Prins Maasdijk

USER MANUAL

Prins TIGER

CONTENTS

1. FOREWORD

As manufacturer, we thank you for purchasing this Prins Tiger Forklift truck.
For your safety, please obey all safety guidelines as set out in this manual. To obtain a long and trouble free operation from your forklift keep up regular servicing and read this manual thoroughly before you start to work with it. Make sure other users of the truck read the manual as well.
Keep this manual, after poring it over, on a place where you can find it easily back, so that you always have the information at one's disposal concerning maintenance, defects and the like.

When you want to order some parts, or you have questions/remarks about your forklift truck, please contact Prins Maasdijk. Please: always be sure you know your ***Service number*** and ***Serial number***, mentioned on the tag plates in the left and right upper corner of the steering column. Keep it always nearby when you call us.

We wish you much success with your new forklift truck.

Prins Maasdijk

2. General Safety Regulations

Accidents can occur if the safety regulations are disregarded, insufficient care is taken during maintenance or when operating the machine. You must be aware of the risks entailed in certain actions. This manual describes potentially hazardous situations and the measures to be taken during operation and maintenance.

It is impossible for the manufacturer to foresee every potentially hazardous situation, which may lead to injuries or damage. The user must ensure the safety of all actions, procedures or the use of any tools that are not recommended by the manufacturer. Always use original spare parts.

For your and other people's safety:

- Never load the forklift truck above the maximum stipulated weight.
- Always check the loading diagram on the bonnet.
- The lifting capacity is halved when the load rests on only one fork. Avoid this as much as possible.
- Keep the load as close to the ground as possible when driving with a loaded machine. Never drive at top speed in this situation.
- Keep the speed as low as possible when driving with an elevated load and keep track of the maximum clearance height.
- ALWAYS carry out the necessary preventive inspections and regular maintenance. Never start working with the machine unless it has been thoroughly checked. Pay particular attention to the tires, battery, brakes, steering gear, fuel system, and electrical components.
- Do not refuel while the engine is running. No smoking is allowed during refueling or changing / adding oil and fire and sparks must be prevented. Explosive gases are released during refueling.
- Carefully remove any spilt liquids after refueling or changing / adding oil.
- Before changing or adding oil, the machine must be checked for oil stains. Try to find out where they come from. If they are caused by a technical failure, first repair the failure before continuing working with the truck.
- When leaving the machine, ensure that the handbrake is engaged and that the gears are in neutral.
- A wrong sitting position can cause accidents. Always adjust the chair so that you can properly operate the levers and have a good sight.
- Never work with a truck without a safety guard or safety bracket (which are standard supply).
- Always wear you seat belts when operating the forklift truck.
- Operate at a speed that gives you positive control of the truck. High speeds can be very dangerous. Also sudden brakes, accelerations, or turns can cause dangerous situations.
- If you have to drive at locations with little clearance height, take the following things into account:
  - Always check if there is enough clearance above and beside the truck.
  - Keep all parts of the body inside the safety guard, keep your hands on the steering wheel and keep your feet on the pedals.
  - Pay attention to where you drive
- Gently operate the levers. This increases the life span of the truck and is much safer.

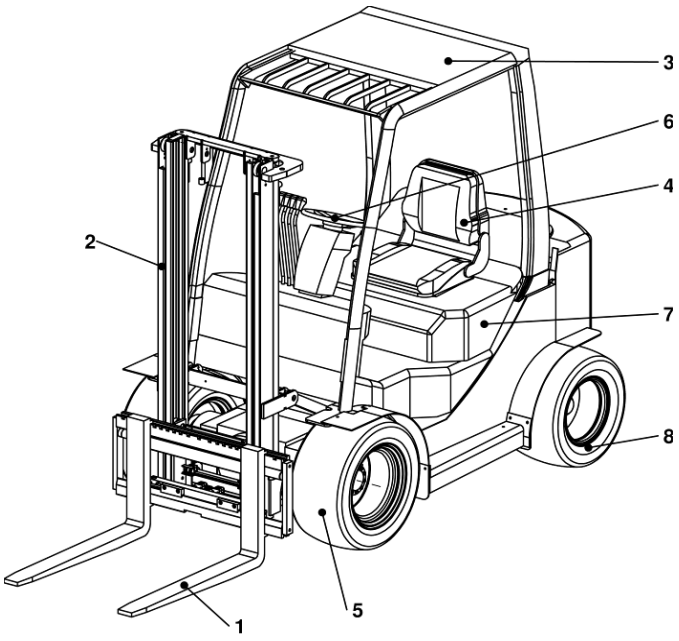
- Never walk under an elevated load. This is extremely dangerous.
- Never carry a person on the forks or on the truck.
- When lowering the forks, make sure the forks are horizontal or tilted a bit backwards. Never lower the forks when they are tilted forwards.
- The state of the machine can be checked by many factors. Any changes of sound, vibrations, or reactions on the levers can indicate failures. If you suspect a failure, immediately pull over the truck and stop the engine. Check for causes and take the necessary actions.

Table 2.1 | Safety symbols

	**Follow the instructions for use and safety**		**Wear safety glasses and protective clothing**
	**Smoking and open flames prohibited**		**Electrolyte is very corrosive**
	**Connectors are live, avoid contact**		**Areas where batteries are stored or charged must be sufficiently ventilated**
	**Danger of explosions, avoid short circuits**		

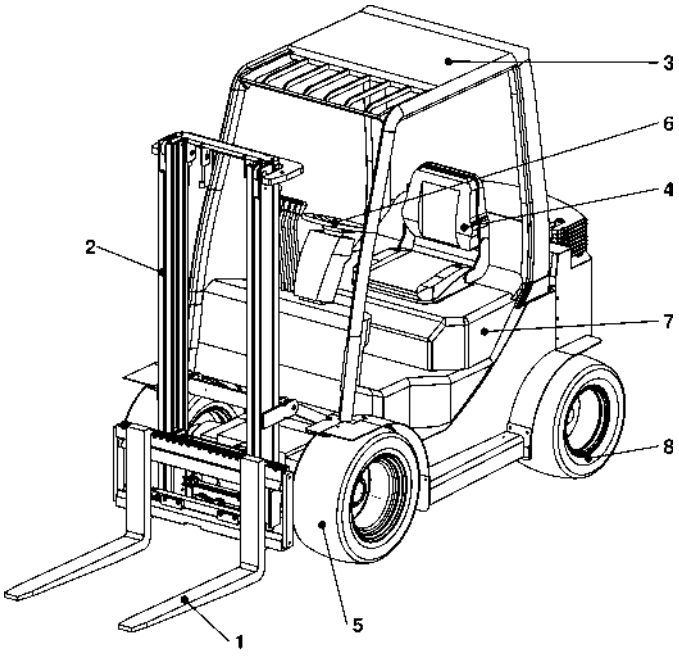
3. SUMMARY OF COMPONENTS

3.1 Main components



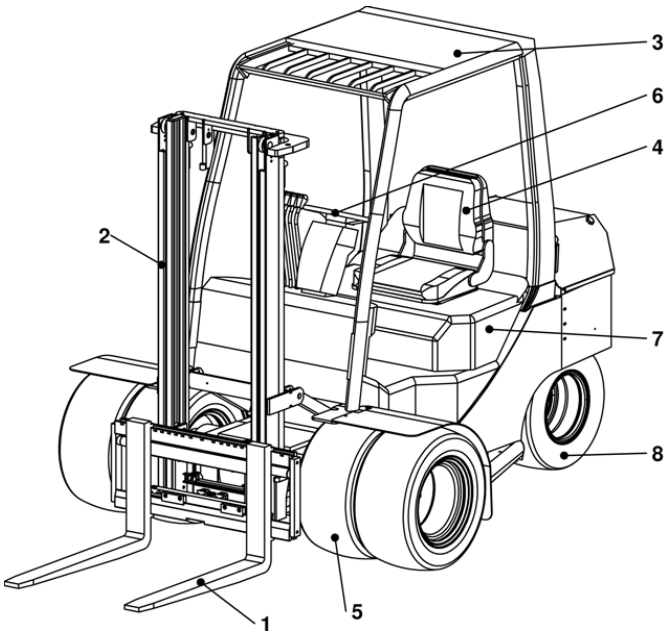
Tiger L

1 – Forks
2 – Mast
3 – Overhead guard
4 – Operator's seat
5 – Front wheel
6 – Steering wheel
7 – Engine hood
8 – Rear (steering) wheel



Tiger XL

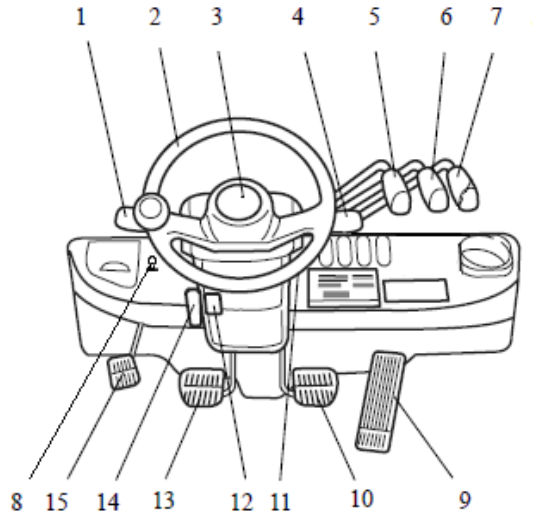
1 – Forks
2 – Mast
3 – Overhead guard
4 – Operator's seat
5 – Front wheel
6 – Steering wheel
7 – Engine hood
8 – Rear (steering) wheel



Tiger XXL

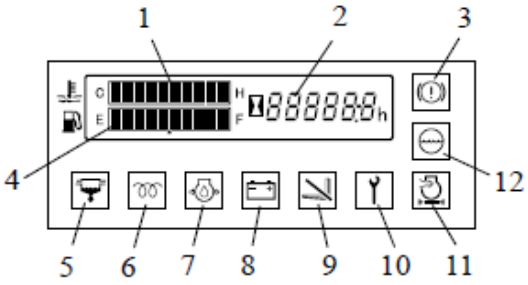
1 – Forks
2 – Mast
3 – Overhead guard
4 – Operator's seat
5 – Front wheel
6 – Steering wheel
7 – Engine hood
8 – Rear (steering) wheel

3.2 Driving controls and instrument panel



Driving controls

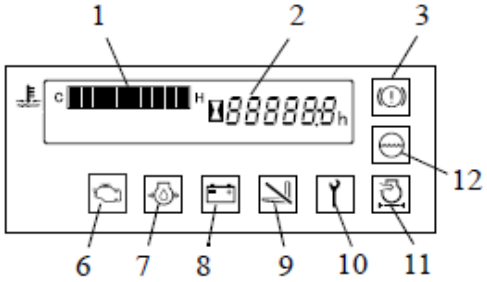
1 – Control lever
2 – Steering wheel
3 – Horn button
4 – Light control and turn signal switch
5 – Lift lever
6 – Tilt lever
7 – Side shifter lever
8 – Accumulator switch (option)
9 – Accelerator pedal
10 – Brake pedal
11 – Ignition switch
12 – Parking brake release lever
13 – Inching- en brake pedal
14 – Tilt steering adjust lever
15 – Parking brake pedal



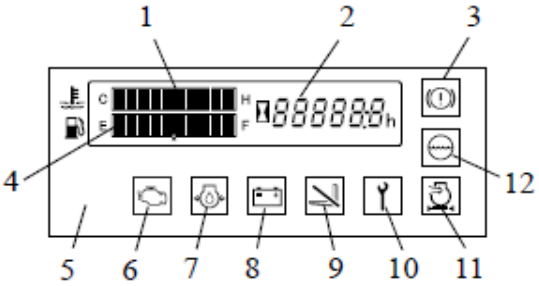
Diesel engine models

General screen

1 - Water temperature gauge
2 - Hour meter
3 - Brake warning lamp (OK monitor: option)
4 - Fuel gauge (Diesel and Gasoline/LPG engine models)
5 - Sedimenter warning lamp (Diesel engine models)



LPG engine models



Gasoline/LPG engine models

General screen (continuation)

6 - Glow indicator lamp (Diesel engine models) Engine check lamp (LPG and Gasoline/LPG engine models)
7 - Engine oil pressure warning lamp
8 - Charge warning lamp
9 - OPS lamp
10 - Diagnosis lamp
11 - Air cleaner warning lamp (OK monitor: option)
12 - Coolant level warning lamp (OK monitor: option)

Start

Warning lamp check method

Please check if all warning lamps come on when the ignition switch is turned to ON.

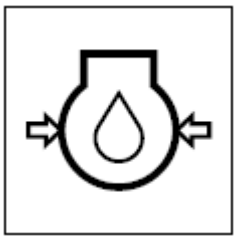
Note:
Use the light control switch to check the meter-lighting lamp.

►***Caution!***
• The glow indicator lamp (Diesel engine models) is only on for 2 seconds when the engine coolant temperature exceeds 50°C.
• If a lamp does not light up, contact Prins Maasdijk and request an inspection.

Hour meter also serving as diagnosis indicator

The hour meter operates when the ignition switch is turned to ON. It indicates the total number of vehicle operating hours. The unit of the right most digit is 1/10 hour.
Please use this meter for the timing of periodic maintenance and recording the operation hours.
When an abnormality occurs to the vehicle (diagnosis lamp lights up or blinks) the error code and hour meter will be alternately displayed.

►***Caution!***
• Should an error code be displayed, park the vehicle in a safe location and contact your dealer to request an inspection.

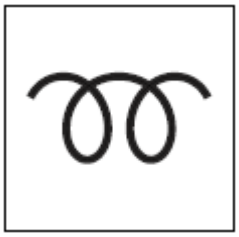


Engine oil pressure warning lamp
Comes on to indicate low engine oil pressure while the engine is running.
1. If normal, the lamp comes on when the ignition switch is turned to ON and goes off when the engine starts.
2. If the lamp comes on while the engine is running, either the engine oil is low or the lubrication system is faulty. Stop the operation immediately and ask Prins Maasdijk for inspection and repair.

Note:
The "engine oil pressure warning lamp" does not indicate the oil level. Check the oil level using the oil level gauge before starting work.

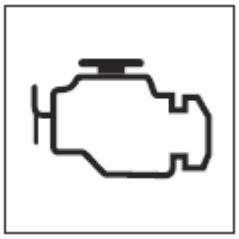
Sedimenter warning lamp (Diesel engine models)
The sedimenter is a device for separating water from the fuel.
1. The warning lamp comes on to indicate water in the sedimenter exceeds the predetermined level while the engine is running.
2. If normal, the lamp comes on when the ignition switch is turned to ON and goes off when the engine starts.
3. If the lamp comes on while the engine is running, drain water immediately. (See the self service section for the draining instructions.)

►***Caution!***
• Continued operation with the lamp on may cause seizure of the injection pump and pump damage. If the warning lamp lights up, always make sure to drain the water.



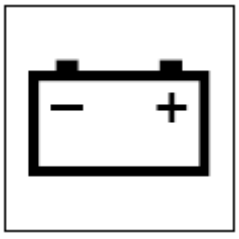
Glow indicator lamp (Diesel engine models)
Indicates heating of glow plugs.
When the ignition switch is turned to ON, the lamp comes on and glow plug heating begins. The lamp goes off automatically when glow plug heating is complete. The engine will start easily once the glow plugs are heated.

Note:
The glow indicator lamp is on for 2 seconds when the engine coolant temperature exceeds 50°C.



Engine check lamp (LPG and Gasoline/LPG engine models)
When an error occurs to the engine controller, the display will light up to inform the operator. When condition is normal, the lamp will light up when the ignition switch is turned to the ON position. The lamp will turn off when the engine is started.

►***Caution!***
• If the engine check lamp lights up during operation, stop operations and park the vehicle in a safe location, ask your dealer to perform an inspection.



Charge warning lamp
1. This lamp comes on to indicate an abnormality in the charging system while the engine is running.
2. If normal, the lamp comes on when the ignition switch is turned to ON and goes off when the engine starts.
3. If the lamp comes on while the engine is running, stop immediately, park the vehicle in a safe location, stop the engine and after the engine has cooled down inspect the fan belt for cuts or looseness, adjust it, and restart the engine.
If lamp does not go off, the electrical system may be faulty.
Please ask Prins Maasdijk immediately for inspection and repair.

OPS lamp
If the operator leaves the seat, the OPS lamp will light up, indicating that the OPS System is operating. (If the operator returns to normal seating position within 2 seconds, loading can be continued.) In such a situation, return the control lever and lift lever to the neutral position, then sit on the seat again.

►Caution!
In the following cases, a malfunction may have occurred to the OPS System. Park the vehicle in a safe location and contact Prins Maasdijk to request an inspection.
• If the operator leaves the seat, the OPS lamp does not light up.
• Even when the operator re-seats, the OPS lamp does not turn off.

Water temperature gauge
Indicates the temperature of the engine coolant.
1. This gauge functions with the ignition switch ON, and displays the coolant water temperature from left to right in a 10-stage gradation scale.
2. The operator will be notified when the water temperature is 115ºC or over (above 8th stage), as the final two stages at far right begin blinking. Again, when the engine protection function activates (for vehicles with Multifunction display: OPT), the entire gauge will start blinking to inform the operator.
3. Temporary overheating may be caused by coolant leakage, low engine coolant level, loosened fan belt, or other problem in the cooling system. Contact Prins Maasdijk to request an inspection.

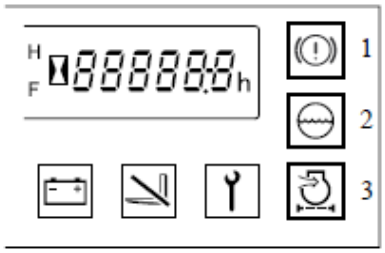
Fuel gauge (Diesel and Gasoline/LPG engine models)
Indicates the amount of remaining fuel in the fuel tank in terms of a 10-stage gradation scale. The operator will be notified that remaining fuel level is low when the two stages at far left start blinking. It takes some time for the indication to be stabilized after refueling and the ignition switch is turned to ON.

