

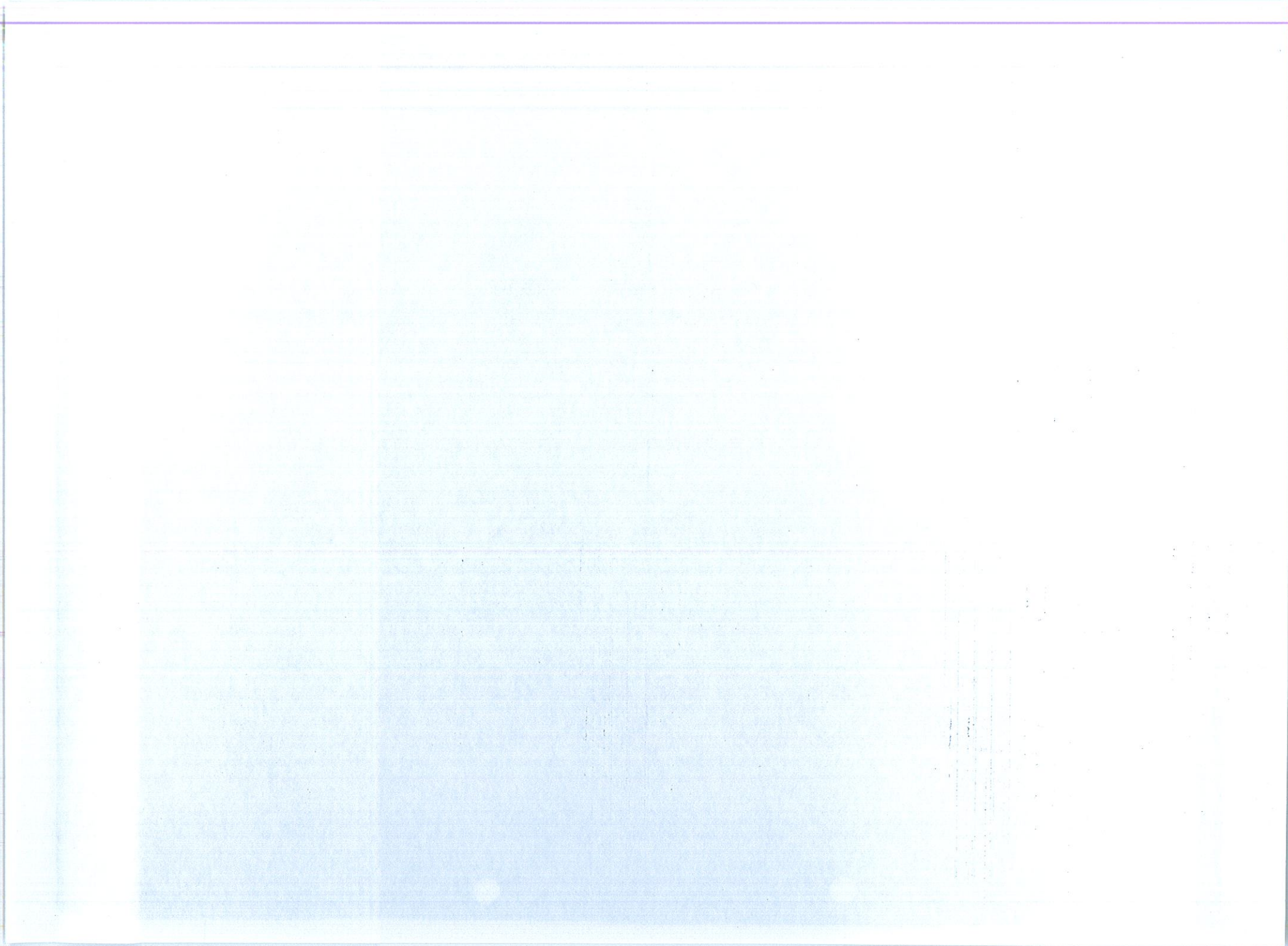
Keep this manual in your forklift truck as a ready reference.



OPERATION & MAINTENANCE MANUAL

AC/MC

FG10	F25B-10002/00634-up	FD10	F16C-10001/00206-up
FG15	F25B-60044/54327-up	FD15	F16C-60013/52329-up
FG18	F25B-80014/70955-up	FD18	F16C-80011/70381-up
FG20	F17B-10666/04445-up	FD20	F18B-10497/07695-up
FG25	F17B-60287/54445-up	FD25	F18B-60714/20599-up
FG30	F13D-40131/31232-up	FD30	F14C-40363/35993-up
FG35A	F13D-60044/50308-up	FD35A	F14C-60177/51163-up



FOREWORD

The Occupational Safety and Health Administration (OSHA) is now mandating operator training for all forklift truck operators.

SAFE and EFFICIENT OPERATION of a forklift truck depends to a great extent on the skill and alertness of the operator. To develop the skill, the operator should:

1. Know the working capabilities and limitations of the forklift truck.
2. Know the make-up of the forklift truck.
3. Read and understand the safe driving and load handling procedures contained in this manual.

And, most important, a qualified person experienced in forklift truck operation should guide new operators through several driving and load handling operations before they attempt to operate the forklift truck on their own.

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

This manual contains information necessary for the operation and "do-it-yourself" maintenance of standard forklift trucks. Optional equipment is sometimes installed; it can change some operating characteristics described in this manual. Before operating such a forklift truck, make sure the necessary instructions are available and understood.

Forklift truck operator training is provided through your Mitsubishi Forklift Truck Dealer or Mitsubishi Caterpillar Forklift (MCF) Dealer Training. They will be glad to help you and answer any questions you may have about operating your new forklift truck. The forklift trucks are NOT intended for use on public roads.



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99710-11410

NOTICE: When using A mast, refer to Pub. No. 99710-11400.

HOW TO USE THIS MANUAL

The following safety signs and **NOTICE** are used in this manual to emphasize important and critical instructions.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



WARNING

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



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or damage to your machine.

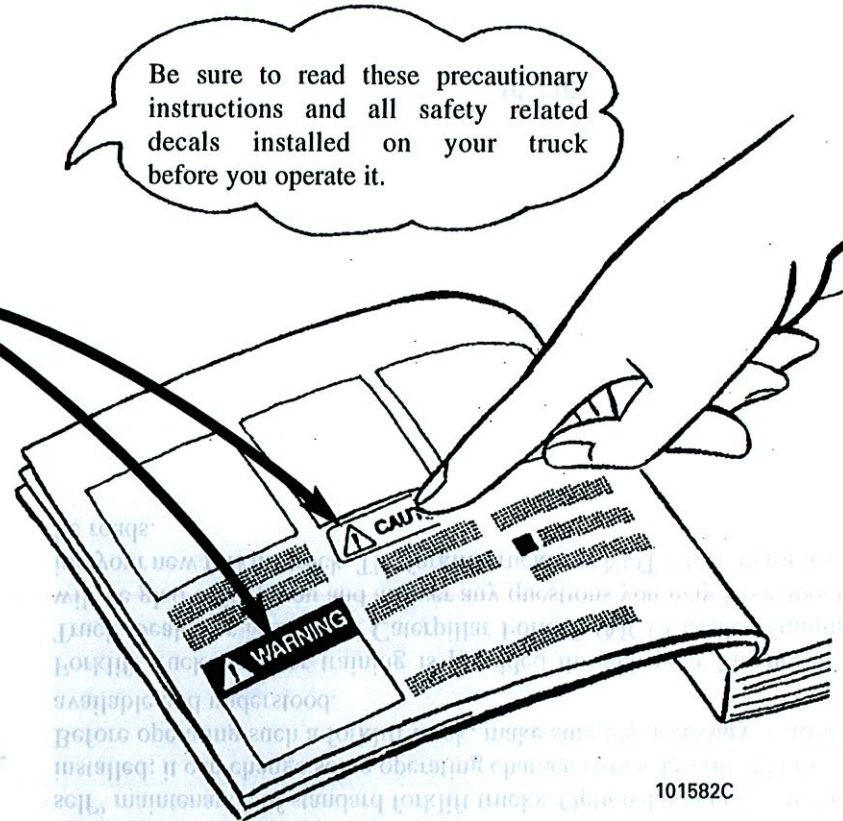
Mitsubishi Caterpillar Forklift (MCF) cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by MCF is used, you must satisfy yourself it is safe for you and others. You should also ensure the product will not be damaged or made unsafe by the operation, lubrication, maintenance or repair procedures you choose.

The information, specifications, and illustrations in this publication are on the basis of information available at the time it was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service given to the product. Obtain the most complete and current information from your Mitsubishi Dealer before starting any job. Mitsubishi Dealers have the current information available. Additional manuals are available from your Mitsubishi Dealer.

Directional terms:

The directions "left," "right," "front" and "rear" are given from the viewpoint of the operator facing forward.

Be sure to read these precautionary instructions and all safety related decals installed on your truck before you operate it.



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SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

◆ In General

The safety rules and regulations in this section are representative of some, but not all rules and regulations that apply to forklift trucks. Rules are paraphrased without representation they have been reproduced verbatim.

Your forklift truck was manufactured in accordance with the National Fire Protection Association No. 505 (NFPA), American Society of Mechanical Engineers (ASME) B56.1, Safety Standard for Low Lift and High Forklift Trucks and various worldwide regulations. Since regulations vary from country to country, operate this forklift truck in accordance with local regulations.

The most effective way of preventing serious injuries, or even death, to you and others, is for you to know how to operate the truck properly. Drive alertly and avoid maneuvers or conditions that can cause accidents. Be professional.

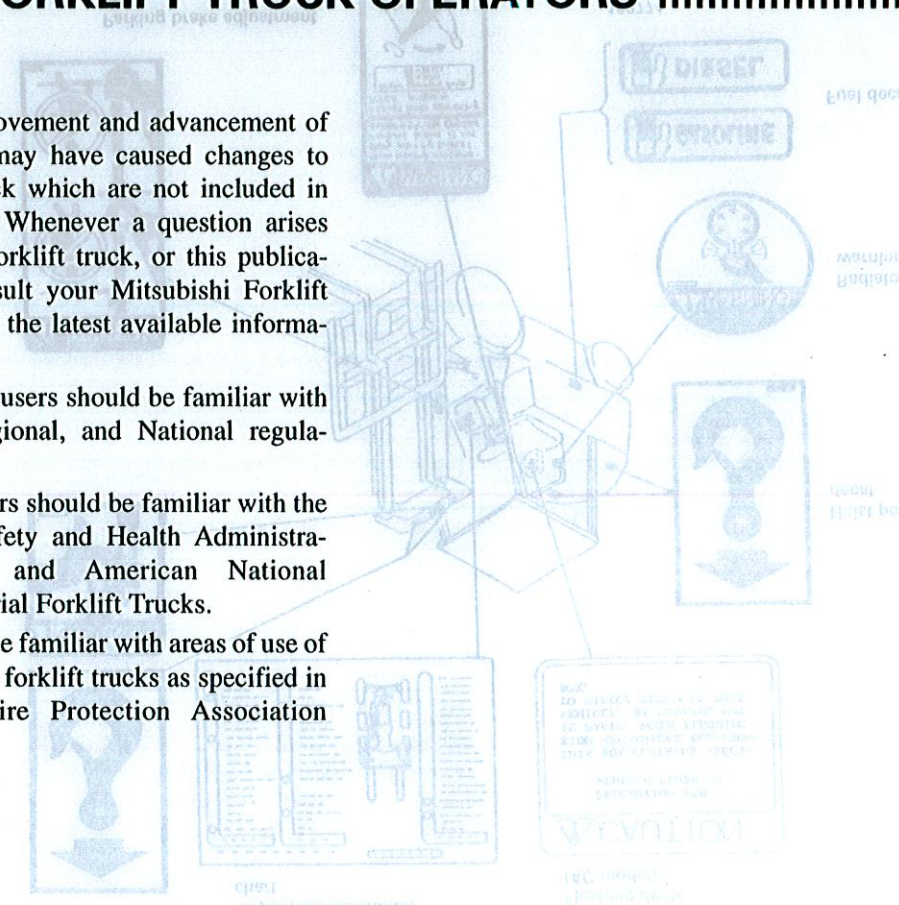
Do not operate a forklift truck if it is in need of maintenance, repair or appears to be unsafe in any way. Report all unsafe conditions immediately to your supervisor and contact your authorized Mitsubishi Forklift Truck Dealer. Do not attempt any adjustments or repairs unless you are trained and authorized to do so.

Continuing improvement and advancement of product design may have caused changes to your forklift truck which are not included in this publication. Whenever a question arises regarding your forklift truck, or this publication, please consult your Mitsubishi Forklift Truck Dealer for the latest available information.

All forklift truck users should be familiar with their Local, Regional, and National regulations.

United States users should be familiar with the Occupational Safety and Health Administration (OSHA), and American National Standards Industrial Forklift Trucks.

You should also be familiar with areas of use of different types of forklift trucks as specified in the National Fire Protection Association (NFPA).



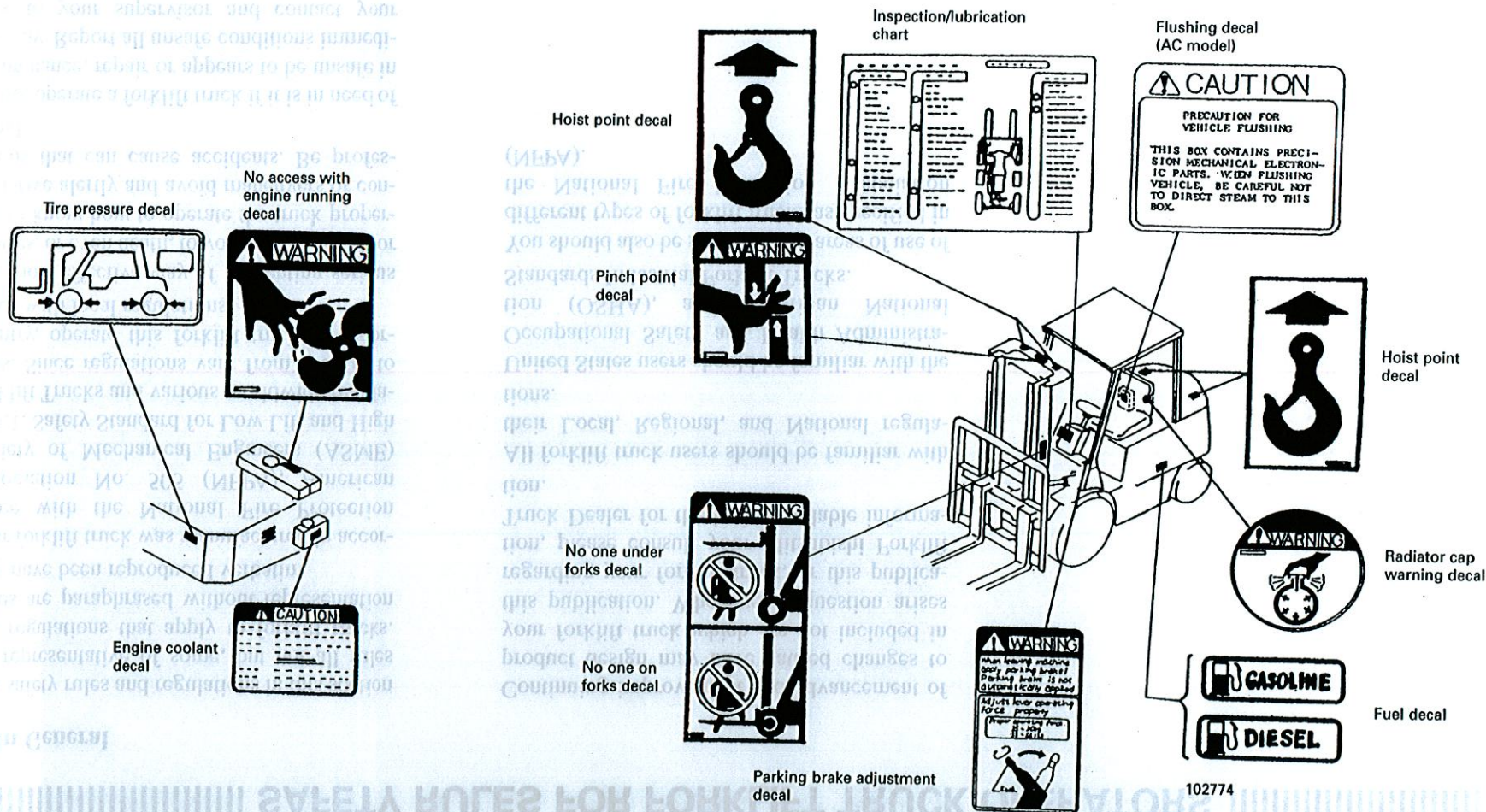
SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

◆ Warning Decals, Location

There are several specific warning decals on your forklift truck. Their exact location and description of the potential hazard are reviewed in this section. Please take the time to familiarize yourself with these decals.

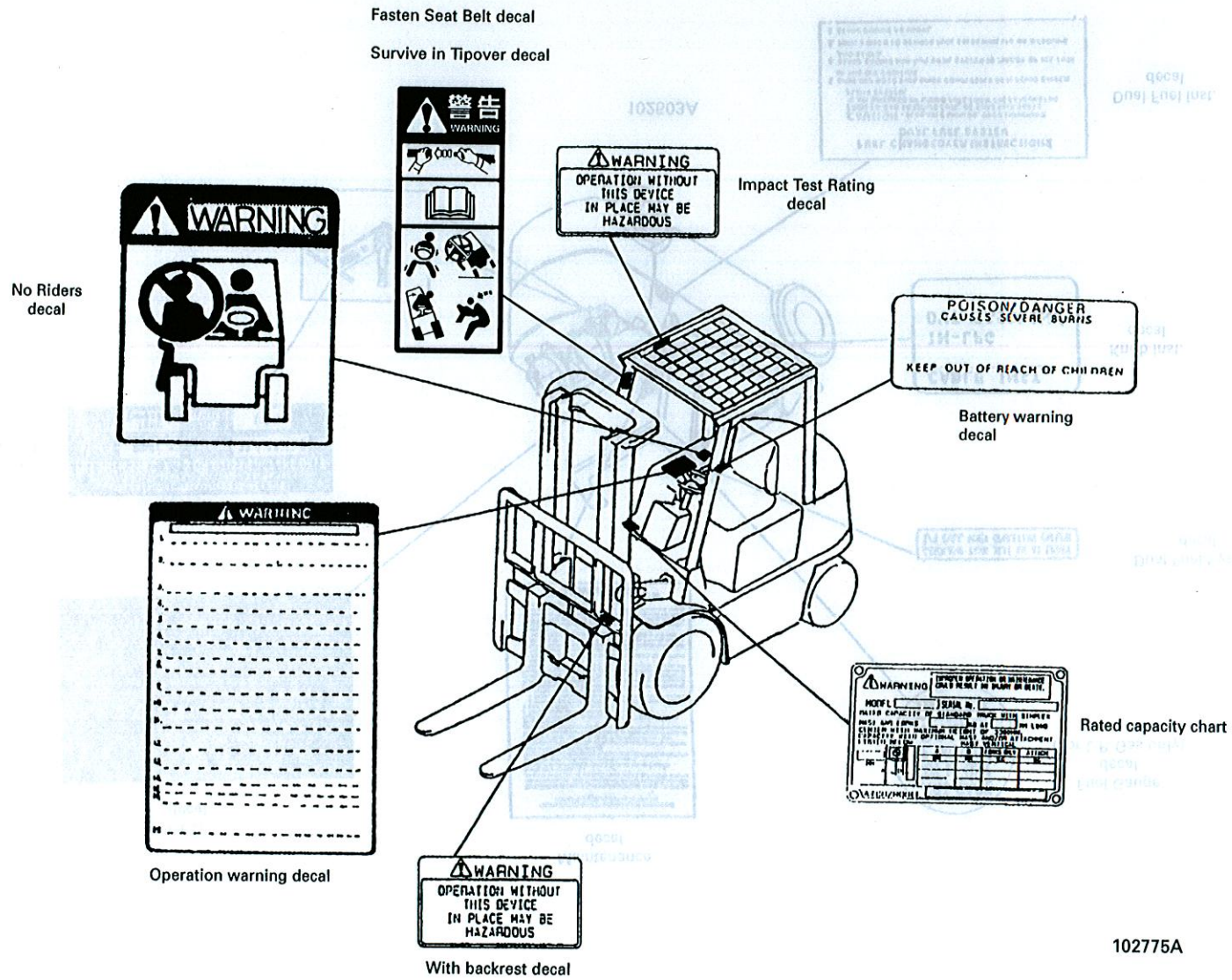
Be sure you can read all warning and instruction decals. If you cannot, clean or replace them. Use a cloth and soap and water to clean them.

You must replace a decal if it is damaged, missing or cannot be read. If a decal is on a part that is replaced, make sure a new decal is placed on the new part. Contact your Mitsubishi Forklift Truck Dealer for new decals.



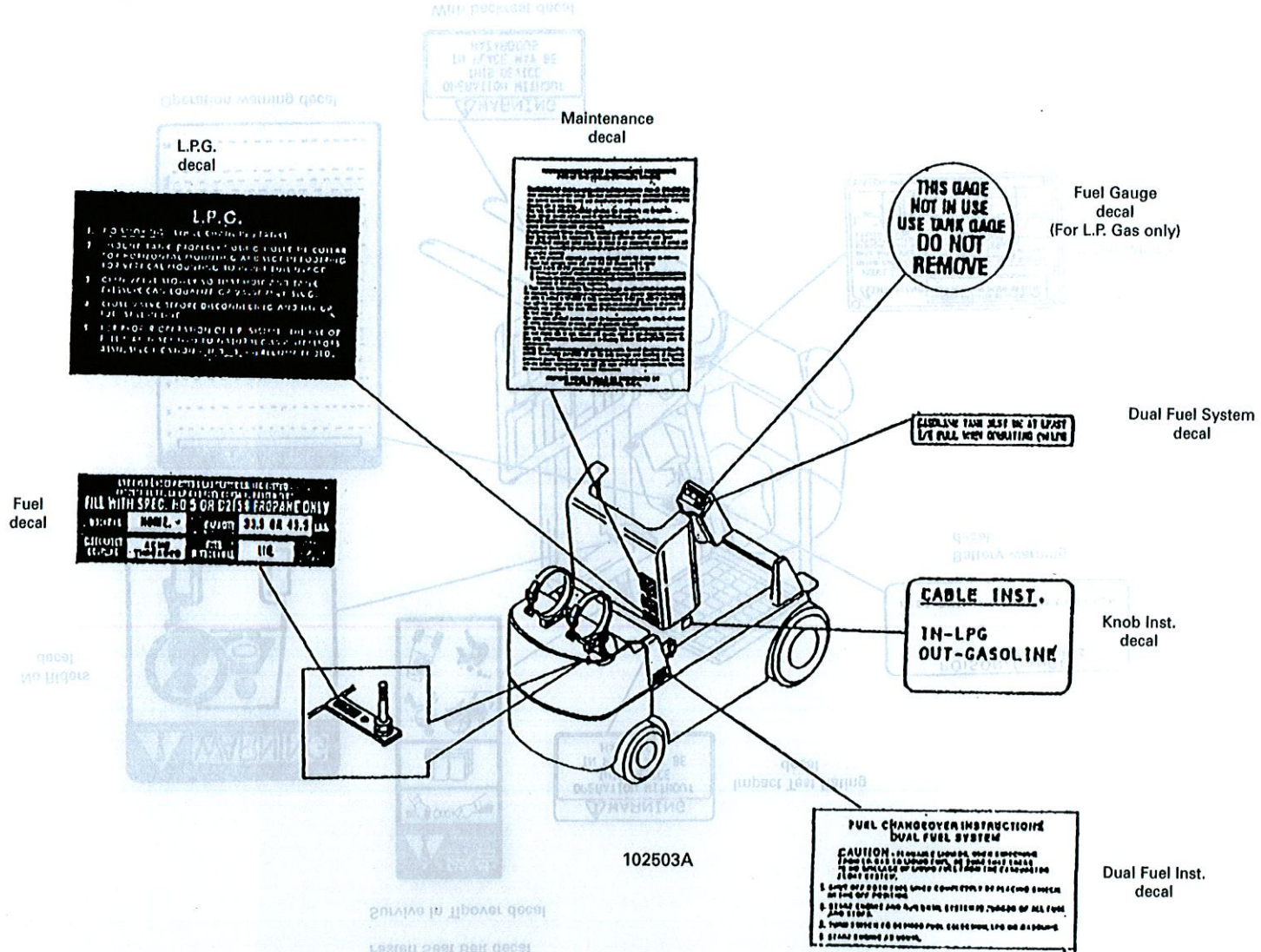
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SAFETY RULES FOR FORKLIFT TRUCK OPERATORS



SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

◆ Decals for LP-Gas Only



SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

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◆ Warning Decals, Description

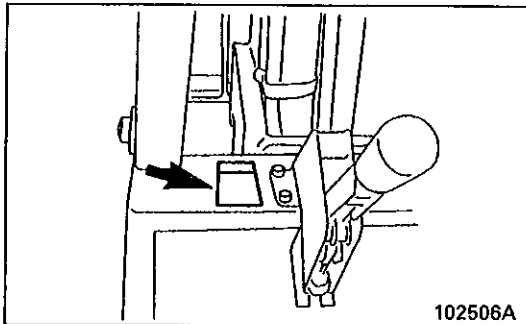
• Operator's Seat

⚠ WARNING

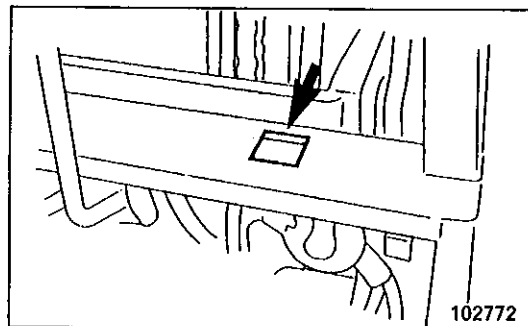
When leaving the machine (forklift truck), apply the parking brake! The parking brake is not automatically applied.

⚠ WARNING

To avoid serious injury, do not carry passengers. A forklift is designed for only one operator and no riders.



Located to the left front of the operator's seat.
Proper operating force: 250 to 290 N (25 to 30 kgf) [55 to 66 lbf].



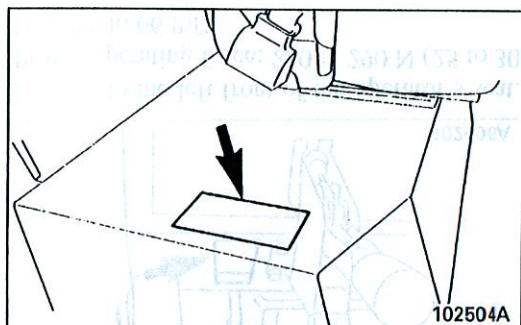
Located to the right front of the operator's seat.

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

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WARNING

Only trained, authorized personnel may operate this forklift truck. For safe operation, read and follow the Operation and Maintenance Manual furnished with this forklift truck and observe the following warnings:



Located to the right side of the operator's seat on the engine compartment cover.

FOR SAFETY OBSERVE THE FOLLOWING WARNINGS

1. Do not operate this truck unless you have been trained and authorized to do so. Read all warnings and instructions in the operator's manual and on this truck. An Operation & Maintenance Manual is supplied with this truck or available from your Mitsubishi Forklift Truck Dealers.
2. Do not operate this truck until you have checked its condition. Give special attention to Tires, Rims, Horns, Light Battery(s), Controller, Lift and Tilt Systems including forks or attachments,

chains, cable and limit switches, brakes, steering mechanism, fuel system, hydraulic hoses and guards.

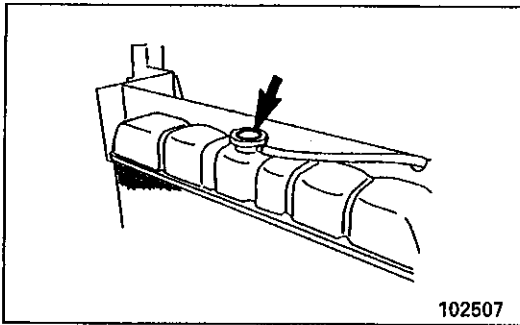
3. Operate the truck only from the designated operating position. Never place any part of your body into the mast structure, between the mast and the truck, or outside the truck. Do not carry passengers.
4. Do not operate the truck without the overhead guard.
5. Do not handle loads which are higher than the load backrest or load backrest extension unless the load is secured so that no part of it could fall backward.
6. Do not handle unstable or loosely stacked loads. Use special care when handling long, high or wide loads to avoid losing the load, striking bystanders, or tipping the truck.
7. Do not overload the truck. Check capacity plate for load weight and load center information.
8. Start, stop, travel, steer and brake smoothly. Slow down for turns on uneven or slippery surfaces that could cause truck to slide or overturn. Use special care when traveling without a load as the risk of overturning is greater.
9. Elevate forks or other lifting mechanism only to pick up or stack a load. Lift and lower with mast vertical or tilted slightly back—NEVER FORWARD. Watch out for obstructions, especially overhead.
10. Operate tilting mechanism slowly and smoothly. Do not tilt forward when elevated except to pick up or deposit a load. When stacking, use only enough backward tilt to stabilize load.

11. Travel with the load or lifting mechanism as low as possible and tilt back. Always look in the direction of travel. Keep a clear view, and when load interferes with visibility, travel with the load or lifting mechanism trailing (except when climbing ramps).
12. Use special care when operating on ramp, travel slowly, and do not angle or turn. When the truck is loaded, travel with the load uphill. When the truck is empty, travel with the lifting mechanism downhill.
13. Observe applicable traffic regulations. Yield right of way to pedestrians. Slow down and sound horn at cross aisles and wherever vision is obstructed.
14. When using forks, move them as far apart as the load will permit. Before lifting, be sure the load is centered and the forks are completely under the load.
15. Do not allow anyone to stand or pass under the load or lifting mechanism.
16. Do not lift personnel except on a securely attached, specially designed Work Platform. Use extreme care when lifting personnel. Place the mast in the vertical position, place the truck controls in neutral and apply the brakes. Lift and lower smoothly. Be available to operate controls as long as personnel are on the Work Platform. Never transport personnel on forks or Work Platform.
17. Before getting off the truck, put the direction lever in neutral engaging the lever lock knob, lower the lifting mechanism fully, and set the parking brake. If leaving the truck unattended, shut the power off also.

• **Cooling System**

⚠ WARNING

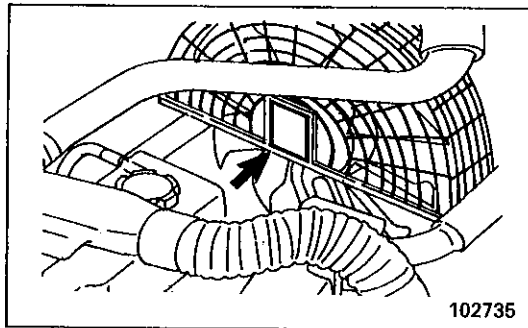
Check the coolant level only after the engine has been stopped and the filler cap is cool enough to touch with your hands. Remove the filler cap slowly to relieve pressure.



Located on the radiator cap.

⚠ WARNING

To avoid serious injury, stay clear of the moving fan.

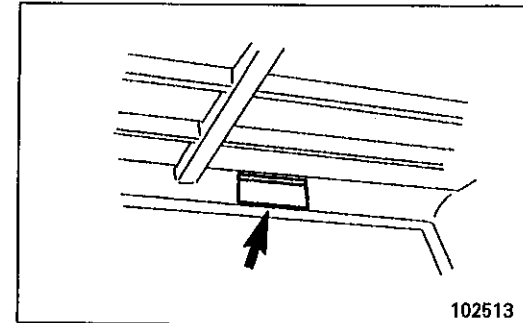


Located on the frame of the cooling fan.

• **Overhead Guard**

⚠ WARNING

Operation without this device in place may be hazardous.



Located inside the top frame member of the overhead guard.

• Mast, Backrest Extension

⚠ WARNING

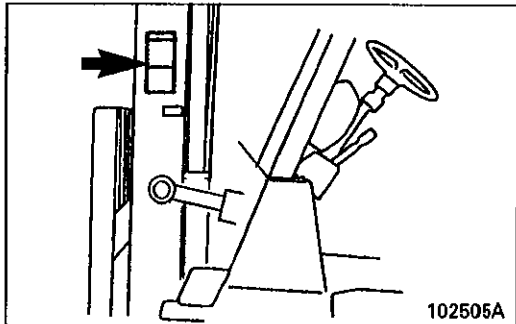
Do not stand or ride on the forks.
Do not stand or ride on a load or pallet on the forks.
Do not stand or walk under the forks.

⚠ WARNING

Operation without this device in place may be hazardous.

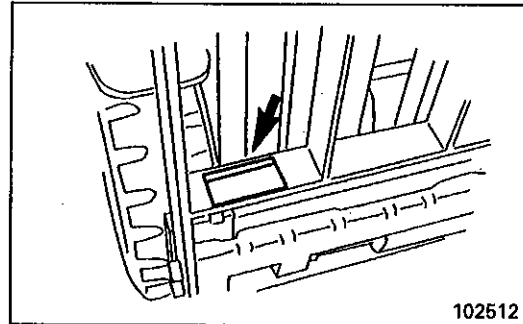
⚠ WARNING

Do not touch, lean on, or reach through the mast or permit others to do so.
Hands off!



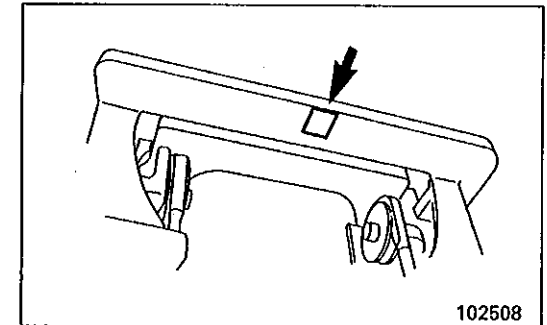
Located on the mast.

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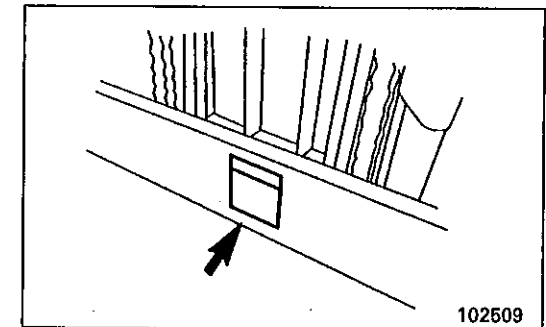


Located on the load backrest.

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102508



Located on the mast.

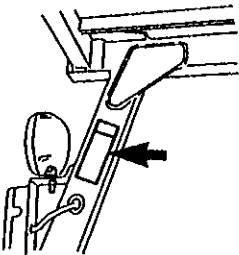
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• Tipover Warnings

WARNING

Tipover can occur if truck is improperly operated. Injury or death could result.

WARNING



102515

Located on the mast.

TIPOVER WARNINGS

1. Side tipover of an unloaded truck can occur if the combination of speed and a sharp turn which exceeds the stability of the truck.
2. Side tipover can occur if overloaded, or loaded within capacity and:
 - The load is elevated.
 - Turning and/or braking when traveling in reverse.
 - Turning and/or accelerating when traveling forward.

These actions may exceed the stability of the truck.

Backward tilt and/or off-center positioning of the load and/or uneven ground conditions will further aggravate the above conditions.

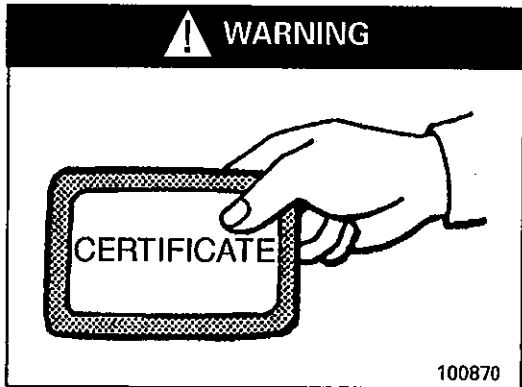
3. Forward tipover can occur if overloaded or when loaded within capacity and the load is elevated in forward tilt, braking in forward travel, or commencing reverse travel. These actions may exceed the stability of the truck.
4. Serious injury or death can occur if the operator is trapped between the truck and the ground.

IN CASE OF TIPOVER

1. The operator should stay with the truck if side or forward tipover occurs. The operator should hold on firmly to the steering wheel, brace feet, lean forward and lean away from the point of impact.
2. If the truck falls off of a loading dock or ramp, you should try to stay within the confines of the operator's seat area. Should the landing area present a more severe hazard, you may find it prudent to leave the truck.

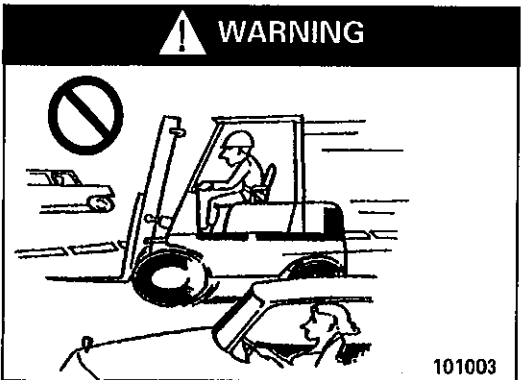
SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

◆ Safety Rules

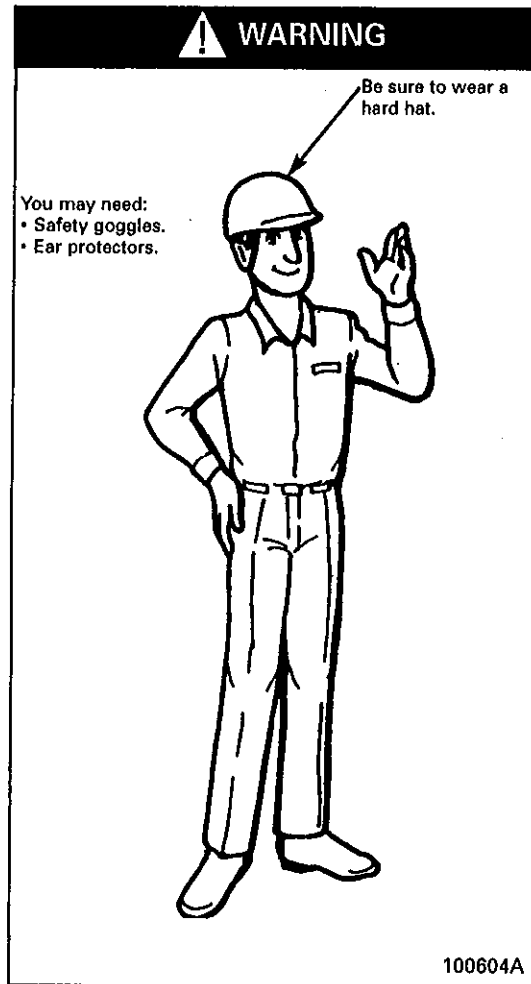


Authorized, trained operator only!

Thoroughly learn how to operate a forklift truck and the safe areas and surfaces to travel before you drive one.



DO NOT travel on public roads!



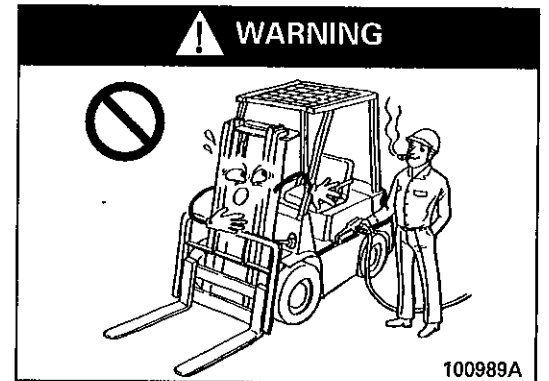
Dress properly for the job!

DO NOT wear loose clothing or accessories—flapping cuffs, dangling chains, neck ties, scarves, or rings—that can catch in moving parts.



Be alert!

Know how to use a first aid kit and a fire extinguisher—and where to get prompt assistance.

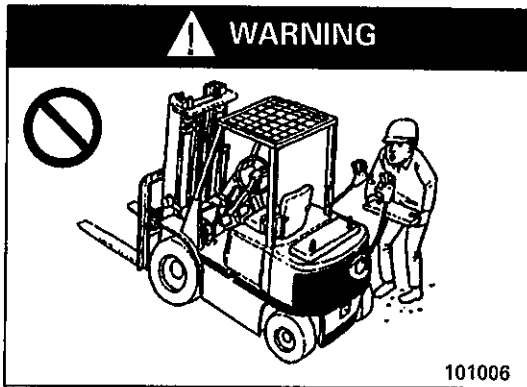


NO smoking while refueling!

DO NOT fuel while the engine is running. Keep away from flames or spark sources. Turn off all electrical switches on the truck. Fuel in a well ventilated area.

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

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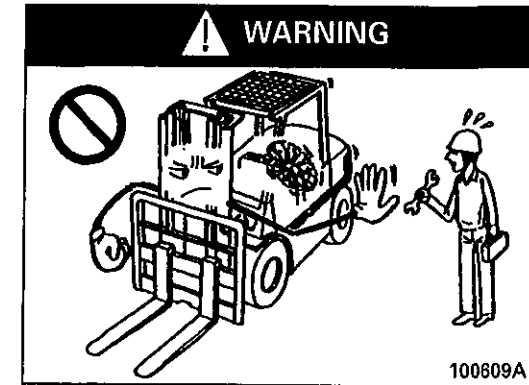


Unauthorized addition or modification is prohibited!

DO NOT add to or modify the forklift truck unless authorized in writing by the manufacturer to do so. Any change to the forklift truck can cause serious injury or property damage.



Know your forklift truck and attachments!
Know the operating, inspection and maintenance instructions in the OPERATION & MAINTENANCE MANUAL.



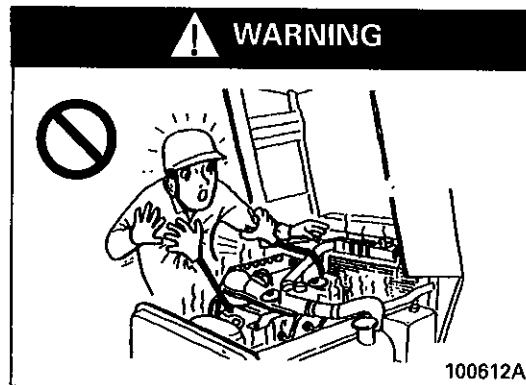
Shut down engine before servicing!

DO NOT service a forklift truck while engine is running unless absolutely necessary to do so.



Know all signals and traffic rules!

Know who is responsible for signaling. Learn to tell at a glance what the signal means, and what action you should take.



Avoid being splashed by scalding hot coolant!

Wait until the engine cools before opening or loosening the radiator cap. If you cannot wait, use a heavy cloth and gloves to protect yourself. Stand to the side, protect your face, and slowly loosen cap.



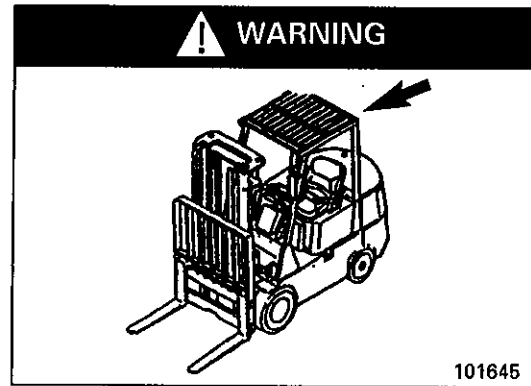
Exhaust fumes can kill you!

If you operate a forklift truck in an enclosed area, make sure there is adequate ventilation.



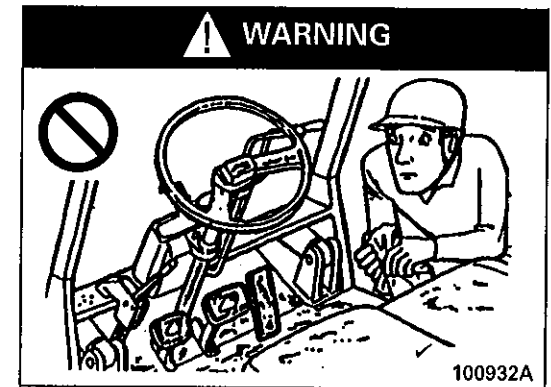
Inspect your forklift truck prior to operation!

At the beginning of each shift, fill out a daily inspection sheet. Check for maintenance problems and have repairs made before you operate the truck.

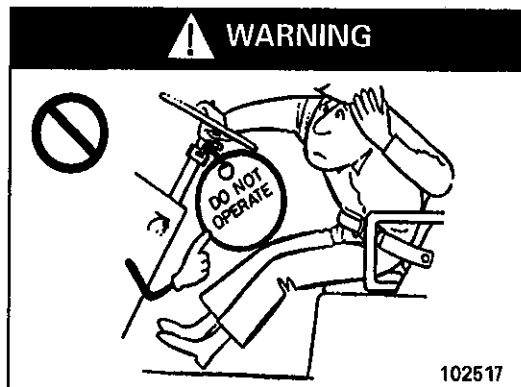


DO NOT remove the overhead guard!

The overhead guard is intended to protect the forklift truck operator from overhead obstructions and falling objects.

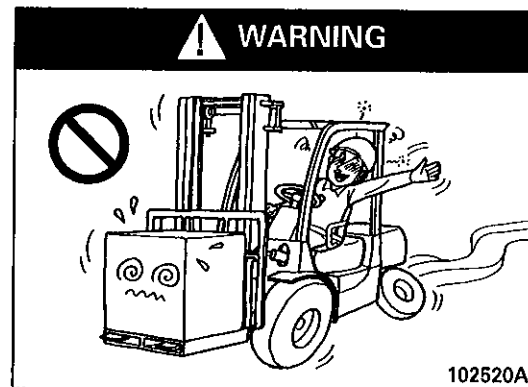


Keep the operator's compartment clean!



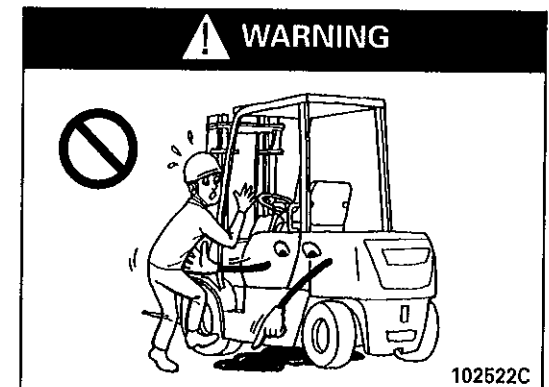
DO NOT operate an unsafe forklift truck!

Inspect a forklift truck before you operate it to be sure it is properly maintained and in good working order.



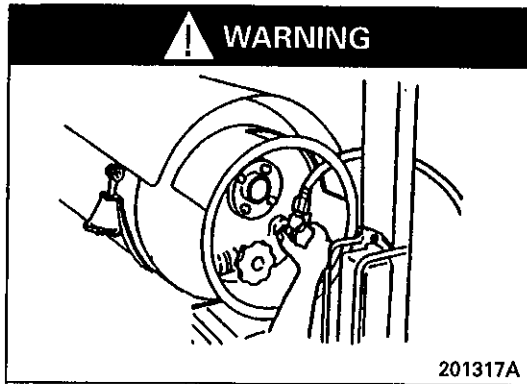
Always stay healthy on the job!

Be healthy—and NOT under the influence of drugs or alcohol—when operating the truck.



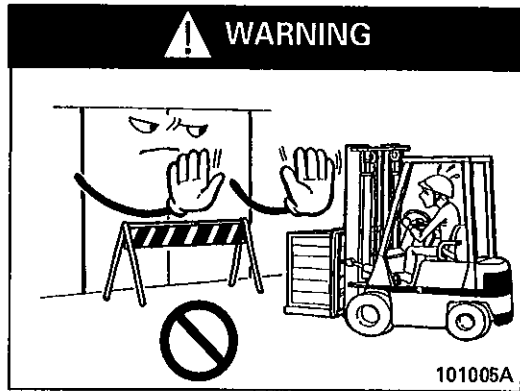
Know your forklift truck is safe!

DO NOT operate any forklift truck that is not safe to operate.



LP-gas tank replacement!

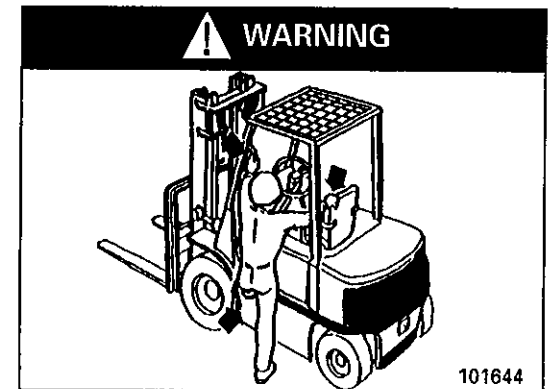
LP-gases are flammable. Do not attempt to change LP-gas tanks unless you are trained and authorized to do so. Be sure to get a trained and qualified mechanic to change them.



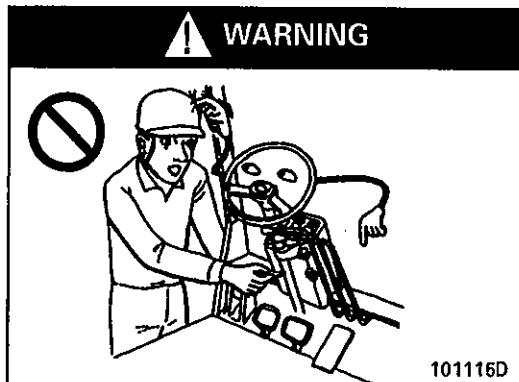
Operate only in approved areas!
Certain areas such as those containing hazardous flammable gases, liquid or other combustibles, should be avoided.



DO NOT operate a damaged or defective forklift truck!
A truck will operate effectively and safely when it is in proper working order.



Be sure the assist grip is properly tightened!
Face the forklift truck when mounting and dismounting.
Maintain a three point contact (one foot and two hands) with the floor and handholds.
Never get on or off a moving forklift truck.
Never jump on or off the forklift truck.
DO NOT use the controls or steering wheel as handholds when entering or leaving the operator's compartment.

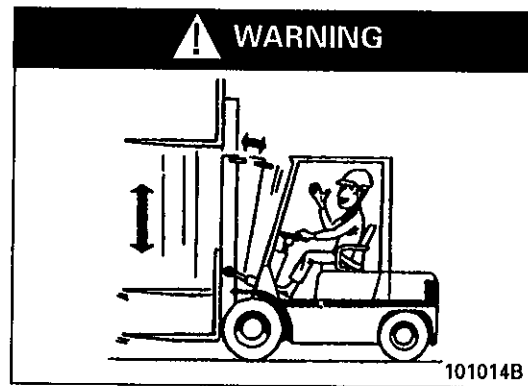


Start engine safely!
Start the engine only when securely seated in the operator's compartment.

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS



Adjust the seat before operation!
DO NOT adjust the seat while the forklift truck is in motion. This can cause serious injury.



