5-12t（11000lb-26000lb）XF series

Internal Combustion Counterbalanced Forklift Truck

OPERATIONAL AND MAINTENANCE MANUAL

Original Instruction

HANGCHA GROUP CO., LTD.
10/2025

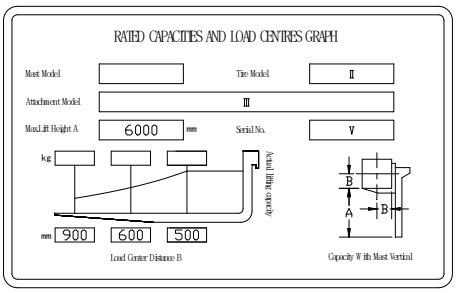
Standard model

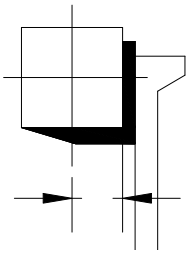
Load center mm(in)	600 (24)		
Model	CPCD50-	CPCD60-	CPCD70-
Rated capacity kg(lb)	5000 (11025)	6000 (13230)	7000 (15435)
Model	CPCD80-	CPCD100-	CPCD120-
Rated capacity kg(lb)	8000 (17640)	10000 (22050)	12000 (26460)

CE model: Optional Overall maximum lift height 6000mm

Caution | **Loading Capacity Chart**

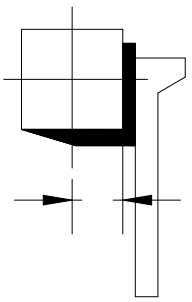
The chart shows the relationship between the location of the load center distance and the maximum load. Check whether the load and the load center distance are within the allowable range of the Bearing Capacity Chart before loading. If the load shape is complicated, the heaviest part should be placed in the center of the fork and close to the load backrest.





Load center

Note; The vehicle tonnage value shown below is based on the load center distance of 600mm.

Model	Engine	Hydraulic transmission	
CPCD50/60/70-XW95G	TCD3.6 L4 EU Stage Ⅴ (DEUTZ)	3WG94S Hydrodynamic drive transmission	
CPCD80/100-XW96G	TCD 3.6 L4 (DEUTZ)	3WG94S Hydrodynamic drive transmission	
CPCD50/60/70-XH16B	F3.8 (Cummins)	Y53490Z Hydrodynamic drive transmission	 Load center
CPCD80/100-XH16B			
CPCD50/60/70-XH15B	YCA05115-S500 (YUCHAI)		
CPCD80/100-XH15B			
CPYD50/60/70-XH20	PSI 4.3 （PSI）	YQXD110H Hydrodynamic drive transmission	
CPCD120-XXW96	TCD3.6 L4 (DEUTZ)	YQXD110H30 Hydrodynamic drive transmission	
CPCD120-XXH15	YCA05115-S500 (YUCHAI)		
CPCD120-XXH16	F3.8 (Cummins)		

Foreword

5-12t（11000lb-26000lb）XF series internal combustion forklift is a new product developed by our company, and features high energy efficiency and environmental protection, an attractive shape and superior performance.

This manual introduces the safety, operation, transportation, lubrication, general structure and maintenance procedures for this forklift truck. The drivers, maintenance staff and equipment management staff must read and become familiar with this manual before use.

The manual provides information on the safety, operation, transportation, lubrication, general structure, and maintenance methods of the forklift. Users are advised to keep the manual in good condition. If the manual is lost, damaged, or becomes illegible, it should be replaced promptly.

Due to continuous design updates and improvements of the product, some content in the manual may differ from the forklift you have in hand.

The illustrations and images used in this manual may not be exactly the same as the detailed structure of the forklift you have.

For any unclear points, please contact Hangcha Group Co., Ltd. Sales Company or the agent.

To ensure the safety of personnel and forklift, this manual will periodically feature three levels of warnings, namely Danger, Warning, and Caution, each with different implications for the warning messages they introduce.

a）Danger: Indicates an extremely hazardous situation where ignoring this warning could lead to personal injury or death. Example as follows:

DANGER

Never use two forklifts to lift or move a single load simultaneously. This practice can cause the load to become unstable, leading to potential vehicle overturning or tipping, which may result in serious injury or fatalities. Always follow proper lifting procedures and safety guidelines.

b）Warning: It is used to alert operators to potential dangers to prevent property damage or personal injury. Example as follows:

WARNING

Do not operate the forklift under adverse weather conditions such as sandstorms, snowfall, thunderstorms, heavy rain, or strong winds.

c）Caution: It is used to alert operators to potential hazards to prevent damage to the vehicle or a significant reduction in performance. Example as follows:

CAUTION

When the LCD display is in the red zone, immediately cease operations and reduce the engine speed to cool down the engine, then shut off the engine. Check to ensure that the coolant level is sufficient and that the fan belt tension is appropriate.

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Contents

I、 Forklift Overview 1
1、 Forklift operating environment (conditions) 1
2、 Expected use of forklift 2
3、 Forklift direction and wheel trajectory 3
4、 Forklift truck component names 4
5、 Labels on forklifts 7
6、 Marking positions for frame series NO. and environmental protection machinery code 15
7、 Main technical performance parameter 16
II、 stability and load capacity graph 26
III、 Safety rules 29
1、 General rules 29
2、 Safety regulations 32
IV、 Controls and Instruments 40
1、 Controls 40
2、 Instrumentation 47
2.1 Instrumentation（H15/H16/H20） 47
2.2 CAN Bus Instrument(W95/W96) 56
3、 Body and other parts 70
V、 Operation 77
1、 Start-up 77
2、 Operation 77
3、 Reverse driving 78
4、 Stopping or parking the truck 79
5、 Pick up 79
6、 Stacking load 80
7、 Remove load 81
VI、 Lifting, handling and towing of the forklift truck 82
VII、 First use of forklift 85
VIII、 Forklift cleaning 86
IX、 Disposal of scrapped forklifts. 87
X、 Maintenance 88
1、 Daily maintenance (8 hours) 88
2、 Weekly maintenance (40 hours) 94
3、 Every one and a half month maintenance (250 hours) 100
4、 Semi-annual maintenance (1000 hours) 103
5、 Annual maintenance (2,000 hours) 105
6、 Two-yearly maintenance (4,000 hours) 106
7、 Others 107
8、 Regular maintenance schedule 110

8.1 Engine Regular Maintenance Schedule 111
8.2 Drive system periodical maintenance schedule 113
8.3 Wheel（front, rear wheel）periodical maintenance schedule 113
8.4 Steering system periodical maintenance schedule 114
8.5 Regular Maintenance Schedule for Brake System 114
8.6 Regular Maintenance Schedule for Hydraulic System 116
8.7 Regular Maintenance Schedule for Electrical System 117
8.8 Regular Maintenance Schedule for Lifting System 118
8.9 Regular Maintenance Schedule for Safety Devices and Accessories 120
9、 Forklift Oil List 121
10、 Lubrication System Chart 124
11、 Tightening Torque Table of Common Bolts 126
12、 Regular replacement of key safety parts 127
XI、 Storage 128
1、 Daily storage 128
2、 Long-term storage 128
3、 Operation of forklift trucks after long-term storage 129
XII、 Usage and maintenance methods for the lead-acid battery 130
1、 Lead-acid battery and use 130
2、 Battery storage and handling 130
2.1.Storage 130
2.2.Maintenance 130
2.3.Check and maintenance of battery 130
2.4.Before recharging 132
3、 Notice for battery usage 133
XIII、 Main optional accessories 134
1、 OPS system description 134
XIV、 Use, installation and safety rules for attachments 137
1、 Use of attachments 137
2、 Installation of attachment 139
XV、 Relevant safety command and standard 140
XVI、 Maintenance record 146

I、Forklift Overview

1、Forklift operating environment (conditions)

Forklifts are intended for use within the factory premises only, on solid and even surfaces such as cement, asphalt, or concrete roads. Operations should only be conducted after complete removal of snow, ice, water accumulation, or any foreign objects and obstacles; otherwise, there is a risk of vehicle loss of control and potential personal safety accidents.

Forklift operations should comply with the following normal climatic conditions:

a) The average ambient temperature for continuous operation: +25°C;

b) The highest ambient temperature for short-term use (≤1 hour): +40°C;

c) The minimum ambient temperature for normal indoor use of the vehicle: +5°C;

d) The minimum ambient temperature for normal outdoor use of the vehicle: -20°C;

e) Altitude: ≤2000m.

⚠ Caution

- Please inspect the road surface for any holes, steep slopes, obstacles, protrusions, and conditions that may lead to loss of control or rough driving before setting off.
- Remove any garbage, debris, and foreign objects that could potentially puncture tires or cause cargo to become unbalanced.
- Drive slowly on slippery surfaces, avoid driving along the roadside, and exercise extra caution when it is inevitable.
- Uneven terrain can cause vehicle vibration and noise. Overinflated tires can also result in vehicle vibration and noise.
- When loading uphill, ensure the forks are facing forward; do not drive laterally or diagonally. When descending, drive in reverse.

⚠ Warning

- Refrain from operating the forklift in severe weather conditions such as dust storms, snow, thunder, heavy rain, or high winds.
- It is forbidden to use this forklift in areas designated for explosion-proof equipment. If required, customers may consult and acquire specialized explosion-proof forklifts from our company.
- When using this forklift in extreme environments, particularly those with significant dust or that are prone to causing corrosion and rust, it is mandatory to install additional special equipment and to obtain our company's authorization.

2、Expected use of forklift

This forklift is permitted for the following uses only:

a) Loading, stacking, and unstacking goods;

b) Short-distance transportation of goods;

c) Prohibited from carrying passengers;

d) Prohibited from pushing or pulling goods;

e) Prohibited from towing other vehicles or items;

f) Forklifts equipped with attachments should be used in accordance with the purposes specified by the attachment manufacturer.

Danger

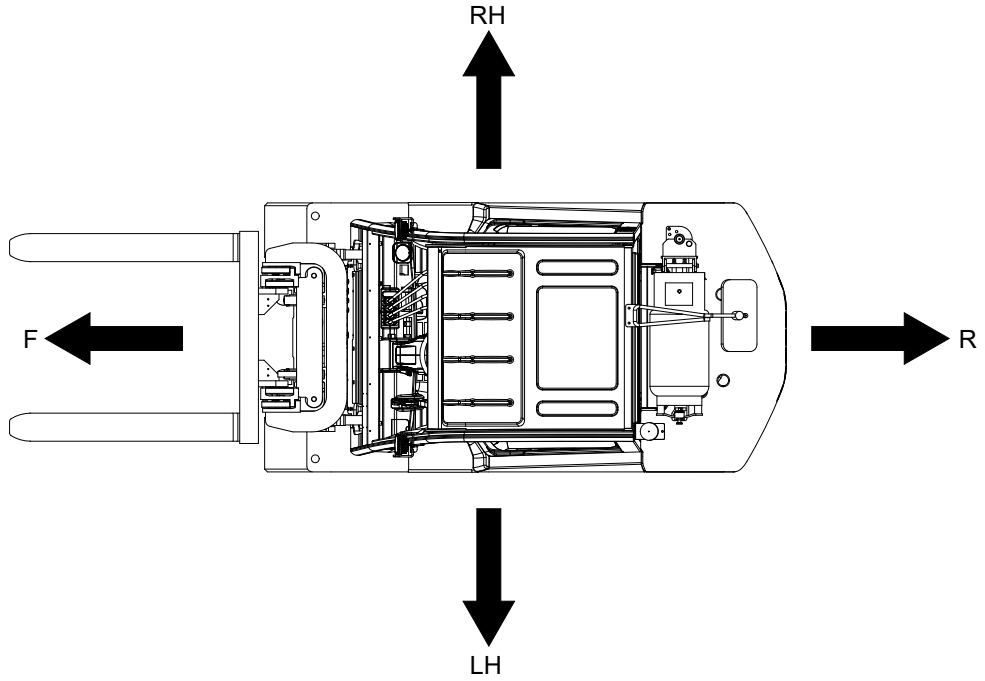
When stacking, unstacking, or moving goods over short distances, do not exceed the rated lifting capacity of the forklift.

Warning

- Please thoroughly read the load capacity chart label on the forklift before engaging in stacking, unstacking, or short-distance transportation of goods.
- Unauthorized modifications to the forklift are prohibited.

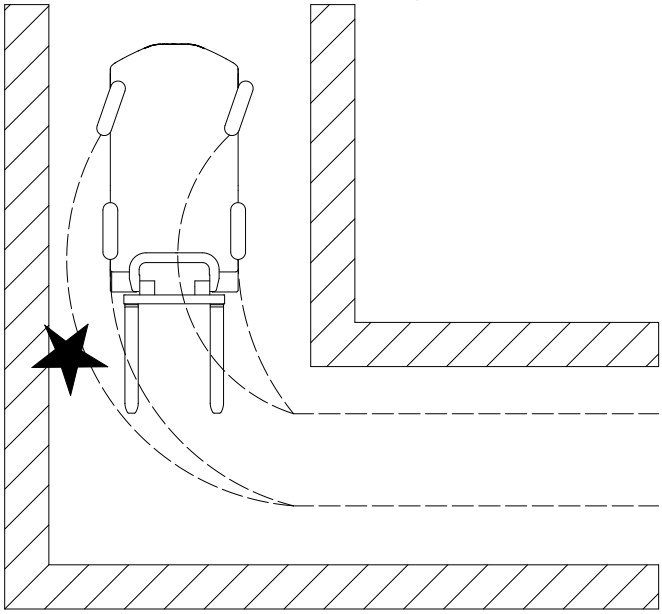
3、Forklift direction and wheel trajectory

The following figure shows the direction of the forklift when the operator faces the control panel.

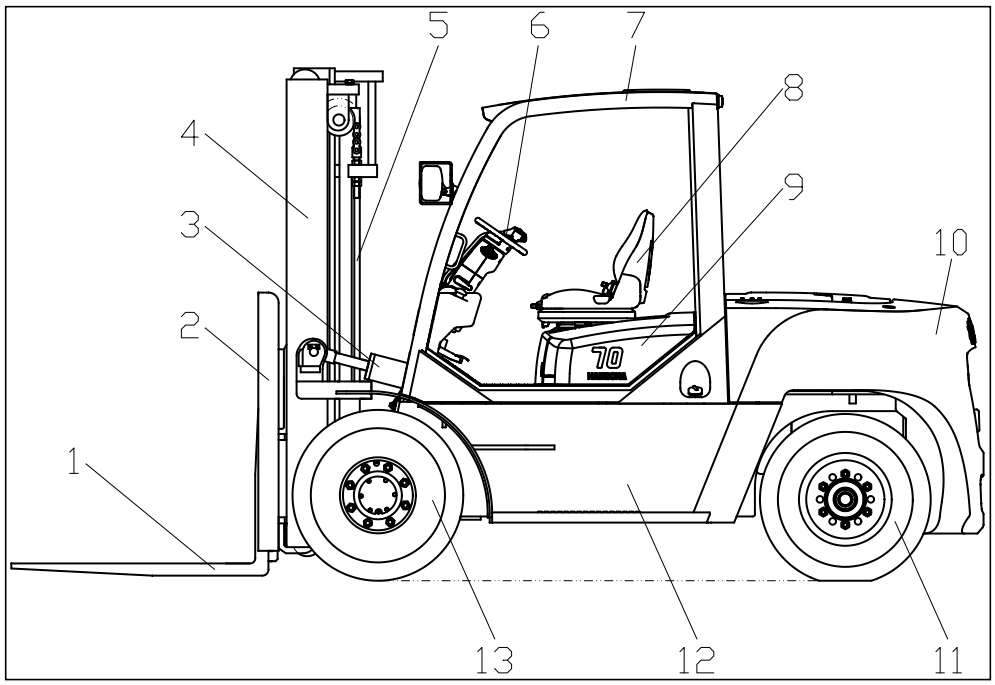


F-Forward direction R-Backward direction LH-Left direction RH-Right direction

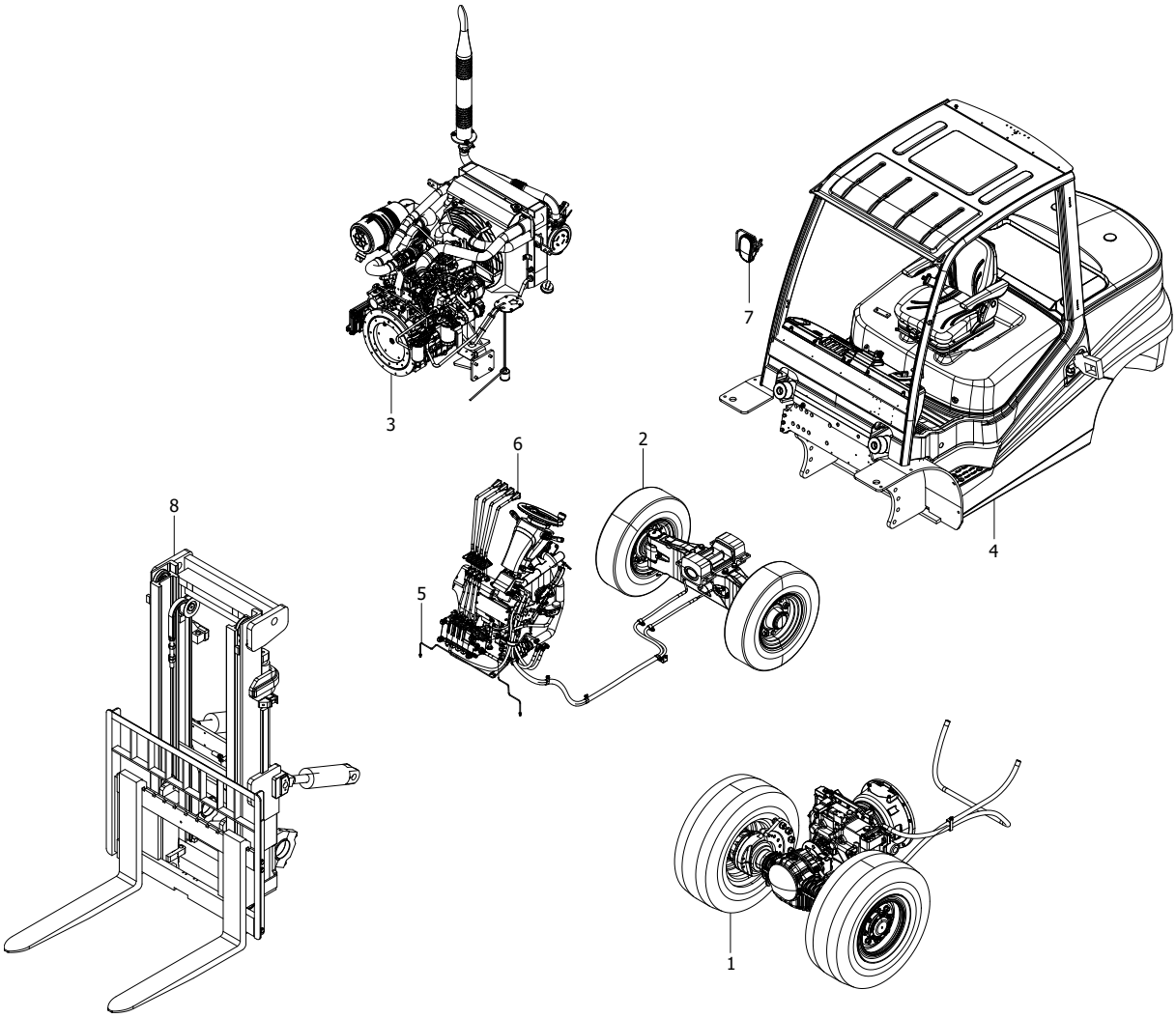
Unlike conventional vehicles, forklifts are equipped with rear-wheel steering, which results in the back of the forklift swinging outward when making turns. Operators should slow down when navigating turns and be particularly vigilant about any obstructions from goods or personnel on the outer side to prevent accidents due to improper handling.



4、Forklift truck component names



1.Fork	2.Load backrest	3.Tilt cylinder	4.Mast
5.Lifting hydraulic cylinder		6.Steering wheel	7.Overhead guard
8.Driver’s seat	9.Hood	10.Counterweight	11.Rear wheel
12.Frame	13.Front wheel		



1.Driving system	2.Steering system	3.Power system	4.Body system
5.Control system	6.Hydraulic system	7.Electrical system	8.Mast system

Driving system

The driving system of a forklift serves to overcome various resistances and travel at different speeds, with functions such as speed reduction and torque increase, changing gear ratios, providing reverse gear, offering a neutral gear, smooth starting, and providing differential capabilities. It mainly consists of the driving axle, gearbox, tires, and cooling circuitry.

Steering System

The steering system of a forklift has the function of changing the direction of travel and maintaining a straight-line driving state, mainly composed of the steering wheel, steering column, hydraulic power steering, steering axle, and steering wheels.

Power System

The power system of a forklift provides the power source for the forklift's travel and the

operation of the working device, mainly consisting of the engine, intake system, exhaust system, cooling system, fuel system, engine mounting, LPG pipeline system (for LPG forklifts), and air storage system (for LPG forklifts).

Body system

The body system of a forklift provides a solid support carrier for the forklift and protects the personal safety of the driver, mainly composed of the frame, dashboard, hood and other covering parts, battery box, overhead guard, counterweights, etc.

Control System

The control system of a forklift mainly includes the driving brake control system and the parking brake control system. The driving brake uses the friction of the brake to consume the vehicle's kinetic energy, converting it into heat and dissipating it, thereby reducing the vehicle's travel speed. The parking brake system uses the frictional torque of the brake to prevent the vehicle from moving on its own due to external forces when the vehicle is stopped.

Hydraulic System

The hydraulic system of a forklift is mainly used to achieve the lifting and tilting functions of the lifting components and the steering function of the forklift. It mainly consists of a gear pump, multi-way valve, steering oil circuit, tilting oil circuit, and return oil filtration.

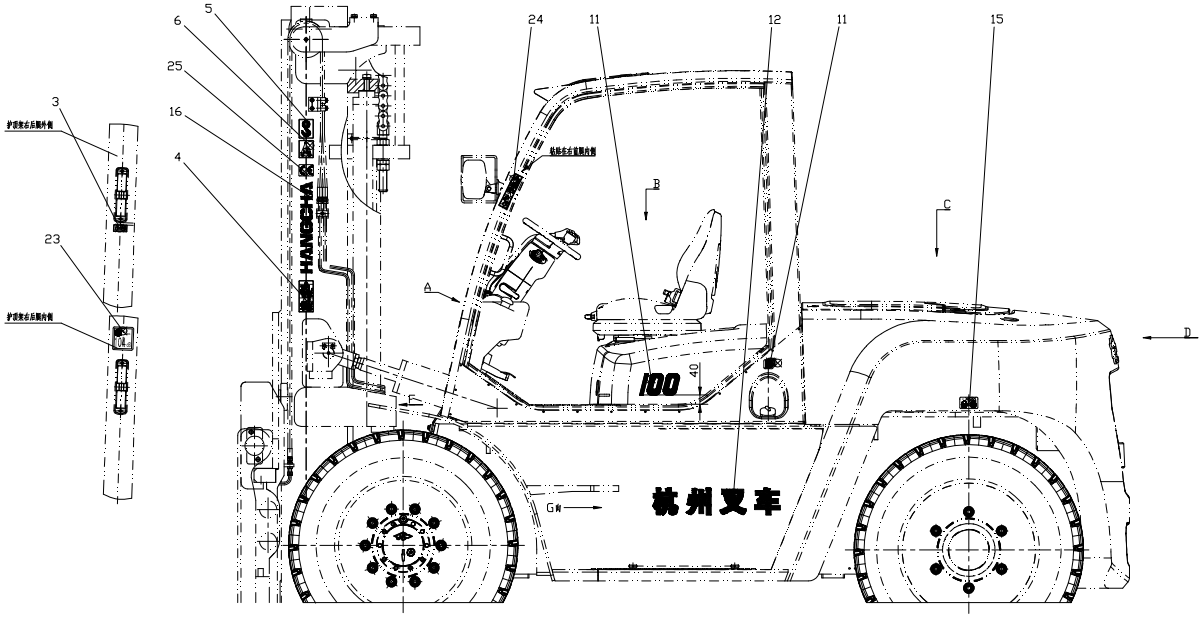
Electrical System

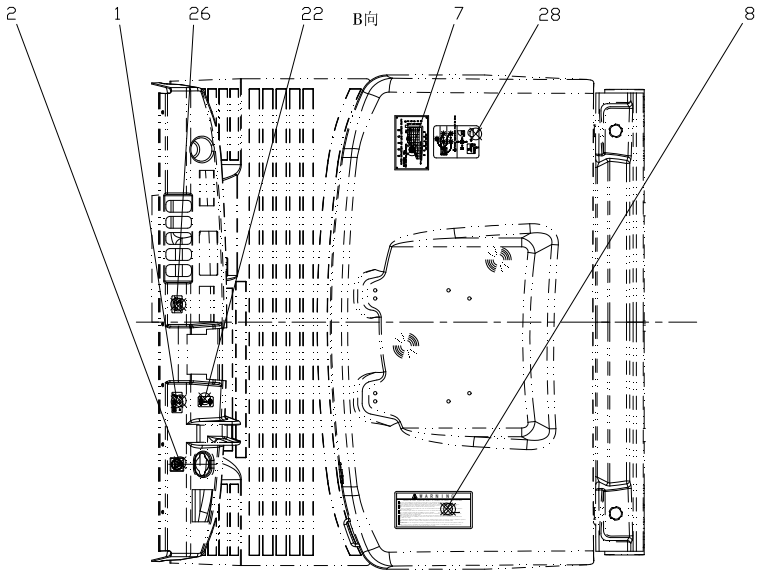
The electrical system of a forklift mainly consists of components such as the battery, display instruments, combination switch, horn, reversing beeper, lighting system, control box, main harness, accelerator pedal, and various sensors.

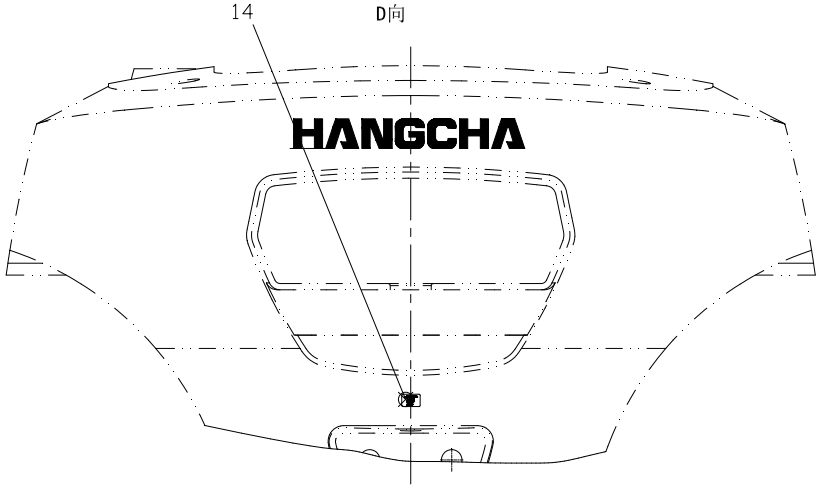
Mast system

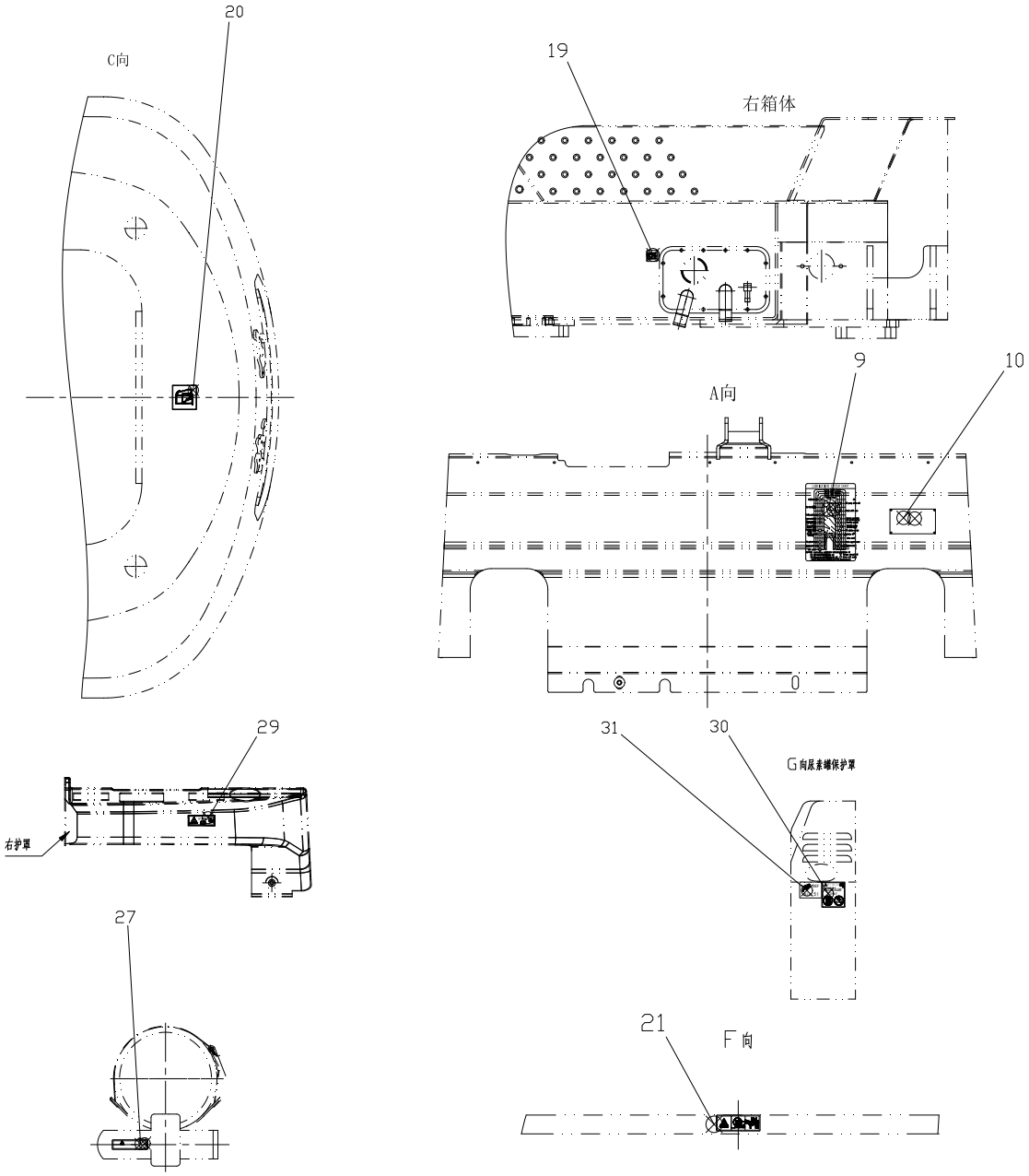
The mast system of a forklift is composed of inner/outer masts, fork carriages, forks, anti-slip plates, lifting chains, rollers, lifting cylinders, and tilting cylinders, etc. It, together with the oil circuit and hydraulic system, constitutes the working device of the forklift and is the executive mechanism for the forklift's loading and unloading operations.

5、Labels on forklifts



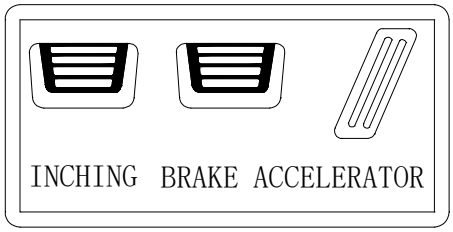






1. Control label 1
2. Emergency power-off switch label
3. No flushing label
4. Hazard label
5. Lifting label
6. Lifting label
7. Load curve sign
8. Warning label
9. Lubricating system label
10. Product nameplate
11. Tonnage label
12. Typeface label
13. Diesel label
14. Tie-down point label
15. Tire pressure label
16. Typeface label
17. Risk of hand/finger cut label
18. Antifreeze label
19. Hydraulic oil label
20. LPG label
21. Hazard label
22. Hand brake label
23. Noise label
24. Safety belt label
25. CE label
26. Pressure charging label
27. Steel cylinder rotation warning label
28.Regen operating instruction label
29. DPF warning label
30. Urea warning label
31. Urea label

1.Operate label 1

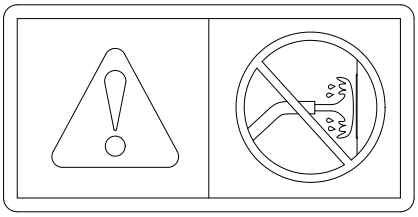


2.Emergency power-off switch label



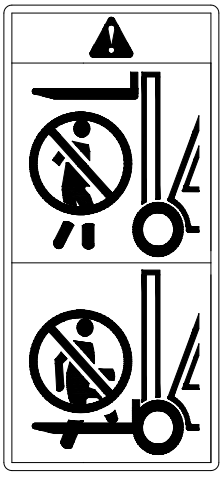
3.No washing label

On the right overhead guard, it's the air inlet passage of the engine. It is strictly prohibited to let water enter airshaft and avoid water during washing the truck.



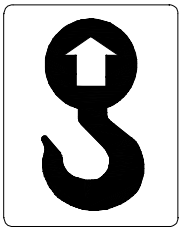
4.Danger Label：on the outside of mast

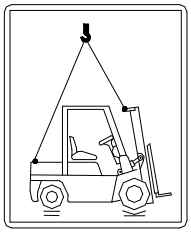
Don’t stand on or under fork, otherwise the life may be in danger.



5,6.Hang Label：

It shows the hoisting position and method of truck lifting. Avoid the cord touch and damage the light when hoisting.





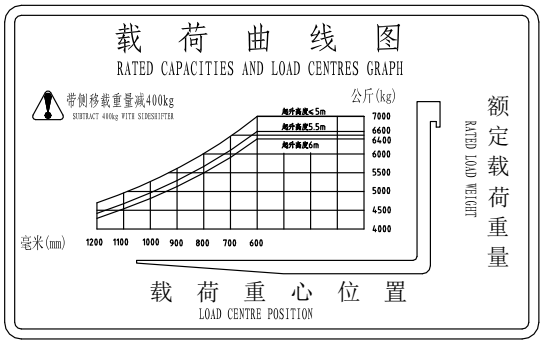
7.Load curve label

It shows the connection among load center position and max load, max lifting height.

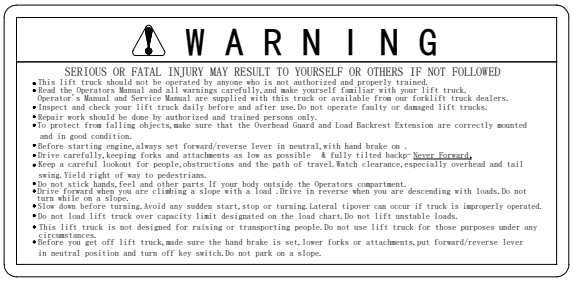
Load capacity decreases if truck equips with sideshifter and attachment, or lifting height increases.

Before loading, please check whether the load and load centre in the range of load capacity chart. If the figure of load is complex, please make sure the heaviest part of load is in the centre of fork and close to backrest.

