



# **PLATINUM II**

## **OPERATOR'S MANUAL**

### **for 1F1/1F2**

1F12-E

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# NISSAN FORKLIFT OPERATOR'S MANUAL

## MODEL 1F1, 1F2 SERIES



### WARNING:

- **This Original Manual contains important safety information and must be made available to the operator.**
- **Keep this manual on the truck at all times.**
- **Do not operate the forklift unless you have reviewed and fully understand the Operator's Manual. Failure to follow all of the instructions in this manual could be a violation of the Occupational Safety and Health Act.**
- **Do not operate this forklift unless you are trained and authorized by your employer. Improper operation may result in a serious or fatal injury to yourself or others.**
- **On December 1st, 1998 the Occupational Safety and Health Administration (OSHA) adopted a new and stringent Powered Industrial Truck Operator Training rule 29 CFR 1910.178(1). Based on the Industrial Truck Standard Development Foundation (ITSDF) B56 2000 standard, Operator Training is now explained in detail. The employer shall ensure that operators of powered industrial trucks are competent and trained in the safe and proper operation of powered industrial trucks. This training will include formal training, practical demonstrations and an on-site evaluation.**

OSHA also requires a proper pre-shift inspection, and any repair required shall be performed by a person trained and authorized to repair industrial trucks.

As the employer you should be familiar with the rules of 29 CFR 1910.178(1) as well as ANSI/ITSDF B56.1 for the user. You should also be aware of any state OSHA rules that may differ from the federal rules.

The following warning is provided pursuant to  
California Health & Safety Code Sections 25249.5 et. seq.



**WARNING:**

Following is an important message for the operator.

**Do not operate this truck unless you are trained and authorized by your employer. Improper operation may result in a serious or fatal injury to yourself or others. Make sure that you read and fully understand the Operator's Manual supplied with this truck. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.**

**Disclosure of Regulation Applicability for California customers only.**

**To owner/operators of Nissan Forkft diesel models in California: ARB Regulation 2449(d)(3) June 2008. Starting June 15, 2008 the California Air Resources Board (CARB) placed a limit in idling time for in use off road diesel powered equipment. "When operated in California, any off-road diesel vehicle may be subject to the California Air Resources Board In-Use Off-Road Vehicle Regulation. It therefore could be subject to retrofit or accelerated turnover requirements to reduce emissions of air pollutants. For more information, please visit the CARB website at <http://www.arb.ca.gov/msrog/ordiesel/ordiesel.htm>. At a minimum you should review the following section: 2449(d)(3), 2449(i), 2449(h)(8).**

# A Word to NISSAN FORKLIFT Operators

This Original Manual describes operating procedures, daily checks and simple maintenance for safe usage of your NISSAN FORKLIFT. We urge you to read this manual carefully before operating a NISSAN FORKLIFT to familiarize yourself with the safety instructions. An operator of any industrial truck should maintain safety as the number one priority at all times. In addition, we strongly recommend that you obtain and read the Industrial Truck Standard Development Foundation (ANSI/ITSDF) B56.1 Manual entitled "Safety Standard for Low Lift and High Lift Trucks" before operating any industrial truck. These instructions will not only reduce mechanical issues with a forklift, but may also save a life.

Contact your Local Authorized NISSAN FORKLIFT Dealer, hereafter referred to as Local Authorized Dealer, to keep your industrial truck in peak operating performance. If you encounter any problems with a NISSAN FORKLIFT, contact your Local Authorized Dealer and request a complete checkup. The dealership will ensure that your forklift is serviced in accordance with the latest factory approved methods.

This manual is not a training manual, it is a guide to help trained and authorized operators safely operate this forklift. Please consult your employer for proper training on the appropriate use of this forklift while performing your job. Illustrations in this manual will show the operator the correct procedures for checking, starting, operating and stopping this forklift.

All information, specifications and illustrations in this manual are based on the latest data obtainable at the time of publication. NISSAN FORKLIFT reserves the right to make changes or improvements at any time without notice.

This Operator's Manual has been prepared on the assumption that your forklift is fully equipped (including all optional equipment). Thus, if you have any questions regarding equipment, please contact your Local Authorized Dealer.

Nissan Forklift Corporation, N.A.  
240 N. Prospect St.  
Marengo, IL 60152 USA

**NISSAN FORKLIFT** *A Wholly Owned Subsidiary of Nissan Motor Co. Ltd.*



# A Word to the NISSAN FORKLIFT Owner

On December 1st, 1998 the Occupational Safety and Health Administration (OSHA) adopted a new and stringent Powered Industrial Truck Operator Training rule 29 CFR 1910.178(1). Based on the Industrial Truck Standard Development Foundation (ITSDF) B56 2000 standard, Operator Training is now explained in detail. The employer shall ensure that operators of powered industrial trucks are competent and trained in the safe and proper operation of powered industrial trucks. This training will include formal training, practical demonstrations and an on-site evaluation.

OSHA also requires a proper pre-shift inspection, and any repair required shall be performed by a person trained and authorized to repair industrial trucks.

As the employer you should be familiar with the rules of 29 CFR 1910.178(1) as well as ITSDF B56 for the user. You should also be aware of any state OSHA rules that may differ from the federal rules.

NISSAN FORKLIFT model 1F1 and 1F2 series forklifts meet all applicable requirements of ITSDF B56 at the time of manufacture. NFC will not assume, and expressly disclaims, any liability for injuries or damages arising from or caused by the removal, disconnection or disengagement of any part from any of its forklifts. NFC recommends that all replacement parts be of OEM (Original Equipment Manufacturer) origin.

**Any modifications and/or additions that affect capacity or safe operation of industrial trucks manufactured by NFC may not be performed without prior written approval from NFC. A user should consult their Local Authorized Dealer if the user's intended application is outside the designed performance characteristics of the vehicle.**

Revised: January 2011

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## WARRANTY COVERAGE AT A GLANCE

### To NISSAN FORKLIFT Valued Customers

**Complete Warranty certificates are in the back of this manual.**

Your NISSAN FORKLIFT may be covered by one or more of the following warranty coverages, depending on your location. Included in your delivery package with this Operator's Manual should be a separate Warranty Statement, which will explain your coverage.

Basic Coverage*	12 months or 2,000 hours
Powertrain	24 months or 4,000 hours
Emission Control Warranty LSI	36 months or 2,500 hours (General Parts)
Emission Control Warranty LSI	36 months or 4,000 hours (Powertrain Parts)
Long-Term Emission Control Warranty LSI	60 months or 3,500 hours (General Parts)
Long-Term Emission Control Warranty LSI	60 months or 4,000 hours (Powertrain Parts)
Emission Related Warranty CI	60 months or 3,000 hours (General Parts)

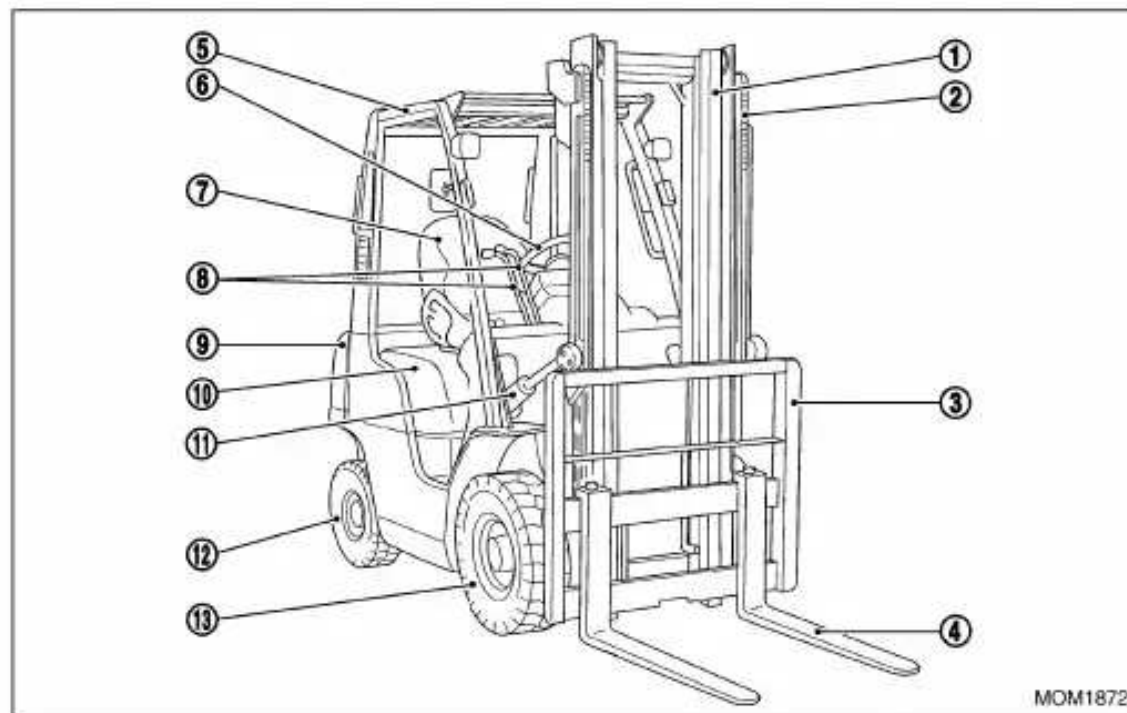
**LSI = Large Spark Ignited Engines above 25 HP (gas, LPG, LNG)**

**CI = Compression Ignited Engines (all diesel)**

The above warranty coverage applies to both U.S. EPA and CARB Emission Regulation standards only. These warranty time periods are for units shipped in the United States and its territories. For exclusions and limitations, see the separate Warranty Statement included with the start-up manuals.

\*: Warranty coverage for tires, battery, optional equipment and hang-on attachments are provided by the local component manufacturer's representatives directly. For warranty coverage and statements outside of the U.S., please contact your Local Authorized Dealer.

## NAME OF COMPONENTS



- ① Mast
- ② Lift chain
- ③ Backrest
- ④ Fork
- ⑤ Overhead guard
- ⑥ Steering wheel
- ⑦ Operator's seat
- ⑧ Control lever
- ⑨ Counterweight

- ⑩ Top panel
- ⑪ Tilt cylinder
- ⑫ Rear tire
- ⑬ Front tire

## OPERATOR'S QUALIFICATIONS AND PROTECTIVE EQUIPMENT FOR OPERATING FORKLIFT

### OPERATOR'S QUALIFICATIONS



#### WARNING:

- The forklift shall be operated in accordance with the operations of the operator's license and the applicable provisions of the local laws and regulations.
- Under OSHA regulations in the U.S., all operators must be formally trained and tested. These tests must be about basic forklift knowledge and in the operators work environment. Refer to OSHA regulations or you may also contact the Industrial Truck Standard Development Foundation (ITSDF) ANSI 345 East 47th Street, New York, NY 10017 and request a copy of B56 Safety Standard for Power Industrial Trucks "Section for the User".

## SAFETY RULES



### PERSONAL PROTECTIVE EQUIPMENT FOR OPERATING FORKLIFT



#### WARNING:

- For operation of the forklift, the protective equipment for the operator shall be dependent upon the conditions of use and the applicable provisions of the local laws and regulations.
- The working clothes worn by the operator shall be such that sleeves and cuffs fit snugly so as to prevent them from getting caught on forklift levers, etc., and safety glasses, earmuffs, dust mask and safety shoes should also be worn, as required by the work environment or employer.



#### WARNING:

- Operator must be trained and authorized to drive the forklift and must understand safety techniques and rules for forklift operation.
  - Inspect the forklift before operating. Do not operate the forklift if it is in need of repair. If it is in need of repair, tag the forklift, remove the key and report the condition to the proper authority. Do not attempt repair unless you are trained and authorized to perform repairs.
  - Do not remove the overhead guard or backrest unless specifically authorized per ANSI/ITSDF B56.1 Section 4.5.1.
- Make sure that the selector lever is set in neutral and the parking brake is applied before turning the ignition switch. Do not start or operate the forklift if you are not in the designated operator's position.
  - Do not allow anyone on any part of the forklift while moving or lifting.
  - Do not sit on the fork (when loaded or not) or get under the fork.
  - Before starting or operating the forklift, make sure that the seat belt is secure and the top panel latch is in the locked position.
  - 1F1/1F2 models manufactured for outside the U.S. do not have the creep function.
  - The forklift will not move if the selector lever is in the F (forward) or R (reverse) position unless you depress the accelerator pedal. When depressing the accelerator pedal, be sure to visually confirm the position of the selector lever. When starting on slopes, be sure to apply the parking brake to hold the forklift and then start, even if the slopes are gentle. Avoid rapid acceleration (especially when carrying a high load).



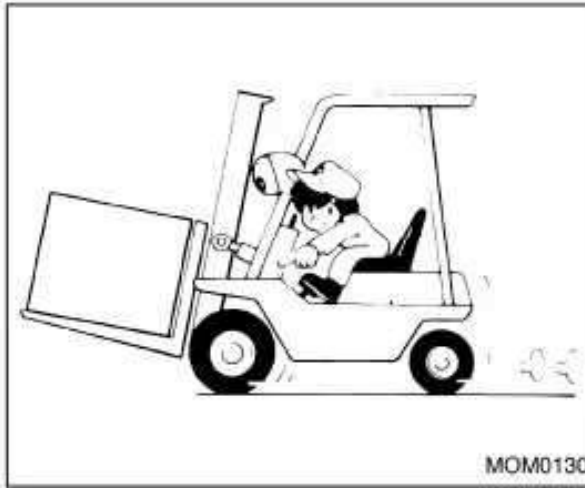


MOM0129



**WARNING:**

- **Keep hands, feet and other parts of your body inside the operator's compartment at all times.**
- **Do not allow anyone to stand or walk under the elevated portion of the forklift whether it is empty or loaded.**



MOM0130



**WARNING:**

- **Space forks as far apart as the load will permit.**
- **Always carry loads low with the mast tilted to the backmost position, never forward. Do not elevate loads except during stacking.**
- **Maintain a careful lookout for people and obstructions, and watch the path of travel. Watch clearances, especially overhead and tail swing. When visibility is obstructed, use extreme caution. Yield the right of way to pedestrians.**
- **If the load obstructs the front view, drive the forklift in reverse.**



MOM1677



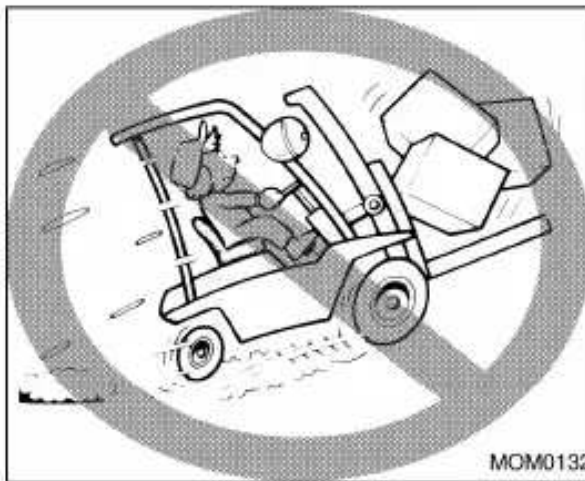
**WARNING:**

- **Do not place a load higher than the backrest of the forklift. A load placed higher than the backrest may fall toward the operator and is very dangerous. If such a load must be handled, securely fasten the load using suitable ropes or hold-down bands.**



**WARNING:**

- Do not overload the forklift. Check the load chart for load weight and load center information. Always pick up loads as close to the center of the weight as possible to avoid off-center loading.



**WARNING:**

- Avoid sudden starts, stops or turns. Slow down for turns and on uneven or slippery surfaces that could cause the forklift to overturn or slide.
- Use special care when traveling without a load as the risk of lateral overturn may be greater than when traveling with a load.
- Before entering trailers with a forklift be certain that the brakes on the trailer are applied and the wheel chocks are in place or that the trailer is locked to the loading dock.



**WARNING:**

- Before driving over a dockboard or bridge plate, be certain that it is properly secured. Drive carefully and slowly across the dockboard or bridge plate. Never exceed its rated capacity.

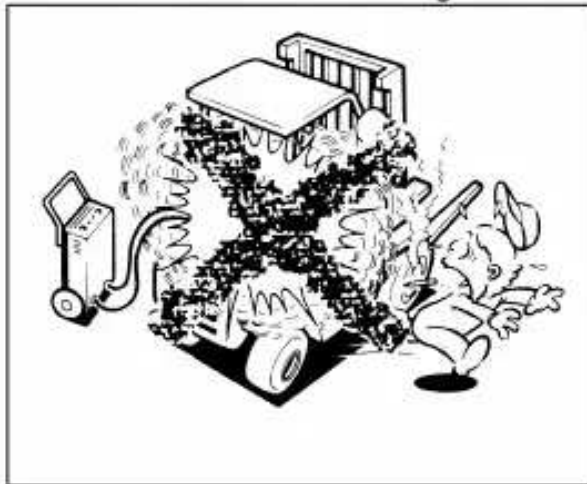
**WARNING:**

- Fuel is highly flammable.

It must be handled with the utmost care, in accordance with the safe handling requirements of fuels and the applicable safety provisions of the local laws and regulations.

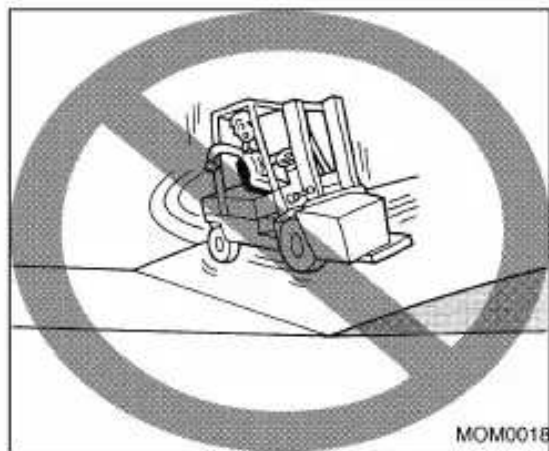
When filling the tank with fuel, make sure that the forklift is properly parked. In a well ventilated area turn off the ignition switch and remove the key.

When fuel is spilled, wipe the area clean with a cloth. The cloth shall be disposed of in accordance with the requirements of safe handling of fuels, environmental requirements and the applicable provisions of the local laws and regulations.

**WARNING:**

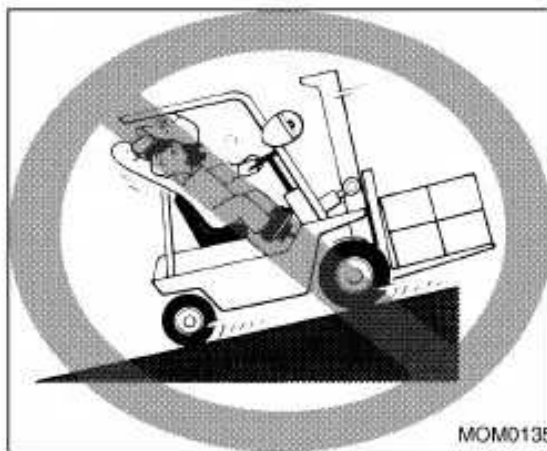
- When filling the tank with fuel or recharging the battery, stop the engine and place the forklift only in a designated area with good ventilation. Keep away from arcs, sparks, flames or lit cigarettes.
- Do not breathe exhaust gases: they contain colorless and odorless carbon monoxide. Carbon monoxide is a dangerous gas and can cause unconsciousness or death.
- Do not run the engine in closed spaces or poorly ventilated rooms such as a garage or refrigerator, etc.

## TRAVELING ON GRADIENTS, INCLINES, GANGWAYS AND IN ELEVATORS



### WARNING:

- Do not traverse and turn around on slopes or inclines.
- Use special care when operating on slopes. Travel slowly and do angle across or turn, this may cause the center of gravity to shift toward the lowest point, the forklift may become unbalanced.
- Do not handle unstable or loosely stacked loads. When handling long, high or wide loads, use special care to ensure stability and carefully watch the surrounding conditions.
- When approaching cross aisles, slow down and sound horn if visibility is obstructed.



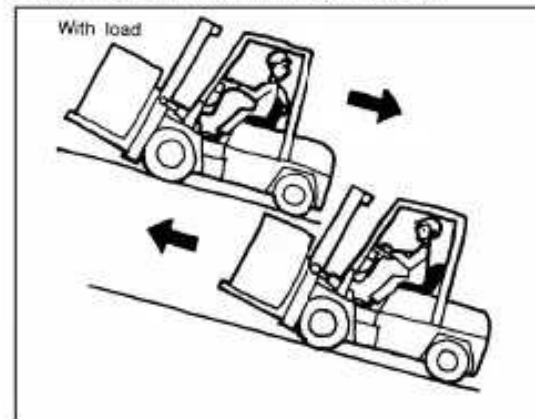
### WARNING:

- When ascending or descending slopes, drive the forklift with the load facing upgrade.
- Before leaving the forklift, be sure that forks or attachments are lowered, the selector lever is in neutral, the hand brake is applied and the ignition switch is turned off. Avoid parking the forklift on a slope.
- When moving forklift in elevators, check to make sure that the elevator is capable of withstanding the forklift weight or the forklift weight plus the load weight.



### WARNING:

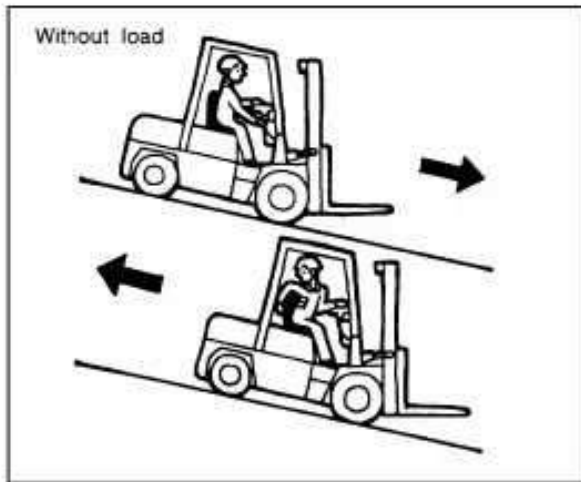
- Be sure to apply chocks under the tires to prevent the forklift from moving while it is parked in the elevator.
- Do not perform work in the elevator.



### WARNING:

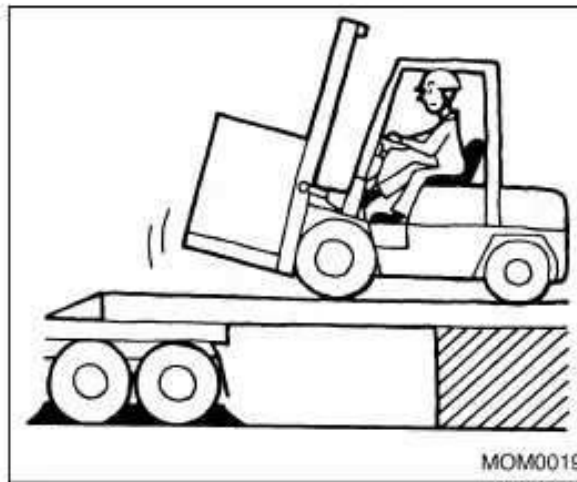
Use care when traveling on inclines, slopes and ramps. Drive slowly and do not turn at any time.

- When traveling on inclines with a load, always drive forward on upward slopes and in reverse on downward slopes.
- Drive slowly in slopes. Drive in the reverse direction on upward slopes when without a load, and drive forward on downward slopes.



**WARNING:**

- Always use the brake pedal when driving downhill to sufficiently reduce the speed.



**WARNING:**

- Precautions relating to driving onto freight cars and trailers, always chock tires or wheels.
- Check freight cars and trailers to make sure that they will not move.
  - The ramp for driving the forklift onto a freight car or trailer shall have sufficient strength to withstand the weight of the forklift and its load, as well as the forces exerted by the bouncing of the forklift.
  - The ramp shall be anchored so that it does not shift.
  - Use the utmost care when driving on and off a freight car or trailer.

## TRANSPORTING FORKLIFT

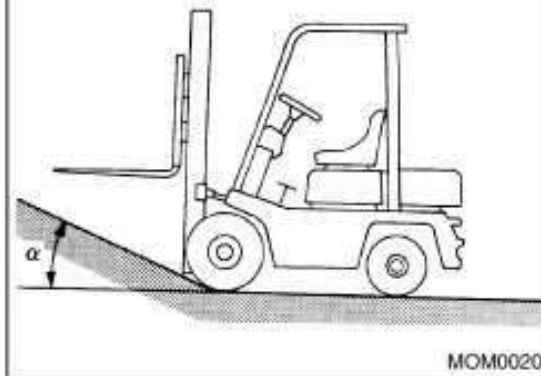


### WARNING:

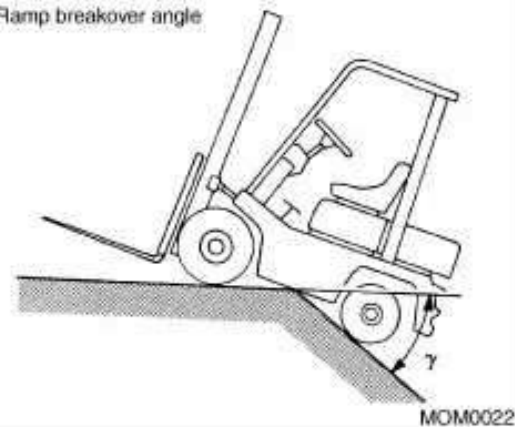
1. Tilt the mast back to the maximum without load.
2. Check the approach and departure angles to make sure that the underside of the forklift does not come into contact with the load carrying platform or the ground.
3. When using a load bridge, make sure that the planks are capable of supporting the weight of the forklift.
4. When winching the forklift onto a load carrying platform, be sure to attach the cable to the traction pin (Refer to page 67). Do not ride on the forklift while it is being winched.
5. Be sure to use lashing points and firmly secure the forklift to the load carrying platform.
6. When hoisting the forklift, be sure to use the lifting points, and parking brake is applied.
7. Turn off the ignition switch and remove the key.
8. Make sure that the battery connector is disconnected.

## APPROACH ANGLE, DEPARTURE ANGLE AND GANGWAY

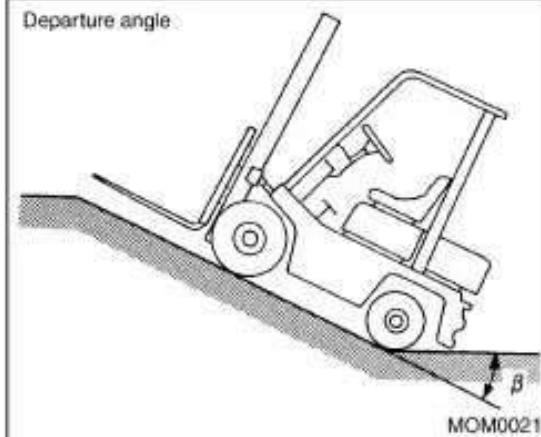
Approach angle



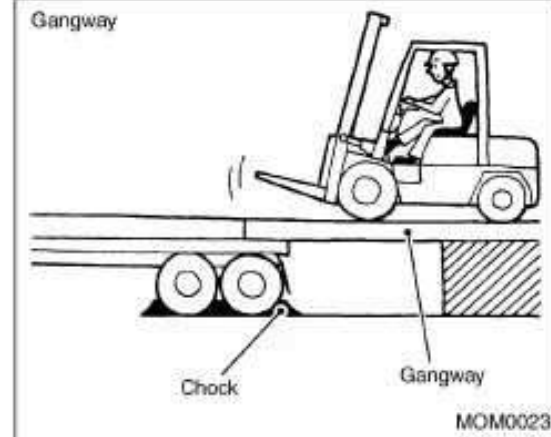
Ramp breakover angle



Departure angle



Gangway





Lateral tip-over can occur if truck is improperly operated. Don't risk injury or death.

**Slow down before turning!**



Buckle up belt  
Stay in seat



**IN CASE OF TIP-OVER**

Follow these instructions:



Lean away



Hold on steering wheel



Brace feet



Don't jump!



**DANGER:**

- Be extremely careful to prevent the forklift from tipping over during operation. Slow the forklift sufficiently when turning a corner or tight curve.
- The following precautions should be closely observed to ensure safe operation of the forklift as well as to protect personnel from injury:

- Always make sure that your seat belt is securely fastened and the top panel latch is in the locked position.
- If the forklift begins to tip, **DO NOT ATTEMPT TO JUMP CLEAR.** The forklift will fall faster than you can jump.
- Brace your feet and hold yourself inside the operator compartment by holding onto the steering wheel with both hands.

#### **IN CASE OF FALLING OFF DOCK OR RAMP**

- The operator should stay with the forklift if it falls off a dock or ramp. The operator should hold on firmly and lean away from the point of impact.

## OPERATING THE FORKLIFT

When operating the forklift under severe climatic conditions such as high temperatures, high altitudes, in cold storages, and when handling explosives and combustibles, and in areas where the forklift is apt to cause radio interference, make sure that the forklift is manufactured and approved as conforming to the local specifications, laws and regulations.

## INSTALLATION OF ATTACHMENTS



### WARNING:

**Before installing hook-on attachments, be sure to read the installation manual issued by the attachment manufacturer to assure correct and proper installation. Contact your Local Authorized Dealer for the revised load capacity figures.**

### REVISED ANSI STANDARDS FOR FORKLIFT CLAMP ATTACHMENTS

A revision to the ANSI Standards regarding forklift mounted clamp attachments took effect for trucks shipped on or after October 7, 2010. This revised standard affects lift trucks equipped with a load bearing clamp (paper roll clamp, carton clamp, etc.) and requires the operator to perform two distinct motions before opening (releasing) the clamp. For example, the operator must press a button and then move a lever to release the load.

ANSI B56.1 Section 7.25 "Load-Handling Controls" can be reviewed by visiting the ITSDF website at [www.itsdf.org](http://www.itsdf.org).

## POSITIONING OF WARNING, CAUTION AND INSTRUCTION LABELS



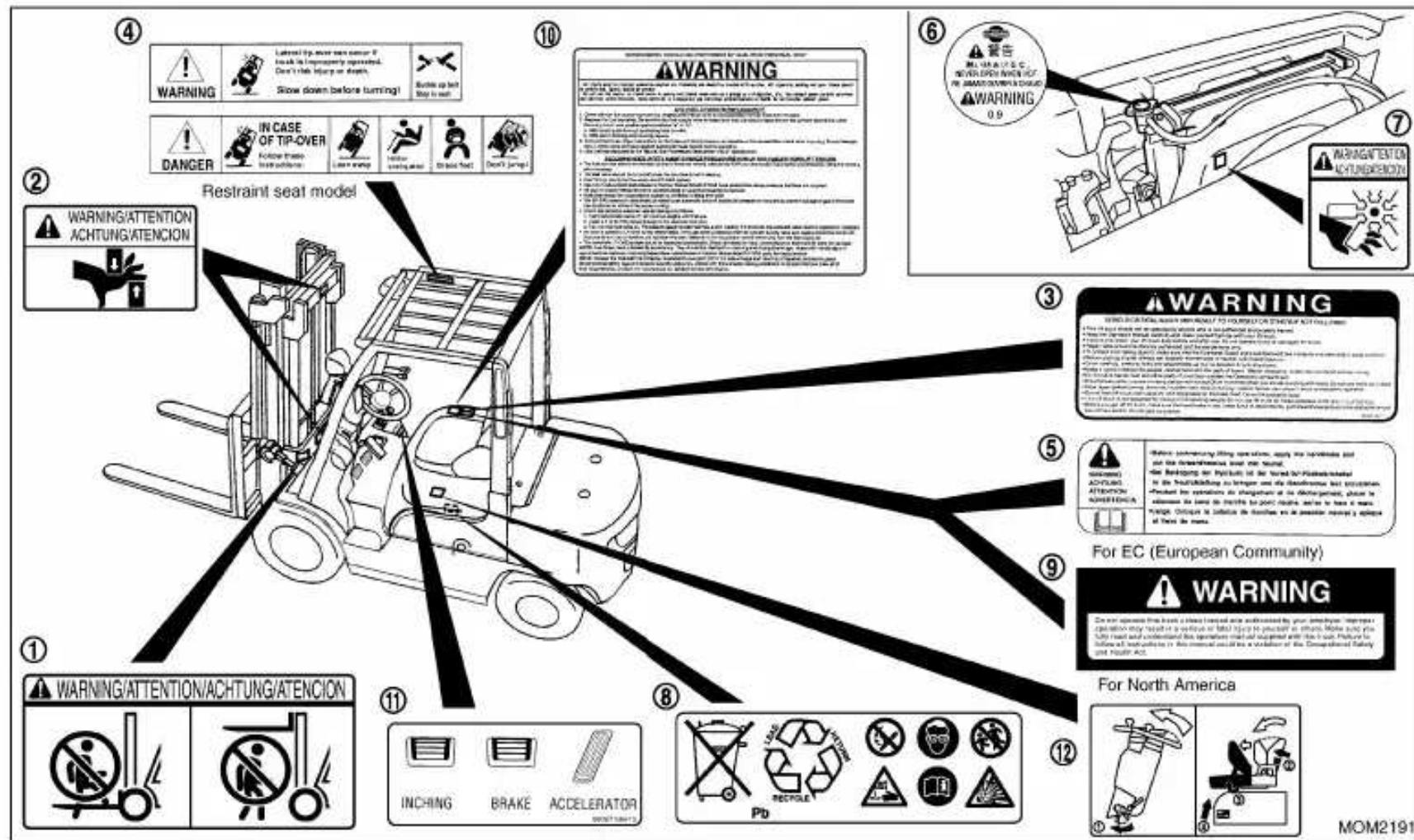
### WARNING:

**When warning and caution labels are damaged such that they cannot be read or have peeled off, they should be immediately replaced with new labels to ensure that they are constantly maintained in a legible condition. The warning and caution labels are available at your Local Authorized Dealer.**

- The warning and caution labels are affixed to the designated locations of the forklift as shown in the figure on the following page. Before operating the forklift, be sure to take note of the details given in the labels so as to ensure proper and safe operation.



FIGURE INDICATING POSITION OF WARNING, CAUTION AND INSTRUCTION LABELS



①



Label part No. 97837 FK100

MOM2023

**WARNING:**

**Do not stand on or underneath forks.**

- **Riding on the forks is strictly prohibited. Furthermore, do not stand immediately underneath the forks. Otherwise, serious accidents can occur if the forks should move abruptly and the load placed on the forks unexpectedly falls down.**

②



Label part No. 97836 FK100

MOM2024

**WARNING:**

**Be sure to keep your hands, feet and body away from the masts. Otherwise, parts of the body can become caught between the moving and fixed sections of the masts and injury may occur.**

③

# ▲ WARNING

SERIOUS OR FATAL INJURY MAY RESULT TO YOURSELF OR OTHERS IF NOT FOLLOWED

- This lift truck should not be operated by anyone who is not authorized and properly trained.
- Read the Operators Manual carefully and make yourself familiar with your lift truck.
- Inspect and check your lift truck daily before and after use. Do not operate faulty or damaged lift trucks.
- Repair work should be done by authorized and trained persons only.
- To protect from falling objects, make sure that the Overhead Guard and Load Backrest are correctly mounted and in good condition.
- Before starting engine, always set forward/reverse lever in neutral, with hand brake on.
- Drive carefully, keeping forks and attachments as low as possible & fully tilted back.
- Keep a careful lookout for people, obstructions and the path of travel. Watch clearance, especially overhead and tail swing.
- Do not stick hands, feet and other parts of your body outside the Operators compartment.
- Drive forward when you are climbing a slope with a load. Drive in reverse when you are descending with loads. Do not turn while on a slope.
- Slow down before turning. Avoid any sudden start, stop or turning. Lateral tipover can occur if truck is improperly operated.
- Do not load lift truck over capacity limit designated on the load chart. Do not lift unstable loads.
- This lift truck is not designed for raising or transporting people. Do not use lift truck for those purposes under any circumstances.
- Before you get off lift truck, make sure the hand brakes are set, lower forks or attachments, put forward/reverse lever in neutral position and turn off key switch. Do not park on a slope.

93000 20111

MOM2334






## WARNING:

### Operation precautions

- **This label contains instructions on how to operate the forklift safely and avoid accidents. Carefully read these instructions before operating the forklift.**

④

 <b>WARNING</b>	 <p>Lateral tip-over can occur if truck is improperly operated. Don't risk injury or death.</p> <p><b>Slow down before turning!</b></p>	 Buckle up belt Stay in seat
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 <b>DANGER</b>	 <p><b>IN CASE OF TIP-OVER</b></p> <p>Follow these instructions:</p>	 Lean away	 Hold on steering wheel	 Brace feet	 Don't jump!
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**DANGER:**

- Be extremely careful to prevent the forklift from tipping over during operation. Slow down the forklift sufficiently when turning a corner or tight curve.
- The following precautions should be closely observed to ensure safe operation of the forklift as well as to protect personnel from injury:

- Always make sure that your seat belt is securely fastened and the top panel latch is in the locked position.
- If the forklift begins to tip, **DO NOT ATTEMPT TO JUMP CLEAR.** The forklift will fall faster than you can jump.
- Brace your feet and hold yourself inside the operator compartment by holding onto the steering wheel with both hands.

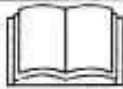
#### **IN CASE OF FALLING OFF DOCK OR RAMP**

- The operator should stay with the forklift if it falls off a dock or ramp. The operator should hold on firmly and lean away from the point of impact.

5



WARNING  
ACHTUNG  
ATTENTION  
ADVERTENCIA



- Before commencing lifting operations, apply the handbrake and put the forward/reverse lever into neutral.
- Bei Betätigung der Hydraulic ist der Vorwärts-/Rückwärtshebel in die Neutralstellung zu bringen und die Handbremse fest anzuziehen.
- Pendant les opérations de chargement et de déchargement, placer le sélecteur de sens de marche au point neutre, serrer le frein à main.
- Carga: Coloque la palanca de marchas en la posición neutral y aplique el freno de mano.

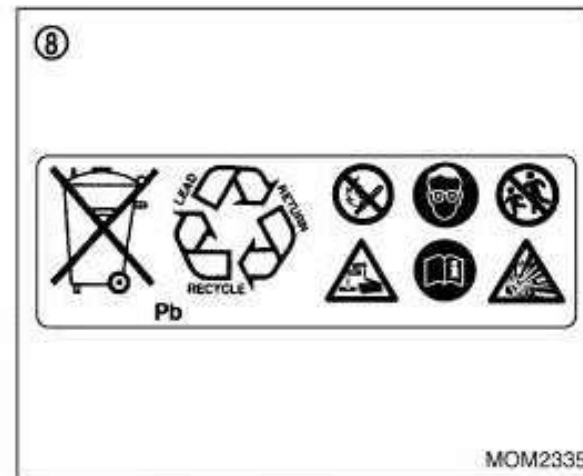
MOM2337


FOR EC (EUROPEAN COMMUNITY)



**WARNING:**


- This forklift does not have a creep function.
- The forklift will not move if the selector lever is in the F (forward) or R (reverse) position unless you depress the accelerator pedal. When depressing the accelerator pedal, be sure to visually confirm the position of the selector lever.
- When starting on slopes, be sure to apply the parking brake to hold the forklift and then start, even if the slopes are gentle.
- Avoid rapid acceleration (especially while carrying a high load).



 **WARNING:**


Never open the radiator cap while it is hot.

- Touching the radiator cap while it is hot may result in injury to your hand.
- Never remove the radiator cap when the engine is hot. Serious burns could be caused by high-pressure fluid escaping from the radiator.
- Wrap a thick cloth around the cap and carefully remove the cap by turning it a quarter turn to allow built-up pressure to escape. When all hissing, steam and liquid stops, slowly turn the cap all the way off.

 **WARNING:**

Never touch the cooling fan while it is turning.

Touching the cooling fan while it is turning may result in injury to your fingers, and in the worst case, may sever the fingers.

 **WARNING:**

- Diluted sulfuric acid and lead are used in the battery.
- Used battery fluid and batteries shall be disposed of according to the applicable provisions of the local laws and regulations.
- Consult your Local Authorized Dealer about the disposal of the used battery fluid and batteries.

9



# WARNING

Do not operate this truck unless trained and authorized by your employer. Improper operation may result in a serious or fatal injury to yourself or others. Make sure you fully read and understand the operators manual supplied with this truck. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.

Label Part no.  
99080 FK101

MOM2336

FOR NORTH AMERICA



## WARNING:

- **Operator must be trained and authorized to drive the forklift, and must understand safety techniques and rules for the forklift operation.**
- **Make sure that you read and fully understand the Operator's Manual supplied with this forklift. Failure to follow all instructions in this manual could be a violation of the Occupational Safety and Health Act.**

10

SERVICE WORK SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY

**WARNING**

All fuel used in internal combustion engines are flammable and should be treated with caution. All cigarette smoking and open flames should be prohibited. Sparks should be avoided.  
Do not run the engine in closed spaces or poorly ventilated rooms such as a garage or refrigerator, etc. The exhaust gases contain carbon monoxide and other toxic substances. Carbon monoxide is a dangerous gas and some prescriptions or death. Do not breathe exhaust gases.

**LPG FUEL CYLINDER REPLACEMENT**

1. Close cylinder fuel supply valve and run engine until it stops prior to disconnecting the fuel hose from the tank.
2. Replace the fuel container. Be sure that the fuel supply valve is closed and that the size and type are per the cylinder description plate. Securely mount and position per instructions "A" or "B".
  - a. With loading pin through positioning hole in center.
  - b. With pin in footing over coating keyway.
3. Connect fuel hose. Open valve slowly so the hose and tank pressure can equilibrate or the excess flow break valve may plug. Slightly average coooy, close valve and have qualified personnel make repairs before opening.
4. Use fuel manufactured to the National Gas Producers Association (NGP) specifications.

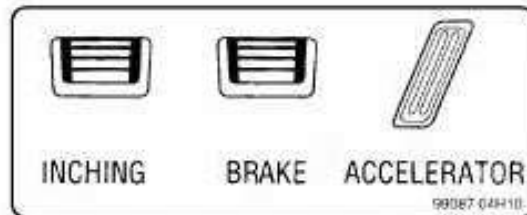
**RECOMMENDED SAFETY MAINTENANCE PROCEDURES FOR LP GAS FUEL FORK-LIFT TRUCKS**

- The fuel cylinder should be mounted so that it does not extend outside the work and should be properly positioned by using the loading pin or keyway.
  - The fuel valve should be turned off when the machine is not in service.
  - Gas fittings should not be used in the LP-GAS system.
  - Use only Underwriters Laboratories or Factory Mutual listed LP-GAS type assemblies where pressure fuel lines are required.
  - All open pressure fittings should be installed using an approved sealing compound.
  - Fuel lines should be supported by clamps to minimize chafing and wear.
  - The LP-GAS automatic valves should be vented to an automatic shut-off which will pressure or vacuum to prevent leakage of gas in the event the ignition is on without the engine running.
  - Check the propane automatic valve for leakage as follows:
    1. Turn fuel cylinder valve off, wait, and run engine until it stops.
    2. Install a 0 to 20 PSI pressure gauge in the regulator fuel port.
    3. Turn cylinder fuel valve on. The pressure gauge should maintain a zero reading. If it does not, the automatic valve must be repaired or replaced.
  - An alarm is added to LP-GAS to help detect leaks. If the gas odor is detected the fuel cylinder supply valve and engine should be turned off. Follow all sources of ignition, and ventilate the area. Make all of the necessary repairs before you turn the fuel supply on.
  - The complete LP-GAS system should be inspected periodically. Check all leaks for leaks, connections for leaks and all parts for damage.
- NOTE:** Fuel tanks have a limited life expectancy. They should be checked for cracking and drying due to age. Tanks with visible signs of age should be replaced. Use only Underwriters Laboratories or Factory Mutual listed LP-GAS parts for replacements.
- NOTE:** Consult the National Fire Protection Association pamphlet 58 for the safe storage and handling of liquefied petroleum gases. Governmental safety regulations in your locality could vary. Check with the authority having jurisdiction to be sure that you meet all of their requirements. Contact the manufacturer for detailed service information.

MOM2193

11

A/T models



Label part No. 99087 04H10

MOM2195

**WARNING:****Pay attention to the position of the pedal.**

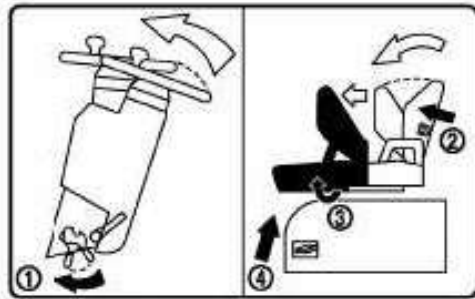
- The positions of the pedals for the operation of the forklift are indicated on the label.

**WARNING:****Precautions concerning handling of the LPG fuel cylinder (for forklifts that use both gasoline and LPG)**

This lists precautions concerning the handling of the LPG fuel cylinder. If LP gas leaks, it may result in fire or a serious accident. Be sure to read and understand these precautions before handling the LPG fuel cylinder.



12

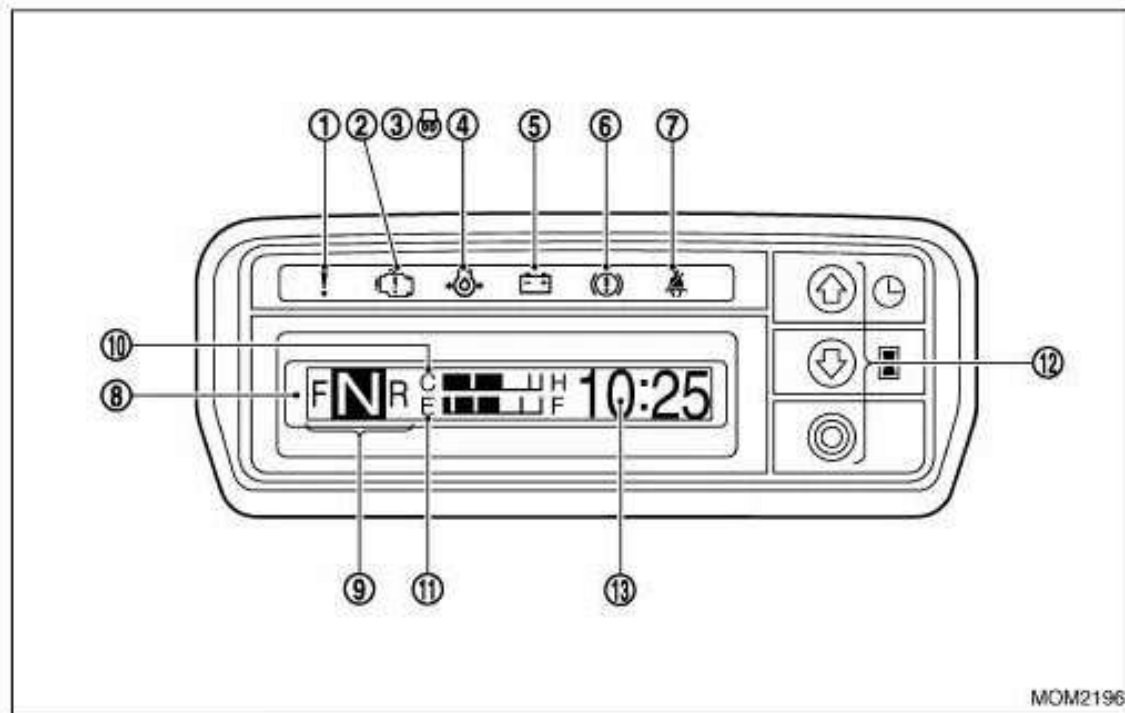


MOM2194

## OPENING TOP PANEL

The procedure for opening the top panel is shown on a label on the top panel. Refer to page 69 for details.

