

MCFE B.V.  
Herbruggweg 77 1332 AM  
Almere, The Netherlands



99750-52140

FB16K-FB35K Forklift Trucks

Mitsubishi Forklift Trucks Operation & Maintenance Manual



# Operation & Maintenance Manual

**FC/MC**

<b>FB16K</b>	EFB6A-00011-up	<b>FB20K PAC</b>	EFB8C-00011-up
<b>FB18K</b>	EFB6A-50011-up	<b>FB25K PAC</b>	EFB8C-50011-up
<b>FB20KC</b>	EFB7A-00011-up	<b>FB30K PAC</b>	EFB9C-00011-up
<b>FB20K</b>	48V EFB8A-00011-up	<b>FB35K PAC</b>	EFB9C-50001-up
	80V EFB8B-00011-up		
<b>FB25K</b>	48V EFB8A-50001-up		
	80V EFB8B-50001-up		
<b>FB30K</b>	EFB9B-00011-up		
<b>FB35K</b>	EFB9B-50001-up		

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

99750-52140



# FOREWORD

The Occupational Safety and Health Administration (OSHA) prohibits employees under the age 18 years old from operating forklift trucks, and 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. Read and understand the working capabilities and limitations of the forklift truck.
2. Read and understand the make-up of a 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. They will be glad to help you and answer any questions you may have about operating your new forklift truck. Forklift trucks are NOT intended for use on public roads.



102487

99750-52140

## HOW TO USE THIS MANUAL

The following safety signs and notices 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 serious injury or death.

 **DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **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.

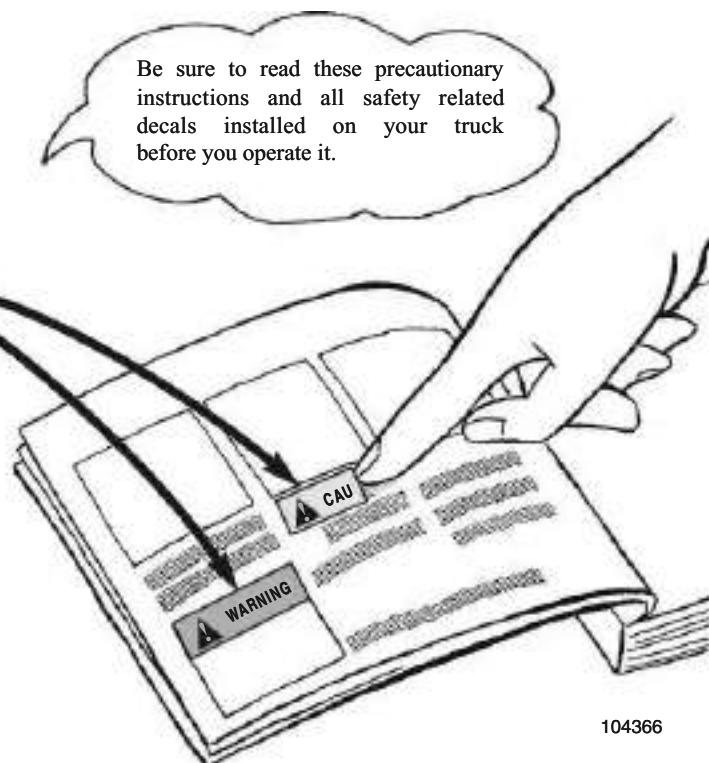
MCFE B.V. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by MCFE is used, you must satisfy yourself that it does not pose a safety hazard to yourself 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.

All information, specifications, and illustrations in this manual are based on the latest data available at the time of publication. 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 forklift truck dealer before starting any job. Additional manuals are available from your Mitsubishi forklift truck dealers.

### 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.



104366

# TABLE OF CONTENTS

FC..... Fingerprint Control

MC..... Manual Control

## SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

In General.....	1	Operation on Grades.....	16
Warning Decals.....	2	Steering (Turning) Precautions.....	17
General Precautions.....	6	Working Precautions.....	18
Before Operating Forklift Truck.....	10	Stopping/Parking Precautions.....	23
Operating Precautions.....	13		

## KNOW YOUR FORKLIFT TRUCK

Model View.....	24	Sear Belt.....	51
Major Electrical Components.....	27	Fork Locking Pins.....	53
Lift, Tilt and Attachment Control System (FC Model).....	31	Changing Forks.....	53
Operating Controls (MC Model).....	34	Safety Equipment.....	53
Operating Controls (FC Model).....	37	Additional Warning Device.....	53
Console Box (Instrument Panel).....	42	Drawbar Pin.....	54
Auto-Light Switch for PAC.....	44	Assist Grip and Foot Step.....	54
Central Vehicle Monitoring System.....	45	Battery Cover.....	55
Operator's Seat.....	49	Hydraulic Tank Oil Level/Filler Hole.....	56

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

Know What Forklift Truck Stability Is.....	57	Rated Capacity (Weight and Load Center).....	58
Center of Gravity (CG).....	57	Capacity Chart.....	59
Stability and Center of Gravity.....	57	Do's and Don'ts to Avoid Tipover.....	60
Forklift Truck Stability Base.....	58	How to Survive in a Tipover.....	63

## OPERATION

New Forklift Truck Break-In.....	64	Stopping Forklift Truck.....	70
Before Starting.....	64	Parking Forklift Truck (After Stopping).....	71
Before Operating Forklift Truck.....	67	Leaving Forklift Truck (FC Model).....	72
Forklift Truck Operation.....	67		

## OPERATING TECHNIQUES

Stacking Methods.....	73	Inching Into and Lifting the Load.....	79
Handling Loads Safely.....	74	Traveling with the Load.....	80
Correct Operating Steps and Flickering/Flashing.....	75	Unloading.....	81
Incorrect Operating Steps.....	76	Working on Grades.....	83

## STORING THE FORKLIFT TRUCK

End of Each Shift Storage.....	85	Long Term Storage.....	85
--------------------------------	----	------------------------	----

## SPECIAL SITUATIONS

Care in Cold Weather.....	86	Care in Hot Weather.....	86
---------------------------	----	--------------------------	----

## TRANSPORTATION HINTS

Forklift Truck Shipping.....	87	Machine Lifting and Tiedown Information.....	87
------------------------------	----	--	----

## TROUBLESHOOTING

If the Truck Shuts Down Suddenly.....	88	If Error Code Light Flickers or Flashes and the Forklift Truck Stops Moving.....	90
If the Steering Motor or Cooling Fan Stops for PAC.....	88	The Mast and Attachments Malfunctions (FC Model).....	91
If Central Vehicle Monitoring System Does Not Come On.....	89	Changing a Tire.....	92
If Light Bulbs Burn Out.....	89	Error Codes and Explanations.....	95

## MAINTENANCE

General.....	97	Every 50 Service Hours or Weekly, Whichever Comes First.....	113
Inspection Precautions.....	98	One Month After Delivery of a New Truck.....	114
Maintenance Schedule.....	99	Lubrication and Maintenance Chart.....	116
Daily (Pre-Start) Inspection.....	101	Parts to be Changed Periodically.....	119

## SERVICE DATA

Measurements and Refill Capacities – Approximate (Standard Models).....	121	Rated Capacities and Vehicle Weights for PAC.....	122
Rated Capacities and Vehicle Weights (Standard Models).....	121	Recommended Lubricants and Brake Fluid.....	123
Measurements and Refill Capacities – Approximate for PAC.....	122		

## TO THE FORKLIFT TRUCK OWNER

The Importance of Genuine Parts.....	124	Service Registration.....	126
Instructions for Ordering Parts.....	125		

## APPENDIX

Appendix.....	127
---------------	-----

## INDEX

Index.....	133
------------	-----



◆ 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 EN1726-1(CEN), the National Fire Protection Association No. 505 (NFPA), An American National Standard, Industrial Truck Standards Development Foundation (ANSI/ ITSDF B56.1), Safety Standard for Low Lift and High Lift Trucks. Operate this forklift truck in accordance with local regulations.

The most effective way of reducing the risk of 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.

You should also be familiar with areas of use of different types of forklift trucks as specified in the National Fire Protection Association (NFPA) 505.

1

1

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

2

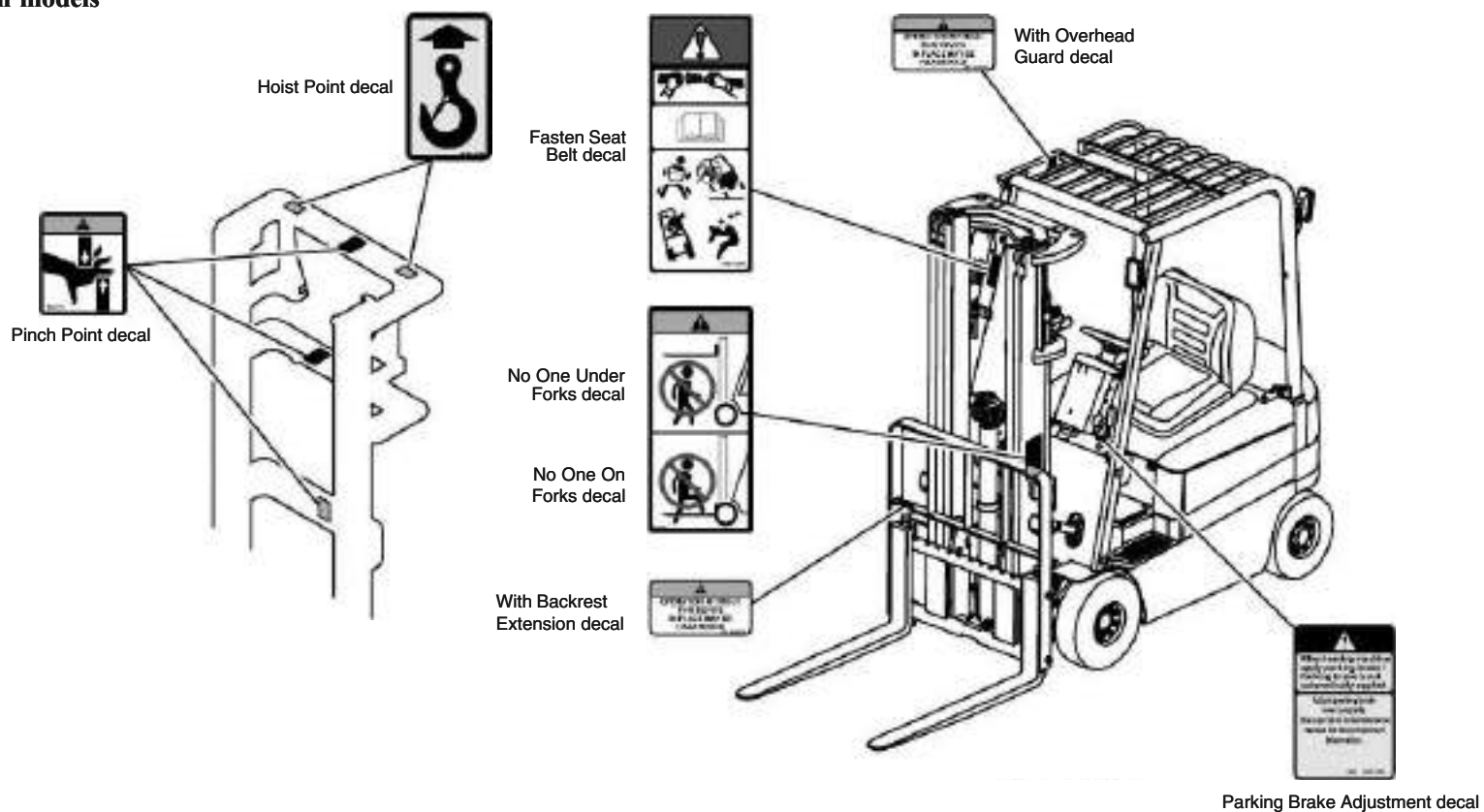
◆ Warning Decals

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.

1 ton models



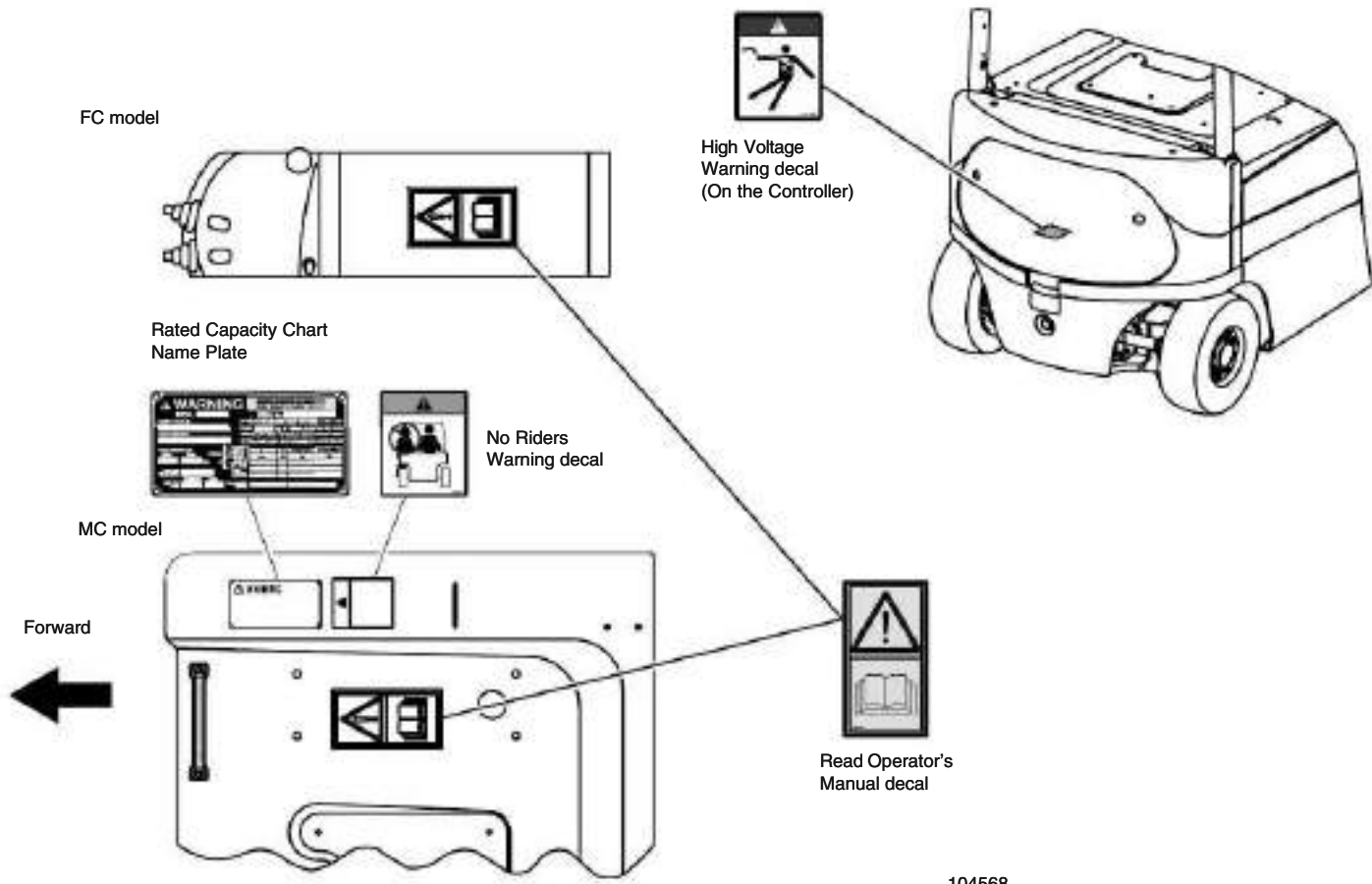
2

2

SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

3

1 ton models



104568

3

3

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

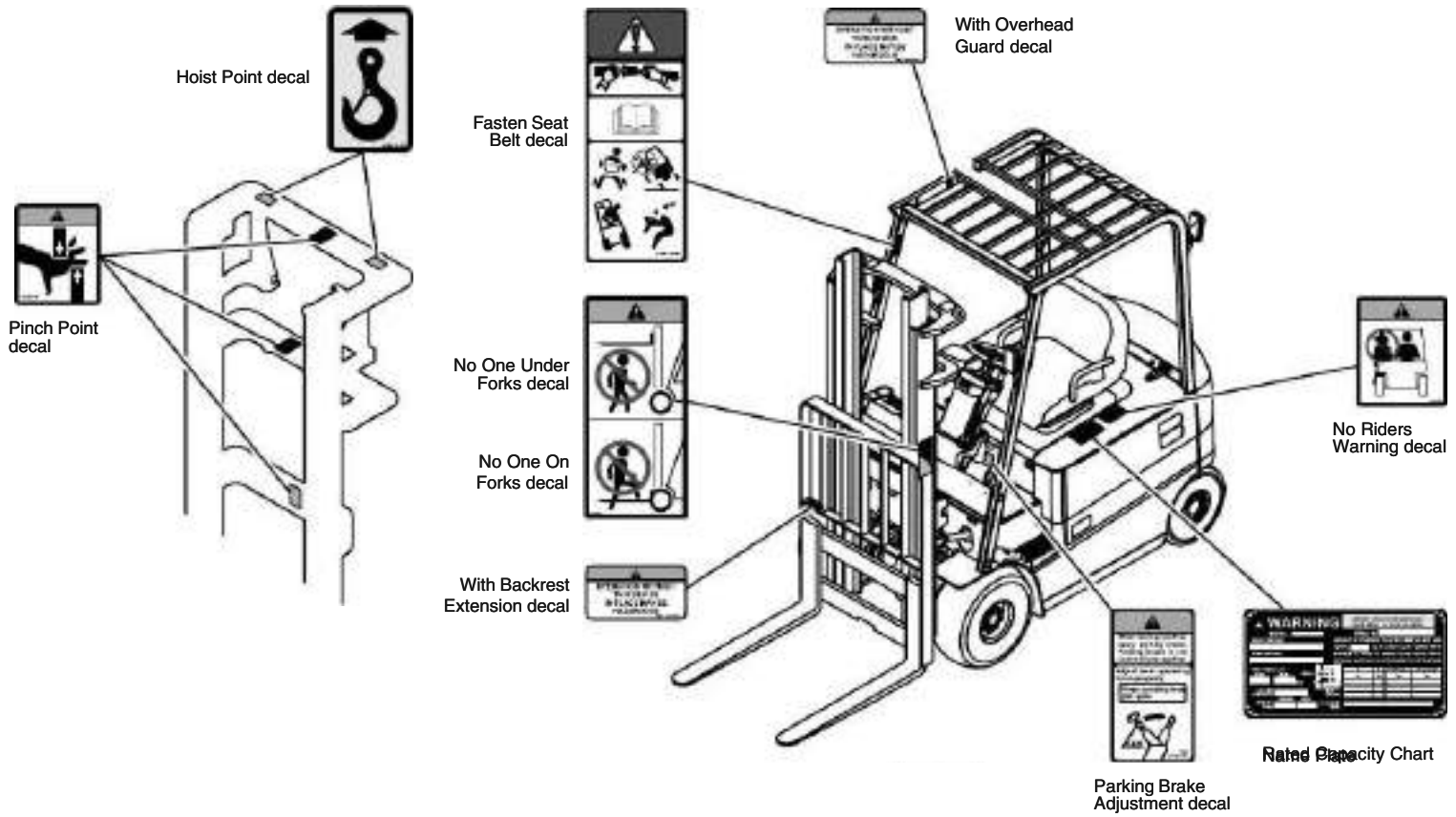
4

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.

**2 and 3 ton models**



104564

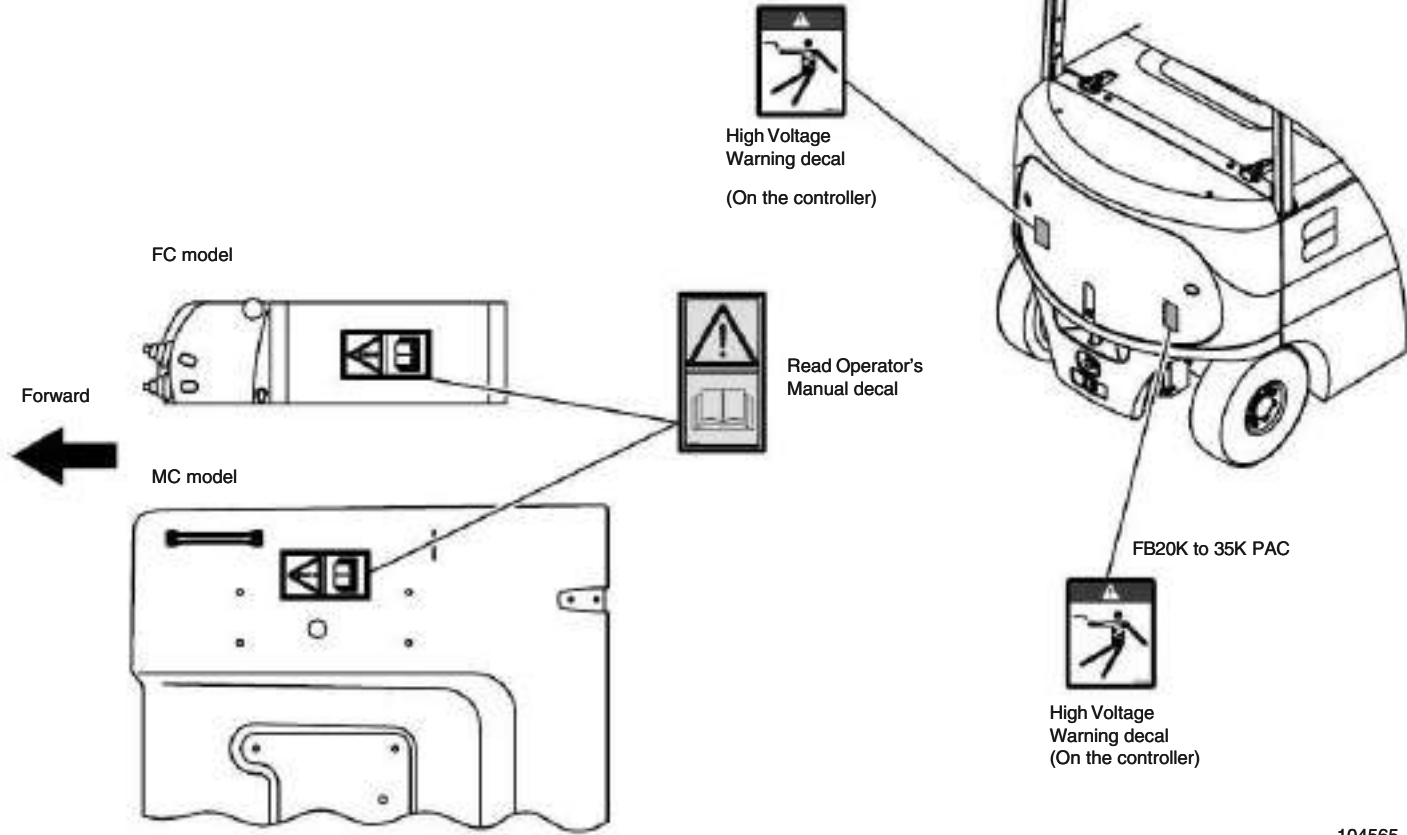
4

4

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

5

**2 and 3 ton models**



5

5

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

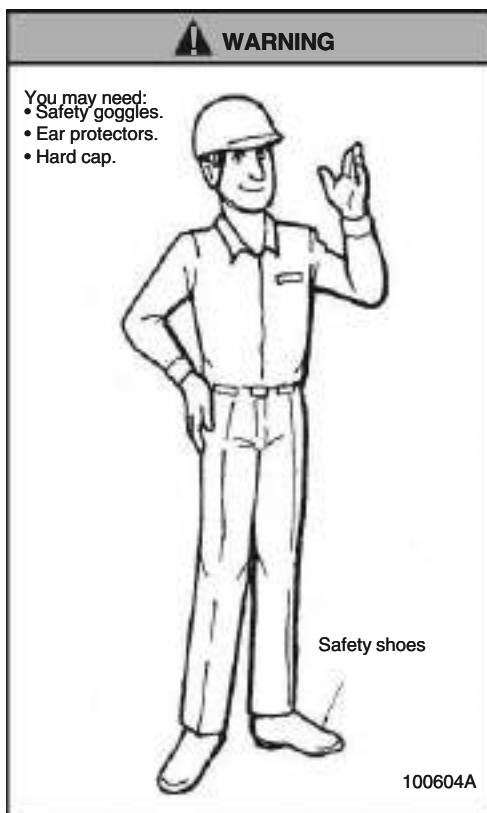
6

**◆ General Precautions**



**Authorized, trained operator only!**

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.



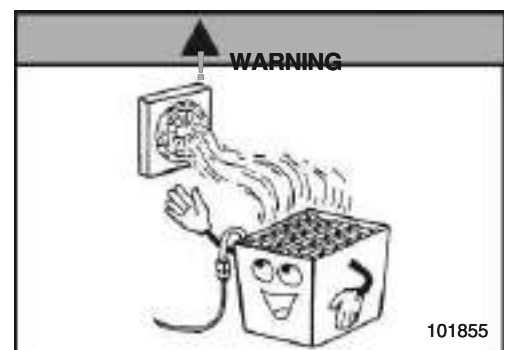
**Dress properly for the job!**

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.



**Fire hazards!**

Always charge battery in a well ventilated area. DO NOT smoke near battery. DO NOT allow sparks or open flame near battery.

6

6

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

7







**Know your forklift truck!**

Read and understand the operating, inspection and maintenance instructions in the OPERATION & MAINTENANCE MANUAL.

Know the capabilities of your forklift truck and equipment. Become thoroughly familiar with all controls, indicators and instruments.

Know the location, activation and use of protective devices. Work slowly until accustomed to the equipment.



**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.



**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. Give special attention to tires, rims, horns, battery, controller, light and tilt systems including forks or attachments, chains, cable and limit switches, brakes, steering mechanism, hydraulic hoses and guards.



**Always stay healthy on the job!**

Be healthy and NEVER operate the truck under the influence of drugs or alcohol that may impair your ability to properly operate the truck.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**



**Know your forklift truck is safe!**

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



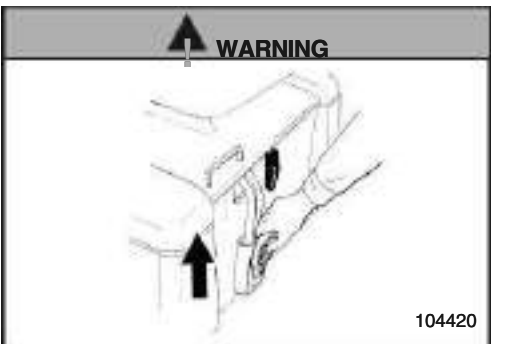
**Handle battery carefully!**

- Battery acid will burn skin, eat holes in clothing and cause blindness if splashed into eyes.
- If you spill acid on yourself, flush skin immediately with lots of water. Apply baking soda to help neutralize the acid.
- If acid gets in your eyes, flush them immediately with large amounts of water and see a doctor at once.



**Battery gas is highly flammable!**

Keep fire away from the top of open battery cells. COMBUSTIBLE GAS is always present.

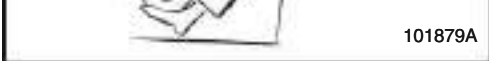


**Service electrical system safely!**

- Turn the key switch to the OFF (OFF) position.
- Disconnect the battery plug.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**





**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.



**Unauthorized addition or modification 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 could cause serious injury or property damage.



**DO NOT remove the overhead guard!**

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

DO NOT operate the truck without the overhead guard, unless conditions prevent use of a guard. Use special care if operation without overhead guard is required.



**Keep the operator's compartment clean!**

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

**◆ Before Operating Forklift Truck**

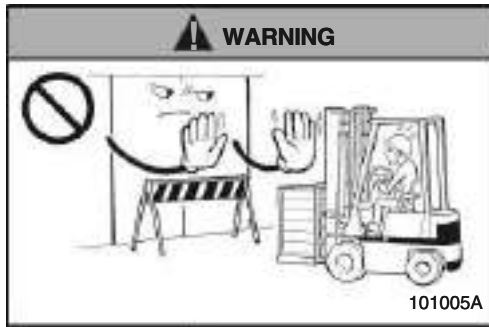


**DO avoid slippery surfaces!**

Sand, gravel, ice or mud can cause a tipover. If unavoidable, slow down.

**Avoid traveling in the rain!**

Avoid traveling in the rain to keep electrical parts from being damaged. Make sure the ground is dry. Wait until the rain stops to travel.



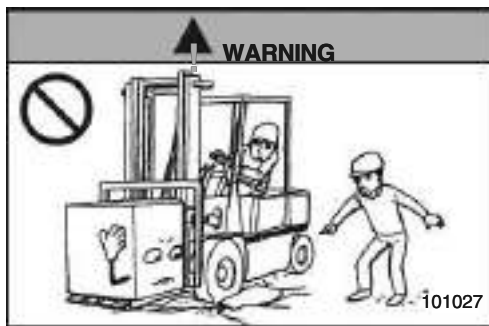
**Operate only in approved areas!**

Certain areas such as those containing hazardous flammable gases, liquid or other combustibles, should be avoided.



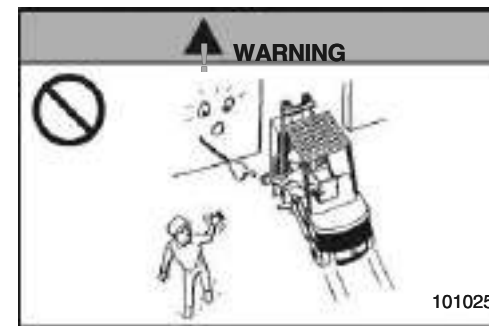
**Always check overhead clearance!**

Serious accidents may be caused by the mast and overhead guard hitting pipes, beams or other overhead obstruction. Watch out for power lines.



**Always be aware of floor capacity!**

Make sure the floor will support the weight of the loaded forklift truck.



**Stay within the confines of the truck!**

Keep your arms and legs inside the operator's compartment.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**



**Use lights in dark, dim areas!**



**Check fork locking pins for engagement!**



**Be sure the assist grip is properly tightened!**



Even with lights on, DO NOT assume people see you and will move out of your way.

