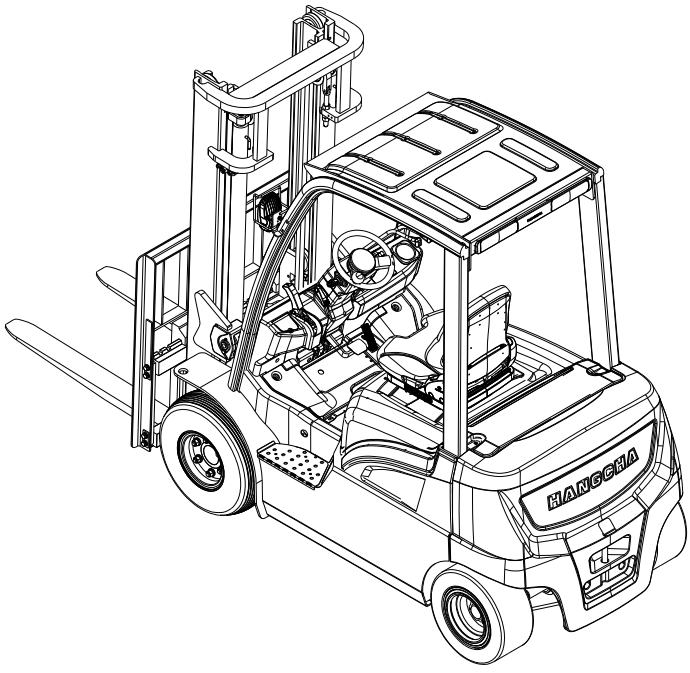
XC *Series*

CPD15/18-XD4-SI16
CPD20/25/30/35-XD4-SI21
CPD20/25/30/35-XD4-SI25
CPD20/25/30/35-XD4-SI26

Electric Forklift Truck

Operation and Maintenance Manual



Original Instruction

HANGCHA GROUP CO., LTD.
05/2020

FOREWORD

Thanks for you purchasing our XC seies Lithium Battery Counterbalanced

XC series electric four-wheel forklift truck is our company's new product. It has the character of small turning radius, beautiful shape, small dimensions, low gravity, good stability, superior performance.

This operation manual is the explanations that how to use XC series Lithium Battery Counterbalanced. It will instruct you how to operate safety and precautionary maintenance. To f ensure safety and exert the truck's potential, all the personnel that in charge of operation, maintenance and management must read this manual thoroughly before starting work with the forklift.

As the improvements of products of our company, maybe there are some differs between this operation manual with your forklift truck.

If you have any questions please keep touches with HANGCHA GROUP CO., LTD. sales department or let the agents know.

This series of truck has passed CE certification.

Model	Traction control	Pump control	Traction motor	Pump motor	Rated capacity(t) / Load center (mm)
CPD15-XD4-SI16	ACS80M-330C-35P	ACS80M-330C-35P	YDQ9-4-4820	YDB16-4-4820	1.5/ 500
CPD18-XD4-SI16					1.8/ 500
CPD20-XD4-SI21	ACS80M-330C-35P	ACS80M-330C-23P	YDQ11-4-4822/ HPQ11-4HC-C	YDB21-4-4820	2.0/ 500
CPD25-XD4-SI21					2.5 / 500
CPD30-XD4-SI21	ACS80L-440C-35P	ACS80M-330C-23P			3.0 / 500
CPD35-XD4-SI21					3.5 / 500
CPD20-XD4-SI25	ACS80L-440C-35P	ACS80M-330C-35P	HPQ15-4HC-A	HPB25.4-4	2.0/500
CPD20-XD4-SI26			HPQ16.6-4HC	TSA200-200-214	
CPD25-XD4-SI25	ACS80L-440C-35P	ACS80M-330C-35P	HPQ15-4HC-A	HPB25.4-4	2.5/500
CPD25-XD4-SI26			HPQ16.6-4HC	TSA200-200-214	
CPD30-XD4-SI25	ACS80XL-550C-35P	ACS80L-440C-35P	HPQ15-4HC-A	HPB25.4-4	3.0/500
CPD30-XD4-SI26			HPQ16.6-4HC	TSA200-200-214	
CPD35-XD4-SI25	ACS80XL-550C-35P	ACS80L-440C-35P	HPQ15-4HC-A	HPB25.4-4	3.5 /500
CPD35-XD4-SI26			HPQ16.6-4HC	TSA200-200-214	

Warning

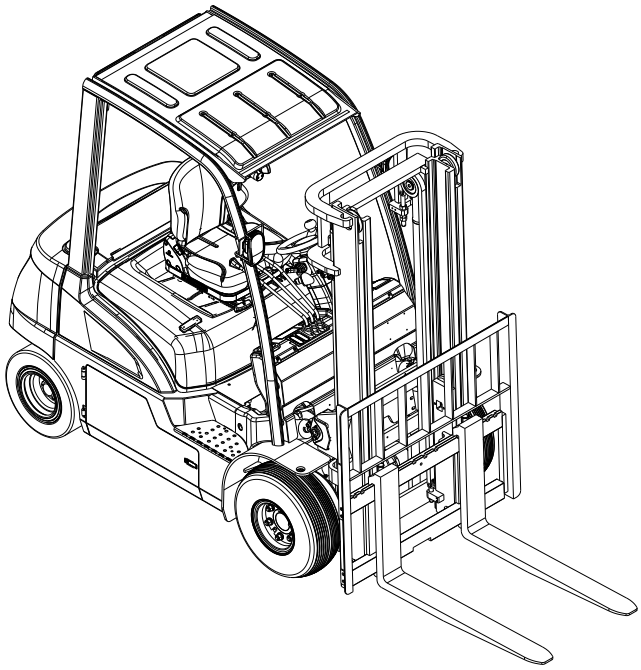
In order to ensure the combination of the charging gun plug and the lithium battery socket, and to prevent the lithium battery gun from loosening during the charging process, the lithium battery gun is provided with a lock, so it cannot be pulled out by force pulling. Therefore, after charging is completed, the lock must be loosened. Only when the button on the charging gun is pressed can the lock be released and the charging gun can be pulled out smoothly.

To successfully remove the lithium battery charging gun, you must press the button on the gun. Failure to do so will result in damage to the gun and socket.

CONTENT

1 Truck introduction

1.1 General



Truck body system

- Truck frame can remove the lithium battery from the side. The lithium battery drops to the bottom of the frame. The vehicle length is shorter (80-100mm shorter than the average truck).

Drive and brake system

- Integral drive axle
- High-efficiency, high-power AC drive motor that provides superior driving force and travel speeds up to 18km/h.

Control system

- Ergonomic, large operating space

Hydraulic system

High-power oil pump motor and working oil pump greatly improve the lifting speed.

Electric system

- The 80V battery pack provides super power, and the lithium battery uses CATL batteries.
- Large-size color screen instrument with standard cloud intelligent management module.
- Latest AC control system.

Steering system

Angle transducer

The driving speed is about 19km/h, the lifting speed is about 600mm/s, and the performance is in line with the same tonnage X series diesel vehicle.

1.2 Use occasion and condition

Truck in this manual is only for handling and transporting loads in short distance.
It must be used, operated and maintained according to the information in this manual. Any other uses are outside the design envelope and can lead to injury to persons or damage to equipment and property.
Only used in specified place and condition：

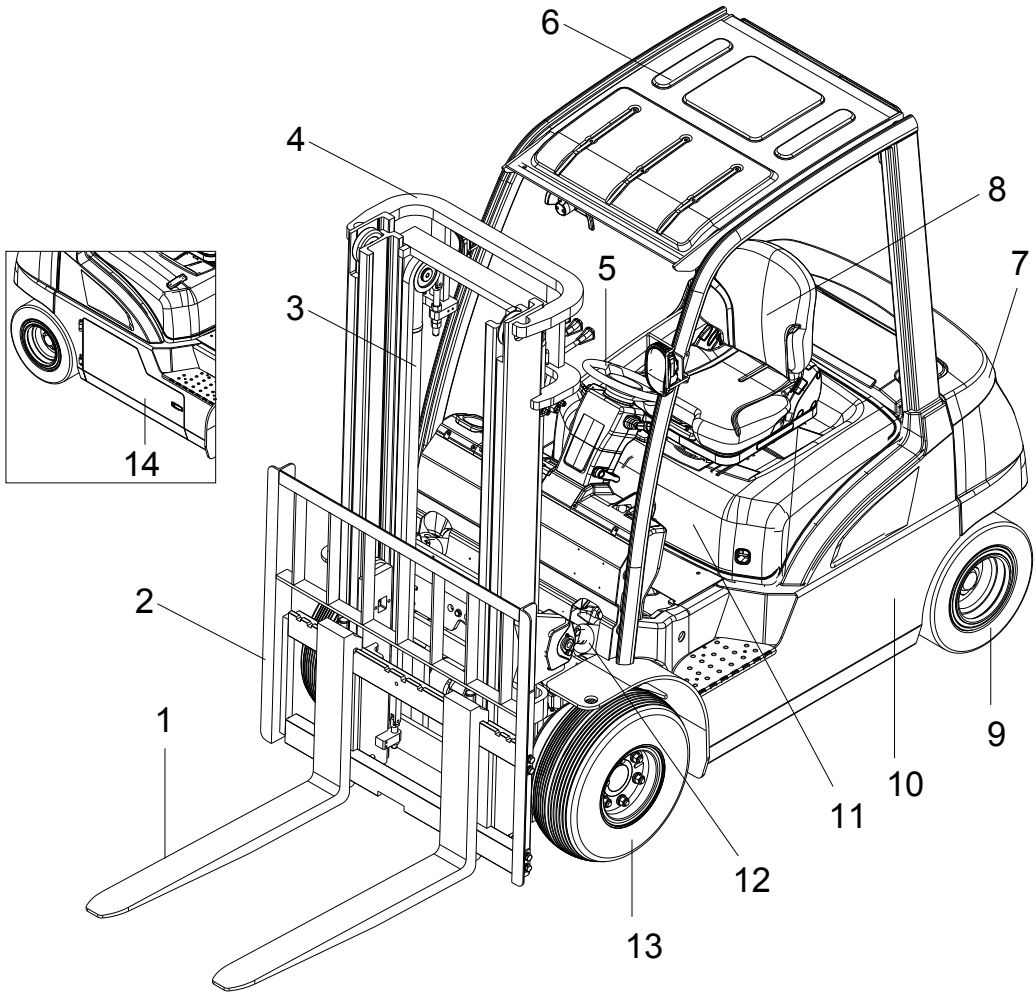
- Use in specified rated load.
- Used in specified area as factory, tourist attraction and recreation place.
- Used on the flat ground, that is fixed and owns enough carrying capacity.
- Used on the road with good vision and equipment use license.
- Approved working site temperature -5℃～+40℃.
- Altitude should not surpass 2000m.
- Max. gradeability when driving with full load is18%.
- It is prohibited to travel crosswise or obliquely. When go uphill with loads, keep the loads in front; when go downhill, keep people in front

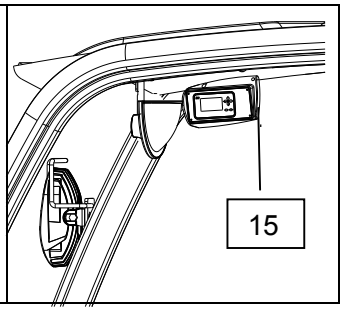
Please read other safety regulation in this manual, it matters personal safety and goods safety.

Warning

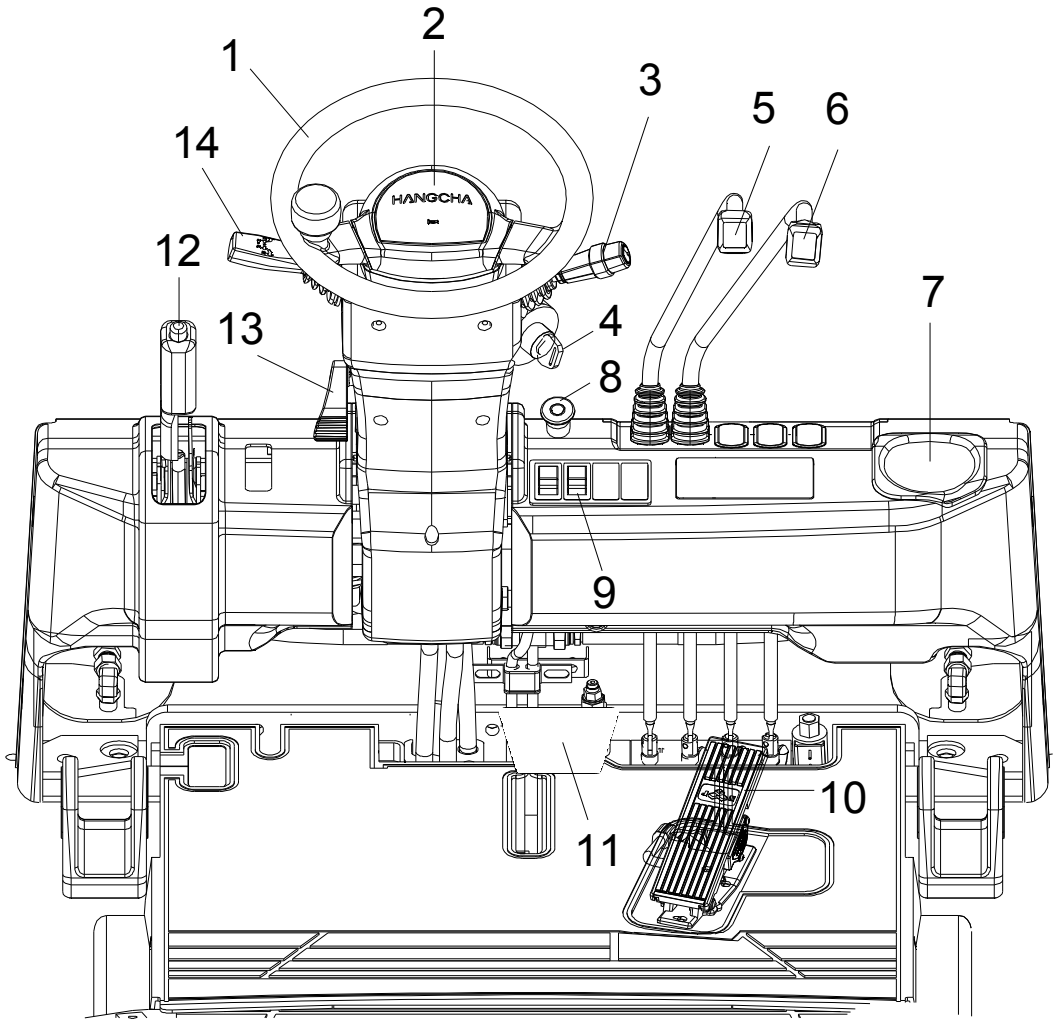
- **Never drive outside the regulated area.**
- **Never overload or carry people.**
- **Never push or pull goods.**
- **Non explosive-proof forklift is prohibited to use in the flammable and explosive place.**
- **Non refrigerator type is prohibited to use in the refrigerator.**

1.3 Appearance and Main Components



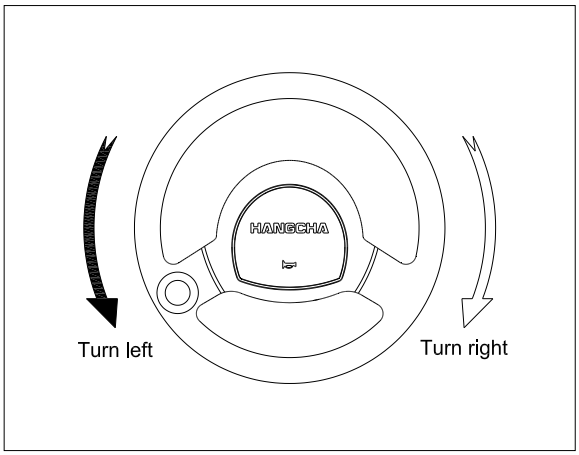
1、Fork 2、Load bracket 3、inner gantry 4、outer door frame 5、Steering wheel 6、Overhead guard 7、Counterweight 8、Driver's seat 9、rear wheel 10、frame 11、Cover 12、tilt cyliner 13、front wheel 14、lithium battery side door 15、metar	

1.4 Description of display and operating elements



1、Steering wheel 2、Horn 3、Combination light switch 4、Key switch 5、Lifting lever 6、Tilting lever 7、Water cup holder 8、Emergency disconnect switch 9、Rocker switch 10、Accelerator pedal 11、Brake pedal 12、Parking brake lever 13、Steering column positioning device 14、Travel direction switch

Steering wheel [1]



Control truck direction.

When the steering wheel is turned right, the forklift will turn to the right; when the steering wheel is turned left, the forklift will turn to the left. The rear end of the forklift swings out when turning.

Warning

- **This forklift truck adopts a fully hydraulic steering system. Therefore, steering will be impaired when the oil pump motor stops running. Immediately restart the oil pump motor before turning again.**

Horn[2]

press the horn button on the center of the steering wheel and horn will sound

Combination light switch [3]

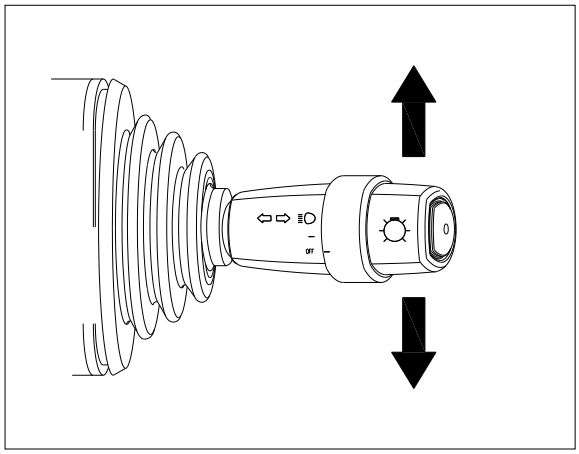
This combination light switch includes turn signal indicator and light switch.

Turn signal lever： Push or pull this switch, the corresponding left and right turn signal light flash.

Push Forward	⇦	Left turn light flashes
Neutral		Lamp goes off
Pull back	⇨	Right turn light flashes

Caution

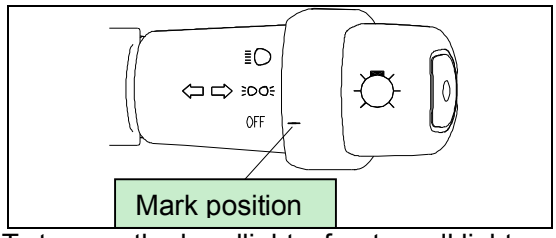
- **The turn signal lever does not automatically return to the neutral position, reset it by hand.**



Light switch： Rotation type switch. Control the light through the knob on the head of combination switch.

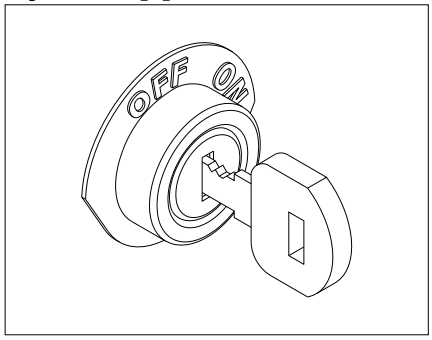
×：means being connected

Contact Symbol	Light symbol	Front signal light	Headlight	Width lamp
—			×	×
	—	×		×
	OFF			



To turn on the headlights, front small lights, and width lights, turn this switch to align the position line on the switch handle with the corresponding mark on the switch body.

Key switch[4]

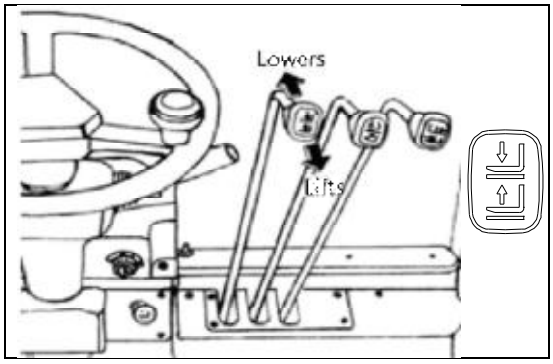


Connect and interrupt control current. Remove the key and make sure the truck does not move suddenly.
The key switch has two positions: ON and OFF. First set the direction lever to the neutral position, take your foot off the accelerator pedal, then turn the key clockwise to the"**ON**" position.

Caution

- **If the direction lever is not in neutral or the accelerator pedal is depressed, the forklift will not start when the key switch is turned to ON.**
- **At this point a fault code will be displayed, which is perfectly normal.**
- **Return the direction lever to the neutral position and take your foot off the accelerator pedal before attempting to start the forklift**
- **The fault code will then disappear.**

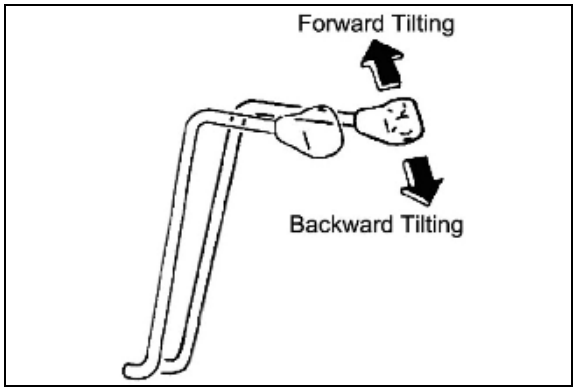
Lifting lever [5]



Lifts / lowers the forks.

Push forward--- Lifts; Pull--- lowers
Lifting speed can be controlled by tilt backwards angle of lever and the lowering speed can be controlled by tilt forwards angle of the lever.

Tilting lever [6]



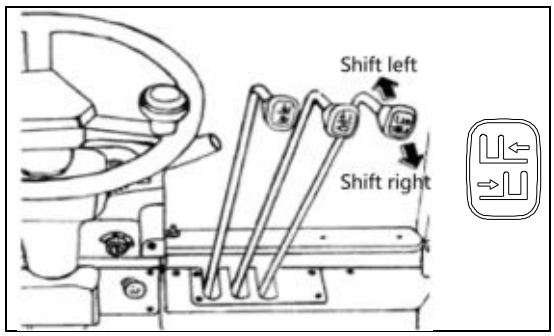
Tilts the forks forward / backward.

Push forward--- forward; Pull--- backward
The tilt speed can be controlled by tilt angle of the lever.

CAUTION

- **The tilt lock mechanism built in the hydraulic control valve does not allow the mast to tilt forwards while the electricity is being shut down even if the tilt lever is pushed forwards.**

Sideshifter lever



Shift left / shift right the forks
Push forward——Shift left Pull——shift right

The side shift speed is determined by the tilt angle of the handle and the throttle control.

Attachment joystick

It can be a side shift lever, or a rotary joystick or other attachment lever, depending on the situation.

Teacup seat[7]

On the right side of the instrument rack, a teacup holder is provided for the driver to place the teacup.

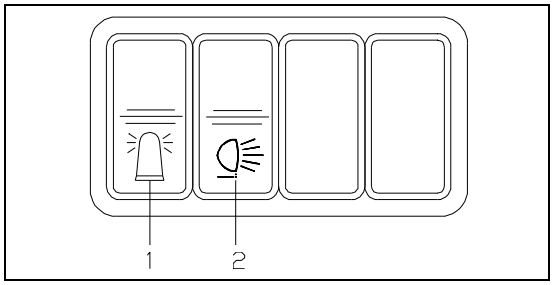
Emergency power off switch [8]

Turn the power on or off. In case of emergency, press the red mushroom head button to cut off the main power of the vehicle. No walking, steering, lifting.

Caution

- **Please don't use the emergency disconnect switch to substitute thefunction of key switch。**

Rocker switch[9] [Optional]



The rocker switch is a warning light and a rear headlight, the warning light is on the left and the rear headlight is on the right.

1 alarm light switch: press down, the alarm light flashes; press up, the alarm light is off.

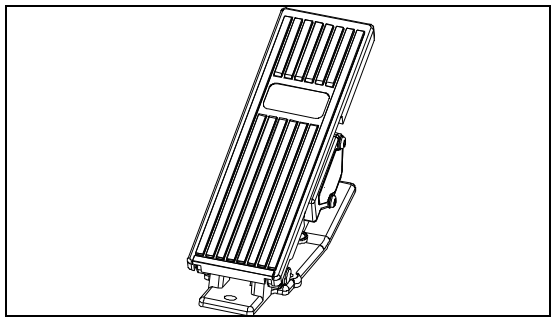
2 rear headlight switch: press down, the rear headlights are on; press up, the headlights are off

symbol	control element
	Warning Light
	Rear headlight

Caution

This light is on and off regardless of the position of the key switch, so note Do not forget to turn off the lights.

Acceleration pedal[10]



Provides infinitely variable control travel speed.

As the accelerator pedal is slowly pressed, the drive motor start turning and the forklift truck will start to move. According to the force applied to the pedal, the speed is adjusted with not steps.

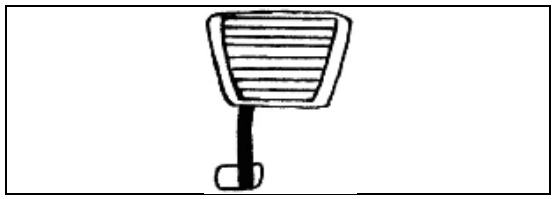
CAUTION

- **Loosen the accelerator pedal when truck is working, truck can make soft brake.**

WARNING

- **Before open the key switch to press the accelerator pedal, the more function digital indicator shall show alarm information. Then you must release the accelerator pedal.**

Brake pedal[11]

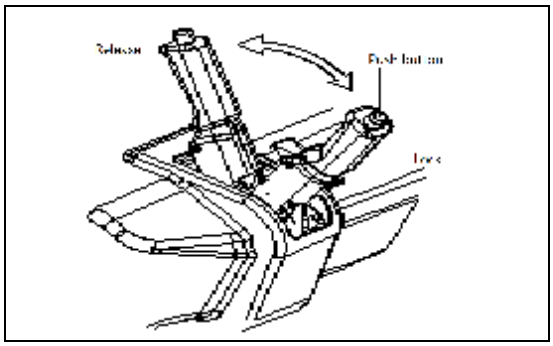


When the brake pedal is depressed, the vehicle decelerates, the vehicle is stepped on, and the vehicle stops. Release the pedal and the vehicle is running。

Caution

Prevent sudden braking. Rapid braking can easily lead to vehicle tipping or cargo

Hand brake handle[12]

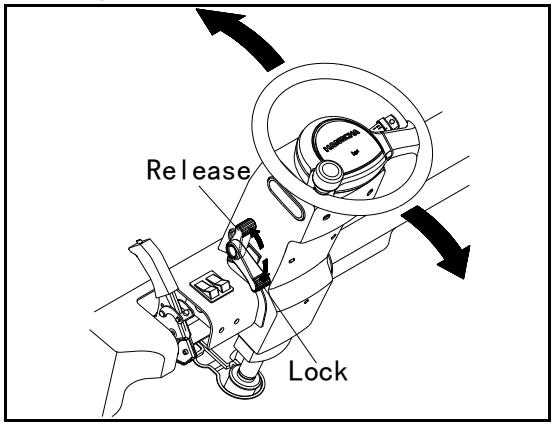


Pull the handle back, that is, tighten; push the handle forward to relax. The handle must be tightened before the operator leaves the truck。

Caution

When the vehicle's brake system fails or an emergency occurs, the vehicle can be braked by tightening the handle. It is strictly forbidden to use a hand brake to achieve the service brake.

Steering wheel tilt lever[13]



The position of the steering wheel is adjustable. The method is to pull the adjustment rod mounted on the left side of the directional column, then move the steering wheel to the desired position, and then push the adjustment lever down to lock.

Caution

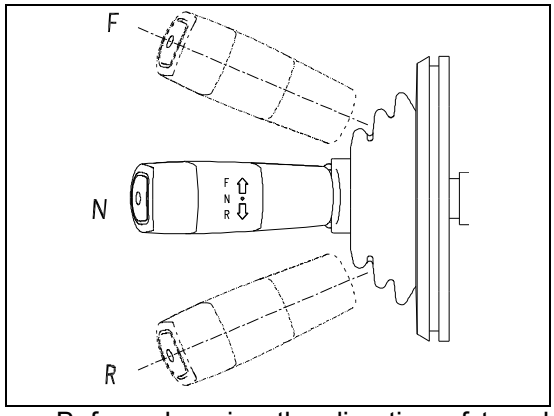
a. Adjust the steering wheel tilt angle after the forklift stops and pulls the hand brake handle.

b.After adjustment, force the steering wheel up and down to ensure that it is locked.

Reversing joystick[14]

The reversing lever is mounted on the left side of the directional column.

F	Forward file
N	Neutral
R	Reverse gear



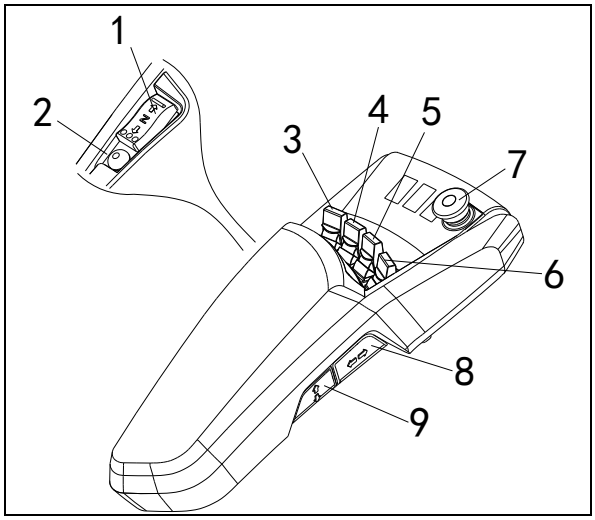
Before changing the direction of travel, press the brake pedal to stop the car completely, then push the handle forward to the forward gear. To retreat, depress the brake pedal to slow down the speed and push the joystick back to the reverse gear.

