

2.5-3.5T Rough terrain forklift truck

Operational and Maintenance Manual



Original Instruction

CPCD30/35-XW43E-RT	CPCD25-XW43E-RT
CPCD30/35-XW33E-RT	CPCD25-XW33E-RT
CPCD30/35-XW33C-RT4	CPCD25-XW33C-RT4
CPCD30/35-XW43C-RT4	CPCD25-XW43C-RT4
CPCD30/35-XW98C-RT4	CPCD30/35-XW98E-RT2
CPCD25-XW98C-RT4	CPCD25-XW98E-RT2

HANGCHA GROUP CO., LTD
12/2019

Foreword

2.5-3.5T Rough terrain forklift truck is a new developed forklift of Hangcha Group.

It owns characteristics as High vehicle capacity, novel structure and superior performance. This manual introduces safety, operation, transportation, lubrication, brief structure and maintenance method of trucks. Driver, maintenance personnel and equipment manager must read and comprehend this manual before use.

Because of the update and improvements of our products, there may be some differences between this operation manual contents and your forklift truck.

Illustration adopted by this manual may vary from your truck structure.

This manual is also available for container forklift and forklift equipped with attachment.

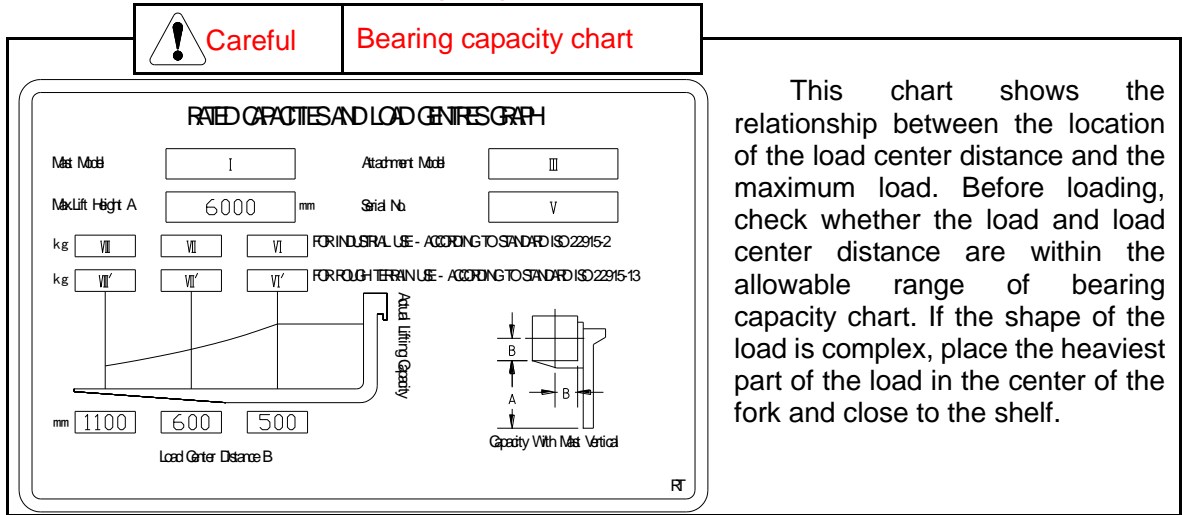
Please contact Hangcha Group or your sales agent if you have any questions regarding this manual.

Standard model

Load center mm(in)	500(19.7)				
Model	CPCD15-	CPCD18-	CPCD20-	CPCD25-	CPCD30-
Rated capacity kg(lb)	1500(3300)	1750(3850)	2000(4400)	2500(5500)	3000(6600)
Model	CPCD35-	CPCD40-	CPCD45-	CPCD50-	CPCD55-
Rated capacity kg(lb)	3500(7700)	4000(8800)	4500(10000)	5000(11000)	5500(12000)

Load center mm(in)	600(23.6)				
Model	CPCD15-	CPCD18-	CPCD20-	CPCD25-	CPCD30-
Rated capacity kg(lb)	1350 (3000)	1600(3500)	1800(4000)	2250(5000)	2700(6000)
Model	CPCD35-	CPCD40-	CPCD45-	CPCD50-	CPCD55-
Rated capacity kg(lb)	3200(7000)	3650(8000)	4000(9000)	4500(10000)	5000(11000)

CE model: optional maximum lifting height 6000 mm



Note; The vehicle tonnage value shown below is based on the load center distance of 500mm.

Model	Engine	Hydraulic transmission	<p style="text-align: center;">Load center(mm)</p>
CPCD30/35-XW43E-RT	Cummins QSF2.8T3NA49 Diesel engine	RTE350-120000-G00	
CPCD25-XW43E-RT		RTE250-120000-G00	
CPCD30/35-XW43C-RT4		RTE350-120000-G00	
CPCD25-XW43C-RT4		RTE250-120000-G00	
CPCD30/35-XW33E-RT	4TNE98-BQFLC Diesel engine	RTE350-120000-G00	
CPCD25-XW33E-RT		RTE250-120000-G00	
CPCD30/35-XW33C-RT4		RTE350-120000-G00	
CPCD25-XW33C-RT4		RTE250-120000-G00	
CPCD30/35-XW98C-RT4	Kubota V2607-CR-TE5 B Diesel engine	RTC350-120000-G00	
CPCD30/35-XW98E-RT2		RTE350-120000-G00	
CPCD25-XW98C-RT4		RTC350-120000-G00	
CPCD25-XW98E-RT2		RTE250-120000-G00	

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I. General rules

To keep the truck and you safe, obey these rules below:

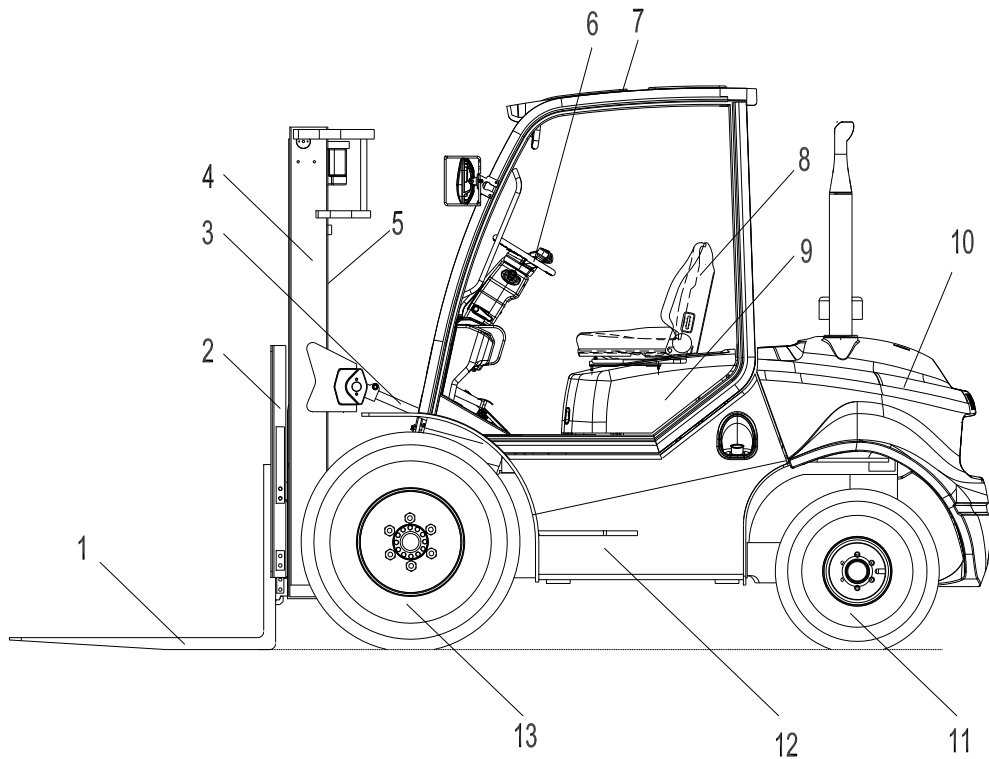
1. Only trained and authorized operators shall be permitted to operate the truck.
2. Before starting truck you should check all control and alarm devices; if any are damaged, DO NOT operate until it is repaired.
3. When carrying a load, do not overload. The forks should insert in the load completely and evenly. It is not permitted use only one fork to load.
4. You should operate the truck smoothly when starting, turning, traveling, braking and parking. On a slick or wet road, decrease speed when turning.
5. Lower the forks and tilt the mast backwards when traveling with a load.
6. If the slope angle is bigger than 10%, travel forward up slope and backward down slope. Never turn sideways or stack load on an incline.
7. Be aware of bystanders, barriers, potholes and overhead clearances.
8. DO NOT allow passengers or persons to stand on the fork.
9. DO NOT stand or walk under the fork.
10. DO NOT operate the truck or attachment from any position except the operator's seat.
11. DO NOT carry the load unpackaged. Be careful when carrying large loads.
12. Take care not to lose load when lift height is higher than 3 meters, take protective measures if necessary.
13. Travel with load as low as possible and tilt back the mast.
14. When driving over a dock-board or bridge-plate, be careful and drive slowly.
15. Make sure that there is no naked flame near the area, never smoke. The driver should not remain seated when adding fuel.
16. Treat the truck with attachments as a loaded truck
17. When leave the truck, you should put the forks down, make the shift lever in neutral, shut down the engine and cut the power. When parking on a grade, make sure to tighten the brake lever. If necessary, use a block when parking on a grade for a long time.
18. If the truck suddenly gets out of order, or for leakage of electrolyte, hydraulic oil or brake oil when lifting goods or grade climbing, leave truck in safe state and contact service technician immediately.
19. During installation and assembly, there will be noise and vibration. Please choose the right tool and assembly method. Minimize the noise and vibration as soon as possible to reduce noise pollution.
20. Rough Terrain forklift Truck mainly used in the field of urban engineering construction sites, pipe laying, field development, operations, and other mountain forest, and loading and unloading operations forces used the army as well as loading and unloading dock yard containers.
21. Move the truck to the place where respects traffic when it anchors. If the reason is brake or turn system, move it by a suitable truck (Refer to the part of truck carrying); other reasons, use a suitable truck to move, tie the cord outside of truck. Please abide by the traffic regulations when moving the truck on roads.
22. DO NOT operate the truck or load cargo after removing the hood, water tank cover board, overhead guard, or load backrest of mast.
23. Make sure there is enough light around the work area. At night, use the head lamps.
24. Handle with automatic pitch fork of the forklift when the load must not make lateral operation, so as not to lose balance and forklift components of the damage caused.
25. Before hydraulic oil temperature rises, do not tilt the mast forward, backward or lift the mast to the limit when in idling.
26. No modifications or alterations to a powered industrial truck, which could affect, for example, capacity, stability or safety requirements of the truck, shall be made without the prior written approval of the original truck manufacturer, its authorized representative, or a successor thereof. This includes changes affecting, for example, braking, steering, visibility and the addition of removable attachments. When the manufacturer or his successor approves a modification or alteration, the manufacturer or successor shall also make and approve appropriate changes to

the capacity plate, decals, tags and operation and maintenance handbooks.

27. In the event the truck manufacturer is no longer in business and there is no successor in the interest to the business, the user may arrange for a modification or alteration to a powered industrial truck manufacturer and the user shall:

- (1) Arrange for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety;
- (2) Maintain a permanent record of the design, test(s) and implementation of the modification or alteration;
- (3) Approve and make appropriate changes to the capacity plate(s), decals, tags and instruction handbook;
- (4) Affix a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered together with the date of the modification or alteration, and the name and address of the organization that made the modification or alteration.

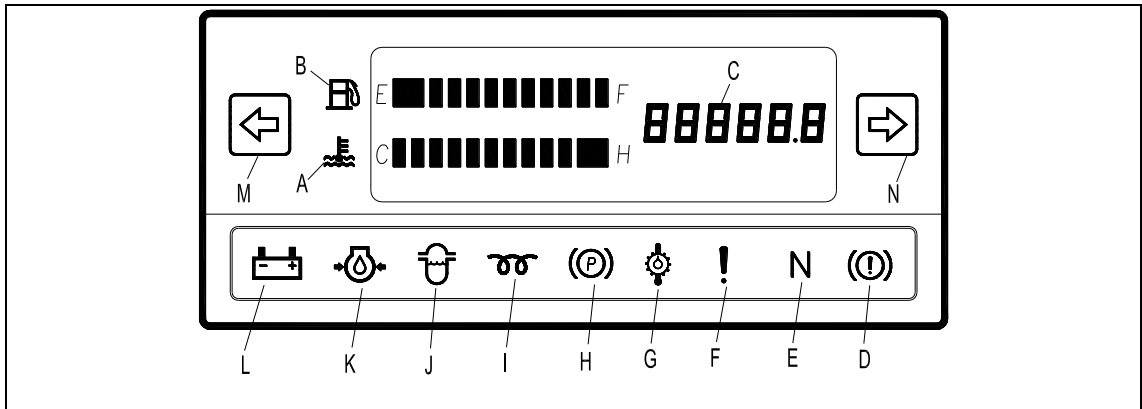
II. Name of main parts or component



- | | | | |
|------------------|---------------------------|-------------------|---------|
| 1. Fork | 2. Load backrest | 3. Tilt cylinder | 4. Mast |
| 5. Lift cylinder | 6. Steering wheel | 7. Overhead guard | 8. Seat |
| 9. Cover hood | 10. Counterbalance weight | 11. Rear wheel | |
| 12. Truck frame | 13. Front wheel | | |

1. Instruments

(Two-wheel drive rough terrain forklift truck)



A. Water temperature gauge

B. Fuel gauge

C. Timer

D. Accumulator warning indicator

E. Neutral position start-up indicator

F. OPS indicator

G. Transmission oil temperature warning light

H. Parking indicator

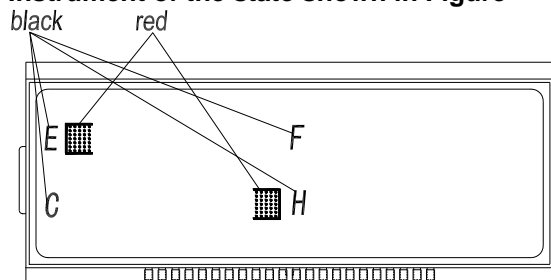
I. Preheat indicator light

J. Oil water separator Indicator light K. Engine oil pressure warning light L. Charging indicator light

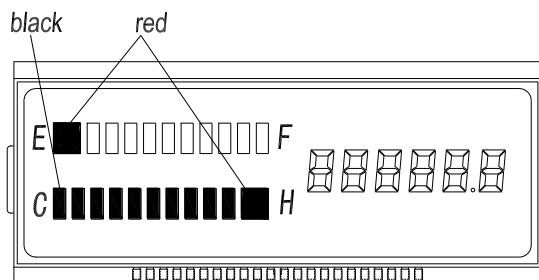
M. Left turning indicator

N. Right turning indicator

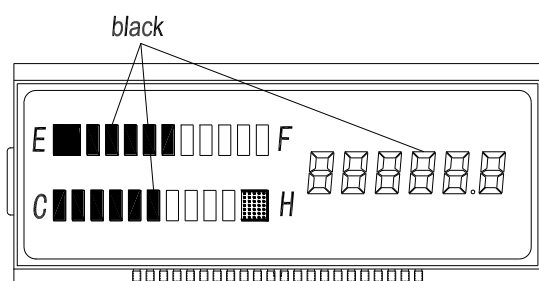
Instrument of the state shown in Figure



Display at non-working condition



Display when it is at working condition which water temperature is too high, oil level is too low



Display at normal working condition

Water temperature gauge [A]



This gauge indicates the oil temperature in the torque converter transmission box when the key is at | (ON) position. In normal status, LED Displayed in the range of 40 °C -110 °C



Caution

If LCD display in the red zone , please stop the truck at once. Decrease the engine speed to make the engine cool. Check the cooling fluid if enough and the fan belt's elasticity if fit.

$T(^{\circ}C)$	R_{25}	$10K \Omega$	LCD display effect
	R_t	3950	
50	3.588		C H
60	2.476		C H
70	1.743		C H
80	1.250		C H
85	1.065		C H
90	0.911		C H
95	0.7824		C H
100	0.6744		C H
105	0.5836		C H
110	0.5066		C H
120	0.40708		C H

Fuel gauge [B]



The gauge indicates the fuel level in the tank when the key is at | (ON) position.

Suggest filling up the fuel tank after work every day.

Fuel tank capacity	LCD display effect	Resistance (Ω)
Lowest 0	E F	11K
Warnin Level 0	E F	11K
1/10	E F	10K
2/10	E F	9K
3/10	E F	8K
4/10	E F	7K
1/2	E F	6K
6/10	E F	5K
7/10	E F	4K
8/10	E F	3K
9/10	E F	2K
Highest 1	E F	1K

Hour meter [C]



This meter measures working time of engine when the key is at **I** (ON) position. The meter increase one number every working hour.

Use meter to schedule lubrication and maintenance periods.

Accumulator warning indicator [D]



This indicator light does not work on the forklift.

Neutral position start-up indicator [E]



Put the steering handle in the neutral position when truck on the temporarily stop, the light will indicated on

The truck can be started up only in the neutral position.

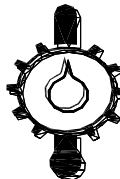
It's prohibited for truck in the neutral position slipping when it's on the slope.

OPS indicator [F]



When this light is on, it means driver leave the seats or not sitting on the seat correctly.

Transmission oil temperature warning light [G] (Hydraulic Forklift)



In normal state, once the starter is set to **➡** "ON" position, this lamp lights up. After the engine is started up, it goes out.

During work time if the oil temperature exceed the normal rang(60~120° C) the indicator light on.



Caution

If the pointer enters the red range, stop the operation instantly and slow down engine speed to cool the coolant and wait until the

pointer goes into the green range, and have a check then.

Parking indicator [H]



Parking indicator shows on means brake is affected, Please loosen the parking handle (hand brake handle), the parking indicator will shows off.



Warning

It will damage the engine and transmission, etc. when indicated.

Glow indicator (I) [Diesel truck]



Turn the key to "ON" position and the indicator lights up for a moment. After the indicator goes out, turn the key to **➡** "Start" position

Sedimentor indicator (J) [W10,W55,W56 diesel truck]



In normal state, once the starter is set to **➡** "ON" position, this lamp lights up. After the engine is started up, it goes out.

This lamp lights up when water in sedimentor reaches to a certain level, while the engine is running.

If this lamp continues to stay lit or lights up during the engine running, stopping the engine and discharge water immediately.



Caution

If continue working when the lamp is light. The fuel injection pump may be damaged.

Engine oil pressure alert lamp (K)



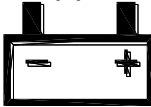
This lamp indicates the pressure condition of engine lube oil. Although it lights up when the engine switch is set at "ON", once the engine starts up and the accelerator pedal is pressed, this lamp goes out.



Caution

If this light continues to stay lit or lights up during operation, the pressure is lower than 0.05Mpa and should be checked immediately.

Charging indicator (L)



This lamp indicates the battery condition of charge. The lamp comes on when the ignition switch is set at "ON", but it goes out as the engine starts and accelerator pedal is pressed.



Caution

If the light continues to stay lit or lights up during operation, the charging rate is low and should be checked immediately.

Left turning indicator [M]

Right turning indicator [N]



When the truck turns left, the indicator is set forward, the lamp lights up.

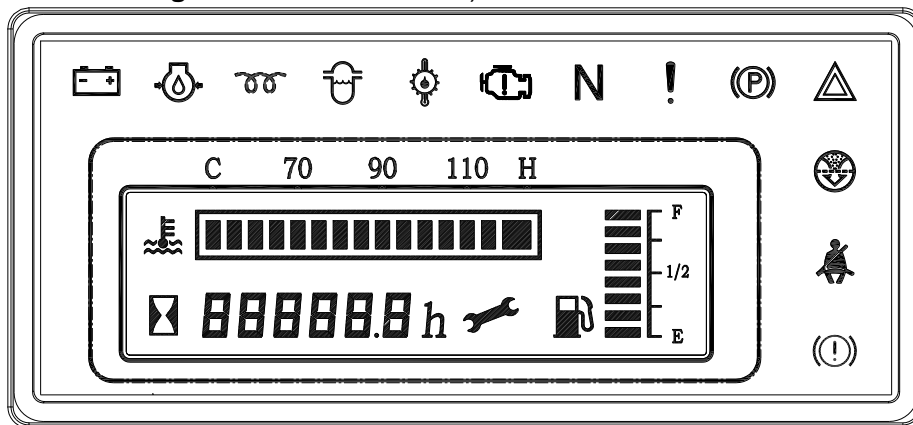
When the truck turns right, the indicator is set backward, the lamp lights up.

Air filter indicator [O]

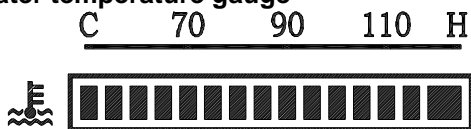


When the light is on, it indicates the air inlet system is blocked, stop the truck and clean the air filter.

(Four-wheel drive rough terrain forklift truck)



Water temperature gauge

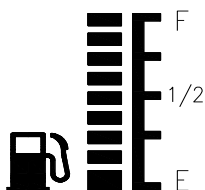


This gauge indicates the oil temperature in the torque converter transmission box when the key is at | (ON) position. In normal status, LED Displayed in the range of 60 °C -110 °C

Caution

If LCD display in the red zone , please stop the truck at once. Decrease the engine speed to make the engine cool. Check the cooling fluid if enough and the fan belt's elasticity if fit.

Fuel gauge



The gauge indicates the fuel level in the tank when the key is at | (ON) position. Suggest filling up the fuel tank after work every day.

Hour meter



This meter measures working time of engine when the key is at | (ON) position. The meter increase one number every working hour. Use meter to schedule lubrication and maintenance periods.

Caution

When reaching the first 100h, the spanner logo will flash one hour at regular intervals to reminder of the maintenance to the forklift. Refer to monthly maintenance after first flash. Refer to periodical maintenance schedule for per period. Take the actual flashing time as standard.

Charging indicator

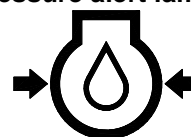


This lamp indicates the battery condition of charge. The lamp comes on when the ignition switch is set at "ON", but it goes out as the engine starts and accelerator pedal is pressed.

Caution

If the light continues to stay lit or lights up during operation, the charging rate is low and should be checked immediately.

Engine oil pressure alert lamp



This lamp indicates the pressure condition of engine lube oil. Although it lights up when the engine switch is set at "ON", once the engine starts up and the accelerator pedal is pressed, this lamp goes out.

Caution

If this light continues to stay lit or lights up

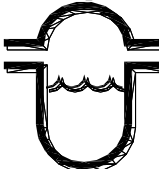
during operation, the pressure is lower than 0.05Mpa and should be checked immediately.

Glow indicator [Diesel truck]



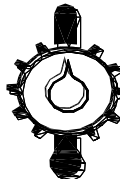
Turn the key to "ON" position and the indicator lights up for a moment. After the indicator goes out, turn the key to "Start" position

Sedimentor indicator [Diesel truck]



In normal state, once the starter is set to "ON" position, this lamp lights up. After the engine is started up, it goes out. This lamp lights up when water in sedimentor reaches to a certain level, while the engine is running.

Transmission oil temperature warning light (Hydraulic Forklift)



In normal state, once the starter is set to "ON" position, this lamp lights up. After the engine is started up, it goes out. During work time if the oil temperature exceed the normal rang(60~120° C) the indicator light on.



Caution

If the pointer enters the red range, stop the operation instantly and slow down engine speed to cool the coolant and wait until the pointer goes into the green range, and have a check then.

Engine fault indicator [Electronic-controlled engine]



When the engine gets out of order, this Indicator will be on. then it must immediately stop, according to an engine fault table troubleshooting.

Can be judged according to the fault indicator lamp (flash code), Can be based on the fault indicator (flash code) judgment, or ECU diagnostics port connected to diagnostic equipment, read the fault code information stored in the ECU.

For more information, see engine manual.

Only Cummins engine forklift truck :

When this light is on, it means one important engine working is beyond the prescribed limits of engine protection calibration, engine power can be reduced, you must stop and check.

Neutral position start-up indicator [Electric-switch]



Put the steering handle in the neutral position when truck on the temporarily stop, the light will indicated on

The truck can be started up only in the neutral position.

It's prohibited for truck in the neutral position slipping when it's on the slope.

OPS indicator [Optional]



When this light is on, it means driver leave the seats or not sitting on the seat correctly.

Parking indicator



Parking indicator shows on means brake is affected, Please loosen the parking handle (hand brake handle), the parking indicator will shows off.



Warning

It will damage the engine and transmission, etc. when indicated.

If this lamp continues to stay lit or lights up during the engine running, stopping the engine and discharge water immediately.

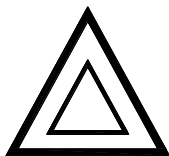


Caution

If continue working when the lamp is light.
The fuel injection pump may be damaged.

Severe warning indicator

[Electronic-controlled engine]



Only Cummins engine forklift truck:

When this light is on, it indicates the engine is in severe work condition and the engine power reduced severely. If condition stays and starts engine protection shut-down, then this indicator will flash 30 seconds before engine shut down to warn the impending shut-down.

Air filter indicator



When the light is on, it indicates the air inlet system is blocked, stop the truck and clean the air filter.

Seat belt warning indicator [Optional]



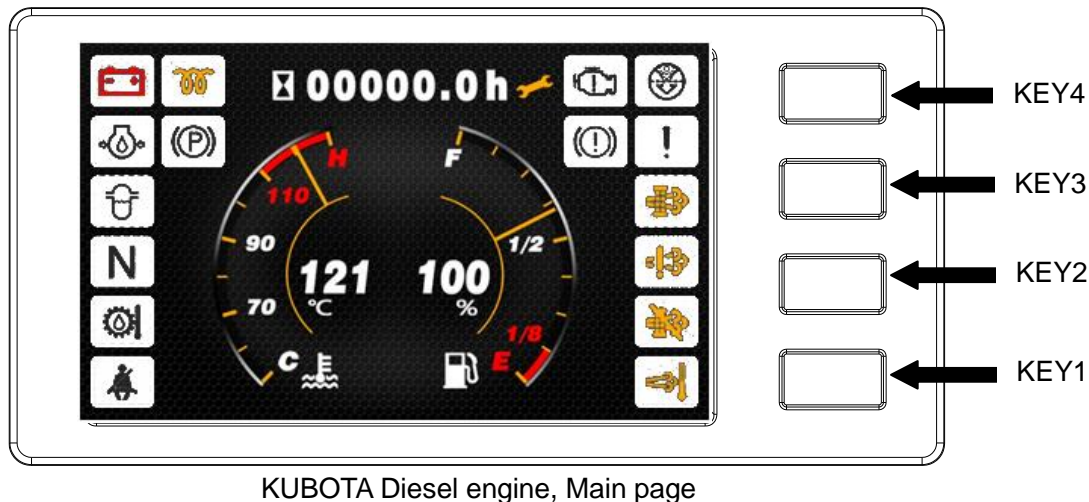
When this light is on, it means not wearing a seatbelt or not locked.