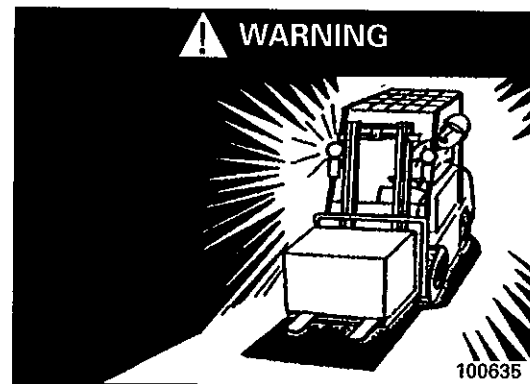
Make sure your forklift truck is in safe operating condition!
Test the brakes and inching pedal while moving slowly in a safe area. Make sure the mast moves up and down smoothly.



Fasten the seat belt properly!
If you DO NOT, it may not restrain you in an accident.



Always check overhead clearance!
Serious accidents may be caused by the mast and overhead guard hitting pipes, beams or other overhead obstructions. Watch out for power lines.

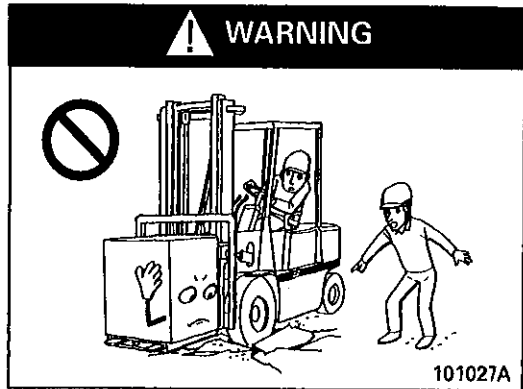


Use lights in dark, dim areas!
Even with lights on, DO NOT assume people see you and will move out of your way.

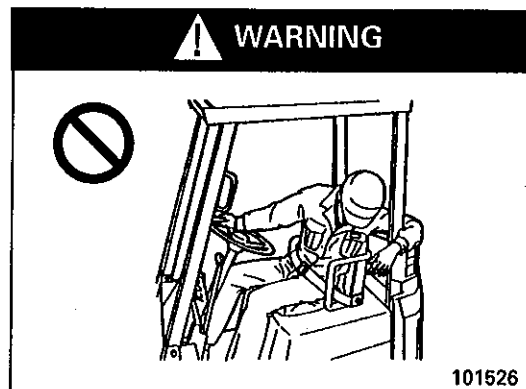


Stay within the confines of the truck!
Keep your arms and legs inside the operator's compartment.

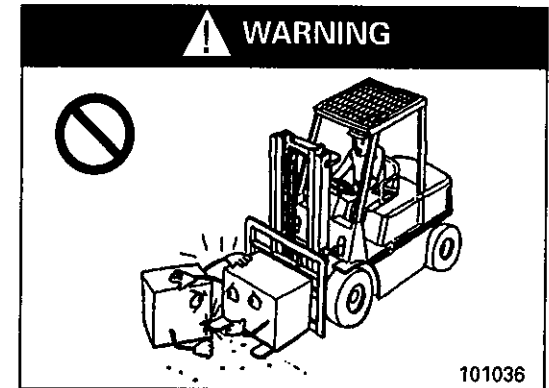
SAFETY RULES FOR FORKLIFT TRUCK OPERATORS



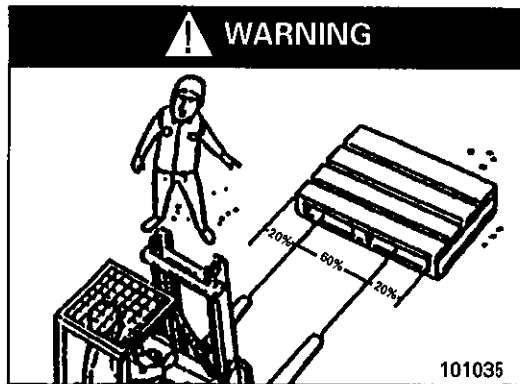
Always be aware of floor capacity!
Make sure the floor will support the weight of the loaded forklift truck.



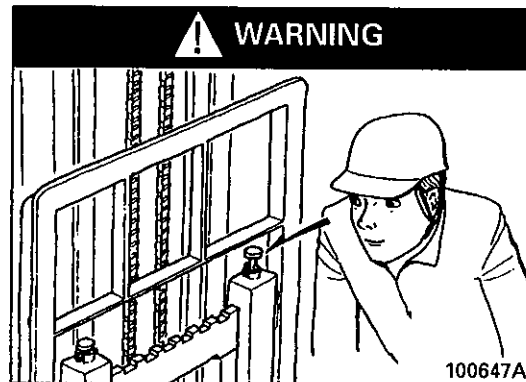
Stay under the overhead guard!
DO NOT hold on the overhead guard.



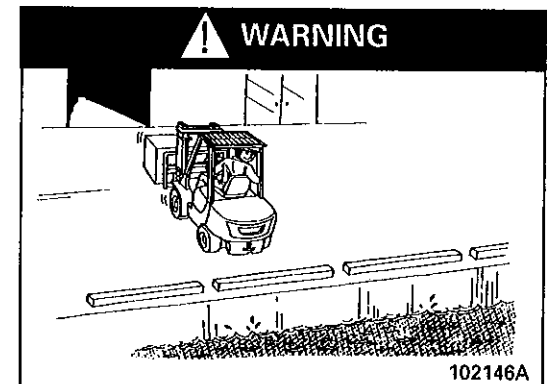
Be careful of forks that extend beyond the load!
If the forks extend beyond the load, use extra caution. Make sure the fork tips do not contact other material.



Avoid off-center loading!
Set the forks as far apart as possible for maximum support of the pallet or load. Too small a fork spread can cause instability of the load.

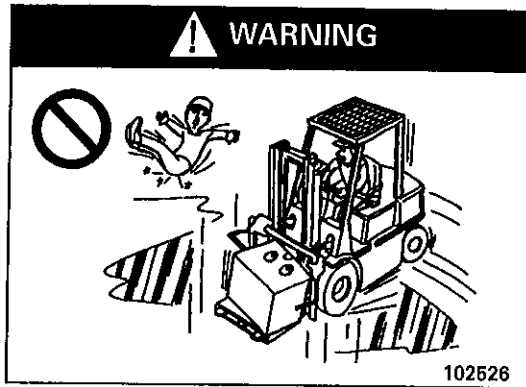


Check fork stopper pin for engagement!
If the fork stopper pins are not properly engaged, the forks may shift and cause off-centered or unstable loads.



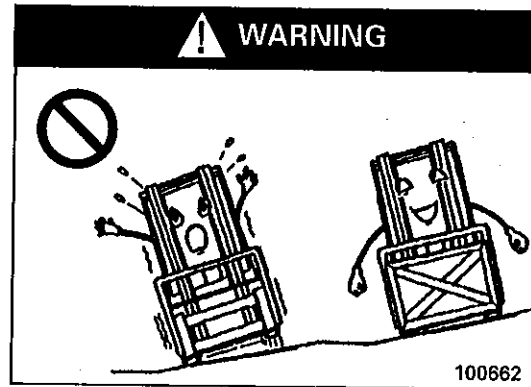
Check work areas for high risk!
When working on docks, ramps, platforms and other high risk areas, use adequate blocks to reduce the risk of the forklift truck from falling off.

◆ **Operating Precautions**



Stay away from slippery surfaces!

- Loose or slippery materials such as sand, gravel, ice, mud, etc., on your operating surfaces can cause a skid or tipover. Avoid these conditions or slow down.
- Keep your operating surfaces clean and dry at all times. Wet spots can cause a skid or tipover.
- You need greater stopping distance on wet surfaces. Apply brakes earlier on slippery surfaces than on dry surfaces.
- Do not drive into a flooded area whenever possible.



Be aware of the stability of an empty forklift truck!

An empty forklift truck will tipover more easily than a loaded one in a lowered position.



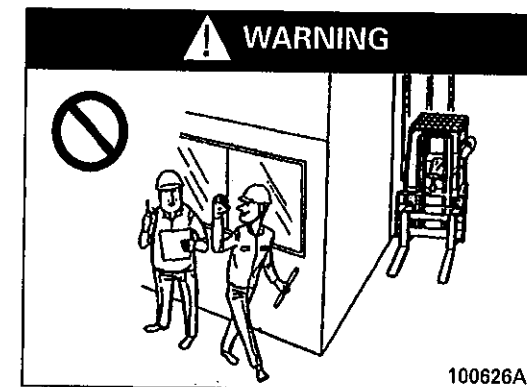
Position controls correctly for starting!

Make sure the direction lever is in the NEUTRAL position and the parking brake lever is set properly.



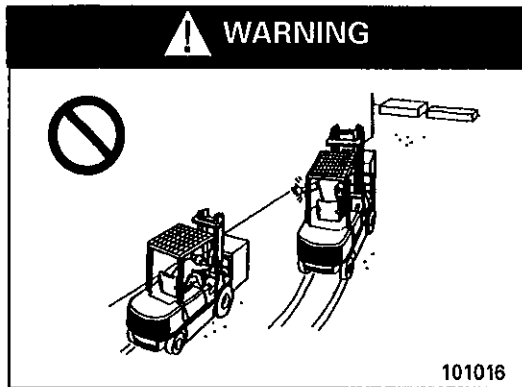
DO NOT allow any riders!

DO NOT allow anyone to ride on the forks or on any other part of the forklift truck—at any time.

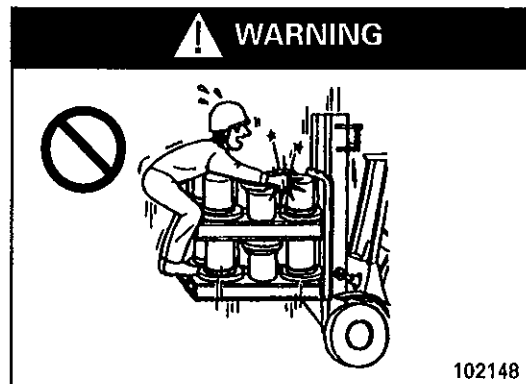


If you cannot see where you are going, DO NOT MOVE!

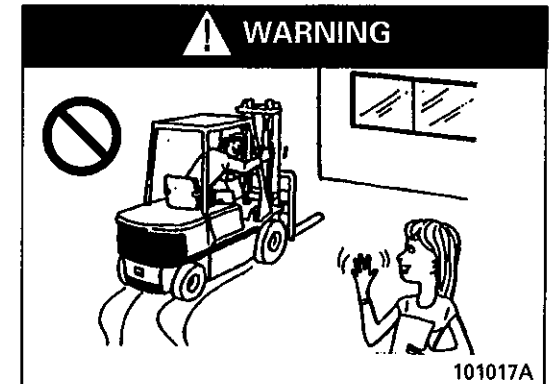
Travel slowly around corners. Sound the horn at cross aisles and other areas where you cannot see clearly or where visibility is restricted.



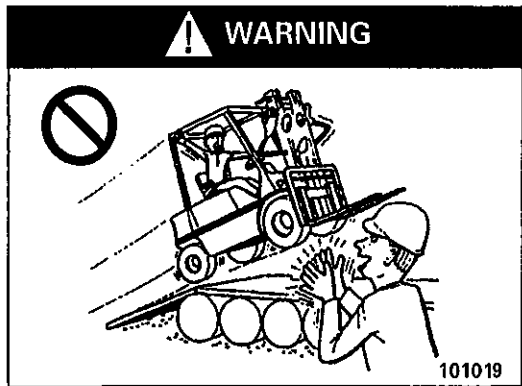
DO NOT pass another truck!
DO NOT pass another forklift truck traveling in the same direction at intersections, blind spots or at other dangerous areas.



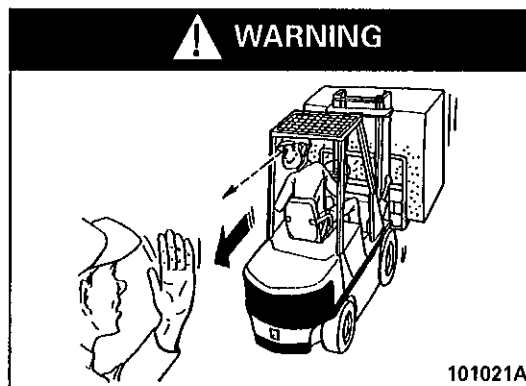
DO NOT allow anyone to hold loads!



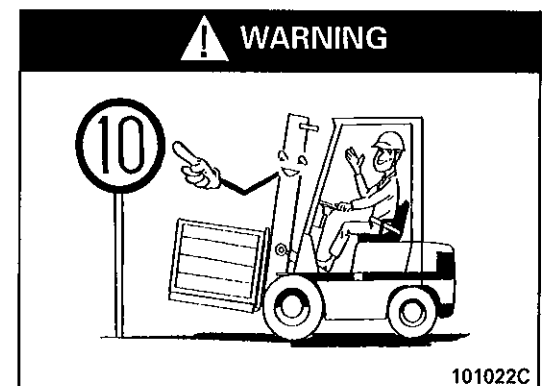
Always look in the direction of travel!
Always be aware of people near your forklift truck. DO NOT proceed until they are aware of you.



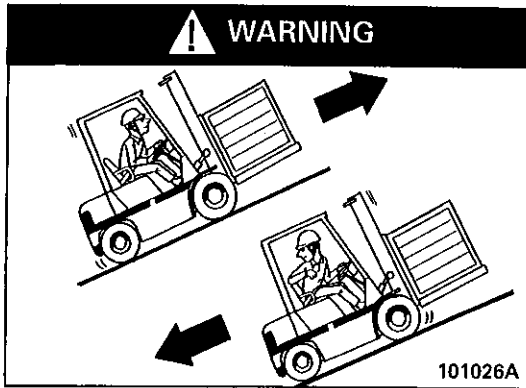
DO NOT engage in stunt driving or horseplay!
Stunt driving and horseplay is dangerous for both the forklift truck operator and the fellow workers.



Travel in reverse if forward visibility is blocked!
For better visibility with large loads, travel in reverse, but always keep a lookout in the direction of travel.

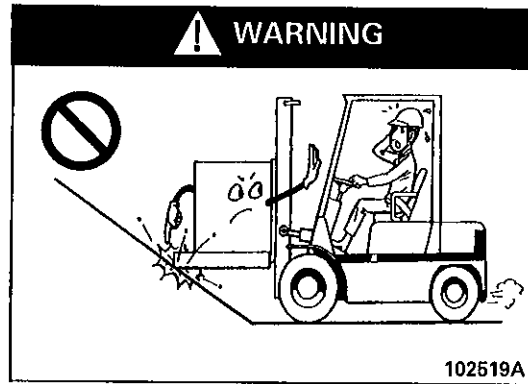


Obey all traffic rules and warning signs!
Drive carefully, observe traffic rules and be in full control of the forklift truck at all times.



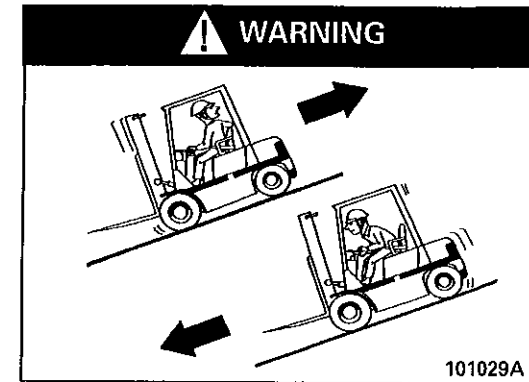
Travel safely on grades with a loaded forklift truck!

Keep the load upgrade to maintain control when traveling up or down a grade with a heavily loaded truck.



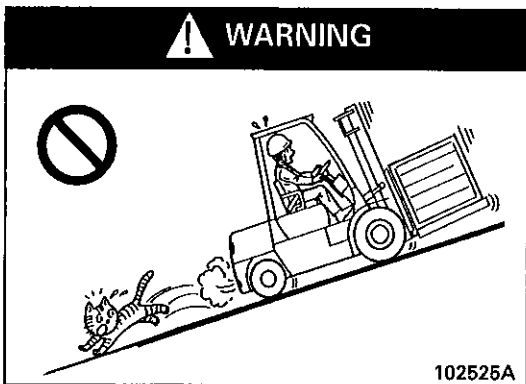
Be particularly careful when driving up or down a steep slope!

Use extreme care to prevent the tips of forks or the bottom of pallet from touching the ground.



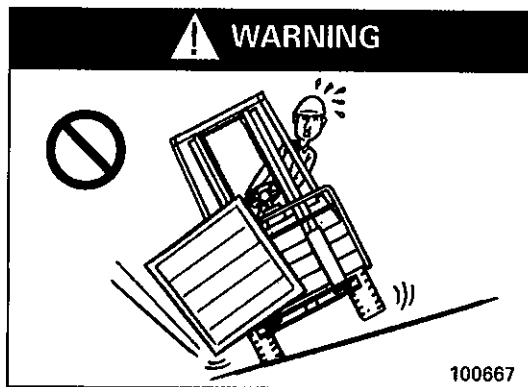
Travel safely on grades with an empty forklift truck!

Keep the counterweight upgrade when traveling up or down a grade with an empty truck.



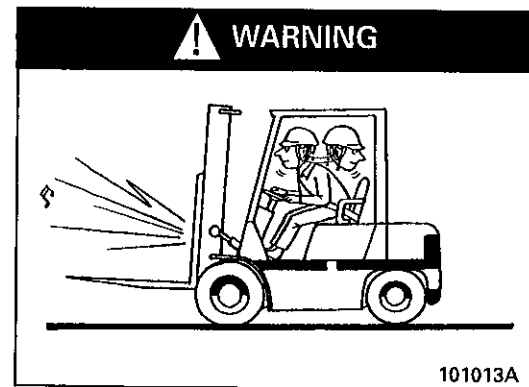
Start forklift truck upgrade carefully!

When starting the forklift truck upgrade, be sure to use the parking brake.



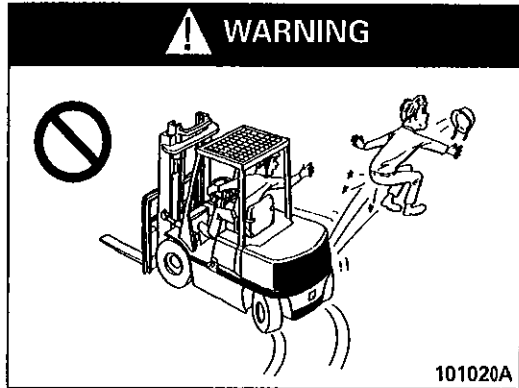
DO NOT turn on a ramp or grade!

Turning on a ramp or grade can cause a forklift truck, loaded or unloaded, to tipover.



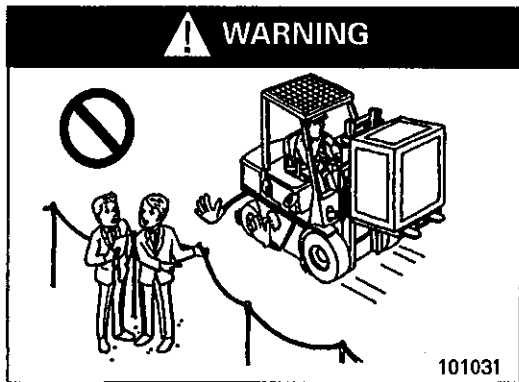
Move your forklift truck safely!

Sound the horn and be sure no people or objects are in your path before moving.

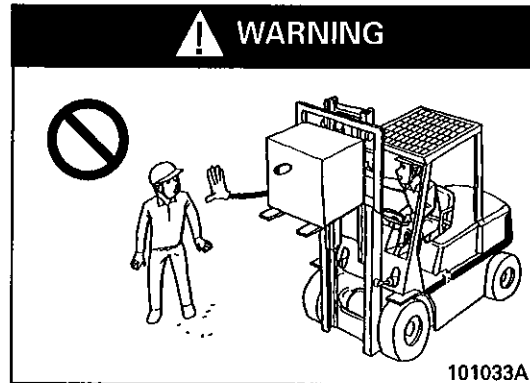


Allow for counterweight swing distance!
When turning in aisles, especially narrow aisles keep as far away as possible from stock and racks. Be cautious near people.

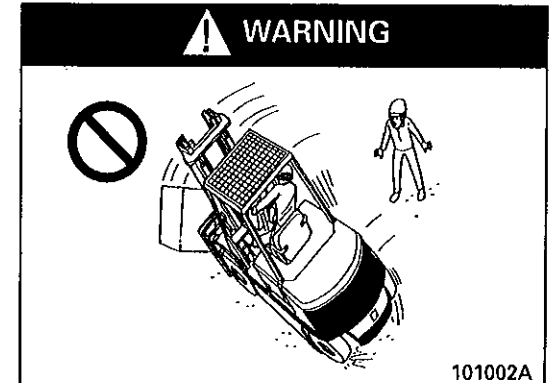
◆ **Working Precautions**



Danger! Keep out!
DO NOT allow any unauthorized people in the work area.



A helper should NOT be near the forklift truck!
People should be clear of the forklift truck operating area.



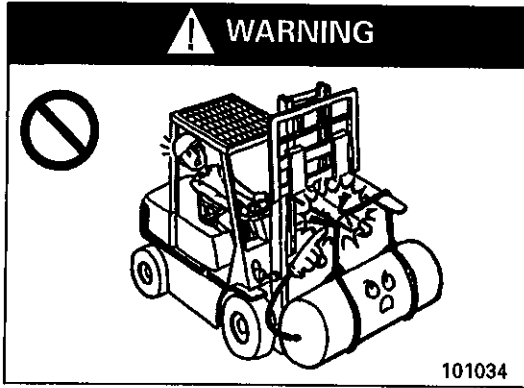
Always be alert for tipovers!
Turning sharply with a raised load, even at a slow speed, may result in a tipover. Realize that the overhead guard is not designed to provide total protection in the event of a tipover.



Be careful of changes in rated capacity!
Optional attachments which change the rated capacity are sometimes installed. Know the rated capacity before operating the truck.

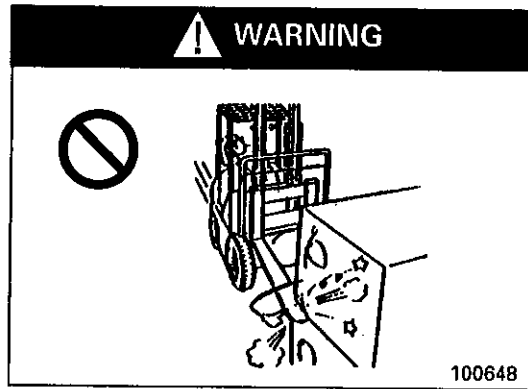


Watch out for pedestrians at all times!



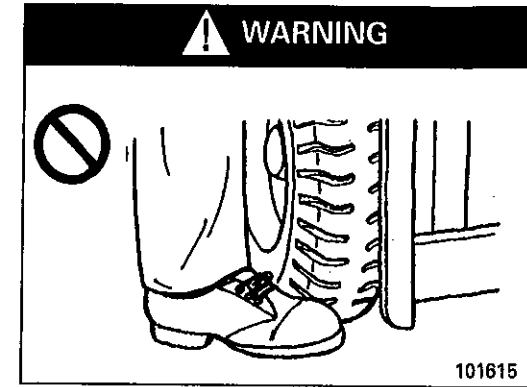
Use forks properly!

Fork misuse can cause accidents, serious injuries and equipment damage.



DO NOT speed when approaching loads!

Bring truck to a full stop in front of a load, then approach carefully.

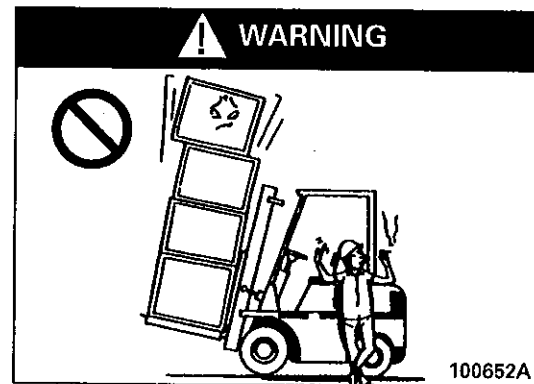


DO NOT move when someone's next to truck!

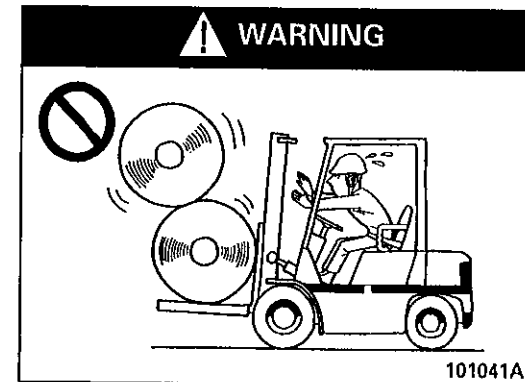
If someone is standing next to your truck, don't move until they are out of the way.



DO NOT allow anyone to walk or stand under raised forks!

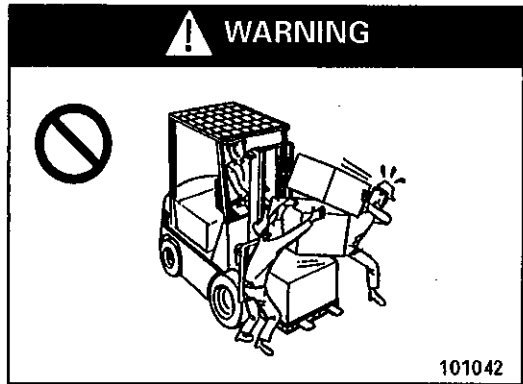


DO NOT pick up unsecured loads that extend above the backrest extension height!

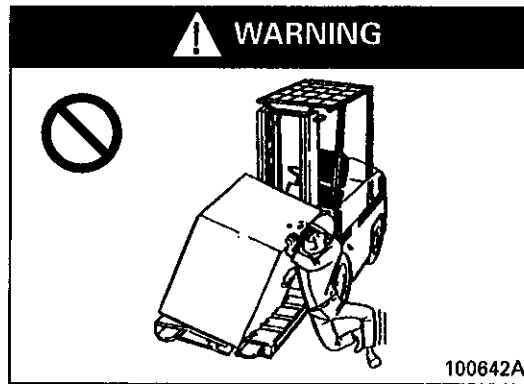


Handle only stable loads!

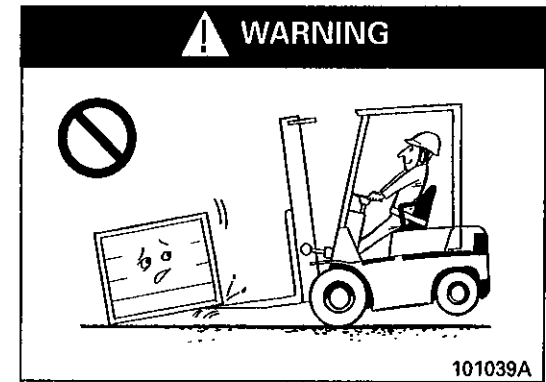
If a load is unstable, it can easily shift and fall on someone.



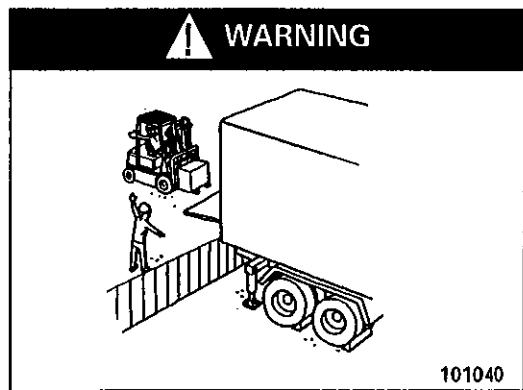
DO NOT allow unloading from raised loads!
Failure to follow this rules can cause serious injury.



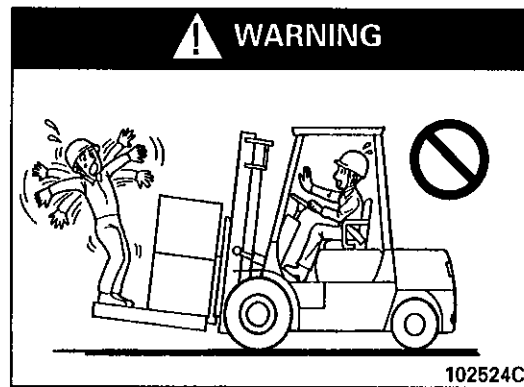
DO NOT use damaged pallets!
Make sure pallets and skids are sturdy and in safe operating conditions.



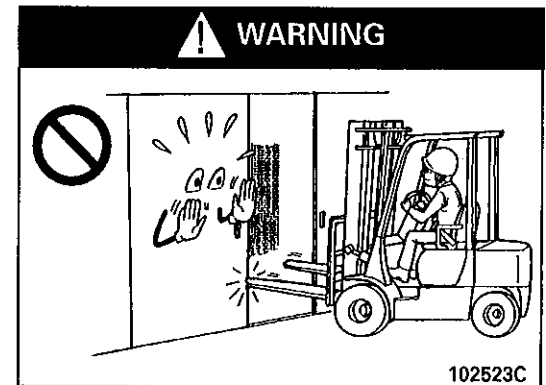
DO NOT abuse your forks!
Fork misuse can cause accidents, serious injuries and equipment damage.



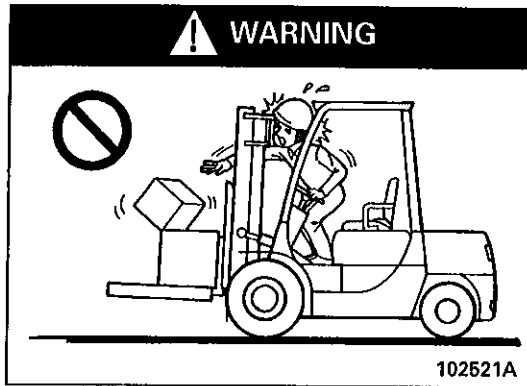
Drive onto a trailer carefully!
Make sure the trailer brakes are applied and the wheels are blocked while loading or unloading.



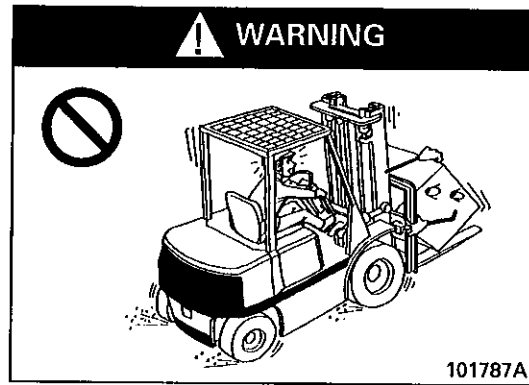
DO NOT allow any riders!
DO NOT permit riders on the forks or pallet.



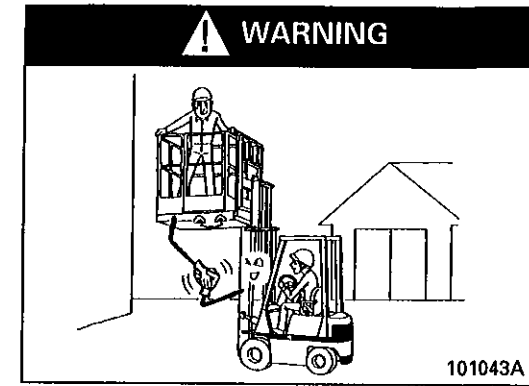
DO NOT abuse your equipment!
DO NOT use the forks to open or close the doors on a railroad car or to move a car.



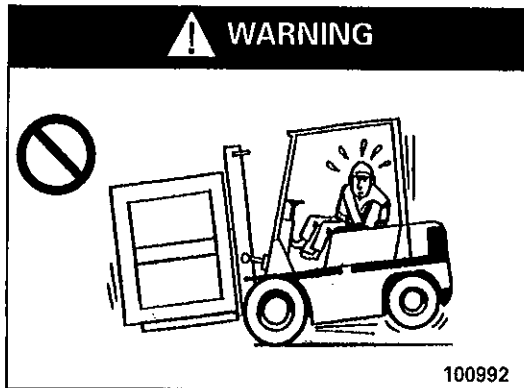
Stay clear of pinch points!
Keep your hands, feet, legs—every part of your body—out of the mast, carriage or attachment.



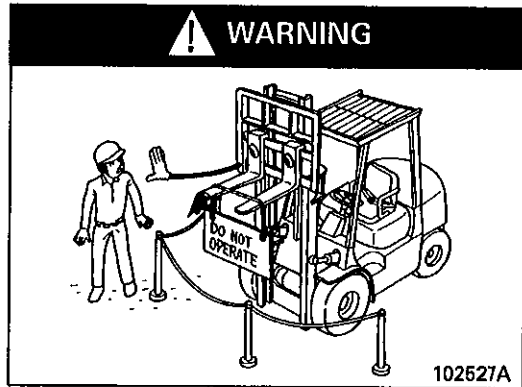
Shift the transmission smoothly!
Avoid sudden shifting while the truck is moving. This can cause damage to the transmission.



Use only specialized equipment designed to safely raise personnel to high work areas!

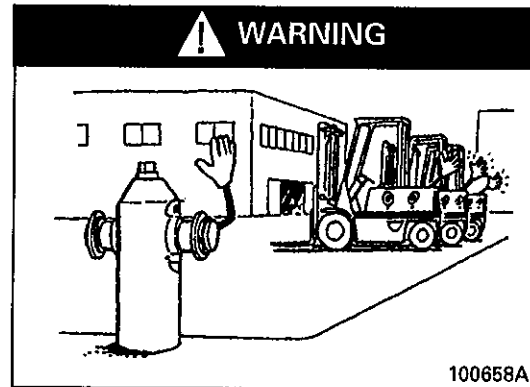


Always stay within the rated capacity!
Read the rated capacity chart to make sure a load is within the capacity of your forklift truck before you handle the load.



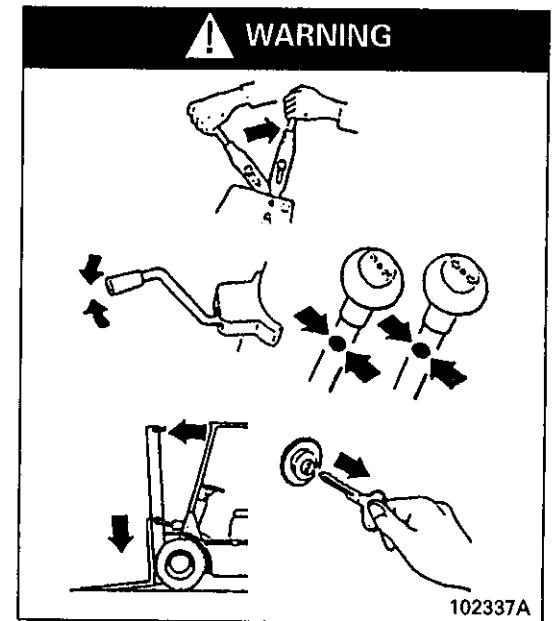
Park a disabled machine safely!

- If the lift mechanism is disabled and the forks cannot be lowered, park the truck in a non-operating area and attach warning tags to the forks to alert pedestrians and traffic.
- Use barriers to keep anyone from standing or passing under the forks.
- Remove the starter switch key and attach **DO NOT OPERATE** or similar warning tag to the truck.



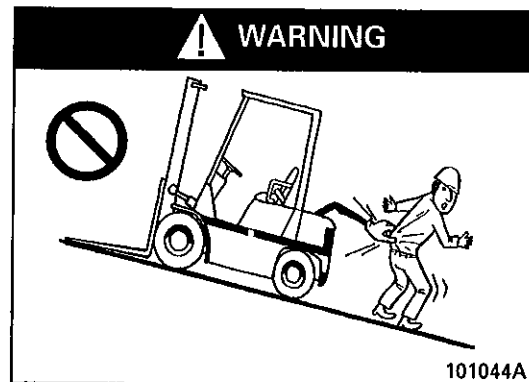
Park in authorized areas only!

Park a safe distance from access to fire aisles, stairways and fire equipment.
DO NOT park near a flammable material storage area.



When you leave your truck, or park it:

- Set the parking brake.
- Put the direction and gearshift lever in **NEUTRAL**.
- Lower the forks fully to the floor.
- Tilt the mast forward until the forks are flat.
- Turn the key off.



DO NOT park on a grade!

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

25

◆ LP-Gas

Only trained, authorized personnel should fill or exchange LP-Gas tanks.

Personnel engaged in filling LP-Gas tanks should wear protective clothing such as a face shield, long sleeves and gauntlet gloves.

Do not refuel or store LP-Gas powered forklift trucks near underground entrances, elevator shafts, or other places where LP-Gas could collect in a pocket and cause potential danger for an explosion.

Do not leave the forklift truck, for even a short time, near equipment that generates high temperatures. Ovens and furnaces are examples. The heat may raise the pressure of the fuel and open the relief valve.

Close the service valve on the tank when LP-Gas fueled forklift trucks are parked overnight or stored for long periods indoors with the fuel tank in place.

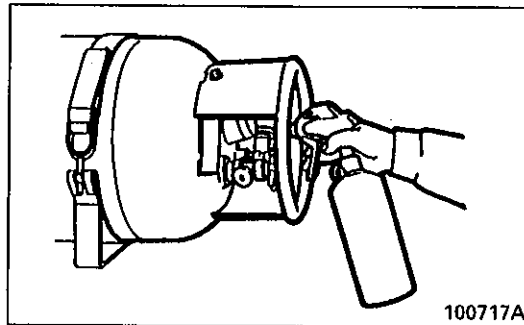
Close the valves on empty tanks.

Examine LP-Gas tanks before filling and before reuse. Look for damage to the valve, liquid gauge, fittings and hand wheels.

Check for dents, scrapes or other damage to the pressure vessel and for dirt or debris in the openings.

All defective or damaged LP-Gas tanks must be removed from service.

Inspect the LP-Gas fuel lines and fittings with a soap solution after filling the tank or when looking for leaks.



The careless handling of LP-Gas tanks can result in a serious accident. To reduce the risk of damage to tanks, use extreme care when transporting them.

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

The storage and handling of liquid fuels in the U.S.A. should be in accordance with the NFPA No. 30, "Flammable and Combustion Code." Outside the U.S.A., store and handle in accordance with local regulations.

The forklift truck should be refueled only at designated safe locations. Safe outdoor locations are preferable to those indoors.

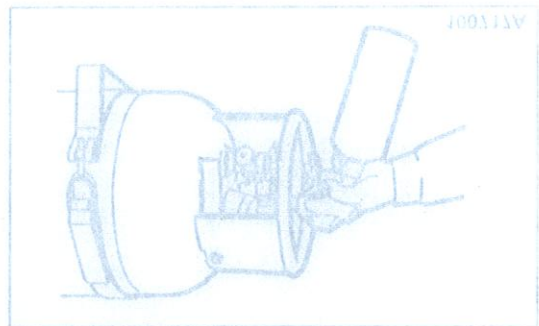
DO NOT completely fill the tank. The fuel expands when it gets warm and it may overflow. This will create a fire hazard.

Only trained, authorized personnel should fill or exchange LP-Gas tanks.

Do not drop, throw, roll or drag LP-gas tanks. Do not strike LP-Gas tanks or any associated parts of the tanks or fuel systems.

Check the LP-Gas tank for secure mounting. Loose tanks can cause pressure fuel lines to leak resulting in serious injury.

transporting them
of damage to tanks, use extreme care when
result in a serious accident. To reduce the risk
The careless handling of LP-Gas tanks can



looking for leaks
a soap solution after filling the tank or when
inspect the LP-Gas fuel lines and fittings with
be removed from service.
All defective or damaged LP-Gas tanks must

LP-Gas

KNOW YOUR FORKLIFT TRUCK

Serial Number & Capacity Plate

For quick reference, record your forklift truck's serial numbers in the spaces provided.

Chassis Name Plate

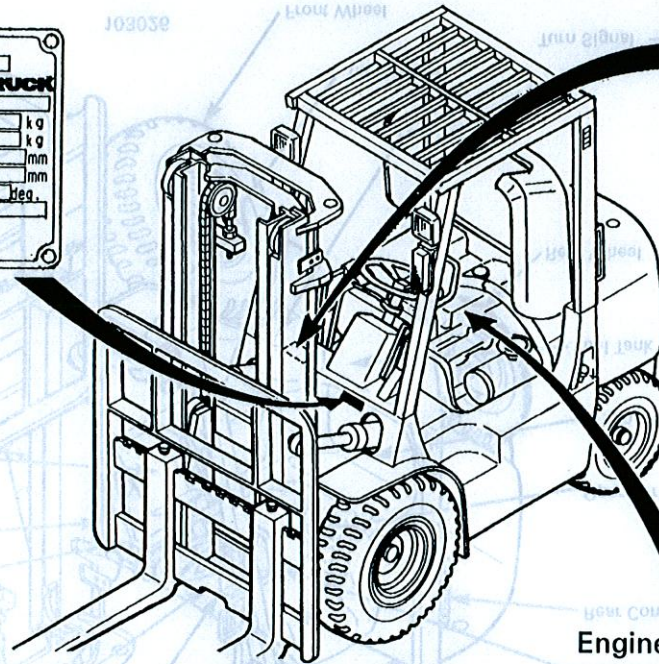
SERIAL No.	DATE
MITSUBISHI FORKLIFT TRUCK	
MODEL	ATT MODEL
TRUCK WEIGHT W/O ATT	kg
TRUCK WEIGHT W/ ATT	kg
CAPACITY W/O ATT	kg
CAPACITY W/ ATT	kg
MAX REARWARD MAST TILT	deg
TIRE PRESSURE FR/RE	
MITSUBISHI MITSUBISHI FORKLIFT TRUCK CO., LTD. TOKYO, JAPAN	

102763

Rated Capacity Plate

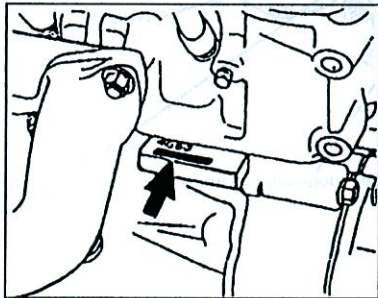
WARNING IMPROPER OPERATION OR MAINTENANCE COULD RESULT IN INJURY OR DEATH.	
MODEL	SERIAL No.
TYPE	TRUCK WT.
CAPACITY OF STANDARD TRUCK WITH SIMPLEX MAST AND FORKS	
MAXIMUM HEIGHT OF 130 IN. RATED CAPACITY WITH OPTIONAL MAST AND/OR ATTACHMENT LISTED BELOW.	
MAST: VERTICAL	
24in.	
A	B
ATTACH/MODEL NEETS DESIGN SPECS ANSI B56.1	

100641C



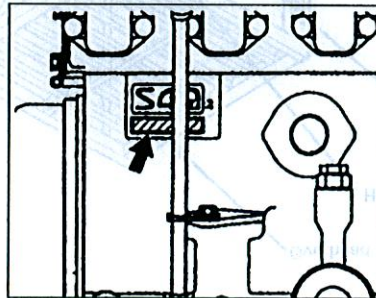
Engine Serial Number

Gasoline Engine Models



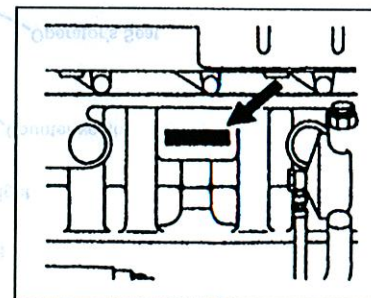
Left side of engine

Diesel Engine Models (1 ton capacity)



Left side of engine

Engine Serial Number (2 to 3 ton capacity)

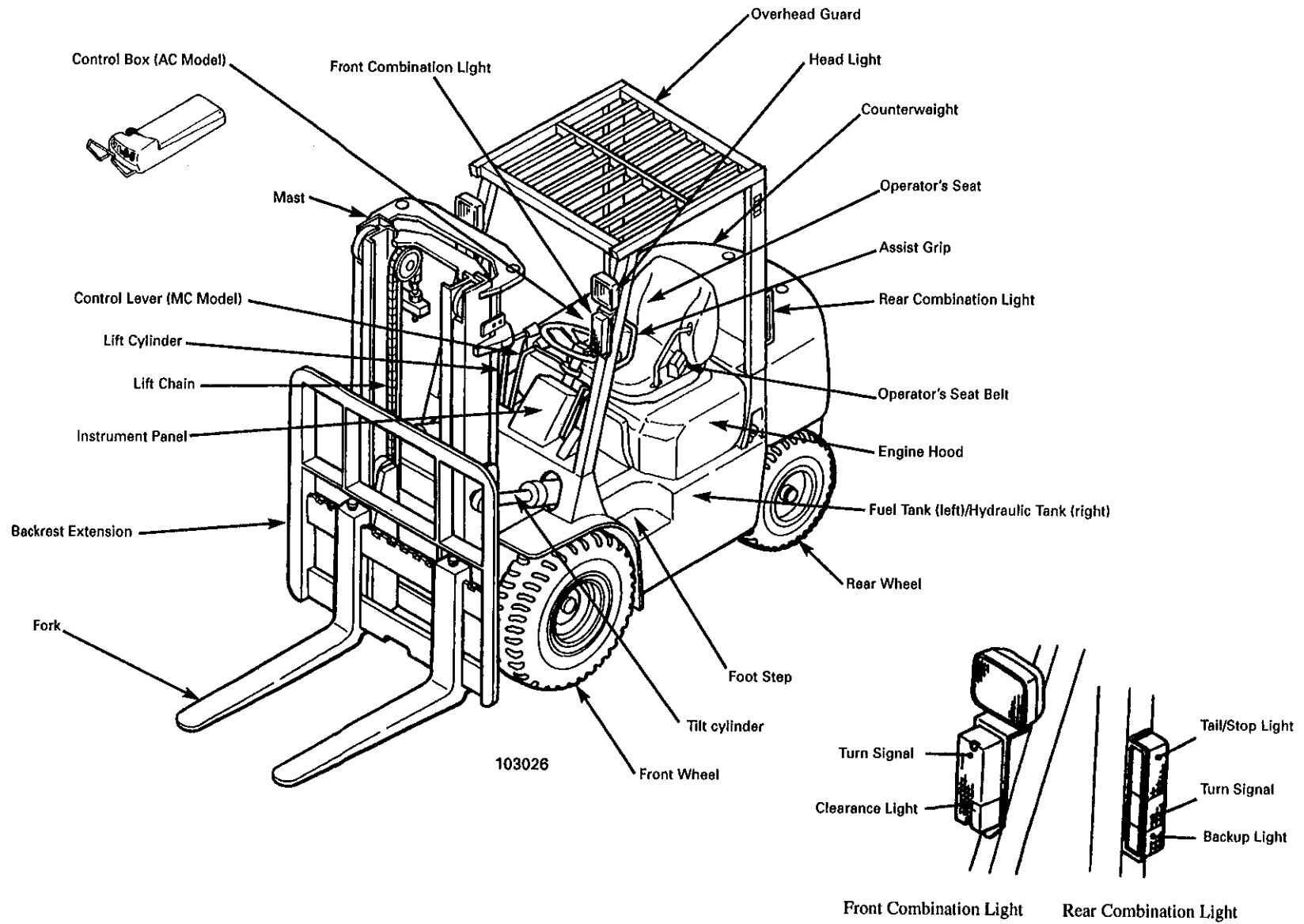


Left side of engine

103025

KNOW YOUR FORKLIFT TRUCK

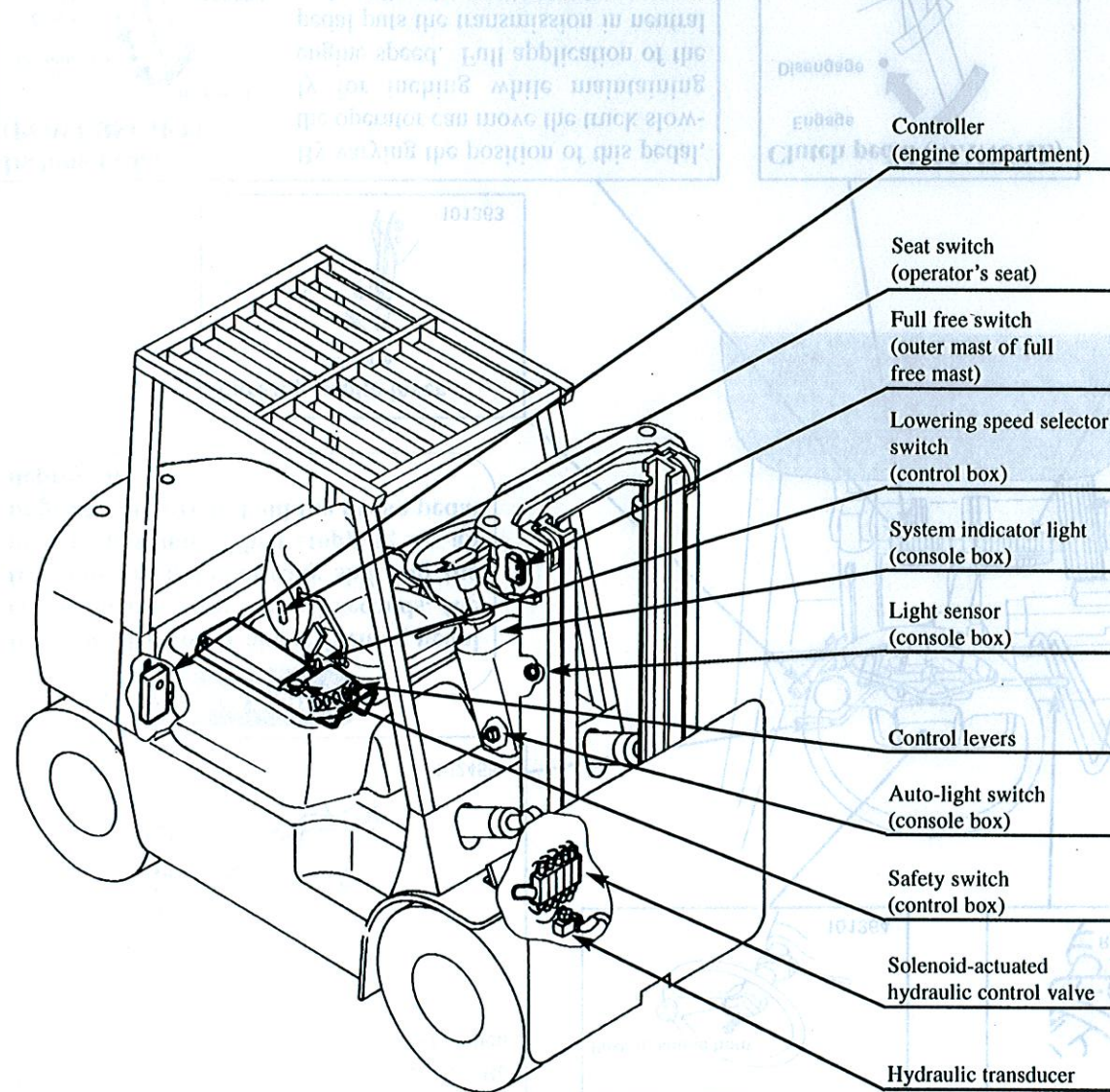
◆ Model View



KNOW YOUR FORKLIFT TRUCK

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◆ Lift, Tilt and Attachment Control System (AC model)



⚠ CAUTION

- This system consists of precise components. **DO NOT** attempt to make adjustment or repair yourself. Consult your Mitsubishi Forklift Truck Dealer.
- Moisture is harmful to the controller. When washing the components inside the engine compartment, be careful not to splash water or steam over this component.
- The seat has a built-in switch. You are unable to move the front end unless you are seated. When replacing the seat, be sure to select a genuine Mitsubishi seat.