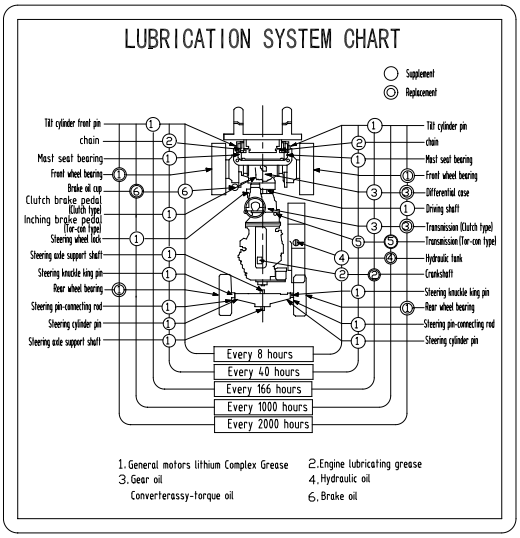
The load curve sign varies for forklift trucks in different tonnages or for forklift trucks in the same tonnages but with different masts.



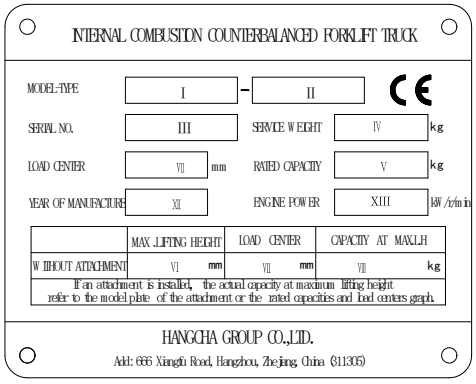
8.Warning label



9.Lubrication system label



10.Nameplate label



11.Tonnage label

For example, “100” means the rated capacity is 10ton, but if the load center distance increases or if attachments are used, the rated load capacity will decrease.

Export:



China:



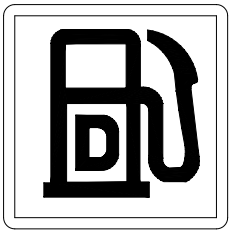
12,16.Typeface label

杭州叉车 杭 州

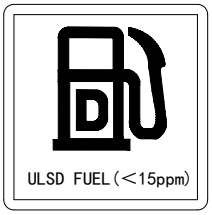
HANGCHA

13. Diesel label (for diesel forklift trucks):

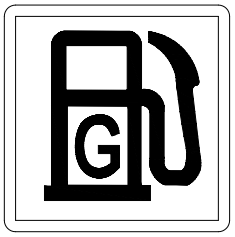
Indicates that the oil filler is on the left rear leg of the overhead guard.



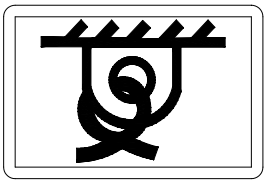




Gasoline label (for gasoline or dual-fuel forklift trucks):

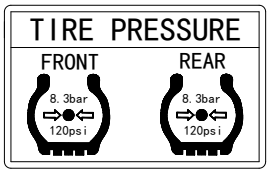


14.Tie down label

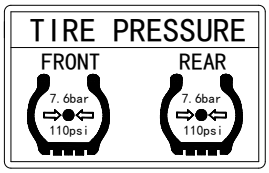


15. Tire pressure label

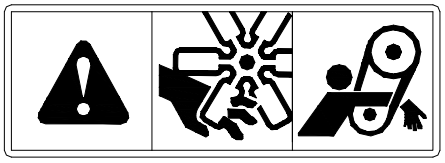
5t -7t forklift truck:



8t -10t forklift truck:



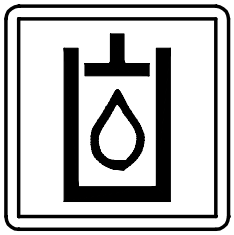
17. Risk of hand/finger cut label



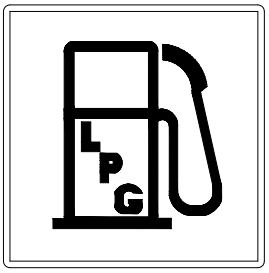
18.Antifreeze labe



19.Hydraulic oil label



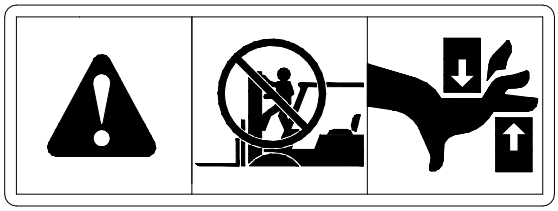
20.LPG Label



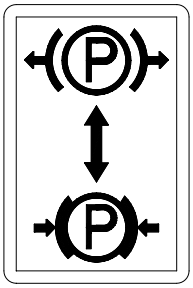
21. Hazard label

Inner and outer masts and fork arm carriers are sliding parts for lifting and lowering; do not put your hands between the inner and outer masts; if the human body or limbs are trapped between the masts, instrument stand and overhead guard, it may result in injuries or even death.

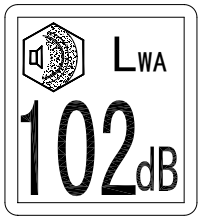
If it is necessary to inspect or repair this part, the inspection and repair can only be carried out after the engine is turned off. There must be no other people on the truck; people outside the truck should not operate the truck to avoid an accident arising from misuse of the mast lever.



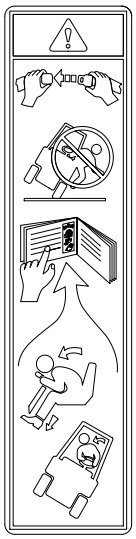
22.Hand brake label



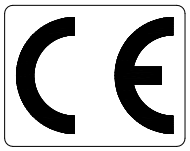
23.Noise label



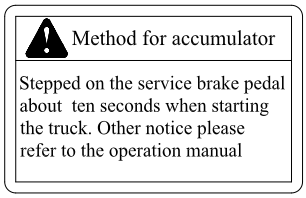
24.Safety belt label and Anti-tilting Warning Label



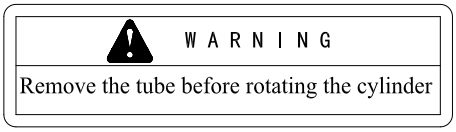
25.CE label



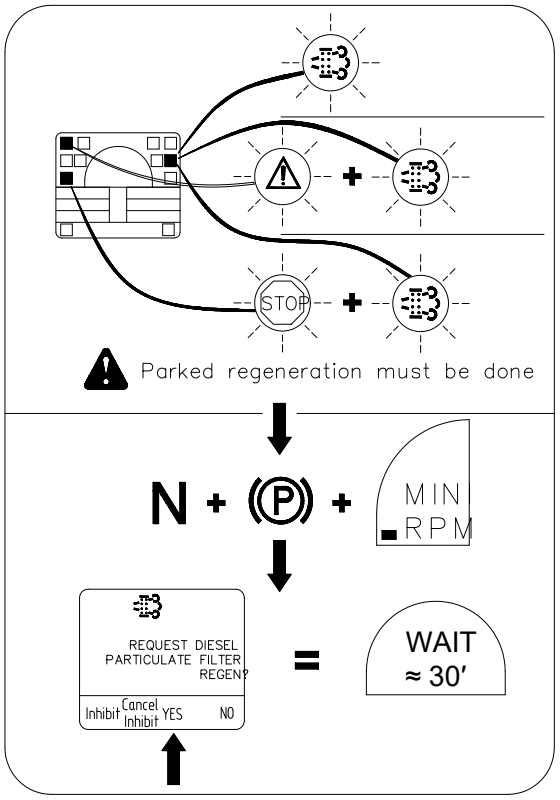
26.Pressure charging label



27. Steel cylinder rotation warning label



28. Regen operating instruction label



1. The “ ” indicator light turns on, it indicates that the system detected some particulates, and then regen. request will be issued.

2. The “ ” and the “ ” indicator lights turn on, it indicates that the system detected some particulates, and then regen. request will be issued.

Regen operation:

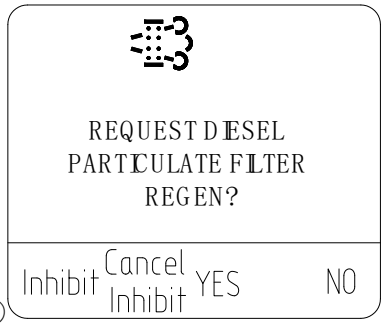
① The forklift truck is parked on a well-ventilated flat road and the forks are lowered.

② Make sure the forklift has enough fuel.

③ Keep the gear lever in the neutral position (gear N).

④ Engage the hand brake.

⑤ Start the engine, release the gas pedal and let the engine idle.



⑥

Select “Yes” to start regen.

Install the hazard warning sign near the exhaust port.

The time for regen is about 30 minutes and varies according to different conditions, for example:

- Filter clogging degree
- Engine temperature
- Fuel quality and oil type
- Ambient temperature, etc.

At the end of the regen process, the indicator light goes off and the remaining time before the next regeneration is reset.

CAUTION

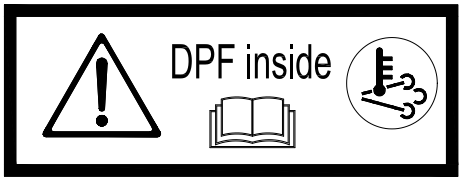
Parked regen: The parking status is not suitable for heat dissipation. Stay away from inflammables and keep a safe distance from people.

The driver should pay attention to safety, should not leave the site, and should monitor the engine conditions during regen.

The driver should not stop the engine during regen except in emergencies, otherwise it is likely to cause a DPF fault.

3. The “ ” and the “ ” indicator lights turn on, it indicates that the system detected some particulates, the engine will be forced to shut down, and the regeneration can only be done by the Deutz special diagnostic tools. Please contact our maintenance staff or after-sales staff.

29. DPF warning label



CAUTION

During parked/stationary regeneration, since the regeneration temperature is high, there should not be any combustible materials near the exhaust system or the truck. Do not regenerate in flammable and combustible places with poor ventilation, such as gas stations, dusty places or other confined places.

During parked/stationary regeneration, since the regeneration temperature is high, do not put your hands or other body parts into or near the regen. devices to avoid major injuries.

30. Urea warning label



CAUTION

Only Diesel Exhaust Fluid (DEF) that meet the ISO2241-1 can be added to the urea tank, or otherwise it may damage the DEF device.

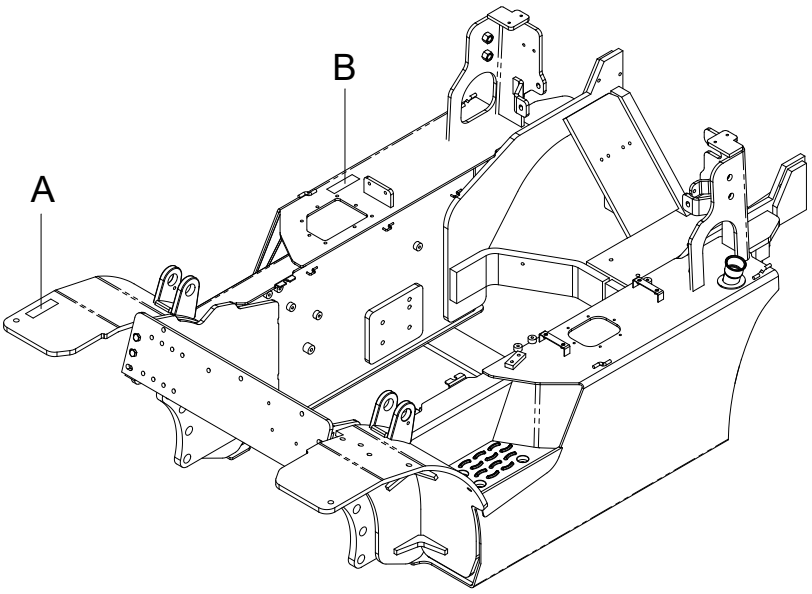
31. Urea label



6、Marking positions for frame series NO. and environmental protection machinery code

A. Marking position for frame series NO.;

B. B. Marking position for environmental protection machinery code.



7、Main technical performance parameter

Model		CPCD50-XW95G	CPCD60-XW95G	CPCD70-XW95G
Rated loading capacity kg		5000	6000	7000
Load center distance mm		600	600	600
Max. lift height mm		3000	3000	3000
Free lift height mm		160	160	160
Max. lift speed (full load) mm/s		410	410	360
Dip angle of mast, frontward/backward (°)		6/12	6/12	6/12
Max. running speed with no load km/h		28	28	28
Min. ground clearance (no load) mm		200	200	200
Min. outside steering radius mm		3250	3300	3350
Max. gradeability (full load) %		20	20	20
Axle base mm		2300	2300	2300
Wheel track (front/rear) mm		1489/1700	1489/1700	1489/1700
Max. traction force (no load/full load) N		25440/63960	26720/64280	27500/65000
Weight kg		8000	8530	9300
Dimensions (L×W×H) (Including forks)		4698.5×1990×2500	4728.5×1990×2500	4803.5×1990×2495
Tires (front/rear)		8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2
Voltage (V) / Capacitance (Ah)		24/90/20h	24/90/20h	24/90/20h
Axle load	No load (front/rear) kg	3870/4130	3750/4780	3700/5600
	Full load (front/rear) kg	11290/1710	12790/1740	14620/1680
Diesel engine	Model	TCD 3.6 L4(EU Stage Ⅴ)		
	Rated power/rpm	55.4kW/2300r/min		
	Max. torque/rpm	405N·m/1300r/min		
	Displacement (L)	3.6		

Model		CPCD80-XW96G	CPCD100-XW96G
Rated loading capacity kg		8000	10000
Load center distance mm		600	600
Max. lift height mm		3000	3000
Free lift height mm		200	200
Max. lift speed (full load) mm/s		390	317
Dip angle of mast, frontward/backward (°)		6/12	6/12
Max. running speed with no load km/h		27	27
Min. ground clearance (no load) mm		250	250
Min. outside steering radius mm		3730	3940
Max. gradeability (full load) %		20	20
Wheelbase mm		2600	2800
Wheel track (front/rear) mm		1628/1700	1628/1700
Max. traction force (no load/full load) N		45000/65000	49000/72000
Weight kg		12000	13800
Dimensions (L×W×H) (Including forks) mm		5395×2165×2700	5742×2165×2850
Tires (front/rear)		9.00-20-14PR/4 9.00-20-14PR/2	9.00-20-14PR/4 9.00-20-14PR/2
Voltage (V) / Capacitance (Ah)		24/90/20h	24/90/20h
Brake distance (full load) m		≤6	≤6
Axle load	No load (front/rear) kg	4820/7180	6430/7370
	Full load (front/rear) kg	17980/2020	21515/2275
Diesel engine	Model	TCD 3.6 L4	
	Rated power/rpm	85kW/2200r/min	
	Max. torque/rpm	460N·m/1600r/min	
	Displacement (L)	3.621	

Model		CPCD50-XH16B	CPCD60-XH16B	CPCD70-XH16B
Rated loading capacity kg		5000	6000	7000
Load center distance mm		600	600	600
Max. lift height mm		3000	3000	3000
Free lift height mm		160	160	160
Max. lift speed (full load) mm/s		520	520	450
Dip angle of mast, frontward/backward (°)		6/12	6/12	6/12
Max. running speed with no load km/h		28	28	28
Min. ground clearance (no load) mm		200	200	200
Min. outside steering radius mm		3270	3400	3380
Max. gradeability (full load) %		50	42	38
Wheelbase mm		2300	2300	2300
Wheel track (front/rear) mm		1489/1700	1489/1700	1489/1700
Max. traction force (no load/full load) N		27500/65000	27500/65000	27500/65000
Weight kg		7950	8480	9250
Dimensions (L×W×H) (Including forks)		4720×1990×2500	4750×1990×2500	4833×1990×2500
Tires (front/rear)		8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2
Voltage (V) / Capacitance (Ah)		24/90/20h	24/90/20h	24/90/20h
Axle load	No load (front/rear) kg	3850/4100	3730/4750	3680/5570
	Full load (front/rear) kg	11270/1680	12770/1710	14600/1650
Diesel engine	Model	F3.8		
	Rated power/rpm	90kW/2200r/min		
	Max. torque/rpm	500N·m/1500r/min		
	Displacement (L)	3.8		

Model		CPCD80-XH16B	CPCD100-XH16B
Rated loading capacity kg		8000	10000
Load center distance mm		600	600
Max. lift height mm		3000	3000
Free lift height mm		200	200
Max. lift speed (full load) mm/s		440	350
Dip angle of mast, frontward/backward (°)		6/12	6/12
Max. running speed with no load km/h		30	30
Min. ground clearance (no load) mm		250	250
Min. outside steering radius mm		3630	3940
Max. gradeability (full load) %		27	22
Wheelbase mm		2500	2800
Wheel track (front/rear) mm		1628/1700	1628/1700
Max. traction force (no load/full load) N		45000/65000	49000/70000
Weight kg		11200	13000
Dimensions (L×W×H) (Including forks) mm		5395×2165×2700	5742×2165×2850
Tires (front/rear)		9.00-20-14PR/4 9.00-20-14PR/2	9.00-20-14PR/4 9.00-20-14PR/2
Voltage (V) / Capacitance (Ah)		24/90/20h	24/90/20h
Axle load	No load (front/rear) kg	4480/6720	6040/6960
	Full load (front/rear) kg	17280/1920	20940/2060
Diesel engine	Model	F3.8	
	Rated power/rpm	90kW/2200r/min	
	Max. torque/rpm	500N·m/1500r/min	
	Displacement (L)	3.8	

Model		CPCD50-XH15B	CPCD60-XH15B	CPCD70-XH15B
Rated loading capacity kg		5000	6000	7000
Load center distance mm		600	600	600
Max. lift height mm		3000	3000	3000
Free lift height mm		160	160	160
Max. lift speed (full load) mm/s		520	520	450
Dip angle of mast, frontward/backward (°)		6/12	6/12	6/12
Max. running speed with no load km/h		28	28	28
Min. ground clearance (no load) mm		200	200	200
Min. outside steering radius		3270	3400	3380
Max. gradeability (full load) %		50	42	38
Wheelbase mm		2300	2300	2300
Wheel track (front/rear) mm		1489/1700	1489/1700	1489/1700
Max. traction force (no load/full load) N		27500/65000	27500/65000	27500/65000
Weight kg		7950	8480	9250
Dimensions (L×W×H) (Including forks)		4720×1990×2500	4750×1990×2500	4833×1990×2500
Tires (front/rear)		8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2
Voltage (V) / Capacitance (Ah)		24/90/20h	24/90/20h	24/90/20h
Axle load	No load (front/rear) kg	3850/4100	3730/4750	3680/5570
	Full load (front/rear) kg	11270/1680	12770/1710	14600/1650
Diesel engine	Model	YCA05115-S500		
	Rated power/rpm	85kW/2200r/min		
	Max. torque/rpm	500N·m/1300-1600r/min		
	Displacement (L)	4.837		

Model		CPCD80-XH15B	CPCD100-XH16B
Rated loading capacity kg		8000	10000
Load center distance mm		600	600
Max. lift height mm		3000	3000
Free lift height mm		200	200
Max. lift speed (full load) mm/s		440	350
Dip angle of mast, frontward/backward (°)		6/12	6/12
Max. running speed with no load km/h		30	30
Min. ground clearance (no load) mm		250	250
Min. outside steering radius mm		3630	3940
Max. gradeability (full load) %		27	22
Wheelbase mm		2500	2800
Wheel track (front/rear) mm		1628/1700	1628/1700
Max. traction force (no load/full load) N		45000/65000	49000/70000
Weight kg		11200	13000
Dimensions (L×W×H) (Including forks) mm		5395×2165×2700	5742×2165×2850
Tires (front/rear)		9.00-20-14PR/4 9.00-20-14PR/2	9.00-20-14PR/4 9.00-20-14PR/2
Voltage (V) / Capacitance (Ah)		24/90/20h	24/90/20h
Axle load	No load (front/rear) kg	4480/6720	6040/6960
	Full load (front/rear) kg	17280/1920	20940/2060
Diesel engine	Model	YCA05115-S500	
	Rated power/rpm	85kW/2200r/min	
	Max. torque/rpm	500N·m/1300-1600r/min	
	Displacement (L)	4.837	

Model		CPYD50-XH20	CPYD60-XH20	CPYD70-XH20
Rated loading capacity kg		5000	6000	7000
Load center distance mm		600	600	600
Max. lift height mm		3000	3000	3000
Free lift height mm		160	160	160
Max. lift speed (full load) mm/s		432	432	382
Dip angle of mast, frontward/backward (°)		6/12	6/12	6/12
Max. running speed with no load km/h		29	29	31
Min. ground clearance (no load) mm		200	200	200
Min. outside steering radius		3250	3300	3350
Max. gradeability (full load) %		38	33	27
Wheelbase mm		2300	2300	2300
Wheel track (front/rear) mm		1489/1700	1489/1700	1489/1700
Max. traction force (no load/full load) N		25440/50000	26720/50000	27500/50000
Weight kg		7950	8480	9250
Dimensions (L×W×H) (Including forks)		4698.5×2050×2500	4728.5×2050×2500	4803.5×2050×2500
Tires (front/rear)		8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2	8.25-15-14PR/4 8.25-15-14PR/2
Voltage (V) / Capacitance (Ah)		12/90	12/90	12/90
Axle load	No load (front/rear) kg	3850/4100	3730/4750	3680/5570
	Full load (front/rear) kg	11270/1680	12770/1710	14600/1650
Diesel engine	Model	PSI 4.3		
	Rated power/rpm	79.75kW/2300r/min		
	Max. torque/rpm	332.5N·m/2000r/min		
	Displacement (L)	4.294		

Model		CPCD120-XXW96
Rated capacity kg		12000
Load centre distance mm		600
Maximum lift height mm		3000
Free lift height mm		200
Maximum lift speed (with load) mm/s		330
Tilt of the mast front/rear （°）		6/12
Max travel speed (without load) km/h		27
Min ground clearance (without load)mm		250
Min outside turning radius mm		4040
Max gradeability（without load/full load）N		49000/72000
Gradeability with full load %		20
Wheel base mm		2800
Tread（F/R）mm		1628/1722
Service weight kg		14300
Overall dimension (L×W×H)(include forks)		5849×2165×3000
Tyre (F/R)		9.00-20-14PR/4 9.00-20-14PR/2
Voltage V/Volume Ah		24/90
Diesel engine	Model	TCD 3.6 L4
	Rated capacity/rpm	85kW/2200r/min
	Max torque/rpm	460N·m/1600r/min
	Displacement L	3.6

Model		CPCD120-XXH15
Rated capacity kg		12000
Load centre distance mm		600
Maximum lift height mm		3000
Free lift height mm		200
Maximum lift speed (with load) mm/s		330
Tilt of the mast front/rear （°）		6/12
Max travel speed (without load) km/h		27
Min ground clearance (without load)mm		250
Min outside turning radius mm		4040
Max gradeability（without load/full load）N		49000/72000
Gradeability with full load %		20
Wheel base mm		2800
Tread（F/R）mm		1628/1722
Service weight kg		14300
Overall dimension (L×W×H)(include forks)		5849×2165×3000
Tyre (F/R)		9.00-20-14PR/4 9.00-20-14PR/2
Voltage V/Volume Ah		2-12/90
Diesel engine	Model	YCA05115-S500
	Rated capacity/rpm	85kW/2200r/min
	Max torque/rpm	500N·m/1300-1600r/min
	Displacement L	4.837

Model		CPCD120-XXH16
Rated capacity kg		12000
Load centre distance mm		600
Maximum lift height mm		3000
Free lift height mm		200
Maximum lift speed (with load) mm/s		330
Tilt of the mast front/rear （°）		6/12
Max travel speed (without load) km/h		27
Min ground clearance (without load)mm		250
Min outside turning radius mm		4040
Max gradeability（without load/full load）N		49000/72000
Gradeability with full load %		20
Wheel base mm		2800
Tread（F/R）mm		1628/1722
Service weight kg		14300
Overall dimension (L×W×H)(include forks)		5849×2165×3000
Tyre (F/R)		9.00-20-14PR/4 9.00-20-14PR/2
Voltage V/Volume Ah		2-12/90
Diesel engine	Model	F3.8
	Rated capacity/rpm	90kW/2200r/min
	Max torque/rpm	500N·m/1600r/min
	Displacement L	3.8

II、stability and load capacity graph

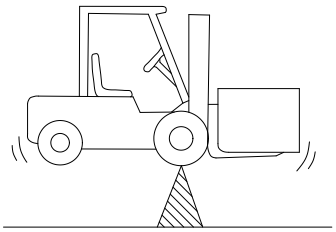
It is very important for operator to know the truck's structure and relationship between load and stability.

CAUTION The structure of the truck

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

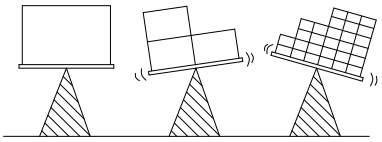
The lift truck keeps the balance of weight between the truck body and the load on the forks with the center of the front wheels as a fulcrum when the rated capacity load is placed in position.

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



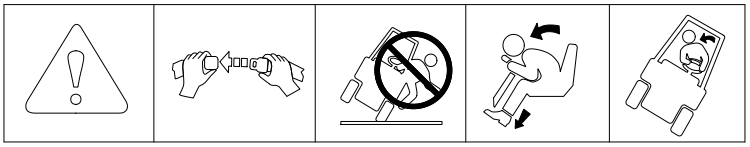
CAUTION Load center

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



WARNING

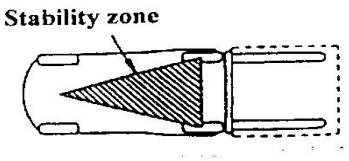
The operator must fasten the seat belt. The seat belt can effectively prevent serious injury or death in the event of a forklift overturn. If the forklift begins to overturn, remain calm. DO NOT jump out. Grip the steering wheel firmly, brace your feet against the floor, and lean your body in the opposite direction of the overturn. Hold your position and stay inside the operator compartment until the forklift comes to a complete stop.



WARNING The stability zone of the barycenter

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

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



CAUTION | Gravity and stability

Forklift stability depends on the common center of gravity of the forklift. When the forklift is unloaded, the center of gravity (CoG) remains unchanged. When the forklift is loaded, the center of gravity is formed by the combined center of gravity of the forklift and load.

The load's center of gravity depends on whether the mast is tilted forward or backward, raised or lowered, which means that the combined center of gravity also changes accordingly.

The forklift's combined center of gravity is determined by the following factors:

a）Load size, weight and shape;

b）Lifting height;

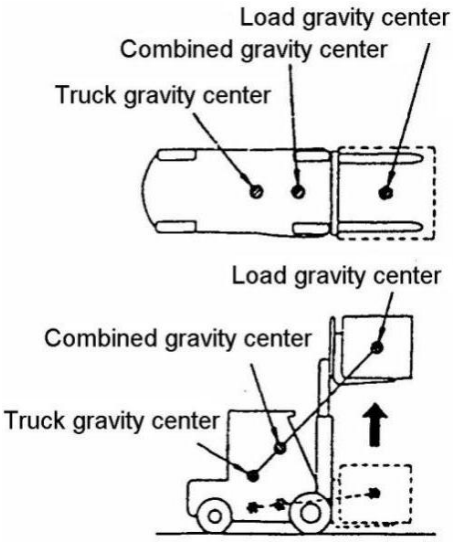
c）Mast tilt angle;

d）Tire inflation pressure

e）Acceleration, deceleration and turning radius;

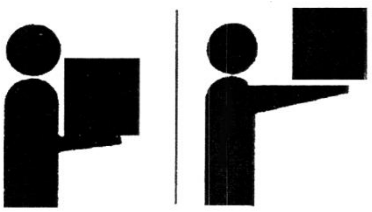
f）Driving surface conditions and inclination;

g）Attachment type.



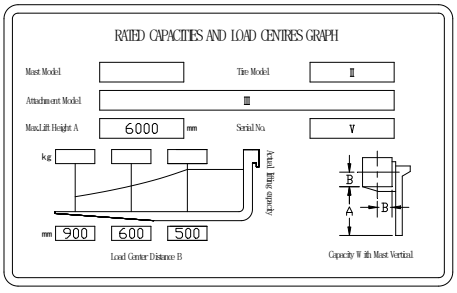
CAUTION | The max load

The distance between the load center and the front surface of forklift or load backrest (select the min) on the forklift is called load center distance. The max gravity that the truck can load is called max load on condition that the load is on the load center distance. The relationship of max load and load center distance is specified on the load capability chart. If the load center is moved near the front of forklift, the load should be reduced.



CAUTION | The load capability chart

This chart shows the relationship of max load and the location of load center distance. Check whether the load and load center distance is in the range referred by the chart. Put the most important parts near the load backrest if the shape of goods is asymmetrical.



CAUTION	Speed and acceleration

A static object keeps its static station which is not affected by outside force, one dynamic object moves with the same speed which is not affected by outside force, this is inertia.

Because of inertia, one force affected backward when the truck is moving, one force affected forward when the truck is stopping.

It is very dangerous to press the brake suddenly. It may result in capsizing or sliding down of the load because of huge force to the front.

Centrifugal force is present during turning and its direction is from the turning center to the outer. If the force is strong enough, it may result in the capsizal of the truck. The right-and-left stable zones are very small, so the truck's speed must be reduced when turning to prevent capsizing. If the truck is carrying a load with the forks raised high, the possibility of capsizing is very great.

III、Safety rules

1、General rules

In order to ensure personal and equipment safety, the driver should take the following precautions:

1. Only drivers with proper training and a valid license should operate the vehicle;

2. Check each control and alarm device before driving, and any damage or defects should be repaired before operation;

3. The load should not exceed the specified value when handling; the forks should be fully inserted into the load so that it is uniformly positioned on the fork; do not use a single fork to lift cargo.

4. Start, turn, drive, brake and stop smoothly; slow down on wet or slippery roads when steering;

5. Loads should be placed as low as possible and the mast should tilt backward when driving;

6. Be careful when driving on ramps; move forward when driving up gradients greater than one in ten and move backwards when driving down ramps; do not turn when driving up or down ramps; do not carry out loading and unloading operations when the forklift is in motion;

7. Pay attention to pedestrians, barriers, and bumpy surfaces when driving and be aware of the upper clearance of the forklift truck;

8. Do not stand on the forks and do not carry passengers;

9. Do not stand or walk under the forks;

10. Do not operate the truck and its attachments from anywhere except the driver’s seat;

11. Do not handle unsecured or loosely stacked cargo and be careful when handling large cargo;

12. Protect cargo on high lifting forklift trucks with a lift height of more than 3m from falling down and take preventive measures if necessary;

13. Try to tilt the mast backward when the high lifting forklift truck is in operation and tilt forward within the minimum range during loading and unloading operations;

14. When driving on wharfs or temporary decking, you should be extra careful and drive slowly;

15. The driver should not stay in the truck and should shut down the engine when refueling; keep sources of ignition away when checking the battery or fuel tank level.

16. When a forklift truck with attachments is unloaded, it should be operated in the same manner as a loaded forklift truck;

17. Drop the forks to the ground, switch the gear lever to the neutral position, engage the

parking brake device properly, shut down the engine, and disconnect the power when leaving the truck. Engage the parking brake device properly when parking on ramps; place cushion blocks under the wheels when parking for a long time.

18. In the event of a sudden fault when lifting cargo or driving on gradients, causing leakage of storage battery electrolyte, hydraulic oil and brake fluid, or a flat tire etc., personnel should be organized for repair immediately, the truck should be kept in a safe condition, and professional maintenance personnel or the seller should be contacted.

19. Noise and vibration will be generated during installation and assembly processes; please choose proper tools and assembly methods to reduce the impact of noise pollution on the environment.

20. The forklift truck must not be used in plant areas; the working surface should be solid and flat cement pavement, asphalt pavement or concrete pavement. When there is snow, ice, water or other foreign matter on the road, the truck can only be used after it has been fully cleared away; otherwise, the truck is likely to lose control, resulting in an accident.

21. In the event of a breakdown, the truck should be first moved to a place where it does not obstruct traffic. If the breakdown is caused by the brake system or steering system, the truck should be carried away with a proper carrier loader (see the vehicle handling content); if it is caused by other reasons, the truck should be towed with an appropriate vehicle; rope should be fixed outside the truck body when towing. Obey traffic rules when towing a forklift truck on the highway.

22. Do not operate the forklift truck or carry cargo after disassembling the internal combustion engine hood, water tank cover plate, overhead guard, mast load backrest or other protective devices.

23. There should be sufficient lighting in the forklift truck working area. Turn on the head lights when working at night, there should be sufficient lighting in the work area.

24.Do not conduct side shift operations with a loaded forklift truck with automatic adjustable distance forks to prevent the forklift truck from losing balance and damaging components.

25. The 5T-10t forklift truck is provided with an energy accumulator, which can provide at least one emergency braking operation after the forklift truck is shut down; in order to ensure your safety, please carefully read and strictly implement operations related to the energy accumulator in the manual.

26. Please do not tilt the mast forward or backward or lift the mast to the extreme position during idling where possible before the temperature of the hydraulic oil rises.

27. Do not revise or modify the forklift truck without the written approval of the forklift truck

manufacturer; otherwise, it may affect the rated load and stability or safe operation. This includes: Assembly and disassembly of brake, steering and visibility systems, and attachments. When the forklift truck manufacturer agrees to revise or modify the truck, they should also agree to update and properly revise the bearing nameplate, label, and operation and maintenance manual.

28. If the user refits the forklift truck, it may introduce hazards or risks that the manufacturer did not consider, thus the existing forklift truck risk assessment will become invalid.

Forklift truck refitting outside Europe should conform to regional requirements (see ISO/TS 3691-8).

CAUTION

This forklift truck is equipped with an accumulator. The braking pressure will be generated only when the engine is started and the brake is fully depressed or the steering operation is made. The brake pedal should be depressed for 10s after the engine is started. If brake pressure is not generated, the alarm will give out a continuous warning.

2、Safety regulations

1.Only trained and approved operators can operate the forklift truck.

2.Oil, water and LPG leakage, deformation and looseness should be regularly checked; otherwise, the service life of the truck will be shortened; in severe cases, it may cause an accident.

Ensure that “key safety parts” are replaced in regular checks.

Wipe off oil, grease or water on the baseplate, pedal and control lever.

Shut down the engine, especially the fan when checking the engine and associated parts.

Take care to avoid scalding when checking the water tank or silencer.

3.Whenever the truck is found to be faulty, you should stop operations and report the condition to the management personnel.

During maintenance at height (such as the mast, front light and back light), take care to avoid clamping and slipping.

If the alarm indicator light turns on or in the event of any other fault, the forklift truck should be driven to a safe place for checks or troubleshooting.

Protect your hands, head and body from scratching at corners and sharp edges you may touch during maintenance and repair.

Hang the “fault” sign on the truck as a reminder.

4.Do not check the fuel level, LPG level, electrolyte or cooling water and leakage when there is a naked flame nearby.

Do not smoke to avoid explosions when checking the battery, refilling with fuel or LPG, or checking the fuel oil system.

The workplace should be provided with a fire extinguisher.

Do not refuel when the engine is running.

5.Warm up the forklift truck until the water temperature is 70℃ before operation.

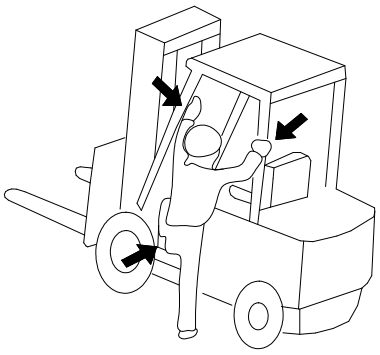
Do not open the water tank lid when the water temperature is higher than 70℃.