Accumulator warning indicator



This indicator light does not work on the **1-X5 ton** forklift.

CAN Bus Instrument(W98)



A. Instrument indicator lamp

Water temperature gauge



This gauge indicates the oil temperature in the torque converter transmission box when the key is at | (ON) position. In normal status, LED Displayed in the range of 40 °C -110 °C

! Caution

If LCD display in the red zone , please stop the truck at once. Decrease the engine speed to make the engine cool. Check the cooling fluid if enough and the fan belt's elasticity if fit.

Fuel gauge



The gauge indicates the fuel level in the tank when the key is at | (ON) position. Suggest filling up the fuel tank after work every day.

Hour meter



This meter measures working time of engine when the key is at | (ON) position. The meter increase one number every working hour.

Use meter to schedule lubrication and maintenance periods.



Caution

When the time meter increases every 100h (the factory default time interval is 100h, which is adjustable), the spanner logo will flash one hour at regular intervals to reminder of the maintenance to the forklift. Refer to monthly maintenance after first flash. Refer to periodical maintenance schedule for per period. Take the actual flashing time as standard.

Charging indicator



This lamp indicates the battery condition of charge. The lamp comes on when the ignition switch is set at | "ON", but it goes out as the engine starts and accelerator pedal is pressed.



Caution

If the light continues to stay lit or lights up during operation, the charging rate is low and should be checked immediately.

Glow indicator [Diesel truck]



Turn the key to "ON" position and the indicator lights up for a moment. After the indicator goes out, turn the key to . ➡ "Start" position

Engine oil pressure alert lamp



This lamp indicates the pressure condition of

engine lube oil. Although it lights up when the engine switch is set at “ON”, once the engine starts up and the accelerator pedal is pressed, this lamp goes out.



Caution

If this light continues to stay lit or lights up during operation, the pressure is lower than 0.05Mpa and should be checked immediately.

Parking indicator



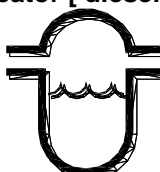
Parking indicator shows on means brake is affected, Please loosen the parking handle (hand brake handle), the parking indicator will shows off.



Warning

It will damage the engine and transmission, etc. when indicated.

Sedimentor indicator [diesel truck]



In normal state, once the starter is set to ➡“ON” position, this lamp lights up. After the engine is started up, it goes out.

This lamp lights up when water in sedimentor reaches to a certain level, while the engine is running.

If this lamp continues to stay lit or lights up during the engine running, stopping the engine and discharge water immediately.



Caution

If continue working when the lamp is light. The fuel injection pump may be damaged.

Neutral position start-up indicator



Put the steering handle in the neutral position when truck on the temporarily stop, the light will indicated on

The truck can be started up only in the neutral position.

It's prohibited for truck in the neutral position slipping when it's on the slope.

Transmission oil temperature warning light (Hydraulic Forklift)



In normal state, once the starter is set to ➡

“ON” position, this lamp lights up. After the

engine is started up, it goes out.

During work time if the oil temperature exceed the normal rang 60℃~120℃the indicator light on.



Caution

If the pointer enters the red range, stop the operation instantly and slow down engine speed to cool the coolant and wait until the pointer goes into the green range, and have a check then.

Seat belt warning indicator [Optional]



When this light is on, it means not wearing a seatbelt or not locked.

OPS indicator



When this light is on, it means driver leave the seats or not sitting on the seat correctly.

Air filter indicator [O]



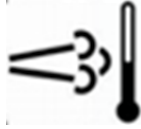
When the light is on, it indicates the air inlet system is blocked, stop the truck and clean the air filter.

Accumulator warning indicator [D]



This indicator light does not work on the forklift.

High exhaust temp. lamp



W98 Engine: lamp on



Caution

Remind the driver of high exhaust temperature during regeneration, and pay attention to safety.

Inhibit Regeneration Lamp



This light indicates that the regeneration state of the engine is limited and the requested regeneration cannot be performed at this time.



Caution

Work in an environment that is not suitable for DPF regeneration. Turn on the regeneration prohibition. After leaving, the regeneration prohibition should be lifted in time to turn off the regeneration prohibition indicator so that active regeneration can continue.



Warning

If active regeneration is always prohibited, the exhaust filter will be blocked, exhaust is blocked, and the forklift's performance will deteriorate until the engine fault indicator is activated.

EATS fault indicator lamp



To indicate that the engine EATS (Exhaust After Treatment System) has failed or falls outside of specified operating parameters.

At the same time, the engine fault light is on.

Regeneration Needed/Request Lamp



There are three working states: driving regeneration, parking regeneration, service regeneration (after-sale program).

In the first case, the regeneration indicator lights up permanently and is in the regeneration working state. No manual intervention is required at this time, and only the normal working state needs to be maintained.

The regeneration reminder will automatically go out, which also means that the particulate matter processing is completed.

What the driver has to do is to reduce the light load running time as much as possible in order to increase the exhaust temperature and shorten the regeneration time.

In the second case, prompt to stop and start parking regeneration.

Parking regeneration meets the following conditions:

- ① The forklift is parked on a well ventilated flat road.
- ② Pull up the handbrake.
- ③ Release the accelerator pedal.
- ④ The reversing operation lever is kept in neutral (N range).
- ⑤ Preheat the forklift until the water temperature reaches 70 °C.

A hazard warning sign is placed near the exhaust port.

Turn on parking regeneration (see instrument key operation instructions).

After the regeneration is complete, the lamp will turn off automatically, and after 2-3 minutes the engine returns to normal idle speed, you can shut down the engine.



Caution

Parking regeneration: parking state, not conducive to heat dissipation. Keep away from flammable materials and keep a safe distance from people.

Drivers should pay attention to protection, do not leave the scene, and always pay attention to the engine condition during regeneration.

It is best not to stop in the middle, otherwise it is easy to cause DPF failure.



Warning

In case of emergency, parking regeneration must be prohibited, exit any one of the parking regeneration conditions ② ③ ④.



W98 Engine

The indicator light flashes during driving. If the parking regeneration is not performed in time, it is easy to cause DPF jams and may damage

the DPF.

If the regeneration indicator flashes while driving, and the engine fault indicator also lights up, stop immediately.

Contact the factory maintenance personnel or after-sales to check the engine fault code. After there are no other faults, start parking regeneration.

Kubota engine	
	
light flashes	Engine fault Code (SPN: 3701 FMI:15)

The third case is service regeneration.

DPF has been seriously blocked, the engine has reduced power and torque limit, the forklift cannot work normally, contact the after-sales service to complete the service regeneration.

Engine fault indicator [Electronic-controlled engine]



When the engine gets out of order, this Indicator will be on. then it must immediately stop.

Press the key on the right side of the instrument

to view, or ECU diagnostics port connected to

diagnostic equipment, read the fault code

information stored in the ECU.

B. Instrument key operation instructions

B.1 Engine fault information display page

(1) KUBOTA diesel engine

No fault	Fault
Dignostic Message No active fault Back	Dignostic Message SPN: 523589 FMI: 17 Prev Next Back
①Enter the engine fault information display page: Main page=》 Key 4 ②Fault query page turning: press key 2 or key 3 to page turning (page turning key is not displayed when there is no fault at present) ③Return to main page: press key 1 to return to main page	

B.2 Forklift operation parameters and interface switching between Chinese and English

- ①Enter the engine information display page: Main page=》 key 2 or key 3
- ②Language switch: press key 3 to switch language (Chinese / English)
- ③Return to main page: press key 1 to return to main page

蓄电池电压 12.5 VDC	发动机转速 2450 r/min	机油压力 0.689 Bar	转速负载 68 %	EN
Ash 负载 89 %	SOOT 负载 -128 %	进气温度 30 °C	行驶速度 13 km/h	
Battery Voltage 12.5 VDC	Engine Speed 2450 r/min	Oil Pressure 0.689 Bar	Load @ RPM 68 %	CN
Ash Load 89 %	SOOT Load -128 %	Intake Air Temperature 30 °C	Vehicle Speed 13 km/h	

KUBOTA diesel engine

B.3 Settings page

(1) Set page actions

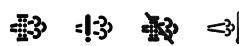
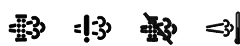
高级设置	Setting
后处理系统	Emissions
保养提醒	Maintenance
返回	Back

- Enter the setting page: Main page=》 Key 1
- Enter the maintenance page: Main page=》 Key 1=》 Key 2, to enter the maintenance page
- Enter the Emissions setting page: Main page=》 Key 1=》 Key 3, to enter the emissions setting page
- Enter advanced setting page: Main page=》 Key 1=》 Key 4, Enter the password input

page of advanced settings maintenance personnel

- **Return to main page:** press key 1 to return to main page

(2) DPF Emissions function setting page (Diesel engine)

后处理系统	取消禁止	Emissions	Cancel Inhibit
	禁止再生		Inhibit
	请求再生		Regen
	返回		Back

Cancel inhibit: press the key 4, The DPF is to burn (DPF-regenerate) trapped particulate matters in an automatic way.

Inhibit: press key 3, DPF-regenerate function of OFF

Regen: press key 2, Turn on DPF parking regeneration

Return to the setting page: press key 1 to return to the setting page

(3) Maintenance reminder maintenance page

a. Remaining hours query page

距下一次保养时间		Remaining Hours	
1000	重置	1000	Reset
小时	返回	Hours	Back

Reset: press the key 2 to jump to the maintenance time reset page to reset the remaining hours of maintenance to the Set the initial value (maintenance interval).

Back: press key 1 to return to the setting page

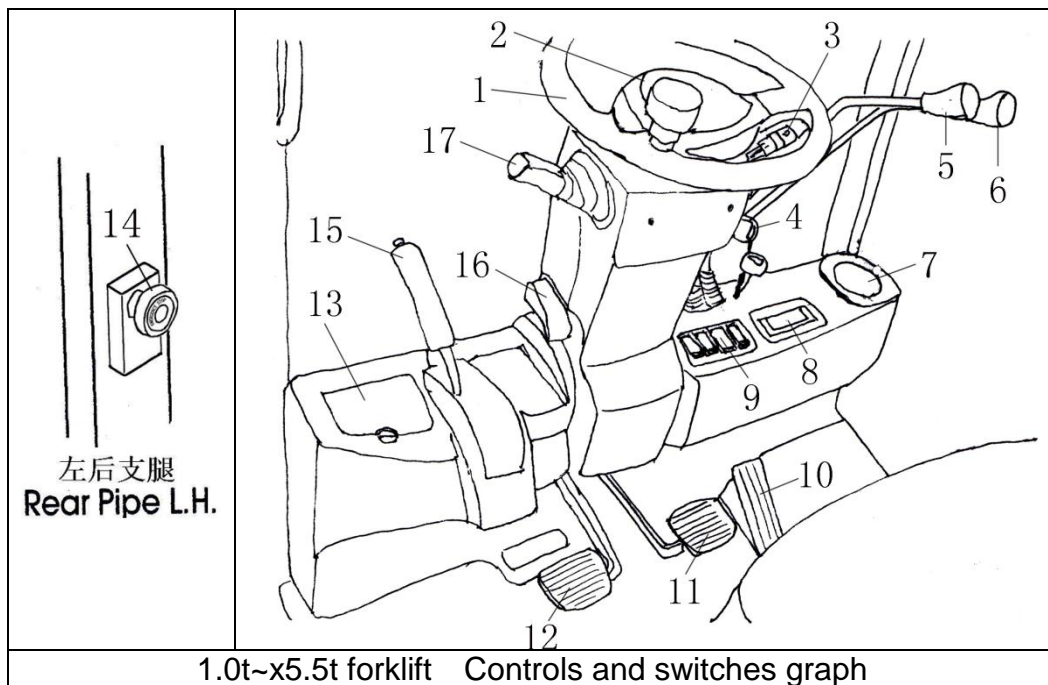
b. Maintenance time reset page

注意：	Attention:
您将重置保养时间设定！	you will reset maintenance reminders !
确定	Confirm
返回	Back

Confirm: press the key 2 to confirm the reset. After the confirmation, it will automatically return to the maintenance query page.

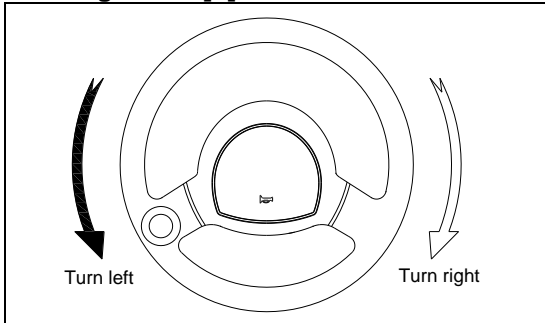
Back: press key 1 to return to the setup page.

2. Controls and switches



1. Steering wheel	2. Horn	3. Combination switch
4. Key switch	5. Lift control lever	6. Tilt control lever
7. Cup holder	8. Instrument	9. Rocker switch
10. Accelerator pedal	11. Brake pedal	12. Inching pedal
13. Wiper spray lid	14. Emergency disconnect switch	15. Parking brake lever
16. Steering wheel adjustment switch	17. Reversing lever	

Steering wheel [1]



It controls the movement direction of truck. Rotate counterclockwise, the truck moves to the left; rotate clockwise, then moves to the right



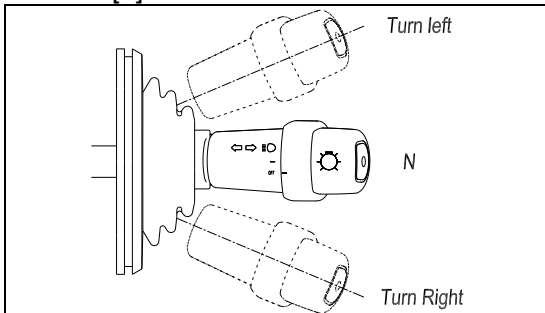
Warning

This truck is provided with the power steering, so heavy hand-wheel operation is caused when the engine comes to a stall. To put the power steering in operation again, restart the engine without delay.

Horn button[2]

Press the button in the center of steering wheel, the horn will sound.

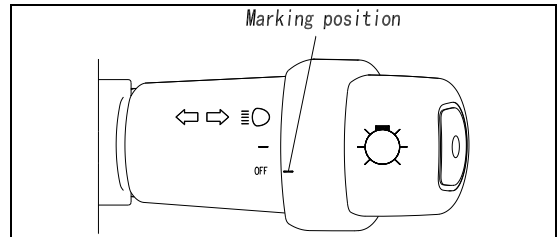
Combination switch (Turn signal switch/light switch) [3]



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

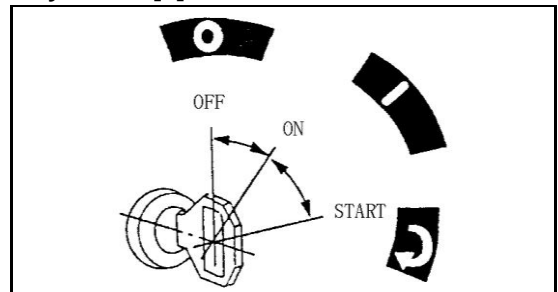
Forward-left turn light, **N**-neutral, **Backward-right** turn light

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.



Turn on the headlamp and small lamp, turn this switch, and aim the position line on the switch knob to the relevant marking on the switch subject.

Key switch[4]



O (OFF): This is the position at which the key may be inserted or removed

| (ON): The electric circuit is closed with the starter switch at “|” (ON). After the engine starts, the key remains in.

➡ (START): When the key is turned to the ➡ position, the starter motor is engaged. Switch returns to the “|” position automatically after starting.

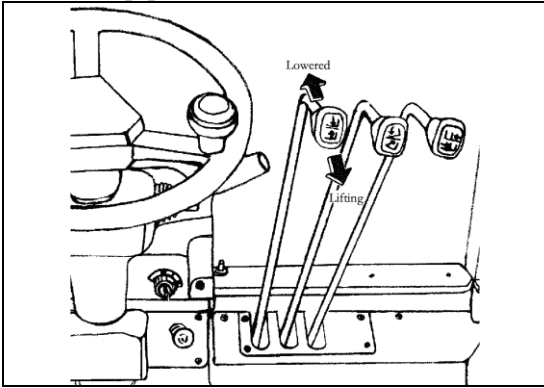
Turn the key to “|” position, the indicator light[1] will come on momentarily. After the indicator light goes out, turn the key to “➡” position.



Caution

1. Do not leave the key in the “|” position when engine is off. Doing so will discharge battery.
2. Do not turn key to the “➡” position when the engine is running. Doing so may damage the starter motor.
3. Do not keep key in the “START” position for more than 5 seconds at a time. Wait about 2 minutes between attempts.

Lift lever [5]



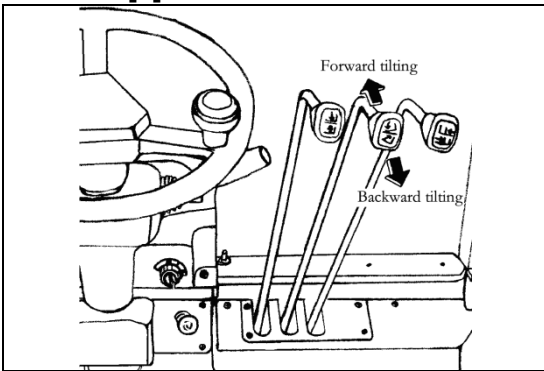
Controls the forks' up or down.

Push forward—lowered

Pull backward—lifting

Lifting speed is controlled by tilting backwards angle of lever and accelerator pedal. The lowering speed can be controlled by tilting forwards angle of the lever.

Tilt lever [6]



It is used for forward and backward tilting of mast.

Push—tilt forward

Pull---tilt backward

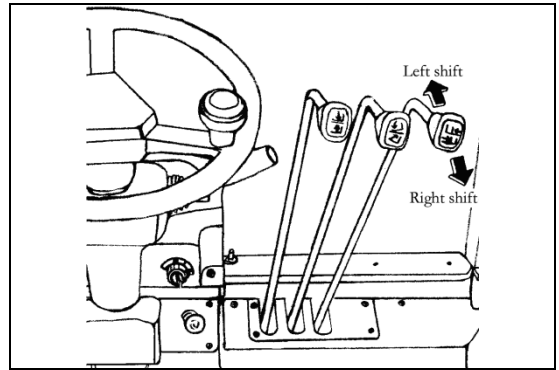
The tilting speed is controlled by tilting angle of the lever and accelerator pedal effort.



Caution

The tilt lock mechanism in the hydraulic control valve will not allow the mast to tilt forward while the engine is being shut down, even if the tilt lever is pushed forward.

Side shift control lever



Used for left shifting and right shifting of the side shift bracket.

Push forward-move to the left

Pull backward-move to the right

Side shifting speed depends on the tilting angel of the handle and accelerator control.

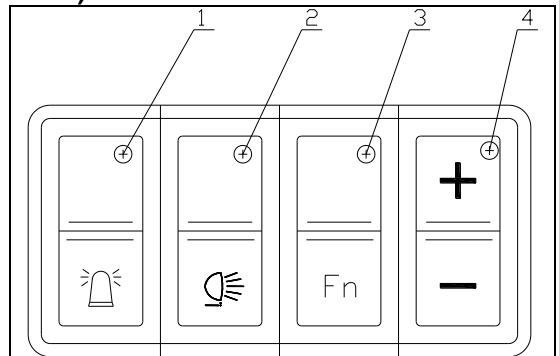
Different attachment type has different working way, so the operator must be familiar with the operation.

Cup holder[7]

It is in the right side of the instrument. It's designed for the operator to put the cup.

Rocker switch[9]

(Two-wheel drive rough terrain forklift truck)




1 Warning light.: Press backward, the warning light is on; press forward, the warning light is off.

2 Rear headlamp switch: Press backward, the rear headlamp is on; press forward, the rear headlamp is off.

There may be some difference with the rocker switch if with cab. Add ventilation, anti-fog or other functions.

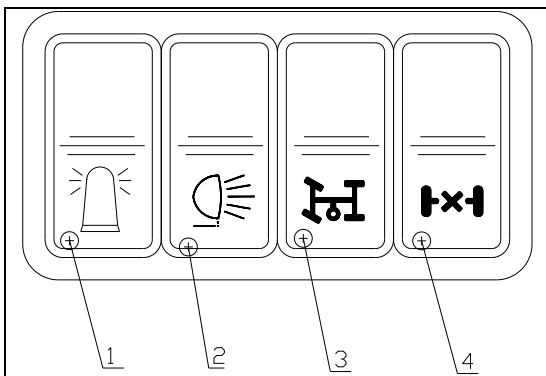
3 Engine malfunction detect switch (Only for CUMMINS engine): When the engine has something wrong, put the Key Switch at the position | (ON), "Engine detect" switch at

"Fn" or "ON",  Indicator is always on,

△ or △ Indicator display fault code by various frequency, remove the trouble according to fault code.

4 Engine detect page turning switch (Only for CUMMINS engine) : If there are multi-malfunction, you can watch other malfunctions by using “Engine detect page turning”. After remove the malfunctions, △, △ or △ indicator go out. Put “Engine detect” switch at “OFF”, Key switch o (OFF), start the engine only after 30 seconds can.

(Four-wheel drive rough terrain forklift truck)



1 Warning light.: Press backward, the warning light is on; press forward, the warning light is off.

2 Rear headlamp switch: Press backward, the rear headlamp is on; press forward, the rear headlamp is off.

3 2-4 drive switch: Press backward, four drive; press forward, two drive.



Caution

Four-wheel drive is only used in bad road conditions or extreme conditions. Use 2-wheel drive when driving normally. Forklift trucks should be driven by two wheels when turning on roads, sand, snow and ice.

4 Differential lock switch: Press backward, differential lock; press forward, Differential work

Differential lock is a locking mechanism installed on the central differential for four-wheel drive vehicle. Its function is to improve the passing capacity of forklift in bad road conditions or extreme conditions, that is, when a wheel of the forklift idles, the

differential lock can quickly lock the differential, so that the left and right wheels become rigid connection. In this way, most or even all of the torque can be transmitted to the non-rotating wheel, making full use of its adhesion to generate enough traction, so that the car can get rid of obstacles and continue to drive.

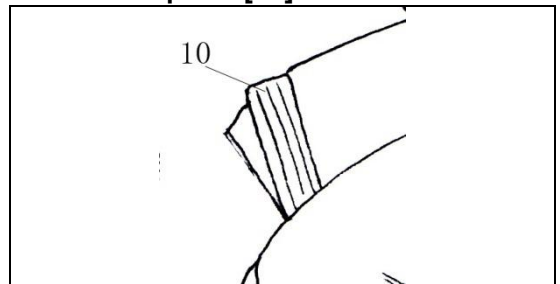


Caution

Differential locks are only used in bad road conditions or extreme conditions. Long-term use in normal driving will cause serious damage to automotive tires, driving axles and other components. So please press up the differential lock switch when driving normally. The differential lock switch must be switched in the parking state.

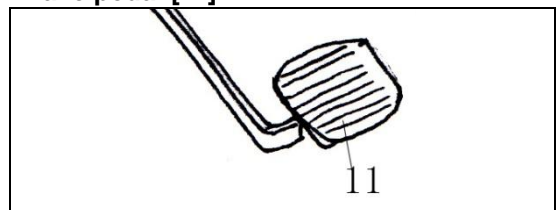
Pedal

Accelerator pedal [10]



Depress accelerator pedal to increase speed. Release pedal to decrease speed.

Brake pedal [11]



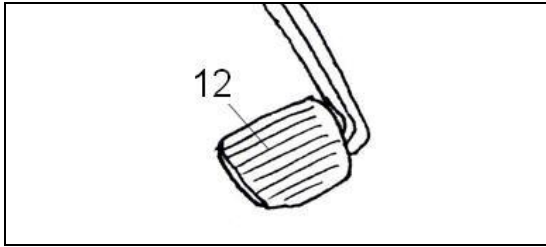
Depress the pedal partially to slow vehicle motion. Depress it fully to bring vehicle to a stop. Release the pedal to resume vehicle motion.



Caution

Avoid sudden braking which can cause vehicle rolling over or cargo falling, and lead to accidents.

Inching pedal [12]



Depress the pedal partially to decrease hydraulic oil pressure. Use inching pedal for forklift loading and unloading, and when slow speed is required. When pedal is depressed all the way, forklift will slow to a stop.



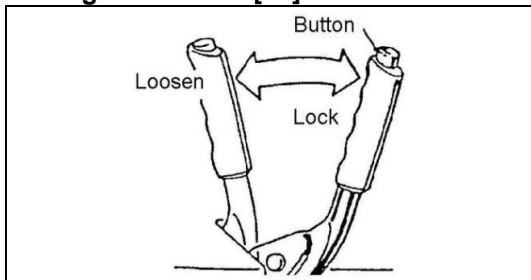
Caution

Do not use the inching pedal too much, as it will cause transmission oil temperature to rise and the clutch to slip.

Emergency disconnect switch [14]

Press the emergency disconnect switch, disconnect electrical appliance with battery. Re-start the truck, pull up the switch. After shut down, turn off the switch in 30 seconds.

Parking brake lever [15]



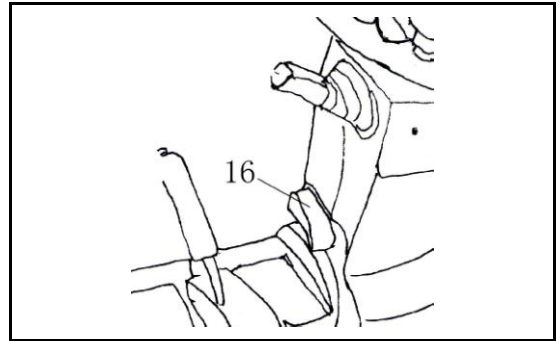
Pull lever backward to set the parking brake, push lever forward to release the parking brake. Always set parking brake before leaving the truck.



Caution

In case of brake system doesn't work or there is an emergency, you can tighten this lever to stop the truck in urgency. Normally it is prohibited to use parking brake as service brake.

