OPERATOR MANUAL

For the Princeton Truck Mounted
Forklift Equipped with Reach Mast

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PRINCETON

ORIGINAL INSTRUCTIONS

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HIAB shall at all times have the right to:

- install, maintain and dismantle automated remote diagnostics system or similar sensor-based system (the "System") in and from the Equipment; and
- access, send, receive, collect, store and use any and all information and data gathered or created by such System including but not limited to information concerning operation, operating environment, movement, condition, logon, location and similar information relating to the Equipment (the "Information").

The Customer shall not in any way remove or alter the System, nor interfere with the use of the System or the Information. The System and the Information and all their further developments shall at all times be and remain the exclusive property of HIAB without granting any right or license to the customer.

DISCLAIMER NOTICE

We are pleased to provide you with this moving mast Operator Manual. You should find in this Manual all of the basic information needed to operate your new Truck Mounted unit safely and efficiently. We also want to advise you of the following:

1. We warrant that the information contained in this Manual is accurate as of the date it was sent to you. We reserve the right to modify the equipment, the Manual, or both, without notice. The information and recommendations contained in this publication have been compiled from sources believed to be reliable. To the extent that matters discussed herein state opinions, they represent the best current opinion on the subject available to the manufacturer No warranty, guarantee, or representation is made by the manufacturer as to the correctness or sufficiency of any opinion contained in this publication, and we cannot assume responsibility in connection herewith. You should not assume that all acceptable safety measures are contained in this publication, or that other or additional measures may not be required under particular or exceptional conditions or circumstances.

2. We do not warrant, and specifically disclaims, that following the recommendations contained in the Manual will necessarily prevent accidents or injuries. It has been our experience that adequate operator training, in addition to complete familiarity with the Manual, is essential to the safe and efficient operation of the Truck Mounted Forklift equipment. Under applicable OSHA regulations, the employer is responsible for training all operators of powered industrial equipment such as the Truck Mounted Forklift.

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A1. SAFETY CHECKLIST

Safety Notices

In this operator manual and on the machine there are safety notices and decals. Each of these has a signal word that indicates the outcome of the hazardous situation if the safety instructions are not followed. The decals on the machine also have a specific color to help identify the hazard level. The signal words and colors along with the outcome of the hazardous situation can be seen below:

(DANGER - RED) INDICATES AN IMMEDIATE HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, **WILL** RESULT IN DEATH OR SERIOUS INJURY.

(WARNING - ORANGE) INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH IF NOT AVOIDED, **COULD** RESULT IN DEATH OR SERIOUS INJURY.

(CAUTION - YELLOW) INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, **MAY** RESULT IN MINOR OR MODERATE INJURY.

(INSTRUCTIONS - GREEN) INDICATES THE INFORMATION IS FOR INSTRUCTION ONLY.

Study this operator manual before starting the machine. You must understand and follow the instructions in this operator manual. You must observe all relevant laws and regulations. If you are unsure about anything, ask your Truck Mounted Forklift Distributor or supervisor. **Do not guess** because if you are incorrect you or others could be killed or seriously injured.

Note: You must be a trained Truck Mounted Forklift operator to use this machine.

A1. SAFETY CHECKLIST

Introduction to General Safety

This section of the operator manual is intended to REMIND the operator of basic safety requirements when operating industrial machinery. It is not a complete list of hazards that may exist when operating or maintaining the Truck Mounted Forklift. It is also not intended to be used for training purposes.

Forklift training requirements are mandated by OSHA – the Occupational Safety and Health Administration which is the government organization responsible for safe employee working conditions. OSHA sets out rules for forklift operator training identified as 29 CFR 1910.178 Powered Industrial Trucks. This reference can be found in the Code of Federal Register (CFR) under the General Industry requirements (Part 1910) in section 178. The 29 refers to the Department of Labor classification (OSHA is part of the Department of Labor) which outlines the training requirements for forklift operators. OSHA has mandated that employers MUST certify that each forklift operator has been trained.

We can provide employers with materials to assist them in partially meeting the requirements of 29CFR 1910.178(I) OSHA's Powered Industrial Truck Operator Training.

Specific hazards relating to maintenance instructions and operating procedures are detailed in the relevant sections of this operator manual.

Remember Safety First – Yours and Other Peoples

All industrial equipment can be hazardous. When a machine is properly operated and maintained, it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and to others.

In this operator manual and on the machine you will find warning messages. Read and understand them. They tell you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your supervisor or Truck Mounted Forklift Distributor to explain them.

Safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking what hazards there might be and how to avoid them.

Do not work with the machine until you are sure you can control it. Do not start any job until you are sure that you and those around you will be safe. If you are unsure of anything, about the machine or the job, ask someone who knows. Do not assume anything.

A1. SAFETY CHECKLIST

Operational Safety

DANGER:

Operator Manual. To use the Truck Mounted Forklift efficiently and safely you must have read and understand the operator manual, be familiar with the machine and be trained and authorized to use it.

DANGER:

Forks. Do not permit personnel to stand on or ride on the forks.

DANGER:

Capacity. Never exceed the forklift's rated capacity or the machine may become unstable.

DANGER:

Power Lines. Never approach power lines with any part of the forklift as electrocution will result.

DANGER:

Rollover. Any machine that is used to lift and move loads may tip over if not operated correctly. No matter how experienced the operator is, accidents can still happen if the operator does not remain vigilant. Always be aware of the potential danger involved when using the Truck Mounted Forklift. Be aware of what action you MUST take if the machine starts to tip or roll over.

DANGER:

Inclines. Never travel across inclines. Traveling across an incline with or without a load greatly increases the possibility of a tip over.

DANGER:

Stabilizers. Never raise the stabilizers when the mast carriage is extended with a load on the forks.

Operational Safety (continued)

WARNING:

Decals. If you need eye-glasses for reading, make sure you wear them when reading the safety decals. Decals are strategically placed around the machine to remind you of possible hazards. Do not over-stretch or place yourself in dangerous positions to read the decals. If any decals get damaged or removed, contact your supervisor and have them replaced.

WARNING:

Decals. Decals on the machine warn you of particular hazards. Each decal is attached close to a part of the machine where there is a possible hazard. Read and make sure you understand the safety messages before you work with or around any part of the machine. Keep all decals clean and readable. Replace lost or damaged decals. The decals and their attachment points are shown in this manual. Each decal has a part number printed beside it. Use this number to order a new decal from your Truck Mounted Forklift Distributor.

WARNING:

Hydraulic Pressure. The hydraulic tank is pressurized and hydraulic oil may be hot. To avoid injury and spillage when removing the cap, stop the engine and remove the cap very slowly.

WARNING:

Vapors. Hot coolant, steam and vapors can severely burn. Stop the engine and allow it to cool before removing the radiator cap. When removing the radiator cap, turn it very slowly to allow the pressure to release.

WARNING:

Controls. If the forward/reverse pedal does not return to the neutral position, do NOT use the machine and contact your supervisor.

WARNING:

Engine. Never climb aboard or dismount from the machine with the engine running.

Operational Safety (continued)

WARNING:

Operator Manual. Operating or maintaining the machine without studying this operator manual can cause accidents. Read the safety instructions before operating this machine. If you do not understand anything, ask your Truck Mounted Forklift Distributor or supervisor to explain it. Keep this operator manual clean and in good condition. Do not operate the machine without an operator manual in the operator's compartment, or if there is anything on the machine you do not understand.

WARNING:

Care and Alertness. All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be aware of potential hazards.

WARNING:

Alcohol and Drugs. It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

WARNING:

Working Environment. Remember that rain, snow, ice, mud, loose gravel and uneven or soft ground could change the operating capabilities and could cause you to lose control or cause the forklift to tip over.

WARNING:

Seatbelt. The operator's compartment is designed to give you protection in an accident. If you do not wear your seatbelt you could be thrown out of the machine. You must wear a seatbelt when using the machine. Fasten the seatbelt before starting the machine.

WARNING:

Machine Condition. A defective machine can cause accidents. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this operator manual are completed before using the machine.

WARNING:

Visibility. Accidents can be caused by working in poor visibility. Use the work lights on the machine to improve visibility. Do not operate the machine if you cannot see properly.

Operational Safety (continued)

WARNING:

Practice. Do not perform unfamiliar operations without first practicing them. Practice away from the work site on a clear area. Keep other people away. Do not perform new operations until you can do them safely.

WARNING:

Controls. Do not control the machine from outside the operator's compartment. Operate the control levers only when you are correctly seated inside the operator's compartment with the seatbelt fastened.

WARNING:

Passengers. Passengers in or on the machine can cause accidents. The Truck Mounted Forklift is a one person machine. Do not carry passengers.

WARNING:

Clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are; a hard hat, safety shoes, safety glasses, a well fitting overall, ear protectors and industrial gloves. Keep cuffs fastened. Do not wear a neck tie or scarf. Keep long hair restrained.

WARNING:

Safety. Always wear your seatbelt when driving the Truck Mounted Forklift. The forklift may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat. The seat and seatbelt will help to keep you safely within the operator's compartment. In the event of a tip over, DO NOT JUMP, grip the steering wheel, brace your feet, lean away from the direction of tip-over and stay within the operator's compartment.

WARNING:

Seatbelt. If the seatbelt does not 'lock' when fastened do not drive the machine. The seatbelt assembly must be replaced immediately.

Operational Safety (continued)

WARNING:

Engine Damage. Do not use starting fluid or spray as these are highly flammable, corrosive and cause engine damage.

WARNING:

Battery Isolator Switch. Do not activate the battery isolator switch when the engine is running as this could damage your engine.

WARNING:

Procedure. Never leave the operator's seat without first:

- Facing the machine uphill and turning the rear wheel sideways if stopped on an incline.
- Engaging the park brake.
- Lowering the forks to the ground.
- Placing all controls in the neutral position.
- Stopping the engine.
- Removing the key.

WARNING:

Loose Articles. Do not leave loose articles in the operator's compartment. Loose articles can fall and strike you, or roll on the floor. You could be knocked unconscious, or the controls could get jammed. If that happens you could lose control of the machine.

WARNING:

No Load. When traveling without a load the mast carriage MUST always be fully extended.

WARNING:

Stabilizers. When placing a load, always place the load on a firm and level surface. The stabilizers must always be fully lowered before attempting to extend the mast. When lifting a load, the stabilizers must be fully lowered and raised only when the mast is fully retracted.

WARNING:

Loading. Before attempting to load a truck or trailer, chock the wheels of the truck/trailer to prevent it moving. Always lower the stabilizers fully before attempting to pick-up a load from a truck or trailer.

Operational Safety (continued)

WARNING:

Stabilizers. When lowering the stabilizers, make certain the ground is sufficiently firm to support the stabilizers. On loose or uneven soil, it may be necessary to place flat wooden or metal supports beneath the stabilizers.

CAUTION:

Warning Lights. If at any point during the operation of the Truck Mounted Forklift one or more of the dash panel warning lights are lit, the forklift must be stopped immediately and the engine shut off. Serious engine damage could occur if the forklift is operated with any of the warning lights on.

CAUTION:

Hydraulic Function. Never continue to operate a hydraulic function lever after the function has reached the end of its travel. Excess heat is generated in the hydraulic circuit which may damage the Truck Mounted Forklift.

CAUTION:

Regulations. Obey all laws, work site and local regulations which affect you and your machine.

CAUTION:

Diff-Lock. Use the diff-lock only while traveling in a straight line.

CAUTION:

Safe Operation. If something comes loose, breaks or fails to operate:

- Stop.
- Apply the park brake.
- Shut down the engine.
- Get it repaired.

CAUTION:

Wide Loads. When carrying wide or tall loads your visibility may be blocked by the load. It may be safer to travel in reverse when moving with such loads. You may require a signal person or "spotter" to guide you. If the road lights are blocked by the load, the work lights must be used to improve visibility and ensure you are seen by other road users.

A1. SAFETY CHECKLIST

Transport Safety

DANGER:

Transport. A Manufacturer approved mounting kit must be fitted to your vehicle for transporting the Truck Mounted Forklift. Contact your Truck Mounted Forklift distributor for further details of approved mounting kits.

DANGER:

Transport. Do not attempt to transport the Truck Mounted Forklift on a truck or trailer that is not equipped with a mounting kit designed and installed to Truck Mounted Forklift specifications.
When carrying a Truck Mounted Forklift, make certain that your vehicle complies with the relevant national and local laws and regulations regarding maximum vehicle weight, axle loading, overall vehicle length and overhang.

WARNING:

Transport. Do not attempt to transport the Truck Mounted Forklift unless you have read the mounting section of the manual very carefully!

CAUTION:

Electrical Connector. It is important to ensure the electrical (electrical pigtail) connector is fitted correctly and that the lights on the rear of the Truck Mounted Forklift are functioning properly.

CAUTION:

Hydraulic Pressure. It is important to release the hydraulic pressure so that the weight of the Truck Mounted Forklift is carried by the mounting kit and NOT by the mast. Otherwise damage will result from the forklift's weight resting on the mast.

CAUTION:

Rear Bumper. The rear bumper must be folded back out to full length and the locking pin and lynch pin fitted when the forklift is not being transported or removed for the purposes of loading or unloading.

A1. SAFETY CHECKLIST

Maintenance Safety

WARNING:

Seatbelt. Failure to properly inspect and maintain the seatbelt can lead to a seatbelt failure in the event of an accident.

Any time the Truck Mounted Forklift is being operated and is involved in an accident, the whole seatbelt assembly must be replaced. This is to ensure that if any unseen damage has occurred it is replaced.

If the seatbelt is worn or damaged it must be replaced.

The seatbelt must be inspected in detail at least once a year and more often if exposed to harsh conditions.

If replacement of any part of the seatbelt is required then the entire assembly must be replaced (retractor and buckle) with Manufacturer recommended items from a service provider.

WARNING:

Compressed Air. When using compressed air ensure that relevant personal protection equipment/safety equipment is used at all times. Adhere to all company/manufacturer safety information and guidelines.

WARNING:

Compressed Air. Using compressed air can be dangerous. Obey all statutory notices and apply all relevant health and safety regulations.

WARNING:

Procedure. If you are unsure how to follow any procedure in this manual, we strongly recommend that you seek the help of a competent mechanic.

WARNING:

Electric Shock. Keep all metal straps and fasteners from clothes or jewelry clear of the positive (+) battery terminal. Such items can cause a short between the battery terminal and nearby metal framework. If this happens you could get burned.

WARNING:

Raised Attachments. Raised attachments can fall and injure you. Do not walk or work under raised attachments unless they are safely blocked.

Maintenance Safety (continued)

WARNING:

Raised Machine. NEVER position yourself or any part of your body under a raised machine which is not properly supported. If the machine moves unexpectedly you could become trapped.

WARNING:

Soft Ground. A machine can sink into soft ground. Never work under a machine on soft ground.

WARNING:

Lifting Equipment. If you are using lifting equipment to lift or repair your machine, make sure that the lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure that lifting equipment is strong enough for the job.

WARNING:

Repairs. Do not try to do any repairs or any other type of maintenance work you do not understand. Forklift Engineers have been trained in all aspects of the Forklift.

WARNING:

Hydraulic Fluid. Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to the suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, seek medical attention immediately.

WARNING:

Hydraulic Pressure. Hydraulic fluid at pressure can cause injury. Release hydraulic pressure before connecting or disconnecting couplings; lower the payload to the ground, stop the engine, then operate the hydraulic controls a few more times to vent residual hydraulic pressure from the system.

Maintenance Safety (continued)

WARNING:

Hydraulic Hoses. Damaged hydraulic hoses can cause accidents. Inspect the hoses regularly for:

- Damaged end fittings
- Chafed outer covers
- Ballooned outer covers
- Kinked or crushed hoses
- Embedded or armoring in outer covers
- Displaced end fittings.

WARNING:

Metal Splinters. When driving pins in or out there could be some flying metal splinters. Use a soft faced hammer or drift to remove and fit metal pins. Always wear safety glasses.

WARNING:

O-Rings, Seals and Gaskets. Badly fitted, damaged or rotted O-rings, seals and gaskets can cause leakages and possible accidents. Renew whenever disturbed, unless otherwise instructed. Do not use Trichloroethane or paint thinners near O-rings and seals.

WARNING:

Electrical Circuits. Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

Do not disconnect the battery when the machine is running otherwise the electrical circuits may be damaged.

WARNING:

Communications. Bad communications can cause accidents. If two or more people are working on a machine, make sure each knows what the others are doing. Before starting the engine make sure others are clear of the danger areas; examples of the danger areas are: the rotating blades and belt on the engine, the attachments and linkages, and anywhere beneath or behind the machine.

Maintenance Safety (continued)

CAUTION:

Temperature. Always turn off the engine and allow it to cool before checking:

- Engine coolant level
- Engine oil level
- Hydraulic oil level

CAUTION:

Maintenance. The maintenance section of this manual outlines the recommended preventative maintenance schedule. Always adhere to the recommended operating and maintenance procedures. Only trained, authorized and experienced personnel should be allowed to operate the Truck Mounted Forklift. Service personnel should read and study this manual, the service manual, the preventative maintenance manual and parts manual in order to gain a thorough understanding of the unit prior to making any repairs. Exercise all necessary safety precautions when performing maintenance covered in the preventative maintenance manual. Ensure that the engine is switched off, the battery is disconnected and the engine and exhaust are cool.

CAUTION:

Jump Start Supply. The jump start supply should not be more than 12 volts. Using a higher voltage supply will damage your machines electrical system. Do not connect two batteries together to give 24 volts. This could burn out the induction manifold heater and damage the starter motor.

CAUTION:

Cleaning. Cleaning metal parts with incorrect solvents can cause corrosion. Use only recommended cleaning agents and solvents.

CAUTION:

Machine Modifications. This machine is manufactured in compliance with legislative and other requirements. It should not be altered in any way which could affect or invalidate any of the requirements. For advice contact your Truck Mounted Forklift Distributor.

Maintenance Safety (continued)

CAUTION:

Welding. Before carrying out any welding on the machine, disconnect the battery, alternator and ECU to protect the circuits and components.
The battery must still be disconnected even if a battery isolator is fitted.
Make sure the welding path is kept as short as possible. This prevents high currents being induced into the machine frame or wiring harness.

A2. INTRODUCTION

About this Operator Manual

Machine Models
This operator manual provides information for the moving mast range of Truck Mounted Forklifts.

Using This Operator Manual
The illustrations in the operator manual are for guidance only. Where machines differ, the text and/or illustration will specify.

This operator manual is arranged to give a good understanding of the machine and its safe operation. It also contains maintenance information and specification data. Read this operator manual from front to back before using the machine for the first time. Particular attention must be given to all the safety aspects of operating and maintaining the machine.

General warnings in this chapter are repeated throughout this manual as well as specific warnings. Read all the safety statements regularly, so you don't forget them. Remember that the best operators are the safest operators.

Finally, treat this operator manual as part of the machine. Keep it clean and in good condition and ensure it is always located in the operator manual box.

If there is anything you are unsure about ask your supervisor or Truck Mounted Forklift Distributor. Do not guess, you or others could be killed or seriously injured.

The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved.
No responsibility will be accepted for discrepancies which may occur between the specifications of the machine and the descriptions contained in this publication.

Using the Machine
This operator manual is intended to familiarize you on the machine, its controls and its safe operation. It is not intended or suitable for use as a training manual for an inexperienced operator.

DANGER:

Operator Manual. To use the Truck Mounted Forklift efficiently and safely you must have read and understand the operator manual, be familiar with the machine and be trained and authorized to use it.

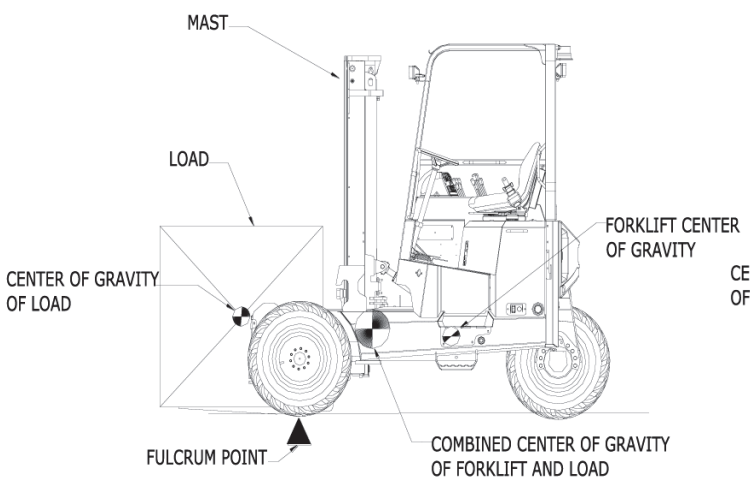
The Truck Mounted Forklift

Machine Description

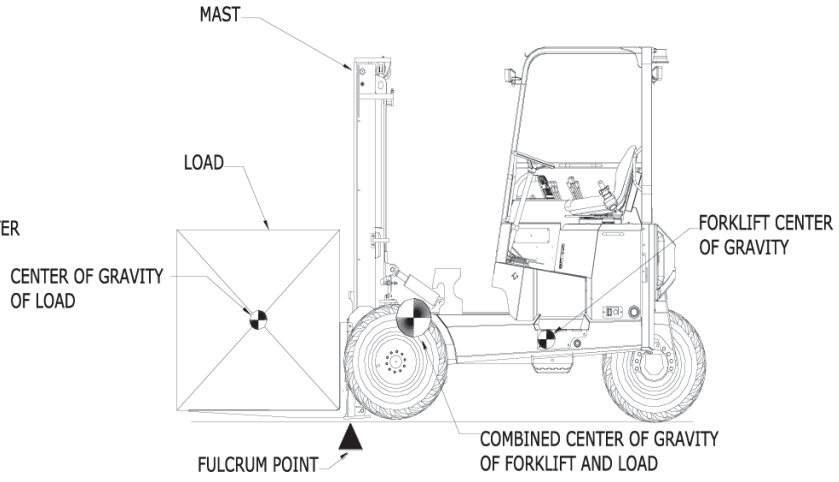
The Truck Mounted Forklift is a three wheeled, non-counterbalanced forklift capable of being transported on the rear of a truck or trailer. Its short turning radius and rear wheel steer make it extremely maneuverable in confined spaces. The forklift is equipped with a mast that can move in and out on a mast carriage. The mast is fitted with a double acting lift cylinder which means a load can be lifted on the forks by the full bore side of the cylinder but also that the machine can be lifted for truck mounting using the rod side of the cylinder.