## INSTRUMENTS AND CONTROLS



- ① Multipurpose warning light
- ② Engine check light  
(gasoline / LPG forklifts only)
- ③ Glow pilot light  
(diesel engine forklifts only)
- ④ Oil pressure warning light
- ⑤ Charge warning light
- ⑥ Parking brake warning light
- ⑦ Seat belt warning light
- ⑧ Liquid Crystal Display (LCD)
- ⑨ F/R Selector lever position (left side of LCD)
- ⑩ Water temp. gauge (top center of LCD)
- ⑪ Fuel gauge (bottom center of LCD)
- ⑫ Operation buttons
- ⑬ Time (right side of LCD)

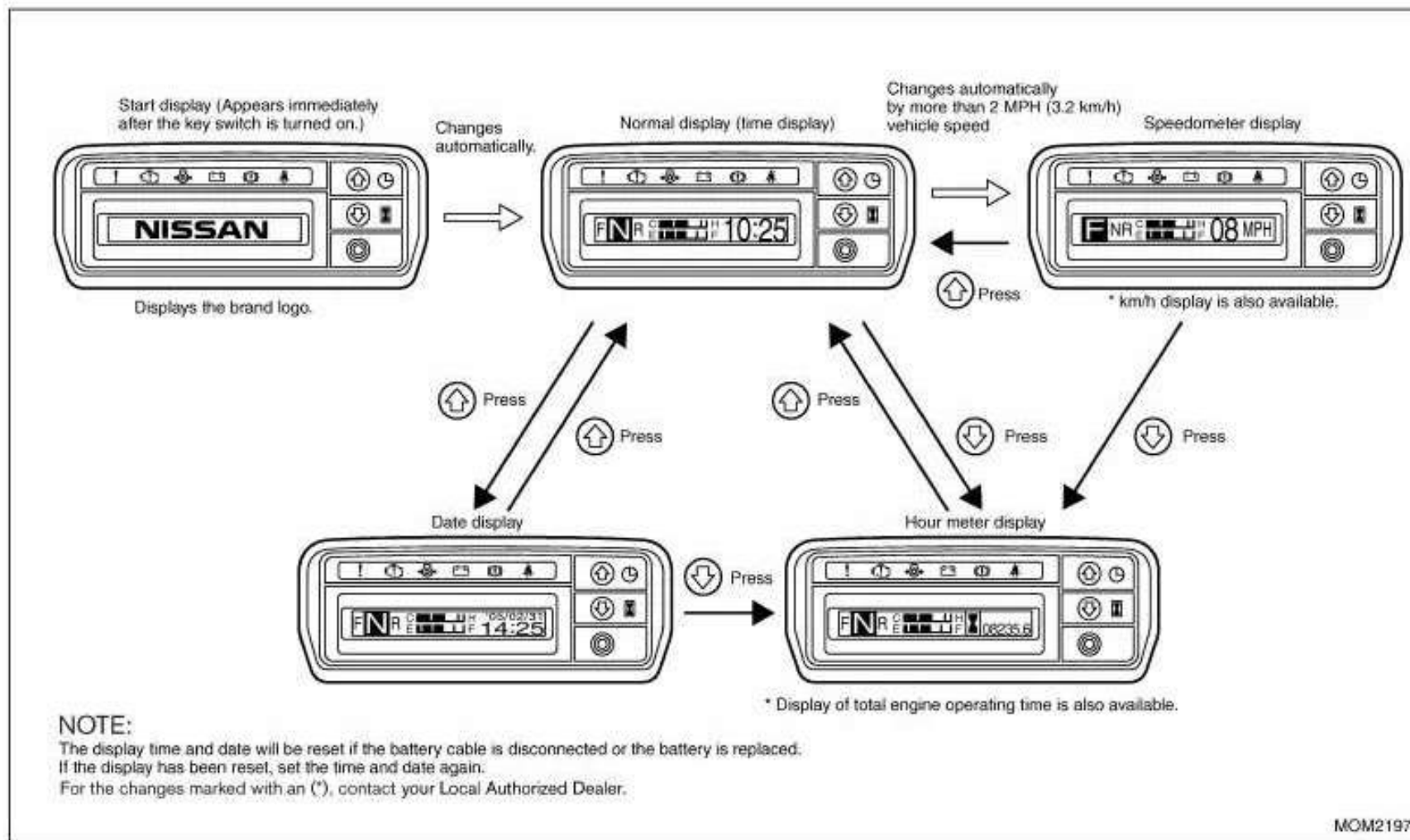
### NOTE:

- In place of the time, the date or hour meter may be displayed.
- While driving, this display changes to the speedometer when the vehicle speed is 2 MPH (3.2 km/h) or higher.
- This display also indicates the inspection / service timing, malfunctions and warnings.
- The display time and date will be reset if the battery cable is disconnected or the battery is replaced. If the display has been reset, set the time and date again.

### Note to the operator:

All EFI forklifts in North America have a creep home feature that will reduce engine RPMs if the coolant temperature remains near the "H" position. This indicates that the unit should be serviced by your Local Authorized Dealer.

## CHANGING METER DISPLAY

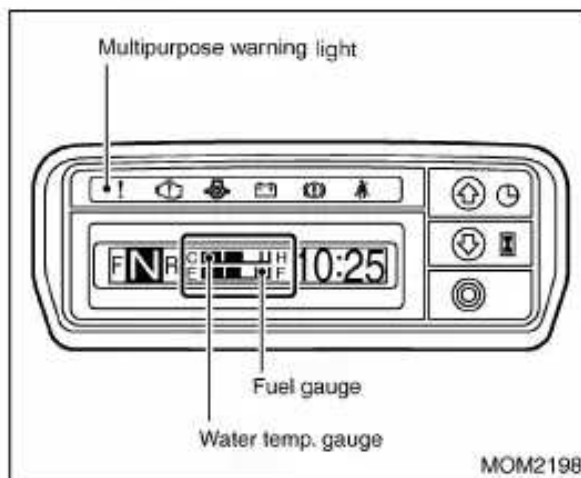


## METER ILLUMINATION

An illumination light is provided for meters to ensure visibility at night.

## OPERATION BUTTONS

Use these buttons to change the display, make settings (time and date) and enter the password.



## WATER TEMP. GAUGE

Indicates the current water temperature in levels 0 - 4. When level 2 is indicated, the coolant temperature is correct. When the indication reaches level 4, the display begins to blink, and the multipurpose warning light illuminates to inform the operator of the high water temperature.



### CAUTION:

If level 4 is indicated, stop the forklift and allow the engine to cool while idling. After the engine has sufficiently cooled down, turn the engine off, and check the coolant level and fan belt deflection.

Temp.	Indication	Level
High	C ■■■■ $\frac{1}{2}$ H + !	Level 4
↑	C ■■■■ J H	Level 3
	C ■■■ ■ J H	Level 2
	C ■■■ L J H	Level 1
	Low	C L L L L J H

MOM2199

## OPERATIONAL NOTE:

**When Hi coolant temperature is indicated, a diagnostic code will show on LCD motor panel and engine RPM (truck speed) will be reduced.**

Fuel	Indication	Level
Full ↓ Empty	E ██████ F	Level 5
	E ██████ J F	Level 4
	E █████ J J F	Level 3
	E ███ J J J F	Level 2
	E █ J J J J F	Level 1
Empty	⚠ E █ J J J J F + !	Level 0

MOM2200

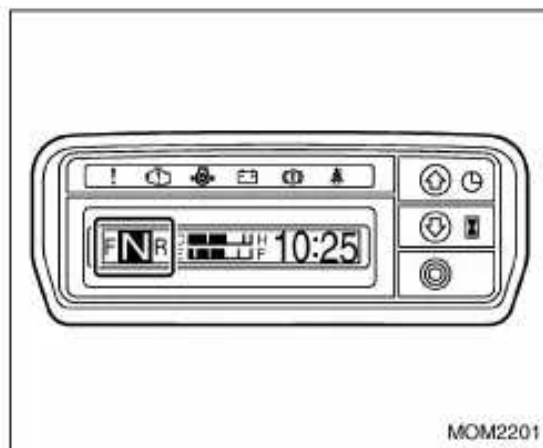
## FUEL GAUGE

Indicates the current fuel level in levels 0 - 5. When level 5 is indicated, the fuel tank is full. When the indication reaches level 0, the display begins to blink, and the multipurpose warning light illuminates to inform the operator of the nearly empty fuel tank. The fuel tank is nearly empty. Add fuel immediately.

### NOTE:

- If the forklift is an LPG - gasoline dual fuel vehicle, the fuel meter will not work when the forklift is operated with LPG.
- When operating the forklift with LPG, check from time to time to be sure that the LPG level warning light is not lit and that the LPG level alarm is not on.
- To check the remaining amount of LPG, use the fuel gauge on the LPG cylinder.

## SELECTOR LEVER POSITION



**FNR**

When the selector lever is in the "F" position, the display appears as shown here.

**FNR**

When the selector lever is in the "N" position, the display appears as shown here.

**FNR**

When the selector lever is in the "R" position, the display appears as shown here.



- When the selector lever is in the "F" or "R" position and the operator is not seated on the operator's seat, the display blinks. Sit on the operator's seat and shift the selector lever to Neutral (N), then shift it again to Forward (F) or Reverse (R) in order to drive.
- When there is an error in the selector lever signal, the display blinks. Contact the nearest NISSAN FORKLIFT dealer and request an inspection.

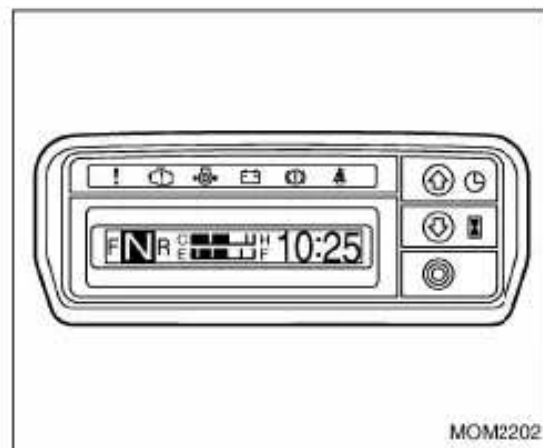
### FOR MANUAL SHIFT 2-SPEED AUTOMATIC TRANSMISSION

**1FNR**

When the manual shift 2-speed automatic transmission lever is in the "1F" position, the display appears as shown above.

**2FNR**

When the manual shift 2-speed automatic lever is in the "2F" position, the display appears as shown above.

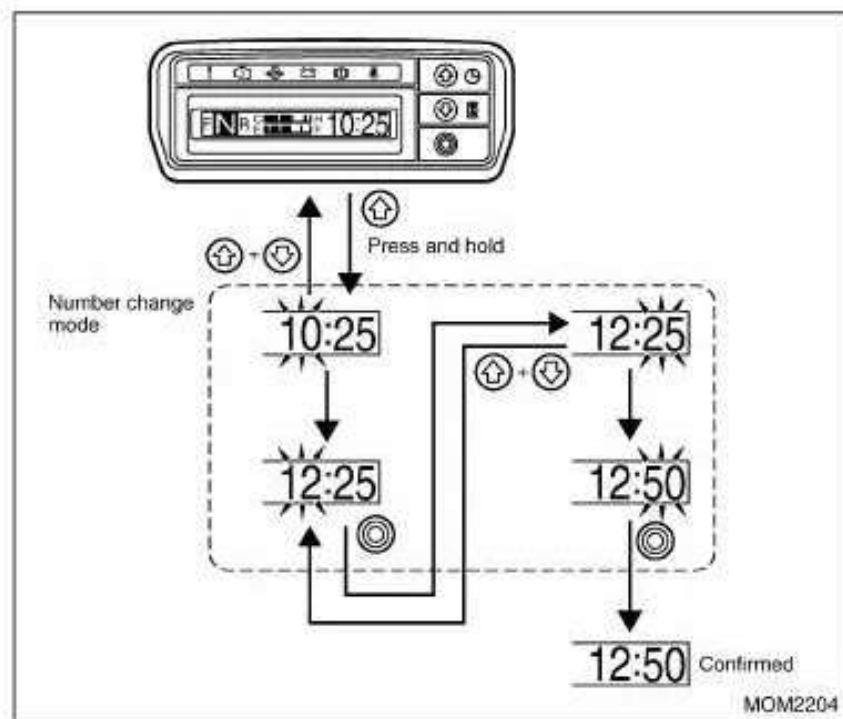


### CLOCK

#### NOTE:

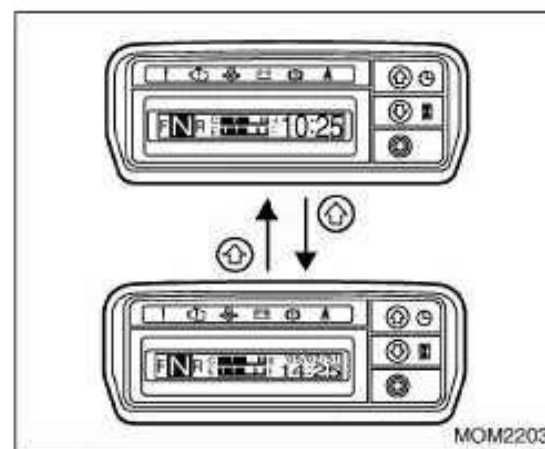
- The time and date will be reset if the battery cable is disconnected (for example, when the battery is replaced). Set the time and date again.
- When the ignition switch is turned on, the start display appears, followed by the normal display (clock display).
- Press the buttons to change the display to the date or hour meter.

## SETTING THE TIME



### NOTE:

- Press the button to change from hours → minutes → confirmed.
- Press the button to change the number up.
- Press both the and buttons at the same time to return to the previous display.
- Press the button to change the number down.

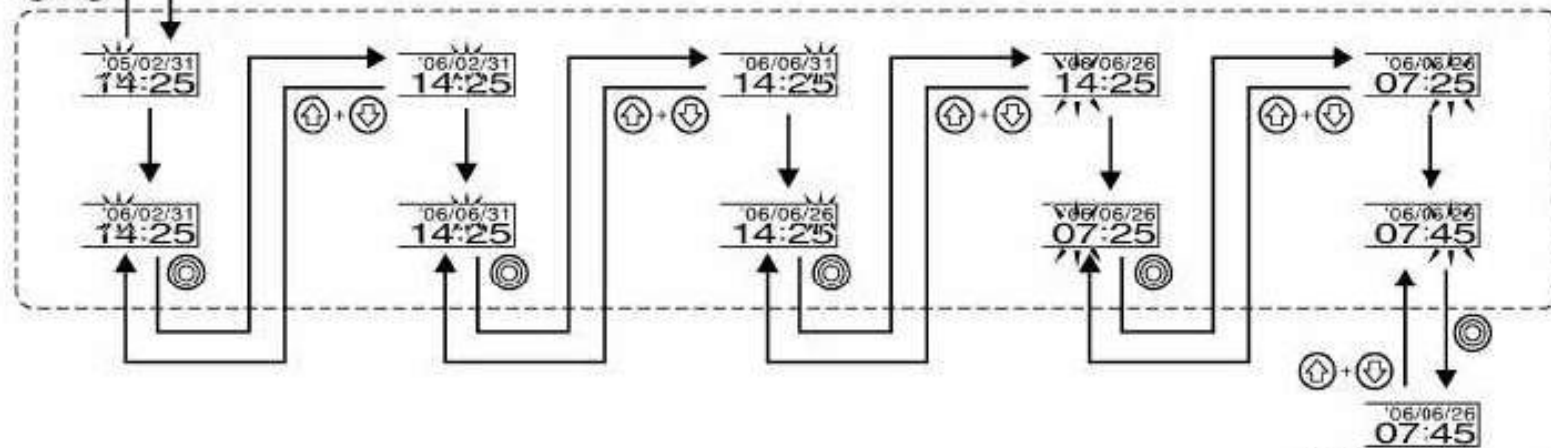
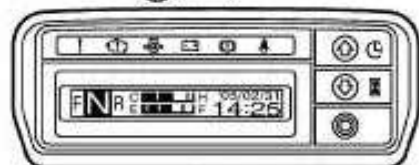
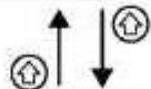
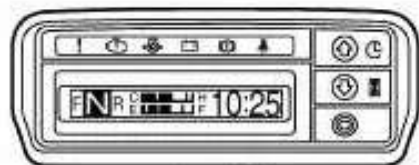


### DATE

### NOTE:

- The time and date will be reset if the battery cable is disconnected (for example, when the battery is replaced). Set the time and date again.
- Press the button on the normal display (clock display) to change from the time display to the date display. Press again to return to the normal display.

## SETTING THE DATE



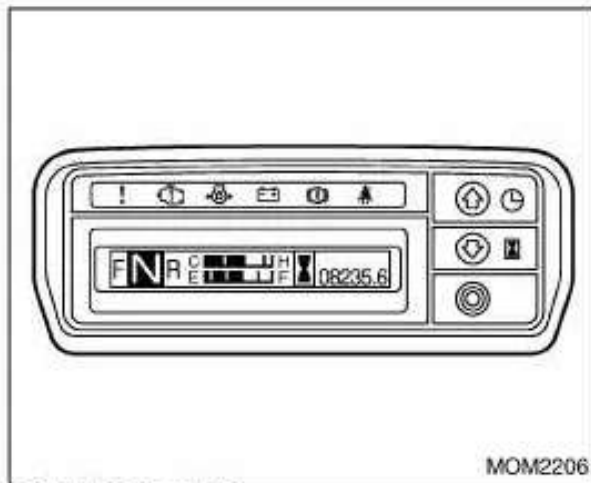
Setting completed

MOM2205

### NOTE:

- Press the button to change the setting item from year → month → day → hour → minute → confirmed.
- Press both the and buttons at the same time to return to the previous setting item.
- Press the button to change the number up.
- Press the button to change the number down.





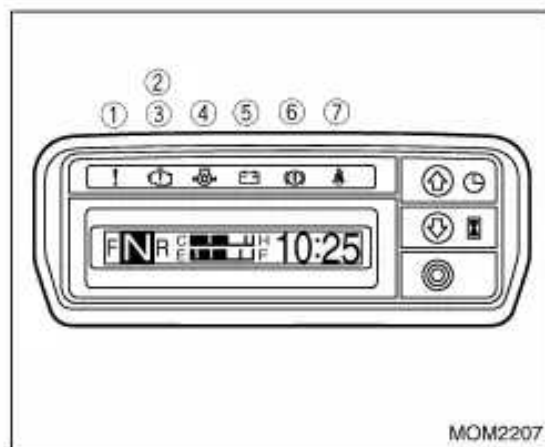
## HOUR METER

The buttons can be used to change from the normal display (clock display) to the hour meter display.

The hour meter ordinarily displays the total ignition time that the ignition is on, however it is possible to change the display to the total engine operating time.

To change the hour meter totaling pattern, contact the nearest NISSAN FORKLIFT dealer.

## EXPLANATION OF WARNING LIGHTS



Following is an explanation of the meaning and method of correction when a warning light illuminates.

When low oil pressure Hi coolant or Hi torque converter fluid temperature (page 36) are indicated engine RPM (truck speed) will be reduced.

### 1) ! Multipurpose warning light

This warning illuminates when one of the LCD warning symbols illuminates. It also illuminates when the water temperature is high or the fuel level is low. If this light illuminates during operation, stop operation immediately, report to the person having management or supervisory duties and take necessary measures.



### CAUTION:

MIL (Malfunction Indicator Light) will illuminate when emission-related parts such as sensors and/or engine emission control parts malfunction.

A failure code will be displayed at the same time on the LCD in the meter panel. Or, DTC (Diagnostic Trouble Code) can be retrieved by connecting GST (Generic Scan Tool) to ECM. If MIL illuminates during operation, stop operation immediately, report to the person having management or supervisory duties and take necessary measures, or ask your Local Authorized Dealer for inspections.

### 2) Malfunction indicator light (gasoline/LPG engine forklifts only)

This warning illuminates when there is malfunction with an engine sensor or air-fuel ratio control, or other engine emission control issues.

### 3) Glow plug indicator light (diesel engine forklifts only)

This warning illuminates when the ignition switch is turned on, and it turns off when glow plug preheating is completed.



### CAUTION:

- If the light remains illuminated after the glow plugs are preheated, this indicates a malfunction in the glow system.
- Have the system checked at your Local Authorized Dealer.

### 4) Oil pressure warning light

This warning illuminates when the oil pressure is low.



### CAUTION:

If the light illuminates under ordinary operating conditions, stop the engine immediately and check the engine lubrication system.

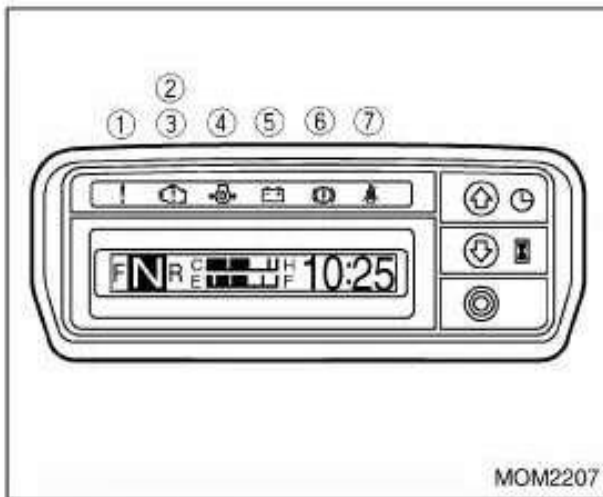
### 5) Charge warning light


This warning illuminates when there is a malfunction with the charge system.




### CAUTION:

If the light illuminates or flickers occasionally during normal operating conditions, the alternator and electrical system should be checked.



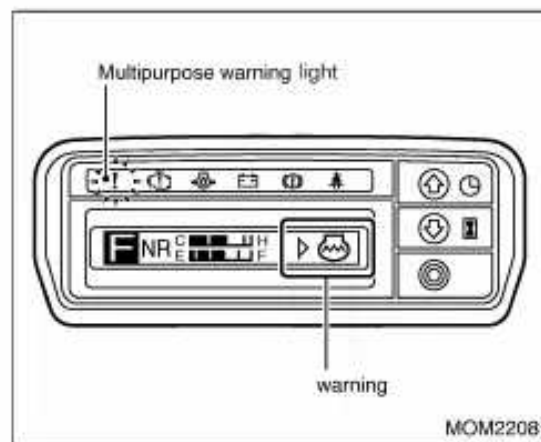
6)  Parking brake warning light

This warning illuminates when the parking brake lever has been pulled.

7)  Seat belt warning light

This warning illuminates when the seat belt is not fastened.

## LCD WARNING SYMBOLS



When a forklift warning occurs, a warning symbol and the multipurpose warning light illuminate. Following is an explanation of the meaning and method of correction when a warning symbol illuminates.

### Mast interlock warning

This warning illuminates when the ignition switch is turned on and the operator is not seated on the seat. Loading operation is prohibited at this time. Loading becomes possible when the operator is seated on the seat.

### LPG level warning/LPG rack lock warning (LPG and DUAL forklifts only)

This warning illuminates when the LPG level is low. Replace the LPG fuel cylinder before the fuel (LPG) runs out. This warning also illuminates when the LPG rack lock is not securely set. (In this case, the warning buzzer also sounds.)



#### CAUTION:

- For LPG tank mount bracket & low LPG fuel: the light is illuminated when the key is turned on. If the light remains on and the warning buzzer sounds with the key on or after the engine is started, the LPG tank mounting bracket (either swing out or swing down type) is not securely latched. (Refer to page 71) Turn off the engine, set the parking brake and then check that the tank mounting bracket is latched correctly.

- The LPG tank is out of or nearly out of fuel. Have LPG cylinder tank replaced immediately.



### Torque converter fluid temp. warning

This warning illuminates when the transmission fluid temperature is high. If this warning symbol illuminates, move the vehicle to a safe location and allow it to idle in order to lower the fluid temperature. When the fluid temperature has returned to normal, the warning turns off.

#### NOTE:

- Check the level of automatic transmission fluid. (For more information, refer to "Automatic transmission fluid level" on page 87.)
- If the warning light illuminates even though the transmission fluid is at a normal level, ask your Local Authorized Dealer to perform an inspection.



### Radiator level warning

This warning illuminates when the engine coolant level is low. Add coolant.



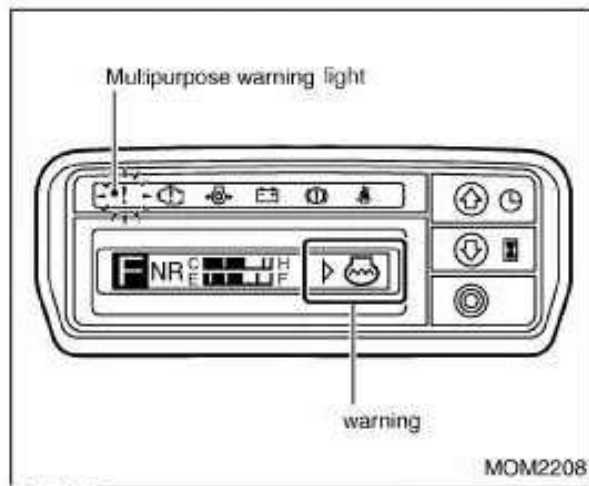
#### CAUTION:


Continuing to drive while the light is illuminated may lead to overheating of the engine.



### Air cleaner warning

- This warning illuminates when the air cleaner has become clogged. If this warning symbol illuminates, promptly clean or replace the air cleaner.



 Fuel filter warning  
(for diesel engine forklifts)

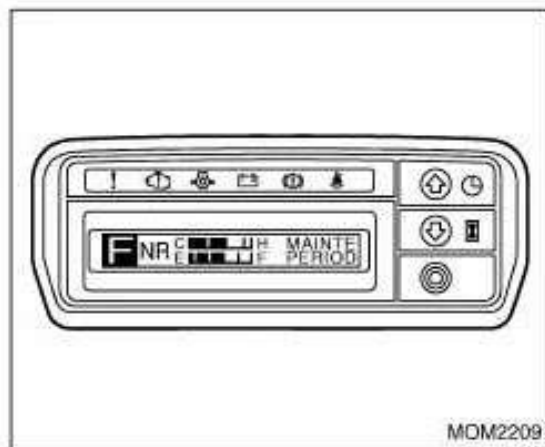
This warning illuminates when the fuel filter has become full with water. If this warning symbol illuminates, promptly drain the water from the fuel filter.



**CAUTION:**

**Continuing to drive while the light is illuminated may lead to a reduction in the engine output or engine damage.**

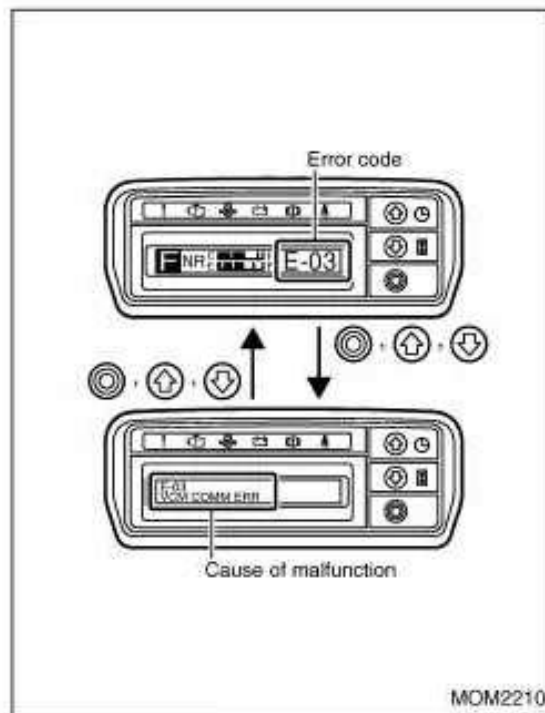
## INSPECTION TIMING DISPLAY



When the time for regular inspection approaches, this warning illuminates for 15 seconds after the ignition switch is turned on. This does not affect driving.

When the display shown above appears, contact your Local Authorized Dealer. It is recommended that regular inspection be performed.

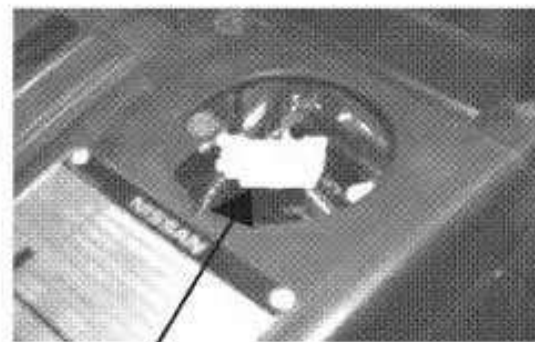
## DISPLAYS WHEN MALFUNCTION OCCURS



When controller malfunction occurs, an error code is displayed.

Press a button while the error code is displayed in order to display the cause of the malfunction.

If the display above appears, contact your Local Authorized Dealer.



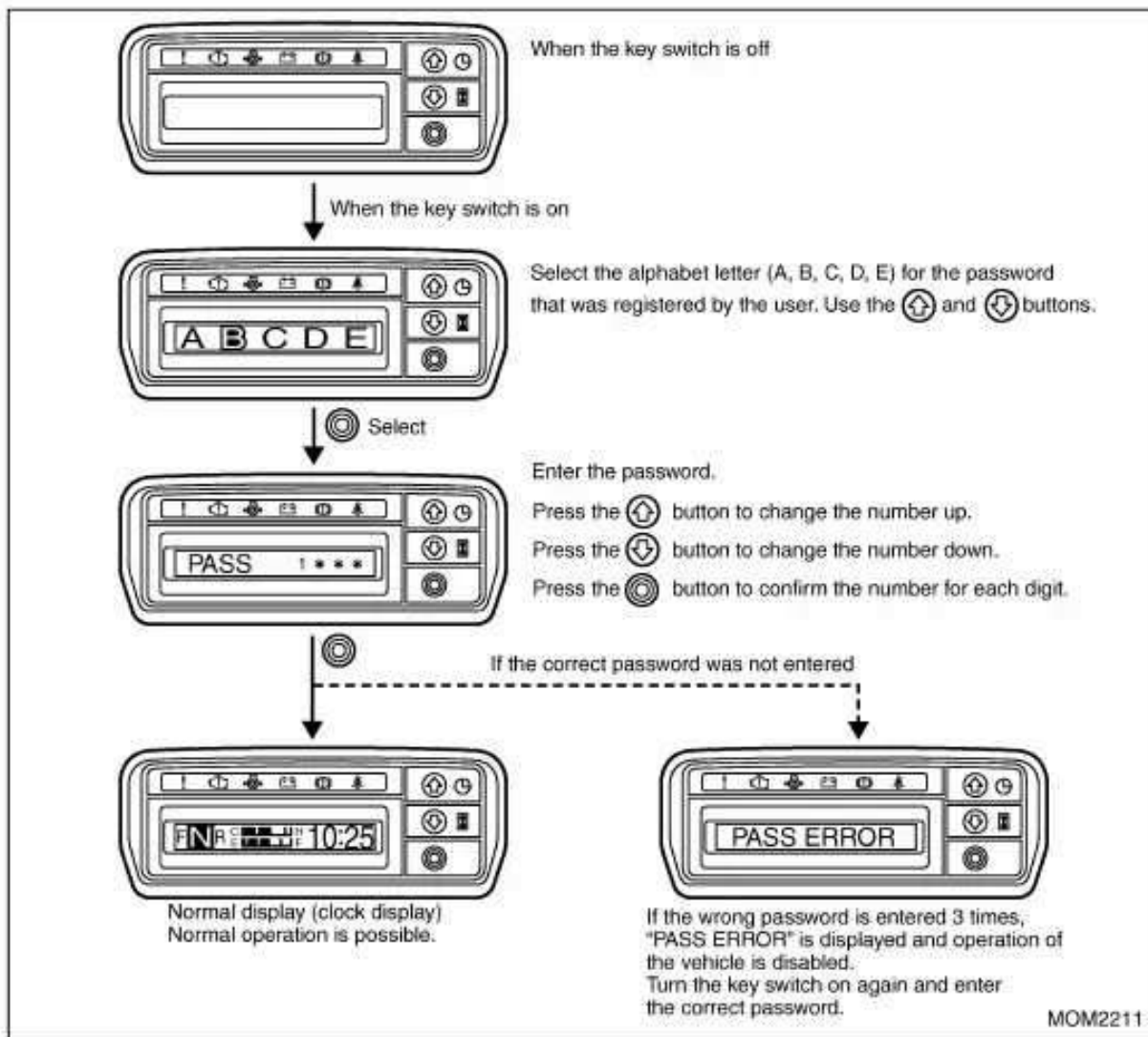
OBD-II Plug to connect generic scan tool.

## DRIVER RECOGNITION MODE

Registering a password can restrict the drivers of the forklift.

You can register a password for up to 5 persons (A to E).

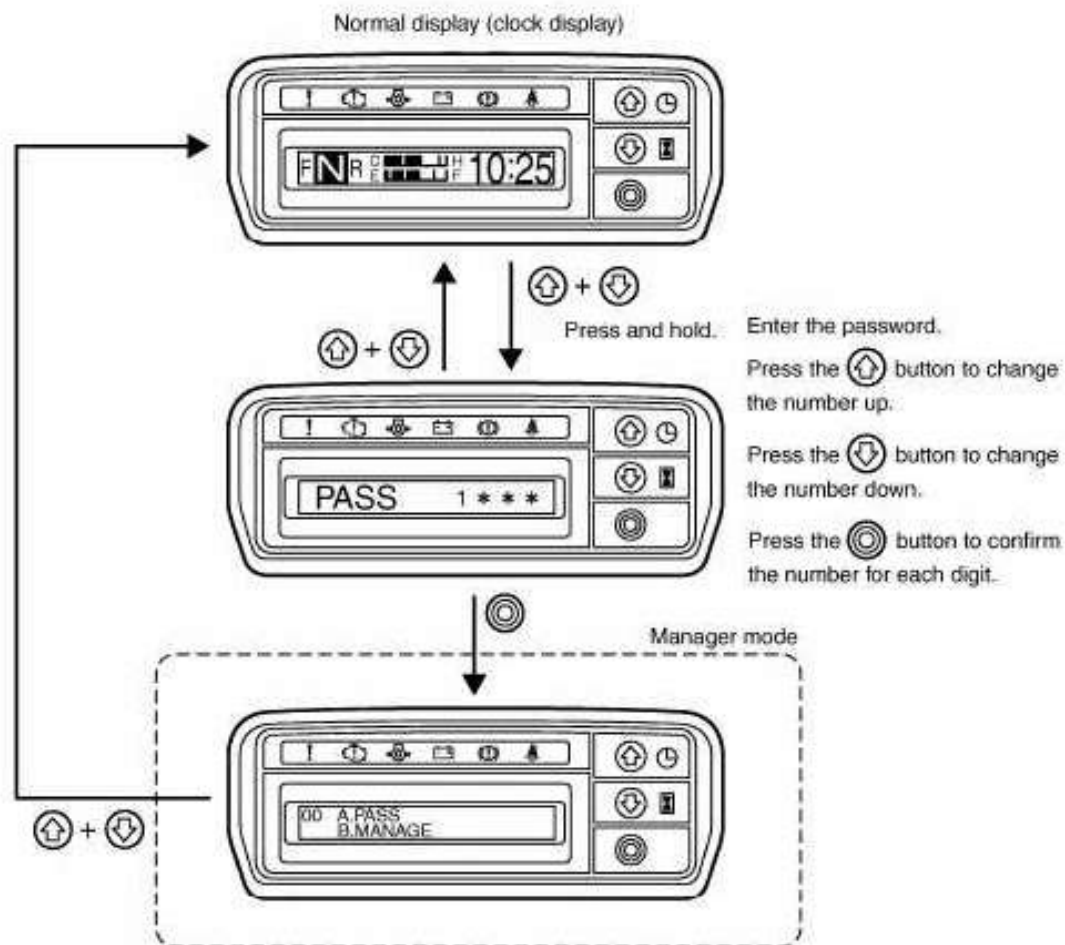
Contact your Local Authorized Dealer for information about the registration of the password.



## MANAGER MODE

Manager mode can be used by the manager to check and reset the operating time for each operator, and to change passwords.

- The manager must not disclose to the operators the password required to enter manager mode.
- If the manager has forgotten the password, contact your Local Authorized Dealer.



MOM2212



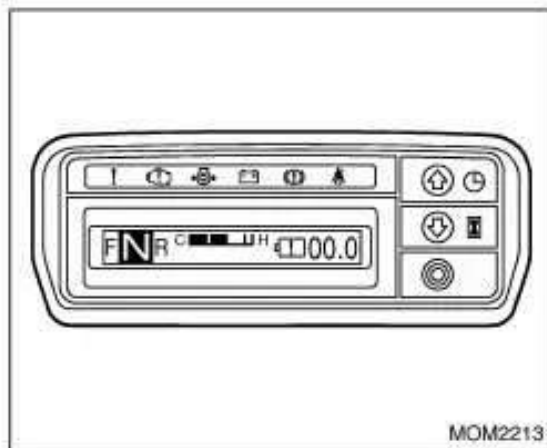
The items that can be changed and viewed in manager mode are the following.

Indication	Explanation
PASS ENTRY	Enable/disable the operator password entry function.
ENTRY TIME	After an operator has entered the password, then it will not be necessary for the same operator to enter the password again for the amount of time set here.
PASS A	Change password "A" for the operator password entry function.
PASS B	Change password "B" for the operator password entry function.
PASS C	Change password "C" for the operator password entry function.
PASS D	Change password "D" for the operator password entry function.
PASS E	Change password "E" for the operator password entry function.
PASS MANAGER	Change the manager mode password.
A***** C*****	Display each of the vehicle operating times when passwords "A" - "D" are used for the operator password entry function.
B***** D*****	
E*****	Display the vehicle operating time when password "E" is used for the operator password entry function.
MANAGE RESET	Reset the vehicle operating times when passwords "A" - "E" are used for the operator password entry function.

#### **OPERATIONAL NOTE:**

- **For the methods used to view and change the above items, contact your Local Authorized Dealer.**

## LPG REMAINING TIME MANAGEMENT



With this function, the operator sets the time interval between LPG fuel cylinder replacements. Then, when this time reaches zero, this function illuminates the LPG level warning symbol and multipurpose warning light to warn the customer / operator of the need to replace the LPG fuel cylinder. For the method used to change the LPG level warning pattern to the method above, contact your Local Authorized Dealer.

LPG remaining time management is recommended for the following types of situations.

- The timing for replacement of the LPG fuel cylinder is predetermined.

- The LPG level warning appears too early (or too late) on the forklift that is currently being used.



### CAUTION:

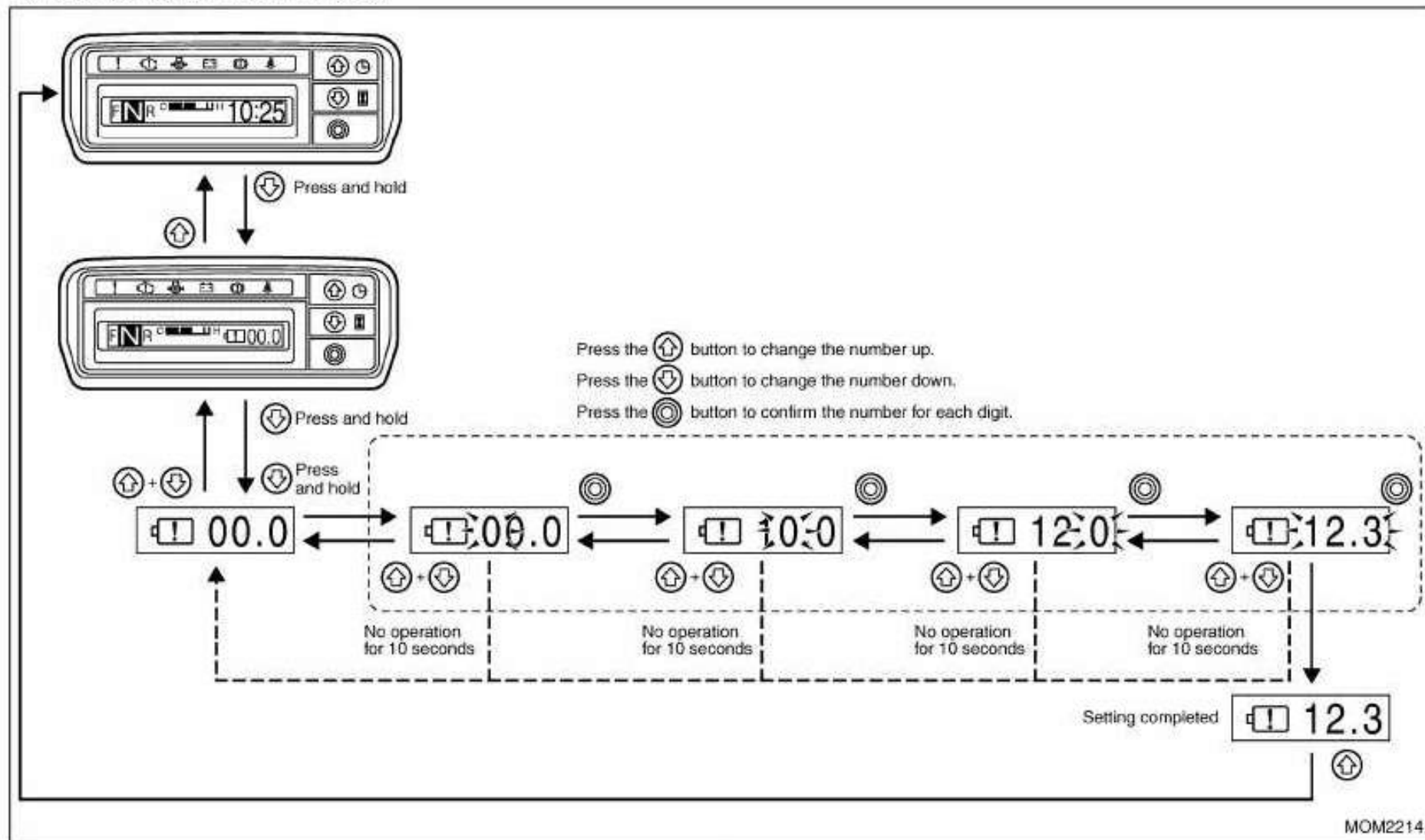
- **Set a time with a sufficient amount of leeway.**
- **After replacing the LPG fuel cylinder, be sure to set the time setting again. Otherwise, the time setting continues after LPG fuel cylinder replacement, and this may result in the LPG level warning symbol turning on at an unintended time.**
- **When driving a dual fuel forklift using gasoline after using LPG without the time setting, be careful that the time setting continues to count the time.**

### LPG remaining time setting

- **When the time setting is set to [00.0], the meter panel shows the LPG level warning [LPG].**
- **When the time setting is reset, move to the setting display by pushing (▲), (⊙) and (●) while the LPG level warning [LPG] is displayed. After resetting the setting time, the LPG level warning turns off.**

Following is an explanation of how to set the time setting for the first time.

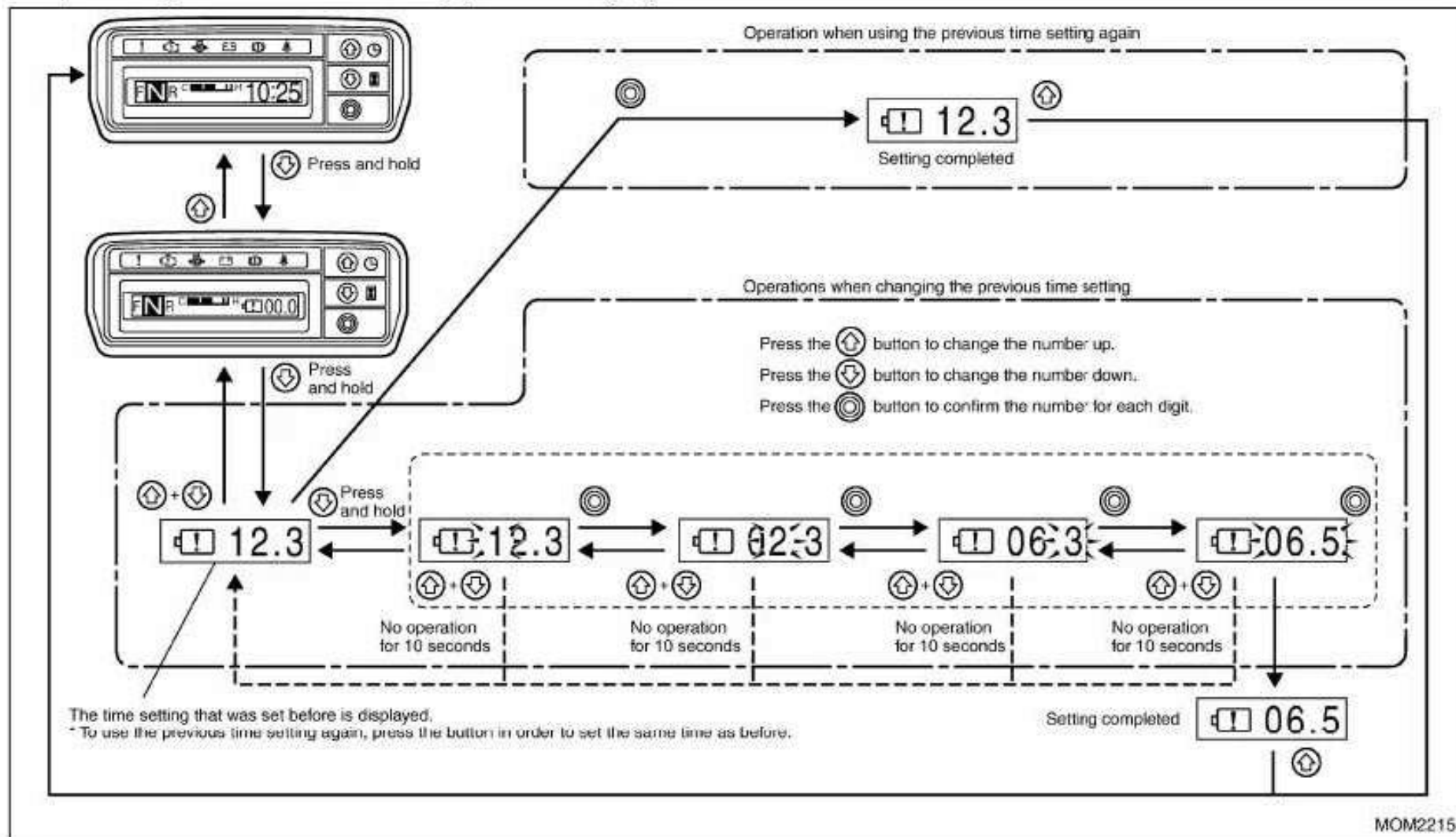
Example: Setting the time to 12.3 hours



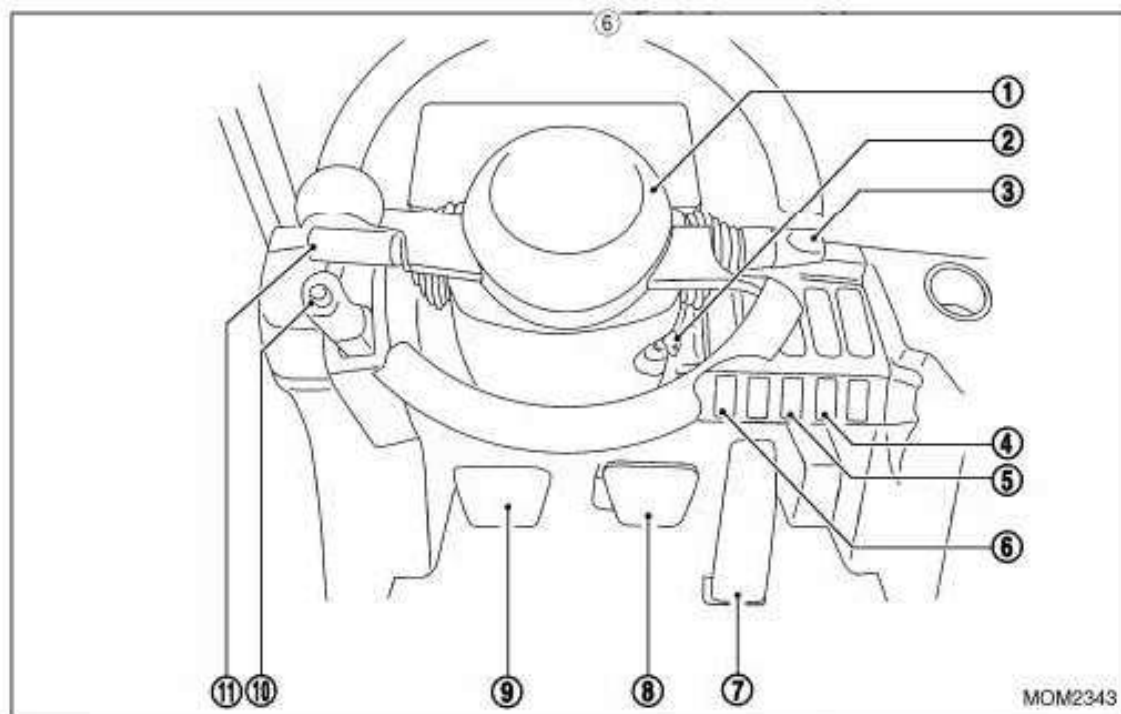
Following is an explanation of how to set the time setting for the second and later times.