If the fork locking pins are not properly engaged, the forks may shift and cause off-centered or unstable loads.

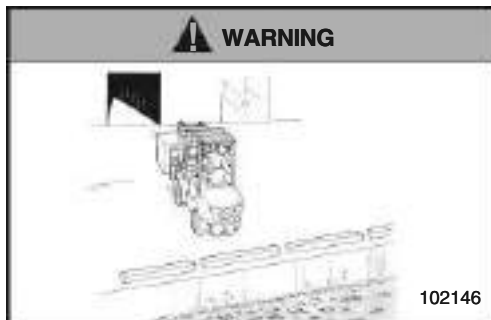
Face the forklift truck when mounting and dismounting.

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.



**Check work areas for high risk!**

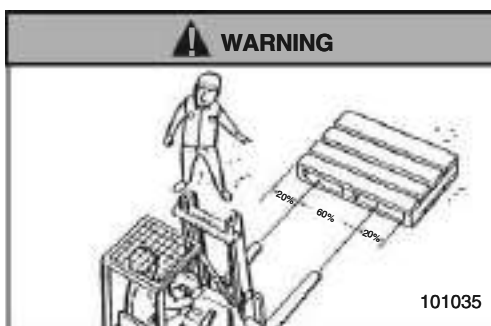
When working on docks, ramps, platforms and other high risk areas, use adequate blocks to reduce the risk of the forklift truck from falling off.



**Fasten the seat belt properly!**

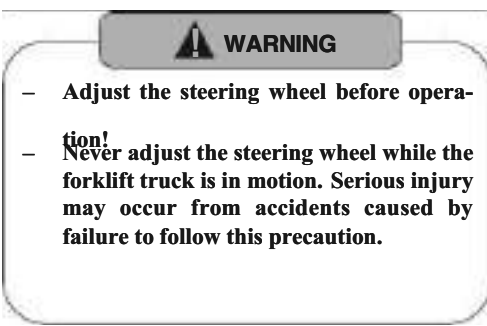
If you DO NOT, it may not restrain you in an accident.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**



**Avoid off-center loading!**

Set the forks as far apart as possible for maximum support of the pallet or load. A too small fork spread can cause instability of the load.



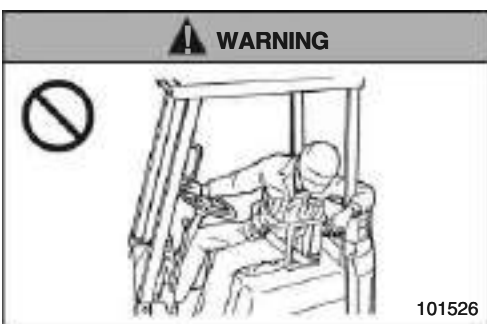
**Position controls correctly for starting!**

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



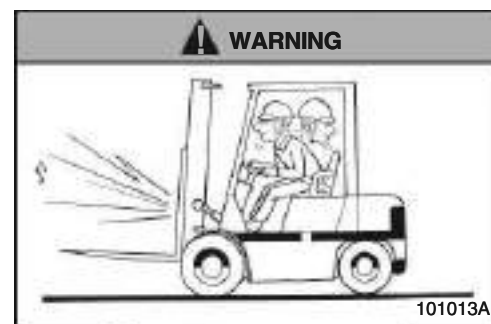
**Adjust seat before operation!**

DO NOT adjust the seat while the forklift truck is in motion. This could cause serious injury.



**Stay under the overhead guard!**

DO NOT hold on the overhead guard.



**Move forklift truck safely!**

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

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

**Operating Precautions**



**Make sure your forklift truck is in safe operating condition!**

Test the brakes while moving slowly in a safe area. Make sure the mast moves up and down smoothly.



**DO NOT allow any riders!**

Do not allow any other part of the forklift truck — at any time. Operate the truck only from the designated operator's seat.



**Obey all traffic rules and warning signs!**

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

Use special care when traveling without a load as

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.

Use special care when traveling without a load as the risk of overturning is greater.



**DO NOT allow anyone to hold loads!**

13

13

### SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

14



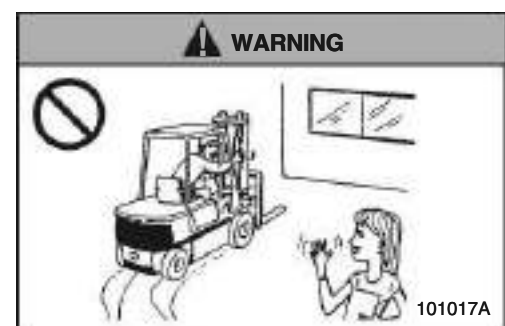
**If you cannot see where you are going, DO NOT MOVE!**

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

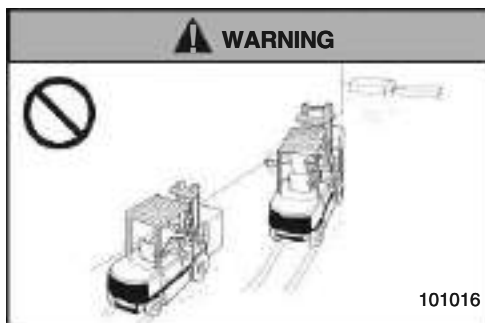
Observe applicable traffic regulations. Yield right of way to pedestrians. Slow down and sound horn at cross aisles and wherever vision is obstructed.



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



**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. 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).



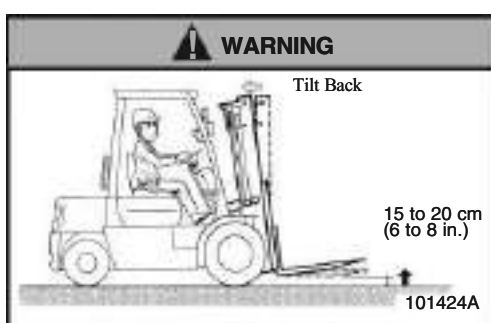
**DO NOT pass another truck!**  
DO NOT pass another forklift truck traveling in the same direction at intersections, blind spots or at other dangerous areas.

14

14

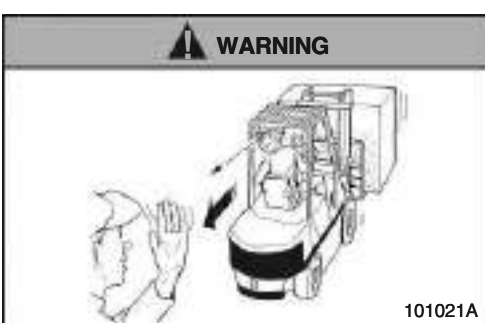
### SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

15

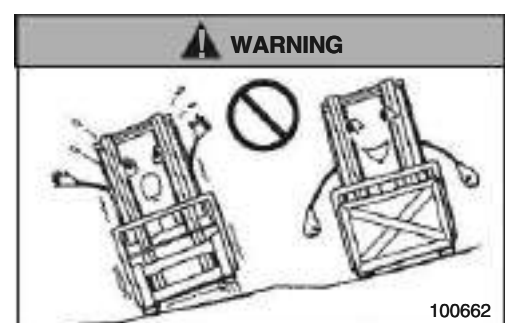


**Prepare to operate the forklift truck properly!**

1. Pull the lift control lever to raise the forks to a safe carrying height of 15 to 20 cm (6 to 8 in.) from the floor.
2. Pull the tilt control lever to tilt the mast.



**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.



**Be aware of the stability of an empty forklift truck!**  
An empty forklift truck will tip over more easily than a loaded one in a lowered position.

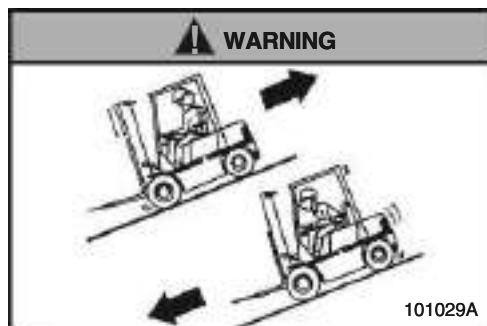
### SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

#### ◆ Operation on Grades



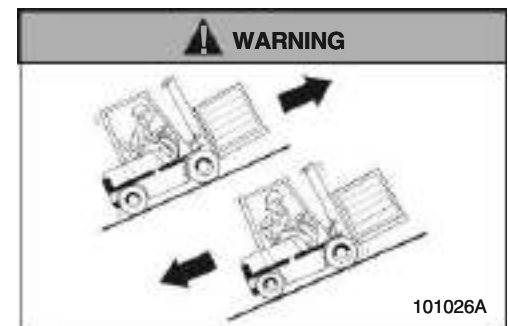
**Be particularly careful when driving up or down a steep slope!**

Use extreme care to reduce the risk of the tips of forks or the bottom of pallet from touching the floor.



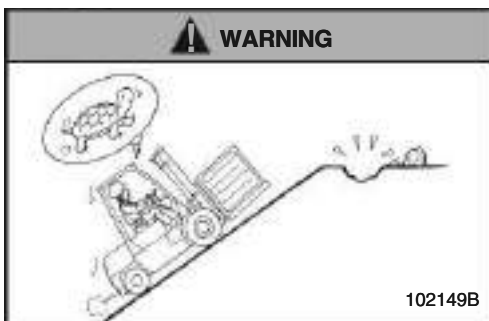
**Travel safely on grades with an empty forklift truck!**

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



**Travel safely on grades with a loaded forklift truck!**

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



**Slow down near the top of slope!**

When traveling up a grade, reduce speed near the top of grade where your view is blocked.



**Start forklift truck upgrade carefully!**

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

### SAFETY RULES FOR FORKLIFT TRUCK OPERATORS

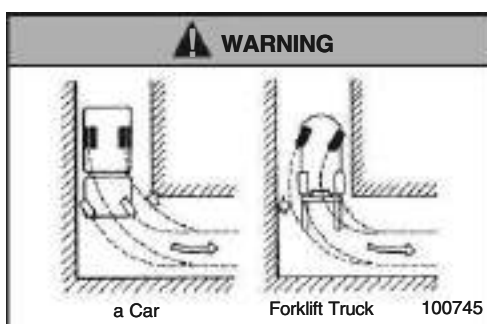
#### ◆ Steering (Turning) Precautions



**DO NOT turn on a ramp or grade!**

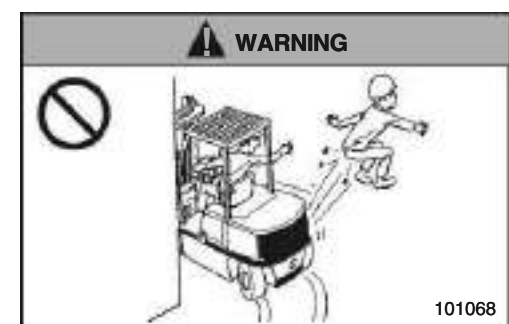
Turning on ramps or grades can cause a forklift truck, loaded or unloaded, to tip over.

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.



**A forklift truck is not a car!**

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

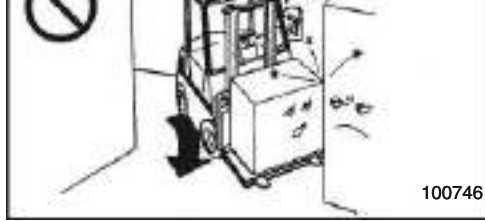


**Be aware of tail swing!**

Always make sure the tail swing area is clear before turning, to avoid injury to pedestrians.







**Make a turn carefully!**

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.



**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.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

**Working Precautions**



**Avoid turning at fast speed!**

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

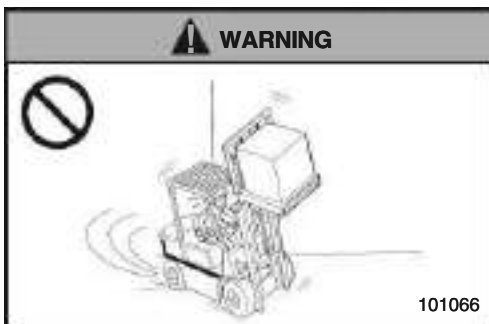


**DO NOT allow anyone to walk or stand under raised forks!**



**DO NOT allow any riders!**

DO NOT permit riders on the forks or pallets.



**Always be alert for tipover!**

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



**Stay clear of pinch points!**

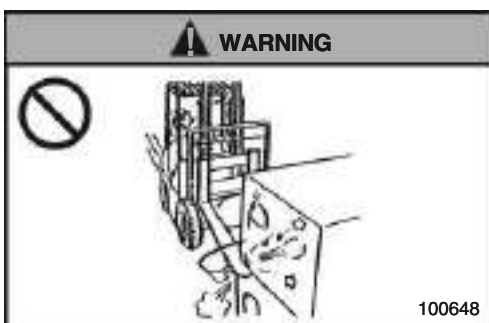
Keep all parts of your body away from moving parts such as the mast, carriage and attachments. Do not put any part of your body between the overhead guard and the mast. If the mast moves unexpectedly, you could get caught between the mast and overhead guard and a serious accident could occur.



**Handle only stable loads!**

If a load is unstable, it can easily shift and fall on someone. Use special care when handling long, high or wide loads to avoid losing the load, striking bystanders, or tipping the truck.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**



**DO NOT speed when approaching loads!**

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



**Always stay within the rated capacity!**

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

Engage the forks until the load touches the carriage when picking up the load.



**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.





101042

**DO NOT allow unloading from raised loads!**

Failure to follow this rules could cause serious injury.

19



100642A

**DO NOT use damaged pallets!**

Make sure the pallets and skids are sturdy and in safe operating condition.



101034

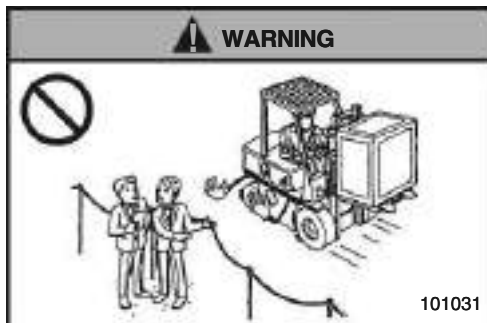
**Use forks properly!**

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

19

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

20



101031

**Danger! Keep out!**

DO NOT allow any unauthorized people in the work area.



101039A

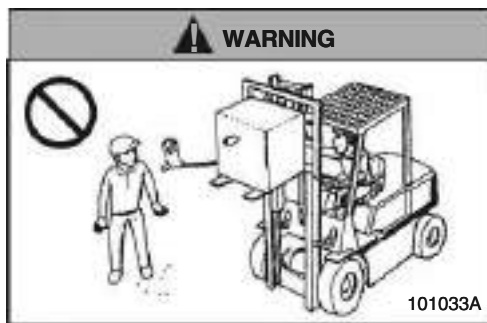
**DO NOT abuse your forks!**

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



100652A

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



101033A

**A helper should NOT be near the forklift truck!**

People should be clear of the forklift truck operating area.

20

20

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

21

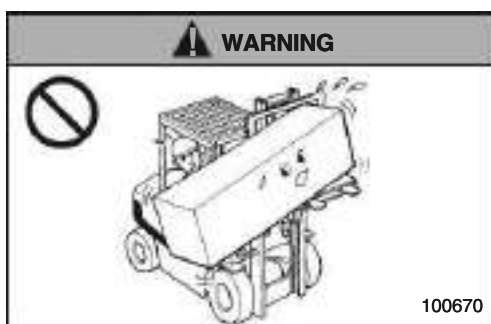


100996A

**DO NOT tilt elevated loads forward!**

The CG (Center of Gravity) moves forward under this condition.

This can cause the forklift truck to tip over forward. 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.



100670

**DO NOT pick up off-center loads!**

Such a load increases the possibility of a tipover to the side.

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.



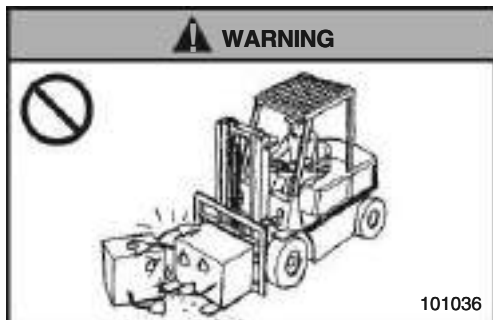
100997A

**DO NOT elevate tilted loads!**

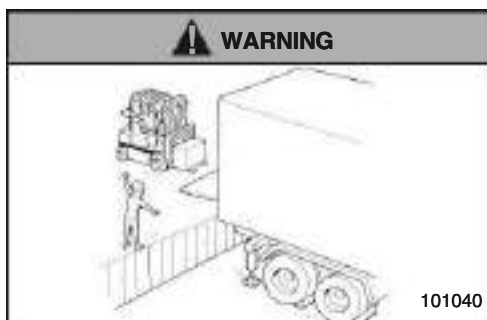
This can also cause the forklift truck to tip over.

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.

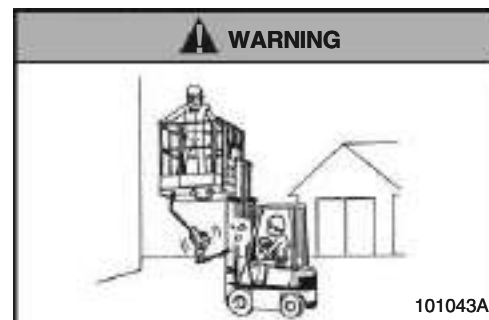
**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**



**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.



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



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




**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.

**SAFETY RULES FOR FORKLIFT TRUCK OPERATORS**

**Stopping/Parking Precautions**

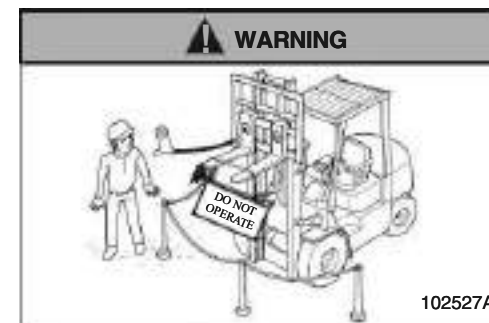


**When you leave your truck, or park it:**

- Select level surface whenever possible.
- Pull the parking brake lever.
- Put the direction lever in NEUTRAL.
- Lower the forks fully to the floor and tilt the mast forward until the forks are flat.
- Turn the key to the  (OFF) position and remove it from the switch.
- Disconnect the battery plug if the forklift truck is to be left unattended for an extended period



**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.



**Park a disabled machine safely!**

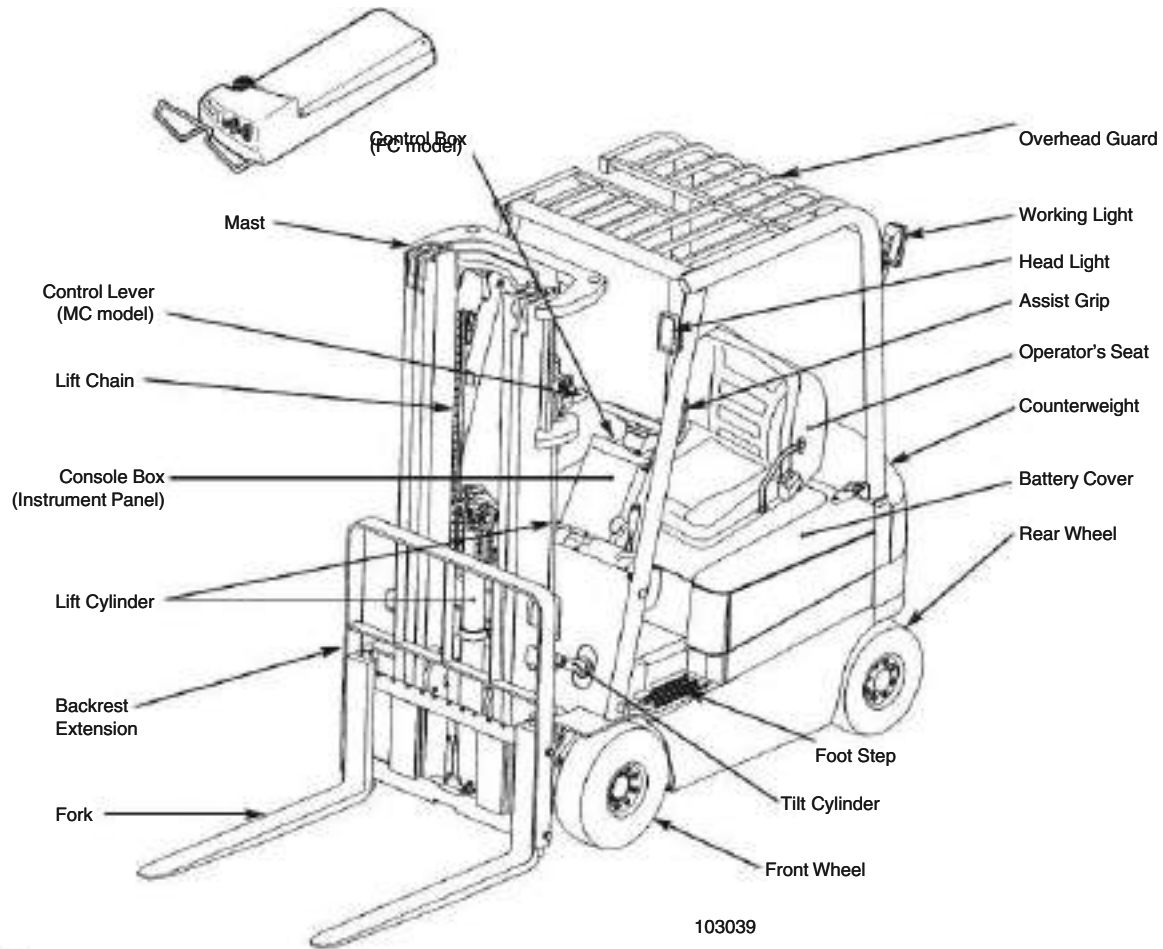
- If the lift mechanism is disabled and the forks cannot be lowered, park the truck in a non-operating area and attach warning tags to the forks to alert pedestrians and traffic.
- Use barriers to keep anyone from standing or passing under the forks.
- Remove the starter switch key and attach DO NOT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