Concept

Unlike a conventional forklift the Truck Mounted Forklift does not have a counterweight at the rear; instead it uses its own weight to counter the load. Normally the front fulcrum for the machine is located under the front tire. By lowering the stabilizers this fulcrum is moved forward and with the mast extended this allows the forklift's weight to counter the capacity to be lifted. Once the load has been picked up, the mast is retracted; bringing the load into the frame of the forklift. At this stage the stabilizers can be raised and the machine can travel with the load.



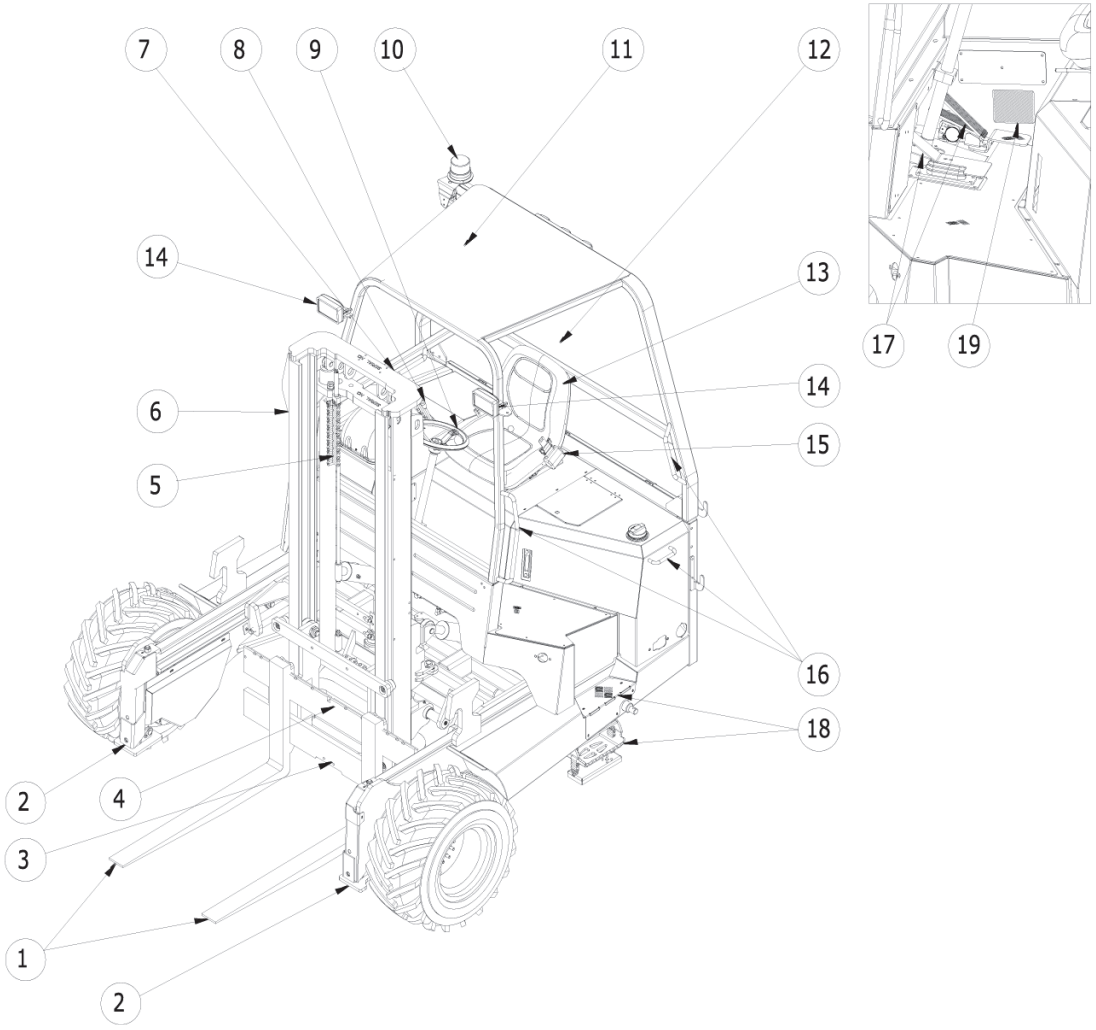
STABILIZERS RAISED



STABILIZERS LOWERED

Major Components

1. Forks
2. Stabilizers
3. Fork Face
4. Fork Carriage
5. Lift Chains
6. Mast
7. Hood
8. Hydraulic Controls
9. Steering Wheel
10. Beacon
11. Overhead Guard
12. Operator’s Compartment
13. Seat
14. Work Lights x2
15. Seatbelt
16. Grab Handles
17. Foot Pedals
18. Steps
19. Serial plate



A2. INTRODUCTION

Identifying Your Machine

Serial Plate: This is located in the operator's compartment and it gives the following information:

Type: This is the machine model

Serial No: This is a unique number given to all machines.

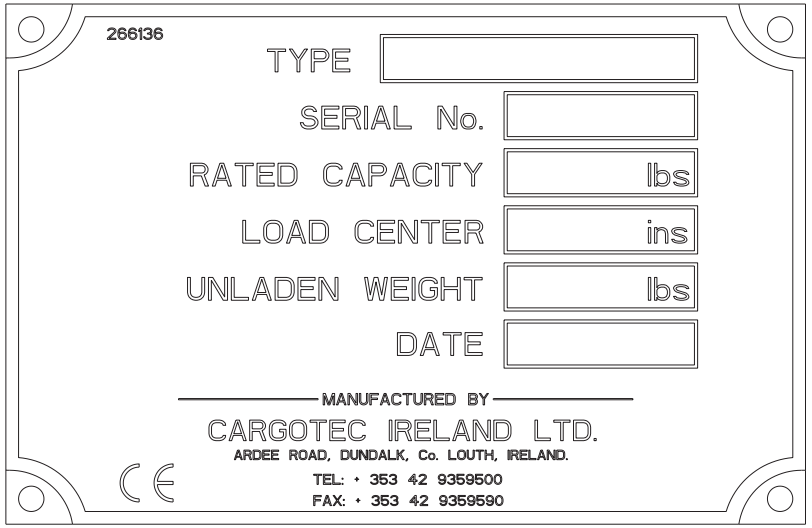
P 24 054-8C
P Year of manufacture.
24 Week number.
054 Sequential number.
8C Machine model.

Rated Capacity: The rated lifting capacity of the machine with the mast carriage fully extended and stabilizers down.

Load Center: Load center of rated capacity.

Unladen Weight: The gross weight of the machine.

Date: The date of manufacture of the machine.



Safety Decals

WARNING:

Decals. If you need eye-glasses for reading, make sure you wear them when reading the safety decals. Decals are strategically placed around the machine to remind you of possible hazards. Do not over-stretch or place yourself in dangerous positions to read the decals. If any decals get damaged or removed, contact your supervisor and have them replaced.

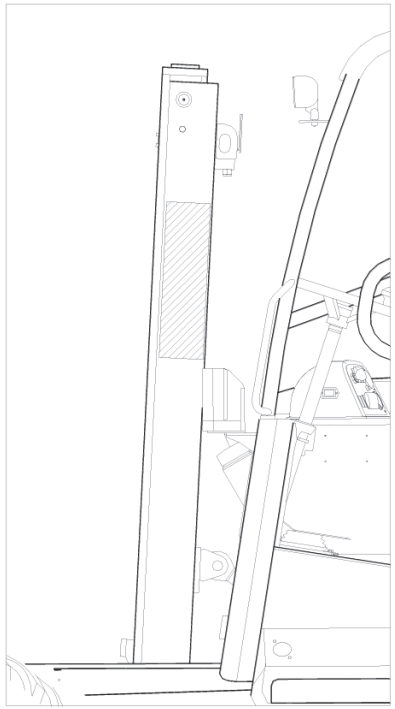
WARNING:

Decals. Decals on the machine warn you of particular hazards. Each decal is attached close to a part of the machine where there is a possible hazard. Read and make sure you understand the safety messages before you work with or around any part of the machine. Keep all decals clean and readable. Replace lost or damaged decals. The decals and their attachment points are shown in this manual. Each decal has a part number printed beside it. Use this number to order a new decal from your Truck Mounted Forklift Distributor.

DANGER:

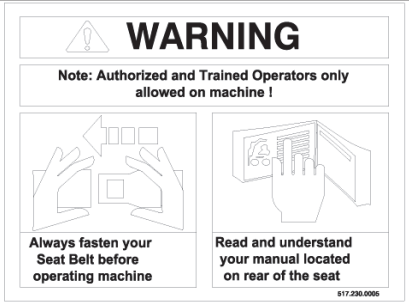
Forks. Do not permit personnel to stand on or ride on the forks.

Part Number ENG002

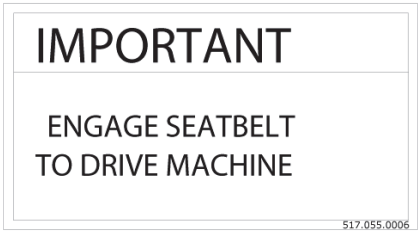


Safety Decals (continued)

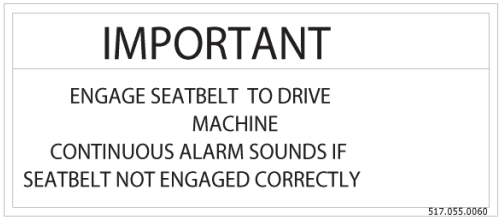
Part Number 517. 230.0005



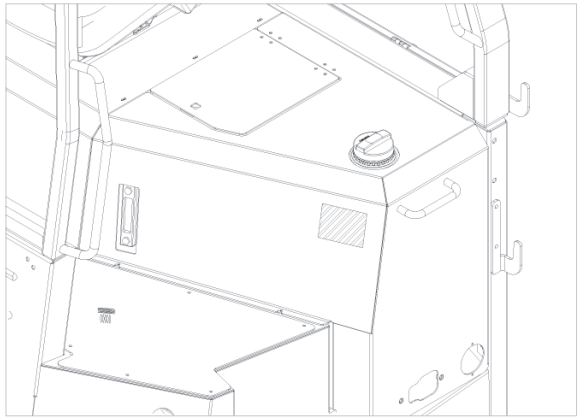
Part Number 517. 055.0006

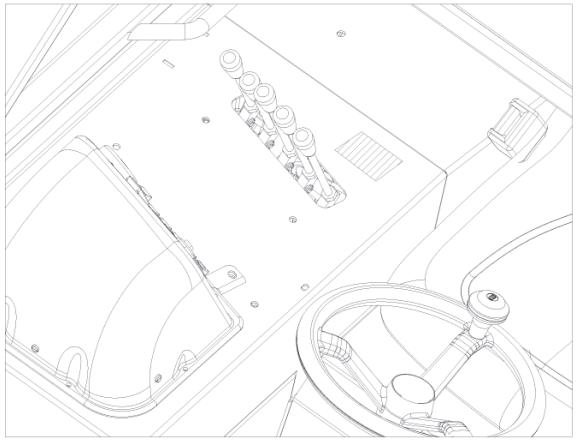


(Seat Presence Optional 517.055.0060)



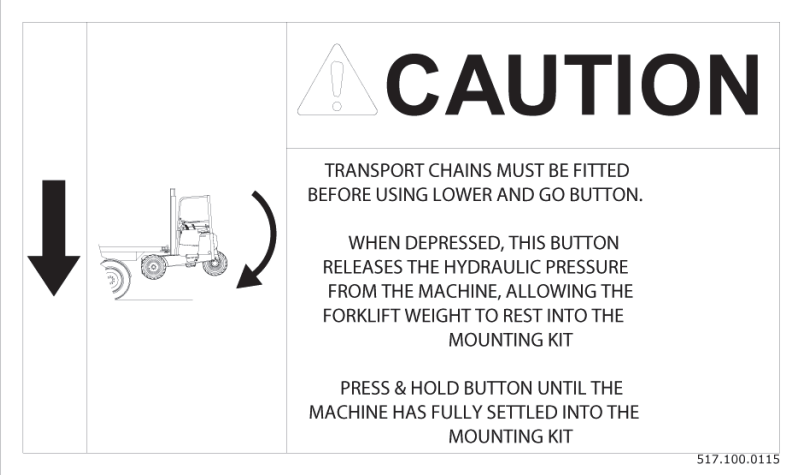
Note: The machine is fitted with an interlocking seatbelt. The machine will not drive unless the seatbelt is engaged.

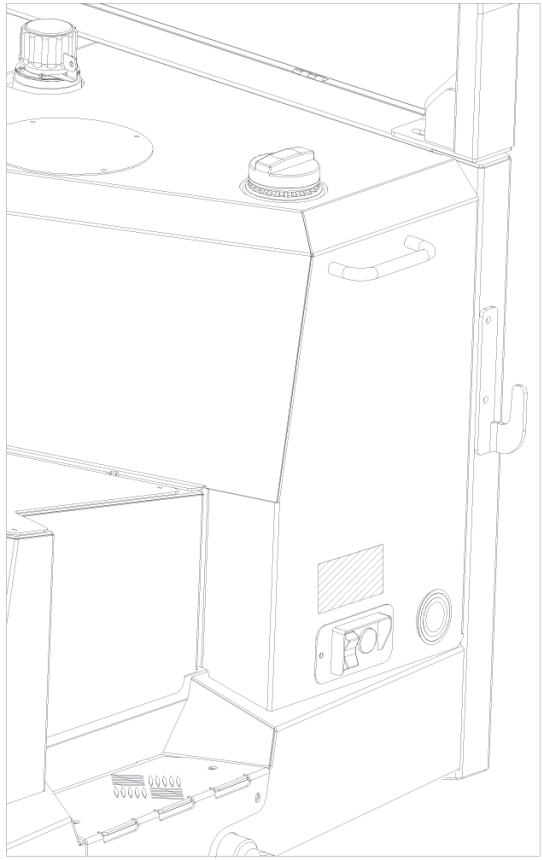




Safety Decals (continued)

Part Number	517.280.0007

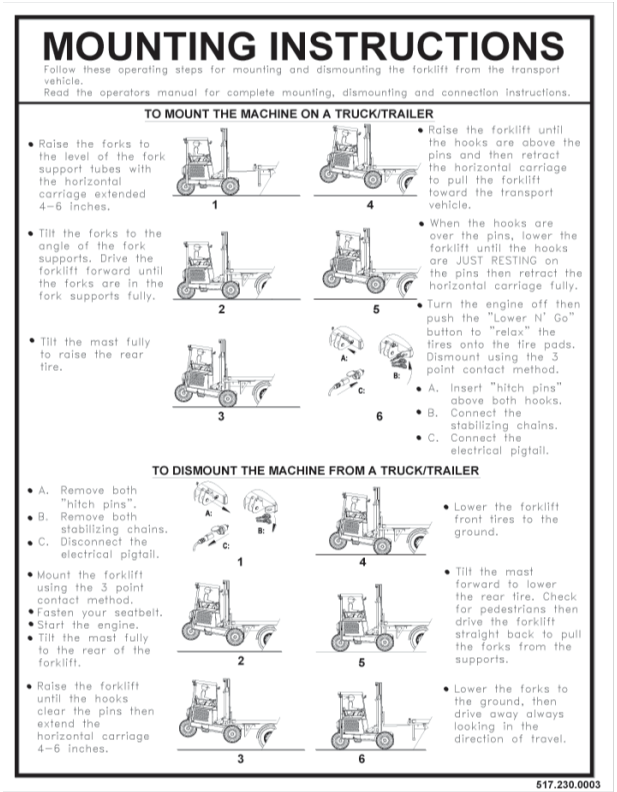


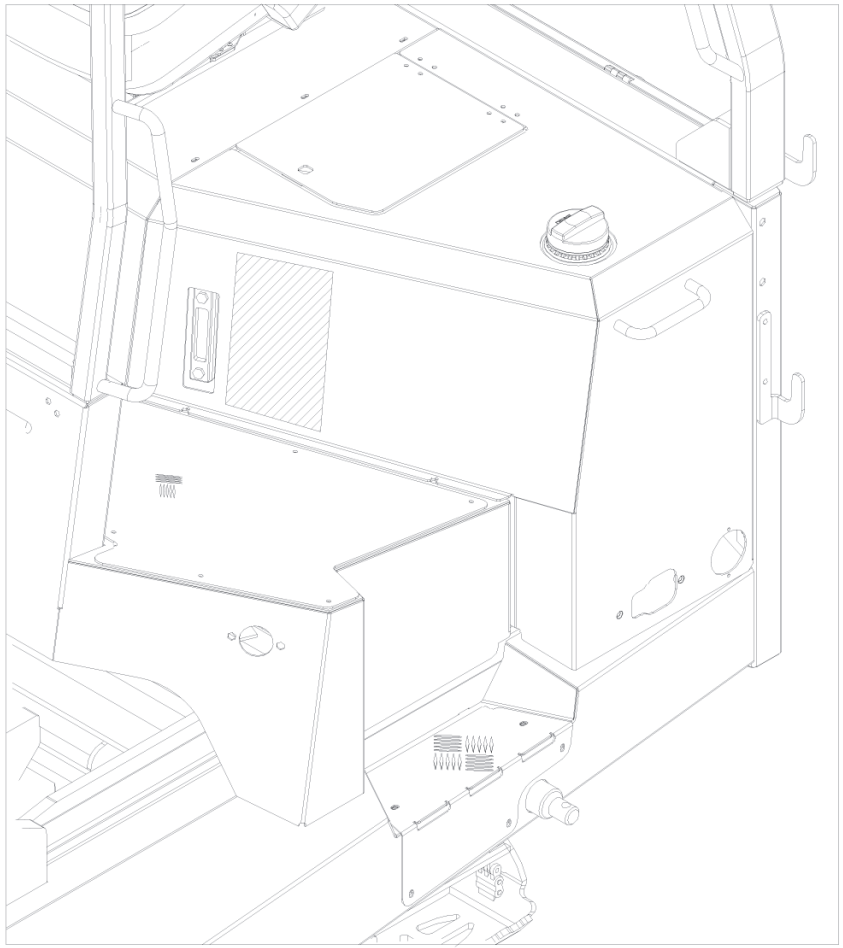


Note: Lower N' Go only works when ignition key is in the off position.

Safety Decals (continued)

Part Number	517.230.0003





Safety Decals (continued)

Part Number	517.130.0003

INSTRUCTIONS

DO NOT OPERATE THIS MACHINE UNLESS:

- You have read and understand the safety and operating instructions contained in the operator manual and viewed the Truck-Mounted Forklift Operator Training Video.
- You have been trained in the safe operation of the Truck-Mounted Forklift.
- You have checked your machine and all functions are operating correctly.

WHEN TRAVELLING WITHOUT A LOAD:

- Keep the mast fully forward and the forks as low as possible.
- Keep the reach device retracted and as low as possible.

WHEN TRAVELLING WITH A LOAD:

- Keep the reach device fully retracted and the load as low as possible.
- Make all turning manoeuvers slowly and carefully. Do not stop suddenly.
- Travel with the load side-shifted to the center position.

WHEN TRAVELLING ON INCLINES:

- Travel directly up or down, do not travel across an incline.
- Keep the forks facing uphill at all times.
- Engage the diff-lock if operating on slippery slopes.
- Keep the load as low as possible. Do not elevate the load.

WHEN LIFTING A LOAD:

- Check that the stabilizers are fully lowered on a firm and stable surface.
- Do not raise the stabilizers unless the reach device is fully retracted.

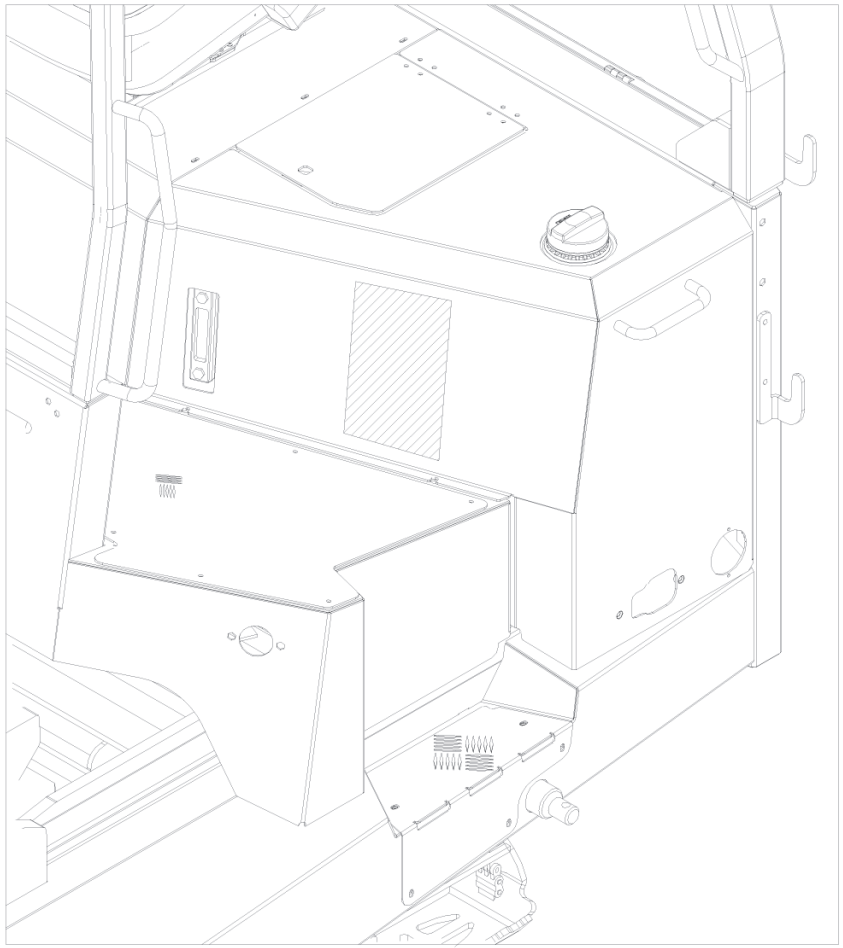
WHEN PLACING A LOAD:

- Do not extend the reach device forward unless the stabilizers are fully lowered on a firm and stable surface.