Caution

The truck can only be started if the joystick is in the neutral position.

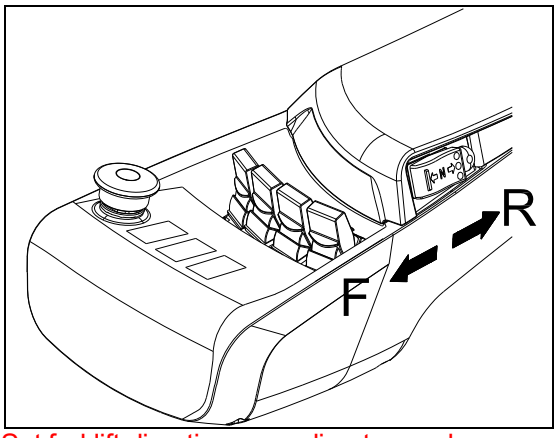
Fingertip operation（option）

Armrest system is composed of armrest bracket, fingertip, emergency stop button, horn button and wire etc.



1. Direction switch	2. Horn button	3. Lift finger tip
4. Tilt fingertip	5. Sideshifter fingertip	6.Attachment fingertip
7.Emergency stop button	8.Level shift handle	9.Vertical shift handle

Direction switch



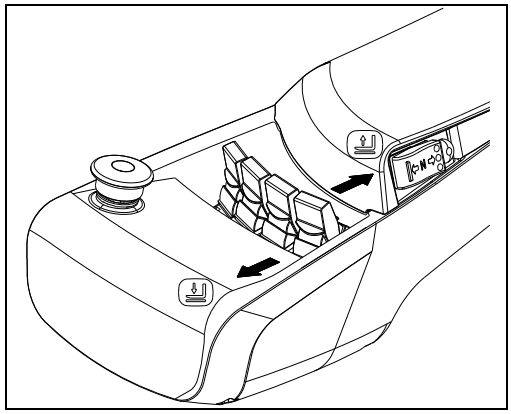
Set forklift direction according to need.

Direction switch is used to switch the forklift going forward or backward. Press the switch forward and step on the accelerator pedal, forklift travels forward; press the switch backward, forklift travels back.

Caution

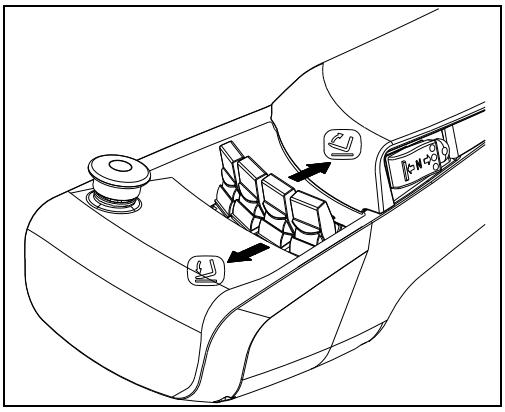
- If press the direction switch to opposite direction during truck running, the electric braking works to decelerate the forklift. After stop, the truck moves to another direction.
- If the direction lever is not in neutral, when the key switch is turned to ON, a fault code will be displayed. Return the direction lever to the neutral position, the fault code will then disappear.

Lift fingertip



Push the fingertip forward to lower the forks. Pull the fingertip back to raise the forks. The lifting lowering speed is controlled by the tilting angle that the lever is moved, the larger angle, the faster speed.

Tilt fingertip

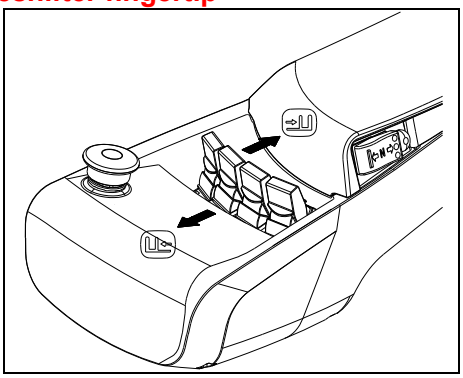


Push forward the fingertip to tilt the forks forward; pull backward to tilt the forks back. The tilting speed is determined by the distance that the fingertip is moved.

Caution

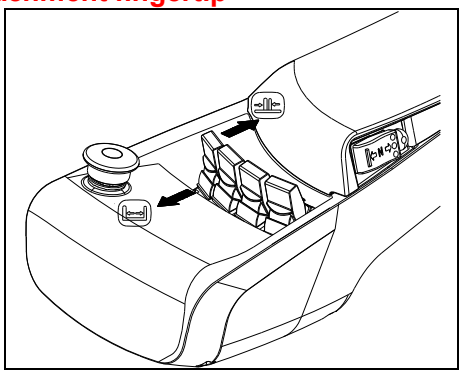
- The multi-way valve is equipped with a front tilt self-locking valve. When the circuit is cut off, the mast cannot tilt forward even if the lever is pushed forward.

Sideshifter fingertip



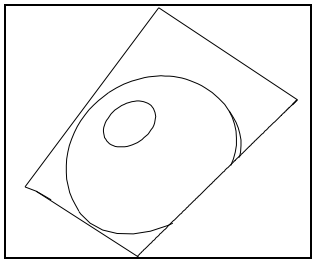
Pull and push the fingertip can realize the left/right movement of the mast.

Attachment fingertip



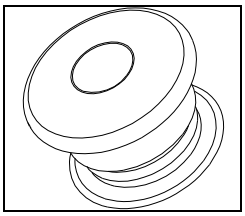
Apply when installing the attachment with 4th valve. Push and pull the fingertip can realise the attachment function.

Horn button



Press this button to send alert or warning signal.

Emergency stop button

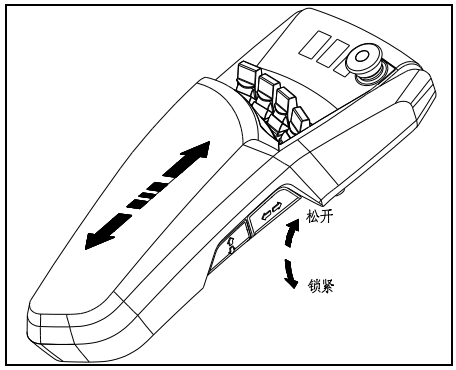


In an emergency, press the red mushroom head button to cut off the vehicle's main power supply.

Caution

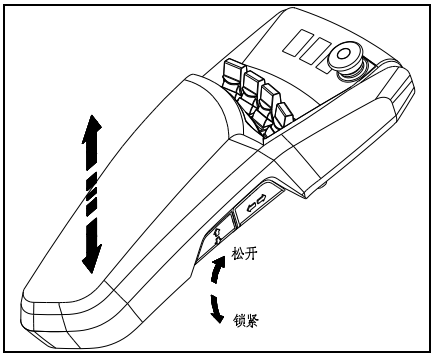
- Do not use the emergency stop switch to stop the truck under normal circumstances as the key switch.

Level shift handle



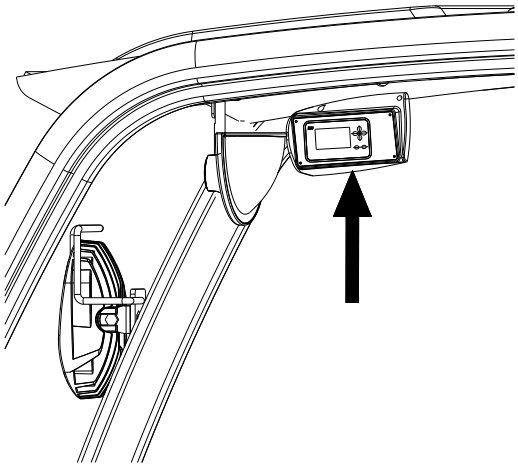
Adjust the horizontal position of the armrest: Flip the pick up, loosen the armrest, and move the armrest to a suitable position horizontally; turn the pick downward to lock the armrest.

Vertical shift handle



Adjust the height of the armrest: flip the pick up, loosen the armrest, and move the armrest to a suitable height vertically; turn the pick downward to lock the armrest.

1.5 Display instrument



1.5.1 Multi-function display

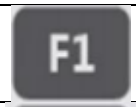
Located in the upper right corner of the overhead guard

Number	Display	Number	Display
A	It shows current remaining power	H	Body control shortcut key menu
B	It indicates vehicle status: forward or backward, and no display forneutral gear.	I	Handbrake Light:The light is on when the driver operates hand brake.
C	There are four working speed: “S”,“P”,“E”	J	Seat Light:The light is on when the driver leaves the seat.
D	It indicates vehicle running speed with unit of km/h or MPH.	K	Lift Locking Light:The light is on when power is lower than 10%.
E	arrow represents the steering wheel running direction;	L	Battery Light:The light is on when remailing battery is or lower than20%.
F	Menu key	M	Neutral Light:The light is on when the vehicle is in neutral gear
G	It shows accumulative working hours and it starts timing when thetraction or pump starts working.	N	Turtle Light:The light is on when the vehicle is running in low speed.

Menu key

Icon	name	function
	Upper shift key	Move the cursor up or add 1 to chosen figure; switch from home screen to S mode;
	Left shift key	move the cursor to the left; switch from home screen to P mode;
	Right shift key	move the cursor to the right; switch from home screen to E mode;
	Down shift key	move the cursor down, or minus 1 from chosen figure;
	Cancel shift key	cancel current operation and return to previous menu;
	Confirm shift key	confirm current operation and switch from home screen to menu mode;

Vehicle Control Shortcut Keypad (Optional)

icon	name	Function
	function key 1	drive external relay, and specific function is subject to field usage.
	function key 2	
	function key 3	
	function key 4	
	function key 5	

Combinatorial key

icon	name	Function
	Upper shift key	In the main interface, press "up key" and "down key" at the same time, you can see the instrument information, including the instrument number, SIM card number and software version number
	Left shift key	

Menu Structure Introduction

Menu adaptation electronic control model:

2.1Description of pump switch

menu	describe	43C Instrument meaning	ACE2+ACE2	ACE2+HPG	Combi-AC2	AC2+HPG
Lifting switch	State of lifting switch	Lifting	Lifting 2 , Low speed gear	Lifting	Lifting 1	no
Speed 1 switch	Speed 1 switch state	Lifting 1	Lifting 2	no	no	no
Speed 2 switch	Speed 2 switch state	Lifting 2	Lifting 1 , High speed gear	no	Lifting 2	Lifting 1
Speed 3 switch	Speed 3 switch state	tilt	tilt	tilt	tilt	Lifting 2
Speed 4 switch	Speed 4 switch state	Lateral shift	Lateral shift	Lateral shift	Lateral shift	tilt
Speed 5 switch	Speed 5 switch state	Genera	Genera	Genera	Genera	Lateral shift
Speed 6 switch	Speed 6 switch state	Spare	no	no	no	Genera

2.2 Operator menu

1、Traction monitoring ---------- (Operator) T.Tester							
menu		describe	Remarks	ACE2+ ACE2	ACE2+ HPG	Combi -AC2	AC2+ HPG
1	Seat switch	Seat switch status	ON/OFF	●	●	●	●
2	Forward switch	Forward gear switch state	ON/OFF	●	●	●	●
3	Backdrop switch	Back shift switch status	ON/OFF	●	●	●	●
4	Foot brake switch	Foot brake switch state	ON/OFF	●	●	●	●
5	Safety lock switch	Safety lock switch status	ON/OFF	●	●	●	●
6	Limit switch	Limit switch state	ON/OFF	●	●	●	●
7	Accelerator pedal switch	Acceleration pedal switch status	ON/OFF	●	●	●	●
8	Handbrake switch	Handbrake switch state	ON/OFF	●	●	●	●
9	Battery voltage	Current battery voltage value	V	●	●	●	●
10	Steering angle	Current steering angle		●	●	●	●
11	Traction motor temperature	Current traction motor temperature	℃	●	●	●	●
12	Traction driver temperature	Current traction driver temperature	℃	●	●	●	●
13	Traction motor phase current	Current phase effective value of traction motor	Arms	●	●	●	●
14	Traction working time	Timing of traction controller	h	●			
15	Accelerated analog input	Accelerator pedal analog AD sampling value		●	●	●	●
2、Pump monitoring ---------- (Operator) P.Tester							
1	Handle/Seat SW	seat switch status	ON/OFF	●	●	●	●
2	LIFTING SWITCH	lift switch status	ON/OFF	●	●	●	●
3	1ST SPEED SWITCH	speed 1 switch status，lift1	ON/OFF	●		●	
4	2ST SPEED SWITCH	speed 2 switch status，lift2	ON/OFF	●		●	●
5	3ST SPEED SWITCH	speed 3 switch status，tilt	ON/OFF	●	●	●	●
6	4ST SPEED SWITCH	speed 4 switch status，sideshift	ON/OFF	●	●	●	●

7	5ST SPEED SWITCH	speed 5 switch status， attachments	ON/OFF	●	●	●	●
8	6STSPEED SWITCH	speed 6 switch status，standby	ON/OFF	●	●	●	●
9	CUTBACK SWITCH	cutback switch status	ON/OFF	●	●	●	●
10	BATTERY VOLTAGE	current battery voltage	V	●		●	●
11	MOTOR TMEPERTURE	pump motor temperature	℃	●		●	●
12	TEMPERTURE	pump drive temperature	℃	●		●	●
13	CURRENT RMS	pump motor phase current virtual value	Arms	●		●	●
14	2ND HOURMETER	oil pump inverter hourmeter	h	●			
15	P.MotorVoltage				●		●

2.3 Administrator Menu

1、 Traction Monitor and Set ----------(administrator)OPERATE MONITOR

1.1 T.Tester

menu		description	note	ACE2+ ACE2	ACE2+ HPG	Combi- AC2	AC2+ HPG
1	Handle/Seat SW	seat switch status	ON/OFF	●	●	●	●
2	FORWARD SWITCH	forward switch status	ON/OFF	●	●	●	●
3	BACKWARD SWITCH	backward switch status	ON/OFF	●	●	●	●
4	BRAKE SWITCH	brake switch status	ON/OFF	●	●	●	●
5	SAFETY LOCK SWITCH	Safety lock switch status	ON/OFF	●	●	●	●
6	CUTBACK SWITCH	Cutback switch status	ON/OFF	●	●	●	●
7	ENABLE SWITCH	Accelerator pedal switch status	ON/OFF	●	●	●	●
8	HANDBRAKE switch	Handbrake switch status	ON/OFF	●	●	●	●
9	BATTERY VOLTAGE	Battery voltage	V	●	●	●	●
10	STEERANGLE	Steering angle		●	●	●	●
11	MOTOR TEMPERTURE	traction motor temperature	℃	●	●	●	●
12	TEMPERTURE	traction drive temperature	℃	●	●	●	●
13	CURRENT RMS	traction motor phase currentvirtual value	Arms	●	●	●	●
14	2ND HOURMETERS	traction inverter time keeping	h	●			
15	ACCELERATOR	accelerator pedal analog ADsampling value		●	●	●	●

1.2 T.Parameter Change							
1	ACCELERATION 0 S	scope：0~100		●	●	●	●
2	ACCELERATION 0 P	scope：0~100		●	●	●	
3	ACCELERATION 0 E	scope：0~100		●	●	●	
4	ACCELERATION 0	scope：0~100		●	●	●	
5	REL. BRAKING S	scope：0~100		●	●	●	●
6	REL. BRAKING P	scope：0~100		●	●	●	
7	REL. BRAKING E	scope：0~100		●	●	●	
8	RELEASE BRAKING	scope：0~100		●	●	●	
9	DECEL. BRAKING S	scope：0~100		●	●	●	
10	DECEL. BRAKING P	scope：0~100		●	●	●	
11	DECEL. BRAKING E	scope：0~100		●	●	●	
12	DECEL. BRAKING	scope：0~100		●	●	●	
13	PEDAL BRAKING S	scope：0~100		●	●	●	●
14	PEDAL BRAKING P	scope：0~100		●	●	●	
15	PEDAL BRAKING E	scope：0~100		●	●	●	
16	PEDAL BRAKING	scope：0~100		●	●	●	
17	MAX SPEED FWD S	scope：0~250	Hz	●	●	●	●
18	MAX SPEED FWD P	scope：0~250	Hz	●	●	●	
19	MAX SPEED FWD E	scope：0~250	Hz	●	●	●	
20	MAX SPEED FWD	scope：0~250	Hz	●	●	●	
21	MAX SPEED BWD S	scope：0~250	Hz	●	●	●	
22	MAX SPEED BWD P	scope：0~250	Hz	●	●	●	
23	MAX SPEED BWD E	scope：0~250	Hz	●	●	●	
24	MAX SPEED BWD	scope：0~250	Hz	●	●	●	
25	Invers.BrakingS					●	●
26	Invers.BrakingP					●	
27	Invers.BrakingE					●	
28	Invers.Braking					●	
1.3 T.Set Option							
1	ENABLE SWITCH		ON/OFF	●	●	●	●
1.4 T.Adjustment							

1	THROTTLE 0 ZONE	scope：0~100	%	●	●		
2	THROTTLE X POINT	scope：0~100	%	●	●		
3	THROTTLE Y POINT	scope：0~100	%	●	●		
2、Pump Monitor and Set ----------(administrator)							
2.1 P.Tester							
1	Handle/Seat SW	seat switch status	ON/OFF	●	●	●	●
2	LIFTING SWITCH	lift switch status	ON/OFF	●	●	●	●
3	1ST SPEED SWITCH	speed 1 switch status，lift1	ON/OFF	●	●		
4	2ND SPEED SWITCH	speed 2 switch status，lift2	ON/OFF	●	●	●	
5	3RD SPEED SWITCH	speed 3 switch status，tilt	ON/OFF	●	●	●	●
6	4RD SPEED SWITCH	speed 4 switch status, sideshift	ON/OFF	●	●	●	●
7	5TH SPEED SWITCH	speed 5 switch status，attachments	ON/OFF	●	●	●	●
8	6TH SPEED SWITCH	speed 6 switch status，standby	ON/OFF				●
9	CUTBACK SWITCH	cutback switch status	ON/OFF	●	●	●	●
10	BATTERY VOLTAGE	Battery voltage	V	●	●	●	
11	MOTOR TMEPERTURE	pump motor temperature	℃	●	●	●	
12	TEMPERTURE	pump drive temperature	℃	●	●	●	
13	CURRENT RMS	pump motor phase current virtual value	Arms	●	●	●	
14	2ND HOURMETER	oil pump inverter time keeping	h	●			
15	P.MotorVoltage				●		●
2.2 P.Parameter Change							
1	MAX SPEED LIFT	scope：0~250	Hz	●	●		
2	1ST SPEED COARSE	scope：0~200	Hz	●	●		
3	2ND SPEED COARSE	scope：0~200	Hz	●	●		
4	3RD SPEED COARSE	scope：0~200	Hz	●	●		
5	4RD SPEED COARSE	scope：0~200	Hz	●	●		
6	5RD SPEED COARSE	scope：0~200	Hz	●	●		
7	HYD SPEED FINE	scope：0~200	Hz	●	●		
8	HYDRO TIME	scope：0~200	S	●	●		

9	Acceler.Delay						●
10	Deceler.Delay						●
11	HYDSpeedCoarse						●
12	HYDSpeedFine						●
13	HYDRoCompens.						●
14	2ndSpeedCoarse						●
15	2ndSpeedFine						●
16	2ndSpeedComp.						●
17	3rdSpeedCoarse						●
18	3rdSpeedFine						●
19	3rdSpeedComp.						●
20	4thSpeedCoarse						●
21	4thSpeedFine						●
22	4thSpeedComp.						●
23	5thSpeedCoarse						●
24	5thSpeedFine						●
25	5thSpeedComp.						●
26	6thSpeedCoarse						●
27	6thSpeedFine						●
28	6thSpeedComp.						●
29	MaximumCurrent	scope：0~100	%	●	●	●	
30	CutbackSpeed						●
31	CutbackSpeed3						●
2.3 P.Set Option							
1	HourCounter		ON/OFF				●
2	Lift Pot			●		●	●
3	Accel5V-0V						●
4	CANBus						●
5	DigitalLift						●
6	PotDiag						●
3---------- (administrator)DISPLAY SET							

1	Reset HM	the hourmeter is cleared after it is changed to 1.		●	●	●	●
4---------- (administrator)OTHER SET							
1	OperatorPasswordSet	Operator password setting	Input old password and new password shall be input twice.	●	●	●	●
2	AdminPasswordSet	Administrator password setting		●	●	●	●
3	LanguageSet	Chinese/English		●	●	●	●
4	BrightnessAdjust			●	●	●	●
5	BootPasswordEn						
6	SpeedDisplay	Change speed to integer orde cimals		●	●	●	●
7	Version			●	●	●	●
8	BootPasswordSet	reset power-on password					
9	SIM Info.	SIM cardCCID number		●	●	●	●
10	SpeedUnit	speed unit change between km/h and MPH		●	●	●	●

The multi-function display can display battery power, operating hours, operating mode, running speed, fault information, steering angle, etc., and can display various warning information in the form of a graphic. The fault code can also be viewed via the button on the right.

Battery capacity display[A]

The remaining capacity of the battery is displayed as a percentage.

> **CAUTION**
> - **Charging in time is very important, otherwise it will affect the lift-span of the lithium battery!**

Service hours display[G]

When the vehicle key switch is closed, the hour meter starts counting and the minimum resolution is 1 hour.

Operating mode display[C]

As the diagram shows, the pictures from the left to the right represent the mode of **S**mode→**P**mode →**E**mode

S mode ,P mode is power mode. All kinds of index are lower. It is applied for the case of long distance transporting and needing higher power or speed.

E mode is economical mode. All the parameters are optimized. Working in this mode can save power so it is applied for a long time work after charging, and it is suggested to work in this mode in normal work-time.

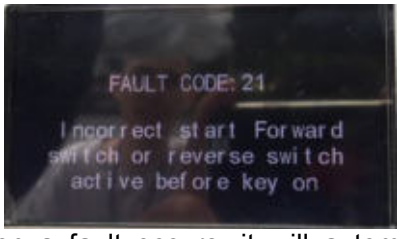
> **CAUTION**
> - **The default mode of the system is P mode. After each power failure, it will return to P mode regardless of the mode before power off.**

Travel speed or fault code display[D]

Travel speed display

Normal work, display the truck travel speed.

Fault code display



When a fault occurs, it will automatically switch to the fault code and analysis instructions displayed on the fault interface.

Rear wheel angle display [E]

The rear wheel angle is indicated in real time, and the pointer will rotate according to the change of the rear wheel angle. The angle of the rear wheel changes from +90° to -90°, and the position shown in the figure is the position of the pointer when the rear wheel is at the angle of -90°.

Indicator light

Crawl speed indicator[N](Green)

When the vehicle is in "E" mode, the secondary light is on

Empty light [M]

Lights up when the vehicle stall is in neutral

Battery low capacity indicator[L](Red)

When the battery is below 20%, the light is illuminated to remind the user to charge the battery as soon as possible.

Lifting low speed indicator[K](Red)

When there is 10% power, the indicator is on, and the mast lifting speed drops, to remind user to charge the battery as soon as possible.

Seat switch indicator[J](Red)

When operator leaves the seat, the light will be on, and the truck will be unable to travel or lift. This function needs the seat to equip with seat switch (optional).

Parking brake applied indicator[K]

When parking brake applied, the light up.

Steps

Boot into the instrument interface:

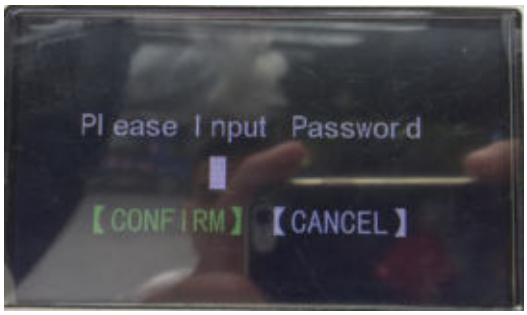
1) Mode setting

In the main interface, press  、  、  key to correspond to S, P, E three operating modes.

Example: In the main interface, press the  key, the main display shows as follows:

Operation menu

Press the  key to enter the input password interface.

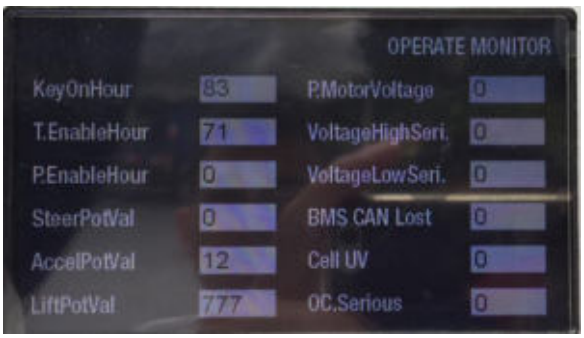


Enter the password and press 5 "  " to enter the menu interface.

Press  to enter the switch monitoring interface

The number “1” indicates closed, the number “0” indicates disconnection, and the , , , and keys can be used to view the up, down, left, and right of the interface. Press to return to the previous interface

Press the down arrow to view the operation monitoring



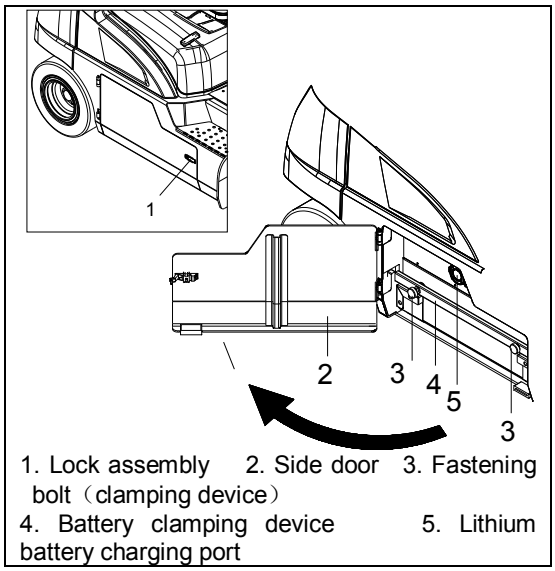
As shown in the figure, check the operation of the forklift. In the case of “total pressure too high”, “total pressure undervoltage”, “internal communication interruption”, “single undervoltage”, “discharge overcurrent” is displayed as “0”. "It means normal, "1" means failure.

Use the same method to enter the temperature monitoring interface and current monitoring interface

Press the key after viewing to return to the main menu interface.

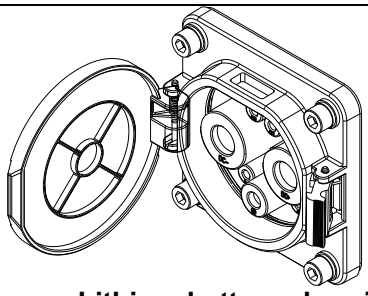
1.6 Lithium battery charging port structure and side door

The charging port of the lithium battery and the side door of the lithium battery are separately introduced here. As the side door and charging port are often used during charging.
Detailed lithium battery and charger are described in the following section.
CPD20/25/30/35-XD4-SI25 charging port structure and side door



1. Lock assembly 2. Side door 3. Fastening bolt（clamping device）
4. Battery clamping device 5. Lithium battery charging port

a. Press the lock to open the side door.
b. The lithium battery charging port can be seen, and the charging port is covered with a cover. Open the cover and see the charging port.

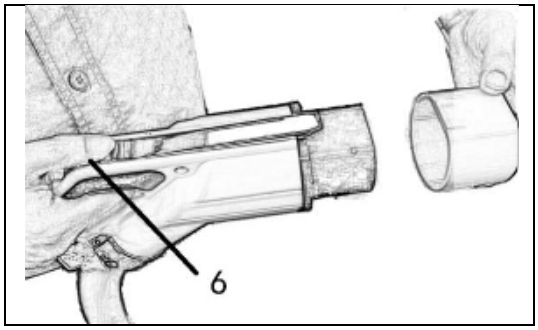


Lithium battery charging port structure

Note: A slot is formed above the socket for fastening the lock when the charging gun is inserted into the charging device.
CPD20/25/30/35-XD4-SI21/SI26,CPD15/18-XD4-SI16 charging port structure and side door

Move the charging port to the right rear of the vehicle body. The charging door assembly adopts the magnet suction method, which is convenient to open and charge.

Note: The flat side of the plug is equipped with a locking hook that snaps into the slot when it is inserted into the battery socket.



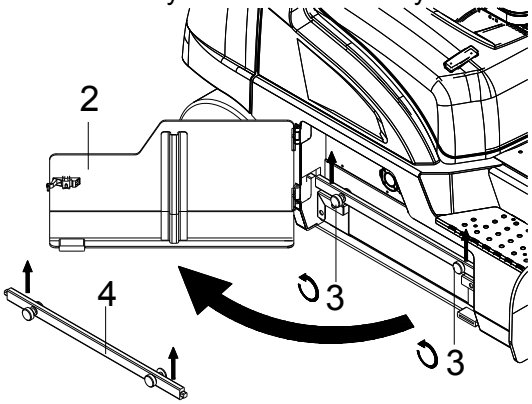
Press the lock button (6) on the charging gun

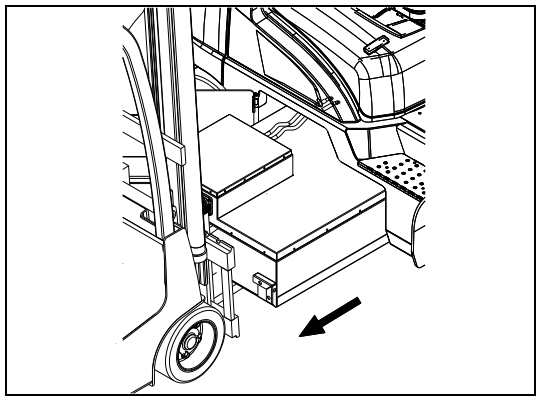
head to insert or remove.

