OPERATING MANUAL

GLP/GDP20UX-35UX (A7S1)
Internal Combustion
Counterbalanced Forklift Truck

PART NO. 550216339 **1/20**

DO NOT REMOVE THIS MANUAL FROM THIS UNIT

LIFT TRUCK MODEL	**SERIAL NUMBER**
ENGINE MODEL	**SERIAL NUMBER**
TRANSMISSION TYPE	**SERIAL NUMBER**
MAST LIFT HEIGHT	**GROUP NUMBER**
CARRIAGE TYPE	**GROUP NUMBER**
DRIVE TIRE SIZE	**STEERING TIRE SIZE**

SPECIAL EQUIPMENT OR ATTACHMENTS

Foreword

To OWNERS, USERS, and OPERATORS:

The safe and efficient operation of a lift truck requires skill and alertness on the part of the operator. To develop the skill required, the operator must:

- Receive training in the proper operation of THIS lift truck.
- Understand any potential hazards that may exist in the work place where the lift truck is intended to be used.
- Understand the capabilities and limitations of the lift truck.
- Become familiar with the construction of the lift truck and see that it is maintained in good condition.
- Read and properly understand the warnings, instructions, and operating procedures in this manual.

In addition, a qualified person, experienced in lift truck operation, must guide a new operator through several driving and load handling operations before the new operator attempts to operate the lift truck alone.

It is the responsibility of the employer to make sure that the operator can see, hear, and has the physical and mental ability to operate the equipment safely.

NOTE: A comprehensive operator training program is available from **Yale** Company. For further details, contact your dealer for **Yale** lift trucks.

This **Operating Manual** is the original instruction and contains information necessary for the operation and maintenance of a basic lift truck. Optional equipment is sometimes installed that can change some operating characteristics described in this manual. Make sure the necessary instructions are available and understood before operating the lift truck.

Some of the components and systems described in this **Operating Manual** will **NOT** be installed on your unit. If you have a question about any item described, contact your dealer for **Yale** lift trucks.

The following additional information is provided as specified in Machinery Directive 98/37 EC and/or 2006/42/EC:

- **Dimensional Details:** Certain information is shown on the truck Nameplate. For additional dimensional details on this or any other specific truck, consult your dealer.
- **Noise Levels:** In accordance with standards EN 12053 and EN ISO 4871, the equivalent sound pressure level (Lpaz) at the operator position is in the range of 84.0 dB(A). This may vary depending on truck options.
- **Human Vibration (Whole Body and Hand-Arm Vibration).**

  Note: The whole-body vibration level is measured according to standard EN 13059 which contains specific test criteria (load, speed, roadway surface, etc.). Worksite vibration levels may vary depending on actual operating and surface conditions.

  Whole-body vibration:

— Measured whole-body vibration at the operator position, based upon standard production truck with full-suspension or comfort-suspension seat is listed below.

— Declared whole-body vibration emission value is in accordance with EN 12096.

- Full-suspension seat measured vibration emission value $a_{w,z} = 0.8\ m/s^2$
- Uncertainty, $K = 0.2\ m/s^2$

— Values determined according to EN 13059

Hand-arm vibration:

— Hand-arm vibration emission value = $< 2.5\ m/s^2$

- **Hazardous Atmosphere:** Before any truck within the European Community can be operated in a Potentially Explosive Atmosphere, it is necessary that the truck is suitably converted for the application. Conversions should only be carried out by a **Yale** approved supplier. Confirmation of the conversion can be made by referring to the truck Declaration of Conformity which will confirm compliance with European Directive 94/9/ce. If you are in doubt, please contact your **Yale** dealer for assistance.

⚠ CAUTION

Disposal of lubricants and fluids must meet local environmental regulations.

- **Manufacturer: Yale** Europe, Centennial House, Frimley Business Park, Frimley, Surry GU16 7SG, United Kingdom
- **The EC Conformity:** Each lift truck ships with a unique EC Declaration of Conformity certificate. See the end of this section for a sample EC Declaration of Conformity certificate which complies with Machinery Directive 2006/42/EC.

NOTE: Some products have options for equipment that are subject to Radio Equipment Directive 2014/53/EU. Where applicable, product/option meets the requirements outlined in this Directive.

NOTE: Yale lift trucks are not intended for use on public roads.

NOTE: The following symbols and words indicate safety information in this manual.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and property damage.

On the lift truck, the WARNING symbol is on orange background. The CAUTION symbol is on yellow background.

Atmospheric Conditions

This range of fork lift trucks is designed to work in the following atmospheric conditions:

Average ambient temperature for continuous duty:	+25°C
Maximum ambient temperature, short term (up to 1 hr):	+40°C
Lowest ambient temperature for trucks intended for use in normal indoor conditions:	+5°C
Lowest ambient temperature for trucks intended for use in normal outdoor conditions:	−20°C
Altitude:	Up to 2000m
Relative humidity:	From 30% to 95% (non-condensing)

Truck Modification

Unauthorized truck modification is not permitted. To obtain authorization contact your **Yale** dealer.

Only in the event that the truck manufacturer is no longer in business and there is no successor in the interest of the business, the user may arrange for a modification or alteration to a powered industrial truck, provided, however, that the user shall:

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

Introduction

This operation manual explains how to use a 2.0T-3.5T forklift truck correctly. It will instruct you how to perform maintenance in order to ensure good working order and maximize the truck's potential. All operators, service technicians, and supervisors should read this manual thoroughly before working with the forklift.

Product specifications in this manual may vary from your actual truck.

Please contact your sales agent or dealer if you have any questions or comments regarding this manual.

Table 1. Models and Configuration

Series	Model	Engine	Transmission
GLP/GDP20 & GLP/GDP25UX	GLP/GDP20 & 25UX	YANMAR 2.6 DSL (4TNE92)	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	XINCHAI 2.67L DSL (490BPG)	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	MITSUBISHI DSL (S4S-455)	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	GCT 2.1L LPG Non Cert (K21)	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	GCT 2.1L Gasoling Non Cert	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	GCT 2.1L Bi-Fuel Non Cert	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	GCT 2.5L LPG Non Cert	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	GCT 2.5L Gasoline Non Cert	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	GCT 2.5L Bi-Fuel Non Cert	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	PSI 2.4L LPG Cert	Powershift 1 Speed Transmission
	GLP/GDP20 & 25UX	PSI 2.4L Bi-Fuel Cert	Powershift 1 Speed Transmission

Table 1. Models and Configuration (Continued)

Series	Model	Engine	Transmission
GLP/GDP30 & GLP/GDP35UX	GLP/GDP30 & 35UX	XINCHAI 2.67L DSL (490BPG)	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	MITSUBISHI DSL (S4S-455)	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	Yanmar 3.0L DSL (4TNV94)	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	Yanmar 3.3L DSL (4TNE98)	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	GCT 2.1L LPG Non Cert (K21)	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	GCT 2.1L Gasoline Non Cert	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	GCT 2.1L Bi-Fuel Non Cert	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	GCT LPG Non Cert	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	GCT 2.5L Gasoline Non Cert	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	GCT 2.5L Bi-Fuel Non Cert	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	PSI 2.4L LPG Cert	Powershift 1 Speed Transmission
	GLP/GDP30 & 35UX	PSI 2.4L Bi-Fuel Cert	Powershift 1 Speed Transmission

Yale CE

EC DECLARATION OF CONFORMITY

WE YALE EUROPE
CENTENNIAL HOUSE
BUILDING 4.5
FRIMLEY BUSINESS PARK
FRIMLEY, SURRY GU16 7SG
UNITED KINGDOM

DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE

CATEGORY: FORKLIFT IC ENGINE POWERED

TYPE _____

SERIAL NUMBER(S) _____

YEAR OF CONSTRUCTION _____

IS IN CONFORMITY WITH THE MACHINERY DIRECTIVE 2006/42/EC. COMPLIANCE WITH THIS DIRECTIVE IS ESTABLISHED BY MEETING THE TECHNICAL REQUIREMENTS OF THE RELEVANT STANDARDS, INCLUDING EN ISO 3691-1

OTHER APPLICABLE DIRECTIVES:

2014/30/EU - EMC EMISSIONS

2000/14/EC - SOUND POWER FOR IC ENGINED FORKLIFT AS AMMENDED BY 2005/88/EC.

TYPICAL VALUE dB
GUARANTEED VALUE, dB

CONFORMITY ASSESSMENT PROCEDURE: INTERNAL CONTROL OF PRODUCTION AND RESULTS OBTAINED BY FOLLOWING TEST PROCEDURE TEP 361, IN LINE WITH THE REQUIREMENTS OF DIRECTIVE 2000/14/EC
TECHNICAL FILE CONTROLLED BY THE ENGINEERING MANAGER, HYSTER-YALE UK LIMITED/NEDERLAND B.V., CRAIGAVON, NORTHERN IRELAND/NIJMEGEN, THE NETHERLANDS.

NAME _____
POSITION PLANT MANAGER
(BLOCK LETTERS)

SIGNATURE _____
DATE _____

Contents

⚠ WARNING

- Only drivers who have been trained and have an operator's license may drive the truck.
- Prior to driving the truck, inspect each control and warning device. If you discover damage or a defect, then do not operate the truck until it has been repaired.
- When handling a load, do not exceed the specified load capacity plate. The forks must be fully inserted under the load so that it is evenly positioned across the forks. Do not lift a load with only one fork.
- Starting, steering, driving, braking and stopping should be performed smoothly. Decrease speed when turning on wet or slippery surfaces.
- When traveling with a load, keep the load as low as possible and the mast tilted backwards.
- When driving on a slope, drive cautiously. When driving on a slope with a load, drive forward up the slope, and drive in reverse when descending the slope. Avoid turning on a slope. Do not engage in loading or unloading operations while the forklift truck is being driven on a slope.
- While driving, pay attention to pedestrians, obstacles, and potholes on road surfaces, and pay attention to the clearance above the forklift truck and load.
- No one may stand on the forks; the truck must not carry passengers.
- No standing or walking under the forks.
- The forklift truck and attachments shall not be operated from anywhere but the operator's seat.
- Do not move unsecured or loosely piled loads. Be cautious when moving larger loads.
- In the case of high-lift forklifts that lift higher than 3 meters, pay attention to the possibility that the load above may fall. Take protective measures when necessary.

⚠ WARNING

- When operating a high-lift forklift truck, tilt the mast back as far as possible for transport. Tilt forward and back within the minimum range for loading and unloading operations.
- Be careful and drive slowly when driving on a loading dock or other potentially hazardous areas.
- When adding fuel, the driver must not be on the forklift truck, and the engine must be turned off. Do not ignite a flame when inspecting the battery or the fuel tank level.
- When a forklift truck equipped with attachments is being operated, it should always be operated as though loaded.
- Prior to exiting the forklift, lower the forks to the ground, and put the direction control into neutral. Engage the parking brake. Turn off the engine. When parking on a slope, engage the parking brake. Place wheel chock to chock wheels.
- If a fault, such as hydraulic oil leaking, battery electrolyte leaking, etc. occurs, slowly drive to level ground and stop the truck, lower forks to ground, put direction control in neutral, engage park brake, and turn off engine. Contact authorized repair technician. Do not operate truck unless it has been properly repaired by trained technician.
- Solid, level surfaces, asphalt, or concrete road surfaces are the recommended operating surfaces for forklift trucks. When snow, ice, water, or other foreign matter has accumulated on the surface, do not operate until after the accumulated snow, ice, water, or other foreign matter has been completely removed.
- If the forklift breaks down, first move the forklift to a place where traffic will not be obstructed. If the breakdown was caused by the braking system or a steering system failure, then transport it using an appropriate transport forklift. If there was another cause, then use an appropriate towing forklift.

⚠ WARNING

- After removing the hood, the radiator cover plate, the overhead guard, the mast backrest, etc., do not operate the forklift.
- The forklift working site shall be adequately lit. While working at night, turn on the headlights. In addition, a sufficient light source should be allocated for the work.
- Contact the dealer for **Yale** forklift truck for forklift truck modifications.

Operating Devices and Operating Methods

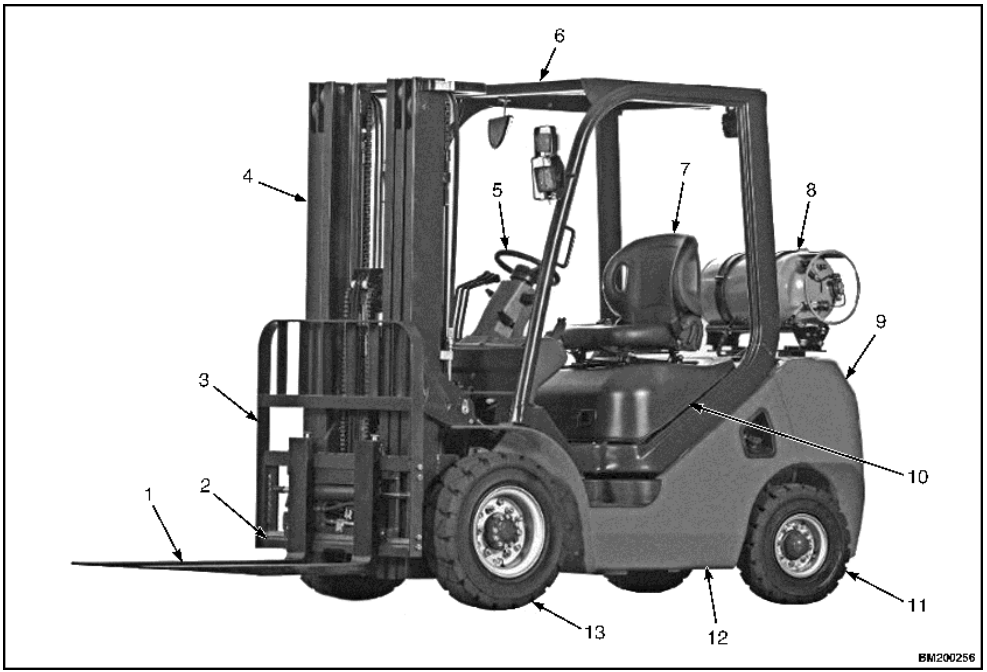


Figure 1. Main Parts

Legend for Figure 1

1. FORK
2. FORK CARRIAGE
3. LOAD BACKREST
4. MAST
5. STEER WHEEL
6. OVERHEAD GUARD
7. SEAT
8. LPG (IF EQUIPPED)
9. COUNTERWEIGHT
10. HOOD
11. REAR WHEEL
12. FRAME
13. FRONT WHEEL

Introduction to Instrument Panel

The instrument is used to indicate the working conditions of various critical systems of the forklift so that operators can quickly determine system failure prior to maintenance.

NOTE: The hour meter and optional weight meter share a digital display zone. When it is powered on, it displays the hour counter. Press any key and displays the weight value and "kg" . At the same time, the hour meter funnel chart is off.