103027

KNOW YOUR FORKLIFT TRUCK

◆ Operator's Compartment

Direction lever (POWERSHIFT)
 This truck is equipped with a neutral switch. Be sure to put the transmission in NEUTRAL when starting the engine.

Forward (F)
 Neutral (N)
 Reverse (R)

102455

Horn switch
 Push to sound horn

101364

Turn signal switch
 Left turn
 Right turn

100311

Gearshift lever (MANUAL)
 1st speed
 Neutral
 2nd speed

100315

⚠ WARNING
 If the accelerator, brake or inching pedal is not operated for several seconds, the transmission automatically shifts to the neutral position. When stopping on an upgrade, be sure to hold the brake pedal depressed.

Direction lever (MANUAL)
 Forward (F)
 Neutral (N)
 Reverse (R)

100315

Parking brake lever
 Release
 Apply

101363

Accelerator pedal
 Idling
 Full throttle

100039

Inching pedal (POWERSHIFT)
 Released
 Clutch disengaged
 Brake applied

By varying the position of this pedal, the operator can move the truck slowly for inching while maintaining engine speed. Full application of the pedal puts the transmission in neutral and applies the service brakes.

100037

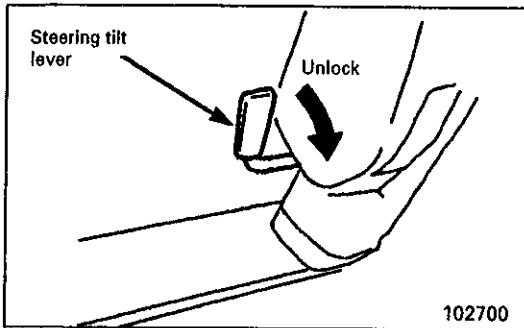
Clutch pedal (MANUAL)
 Engage
 Disengage

100038

Brake pedal
 Release
 Apply

100038

• **Steering Tilt Lever**

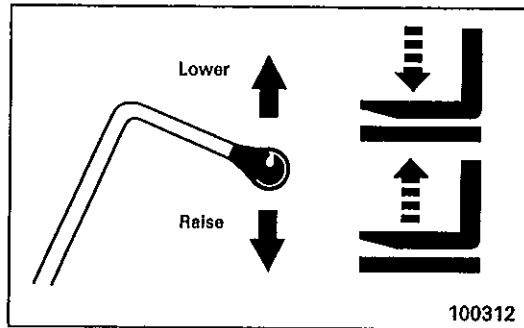


Push down the lever in arrow direction to unlock the steering wheel. Adjust it to accommodate operators or to make getting on and off the truck easier.

The steering wheel is locked where the lever is released.

The lever will return to lock position when releasing.

• **Lift Control Lever**

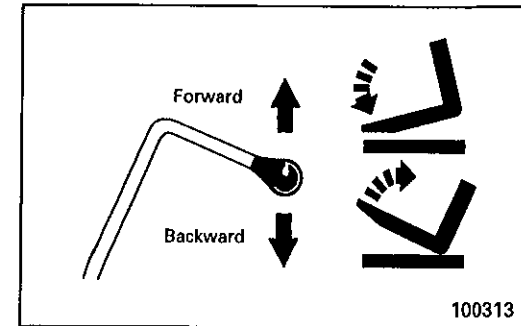


Lifting speed is controlled by the speed of the engine (the position of the accelerator pedal) and the position of the control lever.

Lowering speed is controlled by the position of the control lever regardless of the speed of the engine.

The lever will return to the NEUTRAL position when released.

• **Tilt Control Lever**



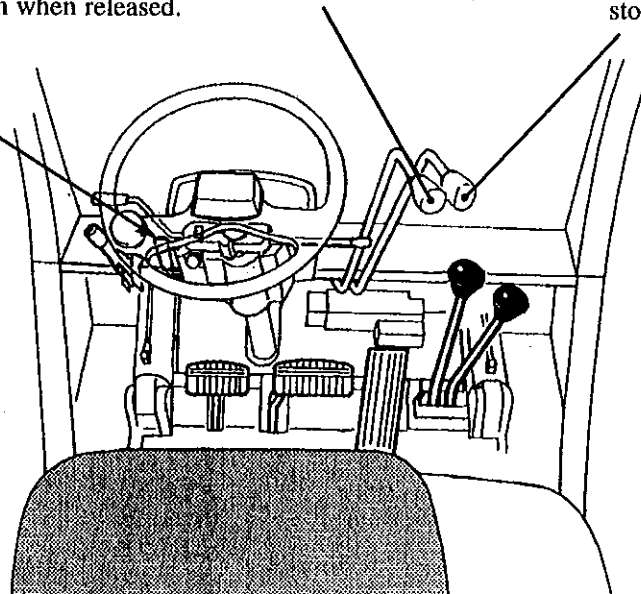
Tilting speed is controlled by the speed of the engine (the position of the accelerator pedal) and the position of the control lever.

The lever will return to the NEUTRAL position when released.

The mast will not tilt forward even if the control lever is moved forward when the engine is stopped.

⚠ WARNING

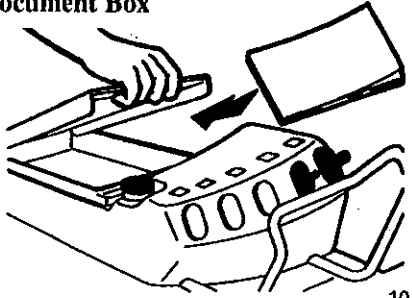
- Always adjust the steering wheel tilt angle while stopped at a safe place, as adjustment while driving may lead to accidents.
- The steering wheel will tilt fully forward automatically without holding the steering wheel.



KNOW YOUR FORKLIFT TRUCK

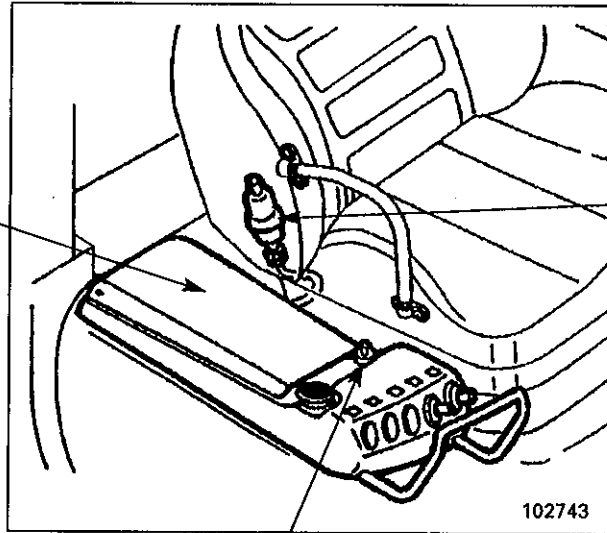
◆ Control Box (AC model)

Document Box



101386A

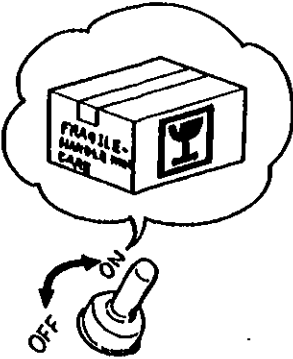
Keep daily inspection sheet, etc. in this box as a ready reference.



- **Seat Switch**

This switch is built in the seat. You are unable to move the front end unless you are seated. When replacing the seat, be sure to select a genuine seat.

Lowering Speed Selector Switch



101468

ON This position allows you to lower the forks at 70% of the normal or rated speed. Use this switch until you feel sure of what is going to happen when you move the lift control, or when you handle fragile, low-density loads.

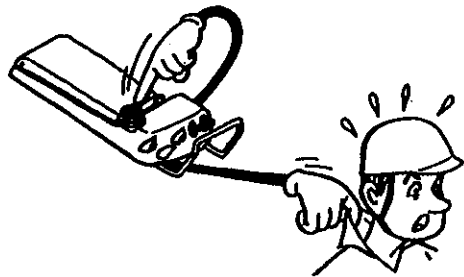
OFF This position allows you to lower the forks at the normal speed.

DO NOT touch the lift/tilt or attachment control when turning this switch ON or OFF.

Safety switch (lift, tilt/attachment actions stop switch)

Use this switch:

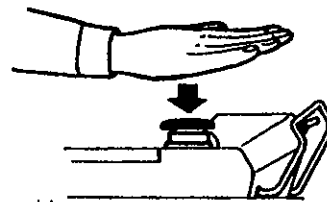
1. When you get off the truck – for safety.
2. When you have to stop lift, tilt and attachment actions in an emergency – without stopping the engine.



101467

How to use

- To stop (lock) lift, tilt and attachment actions, push down on the switch. The front end will not move even if the controls are moved.



STOP (lock) position
(The switch will remain in this position when released.)



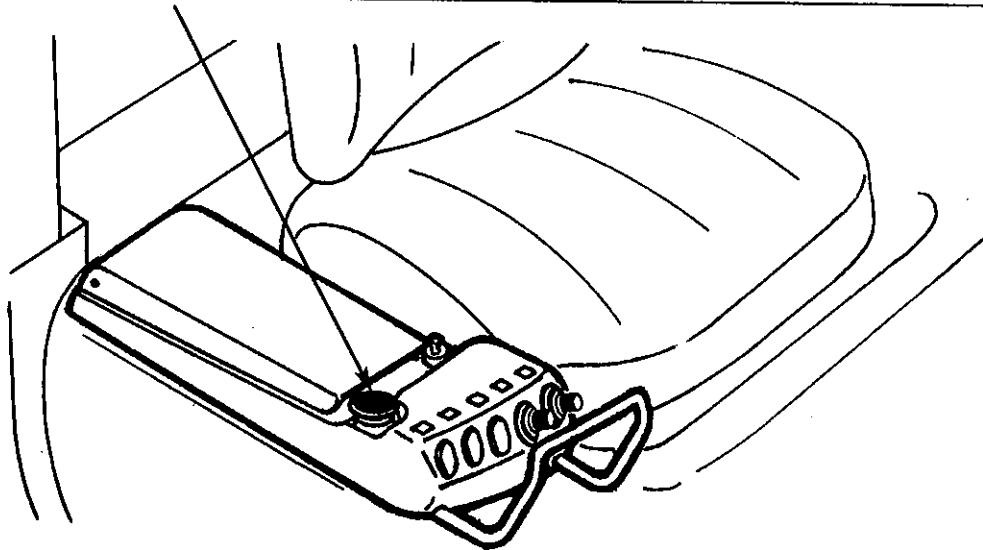
- To work (unlock these actions), turn the switch clockwise.



WORK (unlock) position

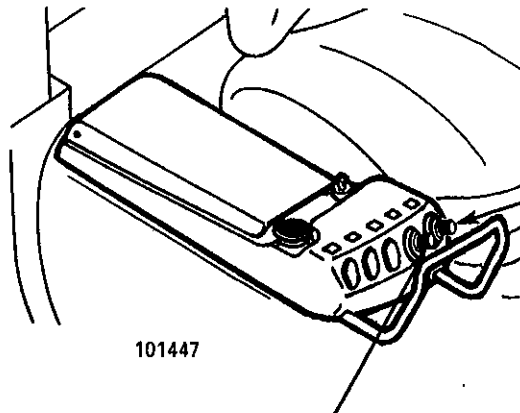


101388



101447

- The lights will go OFF when the safety switch is pushed down even if the auto light switch is in ON position.
- To turn ON the lights when the safety switch is being pushed down, turn ON the light switch and turn OFF the auto-light switch.



Lift control lever

101366

Lifting speed is controlled by the speed of the engine (the position of the accelerator pedal) and the position of the control lever.

Lowering speed is controlled by the position of the control lever regardless of the engine speed. Remember, this speed would sometimes increase suddenly if the load is jolting. Wait until the load stops jolting.

The lever will return to NEUTRAL position when released.

(A safety device is built in the lift system.)

Tilt control lever

101367

Tilting speed is controlled by the speed of the engine (the position of the accelerator pedal) and the position of the control lever.

The lever will return to NEUTRAL position when released.

(A safety device is built in the tilt system.)

• **Direction Lever (POWERSHIFT)**

The forklift trucks are equipped with a neutral start switch; the engine will not start unless the direction lever is in NEUTRAL position.

• **Inching Pedal (POWERSHIFT)**

Depress the inching pedal modulates the hydraulic pressure to the clutch packs, permitting the discs to slip. Further depressing it completely relieves clutch pack pressure and applies the service brakes to stop and hold the truck. This pedal is used to provide precise inching control at slow travel speed, with high engine rpm – for fast hydraulic lift during load approach, pick up or positioning.

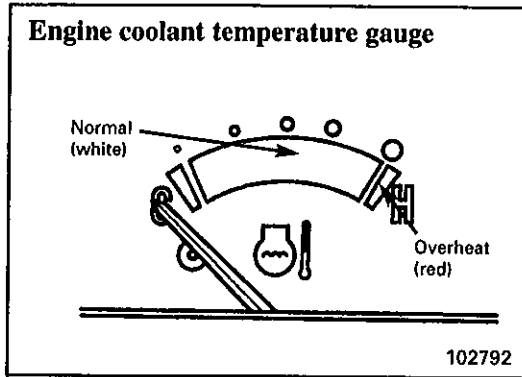
Safety device

The safety device prevents lift, tilt and attachment actions even if the controls are manipulated:

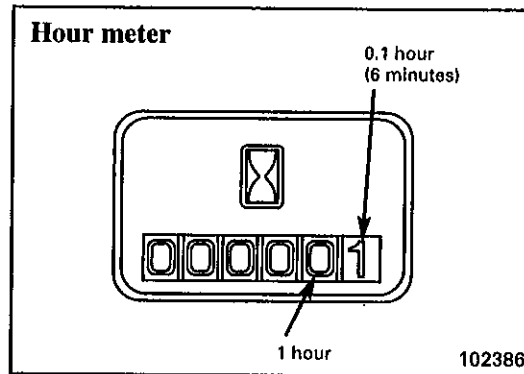
1. When the engine is not running
2. When the engine is running but the safety switch is in STOP (lock) position (being pushed down).
3. When the engine is running but you are not seated.

KNOW YOUR FORKLIFT TRUCK

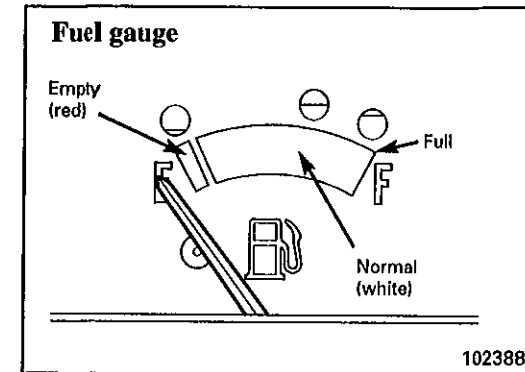
◆ Instrument Panel



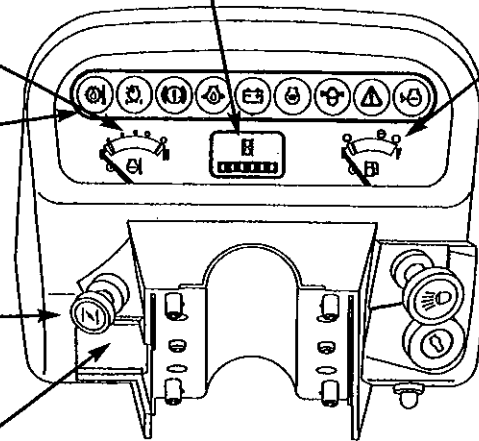
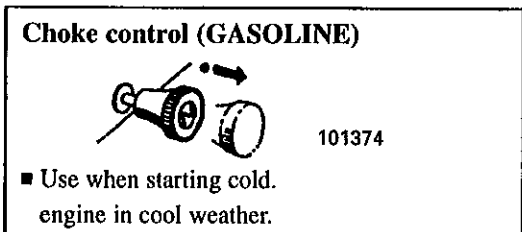
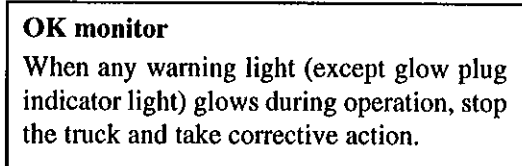
The gauge needle is normally in the white zone. If the needle moves into the red zone, stop the truck, if engine coolant temperature gauge needle moves into red zone.



Starts registering the operating hours of the engine when the key is turned to the I (ON) position. Periodic maintenance recommendations are based on these engine hours.

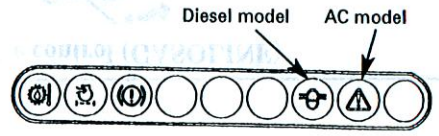


Indicates the amount of fuel in the tank when the key is turned to the I (ON) position. To get an accurate gauge reading, be sure the truck is level.



102793

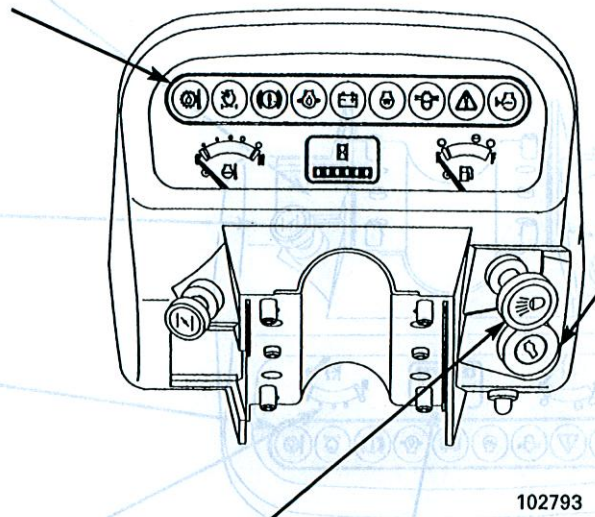
OK monitor bulb check
 The following warning lights should glow when the key is turned to the I (ON) position. (The lights will go out when the engine is started; if not, the charging system has a defect.)



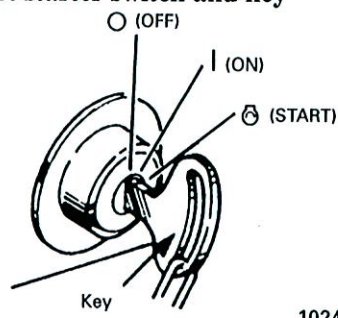
Diesel model AC model

102456A

If the lights fail to glow with the key in the I (ON) position, the bulbs have burnt out. Consult your Mitsubishi forklift truck dealer.



Anti-restart starter switch and key

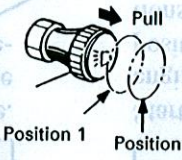


○ (OFF)
 I (ON)
 Ⓢ (START)
 Key

102453A

Has a built-in mechanical lockout that prevents the key from being turned to the Ⓢ (START) position while the engine is running. Turn the key back to the ○ (OFF) position before re cranking the engine.

Light switch




Position 1 Position 2 Pull

100048A

Light	position	
	1	2
Instrument panel light	⊘	⊘
Tail lights	⊘	⊘
Clearance lights	⊘	⊘
Head lights		⊘

NOTICE: The lights may be turned on by pulling the switch outward regardless of the starter switch position. Turn off the lights when the truck is not being operated to prevent the battery from discharging.

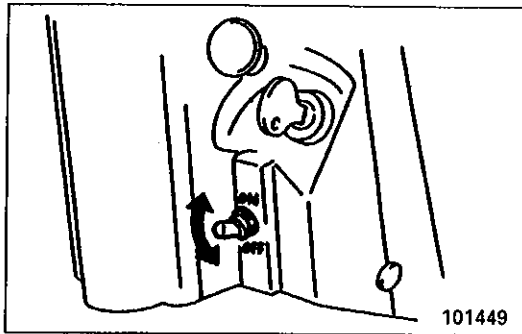
○ (OFF)	Removes all power from instrument panel and electrical circuits except for horn and lights.
I (ON)	Applies all power to all electrical circuits except for starter circuit. In diesel models, power is applied to heater plugs for 6 seconds and OK monitor indicator glows.
Ⓢ (START)	Applies power to the starter motor to crank the engine. A switch spring returns the key to the I (ON) position when the key is released.



OFF ON 102391

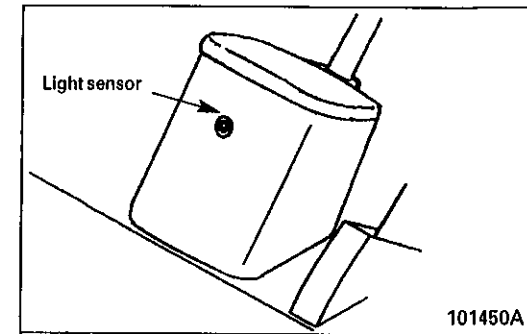
KNOW YOUR FORKLIFT TRUCK

◆ Auto-Light Switch (AC model)



With this switch in ON position, the lights will automatically come ON when you drive into a dark area.

- The lights will not come ON when the starter switch is in OFF position and the auto-light switch is in ON position.
- If the auto-light switch is turned OFF during traveling, ON-OFF control of the lights is based on the position of the light switch.
- The sensitivity of the light sensor is adjustable. For this adjustment, contract your Mitsubishi Forklift Truck Dealer.



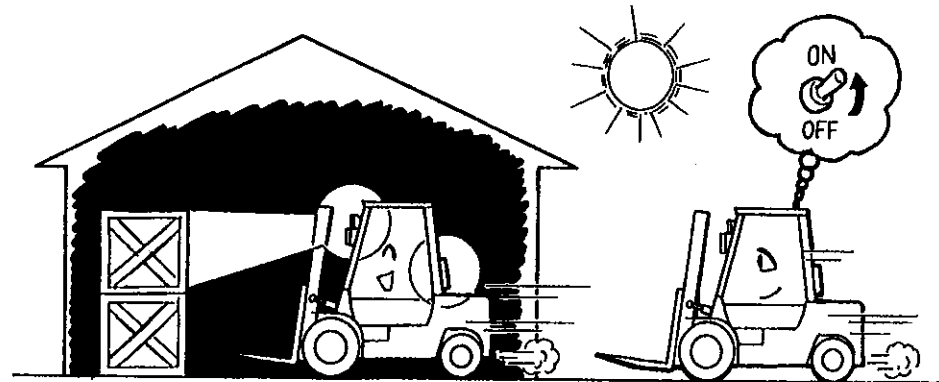
CAUTION

Keep the light sensor clean at all times. Wipe off dirt build-up on the sensor lens.

When auto-light switch is in ON position:

Light	Working area Light switch position	Dark			Light		
		OFF	1	2	OFF	1	2
Instrument panel light		☹	☹	☹			
Tail lights		☹	☹	☹			
Clearance lights		☹	☹	☹			
Head lights		☹	☹	☹			

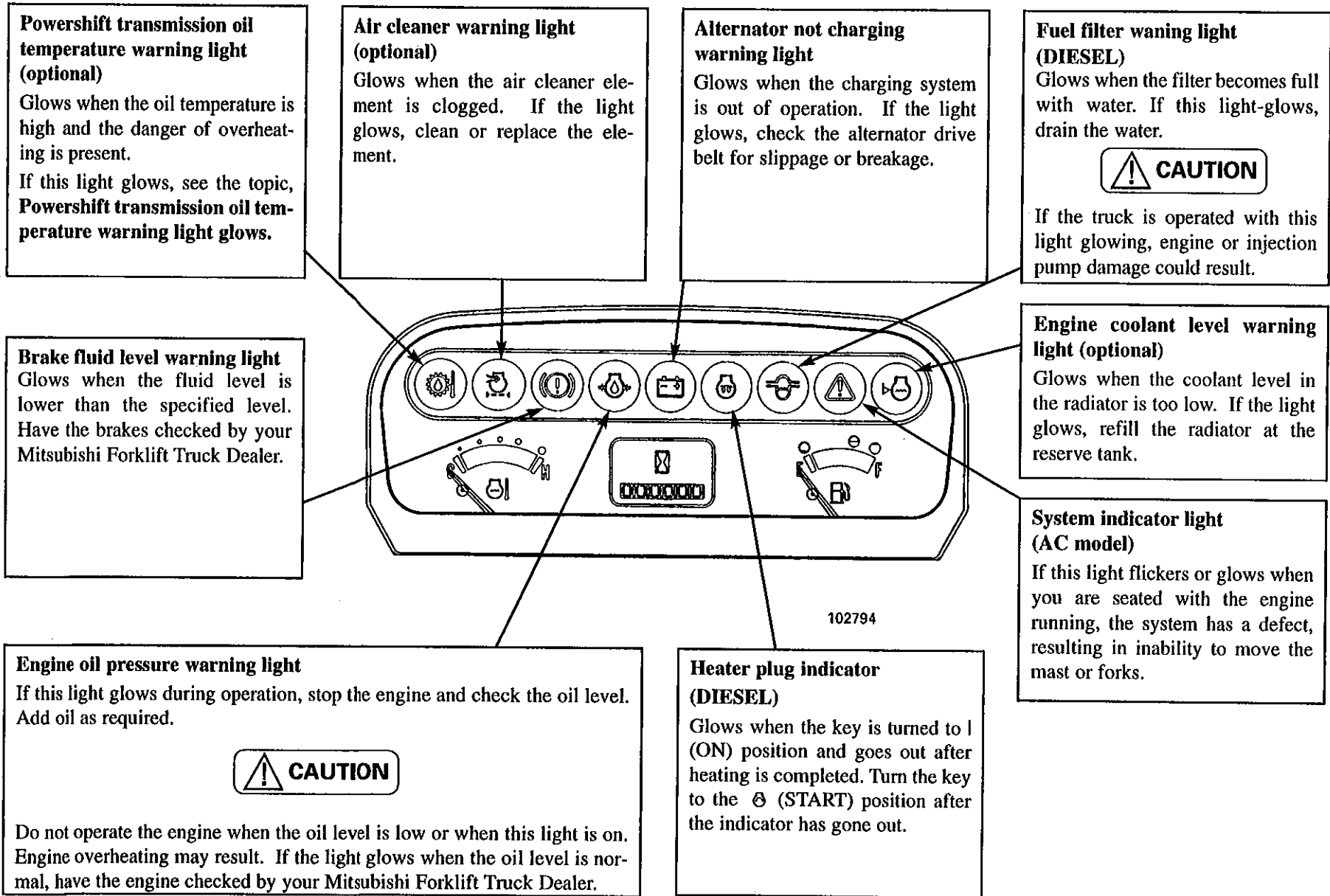
■ The lights will not come ON even in the dark area when the safety switch is in STOP (lock) position (being pushed down).



101472A

KNOW YOUR FORKLIFT TRUCK

◆ OK Monitor (Warning Lights and Indicators)



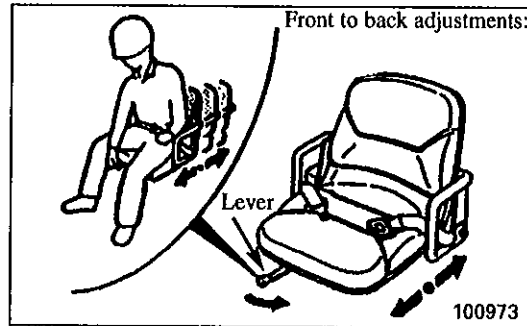
KNOW YOUR FORKLIFT TRUCK

39

- ◆ Operator's Seat
 - Adjustment



Adjust the seat before starting the engine. After adjusting, jiggle the seat to make sure it is properly locked. DO NOT adjust the seat while the truck is in motion.

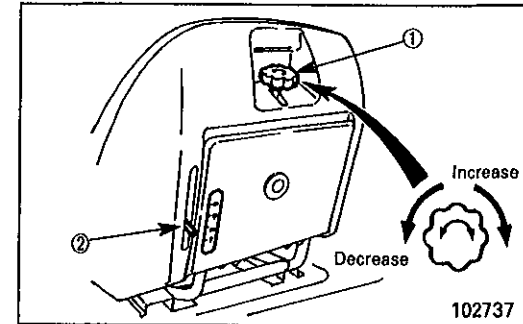


Move the lever to the left, slide the seat to one of the seven positions, and release the lever.

⚠ WARNING

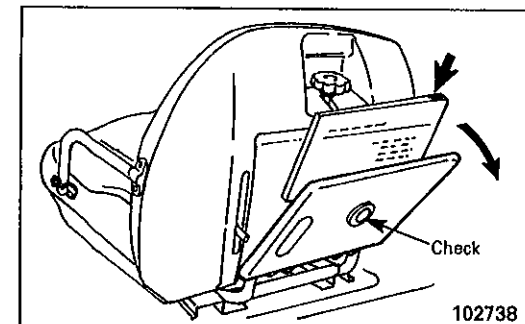
Your forklift truck comes equipped with an MCF (Mitsubishi Caterpillar Forklift) operator restraint system. Should it become necessary to replace the seat for any reason, it should only be replaced with another MCF operator restraint system.

- Adjustment of Suspension



Adjust the suspension before sitting in the seat. Turn knob ① until gauge ② indicates the weight of the operator. Turning the knob clockwise increases the gauge indication, and turning it counterclockwise decreases.

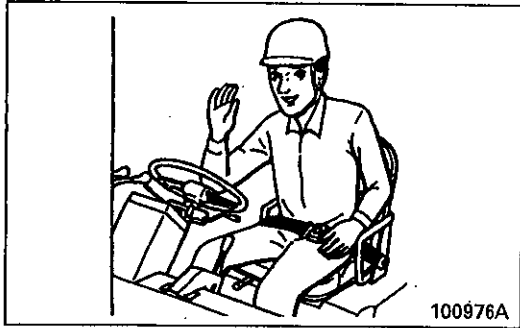
- Pocket for the Manual



Place the operator's manual in this pocket. The window allows you to check from outside whether the operator's manual is stored in the pocket.

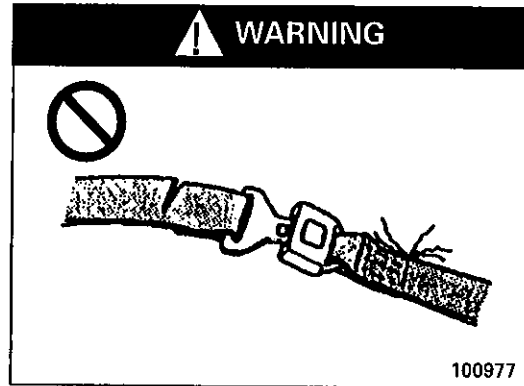
KNOW YOUR FORKLIFT TRUCK

◆ Seat Belt



The seat belt will help to restrain you in accidents such as a tipover or front end collision. If you are unrestrained in a tipover, you can fall outside of the operator's compartment and be crushed by the forklift truck. If you are unrestrained and the forklift truck comes to a sudden stop, you will continue moving forward until you hit a solid object.

Wear your seat belt anytime you operate a forklift truck.



If the seat belt is torn, the pulling motion is interrupted during extension of the belt, or the belt cannot be inserted into the buckle properly replace the seat belt assembly.

The seat belt shall be examined at the regular service intervals. It is recommended that it be replaced if any of the following conditions are found.

- Cut or frayed strap
- Worn or damaged hardware, including anchor points
- Buckle or retractor malfunction
- Loose stitching



Also, replace the seat belt assembly if it was worn during an accident.

⚠ WARNING

Seat belts can “jack-knife” drivers—the upper body bends tightly at the waist. If you are pregnant or have suffered an abdominal disease or injury, consult a doctor before using the seat belt.

▲ WARNING

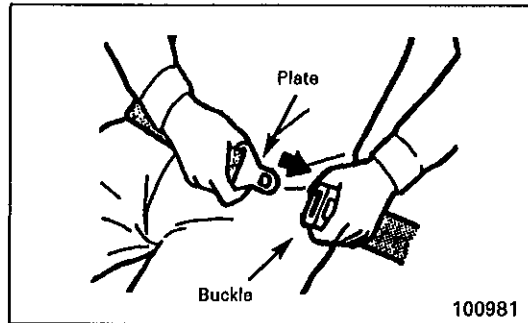
If you fasten the belt across your abdomen, the belt will dig into your abdomen in an accident and may cause serious internal injuries.

NOTICE: It is not necessary to adjust the belt length.

The belt is designed to fit any body size.

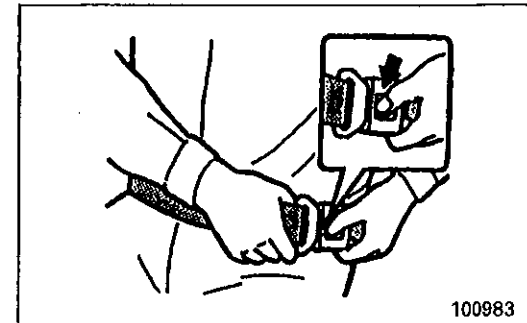
Tug on it to confirm a tight fit.

To Fasten

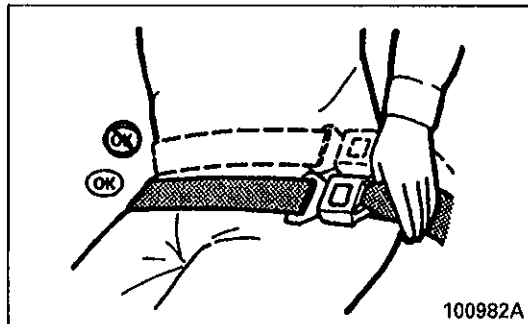


1. Grip the plate (connector) of the belt and pull the belt from the retractor. Then insert the plate into the slot of the buckle until a snap is heard.
2. Make sure the belt is not twisted.

To Release



Push the button in the buckle to release the belt. The belt will automatically retract when released. Hold the plate of the belt and allow the belt to slowly retract.



3. Be sure to fasten the belt as low as possible across your hips, not across your abdomen.

KNOW YOUR FORKLIFT TRUCK

◆ Fuses and Lights

CAUTION

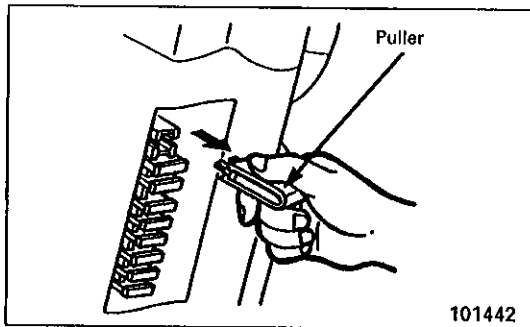
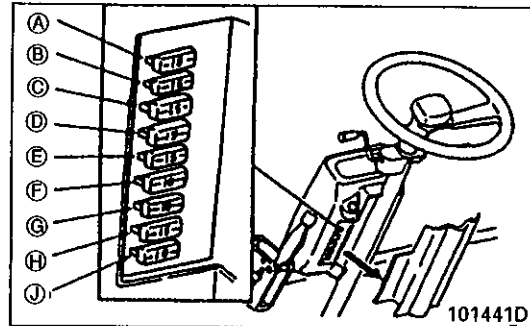
- Always replace fuses with fuses of the correct amperage.
- If fuse burns out immediately and you cannot locate the cause, have your Mitsubishi Forklift Truck Dealer make a circuit check.
- Use a replacement light bulb of the same wattage.

Code	Capacity	Circuit
Ⓐ	10A	Backup (MANUAL) and stop lights
Ⓑ	15A	Instrument panel, turn signal and backup (POWERSHIFT) lights
Ⓒ	15A	Spare power source and engine thermo-switch (only DIESEL (S4Q2))
Ⓓ	15A	Tail, head, clearance and working (optional) lights
Ⓔ	15A	Head lights
Ⓕ	10A	Controller (AC model) Spare fuse (MC model)
Ⓖ	10A	Horn
Ⓗ	15A	Spare fuse
Ⓙ	10A	Controller (AC model) Spare fuse (MC model)

• Lights Won't Come On

Check for burned-out or "blown-out" fuses first.

Check the fuses one by one by operating the light switch and seeing if each light comes on.



To remove the fuse or insert a replacement fuse, use the puller found in the fuse panel lid.

Lamp type	Capacity
Meter panel lamp	13V-3W
Tail/Stop lamp	12V-8W/23W
Headlamp	12V-55W
Turn signal lamp	12V-27W (front) 12V-23W (rear)
Back-up lamp	12V-10W
Working lamp (opt)	12V-27W

Lights are suspected to have burned out.

100846

One light of the circuit fails to light.

All lights of the circuit fail to light.

Check to see if fuse has been blown out.

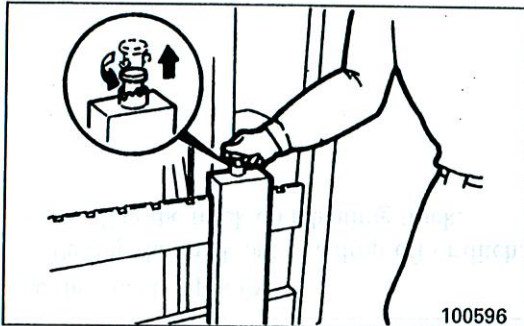
100845

KNOW YOUR FORKLIFT TRUCK

◆ Fork Stoppers

⚠ WARNING

When adjusting the fork spread, be careful not to pinch your hand between forks and lift bracket.



For load stability, adjust the forks as wide as possible.

To adjust the fork spread, pull up and turn the stoppers 90 degrees of angle. Spread the forks to fit the load.

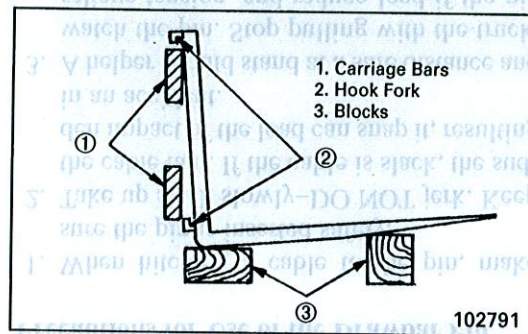
⚠ CAUTION

- After adjusting the fork spread, restore the stopper to the original position to lock the forks.
- Position each fork the same distance from the center of the backrest extension.

◆ Changing Forks

• To Remove

Remove a fork from the carriage to replace it or to access other parts of the truck for maintenance. Slide the forks, one at a time, to the installation/removal notch on the bottom carriage bar. Tilt the carriage forward, then lower it until the hook fork disengages the forks from the carriage. Use a lifting device to move the forks away from the truck.



• To Install

Position the forks side-by-side on the floor in a location where they can be approached from the rear by the forklift truck. Slowly drive the forklift truck, with the carriage fully lowered and fully tilted forward, to a point just to the rear of the forks. Carefully slide the forks, one at a time, onto the carriage so the top hook of the fork is placed above the top carriage bar. Raise the carriage to engage the top hooks allowing the bottom hooks to pass through the installation/removal notch. Then carefully slide each fork on the carriage so both the upper and lower hooks engage the carriage. Lock the forks in place by engaging the fork lock pins.

⚠ WARNING

DO NOT try to move a fork without a lifting device. Each fork can weigh in excess of 45 kg (100 lb.).

◆ Safety Equipment

- Overhead guard
- Load backrest extension
- Horn
- Warning decals

To save you and people around you from serious injury or death, DO NOT use a forklift truck without safety equipment in proper operating order.

◆ Additional Warning Devices

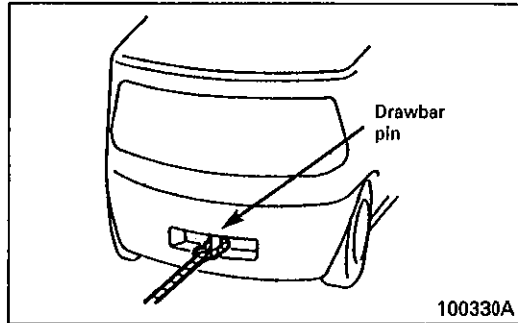
- Head lights, turn signal lights, backup lights, tail/stop lights, clearance light
- Working light (opt)

KNOW YOUR FORKLIFT TRUCK

◆ Drawbar Pin

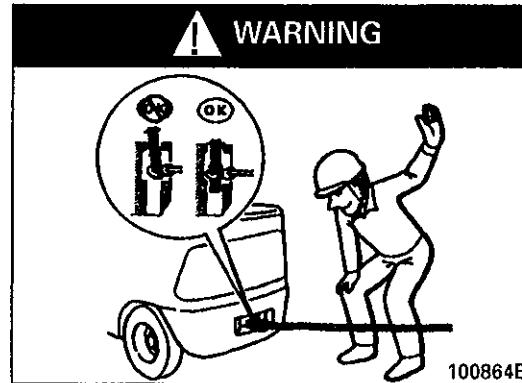


DO NOT use the drawbar pin for towing loads.



Use the drawbar pin for:

- Pulling the truck out of a drop-off or ditch.
- Loading the truck on a hauling truck.



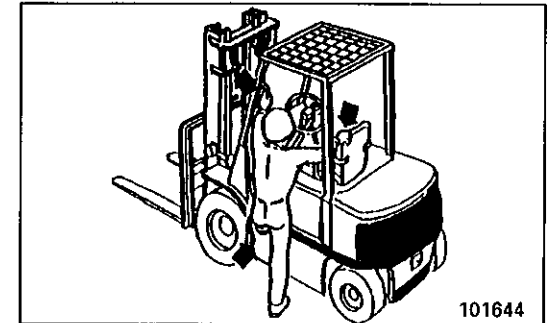
Precautions for Use of the Drawbar Pin

1. When hitching a cable to the pin, make sure the pin is inserted safely.
2. Take up slack slowly—**DO NOT** jerk. Keep the cable taut. If the cable is slack, the sudden impact of the load can snap it, resulting in an accident.
3. A helper should stand at a safe distance and watch the pin. Stop pulling with the truck, relieve tension, and reduce load if the pin starts to come out.

◆ Assist Grip



DO NOT grab the steering wheel or lever.
DO NOT jump on or off the truck.

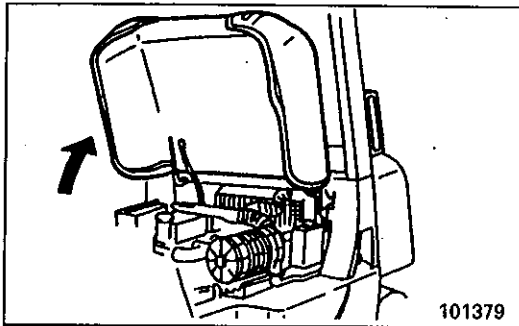


Grasp the assist grip with the left hand, the seat backrest with the right hand, and step up with the left foot to get on the truck safely.

KNOW YOUR FORKLIFT TRUCK

◆ Engine Hood

45



The engine hood swings up to fully expose the engine compartment for daily inspection, servicing and lubrication.

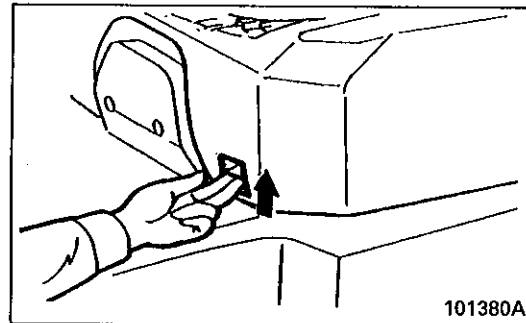
Inspection points inside engine compartment

- Engine oil level
- Engine coolant level
- Hydraulic oil level
- Brake fluid level
- Air cleaner element
- Alternator drive belt
- Battery electrolyte level
- Clutch oil level
- Fan belt

⚠ CAUTION

When closing the engine hood, be careful not to pinch your hand.

• Hood Latch



To open

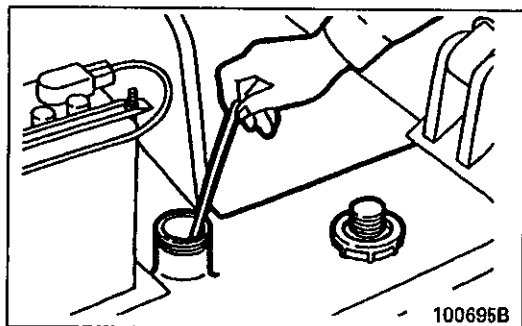
Pull the latch and raise the hood and seat assembly. Make sure the support cylinder securely holds the hood open.

To close

Push down on the hood and seat assembly until it is securely latched.

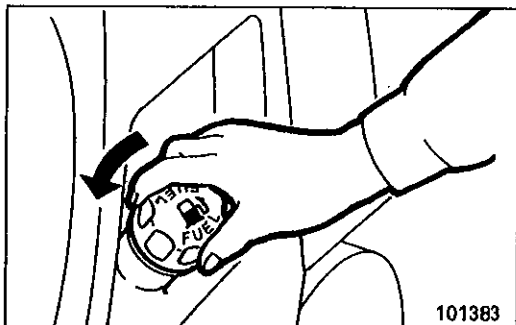
KNOW YOUR FORKLIFT TRUCK

◆ Hydraulic Tank Oil Level/Filler Hole



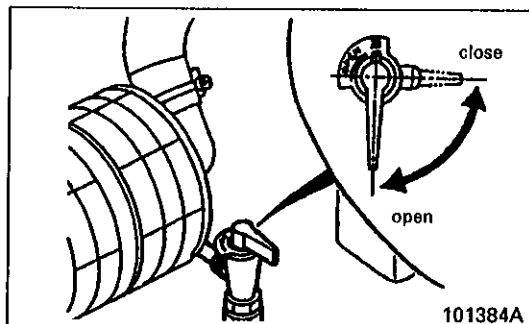
The oil level/filler hole is located on the right side of the truck inside the engine hood. To check the oil level, use the dipstick located in the hole.

◆ Fuel Filler



The fuel filler is located on the left side of the truck. The cap can be removed by turning it counterclockwise.

◆ Fuel Shut-off Valve



The fuel shut-off valve is located near the air cleaner inside the engine hood. In an emergency or when performing maintenance, close this valve.



CAUTION

Confirm the engine type before filling the tank with the recommended fuel.

! WARNING



Never fill the tank near an open flame or when the engine is running. When filling, keep the funnel or fuel hose nozzle in contact with the tank's metal. This reduces the risk of an electric spark igniting the fuel.

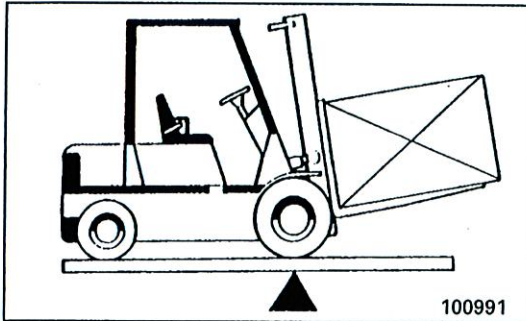
! WARNING



After refueling, close the cap tightly and wipe up spillage.

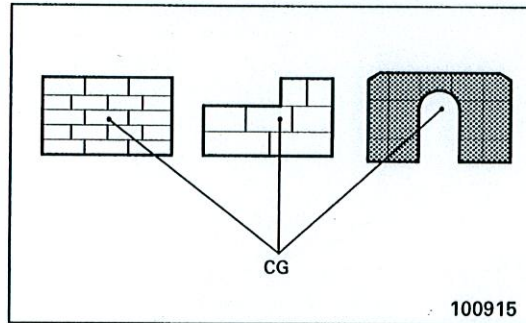
■■■■■■■■■■■■■■■■■■■■ HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE ■■■■■■■■■■■■■■■■■■■■

◆ Know What Forklift Truck Stability Is

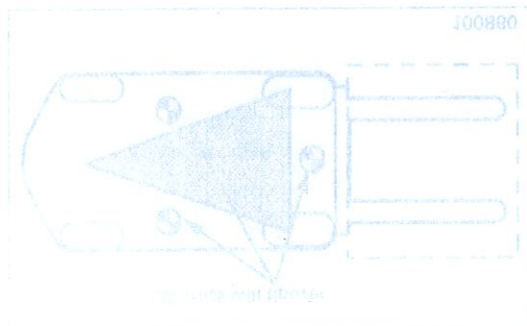


Counterbalanced forklift truck design is based on the balance of two weights on opposite sides of a fulcrum (the front axle). The load on the forks must be balanced by the weight of the forklift truck. The location of the center of gravity of both the truck and the load is also a factor. This basic principle is used for picking up a load. The ability of the forklift truck to handle a load is discussed in terms of center of gravity and both forward and sideways stabilities.

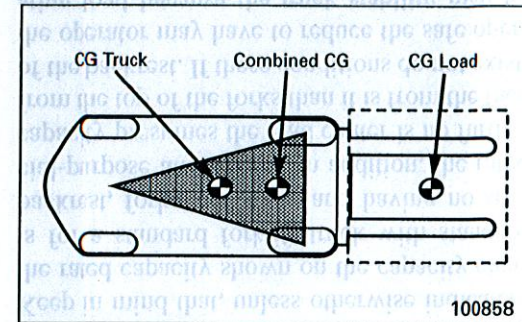
◆ Center of Gravity (CG)



CG is defined as the point of an object where its weight is evenly distributed. If the object is uniform, its geometric center will be the same as its CG. If it is not uniform, the CG could be a point on either side of the normal geometric center. When the forklift truck picks up a load, the truck and load have a new, combined CG.



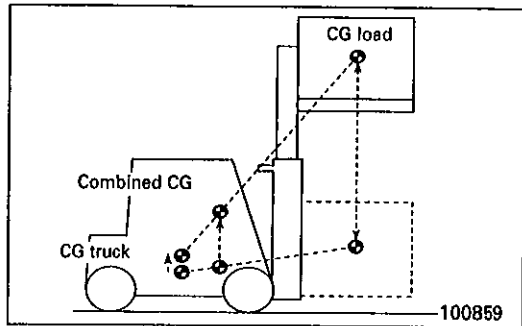
◆ Stability and Center of Gravity



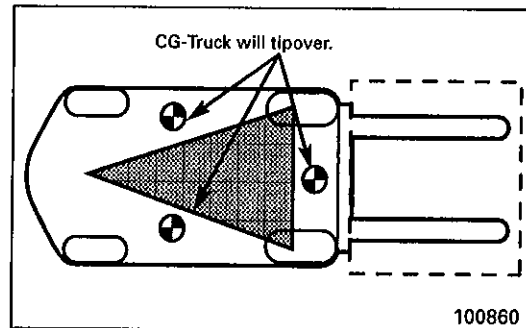
The stability of the forklift truck is determined by the location of its CG, or if the truck is loaded, the combined CG. The forklift truck has moving parts and, therefore, has a CG that moves. The CG moves forward or backward as the mast is tilted forward or backward. The CG moves up or down as the mast moves up or down. The CG and, therefore, the stability of the loaded forklift truck, is affected by a number of factors such as:

- The size, weight, shape and position of the load.
- The height of the lifted load.
- The amount of forward or backward tilt.
- Dynamic forces created when the forklift truck is accelerated, braked or turned.
- Condition and grade of surfaces on which the forklift truck is operated.
- Tire pressure.