Note:
• If the operating area is not level, attention must be paid because the correct level may not be indicated.
• When the gauge begins blinking, refuel as soon as possible. In case of diesel engine, be sure to refuel it before it runs out because when this occurs it becomes necessary to bleed air from the fuel supply system.

Diagnosis lamp
If an abnormality is registered by the OPS or mini lever, the respective lamps will light up or blink to inform the operator and the diagnosis error code will be displayed in the hour meter display area. If the following conditions occur to the lamp, there may be a system abnormality. Contact your dealer to request an inspection.
• The lamp does not light up when the ignition switch is turned ON.
• The lamp lights up when ignition switch is turned ON and stays ON.
• The lamp blinks during ignition switch is turned ON.

►Caution!
• Continuing to use the vehicle while the diagnosis lamp is lighted or blinking may lead to a breakdown. When the lamp lights up or blinks, halt all operations and park the vehicle in a safe location. Contact Prins Maasdijk to request an inspection.

(In the case of diesel engine vehicles, the diagnosis lamp may light up during engine warm-up after a cold-start, but does not indicate an abnormality.)
• If the operator remains seated for a long period with the ignition switch turned to OFF, the next time the ignition switch is turned to ON, the diagnosis lamp may start blinking. If this occurs, leave the seat. The diagnosis lamp will then turn off.



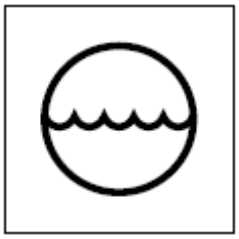
1 - Brake warning lamp
2 - Coolant level warning lamp
3 - Air cleaner warning lamp

OK monitor (option)
Senses the engine coolant level, brake fluid level, clogged air cleaner element and parking brake status. The lamp comes on to indicate a problem. If the lamp comes on when the ignition switch is on (irrespective of the engine speed), the corresponding part may be abnormal. Contact Prins Maasdijk to request an inspection.

►***Caution!***
• Always perform pre-operation checks. Do not rely on the OK monitor, even if it is not lit.

Brake warning lamp
When the parking brake is engaged or brake liquid is low, the warning lamp will light up to notify the operator.
1. The warning lamp will light up when the parking brake is engaged. After disengaging the brake to operate the vehicle, check to make sure the warning lamp has turned off.
2. The lamp will light up to notify the operator when the brake oil is low.

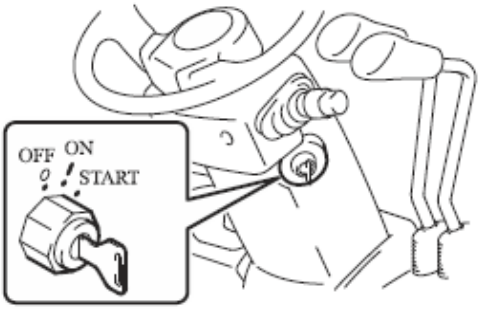
►***Caution!***
• If the warning lamp does not turn off when the parking brake is disengaged, the brake fluid may be low. Inspect the brake fluid level and replenish it if necessary.
• If the warning lamp remains a lighted even if the brake fluid level is sufficient, contact Prins Maasdijk to request an inspection.



Coolant level warning lamp
1. When the coolant level of the radiator reserve tank becomes low, the indicator lamp will light up to notify the operator.
2. If the lamp lights up while the engine is running, this may indicate a deficiency in coolant. Stop the engine and inspect the coolant level in the radiator reserve tank and the radiator. Before checking coolant level in the radiator wait for it to cool as it maybe under pressure when hot.
3. Even if the coolant level warning lamp is not lighted, always inspect the coolant level before starting operations.

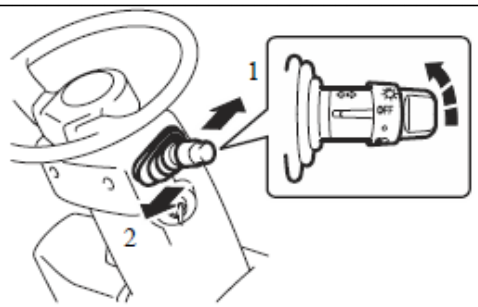
Air cleaner warning lamp
1. This lamp comes on when the air cleaner element gets clogged while engine is running.
2. If normal, the lamp comes on when the ignition switch is turned to ON and goes off when the engine starts.
3. If the lamp comes on while the engine is running, stop operations and park the vehicle in a safe location, stop the engine and clean the element and dust cup. For the cleaning method, refer to the Weekly Inspection Section in this manual.

3.3 Switches and levers



Ignition switch
O [OFF] – Engine stop position. Key insertion and withdrawal are performed in this position.
I [ON] – Engine operation position. Located one position clockwise from O [OFF] position.
The intake heater is preheated before starting in the diesel models.
START – Engine, start position. Located one position clockwise from the I [ON] position.
After the engine starts, release the key and it will return to the I [ON] position automatically.
In the torque converter model, the engine does not start unless the control lever is set in the neutral position.

►Caution!
• Never operate the ignition switch without First sitting on the seat. Otherwise, the forklift could start to move uncontrolled, causing an accident.
• When the OPS lamp is on, return each lever to the neutral position and sit on the seat. Then confirm that the lamp has gone off.
• Do not leave the switch in the [ON] position when the engine is stopped. It may cause over discharge of the battery.
• Do not turn the switch to the START position while the engine is running.
• For the sake of safety it is recommended to always start the engine of a vehicle with the transmission gear shift lever shifted in the neutral position.
• Do not operate the starter motor for more than 30 seconds continuously. Return the switch to the [OFF] position and wait at least 30 seconds prior to attempting restart.
• In case of the anti-restart ignition switch (optionally available), be sure to shift the switch to the [OFF] position before attempting to start the engine again.
• With the ignition switch OFF (engine off), the forks will not lower even if the lift lever is operated. However, if you sit in the seat and turn on the ignition switch, you can lower the forks. (Except mini lever models) Do not operate the lift lever before getting on the vehicle and starting up the engine. (key-off, lift locked)
• If the diagnosis lamp does not go off even when the operator sits on the seat, the battery power may be low. In such a case, do not drive the vehicle until the lamp goes off, otherwise the vehicle may not operate correctly. If you are obliged to drive the vehicle, do so with the utmost care.
Also, stop driving and ask Prins Maasdijk for inspection if the lamp does not go off 1-2 minutes after the engine starts, or when you race the engine for a while. (For diesel vehicles, the diagnosis lamp may be on for a while to warm up the engine after cold starting. This is, however, not an engine malfunction or failure.)



1 – Left turn
2 – Right turn

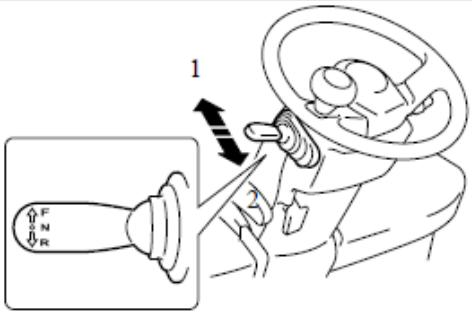
Integrated light and turn signal switch
This two-position switch serves as both a light switch and turn signal switch.

Light control switch
Irrespective of an ignition switch position, this switch allows you to turn on and off the lights.
This switch has two positions. With the switch at each position, the light comes on as shown below.

Lamp name	*Step 1*	*Step 2*
Head lamps	–	O
Side lamps, tail lamps (option)	O	O
Meter illumination lamp	O	O

►***Caution!***
• Do not keep lights such as head lights on for a long period when the engine is stopped. It may cause over discharge of the battery and make engine starting impossible.

Turn signal switch
Makes the turn signal lamps blink.
Left turn – Push forward
Right turn – Pull backward
The signal switch will operate when the ignition switch is ON.
The turn signal lever returns automatically to the original position after making a direction change.



1 – Forward
2 – Reverse

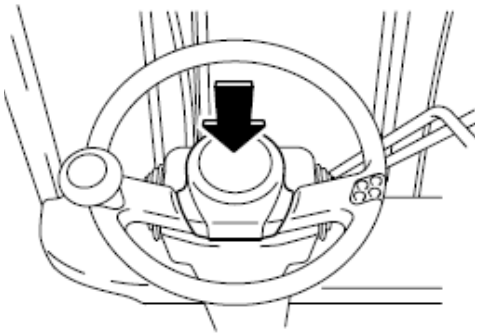
Control lever
Lever for shifting between forward and reverse
Forward – Push forward
Reverse – Pull backward
The neutral position is halfway between the forward and reverse position.

Note:
After the OPS System operates, return the accelerator pedal to its fully released position and set the control lever to the neutral position, and sit on the seat to restart driving. (Even though the operator sits on the seat, driving is impossible unless the control lever is in the neutral position.)

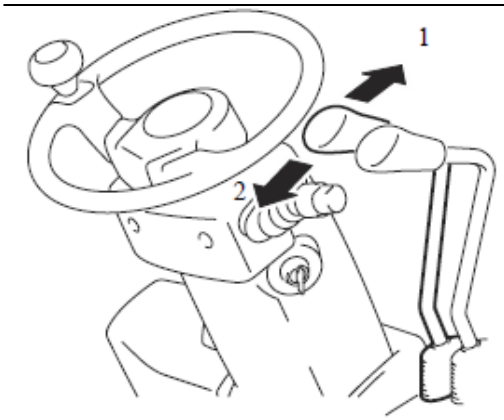
►***Caution!***
• The engine cannot be started unless the control lever is in the neutral position.
• Stop the vehicle before shifting between forward and reverse direction.

Torque convertor interlock function (OPT)
If you switch the control lever direction to something other than the current travel direction while moving at high speed, this function electrically disengages the drive and sets the torque converter to neutral. Once the speed drops below the set speed while running in neutral, the travel direction is automatically switched.
To change travel direction, operate the control lever after travel speed is reduced sufficiently. Ask Prins Maasdijk for changing speed setting.

►***Caution!***
• When the interlock has engaged, release the accelerator pedal and use the brake pedal to reduce speed. After the vehicle has stopped moving, slowly press the accelerator pedal down to start moving again. Disengaging the interlock while the accelerator pedal is pressed down could result in wheel spin.
• Do not perform Forward or Backward operation on slopes. If control lever is operated on a down slope, torque converter interlock function may not operate correctly.



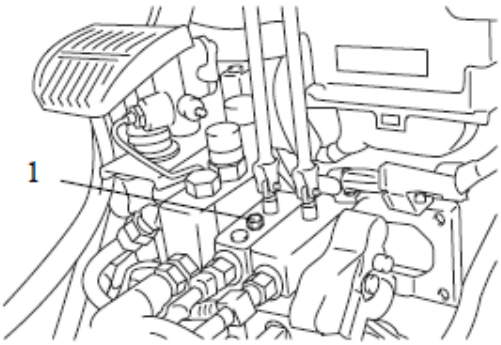
Horn button
Press the button in the center of the steering wheel to sound the horn.
The horn will sound even when the ignition switch is OFF.



1 – Lower
2 – Raise

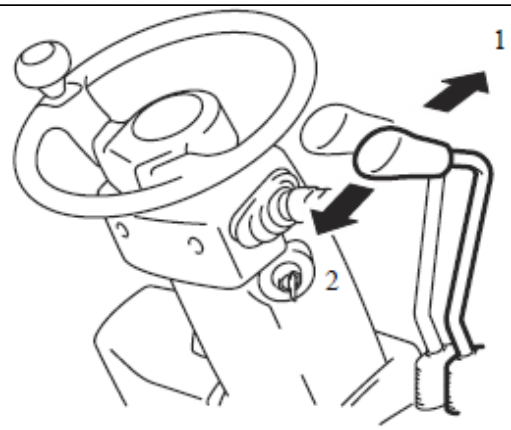
Lift lever
Raises and lowers the forks
Raise – Pull backward
Lower – Push forward
The lifting speed can be adjusted by how far the accelerator pedal is depressed and how far the lever is pull back.
The lowering speed can be adjusted only by how far the lever is pushed forward.

►***Caution!***
• After the OPS System operates, return the accelerator pedal to its fully released position and set the lift lever to the neutral position, and sit on the seat to restart the operation. (If you sit on the seat while raising the lift lever, the forks will start to move 1 second later.)
• If you sit on the seat while lowering the lift lever, the forks will not lower due to the return to neutral function.
• Always operate the lift lever while correctly seated.
• When the ignition switch is turned to OFF and lowering the lift lever, the forks will not lower.
However, if the operator sits in the normal seated position then the ignition switch is turned to ON, the forks will be lower even if the engine is off. (Except mini-lever/joy stick models)



1 – Lift lock release bolt

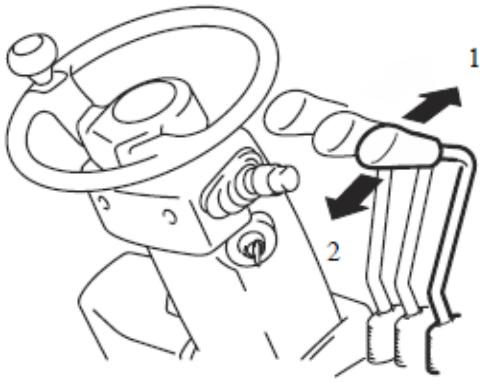
Key-lift interlock
When the ignition switch is OFF, the lift will not descend even if the lift lever is lowered. However, if the operator sits properly in the seat and turns the ignition switch ON, the forks can be lowered even if the engine is off (Except mini lever/joy stick models).
If the ignition switch cannot be turned ON for whatever reason, loosen the manual lowering valve located on the oil control valve beneath the toe board, and operate the lift lever in the downward direction.
Once the forks have been lowered with the lift lock release bolt, close and lock the valve.



1 – Forward tilting
2 – Backward tilting

Tilt lever
Tilts the mast forward and backward.
Forward – Push forward
Backward – Pull backward
The forward or backward tilting speed can be adjusted by the degrees of accelerator pedal depression and lever operation stroke.

►***Caution!***
• Insure the load-handling control levers are in their neutral positions before returning to the operator's seat, if not load-handling functions will start movement 1 second after operator returns to the seat.
• Always operate the tilt lever from a seated position.
• After the OPS System operates, return the accelerator pedal to its fully released position and the tilt lever to the neutral position, and sit on the seat to restart the operation. (If the operator sits on the seat without returning the load-handling control levers to their neutral positions, load-handling functions will start movement 1 second after.)

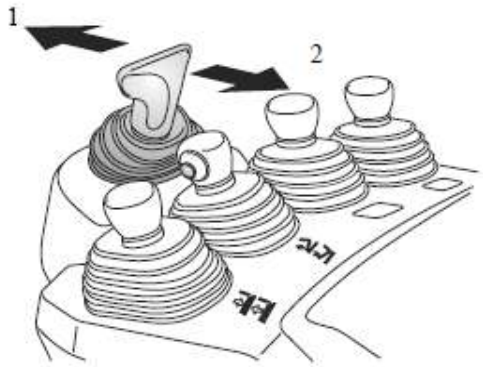


1 – Shifting towards left
2 – Shifting towards right

Side shifter lever
Shifts the fork carriage on the left or on the right
Left – Push forward
Right – Pull backward

►***Caution!***
• Insure the load-handling control levers are in their neutral positions before returning to the operator's seat, if not load-handling functions will start movement 1 second after operator returns to the seat.
• Always operate the side shifter lever from a seated position.
• After the OPS System operates, return the accelerator pedal to its fully released position and the side shifter lever to the neutral position, and sit on the seat to restart the operation. (If the operator sits on the seat without returning the load-handling control levers to their neutral positions, load-handling functions will start movement 1 second after.)

Mini lever (option)



1 – Forward
2 – Backward

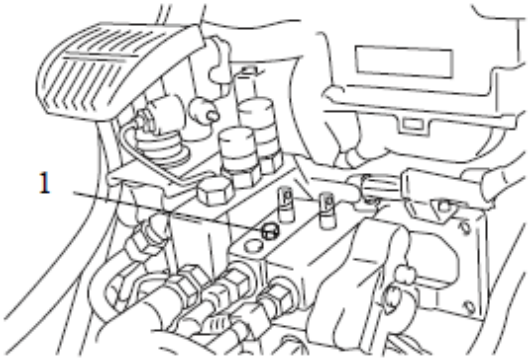
Control lever
Lever for shifting between forward and reverse
Forward – Push forward
Reverse – Pull backward
The speed of forward and backward traveling can be adjusted by the extent of pressing the accelerator pedal.

Note:
• Stop the vehicle before shifting between forward and backward traveling.
• After the OPS System has been activated, return the accelerator pedal and control lever to their neutral positions and return to the seat before recommencing operations.
• Always operate the control lever from a properly seated position.
• Depending on the vehicle specifications, the position of the control lever may vary.

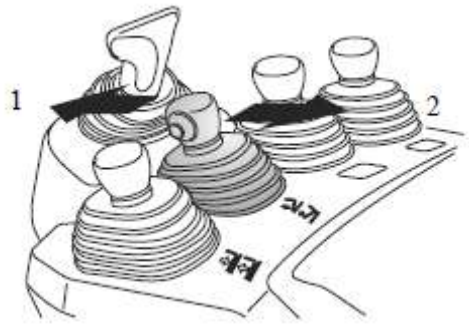
1 – Lower
2 – Raise

Lift lever
Raise and lower the forks for loading.
Raise – Pull backward
Lower – Push forward
Raising speed can be adjusted by the extent of pressing the accelerator pedal and pulling the lift lever.
Lowering speed can be adjusted by the extent of pushing the lift lever.

Note:
• After the OPS System has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat before recommencing operations.
• If you return to the seat while lowering the lift lever, the forks will not descend due to the return to neutral function.
• Always operate the lift lever from a properly seated position.
• When the ignition switch is turned to OFF, the forks will not descend even if the lift lever is lowered. (Key-lift interlock)
• When the forks will not lower due to system malfunction or other reasons, they can be lowered by opening the lift lock release bolt.
• If you lower the forks by opening the lift lock release bolt, close and lock the bolt.