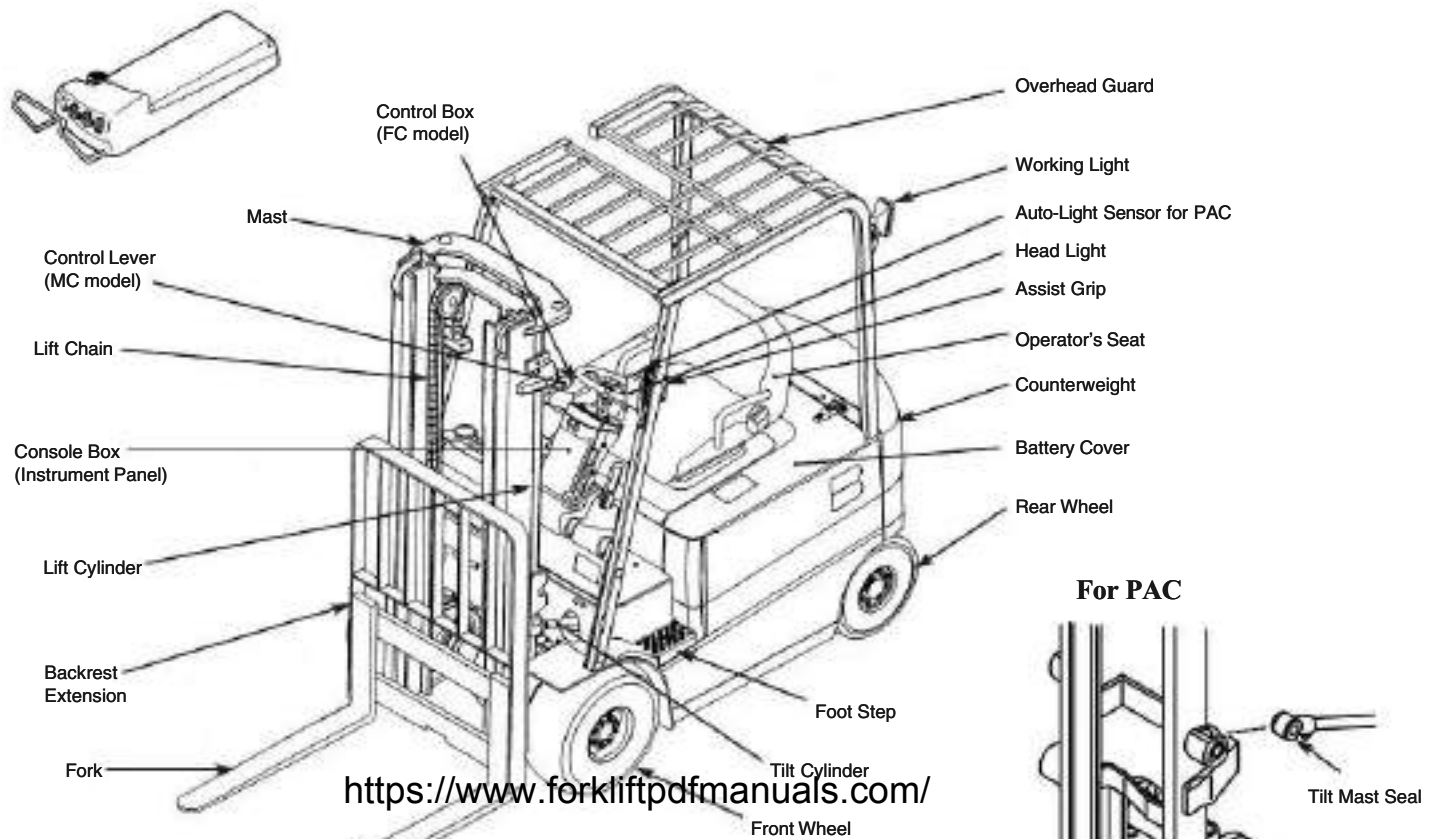
# KNOW YOUR FORKLIFT TRUCK

## Model View 1 ton models



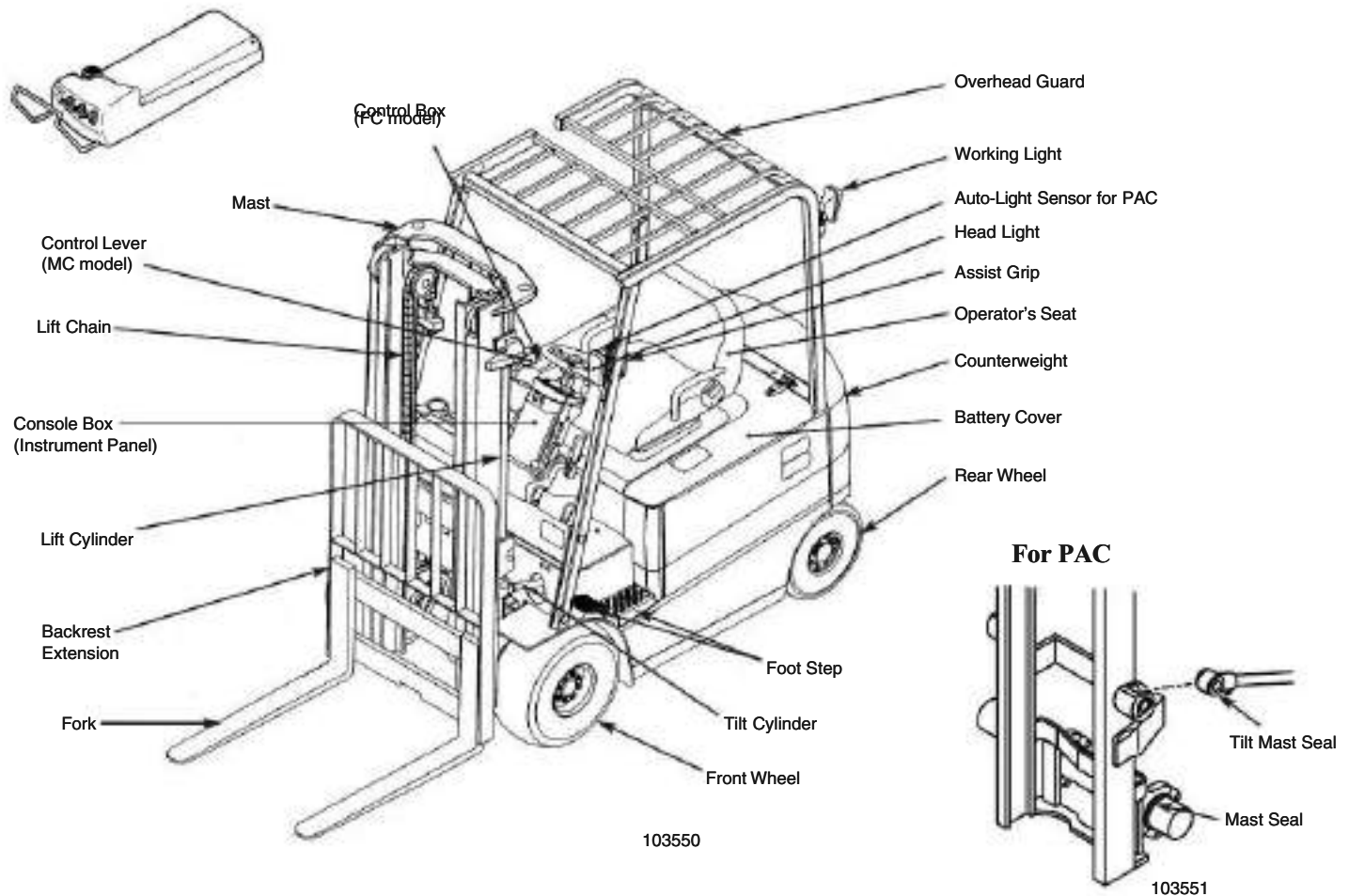
## KNOW YOUR FORKLIFT TRUCK

## 2 ton models



KNOW YOUR FORKLIFT TRUCK

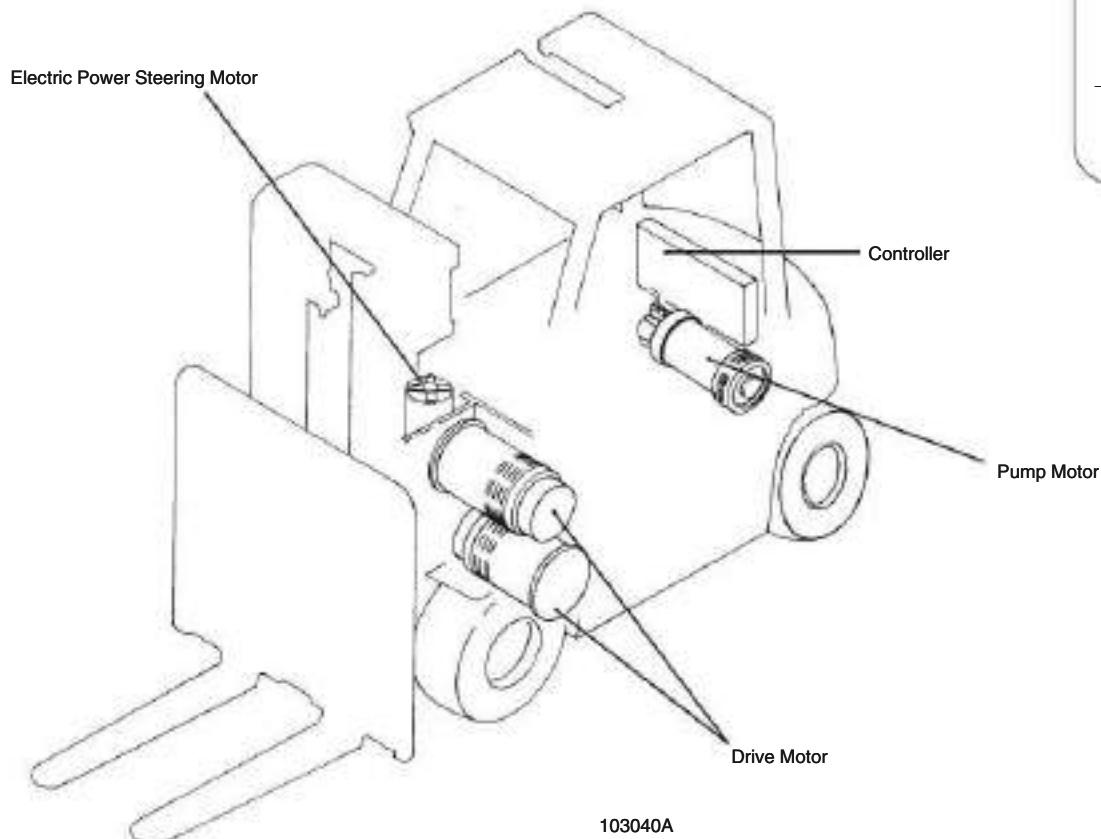
3 ton models



KNOW YOUR FORKLIFT TRUCK

◆ Major Electrical Components

1 ton models

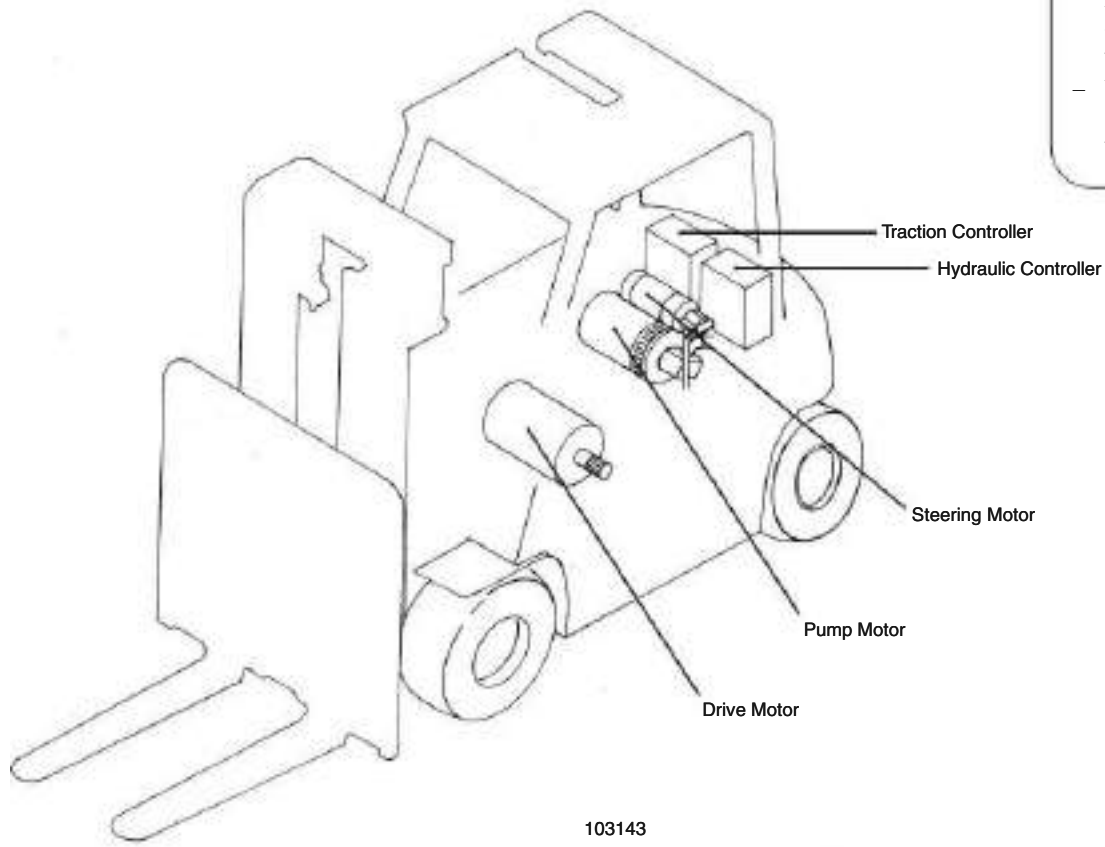


**CAUTION**

- The controller is a precision electric component. Rely on your Mitsubishi forklift truck dealer for repairs or adjustment of the controller.
- When washing the truck, be careful not to splash water or steam over the controller and the motors.

KNOW YOUR FORKLIFT TRUCK

2 ton models

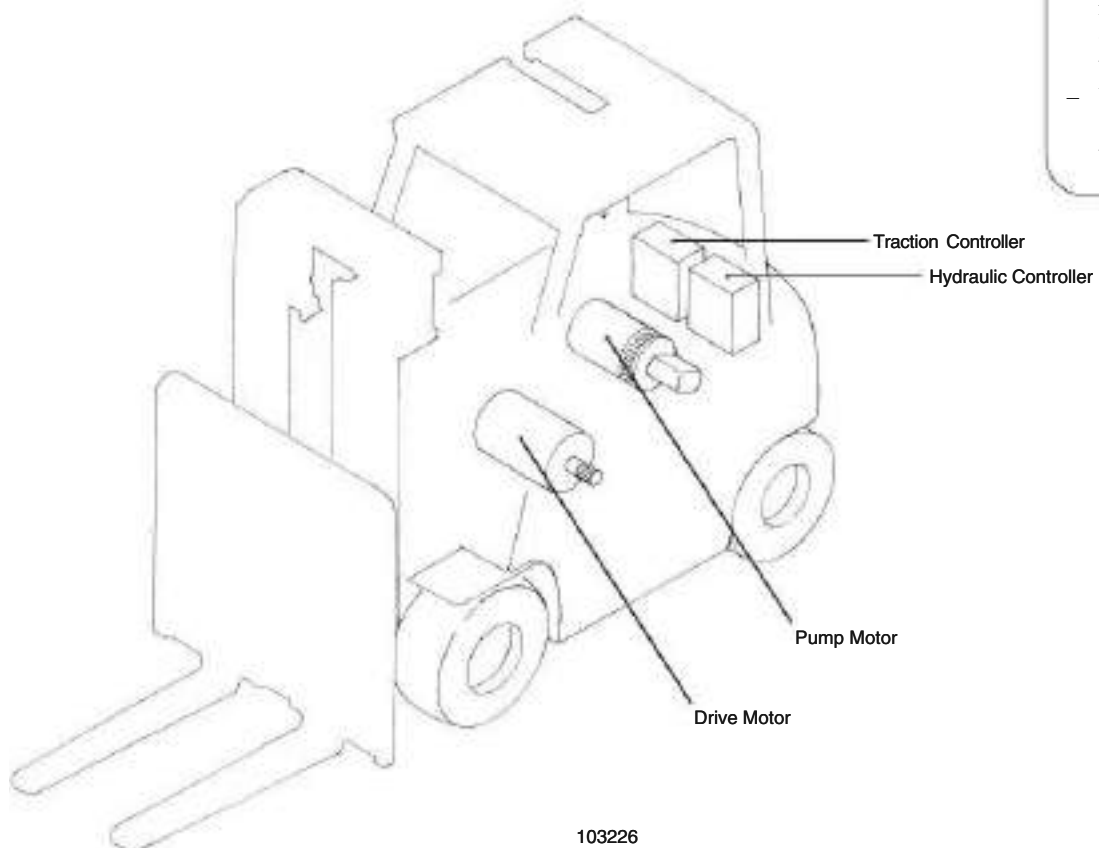


**CAUTION**

- The controller is a precision electric component. Rely on your Mitsubishi forklift truck dealer for repairs or adjustment of the controller.
- When washing the truck, be careful not to splash water or steam over the controller and the motors.

KNOW YOUR FORKLIFT TRUCK

3 ton models

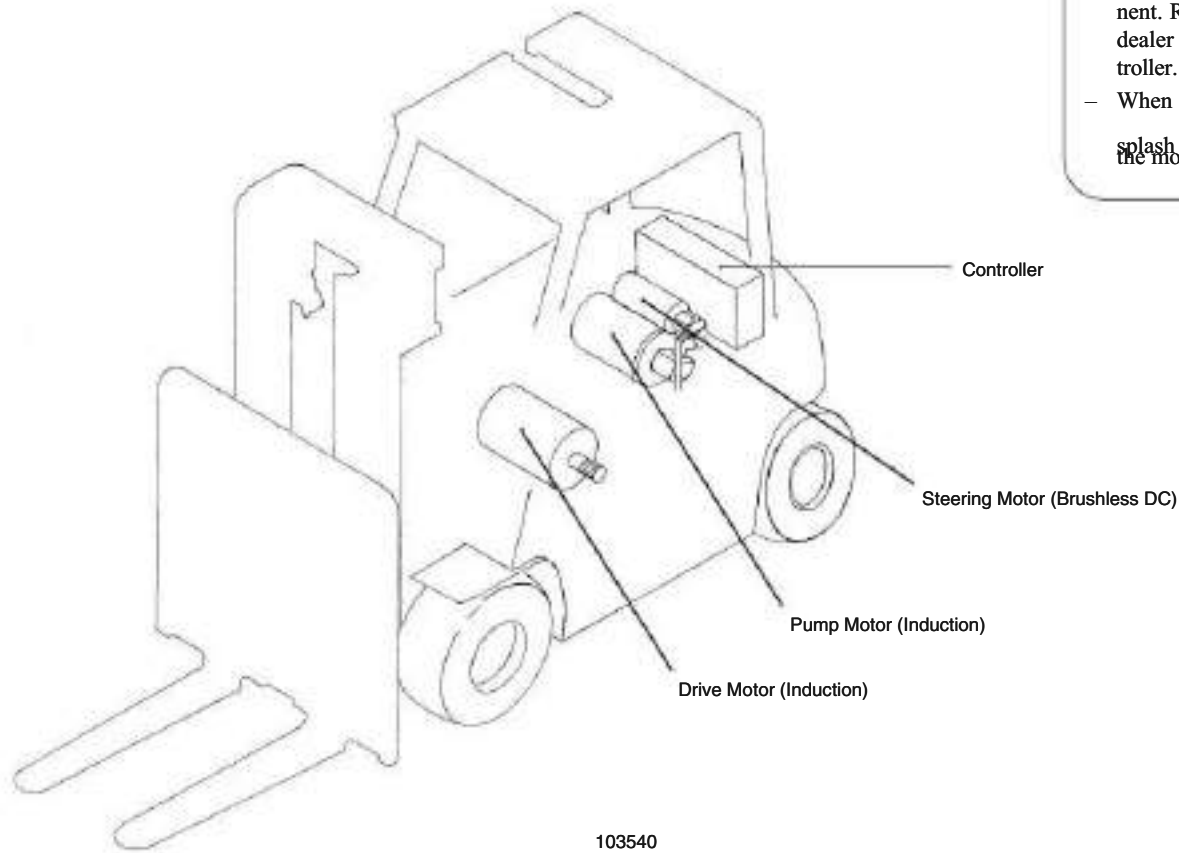


**CAUTION**

- The controller is a precision electric component. Rely on your Mitsubishi forklift truck dealer for repairs or adjustment of the controller.
- When washing the truck, be careful not to splash water or steam over the controller and the motors.



2 to 3 ton models for PAC



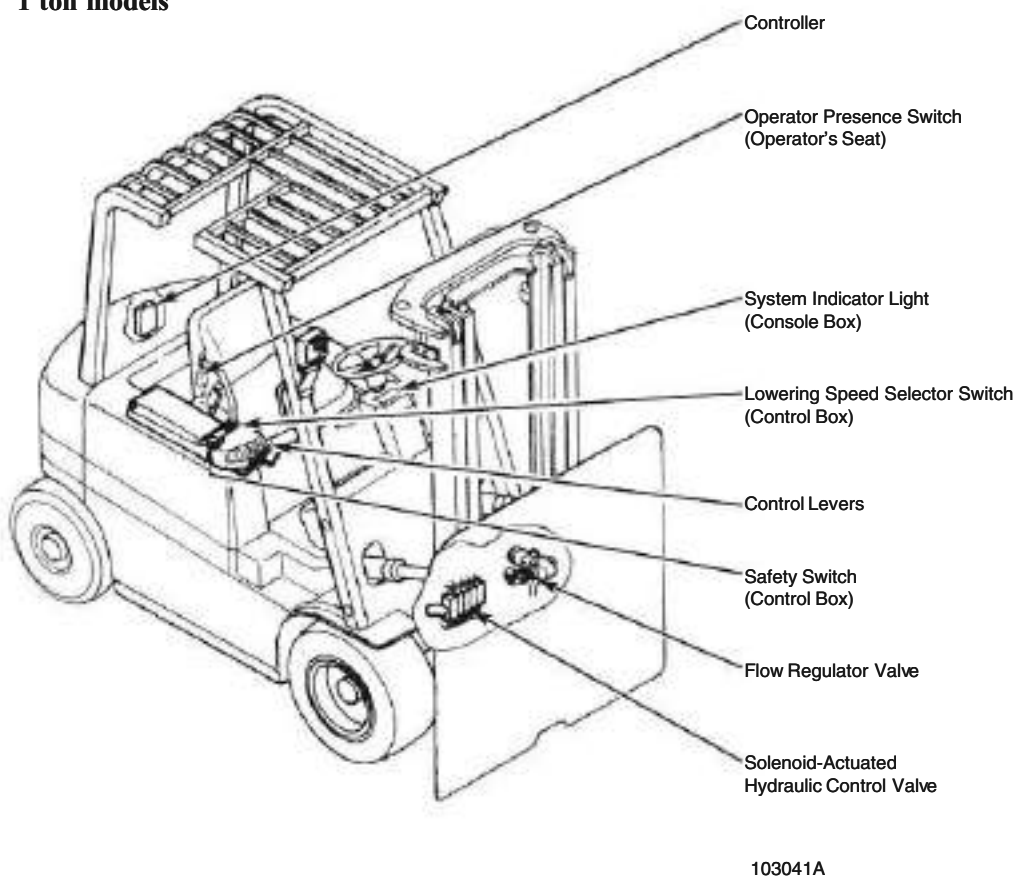
**CAUTION**

- The controller is a precision electric component. Rely on your Mitsubishi forklift truck dealer for repairs or adjustment of the controller.
- When washing the truck, be careful not to splash water or steam over the controller and the motors.

KNOW YOUR FORKLIFT TRUCK

◆ Lift, Tilt and Attachment Control System (FC Model)

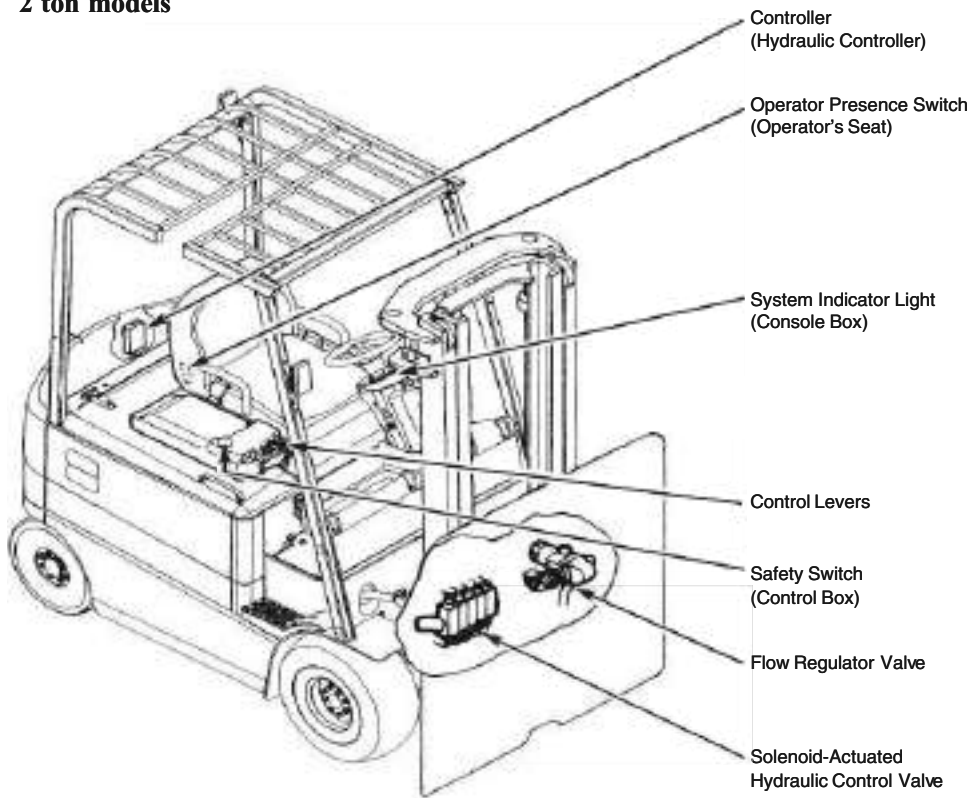
1 ton models



**CAUTION**

- This system consists of precise components. DO NOT attempt to make adjustments or repairs yourself. Consult your Mitsubishi forklift truck dealer.
- Moisture is harmful to the controller. When washing the components inside the motor 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 mast and attachment unless you are seated. When replacing the seat, be sure to select a genuine seat.

2 ton models

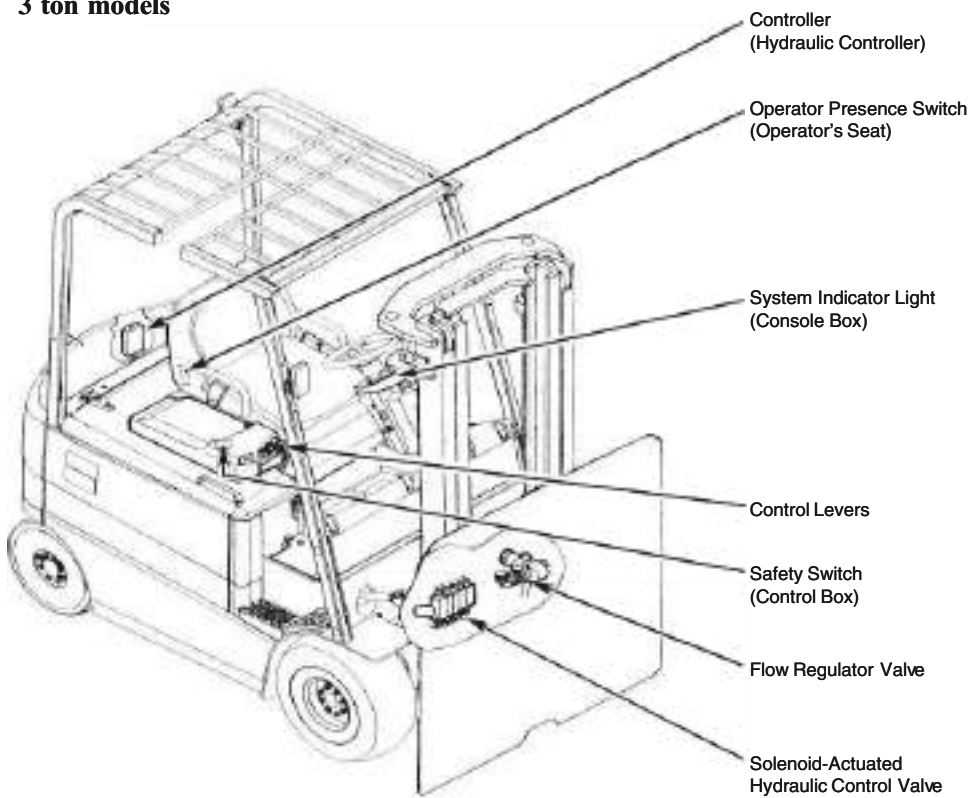


103144

**CAUTION**

- This system consists of precise components. DO NOT attempt to make adjustments or repairs yourself. Consult your Mitsubishi forklift truck dealer.
- Moisture is harmful to the controller. When washing the components inside the motor 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 mast and attachment unless you are seated. When replacing the seat, be sure to select a genuine seat.

3 ton models



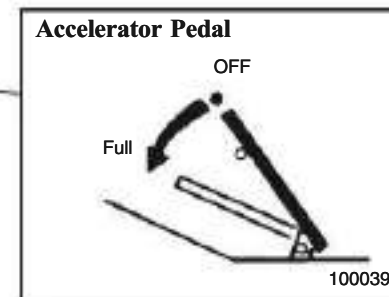
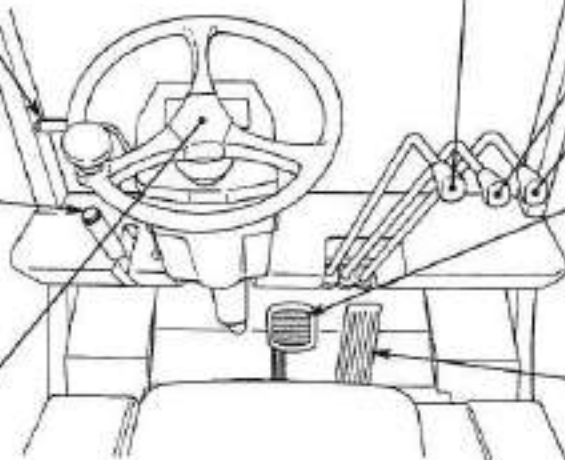
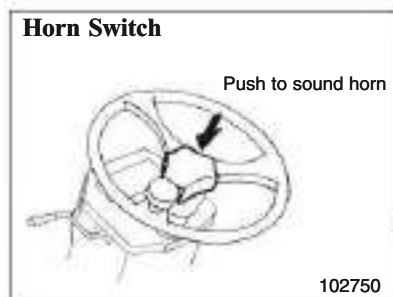
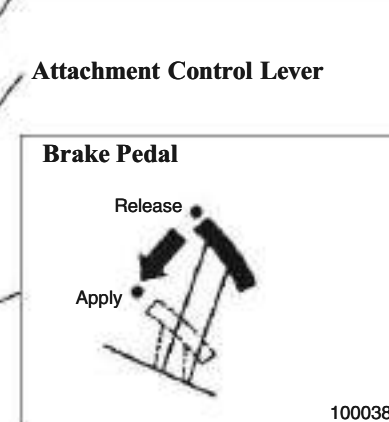
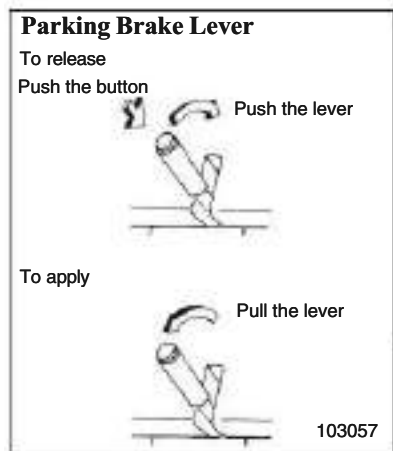
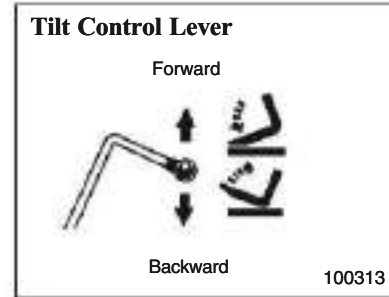
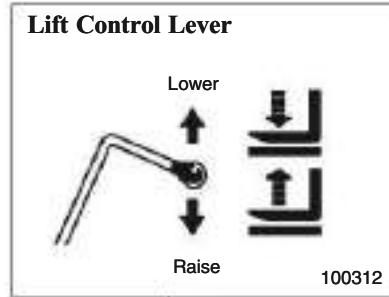
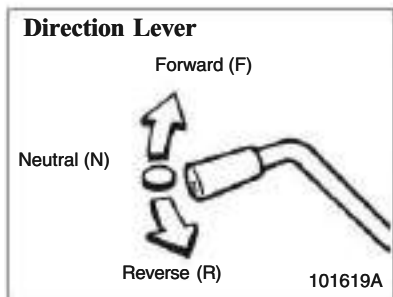
103227

**CAUTION**

- This system consists of precise components. DO NOT attempt to make adjustments or repairs yourself. Consult your Mitsubishi forklift truck dealer.
- Moisture is harmful to the controller. When washing the components inside the motor 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 mast and attachment unless you are seated. When replacing the seat, be sure to select a genuine seat.

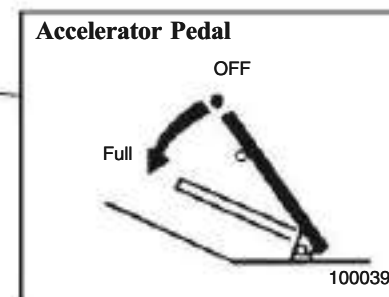
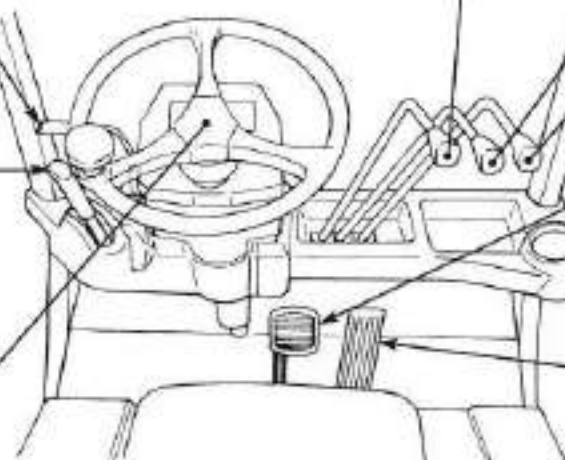
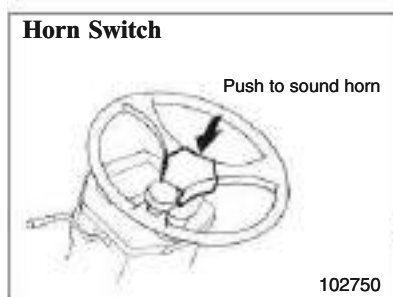
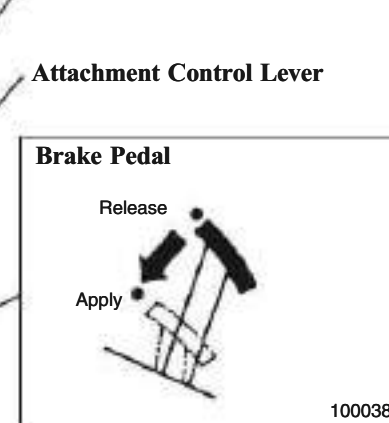
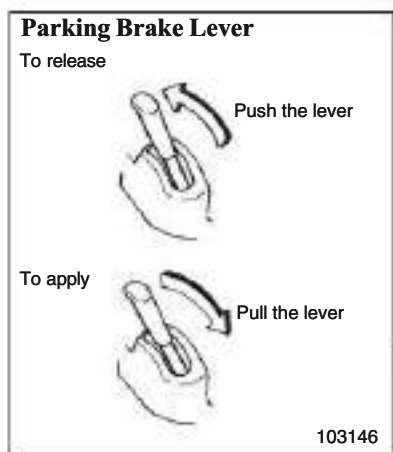
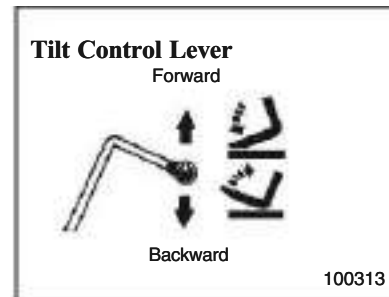
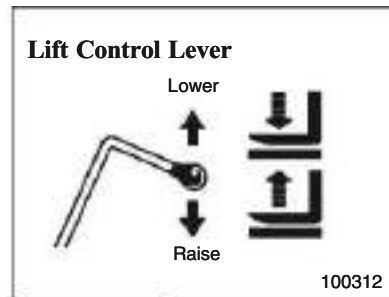
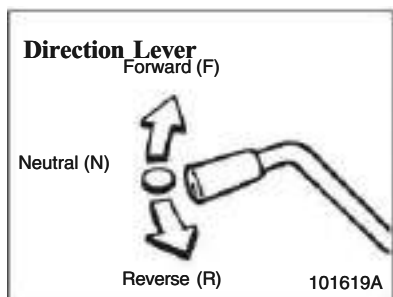
◆ Operating Controls (MC Model)

1 ton models



KNOW YOUR FORKLIFT TRUCK

2 and 3 ton models





• **Lift Control Lever**

Lifting speed and lowering speed are controlled by the position of the control lever.

The lever will return to the NEUTRAL position when released.

• **Tilt Control Lever**

Tilting speed is controlled by the position of the control lever.

The lever will return to the NEUTRAL position when released.