Example 1: Changing the time from 12.3 hours (previous setting) to 6.5 hours.

Example 2: Using the same 12.3 hours setting (previous setting) again



## SWITCHES AND CONTROLS (A/T FORKLIFT)



- ① Horn switch
- ② Ignition switch
- ③ Lighting switch and turn signal switch

### NOTE:

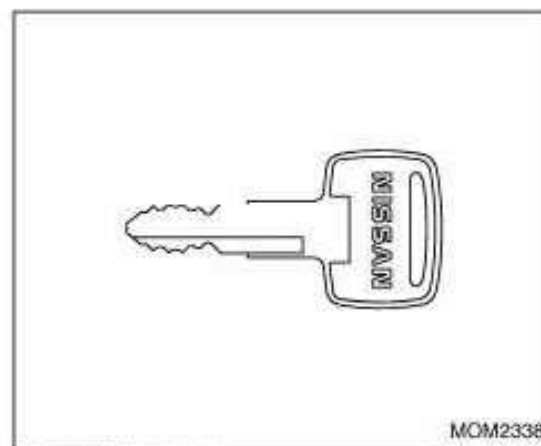
For forklifts with the optional joystick control, this switch is located on the left side.

- ④ Throttle sensitivity adjust switch (option)
- ⑤ Maximum speed change switch (option)

- ⑦ Accelerator pedal
- ⑧ Brake pedal
- ⑨ Inching brake pedal
- ⑩ Parking brake lever
- ⑪ Directional lever

### NOTE:

Operation is the same for the optional right-side selector lever.

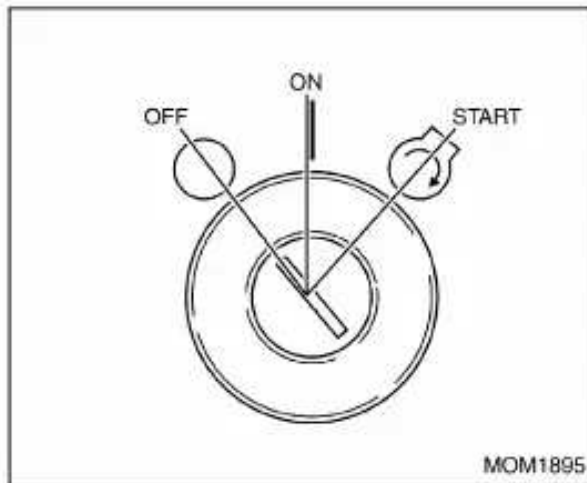


### IGNITION KEY

Insert the ignition key in the ignition switch to start or stop the engine.

### NOTE:

- Two ignition keys are provided with every NISSAN FORKLIFT. Use one key for operation and store the other in a safe place as a spare.
- Be sure to make a note of the key number in case the key is lost. You need to specify the key number when placing an order for additional spare keys to your Local Authorized Dealer.



IGNITION SWITCH

### OFF position

The position that allows the ignition key to be inserted into or removed from the ignition switch. When the ignition switch is in this position, all electric circuits are open but the following can be turned on and off.

- Horn
- Lights by operating the lighting switch
- Rear operating lights (option)
- Braking lights by the application of the brake

### ON position

The position in which the ignition switch is placed when the engine is running. When the ignition switch is in this position, all electric circuits are open.

### START position

To start the engine, turn the ignition switch to the ON position, then to START. When you take your hand off the ignition key after starting the engine, the key returns to this ON position automatically.

#### NOTE:

- **If you leave the ignition switch in the ON position while the engine is stopped, the battery may run down, and this may make it impossible to start the engine. To avoid this situation, always return the ignition switch to the OFF position after stopping the engine.**
- **During operation, the ignition switch is in the ON position. Never turn it to the OFF or START position.**
- **Do not operate the starter for a long time when starting the engine.**
- **If the engine does not start even though you operate the starter repeatedly, return the ignition switch to the OFF position, wait for a short period of time until the battery is restored to a normal voltage**

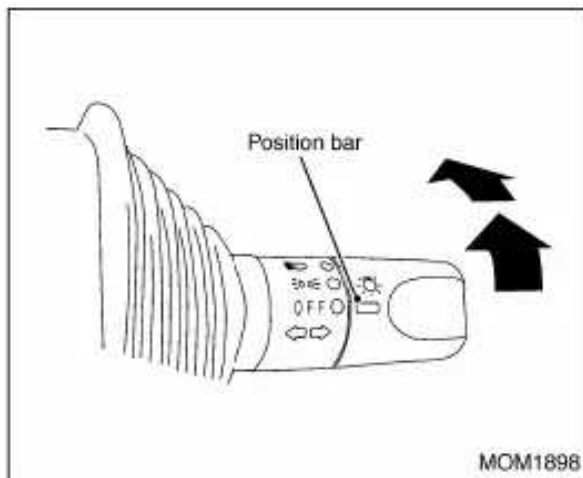
**level, and then try to start the engine again.**

### Gasoline engine forklift

Do not operate the starter for more than 10 consecutive seconds. If the engine does not start, wait for at least 10 seconds and then try to start it again.

### Diesel engine forklift

Do not operate the starter for more than 30 consecutive seconds. If the engine does not start, wait for at least 30 seconds and then try to start it again, starting with preheating.



MOM1898

### LIGHTING SWITCH (option)

To turn on one of the lights listed in the table, turn this switch to align the position bar (-) on the switch knob with the corresponding mark on the switch main unit.

Switch mark	Headlight	Tail light
OFF	Off	Off
	On	On
	Off	On

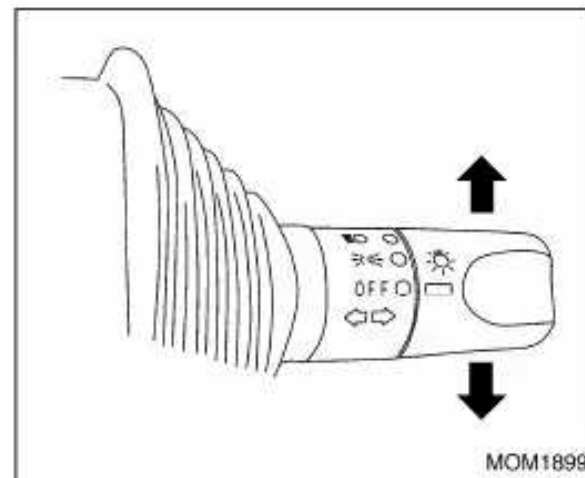


### CAUTION:

Do not touch the headlight lens when the headlight is lit or immediately after the headlight is turned off, because it is very hot.

### NOTE:

- You can turn lights on and off by turning the lighting switch, regardless of the position of the ignition switch.
- Do not forget to turn off all lights when leaving the forklift, otherwise the battery may run down.



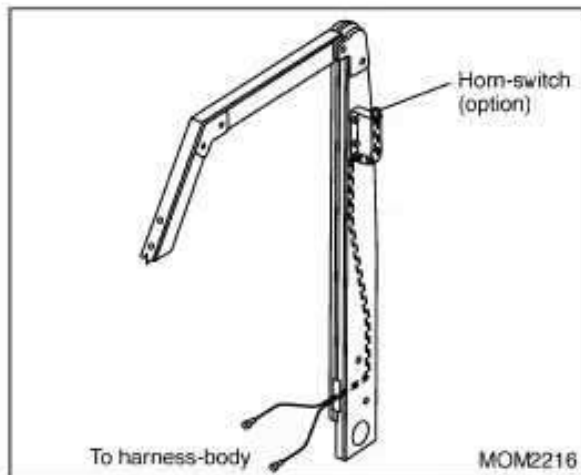
MOM1899

### TURN SIGNAL SWITCH (option)

Push the switch lever forward when turning left, and pull it backward when turning right. The appropriate turn signal will blink. Upon completion of the turn, be sure to return the lever to its original position.

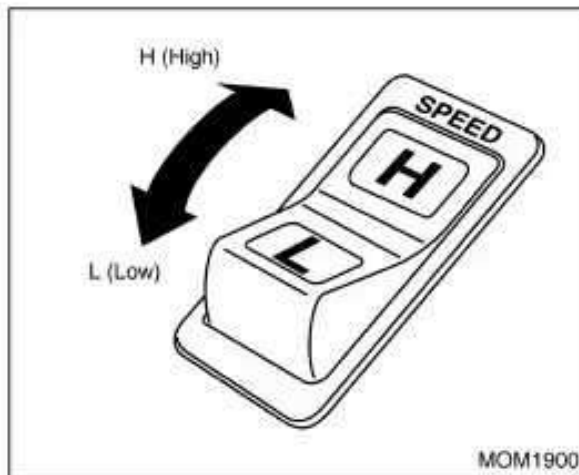
### HORN SWITCH

Pushing the switch in the center of the steering wheel will sound the horn, regardless of the key position.



#### REAR RIGHT GRIP WITH HORN-SWITCH (option)

- This switch allows you to honk the horn from your grip on the rear right pillar.



#### MAXIMUM SPEED CHANGE SWITCH (option)

This switch allows you to switch the maximum speed between H (high speed mode) and L (low speed mode). Press the H (high) side of the switch if there is no need to limit the maximum speed to a low level, or press the L (Low) side to limit the maximum speed to a low level.

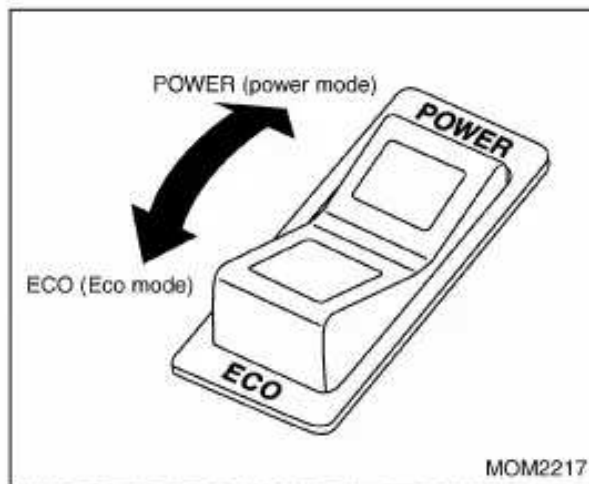
The light on the side you pressed illuminates, indicating the speed mode that is currently selected.



#### CAUTION:

- Do not change the maximum speed when the forklift is running. Doing so could cause the load to shift.
- Only authorized NISSAN FORKLIFT dealers are allowed to change the preset travel speeds. So, if necessary, ask your Local Authorized Dealer to perform this change.





### THROTTLE SENSITIVITY ADJUST SWITCH (option)

This switch allows you to change the starting acceleration between POWER (power mode) and ECO (economy mode). Press the POWER side of the switch to accelerate the forklift at a normal rate, or press the ECO side to accelerate the forklift slowly.

The light on the side you depressed illuminates, indicating the power mode that is currently selected. You can switch from one mode to the other, as described in the table.

Switching operation	During driving	During a halt and ignition switch OFF
From POWER to ECO	Not possible	Possible
From ECO to POWER	Not possible	Possible

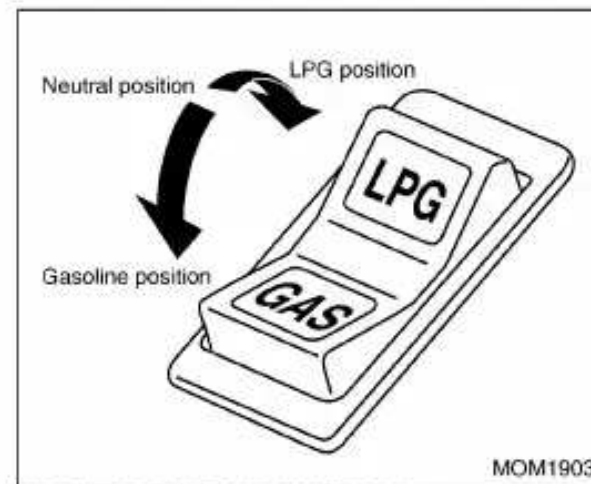


#### CAUTION:

Turn the ignition switch off before changing the **POWER/ECONOMY SWITCH**.

#### NOTE:

Switching from the **ECO mode to the POWER mode can be done only when the accelerator is released.**



### FUEL-CHANGE SWITCH (LPG - gasoline dual fuel forklift)

This switch is used to switch fuel from LPG to gasoline or from gasoline to LPG.

**LPG position:** Turn to this position to use LPG.

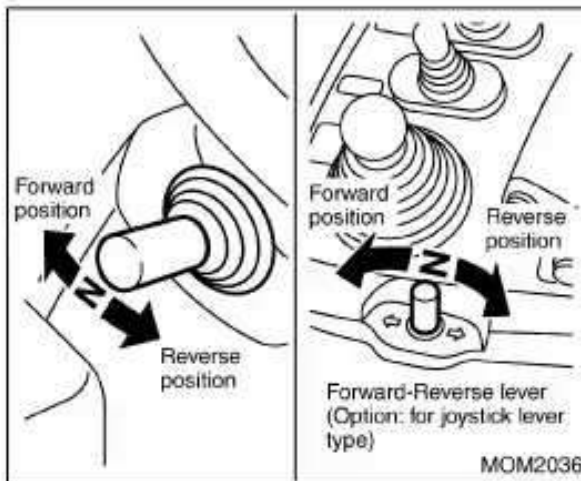
**Neutral position:** Turn to this position to exhaust fuel from the fuel pipe.

**Gasoline position:** Turn to this position to use gasoline.

The light illuminates for the fuel that is currently being used.

**NOTE:**

- When the engine is running, you should not switch between fuels by operating the switch (refer to page 53 and 54).
- To switch from one fuel to the other, strictly follow the specified procedure after warming up the engine (refer to page 53 and 54).
- To prevent deterioration of gasoline, drive the forklift with gasoline several kilometers / miles about once every two weeks.
- The engine does not start when the selector switch is in the neutral position. Do not forget to turn the switch to the LPG or gasoline position before starting the engine.

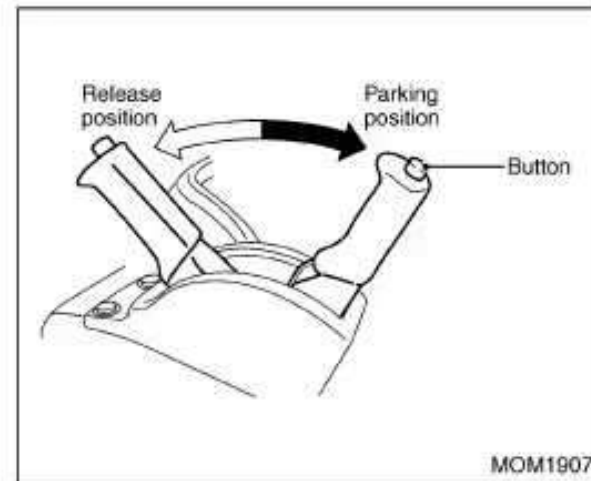
**SELECTOR LEVER**

This lever is used to change the travel direction of the forklift (forward or reverse). Push the lever forward to drive forward, or pull the lever towards you to back up. The neutral position is at the midpoint.

The same operating method applies to the selector lever positioned on the right side of the forward-reverse lever (option).

**NOTE:**

**The engine cannot be started when the selector lever is in any position other than the neutral position.**

**PARKING BRAKE LEVER**

When parking the forklift, fully pull the lever towards you. To release the parking brake, push down the button on top of the lever and then push the lever forward.

When parking the forklift on a slope, always fully pull the lever towards you and set a chock behind each wheel.

**WARNING:**

- Always depress the brake or inching pedal before releasing the parking brake to avoid movement of the forklift before selecting a direction.

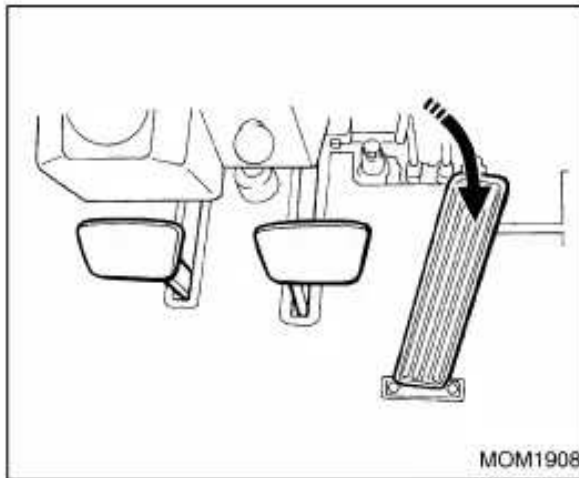
**CAUTION:**

- Driving the forklift with the parking brake applied could cause the brakes to fail due to overheating. Also, it increases brake pad wear.

**NOTE:**

To remind the operator to apply the parking brake, an alarm will sound if:

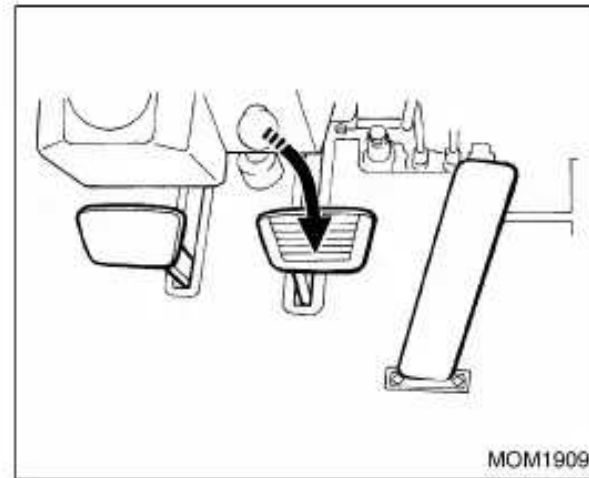
- The operator leaves the operator's seat without applying the parking brake while the ignition switch is in the ON position.
- The operator turns off the ignition switch without applying the parking brake, whether or not the operator is sitting in the operator's seat.

**ACCELERATOR PEDAL**

This pedal will allow you to adjust the engine speed (RPM's). The engine speed changes according to the degree to which the accelerator pedal is depressed.

**WARNING:**

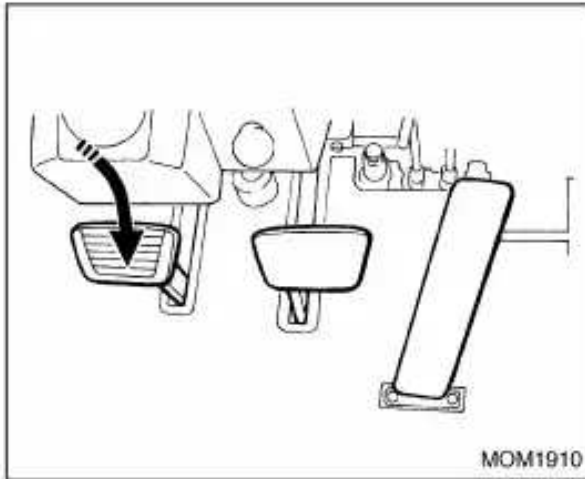
Do not depress the accelerator pedal quickly. Depress it slowly to prevent a sudden or rapid start, causing the load cargo to shift or fall off forks.

**BRAKE PEDAL**

This pedal allows you to bring the forklift to a stop or slow it down.

**WARNING:**

- Do not brake the forklift too hard. Doing so may cause the forklift to become unbalanced and could result in a serious accident, tip over, or loads to shift.
- Adjust the braking effort according to the load (cargo) weight.
- Do not leave your foot on the brake pedal while driving. Doing so may cause the brakes to fail because of overheating. Also, it will increase brake pad wear.



### INCHING BRAKE PEDAL

The inching brake pedal allows you to finely adjust the forward and reverse running speed.

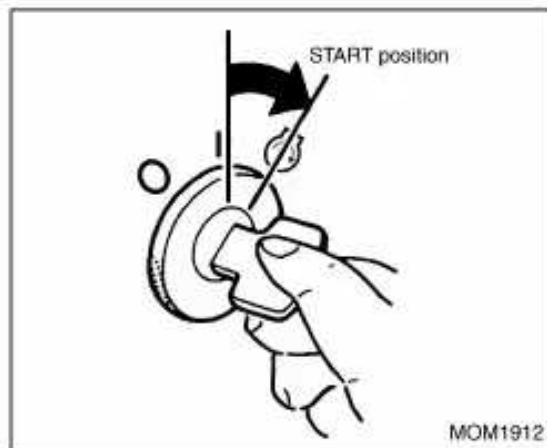
The internal clutch begins to slip when you slightly depress this pedal, and the internal clutch is completely disengaged and the brakes are applied when you further depress the pedal, in which case the inching brake pedal acts in the same way as a brake pedal.



### WARNING:

- Do not leave your foot on the inching brake pedal when driving the forklift.
- Doing so may cause the internal clutch to slip and prevent the engine from slowing the unit. Moreover, it could cause overheating of the brakes which may cause lower life of brake shoes or failures.
- Also, doing so may cause the internal hydraulic clutch in the transmission to slip and give off a large amount of heat, causing the internal hydraulic clutch to overheat, increase wear or seize (lock) up.

## STARTING AND OPERATING



### GASOLINE ENGINE STARTING (Including LPG - gasoline dual fuel forklift)



#### WARNING:

- Do not breathe exhaust gases. They contain colorless and odorless carbon monoxide. Carbon monoxide is a dangerous gas and can cause unconsciousness or death.
- Do not run the engine in closed spaces or poorly ventilated rooms such as a garage or refrigerator, etc.



#### WARNING:

- Inspect the condition of the LPG hoses, hose connections and pipes for leaks before starting the engine.
- In the event of LPG leakage or some other malfunction, close the discharge valve immediately. Have the LPG system checked by your Local Authorized Dealer.

Follow the procedure outlined below to start the engine.

LPG - gasoline dual fuel forklifts have a fuel-change switch. Use this switch to select the desired fuel.

When using LPG, slowly open the discharge valve (may be red) on LPG cylinder (tank) to start the engine.

1. Pull the parking brake lever up as far as possible. Move the selector lever to the neutral position.
2. Depress the inching brake pedal as far as it can go.
3. Remove your foot from the accelerator pedal. Turn the starter to start the engine.

#### OPERATION NOTE:

For forklifts that use Driver Recognition codes, engine will start without code being

entered but transmission and hydraulic operation will be locked out until correct code is entered.

#### NOTE:

Do not operate the starter for more than 10 seconds. If the engine fails to start within 10 seconds, release the starter and wait for 10 seconds before attempting to start the engine again. This allows the battery time to recover and starter time to cool.

4. After starting the engine, give it time to warm up. Allow the engine to idle for 1 minute after starting. Then, press the accelerator pedal lightly and release it. If the surrounding temperature is high, lightly pressing and releasing the accelerator pedal will reduce engine speed and permit quiet warming up. This also results in fuel savings.



#### WARNING:

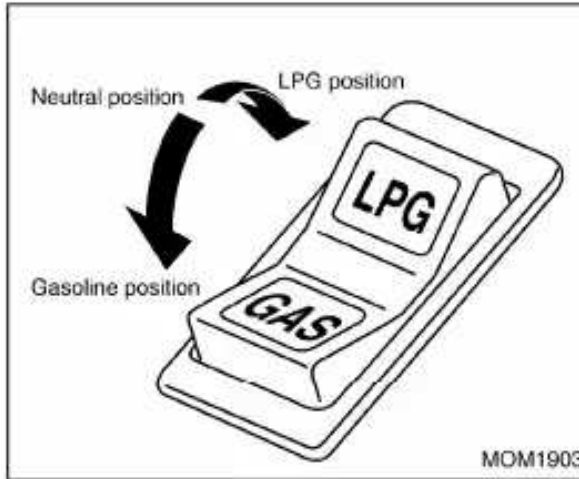
The engine speed becomes high immediately after starting. Exercise caution when moving the forklift or handling load cargo so cargo (load) does not shift off of forks.

#### NOTE:

- The engine is cold immediately after starting. Do not intermittently race the engine or run the engine at high speeds immediately after starting.

**CAUTION:**

- Do not move the key to the **START** position when the engine is running. Damage to the starter motor will result.
- After operation, always close the **LPG** discharge valve (may be red) on **LPG** cylinder (tank) after shutting the engine off (down).
- After operation, if the forklift is not used for several hours or more, or during cold weather seasons, park the forklift with the fuel-change switch positioned on the gasoline side. This helps to start the engine more easily the next time (**LPG** - gasoline dual fuel forklift).



**FUEL-CHANGE SWITCH**  
(LPG - gasoline dual fuel forklift)

**WARNING:**

Do not operate (turn on or open) the **LPG** cylinder (tank) change (refill) valve. Opening the valve may cause **LPG** to leak into the atmosphere and could cause a fire, personal injury, or death.

**TO CHANGE FROM LPG OPERATION TO GASOLINE OPERATION**

1. Press the fuel-change switch and change the switch position from the **LPG** to the neutral position.
2. Shut off the red or discharge valve on the **LPG** cylinder side.
3. Let the engine run at idle until it stops.
4. After the engine has completely stopped, move the fuel-change switch to the **GAS** position. Restart the engine.

**CAUTION:**

Directly changing over **LPG** to **GAS** without the fuel-change switch first being positioned at the neutral position causes the remaining fuel (**LPG**) and gasoline to be mixed, resulting in a poorly operating engine. Before changing the switch position, always exhaust the remaining fuel (**LPG**) by setting the switch to the neutral position.

To change from gasoline operation to **LPG** operation

1. Press the fuel-change switch and change the switch position from **GAS** to the neutral position. Slightly depress the accelerator pedal and hold it to allow the engine to race. Continue pressing the accelerator pedal until the engine stops.

To change from gasoline operation to LPG operation

2. After the engine has completely stopped, open the red discharge valve on the cylinder side and move the fuel-change switch to the LPG position. Restart the engine.



**CAUTION:**

Directly changing over GAS to LPG without the fuel-change switch first being positioned at neutral causes the remaining fuel (gasoline) and LPG to be mixed, resulting in a poorly operating engine. Before changing the switch position, always exhaust the remaining fuel (gasoline) by setting the switch to the neutral position.

**NOTE:**

- **Change the fuel-change switch position according to the operating procedure of this switch. Otherwise, the air/fuel ratio of fuel (mixture) is negatively affected, making it difficult to start the engine.**
- **When driving an LPG-gasoline dual fuel vehicle using LPG during the cold weather seasons, first start the engine using gasoline and then change over to LPG with the fuel-change switch after warming up the engine.**

- **Do not use the fuel-change switch to change fuels when the engine is running. Change fuels only after the engine has completely stopped.**
- **Operate the vehicle with gasoline for 30 minutes or for several miles (kilometers) at least once every two weeks. This will prevent gasoline deterioration.**
- **Do not change fuels immediately after starting the engine. Allow the engine to warm up before changing fuels.**
- **With the fuel-change switch set to the neutral position, the engine cannot be started. Before starting the engine, always change over the switch position to LPG or gas.**

Carefully follow the procedures below when turning the engine off after LPG operation.

1. Move the fuel-change switch to the neutral position.
2. Let the engine idle until it stops.
3. Make sure that all of the remaining LPG (in the piping and other receptacles) has been used. After the engine stops, turn the ignition switch to the OFF position.
4. After completion of operation and before storing the vehicle for an extended period, completely close the (red / gray) discharge valve.

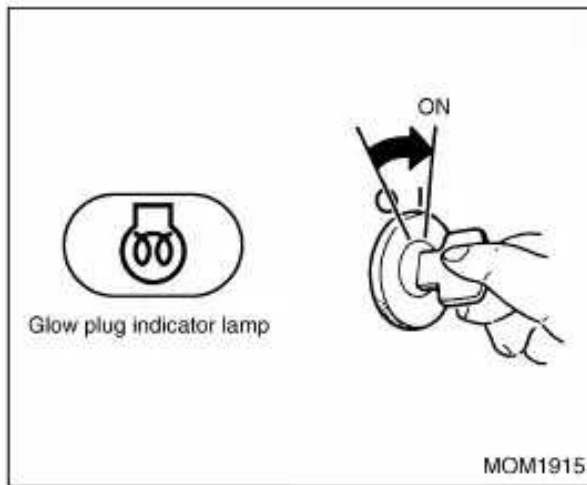
Check the engine for gas leakage. Refer to "LPG cylinder replacement" on page 112.

- **If the forklift is not used for several hours or more after operation, park the forklift with the fuel-change switch in the GAS position. This helps to start the engine more easily the next time.**



**WARNING:**

- **In the event of gas leakage, an accident, or some other malfunctions, immediately and completely close the discharge valve (colored red or gray). Have the LPG system checked at your Local Authorized Dealer.**



## DIESEL ENGINE

### Starting

1. Set the parking brake lever and move the selector lever to the neutral position.
2. Depress the inching brake pedal as far as it can go.
3. When the ignition key is turned to the ON position, the glow plug indicator lamp on the instrument panel illuminates, indicating that engine preheating has started.

Keep the ignition key in the ON position until the glow plug indicator lamp turns off (indicates completion of preheating).

### NOTE:

Engine preheating is controlled automatically corresponding to the engine coolant temperature, atmospheric air temperature, etc., and the glow plug indicator lamp turns off when the engine is preheated to the specified temperature.

4. When the glow plug indicator lamp has turned off, turn the ignition key to the START position while fully depressing the accelerator pedal, until the engine starts.

### NOTE (for diesel engines only):

- Do not operate the starter for more than 30 consecutive seconds.
  - If the engine does not start even after operating the starter 3 times for approximately 5 seconds, turn the ignition key to the OFF position and then wait for about 30 seconds. Subsequently, try to start it again from the preheating process.
5. After the engine has started, release the accelerator pedal gradually and then perform warm-up of engine.

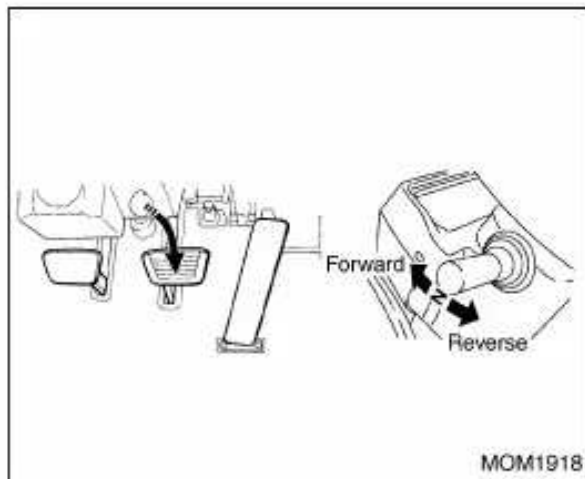
### NOTE:

- When restarting, return the ignition key to the OFF position once, and then turn it to the START position.
- Regardless of the atmospheric temperature, always perform warm-up for approximately 5 minutes. During warm-up, check for any malfunction of meters, warning lights or indicator lamps.
- Failure to properly warm up the engine can cause degradation and shortened life of engine.
- When it is not necessary to preheat the engine because of high engine coolant temperature immediately after it stops or for some other reasons, the engine can be started by turning the ignition switch to the START position before the glow plug indicator lamp turns off.
- If the glow plug indicator lamp is not illuminated, malfunction may exist. In this case, promptly contact your supervisor for measures or contact your Local Authorized Dealer to inspect the forklift.

### Stopping

To stop the engine, turn the ignition key to the OFF position.





## AUTOMATIC TRANSMISSION MODELS



### WARNING:

- Forklifts manufactured for North America will creep any time the F/R direction is selected and the brake or inching pedal is not depressed.
- For forklifts manufactured for outside North America the transmission will go into Neutral (no creeping) when accelerator is released and unit speed is below 4.5 mph (6.5 km/h).
- In either model the parking brake must be set anytime the operator leaves the seat, because transmission will go to neutral and unit may roll.



### CAUTION:

While the forklift is moving, do not move from Forward to Reverse position, this may damage the transmission or cause the load to shift.

1. Starting the forklift from the stopped condition  
When the (F/R) forward-reverse lever is in the neutral position:
  - The forklift will not move even if accelerator is depressed.
2. When the selector lever is in the F (forward) or R (reverse) direction position:
  - The forklift starts moving when the accelerator pedal is depressed.

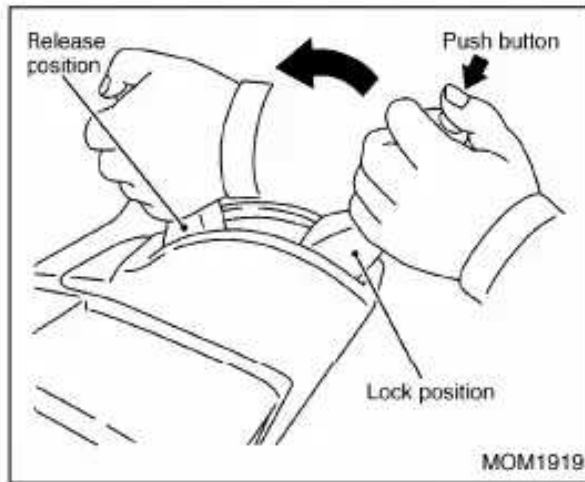
### OPERATION NOTE:

- Forklifts manufactured for North America will creep in direction of shift lever, the inching pedal or brake must be applied.
  - Forklifts manufactured for outside N.A. do not move (creep), if the accelerator pedal is not depressed.
3. While driving the forklift  
When the selector lever is in the F or R position:
    - The forklift continues accelerating by depressing the accelerator pedal.
    - When the accelerator pedal is released. The transmission will stay engaged and slow down as the engine now acts as an engine brake.

- For forklifts manufactured for outside North America, the automatic transmission disengages to the neutral position if the forklift speed is below 4.5 MPH (6.5 km/h) for 3 seconds.

When the selector lever is in the neutral position:

- The lever is in the neutral position independent of the forklift speed.
4. Inhibitor function  
When the selector lever is in the F (forward) or R (reverse) position, it is not possible to start the engine.
  5.
    - Forklifts not manufactured for North America have no creep function (will not creep).
    - When starting on slopes or inclines, be sure to apply the parking brake to hold the forklift and then start, even if the slopes are gentle.
    - The forklift will not move if the selector lever is in the F (1st or 2nd) or R position unless you depress the accelerator pedal. Before depressing the accelerator pedal, be sure to visually confirm the position of the selector lever.
    - Avoid rapid acceleration (especially when carrying a high load) to keep any load from shifting on forks.



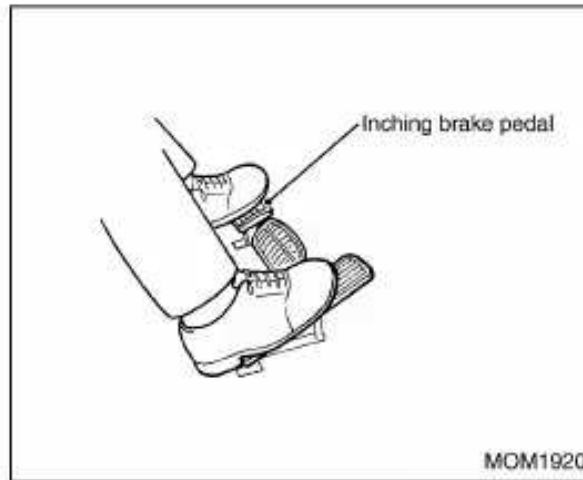
## PARKING BRAKE LEVER

To set the brake, pull the parking brake lever backward. To release the brake, press the button and then push the parking brake lever forward. Before leaving the forklift, be sure to apply the parking brake securely.



### WARNING:

**Always depress the brake or inching pedal before releasing the parking brake to avoid movement of the forklift before selecting a direction.**



## INCHING BRAKE PEDAL

1. Fully depress the inching brake pedal.
2. Move the selector lever to the forward or reverse position.
3. Depress the accelerator pedal little by little. At the same time, gradually releasing the inching brake pedal moves the forklift bit by bit.



### WARNING:

- When the inching/brake pedal is fully depressed the service brake will be applied. Do not use the inching/brake pedal as the method for stopping the forklift. In normal traveling operations, the inching/brake pedal should only be used during loading, or unloading, which requires short, controlled movement of the forklift.
- During deceleration on any grade, only use the brake pedal or an increase or decrease in speed by using the accelerator. Do not use or depress the inching pedal because this would put the transmission in the neutral mode.

## LOAD CONTROL LEVERS

To control the loading mechanism for moving the fork up and down and tilting the mast forward and backward, there are two operating methods: 2-lever type or 1-lever type.

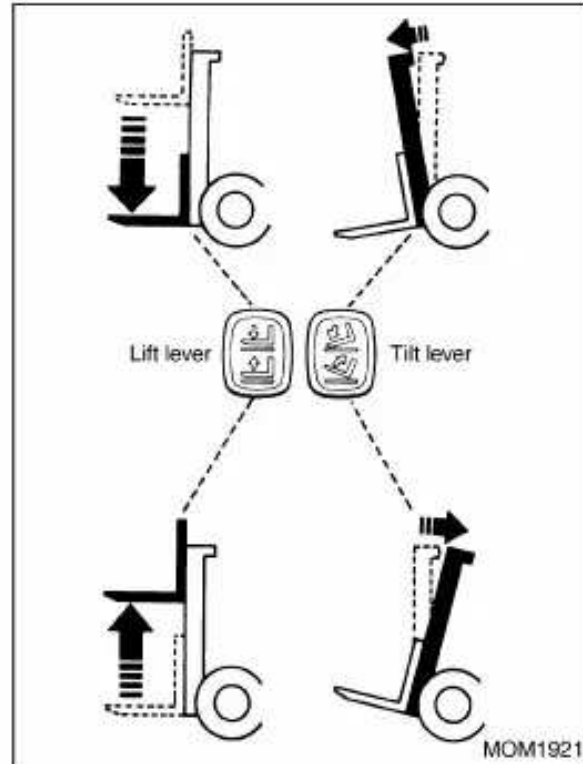
Before using the forklift, make sure which operating lever type is adopted for controlling the loading mechanism and thoroughly read the related instruction manual.



### WARNING:

- Always sit in the operator's seat when operating the lever.
- Operating the control lever without properly sitting in the operator's seat causes the loading interlock warning light to blink and the loading mechanism to be inactive.
- Before operating the lever, make certain that the surrounding area is clear and it is safe to proceed.
- If the engine is stopped, operation of the lever to the downside or lowering direction may cause the fork and mast to go down due to its own weight or the cargo that may be on the forks. This may result in serious damage or injury.
- Always avoid any abrupt or sudden lever operation that may cause loads to shift or fall off fork or cause the forklift to become unbalanced and tip over.

## 2-lever type



This method uses 2 levers: a lift lever for moving the fork up and down and a tilt lever for tilting the mast forward and backward:

- Lift lever:  
Lift: Pull the lever to the operator side.  
Lower: Push the lever forward.

- Tilt lever:  
Forward: Push the lever forward.  
Backward: Pull the lever to the operator side.



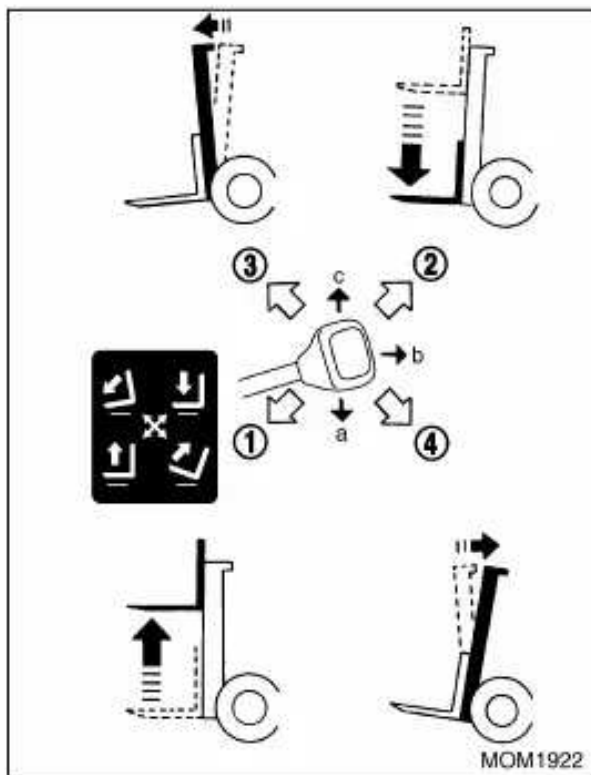
### WARNING:

- Do not perform forward tilt while raising the forks, as this may cause loads to shift or fall, which could affect the stability of the forklift.
- Do not perform forward tilt while lifting loads in higher positions. This may cause loads to shift or fall, which could affect the stability of the forklift.

### NOTE:

- Control of lifting speed:  
Can be changed by controlling the tilt angle of the lever and by how much the operator depresses the accelerator pedal.
- Control of lowering speed:  
Can be changed only by controlling the tilt angle of lever. Do not depress the accelerator pedal.
- Control of forward and backward tilting speeds:  
For both forward and backward tilts, the speed can be changed by controlling the tilt angle of the lever and by how much the operator depresses the accelerator pedal.

## 1-lever type



This method performs up and down movements of the fork and forward and backward tilting of mast using 1 lever:

- ① Lift: Diagonally pull the lever to the left side of the operator.
- ② Lower: Push the lever in the right forward direction.

- ③ Forward: Push the lever in the left forward direction.
- ④ Backward: Diagonally pull the lever to the right side of the operator.

Simultaneous operations are also allowed by combining up and down movements and forward and backward tilts. This may be done by moving the lever into the a, b or c position.

- a: Backward tilt while lifting:  
Pull the lever to the center of the operator side.
- b: Backward tilt while lowering:  
Turn over the lever to the right side of the center.
- c: Forward tilt while lowering:  
Push the lever in the center forward direction.



### WARNING:

**Do not perform forward tilt while raising the forks, because this may cause loads to shift or fall, which could affect the stability of the forklift.**

### NOTE:

- Control of lifting, forward tilting and backward tilting speeds:  
Can be changed by controlling the tilt angle of the lever and by how much the operator depresses the accelerator pedal.
- Control of lowering speed:  
Can be changed only by controlling the tilt

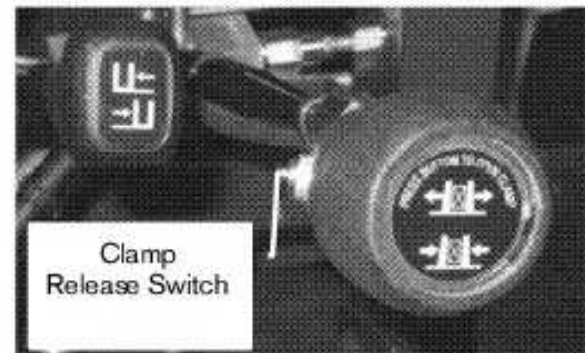
angle of the lever. Do not depress the accelerator pedal which will increase engine speed.

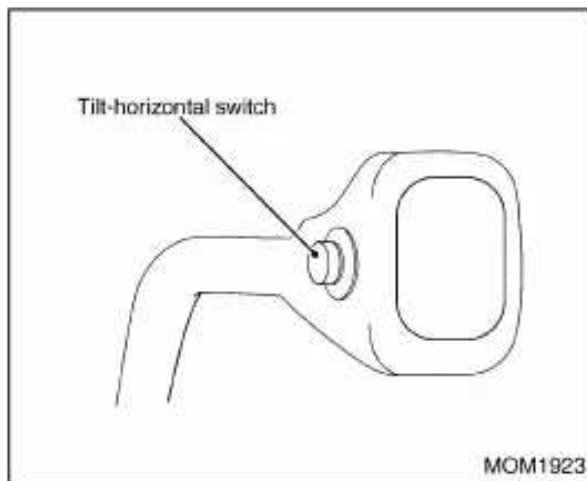
## REVISED ANSI STANDARDS FOR FORKLIFT CLAMP ATTACHMENTS

A revision to the ANSI Standards regarding forklift mounted clamp attachments took effect for trucks shipped on or after October 7, 2010. This revised standard affects lift trucks equipped with a load bearing clamp (paper roll clamp, carton clamp, etc.) and requires the operator to perform two distinct motions before opening (releasing) the clamp.

### Clamp Release - System Operation:

- The clamp will close, or clamp the load, by operating the auxiliary hydraulic lever without pushing the switch.
- The operator must press the clamp release switch, prior to operating the auxiliary hydraulic lever, to open the clamp (even while not clamping the load).





### TILT-HORIZONTAL SWITCH (option)

When forward tilt is performed with the mast tilted backward, the forward tilt operation can automatically be stopped in the position where the fork is level.

Performing forward tilt while pressing the tilt-horizontal switch moves the mast as shown in the following list, depending on the loading condition and lifting height:

#### North America

Loading condition	Forward tilt operation of mast
Without load	Automatically stops in the horizontal fork position.
With load	<ul style="list-style-type: none"> <li>• No automatic forward stop to horizontal</li> <li>• No movement when turning on the tilt-horizontal switch</li> </ul>

With load: Turning on the tilt-horizontal switch during operation will not automatically stop tilt in the horizontal direction (no movement).