6.The exhaust gas is harmful to the human body; there should be sufficient ventilation when the forklift truck is operated in an enclosed space; the ventilation should be increased if necessary.

CAUTION

- Not allowed to used in underground.
- It’s forbidden to use truck under a circumstance of flammability and easy to blast.

7.Do not get on or off the forklift truck when it is in use; please use the safety pedal and safety handrail when getting on or off.



8.Operate the forklift truck only when sitting properly.

Adjust the seat position for good hand and foot control before starting.

9.Before starting, confirm:

①Whether there are any people near the forklift truck.

②Whether the front and rear reverse lever is in the neutral position.

10.Pull up the hand brake when parking on a flat road; if the truck has to be stopped on a ramp, a wedge must be placed under the wheel.

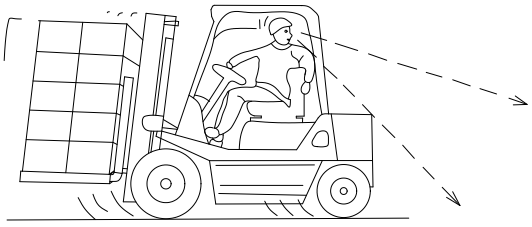
Shut down the engine and take out the key when the forks are lowered to the ground and slightly tilted forward.

11.Be stable and accurate when operating the truck. Avoid emergency stops, emergency starts or emergency steering.

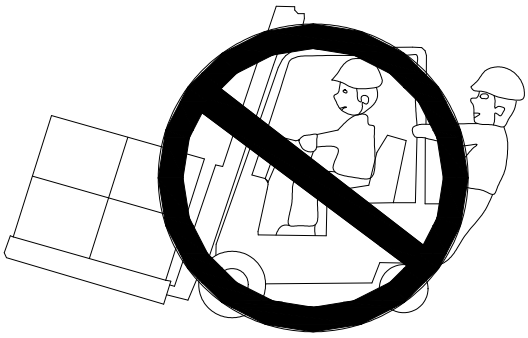
12.Control the speed and obey traffic signals.

> ⚠ CAUTION
>
> Obey traffic rules when driving on the highway or street.

13.Pay attention to the driving direction and keep a good lookout.



14.Other people must not sit on the fork, pallet or forklift truck.

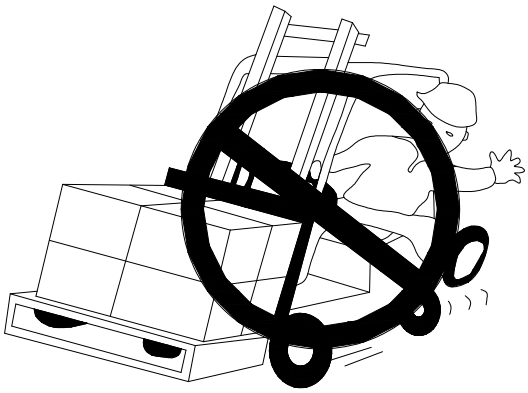


15.When crossing a ship deck or bridge, confirm that it is fixed correctly and has enough strength to bear the weight of the forklift, and check the ground conditions of the work site in advance.

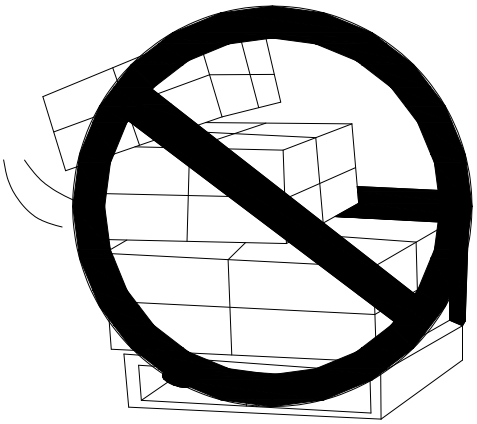


16. Keep your mind on your work.

17. Keep your head, arms, legs and feet in the cab and do not extend them out of the cab for any reason.

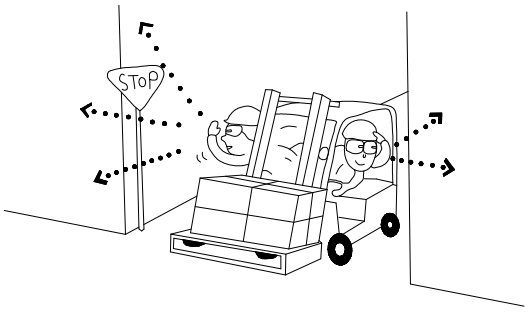


18.Cargo must not deviate from the fork center; when cargo is not aligned with the fork center, or when the truck turns or crosses uneven surfaces it may easily fall down. The possibility of rollover is also increased.



19.When handling large-volume loads that obstruct the operator's view, travel in reverse or be guided by a signal person. When guided by a signal person, ensure you understand their hand signals or other instructions. Travel slowly to ensure safety.

20.Slow down and sound the horn when passing through junctions or other sections with poor visibility; limit the speed to 1/3 of the maximum driving speed of the truck.



21.The forklift truck should be driven away from LPG tanks, wood, paper and chemical substances; the exhaust gas from the silencer may cause combustion or explosions.

22.The headlights and clearance lights should be used during night operation; the driving speed must be controlled.

23.The work surface of the forklift truck should be a solid and flat cement pavement, asphalt pavement or concrete pavement.

The following normal climatic conditions should be met when the truck is in operation:

--Mean ambient temperature under continuous operation conditions: +25℃;

--Maximum short term ambient temperature (≤1h): +40℃;

--Minimum ambient temperature under normal indoor conditions: +5℃;

--Minimum ambient temperature under normal outdoor conditions: -20℃;

—— Altitude: ≤2 000m.



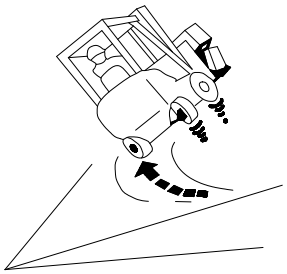
CAUTION

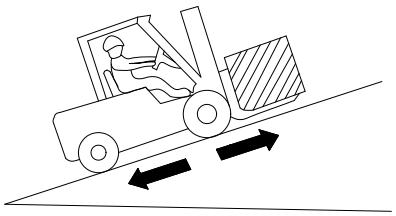
- Check the road to be driven for holes, abrupt slopes, barriers, bumps, and road conditions that may cause loss of control and vibration.
- Remove rubbish, debris and foreign matter that may puncture tires and throw cargo out of balance.
- Slow down on slippery roads, do not drive on the edge of the road, and take extra care when it cannot be avoided.
- Uneven ground will cause vehicle vibration and noise. High tire pressure will cause vehicle vibration and noise.

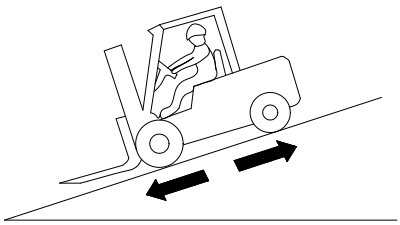
> **WARNING**
>
> Do not use the forklift truck in sandstorms, snow, lightning, rain, wind and other bad weather conditions.

24.Reverse downhill and climb facing forward when loaded. The opposite applies when unloaded.

Do not turn on ramps to avoid rolling over.





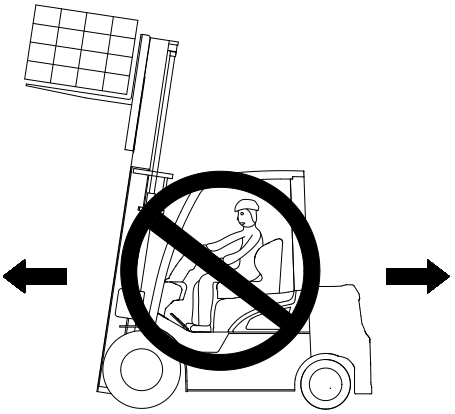


25.Keep the engine at idle and step on the brake pedal intermittently when driving downhill.

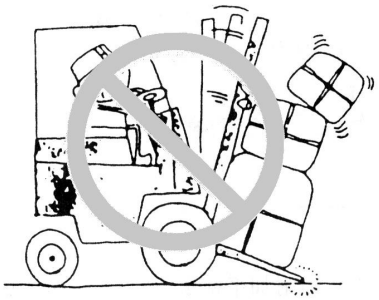
26.It is dangerous to lift the forks when driving with or without load; the standard driving condition (the distance between the forks and the ground is 15cm-30cm) should be adhered to.

Do not conduct side shift operations when the forks are raised to protect the forklift truck from losing balance.

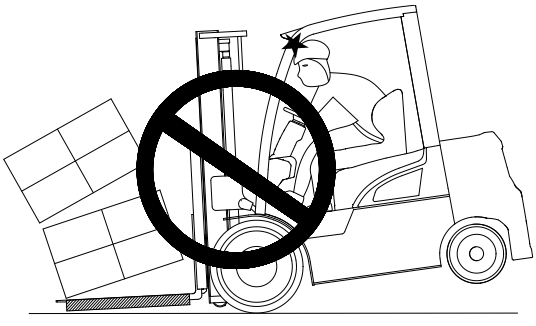
Forklifts with attachments should be considered vehicle loads.



27.The mast should tilt backward and the height of cargo should be lowered as much as possible when the truck is operated under load.



28.Avoid emergency stops or driving fast downhill to prevent cargo from falling or the truck from rolling over. Emergency brake hazards.



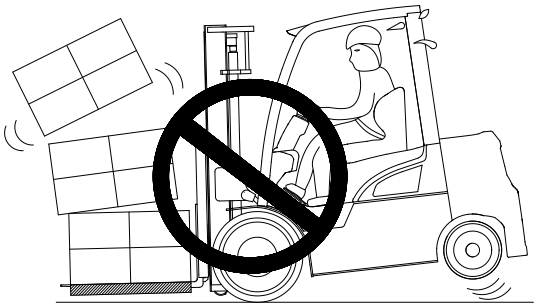
29.The forklift truck can only reverse after coming to a complete stop, and vice versa.

30.Select proper attachments and tools according to the shapes and materials of cargo loaded.

Do not hang ropes on the forks or attachments to lift cargo because the rope may slip; if necessary, a person with lifting operation qualifications should lift cargo with a lifting hook or a boom.

> ⚠ CAUTION
>
> Be careful not to let the forks touch the road surface, to avoid damaging the fork tip and road surface.

31.Know the load curves of the forklift truck and attachments, and do not overload.



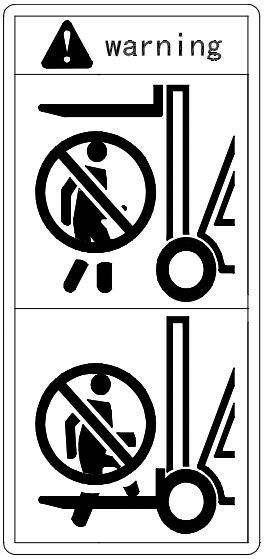
32.DO NOT use people as additional counterweights. It is quite dangerous.

33.Various attachments are provided from Manufacturer for the user, such as rotating clamps, flat holding clamps, side shift forks, and booms, which are to be used exclusively. If attachments are required to be refitted, the permission of the manufacturer must be obtained. Do not refit your attachments without permission.

34.The overhead guard can protect you from being hit by falling cargo. The load backrest ensures the stable loading of cargo. Forklifts without overhead guards and load backrests are not permitted.

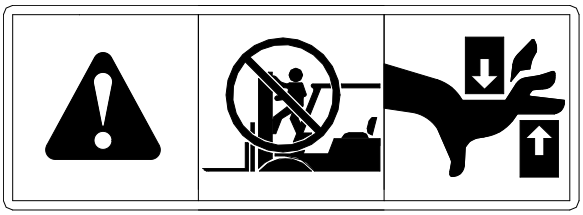
35.Do not stand or walk under the forks or attachments.

Do not stand on the fork.

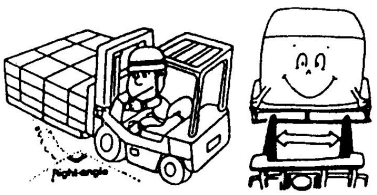


36.Do not place your head or body between the mast and the overhead guard. You may be injured if your head or body is trapped.

Do not place your hands between the inner mast and the outer mast.



37.Enter the area from the front and carefully insert the forks into the pallet when taking cargo from the stack.



38.Do not lift cargo at high speed. cargo should be fixed reliably before lifting the fork.

Pause before lifting cargo and lift only after confirming there are no obstacles.

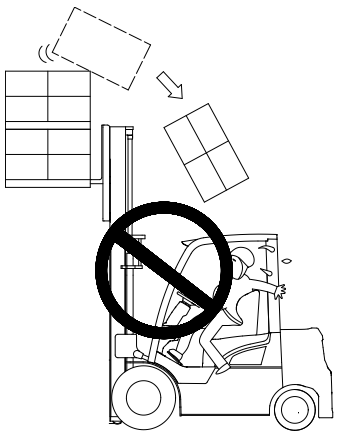


39.Ensure that cargo is tied firmly and placed flat on the two forks; do not lift cargo with a single fork.

For forklift trucks with attachments (like flat holding clamps), cargo should be tied firmly and clamped; the control valve control lever should then be pulled into place.

40. Do not lift cargo when the forklift truck is on a slope and avoid loading and unloading operations on the ramp.

41.The stacking height of cargo should not exceed that of the load backrest; if it cannot be avoided, the cargo should be fixed firmly. Please drive in reverse or under guidance when handling large cargo obstructing visibility.



42.Reduce the forward tilt angle as much as possible when stacking for unloading; when the height of cargo is slightly higher or lower than that of the stacking layer, cargo can tilt forward.

When stacking at height and the distance to the ground is 15cm-20cm, the mast should be vertical and then lifted; be careful to not tilt the mast when the cargo is lifted.

When picking up goods at height, insert the fork into the pallet, slowly lift, back up and then descend, lower the rear mast and tilt it backward. Never tilt the mast when the goods are at height.

43.Do not tow a forklift truck with a faulty engine, abnormal steering system or damaged brake system.

Obey traffic rules when towing a forklift truck on the highway.

44.Wear overalls and other personal safety protective devices, such as earplugs, safety hat, goggles, dust mask, safety shoes, anti-static clothing etc. at work as appropriate; do not wear a tie or attachments for your own safety.

45.There are warnings and operation methods on the truck labels. Please operate according to the directions of the manual and truck labels.

Check labels, signs and marks, and replace them if they are damaged or missing.

46.The workplace should be provided with a fire extinguisher. The user can choose to provide a fire extinguisher for the truck, which

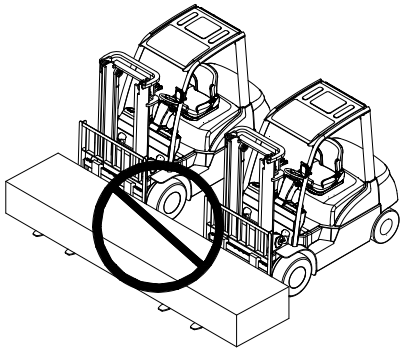
is generally installed on the rear leg of the safety frame for easy access.

Drivers and managers should be familiar with the position and usage method of the fire extinguishers.

47.Use a pallet when carrying small goods instead of the forks.

48.Do not look at the mobile phone, not wear radio or music headphones while operating forklift truck.

49.It is strictly prohibited to use two or more forklifts to jointly transport the same object, as this can easily lead to the forklifts overturning or tipping over, potentially causing personal injuries or fatalities.



51.Exhaust fumes

WARNING

- The exhaust fumes from internal combustion engines contain carbon monoxide and other harmful chemicals. Carbon monoxide is a colorless and odorless toxic substance and can cause loss of consciousness or death without any symptoms. Long-term exposure to exhaust fumes or emission chemicals may cause cancer, birth defects and other reproductive harm. Avoid exposure to engine exhaust fumes.
- If the engine is operating in an enclosed space, proper ventilation should be provided and the exhaust fumes should be vented to the outside. Do not exceed the acceptable air pollutant limits.
- Follow the inspection and maintenance schedules and procedures in this manual and the engine manual. Do not modify or refit the emissions, ignition or fuel system.

52.Fire risk

WARNING

If there are flammable gases, vapors, liquids, dust or fibers in the operating area of internal combustion engined forklift trucks, fires may be caused when the hot engine surface and exhaust fumes are exposed to them. The surface temperature of engine and exhaust parts may exceed the ignition temperatures of common solvents, fuel oil, engine oil, paper and other organic materials (wood, agricultural weeds/grains, cotton and wool, etc). Sparks from exhaust fumes can also ignite these materials. The surface temperature of the engine and exhaust pipe will rise after the engine is turned off, thus the risk of fires may be increased. The engine compartment should be inspected immediately after the forklift truck was operated in an area containing flammable dust, fibers or paper, and all debris should be removed.

53.The differential lock should only be used in severe road conditions or extreme situations. Using it for extended periods during normal driving can cause serious damage to the forklift's tires, drive axle, and other components. Therefore, please press the differential lock switch upwards during normal driving.

54.The differential lock switch must only be operated when the vehicle is stationary.

55.The Euro-5 forklift truck is equipped with a Diesel Particulate Filter (DPF), operators should read the introduction to Euro-5 devices in this manual carefully to avoid the loss of life and property due to improper operation.

56.When working in an environment that is not suitable for DPF regeneration, turn on the inhibit mode. After leaving, disengage inhibit mode so that active regeneration can continue.

57.The exhaust temperature is very high during regeneration, personnel should stay away from the exhaust pipe.

58.Due to the high regeneration temperature, there should not be any combustible materials near the exhaust system or the truck. Do not regenerate in gas stations, dusty places or other flammable and explosive areas.

59.When the regeneration is carried out while parked, a warning sign indicating high temperature and danger should be placed near the exhaust.

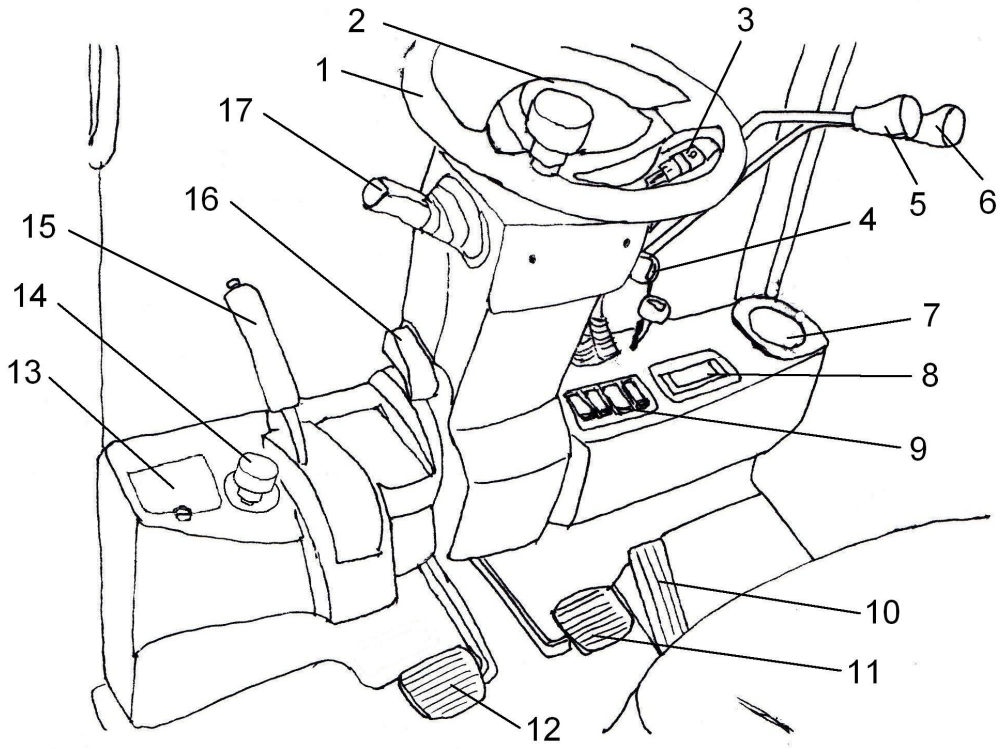
60.If regeneration during parking must be stopped in emergency, just release the handbrake or depress the gas pedal.

61.Do not stack loads higher than the load backrest. When unavoidable, secure the load properly.

62.When handling long loads (e.g., lumber, pipes), oversized loads, or operating a truck with extended attachments, pay full attention to the front end while turning or traveling in narrow aisles. Be mindful of other personnel.

IV、Controls and Instruments

1、Controls



Hydraulic transmission forklift Control and Switch Diagram

1.Steering wheel 2.Horn 3.Combination switch 4.Key switch

5.Lifting lever 6.Tilt lever 7.Cup holder

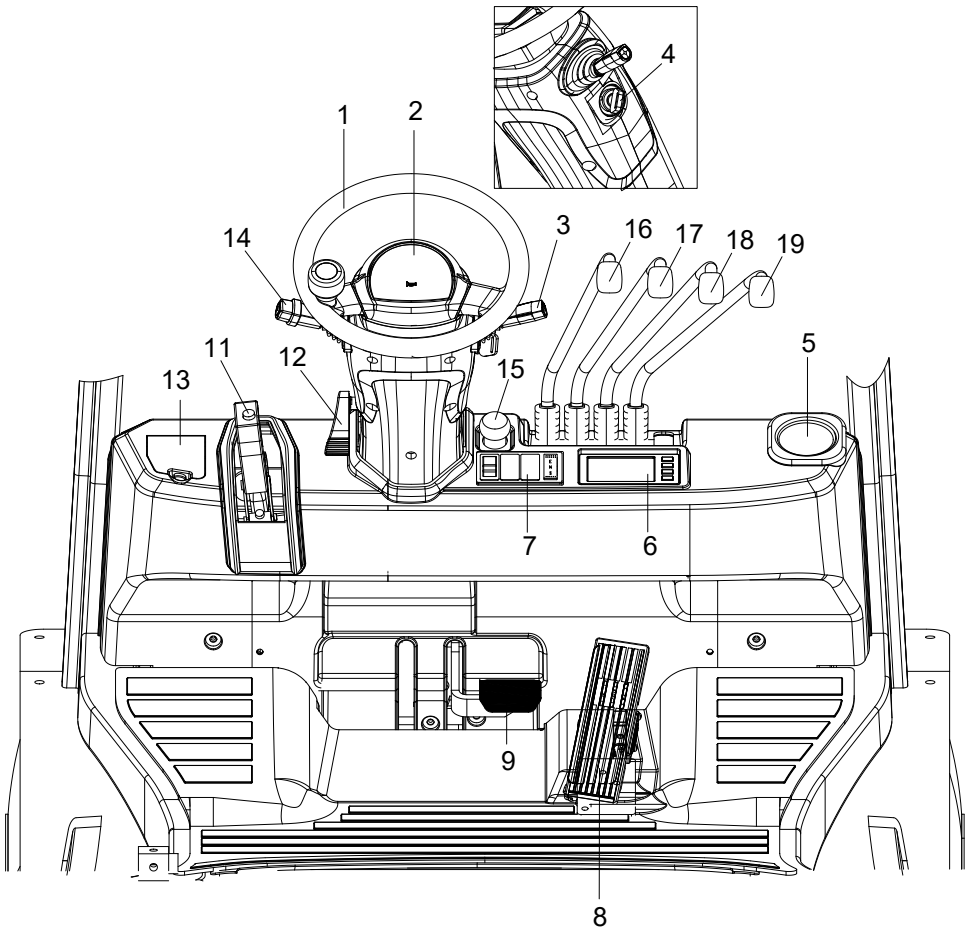
8.Gauge (Storage box) 9.Rocker switch (cover plate)

10.Accelerator pedal 11.Brake pedal 12.Inching pedal

13.Wiper washer fluid reservoir cap 14.Check the emergency power-off switch

15.Hand brake lever 16.Steering wheel adjustment switch

17. Direction lever



Hydrostatic transmission forklift Control and Switch Diagram

1.Steering wheel 2.Horn 3.Combination switch 4.Key switch

5.Cup holder 6.Instrument 7.Rocker switch 8.Accelerator pedal

9.Brake pedal 11.Parking brake lever

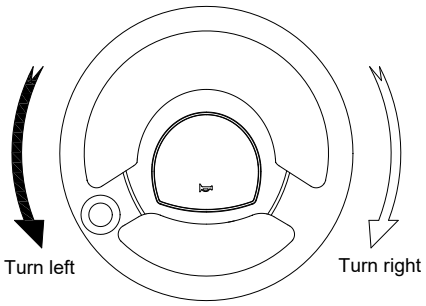
12.Steering wheel adjustment switch 13.Brake fluid tank cap

14.Reversing lever 15.Emergency disconnect switch (OPT)

16.Lift control lever 17.Tilt control lever 18.Side shift control lever (OPT)

19.Attachment control lever (OPT)

Steering wheel [1]



Controls the driving direction of the truck Anticlockwise rotation

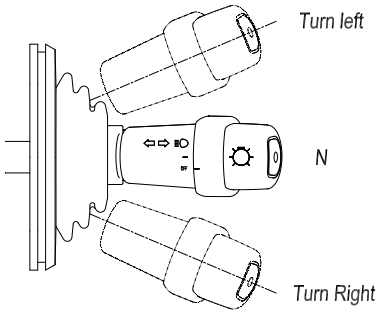
turns the truck to the left; clockwise rotation turns the truck to the right.

> ⚠ WARNING
>
> The forklift is equipped with a fully hydraulic steering mechanism. When the engine shuts down, it will be very difficult to steer the forklift. Before turning again, the engine must be restarted immediately.

Horn button [2]

The horn will sound by pressing the horn button in the center of the steering wheel.

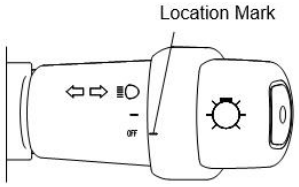
Combination switch（Turn signal switch/light switch） [3]



Use this lever which is at the right side of steering column to indicate the turning direction of the truck.

Forward-left turn light, N-neutral, Backward-right turn light

The turn signal lever does not automatically return to the neutral position unlike general passenger cars. It must be returned to the neutral position manually.

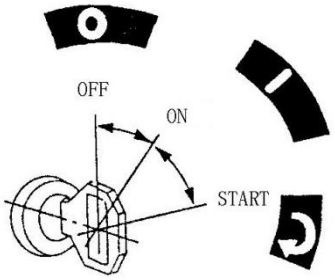


Combined light switch: this is a rotary switch and its circuit diagram is shown in the following figure:

Position	1	2	3	4	5	6
Wire color	White & Green	Blue	White	White &Black	Green	Bule & Black
Handle Position / Contact Power	60W	60W	60W	60W	60W	60W
Left Steering	○	○				
Neutral	○					
Right Steering	○			○		
OFF				○		
—				○	○	
≡○				○	○	○

○——ON

Ignition key switch [4]



O (off): The position to insert and pull out the key; when the key is in this position, the engine shuts down.

| (On): When the start key is in “ | ”, the circuit is connected; after the engine is started, the key remains in this position.

➲ (Start): When the key is in the“ ➲ ”

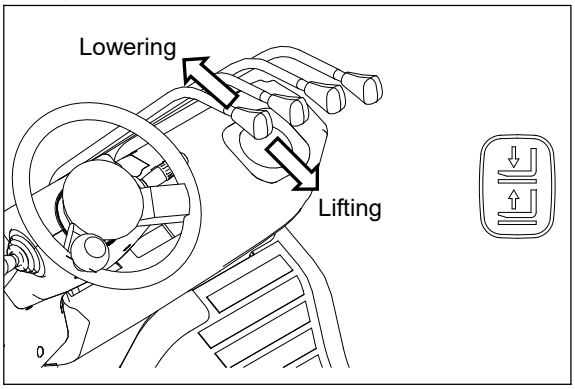
position, the engine is started; after the engine has started, the key automatically returns to the " | " position after release.

Diesel engine

When starting, the key is turned to the " | " position and the preheat indicator light turns on for a while; after the light turns off, the key can be rotated to the"➲"position to start the engine.

> Caution
>
> - When the engine stops, do not leave the key in the " | " position to avoid battery discharge.
> - When the engine is running, do not put the key in the" ➲ " position to avoid motor damage.
> - When starting, the starter motor cannot continuously rotate for more than 10s and the interval between consecutive starts should be 120s.

Lifting lever [5]

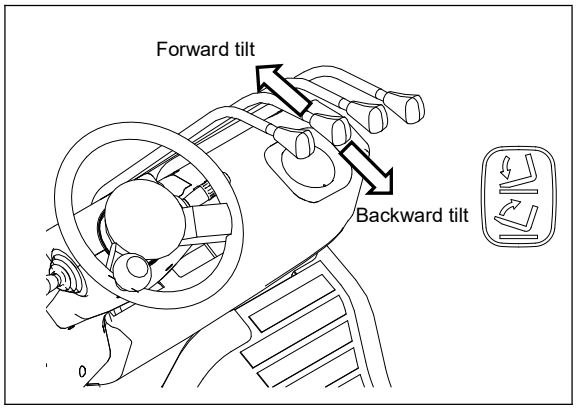


This lever is used to lift or lower the forks.

Push forward - Down; Pull back - Up

The lifting speed is controlled by the backward tilt angle of the lever and the accelerator pedal. The lowering speed is only controlled by the forward tilt angle of the lever.

Tilt lever [6]



This lever is used to tilt the mast forward and backward.

Push forward - Forward tilt; Pull back - Backward tilt

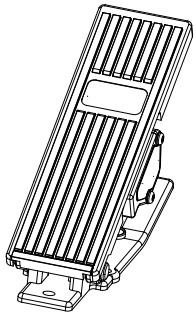
The tilt speed is determined by the tilt angle of the lever and the accelerator control.

> Caution
>
> - The multiway valve is equipped with a forward tilt self-locking valve. Therefore, when the engine shuts down, the mast cannot tilt forward even if the tilt lever is pushed forward.

Cup holder [7]

A cup holder is set on the right side of the instrument stand for the driver to place a cup.

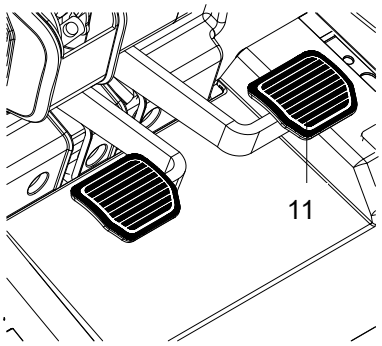
Accelerator pedal [10]



When the accelerator pedal is pressed, the engine speed and the truck speed will

increase; when the accelerator pedal is released the engine speed and the truck speed will decrease.

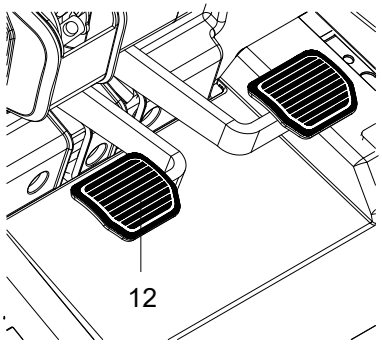
Brake pedal [11]



When the brake pedal is pressed the truck slows down; when the brake pedal is pressed to the bottom, the truck stops. When the pedal is released the truck runs freely.

> ⚠ Caution
>
> - Avoid emergency braking. Emergency braking can easily cause the truck to tilt or cargo to fall, resulting in accidents.

Inching pedal [12]



When the pedal is pressed, the oil pressure of the hydraulic clutch will drop. When the pedal is pressed harder, the forklift truck will be braked. The pedal can be used when the forklift truck slows down to approach cargo or conducts loading and unloading operations.

> ⚠ Caution
>
> - Do not use the inching pedal excessively. If the pedal is used as a footrest or used for a long time, it may cause overheating of the automatic transmission oil or clutch slip.

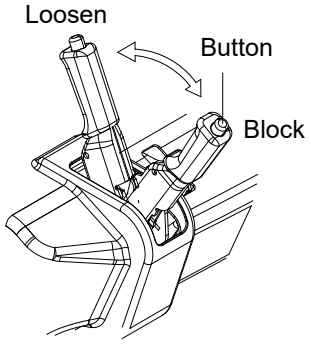
Emergency power-off switch [14]

Press down the emergency power-off switch to disconnect the electric appliances from the battery.

If the forklift truck needs to be restarted, the emergency power-off switch should be toggled.

Reset the emergency power-off switch after shutdown.

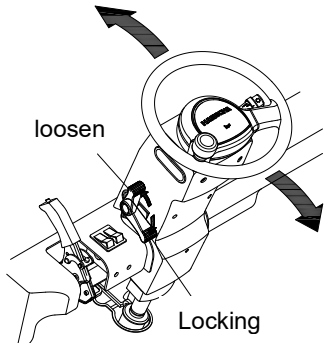
Hand brake lever [15]



Pull the lever back to engage and push the lever forward to release. Engage the lever before the leaving the forklift truck.

> ⚠ Caution
>
> - In the event of brake system failure or emergency, the lever can be engaged for emergency braking.

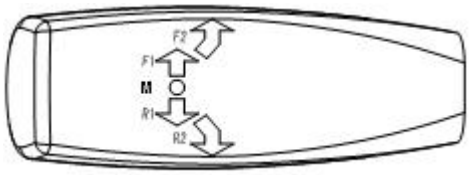
Adjusting lever for steering wheel tilt angle [16]



The position of the steering wheel can be adjusted. To perform adjustment, pull the adjusting lever installed on the left side of the steering hub column, move the steering wheel to the desired position, and push down the adjusting lever for locking.

> **Caution**
>
> - Adjust the steering wheel tilt angle after the forklift truck has stopped and the hand brake is engaged.
> - Forcibly move the steering wheel up and down to ensure that it has been locked after adjusting.

Direction lever [17] (H15/H16)



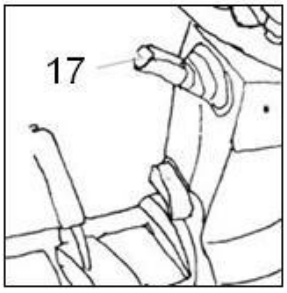
The direction lever is installed on the left side of the steering hub column.

Press the brake pedal to the bottom to fully stop the truck before changing the driving direction; push the lever forward to engage Forward Gear 1; pull up and push the lever forward to engage Forward Gear 2 from Gear 1. Press the brake pedal to slow down if it is required to reverse; pull back the lever to engage Reverse Gear 1; pull up and push the lever back to engage Reverse Gear 2 from Reverse Gear 1.

Push forward — Forward gear

N — Neutral gear

Push backward — Reverse gear



This series of forklift trucks adopts an electrical gear shift mechanism, with the circuit diagram shown in the following figure:

Position	1	2	3	4	5	6
Wire color	Yellow & Green	White & Red	Brown White	Pink	Brown	Blue
Handle Position / Contact Power	60W	60W	60W	60W	60W	60W
F2			○	—	—	○
F1		○	—	—	—	○
N	○	—	—	—	—	○
R1				○	—	○
R2					○	○

○——ON

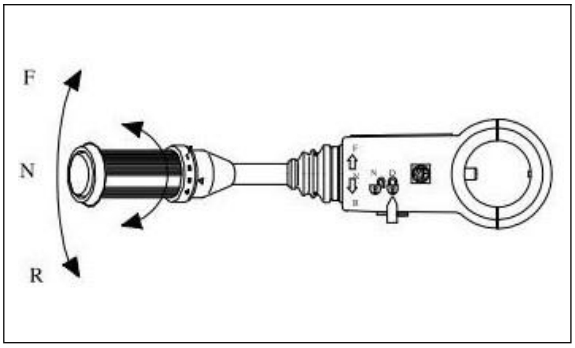
> **Caution**
>
> - The engine can only be started when the lever is in the neutral position.