The mast will not tilt forward when the key is in the ○ (OFF) position, even if the lever is moved forward.

• **Direction Lever**

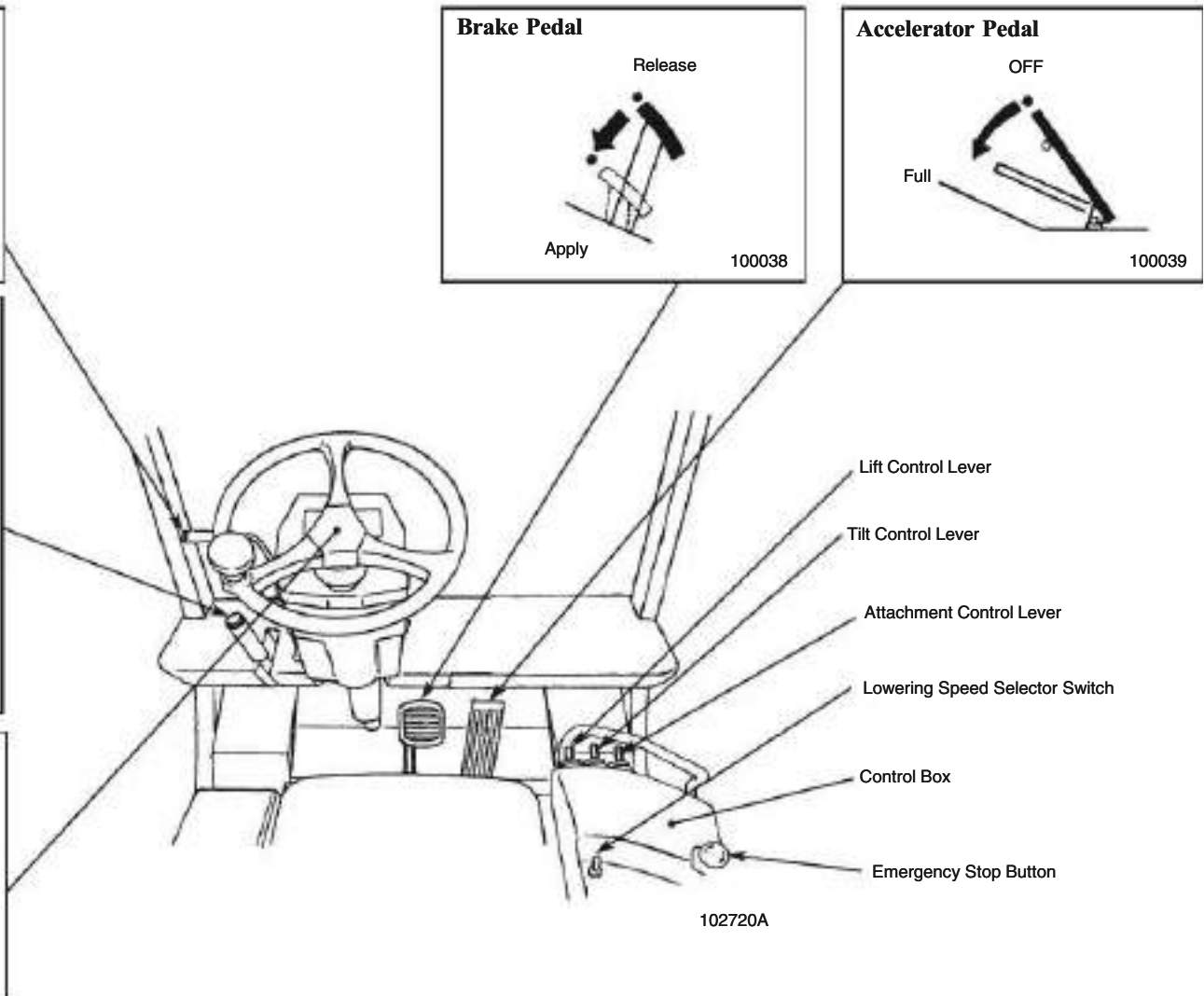
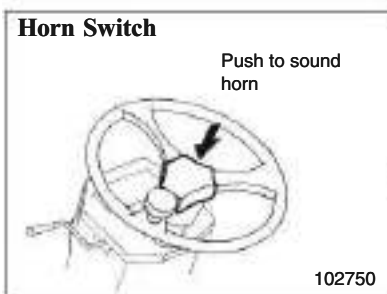
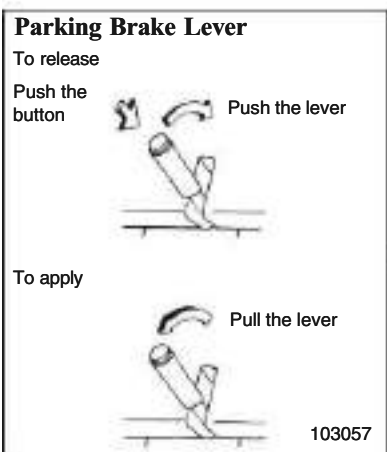
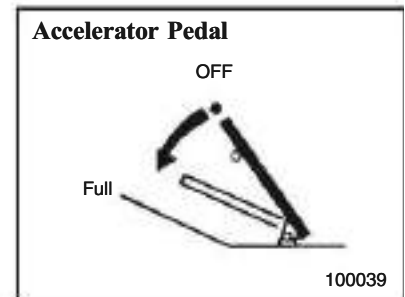
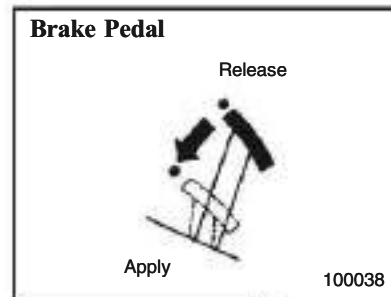
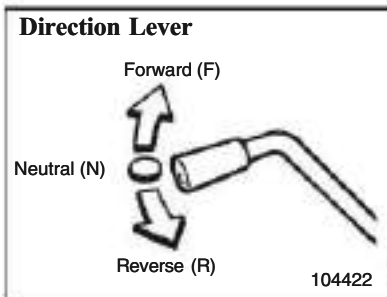
– Changing Direction

1. Move the direction lever to the opposite direction of travel after you have brought the truck to a stop.
2. In the plugging mode, move the direction lever without releasing the accelerator pedal (without applying the brakes).

**KNOW YOUR FORKLIFT TRUCK**

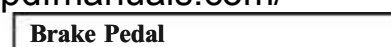
◆ **Operating Controls (FC Model)**

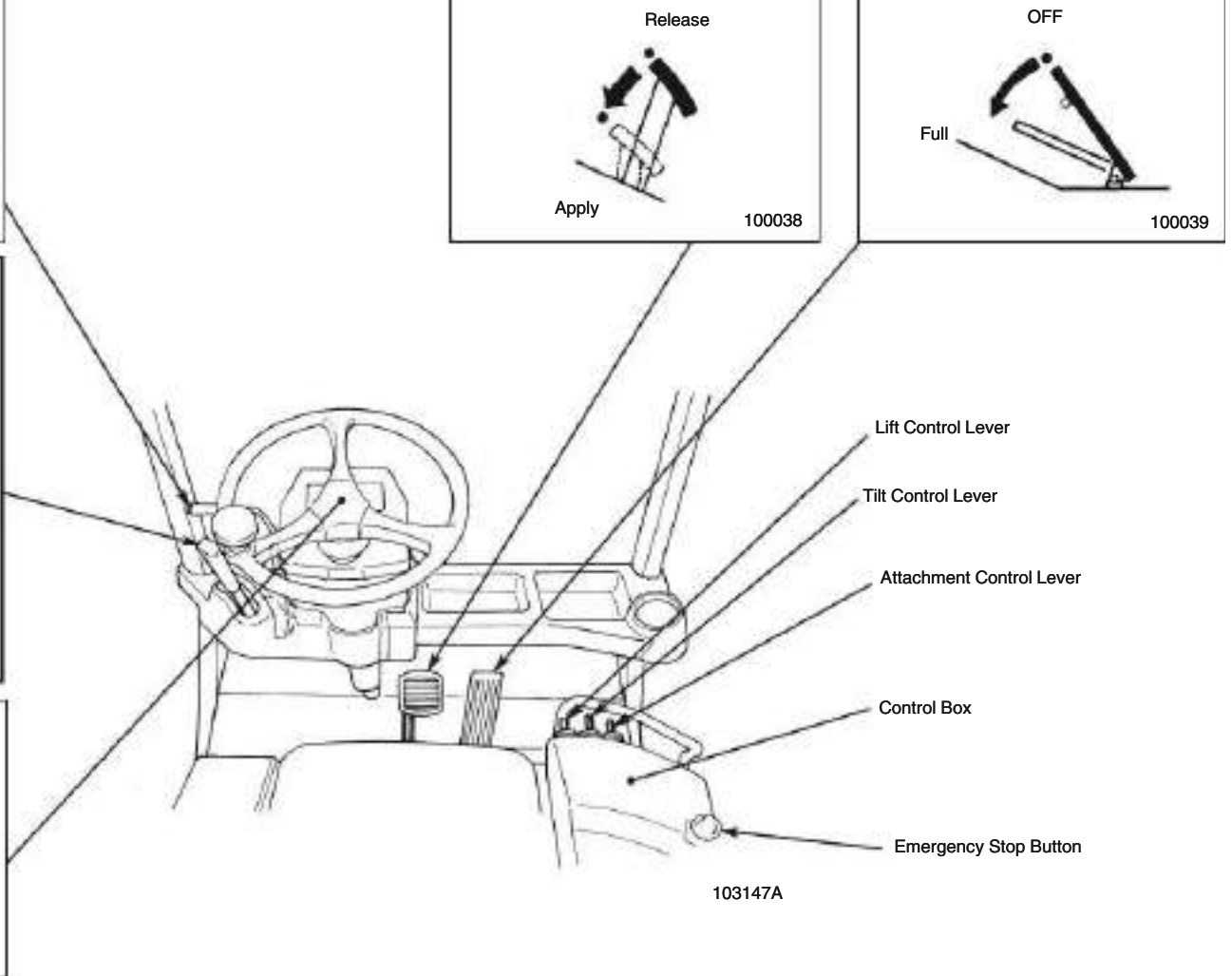
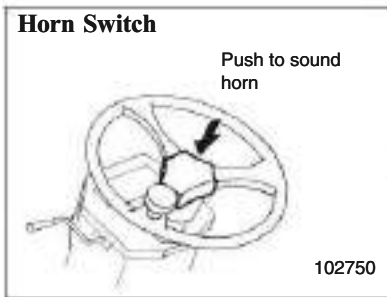
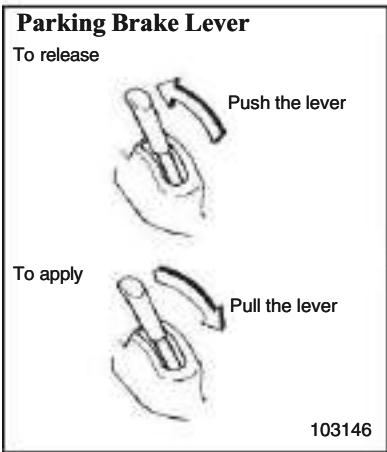
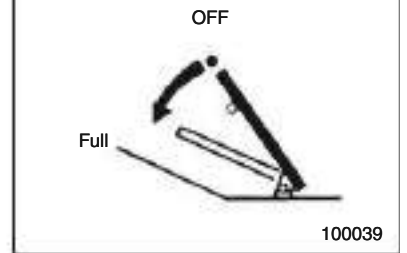
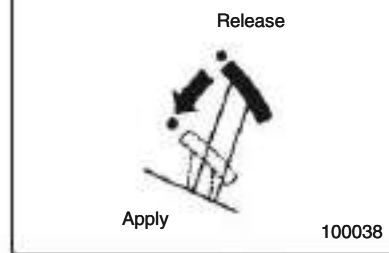
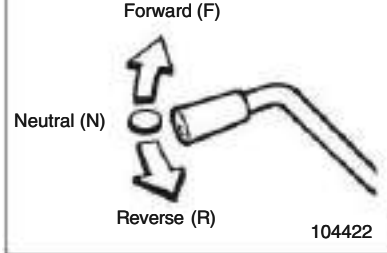
**1 ton models**



**KNOW YOUR FORKLIFT TRUCK**

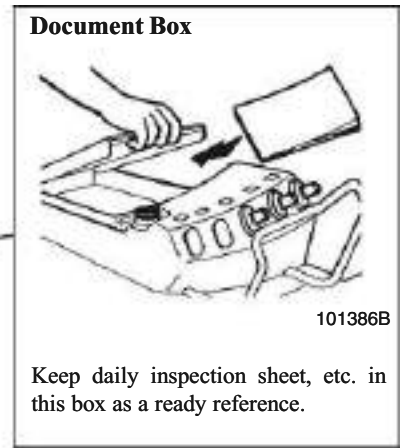
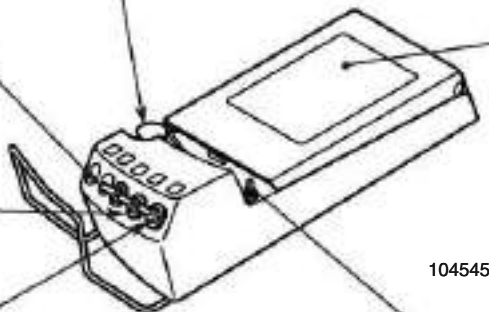
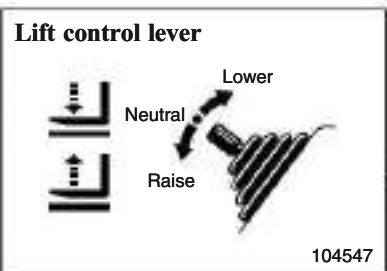
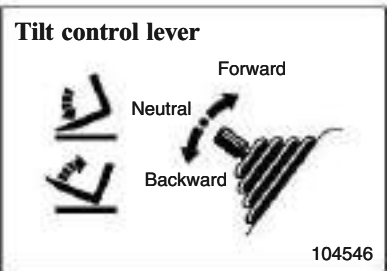
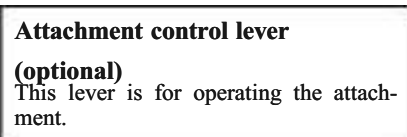
**2 and 3 ton models**





**KNOW YOUR FORKLIFT TRUCK**

**FC Model**



**Lowering Speed Selector Switch**

**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.**

**KNOW YOUR FORKLIFT TRUCK**

**FC Model**

**• Tilt Control Lever**

Tilting speed is controlled by the position of the control lever.

The lever will return to the NEUTRAL position when released.

**• Lift Control Lever**

Lifting speed and lowering speed are controlled by the position of the lift control lever.

Remember, this speed may increase suddenly if the load is heavy. Wait until the load is moving slowly before you lift or lower it.

**• Direction Lever**

**– Changing Direction**

1. Move the direction lever to the opposite direction of travel after you have brought the truck to a stop.

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

load is jolting. Wait until the load stops jolting.  
The lever will return to the NEUTRAL position when released.  
(A safety device is built in the lift system.)

truck to a stop.  
2. In the plugging mode, move the direction lever without releasing the accelerator pedal (without applying the brakes).

• **Safety Device**

The safety device prevents lift, tilt and attachment action even if the controls are manipulated when the key switch is:

1. Not in the I (ON) position.
2. In the I (ON) position, but the safety switch is in STOP (lock) position.
3. In the I (ON) position, but you are not seated.

**KNOW YOUR FORKLIFT TRUCK**

**FC Model**

**Emergency stop button**

Use this button:

1. When you have to stop mast and attachments actions in an emergency.
2. When you get off the truck, for safety.

**How to use**

– To stop (lock) lift, tilt and attachment actions, push down on the button. The mast and attachments will not move even if the controls are moved.

– To operate (unlock these actions), turn the button clockwise.

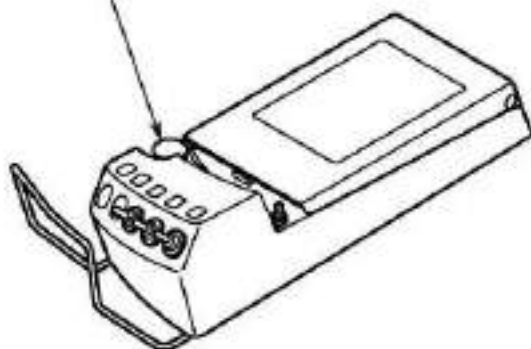
STOP (lock) position  
(The safety switch remains in the lock position when you lift your hand.)



OPERATE (unlock) position a



101388



104545

**KNOW YOUR FORKLIFT TRUCK**

◆ **Console Box (Instrument Panel)**

**1 ton models**

**Central Vehicle Monitoring System**

**NOTICE:** Should any indicator come on during operation, stop the truck and take corrective action.

**Lighting Switch**

Push

Light	Position		
	OFF	ON 1	ON 2
Head lights		☉	☉
Working light			☉

<https://www.forkliftpdfmanuals.com/>






103042  
**NOTICE:** The lights can be turned ON regardless of the key switch position. Be sure to turn OFF the lights when not used to prevent the batteries from discharging.

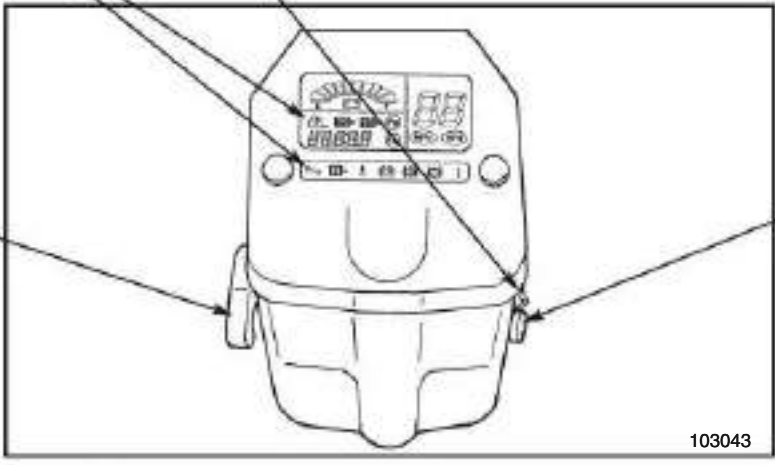
**Tilt Steering Column Lock/Unlock Lever**

Push down on the lever to unlock the steering column.  
 Adjust it to accommodate operators or to make it easier to get on and off the truck easier.

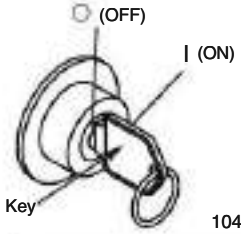


102621



Pull up on the lever to lock the steering column.



**Key Switch**



104395

	Removes power from all electrical circuits except horn. Remove the key from this position.
	Applies power to all electrical circuits. This is the position the key is in during normal operation.

**WARNING**

- Adjust the steering wheel before operation.
- Do not adjust the steering wheel while the truck is in motion. This could result in serious injury.

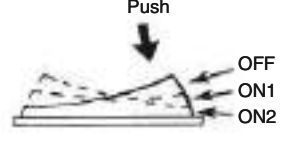
**KNOW YOUR FORKLIFT TRUCK**

**2 and 3 ton models**




**Central Vehicle Monitoring System**

**NOTICE:** Should any indicator come on during operation, stop the truck and take corrective action.

**Lighting Switch**




103042

Light	Position	OFF	ON 1	ON 2
Head lights				
Working light				

**NOTICE:** The lights can be turned ON regardless of the key switch position. Be sure to turn OFF the lights when not used to prevent the batteries from discharging.

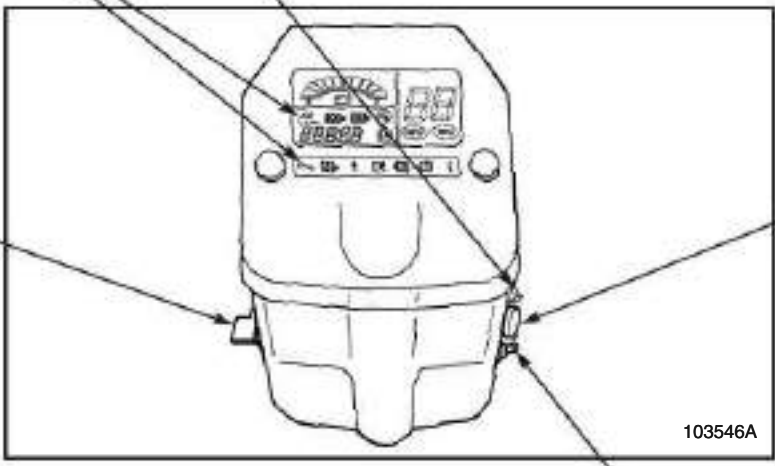
**Steering Tilt Lever**

Pull up on the lever to unlock the steering column.  
 Adjust it to accommodate operators or to make it easier to get on and off the truck easier.

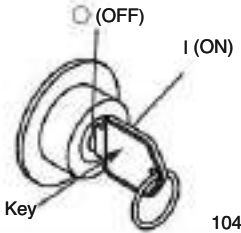


103434



Push down on the lever to lock the steering column.



**Key Switch**



104395

	Removes power from all electrical circuits except horn. Remove the key from this position.
	Applies power to all electrical circuits. This is the position the key is in during normal operation.

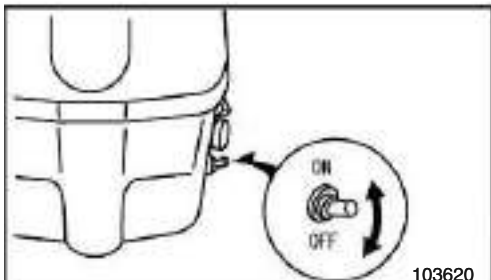
**WARNING**

- Adjust the steering wheel before operation.
- Do not adjust the steering wheel while the truck is in motion. This could result in serious injury.

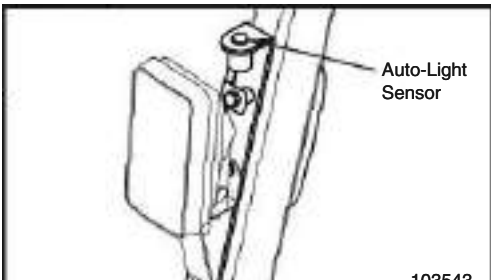
**Auto-Light Switch for PAC**

**KNOW YOUR FORKLIFT TRUCK**

**◆ Auto-Light Switch for PAC**



- 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.
- <https://www.forkliftpdfmanuals.com/>  
 The sensitivity of the light sensor is adjustable.  
 For this adjustment, contact your Mitsubishi



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

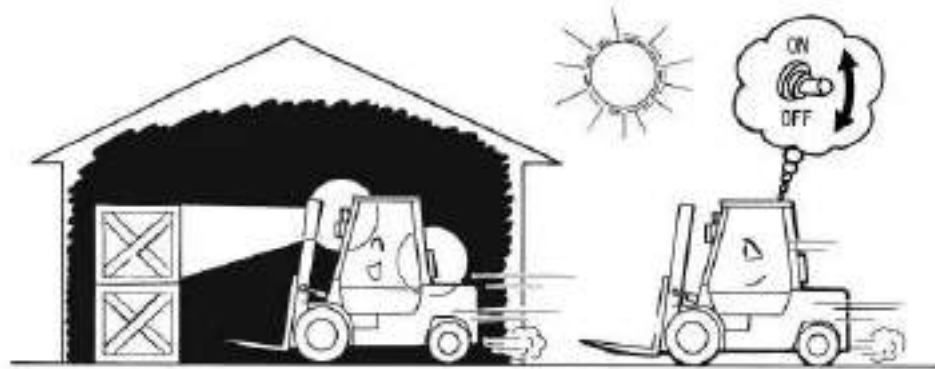
**CAUTION**

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:

Working area	Dark			Light	
	Light switch position	OFF	1	2	OFF
Working lights	☒	☒	☒		
Head lights	☒	☒	☒		

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



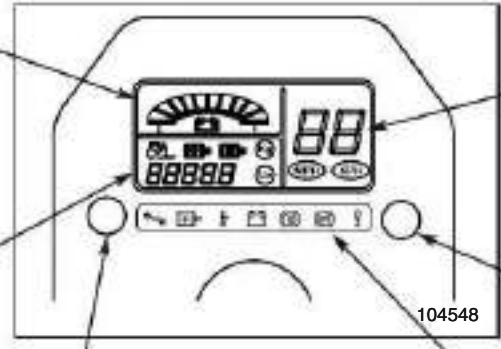
103548A

**KNOW YOUR FORKLIFT TRUCK**

**◆ Central Vehicle Monitoring System**

**Battery Discharge Indicator (BDI)**  
 The battery charge status is indicated by the ten element indicator.  
 When fully charged, all elements are lit through to the right side. As the battery discharges, the indicator elements decrease toward the left side.  
 When only one element is on, the remaining battery charge warning light in the LED section will flash.  
 When the indicator completely goes off, the remaining battery charge warning light will be continuously lit and the vehicle enters power reduction mode.

**Hour Meter, Time Display**  
 It normally displays the time.  
 When the key is set to the I (ON) position, the drive motor, pump motor, and vehicle service hours are indicated sequentially.  
 This meter is helpful to determine the next periodic inspection.



**Vehicle Speed and Error Code Display**  
 Displays the vehicle speed during regular driving and displays an error code in the event of a malfunction.  
  
 The vehicle speed display can be switched between KPH and MPH.

**Button 2**  
 Used to set the time.

**Button 1**  
 Used to switch the vehicle speed unit indicator (KPH or MPH) and to set the time.

**LED Section**  
 In the event of a malfunction, the appropriate warning lamp comes on.

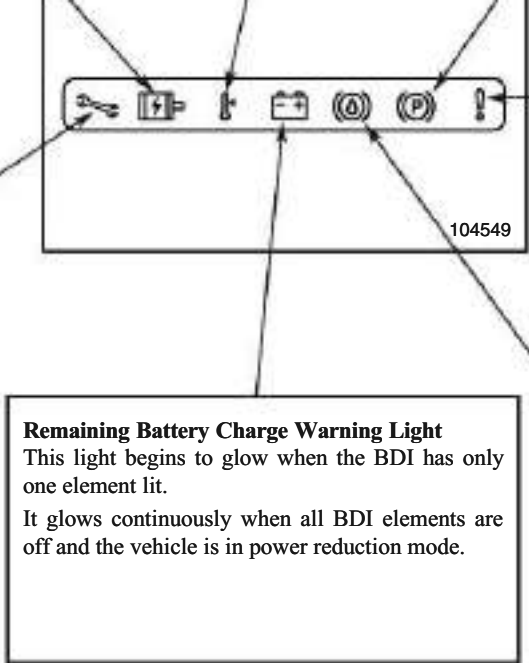
**KNOW YOUR FORKLIFT TRUCK**

**Motor Brush Wear Indicator (except PAC models)**  
 This indicator will turn on if the motor brushes become worn.  
 The vehicle enters power reduction mode.  
  
 Replace the brushes. For brush replacement, consult your Mitsubishi forklift truck dealer.

**Overheating Alert**  
 Glows when the drive motor, pump motor, drive inverter or pump inverter overheat.  
 The vehicle enters power reduction mode.

**Parking Brake Warning Light**  
 Glows when the parking brake is applied.  
 It goes off when the brake is released.

**Service Indicator**  
 This indicator will begin to glow 20 hours before the set service hours.  
 It glows constantly when the set service time occurs. Consult your Mitsubishi forklift truck dealer to find out how to set the service hours.



**Fault Detection Indicator**  
 Glows when the fault occurs in the truck circuits, and the error code appears on the error code display.

**Remaining Battery Charge Warning Light**  
 This light begins to glow when the BDI has only one element lit.  
 It glows continuously when all BDI elements are off and the vehicle is in power reduction mode.

**Brake Fluid Level Indicator**  
 Glows when the brake fluid level is low.  
 Add brake fluid.

**KNOW YOUR FORKLIFT TRUCK**

• **Error Code Display**  
 (\* means flickering.)

**E**

**Direction Lever is Not Placed in NEUTRAL**

- This error code is displayed if the key switch is turned I (ON) with the direction lever placed either in the forward or reverse position and/or the accelerator pedal is depressed.
- This error code is cleared by placing the lever in the neutral position and by releasing the accelerator pedal.

\*  **E**

**Operator Does Not Sit in the Operator's Seat**

- This error code is flickered if the key switch is turned I (ON) and the operator is not sitting properly.
- This error code is cleared by sitting in the operator's seat properly.

**E 4**  **E 5**

**Traction Motor Brush Wear (without PAC)**

- E4 is displayed when the right traction motor brush is worn and E5 is displayed when the left traction motor brush is worn. In either case, the vehicle enters power reduction mode. When this error code is displayed, consult and have this brush replaced by your Mitsubishi forklift truck dealer.

Traction motor means drive motor.

**E 6**

**Pump Motor Brush Wear (without PAC)**

- This code is displayed when the pump motor brush is worn and the vehicle enters power reduction mode. When this error code is displayed, consult and have this brush replaced by your Mitsubishi forklift truck dealer.

**H 1**  **H 2**  **H 3**  **H 4**  **H 5**

**Operating Either the Lift Control Lever, Tilt Control Lever, or Attachment Control Lever**

- H1 (lift control lever), H2 (tilt control lever), or H3, H4, H5 (attachment control lever) is displayed if the key switch is turned to the I (ON) position when each lever is not in the neutral position.
- This error code is cleared by placing the lever in neutral position.

\*  **L 0**

**Battery Consumption too much**

- This code is flickered when the battery consumption is too much with small capacity. The truck will not operate.
- Turn the key switch to the O (OFF) position temporarily and then turn it to the I (ON) position to clear the code.
- If this error code is displayed frequently, charge or replace the battery.

**5 5**

**Emergency Stop Button (FC model)**

- This code is displayed if the lift, tilt or attachment control lever is operated while the emergency stop button is in the STOP (lock) position.
- Turn the emergency stop button to the OPERATE (unlock) position, and then turn the key switch to the O (OFF) position temporarily and turn it to the I (ON) position to clear the code.

**NOTICE:** If errors other than those listed (L0 and 55) are displayed, turn the key switch to the O (OFF) position temporarily and turn it to the I (ON) position.  
 If the error display won't go off, consult your Mitsubishi forklift truck dealer.