#### GOM

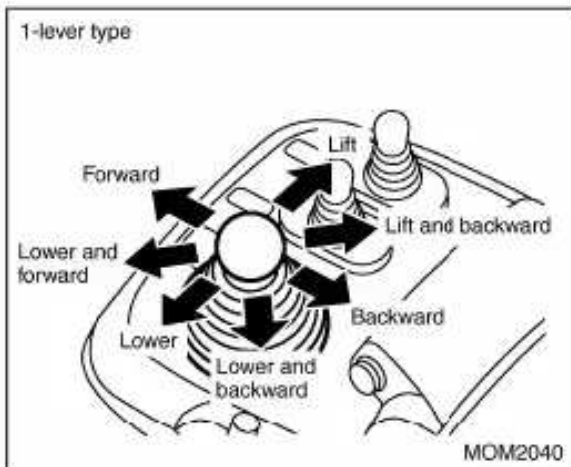
Loading condition	Lifting height	Forward tilt operation of mast
Without load	Low lifting height	Automatically stops in the horizontal fork position.
	High lifting height	
With load	Low lifting height	No automatic forward stop to horizontal
	High lifting height	

#### NOTE:

- In case of 2-lever method, the tilt-horizontal switch is attached to the tilt lever.
- The tilt-horizontal switch is kept on while pressed and turned off when released.
- Unless the tilt-horizontal switch is pressed, normal forward and backward tilt operations are performed.

**WARNING:**

**Do not use this function if the road surface is not level. The horizontal fork position allowing automatic stops requires a position parallel to the road surface. Load may shift and unit may become unstable.**



### JOYSTICK CONTROL LEVER TYPE (option)

The joystick lever is an electrically controlled type. The cargo handling operation can be performed only when the ignition switch is turned on.

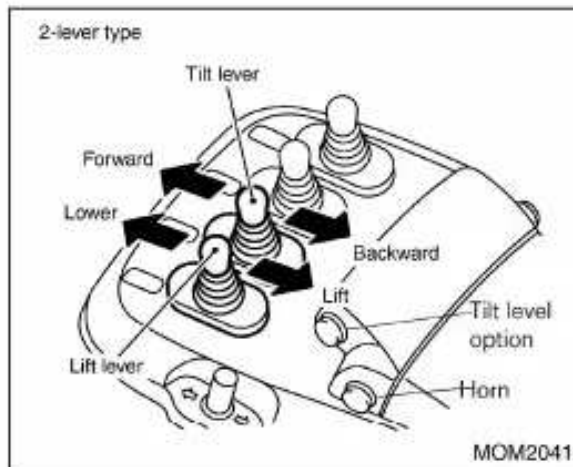


#### WARNING:

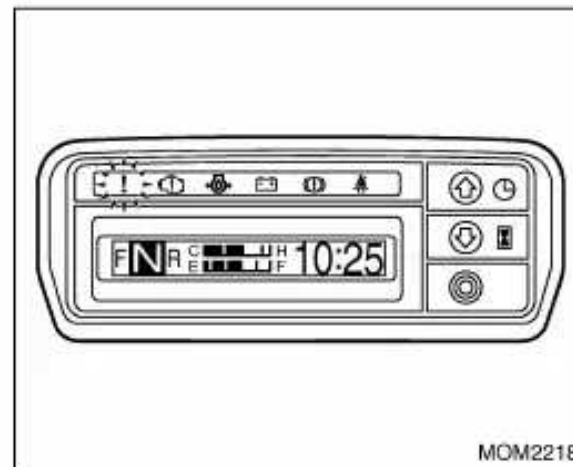
Do not perform forward tilt while raising the forks, as this may cause loads to shift or fall, which could affect the stability of the forklift.

#### NOTE:

- Before the ignition switch is turned on, make sure that the joystick lever is set to the neutral position. If the lever is placed in any position other than the neutral position, cargo handling or fork operation cannot be performed.

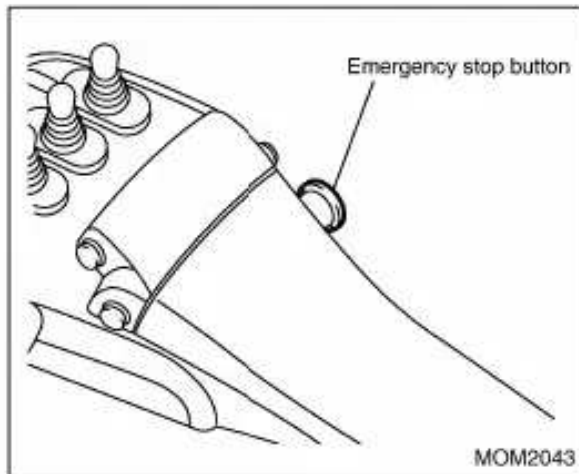


- When the ignition switch is turned off, the forks do not lower even under their own weight.
- The joystick lever is used to tilt the mast forward or backward and to lift or lower the forks. Cargo handling speed (lift, lower, forward and backward) can be adjusted by the distance that the lever is moved.
- For detailed joystick lever operation, refer to the illustration above.



#### WARNING:

The warning mark ! and a malfunction message will appear on the meter when the joystick control system malfunctions. When this occurs, immediately stop cargo handling operations and have the forklift checked and repaired by your Local Authorized Dealer.



#### **WARNING:**

If a malfunction or problem in the cargo handling operation occurs regardless of the joystick or lever position, press the emergency stop button on the console box, stop cargo handling operations and have the forklift checked and repaired by your Local Authorized Dealer. (To release the emergency stop button, turn it in the direction indicated by the arrow.)

## TRAVELING

While traveling, the mast should be tilted back and the forks lowered to approximately 8 in (200 mm) above the ground.



#### **WARNING:**

For units manufactured outside the U.S.:

- The forklift will not move if the selector lever is in the F or R position unless the operator depresses the accelerator pedal. Before depressing the accelerator pedal, be sure to visually confirm the position of the selector lever.
- When starting on slopes, be sure to apply the parking brake to hold the forklift and then start, even if the slopes are gentle.
- Avoid rapid acceleration (especially when carrying a high load).

For forklifts manufactured in or for the U.S.:

- Forklifts will creep when / if accelerator pedal is fully released.

## TURNING

The smaller the radius of a turn to be made, the lower the speed of the forklift should be. When making a sharp turn, always drive the forklift at a low speed.



#### **WARNING:**

- Do not make a turn with the fork lifted high or at a high speed. This could result in a loss of control and potential tip-over.
- Because the movement of a forklift is different from that of a passenger vehicle, always reduce speed while making turns to ensure that the forks and counterweight will clear objects during the turn. Turning at a high speed could result in loss of control and a potential lateral tip-over.

## CLIMBING SLOPES OR INCLINES

On a NISSAN FORKLIFT equipped with an automatic transmission, standing starts and stopping on a slope can be accomplished by manipulating the accelerator and brake pedals as required.

For stopping, the brake pedal should be used at all times.

For traveling, depress the accelerator pedal. To make a standing start on a slope, the parking brake can be used instead of the brake pedal.

## STOPPING AND PARKING

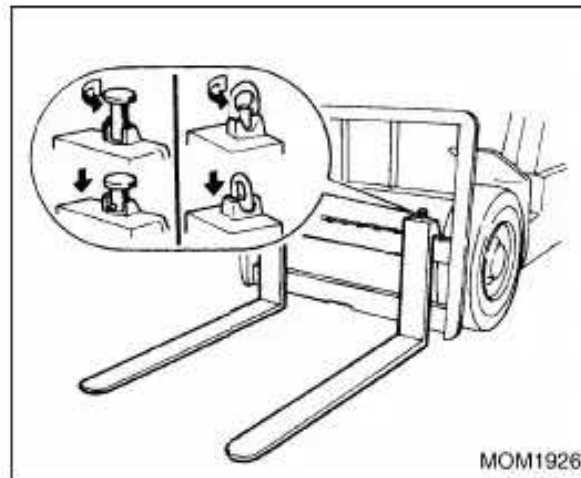
To stop the forklift, remove your foot from the accelerator pedal and depress the brake pedal.



- **Do not make sudden stops because the forklift may pitch forward and cause the load to shift or drop off forks.**
- **When leaving the forklift, set the parking brake, adjust the mast to an upright position, lower the forks until they rest on the ground and turn off the ignition switch.**

### NOTE:

- **If the operator leaves the operator's seat without pulling the parking brake lever, the warning buzzer alerts the operator.**
- **If the operator is more than 25 ft (7.6 m) from the forklift or moves out of sight of the forklift, the key should be removed.**
- **If forklift is LPG or dual fuel, always shut off LP tank discharge valve.**



## FORKS

The fork-to-fork distance can be properly adjusted by unlocking the lock pins on the forks. These pins are unlocked by pulling them up and turning them 90° in either direction. Forks must be equally located from the center of the forklift. After the correct fork-to-fork distance is obtained, secure the forks with the lock pins.

### NOTE:

**Various kinds of forks are available depending on the lifting capacity. Select the proper forks so that the specifications stamped on the side face of them will meet the lifting capacity of your forklift. Do not use forks with specifications that are below the lifting capacity of your forklift.**



## LOADING AND UNLOADING



### WARNING:

For U.S.

- **Forks should be inspected daily for any damage, bending or other malfunctions. Report any conditions to your supervisor.**
- **ITSDF & OSHA require that forks be replaced if worn more than 10%. This should be checked during normal P.M. or at a minimum, yearly, by your Local Authorized Dealer.**

### LOADING

Adjust the distance between the forks so that they are at or near the same distance from the centerline of the forklift. The wider the interval between forks, the better the balance. Be sure to apply the fork latches after setting the forks. (Refer to page 63.)

Approach slowly, straight toward the load, and stop just in front of it. Adjust the mast to the vertical position, matching the height of the forks to the position of the pallet. Advance slowly and completely insert forks beneath the load. Set the selector lever to the neutral position and apply the parking brake. Then raise the load. Confirm that the load is stable and tilt it backward. Release the parking brake and back up the forklift slowly.

### TRANSPORTATION

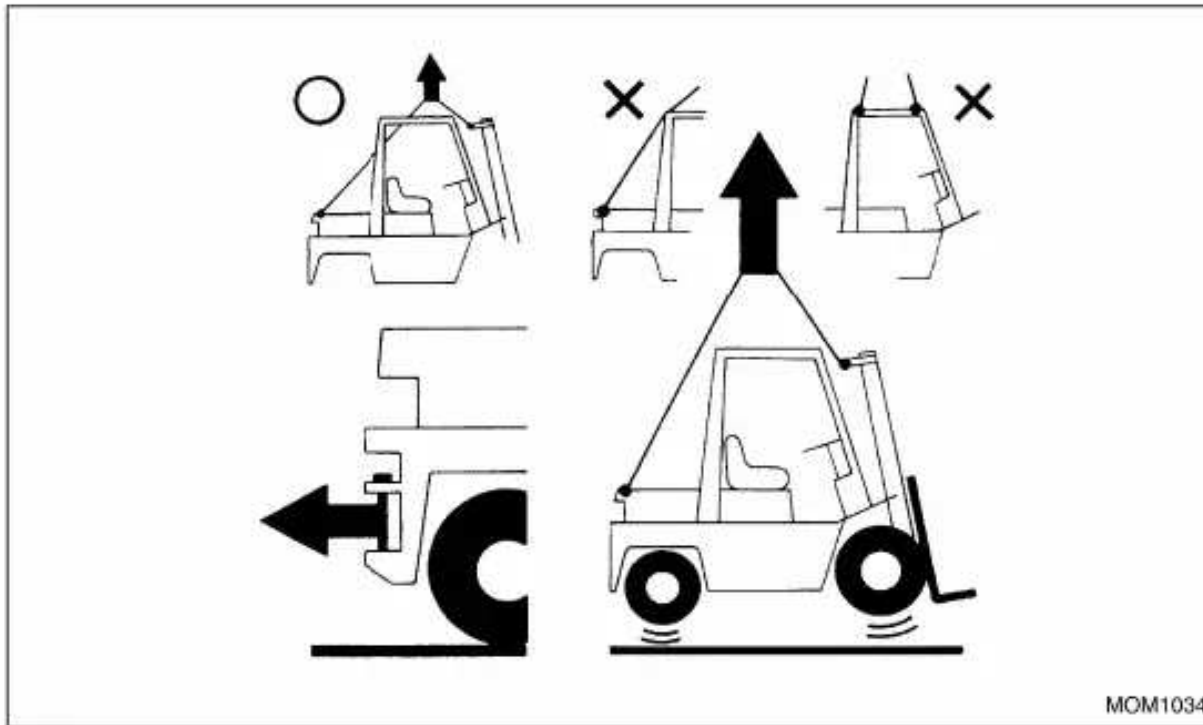
When transporting loads, the forklift should be driven carefully at a slow speed with the load kept low and tilted back. When the load is big enough to block forward visibility, drive the forklift backward. Follow the safety rules.

### UNLOADING

Slowly approach the unloading site and stop facing straight ahead.

Move the selector lever into the neutral position and apply the parking brake. After adjusting the mast to the vertical position, raise the load a little above the stack on which it is to be placed. Release the parking brake and advance slowly into the proper position for stowing. Apply the parking brake and place the selector lever in the neutral position.

Slowly lower the forks to set down the load. After moving the selector lever to the reverse position, release the parking brake and back up the forklift until the forks separate completely from the load.



MOM1034

## LIFTING FORKLIFT



### WARNING:

Only use this method as a last resort to move the forklift if the normal work application requires repeated lifting. Permanent lifting devices must be mounted on the forklift by NISSAN FORKLIFT CORPORATION. Contact your Local Authorized Dealer for more details.

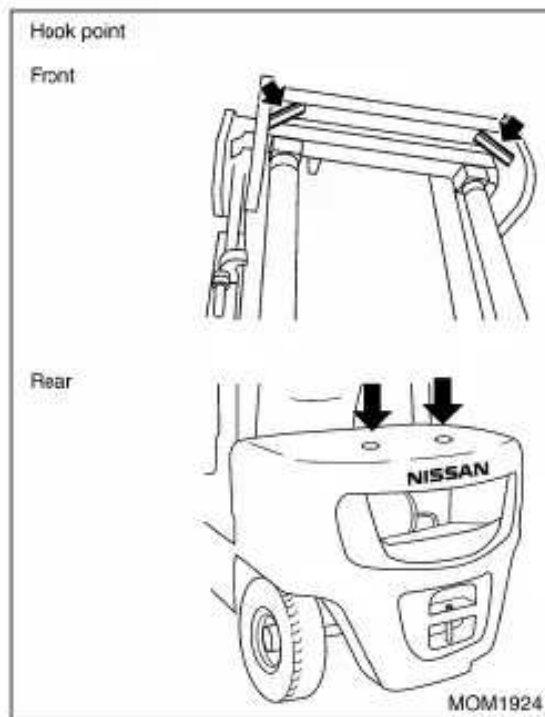
When lifting the entire forklift, secure wire ropes to the holes located on both sides of the outer mast cross beam and to the hook on the counterweight, and then utilize a lifting device.



### WARNING:

- Make sure that the wire ropes do not interfere with the overhead guard while lifting the forklift.
- Make sure that the wire ropes and lifting device are strong enough to support the forklift safely, because the forklift is extremely heavy.
- Do not use the cab frame (overhead guard) to lift up the forklift.
- Do not get under the forklift while lifting the forklift.

## FUNCTION TESTS



The functional tests are performed to check whether the forklift functions correctly after it has been transported (over land or water), or after it has been taken out of storage.

The test covers the following items, but since exclusive tools and equipment are required for Items 1 and 2, request that your Local Authorized Dealer perform the test.

### Items

1. Those that are indicated in daily care.
2. Dynamic tests

#### 2-1) Mobility (traveling and maneuvering) test

Make sure that the forklift moves in the direction specified by the selector lever, and that the forklift operates correctly when the parking brake lever is locked or released. Also check to make sure that the steering feels normal and that it operates satisfactorily.

Elevate and lower test load.

#### 2-2) Stacking test

Raise the test load to the maximum height of the mast and lower at the maximum speed, stopping the descent several times, to make sure that it stops smoothly.

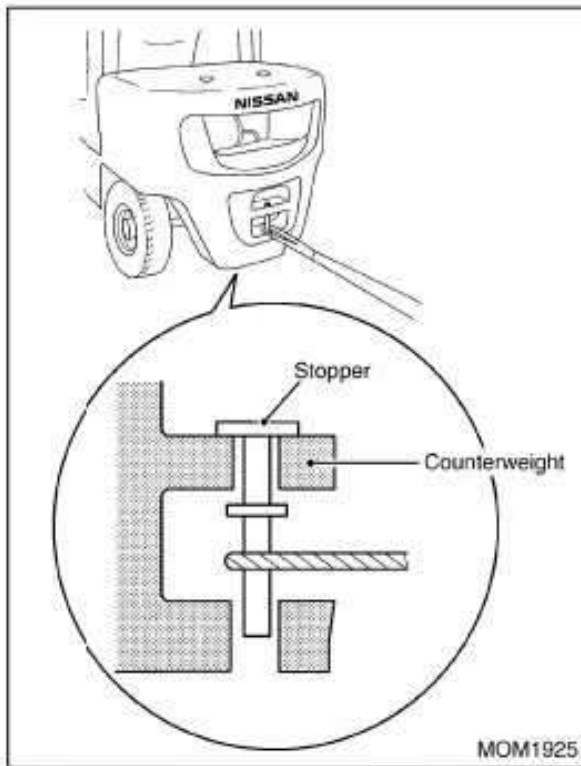
#### 2-3) Lowering speed test

Check to make sure that the maximum lowering speed does not exceed 2.0 ft/s (0.6 m/s) (by measuring the speed).

#### 3. Test for holding load

Check the rate at which the mast lowers naturally [3.94 in (100 mm)/10 min max].

Check the rate at which the tilt cylinder tilts forwards naturally (5 degrees/10 min max).



MOM1925

## TRACTION BAR

Use the traction bar only when required to assist in pulling or dragging the forklift from a ditch or from being stuck.



### WARNING:

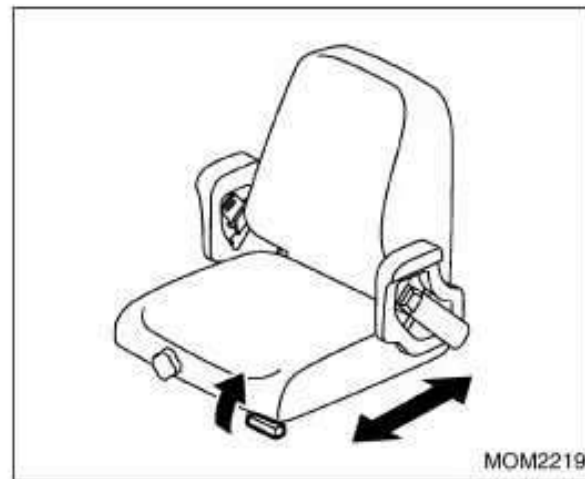
**Never use the traction bar for towing the forklift or other vehicles.**



### CAUTION:

- Always ensure that the traction bar is fully inserted until the stopper touches against the counterweight. This will reduce the possibility of the bar slipping.
- The traction bar is not a towing or drawing pin or coupling, and it should only be used for assistance in that type of operation.
- When using wire, cables or chains to pull or drag an object, ensure that all items are in good condition and are not damaged.
- Always gently draw towing cables or chains so as not to cause any shock, abrupt movements which could cause the traction bar to slip, bend or be damaged.
- If the traction bar or towing device slips, pulls out or becomes damaged, stop the towing operation and replace damaged parts or discontinue that type of operation

## OTHER FEATURES AND OPERATIONS.



MOM2219

## SEAT ADJUSTMENT

For units manufactured to June 29, 2010 or Finger Tip Controls Option (1F2 only)

Forward and backward control lever

The forward and backward control lever is located at the front of the seat slider.

To adjust the seat position, pull the lever upward and hold it there while sliding the seat forward or backward to the desired position.

Release the lever to lock the seat.

Before operating the forklift, be sure that the seat is locked securely.

## Seat adjustment (cont'd)



### WARNING:

- Before adjusting the seat, turn the ignition key off.
- Be sure to adjust the seat position while the forklift is stationary.



### SEAT ADJUSTMENT

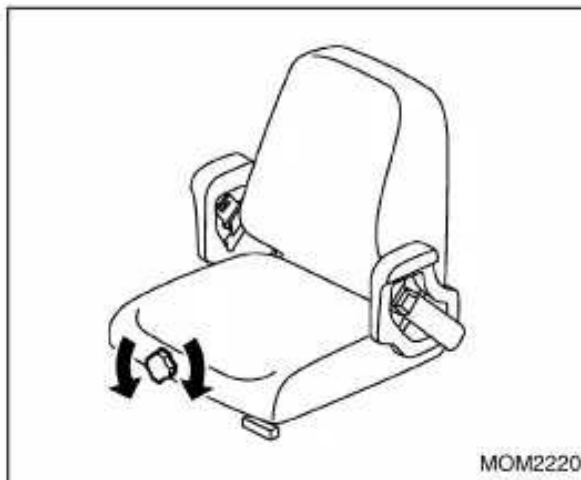
For units manufactured after June 30, 2010 without Finger Tip Controls Option (for 1F2 only)

Forward and backward control lever

The forward and backward control lever is located on the right side of seat slider when sitting in the operating position facing the mast.

To adjust the seat position, push down and hold while sliding the seat to the desired position.

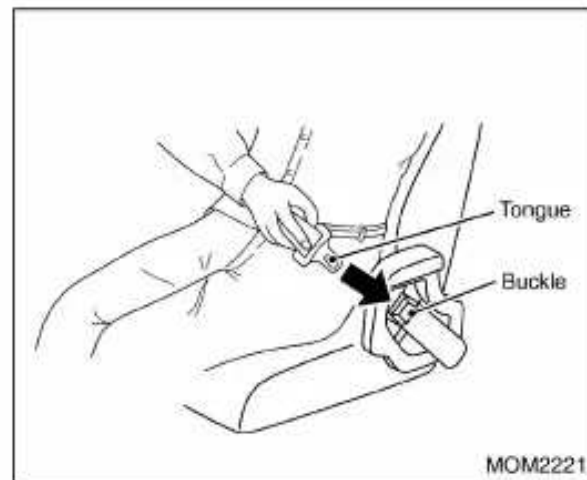
Then release the lever to lock into position.



### Suspension seat operator's weight adjustment

Adjust the suspension seat to the operator's weight by turning the weight adjustment dial at the front right side of the seat.

Optimum fine adjustment for operating surface conditions is also possible.



### Seat belt

1. Holding the tongue, pull out the seat belt gently.
2. Be sure to place the seatbelt low and snug around the hips.

#### NOTE:

**If the seat belt cannot be pulled out because it is locked, loosen it once and pull it out once more.**

3. Being careful not to twist the seat belt, insert the tongue into the buckle until it clicks. To unfasten the seat belt, press the button on the buckle and pull the tongue out of it. While lightly holding the tongue, let the seat belt retract gently.

## Seat belt (cont'd)

### NOTE:

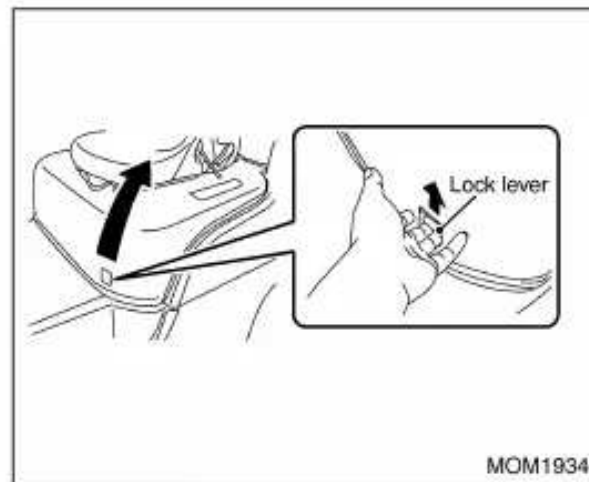
The seat belt has an automatic retractor, be sure to hold the tongue when unfastening and retracting the seat belt.



### WARNING:

- Tightly wrap the seat belt around the hipbone as low as possible. If the seat belt is placed around the abdomen, it may cause internal injuries because strong pressure is applied onto the abdomen.
- Do not fasten the seat belt if it is twisted. If it is twisted, it may cause an injury because the twisted belt cannot distribute the forces properly.
- Do not adjust the seat belt to be loose such as slackening it intentionally by use of a clip. If the seat belt is fastened loosely, it will not restrain you properly.
- Do not operate the forklift with the seat reclined, as the seat belt may not function to its full performance.
- Do not put any foreign substance or objects into the buckle or retractor, otherwise it cannot function to its full performance because it cannot be fastened normally.

- It is recommended that pregnant women use seatbelts. The seatbelt should be worn snug, and always position the lap belt as low as possible around hips, not the waist. Contact your doctor for specific recommendations.
- A seat belt that has been damaged or broken may not function to its original performance. Replace it with a new one at your Local Authorized Dealer.
- For cleaning the seat belt, use a mild detergent or lukewarm water. After cleaning, dry it completely before use and let it retract onto the retractor spool. Be sure not to use an organic solvent such as benzene or gasoline, otherwise the seat belt deteriorates in its performance and may not function as designed.
- NISSAN FORKLIFT recommends that injured persons use seat belts. Check with your doctor for specific recommendations.
- Periodically check to see that the seat belt and metal components, such as buckles, tongues, retractors, flexible wires and anchors, work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire seat belt assembly should be replaced.



MOM1934

### TOP PANEL

The top panel can be opened toward the rear of the forklift.



### WARNING:

The top panel is automatically retained by the gas stay.

## Open operation

1. Tilt the steering wheel all the way forward and upward. Use the service release latch (yellow) lever. Refer to page 73.
- For LPG & dual fuel units with swing down or out LPG tank mounting, you must swing out (down) the LPG tank before opening the top panel.
2. Pull the lever on the left side of the operator's seat upward to tilt the seat backrest forward.
3. Push the lever in the front left side of the top panel upward to unlock the top panel, and lift the top panel rearward while pushing the lever.

### NOTE:

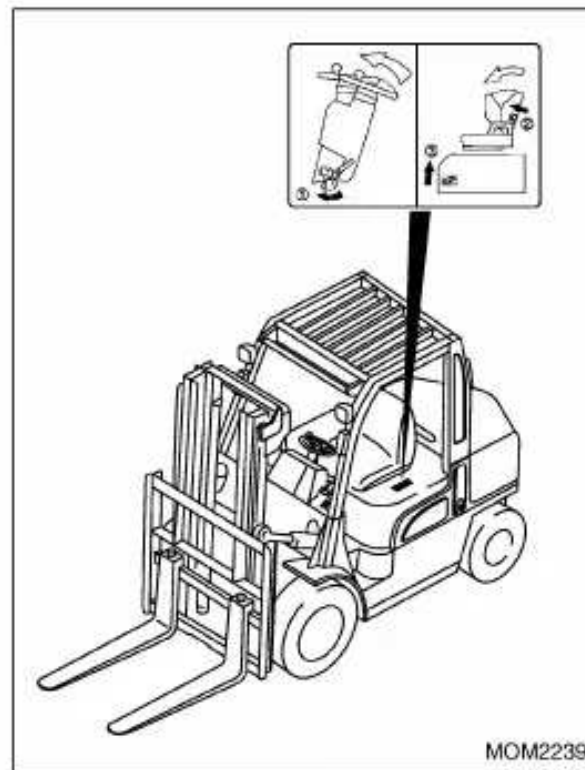
- For opening the top panel rearward, refer to the Top Panel Open Procedure Label on the body.
- Before opening the top panel, swing-open the LPG cylinder as illustrated later in this section on page 71.

## TOP PANEL LOCK

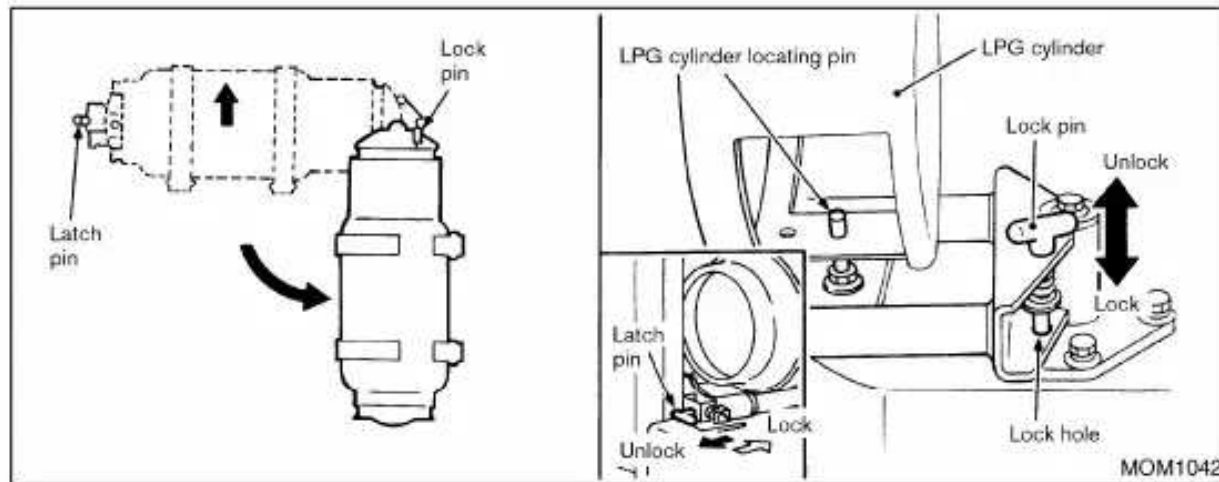


### WARNING:

**Do not open the top panel with the engine running. Do not place hands near the cooling fan because it rotates at a high speed and may cause injury. When opening the hood, be sure to turn off the engine. When starting the engine, check the hood to make sure that it is locked.**



The forklift is provided with a top panel lock to ensure that the engine hood cannot be opened unless the lock is cancelled.



## LPG CYLINDER HOLDER OPENING PROCEDURE

1. Pull out the latch pin to unlock the LPG cylinder holder. Slowly open the LPG cylinder holder 90°.
2. Insert the lock pin into the lock pin hole.
3. Perform the top panel opening procedure.



### WARNING:

Before opening the top panel, make sure that the lock pin is properly inserted into the lock pin hole.

## LPG CYLINDER HOLDER CLOSING PROCEDURE

Before closing the LPG cylinder holder, make sure that the top panel is properly closed.

1. Pull out the lock pin. Slowly close the LPG cylinder holder, and then lock with the latch pin.



### WARNING:

Make sure that the latch pin is properly locked, so the tank will not swing out.

2. While seated in the operator's seat, turn the ignition switch on.
3. Check to make sure that the cylinder lock indicator light is off.

4. If the light is illuminated, turn the key off and check that the swing mount is secured and locked.
5. Check to see if the switch is damaged.



### WARNING:

Only authorized NISSAN FORKLIFT service technicians should perform repair and/or adjustment to the switch or latch.

Refer to pages 111 to 125 for additional information on the LPG - gasoline dual fuel forklift.

Top panel closing procedure:

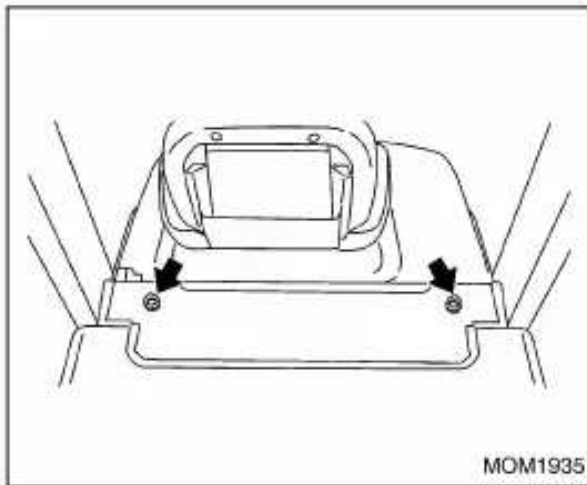
1. Make sure that the steering wheel is tilted upward.
2. By pressing on the front of top panel, completely close until latched.
3. Raise the backrest of the operator's seat up to the original position.
4. Pull the steering wheel toward the operator's seat to the limit so that it is locked.



### WARNING:

- Keep fingers clear when closing the top panel.
- On forklifts equipped with a top panel lock, make sure that the top panel is securely locked.





MOM1935

## RADIATOR COVER

The radiator cover can be removed with the top panel closed.



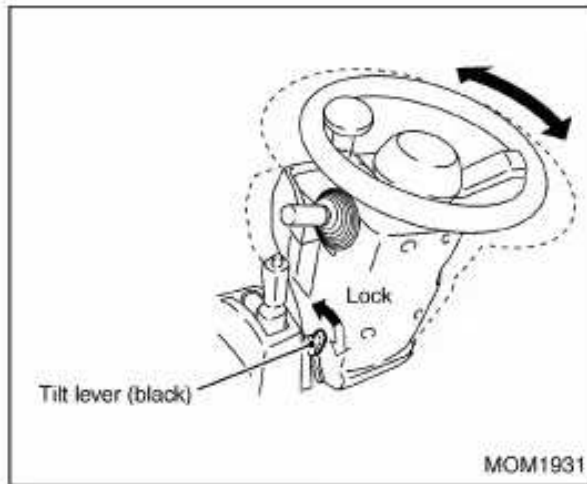
### WARNING:

**Do not remove radiator cover while engine is running. Always turn OFF key when cover is to be removed for any reason to reduce possible personal injury from rotating parts.**

For inspection of the radiator or replenishment of the engine coolant (cooling water), loosen the right and left bolts by hand.

### NOTE:

- Be absolutely sure to hand tighten the bolts when reinstalling the radiator cover.
- Refer to page 83 for information on the engine coolant level check procedure.



MOM1931

## STEERING WHEEL

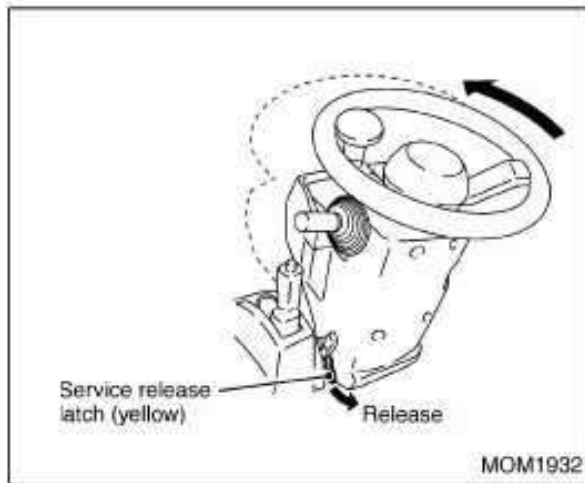
### Tilt adjustment

The position of the steering wheel can be adjusted. To adjust, push down on the tilt lever (black) located on the left side of the steering column, and move the wheel to the desired position. After selecting the wheel position, pull up on the lever fully to lock it in place.



### WARNING:

- Before adjusting the steering wheel, turn the ignition switch off and set the parking brake.
- Be sure to adjust the steering wheel position while the forklift is stationary.
- After adjustment, try to move the steering wheel upward or downward to ensure that it is locked securely.



### SERVICE RELEASE LATCH (yellow)

Press the steering wheel forward while depressing the service release latch (yellow) on the left side under the steering wheel, and the steering wheel tilts forward.

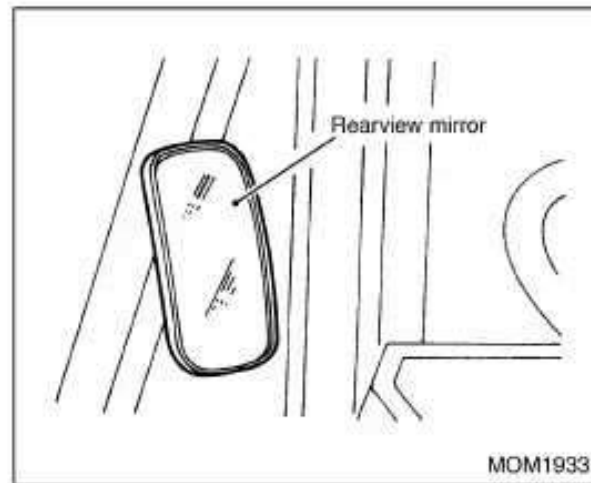
For returning the steering wheel to the original position, pull it toward the operator's seat to the limit. The service release latch returns to the original position and the steering wheel is locked automatically.

### **WARNING:**

- Before starting the engine, make sure that the steering wheel is returned to the original locked position.
- Do not operate the forklift with the steering wheel in the service release position. Doing so could result in an accident.

### **NOTE:**

The steering wheel position adjusted by the tilt mechanism does not vary when it is tilted.



### REARVIEW MIRROR

Adjust the right and left rearview mirrors respectively by hand so that both ensure the best view to the rear.

### **WARNING:**

**Never use only the rearview mirrors for operating the forklift in reverse due to limited visibility. Always turn and look in the direction of travel before proceeding.**

## PRECAUTIONS FOR COLD AND HOT WEATHER

In cold weather

### Oil and grease

Use engine oil and grease that are suitable for the ambient temperature. Refer to "RECOMMENDED LUBRICANTS" on page 96.

### Coolant

When coolant might freeze at a low ambient temperature, drain out the coolant completely. In such cold weather, a recommended 50/50 mix of antifreeze solution only should be put into the cooling system.

Antifreeze:

[Example]

Antifreeze			
Coolant capacity	7/8 US qt, 3/4 Imp qt (0.8 liter)	1-3/4 US qt, 1-1/2 Imp qt (1.7 liters)	2-5/8 US qt, 2-1/4 Imp qt (2.5 liters)
	19°F (-7°C)	0°F (-18°C)	-31°F (-35°C)

## COOLING SYSTEM BLEEDING INSTRUCTIONS



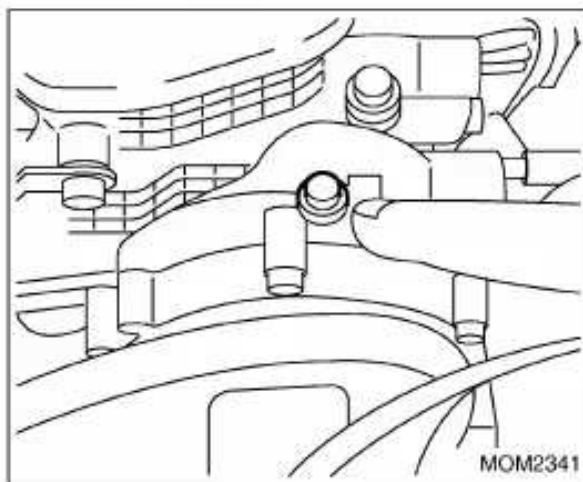
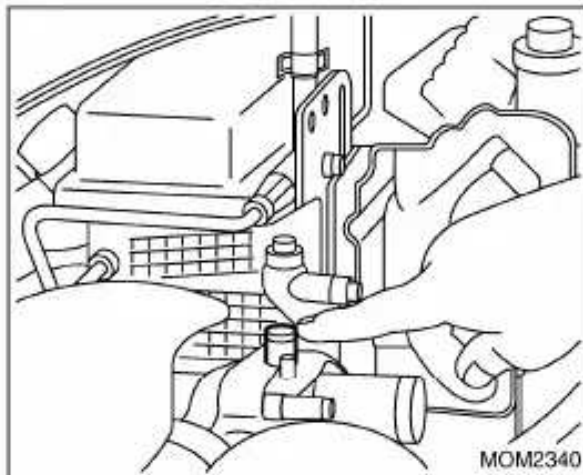
### WARNING:

- **Never remove the radiator cap when the engine is hot. Serious burns could be caused by high-pressure fluid or steam escaping from the radiator.**
- **Always ensure that the coolant is cooled down sufficiently before removing the radiator cap. When opening the radiator cap, wrap the cap with a shop cloth and turn the cap slowly to release the internal pressure.**

NOTE:

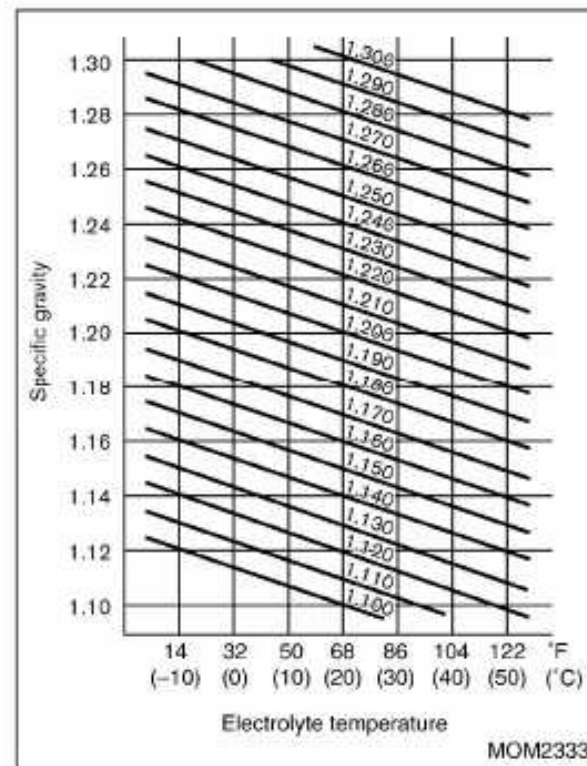
- **Use only Nissan Forklift recommended Long-Life Coolant (LLC) with the proper mixture ratio for the working environment that the forklift will be used in.**
- **Engine coolant must be disposed of properly. Check your local regulations.**

1. Remove the radiator cover and open the engine hood. Remove the radiator cap.
2. Place an appropriate size container under the radiator. Open the drain cock of the radiator and extract the coolant.
3. After draining all of the coolant, securely close the drain cock.
4. Prepare coolant mixture referring to the antifreeze coolant capacity table.
5. With the radiator cap removed, locate the engine coolant system bleeder screw. The bleeder screw location varies depending on the model of the engine. This screw will either be located in the thermostat housing or on the top of the water pump. Refer to the following illustrations for the location of the bleeder screw.



6. Completely remove the bleeder screw, and pay close attention to the sealing washer so that it does not fall off the screw as it is being removed.

7. Add the recommended engine coolant mixture into the radiator, when the engine coolant comes out of the bleeder hole with no air bubbles. Install the bleeder screw and tighten to 55.7 - 75.8 in lbs (6.3 - 8.0 N-m) of torque.
8. Also add coolant to the reservoir tank up to the full line.
9. With the radiator cap removed, start the engine and accelerate above idle RPM to purge the air out of the LP vaporizer. Continue to operate the engine until the thermostat opens and you can visually see the coolant moving in the radiator.
10. Top off the coolant (approximately 1 in (25 mm) from the top of the radiator) in the radiator after all air has been purged.
11. Securely attach the radiator cap.
12. Turn off the engine.
13. Close the engine hood and install the radiator cover.
14. Start the engine, check for leaks and ensure that the engine temperature stays within the operating range. If the unit starts to overheat, there is still air in the cooling system. Repeat steps 5 to 14.



#### ● Battery

The battery should not be left in the discharged state. When battery performance becomes questionable, check the specific gravity of the electrolyte, terminals of battery and alternator.

The normal specific gravity is 1.260 as corrected at 68°F (20°C). It changes about 0.0007 for every 1.8°F (1°C). If the specific gravity of the electrolyte does not indicate the correct value, charge the battery soon.

## PROCEDURE FOR JUMP STARTING ECCS ENGINES



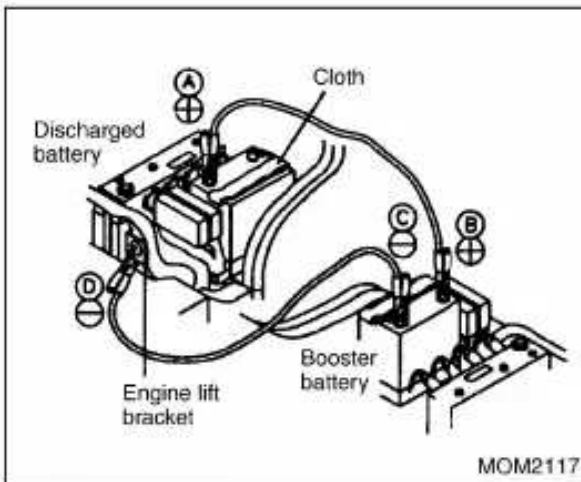
### WARNING:

Always follow the instructions below. Failure to do so could result in damage to the charging system and cause personal injury. Always wear safety glasses and personal protective equipment (PPE).

1. If the booster battery is in another forklift, position the two forklifts to bring their batteries near each other.

**Do not allow the two forklifts to touch.**

2. Apply the parking brake. Shift the transmission into the N (Neutral) position. Switch off all unnecessary electrical systems (lights, etc.).
3. Remove the vent caps on the battery (if so equipped). Cover the battery with an old cloth to reduce explosion hazard.
4. Connect jumper cables in the sequence illustrated (A, B, C, D).



### CAUTION:

- Always connect positive (+) to positive (+) and negative (-) to body ground (for example, strut mounting bolt, engine lift bracket, etc.) not to the battery.
  - Never use a booster battery or source of greater voltage, or it could damage engine electrical compounds.
  - Make sure that the jumper cables do not touch moving parts in the engine compartment and that the cable clamps do not contact any other metal.
5. Start the engine of the booster forklift and let it run for a few minutes.

6. Keep the engine speed of the booster forklift at about 2,000 rpm, and start the engine of the forklift being jump started.



### CAUTION:

Do not keep the starter motor engaged for more than 10 seconds. If the engine does not start right away, turn the key switch off and wait 3 to 4 seconds before trying again.

7. After starting the engine, carefully disconnect the negative cable and then the positive cable.
8. Replace the vent caps (if so equipped). Be sure to dispose of the cloth used to cover the vent holes as it may be contaminated with corrosive acid.
9. To start the engine with a booster battery, the following instructions and precautions must be followed.



### WARNING:

- If done incorrectly, jump starting can lead to a battery explosion, resulting in severe injury or death. It could also damage your forklift. Explosive hydrogen gas is always present in the vicinity of the battery. Keep all sparks and flames away from the battery.

## PROCEDURE FOR JUMP STARTING ECCS ENGINES (CONTINUED)

- **Do not allow battery fluid to come into contact with eyes, skin, clothing or painted surfaces. Battery fluid is a corrosive sulfuric acid solution that can cause severe burns. If the fluid comes into contact with anything, immediately flush the contacted area with water.**
- **Keep the battery out of the reach of children.**
- **The booster battery must be rated at 12 volts. Use of an improperly rated battery can damage the forklift.**
- **Whenever working on or near a battery, always wear suitable personal protective equipment (PPE) (for example, goggles, eye protection as required in your work place) and remove rings, metal bands or any other jewelry. Do not lean over the battery when jump starting.**
- **Do not attempt to jump start a frozen battery. It could explode and cause serious injury.**
- **Your forklift has a cooling fan. Keep hands, battery jump cables, and other objects away from it.**

## IN HOT WEATHER

### **Oil**

Engine oil should be changed to summer type oil (recommended lubricants).