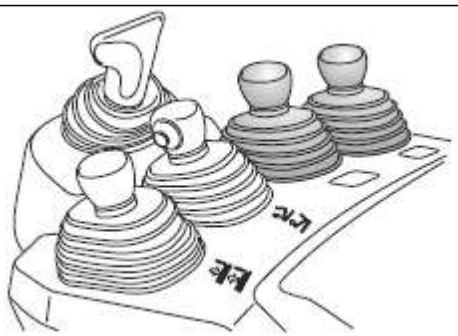
1 – Lift lock release bolt



1 – Forward tilting
2 – Backward tilting

Tilt lever
Tilt the mast forward and backward.
Forward – Push forward
Backward – Pull backward
Forward or backward tilting speed can be adjusted by the extent of pressing the accelerator pedal and operating the lever.

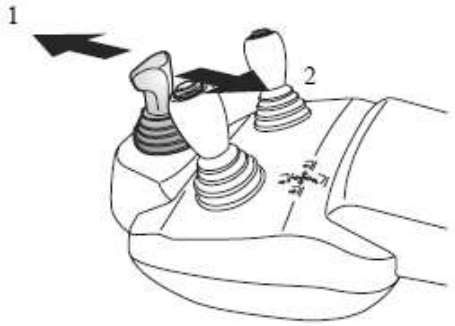
Note:
• After the OPS System has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat before recommencing operations.
• Always operate the tilt lever from a properly seated position.



Attachment lever
Operates the attachment.
Attachment speed can be adjusted by the extent of pressing the accelerator pedal and operating the lever.

Note:
• After the OPS System has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat position before recommencing operations.
• Always operate the attachment lever from a properly seated position.

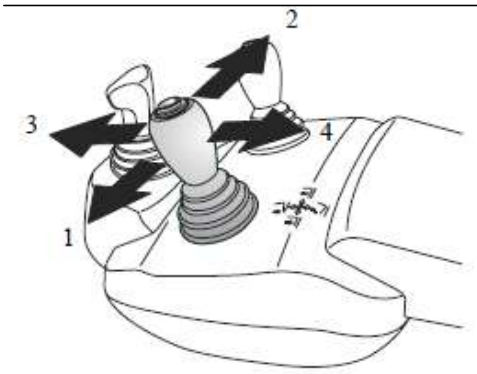
Joy stick (option)



1 – Forward
2 – Backward

Control lever
Lever for shifting between forward and reverse
Forward – Push forward
Reverse – Pull backward
The speed of forward and backward traveling can be adjusted by the extent of pressing the accelerator pedal.

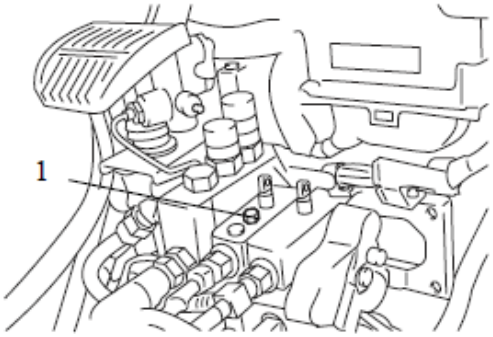
Note:
• Stop the vehicle before shifting between forward and backward traveling.
• After the OPS System has been activated, return the accelerator pedal and control lever to their neutral positions and return to the seat before recommencing operations.
• Always operate the control lever from a properly seated position.
• Depending on the vehicle specifications, the position of the control lever may vary.



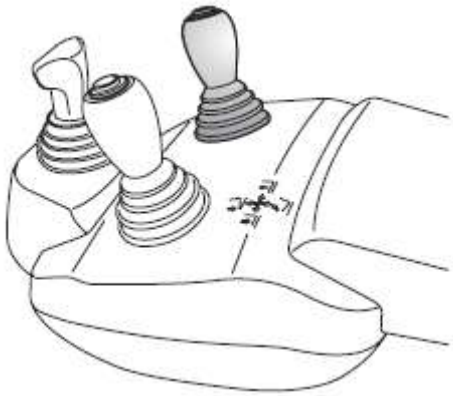
1 – Lower
2 – Raising
3 – Forward tilting
4 – Backward tilting

Lift tilt lever
Operation to the left and right controls lift, and forward and backward operation control tilt.
Raising – Operate the lever to the right
Lowering – Operate the lever to the left
Forward-tilt – Operate the lever forward
Backward-tilt – Operate the lever backward
Raising speed and forward and backward-tilt speed can be adjusted by the extent of pressing down on the accelerator pedal and operating the lever.
Lowering speed can be adjusted by operating the lever.

Note:
• After the OPS System has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat before recommencing operations.
• If you return to seated position while lowering the lift lever, the lift will not descend due to the return to neutral warning function.
• Always operate the load handling lever from a properly seated position.
• When the ignition switch is turned to OFF, the forks will not descend even if the lift lever is lowered. (Key-lift interlock)
• When the forks will not lower due to system malfunction or other reasons, they can be lowered by opening the lift lock release bolt.
• If you lower the forks by opening the lift lock release bolt, close and lock the bolt.

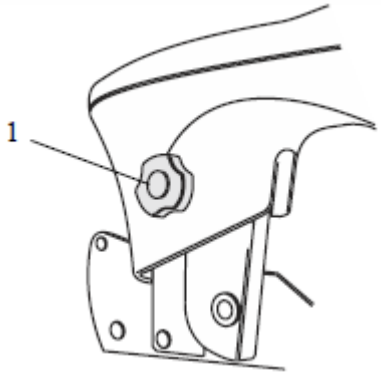


1 – Lift lock release bolt



Attachment lever
Operates attachment. Attachment speed can be adjusted by the extent of pressing the accelerator pedal and operating the lever.

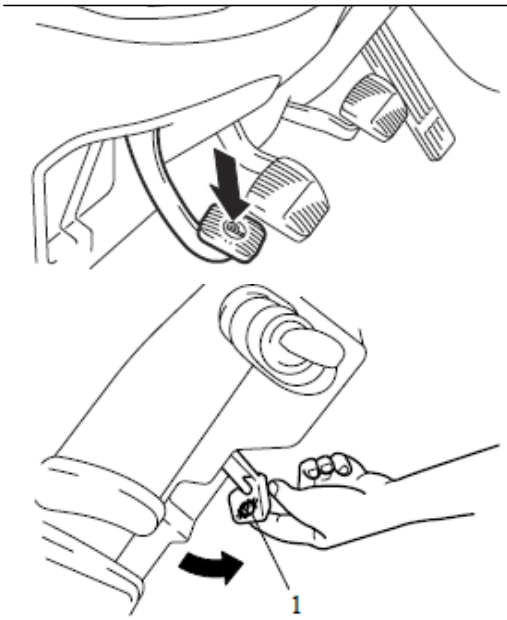
Note:
• After the OPS System has been activated, return the accelerator pedal and all of the levers to their neutral positions and return to the seat before recommencing operations.
• Operate the attachment lever after you are seated properly in the vehicle.



1 – Adjustment knob

Armrest position adjustment
Before operating the vehicle, adjust the armrest until the correct operating posture that matches that of the operator is reached.
Loosen the adjustment knob and move the armrest into the desired position.

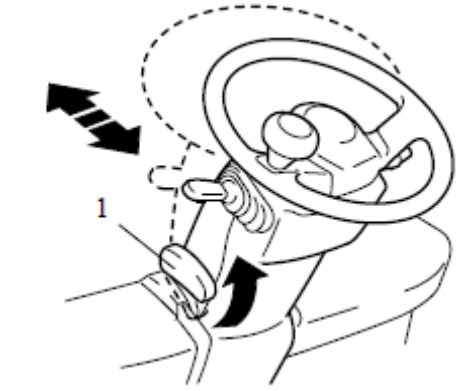
►***Caution!***
• After adjusting the armrest, be sure to confirm that the knob is securely fixed. If it becomes loose during operation, an operational mistake could occur.
• Do not adjust the position of the armrest during traveling or material handling operation.



1 – Release lever

Parking brake pedal
Use the parking brake pedal when parking or stopping.
1. When engaging the parking brake, while stepping on the brake pedal, fully press down on the parking brake pedal.
2. To disengage the parking brake pedal, while stepping on the brake pedal, pull the release lever toward you.

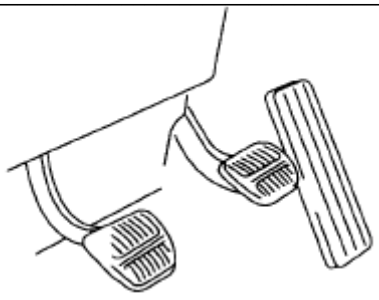
►***Warning!***
• Before operating the parking brake pedal, step on the brake pedal and always confirm that the vehicle has come to a stop.
• When parking on a slope, apply wheel chocks to the wheels.
• Traveling without releasing the brake will decrease the brake performance.



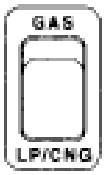
1 – Tilt adjustment lever

Tilt steering adjustment
1. The steering wheel position may be adjusted back and forth while the tilt steering adjust lever up.
2. Lowering the lever at the proper position fixes the steering wheel at that position.
3. After the adjustment, try to move the steering wheel back and forth to see that it is fixed.

►***Caution!***
The steering wheel position must be adjusted before starting the vehicle.
Adjustment during traveling must be avoided.



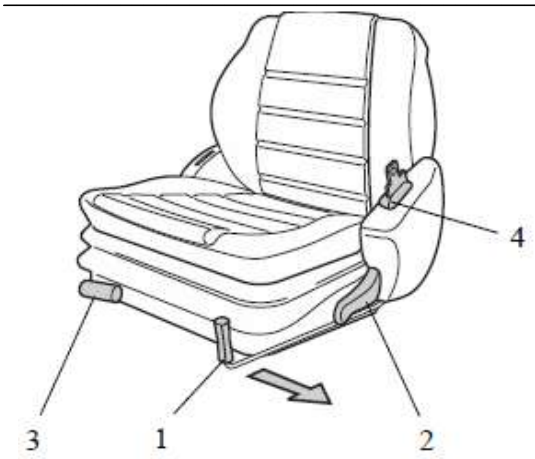
Pedals
From the right: accelerator pedal, brake pedal and inching pedal.
Accelerator pedal stays neutral even when control lever is shifted to forward-reverse, due to accelerator switch.
The vehicle will move only when accelerator pedal is depressed.



Fuel switch (Gasoline/LPG models)
This is a switch to turn on and off the LPG or gasoline fuel feeder
OFF – horizontal position
Engine cannot be started up since no fuel is fed
LPG – low position
GAS – upper position

Note:
• With the ignition switch OFF, no fuel will be fed even if the fuel switch is positioned at LPG or GAS.
• To turn off the LPG model engine, turn the fuel switch OFF, and run the engine until it naturally stops. After the engine has stopped, take out the gas tank, close the valve, turn the ignition switch OFF, and remove the key.

3.4 Body components



Standard seat

Optional seat

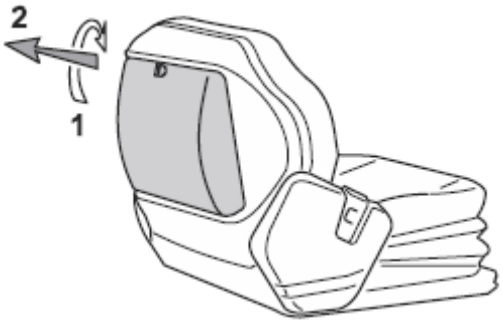
1 – Slide lever
2 – Recliner adjust knob
3 – Weight adjust knob
4 – Seat belt
5 – Lumbar support knob

Operator seat
The operator's seat and seat belt are provided for your safety. Get in the habit of using the seat belt whenever you sit on the vehicles.

►Caution!
• The seat switch function prevents travelling and load handling operations when the operator is not seated in the seat. Be sure to remain seated in the seat while in operation. Do not operate the vehicle with any objects placed on the seat. This will cause the OPS system to operate abnormally.
• Do not turn on the seat switch by any method other than sitting on the seat.

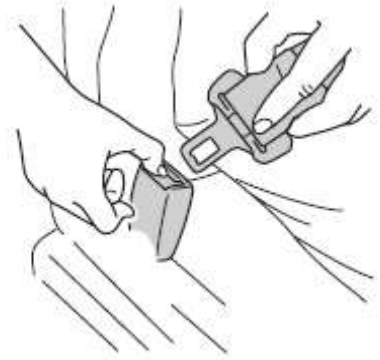
The seat suspension mechanism provides a comfortable seating position based on the weight of the driver. The optimum driving position can be set using the following knob and levers.
1. Slide lever
Pull the slide lever to move the seat back and forth. The seat is locked in position when the lever is released.
2. Recliner adjust knob
Press the knob at the rear left to adjust the angle of the seat back.
3. Weight adjust knob
Turn the knob on the front right of the seat clockwise to adjust for a heavier body weight. Turn the knob counter clockwise to adjust for a lighter body weight.
4. Belt
5. Lumbar support knob (optional seat)
Turn the knob to adjust the lumbar support.

►Caution!
• Always adjust your seating position before driving the vehicle. Sitting incorrectly in the seat will make the steering heavy.
• After adjustment, gently rock the seat forward and backward to confirm that the seat is firmly locked in position.



Seat pocket
A pocket for housing the Operator Manual and Operator Manual for Safety Operations is provided on the rear side of the seat back. Push down the clip and pull the pocket to open it. If a manual is missing, be sure to ask your Service Centre for a copy.
Make sure the pocket is closed securely.

Note:
The seat pocket is available for the standard seat model only.

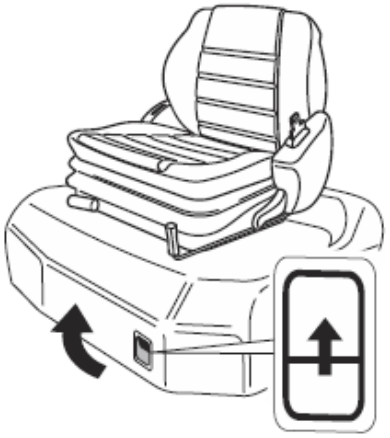


Seat belt

To fasten your seat belt, pull it out of the retractor and insert the tab into the buckle.
You will hear a click when the tab locks into the buckle. Pull on the belt to make sure the buckle is securely latched.
The seat belt length automatically adjusts to your size.
To release, push the release button and allow the belt to retract.

Note:
If the seat belt is locked and cannot be drawn out any further, pull on the belt strongly once, then loosen it, then draw it back out slowly.

►***Caution!***
• Always fasten the seat belt during operation.
• Your seat and seat belt will reduce the risk of serious injury or death in case of a vehicle tip over. In a tip over, danger of serious injury or death is reduced if you stay with the vehicle in the operator's compartment.
• Be sure to read the Safety Operator Manual about residual risks of tip over.

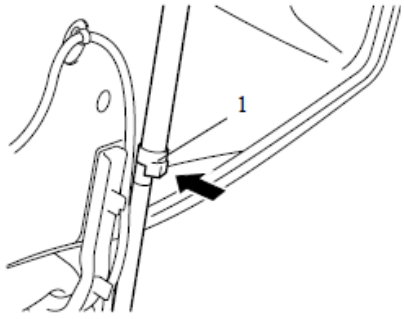


Engine hood

Opening
1. Pulling up on the engine hood lock release lever will release the engine hood lock, and the engine hood will pop up slightly.
2. Lift the engine hood.
3. Open the engine hood all the way, then shake the hood slightly to check that the hood damper has been securely fastened before letting go.

Closing
1. Lift up the engine hood and press the hood damper lock to release the lock.
2. Close the engine hood quietly, and press down on the hood until you hear a clicking sound

►***Caution!***
Working on the engine without firm locking of the hood may be hazardous.



1 – Damper lock

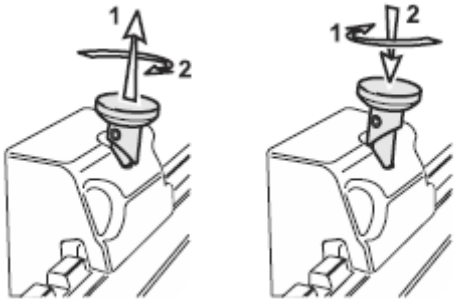
Engine hood (Mini lever / Joy stick models)

Opening
1. Pull the lock release lever. tilt the steering post forward.
2. Pull up the slide lever and slide the seat to the forward-most position.
3. Loosen the armrest adjustment knob and after tilting the armrest downward, tighten the knob again.
4. Pulling up on the engine hood lock release lever will release the engine hood lock, and the engine hood will pop up slightly.
5. Lift the engine hood.
6. Open the engine hood all the way, then shake the hood slightly to check that the hood damper has been securely fastened before letting go.

Closing
1. Lift up the engine hood, press the hood damper lock to release the lock.
2. Close the hood quietly, and press down on the hood until you hear a clicking sound.

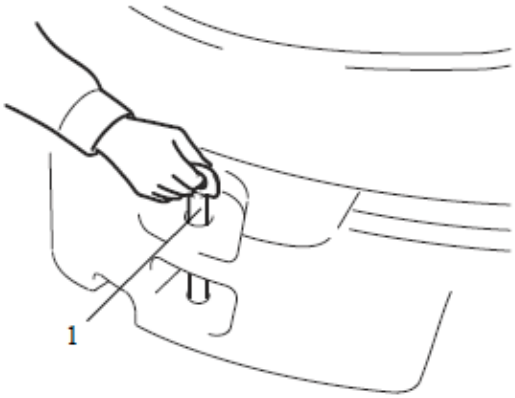
3. Return the seat and arm rests to their normal position.