**KNOW YOUR FORKLIFT TRUCK**

• **Power Reduction Mode**

- Traveling  
 The maximum vehicle speed is reduced.
- Lifting Chopper Model  
 The lift and attachment speeds are reduced. Nothing for tilt.
- Lifting Contactor Model  
 Will stop, after 1 second in motion. If the lever is released, 1 second in motion will be possible again.

• **Vehicle Speed Display**

**To switch between KPH and MPH**

1. Apply the parking brake.
  2. Put the direction lever in NEUTRAL.
  3. Turn the key to the I (ON) position.
  4. Push and hold button 1 for one to two seconds.
- NOTICE:** Display will show KPH and a 24-hour clock until it is changed. When MPH is selected, the clock will change to a 12-hour clock.

• **Time Display**

**To set the clock**

1. Apply the parking brake.
2. Put the direction lever in NEUTRAL.
3. Turn the key to the I (ON) position.
4. Push and hold button 1 until the minutes' display flashes.
5. Release button 1.
6. Adjust the minutes with button 2.
7. Push button 1 and release when the hours' display flashes.
8. Adjust the hour with button 2.
9. Push button 1 to lock in the time.



**WARNING**

Simultaneous operation of traveling, tilting and lifting is prohibited.



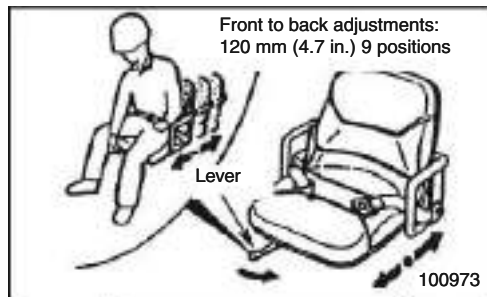
**KNOW YOUR FORKLIFT TRUCK**

**◆ Operator's Seat**

- Adjustment

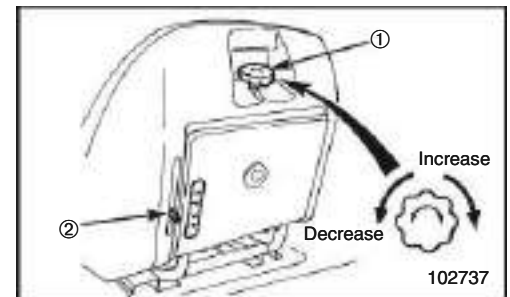


Adjust the seat before starting the forklift truck. After adjusting, jiggle the seat to make sure it is properly locked. DO NOT adjust the seat while the truck is in motion.



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

- 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 to the right increases the gauge indication, and turning it to the left decreases the gauge indication.

**⚠ WARNING**

Your forklift truck comes equipped with an MCF 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 and operator presence switch.

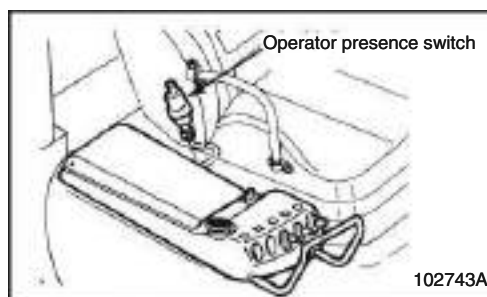
**KNOW YOUR FORKLIFT TRUCK**

- Pocket for Operator's 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.

- Operator Presence Switch



This switch is built in the seat. You are unable to operate the truck unless you are seated.

**⚠ CAUTION**





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

1. Check the web wear at the buckle/latch area. The webbing must be closely examined to determine if there are any cuts, fraying or extreme wear in the webbing. Cuts, fraying, or excessive wear would indicate the need for replacement of the seat belt system.
2. Check buckle and latch for proper operation and to determine if latch plate is worn, deformed, or buckle is damaged or casing broken.
3. The retractor web storage device, is mounted on the seat. The retractor is the heart of the occupant restraint system and can be damaged if abused, even unintentionally. Check retractor web storage device operation to ensure that it locks properly and that it spools out and retracts webbing properly.
4. Hardware for seat belt mounting points should be evaluated for corrosion, all attachment points of system should be checked for tightness of bolts and nuts.
5. Check web in areas exposed to ultraviolet rays from the sun or extreme dust or dirt. If the original color of the web in these areas is extremely faded, the physical strength of this web may have deteriorated. If this condition exists replace the system.
6. Check seat belt switch operation.

## KNOW YOUR FORKLIFT TRUCK

### ◆ Fork Locking Pins

#### ⚠ 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, move the lever upward and reposition the forks. Spread the forks to fit the load.

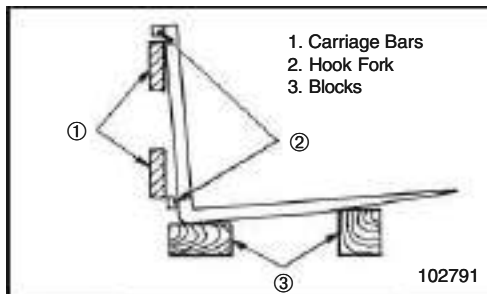
#### ⚠ CAUTION

- 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

- Operator restraint system
- Operator presence switch
- Overhead guard
- Load backrest extension
- Horn
- Warning decals
- Head lights
- Working light
- Console box (Instrument panel)

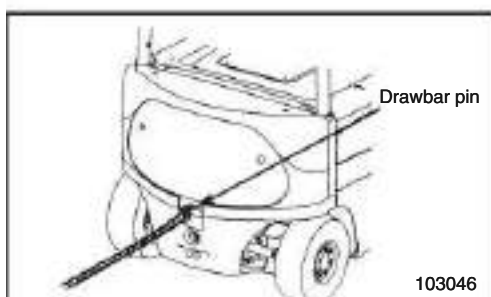
DO NOT use a forklift truck without equipment for risk reduction proper operating order.

### ◆ Additional Warning Device

- Back-up buzzer (opt)

## KNOW YOUR FORKLIFT TRUCK

### ◆ Drawbar Pin



Use the drawbar pin for:

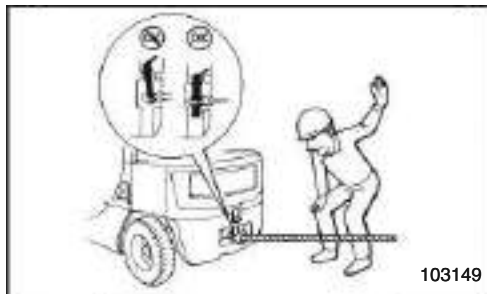
- Backing out of a drop off or ditch.
- Loading the truck on a hauling truck.

#### ⚠ WARNING

DO NOT use the drawbar pin for any towing work.

### 1 ton models

### 2 ton models

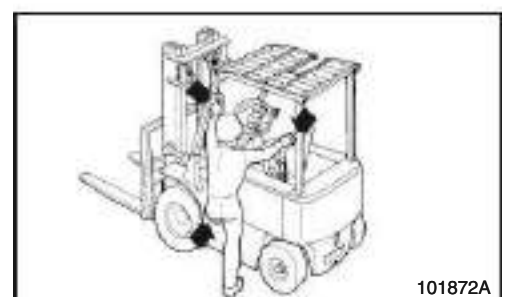


#### ⚠ CAUTION

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

### ◆ Assist Grip and Foot Step



Grab 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.

#### ⚠ WARNING

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



**CAUTION**

Precautions for Use of the Drawbar Pin

1. Make sure the shackle (or cable) is fixed to the pin 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.

54

starts to come out.

54

**KNOW YOUR FORKLIFT TRUCK**

55

◆ **Battery Cover**

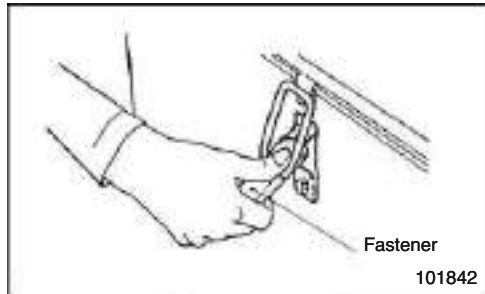


The cover opens wide exposing the full width battery compartment which provides instant accessibility to the batteries for daily inspection and servicing.

**Inspection Items**

- Battery electrolyte level and specific gravity check and adding of electrolyte
- Charging

**NOTICE:** Always keep the battery cover open during charging.

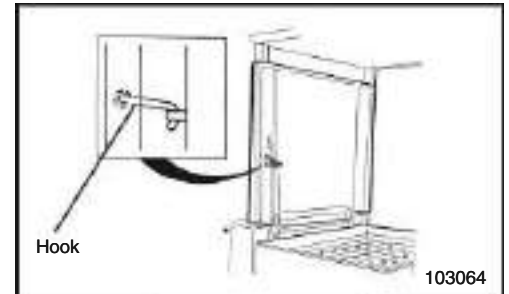


**To open**

1. Tilt the steering column fully forward.
2. Release the fastener.
3. Lift the front end of the cover and lock it to the overhead guard pillar by the hook.

**To close**

1. Unlock the cover from the overhead guard pillar by the hook.
2. Push down on the cover and fasten it with the fastener.
3. Return the steering column to its normal position.



When closing the battery cover, be careful not to pinch your hand.

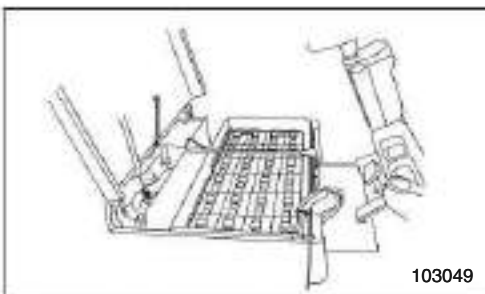
55

55

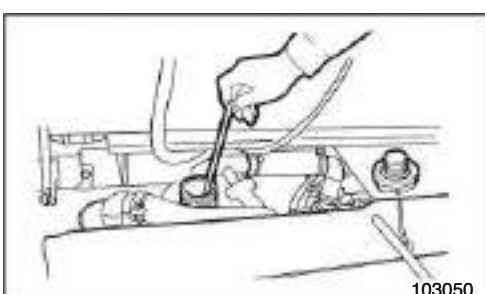
**KNOW YOUR FORKLIFT TRUCK**

56

◆ **Hydraulic Tank Oil Level/Filler Hole**



Open the battery cover.



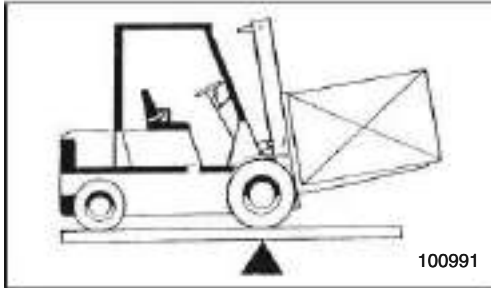
The filler is located in the rear side of the truck. To remove the cap from the filler, turn it counter-clockwise. Use the dipstick in the oil filler to check the oil level.

**CAUTION**

Be sure to use the recommended hydraulic oil when adding or changing the oil.

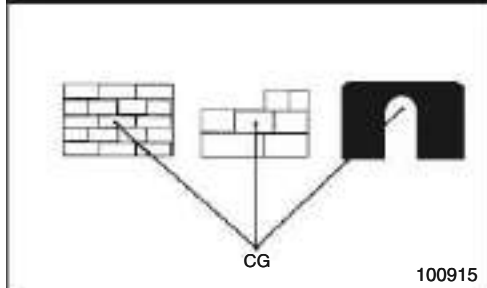
**HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE**

◆ Know What Forklift Truck Stability Is



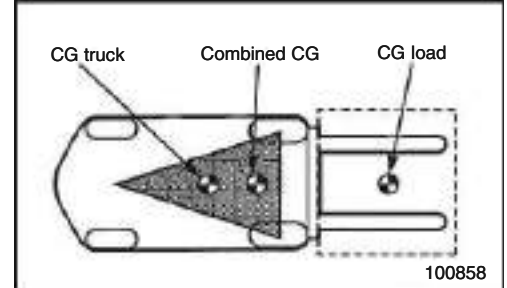
Counterbalanced forklift truck design is based on the balance of two weights on opposite sides of a fulcrum (the front axle). The load on the forks must be balanced by the weight of the forklift truck. The location of the center of gravity of both the truck and the load is also a factor. This basic principle 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)



Center of Gravity (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

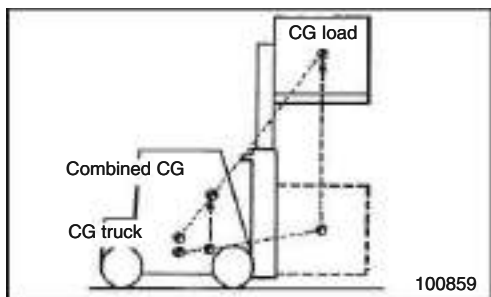


The stability of the forklift truck is determined by the location of its CG, or if the truck is loaded, the combined CG. The forklift truck has moving parts and, therefore, has a CG that moves. The CG moves forward or backward as the mast is tilted forward or backward. The CG moves up or down as the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

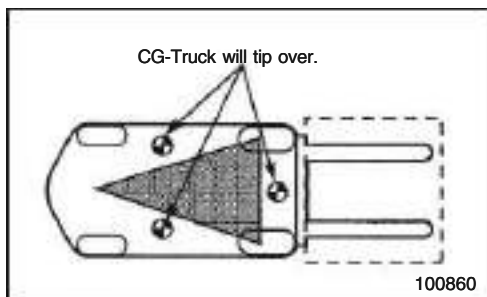
- The size, weight, shape and position of the load.
- The height of the lifted load.
- The amount of forward or backward tilt.
- Dynamic forces created when the forklift truck is accelerated, braked or turned.
- Condition and grade of surfaces on which the forklift truck is operated.

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

◆ Forklift Truck Stability Base

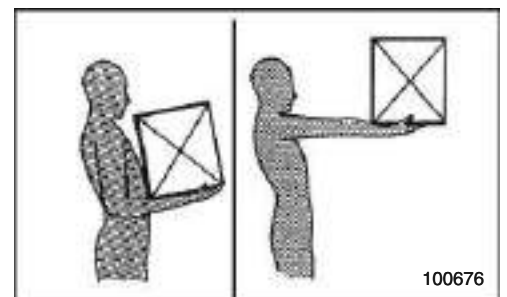


These factors must be considered when the forklift truck is unloaded, as well, because an empty forklift truck will tip over to the side more easily than a forklift truck carrying a load in the lowered position.



In order for the forklift truck to be stable (not tip over 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 tip over forward. If the CG moves outside of the line on either side of the stability base, the forklift truck will tip over to the side.

◆ Rated Capacity (Weight and Load Center)

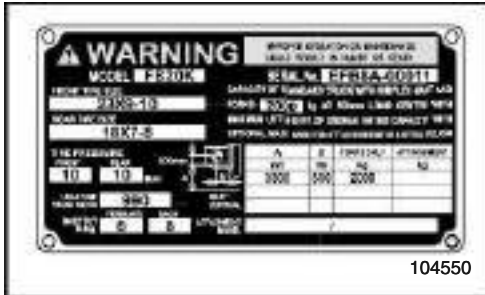


The rated capacity of the forklift truck is shown on the capacity chart. It is determined by the weight and load center. The load center is determined by the location of the CG of the load. The load center shown on the capacity chart is the horizontal distance from the front face of the forks, or the 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

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

◆ **Capacity Chart**



The capacity chart shown above is for a 2.0 ton model standard forklift truck whose rated capacity is 2000 kg [4000 pounds] at 500 mm [24 in.] load center. The chart specifies this forklift truck can lift up to 2000 kg [4000 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.

**⚠ WARNING**

- The capacity specified for the truck requires the tires authorized by the manufacturer.
- When the truck is equipped with a high mast, the capacity is reduced. Before attempting to lift any load, make sure the weight and load center combination is within the capacity of the high mast as shown on its capacity chart.
- When the truck is equipped with any special-purpose attachment, the capacity is varied by the weight of the attachment and the front overhang (horizontal distance from the center of the front axle to the vertical faces of the forks). Before attempting to lift any load, make sure the weight and load center combination is within the capacity of the attachment as shown on its capacity chart.

**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.



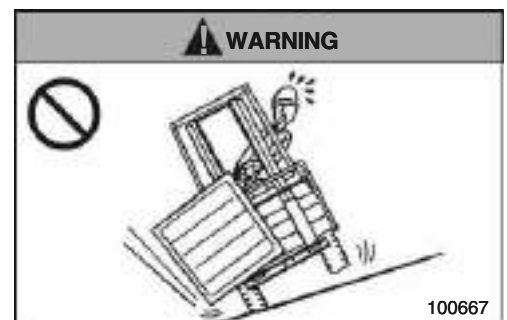
**DO avoid fast starts, turns and sudden stops!**  
These movements could cause the forklift truck to tip over.



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



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



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



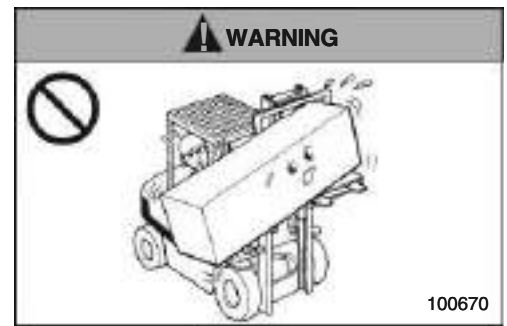
HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE



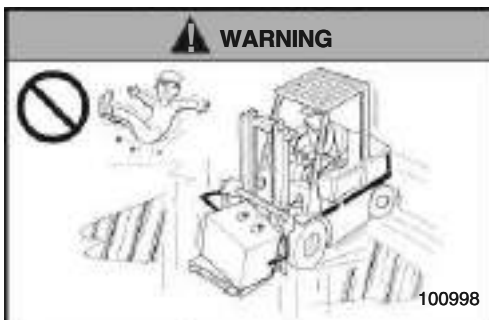
**DO NOT tilt elevated loads forward!**  
This could cause the forklift truck to tip over forward.



**DO NOT elevate tilted loads!**  
This could also cause the forklift truck to tip over.



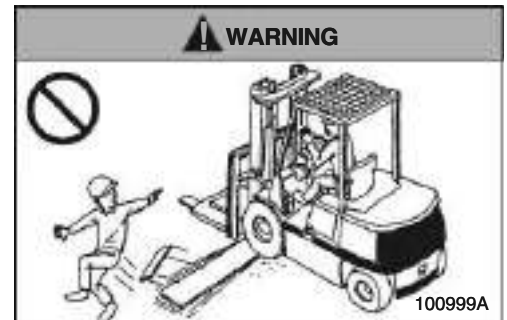
**DO NOT pick up an off-center load!**  
Such a load increases the possibility of a tipover to the side.



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

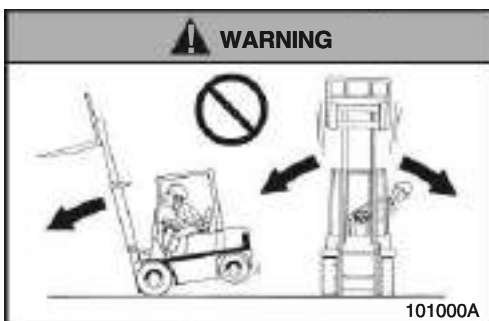


**DO NOT attempt to pick up or deposit a load unless the forklift truck is level!**



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

HOW TO AVOID A TIPOVER; HOW TO SURVIVE ONE



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



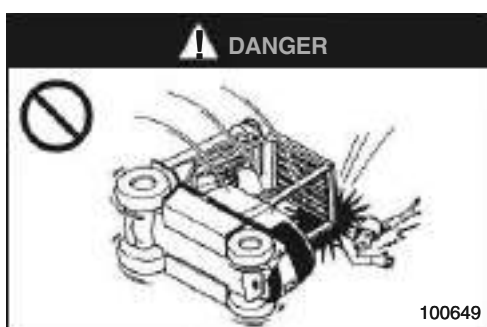
**DO NOT make fast or sharp turns with a loaded or unloaded truck!**



**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 tip over!**  
Stay in your seat to reduce the risk of serious injury



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

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

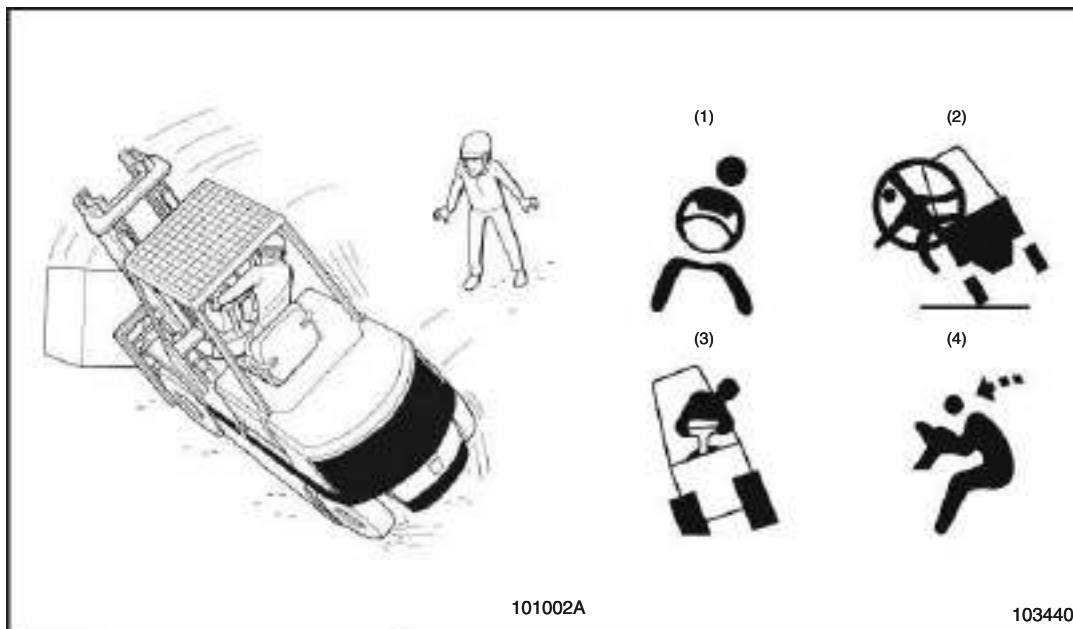
63

### ◆ How to Survive in a Tipover

#### ⚠ DANGER

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 tip over:

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



63

63

## ||||| 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 the break-in period for your truck. Read these precautionary instructions carefully.

#### ⚠ CAUTION

1. If the truck cannot be put to work immediately, or the operation is light and slow, break-in the truck under a simulated working condition.
2. Also, try **NOT** to make severe brake applications to allow the brake linings to seat against the brake disc.
3. Operate the truck under a lighter load and lower speeds than normal.
4. Change oils and relubricate at shorter intervals than normal.
5. Carefully check on and around the truck for loose bolts and nuts, retightening them, if needed.

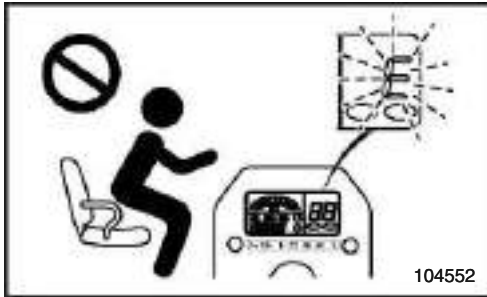
### ◆ Before Starting

#### ⚠ 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 (PRESTART) INSPECTION**.

#### ⚠ WARNING

**Avoid traveling in the rain to keep the electrical parts from being damaged.**  
**Make sure the ground is dry and travel after the rain stops.**

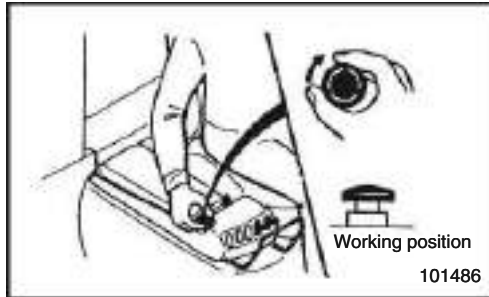


Your truck has an operator presence switch (a switch built into the seat). You cannot move the mast and attachments unless you are seated.

When the attachment control lever is operated, some of the attachments will move, even though the key switch or the seat switch are in the  (OFF) position, as the result of the handling load or of its own weight.

If you are not seated, the error code light flickers when the key switch is in the I (ON) position.

FC Model



Make sure the emergency stop button is in OPERATE (unlock) position (being released).

**NOTICE:** You are unable to move the mast and attachments if the emergency stop button is in the STOP (lock) position (pushed down).

OPERATION

• Adjust Seat Before Operation



DO NOT adjust the seat while the truck is in motion. This could cause serious injury.

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

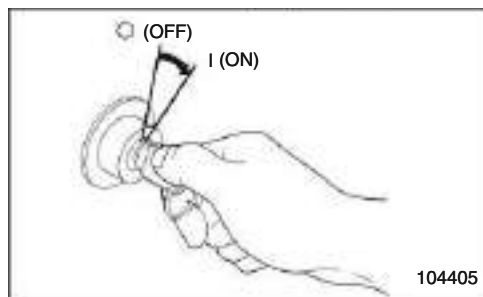
Remember, the belt will not restrain you in an accident if it is not fastened properly.

• Position Controls Correctly

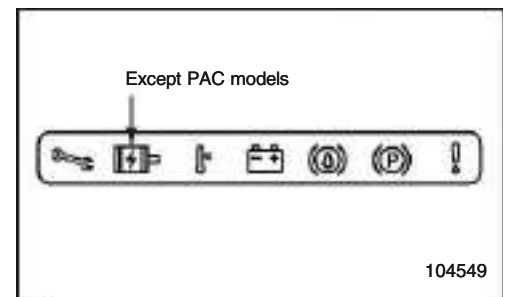


Pull the parking brake lever.  
The direction lever is in NEUTRAL position.


• Turn Key Switch to the I (ON) Position



• Check Central Vehicle Monitoring System

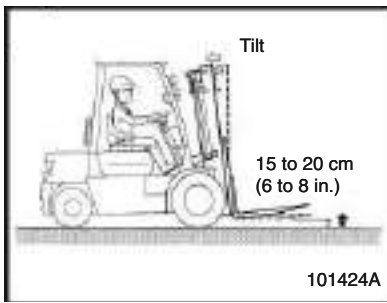


Do all indicators come on when the key switch is turned to the I (ON) position?

The indicators, except the parking brake warning light and seat belt warning light, will go out after a few seconds. Should they remain on, turn the key switch to the  (OFF) position, then turn it to the I (ON) position again to see if they go out. If they still remain on, consult your Mitsubishi forklift truck dealer.



◆ Before Operating Forklift Truck

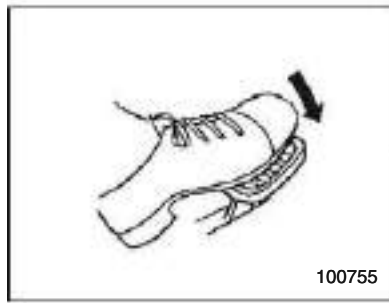


1. Operate the lift control lever to raise the forks to a safe traveling height of 15 to 20 cm (6 to 8 in.) from the floor.
2. Operate the tilt control lever to tilt the mast backward all the way.

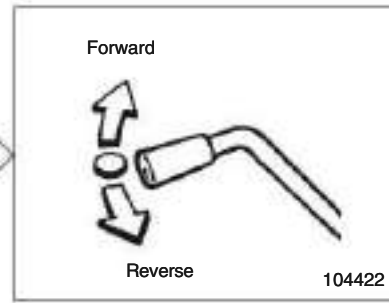


Look around and behind the truck—and sound the horn before moving.

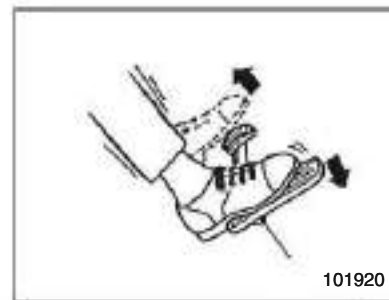
◆ Forklift Truck Operation



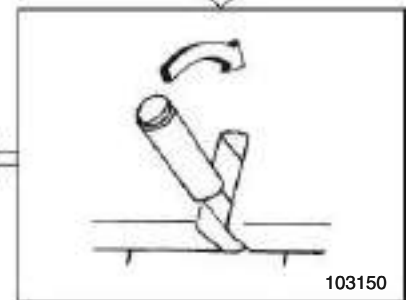
1. Depress the brake pedal.



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



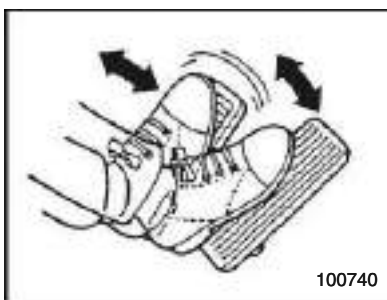
4. Gradually release the brake pedal while depressing the accelerator pedal.



3. Press the top button. Release the parking brake lever. (The parking brake warning light will go off.)

OPERATION

• Changing Speed

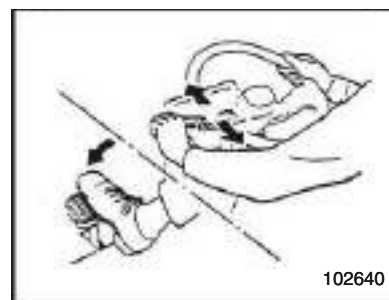


Use the accelerator pedal to increase travel speed. Use the brake pedal to slow down.



NEVER move the direction lever to the NEUTRAL position during traveling. This can reduce the braking force.

• Changing Direction



Depress the brake pedal to stop the truck, then move the direction lever. BE SURE to come to a complete stop when changing direction.

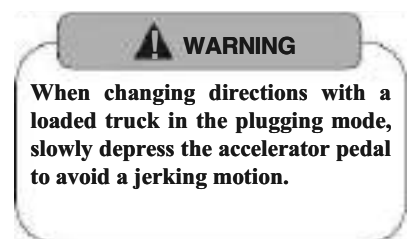


BE SURE to watch for people or hazards in the direction of travel.