WHEN MOUNTING FOR TRANSPORT:

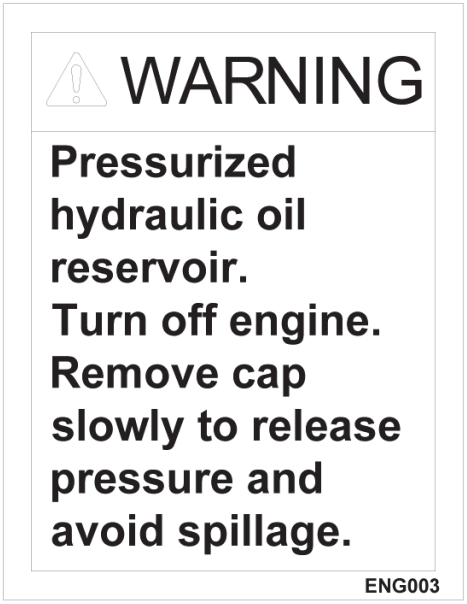
- Check that the forks are fully engaged in the mounting kit before raising the forklift.
- Centre the fork carriage using the side-shift function before raising the forklift.

517.130.0003



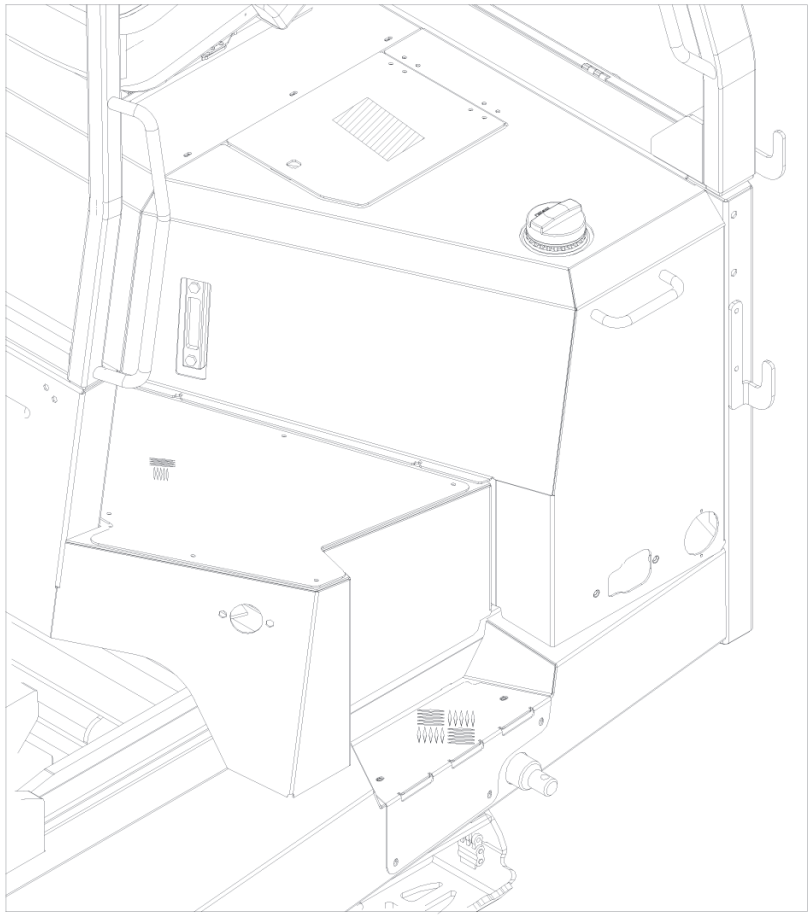
Safety Decals (continued)

Part Number	ENG003



WARNING:

Hydraulic Pressure. The hydraulic tank is pressurized and hydraulic oil may be hot. To avoid injury and spillage when removing the cap, stop the engine and remove the cap very slowly.



Safety Decals (continued)

Part Number 517.100.0141

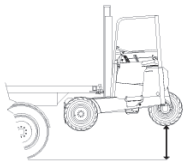
IMPORTANT

HYDRAULIC OIL ONLY

517.100.0141

Part Number 517.100.0086

PRE-TRIP INSPECTION INSTRUCTION

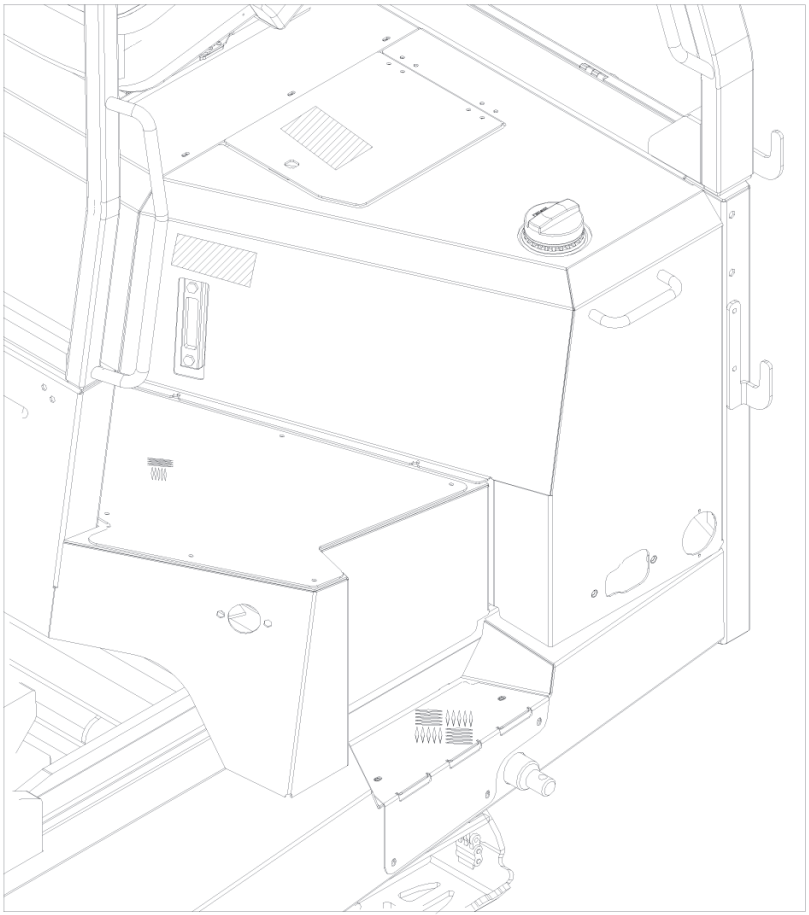


PRIOR TO TRANSPORTING FORKLIFT PLEASE ENSURE:

- ☒ THE CONSPICUITY TAPE IS IN PLACE AND CLEAN ALSO THAT ALL THE DOT LIGHTS ARE CLEAN AND WORKING.
- ☒ THE HYDRAULICS ARE RELAXED AND THE MACHINE IS RESTING IN THE MOUNTING KIT AND POSITIVELY ENGAGING THE RELEVANT CONTACT POINTS
- ☒ THE MACHINE IS RESTING FIRMLY IN THE MOUNTING KIT.
- ☒ THE REAR WHEEL IS POINTING STRAIGHT AHEAD (WHERE APPLICABLE)
- ☒ THE MACHINE IS LEANING FORWARD WITH A REAR WHEEL GROUND CLEARANCE BETWEEN 15" AND 18". ENSURE THAT YOUR VEHICLE COMPLIES WITH RELEVANT FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS

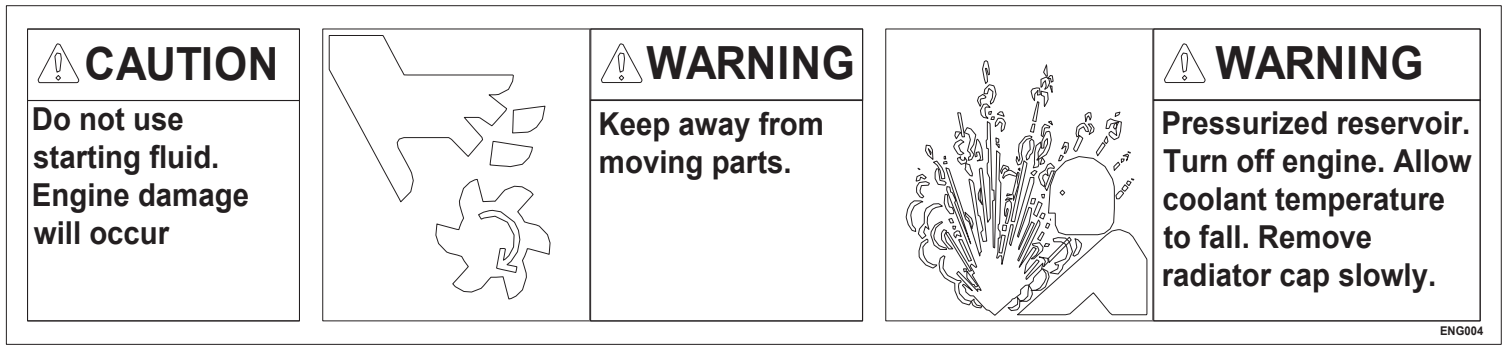
NOTE: FOR TRAILERS EQUIPPED WITH A FOLDING DOT BUMPER ALWAYS ENSURE IT IS FOLDED & PINNED WHEN THE TRUCK-MOUNTED FORKLIFT IS BEING TRANSPORTED. ALWAYS ENSURE THAT THE DOT BUMPER IS UNFOLDED & PINNED TO FULL-WIDTH WHEN PARKED & UNLOADING OR WHEN NOT TRANSPORTING THE FORKLIFT

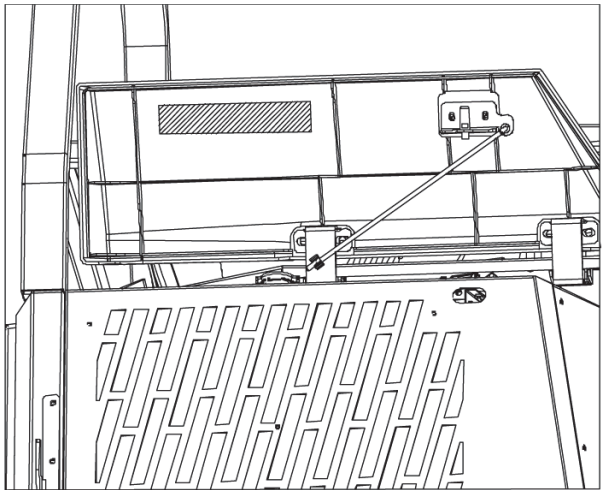
517.100.0086



Safety Decals (continued)

Part N umber E NG 004





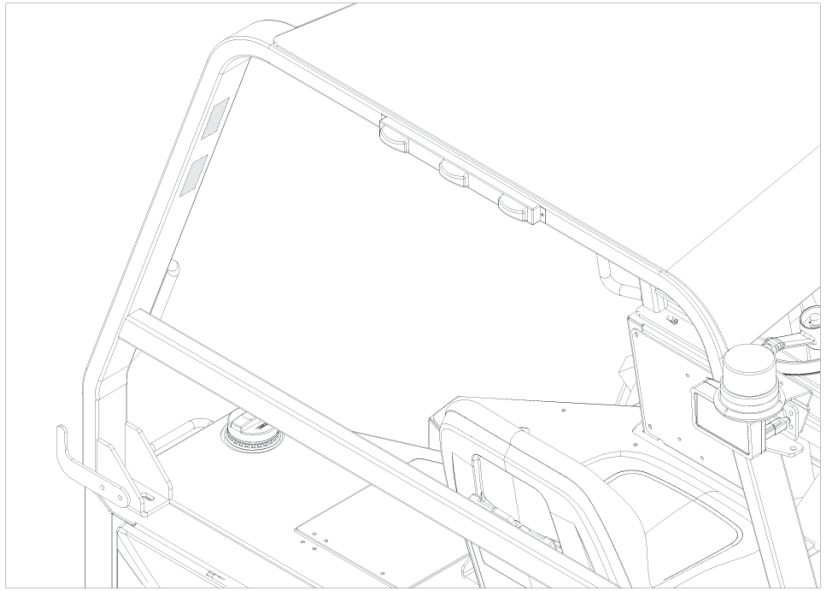
WARNING:

Vapors . Hot coolant, steam and vapors can severely burn. Stop the engine and allow it to cool before removing the radiator cap. When removing the radiator cap, turn it very slowly to allow the pressure to release.

Safety Decals (continued)

Part N o. 517. 230.0008

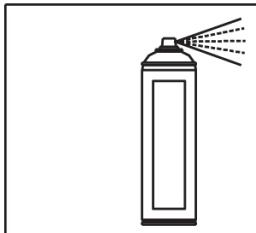
Part N o. USA018

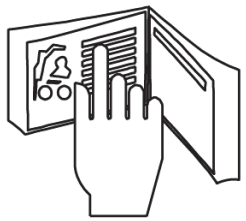


Safety Decals (continued)

Part N o. 517.999.0296

IMPORTANT





Fork & Mast Carriage Slide Blocks Require Periodic Spray Lubrication.
Refer to your Operator Manual for Details.

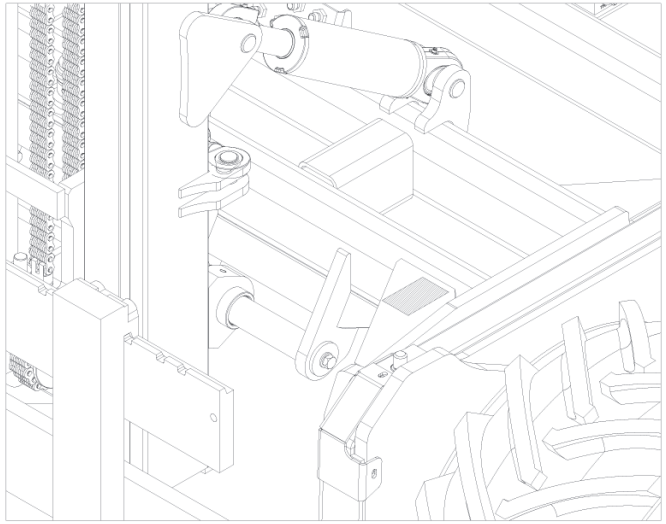
517.999.0296

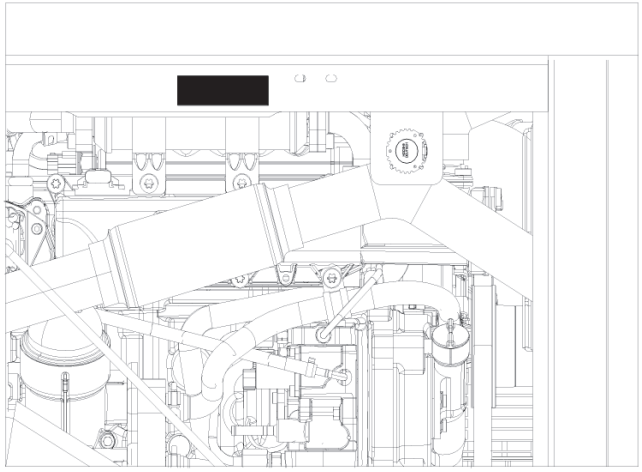
Part Number 517.999.0842

IMPORTANT

OVERFILLING ENGINE OIL WILL RESULT IN ENGINE DAMAGE	Engine oil capacity: 9.2 QTS Fully Synthetic
Check engine oil level cold, at least 5 minutes after shutdown	= -13°F Use 5W-40, API CJ4 = -13°F Use 0W-30, API CJ4

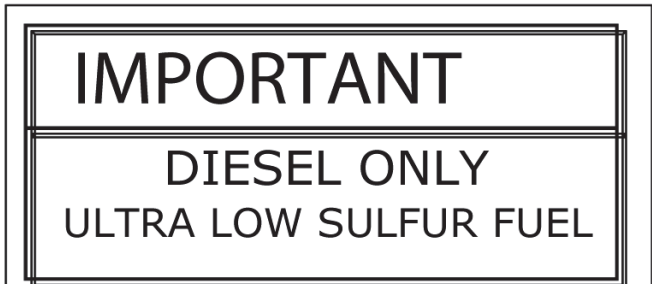
517.999.0842



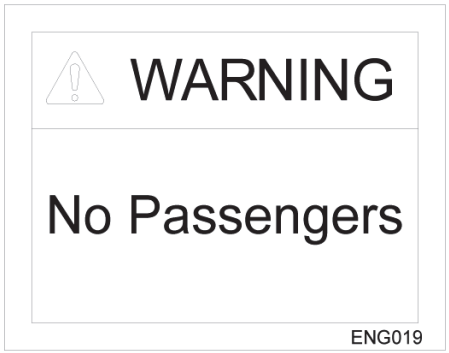


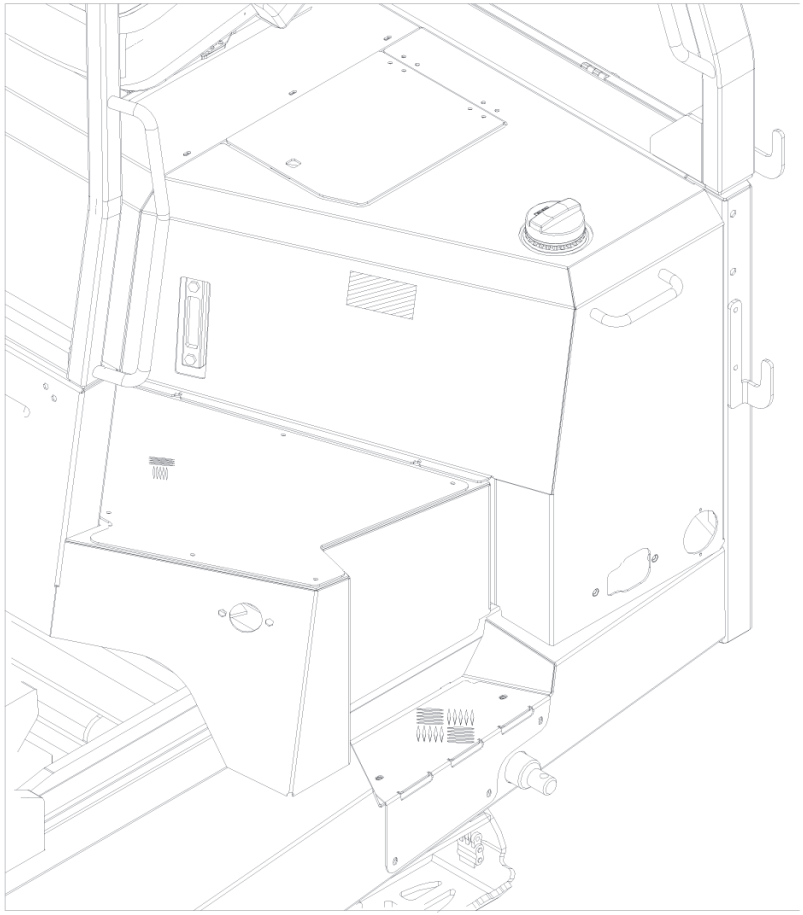
Safety Decals (continued)

Part N umber 517.999.0254



Part N umber ENG019

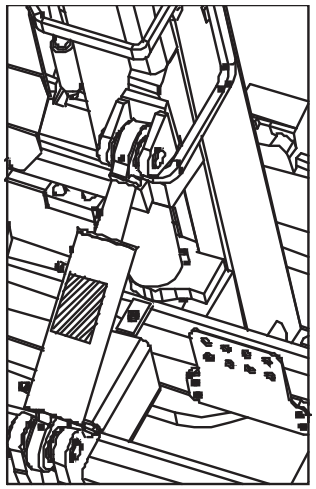


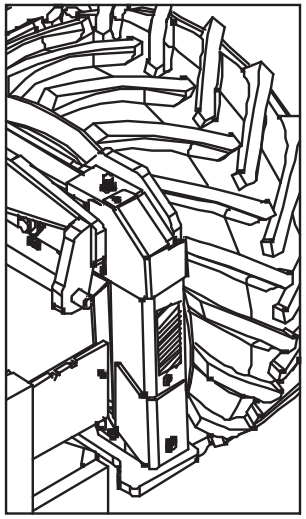


Safety Decals (continued)

Part Number ENG011

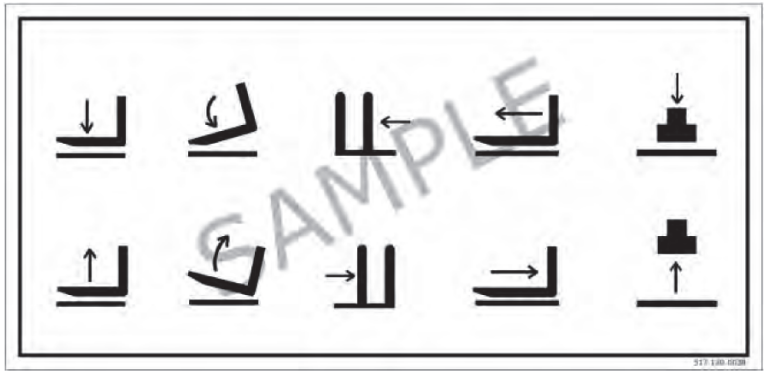
Note: Location of pinch point decals; part number ENG011 on stabilizers and tilt cylinders.