►***Caution!***
Working on the engine without firm locking of the hood may be hazardous



Forks
Lift each fork stopper and unlock so that the forks can be shifted left and right. Adjust the forks in the position most appropriate for the load.
When adjusting the forks, make sure that the center of gravity of the load corresponds to the center of the vehicle. After adjustment, turn the stoppers to lock the forks in place.

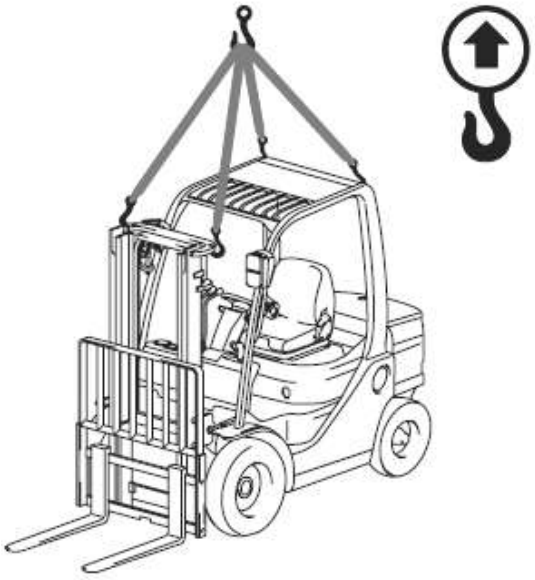
►***Warning!***
Make sure the forks are locked before carrying a load



1 – Draw bar

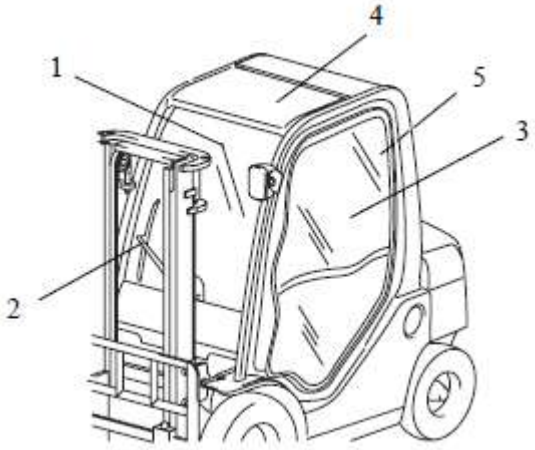
Draw bar
The draw bar is located at the back of the counterweight, and is used to pull the vehicle should its tires drop into a gutter or become stuck in mud.
It can also be used for loading the forklift onto a vehicle or another vehicle.

►***Caution!***
The draw bar should not be used for towing the forklift or for towing another vehicle using the forklift.

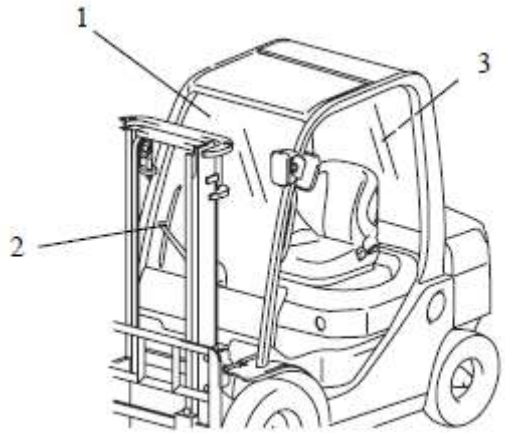


Vehicle hoisting method
When hoisting the vehicle, use the lifting holes near the top of the mast for the front side and the overhead guard for the rear position as shown in the illustration.

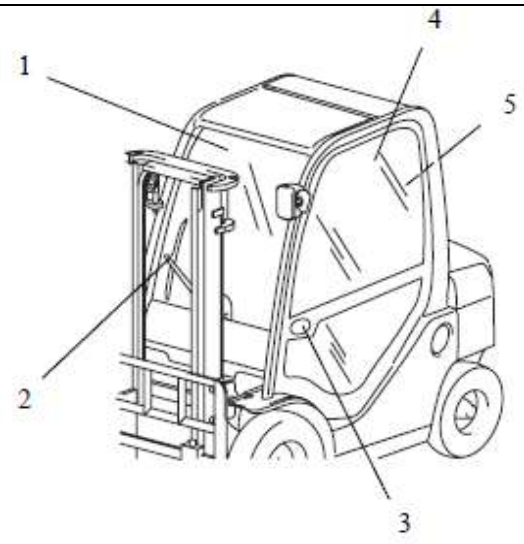
►***Caution!***
• Use wire cable which is sufficiently strong.
• Never use the hole on the upper side of the counterweight to hoist the vehicle.



Cabin (option)
Canvas cabin
1. Front glass
2. Front wiper
3. Side panel
4. Upper panel
5. Rear glass



Half cabin
1. Front glass
2. Front wiper
3. Rear glass

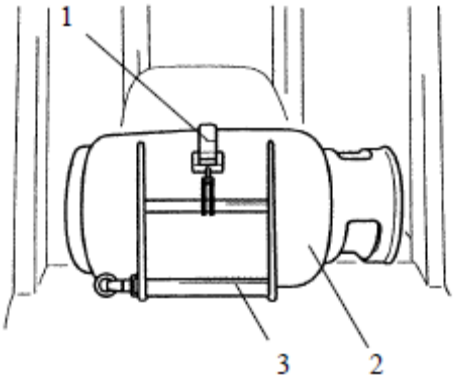


Full cabin
1. Front glass
2. Front wiper
3. Door handle
4. Side door glass
5. Rear glass

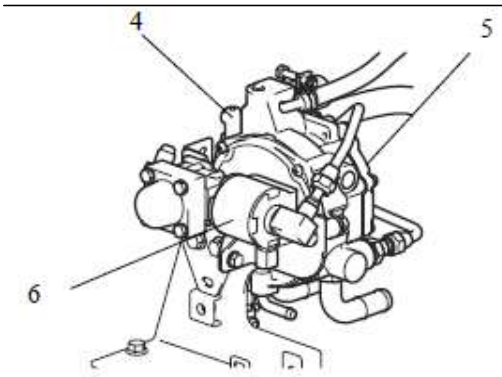
3.5 LPG-version

Important information about properties of LPG
LPG normally contains a substance that gives it a noticeable odor in concentration of 1/200 or more in air.
If a large amount of the LPG is leaking from the tank of the system, it can be detected by the smell.
LPG does not contain carbon monoxide and is not poisonous although it is explosive.
• LPG is a highly pressurized gas and leaks very easily.
The vapor has a volume 250 times that of the liquefied gas and it twice as dense as air. Therefore, it collects in low places.
• LPG increases in pressure as the temperature increases

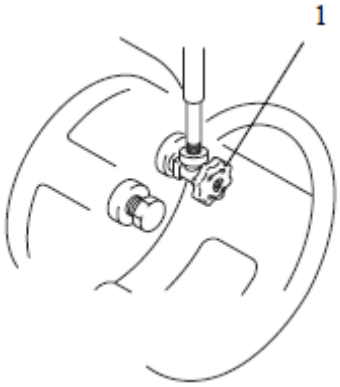
Safety precautions about operating LPG-powered forklifts
• LPG is inflammable. A tiny spark can cause a fatal explosion if it is handled carelessly. It is very crucial that the following precautions are observed most strictly to avoid hazards.
• All LPG-powered forklifts must be operated and maintained (including the LPG tank renewal) by designated persons only.
• Never stop or park an LPG-powered forklift near fire.
• Whenever possible, do not stop or park an LPG-powered forklift in direct sunlight. Covering it with a sheet is highly recommendable. And make sure the vehicle is well ventilated.
• Do not operate an LPG-powered forklift in the presence of fire.
• When operating or inspecting an LPG-powered forklift, post a large “FIRE HAZARD” sign and make sure that persons using fire do not approach the vehicle.
• Remove the ignition key from an LPG-powered forklift before parking or storing it so that no unauthorized person can operate it.
• Use only soap water or neutral detergent to check the vehicle for gas leaks. Do not use any other fluid.
• If the gas leak inspection must be performed at night with the help of a flashlight, turn the flashlight on far away from the vehicle and walk toward it. The flashlight might cause a spark when it is turned on and cause an accident.
• If a gas leak is detected, immediately put out any fire, ventilate the area and keep the area in a strictly fire free condition. Then call a qualified dealer or service garage.
• Store LPG tanks in a strictly free area having a gas detector at all times.
• Have LPG tanks refilled only by an LPG gas filling station attendant.
• Use LPG of an appropriate chemical composition according to the climate. In hot climate, use LPG with relatively high butane content; in cold climate, use LPG with relatively high propane content.



Components
1. Tank band
2. LPG tank
3. Tank bracket



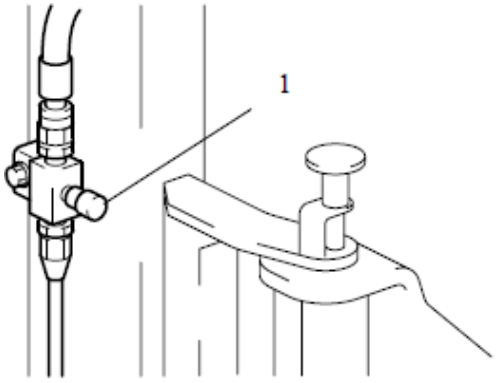
4. Regulator
5. Filter
6. Solenoid valve



1 – Outflow valve

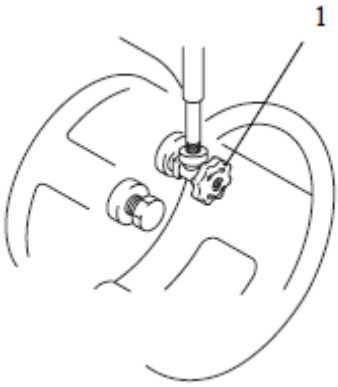
LPG TANK AND RELATED PARTS

Outflow valve
This valve controls the flow of LPG fuel from the LPG tank to the regulator
To open the valve – Turn it counterclockwise
To shut the valve – Turn it clockwise



1 – Relief valve

Relief valve
This valve prevents explosion that might be caused when the LPG pressure rises above a normal level or when the hose becomes deteriorated.



1 – Outflow valve

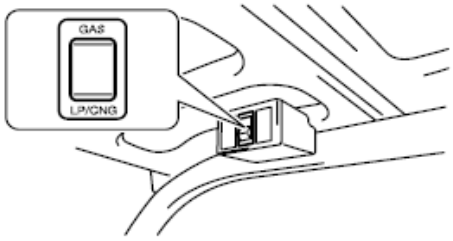
OPERATING LPG-POWERED FORKLIFTS

Starting the engine (LPG engine models)
1. Turn the outflow valve of the tank counterclockwise to open it

►***Caution!***
Never depress the accelerator pedal repeatedly or hold it down completely during starting. The engine will not start easily.

2. Wait for an initial ignition of the engine, and depress the accelerator pedal lightly. Wait for the engine to start running, and set the ignition switch to the “I” (ON) position.
3. Let the engine idle for 5 to 6 minutes.

►***Caution!***
Never depress the accelerator pedal completely. It will send an extra amount of LPG and its heat of vaporization may freeze the regulator and damage the engine.



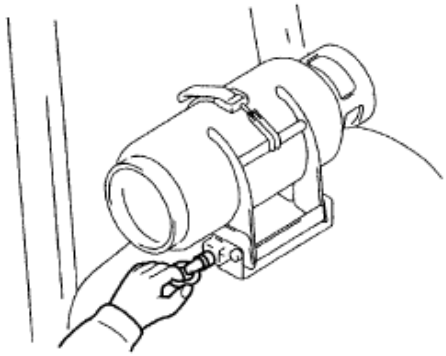
Starting the engine (Gasoline / LPG engine models)
If the ambient temperature is sufficiently high, start the engine the same way as you would start the engine of LPG models. If the temperature is very low and starting the engine is difficult with LPG fuel, set the fuel switch to the GAS position and start the engine.
Change the fuel setting to the LPG position after the engine becomes hot (stop the engine first).
1. Set the fuel switch to the GAS position.
2. Start and warm up the engine as you would start and warm up an ordinary gasoline engine.
See the other Operator's Manual for engine starting procedures.
3. Set the fuel switch to the OFF position and let the engine stop naturally.
4. Set the fuel switch to the LPG position and start the engine again as you would start the engine of LPG models.

►***Caution!***
Never change the fuel switch setting from GAS to LPG positions while the engine is running. It will increase the engine rev sharply and cause a serious damage to the engine.

To prolong the engine life
Refrain from handling and driving the vehicle roughly especially when it is new.

Parking
Parking for a short time.
(1) Turn the fuel switch to the OFF (go-out) position.
(2) Let the engine stop naturally so that any LPG fuel in the piping leaves the system. Turn the ignition switch to the "O" (OFF) position and remove the key.

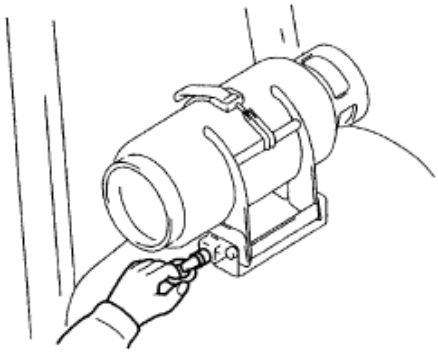
Parking for a long time.
(3) Turn the LPG tank outflow valve clockwise to shut the fuel supply.
(4) Let the engine stop naturally so that any LPG fuel in the piping leaves the system. Turn the fuel switch and the ignition switch to the "O" (OFF) position and remove the key.



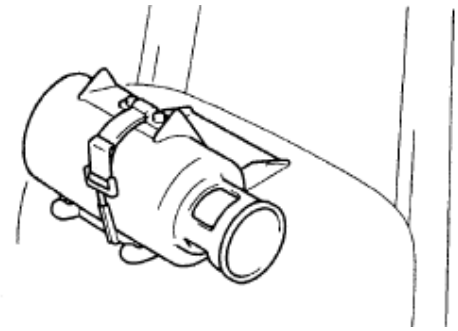
CHANGING THE LPG TANK

►***Caution!***
Under no circumstances what so ever may the LPG tank replacement be performed near a lighted cigarette, lighted match, gas stove burner, electric heater, motor or any other electric appliance that emits sparks, flame or any type of fire (referred to collectively as “fire” below).

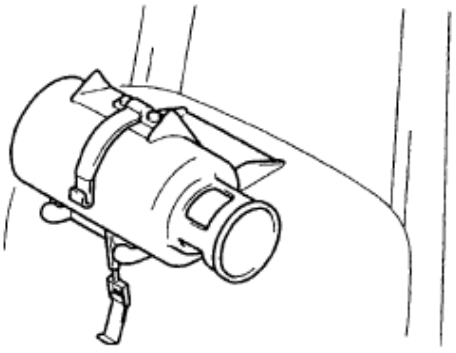
►***Warning!***
To avoid serious injury from fire or explosion, you must follow these rules:
• Switch ignition and lights off.
• Change tanks only in well ventilated, approved areas.
• No fire or flames allowed.
• Check all connections for damage or missing parts.
•Check for leaks.
• Do not restart until all smell of gas is gone.
• If vehicle will not restart, get a mechanic to inspect it.
• Filling tanks requires special procedures. Make sure someone explains them all to you.



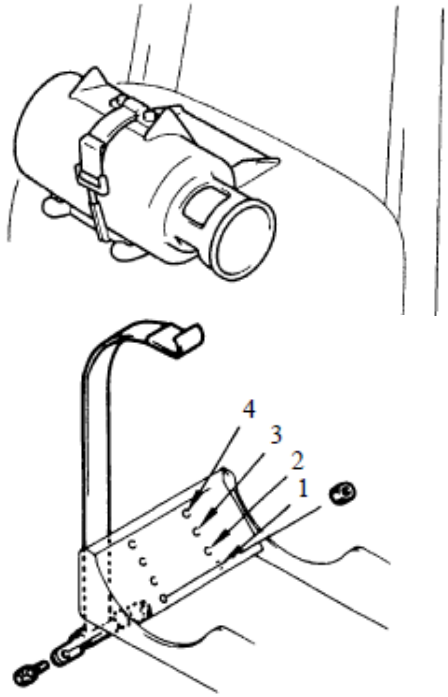
Removing the LPG tank
1. Stop the engine according to instructions for “Parking for a long time”.
2. Turn the LPG tank outflow valve clockwise to shut the fuel supply.
3. Let the engine stop naturally. Turn the fuel switch to the “O” (OFF) position.
4. Disconnect the piping from the LPG tank (turn the screw counterclockwise).
5. Pull the set pin at the bottom left portion of the tank bracket.



6. Bring the clamped tank with the bracket down toward the rear side of the vehicle.



7. Pull the tank clamp toward you to release the band locks
8. Push the bands away from you and remove the tank.



Band position

Installing the tank

1. Hook the clamps on the bands and raise the clamps.
2. Return the tank bracket toward the front side of the vehicle and see that set pin is locked.

Note:
Adjust the band position according to the tank size:
(1) ø 290 mm
(2) ø 300 mm
(3) ø 310 mm
(4) ø 320 mm

3. Install the piping securely on the service valve and check for bubbles indicating.
4. Do not try to start engine until all gas smell is gone.