Steering column tilting angle adjustment [16]



The tilting angle of the steering wheel is adjustable to suit individual operators. The steering column is unlocked by pushing down the lever at the left side of turning rod, then adjust the angle suit to the driver, and pull up the lever to lock.



Caution

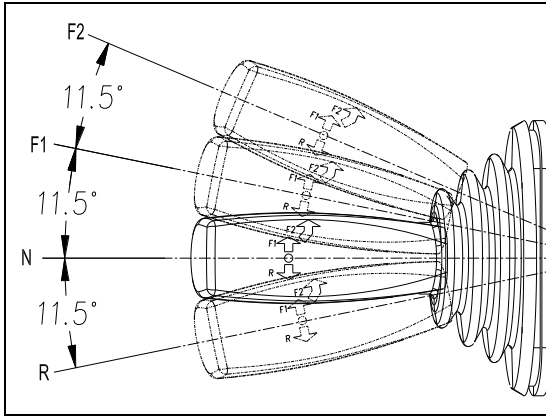
- After stop the truck and pulled up the hand brake, then adjust steering wheel angle.
- After adjustment, pull the steering wheel to make sure if locked.

Reversing lever [17]

It's installed on the left of the steering column. These series forklift trucks are electronic reversing, push or pull this lever to realize the following functions:

(Two-wheel drive rough terrain forklift truck)

F2	Forward 2 gear
F1	Forward 1 gear
N	Neutral
R	Reverse

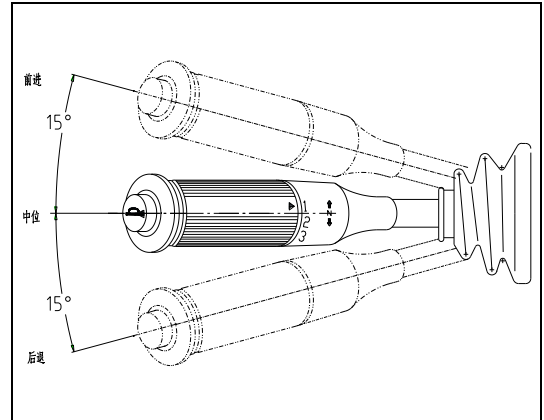


Before changing travelling direction, step the brake pedal until the truck completely stops, then move the lever forward to F1, and move to F2 through F1; if retreat needed, step the brake pedal to slow down the truck, move backward to R1, and then move to R2 through R1.



Caution

Only place the lever in neutral can you start the engine



Before changing the driving direction, step down the brake pedal until the truck is completely stopped, turn the lever and shift to the first gear, shift backward to the second gear, and then shift to the third gear. To back up, step on the brake pedal to decelerate, turn the lever back and shift to the first gear.



Caution

The engine can only be started after the lever is in neutral position.

(Four-wheel drive rough terrain forklift truck)

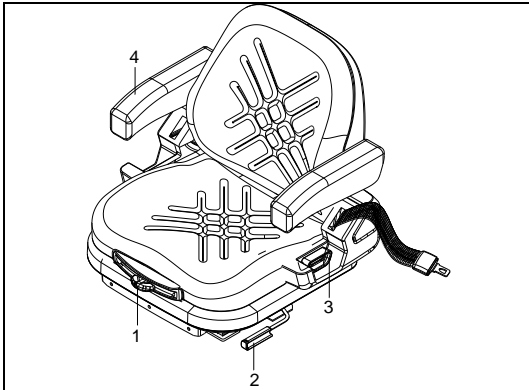
1	1 gear
2	2 gear
3	3 gear

3. Truck body and others

Load backrest

The load backrest improves stabilization when loading goods. Never use forklift truck without the load backrest.

seat



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

•Weight adjustment on the seat

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

•Forward and rearward adjustment of the seat

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

• Angle adjustment of foldable seat backrest

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

•Armrest Adjustment

The inclination of the armrests can be modified by turning the adjustment knob. When turning the knob to the outside the front part of the armrest will be lifting, when turning the knob to inside it will be lowered.

Warning

- Turn off the key before adjusting the seat.
- It's prohibited to adjust the position of the seat only when the truck stops.
- In case of accident, no seat adjustment is allowed in the process of travelling
- Make sure the lever is moved completely to separate the seat structure before the forward and rearward adjustment of the seat and angle adjustment of seat backrest.
- After adjustment, each lever should be back in place. Before using the truck, make sure the lock of every part is reliable.

Safety belt

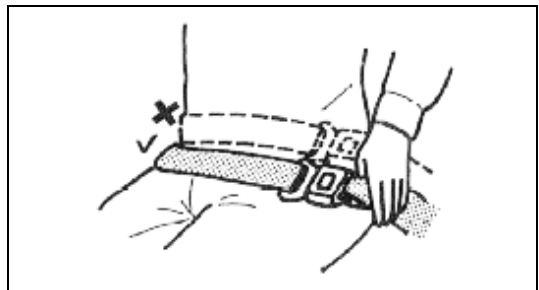
- Fasten safety belt

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

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

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

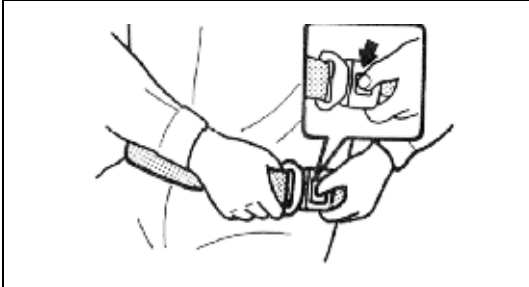
Please fasten the belt when get on the truck. Meanwhile, let the back and waist close to the seat. Don't tie the seat in the abdomen.



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

extended correctly.
Prohibit use the belt knotted or twisted.
To tie the belt in the daily operation will protect you when the truck turn over and reduce the harm.

▪ Unfasten the belt



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

▪ Check the belt

Regularly check the bolt of the fixed belt if it becomes loosened. Don't put the belt in the hard or frangible objects and prevent from grinding with the sharp blade to avoid any damage. It is prohibited to remove any parts of the belt. The belt, used frequently, often needs to be checked.

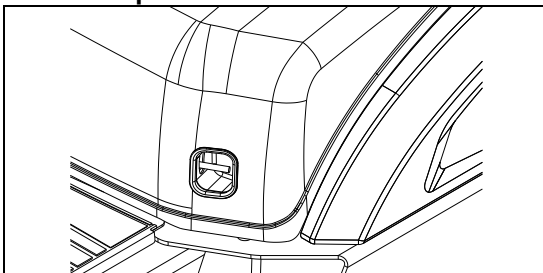
- cut or frayed straps.
- worn or damaged hardware, including anchor points.
- buckle or retractor malfunction.
- loose stitching.

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

Overhead guard

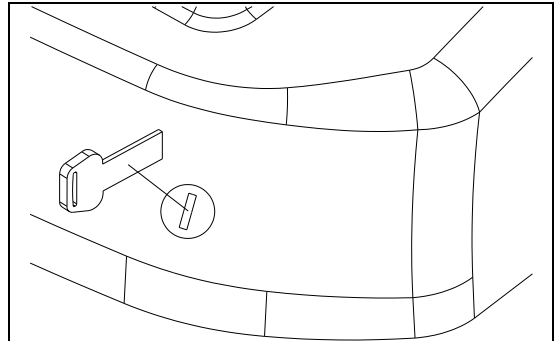
DO NOT operate forklift without the overhead guard. It is designed to protect the operator from falling objects and meets the safety standard.

Lock components



To avoid opening the hood at discretion, a

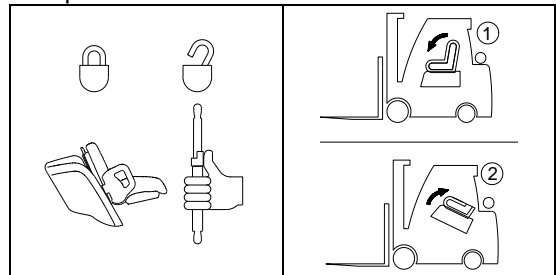
snap close is set here. Open the snap close first then the hood can be open.



Optional : To avoid opening the hood at discretion, the truck is equipped with lock. Use the key to open the hood.

Hood

The hood can be swung up fully to provide easy maintenance service. You can lift up the hood with little effort with an aid of hood damper.



To lock the hood, press the red button on the air spring pipe. The lock button is unstuck this time, then push down the button on the front of hood until you hear a rattling sound. It means the hood is locked.



Caution

The hood needs key to open of CE truck. Turn the key to horizontal position, and then press the key forward to open hood.

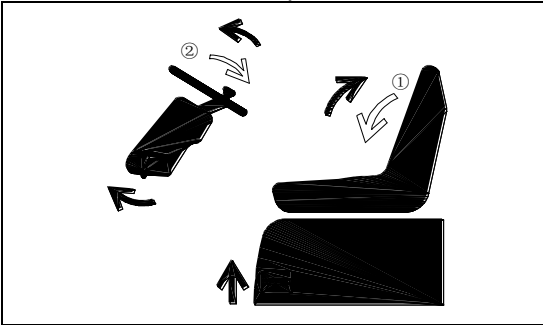
Use caution not to catch your fingers in the hood while closing it.



Warning

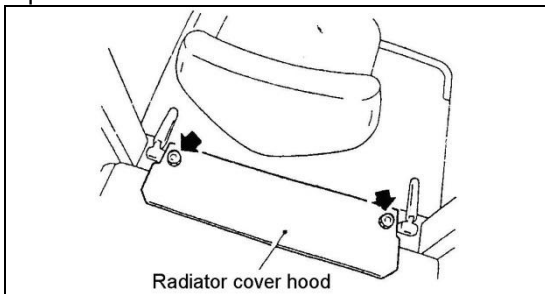
While performing maintenance under the hood, the engine must be off to avoid injury to hands or other body parts. The engine can be running in order to troubleshoot some problems, however, DO NOT place body under hood while it is running.

Before opening hood, please move steering wheel forward, tilt seat back forward. After closing hood, reset steering wheel and seat back to their initial position.



Radiator cover hood

When the engine cover is closed, this radiator cover hood can be removed to check cooling liquid.



Radiator cover hood



Caution

Reinstall the radiator cover hood and tighten the bolt by hand.

Fix up this part by inner hexagon bolts for truck exported to Europe. Use socket spanner to loose before remove; reinstall and tighten the bolt by socket spanner.

Radiator cap and coolant reservoir

The reservoir is located inside the hood.

The radiator cap is located under the cover plate at the rear of the hood.



Warning

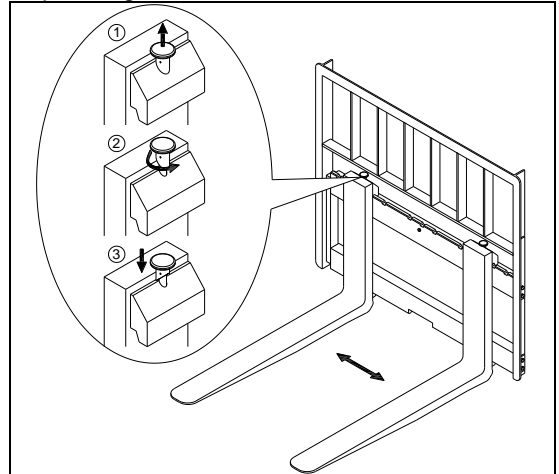
- When the water temperature of the engine is higher than 70 degrees Celsius, do not open the pressure cap of the radiator. Loosen cap slowly to allow steam to escape. After that, tighten cap securely. It is good practice to use a thick waste cloth or the like when removing the cap.
- Do not wear gloves when removing

radiator cap.

- Antifreeze is harmful to a person, if swallowed, seek medical advice immediately. Keep antifreeze away from children.

Fork stopper

Use it to adjust fork spacing. Pull up fork stopper, turn 180°, adjust fork spacing depending on the load to handle.



Warning

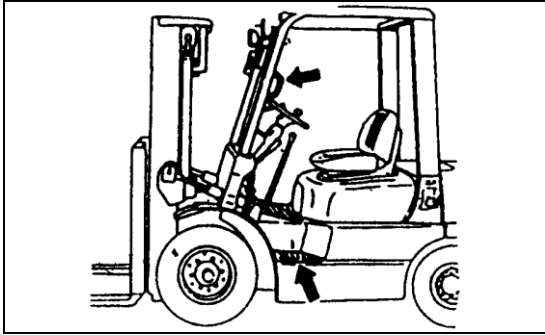
The forks should be set symmetrically to machine centerline and fork stoppers should always be set

The lower beams of the fork have an opening section to load or unload forks.

DO NOT set the forks over the opening. Check the bolt at the middle of the fork bracket used to prevent fork load at the opening.

Safety step and safety grip

Safety steps are provided on both sides of the truck body. The safety grip is located on the left and right sides of the overhead guard. Use both the safety step and safety grip when mounting and dismounting the truck.



Hydraulic fluid reservoir cap

The hydraulic fluid reservoir cap is located on the right side of the hood. Open the engine hood when adding oil. Fill hydraulic fluid through this filler port and lock the cap after filling hydraulic fluid.

Fuel reservoir cap



Fuel reservoir cap with lock

The fuel reservoir cap is located on the rear left side of the truck body. The fuel reservoir cap has a breather inside it to allow air to enter the reservoir. Check to see that the breather is in good condition every time fuel is added.



Caution

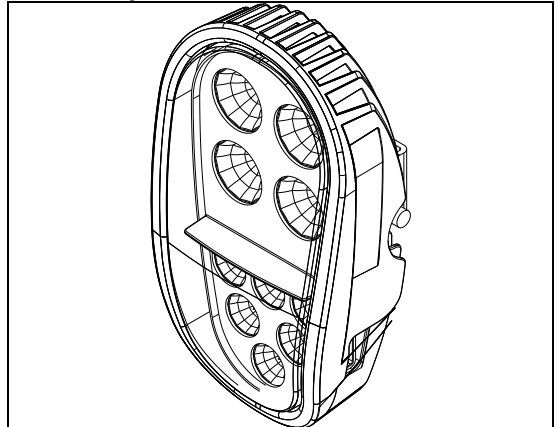
1. Stop the truck, shut down the engine and apply the parking brake securely. Make sure there is no naked flame near the area. DO NOT smoke while handling fuel. DO NOT remain seated when adding fuel.
2. After adding fuel, securely close the reservoir cap. A loose cap could cause a fuel leak or lead to a fire hazard.
3. Before starting the engine, make sure no fuel has spilled on or around the truck.
4. NEVER use light flame to check the fuel level.

Rearview mirror



There are rearview mirrors on the upper right of overhead guard for operator to see behind the truck.

Head lamp

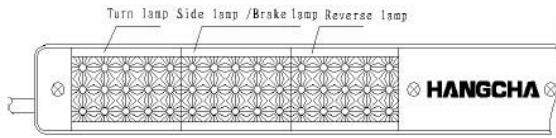


Disassembly and assembly of the head lamp

1. Dismantle the decorative frame;
2. Screw the four bolts at the back of the lamp shell and open the lamp shell;
3. Cut the lead wire, loosen the lock button, remove the lamp, change a new lamp and install back;
4. Loosen the two fixed bolts of the LED style side lamp, take out the lamp, check if the lamp is damaged. If it is, cut the lead-out wire close to the welding spot, change the new plate, weld again in the original place and fit it back;
5. Rotate the turn signal lamp according to the arrowhead in the back of the seal. Take out the lamp, change the new one and put it back.

6. Close the lamp shell, screw the bolt and fasten up the decorative frame.

Rear combination lamp



Take apart the rear combination lamp from the overhead guard, pay attention to the safety

1. Take the whole rear combination lamp to the service place, take off the lamp housing, and screw off the four bolts at the back of the lamp housing
2. Take off LED plate, loosen two bolts fixed the connector, cut the connector, and change a new LED plate.
3. The installation procedure is contrary to the disassembly.

III. Safety rules

1. Only trained and authorized operators should operate the truck.

2. Inspect the truck at periodic intervals for oil or water leaks, deformation, defects, etc. If neglected, the life of the truck will be shortened and in the worst case a fatal accident could occur.

Make sure to replace the "key safety parts" during periodical inspection.

Wipe off any oil, grease or water from the floor board and foot and hand controls.

Shut down the engine before inspecting the engine and its allied components. Use extra caution when near the engine fan.

When inspecting the radiator or muffler, exercise caution to avoid being burned.

3. Any time you find that the truck is not functioning properly, stop the truck and report the condition to your supervisor.

When performing maintenance on the mast, front and rear lights, or other high places, be safely secured and take care not to slip

If any warning lamp comes on, move to a safe place and check or repair the trouble.

When performing maintenance, take care not to cut hands, head or other parts of body on truck edges.

Place a sign/label on a truck found to be defective.

4. DO NOT use open flame to check fuel, electrolyte or coolant levels.

DO NOT smoke while inspecting the battery, handling fuel or working on the fuel system. There is a danger of explosion.

Always have a fire extinguisher available when working on the truck.

Never fill the fuel tank while the engine is running.

5. Warm water temperature to 70°C before operation.

If the temperature of the water is above 70°C, DO NOT open the tank cap.

6. When using the truck in an enclosed space, make sure there is enough ventilation. If needed, use a ventilation fan.

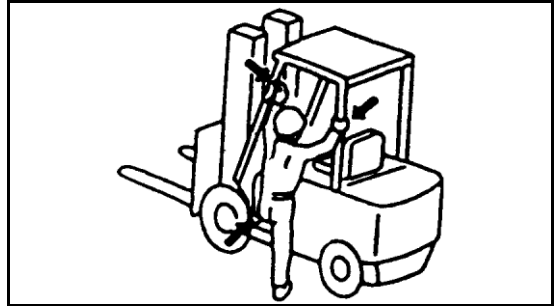
DO NOT work in a closed working space because exhaust gases are harmful.



Caution

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

7. Never mount or dismount a moving truck. Use the safety step(s) and safety grip when mounting or dismounting the truck.



8. DO NOT operate truck controls unless properly seated.

Before starting and operating the truck, adjust the seat so you have easy access to all hands and foot controls.

9. Make sure before starting:

①no one is under, on or close to the truck.

②the forward-reverse lever is in neutral.

10. Park the truck on a level surface and apply the parking brake securely. If the truck cannot be parked on a level surface, be sure to block the wheels.

Put the forks on the ground or floor and tilt them forward a little. Shut down the engine and remove the key.

11. Operate the controls smoothly, DO NOT jerk the steering wheel. Avoid sudden stops, starts or turns.

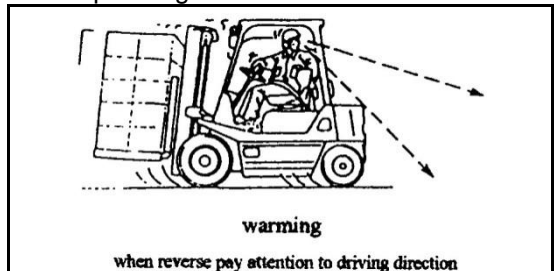
12. Control speed and observe traffic signs.



Caution

When traveling on public roads or streets, obey all local traffic regulations.

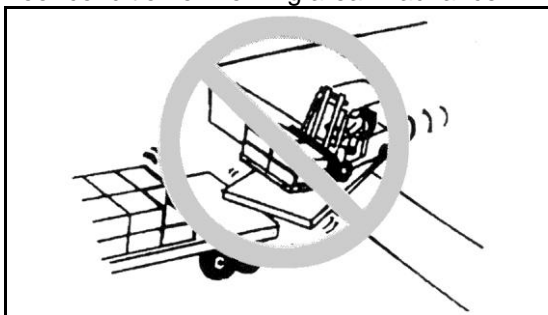
13. Be aware of your surroundings at all times while operating truck.



14. DO NOT allow passengers to ride on the truck, or allow people to sit on the forks or pallets.



15. Before driving over a dock-board or bridge-plate, be sure that it is properly secured and strong enough to sustain the weight of the truck/load. Check the ground or floor condition of working area in advance.



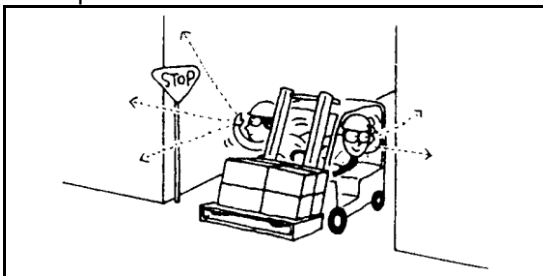
16. Keep your mind on your work.

17. Keep your head, hands, arms, feet and legs within the cab. Never place them out of the cab for any reason.



18. When handling bulky loads which restrict your vision, operate the truck in reverse or have a guide.

19. Slow down and sound horn at cross aisles and other locations where vision is restricted. The speed should be kept slower than 1/3 of max speed.



20. Keep fluid cans, row cotton, paper or chemicals away from the truck during operation since they may catch fire or explode due to exhaust gas from the muffler.

21. Use head lights and required work light and clearance lights at night. Travel at a slower speeds at night.

22. The work surface should be solid and level such as a cement road, asphalt or concrete road surface.

For truck operation, the following climatic conditions apply:

average ambient temperature for continuous duty: + 25 ° C;

maximum ambient temperature, short term (up to 1 h): + 40 ° C;

lowest ambient temperature for trucks intended for use in normal indoor conditions: + 5 ° C;

lowest ambient temperature for trucks intended for use in normal outdoor conditions: 20 ° C;

altitude: up to 2 000 m.



Caution

Inspect the surface over which truck will operate. Inspect for holes, drop-offs, obstacles, and rough spots. Look for anything that might cause you to lose control of the truck, or cause the truck to bog down or turn over.

- Clear away trash and debris. Pick up anything that might puncture the tires or cause the load to become unbalanced

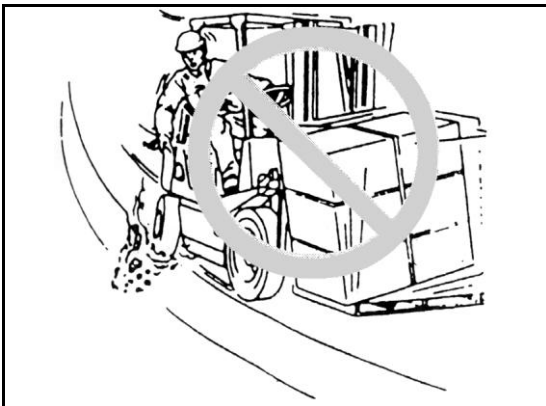
- Slow down when driving on wet and slippery roads. Stay away from the shoulder of the road. If you have to drive on the shoulder, use extreme caution

- Rugged surfaces cause truck vibration and noise. The high air pressure of the tires will cause vibration and noise as well.

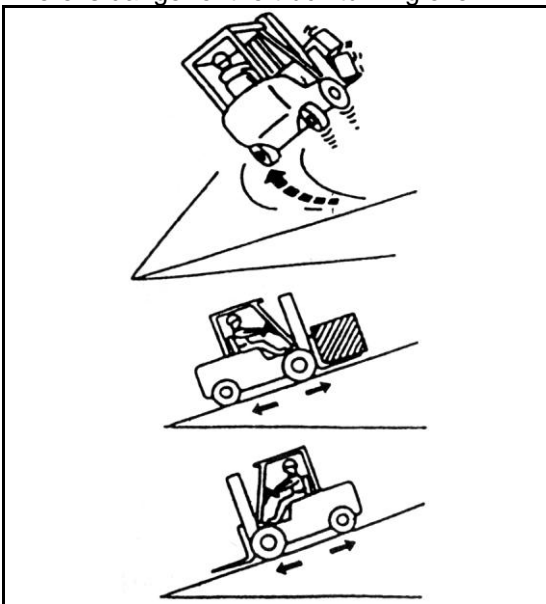


Warning

DO NOT operate the truck when the weather is inclement, such as wind storms, thunder storms, snow and etc.



23. When operating a loaded truck, have the rear end of the truck pointed downhill. When operating an unloaded truck, have the rear end of your machine pointed uphill. Never turn truck sideways on an incline. There is danger of the truck turning over.



24. When operating truck down on a grade, use engine idle speed. At the same time use the brake pedal intermittently.

25. It is dangerous to travel with forks higher than the appropriate position regardless of whether they are loaded or not. Maintain a good traveling posture. (When traveling, the forks should be 15 to 30 cm above the ground or floor.)

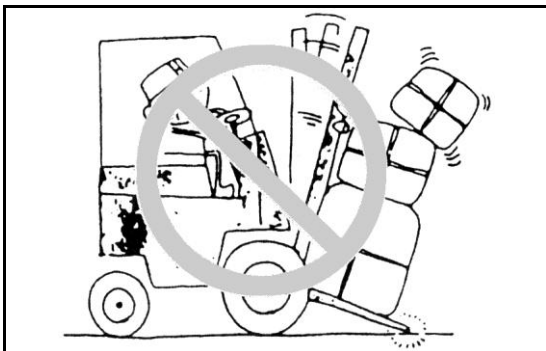
DO NOT operate the side shift mechanism, if equipped, when the forks are raised and

loaded, since this will cause the truck to become unbalanced.

A truck with attachments should be considered the same as a loaded truck.



26. Travel with load as low as possible and tilted back the mast.



27. Avoid braking too sharply or descending on a grade at a high speed. There is danger of loads falling down or the truck turning over.



28. Always brake to a full stop before reversing direction of travel; vice versa.

29. Take the shape and material of the loads to be handled into account when selecting the proper attachment and tools.

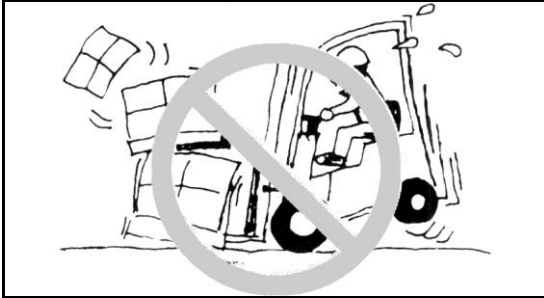
Avoid hoisting the load with wire rope hung from the forks or the attachment, since wire rope may slide off. If needed, qualified personnel should perform a sling operation, making use of a hook or crane arm attachment.



Caution

Make sure the fork does not protrude from under load. The protruding fork tips may damage or turn over an adjacent load.