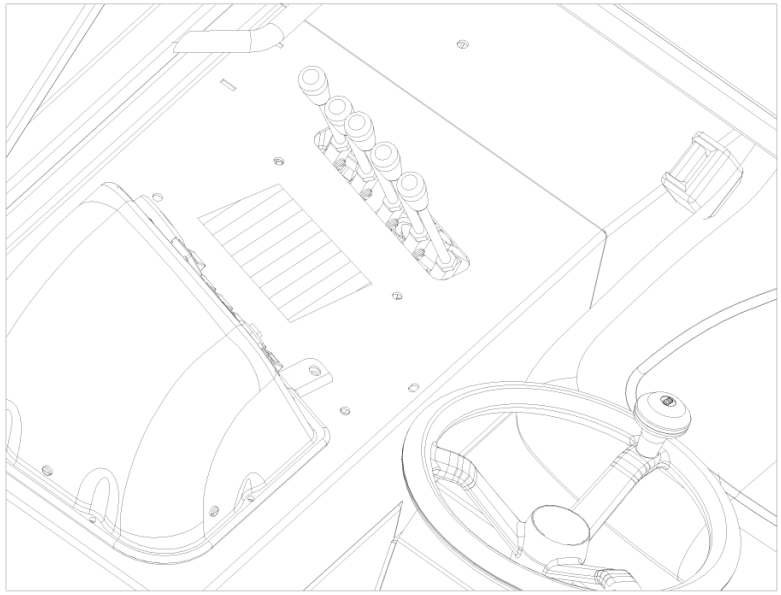


Safety Decals (continued)

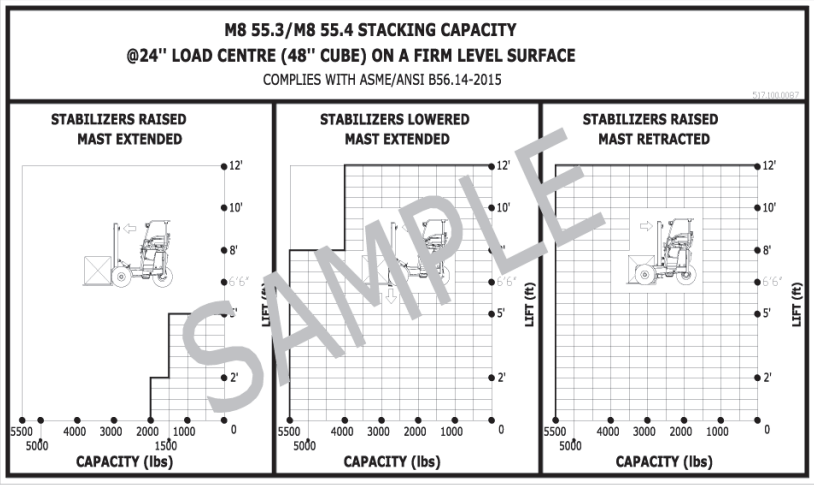
Part N umber 517.130.0038



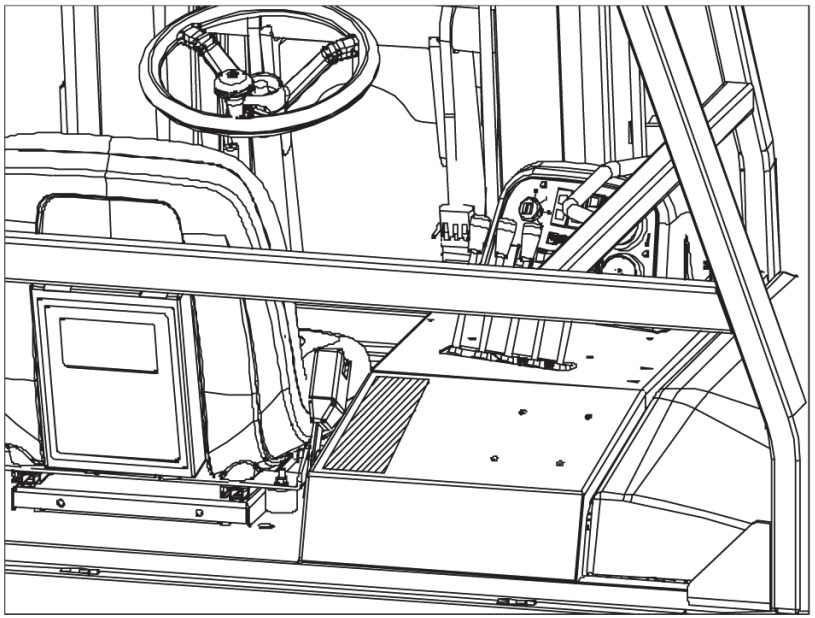
Note: The valve bank and load chart decals in this section are only examples and may differ from those found on your machine. Please check your machine for the correct part number.



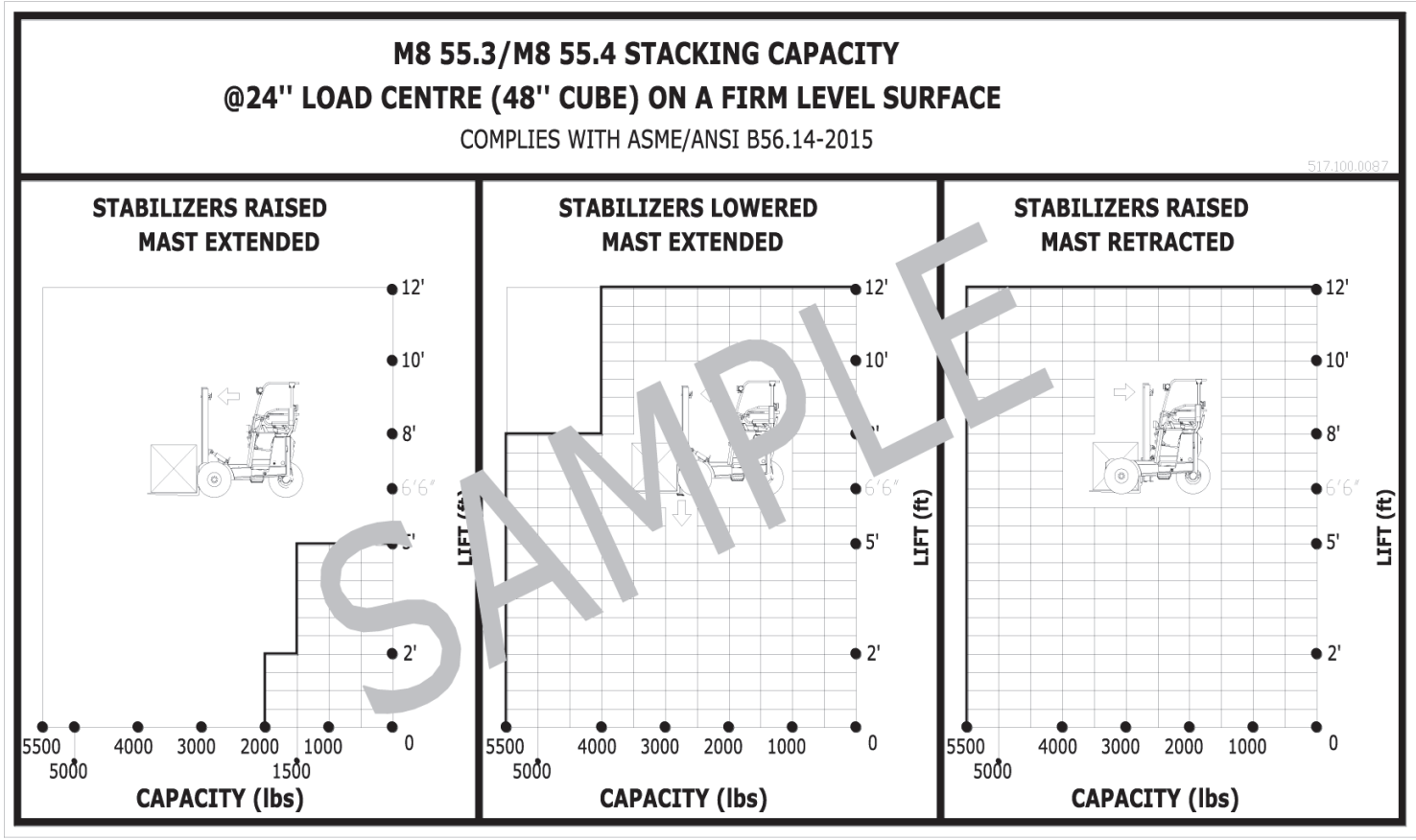
Safety Decals (continued)



Note: When replacing decals always ensure the correct part number is supplied. The decal part number can be found on the machine.



Safety Decals (continued)



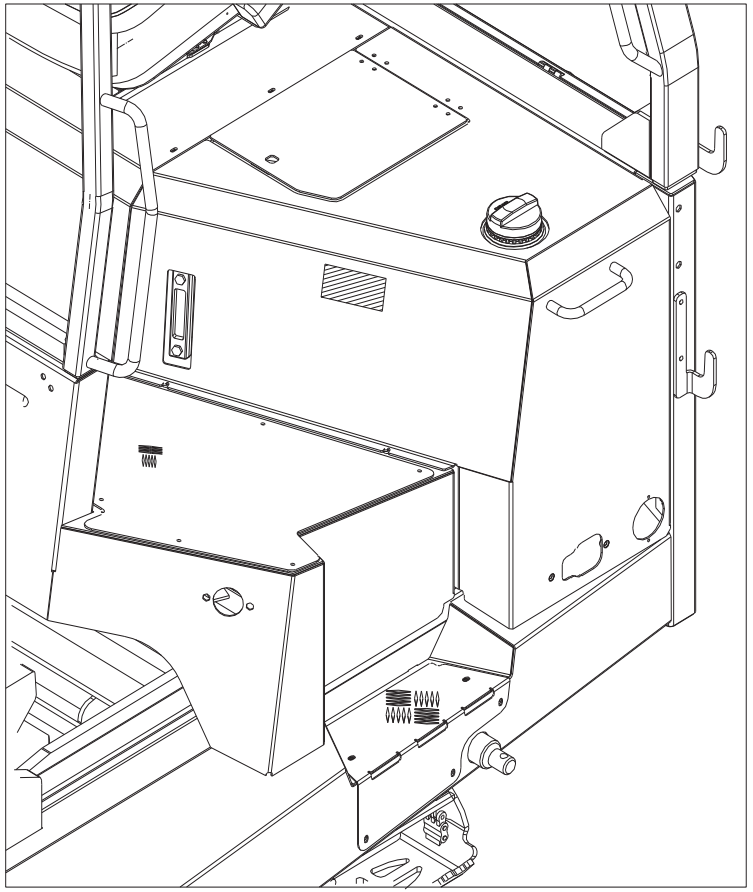
Safety Decals (Continued)

Part Number 517.999.0300

⚠ WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

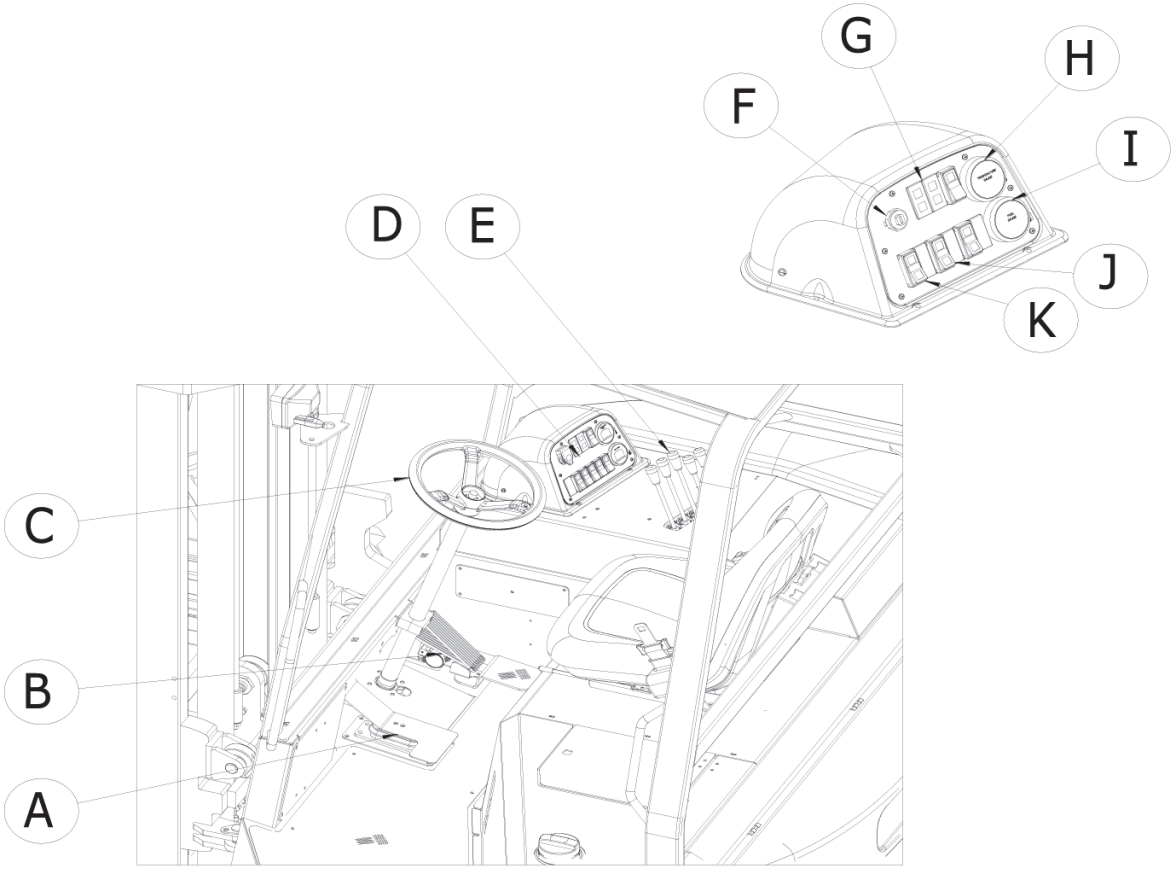


Instruments and Controls

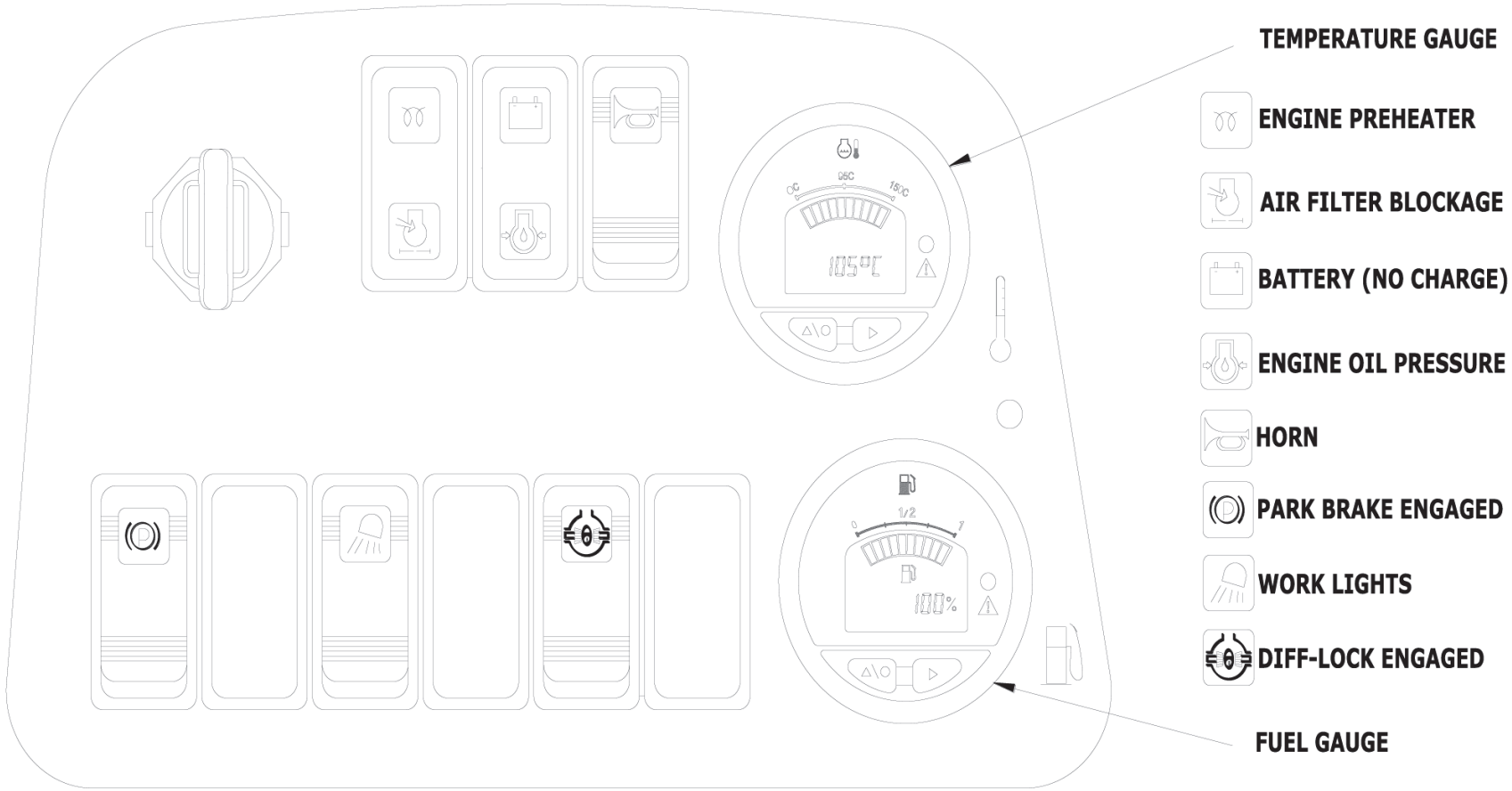
The Truck Mounted Forklift is provided with a set of controls to enable you to operate the machine safely and efficiently.

The instruments and controls are in the following groups:

A Forward/Reverse Pedal
B Throttle
C Steering Wheel
D Dash Panel
E Hydraulic Controls
F Ignition Switch
G Warning Lights
H Temperature Gauge
I Fuel Gauge
J Switches
K Park Brake



Instruments and Controls (continued)



Instruments and Controls (continued)

Ignition Switch / Pre Heater
When turned clockwise, the ignition switch sends electrical power to the engine starter motor and grid heater (if fitted), thus starting the machine.

Park Brake
The park brake should be engaged when the forklift is parked. It should **NOT** be engaged when the forklift is in transport on the rear of a truck or trailer.

Note: If the seatbelt is not connected the park brake is automatically applied. Ensure that the seatbelt is connected when truck mounting.

Flashing Beacon
The Truck Mounted Forklift is fitted with a flashing beacon. The beacon is activated when the ignition is turned to the ON position. If the beacon fails to work, do not operate the machine. Contact your supervisor.

Diff-Lock
When activated this transfers equal flow to all 3 wheels to improve traction.

Horn
The horn is used to alert people of your maneuvers.

Hour Meter
Indicates the engine's operating hours.

Work Lights
Work lights should be used on site when visibility is poor. They may also be used to improve visibility if the road lights are blocked while carrying a load.

Water Gauge
The water gauge is used to display the operating temperature of the engine.

Fuel Gauge
The fuel gauge indicates the amount of fuel in the fuel tank.

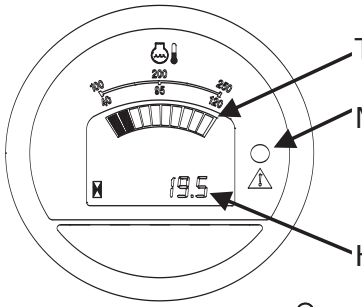
Instruments and Controls (continued)

Air Filter Blockage Light
The air filter blockage light indicates if there is a blockage in the air filter. When this light is illuminated the Truck Mounted Forklift should be stopped immediately and the engine switched off. The air filter should be checked as per the maintenance section of this manual and cleaned if necessary.

Battery Light
The battery light indicates if there is no battery charge. This lights up when the ignition is switched to the preheat position and should go out when the machine is started.

Engine Oil Pressure Light
The engine oil pressure light indicates if the engine oil pressure is low. This lights up when the ignition is switched to the preheat position and should go out when the machine is started. If this light is illuminated during the operation of the Truck Mounted Forklift, the forklift should be stopped immediately and the engine switched off. The engine oil level should be checked as per the maintenance section of this manual and refilled if necessary. If needed take the forklift out of operation and have it repaired.

Engine Temperature Gauge
The engine temperature gauge indicates if the engine temperature is too hot. When the red MIL is flashing the Truck Mounted Forklift should be stopped immediately and the engine switched off. Allow to cool before checking the engine coolant level as per the maintenance section of this manual. The engine coolant should be refilled if necessary. If needed take the forklift out of operation and have it repaired. If the MIL is showing a red constant warning light, this is an indication that there is a fault in the engine and it should be examined at the earliest opportunity.