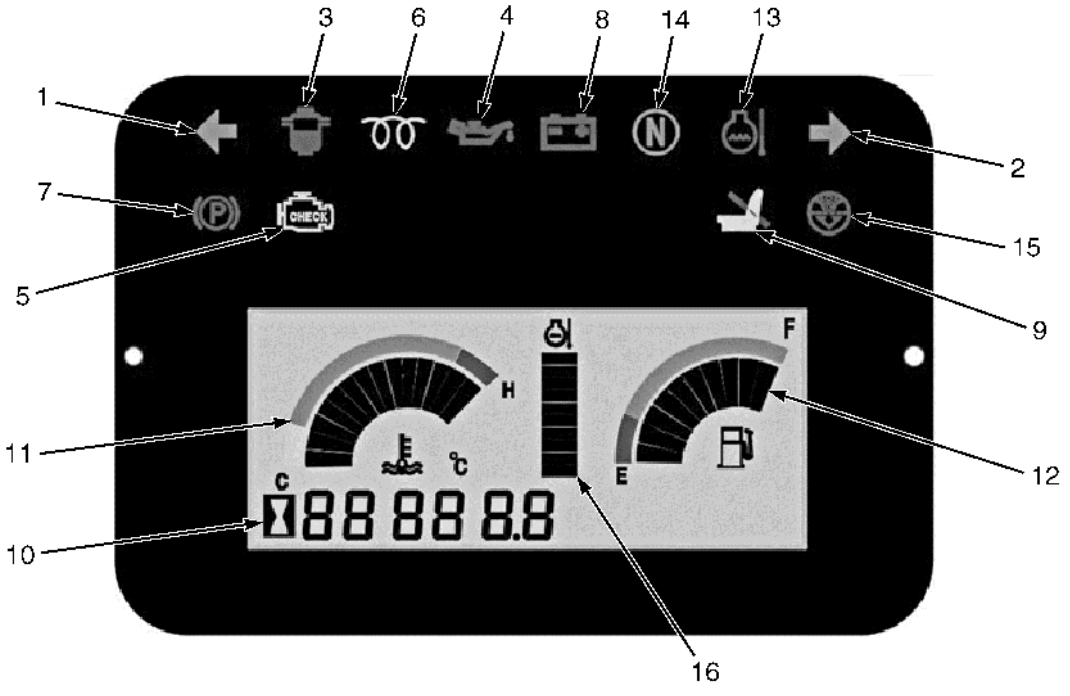


Figure 2. Display

1. Steering Signal Indicator Light

Turn left light, the forklift's left turn signal works.

2. Steering Signal Indicator Light

Turn right light, the forklift's right turn signal works.

3. Oil-Water Separator Indicator Light (Diesel Truck)

When the key switch is in the start position, the light is on. When the engine starts, the light is off.

4. Oil Pressure Alert Indicator Light

This light indicates the pressure of the engine oil. The light comes on when the ignition switch is set to **ON**. The light goes out after the engine starts and the accelertor pedal is pressed.

5. Engine Fault Indicator Light

Engine fault or malfunction.

6. Glow Indicator Light (Diesel Truck)

The light comes on when the ignition switch is set to **ON**. After the idicator light goes out, turn the switch to the start position.

7. Parking Indicator Light

Parking indicator will illuminate when the parking brake is applied. Release the parking handle (hand brake handle). The parking indicator will go off.

8. Battery Charge Indicator Light

This lamp indicates the battery charge condition. The lamp comes on when the ignition switch is set to **ON**. The lamp goes out after the engine starts and the accelerator pedal is pressed.

⚠ CAUTION

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

9. Seat Belt Indicator Light

Seat belt not fastened and operator not in seat.

10. Hour Meter Indicator

Displays the forklift running time when truck is operating . Switch to display the weight of the goods after you press any key.

11. Engine Coolant Temperature Indicator

Displays engine coolant temperature.

12. Fuel Level Indicator

Displays the amount of remaining fuel in the tank.

13. Transmission Oil Temperature Malfunction Indicator Light

Red light will be **ON** when transmission oil temperature is too high.

14. Forward, Neutral, and Reverse Indicator

The direction lights will illuminate when the operator selects direction of travel. When the transmission is put in **NEUTRAL**, the **N** illuminates and stays lit until transmission is not in **NEUTRAL**.

15. Air Filter Indicator

When illuminated, service the air filter.

16. Transmission Oil Temperature Indicator

Displays transmission oil temperature.

See **Figure 3**.

⚠ WARNING

If any of the controls, instruments, levers, or pedals do not operate as described in the following tables, report the problem immediately. DO NOT operate the vehicle until the problem is corrected.

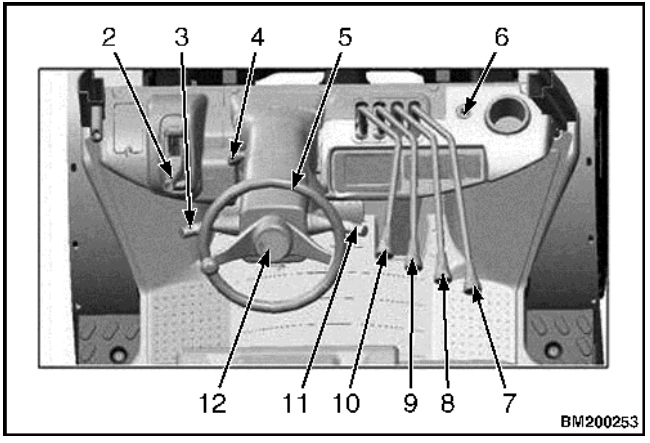
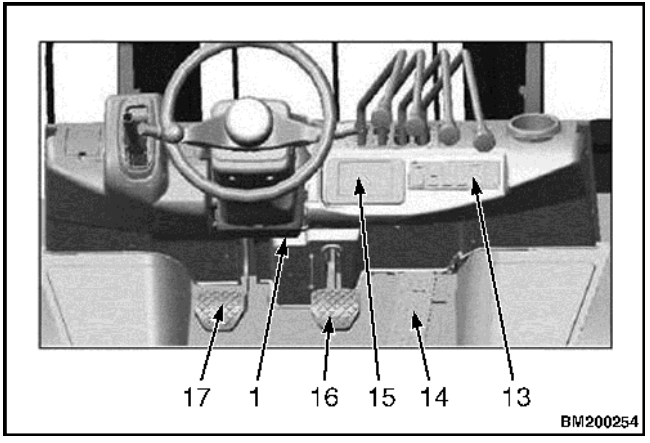


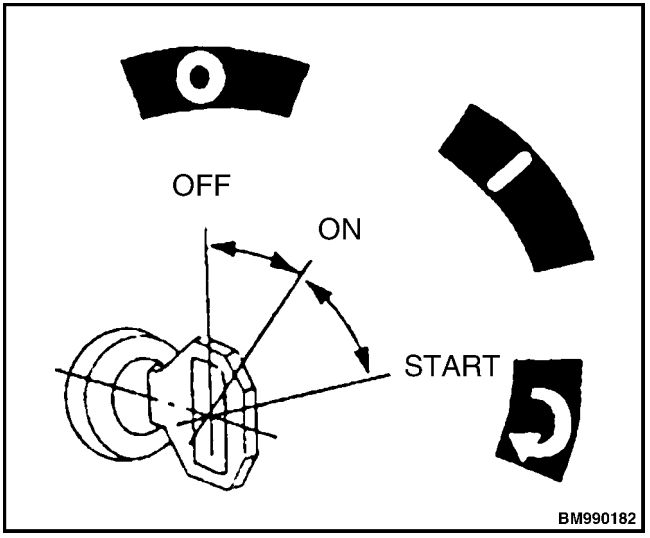
Figure 3. Controls and Switches (Sheet 1 of 2)



1. KEY SWITCH
2. PARK BRAKE LEVER
3. FORWARD-BACKWARD LEVER
4. STEEL COLUMN ADJUSTER
5. STEEL WHEEL
6. USB CONNECTOR
7. AUXILIARY FUNCTION LEVER
8. SIDE SHIFT LEVER
9. TILT LEVER
10. LIFT LEVER
11. SIGNAL LIGHT LEVER
12. HORN BUTTON
13. COMBINED SWITCH
14. ACCELERATOR PEDAL
15. COMBINED DISPLAY
16. BRAKE PEDAL
17. INCHING PEDAL

Figure 3. Controls and Switches (Sheet 2 of 2)

1. Key



O (OFF)

This is the position at which the key may be inserted or removed.

Gasoline and diesel engines will stop when the key is turned to this position.

| (ON)

The electric circuit is closed with the key in the **ON** position. After the engine starts, the key remains in this position.

START

When the key is turned to the **START** position, the starter motor is engaged. Switch returns to the **ON** position automatically after starting.

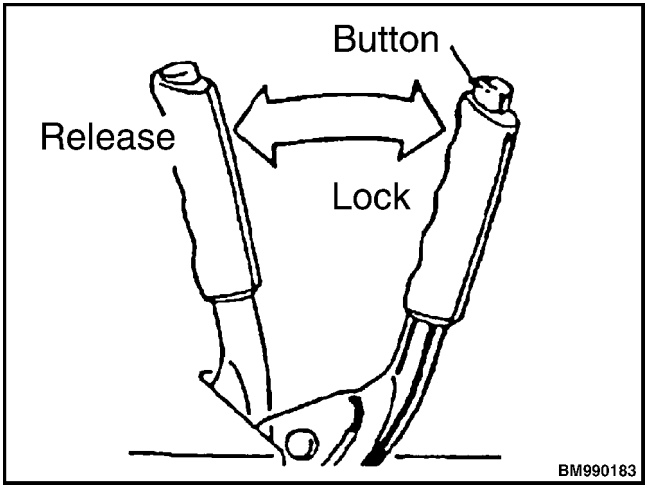
Diesel Engines

Turn the key to the **ON** position. The indicator light will come on momentarily. After the indicator light goes out, turn the key to the **START** position.

⚠ CAUTION

- **Do not leave the key in the ON position when the engine of off. Doing so will discharge the battery.**
- **Do not turn the key to the START position when engine is running. Doing so may damage the starter motor.**
- **Do not keep the key in the START position for more than 5 seconds at a time. Wait about 2 minutes between attempts to start.**

2. Parking Brake Lever



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

3. Forward-Backward Lever

The forward-reverse lever of the truck is installed with electronic reversing and is set on the left of the steering column.

- F - Forward
- N - Neutral
- After Allocation - Backward

⚠ CAUTION

Do not forget to place the forward-reverse in the neutral position before starting the engine.

4. Steering Column Tilting Angle Adjustment

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

5. Steering Wheel

The steering wheel is operated in the conventional manner. When the wheel is turned right, the truck will turn to the right. When the wheel is turned left, the truck will turn to the left. The steer wheels are located at the rear of the truck. These cause the rear of truck to swing out when a turn is made.

6. Side Shift Control Lever

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

- Push forward to move to the left.
- Pull backward to move to the right.

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

7. Tilt Lever

- Move lever backward to tile mast backward.
- Move lever forward to tilt mast forward.

Control tilt speed with tilt lever and accelerator pedal.

⚠ CAUTION

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

8. Lift Lever

For lifting or lowering the forks.

- Lift forks by pulling lever backward.
- Lower forks by pushing lever forward.

Control lifting/lowering speed with accelerator pedal.

9. Auxiliary Function Lever

10. Signal Light Lever

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

- R - Right Turn
- N - Neutral
- L - Left Turn

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

11. Horn Button

Press the rubber button at the center of the steering wheel to sound horn.

12. Light Switch

This light switch can be pulled out at two stops.

Stage	Power	Small Lamp	Head Lamp	Side Lamp
0	X			
1	X	X		X
2	X		X	X
(X) Means Connected				

13. Accelerator Pedal

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

⚠ WARNING

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

14. Dual Fuel Toggle Switch

a. From LPG to Gas:

(1) With the truck off, change the dual fuel toggle switch from **LPG** position to **GAS** position to begin running on **GAS**. Start truck.

(2) If the engine stops, check that the dual fuel toggle switch is set to **GAS** position and restart the engine.

b. From Gas to LPG:

(1) With the truck off, place the dual fuel toggle switch from **GAS** to **LPG** to run on **LPG**. Start truck.

(2) If the engine stops, check the shutoff valve at the end of the vent cylinder. Check that the dual fuel toggle switch is in **LPG** position and restart the engine.

⚠ CAUTION

Use gasoline to drive several miles at lease every two weeks to avoid gasoline deterioration.

It is recommended to start the engine using GAS when operating in cold environments. Once the engine has reached operating temperature, it can be run using either fuel.

When using LPG, you should pay attention to the following points:

- **Before driving, check cylinder and pipe for leakage. Use a sealant on al LPG connections having NPT threads.**

- **After LPG is working, before shutting down the engine:**
- **Before storing for a long time, completely close the cylinder shutoff valve and check if the engine leaks.**
- **If there is a leakage, fault, or other abnormal condition during moving, completely shut off the shutoff valve and have LPG system serviced.**

15. Brake Pedal

- Depress the pedal partially to slow vehicle.
- Depress the pedal fully to bring the vehicle to a stop.
- Release the pedal to resume vehicle operation.

⚠ CAUTION

Avoid sudden braking which can lead to vehicle rollover or falling cargo, causing accidents.

16. Inching Pedal

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

⚠ CAUTION

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

Load Backrest

The load backrest improves stabilization when loading goods. DO NOT use forklift truck without the load backrest.

Seat Adjustment

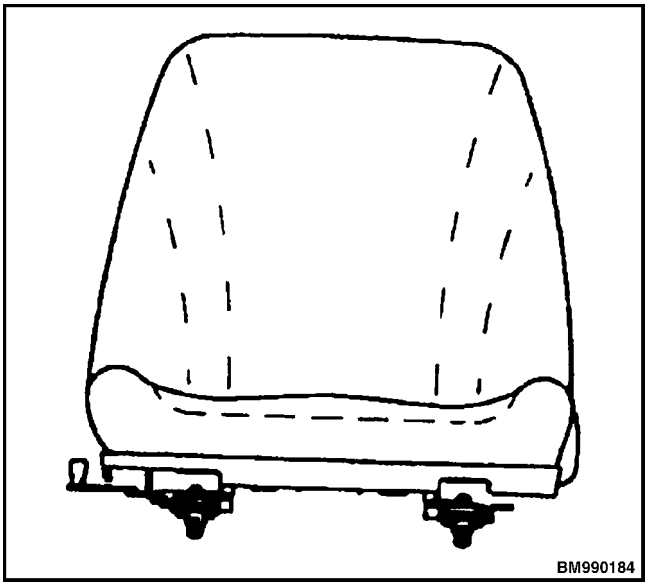


Figure 4. Seat and Seat Adjusting Lever

Adjust operator's seat to desired position, ensuring it provides easy access to all hand and foot controls. Unlock seat by moving the adjusting lever to the right. Before operating truck, make sure that seat is securely locked.

⚠ WARNING

- **Place key in OFF position before adjusting the seat.**
- **DO NOT attempt to adjust the seat while truck is moving.**

Operator Presence System

⚠ WARNING

Always make sure the parking brake is fully applied before leaving the lift truck. If the operator leaves the lift truck without applying the parking brake, a seat activated switch will shift the transmission into neutral. If the truck is left on a grade, without the parking brake fully applied, the lift truck will free wheel down the grade, possibly causing injury or property damage.