Lithium battery fastening:
The lithium on the right side of the lithium battery clamp the truck frame for fastening purpose through the battery clamping device. There are 2 bolts on the clamping device. The heads of the bolts are welded with gaskets. When the bolts are tightened clockwise, the lithium batteries are installed horizontally.

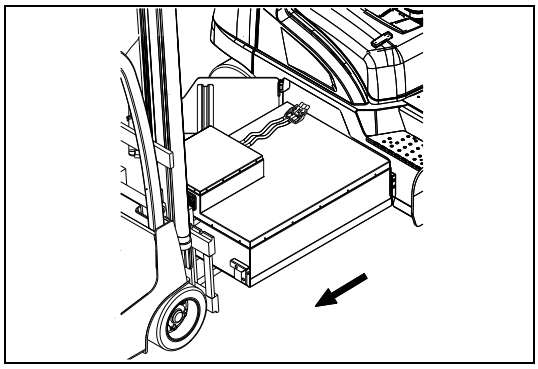
1.7 Lithium battery disassembly and installation

The lithium batterydrops to the bottom of the body, and the side is secured by a protective rod. It lies on the frame by weight. For the removal and installation of lithium battery.
a. Remove the plug (1) between the lithium battery and the truck body, open the side door (2), tighten the bolt (3) on the fastening device, and lift it up a small section (4), then remove the lithium battery from the truck body.





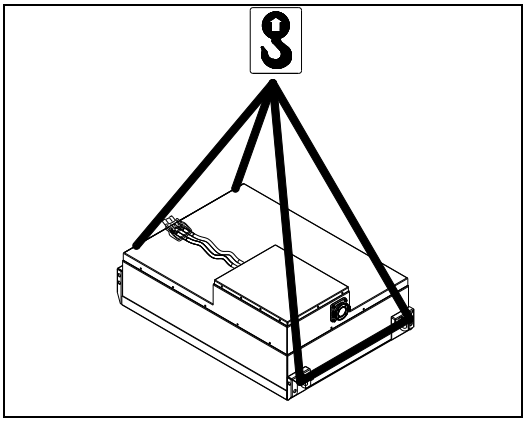
b. Center the forks in the middle of the two rows of rollers, remove the battery, and transfer it to the forks.



c. Lift the forklift or pallet truck 1cm, pay attention to adjust the fork spacing, and gently pull out the lithium battery.

Installment
Installation is opposite to disassembly.

> Warning
> Lift carefully. The lithium battery weighs about 320 kg. It's very heavy.
> Prevent crushing or pinching your hands during installation.

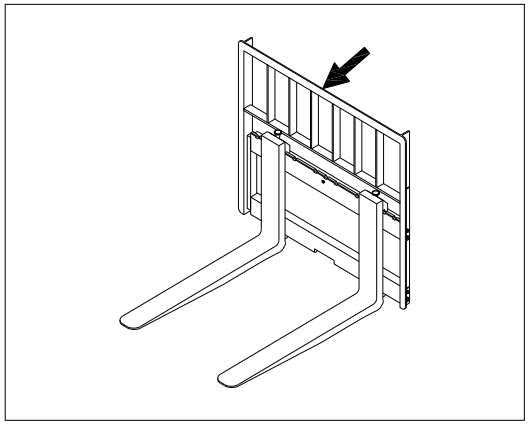


Lift the lithium battery to the ground with a lifting device. See the illustration above for the fixing point.

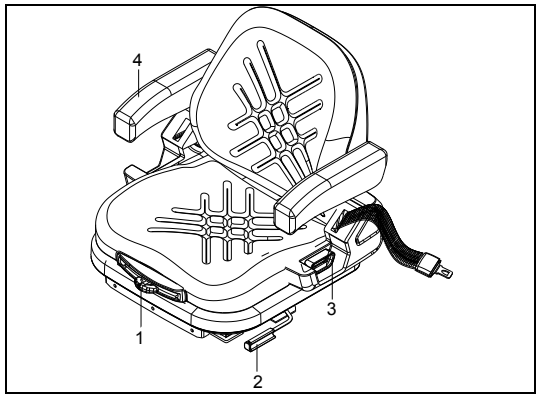
1.8 Truck body and others

Load bracket

Load bracket can guarantee the stable goods loading. It’s forbidden to use the forklift without the load bracket.It is forbidden to disassemble and modify the load bracket.



Seat



1: Weight adjustment lever
2: Forward and rearward adjustment lever
3: Backrest angle adjustment lever
4: Armrest adjusting knob

·Weight adjustment on the seat

Pull up the weight adjustment lever and then move the lever to left or right side horizontally to adjust the seat to the driver's weight where it's comfortable for driving and working.

·Forward and rearward adjustment of the seat

Move the lever to inner side with hands, and then move the seat assembly forward or rearward to adjust the seat to a proper position. When the handle is released, the seat will be locked automatically.

·Angle adjustment of backrest

When seated on the seat, lay the back on the seat backrest and pull the backrest angle adjustment lever upward with left hand. Do not release the lever until a proper position is fitted to the seat by moving the body forward or backward.

·Armrest Adjustment

The tilt angle of the armrest is adjusted by turning the adjustment knob. When the knob is turned outward, the front end of the armrest will rise. When turning the knob inward, the front end of the armrest will be lowered

Warning

- Turn off the key before adjusting the seat.
- Stop the truck to adjust the seat.
- It is not allowed to adjust the seat during driving to avoid accidents
- Make sure the lever is moved completely to separate the seat structure before the forward and rearward adjustment of th e seat and angle adjustment of seat backrest.
- After adjustment, each lever should be back in place. Before using the tru ck, make sure the lock of every part is reliable.

Seat belt

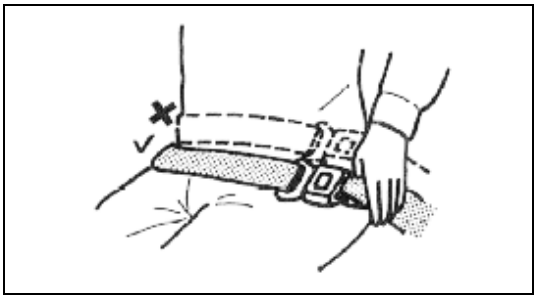
·Fasten the belt

Belt was huddled up in the box. There is a secondary action to draw out the belt. So you may meet some trouble due to not be familiar with it.

One kind of seat: it needs to press the white circular button (with the words: press to release) by one hand, then the belt can be pulled out by the other hand and inserted into the socket.

You may also meet another seat: the belt box is adjustable. Rotate the belt box forward, the belt can not be drawn out. Rotate the belt box backward, the belt is drawn out. Insert the belt into the socket of the other side. Rotate the belt box forward again and then the belt is in normal working position.

Please fasten the belt when get on the truck. Meanwhile, let the back and waist close to the seat. Don't tie the seat in the abdomen.

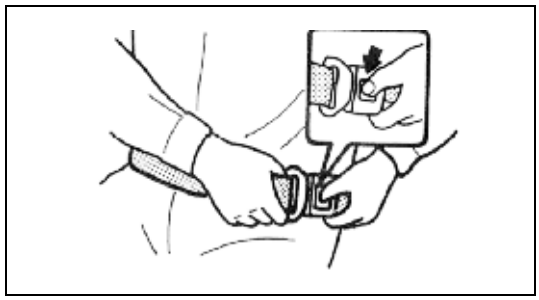


Please don't have the seat backrest tilted excessively. Otherwise, the belt can not be extended correctly.

Prohibit use the belt knotted or twisted.

To tie the belt in the daily operation will protect you when the truck turn over and reduce the harm.

·Unfasten the belt



Use left pollex to press the red button (with the word PRESS) in the socket, it's untied.

·Check the belt

Check if the bolt that fixed belt is loosened. Don't press the belt in the hard or frangible objects and prevent from grinding with the sharp blade to avoid damage.

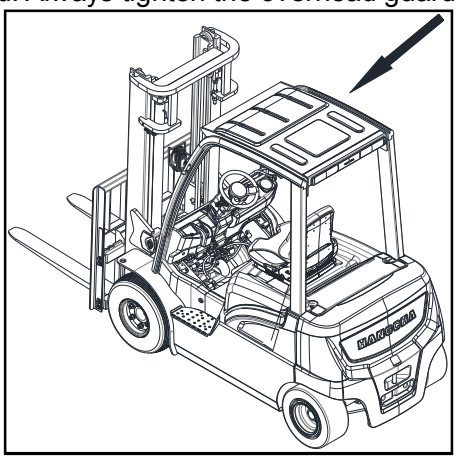
It is prohibited to remove any parts of the belt. The belt used frequently needs to be checked frequently.

- Cutting or fracturing
- Worn or damaged metal parts, including positioning points;
- Buckle or traction device fault
- Off-line

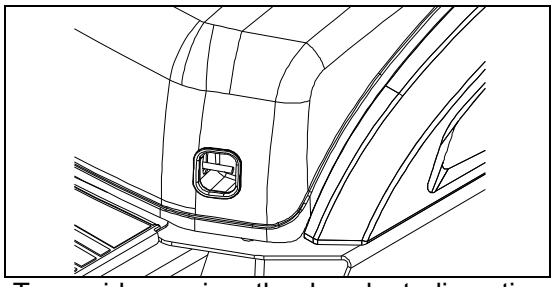
If abnormal condition occurs, please change a new belt immediately. The service life of the belt is three years, so reject it in advance if it's abnormal.

Overhead guard

The overhead guard protects the operator from being damaged by falling materials. It must have enough shock resistance strength. It's not allowed to use forklift without overhead guard. Always tighten the overhead guard.

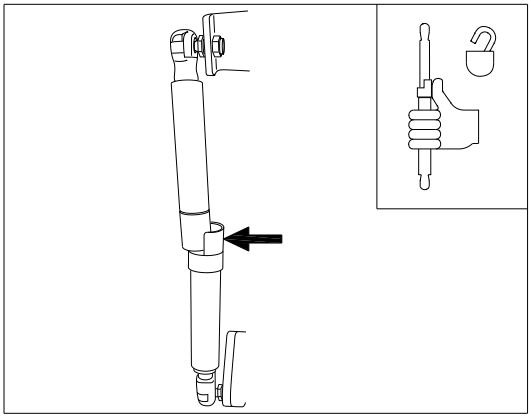


Lock components



To avoid opening the hood at discretion, a snap close is set here. Open the snap close first then the hood can be open.

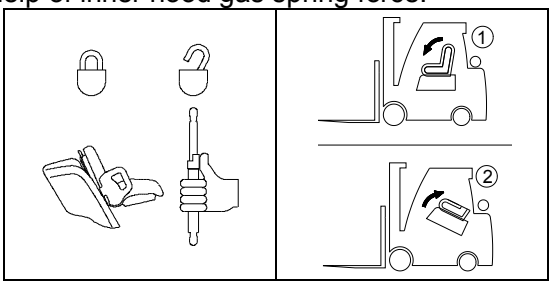
Air spring



When opening the cover, it is used to support the cover. When closing the cover, press the red button, meanwhile, press the cover hard and lock it with lock catch.

Hood

The open hood is easy maintenance service. You can lift up the hood with little effort with help of inner hood gas spring force.



When it is closed, press the red button on the air spring pipe, then the lock will be released. Press the hood head, you can shut it down, and the hood is locked after you hear click sound.

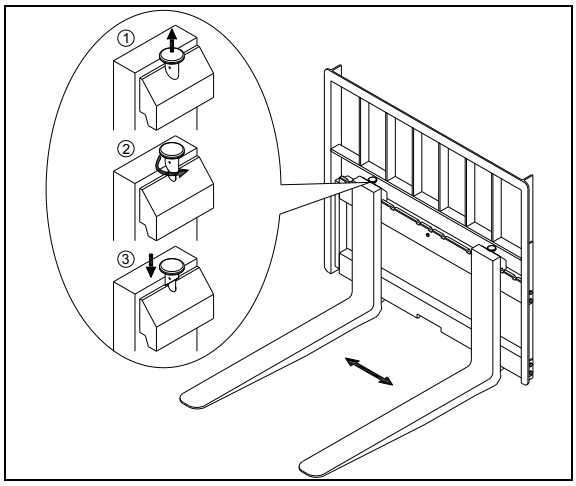
CAUTION

When closing the hood, prevent the falling hood from clamping your fingers.

Warning

When servicing under the hood, be sure to turn off the key switch to prevent electric shock.However, in the case where the hands, feet, head, and body do not touch the components, in order to diagnose the fault by hearing, the key switch and the hood are allowed to open at this time.

Fork stopper [31]



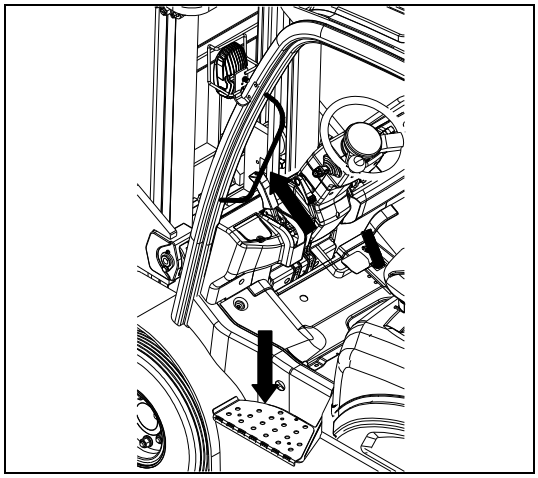
Fork stoppers are locked the forks in position. To adjust fork spacing, pull up fork stoppers, turn 180°and shift the forks to the desired position. The fork spacing should be adjusting according to loads to be handled.

WARNING

- **The forks should be set symmetrically to machine centerline and fork stoppers should always be locked again.**
- **There are one gap on the below beam. It is used to attach goods.**
- **It is forbidden to lock the fork on the gap position, to prevent the fork fall off from the gap.Always check the bolts in the middle of the fork, which prevents the fork from using the fork**

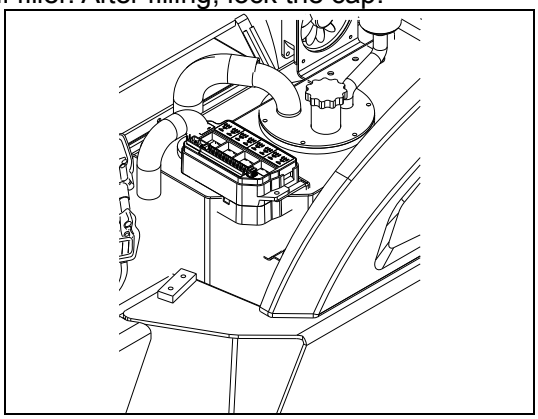
Pedal and handrail for getting on and off

There equips with pedal for getting on and off truck both side of the truck, handrails on left and right overhead guard brace. Please use handrails for safety when getting on and off truck.

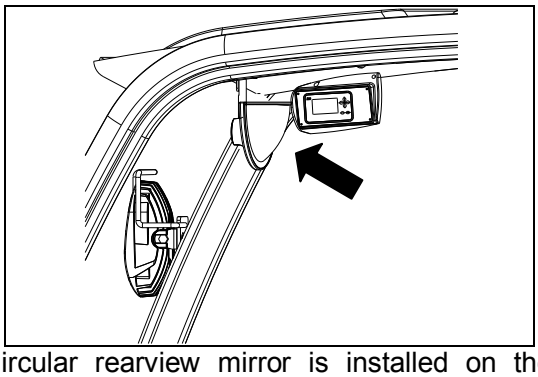


Hydraulic fluid reservoir cap

The hydraulic fluid reservoir cap is located on the left of the hood. Open the cover when adding oil. Fill clean hydraulic oil through this oil filler. After filling, lock the cap.



Rearview mirror

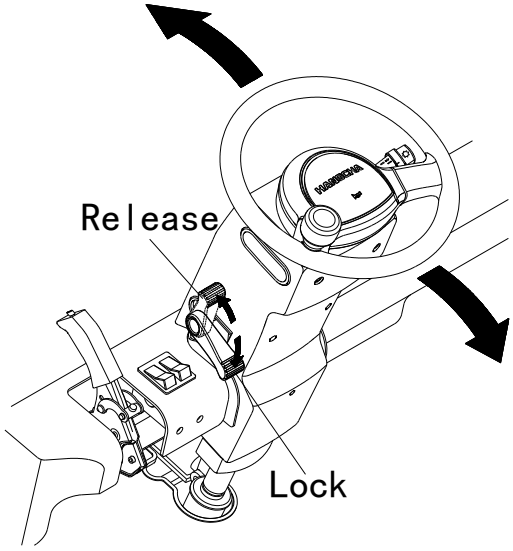


Circular rearview mirror is installed on the upper right of overhead safeguard, and is for observing rear condition or back up.

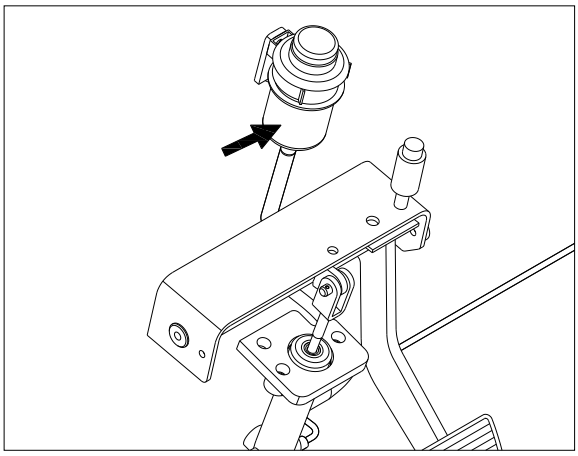
Steering column positioning device

Adjust and fix steering column according to needed distance.

In order to meet operator's need, the tilting angle of steering column is adjustable. Pull the lever upward, the steering column is released; push downward and locked.



Brake fluid reservoir

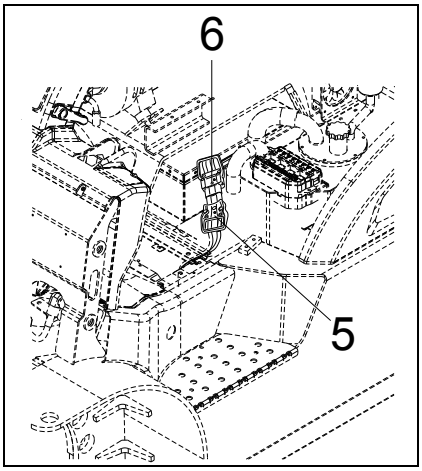


Brake oiler installs in the instrument stand, right below the steering wheel. Translucent reservoir enable us check the brake fluid level from outside.

Caution

When adding brake fluid, prevent dust and debris from entering the cup. Brake fluid is corrosive and toxic.

Plug and socket

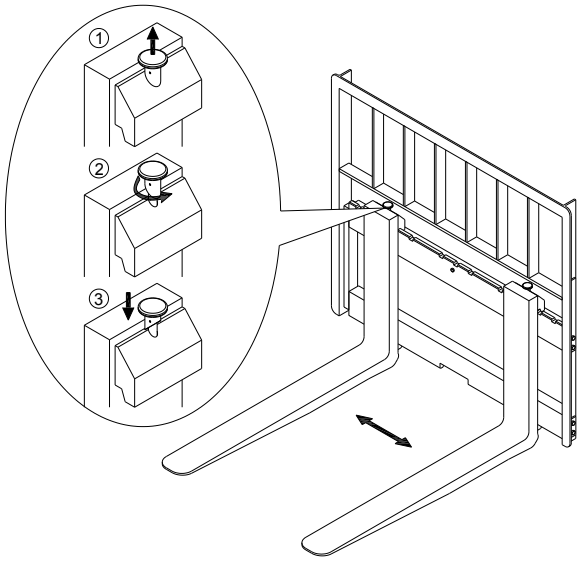


1.9 Adjust and replace forks

Adjust fork distance

In order to guarantee safe operation of picking loads, before operation, adjust the fork distance to proper position according to the tray dimension.

Procedures：



- Pull up the fork locating pin upward, and rotate180° in random direction, then fork is unlocked.
- Based on fork carriage center line, adjust the fork position to both ends symmetrically.
- After adjusting the fork distance, pull up the fork locating pin upward, rotate to original position, and then slide the forks left or right a little to make sure the fork locating pin get in the slot of fork carriage.

Fork distance is adjusted.

Caution

- **Fork locating pin must be locked(keep in the slot of fork carriage), otherwise forks are easy to move during driving and loads may fall down.**
- **Be careful when adjusting forks.**

Fork removal

Caution

- **There is an opening on the lower beam of the fork carriage to assemble and dissemble forks.**
- **It's prohibited to fix forks on the fork carriage opening, prevent forks dropping from the opening.**
- **There installs a bolt in the middle of upper beam to prevent forks working here. Replace in time if bolt is damaged.**

Fork removal：

When replacing forks, screw off the fixed bolt in the middle of the fork carriage, move the fork to the middle opening of fork carriage beam, and then tilt forward and lower the forks until forks are off the fork carriage, then back the truck.

Fork assemble：

Place forks on the ground against the truck, lower the fork carriage to the lowest, drive the truck forward slowly, aim at the upper and lower slot of fork and the upper and lower beam and gap of fork carriage, fully lift the fork carriage, adjust the left and right position of forks and lock it.

1.10 OPS system（optional）

OPS (Operator Presence Sensing) system is a safeguard system that installs a sensor in the driver seat to sense if the driver sits on the seat correctly. If the driver does not sit on the seat correctly, driving force is cut off, meanwhile, all loading and unloading operations will be stopped. It helps to reduce accident when the driver leaves. When the driver does not sit correctly, the driver cannot drive the truck or operate the loading and unloading, thus the accidents by maloperation will be reduced.

Drivingprotection function

When the vehicle is travelling, the driver leaves the seat or the safety belt is released (if equip with safety belt protection switch) over 1 second, truck stops automatically, and the instrument displayed seat indicator light  lights up, meanwhile the buzzer sends out continuous alarm signal. Only when pulling up the hand brake or the driver sits on the seat correctly and the direction switch returns to neutral, the seat indicator light  goes out, travelling OPS status is released.

Working protection function

When the vehicle is under working condition, the driver leaves the seat or the safety belt is released (if equip with safety belt protection switch) over 1 second, working stops automatically, and the instrument displayed seat indicator light  lights up, meanwhile the buzzer sends out continuous alarm signal. OPS light comes on, buzzer sends out alarm signal, transportation operation stops automatically. When the driver sits down again, the seat indicator light  goes out, working OPS status is released.

Warning function

Once the seat sensor detects the seat switch is turned off, within 1 second, the buzzer sends out continuous alarm signal, and the seat indicator light  lights up. If the seat indicator light  keeps on when the seat switch is off, it means the OPS in the startup state.

Resume neutral function

If the direction switch does not return to neutral and the seat switch is turned on. The buzzer will send out continuous alarm signal to remind the driver that the OPS in the startup state.

OPS abnormal function handling

Park the truck in safe place and contact Hangcha agency to check if any below condition is occurred. a. after the driver leaves the seat, the seat indicator light  does not light up; b. when the driver sits down, the seat indicator light  does not go out.

Caution

- **As to forklift equipped with safety belt protection switch, after driver sits on the seat correctly, it also needs fasten safety belt, then can operate the truck normally. When driving on the uphill, starting the OPS will cut off the drive power and make the truck slip. In order to avoid this accident, the driver must sit correctly when operating on the uphill.**

Fork locking function after power off

This function means: forks are locked when starting switch is closed or power failure, forks will not lower down even operate the control lever.

1.11 Technical Specifications

The technical data given below are standard data. The company reserves the right to make technical changes and additions.

CPD20/25/30/35-XD4-SI25

Serial number	Project			CPD20-XD4-SI25	CPD25-XD4-SI25	CPD30-XD4-SI25	CPD35-XD4-SI25
1	Rated lifting capacity		kg	2000	2500	3000	3500
2	Load center distance		mm	500	500	500	500
3	Standard mast lift height		mm	3000	3000	3000	3000
4	Free lift height		mm	140	140	145	145
5	Mast Tilt angle (front/back)		(°)	6/12	6/12	6/12	6/12
6	Maximum lifting speed (no load/full load)		mm/s	600/450	600/430	540/410	540/390
7	Maximum travel speed (no load/full load)		km/h	17/16	17/16	17/16	17/15.5
8	Maximum grade ability (no load/full load)		%	18/15	18/15	18/15	18/15
9	Minimum outside turning radius		mm	2090	2090	2270	2270
10	Minimum ground clearance		mm	100	100	100	100
11	Maximum braking distance		m	6	6	6	6
12	Dimensions	Length(to fork face)	mm	2300	2300	2475	2480
		Width	mm	1252	1252	1265	1298
		Height to overhead	mm	2100	2100	2100	2100
13	Service weight	Include battery box	kg	3620	3920	4740	5080
14	Battery	Standard	V/Ah	80/271	80/271	80/404	80/404
15	Motor	Driven Motor	kW	15	15	15	15
		model		HPQ15-4HC-A			
		Pump Motor	kW	25.4	25.4	25.4	25.4
		model		HPB25.4-4			
16	control	Traction control		ACS80L-440C-35P		ACS80XL-550C-35P	
		Pump control		ACS80M-330C-35P		ACS80L-440C-35P	
		manufacturer		Inmotion			
17	Tire	Front×2		23×9-10-18PR/2 (Pneumatic tire)	23×9-10-18PR/2 (Pneumatic tire)	23×9-10-18PR/2 (Pneumatic tire)	23×10-12(K2)/2 (Solid tire)
		Rear×2		18×7-8-14PR/2 (Pneumatic tire)	18×7-8-14PR/2 (Pneumatic tire)	18×7-8-14PR/2 (Pneumatic tire)	200/50-10 (K2) (Solid tire)

CPD20/25/30/35-XD4-SI26

Serial number	Project			CPD20-XD4-SI26	CPD25-XD4-SI26	CPD30-XD4-SI26	CPD35-XD4-SI26
1	Rated lifting capacity		kg	2000	2500	3000	3500
2	Load center distance		mm	500	500	500	500
3	Standard mast lift height		mm	3000	3000	3000	3000
4	Free lift height		mm	140	140	145	145
5	Mast Tilt angle (front/back)		(°)	6/12	6/12	6/12	6/12
6	Maximum lifting speed (no load/full load)		mm/s	560/450	560/430	540/390	540/370
7	Maximum travel speed (no load/full load)		km/h	19/18	19/18	19/18	19/18
8	Maximum grade ability (no load/full load)		%	20/20	20/20	20/20	20/20
9	Minimum outside turning radius		mm	2090	2090	2270	2270
10	Minimum ground clearance		mm	100	100	100	100
11	Maximum braking distance		m	6	6	6	6
12	Dimensions	Length(to fork face)	mm	2300	2300	2475	2480
		Width	mm	1252	1252	1265	1298
		Height to overhead	mm	2100	2100	2100	2100
13	Service weight	Include battery box	kg	3620	3920	4740	5080
14	Battery	Standard	V/Ah	80/271	80/271	80/404	80/404
15	Motor	Driven Motor	kW	16.6	16.6	16.6	16.6
		model		HPQ16.6-4HC			
		Pump Motor	kW	25.5	25.5	25.5	25.5
		model		TSA200-200-214			
16	control	Traction control		ACS80L-440C-35P		ACS80XL-550C-35P	
		Pump control		ACS80M-330C-35P		ACS80L-440C-35P	
		manufacturer		Inmotion			
17	Tire	Front×2		23×9-10-18PR/2 (Pneumatic tire)	23×9-10-18PR/2 (Pneumatic tire)	23×9-10-18PR/2 (Pneumatic tire)	23×10-12(K2)/2 (Solid tire)
		Rear×2		18×7-8-14PR/2 (Pneumatic	18×7-8-14PR /2 (Pneumatic tire)	200/50-10 (K2) /2 (Solid tire)	200/50-10 (K2) (Solid tire)

CPD20/25/30/35-XD4-SI21

Serial number	Project			CPD20-XD4-SI21	CPD25-XD4-SI21	CPD30-XD4-SI21	CPD35-XD4-SI21
1	Rated lifting capacity		kg	2000	2500	3000	3500
2	Load center distance		mm	500	500	500	500
3	Standard mast lift height		mm	3000	3000	3000	3000
4	Free lift height		mm	140	140	145	145
5	Mast Tilt angle (front/back)		(°)	6/12	6/12	6/12	6/12
6	Maximum lifting speed (no load/full load)		mm/s	450/350	450/350	430/330	430/330
7	Maximum travel speed (no load/full load)		km/h	15/14	15/14	15/14	15/14
8	Maximum grade ability (no load/full load)		%	14	14	14	14
9	Minimum outside turning radius		mm	2090	2090	2270	2270
10	Minimum ground clearance		mm	125	125	125	125
11	Maximum braking distance		m	4.79	4.79	4.79	4.79
12	Dimensions	Length(to fork face)	mm	2300	2300	2475	2480
		Width	mm	1252	1252	1265	1298
		Height to overhead	mm	2100	2100	2100	2100
13	Service weight	Include battery box	kg	3620	3920	4740	5080
14	Battery	Standard	V/Ah	80/202	80/202	80/271	80/271
15	Motor	Driven Motor	kW	11	11	11	11
		model		YDQ11-4-4822			
		Pump Motor	kW	21	21	21	21
		model		YDB21-4-4820			
16	control	Traction control		ACS80M-330C-35P		ACS80L-440C-35P	
		Pump control		ACS80M-330C-23P		ACS80M-330C-23P	
		manufacturer		Inmotion			
17	Tire	Front×2		23×9-10-18PR/2 (Pneumatic tire)	23×9-10-18PR/2 (Pneumatic tire)	23×9-10-18PR/2 (Pneumatic tire)	23×10-12(K2)/2 (Solid tire)
		Rear×2		18×7-8-14PR/2 (Pneumatic tire)	18×7-8-14PR /2 (Pneumatic tire)	18×7-8-14PR /2 (Pneumatic tire)	200/50-10 (K2) (Solid tire)