> **WARNING**
>
> For gear shifting, pull up the lever to engage Gear II from the Gear I.

Gear shift switch (W95/W96)

This series of forklift trucks adopts an electrical gear shift mechanism and has three forward gears and three reverse gears.

Before changing the driving direction, depress the brake pedal to stop the forklift truck, then push the lever forward and shift to the forward gears (shift to Forward Gear 1/2/3 by rotating), or push the lever backward and shift to reverse gears (shift to Reverse Gear 1/2/3 by rotating).

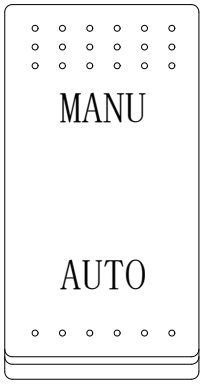


	1	2	3
Push forward	Forward Gear 1	Forward Gear 2	Forward Gear 3
Push backward	Reverse Gear 1	Reverse Gear 2	Reverse Gear 3

Caution

- 1. The forklift truck can only be started when the lever is in the neutral position.
- 2. Rotate and shift to Gear 1 for vehicle starting or climbing.

Gear shift switch (W95/W96)

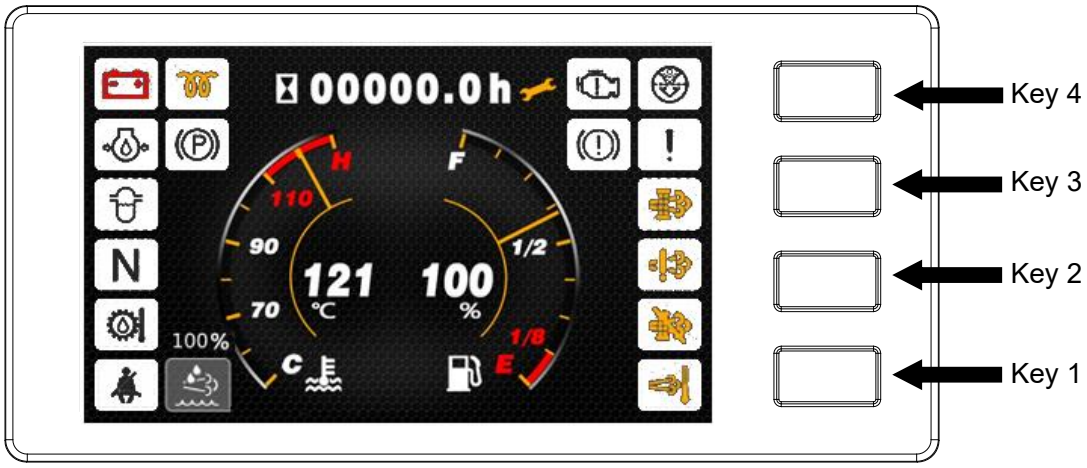


Turn the gear shift switch to the “Auto” mode, the forklift truck will enter the automatic gear shift mode. When the gear shift switch is in the position “1”, the transmission will remain in this gear until the operator selects another gear; when the gear shift switch is in the position “2”, the transmission will automatically shift between Gear 1 and Gear 2 based on the vehicle speed; when the gear shift switch is in the position “3”, the transmission will automatically shift between Gear 1, Gear 2 and Gear 3 based on the vehicle speed.

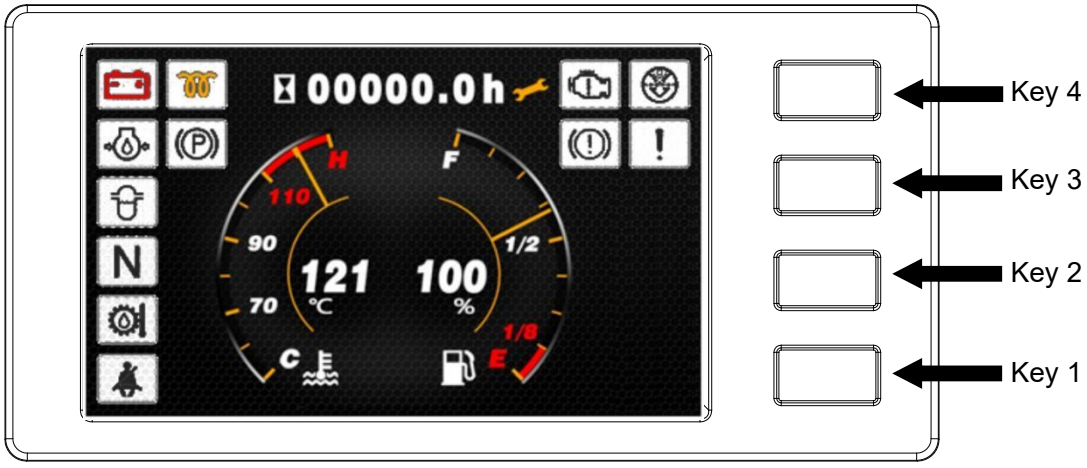
Turn the gear shift switch to the “Manual” mode, and the user can shift to Gear 1, Gear 2 or Gear 3 by operating the gear shift switch [15] to adjust the vehicle speed.

2、Instrumentation

2.1 Instrumentation（H15/H16/H20）



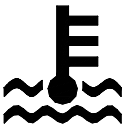
(H15/H16 Engine) Homepage



(H20/W24 Engine) Homepage

2.1.1 Instrument panel indicator light

Water temperature gauge

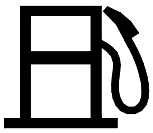


When the ignition key switch is in the | (open) position, the water temperature gauge is active, displaying the engine coolant temperature.

The water temperature numerical display range is from 0°C to 210°C, and the gauge pointer display range is from 50°C to 130°C. When the water temperature is below 0°C, the water temperature value is randomly displayed between 216°C and 255°C, which only indicates that the engine coolant temperature is below 0°C.

> Caution
>
> Stop operation immediately and reduce engine speed to cool down the engine and then stop the engine when the gauge is in the red area. Check the coolant level is sufficient and whether the fan belt is tight.

Fuel gauge



When the ignition key switch is in the | (open) position, the fuel gauge will display the approximate fuel level in the fuel tank.

It is recommended to fill up the fuel tank everyday after work.

> Caution
>
> For LPG single-fuel forklifts, this indicator light is inactive, and the value display is 0%.

Timer

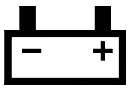


When the ignition key switch is in the | (open) position, the timer will start running. The timer reading will increase by one for every hour of operation.

The timer displays the cumulative working hours of the forklift truck.

> Caution
>
> After the cumulative hours reaches 100h (the factory default interval is 100h, and it can be adjusted) displayed on the stopwatch, the “wrench” icon will flash for 1 hour to prompt that the forklift truck needs to be serviced. Consult monthly maintenance after the first flash. Check the information about the maintenance cycle schedule in detail for each cycle. The specific flash time depends on the actual situation.

Charging indicator light



The light displays the battery charge status, turns on when the starting switch is in the | (open) position, and turns off when the engine is started.

Caution

If the light continues to turn on or flash during operation, it indicates that the charging is abnormal and immediate inspection is required.

Preheat indicator light [diesel forklift trucks]



The light turns on for a short period after the switch is moved to the | (open) position, and the switch can be moved to the (start) position to start the engine after the light turns off.

Engine oil pressure alarm indicator light



The light displays the pressure of the engine lubricating oil, the light turns on when the starting switch is in the | (open) position, and turns off when the engine is started.

Caution

If the light continues to turn on or flash during operation, it indicates that the oil pressure is less than 0.05MPa and immediate inspection is required.

Parking indicator light

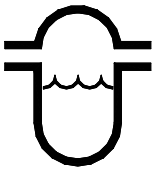


When the light turns on, it indicates that the parking brake is applied. In order to drive the truck, the parking brake lever (i.e. handbrake lever) should be released and the light will turn off.

Warning

Driving the truck when the light is on may cause damage to the engine, drive system and other components.

Fuel-water separator indicator light



In general, the light turns on when the starting switch is in the (start) position, and turns off when the engine is started.

The light turns on when the water precipitation reaches a certain level while the engine is running.

If the light continues to turn on or flash when the engine is running, the engine should be shut down immediately to discharge water.

Caution

If operation is continued after the light turns on, the fuel oil injection pump may be damaged.

Neutral start indicator light

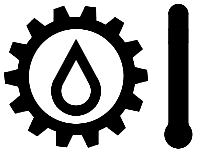


When the truck is temporarily stopped, the direction lever should be in the neutral position; in this position the light will turn on.

The truck can only be started when it is in neutral.

The truck must not be in the neutral position when driving downhill.

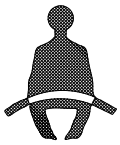
Transmission oil temperature alarm light [hydraulic forklifts]



In normal conditions, the light turns on when the starting switch is in the ➲ (start) position. It turns off when the engine is started. When the engine is running and the transmission oil temperature exceeds the normal range (60℃-120℃), the alarm light will turn on.

> ⚠ Caution
>
> If the alarm light turns on, please stop operation immediately and reduce engine speed to cool down until the light turns off. The fuel quantity should be checked or other inspections should be conducted.

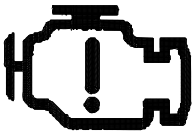
Seat belt alarm indicator light (optional configuration)



When the start key is in the " | ", position, the engine is not started and the driver is not on the driver's seat. If the seat belt is not fastened properly, the seat belt alarm indicator light will turn on.

If the seat belt is not fastened or loose when the driver is operating the vehicle, the buzzer alarm will sound and the seat belt alarm indicator light will turn on at the same time. This is to remind the driver to safely park and refasten the seat belt; the buzzer alarm will then stop and the seat belt alarm indicator light will turn off.

Engine fault indicator light [for forklift trucks with an electronically controlled engine]



When the light turns on, it indicates that there is a fault and the forklift has to be stopped immediately.

Maintenance personnel can press the right key of the instrument to check or connect the ECU diagnosis interface with the diagnostic equipment to read the fault code information stored in the ECU.

Air filter alarm indicator light



When the light turns on, it indicates that the air filter in the air intake system is blocked and the truck must be stopped to clean the air filter.

Low brake pressure alarm indicator light



This light indicates the pressure status of the accumulator. The light comes on when the start switch is set to the "run" position, but it goes out after the engine starts.

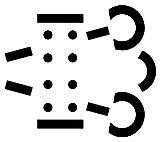
> Caution
>
> During operation, if the light remains on or flashes, it indicates that the accumulator pressure is below the normal value, and an immediate check is required.

OPS indicator light



When the light turns on, it indicates that the driver is not on the driver's seat or is not sitting properly.

Regen indicator light（H15/H16）



There are three kinds of working status: Driving regen, parked regen, and service regen (aftersales solution).

In the first case, the regen indicator light turns on normally and is in the regen working status. At that time, manual intervention is not required and normal operations can be maintained. The light will automatically turn off after the regen prompt, which also indicates that the treatment of particulate matter is completed.

The driver should reduce the light-load running time as much as possible to increase the exhaust temperature and shorten the regen time.

In the second case, it prompts that the parked regen should be started.

Start parked regen (see operating instructions for instrument keys) after the parked regen conditions have been met.

Parked regen conditions:

① The forklift truck is parked on a well-ventilated flat road.

②Engage the handbrake.

③Release the accelerator pedal.

④Keep the direction lever in the neutral position (gear N).

⑤Warm up the forklift truck until the water temperature reaches 70℃.

⑥Install the hazard warning sign near the exhaust port.

> Caution
>
> - Parked regen: The parking status is not suitable for heat dissipation. Stay away from inflammables and keep a safe distance from people.
> - The driver should pay attention to safety, should not leave the site, and should monitor the engine conditions during regen.
> - The driver should not stop the engine during regen; otherwise, it is likely to cause a DPF fault.

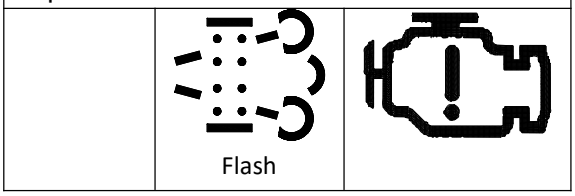
> Warning
>
> If it is necessary to inhibit parking regen in an emergency, only one of the conditions ②③④ to exit parking regen needs to be met.

The regen indicator light turns on when driving and the forklift truck can continue to be

used normally or can be driven to the safe position for parked regen.

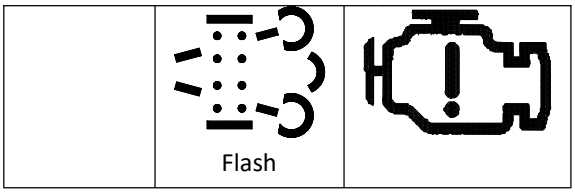
If the regen indicator light turns on when driving and the engine fault indicator light turns on as well, maintenance personnel or aftersales staff for the plant area should be contacted to check the engine fault code. Start parked regen after confirming that there are no other faults.

> Caution
>
> If the two indicator lights turn on and parked regen is not performed within 2h, the DPF is likely to become blocked, the parked regen will fail to start, and the DPF may be damaged, causing maintenance expenses.



At the end of parked regen, the light will automatically turn off; the engine can be shut down after waiting for 2-3min until the engine restores to normal idling.

The third case, service regen.



When the DPF has been severely blocked, the engine has reduced power and torque, and the forklift truck does not work normally, aftersales staff should be contacted for service regen.

EATS system fault indicator light（H15/H16）



If the EATS has a fault or exceeds the designated operating parameters, the engine fault light should turn on at the same time.

Inhibit indicator light（H15/H16）

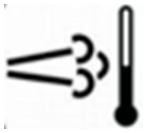


When the light turns on, it indicates that the regen status of the engine is restricted and driving regen or parked regen is inhibited.

> Caution
>
> When working in an environment that is not suitable for DPF regeneration, turn on the inhibit mode. After leaving, release the inhibit mode so that active regeneration can continue.

> Warning
>
> If the active regen has been inhibited, the exhaust filter and exhaust will become blocked and the performance of the forklift truck will degrade until the engine fault indicator light is activated.

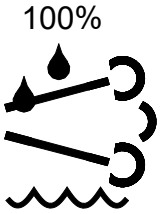
High exhaust temperature indicator light （H15/H16）



Caution

Light on: Reminds the driver that the regen process causes high exhaust temperature and to pay attention to safety.

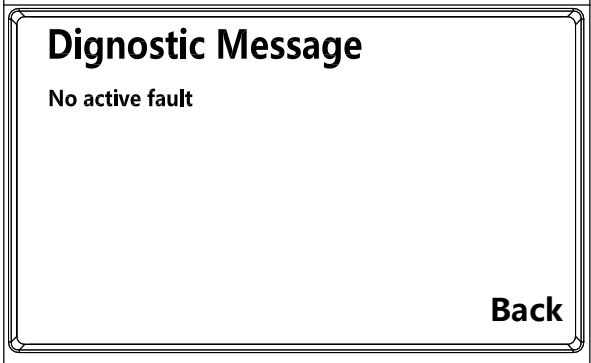
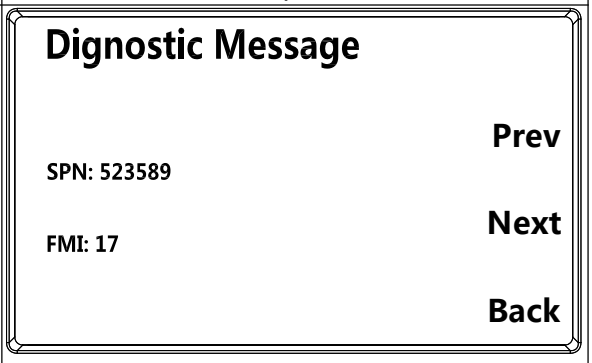
Urea level indicator light



When this indicator light turns on, it indicates that the regen status of the engine is restricted, and it is not possible to request regeneration.

2.1.2 Operating instructions for instrument keys

Engine fault information display page

No faults	Fault present
	

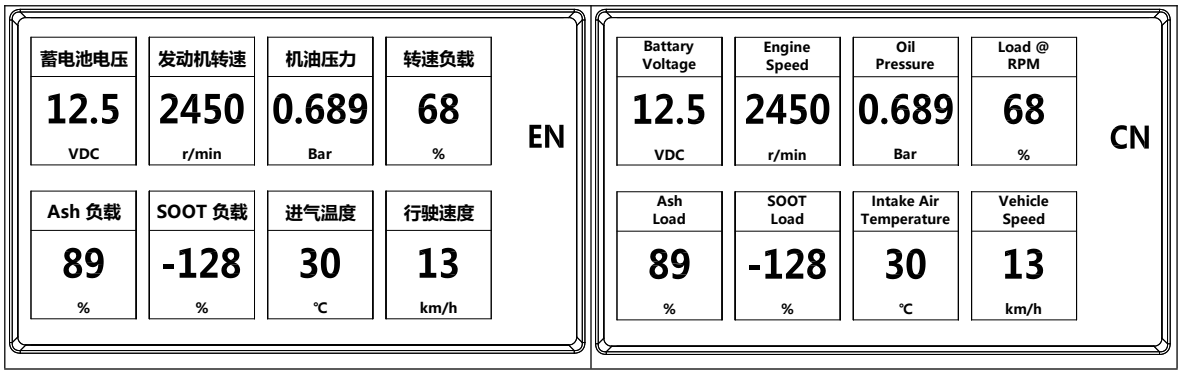
① Enter the engine fault information display page: Homepage=》Key 4
② Fault query page selection: Press key 2 or key 3 again for page selection (the page selection key is not displayed when there is no fault)
③ Back to the homepage: Press Key 1 to return to the homepage

Forklift truck operating parameters and Chinese and English interface switch

① Enter the forklift truck operating parameter display page: Homepage=》Key 2 or Key 3

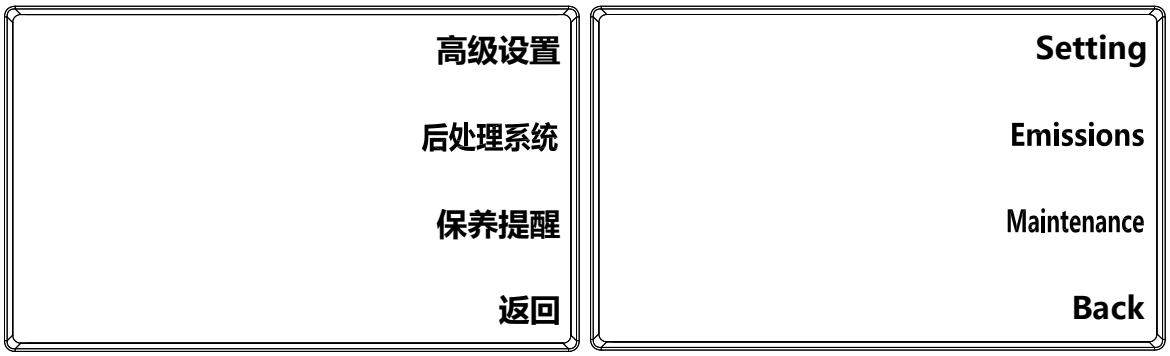
② Language switch: Press Key 3 again to switch language (CN/EN)

③ Back to the homepage: Press Key 1 to return to the homepage



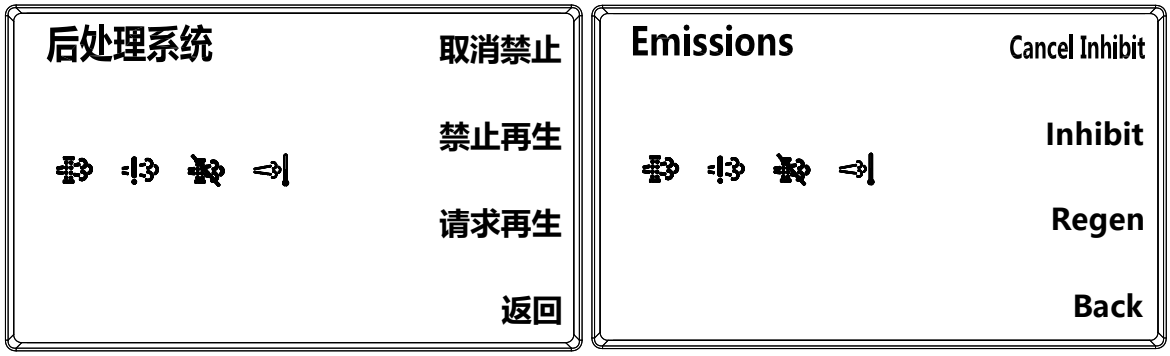
Setting page

（1）Operations on the setting page



- Enter the setting page: Homepage=》Key 1
- Enter the maintenance page: Homepage=》 Key 1=》 Key 2, to enter the maintenance repair page
- Enter the emissions system setting page: Homepage=》 Key 1=》 Key 3, to enter the emissions system setting page
- Enter the advanced setting page: Homepage=》 Key 1=》 Key 4, enter the advanced setting maintenance personnel password input page
- Back to the homepage: Press Key 1 to return to the homepage

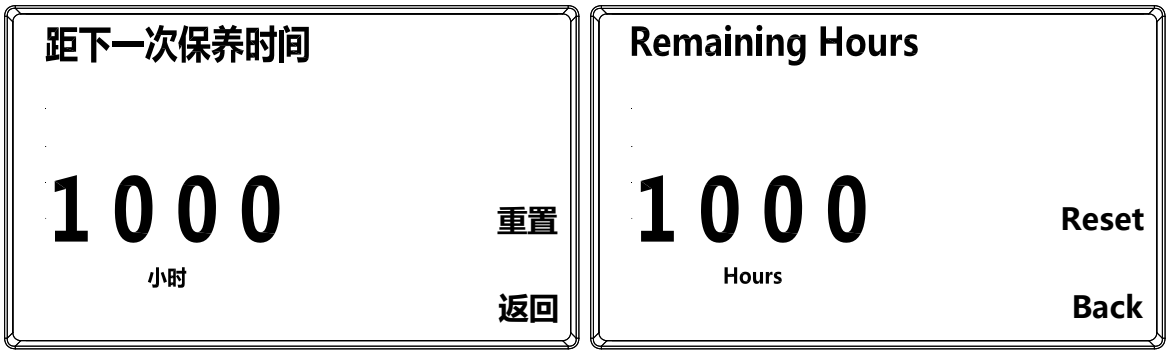
（2）DPF emissions function setting page (EU stage V diesel engine)



Cancel inhibit: Press Key 4 to enable the DPF automatic regen function
Inhibit: Press Key 3 to disable the DPF automatic regen function
Regen: Press Key 2 to enable DPF parked regen.
Back: Press Key 1 to return to the setting page

（3）Maintenance repair page

a.Remaining hours query page



The remaining hours can be observed on the page

Reset: Press Key 2 to be redirected to the maintenance hour reset page, and reset the remaining hours to the set initial value (maintenance cycle interval).

Back to the setting page: Press Key 1

b.Maintenance hour reset page



Reset: Press Key 2 to confirm reset and automatically return to the maintenance query page if the reset confirmation was successful.

Back to the setting page: Press Key 1 to return to the setting page

2.2 CAN Bus Instrument(W95/W96)



The XF series forklift truck adopts the latest FW Murphy instrument which monitors the operation status of the engine and devices and display all parameters on an easy-to-read 3.8" QVGA black-and-white LCD. The display not only handles complex engine diagnosis, but also enables basic engine alarm and shutdown control.

Technical specifications:

Display screen: 3.8" / 97mm, QVGA, 320 × 240 pixels; black-and-white semi-transmissive LCD, with LED backlight and a built-in heater.

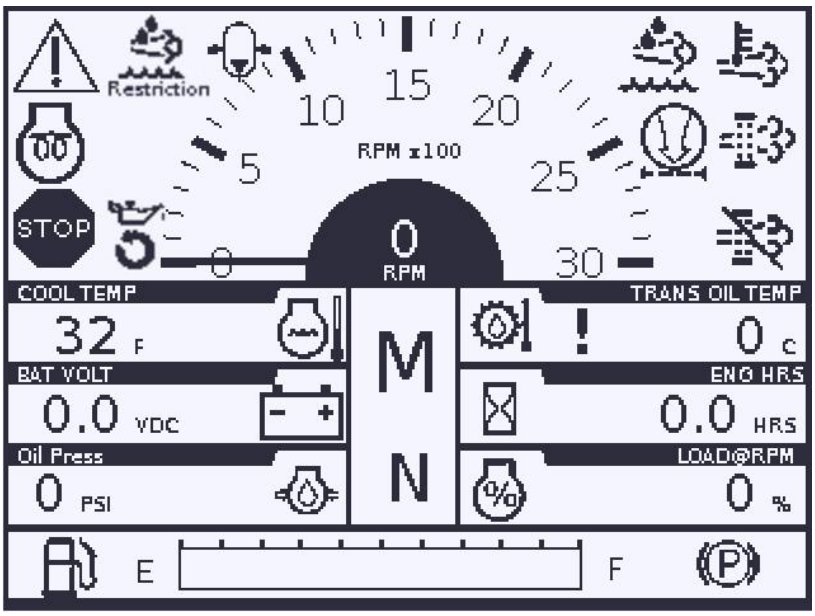
Viewing angle: ±55° horizontally, +45°/-60° vertically.

Key: 5 contact-type keys.

Alarm: The display has two alarm lights in the key area, with the yellow LED for general fault alarms and the red LED for shutdown fault alarms; if there are any faults, the PV380 will turn on different alarm lights according to the fault level, and the light will stay on even if the fault page is hidden; the alarm can be activated by setting the alarm points, and an external buzzer or parking relay can be connected to it.

Average fault interval: 50,000 hours.

1. Homepage display:



Common engine faults



When the light turns on, it indicates that there is a fault and the forklift truck must be stopped immediately to remove the fault with reference to the troubleshooting table.

Engine shutdown



When the light turns on, it indicates that there is a major fault in the engine and the truck must be stopped immediately to remove the fault with reference to the troubleshooting table.

Engine's preheat indicator light



The light turns on for a short period after the switch is moved to the ⇄ I (open) position, and the switch can be moved to the (start) position for starting after the light turns off.

Indicator Light for Diesel Exhaust Fluid (DEF) Level



This indicator light is used to show the DEF level. When it turns on, it indicates that the DEF level is too low, in which case the driver must stop the forklift truck and add more DEF. The engine should not be started until this indicator light turns off.

> ⚠ CAUTION
>
> Please select Engine DEF that meets the standards or requirements, otherwise the DEF reservoir or other related parts may be damaged.

Air cleaner alarm indicator light



When this indicator light turns on, it indicates that the air cleaner filter is clogged and further cleaning is required.

Exhaust temperature indicator light



This indicator light is used to indicate the engine exhaust temperature. When it turns on, it indicates that the engine exhaust temperature is too high and the driver must stop the forklift truck, check the engine exhaust device and reduce its temperature.

Parked/Stationary regeneration indicator light



This indicator light indicates the engine is in parked/stationary regeneration state.

Low brake pressure indicator light



This indicator light indicates the accumulator pressure. It turns on when the starting switch is in the “Open” position, but it will turn off when the engine is started.

> CAUTION
>
> If this indicator light continues to turn on or flash during operation, it indicates that the accumulator pressure is below the normal value and an immediate inspection is required.

Inhibit regeneration indicator light



Regen limit



When this indicator light turns on, it indicates that the regen status of the engine is restricted, and it is not possible to request regeneration.

Engine oil change indicator light



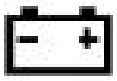
When this indicator light turns on, it indicates that the engine oil should be changed.

Transmission oil temperature indicator light



This light indicates the oil temperature of the transmission. When there is a symbol “!” behind the icon “”, it indicates that the oil temperature of the transmission is too high, and the user should stop operation immediately and reduce the engine RPM to cool down till the symbol “!” disappears. The oil quantity should be checked or other inspections should be conducted.

Battery voltage and charging indicator light



The light displays the battery charge status, turns on when the starting switch is in the | (open) position, and turns off when the engine is started.

> CAUTION
>
> If the light continues to turn on or flash during operation, it indicates that the charging is abnormal and immediate inspection is required.

Engine oil pressure indicator light



The light displays the pressure status of the engine lubricating oil, the light turns on when the starting switch is in the | (open) position, and turns off when the engine is started.

> CAUTION
>
> If the light continues to turn on or flash during operation, it indicates that the oil pressure is less than 0.05MPa and immediate inspection is required.

Stopwatch



When the ignition key switch is in the | (open) position, the stopwatch will start running. The stopwatch reading will increase by one for every hour of operation.

The stopwatch displays the cumulative working hours of the forklift truck.

Coolant temperature indicator light



This indicator light indicates the engine coolant temperature.

> CAUTION
>
> If this indicator light continues to turn on or flash during operation, it indicates that the engine coolant temperature pressure is too high and an immediate inspection is required.

Emission liquid level indicator light



This indicator light indicates the emission liquid level, which is expressed as a percentage.

Engine speed load indicator light



This light displays the current engine speed load, and specific parameters will be shown for 5-7t forklift trucks.

Fuel gauge



When the ignition key switch is in the | (open) position, the fuel gauge will display the approximate fuel quantity of the fuel tank.

It is recommended to fill up the fuel tank everyday after work.

Gear indicator light



This light displays the driver’s operation mode and gear. The operation mode will be displayed at the top of it: M - manual gear, A - auto gear; and the current gear will be displayed at the bottom: N- neutral gear, F1/F2 - forward gear, R1/R2 - reverse gear.

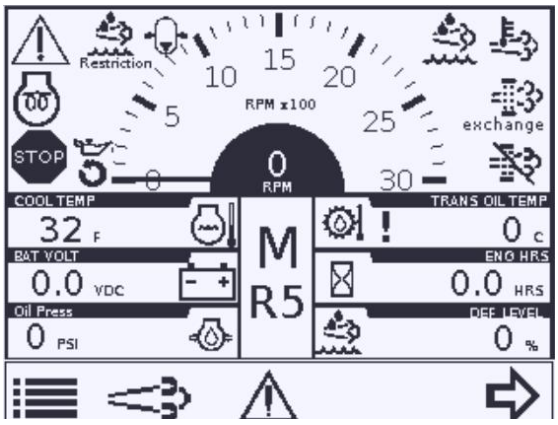
Brake indicator light



When the light turns on, it indicates that the parking brake is applied. In order to drive the truck, the parking brake lever (e.g. hand brake lever) should be released and the light will turn off.

> Warning
>
> Driving the truck when the light is on may cause damage to the engine, drive system and other parts.

2.Press any key on the homepage and other parameter pages, the system will show the following menu:



Definitions for keys are listed as follows:

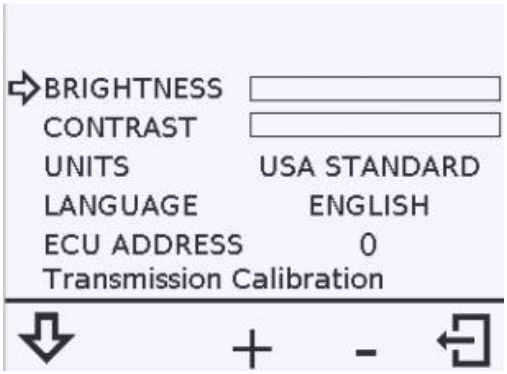
: Enter the display setting page.

: Enter the emissions system request page.

: Enter the engine fault page.

: Next page.

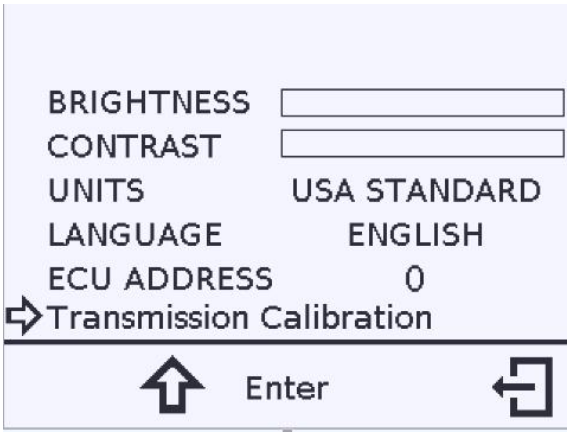
2.1 The display setting page is shown in the following figure.

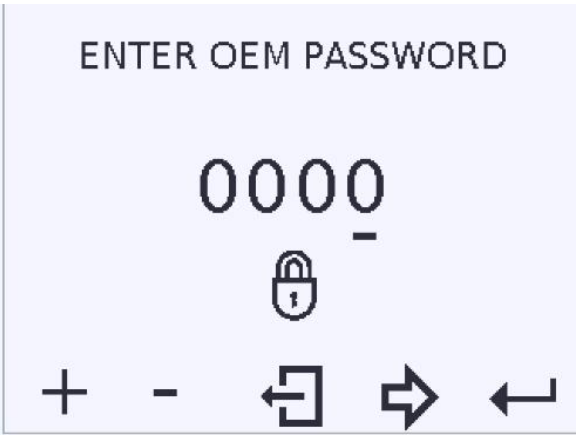


The user can adjust the display parameters on this page. “” is used to set the parameters, “” is used to set the values or definitions of various parameters, and “” is used to return to the previous menu.

> CAUTION
>
> The figures in this manual are all screenshots from the programming environment, they are not the actual display setting parameters.
>
> Actual system default values:
>
> Brightness: 90; Contrast ratio: 160; Unit: KPA (metric);
>
> Language: English; ECU Address: 255 (monitoring all bus devices)

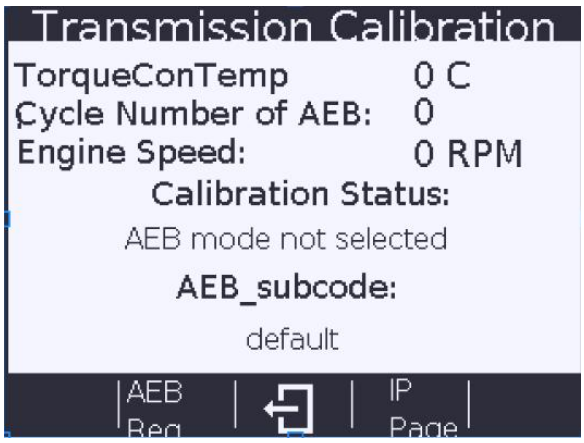
When the cursor is pointing to “Transmission Calibration”, press the “Enter” key to enter the transmission calibration password input page.



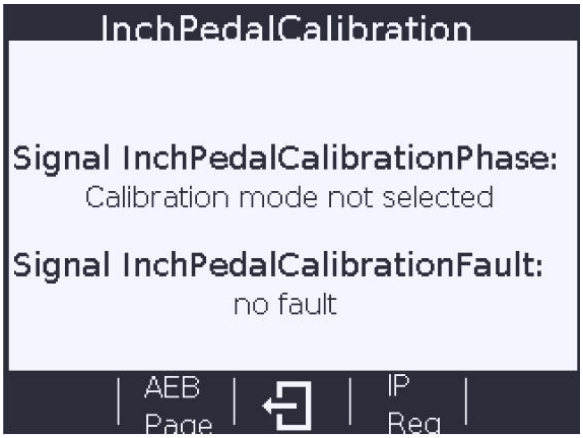


Input the password for transmission calibration page: "+ -" is used to set the value in the current cursor pointing position, "⇨" is used to move the cursor, "⇦" is used to return to the previous menu, and "↵" is used to confirm the password.