These lift trucks are equipped with an Operator Presence System (OPS). The OPS feature has an electrical sensor in the seat which senses the presence of the operator. This allows the engine in internal combustion engines trucks to be engaged only when the operator is in the seat. The OPS is designed with a slight delay in the seat sensor to allow

the operator to reposition himself without disengaging the transmission. When the seat sensor disengages the transmission (neutral position), the operator must select neutral, then re-select a direction to re-engage the traction (travel mode).

A switch in the operator's seat will automatically shift the transmission to neutral within 3 seconds when the operator leaves the seat of the lift truck with the engine running and without applying the parking brake.

Seat Belt

The seat belt provides an additional means to help the operator keep the head and torso substantially within the confines of the truck frame and overhead guard if a tipover occurs. This restraint system is intended to reduce the risk of the head and torso being trapped between the lift truck and the ground, but it cannot protect the operator against all possible injury in a tipover. The hip restraint will help the operator resist side movement. It is not a substitute for the seat belt. Always fasten the seat belt.

This lift truck is equipped with one of the two seat belt configurations.

- Seat belt with no operation interlock.
- Seat belt with operation interlock. Seat belt must be fastened for lift truck to start or to travel.

Overhead Guard.

The OVERHEAD Guard is intended to offer reasonable protection to the operator from falling objects, but cannot protect against every possible impact. Therefore, it must not be considered a substitute for good judgement and care when handling loads. Do not remove the overhead guard.

Hood

The hood can be fully opened to provide easy access when performing maintenance. The hood can be easily lifted with the aid of a hood damper. To lock the hood, push down on the front of hood until it latches.

⚠ CAUTION

Before opening the hood, the hood release should be pulled out.

⚠ WARNING

While performing maintenance under the hood, the engine must be off to avoid injury to hands or other

body parts. The engine can be running in order to troubleshoot some problems. However, DO NOT place body under hood while engine is running.

Radiator Cap and Coolant Reservoir

The reservoir is located inside the hood.

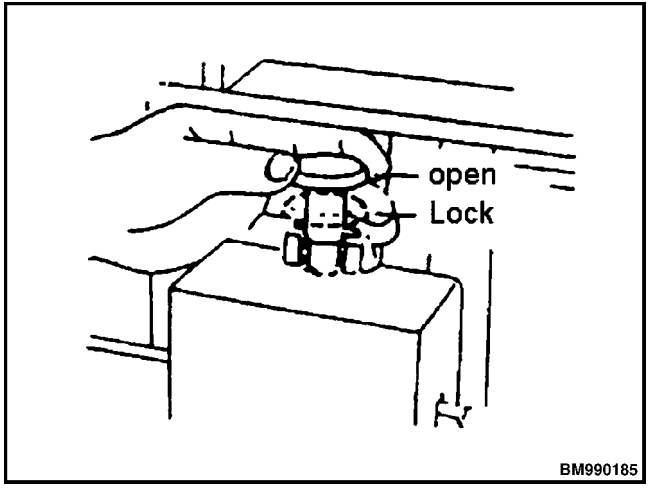
The radiator is located under the radiator cover at the rear of the hood.

⚠ WARNING

- **When the coolant temperature of the engine is higher than 70° C (158°F), DO NOT quickly open the pressure cap of the radiator. Loosen cap slowly to allow steam to escape. After that, tighten cap securely. It is good practice to use a thick waste cloth or the like when removing the cap.**
- **WEAR GLOVES when removing the radiator cap. You may get burnt on your hand if hot coolant splashes on it.**
- **Ethyl glycol antifreeze is harmful to a person. If swallowed, seek medical advice immediately.**
- **Keep antifreeze away from children.**

Fork Position Lock

Used when adjusting the spacing of the forks. Pull the fork positioning pin and rotate 90°. Adjust the fork to the position desired for the material that is to be loaded. Rotate 90° the other way until the pin engages.



⚠ WARNING

- **The forks should be set symmetrically to machine centerline, and fork stoppers should always be set.**
- **The lower beams of the carriage have a cut out section to load or unload forks.**

Brake Fluid Reservoir

The brake fluid reservoir is provided at the left of the cab.

Hydraulic Fluid Reservoir Cap

The hydraulic fluid reservoir cap is located on the right side of the hood. Fill hydraulic fluid through this filler port. The cap is provided with a dipstick. After filling hydraulic fluid, lock the cap.

Operating Instructions

NOTE: Some notices for correct driving operation are introduced here, in order for your truck to maintain good performance, safe use, and frequent operation.

Use of New Truck

The service life of your truck depends on use at the time when the truck is new. In the early stage of 200-h operation, please pay high attention to the following items:

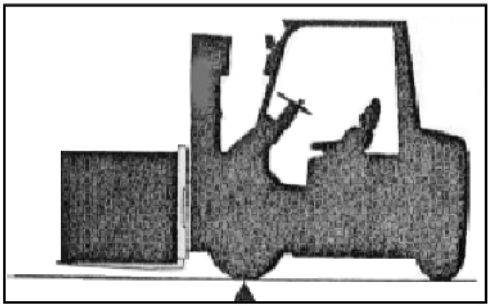
- Follow Periodic Maintenance Schedule.
- Avoid harsh operation, and avoid unreasonable use.
- Add lubricating oil and lubricating grease. Follow Periodic Maintenance Schedule.

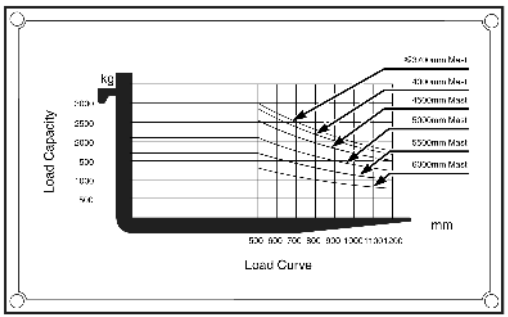
Relationship between Load and Forklift Truck Stability

Within the load curve, the forklift truck takes the center of front wheel as pivot point, to maintain the mutual balance for the load on truck body and fork. Pay attention to the load amount and the load center, to maintain the truck stability.

⚠ WARNING

If it goes beyond the load curve, danger exists for the rear wheel to be raised and under this situation, as the forklift truck may possibly turn over, leading to severe accident. As indicated in the figure, the same result exists with cargo closed to fork tip and increase in cargo weight, while under such circumstances, the loading capacity shall be reduced along with.





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Load Center and Load Curve

Load center is the distance from the front end face of fork to the cargo center of gravity. The above mentioned load curve diagram has indicated the relationship between the truck load center and the allowable load quantity (load allowable for use). The data plate is attached on the truck, and it shall be replaced with a new one, if damaged or lost.

⚠ WARNING

If the truck is equipped with attachments, such as side moving device, bucket, or rotating fork, its load allowable for use that is lower than the corresponding standard trucks (without any attachment) is attributed to the following reasons:

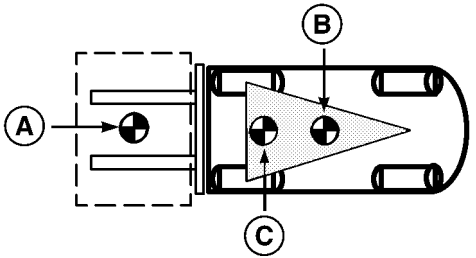
- **Load for weight of equivalent attachments is reduced.**
- **The load allowable for use is reduced in the same principle, as the length of attachments has moved the load center to move forward.**
- **The installation of attachments has moved the load center to move forward, called “Loss of Load Center”.**

- **Avoid exceeding the load allowable according to the load curve pasted on truck or attachments.**

Stability and Center of Gravity

The center of gravity (CG) of any object is the single point about which the object is balanced in all directions.

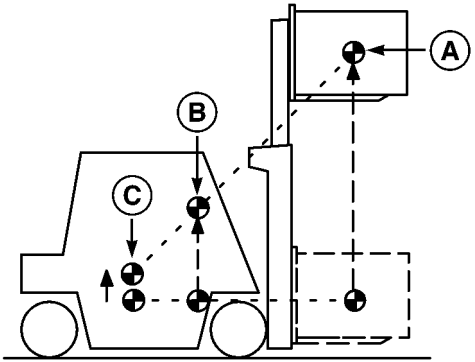
Every object has a CG. When the lift truck picks up a load, the truck and load have a new combined CG.



A. CG LOAD **B.** CG TRUCK **C.** COMBINED CG

The stability of the lift truck is determined by the location of its CG, or if the truck is loaded, the combined CG.

The lift truck has moving parts and therefore has a CG that moves. The CG moves forward and back as the mast is tilted forward and back. The CG moves up and down as the mast moves up and down.

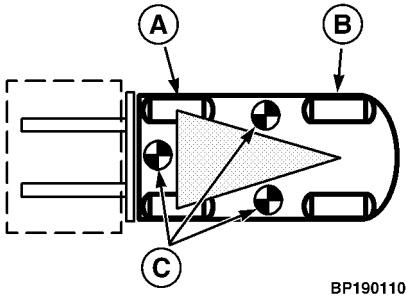


A. CG LOAD **B.** COMBINED CG **C.** CG TRUCK

The center of gravity, and therefore the stability of the loaded lift truck, is affected by a number of factors such as size, weight, shape, and position of the load; the height to which the load is raised; the amount of forward and backward tilt; tyre pressure and the dynamic forces created when the truck is moving. These dynamic forces are caused by things like acceleration, braking, turning, and operating on uneven surfaces or on an incline. These factors must be considered when traveling with an unloaded

truck, as well, because **an unloaded truck will tip over to the side easier** than a loaded truck with its load in the lowered position.

In order for the lift truck to be stable (not tip over forward or to the side), the CG must stay within the area of the lift truck represented by a triangle drawn between the drive axle and the pivot of the steering axle.



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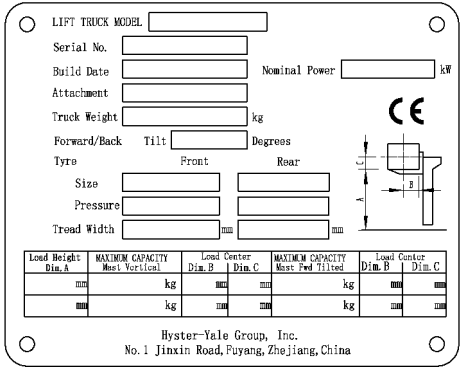
A. DRIVE AXLE **B.** STEERING AXLE **C.** TRUCK WILL TIP OVER

If the CG moves forward of the drive axle, the lift truck will tip forward. If the CG moves outside of the line represented by the lines drawn between the drive wheels and the steering axle pivot, the lift truck will tip to that side.

Capacity (Weight and Load Center)

The capacity of the lift truck is shown on the Nameplate. The capacity is listed in terms of weight and load center. The weight is specified in kilograms and pounds. The load center is specified in millimeters and inches. The capacity is the maximum load that the lift truck can handle, with the mast vertical, for the load condition shown on the Nameplate.



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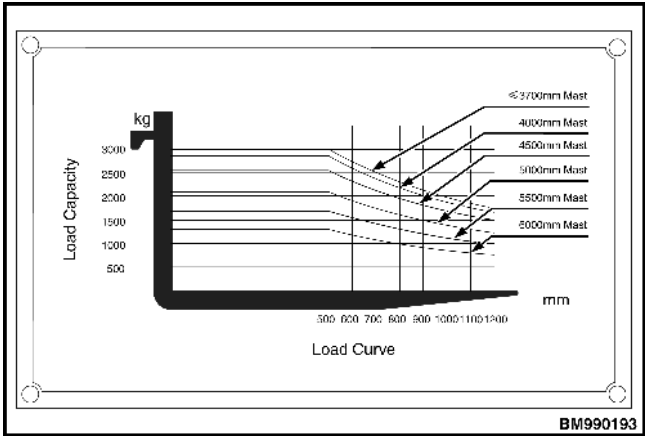


The load center of a load is determined by the location of its center of gravity. The load center is measured from the front face of the forks, or the load face of an attachment, to the center of gravity of the load. Both the vertical and horizontal load centers are specified on the Nameplate.

Loads should be transported while centered on the centerline of the lift truck. The operator must know whether or not a load is within the maximum capacity of the lift truck before the load is handled.

Transporting and Loading-Unloading of Forklift Truck

1. Transporting Forklift Truck

When cargo truck is used for transporting, apply the parking brake, use wheel chocks properly, and tie down straps rated for the weight of the lift truck. This will ensure the lift truck does not shift or move while in transport.

2. Loading-Unloading of Forklift Truck

- Use ramps typical of enough length, width, and strength.
- The parking brake of the cargo truck should be set and wheels chocked.
- The ramps should be placed at the width of the lift truck. Ensure the ramp surface is free of foreign materials.
- The ramps should be the same to ensure a stable operation of vehicle when forklift truck is loaded-unloaded.
- Do not change direction or perform any traverse movement on the ramps.

3. Lifting of Forklift Truck

- Forklift truck shall be lifted by personnel who have been specially trained.
- The properly weight rated lifting straps should be used to hook up the designated lifting position on forklift truck.
- Designated lifting positions are also available for the detachable parts and components on forklift truck.

Inspection Before Operation

Report damage or faulty operation immediately. Do not operate a lift truck that needs repair. A lift truck will only do its job when it is in proper working order. If repairs are required, install a tag in the operator's area stating "DO NOT OPERATE" and remove the key from the key switch if truck is equipped with key switch option.

Checks With the Engine Stopped

Before using the lift truck, make the following checks:

- Condition of forks, carriage, chains, header hoses, mast, attachment, and overhead guard.
- Condition of wheels and tires.
- Seat belt fastens correctly.
- Seat is correctly fastened to its mounts. Hood is correctly latched.
- Condition of the engine compartment. Ensure all surfaces are free of oils, lubricants, fuel, and organic dusts or fibers (paper, wood, cotton, agricultural grass/grain, etc). Remove all foreign materials.
- Coolant level in the cooling system and condition of the drive belts.
- Condition of the radiator and screen. Clean if necessary.
- Fuel level.
- Oil level in the engine.
- Oil level in the hydraulic tank.
- Leaks from the engine, transmission, hydraulic system, and fuel system.
- Loose or missing hardware.
- Check transmission oil level.

Place feet carefully. Always face the lift truck when climbing on or off. Use added care when surfaces are slippery.