CAUTION:

Warning Lights. If at any point during the operation of the Truck Mounted Forklift one or more of the dash panel warning lights or the red MIL are lit, the forklift must be stopped immediately and the engine shut off. Serious engine damage could occur if the forklift is operated with any of the warning lights on.

Transmission Controls

The machine is fitted with an Anti-Stall Pump.

Anti-Stall Pump – Control comprises: Hydraulic foot operated forward/reverse pedal, foot operated accelerator pedal

Hydraulic Foot-Pedal Control

With foot-pedal control, the Truck Mounted Forklift is equipped with two foot pedals. The right pedal is the accelerator pedal which controls the engine RPM (speed). The left pedal is the hydraulic pedal which controls the forward and reverse movement.

Accelerator Pedal – Engine RPM

This pedal is pressed down to increase engine RPM. It should be used to keep the engine at a constant RPM and should not be used to adjust the travel speed of the machine. The engine RPM also affects the speed of the hydraulic functions.

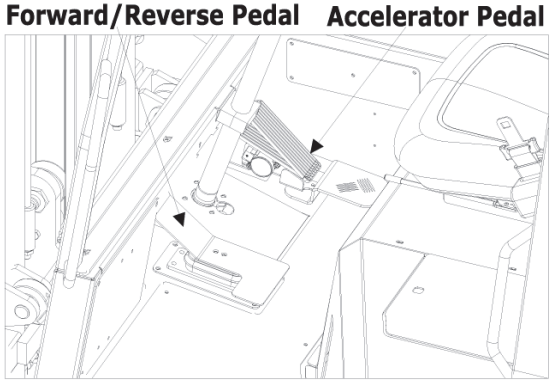
WARNING:

Controls. If the forward/reverse pedal does not return to the neutral position, do NOT use the machine and contact your supervisor.

Forward/Reverse Pedal – Traveling Speed

This pedal controls the forward and reverse movement of the machine. The machine will not move if you do not press the hydraulic pedal. Depress the pedal (toe) forward to move the machine forward. Depress the pedal (heel) back to move the machine in reverse.

By returning the pedal to the mid-point (neutral) the machine will stop. This pedal is also used to control the speed of the machines movement. The further the pedal is pressed in either direction, the faster the machine will travel. When traveling on gradients or on rough terrain, forward/reverse pedal movement should be reduced and engine RPM increased.



Note: The higher the engine speed the faster the machine will travel.

The Machine will not drive unless the interlocking seatbelt is connected

Hydraulic Levers

The Truck Mounted Forklift is equipped with hydraulic levers to control movement of the mast, forks and stabilizers. Study the valve bank decal for your Truck Mounted Forklift before operating the machine. Understand the function of the hydraulic levers fully before operating the machine.

A. **Forks – Raise and Lower:** This lever raises and lowers the forks. Forward movement of the lever will lower the forks down. Backward movement of the lever will raise the forks up.

B. **Tilt – Forward and Back:** This lever tilts the mast forwards and backwards. Forward movement of the lever tilts the mast forward (forks down). Backward movement of the lever tilts the mast rearward (forks up). Loads should normally be transported with the mast tilted back.

C. **Side-Shift – Left and Right:** This lever moves the mast to the right or left. Forward movement of the lever shifts the mast to the left. Backward movement of the lever shifts the mast to the right.

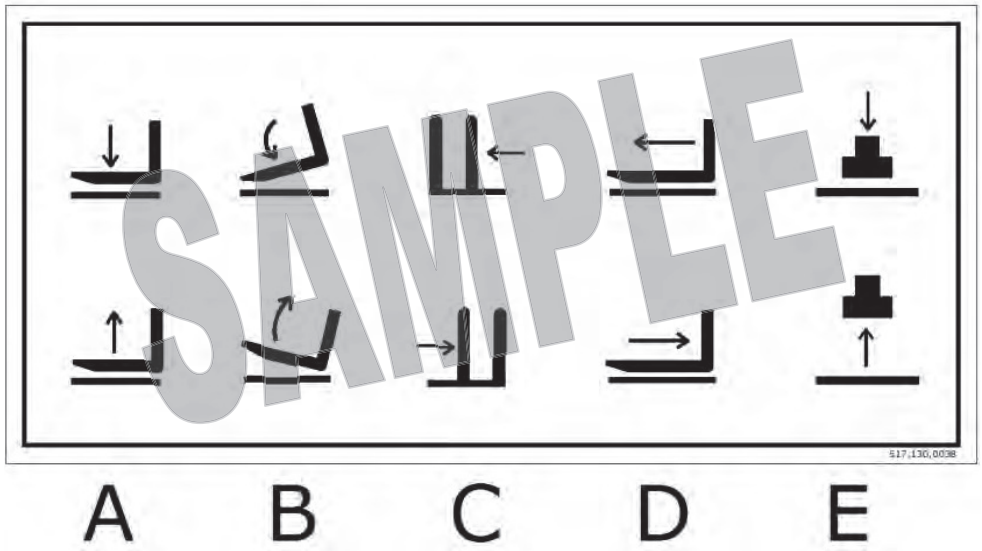
D. **Mast – Extend and Retract:** This lever moves the mast forwards and backwards. Forward movement of the lever extends the mast forward, away from the operator (out). Backward movement of the lever retracts the mast back towards the operator (in). When placing a load, the mast should be extended only when the stabilizers are fully lowered.

E. **Stabilizers – Lower and Raise:** This lever raises and lowers the stabilizing legs. When placing a load, the stabilizers must always be fully lowered before moving the mast forward. Forward movement of the lever will lower the stabilizers down. Backwards movement of the lever raises the stabilizers up. When lifting a load, never raise the stabilizers until the mast is fully retracted.

Hydraulic Levers (continued)

Note: When the ground is not firm enough to support the stabilizers extra support plates must be used of sufficient size and strength to ensure they do not sink, bend or buckle during operation. A second person may be required to check the support plates. If at any time the stabilizers or pads show signs of sinking, the procedure must be stopped immediately, the mast fully retracted and an alternative location found. If in doubt prior to or during an operation on loose, uneven or soft surfaces, stop. Always consider safety first.

Note: If during the lifting operation the stabilizers start to slip the load must be lowered immediately and a smaller load center lifted or improved ground conditions found.



SAMPLE

A3. CENTER OF GRAVITY

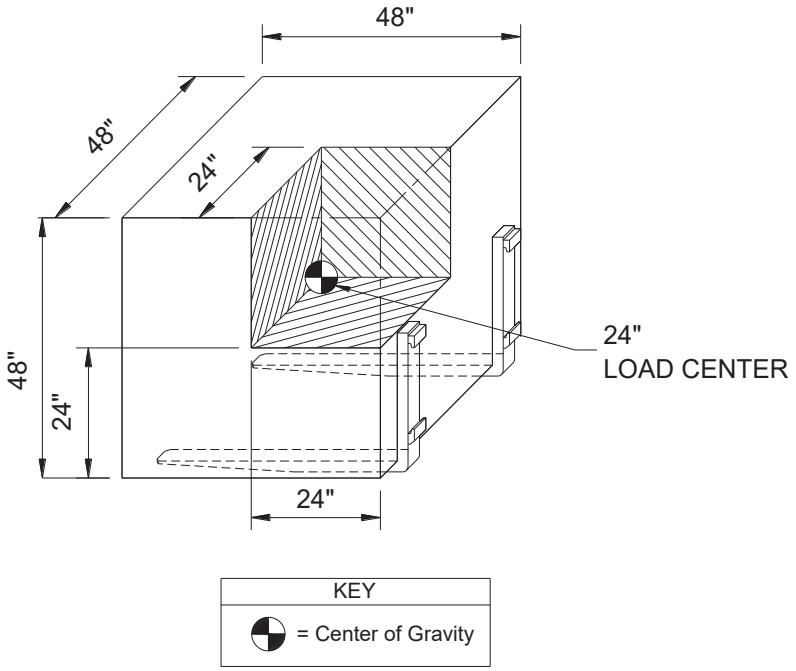
Basic Principles

Make the right start – know the load capacities of your Truck Mounted Forklift. The rated capacity of the machine is the weight that the machine is capable of lifting under safe operating conditions. Remember that the type of terrain or ground conditions can reduce the amount you should lift.

The shape of the load will also affect the lift capacity of the machine. Inspect the load you intend to lift. Make sure that you know the weight of the load. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy split the load and restack it. It is common for a large capacity conventional forklift to be used when loading trucks or trailers in a yard. Do not expect the Truck Mounted Forklift to lift the load just because a conventional yard forklift initially loaded it.

Remember that if attachments are used other than the standard forks which are normally furnished with the Truck Mounted Forklift, such attachments will reduce the lifting capacity and affect other machine handling characteristics.

With the Truck Mounted Forklift, the rated capacity is based on a cube measuring 48” in all three dimensions with the center of gravity in the center of this cube. This is known as a 24” load center. If the dimensions of the load increase or the position of the center of gravity or load moves forward, the lifting capacity of the machine will be reduced.



Sample Load Chart

Refer to the load chart in the operator's compartment of your machine. Study it carefully and make sure you understand it before attempting to operate the Truck Mounted Forklift. Remember that the weight to be lifted and the height it is lifted to must not exceed the rated capacity of your machine.

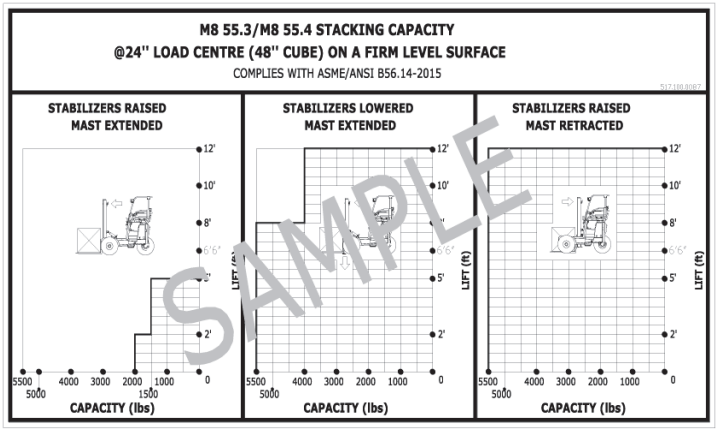
The load capacity chart relating to your particular model gives details of what your machine can lift with a 24" load center under the following conditions:

A. Stabilizers raised and mast fully extended forward.
B. Stabilizers fully lowered and mast fully extended forward.
C. Stabilizers raised and mast fully retracted backwards.

The following sample load capacity chart illustrates the rated stacking capacity of a Truck Mounted Forklift equipped with standard forks.

DANGER:

Capacity. Never exceed the forklift's rated capacity or the machine may become unstable.



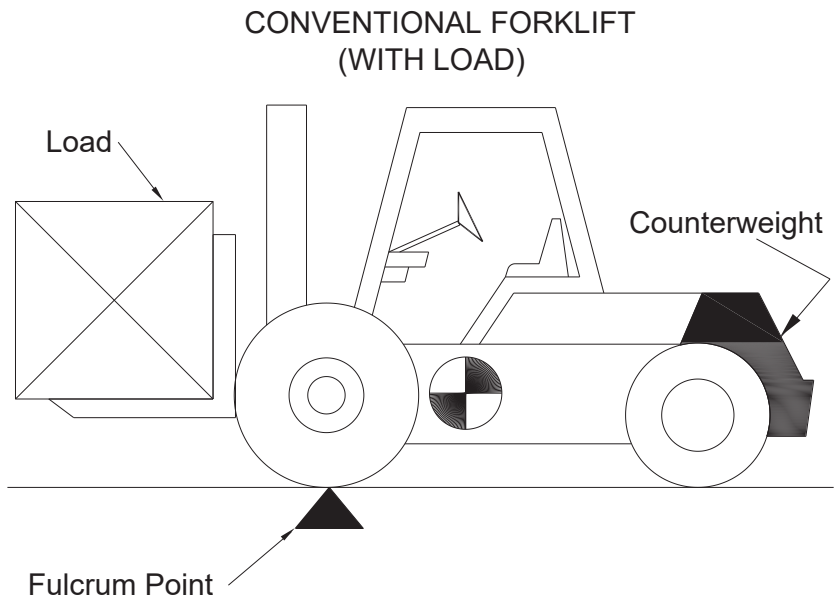
Shaded Area Indicates Safe Lifting Range

Note:
1. The load capacity may vary depending on the attachments used. Consult the load chart on your machine for the actual rated capacity.
2. Other Truck Mounted Forklift models have different load capacities. Refer to the load capacity chart on your machine.
3. If the existing load capacity chart becomes damaged, lost or illegible, replace the load capacity chart. Load capacity charts are available from your dealer.

Comparison between a Conventional Forklift and a Truck Mounted Forklift

Conventional Forklift
A conventional forklift is designed to lift and carry the load in front of the wheels. The load remains in this position during transit. The conventional forklift is able to lift the load in this position because it has a large rear-mounted counterweight to counterbalance the load.
A conventional forklift is known as a counterbalanced forklift.

With a conventional counterbalanced forklift, the position of the load remains stationary relative to the front wheels. The mast does not move forward and backward like a Truck Mounted Forklift. The front wheels of a conventional counterbalanced forklift are the points of pivot known as the fulcrum point.
If the load exceeds the rated capacity of the forklift, the weight of the load may overcome the counterbalance effect and cause the load and the forklift to tip forward.



Comparison between a Conventional Forklift and a Truck Mounted Forklift (continued)

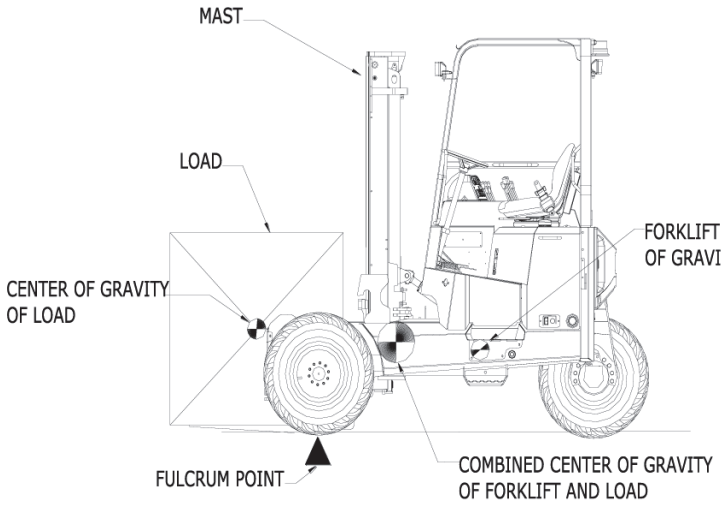
Truck Mounted Forklift

An important feature of the Truck Mounted Forklift is that it is light enough to be transported on the rear of a truck or trailer. Unlike a conventional forklift, it does not have a rear-mounted counterweight. The Truck Mounted Forklift has a reach mast and hydraulic stabilizers. With the stabilizers raised the fulcrum point is at the front wheel.

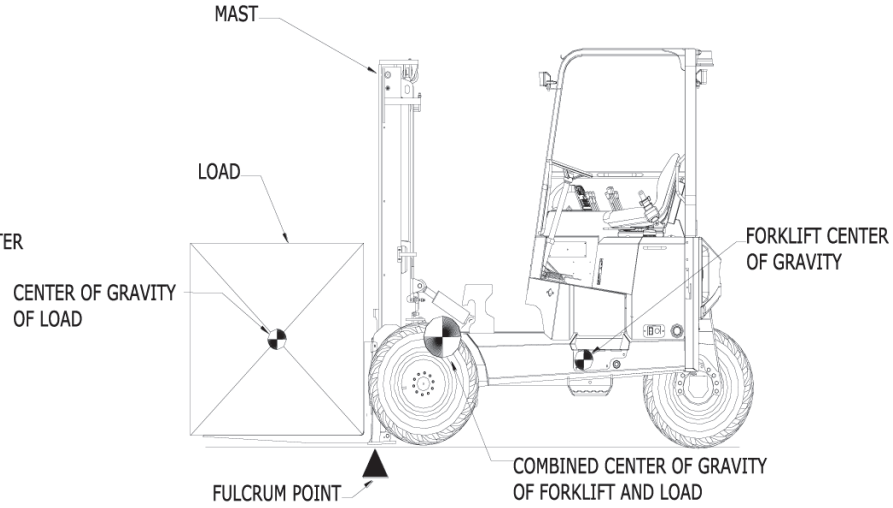
When the stabilizers are fully lowered, the fulcrum point moves forward to the point of contact between the stabilizers and the ground.

This action increases the counterbalance effect and enables the Truck Mounted Forklift to lift the rated capacity with the mast in the forward position without the need for a large counterweight.

When placing a load, the stabilizers must always be fully lowered before the mast is extended. When lifting a load, the stabilizers must be fully lowered and raised only after the mast is retracted fully. When carrying a load, the mast must always be retracted fully.



STABILIZERS RAISED



STABILIZERS LOWERED

Using the Machine

Before Using the Machine

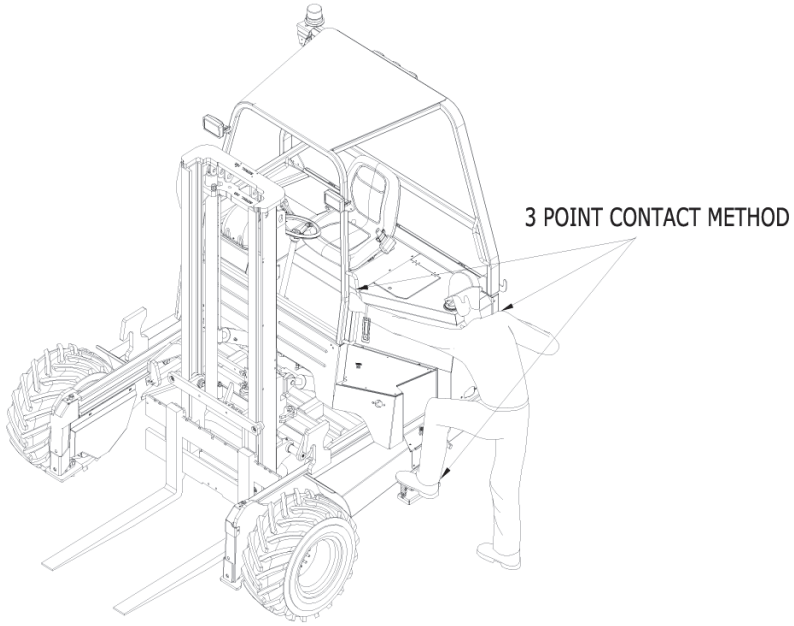
Before you begin to operate the Truck Mounted Forklift you must read, understand and follow all the information in this manual, be familiar with the machine and be trained and authorized to use it. Each day you operate the machine; complete all of the daily inspection checks and daily pre-shift inspection checklist as detailed in the MAINTENANCE section of this operator manual.

Entering the O perator's Compartment

Always climb aboard the vehicle properly. Use the "three point contact" method and face the machine when you climb aboard or dismount the Truck Mounted Forklift. "Three point contact" means that three out of four arms and legs are in contact with the machine at all times during mount and dismount. Clean your shoes and wipe your hands before climbing on. Use the grab-handles and step when climbing on or off. Never climb aboard or dismount when the engine is running or when the machine is moving. Never use the steering wheel as a hand-hold when climbing on or off the Truck Mounted Forklift.

WARNING:

Engine. Never climb aboard or dismount from the machine with the engine running.



Using the Machine (continued)

DANGER:

Power Lines. Never approach power lines with any part of the forklift as electrocution could result.

WARNING:

Operator Manual. Operating or maintaining the machine without studying this operator manual can cause accidents. Read the safety instructions before operating this machine. If you do not understand anything, ask your Truck Mounted Forklift Distributor or supervisor to explain it. Keep this operator manual clean and in good condition. Do not operate the machine without an operator manual in the operator's compartment, or if there is anything on the machine you do not understand.

WARNING:

Care and Alertness. All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be aware of potential hazards.

WARNING:

Alcohol and Drugs. It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

WARNING:

Working Environment: Remember that rain, snow, ice, mud, loose gravel and uneven or soft ground could change the operating capabilities and could cause you to lose control or cause the forklift to tip over.

WARNING:

Seatbelt. The operator's compartment is designed to give you protection in an accident. If you do not wear your seatbelt you could be thrown out of the machine. You must wear a seatbelt when using the machine. Fasten the seatbelt before starting the machine.

Using the Machine (continued)

WARNING:

Machine Condition. A defective machine can cause accidents. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this operator manual are completed before using the machine.

WARNING:

Visibility. Accidents can be caused by working in poor visibility. Use the work lights on the machine to improve visibility. Do not operate the machine if you cannot see properly.

WARNING:

Practice. Do not perform unfamiliar operations without first practicing them. Practice away from the work site on a clear area. Keep other people away. Do not perform new operations until you can do them safely.

WARNING:

Controls. Do not control the machine from outside the operator's compartment. Operate the control levers only when you are correctly seated inside the operator's compartment with the seatbelt fastened.

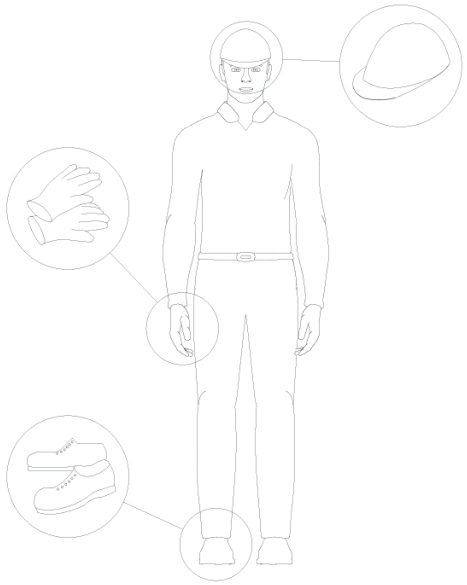
WARNING:

Passengers. Passengers in or on the machine can cause accidents. The Truck Mounted Forklift is a one person machine. Do not carry passengers.