### **Coolant**

Because the engine is more likely to overheat in hot weather, the forklift should be parked in a shaded area. Overheating sometimes is caused by old, worn or cracked hoses, connections, loosened radiator cap, or old, worn or cracked fan belt. Carefully check the cooling system to maintain the best cooling effect.

### **Battery**

Because the battery electrolyte evaporates in hot weather, it is necessary to refill the battery with distilled water. (Refer to page 85.)

## DAILY CARE AND INSPECTION

**If you note any malfunction, notify your supervisor or Local Authorized Dealer.**

Do not operate the forklift if it is in need of repair.

1. Check the engine oil level.
2. Check the engine coolant level, and also check the engine cooling system for leakage.
3. Check the battery fluid level in each cell.
4. Check the amount of brake fluid and check for leakage.
5. Check the steering wheel play.
6. Check the automatic transmission oil level and check for leakage.
7. Check the hydraulic oil level and check for oil line leaks.
8. Check the fuel line (hoses, pipings, connections) for leaks. Also check the fuel tank drain plug for leaks.
9. Check the water separator of the fuel filter. If necessary, drain water from the water separator.
10. Check the tire pressure and check for looseness, wear or damage of wheel nuts and bolts.

To keep your forklift in the proper condition, ready for safe operation, be sure to perform the daily checks indicated below.

- Remove objects that are embedded in the tread.
  - Check for damage and friction of wheels and for bends and cracks in the rim.
11. Check the operation of the horn, headlight and all indicators.
  12. Check the operation of the hydraulic control valve.
  13. Check the mast operation for the following items:
    - Smooth lifting and lowering
    - Smooth roller rotation
    - Wear or damage to chains
    - Lift bracket and forks for bend and damage
  14. Check the safety start system operation.
  15. Check the brake pedal operation.
  16. Check the parking brake operation.
  17. Check the backrest and overhead guard for proper installation and function.
  18. Check the fork latches.
  19. Check the forks for cracks, breaks, bend and wear.
  20. Check the radiator core for clogging.
    - If there is dirt or dust on the radiator core, the engine may overheat. Clean the radiator core

with compressed air or steam so as not to deform the core fins.

21. To assist you in ensuring that the operator conducts a complete inspection, a sample daily check is shown on the next page. It should also be noted that this is an OSHA requirement.

**NISSAN FORKLIFT CORPORATION**  
**(SAMPLE) Operator's Daily Checklist and Safety Inspection**  
**I.T.A. Class 4 & 5**

**IMPORTANT: Check each item listed at the start of each shift/work period. Notify your supervisor and/or Maintenance Department if there are any problems with the forklift. DO NOT OPERATE A FORKLIFT WITH ANY MALFUNCTION.**

**FORKLIFT DETAILS:**

Gas

LPG

DIESEL

Serial/Unit Number:

Hours:

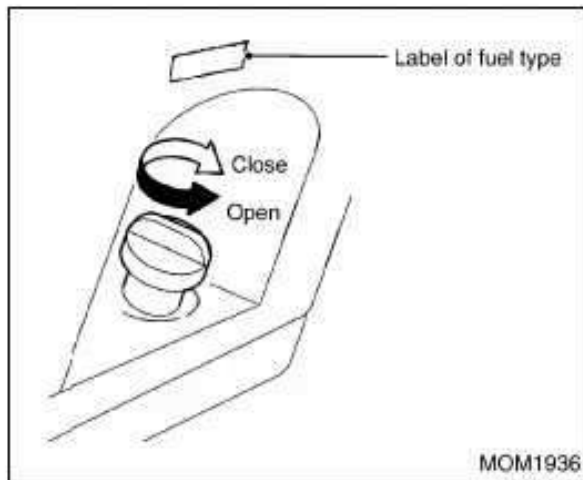
Review and check the following list. Provide any additional information as necessary. Check each item either as Good (OK) or No Good (NG). IMPORTANT In the case of NG identify by item # and explain in comments section.

#	OK	NG	Visual Check Items	#	OK	NG	Operational Check Items
01			Forks: altered, bent, worn, stops, pin/latch-locks	17			Horn: Properly attached, operation, correct oudness.
02			Load Backrest: bent, damaged, loose, missing	18			Service Brakes: function OK, linkage, loose-binding, grabbing
03			Tires-Wheels: wear, damaged, lug nuts tight or missing	19			Parking Brake: function OK, linkage, proper adjustment
04			Engine Oil: level, dirty, leaking	20			Seat Brake (if equipped): proper operation, correct adjustment
05			Hydraulic Oil: level, dirty, leaking	21			Mast: proper lift-lower function, wear or damage to mast rails lift-chain
06			Radiator: fluid level, condition of hoses, condition of core, leaks	22			Tilt: loose-binding, excessive drift, chatters, leaks
07			Fuel Tanks: level, condition of lines-hoses-connectors, leaks	23			Carriage and Attachment(s): operation, mounting, leaks, looseness
08			Battery: connections-clamps, state of charge, electrolyte level leaks	24			Control Levers: operation, proper and free return to neutral position
09			Covers, Panels, Sheet-Metal: damaged, insecure, missing	25			Directional Controls: loose/binding, find neutral position OK
10			Overhead Guard: bent-deformed, cracked, loose, missing	26			Engine: Runs rough, smokes, leaks, noisy operation
11			Warning Labels-Decals, Operator's Manual: unreadable, incomplete, missing	27			Steering: loose/binding, leaks, drifts, oil leaks
12			Operator Restraint System: insecure, damaged, incomplete, improper operation	28			Warning Lights (if equipped): Secure, operational
13			Data-ID Plate, Capacity Plate: incorrect, damaged, unreadable, missing	29			Back-Up Alarm: Mounting, operational, correct loudness
14			Gauges-Instruments: inoperable, unreadable, damaged, missing	30			Head-Tail, Working Lights: Mounting, operational
15			Brake System: loose-damaged linkage, reservoir fluid level, leaks				
16			Head-Tail, Working-Warning Lights: loose mounting, damaged, missing				

Additional explanation(s) of NG problems indicated above: \_\_\_\_\_

Operator's Name: \_\_\_\_\_ Supervisor's Approval/OK: \_\_\_\_\_ Date of Inspection/Check: \_\_\_\_\_





## FUEL RECOMMENDATION



### WARNING:

- Be sure to stop the engine before refilling with fuel.
- Make sure that there are no open flames or sparks in the vicinity of the engine. Use only unleaded fuel in the fuel tank of gasoline engine equipped vehicles. Use only diesel fuel in the fuel tank of diesel engine equipped vehicles.

The fuel inlet is located on the body on the left rear side.

When refilling the fuel, check the indication label and do not use the wrong fuel by mistake. Turn the fuel cap counterclockwise to remove it.

If the fuel cap has the optional lock and key, insert the key into the keyhole on the fuel cap and turn the key clockwise for locking or turn it counterclockwise for unlocking.

After refilling, be sure to turn the fuel cap clockwise until it clicks twice or more.

## GASOLINE TO BE USED

- Except Germany: Regular (unleaded)
- For Germany: Normal gasoline leaded DIN 51 600 or normal unleaded DIN 51 607.



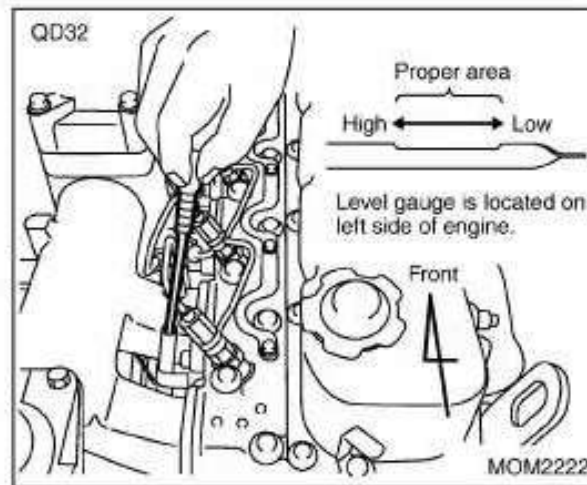
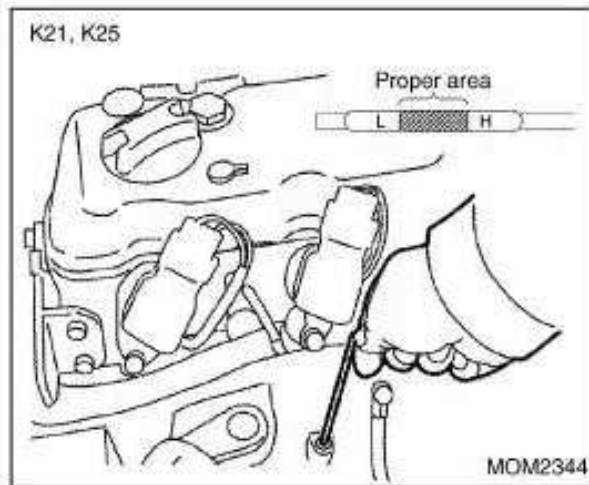
### CAUTION:

- Be careful not to allow water or debris to enter the fuel tank during refilling, as it may cause damage to the ECCS fuel system components.
- Do not use fuel that has been stored for a long time. Such fuel may adversely affect engine performance or shorten its service life, because of possible contaminants in the fuel.
- If the fuel spills out of the fuel inlet, wipe it off and completely clean the area by the inlet.

## DIESEL ENGINE FORKLIFT

The diesel engine is designed to run only on diesel fuel with at least a minimum of 42 cetane rating.

For LPG fueling, refer to page 111.



## ENGINE OIL LEVEL

To check the oil level, pull out the level gauge, wipe it clean and reinsert; remove it again to read the oil level.

The level should be in the proper area.

After checking the oil level, be sure to return the oil level gauge to the original position.

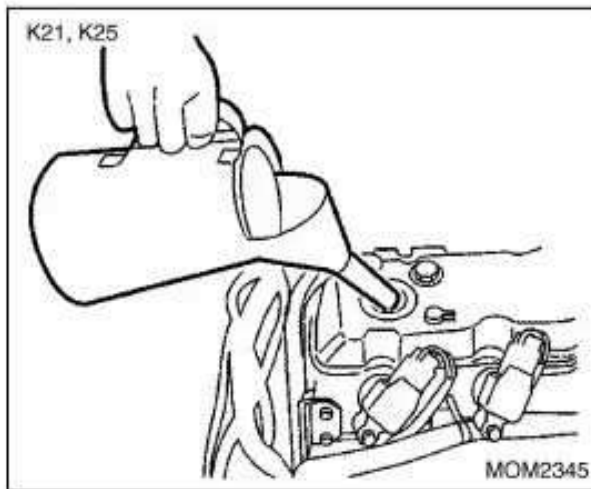


### CAUTION:

Do not run the engine when the engine oil level is lower than the minimum indicator (Low) mark, as the engine could be damaged or seize up. If the engine oil level is lower than the minimum indicator (Low) mark, add engine oil through the oil inlet until the oil level reaches the specified amount.

### NOTE:

When checking the engine oil, be sure to do it on a level surface before starting the engine and at least 5 minutes after the engine is stopped.



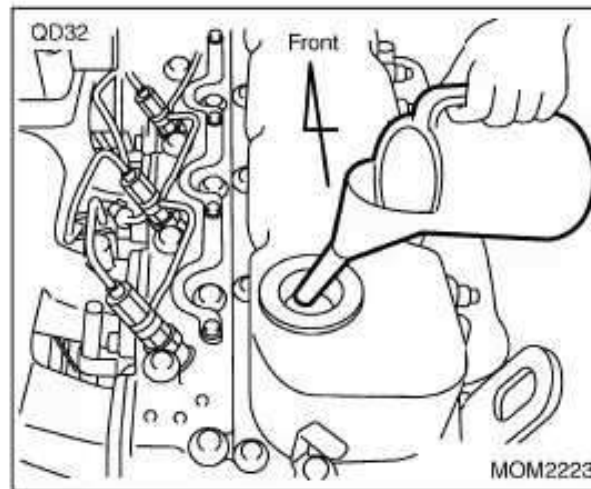
## REFILLING ENGINE OIL

1. For refilling the engine oil tank with engine oil, remove the oil filler cap and slowly pour Nissan Forklift recommended Motor Oil into the tank while checking the oil level with the oil level gauge until the oil reaches the specified oil level.

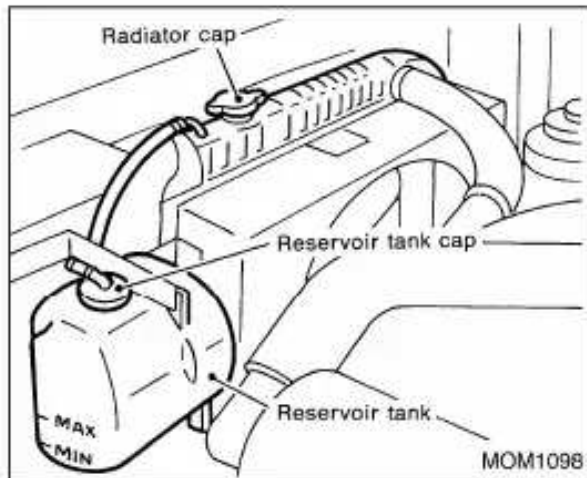


### CAUTION:

- Carefully pour engine oil into the oil filler so as not to contaminate with dust and foreign substances. If the oil spills, immediately wipe it away.
- Make sure that the oil filler cap is tightened. If the oil filler cap is not properly tightened, engine problems may result.



2. 5 minutes after refilling the engine oil, check if the oil level is between the upper limit (H) and lower limit (L) indicator marks with the oil level gauge.
3. Restore the oil filler cap and oil level gauge to their respective original positions.



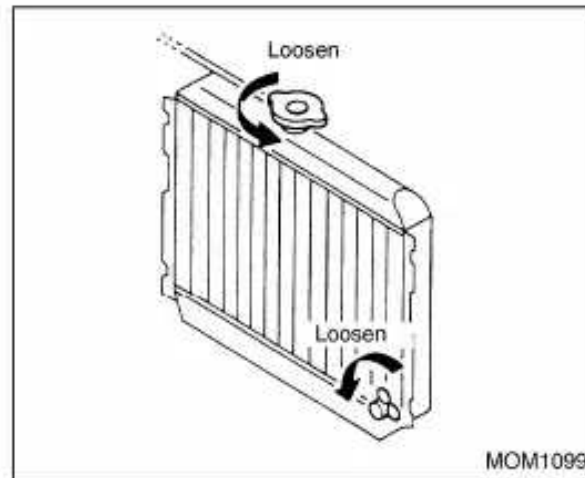
## ENGINE COOLANT LEVEL

Visually check the amount of coolant in the reservoir tank when the engine is cold. If the coolant level is below the "MIN" level, remove the reservoir tank filler cap and add coolant until the "MAX" level is reached. If the reservoir tank is empty, check the coolant level in the radiator. If there is insufficient coolant in the radiator, pour coolant into the radiator up to the cap and also pour it into the reservoir tank up to the "MAX" level.

If it becomes necessary to repeatedly add coolant, your cooling system should be inspected by your Local Authorized Dealer.

## WARNING:

- Never remove the radiator cap when the engine is hot. Serious burns could be caused by high-pressure fluid escaping from the radiator.
- Wrap a thick cloth around the cap and carefully remove the cap by turning it a quarter turn to allow built-up pressure to escape. When all hissing, steam and liquid stops, slowly turn the cap all the way off.



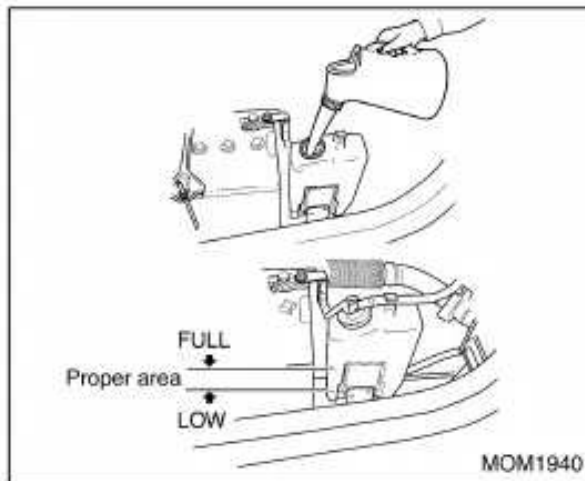
## CHANGING ENGINE COOLANT

1. Open the radiator cap and drain cock to drain the coolant. Then flush the cooling system.

## CAUTION:

**Always follow local, state regulation for the proper storage & disposal of coolant.**

2. Close the drain cock securely.
3. Fill the radiator with new coolant (mix 50/50) up to the filler opening. Fill the reservoir tank up to the "MAX" level. Then put on the radiator cap.
4. Run the engine to the normal operating temperature on dash meter panel.
5. Stop the engine, and after it completely cools down, refill the coolant up to the radiator filler opening. Fill the reservoir tank.



## REFILLING ENGINE COOLANT

1. Refill the engine coolant in the reservoir tank.
2. Remove the reservoir tank filler cap.
3. If the reservoir tank is empty, refill the radiator and the reservoir tank with the coolant at the same time. For refilling the coolant in the radiator, remove the radiator cover first and then slowly turn the radiator cap while wrapping it with a cloth to remove it. After removing the radiator cap, fill the radiator with coolant.
4. After refilling the coolant, tighten the reservoir tank filler cap and radiator cap tightly.

### **WARNING:**

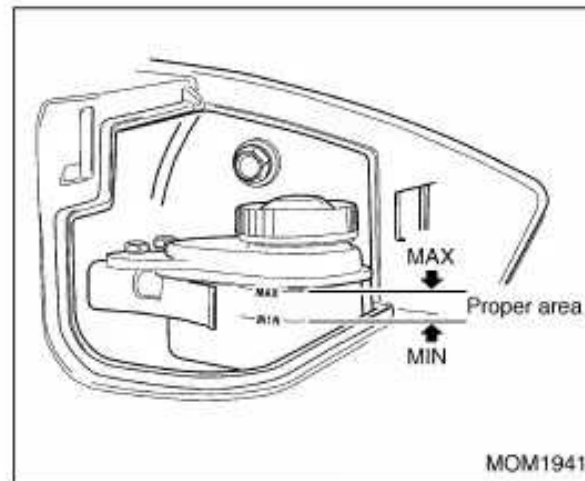
To avoid being scalded, do not attempt to change the coolant when the engine is hot.

### **NOTE:**

Refer to page 74 for the proper mixing ratio of antifreeze solution to coolant.

### **CAUTION:**

- The long-life coolant can degrade the coated surface. If it adheres to the coated surface, wash the coolant away with water.
- Be sure to use the long-life coolant specified by NISSAN FORKLIFT CO., LTD. The cooling performance and anticorrosive treatment cannot be assured if another coolant is used.
- Do not refill the coolant above the "FULL" level of the reservoir tank. If it exceeds the "FULL" level, it may spill out as the engine is warmed up. Carefully refill the coolant so as not to contaminate it with foreign substances.



## BRAKE FLUID LEVEL

Check if the brake fluid level in the brake fluid reservoir tank inside the lid on the left side of the instrument panel is within the proper range. If the level is lower than the "MIN" level, refill the reservoir tank with Nissan Forklift recommended Brake Fluid.

At the same time, visually check the outside and periphery of the reservoir tank for brake fluid leakage or staining.

### **WARNING:**

- Use DOT3 (F.M.V.S.S. No. 116) brake fluid only.
- If brake fluid leakage or staining is detected, immediately report it to your supervisor or contact your Local Authorized Dealer to inspect and repair

it. Do not operate the forklift until it is completely repaired.

- If a brake fluid other than that specified by NISSAN FORKLIFT CO., LTD. or old brake fluid is used, it may cause deterioration in the performance of the brakes and could potentially lead to an accident. Use only the specified brake fluid.
- Be careful not to allow the brake fluid to remain in contact with the coated surface, because the brake fluid can degrade the coated surface.
- When refilling the brake fluid reservoir tank with the brake fluid, be careful not to mix dust and foreign substances in the fluid.
- If excessive amounts of the brake fluid are used, immediately report it to your supervisor or contact your Local Authorized Dealer to inspect it.

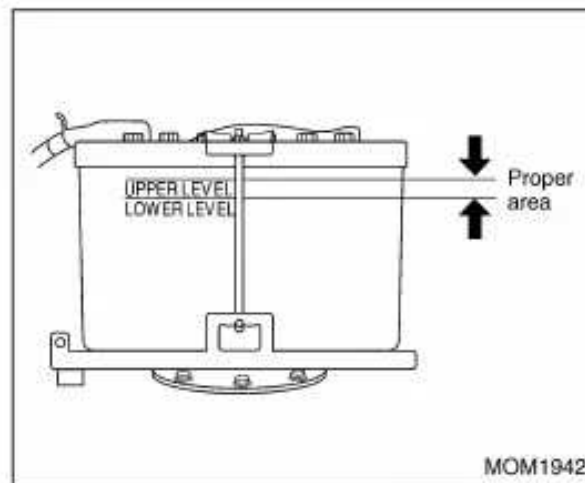
## REFILLING BRAKE FLUID

Turn the brake reservoir tank cap counterclockwise to remove it, and slowly pour the brake fluid (Nissan Forklift recommended Brake Fluid) into the tank until the fluid level reaches the "MAX" level.



### WARNING:

- When refilling the brake fluid reservoir tank with brake fluid, be careful not to mix dust and foreign substances in the fluid.
- If brake fluid other than that specified by NISSAN FORKLIFT CO., LTD. or old brake fluid is used, it may cause deterioration in the performance of the brakes and could potentially lead to an accident. Use only the specified brake fluid.
- Be careful not to allow the brake fluid to remain in contact with the coated surface, because the brake fluid can degrade the coated surface. If the brake fluid adheres to the coated surface, immediately wipe it off and clean the area so that no liquid remains on the coated surface.
- If excessive amounts of brake fluid are used, immediately report it to your supervisor or contact your Local Authorized Dealer to inspect it.



## BATTERY FLUID LEVEL

### FOR NON-MAINTENANCE FREE BATTERIES

Open the top panel, and then check the fluid level in each battery cell.

## REFILLING BATTERY FLUID

If the electrolyte (battery fluid) is insufficient, remove the caps from the battery and carefully refill the respective battery cells with distilled water only until the fluid level reaches the "UPPER LEVEL" so as not to contaminate the fluid with dust and foreign substances.

At the same time, visually inspect the battery body for cracks or damage. If there is any damage, immediately replace the battery with a new one.

After refilling the battery with distilled water, tighten the respective caps tightly. If the battery

fluid spills out, wash it away with water and wipe down the wet surface.



#### **WARNING:**

- Since the battery produces explosive hydrogen gas, handle it in a location where there are no sources of ignition or open flame.
- Do not allow a person who does not have knowledge of the battery and its handling manner inspect or maintain the battery.
- Because the battery fluid contains sulfuric acid, be sure to wear personal protective equipment (PPE) (goggles, rubber gloves, etc.). Be careful not to get the fluid in eyes, on the skin or clothes, otherwise it may cause blindness, burns or damage to the clothes. If the battery fluid contacts part of the body, immediately wash it away with a large amount of cool water. If the fluid gets into eyes, immediately flush the eyes and consult a doctor as soon as possible. If the fluid is swallowed by mistake, immediately gargle repeatedly with a large amount of cool water, drink much water and consult a doctor as soon as possible.
- If battery fluid flows or leaks out of the battery, immediately neutralize it with an acid neutralizer (sodium bicarbonate,

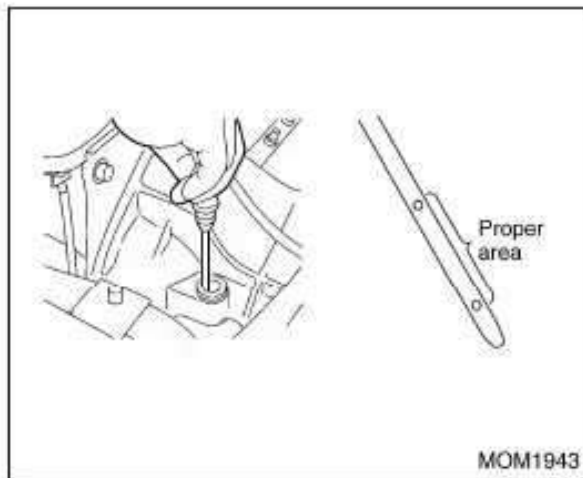
slaked lime, sodium carbonate, etc.) and then thoroughly wash it away with water, because it may cause corrosion of the floor or parts.

- Do not put anything metal, such as a tool on the battery. If metal contacts the terminal, it may cause not only a short circuit but a burn or explosion because the hydrogen gas produced by the battery may catch fire from the spark generated by the short circuit.
- Check the battery fluid level once a week to prevent the battery from running short of the electrolyte. If the battery is used with insufficient battery fluid, the battery may explode. When refilling the battery with the battery fluid, do not pour the fluid above the "UPPER LEVEL".
- If the battery is used when the battery fluid level is below the "LOWER LEVEL", it may shorten the service life of the battery and may cause explosion of the battery because insufficient battery fluid promotes deterioration in internal parts of the battery.
- Be careful not to wipe down the top of the battery with a dry cloth, not to cover the battery with a vinyl sheet or not to dust the battery, because this may generate static electricity and potentially cause the battery to explode.



#### **CAUTION:**

The time and date will be reset if the battery cable is disconnected (for example, when the battery is replaced). Set the time and date again.



## AUTOMATIC TRANSMISSION FLUID LEVEL

1. Stop the engine after idling for about 10 minutes.
2. Open the top panel and check if there is leakage of the automatic transmission fluid. Then, pull out the level gauge and wipe down the tip of the gauge with a clean cloth.
3. Insert the level gauge to the limit and gently pull it out again.
4. Make sure that the fluid adhered to the tip of the level gauge is not extremely worn, discolored or contaminated by foreign substances, and also check if the fluid level is within the proper range.

5. If the fluid is insufficient, refill the automatic transmission with the specified fluid so that the level gauge reads the proper range.



### CAUTION:

- **Do not operate the forklift with insufficient automatic transmission fluid, because the forklift may be disabled from running.**
- **If the transmission fluid is extremely worn, discolored or contains foreign substances, immediately report it to your supervisor or contact your Local Authorized Dealer to inspect it.**

## REFILLING AUTOMATIC TRANSMISSION FLUID

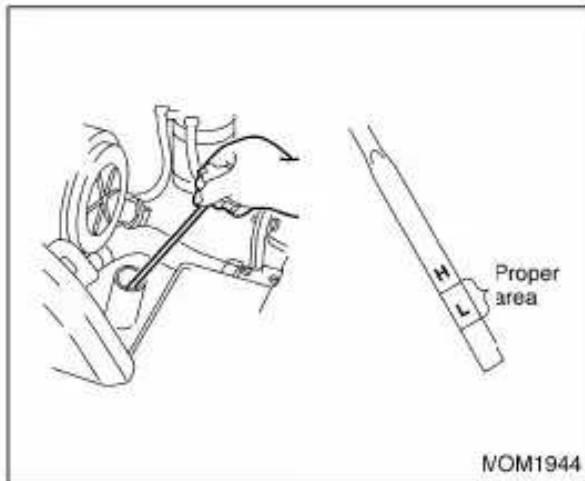
Automatic transmission fluid can be added through the level gauge hole. Checking the fluid level with the level gauge, pour the Nissan Forklift recommended Automatic Fluid (Refer to Page 96) into the level gauge hole until the fluid level is in the proper range.



### CAUTION:

- **Do not use any automatic transmission fluid other than those specified by NISSAN FORKLIFT CO., LTD. Using non specified fluids may cause a malfunction in the torque converter. Be sure to refill the automatic transmission with the specified quantity of the Nissan Forklift recommended Automatic Fluid (Refer to Page 96). Be careful not to mix dust or foreign substance in the transmission fluid during refilling.**





## HYDRAULIC OIL

Check the oil level in the hydraulic oil tank.

1. After visually checking for oil leakage, turn the hydraulic oil filler cap located on the right side of the operator's seat to remove it.
2. Wipe down the level gauge attached to the cap with a clean cloth. Insert the clean level gauge into the hydraulic oil filter (do not screw the level gauge in) and pull it out again.
3. If the oil level that can be checked on the level gauge is between the two indicator lines marked on the level gauge, the quantity of the hydraulic oil is normal.

## NOTE:

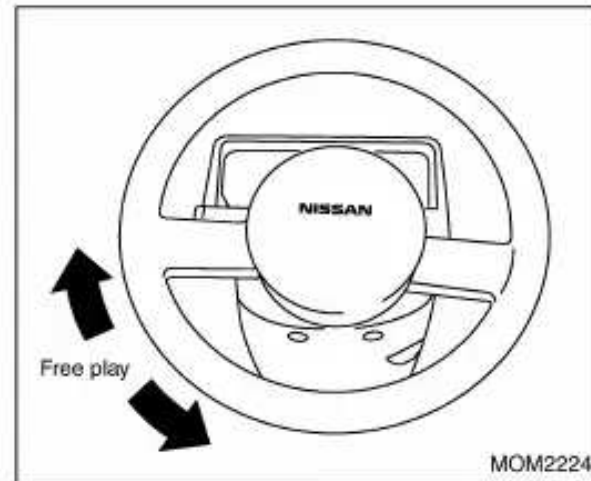
For correctly checking the hydraulic oil level, park the forklift on level ground and stand the mast vertically with the fork lowered to the limit (contacting ground).

## REFILLING HYDRAULIC OIL

Remove the hydraulic oil filler cap. While checking the hydraulic oil level with the level gauge, pour the specified hydraulic oil (Nissan Forklift recommended Hydraulic Oil) into the oil filler until the oil level is in the proper area.



- Do not use any hydraulic oil other than those specified by **NISSAN FORKLIFT CO., LTD.** as it may cause not only deterioration in the performance of the forklift but could cause mast drift resulting in a possible accident.
- Carefully add the hydraulic oil so as not to mix dust and foreign substances in the oil.



## STEERING WHEEL

Turn the steering wheel to the right and left. A play in the circumference of less than 1.18 in (30 mm) at idling is normal.

If there is excessive play or looseness, have the steering wheel adjusted by your Local Authorized Dealer.



## WHEEL AND TIRE



### WARNING:

- OSHA safety procedures must always be followed. Refer to OSHA 1910.177.
- Always use the correct procedures when servicing or replacing pneumatic tires on multi-piece rim sets.
- Failure to use the proper procedures can cause explosive separation of tire and rim set, and death or serious injury could result.
- When inflating or deflating tires, a suitable safety cage or barrier shall be used.
- Only properly trained personnel should replace pneumatic tires on multi-piece rim sets.

## TIRE PRESSURE (Pneumatic and compact pneumatic models):

### NOTE:

The pneumatic type cushion tire without inner tube (so-called tubeless tire or non-puncture tire) is supplied. This type of tire does not need to have a tire pressure check performed.

### U.S. manufactured models only

Unit: psi (kgf/cm<sup>2</sup>, kPa)

Vehicle	Front tire (drive)	Tire pressure
1.5 ton, 1.8 ton, 2.0 ton	6.50-10/10PR	102 (7.0, 700)
2.0 ton, 2.5 ton, 2.75 ton	7.00-12/12PR	102 (7.0, 700)
2.8 ton, 3.0 ton	28x9-15/12PR	102 (7.0, 700)
3.5 ton	250-15/16PR	102 (7.0, 700)
A1F1 1.5 ton, 1.8 ton	6.00-9/12PR	145 (10.0, 1000)
A1F2	21x8-9/14PR	128 (9.0, 900)
Vehicle	Rear tire (steer)	Tire pressure
1.5 ton, 1.85 ton, 2.0 ton	5.00-8/8PR	102 (7.0, 700)
2.0 ton, 2.5 ton, 2.75 ton	6.00-9/10PR	102 (7.0, 700)
2.8 ton, 3.0 ton	6.50-10/10PR	102 (7.0, 700)
3.5 ton	6.50-10/12PR	128 (9.0, 900)
A1F1 1.5 ton, 1.8 ton	5.00-8/8PR	102 (7.0, 700)
A1F2	18x7-8/14PR	128 (9.0, 900)



### WARNING:

- Tires used on Nissan Forklifts manufactured in Japan, Spain and the U.S. are different. Do not mix different sizes or tire types, as this could affect stability.
- If the tire pressure is not correct it can affect the stability of the forklift, potentially resulting in a tip-over, and it can also cause bursting or premature wear or explosive separation of the multi-piece rim set.
- When checking the tire pressure, do not face the tire side to avoid a danger because the tire pressure is very high.
- This could also result in death or serious injury.

## CUSHION MODELS STANDARD TIRE SIZES

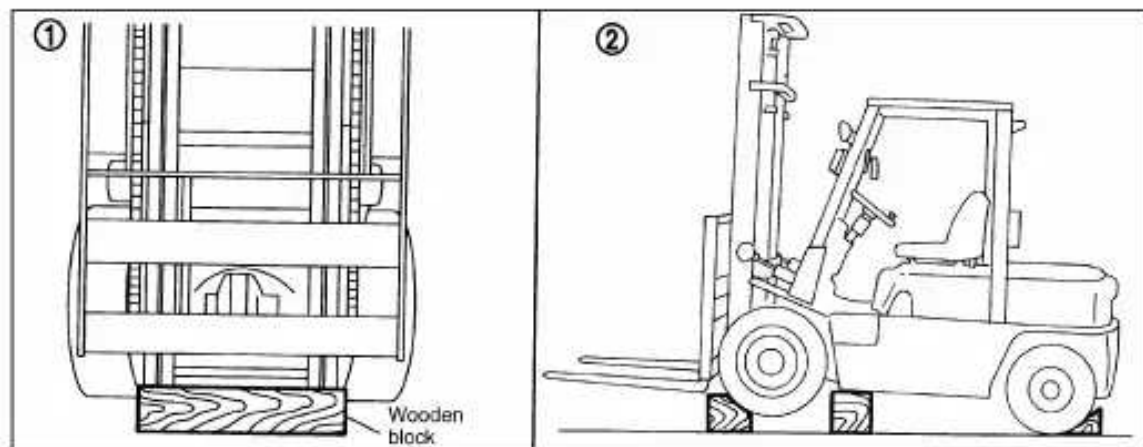
Vehicle	Type	Tire size	Tire load capacity
1.5 ton, 1.25 ton, 2.0 ton	Front (Drive)	18-6-12.12	Standard
	Rear (Steer)	14-5-10	*HiLoad
2.0 ton, 2.5 ton	Front (Drive)	21-7-15	Standard
	Rear (Steer)	16.25-6-11.25	Standard
2.8 ton, 3.0 ton, 3.3 ton	Front (Drive)	21-8-15	Standard
	Rear (Steer)	16.25-6-11.25	*HiLoad
3.0 ton	Front (Drive)	22-8-16	Standard
	Rear (Steer)	18-6-12.12	*HiLoad
3.5 ton, 3.6 ton	Front (Drive)	22-9-16	Standard
	Rear (Steer)	18-6-12.12	*HiLoad



### WARNING:

**\*:Only use the OEM recommended HiLoad steer tire as listed in the parts catalog. This will reduce the possibility of premature wear to the tire, wheel hub and/or steer linkage. This may affect the overall stability both while traveling and during load handling, which could cause a tip-over or loss of load condition.**

## MAINTENANCE



### TIRE REPLACEMENT



#### WARNING:

- Do not get under or ride on the forklift when it is jacked up. Doing so could result in serious injury or death.
- Use a jack with a capacity of 3.0 tons or more.



#### CAUTION:

- Always park the forklift on a flat, level and solid surface.
- Unload cargo from the forklift.
- Do not start or stop the engine or operate control levers from any position other than the operator's seat.



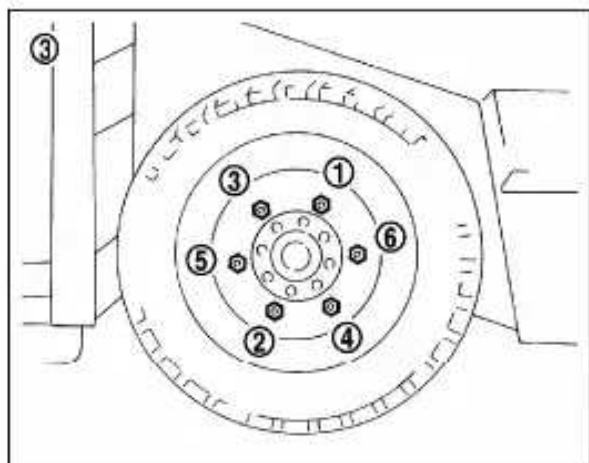
#### CAUTION:

- Keep the parking brake lever fully applied.
- Make sure that the selector lever is in the neutral position.
- Use hardwood or plastic blocks that do not slip easily and are strong enough to withstand the forklift weight. Do not use broken or cracked blocks or metal blocks that slip easily.
- Use wooden blocks of the following size.  
Height: Allows the block to tightly fit between the backward tilted mast and the road surface.



#### CAUTION:

- Width: 1.97 to 3.94 in (50 to 100 mm) larger than the longitudinal length of the mast rail.
- Length: 0.79 to 1.57 in (20 to 40 mm) larger than the width of the outside mast.
- To prevent the forklift from leaning, do not place wooden blocks of different heights under the right and left masts.



#### NOTE:

There are two types of wheel nut wrenches: a large one for the front wheels and a small one for the rear wheels.

#### Front tire

1. Place the forklift on a level and solid surface.
2. Start the engine and raise the carriage about 9.84 in (250 mm).
3. Place chocks behind the rear wheels to prevent movement of the forklift.
4. Loosen the wheel nuts one or two turns each by turning them counterclockwise.
5. Tilt the mast fully backward and place a wooden block under each side of the outer mast.
6. Tilt the mast forward until the front tires are raised from the surface.



#### WARNING:

- Do not operate the control lever quickly. Doing so may cause the mast on wooden blocks on the ground to become unstable.
  - Stop jacking up the forklift when the tires are clear of the ground. Jacking up the forklift excessively high could cause it to tip over.
  - If the front wheels are lifted for a long time by means of the mast, the mast may incline backward by itself. To prevent this, be sure to insert a wooden block that goes from side to side of the frame.
  - Do not remove wheel nuts until the front tires are raised from the ground.
7. Support the forklift by putting additional wooden blocks under each side of the front-end frame as shown on page 91. Stop the engine.
  8. Remove the wheel nuts and replace the front tire.

**WARNING:**

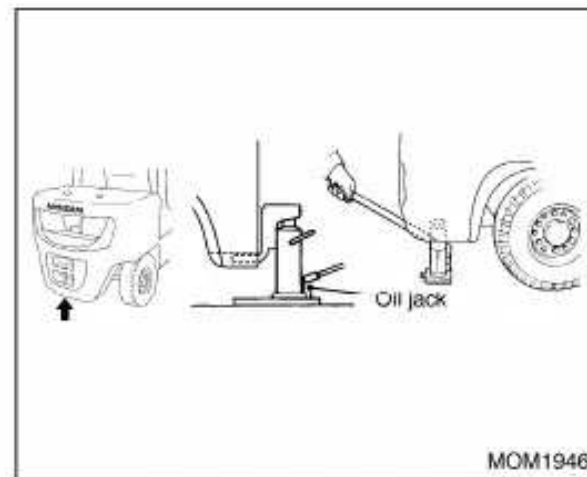
- When removing the tire from the wheel rim, do not remove rim set bolts and nuts before releasing air.
  - Never get under the forklift while it is supported only by the wooden blocks.
9. Reinstall the wheel nuts and temporarily tighten them in the sequence shown on page 92.

**CAUTION:**

Each wheel nut has a conical bearing surface and each hole in the rim is counter-sunk so that they can fit with each other. After attaching all wheel nuts, make sure that each nut tightly fits with the counter-sunk hole. If wheel nuts are attached in the wrong direction, they may loosen easily and may cause bolts to break and the wheel to come off.

10. Start the engine and remove the wooden blocks from the underside of the frame.
11. Lower the forklift slowly by tilting the mast fully backward. Remove the wooden block from under the mast, and remove the chocks.
12. Tighten the wheel nuts to the specified torque in a crisscross fashion. Refer to the "Tightening torque" table on page 95.

13. Adjust the tire pressures to the value specified in the "Tire pressure" table on page 89.
14. After replacing a tire, drive the forklift a short distance and check the tightening torque of each wheel nut again.



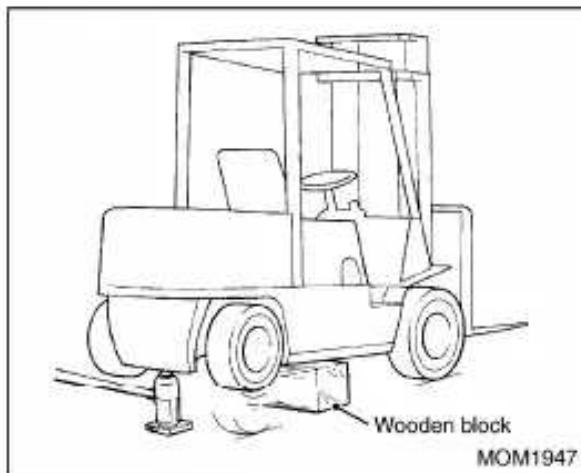
MOM1946

Rear tire

**NOTE:**

**To replace a tire, contact your Local Authorized Dealer.**

1. Place the forklift on a level and solid surface.
2. Apply the parking brake, and place chocks behind the front tires to prevent movement of the forklift.
3. Place the jack under the cutout portion at the bottom of the counterweight, as shown in the above illustration.



**WARNING:**

- **Never get under or ride on the forklift when it is jacked up. Doing so could result in serious injury or death.**
  - **Use a jack with a capacity of 3.0 tons or more.**
4. Loosen the wheel nuts one or two turns each by turning them counterclockwise.



**WARNING:**

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

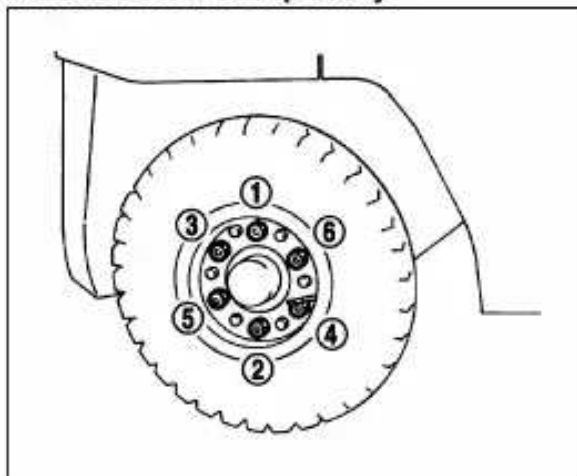
5. Jack up the forklift slowly until the rear tires clear the ground, and support the forklift by putting wooden blocks under each side of the rear end frame as shown in the illustration.



**WARNING:**

- **Stop jacking up the forklift when the tires are slightly raised from the ground. Jacking up the forklift excessively high could cause it to tip over.**
- **Use hardwood or approved jack stands of 3.0 tons or more that do not slip easily and are strong enough to withstand the forklift weight.**

**Do not use broken or cracked blocks or metal blocks that slip easily.**



6. Remove the wheel nuts and replace the rear tire.



**WARNING:**

- **When removing the tire from the wheel rim, do not remove rim set bolts and nuts before releasing air.**
  - **Never get under the forklift while it is supported only by the wooden blocks.**
7. Reinstall the wheel nuts and temporarily tighten them in the sequence shown in the above illustration.
  8. Remove the wooden blocks and lower the forklift slowly until the rear wheel touches the ground. Then remove the chocks and the jack.
  9. Tighten the wheel nuts to the specified torque in a crisscross fashion. Refer to the "Tightening torque" table on page 95.
  10. Adjust the tire pressure to the value specified in the "Tire pressure" table on page 89.
  11. After replacing a tire, drive the forklift a short distance and check the tightening torque of each wheel nut again.

## Tightening torque

Unit: ft-lb (N-m)

Model			1F1 series	1F2 series			A1F1	A1F2	
			1.0 ton, 1.5 ton, 1.75 ton, 2.0 ton	2.0 ton, 2.5 ton	2.75 ton, 3.0 ton	3.5 ton	1.5 ton, 1.75 ton	2.5 ton	
Pneumatic- tire model	Front (Drive)	Single tire	123 to 166 (167 to 226)	181 to 217 (245 to 294)	325 to 434 (441 to 588)	325 to 434 (441 to 588)	123 to 166 (167 to 226)	145 to 181 (198 to 245)	
		Double tire	Standard	123 to 166 (167 to 226)*4	(B)398 to 506 (539 to 686)*1	(N)398 to 506 (539 to 686)*1	(N)398 to 506 (539 to 686)*1	/	
	123 to 165 (167 to 226)*5			434 to 542 (588 to 735)*2	434 to 543 (588 to 735)*2	434 to 542 (588 to 735)*2			
	Special		(B)123 to 166 (167 to 226)*1	(B)398 to 506 (539 to 686)*1	(N)398 to 506 (539 to 686)*1	(N)398 to 506 (539 to 686)*1			
			58 to 72 (78.4 to 98)*3	434 to 542 (588 to 735)*2	434 to 542 (588 to 735)*2	434 to 542 (588 to 735)*2			
			123 to 166 (167 to 226)*2	—	—	—			
	Rear (Steer)		123 to 166 (167 to 226)	123 to 166 (167 to 226)	123 to 166 (167 to 226)	155 to 189 (210 to 256.7)	123 to 166 (167 to 226)		

(B): Bolt

(N): Nut

\*1: Inner wheel

\*2: Outer wheel nut

\*3: Hub nut (Outer hub)

\*4: Wheel nut

\*5: Wheel composite nut

Unit: ft-lb (N-m)

Cushion Tire Model		C1F1	C1F2	CG1F2
	Front (Drive)	123 to 166 (167 to 226)	145 to 181 (197 to 245)	181 to 217 (245 to 294)
	Rear (Steer)	Hub is maintained by wheel bearing nut & rolling torque as noted in Service Manual.		



## DRAIN PLUG: FOR FUEL TANK CLEANING

Remove the drain plug before washing the inside of the fuel tank. To do this, turn the drain plug counterclockwise.

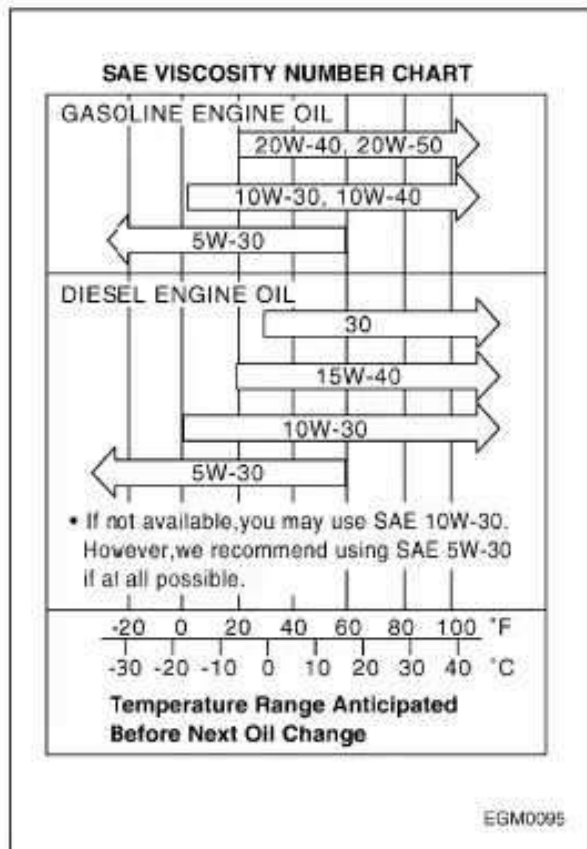
- When removing the drain plug, be careful not to lose the packing. Before installing the drain plug, be sure to install the packing.