►***Warning!***
If any gas leakage is found, immediately report to the supervisor for repair by a qualified mechanic of Prins Maasdijk. Tag vehicle “out of service”

►***Caution!***
Always wipe soapy water off after the inspection

4. PRE-OPERATION CHECK

Item	Inspection
Previously detected malfunctions	Correct
Exterior	Vehicle body, oil leakage, water leakage, loose parts, exterior damage
Wheels	Tire pressure, wear or damage, rims hub nuts
Lamps	Lamp conditions, damaged lamps
Hydraulic oil	Oil level, contamination, consistency
Radiator	Coolant level, antifreeze requirement
Engine	Oil level, contamination, consistency, noise, exhaust
Brake pedal	Pedal play, braking effect
Brake fluid	Fluid level
Parking brake	Operating force, breaking effect
Steering wheel	Looseness, play, vibration, veering
Horn	Sound
Instruments	Functioning
Load handling system	Parts, oil leakage, cracking, looseness
Fuel	Amount

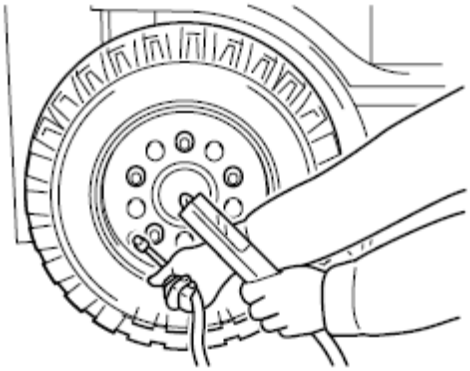
Pre-operation checks and weekly inspections are the responsibility of the forklift user.
Be sure to perform a pre-operation check before beginning work to insure safety.

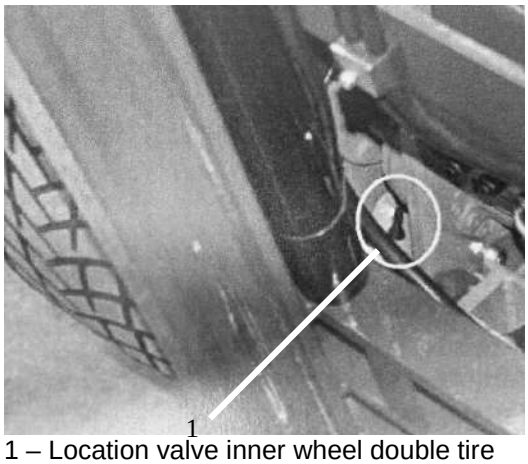
►***Warning!***
If any abnormality is found, or when the diagnosis operation indicator blinks, or an error code appears on the display, stop operation immediately and have the vehicle inspected at your dealer.

WALKAROUND INSPECTION

Vehicle posture
Does the vehicle excessively lean to one side or the other? If so, check for a flat tire puncture or problem with the undercarriage.

Beneath the vehicle
Check for any oil or water leakage on the ground or floor where the vehicle was parked. Check for loose sections or damage.
If anything unusual is found, have the vehicle inspected at your dealer.

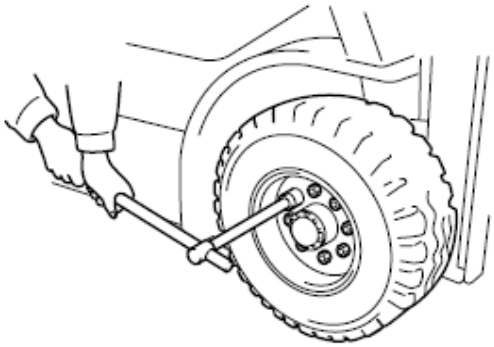




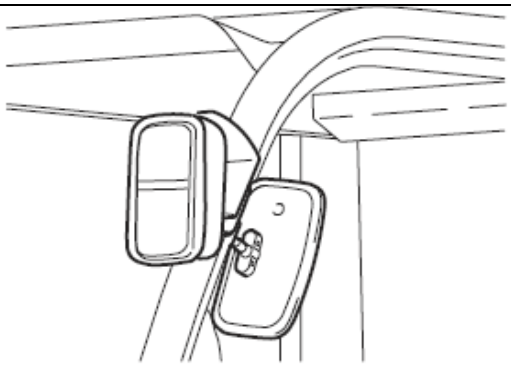
1 – Location valve inner wheel double tire

Pneumatic tire inspection
Always maintain proper tire pressure. Low pressure shortens tire life. A difference in right and left pressure will make steering difficult.
Turn the valve cap to the left and remove it. Use a tire pressure gauge to check the pressure and adjust to the specified level. Refer to Chapter 10 for the specified tire pressure.
After checking the pressure, make sure there is no air leaking from the valve, then retighten the valve cap to the original position.
If there is any difference in tire wear between the front and rear or left and right tires, or if damage or a bent rim is found, have the vehicle inspected at your dealer.

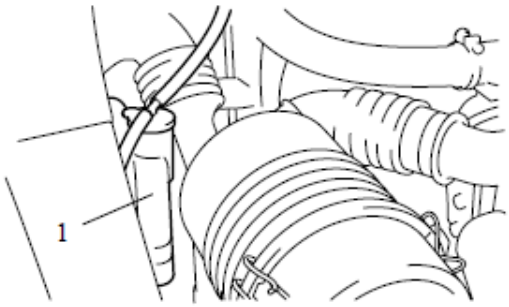
►***Caution!***
Since industrial vehicle tires use high-pressure air, misshaped or cracked rims are extremely dangerous. Never exceed the specified pressure. Failure to regulate the air compressor before inflating tires is dangerous. Tire pressure exceeding the specified pressure will cause the tire to explode.



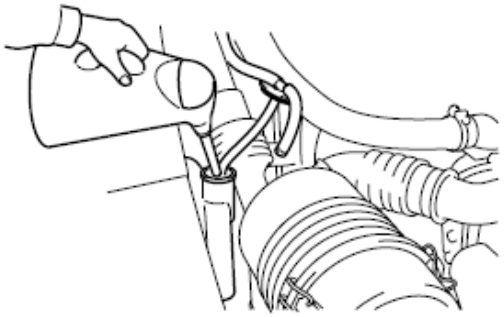
Hub nut inspection (inner and outer tire)
Check the tightness of the hub nuts. Avoid uneven torque and tighten all nuts uniformly. Refer to service data for proper torque.



Lamp inspection
(Rear view mirror are optional)
Are the filaments intact? Is there any lens damage? Always keep the lenses clean to insure proper forward vision.



1 – Reservoir tank

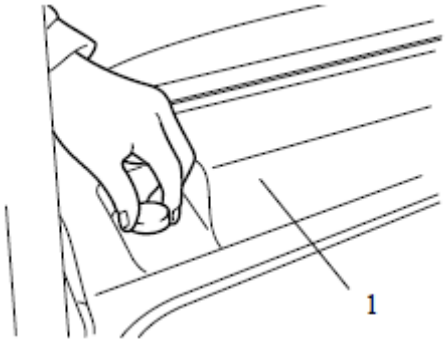


ENGINE COMPARTMENT INSPECTION

Engine coolant level check and supply
Level check and supply of engine coolant shall be performed while the coolant is cool.
1. With the engine off, open the engine hood and check the engine coolant level in the reservoir tank.

Note:
The reservoir tank equipped to the radiator automatically supplies the engine coolant when the coolant quantity in the radiator becomes insufficient.
2. The coolant level is proper if it is between the upper and lower limits. If the level is below the lower limit, supply coolant to the upper limit.
3. The concentration of the long life coolant (LLC) in the engine coolant must be 50%.

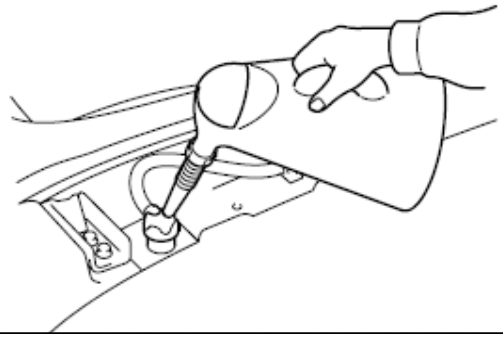
Note:
If no engine coolant remains in the reservoir tank, be sure to check the coolant level in the radiator, too.



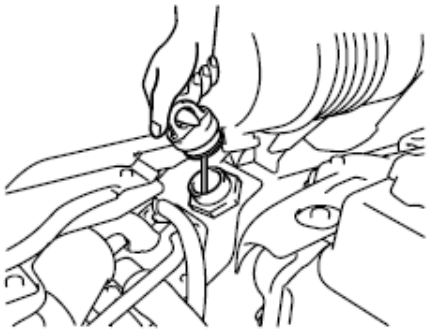
1 – Radiator cover

Checking the engine coolant level in radiator
1. Remove the radiator cover.
2. Remove the cap and check the coolant level from the filler port.
3. If the engine coolant is not visible through the filler port, fill appropriately diluted coolant (LLC) to the port.

Note:
To close and tighten the radiator cap, match the pawl on the reverse side of the cap with the notch on the filler port and turn the cap fully clockwise while applying a downward force.

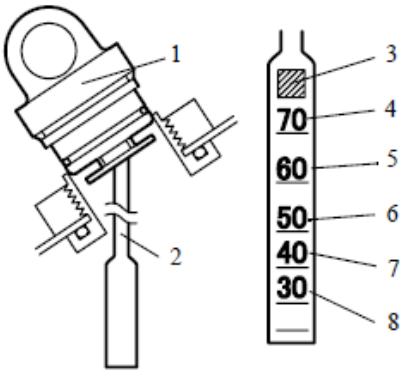


►***Warning!***
When the engine is hot, it is very dangerous to remove the cap. Coolant level check must always be performed when the engine is cold.



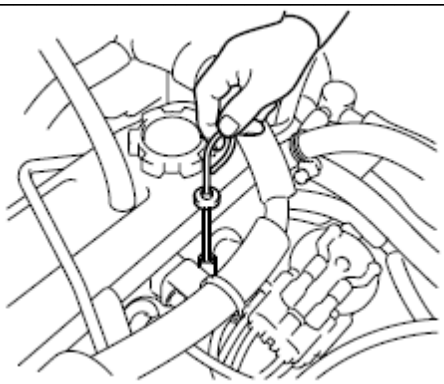
Checking hydraulic oil level
Always stop the engine and lower the forks to the ground before checking the level of the hydraulic oil, while the vehicle is on level ground.
1. Open the engine hood and remove the oil cap.
2. Wipe the level gauge attached to the oil cap with clean cloth, and insert it again into the tank.

Note:
Inspect the oil level by placing the level gauge on the opening of the oil supply inlet, without pushing the oil cap in.
3. Extract the level gauge gently and check if the oil adhesion is up to the level line.
4. If the oil level is insufficient, add oil. Spilled and splashed oil must be wiped off thoroughly. Adjust the oil level so that it will fall within a range of 0 thru +10mm from the lift-high mark on the gauge as illustrated on the left side

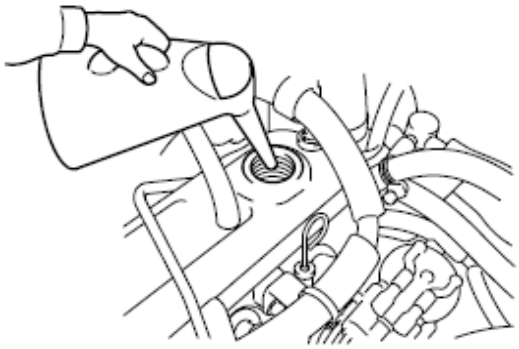


1 – Oil cap
2 – Level gauge
3 – Gauge identifier
4 – Lift high 6.100 – 7.000 mm
5 – Lift high 5.500 – 6.000 mm
6 – Lift high 4.500 – 5.000 mm
7 – Lift high 3.300 – 4.000 mm
8 – Lift high 3.000 mm or less

Gauge identifier	Applicable models
10, 18, K2, K3	1,5 - 1,8 - 2,0 ton series
20, 25	2,5 ton series
28, 30, 35	3,0 - 3,5 ton series



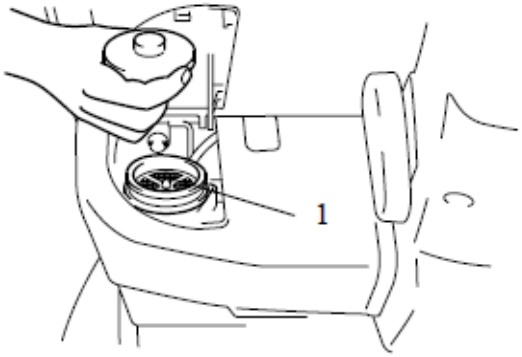
Engine oil inspection
1. Park the vehicle on a flat ground. If the vehicle is inclined, the indicated level may be incorrect.
2. The oil level must be checked before starting the engine or at least 3 minutes after the engine is stopped.
3. Extract the oil level gauge and wipe it with clean cloth. Insert it again and check if the oil level is between the F and L levels.
4. If the oil level is below the L line, add oil to the F line.



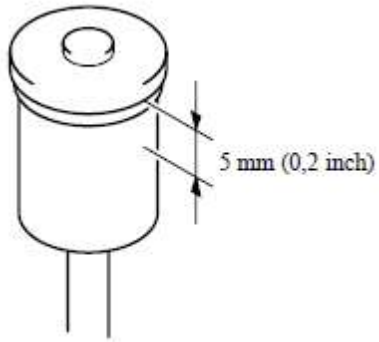
Adding engine oil
1. To supply oil, remove the filler cap and pour oil through the filler port. Never let the oil level exceed the F line.
2. The oil to be supplied must be appropriate for the season.
SAE40 Ambient temperature: higher than 30°C (86°F)
SAE30 Ambient temperature: 0°C to 30°C (32°F-86°F)
SAE20 Ambient temperature: -10°C to 0°C (14°F-32°F)

►***Caution!***
Always use the same brand of oil if possible.

Leakage inspection
Check the engine compartment for any oil or fuel leakage.
Clean the radiator if it is clogged and check if there are any foreign objects, such as paper or other, onto the radiator grill.



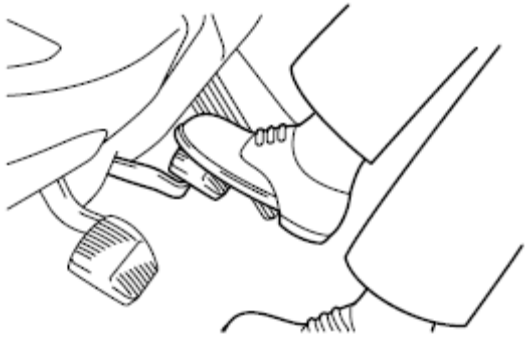
1 – Reservoir tank



ON BOARD VEHICLE INSPECTION

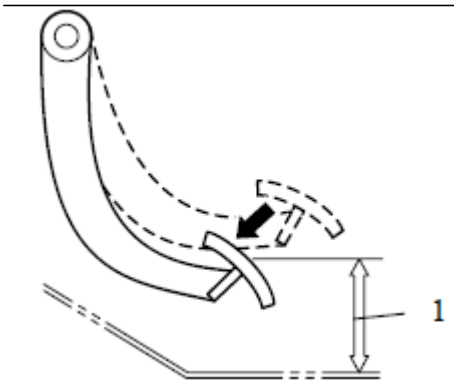
Brake fluid inspection
With the engine off, check the level of the brake fluid in the reservoir tank. The level should be within the range shown in the figure.
If the level is below the lower limit, add brake fluid up to the proper level. If the decrease in brake fluid is excessive, the brake system may be leaky. Ask your dealer for inspection as early as possible.

►***Warning!***
• Never use any oil other than brake fluid.
• Do not allow dirt to get into the reservoir tank.
Even a small amount of dirt in the brake fluid can prevent proper braking.
• Check the small vent hole in the reservoir tank cap frequently to make sure that it is not clogged with dirt.



Brake pedal inspection
1. Depress the brake pedal fully, and check the floor clearance (clearance between the pedal and floor).

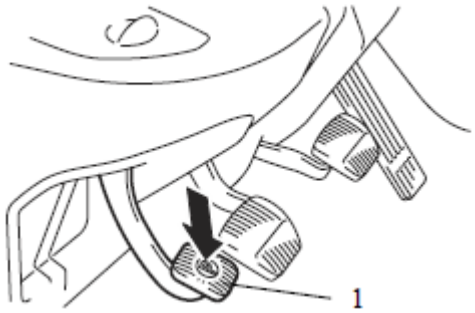
Note:
See the service data section for the floor clearance.
2. Make sure that the pedal does not go any further when it is kept depressed.
3. Also check that no abnormality is observed with pedal depression and return.
4. Manually depress the brake pedal to check the play until a resistance is felt.



1 – Brake pedal floor clearance

Note:
See the service data section for the value of brake pedal play.

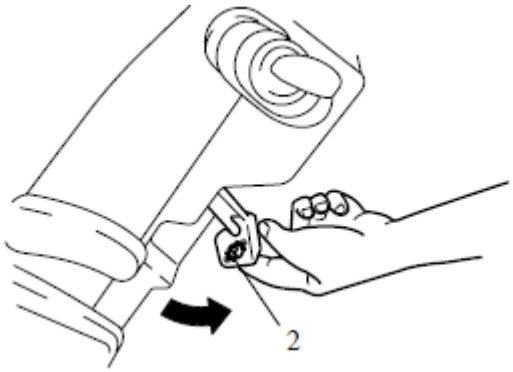
►***Warning!***
Ask your dealer for inspection if the play is excessive, pedal movement is abnormal or brake performance is improper.



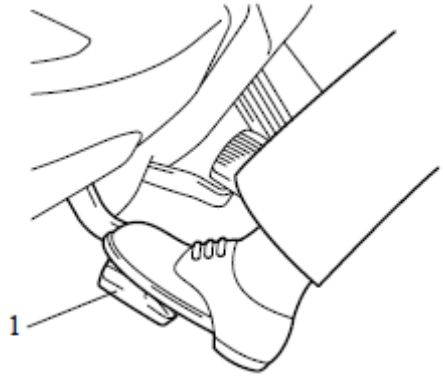
1 – Parking brake pedal

Parking brake inspection
1. Fully press down on the parking brake pedal and insure that the brake is functioning normally.
2. After fully pressing the parking brake pedal, pull the parking brake release lever toward you and confirm that the parking brake is released.