Using the Machine (continued)

WARNING:

Clothing . Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are; a hard hat, safety shoes, safety glasses, a well-fitting overall, ear protectors and industrial gloves. Keep cuffs fastened. Do not wear a neck tie or scarf. Keep long hair restrained.



CAUTION:

Regulations. Obey all laws, work site and local regulations which affect you and your machine.

CAUTION :

Hydraulic Function. Never continue to operate a hydraulic function lever after the function has reached the end of its travel as this will create excess heat in the hydraulic circuit.

Overhead Guard

The overhead guard is designed to give you protection in an accident. You must always wear your seatbelt or you could be thrown about inside the operator's compartment, or thrown out of the machine and crushed. Always fasten the seatbelt before starting the machine.

If the machine is involved in an accident, hold onto the steering wheel tightly, brace your feet and lean away from the impact. When the machine comes to a rest, switch the starter key to the OFF position, unfasten the seatbelt and exit the machine.

Never carry out any unauthorized alterations to the overhead guard, e.g. lowering the roof height, drilling or welding on brackets for a fire extinguisher, radio aerial or other equipment, without first having discussed the alteration with the engineering personnel from the manufacturers engineering department.

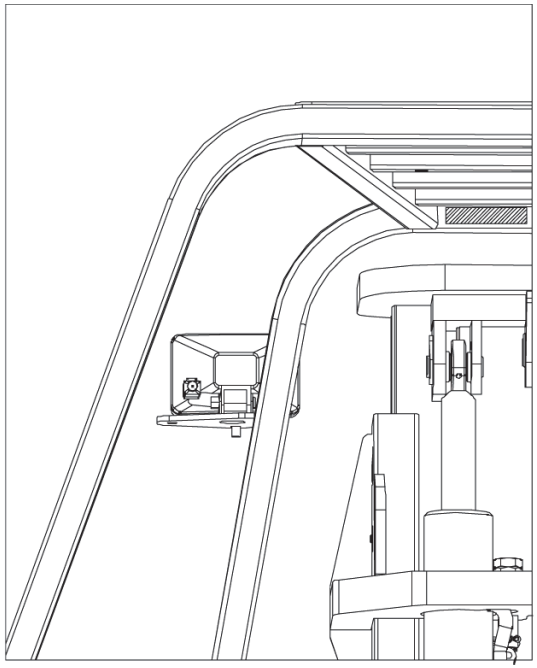
Any modification can adversely affect the structural integrity of the overhead guard and could cause the overhead guard to fail in the event of an accident.

Location of Overhead Guard Conformity Plate

Part Number 517.056.0001

This Overhead Guard Conforms
To the ROPS & FOPS Requirements
of ISO 6055 & ASME/ANSI B56.6

517.056.0001

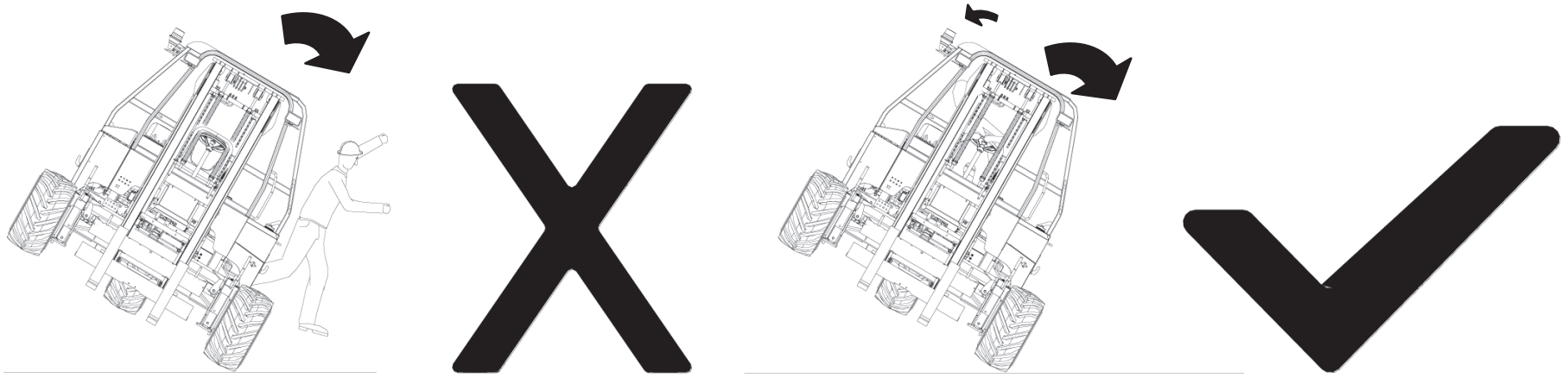


Rollover

DANGER:

Rollover. Any machine that is used to lift and move loads may tip over if not operated correctly. No matter how experienced the operator is, accidents can still happen if the operator does not remain vigilant. Always be aware of the potential danger involved when using the Truck Mounted Forklift. Be aware of what action you MUST take if the machine starts to tip or roll over.

DO NOT ATTEMPT TO JUMP OUT – STAY IN THE MACHINE
HOLD TIGHTLY ONTO THE STEERING WHEEL – BRACE YOUR FEET
AND LEAN AWAY FROM THE IMPACT



WHEN THE MACHINE HAS COME TO REST – EXIT VIA THE SAFEST ROUTE

Operating the Machine

Adjusting the Seat
The operator's seat can be adjusted for your comfort. A correctly adjusted seat will reduce operator fatigue. Position the seat so that you can comfortably reach the machine controls. Make sure that you can depress the foot controls fully with your back against the seat back.

Fasten the seatbelt before operating the Truck Mounted Forklift.

WARNING:

Safety. Always wear your seatbelt when driving the Truck Mounted Forklift. The forklift may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat. The seat and seatbelt will help to keep you safely within the operator's compartment. In the event of a tip over, DO NOT JUMP, grip the steering wheel, brace your feet, lean away from the direction of tip-over and stay within the operator's compartment.

Seatbelt Alarm (If fitted)
The seatbelt system now has an additional alarm option to improve operator safety. The machine has always been fitted with a seatbelt interlock which stops the machine from driving unless the seatbelt is connected and this has not changed. However, the machine is now fitted with an alarm which triggers if the seatbelt is not engaged correctly.
Note: The alarm only sounds when the ignition switch is turned on however if the seatbelt is engaged correctly before the ignition is turned on no alarm will sound.

The Continuous alarm is linked to the Seatbelt and will sound if:

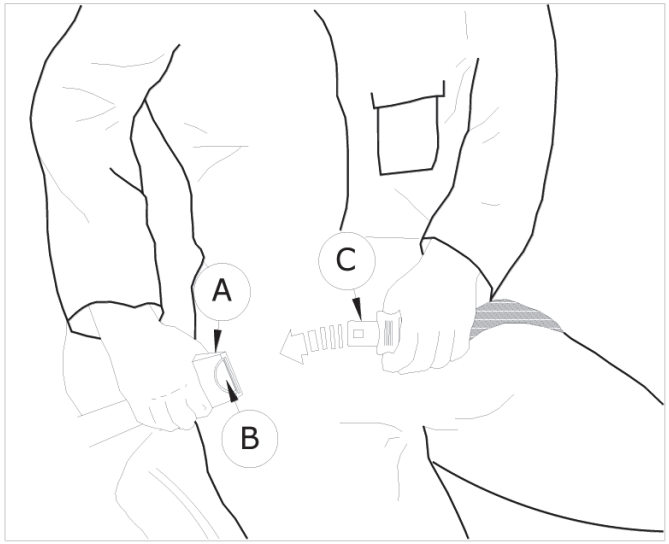
- Seatbelt is not connected when the operator is sitting in the seat.
- Seatbelt is engaged and nobody is in the seat
- Seatbelt is already engaged when the operator sits down on the seat.
- Seatbelt is engaged correctly then removed while driving the machine.
- If the operator leaves the seat for more than 3 seconds with seatbelt engaged (Note: short bounces off seat with seatbelt engaged will not trigger the alarm)

Operating the Machine (continued)

WARNING:

Seatbelt. If the seatbelt does not 'lock' when fastened do not drive the machine. The seatbelt assembly must be replaced immediately.

1. Sit correctly in the seat. Make sure the seatbelt is not twisted. Push the male end C into the buckle A until it latches.
2. Make sure the seatbelt is across your hips and not over your stomach.
3. Press button B to release the seatbelt.



Note: The forklift will not drive unless the seatbelt is connected across the operator's hips.

Starting the Engine

Start Safely

Adjust the seat and fasten the seatbelt. Ensure all operating controls including the pedal and hydraulic levers are in the neutral position before starting. Alert all people in the area before starting the machine. When starting your equipment in an enclosed space, make sure that there is adequate ventilation.

WARNING:

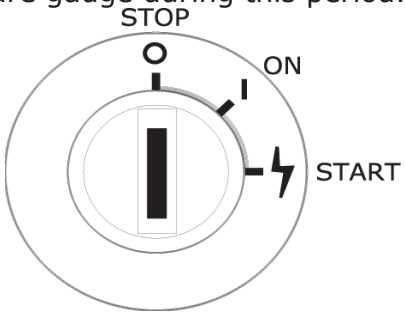
Engine Damage. Do not use starting fluid or spray as these are highly flammable, corrosive and cause engine damage.

Insert the key in the ignition. Turn the key clockwise to the start position, depress the accelerator pedal until the starter engages and the engine starts. Do not engage the starter for any more than 15 seconds at a time. Release the key and it automatically returns to the on position. If the engine fails to start, turn the key to the stop position for 1 minute and repeat the starting procedure.

After starting, check that all red instrument panel warnings lights have gone out and that all gauges are functioning properly. If all red warning lights have not gone out or illuminate during operation, stop the engine immediately.

Do not attempt to operate the Truck Mounted Forklift with a warning light on as serious damage could occur to the engine.

During engine start-up, the engine RPM may be restricted by the ECU for a time based on the engines temperature. The word "PAUSE" will be displayed on the temperature gauge during this period.



After Start - Up

Run at minimum engine speed for a short period according to the table below.

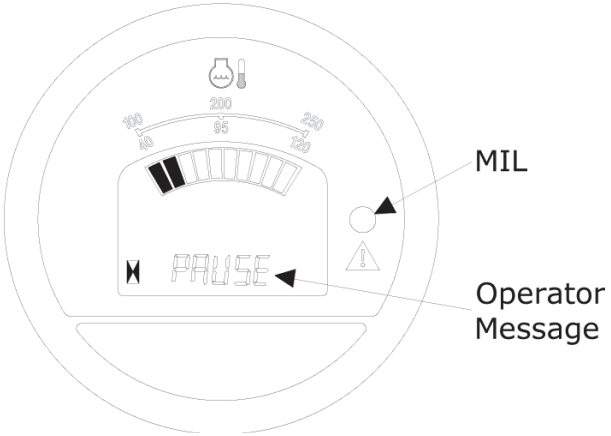
Engine Temperature	Time
≥ 14°F	10 seconds
From 14°F to -4°F	30 Seconds
≤ -4°F	60 Seconds

Do not turn off the engine when it is running at maximum speed.

Before turning off, allow the engine to idle at minimum speed for 1 minute before turning the key to the off position.

Engine Checks

The Temperature Gauge also has a MIL (Malfunction Indicator Lamp). This will activate if faults are found on the engine



If a constant red warning MIL is activated, then this is an indication that there is an engine fault and a code will be displayed on the gauge. It is safe to continue to use the machine in this state but the engine should be examined at the earliest opportunity.

If a flashing red MIL is activated the engine must be turned off immediately.

Note: IF THE MIL IS FLASHING, TURN OFF THE ENGINE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

There are a number of operator messages displayed on the gauge as follows:

- PAUSE – Engine temperature is to low and engine revs are restricted until sufficient engine temperature has been reached.
- PEDAL – Engine has come out of "PAUSE" mode, accelerator pedal must be released to the neutral position and re pressed to allow the operator to rev the engine.
- FUEL – Water in the fuel system, check water separator (See section 7 Special Procedures)

Battery Isolator Switch

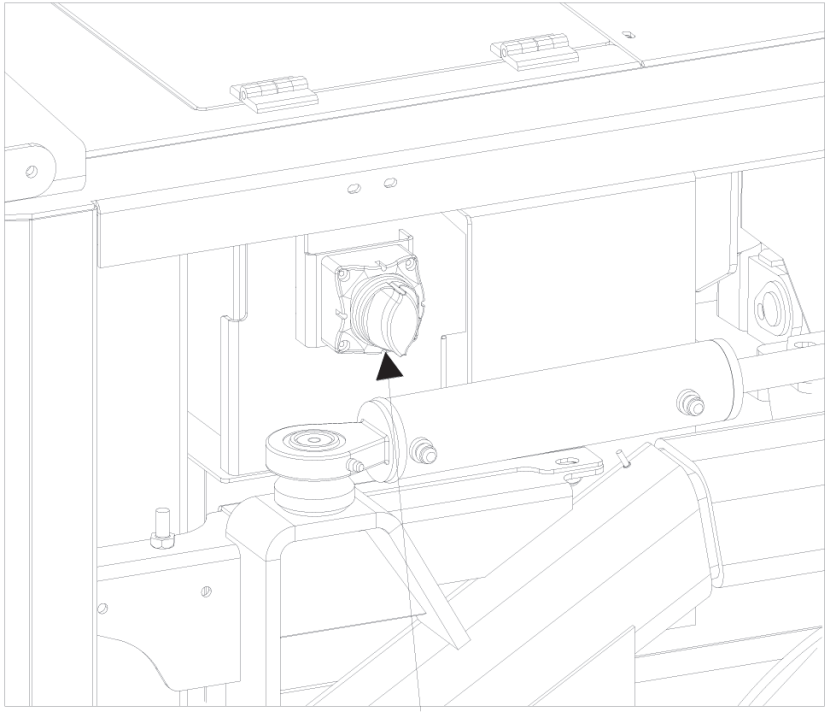
Some Truck Mounted Forklifts are fitted with a battery isolator switch. The battery isolator switch prevents the forklift battery from being drained when the machine is idle for long periods of time. This ensures there is always sufficient power in the battery to start the machine.

Ensure the battery isolator switch is set to the on position before attempting to start the Truck Mounted Forklift; the engine will not start if the battery isolator switch is active. If your Truck Mounted Forklift is to be left for a period of one week or more the battery isolator switch should be switched off.

The battery isolator switch is accessed by opening the rear door.

WARNING:

Battery Isolator Switch. Do not activate the battery isolator switch when the engine is running as this could damage your engine.



Battery Isolator Switch

Driving Techniques

Note: Before driving the machine, read this manual thoroughly and carry out a pre-trip inspection.

Driving Forward
When driving a loaded machine forward always accelerate smoothly and slowly. If you accelerate quickly or with jerky movements the load could fall or the machine may become unstable. Keep the mast retracted and the load as low as possible. Always drive the machine slowly to avoid the risk of having to brake sharply. Always make sure your route is clear of obstructions and take care to avoid endangering pedestrians.

Reversing
When reversing, turn your head to face the direction of travel or get the assistance of a reliable person to guide you. Always make sure your route is clear of obstructions and take care to avoid endangering pedestrians. Always ensure the reverse beeper is functioning correctly and can be heard clearly by people around the machine.

Turning
The machine may become unstable if you turn too quickly or too sharply. Always turn slowly and smoothly. If you turn too quickly or too sharply the load could fall off or the machine could become unstable. Keep the load as low as possible.

The Truck Mounted Forklift steers from the rear and can turn on a very tight radius. Tail swing and fork swing must be considered when turning. Always turn slowly and check for clearances at the fork tips and both rear corners of the forklift. When the machine turns, it rotates around either the right front or the left front wheel depending on the direction of the turn. When traveling empty with the mast extended, fork swing is greatly increased.

Driving Techniques (continued)

Parking
Always park the Truck Mounted Forklift in a designated safe area. Apply the park brake. Lower the forks fully to the ground. Neutralize all controls. Switch off the ignition and remove the key. Chock the wheels if the vehicle is on uneven ground.
If parking on an incline, point the machine uphill, chock the front wheels and turn the rear wheel across the incline.

Note: For machines equipped with a brake on the rear hub, it is recommended that the stabilizers be lowered when parking the machine on an incline.

Park Brake Test
As part of the daily checks it is important to ensure that the machines park brake is working correctly. To check this, place rated load on the forks and drive the forklift on to a 15% incline. Apply the parking brake and set the forward/reverse pedal in the neutral position. The forklift should not move. Ensure no personnel are near the machine while carrying out this test.

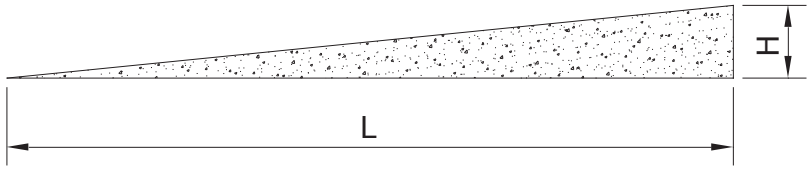
Note: IF A FAULT IS DETECTED DURING THE PARK BRAKE TEST, TAKE THE FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

Operating On Inclines
The Truck Mounted Forklift is intended for use on firm, flat and stable surfaces. AVOID slopes and uneven or unstable surfaces where possible. However, when a job site conditions involve slopes, inclines or rough terrain, you must take additional care when operating the machine.

Grades
The grade of an incline is measured as the number of feet a surface rises or falls over a horizontal distance and is expressed as a percentage.

In the example shown below, the incline rises a height H over a horizontal distance L. This results in the incline having a grade of (H/L) * 100%.

INCLINE GRADE = (H/L) * 100%



Note: Ground conditions and terrain may affect the forklifts ability to operate on these inclines.

Driving Techniques (continued)

DANGER:

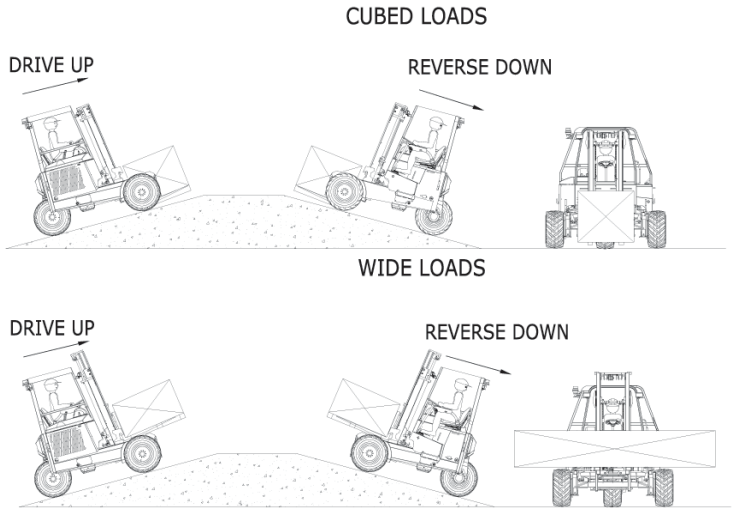
Inclines. Never travel across inclines. Traveling across an incline with or without a load greatly increases the possibility of a tip over.

- Do not travel across an incline.
- ALWAYS APPROACH AN INCLINE STRAIGHT ON AND TRAVEL UP AND DOWN THE INCLINE.
- Keep the forks pointed uphill.
- Always travel in reverse when descending an incline.
- Do not turn on an incline.
- Never stop or start suddenly.
- Operate all controls smoothly.
- Watch out for potholes or other obstacles that could affect the stability of the machine.
- Drive slowly over rough terrain.
- Where necessary, engage the diff-lock and travel slowly for additional traction.
- Do not attempt to reverse down an incline that you think you would have difficulty driving up.

Driving Techniques (continued)

Operating With a Load

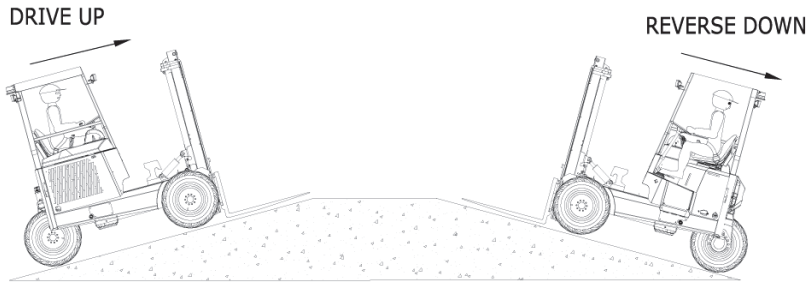
- Travel with the load and forks facing uphill.
- Never travel across a slope.
- Make allowances for a reduction in both stability and lift capacity when operating on inclines.
- Always travel with a cubed load within the frame.
- Always take great care when transporting wide loads on any incline. Carry the load as low as possible above the frame of the machine.
- Keep the mast fully retracted.



Operating Without a Load

- Extend the mast fully and point the forks uphill on an incline.
- Keep the forks as low as possible.
- Remember that your safety is most important and should not be compromised. You are the operator and you are in control of your safety. Do not take any chances!

Always wear your seatbelt when driving the Truck Mounted Forklift. The machine may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat to protect you from the risk of serious injury or death.



Driving Techniques (continued)

WARNING:

Safety. Always wear your seatbelt when driving the Truck Mounted Forklift. The forklift may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat. The seat and seatbelt will help to keep you safely within the operator's compartment. In the event of a tip over, DO NOT JUMP, grip the steering wheel, brace your feet, lean away from the direction of tip-over and stay within the operator's compartment.