Input the correct password to enter the transmission calibration page.



"AEB Req" means a request for transmission calibration. Enter this page for the transmission calibration. "IP page" means the inching pedal calibration page, as shown in the following figure.



Refer to the "III. ZF transmission" for the calibration of transmission and inching pedal.

2.2 The emission system request page is shown in the following figure.



1. REGEN MODE refers to the engine regen. mode, including the following status:

AUTO: The regen. mode of engine is completed normally.

INHIBIT: Sudden stop in the engine regen. process.

If there is no information related to the engine regen. mode, N/A will be displayed.

2. Regen. information:

a. No regen. needed

b. Regen. request - primary class

c. Regen. request - medium class

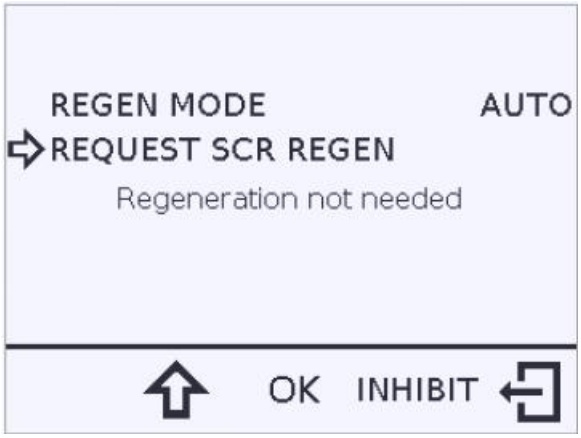
d. Regen. request - top class

3. Regen. state:

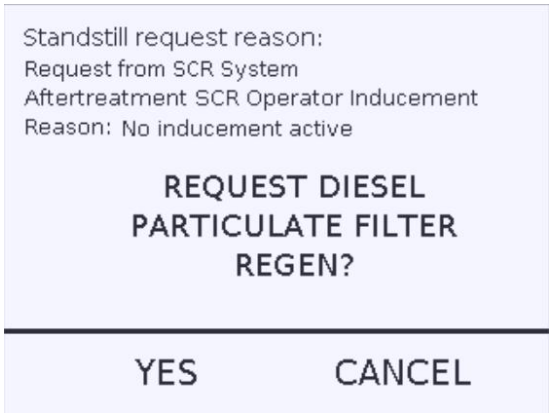
a. Regen. in progress

b. Regen. request - automatically initiated

4. Move the cursor down to enter the regen. request page.



Press the “OK” key and the system be displayed as follows:



Press the “YES” key and the system will enter the regen. mode.

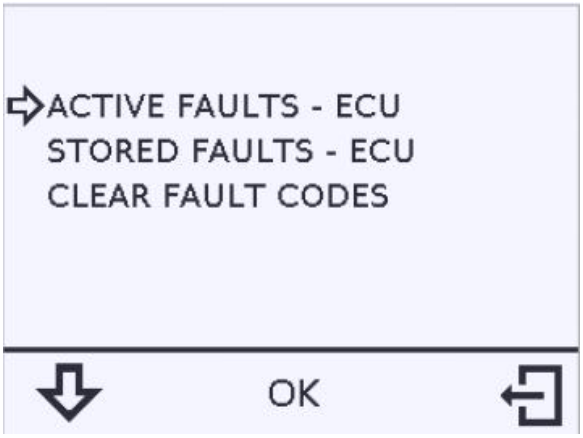
Press the “CANCEL” key and the system will be back to the previous menu.

In the regeneration process, press the “INHIBIT” to enter the regen. inhibited mode.

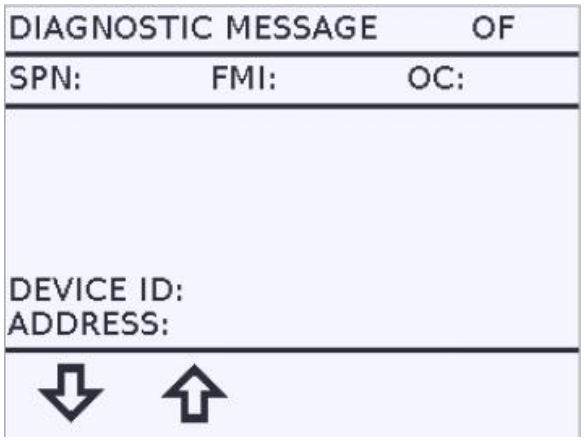
The following parameters will be displayed on this page:

- Standstill request reason
  - Requested due to high filter soot load
  - Requested due to long operation time in heat mode 2
  - Requested due to maintenance standstill necessary
  - Requested from SCR System
- Aftertreatment SCR Operator Inducement Reason
  - No inducement active
  - Reagent Level Low
  - Incorrect Quality
  - Incorrect Consumption (not available)
  - Tampering
  - Spare (not available)
  - Error (Hardware –Failure)
  - Not Available / Not Supported (No SCR system mounted)

2.3 The engine fault page is shown in the following figure.

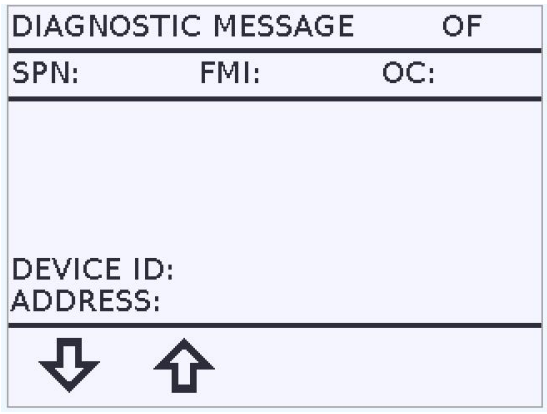


When the cursor points to the “ACTIVE FAULTS-ECU”, press the “OK” key to enter the current fault page.



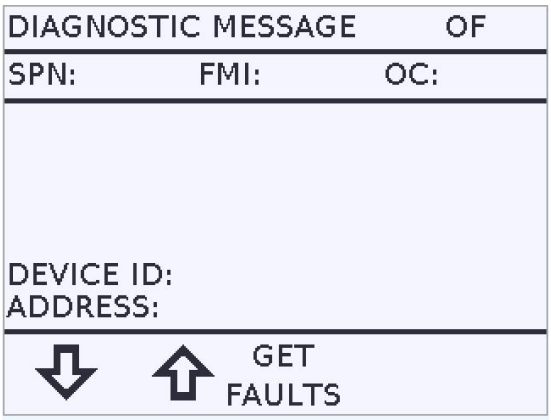
Move the cursor up and down to check the current fault information, the (ADDRESS) “00” indicates the engine and “03” indicates the transmission. Identify the engine fault or transmission fault based on the “ADDRESS” data and then find the fault code and information based on the specific SPN and FMI number.

Move the cursor and press the “OK” key to enter the current fault page when the “ ” cursor points to “ACTIVE FAULTS-ECU”.



Check the current fault information by moving the cursor up and down.

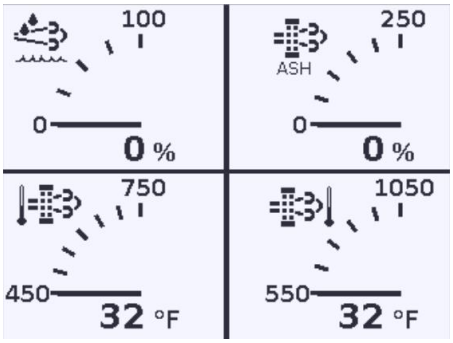
When the cursor points to “STORED FAULTS-ECU”, press the “OK” key to enter the fault history page (engine support required).



Select “GET FAULTS”, the system will request the ECU to give the fault history records, if the request times out, it will display “TIME OUT”, if there are any history faults, the corresponding fault history records will be shown.

When the cursor points to “CLEAR FAULTS-ECU”, press the “OK” key to clear the fault history records (engine support required).

2.4 Select the “Next Page” which will be displayed in the following figure:



The engine catalyst level is displayed on the upper left part of the page.

DEF ASH road ratio is displayed on the upper right part of the page. Note the prompts on the left:

Filter exchange required

Filter exchange required, warning level 1

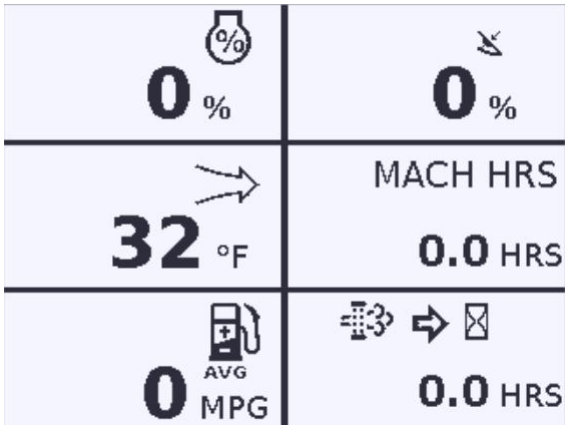
Filter exchange required, system reaction

Exhaust filter inlet temperature is displayed on the lower left part of the page.

Exhaust filter outlet temperature is displayed on the lower right part of the page.

Note: No exhaust data for 5t-7t forklift trucks.

2.5 Select “Next Page” which will be displayed in the following figure:



Engine load percentage at current speed is displayed on the upper left part of the page.

Engine accelerator pedal depressed ratio is displayed on the upper right part of the page.

Engine air inlet temperature is displayed on the middle left part of the page.

Engine working duration is displayed on the middle right part of the page.

Average fuel consumption is displayed on the lower left part of the page.

Working time since last regeneration is displayed on the lower right part of the page.

3. Preheat page

If it is required to preheat the engine, the following page will appear after the display is started.

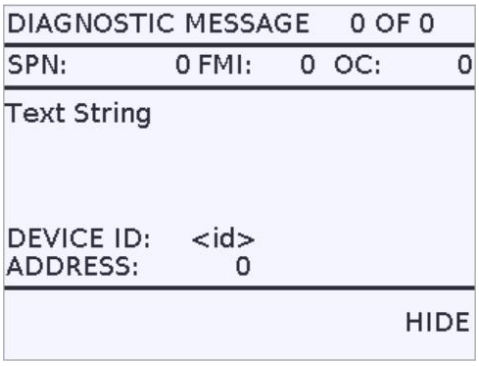


If the preheat is finished, the display will automatically enter the homepage, or otherwise the preheat page will remain.

If the user wants to enter the system, please press “KEY1/KEY2/KEY3” to enter the Page 1/2/3.

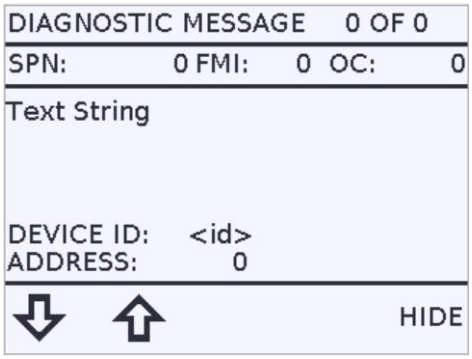
4. Fault page

If there is a fault in the bus device during the system operation and the corresponding fault code is sent, the following page will pop up:



Press the “HIDE” key to hide the current fault and return to the page displayed before the fault occurred.

If there are multiple faults on the system, the following page will pop up:



Check the fault code and the instructions by selecting the arrows. If there are no instructions, please feedback the fault code to the after-sales personnel.

Emissions system page

Fluid Level	DEF Level Display Examples	AT1TI1 SPN5246	DM1 Byte1.3 - 1.6	Fluid Level Alarm Icon	Indicator Light
>15%	Real-time data  98%	000	0000		
<15%	Real-time data + !  14%	000	0000		
<10%	Real-time data + !  7%	001	0000		
<5%	Real-time data + !  4%	010 	0001 	 1HZ Flashing	Yellow light 
<5% After 10min	Real-time data + !  3%	011 	0001 	 1HZ Flashing	Yellow light 
<5% After 15min	Real-time data + !  2%	100 	0100 	 1HZ Flashing	Red light 
<5% After 20min	Real-time data + !  2%	101 	0100 	 1HZ Flashing	Red light 

Efficiency / DEF Quality	AT1TI1 SPN5246	DM1 Byte1.3 - 1.6	Indicator Light
Normal	000	0000	No alarm light
Excessively low	001 	0001	Yellow light 
Excessive low Power reduction stage 1 Alarm before 10min	010 	0001 	Yellow light 
Excessive low Power reduction stage 1	011 	0001 	Yellow light 
Excessive low Power reduction stage 2 Alarm for the first10 min	100 	0100 	Red light 
Excessive low Power reduction stage 2	101 	0100 	Red light 

Anti-cheating	AT1TI1 SPN5246	DM1 Byte1.3 - 1.6	Indicator Light
Normal	000	0000	No alarm light
Fault detected	001 	0001	Yellow light 
Fault detected Power reduction stage 1 Alarm before 10min	010 	0001 	Yellow light 
Fault detected Power reduction stage 1	011 	0001 	Yellow light 
Fault detected Power reduction stage 2 Alarm before 10min	100 	0100 	Red light 
Fault detected Power reduction stage 2	101 	0100 	Red light 

Anti-cheating	AT1TI1 SPN5246	DM1 Byte1.3 - 1.6	Indicator Light
Normal	000	0000	No alarm light
Fault detected Power reduction stage 2 Alarm before 10min	100 	0100 	Red light 
Fault detected Power reduction stage 2	101 	0100 	Red light 

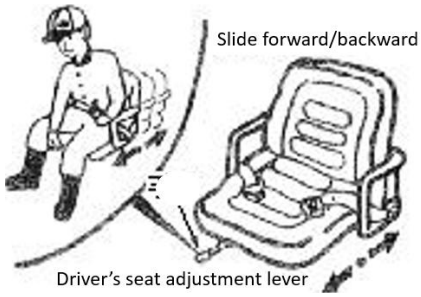
Particulate Detection	DPFC1 Byte1.1 - 1.3	DM1 Byte1.3 - 1.6	Indicator Light	Alarm Code SPN FMI Description	DPFC1 Byte2.5 - 2.7
Normal	000	0000	No alarm light		
Particulate detected Request parked/stationary regeneration	101  Light up	0000	No alarm light	Particulate detected Request parked/stationary regeneration	Emissions system page: Regeneration needed – moderate level
Particulate detected and alarmed Request parked/stationary regeneration	101  0.5 HZ Flashing	0001 	Yellow light 	Particulate detected, request parked/stationary regeneration	Emissions system page: Regeneration needed – highest level
Particulate detected and forced shutdown	100  2HZ Flashing	0100 	Red light 	Particulate detected, forced shutdown, the parked/stationary regeneration can only be done with the Deutz special diagnostic tools.	Emissions system page: Regeneration needed – highest level

3、Body and other parts

Load backrest

The load backrest ensures the stable loading of cargo. The forklift truck must not be operated without a load backrest.

Driver's seat



Driver’s seat adjustment lever

The driver’s seat adjustment lever is located on the left front side of the seat.

Push the lever right and hold it, and then slide the seat forward or backward to the desired position.

Release the lever and the seat will be locked in the desired position.

Before using the forklift, make sure the seat is locked in place.

Driver’s seat backrest adjustment button

The driver’s seat backrest adjustment button is located under the left armrest of the seat.

Depress the button and hold it, and then move the seat backrest forward or backward to the desired position.

Release the button and the seat backrest will be locked in the desired position.

Before using the forklift, make sure the seat backrest is locked in place.

Warning

a. The ignition key switch must be turned off before adjusting the driver's seat.

b. The seat position can be adjusted when the forklift truck has stopped.

Seat belt

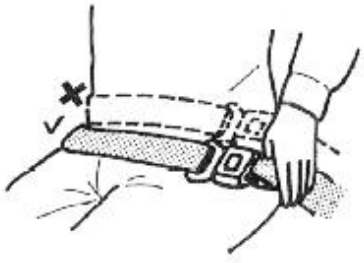
Fasten the seat belt

An auxiliary action is required before pulling out the seat belt which may require some familiarization.

One type of driver's seat: You need to press the white round button (with the text "press to release") with one hand, and then the seat belt can be pulled out with the other hand. Then, the belt can be inserted into the socket on the other side of the driver's seat.

You may also encounter another kind of driver's seat: The driver's seat with a rotating seat belt box. When the seat belt box is rotated forward, the seat belt cannot be pulled out; when the box is rotated backward, the seat belt can be pulled out and inserted into the socket on the other side of the driver's seat; the seat belt box has to be rotated forward again to return to the normal working position.

Your back and waist should be as close to the driver's seat as possible when fastening the seat belt. Do not fasten the seat belt at the abdomen.



Do not tilt the backrest too much; otherwise, the seat belt will not be extended correctly.

Do not knot or twist the belt.

Keep the seat belt fastened tightly during daily operation to protect yourself and reduce injury if the forklift rolls over.

Unfasten the seat belt



Press the red button (with the text "PRESS") on the socket with your left thumb to unfasten the seat belt.

Check the seat belt

Frequently check whether the bolt to fix the seat belt is secure. Do not press the seat belt on hard or fragile objects and do not rub the seat belt with sharp objects to avoid damage.

Do not disassemble components on the seat belt without permission. Visual inspections should be routinely conducted for belts that have been used frequently.

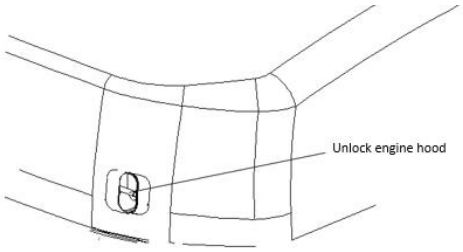
- Cutting or fraying;
- Wear or damage of metal parts, including the locating point;
- Buckle or retractor fault;
- Belt rips or tears.

If any abnormality is found, a new belt should be fitted immediately; the service life of the belt is 3 years; if any abnormality is found, the belt should be replaced in advance.

Overhead guard

The overhead guard protects the operator from falling objects. It must have sufficient impact strength. The forklift truck must not be used without an overhead guard.

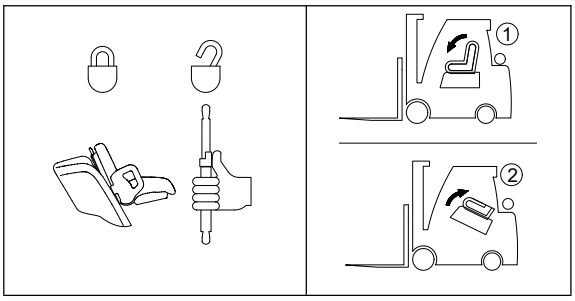
Lock catch components



In order to prevent the internal combustion engine hood from being opened without permission, the truck is fitted with a locking hood; in order to open the internal combustion engine hood, the lock handle should be pulled. The internal combustion engine hood can then be released.

Internal combustion engine hood

The internal combustion engine hood with a large opening is convenient for service and maintenance. The inner air strut of the internal combustion engine hood allows it to be fully opened with very little force.



Press the red button on the gas spring when closing; then, release the lock catch; press down the head of the internal combustion engine hood to close it; a click indicates that the hood has locked.

Caution

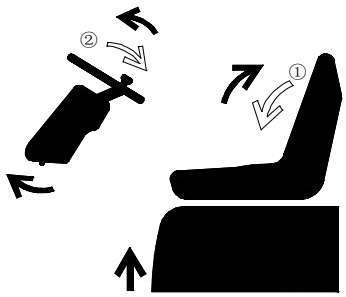
- In order to open the internal combustion engine hood, a key is required. Position the key horizontally and push backward to open the engine hood.
- Take care to prevent your fingers from being trapped by the hood when closing.

Warning

The engine must be shut down when maintenance and repairs are carried out under the internal combustion engine hood. Take care to prevent your hands or other body parts from being trapped by moving parts. However, provided the hands, feet, head, and body do not touch the components, it is permissible to open the internal combustion engine hood without turning off the engine in order to diagnose the fault by listening for abnormal noises.

Move the steering wheel forward and lean the backrest forward before opening the engine hood.

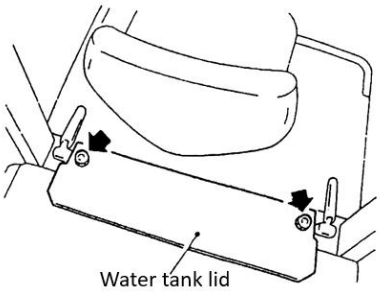
Return the steering wheel and backrest to their original positions after closing the engine hood.



Water tank cover plate

The water tank cover plate can be removed when the internal combustion engine hood is closed to check the coolant quantity.

The water tank cover plate is secured with hex bolts, which should be loosened using a socket wrench before removal; when reinstalling, use the socket wrench to tighten the bolts properly.



Trucks exported to Europe should be fixed with a hexagon bolt; before moving, it should be released with a socket spanner; the bolt should be tightened with a socket spanner during reinstallation

Water tank lid and additional water tank

The additional water tank is under the internal combustion engine hood.

The water tank lid is under the rear cover

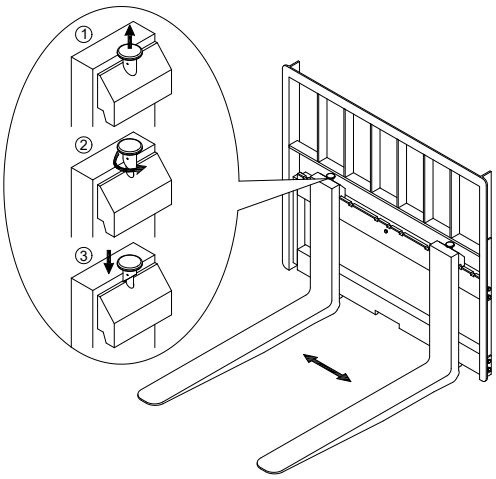
plate of the internal combustion engine hood.

Danger

- Do not open the water tank lid when the engine water temperature is higher than 70℃. Press the lid down and slightly rotate it to the left to reduce the pressure in the water tank.
- Do not open the water tank lid when wearing gloves.
- The antifreeze is corrosive and toxic and should be rinsed off if your skin and body are exposed to it. Keep children away from the antifreeze.

Fork positioning pin

Used for adjusting the fork spacing. Pull out the positioner, rotate by 180°, and adjust the forks to the required position for the cargo to be unloaded.

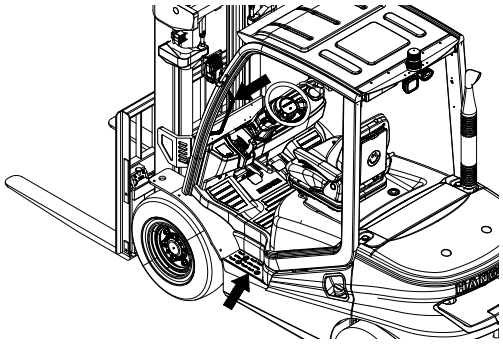


Warning

- The fork spacing adjustment should be based on the center line of the forklift truck and symmetrical on the left and right sides; the stop dowel should be tight after adjusting.
- There is an opening on the lower beam of the fork arm carrier for loading and unloading forks.
- Do not use the fork in the open position to prevent the fork from falling off from the open position. Regularly check the bolt in the middle of the fork arm, which prevents the fork from being used in the open position.

Step and handrail for getting on and off the forklift truck

The body is provided with a step for getting on and off on left sides; the handrails are installed on the left pillars of the overhead guard. Please use the handrails for safety when getting on and off the forklift truck.

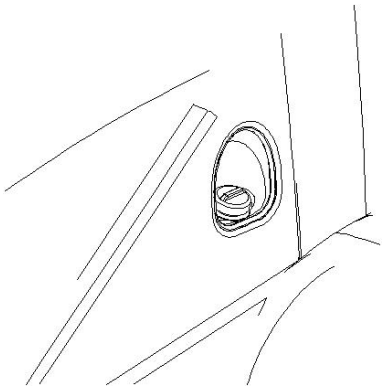


Hydraulic oil tank lid

The hydraulic oil tank lid is on the right frame of the internal combustion engine hood that can be opened when refilling. Replenish with clean hydraulic oil through the oil filling

port and screw down the lid after refilling.

Fuel tank lid



The fuel tank lid is on the left rear side of the body. There is a vent in the fuel oil tank and the vent should be checked for blockages when refuelling.

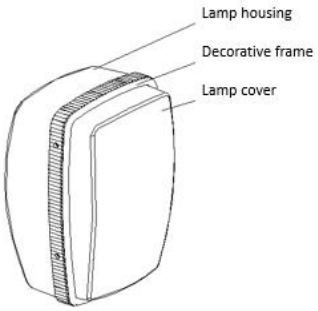
Caution

- When refueling, the forklift truck must be stopped, the engine must be shut down, and the handbrake lever must be engaged; the driver must get off the truck and there should be no naked flames nearby.
- The lid must be screwed down after refueling; otherwise, the fuel will leak which may result in a fire.
- The engine can be started only after wiping up the spilled fuel.
- Naked flames are prohibited when checking the fuel level.

Mirror

A mirror is installed on the upper right of the overhead guard for observing conditions behind the truck or when reversing.

Headlights



Headlight removal and installation

1、Remove the decorative frame.

2、Unscrew the four screws on the back of the headlight cover and remove it.

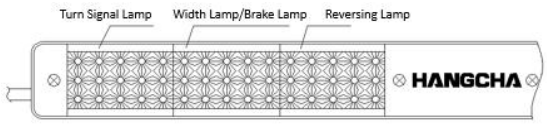
3、Disconnect the headlight leads, loosen the lock, remove the headlight, replace the bulb with a new one and then fit the cover.

4、Loosen the two fixing screws on the width light, take it out to check for any damage; if it is damaged, cut the lead wire near the soldering point, replace the panel with a new one, re-solder it to its original position and put it back in.

5、Rotate the turn signal light in the opposite direction of the arrow on the back of the light, take it out, replace with a new bulb and put it back in.

6、Close its cover, screw on and reinstall the decorative frame.

Rear combination light



Disassemble the rear combination light from the overhead guard while taking care to ensure your safety.

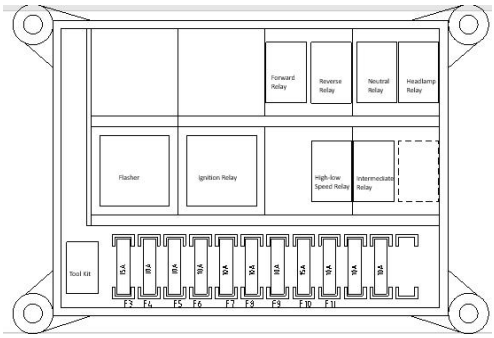
1、Take the whole combination light to the maintenance site, remove the rear lampshade, and unscrew the four mounting screws on the back of the lamp housing;

2、Take out the panel, loosen the two screws that fix the connector, disconnect the connector, and replace with a new panel;

3、The assembly steps are a reverse of the disassembly ones.

Fuses and relays

If a fuse or relay is damaged, it should be replaced. See the following figure:



① If a fuse is damaged, the cause must be found before replacement.

② Do not use fuses with a rated current greater than the designed value.

Bus circuit fuse

Two 55A fuses should be used.

The bus circuit fuse box is mounted under the battery positive lead and consists of two 55A fuses, which protect the bus circuit of the electrical system.

Accumulator

This forklift truck is equipped with an accumulator. Braking pressure will be generated only when the engine is started and the brake is fully depressed or a steering operation is made. The brake pedal should be depressed for 10s after the engine is started. If brake pressure is not generated, the alarm will give a continuous warning.

Warning

- Depress the brake pedal several times after the engine is started, so that the accumulator generates pressure quickly.
- After the engine is stopped, the driver can still brake several times (3-5 times, this varies based on the vehicle type). After this the forklift truck cannot be braked as the accumulator energy has been depleted. In case of emergency, engage the hand brake to slow down the forklift truck, rather than jumping out of it.
- Do not coast down ramps after the engine has stopped. The user should engage the hand brake first and then start the engine. Do not start the engine by coasting if the engine cannot be started normally. This is very important to your safety.

Warning

- Stop the engine and continuously depress the brake pedal 5-10 times to release the accumulator energy before maintaining the brake system or hydraulic system. Otherwise, the safety of maintenance staff may be endangered.

Caution

- If the pressure switch sounds an alarm when the key switch is in the "ON" position, the driver should start the engine and depress the brake pedal to its limit position for more than 10s. The alarm will be canceled after the accumulator generates pressure.

V、Operation

Warning

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

1、Start-up

① Pull the shift lever in the neutral position.

②Start after rotating the starting switch to "" position, and then put the key back to " | ".

Caution

- If the truck fails to start within 5s, the starting switch should be rotated to "O" and the truck should be restarted after an interval of 2 min.
- ·If the truck fails to start three consecutive times, the cause should be investigated.

Caution

- When the ambient temperature is lower than -5℃, the key should be rotated rightward to its limit position for preheating; and then start the forklift truck after the preheat indicator light turns off.

After the engine is started

①Preheat the engine for about 5min.

②Check the engine operating state.

Caution

- Depress the accelerator to make it run at an intermediate speed (1,800 - 2,000 r/min) after the diesel engine is started; to preheat the engine without load.

· Check the compression (no ignition) sound.

· Check exhaust conditions.

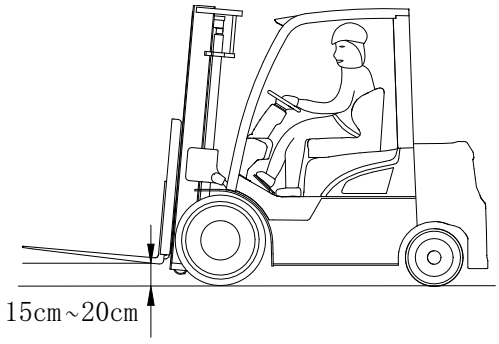
· Confirm that all indicator lights have turned off.

· Operate the multiway valve control lever 2-3 times throughout the process and check the operation of the mast after the engine is fully preheated.

2、Operation

① Hold the steering wheel lever with your left hand. Put your right hand on the steering wheel gently to get ready for loading/unloading operations.

② When the distance between the fork bottom and the ground is 15cm-20cm (0.59in-0.78in), the mast will tilt backwards in place.



③ Look around the forklift truck to see if there are any pedestrians and sound the horn.

④ Step on the brake pedal and operate the front/rear changeover switch.

⑤ Release the hand brake.

⑥ When the brake pedal is released and the accelerator pedal is depressed, the truck will start moving.

Gear shift

①Stop the truck before shifting gear.

②Toggle the shift lever.

Slowing down

Gradually release the accelerator pedal, and step on the brake pedal, if necessary.

Steering

The forklift truck is different from ordinary vehicles, because its rear wheels are used for steering; the rear counterweight is rotated outwards at the time of steering.

Slow down and rotate the steering wheel towards the side to turn; the steering wheel needs to be rotated a little bit earlier than front steered vehicles.

3、Reverse driving

① Observe the surrounding environment carefully, and if necessary, get out of the vehicle to check.

② Select your reversing target, and once you've shifted into reverse and started moving, slow down and drive carefully, paying attention to the surrounding conditions and making constant adjustments to your direction.

③ Straight-line reversing: Keep the rear wheels aligned straight, and when making corrections, make small and precise movements with the steering wheel.

④ Curved reversing: At this time, pay special attention to the characteristic of the forklift's rear wheels being the steering wheels and the characteristic of the outer end of the counterweight swinging outwards. Consider whether the inner rear wheel and the outer steering wheel might drive off the road or collide with people or objects.

⑤ When reversing, you can choose to focus on the rear, the side, or use the rearview mirror for guidance, or be directed by a spotter. Aim to align the longitudinal centerline of the forklift with the center of the target, or have the vehicle's side edge or wheel close to the target's edge.

Danger

When reversing on a slope, do not turn to avoid the risk of vehicle overturning!

Caution

- When reversing, pay special attention to the direction of travel.
- When carrying large-volume cargo that obstructs the view, you should reverse or be guided by a spotter. When guided by a spotter, it is essential to fully understand the meaning of their hand signals, flags, whistles, or other signals. When turning or driving in narrow passages, you must be very cautious about the front end and be mindful of other people.

4、Stopping or parking the truck

①Slow down and step the brake pedal to stop the truck (in the case of clutch type machine, the clutch pedal is used).

②Place the shift lever in neutral.

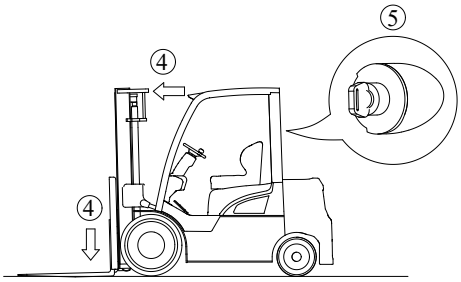
③Apply the parking brake.

④Lower the forks on the ground, and tilt the mast all the way forward.

⑤Place the key switch in “O” position to shut down the engine. For diesel trucks, pull out the engine stop button. Remove the key and take it with you.

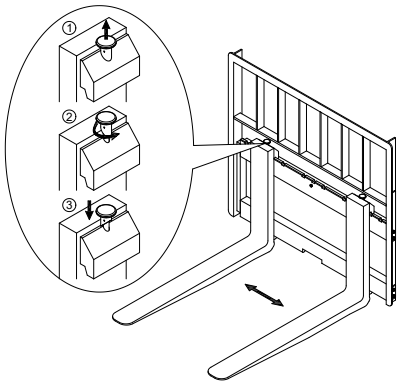
Warning

- Be careful to get off,Never jump off the truck.
- Do not park the truck on travelling route.



5、Pick up

① The forks should be adjusted sidewise to maintain proper balance of load.



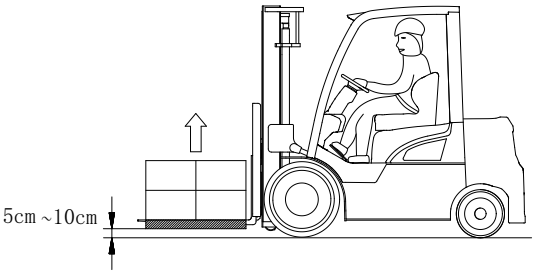
② Place the truck in front of the load to be handled.

③ The pallet should be evenly positioned across both forks

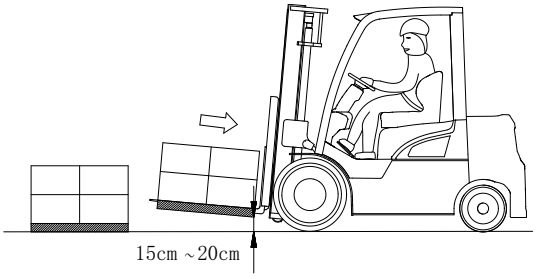
④ Insert forks into the pallet as far as possible.

⑤ To raise loads from the ground：

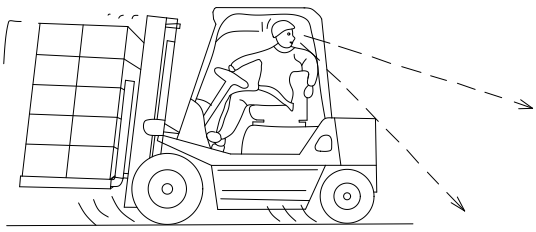
a）First lift the forks 5 cm (1.97in) to 10 cm (3.93in) off the ground or floor and make sure loads rest stable.



b）Then, tilt the mast backwards fully and lift loads up to 5 cm (1.97in) to 10 cm (3.93in) off ground then start moving.