►***Warning!***
Ask Prins Maasdijk for inspection when any abnormality is found



1 – Parking brake release lever



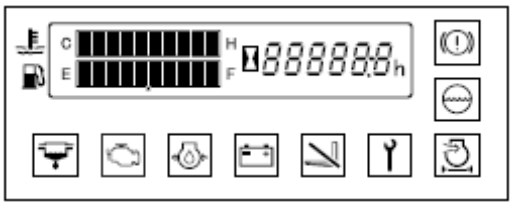
1 – Inching and brake pedal

Inching and brake pedal inspection
1. Manually depress the inching and brake pedal to check the play until a resistance is felt.

Note:
See the service data section for the value of inching and brake pedal play.
2. Depress the inching and brake pedal and check that there is no destruction or abnormal resistance

►***Caution!***
Ask Prins Maasdijk for inspection when any abnormality is found

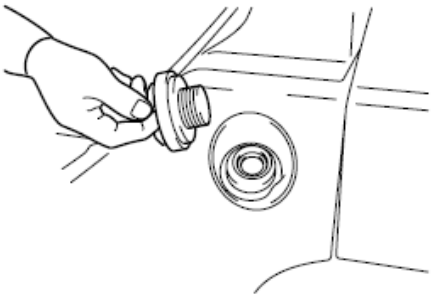
Inspection of OPS lamp
Sit on the seat, start the engine, and check that the OPS lamp is not lighted.
In the following circumstances, a malfunction to the OPS system may have occurred. Park the vehicle at a safe location and contact your dealer.
• The OPS lamp does not light up when the operator leaves the seat.
• The OPS lamp does not turn off when the operator returns to the seat.



Instrument inspection
Start the engine and see that they operate properly.

Fuel level check and supply
1. Observe the fuel meter to see if the fuel is sufficient.

Note:
After the end of daily operation, fill the tank with fuel to prevent the moisture in the air in the tank from mixing into the fuel.
2. When supplying fuel, stop the engine, remove the fuel tank cap by turning it counterclockwise, and pour fuel through the fuel filler neck.
3. After fueling, be sure to tighten the fuel tank cap.

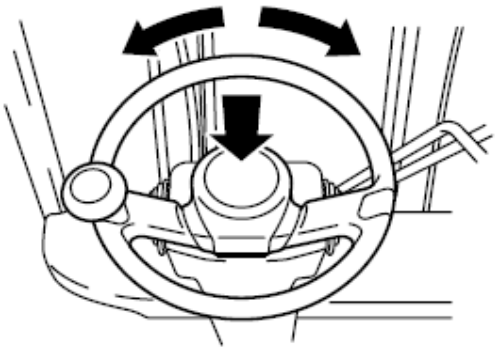


►***Caution!***
• Always stop the engine and keep any fire source away before and during the fueling operation.
• Carefully prevent entrance of water and dirt into the tank during fueling.

Engine inspection
Start the engine and warm it up sufficiently.
1. Check each meter and warning lamp to see there is no abnormality.
2. Check if the engine is generating abnormal sound or vibration.
3. Check the exhaust gas color to see it is normal. Colorless or light blue exhaust indicates complete combustion; black exhaust, incomplete combustion; and white exhaust, burning oil as a result of oil getting into the cylinders

►***Warning!***
• The exhaust gas can cause serious injury if inhaled. If you must start the engine inside building or enclosure, insure sufficient ventilation.
• The gasoline engine carburetor is equipped with the automatic choke that keeps the engine running at a relatively high speed a while.
The engine resumes a normal speed upon warming enough.

Load handling system
1. Check the forks installation state, for cracks and bending.
2. Check for mast distortion, chain tension and oil leakage from cylinders and piping.
3. Operate the lift and tilt levers to check their operating state.
If anything unusual is found, have the vehicle inspected by Prins Maasdijk.



Steering wheel inspection
Note:
Perform the inspection after starting the engine.
1. Check the steering wheel play with the rear wheel set in the straight traveling direction.

Note:
See the service data section for the standard play of steering wheel.
2. Turn the steering wheel in the circumferential direction and also move it up and down to check there is no looseness.
3. Push the horn button to check if the horn sounds normally.
4. If any abnormality is found, ask Prins Maasdijk for inspection

WHILE TRAVELING SLOWLY

Clutch disengagement and slipping
Press the inching pedal and check clutch engagement while moving.

►***Caution!***
Insure that the gear shift lever or control lever operates properly in each gear and then make above checks while moving slowly.

Brake effectiveness
Inspect to see if there is anything unusual when the brake pedal is pressed or if the brakes only work on the side. Effect the parking brake and insure that the vehicle can be maintained

►***Caution!***
If anything feels even slightly unusual, stop vehicle operation immediately and have the vehicle inspected by Prins Maasdijk.

Steering inspection
While moving the vehicle slowly in a safe location, turn the steering wheel to the left and right and check for any unusual movement.

BEFORE GARAGING THE VEHICLE
Remove dirt from all vehicle components and then perform the following.
1. Inspect for oil or water leakage.
2. Inspect each component for warping, scratches, dents or cracks.
3. Clean the air filter element and lubricate parts as required.
4. Raise the forks all the way up and down to lubricate the inside of the lift cylinder.

►***Caution!***
Even a small malfunction can cause a serious accident. Do not operate the vehicle until repairs have been completed. If you sensed anything unusual during operation, notify the supervisor.

5. WEEKLY MAINTENANCE

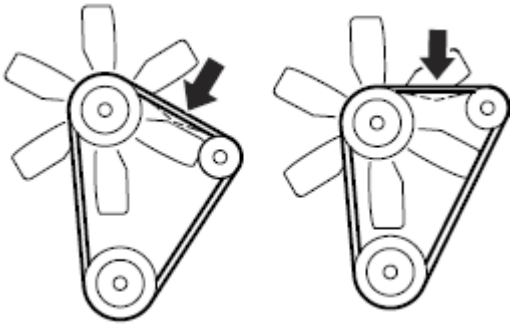
Inspect the items below in addition to the pre-operation items. Have necessary adjustments or replacements performed at your dealer. Please inspect the vehicles thoroughly to insure safety and pleasant working conditions.

Weekly (40-hours) inspection items
Air cleaner – clean
Fan belt – inspect
Torque converter oil level – check
Battery electrolyte level – check
Bolts and nuts – retighten
Mast and steering linkage – grease
Chain lubrication – engine oil

Retightening of bolts and nuts
Retighten each bolt and nuts on the chassis and load handling system

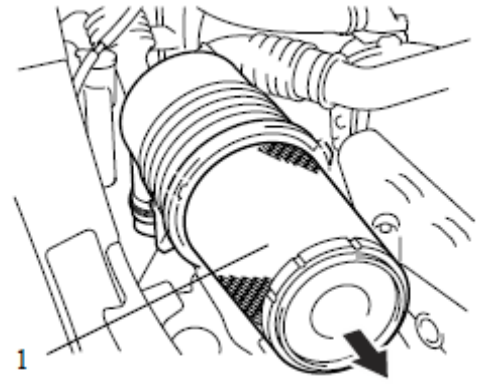
Greasing mast and steering linkage
Grease in accordance with the lubrication table.

►***Caution!***
• Clean the grease fitting tips thoroughly prior to greasing.
• After greasing, wipe off excess grease.



1 – 4Y engine 1DZ-III, 3Z engine

Fan belt inspection
Inspect the fan belt for cracks, fraying and tension.
If any abnormalities are found, have the belt replaced or adjusted by Prins Maasdijk
Refer to service data for tension.

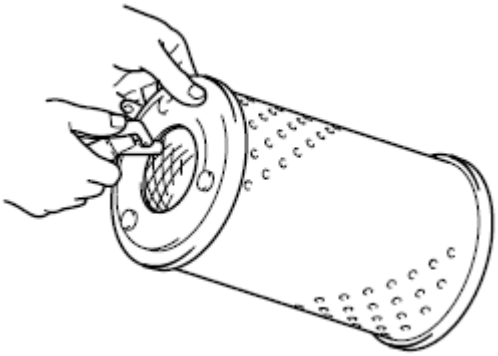


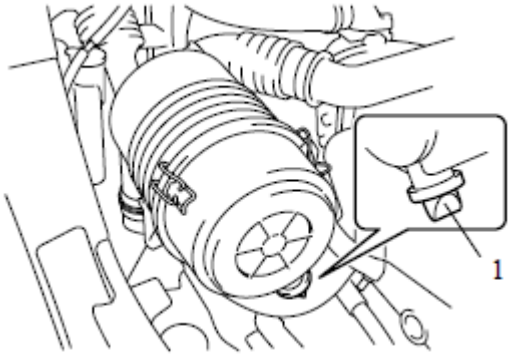
1 – Element

Air cleaner cleaning
The element can be taken out after removing the three catches fixing the element.

Element cleaning
1. Tap the element filter paper lightly without causing any damage or blow dust off with compressed air (7 kg/cm^2 or less) from inside.
2. After element cleaning, remove any dust in the evacuator valve.

Note:
• Always replace the element if the filter paper is torn or damaged.
• Wash the element if heavily contaminated.





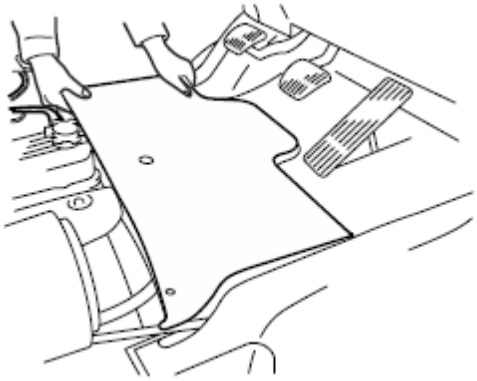
1 – Evacuator valve

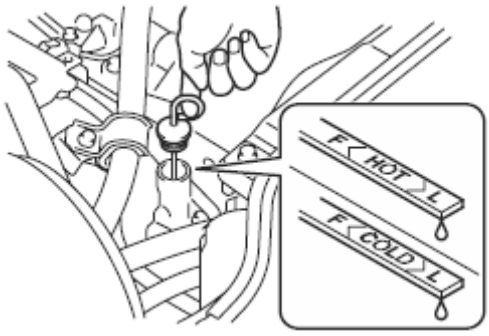
How to wash the element

1. Soak the element in water containing neutral detergent for approximately 30 minutes and then wash. Use care not to scratch the filter paper.
2. After washing, rinse the element with clean water (water pressure less than 2.8 kg/cm^2).
3. Allow to dry naturally or use a dryer (cold air). Never use compressed air or flame.

Note:

• The element should be replaced after washing six times or after it is used for one year.
• It is unnecessary to clean the inside element when cleaning the double cyclone air cleaner.(option) Only clean the outside element.
It is essential to replace both outside and inside elements, in time of replacement.





Torque convertor oil inspection

1. Park the vehicle at a safe and level ground, and stop the engine

►***Caution!***

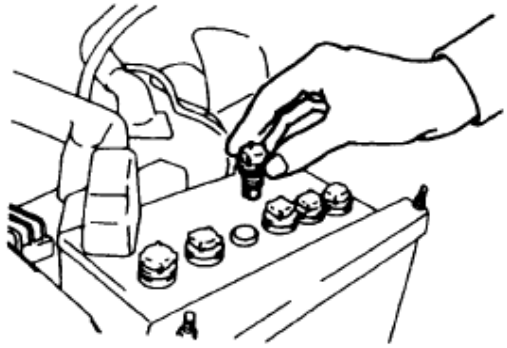
Inspect with the parking brake pedal engaged and the forks are lowered to the ground.

2. Open the engine hood and remove the toe board.
3. Extract the level gauge and wipe it with clean cloth.
4. Insert the level gauge back to the hole from which it is removed, and extract it again to check if the oil level is between the F and L lines on the level gauge.

Note:

• Perform inspections using the COLD side of the level gauge before operating the vehicle.
• The level gauge contains the inscriptions “COLD” and “HOT” on either side. Conduct inspections using the “COLD” side before operating the vehicle and when the oil temperature is 40° or under. If you have operated the vehicle and the oil temperature is 60°or over, use the “HOT” side to conduct inspections after 30 seconds and within five minutes after the engine is stopped.

5. If the level is near or below the L line, add oil to the F line.

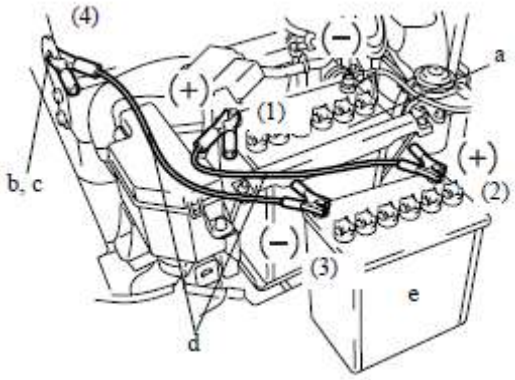


Battery electrolyte check

1. The battery electrolyte should be between the upper and lower levels (10 to 15 mm from the top of the plates).
2. If the electrolyte level is below the lower level, remove the cap and add distilled water to the upper level through the water inlet port

►***Caution!***

Be sure to use distilled water for battery electrolyte. Also, wear protective glasses when working on the battery.



a – Dead battery vehicle
b – Engine hanger
c – To frame
d – Booster cable
e – Rescue battery

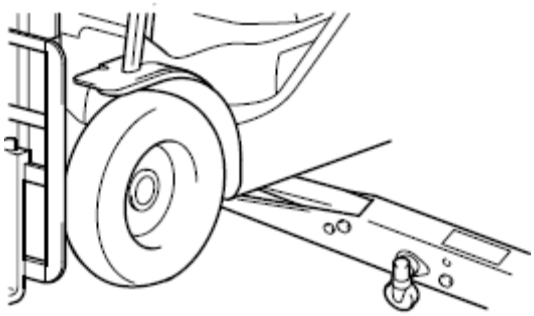
When the battery is dead

When a booster cable is available, it is possible to start the engine using the battery of another vehicle.
Connect the booster cable following the sequence of the illustration.
Make sure of (+) and (-) terminals of the cable when connecting.

►***Caution!***

• Connection (1): The (+) terminal of dead battery.
• Connection (4): Use a frame apart from the battery.
• Do not directly connect batteries to avoid a danger of explosion. (An inflammable gas generated from batteries may catch fire.)

6. SELF-SERVICING



Changing tires

►***Caution!***
• Use proper safety precautions when jacking the vehicle.
Never get under the forks or frame.
• In the case of a wheel with a divided rim, do not loosen the rim bolts and nuts when loosening the hub nuts. When loosening the rim nuts or removing the rim bolts, be sure to completely remove the air before loosening.
• Refer to service data for hub nut tightening torque and tire air pressure.
• Tire air pressure is very high, so pay attention to rim deformation, cracks, etc. Never exceed proper air pressure.
• Do not replace any tire without turning on the ignition switch before jacking up the vehicle.
Upon completion of the tire replacement, return the ignition switch to the OFF position.

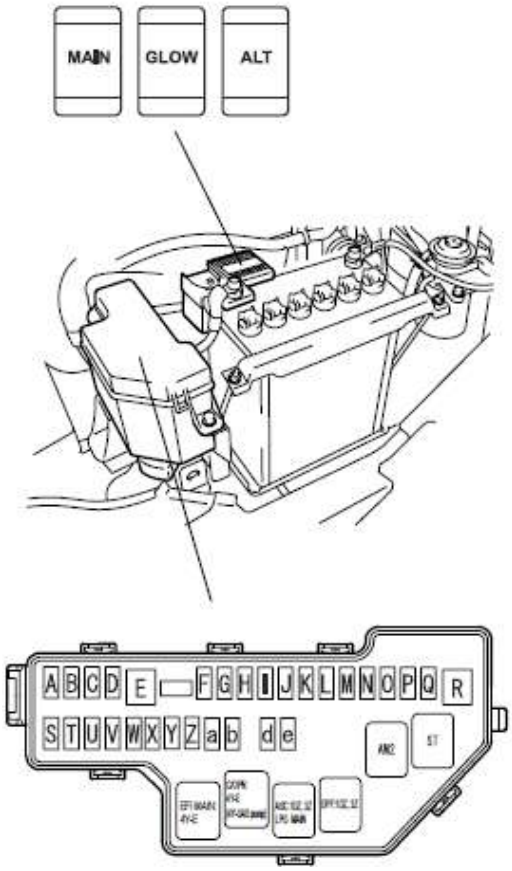
Adding antifreeze
If the vehicle is left in an area where the temperature is less than 0°C, the coolant will freeze and may damage the radiator and/or cylinder block. In such cases, antifreeze coolant must be used.
When Super Long Life Coolant (LLC) is used, it must be changed once every two years.
Freezing temperature varies depending on the amount of antifreeze added.

Antifreeze mixture (%)

Freeze protection temperature (°C)	-12	-15	-24	-35
Mixture (%)	25	30	40	50

►***Caution!***
The antifreeze fluid is flammable, so be particularly careful to avoid flame.
Prior to adding antifreeze, inspect the radiator, water pump, piping and cylinder block for leaks.
The procedures for adding antifreeze are as follows.
1. Remove the radiator cap. Loosen the drain cock on the radiator and cylinder block and drain the coolant.
2. Flush out the radiator and cylinder block by adding clean water through the radiator inlet.
3. After the water has drained out of the radiator and cylinder block, tighten the radiator and engine drain cocks.
4. Add the proper amount of antifreeze to the radiator inlet and fill up the remaining space with clean water.
5. When warm weather arrives and there is no longer any danger of freezing, drain the coolant containing the antifreeze (except LLC, LLC is every 2 years in replacement).
Flush out the radiator and engine block and fill with clean water

Cleaning of Pre-cleaner (option)
Inspect the pre-cleaner and clean it if dust has accumulated up to the white line.



Fuse replacement

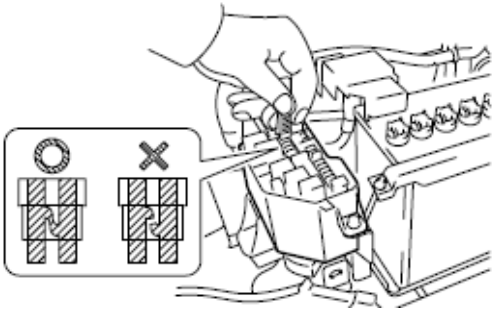
If a lamp does not come on or an electrical device does not function, the corresponding fuse may be blown. Check the fuse for each device. The fuse box is located in the front left as seen from the opened engine hood.