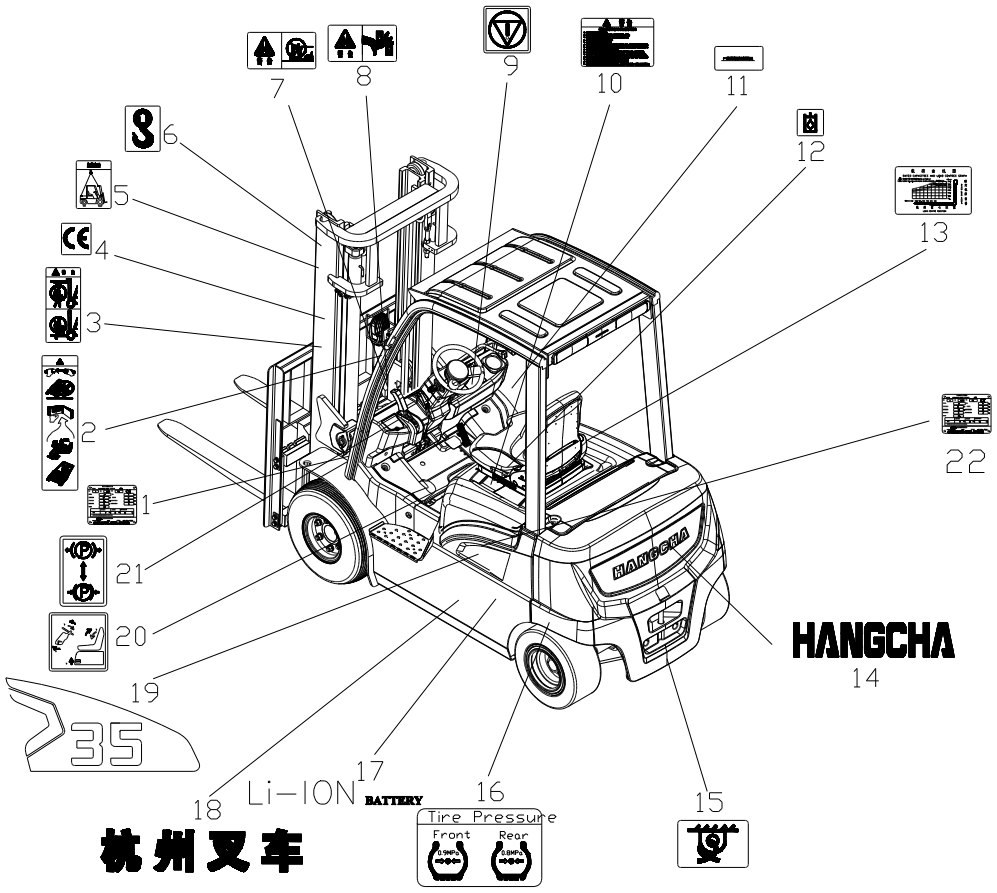
CPD15/18-XD4-SI16

Serial number	Project			CPD15-XD4-SI16	CPD18-XD4-SI16		
1	Rated lifting capacity		kg	1500	1800		
2	Load center distance		mm	500	500		
3	Standard mast lift height		mm	3000	3000		
4	Free lift height		mm	155	135		
5	Mast Tilt angle (front/back)		(°)	6/12	6/12		
6	Maximum lifting speed (no load/full load)		mm/s	460/430	460/420		
7	Maximum travel speed (no load/full load)		km/h	17/16	17/16		
8	Maximum grade ability (no load/full load)		%	20	20		
9	Minimum outside turning radius		mm	1950	1950		
10	Minimum ground clearance		mm	90	90		
11	Maximum braking distance		m	5.8	5.8		
12	Dimensions	Length(to fork face)	mm	2136	2141		
		Width	mm	1120	1138		
		Height to overhead	mm	2080	2080		
13	Service weight	Include battery box	kg	2850	3080		
14	Battery	Standard	V/Ah	80/202	80/202		
15	Motor	Driven Motor	kW	9	9		
		model		YDQ9-4-4820			
		Pump Motor	kW	16	16		
		model		YDB16-4-4820			
16	control	Traction control		ACS80M-330C-35P			
		Pump control		ACS80M-330C-35P			
		manufacturer		Inmotion			
17	Tire	Front×2		6.00-9NHS-10PR (Pneumatic tire)	21×8-9NHS-16PR/2 (Pneumatic tire)		
		Rear×2		5.00-8NHS-10PR (Pneumatic tire)	5.00-8NHS-10PR/2 (Pneumatic tire)		

1.12 Nameplate and Safety Labels

Warnings and notices such as Rated capacities and load centers graph, Warning label and name plate mustbe legible at all times. Replace if necessary.

The figure below shows the approximate location of the various markers. Before operating the truck, please understand the meaning of the various symbols.



编号	名称
1	Nameplate：Located at the top left of the instrument rack
2	Warning label
3	Warning label：Do not step onto or beneath the load
4	CE label (for CE vehicles)
5	Lift method
6	Lift method
7	Warning label
8	Warning label：Risk of trapping with moving mast
9	Emergency stop switch label
10	Warning label: Measures to be taken when the forklift rolls over.
11	Fuse label: use the fuse of the specified specifications
12	Hydraulic oil filler port label
13	Load curve label
14	Manufacturer identification
15	Tethered point label: tethered point when dragging
16	Tire pressure label (optional, special for pneumatic tires)
17	Lithium battery power label
18	Manufacturer identification
19	Tonnage label
20	Open the cover operation indicator label (may not have this label)
21	Hand brake label
22	Lithium battery label

1.13 The Structure and Stability of Truck

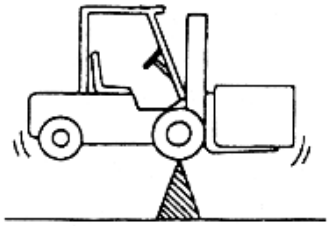
Prevent the forklift to turn over! It is very important for operator to know the truck's structure and relationship between load and stability.

CAUTION | **Structure**

The basic structure of the truck is mast (include mast and forks) and body (include tire).

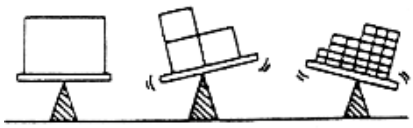
The lift truck keeps the balance of weight between the truck body and the load on the forks with the center of the front wheels as a fulcrum when the rated capacity load is placed in position.

Due care should be paid to the gravity center of loads and forklift to maintain the stability of the truck.



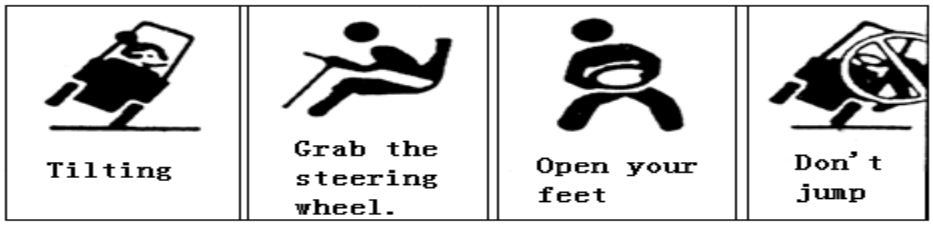
CAUTION | **Load center**

There is difference in gravity because of the loads' shape, such as box, board and large roller. It is very important to distinguish the difference of the gravity center of loads for evaluating the truck's stability.



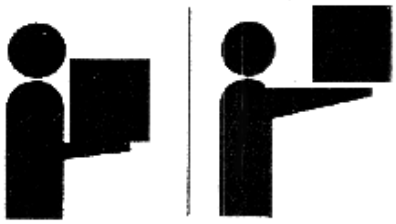
WARNING

If the truck will turn over, do not attempt to get out of the truck because the speed of overturn is much faster than your speed. You should hold the steering wheel handle, stretch your feet, and this practice will let you in the seats. Operator fastens the safety belt please.



⚠CAUTION | **The max. load and load center**

The load center distance is defined that: the distance between the load center and the fork carriage or the front of the fork carriage. The max. load means the maximum load the truck can charge at the normal load center distance. The relation between the max. load and load center distance shows on the capacity chart. You should reduce the weight of load if the load center distance inclines to the fork carriage.



⚠CAUTION | **Gravity center and stability**

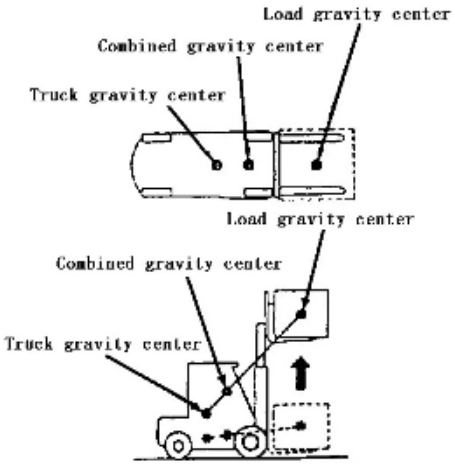
The combined gravity center that is composed of the forklift center and the load gravity center determine the stability of lift trucks.

When unloaded, the barycenter does not change; when loaded, the barycenter is determined by the truck and the load's center.

The barycenter is also determined by the tilting and lifting of the mast.

The combined center is determined by these factors:

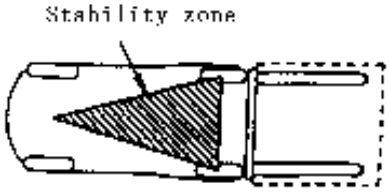
- Load's size, weight and shape
- The lifting height
- The tilting angle
- The acceleration
- The radius of turning
- The road and grade's angle
- The attachments



⚠CAUTION | **The stable region of the load center**

In order to make the truck stable, the combined center must be in the triangle which is made up of two points that the two front wheels attach ground and the midpoint of the back axle.

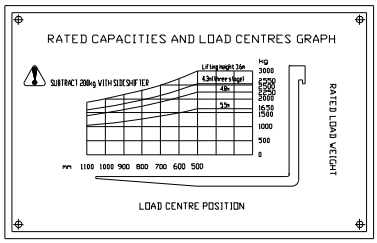
If the combined center is in the front driving axle, the two front wheels become two fulcrums, the truck will overturn. If the combined center departures the triangle, the trucks shall overturn in the corresponding direction.



CAUTION **Capacity chart**

The chart given shows the relation between the load center and the weight of loads.

Before loading, make sure that the load and the load center distance in the range of capacity chart. If the load's shape is complex, put the most weightily part on the middle of the forks, and close to the fork carriage.



CAUTION **Velocity and acceleration**

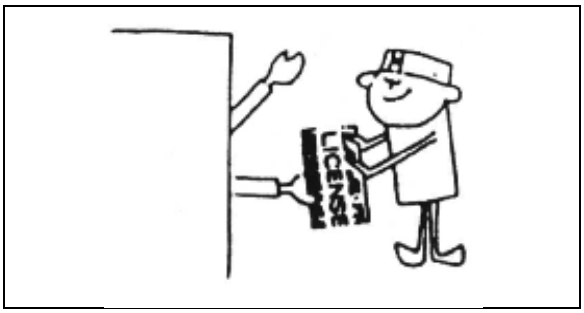
One object will keep quiescence until force works on it. Also, a moving object will keep moving until force works on it .This is just inertia.

According to inertia, when truck starts moving, one force works backwards, and when truck stops moving, one force works forwards. So, it's dangerous to brake suddenly, because it causes one large force works forwards, and it's easy to cause truck overturn or load slide off.

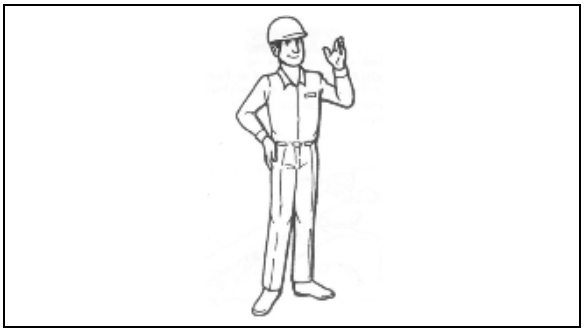
When the forklift makes a turn, will exert a centrifugal force outward from the curve center. This strength pushes forklift outwards and causes it to turn over. About stability region is very small, so decelerate when turning. If the cargo transported at the high position, it's easier to turn over.

2 Safety instructions

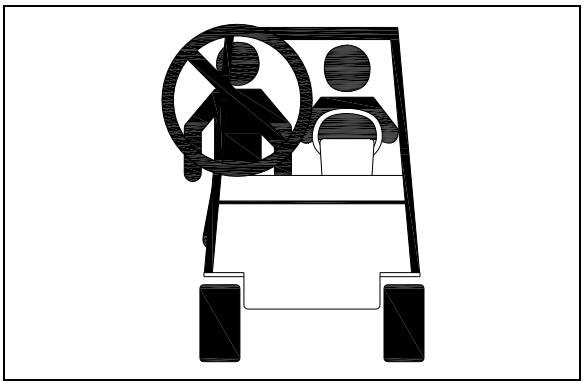
1. Only trained and accredited operators are permitted to operate the forklift truck.



2. Operators must wear a helmet, work shoes and overalls.



3. Never carry people.

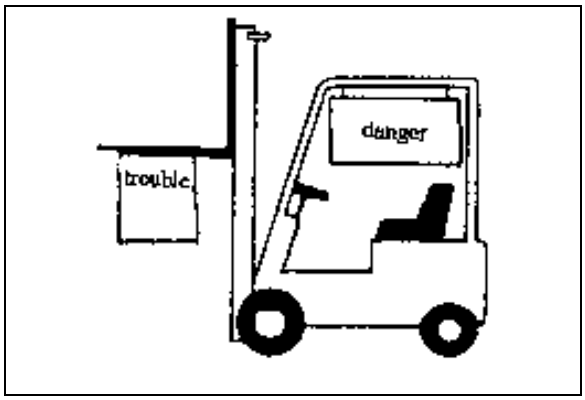


4. Inspect the truck at periodic intervals for leaks, deformation, defects, etc. the life of the truck will be shortened or an accident could occur.

- Make sure to replace the “key safety parts” during periodical inspection.
- Wipe off oil, grease or water from the floor board and foot and hand controls.
- Strictly prohibit smoking and spark near the storage battery when checking it.
- When performing maintenance on the mast, front and rear lights, or other high places, be safely secured and take care not to slip.
- Be careful do not be scalded when inspecting the motor, controller and etc.

5. Whenever you discover a fault, stop the forklift, hang a "DANGER" or "OUT OF ORDER" sign on it, remove the ignition key and notify a manager. The truck may only be used after the fault has been eliminated.

- Arrange for immediate repair in the event of a fault when lifting or driving uphill or downhill, or a leakage of battery electrolyte, hydraulic oil or brake fluid.



6. Batteries generate explosive gases. Keep sparks and open flames away from the battery. Keep tools away from the battery terminals to prevent sparks or short-circuits.

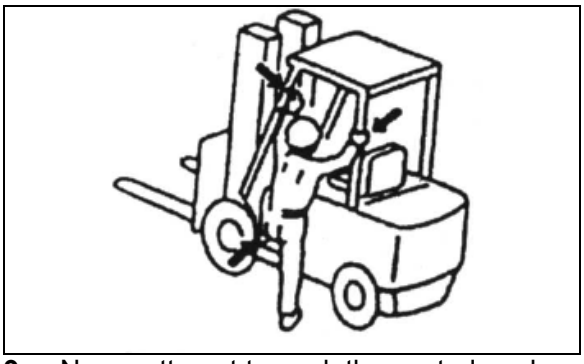
7. The truck is designed to operate on solid and flat cement, asphalt or concrete surfaces.Check the road condition in advance.

- The truck is designed to operate in the following climatic conditions: temperature range -20 ℃ to 50 ℃; maximum wind

speed 5 m/s; maximum relative air humidity 90% (at 20°C).

– The truck is not suitable for use in flammable or explosive working environments.
– Altitude not exceeds 2000m.

8. Never mount or dismount the forklift while it is in motion. Always use the safety step and safety handgrip when mounting and dismounting.

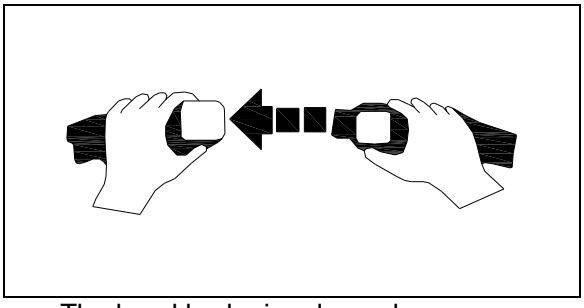


9. Never attempt to work the controls unless property seated.

– Before starting the vehicle, adjust the seat position to facilitate hand and foot control.

10. Before starting up, make sure that:

– The seat belt is fastened;



– The hand brake is released;
– The direction lever is in neutral;
– No person near the forklift.
– Before turning on the power, do not depress the accelerator pedal or operate the lift or tilt levers
– Operate the controls smoothly and do not jerk the steering wheel. Avoid sudden stops, starts or turns. Sudden braking may cause the vehicle to tip over.

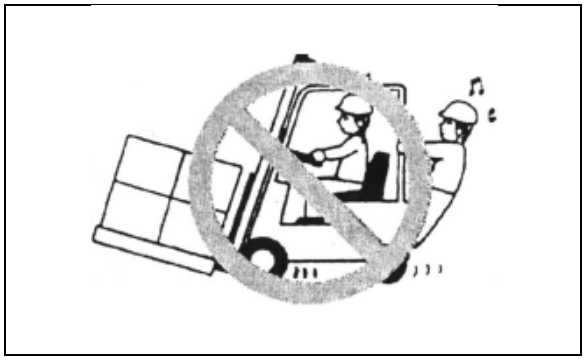
11. Always look in the direction of travel and keep a clear view of the travel path.

– It is especially important to look in the direction of travel when reversing.

12. Select appropriate attachments and tools according to the shape and material of the loads to be handled.

– Do not lift loads by suspending ropes from the forks or attachment, as the ropes may slip off. If necessary, arrange for a lifting hook or jib to be attached by someone qualified to perform heavy lifting tasks.
– Be careful not to let the forks touch the floor, so as to avoid damaging the fork tips or driving surface.

13. Know the load capacity of the forklift and attachments, and never exceed it. Do not use people as an additional counterweight.



14. Do not use mobile phones or other electronic products while driving, and focus on work.

15. Keep your head, hands, arms, feet and legs within the confines of the forklift at all

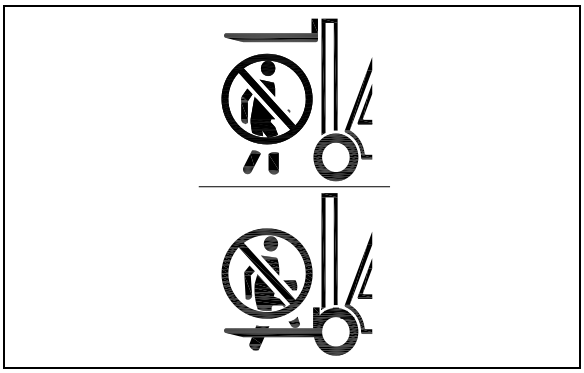
times.

16. Pallets and skids should be strong enough to bear the weight of the load. Never use damaged or deformed pallets.

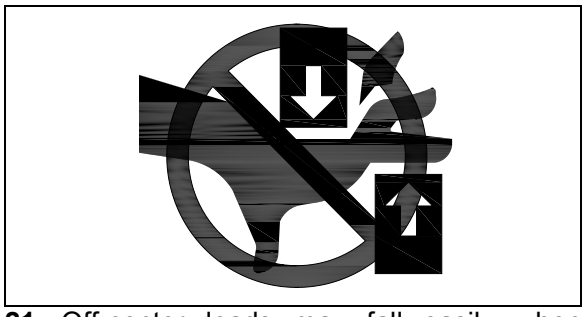
17. Hangcha can provide users with a variety of attachments including rotating clamps, flat clamps, side-shift forks, jibs, etc. Such attachments are for special uses only. Modifications to attachments must be authorized by the manufacturer. Do not attempt to modify attachments yourself.

18. The overhead guard prevents cargo from falling onto the operator. The load backrest ensures the stability of loads. Do not use a forklift without the overhead guard and load backrest.

19. Never permit anyone to walk or stand under upraised forks or attachments. Do not allow anyone to stand on the forks. If unavoidable, choose a safe place and support forks with wooden blocks to prevent the possibility of them dropping or moving unexpectedly.



20. Never place your head or body in between the mast and overhead guard. Risk of serious injury or death due to entrapment.



21. Off-center loads may fall easily when turning corners or driving on uneven surfaces and increase the risk of the vehicle tipping over.

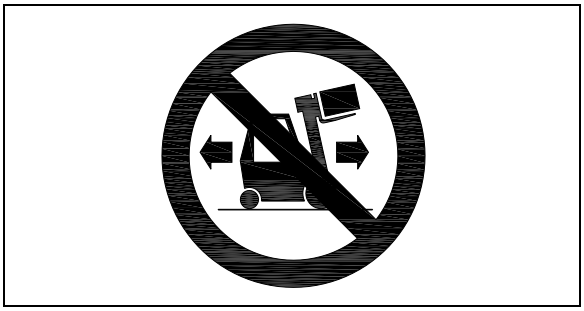
22. Do not stack loads on forks in such a way that the top of the load exceeds the backrest height. If unavoidable, make the load stable and secure. When handling bulky loads which restrict your vision, operate the forklift in reverse or have a guide. When using a guide, make sure you know and understand the meaning of all hand, flag, whistle or other signals being used. When transporting long loads such as lumber, piping and oversized cargo, or operating vehicles with elongated attachments, pay close attention to the front end when driving around corners or along narrow aisles and be aware of other people.

23. Use minimum forward and reverse tilt when stacking and unstacking loads. Never tilt forward unless the load is slightly above the stack or at low lift height.

- When stacking loads on a high place, make the mast vertical at a height of 15–20 cm above the ground and then lift the load. Never attempt to tilt the mast beyond vertical when the load is raised high.
- To remove loads from high places, insert forks into the pallet, lift slightly and drive backwards, then lower the load. Tilt the

mast backwards after lowering. Never attempt to tilt the mast with the load elevated.

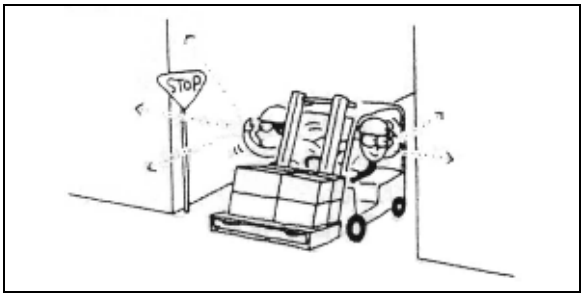
24. It is dangerous to travel with the forks elevated, regardless of whether loaded or not. When travelling, the forks should be 15–30 cm from the ground with the mast tilted backward. Do not operate a sideshift mechanism when the forks are raised and loaded. This will cause the forklift to be unbalanced.



25. Never tilt the mast forward when lifting the loads.

26. When operating in congested areas, be aware of intersections, trailing ropes, entrances/exits and hanging objects.

– Slow down and sound the horn at cross aisles and other locations where vision is obstructed.
– Turning speed should be limited to 1/3 of the vehicle's top speed.

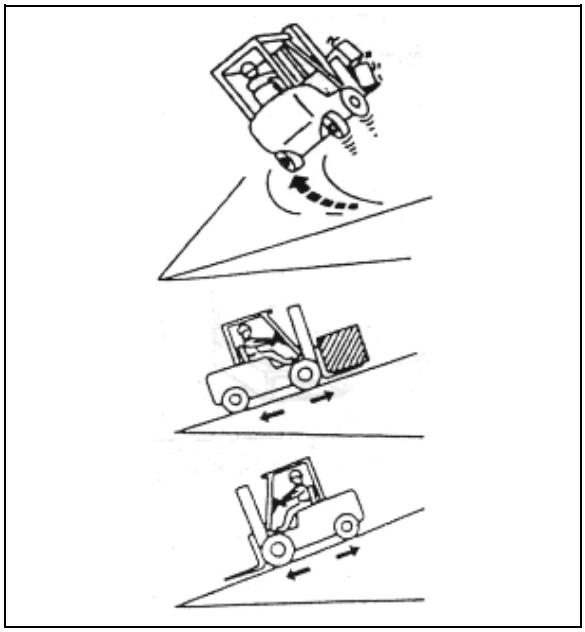


27. Be sure to keep your distance from the roadside or platform edge.

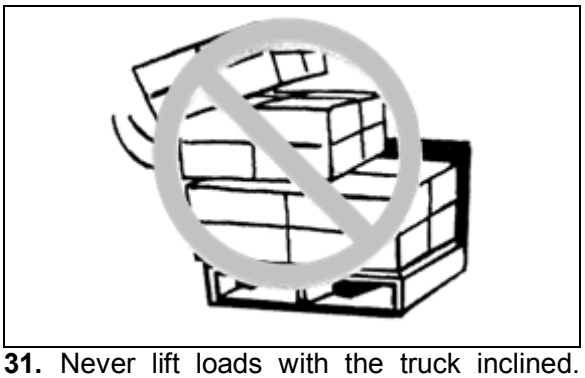
28. When driving over a ship's gangway or a bridge, make sure that it is properly secured and strong enough to withstand the weight of the forklift.

29. When operating a loaded forklift, climb inclines with the front end of the machine pointing uphill.

– When operating an unloaded forklift, descend inclines with the front end of the machine pointing downhill.
– Never turn sideways on an incline because of the danger of the forklift turning over.



30. Do not allow cargo to move away from the centre of the forks. Off-centre loads may fall easily when turning corners or driving on uneven surfaces and increase the risk of the vehicle tipping over.

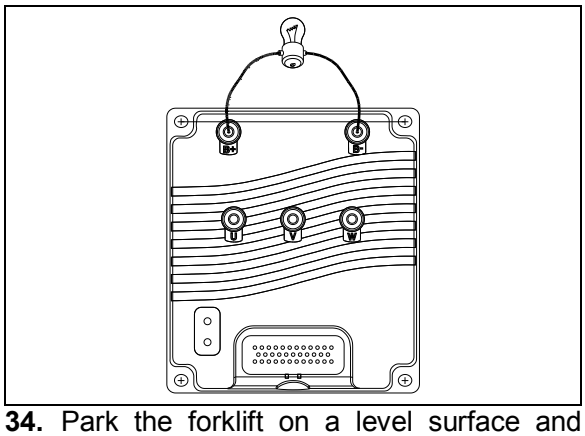


31. Never lift loads with the truck inclined. Avoid loading and unloading work on a grade.

32. Inspect the surface over which you will run. Look for holes, drop-offs, obstacles, protrusions and anything that might cause loss of control or bumps.

- Clear away rubbish and debris and pick up items that might puncture a tire or unbalance the load.
- Slow down on wet/slippery areas. Do not drive near the edge of the travel path; if unavoidable, be extra cautious.
- Do not use the forklift during sandstorms, snowfall, lightning, torrential rain, typhoons or other harsh weather conditions. Above all, avoid using the forklift where wind speeds are greater than 5 m/s.

33. Controller is equipped with accumulator. Forbid to touch within B+ and B- to prevent from wounding by electricity. Before checking or cleaning, please connect loads (contactor circuit or horn for example) between B+ and B- first to discharge for capacitor of controller.

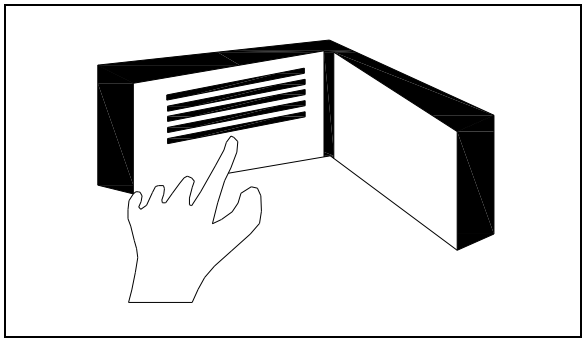


34. Park the forklift on a level surface and apply the handbrake securely. If parking on an incline is unavoidable, be sure to block the wheels.

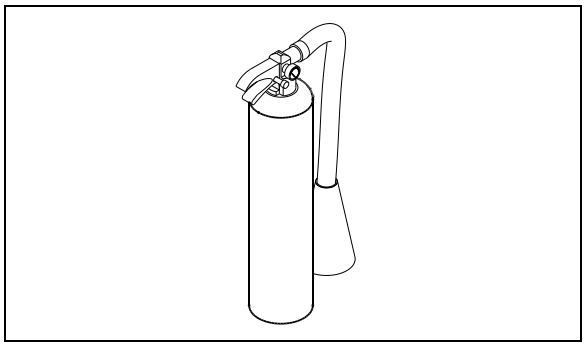
- Lower the forks to the floor and tilt slightly forward. Turn off the keyswitch and remove the key.
- Disconnect the battery plug.
- Park the forklift away from naked flames and sparks.