• Plugging mode

This mode allows you to change directions on-the-go. If you move the direction lever to the desired direction with the accelerator pedal depressed, the truck will come to a stop, then start moving in the desired direction.

**NOTICE:** If the plugging mode is used often, the drive motor brushes will wear rapidly. Check the brushes more often.



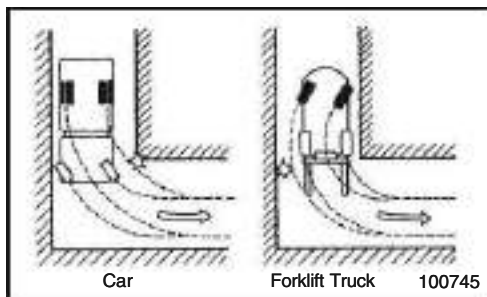
**When changing directions with a loaded truck in the plugging mode, slowly depress the accelerator pedal to avoid a jerking motion.**

• Operating Technique

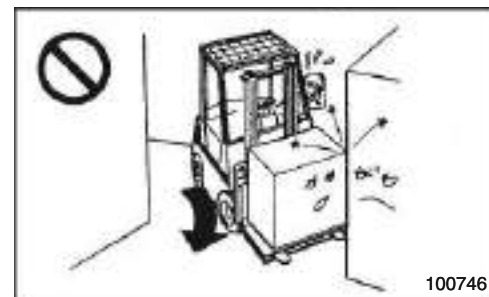


Turn the steering wheel with left hand. When handling loads, stop the truck to operate the tilt and left control levers with the right hand.

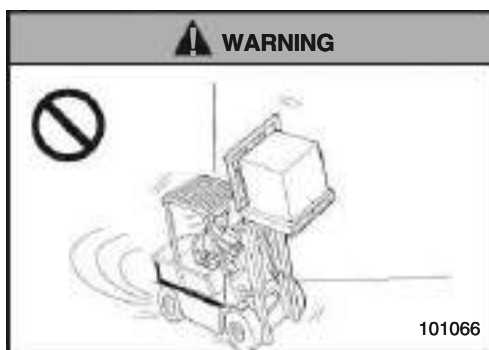
• Steering (Turning)



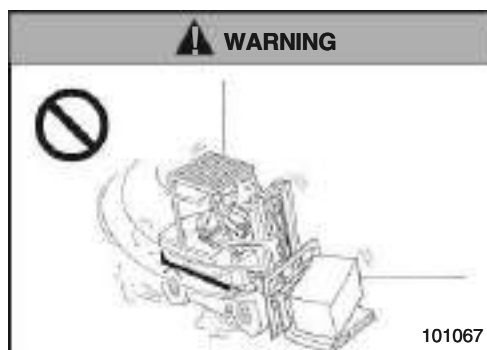
A forklift truck is different from most other vehicles because it is steered by the rear wheels. This causes an exaggerated tail swing.



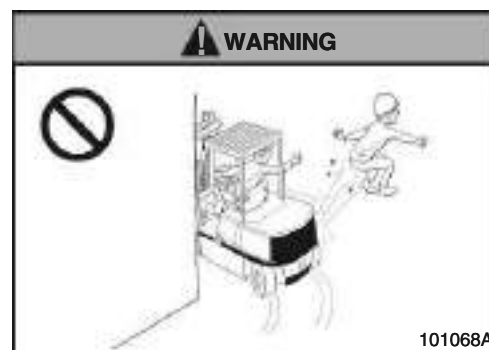
1. When working in close quarters, drive more slowly when making turns.
2. Start the turn as close to the inside corner as the tail swing will permit.



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



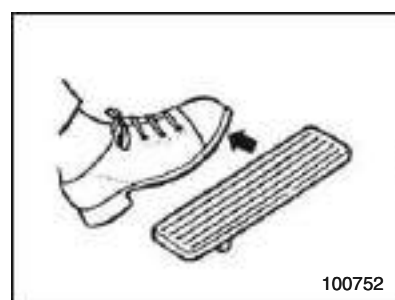
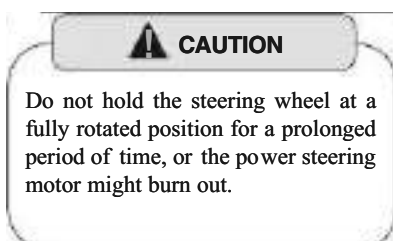
Turning at high speeds, with or without a load, can also cause a tipover.



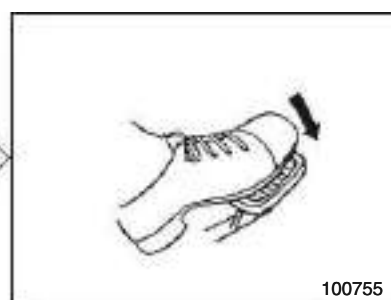
Be aware of tail swing distance. Be sure the tail swing area is clear, before turning, to avoid injury to pedestrians.

OPERATION

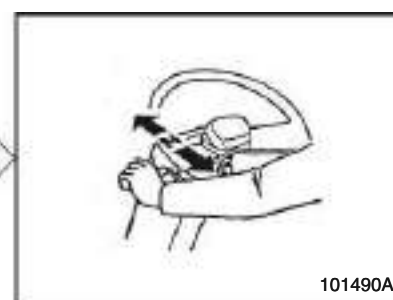
◆ Stopping Forklift Truck



1. Release the accelerator pedal.



2. Depress the brake pedal, and come to a complete stop. Pull the parking lever all the way.



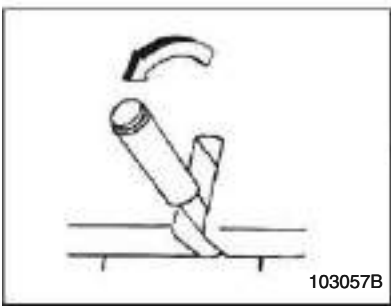
3. Place the direction lever in NEUTRAL position.



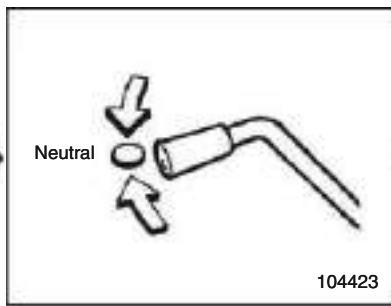
Avoid sudden stops. This can cause the load to fall off the forks or the truck to tip over.

OPERATION

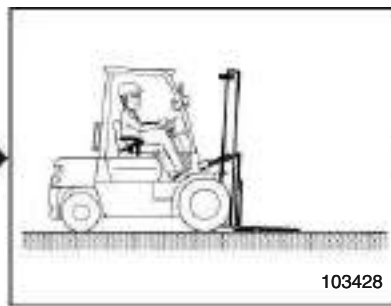
◆ Parking Forklift Truck (After stopping)



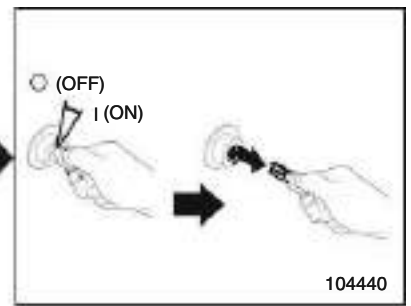
1. Pull the parking brake lever all the way.



2. Place the direction lever in the NEUTRAL position.



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



4. Turn the key switch back to the (OFF) position. When leaving the truck, BE SURE to remove the key.  
5. Block the wheels securely.  
6. 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**

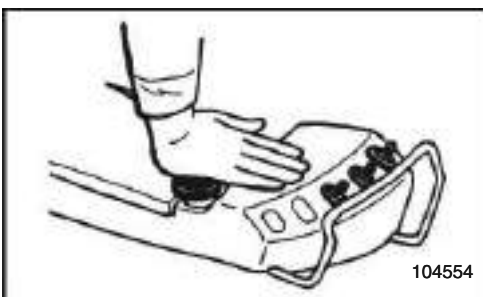
- Get off after the truck has come to a complete stop and the above procedure has been followed.
- NEVER jump off.

**OPERATION**

**◆ Leaving Forklift Truck (FC Model)**

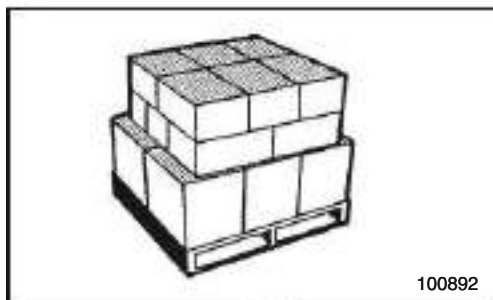


- Pull the parking brake lever.
- Place the direction lever in NEUTRAL position.
- Tilt the mast forward and lower the forks to the ground.
- Remove the key from the key switch.
- Push down on the emergency stop button not to move the mast and attachments.



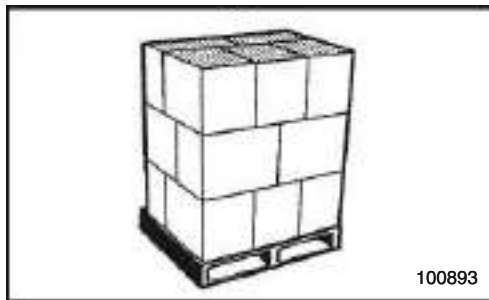


• **Stacking Loads Differing in Size**



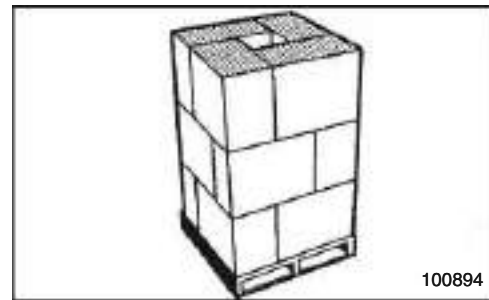
Be sure larger containers in a load are at the bottom of the stack and smaller ones at the top; or heavier containers at the bottom and lighter ones at the top.

• **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.

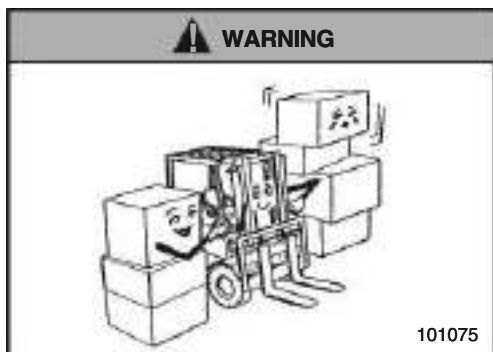
• **Stacking Large Identical Loads**



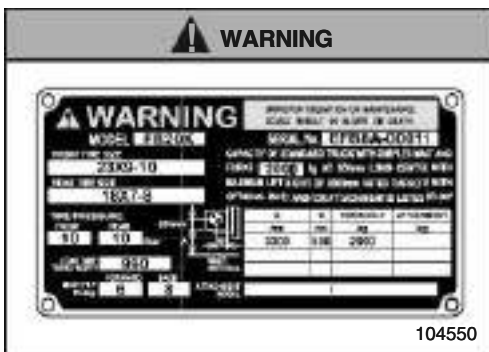
This is one of the most common patterns for stacking large identical containers. Better load stability is achieved by reversing the end-to-side direction on each succeeding layer.

**OPERATING TECHNIQUES**

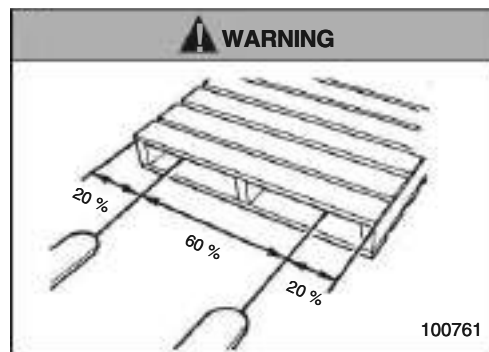
◆ **Handling Loads Safely**



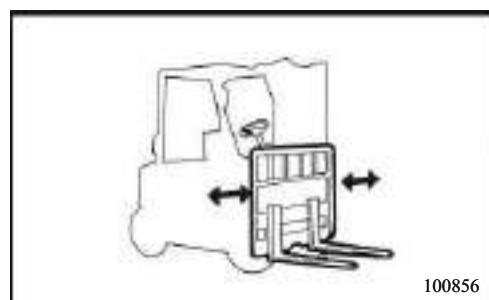
Handle **ONLY** stable loads. A load having unstable items can easily shift and fall on someone. **DO NOT** handle a load if any part of it is likely to fall, or if the pallet or skid is damaged. Neatly stack and band loose or unstable loads.



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 tip over forward.



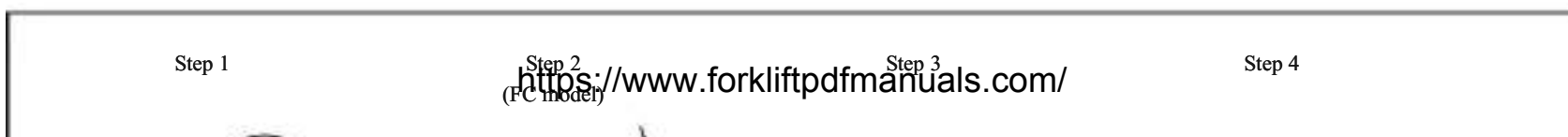
Set the forks as far apart as possible for maximum support of the load.

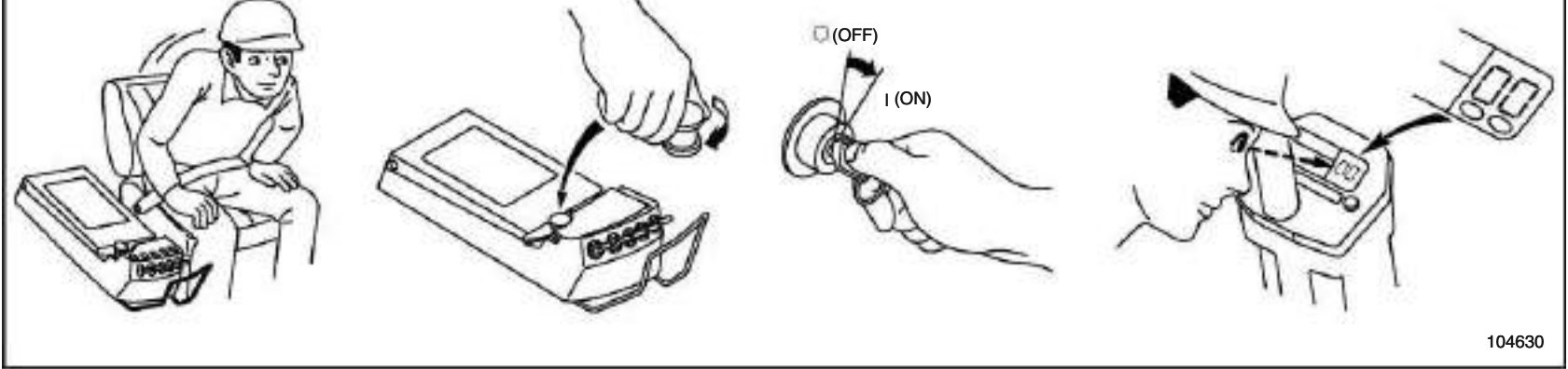


Not every load can be handled using only the forks. Some loads will require a special attachment.

**OPERATING TECHNIQUES**

◆ **Correct Operating Steps and Flickering/Flashing**





104630

Learn the correct operating steps 1 thru 4 before you operate the forklift truck.  
Be sure the error code light is OUT.

**Steps**

1. Sit and wear the seat belt securely.
2. Turn the emergency stop button clockwise to OPERATE (unlock) position.
3. Turn the key switch to the I (ON) position.
4. Make sure "00" is displayed.

**NOTICE:** See the topics, **Picking up the Load, Traveling With the Load and Unloading.**

**IMPORTANT:** Be sure to operate the lift, tilt and attachments controls and emergency stop button by your **RIGHT HAND.**

**NOTICE:** If the error code light flashes/flickers, see **Incorrect Operating Steps** in this section.

75

75

**OPERATING TECHNIQUES**

76

◆ **Incorrect Operating Steps**

• **Example 1**



104552

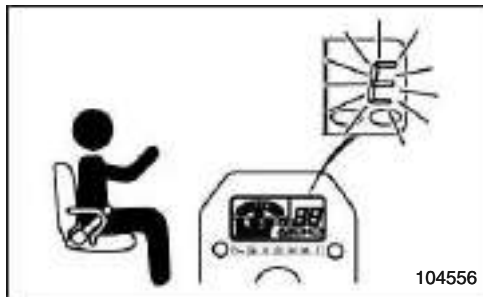
**DON'T –**

- This error code is flickered if the key switch is turned I (ON) and the operator is not sitting properly.

**What to DO –**

- This error code is cleared by properly sitting in the operator's seat.

• **Example 2**



104556

**DON'T –**

- This error code is displayed if the key switch is turned I (ON) with the direction lever placed either in the forward or reverse position and/or the accelerator pedal depressed.

**What to DO –**

- This error code is cleared by placing the lever in the neutral position, by properly sitting in the operator's seat and by releasing the accelerator pedal.

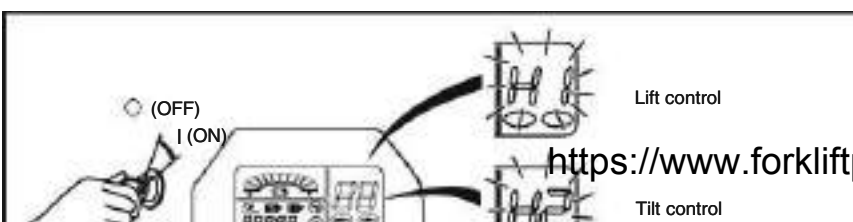
76

76

**OPERATING TECHNIQUES**

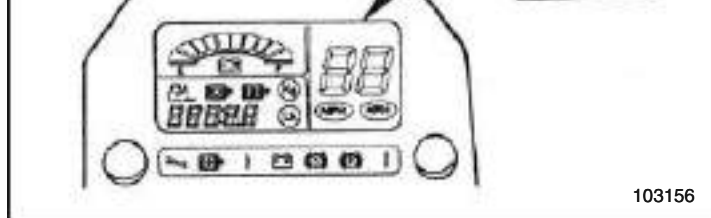
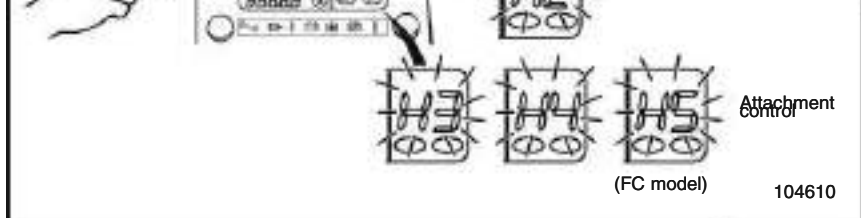
77

• **Example 3**



<https://www.forkliftpdfmanuals.com/>





**DON'T –**

- H1 (lift control lever), H2 (tilt control lever), or H3, H4, H5 (attachment control levers) is displayed if the key switch is turned to the I (ON) position when each lever is not in the neutral position or the seat switch is turned on after the lever is pulled.

**What to DO –**

- This error code is cleared by placing the lever in neutral position.
- Make sure “00” is displayed.

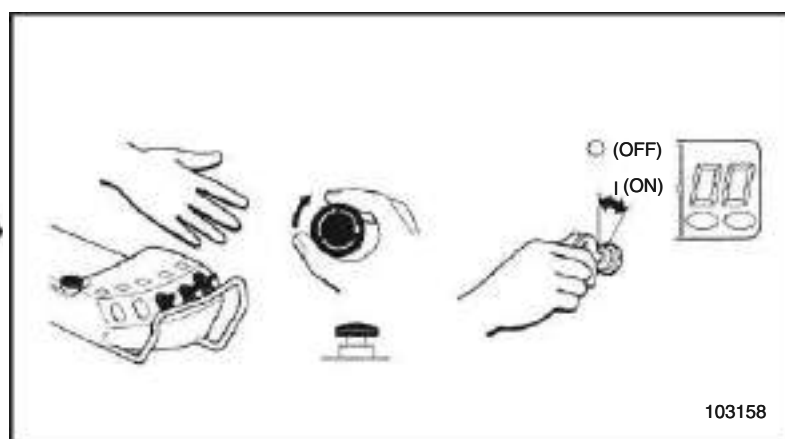
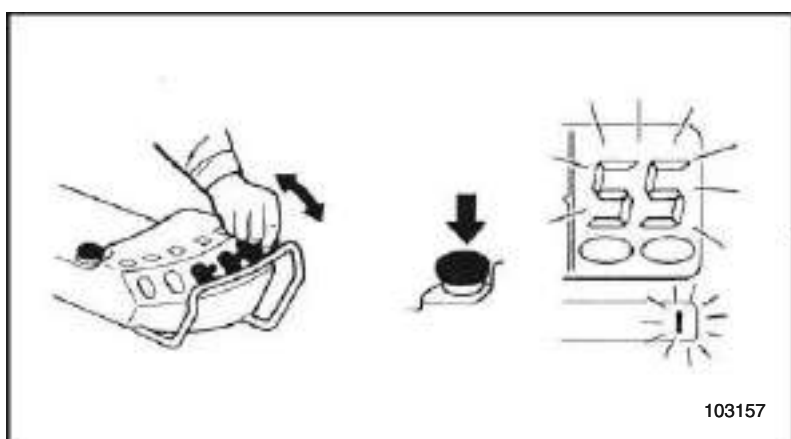
77

77

**OPERATING TECHNIQUES**

78

• **Example 4 (FC Model)**



**DON'T –**

- This code is displayed and the fault detection indicator will flash if the lift, tilt or attachment control lever is operated while the emergency stop button is in the STOP (lock) position.

**What to DO –**

1. Turn the emergency stop button to the OPERATE (unlock) position.
2. Turn the key switch to the (OFF) position temporarily and turn it to the (ON) position.
3. Make sure “00” is displayed and the indicator goes OUT.

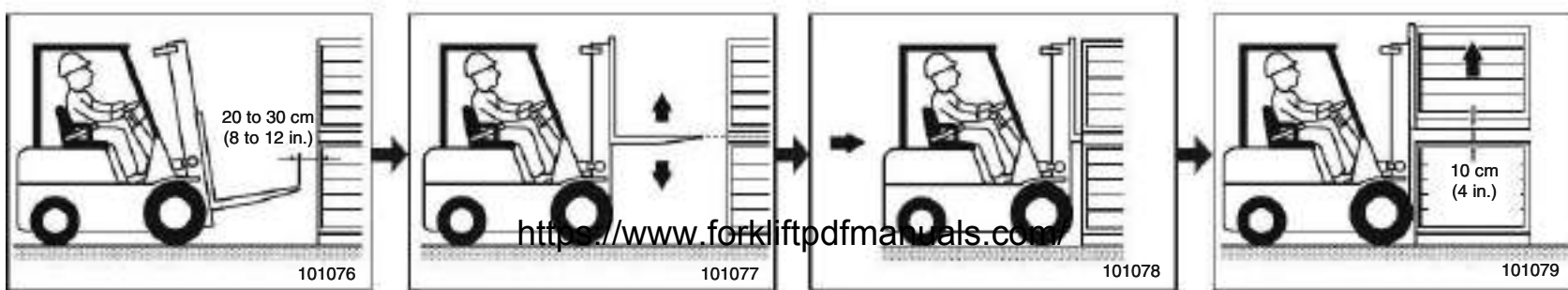
78

78

**OPERATING TECHNIQUES**

79

◆ **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

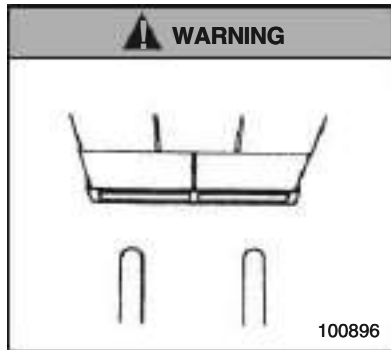
3. Slowly move the truck forward and slide the forks into the pallet until they are fully under the load.

Direction lever – NEUTRAL

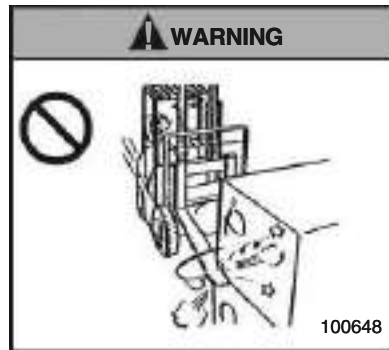
4. Carefully lift the load about 10 cm (4 in.) off the other material. Slowly return the lift control lever to the NEUTRAL position.



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



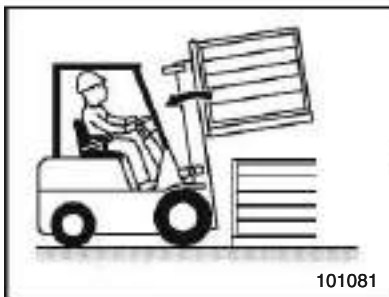
Center the weight of the load between the forks.



Avoid approaching the load at high speed.

## OPERATING TECHNIQUES

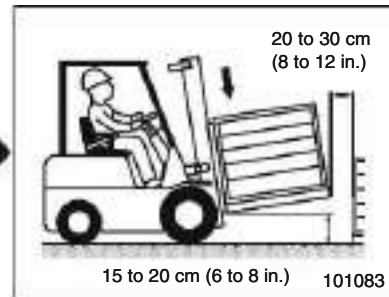
### ◆ Traveling with the Load



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



- Direction lever – REVERSE
2. Look backward.



3. Slowly move the truck to 20 to 30 cm (8 to 12 in.) away from the stack, then stop the truck.

Direction lever – NEUTRAL

4. Lower the load to a position 15 to 2 cm (6 to 8 in.) from the ground.



Direction lever – FORWARD

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



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.



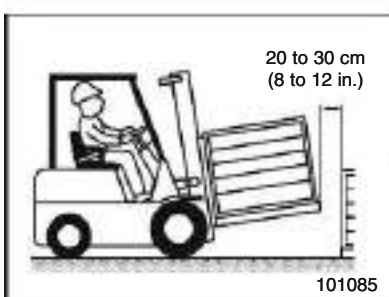
DON'T pick up an off-center load. Make sure the weight of the load is centered between the forks.



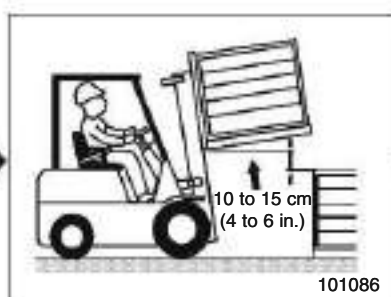
If the load blocks your view, or when you travel down a grade with the load, drive in reverse. Always look in the direction of travel.

## OPERATING TECHNIQUES

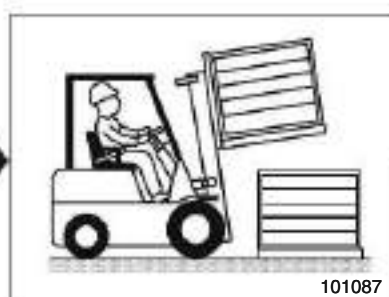
### ◆ Unloading



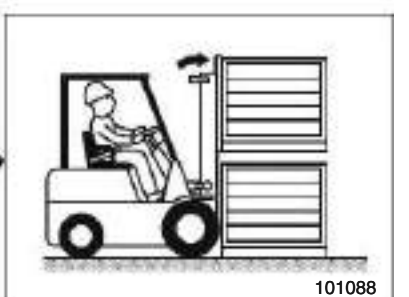
1. Stop the truck 20 to 30 cm (8 to 12 in.) short of the unloading zone.



- Direction lever – NEUTRAL
2. Lift the load 10 to 15 cm (4 to 6 in.)

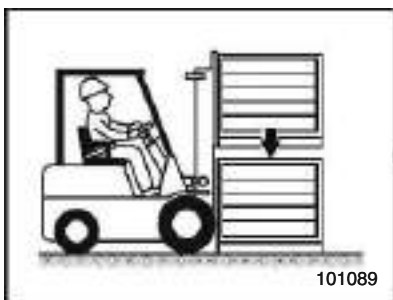


- Direction lever – FORWARD
3. Slowly move the truck forward to

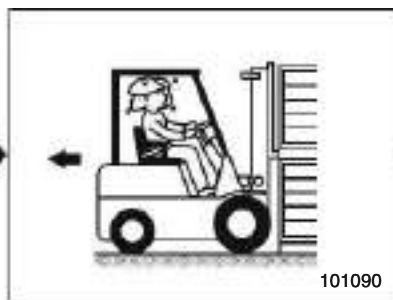


- Direction lever – NEUTRAL
4. Tilt the mast forward to the vertical

OPERATING TECHNIQUES

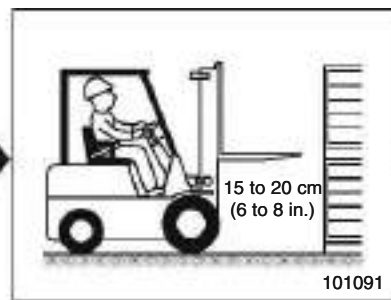


- 5. Carefully lower the load onto the stack.
- 6. Lower the forks just enough to disengage them.



Direction lever – REVERSE

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



- 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.



- 10. Tilt the mast back (Max. 7°).

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.



Be careful not to drag the forks.

**WARNING**

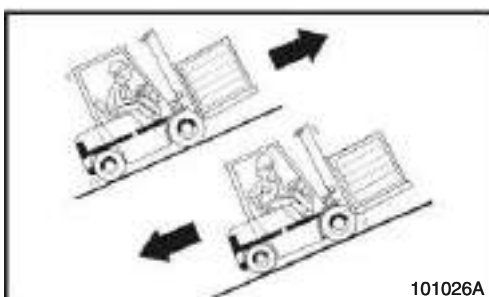
- NEVER travel with the mast tilted forward or with the load in the elevated position. This will increase the possibility of the forklift truck tipping over.
- NEVER tilt the mast with the load in the elevated position.
- NEVER leave the forklift truck with the load in the elevated position.