### Tightening torque:

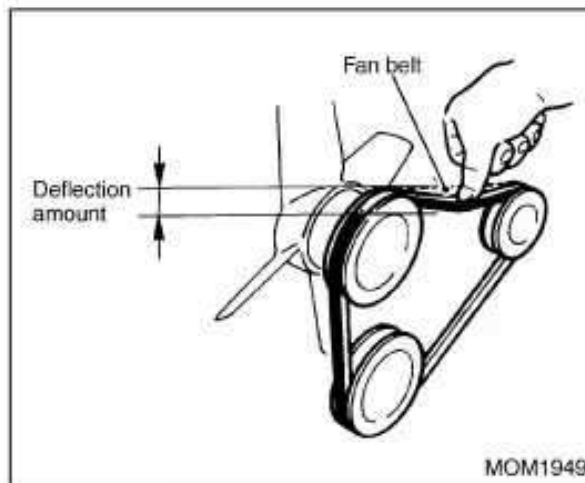
**18 to 28 ft-lb (25 to 39 N·m)**

## RECOMMENDED LUBRICANTS

Item		Specifications	Remarks
Engine oil	Gasoline	API SJ or SL	Refer to RECOMMENDED SAE VISCOSITY NUMBER Refer to Page 97.
	Diesel	API CF	
Gear oil	Transmission (manual)	API GL-4 or 5	
	Differential	API GL-4 or 5	
Grease	Chassis	N.L.G.I. 1	Lithium soap base
	Wheel bearing	N.L.G.I. 2	
	Mast and chain guide bar	N.L.G.I. 2	
Power steering oil		Hydraulic oil I.S.O. VG32	—
Hydraulic oil		Hydraulic oil I.S.O. VG32	Wear-proof oil
Automatic transmission fluid		Type DEXTRON or M2C-33E or F	—
Brake fluid		DOT3 (F.M.V.S.S. No. 116)	F.M.V.S.S.: Federal Motor Vehicle Safety Standard
Antifreeze		—	Permanent antifreeze (Ethylene glycol base)



RECOMMENDED SAE VISCOSITY NUMBER



## ENGINE

### Fan belt

Check the belt deflection by applying moderate thumb pressure at a point midway between the pulleys. If necessary, adjust the belt deflection.

### Fan belt deflection:

**K21, K25**

**0.43 to 0.51 in (11 to 13 mm)**

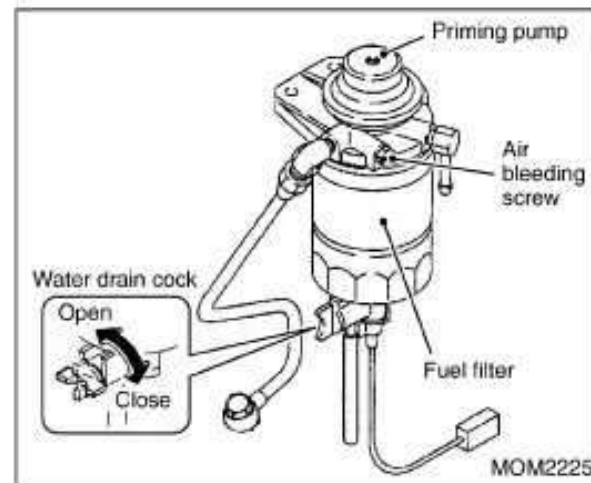
**QD32**

**0.43 to 0.51 in (11 to 13 mm)**



### WARNING:

- Be sure that the engine is not running and the parking brake is applied securely.
- Keep hands clean.



## FUEL FILTER

### Draining water from water separator (QD32 diesel engine forklift)

If the fuel filter warning lamp illuminates while the engine is running, drain any water that is in the fuel filter. Proceed as follows:

1. Open the top panel. Refer to "Top panel" on page 69.
2. Place a container under the fuel filter.
3. Put the saucer under the water drain cock, and then loosen the water drain cock 4 to 5 turns to drain the water.
4. After the water has been completely drained, tighten the drain cock.

**WARNING:**

- Never allow open flames, smoking or other sources of ignition in the area of fuel filter.
- Every part remains very hot immediately after the engine has stopped. Wear protective gloves and perform the operation carefully so as not to touch heated parts around the water drain cock.

**CAUTION:**

- Fuel may also spout out along with water drained. If fuel splashes over parts, wipe it off completely.
- If operation is continued for a long time while the sediment chamber (fuel filter) level warning lamp is lit, the fuel injection pump might seize up.

Air purge (diesel engine forklift)

**NOTE:**

**Air purge operation for diesel engine (QD32) vehicle is unnecessary.**

When refilling an empty fuel tank and/or draining water from the water separator, purge the air out of the fuel system. Proceed as follows:

1. Loosen the air purge screw at the upper part of the fuel filter.

2. Move the priming pump up and down until no further air-bleed comes out of the air purge screw.
3. Tighten the air purge screw.

**WARNING:**

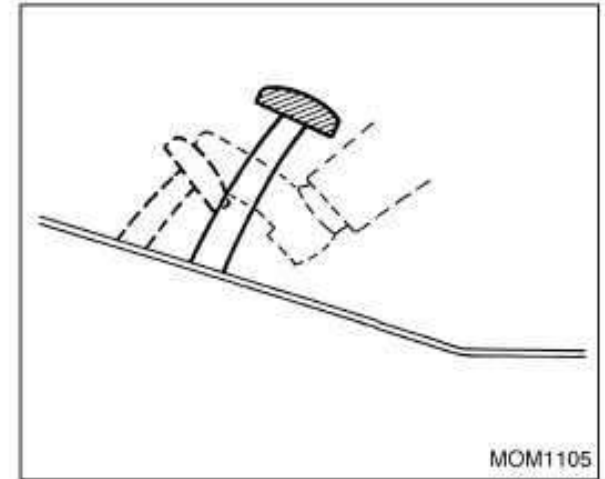
**Do not smoke or hold a flame near the operation area.**

**CAUTION:**

- Do not remove the screw completely, otherwise a large amount of fuel may spout out.
- Fuel may spout out from the air purge screw hole during air purge. Be sure to block the hole with a cotton cloth or a similar item to prevent fuel from splashing over surrounding parts.
- If fuel spills during replenishment, be sure to wipe it off.

**NOTE:**

**After draining water from the fuel filter, perform air purge operation.**

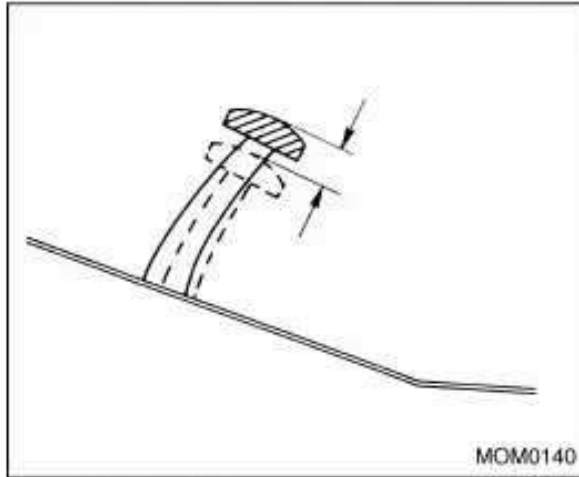


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**CHASSIS AND BODY****Brake pedal**

When the engine is running and the brake pedal is fully depressed, the distance between the upper surface of the pedal pad and floorboard should be 2.36 in (60 mm) or more.

When this distance approaches the prescribed limit value, have the brake adjusted by your Local Authorized Dealer.

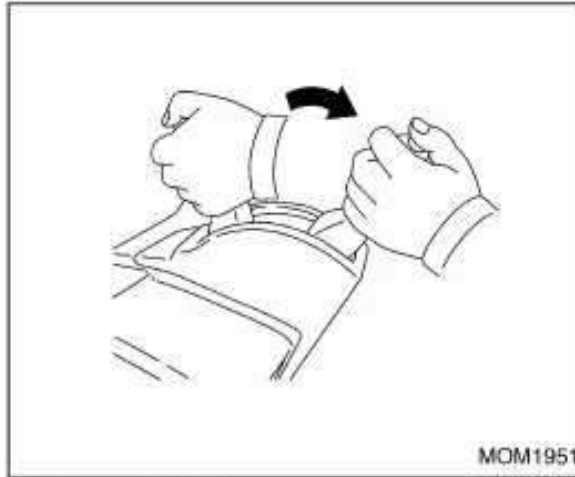


### Pedal free play

The standard free play of the pedal is as follows:

Unit: in (mm)

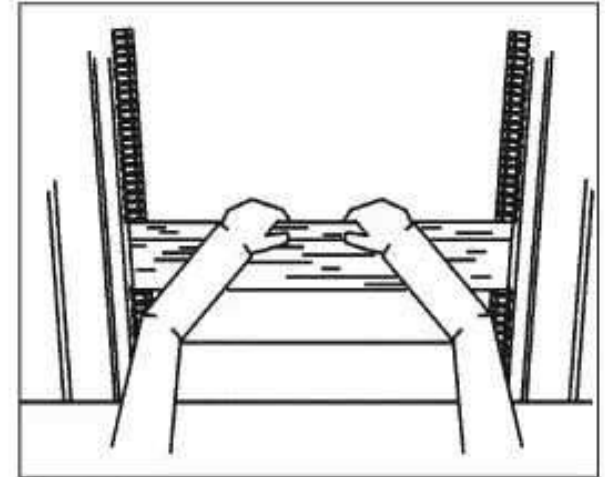
Model	All models
Brake pedal	0.04 to 0.12 (1 to 3)



### Parking brake lever

Make sure that the parking brake works properly when pulled and then returns to its original (release) position.

**Pulling force at gripping position:  
55 to 66 lb (245 to 294 N)**



### Lift chain

Check the lift chain tension periodically. Set the fork level at a position 0.79 to 1.18 in (20 to 30 mm) from the ground and push the midpoint of the lift chain with a finger.

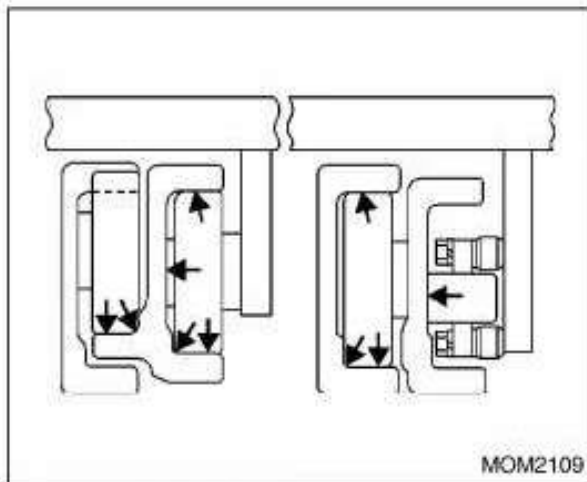
**Deflection:  
0.98 to 1.38 in (25 to 35 mm)**

If there is a difference between the right and left chain deflection, or if the deflection is not within the specified range, have the chain adjusted by your Local Authorized Dealer.



### WARNING:

**Never put your foot under the fork during checking.**



### Lubrication points

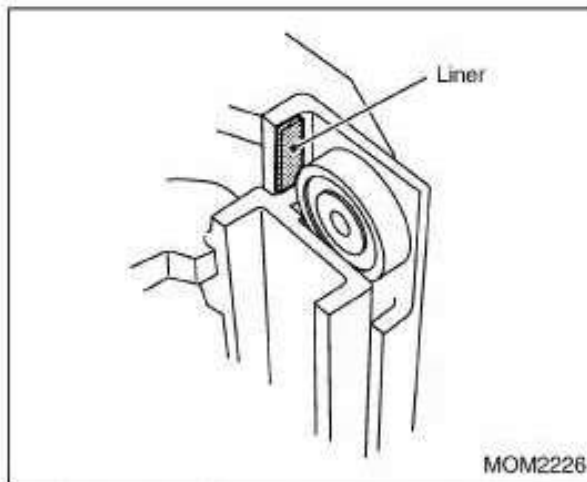
Lubricate the following points periodically in accordance with the Periodic Maintenance and Lubrication Schedule chart.

### Mast

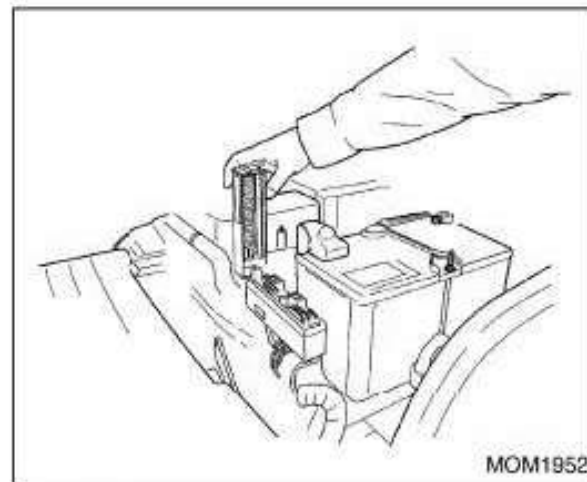
Apply a coat of grease to the thrust metals and liner.

#### NOTE:

- The lubrication interval will vary with working conditions. During months in which working conditions are severe, it will be necessary to grease the parts frequently.

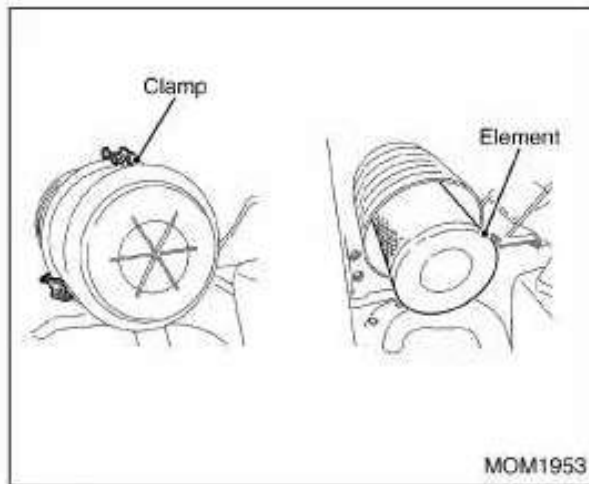


- When forklift is operated, apply a coat of grease to the contact surface of the lift roller and inner mast or outer mast.



### Fuses

The fuse box is installed in front of the battery under the top panel. Remove the fuse box cover and visually check if the fuse is blown. If the fuse is burned out, replace it.



## Air cleaner

1. Remove the three clamps securing the air cleaner case and take the element out carefully.
2. Clean the element by tapping it by hand or blow very low pressure compressed air to it from the inside.
3. After cleaning, visually check the element and replace it if it is still dirty.



### CAUTION:

When cleaning the air cleaner element, always wear a dust mask and dustproof glasses. OSHA requires that air nozzles be used to reduce pressure to no more than 30 psi (2.1 kgf/cm<sup>2</sup>, 206 kPa).

## PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE FOR EMISSION CONTROL SYSTEM MAINTENANCE

**Engine Family Name: 7NSXB02.147C, 7NSXB02.548C Engine Model: K21, K25**

Before delivery of your new forklift, your dealer provides a pre-delivery inspection and adjustment service specified by the factory and designed to ensure satisfactory performance. The following tables list the servicing required to keep your forklift operating at peak mechanical condition, and should be attended to as indicated below, preferably by your Local Authorized Dealer.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL													
Periodic maintenance should be performed after specified intervals have elapsed in months or hours, whichever comes first.	Months	1	2	3	4	5	6	7	8	9	10	11	12	.....	18
	Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	.....	36

### ENGINE COMPARTMENT MAINTENANCE (EXCEPT LPG FUEL SYSTEM)

1. Intake & exhaust valve clearance (operating temp.)	A	A		A			A			A			A	.....	A
2. Drive belt tension		I	I	I	I	I	I	I	I	I	I	I	I	.....	I
3. Engine oil	(1)	R	R			R			R			R		.....	R
4. Oil filter	(1)	R	R			R			R			R		.....	R
5. Engine coolant (L.L.C.)														R	.....
6. Air cleaner element	(1)	C	C	C	C	C	R	C	C	C	C	C	R	.....	R
7. Spark plugs	(1)	I	I	I	I	I	I	I	I	I	I	I	I	.....	R
8. PCV valve	(1)			I			I			I			I	.....	I

**NOTE: (1) Under dusty or other dirty operating conditions, more frequent maintenance will be necessary.**

**Abbreviations:** I = Inspect. Correct or replace if necessary. C = Clean R = Replace L = Lubricate T = Test A = Adjust D = Drain

All items listed above must be maintained in order to meet and keep emission control systems operating at design levels. Failure to maintain the systems could compromise the warranty.

**For reference:** Normal operating conditions and time is based on a clean and dry environment and 1,200 hours or less in one year.



### CAUTION:

**For Units in the US:**

- Do not tamper with, destroy, remove or alter EPA/CARB label or valve (rocker) cover in any way. Doing so could violate EPA/CARB regulations and possibly void the warranty on your Nissan Forklift.
- Valve (rocker) cover may be removed for maintenance checks but the original cover must be installed as soon as maintenance checks are completed.
- You must notify your Local Authorized Dealer if either the Valve (Rocker) cover or label is damaged and needs to be replaced.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL													
Periodic maintenance should be performed after specified intervals have elapsed in months or hours, whichever comes first.	Months	1	2	3	4	5	6	7	8	9	10	11	12	.....	18
	Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	.....	36

#### ENGINE COMPARTMENT MAINTENANCE (LPG FUEL SYSTEM)

1. Piping or pipe connector portion for gas leakage	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
2. Tar in vaporizer	D	D	D	D	D	D	D	D	D	D	D	D	D	.....	D
3. LPG fuel filters			R			R			R			R		.....	R

**NOTE: (1) Under dusty or other dirty operating conditions, more frequent maintenance will be necessary.**

**NOTE: Nissan Forklift recommends a complete tear down, inspection, and resealing of the vaporizer before 6,000 hours of service. This maintenance is necessary for units that are not running the recommended HD5 grade LPG, or using an unknown fuel quality.**

**Abbreviations:** I = Inspect. Correct or replace if necessary. C = Clean R = Replace L = Lubricate T = Test A = Adjust D = Drain

All items listed above must be maintained in order to meet and keep emission control systems operating at design levels. Failure to maintain the systems could compromise the warranty.

**For reference:** Normal operating conditions and time is based on a clean and dry environment and 1,200 hours or less in one year.



# PERIODIC MAINTENANCE AND LUBRICATION SCHEDULE FOR EMISSION CONTROL SYSTEM MAINTENANCE

## Engine Model: QD32

Before delivery of your new forklift, your dealer provides a pre-delivery inspection and adjustment service specified by the factory and designed to ensure satisfactory performance. The following tables list the servicing required to keep your forklift operating at peak mechanical condition, and should be attended to as indicated below, preferably by your Local Authorized Dealer.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL													
Periodic maintenance should be performed after specified intervals have elapsed in months or hours, whichever comes first	Months	1	2	3	4	5	6	7	8	9	10	11	12	.....	18
	Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24	.....	36

### ENGINE COMPARTMENT MAINTENANCE (EXCEPT LPG FUEL SYSTEM)

1. Intake & exhaust valve clearance (operating temp.)		A		A			A			A			A	.....	A
2. Drive belt tension		I	I	I	I	I	I	I	I	I	I	I	I	.....	I
3. Engine oil	(1)	R	R	R	R	R	R	R	R	R	R	R	R	.....	R
4. Oil filter	(1)	R	R	R	R	R	R	R	R	R	R	R	R	.....	R
5. Engine coolant (L.L.C.)													R	.....	
6. Water separator		D		D			D			D			R	.....	D
7. Air cleaner element	(1)	I	I	R	I	I	R	I	I	R	I	I	R	.....	R
8.) Engine idle rpm	(1)	A	A	A	A	A	A	A	A	A	A	A	A	.....	A
9.) Nozzle	(2)						I						I	.....	I

**NOTE:** (1) Under dusty or other dirty operating conditions, more frequent maintenance will be necessary.

(2) If engine power decreases, black exhaust smoke is emitted or engine noise increases before the maintenance period comes, check and, if necessary, adjust the fuel injection nozzle starting pressure and the fuel spray pattern.

**Abbreviations:** I = Inspect. Correct or replace if necessary. C = Clean R = Replace L = Lubricate T = Test A = Adjust D = Drain

All items listed above must be maintained in order to meet and keep emission control systems operating at design levels. Failure to maintain the systems could compromise the warranty.

**For reference:** Normal operating conditions and time is based on a clean and dry environment and 1,200 hours or less in one year.

## MAINTENANCE SCHEDULE

### CHASSIS AND BODY MAINTENANCE

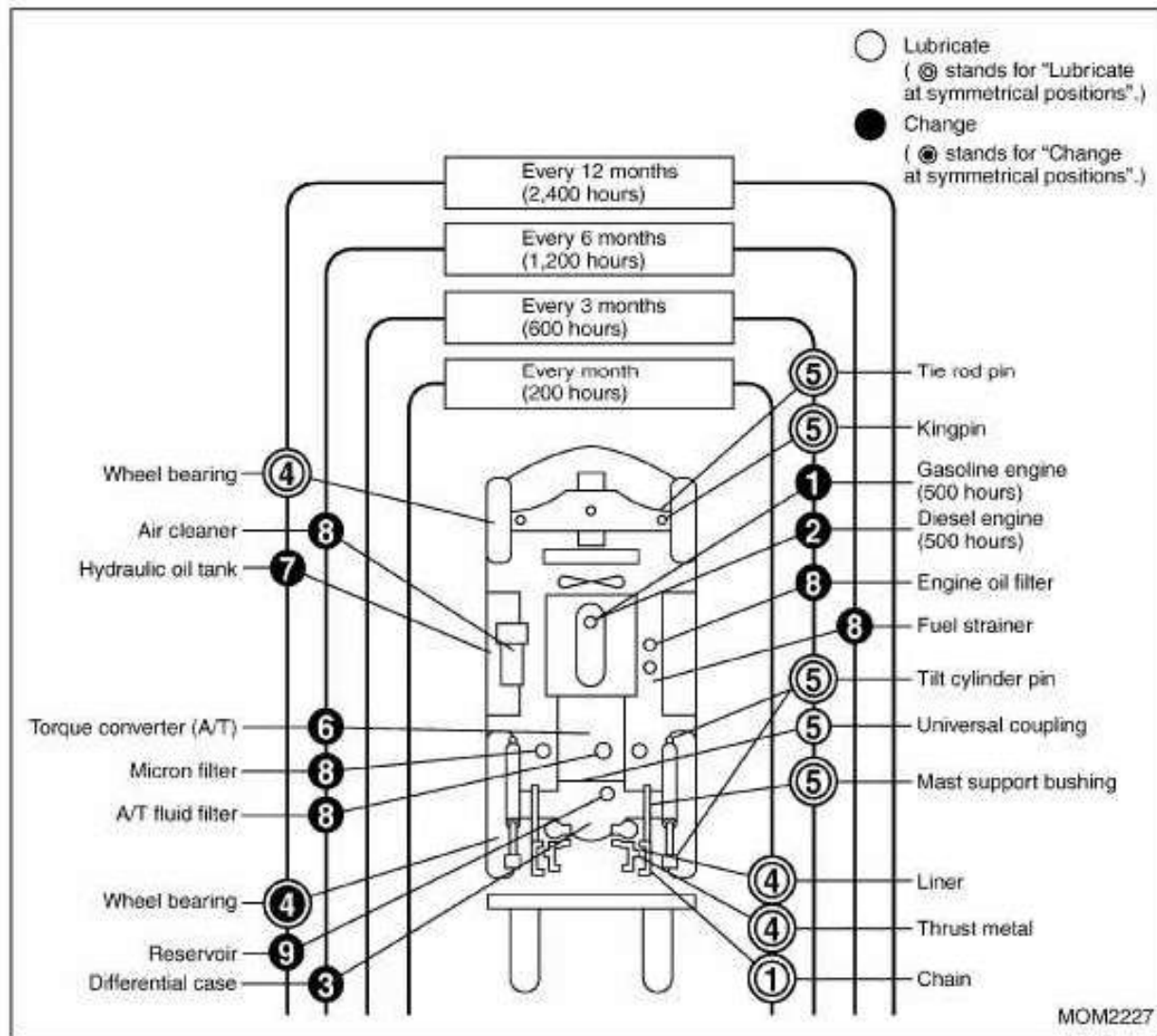
- The inspection/service items listed below are described in this chapter.
- The symbols in the timing column have the following meanings:
  - : Inspection/service in accordance with the occupational safety and health regulations
  - : Inspection/service recommended by Nissan Forklift
- The inspection/service timings shown below are based on the assumption that the forklift is operated for 200 hours in a month. When determining the inspection/service timing, take into account the actual working conditions of the forklift.

Inspection/service item	Working hours	Timing	
		Self-imposed inspection	
		Monthly	Annual
		200	2,400
1. Inspection of battery fluid level		○	●
2. Inspection of specific gravity of battery fluid		○	○
3. Inspection of automatic transmission fluid level		○	●
		6 months (every 1,200 working hours)	
4. Inspection of A/T line pressure		If necessary	
5. Inspection of stall speed		If necessary	
6. Inspection of differential gear oil level (including inspection of manual transmission oil level)			●
7. Replacement of differential gear oil		6 months (every 1,200 working hours)	
8. Application of wheel bearing grease		12 months (every 2,400 working hours)	
9. Inspection of wheel bearing for looseness (inspection/adjustment of preload)		●	●
10. Adjustment of steering axle		If necessary	
11. Inspection of tire air pressure		●	●
12. Inspection of tire for wear		●	●
13. Inspection of wheel nut		●	●
14. Inspection of brake fluid level		●	●
15. Replacement of brake fluid		12 months (every 2,400 working hours)	
16. Inspection/adjustment of brake pedal		●	●

Inspection/service item	Working hours	Timing	
		Self-imposed inspection	
		Monthly	Annual
		200	2,400
17. Inspection/adjustment of inching brake pedal		○	●
18. Inspection of brake lining for wear			●
19. Adjustment of shoe clearance			●
20. Inspection/adjustment of hand brake operation effort			●
21. Inspection of steering wheel for play and looseness		●	●
22. Inspection of steering wheel operation effort		●	●
23. Inspection of steering system fluid pressure		If necessary	
24. Inspection of hydraulic fluid level		●	●
25. Replacement of hydraulic fluid		12 months (every 2,400 working hours)	
26. Replacement of micron filter		6 months (every 1,200 working hours)	
27. Cleaning of suction filter		12 months (every 2,400 working hours)	
28. Inspection of hydraulic pressure		If necessary	
29. Inspection of fork		●	●
30. Inspection of carriage height		If necessary	
31. Inspection/adjustment of lift chain tension		●	●
32. Inspection of carriage roller		If necessary	
33. Inspection/adjustment of mast roller		If necessary	
34. Adjustment of mast roller clearance		If necessary	
35. Inspection of mast operation		●	●
36. Inspection of cylinder operation		●	●
37. Inspection of cylinder		●	●
38. Applying grease		Refer to the lubrication schedule chart.	
39. Inspection/replacement of fuses		If necessary	
40. Bulb replacement		If necessary	

# LUBRICATION CHART

Item	Suitable oil	
	Below 60°F (16°C)	Above 60°F (16°C)
① Gasoline engine oil	Refer to page 97	Refer to page 97
② Diesel engine oil	Refer to page 97	Refer to page 97
③ Gear oil	SAE No. 90	SAE No. 140
④ W.B. grease	N.L.G.I. No. 2	
⑤ Chassis grease	N.L.G.I. No. 1	
⑥ A/T fluid	Dexron or M2C-33E-F	
⑦ Hyd. oil	I.S.O. VG32	
⑧ Replace or clean element		
⑨ Brake fluid	FMVSS DOT 3	



## PUTTING FORKLIFT IN STORAGE

Putting the forklift in storage involves storing the forklift at the end of each working day or storing the forklift over a long period of time.

Be sure to observe the precautions for forklift storage.



### DAILY STORAGE

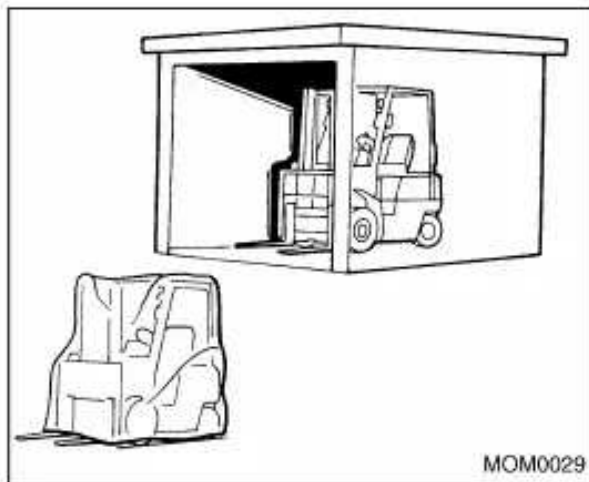
At the end of the working day, check the forklift. Always park it in the designated location. Put chocks under the tires to prevent the forklift from moving by itself. Check the forklift for water and oil leakages, and other malfunctions.

Keep the body and areas surrounding the driver seat clean. Make it a habit to always keep the forklift clean.



### WARNING:

**As soon as a malfunction is detected, notify the person responsible for maintenance and take the proper remedial actions or request your Local Authorized Dealer to perform repairs. Do not operate the forklift until the malfunction is corrected.**



## STORAGE OVER A LONG PERIOD OF TIME

When the operation of the forklift is completely suspended for a given period of time, take the following measures and store the forklift in a dry area.

### Pre-storage servicing

1. Lubricate the forklift as per "Lubrication Schedule". Change the oil, and coat all exposed areas of hydraulic cylinders with corrosion resistant grease.
2. Completely remove cooling water or fill the radiator with antifreeze to prevent the engine from freezing.

3. In order to protect the inner walls of the cylinders against corrosion, remove the spark plugs from gasoline engines and injection nozzles from diesel engines, and spray a small amount of oil into the cylinders. Then turn the motor over several times with the starter so that oil is distributed throughout the cylinders. Finally, replace the plugs or injection nozzles.
4. Remove the battery, charge it and store it indoors in low fire risk areas.
5. When storing gasoline-engine forklifts [including dual fuel (LPG) forklifts] for a long period of time, idle the engine until all the gasoline is used up. Otherwise, the remaining gasoline will decompose and turn into a rubbery substance, making it very difficult to start the engine.

### Servicing the forklift in storage

1. Periodically check the specific gravity and level of the battery fluid. Charge and replenish as necessary.
2. Check various sections of the forklift for stains or corrosion. Clean such areas and coat with a corrosion preventive agent.

### NOTE:

- When the forklift cannot be stored indoors, park it on level ground. Cover with a waterproof sheet or protective covering.
- When storing for a long period of time, be sure to consult your Local Authorized Dealer.

### Post-storage servicing

1. Remove corrosion resistant grease coated on the exposed areas of the hydraulic cylinders.
2. Check lubrication of all sections of the forklift and cooling water level. If there are impurities or the level is low, change the coolant or top up to the prescribed level.
3. Check the battery fluid level and specific gravity. Be sure to completely charge the battery before putting it back on the forklift. When connecting the battery cables, make sure that the positive and negative terminals are connected correctly.
4. In order to lubricate the inner walls of the cylinders, remove the spark plugs from gasoline engines and the injection nozzles from diesel engines, and spray a small amount of engine oil into the cylinders. Then turn the motor over several times with the starter to thoroughly distribute oil in the cylinders, and replace the plugs or injection nozzles.

5. As soon as the engine is started, make sure that the oil pressure warning lamp turns off, and continue to warm up the engine so that the various sections of the engine are sufficiently worked n. Also check the instruments, indicating lamps and warning lamps to make sure that they are operating properly.
6. Follow "Function Tests" on page 67.

## DAILY CHECKS



### WARNING:

**Perform the daily checks as per "Daily Care" on page 78, and the applicable provisions of local laws and regulations.**

## NISSAN FORKLIFT GENUINE PARTS

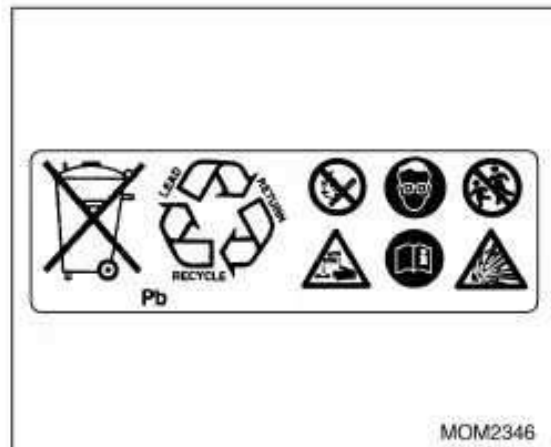


### CAUTION:

**When replacing NISSAN FORKLIFT parts (including lubricants), be sure to use Nissan Forklift genuine parts or the equivalents guaranteed by NISSAN FORKLIFT CO., LTD.**

**Any irregularities arising from the use of parts other than those specified above shall not be covered under warranty.**

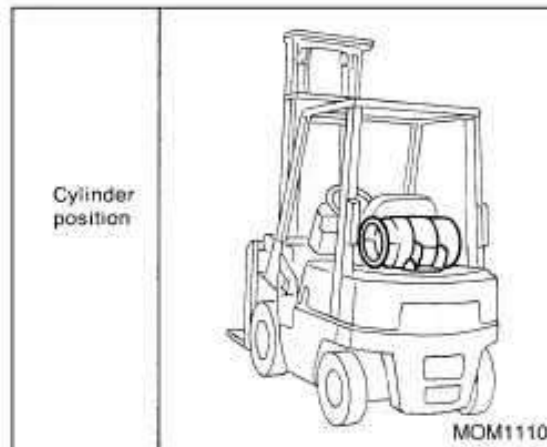
## DISPOSAL OF PARTS AND MATERIALS



### WARNING:

- Used parts and materials such as engine oil, long-life coolant, paint, rags, battery fluid and batteries shall be disposed of according to the applicable provisions of the local laws and regulations.
- Also consult with your Local Authorized Dealer.

## PRECAUTIONS FOR USING LPG MODEL



### LPG MODEL



### WARNING:

- **LPG IS HEAVIER THAN AIR.**  
It will settle on your clothes and the surface around you, displacing oxygen necessary for breathing.
- Open flames can cause flash fires.
- Check all connections for damage or leaks. If the forklift will not start after you change cylinders, have an authorized, qualified mechanic check it.
- Internal combustion forklifts are not recommended for use in enclosed or confined spaces because of the possible build-up of carbon monoxide gases, which are colorless and odorless, and could cause unconsciousness and/or death.

When changing LPG (liquefied petroleum gas) cylinders, please follow these basic rules:

- Never allow open flames or other sources of ignition in the area.
- Wear personal protective equipment (PPE) (i.e. safety glasses, gloves).
- Change only in well ventilated areas.
- Do not use or park near fire.
- Do not expose directly to the sun for extended periods of time.
- Inspect equipment pipe connections for gas leaks at mating sections.
- Only a person who is familiar with replacing LPG should replace the cylinder.
- LPG is heavier than air.

### Recommended LPG Fuel Type:

Nissan Forklift recommends the use of the HD5 LPG. Use of any other grade may cause the following: Increased emissions, increased maintenance, and decreased performance.

Nissan Forklift does not recommend any fuel system additives or cleaners.





## CYLINDER SIZE

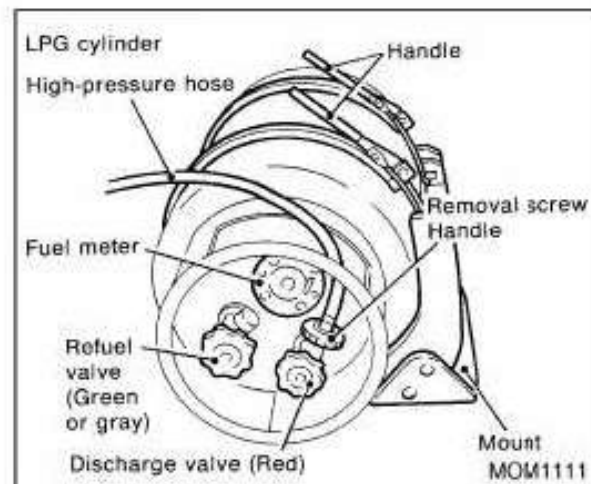
(1) Except US models

Cylinder size	Vehicle classification	Cylinder			
		Capacity	Weight	Diameter	Length
	2,000 to 4,000 lb (1.0 to 3.0 ton)	9-1/2 US gal, 7-7/8 Imp gal (36 ℓ)	33 lb (15 kg)	12.60 in (320 mm)	25.98 in (660 mm)

(2) US models (\*)

Cylinder size	Vehicle classification	Weight filled	Weight empty	Diameter	Length
	1 ton 1F1/C1F1	38 lb	33 lb	12"	27 1/4"
	2 to 3 ton 1F2 Standard	38 lb	33 lb	12"	27 1/4"
Optional	1F2 2 ton only	70 lb	43 lb	12"	33 5/16"

\*: Aluminum cylinder only, steel cylinder sizes may vary.



**LPG CYLINDER HANDLING INSTRUCTIONS** (all except U.S. produced LPG cylinder unit)

LPG cylinder replacement



**WARNING:**

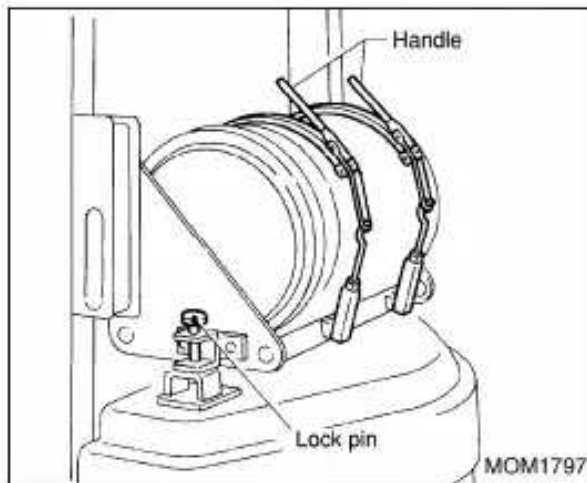
- Replace the cylinder in a well ventilated area.
- Never replace LPG cylinder near open flame, sparks or other ignition source.
- Use LPG cylinders with the capacity shown in the table at left.

The cylinder is installed on the forklift with the discharge valve on the left side when viewed from the rear of the forklift. The high-pressure hose is connected to the discharge valve with a threaded screw type connector or a quick-coupling device. The LPG cylinder replacement procedure with the thread screw type device is described on pages 112 to 117 (these pages are for outside the US & Canada).

### SWING-OPEN TYPE LPG CYLINDER MOUNT (option)

During forklift service procedures requiring opening of the top panel, the LPG cylinder mount must first be moved to prevent it from interfering with the operator's seat. The optional swing-open type cylinder mount provides easy and convenient cylinder mount movement. Follow the procedure outlined below to replace the LPG cylinder on swing-open type cylinder mount equipped vehicles.

1. The cylinder discharge valve is located on the right side when viewed from the rear of the forklift (swing-back mount equipped forklifts have the discharge valve on the left side). The disconnection procedure for the high-pressure hose and the LPG cylinder is the same for both the swing-back type mount and the swing-open type mount. Perform steps 1 and 2 as described under the item for the swing-back mount.



2. Loosen the handle and release it to allow the cylinder to drop.



#### WARNING:

**Do not attempt to replace the LPG cylinder with the mount in the open position. Replace the LPG cylinder only with the mount locked to the top of the counterweight.**

#### NOTE:

**The cylinder is heavy. Hold the cylinder firmly during the replacement procedure.**

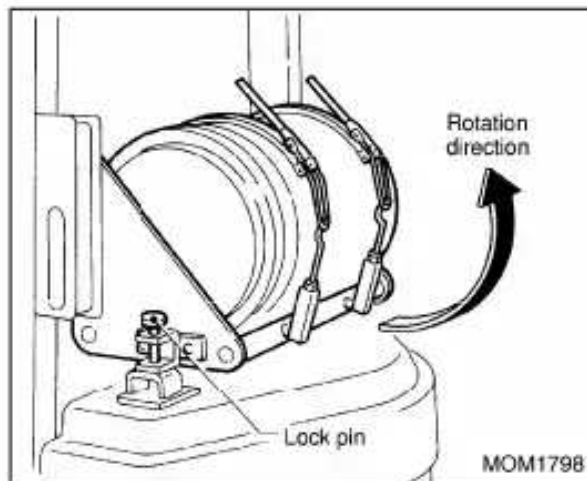
**Follow the removal procedure in the reverse order to install the new LPG cylinder.**



#### WARNING:

**Connect the high-pressure hose to the cylinder taking care not to twist the hose.**

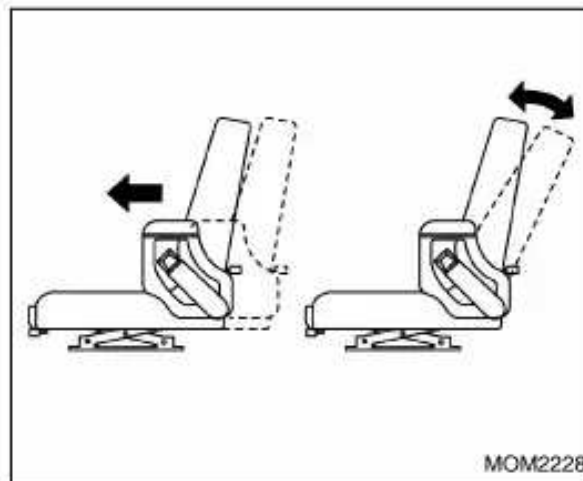
**Make sure that the lock handle is in the locked position at the completion of the replacement procedure.**



## OPENING LPG CYLINDER EQUIPPED FORKLIFT'S TOP PANEL

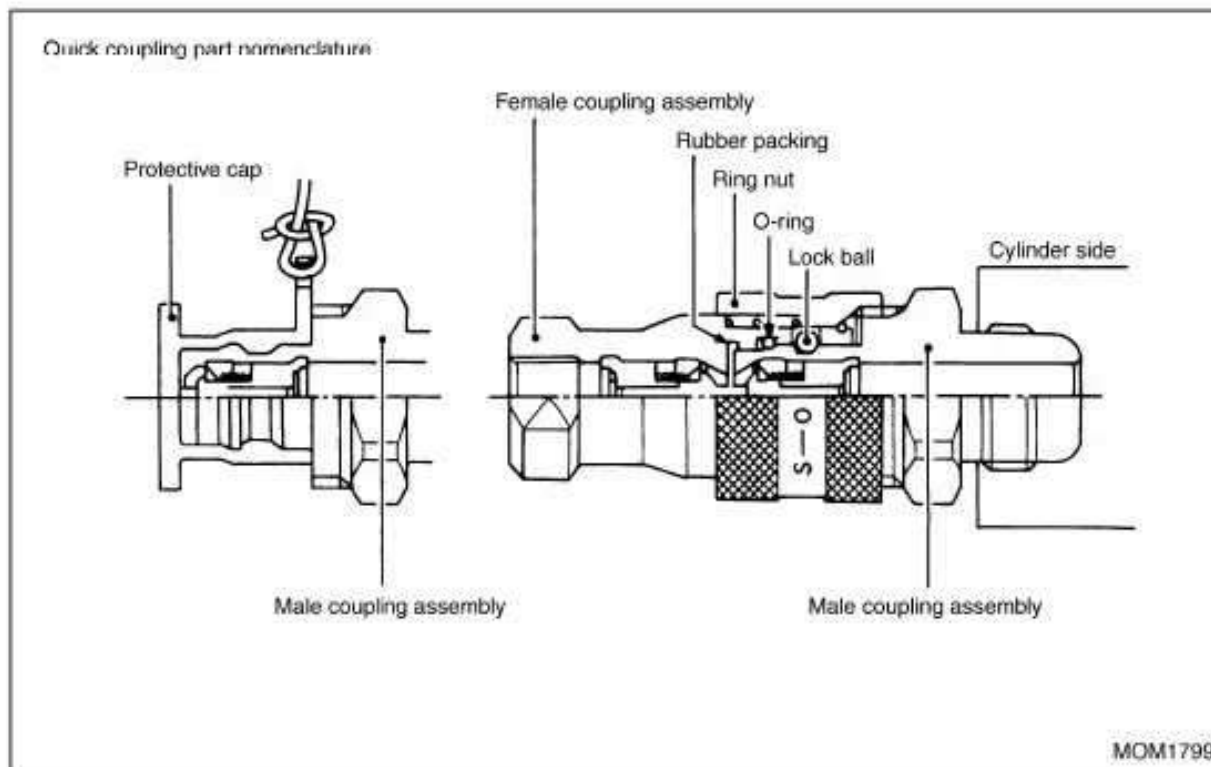
Swing-open type:

1. Lift the lock pin at the side of the LPG cylinder mount. Rotate the cylinder approximately 90 degrees toward the rear of the mount.
2. Open the top panel. Refer to "Top panel" on page 69.



Swing-back type, slide type:

1. Release the lock lever for the LPG cylinder mount and tip the LPG cylinder backward (swing-back type) or pull out (slide type).
2. Slide the operator's seat to the frontmost position, fully incline the backrest forward and open the top panel. Refer to "Top panel" on page 69.



## CYLINDER REPLACEMENT PROCEDURE WITH QUICK COUPLING

For Nissan Forklifts manufactured outside the U.S.:

1. Turn the discharge valve (red) at the cylinder side to the right until the valve is completely closed.

Place the fuel-change switch in the LPG position. Wait until the engine stops naturally (fuel is exhausted). Turn the ignition switch to the OFF position.

## Recommended LPG Fuel Type:

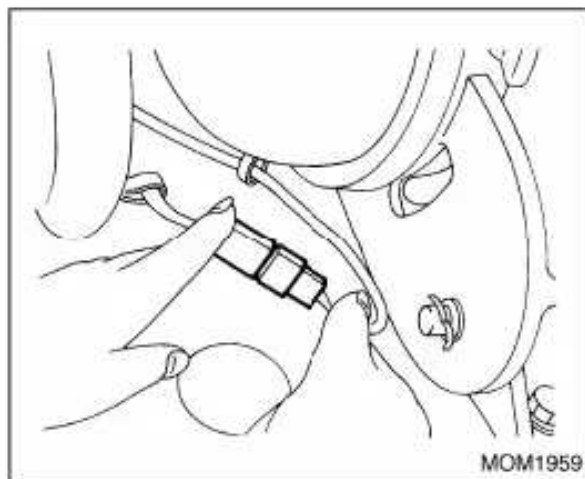
Nissan Forklift recommends the use of the HD5 LPG. Use of any other grade may cause the following: Increased emissions, increased maintenance, and decreased performance.