⑥ When handling bulky loads which restrict your vision, operate the truck in reverse except when climbing grades.



6、Stacking load

① Slow down when approaching the load deposit area.

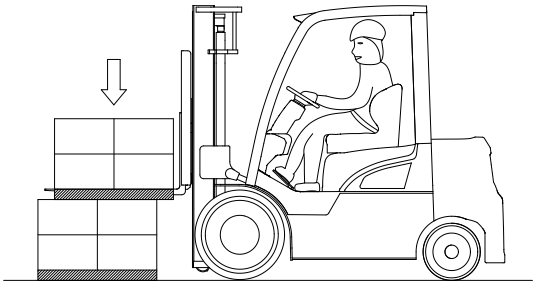
② Stop the truck right in front of the area where your load is to be deposited.

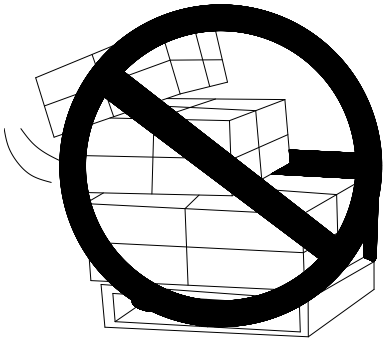
③ Check the condition of the deposit area.

④ Tilt the mast forward until forks become horizontal. Raise forks until they are a little higher than the deposit position.

⑤ Move forward to place the load directly over the desired area and stop the truck.

⑥ Make sure your load is just over the desired area. Slowly lower the load into position. Make sure the load is securely stacked.





Warning

The goods should be stacked in the center.

⑦ Disengage forks from the load by using necessary lift-tilt operation and then back away.

⑧ After making sure the fork tips leave the load, lower the forks to the basic position (15cm(5.91in) to 20 cm (7.87in) off the ground).

⑨ Tilt the mast backwards.

Warning

- Never tilt the mast with loads upraised 2m(6.56ft) or more.
- Don’t leave or dismount from the truck when the load is raised high.

7、Remove load

① Slow down when approaching the area where the load is to be retrieved.

② Stop the truck about 30cm(11.81in) away from the loads.

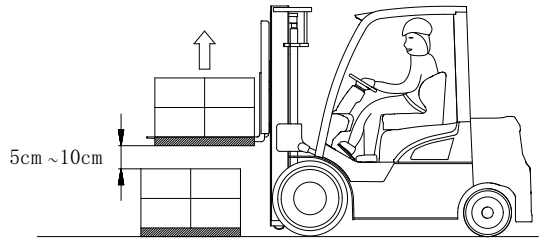
③ Check the condition of the loads.

④ Tilt the mast forward until forks become horizontal. Elevate forks up to the position of the pallet or skid.

⑤ Make sure forks are positioned properly for the pallet. Move forward slowly to insert forks into the pallet as far as possible and then stop the truck.

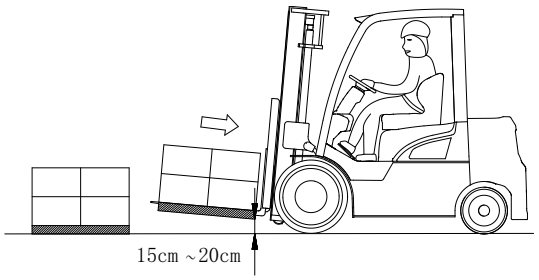
> ⚠ Caution
>
> If the forks cannot be fully inserted, use the following procedure: move forward and insert the forks 3/4 of the way. Raise the forks 5 cm (1.97in) to 10 cm (3.93in) and move backward 10cm(3.93in) to 20 cm(7.87in) with the pallet or skid on the forks, then lower the pallet or skid on the stack. Move forward again to insert the forks fully.

⑥ Raise the forks 5 cm (1.97in) to 10 cm (3.93in) off the stack.



⑦ Check all around the truck to insure that the path of travel is unobstructed and back away slowly.

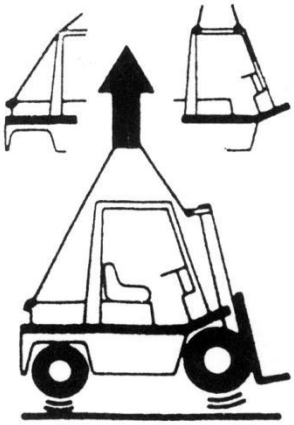
⑧ Lower forks to a height of 15cm(5.91in) to 20 cm (7.87in) above the ground. Tilt the mast backward fully and move to the desired area.



VI、Lifting, handling and towing of the forklift truck

Lift the forklift truck

Tie the steel rope on the lifting hole and counterweight lifting hook at both ends of the beam of outer mast firmly and lift the forklift truck with the lifting device.

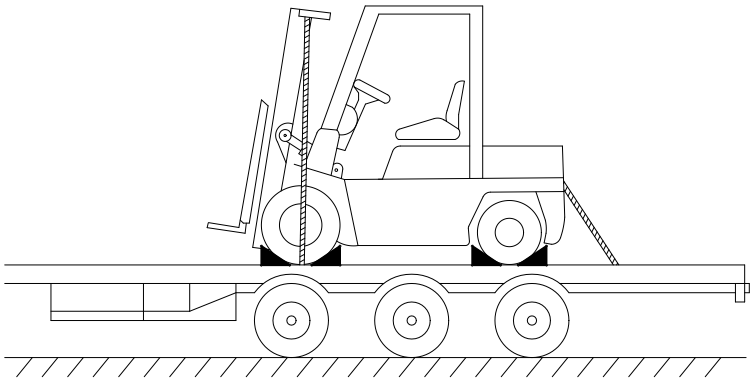


Warning

- Only lifting tools with adequate load capacity should be used.
- When lifting a forklift, ensure not to entangle the steel wire rope with the overhead guard frame.
- The steel wire rope and lifting device must be very sturdy, capable of safely supporting the forklift, as forklifts are extremely heavy.
- Never use the cab frame (overhead guard frame) to lift the forklift.
- When lifting a forklift, never enter under the forklift.

Handling

The forklift can be used for loading and unloading and short distance transport, but should not be used for long distance transport. If the forklift is transported over a long distance, it should be handled with a ship, train or vehicle with a load capacity of more than 7t. Chock the wheels with wedges firmly and tie the body down firmly at the same time to protect the truck from sliding during transport.



Warning

- When securing a forklift, effective measures must be taken according to the specific situation to ensure the safety of transportation.
- Forklifts must be properly secured when being transported using a truck or trailer.
- Use chocks to secure the forklift to prevent accidental movement.
- Only tension straps or lashing straps with a sufficiently high nominal strength should be used to secure the forklift.

Towing

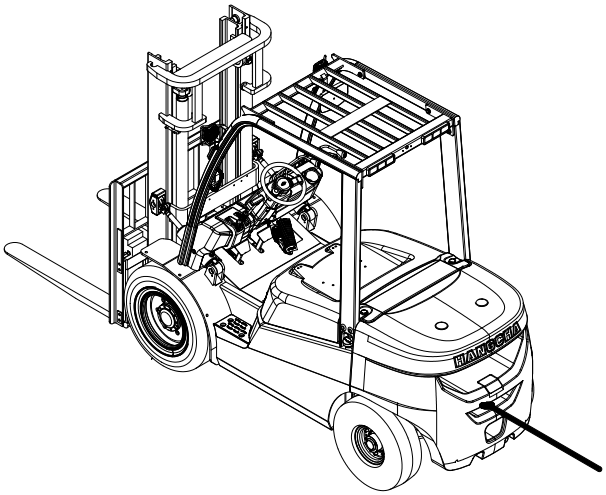
The towing rod on the bottom of the counter balance is only used to pull and drag the forklift truck, for installing the rod, first remove the towing rod and then install the ropes. After that, replace the rod

Caution

Release the handbrake lever.

Towing method for damaged truck:

Release the handbrake lever. Pull the shift lever into the neutral position. Pay attention to traffic safety and hang the towing sign.



Warning

- Do not tow trucks with defective steering systems or damaged brake systems.
- Obey traffic rules when towing a truck on the way.
- Only attach the steel rope to the specified position.
- Do not suddenly apply load on the steel rope.

VII、First use of forklift

When forklifts are transported, it is common for the forks or masts to be removed to prevent damage and facilitate shipping. Before the first use of the forklift, the operator should carry out the corresponding installation procedures.

Warning

- The installation of forks and the mast is permitted only by service personnel designated by our company.
- The hydraulic lines of the mast are to be connected to the main hydraulic lines of the forklift only after the mast has been corre
- The forklift is allowed to be used for the first time only after the hydraulic lines have been correctly connected.
- When transporting multiple forklifts, ensure that the forks, masts, and the main body of the forklifts correspond correctly when reinstalling. Do not interchange forks and masts arbitrarily.

Caution

Installation of forks and mast is detailed in the service manual.

After the installation of the forks and the mast is complete, the following checks must also be conducted:

a）Inspect to ensure the equipment is complete;

b）Check that the engine oil level complies with the specifications;

c）Verify the hydraulic oil level complies with the specifications;

d）Inspect the gear oil and transmission fluid levels to ensure they meet the requirements;

e）Check that the brake fluid level is in accordance with the regulations;

f）Ensure the battery connections are securely fastened;

g）Check the electrolyte level in the battery (except for maintenance-free batteries);

h）Conduct other checks (refer to the daily maintenance items for inspection).

After the inspection is complete and no issues are found, the forklift may be used.

Warning

Only operators who have received training and possess the appropriate special vehicle operation license are permitted to operate the forklift.

VIII、Forklift cleaning

At the end of each workday, the forklift must be properly cleaned, which includes the following steps:

a）Rinse off all the hydraulic cylinder piston rods with water to remove any surface dirt and grime.

b）Use water to wash the mast, frame, counterweights, wheels, drive axle, and steering axle.

> Caution
>
> When rinsing, avoid splashing water onto the relevant electrical components.

c）Clean the instrument panel, the instrument guard, and the electrical components on the instrument guard with a clean, damp cloth.

d）Open the engine hood and clean the engine surface with a clean, damp cloth to remove any oil stains and other corrosive liquids.

> Danger
>
> Please wait until the engine has completely cooled down before cleaning it!

> Caution
>
> - Washing electrical components with water may cause damage. It is prohibited to wash all electrical components on the forklift with water.
> - The cleaning of electrical components can be carried out using a low-pressure vacuum tool or compressed air.
> - The use of steam cleaning equipment is prohibited.

IX、Disposal of scrapped forklifts.

When a forklift reaches its end of life and is scrapped, it must be handled in accordance with the current laws and regulations where the forklift is located. This is especially true for the disposal of replaced fluids, waste liquids, and batteries, which should be recycled and treated according to local environmental protection laws and regulations. They must not be arbitrarily poured or discarded to prevent environmental pollution.

X、Maintenance

1、Daily maintenance (8 hours)

1.Leakage check: Fuel, electrolyte, hydraulic oil, cooling liquid,and hydraulic transmission oil.

> ⚠ Warning
>
> Do not drive the truck if a fuel leak is found before work; start the engine only after eliminating the leakage.

Check whether there are any fuel leaks or water leaks in the engine, hydraulic pipe connectors, water tank and drive system by hand and visual inspection. Do not use naked flames.

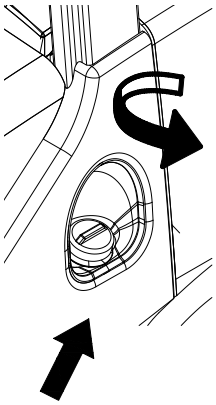
2.Visual inspection

Check whether lights and instruments work normally.

Check tires, air pressure and ensure the bolts are tight.

Check whether the tires are damaged and whether tire pressures are normal.

3.Fuel quantity check

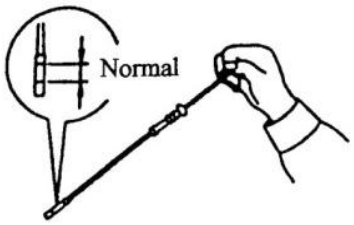


The fuel gauge is installed on the instrument panel to check the fuel level everyday before work. Fill up the fuel tank every day after work. The fuel filler is on the left leg of the overhead guard.

4.Engine oil level check

> ⚠ Warning
>
> - The forklift truck must be placed on a flat surface to conduct the oil level check.
> - When the engine has cooled, the level can be checked accurately.

Pull out the oil dipstick first, wipe the scale head, reinsert it and pull it out to check whether the oil level is between the two scale marks.



> ⚠ Warning
>
> - It is prohibited to mix engine lubricants from different brands.
> - If the brand of the new lubricant differs from the previous one, the remaining lubricant must be completely drained before adding the new lubricant.
> - For forklifts equipped with a Diesel Particulate Filter (DPF), a small amount of fuel may mix with the engine lubricant during the regeneration process, diluting the lubricant and increasing its volume. If the lubricant level is found to be above the upper limit of the oil dipstick, it indicates that the lubricant has been excessively diluted, which may lead to engine failure. Please immediately drain and add new lubricant to the level between the upper and lower marks on the oil dipstick.

- If the DPF regeneration interval is 5 hours or less, please replace the engine lubricant with new oil.

5.Engine coolant quantity check

Check the coolant level in the additional water tank when the engine is cool. If it is lower than “MIN”, it should be supplemented to “MAX”. If there is no coolant in the additional water tank, the coolant quantity in the main water tank should be checked. If the coolant quantity in the main water tank is insufficient, coolant with a freezing point of -36.5 ℃ should be added to the water tank; the coolant should be added to the “MAX” level of the additional water tank.

Danger

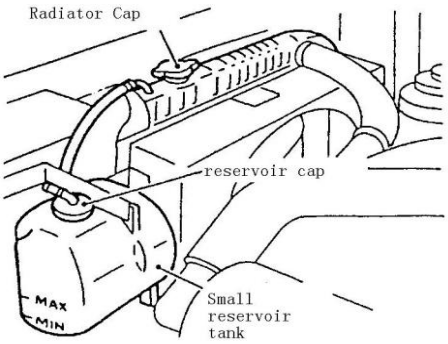
- Do not open the water tank lid when the engine water temperature is higher than 70℃. Press the lid and slowly turn to the left to allow the steam to escape, place a thin cloth around the lid and unscrew it.
- Do not screw in the water tank lid with gloves to avoid being scalded by high pressure hot water.

Warning

- Antifreeze contains substances harmful to the human body. If you swallow it by accident, you should induce vomiting immediately and go to hospital.
- Keep children away from the antifreeze.

Caution

- The water added to the water tank should be clean tap water. If antifreeze is used, the same type of antifreeze should be added.
- Pay special attention to the water tank and cooling system in hot seasons.



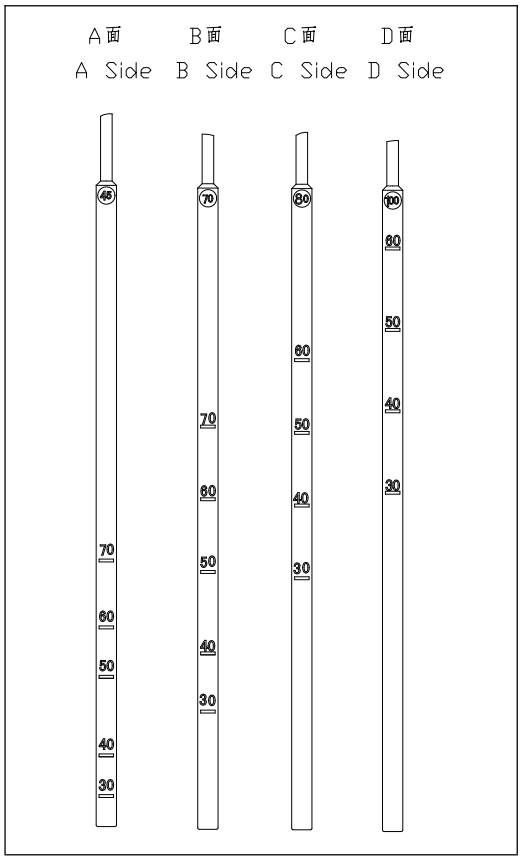
6.Hydraulic oil tank level check

Check the fuel quantity in the hydraulic oil tank

The “70” scale value is applicable to 5t-7t forklift trucks.

The “80” scale value is applicable to 8t forklift truck.

The “100” scale value is applicable to 10t forklift trucks.



Add the hydraulic oil and operate the forklift truck (to fill the pipeline with oil). When the mast is at the bottom, the hydraulic oil levels are listed as follows:

“ 30 ” refers to the hydraulic oil level applicable to the mast (including two-section full-free mast) with a lift height of no more than 3m;

“ 40 ” refers to the hydraulic oil level applicable to the mast (including two-section full-free mast) with a lift height of no more than 4m;

“ 50 ” refers to the hydraulic oil level applicable to the mast (including two-section/three-section full-free mast) with a lift height of no more than 5m;

“ 60 ” refers to the hydraulic oil level applicable to the mast (including two-section/three-section full-free mast) with a lift height of no more than 6m;

“ 70 ” refers to the hydraulic oil level applicable to the mast (including two-section/three-section full-free mast) with a lift height of no more than 7m.

7.Brake fluid quantity check

Check the brake fluid reservoir. Check whether the brake fluid quantity is within the scale; if the liquid quantity is insufficient, please top it up and check whether there is air in the brake line.

Caution

- Prevent dust and water from mixing when adding brake fluid.
- Brake fluid is toxic and corrosive and should be rinsed off if you are exposed to it.

Replacement of brake fluid

See the Daily maintenance (1000 hours)

8.Light check

Ensure that the lights turn on when the ignition key switch is on.

9.Indicator light check

Toggle the indicator light control lever and check whether the indicator light operates normally.

10.Hand brake check

① The truck slows down.

② The truck brakes and stops when the hand brake lever is pulled up. The truck must not swerve.

11.Reversing light and reversing buzzer check

When the shift lever is in the R position, the reversing light turns on and the reversing buzzer sounds.

12.Steering

① The truck should be driven slowly.

② Turn the steering wheel three turns clockwise and anticlockwise, respectively.

Check whether the left and right steering force are the same.

13.Horn

Press the horn button and check whether the sound is normal.

14.Seat adjustment and seat belt check

Pull the seat adjusting lever back, adjust the driver's seat to a comfortable position for your hands and feet, release the seat adjusting lever, and lock it.

Check whether the seat belt works normally.

15.Shift lever

Check whether the shift lever is loose and whether it is stable when shifting gear.

16.Lift lever, tilt lever and attachment lever

Check that the lift lever, tilt lever and attachment lever are secure and they return properly.

Increase the engine speed, respectively operate the lift lever, tilt lever, and attachment lever, and ensure that the forks can be fully lifted and lowered and the mast can tilt forward and backward.

17.Instruments and sensors

Check whether the stopwatch, water-thermometer, oil thermometer, transmission oil temperature sensor, fuel sensor, engine water temperature sensor, oil pressure sensor and others are normal.

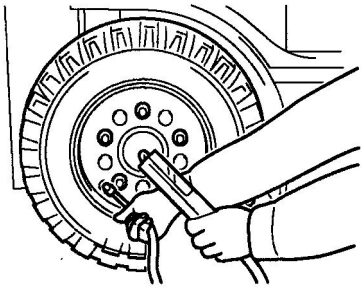
18.Brake and inching pedal check

Slow down and step on the brake pedal; after stepping on the brake pedal, the brake light should turn on.

Slow down and step on the inching pedal; check whether the inching pedal function is normal.

19.Tire check and tire pressure check

Screw the cap back on after confirming that there is no air leakage; check whether there is damage on the tire surfaces and sides and whether the rims are deformed.

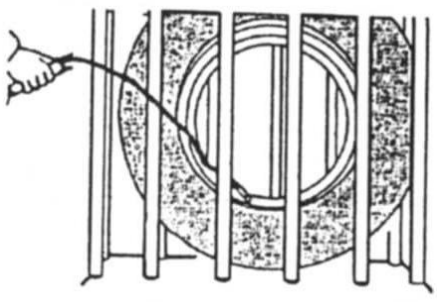


Unscrew the cap anticlockwise and measure the tire pressure with an air pressure gauge. Increase the pressure to the specified value if it is insufficient.

Warning

- The forklift truck tires require very high pressure to bear loads; tiny deformation of the rim or surface damage to the tire may cause an accident.

- When using an air compressor, as the maximum output pressure of the air compressor is higher than the specified pressure of tire, the pressure setting should be adjusted first, see the following table for pressure values; over pressurizing may cause a serious accident.
- In order to ensure safety, the tire should be placed in a protective frame during air inflation.



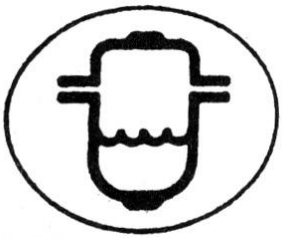
Tire pressures should adopt the new standard GB/T2982-2001:

Model	Driving wheels (front wheels)	Steering wheels (rear wheels)
5t-7t	830kPa	830kPa
8t-10t	760kPa	760kPa

20.Check if the differential lock function is normal.

21.Water drainage of the oil-water separator

Please drain the accumulated water if the fuel filter alarm light turns on while the engine is running.



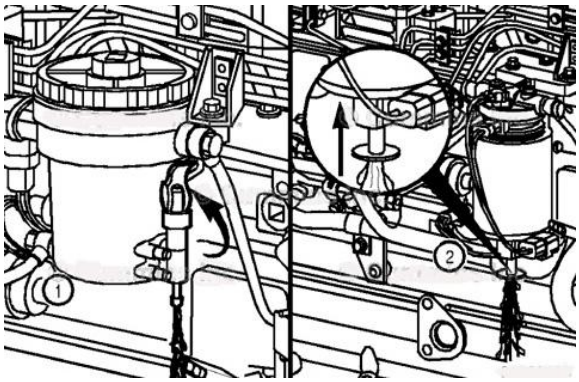
Tanked type:

① Turn off the engine;

② Place a container under the fuel filter;

③ Lift the drain valve lever until the fluid is completely drained from the drain tube and the fuel is clean;

④ Push up the drain lever until the fluid is completely drained from the tube.



Rotating type:

① Turn off the engine;

② Place a container under the fuel filter;

③ Open the drain valve by hand. Rotate the valve about 3.5 turns counterclockwise until the valve drops 25.4mm and starts to drain.

④ Drain the water in the separator until clean fuel is seen.

Caution

- Do not overtighten the valve when closing the drain valve. Overtightening will damage the threads. To close the valve, lift the valve and rotate it clockwise until it is tightened by hand.6

2、Weekly maintenance (40 hours)

Add the following maintenance items in addition to daily maintenance.

1.Air filter maintenance



Generally:

Please service the filter after the truck has worked for 50-250 hours.

Please replace the filter after six maintenance intervals.

> Caution
>
> If the truck is used in harsh working conditions, the maintenance and replacement cycle of the filter should be more frequent.

For trucks in a harsh working environment with a large amount of dust, the maintenance and replacement cycle should be shortened according to the actual situation, and it is recommended to maintain the filter every 8-50 hours and replace it with a new one every 100-300 hours.

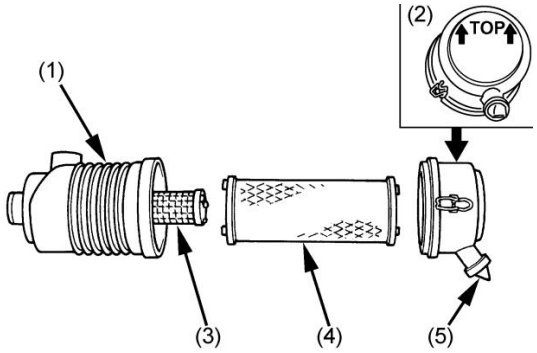
Precautions for maintenance:

① Maintain or replace the main filter cartridge when the resistance alarm light is on.

② It is not necessary to remove all the filter cartridges during the maintenance of the main filter cartridge since the safety filter cartridge does not need any maintenance.

③ If the main cartridge has been serviced 3 times or the resistance alarm light is still red or the alarm indicator light is still on after the maintenance, the main filter cartridge and the safety filter cartridge need to be replaced at the same time.

Maintenance procedures:



(1) Air filter housing (2) Dustproof cup

(3) Safety filter cartridge (4) Main filter cartridge

(5) Exhaust valve

① Under normal conditions, open the exhaust valve once a week and once a day when using in dusty areas. This will remove large particles of dust and dirt.

② If the inside of the air filter housing is dirty or wet, please wipe it clean with a cloth.

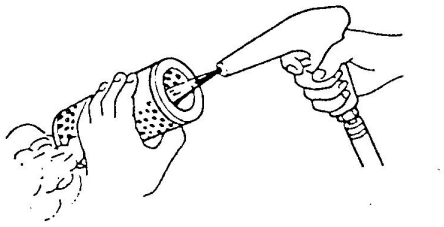
③Remove the end cover of the air filter.

④Take the main filter cartridge out.

> Caution
>
> Do not forcibly remove dirty filter elements or strike the filter housing with the filter element.

⑤Blow out the dust inside and outside the main filter cartridge with compressed air.

⑥Blow the filter elements clean from the inside out with dry compressed air at a pressure below 0.6 MPa, ensuring to clean the entire circumference.



Warning

Flying dust may get into your eyes, so protective glasses should be used before blowing.

⑦Please clean the inside of the filter housing with a clean, soft cloth, taking care not to drop any contaminants into the intake pipe.

⑧Reinstall the filter element and the air filter cover in sequence, and securely fasten the air filter clips.

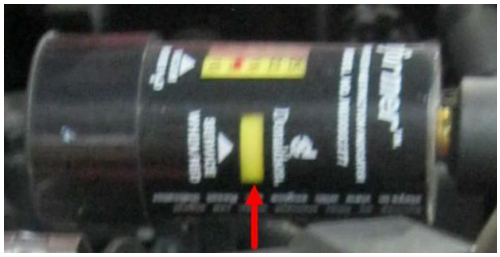
Caution

Failure to maintain and replace the filter cartridges in time as required will lead to premature engine wear.

For forklift trucks equipped with air filter maintenance indicators:



Scale line: Engine air intake resistance



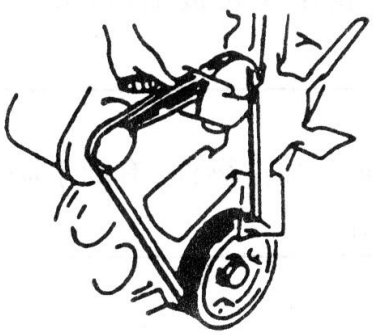
Viewing window	Engine air intake resistance
Yellow	No air intake resistance, no maintenance needed currently.
Yellow + Red	Slight air intake resistance, maintenance needed
Red or the air pressure is larger than 6.2kPa	Severe air intake resistance, maintenance required or replace the main filter cartridge

① It is not necessary to remove all the filter cartridges during the maintenance of the main filter cartridge since the safety filter cartridge does not need any maintenance.

② If the main cartridge has been serviced 3 times or the viewing window still shows red after the maintenance, the main filter cartridge and the safety filter cartridge need to be replaced at the same time.

③ After maintaining or replacing the filter cartridges, please press the reset button on its top to reset the viewing window.

2.Fan belt



①Shut the engine down.

> ⚠ Danger
>
> Do not check the belt sag while the engine is running to prevent fingers from being pinched or cuffs from being caught.

②Use your finger to apply 10kg force downward in the middle of the two pulleys to check whether the deflection complies with the specified value.

Engine	Deflection (mm)
TCD3.6 L4(f)	7～10
YCA05115-S500	10-15

Use your finger to apply 6kg force downward in the middle of the two pulleys to check whether the deflection complies with the specified value.

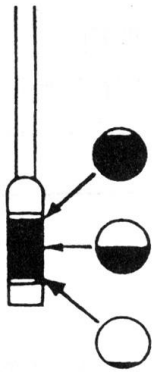
Engine	Deflection (mm)
PSI4.3（H20） PSI4.3（W24）	≤13

The Cummins engine is equipped with an auto-tensioning pulley, and the fan belt tension does not need to be adjusted.

> ⚠ Caution
>
> If the belt has been stretched beyond the adjustment margin or is cut or cracked, it should be replaced.

3.Hydrodynamic transmission oil level

Open the inspection cover, pull out the level scale and check whether the oil level is between the scale range.



4.Mast and fork inspection

Inspect the mast and fork to ensure that:

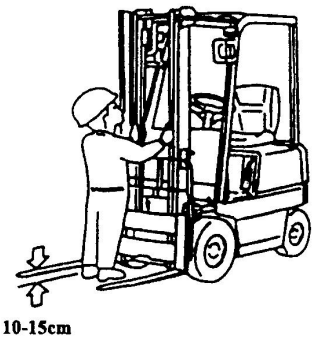
① The fork is not cracked or bent and is firmly and correctly mounted on the fork arm.

② Check the oil cylinder and oil pipe for any oil leakage.

③ Check the rotation of the rollers.

④ Check whether there are cracks or deformation in the mast.

⑤ Manipulate the lifting, tilting, and attachment handle to check whether the mast works normally and whether there is any abnormal noise.



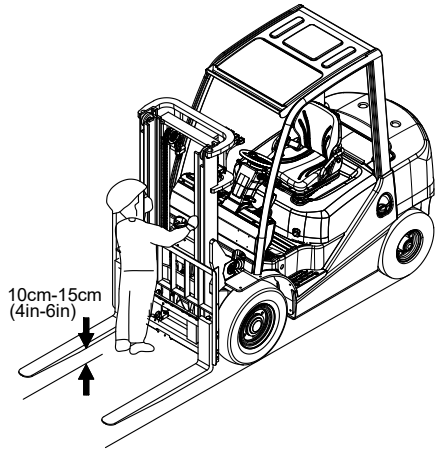
5.Chain tension check

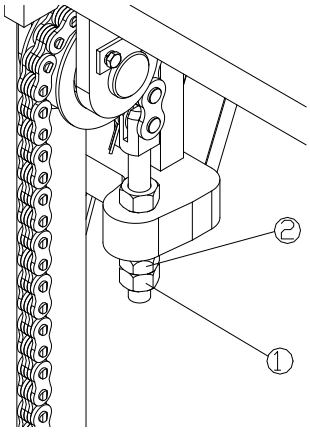
① Raise the fork by 10cm-15cm with the mast vertical.

② Press the middle of the chain with your thumb to check whether the tension of the left and right chains is the same.

③ Tension adjustment: loosen locknut 1,

screw nut 2 to adjust the chains so that the tension of the two chains is the same, and then tighten locknut 1.



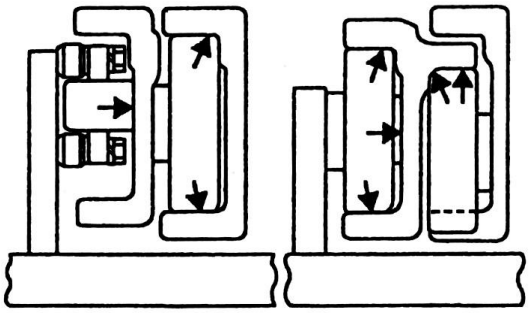


6.Lubrication of mast

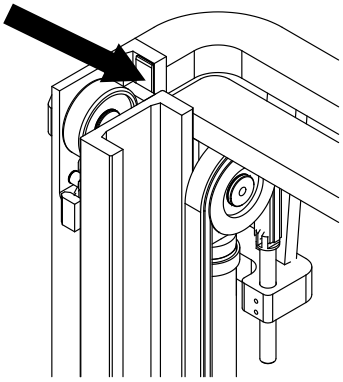
According to the requirements of the regular maintenance and lubrication cycle, the following parts should be lubricated regularly.

① The lubrication cycle should be changed according to the operating conditions. In the busy months of operation, the lubrication cycle should be shortened.

② In oder to ease the forklift operation, apply a layer of grease to the contact surface of the lifting guide wheel and the inner & outer mast.



Apply a layer of grease on the supporting guide rails.



Warning

When applying grease, park the forklift on a flat road, turn off the engine and engage the handbrake. Take care to avoid your hands and body from being caught when lubricating, and take care to avoid falling when lubricating at high level.

7.Chain lubrication

Use a brush dipped in engine oil to paint the chains on the left and right sides.

8.For the lubrication of the following parts, see

the Lubrication System Diagram for details.

① Lubrication of mast seat bearing;

② Lubrication of inching brake pedal;

③ Lubrication of steering axle support shaft;

④ Lubrication of steering knuckle spindle;

⑤ Lubrication of steering linkage pin;

⑥ Lubrication of steering cylinder pin.

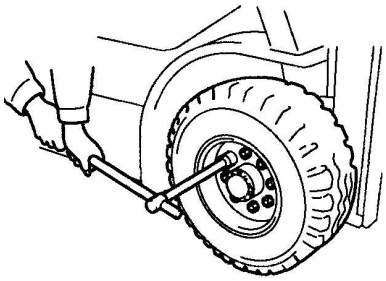
⑦Lubrication of the side-shifting attachment slider.

9.Bolt and nut tightening

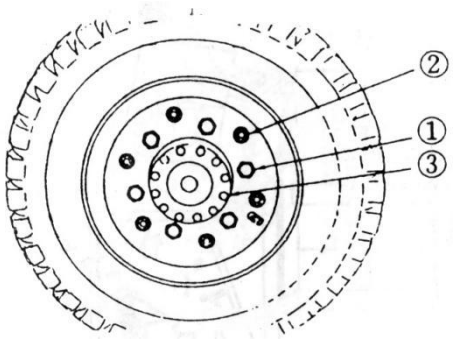
See the maintenance cycle table.

10.Tire nut tightening torque check

Check whether the tightening torque of the wheel nuts meets the requirements.



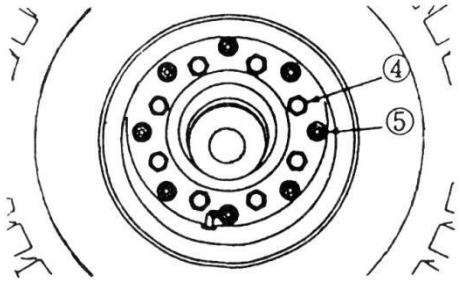
Driving wheel (front wheel)



① Wheel nuts; ② Split rim bolts; ③ Drive shaft bolts

Tightening torque N·m (ft·lb):		
Wheel nuts	5t-7t	441～558
	8t-10t	500～585
	8t-10t	500～585

Steering wheel (rear wheel)

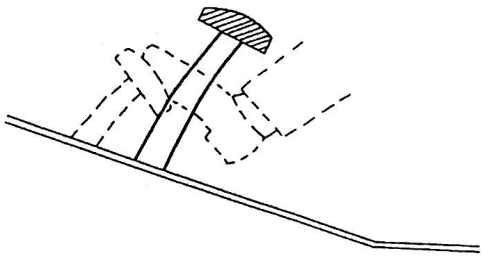


④ Rear wheel nuts;

Tightening torque N·m：		
Wheel nuts	5t-10t	441～588

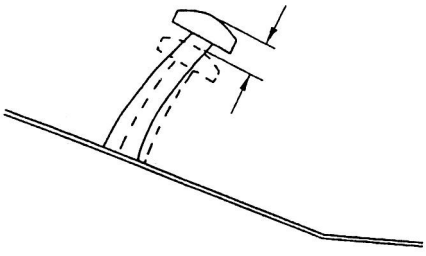
⑤ Split rear rim bolts.