35. When the truck is unable to drive, drag the truck to safe place. Do not tow a truck whose steering system or braking system has been damaged.

36. The labels and signs on the vehicle provide warnings and operating instructions. During operation, adhere to the requirements of the manual as well as the labels and signs on the vehicle. Inspect the labels and signs, and replace any that are damaged or missing.



37. The workplace should be equipped with fire extinguishers. Users can also select a vehicle equipped with fire extinguisher. The fire extinguisher is generally installed on the rear leg of the safety frame and is easily accessible. Drivers and managers need to be familiar with the location and use of fire extinguishers.



38. Small loads should be carried on a pallet and not placed directly onto the forks.

39. Refrigerator type truck is not allowed to store in the refrigerator when power off

3 Operation and safety regulations to lithium battery forklift truck

	1. Contact the manufacturer immediately in case of battery malfunction. Do not open the battery cover for maintenance.
	2. Do not reverse charge.
	3.Whether charging or discharging, it should be ensured that the battery management system is properly connected and working properly to ensure normal communication of the battery management system.
	4. Do not operate the equipment in a location where static electricity and magnetic field is strong. Or it may damage safety protection device, and lead to potential safety hazard.
	5. Keep the battery system or battery box away from heat and fire sources and avoid direct sunlight for a long time. The lithium battery can not be directly baked and heated by hot water, otherwise it will cause explosion. Work in high temperature environment is not allowed.
	6. Do not place the battery pack in water or in a high humidity environment to avoid leakage or insulation failure.
	7. When working in a low temperature environment, the battery system capacity is slightly reduced, which is a normal phenomenon, and the performance will be recovered after the ambient temperature rises.
	8. It is forbidden to modify or disassemble the battery system and battery box without authorization. Non-professionals are not allowed to disassemble to prevent foreign matter from entering the battery pack, and causing burning and explosion.
	9. To recharge the battery, use the battery charger specifically designed for the purpose, do not use other chargers to prevent battery damage.
	10. Do not connect the battery with the battery of other type in series or in parallel.
	11. Prevent water and corrosion of diagnostic ports and connectors, etc.
	12. Do not mix battery cases with batteries of other types or other manufacturers.
	13. It is forbidden to connect the battery box or the positive and negative poles of the battery system directly with metal or other conductors to avoid ignition or short circuit. It is also prohibited to contact and mix the battery pack with items that can cause short circuit.
	14. Avoid mechanical damage to the battery box, such as squeezing, puncture, shock, impact, etc.
	15. If there is dust, metal particles or other debris on the top cover and pole of the battery pack, use compressed air or dry cloth for cleaning. Do not use water or water-soaked objects for cleaning.
	16. Water-based fire extinguishers are installed in the working environment.
	17. If the temperature of the battery system rises sharply and the smell is abnormal, stop it immediately and turn off the power. If smoke or fire occurs, stop and turn off the power supply. Use Water-based fire extinguishers to extinguish fire under the condition of ensuring personnel safety.
	18. Charge in a well ventilated, dry environment.
	19.Charging working temperature: 0°C-45°C; Discharge working temperature: -20°C-55°C; Short-term storage temperature range: -20°C-40°C Long-term storage temperature range: 0-25°C Operating humidity range: 5%-80% Storage humidity: <=70%

Daily charging of lithium battery forklift

1. Charge in time when the forklift meter power shows 1-2 bar (that is, 20%-30% remaining).
2. Turn off the forklift switch power supply and press the emergency stop switch.
3. Close the charger input electric master valve to ensure that the emergency stop switch pops up, the charging device automatically turns on, the power indicator light is on, and the display interface starts automatically.
4. When the charging gun is removed, the button must be pressed to remove the charging gun. Check the charging gun to ensure that there is no water or foreign objects in each port, and that the metal terminals are not damaged or affected by rust or corrosion.
5.Open the truck side door and open the lithium battery charging cover. Check the 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.
6. Insert the charging gun/charging plug into the lithium battery charging socket, the charger will self-test and communicate with the lithium battery. When the entire system is fault free, about 15S or a few times later, the relay inside the charger gathers and start charging, and the charging indicator will light up. At the same time, the meter will display information such as charging voltage, charging current value, charging time and charging fault.
7.When the lithium battery is fully charged, the charging device will automatically stop charging. At this time, the output voltage and output current of the meter are 0A. At this time, press the pause button, then press the charging gun lock and pull out the charging gun at the same time. If the lithium battery needs to stop charging when it is not fully charged, the pause button on the screen should be pressed first. After the charging current drops to 0 A, the charging gun lock can be pressed and pull out the charging gun or plug.
8.Insert the charging gun into the charger's resting position and pull the charger input main valve down and close.
9. Close the lithium battery charging cover and the charging door on the forklift truck body. Plug in the power socket of the vehicle and close the hood. Note: Do not plug the discharge plug of the battery into the charging socket, otherwise the forklift line has no power.

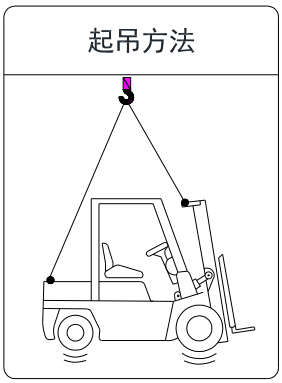
Daily maintenance oflithium Batteries

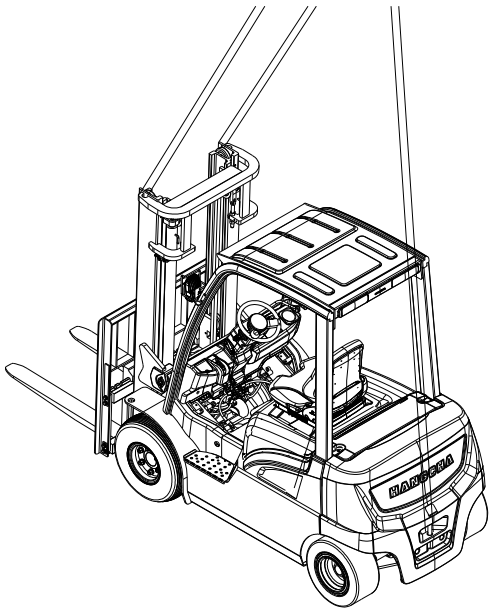
Everyday	1. Check whether the appearance is deformed, whether the surface is oxidized, paint removing, the mounting position is offset, and the cabinet is damaged.
Weekly	1. Clean the lithium battery and charger with a dry cloth or compressed air.
Monthly	1. Check for water or foreign matter in the plug and socket and check for rust or charring.
	2. Check the cable for damage and loose joints.
	3. Check the battery case for abnormalities such as cracks, deformation, and bulging.
Lithium battery storage	1. The battery is stored in a clean, dry and ventilated indoor environment with an ambient temperature of 20 °C ± 5 °C and a relative humidity of no more than 75%. It must not be inverted to avoid mechanical shock and heavy pressure.
	2. Charge once a month.
	3. The positive and negative terminals of the battery box are wrapped with high-voltage insulation sleeve or other insulating material to ensure that no metal parts are exposed outside to avoid short circuit. The diagnostic port is free of dust and is covered.

4 Truck Lifting, Carrying and Towing

4.1 Lifting

Securely fasten wire ropes to the lifting holes in both ends of the outer mast crossbar and to the counterweight hook, and then hoist the forklift with a lifting device. The wire rope fastened to the counterweight end must pass through the gap in the overhead guard, without putting stress on the overhead guard.





Warning

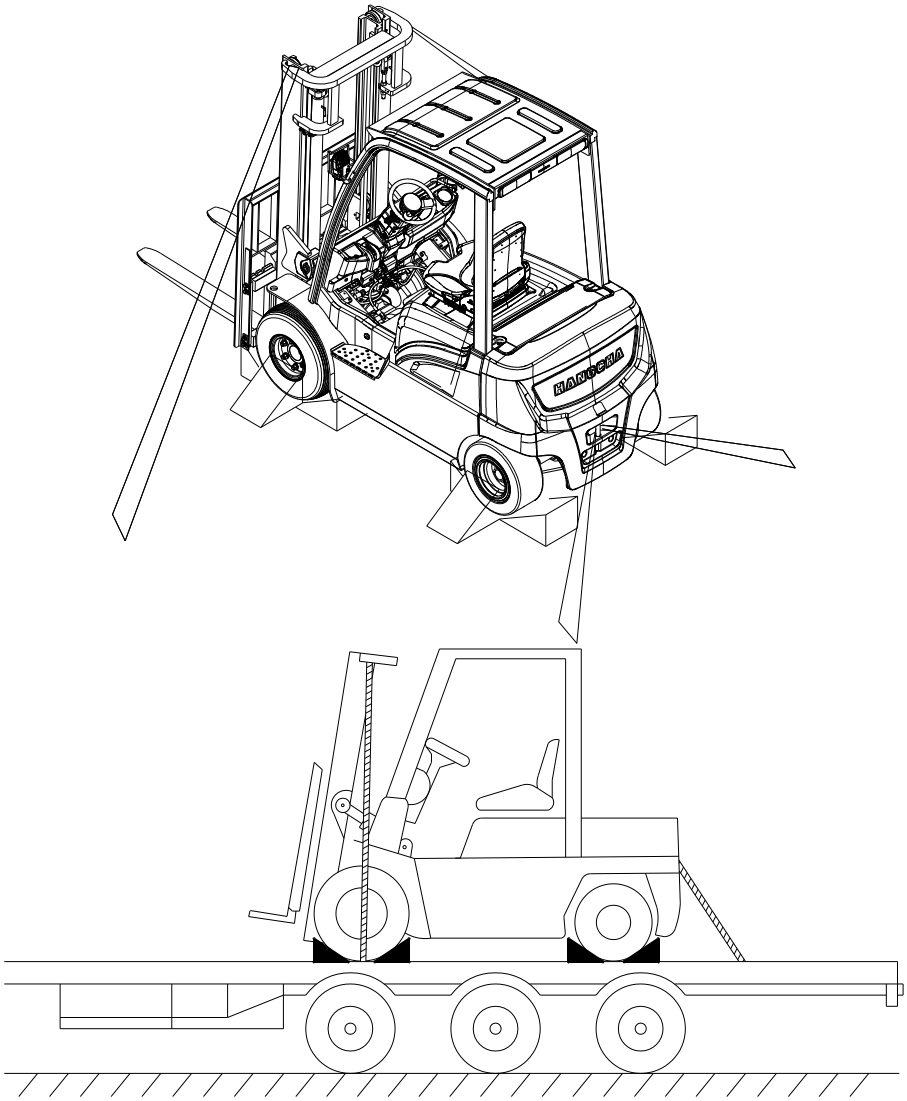
- **Only use the lifting tools with enough load.**
- **Fully tilt the mast backward when lifting**
- **When assembling lifting tool, notice that the lifting tool will not touch forklift part or overhead guard when lifting.**
- **Do not lift a forklift by its cab frame (overhead guard).**
- **Never walk under a forklift when it is being lifted.**

4.2 Carrying

Forklift trucks are generally used for loading, unloading and short-distance transportation. They are not designed to be a long-distance mode of transport. A forklift that needs to be transported over a long distance should be transported in a ship, train or a truck having a load capacity over 5T.

Procedures：

- Park the forklift on the lorry or trailer, and pull up the parking brake.
- Tie the tension belt on the mast upper beam and counterweight, and use clamping device to strain the tension belt.
- Block the front and rear wheel of the forklift with wedge wood.



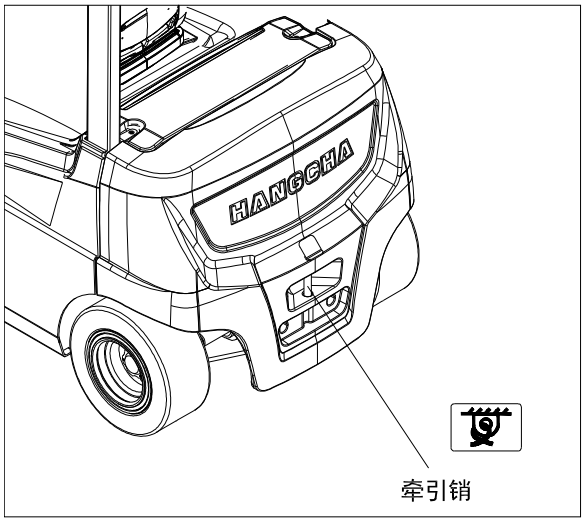
Warning

- **When fixing forklift, take effective measures according to specific condition to guarantee the safety of transportation.**
- **Correctly fix the forklift when transporting by lorry or trailer.**
- **Chock the forklift to avoid accident movement.**
- **Only use tension belt with big enough nominal strength or fasten the belt to fix the truck.**

4.3 Towing

Forklift is not permitted to use for daily traction or traction task.
Towing pin(13) in the lower counterweight is only used for the following occasions:

- Forklift malfunctions on the working road and move the truck urgently.
- Use when forklift gets into trouble and cannot drive(wheels get stuck in pits etc.)



Procedures：

- Turn off the keyswitch and disconnect the power plug.
- Release the hand brake.
- Put the direction lever in neutral.
- Fasten the wire rope for traction.

It can drag forklift.

Warning

- **Don’t tie the steel wire ropes on the unfixed position.**
- **Don’t carry a load to steel wire ropes suddenly.**
- **The truck would be damaged if you tow it with the electric lock working.**

5 Lithium battery

5.1 Safety instructions

1.1 It is strictly forbidden to touch the positive and negative poles of the battery box with both hands at any time.

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

1.3When operating and maintaining the battery system, please wear insulting gloves and take off metal orraments.

1.4When cleaning forklifts, high-voltage components should be avoided to avoid adverse consequences after contact with water.

5.2 Installation instructions

2.1 Installation requirements : Installation personnel should be on duty with a certificate, wear labor insurance supplies, and pay attention to safety protection. Low voltage must be cut off before system installation. The high-voltage output interface should be protected to prevent the installation personnel from contacting during the installation process. When installing the system, mechanical hoisting should be adopted. When moving to the battery system warehouse, the speed should be slow and the position should be correct to prevent the extrusion deformation of the battery box. When the system is connected, the phenomena of negative and positive pole reverse connection and short circuit are avoided. In rainy and snowy weather, pay attention to the protection of connectors to prevent rainwater from entering.

2.2 Inspection after installation: After installation of the system, check the positioning pin/fixing bolt of the battery system to confirm that it meets the installation requirements. Check the connection of the low voltage connector is correct/reliable. Check the high voltage positive and negative cable connection is correct/reliable. Turn the key switch to ON gear and the relay should be able to suck in normally without battery alarm. If battery failure alarm occurs, the power supply should be cut off immediately and the after-sales service department of our company should be notified to solve the problem.

5.3 Basic terms for lithium ion battery

3.1. Battery system

Electric energy storage system, usually including one or more battery modules, battery management system, thermal management, high and low voltage lines, connectors and structural components.

3.2 SOC

Refers to the percentage of battery remaining electricity.

3.3 Nominal voltage

An appropriate approximate value used to represent the voltage of a battery.

3.4 Rated capacity

The capacity value specified by the manufacturer when the battery is fully charged under specified conditions.

3.5Overdischarge

When the battery voltage is lower than the discharge cut-off voltage, the state can usually be seen as that the battery enters the overdischarge state, generally referring to the state when the battery voltage reaches 0 V or even the voltage is negative.

3.6 Overcharging

When the battery voltage is higher than the maximum charging voltage, the state of the

battery can usually be regarded as the state of overcharging.
3. 7 Explosion:
The battery shell is broken and solid material rushes out of the battery and makes sound.
3.8 Fire
Open fire appears in the battery case.
3.9 Leakage
The internal components of the battery (electrolyte or other substances) leak from the battery.
3.10 CAN
Communication: Control Area Network, Controller Area Network.

5.4 Instructions for Use

4.1 Temperature Characteristics of Batteries：Working Environment Temperature : -25℃ ~55℃ ，Permissible Charging Temperature:0℃ ~55℃，Permissible Discharge Temperature : -28 ℃ ~55 ℃ ， Storage Environment Temperature: -28℃~55℃.
4.2 Pre-departure inspection：After the key switch is closed, confirm that the instrument panel has no battery system alarm information. Check the remaining power before leaving the car. It is recommended to charge up to 50%~100% before leaving the car. It cannot over discharge the power battery system. over discharge will cause irreversible permanent damage to lithium-ion power battery.
4.3 Charging instructions: Forklift truck in operation after stopping or battery system SOC less than 20%, please charge in time. Use the special charging equipment authorized by the manufacturer to charge. If there is a fault alarm during charging, the power battery system and charger will stop charging, and the charger will show the fault. Charging environment should be dry and ventilated without flammable and explosive materials. Cars should be fully charged once a week.
4.4 Long-term parking storage: Before parking, it is necessary to confirm the battery power of the vehicle: 50%-70%. Maintenance is carried out every three months. The electricity is filled by full charging, and then discharged to 50%~70% before parking. The vehicle has been parked for more than three months. Please make sure that the dashboard alarms before reusing. If so, please contact the vehicle manufacturer for maintenance. Forklift parking environment should be kept as dry and ventilated as possible, away from heat sources.

5.5.Maintenance

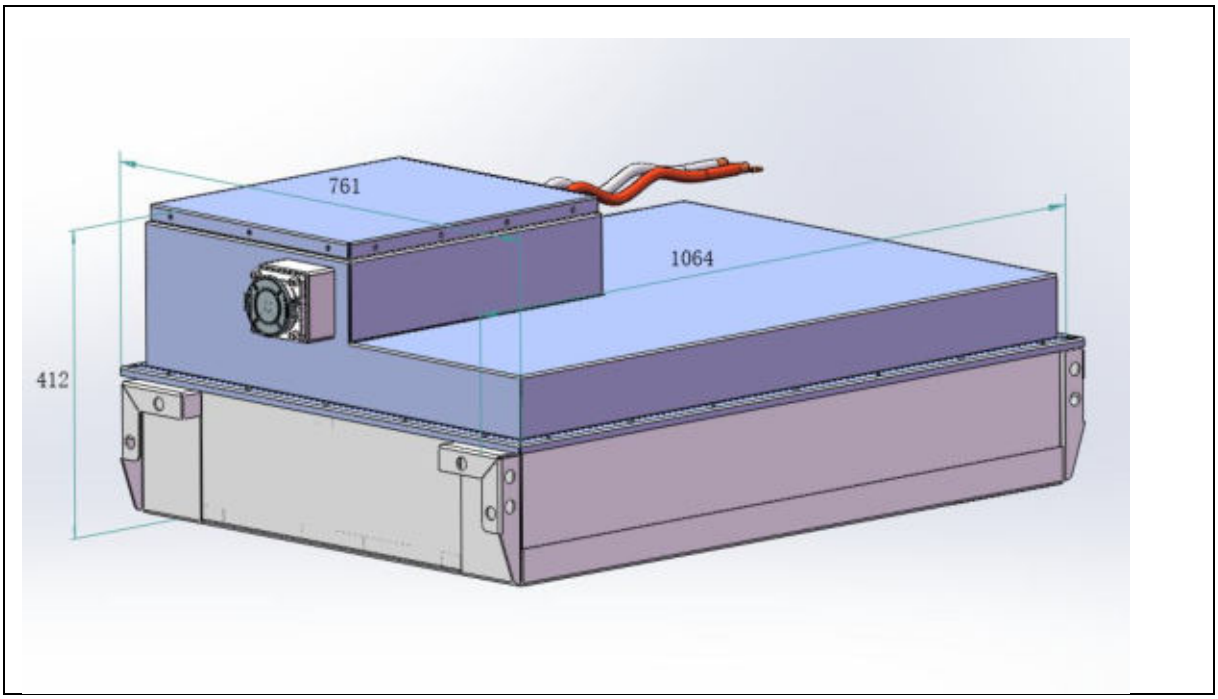
5.1 Outside appearance of inspection box: Check whether there are any debris, obvious deformation, rust and other abnormal conditions in the battery system outer box.
5.2 National Standard Charging Port: When the power is off, check whether there are any abnormal conditions such as debris and rust in the intPlug-in rface.
5.3 Plug-in: When the power is off, check whether the connector is loose or damaged.
5.4 Parameter Detection: Check the battery voltage and temperature on the display before charging and discharging to ensure that all values are in the normal range.

5.6 Emergency plan

6.1Scenarios,extreme anomalies
Users should establish a good sense of security in the use process, strictly prohibit illegal operation, avoid battery system abuse (overcharge, over discharge, short circuit, extrusion, puncture, environmental overheating, high current discharge, etc.). In the process of charging and using, the abnormalities that may occur in the power battery system are as follows: Battery systems or local temperatures rise sharply. There is abnormal odor in any part of the battery system. Smoke and fire occur at any part of the battery system.
6.2Emergency plan
6.2.1Personnel leave the vehicle quickly and dial the alarm phone according to the situation on the spot.
6.2.2To ensure personal safety, the following operations are carried out conditionally:
a. Use carbon dioxide or dry powder fire extinguishers if the battery harness smokes and ignites.
b. If the battery is on fire, use a high-pressure water gun to extinguish the fire at a long distance.
c. If smoke is inhaled carelessly, please transfer it to the doctor as soon as possible.
6.2.3 Contact forklift brand dealers to obtain professional treatment advice.

5.7 size and weight

Item		2.0t~2.5t（SI25/26）	3.0t~3.5t（SI25/26）	2.0t~2.5t（SI21）	3.0t~3.5t（SI21）	1.5t,1.8t（SI21）
Long（L）	mm	620	761	620	722	510
Width（W）	mm	1084	1064	1084	1064	1014
High（H）	mm	412	412	412	412	412
Allow the lightest	kg	320	320	160	230	160
Allow the heaviest	kg	/	/	/	/	/



5.8 Lithium battery charging

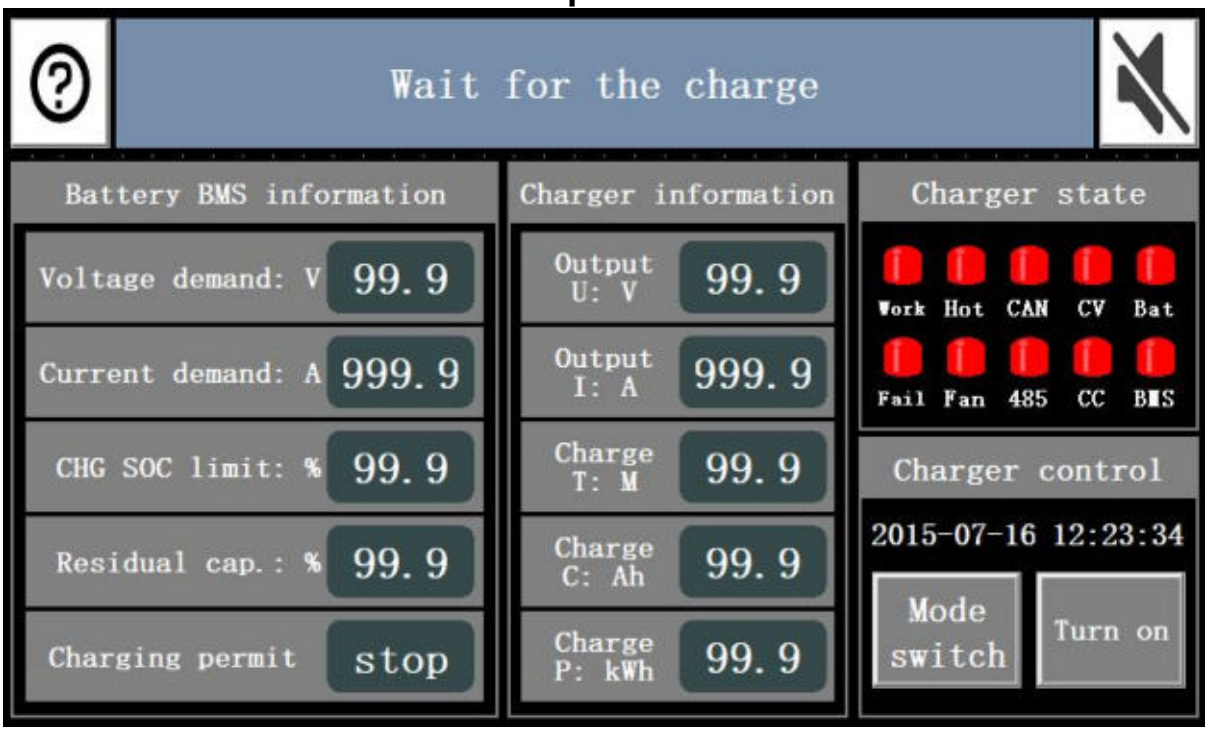
The lithium battery special forklift can be equipped with two types of chargers: 1. Titan intelligent charger; 2. Shineng Charger

5.8.1 Titan intelligent charger

SLC-80200 Operation instructions for intelligent charger (FAAM battery charger)

Start-up interface

Start-up interface



Click on the icon： , Enter the help description interface.

Click on the icon： or , on-off alarm sound, to turn on the alarm sound state, to turn off the alarm sound state.

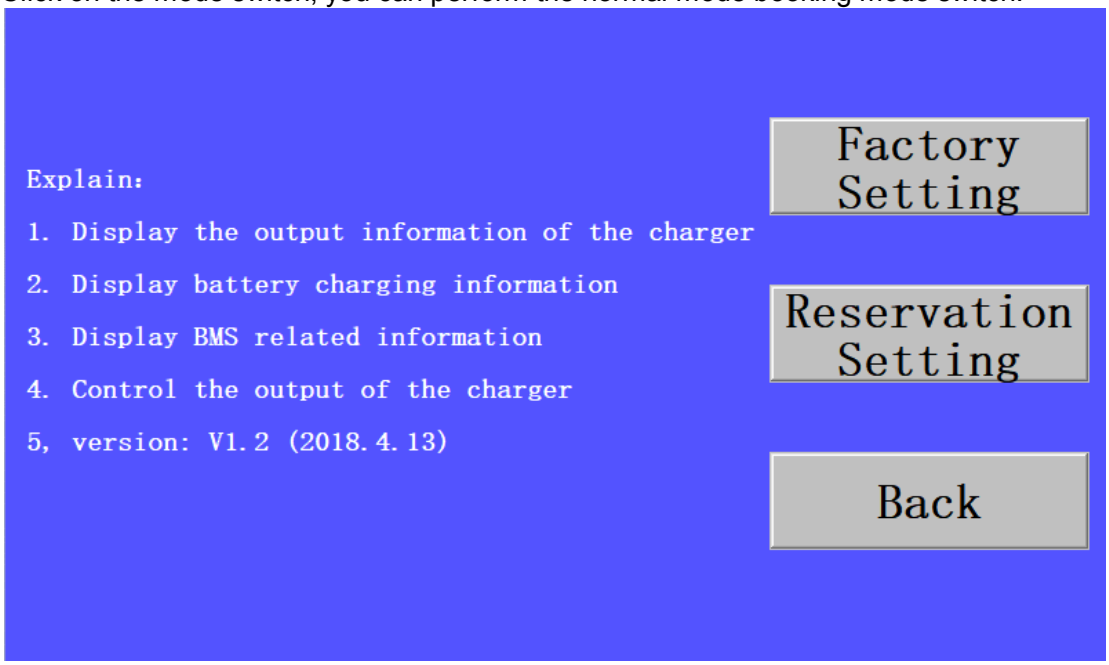
The control operation requires password permission. **The default password is: 123456**.

Click on the boot icon: toggle charging control to turn on or off.

Click on the purple part of the charging status information bar, enter into the single charging module information display bar.

Click on the battery BMS battery bar to enter the detailed BMS information display bar.

Click on the mode switch, you can perform the normal mode booking mode switch.

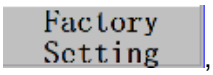


Help interface

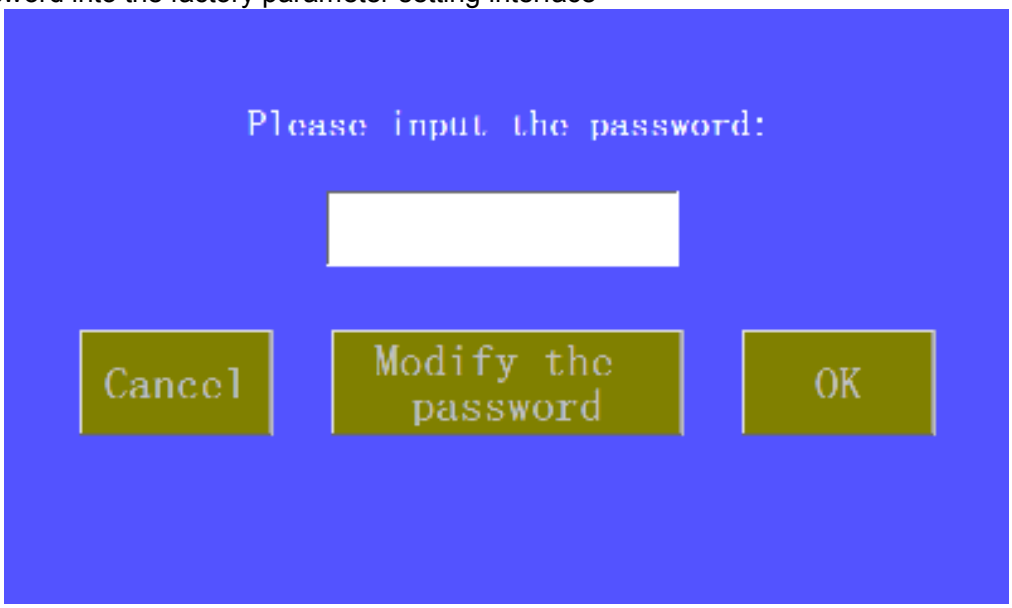
Click on the icon: 

, return to main interface.