◆ Forklift Truck Stability Base

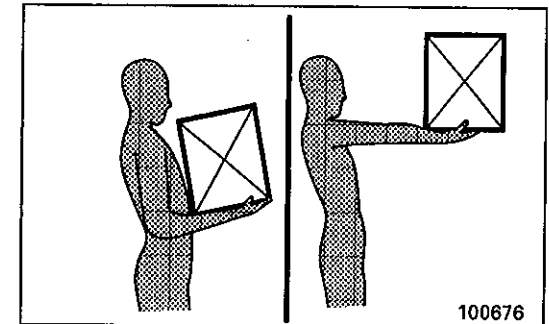


These factors must be considered when the forklift truck is unloaded, as well, because an empty forklift truck will tipover to the side more easily than a forklift truck carrying a load in the lowered position.



In order for the forklift truck to be stable (not tipover forward or to the side), the CG must stay within the area of the forklift truck stability base - a triangle drawn between the front wheels and the pivot of the rear axle. If the CG moves forward of the front axle, the forklift truck will tipover forward. If the CG moves outside of the line on either side of the stability base, the forklift truck will tipover to the side.

◆ Rated Capacity (Weight and load center)



The rated capacity of the forklift truck is shown on the capacity chart. It is determined by the weight and load enter. The load center is determined by the location of the CG of the load. The load center shown on the capacity chart is the horizontal distance from the front face of the forks, or the load face of an attachment, to the CG in the load. The location of the CG of the vertical direction is the same as the horizontal dimension.

Keep in mind that, unless otherwise indicated, the rated capacity shown on the capacity chart is for a standard forklift truck with standard backrest, forks and mast, and having no special-purpose attachment. In addition, the rated capacity presumes the load center is no further from the top of the forks than it is from the face of the backrest. If these conditions do not exist, the operator may have to reduce the safe operating load because the truck stability may be reduced. The forklift truck should not be operated if its capacity chart does not indicate rated capacity.

HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE

◆ Capacity Chart

• For 1.5 ton Model

WARNING IMPROPER OPERATION OR MAINTENANCE
COULD RESULT IN INJURY OR DEATH.

MODEL [] SERIAL No. []

RATED CAPACITY OF STANDARD TRUCK WITH SIMPLEX
MAST AND FORKS: [] KG AT [] MM LOAD
CENTER WITH MAXIMUM HEIGHT OF 3300MM
CAPACITY WITH OPTIONAL MAST AND/OR ATTACHMENT
LISTED BELOW. MAST:VERTICAL

A MM	B MM	FORKS ONLY		ATTACH
		MM	KG	KG

ATCH/MODEL []

100641C

WARNING IMPROPER OPERATION OR MAINTENANCE
COULD RESULT IN INJURY OR DEATH.

MODEL **FG15** SERIAL No. []

RATED CAPACITY OF STANDARD TRUCK WITH SIMPLEX
MAST AND FORKS: **1500** KG AT **500** MM LOAD
CENTER WITH MAXIMUM HEIGHT OF 3300MM
CAPACITY WITH OPTIONAL MAST AND/OR ATTACHMENT
LISTED BELOW. MAST:VERTICAL

A MM	B MM	FORKS ONLY		ATTACH
		MM	KG	KG
		3300	500	1500

ATCH/MODEL []

100641C1

CAUTION

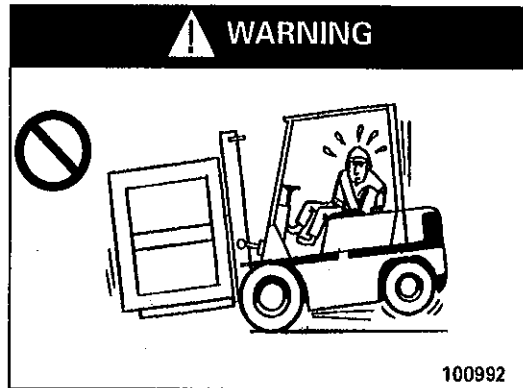
1. Capacity chart originally affixed to forklift trucks sold by MCF shall not be removed, altered or replaced without MCF's approval.
2. MCF assumes no responsibility for forklift trucks placed in service without a valid MCF capacity chart.
3. If necessary to change your specification, contact your Mitsubishi Forklift Truck Dealer.

The capacity chart shown above is for a 1.5 ton model standard forklift truck whose rated capacity is 1500 kg (3000 pounds) at 500 mm (24 in.) load center. The chart specifies this forklift truck can lift up to 1500 kg (3000 pounds) if the load center is not more than 500 mm (24 in.) forward from the face of the backrest. Before attempting to pick up or lift a load, make sure its weight is within the rated capacity of the truck at the load center involved.

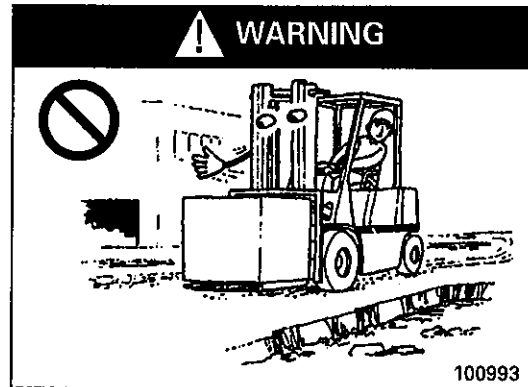
NOTICE: If the load is not uniform, the heaviest portion should be placed closer to the backrest and centered on the forks.

HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE

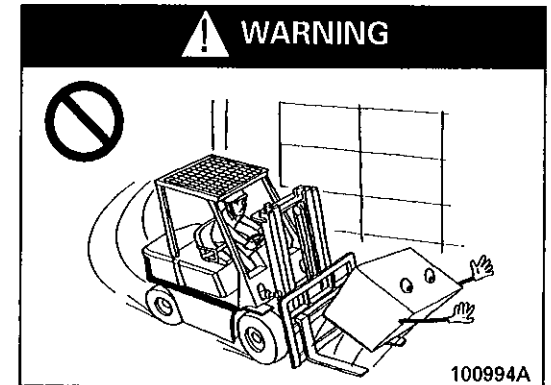
◆ Do's and Don'ts to Avoid Tipover



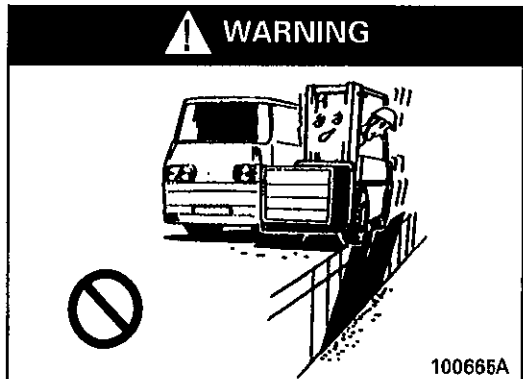
DO handle loads only within the rated capacity shown on the capacity chart!



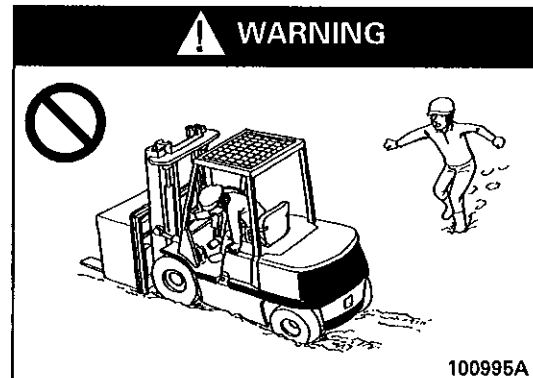
DO NOT go over rough terrain!
If unavoidable, slow down.



DO avoid fast starts, turns and sudden stops!
These movements can cause the forklift truck to tipover.



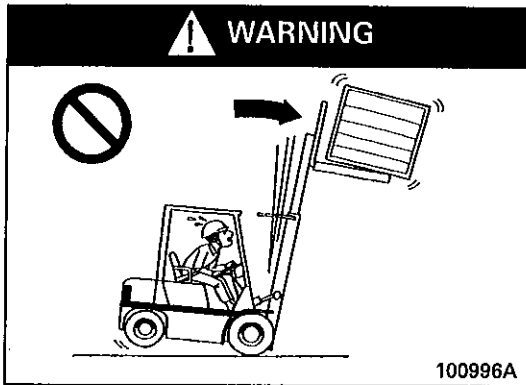
DO watch "tail swing."
Always maintain a safe distance from the edge of docks, ramps and platforms.



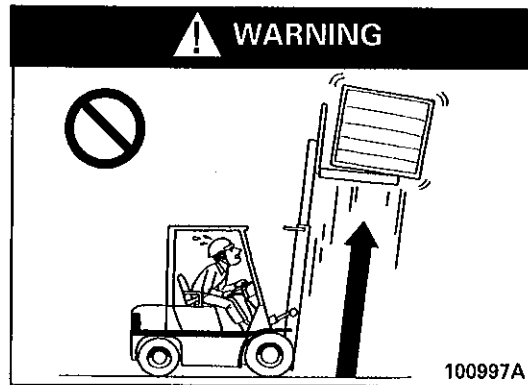
DO check surface strengths!
Stay away from soft ground to avoid tipover.



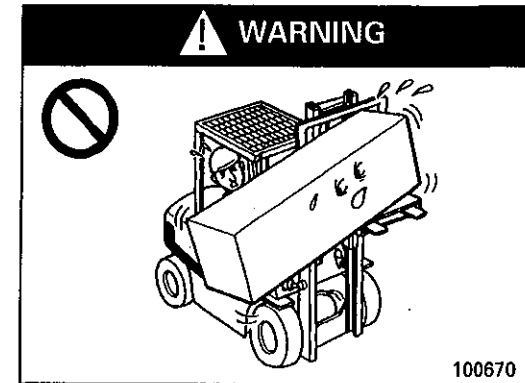
DO NOT turn, or angle, on ramps and grades, with or without a load!



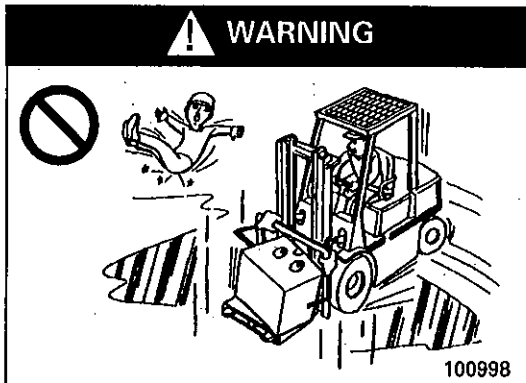
DO NOT tilt elevated loads forward!
This can cause the forklift truck to tipover forward.



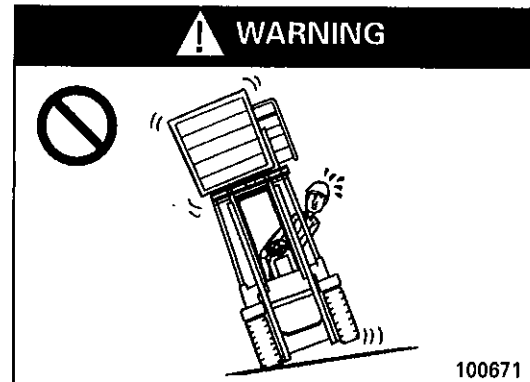
DO NOT elevate tilted loads!
This can also cause the forklift truck to tipover.



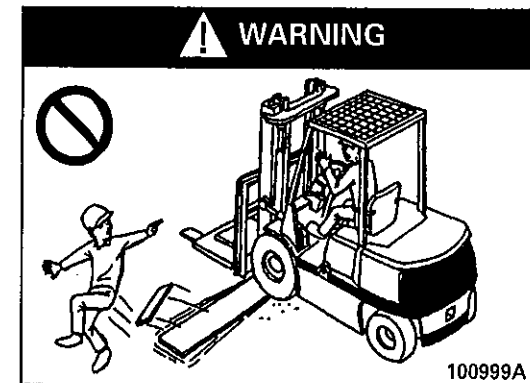
DO NOT pick up an off-center load!
Such a load increases the possibility of a tipover to the side.



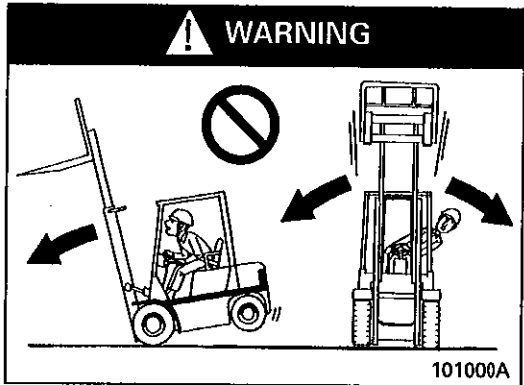
DO avoid slippery surfaces!
Sand, gravel, ice or mud can cause a tipover. If unavoidable, slow down.



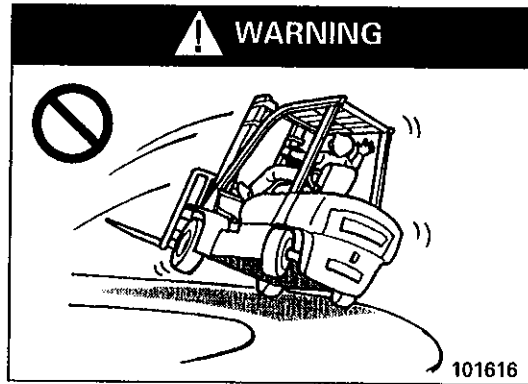
DO NOT attempt to pick up or deposit a load unless the forklift truck is level!



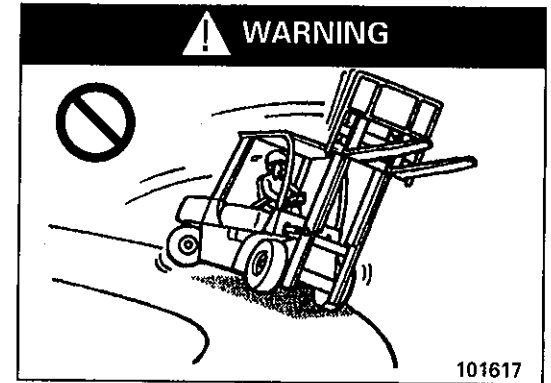
DO NOT go over obstacles—curbs, ditches, ridges and railroad tracks!



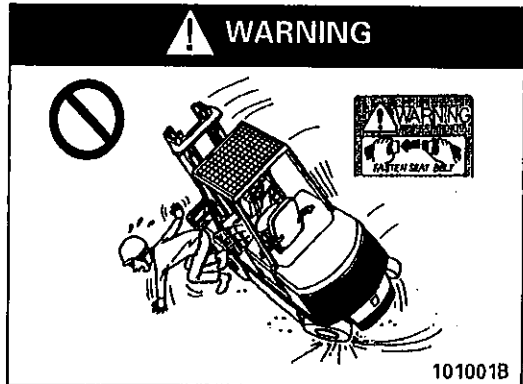
DO NOT travel with forks higher than 15 to 20cm (6 to 8 in.) above the ground!
The CG moves up increasing the possibility of a tipover.



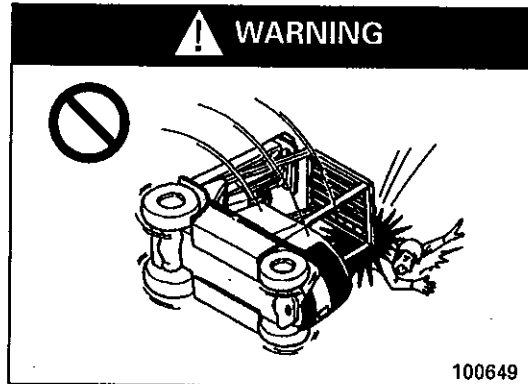
DO NOT make fast or sharp turns with a loaded or unloaded truck!



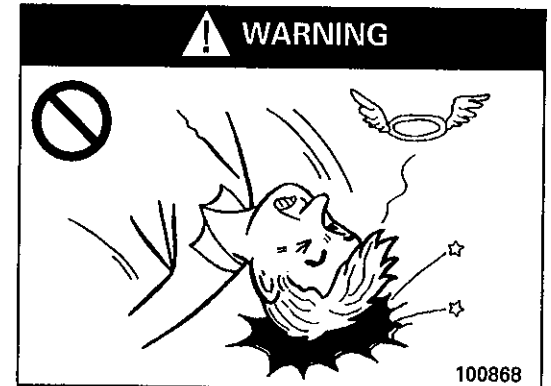
DO NOT turn too sharply, even with an empty raised mast, to avoid a tipover!



DO fasten your seat belt!
The belt will keep you from being thrown out of the truck in a tipover.



DO NOT jump off your truck if it starts to tipover!
Stay in your seat to reduce the risk of serious injury or death.



DO wear a hard hat!
It will help protect your head from serious injury.

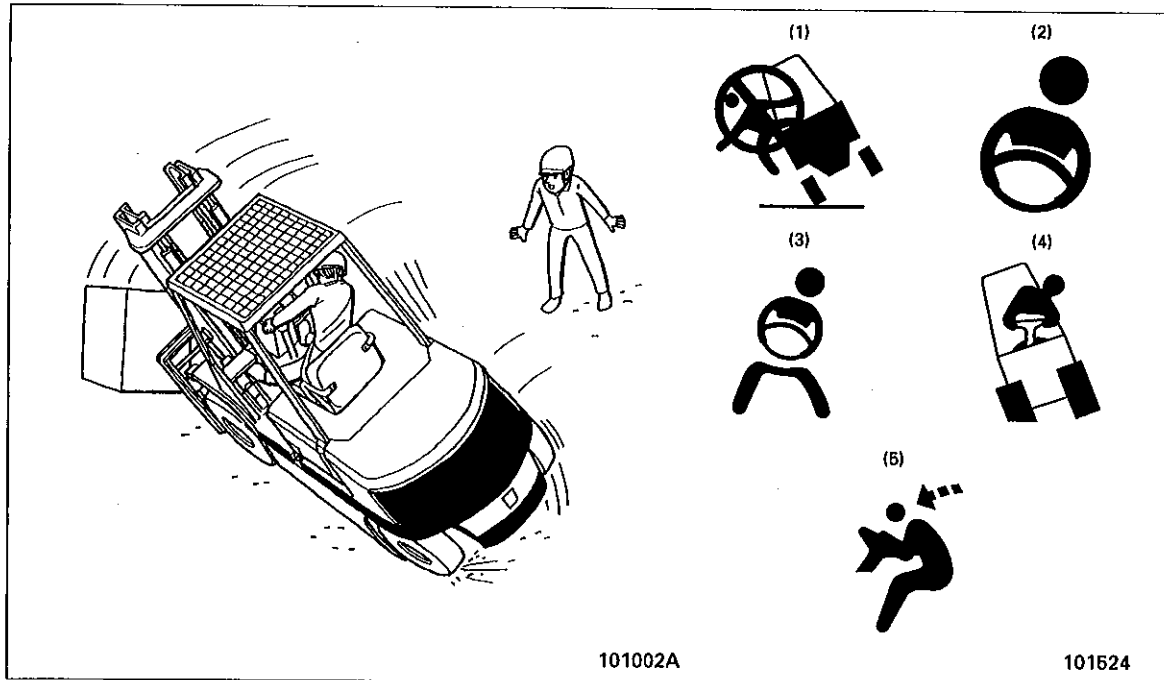
HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE

◆ How to Survive in a Tipover

⚠ WARNING

Remember, your chances for survival with your seat belt fastened in a tipover are better if you stay in your truck. If your truck starts to tipover:

1. DO NOT jump off!
2. Firmly hold on to the steering wheel.
3. Brace your feet.
4. Lean away from impact.
5. Lean forward.



REFUELING

◆ Gasoline and Diesel Engine Equipped

⚠ WARNING

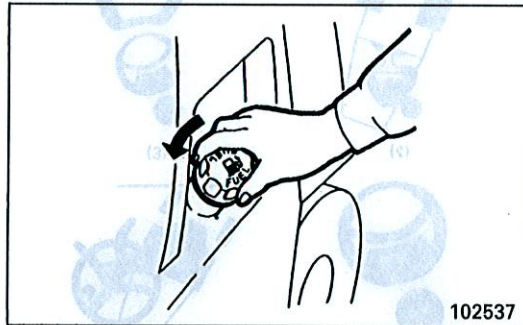
- Explosive fumes may be present during refueling.
- Do not smoke in refueling areas.
- Forklift trucks should be refueled only at designated safe locations. Safe outdoor locations are preferable to those indoors.
- Stop the engine and get off the forklift truck during refueling.

NOTICE: DO NOT allow the forklift truck to become low on fuel or completely run out of fuel. Sediment or other impurities in the fuel tank could be drawn into the fuel system. This could result in difficult starting or damage to components.

Fill the fuel tank at the end of each day of operation to drive out moisture laden air and to prevent condensation. DO NOT fill the tank to the top. Fuel expands when it gets warm and may overflow.

⚠ WARNING

1. Park the forklift truck only at a location designated safe. Place the transmission in NEUTRAL, lower the forks to the ground, engage the parking brake and shut off the engine.



2. Open the filler cap.
3. Fill the fuel tank slowly. Close the filler cap. If spillage occurs, wipe off excess fuel and wash down the area with water.

NOTICE: Drain water and sediment from the fuel tank as required by prevailing conditions. Also, drain water and sediment from the main fuel storage tank before it is filled and as a weekly routine. This will help prevent water or sediment being pumped from the storage tank into the forklift truck fuel tank.

REFUELING

55

◆ Changing LP-Gas Tanks

⚠ WARNING

Only trained, authorized personnel should fill or exchange LP-Gas tanks.

Personnel engaged in filling LP-Gas tanks should wear protective clothing such as face shield, long sleeves and gauntlet gloves.

Do not refuel or store LP-Gas powered forklift truck near underground entrances, elevator shafts, or other places where LP-Gas could collect in a pocket and cause potential danger for an explosion.

Examine all LP-Gas tanks before filling, and again before reuse, for damage to the valves, liquid gauge, fittings and hand wheels.

All defective or damaged LP-Gas tanks must be removed from service.

The careless handling of LP-Gas tank can result in a serious accident.

To reduce the risk of damage to tanks, use extreme care when transporting them.

⚠ WARNING

LP-Gas tank must not extend past the counterweight.

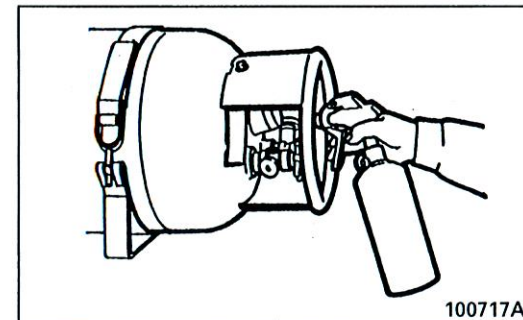
⚠ CAUTION

- Be careful not to pinch fingers in the bands when fitting.

For Standard LP-Gas Tanks

1. Park the forklift truck on level ground with the parking brake applied, the transmission in NEUTRAL, the forks lowered and the engine running at low idle.
2. Close the fuel valve at the LP-Gas tank. Run the engine until it stops, then turn off the starter switch.
3. Disconnect the fuel supply line.
4. Loosen the retaining clamps, remove the pin and tank.
5. Check to be sure the replacement tank is of the correct type.

6. Inspect the replacement tank for damage such as dents, scrapes or gouges and for leakage at valves or threaded connections.
7. Check for debris in the relief valve and for damage to various valves and the liquid level gauge.
8. Inspect the couplings for deterioration, damage or missing flexible seals.
9. Clamp the tank securely.
10. Connect the fuel supply line.
11. Turn the fuel valve on by slowly turning it counterclockwise. If the fuel valve is opened too quickly, a back pressure check valve will shut off the fuel supply. If this happens, close the fuel valve completely, wait five seconds, and then open the fuel valve very slowly.



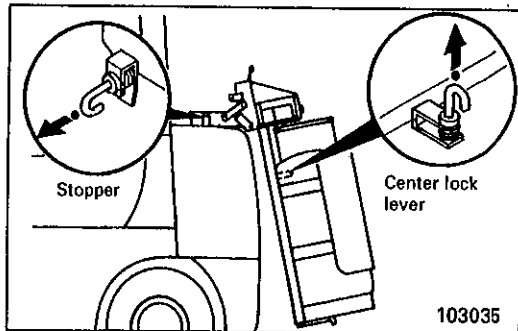
12. Inspect the LP-Gas fuel lines and fittings with a soap solution after filling the tank or when looking for leaks.

REFUELING

For optional LP-Gas tanks

Procedures are same to 1. to 3. of standard tank.

- 4-1 Pull the stopper of left side bracket leftward. (Do not loose the retaining clamps at this time.)
- 4-2 Holding the tank by left hand, pull the center lock lever upward by right hand.



- 4-3 Make the tank to vertical position.
- 4-4 Loose the retaining clamps, and remove the tank.

Procedures are same to 5. to 8. of standard tank.

- 9-1 Clamp the securely.
When lifting the tank for mounting, hold by hand prevent to injure.

NOTICE: The tank will lock at horizontal position automatically.

Procedures are same to 10. to 12. of standard tank.

||||| OPERATION |||||

◆ New Forklift Truck Break-In

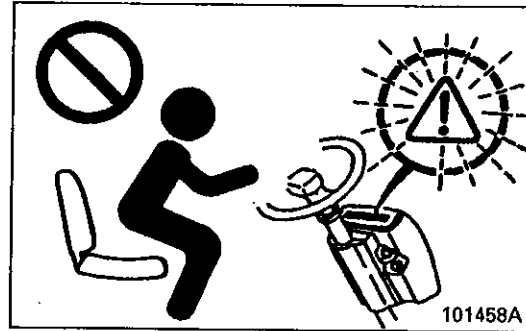
Correct break-in is important for operation and long life of your truck. The first 100 service hours of operation is a break-in period. Carefully read these precautionary instructions.

CAUTION

1. After starting the engine, **BE SURE** to run it at idle speeds with no load for about 5 minutes. During this time, check all the OK Monitor indicator lights. **AVOID** long periods of idling. This may cause cylinder wall glazing and prevent the piston rings from seating properly. **DO NOT** pump the accelerator pedal and **DO NOT** rev up the engine. This may cause cylinder wall scuffing and scoring.
2. If the truck does not have to be put to work immediately, or the operation is light and slow, break in the truck under a simulated working condition.
3. Try **NOT** to drive the truck continuously at the same speeds as the parts tend to better adjust themselves to other parts if various speeds are used.
4. **ALSO**, try **NOT** to make severe brake applications to allow the brake linings to seat against the brake drums.
5. Operate the truck under a lighter load and lower speeds than normal.
6. Change oils and relubricate at shorter intervals than normal.
7. Carefully check on and around the truck for loose bolts and nuts. Retighten them as needed.

◆ Before Starting Engine

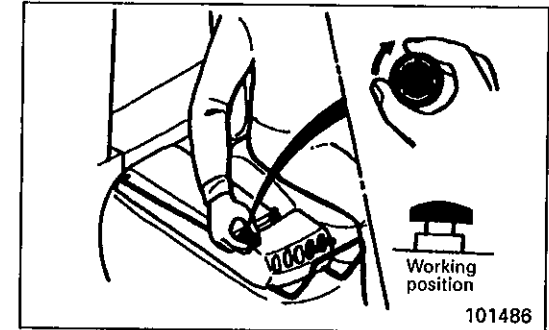
⚠ WARNING
BE SURE TO READ the SAFETY RULES FOR FORKLIFT TRUCK OPERATORS for your safety and the safety of fellow workers. BE SURE to perform the DAILY (PRE-START) INSPECTION.



AC model

Your truck has a seat switch (a switch built in the seat). You are unable to move the front end unless you are seated.

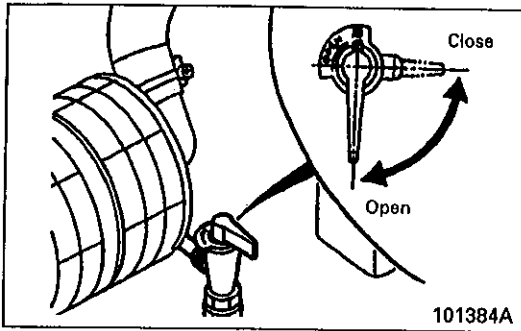
The system indicator light flickers if you are not seated, with the starter switch key in I (ON) position.



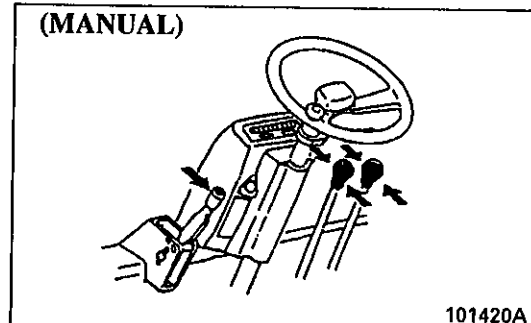
AC model

Make sure the safety switch is in WORK (unlock) position (being released).

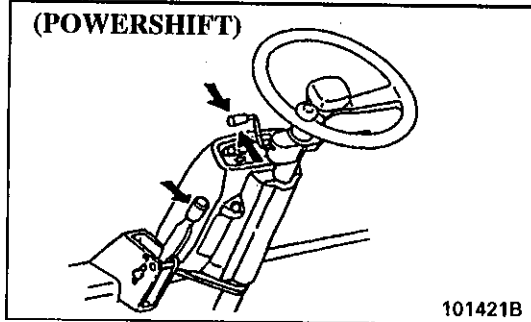
NOTICE: You are unable to move the front end if the safety switch is in STOP (lock) position (being pushed down).



Open the fuel shutoff valve.

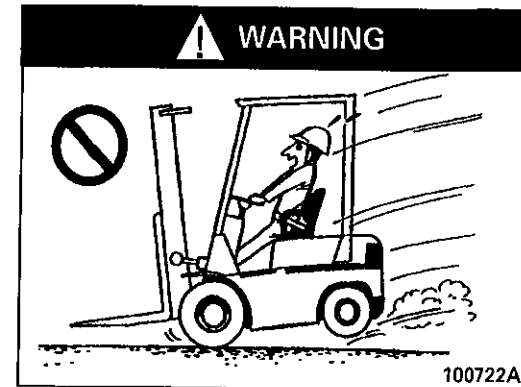


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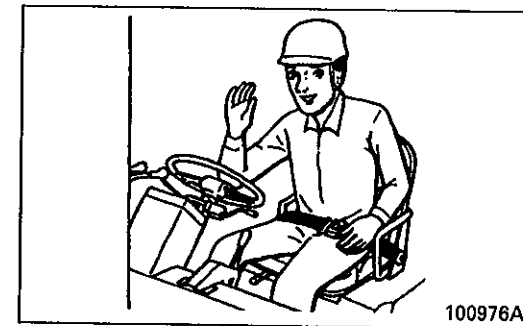
- Pull the parking brake lever.
- Be sure the direction lever is in NEUTRAL position.
- The engine will not start unless the direction lever is in the NEUTRAL position.
- If the engine stalls, place the direction lever in the NEUTRAL position; turn the key to the O (OFF) position; and turn it to the Ⓞ (START) position to start the engine.



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(MANUAL)

NEVER start the engine unless the direction lever is in NEUTRAL position as this may cause the truck to move suddenly.



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Be sure to fasten the seat belt before operating the truck.

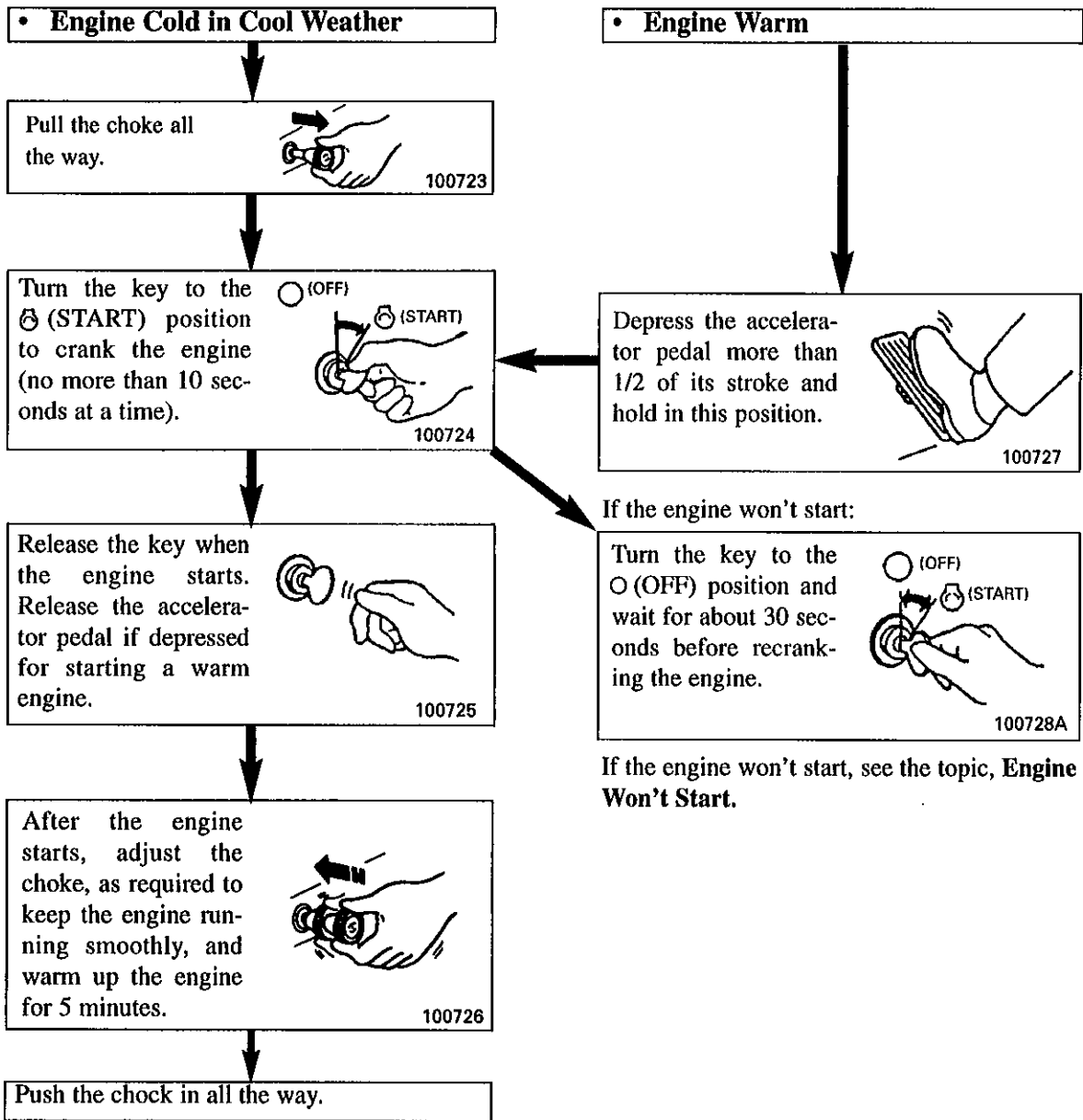
Remember, the belt will not restrain you in an accident if it is not fastened properly.

OPERATION

◆ Starting Gasoline Engine

⚠ CAUTION

- DO NOT leave the key in the I (ON) position when the engine is NOT running. This may cause the battery to run down and damage the ignition coil.
- DO NOT crank the engine for more than 10 seconds at any one time. This may cause damage to the starter and run down the battery.



OPERATION


◆ Starting Diesel Engine

⚠ CAUTION

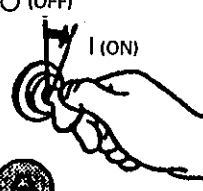
- DO NOT leave the key in the I (ON) position when the engine is NOT running. This may cause the battery to run down and damage the ignition coil.
- DO NOT crank the engine for more than 10 seconds at any one time. This may cause damage to the starter and run down the battery.

• Engine Cold in Cool Weather

Turn the key to the I (ON) position and wait until the glow plug indicator goes out.




ON (about 8 seconds) OFF



I (ON)

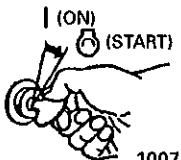
102071A

Depress the accelerator pedal all the way and hold in this position.



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Turn the key to the Ⓢ (START) position to crank the engine (no more than 10 seconds at a time).



I (ON) Ⓢ (START)

100718A


- Release the key when the engine starts.
- Release the accelerator pedal.



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• Engine Warm

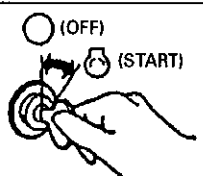
You do not need to turn the key to the I (ON) and preheat the engine or depress the accelerator.



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If the engine won't start:

Turn the key back to the ○ (OFF) position and wait approximately 30 seconds before cranking again.



○ (OFF) Ⓢ (START)

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If the engine won't start, see the topic, **Engine Won't Start.**

OPERATION

◆ Starting LP-Gas Engine

WARNING

LP-Gas fuel is flammable and can cause injuries and fires.

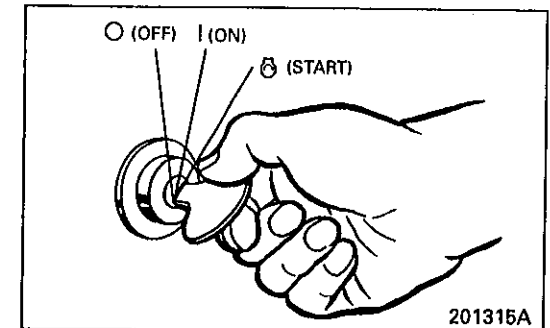
Inspect LP-Gas fuel lines and fittings for leaks.


Inspect tank for secure mounting.

CAUTION

- DO NOT leave the key in the I (ON) position when the engine is NOT running. This may cause the battery to run down and damage the ignition coil.
- DO NOT crank the engine for more than 10 seconds at any one time. This may damage the starter and run down the battery.

1. Turn the tank fuel valve I (ON) by slowly turning the valve counterclockwise. Observe the LP-Gas gauge (if equipped).



2. Turn the starter switch to  (START) position. Release it when the engine starts.
3. If the engine does not start, do not press on the accelerator. Turn the starter switch to the O (OFF) position, then repeat step 2.

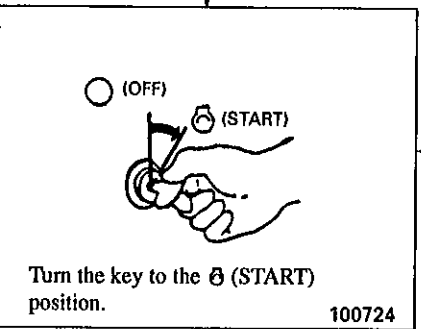
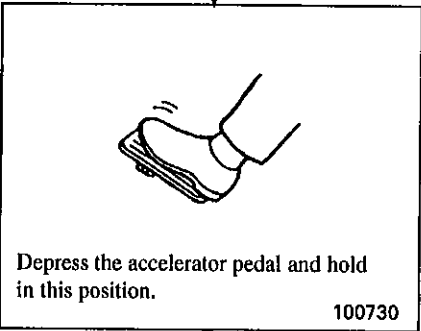
OPERATION

◆ Engine Won't Start

Consult your Mitsubishi Forklift Truck Dealer if the engine still fails after you have attempted the following.

• When Engine is "Flooded"

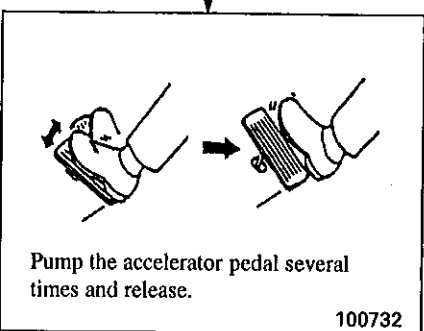
Gasoline engine model



NOTICE: The head lights should be OFF for easier starting.

• When Engine is Removed from Storage

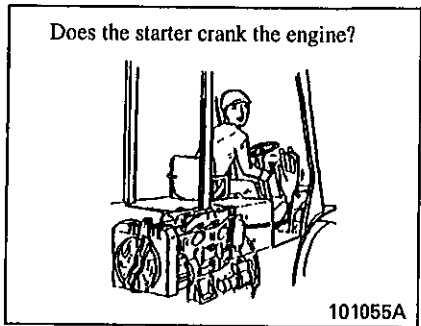
Gasoline engine model



Diesel engine model

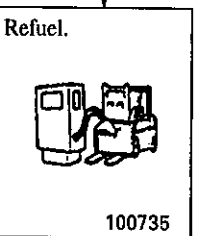
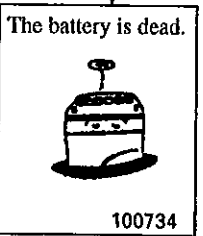
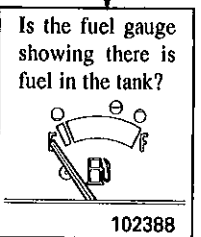
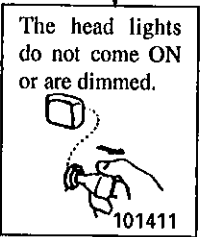
Air may be in the fuel system to cause failure to start. In such a case, have your Mitsubishi Forklift Truck Dealer prime the fuel system or make a check.

CAUTION
DO NOT start the engine by pushing or towing the truck. This can cause serious injury and damage to the truck.



No

Yes



OPERATION

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◆ Starting with Jumper Cables

⚠ WARNING

Batteries give off flammable vapors which may explode.

Keep flames and sparks away from batteries. They could cause vapors to explode. Do not allow jumper cable ends to contact each other or the forklift truck.

Do not smoke when checking battery electrolyte levels.

Electrolyte is an acid and can cause injury if it contacts skin or eyes.

Always wear eye protection when starting a forklift truck with jumper cables.

Improper jump start procedures can cause an explosion that can result in injuries.

Turn off all lights and accessories on the stalled forklift truck.

Always connect battery positive (+) to battery positive (+) and battery negative (-) to battery negative (-).

Jump only with a battery source of the same voltage as the stalled forklift truck.

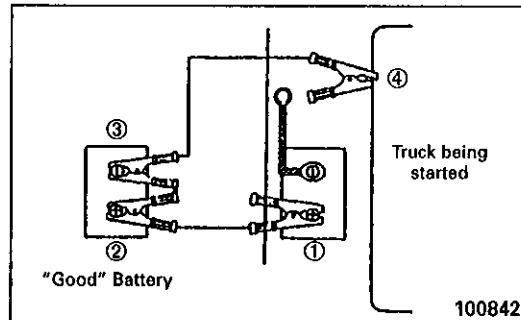
⚠ WARNING

DON'T try to start the engine by pushing the truck.

BE SURE to connect the cable end 4 to the **ENGINE BODY**. If it is connected to the negative (-) terminal of the battery, sparks could ignite the gases.

⚠ CAUTION

Connect the jumper cables away from the moving parts in the engine compartment.



To start a truck with a "run-down" battery, use a booster battery or jumper cables from the battery of another vehicle.

1. Position another vehicle, with its engine running, within jumper cable distance.

NOTICE: Use a 12 volt jumper system to jump start the truck.

This forklift truck has a 12 volt starting system. Use only equal voltage for jump starting. Use of a welder or higher voltage will damage the electrical system.

Turn on (close) the battery switch prior to the boost connection to prevent damage to electrical components on the stalled forklift truck.

Many "dead" batteries can be recharged.

2. Connect the jumper cables in the sequence shown.
DO NOT short across the positive (+) and negative (-) terminals.
3. After connecting the cables, increase the speed of the other vehicle's engine and start the engine of the stalled truck with a "run-down" battery.
4. After the engine starts, disconnect the jumper cables in the reverse sequence.

NOTICE: You can buy jumper cables from your Mitsubishi Forklift Truck Dealer.

OPERATION

◆ After Starting Engine

Check the OK monitor and gauges frequently during operation to be sure all systems are working properly.

 **WARNING**

If a monitor light comes on, correct the problem before operating the forklift truck.

1. Run the engine at idle speeds with no load for about 5 minutes.

 **CAUTION**

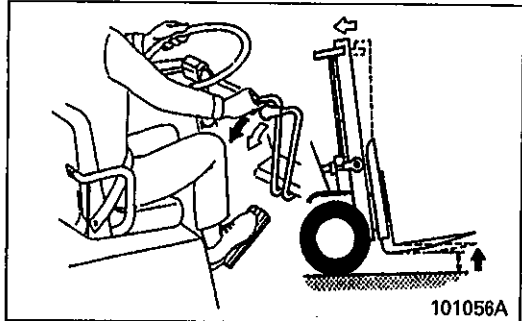
- BE SURE to warm up the engine regardless of the weather.
- Failure to warm up the engine can cause poor lubrication and incomplete fuel combustion resulting in poor engine performance.

2. During warm-up, check to see that systems are operating properly.

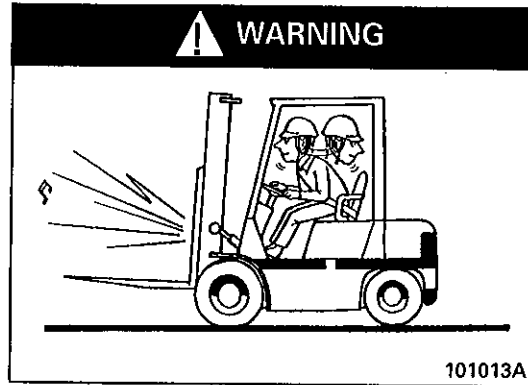
- Are all the OK monitor warning lights OFF?
- Is the engine coolant gauge needle in the WHITE zone?
- Are exhaust noise and smoke color normal?
- No excessive vibration?

OPERATION

◆ Before Moving Forklift Truck



1. Pull the lift control lever to raise the forks to a safe traveling height of 15 to 20 cm (6 to 8 in.) from the floor.
3. Pull the tilt control lever to tilt the mast back all the way.

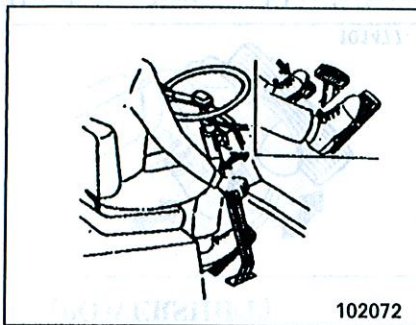


Look around and behind the truck and sound the horn before moving.

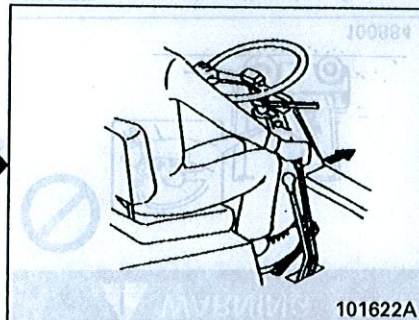
OPERATION

◆ Forklift Truck Operation (MANUAL)

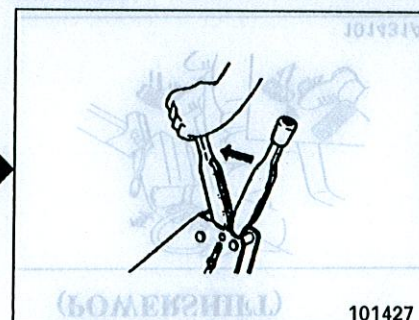
67



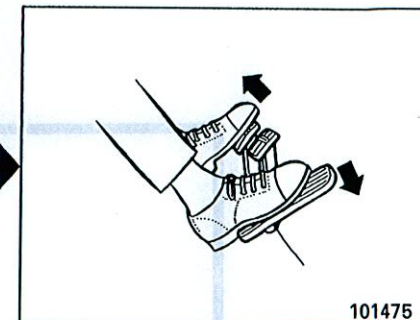
1. Depress the clutch pedal fully. Move the direction lever to FORWARD or REVERSE position.



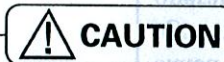
2. Move the gearshift lever to 1ST SPEED position.



3. Push the parking brake lever.



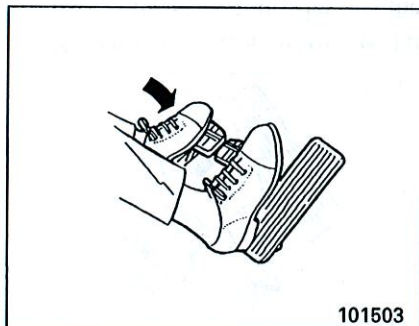
4. Gradually depress the accelerator pedal while releasing the clutch pedal.



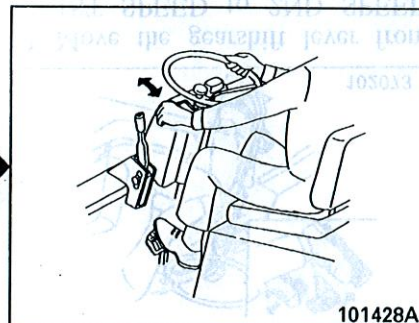
CAUTION

DO NOT "ride" the clutch pedal during traveling. This produces a partly disengaged condition that will result in clutch damage.

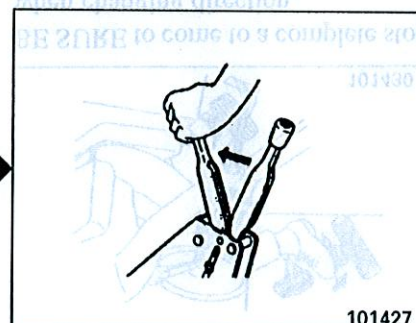
(POWERSHIFT)



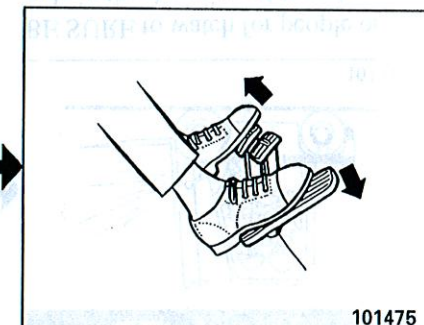
1. Depress the inching pedal all the way.



2. Move the direction lever to FORWARD or REVERSE travel position.



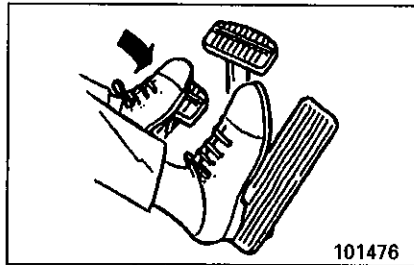
3. Push the parking brake lever.



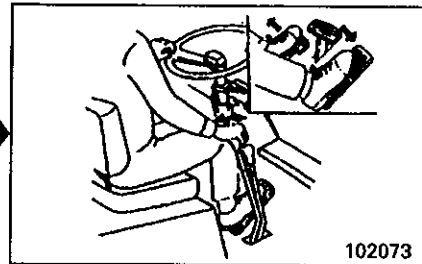
4. Gradually depress the accelerator pedal while releasing the inching pedal.