Nissan Forklift does not recommend any fuel system additives or cleaners.

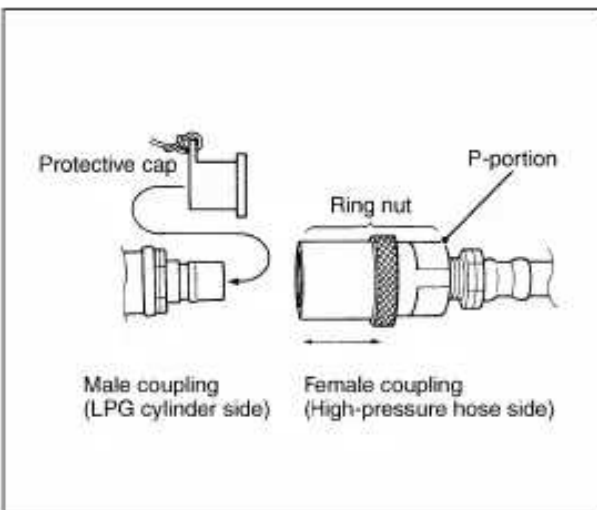


### WARNING:

- Do not strike the coupling with a mallet or similar object during the removal procedure. Doing so can result in coupling distortion, other damage and a fire hazard.
- Be sure to install the protective cap to the male assembly side cap ring after cylinder (container) removal.
- Do not operate the refuel valve (green or gray).
- It is very dangerous to open the refuel valve, because it causes LPG to leak out.



1. Disengage the connector of the LPG fuel meter (for NISSAN FORKLIFT manufactured outside the U.S.).



2. Hold part P of the female coupling on the high-pressure hose side with one hand and push it toward the shut-off valve, while sliding the locking part of the coupling toward the high-pressure hose with the other hand.

The male coupling on the LPG cylinder side and the female coupling repel each other and are detached with a snap by force of the springs in them. The couplings snap when they are disengaged.

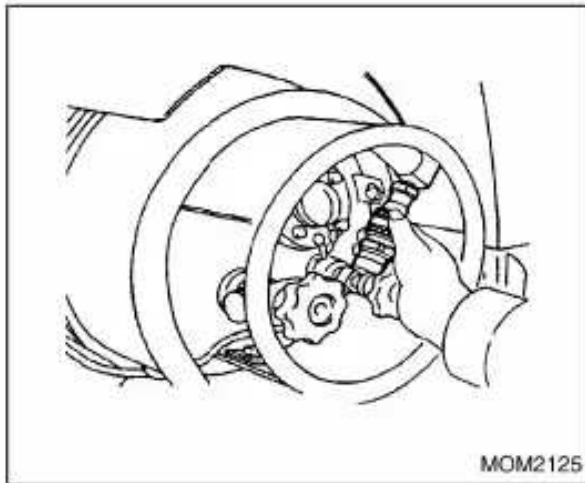
3. Hold the female coupling and pull it out straight.
4. Put the supplied protective cap on the male coupling.

- When connecting the high-pressure hose to the LPG cylinder, remove the protective cap from the male coupling.
- Align the female coupling with the male coupling, and push the female coupling against the shut-off valve with the part P held with a hand. The locking part of the female coupling then automatically slides towards the high-pressure hose.
- When you further push the coupling against the valve, the locking part automatically slides and engages with the male coupling with a snap. (The couplings snap when they are engaged and locked to each other.) The connection of the high-pressure hose to the LPG cylinder is now complete.

- Slowly open the discharge valve to the full-open position. (Do not open the discharge valve quickly, because this may activate the pressure check valve so that the gas cannot flow properly.)

Place soapy water over the high-pressure hose connection to make sure that no gas leaks occur.

- After making sure that there are no gas leaks, turn the ignition switch to start the engine. If the engine does not start, the pressure check valve may activate to hamper the gas flow. In that case, turn the ignition switch to the OFF position, close the discharge valve, slowly open it and repeat step 1 above.
- If any malfunctions such as gas leaks are noted, close the discharge valve and have the LP gas system checked at your Local Authorized Dealer.



## FOR AREAS OUTSIDE NORTH AMERICA

Turn the quick coupling ring nut to the left (counterclockwise when viewed from the hose). Turn the quick coupling to the left (when viewed from the discharge valve) and pull the hose and coupling free of the assembly.

The symbol (S-O) is stamped on the ring nut. (S) indicates the tightening direction. (O) indicates the loosening direction.



### WARNING:

- Do not strike the coupling with a mallet or similar object during the removal procedure. Doing so can result in coupling distortion, other damage and a fire hazard.

- Be sure to install the protective cap to the male assembly side cap ring after cylinder (container) removal.

## COUPLING CONNECTION PRECAUTIONS

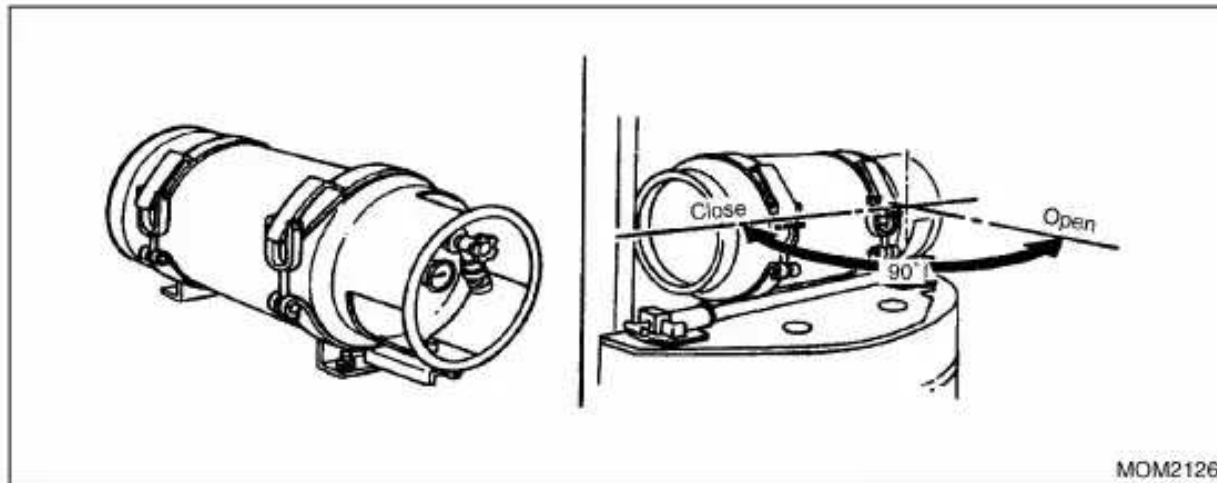
- Inspect the male assembly side for dust or other foreign material. Clean the assembly if required. If the female side assembly O-ring is dry, apply a small amount of oil and grease to it so that it rotates smoothly.
- Take care not to damage the O-ring side facing the male assembly during the connection procedure.
- Connect the lock ball. Check that the ring nut has returned to the specified position. Turn the ring nut to the right to thread it into position.

After replacing with a new cylinder, proceed as follows:



### WARNING:

- When disconnecting the high-pressure hose, do not stand where the remaining LPG may splash you, otherwise you may be seriously injured.
- Do not disconnect the high-pressure hose when the engine is running. This could cause discharge of LPG and potential serious injury.



Stationary type

Swing-open type

## CHANGING LPG CYLINDER

(U.S. manufactured models)

There are two types of LPG cylinder holders, as described below.

- (1) The stationary type is secured to the upper surface of the counterweight (1F2 and G1F2 series forklifts).
- (2) The other type is a swing-open type. It is opened 90° in the right rear direction (all except 1F2 and G1F2 series forklifts).

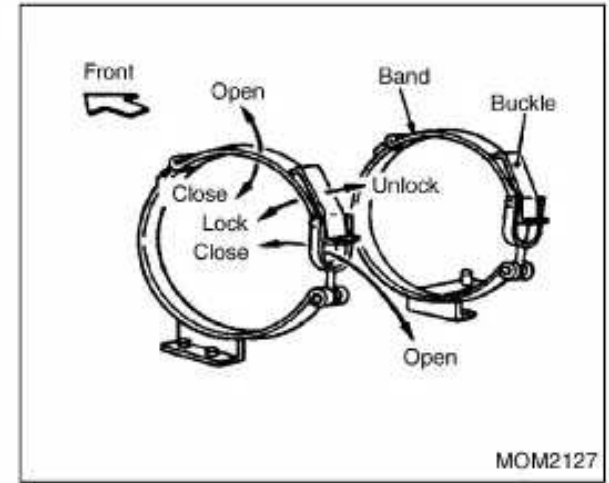
### NOTE:

**The LPG cylinder removal and installation procedures are the same for both the stationary type and the swing-open type.**



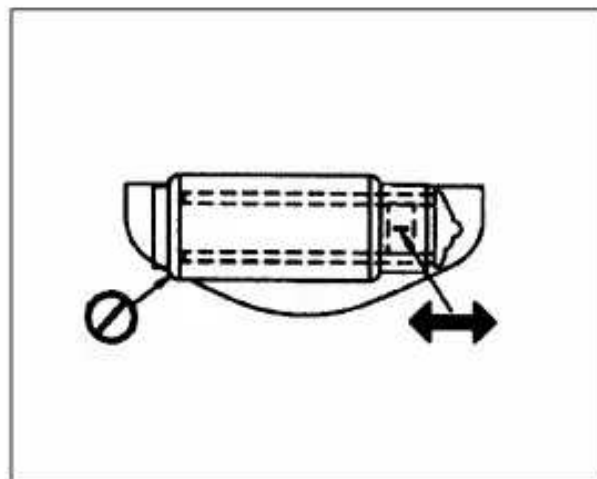
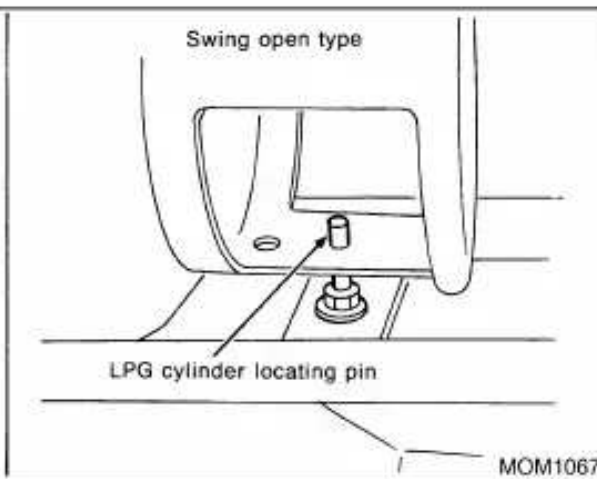
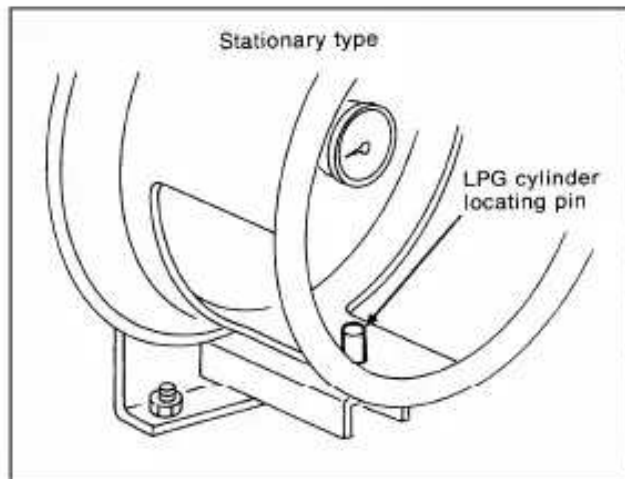
### WARNING:

**Before installing a new cylinder, be sure that the rack is locked in place to the counterweight (swing-open type only).**



## REMOVING LPG CYLINDER

1. Turn OFF (close) the cylinder valve while the engine is running.
2. When the engine stops, turn the ignition switch to the OFF position.
3. Slowly unthread the hose fitting.
4. Pull the buckle to unfasten it, and then put the tank clamp band over in the forward direction.
5. Remove the LPG cylinder from the holder.



## INSTALLING CYLINDER

1. Check the LPG hose and tubing for damage, and check areas for possible leakage. Notify your supervisor of any leaks.
2. Check the condition of the O-ring. Refer to page 117.
3. Lift the full cylinder into position.
4. Place the clamp band onto the LPG cylinder, and then lock with the buckle.

**you have a firm grip on tank before lifting into holder.**

- **Make sure that the cylinder is in the correct locating pin, so it will be positioned correctly and not slip from holder.**
- Make sure that the LPG cylinder is securely held in place by means of the handle and the high-pressure hose is free from twisting. This reduces stress on hose and tank fitting, and will keep tank in position and not damage hose.

- **Fuel tank locating pin must be properly positioned to eliminate fuel tank overhang.**

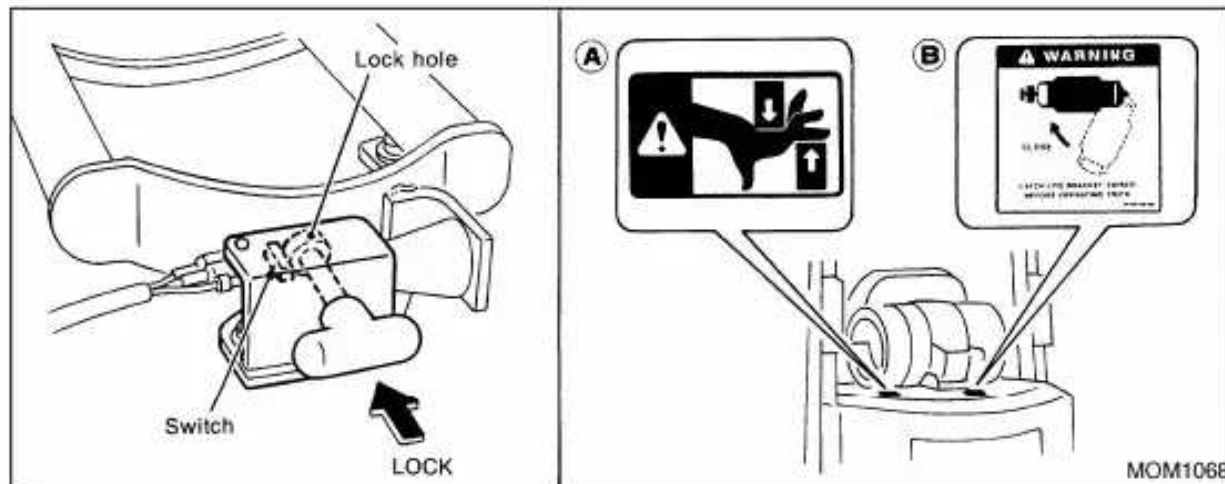


### WARNING:

- **A full cylinder will be much heavier than the empty cylinder just removed, ensure**

- **Do not operate the forklift with the LPG fuel tank overhanging the frame of forklift. Damage to tank, serious injury or death may occur.**





5. Connect the hose after the cylinder is locked into the normal operating position.
6. Turn on the valve and recheck for leaks.
7. Return safety equipment to storage.
8. While seated in the operator's seat, turn the ignition switch to the ON position.
9. Check if the cylinder bracket lock indicator light on the dash is off. (Refer to page 35.)

If the light is on, turn the key off and check that the swing mount is secured and locked.

10. Check if the switch is damaged.

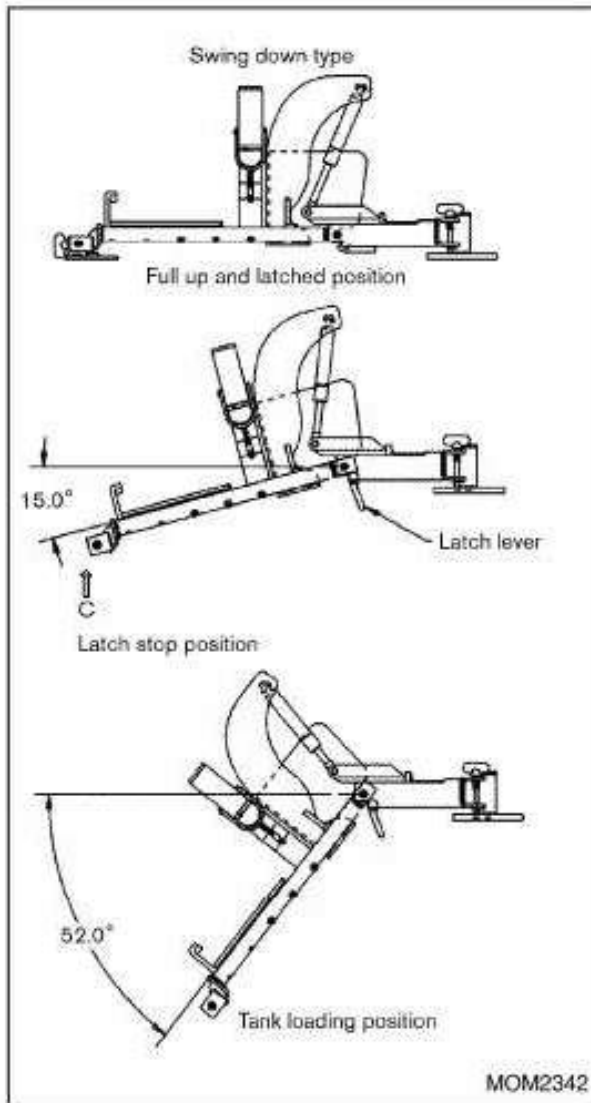
**WARNING:**  
 Only authorized NISSAN FORKLIFT dealers should make repairs and/or adjustments to the switch, latch or bracket.

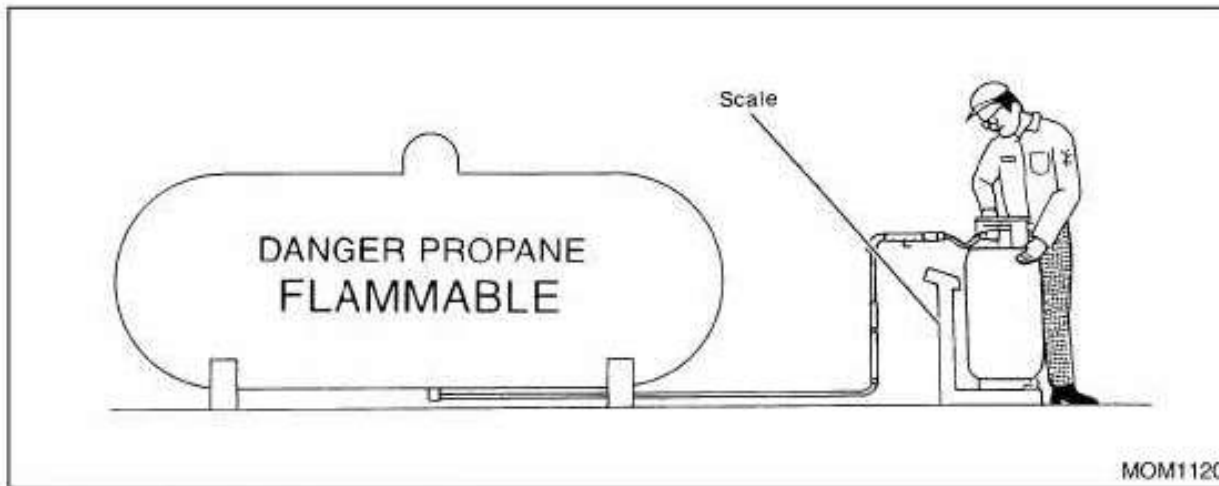
Operating procedure:

A. To fully close the bracket, press down on the end of the bracket with the left hand, hold the latch lever up with the right hand, and release the bracket.

B. The bracket must be in the full up position before rotating to the lock position on the forklift.

C. A minimum force is required to lift the bracket to the full up position. Excessive force may cause damage if the latch lever is not released.





## REFILLING LPG CYLINDERS



### WARNING:

- Only a trained and authorized person should refill LPG tanks.
- Do not refill cylinders while mounted on a forklift.
- Make sure that you know and understand the proper procedure for filling an LPG cylinder.
- Know all local fire codes.
- If you have any questions about refilling LPG cylinders, please ask your supervisor.
- If problems with filling occur, call your LPG supplier.

The weight scale method to fill the cylinder is highly recommended to protect the environment and to reduce fire hazards. This method will reduce overfilling and the discharge of LPG into the environment.

- Store full and empty cylinders according to local fire codes.
- When filling the LPG cylinder with LPG, always observe the local laws and regulations.

## PERIODIC MAINTENANCE SCHEDULE

Before delivery of your new forklift, your dealer provides a pre-delivery inspection and adjustment service specified by the factory and designed to ensure satisfactory performance.

The following tables list the servicing required to keep your forklift operating at peak mechanical condition while meeting EPA & CARB Emission requirements, and should be attended to as indicated, preferably by your Local Authorized Dealer.

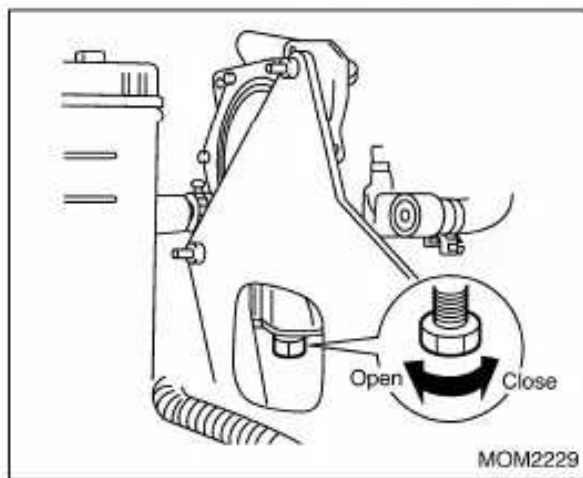
MAINTENANCE OPERATION	MAINTENANCE INTERVAL												
	Months	1	2	3	4	5	6	7	8	9	10	11	12
Periodic maintenance should be performed after specified intervals have elapsed in months or hours, whichever comes first.	Months	1	2	3	4	5	6	7	8	9	10	11	12
	Hundreds of hours	2	4	6	8	10	12	14	16	18	20	22	24
LPG FUEL SYSTEM													
1. Piping or pipe connector portion for gas leakage		I	I	I	I	I	I	I	I	I	I	I	I
2. Tar in vaporizer		D	D	D	D	D	D	D	D	D	D	D	D
3. Piping or pipe connector portion for damage		I	I	I	I	I	I	I	I	I	I	I	I
4. Mounting bracket of LPG cylinder for looseness or damage		I	I	I	I	I	I	I	I	I	I	I	I
5. Piping or pipe connector portion for gas leakage (1)													I
6. LPG fuel filters				R			R			R			R

**NOTE:** (1) When the LPG cylinder is replaced, inspect pipe connectors for gas leakage with soapy water.

**NOTE:** Nissan Forklift recommends a complete tear down, inspection, and resealing of the vaporizer before 6,000 hours of service. This maintenance is necessary for units that are not running the recommended HD5 grade LPG, or using an unknown fuel quality.

**Abbreviations:** I = Inspect. Correct or replace if necessary. C = Clean R = Replace L = Lubricate T = Test A = Adjust D = Drain

Also refer to Maintenance Schedule on page 105.



### DRAINING OF TAR FROM THE VAPORIZER (LPG - gasoline dual fuel forklift)



#### CAUTION:

**This should only be done by a trained & authorized person.**

The vaporizer is an apparatus used during LPG operation to control and reduce fuel pressure within the LPG cylinder and regulate vaporization. The vaporization process produces tar (sticky liquid) which accumulates in the vaporizer.

When or if tar accumulation becomes excessive, emission levels and idling speed adjustment

could be adversely affected. Tar must be purged from the vaporizer at least once a month.

1. The tar purging procedure should be performed when the engine is at the operating temperature (warm).
2. Shut off (close) LPG cylinder tank, (red) discharge the valve and then idle.
3. Turn the ignition key to the OFF position.
4. Get off the forklift after pulling out the key to open the top panel. Refer to "Top panel" on page 69.
5. Put a cloth for collecting tar on the outlet.
6. For the valve cock type, open the purge valve cock. For the plug (bolt) type, slowly remove the plug.
7. Tar will drip. When it stops, the procedure is complete.
8. Close the purge valve cock or fix the purge plug (bolt). If tar adheres to the body or surrounding areas, completely wipe it off with a cloth.
9. Close the top panel to complete the work.



#### WARNING:

**Do not touch the vaporizer or its surrounding parts at high temperature, as it may cause burns. Whenever operating the purge valve cock or plug, always wear protective gloves.**

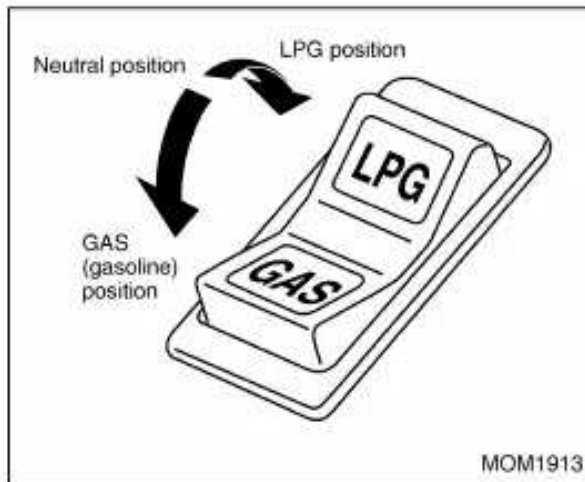
#### NOTE:

- If you removed the battery to gain access to the drain, it is necessary to do an "Idle Air Volume Relearn" see pages EC-49 and EC-50 in the Chassis Service Manual.
- Nissan Forklift recommends a complete tear down, inspection, and resealing of the vaporizer before 6,000 hours of service. This maintenance is necessary for units that are not running the recommended HD5 grade LPG, or using an unknown fuel quality.

### Stopping

Gasoline engine vehicle:

To stop the engine, turn the ignition key to the OFF position.



## LPG - GASOLINE DUAL FUEL FORKLIFT



### WARNING:

Carefully follow the procedures below when turning the engine off after LPG operation:

1. Completely close the discharge valve (red).
2. Press the fuel-change switch to set the neutral position.
3. Let the engine idle until it stops.
4. Make sure that all of the remaining LPG (in the piping and other receptacles) has been used. After the engine stops, turn the ignition key to the OFF position.

- If the forklift is not used for several hours after the operation, park the forklift with the fuel-change switch set to the GAS position. This helps the engine start more easily the next time.
- After completion of operation and before storing the forklift for an extended period, completely close the discharge valve (red). Check the engine for gas leakage. Refer to "LPG cylinder replacement" on page 112.
- In the event of LPG leakage, an accident or some other malfunction, immediately and completely close the discharge valve (red). Have your LPG system checked at your Local Authorized Dealer.

NISSAN	
MODEL VARIATION	VEHICLE NO.
CHASSIS NO.	
MAST	TIRE
ATTACHMENT	
TRUCK WEIGHT	K G
CAPACITY	
WITH MAST VERTICAL	MAX LIFT HEIGHT <input type="text"/> m.m.
RATED CAPACITY	<input type="text"/> <input type="text"/> <input type="text"/> KG
LOAD CENTER	<input type="text"/> 500 <input type="text"/> 700 <input type="text"/> 900 mm
NISSAN MOTOR CO.,LTD.	

MOM1966

## LOAD CHART

The load chart, attached to front panel, indicates all necessary information regarding the type of attachments, lifting capacity, etc.



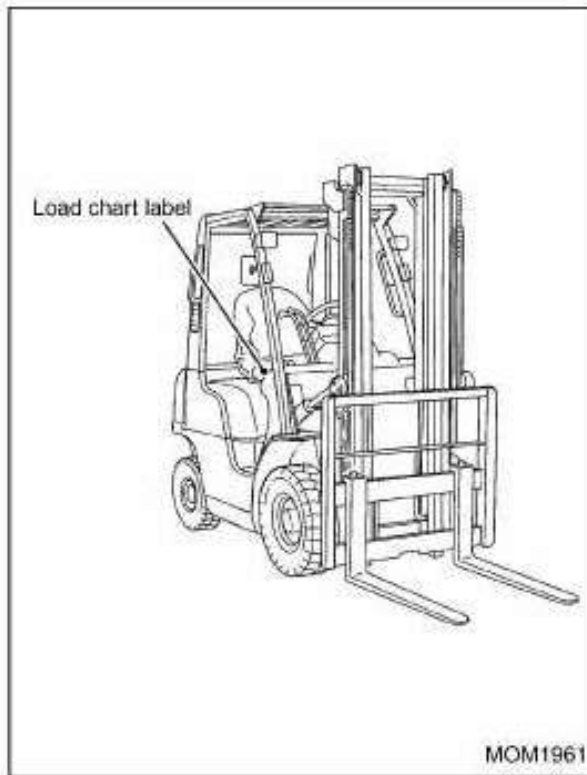
### WARNING:

Do not exceed the rated capacity of the forklift.

MADE IN THE U.S.A.		<b>NISSAN</b>		<b>CE</b>
MODEL VARIATION				KW
CHASSIS NO.				
MAST		TIRE		
ATTACHMENT				
TRUCK WEIGHT				KG
CAPACITY: WITH MUST VERTICAL		MAX. LIFT HEIGHT		
		mm		
		KG		
LOAD CENTER				mm
NISSAN MOTOR CO.,LTD. 99070 -				

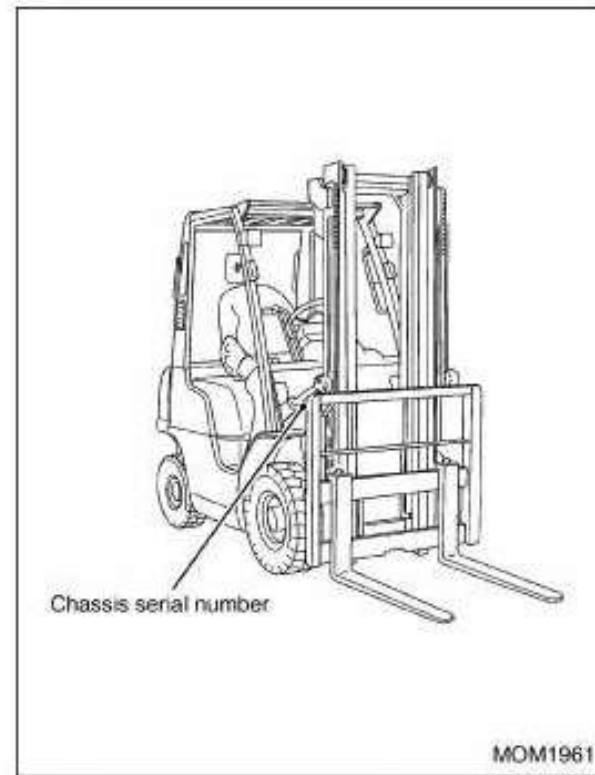
MOM2230

For countries where a forklift with the CE marking must be used.



### LOAD CHART LABEL

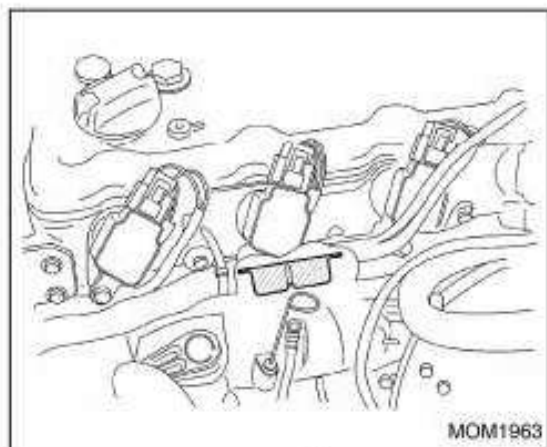
The load chart label is attached to the right side of the front panel.



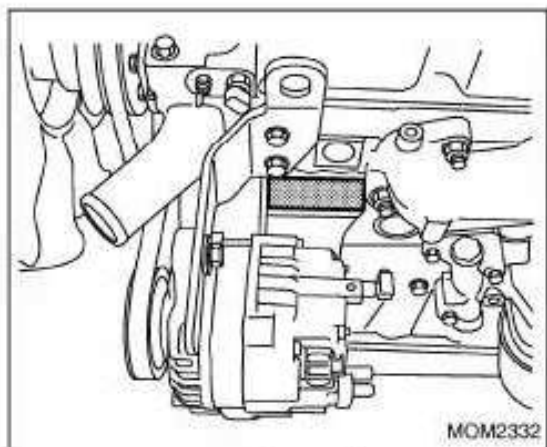
### CHASSIS SERIAL NUMBER

The chassis serial number is stamped on the front panel.

## IDENTIFICATION NUMBERS



GASOLINE ENGINE (K21, K25)



DIESEL ENGINE (QD32)



# SPECIFICATIONS

## Main Truck Specifications

### 1F1 series

Item		Model	1.5 ton (3000 lb)	1.75 ton (3500 lb)	2.0 ton (4000 lb)
		lb (kg)			
Load capacity		lb (kg)	3000 (1500)	3500 (1750)	4000 (2000)
Load center		in (mm)	24 (500)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)	130 (3300)
Free lift		in (mm)	6.2 (158)	6.2 (158)	6.2 (158)
Tilt angle	Forward	degree	6	6	6
	Backward	degree	12	12	12
Overall length (without fork length)		in (mm)	89.0 (2260)	90.2 (2290)	91.3 (2320)
Overall width	Single tire	in (mm)	41.9 (1065)	41.9 (1065)	41.9 (1065)
	Double tire	in (mm)	58.3 (1480)	58.3 (1480)	58.3 (1480)
Overall height	Mast (lowered)	in (mm)	84.5 (2145)	84.5 (2145)	84.5 (2145)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	83.3 (2115)	83.3 (2115)	83.3 (2115)
Wheelbase		in (mm)	55.1 (1400)	55.1 (1400)	55.1 (1400)
Front overhang		in (mm)	15.7 (400)	15.7 (400)	15.7 (400)
Rear overhang		in (mm)	18.1 (460)	19.3 (490)	20.5 (520)
Front tread	Single tire	in (mm)	35.0 (890)	35.0 (890)	35.0 (890)
	Double tire	in (mm)	43.1 (1095)	43.1 (1095)	43.1 (1095)
Rear tread		in (mm)	35.4 (900)	35.4 (900)	35.4 (900)
Minimum turning radius		Outside in (mm)	76.2 (1935)	77.6 (1970)	79.1 (2010)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)	42.1 (1070)
Fork (width x thickness)		in (mm)	4 x 1.5 (100 x 40)	4 x 1.5 (100 x 40)	4 x 1.5 (100 x 40)
Ground clearance	Under mast	in (mm)	4.5 (115)	4.5 (115)	4.5 (115)
	Under power unit	in (mm)	5.3 (135)	5.3 (135)	5.3 (135)
	Under frame	in (mm)	5.9 (150)	5.9 (150)	5.9 (150)

## 1F1 series

Item			Model	1.5 ton (3000 lb)	1.75 ton (3500 lb)	2.0 ton (4000 lb)
Lifting speed	2W lifting	Full load	FPM (mm/sec)	122.0 (620)	122.0 (620)	122.0 (620)
		No load	FPM (mm/sec)	127.9 (650)	127.9 (650)	127.9 (650)
	2F lifting	Full load	FPM (mm/sec)	108.2 (550)	108.2 (550)	108.2 (550)
		No load	FPM (mm/sec)	116.1 (590)	116.1 (590)	116.1 (590)
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	110.2 (560)	110.2 (560)
		No load	FPM (mm/sec)	127.7 (650)	127.7 (650)	127.7 (650)
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)	110.2 (560)	110.2 (560)
		No load	FPM (mm/sec)	116.1 (590)	116.1 (590)	116.1 (590)
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)
		No load	FPM (mm/sec)	61.0 (310)	61.0 (310)	61.0 (310)
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)
		No load	FPM (mm/sec)	80.1 (405)	80.1 (405)	80.1 (405)
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)
		No load	FPM (mm/sec)	72.8 (370)	72.8 (370)	72.8 (370)
Travel speed	Forward	Full load	MPH (km/h)	11.5 (18.5)	11.5 (18.5)	11.5 (18.5)
		No load	MPH (km/h)	11.5 (18.5)	11.5 (18.5)	11.5 (18.5)
Drawbar pull	Full load (travel)	N		16450	16450	16450
		lb (kg)		3705 (1680)	3705 (1680)	3705 (1680)
	No load	N		11000	11750	13050
		lb (kg)		2470 (1120)	2646 (1200)	2932 (1330)
Gradeability	Full load (travel)	tanθ (%)		38	45	41
	No load	tanθ (%)		28	24	21
Truck weight (no load)	Single tire	lb (kg)		5810 (2635)	6175 (2800)	6505 (2950)
	Double tire	lb (kg)		6045 (2740)	6405 (2905)	2740 (3055)
ENGINE	Model			K21	K21	K21
	Displacement		cu in (cm <sup>3</sup> )	126 (2065)	126 (2065)	126 (2065)
	Rated output	SAE gross	HP (kW)/rpm	55 (41)/2700	55 (41)/2700	55 (41)/2700
	Rated torque	SAE gross	ft-lb (N-m)/rpm	111 (151)/1600	111 (151)/1600	111 (151)/1600

## 1F2 series

Item		Model	2.0 ton (4000 lb)	2.0 ton (4000 lb)	2.0 ton (4000 lb)
		lb (kg)			
Load capacity		lb (kg)	4000 (2000)	4000 (2000)	4000 (2000)
Load center		in (mm)	24 (500)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)	130 (3300)
Free lift		in (mm)	6.1 (154)	6.1 (154)	6.1 (154)
Tilt angle	Forward	degree	6	6	6
	Backward	degree	12	12	12
Overall length (without fork length)		in (mm)	97.2 (2470)	97.2 (2470)	99.4 (2525)
Overall width	Single tire	in (mm)	45.3 (1150)	45.3 (1150)	45.3 (1150)
	Double tire	in (mm)	64.6 (1640)	64.6 (1640)	64.6 (1640)
Overall height	Mast (lowered)	in (mm)	84.4 (2145)	84.4 (2145)	84.4 (2145)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	83.5 (2120)	83.5 (2120)	83.5 (2120)
Wheelbase		in (mm)	63.0 (1600)	63.0 (1600)	63.0 (1600)
Front overhang		in (mm)	17.9 (455)	17.9 (455)	17.9 (455)
Rear overhang		in (mm)	16.3 (415)	16.3 (415)	18.5 (470)
Front tread	Single tire	in (mm)	37.8 (960)	37.8 (960)	37.8 (960)
	Double tire	in (mm)	47.4 (1205)	47.4 (1205)	47.4 (1205)
Rear tread		in (mm)	38.4 (975)	38.4 (975)	38.4 (975)
Minimum turning radius		Outside	in (mm)	83.5 (2120)	83.5 (2120)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)	42.1 (1070)
Fork (width x thickness)		in (mm)	4 x 1.5 (100 x 40)	4 x 1.5 (100 x 40)	4 x 1.5 (100 x 40)
Ground clearance	Under mast	in (mm)	4.5 (115)	4.5 (115)	4.5 (115)
	Under power unit	in (mm)	5.3 (135)	5.3 (135)	5.3 (135)
	Under frame	in (mm)	6.1 (155)	6.1 (155)	6.1 (155)

## 1F2 series

Item			Model	2.0 ton (4000 lb)	2.0 ton (4000 lb)	2.0 ton (4000 lb)	
Lifting speed	2W lifting	Full load	FPM (mm/sec)	118.1 (600)	129.9 (660)	127.9 (650)	
		No load	FPM (mm/sec)	127.9 (650)	137.8 (700)	137.8 (700)	
	2F lifting	Full load	FPM (mm/sec)	110.2 (560)	122.0 (620)	120.0 (610)	
		No load	FPM (mm/sec)	122.0 (620)	131.9 (670)	129.9 (660)	
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	
		No load	FPM (mm/sec)	126.0 (640)	136.4 (695)	136.4 (695)	
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	
		No load	FPM (mm/sec)	120.0 (610)	129.9 (660)	129.9 (660)	
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	59.0 (300)	59.0 (300)	59.0 (300)	
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	68.1 (345)	68.1 (345)	68.1 (345)	
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	64.9 (330)	64.9 (330)	64.9 (330)	
Travel speed	Forward	Full load	MPH (km/h)	11.8 (19)	11.8 (19)	11.8 (19)	
		No load	MPH (km/h)	11.8 (19)	11.8 (19)	11.8 (19)	
Drawbar pull	Full load (travel)		N	17050	18400	20000	
			lb (kg)	3836 (1740)	4145 (1880)	4497 (2040)	
	No load		N	15300	15300	16050	
			lb (kg)	3439 (1560)	3439 (1560)	3616 (1640)	
Gradeability	Full load (travel)		tanθ (%)	37	45	41	
	No load		tanθ (%)	28	28	28	
Truck weight (no load)	Single tire		lb (kg)	7145 (3240)	7145 (3240)	7400 (3355)	
	Double tire		lb (kg)	7355 (3335)	7355 (3335)	7610 (3450)	
ENGINE	Model			K21	K25	QD32	
	Displacement			cu in (cm <sup>3</sup> )	126 (2065)	152 (2488)	192 (3153)
	Rated output		SAE gross	HP (kW)/rpm	55 (41)/2700	63 (47)/2700	55 (41)/2000
	Rated torque		SAE gross	ft-lb (N-m)/rpm	111 (151)/1600	139 (188)/1600	144 (195)/2000

## 1F2 series

Item		Model	2.5 ton (5000 lb)	2.5 ton (5000 lb)	2.5 ton (5000 lb)
		lb (kg)	5000 (2500)	5000 (2500)	5000 (2500)
Load capacity		lb (kg)	5000 (2500)	5000 (2500)	5000 (2500)
Load center		in (mm)	24 (500)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)	130 (3300)
Free lift		in (mm)	6.1 (154)	6.1 (154)	6.1 (154)
Tilt angle	Forward	degree	6	6	6
	Backward	degree	12	12	12
Overall length (without fork length)		in (mm)	99.4 (2525)	99.4 (2525)	99.4 (2525)
Overall width	Single tire	in (mm)	45.3 (1150)	45.3 (1150)	45.3 (1150)
	Double tire	in (mm)	64.6 (1640)	64.6 (1640)	64.6 (1640)
Overall height	Mast (lowered)	in (mm)	84.4 (2145)	84.4 (2145)	84.4 (2145)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	83.5 (2120)	83.5 (2120)	83.5 (2120)
Wheelbase		in (mm)	63.0 (1600)	63.0 (1600)	63.0 (1600)
Front overhang		in (mm)	17.9 (455)	17.9 (455)	17.9 (455)
Rear overhang		in (mm)	18.5 (470)	18.5 (470)	18.5 (470)
Front tread	Single tire	in (mm)	37.8 (960)	37.8 (960)	37.8 (960)
	Double tire	in (mm)	47.4 (1205)	47.4 (1205)	47.4 (1205)
Rear tread		in (mm)	38.4 (975)	38.4 (975)	38.4 (975)
Minimum turning radius		Outside	in (mm)	85.8 (2180)	85.8 (2180)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)	42.1 (1070)
Fork (width x thickness)		in (mm)	4 x 1.5 (100 x 40)	4 x 1.5 (100 x 40)	4 x 1.5 (100 x 40)
Ground clearance	Under mast	in (mm)	4.5 (115)	4.5 (115)	4.5 (115)
	Under power unit	in (mm)	5.3 (135)	5.3 (135)	5.3 (135)
	Under frame	in (mm)	6.1 (156)	6.1 (156)	6.1 (156)

## 1F2 series

Item			Model	2.5 ton (5000 lb)	2.5 ton (5000 lb)	2.5 ton (5000 lb)	
Lifting speed	2W lifting	Full load	FPM (mm/sec)	118.1 (600)	129.9 (660)	127.9 (650)	
		No load	FPM (mm/sec)	127.9 (650)	137.8 (700)	137.8 (700)	
	2F lifting	Full load	FPM (mm/sec)	110.2 (560)	122.0 (620)	120.0 (610)	
		No load	FPM (mm/sec)	122.0 (620)	131.9 (670)	129.9 (660)	
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)	
		No load	FPM (mm/sec)	126.0 (640)	136.4 (695)	134.3 (680)	
3V lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	118.1 (600)		
	No load	FPM (mm/sec)	120.0 (610)	129.9 (660)	127.9 (650)		
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	59.0 (300)	59.0 (300)	59.0 (300)	
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	68.1 (345)	68.1 (345)	68.1 (345)	
3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)		
	No load	FPM (mm/sec)	64.9 (330)	64.9 (330)	64.9 (330)		
Travel speed	Forward	Full load	MPH (km/h)	11.8 (19)	11.8 (19)	11.8 (19)	
		No load	MPH (km/h)	11.8 (19)	11.8 (19)	11.8 (19)	
Drawbar pull	Full load (travel)		N	17050	18400	20000	
			lb (kg)	3836 (1740)	4145 (1880)	4497 (2040)	
	No load		N	15300	15300	17150	
			lb (kg)	3439 (1560)	3439 (1560)	3858 (1750)	
Gradeability	Full load (travel)		tanθ (%)	33	38	35	
	No load		tanθ (%)	24	24	24	
Truck weight (no load)	Single tire		lb (kg)	7925 (3595)	7925 (3595)	8180 (3710)	
	Double tire		lb (kg)	8140 (3690)	8140 (3690)	8395 (3805)	
ENGINE	Model			K21	K25	QD32	
	Displacement			cu in (cm <sup>3</sup> )	126 (2065)	152 (2488)	192 (3153)
	Rated output			SAE gross HP (kW)/rpm	55 (41)/2700	63 (47)/2700	55 (41)/2000
	Rated torque			SAE gross ft-lb (N·m)/rpm	111 (151)/1600	139 (188)/1600	144 (195)/2000