Click on the reservation icon to set the time for booking mode. **The default password is 123456.**

Click on the icon: 

, enter the password input interface, enter the correct password into the factory parameter setting interface



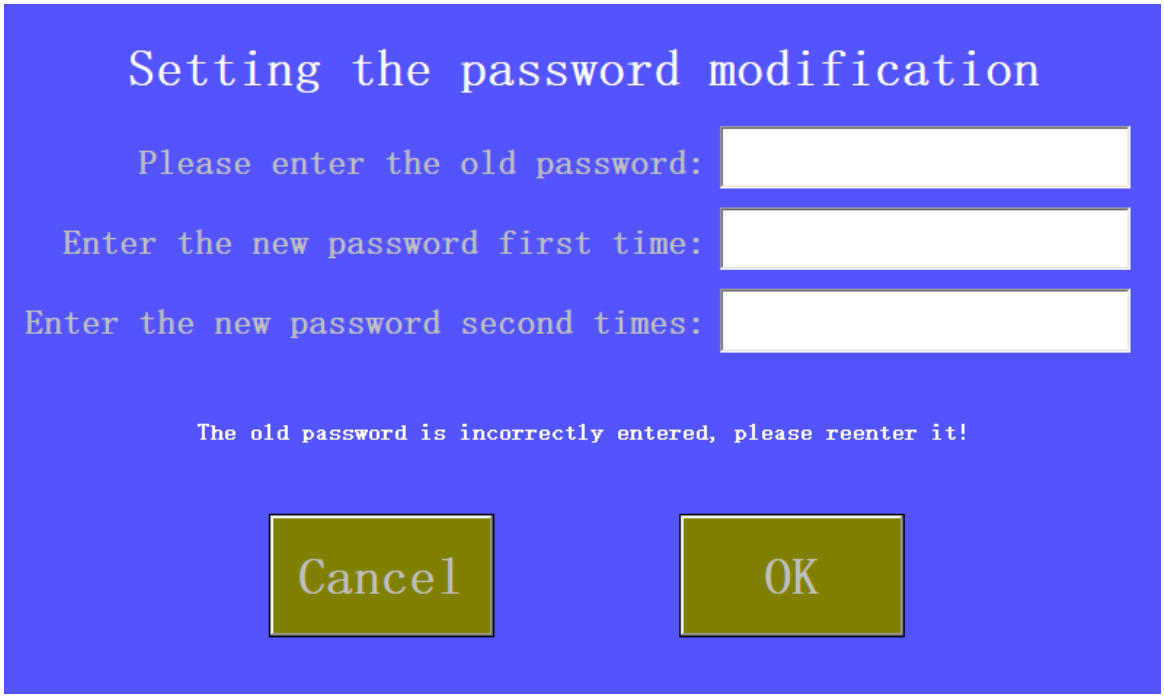
Password entry interface

Enter the correct password in the password entry box. **The default password is 888888.**

Click on the icon： Cancel, return to help description interface.

Click on the icon： Modify the password enter the password modify interface.

Click on the icon： OK, if the password is entered correctly, enter the parameter setting interface, otherwise the password input error is prompted. Please enter it again.

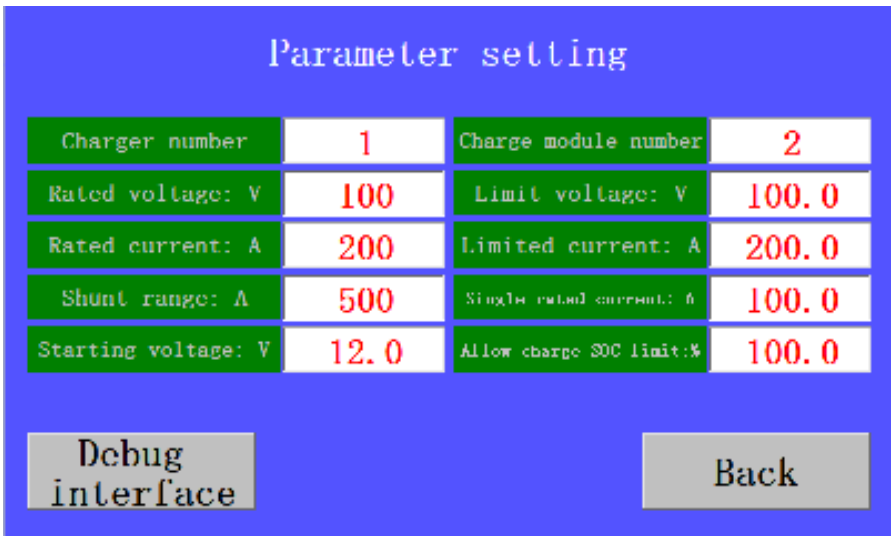


Password modification interface

Enter in sequence according to the prompt: Enter the user's old password, enter the new password for the first time and enter the new password for the second time.

Click on the icon： OK, if the user's old password is entered correctly, the first time the new password is entered and the second time the new password is entered, the modification is successful. Otherwise, the prompt modification fails. Please re-enter.

Click on the icon： Cancel, Return to the password entry interface.



Parameter setting interface

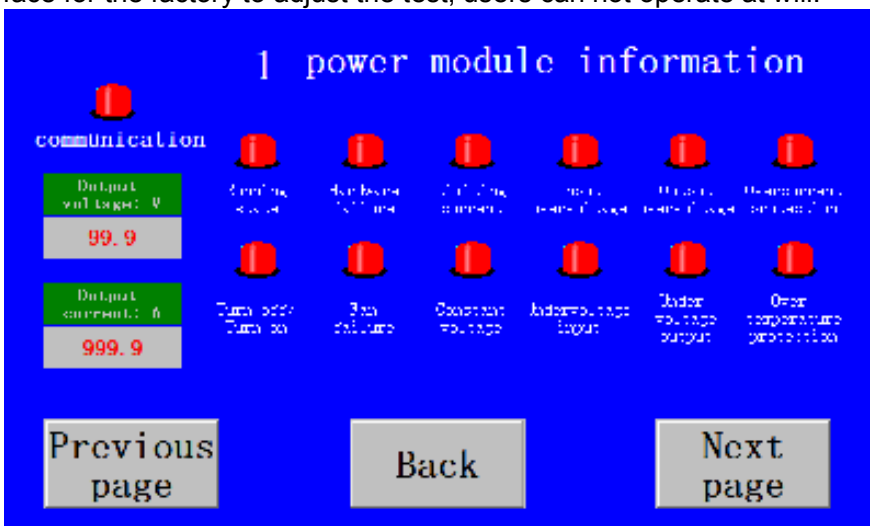
Click on the icon： 

, return to the help description interface.

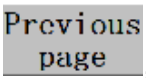
Parameter setting information: rated voltage, rated current and shunt range are related to machine hardware, and must not be arbitrarily modified after the factory.

Consult the manufacturer if the above parameters need to be modified. The charging machine number is easy for the user to distinguish, and the user can set it at will.

Debug interface for the factory to adjust the test, users can not operate at will.



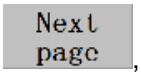
Power module information display interface

Click on the icon： 

, switch module information backward.

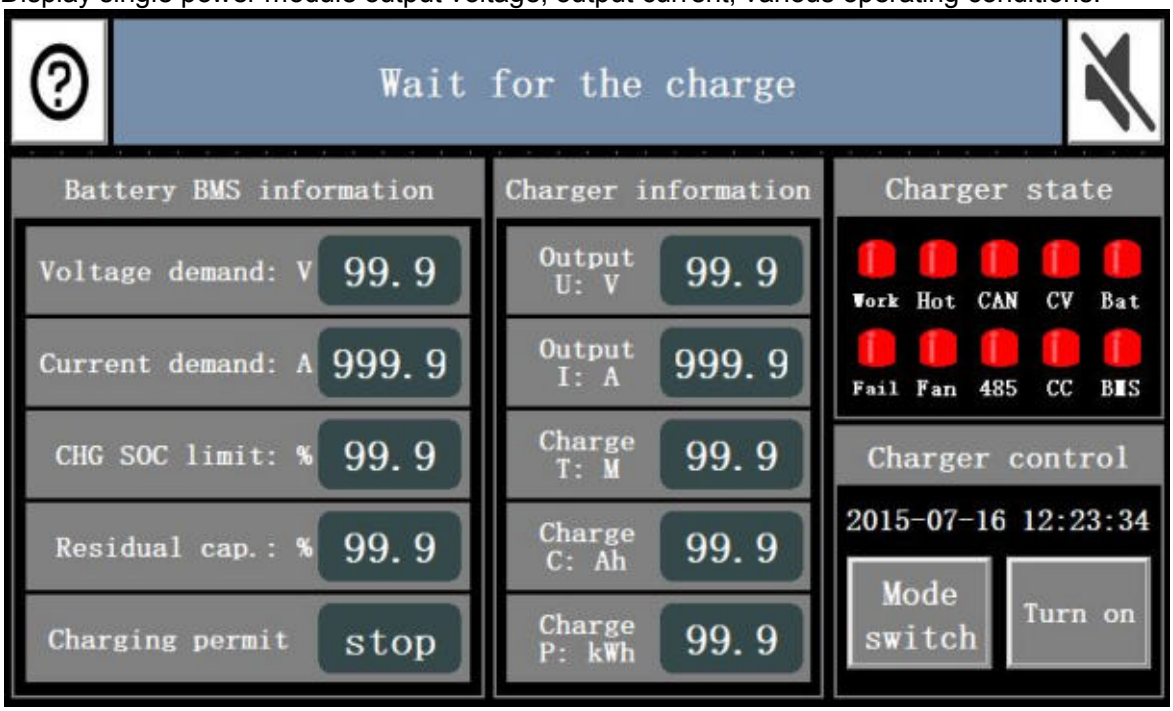
Click on the icon：, 

return to the main interface.

Click on the icon： 

, switch module information forward.

Display single power module output voltage, output current, various operating conditions.



Charging process explanation

The charging step：

1. Choose "turn on" charging control mode. The "CAN" and "485" indicator lights are bright green.

2. DC charging gun and battery connection is normal.

3. "Residual capacity" is less than "allowed to charge the SOC limit" to start charging.

4. "Battery" indicator light is bright green (charging machine detected the battery voltage, this light), "BMS" indicator light green.

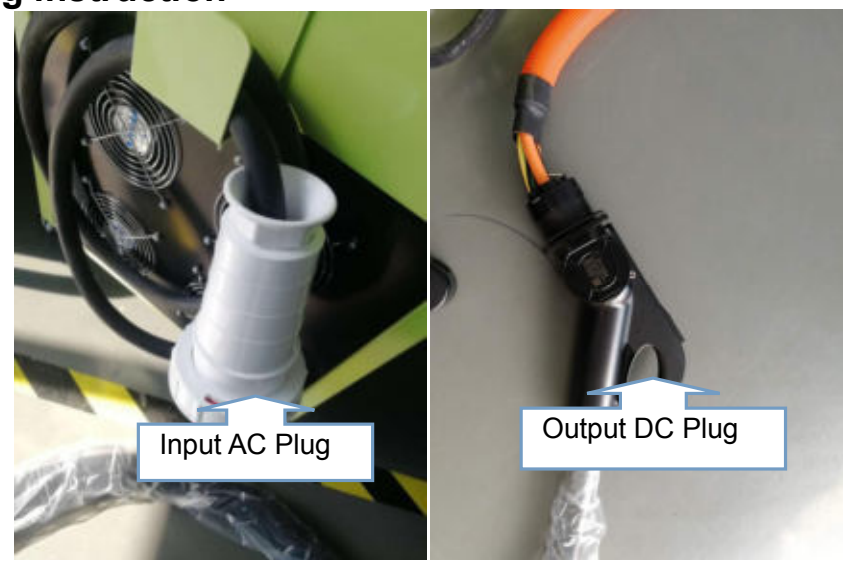
5. The "working" light is bright green. When the "output voltage" is similar to the "battery voltage", the charging motor outputs the relay to absorb and the charging machine officially begins to charge the battery. At this point, "output current" and "output voltage" will be output according to "current demand" and "voltage demand".

6. BMS charging complete, send charging termination command, charging motor end charging.

7. During the charging process, charging motor failure ("overheated "and" abnormal "lights of charging motor information are all charging motor failures), BMS charging or" charging allowed "in a prohibited state, and artificial charging control in a" stop "state, all will terminate the charging.

* In appointment mode, the charging machine will only work when the appointment time is set.

User wiring instruction



AC input air switch power supply. The input is an Yida plug and the output is a charging gun.

Warning: PE protection of the earth must be connected, otherwise it may threaten life safety.

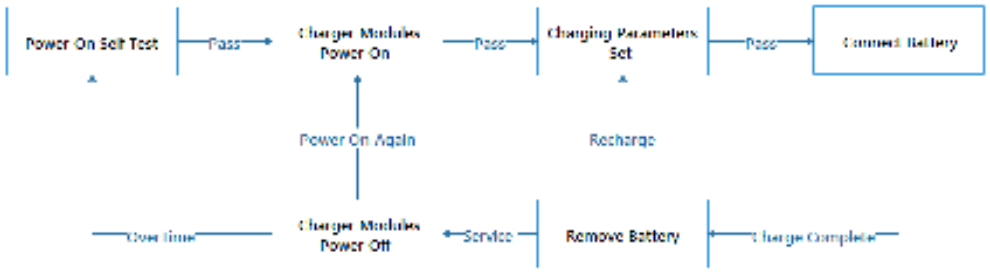
Operating instructions

1.Cautions

a. Before the charger is turned on, it should be checked whether the battery box wiring is correct, whether there will be a short circuit or a positive and negative electrode connection. To avoid overloading the charging machine and burning components or lines.

b. It can be put into use only after the charger has no abnormal, overheating and other warning information.

c. For the safety of charging machines and equipment, it is forbidden to directly disconnect the battery switch under the condition of output current, except in case of emergency.



Power check

Make sure that AC input zero wire and DC output positive and negative electrode wiring are correct, and that there is no short circuit in input and output; The input voltage and frequency are normal; At any time in the state of electricity.Offline online charging lines can not be connected at the same time.

Power on

Check whether the AC fan wind direction is correct after the power is on.The touch screen can be turned on normally, communication with the charging machine is normal.

Access to the battery

The battery voltage level and current level meet the requirements of the charging machine. Battery polarity is not reversed. Battery's fine. No abnormalities.

Power off

After the charging current and voltage drop to 0, exit the battery.Turn off the AC input air switch.

5.8.2 Shineng Charger

a. Summarize

CZC7SI series intelligent charger uses high-performance embedded charging control unit to control the charging current. Main circuit module designed by parameters optimization provides continuously adjustable charging current for various batteries and lithium batteries to meet various charging process requirements.

The charging controller composed of an embedded system controls the charging process in real time to detect and record the charging process data.

Main circuit module designed by parameters optimization, module under the control of the charging controller, the charging current and the charging voltage are continuously controllable, so that the user can charge various batteries and lithium batteries for different purposes with a suitable charging curve to ensure the best charging effect.

The charging controller has a built-in default charging curve. At the same time, users can also set and store customized charging curves as needed to meet custom charging process requirements.

The charger controller has a simple and practical human machine interface. The charging parameter setting is performed on the LCD touch screen to display various parameters and states of the charging process, so that the user can understand the charging process in real time.

The charging controller monitors various parameters during charging in real time, so that the charger has a perfect protection function, and the charging process is smoothly performed in real time. At the same time, it also provides a communication interface and a protection output interface to provide interlocking control with other devices.

Main functions of the charger:

1) Human-machine interface: The 4.3” serial LCD color touch screen is used to display the charging process parameters; the parameters of the charging phase are set.
2) Charging data records: check the charging process event record on the LCD screen.
   The EEPROM recorded charging data can perform log data analysis.
   The SD card recorded charging process curve can be read it through a PC. (optional)
3) Reservation time charging function: It can set the start time of charging at a fixed time, and use the electricity at off-peak price to charge, so as to save electricity costs.
4) Set parameters for power failure protection: Parameters set by the user can be remembered by the system for a long time and will not be lost even power failure.
5) Input power phase sequence: no phase sequence requirement for the power grid, A, B, C three-phase input can be arbitrarily wired.
6) Special charging function: forced start (0V) function, the connection cable is disconnected during charging, and the charger is automatically turned off (battery detached detection).
7) Protection function: fault protection and alarm function as open circuit, reverse connection, over current, over voltage, over temperature and power phase shortage.
8) Output control interface: related alarm contact output. (optional)
9) Emergency stop function: When an uncontrollable abnormality occurs, the emergency stop can be forced to shut down.

b. Normal working conditions

(1) The altitude does not exceed 1000 meters;

(2) The temperature of the surrounding medium is not higher than +45 ° C and not lower than -10 ° C;

(3) The relative humidity of the air is not more than 95% (when the medium temperature is 20±5°C);

(4) No rain or snow, no conductive dust, no explosion hazard;

(5) No gas or steam which can corrode metals and destroy insulation;

(6)The charger must be placed in a well-ventilated environment to avoid heat accumulation, resulting in abnormal heat dissipation of the charger;

(7)The vertical plane is inclined no more than 5 degrees and there is no strong vibration and impact.

c. Main technical parameters

Item / Parameter / Model	CZC7SI-D 100V/200A
Rated input power V	Three phase 380V 50Hz
Charger rated input power kVA	21.3
Charger input current A	32.3
Charger max. output current A	200
Charger max. output voltage V	100
Communication mode	CAN
Protection level	IP21
Dimension mm	650×500×1030
Weight kg	90

d. Installation

(1) Input power cable connection:
Connect the three-phase five-wire power input wires to AC380V input terminal and grounding terminal of the charger respectively; the cross-sectional area specification of the power line input wire should meet the requirements of the technical parameter table.

(2) Charging output：
International DC charging plug (70 square meters, 3 meters), DC 750V 250A.

Cautions

(1) Check if the grid voltage used is the same as the rated input voltage of the charger.

(2) It is recommended that the power input wire of the charger be directly connected to the power air switch of the power distribution cabinet. The rated current of this switch should be greater than or equal to 1.5~2 times of the maximum input current of the charger.

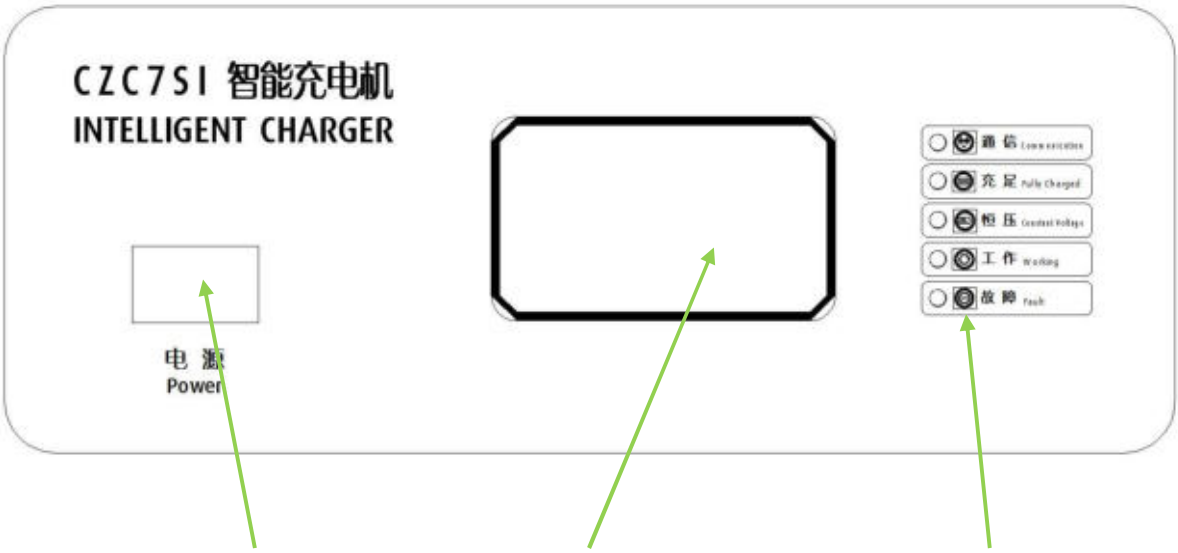
(3) The charger should be placed in a dry and ventilated place to avoid high temperatures, dust and corrosive gases.Avoid direct exposure to sunlight, wind and rain. When placed outdoors, a canopy is required.

(4)In order to ensure the normal operation of the charger, keep the air in the use environment unobstructed. There should be no obstruction to obstruct the ventilation 30cm around the charger, and often check the vents around the charger regularly.

e. Instructions

e.1. Panel schematic

Desk type charger



Power switch LCD Touch screen Charging state indicator

Vertical type charger

Power switch——Turn the grid power on or off. (Desk type charger)

LCD Touch screen——The human-machine interface of the charger displays the parameters and status of the charging process of the charger and the operation of setting parameters of the charger.

Charging state indicator——

- Communication: Lights up to indicate that the BMS battery management system is communicating with the charger.
- Fully charged: The light is on to indicate that the charging has been completed. The charger is fully turned off and the battery can be removed.
- Constant voltage: The light is on to indicate that the charger has entered a constant voltage state.
- Working: When the light is on, the charger is in the charging state.
- Fault: The light is on to indicate that the charger is faulty and the fault is displayed on the screen.

e.2. LCD touch screen description

- “Start/Stop” button: The button for charger start/stop charging controls the start and stop of the charger.
- “Charging state display”: Display various states prompt texts corresponding to the charger, including charging state and fault information.
- “Charging process parameter display”: After the LCD display is turned on, the charger automatically detects each parameter of the battery.

  If the charger is charging, this position shows the battery's charging current, charging voltage, charging capacity, charging time, and so on.

  If the charger is not charging or charging is in a pause state, the battery voltage, charging capacity, and accumulated time of the previous charge are displayed here.
- “Set button area”: Click these four buttons, the controller will enter the corresponding “Battery Information”, “Module Information”, “Event Log” or “Advanced Settings” interface.

  “Battery Information”: Displays the highest cell voltage, lowest cell voltage, battery temperature, and battery percentage capacity.

  “Module Information”: Display information such as output voltage, output current, and work code of each module.

"Event Log": Record the time when the relevant event occurred during charging.

"Advanced Settings": used to set system events, charging parameters, etc.

- “Charger Type”: Displays the charger built-in charger type. For example, P-3 is a three-phase charger, and P-5 is a module integrated charger.
- “Clock Display”: The RTC clock shows the time of the built-in system of the charge controller.

e.3. Charger power on display

After booting, the LCD display will show a welcome screen. After delay of a few seconds, enter the charging waiting interface.

e.4. Operation steps of charging process

1) Turn on the charger input power.
2) Connect the charger and battery charging plug or charging gun.
3) Turn on the power switch of the charger, and the “LCD touch screen” on the panel will be powered on. The charger enters the charging waiting interface after a few seconds.
4) If the battery is properly connected, the LCD display will detect the battery voltage. The lithium battery charger with BMS communication automatically starts charging. If timed charging is set, the charger will be automatically activated when the time is up. To cancel the timed charging, enter the “whether timing or not” in the corresponding page of "Charging parameters" and select "No". The timed charging setting is still valid after the charger is restarted. To start immediately, you need to enter the "Advanced Parameters", click "Parameter Settings", enter the password "1234", and then enter the "Manual Start" interface. Click the “Start button” to force the start; at this time, the charger automatically starts charging. Charging can only be initiated manually in an emergency.

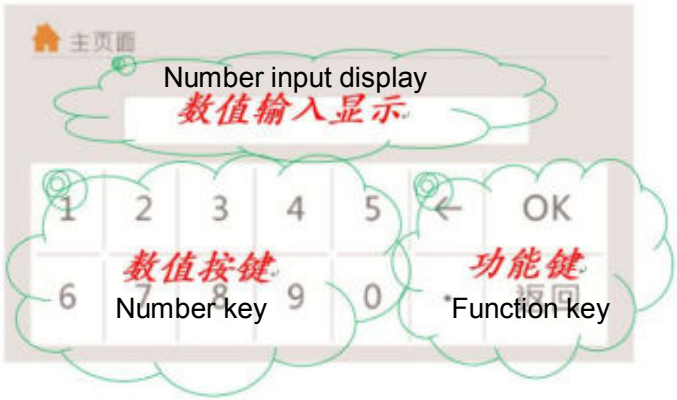
“The charging voltage and current parameters are displayed in the “Charging process parameter display” area, and the panel “Charging Status Indicator” displays the charging status.

If the battery is not properly connected, press the “Start/Stop button” of the touch screen, the charger automatically detects the battery status. When the battery voltage is low and the start condition is not satisfied, the LCD displays the fault status, and the LED status indicator “Fault” indicator lights up.

5) After the charger is started normally, the charging process is automatically controlledaccording to the battery status, and the charging data is displayed and recorded. The charger automatically completes the entire charging process according to the preset parameters and charging mode.
6) When the fully charged light is on, the charger automatically stops. At this point, the battery is full

e.5. General charging parameter settings

5.1 General parameter setting interface description



Introduction of setting parameter input interface

"Number key" area: The number is 0 to 9.

Number input display "Area: Displays the number entered by the number button.

"Function key”: Click “OK” to complete the parameter setting.

Click "Return" to cancel this parameter setting.Click "Back" to cancel this

parameter setting.

Click "←" to cancel the number of one setting.
Click " . " to set the decimal point of the number.

e.6. Fault description and corrections

It must be repaired by professional electrical technicians.			
No.	Fault type	Fault phenomenon	Corrections
1	Recoverable fault Resume normal charging after troubleshooting)	1) Battery not connected 2) Battery reverse 3)Phase loss protection	1) Check the battery cable 2) Connect the charging cable correctly 3) Check if the input voltage is out of phase
2	Unrecoverable fault	1) Overvoltage protection 2) Overcurrent protection 3) Battery detaching	1) Check if the main circuit module of the charger is normal. 2) Check and replace the faulty battery 3) Check if the battery connection is reliable and the battery BMS is protected.

Charging procedures：

1. Stop the truck, turn off the key switch, and the truck is disconnected.
2. Close the charger main input valve, make sure the emergency stop button bounce, the charger turns on automatically, the indicator illuminates, and the display screen starts automatically.

	Input electric master valve
	Emergency stop switch
	Display interface

3. Remove the charging gun, press the button lock before pulling it out. Check the charging gun, make sure no water or debris on each port, or metal terminal damaged or influenced by rust or corrosion.

4. Open the right door，open the rechargeable lithium battery cover. Check the charging socket, make sure no water or debris on each port, or metal terminal damaged or influenced by rust or corrosion.

CPD20/25/30/35-XD4-SI25

CPD20/25/30/35-XD4-SI21/26, CPD15/18-XD4-SI16

5. Insert the charging gun into the lithium battery socket, the charger self checks and communicate with the lithium battery, when the entire system is fault-free, in about 15S, the inner relay is closed, start charging, and the charging indicator illuminates, while the instrument will display charging voltage, charging current, charging time and charging failure information.

CPD20/25/30/35-XD4-SI25

CPD20/25/30/35-XD4-SI21/26, CPD15/18-XD4-SI16

6. The charger will automatically stop charging after fully charged, output voltage and output current on the meter is 0, press the pause button, and then press charging gun lock and pull the charging gun out. If it needs stop charging without being fully charged, first press the pause button, wait until the charge current is reduced to 0A, and then press charging gun lock and pull the charging gun out.
7. Insert the charging gun to the charger lay-down position, and pull down the charger main input valve.
8. Close the rechargeable lithium battery cover and truck charging door.

Cautions for use and maintenance of lithium ion battery

Basic requirements for battery use

1) Under any circumstances, when testing or using the battery, the terminal voltage of the single battery must be tested in real time. It is strictly forbidden to test the battery pack in series without a management system or a protection board to avoid overcharging or overdischarging of the battery;
2) Battery management system: In order to ensure the safe and effective use of the battery and maximize the service life of the battery, the lithium battery product should be equipped with a dedicated power lithium battery management system (BMS) and a dedicated lithium battery charger, when a small number of small capacity batteries are used in series and in groups, you can also use a reliable lithium battery protection board. The Battery Management System (BMS) is as follows:

Parameter configuration	Overcharge protection voltage	3.75V	Undervoltage protection voltage	2.7V
	Maximum charging current	200A	Over-discharge protection voltage	2.2V
	Overcharge release voltage	3.67V	Over temperature protection temperature	60℃
	Undervoltage release voltage	2.8V	Over discharge release voltage	2.6V

3) In the process of using the battery, it is strongly recommended to adhere to the principle of shallow charge and discharge. The best performance is between 30% and 100% of the power.When the open-circuit voltage of single batteries drops to 3.0V, the actual charge is less than 10%. At this time, the battery pack should be charged in time;
4) When testing or using the vehicle, always pay attention to the remaining battery capacity of the battery pack, and avoid using the trailer to transport the vehicle for charging when the power is exhausted. In the process of trailer, auxiliary systems such as DC/DC (power supply for lighting, wipers, etc.), steering power, brake power, etc. are still consuming power. Trailer for a long distance will also lead to battery overdischarge;
5) The high-voltage safety protection work of the battery pack must be well done.The drive main circuit and the low-voltage electrical circuit (including the vehicle body) must be properly isolated, and the reliable DC air circuit breaker and fast DC fuse should be selected;
6) It is strictly forbidden to separately draw power from the individual batteries in the battery pack to supply power to the low-voltage electrical equipment of the vehicle, so as to avoid the destruction of the consistency of the entire battery.