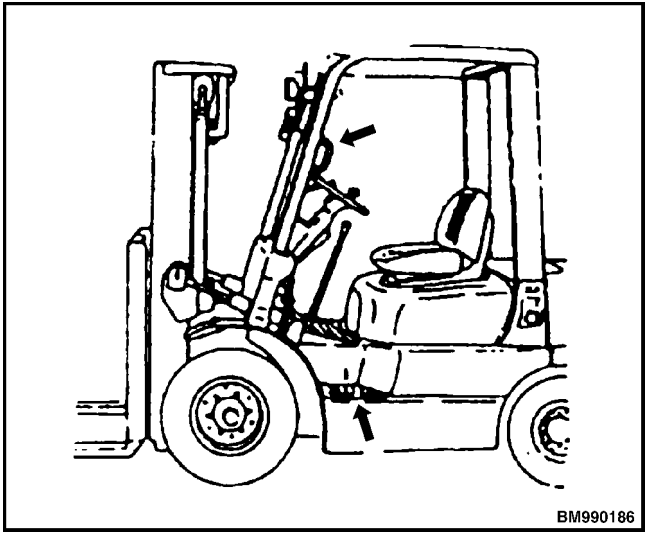
Keep hands free of any obstacles such as food, beverages, or tools.

Mounting and Dismounting

⚠ WARNING

To avoid serious injury when entering or exiting the lift truck, ALWAYS USE 3 POINTS OF CONTACT. Maintain contact simultaneously with two hands and one foot or with two feet and one hand while climbing on or off the lift truck.

Place feet carefully. Always face the lift truck when climbing on or off. Use added care when surfaces are slippery. Keep hands free of any obstacles such as food, beverages, or tools.



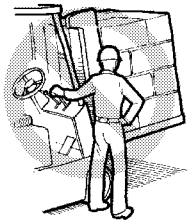
Safety Step and Safety Grip

Safety steps are provided on both sides of the truck body.

The safety grip is located on the front left pillar of the overhead guard. Use both the safety step and safety grip when mounting and dismounting the truck.

Starting Procedure

DO NOT start or operate the lift truck, including any of its functions or attachments, from any place other than the designated operator's position.


BO190112

⚠ WARNING

LPG is very flammable. An odor of LPG fuel can indicate a leak in the fuel system. DO NOT start the engine until the fuel leak is repaired and the atmosphere is free of LPG.

NOTE: Lift trucks have a "Clear Flood Mode" programmed into the ECU. When accelerator is depressed more than 80% during cranking, the ECU will not allow any fuel into the engine. This allows the engine to clear any excess fuel out of the intake manifold and cylinders.

1. If the lift truck uses LPG fuel, open fuel valve on LPG tanks.

2. Make sure that parking brake is applied.

3. Put direction control lever for transmission in **NEUTRAL** position.

4. Make sure lift truck hood is closed.

5. Turn key to the **ON** position. If lift truck is equipped with a diesel engine and engine is cold, the cold start indicator light will illuminate and the cold start circuit will be energized.

6. On lift trucks equipped with a LPG engine, turn the key to the **START** position to engage the starter.

On lift trucks equipped with a diesel engine, if cold start delay is required, the cold start indicator will be illuminated and a countdown time of ten seconds is displayed. When countdown reaches 0, turn the key to the **START** position to engage the starter.

⚠ WARNING

FASTEN SEAT BELT
IF LIFT TRUCK TIPS OVER:

- **DO NOT Jump – Stay On Truck**
- **Hold Firmly To Steering Wheel – Brace Feet – Lean Forward And Away From Impact**

The seat belt is installed to help the operator stay on the truck if the lift truck tips over. IT CAN ONLY HELP IF IT IS FASTENED.

The operator must be aware that the lift truck can tip over. There is a great risk that the operator or someone else can be killed or injured if trapped or hit by the truck as it tips over. The risk of injury can be reduced if the operator stays on the truck. **If the truck tips over, do not jump off!**

Operating Techniques

⚠ WARNING

Before operating the lift truck, FASTEN YOUR SEAT BELT.

BO190114

There are a number of operations, if not performed carefully, that can cause the lift truck to tip. If you have not read the WARNING page in the front of this Operating Manual, do so NOW. As you study the following information about how to properly operate a lift truck, remember the WARNINGS.

NOTE: When the Emergency Locking Retractor (ELR) seat belt is properly buckled across the operator, the belt will permit slight operator repositioning without activating the locking mechanism. If the truck tips, travels off a dock, or comes to a sudden stop, the locking mechanism will be activated and hold the operator's lower torso in the seat.

Lift Truck Interlocks

Certain operator actions, if not performed correctly while operating the lift truck, will cause traction and the hydraulic functions to become disabled.

DRIVE INTERLOCKS: Traction is enabled when the operator is in the seat (occupancy sensor), seat belt should be fastened, a direction of travel is selected, engine is running, and the parking brake is released. If any of the above actions are not performed while operating the lift truck, traction will be disabled. To reactivate traction, the operator must return to the seat. Once the needed actions are completed, traction will be enabled and the operator can continue to load and unload material.

HYDRAULIC INTERLOCKS: The hydraulic functions are enabled when the operator is in the seat (occupancy sensor), seat belt should be fastened, and the engine is running. If any of the above actions are not performed while operating the lift truck, the hydraulic functions will be disabled. The LCD screen on the display panel will provide an icon. Seat Belt Indicator light will be on. To reactivate hydraulics, the operator must return to the seat and fasten seat belt. Once the needed actions are completed, the

hydraulic function will be enabled and the operator can continue to load and unload material.

Starting Forklift Truck

1. Before Starting Forklift Truck

Prior to truck operation, the lift truck should be inspected as to whether or not all the control devices and warning devices are under normal operation. If there is any damage or failure which has not yet been corrected, the lift truck should not be operated.

NOTE: It is not necessary to "pump" the accel pedal, or to hold to the floor before starting. This may cause a failure to start.

Inspect the safety conditions around the truck.

- Check the surroundings around the vehicle.
- Ensure that the gear shift lever and multi-way valve handle are placed in **NEUTRAL** and the parking brake lever is fully engaged.

  a. Start Gasoline/LPG Engine

- Cooling

  Depress the accelerator pedal 2-3 times. Return the preheating start switch to **START** position and start the engine. Release the switch key after starting the engine.

  b. Heat engine

  Depress ½ way and hold the accelerator pedal. Return the preheating start switch to **START** position and start the engine. Release the switch key after starting the engine.

  c. Start Diesel Engine

  Turn the preheating start switch to **ON** position until the preheating indicator goes off. Turn the preheating start switch to **START** position. If it is hard to start the engine, check whether the fuel level is too low, the condition of air mixing in fuel system or whether preheating wire is broken.

2. After Starting Engine

- Preheating the engine (about 5 minutes)
- Check the engine – rotation (sounds or gears)

After the engine is preheated completely, completely operate the handle of multiple unit valve for 2-3 times to check its working condition.

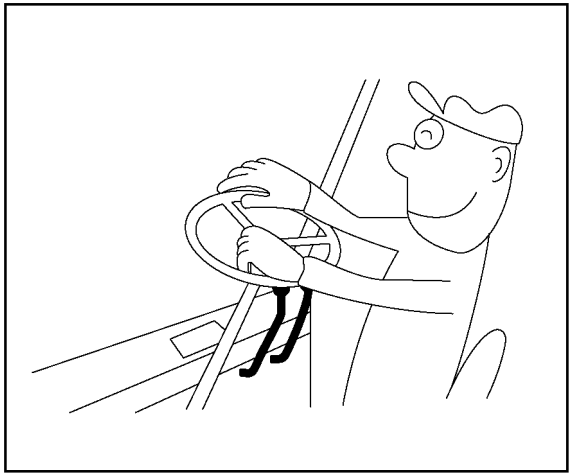
- Check the sounds of fire (or misfire).
- Check air exhaust condition (density).
- Make sure that all indicator lights go off.

Running

1. Operator's Position

While sitting in the seat and wearing the safety belt, ensure your back and waist are as close to the seat back as possible.

Hold the handgrip of steering wheel using left hand, and the right hand is gently put up on the steering wheel and get ready for loading-unloading operation.



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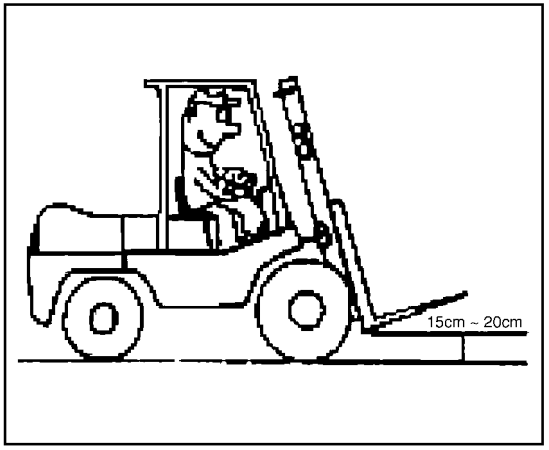
2. Basic Running Conditions

Ensure the bottom surface of the fork is off the ground by 15-20 cm (6-8 in.), and the mast tilts back in place.



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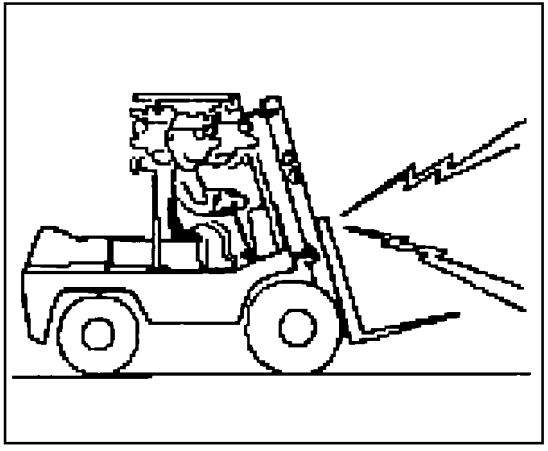
Look around the forklift truck. Signal prior to start of truck. Inspect surroundings for safety.

⚠ WARNING

Some lift trucks have mirrors for viewing along the side to observe their tail swing area. These mirrors are an aid to the driver, but are NOT driving mirrors and must NOT be used as such when operating in reverse.

Always look in the direction of travel to avoid damage to something or injury to someone.



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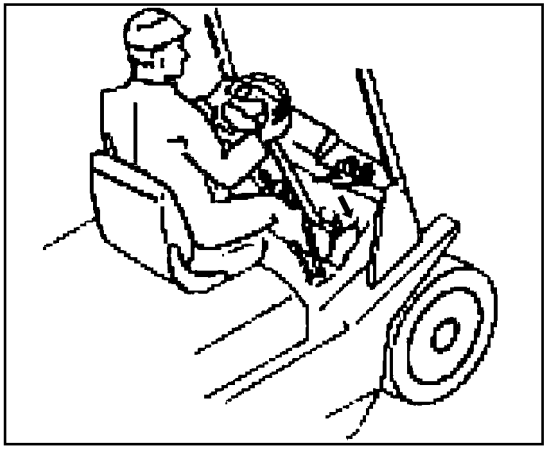

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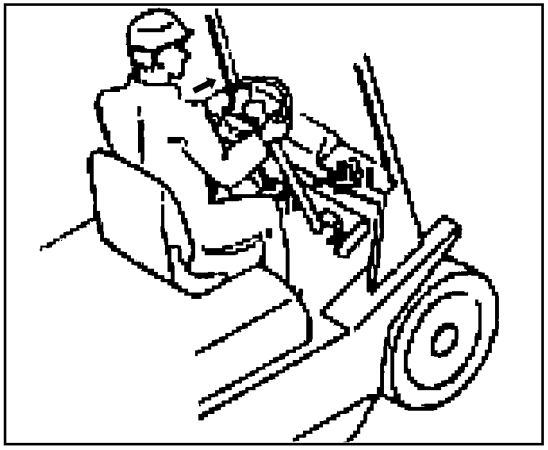

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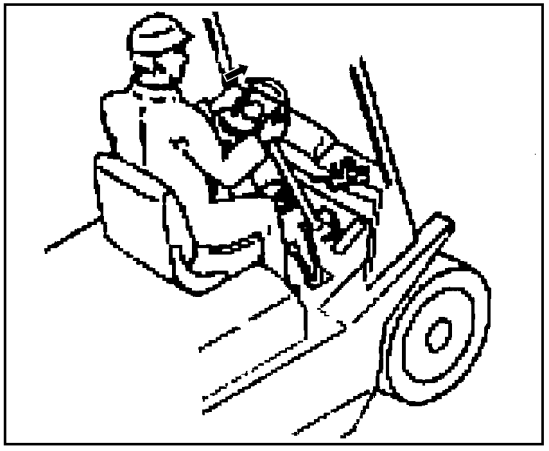
3. Hydraulic Transmission Forklift Truck

a. Depress the brake pedal and operate forward – backward gear shift knob,

b. Release the parking brake handle.



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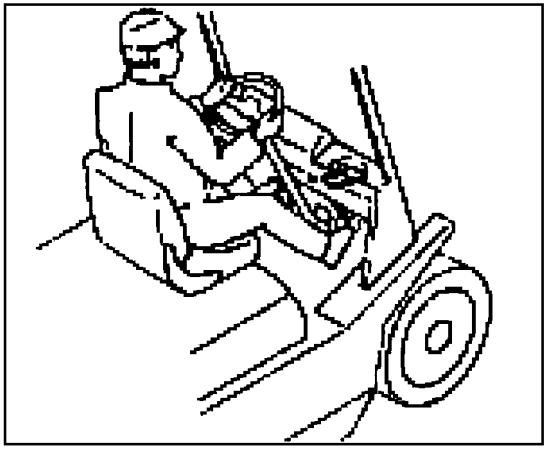

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c. Release the brake pedal and depress the accelerator pedal. The vehicle is operational.

(1) Gear shift.

Releasing the brake enables the truck to start at a higher gear when unloaded, while it is necessary to start the vehicle at low gear under loading condition.

4. Hydraulic Transmission Forklift Truck

a. Deceleration.

(1) Come to a complete stop before changing the travel direction of the vehicle (Forward-Reverse).

⚠ WARNING

The truck must be decelerated (Slowed):

- **At crossroads.**
- **In crowded places pedestrian walkways).**
- **On rough grounds and other rugged surfaces.**
- **Approaching cargo or obstacle.**

⚠ WARNING

Parking

- **Truck to be parked on a level ground – It is the best to park the truck in a spacious place, and if it has to be parked on a slope, park the truck horizontally on the slope, and stop the wheels using wedge blocks, to prevent accidental downslide.**
- **Truck shall be parked in a designated area or a place where traffic is not hindered, and labels or signal lights may be set around the truck, if required.**
- **Truck shall be parked on a firm and hard ground, and it is to be avoided to park the truck on a loose and soft muddy land or a rather slippery pavement.**
- **In the case when lifting system is damaged, and the fork fails to drop on ground, hang a warning flag on the end of the fork, and park the truck in a place where traffic is not hindered.**

NOTE: Parking: Park the truck in the place where traffic is not hindered, and:

- Pull up the handle for parking brake.
- Drop the fork to ground.
- Turn the key switch to **OFF** position, and press the emergency power disconnecting switch.
- Remove the key and keep it properly.

5. Hydraulic Transmission Forklift Truck

Lift foot from the accelerator pedal, and depress the brake pedal if necessary.

a. Steering.