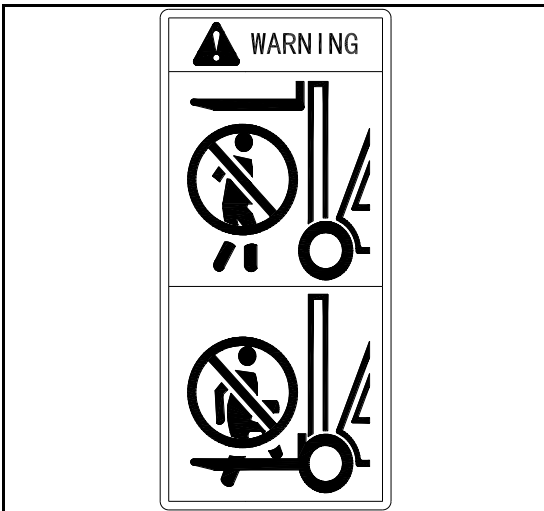
30. Know the rated capacity of your lift truck and its attachment, if any, and never exceed it. DO NOT use people as additional counterweights. It is quite dangerous.



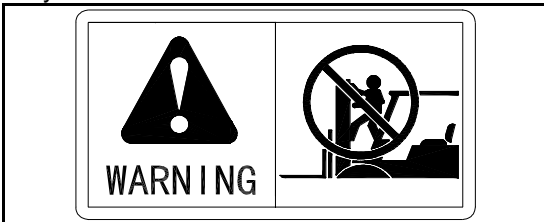
31. Load back rest is in place to prevent hitting the higher goods. A load backrest is used to ensure stable loading. DO NOT use forklift truck without overhead guard and load bracket.

32. Never permit anyone to stand or walk under upraised forks or other attachments if machine is so equipped. .

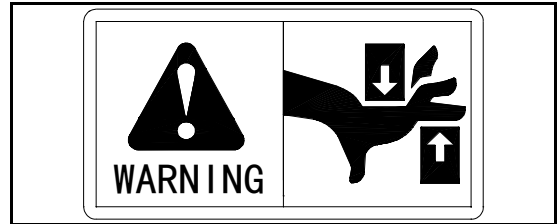
Never permit anyone to stand on the forks.



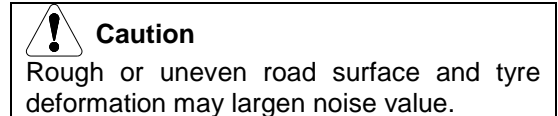
33. DO NOT put head or body into the interspace of mast and overhead guard which may cause loss of life.



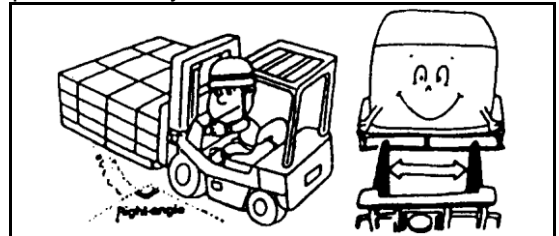
DO NOT place hands into the interspace of inner mast and outer mast.



34. When driver's ear noise is bigger than 80dB, please adopt hearing protective measures.



35. When load is to be retrieved from a pile, enter the area squarely. Engage forks into the pallet carefully

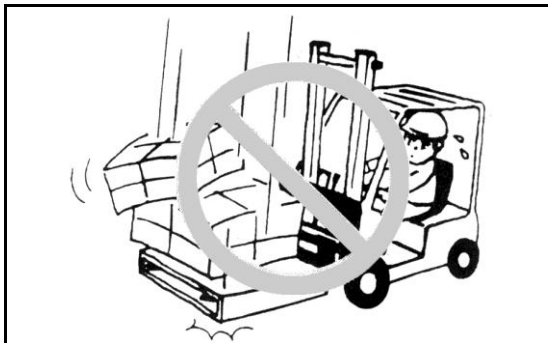


36. When traveling on rough roads or turning, stay to the center of the road to avoid losing the load or turning over.



37. DO NOT engage forks into loads at high speeds. Always make certain the load is stable before lifting the forks.

Be sure to stop in front of the load before engaging the forks, and make certain there are no obstacles, then engage the load by driving forwards.

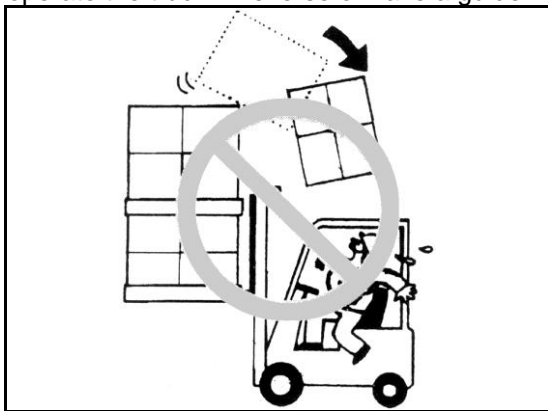


38. Make certain the load is well stacked and evenly positioned across both forks. **DO NOT** attempt to lift a load with only one fork.

On the truck with an attachment such as a load grab, make certain the load is securely and correctly grabbed, and pull the loading control level to the full (increase to relieve pressure).

39. Never lift loads when the truck is on an incline. Avoid loading work on a grade.

40. **DO NOT** stack loads on forks in such a way that the top of the load exceeds the load backrest height. If this is unavoidable, make the load as secure as possible. When handling bulky loads that restrict vision, operate the truck in reverse or have a guide



41. Use minimum forward and reverse tilt when stacking and unloading loads. Never tilt forward unless the load is over stack or at a low lift height.

When stacking loads on a high place, make the mast vertical when load is 15 to 20 cm above the ground before lifting the load further. Never attempt to tilt the mast beyond vertical when the load is raised high.

To unload loads from a high place, insert forks into the pallet and drive backwards, then lower the load. Tilt the mast back after lowering. Never attempt to tilt the mast with the load raised high.

42. **DO NOT** tow a truck that has engine

problems, or whose steering system doesn't work properly, or if its braking system has been disabled.

Obey all traffic rules when towing the truck.

43. Dress appropriately for operating the truck (overalls or other protective uniforms, safety helmet, safety shoes etc.). Avoid wearing neckties or other articles of clothing which may present a hazard if they come into contact with truck components.

44. The workplace should be equipped with a fire extinguisher. In order to provide easy access to it, the fire extinguisher is usually installed on the safety frame rear supporting leg. The operator should be familiar with position of the fire extinguisher and its use.

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

46. There are labels on the machine that display warnings and describe methods for operating the lift truck. When operating the machine, observe and follow all markings on the machine in addition to this operator's manual.

Replace damaged or missing decals and name plate.

47. HANGCHA provides various attachments to the user, like rotating clamp, side shifter, jib and so on, which are for special use. If attachment configuration needed, it must be admitted by the factory. It is forbidden to configure attachment by yourself.

Replace damaged or missing decals and name plate.



WARNING

Exhaust from internal combustion engines contains car-bon monoxide and other harmful chemicals. Carbon monoxide is a colorless, odorless poison and can cause unconsciousness or death without warning. Long-term exposure to exhaust or chemicals in the exhaust can cause cancer, birth defects, and other reproductive harm. Avoid exposure to engine exhaust.

If engines are operated in confined spaces, maintain adequate ventilation or vent exhaust to the outside. **DONOT** exceed applicable air contaminant limits.

Follow the inspection and maintenance schedule and procedures in this manual and engine manual. **DO NOT** alter exhaust, ignition, or fuel systems.



WARNING
FIRE HAZARD

For the diesel fork lift truck can present fire hazards when operating in areas containing flammable gases, vapors, liquids, dusts, or fibers. Engine and exhaust component surface temperatures can exceed the ignition temperatures of common solvents, fuels, oil, paper, and other organic materials (wood, agricultural grass/grain, cotton, wool, etc.). Exhaust emitted sparks can ignite these materials as well. Engine and exhaust surface temperatures increase after engine shutoff, presenting increased fire hazard. Check the engine compartment immediately following truck operation in areas containing combustible dusts, fibers, or paper and remove any foreign materials.

48.In view of the irregular use of mobile phones by drivers, which endangers the safety of life and property, it is prohibited for drivers to use mobile phones in safety rules: mobile phones or other electronic

communication devices unrelated to vehicles are prohibited during operation.

IV. Maintenance

See *Preventive maintenance schedule* for further information.

1. Daily maintenance (8hours)

It is also used as check before operation.

1. Check leaks: electrolyte, hydraulic oil, brake fluid, coolant, and oil in hydraulic transmission gear box.



Warning

DO NOT operate truck if leaked fuel is found following pre-operational checks. Correct the leak before starting engine.

Check the engine, hydraulic pipe connector, radiator and driving system for leaks by touching and visual inspection. DO NOT use an open flame to check levels.

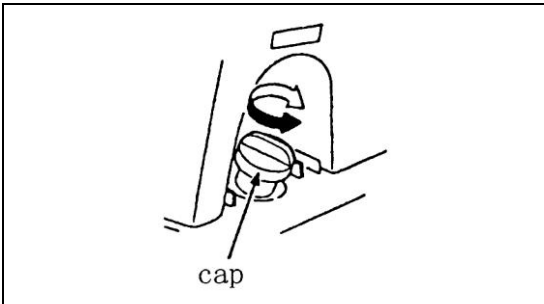
2. Check appearance

Visually check the lamps and meters for problems.

Check the tires, tire pressure and the entire truck for loose bolts

Check if the tyre is damaged, tyre pressure is normal.

3. Check fuel mass



A fuel level gauge is provided on the indicator panel. Make sure the fuel level is sufficient for the day's work. The fuel filler port is located at the rear left pillar of the overhead guard.

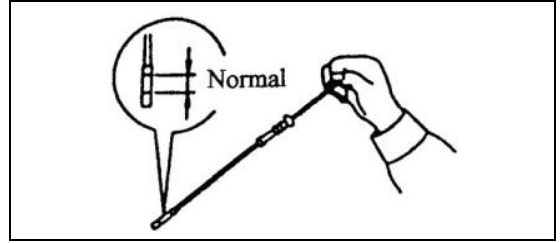
4. Engine oil level check



Caution

- When checking the engine oil, place forklift truck on level ground.
- Check engine oil when the engine is cool.

Remove the dipstick, clean the rod and reinstall. Pull it out again and check the oil level. The level should be within the marks on the dipstick



5. Check engine coolant

Inspect the small reservoir tank to see if the coolant level is between Min and Max position when the engine is cool. If is lower than "MIN", add to "MAX". If there is no coolant in the reservoir tank, check radiator coolant level. If insufficient, add coolant to radiator until to the radiator cap, its freezing point is -36.5°C, and fill reservoir tank with coolant to "MAX" position.



Caution

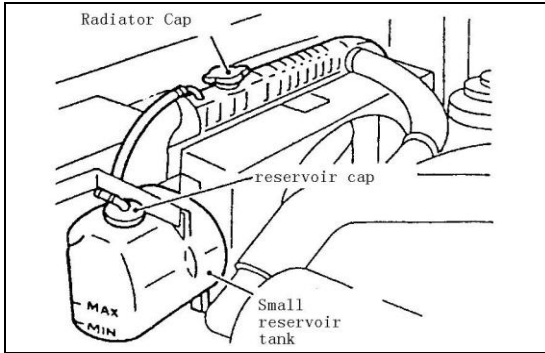
Add clean water to radiator. If you use antifreeze, make sure you use the same brand of antifreeze.

Pay attention to water reservoir and cooling system in the hot season.



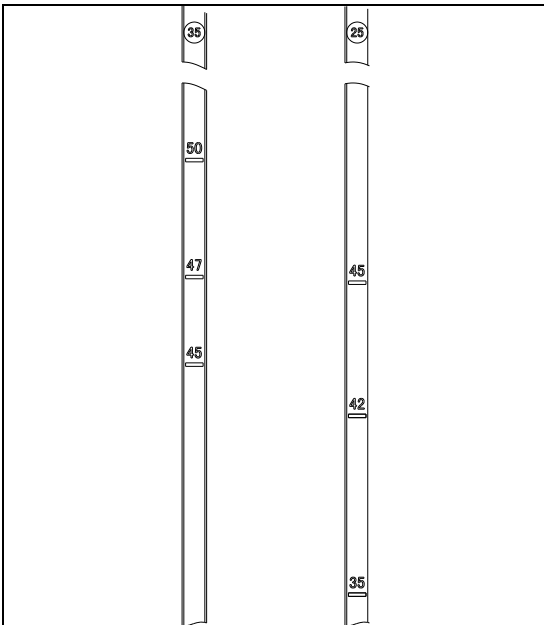
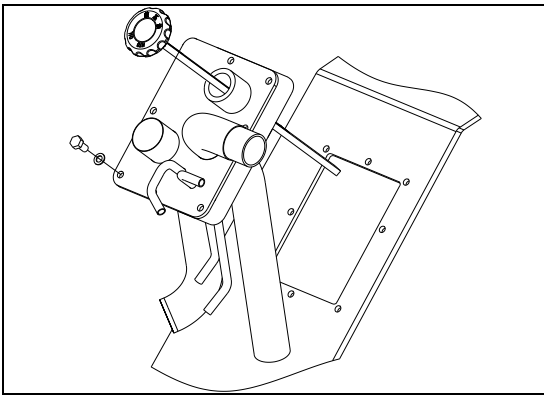
Warning

- When the water temperature of the engine is higher than 70 degrees Celsius, do not open the pressure cap of the radiator. Loosen cap slowly to allow steam to escape. After that, tighten cap securely. It is good practice to use a thick waste cloth or the like when removing the cap.
- Do not wear glove when removing radiator cap. You may get burnt on your hand if hot water splashes on it.
- Antifreeze is harmful to a person, if swallowed, disgorge at once and go to hospital.
- Keep antifreeze away from children.



6. Hydraulic oil level check

Check the oil level in the hydraulic oil tank. The oil level should be in the place between two limits.



The 2-3.5t square oil dipstick has three surfaces with marks, and the figure inside the round at the top of dipstick means the truck model applied for(see figure):

symbol 25 means its value of mark can be applied for 2t~2.5t truck;

symbol 30 means its value of mark can be applied for 3t~3.5t truck;

When the mast is in the lowest place:

For 2t~2.5t: the truck with standard mast demands filling the hydraulic oil above the mark of "42"; the truck with triplex mast demands filling the hydraulic oil above the mark of "45".

For 3t~3.5t: the truck with standard mast demands filling the hydraulic oil above the mark of "47"; the truck with triplex mast demands filling the hydraulic oil above the mark of "50".

7. Brake fluid level check

Check the fluid level in the brake fluid reservoir. The level should be between the two seams of the reservoir. When adding fluid, due care should be taken to prevent air from entering the brake tube.



Caution

When adding fluid, due care should be taken to prevent dirt or water from entering the reservoir.

Brake fluid is dangerous to health, you should avoid skin contact.

Brake oil fluid change

See " Every half year maintenance (1000 hours)"

7. Head lamp check

Make sure that the head lamp is lighting when the key is at "ON" position.

8. Turn signal check

Make sure that the turn signal operates properly by moving the turn signal lever

9. Hand brake check

① Drive truck slowly

② Pull hand brake lever, stop the truck, and truck has no deviation.

10. Back-up lamp and buzzer check

The back-up lamp comes on and buzzer sounds when the shift lever is placed in reverse position.

11. Turning

① Operate the truck running slowly.

② Turn the steering wheel to left and right 3 times respectively.

Check that the steering forces are equal in

right and left.

12. Horn

Press the horn button to make certain the horn sound is normal or not.

13. Driver's seat adjustment and safety belt check

Make sure the driver's seat is properly positioned. If not properly, shift the adjusting lever and move the driver's seat to a position which provides easy access to all foot and hand controls.

Check if safety belt is normal.

14. Shift lever check

Inspect the shift lever to see if loose and shift change is smooth.

15. Lifting lever, tilting lever and attachment lever check

Check the loading levers (for lift, tilt and optional attachment) for looseness and smooth operation.

Increase the rotate speed of engine, make certain that the lifting lever, tilting lever and attachment lever is in good work condition.

16. Instruments and sensors

Make sure that hour meter, water temperature indicator, oil temperature indicator, transmission fluid sensor, fuel sensor and engine coolant temperature sensor, oil pressure sensor etc., function properly.

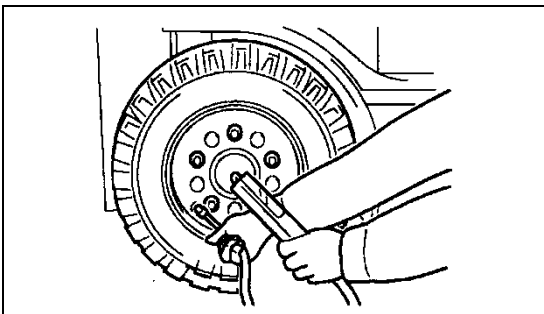
17. Brake pedal and inching pedal check

Drive truck slowly, step down brake pedal, and brake lamp lights.

Drive truck slowly, step down inching pedal, and check the inching pedal condition.

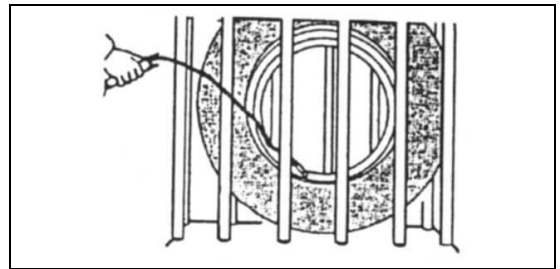
18. Tire inspection and Tire pressure

Check the tires for damage, and whether the rims are deformation.



Turn tire valve cap counter clock-wise and remove it. Using a tire pressure gauge, measure the inflation pressure, and adjust it to the specified pressure, if needed.

Since the forklift truck needs tires that have a high inflation pressure to carry heavy loads, even a small bending of rims or damage at the tread surface could cause an accident. When using an air compressor, first adjust the air pressure of the compressor. Failure to do so will cause a serious accident, since the compressor delivers the maximum pressure. To ensure safety, you should place the tires in a protective frame when inflation.



Tire pressure adopts new standard GB/T2982-2014:

Truck type	Driving wheel (Front wheel)	Steering wheel (Rear wheel)
2.5t-3.5t	550kPa	700kPa



Warning

2. Weekly maintenance (40hours)

Increase the following content based on daily maintenance.

1. Air cleaner maintenance

General condition:

Perform maintenance on the air cleaner after 50-250 hours of operation.

Replace air cleaner after maintaining for six times.

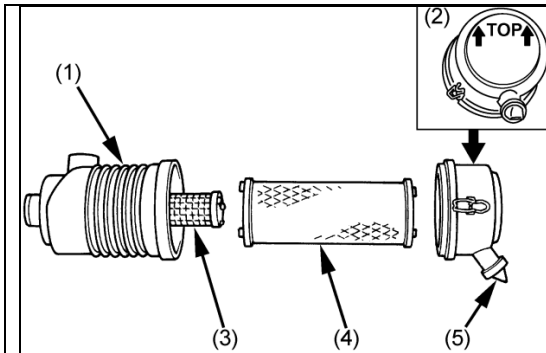


Caution

If the working condition is bad, air cleaner needs to be serviced/replaced more frequently.

Under dusty work conditions, the cycle of maintaining and changing air cleaner will be shortened. It is advised to perform maintenance between 8-50 hours; replace it between 100-300 hours.

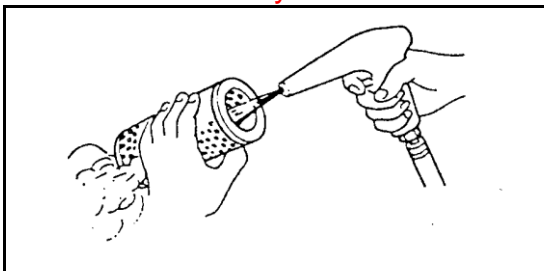
Maintenance method:



- (1) Air cleaner body (2) Dust cup
(3) Secondary element (4) Primary element
(5) Evacuator valve

① Open the evacuator valve once a week under ordinary conditions - or daily when used in a dusty place. This will get rid of large particles of dust and dirt.

② Wipe the inside air cleaner clean with cloth if it is dirty or wet.



- ① Dismantle filter end cap;
② Take out the filter element;
③ Main filter (outer filter) Blow off the

dust inner and outer of the outer filter element with dry compressed air.

- ④ Safety filter element (inner filter): hand beat clean, avoid blowing with air. Special attention.

⑤



Caution

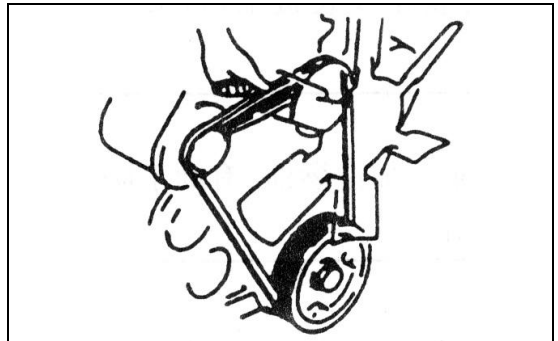
Pressure of compressed air must be under 205 kPa (2.1 kgf/cm², 30 psi)



Warning

1. Dust will blow into your eyes, so please wear protective glasses.
2. Do not maintain and replace element filter in time according to the requirement will lead to the damage of engine in advance.

2. Fan belt



Stop the engine.

Use finger to press the belt at the midway point between the water pump pulley and the generator pulley by 10kg press, and check the drop distance if it is up to standard.

Engine	Drop distance (mm)
4TNE92	New 8-12(<5min)
4TNE98	old 10-14(≥5min)
V2607-CR-TE5B	10 - 12

Cummins QSF2.8 engines equip with automatic tensioning pulley, and their fan belt tension do not need adjust.

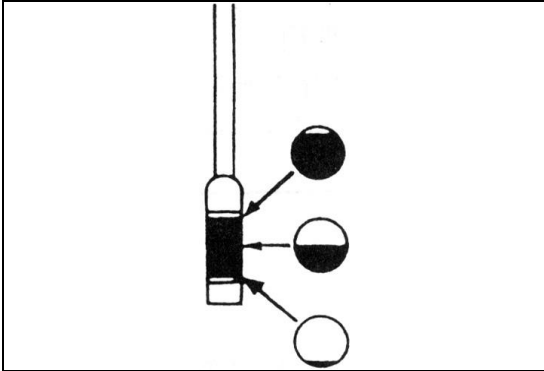


Caution

If the belt is loose, cut out, or has no surplus it should be changed.
DO NOT perform this check with the engine running to avoid personal injury.

3. Hydraulic transmission fluid level

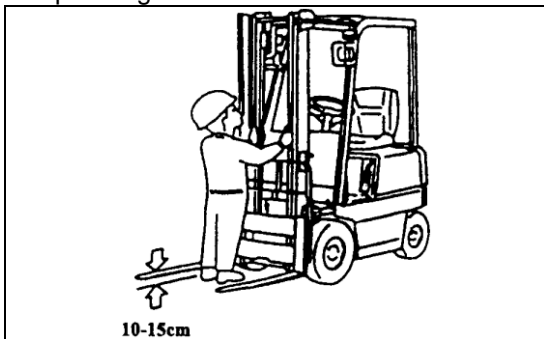
Open the inspections cover and pull out the oil scale. Inspect if the fluid level is within the mark of the gauge.



4. Mast and forks

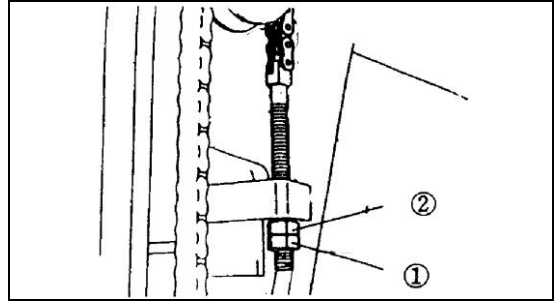
Check the mast and forks to make sure:

- ① There is no crack and bend on the forks, and the forks are installed on the fork bracket strongly;
- ② Check if there is oil leakage on the cylinder and tubing;
- ③ Check the rollers' rotation;
- ④ Check the mast if there are cracks or bends;
- ⑤ Operate the lifting, tilting and attachment lever, check the mast if it's in good condition, and pay attention to system operating sound.



5. Lift chain tension check

- ① Raise the fork about 10-15 cm above the ground and make it vertical.
- ② Press middle of the chain by thumb. Make certain the tension for the right and left chains are even.
- ③ Adjust the tension: Loosen the lock nut 1, screw the nut 2 and adjust the chain to make the equal tension, and then screw down the lock nut 1.

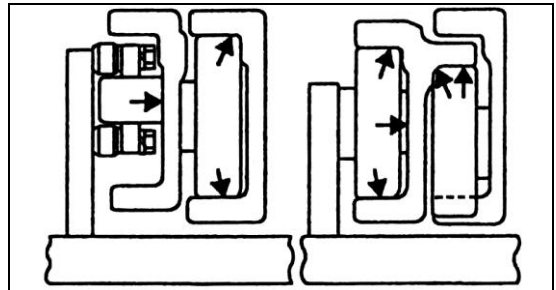


6. Lubrication of mast

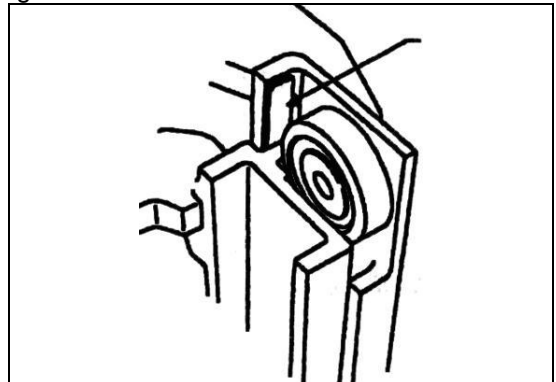
Lubricate the following parts periodically according to the requirements of lubrication sheet

① The periods of paint lubrication grease depend on the truck's work condition. If work is heavy, please paint much more grease on mast.

② To assist with the truck's operation, paint some lubrication grease on the surface where the idler pulley and inside and outside masts touch.



Paint some lubrication grease on bearing guide rail.





Warning

When painting lubrication grease; stop the truck on a smooth road, engine off and pull hand brake. Avoid injury to hand or body, and avoid falling off from high place. Keep safe.