Note:
See the table below for the device corresponding to each fuse.

Fuse assignment

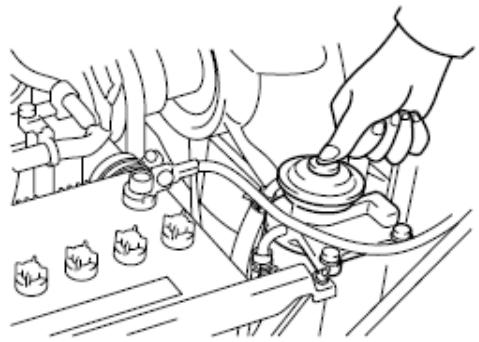
A	25 A	BLR	**P**	15 A	WORK_LP
B	30 A	STA	**Q**	15 A	HEAD
C	20 A	RR-WIP	**R**	40 A	AM2
D	20 A	FR-WIP	**S**	30 A	SPARE
E	40 A	AM1	**T**	7,5 A	SPARE
F	15 A	HORN	**U**	7,5 A	HME
G	-	-	**V**	7,5 A	ST
H	15 A	EFI: 4Y-E DPF: 1DZ, 3Z	**W**	10 A	GAUGE
I	7,5 A	ALT-S	**X**	10 A	BACK_LP
J	7,5 A	STOP	**Y**	7,5 A	SFT
K	7,5 A	ACC-B (for RADIO)	**Z**	7,5 A	TURN
L	7,5 A	TAIL	**a**	15 A 7,5 A	IGN: 4Y-E IGN: 1DZ, 3Z
M	7,5 A	ECU-B	**b**	15 A	SPARE
N	15 A	E-THRO: 4Y-E ECU-B2: IDZ, 3Z	**c**	10 A	SPARE
O	15 A	HTR	**d**	10 A	ECU-IG

Including optional accessories

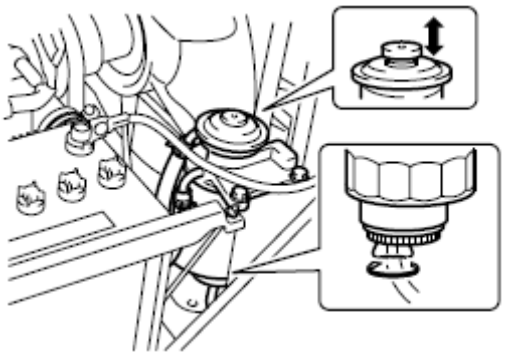


The fuse check and replacement procedures are as follows:
1. Set the ignition switch to the OFF position.
2. Remove the fuse box cover and take off the clip attached to the fuse box.
3. Apply the fuse clip to a fuse to remove the fuse.
4. The fuse is blown if its state is as shown at right in the left illustration. Replace it with a spare fuse.

►***Caution!***
• Use the fuse having the same capacity as that of the installed one.
• If the replaced fuse is blown again, ask Prins Maasdijk for inspection.
• Ask Prins Maasdijk to replace the GLOW or ALT fuse, if necessary.



Air purge of the fuel system (Diesel engine models)
When fuel has been completely depleted or when maintenance has been performed on the fuel system, be sure to perform air purge in the following sequence.
1. Open the engine hood.
2. Operate the priming pump up and down to perform air bleeding.



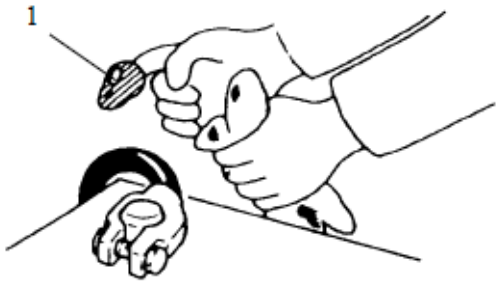
1 – Priming pump
2 – Drain plug
3 – Drain hose

Draining the sedimenter (Diesel engine models)
The sedimenter separates the water contained in the fuel. It is integrated with the fuel filter.
If the sedimenter warning lamp comes on, immediately drain water according to the following procedure because the accumulated water in the sedimenter is above the specified level:
1. Place a water receiving container under the open end of the drain hose under the fuel filter.
2. Turn around the drain cock a time or two to loose it and operate the priming pump up and down to drain the water in the sedimenter.
3. When light oil starts to flow out after the end of water draining, firmly tighten the drain cock.

►***Caution!***
Wipe the light oil cleanly from the adjacent area.

Cleaning the radiator fin
Clean the radiator and radiator fin. If debris is tabbed therein, this may cause over-heating.

►***Caution!***
• After stopping the engine, confirm that the engine has sufficiently cooled down before conducting cleaning. Taking adequate precautions may result in burns.
• When cleaning the radiator fin, take care not to cause it to become deformed.
• When performing cleaning, always wear safety goggles and dust mask.



1 – Grease

Maintaining the battery

Terminals
1. A loose or corroding terminal causes failure in connection: eliminate white powder, if noticed on the terminal, by pouring warm water over it to disable and then grease the terminal.
2. Remove the terminal, if it is extremely corroded, from the battery to brush off the corrosion using a wire brush or sandpaper. Then connect the terminal tightly to the battery and grease the terminal.

Note:
When removing the battery, disconnect the negative (-) terminal first.
When reconnecting it, connect the positive (+) terminal first.

►***Caution!***
• Stop the engine when attempt to work on the battery and terminals.
• Be careful not permitting any foreign matter to come into the battery by means of putting the lids tightly in place.
• Be careful not causing a short circuit on the battery nor nearing fire, such as smoking fire, because the battery-emitted gas is inflammable.
• Be cautious enough not to contact the battery electrolyte.
When it comes into contact with an eye or skin, wash it off immediately with plenty of water and then see a doctor.
• Charge the battery with the lids off in a well-ventilated area.
• When battery electrolyte is spilt, be certain to wash it off with water thoroughly the spot and adjoining area.

Fuel tank check
Check fuel tank, tank covering, fuel inlet, and drain plug against possible fuel leak. Follow the steps below.
1. Try to smell leak.
2. Look for leak.
3. Touch possible leak.
See Prins Maasdijk upon finding leak and have them repair tank immediately.

►***Caution!***
Never perform do-it-yourself welding or other repair work for it might cause explosion or fire.

Inspecting and servicing LPG-powered forklifts
Inspect and service LPG-powered forklifts as you would conventional forklifts. In addition, inspect and service them as written below.
• Inspection before Starting Operation.
• LPG gas leak check
• After the gas leak check is completed, wipe off the soap water or neutral detergent from the wet parts.
• If a gas leak is detected, immediately put out any fire, ventilate the area and keep the area in a strictly fire-free condition. Then call a qualified dealer or service garage.

►***Caution!***
Never perform LPG gas leak checks near fire. Make certain that there is no source of fire in the area throughout the gas leak check.

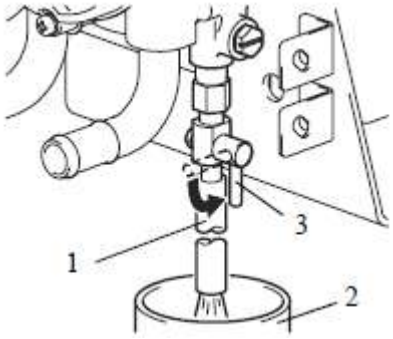
►***Warning!***
To avoid serious injury from fire or explosion, you must follow these rules:
• Switch ignition and lights off.
• Check for leaks only in well ventilated, approved areas.
• No smoking, fire of flames allowed.
• Brush soapy water on all joints, bubbles will show leaks.
• Never use any other liquids, or any open flame for leak checks.
• Do not try to start engine until all gas smell is gone.
• If any gas leakage is found, immediately report it to the supervisor for repair by a qualified mechanic of Prins Maasdijk. The vehicle is not allowed to be operated.

1. Turn the LPG tank outflow valve counterclockwise to open it.
2. Set the ignition switch to the “I” (ON) position.
3. Turn the fuel switch “I” (ON) and “O” (OFF) repeatedly for several times, and leave it in the “O” (OFF) position finally.

4. Wet the hose and the LPG tank and regulator connections with soap water or neutral detergent. Look for gas leak.
5. Press the fuel test bar fitted to the regulator a few times toward the outside of the vehicle.
6. Wet the hose and the regulator and carburetor connections with soap water or neutral detergent. Look for gas leak.

• Monthly inspection and maintenance
- Gas leak from pipes and joints (connections)
- Damage to pipes and joints (connections)
- Regulator adjustment
- Crack, damage to and gas leak from the tank
- Loose or damaged tank bracket
- Damage to electrical wiring, loose terminals
- Rotation of liquid drain valve
- Gas leak from the regulator body

• Quarterly inspection and maintenance
- Carburetor and adapter
- Regulator function (to be disassembled and repaired every year)
- Solenoid valve
- Filter



1 – Hose
2 – Oil pan
3 – Drain cock (option)

Removing tar from the regulator
Tar tends to collect in the regulator and it must be removed regularly on a weekly basis when the day's work is finished. Let the engine cool down, and remove tar as started below.
1. Set the fuel switch to the "O" (OFF) position and open the engine hood.
2. Connect a hose to the drain cock located under the regulator.
3. Put an oil pan under the drain cock.
Open the drain cock and let tar drop into the oil pan.
4. After all tar is removed from the regulator, close the drain cock and disconnect the hose

►***Caution!***
If tar is adhering to the vehicle, it must be wiped off completely with a cloth.

7. PERIODIC MAINTENANCE

Periodic inspection and maintenance are necessary to keep your forklift truck running smoothly. The designated number of hours in the inspection cycle are as follows:

Daily (pre-operation check)	Every 8 hours
Weekly	Every 40 hours
6 weeks	Every 250 hours
3-month	Every 500 hours
6-month	Every 1000 hours
Annually	Every 2000 hours

If operation time exceeds 250 hours within 6 weeks use the number of hours as the guide for performing periodic inspection. Pre-operation checks and weekly inspections should preferably be performed by the user. 6 week, 3-month, 6-month and annual inspection should be performed by your dealer since high-level technology and special tools are required.
Refer to the periodic maintenance table to determine inspection and maintenance items and inspection cycles.
Use only genuine parts for replacement parts, and use the recommended types of lubricants.

7.1 Periodic replacement table

Replacement period (Accumulated hours of operation or monthly periods of operation, whichever comes sooner.)	Every	6 weeks	3	6	12	Months
	Every	250	500	1,000	2,000	Hours
Engine oil		● *	● **	←	←	
Engine oil filter		● *	●	←	←	
Coolant (except LLC, LLC is every 2 years)			●	←	←	
Air cleaner element					●	
Fuel filter				●	←	
Torque convertor oil				●	←	
Torque convertor oil filter				●	←	
Differential oil					●	
Hydraulic oil				●	←	
Hydraulic oil filter		● *		●	←	
Wheel bearing grease					●	
Spark plugs				●	←	
Master cylinder, wheel cylinder cap and seals					●	
Brake fluid				●	←	
Power steering hose			(Every 2 years)			
Poser steering rubber parts			(Every 2 years)			
Hydraulic hose			(Every 2 years)			
Reserve tank hose			(Every 2 years)			
Fuel hose			(Every 2 years)			
Torque convertor rubber hose			(Every 2 years)			
Forks damper (option)			(Every 2 years)			
Chain			(Every 3 years)			
Hydraulic oil pump seal			(Every 3 years or 6,000 hours)			
Catalytic muffler (option)					●	
3-way catalytic muffler (option)			(Every 5,000 hours)			

*1 - Change the engine oil and oil filter of new vehicles at 6 weeks or 250 hours.
*2 - For API CF-4 and above oil grade (diesel engine)

Note:
• In case of the hard operating condition, the service interval of 170 hours or 1 month may be recommendable.
• Applicable engine models: 4Y, 1DZ-III, 3Z
• Engine oil is limited to those vehicles using engine oil with following or higher grades:
Diesel engines: API class CF-4 or better
Gasoline/LPG engines: API class SL or better

7.2 Periodic maintenance table

Inspection method
I: Inspect and correct and replace as required
T: Tighten
C: Clean
L: Lubricate
M: Measure and correct and adjust as required

Inspection period (Accomplish based on operating hours or month, whichever is sooner.)	Every	6 weeks	3	6	12	Months
	Every	250	500	1,000	2,000	Hours
ENGINE						
Basic components						
Starting condition and unusual noise		I *	I	←	←	
Rotating condition during idling		M *	M	←	←	
Rotating condition during acceleration		M *	M	←	←	
Exhaust gas condition		I *	I	←	←	
Air cleaner element		C *	C	←	←	
Valve clearance		M*			M	
Compression					M	
Cylinder head bolt					T	
Muffler rubber mount					I	
Blow by gas reduction device						
Clogging and damage of PCV valve and piping		I *	I	←	←	
Governor						
Maximum no-load stabilized rotation speed		M *	M	←	←	
Lubrication system						
Oil leakage		I *	I	←	←	
Oil level		I *	I	←	←	
Clogging and fouling of oil filter			I	←	←	
Fuel system						
Fuel leakage		I *	I	←	←	
Fouling and damage of fuel filter element			I	←	←	
Injection timing				M	←	
Inspection nozzle injection pressure and condition					M	
Draining of sedimenter				I	←	
Cooling system						
Radiator coolant level and leakage		I *	I	←	←	
Rubber hose deterioration		I *	I	←	←	
Radiator cap condition		I *	I	←	←	
Fan belt tension and damage		I *	I	←	←	
Radiator rubber mount					I	
Three-way exhaust emission control system						
Exhaust gas (carbon monoxide) concentration measurement					M	
Exhaust system piping joint loosening and damage					I	
Vacuum piping damage			I	←	←	
Vacuum sensor damage					I	
Injector cleaning and damage					I	
Register damage					I	
ABCV damage					I	
Water temperature sensor damage					I	
Oxygen sensor damage					I	

POWER TRANSMISSION SYSTEM					
Differential					
Oil leakage		I	←	←	
Oil level		I	←	←	
Loose bolts				T	
Torque convertor and transmission					
Oil leakage		I	←	←	
Oil level		I	←	←	
Operating mechanism function and looseness		I	←	←	
Control valve and clutch function		I	←	←	
Inching valve function		I	←	←	
Stall test and oil pressure measurement			M	←	
Propeller shaft and axle shaft					
Loosening of joint		T	←	←	
Looseness at spline connection				I	
Looseness at universal joint				I	
Twisting and cracks of axle shaft				I	
RUNNING EQUIPMENT					
Wheels					
Tire air pressure		M	←	←	
Tire cuts, damage and uneven treads		I	←	←	
Loose rim and hub nuts		T	←	←	
Tread depth	M*	M	←	←	
Metal fragments, stones or other foreign objects in tires	I*	I	←	←	
Rim, side ring and disc wheel damage	I*	I	←	←	
Front wheel bearing unusual noise and looseness	I*	I	←	←	
Rear wheel bearing unusual noise and looseness	I*	I	←	←	
Front axle					
Housing cracks and damage				I	
Rear axle					
Beam cracks, damage and deformation				I	
Axle beam forward and backward direction looseness				M	
STEERING SYSTEM					
Steering wheel					
Play and looseness	I*	I	←	←	
Operating condition	I*	I	←	←	
Steering valve					
Oil leakage	I*	I	←	←	
Mounting looseness	T*	T	←	←	
Power steering					
Oil leakage		I	←	←	
Mounting and linkage looseness		I	←	←	
Power steering hose damage				I	
Knuckle					
King pin looseness		I	←	←	
Cracking and deformation				I	

BRAKING SYSTEM					
Brake pedal					
Play and reserve		M	←	←	
Braking effect		I	←	←	
Parking brake					
Operating force		I	←	←	
Braking effect		I	←	←	
Linkage and cable looseness and damage	I*	I	←	←	
Brake pipe and hose					
Leakage, damage and mounting condition		I	←	←	
Brake oil					
Level	I	←	←	←	
Master cylinder or wheel cylinder					
Function, wear, damage and mounting looseness				I	
Brake drum and brake shoe					
Clearance between drum and lining		M	←	←	
Shoe sliding portion and lining wear				I	
Drum wear and damage				I	
Shoe operating condition				I	
Anchor pin rusting				I	
Return spring wear, etc				M	
Automatic adjusting function operation				I	
Backing plate					
Deformation cracking and damage				I	
Mounting looseness				T	
LOAD HANDLING SYSTEM					
Forks					
Forks and stopper pin condition		I	←	←	
Left and right forks uniformity		I	←	←	
Cracks in forks base and welded portion				I**	
Mast and lift bracket					
Deformation, damage and cracks in welded portion		I	←	←	
Mast and lift bracket looseness		I	←	←	
Mast support bushing wear and damage				I	
Roller wear, damage and rotating condition		I	←	←	
Roller pin wear and damage				I	
Mast strip wear and damage		I	←	←	
Chain and chain wheel					
Chain tension, deformation and damage	I*	I	←	←	
Chain lubrication		I	←	←	
Elongation of chain				I	
Chain anchor bolt condition		I	←	←	
Chain wheel wear damage and rotating condition		I	←	←	
Various attachments (option)					
Abnormalities and mounting condition		I	←	←	

HYDRAULIC SYSTEM					
Cylinder					
Cylinder mounting looseness and damage		T	←	←	
Rod and screw and rod end deformation and damage		I	←	←	
Cylinder operation		I	←	←	
Natural drop and natural forward tilt		M	←	←	
Oil leakage and damage		I	←	←	
Pin and cylinder shaft support wear and damage		I	←	←	
Lifting speed		M	←	←	
Uneven movement		I	←	←	
Oil pump					
Oil leakage and unusual noise		I	←	←	
Hydraulic oil tank					
Oil level and contamination		I	←	←	
Tank and oil strainer			C	←	
Oil leakage		I	←	←	
Control lever					
Linkage looseness		I	←	←	
Operation		I	←	←	
Oil control valve					
Oil leakage		I	←	←	
Relief pressure measurement				M	
Relief valve and tilt lock valve function		I	←	←	
Oil pressure piping					
Oil leakage		I	←	←	
Deformation and damage		I	←	←	
Linkage looseness		T	←	←	
ELECTRICAL SYSTEM					
Ignition system					
Distributor cap cracking	I*	I	←	←	
Spark plug burning and gap	I*	I	←	←	
Distributor side terminal burning	I*	I	←	←	
Distributor cap center piece wear and damage	I*	I	←	←	
Plug cord internal disconnection				I	
Ignition timing			M	←	
Starter					
Pinion gear meshing		I	←	←	
Charger					
Charger effect	I*	I	←	←	
Battery					
Battery electrolyte level		I	←	←	
Specific gravity			M	←	
Electrical wiring					
Wiring harness damage		I	←	←	
Fuses		I	←	←	
Preheater					
Glow plug heat coil breakage			I	←	
Open circuit in intake heater			I	←	

SAFETY DEVICES, ETC.					
Head guard					
Welded portion cracking		I	←	←	
Deformation and damage		I	←	←	
Back rest					
Mounting looseness		T	←	←	
Deformation, cracking and damage		I	←	←	
Lighting system					
Operation and mounting condition		I	←	←	
Horn					
Operation and mounting condition		I	←	←	
Instrument					
Operation		I	←	←	
Back-up buzzer (option)					
Operation and mounting condition		I	←	←	
OPS					
Function		I	←	←	
Seat					
Mounting looseness and damage		I	←	←	
Damage to and/or operation of seat belts		I	←	←	
Operating condition of seat switch		I	←	←	
Body					
Frame, cross member, etc. damage and cracking				I	
Bolt looseness				T	
Cabin (option)					
Deformation, cracks and damage		I	←	←	
Cracks in welds		I	←	←	
Deterioration and cracking of weather-stripping, silicon adhesive				I	
Deterioration and damage to the cabin mounting rubber material				I	
Rear-view mirror (option)					
Dirt, damage		I	←	←	
Rear reflection status		I	←	←	
Others					
Lubrication		L	←	←	

* - For new vehicles
** - Fissure and crack detector

Note:
In case of the hard operating condition, the service interval of 170 hours or 1 month may be recommended.