Rules for Driving on Public Roads

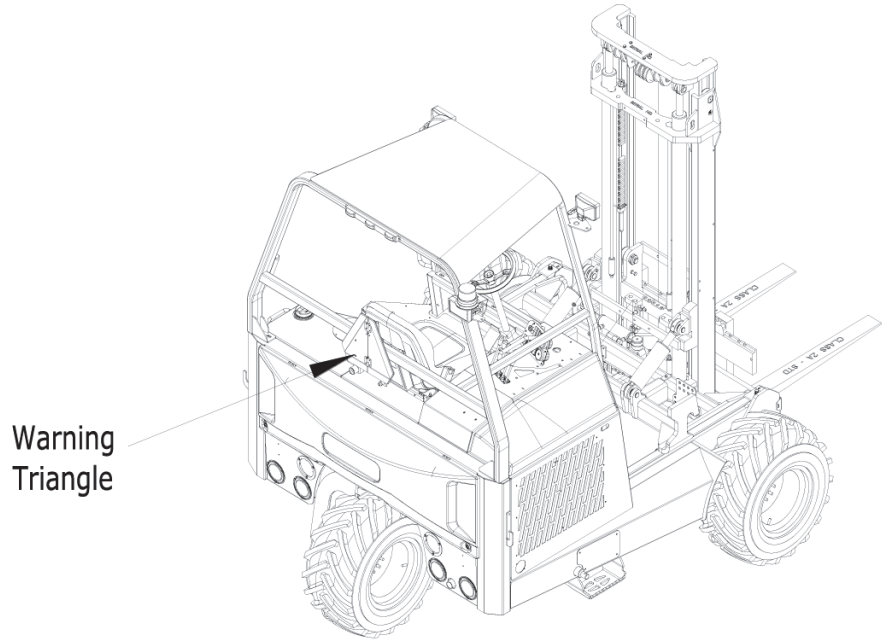
If the forklift is to be driven on public roads, be certain that all laws and regulations are obeyed. Make sure all operating and directional signal lights are functioning and visible. Make sure that any slow moving vehicle sign is visible to any vehicles approaching from the rear if the law requires such a sign.

When traveling on public roads or streets, obey all local traffic movement regulations.

Approach intersections with caution, observe speed and traffic control signs. Do not speed. Avoid panic stops and sharp turns.

Warning triangle

The machine is fitted with a warning triangle as shown, which is folded over so that it cannot be seen when truck mounted. Once the machine has been dismounted from the truck or trailer the warning triangle should be folded out and locked in place so that it is clearly visible to all other road users. Once the delivery is complete and the Truck Mounted Forklift is again mounted on the rear of the truck/trailer the warning triangle must be folded away so as not to confuse other drivers.



Diff-Lock

Operation of Diff-Lock
Under normal driving conditions the Truck Mounted Forklift operates in all-wheel drive. However, in the event of one or more wheels losing grip the machine may lose traction, stop or skid. By engaging the diff-lock you will get equal positive drive to all three wheels.

To avoid damage to the hydraulic system:
- Do not engage the diff-lock when the machine is moving.
- Do not use the diff-lock where traction is good.
- Do not use the diff-lock when turning corners.

When to use Diff-Lock
- If one or more wheels lose traction while traveling through soft or slippery ground conditions.
- To maintain traction while traveling on slopes or inclines.
- To improve braking and traction when reversing downhill.

CAUTION:

Diff-Lock. Use the diff-lock only while traveling in a straight line.

How to Activate the Diff-Lock

1. Foot-Pedal Control

a) Return the forward/reverse pedal to the neutral position to stop the machine.
b) Check to see that the rear wheel is in the straight-ahead position.
c) Engage the diff-lock switch.
d) Increase the engine revs.
e) Depress the forward/reverse pedal lightly in the required direction.
f) Do not overload the engine.
g) The diff-lock may be released while the machine is in motion.

A4. OPERATING PROCEDURES

Stopping Procedure

When stopping the machine follow the sequence below:

- Lower the forks to the ground. Tilt the fork carriage so the tips of the forks touch the ground.
- Neutralize all hand control levers and pedals.
- Engage the park brake.
- Switch off the ignition and remove the key.
- Release the seatbelt.
- Dismount using the 3-point contact method.

WARNING:

Controls. If the forward/reverse pedal does not return to the neutral position, do NOT use the machine and contact your supervisor.

WARNING:

Procedure. Never leave the operator's seat without first:

- Facing the machine uphill and turning the rear wheel sideways if stopped on an incline.
- Engaging the park brake.
- Lowering the forks to the ground.
- Placing all controls in the neutral position.
- Stopping the engine.
- Removing the key.

Loose Articles

Remove or secure all loose articles in the operator's compartment such as lunch boxes, tools etc.

WARNING:

Loose Articles. Do not leave loose articles in the operator's compartment. Loose articles can fall and strike you, or roll on the floor. You could be knocked unconscious, or the controls could get jammed. If that happens you could lose control of the machine.

CAUTION:

Safe Operation. If something comes loose, breaks or fails to operate:

- Stop.
- Apply the park brake.
- Shut down the engine.
- Get it repaired.

Basic Load Techniques

Traveling Without a Load

- Always extend the mast fully forward.
- Keep the forks as low as possible.
- Never travel with mast back and no load.

WARNING:

No Load. When traveling without a load the mast MUST always be fully extended.

Traveling With a Load

- Keep the mast fully retracted when traveling.
- Lower the stabilizers fully before extending the mast to place a load.
- When lifting a load, keep the stabilizers fully lowered until the mast is fully retracted.
- Keep the load as low as possible.

Using Stabilizers

WARNING:

Stabilizers . When placing a load, always place the load on a firm and level surface. The stabilizers must always be fully lowered before attempting to extend the mast. When lifting a load, the stabilizers must be fully lowered and raised only when the mast is fully retracted. When traveling without a load, the mast should be extended fully.

DANGER:

Stabilizers. Never raise the stabilizers when the mast carriage is extended with a load on.

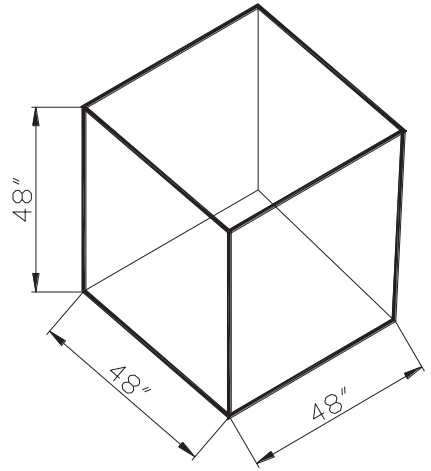
Note: When the ground is not firm enough to support the stabilizers extra support plates must be used of sufficient size and strength to ensure they do not sink, bend or buckle during operation. A second person may be required to check the support plates. If at any time the stabilizers or pads show signs of sinking, the procedure must be stopped immediately, the mast fully retracted and an alternative location found. If in doubt prior to or during an operation on loose, uneven or soft surfaces, stop. Always consider safety first.

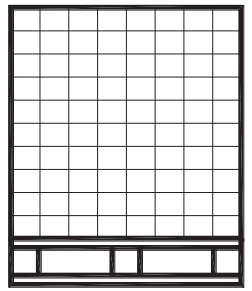
Lifting and Placing Loads

Cubed Loads

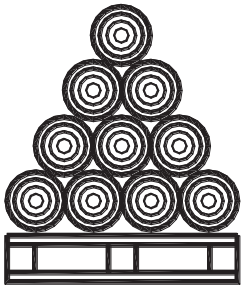
A cubed load is one that fits between the front wheels and the frame of the machine. To achieve maximum machine and load stability, the load should be carried with the mast retracted and as low as possible between the frame of the machine at all times. Common types of cubed load would be bricks, blocks, bagged goods or turf grass.

Note: Make sure the load to be lifted is stable and secure. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy, split the load and restack it.

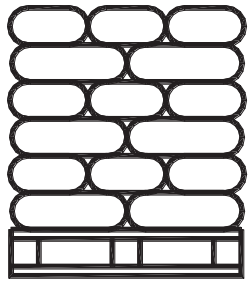




BRICK/STONE



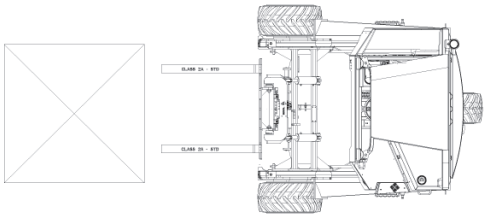
TURF GRASS



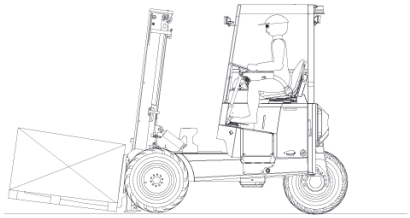
BAGGED GOODS

Lifting and Placing Loads (continued)

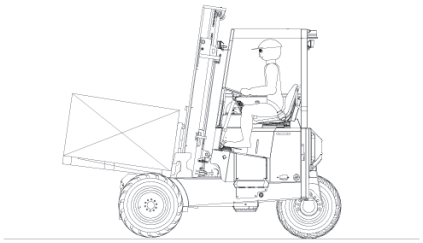
Lifting a Cubed Load from Ground Level



1. Align the forks to suit the load.
2. Approach the load squarely and drive slowly forward until the forks are fully engaged.
3. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath which is strong enough to support the stabilizers.



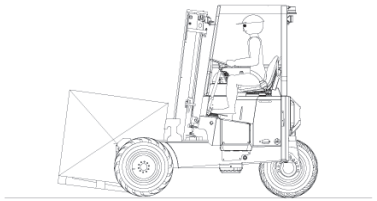
4. Lower the stabilizers fully.
5. Tilt the mast rearwards slightly to secure the load.
6. Raise the forks to lift the load.



7. Side-shift the mast to the center position if necessary.
8. Retract the mast fully.
9. Raise the stabilizers fully.
10. Slowly drive away looking in the direction of travel, keeping the load as low as possible.

Lifting and Placing Loads (continued)

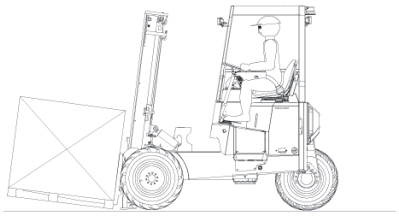
Traveling With a Cubed Load

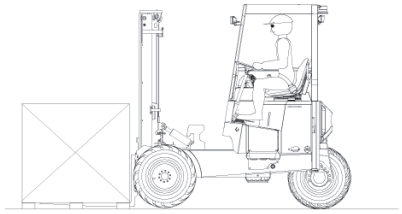


1. Carry the load as low as possible between the frame of the machine.
2. Keep the mast retracted fully.
3. Tilt the mast back.
4. Do not side-shift the load while traveling or turning.
5. Use caution when starting or stopping. Drive slowly and avoid sudden movements.
6. Always look in the direction of travel.

Lifting and Placing Loads (continued)

Placing a Cubed Load at Ground Level





1. Check the area and be certain that the load can be safely placed.
2. Approach the placement area squarely.
3. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath which is strong enough to support the stabilizers.
4. Lower the stabilizers fully.
5. Extend the mast fully.
6. Lower the forks to the ground.

7. Tilt the mast forward slightly to deposit the load.
8. Raise the stabilizers fully.
9. Back up carefully until the forks are clear of the load.
10. Slowly drive away looking in the direction of travel, keeping the mast extended fully.

Lifting and Placing Loads (continued)

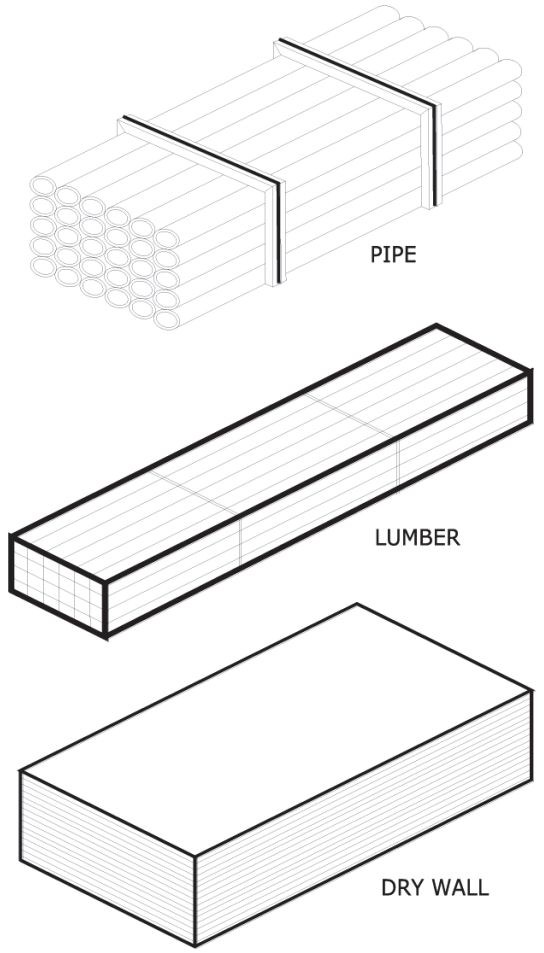
Wide Loads

A wide load is a load that will not fit between front wheels and frame of the forklift. Common types of wide load are piping or lumber products.

Note: Make sure the load to be lifted is stable and secure. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy, split the load and restack it.

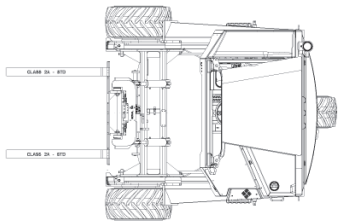
CAUTION:

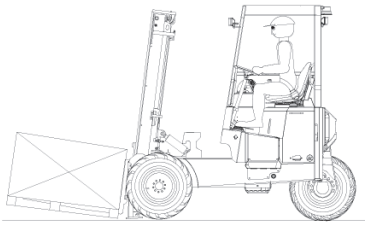
Wide Loads. When carrying wide or tall loads your visibility may be blocked by the load. It may be safer to travel in reverse when moving with such loads. You may require a signal person or "spotter" to guide you. If the road lights are blocked by the load, the work lights must be used to improve visibility and ensure you are seen by other road users.

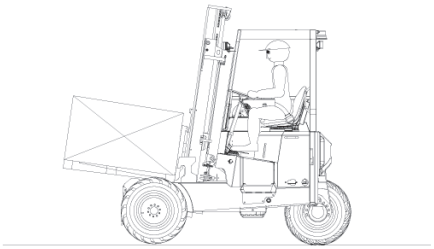


Lifting and Placing Loads (continued)

Lifting a Wide Load







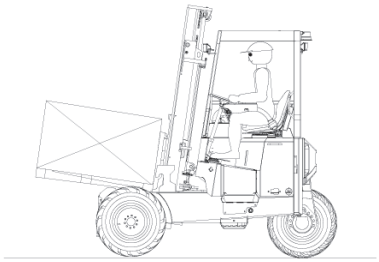
1. Align the forks to suit the load.
2. Approach the load squarely and drive slowly forward until the forks are fully engaged.
3. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath which is strong enough to support the stabilizers.

4. Lower the stabilizers fully.
5. Tilt the mast rearwards to secure the load.
6. Raise the load to clear the ground.

7. Raise the load to clear the frame and wheels of the forklift.
8. Side-shift the mast to the center position if necessary.
9. Retract the mast fully to bring the load above the front wheels.
10. Raise the stabilizers fully.
11. Slowly drive away looking in the direction of travel, keeping the load as low as possible.

Lifting and Placing Loads (continued)

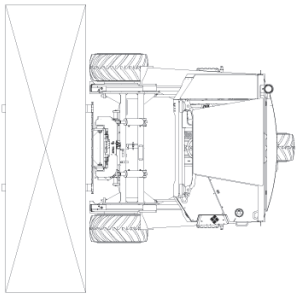
Traveling With a Wide Load



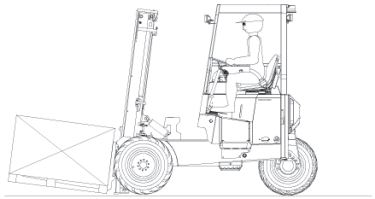
1. Carry the load as low as possible above the frame of the machine.
2. Keep the mast retracted fully.
3. Tilt the mast back.
4. Do not side-shift the load while traveling or turning.
5. Use caution when starting or stopping. Drive slowly and avoid sudden movements.
6. Always look in the direction of travel.

Lifting and Placing Loads (continued)

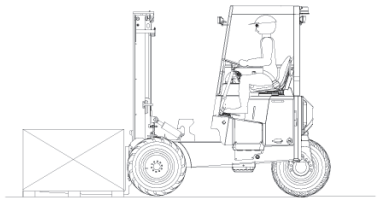
Placing a Wide Load



1. Check that the area is clear of debris.
2. Approach the placement area squarely.
3. Stop and side-shift the load if necessary to align it with the final resting position.



4. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath, strong enough to support them.
5. Lower the stabilizers fully.
6. Extend the mast fully to clear the frame and wheels of the machine.
7. Lower the forks to the ground.

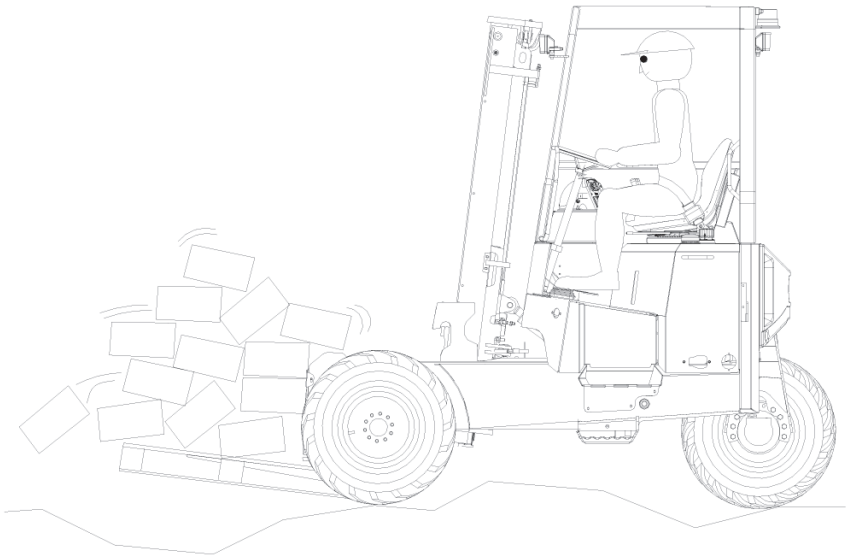


8. Tilt the mast forward slightly to deposit the load.
9. Raise the stabilizers fully.
10. Back up carefully.
11. Slowly drive away looking in the direction of travel, keeping the mast extended fully.

Lifting and Placing Loads (continued)

Non Palletized or Loose Loads

- Use skids when necessary to allow insertion of the forks beneath the load.
- Do not allow the skids to interfere with the fork placement.
- Secure loose loads to prevent them from falling or shifting.
- Consult your supervisor before attempting to secure a loose load.
- Never attempt to handle a load which has been poorly wrapped or banded as it could injure you or others working around you.
- Follow the same procedure for handling cubed or wide loads when lifting or placing non-palletized or loose loads.



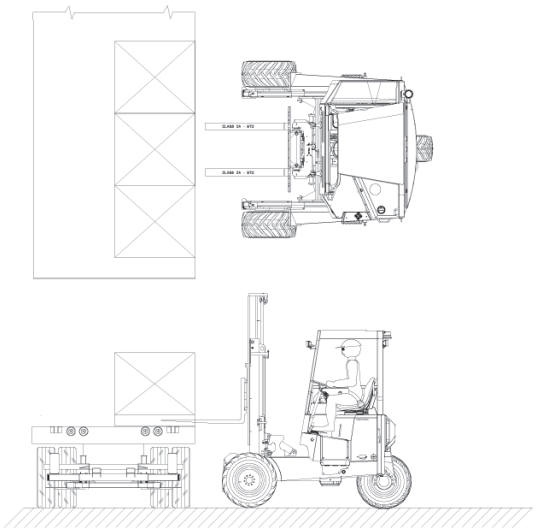
Lifting and Placing Loads (continued)

Loads above Ground Level

These techniques apply to:

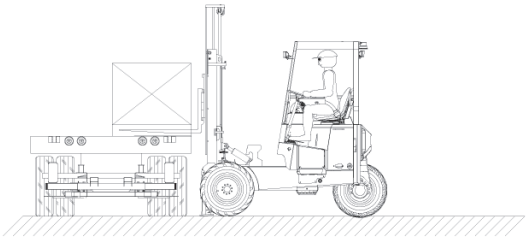
- Stacking one load on top of another.
- Loading a truck or trailer.
- Unloading a truck or trailer.

Picking Up a Load above Ground Level

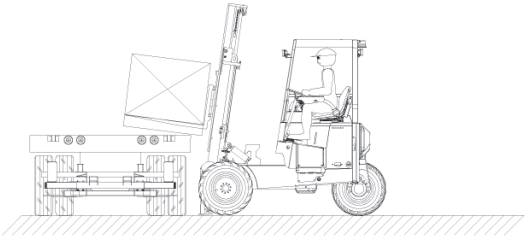


1. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy, split the load and restack it.
2. Adjust the fork height to suit the load.
3. Center the forks and approach the load squarely with the mast fully extended until the forks are fully engaged.
4. Do not touch the pick–up area with the mast.
5. Side-shift the mast to center the load on the forks.