OPERATION

• **Changing Speed
(MANUAL)**

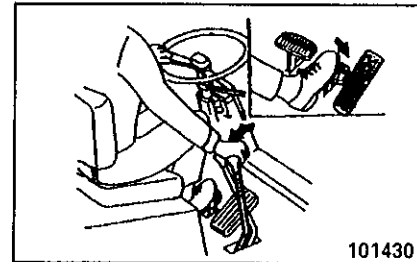


1. Release the accelerator pedal and, at the same time, depress the clutch pedal.

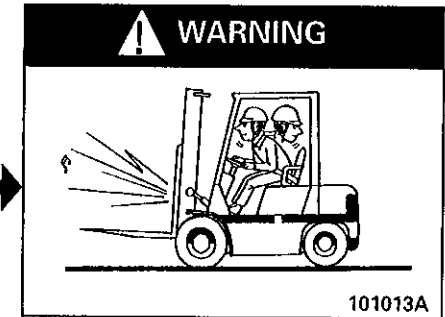


2. Move the gearshift lever from 1ST SPEED to 2ND SPEED position or from 2ND SPEED to 1ST SPEED position.
3. Depress the accelerator pedal while releasing the clutch pedal.

• **Changing Direction
(MANUAL)**



BE SURE to come to a complete stop when changing direction.

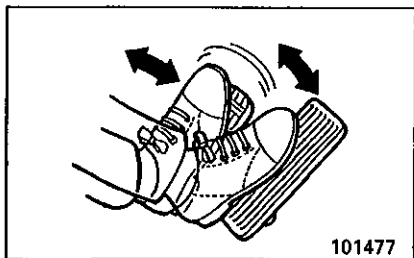


BE SURE to watch for people or hazards in the direction of travel.

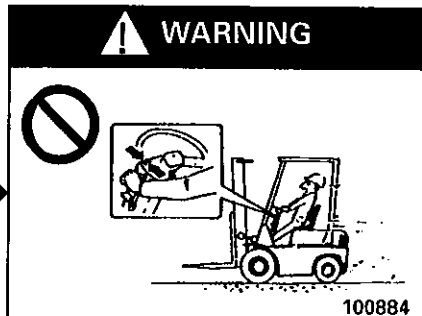
CAUTION

Directional changes faster than stated will cause premature damage to the driveline. For greater operator safety and maximum service lift of driveline components, it is recommended the operators bring the truck to a complete stop before changing direction.

(POWERSHIFT)

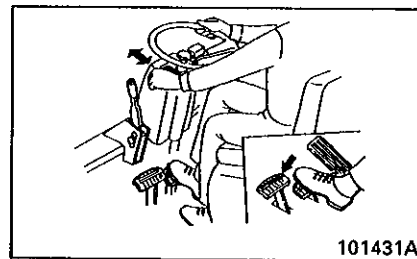


Use the accelerator pedal to increase travel speed. Use the brake pedal to slow down.



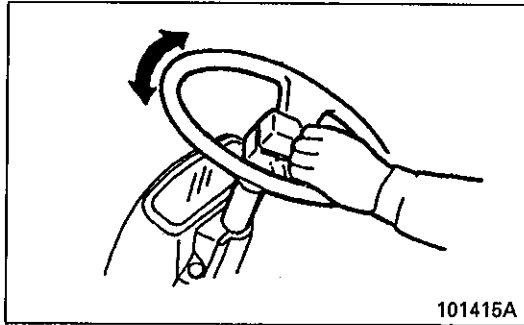
NEVER move the direction lever to NEUTRAL position during traveling. This causes the engine to overspeed.

(POWERSHIFT)



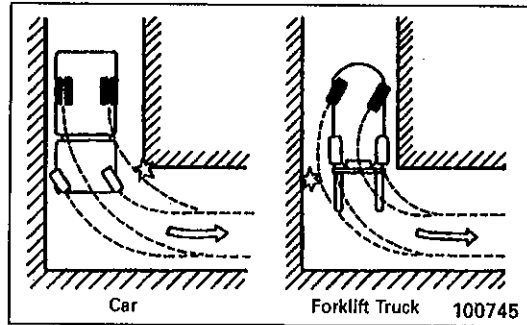
BE SURE to come to a complete stop when changing direction.

• Operating Techniques

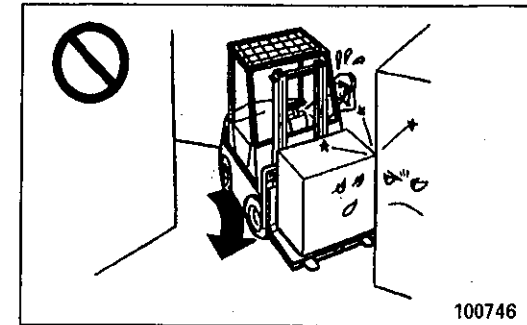


Turn the steering wheel. When handling loads, stop the truck and move the tilt and lift control levers with the right hand.

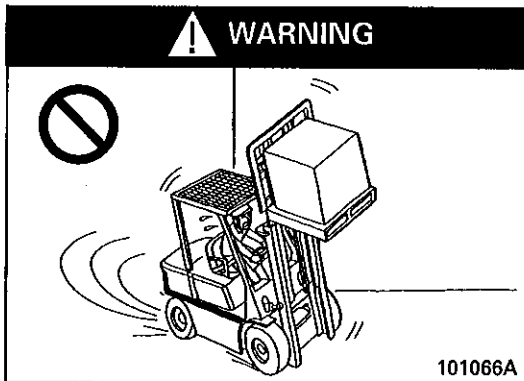
• Steering (Turning)



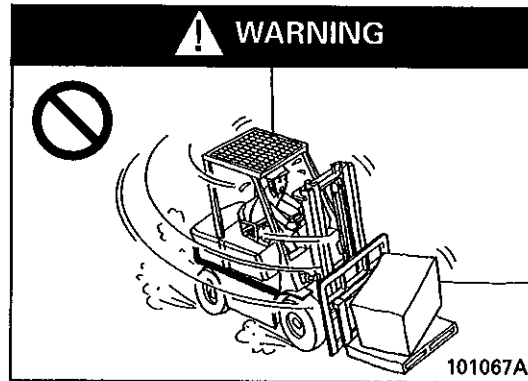
A forklift truck is different from most other vehicles because it is steered by the rear wheels. This causes an exaggerated tail swing.



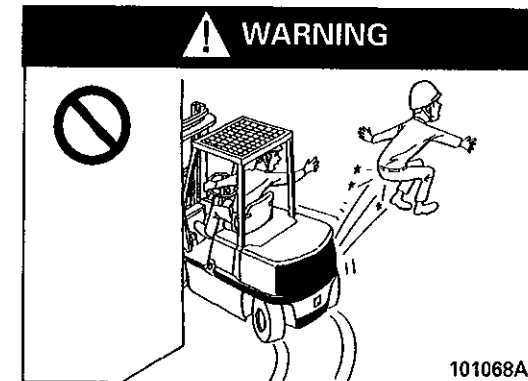
1. When working in close quarters, drive more slowly when making turns.
2. Start the turn as close to the inside corner as the tail swing will permit.



Turning with the forks elevated, with or without a load, can cause a tipover.

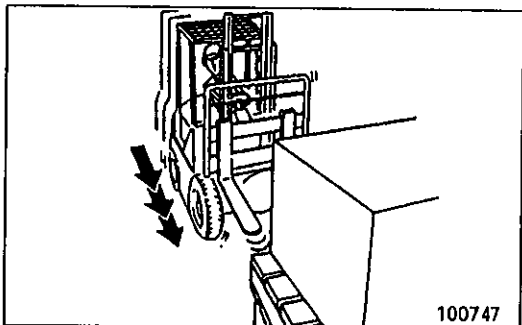


Turning at high speeds, with or without a load, can also cause a tipover.

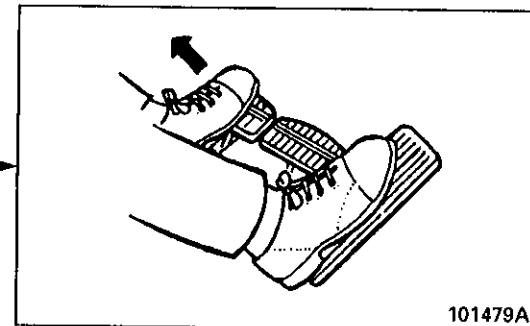
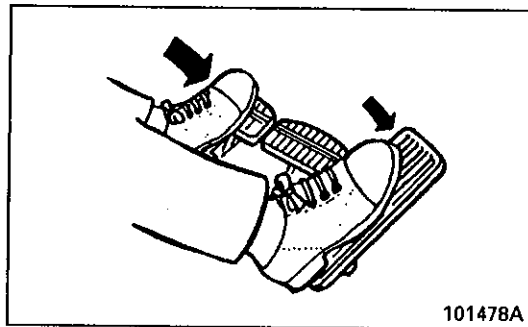


Be aware of tail swing distance. Be sure the tail swing area is clear, before turning, to avoid injury to pedestrians.

• Inching



The purpose of the inching pedal is to provide precise forklift truck inching control at very slow travel speed and high engine rpm. You can move your truck slowly while maintaining the engine speed by varying the position of the inching pedal. Use this pedal when approaching the load and when loading and unloading.



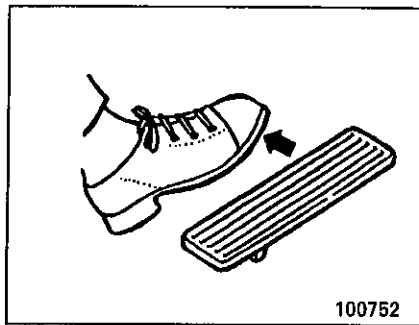
1. Stop ahead of the load platform, lock the parking brake lever, set the direction lever to NEUTRAL, place the mast vertically, and raise the fork to the height of the pallet insertion openings.
2. Depress the inching pedal all the way, move the direction lever to FORWARD, and release the parking brake.
3. Gently depress the accelerator pedal.
4. When the left foot is slowly taken off the inching pedal, the fork lift will advance slowly.
5. Insert the fork slowly, taking care it does not hit the pallet.
6. Stop after inserting the fork until the root of the fork comes into light contact with the pallet.

 CAUTION

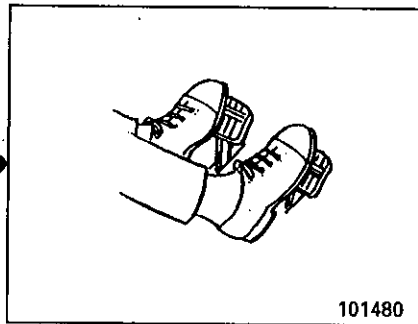
DO NOT "ride" the inching pedal. This produces a partly disengaged condition that will result in premature brake lining wear.

OPERATION

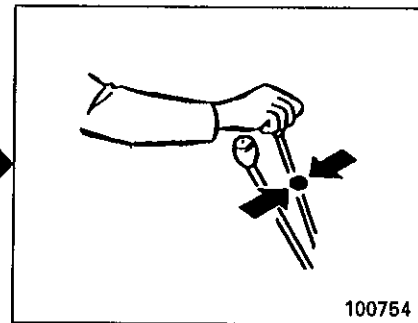
◆ Stopping Forklift Truck (MANUAL)



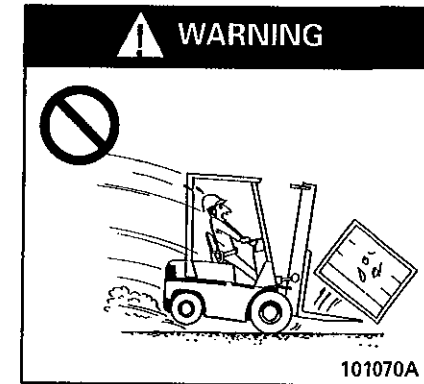
1. Release the accelerator pedal.



2. Depressed the brake pedal and, just before the truck stops, depress the clutch pedal.

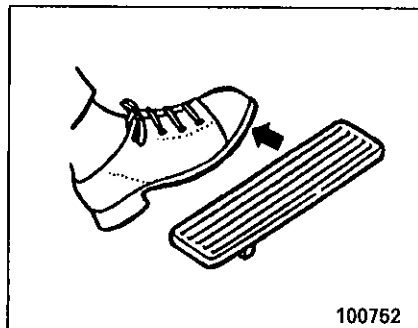


3. After the truck has been stopped, move the direction lever to NEUTRAL position.

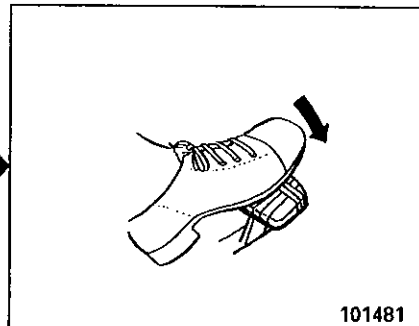


WARNING
Avoid sudden stops. This can cause the load to fall off the forks or the truck to tipover.

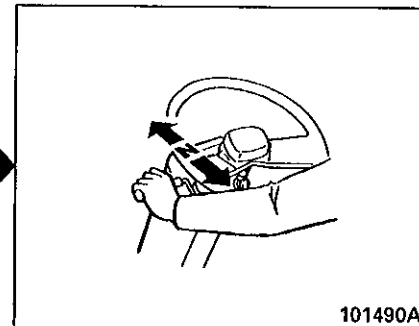
(POWERSHIFT)



1. Release the accelerator pedal.



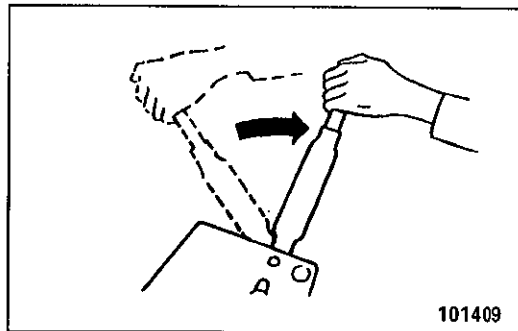
2. Depress the brake pedal.



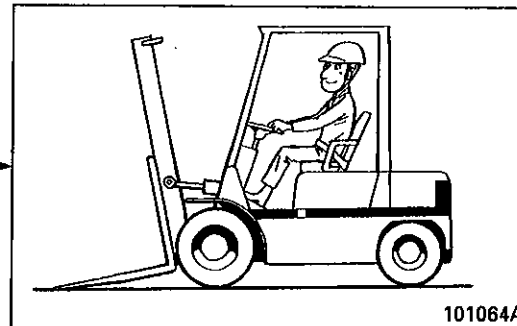
3. Move the direction lever to NEUTRAL position.

OPERATION

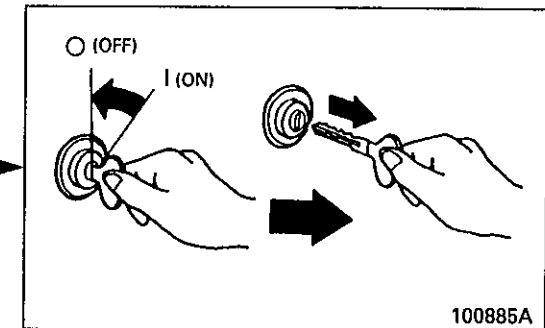
◆ Parking Forklift Truck (After stopping)



1. Pull the parking brake lever all the way.



2. Tilt the mast forward just a little and lower the forks to the floor until the fork tips touch the floor.



3. Turn the key back to the O (OFF) position to stop the engine. When leaving the truck, BE SURE to remove the key.
4. Return the key to a key rack if specified.

⚠ WARNING

Park safely

- Select a hard level surface.
- BE SURE to park in a parking lot if available.
- If the lift mechanism is disabled and the forks cannot be lowered to the floor, attach a warning tag to the tip of the fork and position the forks away from pedestrians.

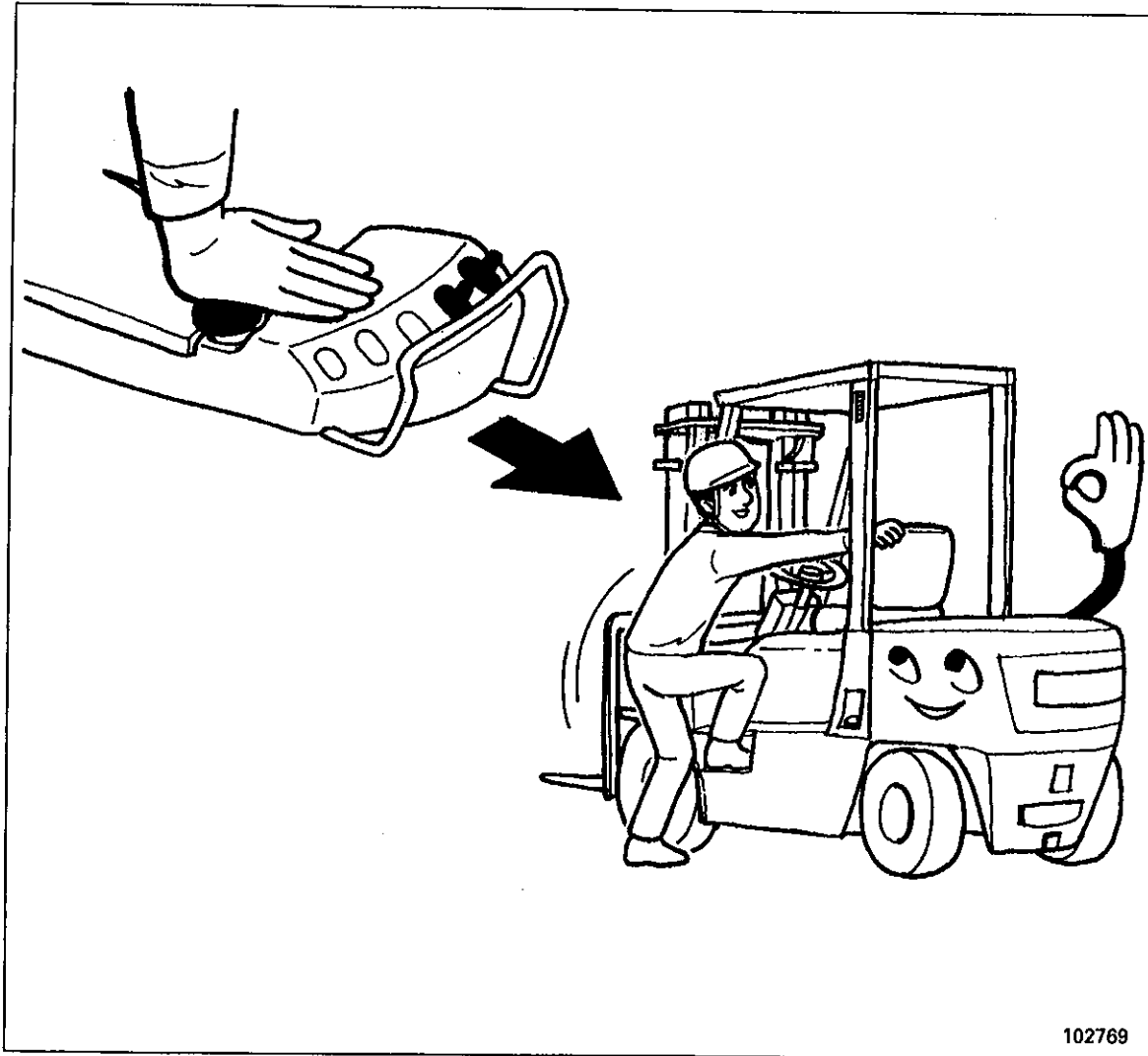
Get off safely

- Get off after the truck has come to a complete stop and the above procedure has been followed.
- NEVER jump off.

OPERATION

◆ Leaving Forklift Truck (AC model)

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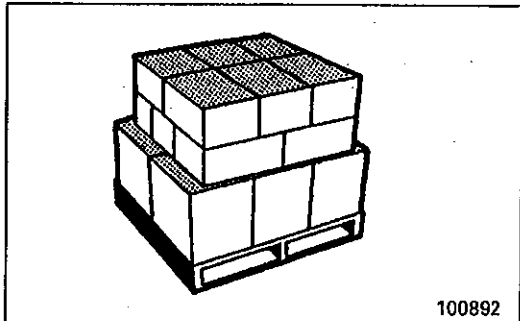
- Pull the parking brake lever.
- Place the direction lever in NEUTRAL position.
- Tilt the mast forward and lower the forks to the ground.
- Remove the key from the starter switch.
- Push down on the safety switch.

OPERATING TECHNIQUES

◆ Stacking Methods

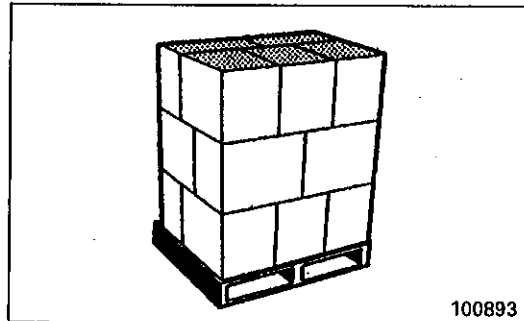
Stability of the loads depends upon how well the stack is formed.

• Stacking Loads Differing in Size



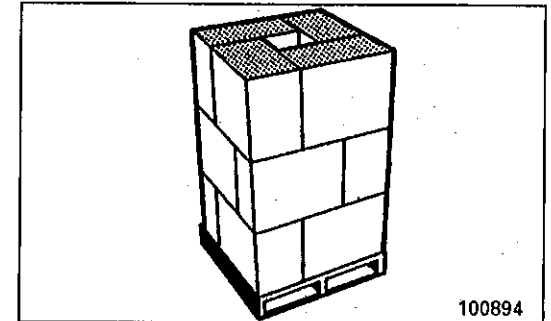
Be sure larger containers in a load are at the bottom of the stack and smaller ones at the top; or heavier containers at the bottom and lighter ones at the top.

• Stacking Small Identical Loads



As in brick laying, place layers of containers alternately so each container will stand astride parts of two or more containers in the layer below. This type of stack is more stable and less likely to fall down.

• Stacking Large Identical Loads

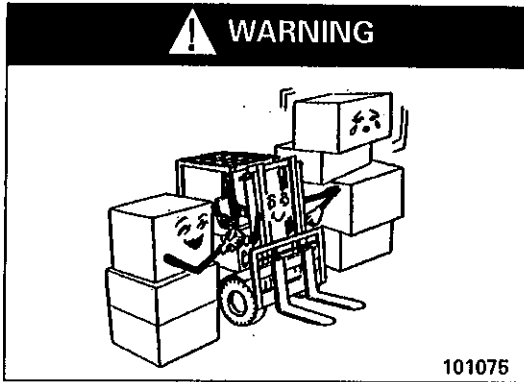


This is one of the most common patterns for stacking large identical containers. Better load stability is achieved by reversing the end-to-side direction on each succeeding layer.

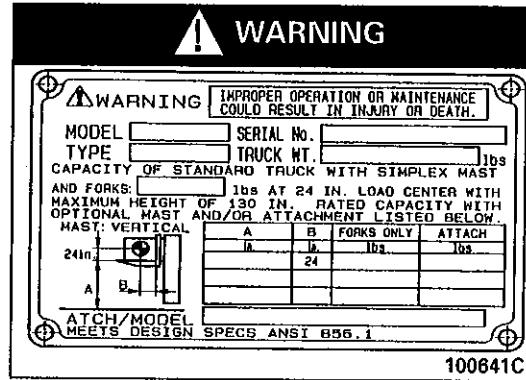
OPERATING TECHNIQUES

◆ Handling Loads Safely

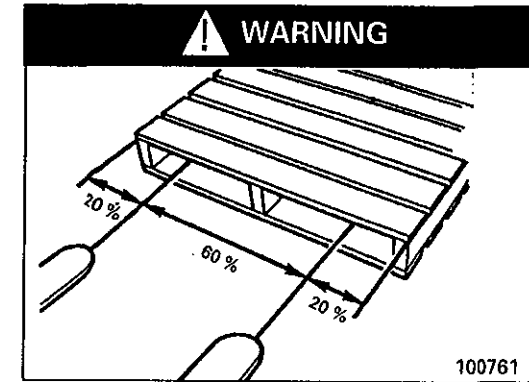
75



Handle **ONLY** stable loads. A load having unstable items can easily shift and fall on someone. **DO NOT** handle a load if any part of it is likely to fall, or if the pallet or skid is damaged. Neatly stack and band loose or unstable loads.



Handle **ONLY** loads within the rated capacity of your forklift truck as shown on the capacity chart. If the combined center of gravity of the truck and load is located forward of the front axle, or if the load exceeds the rated capacity, the truck can tipover forward.

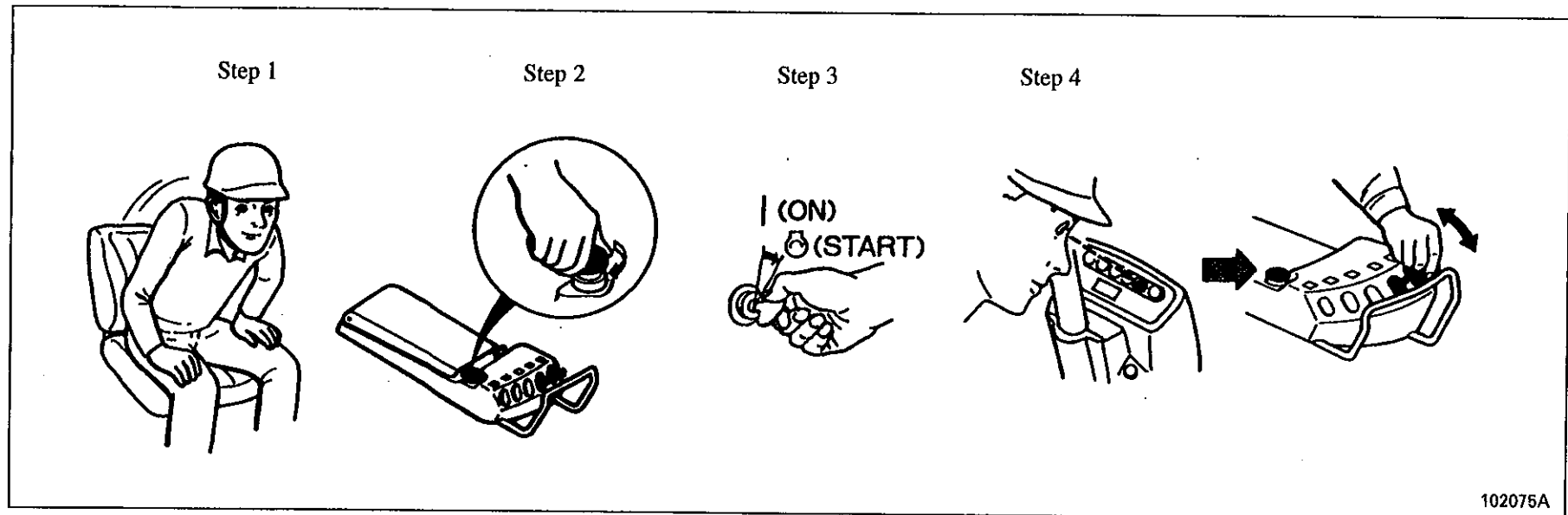


Set the forks as far apart as possible for maximum support of the load.

OPERATING TECHNIQUES

◆ Correct Operating Steps (AC model)

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Learn the correct operating steps before you operate the forklift truck.

NOTICE: See the topics, **Inching Into and Lifting the Load, Traveling With the Load, Unloading and Handling Round Objects.**

IMPORTANT: Be sure to see your **RIGHT HAND** to operate the lift, tilt and attachments controls, safety switch and lowering speed selector switch.

Steps

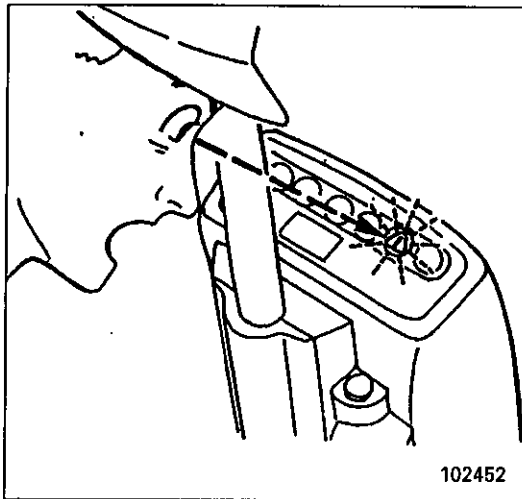
- (1) Sit securely.
- (2) Turn the safety switch clockwise to WORK (unlock) position.
- (3) Start the engine.
- (4) Make sure the system indicator light is OFF.

NOTICE: If the system indicator light flickers, see the topic, **Incorrect Operating Steps.**

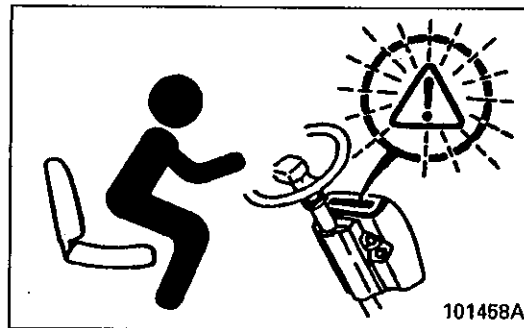
OPERATING TECHNIQUES

◆ Incorrect Operating Steps (AC model)

77

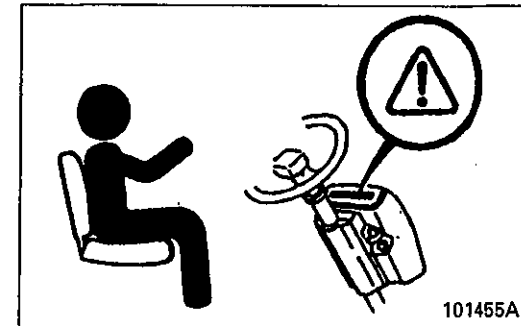


Example 1



DON'T -

Rise from your seat when the key is in I (ON) position (while the engine is running). The indicator light will flicker and you will be unable to move the front end.

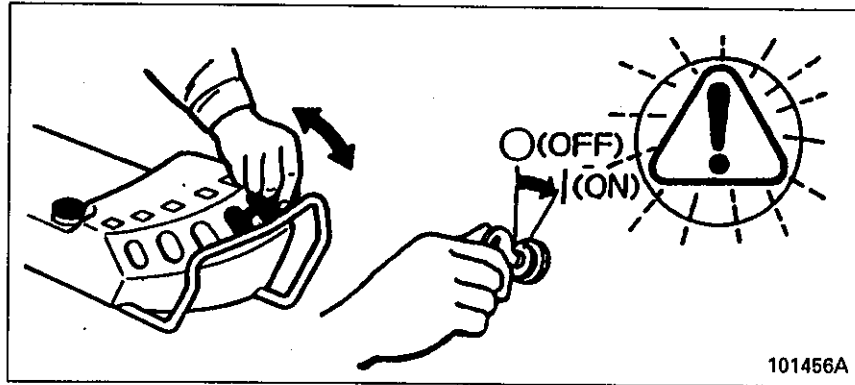


DO-

Sit securely. This makes the indicator light go OFF and enables you to move the front end.

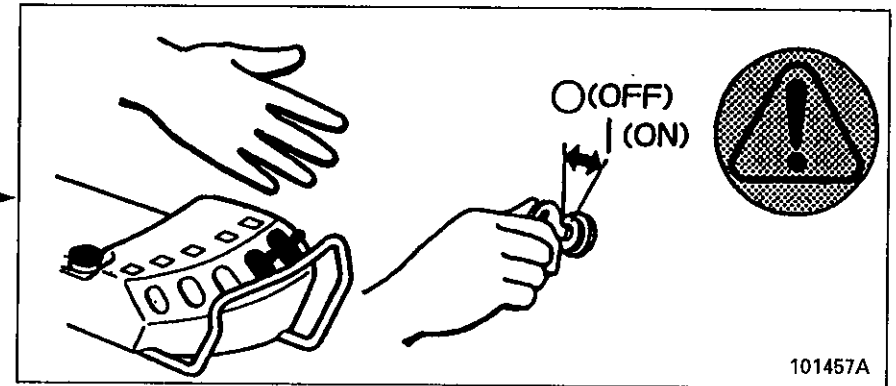
NOTICE: If you take hold of the lift, tilt or attachment control when sitting, the indicator light will flicker.

Example 2



DON'T -

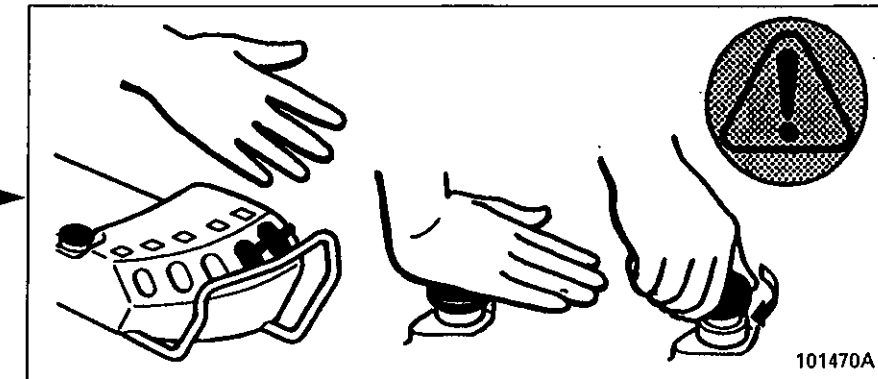
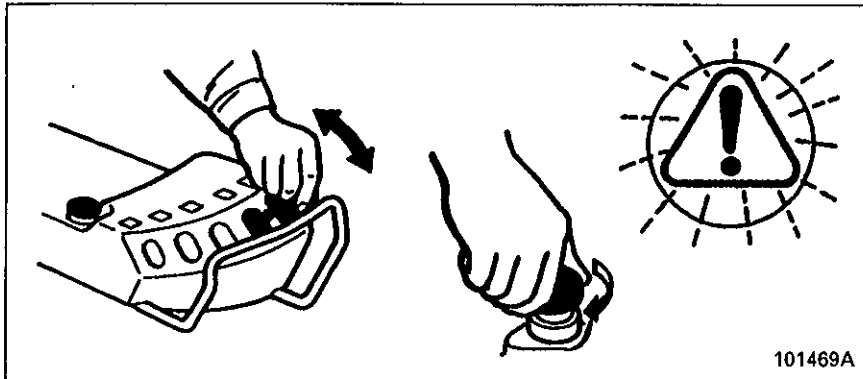
Take hold of the lift, tilt or attachment control when you turn the key to I (ON) position or start the engine. The indicator light will flicker.



DO -

1. Let go your hold of the control and turn the key to O (OFF) position once.
2. Turn the key to I (ON) position.
3. Make sure the indicator light goes OFF and start the engine.

Example 3



DON'T –

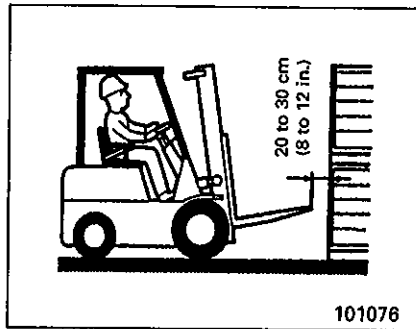
Take hold of the lift, tilt or attachment control when you return the safety switch to WORK (unlock) position. The indicator light will flicker.

DO –

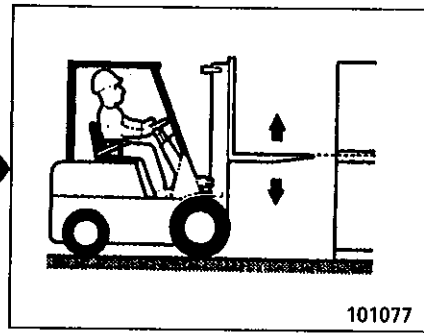
1. Let go your hold of the control.
2. Push down on the safety switch once, then return it to WORK (unlock) position.
3. Make sure the indicator light goes OFF.

OPERATING TECHNIQUES

◆ Inching Into and Lifting the Load

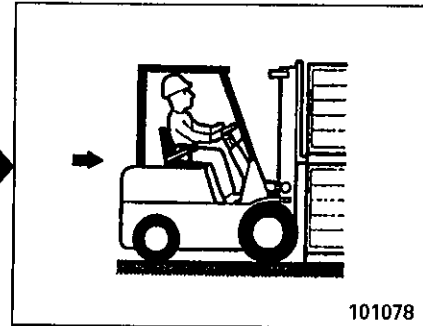


1. Inch into the load and stop the truck 20 to 30 cm (8 to 12 in.) short of the load. Make sure the truck is square with the load and the forks are at the correct height.



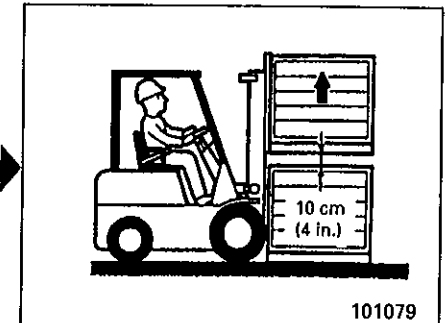
Direction lever—NEUTRAL

2. Tilt the mast forward to the vertical position, and again make sure the forks are at the correct height.



Direction lever—FORWARD

3. Slowly move the truck forward and slide the forks into the pallet until they are fully under the load.

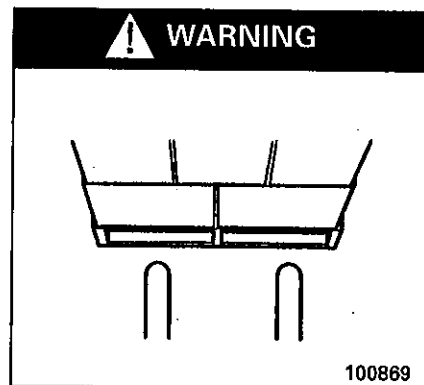


Direction lever—NEUTRAL

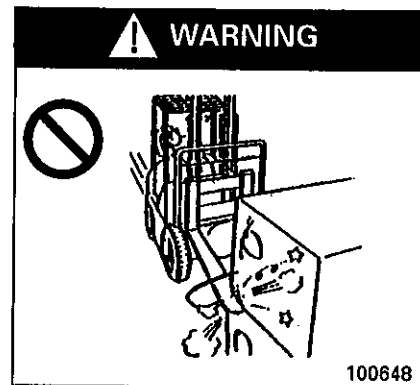
4. Carefully lift the load about 10 cm (4 in.) off the other material. Slowly return the lift control lever to the NEUTRAL position.



When you pick up loads that extend above the backrest extension height, band them together to reduce the risk of items from falling.



Center the weight of the load between the forks.



Avoid approaching the load at high speed.

OPERATING TECHNIQUES

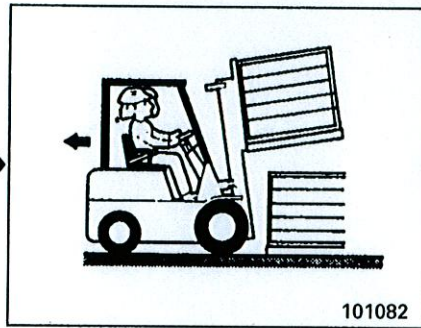
◆ Traveling with the Load

81



101081

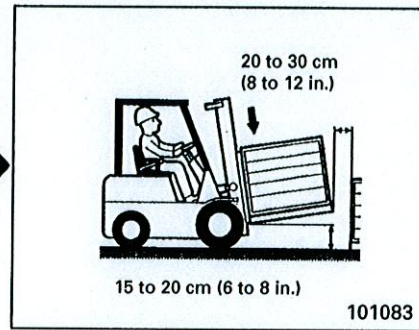
1. Make sure the load is centered on the forks. Then tilt the mast all the way back to cradle the load.



101082

Direction lever—REVERSE

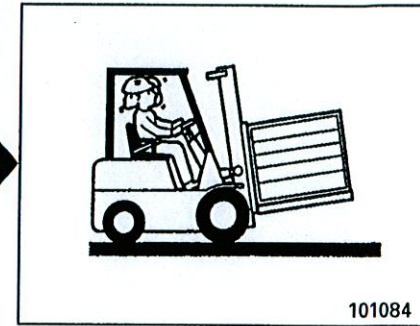
2. Look behind you.



101083

Direction lever—NEUTRAL

3. Slowly move the truck 20 to 30 cm (8 to 12 in.) away from the stack, then stop the truck. Lower the load to a position 15 to 20 cm (6 to 8 in.) from the ground.



101084

Direction lever—FORWARD

4. Look around to be sure your drive area is clear and then move the truck into the working zone.

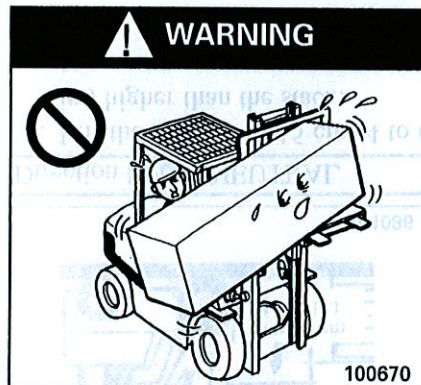


101525

Slack lift chains means there is a rail or lift bracket hang up. Raise the mast before you move.

When stacking:

1. Watch your lift chains.
2. If they go slack, stop; raise the load and lower it again.



100670

DON'T pick up an off-center load. Make sure the weight of the load is centered between the forks.

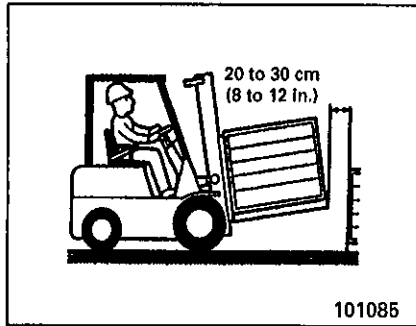


101021A

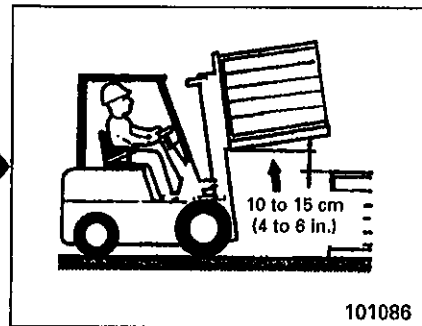
If the load blocks your view, or when you travel down a grade with the load, drive in reverse. Always look in the direction of travel.

OPERATING TECHNIQUES

◆ Unloading

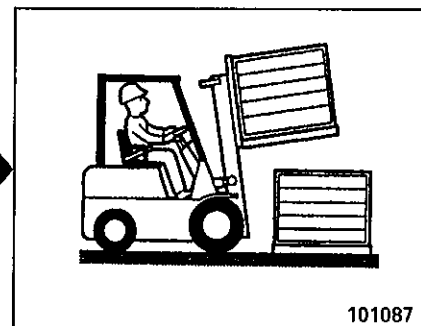


1. Stop the truck 20 to 30 cm (8 to 12 in.) short of the unloading zone.



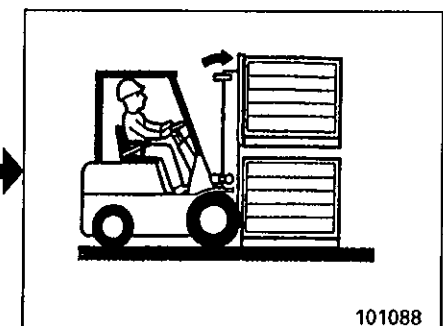
Direction lever—NEUTRAL

2. Lift the load 10 to 15 cm (4 to 6 in.) higher than the stack.



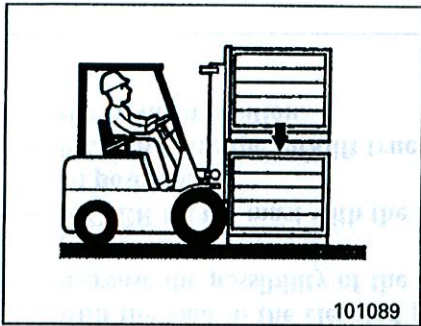
Direction lever—FORWARD

3. Slowly move the truck forward to position the load just above the stack.



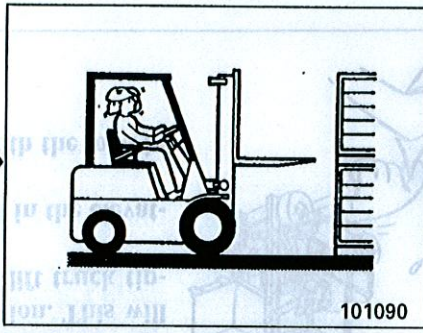
Direction lever—NEUTRAL

4. Tilt the mast forward to the vertical position.



101089

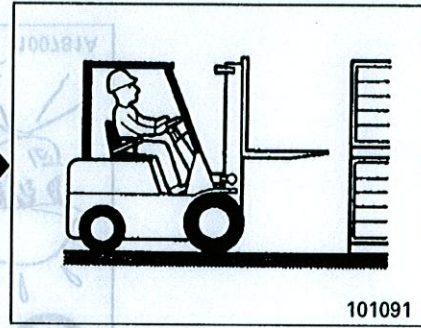
5. Carefully lower the load onto the stack.
6. Lower the forks just enough to disengage them.



101090

Direction lever—REVERSE

7. Look behind you and carefully back the truck away from the load.

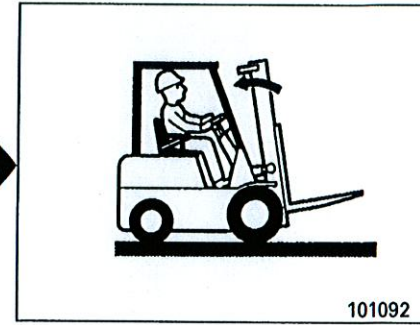


101091

8. When you disengage the forks, stop the truck.

Direction lever—NEUTRAL

9. Lower the forks to a position 15 to 20 cm (6 to 8 in.) from the ground.



101092

10. Tilt the mast back (6° or more).

Direction lever—REVERSE

11. Look around to see that it is safe to drive in your work area.
12. Drive up to your next position.

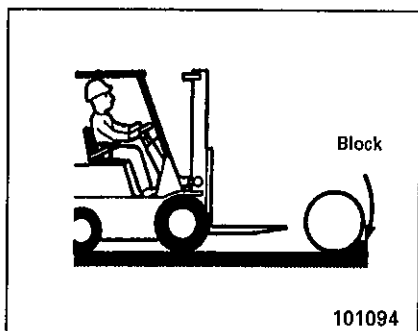


101093A

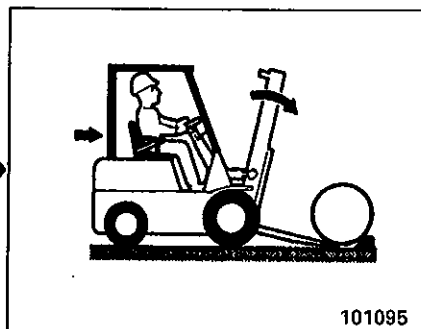
Be careful not to drag the forks.

OPERATING TECHNIQUES

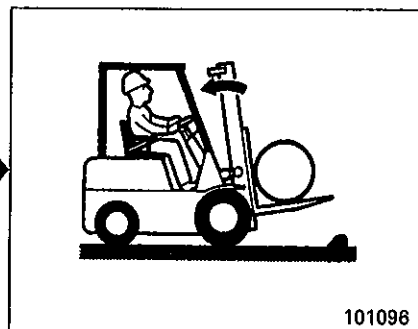
◆ Handling Round Objects



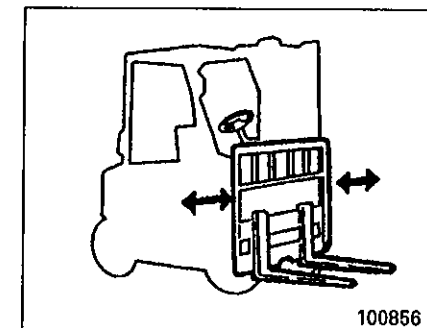
1. Block a round object.



2. Tilt the mast forward and slide the fork tips along the floor to get under the load.



3. Tilt the mast all the way back to keep the load on the forks.



Not every load can be handled using only the forks. Some loads will require a special attachment.

⚠ WARNING

- NEVER travel with the mast tilted forward or with the load in the elevated position. This will increase the possibility of the forklift truck tipping over.
- NEVER tilt the mast with the load in the elevated position.
- NEVER leave the forklift truck with the load in the elevated position.

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OPERATING TECHNIQUES

◆ Working on Grades

The Engine Stalls on a Grade

• Starting on a Grade

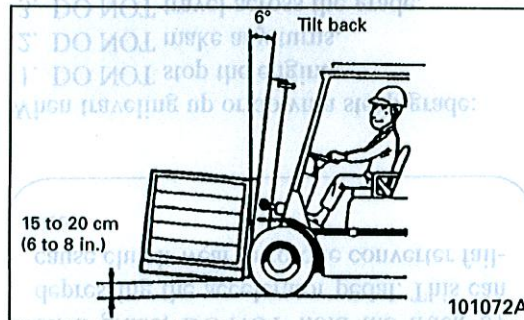


(MANUAL)

1. Apply the parking brake to hold the truck and lower the forks to the ground.
2. Depress the clutch pedal, move the gearshift lever to NEUTRAL position and start the engine.
3. Move the gearshift lever to 1ST. SPEED position.
4. Raise the forks or load to the safe travel position.

(Safe Travel Position)

- Keep the forks or the load at a safe travel height, which is 15 to 20 cm (6 to 8 in.) from the ground.
- Tilt the mast back more than 6° when the truck is empty. Tilt it all the way back when the truck is loaded.



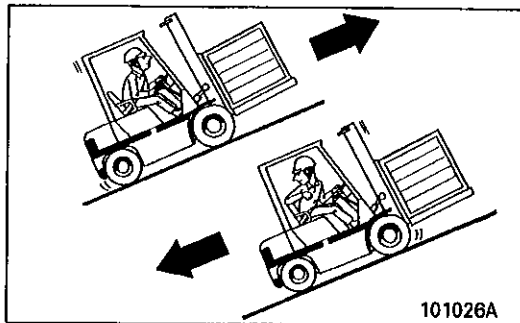
5. Depress the accelerator pedal while gradually releasing the clutch pedal. As soon as the clutch is engaged, gradually release the parking brake lever.

(POWERSHIFT)

1. Apply the parking brake and lower the forks to the ground.
2. Depress the brake pedal. Place the direction lever in the NEUTRAL position and start the engine.
3. Push the direction lever for FORWARD direction travel.
4. Raise the forks or load to the safe travel position.
5. Quickly shift your right foot from the brake pedal to the accelerator pedal. While gradually depressing the accelerator pedal, release the parking brake.

OPERATING TECHNIQUES

• Traveling on a Grade

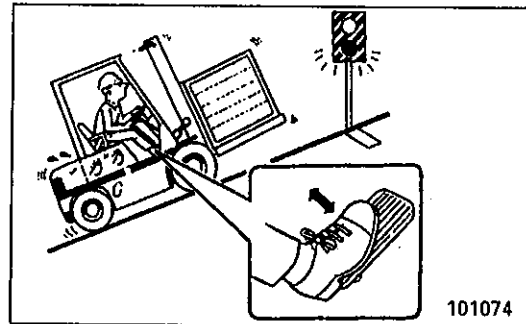


Travel forward up a grade and in reverse down a grade when the truck is loaded.