100781A

OPERATING TECHNIQUES

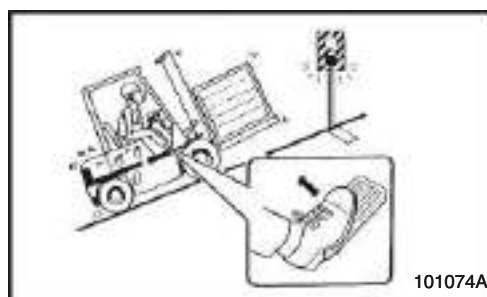
◆ Working on Grades

• Traveling on a Grade



When traveling up or down a grade with a loaded truck, keep the load upgrade to maintain the control.

• Stopping on a Grade



**CAUTION**

Before you start traveling up a steep grade, apply the brake or parking brake. Depress the accelerator pedal, then release the brake or parking brake.

**WARNING**

When you are stopped on a steep grade while

**WARNING**

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

**CAUTION**

When you have to stop the truck on a grade, **DO NOT** hold the truck by depressing the accelerator pedal.

When traveling up or down a steep grade:

1. **DO NOT** make any turn.
2. **DO NOT** travel across a grade.

When you are stopped on a steep grade while operating the FB20K to FB35K or FB20K PAC to FB35K PAC models with a rated load, depress the accelerator slightly, then gradually release the foot brake or parking brake to secure the climb. If the climbing power is not enough on starting, the truck could start to roll downhill backwards. When the truck starts rolling downhill, it will continue downhill even if you depress the accelerator all the way down. Apply the foot brake or parking brake to stop the truck.

**OPERATING TECHNIQUES**

**• Traveling Alarms**

Forklift trucks are used in a very wide variety of conditions. Noise levels, the number of forklift trucks on site, the operational area, the loads to be handled, the presence of pedestrians, lighting conditions and many more all vary greatly from one application to another. The manufacturer of the forklift truck has no control over the environment in which it will be deployed, or where it may be resold at a later time.

Only the user has first-hand knowledge of the deployment site conditions. It is the user who must make decisions regarding the use and configuration of the forklift truck, based on the specific application.

You should consider factors such as the capacity for people to become accustomed to hearing the alarm, the confusion of multiple alarms, increased noise levels, or the fact that the driver may depend too much on the alarm, which could cause unsafe conditions in the workplace. Pedestrians and other forklift truck operators in the workplace may become accustomed to hearing the alarm—paying little heed to them. This could lead to a situation where pedestrians or other forklift truck operators nearby do not react to a potential hazard.

Pedestrians and other forklift truck operators in the workplace must be aware of their surroundings and must take an active part in protecting their own safety and that of others. This includes not placing themselves in the path of a moving truck. The truck driver is responsible for the safe operation of the forklift truck, and must have a clear view of the path when traveling backwards or forwards.

The alarms must also be maintained to ensure they are kept in proper operational condition. Any operational damage or any attempts to disconnect or disable the alarms must be repaired.

The user is responsible for maintenance of such items.

**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 leak.
4. Disconnect the battery plug.
5. Clean the truck to keep it free of dirt and oil. This will make it easier to spot loose or defec-

**◆ 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.

**• 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.

To prevent rusting of the cylinder interior and rods, and deterioration of the seals, periodically operate each cylinder for lift, tilt and the attachment to full stroke.

<https://www.forkliftpdfmanuals.com/Battery>

Fully charge the batteries and then recharge

tive parts.

**CAUTION**

Do not expose controller units to rainwater. Take care not to sprinkle water over controller units when washing your machine.

**WARNING**

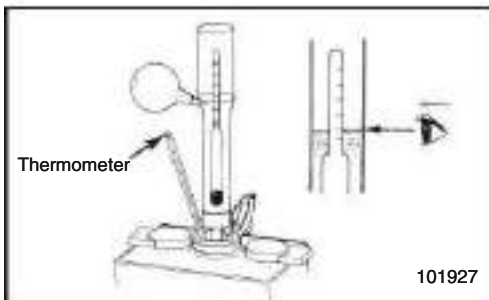
- NEVER splash water over the truck.
- Use pressure air or a vacuum cleaner to clean the truck.

- Fully charge the batteries and then recharge them for equalizing if the truck is left standing for more than three days.
- Charge the batteries for equalizing at least once a month if the truck is to be left standing for more than a month.
- Disconnect the battery plug.

**SPECIAL SITUATIONS**

**Care in Cold Weather**

**Battery**



- Maintain the specific gravity of electrolyte from 1.26 to 1.28 as corrected to 20°C (68°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, travel the forklift truck. 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.

**Care in Hot Weather**

**Battery**

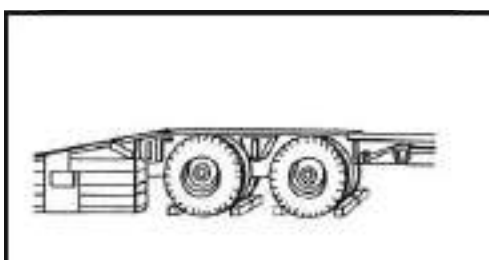
In hot, dry weather, check the battery cells for proper electrolyte level more often than in cold weather. Add distilled water whenever the level is low.

**TRANSPORTATION HINTS**

**Forklift Truck Shipping**

**WARNING**

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.



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 turn the steering wheel after the forklift truck has been secured on the truck bed or rail car. It may loosen tie downs.

**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 MCF.
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 reduce the risk of 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.



## TROUBLESHOOTING

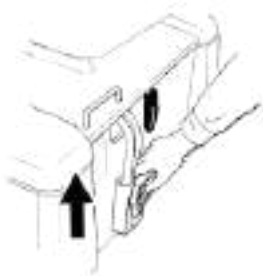
### ◆ If the Truck Shuts Down Suddenly

Park the truck in a safe area. Check the condition of the battery plug. If this plug is properly connected, check the main circuit fuses and, if they are burned out, replace them.

**CAUTION**

If the fuses are not burned out and you cannot locate the cause, consult your Mitsubishi forklift truck dealer.

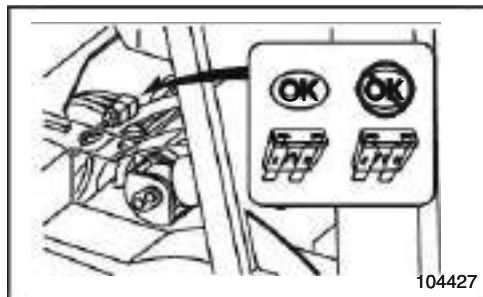
**WARNING**



104420

1. Turn the key switch to the ○ (OFF) position and disconnect the battery plug before replacing the fuses.

2. Remove the floor plate.



104427

Ampere	Circuit
15A	Electrical components
10A	Controller

3. Replace the fuses.

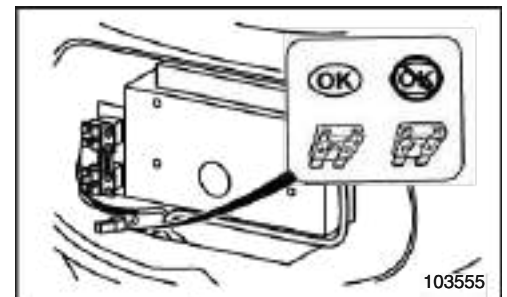
**NOTICE:** Use a fuse puller for fuse replacement.

**CAUTION**

Use the correct ampere fuses for replacement.

### ◆ If the Steering Motor or Cooling Fan Stops for PAC

1. Park the truck in a safe area.
2. Turn the key switch to the ○ (OFF) position and disconnect the battery plug.
3. Remove the rear cover from the counterweight.
4. Check the fuse.



103555

Ampere	Circuit
10A	DC/DC Converter

5. If it is burned out, replace it.

## TROUBLESHOOTING

### ◆ If Central Vehicle Monitoring System Does Not Come On

If the CVMS indicators do not come on when the key switch is turned to the I (ON) position, check the:

- Battery plug.
- Condition of batteries.
- Condition of fuses.

If these items are all OK, then consult your Mitsubishi forklift truck dealer.

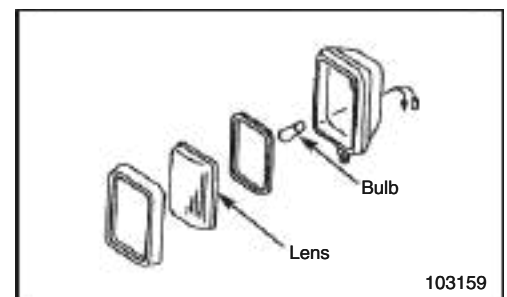
### ◆ If Light Bulbs Burn Out

Check condition of the fuses. If checking does not indicate the cause of the trouble, the bulbs are burned out.

**CAUTION**

Your truck operates on 48/80 volts. Be sure to use the correct bulbs for replacement.

### • Light Bulb Replacement



103159

1. Turn the key switch to the ○ (OFF) position.
2. Remove the lens from the light by loosening the screws.
3. Remove and replace the bulb.

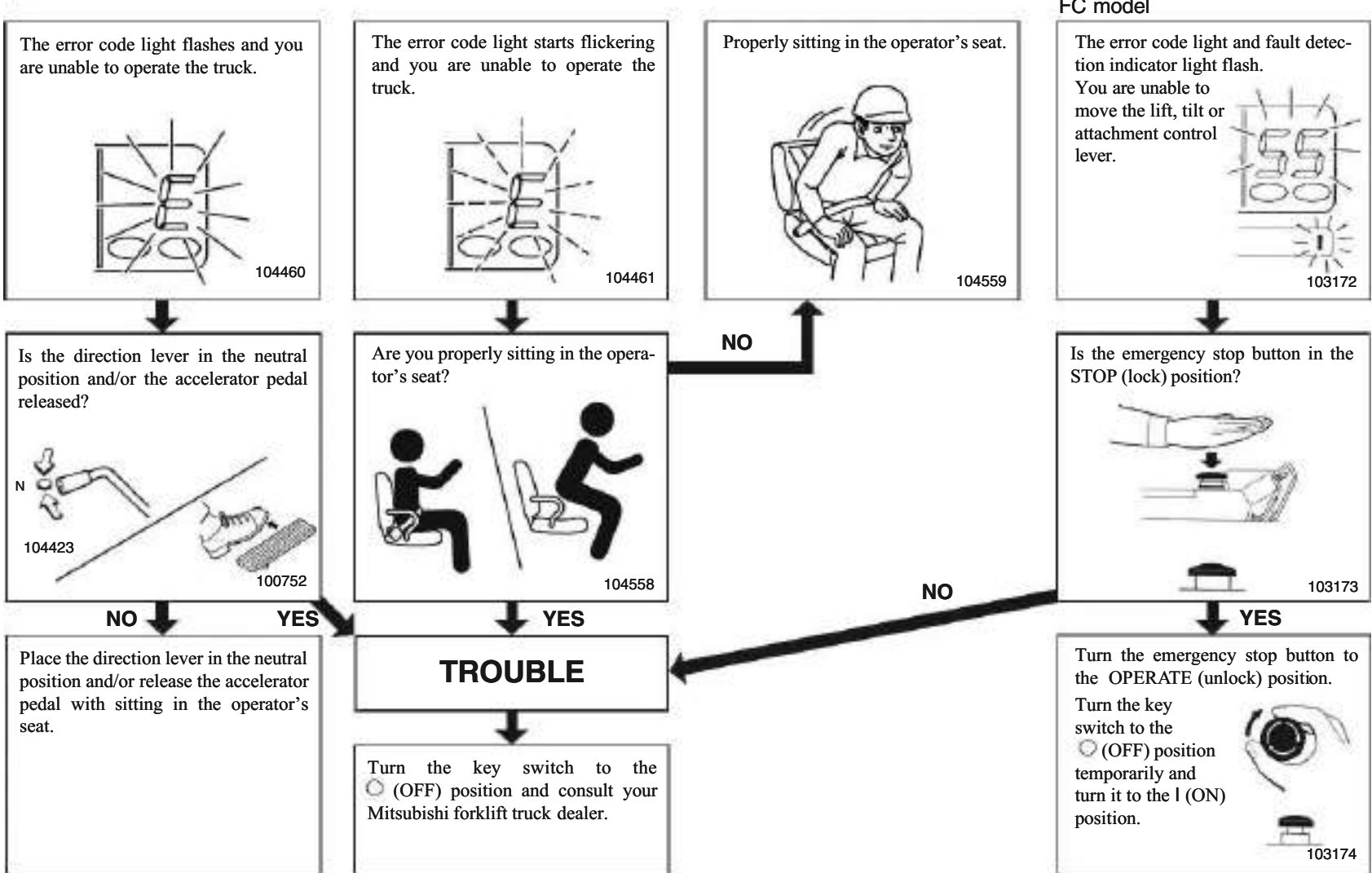
Model	Serial No.	Voltage
FB16K	All models	48V
FB18K		
FB20KC		
FB20K	EFB8A-00001-up	48V
	EFB8B-00001-up	80V
FB25K	EFB8A-50001-up	48V
	EFB8B-50001-up	80V
FB30K	All models	80V
FB35K		80V

FB20K PAC	All models	80V
FB25K PAC		
FB20K PAC		
FB25K PAC		

Description	Specification	
	48V models	80V models
Headlight	48V-45W	80V-55W
Working light	48V-45W	80V-55W

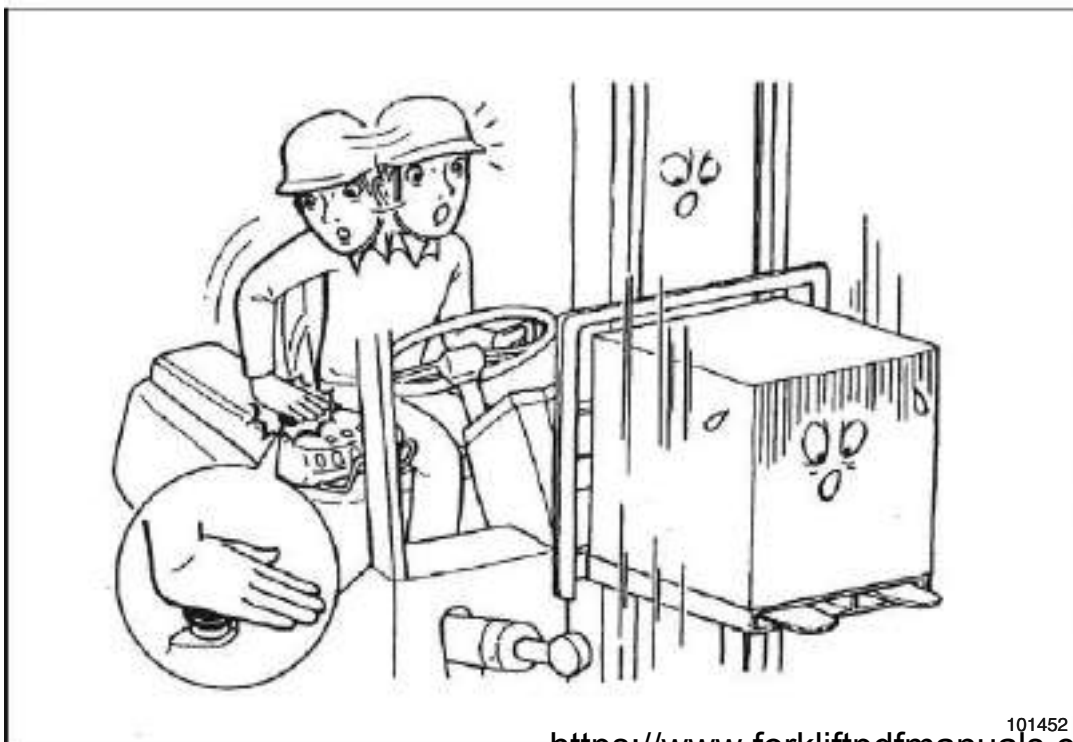
**TROUBLESHOOTING**

◆ **If Error Code Light Flickers or Flashes and the Forklift Truck Stop Moving**




**TROUBLESHOOTING**

◆ **The Mast and Attachments Malfunctions (FC model)**



**WARNING**

NEVER attempt to return the emergency stop button to OPERATE (unlock) position for operating the truck before an authorized mechanic arrives on the spot.

1. Push down on the emergency stop button as soon as possible.
2. Move the truck to a safe area, turn the key switch to the  (OFF) position, and consult your Mitsubishi forklift truck dealer.

**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 side frames of the truck with jack stands after jacking it up.

**WARNING**

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

**WARNING**

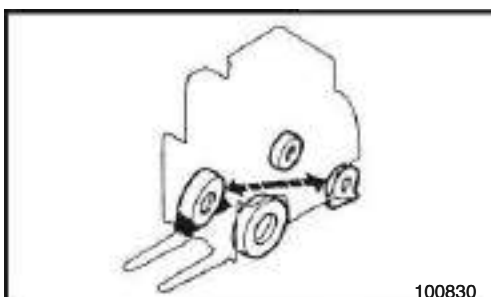
- Consult your Mitsubishi forklift truck dealer for proper tire changing procedure.
- Changing of tire and adjustment procedure must be made by a trained mechanic or dealer personnel.
- Perform all maintenance in the factory with proper equipment.

**TROUBLESHOOTING**

Change the tire if its tread groove depth is less than 5 mm (0.2 in.) or the mark shows the limit.

**NOTICE:** When changing tires, change them in sets, even if only one of the tires is damaged. If new and used tires are used on the same axle, tilting of the mast and rapid tire wear will result.

1. Park the truck on level ground with parking brake applied and forks lowered.

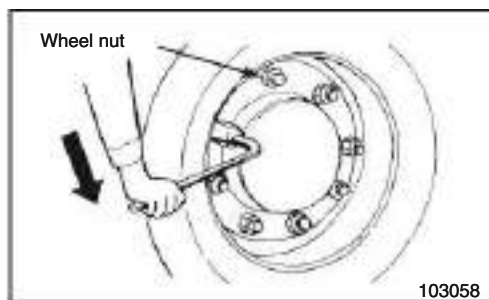


2. Prepare tools, jack, stands and wheel blocks.

**Jack Capacities**

1 ton models	3 tons (6700 lbf), minimum
2 and 3 ton models	5 tons (12000 lbf), minimum

3. Block the diagonally opposite wheel



**To Remove Wheel**

1. Loosen the wheel nuts about two rotations (8 nuts for 1 and 2 ton models and 6 nuts for 3 ton models).

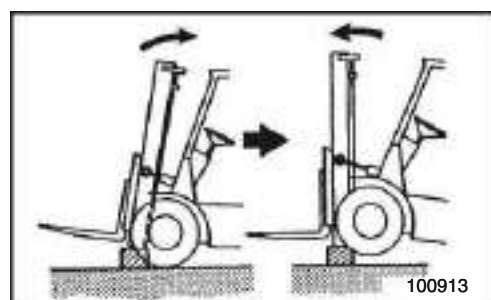
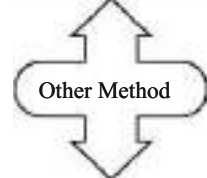
**NOTICE:** Only loosen the wheel nuts. DO NOT remove them.

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.

**To Raise Front Wheel**

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

Next, place the jack stand under the side frame to



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

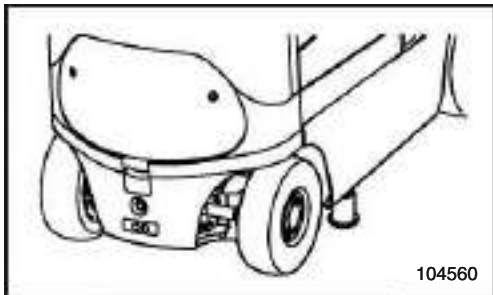
Next, place the jack stands under the both side



**TROUBLESHOOTING**

**To Raise Rear Wheel**

Block the front wheels.

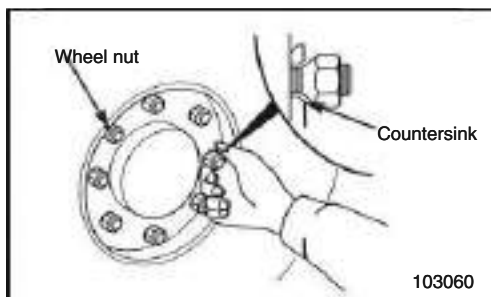


Position the jack under the counterweight and raise the rear wheel.  
Place the jack stand under the frame to support it.



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

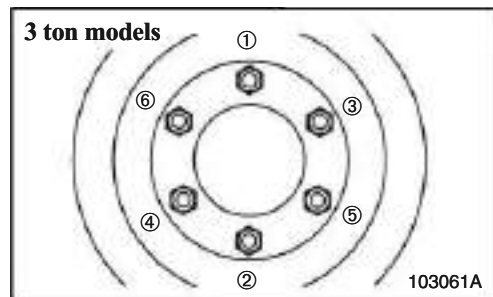
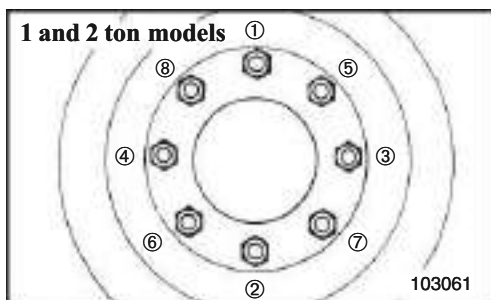
4. Remove the wheel nuts (loosened in step 1).
5. Firmly grip the wheel with both hands and remove it from the truck.



**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 countersinks in the rims.

**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**

Unit: N·m (kgf·m) [lbf·ft]

1 and 2 ton models	Front	156.9 ± 15.7 (16 ± 1.6)
	Rear	[115.7 ± 11.6]
3 ton models	Front	378 ± 37.8 (38.5 ± 3.9) [278 ± 28]
	Rear	156.9 ± 15.7 (16 ± 1.6) [115.7 ± 11.6]

3. Raise the truck and remove the jack stand from the side frame.
4. Lower the truck to the ground and remove the wheel blocks from the front wheels.
5. After tire replacement, drive the truck for a while and check the wheel nuts for tightness.

**TROUBLESHOOTING**

**◆ Error Codes and Explanations**

Error code with ( ) means flickering.

Contact your Mitsubishi forklift truck dealer when the error code is displayed.

**FB16K, FB18K, FB20KC, FB20K, FB25K, FB30K, FB35K**

Error code	Explanation	Error code	Explanation	Error code	Explanation
E0	Traction Motor Overheating	40	Line Contactor Fault	E	Direction Lever / Accelerator Faulty Setting
E2	Pump Motor Overheating	49	Pump Motor Circuit Open	(E)	Seat Switch Faulty Setting
E3	Traction Controller, Overheating	51	Accelerator Sensor Fault	H1	Lift Lever Faulty Setting
E4	Traction Motor Brush Wear	52	Vehicle Speed Sensor FR Fault	H2	Tilt Lever Faulty Setting
E6	Pump Motor Brush Wear	53	Vehicle Speed Sensor RE Fault	H3	Attach1 Lever Faulty Setting
E7	Hydraulic Controller Overheating	54	FC Lever Fault	H4	Attach2 Lever Faulty Setting
E8	Alarm Output Fault	55	FC Solenoid Fault	H5	Attach3 Lever Faulty Setting
10	Traction Motor Armature Fault	60	Display Communication Fault	(Lo)	Battery Consumption Too Much
11	Traction IGBT Breaking	61	Traction EPROM Abnormality		
12	Traction IGBT Short Circuit	62	Controller Communication Fault		
13	Traction IGBT Driver Fault	65	Logic Board Initialize Failure		
14	Traction Current Sensor Fault	66	Traction Controller Fault		
15	Traction Motor Armature Over-current	67	Hydraulic EPROM Abnormality		
16	Traction Motor Stall Timer	68	Battery Voltage Too Low		
17	Traction Motor Field Fault	69	Battery Voltage Too High		
18	Traction Motor Field Driver Fault	70	Hydraulic Controller Fault		
19	Traction Motor Field Over-current	72	Contacting Coil Fault		
30	Pump Motor Fault				
31	Pump IGBT Breaking				
32	Pump IGBT Short Circuit				
33	Pump IGBT Drive Fault				
34	Pump Motor Current Sensor Fault				



35	Pump Motor Over-current				
36	Traction Field Current Sensor Fault				

Traction Motor (Drive Motor)

**TROUBLESHOOTING**

**FB20K PAC, FB25K PAC, FB30K PAC, FB35K PAC**

Error code	Explanation	Error code	Explanation
E0	Traction Motor Overheating	60	Display Communication Fault
E2	Pump Motor Overheating	61	EPROM Fault
E3	Traction Module Overheating	65	Logic Card Initialize Failure
E7	Pump Module Overheating	66	Controller Fault
10	Traction Motor Fault	68	Battery Voltage Too Low
11	Traction Motor Driver U Fault	72	Contactora Coil Fault
12	Traction Motor Driver V Fault	73	Capacitor Charge Fault
13	Traction Motor Driver W Fault	E	Direction Lever / Accelerator Faulty Setting
14	Traction Motor Current Sensor Fault	(E)	Seat Switch Faulty Setting
15	Traction Motor Over-current	H1	Lift Lever Faulty Setting
16	Traction Stall Timer	H2	Tilt Lever Faulty Setting
30	Pump Motor Fault	H3	Attach1 Lever Faulty Setting
31	Pump Motor Driver U Fault	H4	Attach2 Lever Faulty Setting
32	Pump Motor Driver V Fault	H5	Attach3 Lever Faulty Setting
33	Pump Motor Driver W Fault	(Lo)	Battery Consumption Too Much
34	Pump Motor Current Sensor Fault		
35	Pump Motor Over-current		
40	Line Contactora Fault		
51	Accelerator Sensor Fault		
54	FC Lever Fault		
55	FC Solenoid Fault		
56	FC Solenoid Current Leak		
57	Pump Motor Speed Sensor Fault		
58	Traction Motor Speed Sensor Fault		

Traction Motor (Drive Motor)

||||| **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.

**⚠ WARNING**

- **Make sure the service area is safe.**
- **Park the truck on a level ground with the forks lowered, parking brake applied, direction lever in NEUTRAL, the battery disconnected and the wheels blocked.**
- **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 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.**

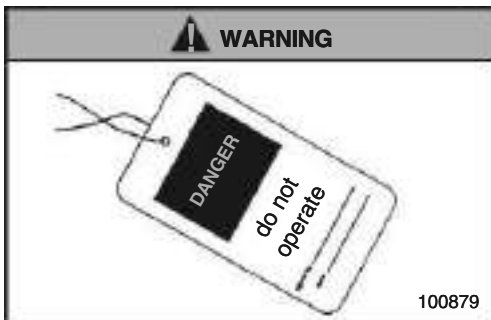
**Make sure all clamps, guards and heat shields are installed correctly to reduce the risk of vibration, rubbing against other parts, and excessive heat during operation.**

MAINTENANCE

◆ Inspection Precautions

**WARNING**

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



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 key switch, and contact your Mitsubishi forklift truck dealer.

**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.
- When inspecting the electrical system, be sure to disconnect the battery plug.

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
- Control levers in neutral
- Parking brake applied
- Wheels blocked

MAINTENANCE

◆ Maintenance Schedule

As the operator, you are responsible for the performance of the **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	One month after delivery of a new truck Every 500 service hours or 3 months, whichever comes first (PAC) Every 1000 service hours or 6 months, whichever comes first Every 2000 service hours or 1 year, whichever comes first
------------------------------------	---

• Daily (Pre-start) Inspection

Walk around inspection	1	Maintenance problems found the day before
	2	Oil or battery electrolyte leaks
	3	Tires
	4	Wheel nuts
	5	Lights
	6	Backrest extension
	7	Forks
	8	Assist grip
	9	Tilt cylinder socket bolts
	10	Overhead guard
	11	Brake fluid level
With seat tipped	12	Battery electrolyte level
	13	Battery restraint
	14	Hydraulic oil level
In seat check	15	Seat adjustment and seat belt
	16	Brake pedal
	17	Parking brake lever
	18	Horn
	19	Lights
Turn key to I (ON) position	20	Central vehicle monitoring system
	21	Battery discharge indicator
	22	Steering wheel
Operating check	23	Lift chains
	24	Mast
	25	Driving check (drive motor, steering, service brakes)

• Every 50 Service Hours or Weekly Whichever Comes First

Walk around inspection	26	Bolts, nuts
With seat tipped	27	Electrolyte specific gravity of battery

• One Month After Delivery of a New Truck

With seat tipped	28	Change of hydraulic tank return oil filter
------------------	----	--

◆ Daily (Pre-start) Inspection

1 Maintenance Problems Found the Day Before

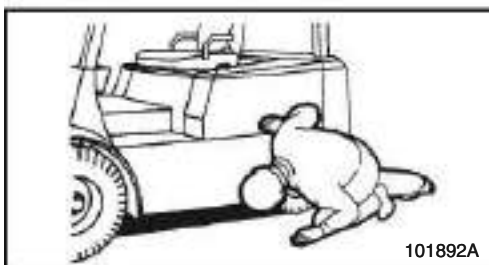


100678B

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

• Walk-Around Inspection

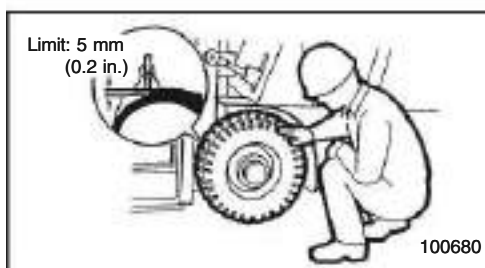
2 Oil or Battery Electrolyte Leaks



101892A

Check under and around the truck for oil or battery electrolyte leaks.

3 Tires



100680

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

4 Wheel Nuts



101396

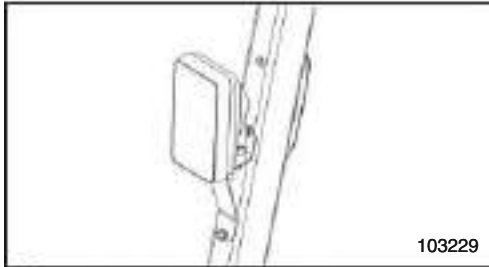
- Are the wheel nuts tightened properly?

