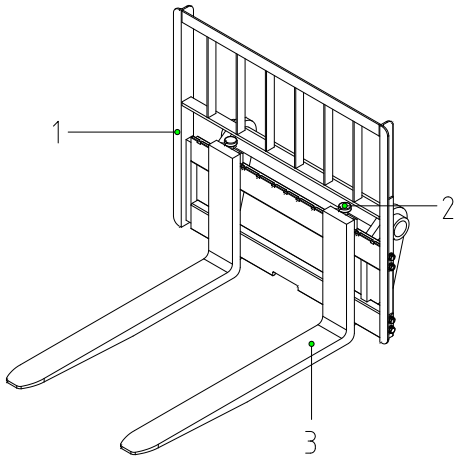
10.1 Use of attachments

- Familiar with the relevant content on the nameplate of telehandler accessories, carefully read the relevant user manual before use, and operate telehandler accessories with training and qualifications.
- Fully understand the basic performance and operating methods of telehandler attachments, especially the allowable load, lifting height, cargo size, and adaptability range of attachments in detail;
- When operating telehandler attachments with multiple functions such as side shift, clamping, or rotation, it is prohibited to perform two actions simultaneously. Only after one action is completed can the other action be performed;
- Telehandlers equipped with accessories are strictly prohibited from driving in high cargo positions; When the volume of the goods is too large, it is prohibited to drive the telehandler forward; When transporting goods, it should be ensured that the bottom of the goods is 300mm above the ground and the transition frame is tilted backwards;
- The weight of the goods cannot exceed the limit of the combined carrying capacity of telehandlers and accessories. Try not to overload in high cargo positions, and only operate attachments with lateral displacement function for a short period of time, and strictly control the amount of overload;
- Within a 2-meter radius of the projection area directly below the accessory and the cargo, except for the driver's position protected by a roof rack, standing is strictly prohibited to prevent accidents;
- It is strictly prohibited to apply emergency brakes to telehandlers with attachments during the driving process. It is required to drive slowly when carrying a load;
- Prohibit attachments from being impacted by external forces during operation; Prohibit the use of accessories in improper situations and do not exceed the normal working range of accessories;
- Prohibit the use of accessories in improper situations and do not exceed the normal working range of accessories;
- When the accessory malfunctions, it is

prohibited to use it without troubleshooting.

Pallet fork rack and pallet fork:

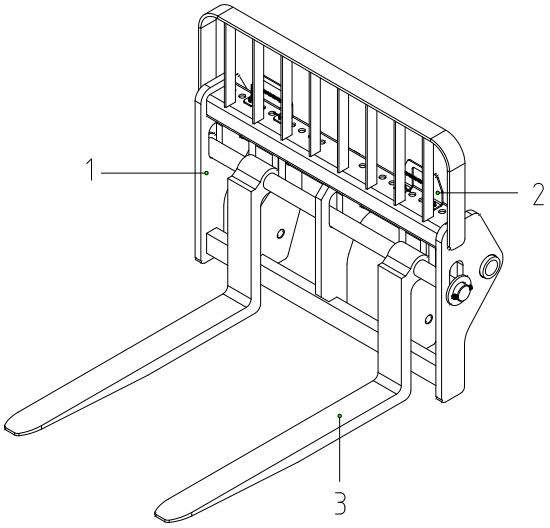
T25-60XHYG model, equipped with Type 1 Pallet fork rack and pallet fork:



1. Pallet fork rack; 2. Positioning pin; 3. Pallet forks

Figure 10.1-1 Pallet fork frame and pallt fork (Type 1)

T35-100XHYG model, equipped with Type 2 pallet fork rack and pallet fork:



1. Pallet fork rack; 2. Limit seat; 3. Pallet forks

Figure 10.1-2 Pallet fork Assembly (Type 2)

In order to ensure the safety of the picking process, the spacing between the pallet forks needs to be adjusted to the appropriate position according to the size of the load tray before the picking operation.

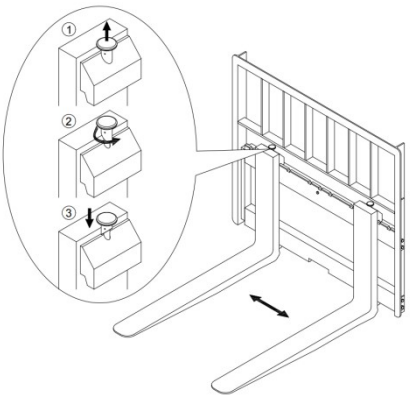


Figure 10.1-3 Schematic diagram of pallet fork distance adjustment

Pallet fork distance adjustment operation steps (type 1):

① Pull up the pallet fork positioning pin and rotate it 180 degrees in any direction to unlock the pallet fork.

②.Adjust the pallet fork position symmetrically towards both ends based on the centerline of the pallet fork rack.

③ After adjusting the distance between the pallet forks, pull up the pallet fork positioning pin and rotate it back to its initial position. Then, move the pallet fork slightly left and right to ensure that the positioning pin fits into the slot of the pallet fork frame.

Pallet fork distance adjustment operation steps (type 2):

① Pull up the limit pin of the pallet fork by

installing the limit seat, and the pallet fork will be unlocked.

② Adjust the pallet fork position symmetrically towards both ends based on the centerline of the pallet fork rack.

③ After adjusting the spacing between the pallet forks, reinstall the limit seat pin into the corresponding positioning hole of the pallet fork position.