Different from normal vehicles, the steering wheels of forklift trucks are mounted in the rear, which allows the rear to rotate outwards during steering. Slow down (decelerate) the truck, and steer the direction in which the truck is to turn (right/Left). The steering wheel will

rotate somewhat beforehand compared with the truck of front-wheel turning.

b. Stopped or parking.

Decelerate, depress the brake pedal for truck to stop, and place the in **NEUTRAL (N)**. Apply parking brake.

c. Towing Truck for Service

NOTE: If failure occurs with forklift truck during operation, the truck will be towed away for repair, to avoid hindering the operation of other vehicles and personnel.

Loading

1. The spacing of fork should be spread as far as possible stability.

2. The forklift truck and the cargo should be aligned, when forks insert into pallet or directly into cargo.

3. The forks must be inserted into the pallet evenly.

4. Ensure the forks are fully inserted.

5. Cargo Lifting:

a. Lift cargo off ground by 5-10 cm (2-4 in.), and ensure cargo is stable and secure.

b. Tilt the mast backward. Lift the cargo off the ground by 15-20 cm (6-8 in.), and then begin transporting.

(1) Large cargo should be transported in reverse except when climbing a slope.

(2) DO NOT transport cargo by forks alone.

(3) DO NOT drag cargo with forks.

Stacking

NOTE: Inspect the following before operation of forklift truck:

- Ensure that there is no loose or damaged cargo in stacking area.
- Ensure that there are no objects or cargo stacks that may hinder safety in the stacking area.

Stacking should be performed according to the Following procedure:

1. Operate truck at a decelerated speed when the stacking area is approached.

2. Park the truck in front of the stacking area.

3. Ensure it is safe around the stacking area.

4. Adjust the position of forklift truck as needed. Place forklift truck in position where the cargo is to be placed in the stacking area.

5. Ensure the mast is vertical to the ground, and the forks exceed the height of stacked cargo.

6. Inspect the stacking position and slowly move forward to park the truck at a proper stacking position.

7. Ensure that cargo is above the cargo stacking position. Slowly lower the forks, and ensure that cargo has been properly placed.

8. When cargo is not completely placed/stacked on rack or bearer:

a. Lower the cargo until the forks no longer bear the weight.

b. Run the forklift truck backwards by 1/4 length of the forks.

c. Lift the forks by 5-10 cm (2-4 in.). Move the truck forward and place the cargo in a proper stacking position.

9. When cargo is stacked, inspect the operating area behind the forklift truck. If area is safe, run the truck backward to avoid bumping forks and pallet into each other.

10. Ensure that the front part of forks has left the cargo or pallet, and lower the forks to proper operating height.

Unloading

Unloading should be performed using the following procedures:

1. Ensure to operate at a decelerated speed when the truck approaches the cargo to be transported.

2. Park the truck in front of the cargo (30 cm (12 in.) distance between cargo and fork tip).

3. Adjust the position of forklift truck in front of the cargo.

4. Ensure that cargo will not overload the truck.

5. Ensure the mast is vertical to the ground.

6. Ensure the fork position is placed where the cargo is stable. Move the forklift truck forward, until the fork is completely inserted into pallet.

7. When forks will not completely insert into pallet:

a. Insert 3/4 of the forks and raise one side of the pallet 5-10 cm (2-4 in.).

b. When possible, insert the forks completely into the pallet.

8. After forks are inserted into pallet, raise the pallet 5-10 cm (2-4 in.).

9. Ensure the operating area is clear and move the forklift truck until the cargo can be lowered to operating height..

10. Lower the cargo off ground by 15-20 cm (6-8 in.).

11. Tilt mast backwards to ensure the stability of cargo.

12. Transport the cargo to the destination.

Storage

⚠ WARNING

When the truck is in need of repairs for operational or safety issues, this should be reported immediately. The truck should be removed from daily operations until repairs are completed.

1. Before Storage:

The forklift truck should be thoroughly cleaned and inspected according to the following procedure:

a. Remove the oil and grease attached on the truck body using a cloth and clear water, as per requirement.

b. When truck body is cleaned, inspect the overall condition of the truck. It is especially required to inspect whether or not the vehicle body is damaged, whether or not tires are worn or embedded with foreign objects.

c. Fill the oil tank with the specified oil.

d. Inspect for oil leaks.

e. Add lubricating grease as per requirement.

f. Inspect for loose wheel nuts and wear on cylinder rods.

g. Inspect the rotation for roller of mast is smooth.

h. Lift the mast cylinders to highest point and fill cylinder up with oil.

i. In the winter or cold season, the long-acting antifreeze does not need to be released if filled with water. Drain before storage.

2. Routine Storage

The following service and inspections should be performed after Routine Storage is completed.

a. Park the forklift truck in the designated place using wedge blocks for wheels.

b. Place the gear-shift handle to the **NEUTRAL** position, and pull up the parking brake handle.

c. Turn the key switch to **OFF** position, operate the control rod for multi-way valve for a number of times, and release the remaining pressure in the cylinder and the hydraulic liner.

d. Remove the key and have it placed and kept in a safe place.

3. Long Term Storage

The following service and inspections should be performed after Routine Storage is completed.

a. Park the truck high ground in consideration of the rainy season.

b. Remove the battery from the forklift truck. Whether the forklift truck is parked outdoors or indoors, the battery should be placed in a dry, shady, and cool place. If the battery is placed is wet and hot area, ensure to charge once every month.

c. Coat the exposed parts such as cylinder piston rods and the shafts that may possibly be rusted, with antirust oil.

d. Cover the parts and components liable to be affected with inclimate weather.

e. The truck should be operated at least once a week. The oil and grease on piston rods and shafts should be removed. The power supply should be turned **ON** to allow the truck to operate forward and backward. The hydraulic control should be operated for a number of times.

f. Avoid parking the forklift truck on loose and soft pavements in summer.

4. Operation of Forklift Truck after Long Term Storage:

a. Remove the antirust oil from the exposed parts.

b. Remove the foreign substances and water in hydraulic oil tank.

c. Charge the battery, mount it on the forklift truck, and connect with the lead wire of battery.

d. Add coolant to the required level.

e. Carefully inspect everything before starting.

f. Preheat forklift.

Periodic Maintenance

A daily inspection of the forklift truck may avoid truck failure and inability to reach its due service life. The number of hours listed in this section and Regular Maintenance Timetable, based on 8-hour work a day and 200-hours a month.

Detailed records should be kept after inspection, and the records should be retained for 3 years.

- Only trained, qualified personnel can maintain and repair forklift truck.
- Daily and monthly inspections and maintenance may be accomplished by operators.

Periodic Maintenance Requirements

1. Ensure only authentic parts and components are used.

2. Ensure only authentic or designated oils and greases are used.

3. Clean up the oil filler port and grease nipple using brush or cleaning cloth prior to oil or grease addition.

4. The truck should be parked on a level ground for inspection of oil level and oil addition.

5. Preventive Maintenance and service should be regularly performed, and attention should be paid not to injure yourself.

6. When inspecting or repairing suspended forks or attachments, the proper support brace should be used to support the forks or the attachment, to prevent downslide of fork and inner mast.

7. It should be reported to the managerial personnel if any damage or failure is found. It is prohibited to use this forklift truck before it is repaired.

Periodic Maintenance Items

1. Inspection for Leakage of Hydraulic Oil and Transmission Case Oil

a. Inspect whether or not oil leaks exist within the joints of hydraulic drive system.

b. Check whether there are impurities in the fuel.

⚠ WARNING

If a fuel leak is discovered before operations, do not start the truck. Repair before operation.

2. Inspect Tire Air Pressure (Pneumatic Tire)

a. Inspect the condition of the tires. Low air pressure may reduce the service life of tire, and increase electricity consumption. Different air pressures for left and right tires or damage to tire may cause different steering conditions.

b. The data plate attached on the side of the hood of the forklift truck has indicated the tire standard air pressures.

Capacity **Tire Pressure**	**GLP/ GDP20-25UX**	**GLP/ GDP30-35UX**
Front Tire/KPa	860	970
Rear Tire/KPa	860	700

c. Screw off valve cap counterclockwise, and use a tire gauge to measure air pressure of tire. Adjust the pressure to specified value if required, and screw on the lid cap after it is confirmed that there is no air leakage.

d. Inspect whether or not damage exists with the surface/sidewall of tire. Also, inspect the rim for damage.

e. The proper tire air pressure is required in order for trucks to transport heavy loads. Any damage to rim or air pressure variation may cause an accident.

⚠ WARNING

- **After tires and rims have been assembled, all the bolts and nuts shall be tightened to the specified torques. This must occur before air is added to the tires. Tire pressure must not exceed the specified pressure.**
- **When an air compressor is used, the pressure should be properly adjusted. As the maximum output of pressure for an air compressor is very high, it may cause severe accident if it is improperly adjusted.**

3. Inspection of Wheel Hub Nut Torque

a. Inspect whether or not the hub nut torque is correct.

b. All the wheel hub nuts shall be tightened to 470-550 N•m (346-405 lbf ft).

- When wheel hub nut is removed, never remove a separate wheel hub nut by mistake.

- It is very dangerous for wheel hub nut to be torqued improperly. In case, the wheel may come off, leading to turnover of the truck.

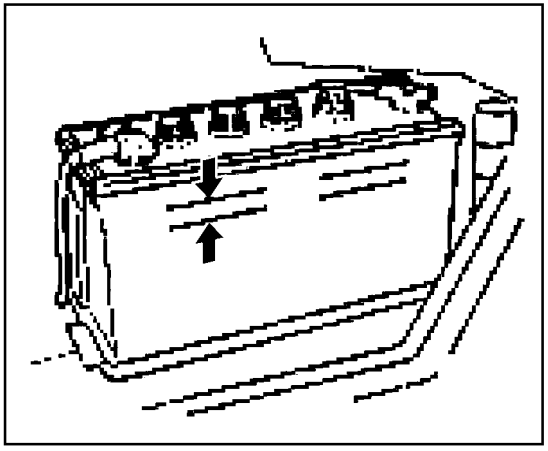
4. Inspection of Overhead Guard

The overhead guard plays a protective function, and it should be ensured that it is firmly mounted and all the structural components are secure and not damaged.

5. Inspection of Brake Fluid Level

Inspect the level of brake fluid reservoir. The fluid level should be between the two scale marks. Ensure dust or water do not enter into the fluid reservoir during addition.

6. Inspection of Battery Electrolyte



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7. Inspection for Quantity of Battery Electrolyte

There are scale lines for upper and lower liquid levels on the battery. The liquid level should be located between the 2 lines.

⚠ WARNING

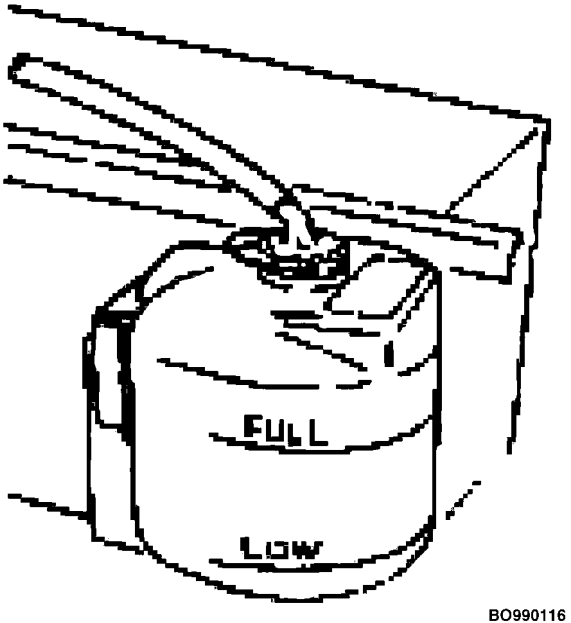
Open fire around the fluid filling hole of battery may generate hydrogen and cause explosion.

8. Coolant Level Inspection

⚠ WARNING

DO NOT remove the radiator cap from the radiator when the engine is hot. When the radiator cap is removed, the pressure is released from the system. If the system is hot, the steam and boiling coolant can cause burns. DO NOT remove the cover for the radiator when the engine is running.

Inspect the liquid level of the coolant tank. The liquid level should be between the lower and upper scale marks. Add coolant if necessary.



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9. Engine Oil Level Inspection

Engine oil level gauge is located on the left side of the engine. Remove the oil level gauge and insert it again after

cleaning to check whether the oil level is located between two scale lines.

10. Fan Belt Tension Level Inspection

Inspect the tension of the fan belt and whether it is damaged by pressing the middle part of the belt between the water pump and generator.

⚠ WARNING

The engine must be turned OFF when checking the tension of the fan belt.

11. Inspection of Rear Combination Light

Inspect whether or not damage exists with the rear combination light (tail light, parking light, and reverse light).

12. Level of Hydraulic Oil Inspection

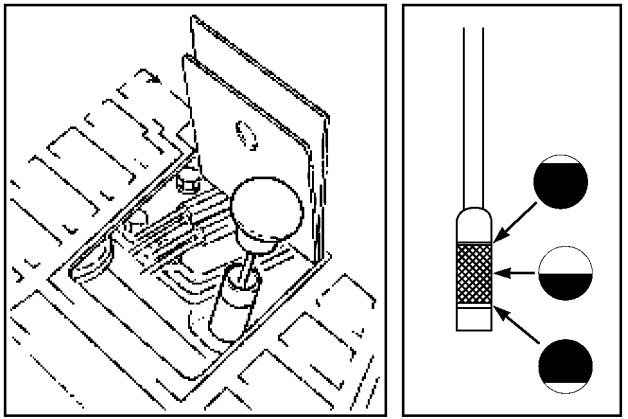
Inspect the hydraulic oil level using the dipstick. Remove the dipstick and wipe it off. Re-insert it and then pull it out to see whether or not the oil level is located between the high and low two scale lines.

NOTE: Power supply shall be turned **OFF**. The forks should be dropped to the ground and the forklift truck should be parked on a level surface when oil level is inspected.

13. Pipeline of Cylinder Inspection

Visually inspect whether or not oil leaks exists with hydraulic lifting and tilting cylinders.

14. Power Shift Gearbox Oil Level Inspection



BO990117

Hydraulic Transmission Forklift Truck

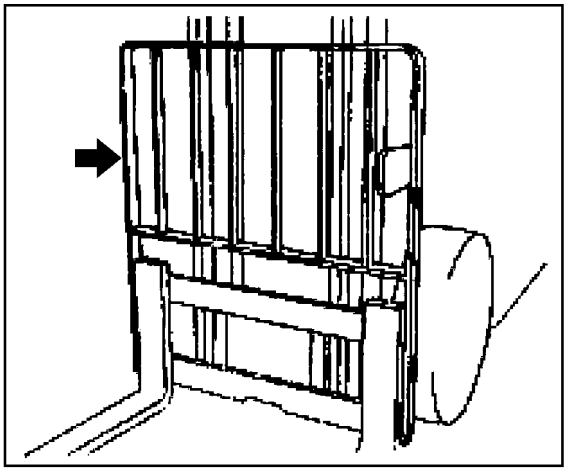
Open the inspection cap and remove the filler cap. Check the oil level gauge to ensure that the oil level is at the proper level. If necessary, add proper hydraulic oil.