7. Chain Lubrication

Take one brush with engine oil paint both sides on chain

8. Lubrication grease to below parts, the detail please see *Lubrication system drawing*

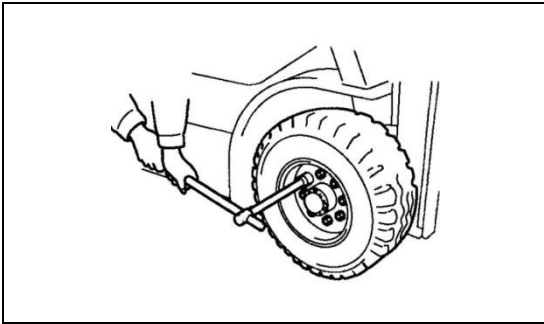
- ① Mast bearing lubricate;
- ② Inching pedal lubricate;
- ③ Steering axle shaft lubricate;
- ④ Steering knuckle main bearing lubricate;
- ⑤ Steering rod bar pin lubricate;
- ⑥ Steering cylinder pin lubricate.

9. Bolt, nut tighten

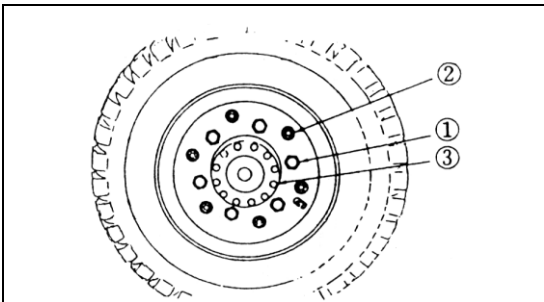
Refer to the *Maintain periodic chart*.

10. Hub nut torque check

Check if tightening torque of hub nut meets standard.



Front wheel

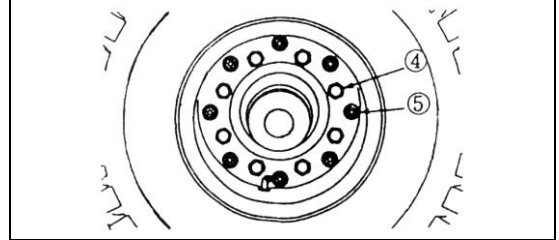


- ① Hub nut
- ② Split-type rim bolt;
- ③ Half axle bolt

Tightening torque N.m:

	2.0t-3.5t
Hub nut	324-373

Rear wheel



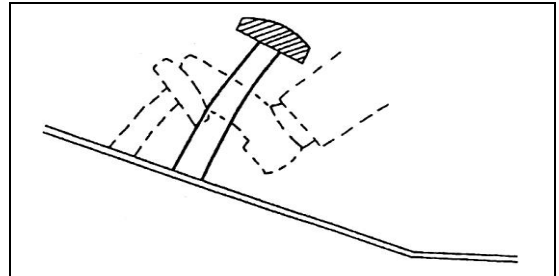
- ④ Rear hub nut;

Tightening torque N.m:

	2.0t-3.5t
Hub nut	157-176

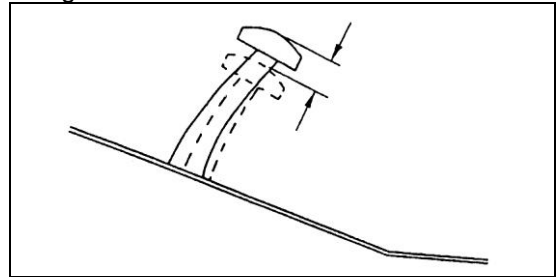
- ⑤ Split-type rear rim bolt (some truck model without)

11. Brake pedal, inching pedal and clutch pedal check



Step the brake pedal fully when the engine is running, the distance between brake pedal and front soleplate should be more than 60mm.

Check the inching pedal and clutch pedal using the same method



2.0t-3.5t Height and the free clearance

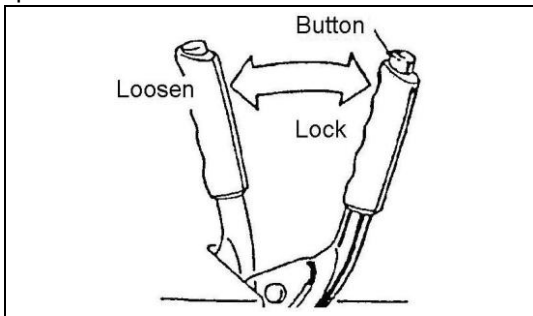
	Height mm	Free clearance mm
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Brake pedal	145±5	1-3
Inching pedal	145±5	touching bolt of inching pedal – brake pedal, Chinese trans.: 6

12. Hand brake

Make sure that the hand brake lever, after pulled up, still has good function when return.

1.0t~X5.0t the required tension when pulled up: 245N-295N



3. Every One and a half months maintenance (250 hours)

Increase the below content based upon weekly maintenance

1. Change engine oil and oil filter (only for the first time, then per 500 hours)

① Start the engine, warm-up enough, then shut off.

② Remove oil cover and bottom shell to plug, release the oil.



Warning

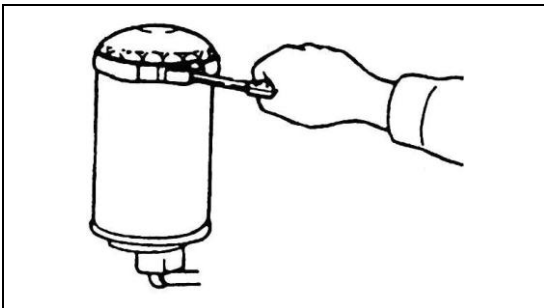
Be careful with the hot oil.

Milky oil shows there is some cooling fluid in it, find out the reason and correct.

Thin oil shows that the oil contains gasoline.

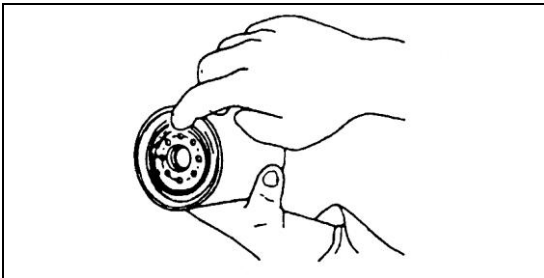
⑥ Wipe up and fit drain plug and gasket. Tightening torque of drain plug: 29~39 N·m

⑦ Dismantle the oil filter by tool.



⑤ Use cloth to clean the surface of oil filter.

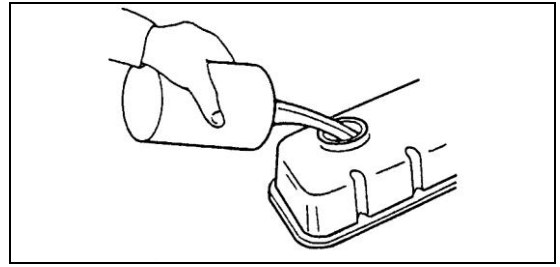
⑥ Lay on little oil on the rubber ring of new oil filter.



⑦ Install new oil filter by hand, not spanner.

⑧ Reference *Table for the oil used in the*

truck, oil preferred



⑨ Start the engine, check for oil leaks around drain plug and filter.

If the leak is excessive, the part has not been installed correctly.

⑩ Warm-up engine, then shut-off and check oil level, fill if needed.

To check the oil fluid level, place truck on level ground.



Warning:

- When using different brands of oil, always drain all previous oil before adding new engine oil.
- On engines with DPF, some of the fuel may mix with the oil during regeneration. This may dilute the oil and increase the amount of oil. If the oil is higher than the upper limit of the oil level gauge, this means that the oil is diluted too much, causing trouble. In this case, change the oil immediately
- If the DPF regeneration interval changes to 5 hours or less, always replace with new oil

2. Apply lubricate to front and rear of pin roll of tilt cylinder

Clean the area, and remove used oil.

3. Check the gear oil of drive axle housing

Change the oil after 200 hours if operating truck in dusty environment.

4. Change transmission oil filter (first time, then semiannually)

Check the hydraulic transmission oil fluid, if more dust, change the hydraulic oil of transmission. Change only for the first time.

① Park the truck on level ground, lay-down the fork to the floor, incline the mast back, apply parking brake, put transmission in neutral position, shut off engine.



Warning

Hot hydraulic oil and parts will cause injury. DO NOT touch the hot hydraulic oil and parts.

②Dismantle rubber mat and front soleplate.

③Dismantle filter and deal with local regulation.

④Clean pedestal of filter, confirm that the old gasket of pedestal is clean.

⑤Apply small amount hydraulic oil on the new filter gasket.

⑥Install filter by hand. When the filter get to pedestal, screw down an additional 1/2-3/4 turn.

5. Change hydraulic transmission oil (first time, then semiannually)

Park truck on level ground, lay-down the fork to the floor, incline the mast back, apply parking brake, put transmission in neutral position, and shut off engine.



Warning

Hot hydraulic oil and parts will cause injury. DO NOT touch the hot hydraulic oil and parts

①Put one case (volume is over 20 liters) under the transmission.

②Remove oil plug and drain oil.

③Clean oil plug then install.

④Take out the dipstick. Add hydraulic oil. See *Table for the oil used in the truck*, and then install dipstick.

⑤Startup engine. Step the brake pedal, get the engine idle running, place the transmission in forward and backward so that the oil enters the clutch.

⑥Place transmission in neutral, apply parking brake.

⑦Take out the dipstick, inspect fluid position. If oil is not enough, add oil to keep it between max and mix marks.

⑧Check the filter and oil plug for leaks.

⑨Shut off engine, install front soleplate.

6. Air-bleeding fuel system [Diesel]

During fueling or draining water from separator, it's also necessary to bleed air in the fuel system.

①Loosen the bleed plug;

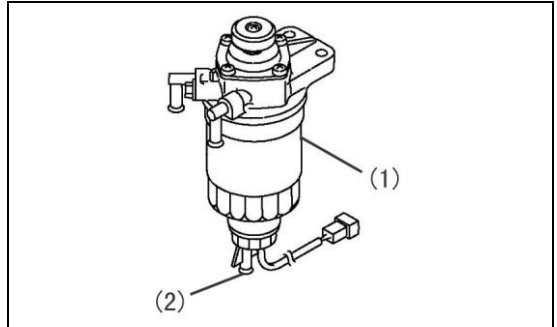
②Press the priming pump until fuel comes

through the bleed plug without any bubbles;

③Fasten the bleed plug;

1. Oil-water separator draining [Diesel]

Except Cummins Diesel:



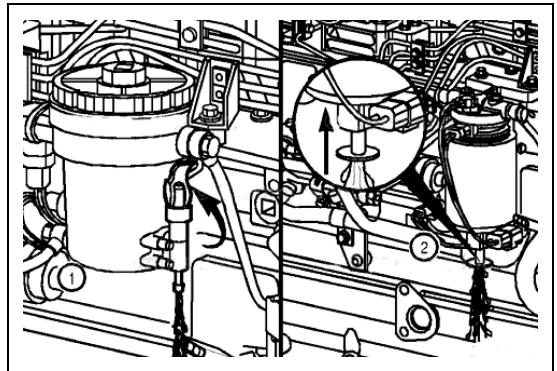
①Position an approved container under the fuel filter to collect the contaminants.

②Loosen the drain cock (2) at the bottom of the fuel filter. Drain any water collected inside.

③Hand tighten the drain cock.

④Be sure to prime the diesel fuel system when you are done.

Cummins Diesel:



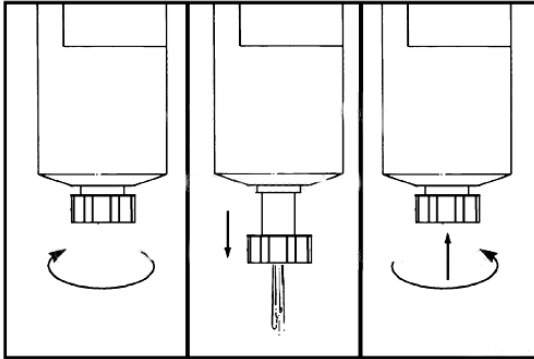
Can type:

①Shut the engine;

②Place a container under the fuel filter;

③Uplift the drain valve control rod until the liquid is completely drained and see clean fuel;

④Push up drain rod until the liquid is completely drained.



Rotary type:

- ① Shut the engine;
- ② Place a container under the fuel filter;
- ③ Open the drain valve. Turn the valve 3.5 rings counterclockwise, until the valve drop 25.4mm and start to drain;
- ④ Drain the water in the separator until see the clean fuel.



Caution

Do not screw the valve too tight when shutting the drain valve. Over tightening will damage thread. When shutting the valve, uplift the valve and rotate in clockwise until screw down.

8. Exhaust gas check

Colorless	Normal: complete combustion
Black	Abnormal: incomplete combustion
Blue	Abnormal: oil burns
White	Abnormal: water in combustion chamber



Warning

Don't start the lift truck in bad ventilation space. There is carbon monoxide in the exhaust gas, it is very dangerous

9. Check battery and electrolyte

Refer to *Operational method of lead acid battery*.

4. Every half year maintenance (1000 hours)

Increase the following content based on monthly maintenance.

1. Brake oil fluid change

① Let the truck at level ground, lay-down the fork to floor, tilt back the mast, strain brake handle. Transmission at neutral, engine flameout.

② Pick off the rubber dustproof cap of oil orifice, install the both side of preliminary clarity tube to oil orifice and waste oil collect bottle, then use spanner loosen oil orifice bolt counterclockwise. The other people step on the brake pedal repeat on the truck at same time. Here the brake oil will burst forth from oil orifice, note the fluid level of brake oil tank. Append new brake fluid when the level falls. Screw down the bolt of oil orifice when oil clear.

③ The people step on brake pedal repeat at culmination, not loose, the other people loose oil orifice bolt, screw down it after brake oil gush completely. Then inform the first people loose. Repeat upwards operation till brake oil without air bladder. Note the fluid level of brake oil tank. Append new brake fluid when the level falls.



Caution

Prevent dust, water into oil when add brake fluid.

The brake fluid is venomous, causticity, touch in case, please wash clean.



Caution

Transmission system forklift from Korea: add brake fluid (Brake oil pot) is mobile Delvac Hydraulic SAE10W.

Other model: Caltex DOT3 or Choice HZY3 brake liquid (note add after factory)

2. Steering wheel locked device lubrication

Apply lubricating grease to the steering wheel locked device.

3. Hydraulic oil change

Park the truck on level ground, lay-down the forks on the floor, incline the mast back, and apply parking brake. Put transmission in neutral position, shut off the engine.



Warning

Hot hydraulic oil and parts will hurt body. Do not touch the hot hydraulic oil and parts.

① Put one case (volume is over 60 liters) under the hydraulic oil box. Dismantle the drain plug of oil tank, let the hydraulic oil flow to case.

② Dismantle hydraulic dipstick and oil box cover.

③ Take out the magnet from oil box to clean and rinse the oil orifice of box bottom by hydraulic oil.

④ Clean and install the oil plug.

⑤ Fill hydraulic oil box. Refer to *Table for the oil used in the truck*.

⑥ Startup the engine and operate multiple valve joystick and turn system, fill hydraulic oil in all system.

⑦ Check each hydraulic component and pipeline for leaks.

⑧ Close the engine, retract all cylinder pole, check the oil level of hydraulic oil box. Add oil at fill mark.

4. Check clean and change hydraulic return oil filter, respirator and strainer

Park the truck on level ground, lay-down the fork on floor, incline the mast back, and apply parking brake. Put transmission in neutral position, shut off engine.

① Loosen the bolt of hydraulic oil box cover board.

② Remove return oil filter from top cover board.

③ Install new filter by hand.

④ Take out the strainer from oil box.

⑤ Install new filter by hand.

⑥ Install oil box top cover board and screw down bolt.

⑦ Take out respirator. Clean by lotion and dry.

⑧ Install respirator.

⑨ Start the engine and operate hydraulic system, let hydraulic oil in all system. Check for leaks.

⑩ Close the engine, retract all cylinder pole, check the oil level of hydraulic oil box. Add oil at fill mark.

5. Change hydraulic transmission oil

Refer to 'Change hydraulic transmission oil' from 'Monthly Maintenance'.

6. Check, clean, change fuel filter



Caution

In the dust and dirty work condition, clean fuel filters per one month and replace every six months.

- ① Remove out the fuel filter.
- ② Remove transducer.
- ③ Before installing new one, install transducer existing, put a little fuel on the filter airproof.



Caution

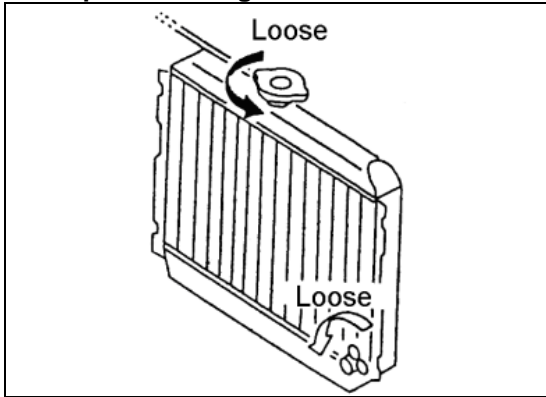
Before installation, do not add fuel to filter, as this may accelerate the wear of fuel system parts.

- ④ Install new filter.
- ⑤ Turn the new filter till the airproof mat adheres to surface.
- ⑥ Screw down 2/3 loops.

5. Annual maintenance (2000 hours)

Increase the following content based on semiannual maintenance.

1. Replace the engine coolant



- ① Open the radiator cover and loosen the drain cover, let the coolant drain, then wash the cooling system.
- ② Screw down the drain cover.
- ③ Add coolant to radiator up to the top
- ④ Let the engine run fully.
- ⑤ Stop the engine, after cooling down fully, still add coolant to radiator up to the top, and add coolant to coolant reservoir to "MAX" position.
- ⑥ Check the drain cover for leaks.



Warning

When the water temperature of the engine is higher than 70 degrees Celsius, do not change coolant to prevent scalding.

The engine coolant fluid is designed to prevent rust and frost bite. See *Table for the oil used in the truck*

2. Front-wheel bearing change lubricating grease

Refer to steering axle content in *Maintenance Manual*, remove hub bearing and then replace lubrication grease.

3. Rear-wheel bearing change lubricating grease

Refer to steering axle in *Service Manual*

4. Change steering axle gear oil

Park the truck on level ground. Put transmission in neutral, shut off engine.

- ① Remove the oil plug, put oil to a container. Clean oil plug.

- ② Install oil plug.

- ③ Remove breather plug and oil fluid position plug. Put the oil from orifice bend to steering axle housing until oil overflows from level plug. See "Re-add amount".

- ④ Install level plug and curved-shaped plug adapter

- ⑤ Start-up forklift. Run engine at idle and place the steering wheel control handle at neutral.

- ⑥ Take out level plug. Keep oil level until overflow.

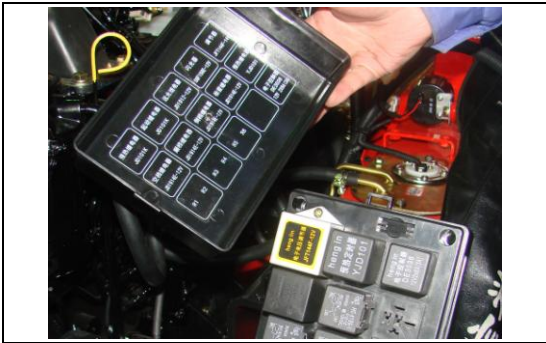
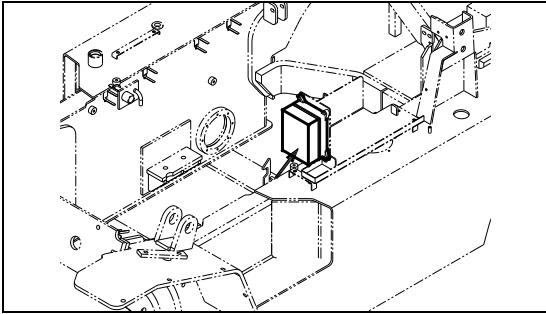
6.Others

1. Fuse, relay

① Please first find out the reason before replace damaged fuse or relay.

② Replace with regulated standard fuse

The Control box of forklifts are placed on left side of truck frame.

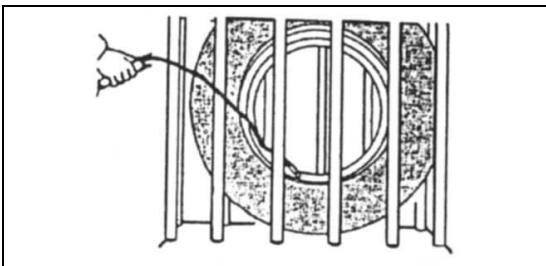


2. Change of tires



Warning

- When using an air compressor, first adjust the air pressure of the compressor. Failure to do so will cause a serious accident, since the compressor delivers the maximum pressure.
- To ensure safety, put the tire in a defend casing while inflating.



Front wheel

① Park forklift truck on level concrete;

② Start engine and raise mast about 100mm height.

③ Place chocks behind rear wheels to prevent movement of forklift;

④ Loosen wheel nuts 1-2 turns each by turning them counter-clockwise;

⑤ Tilt mast fully backward, and place a wooden block under each side of outer mast;

⑥ Tilt mast forward until front wheels are raised from surface;



Caution

Do not loose nuts before the front wheels leave the ground.

⑦ Support truck by putting wooden blocks under both sides of the front truck frame. Stop the engine.

⑧ Take out the wheel nuts and replace the front wheel.



Caution

- a. When removing tire from wheel rim, do not remove rim set bolts and nuts before releasing air;
- b. Make sure that wooden blocks used to support lift truck are solid, one-piece units.
- c. Never get under forklift while it is supported only by wooden blocks.

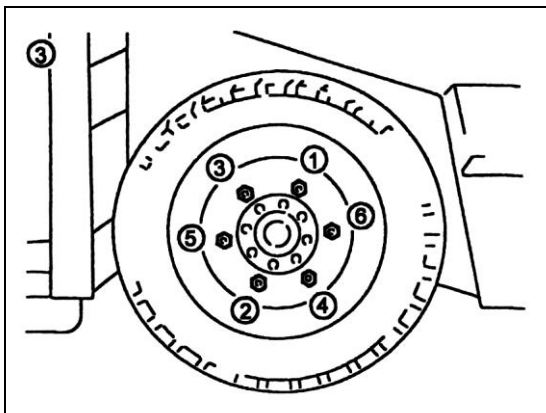
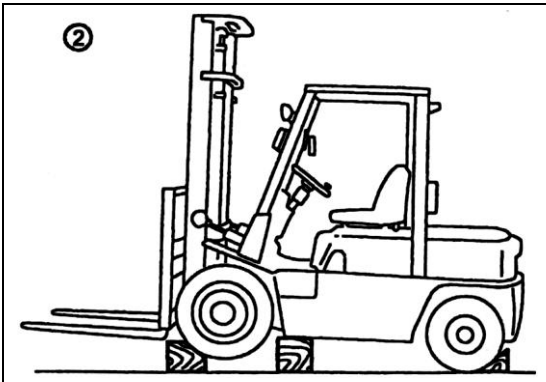
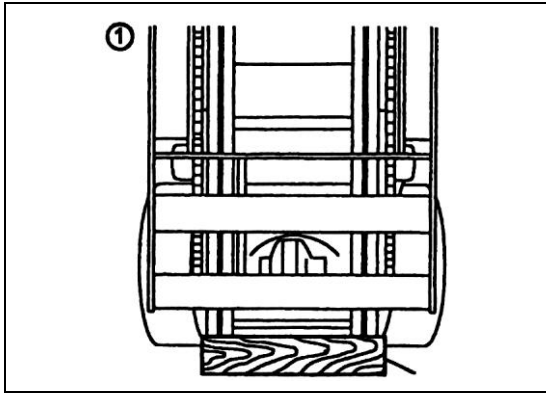
⑨ Retighten the wheel nut temporarily.

⑩ Start the engine, and take out the wooden block.

⑪ Tilt backward the mast and lower down the mast slowly, then take out the wooden block under the outer mast and rear wheel.

⑫ Retighten the wheel nut with correct torque.

⑬ Adjust tire pressure to specified value.



Rear wheel

- ① Park forklift trucks on level concrete.
- ② Pull the parking brake lever and place chocks before front wheels to prevent movement of forklift.
- ③ Put the lifting jack under the counterweight.

Caution: Make sure the jack capacity is greater than 2/3 of service weight of forklift.

- ④ Loosen wheel nuts 1-2 turns by turning them counter-clockwise.



Warning

Do not remove wheel nuts until rear tires are raised from ground.

- ⑤ Raise the forklift with jack until rear wheels off the ground. Support forklift truck by putting additional wooden blocks under both sides of the front truck frame as shown below.

- ⑥ Take out the wheel nut of rear wheel, and then replace the wheel.



Warning

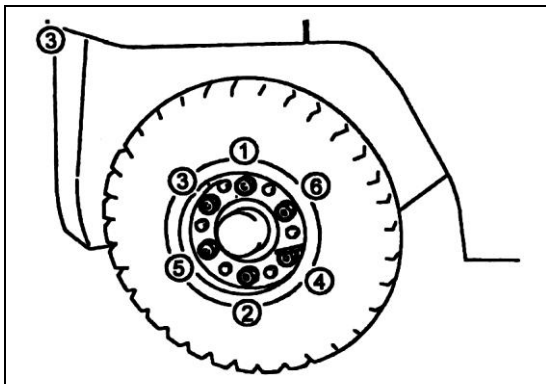
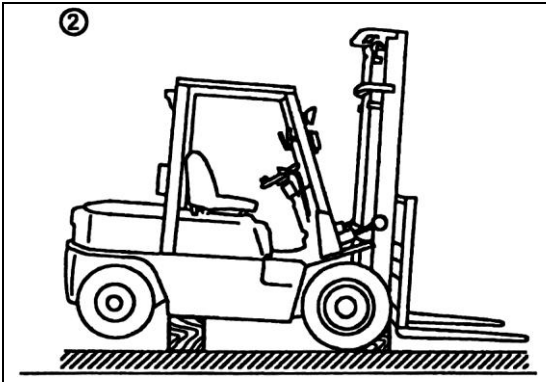
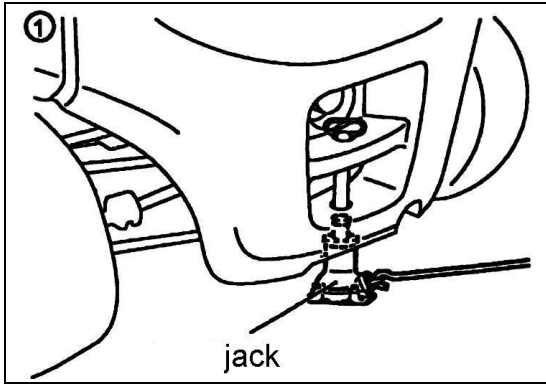
- a. When removing tire from wheel rim, do not remove rim set bolts and nuts before releasing air;
- b. Make sure that wooden blocks used to support lift truck are solid, one-piece units;
- c. Never get under forklift while it is supported only by wooden blocks.