11.Brake pedal, inching pedal and clutch check



With the engine still running, press the brake pedal fully down, the distance between the surface of the brake pedal and the floor should be 60mm or more.

Check the height of the inching pedal and clutch pedal in the same way.

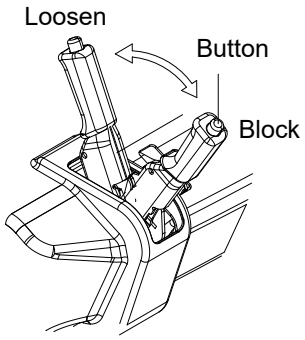


Height and clearance：mm

	Height mm	
Brake pedal	145±5	Push rod empty stroke:1-3 mm
Inching pedal	145±5	Inching pedal contact bolt- brake pedal: $2^{+0.5}$ mm

12.Handbrake

Make sure the handbrake handle acts normally after it is tightened and then loosened to its original position.



3、Every one and a half month maintenance (250 hours)

Add the following maintenance items in addition to the weekly maintenance.

1.Replace engine oil and oil filter (first at 50 hours, then every 250 to 500 hours thereafter. Please follow the replacement intervals specified in the engine manual).

① Start the engine, warm it up fully, and then turn it off.

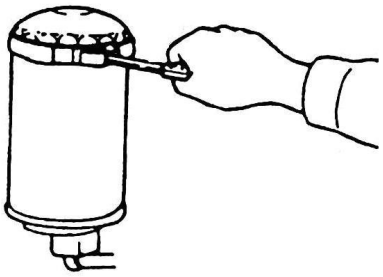
② Remove the oil filler cap and oil pan drain plug and drain the engine oil.

> **Warning**
>
> Be careful not to scald yourself as the engine oil may be hot.

> **Caution**
>
> Emulsified oil indicates that coolant is mixed in with the oil and the cause should be found and corrected.

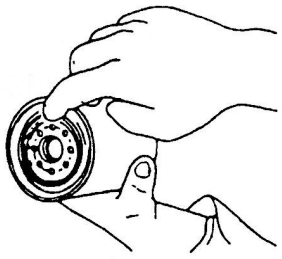
③ Wipe clean and install the drain plug and gasket. Tightening torque of oil drain plug: 29-39 N·m

④ Remove the oil filter with an appropriate tool.



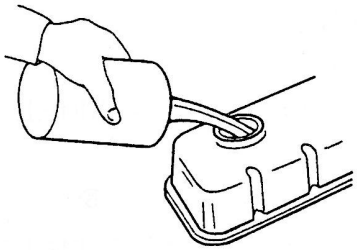
⑤ Wipe the oil filter mounting surface with a clean cloth.

⑥ Apply a small amount of oil to the rubber ring of the new oil filter.



⑦ Install the new oil filter by hand only, do not use a wrench to tighten it.

⑧ Refer to the Forklift Oil List and add the recommended oil.



⑨ Start the engine and check if there is any oil leakage in the area around the oil drain plug and oil filter.

If there is any visible leakage, it indicates that the part is not properly installed.

⑩ Warm up the engine sufficiently, then shut it down for a while to recheck the oil level. Add more engine oil if necessary.

When checking the oil level, the forklift should be parked on level ground.

> **Warning**
>
> - It is prohibited to mix engine lubricants from different brands.
> - If the brand of the new lubricant differs from the previous one, the remaining lubricant must be completely drained

before adding the new lubricant.

- For forklifts equipped with a Diesel Particulate Filter (DPF), a small amount of fuel may mix with the engine lubricant during the regeneration process, diluting the lubricant and increasing its volume. If the lubricant level is found to be above the upper limit of the oil dipstick, it indicates that the lubricant has been excessively diluted, which may lead to engine failure. Please immediately drain and add new lubricant to the level between the upper and lower marks on the oil dipstick.
- If the DPF regeneration interval is 5 hours or less, please replace the engine lubricant with new oil.

2.Add lubricating grease on the front and rear pins of the tilt cylinder.

Wipe the filling point clean and then squeeze out the old oil.

3.Check the drive axle housing gear oil and add more if necessary.

If the working environment is dusty, it is recommended that after the truck has worked for the first 100 hours, the gear oil in the drive axle housing should be changed.

4.Replace the transmission oil filter (only for the first time, and then every six months thereafter)

Check the fluid condition of the hydrodynamic transmission, taking into account the application environment, e.g. if the working environment is dusty, then the Automatic Transmission Fluid (ATF) should be changed. This is only applicable for the initial change.

① Park the forklift truck on a horizontal road, lower the forks to the ground, tilt the mast back, pull up the handbrake handle tightly, put the transmission in neutral and turn off the engine.

Danger

Hot hydraulic oil, ATF and associated parts may scald the human body. Do not allow them to come into contact with your skin.

② Remove the rubber gasket and front base.

③ Remove the filter and dispose of it according to local regulations.

④ Wipe the filter base and make sure the old gasket on the base has been removed.

⑤ Apply a small amount of ATF to the new filter cartridge gasket.

⑥ Fit the filter by hand. When the filter touches the base, re-tighten it 1/2 to 3/4 turn.

5.Change the hydrodynamic transmission ATF (only for the first 100 hours, and then every six months afterwards)

Park the forklift truck on a horizontal road, lower the forks to the ground, pull up the handbrake handle tightly, put the transmission in neutral and turn off the engine.

Danger

Hot hydraulic oil, ATF and associated parts may scald the human body. Do not

allow them to come into contact with your skin.

① Put a container under the transmission (with a volume of 20L or more).

② Remove the oil drain plug and drain the oil into the container.

③ Clean the oil drain plug and install it.

④ Take out the oil dipstick, add the ATF (see the Forklift Oil List) and then replace the dipstick.

⑤ Start the engine. With the brake pedal depressed, while the engine is idling, place the transmission in forward and reverse to prime the clutch.

⑥ Put the transmission in neutral and pull the hand brake up.

⑦ Remove the dipstick and observe the fluid level. If the fluid level is insufficient, add more ATF to keep the fluid level between the maximum scale line and the minimum scale line.

⑧ Check the filter and oil drain plug for any leakage.

⑨ Turn off the engine and install the front base.

6.Fuel system exhaust [diesel engines]

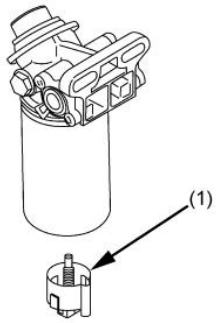
After adding fuel or in the process of draining water from the oil-water separator, it is also necessary to drain air from the fuel system.

① Loosen the handle of the oil-water separator.

② Keep pressing until no air comes out.

③Tighten the handle of the oil-water separator.

7.Oil-water separator water drainage [diesel engines]



(1)Exhaust valve

Rotating type:

① Turn off the engine;

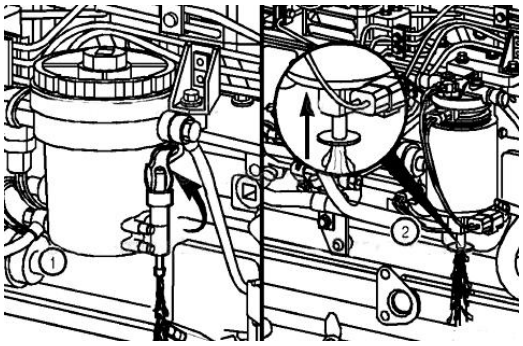
② Place a container under the fuel filter;

③ Open the drain valve by hand.

④ Drain the water in the separator until clean fuel is seen.

⚠ Caution

Do not overtighten when closing the drain valve. Overtightening will damage the threads. To close the valve, lift the valve and rotate it clockwise until it is hand tight.



Tanked type:

① Turn off the engine;

② Place a container under the fuel filter;

③ Lift the drain valve lever until the fluid is completely drained from the drain tube and the

fuel is clean;

④ Push up the drain lever until the fluid is completely drained from the tube.

8.Battery and electrolyte inspection

For details, please refer to the procedures for Using and Maintaining Lead-Acid Batteries.

9.Exhaust check

Colorless	Complete combustion - normal
Black	Incomplete combustion - abnormal
Blue	Engine oil burning - abnormal
White	Water in combustion chamber - abnormal

4、Semi-annual maintenance (1000 hours)

Add the following maintenance items in addition to the monthly maintenance.

1.Replacement of brake fluid (1.0t-X5.5t)

① Park the forklift truck on a horizontal road at the designated maintenance place, lower the forks to the ground, pull up the handbrake handle firmly, put the transmission in neutral and turn off the engine.

② Take off the rubber dust cap on the drain port, put the two ends of a prepared transparent hose in the drain port and the waste oil collection bottle respectively, and then use a wrench to loosen the drain port screw counterclockwise while the other person on the forklift repeatedly presses the brake pedal. The brake fluid will be sprayed from the drain port, pay attention to the level of the brake fluid reservoir, and add new brake fluid as the fluid level drops. Tighten the drain port screws after clear brake fluid flows out.

③ Repeatedly press the brake pedal to the bottom and hold it there while the person under the forklift loosens the drain port screws, then tightens the screws after clear brake fluid comes out and asks the person on the forklift to release the brake pedal. Repeat the above operation several times until there are no air bubbles in the released brake fluid. Pay attention to the fluid level in the brake fluid reservoir and add new brake fluid as the level drops.

Caution

- Prevent dust and water from mixing when adding brake fluid.
- Brake fluid is toxic and corrosive and should be rinsed off if you are exposed to it.

2.Lubrication of the steering wheel locking device

Apply lubricating grease to the steering wheel locking device.

3.Check, clean and replace the hydraulic return oil filter, breathing apparatus and filter screen

Park the forklift truck on a horizontal road, lower the forks to the ground, tilt the mast back,

pull up the handbrake handle firmly, put the transmission in neutral and turn off the engine.

① Loosen the bolts on the upper cover assembly of the hydraulic oil reservoir.

② Remove the return oil filter from the upper cover.

③ Install the new return oil filter by hand.

④ Remove the filter screen from the oil reservoir.

⑤ Install a new filter screen by hand.

⑥ Install the upper cover of the oil reservoir and tighten the bolts.

⑦ Remove the breathing apparatus, clean and dry the separate air filter screens with a clean and non-flammable cleaning agent.

⑧ Install the breathing apparatus.

⑨ Start the engine and operate the hydraulic system so that the entire system is primed with hydraulic oil. Check for leaks.

⑩ Turn off the engine to check the oil level. Retract all cylinder rods so that the oil level remains between the scales of the dipstick.

4.Check, clean and replace the fuel filter

> Caution
>
> In dusty or dirty operating environments, it is necessary to clean the fuel filter once a month and replace it every six months.

① Remove the fuel filter assembly.

② Remove the sensor assembly.

③ Install the existing sensor assembly and apply a little clean fuel to the filter sealing point before installing a new one.

> Caution
>
> Do not refill the filter with fuel before installation. Otherwise, it will accelerate the wear of the fuel system components.

④ Install the new filter assembly.

⑤ Turn the new filter until the gasket is attached to the sealing surface.

⑥ Tighten it by 2/3 turn.

5.Change the hydrodynamic transmission ATF

See the Change the hydrodynamic transmission ATF in Monthly Maintenance Sheet

6.Change drive axle gear oil (New vehicles need to have their first replacement after 100 hours of break-in)

Park the forklift on horizontal ground. Put it in neutral and turn off the engine.

① Take off the oil drain plug and drain the oil into a container. Clean the oil drain plug.

② Install the oil drain plug.

③ Remove the air vent plug and oil level plug. Add oil into the drive axle housing from the curved plug seat hole until the oil overflows from the horizontal plug hole. See the “Refilling Amount”.

④ Install the horizontal plug and curved plug holder.

⑤ Start the forklift truck. Make the engine idle and put the direction control handle in the neutral position.

⑥ Remove the horizontal plug. Maintain the oil level until the oil overflows.

5、Annual maintenance (2,000 hours)

Add the following maintenance items in addition to the semi-annual maintenance.

1.Change hydraulic oil

Park the forklift truck on a horizontal road, lower the forks to the ground, tilt the mast back, pull up the hand brake handle firmly, put the transmission in neutral and turn off the engine.

> ⚠ Danger
>
> Hot hydraulic oil, ATF and associated parts may scald the human body. Do not allow them to come into contact with your skin.

① Place a container (with a volume over 60 liters) under the hydraulic oil reservoir, remove the hydraulic oil reservoir drain plug and drain the hydraulic oil into the container.

② Remove the hydraulic oil dipstick and hydraulic oil reservoir cover.

③ Take out the magnet in the reservoir to clean it, and at the same time flush the drain port at the bottom of the reservoir with hydraulic oil.

④ Clean and install the oil drain plug.

⑤ Fill the hydraulic oil reservoir. See the Forklift Oil List. Install the hydraulic oil reservoir cover and dipstick.

⑥ Start the engine and operate the multi-valve lever and steering system to fill the whole system with hydraulic oil.

⑦ Check each hydraulic component and pipeline for oil leakage.

⑧ Turn off the engine, retract all the cylinder rods, and check the oil level of the hydraulic oil reservoir. Add hydraulic oil to the required scale line.

2.Change the front wheel bearing lubricating grease

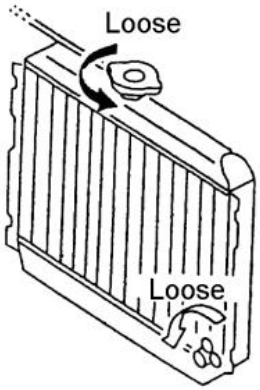
Refer to the content on the drive axle hub in the Maintenance Manual, disassemble the wheel bearing, and then change the grease.

3.Change rear wheel bearing lubricating grease

Refer to the content of the steering axle in the Maintenance Manual.

6、Two-yearly maintenance (4,000 hours)

1.Change the engine coolant



① Open the radiator cover and drain plug to drain the coolant, then flush the cooling system.

② Tighten the drain plug.

③ Fill the radiator with coolant up to the port.

④ Let the engine run fully.

⑤ Stop the engine, fill the radiator with coolant up to the port after it has cooled down completely, then add coolant into the reservoir to the Max. level.

⑥ Check if there is any leakage from the drain plug.

> **Danger**
>
> To avoid the risk of scalding, never change the coolant when the engine coolant temperature is higher than 70℃.

The engine coolant added must be an anti-rust & anti-freeze coolant. Refer to the Forklift Oil List.

7、Others

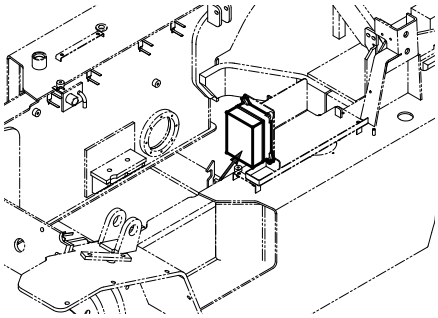
1..Fuses and relays

① Before replacing any defective fuse or relay, please find out the cause of failure.

② Replace the fuse with a new one of the correct specification.

The forklift control unit is installed on the left side of the engine inside the internal combustion engine hood.

See the Fuses and relays

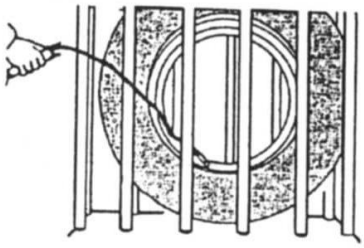




2.Tire replacement

Warning

- When using an air compressor, as the maximum output pressure of the air compressor is higher than the specified pressure of the tire, the pressure setting should be adjusted first; otherwise, it may cause a serious accident.
- In order to ensure safety, the tire should be placed in a protective frame during inflation.



Front wheel tires

①Park the forklift on level and solid ground.

②Start the engine and raise the mast by approximately 100 mm.

③Place wooden blocks behind the rear wheels to prevent the forklift from moving.

④Loosen each wheel nut 1-2 turns counterclockwise.

⑤Tilt the mast backward and place wooden blocks at the sides of the outer mast.

⑥Tilt the mast forward until the front wheels are lifted off the ground.

Warning

Do not loosen the nuts until the front wheels have been lifted off the ground.

⑦Place wooden blocks on each front side of the forklift frame to support the forklift and then turn off the engine.

Danger

- When only using wooden blocks to support the forklift, never enter under the forklift.
- The wooden blocks should be solid and strong enough.

⑧Remove the wheel nuts and replace the front wheels.

> **Warning**
>
> When removing the tire from the hub, the rim bolts and nuts should not be removed until deflating.

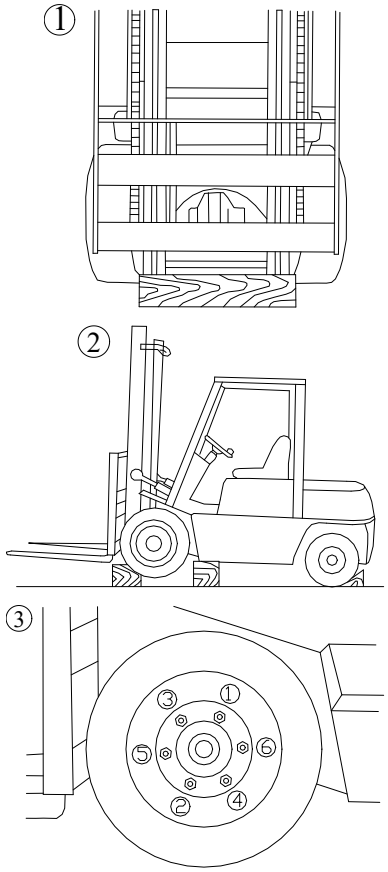
⑨Put on the nuts in sequence as shown in the diagram and lock them temporarily.

⑩Start the engine and remove the wooden blocks from the forklift frame.

⑪Tilt the forklift frame backward so that the forklift is slowly lowered, and then take out the wooden blocks under the forklift frame and at the rear wheels.

⑫Tighten the tire bolts symmetrically and crosswise in sequence.

⑬Adjust the tire pressure to the specified value.



Rear wheel tires

① Park the forklift on level and solid ground.

② Engage the hand brake and place wooden blocks behind the front wheels to prevent the forklift from moving.

③Place the jack at the bottom cut of the counterweight as shown in the diagram.

> **Warning**
>
> Make sure the minimum bearing weight of the jack is 2/3 of the total weight of the forklift truck.

④Loosen the nuts on the wheel 1-2 turns counterclockwise.

> **Warning**
>
> Do not remove the nuts until the rear wheels are lifted off the ground.

⑤Slowly lift the forklift with a jack until the rear wheels are completely off the ground. Place wooden blocks on each rear side of the forklift frame to support the forklift as shown in the diagram.

> **Danger**
>
> - The wooden blocks should be solid and strong enough.
> - When only using wooden blocks to support the forklift, never enter under the forklift.

⑥Remove the wheel nuts and replace the rear tires.

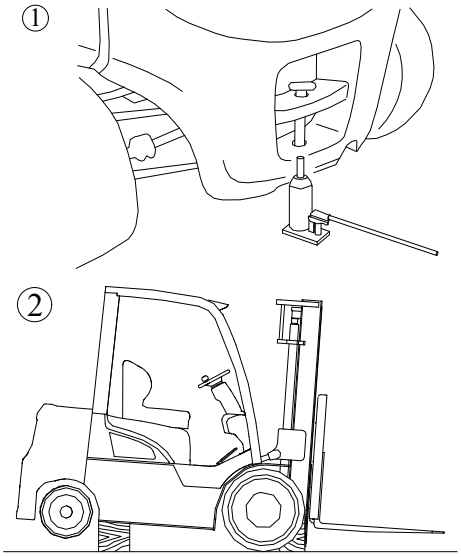
> **Warning**
>
> When removing the tire from the hub, the rim bolts and nuts should not be removed until deflating.

⑦ Put on the nuts in sequence as shown in the diagram and lock them temporarily.

⑧Remove the wooden blocks under the frame, lower the forklift slowly to the ground and remove the wooden blocks and jack behind the front wheels.

⑨Tighten the nuts to the specified torque in a crosswise manner. Please refer to the Tightening Torque Table.

⑩Adjust the tire pressure to meet the specified parameters.



3.Oil viscosity

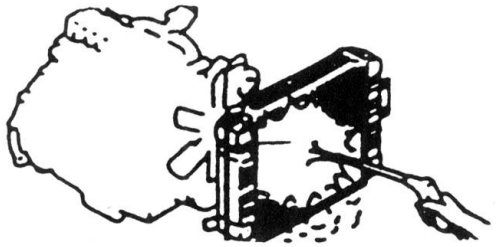
Select oil with an appropriate viscosity for the ambient temperature.

4.Clean the radiator fins

> ⚠ Warning
>
> Airborne dust may get into your eyes, so protective glasses or dust goggles should be used.

If the radiator fins are blocked it will cause overheating, so compressed air, steam or water should be used to blow the fins.

> ⚠ Caution
>
> When using compressed air or steam to clean the radiator fins, place the nozzle at a right angle to the radiator.



5.Operations for an overheated engine

If the engine is overheated, do not stop the engine immediately, the following steps should be taken:

①Run the engine at low speed.

②Open the hood to improve the ventilation.

③Stop the engine when the water temperature decreases.

④Check the coolant and add water if necessary.

6.DPF ash removal

The longer the DPF is run, the more ash (combustion residue) will be collected in the filter. Excessive ash accumulation can adversely affect DPF performance.

8、Regular maintenance schedule

Note:

①Do not repair forklifts without training.

② It is necessary to perform regular checks and maintenance to keep the performance of the truck at optimum.

③ When operating in dusty or polluted environments, it is necessary to increase the frequency of maintenance.

④Checks and maintenance are often neglected, so it is better to find the problems early and solve them in time.

⑤When changing or adding oil, do not use oil which is not the same as the original.

⑥If the engine power drops, there is any black smoke or engine noise becomes louder before the maintenance period arrives, inspection and checks should be carried out and the opening pressure of the diesel nozzle and fuel atomization state should be adjusted if necessary.

⑦The used oil/fluid and used battery should be recycled according to the local environmental protection laws and regulations to prevent pollution of the environment, rather than poured away or disposed of at will.

⑧Develop a comprehensive maintenance and repair plan.

⑨Complete records should be made after each maintenance and repair.

⑩Use the spare parts from Hangcha

⑪For engine maintenance, please refer to the engine manual.

○——Check, correction, adjustment

×——Replacement

8.1 Engine Regular Maintenance Schedule

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Engine	Visual inspection of the engine running condition (including sound, exhaust color)		○	○	○	○	○
	Clean or replace the air filter cartridge		○	○	○	×	×
	Oil-water separator water drainage (Diesel engines)			○	○	○	○
	Check crankcase and remove dirt				○	○	○
	Check and adjust valve clearance	Plug gauge		First time ○	○	○	○
	Tighten the cylinder head bolts	Torque wrench		First time ○	○	○	○
	Check cylinder compression pressure	Pressure gauge					
	Ignition plug (gasoline engine)			○	○	○	○
	Check the distributor block contact, lid and rotor (gasoline engine) (1)			○	○	○	○
	Check the distributor block interior (IC ignition system) (1)						○
LPG Engine	1. Check the LPG pipelines and the joints for any leakage (1)		○	○	○	○	○
	2. Drain the tar from the pressure reducing regulator		○	○	○	○	○
	3. Check the pipelines and the joints for any damage		○	○	○	○	○
	4. Check the LPG tank mounting bracket for any looseness or damage		○	○	○	○	○
	5. LPG Filter				○	○	×
Crankshaft ventilator	Check for clogged or damaged PCV valves and tubes					○	○
Speed controller or injection pump	Check maximum speed without load	Tachometer					○
Lubrication System	Check the engine for leaks		○	○	○	○	○
	Check the oil level and cleanliness		○	○	○	○	○

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
	Change the engine oil (1)			× First 50h	×	×	×
	Change the engine oil filter cartridge (1)			× First 50h	×	×	×
Fuel System	Visual inspection of oil pipes, oil pumps and oil tanks for leaks		○	○	○	○	○
	Replace the fuel filter			× First 50h	×	×	×
	Check the nozzle and adjust the pressure state (diesel engine) (2)	Fuel injection testbed			○	○	○
	Ignition timing (gasoline engine)			○	○	○	○
	Injection timing (diesel engine)						○
	Water drainage of fuel tank				○	○	○
	Clean the fuel tank					○	○
	Check the fuel amount		○	○	○	○	○
Cooling. System.	Coolant amount		○	○	○	○	○
	Check for any leakage		○	○	○	○	○
	Change the engine coolant						×
	Check the fan belt tension and check for any damage		○	○	○	○	○
	Clean the water tank outer surface			Monthly in summer	○	○	○
	Performance and mounting condition of water tank cover			○	○	○	○
	Condition of the inlet/outlet pipe					○	○
SCR system	Urea liquid level		○	○	○	○	○
	Check the urea liquid reservoir for any damage			○	○	○	○
	Check the pipes for any leakage			○	○	○	○

8.2 Drive system periodical maintenance schedule

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Hydraulic transmission gear box	Replace the oil absorption filter cartridge			× First time (200h)		×	×
	Leakage		○	○	○	○	○
	Check the oil amount or change it			× First time (200h)	○	×	×
	Idle running state of inching pedal.		○	○	○	○	○
	Performance of control valve and hydrodynamic clutch		○	○	○	○	○
	Performance of inching valve		○	○	○	○	○
	Operation and looseness of the shift lever.			○	○	○	○
	Hydraulic oil filter					×	×
Drive axle(Front axle)	Check the tightness and noise of the hub bearing.			○	○	○	○
	Clean and refill the lubricating oil					×	×
	Check for leakage		○	○	○	○	○
	Check the axle body for any deformation, cracks or damage				○	○	○
	Check the tightness of the bolts in the joints of the vehicle frame.				○	○	○
	Check the tightening torque of hub nuts.	Torque wrench	○	○	○	○	○

8.3 Wheel（front, rear wheel）periodical maintenance schedule

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Tire	Inflation pressure	Barometer	○	○	○	○	○
	Wear, cracks or damage		○	○	○	○	○
	Check the tires for any nails,stones or other foreign matter			○	○	○	○
	Damage to the rim		○	○	○	○	○
	Looseness of split rim bolts.	Test hammer	○	○	○	○	○

8.4 Steering system periodical maintenance schedule

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Steering wheel	Check the clearance		○	○	○	○	○
	Check the play in the axial direction		○	○	○	○	○
	Check the play in the radial direction		○	○	○	○	○
	Check the operating condition		○	○	○	○	○
Steering gear	Check the bolts for looseness			○	○	○	○
Steering Knuckle of rear axle	Check the pin for looseness			○	○	○	○
	Check for any deformation, cracks or damage			○	○	○	○
	Check the installation condition	Inspection hammer		○	○	○	○
Steering cylinder	Check operation condition		○	○	○	○	○
	Check for leakage		○	○	○	○	○
	Check for any looseness of the installation and knuckle joint			○	○	○	○

8.5 Regular Maintenance Schedule for Brake System

Maintenance Item	Maintenance Content	Tool	Daily (8h)	Every month and a half (250h)	Trimonthly (500h)	Semi-annually (1,000h)	Annually (2,000h)
Brake pedal	Idle running	Calibrated scale	○	○	○	○	○
	Pedal travel		○	○	○	○	○
	Check the operating condition		○	○	○	○	○
	Check the brake line for air		○	○	○	○	○
Parking brake operation	Check whether the brake is safe and reliable, and has enough travel.		○	○	○	○	○
	Operating performance		○	○	○	○	○
Rod, dragline, and others	Operating performance			○	○	○	○
	Check the joint for looseness			○	○	○	○

Pipelines	Damage, leaks, cracks			○	○	○	○
	Check the joint part, clamping part, check for any looseness			○	○	○	○
Brake master cylinder, Wheel cylinder	Leakage			○	○	○	○
	Check the oil level, change it		○	○	○	×	×
	Operating condition of brake master cylinder and wheel cylinder						○
	Check the brake master cylinder and wheel cylinder for any leaks or damage						○
	Check the brake master cylinder, piston cup and non-return valve for any wear or damage and replace if necessary.						×
Brake drum and Brake shoe	Check the components of the brake drum for any looseness	Inspection hammer		○	○	○	○
	Wear of friction lining	Vernier caliper					○
	Operating condition of brake shoe						○
	Check the fixed pin for any rusting						○
	Check the return spring for any damage	Calibrated scale					○
	Check whether the clearance is appropriate during the operating of the self-adjusting device						○
	Check the brake drum for any wear or damage						○
Brake backing plate	Check for any deformation						○
	Check for any cracks	Flaw detector					○
	Check for any looseness during the installation	Inspection hammer					○

8.6 Regular Maintenance Schedule for Hydraulic System

Maintenance Item	**Maintenance content**	**Tools**	**8h**	**250h**	**500h**	**1000h**	**2000h**
Hydraulic oil tank	Check the oil level or change it		○	○	○	○	×
	Clean the oil absorption filter					○	○
	Clear away any foreign objects					○	○
Control valve stem	Check the joint for looseness		○	○	○	○	○
	Check the operating condition		○	○	○	○	○
Filter	Check for any leakage			○	○	○	○
Multi-way valve	Check for any oil leakage		○	○	○	○	○
	Safety valve and tilt self-locking valve Check the operating condition			○	○	○	○
	Measure the safety valve pressure	Oil pressure gauge				○	○
Pipeline joint	Check for any leakage, looseness, fracture, deformation or damage		○	○	○	○	○
	Replace the pipe						× 1-2 years

8.7 Regular Maintenance Schedule for Electrical System

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Starting motor	Gear engagement				○	○	○
Storage battery	Check the electrolyte level and add more distilled water if necessary.			○	○	○	○
	Clean the storage battery				○	○	○
Wires	Wire harness damage, any looseness .			○	○	○	○
	Any looseness in circuit connections				○	○	○
Steering indicator light	Check the operating and installation condition		○	○	○	○	○
Horn	Check the operating and installation condition		○	○	○	○	○
Lights and bulbs	Check the operating and installation condition		○	○	○	○	○
Backup buzzer	Check the operating and installation condition		○	○	○	○	○
Display	Check the operating condition		○	○	○	○	○

8.8 Regular Maintenance Schedule for Lifting System

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Chain, Chain wheel	Check the chain tension and check for any deformation, damage or rust.		○	○	○	○	○
	Lubricate the chain			○	○	○	○
	Check the riveted pin for any looseness			○	○	○	○
	Check the chain wheel for any deformation or damage			○	○	○	○
	Check the chain wheel gear for any looseness			○	○	○	○
Attachments	Check the operating status			○	○	○	○
Lifting cylinder	Check the piston rod, the thread and joint for any looseness, deformation or damage.	Inspection hammer	○	○	○	○	○
	Check the operating condition		○	○	○	○	○
	Leakage		○	○	○	○	○
	Check the pin and steel-backed bearing of the cylinder for any wear or damage			○	○	○	○
Hydraulic pump	Check the hydraulic pump for any leakage or noise		○	○	○	○	○
	Check the driving gear of the hydraulic pump for any wear and tear			○	○	○	○
Fork	Check the forks for any damage, deformation or wear		○	○	○	○	○
	Check the positioner for any damage or wear				○	○	○
	Check the welded part of the hook at the root of fork for any cracks or wear			○	○	○	○
Mast Fork arm carrier	Check the welding between the inner/outer mast and beam for any cracks or damage			○	○	○	○
	Check the welding between the tilt cylinder frame and mast for any poor welding, cracks or damage			○	○	○	○

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
	Check the inner/outer mast for any poor welding, cracks or damage			○	○	○	○
	Check the fork arm for any poor welding, cracks or damage			○	○	○	○
	Check the roller for any looseness			○	○	○	○
	Check the bearing shaft bush of the mast for any wear or damage						○
	Check the bearing cap bolts of the mast for any looseness	Inspection hammer		○ (Only for the first time)	○	○	○
	Check the bolts at the bottom of the lifting cylinder, bolts at the top of piston rod, U-bolts and the bolts of the movable beam guide rail for any looseness	Inspection hammer		○ (Only for the first time)	○	○	○
	Check the roller, roller shaft and welding part for any cracks or damage			○	○	○	○

8.9 Regular Maintenance Schedule for Safety Devices and Accessories

Maintenance Item	Maintenance content	Tools	8h	250h	500h	1000h	2000h
Overhead guard and load backrest	Check whether they are secured	Inspection hammer	○	○	○	○	○
	Check for any deformation, cracks or damage		○	○	○	○	○
Rearview mirror	Check for any dirt or damage		○	○	○	○	○
	Check the rear visibility		○	○	○	○	○
Driver's seat	Check the bolts for looseness or damage					○	○
Forklift body	Check the frame and beam for any damage or cracks						○
	Check the rivets and bolts for any looseness						○
Apply lubricating grease or change the oil	Check the lubrication of the chassis after cleaning			○	○	○	○
	Check the oil in the reservoir						○
OPS system	Check the operating condition		○	○	○	○	○

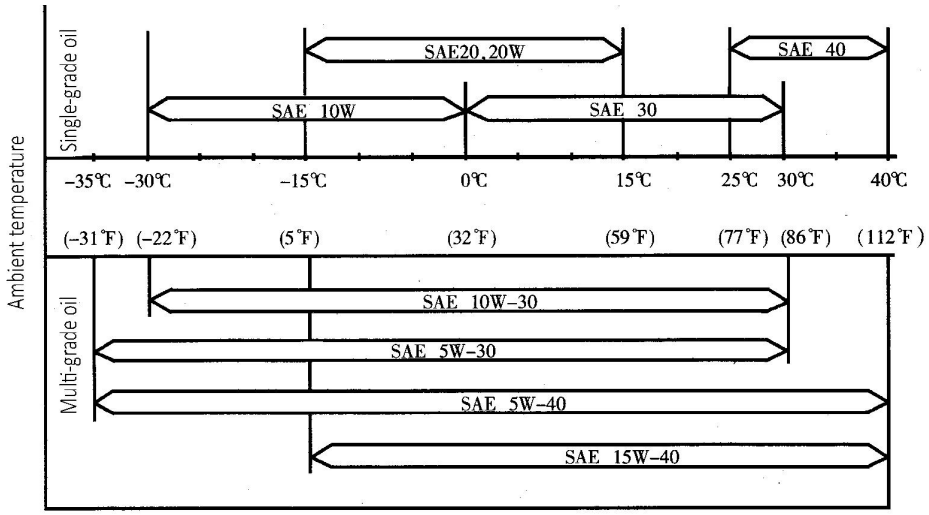
9、Forklift Oil List

<table>
<tr><th>Name</th><th>Model/Code</th><th>Volume (L)</th><th colspan="2">Remarks</th></tr>
<tr><td>LPG</td><td></td><td>40</td><td colspan="2">LPG forklift truck</td></tr>
<tr><td rowspan="2">Diesel</td><td rowspan="2">0# (Summer)
-10# to -35# (Winter)</td><td>110</td><td>5t-7t</td><td rowspan="2">For diesel forklift trucks</td></tr>
<tr><td>120</td><td>8t-10t</td></tr>
<tr><td>LPG engine oil</td><td>SF 5W/40</td><td>4.7</td><td colspan="2">LPG forklift truck</td></tr>
<tr><td>Diesel engine oil</td><td>APE SAE 15W/40, CJ-4/SJ</td><td>≈8.5</td><td colspan="2">For diesel forklift trucks (see the engine manual or dipstick scale)</td></tr>
<tr><td>Hydraulic oil</td><td>Normal weather: L—HM32
Severely cold environments: L—HV32</td><td>110-120</td><td colspan="2">Hydraulic oil reservoir</td></tr>
<tr><td rowspan="2">Automatic Transmissio n Fluid (ATF)</td><td>Mobil 424 gear oil</td><td>25</td><td colspan="2">ZF Transmission</td></tr>
<tr><td>DEXRON-Ⅲ transmission fluid</td><td>25</td><td colspan="2">Okamura transmission</td></tr>
<tr><td rowspan="2">Gear oil</td><td rowspan="2">85W/90 (GL-5)
Mobil 424 gear oil</td><td>12</td><td>5t-7t</td><td rowspan="2">Drive axle and hub reduction gear</td></tr>
<tr><td>17</td><td>8t-10t</td></tr>
<tr><td>Anti-rust & antifreeze coolant</td><td>FD-2 (Brand: Great Wall) multi-effect antifreeze coolant</td><td>23</td><td colspan="2">Water tank</td></tr>
<tr><td>Diesel Exhaust Fluid (DEF)</td><td>Meet the ISO 22441-1</td><td>12</td><td colspan="2">DPF reservoir</td></tr>
<tr><td>Grease</td><td>3# General purpose automotive lithium grease</td><td></td><td colspan="2">Each lubrication point</td></tr>
</table>

⚠ Caution

- The forklift truck was filled with anti-rust and antifreeze coolant at the factory. It is not necessary to drain the coolant even in winter. Fill its reservoir to the required level if necessary and change it once every 2-4 years.
- If the forklift truck was not filled with anti-rust and antifreeze coolant at the factory, the user can add it as required. In winter, the coolant must be drained out of forklift trucks not filled with anti-rust and antifreeze coolant.
- The last letter of the forklift model number is F1/F/B1/BN, which indicates the transmission type.
- Different brands of oil products cannot be mixed.
- Diesel forklifts are recommended to use diesel with a sulfur content of less than 15ppm, either 0# (summer) or -10# to -35# (winter). Long-term use of poor-quality diesel may pose a risk of engine damage.
- For the use of biodiesel, HVO fuel, or other types of fuel, please refer to the corresponding engine's manual (operation and maintenance instructions) before use, and ensure it is correct before proceeding.
- LPG engines are recommended to use HD-5 or equivalent liquefied petroleum gas. For other grades of liquefied petroleum gas, please refer to the corresponding engine's manual (operation and maintenance instructions) before use, and ensure it is correct before proceeding.
- Long-term use of liquefied petroleum gas that does not meet the requirements may pose a risk of engine damage.