WARNING

- **DO NOT** continuously use the brake pedal alone. This can result in brake failure and an accident.
- **DO NOT** use the inching pedal when traveling down a grade. This prevents the engine from acting as a brake.
- **DO NOT** move the direction lever to **NEUTRAL** position when traveling down a grade.

• Stopping on a Grade



CAUTION

When you have to bring the truck to a stop on a grade, **DO NOT** hold the truck by depressing the accelerator pedal. This can cause clutch wear or torque converter failure.

When traveling up or down a steep grade:

1. **DO NOT** stop the engine.
2. **DO NOT** make any turns.
3. **DO NOT** travel across the grade.

STORING THE FORKLIFT TRUCK

◆ End of Each Shift Storage

WARNING

Perform a thorough walk-around inspection for any damage. Report all damage or faulty operation immediately. **DO NOT** operate a forklift truck that has a maintenance problem.

1. Park the truck in an authorized area.
2. Block the wheels securely.
3. Check under the truck for oil or coolant leaks.
4. Clean or wash the truck to keep it free of dirt and oil. This will make it easier to spot loose or defective parts.

CAUTION

Do not expose ECU box to rainwater. Take care not to sprinkle water over ECU box when washing your machine.

WARNING

If brake linings have become wet after cleaning the truck or after driving through a large area of water, stopping distance may be reduced. In such a case, gently apply brakes several times while driving slowly in a safe area until linings have dried out and normal braking action is restored.

◆ Long Term Storage

If your forklift truck is to be put in storage for any length of time, take the following precautions for safety and to reduce the risk of deterioration of truck components.

• Fuel System

- Gasoline engine trucks
Gasoline evaporates, leaving a sticky gum deposit in the fuel pump and carburetor. Drain the fuel from the tank and run the engine until the fuel in the lines is used up.
- Diesel engine trucks
Drain the fuel from the tank and run the engine until the fuel in the lines is used up.
- LP-Gas engine truck
These trucks present a storage problem due to fire hazards. Store them in an outdoor shelter or detached garage. If the shelter is attached to another building, the separating walls should have a fire resistance rating of more than one hour. The shelter should have sprinklers and floor-level ventilation.

• Hydraulic System

After positioning your truck for storage, retract all the hydraulic cylinders to minimize rod exposure. This will reduce the risk of rusting of the sliding contact surfaces of the rods.

• Engine Cooling System

Protect the cooling system from freezing by draining the system or by adding an antifreeze mixture.

• Engine Cylinders

Over a long storage period, the cylinders may rust from moisture condensation within the cylinders. To reduce the risk of rusting of cylinder walls, remove the spark plugs and squirt a small amount of engine oil into the cylinders. Crank the engine several times with the starter to spread the oil uniformly on the cylinder walls. Replace the spark plugs. Repeat this procedure prior to starting after storage.

• Battery

Remove the batteries from the truck and recharge them. Store them in a dry, cool place. More precautions may have to be taken according to the place of storage, storage period and season. When you put your truck in storage, consult your Mitsubishi Forklift Truck Dealer.

• Controller (AC model)

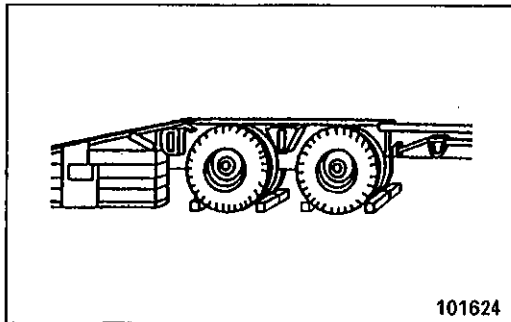
When cleaning the components inside the engine compartment, be careful not to splash water over the controller.

TRANSPORTATION HINTS

◆ Forklift Truck Shipping



Check travel route for overpass clearances. Make sure there is adequate clearance if the vehicle being transported is equipped with a high mast or cab. Remove ice, snow or other slippery material from the shipping vehicle and loading dock.



101624

Always block the trailer or rail car wheels before loading the forklift truck.

Position the forklift truck on the truck bed or rail car.

Place the direction lever in NEUTRAL and apply the parking brake.

Turn the key switch to the ○ (OFF) position and remove the key.

Block the wheels and secure the forklift truck with tiedowns.

Do not steer on the truck bed or rail car.

◆ Machine Lifting and Tiedown Information

NOTICE: Improper lifting or tiedowns may cause a load to shift and cause injury and/or damage.

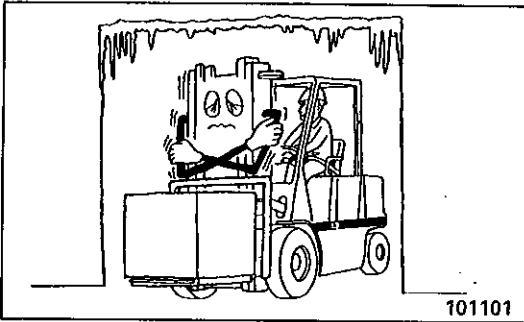
1. Weight and instructions given herein apply to forklift trucks manufactured by Mitsubishi Caterpillar Forklift America Inc.
2. Use proper rated cables and slings for lifting. Position the crane so the forklift truck is level when lifted.
3. Spreader bar widths should be sufficient to prevent contact with the forklift truck.
4. Use the tiedown locations provided for forklift truck tiedown.

Check the state and local laws governing weight, width and length of a load.

Contact your Mitsubishi Forklift Truck Dealer for shipping instructions for your forklift truck.

||||| SPECIAL SITUATIONS |||||

- ◆ Care in Cold Weather
 - Fuel Oils and Lube Oils



101101

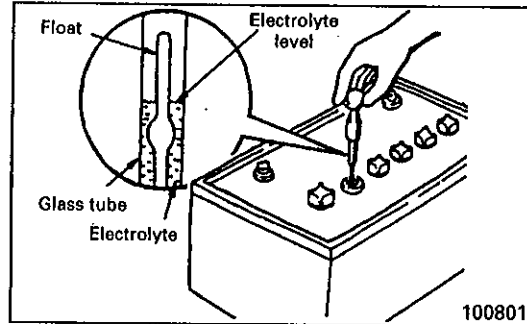
Use diesel fuel to fit the ambient temperatures. The cetane number should be 40 minimum. If you operate the truck where ambient temperatures are normally low, you may need fuel with a high cetane number.

⚠ CAUTION

- Cloud point should be 6°C (43°F) below the lowest ambient temperature.
- Use engine oil and gear oil to fit the ambient temperature.

NOTICE: For type and concentration of antifreeze, consult your Mitsubishi Forklift Truck Dealer.

- Battery



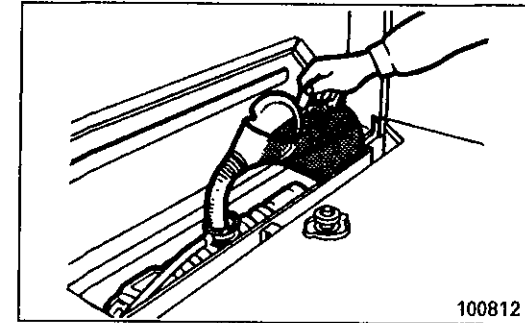
100801

- Maintain the specific gravity of electrolyte above 1.265 as corrected to 27°C (80°F).
- When you park your truck overnight, leaving it outside a garage, remove the battery and keep it warm.
- The electrolyte of a fully charged battery will not freeze to -35°C (-31°F).

⚠ CAUTION

- After distilled water has been added to the battery, run the engine for a while. This mixes the added water with the electrolyte and will reduce the risk of freezing and damaging the battery.
- DO NOT attempt to restore a battery's charge by pouring boiling water over it. This can break the battery case, resulting in acid contact with skin or eyes.

- Engine Coolant



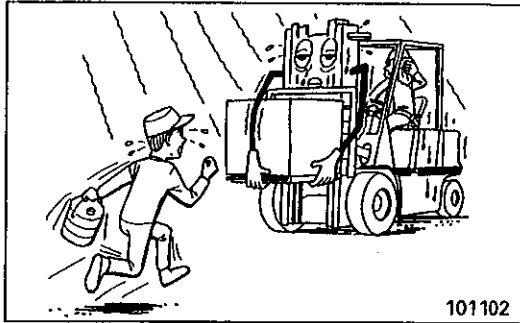
100812

- Antifreeze used in the engine cooling system of a new forklift truck shipped from the factory provides sufficient freeze protection to -30°C (-22°F).
- If ambient temperatures are below -30°C (-22°F), add antifreeze.

NOTICE: For type and concentration of antifreeze, consult your Mitsubishi Forklift Truck Dealer.

SPECIAL SITUATIONS

- ◆ Care in Hot Weather
 - Fuel Oils and Lube Oils



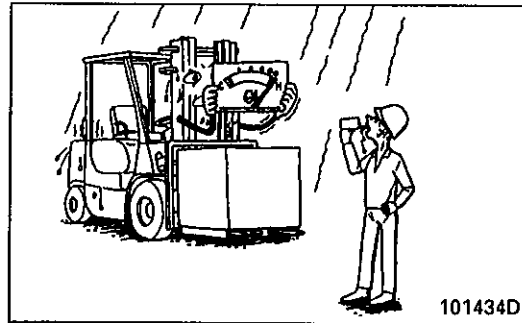
Use fuel oil, engine oil and gear oil to fit the ambient temperatures.

NOTICE: For selection of fuel oil, engine oil and gear oil, consult your Mitsubishi Forklift Truck Dealer.

- **Battery**

In hot, dry weather, check the battery cells for proper electrolyte level more often than in cold weather. Add distilled water whenever the level is low.

- **Engine Coolant**



Coolant evaporates rapidly and the engine is likely to get overheated when the truck is operated continuously or on a grade. During such an operation, observe the engine coolant temperature gauge for symptoms of overheating.

CAUTION

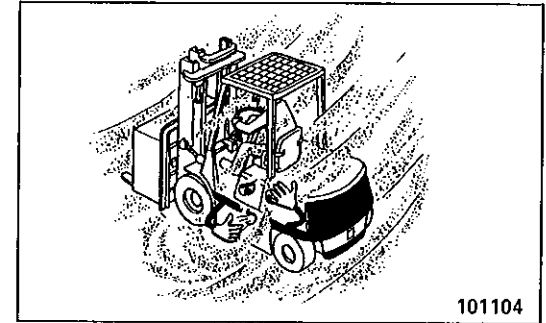
If the engine coolant temperature gauge needle moves into the red zone, the engine is suspected of getting overheated.

WARNING

Be careful NOT to have scalding hot coolant or steam blow out of the reserve tank.

NOTICE: If the engine coolant temperature gauge needle moves into the red zone, see the topic, **Engine Coolant Temperature Gauge Needle Moves Into the Red Zone.**

- ◆ **Care in Severe Dust or Lint Conditions**



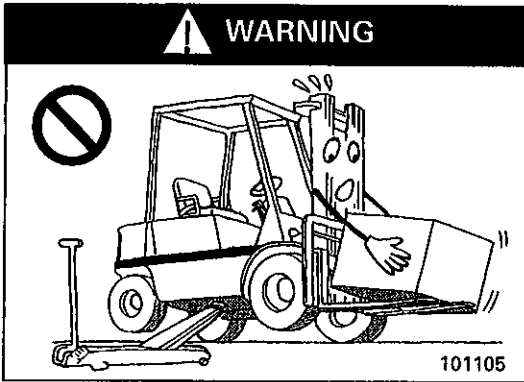
Check and service the air cleaner element more frequently.

Recommended inspection period	Every 200 service hours or monthly, whichever comes first
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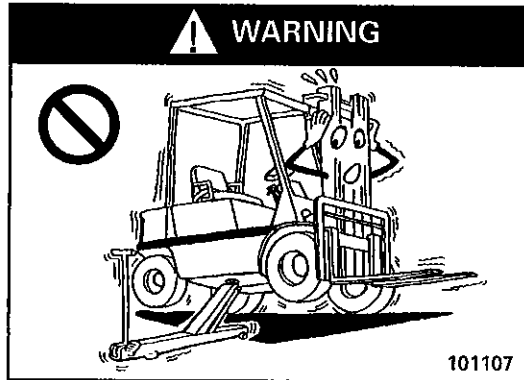
Check the radiator core more frequently for clogging or trash build-up. Clean or wash the truck as necessary.

TROUBLESHOOTING

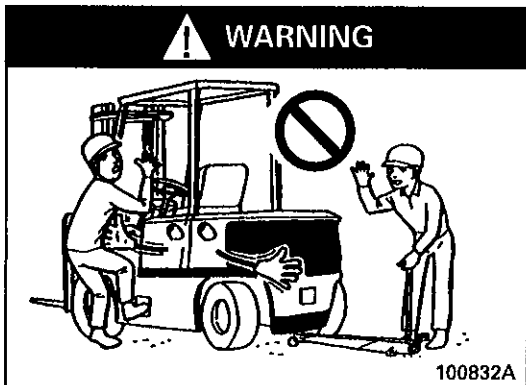
◆ Changing a Tire



DO NOT attempt to change the tire with the truck loaded. Injury and/or damage may result.



Stop raising the truck when the tire clears the ground. DO NOT raise the truck more than necessary.



BE SURE no one is on the truck when raising the front or rear tires.



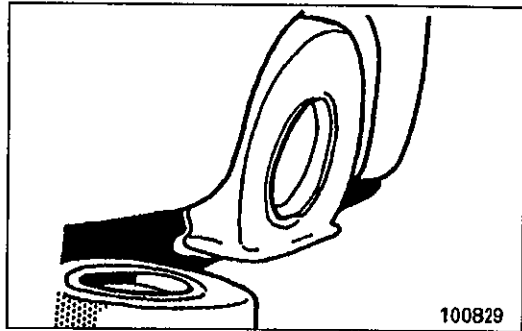
DO NOT place any part of your body under the truck. SECURELY SUPPORT the truck with blocks after jacking it up.

WARNING

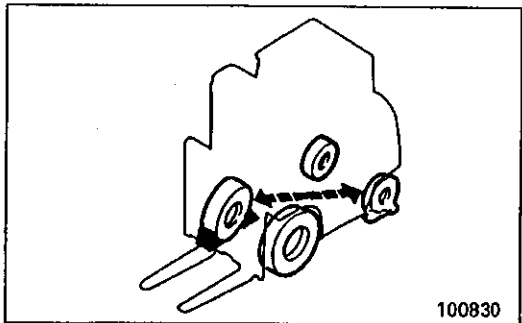
- Make sure the replacement tire is of the same size, type and load range.
- Use the tire recommended by MCF.

WARNING

- Consult your Mitsubishi Forklift Truck Dealer for proper tire changing procedure.
- Changing of tire and adjustment procedure must be made by a trained mechanic or dealer personnel.
- Perform all maintenance in the factory with proper equipment.



1. Park the truck on level ground with parking brake applied, transmission in neutral, forks lowered and engine stopped.

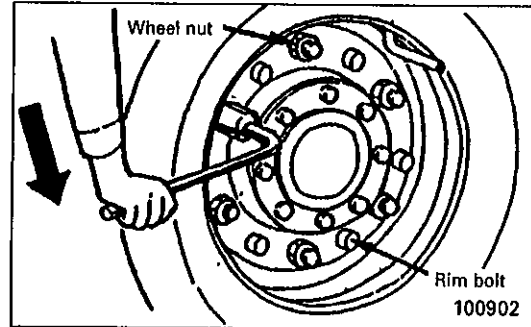


2. Prepare tools, jack and wheel blocks.

Jack Capacities

1 Ton Model	3 Tons (6700 lbf), minimum
2 to 3 Ton Model	5 Tons (12000 lbf), minimum

3. Block the diagonally opposite wheel.

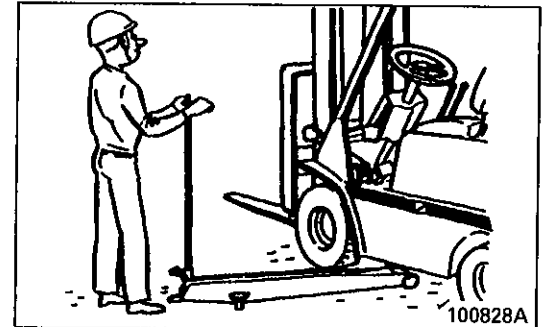


To Remove Wheel

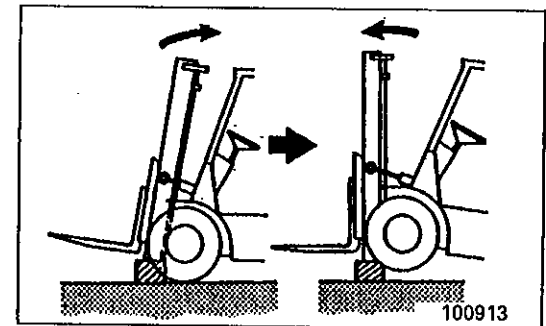
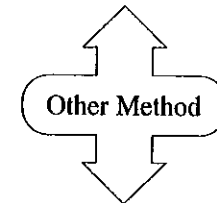
1. Loosen the wheel nuts about two rotations. **NOTICE:** Only loosen the wheel nuts. DO NOT remove them.
2. Position the jack under the truck at the specified jacking point.
3. Raise the truck by operating the jack until the tire just clears the ground.

WARNING
DO NOT LOOSEN RIM BOLTS.

To Raise Front Wheel

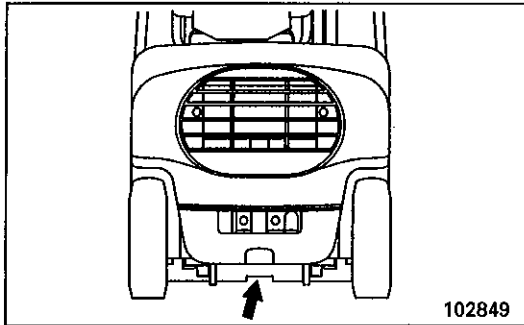


Position the jack under the frame and raise the front wheel.

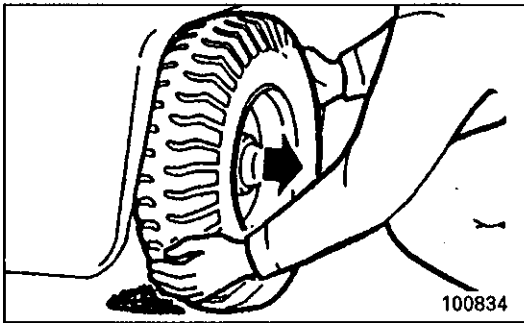


Tilt the mast all the way back, place blocks under the mast, and tilt the mast forward.

To Raise Rear Wheel



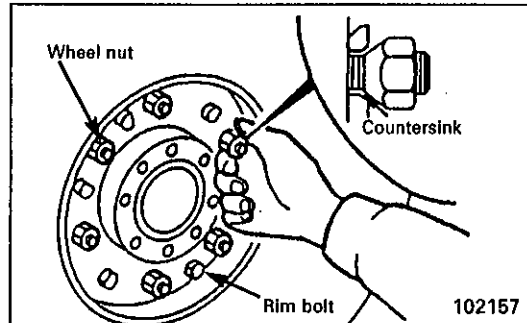
Position the jack under the counterweight at the recessed point and raise the rear wheel.



CAUTION

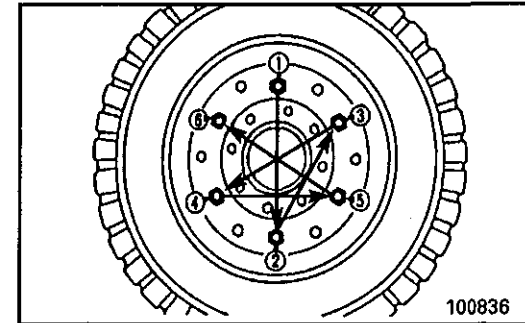
Be careful NOT to strip the bolt threads when removing the wheel.

4. Remove the wheel nuts (loosened in step 1).
5. Firmly grip the wheel with both hands and remove it from the truck.



To Install Wheel

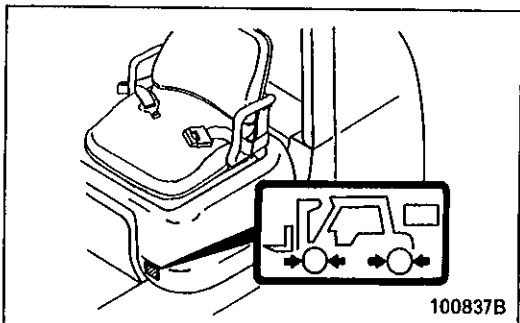
1. Install the wheel and tighten the wheel nuts finger tight until their clamping surfaces come into full-face contact with the counterbores in the rim.
NOTICE: Make sure the clamping surfaces of the wheel nuts and countersinks are free of dirt.



2. Lower the truck by operating the jack until the tire just touches the ground. Then tighten the wheel nuts in the sequence shown, in two or three steps, to the specified torque.

Tightening torques

1 Ton Model	Front	157 N•m (16 kgf•m)
	Rear	{116 lbf•ft}
2 to 3 Ton Model	Front	378 N•m (38.5 kgf•m)
	Rear	{278 lbf•ft}

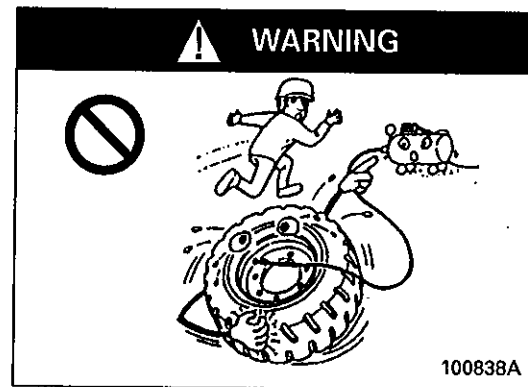


3. Lower the truck fully and restore the jack and tire.
4. Make sure the tire pressure is correct. For the pressure, see **SERVICE DATA**.
NOTICE: The tire pressure is indicated on the nameplate attached on the left side of the engine hood.
5. After tire replacement, drive the truck for a while and check the wheel nuts for tightness.



Your forklift truck uses high pressure tires. When adding air, check the rim for damage that could permit air to leak from the tire. **NEVER** overinflate the tire.

When adding air to the tire, or when checking tire pressure, **BE SURE** to keep your body away from the side. The use of an inflation cage, or some other safety device, helps reduce the risk of serious injury.

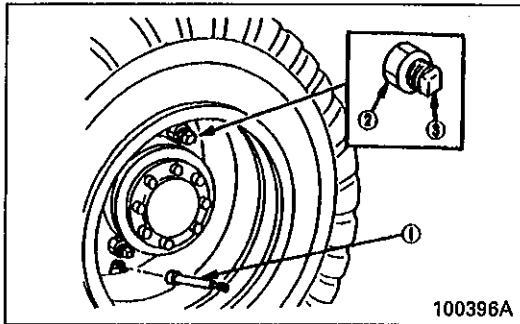


When adding air to the tire using an air compressor, make sure the compressor valve is correctly set. Failure to follow this precaution can damage the tire. Always maintain correct tire pressure.

TROUBLESHOOTING

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• Dual-Wheel Tire (optional)



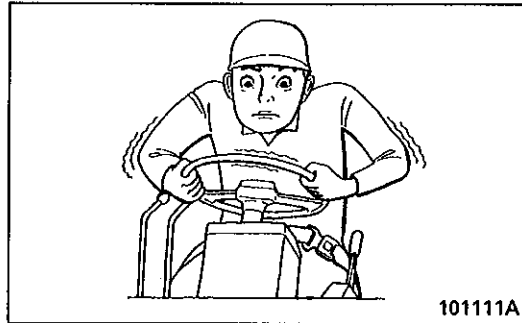
- ① Extension valve
- ② Outer wheel nut
- ③ Inner wheel nut

Steps other than the following are the same as those for single-wheel tire.

1. Remove extension valve ①.
2. Unscrew nuts ② and remove the outer wheel.
3. Unscrew nuts ③ and remove the inner wheel.
4. Install the inner wheel and, after lowering the truck, tighten nuts ③ to the specified torque.
5. Raise the truck again, install the outer wheel. After lowering the truck, tighten nuts ②.

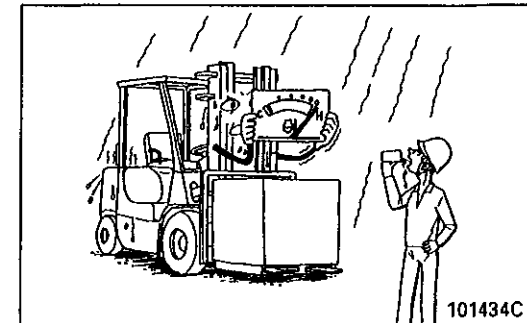
NOTICE: Check nuts ③ for tightness even when changing the outer wheel.

◆ Stalled Engine

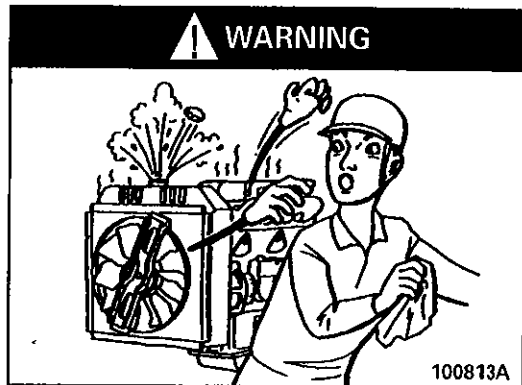


If the engine stalls, hydraulic pressure is lost in the power steering. This increases your steering effort. In such a case, stop your truck in a safe area and restart the engine.

◆ Engine Coolant Temperature Gauge Needle Moves into Red Zone

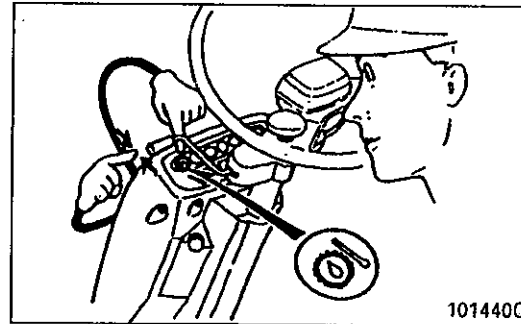


1. Park the truck in a safe area.
2. Raise the hood and seat assembly to ventilate the engine compartment.
3. Allow the engine to idle for a while. DO NOT attempt to stop the engine.
4. Stop the engine after the coolant temperature gauge needle has moved into the WHITE zone.
5. Check for:
 - Lack of coolant.
 - Loose or broken fan belt.
 - Engine oil level.
 - Dirt buildup in radiator air passages.



- DO NOT attempt to remove the radiator filler cap if the engine is overheated to avoid having scalding hot coolant or steam blow out of the radiator.
- DO NOT add cold water to an overheated engine. This can cause the engine to suffer damage. Wait for the engine to cool, if possible. If not, slowly pour water into the radiator.
- Immediately stop the engine if the fan belt is broken.

◆ Powershift Transmission Oil Temperature Warning Light Glows



1. Stop the truck in a non-traffic area.
2. Apply the parking brake. Place and lock the direction lever in the NEUTRAL position. Allow the engine to run at low idle for a while.
3. After the warning light has gone out, operate the truck again.

CAUTION

If the warning light does not go out, or if it glows often, consult your Mitsubishi Forklift Truck Dealer.

◆ Trouble with the LP-Gas Equipment

WARNING

If you smell gas or notice something wrong with LP-Gas equipment during operation, immediately stop the truck in a safe area, turn the starter switch to the ○ (OFF) position, close the fuel valve of the LP-Gas tank, and try to find the cause. (It is advisable to have a test kit on hand for detecting gas leakage.)

If the internal pressure of the LP-Gas tank rises too high and causes the relief valve to open to let out the excess pressure, sprinkle water over the tank. At the same time, extinguish any fire or flame source (such as a pilot light) and eliminate the possibility of creating sparks near the truck. Ventilate the work area.

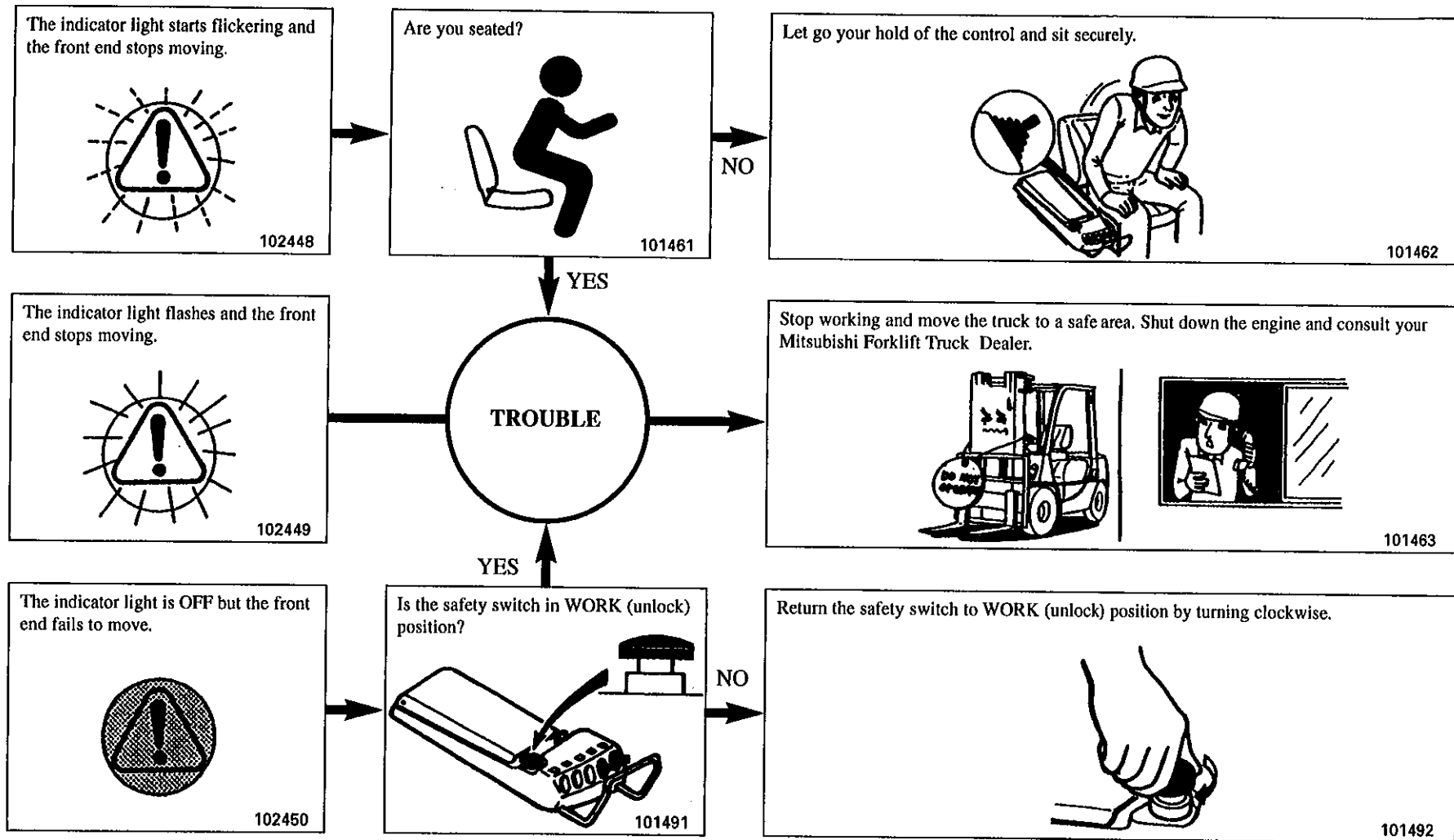
When gas leakage is evident, close the fuel valve as soon as possible. Extinguish the fire or flame sources nearby to prevent spark conditions.

There is a possibility of fire after a collision or when a truck turns over. If this happens, close the LP-Gas fuel valve of the LP-Gas tank as soon as possible.

Use a dry-chemical (powder) or carbon dioxide type extinguisher. Never use water. When possible, however, have large quantities of water poured over the LP-Gas tank to cool it down while the fire is being extinguished.

TROUBLESHOOTING

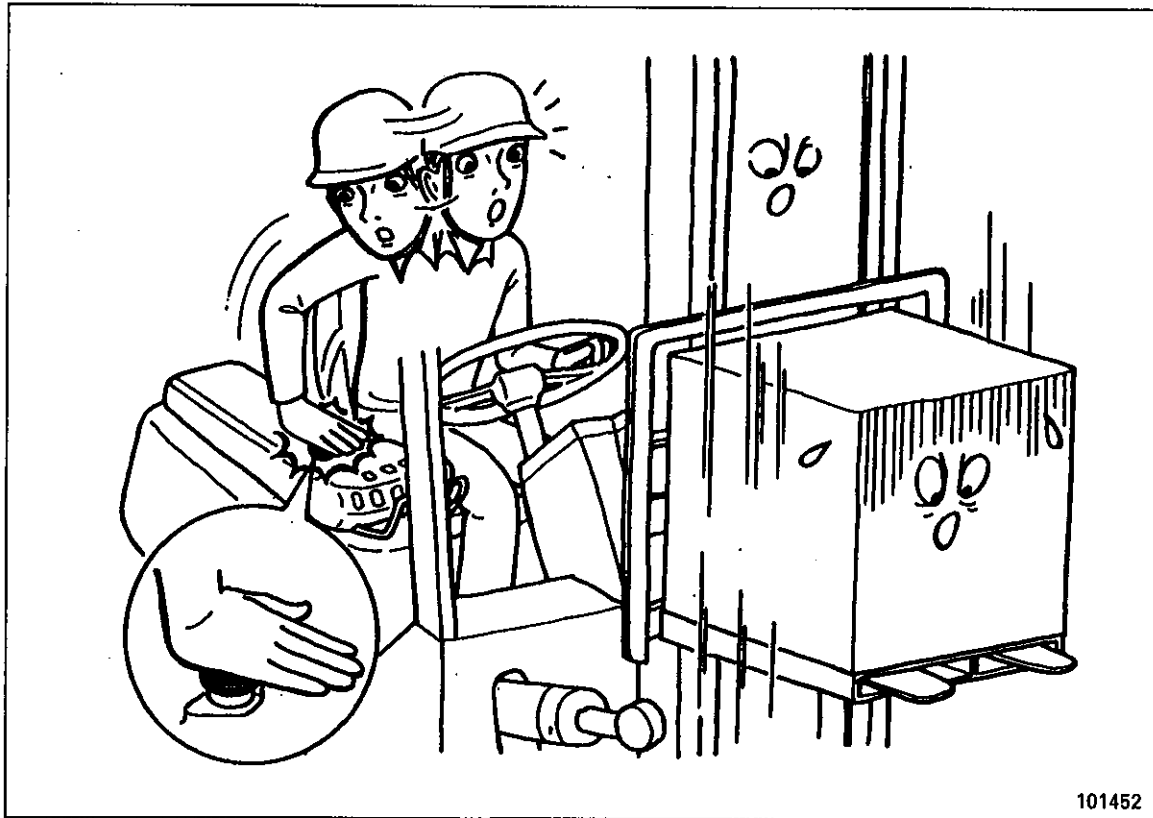
◆ System Indicator Light Flickers or Flashes and the Front End Stops Moving (AC model)



TROUBLESHOOTING

◆ The Front End Malfunctions (AC model)

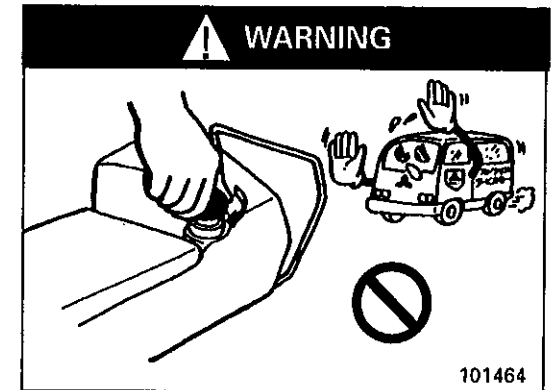
98



If the front end fails to stop moving although you let go your hold of the control:

1. Push down on the safety switch as soon as possible (the engine will not stop).
2. Move the truck to a safe area, stop the engine, and consult your Mitsubishi Forklift Truck Dealer.

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NEVER attempt to return the safety switch to WORK (unlock) position for operating the truck before an authorized mechanic arrives on the spot.

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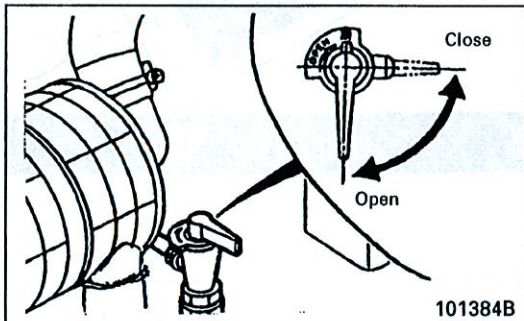
MAINTENANCE

◆ General

Taking proper care of your forklift truck is a vital part of the overall planned maintenance program.

Your participation in this program will provide an early warning to help identify potential maintenance problems.

Do-it-yourself maintenance does not include repairs. If your truck requires any repairs, consult your Mitsubishi Forklift Truck Dealer. The dealer's forklift truck mechanics are well trained and know how to safely make repairs. Service Manuals are also available from your Mitsubishi Forklift Truck Dealer.



The fuel shut off valve is located near the air cleaner inside the engine hood. To avoid an accident, close this valve when performing maintenance.

⚠ WARNING

- Make sure the service area is safe.
- Park the truck on a level ground with the forks lowered, parking brake applied, transmission in NEUTRAL, and engine stopped.
- Follow the recommended safety procedures.
- Use only the right tools for the job.

Follow these rules to save you from injury and to service your truck properly.

⚠ WARNING

Lines, Tubes and Hoses

DO NOT bend or strike high pressure lines. **DO NOT** install bent or damaged lines, tubes or hoses.

Repair loose or damaged fuel and oil lines, tubes or hoses. Leaks can cause fires. Contact your dealer for repair or replacement.

Check lines, tubes and hoses carefully. **DO NOT** use your bare hands to check for leaks, use a board or cardboard. Tighten connections to the recommended torque. If any of the following is found on a part, replace the part.

- End fittings damaged or leaking.
- Outer covering chafed or cut and wire reinforcing exposed.
- Outer covering ballooning locally.
- Evidence of kinked or crushed hose.
- Metal embedded in the outer cover.
- End fittings displaced.

Make sure all clamps, guards and heat shields are installed correctly to reduce the risk of vibration, rubbing against other parts, and excessive heat during operation.

MAINTENANCE

◆ Inspection Precautions

WARNING

If it is necessary to make an inspection while the engine is running, **ALWAYS USE TWO WORKERS**—one, the operator, at the controls and the other checking within visual contact of the operator.

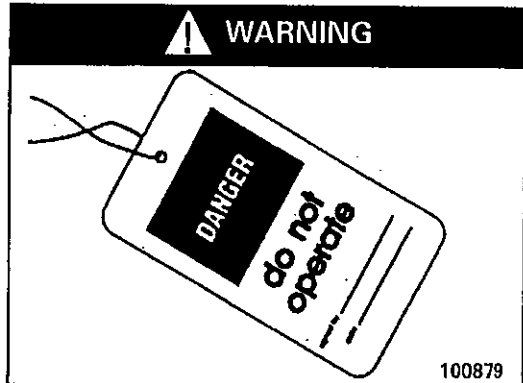
CAUTION

- Avoid mixing lubricants. In some cases different brands of lubricants are not compatible with each other and deteriorate when mixed. It is best to stick with the same brand at successive service intervals.
- Before refilling, clean filler holes. After filling, clean up spills.

A daily (Pre-Start) inspection is the key to safety. At the beginning of each shift, check your forklift truck to make sure it is in safe operating condition.

Always inspect your truck under the following conditions.

- Forklift truck level
- Mast in vertical position
- Fork tips on ground
- Engine stopped
- Control levers in neutral
- Wheels blocked



If your truck requires any repair, attach a "DO NOT OPERATE" or similar warning tag to the steering wheel or other control, remove the key from the starter switch, and contact your Mitsubishi Forklift Truck Dealer.

MAINTENANCE

◆ Maintenance Schedule

As the operator, you are responsible for the performance of daily pre-start inspection. You are also responsible for those items listed under **Every 50 Service Hours or Weekly, Whichever Comes First** to keep your forklift truck in proper working condition.

For periodic inspection and periodic change of rubber parts, however, rely on the expert knowledge of the factory-trained servicemen, and the service facilities at your Mitsubishi Forklift Truck Dealer's workshop.

Periodic inspection time intervals	Every 200 service hours or monthly, whichever comes first Every 1200 service hours or 6 months, whichever comes first Every 2400 service hours or 1 year, whichever comes first Every 3000 service hours or 18 months, whichever comes first
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• Every 10 Service Hours or Daily (Pre-Start), Whichever Comes First

Item	Service	Page
Damaged or faulty operation found the day before	Check	104
Oil, fuel or coolant leaks	Check	104
Lights (if equipped)	Check	104
Load backrest extension	Check	104
Tilt cylinder socket bolts	Check	105
Overhead guard	Check	105
Assist grip	Check	105
Accelerator pedal	Check	105

• Every 10 Service Hours or Daily (Pre-Start), Whichever Comes First, continued

Item	Service	Page
Brake pedal	Check	105
Inching pedal (powershift)	Check	106
Clutch pedal (manual)	Check	106
Parking brake lever	Check	106
Seat adjustment	Check	106
Horn	Check	107
Steering wheel	Check movement	107
Amount of fuel (truck level)	Check	107
Stop lights (if equipped)	Check	107
OK monitor	Check	107
Lift chains	Check	108
Engine	Check	109
Clutch pedal	Check	109
Service brakes	Check	109

MAINTENANCE

- **Every 10 Service Hours or Daily (Pre-start), Whichever Comes First, continued**

Item	Service	Page
Backup lights (if equipped)	Check	109
Engine crankcase	Check oil level	110
Engine coolant	Check coolant level	112
Hydraulic oil	Check oil level	114
Service brakes	Check fluid level	115
Clutch oil	Check oil level	115
Wheel nuts	Check	116
Tire and rims	Inspect/ check	116
Mast and forks	Check	117
Battery	Check electrolyte level	118

- **Every 50 Service Hours or Weekly, Whichever Comes First**

Item	Service	Page
Air cleaner	Check/ inspect	119
Alternator drive belt	Check/ adjust	120
Mast supports	Lubricate	121

- **Every 200 Service Hours or Monthly, Whichever Comes First**

Item	Service	Page
Wheel nuts	Retighten	122
Differential	Check oil level	122
Timing belt	Inspect/ adjust	122
Powershift transmission	Check oil level	123
Engine crankcase	Change oil and filter	124

MAINTENANCE

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- **Every 200 Service Hours or Monthly, Whichever Comes First, continued**

Item	Service	Page
Mast strip sliding surfaces	Lubricate	125
Lift bracket side rollers	Lubricate	125
Lift chains	Lubricate/ inspect	125
Tilt socket pins	Lubricate	126
Tie rod ends	Lubricate	126
Rear axle center pins	Lubricate	126

- **Every 1200 Service Hours or 6 Months, Whichever Comes First**

Item	Service	Page
Powershift transmission	Change oil/ wash strainer	127
Hydraulic system	Change/ return oil filter/wash strainer	128
Differential	Change oil	129

- **Every 1200 Service Hours or 6 Months, Whichever Comes First, continued**

Item	Service	Page
Air cleaner	Change element	129
Fuel filter–Gasoline	Change	130
Fuel filter–LP-Gas	Change	131
Engine coolant	Change	133

- **Every 2400 Service Hours or 1 Year, Whichever Comes First**

Item	Service	Page
Hydraulic oil	Change	136
Service brake fluid	Change	136
Timing belt	Inspect/ adjust	137
Clutch oil	Change	137

- **Every 3000 Service Hours or 18 months, Whichever Comes First**

Item	Service	Page
Timing belt	Change	137

MAINTENANCE

104

◆ Every 10 Service Hours or Daily (Pre-Start), Whichever Comes First

You must read and understand the warnings and instructions contained in this manual before performing any operation or maintenance procedures.

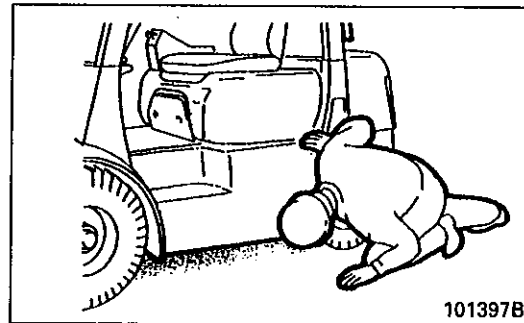
- **Damage or Faulty Operation Found the Day Before**

Have repairs been made properly?
Check the daily inspection sheet.



Fill out a daily inspection sheet. Remember, the complete performance of a daily inspection is the best protection against injury and property damage.

- **Oil, Fuel or Coolant Leaks**

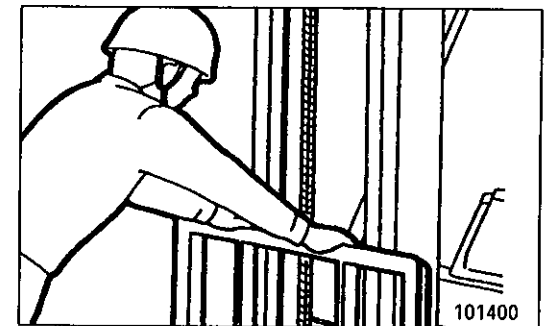


Check on the floor for oil, fuel or coolant leaks.

- **Lights (if equipped)**

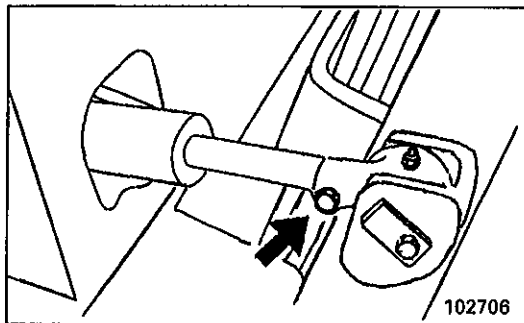
Are all the lights in safe working condition?
Are their lenses clean and not defective?
Do the tail and head lights come ON properly when you switch them on.

- **Load Backrest Extension**



Is the backrest free of distortion, cracks and other defects? Shake the backrest to check for excessive rattle.

• **Tilt Cylinder Socket Bolts**



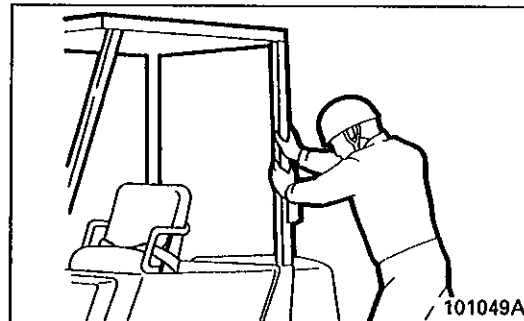
- Are the bolts tightened properly?
Use a wrench.

NOTICE: After retightening the bolt, put a mark across the bolt and tilt cylinder socket. This permits you to easily notice loosening of the bolt.

Tightening Torque for the Bolt

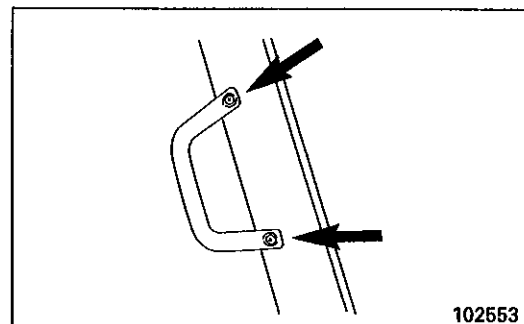
127 to 152 N•m (13 to 15.5 kgf•m)
[94 to 112 lbf•ft]

• **Overhead Guard**



1. Check the front and rear overhead guard mounting bolts on each side. Tighten bolts to 49 to 69 N•m (5.0 to 7.0 kgf•m) [36.1 to 50.9 lbf•ft].
2. Inspect overhead guard for bent or cracked sections. Contact your Mitsubishi Forklift Truck Dealer if repairs are needed.

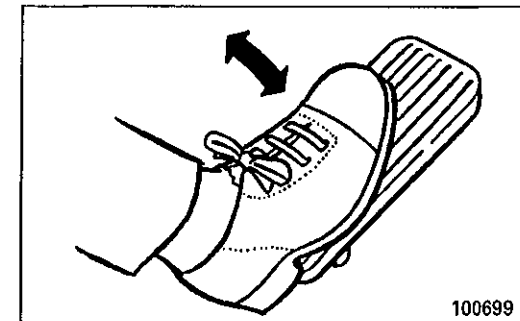
• **Assist Grip**



Inspect, and if necessary, tighten the screws of the assist grip.

• **Accelerator Pedal**

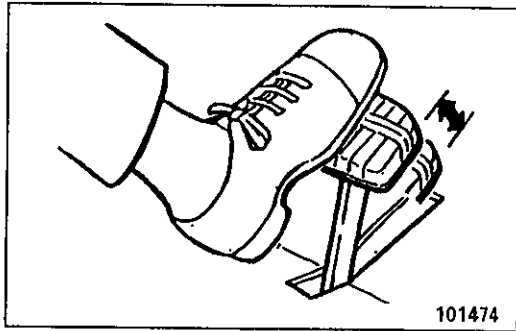
Can you depress the accelerator pedal smoothly without any sign of rubbing?



• **Brake Pedal**

Do you have sufficient pedal travel?
Does the pedal have a free play of 10 to 16 mm (0.4 to 0.6 in.)?

• **Inching Pedal (POWERSHIFT)**



101474

Is the free play correct?

Correct free play

Unit : mm (in.)

1.0 to 1.8 ton models	9 to 9.5 (0.35 to 0.37)
2 to 3.5 ton models	0.5 to 1.5 (0.02 to 0.06)

• **Clutch Pedal (MANUAL)**

Does the pedal have a correct free play at the beginning of depression stroke and then meet resistance?

■ In wet (power) clutch models, check free play with the engine running.

Correct free play

Unit : mm (in.)

Dry clutch models	1 to 10 (0.04 to 0.4)
Wet clutch models	5 to 15 (0.2 to 0.6)

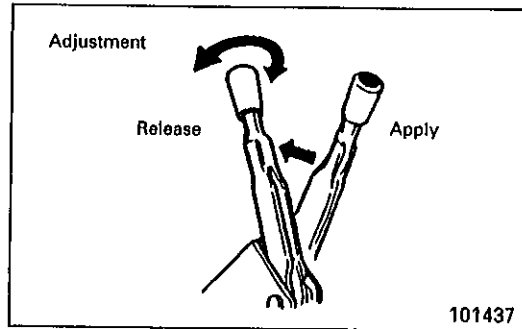
• **Parking Brake Lever**

Can you pull the lever all the way with reasonable effort?

Can you hold your truck on a grade by pulling the brake lever?