- ⑦ Retighten nuts as shown in figure below.

- ⑧ Remove the wooden block under chassis body. Let down the forklift slowly. Then take away the chocks and jack from the rear part of the front wheel.

- ⑨ Retighten the wheel nut with the correct torque. Please refer to *Tightening Torque Table*.

- ⑩ Adjust tire pressure to specified value.



3. Measures against cold and hot weather

According to environment temperature, choose proper viscosity oil.

4. Clean the radiator and radiator fins



Warning

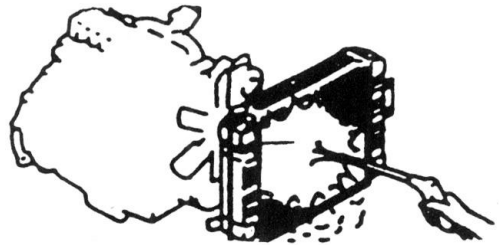
Dust may fly into your eyes, so make sure to wear safety glasses.

If the radiator fins are clogged, it will lead to overheating. Use compressed air, vapor or water to clear.



Caution

Clean the radiator fins by using compressed air or vapor, place the muzzle to radiator a right angle.



5. The operation of too hot engine

If the engine is too hot, DO NOT stop it at once, do as follows:

- ① Reduce speed;
- ② Open the engine cover;
- ③ Stop engine when water temperature drops;
- ④ Check coolant, add water, if need.

6. Cleaning of DPF (W98)

The longer the DPF runs, the more ash (burnt residue) is collected in the filter. Too much ash build-up adversely affects the DPF performance.

W98 engine

Equipped with the DPF cleaning alarm system, clean the DPF in case of an alarm or every 6000 operating hours.

Consult your local HANGCHA Dealer for this service or agents.

V. Structure and stability of truck

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



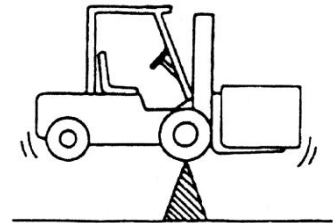
Caution

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.

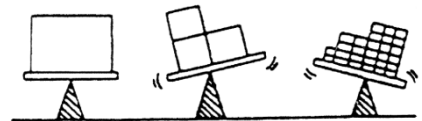
Due care should be paid to the weight and the center of gravity of loads to maintain the stability of the truck.



Caution

Load center

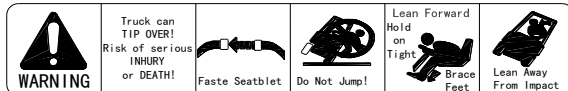
There is difference because of the loads' shape, gravity, such as box, board and large roller. It is very important to distinguish the difference and the gravity center of loads.



Warning

If the truck is going to turn over, do not attempt to get out of the truck, because the speed of overturn is much fast than you. You should hold the steering wheel handle, and this practice will let you in the seats.

Please tie safety belt



Caution

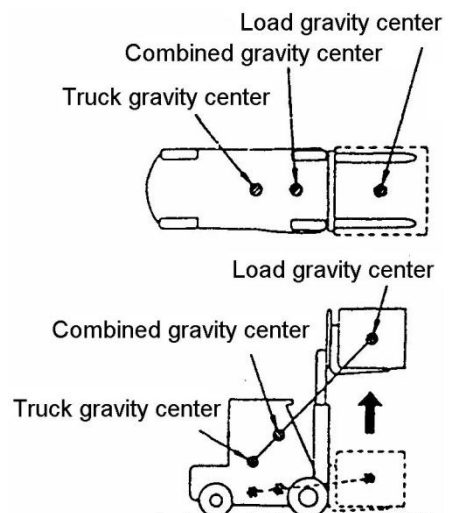
Gravity and stability

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:

- Load size, weight and shape;
- Lifting height;
- Mast tilt angle;
- Tire inflation pressure;
- Acceleration, deceleration and turning radius;
- Driving surface conditions and inclination;
- Attachment type.





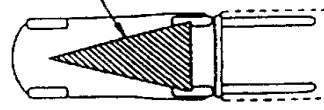
Caution

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.

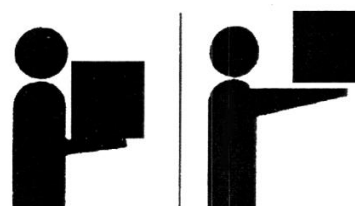
Stability zone



Caution

the max load

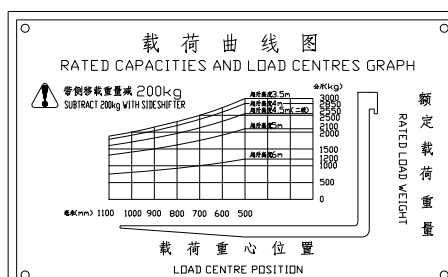
The distance between the load center and the front surface of forklift or load backrest (select the min) on the forklift is called LOAD CENTER DISTANCE. The max gravity that the truck can load is called MAX LOAD on condition that the load is on the load center distance. The relationship of MAX LOAD and 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 capsizing 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.

VI. 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

Starting diesel engine truck

① Shift levers in neutral position.

② Screw the starting switch to  position, after start, the key rebound to  position.



Caution

- If it does not work within 5 seconds, screw to "O" position and restart after 2 minutes.
- If you can't start for three times, please check the reason.



Caution

When the temperature is lower than -5°C , you should switch the key to "I" for preheating, and start when the preheat indicator turns off.

Starting gasoline engine

① Shift levers in neutral position

② Cold engine

Pull out the choke button fully. Depress the accelerator pedal to the floor two or three times and release it. With your foot OFF the pedal, crank the engine by turning the ignition key to "START". Release key when engine starts.

③ Warm engine

Do not pull out the choke button. Press down the accelerator pedal halfway and cold crank the engine by turning the ignition key to "START". Release key when engine starts.



Caution

When the heat engine starts, do not step the accelerator pedal to the end, cause it may cause start trouble, even step the pedal for several times.



Caution

The time to start should be less than 5 seconds each attempt, and the interval between attempts should be at least 2 minutes.

After engine has started

① Warm-up the engine for 5 minutes

② Check engine running condition



Caution

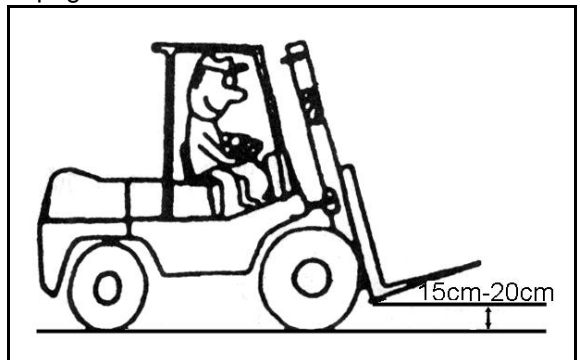
After starting the diesel engine, accelerate its speed to the range of 1800-2000r/min, and warm it without work.

- Check the compression (misfire) noise.
- Check exhaust condition.
- Make sure all indicators turn off.
- After complete warming up of engine, operate control valve lever in whole course for 2-3 times, and check mast working condition.

2. Travel

① Hold the knob on the steering wheel with your left hand and get the right hand ready for the controls, lightly putting it on the wheel.

② Set the bottom of the fork 15 to 20 cm above the ground and fully tilt back the upright.



③ Check the safety around the machine and give a signal when starting the engine.

Hydraulic drive forklift

· Step the brake pedal and operate F-R Reversing switch.

- Release hand brake
- Release brake pedal, step the accelerator pedal, and then the vehicle moves.

Gear shift

Hydraulic drive forklift

- Stop the truck before reversing the direction of travel.
- Shift the gear shifting lever.

Slow down

Hydraulic drive forklift

Release accelerator pedal a little, and step the brake pedal, if necessary.

Steering

Unlike general passenger-cars, the steer wheels are located at the rear of the truck. These cause the rear of the truck to swing out when a turn is made.

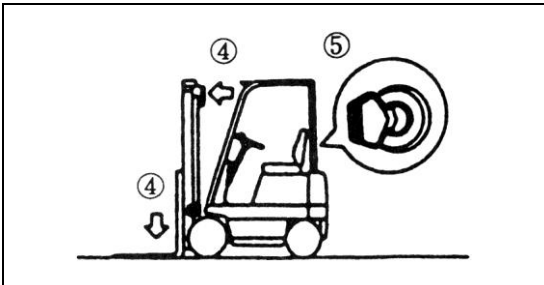
Slow down and move toward the side to which you are turning. The steer hand wheel should be turned a bit earlier than when turning the front wheels of a car.

Stopping or parking the truck

- ① Slow down and step the brake pedal to stop the truck (in the case of clutch type machine, the clutch pedal is used).
- ② Place the shift lever in neutral.
- ③ Apply the parking brake.
- ④ Lower the forks on the ground, and tilt the mast all the way forward.
- ⑤ Place 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.

Caution:

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



3. Pick up

- The forks should be adjusted sideways to maintain proper balance of load.
- Place the truck in front of the load to be handled.

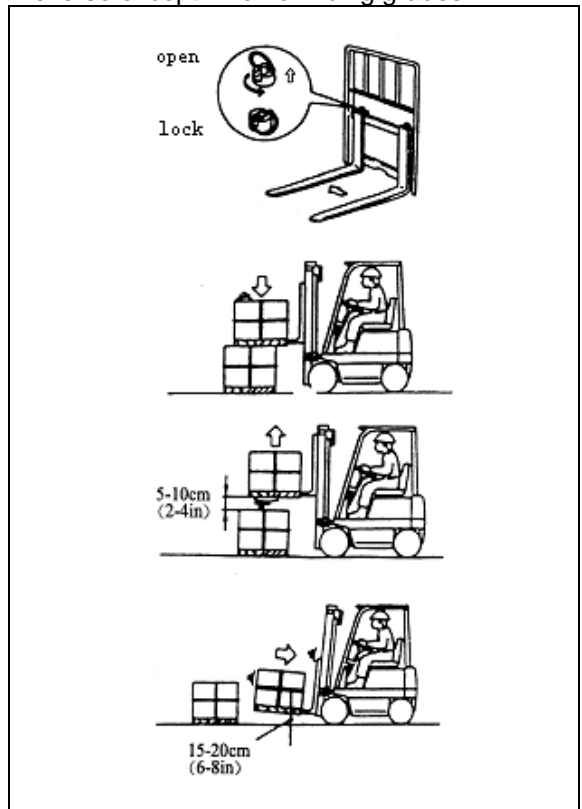
•The pallet should be evenly positioned across both forks

•Insert forks into the pallet as far as possible.

•To raise loads from the ground:

- ① First lift the forks 5 to 10 cm off the ground or floor and make sure loads rest stable.
- ② Then, tilt the mast backwards fully and lift loads up to 5 to 10 cm off ground then start moving.

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



4. Stacking load

- Slow down when approaching the load deposit area.
- Stop the truck right in front of the area where your load is to be deposited.
- Check the condition of the deposit area.
- Tilt the mast forward until forks become horizontal. Raise forks until they are a little higher than the deposit position.
- Move forward to place the load directly over the desired area and stop the truck.
- Make sure your load is just over the

desired area. Slowly lower the load into position. Make sure the load is securely stacked.

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

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

- Tilt the mast backwards.



Warning

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

5. Remove load

- Slow down when approaching the area where the load is to be retrieved.
- Stop the truck about 30cm away from the loads.
- Check the condition of the loads.
- Tilt the mast forward until forks become horizontal. Elevate forks up to the position of the pallet or skid.
- 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 to 10 cm and move backward 10 to 20 cm 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.

- Raise the forks 5 to 10 cm off the stack.

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

- Lower forks to a height of 15 to 20 cm above the ground. Tilt the mast backward fully and move to the desired area.

VII. Parking

1. Parking daily

- ① Park your truck to desired place and block the wheels.
- ② Make sure the shift level is in the neutral position.
- ③ Apply the parking brake.
- ④ Shut the engine down and move the lift and tilt levers several times so that the inner pressure in the hydraulic tubes will be released.
- ⑤ Remove the key and take it with you.



Warning

You should tell the manager if you find any problems with the truck, and have them repaired immediately.

Do the following things:

- ① Clean oil and grease stains with a cloth and water on the truck body.
- ② Check the whole truck, especially the tires.
- ③ Fill the fuel tank with the proper fuel.
- ④ Check for leaks of hydraulic oil, engine oil, LPG and coolant.
- ⑤ Apply lubricate grease
- ⑥ Check whether the junction plane between the nuts of wheel boss and the piston of hydro cylinder are loose, and whether the surface of piston has been pulled.
- ⑦ Check mast rollers operate smoothly.
- ⑧ Lift the lifting cylinder to the top and fill it with oil.
- ⑨ In cold weather, it is not necessary to drain the antifreeze, but the water should be completely drained from the radiator.

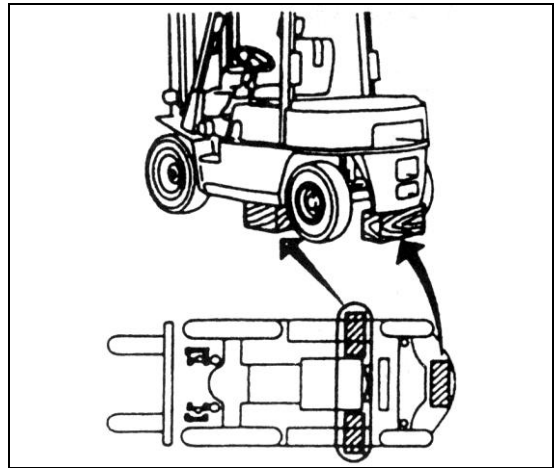
2. Park the truck for a long time

When parking the truck for a long period, place blocks under the truck body and counterweight to reduce the load on two rear wheels.



Warning

- a. The block must be single and hard enough to support the truck.
- b. Don't use blocks higher than 300 mm (11.81 inch) .
- c. Lift the truck to place it on the blocks.
- d. Use the same size blocks under the left and right sides of the truck.
- e. While the truck is supported by the blocks, swing the truck forward, backward, left and right, check its safety.



Perform the following maintenance for long term truck storage:

- ① Remove the battery and recharge it once a month, keep it in a shady place.
- ② Brush antirust oil on those parts that are exposed to the air, such as piston rods and axles.
- ③ Put a cloth on vent-plug and air-cleaner.
- ④ Start the engine once a week. If the water has already been removed, add water in the radiator. Then run the engine at low speed and operate the mast several times.
- ⑤ In summer, it is not recommended to park the fork on asphalt road.

3. Running after storing for a long time

- ① Remove the antirust oil from the exposed parts.
- ② Drain the gear oil of the crankcase, driving axle, hydraulic transmission box (torque converter type) clear it and add with new gear oil.
- ③ Clean the hydraulic oil reservoir and fuel reservoir (removing any dirt or water) and add with new hydraulic oil/fuel.
- ④ Check the clearance of the valve, gas valve cap and other parts on the engine.
- ⑤ Add antifreeze to required level.
- ⑥ Charge the battery, install on the truck and connect battery lead.
- ⑦ Check basic truck functions like starting, running, turning, lifting etc.
- ⑧ Warm-up your truck.

VIII. Maintenance

Caution:

- ① Only repair the fork lift truck if you have been properly trained.
- ② It is important to do timely inspections and maintenance to keep the truck in good working condition.
- ③ If the work place has a lot of dirt or other pollutants, time between maintenance intervals should be decreased.
- ④ Do not ignore routine inspection and maintenance, and resolve problem in time.
- ⑤ Don't use different oil when changing or adding oil.
- ⑥ If problems like loss of engine power, sudden increase in truck noise, or black smoke occur, check the truck immediately. The problems may be corrected by adjusting the diesel nozzle pressure and fuel atomization.
- ⑦ Dispose of waste oil or electrolyte liquid according to local environmental protection laws and regulations.
- ⑧ Follow the maintenance schedule.
- ⑨ After performing maintenance, keep a record.
- ⑩ Only use Hangcha parts

1. Preventive maintenance schedule

○——Check, revise, adjust

x——Replace

Caution: (1) If the work place has a lot of dirt or other pollutants, time between maintenance intervals should be decreased.

(2) If problems like loss of engine power, sudden increase in truck noise, or black smoke occur, check the truck immediately. The problems may be corrected by adjusting the diesel nozzle pressure and fuel atomization.

Engine periodical maintenance schedule

Check Item	Service required	Tool	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Engine	Visual check engine run condition(including noise, exhaust color)		○	○	○	○	○
	Clean or replace filter element		○	○	○	×	×
	Drain the water of oil water separator(diesel engine)			○	○	○	○
	Check crankcase and clean dirt				○	○	○
	Check the valve clearance is correct	Plug gauge		First time ○	○	○	○
	Tighten cylinder head bolt	Torque wrench		First time ○	○	○	○
	Check cylinder compression pressure	Pressure gauge					○
	Distributor inner(IC ignition system)(1)						○
Engine(common rail engine added)	If rail pressure sensor and its line operation is normal		○	○	○	○	○
	If accelerator pedal is normal		○	○	○	○	○
	Check for the rail pressure relief valve leakage and its function.		○	○	○	○	○
	If ECU function and its wiring is normal.		○	○	○	○	○
	Check camshaft sensor and its line.				○	○	○
	Check crankshaft sensor and its line.				○	○	○
	Add qualified fuel.		○	○	○	○	○
	Cleaning of DPF (Kubota engine)		Equipped with the DPF cleaning alarm system, clean the DPF in case of an alarm or every 6000 operating hours.				

Check Item	Service required	Tool	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Crank case ventilator	Check P. C.V valve and pipe blockage or damage					○	○
Governor or injection pump	Check max. idling speed	Tachometer					○

Check Item	Service required	Tool	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Lubricating system	Check for the oil leakage of engine		○	○	○	○	○
	Check oil capacity and cleanness		○	○	○	○	○
	Replace engine oil (1)			First time x	x	x	x
	Replace engine oil filter(1)			First time x	x	x	x
Fuel system	Visual check if oil leakage at pipeline, pump or oil tank		○	○	○	○	○
	Replace fuel filter			First time x	x	x	x
	Check nozzle and adjust the pressure(diesel engine) (2)	Injection test				○	○
	Injection moment(Diesel engine)						○
	Fuel tank drainage				○	○	○
	Clean fuel tank					○	○
	Check fuel		○	○	○	○	○

Cooling system	Cooling liquid quantity		○	○	○	○	○
	Leakage condition		○	○	○	○	○
	Replace cooling liquid						×
	Check fan belt tension and damage condition		○	○	○	○	○
	Clean outer water tank			Per month in summer	○	○	○
	Water tank cover performance and installation condition			○	○	○	○
	Tube aging condition					○	○

Drive system periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Hydraulic transmission gear box	Replace oil absorption filter			× First time (200h)		×	×
	Leakage condition		○	○	○	○	○
	Check oil quantity and change oil			× First time (200h)	○	○	×
	Inching pedal idle stroke and run condition		○	○	○	○	○
	Control valve and hydraulic clutch performance		○	○	○	○	○
	Inching valve performance		○	○	○	○	○
	Shift lever operation and loosen condition			○	○	○	○
	Hydraulic oil filter					×	×
Drive axle(Front axle)	Check hub bearing looseness and noise			○	○	○	○
	Wipe and re-add lubrication oil					×	×

	Leakage check		○	○	○	○	○
	Check axle deformation, crack or damage				○	○	○
	Check chassis connected bolt looseness				○	○	○
	Check hub bolt tightening torque	Torque wrench	○	○	○	○	○

Wheel (front, rear wheel) periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Tire	Charge pressure	Barometer	○	○	○	○	○
	Abrasion, crack or damage		○	○	○	○	○
	If there is nail, stone or other foreign body on the tyre			○	○	○	○
	Rim damage condition		○	○	○	○	○
	Split-type rim bolt looseness	Test hammer	○	○	○	○	○

Steering system periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Steering wheel	Check clearance		○	○	○	○	○
	Check axial looseness		○	○	○	○	○
	Check radial looseness		○	○	○	○	○
	Check operation condition		○	○	○	○	○
Steering gear	Check if erection bolt loosen			○	○	○	○
Rear axle	Check if master pin loosen or damage			○	○	○	○

knuckle	Check bend, deformation crack or damage condition			○	○	○	○
	Check installation condition	Test hammer		○	○	○	○
Steering cylinder	Check operation condition		○	○	○	○	○
	Check for leakage		○	○	○	○	○
	Check if loosen when installing and hinging			○	○	○	○

Brake system periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Brake pedal	Idle stroke	Dividing scale	○	○	○	○	○
	Pedal travel		○	○	○	○	○
	Operation condition		○	○	○	○	○
	Check if there is air in the brake pipeline		○	○	○	○	○
Parking brake control	If brake is safe and reliable and owns enough travel		○	○	○	○	○
	Control performance		○	○	○	○	○
Stick and dragline	Control performance			○	○	○	○
	If connection loosen			○	○	○	○
Pipeline	Damage, leakage, fracture			○	○	○	○
	Connection, clamp part, looseness condition			○	○	○	○
Brake master cylinder, brake cylinder	Leakage condition			○	○	○	○
	Check oil level, change oil		○	○	○	×	×
	Master cylinder and cylinder action condition						○

	Cylinder leakage, damage condition						○
	master cylinder, piston cup, check valve abrasion damage condition, replace						×
Brake drum and brake shoe	If brake drum parts loosen	Test hammer		○	○	○	○
	Friction plate abrasion condition	Slide caliper					○
	Brake shoe action condition						○
	If fixed pin rusts						○
	Return spring damage condition	Dividing rule					○
	Check if self-adjusting device operation time is proper						○
	Brake drum abrasion, damage condition						○
Brake baseboard	Check if baseboard deforms						○
	Check if crack	Flaw detection					○
	Check if loosen during installation	Test hammer					○

Hydraulic system periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Hydraulic oil tank	Check Hydraulic oil and replace		○	○	○	○	×
	Clear oil absorption filter element					○	○
	Replace oil return suction strainer (1)					○	×
	Eliminate foreign body					○	○
Control valve rod	If connection loosens		○	○	○	○	○
	Operation condition		○	○	○	○	○
Filter	Check oil leakage			○	○	○	○
Multi-way valve	Oil leak		○	○	○	○	○
	Relief valve and tilt latching valve operation condition			○	○	○	○

	Measure relief valve pressure	Oil gauge				○	○
Pipe joint	Leakage, loosen, fracture, deformation and damage condition			○	○	○	○
	Replace pipe						× 1~2years

Electrical system periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Starting motor	Pinion engagement condition				○	○	○
Battery	Electrolyte fluid level and clean			○	○	○	○
	Check electrolyte proportion	Areometer			○	○	○
Wire	Wire harness damage and fix loosen condition			○	○	○	○
	Circuit joint looseness condition				○	○	○
Steering indicator light	Work and installation condition		○	○	○	○	○
Horn	Work and installation condition		○	○	○	○	○
Light and bulb	Work and installation condition		○	○	○	○	○
Reversing buzzer	Work and installation condition		○	○	○	○	○
Instrument	Instrument working condition		○	○	○	○	○

Lifting system periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Chain, chain wheel	Check chain tensiity, if transform, damage or rust.		○	○	○	○	○
	Add oil to the chain			○	○	○	○
	Riveting pin and looseness			○	○	○	○

	Chain deformation and damage.			○	○	○	○
	If chain bearing loosen.			○	○	○	○
Attachment	Check if condition is normal			○	○	○	○
Lifting cylinder	Check if piston rod, piston rod thread and connection deform, loosen or damage.	Test hammer	○	○	○	○	○
	Operation condition		○	○	○	○	○
	Leakage condition		○	○	○	○	○
	Pin and cylinder steel-backed bearing wear or damage condition.			○	○	○	○
Hydraulic pump	If hydraulic pump leaks or has noise.		○	○	○	○	○
	Hydraulic pump drive gear wear condition			○	○	○	○
Fork	Fork damage, deformation and wear condition.		○	○	○	○	○
	Positioning pin wear and damage condition.				○	○	○
	Fork root hook welded part crack or wear condition.			○	○	○	○
Mast, fork carriage	If the welded part between Inner and outer mast and beam has crack or damage.			○	○	○	○
	If the welded part between mast and tilting cylinder has bad welding, crack or damage.			○	○	○	○
	If inner or outer masts have bad welding, crack or damage.			○	○	○	○
	If fork carriage bad welding, crack or damage.			○	○	○	○
	If roller loosens.			○	○	○	○
	Mast supporting bearing wear or damage.						○
	If mast supporting bolts loosen.	Test hammer		○ (first time)	○	○	○
	If lifting cylinder bottom bolt, piston head bolt, U-type bolt and walking beam guide bolt loosen.	Test hammer		○ (first time)	○	○	○

	Roller, roller shaft and its welded part crack or damage condition.			○	○	○	○
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Safety device and attachment periodical maintenance schedule

Check item	Service required	Tools	Daily (8 hrs)	One and a half Monthly (250hrs)	3months (500hrs)	Semi-annual (1000hrs)	Annual (2000hrs)
Overhead guard and load bracket	If firmly installed	Test hammer	○	○	○	○	○
	Check deformation, crack and damage.		○	○	○	○	○
Rearview mirror	Dirt and damage condition		○	○	○	○	○
	Rear-view condition		○	○	○	○	○
Seat	Check if bolt damage or loosen					○	○
Truck body	If chassis and beam damage or crack						○
	If rivet or bolt loosen						○
Add lubricate grease or change oil	Check chassis lubrication condition after clean			○	○	○	○
	Check oil in the oil tank						○
Operator presence system	Working condition		○	○	○	○	○

2. Torque Specifications

Unit :

N·m

Bolt's diameter mm	Grade			
	4.6	5.6	6.8	8.8
6	4~5	5~7	7~9	9~12
8	10~12	12~15	17~23	22~30
10	20~25	25~32	33~45	45~59

Bolt's diameter mm	Grade			
	4.6	5.6	6.8	8.8
12	36~45	45~55	58~78	78~104
14	55~70	70~90	93~124	124~165
16	90~110	110~140	145~193	193~257
18	120~150	150~190	199~264	264~354
20	170~210	210~270	282~376	376~502
22	230~290	290~350	384~512	512~683
24	300~377	370~450	488~650	651~868
27	450~530	550~700	714~952	952~1269
30	540~680	680~850	969~1293	1293~1723
33	670~880	825~1100	1319~1759	1759~2345
36	900~1100	1120~1400	1694~2259	2259~3012
39	928~1237	1160~1546	1559~2079	2923~3898

Note: •Use entirely 8.8 grade bolt in the important joint position.