1. Inspection of Backrest

Inspect whether or not the mounted bolts for backrest are secure. They should be tightened when required.

2. Fork and Fork Positioning Pin Inspection

Inspect the mounting condition of positioning pin and whether or not the forks are distorted or cracked.



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3. Front Headlight and Front Combination Light Inspection

Inspect whether or not the lamp screens are clean or damaged.

4. Seat Adjustment

Ensure that the seat is at a proper position. To adjust, pull the adjusting handle rightward. Ensure the seat position

where it is easy for foot and hand operations. After adjustment, ensure that it is reliably locked up.

5. Inspection of Reverse Handle

Inspect whether or not reversing handle is operational.

6. Inspection of Multi-way Valve Operating Handle

Inspect whether or not operating handles (Lifting, Tilting, and Attachments) are operational.

7. Inspection for Operation of Parking Brake

Ensure that the parking brake is safe and reliable, after the parking brake handle is activated.

Preparation prior to Start

Before turning **ON** the power supply, ensure that the gear-shift handle is located in **NEUTRAL**, and parking brake is activated.

8. Instruments

Hourmeter, trouble meter and running speedometer enable operators to understand the condition of truck during operation.

9. Inspection of fuel volume

The fuel gauge is installed on the instrument panel. Check whether the fuel volume can satisfy the requirements of a day's working use.

10. Lamplights

Turn on the light switch, and confirm that corresponding lights are all under normal conditions.

11. Inspection of Turn Signal

Operate the turn signal handle to ensure the normal work of turn signal.

12. Inspection for Operation of Horn Pushbutton

Press the horn pushbutton to ensure whether or not the horn sounds.

Mechanical Transmission Forklift Truck

1. Idle Stroke of Brake Pedal Inspection

Press the brake pedal and inching pedal (only applies to hydraulic transmission forklift truck) to ensure the actions of all pedals are operational and the pedals can reset without interference.

2. Mast Operation Inspection

Press the horn and operate the lifting and tilting handle to ensure the lifting and lowering of the fork arm is normal and the tilting of the mast is stable. Ensure the cylinder piston can operate to the end of travel. The working condition and sound of overflow valve is normal. Pay attention to the sound of system operation.

3. Inspection of Tensioning Degree for Lifting Chain

Inspect the tensioning condition of lifting chain and whether or not damage exists.

When tensioning condition is inspected, the forks should be lifted by about 5 cm (2 in.) and the middle part of the chain is pushed and pressed by using thumb. Ensure whether or not the tensioning conditions of left and right chains are consistent, while the locking nut (A) for the fixed pin is loosened and the adjusting nut (B) is screwed and adjusted to adjust the chains.

NOTE: Use mechanical oil (such as hydraulic oil) for lubrication of lifting chains, and avoid using lubricating grease.

4. Steering Wheel Free Stroke Inspection

Inspect the rotation as well as the axial loosening condition of steering wheel. The normal free stroke is 50-100 mm (2-4 in.), and axial loosening is not allowed.

5. Inspection of Air Exhaust

Inspect the air exhaust condition after the engine has reached operating temperature..

Inspect whether there are abnormal sounds or variations in engine and driving system.

No color or light blue	normal: complete combustion
Black	abnormal: incomplete combustion
White	abnormal: burn oil

NOTE: Because the engine exhaust air is harmful and may cause danger of poisoning when starting in a closed space. Ensure there is sufficient oxygen. Regularly inspect the volume of exhaust air emission. Inspection of air exhaust should be vented outdoors and be careful to avoid fire. Be careful of the leakage of oil or other fuel materials. Do not leave waste cloth or paper on the engine body and place the fire-extinguishing equipment in proper position.

Running at low speed – (in a safe place)

Ensure to recheck the volume of exhaust air and comply with the requirements of specified government rules and regulations after the engine is repaired or adjusted.

6. Inspection of Inching Pedal

a. Slightly press the inching pedal to check the deceleration condition of the vehicle.

7. Inspection of Brake

Operate the truck at a slow speed and depress the brake pedal to examine the braking effect. The brake light turns on after the brake pedal is pushed down.

8. Inspection of Steering

Turn the steering wheel when truck is running at a slow speed and observe whether or not the left and right steering forces are consistent, and whether or not other abnormal effects exist.

9. Inspection of Parking Brake

⚠ WARNING

If the park brake switches are not adjusted correctly, the engine can be started with the park brake released.

The purpose of the left-hand mounted switch is to prevent the started motor from being energized when the parking brake is not applied. The right-hand mounted switch de-energizes the forward/reverse solenoids to put the transmission in neutral when the park brake is set.

Check the operation of the parking brake. The operator must adjust the parking brake so the lift truck does not move if parked on an incline. The parking brake, when in good condition and correctly adjusted, will hold a lift truck with a capacity load on a 15% grade, a slope that increases 1.5 m in 10 m (1.5 ft in 10 ft).

Turn the adjustment knob at the bottom of the lever to adjust the parking brake. Do not tighten the adjustment so that the brake is applied when the lever is released. The lever for the parking brake has a lock. Use your thumb or finger to release the lock on the lever when the parking brake is locked.

10. Inspection of Reverse Light and Reverse Buzzer

The reverse light turns on and the reverse buzzer sounds when direction control handle is placed in **REVERSE** gear.

Periodic Maintenance

1. When the Indicator of Oil-Water Separator Lights up:

a. Turn **OFF** the engine, rotate (A) section for 4 to 5 circles to loosen water drainage screw plug. Keep pressing pump (B) until water completely flows out of the oil-water separator.

b. Tighten the water drainage screw plug and press the pump (B) for several times to check whether the screw plug has leakage.

c. Ensure the indicator light goes off after starting the engine.

2. Air Exhaust of Fuel System

a. Turn **OFF** the engine and loosen the exhaust plug (C) on injection pump. Press the pump to exhaust air until the fuel flows out of the screw plug.

b. Tighten the exhaust plug to ensure that no fuel leaks.

3. Replacement of Fuse

Fuses are able to protect electrical systems and to prevent over-high current. If it occurs that some part fails to work, possibly the corresponding fuse is already burned out. It must be replaced with a fuse wire of the same capacity.

4. Replacement or Repair of Tire

a. Front Wheel

(1) Park the truck on a firm and hard pavement and turn **OFF** the engine.

(2) Pull up the parking brake handle and block wheels using a wedge block. Place the jack under the truck body.

(3) Jack up the truck and keep the tire on the ground. Loosen the nuts for wheel hub, but don't remove the tire.

(4) Continue jacking up the truck until the tire is off the ground. Take off the nuts and remove the tire.

(5) The installation of the tire is opposite to the disassembly sequence. The wheel hub nuts should be tightened up in a diagonal order.

Inspect the tire air pressure after it has been assembled.

b. Rear Wheel

The procedure is the same as the repair and replacement methods for the front wheel, except that the jack should be placed under the counter weight.

Forks

The identification of a fork describes how the fork is connected to the carriage. These lift trucks have hook forks.

Forks, Remove

⚠ WARNING

DO NOT try to move a fork without a lifting device. Each hook fork for these lift trucks can weigh 45 to 115 kg (99 to 253 lb).

NOTE: Forks are to be replaced only in sets and not individually.

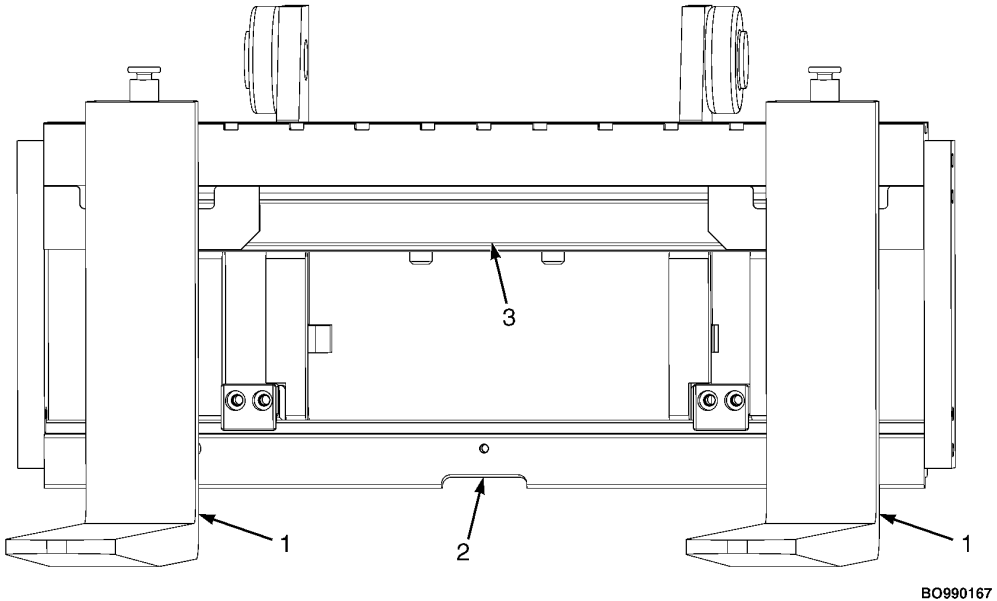
NOTE: If lift truck is equipped with a fork positioner attachment, perform **Step 1** and **Step 2**. If lift truck is not equipped with a fork positioner attachment, go to **Step 2**.

1. Lower carriage and remove four capscrews from inner fork carriers. Remove inner fork carriers from integral sideshift carriage. See **Figure 5**.

2. A fork can be removed from the carriage for replacement of the fork or other maintenance. Slide a hook fork to the fork removal notch on the carriage. See **Figure 6**.

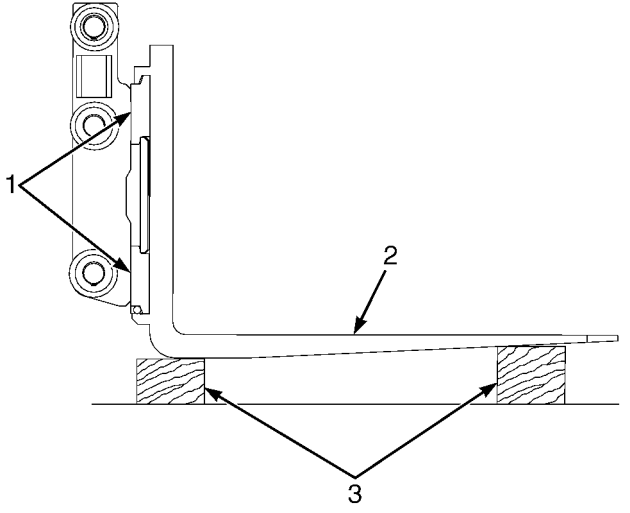
Lower the fork onto blocks so that the bottom hook of the fork moves through the fork removal notch. See **Figure 6**.

Lower the carriage further so that the top hook of the fork is disengaged from the top carriage bar. Move the carriage away from the fork, or use a lifting device to move the fork away from the carriage.



1. FORK
2. FORK REMOVAL NOTCH
3. INNDER SLIDE FRAME

Figure 5. Carriage and Forks



1. CARRIAGE BARS
2. HOOK FORK
3. BLOCKS

Figure 6. Remove a Hook Fork

Forks, Inspect

⚠ WARNING

DO NOT try to correct for tip alignment by bending the forks or adding shims. Replace bent forks.

Never repair damaged forks by heating or welding. Forks are made of special steel using special procedures. Replace damaged fork. Forks are to be replaced only in sets and not individually.

1. Inspect the forks for cracks and wear. Check that the fork tips are aligned as shown in **Figure 7** . Check that the bottom of the fork is not worn (Item 4 in **Figure 7**).

⚠ CAUTION

Remove fork latch pins if adding a fork positioner attachment. Damage to forks and other carriage components can occur if fork latch pins are not removed prior to using attachment.

2. Replace any damaged or broken parts that are used to keep the forks locked in position.

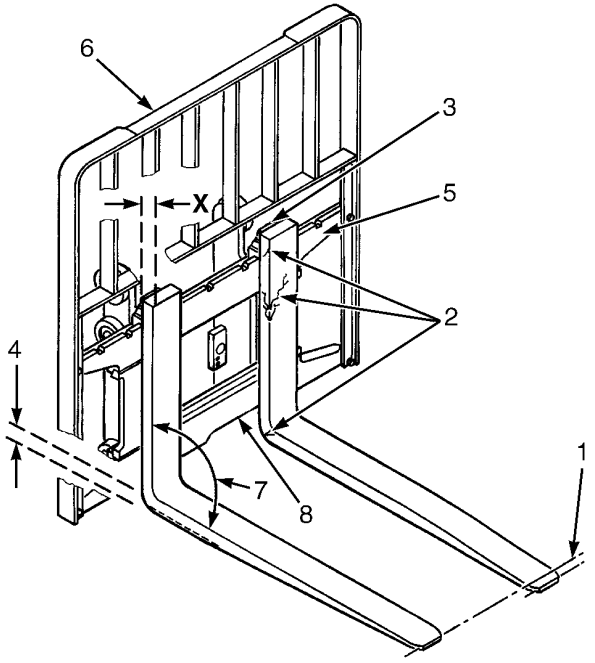
3. Inspect fork wear. Ensure heel wear is not more than 10% of original thickness. if fork wear is more than 10%,

fork must be replaced or rerated. Perform fork wear inspection using a BOL256N1 caliper ruler as follows. See **Figure 7**.

a. Determine normal thickness of "N" of fork using scale or ruler portion of caliper ruler. Measurement has to be done on fork shank using caliper ruler.

b. Position caliper at end of heel internal radius (item 4, **Figure 7**) with opening corresponding to measured thickness of fork shank in **Step a** above. (e.g. for N 1.75 use N 1.75 opening). This is typically the section of fork where wear is greatest. Note that opening distance has been reduced by 10% from nominal thickness.

c. If fork enters opening, it is mandatory to replace it. DANGER OF BREAKING. Furthermore, a 10% reduction in fork blade thickness results in 20% reduction in operating capacity.