Warning

a. The pallet fork positioning pin must be locked (stuck in the slot of the pallet fork frame), otherwise, the pallet fork is prone to movement during telehandler operation, and the goods may fall off.

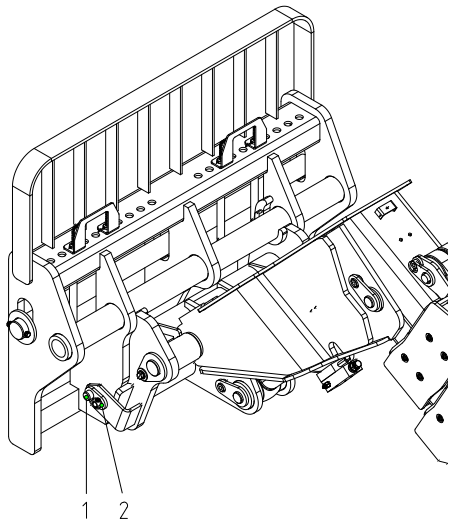
b. When adjusting the fork pallet, there is a risk of pinching, so be careful.

10.2.Installation and disassembly of attachments

Taking the installation and disassembly of attachments as an example with a pallet fork frame.

Disassembly of attachments:

1) Park the telehandler on a solid ground, apply the parking brake, and place the gear shift switch in neutral;
2) Extend the telescopic arm forward by about 50 centimeters;
3) Adjust the pallet fork to a horizontal position, then lower the pallet fork until it touches the ground;
4) Adjust the position of the pallet fork frame appropriately, remove the limit pin (2), and then remove the locking pin (1);
5) Tilt the transition frame forward and lower the telescopic arm until the side plate of the transition frame is completely separated from the installation steel pipe of the accessory and the accessory has stably touched the ground, then retract the telescopic arm.



1. Lock pin; 2. Limit pin

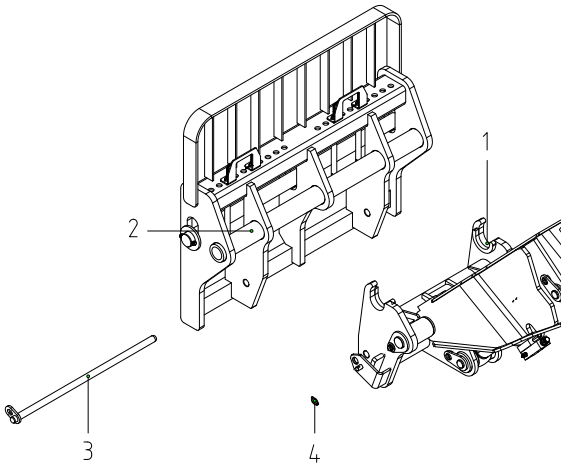
Figure 10.2-1 Disassembly of attachments

Accessory installation:

1) Park the telehandler at the position where the telescopic arm is aligned with the accessory installation, activate the

parking brake, and place the gear shift switch in neutral;

2) Tilt the transition frame (1) forward and extend the telescopic arm so that the installation steel pipe of the accessory (2) is located directly above the side plate of the transition frame;
3) Slowly lift the telescopic arm so that the installation steel pipe of the accessory fully contacts the side plate of the transition frame;
4) Continue to raise the telescopic arm and lift the accessory so that it is about 10 centimeters away from the ground;
5) Tilt the transition frame backwards, align the installation holes of the transition frame and the accessory, and install the locking pin (3);
6) Install the limit pin (4) to secure the locking pin (3).



1. Transition frame; 2. Pallet fork rack;
3. Locking pin; 4. Limit pin
Figure 10.2-2 Equipment Installation

Attention !

To ensure safety, please check if the locking pin and limit pin are securely installed before using the telehandler.

10.3. Inspection and maintenance of attachments

- Check whether the installation and positioning of the accessories are accurate.
- Lubricate the upper and lower sliding support surfaces with universal lithium based grease every 500 hours.
- Check if the fasteners are loose.
- Regularly check whether the joints of the hydraulic circuit of the accessory are loose and whether the hoses are damaged. If there is any damage, they should not be used before repair.
- Regularly check whether the transmission or rotating components of the accessory are worn or stuck, and replace them in a timely manner if there is any damage or defect.
- Under dynamic load conditions, check whether the working components of the accessory are normal, whether the working pressure of the accessory is normal, and whether the accessory is

working properly. If it is not normal, it is necessary to check the hydraulic circuit, identify the leaking components, replace the seals or the entire circuit components.

Warning

a. Any modification of telehandler attachments in terms of safety and performance is strictly prohibited without the technical permission of our company.
b. The actual rated carrying capacity should be the minimum of the rated carrying capacity of the telehandler, the carrying capacity of the accessory itself, and the overall carrying capacity of the vehicle. Generally speaking, the overall load-bearing capacity of a vehicle is the smallest among the three.
c. The installation positioning is reasonable, reliable, and safe to avoid accidental sliding of accessories during use.
d. After the attachment is mounted, the upper hook stopper should be inserted into the gap of the upper crossbeam, so that the offset between the center line of the attachment and the center line of the pallet fork frame is less than 50mm, otherwise it will affect the lateral stability of the telehandler.

Appendix Maintenance Record

Time	Maintenance content	Signature	Remark

Appendix Maintenance Record

Time	Maintenance content	Signature	Remark

Appendix Maintenance Record

Time	Maintenance content	Signature	Remark

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