## 1F2 series

Item		Model	2.75 ton (5500 lb)	3.0 ton (6000 lb)	3.0 ton (6000 lb)	3.5 ton (7000 lb)	3.5 ton (7000 lb)	
		lb (kg)						
Load capacity		lb (kg)	5500 (2750)	6000 (3000)	6000 (3000)	7000 (3500)	7000 (3500)	
Load center		in (mm)	24 (500)	24 (500)	24 (500)	24 (500)	24 (500)	
Maximum fork height		in (mm)	130 (3300)	130 (3300)	130 (3300)	130 (3300)	130 (3300)	
Free lift		in (mm)	6.1 (154)	6.1 (154)	6.1 (154)	6.1 (154)	6.1 (154)	
Til: angle	Forward	degree	6	6	6	6	6	
	Backward	degree	12	12	12	12	12	
Overall length (without fork length)		in (mm)	103.4 (2625)	105.7 (2685)	105.7 (2685)	108.5 (2755)	108.5 (2755)	
Overall width	Single tire	in (mm)	49.2 (1250)	49.2 (1250)	49.2 (1250)	50.4 (1280)	50.4 (1280)	
	Double tire	in (mm)	65.6 (1665)	65.6 (1665)	65.6 (1665)	67.7 (1720)	67.7 (1720)	
Overall height	Mast (lowered)	in (mm)	85.6 (2175)	85.6 (2175)	85.6 (2175)	91.1 (2315)	91.1 (2315)	
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.4 (4558)	179.4 (4558)	179.4 (4558)	179.4 (4558)	
	Overhead guard	in (mm)	84.6 (2150)	84.6 (2150)	84.6 (2150)	84.8 (2155)	84.8 (2155)	
Wheelbase		in (mm)	63.8 (1620)	66.9 (1700)	66.9 (1700)	66.9 (1700)	66.9 (1700)	
Front overhang		in (mm)	19.1 (485)	19.1 (485)	19.1 (485)	19.3 (490)	19.3 (490)	
Rear overhang		in (mm)	20.5 (520)	19.7 (500)	19.7 (500)	22.2 (565)	22.2 (565)	
Front tread	Single tire	in (mm)	40.6 (1030)	40.6 (1030)	40.6 (1030)	41.7 (1060)	41.7 (1060)	
	Double tire	in (mm)	47.6 (1210)	47.6 (1210)	47.6 (1210)	48.4 (1230)	48.4 (1230)	
Rear tread		in (mm)	38.6 (980)	38.6 (980)	38.6 (980)	38.6 (980)	38.6 (980)	
Minimum turning radius		Outside	in (mm)	88.2 (2240)	90.6 (2300)	90.6 (2300)	94.1 (2390)	94.1 (2390)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)	42.1 (1070)	42.1 (1070)	42.1 (1070)	
Fork (width x thickness)		in (mm)	4.8 x 2.0 (122 x 50)	4.8 x 2.0 (122 x 50)	4.8 x 2.0 (122 x 50)	4.8 x 2.0 (122 x 50)	4.8 x 2.0 (122 x 50)	
Ground clearance	Under mast	in (mm)	5.7 (145)	5.7 (145)	5.7 (145)	5.9 (150)	5.9 (150)	
	Under power unit	in (mm)	6.5 (165)	6.5 (165)	6.5 (165)	6.7 (170)	6.7 (170)	
	Under frame	in (mm)	7.3 (185)	7.3 (185)	7.3 (185)	7.5 (190)	7.5 (190)	

## 1F2 series

			Model	2.75 ton (5500 lb)	3.0 ton (6000 lb)	3.0 ton (6000 lb)	3.5 ton (7000 lb)	3.5 ton (7000 lb)	
Lifting speed	2W lifting	Full load	FPM (mm/sec)	104.3 (530)	104.3 (530)	106.3 (540)	88.6 (450)	86.6 (440)	
		No load	FPM (mm/sec)	114.1 (580)	114.1 (580)	114.1 (580)	92.5 (470)	94.5 (480)	
	2F lifting	Full load	FPM (mm/sec)	102.3 (520)	102.3 (520)	104.3 (530)	82.7 (420)	80.7 (410)	
		No load	FPM (mm/sec)	112.2 (570)	112.2 (570)	112.2 (570)	88.6 (440)	88.6 (450)	
	3F lifting	Full load	FPM (mm/sec)	100.4 (510)	100.4 (510)	102.3 (520)	82.7 (420)	80.7 (410)	
		No load	FPM (mm/sec)	110.2 (560)	110.2 (560)	110.2 (560)	86.6 (440)	88.6 (450)	
	3V lifting	Full load	FPM (mm/sec)	100.4 (510)	100.4 (510)	102.3 (520)	82.7 (420)	80.7 (410)	
		No load	FPM (mm/sec)	110.2 (560)	110.2 (560)	110.2 (560)	86.6 (440)	88.6 (450)	
	Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	82.7 (420)	82.7 (420)
			No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	70.8 (360)	70.8 (360)
2F lifting		Full load	FPM (mm/sec)	92.5 (470)	92.5 (470)	92.5 (470)	76.8 (390)	76.8 (390)	
		No load	FPM (mm/sec)	63.0 (320)	63.0 (320)	63.0 (320)	59.0 (300)	59.0 (300)	
3F lifting		Full load	FPM (mm/sec)	92.5 (470)	92.5 (470)	92.5 (470)	76.8 (390)	76.8 (390)	
		No load	FPM (mm/sec)	70.8 (360)	70.8 (360)	70.8 (360)	59.0 (300)	59.0 (300)	
3V lifting		Full load	FPM (mm/sec)	92.5 (470)	92.5 (470)	92.5 (470)	76.8 (390)	76.8 (390)	
		No load	FPM (mm/sec)	70.8 (360)	70.8 (360)	70.8 (360)	59.0 (300)	59.0 (300)	
Travel speed	Forward	Full load	MPH (km/h)	11.8 (19)	11.8 (19)	11.5 (18.5)	11.5 (18.5)	11.5 (18.5)	
		No load	MPH (km/h)	11.8 (19)	11.8 (19)	11.5 (18.5)	11.5 (18.5)	11.5 (18.5)	
Drawbar pull	Full load (travel)		N	18600	18600	19200	18000	18050	
			lb (kg)	4189 (1900)	4189 (1900)	4321 (1960)	4034 (1830)	4056 (1840)	
	No load		N	18050	18500	17150	17650	16350	
			lb (kg)	4057 (1840)	4166 (1890)	3858 (1750)	3968 (1800)	3682 (1670)	
Gradeability	Full load (travel)		tanθ (%)	37	31	28	26	23	
	No load		tanθ (%)	25	24	25	22	22	
Truck weight (no load)	Single tire		lb (kg)	8825 (4000)	9265 (4200)	9520 (4315)	10120 (4590)	10375 (4705)	
	Double tire		lb (kg)	9065 (4110)	9500 (4310)	9755 (4425)	10400 (4715)	10655 (4835)	
ENGINE	Model			K25	K25	QD32	K25	QD32	
	Displacement			cu in (cm <sup>3</sup> )	152 (2488)	152 (2488)	192 (3153)	152 (2488)	192 (3153)
	Rated output		SAE gross	HP (kW)/rpm	63 (47)/2700	63 (47)/2700	55 (41)/2000	63 (47)/2700	55 (41)/2000
	Rated torque		SAE gross	ft-lb (N-m)/rpm	139 (188)/1600	139 (188)/1600	144 (195)/2000	139 (188)/1600	144 (195)/2000



## C1F1 series

Item		Model	1.5 ton (3000 lb)	1.75 ton (3500 lb)	2.0 ton (4000 lb)
		lb (kg)			
Load capacity		lb (kg)	3000 (1500)	3500 (1750)	4000 (2000)
Load center		in (mm)	24 (500)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)	130 (3300)
Free lift		in (mm)	4 (102)	4 (102)	4 (102)
Tilt angle	Forward	degree	5	5	5
	Backward	degree	10	10	10
Overall length (without fork length)		in (mm)	81.9 (2080)	83.1 (2110)	84.4 (2145)
Overall width	Single tire	in (mm)	38.2 (970)	38.2 (970)	38.2 (970)
Overall height	Mast (lowered)	in (mm)	82.9 (2105)	82.9 (2105)	82.9 (2105)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	81.1 (2060)	81.1 (2060)	81.1 (2060)
Wheelbase		in (mm)	46.9 (1190)	47.0 (1190)	46.9 (1190)
Front overhang		in (mm)	15.4 (390)	15.4 (390)	15.4 (390)
Rear overhang		in (mm)	19.7 (500)	20.9 (530)	22.2 (565)
Front tread	Single tire	in (mm)	32.3 (820)	32.3 (820)	32.3 (820)
Rear tread		in (mm)	32.3 (820)	32.3 (820)	32.3 (820)
Minimum turning radius	Outside	in (mm)	68.3 (1735)	69.5 (1765)	70.9 (1800)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)	42.1 (1070)
Ground clearance	Under mast	in (mm)	3.0 (75)	3.0 (75)	3.0 (75)
	Under power unit	in (mm)	2.6 (65)	2.6 (65)	2.6 (65)
	Under frame	in (mm)	4.3 (110)	4.3 (110)	4.3 (110)

## C1F1 series

Item			Model	1.5 ton (3000 lb)	1.75 ton (3500 lb)	2.0 ton (4000 lb)	
Lifting speed	2W lifting	Full load	FPM (mm/sec)	122.0 (620)	122.0 (620)	122.0 (620)	
		No load	FPM (mm/sec)	127.9 (650)	127.9 (650)	127.9 (650)	
	2F lifting	Full load	FPM (mm/sec)	108.2 (550)	108.2 (550)	108.2 (550)	
		No load	FPM (mm/sec)	112.2 (570)	116.1 (590)	116.1 (590)	
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	110.2 (560)	110.2 (560)	
		No load	FPM (mm/sec)	127.7 (650)	127.7 (650)	127.7 (650)	
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)	110.2 (560)	110.2 (560)	
		No load	FPM (mm/sec)	116.1 (590)	116.1 (590)	116.1 (590)	
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	61.0 (310)	61.0 (310)	61.0 (310)	
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	67.1 (340)	67.1 (340)	67.1 (340)	
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	61.0 (310)	61.0 (310)	61.0 (310)	
Travel speed	Forward	Full load	MPH (km/h)	10.9 (17.5)	10.9 (17.5)	10.9 (17.5)	
		No load	MPH (km/h)	10.9 (17.5)	10.9 (17.5)	10.9 (17.5)	
Drawbar pull	Full load (travel)		lb (kg)	3417 (1550)	3417 (1550)	3417 (1550)	
	No load		lb (kg)	1543 (700)	1543 (700)	1543 (700)	
Gradeability	Full load (travel)		tanθ (%)	38	38	38	
	No load		tanθ (%)	20	18	16	
Truck weight (no load)			lb (kg)	5980 (2710)	6420 (2910)	6830 (3100)	
ENGINE	Model			K21	K21	K21	
	Displacement			cu in (cm <sup>3</sup> )	126 (2065)	126 (2065)	126 (2065)
	Rated output		SAE gross	HP (kW)/rpm	55 (41)/2700	55 (41)/2700	55 (41)/2700
	Rated torque		SAE gross	ft-lb (N·m)/rpm	111 (151)/1600	111 (151)/1600	111 (151)/1600

## C1F2 series

Item		Model	2.0 ton (4000 lb)	
Load capacity		lb (kg)	4000 (2000)	4000 (2000)
Load center		in (mm)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)
Free lift		in (mm)	4.2 (106)	4.2 (106)
Tilt angle	Forward	degree	5	5
	Backward	degree	10	10
Overall length (without fork length)		in (mm)	89.0 (2260)	89.0 (2260)
Overall width	Single tire	in (mm)	42.1 (1070)	42.1 (1070)
Overall height	Mast (lowered)	in (mm)	83.1 (2110)	83.1 (2110)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	82.1 (2085)	82.1 (2085)
Wheelbase		in (mm)	55.1 (1400)	55.1 (1400)
Front overhang		in (mm)	16.1 (410)	16.1 (410)
Rear overhang		in (mm)	17.7 (450)	17.7 (450)
Front tread	Single tire	in (mm)	35.0 (890)	35.0 (890)
	Wide tread	in (mm)	36.0 (915)	36.0 (915)
Rear tread		in (mm)	35.0 (890)	35.0 (890)
Minimum turning radius	Outside	in (mm)	76.0 (1930)	76.0 (1930)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)
Ground clearance	Under mast	in (mm)	3.1 (80)	3.1 (80)
	Under power unit	in (mm)	4.1 (105)	4.1 (105)
	Under frame	in (mm)	5.5 (140)	5.5 (140)

## C1F2 series

Item			Model	2.0 ton (4000 lb)		
Lifting speed	2W lifting	Full load	FPM (mm/sec)	122.0 (620)	129.9 (660)	
		No load	FPM (mm/sec)	127.9 (650)	137.8 (700)	
	2F lifting	Full load	FPM (mm/sec)	108.2 (550)	122.0 (620)	
		No load	FPM (mm/sec)	116.1 (590)	131.9 (670)	
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	
		No load	FPM (mm/sec)	121.9 (620)	136.4 (695)	
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	
		No load	FPM (mm/sec)	116.1 (590)	129.9 (660)	
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	61.0 (310)	59.0 (300)	
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	68.9 (350)	68.9 (350)	
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	64.9 (330)	64.9 (330)	
Travel speed	Forward	Full load	MPH (km/h)	10.6 (17)	10.6 (17)	
		No load	MPH (km/h)	10.6 (17)	10.6 (17)	
Drawbar pull	Full load (travel)		lb (kg)	3638 (1650)	4189 (1900)	
	No load		lb (kg)	1870 (850)	1874 (850)	
Gradeability	Full load (travel)		tanθ (%)	33	39	
	No load		tanθ (%)	21	21	
Truck weight (no load)			lb (kg)	7130 (3235)	7130 (3235)	
ENGINE	Model			K21	K25	
	Displacement			cu in (cm <sup>3</sup> )	126 (2065)	152 (2488)
	Rated output		SAE gross	HP (kW)/rpm	55 (41)/2700	63 (47)/2700
	Rated torque		SAE gross	ft-lb (N·m)/rpm	111 (151)/1600	139 (188)/1600

## C1F2 series

Item		Model	2.5 ton (5000 lb)	
Load capacity		lb (kg)	5000 (2500)	5000 (2500)
Load center		in (mm)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)
Free lift		in (mm)	4.2 (106)	4.2 (106)
Tilt angle	Forward	degree	5	5
	Backward	degree	10	10
Overall length (without fork length)		in (mm)	91.3 (2320)	91.3 (2320)
Overall width	Single tire	in (mm)	42.1 (1070)	42.1 (1070)
	Mast (lowered)	in (mm)	83.1 (2110)	83.1 (2110)
Overall height	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	82.1 (2085)	82.1 (2085)
Wheelbase		in (mm)	55.1 (1400)	55.1 (1400)
Front overhang		in (mm)	16.1 (410)	16.1 (410)
Rear overhang		in (mm)	20.1 (510)	20.1 (510)
Front tread	Single tire	in (mm)	35.0 (890)	35.0 (890)
	Wide tread	in (mm)	36.0 (915)	36.0 (915)
Rear tread		in (mm)	35.0 (890)	35.0 (890)
Minimum turning radius	Outside	in (mm)	78.3 (1990)	78.3 (1990)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)
Ground clearance	Under mast	in (mm)	3.1 (80)	3.1 (80)
	Under power unit	in (mm)	4.1 (105)	4.1 (105)
	Under frame	in (mm)	5.5 (140)	5.5 (140)

## C1F2 series

Item			Model	2.5 ton (5000 lb)		
Lifting speed	2W lifting	Full load	FPM (mm/sec)	118.1 (600)	129.9 (660)	
		No load	FPM (mm/sec)	127.9 (650)	137.8 (700)	
	2F lifting	Full load	FPM (mm/sec)	110.2 (560)	122.0 (620)	
		No load	FPM (mm/sec)	122.0 (620)	131.9 (670)	
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	
		No load	FPM (mm/sec)	126.0 (640)	136.8 (695)	
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)	120.0 (610)	
		No load	FPM (mm/sec)	120.0 (610)	129.9 (660)	
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	59.0 (300)	59.0 (300)	
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	68.1 (345)	68.1 (345)	
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	64.9 (330)	64.9 (330)	
Travel speed	Forward	Full load	MPH (km/h)	10.6 (17)	10.6 (17)	
		No load	MPH (km/h)	10.6 (17)	10.6 (17)	
Drawbar pull	Full load (travel)		lb (kg)	3638 (1650)	4189 (1900)	
	No load		lb (kg)	1784 (800)	1784 (800)	
Gradeability	Full load (travel)		tanθ (%)	28	33	
	No load		tanθ (%)	16	16	
Truck weight (no load)			lb (kg)	7940(3600)	7940 (3600)	
ENGINE	Model			K21	K25	
	Displacement			cu in (cm <sup>3</sup> )	126 (2065)	152 (2488)
	Rated output		SAE gross	HP (kW)/rpm	55 (41)/2700	63 (47)/2700
	Rated torque		SAE gross	ft-lb (N·m)/rpm	111 (151)/1600	139 (188)/1600

## C1F2 series

Item		Model	2.75 ton (5500 lb)		3.0 ton (6000 lb)	3.25 ton (6500 lb)
Load capacity		lb (kg)	5500 (2750)	5500 (2750)	6000 (3000)	6500 (3250)
Load center		in (mm)	24 (500)	24 (500)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)	130 (3300)	122 (3100)
Free lift		in (mm)	6.7 (170)	6.7 (170)	7.1 (180)	7.1 (180)
Tilt angle	Forward	degree	5	5	5	5
	Backward	degree	10	10	10	10
Overall length (without fork length)		in (mm)	93.9 (2385)	93.9 (2385)	95.3 (2420)	96.3 (2445)
Overall width		Single tire in (mm)	43.1 (1095)	43.1 (1095)	43.1 (1095)	43.9 (1115)
Overall height	Mast (lowered)	in (mm)	82.7 (2100)	82.7 (2100)	82.7 (2100)	82.7 (2100)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)	179.3 (4555)	178.5 (4535)
	Overhead guard	in (mm)	82.1 (2085)	82.1 (2085)	82.1 (2085)	82.1 (2085)
Wheelbase		in (mm)	55.1 (1400)	55.1 (1400)	55.1 (1400)	55.1 (1400)
Front overhang		in (mm)	17.3 (440)	17.3 (440)	17.7 (450)	17.7 (450)
Rear overhang		in (mm)	21.5 (545)	21.5 (545)	22.4 (570)	23.4 (595)
Front tread	Single tire	in (mm)	35.8 (910)	35.8 (910)	35.8 (910)	35.9 (910)
	Wide tread	in (mm)	37.0 (940)	37.0 (940)	37.0 (940)	37.0 (940)
Rear tread		in (mm)	35.0 (890)	35.0 (890)	35.0 (890)	35.0 (890)
Minimum turning radius		Outside in (mm)	79.5 (2020)	79.5 (2020)	80.7 (2050)	81.5 (2070)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)	42.1 (1070)	42.1 (1070)
Ground clearance	Under mast	in (mm)	2.8 (70)	2.8 (70)	2.8 (70)	2.8 (70)
	Under power unit	in (mm)	3.5 (90)	3.5 (90)	3.5 (90)	3.5 (90)
	Under frame	in (mm)	5.5 (140)	5.5 (140)	5.5 (140)	5.5 (140)

## C1F2 series

Model				2.75 ton (5500 lb)		3.0 ton (6000 lb)	3.25 ton (6500 lb)
Item							
Lifting speed	2H lifting	Full load	FPM (mm/sec)	94.5 (480)	104.3 (530)	104.3 (530)	88.6 (450)
		No load	FPM (mm/sec)	102.4 (520)	110.2 (560)	110.2 (560)	92.5 (470)
	2F lifting	Full load	FPM (mm/sec)	92.5 (470)	102.4 (520)	102.4 (520)	82.7 (420)
		No load	FPM (mm/sec)	100.4 (510)	112.2 (570)	112.2 (570)	86.6 (440)
	3F lifting	Full load	FPM (mm/sec)	90.6 (460)	100.4 (510)	100.4 (510)	82.7 (420)
		No load	FPM (mm/sec)	98.4 (500)	110.2 (560)	110.2 (560)	86.6 (440)
	3V lifting	Full load	FPM (mm/sec)	90.6 (460)	100.4 (510)	100.4 (510)	82.7 (420)
		No load	FPM (mm/sec)	98.4 (500)	110.2 (560)	110.2 (560)	86.6 (440)
Lowering speed	2H lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	82.7 (420)
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	98.4 (500)	70.9 (360)
	2F lifting	Full load	FPM (mm/sec)	92.5 (470)	92.5 (470)	92.5 (470)	76.8 (390)
		No load	FPM (mm/sec)	63.0 (320)	63.0 (320)	63.0 (320)	59.1 (300)
	3F lifting	Full load	FPM (mm/sec)	92.5 (470)	92.5 (470)	92.5 (470)	76.8 (390)
		No load	FPM (mm/sec)	70.9 (360)	70.9 (360)	70.9 (360)	59.1 (300)
	3V lifting	Full load	FPM (mm/sec)	92.5 (470)	92.5 (470)	92.5 (470)	76.8 (390)
		No load	FPM (mm/sec)	70.9 (360)	70.9 (360)	70.9 (360)	59.1 (300)
Travel speed	Forward	Full load	MPH (km/h)	10.6 (17)	10.6 (17)	10.6 (17)	10.6 (17)
		No load	MPH (km/h)	10.6 (17)	10.6 (17)	10.6 (17)	10.6 (17)
Drawbar pull	Full load (travel)		lb (kg)	3638 (1650)	4189 (1900)	4189 (1900)	4189 (1900)
	No load		lb (kg)	1653 (750)	1653 (750)	1764 (800)	1764 (800)
Gradeability	Full load (travel)		tanθ (%)	27	32	28	24
	No load		tanθ (%)	16	16	16	16
Truck weight (no load)			lb (kg)	8860 (4015)	8860 (4015)	9350 (4240)	9825 (4455)
ENGINE	Model			K21		K25	K25
	Displacement		cu in (cm <sup>3</sup> )	126 (2065)	152 (2488)	152 (2488)	152 (2488)
	Rated output		SAE gross HP (kW)/rpm	55 (41)/2700	63 (47)/2700	63 (47)/2700	63 (47)/2700
	Rated torque		SAE gross ft-lb (N-m)/rpm	111 (151)/1600	139 (188)/1600	139 (188)/1600	139 (188)/1600



## C1F2 series

Item		Model	3.0 ton (6000 lb)	3.5 ton (7000 lb)	3.6 ton (8000 lb)
Load capacity	lb (kg)		6000 (3000)	7000 (3500)	8000 (3600)
Load center	in (mm)		24 (500)	24 (500)	24 (500)
Maximum fork height	in (mm)		130 (3300)	122 (3100)	122 (3100)
Free lift	in (mm)		7.1 (180)	7.1 (180)	7.1 (180)
Tilt angle	Forward	degree	5	5	5
	Backward	degree	10	10	10
Overall length (without fork length)	in (mm)		96.5 (2450)	98.2 (2495)	100 (2540)
Overall width	Single tire	in (mm)	43.9 (1115)	45.9 (1165)	45.9 (1165)
Overall height	Mast (lowered)	in (mm)	83.1 (2110)	83.1 (2110)	83.1 (2110)
	Mast (extended) with backrest	in (mm)	175.0 (4445)	178.7 (4540)	178.7 (4540)
	Overhead guard	in (mm)	82.3 (2090)	82.3 (2090)	82.3 (2090)
Wheelbase	in (mm)		59.1 (1500)	59.1 (1500)	59.1 (1500)
Front overhang	in (mm)		17.1 (435)	17.9 (455)	17.9 (455)
Rear overhang	in (mm)		20.1 (510)	21.3 (540)	23.0 (585)
Front tread	Single tire	in (mm)	35.8 (910)	37.0 (940)	37.0 (940)
	Wide tread	in (mm)	37.0 (940)	40.7 (1035)	40.7 (1035)
Rear tread	in (mm)		36.6 (930)	36.6 (930)	36.6 (930)
Minimum turning radius	Outside	in (mm)	80.9 (2055)	82.5 (2095)	83.9 (2130)
Fork length (standard)	in (mm)		42.1 (1070)	42.1 (1070)	42.1 (1070)
Ground clearance	Under mast	in (mm)	3.1 (80)	3.1 (80)	3.1 (80)
	Under power unit	in (mm)	3.7 (95)	3.7 (95)	3.7 (95)
	Under frame	in (mm)	5.7 (145)	5.7 (145)	5.7 (145)

## C1F2 series

Item			Model	3.0 ton (6000 lb)	3.5 ton (7000 lb)	3.6 ton (8000 lb)
Lifting speed	2H lifting	Full load	FPM (mm/sec)	104.3 (530)	88.6 (450)	88.6 (450)
		No load	FPM (mm/sec)	110.2 (560)	92.5 (470)	92.5 (470)
	2F lifting	Full load	FPM (mm/sec)	102.4 (520)	82.7 (420)	82.7 (420)
		No load	FPM (mm/sec)	112.2 (570)	86.6 (440)	86.6 (440)
	3F lifting	Full load	FPM (mm/sec)	100.4 (510)	82.7 (420)	82.7 (420)
		No load	FPM (mm/sec)	110.2 (560)	86.6 (440)	86.6 (440)
	3V lifting	Full load	FPM (mm/sec)	100.4 (510)	82.7 (420)	82.7 (420)
		No load	FPM (mm/sec)	110.2 (560)	86.6 (440)	86.6 (440)
Lowering speed	2H lifting	Full load	FPM (mm/sec)	98.4 (500)	82.7 (420)	82.7 (420)
		No load	FPM (mm/sec)	98.4 (500)	70.9 (360)	70.9 (360)
	2F lifting	Full load	FPM (mm/sec)	92.5 (470)	76.8 (390)	76.8 (390)
		No load	FPM (mm/sec)	63.0 (320)	59.1 (300)	59.1 (300)
	3F lifting	Full load	FPM (mm/sec)	92.5 (470)	76.8 (390)	76.8 (390)
		No load	FPM (mm/sec)	70.9 (360)	59.1 (300)	59.1 (300)
	3V lifting	Full load	FPM (mm/sec)	92.5 (470)	76.8 (390)	76.8 (390)
		No load	FPM (mm/sec)	70.9 (360)	59.1 (300)	59.1 (300)
Travel speed	Forward	Full load	MPH (km/h)	1st: 6.2 (10), 2nd: 11.5 (18.5)	1st: 6.2 (10), 2nd: 11.5 (18.5)	1st: 6.2 (10), 2nd: 11.5 (18.5)
		No load	MPH (km/h)	1st: 6.2 (10), 2nd: 11.5 (18.5)	1st: 6.2 (10), 2nd: 11.5 (18.5)	1st: 6.2 (10), 2nd: 11.5 (18.5)
Drawbar pull	Full load (travel)		lb (kg)	3009 (1365)	6228 (2825)	6228 (2825)
	No load		lb (kg)	2535 (1150)	2425 (1100)	2425 (1100)
Gradeability	Full load (travel)		tan $\theta$ (%)	44	38	34
	No load		tan $\theta$ (%)	18	18	15
Truck weight (no load)			lb (kg)	9610 (4360)	10460 (4740)	11150 (5055)
ENGINE	Model			K25	K25	K25
	Displacement		cu in (cm <sup>3</sup> )	152 (2488)	152 (2488)	152 (2488)
	Rated output	SAE gross	HP (kW)/rpm	63 (47)/2700	63 (47)/2700	63 (47)/2700
	Rated torque	SAE gross	ft-lb (N·m)/rpm	139 (188)/1600	139 (188)/1600	139 (188)/1600

## A1F1 series

Item		Model	1.5 ton (3000 lb)	1.75 ton (3500 lb)
		lb (kg)		
Load capacity		lb (kg)	3000 (1500)	3500 (1750)
Load center		in (mm)	24 (500)	24 (500)
Maximum fork height		in (mm)	130 (3300)	130 (3300)
Free lift		in (mm)	6.2 (158)	6.2 (158)
Tilt angle	Forward	degree	5	5
	Backward	degree	10	10
Overall length (without fork length)		in (mm)	83.9 (2130)	88.2 (2160)
Overall width		Single tire in (mm)	40.7 (1035)	40.7 (1035)
Overall height	Mast (lowered)	in (mm)	84.3 (2140)	84.3 (2140)
	Mast (extended) with backrest	in (mm)	179.3 (4555)	179.3 (4555)
	Overhead guard	in (mm)	83.0 (2108)	82.7 (2100)
Wheelbase		in (mm)	50.8 (1290)	50.8 (1290)
Front overhang		in (mm)	15.4 (390)	15.4 (390)
Rear overhang		in (mm)	17.7 (450)	18.9 (480)
Front tread	Single tire	in (mm)	34.3 (870)	34.3 (870)
Rear tread		in (mm)	34.8 (885)	34.8 (885)
Minimum turning radius	Outside	in (mm)	72.6 (1845)	73.8 (1875)
Fork length (standard)		in (mm)	42.1 (1070)	42.1 (1070)
Ground clearance	Under mast	in (mm)	4.3 (110)	4.3 (110)
	Under power unit	in (mm)	3.7 (95)	3.7 (95)
	Under frame	in (mm)	5.5 (140)	5.5 (140)

## A1F1 series

Item			Model	1.5 ton (3000 lb)	1.75 ton (3500 lb)	
Lifting speed	2W lifting	Full load	FPM (mm/sec)	122.0 (620)	122.0 (620)	
		No load	FPM (mm/sec)	127.9 (650)	127.9 (650)	
	2F lifting	Full load	FPM (mm/sec)	108.2 (550)	108.2 (550)	
		No load	FPM (mm/sec)	116.1 (590)	116.1 (590)	
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)	110.2 (560)	
		No load	FPM (mm/sec)	127.7 (650)	127.7 (650)	
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)	110.2 (560)	
		No load	FPM (mm/sec)	116.1 (590)	116.1 (590)	
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)	98.4 (500)	
		No load	FPM (mm/sec)	98.4 (500)	98.4 (500)	
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	61.0 (310)	61.0 (310)	
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	67.1 (340)	67.1 (340)	
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)	94.5 (480)	
		No load	FPM (mm/sec)	61.0 (310)	61.0 (310)	
Travel speed	Forward	Full load	MPH (km/h)	10.6 (17)	10.6 (17)	
		No load	MPH (km/h)	10.6 (17)	10.6 (17)	
Drawbar pull	Full load (travel)		lb (kg)	3748 (1700)	3748 (1700)	
	No load		lb (kg)	1984 (900)	1984 (900)	
Gradeability	Full load (travel)		tanθ (%)	34	40	
	No load		tanθ (%)	28	26	
Truck weight (no load)			lb (kg)	5860 (2660)	6245 (2835)	
ENGINE	Model			K21	K21	
	Displacement			cu in (cm <sup>3</sup> )	126.0 (2065)	126.0 (2065)
	Rated output		SAE gross	HP (kW)/rpm	55 (41)/2700	55 (41)/2700
	Rated torque		SAE gross	ft-lb (N·m)/rpm	111 (151)/1600	111 (151)/1600

## A1F2 series

Item		Model	2.5 ton (5000 lb)
Load capacity		lb (kg)	5000 (2500)
Load center		in (mm)	24 (500)
Maximum fork height		in (mm)	130 (3300)
Free lift		in (mm)	4.2 (106)
Tilt angle	Forward	degree	5
	Backward	degree	10
Overall length (without fork length)		in (mm)	92.9 (2360)
Overall width	Single tire	in (mm)	46.3 (1175)
Overall height	Mast (lowered)	in (mm)	82.8 (2100)
	Mast (extended) with backrest	in (mm)	179.3 (4555)
	Overhead guard	in (mm)	82.3 (2090)
Wheelbase		in (mm)	59.1 (1500)
Front overhang		in (mm)	16.1 (410)
Rear overhang		in (mm)	17.7 (450)
Front tread	Single tire	in (mm)	38.4 (975)
Rear tread		in (mm)	36.6 (930)
Minimum turning radius	Outside	in (mm)	80.7 (2050)
Fork length (standard)		in (mm)	42.1 (1070)
Ground clearance	Under mast	in (mm)	3.0 (75)
	Under power unit	in (mm)	3.7 (95)
	Under frame	in (mm)	5.1 (130)

## A1F2 series

Item			Model	2.5 ton (5000 lb)
Lifting speed	2W lifting	Full load	FPM (mm/sec)	122.0 (620)
		No load	FPM (mm/sec)	127.9 (650)
	2F lifting	Full load	FPM (mm/sec)	108.2 (550)
		No load	FPM (mm/sec)	116.1 (590)
	3F lifting	Full load	FPM (mm/sec)	110.2 (560)
		No load	FPM (mm/sec)	122.0 (620)
	3V lifting	Full load	FPM (mm/sec)	110.2 (560)
		No load	FPM (mm/sec)	116.1 (590)
Lowering speed	2W lifting	Full load	FPM (mm/sec)	98.4 (500)
		No load	FPM (mm/sec)	98.4 (500)
	2F lifting	Full load	FPM (mm/sec)	94.5 (480)
		No load	FPM (mm/sec)	61.0 (310)
	3F lifting	Full load	FPM (mm/sec)	94.5 (480)
		No load	FPM (mm/sec)	64.1 (325)
	3V lifting	Full load	FPM (mm/sec)	94.5 (480)
		No load	FPM (mm/sec)	61.0 (310)
Travel speed	Forward	Full load	MPH (km/h)	10.6 (17)
		No load	MPH (km/h)	10.6 (17)
Drawbar pull	Full load (travel)		lb (kg)	3748 (1700)
	No load		lb (kg)	2183 (990)
Gradeability	Full load (travel)		tanθ (%)	28
	No load		tanθ (%)	21
Truck weight (no load)			lb (kg)	7910 (3585)
ENGINE	Model			K21
	Displacement		cu in (cm <sup>3</sup> )	126.0 (2065)
	Rated output	SAE gross	HP (kW)/rpm	55 (41)/2700
	Rated torque	SAE gross	ft-lb (N·m)/rpm	111 (151)/1600



## NOISE LEVEL

The values are the A-weighted sound pressure level at the operator's position,  $L_{PAZ}$  and the uncertainty value,  $K_{pZ}$  according to EN12053:2001.

Item	Model	C1F1, C1F2
$L_{PAZ}$		Does not exceed 82 dB (A)
$K_{pZ}$		4 dB (A)

### C1F1, C1F2

The whole body vibration  $\overline{a_{wz}}$  according to EN13059:2002

Vibration emission value: 2.0 m/s<sup>2</sup>

Uncertainty: 0.3 m/s<sup>2</sup>



## FUEL & OIL CAPACITY

Item		Model		1F1 series compact vehicle			1F1 series			1F2 series compact vehicle			1F2 series					
				US	Imp	ℓ	US	Imp	ℓ	US	Imp	ℓ	4,000, 5,000 lb (2.0, 2.5 ton)			5,500, 6,000, 7,000 lb (2.75, 3.0, 3.5 ton)		
													US	Imp	ℓ	US	Imp	ℓ
Fuel tank	Pneumatic-tire model US manufactured	11-1/8 gal	9-1/4 gal	42.0	12-5/8 gal	10-1/2 gal	47.6	15-3/8 gal	12-3/4 gal	58.0	17-5/8 gal	14-5/8 gal	66.7	19 gal	15-7/8 gal	72.1		
Fuel	Cushion/tire model	—	—	—	10-1/2 gal	8-3/4 gal	39.7	—	—	—	11-7/8 gal	9-7/8 gal	44.7	13-7/8 gal	11-1/2 gal	52.4		
Hydraulic	Cushion/tire model	—	—	—	6-7/8 gal	5-3/4 gal	26	—	—	—	10 gal	8-3/8 gal	38	11-7/8 gal	9-7/8 gal	45		
Hydraulic oil tank	Pneumatic-tire model US manufactured	7-1/2 gal	6-1/4 gal	28.2	7-7/8 gal	6-5/8 gal	30	10-3/8 gal	8-5/8 gal	39.2	11-3/4 gal	9-7/8 gal	44.6	13 gal	10-3/4 gal	49.1		
Transmission oil	Pneumatic-tire model	1-speed	9-1/2 qt	7-7/8 qt	9.0	11 qt	9-1/8 qt	10.4	9-1/2 qt	7-7/8 qt	9.0	11 qt	9-1/8 qt	10.4	11 qt	9-1/8 qt	10.4	
		Cushion tire model	1-speed	—	—	—	8-1/2 qt	7 qt	8.0	—	—	—	8-1/2 qt	9-1/8 qt	8.0	10-5/8 qt	8-3/4 qt	10.0
	2-speed	—	—	—	—	—	—	—	—	—	—	10-5/8 qt	8-3/4 qt	10.0	10-5/8 qt	8-3/4 qt	10.0	
Differential oil	Pneumatic-tire model	3-1/8 qt	2-1/2 qt	2.9	3-1/8 qt	2-5/8 qt	3.0	3-1/8 qt	2-1/2 qt	2.9	3-1/8 qt	2-5/8 qt	3.0	5-1/4 qt	4-3/8 qt	5.0		

\*1: Including differential oil

## BULBS

Item		Wattage (W)
Headlight		55
Rear combination light	Stop/Tail	21/5
	Turn signal	21
	Back-up	21
Front turn signal light		23

## ENGINE

Model		K21	K25	QD32
Item				
Type		Gasoline LPG Dual Fuel		Diesel
Cylinder arrangement		4-cylinder, in-line		
Valve mechanism		Overhead valve type		
Bore x Stroke	in (mm)	3504 x 3268 (89.0 x 83.0)	3504 x 3937 (89.0 x 100)	3906 x 4016 (99.2 x 102)
Total displacement	cu in (cm <sup>3</sup> )	126.01 (2065)	151.82 (2488)	3153
Compression ratio		8.7	8.7	22
Firing order		1-3-4-2	1-3-4-2	1-3-4-2
Rated output	HP (kW)/rpm	55 (41)/2700	63 (47)/2700	55 (41)/2000
Rated torque	ft-lb (N-m)/rpm	111 (151)/1600	139 (188)/1600	144 (195)/2000

## OIL & WATER CAPACITY

Item \ Model	K21			K25			QD32		
	US qt	Imp qt	ℓ	US qt	Imp qt	ℓ	US qt	Imp qt	ℓ
Engine oil (with oil filter)	4	3-3/8	3.8	4	3-3/8	3.8	7-5/8	6-3/8	7.2
Coolant	9-1/4	7-5/8	8.7	8-3/8	7	7.9	10-3/4	9	10.2

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# Nissan Forklift Corporation, North America

## CALIFORNIA AND U.S. FEDERAL EMISSION CONTROL WARRANTY STATEMENT

The following statement is required to be provided by regulations of the California Air Resources Board and US Environmental Protection Agency.

Note: This "Emission Warranty Statement" is in addition to the "Limited Warranty" statement provided with the subject forklift truck supplied by Nissan Forklift Corporation, North America ("NFC,NA").

### YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board ("ARB") and US Environmental Protection Agency ("EPA") are pleased to explain the emission control system warranty on your 2012 engine. New off-road large spark-ignition (LSI) engines must be designed, built and equipped to meet nationwide stringent anti-smog standards.

NFC,NA must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor, regulator or fuel-injection system, ignition system, engine computer unit (ECM), catalytic converter and air induction system. Also included may be sensors, hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, an Authorized NFC,NA Dealer will repair your LSI engine at no cost to you including diagnosis, parts and labor.

### MANUFACTURER'S WARRANTY COVERAGE

The 2012 off-road large spark-ignition engines are warranted for the time periods as listed below. If any emission-related part on your engine is defective, the part will be repaired or replaced by an Authorized NFC,NA Dealer.

### OWNER'S WARRANTY RESPONSIBILITIES

As the off-road LSI engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. NFC,NA recommends that you retain receipts covering maintenance on your off-road engine, but NFC,NA cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the off-road large spark-ignition engine owner, you should however be aware that NFC,NA may deny you warranty coverage if your off-road large spark-ignition engine or a part thereof has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on gasoline or LPG fuel. Use of any other fuel may result in your engine no longer operating in compliance with the emissions requirements.

You are responsible for initiating the warranty process. The ARB and US EPA suggests that you present your off-road large spark-ignition engine to an Authorized NFC,NA Dealer as soon as a problem exists. The warranty repairs should be completed by the Dealer as expeditiously as possible.

### OWNER'S WARRANTY RESPONSIBILITIES (cont'd)

If you have any questions regarding your warranty rights and responsibilities, you should contact NFC,NA's Customer Quality Department at 815-568-0061.

### EMISSION CONTROL WARRANTY COVERAGES

The warranty coverage's stated below are in months and hours from the date of the first use by the original purchaser from an Authorized NFC,NA Dealer, whichever occurs first, NFC,NA warrants the following emission-related parts:

#### Emission Control Warranty:

36 months or 2,500 hours (General Parts)

- Oxygen sensor
- PCV valve
- Water temperature sensor
- Gasoline injector
- LPG injector
- LPG pressure sensor
- LPG solenoid
- Mass air flow sensor
- Throttle chamber
- Ignition coil
- Crankshaft position sensor
- Camshaft position sensor
- Spark plugs
- Exhaust tube from manifold to catalytic converter
- Gasoline fuel hose
- Gasoline fuel cap
- Absolute pressure sensor

#### Emission Control Warranty:

36 months or 4,000 hours  
(Power Train Parts)

- Intake manifold
- Exhaust manifold

#### Long-Term Emission Control

##### Warranty:

60 months or 3,500 hours (General Parts)

- ECM
- Catalytic converter
- Vaporizer

### EXCLUSIONS AND LIMITATIONS

The warranties contained herein shall not apply to or include any of the following:

1. Repair or replacement required as a result of: accident; misuse or neglect; lack of reasonable and proper maintenance; repairs improperly performed or replacements improperly installed; use of replacement parts or accessories not conforming to Nissan Forklift's specifications which adversely affect performance and/or durability; alterations or modifications not recommended or approved in writing by NFC,NA.
2. Normal replacement of service items
3. Normal maintenance services (such as engine tune-ups, fuel system cleaning, linkage adjustments, and lubrication services)

Nissan Forklift Corporation, North America 240 N. Prospect Street, Marengo, IL 60152

2012 K21-K25/WARRANTYSTATEMENT (12/11)

# NISSAN DIESEL ENGINE EMISSION CONTROL SYSTEMS WARRANTY STATEMENT

Note: This 'Emission Warranty Statement' is in addition to the "Limited Warranty" statement provided with the subject forklift truck supplied by Nissan Forklift Corporation, North America ("NFC,NA").

## WHAT IS COVERED

NFC,NA warrants to the ultimate purchaser and each subsequent purchaser that the diesel engine installed in your Nissan Forklift industrial truck is designed, built, and equipped so as to conform at the time of sale with the emission regulation of the U.S. EPA applicable at the time of manufacture.

This warranty covers the following emission related parts and components:

- Fuel Injection System
- PCV Valve
- Intake Manifold
- Exhaust Manifold
- Miscellaneous hoses, clamps, connectors and sealing devices used in the above system.

Exceptions to this warranty are listed below under the caption "WHAT IS NOT COVERED".

## WARRANTY PERIOD

The engine covered by this warranty is free from defects in materials and workmanship which cause such emission related parts to fail to conform with applicable emission regulations of the U.S. EPA for a period of 3,000 hours of operation or five years of use, whichever first occurs. This warranty begins on the date the Nissan Forklift industrial truck is delivered to the ultimate purchaser or the date that it is first put into service, whichever is earlier.

## WHAT IS NOT COVERED

This warranty does not cover:

1. Failures caused by the following:
  - Failure to perform or properly perform required emission control maintenance as described in your Owner's Manual, and/or Service Manual.
  - Misuse, accident, or modification.

## WHAT IS NOT COVERED (cont'd)

- Improper adjustment or installation of parts during the performance of maintenance services.
  - Tampering with or disconnecting any parts affecting emissions.
  - Use of fuel not recommended for the engine or contaminated fuel.
2. Damage resulting from acts of God or other events beyond the control of NFC,NA.
  3. Normal maintenance, service and parts replacement of expendable maintenance items such as filters, hoses, lubricants, thermostats and coolant as described in the Owner's Manual, and/or Service Manual.
  4. Use of parts not equivalent in quality or design to parts supplied by NFC,NA.
  5. Incidental or consequential damages such as loss of use of the Nissan Forklift, lodging bills, machinery rentals, other travel costs, inconvenience or commercial loss.
  6. Any Nissan Forklift industrial truck on which the operating hour meter has been disconnected or altered or the operating hours therein has been altered so that the actual operating hours cannot readily be determined.
  7. Any Nissan Forklift industrial truck sold or operated outside the United States.

## WHAT YOU MUST DO

1. Properly operate your Nissan Forklift industrial truck and engine and perform the required maintenance and care as outlined in your Owner's Manual, and/or Service Manual. Damage to your non-road engine caused by improper operation or failure to perform required maintenance is not covered by warranty. NFC,NA recommends that you keep receipts and maintenance records in case questions arise concerning maintenance. A warranty claim will not be denied solely because the owner has no record that the required maintenance has been performed, however, NFC,NA may deny warranty coverage if the owner(s) failure to perform required maintenance results in a failure of a warranted part.
2. To obtain warranty service, contact an authorized Nissan Forklift Dealer during regular business hours at your expense. In case of an emergency, and or where authorized factory service is not available, contact NFC,NA's Customer Quality Department at 815-568-0061.

## WHAT NFC,NA WILL DO

Warranty repairs will be made at no charge for parts and/or labor. Any replacement parts will consist of new or remanufactured parts, at NFC,NA's discretion.

Nissan Forklift Corporation, North America 240 N. Prospect Street, Marengo, IL 60152

DIESEL EPA/WARRANTY STATEMENT 45 (12/10)



# Nissan Forklift Corporation, North America

## CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

The following statement is required to be provided by regulations of the California Air Resources Board.

Note: This 'Emission Warranty Statement' is in addition to the "Limited Warranty" statement provided with the subject forklift truck supplied by Nissan Forklift Corporation, North America ("NFC,NA").

### **YOUR WARRANTY RIGHTS AND OBLIGATIONS**

The California Air Resources Board is pleased to explain the emission control system warranty on your 2000 and later model year engine. In California, new off-road compression-ignition (CI) engines must be designed, built and equipped to meet the State's stringent anti-smog standards. NFC,NA must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel-injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, an Authorized NFC,NA Dealer will repair your off-road CI engine at no cost to you including diagnosis, parts and labor.

### **MANUFACTURER'S WARRANTY COVERAGE**

The 2000 and later model year off-road CI engines are warranted for five years or 3,000 hours, whichever occurs first. If any emission-related part on your engine is defective, the part will be repaired or replaced by an Authorized NFC,NA Dealer.

### **OWNER'S WARRANTY RESPONSIBILITIES**

As the off-road CI engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. NFC,NA recommends that you retain receipts covering maintenance on your off-road CI engine, but NFC,NA cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the off-road CI engine owner, you should however be aware that NFC,NA may deny you warranty coverage if your off-road CI engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

### **OWNER'S WARRANTY RESPONSIBILITIES (cont'd)**

Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.

You are responsible for initiating the warranty process. The ARB suggests that you present your off-road CI engine to an Authorized NFC,NA Dealer as soon as a problem exists. The warranty repairs should be completed by the Dealer as expeditiously as possible.

If you have any questions regarding your warranty rights and responsibilities, you should contact NFC,NA's Customer Quality Department at 815-568-0061.

### **EMISSION CONTROL WARRANTY- 5 YEARS or 3,000 HOURS**

For the first 3,000 operating hours or for a period of five years from the date of the first use by the original purchaser from an Authorized NFC,NA Dealer, whichever occurs first, NFC,NA warrants the following emission-related parts.

- Fuel Injection System
- Intake Manifold
- Exhaust Manifold
- Miscellaneous hoses, clamps, connectors and sealing devices used in the above system

### **EXCLUSIONS AND LIMITATIONS**

The warranties contained herein shall not apply to or include any of the following:

1. Repair or replacement required as a result of: accident; misuse or neglect; lack of reasonable and proper maintenance; repairs improperly performed or replacements improperly installed; use of replacement parts or accessories not conforming to Nissan Forklift's specifications which adversely affect performance and/or durability; alterations or modifications not recommended or approved in writing by NFC,NA.
2. Normal replacement of service items.
3. Normal maintenance services (such as engine tune-ups, fuel system cleaning, linkage adjustments, and lubrication services)

Nissan Forklift Corporation, North America 240 N. Prospect Street, Marengo, IL 60152

CARB DIESEL WARRANTY STATEMENT 45 (12/10)