Fork Tip Alignment	
Length of Forks	**3% Dimension**
914 mm (36 in)	27 mm (1.08 in)
1016 mm (40 in)	30 mm (1.2 in)
1067 mm (42 in)	32 mm (1.26 in)
1207 mm (47.5 in)	36 mm (1.42 in)
1219 mm (48 in)	37 mm (1.46 in)
1372 mm (54 in)	41 mm (1.61 in)
1524 mm (60 in)	45 mm (1.81 in)
1829 mm (72 in)	55 mm (2.17 in)

1. TIP ALIGNMENT (MUST BE WITHIN 3% OF FORK LENGTH)
2. CRACKS
3. LATCH DAMAGE
4. HEEL OF FORK (MUST BE 90% OF DIMENSION “X”)
5. CARRIAGE
6. LOAD BACKREST EXTENSION
7. MAXIMUM ANGLE 93°
8. FORK REMOVAL NOTCH

Figure 7. Forks Check

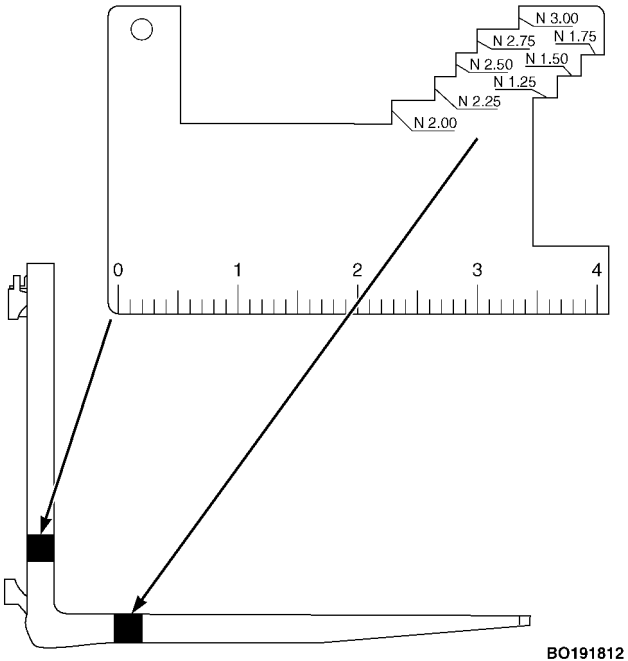


Figure 8. Fork Wear

Forks, Install

1. Move the fork and carriage so that the top hook on the fork can engage the upper carriage bar. Raise the carriage to move the lower hook through the fork removal notch. Slide the fork on the carriage so that both upper and lower hooks engage the carriage. Engage the lock pin with a notch in the upper carriage bar.

2. If lift truck is equipped with a fork positioner attachment, install fork carriers using four capscrews. Tighten capscrews to 35 N•m (25 lbf ft).

Periodic Maintenance Tables

This timetable is set based on the standard working time and operating conditions. Perform the maintenance at regular intervals (C = Check, R = Replace). See **Table 2** through **Table 10**.

Table 2. Engine

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Engine	Visually inspecting engine running condition		C	C	C	C	C
	Sound of engine		C	C	C	C	C
	Exhaust color		C	C	C	C	C
	Cleaning or replacing air filter core			C	C	R	R
	Inspecting crankcase and cleaning scale				C	C	C
	Inspecting and adjusting valve clearance	Thick Feeler Gauge				C	C

Table 2. Engine (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Engine (Continued)	Torquing cylinder head bolt	Torque Wrench		C Only first for gasoline engine			C Only for C240 Diesel Engine
	Inspecting cylinder compression pressure	Pressure Gauge					C
Crankshaft Ventilation Device	Inspecting the blocked or damaged condition of valve and pipe					C	C
Speed Governor or Injection Pump	Inspecting the maximum rotational speed at no load	Tachometer					C

Table 2. Engine (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Lubrication System	Whether or not oil leak with engine		C	C	C	C	C
	Inspecting oil volume and cleanliness		C	C	C	C	C
	Replacing engine oil			R 50 Hours for First Time	R	R	R
	Replacing engine oil filter core			R 50 Hours for First Time	R	R	R

Table 2. Engine (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Fuel System	Visually inspecting whether or not oil leak with oil pipe, oil pump, and oil tank		C	C	C	C	C
	Inspecting whether or not fuel filter is blocked				C	C	C
	Cleaning fuel filter (gasoline engine)				C	C	R
	Replacing fuel filter (diesel engine)				R	R	R
	Inspecting nozzle, and adjusting pressure condition (diesel engine)	Inject test machine				C	C
	Inspecting loosening condition for the connecting mechanism and cleanliness of carburetor				C	C	C

Table 2. Engine (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Fuel System (Continued)	Ignition moment (diesel engine)	Time Meter			C	C	C
	Jet moment (diesel engine)						C
	Water discharge for fuel tank				C	C	C
	Cleaning fuel tank					C	C
	Inspecting fuel volume		C	C	C	C	C
Cooling System	Coolant volume		C	C	C	C	C
	Leaking condition		C	C	C	C	C
	Rubber hose ageing condition				C	C	C
	Performance and installation condition of radiator cover			C	C	C	C
	Cleaning or replacing coolant				R	R	R
	Inspecting tensioning force and damage condition for belt of fan		C	C	C	C	C

Table 3. Power Transmission

Item	Inspecting Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Hydraulic Transmission Case	Leaking condition		C	C	C	C	C
	Inspecting oil volume and replacing oil			C	C	R	R
	Operating and loosening condition of gear-shift lever			C	C	C	C
	Performance of control valve and hydraulic clutch		C	C	C	C	C
	Performance of inching valve		C	C	C	C	C
	Idle stroke and movement condition of inching pedal		C	C	C	C	C
	Replacing oil suction filter core			R 200 Hours for First Time		R	R

Table 3. Power Transmission (Continued)

Item	Inspecting Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Front Axle	Leaking inspecting		C	C	C	C	C
	Replacing oil					R	R
	Loosening condition of mounting bolt	Detection Hammer		C	C	C	C

Table 4. Wheel

Item	Inspecting Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Tire	Charged pressure	Tire Gauge	C	C	C	C	C
	Crack or damage		C	C	C	C	C
	Ground touchdown wearing condition			C	C	C	C
	Abnormal wear condition	Depth Gauge	C	C	C	C	C
	Whether or not nail, stone, or other foreign substance present on tire			C	C	C	C
Tire Installation	Whether or not nuts are loosened to be inspected	Detection Hammer	C	C	C	C	C
	Damage condition to be inspected		C	C	C	C	C
Wheel Rim Wheel Spoke	Damage condition of wheel rim, rim spoke, and Disc wheel		C	C	C	C	C

Table 4. Wheel (Continued)

Item	Inspecting Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Axle Bearing	Loosening and noise to be inspected			C	C	C	C
	To be wiped up and refilled with lubricating oil					R	R
Axle	Distortion, crack, and damage condition of axle body to be inspected			C	C	C	C

Table 5. Steering System

Item	Inspecting Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Steering Wheel	Clearance to be inspected		C	C	C	C	C
	Axial loosening to be inspected		C	C	C	C	C
	Radial Loosening to be inspected		C	C	C	C	C
	Operating condition to be inspected		C	C	C	C	C
Steering Gear	Whether or not mounting bolts are loosened to be inspected			C	C	C	C

Table 5. Steering System (Continued)

Item	Inspecting Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Steering Knuckle of Rear Axle	Whether or not the king pin is loosened or damaged to be inspected			C	C	C	C
	Bend, distortion, crack, or damage condition to be inspected			C	C	C	C
	Installation condition to be inspected	Detection Hammer		C	C	C	C
Steering Cylinder	Operating condition to be inspected		C	C	C	C	C
	Whether or not leaks exists to be inspected		C	C	C	C	C
	Whether or not loosening exists during installation to be inspected			C	C	C	C

Table 6. Brake System

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Brake Pedal	Idle stroke		C	C	C	C	C
	Pedal stroke	Diving Ruler	C	C	C	C	C
	Operating condition		C	C	C	C	C
	Whether or not air present in brake line		C	C	C	C	C
Parking Brake Control	Whether or not brake is safe and reliable and brake stroke is enough		C	C	C	C	C
	Control performance		C	C	C	C	C
Rod, and Guy Cable, etc.	Control performance		C	C	C	C	C
	Whether or not connection is loosened		C	C	C	C	C

Table 6. Brake System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Lines	Damage, leakage, and cracks			C	C	C	C
	Connecting and clamping parts, or loosening condition			C	C	C	C
Brake Master Cylinder and Wheel Cylinder	Leakage condition			C	C	C	C
	Oil level to be inspected for oil replacement		C	C	C	R	R
	Master cylinder and wheel cylinder action condition						C
	Wear or damage condition of master cylinder and wheel cylinder						C
	Master cylinder and wheel cylinder leakage and damage condition						R

Table 6. Brake System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Brake Drum and Brake Shoe	Whether or not mounting parts of brake drum are loosened	Detection Hammer		C	C	C	C
	Wearing condition of friction plate	Vernier Calipers					C
	Condition of brake show action						C
	Whether or not fixed pin is rusted						C
	Damage condition of return spring	Diving ruler					C
	Whether or not operating time interval of automatic regulating device is proper to be inspected						C
	Wear and injury condition of brake drum						C

Table 6. Brake System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Brake Bottom Plate	Whether or not bottom plate is distorted						C
	Whether or not cracked						C
	Whether or not loosening exists during installation						C

Table 7. Lifting System

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Fork	Damage, distortion, and wear condition of forks		C	C	C	C	C
	Damage and wear condition of positioning pin				C	C	C
	Crack and wear condition of welded parts for hook at root-age of forks			C	C	C	C

Table 7. Lifting System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Mast Fork Carriage	Whether or not welded place on inside mast/outside mast and cross beam is cracked or damaged			C	C	C	C
	Whether or not welded place of tilting cylinder bracket and mast is under poor connecting condition, cracks, or damaged			C	C	C	C
	Whether or not welding of inside/outside mast is under poor connecting condition, cracked or damaged			C	C	C	C
	Whether or not welding of forks is under poor connecting condition, cracked or damaged			C	C	C	C

Table 7. Lifting System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Mast Fork Carriage (Continued)	Whether or not roller is loosened			C	C	C	C
	Wear and damage condition of bearing brush for mast						C
	Whether or not bolts for support cover of mast is loosened			C		C	C
	Whether or not bolts for bottom of lifting cylinder, bolts for head of piston rod, u-bolts, and bolts for guide rail of walking beam are loosened			C		C	C
	Crack and damage condition of roller and roller shaft			C	C	C	C

Table 7. Lifting System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Chain and Sprocket	Tensioning condition, whether or not distorted, damaged, or rusting of chain to be inspected		C	C	C	C	C
	Oil to be added to chain			C	C	C	C
	Riveted pin and loosening condition			C	C	C	C
	Sprocket distortion and damage condition			C	C	C	C
	Whether or not chain sprocket bearing is loosened			C	C	C	C
Attachments	Whether or not condition is normal to be inspected			C	C	C	C

Table 7. Lifting System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Lifting Cylinder	Whether or not piston rod, piston rod thread, and connection are loosened, as well as distortion and damage condition	Detection Hammer	C	C	C	C	C
	Operating condition		C	C	C	C	C
	Leakage condition		C	C	C	C	C
	Wear and damage condition of pin and cylinder steel-backed bearing			C	C	C	C
Hydraulic Pump	Whether or not oil leak or noise exists with hydraulic pump		C	C	C	C	C
	Wearing condition of driving gear for hydraulic pump			C	C	C	C

Table 8. Hydraulic System

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Hydraulic Oil Tank	Oil quantity to be inspected, or oil to be replaced		C	C	C	C	C
	Suction oil filter core to be cleaned up					C	C
	Foreign substance to be removed					C	C
Return Oil Filter	Return oil filter to be replaced					R	R
Control Valve Rod	Whether or not connection is loosened		C	C	C	C	C
	Operating condition		C	C	C	C	C

Table 8. Hydraulic System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Multi-way Valve	Oil leakage		C	C	C	C	C
	Operating condition of safety valve and tilting auto-locking valve			C	C	C	C
	Safety valve pressure to be measured	Oil Pressure Gauge				C	C
Line Joint	Leakage, loosening, crack, distortion, or damage condition		C	C	C	C	C
	Line to be replaced						R 1-2 Years

Table 9. Electrical System

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Ignition Device (Gasoline Engine)	Whether or not distributer cap is cracked				C	C	C
	Whether or not spark plug is burned out						C
	Adjusting the clearance of spark plug	Feeler Gauge			C	C	C
	Cleaning the clearance of spark plug				C	C	C
	Mounting condition of cover and HP wire						C
	Whether or not distributor is burned out						C
	Wear and injury condition of center part for distributor						C

Table 9. Electrical System (Continued)

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Ignition Device (Gasoline Engine) (Continued)	Filling lubricating oil to rotating shaft				C	C	C
	HP wire breakage condition						C
Start Motor	Pinion meshing condition				C	C	C
Battery	Electrolyte volume and cleaning			C	C	C	C
	Inspecting specific weight of electrolyte				C	C	C
Electric Wire	Wire harness injury and loosening condition			C	C	C	C
	Loosening condition of connection for electric circuit				C	C	C

Table 10. Seat, Frame, and Oil

Item	Inspection Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours	Semi-annually (1200 Hours)	Annually (2400 Hours)
Seat	Whether or not bolts are damaged or loosened to be inspected					C	C
Frame	Whether or not truck frame and crossbeam are damaged or cracked						C
	Whether or not rivets or bolts are loosened	Detection Hammer					C
	Repaired place to be inspected, if required		C	C	C	C	C
	Comprehensive inspection						C
Lubricating Grease to be Added or Oil to be Replaced	Lubricating condition of underpan to be inspected after cleaning	Grease Gun	C	C	C	C	C
	Oil in tank to be inspected						C

- When oil is different from that specified for this truck, its replacement cycle cannot be the same as that specified in this Manual. In this situation, the time for replacement should be shortened by ½ or 1/4 compared with the time specified in this Manual.
- Though high-viscosity oil has a wide operating temperature range, frequent replacement is still required. The additive will slowly deteriorate, viscosity will be lowered, and it will damage the hydraulic system severely at the time of high temperature.

Hoisting, Handling, and Towing of Forklift Truck

Hoisting Forklift

Tighten the cable on the two end holes of the outer mast beam and on the holes of the counterweight, then hoist the forklift using lifting device. Refer to the decal for exact hoisting locations

⚠ WARNING

- **Do not wrap the cable around the overhead guard when lifting.**
- **The cable and lifting device should be strong and heavy enough to sustain the forklift.**
- **Do not hoist the forklift through the driver cabin (Overhead Guard).**
- **Do not stand or go anywhere under the hoisting forklift.**

Handling

Forklift is normally used in loading/unloading cargos and short distance transport. It is not suitable means for long distance transport. When the forklift truck need to be moved to a long distance, vessels, trains and heavy trucks with 5 Tons and above rated capacity must be prepared to do the transport. To avoid displacement, the tires of the forklift must be supported with wedges and the forklift body must be firmly fastened.

Towing

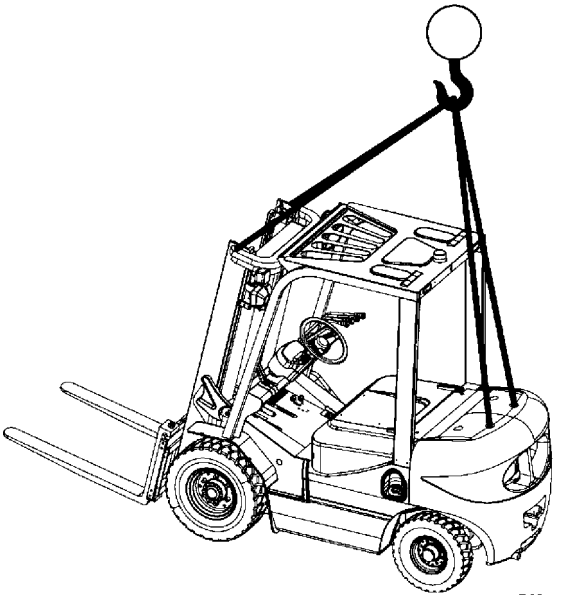
The tow pin under the counterweight is set for traction of the forklift. Tie the cable around the pin and reinstall the pin to start towing.