Lever operating effort:

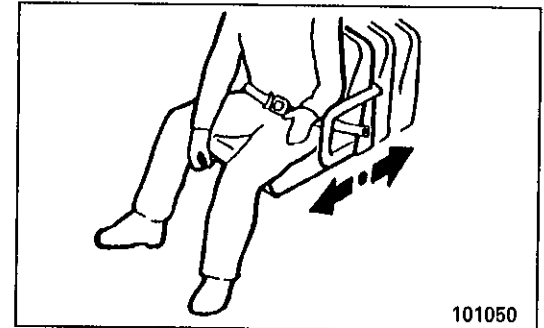
250 to 290 N (25 to 30 kgf) [55 to 66 lbf]



101437

Turn the knob clockwise to increase the lever's tension; counterclockwise to decrease it. Adjustment is correct when the lever requires an effort of 250 to 290 N (25 to 30 kgf) [55 to 66 lbf] to snap it over center.

• **Seat Adjustment**

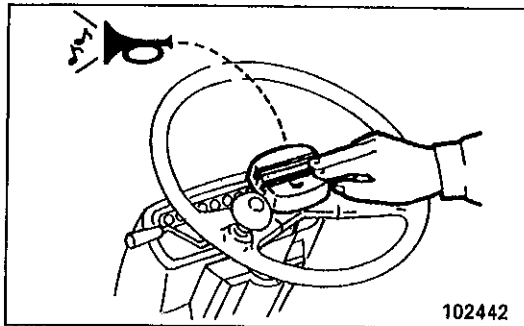


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Can you depress the pedals all the way?

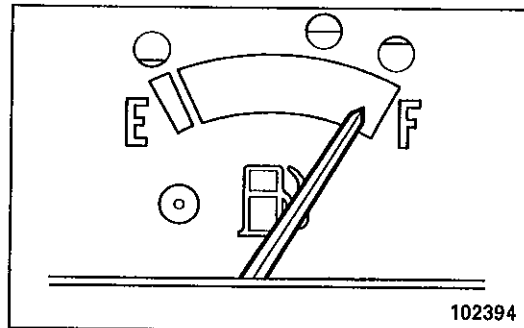
NOTICE: See the topic, Adjustment under Operator's Seat.

• Horn



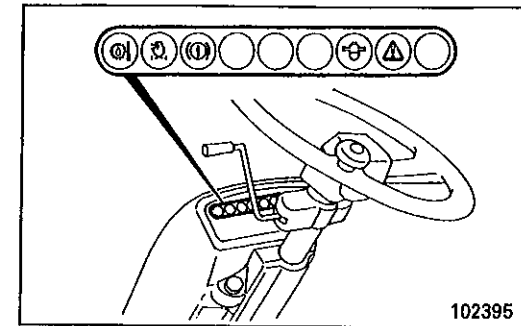
Does the horn sound properly when you push the switch?

• Amount of Fuel (Truck level)



Is the amount of fuel in the tank enough for the day's work?

• OK Monitor

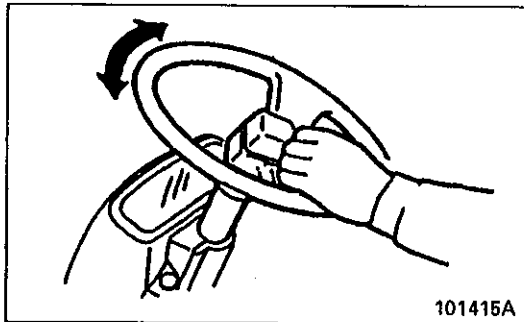


Do all the warning lamps glow when the key is in the I (ON) position?

NOTICE: When this lamp does not light with the key in the I (ON) position, the bulb may be burned out.

Get an inspection at a specified your service station.

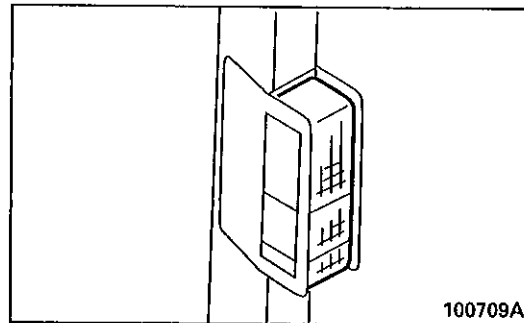
• Steering Wheel



Is the free play 15 to 30 mm (0.6 to 1.2 in.)? Check the play at the rim of the wheel by rotating the wheel in both directions.

Is wheel installation loose? Check by shaking the wheel up and down.

• Stop Lights (If equipped)



Do all stop light come ON properly when you depress the brake pedal?

MAINTENANCE

Lift Chains Check Adjust

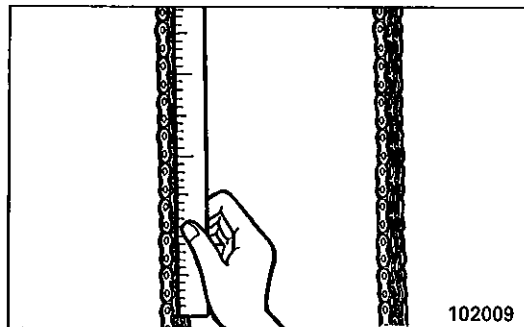
⚠ WARNING

- Check the lift chains periodically and determine if they are still in usable condition.
- Check the lift chains for wear, cracks and worn or seized link pins.
- Improper maintenance of the lift chains can cause accidents. If something is wrong with the chains, consult your Mitsubishi Forklift Truck Dealer for repair or replacement.
- **DO NOT** put your foot under the fork.

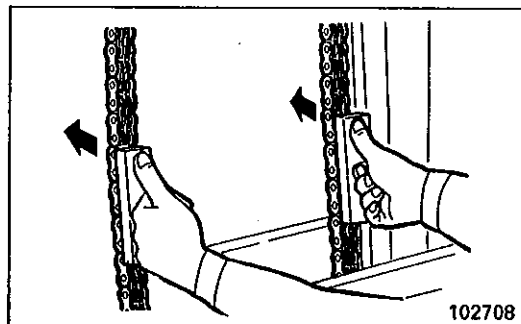
1. Check the lift chains for wear. Use the following chart to determine if it is still in usable condition.

Lift chain elongation limit:(/20 links)

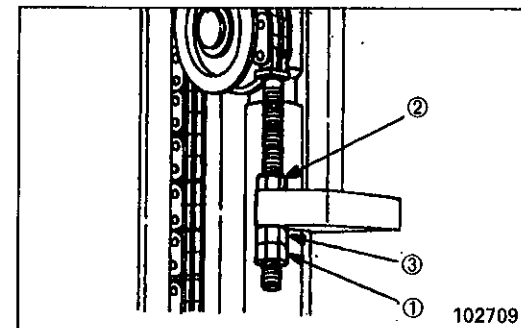
1.0 to 1.8 ton models	327 mm (12.9 in.)
2 to 2.5 ton models	392mm (15.4 in.)
3 to 3.5 ton models	523 mm (20.6 in.)



2. Lift the forks high enough to put their full weight on the carriage and chains.
3. Check to be sure the lift chains have equal tension.
4. If the chains are loose or the tension is not equal, have the chains adjusted.



To Adjust



1. Loosen the locknut ① and the nut ②. Then turn the nut ③ to adjust tension.
2. Hold the nut ③ and tighten the nut ② to torque A. Hold the nut ③ and tighten the locknut ① to torque B.

Tightening torque:

Unit:N•m(kgfm) [lbf•ft]

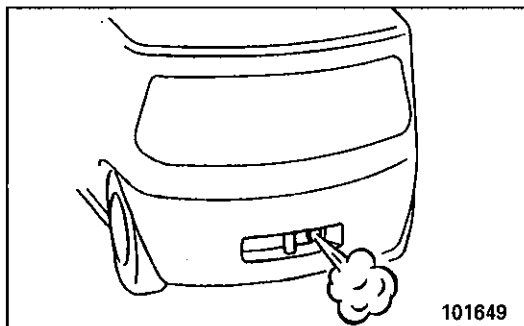
1.0 to 2.5 ton models	A	57 (5.8) [42.0]
	B	98 (10.0) [72.3]
3 to 3.5 ton models	A	84 (8.6) [62.2]
	B	147 (15.0) [108.5]

• Engine



Exhaust fumes can kill you! If it is necessary to start the engine in an enclosed area, make sure there is adequate ventilation.

Fire hazards! Clean up spillage of fuel, oil, or other flammable materials in the engine compartment. Know the location of all emergency devices (such as fire extinguisher, first aid kit, etc.) and how to use them.



- Is exhaust smoke normal?
- Listen for abnormal noise or excessive vibration.

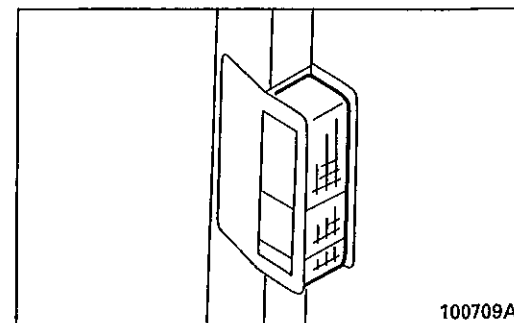
• Clutch

Does the flywheel clutch (MANUAL) or any transmission clutch (POWERSHIFT) grab or slip? The clutch grabs if the truck does not slow down when the clutch pedal (MANUAL) or the inching pedal (POWERSHIFT) is depressed. It slips if the truck does not pick up speeds when the accelerator pedal is depressed.

• Service Brakes

Do the brakes apply and stop the truck properly—without pulling, dragging, chattering, squealing?

• Backup Lights (if equipped)



When you move the direction lever into REVERSE position:

- do all backup lights come ON?
- does the backup buzzer sound (if equipped)?

MAINTENANCE

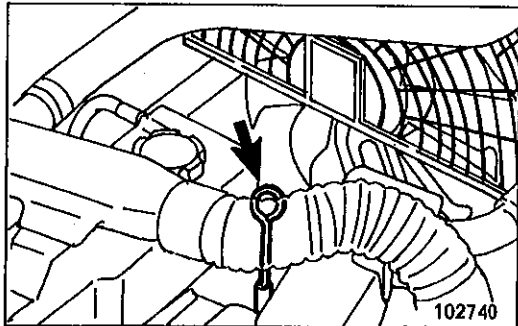
- Engine Crankcase
Check Oil Level

WARNING

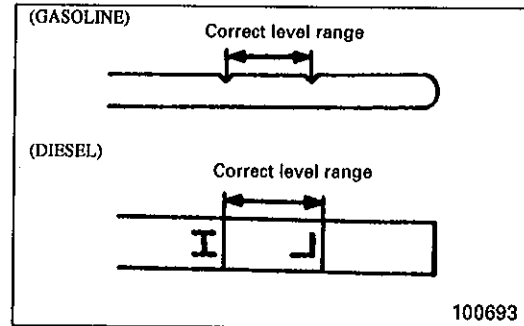
Hot oil and components can cause personal injury. Do not allow hot oil or components to contact your skin.

Park the forklift truck with the forks lowered, parking brake applied, transmission in NEUTRAL, and the engine stopped.

1. Raise the hood.
2. Remove the dipstick and wipe it clean, then insert it.



3. Maintain the correct level range on the dipstick.



4. Close and secure the hood.

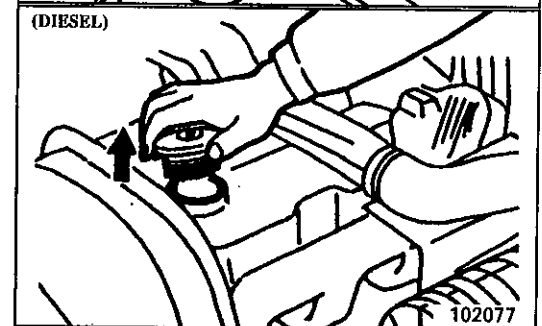
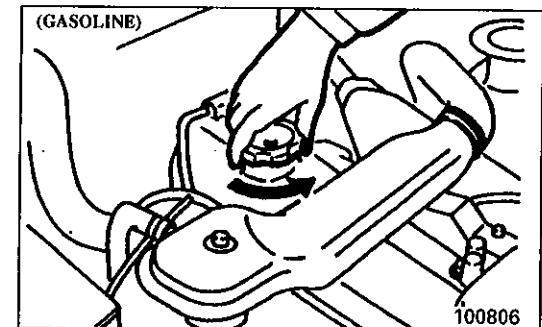
Adding Engine Oil

CAUTION

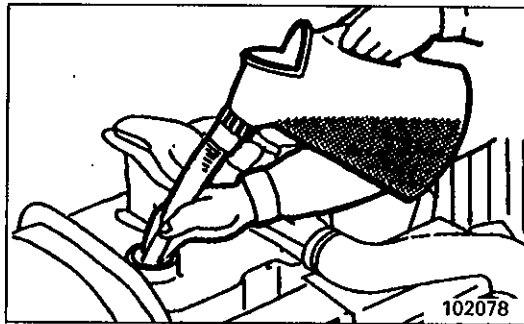
When adding engine oil:

- Perform the work on level ground.
- Clean the filler hole to prevent dirt from dropping into the engine.
- DO NOT overfill.
- Clean up spillage.

1. Remove the oil filler cap.

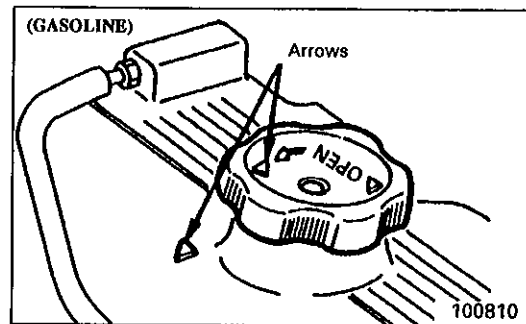


2. Add engine oil as required.
For engine oil, see the topic, **Recommended Fuels and Oils.**



3. After adding oil, make sure the level is in the correct range on the dipstick.

4. Close and tighten the filler cap.



MAINTENANCE

- Engine Coolant
Check Coolant Level

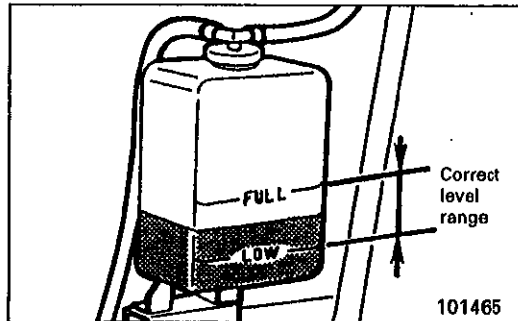
WARNING

At operating temperature, the engine coolant is hot and under pressure. Steam can cause injuries. **DO NOT** let it contact your skin and eyes.

To avoid having scalding coolant or steam blow out of the radiator, do not remove the radiator cap unless the engine is cold. Muffle the cap in a thick cloth and turn it slowly to release all pressure before removing the cap.

The forklift truck must be level, the forks lowered, the parking brake applied, the transmission in neutral and the engine stopped and cold.

1. Raise the hood.
2. Maintain the coolant level between the FULL and LOW marks on the reserve tank.



3. Close and secure the hood.

Adding Coolant

WARNING

Keep fire away from undiluted antifreeze as it is **FLAMMABLE**.

CAUTION

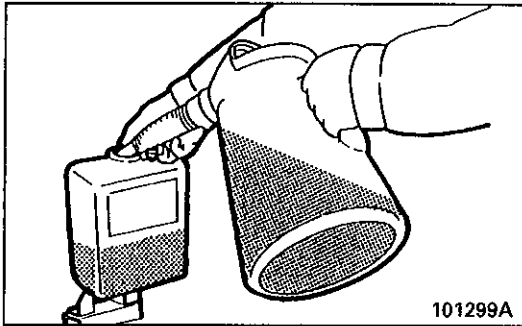
DO NOT add water only. This dilutes the antifreeze/summer coolant protection and adversely affects the engine. Be sure to pre-mix antifreeze/summer coolant with tap water (soft water). See the topic, **Engine Cooling System Capacity** under **Specifications**.

If coolant has to be added frequently, have your Mitsubishi Forklift Truck Dealer check the cooling system.

CAUTION

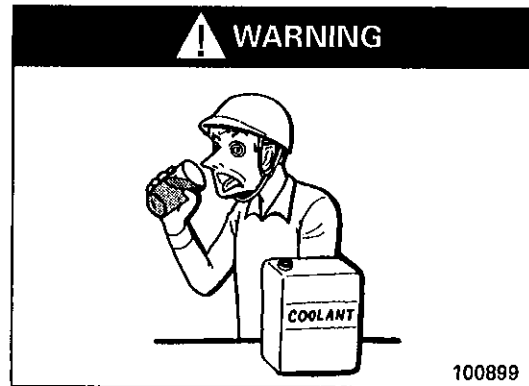
- Antifreeze/summer coolant (ASC) contains rust inhibitors. It is not necessary to add other chemicals.
- Recommended concentration range of ASC is 30% to 60% by volume. ASC of less than 30% concentration does not provide sufficient corrosion protection. Concentrations over 60% adversely affect freeze protection and heat transfer rates.
- Avoid mixing different brands of coolant.
- Select an ASC suitable for use in engines using aluminum alloy parts.
- Select an ASC which contains silicate of less than 0.2% by weight.

1. Remove the reserve tank cap and add coolant to the FULL mark.
2. When adding coolant, maintain the same concentration of antifreeze solution.



NOTICE: The engine cooling system is protected to -30°C (22°F) with 50% concentration of antifreeze/summer coolant (ASC) when shipped from the factory.

3. Put the reserve tank cap back on.



Antifreeze solution is **TOXIC**. In case of contact with your skin, **FLUSH IMMEDIATELY WITH WATER**. Have your Mitsubishi Forklift Truck Dealer discard antifreeze solution drained from the engine.

MAINTENANCE

Hydraulic Oil Check Oil Level

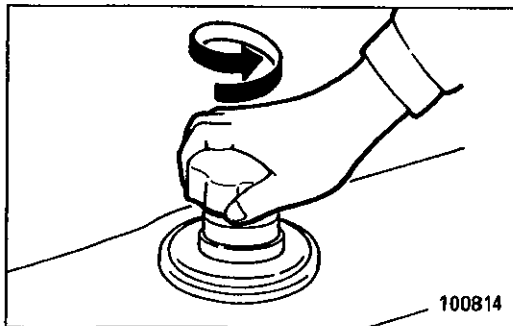
WARNING

Hot oil and components can cause personal injury. Do not allow hot oil or components to contact your skin.

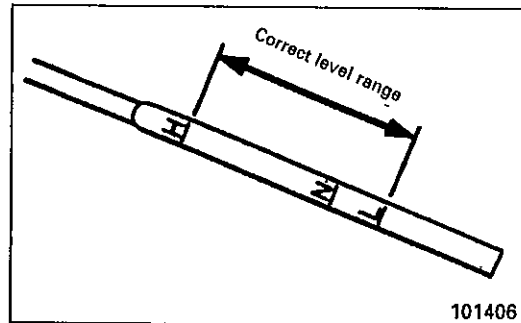
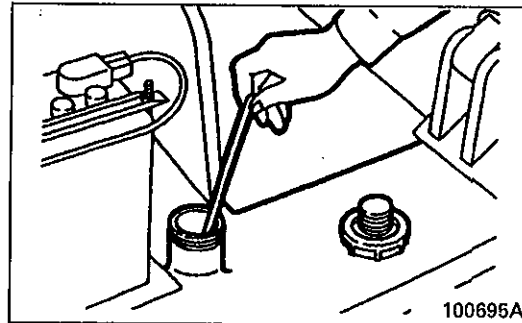
Remove the hydraulic tank filler cap only after the engine has been stopped and the cap is cool enough to remove with your bare hand.

Remove the hydraulic tank filler cap slowly to relieve pressure.

1. Operate the forklift truck for a few minutes to warm the oil.
2. Park the forklift truck on a level surface, with the forks lowered, mast tilted back, parking brake applied, transmission in neutral and the engine stopped.
3. Remove the hydraulic tank filler cap by turning it counterclockwise.



4. Add oil needed to raise it to the correct level range on the dipstick.



5. Put the hydraulic tank filler cap back on.
6. Check for oil leaks.
7. Close and secure the hood.

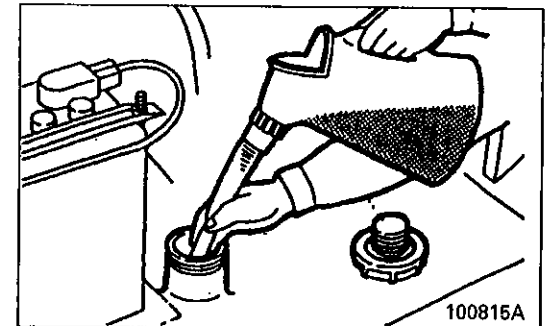
Adding Hydraulic Oil

CAUTION

When adding hydraulic oil:

- Perform the work on level ground.
- Clean the filler hole to reduce the risk of dirt from dropping into the tank.
- DO NOT overfill.
- Clean up spillage.

1. Remove the hydraulic tank filler cap.
 2. Add oil to the hydraulic tank.
- For hydraulic oil, see the topic, **Recommended Fuel and Oils.**



MAINTENANCE

- **Service Brakes**
Check Fluid Level

WARNING

If the brake fluid in the reservoir decreases rapidly, the brake system is leaking.

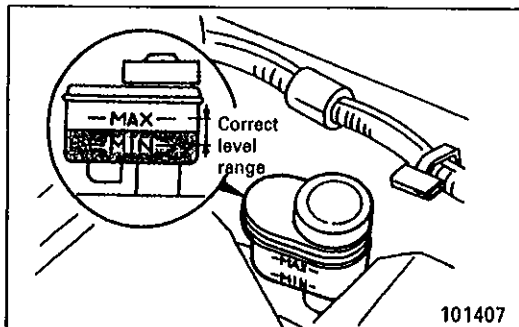
Have your Mitsubishi Forklift Truck Dealer check the system.

CAUTION

Before refilling the reservoirs, clean the ports to reduce the risk of dirt from getting inside the reservoirs.

Park the forklift truck with the forks lowered, parking brake applied, transmission in neutral, and the engine stopped.

1. Remove the floor plate.
2. Check the brake fluid level at the reservoir.



3. Maintain the brake fluid level between the MAX and MIN marks on the reservoir.
4. Put the floor plate back on.

Adding Brake Fluid

1. Remove the reservoir cap.
2. Add brake fluid to the reservoir.
3. Put the reservoir cap back on.

- **Clutch Oil**
Check Clutch Oil Level

WARNING

If the clutch oil in the reservoir decreases rapidly, the clutch system is leaking.

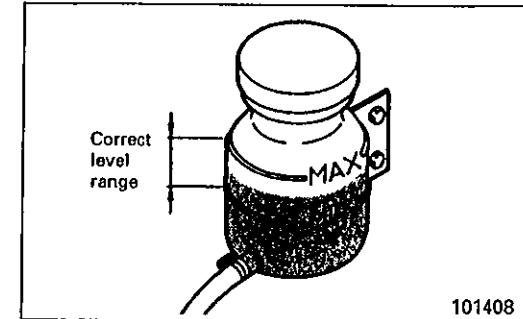
Have your Mitsubishi Forklift Truck Dealer check the system.

CAUTION

Before refilling the reservoirs, clean the ports to prevent dirt from getting inside the reservoirs.

Park the forklift truck with the forks lowered, parking brake applied, transmission in NEUTRAL, and the engine stopped.

1. Remove the floor plate.
2. Check the brake fluid level at the reservoir.



3. Maintain the brake fluid level between the MAX and MIN marks on the reservoir.
4. Put the floor plate back on.

MAINTENANCE

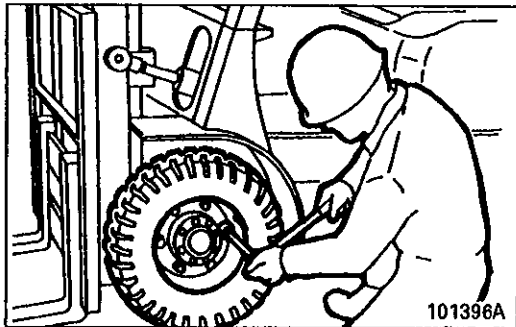
• Wheel Nuts

Check–Tighten, when required

- Wheel nuts should be visually inspected everyday. Any loose nuts should be tightened and any missing or damaged nuts should be replaced.

Retightening

- Always stand behind the tread of the tire, NOT in front of the rim.
- Tighten the nuts evenly and in a diagonal sequence to the specified torque.



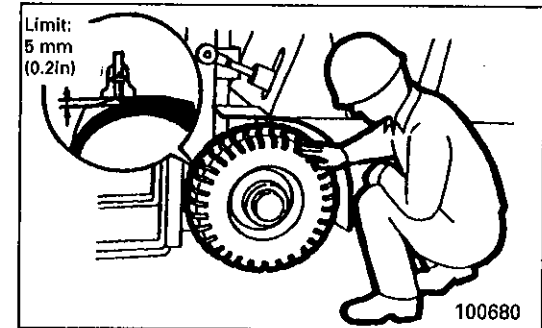
- Are the wheel nuts tightened properly?
Use a torque wrench.

Tightening Torques for Wheel Nuts

Unit:N•m (kgf•m) [lbf•ft]

1.0 & 1.8 ton models	Front	157 (16)
	Rear	[116]
2 to 3 ton models	Front	378 (38.5) [278]
	Rear	157 (16) [116]
3.5 ton models	Front	378 (38.5) [278]
	Rear	233 (23.8) [172]

• Tires and Rims Check



Are all the tires free of cuts, gouges or foreign objects?

Are all the rims free of distortion or cracks?

Is the tread groove depth more than 5 mm (0.2 in.) when checked with a tire depth gauge? If not, replace the tire.

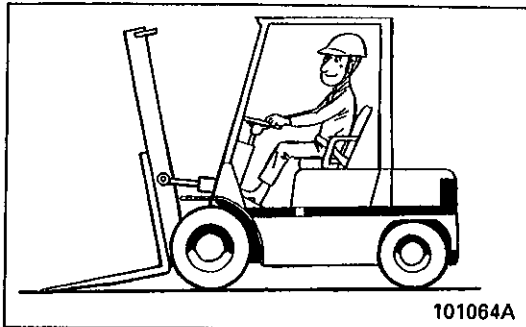
⚠ CAUTION

The forklift truck tires are highly inflated. Even slight damage to the tire or rim can cause a blowout of the tire.

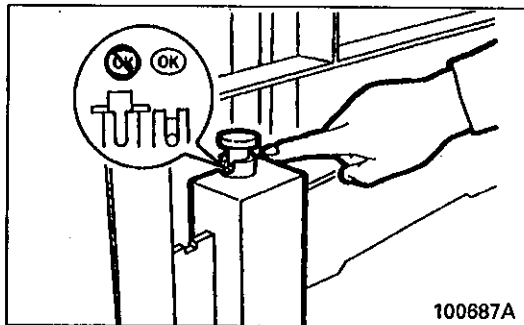
MAINTENANCE

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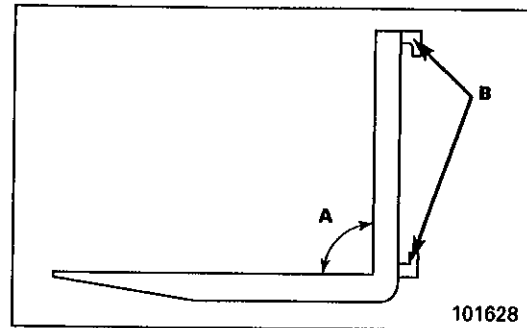
• Mast and Forks Check



- Does the mast move up and down smoothly when you operate the lift control lever?
- Does the mast tilt forward and back smoothly when you operate the tilt control lever?
- Are there any oil leaks from the cylinders and hydraulic lines?



- Is the stopper properly engaged?
- Are the forks free of distortion and cracks?
Are the welds of the hangers free of cracks?



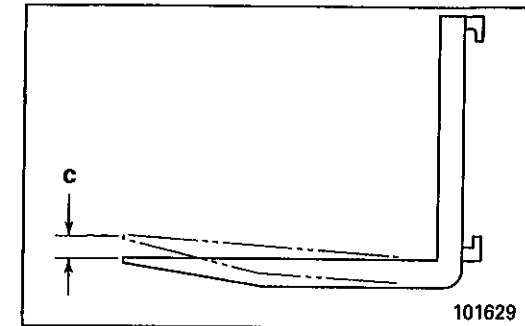
If the truck is being used to carry maximum capacity loads, the forks should be checked daily.

1. Carefully inspect the forks for cracks. Special attention should be given to the heel section **A**, all weld areas and mounting brackets **B**.

Forks with cracks should be removed from service.

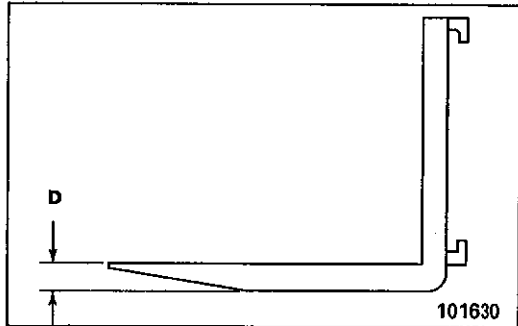
“Wet Test” magnetic particle inspection is generally preferred due to its sensitivity and the ease of interpreting the results. Portable equipment is usually recommended so it can be moved to the lift truck.

Contact your Mitsubishi Forklift Truck Dealer for further information.



2. Check the difference in height of one fork tip to the other when mounted on the fork carrier. A difference in fork tip height can result in uneven support of the load and cause problems when entering loads.

The maximum allowable difference in fork tip elevation **C** is 5 mm (0.19 in.) for pallet forks. Replace one or both forks when the difference in fork tip height exceeds the maximum allowable difference.



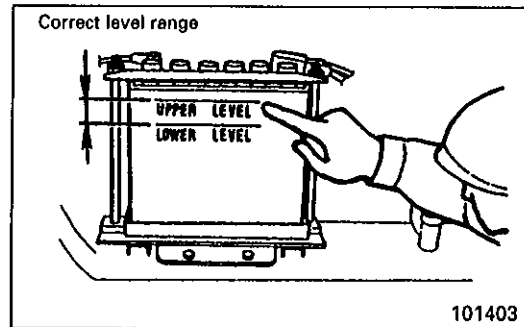
3. Check the fork blade D. The fork should be withdrawn from service if the thickness is reduced to less than the tolerant thickness.

Fork blade length may also be reduced by wear, especially on tapered forks and platens. Remove the forks from service when the blade length is no longer adequate for the intended loads.

Unit: mm (in.)

Tolerant thickness	Std.	Limit
1.0 & 1.8 ton models	35(1.38)	32(1.26)
2.0 & 2.5 ton models	40(1.57)	36(1.42)
3.0 & 3.5 ton models	45(1.77)	40(1.57)

• **Battery**
Check Electrolyte Level



1. If the electrolyte level is low, remove the filler caps and add distilled water to the cells. Before removing the caps, clean the top of the battery.
2. After adding the water, tighten the caps securely.

! WARNING

If acid gets in your eyes, FLUSH THEM IMMEDIATELY WITH LARGE AMOUNTS OF WATER AND SEE A DOCTOR AT ONCE.

3. Using a battery hydrometer, check the specific gravity of the battery cells. Take the reading at eye level.

Specific gravity corrected to 20°C (68°F)	Battery condition
1.260 to 1.280	Fully charged
1.220 to 1.260	Three-fourths charged (to be recharged)
Below 1.220	Completely discharged (to be recharged and retested)

! CAUTION

If distilled water has to be often added, have your Mitsubishi Forklift Truck Dealer check the battery.

MAINTENANCE


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◆ Every 50 Service Hours or Weekly, Whichever Comes First

You must read and understand the warnings and instructions contained in this manual before performing any operating or maintenance procedures.

• Air Cleaner Clean and Inspect

⚠ WARNING



100901

When using compressed air for cleaning, wear an approved face shield and protective clothing.

Use a maximum air pressure of 196kpa (2 kgf/cm²) [30 psi] for cleaning purposes.

NOTICE:

Never service the air cleaner with the engine running.

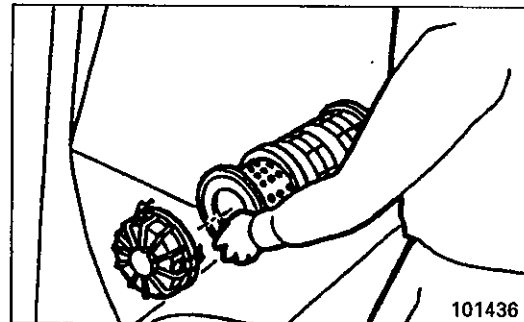
DO NOT clean the elements by pounding them against another object.

Always inspect the element before and after cleaning. Use a light inside the element.

DO NOT use elements with damaged pleats, gaskets or seals.

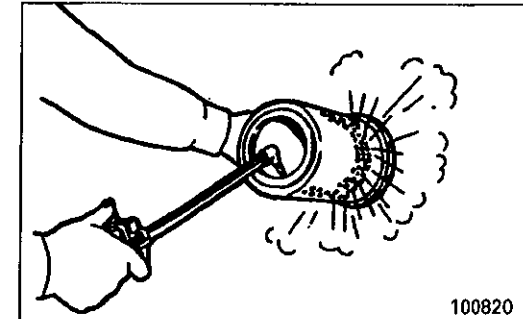
Park the forklift truck on a level surface, with the forks lowered, the parking brake applied, the transmission in NEUTRAL and the engine stopped.

1. Raise the hood.

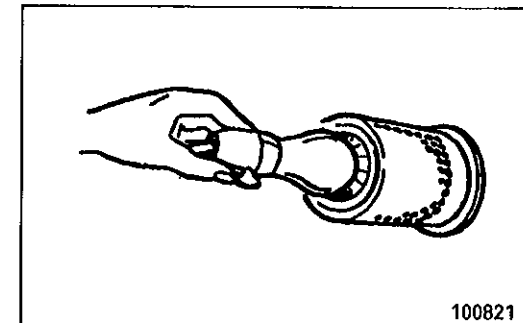


2. Unclamp the dust cup (at 3 places) and take out the element.

3. Clean the inside of the air cleaner housing.



4. Direct air inside the element along the length of the pleats, and lightly tap it.



5. Insert a light inside a clean element and check. Discard the element if tears or rips area found.

6. Put the element back in place.

7. Close the hood.

MAINTENANCE

◆ Alternator Drive Belt

• Check and Adjust

CAUTION

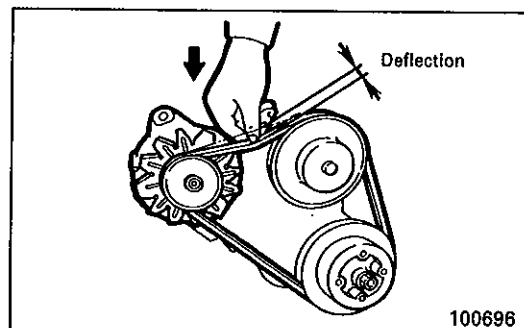
- After stopping the engine, check and adjust the rotating part.
- After adjusting the belt, tighten the bracket bolt securely.
- If the belt is too tight, unnecessary stresses are placed on the alternator bearing and belt. Such stresses will shorten the service life of both.
- Keep the belt free of oil and grease to reduce the risk of slipping.

NOTICE: If it is difficult to adjust or replace the belts, consult your Mitsubishi Forklift Truck Dealer.

Park the forklift truck on a level surface, with the forks lowered, the parking brake applied, the transmission in NEUTRAL, and the engine stopped.

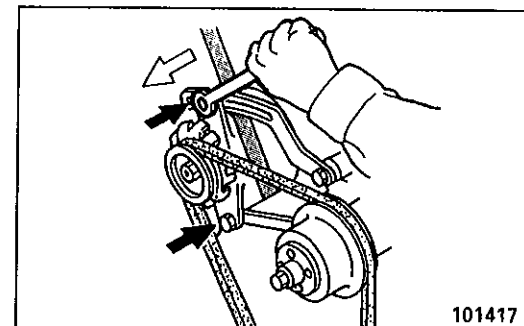
1. Raise the hood.
2. Push the belt downward with about 98 N (10 kgf) [22 lbf] pressure midway between the pulleys as shown.

Deflection	7 to 9 mm (0.3 to 0.4 in.)
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NOTICE: If the deflection is out of the correct range, re-adjust the belt.

Also, check the belt to make sure that it is not worn, frayed, or has separated piles.

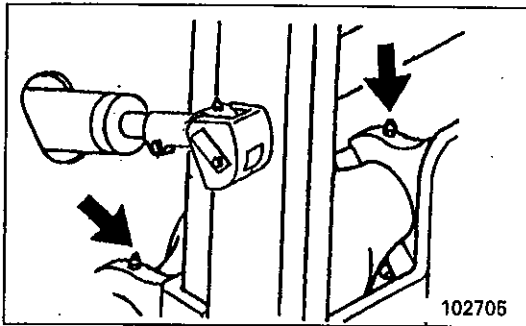


3. Loosen the alternator bracket bolts (indicated by the black arrows), and move the alternator out or in.
4. Close and secure the hood.

MAINTENANCE

- Mast Supports
Lubricate

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Lubricate 1 fitting on each side for a total of 2 fittings.

MAINTENANCE

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◆ Every 200 Service Hours or Monthly, Whichever Comes First

You must read and understand the warnings and instructions contained in this manual before performing any operation or maintenance procedure.

- **Wheel Nuts Retighten**

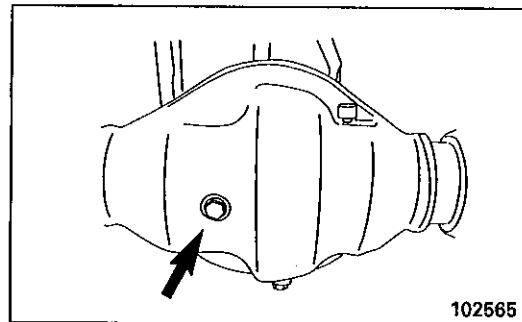
- Nuts should be retightened.

See **Wheel Nuts, Check-Tighten, when required.**

- **Differential Check Oil Level**

Park the forklift truck on a level surface, parking brake applied, transmission in neutral and the engine stopped.

1. Raise the lift bracket high enough to gain access to the level/fill plug.
2. Use blocking under the inner mast to secure the lift bracket in this position.



3. Remove the level/fill plug. Maintain lubricant level to the bottom of the plug brake operating.
4. Clean the level/fill plug and put it back in place.
5. Remove the blocking. Lower the lift bracket.

Adding Oil

See the topic, **Differential, Change Oil under Every 1200 Service Hours or 6 Months, Whichever Comes First.**

- **Timing Belt Inspect and Adjust**

- Adjust and inspect the timing belt at first PM or 200 hours, whichever comes first.

MAINTENANCE

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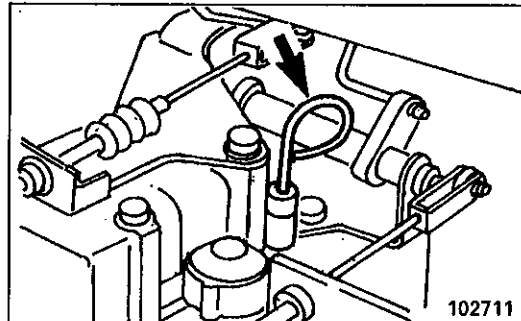
- Powershift Transmission
Check Oil Level



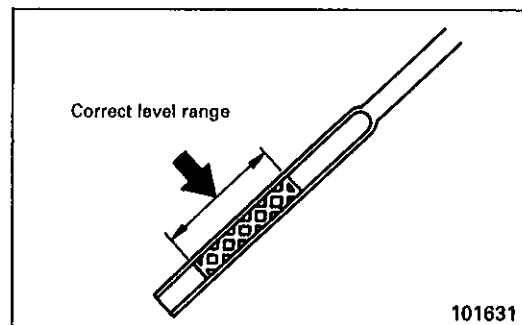
Hot oil and components can cause injury. Do not allow hot oil or components to contact your skin.

1. Operate the forklift truck a few minutes to warm the oil.
2. Park the forklift truck on a level surface with the forks lowered, parking brake applied, transmission in neutral, and the engine stopped.
3. Remove the floor plate.

4. Remove the dip stick/filler cap. Check the oil level.



5. Maintain the correct level range indicated on the dipstick/filler cap.



Adding Oil

See the topic, Powershift Transmission, Change the Oil under Every 1200 Service Hours or 6 Months, whichever comes first.

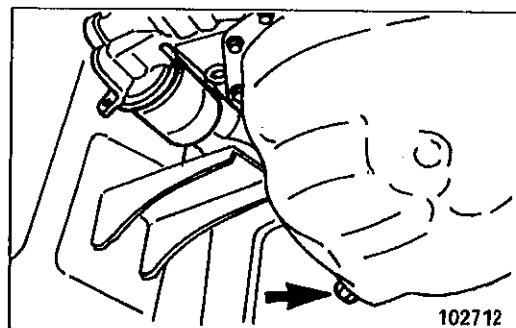
MAINTENANCE

• Engine Crankcase Change Oil and Filter

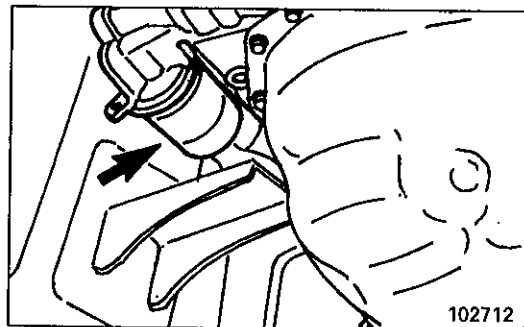
⚠ WARNING

Hot oil and components can cause personal injury. Do not allow hot oil or components to contact skin.

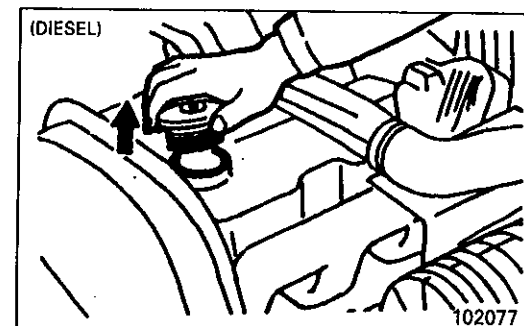
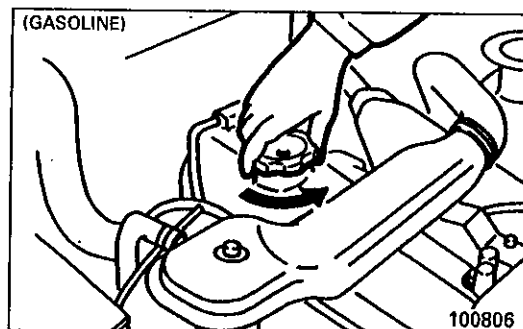
1. Operate the forklift truck a few minutes to warm the oil.
2. Park the forklift truck on a level surface with the forks lowered, parking brake applied, transmission in NEUTRAL and the engine stopped.
3. Raise the hood.
4. Remove the drain plug at the side of the engine oil pan. Allow the oil to drain. Clean and put the drain plug back in place.



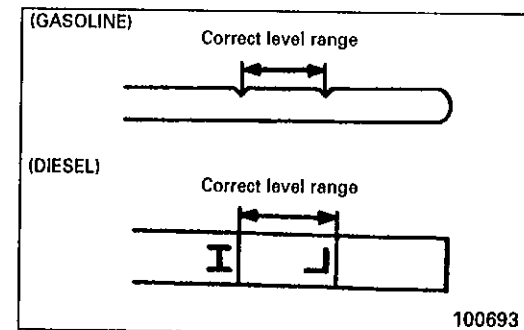
5. Remove and discard the oil filter elements.
6. Wipe the sealing surface of the oil filter element mounting base.
7. Apply a small amount of clean engine oil to each filter element gasket. Install the new filter element.



8. Fill the crankcase. See **Refill Capacities and Lubrication Specifications** charts.



9. Start the engine and allow the oil to fill the filter and passages.
10. Check for oil leaks.
11. Stop the engine and measure the oil level. Maintain the correct level range on the dip stick.

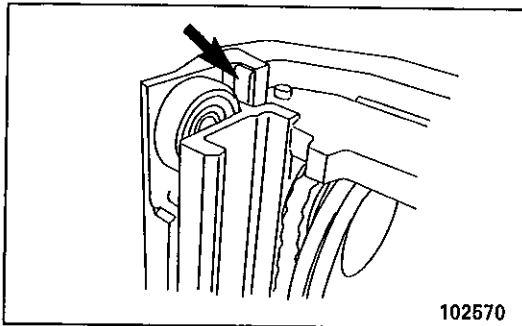


12. Close and secure the hood

MAINTENANCE

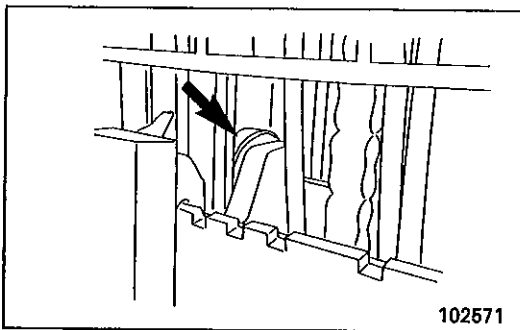
125

- **Mast Strip Sliding Surfaces**
Lubricate



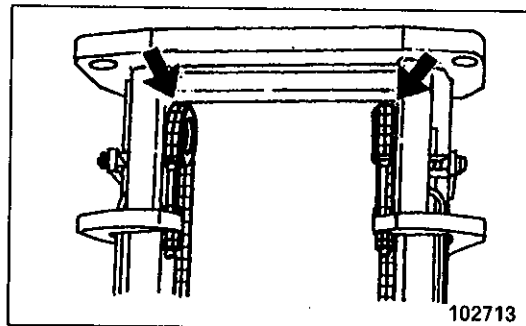
Lubricate 1 fitting on each side of the inner mast for a total of 2 fittings.

- **Lift Bracket Side Rollers**
Lubricate



Lubricate 1 fitting on each side roller for a total of 2 fittings.

- **Lift Chains**
Lubricate-Inspect

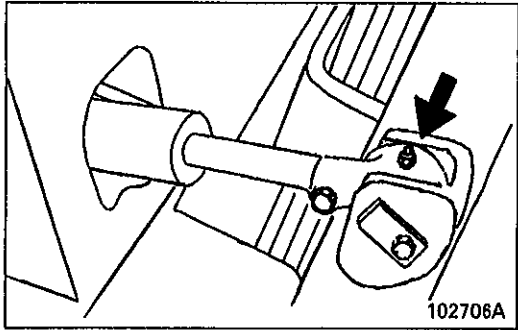


Lubricate each chain on the left and right of the mast.

1. Brush a film of engine oil onto the chain links, or spray with chain and cable lubricant.
 2. Raise and lower the lift bracket a few times to work lubricant into the chain links.
- NOTICE:** Lubricate chains more frequently than normal where the atmosphere can cause corrosion of components or when the truck must work in rapid lift cycles.
3. Inspect the chain anchors and individual links for wear, loose pins or cracked leaves.

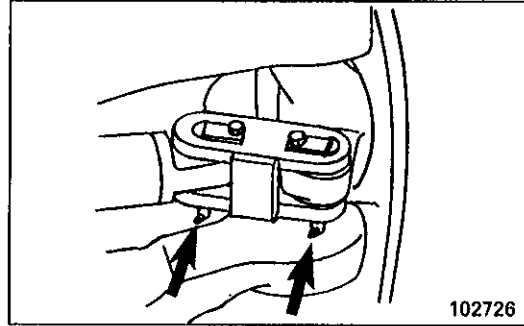
MAINTENANCE

- **Tilt Socket Pins
Lubricate**



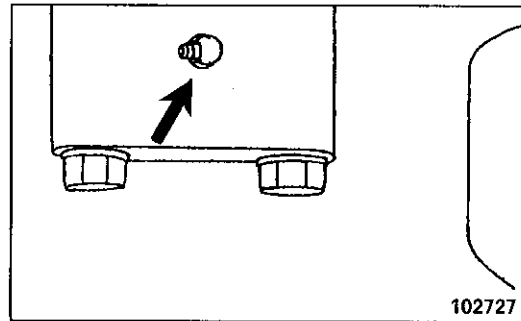
Lubricate 1 fitting on each pin for a total of 2 fittings.

- **Tie Rod Ends
Lubricate**



Lubricate 1 fitting on each end for a total of 4 fittings.

- **Rear Axle Center Pins
Lubricate**



Lubricate 1 fitting on each pin for a total of 2 fittings.

MAINTENANCE

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◆ Every 1200 Service Hours or 6 Months, Whichever Comes First

You must read and understand the warnings and instructions contained in this manual before performing any operation or maintenance procedure.

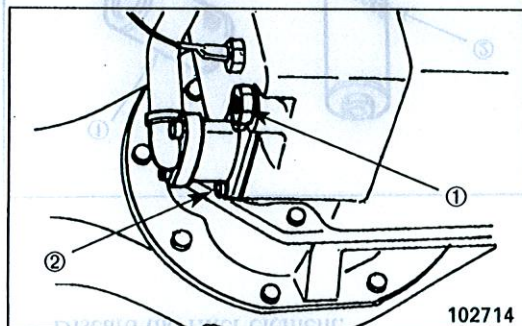
• Powershift Transmission Change Oil and Wash Strainer

WARNING

Hot oil and components can cause personal injury. Do not allow hot oil or components to contact your skin.

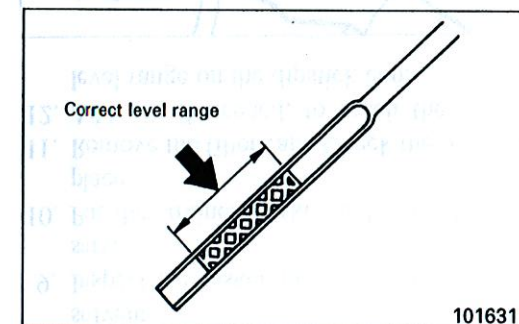
Park the forklift truck on a level surface with the forks lowered, parking brake applied, transmission in NEUTRAL and the engine stopped.

1. Remove the drain plug ①. Allow the oil to drain. Remove the cover ②, the O-ring seal and the strainer.



2. Wash the strainer and the plug in clean, nonflammable solvent. Dry the strainer and the plug. Wipe off the O-ring seal, check and replace if necessary. Install the strainer, the O-ring seal, and the cover. Put the drain plug back in place.

3. Remove the floor plate.
4. Remove the dipstick/filler cap. Fill the transmission with oil. See **Refill Capacities**. Put the dipstick/filler cap back in place.
5. Start the engine.
6. Run the engine at low idle.
7. Stop the engine.
8. Remove the dipstick/filler cap. Check the oil level.
9. Add oil, if needed, to reach the correct level range on the dipstick/filler cap.
10. Check for oil leaks at the strainer and drain plug.
11. Put the floor plate back in place.



MAINTENANCE

• Hydraulic System

Change Return Oil Filler and Wash Strainer



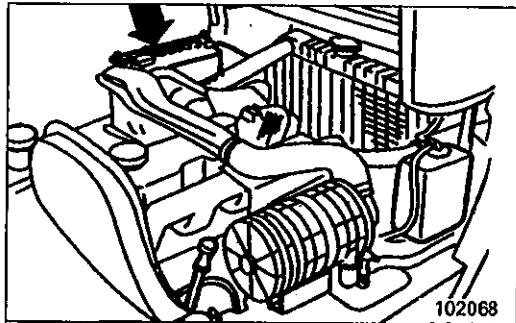
WARNING

Hot oil and components can cause personal injury. Do not allow hot oil or components to contact your skin.