Cautions:

1. Charge the lithium battery immediately after per discharge to avoid battery loss;
2. Never place the battery near high temperature heat source, such as fire and heater etc.;
3. Do not use the battery in a location where static electricity and magnetic field is great, otherwise, the safety devices may be damaged, causing hidden trouble of safety.
4. Avoid using the battery under high temperature for a long time, otherwise, it may cause overheat of the battery or function invalid or service life being shortened;

5. Do not operate an electric vehicle equipped with a lithium battery in an environment where the temperature exceeds 55 °C; if the power battery system is below -25 °C, the power battery system needs to be self-heated above -10 °C to operate the vehicle;

6. Do not dismantle the battery box under any circumstance;

7. Never drop or knock the battery box etc.;

8. Short circuit of the battery is prohibited, never put any other object or tool to avoid battery short circuit;

9. Never wash battery box directly, prevent water getting into the battery and ensure the safety; it's forbidden to mix batteries of different brands, volumes and types;

10. Battery should be kept in a cool and dry place and avoid direct sunlight;

Maintenance instruction:

1. Do not change the battery setting parameter at will without the permission of the manufacturer;

2. If the lithium battery needs to interrupt or suspend charging, do not hot plug, avoid current arc to damage charging base;

3. Charging time below 0 °C will be longer than normal temperature charging time;

4. If the lithium battery is not used for a long time, it is necessary to charge and discharge the battery once a month. The best SOC interval for battery storage: 50%-80%.

Chapter VI Common failures of batteries and their Solutions

The battery voltage is too low after filling

1、The batteries have not been used for a long time and have not been maintained in accordance with the regulations. Solution: recharge the battery.

2、The battery has been subjected to severe collisions characterized by damage to the outer surface of the cell case or the smell of electrolyte in the battery pack. Solution: this kind of situation is generally not within the scope of maintenance. If the maintenance needs to be determined, there is a problem in the output line or in the battery itself. First, disconnect the battery case to see if the battery P+/C+ and P-/C- lines or solder joints are damaged. If there is any damage, they need to be replaced. Then the battery is odored by the method of incitement. If there is an exciting electrolyte odor, the battery has been leaked. It needs to test the battery of each battery. If a series of voltages is too large and very low, it is necessary to contact the manufacturer to change the battery.

3、Shortage of capacity. Solution: charge and discharge cycle for the battery, usually 3-5 cycles.

When the battery is fully charged (the charger shows full charge), the voltage is zero or on the low side.

1、Battery disconnection. Solution: take apart the battery, check whether the circuit is broken, check whether the solder joint has fallen off, repair the damaged place according to the situation.

2、The protective plate is not working. Solution: first of all, make sure whether the shield plate is in good contact with the shield board, and observe whether the solder joint falls off. If the above conditions are the same, test the voltage between B + B- and P + P-, if the difference between the two voltages is large, the protection board is broken and needs to be tested in detail. The test does not pass and needs to be replaced.

Battery voltage instability

1、Virtual welding .Solution: use the internal resistance tester to test the internal resistance of the battery. If the internal resistance exceeds the specified value, there may be false welding inside the battery, which needs to be disassembled and rewelded.

2、Abnormal protective plate. Solution: replace the protective plate

3、Poor contact between terminals or connectors. Solution: replace terminals or connectors

4、Normal charging, abnormal discharge or normal discharge, abnormal charging.The protective plate is broken.Solution: the protection plate needs to be replaced.

Chapter VIII Emergency Preparedness

Extreme anomalies that may occur during battery operation：In the process of use, users should establish a good sense of safety prevention, prohibit illegal operation strictly, avoid battery system abuse (overcharge, over-discharge, short-circuit, extrusion, puncture, environmental overheating, high-current discharge, etc.).Possible anomalies in the battery system during charging and use are as follows:

a. The battery system or the local temperature rises sharply.

b. The battery system has abnormal odor at any part of the system.

c.The battery system will smoke and fire at any part of the system.

Emergency measures in case of smoke and fire in battery system during operationIn the event of smoke or open fire occurring in the battery system during the use of the battery, it is dealt with promptly in the following order:

a. Stop the car and turn off the electricity.

b. Personnel evacuate the vehicle quickly, call the police according to the situation of the scene.

c.In order to ensure their own safety, depending on the specific circumstances of the site, the following operations may be carried out:

Use a water-based fire extinguisher to extinguish to extinguish smoke or fire site under the condition of ensuring the safety of personnel.

d. Notify our company personnel as soon as possible to deal with.

6 Instructions

6.1 Running-in of the new truck

We recommended operating the machine under light load conditions for the first stage of operation to get the most from it. Especially the requirements given below should be observed while the machine is in a stage of 100 hours of operation.

- Must prevent the new battery from over discharging when early used. Usually should recharge when discharging down to 20%.
- Perform specified preventive maintenance services carefully and completely.
- Avoid sudden stop, starts or turns.
- Oil changes and lubrication are recommended to do earlier than specified.
- Limited load is 70%～80% of the rated load.

6.2 Check and adjust before operation

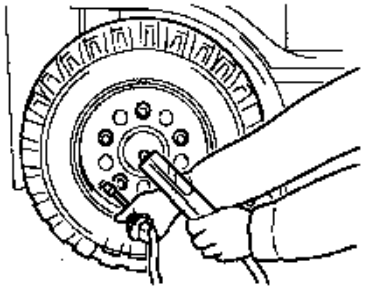
For the safe operation of forklift, do relevant check and adjustment to the forklift before operation.

Warning

- **If there is damage or potential risk on forklift or attachment after check, then do not operate the forklift before repairing.**
- **Except checking lamps and operating performance, before checking electrical system, turn off the key switch and take out the battery plug.**

– Visual check the forklift, pay attention to the wheel, wheel bolt and load part, if damage or looseness.
– Visual check and touch the drive axle, hydraulic system, brake system and battery, if leak or damage.
– Check tire pressure: check if the tire pressure in the specified value(front tire 0.9 MPa/rear tire 0.8 MPa) with barometer.
– Check if battery box locked.
– Check if the function of driver seat is normal, and adjust the seat position according to driver's need.
– Adjust the position of handrail control device according to driver's need.
– Check if the safety belt functions normally: safety belt must be locked when pulling out rapidly.
– Adjust the inclination of steering column.
– Adjust the rearview mirror vision.
– Check if the lifting chain's tension is even.
– Check the function of operation and display element.
– Check if instrument displays normally.
– Check seat switch function: when driver does not sit correctly, instrument displayed seat switch indicator light lights up, meanwhile hydraulic function cannot be operated.
– Check steering system function.
– Check if braking pedal functions normally.
– Check accelerator pedal: step the accelerator pedal, as the change of stroke, accelerated speed strength is distinct, and return well.
– Check steering angle display: rotate the steering wheel to two directions in place, and check if the instrument displays the wheel position.
– Check if the hydraulic function of lifting, tilting and attachment is normal.
– Check if the function of lamp, horn, back-up buzzer is normal.

Check tire pressure（Pneumatic tire only）
Turn tire valve cap counter clock-wise and remove it. Using a tire pressure gauge, measure the inflation pressure, and adjust it to the specified pressure, if needed.After confirming leakage free, screw the nut cap, check if the ground surface or side of the tire damaged, and rim transformed.



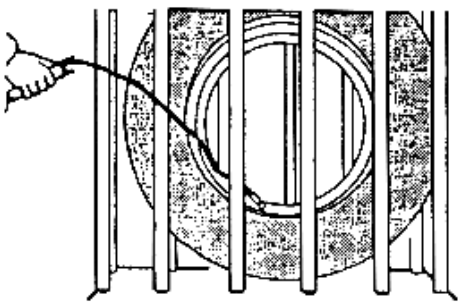
Warning

- **Since the forklift truck needs tires that have a high inflation pressure to carry heavy loads, even a small bending of rims or damage at the tread surface could cause an accident.**
- **When using an air compressor, first adjust the air pressure of the compressor. Failure to do so will cause a serious accident, since the compressor delivers the maximum pressure.**

Tire regulated pressure（Adopt new standard GB/T2982-2001）

Model	Front tire	Rear tire
1.5t～1.8t	0.79 MPa	1.0 MPa
2.0t～3.5t	0.9 MPa	0.8 MPa

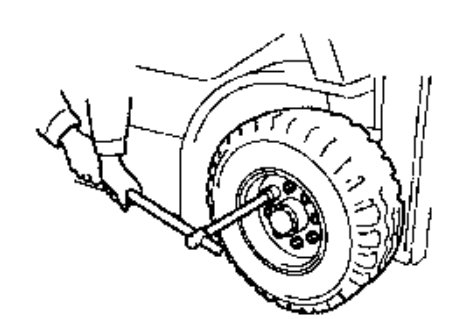
Note: the above is pneumatic tire pressure, not used to solid tire.



Warning

- **After assembling tires and rims, all the bolts and nuts should be fastened to specified torque valve, then inflate the tires. Tires have expanding power after inflation, and the tire pressure should not exceed specified value.**
- **To ensure safety, you should place the tiresin a protective frame or tie the tires with chain when inflation.**

Check wheel fixation
Check if the tightening torque of front/rear wheel nut meets requirement.



Procedures：

- Park the truck.
- Screw down wheel retaining nut with spanner crosswise, tightening torque refers to the following table.

Model	Front-wheel nut（Nm）	Rear-wheel nut（Nm）
1.5t～1.8t	157-176	76-107
2.0t～3.5t	441-588	157-176

Brake pedal check

Procedures：

- Depress the brake pedal and check that it moves freely without jamming.
- The correct braking distance without a load is 2.5 metres.
- Adjust pedal height: regulate the limit bolt so that the midpoint of the upper face of the pedal pad is 115mm -125mm from the front baseplate.
- Adjust the length of the pushrod of the brake master cylinder so that the pedal freeplay is 1mm–3mm.
- The brake light switch should turn on fully when the brake pedal is gradually depressed 10mm–20mm.

Hand brake lever check

The operating force is regulated by means of an adjusting screw on the rod tip. Turn clockwise to increase the operating force; turn anti-clockwise to reduce it.

Make sure that after pulled tight and released, the hand brake lever returns to its original position effectively.

Caution

- **Depressing the brake pedal helps to tighten or loosen the hand brake lever.**

Brake fluid check

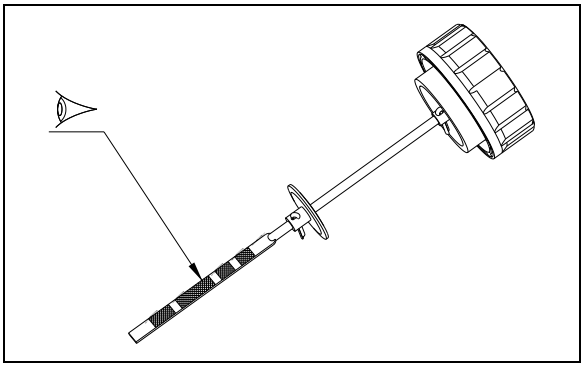
Open the cap of the brake fluid cup and check whether the brake fluid level is between the scale marks. Top up if necessary. Also check for air trapped in the brake line.

Caution

- **Use pure-grade brake fluid. Do not mix different grades of brake fluid.**
- **Do not spill brake fluid on painted surfaces, otherwise it will damage the paint.**
- **When adding brake fluid, avoid getting dust and water in the reservoir.**

Hydraulic oil check

Open the rear baseboard, unscrew the hydraulic oil filler cap on the rear rightside, pull out the dipstick and check whether the oil is between the marks. Add if necessary.

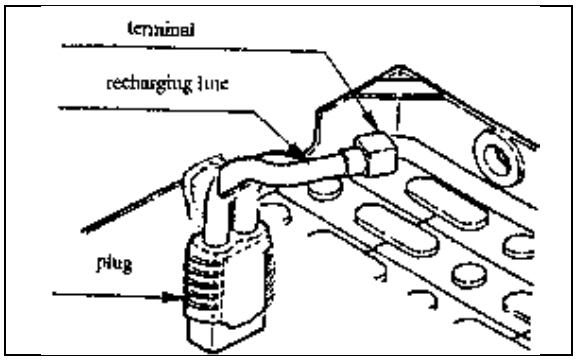


Different mast lifting height corresponded dipstick level：
“30” means liquid level for mast with 3M lifting height or below;
“40” means liquid level for mast with 4M lifting height or below;
“50” means liquid level for mast with 5M lifting height or below;
“60” means liquid level for mast with 6M lifting height or below;
“65” means liquid level for mast with 6.5M lifting height or below.

Battery check

Check that the lock pin is securely inserted and the battery is firmly fixed.

Check where the wiring of both terminals is loose or damaged. Adjust or replace the wiring if necessary.

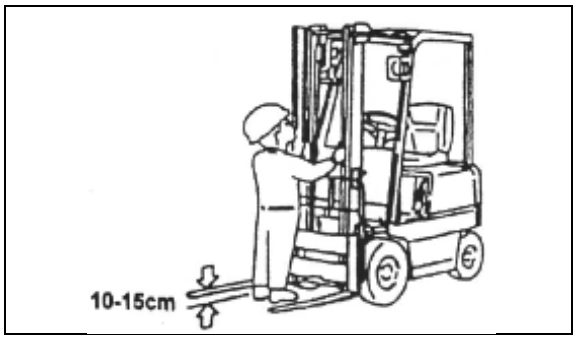


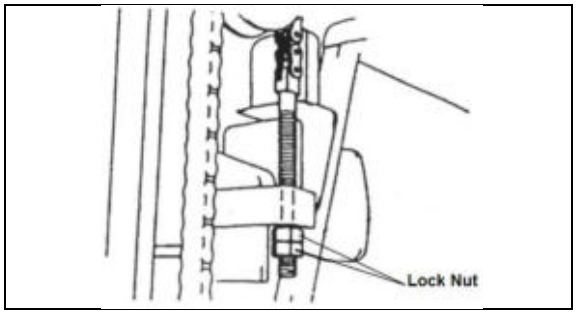
Mast and fork check

- Forks are not cracked or bent, and that they are firmly and correctly installed in the fork carriage;
- Check the oil cylinder and pipeline for leakage;
- Check that the rollers turn condition;
- Check the mast for cracks and deformation;
- Operate the lifting, tilting and attachment levers, check if the mast operates normally and no noise.

Chain tension check

- Raise the forks to a height of 10 cm–15cm with the mast vertical.
- Press the middle section of the chain with your thumb to check whether the tension between the left and right chains is identical.
- Tension adjustment: loose the lock nut and turn the adjuster nut to adjust the chains so that they both have the same tension, then tighten the lock nut.





6.3 Driving truck

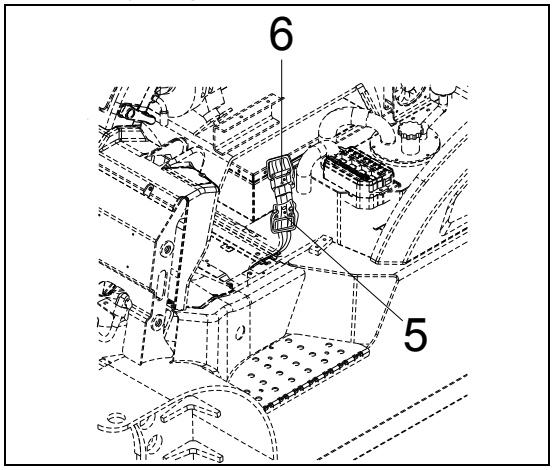
Driving and Operation

WARNING

- **Before operating the truck, check all controls and warning devices for proper operation. If any damage or fault is found, don't operate truck until corrected.**

Driving

– Open the cap, and insert the storage battery plug, then close the cap.



– Release the emergency stop switch. Rotate a certain angle clockwise and the emergency stop switch button automatically pops up.

– Set the direction switch to neutral position .

– Turn on key switch .

– The truck enters the self-test procedure for 3 to 4 seconds, and the available battery level is displayed in the display after the self-test is completed.

CAUTION

The forklift will automatically enter the self-test program (about 3 to 4 seconds). The display shows the welcome screen, and all 6 indicators are lit.During this time the forklift could not drive and lift. If the direction switch or accelerator pedal or hoist switch is operated during this time, a fault message will appear in the display and the fault indicator " " will illuminate.

– Hold the steering wheel with left hand and turn on the key switch with right hand.

– Tilt back the mast

– Control the lifting lever to set the bottom of the fork 150mm-200mm above the ground. Control the tilting lever to fully tilt back the mast.

– Control direction lever.

– Forward： Push the direction lever forward.

– Backward： Pull the direction lever backward.

– Loosen the hand brake lever

– Step the brake pedal and push the hand brake lever to the front position.

– Hold the steering wheel with your left hand and attach your right hand.

Traveling

Step the accelerate pedal slowly, the truck will travel forward or backward.

Decrease speed

Loosen the accelerate pedal slowly, the truck will decelerate.

CAUTION

Decelerate the truck in the situations following:

- **Turning;**
- **Close the goods or pallet;**
- **Close the deposit area;**
- **Enter a narrow passage;**
- **The condition of road surface is bad.**

WARNING

- **Don't step the accelerate pedal and brake pedal at the same time.**

Turning

Unlike general passenger-cars, the turning wheels are located at the rear of the truck. This cause the counterbalance swing out when turning.

Slow down the truck and turn the steering wheel toward the side which you are turning. The steering wheel should be turned a bit earlier than as with the front wheel steering car.

CAUTION

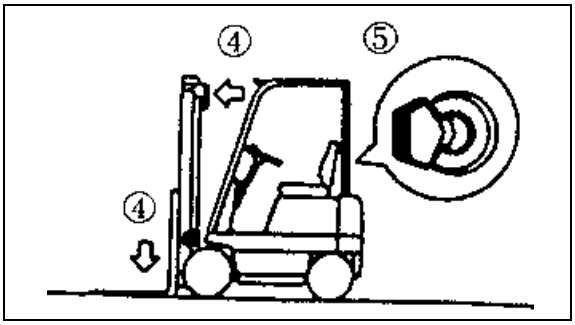
- **Drive the truck slowly and control the steering wheel carefully, assure there is enough space to steer.**

Stopping or parking

- Slow down and press the brake pedal to stop the truck.
- Place the shift lever in neutral.
- Pull up the parking brake lever.
- Down the forks on the ground, tilt mast forwards fully.
- Place the key switch in "OFF" to shut off the battery. Remove the key and keep it.

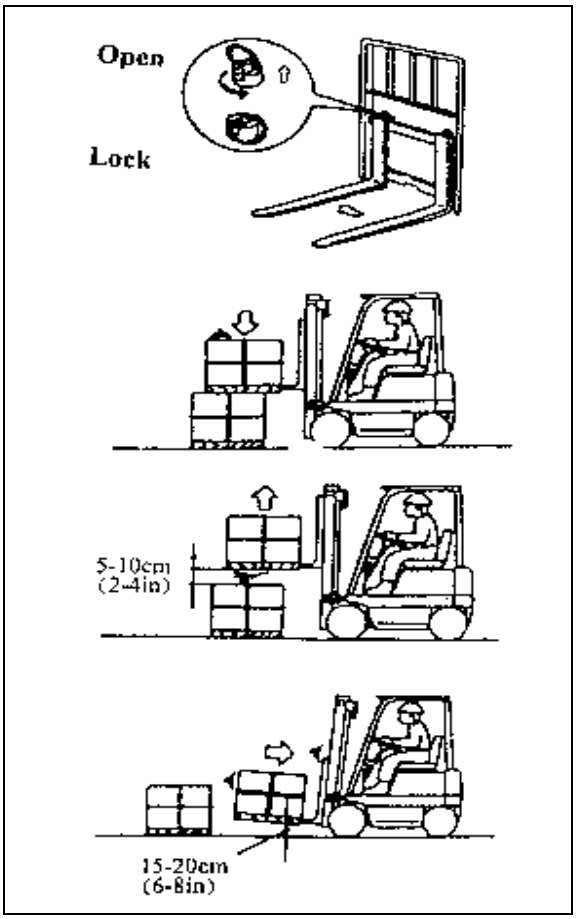
CAUTION

- **Don't dismount from the moving truck, never jump from the truck.**
- **Don't parking the truck on the working road.**



Loading

- The forks should be adjusted properly to maintain the balance of load.
- Place the truck right in front of the load to be handled.
- The pallet should be evenly positioned across both forks.
- Insert forks into the pallet as far as possible.
- To raise loads from the ground:
- Firstly, lift the forks 5cm to 10cm off the ground or floor and make sure loads lay stably.
- Then tilt the mast backwards fully and lift forks up to 15cm to 20 cm off ground then start running.
- When handling bulky loads which restrict your vision, operate the truck in reverse except when climbing grades.



Stacking load

– When approaching the deposit area slow down your truck.
– Stop the truck right 30 cm far away from the position where your load is to be deposited.
– Check the condition of the deposit area.
– Tilt the mast forward until forks become to horizontal. Raise forks until they are a little higher than the deposit position.
– Move forward to place the load directly over the desired area and stop the truck.
– Make sure your load is just over the desired area. Slowly lower the load into position. Make sure the load is securely stacked.
– Do necessary lift-tilt operations and then back away to make the forks leave loads.
– After making sure the forks leave the load, lower the forks to the basic position (15cm to 20cm off the ground).
– Tilt the mast backwards.

⚠CAUTION

Decelerate the truck in the situations following:

- **Turning;**
- **Close the goods or pallet;**
- **Close the deposit area;**
- **Enter a narrow passage;**
- **The condition of road surface is bad.**

⚠ WARNING

- **Never tilt the mast with loads upraised 2m or more.**
- **Don't leave or dismount from the truck when the load is raised high.**

Un-stacking load

– When approaching the area where the load is to be retrieved, slow down your truck.
– Stop the truck 30 cm far from the load.
– Check the condition of the load.
– Tilt the mast forward until forks become horizontal. Elevate forks up to the position of the pallet.
– Make sure forks are positioned properly to the pallet. Move forward slowly to insert forks into the pallet as far as possible.

CAUTION

- **If the forks are hard to be fully inserted, use the following procedure: Move forward and insert 3/4 of the forks. Raise the forks 5 to 10 cm and move backward 10 to 20 cm with the pallet on the forks, and then fall the pallet to the stack.**
- **Move forward again to insert the forks fully.**

– Raise the forks 5cm to 10cm off the stack
– Check all around the truck to insure that the path of travel is unobstructed and back away slowly.
– Lower forks to a height of 15cm to 20cm above the ground. Tilt the mast backward fully and move to the desired area.

Check after operation

Clean and check the truck after operation:

– Damage or leakage.
– Add grease if necessarily.
– Check the tire if it is damaged or inset with foreign body.
– Check the wheel hub nut if it is loose.
– Check the height of electrolyte surface.
– If you haven't lift the fork to the max. height in the day, you should lift it to the max. height 2～3 times.

CAUTION

- **If you find any trouble, must repair it in time.**
- **Prohibit operate the forklift before repairing it completely.**

7 Maintenance

Serious and complete maintenance can keep the forklift in good work condition, not only guarantee the forklift safety, but also your work and life safety.

7.1 Maintenance summary

- The forklift must be regularly checked and maintained to keep it in good working order.
- Inspection and maintenance are often easily overlooked. Early detection enables problems to be settled in a timely manner.
- Use original Hangcha Group spare parts.
- Do not use different types of oil when changing or topping up oil.
- Waste oil and battery fluid must not be poured away indiscriminately, but recycled or disposed of in accordance with local environmental laws and regulations.
- Establish and follow a comprehensive maintenance and service schedule.
- Maintain current and complete records of all maintenance and servicing activities.
- Untrained personnel must not attempt to carry out forklift repairs.
- Only in the event that the truck manufacturer is no longer in business and there is no successor in the interest to the business, may the user arrange for a modification or alteration to a powered industrial truck, provided, however, that the user

  a) arranges for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety,

  b) maintains a permanent record of the design, test(s) and implementation of the modification or alteration,

  c) approves and makes appropriate changes to the capacity plate(s), decals, tags and instruction handbook, and

  d) affixes a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered, together with the date of the modification or alteration and the name and address of the organization that accomplished those tasks.

Caution

- **No open flames.**
- **Turn off the keyswitch and disconnect the battery plug before carrying out any servicing or maintenance. (except when carrying out certain obstacle checks).**
- **Clean electrical parts with compressed air. Do not clean with water.**
- **Do not put your hands, feet or any part of your body between the mast and dashboard.**

Weight of counterweight：

Tonnage	1.5t	2.0t	2.5 t	3.0 t	3.5 t
Counterweight	900kg	1050kg	1050kg（Does not contain small weight）	1950 kg	1950 kg（Does not contain small weight）

7.2 Periodic maintenance schedule

〇 —check, correct, adjust ×—replace

D—Daily; W—Weekly; M—Monthly; T—Trimonthly; S—Semiannually; Y—Yearly

Electrical System
lithium battery

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Battery	Lithium battery installation and fastening		〇	〇	〇	〇	〇	〇
	Lithium battery charging socket cleaning				〇	〇	〇	
	Lithium battery charging socket contacts are damaged or rusted		〇	〇	〇	〇	〇	〇
	Lithium battery charging socket contacts have water, clear		〇	〇	〇	〇	〇	〇
	Lithium battery charging socket dust cover is intact				〇	〇	〇	
	Is the lithium battery case damaged		〇	〇	〇	〇	〇	〇
	Battery power		〇	〇	〇	〇	〇	〇
	Keep away from flames		〇	〇	〇	〇	〇	〇

Controller

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Controller	Check condition of contacts					○	○	○
	Check mechanical movement of contactors					○	○	○
	Check pedal microswitches are functioning properly					○	○	○
	Check condition of connections between motor, battery and power unit					○	○	○
	Check controller faults to determine whether system is functioning properly							2 years for first time

Motor

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Motor	Clear foreign bodies on motor housing				○	○	○	○
	Clean or replace bearings						○	○
	Wiring correct and secure				○	○	○	○

electrical system other

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)
Emergency power off button	Work and installation			○	○	○	○
Seat sensing system	Work and installation			○	○	○	○
Rocker switch	Rear headlights						
Reversing switch	Work and installation			○	○	○	○

Combination switch (steering, lighting)	Left and right steering switch operation			○	○	○	○
	Light stalls and work conditions			○	○	○	○
horn	Work and installation		○	○	○	○	○
Lights and light bulb	Work and installation		○	○	○	○	○
Reversing buzzer	Work and installation		○	○	○	○	○
Meter	Instrument working situation		○	○	○	○	○
Wire	Harness damage, fixed looseness			○	○	○	○
	Loose circuit connection				○	○	○

Body system

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)
Frame and side door	Is the frame cracked				○	○	○
	Is the right door lock assembly working well		○	○	○	○	○
	Is the right door open				○	○	○
	Protective rod fastening		○	○	○	○	○
	Is the roller under the lithium battery		○	○	○	○	○
Roof Guard And Shelf	Is the installation firm	Testing hammer	○	○	○	○	○
	Check for deformation, cracking, damage		○	○	○	○	○

Transmission system

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)
Drive axle assembly	For abnormal noise		○	○	○	○	○
	Check for leakage		○	○	○	○	○
	Change oil					For the first 3 months, every 6 months thereafter	
	Check for hub bearing looseness and noise			○	○	○	○
	Check axle deformation, crack or damage				○	○	○

Wheels (Front, Rear Wheels)

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Tires	Inflation pressure	Barometer	○	○	○	○	○	○
	Wear, cracks or damage		○	○	○	○	○	○
	Check for nails, stones or other foreign objects in the tread				○	○	○	○
	Check for damaged rims		○	○	○	○	○	○
	Split type rim bolt looseness	Test hammer	○	○	○	○	○	○

Steering System

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Steering wheel	Check play		○	○	○	○	○	○
	Check axial looseness		○	○	○	○	○	○
	Check radial looseness		○	○	○	○	○	○
	Check operation		○	○	○	○	○	○
Steering gear	Check for loose mounting bolts				○	○	○	○
Rear wheel knuckle	Check king pin for looseness or damage				○	○	○	○
	Check for deflection, deformation ,cracks or damage				○	○	○	○
	Check for installation	Test hammer			○	○	○	○
Steering cylinder	Check for operation		○	○	○	○	○	○
	Check for leakage		○	○	○	○	○	○
	Check for looseness when mounting and hinging.				○	○	○	○

Braking system

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Brake pedal	Freeplay	Ruler	○	○	○	○	○	○
	Pedal stroke		○	○	○	○	○	○
	Operation		○	○	○	○	○	○
	Check for air in brake lines		○	○	○	○	○	○
Hand brake operation	Check braking is safe and reliable, stroke is sufficient		○	○	○	○	○	○
	Operating performance		○	○	○	○	○	○
Rods, cables, etc.	Operating performance				○	○	○	○
	Loose connections				○	○	○	○
	Gear box connector wear					○	○	○
Pipelines	Damage, leakage, rupture				○	○	○	○
	Connection, clamping parts, looseness				○	○	○	○
Master brake cylinder	Leakage		○	○	○	○	○	○
	Check oil level, change oil		○	○	○		×	×
	Master cylinder, wheel cylinder action					○	○	○
	Master cylinder, wheel cylinder leakage and damage					○	○	○
	Inspect master and wheel cylinder piston cups and check-valves for wear and damage, replace						×	×