**Tightening Torques for Wheel Nuts**

Unit: N·m (kgf·m) [lbf·ft]

1 and 2 ton models	Front	156.9 ± 15.7 (16 ± 1.6) [115.7 ± 11.6]
	Rear	
3 ton models	Front	378 ± 37.8 (38.5 ± 3.9) [278 ± 28]
	Rear	156.9 ± 15.7 (16 ± 1.6) [115.7 ± 11.6]

**5 Lights**



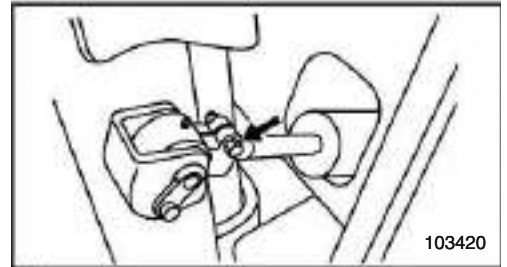
- Are all the lights in safe working condition?
- Are their lenses clean and not defective?

**7 Forks**



- Are the forks free of distortion, cracks and other defects?
- Are the stoppers properly engaged?

**9 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**

Unit: N·m (kgf·m) [lbf·ft]

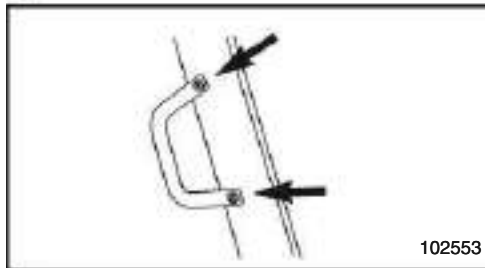
157 to 182 (16 to 18.6) [115.8 to 134.2]

**6 Backrest Extension**



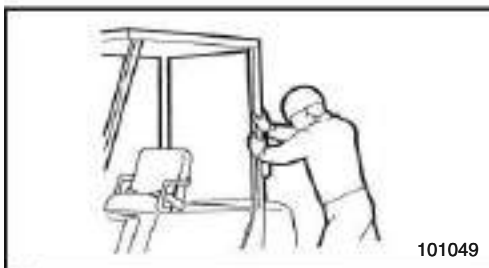
- Is the backrest extension free of distortion, cracks and other defects?  
Shake the backrest extension to check for excessive rattles.

**8 Assist Grip**



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

**10 Overhead Guard**



- Is the overhead guard free of distortion, cracks and other defects?  
Shake the overhead guard to check for loose bolts.

**11 Brake Fluid Level (Truck Level)**

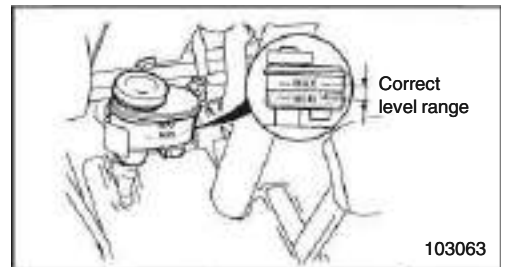
**WARNING**

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.

1. Check the brake fluid level at the reservoir.



2. Maintain the brake fluid level between the MAX and MIN marks on the reservoir.

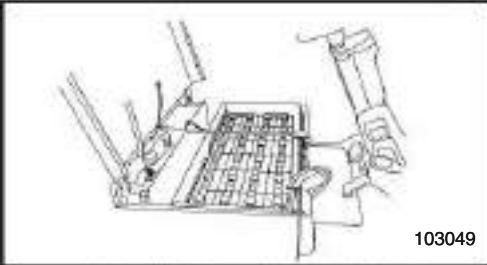
**Adding Brake Fluid**

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



MAINTENANCE

• With Seat Tipped



Open the battery cover.

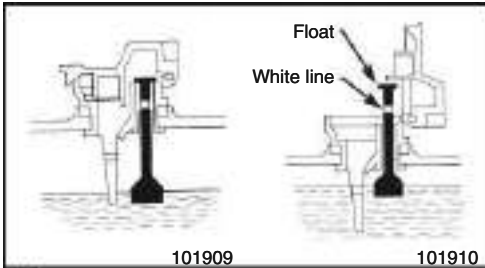
12 Battery Electrolyte Level

**WARNING**

Do not place metal objects or short across the battery terminals. Spark could ignite gases.

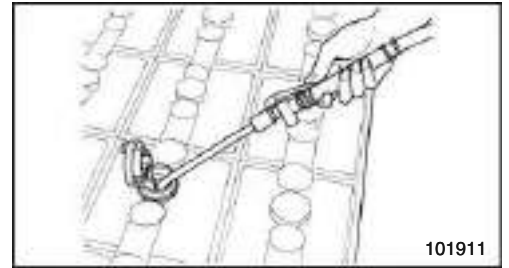
Is the electrolyte level maintained between the **UPPER LEVEL** and **LOWER LEVEL** specified by the battery manufacturer?

(GS battery illustration)



Open the vent cap and check to see if the white line (indicator) on the float (amber) is visible. If the indicator is not visible, the electrolyte level is low. Need to add distilled water.

Adding water



1. Clean the top of the battery and open vent caps and add distilled water to all cells.
2. Stop adding water just when the white indicator becomes visible.
3. Set the vent caps and wipe the top of the battery with a saturated cloth after filling.

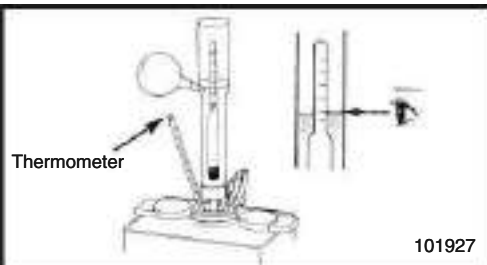
**CAUTION**

Observe the following precautions to prevent fire or explosion.

- Always maintain correct electrolyte level in all cells.
- Make sure vent caps are tight after adding distilled water.
- A battery which has been in service for a long period of time could lose electrolyte suddenly. Replace such a battery earlier than usual.

MAINTENANCE

Checking Specific Gravity (Weekly)



Check the batteries for the state of charge weekly. Test the specific gravity of the battery electrolyte with a hydrometer. Correct hydrometer reading is above 1.260 as corrected to 27°C (80°F) for the batteries of your lift trucks. In addition to the effect of the state of charge on the gravity, temperature also changes the gravity. This effect is due to the fact that, as a liquid cools, it becomes thicker and gains gravity and, as a liquid warms, it becomes thinner and loses gravity. Thus, temperature must be considered when a gravity reading is taken. A correction must be made if the temperature varies from the 20°C (68°F) standard. The minimum permissible gravity reading is 1.220 at 20°C (68°F).

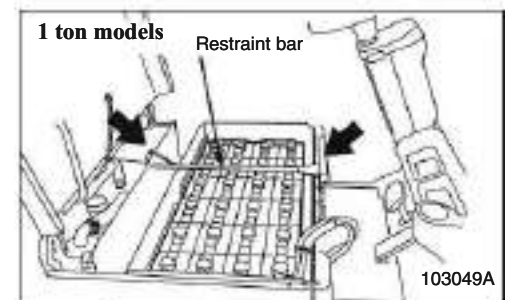
**NOTICE:** If the gravity reading is below 1.220, charge the battery until the gravity reading is 1.280.

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)

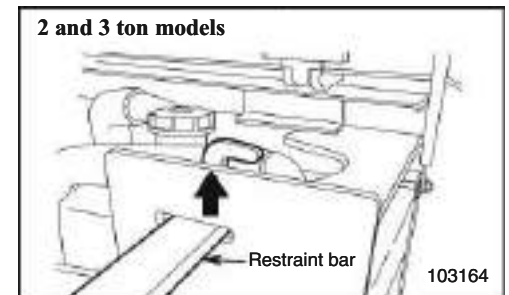
**CAUTION**

If distilled water has to be added more often, have your Mitsubishi forklift truck dealer check the battery.

13 Battery Restraint



- Check the battery restraint.
- Make sure the front end of the restraint bar is fixed to the frame. And also make sure the rear end of the restraint bar is fixed to the frame by the pin.



MAINTENANCE

## 14 Hydraulic Oil Level (Truck Level)

### WARNING

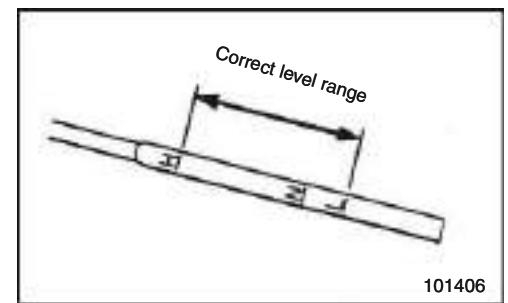
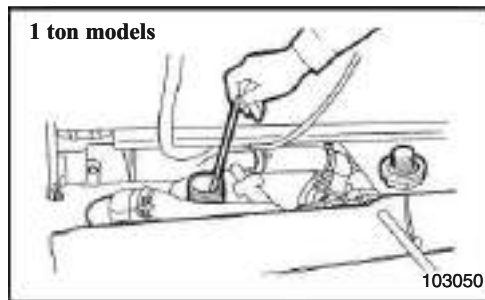
Hot oil and components could cause serious injury. Do not allow hot oil or components to contact your skin.

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

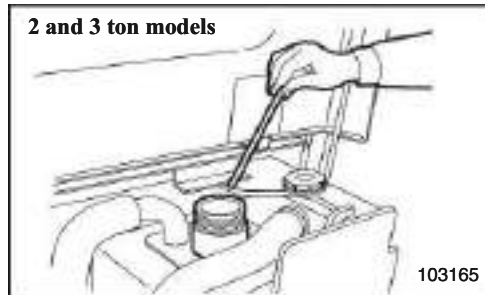
Remove the hydraulic tank filler cap slowly to relieve pressure.

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, parking brake applied, the direction lever in NEUTRAL, the battery disconnected and the wheels blocked.
3. Open the battery cover.
4. Remove the filler cap and dipstick.

5. Check the hydraulic oil level.



6. Maintain the correct level range.
7. Put the dipstick and filler cap back on.
8. Check for oil leaks.



106

106

## MAINTENANCE

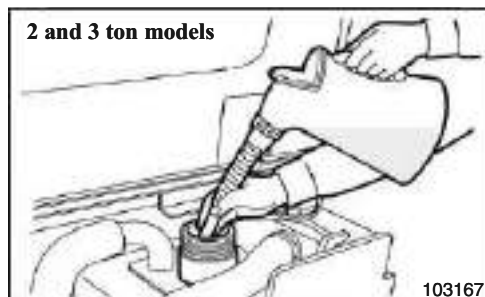
107

### Adding Hydraulic Oil

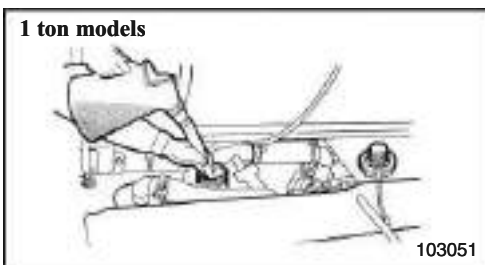
### CAUTION

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 filler cap and dipstick.
2. Add oil to the hydraulic tank.  
For **Hydraulic Oil**, see the topic, **Recommended Lubricant and Brake Fluid**.



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

107

107

## MAINTENANCE

108

- In Seat Check

## 15 Seat Adjustment and Seat Belt



101050

– Can you depress the pedals all the way?

**NOTICE:** For seat adjustment, see the topic, **Operator's Seat** section of this manual.



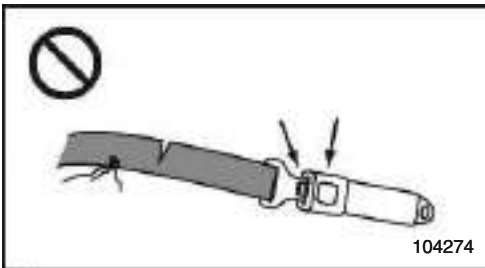
100700

– Is the pedal free-play correct?

**Correct Free-Play**

Unit: mm (in.)

1 ton models	3 to 9 (0.12 to 0.35)
2 ton models	4 to 11 (0.16 to 0.43)
3 ton models	3 to 9 (0.12 to 0.35)



104274

– Is the seat belt in safe condition?

Replace the belt assembly if the belt is torn, cut, or if the plate and/or buckle is defective.

Check the seat belt switch for operation.

**MAINTENANCE**

**17 Parking Brake Lever**



103057B

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

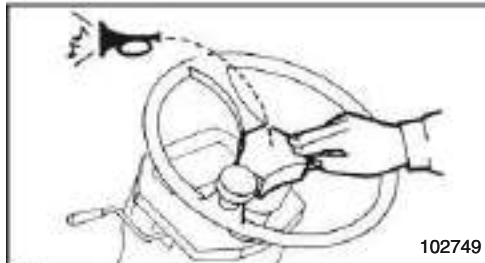
When the parking brake lever does not apply correctly, consult your Mitsubishi forklift truck dealer.

**Lever Operating Effort**

Unit: N·m (kgf·m) [lbf·ft]

245 to 294 (25 to 30) [55 to 66]

**18 Horn**



102749

– Does the horn sound properly when you push the switch?

**MAINTENANCE**

**19 Lights**



**• Turn Key to I (ON) Position**

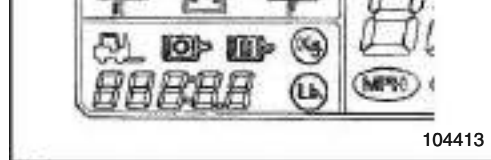


**21 Battery Discharge Indicator**



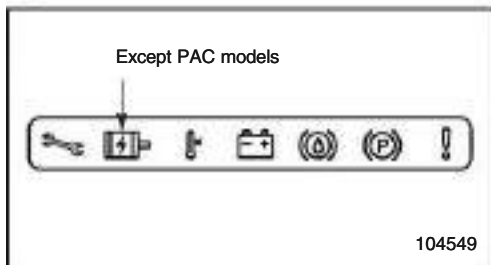


- Do working lights come ON properly when you push the light switch?



Check the battery charge.  
If the indicator elements decrease toward the left side, change the battery.

**20 Central Vehicle Monitoring System**



All action lights should light up for several seconds and then only the park brake light should remain on. If the action lights remain on, contact your Mitsubishi forklift truck dealer.

**22 Steering Wheel**

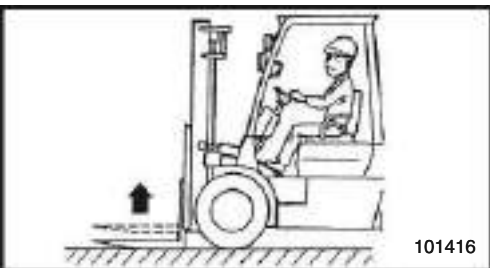


- Is the free-play 15 to 30 mm (0.6 to 1.2 in.) at the rim of the wheel?
- Is the wheel free from rattle?  
Check by shaking the wheel up and down.

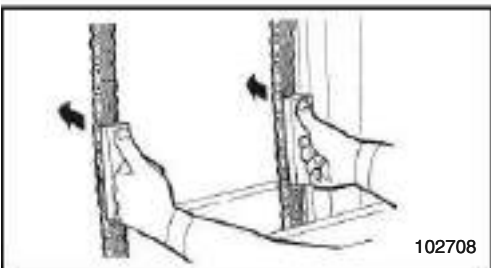
**MAINTENANCE**

**• Operating Check**

Raise forks slightly.



**23 Lift Chains**



- Are the lift chains equal in tension? Check by pushing the chains midway.
- Are the chains properly lubricated?
- Are they safe to operate?

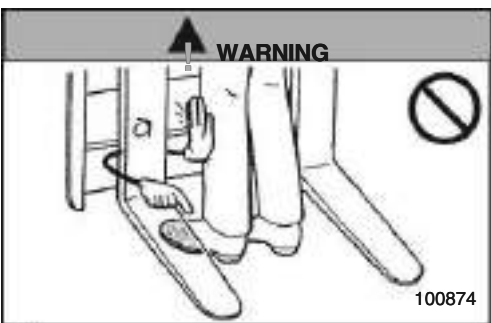
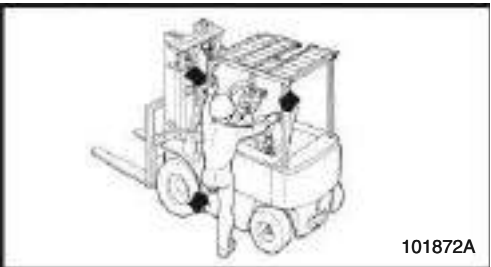
Get on the truck.

**24 Mast**



- 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?
- No oil leaks from the cylinders and hydraulic lines?
- Is the pump motor in good operating condition without any abnormal noise?

Get off the truck.



DON'T put your foot under the fork.

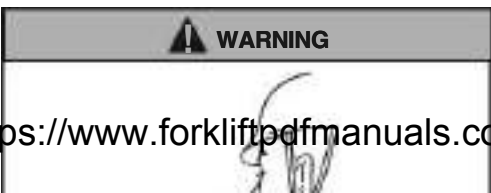
**MAINTENANCE**

Slowly drive truck in a safe area.

**25 Driving Check**

- Is the drive motor in good operating condition without any abnormal noise?
- Is the steering free from pulls to one side, steering kickback, wandering, hard steering and other defects?

Now, you are ready to move the truck.





- Other defects:
- Are all brakes applied properly — without pulling, dragging, chattering, squealing?



100714B



100678B

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

If your truck is equipped with an option, include its inspection as recommended by its manual.

## MAINTENANCE

### ◆ 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 operation or maintenance procedures.

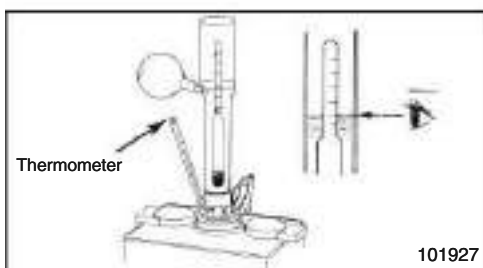
#### • Walk-Around Inspection

##### 26 Bolts, Nuts

- Check, retighten when required. Any loose bolts and nuts should be retightened.

#### • With Seat Tipped

##### 27 Electrolyte Specific Gravity of Battery



101927

Check the batteries for the state of charge weekly. Test the specific gravity of the battery electrolyte with a hydrometer. Correct hydrometer reading is above 1.260 to 1.280 as corrected to 20°C (68°F) for the batteries of your forklift trucks. In addition to the effect of the state of charge on the gravity, temperature also changes the gravity. This effect is due to the fact that, as a liquid cools, it becomes thicker and gains gravity and, as a liquid warms, it becomes thinner and loses gravity. Thus, temperature must be considered when a gravity reading is taken. A correction must be made if the temperature varies from the 20°C (68°F) standard. The minimum permissible gravity reading is 1.220 at 20°C (68°F).

**NOTICE:** If the gravity reading is below 1.220, charge the battery until the gravity reading is 1.280.

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 added more often, have your Mitsubishi forklift truck dealer check the battery.

## MAINTENANCE

### ◆ One Month After Delivery of a New Truck

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

#### • With Seat Tipped

##### 28 Change of Hydraulic Tank Return Oil Filter



#### WARNING

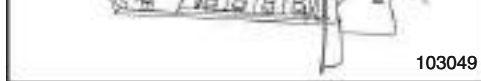
Hot oil and components could cause serious injury. Do not allow hot oil or components to

1. Open the battery cover.

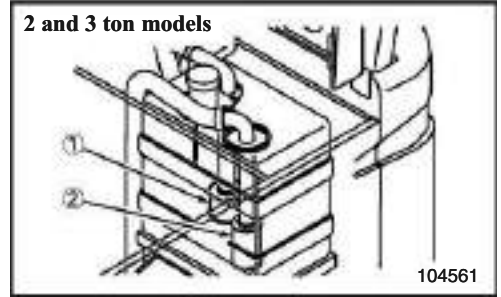
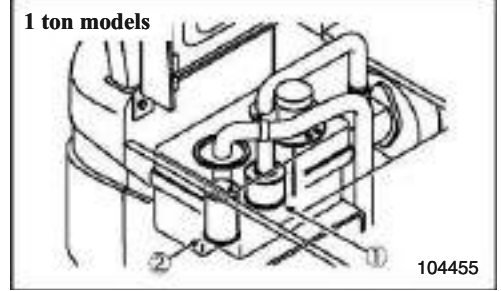


3. Remove the packing, plate and strainer ①.
4. Remove the O-ring and return oil filter ②. Discard the filter.
5. Replace the O-ring, if necessary.
6. Install a new filter and tighten the retaining bolt.
7. Put the return pipe and hose back in place.

contact your skin.  
 Remove the hydraulic tank filler cap only after the hydraulic system has been stopped and the cap is cool enough to remove with your hands.  
 Remove the hydraulic tank filler cap slowly to relieve pressure.



2. Remove the hose, return pipe and suction pipe.

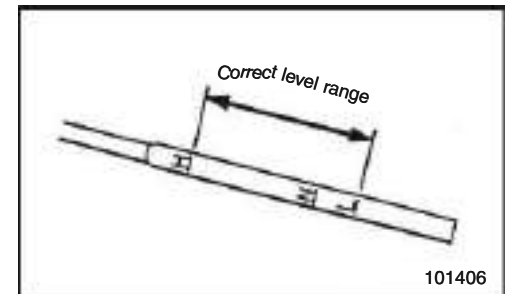
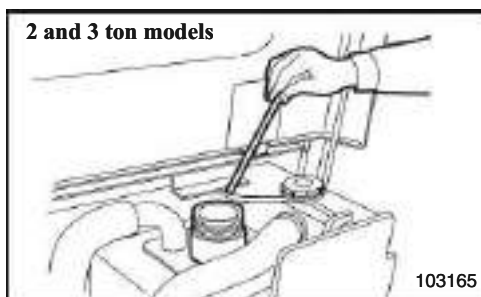
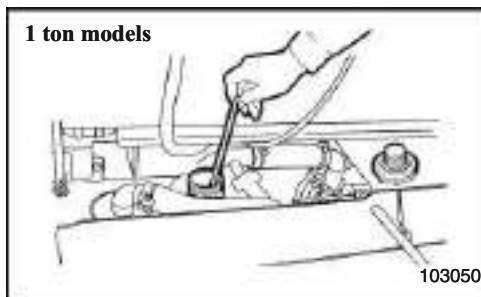


Park the forklift on a level surface, with the forks lowered, parking brake applied, the direction lever in NEUTRAL, the battery disconnected and the wheels blocked.

**MAINTENANCE**

- 8. Wash the strainer in clean, nonflammable solvent.
- 9. Replace the packing and plate, if necessary.
- 10. Put the strainer, suction pipe and hose back in place.
- 11. Remove the filler cap. Check the oil level.

12. Maintain the correct level range on the dipstick.



- 13. Put the dipstick and filler cap back in place.
- 14. Check for oil leaks.
- 15. Close the battery cover.

**MAINTENANCE**

◆ **Lubrication and Maintenance Chart**

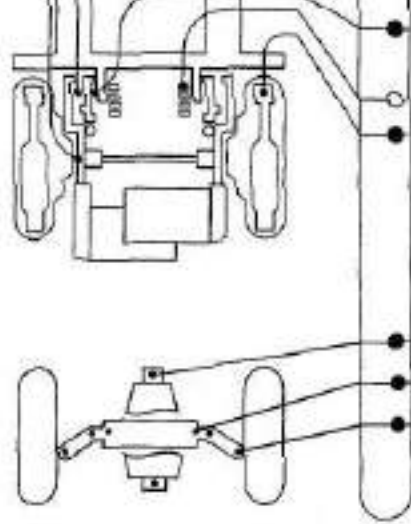
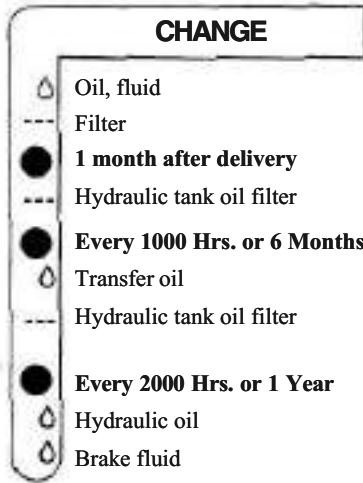
**1 ton models**

CHECK	LUBRICATE
<ul style="list-style-type: none"> <li>● <b>Every 10 Hrs. or Daily</b></li> <li>Oil leaks</li> <li>Tires, wheel nuts</li> <li>Brake fluid level</li> <li>Hydraulic oil level</li> <li>Battery electrolyte level</li> <li>Battery restraint</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Every 500 Hrs. or 3 Months</b></li> <li>Transfer oil level</li> <li>Contactors</li> <li>Motor brushes</li> </ul>

CHECK	LUBRICATE
<ul style="list-style-type: none"> <li>● <b>Every 10 Hrs. or Daily</b></li> <li>Oil leaks</li> <li>Tires, wheel nuts</li> <li>Brake fluid level</li> <li>Hydraulic oil level</li> <li>Battery electrolyte level</li> <li>Battery restraint</li> </ul>	<ul style="list-style-type: none"> <li>● Multipurpose-type grease</li> <li>○ Engine oil</li> <li>● <b>Every 50 Hrs. or Weekly</b></li> <li>Mast support</li> <li>● <b>Every 500 Hrs. or 3 Months</b></li> <li>Mast strips, roller surfaces (each side)</li> </ul>

- Mast, forks, lift chains
- Seat belt and rails
- Steering
- Service brakes
- Parking brake
- Accelerator pedal
- Horn
- Dash monitor
- Every 50 Hrs. or Weekly**
- Specific gravity of battery
- Bolts, nuts

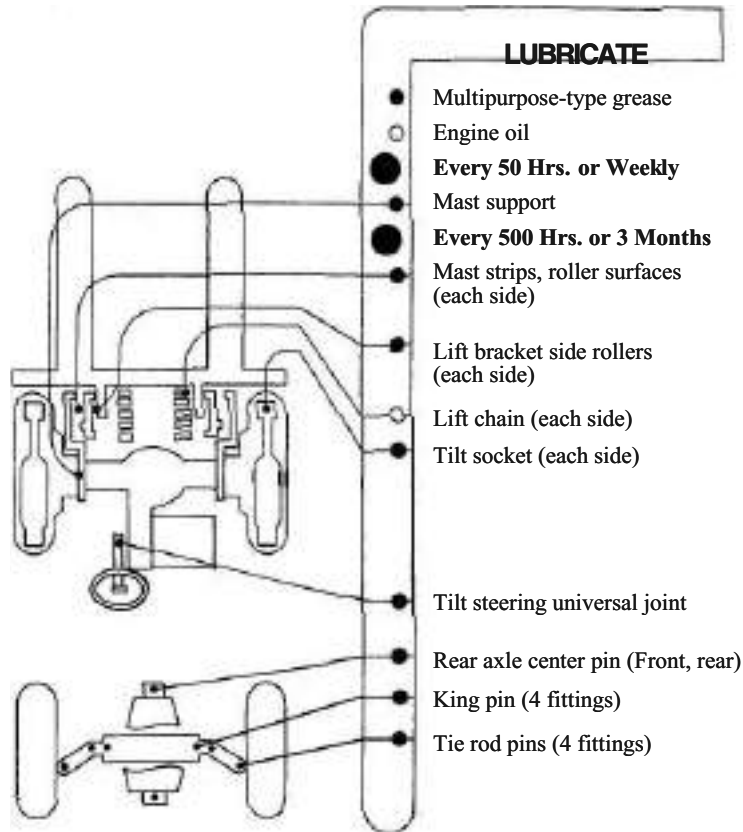
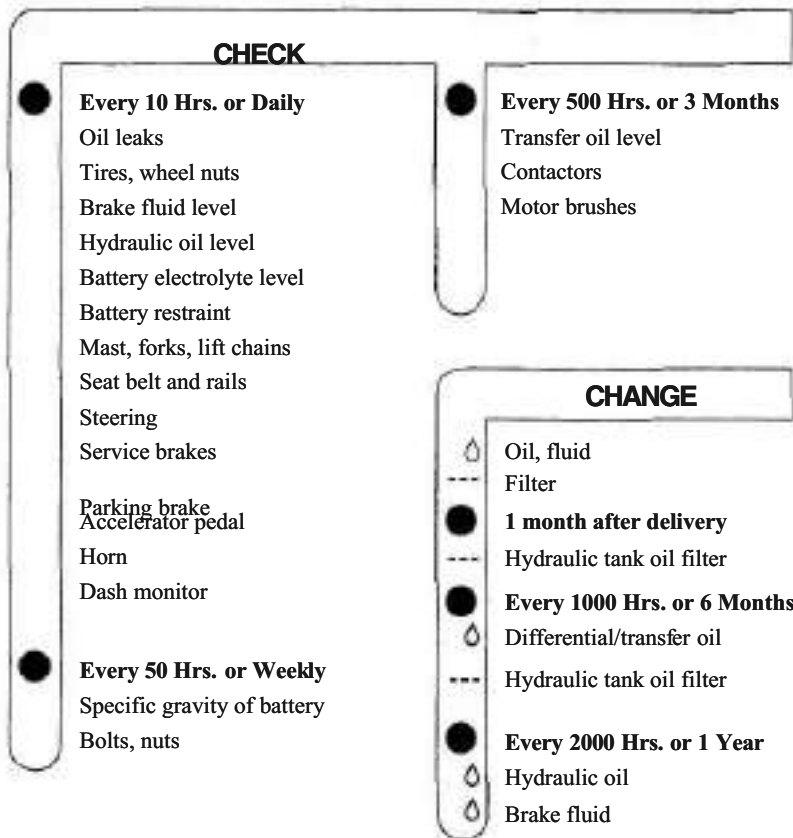


- Lift bracket side rollers (each side)
- Lift chain (each side)
- Tilt socket (each side)
- Rear axle center pin (Front, rear)
- King pin (4 fittings)
- Tie rod pins (4 fittings)

103552A

**MAINTENANCE**

**2 and 3 ton models**



103553A

**MAINTENANCE**

**2 and 3 ton models for PAC**