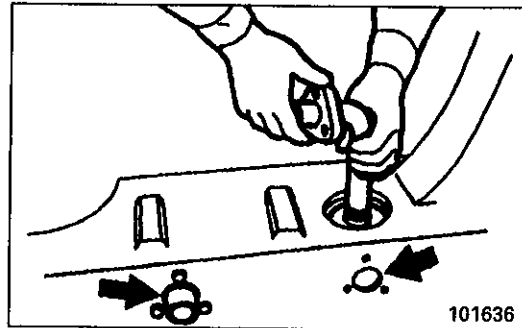
At operating temperature, the Hydraulic tank is hot and can be under pressure.

Park the forklift truck with the forks lowered, parking brake applied, transmission in neutral and the engine stopped.

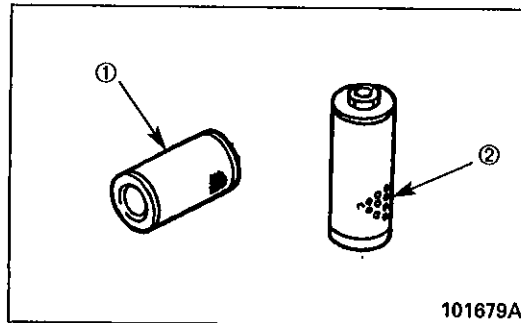
1. Raise the hood.
2. Remove the battery.



3. Remove the hose.

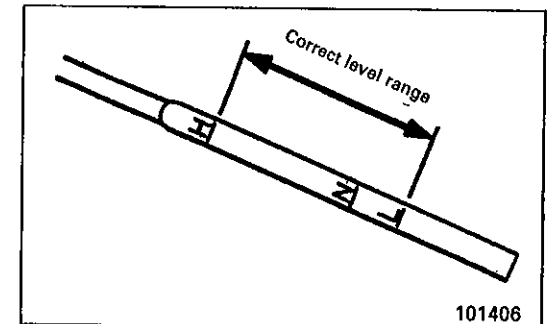
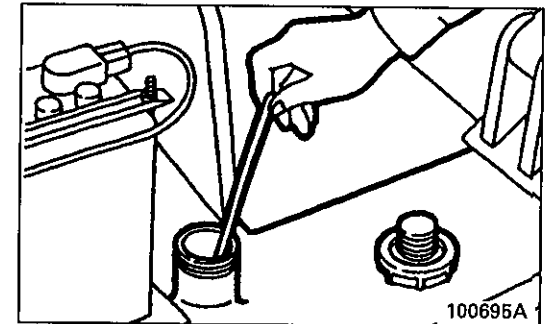


4. Remove the gasket and strainer ①.
5. Remove the gasket and return oil filter ②. Discard the filter element.



6. Clean the filter parts and replace the seal and gasket, if necessary. Install a new filter element.
7. Put the filter body assembly back in place and tighten the retaining bolt.

8. Wash the strainer in clean, nonflammable solvent.
9. Inspect the gasket and replace it, if necessary.
10. Put the strainer, gasket and cover back in place.
11. Remove the filler cap. Check the oil level.
12. Add oil, if needed, to reach the correct level range on the dipstick cap.



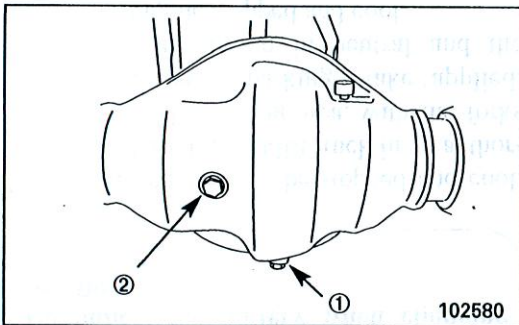
13. Put the dipstick and filler cap back in place.
14. Check for oil leaks.
15. Close and secure the hood.

MAINTENANCE

• Differential Change Oil

Park the forklift truck on a level surface, parking brake applied, transmission in neutral, forks lowered, lubricant warm and the engine stopped.

1. Raise the lift bracket high enough to gain access to the level/fill plug.
2. Use blocking under inner mast to secure the lift bracket in this position.
3. Remove the drain plug ① and the level/fill plug ②.
4. Allow the oil to drain. Clean and reinstall the drain plug.

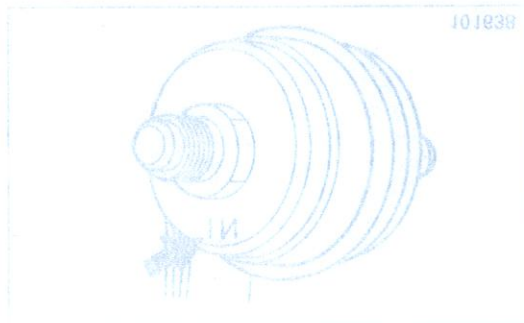


5. Fill with oil to the bottom of the level/fill hole.
6. Put the level/fill plug back in place.
7. Remove blocking. Lower the lift bracket.

1. Close and secure the hood.
2. Stop the engine.
3. Start the engine and check for fuel leaks.



NOTICE: When installing the new filter, correct position the "IN" and "OUT" labels on the filter element.



• Air Cleaner Change Elements

Mitsubishi strongly recommends that the air cleaner element be changed if it is dirty. If you attempt to clean the element, handle it carefully.

Recommended change intervals

Normal conditions	Every 1200 service hours or 6 months, whichever comes first
Severe dust or lint conditions	Every 200 service hours or monthly, whichever comes first

NOTICE: Have spare elements on hand to use while cleaning used elements.

Care in Severe Dust or Lint Conditions

Check the radiator core frequently for clogging or dirt accumulation. Clean or wash the truck as needed.

See the topic, **Air Cleaner, Cleaning and Inspecting** under **Every 50 Hours or Weekly, whichever comes first.**

MAINTENANCE

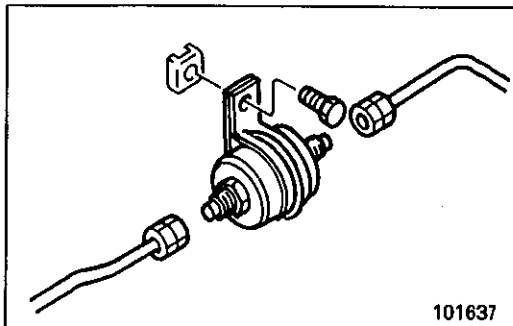
- Fuel Filter-Gasoline Change

WARNING

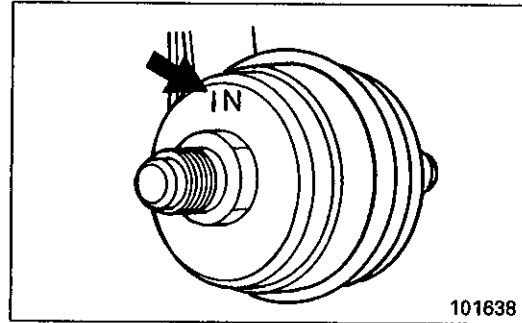
Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. Clean up any spillage of fuel. Know the location of all emergency devices (such as fire extinguishers, first aid kits, etc.) and how to use them. Disconnect the battery when changing fuel filters.

NOTICE: Engine must be stopped and cool. Park the forklift truck in an authorized refueling area, with the forks lowered, parking brake applied, transmission in neutral and the engine stopped and cool.

1. Raise the hood.
2. The fuel filter is located on the left side of the truck. Remove the filter.



3. Install the new filter.



NOTICE: When installing the new filter, correctly position the "IN" and "OUT" sides of the filter element.



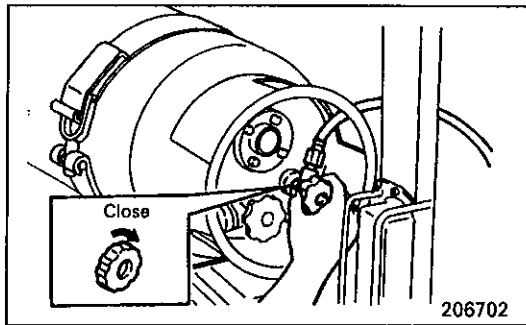
4. Start the engine and check for fuel leaks.
5. Stop the engine.
6. Close and secure the hood.

MAINTENANCE

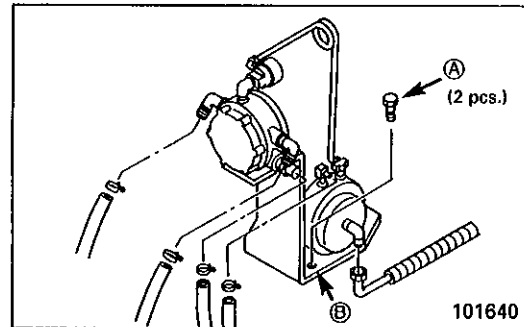
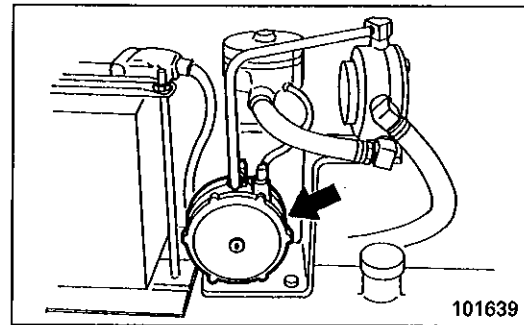
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• Fuel Filter-LP-Gas Change

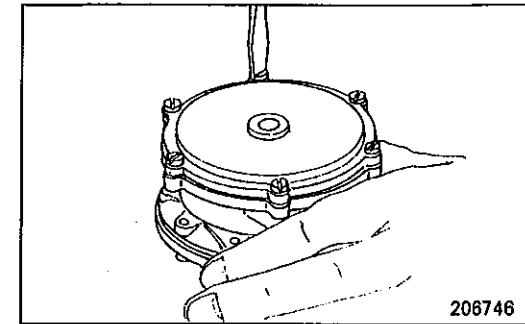
NOTICE: Engine must be stopped and cool.
Park the forklift truck in an authorized refueling area, with the forks lowered, parking brake applied, transmission in neutral, and the engine stopped and cool.



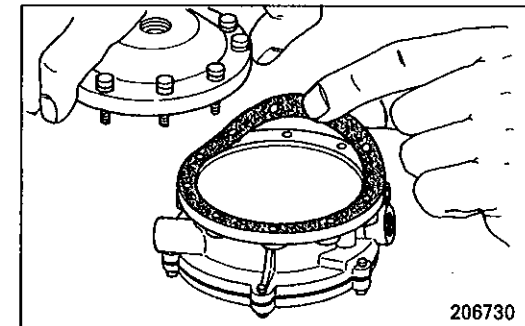
1. Close the fuel valve on the LP-Gas tank. The fuel shutoff valve turns clockwise to close. Run the engine until fuel in the fuel line runs out and the engine stops. Turn the key switch to OFF.
2. Raise the hood.



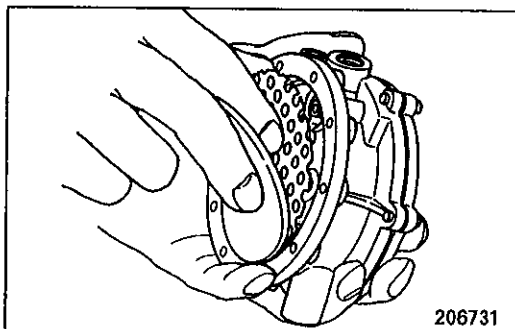
3. Disconnect the fuel line.
4. Remove the bolts **A** and bracket **B**.



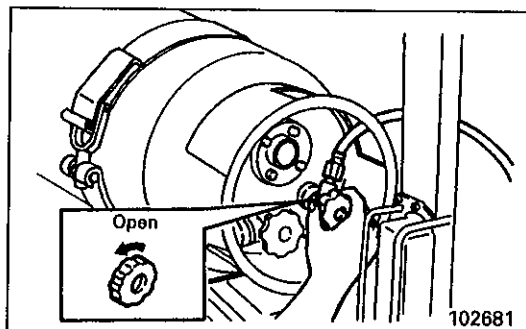
5. Remove the screws from the cover.



6. Remove the cover and gasket.



- 7. Replace the screen in recess as shown.
- 8. Reinstall the filter and bracket.
- 9. Connect the fuel line.



- 10. Open the fuel valve.
- 11. Check the filter for fuel leaks with a soap solution.

MAINTENANCE

• Engine Coolant Change

See the topic, **Engine Coolant, Check Level** under **Every 10 Service Hours or Daily**, whichever comes first.

⚠ WARNING

At operating temperature, the engine coolant is hot and under pressure.

Steam can cause severe burns.

Park the forklift truck in an authorized refueling area, with the forks lowered, parking brake applied, transmission in neutral, and the engine stopped and cool.

Check the coolant level only after the engine has been stopped and the filler cap is cool enough to touch with your bare hand.

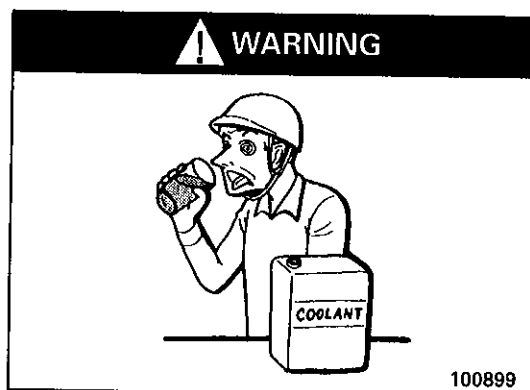
Remove the filler cap slowly to relieve pressure.

Cooling system conditioner contains alkali. Avoid contact with your skin and eyes to reduce the risk of burns and other injuries. Allow cooling system components to cool before draining.

Use all cleaning solutions with care.

Antifreeze is **TOXIC**. In case of contact with your skin, **FLUSH IMMEDIATELY WITH WATER**. For disposal of the antifreeze coolant drained from the engine, consult your Mitsubishi Forklift Truck Dealer.

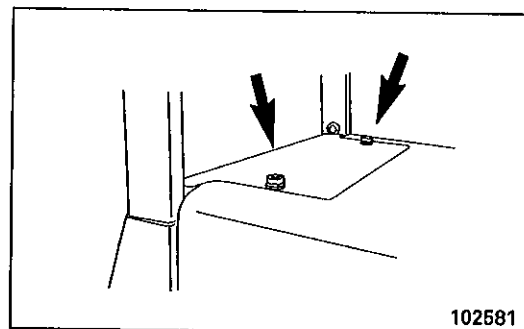
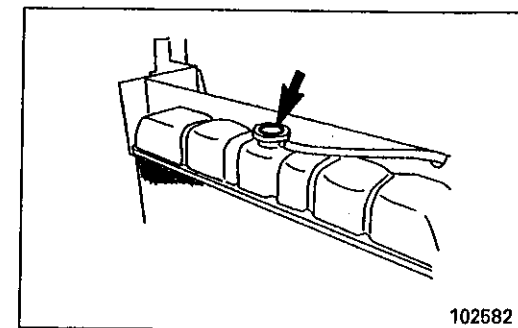
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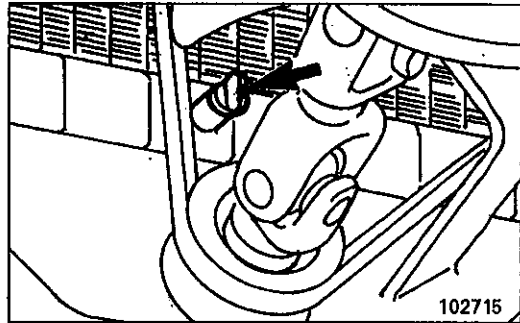
Antifreeze solution is **TOXIC**. In case of contact with your skin, **FLUSH IMMEDIATELY WITH WATER**. Have your Mitsubishi Forklift Truck Dealer discard antifreeze solution drained from the engine.

1. Loosen the radiator cover retaining knob. Lift and remove the radiator cover.

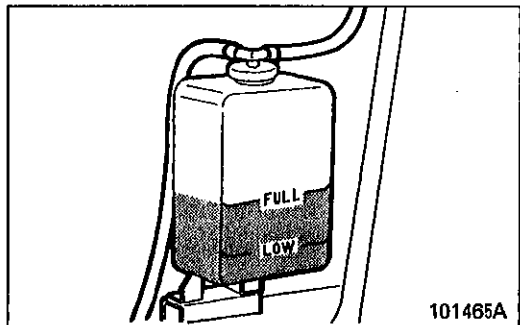
2. Turn the radiator filler cap slowly to relieve the pressure, then remove the cap.



3. Open radiator drain valve. Allow the coolant to drain.



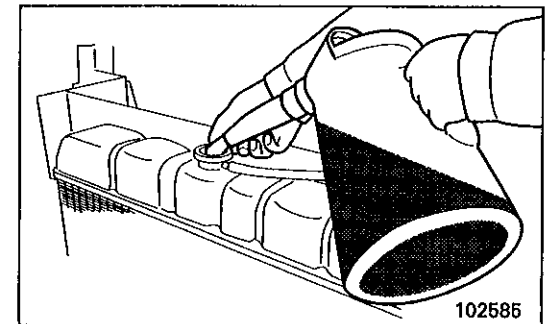
4. Drain the reserve tank.



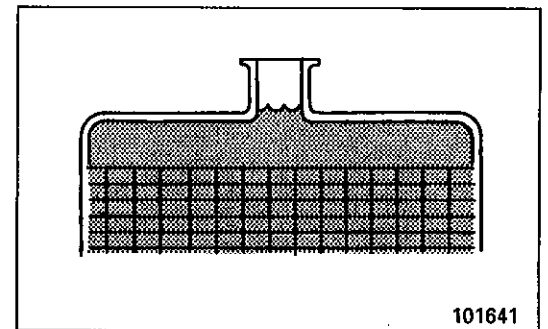
5. Close the radiator drain valve.

6. Fill the cooling system with 1 kg (2 lb) sodium bisulfate per 40 liters (10 gallons) of water. Most commercial cooling system cleaners can be used.
7. Start and run the engine for 30 minutes.
8. Stop the engine and drain the cleaning solution.
9. Flush the system with clean water until the draining water is clear.
10. Close the drain valve. Fill the system with neutralizing solution, 250 g (1/2 lb) sodium carbonate per 40 liters (10 gallons) of water.
11. Start and run the engine for 10 minutes.
12. Stop the engine and drain the neutralizing solution.
13. Flush the system with clean water until draining water is clear.

14. Close the drain valve.
15. Mix a coolant solution of water and antifreeze.
16. Fill the cooling system. See **Refill Capacities**. To avoid air locks, add the coolant slowly.

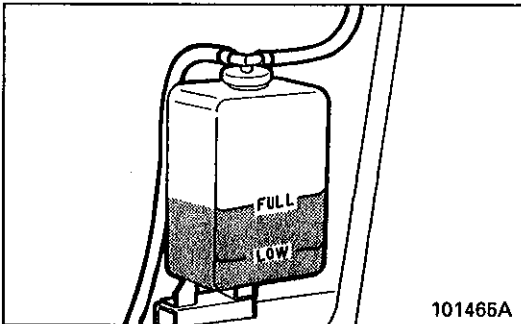
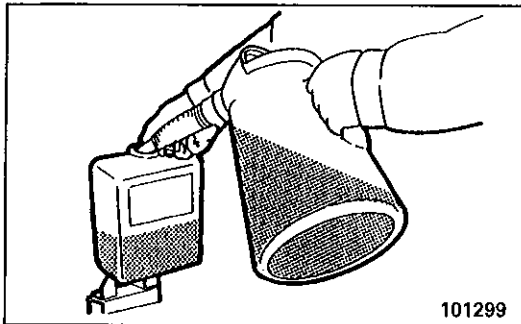


17. Start and run the engine until the coolant level is stabilized.
18. Stop the engine.
19. Add coolant, if necessary, to maintain the level to below the bottom of the filler tube.



20. Put the radiator filler cap back on.

21. Remove the reserve tank filler cap.
22. Keep the coolant level at the FULL line on the reserve tank.



23. Put the reserve tank filler cap back on.

◆ Every 2400 Service Hours or 1 Year, Whichever Comes First

You must read and understand the warnings and instructions contained in this manual before performing any operation or maintenance procedure.

• Hydraulic Oil Change

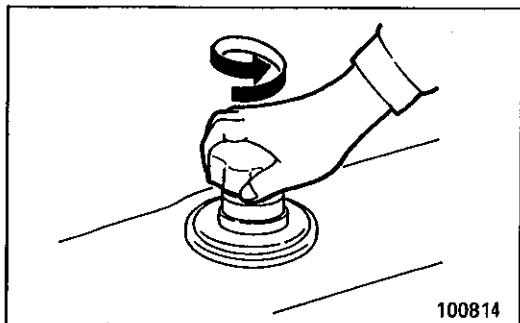


Hot oil and components can cause personal injury. Do not allow hot oil or components to contact your skin.

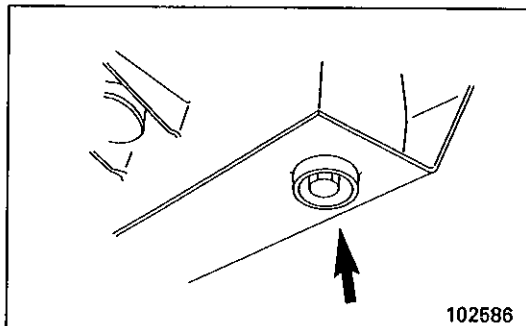
Remove the hydraulic tank filler cap only after the engine has been stopped and the filler cap is cool enough to remove with your bare hand.

Remove the hydraulic tank filler cap slowly to relieve pressure.

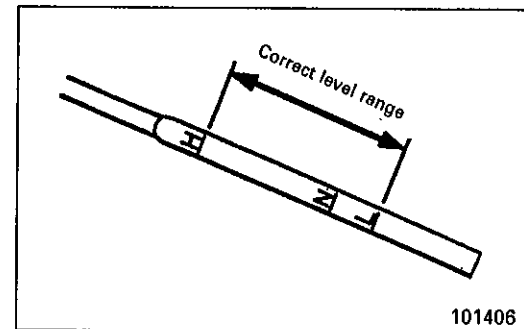
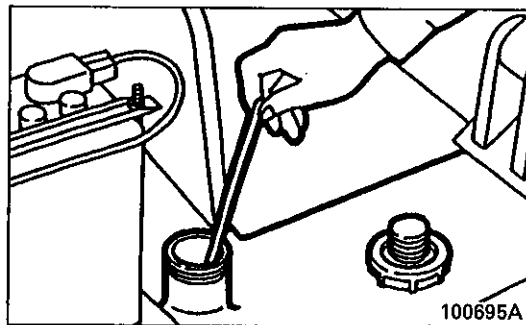
1. Operate the forklift truck to warm the oil.
2. Park the forklift truck with forks lowered, parking brake applied, transmission in neutral, and engine stopped.
3. Remove the filler cap.



4. Remove the hydraulic tank drain plug. Allow the oil to drain. Clean and put the plug back in place.



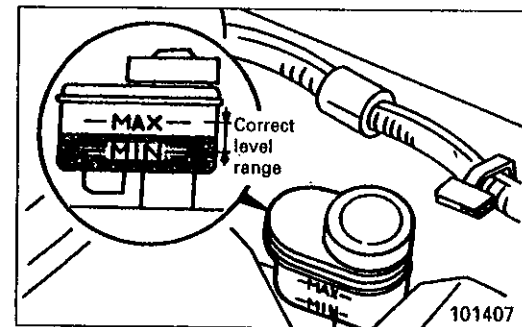
5. Fill the hydraulic tank. See Refill Capacities. Put the filler cap back on.
6. Start the engine and operate the hydraulic controls and the steering system through a few cycles to fill the filters and lines.
7. Retract all hydraulic cylinders and stop the engine.
8. Remove the filler cap and the dipstick. Keep the oil level at the HIGH mark on the dipstick.



9. Put the dipstick and the filler cap back in place.

• Service Brake Fluid Change

NOTICE: When changing fluid, consult with Mitsubishi Forklift Truck Dealer.



MAINTENANCE

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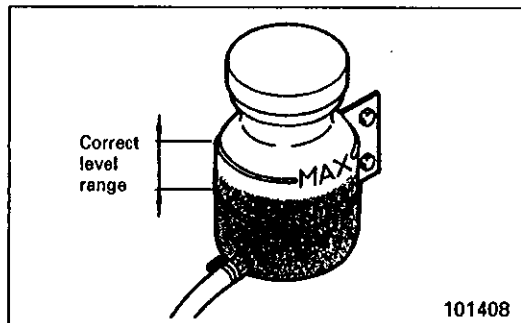
◆ Every 2400 Service Hours or 1 Year, Whichever Comes First, continued

• Timing Belt Inspect and Adjust

- Inspect and adjust the timing belt for wear and cracks. Replace, if required, every 2400 hours or every year, whichever comes first.

• Clutch Oil Change Clutch Oil

NOTICE: When changing oil, consult with your Mitsubishi Forklift Truck Dealer.



◆ Every 3000 Service Hours or 18 Months, Whichever Comes First

You must read and understand the warnings and instructions contained in this manual before performing any operation or maintenance procedure.

• Timing Belt Change

As this service should be performed by well trained mechanics, consult Mitsubishi Forklift Truck Dealer.

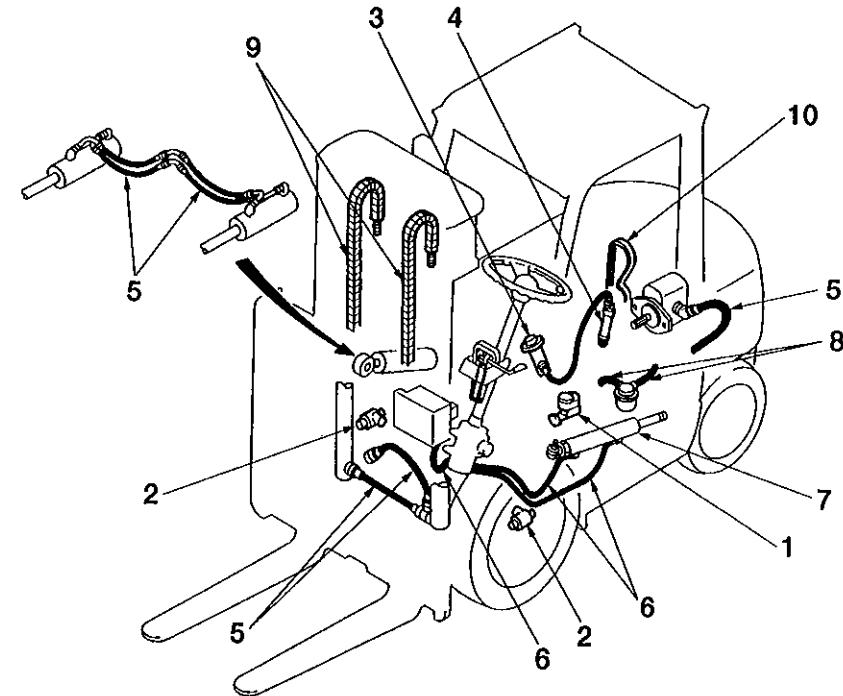
MAINTENANCE

◆ Parts to be Changed Periodically

The following parts should be periodically changed as noted below.

These parts are made of materials which will deteriorate overtime. Further, it is difficult to determine visually whether or not they are still in good condition. Changing at proper intervals will reduce the chance of injury to the operator and damage to the truck.

Ref. No.	Parts to be changed	Interval
1	Rubber parts of brake master cylinder	2400 service hours or 1 year, whichever comes first
2	Rubber parts of brake wheel cylinders	2400 service hours or 1 year, whichever comes first
3	Rubber parts and hoses of clutch master cylinder (MANUAL)	2400 service hours or 1 year, whichever comes first
4	Rubber parts of clutch release cylinder (MANUAL)	2400 service hours or 1 year, whichever comes first
5	High pressure hoses of hydraulic system	2400 to 4800 service hours, or 1 to 2 years whichever comes first
6	Hydraulic hoses of steering system	4800 service hours or 2 years, whichever comes first
7	Rubber parts of power cylinder	4800 service hours or 2 years whichever comes first
8	Fuel hoses	4800 to 9600 service hours or 2 to 4 years, whichever comes first
9	Lift chains	4800 to 9600 service hours or 2 to 4 years, whichever comes first
10	Timing belt	3000 service hours or 18 months, whichever comes first



103022

NOTICE: Periodic changes of these parts are not covered by Warranty.

||||| SERVICE DATA |||||

◆ **Fuel Information**

Use only fuel recommended in this section.

● **Gasoline (Gas) Specification**

Your forklift truck must use unleaded gasoline only.

Oxygenated gasoline

Some gasoline sold at service stations contain oxygenates such as ethanol, methanol, and MTBE (Methyl Tertiary Butyl Ether), although they may not be so identified. The use of fuels containing oxygenates is not recommended.

Ethanol (Gasohol)

A mixture of 10 % ethanol (grain alcohol) and 90 % unleaded gasoline may be used in your forklift truck provided the octane rating is at least as high as that recommended for unleaded gasoline.

Methanol

Do not operate your forklift truck on gasoline containing methanol (wood alcohol). The use of this type of alcohol can result in forklift truck performance problems and could damage critical fuel system parts.

MTBE (Methyl Tertiary Butyl Ether)

A mixture of 15 % or less MTBE and unleaded gasoline may be used in your forklift truck provided the octane rating is at least as high as that recommended for unleaded gasoline.

NOTICE: If you experience driving problems which you suspect are fuel related, try switching to a different fuel.

SERVICE DATA

- **Diesel Fuel Specifications**

- **Types of Fuel**

The preferred fuels provide maximum engine service life and performance. They are distillate fuels. They are commonly called diesel fuel, furnace oil, gas oil or kerosene (for cold weather operation).

Mitsubishi Caterpillar Forklift strongly encourages the use of fuels that meet the Preferred Fuels specification.

- **Fuel Sulfur Content**

The percentage of sulfur in the fuel will affect the engine oil recommendations. Fuel sulfur is chemically changed during combustion to form both sulfurous and sulfuric acid. These chemically attack metal surfaces and cause corrosive wear.

Any API classification performance of the oil should have sufficient TBN for fuels with less than 0.5% sulfur. For fuels with 0.5% to 1.5% sulfur by weight, engine oil must have a TBN of 20 times the percentage of fuel sulfur as measured by the ASTM (American Society of Testing Materials) D-2896 method. (ASTM D-2896 can normally be found at your local technological society, library or college.)

- **Liquified Petroleum (LP-Gas) Specifications**

Use grade HD5 LPB. LP-Gas is a highly volatile fuel with an octane rating of 100 to 140. Follow local ordinances regarding storage and/or filling of LP-Gas tanks.

SERVICE DATA

◆ Coolant Information

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NOTICE: Mitsubishi Caterpillar Forklift America, Inc. recommends that the coolant mix contain 50% commercially available automotive antifreeze, and 50% water.

To reduce the risk of damage to your engine, never add coolant to an overheated engine. Allow the engine to cool first.

Dowtherm 209 full-fill coolant will lower the water pump cavitation temperature and cooling boiling point. These lowered temperatures will cause overheating at a lower ambient temperature than an ethylene glycol and water mix. If Dowtherm is used, follow the instructions provided and use only the inhibitor package recommended by the supplier.

If the forklift truck is to be stored in, or shipped to, an area with freezing temperatures, the cooling system must be protected to the lowest expected outside (ambient) temperature.

The engine cooling system is protected with a commercially available automotive antifreeze when shipped from the factory.

In cold weather, check the specific gravity of the coolant frequently to ensure adequate protection.

Clean the cooling system if it is contaminated, if the engine overheats or if foaming is observed in the radiator.

Old coolant should be drained, the system cleaned and new coolant added — as recommended — using a commercially available automotive antifreeze.

Filling at over 20 liters (5 U.S. gallons) per minute can cause air pockets in the cooling system.

After draining and refilling the cooling system, run the engine with the radiator cap off. Run it until the coolant reaches its normal operating temperature and the coolant level stabilizes. Add coolant as necessary to fill the system to the proper level.

Operate with a thermostat in the cooling system all year-round. Cooling system problems can arise without a thermostat.

• Coolant Water

Hard water, or water with high levels of calcium and magnesium ions, encourages the formation of insoluble chemical compounds by combining with cooling system additives such as silicates and phosphates.

The tendency of silicates and phosphates to precipitate out-of-solution increases with increasing water hardness. Hard water, or water with high levels of calcium and magnesium ions, encourages the formation of insoluble chemicals, especially after a number of heating and cooling cycles.

Mitsubishi Caterpillar Forklift America, Inc. prefers the use of distilled water or deionized water to reduce the potential and severity of chemical insolubility.

Acceptable Water	
Water Content	Limits ppm
Chlorides (Cl)	50 maximum
Sulfates (SO ₄)	50 maximum
Total Hardness	80 mg/l
Total Solids	250 maximum
pH	6.0 to 8.0

ppm = parts per million

Using water that meets the minimum acceptable water requirement may not prevent dropout of these chemical compounds completely but should control the dropout rate at acceptable levels.

• Antifreeze

NOTICE: Mitsubishi Caterpillar Forklift America, Inc. recommends that the coolant mix contain 50% commercially available automotive antifreeze, or equivalent, and acceptable water to maintain an adequate water pump cavitation temperature for efficient water pump performance.

Premix the coolant solution to provide protection to the lowest expected outside (ambient) temperature. Pure undiluted antifreeze will freeze at -23°C (-10°F).

Use a greater concentration (above 50%) of commercially available automotive antifreeze only as needed for anticipated outside (ambient) temperatures. Do not exceed the coolant-to-water mix ratio recommendations provided with the commercially available automotive antifreezes.

Most commercial antifreezes are formulated for gasoline engine applications and will, therefore, have high silicate content.

Make Proper Antifreeze Additions.

Do not add pure (100%) antifreeze to the cooling system. Add antifreeze mixed with water using the same freeze protection ratio that is in your cooling system.

When adding antifreeze to the cooling system, it is important to use the correct ratio of antifreeze to water. The ratio of antifreeze to water in the cooling system should be the same as the ratio in the original coolant. If the original coolant is a 50/50 mix of antifreeze and water, the new coolant should also be a 50/50 mix. If the original coolant is a 60/40 mix, the new coolant should also be a 60/40 mix. If the original coolant is a 70/30 mix, the new coolant should also be a 70/30 mix. If the original coolant is a 80/20 mix, the new coolant should also be a 80/20 mix. If the original coolant is a 90/10 mix, the new coolant should also be a 90/10 mix. If the original coolant is a 100/0 mix, the new coolant should also be a 100/0 mix.

Freeze Protection (°F)	Freeze Protection (°C)	Antifreeze (50% Concentration)	Water (50% Concentration)
32	0	50%	50%
23	-5	60%	40%
14	-5	70%	30%
5	-23	80%	20%
-4	-23	90%	10%
-15	-23	100%	0%

When adding antifreeze to the cooling system, it is important to use the correct ratio of antifreeze to water. The ratio of antifreeze to water in the cooling system should be the same as the ratio in the original coolant. If the original coolant is a 50/50 mix of antifreeze and water, the new coolant should also be a 50/50 mix. If the original coolant is a 60/40 mix, the new coolant should also be a 60/40 mix. If the original coolant is a 70/30 mix, the new coolant should also be a 70/30 mix. If the original coolant is a 80/20 mix, the new coolant should also be a 80/20 mix. If the original coolant is a 90/10 mix, the new coolant should also be a 90/10 mix. If the original coolant is a 100/0 mix, the new coolant should also be a 100/0 mix.

SERVICE DATA

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◆ Recommended Fuels and Oils

Fuel or oil		Recommendation	Recommendation for ambient temperatures °C (°F)						
			-30 (-22)	-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)
Fuel			Consult your local Mitsubishi Forklift Truck Dealer						
Engine oil	Gasoline models	API service classification SC	SAE10W or SAE10W-30		SAE20W			SAE30	
	Diesel models	API service classification CC							
Transfer and differential oil		API service classification multipurpose type GL-4 (hypoid gear oil)	SAE80		SAE90				
Powershift Transmission oil		Dexron	Consult your local Mitsubishi Forklift Truck Dealer						
Hydraulic oil	Powershift, dry clutch		SAE5W		SAE10W				
	Wet clutch	API service classification CD							
Brake fluid		F.M.V.S.S. No. 116-DOT3 or DOT4 (SAE J1703)							
Grease	Wheel bearings	NLGI No. 2 grade multipurpose type (lithium base), consistency: 265 - 295							
	Chassis	NLGI No. 1 grade multipurpose type (lithium base), consistency: 310 - 340							

Antifreeze solution	Ambient temperature, °C (°F)	-45 (-49)	-39 (-38)	-30 (-22)	-25 (-13)	-20 (-4)	-15 (5)	-10 (14)
	Concentration (%)	60	55	50	45	40	35	30

NOTICE: Avoid mixing lubricants. In some cases, different brands of lubricants are not compatible with each other and deteriorate when mixed.

It is best to stick with the same brand at successive service intervals.

NOTICE: For refill capacities and measurements, see **Specifications** in this section.

SERVICE DATA

• **Engine Oils (Gasoline)**

• **Powershift
Transmission Oils**

Specifications Viscosity Manufacturer	API service classification SC			Dexron
	SAE10W	SAE20W	SAE30	—
Mobil	HD Para-purpose Motor Oil 10W	HD Para-purpose Motor Oil 20W	HD Para-purpose Motor Oil 30	Mobil ATF 220, 200
Shell	Shell Select Motor Oil 10W	Shell Select Motor Oil 20W	Shell Select Motor Oil 30	Shell Dexron II
Exxon	XD-3 15W-40			Superfluid ATF
Castrol	Castrol Deusol CRB 10W	Castrol Deusol CRB20W	Castrol Deusol CRB30	Castrol TQ Dexron ® II

• **Engine Oils (Diesel)**

• **Brake Fluids/
Clutch Oil**

Specifications Viscosity Manufacturer	API service classification CC or MIL-L-2104B equivalents			
	SAE10W	SAE20W	SAE30	SAEJ1703f
Mobil	10W Mobil Delvac 1100, 1200	20W Mobil Delvac 1100, 1200	30W Mobil Delvac 1100, 1200	Mobil Super Heavy Duty Brake Fluid
Shell	Shell Rotella SX10W	Shell Rotella SX20W	Shell Rotella SX30	Shell Brake Fluid 250
Exxon	XD-3 15W-40			Brake Fluid DOT-3
Castrol	Castrol Deusol CRX10W	Castrol Deusol CRX20W	Castrol Deusol CRX30	Castrol Brake Fluid Crimson

• **Transfer and Differential Oils**

• **Greases**

• **Antifreeze/Summer
Coolant**

Specifications Viscosity Manufacturer	API service classification GL-4	NLGI No. 1	NLGI No. 2	Full Force USI Chemical Marcus Peak
	SAE90	Consistency 310 - 340	Consistency 265 - 295	
Mobil	90 Pegasus Gear Oil	Mobil Grease JL 77 No. 1	Mobil Grease JL 77 No. 2	
Shell	Shell Spirax EP90	Retinax A No. 1	Retinax A No. 2	
Exxon	Gear Oil GX80W-90	Ronex MP		
Castrol	Castrol Hypoy	Castrol LM Greases	Castrol Spherol API	

SERVICE DATA

• **Hydraulic Oils (Powershift/Dry clutch)**

• **Hydraulic Oils (Wet clutch)**

Specifications Viscosity			API Service Classification CD
Manufacturer	SAE5W	SAE10W	SAE10W
Mobil	—	Hydraulic Oil 28 LP	Mobil Delvac 1300 Series
Shell	Tellus Oil 22	Tellus Oil T-32	Shell Rimula CT Oil, Shell Myrina Oil
Exxon	Nuto H32		Exxon D-3, XD-3
Castrol	Castrol Hyspin AWS32	Castrol Hyspin AWS68	Castrol Deusol CRD, CRF, Multi-grease RX Super

NOTICE: Brands of oil are subject to change without notice. When you buy oil, select recommended brands and check specification.
 (For example: API service classification CC, SAE10W)

SERVICE DATA
◆ Specifications (Standard Models)

Truck model		FG10 FG15 FG18	FD10 FD15 FD18	FG20 FG25	FD20 FD25	FG30	FD30	FG35A	FD35A
Alternator drive belt deflection—when pushed inward with 98 N (10 kgf) [22 lbf] pressure, mm (in.)		7 to 9 (0.3 to 0.4)	10 to 15 (0.4 to 0.6)	7 to 9 (0.3 to 0.4)	10 to 15 (0.4 to 0.6)	7 to 9 (0.3 to 0.4)	10 to 15 (0.4 to 0.6)	7 to 9 (0.3 to 0.4)	10 to 15 (0.4 to 0.6)
Spark plug	Type	W14EX-U	—	W14EX-U	—	W14EX-U	—	W14EX-U	—
	Gap, mm (in.)	0.7 to 0.8 (0.028 to 0.031)	—	0.7 to 0.8 (0.028 to 0.031)	—	0.7 to 0.8 (0.028 to 0.031)	—	0.7 to 0.8 (0.028 to 0.031)	—
Engine idling speed, rpm		600 to 650	650 to 700	600 to 650	650 to 700	600 to 650	650 to 700	600 to 650	650 to 700
Steering wheel free play—when measured at rim with engine idling, mm (in.)		15 to 30 (0.6 to 1.2)							
Clutch pedal free play (dry clutch), mm (in.)		1 to 10 (0.04 to 0.4)							
Clutch pedal free play (wet clutch), mm (in.)		5 to 15 (0.4 to 0.6)							
Inching pedal free play, mm (in.)		9 to 9.5 (0.35 to 0.37)	0.5 to 1.5 (0.02 to 0.06)						
Brake pedal free play, mm (in.)		10 to 16 (0.4 to 0.6)							
Parking brake lever operating effort, N (kgf) [lbf]		250 to 290 (25 to 30) [55 to 66]							
Tire size	Front single	6.50-10-10-PR(I)		7.00-12-12PR (I)		28 x 9-15-12PR(I)		250-15-16PR(I)	
	Front dual	4.50-12-8PR(I)		5.00-15-8PR(I)		6.50-10-10PR(I)			
	Rear	5.00-8-8PR(I)		6.00-9-10PR(I)		6.50-10-10PR(I)		6.50-10-12PR(I)	
Tire Pressure, kPa (kgf/cm ²) [psi] (Pneumatic)	Front single	686(7.0)[100]						834(8.5)[120]	
	Front dual	686(7.0)[100]							
	Rear	686(7.0)[100]						883(9.0)[128]	
Tightening torque for wheel nuts, N·m(kgf·m) [lbf·ft]	Front	157(16)[116]		378(38.5)[278]					
	Rear	157(16)[116]						233(23.8)[172]	
Lift chain elongation limit, mm (in.)/20 links		327 (12.9)		392 (15.4)		523(20.6)			

SERVICE DATA

Item		Truck model								
		FG10 FG15 FG18	FD10 FD15 FD18	FG20 FG25	FD20 FD25	FG30	FD30	FG35A	FD35A	
Refill capacities (approximate), litre (U.S.gal.)	Fuel tank	53(14)			76(20)					
	Engine cooling system - 0.65 litre [1.4 pt] reserve tank included	6.55 (1.7)	8.65 (2.3)	(Manual) 8.15 (2.2) (Powershift) 8.65 (2.3)	8.75 (2.3)	FG30/35A: FD30/35A:		(Manual) 8.65 (2.3) 8.75 (2.3)	(Powershift) 8.95 (2.4) 9.05 (2.4)	
	Engine lubrication system	Crankcase	3.5 (0.9)	6.0 (1.6)	4.5 (1.2)	9.0 (2.4)	4.5 (1.2)	9.0 (2.4)	4.5 (1.2)	9.0 (2.4)
		Oil filter	0.5 (0.1)	0.7 (0.2)	0.3 (0.1)	1.0 (0.3)	0.3 (0.1)	1.0 (0.3)	0.3 (0.1)	1.0 (0.3)
		Total	4.0 (1.0)	6.7 (1.8)	4.8 (1.3)	10.0 (2.7)	4.8 (1.3)	10.0 (2.7)	4.8 (1.3)	10.0 (2.7)
	Transmission	(Powershift) 8.0 (2.1)				(Manual) 4.0 (1.1)				
	Transfer and differential	4.2 (1.1)			5.0 (1.3)					
	Hydraulic tank	N level	27.8 (7.3)		40.1 (10.6)					
Brake fluid reservoir, cc (cu in.)	130 (7.9)									
Battery electrolyte specific gravity, cor- rected to 20°C (68°F)		1.28								

NOTICE: The service data are subject to change without notice.

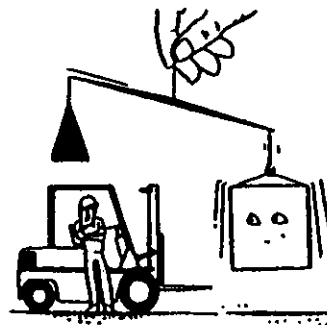
SERVICE DATA

◆ **Rated Capacities and Truck Weight (Standard Models)**

Item \ Truck model		FG10	FD10	FG15	FD15	FG18	FD18
		Rated capacity, kg(lb)/500mm(24 in.)		1000 (2000)		1500 (3000)	
Truck weight, kg (lb), approx.	Single wheel	2050 (4520)	2130 (4700)	2480 (5470)	2560 (5650)	2640 (5830)	2720 (6010)
	Dual wheel	2080 (4590)	2160 (4770)	2510 (5530)	2590 (5710)	2670 (5900)	2750 (6080)

Item \ Truck model		FG20	FD20	FG25	FD25	FG30	FD30	FG35A	FD35A
		Rated capacity, kg(lb)/500mm(24 in.)		2000 (4000)		2500 (5000)		3000 (6000)	
Truck weight, kg (lb), approx.	Single wheel	3210 (7070)	3330 (7340)	3560 (7850)	3680 (8120)	4260 (9380)	4380 (9650)	4590 (10120)	4710 (10390)
	Dual wheel	3280 (7240)	3400 (7510)	3630 (8010)	3750 (8280)	4280 (9440)	4400 (9710)	4610 (10170)	4730 (10440)

NOTICE: Rated capacities shown apply to trucks with standard (high grip wide) tires.



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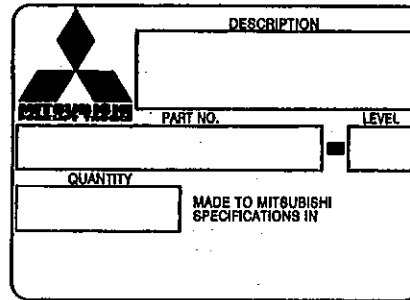
TO THE MITSUBISHI FORKLIFT TRUCK OWNER



The use of other than genuine parts could cause damage not covered by your Mitsubishi Caterpillar Forklift warranty.

◆ The Importance of Genuine Parts

Safe and efficient operation of your forklift truck is endangered by the use of inferior parts—in most cases, imitations, sold as cheap parts, invariably mean short life and high cost. Your Mitsubishi Forklift Truck Dealer bears the full responsibility for the quality and correct fit of each part they supply. The Dealer carrying out repairs on your Mitsubishi trucks, and the owners of such trucks, are urged to use **ONLY** genuine parts to maintain trucks in safe and efficient operating condition. Each genuine part comes with the label shown.



101112M

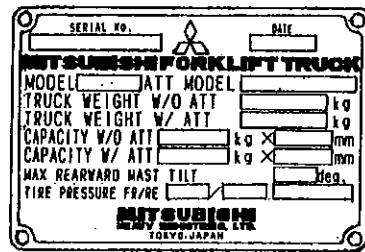
Genuine parts give safe and reliable performance.

TO THE MITSUBISHI FORKLIFT TRUCK OWNER

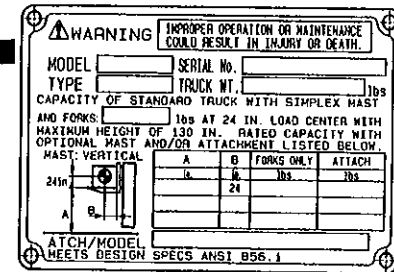
◆ Instructions for Ordering Parts

When ordering parts, or when asking your Forklift Truck Dealer to have your truck repaired, be sure to provide the TRUCK SERIAL NUMBER and the ENGINE SERIAL NUMBER.

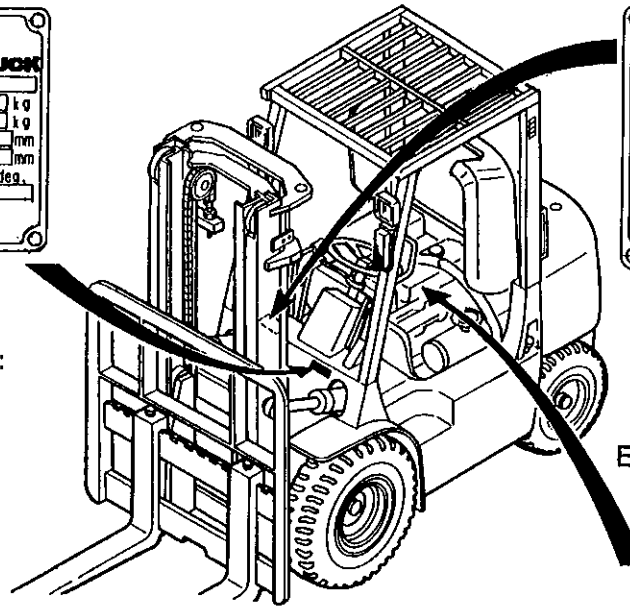
Manufacturer's Name Plate



102763



100641C



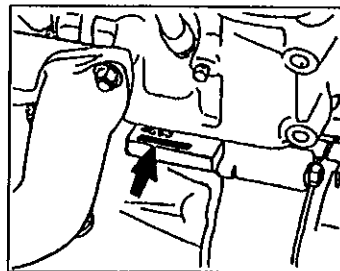
Engine Serial Number

Each forklift truck has a name plate. It tells you the:
 Truck serial number.
 Truck model designation.

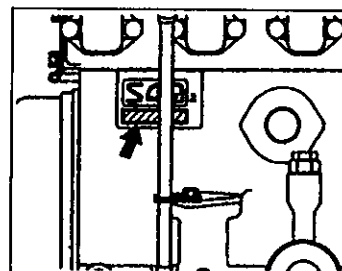
Gasoline engine models

Diesel engine models (1 ton capacity)

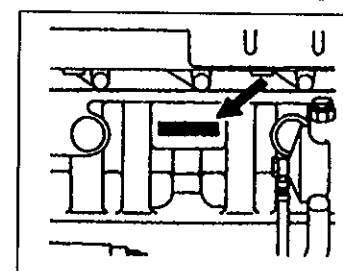
Diesel engine models (2 ton/3 ton capacity)



Left side of engine



Left side of engine



Left side of engine

103025

SERVICE REGISTRATION

Truck model, Serial No.		Engine model, Serial No.	
Mast model, Serial No.		Attachment model, Serial No.	
Delivering dealer	Name		
	Address		
	Delivery date		

Fill out this sheet for your ready reference.

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