•Bolt's grade can be found in the head, if it can't be found, the grade is 8.8.

3. Periodic replacement of key safe parts

Some parts are not checked during routine maintenance. Please refer to the table below for the average service life of these parts

Replace them when their service life has expired, sooner if they damaged.

Name of key safe part	service life (years)
Brake hose or hard tube	1~2
Hydraulic rubber hose for lifting system	1~2
Lifting chain	2~4
High pressure rubber hose or tube for hydraulic system	2
Grease cup for brake fluid	2~4
Fuel tube	2
Sealing member, rubber articles inside of hydraulic system	2

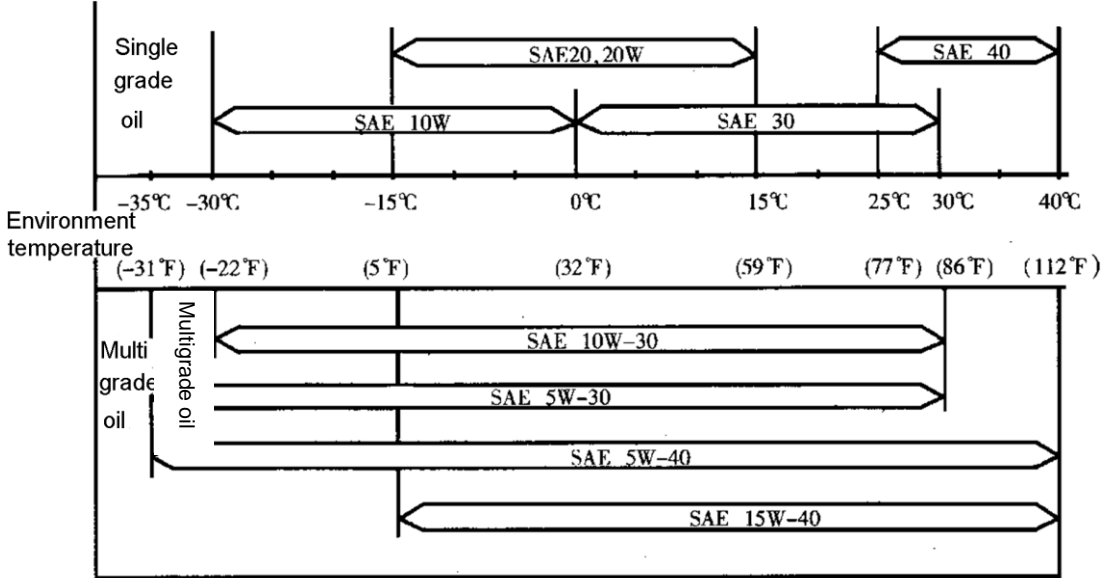
4. Table for the oil used in the truck

1.0t~3.5t Forklift used oil

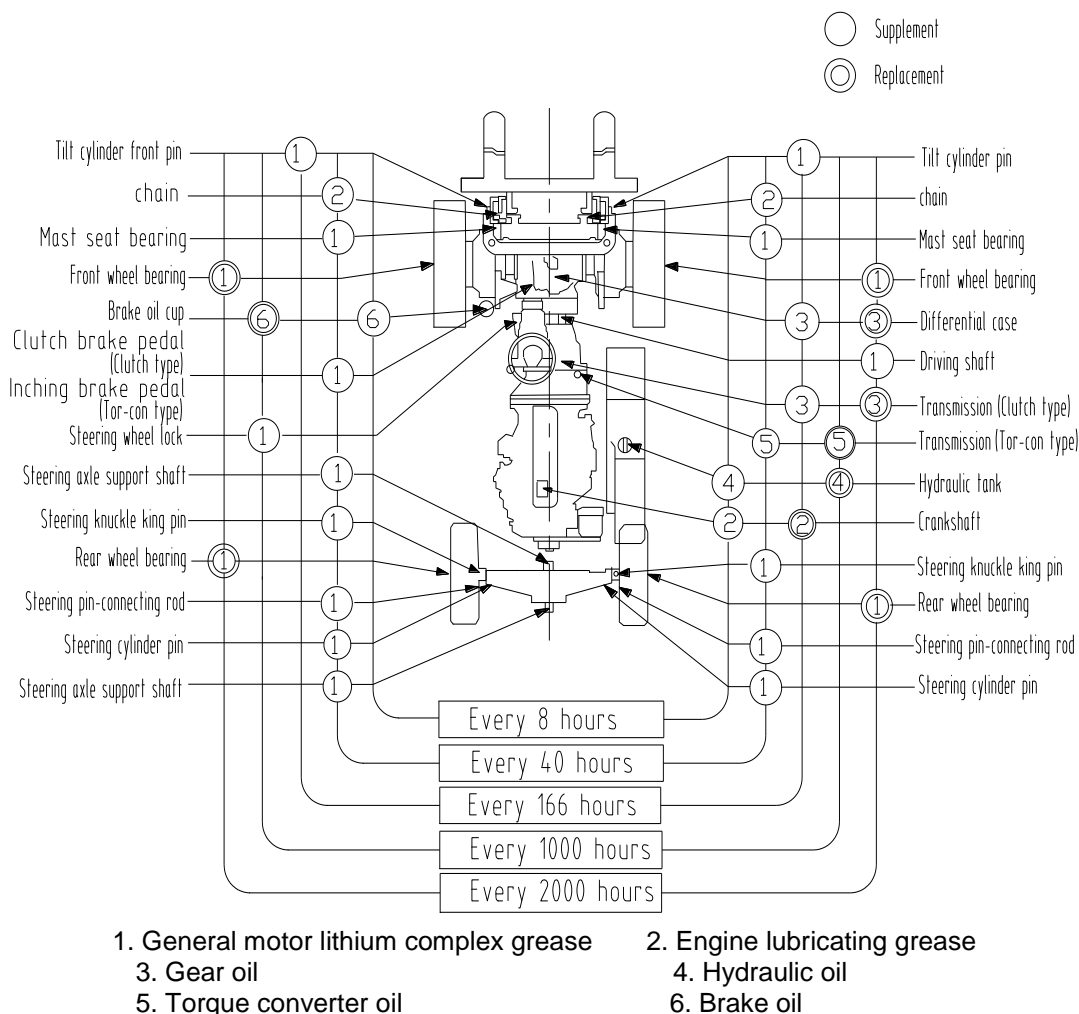
Description	Shop sign, Code name	Capacity(L)	Remark
Diesel	0# (Summer) -10#~-35# (Winter) (W98 sulphur content<15pmm)	65	2t-3.5t
Diesel engine oil	General season: CH-4 grade 15W / 40 winter: CH-4 grade 10W / 30 (arctic-alpine: CF-4 grade 5W/30, Cummins engine CH-4 grade Kubota engine CJ-4 grade) or refer to engine manual	5.2~7.5	Diesel engine
Hydraulic oil	L—HM32 (arctic-alpine: L—HV32)	48~54	2.0t-2.5t
		52~58	3.0t-3.5t
Hydrodynamic Power Transmission Oil	DEXRON—III (Caltex) (1t-3.5t)	10	
Gear oil (Drive axle)	Two-wheel drive: 85W/90 (GL-5) Four-wheel drive: Mobil 424 hydraulic transmission oil	6.5	
Gear oil (Steering axle)	General season: GL-5 85W/90 heavy load gear oil winter: GL-5 75W heavy load gear oil	main decelerator: 3.5L Left/right wheel reducer: 0.75L	2.0t-2.5t Four-wheel drive The minimum temperature for 75W gear oil is -40℃
Brake Liquid (Add to brake oil)	Two-wheel drive: Choice HZY3 brake liquid (add when leaving factory) or DOT3. Four-wheel drive: SAE10 Hydraulic oil or which was not worse than it.	1.5	
antifreeze liquid (Radiator)	-35# motor antifreeze liquid (add when leaving factory) or FD-2 antifreeze	10~11	1t-3.5t
Industrial vaseline	2#		Battery terminal
Lubrication grease (each lubricating	3# Automobile general lithium base lubrication grease		Each lubricating point
	HP-R lubrication grease		Relatively need lubricating

Description	Shop sign, Code name	Capacity(L)	Remark
point)	(POLYREX)		point with high temperature resistance

Recommendatory diesel engine oil viscosity under different temperature



5. Lubrication system drawing



Note: 1. The details of lubricating oil for different trucks are listed in the *Table for the oil used in the truck*.

2. Lubrication for mast, *please refer to Weekly Maintenance (40hrs)*

Environment protection :

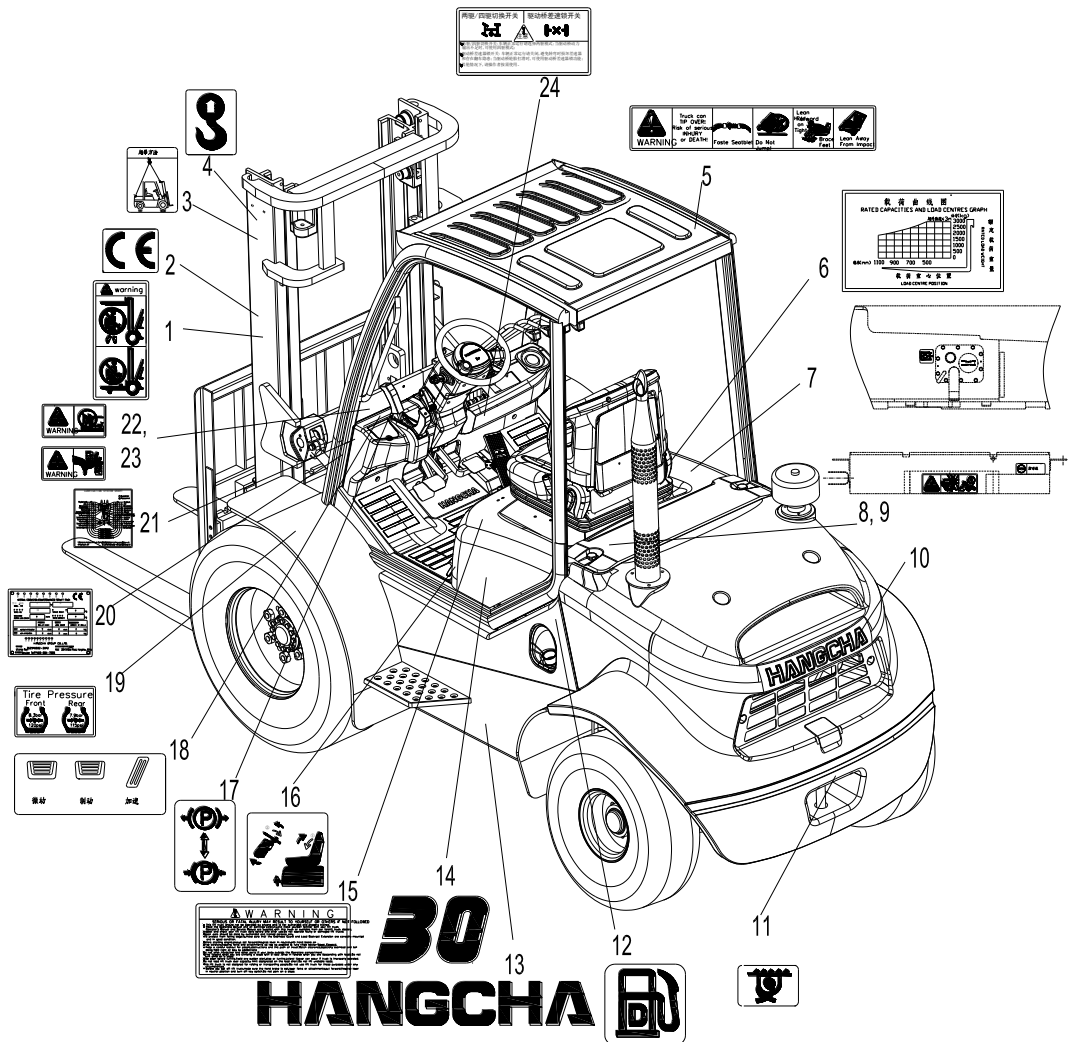
1. Please perform truck cleaning and maintenance at specified locations.
2. Before removing the pipe, connector and related parts, please use the specified container for the used liquid (include antifreeze liquid, engine oil, hydraulic oil, hydrodynamic power transmission oil, gear oil, brake liquid, lubrication grease) and used battery.
3. The used liquid referred above should only be disposed of according to local environment protection laws and regulations.

Safety awareness:

The antifreeze liquid, engine oil, hydraulic oil, hydrodynamic power transmission oil and gear oil should be replaced when it is below 70°C to avoid personal injury.

IX. Labels: Stick various nameplate and mark at different position of the truck

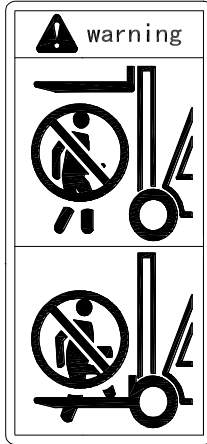
Take 1-3.5t truck for example:



- | | | | |
|-----------------------------------|---------------------|-------------------------|---------------------------|
| 1. Danger label | 2.CE label | 3. Hang label | 4. Hand injury risk label |
| 5. Safety belt label | 6. Load curve label | 7. Hydraulic oil label | 8. Hand injury risk label |
| 9. Antifreeze label | 10. Character label | 11. Tie down label | 12. Diesel label |
| 13. Character label | 14. Tonnage label | 15. Warning label | 16. Hood open label |
| 17. Hand brake label | 18. Operate label | 19. Tire pressure label | 20.Nameplate label |
| 21. Lubrication system label | 22. Danger label | 23. Danger label | |
| 24.Operational Instructions Label | | | |

1. Danger Label: on the outside of mast

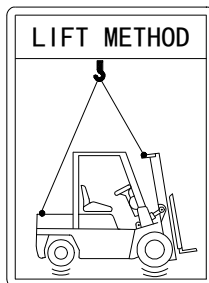
Don't stand on or under fork, otherwise the life may be in danger.



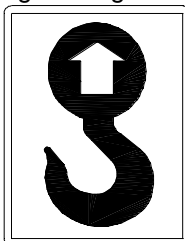
2. CE Label



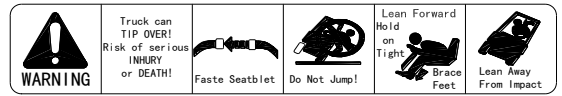
3. Hang Label: it shows the hoisting position and method of truck lifting. Avoid the cord touch and damage the light when hoisting.



4. Hang Label: it shows the hoisting position and method of truck lifting. Avoid the cord touch and damage the light when hoisting.



5. Safety belt label and Anti-tilting Warning Label

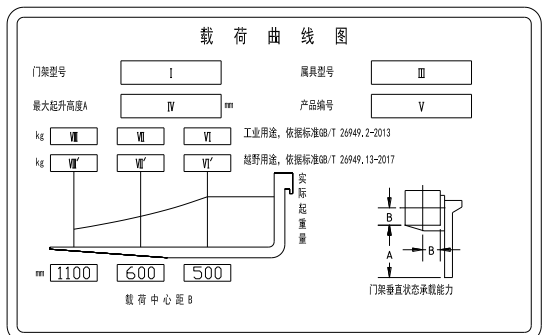
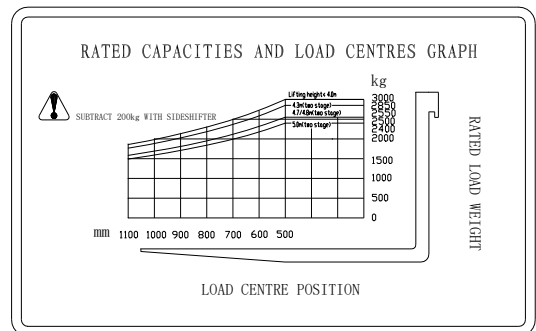


6: Load curve label

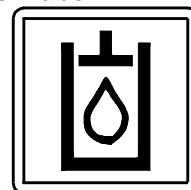
It shows the connection among load center position and max load, max lifting height.

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

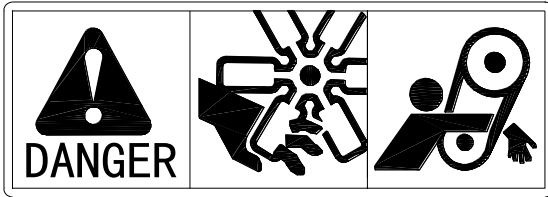
Before loading, please check whether the load and load centre in the range of load capacity chart. If the figure of load is complex, please make sure the heaviest part of load is in the centre of fork and close to backrest.



7. Hydraulic oil label



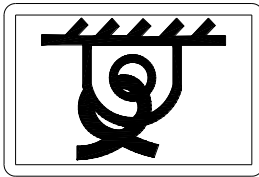
8. Hand injury risk label



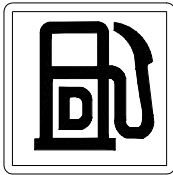
9. Antifreeze label



11. Tie down label



12. Diesel label: it shows that oil filter position, which on the rear left outrigger of overhead guard.

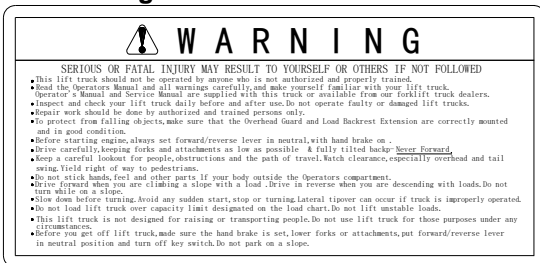


13. Tonnage label

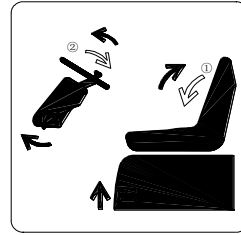


For example, "30" means the rated capacity is 3ton, but if lift high or with attachment, then the capacity reduces.

15. Warning label



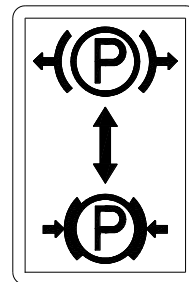
16. Hood open label



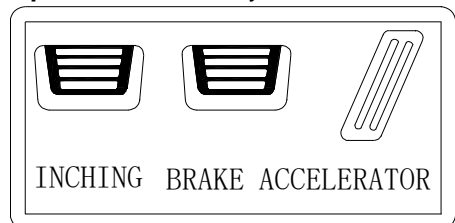
Before opening the hood, move forward the steering wheel, and tilt forward the seat back.

After closing the hood, steering wheel and seat back return to original position.

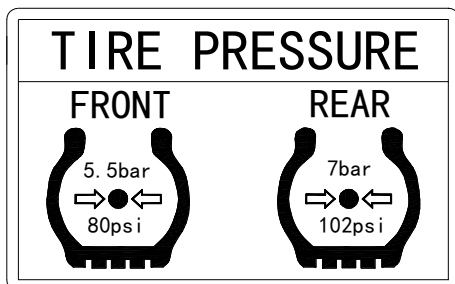
17. Hand brake label



18. Operate label 1 Hydraulic truck



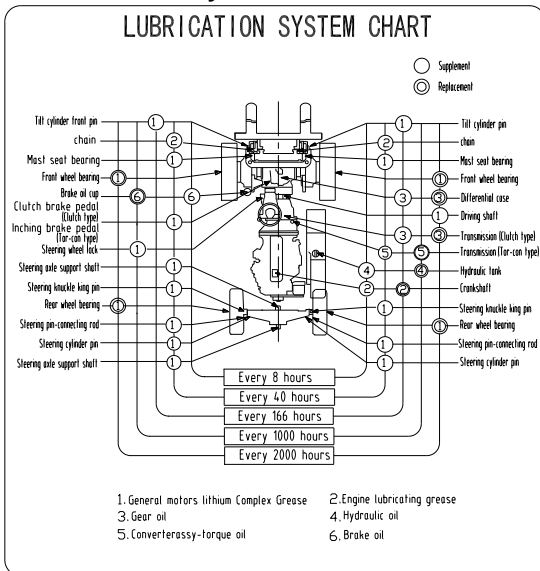
19. Tire pressure label



20. Nameplate label

ROUGH TERRAIN FORKLIFT TRUCK			
MODEL-TYPE	CPCD30	XW43E-RT	CE
SERIAL NO.	L7AF00002	SERVICE WEIGHT	5120 kg
LOAD CENTER	500 mm	RATED CAPACITY	3000 kg
YEAR OF MANUFACTURE	2016-03	ENGINE POWER	36.5/2500 kW/r/min
MAX. LIFTING HEIGHT		LOAD CENTER	CAPACITY AT MAX.L.H
WITHOUT ATTACHMENT		3000 mm	500 mm 3000 kg
If an attachment is installed, the actual capacity at maximum lifting height refer to the model plate of the attachment or the rated capacities and load centers graph.			
HANGCHA GROUP CO.,LTD.			
Add: 88 Donghuan Road, Lin'an Economic Development Zone Zhejiang 311305, P.R. China			

21. Lubrication system label



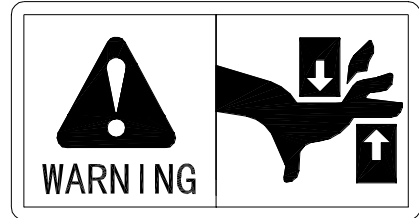
22. Danger label (No entering mast label)

Warning: It is dangerous of your life. If the body is crushed between the mast, instrument frame and shield cab, it can be fatal. If the part needs to be checked or repaired, the inspection and repair should be carried out after shutting down the engine. There should not be person on the truck or others to operate the truck to avoid accidents by handling mast lever wrongly.



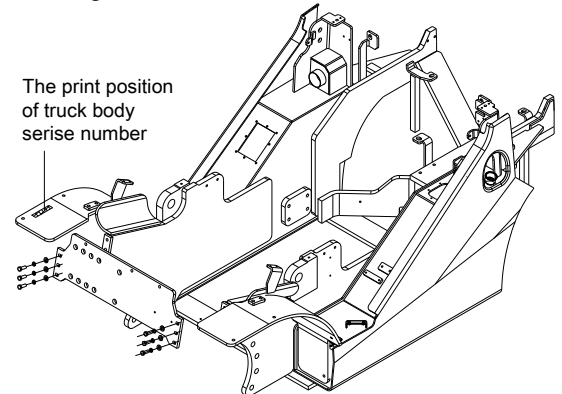
23. Danger label

The inner and outer mast, fork frame are all lifting slip parts. The hands are not allowed to reach in between the inner and outer masts. If a part needs to be check or repaired, the inspection and repair should be carried out after shutting down the engine. There should not be person on the truck or others to operate the truck to avoid accidents by handling mast lever wrongly.



Serial number printing position

Each truck has one unique chassis serial number and the printing position is at the front right of the chassis.



24. Operational Instructions Label

FWD/4WD EXCHANGE SWITCH	DIFFERENTIAL LOCKER SWITCH OF DRIVE AXLE
<p>● FWD/4WD EXCHANGE SWITCH: Please keep choosing FWD during normal operation; when output power from single drive axle is not enough, please choose 4WD.</p> <p>● DIFFERENTIAL LOCKER SWITCH OF DRIVE AXLE: Please keep it off during normal operation, to avoid damage of differential locker and turn over risk; when drive tires is slipping, please use the differential locker of drive axle.</p> <p>● Other condition please switch it as required.</p>	

• FWD/4WD EXCHANGE SWITCH : Please keep choosing FWD during normal operation; when output power from single drive axle is not enough, please choose 4WD.

• DIFFERENTIAL LOCKER SWITCH OF DRIVE AXLE: Please keep it off during normal operation, to avoid damage of differential locker and turn over

risk; when drive tires is slipping, please use the differential locker of drive axle.

(See page 14 for details.)

- Other condition please switch it as required.

X. Truck transporting, lifting, towing

Hoist the truck

Use steel wire ropes through the holes in the two sides of the outside mast's beam and the hook of the counter balance, then use the lifting device to hoist the truck.



Warning

- When hoisting the truck, do not coil the overhead guard with the steel wire.
- The steel wire ropes and the lifting device must be very firm to support the truck because the truck is very heavy.
- Do not lift the truck by the overhead guard.
- When lifting the truck, do not get under the truck.

Transporting

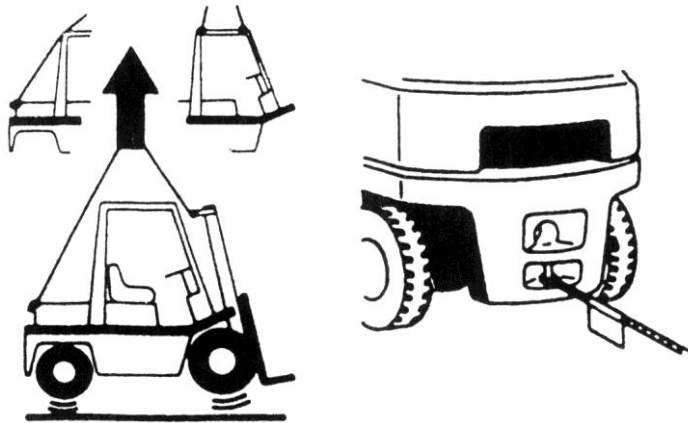
The forklift truck is designed for material handling and short-distance transportation only. It is not designed for long-distance transportation. The Fork Lift Truck must be transported by ship, train or lorry, of over 5T loading. Tighten the brake lever, place wood blocks to the front and rear wheels and bind the truck body with enough rope, to avoid slippage during transportation.

Towing

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

Towing method for damaged truck:

Release hand brake lever. Place shift in neutral. Be careful to the traffic safety and hang being towed label.



Caution

- Never tow the truck with abnormal steering system and damaged brake system.
- Obey traffic rules when towing truck on road,



Warning

- ONLY connect the wire ropes to the towing rod.
- DO NOT pull a load secured by steel wire ropes suddenly.