8. SERVICE DATA

Adjustment value table

Item		Models		1.5 ton series	1.8 ton series	2.0-2.5 ton series	3.0 ton series	3.5 ton series
Fan belt tension (10 kg (22 lb) pressure applied)	mm (in)			8-13 (0.31-0.51)	←	←	←	←
Spark plug gap	mm (in)		4Y	0.7-0.8 (0.028-0.031)	←	←	←	←
Spark plug type			4Y	W9EXR-U	←	←	←	←
Ignition timing (BTDC)	deg/rpm		4Y	7/750	←	←	←	←
Ignition sequence			4Y	1-3-4-2	←	←	←	←
Fuel injection timing (BTDC)	mmlift/ TDC		1DZ-III	0.77	←	←	←	←
			3Z	0.90	←	←	←	←
Fuel injection sequence			1DZ-III•3Z	1-3-4-2	←	←	←	←
Valve clearance (when warm)	mm (in)	IN	4Y	0 (self-adjusting)	←	←	←	←
			1DZ-III	0.18-0.22 (0.007-0.009)	←	←	←	←
			3Z	0.15-0.25 (0.006-0.010)	←	←	←	←
		EX	4Y	0 (self-adjusting)	←	←	←	←
			1DZ-III	0.33-0.37 (0.013-0.015)	←	←	←	←
			3Z	0.31-0.41 (0.012-0.016)	←	←	←	←
Idling speed	rpm		4Y	750 ± 30	←	←	←	←
			1DZ-III	750	←	←	←	←
			3Z	775 ± 25	←	←	←	←
No load maximum speed	rpm		4Y	2570	←	←	←	←
			1DZ-III	2600	←	←	←	←
			3Z	–	-	-	-	2400
Engine compression	MPa/rpm (psi/rpm)	Standard value	4Y	1.2/250 (174/250)	←	←	←	←
			1DZ-III	3.3/260 (479/260)	←	←	←	←
			3Z	3.9/260 (566/260)	←	←	←	←
		Limit	4Y	0.9/250 (131/250)	←	←	←	←
			1DZ-III	2.6/260 (377/260)	←	←	←	←
			3Z	3.5/260 (508/260)	←	←	←	←
Steering wheel play (when idling)	mm (in)			20-50 (0.79-1.97)	←	←	←	←
Oil control valve set pressure	kg/cm^2 (psi)	Lift		182 (2580)	←	191 (2710)	←	←
		Tilt		120 (1710)	←	150 (2130)	←	←
Brake pedal play	mm (in)			1-5 (0.04-0.20)	←	←	←	←
Brake pedal floor clearance	mm (in)			135 (5,31) or more	←	←	←	←
Inching and brake pedal play	mm (in)			1-3 (0.039-0.12)	←	←	←	←
Sound pressure level (LPA) in accordance with EN 12053* (EN spec.)	dB (A)			77	77	77	77	77
				79	79	79	79	79
Vibration in accordance with EN 13059* (EC-spec.)	m/s^2			0.9	0.9	0.9	0.9	0.9

Adjustment value table

Item		Models		1.5-1.8 ton series	2.0-2.5 ton series	3.0-3.5 ton series
Hub nut tightening torque	N-m (kg-m) [ft-lb]	Front wheels	Single tire	118-196 (12-20) [87-145]	←	294-588 (30-60) [217-434]
			Double tire	177-392 (18-40) [130-289]	177-392 (18-40) [130-289]	294-588 (30-60) [217-434]
		Rear wheels	Side ring rim	89-157 (9-16) [65-116]	177-392 (18-40) [130-289]	118-196 (12-20) [87-145]
Battery electrolyte specific gravity 20 ºC (ºF)					1.28	

Lubricant capacities and types

Item		Models		1.5-1.8 ton series	2.0-2.5 ton series	3.0-3.5 ton series	Type
Engine oil	ℓ (Am. gallon)	LPG	4Y	4.0 (1.06)	←	←	API SL, SM SAE 30 for normal environment SAE 20 for cold weather
		Diesel	IDZ-III	7.9 (2.09)	←	←	API: CF-4
			3Z	-	-	9.4 (2.48)**	
Torque convertor	ℓ (Am. gallon)	1 speed		6.0 (1.58)	←	←	ATF GM Dexron II
Differential gear	ℓ (Am. gallon)			5.8 (1.53)	6.1 (1.61)	8.2 (2.16)	API GL-4, GL-5 Hypoid gear oil SAE85W-90
Fuel tank	ℓ (Am. gallon)			45 (11.9)	60 (15.8)	←	
Wheel bearings, chassis, tilt steering and mast and grease fittings					Appropriate amount		MP Grease
Brake line	ℓ (Am. gallon)			0.2 (0.05)	←	←	SAE J-1703 DOT-3
Engine cooling system (excluding reserve tank)	ℓ (Am. gallon)		4Y	8.4 (2.22)	8.5 (2.24)	9.7 (2.56)	LLC*
			IDZ-III	7.0 (1.85)	8.4 (2.22)	←	
			3Z	-	-	9.3 (2.46)**	
Radiator reserve tank (as FULL mark level)	ℓ (Am. gallon)			0.47 (0.124)	←	←	
Hydraulic oil	ℓ (Am. gallon)			30 (7.9)	33 (8.7)	34 (9.0)	ISO VG 32

* Long Life Coolant (Appropriately diluted with fresh water). The hydraulic oil level pertains to the V-mast with a lift of 3,000 mm.
** 3.5 ton models only

Note:
a. Do not use only water.
b. Use of improper engine coolant may damage the engine coolant system
c. Use only coolant with high quality specifications:
• ethylene glycol based non-silicate
• non-amine
• non-nitrite
• non-borate engine coolant with long-life hybrid organic acid technology

Coolant with long-life hybrid organic acid technology consists of a combination of low phosphates and organic acids

9. ENGINE SPECIFICATIONS

Engine	1DZ-III		3Z	4Y	
Fuel type	diesel		diesel	LPG	
Truck series	1.5 – 1.8 ton	2.0 – 2.5 – 3.0 ton	3.5 ton	1.5 – 1.8 – 2.0 – 2.5 ton	3.0 – 3.5 ton
Displacement (l)	2.486	←	3.469	2.237	←
Bore – Stroke (mm)	86x107	←	98x115	91x86	←
Compression ratio	21.5	←	←	8.8	←
Power (kW)	38	41	42	38	42
Max torque (Nm / rpm)	157 / 2300	157 / 2500	200 / 1600	160 / 2100	160 / 2200

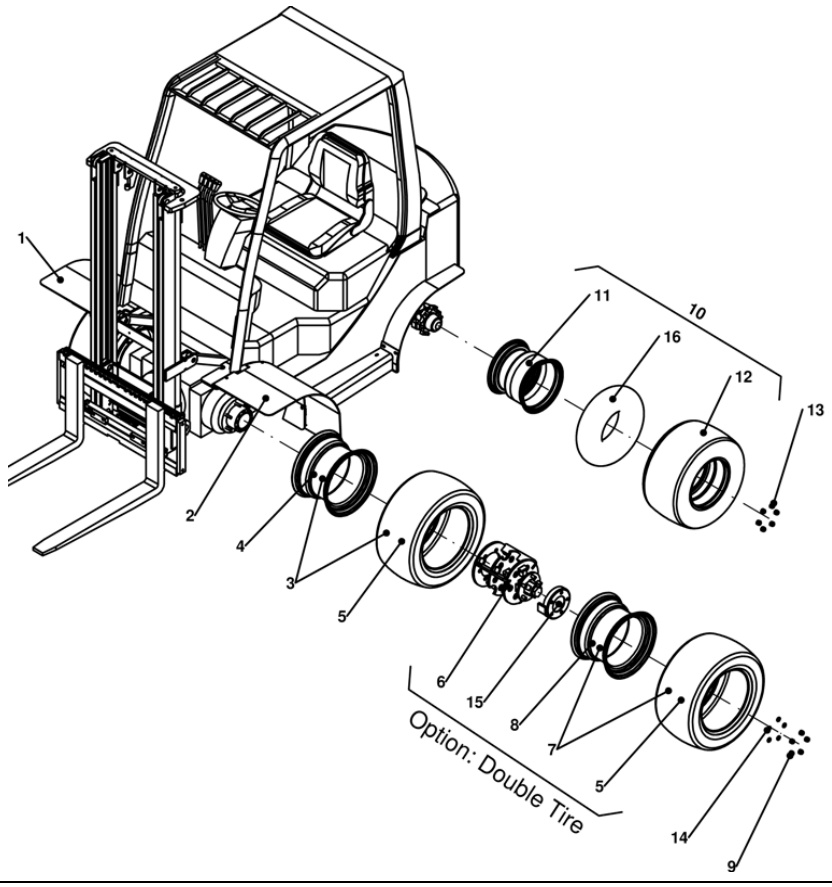
10. WHEELS AND TIRES

10.1 Tire air pressure

Single tire:	**Tiger L**	**Tiger XL**	**Tiger XXL**
Rear wheels	2.5 bar	1.5 bar	1.5 bar
Front wheels	3 bar	3 bar	3 bar

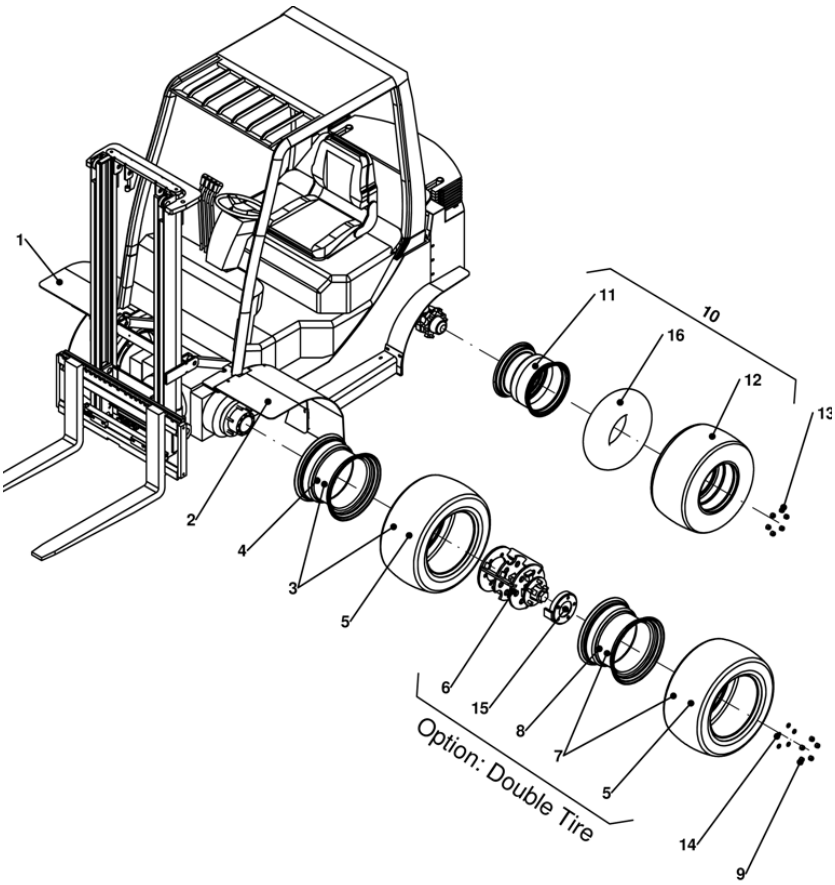
Double tire:	**Tiger L**	**Tiger XL**	**Tiger XXL**
Inner Front wheels	3 bar	3 bar	3 bar
Outer Front wheels	2 bar	2 bar	2 bar

10.2 Overview wheels and tires



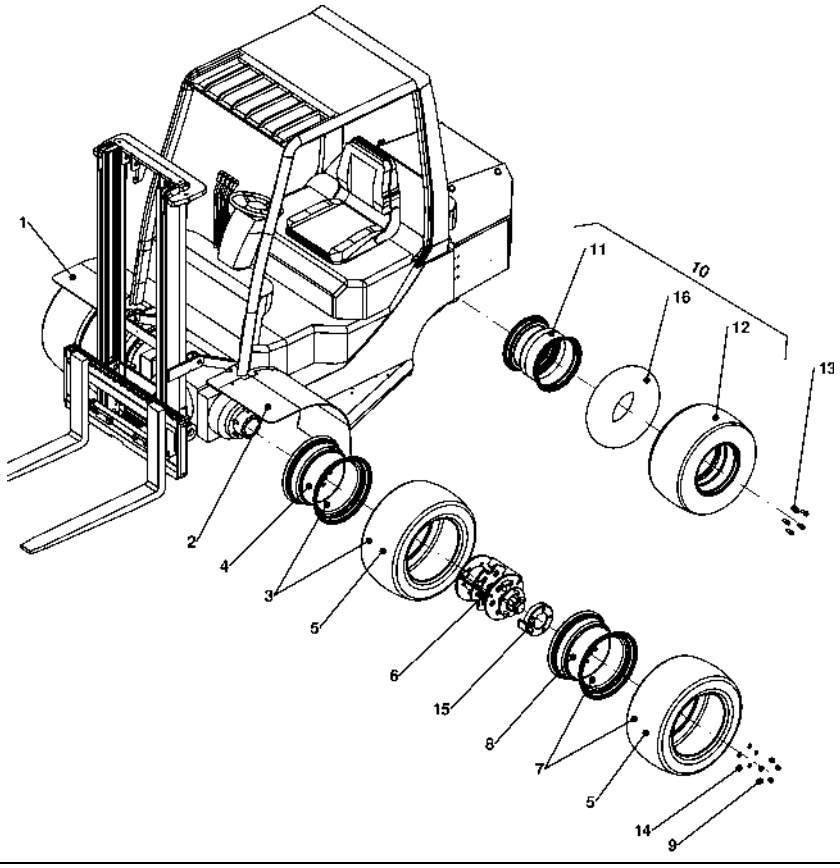
Tiger L

1 – Right front screen double tire
2 – Left front screen double tire
3 – Front tire 295x50-15 complete
4 – Rim 295x50-15
5 – Front tire 295x50-15
6 – Rim double tire (option)
7 – Outer front tire 295x50-15 complete (option)
8 – Rim outer front tire 295x50-15 (option)
9 – Wheel nut
10 – Rear tire 20x10-10 complete
11 – Rim 20x10-10
12 – Rear tire 20x10-10
13 – Wheel bolt
14 – Washer
15 – Stop plate
16 – Inner tube 20x10-10



Tiger XL

1 – Right front screen double tire
2 – Left front screen double tire
3 – Front tire 295x50-15 complete
4 – Rim 295x50-15
5 – Front tire 295x50-15
6 – Rim double tire (option)
7 – Outer front tire 295x50-15 complete (option)
8 – Rim outer front tire 295x50-15 (option)
9 – Wheel nut
10 – Rear tire 24x13-12 complete
11 – Rim 24x13-12
12 – Rear tire 24x13-12
13 – Wheel bolt
14 – Washer
15 – Stop plate
16 – Inner tube 24x13-12



Tiger XXL

1 – Right front screen double tire
2 – Left front screen double tire
3 – Front tire 295x50-15 complete
4 – Rim 295x50-15
5 – Front tire 295x50-15
6 – Rim double tire
7 – Outer front tire 295x50-15 complete
8 – Rim outer front tire 295x50-15
9 – Wheel nut
10 – Rear tire 24x13-12 complete
11 – Rim 24x13-12
12 – Rear tire 24x13-12
13 – Wheel bolt
14 – Washer
15 – Stop plate
16 – Inner tube 24x13-12