Method of traction after forklift being damaged: release the park brake and set the gear to neutral. Pay attention to the ambient traffic and hang a seeable Being Towed mark on the truck.

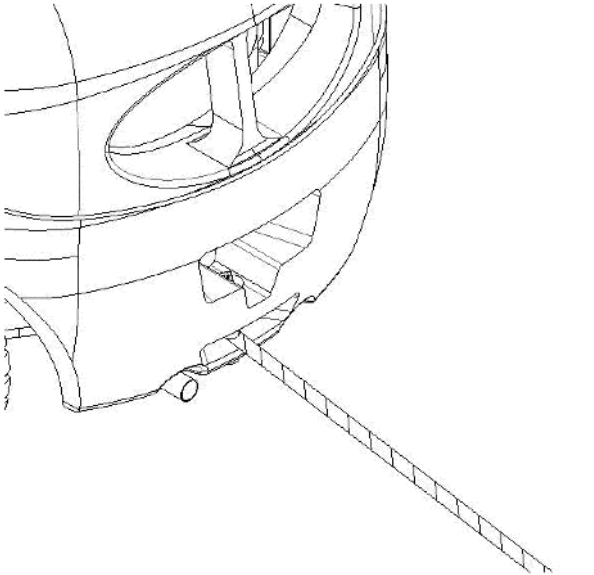
⚠ WARNING

- **Do not apply traction to forklifts that have problems with steering system or damaged brake system.**
- **Do follow the traffic rules when applying traction of the forklift trucks.**
- **Do not tie the cable to locations unadvised.**

- **Do not place or apply abrupt force on the cable.**



BM990188



BM990189

1. The towed lift truck must have an operator.

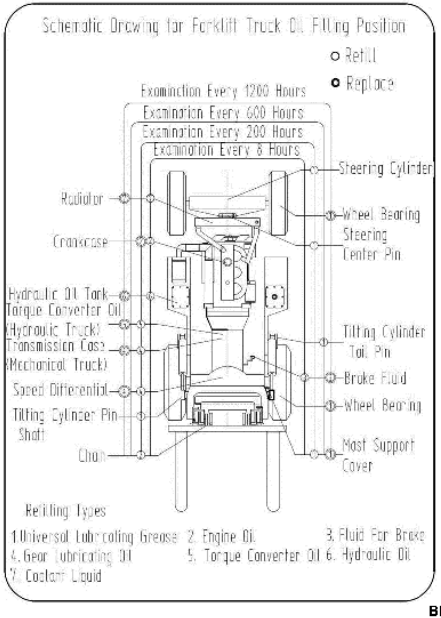
2. Tow the lift truck slowly.

3. Using a lift truck or a lifting device that can be attached to the mast (i.e., come-a-long), raise the carriage and forks approximately 30 cm (12 in.) from surface, Install a chain around a mast crossmember and the carriage, to prevent carriage and mast channels from moving.

4. If another lift truck is used to tow the disabled lift truck, that lift truck must have an equal or larger capacity than the disabled lift truck. Install approximately ½ of a capacity load on the forks of the lift truck that is being used to tow the disabled lift truck. This ½ capacity load will increase the traction of the lift truck. Keep the load as slow as possible.

Miscellaneous

Drawing of Lubrication System



BM990187

Table 11. Oils Used for Forklift Truck

Name	Brand or Code (Domestic)
Gasoline	92#
Diesel Oil	TO be selected and used in accordance to diesel engine operation and maintenance manual, or according to GB252-2015 Light Diesel Oil. Summer 0# Winter -10~-35#
Lubricating Oil	To be selected and used according to engine operation and maintenance manual, or according to Gasoline Engine: GB11121-2006 Diesel Engine: GB11121-2006 standard requirements and the tough degree of its working conditions.
Hydraulic Oil	L-HM32
Hydraulic Drive Oil	6# Hydraulic Drive Oil
Gear Oil	85W/90
Brake Fluid	ZSM207 DOT3 Synthetic Brake Fluid
Lubricating Oil	3# Lithium Base Lubricating Grease Drop Point 170

- It is recommended to use Kunlun brand oil products.
- Oil products of different brands cannot be blended in use.

Labels

NOTE: Label in the manual may not be an exact representation of the label on your truck.

Safety labels are installed on your lift truck to give information about possible hazards. It is important that all safety labels are installed on the lift truck and can be read. **Contact your Yale dealer to immediately replace any labels that have fallen off or are no longer legible.**

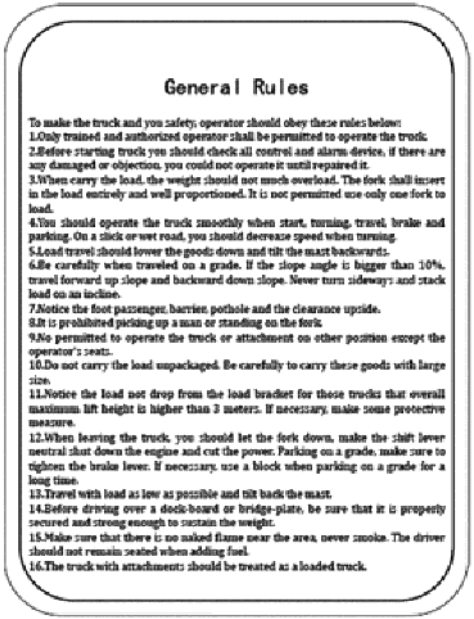
Warning Label No One On or Under the Forks

WARNING

BM990190

Label of Notices for Use

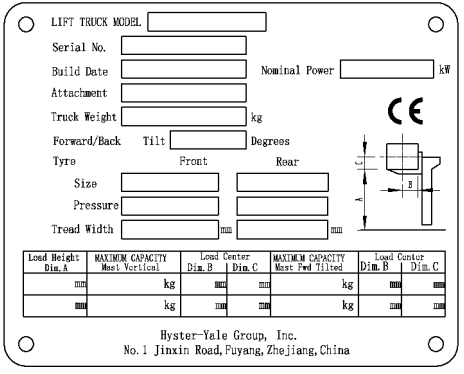
Attention



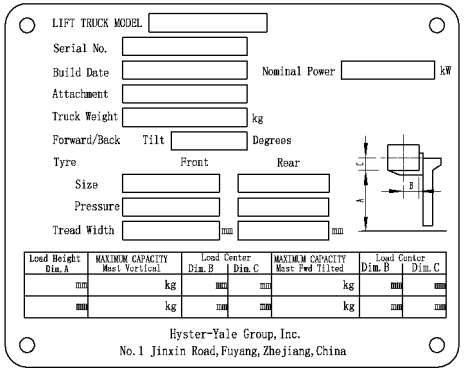
BM990191

Data Plate for Fork Loading and Unloading Truck

ATTENTION



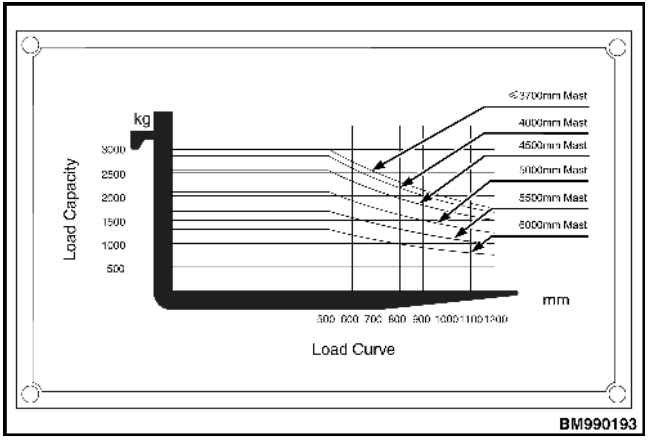
BO990168



BO990169

Label for Load Curve Diagram (Demonstration)

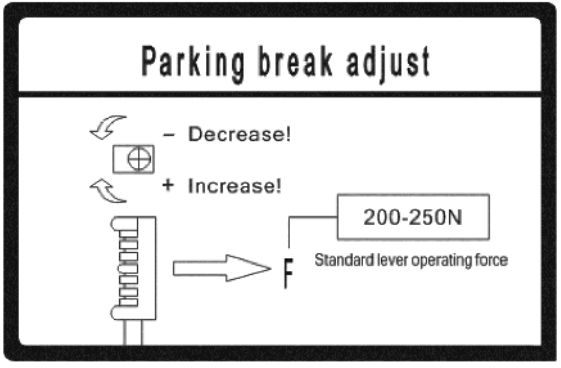
ATTENTION



BM990193

Label for Parking Brake Adjustment

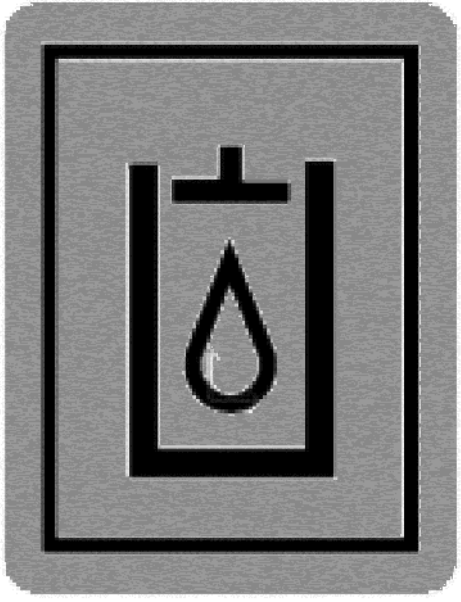
ATTENTION



BM990195

Label for Adding Hydraulic Oil

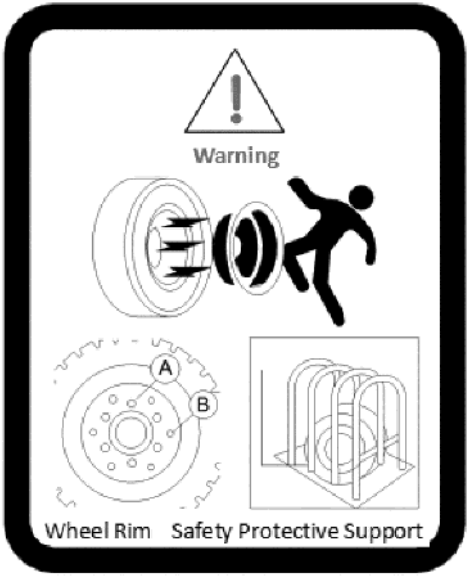
NOTE



BM990196

Label for Tire Safety (Pneumatic Tire)

WARNING



BM990197

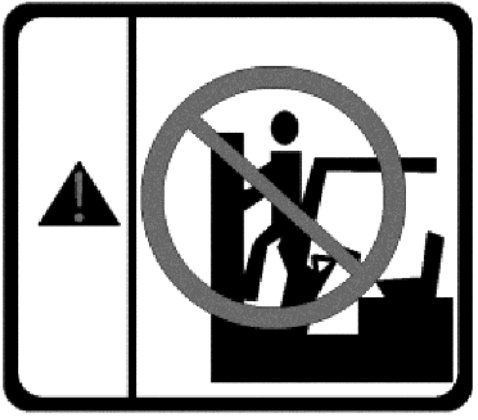
Label for Lifting

ATTENTION

BM990198

Label Do Not Stand Near or On Any Part of Mast

WARNING



BM990200

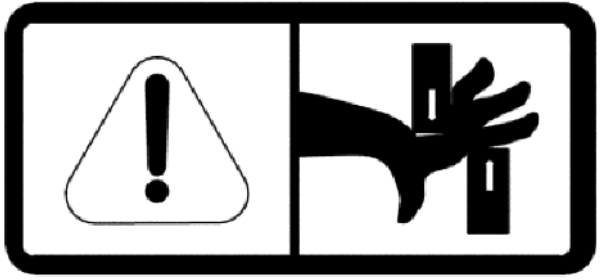
Label for No Riders

ATTENTION

BM990201

Mast Warning Label - Crush Point

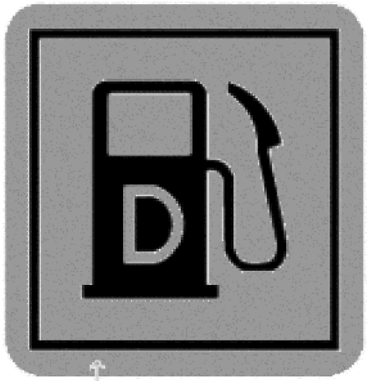
WARNING



BM990202

Label for Filling Fuel

NOTE (Diesel)



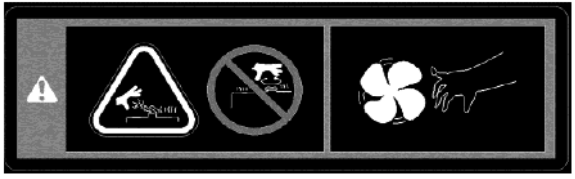
BM990203

NOTE (Gasoline)

BM990204

Label for Fan Safety

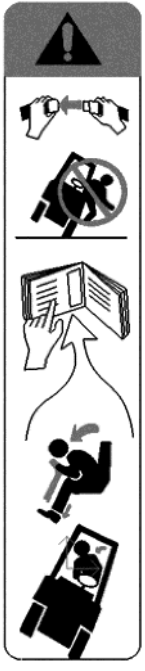
WARNING



BM990206

Operator Restraint and Tip-Over Warning Label

WARNING



BM990207

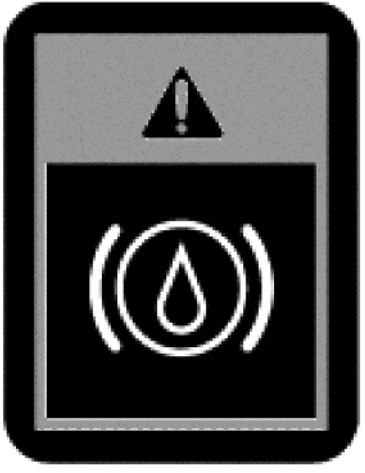
Label for Seatbelt

ATTENTION

BM990208

Label for Adding Brake Oil

NOTE



BM990209

Maintenance Register

Date	Item of Maintenance	Maintenance Personnel

NO MATTER HOW YOU SAY IT . . .

La Sécurité Ça Se Paye
La Seguridad Compensa
Betriebssicherheit Macht Sich Bezahlt
Passaa Oll Huolellinen
Veiligheid Voor Alles
Säkerhet Först
Essere Sicuro Paga
Seguranca Paga
Sikkerhet Først
Pinter Be Awas

सावधान और जिन्दा रहो !

فى التأني السلامة

安全第一

OPERATING MANUAL

GLP/GDP20UX-35UX (A7S1)
Internal Combustion
Counterbalanced Forklift Truck

PART NO. 550216339 **1/20**

DO NOT REMOVE THIS MANUAL FROM THIS UNIT