XI. Main technical performance parameter

Model		CPCD30-XW43E-RT	CPCD35-XW43E-RT
Rated capacity	kg	3000	3500
Load centre distance	mm	500	500
Overall maximum lift height	mm	3000	3000
Free lift height	mm	145	145
Maximum lift speed (with load)	mm/s	490	430
Tilt of the mast	F/B	10°/12°	10°/12°
Max travel speed (without load)	km/h	26	26
Ground clearance	mm	270	270
Min outside turning radius	mm	2900	2900
Max. Grade ability (Full load)	%	21	20
Wheel-base	mm	1880	1880
Service mass	kg	5120	5380
Overall dimension (L×W×H)(include forks)		4220×1599×2420	4220×1599×2420
Tyre (F/R)		14.5-17-14PR/2 27×10-12-12PR/2	14.5-17-14PR/2 27×10-12-12PR/2
Battery V/ capacity Ah		12/90	12/90
Diesel engine	Model	Cummins, QSF2.8T3NA49	
	Rated capacity/rpm	36.5kW/2500r/min	
	Max torque/rpm	186N·m/ 1500 r/min	
	Displacement L	2.8	

Model		CPCD25-XW43E-RT
Rated capacity	kg	2500
Load centre distance	mm	500
Overall maximum lift height	mm	3000
Free lift height	mm	140
Maximum lift speed (with load)	mm/s	620
Tilt of the mast	F/B	10° /12°
Max travel speed (without load)	km/h	26
Ground clearance	mm	240
Min outside turning radius	mm	2900
Max. Grade ability (Full load)	%	26
Wheel-base	mm	1880
Service mass	kg	4670
Overall dimension (L×W×H)(include forks)		4205×1597×2390
Tyre (F/R)		14.5-17-14PR/2 27×10-12-12PR/2
Battery V/ capacity Ah		12/90
Diesel engine	Model	Cummins, QSF2.8T3NA49
	Rated capacity/rpm	36.5kW/2500r/min
	Max torque/rpm	186N·m/ 1500 r/min
	Displacement L	2.8

Model		CPCD35-XW43C-RT4	CPCD30-XW43C-RT4	
Rated capacity	kg	3500	3000	
Load centre distance	mm	500	500	
Overall maximum lift height	mm	3000	3000	
Free lift height	mm	150	145	
Maximum lift speed (with load)	mm/s	490	490	
Tilt of the mast	F/B	10° /12°	10° /12°	
Max travel speed (without load)	km/h	24	25	
Ground clearance	mm	245	245	
Min outside turning radius	mm	3300	3300	
Max. Grade ability (Full load)	%	50	52	
Wheel-base	mm	1880	1880	
Service mass	kg	5600	5340	
Overall dimension (L × W × H)(include forks)		4320×1599×2420	4320×1599×2420	
Tyre (F/R)		14.5-17.5-14PR/2 10.0/75-15.3-14PR/2	14.5-17.5-14PR/2 10.0/75-15.3-14PR/2	
Battery V/ capacity Ah		12/90	12/90	
Diesel engine	Model	Cummins, QSF2.8T3NA49	Cummins, QSF2.8T3NA49	
	Rated capacity/rpm	36.5kW/2500r/min	36.5kW/2500r/min	
	Max torque/rpm	186N·m/ 1500 r/min	186N·m/ 1500 r/min	
	Displacement L	2.8	2.8	

Model		CPCD25-XW43C-RT4	
Rated capacity	kg	2500	
Load centre distance	mm	500	
Overall maximum lift height	mm	3000	
Free lift height	mm	140	
Maximum lift speed (with load)	mm/s	620	
Tilt of the mast	F/B	10° /12°	
Max travel speed (without load)	km/h	25	
Ground clearance	mm	235	
Min outside turning radius	mm	3300	
Max. Grade ability (Full load)	%	57	
Wheel-base	mm	1880	
Service mass	kg	4850	
Overall dimension (L×W×H)(include forks)		4305×1557×2390	
Tyre (F/R)		12-16.5-14PR/2, 10.0/75-15.3-14PR/2	
Battery V/ capacity Ah		12/90	
Diesel engine	Model	Cummins, QSF2.8T3NA49	
	Rated capacity/rpm	36.5kW/2500r/min	
	Max torque/rpm	186N·m/ 1500 r/min	
	Displacement L	2.8	

Model		CPCD30-XW33E-RT	CPCD35-XW33E-RT
Rated capacity	kg	3000	3500
Load centre distance	mm	500	500
Overall maximum lift height	mm	3000	3000
Free lift height	mm	145	145
Maximum lift speed (with load)	mm/s	490	430
Tilt of the mast	F/B	10°/12°	10°/12°
Max travel speed (without load)	km/h	28	28
Ground clearance	mm	270	270
Min outside turning radius	mm	2900	2900
Max. Grade ability (Full load)	%	22	22
Wheel-base	mm	1880	1880
Track (F/R)	mm	1250/1205	1250/1205
Service mass	kg	5120	5380
Overall dimension (L×W×H)(include forks)		4220×1599×2420	4220×1599×2420
Tyre (F/R)		14.5-17-14PR/2 27×10-12-12PR/2	14.5-17-14PR/2 27×10-12-12PR/2
Battery V/ capacity Ah		12/90	12/90
Diesel engine	Model	YANMAR 4TNE98	
	Rated capacity/rpm	42.1kW/2300 r/min	
	Max torque/rpm	186N • m/1700 r/min	
	Displacement L	3.319	

Model		CPCD25-XW33E-RT
Rated capacity	kg	2500
Load centre distance	mm	500
Overall maximum lift height	mm	3000
Free lift height	mm	140
Maximum lift speed (with load)	mm/s	620
Tilt of the mast	F/B	10°/12°
Max travel speed (without load)	km/h	26
Ground clearance	mm	240
Min outside turning radius	mm	2900
Max. Grade ability (Full load)	%	28
Wheel-base	mm	1880
Service mass	kg	4670
Overall dimension (L×W×H)(include forks)		4205×1597×2390
Tyre (F/R)		12-16.5-14PR/2, 27×10-12-12PR/2
Battery V/ capacity Ah		12/90
Diesel engine	Model	YANMAR 4TNE98
	Rated capacity/rpm	42.1kW/2300 r/min
	Max torque/rpm	186N • m/1700 r/min
	Displacement L	3.319

Model		CPCD35-XW33C-RT4	CPCD30-XW33C-RT4
Rated capacity	kg	3500	3000
Load centre distance	mm	500	500
Overall maximum lift height	mm	3000	3000
Free lift height	mm	150	145
Maximum lift speed (with load)	mm/s	430	490
Tilt of the mast	F/B	10° /12°	10° /12°
Max travel speed (without load)	km/h	26	26
Ground clearance	mm	245	245
Min outside turning radius	mm	3300	3300
Max. Grade ability (Full load)	%	50	56
Wheel-base	mm	1880	1880
Service mass	kg	5600	5340
Overall dimension (L × W × H)(include forks)		4320×1599×2420	4320×1599×2420
Tyre (F/R)		14.5-17.5-14PR/2 10.0/75-15.3-12PR/2	14.5-17.5-14PR/2 10.0/75-15.3-12PR/2
Battery V/ capacity Ah		12/90	12/90
Diesel engine	Model	YANMAR 4TNE98	
	Rated capacity/rpm	42.1kW/2300 r/min	
	Max torque/rpm	186N m/1700 r/min	
	Displacement L	3.319	

Model		CPCD25-XW33C-RT4	
Rated capacity	kg	2500	
Load centre distance	mm	500	
Overall maximum lift height	mm	3000	
Free lift height	mm	140	
Maximum lift speed (with load)	mm/s	620	
Tilt of the mast	F/B	10° /12°	
Max travel speed (without load)	km/h	26	
Ground clearance	mm	235	
Min outside turning radius	mm	3300	
Max. Grade ability (Full load)	%	60	
Wheel-base	mm	1880	
Service mass	kg	4850	
Overall dimension (L×W×H)(include forks)		4305×1557×2390	
Tyre (F/R)		12-16.5-14PR/2 10/75×10-15.3-14PR/2	
Battery V/ capacity Ah		12/90	
Diesel engine	Model	YANMAR 4TNE98	
	Rated capacity/rpm	42.1kW/2300 r/min	
	Max torque/rpm	186N m/1700 r/min	
	Displacement L	3.319	

Model		CPCD30-XW98C-RT4			CPCD35-XW98C-RT4		
Rated capacity	kg	3000			3500		
Load centre distance	mm	500	600	1100	500	600	1100
Overall maximum lift height	mm	3000（3m mast） 6000（6m mast）			3000（3m mast） 6000（6m mast）		
Maximum lifting height lifting weight	kg	3000(3m) 700(6m)	2750(3m) 640(6m)	1940(3m) 450(6m)	3500(3m) 700(6m)	3200(3m) 640(6m)	2260(3m) 450(6m)
Free lift height	mm	150			150		
Maximum lift speed (with load)	mm/s	450			450		
Tilt of the mast	F/B	10/12			10° /12°		
Max travel speed (without load)	km/h	25			25		
Ground clearance	mm	270			270		
Min outside turning radius	mm	3300			3300		
Max. Grade ability (Full load)	%	50			54		
Wheel-base	mm	1880			1880		
Service mass	kg	5340（3m mast） 5780（6m mast）			5600（3m mast） 6040（6m mast）		
Overall dimension (L×W×H)(include forks)		4320×1599×2420			4320×1599×2420		
Tyre (F/R)		14-17.5-14PR 10.0/75-15.3-14PR			14-17.5-14PR 10/75-15.3-14PR		
Battery V/ capacity Ah		12/90			12/90		
Diesel engine	Model	Kubota V2607-CR-TE5B					
	Rated capacity/rpm	47.3kW/2400 r/min					
	Max torque/rpm	221.7N・m/1500r/min					
	Displacement L	2.615					

Model		CPCD30-XW98E-RT2			CPCD35-XW98E-RT2		
Rated capacity	kg	3000			3500		
Load centre distance	mm	500	600	1100	500	600	1100
Overall maximum lift height	mm	3000（3m mast） 6000（6m mast）			3000（3m mast） 6000（6m mast）		
Maximum lifting height lifting weight	kg	3000(3m) 700(6m)	2750(3m) 640(6m)	1940(3m) 450(6m)	3500(3m) 700(6m)	3200(3m) 640(6m)	2260(3m) 450(6m)
Free lift height	mm	150			150		
Maximum lift speed (with load)	mm/s	470（3m mast） 440（6m mast）			515（3m mast） 440（6m mast）		
Tilt of the mast	F/B	10° /12°			10° /12°		
Max travel speed (without load)	km/h	26			28		
Ground clearance	mm	270			270		
Min outside turning radius	mm	2900			2900		
Max. Grade ability (Full load)	%	26			29		
Wheel-base	mm	1880			1880		
Service mass	kg	5120（3m mast） 5560（6m mast）			5300（3m mast） 5820（6m mast）		
Overall dimension (L×W×H)(include forks)		4220×1599×2420			4220×1599×2420		
Tyre (F/R)		14-17.5-14PR/2 27×10-12-12PR/2			14-17.5-14PR/2 27×10-12-12PR/2		
Battery V/ capacity Ah		12/90			12/90		
Diesel engine	Model	Kubota V2607-CR-TE5B					
	Rated capacity/rpm	47.3kW/2400 r/min					
	Max torque/rpm	221.5N • m/1500 r/min					
	Displacement L	2.615					

Model		CPCD25-XW98C-RT4		
Rated capacity	kg	2500		
Load centre distance	mm	500	600	1100
Overall maximum lift height	mm	3000 (3m mast) 6000 (6m mast)		
Maximum lifting height lifting weight	kg	2500(3m) 600(6m)	2280(3m) 540(6m)	1600(3m) 380(6m)
Free lift height	mm	140		
Maximum lift speed (with load)	mm/s	620		
Tilt of the mast	F/B	10° /12°		
Max travel speed (without load)	km/h	25		
Ground clearance	mm	240		
Min outside turning radius	mm	3300		
Max. Grade ability (Full load)	%	60		
Wheel-base	mm	1880		
Service mass	kg	4850 (3m mast) 5300 (6m mast)		
Overall dimension (L×W×H)(include forks)		4305×1557×2390		
Tyre (F/R)		12-16.5-14PR/2 10.0/75-15.3-14PR/2		
Battery V/ capacity Ah		12/90		
Diesel engine	Model	Kubota V2607-CR-TE5B		
	Rated capacity/rpm	47.3kW/2400 r/min		
	Max torque/rpm	221.7N m/1500 r/min		
	Displacement L	2.615		

Model		CPCD25-XW98E-RT2		
Rated capacity	kg	2500		
Load centre distance	mm	500	600	1100
Overall maximum lift height	mm	3000 (3m mast) 6000 (6m mast)		
Maximum lifting height lifting weight	kg	2500(3m) 600(6m)	2280(3m) 540(6m)	1600(3m) 380(6m)
Free lift height	mm	140		
Maximum lift speed (with load)	mm/s	620 (3m mast) 610 (6m mast)		
Tilt of the mast	F/B	10° /12°		
Max travel speed (without load)	km/h	26		
Ground clearance	mm	240		
Min outside turning radius	mm	2900		
Max. Grade ability (Full load)	%	29		
Wheel-base	mm	1880		
Service mass	kg	4670 (3m mast) 5120 (6m mast)		
Overall dimension (L×W×H)(include forks)		4205×1557×2390		
Tyre (F/R)		12-16.5-14PR/2 27×10-12-12PR/2		
Battery V/ capacity Ah		12/90		
Diesel engine	Model	Kubota V2607-CR-TE5B		
	Rated capacity/rpm	47.3kW/2400 r/min		
	Max torque/rpm	221.7N m/1500 r/min		
	Displacement L	2.615		

XII. Operational method of lead acid battery

I. Lead acid battery and its application

Lead acid battery is used for power start engine, and it can be for voltage regulation and overload generator substitute power, it has following strengths: low internal resistance, stable end voltage, large support current, low water cost, huge capacity, nice starting performance at low temperature, light pole corrosion, light mass, low fault rate, convenient maintenance. The maintenance-free batteries are all sealed besides 2 vent holes (for overflowing a little air from battery) at the side of maintenance-free battery. Low-maintenance lead-acid batteries plus liquid left in the battery cover mouth.

II. Storage and maintenance

2.1. Storage

The place for storing battery should be clean, dry, airy, and the battery should be charged every 3 months.

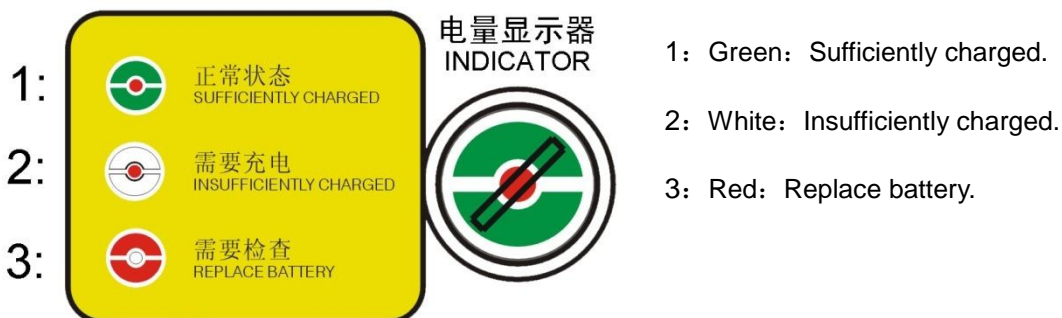
2.2. Maintenance

- Make sure there is no terminal corrosion, link part looseness, outer crack and fastening looseness on the battery.
- If the truck parks over 30 days, in order to keep the battery in normal charging technique condition, you should do the following:

2.3. Battery check and maintenance

Maintenance-free battery check

When the battery volume status is normal and electrolyte density reaches the standard, the small ball is in green; when the battery volume is insufficient and electrolyte density drops, the color is white; if the ball is in red, that means the electrolyte is badly insufficient, you should check whether there is fracture, leakage or fault to battery.



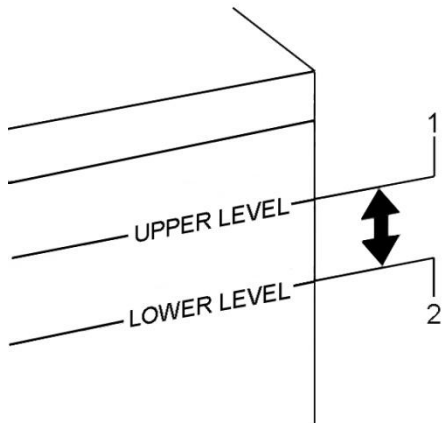
The indicator of battery refers to the prompt on the battery label.

Maintenance-free battery maintenance

- 1) Insure the green status visual in inner indicator;
- 2) Disconnect negative earth wire to avoid discharging by additional current release;
- 3) Keep the battery charged completely when the battery cannot be removed from the truck;
- 4) Make a general schedule, charge every 30-45 days if truck is not used during this period;
- 5) Check battery when the green status of indicator at battery are invisible, then charge or replace battery.

Low-maintenance battery check

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. There is an aperture for adding liquid in the cover of the battery. 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 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 lacking of the electrolyte, please check whether the surface is damaged or leaky, or the battery is conking out.

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 refers to the prompt on the battery label.

Low-maintenance battery maintenance

- 1) Ensure that the battery electrolyte fluid level in the UPPER LEVEL;
- 2) Disconnect negative earth wire to avoid discharging by additional current release;
- 3) Keep the battery charged completely when the battery cannot be removed from the truck;
- 4) Make a general schedule, charge every 30-45 days if truck is not used during this period;
- 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:

- If charge to the battery still installed on the truck, one must disconnect ground cable.

·When connect and disconnect the battery charger cable, make sure 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.

III. Notice for usage

Battery can produce explosive gas, electrolyte is corrosive, and the current can burn skin from battery producing. When handle battery or work near it, comply with the following cautions:



Caution

- When working near 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 battery connects 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.
- To avoid electrolyte contact eyes, skin or clothes.
- Never let the children close the battery.

Emergency measure to electrolyte :

- 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.

- If the electrolyte spilled skin

Wash this part thoroughly. If you have burn pain, please seek medical advice at once.

- 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 if necessary.

XIII. Use, installation and safety rules of attachment

The attachment is in accordance to International standard *ISO2328 Hook-on type fork arms and carriages - mounting dimensions*, such as clamp, rotator, paper roll clamp, carrying ram, side-shifter etc.

1. Attachment use

- (1) Understand the contents listed on the nameplate of the attachment, read the instruction manual before operating attachment. (Especially the manual from attachment company) Before operating the attachment, personnel should be properly trained and qualified.
- (2) The Basic capability and operating methods of attachment should be understood, especially the admit load, lift height, size of cargo and adapt range of attachment.
- (3) When operating the multi-functional attachment, such as with side-shifter, clamp or rotator, only operate one function at a time.
- (4) DO NOT move a truck with attachment when load is in a high position. If the size of cargo is too large, DO NOT move the truck. When transporting cargo, ensure ground clearance between the bottom of cargo and ground is less than 300mm and the mast is inclined back.
- (5) The weight of cargo shouldn't exceed the combined limit of the carrying capacity of forklift and attachment. It is not allowed to have a partial load at high position. It is a short time work for attachment with side-shifter. Partial load is around 100mm (Above 5 ton (including 5 ton), the side-shifter is movable within 300mm.
- (6) In the range of the projection forth 2m of the lower of attachment and cargo, prohibit stand to avoid the suddenness except the driver position under overhead.
- (7) DO NOT apply emergency brake while moving. Travel slowly with load.
- (8) Prohibit outside force when attachment working.
- (9) DO NOT operate attachment beyond normal parameters.
- (10) When the attachment malfunctions, prohibit use without check.

Check and maintenance

- (1) Check the clearance of carriage beam and below catch of attachment according to the attachment manual.
- (2) Check the rise catch is right on the flute of fork carriage.
- (3) Use the auto currency lithic-grease per 500 hours to bearing surface.
- (4) Check mounting hardware
- (5) Check the tie-in of hydraulic pressure loop, if tube is damaged. Prohibit use until after repair.
- (6) Check the operation of attachment and replace any damaged components
- (7) Check each attachment operation is functioning correctly. If not, check the hydraulic pressure loop, find out the broken part, replace or repair part or whole loop part.

2. Attachment assembly



Warning

1. Any change to safety or capability of attachment without authorization is strictly prohibited.
2. Actual load capacity should be the least of rated load capacity, attachment load capacity, combined load capacity of truck and attachment, combined load capacity of truck. Generally speaking, the combined load capacity of truck is the least. Attachment load capacity may depend on attachment pressure.
3. Check assembly of attachment to ensure no movement on carriage
4. After hang attachment, embed the rise catch block to the gap of top beam. Ensure the center line of the attachment offset from the center line of the truck is less than 50mm. Otherwise it will affect the lateral stability of the forklift
5. To attachments with rotating functions, such as paper roll clamp, bale clamp, multi-purpose clamp, and drum clamp, it needs to weld chock block in the joint of carriage beam and attachment to prevent movement from side to side in the operation.
6. Assemble the lower attachment mounting to ensure correct clearance with carriage

XIV. Description of OPS System

OPS System (For hydraulic electronic shifting truck only)

The OPS (Operator Presence Sensing) System is developed to assure the safety and prevent the operators from travelling or handling operation when the operator is not seated or not in the proper position, helping to decrease or prevent the accidents due to the maloperation.

Engine Stalling.

If the driver leaves the seat or the seatbelt is unfastened (if seat pressure switch is applied on the seat) or the parking brake is not applied, the buzzer will alarm.

If there is no seat pressure switch input, when the driver sits correctly or applies the parking brake, the alerting alarm stops.

If there is seat pressure switch input, when the driver sits correctly and fastens the seatbelt or applies the parking brake, the alerting alarm stops.

Engine Running

1. Start the engine

When the gear switch is in the neutral position and the driver sits correctly with the buckle of seatbelt well put in the receptacle, or applies the parking brake, the engine is able to start. If the gear switch is not in the neutral position, there is no starting signal output.



Warning

If a forklift truck is parking in a slope, it's necessary to apply the brake pedal before starting in case of slipping.

2. Forward or Reverse Protection

After the engine has started, shift the gear switch to first gear of forward or reverse, the vehicle is able to start. If the gear switch is shifted to second gear of forward or reverse, the neutral indicator light flashes and the vehicle cannot start. The forward or reverse power can recover if the gear switch hangs in neutral switch.

If the driver leaves the seat or unfastens the seatbelt (if seat pressure switch is applied) over 3 seconds in the process of travelling, the buzzer will alarm and the neutral indicator flashes and OPS lights are on and the truck stops automatically.

If the driver returns and sits correctly, the alerting alarm stops and OPS light turns off. The neutral indicator light is normally on when the gear switch is in the neutral position. When gear switch hangs in the forward or reverse gear, the vehicle recovers travelling.



Caution

There is no "OPS" light on the instrument for some truck models.

For trucks mounted with seat applied with the seat pressure switch, it's required that the driver sits correctly and then put the buckle of the seatbelt into the receptacle. Note if the sequence is not followed, the truck will not start.

The gear switch is set in the neutral place by default in the procedure, neutral indicator light flashing reminds the driver to hangs the gear switch in the neutral position.



Warning

If the OPS is activated by abnormal operation when a forklift truck is travelling in a slope, the power supply will be cut off which leads to the slipping on a slope. To avoid this kind of accident, the driver must operate the truck in a proper position.

3. Working Device Protection

If the driver leaves the seat or unfastens the seatbelt (if seat pressure switch is applied) over 3 seconds in the process of handling, the buzzer will alarm and the neutral indicator flashes and OPS lights are on. Operation of handling stops automatically. If the driver returns and sits correctly, the handling can be continued.



Caution

For trucks mounted with seat applied with the seat pressure switch, it's required that the driver sits correctly and then put the buckle of the seatbelt into the receptacle. Note if the sequence is not followed, the truck will not start. Before unlocking the working device, put the tilting lever and the attachment lever back to the original position.

Abnormity of OPS Controller

If it happens to encounter the following situations, please park the forklift truck in a safe place and contact the local agency of Hangcha forklift for inspection.

- a) Shift the gear switch to first gear of forward or reverse, but the neutral indicator light flashes when ready to start.
- b) The buzzer keeps alarming when the parking brake is already applied.
- c) The neutral indicator light keeps flashing when the gear switch is in the neutral position.
- d) When the driver leaves the seat or unfastens the seatbelt (if seat pressure switch is applied) over 3 seconds in the process of handling, the buzzer fails to alarm and OPS light is not on.
- e) When the driver returns and sits correctly, the buzzer keeps alarming and the OPS light keeps on.



Caution

There is no "OPS" OPS light on the instrument for some truck models.

XV. Relevant safety command and standard

The model by CE certification which according to the follow instruction and standard: DIRECTIVE 2006/42/EC OF THE EUROPEAN PAMENT AND OF THE COUNCIL, DIRECTIVE 2000/14/EC OF THE EUROPEAN PAMENT AND OF THE COUNCIL.

EN ISO 3691-1:2015,ISO/TS 3691-7:2011, EN1175-2:1998+A1:2010, EN 13059 : 2002+A1: 2008,EN 12053: 2001+A1: 2008 coordinate standard.

- Main safety factor will according with DIRECTIVE 2006/42/EC OF THE EUROPEAN PAMENT AND OF THE COUNCIL and ISO 3691-1:2011,ISO/TS 3691-7:2011, EN1175-2:1998+A1:2010,EN 16307: 2013+A1: 2015
- Noise will according with EN 12053: 2001+A1: 2008 and 2000/14/EC,. 2005/88/EC
- Vibrational parameter will according with ISO 5349-2:2001、 EN 13059: 2002+A1: 2008.
- Electromagnetism compatible will according with 2014/30/EU、 EN 12895: 2015.

Vibration and noise values are as follows, noise measuring only 3.5 tons, the remaining value should be less than 3.5 tons tonnage values.

Model	Vibration coefficient m/s^2	At the operator' position: measure with sound pressure level dB(A)	Acoustic power level of radiation noise dB(A)
CPCD35-XW43E-RT	0.9568	87.5	105.5
CPCD35-XW98C-RT4	1.146 (whole body)	85.8	103.4
CPCD25-XW98C-RT4	1.214 (whole body)	91.5	103.2

- Static test coefficient for lifting attachment is 1.33.

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, Hangzhou, Zhejiang .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: CPCD30-XW43E-RT, CPCD35-XW43E-RT, CPCD25-XW43E-RT, CPCD30-XW33E-RT,
CPCD35-XW33E-RT, CPCD25-XW33E-RT
CPCD30-XW98C-RT4, CPCD35-XW98C-RT4, CPCD25-XW98C-RT4
CPCD30-XW98E-RT2, CPCD35-XW98E-RT2, CPCD25-XW98E-RT2
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 16307-1:2013+A1:2015
EN 1175-2:1998+A1:2010

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

signature of the person:
Unterschrift des Ausstellers

XVI.Maintenance record

Date	Item of maintenance	Signature	Remark

HANGCHA GROUP CO. , LTD.

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