Hydraulic system

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)	Y (2000h)
Hydraulic oil reservoir	Check oil level, change oil		○	○	○	○	×	×
	Clean oil filter						○	○
	Clear foreign bodies						○	○
Control valve linkage	Loose connections		○	○	○	○	○	○
	Operation		○	○	○	○	○	○
Multi-way valve	Leakage		○	○	○	○	○	○
	Operation of safety valve and self-locking tilt valve				○	○	○	○
	Measure safety valve pressure	Oil pressure gauge					○	○
Line connectors	Leaks, looseness, rupture, deformation, damage				○	○	○	○
	Replace pipes							× 1-2 years
Hydraulic pump	Check pump for leaks and noise		○	○	○	○	○	○
	Check wear of pump drive gear				○	○	○	○

Lifting system

Item	Service required	Tool	D (8 h)	W (40 h)	M (166 h)	T (500 h)	S (1000h)
Chain sprocket	Check chain tension, check for deformation, damage and corrosion		○	○	○	○	○
	Lubricate chain				○	○	○
	Riveting pins and loose-ness				○	○	○
	Sprocket deformation and damage				○	○	○
	Looseness of sprocket bearings				○	○	○
Attachments	Check chain tension, check for deformation, damage and corrosion				○	○	○
Lift and tilt cylinders	Piston rod and piston rod threading, loose connections, deforma-tion, damage	Testing hammer	○	○	○	○	○
	Operation		○	○	○	○	○
	Leakage		○	○	○	○	○
	Wear and damage of pins and cylinder				○	○	○
Forks	Fork damage, deforma-tion, wear				○	○	○
	Damage and wear of fork stoppers					○	○
	Cracking and wear of welded part of fork heel coupling				○	○	○
Roof guard and shelf	Is the installation firm	Testing hammer	○	○	○	○	○
	Check for deformation, cracking, damage		○	○	○	○	○
Mast and fork carriage	Cracking and damage of welding on inner mast, outer mast and crossbars				○	○	○
	Wear, cracking and damage of welding on tilt cylinder brackets and mast				○	○	○
	Wear, cracking or dam-age of welding on inner and outer masts				○	○	○
	Wear, cracking and damage of welding on fork carriage				○	○	○
	Loose roller bearings				○	○	○

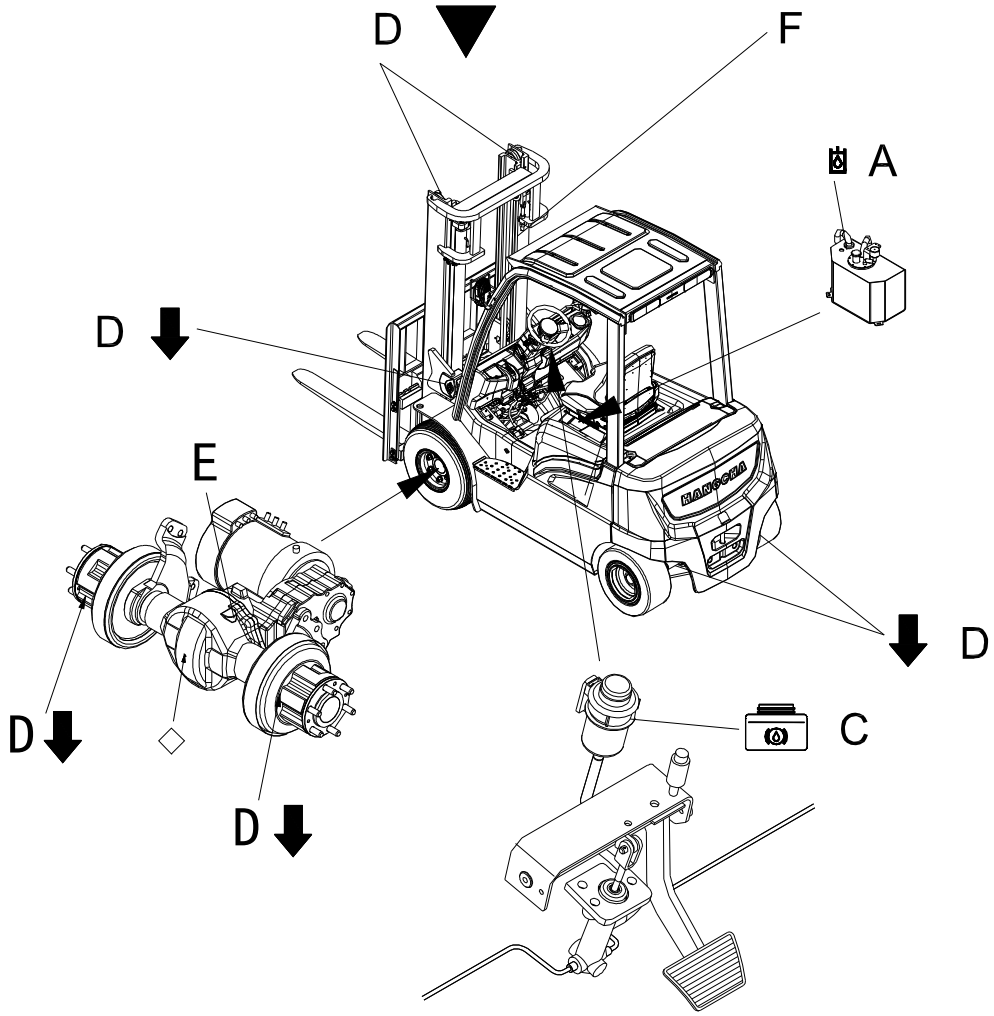
	Wear and damage of mast support bearing bushes						○
	Looseness of mast support cover bolts	Testing hammer			○ (first time only)		○
	Looseness of lift cylinder piston rod head bolts and plate bolts	Testing hammer			○ (first time only)		○
	Cracking and damage of welding on inner mast, outer mast and crossbars				○	○	○

7.3 Periodic replacement of safety-critical parts

– Some parts are difficult to inspect during periodic maintenance. Therefore, in order to further improve safety, users should carry out periodic replacement of the parts listed in the following table.
– If any of these parts are found to be damaged or faulty before they are due for replacement, they should be replaced immediately.

Name of safety-critical part	Useful life (years)
Brake hose or rigid pipe	1～2
Lifting system hydraulic hoses	1～2
Lifting chain	2～4
Hydraulic system high-pressure hoses	2
Brake fluid cup	2～4
Brake master cylinder cover and dust boot	1
Hydraulic system inner seals and rubber parts	2
Rubber pad for steering axle	4

7.4 Forklift used oil and lubrication



Code	Description	Specification	Fuel charge（L）	Remark
A	Hydraulic oil	Common environment：L-HM32 Refrigerator/cold environment：L-HV32	35～65	Hydraulic oil tank
C	Brake fluid	Choice HZY3 brake fluid（Add before delivery） or DOT3 brake fluid	≈1.0	Braking oiler
D	Lubricating grease	General purpose lithium lubricating grease for automobile		Lubricating surface or lubricating nozzle
E	Gear oil	85W/90（GL-5）	≈4---5	Drive axle andGearbox
F	Anti-rust oil	Chain spray or engine oil		Chain
	Industrial vaseline	2#		Battery terminal

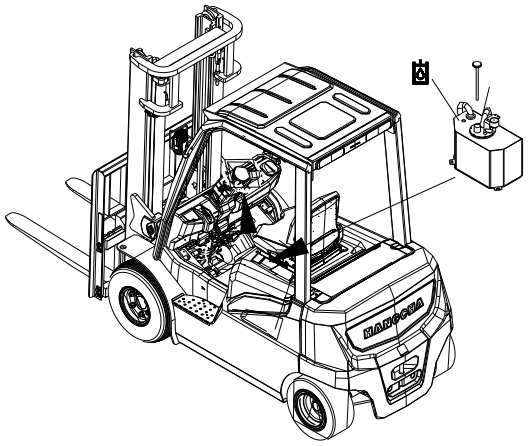
Replace hydraulic oil

Hydraulic oil should be changed every half year

Procedures：

- Park the truck on level ground
- Tilt the mast backward to the end and drop the forks on the ground;
- Remove the rubber pad from baseboard.
- Remove rear baseboard.
- Screw off the oil filler cap of the fuel tank, and take out the dipstick（52）.
- Put one container under the truck frame, remove oil plug （71）and sealing gasket (72), and drain oil;
- Take away the container, dispose waste oil according to local environmental law, and do not dump at will;
- Screw back the drain plug（71）and sealing gasket (72), add new hydraulic oil and check for leakage;
- Start forklift, raise forks for 3-5 times, and tilt the mast forward or backward for 3-5 times；

Add oil to specified scale.



Different mast lifting height corresponded dipstick level：

“30” means liquid level for mast with 3M lifting height or below;

“40” means liquid level for mast with 4M lifting height or below;

“50” means liquid level for mast with 5M lifting height or below;

“60” means liquid level for mast with 6M lifting height or below;

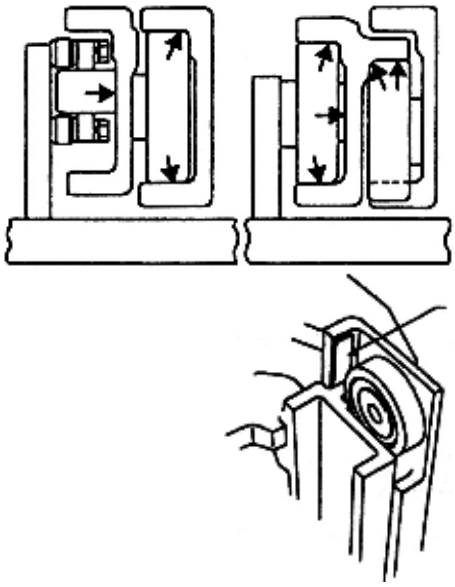
“65” means liquid level for mast with 6.5M lifting height or below.

Mast lubrication

Apply grease to the inside and outside of the mast track regularly according to the periodic maintenance and lubrication table.

In heavy or severe operating conditions, adjust lubrication intervals accordingly. During busy months, increase the number of lubricated parts.

Depending on the operation of the forklift, coat the lift guide wheel and the contact surfaces on the inner and outer sides of the mast with a layer of grease.



Warning

- **When adding grease, park the forklift on flat ground, turn off the switch and pull up the hand brake. Be careful when adding and avoid dropping when lubricating on high position.**

Chain lubrication

Use chain spray to spray against the chain or brush engine oil to both sides of chain.

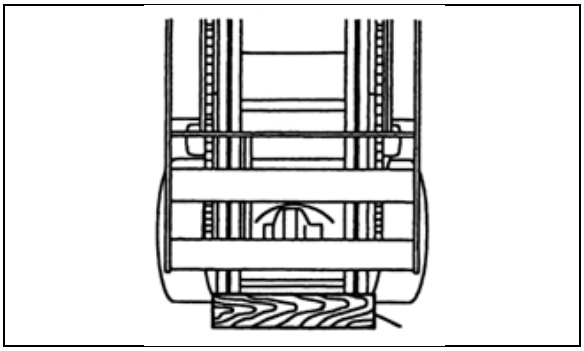
7.5 Replace wheel

Replace in pairs in time when tires wear to limit or is damaged. After running for 10hours with replaced tires, check if the wheel nuts tighten or not.

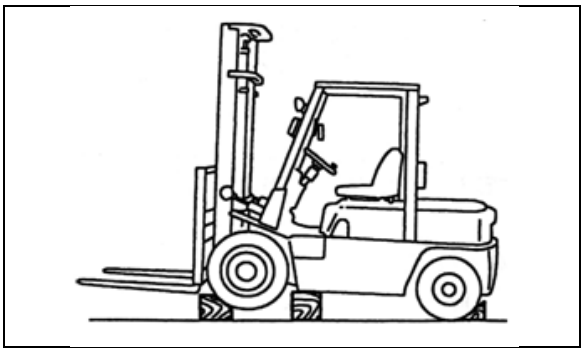
Replace front wheel

– Park forklift truck on level concrete. Place chocks behind rear wheels to prevent movement of forklift;

– Start the forklift, and lift the mast about 100mm. Tilt mast fully backward, and place a wooden block under each side of outer mast;Tilt mast forward until front wheels are raised from surface.



– Support truck by puttingwooden blocks under both sides of the front truck frame, then turn off the key switch.



Replace rear wheel

Warning

- **Only use the jack with 3000kg minimum rated load.**
- **Use proper tools like wedge or hardwood base to fix to prevent sudden rolling or tipping.**

– Park forklift truck on level concrete, pull up the hand brake, place chocks behind front wheels to prevent movement of forklift.

– Put the jack at the section of the bottom counterweight, and raise the forklift with jack slowly until rear wheels off the ground.

Warning

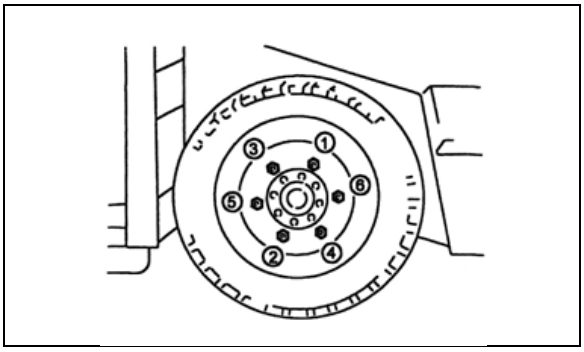
- **Use proper tools like wedge or hardwood base to fix to prevent sudden rolling or tipping.**
- **Make sure that wooden blocks used to support forklift truck are solid, one-piece units;**
- **Never get under forklift while it is supported only by wooden blocks.**

– Take out the wheel nuts and replace the new tires.

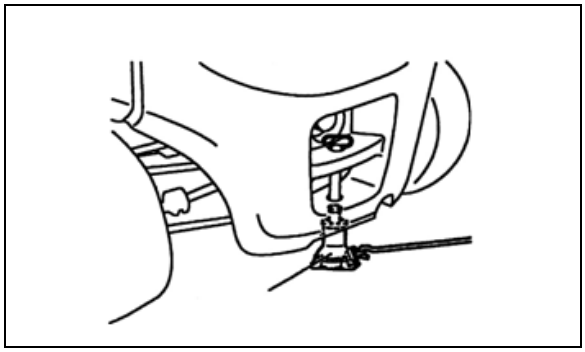
Warning

- **Do not take out wheel nuts before the rear wheels leave the ground.**

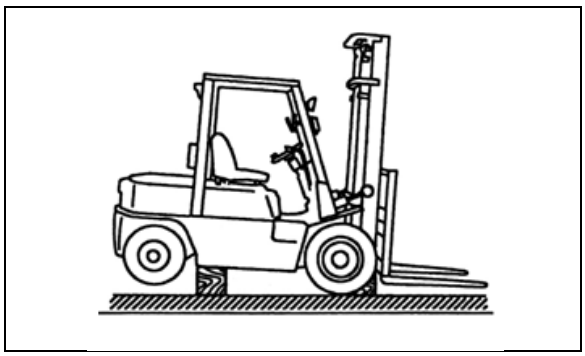
Install the new tire on the hub, and screw down the hub nut symmetrically and crosswise （T=588Nm～736Nm）.



– Start the forklift, and take out wood block from the truck frame. Tilt the mast backward, slowly lower the truck, take out the wood blocks from the mast and rear wheel.



– Place a solid wood block under the truck frame.



Warning

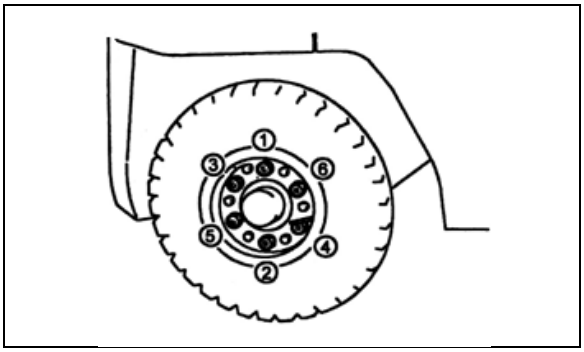
- **Make sure that wooden blocks used to support forklift truck are solid, one-piece units**
- **Never get under the forklift when the forklift is only supported with wood block.**

– Release hub nut, remove the wheel and replace new tire.

Warning

- **Do not take out wheel nuts before the rear wheels leave the ground.**

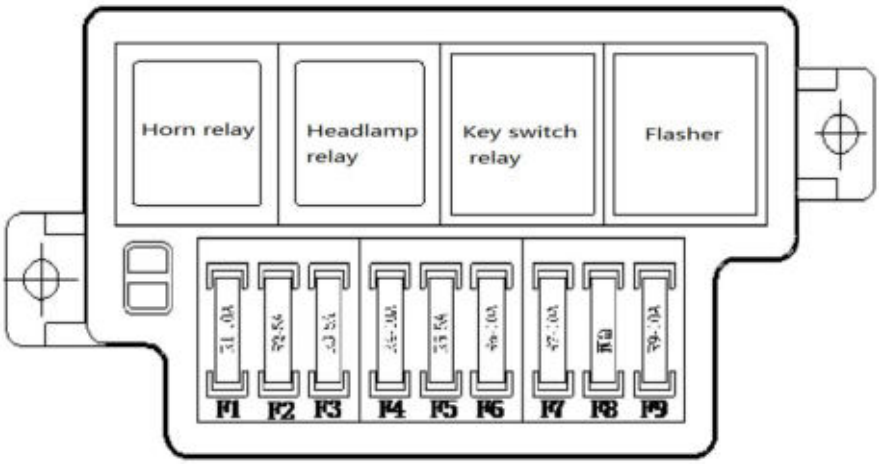
– Install the new tire on the hub, and screw down the hub nut symmetrically and crosswise（T=411～588N.m）。



– Remove the wood block from the truck frame, lower the forklift on ground slowly, and then take away wood block and jack from the front wheel.

7.6 Check and replace fuse

Fuse parameter list



Fuse position

Fuse list

Position	Capacity	Application component
F1	10A	DC converter
F2	5A	80V power output end
F3	5A	24V power output end 1
F4	10A	Flasher, 24V power output end 2
F5	5A	Horn, 24V power output end 3
F6	10A	24V 4 output end 4
F7	10A	Headlamp, 24V output end 5
F8	/	24V Power reserve
F9	10A	Emergency stop button

Fusible links

A melting fusible link can be watched or touched easily, if it is uncertain of melting, use multi meter or lamp to test.

Caution

1. If fusible links is melted, maybe because of short circuit(power or current is too high). No matter which reason, please check and eliminate fault.
2. Fusible links can cause heat, do not enlace with adhesive tape. Do not put fusible links near other rubber or wiring assembly.

Caution

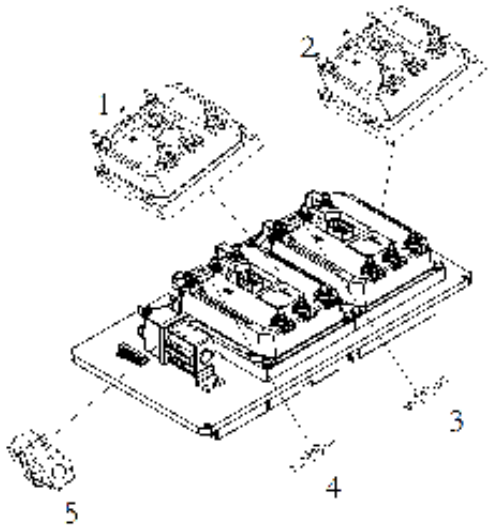
- Remove battery plug before checking the forklift electrical system.
- Take off the metal accessories from the hand before checking the forklift electrical system.
- Replace fuse with the same specification.

7.7 Check and maintenance of control system assembly

Procedures：

- Park the forklift.
- Open the right door and remove the battery plug.
- Open counterweight cover plate.

Expose the control system assembly elements, then check, replace and adjust.

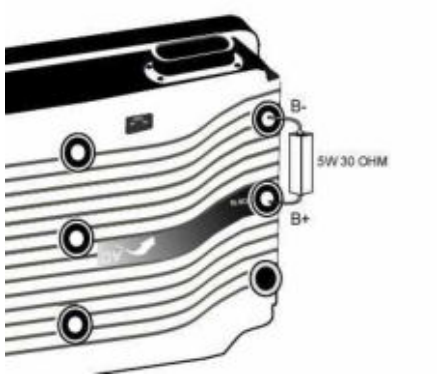


No.	Description	Control circuit	Specification
1	controller	Control drive motor	80V
2	controller	Control pump motor	80V
3	Fuse cutout	/	/
4	Fuse cutout	/	/
5	Fuse cutout	/	/

Caution

- **Remove battery plug before checking the forklift electrical system.**
- **Controller is equipped with accumulator. Forbid to touch within B+ and B- to prevent from wounding by electricity. Before checking or cleaning, first disconnect truck power, and then connect loads (resistance or bulb for example) between B+ and B- first to discharge for capacitor of controller.**
- **Take off the metal accessories from hand before checking the forklift electrical system.**
- **Replace fuse cutout with the same specification.**

- When repairing the controller's electronic control, the power must be cut off, and then connect 10-100 ohm resistor to the positive and negative terminals of the controller to short-circuit the residual voltage on the capacitor, otherwise there is a danger of electric shock.



– The magnetic field and magnetic radiation of the environment have a certain influence on the normal operation of the inverter, and the long-term influence may damage the controller. Therefore, keep away from magnetic fields and magnetic radiation.

7.8 Bolt tightening torque table

Unit：N·m

Bolt diameter	Grade			
	4.6	5.6	6.6	8.8
6	4～5	5～7	6～8	9～12
8	10～12	12～15	14～18	22～29
10	20～25	25～31	29～39	44～58
12	35～44	44～54	49～64	76～107
14	54～69	69～88	83～98	121～162
16	88～108	108～137	127～157	189～252
18	118～147	147～186	176～216	260～347
20	167～206	206～265	245～314	369～492
22	225～284	284～343	343～431	502～669
24	294～370	370～441	441～539	638～850
27	441～519	539～686	637～784	933～1244

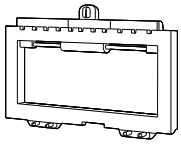
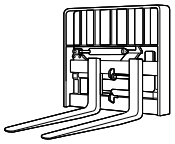
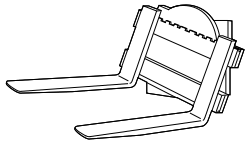
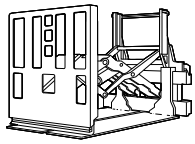
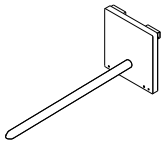
Note：

– Use entirely 8.8 grade bolt in the important joint position.

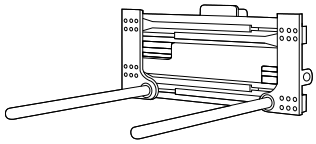
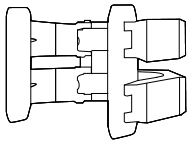
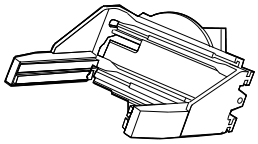
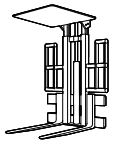
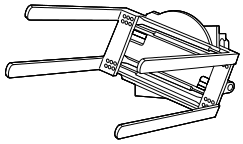
– Bolt’s grade can be found in the head of the bolt, if it can’t be found, the grade is 8.8.

8 The use, install and safety rules of attachment

HANGCHA will choose attachment that in accordance with International standard ISO2328 *Forklift pothook fork and installation size of carriage*, such as sideshifters, fork positioner, rotator, push/pull and clamp ect.

sideshifterfork positionerrotatorpush/pull coil boom

bar arm clamp paper roll clamp block clamps load Stabilizer turnaload

8.1 Attachment install

- Untempered technology license of our company, any refit at safety and capability to attachment is strict prohibited.
- Actual rating load capacity should be the least of rating load capacity, the load capacity of attachment, combined load capacity of truck. Generally speaking, the combined load capacity of truck is the least. Attachment load capacity just a count value of attachment pressure.
- Installation goes to in reason, credibility, safety to avoid the attachment glide around carriage in using.
- After hang attachment, embed the rise catch block to the gap of top beam, let the offset of centre line of attachment and carriage is less than 50mm.Otherwise, it will affect the landscape orientation stability of forklift.
- To these attachment with rotating function, such as paper roll clamp, bale clamp, muti-purpose clamp, drum clamp, it needs to weld chock block in the joint of carriage beam and attachment to prevent move from side to side in the operation.
- Install the attachment of below catch orientation, it need to adjust the clearance between below catch and beam of carriage.

8.2 Attachment use

- Know well the content of nameplate on attachment, read the instruction manual before usage. (Especially the manual from attachment company) Before operate the attachment, thepeople should be trained and obtain the qualification.
- It should be understand the basic capability and operate methods of attachment. Especially the admit load, lift height, size of cargo and adapt range of attachment.
- Operate the multi-functional attachment, such as with side-shifter, clamp or rotator, it is not allowed that two action at one time. Operate one functional then do another one.
- Prohibit the cargo at a high position when truck moves with attachment. If the size of cargo is too big, prohibit the truck move on. Transport the cargo, make sure that the distance of bottom

of cargo and ground is less than 300mm and mast incline back.

- The weight of cargo couldn't exceed the limited value of combination carrying capacity of forklift and attachment. It is not allowed that partial load at high position. It is a short time work for attachment with side-shifter. Partial load is around 100mm (Above 5 ton (including 5 ton), the side-shifter movable within 300mm.
- In the range of the projection forth 2m of the lower of attachment and cargo, prohibit standing to avoid the suddenness except the driver position under overhead.
- It is not allowed that an emergency brake in moving. Run slowly with load.
- Prohibit outside force when attachment working;
- It couldn't be use at malfeasance situation and overstep normal work range.
- When the attachment has trouble, prohibit using without check.

8.3 Check and maintenance

- Check the clearance of carriage beam and below catch of attachment if meet the attachment manual.
- Check the rise catch is right on the flute of fork carriage.
- Use the auto general lithium-grease per 500 hours to bearing surface.
- If the tighten firmware become flexible.
- Check the tie-in of hydraulic pressure loop, if tube attaint. Prohibit use after repair.
- Check the drive of attachment or if the rotating elements fray or block, change in time.
- Check if each element and attachment working pressure is normal as well asattachment works normally under load. If not, check the hydraulic pressure loop, find out the broken part, change sealing element or whole loop element.

9 Related safety instruction and standard (for trucks exporting to Europe or option)

The model by CE certification which according to the following instruction and standard:

The results meet the requirements of Directive 2006/42/EC of the European Parliament and of the council on the approximation of the laws of the Member States relating to machinery、2000/14/EC of the European Parliament and of the council on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors、EN ISO 3691-1:2015, ISO/TS 3691-7:2011, EN16307-1:2013+A1:2015,EN12053:2001+A1:2008,EN1175-1:1998+A1:2010,EN13059:2002+A1:2008 and their harmonious standards.

- Main safety factor will be according with DIRECTIVE 2006/42/EC OF THE EUROPEAN PAMENT AND OF THE COUNCIL and EN ISO 3691-1:2015, ISO/TS 3691-7:2011, EN 16307-1:2013+A1:2015，EN1175-1:1998+A1:2010 standard.
- The design and manufacture of electrical element comply with the low voltage standard 2014/35/EU.
- Noise will be according with EN12053:2001+A1:2008 and with 2000/14/EC amended by 2005/88/EC.

  Sound pressure level at the operator's position is 70.4 dB(A), sound power level is 88.7 dB(A).

  The measurement uncertainty is 1.5 dB(A).
- Vibration parameters are measured according to standards of ISO5349-2:2001, EN13059:2002+A1:2008, ISO2631-1:1997, and the result meets the requirement of 2002/44/EC.

  The whole body vibration of the seat is 0.54m/s^2
- Electromagnetism compatibility is measured according to standard of EN12895:2015，and meets 2014/30/EU.

DECLARATION OF CONFORMITY
EG-KONFORMITÄTSERKLÄRUNG

Business name of the manufacturer: HANGCHA GROUP CO., LTD.
Firmenbezeichnung des Herstellers:

Full address of the manufacturer: 666 Xiangfu Road, Lin'an District, Hangzhou City, Zhejiang Province 311305, P.R. China
Vollständige Adresse des Herstellers:

Name and address of the person (established in the Community) compiled the technical file:
Name und Adresse der Person (innerhalb der Gemeinschaft), die das technische Datenblatt erstellt hat
Hangcha Europe GmbH
Mariechen-Graulich-Straße 12a,65439 Flörsheim am main Germany
Tel: 0049-61453769188 , Andy Yang(General Manager)

We declare that the machinery
Wir erklären hiermit, dass die Maschine

product name: Electric Forklift Truck
Produktbezeichnung:

commercial name:
Handelsbezeichnung:

function:
Funktion:

model: CPD20-XD4-SI25, CPD25-XD4-SI25, CPD30-XD4-SI25, CPD35-XD4-SI25,
CPD20-XD4-SI26, CPD25-XD4-SI26, CPD30-XD4-SI26, CPD35-XD4-SI26
CPD15-XD4-SI16,CPD18-XD4-SI16
CPD20-XD4-SI21, CPD25-XD4-SI21, CPD30-XD4-SI21, CPD35-XD4-SI21
Modell:

type:
Typ:

serial number:
Seriennummer:

fulfills all the relevant provisions of Directives
entspricht allen relevanten Anforderungen folgender Richtlinien

2006/42/EC

tested in accordance with below standards
wurde gemäß folgender Normen geprüft

EN ISO 3691-1:2015
EN ISO 3691-1:2015/AC:2016
EN 16307-1:2013+A1:2015
EN 1175-1:1998+A1:2010

place and date of the declaration: Hangzhou 2019.03.25
Ausstellungsort und Datum der Erklärung

signature of the person:
Unterschrift des Ausstellers

Maintenance record

Date	Service content	Serviceman

HANGCHA GROUP CO. , LTD.

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■Web: http://www.hcforklift.com■E-mail: sales@hcforklift.com