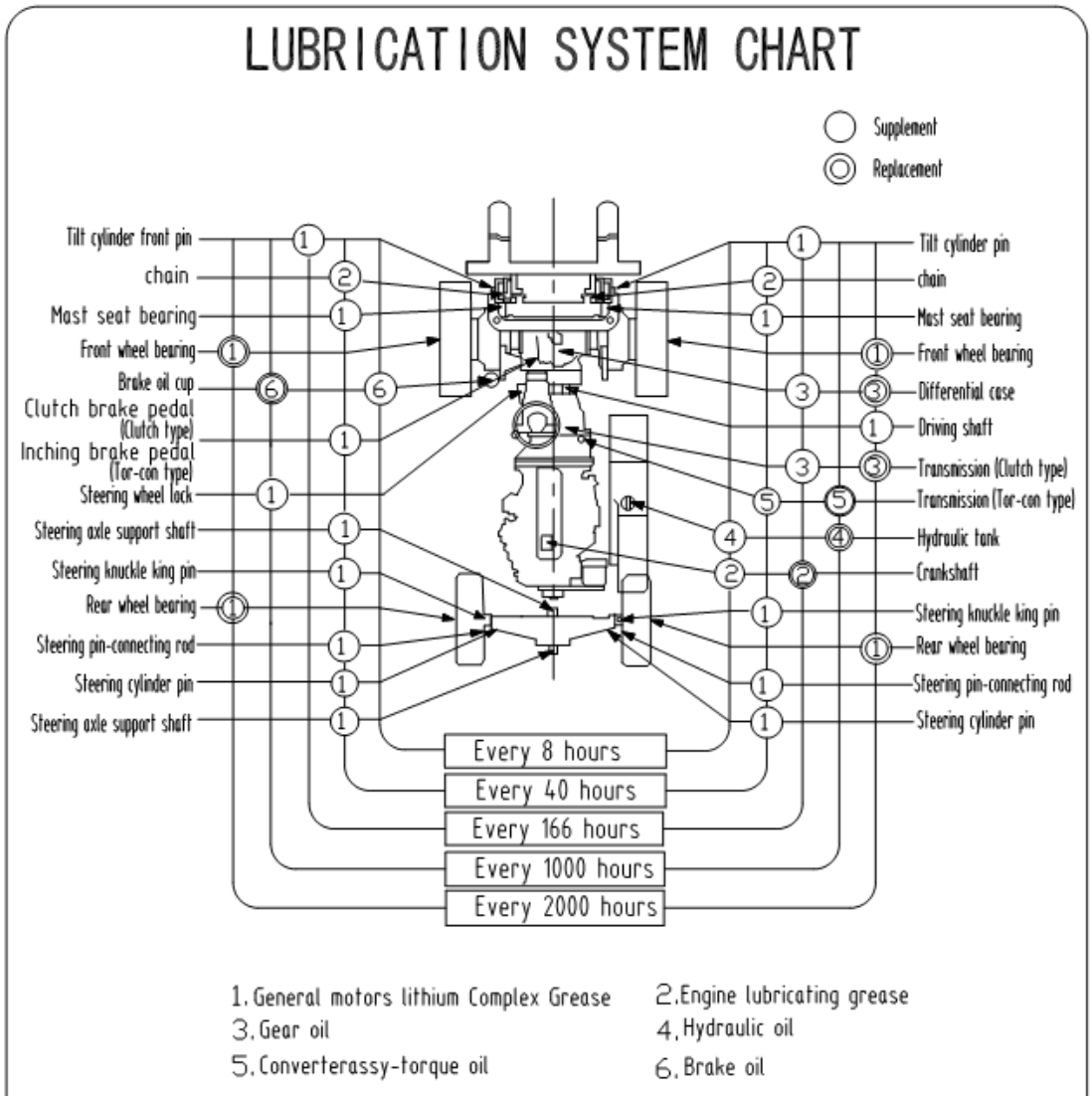
Recommended viscosity of diesel engine oil at different ambient temperatures



Caution

- The performance and quality of diesel engine oil should be in line with the requirements of API class or SAE J 183: Class CJ or above, or Class CJ or above as stated in GB 11122-2006.
- Diesel engine oil: SAE 15W/40: Class CJ.

10、Lubrication System Chart



Note:

1. Please refill the truck with the specific lubrication oil according to the specific truck model based on the Forklift Oil List.

2. Refer to the Weekly Maintenance (40h) for the lubrication of the mast and chain.

Environmental protection:

1. Clean, maintain and repair the vehicle at the designated place.

2. Before dismantling the pipeline, joints or related parts, special containers should be used to receive used fluids (including coolant, engine oil, hydraulic oil, transmission oil, ATF, brake fluid, grease, etc.) and used batteries.

3. The used oil/fluid should be recycled according to the local environmental protection laws and regulations to prevent pollution of the environment, rather than poured away or disposed of at will.

Safety awareness:

The temperature of coolant, engine oil, hydraulic oil, transmission oil and ATF after a long operation is very high, the oil change should not be carried out until the temperature drops below 70℃; skin should be protected, otherwise it may be burnt or corroded by the oil.

11、Tightening Torque Table of Common Bolts

Unit: N·m

Nominal Diameter mm	Strength Grade				
	4.8	5.8	6.8	8.8	10.9
	Tightening Torque（N · m）				
6	5～6	7～8	8～9	10～12	14～17
8	13～15	16～18	18～22	25～30	34～41
10	26～31	31～36	36～43	49～59	68～81
12	45～53	55～64	64～76	86～103	119～141
14	71～85	87～103	103～120	137～164	189～224
16	111～132	136～160	160～188	214～256	295～350
18	152～182	186～219	219～259	294～353	406～481
20	216～258	264～312	312～366	417～500	576～633
22	293～351	360～431	416～499	568～680	786～941
24	373～446	457～547	529～634	722～864	998～1195
27	564～653	669～801	774～801	1056～1264	1461～1749
30	741～887	908～1087	1052～1259	1434～1717	984～2375
36	1295～1550	1587～1900	1838～2200	2506～3000	3466～4150
42	2071～2479	2538～3039	2939～3519	4008～4798	5544～6637
48	3110～3723	3813～4564	4415～5285	6020～7207	8327～9969

Note:

a）Grade 8.8 bolts are used for all key joints.

b）The bolt grade can be found in the head, if not it is Grade 8.8.

12、Regular replacement of key safety parts

It is difficult to find any damage to some parts through regular maintenance, thus in order to ensure the safety of forklift operation, the user should regularly replace the parts given in the table below.

If the replacement time is not reached and there is any abnormality in these parts, the defective parts should be replaced immediately.

Key Safety Part	Service Life (Years)
Brake hose or rigid pipe	1～2
Hydraulic rubber hose for the lifting system	1～2
Lifting chain	2～4
High-pressure rubber hose and flexible tube for the hydraulic system	2
Brake fluid reservoir	2～4
Fuel hose	2
Sealing parts and rubber parts in the hydraulic system	2

XI、Storage

1、Daily storage

①Park the forklift at the designated place and use wedge blocks to support the wheels.

②Place the shift lever in the neutral position.

③Pull up the handbrake handle.

④Turn off the engine and operate the multi-valve handle several times to release the remaining pressure in the oil cylinder and pipeline.

⑤Remove the key and keep it in a safe place.

> Warning
>
> Once a forklift is found to be defective, it should be reported to the management and

Then the following maintenance items should be carried out.

①Remove oil and grease from the vehicle body with cloth and water.

②Check the overall condition of the vehicle, in particular, check whether the tires are damaged or have any foreign objects such as nails.

③Fill the fuel tank with specified fuel.

④Check for leaks of hydraulic fluid, engine oil, fuel and coolant.

⑤Apply lubricating grease.

⑥Check whether the mating surface of the wheel nut and cylinder piston rod is loose and whether the surface of piston rod is scratched.

⑦Check whether the rollers of the mast act smoothly.

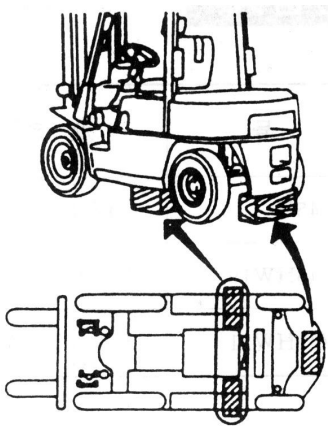
⑧Raise the lifting cylinder to the top to fill the cylinder with oil.

⑨In winter or cold environments, long-lasting antifreeze does not need to be drained, but if cooling water is used, the reservoir should be emptied.

2、Long-term storage

When the forklift is parked for a long time, use wooden blocks to support the vehicle body and counterweight to reduce the loading on the rear wheels.

> Warning
>
> - The wooden block must be solid and should be strong enough to support the weight of the truck.
> - Do not use blocks higher than 300 mm (11.81 inches).
> - Raise the forklift just enough to place it on the supporting blocks.
> - Place blocks of the same size under the left and right sides of the forklift frame.
> - After supporting the forklift with the blocks, push the forklift back and forth & left and right to check whether it is stable.



Make the following maintenance and checks in addition to maintenance as required in Daily Storage.

①Remove the battery from the forklift, put it in a dry and cool place, and charge it once a month.

②Apply anti-rust oil to exposed parts such as the piston rod and shaft that may rust.

③Parts such as vent plugs and air filters should be covered to prevent water ingress.

④Start the forklift truck once a week. If the cooling water was drained out, it should be refilled. Install the battery. Remove the anti-rusting oil on the piston rod and shaft, start the engine and warm up fully, run slowly back and forth, operate the mast to raise and lower, and tilt back and forth several times.

⑤Forklift trucks should not be parked on asphalt roads in summer.

⚠ Caution

When storing a forklift for an extended period, it is essential to avoid leaving it outdoors. Instead, cover the forklift with a waterproof tarp or store it in a dry space that is frost-free and does not experience freezing temperatures.

3、Operation of forklift trucks after long-term storage

①Remove the anti-rust oil from the exposed parts.

②Drain oil from the engine crankcase, drain gear oil or transmission oil from the drive axle housing (hydrodynamic transmission)/piston pump and motor (hydrostatic transmission), clean the interior, and add new oil.

③Clear away the foreign matter and water in the hydraulic oil tank and fuel tank.

④Remove the engine cylinder head, valve and rocker arm shaft, and check whether each valve clearance is normal.

⑤ Add coolant to the specified scale line.

⑥Charge the battery, mount it on the forklift and connect the battery leads.

⑦ Carefully carry out a pre-start inspection to check the starting, forward, reverse, steering, lifting, lowering, front and rear tilting functions of the forklift truck.

⑧ Preheat the forklift truck.

XII、Usage and maintenance methods for the lead-acid battery

1、Lead-acid battery and use

The battery is used as the power source to start the engine, and it is used as the power supply of the voltage regulator and overload generators. Light weight, low failure rate, easy to use and maintain. All batteries are sealed except for maintenance-free batteries which are provided with two vents (to release gas produced by the battery) on both sides. The lead-acid battery is provided with a filling hole on the upper cover of battery.

2、Battery storage and handling

2.1.Storage

① Batteries should be stored in a dry and ventilated place at temperature of 5℃-40℃, kept away from children and fireworks, kept away from exposure to the sun, radiation and other heat sources, and out of the rain.

② Batteries should not be stored in more than 4 layers; each layer should be separated by cardboard to avoid damaging battery pole column.

③ Be gentle when handling batteries; do not tilt, invert, throw, or crush batteries and protect them from severe impacts to avoid battery leakage and damage.

④ When batteries are provided with a lifting rope or lifting handle, these should be carefully checked for security before handling; do not repeatedly sway when handling to prevent the lifting rope or lifting handle from detaching, causing battery to fall.

⚠ Caution

Batteries that have been put aside for a long time or are not frequently used should be maintained regularly and their charging conditions should be checked.

- Maintenance-free batteries should be maintained every three months.
- Standard lead-acid batteries should be maintained once a month.

2.2.Maintenance

If the truck has been continuously running, it should be stopped for at least 30 minutes before checking and disassembling the batteries.

① Check whether the battery case has cracks, damage or electrolyte leakage.

② Do not let the batteries become too discharged; charge promptly when the voltage is lower than 12.5V.

③ The power level indicator displays battery status after the batteries are installed.

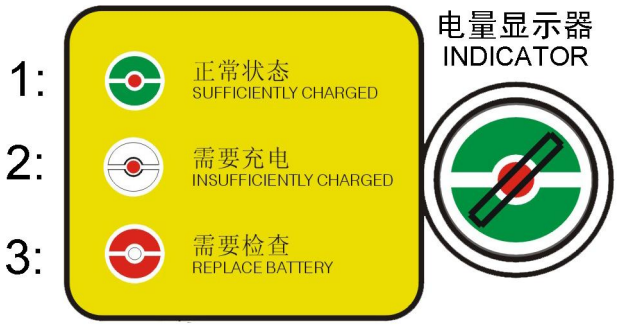
④ Ensure that battery terminal is not corroded, the connecting parts are not loose, there is no external cracking and the fixing clamp is not loose.

2.3.Check and maintenance of battery

Check for maintenance-free battery

The indicator of the electric eye will be green when the capacity is normal, density of

electrolyte reaches the standard; it will be white when capacity is not enough, density of electrolyte does not reach the standard; it will be red when the electrolyte is acute shortage, the shell should be carefully examined whether there is rupture, leakage or battery failure.



1：Green：Sufficiently charged.

2：White：Insufficiently charged.

3：Red：Replace battery.

The indicator of battery sees particularly the prompt of the battery label.

Maintenance of maintenance-free battery

1)Insure the green status visual in inner indicator (electric eye);

2)Disconnect negative earth wire to avoid discharging by additional current release;

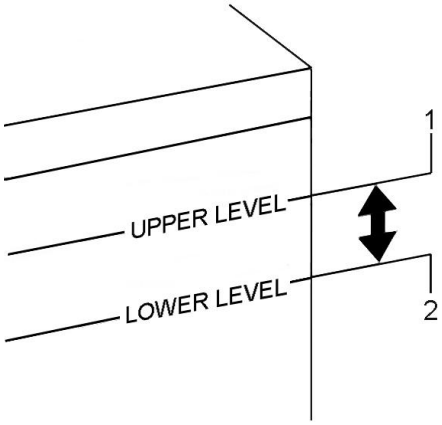
3)Keep the battery charge completely if the battery can not be removed down from truck;

4)Make a general schedule, charge every 30-45 days；

5)Check battery when the green status of indicator at battery are invisible, then charge or replace battery;

Check for low-maintenance battery

As the forklift is used in a high temperature ambient, and the battery easily consumes water, you should do pay attention to the liquid level when using the forklift. The battery top cover is left with a liquid filling port. Please add enough water up to the UPPER LEVEL when the liquid level is below the LOWER LEVEL and be sure the water is not so much that can spill out to erode your forklift.



Check and make sure the electrolyte is between "UPPER LEVEL" and "LOWER LEVEL"

1："UPPER LEVEL"

2："LOWER LEVEL"

If the electrolyte is or lower than “Lower Level”, please add distilled water

When a serious shortage of electrolyte is found, the shell should be carefully checked for rupture, leakage or battery failure.

The indicator of the electric eye will be green when the capacity is normal, density of electrolyte reaches the standard; it will be white when capacity is not enough, density of electrolyte does not reach the standard; it will be red when the electrolyte is acute shortage, the shell should be carefully examined whether there is rupture, leakage or battery failure.

The indicator of battery sees particularly the prompt of the battery label.

Maintenance of low-maintenance battery

1)Ensure that the battery electrolyte fluid level in the UPPER LEVEL.

2)Disconnecting negative earth wire to avoid discharging by additional current release;

3)Keep the battery charge completely if the battery can not be removed down from truck;

4)Make a general schedule, charge every 30-45 days;

5) When the battery electrolyte level is lower than LOWER LEVEL, please add distilled water to UPPER LEVEL, install the vent-plug to original place and fix it.

⚠ Caution

Avoid overfill when adding distilled water. During battery recharging, spilled water may cause corrosion.

2.4.Before recharging

When battery is recharging, the generated hydrogen is flammable and explosive gas, so pay attention to the following item before operation:

1)If charge to the battery still installed on the truck, one must disconnect the ground cable.

2)When connecting and disconnecting the battery charger cable, make sure the charger power is off.

⚠ Caution

- Safe place for battery charging should be at open ground. Never charge in bad ventilated garage or closed indoor.
- Never charge the battery when the engine is working. Make sure close all enclosure.

3、Notice for battery usage

Battery can produce explosive gas, electrolyte is corrosive, and the current can burn skin from battery producing. When handling battery or working near it, comply with the following cautions

⚠ Caution

- When working near the battery, one must wear safety inspection.
- Never let tools contact battery terminal and cause spark.
- Never expose the battery in open fire or spark.
- When the battery is connected to the electric equipment, make sure the electric equipment is correctly connected with the battery positive and negative to avoid damage of electric equipment or battery;
- Never cover electric things on the battery to avoid battery short cut.
- Avoid electrolyte splashing on eyes, skin or clothes.
- Keep children away from the battery.

Emergency measure to electrolyte

（1）If the electrolyte spilled eyes

Please wash your eyes at least for 15 minutes and seek medical advice at once. If possible, use wet sponge or cloth clean eye on the way to hospital.

（2）If the electrolyte spilled skin

Wash this part thoroughly. If you have burn pain, please seek medical advice at once.

（3）If the electrolyte spilled clothes

It may permeate clothes and contact skin. You must take off the clothes at once and do the above measure is necessary.

XIII、Main optional accessories

1、OPS system description

OPS system (only limited to electric reversing hydraulic trucks)

The OPS (Operator Presence Sensing) system is mainly used for safety, when the operator is not in the correct driving position the forklift cannot be driven and transported, thereby reducing accidents caused by misuse.

Forklift truck shutdown conditions

When the driver leaves his/her seat or his/her seat belt is loose (if the seat belt protection switch is provided) and the handbrake is not engaged, the buzzer will sound an alarm.

Without the seat belt protection switch: When the driver sits back on the driver's seat properly or engages the handbrake, the buzzer alarm will turn off.

With the seat belt protection switch: When the driver first sits back on the driver's seat properly and fastens his/her seat belt or engages the handbrake, the buzzer alarm will turn off.

Forklift truck starting state

1. Starting

The forklift truck can be started normally when the driver sits on the driver's seat properly, fastens the seat belt (if the seat belt protection switch is provided), or engages the handbrake, and pulls the shift switch to the neutral position. If the shift switch is not pulled to the neutral position, the truck cannot be started.

> ⚠ Warning
>
> If the forklift truck is parked on a ramp, you must press the brake pedal to the bottom when starting the truck to prevent the truck from rolling back.

2.Forward and backward protection

When you are ready to drive the forklift truck after the engine has started, you can start the truck normally by pulling the shift switch to forward gear 1 or reverse gear 1. If the shift switch is pulled to forward gear 2 or backward gear 2 directly the neutral indicator light will flash; if the truck cannot be started, the shift switch should be returned to the neutral position to release protection.

When the driver leaves his/her seat or his/her seat belt is loose (if the seat belt protection switch is provided) for more than 3s when the forklift truck is driving, the buzzer will sound an alarm, the neutral indicator light will flash, the OPS indicator light will turn on, and the truck will be automatically stopped.

When the driver sits on the driver's seat properly again, the buzzer alarm will turn off and the OPS indicator light will turn off; when the shift switch is pulled to the neutral position, the flashing neutral indicator light will be constantly lit; when the shift switch is pulled forward or backward, the forklift truck will resume normal operation.

Warning

If the OPS system is started by accident when driving uphill, it will disconnect the driving power, making the forklift truck roll backwards. In order to avoid accidents, the driver must sit on the driver's seat properly when driving uphill.

Caution

- Some models are not equipped with an "!"OPS indicator light on the instrument panel.
- For the forklift trucks with seats provided with a seat belt protection switch, after the driver first sits back on the driver's seat properly and fastens his/her seat belt, normal operation can be conducted.
- The neutral indicator light flashes: The shift switch is in the neutral position by default in the program, and the driver is reminded about pulling to the neutral position.

3.Working device protection

When the driver leaves his/her seat or his/her seat belt is loose (if the seat belt protection switch is provided) for more than 3s when operating, the buzzer will sound an alarm, the OPS indicator light will turn on, and the handling operation will be automatically stopped. If the driver sits on the driver's seat properly again, the handling operation will continue.

Caution

- For the forklift trucks with seats provided with a seat belt protection switch, after the driver first sits back on the driver's seat properly and fastens his/her seat belt, normal operation can be conducted.
- Tilt the lever and attachment lever to the initial positions before releasing protection.

OPS controller faults

In the event of the following conditions, the forklift truck should be stopped in a safe place and Hangcha agency should be contacted for inspection.

a）When you are ready to start the forklift truck, and you pull the shift switch to forward gear 1 or backward gear 1, the neutral indicator light flashes.

b）When you pull up the handbrake, the buzzer continues to sound an alarm.

c）When the shift switch is pulled to the neutral position, the neutral indicator light continues to

flash.

d）When the driver leaves his/her seat or his/her seat belt is loose (if the seat belt protection switch is provided) for more than 3s, the buzzer does not sound an alarm, and the OPS indicator light does not turn on.

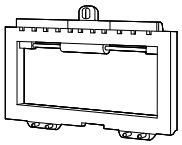
e）When the driver sits on the driver's seat properly again, the buzzer continues to sound an alarm and the OPS indicator light does not turn off.

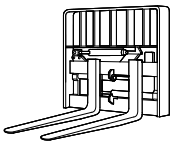
Caution

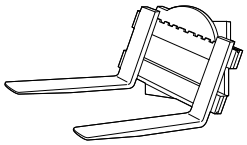
- Some models: The instrument has no “ ! ” OPS indicator light.

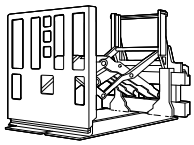
XIV、Use, installation and safety rules for attachments

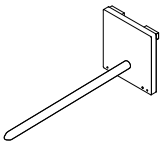
Hangcha selects attachments, such as the flat clamp, rotating clamp, roll clamp, string rod, sideshifter and others in accordance with ISO2328 Fork Lift Trucks-Hook-on Type Fork Arms and Fork Carriers- Mounting Dimensions.

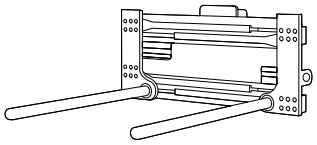

Sideshifter

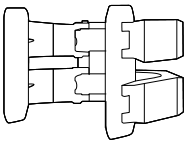

Fork Positioner

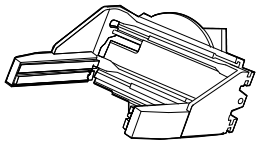

Rotator

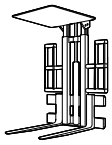

Push-puller

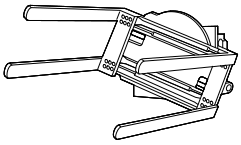

String rod


Round rod clamp


Roll clamp


Brick clamp


Load bearing stabilizer


Rotating fork

1、Use of attachments

(1) Become familiar with the relevant content on the nameplate of the forklift truck, read the relevant operation manual carefully before use (especially the user manual and installation manual of the professional attachment company), and ensure you are trained and qualified to operate the forklift truck attachments.

(2) Fully understand the basic performance and operation methods of forklift attachments, especially the allowable load, lift height, cargo size and the fitting range of attachments;

(3) When operating forklift truck attachments with multiple functions, such as side shift, clamping or rotation, do not perform multiple operations at the same time. One action can be carried out only after the other one is completed.

(4) Forklift trucks provided with attachments must not be driven when the cargo is at a high level; when the cargo volume is too large do not drive the forklift truck forwards; when transporting cargo, ensure that cargo is 300mm above the ground, and the mast is tilted backward;

(5) The weight of the cargo should not exceed the limit of the combined bearing capacity of the forklift truck and attachments. Try not to load eccentrically at high cargo positions. Attachments with side shift function can only be operated for a short time. Eccentric load is strictly limited to 100mm on the left and right (the side shift amount for side shifters above 5 tons (including 5 tons)) is within the range of ±150mm);

(6) Except for the driver's position which is protected by the overhead guard, it is strictly prohibited to stand within 2 meters of the projection area under attachments and cargo to avoid

injury.

(7) It is strictly prohibited to engage the emergency brake when the forklift truck with attachments is running and it is required to drive slowly with a load.

(8) Do not allow external forces to act on the truck when the attachment is working; it is forbidden to use the attachment for unsuitable purposes, and the normal working range of the attachment must not be exceeded;

(9) Do not use attachments for unsuitable purposes, do not exceed the normal scope of work of attachments;

(10) When attachments are faulty, they should not be used until the fault has been eliminated.

The following inspection and maintenance should be carried out frequently

(1) Check whether the spacing between the lower beams of the forks of the forklift truck and the lower hooks of attachments conform to the requirements of the attachment manual.

(2) Check whether the upper hook is properly embedded in the groove of the fork arm carrier of the forklift truck.

(3) The upper and lower sliding support surfaces should be lubricated with general lithium based grease for automotive use every 500 hours.

(4) Check fasteners for tightness.

(5) Regularly check whether hydraulic circuit connections are loose and whether the hose is damaged. If it is damaged, it must not be used before repair.

(6) Regularly check whether the transmission or rotating elements of attachments are worn or stuck, and replace them promptly if any damage or defect is found.

(7) In the case of dynamic loads, check whether the working elements of the attachments are normal, whether the working pressure of the attachments is normal, and whether the attachments work normally. If not, it is necessary to check the hydraulic circuit, find any leaking elements, and replace the seals or the whole circuit.

2、Installation of attachment

Warning

- 1Without the technical permission of the company, it is strictly prohibited to modify the safety and performance of the forklift truck attachments.
- 2The actual rated bearing capacity shall be the rated bearing capacity of the forklift truck, the bearing capacity of attachments, or the overall bearing capacity of the complete truck, whichever is the smallest. Generally speaking, the comprehensive bearing capacity of the complete truck is the lowest of the three. “Bearing capacity of attachments” is a calculated value for the force applied on attachments.
- The installation and positioning should be reasonable, reliable and safe, to avoid attachments sliding from side to side along the fork arm carrier of the forklift truck during use.
- After attachments are mounted, if there is a upper hook block, it should be embedded in the notch of the upper beam, so that the offset between the center line of attachments and that of the fork arm carrier is less than 50mm; otherwise, it will affect the lateral stability of the forklift truck.
- For attachments with a rotation function, (roll clamp, soft clamp, multi-purpose rigid arm clamp, bucket clamp) after hanging and installation, stop blocks should be welded on both sides of the joint between the upper beam of the fork arm carrier and the attachments to prevent sliding when operating them;
- When attachments with lower hook positioning are installed, the joint spacing between the lower hook and the lower beam of the fork arm carrier should be adjusted appropriately.

XV、Relevant safety command and standard

The model with CE certification accords to the following European directive and standard: Machinery Directive 2006/42/EC (The European Council of the Laws of the Member States concerning Machinery), Noise Direction 2000/14/EC (Directive of the laws of the Member States concerning Outdoor Equipment Noise Radiation), EN ISO 12100: 2010, EN ISO 3691-1:2015+A1:2020, EN16307-1:2020, EN1175:2020, EN 12053:2001+A1: 2008, EN13059: 2002+A1:2008, etc. coordinative standards.

- Main safety factors accord with Machinery Directive 2006/42/EC, EN ISO 3691-1: 2015+A1:2020, EN1175:2020, EN 16307-1:2020.
- Noise is measured according to EN 12053:2001+A1:2008, 2000/14/EC & 2005/88/EC
- Vibration parameter is measured according to EN13059:2002+A1:2008.
- Electromagnetism compatibility is measured according to EN12895:2015+A1:2019, and meet with 2014/30/EU Directive.
- Static test coefficient for lifting attachment is 1.33.

Model	Vibration m/s^2	Measured Sound pressure level at the operator' position dB(A)	Measured Sound Power Level dB(A)	Guaranteed Sound Power Level dB(A)
CPCD50-XH15B CPCD50-XH16B CPCD50-XW95G CPYD50-XH20	0.92	85	102	104
CPCD60-XH15B CPCD60-XH16B CPCD60-XW95G CPYD60-XH20	0.92	85	102	104
CPCD70-XH15B CPCD70-XH16B CPCD70-XW95G CPYD70-XH20	0.94	85	102	104
CPCD80-XH15B CPCD80-XH16B	0.95	86	103	104
CPCD100-XH15B CPCD100-XH16B	0.98	86	103	104

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: Internal combustion counterbalanced forklift truck
Produktbezeichnung:

commercial name:
Handelsbezeichnung:

function:
Funktion:

model: CPYD50-XH20、CPYD60-XH20、CPYD70-XH20
Modell:

type:
Typ:

serial number: above mentioned products
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 ISO 3691-1:2015/A1:2020
EN 16307-1:2020
EN 1175:2020

place and date of the declaration: Hangzhou 07.07.2023
Ausstellungsort und Datum der Erklärung

signature of the person:
Unterschrift des Ausstellers

EC DECLARATION OF CONFORMITY

CE

Original Declaration

MANUFACTURER:

Name HANGCHA GROUP CO., LTD.

Address 666 Xiangfu Road, Lin'an District, Hangzhou City, Zhejiang Province 311305, P.R. China

AUTHORIZED REPRESENTATIVE (TECHNICAL DOCUMENT WAS COMPILED BY):

Name Andy Yang

Address Die das technische Datenblatt erstellt hat Mariechen-Graulich-Straße 12a, 65439 Flörsheim am main Germany Tel: 0049-61453769188

HEREBY DECLARES THAT THE PRODUCT DESCRIBED BELLOW:

Name Internal Combustion Counterbalanced Forklift Truck

Model CPCD50-XH16B

Serial No.

COMPLIES WITH THE PROVISIONS OF THE FOLLOWING EUROPEAN DIRECTIVES AND STANDARDS

2006/42/EC	Machinery Directive	2014/30/EU	EMC Directive
2000/14/EC, 2005/88/EC	Noise Directive		
EN ISO 12100:2010		EN ISO 3691-1:2015+A1:2020	
EN 1175:2020		EN 16307-1:2020	
EN 12053:2001+A1:2008		EN 13059:2002+A1:2008	
EN 12895:2015+A1:2019		EN ISO 3744:1995	

Category to Noise Directive 2000/14/EC:	Artice13	Measured Sound Power Level:	102 dB(A)
Definition:	Annex I, item 36	Guaranteed Sound Power Level:	104 dB(A)

Conformity Assessment procedure Annex VI –Internal control procedure

Place: Hangzhou, Zhejiang, P.R. China Date:

Signature and stamp:

Name:

Position: Legal Representative

According to Annex II 1.A of the Directive 2006/42/EC

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: Internal combustion counterbalanced forklift truck
Produktbezeichnung:

commercial name:
Handelsbezeichnung:

function:
Funktion:

model: CPCD80-XW96G, CPCD100-XW96G,
Modell:

type:
Typ:

serial number: above mentioned products
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 ISO 3691-1:2015/A1:2020
EN 16307-1:2020
EN 1175:2020

place and date of the declaration: Hangzhou 16.12.2022
Ausstellungsort und Datum der Erklärung

signature of the person:
Unterschrift des Ausstellers

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: *Internal combustion counterbalanced forklift truck*
Produktbezeichnung:

commercial name:
Handelsbezeichnung:

function:
Funktion:

model: *CPCD50-XW95G、CPCD60-XW95G、CPCD70-XW95G*
Modell:

type:
Typ:

serial number: *above mentioned products*
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+A1:2020
EN1175:2020
EN 16307-1:2020
EN 12053:2001+A1:2008
EN13059:2002+A1:2008
EN12895:2015+A1:2019

place and date of the declaration: Hangzhou 11.08.2020
Ausstellungsort und Datum der Erklärung

signature of the person:
Unterschrift des Ausstellers

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:
CPCD50-XW38,CPCD60-XW38,CPCD70-XW38,CPCD50-XW46,CPCD60-XW46,CPCD70-XW46,
CPYD50-XW57,CPYD60-XW57,CPYD70-XW57,CPYD50-XW68,CPYD60-XW68,CPYD70-XW68,
CPYD50-XW24,CPYD60-XW24,CPYD70-XW24,CPCD50-XW65G,CPCD60-XW65G,
CPCD70-XW65G,CPCD50-XW95G,CPCD60-XW95G,CPCD70-XW95G,CPCD80-XW28,
CPCD100-XW28,CPCD80-XW48,CPCD100-XW48,CPCD80-XW75G,CPCD100-XW75G
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

XVI、Maintenance record

Date	Item of maintenance	Signature	Remark

Date	Item of maintenance	Signature	Remark

Date	Item of maintenance	Signature	Remark

Revision	Version no.	Date	Note
00	OM23-XF01	05/2023	Original
01	OM24-XF01	12/2024	
02	OM25-XF01	01/2025	
03	OM25-XF02	06/2025	
04	OM202510-V03-CE	10/2025	

HANGCHA GROUP CO. , LTD.

■Address For: OVERSEAS USERS

■Address: 666 Xiangfu Road, Lin'an District, Hangzhou, Zhejiang 311305, P.R. China

■Fax: 0086-571-889267890086-571-88132890■ ZIP:311305

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