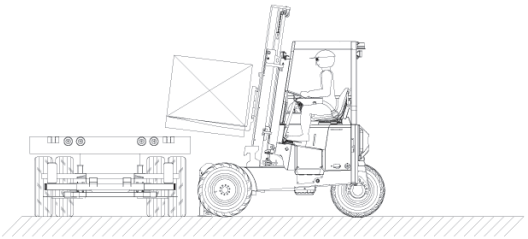
Lifting and Placing Loads (continued)



6. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath, strong enough to support them.
7. Lower the stabilizers fully.

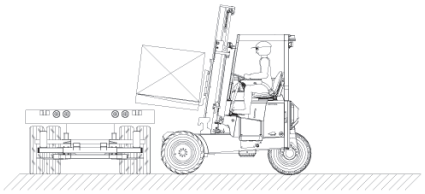


8. If it is not possible to engage the forks fully, follow the procedure outlined in the section titled Double Forking until the forks are fully engaged.
9. Raise the forks to lift the load clear of the pick-up area.
10. Tilt the mast rearwards to make the load more stable.

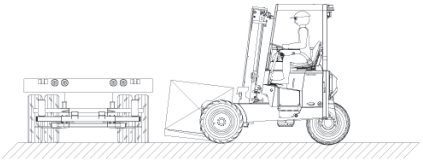


11. If necessary, raise the load to clear the frame of the machine.
12. Retract the mast fully.

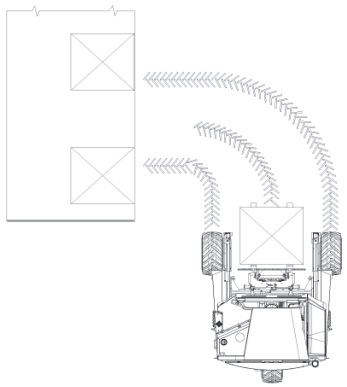
Lifting and Placing Loads (continued)



13. Raise the stabilizers fully.
14. Check behind and back up slightly to clear the pick-up area.
15. Never maneuver or turn with a raised load.



16. Lower the load as close to the ground as possible.



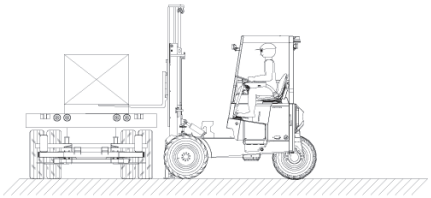
17. Back up carefully.
18. Slowly drive away, looking in the direction of travel.

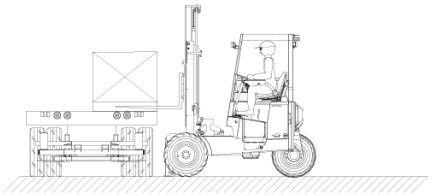
Lifting and Placing Loads (continued)

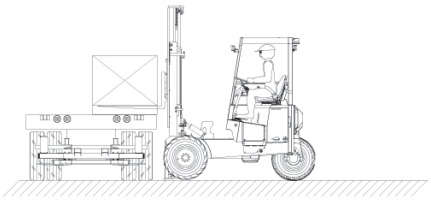
Double Forking

If it is not possible to engage the forks fully when lifting the load from a truck or trailer, it will be necessary to move the load to the edge of the body of the vehicle before picking it up. This is known as double forking. Remember that the lift capacity of the machine is reduced if the forks are not fully engaged.

To Double Fork the Load







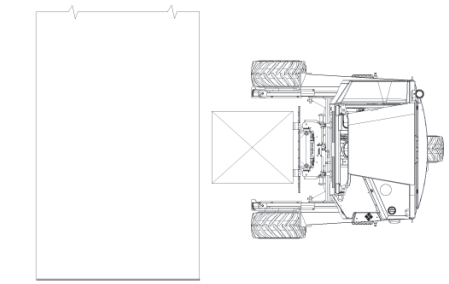
1. Follow standard picking of loads procedure, then if double forking is required:
2. Raise the load slightly and retract the mast sufficiently to bring the load out to the edge of the vehicle body.

3. Lower the load back on to the vehicle body and fully engage the forks by moving the mast forward again.

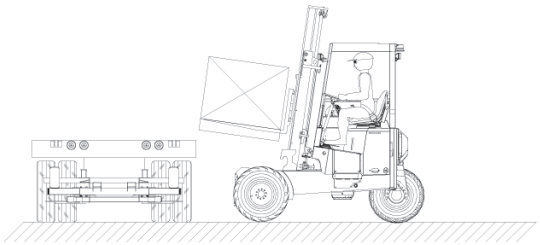
4. The load is now ready to be lifted.

Lifting and Placing Loads (continued)

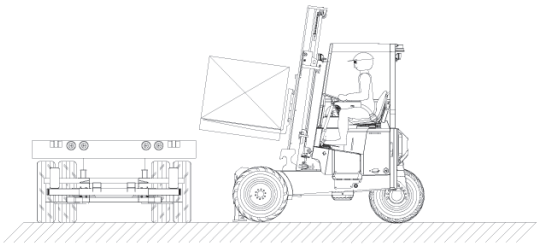
Placing or Stacking a Load above Ground Level



1. Approach the landing area squarely and with care.
2. Side-shift the load if necessary.
3. Raise the load above the level of the landing area or trailer.

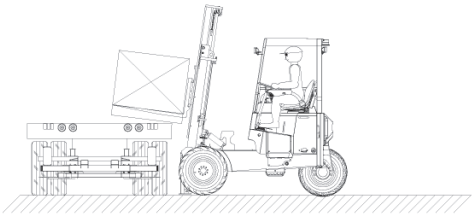


4. Drive forward carefully and make certain that the front of the machine does not hit the landing area or trailer.

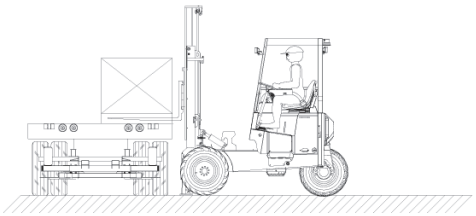


5. Check that the surface is strong enough to support the stabilizers.
6. Lower the stabilizers fully.

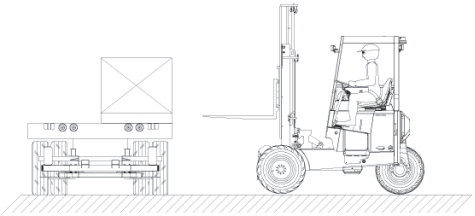
Lifting and Placing Loads (continued)



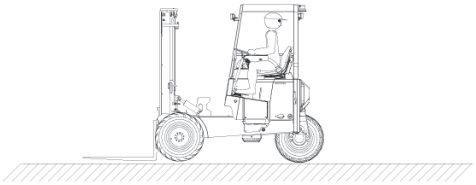
7. Extend the mast fully until the load is directly above the landing area or trailer.
8. Lower the load carefully.



9. Tilt the mast forward to position the load and place it on the resting area.
10. Raise the stabilizers slowly.



11. Back up cautiously to clear the load and landing area.
12. Lower the forks as low as possible to the ground.



13. Slowly drive away, looking in the direction of travel.

Lifting and Placing Loads (continued)

WARNING:

Loading. Before attempting to load a truck or trailer, chock the wheels of the truck/trailer to prevent it moving. Always lower the stabilizers fully before attempting to pick-up a load from a truck or trailer.

WARNING:

Stabilizers. When lowering the stabilizers, make certain the ground is sufficiently firm to support the stabilizers. On loose or uneven soil, it may be necessary to place flat wooden or metal supports beneath the stabilizers.

Additional Precautions When Placing a Load above Ground Level

- Where visibility is restricted, use a signal person.
- Make certain that the landing area is of sufficient strength to carry the load.
- Check that the landing area is level and clear of debris.
- Never side-shift with a raised load. The stability of the Truck Mounted Forklift will be compromised and the machine may tip over.
- Always move controls in a smooth, steady manner. Do not force a hydraulic cylinder to the end of its stroke as the resulting jolt could spill the load.
- Under no circumstances should a load be placed on or lifted from a scaffold platform.

A5. MOUNTING PROCEDURES

Introduction

The Truck Mounted Forklift is designed to be transported on the rear of a truck or trailer.
There are two types of mounting kits shown in this manual, an Easy Hitch and a Smooth Ride mounting kit.

If your Truck Mounted forklift is being mounted using a mounting kit other than the two shown here, please contact your Truck Mounted Forklift dealer for the correct procedure to follow when mounting.

Most mounting kits can be modified to accept different truck mounted forklifts from our range of machines. Contact your local distributor for more details.

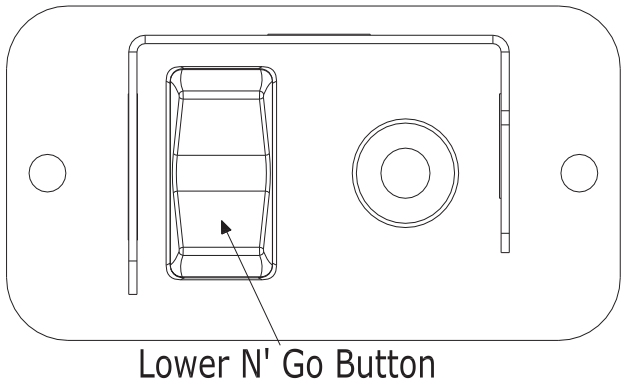
DANGER:

Transport. A manufacturer approved mounting kit must be fitted to your vehicle for transporting the Truck Mounted Forklift. Contact your Truck Mounted Forklift distributor for further details of approved mounting kits.

Lower N' Go – Aids Mounting
All machines are fitted with a Lower N' Go system that helps the operator mount the machine more safely and efficiently.

The Lower N' Go function allows the operator to release the hydraulic pressure in the lift cylinder/cylinders so that the weight of the Truck Mounted Forklift is carried by the transport chains or hooks and not the mast, by holding the bottom of the Lower N' Go button on the side of the machine.

Note: If for any reason the Lower N' Go system does not function correctly, it is still possible to release the hydraulic pressure manually by climbing aboard and operating the hydraulic levers as required.



A5. MOUNTING PROCEDURES

Easy Hitch Mounting Kit

Introduction

The Truck Mounted Forklift is designed to be transported on the rear of a truck or trailer.
This section of the manual explains the mounting procedures for an Easy Hitch Mounting Kit.

During transport the front wheels of the Truck Mounted Forklift rest against the tire pads of the mounting kit. The actual weight of the machine is supported by the hooks on the chassis which hook into hitch pins on the mounting kit, while the steel transport chains are used as an additional safety feature. The stop lights and directional signal lights of the truck or trailer are connected to the Truck Mounted Forklift by means of an electrical cable (wiring pigtail).

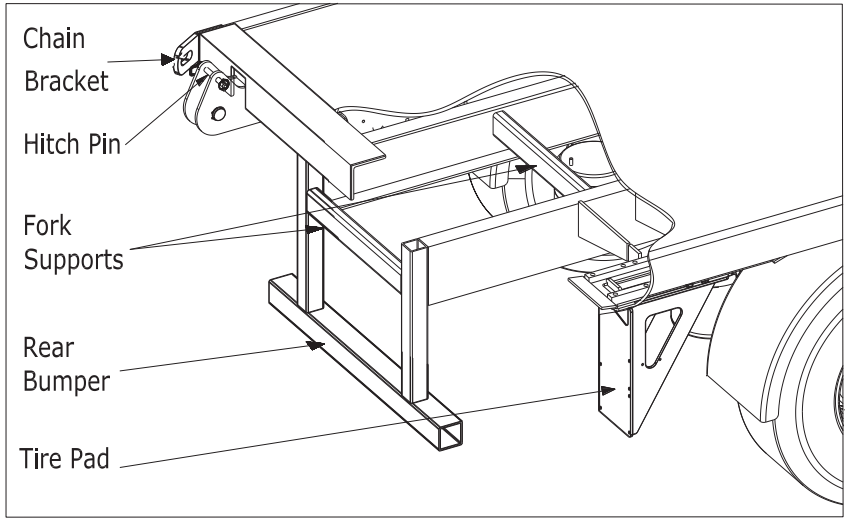
DANGER:

Transport. A manufacturer approved mounting kit must be fitted to your vehicle for transporting the Truck Mounted Forklift. Contact your Truck Mounted Forklift distributor for further details of approved mounting kits.

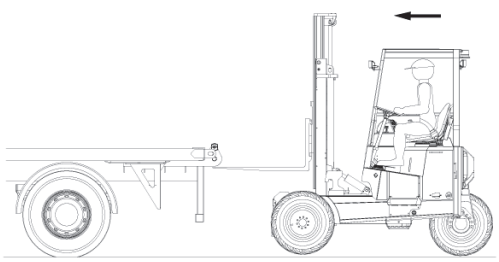
WARNING:

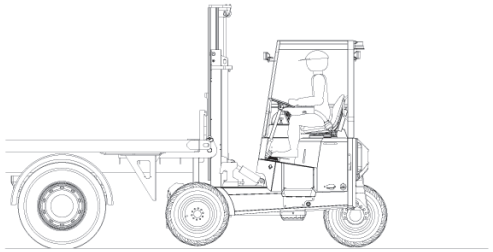
Transport. Do not attempt to transport the Truck Mounted Forklift unless you have read the mounting section of the manual very carefully!

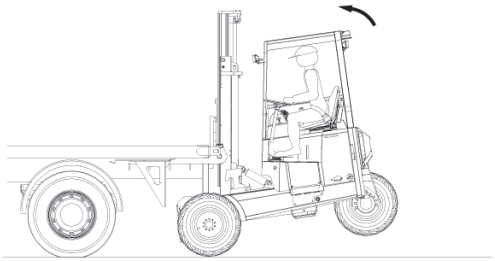
Note: When the Truck Mounted Forklift is not on the mounting kit, the D.O.T bumper **MUST** be folded out and pinned at all times ensuring the lights are visible at all times.



Mounting Procedure – Easy Hitch

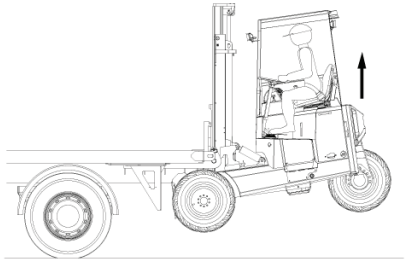


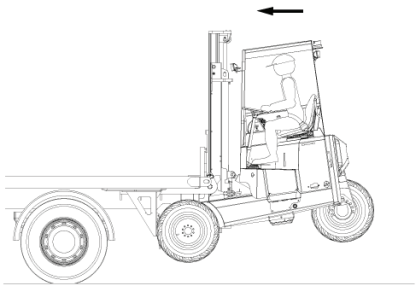


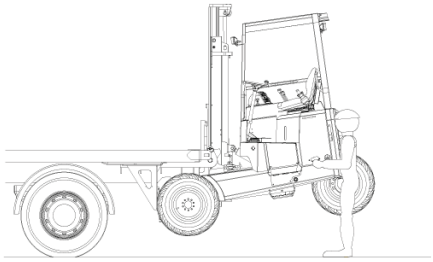


1. On trailers, the folding D.O.T bumper should be folded in and pinned on both sides.
2. Approach the rear of the truck or trailer slowly and squarely. Raise the forks to the level of the fork support tubes with the horizontal carriage extended 4-6 inches and center the side-shift.
3. Adjust the forks equally on the fork carriage to align them with the fork guides and ensure they are positively locked in place on the forkrail.
4. Raise the forks to align them for entry between the fork guides or below the fork bar.
5. Drive the Truck Mounted Forklift forward slowly until the forks are in the fork supports, tilting the mast forward as you drive in.
6. When the forks are fully engaged between the front and rear fork supports in the mounting kit, tilt the mast fully rearward to raise the rear wheel.

Mounting Procedure – Easy Hitch (continued)







7. Raise the Truck Mounted Forklift until the hooks are above the pins and then retract the horizontal carriage to pull the Truck Mounted Forklift toward the transport vehicle.

8. When the hooks are over the pins, lower the Truck Mounted Forklift until the hooks are JUST RESTING on the pins then retract the horizontal carriage fully .
9. Dismount using the three point contact method.

10. Push and hold the bottom of the Lower N' Go button to "relax" the tires onto the wheel pads.
11. Connect the electrical pigtail
12. Insert both "Hitch pins" over the left & right hand hooks.
13. Connect both the left and right stabilizing chains.

Mounting Procedure – Easy Hitch (continued)

CAUTION:

Electrical Connector. It is important to ensure the electrical (electrical pigtail) connector is fitted correctly and that the lights on the rear of the Truck Mounted Forklift are functioning properly.

CAUTION:

Hydraulic Pressure. It is important to release the hydraulic pressure so that the weight of the Truck Mounted Forklift is carried by the mounting and NOT by the mast. Otherwise damage will result from the forklift's weight resting on the mast.

CAUTION:

Rear Bumper. The rear bumper must be folded back out to full length and the locking pin and lynch pin fitted when the forklift is not being transported or removed for the purposes of loading or unloading.

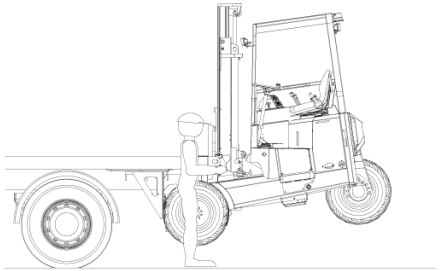
Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage and make mounting difficult.

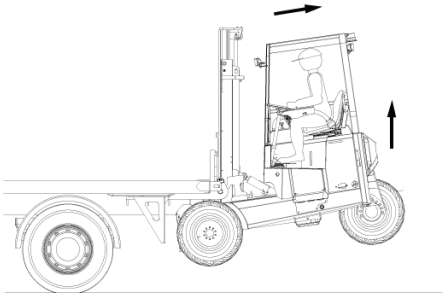
Note: Always remember:

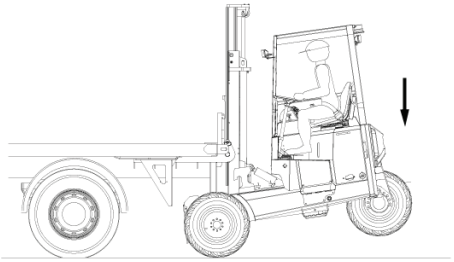
- To lower the forklift you must raise the mast.
- To raise the forklift you must lower the mast.
- To tilt the forklift up you must tilt the mast back.
- To tilt the forklift down you must tilt the mast forward.

Note: Ensure that your vehicle complies with relevant federal, state and local laws and regulations.

Dismounting Procedure – Easy Hitch





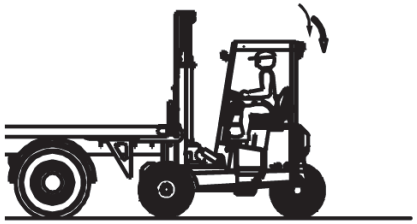


1. Release both the left and right hand stabilizing chains. If the chains are to stay with the Truck Mounted Forklift, attach the loose ends of the chains to the hooks provided.
2. Remove both “hitch pins”.
3. Disconnect the electrical pigtail.
4. Mount the Truck Mounted Forklift using the three point contact method
5. Fasten your seatbelt

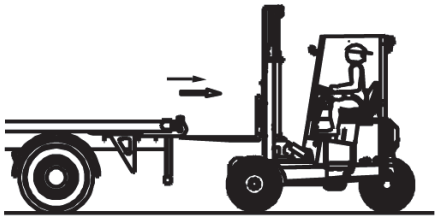
6. Start the engine.
7. Tilt the mast fully to the rear. This will raise the rear of the Truck Mounted forklift.
8. Raise the Truck Mounted Forklift until the hooks clear the pins then extend the horizontal carriage 4-6 inches.

9. Lower the Truck Mounted Forklift front tires to the ground.

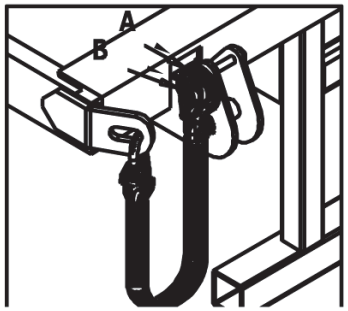
Dismounting Procedure – Easy Hitch (continued)



10. Tilt the top of the mast forward to lower the rear tire.



11. Check for pedestrians then drive the Truck Mounted Forklift straight back to pull the forks from the fork supports.
12. Lower the forks to just above ground level and drive away, looking in the direction of travel.



13. If the chains are to be kept with the truck/trailer, once the forklift is clear of the truck/trailer, connect both chain endplates "A" through hitch pins "B".
14. On trailers, the folding D.O.T bumper should be extended and pinned on both sides.
15. Before load handling it may be necessary to adjust the forks to suit the load or pallet.

Dismounting Procedure – Easy Hitch (continued)

Note: Ensure that your vehicle complies with relevant federal, state and local laws and regulations at all times. Make sure all operating and directional signal lights are functioning and visible. The rear bumper must be locked at full length when the forklift is not being transported.

Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage.

A5. MOUNTING PROCEDURES

Smooth Ride Mounting Kit

Introduction

The Truck Mounted Forklift is designed to be transported on the rear of a truck or trailer.
This section of the manual explains the mounting procedures for a Smooth Ride Mounting Kit.

During transport the front wheels of the Truck Mounted Forklift rest on the wheel rests of the mounting kit. The actual weight of the machine is supported by the wheel rests and the steel transport chains. The stop lights and directional signal lights of the truck or trailer are connected to the Truck Mounted Forklift by means of an electrical cable (wiring pigtail).

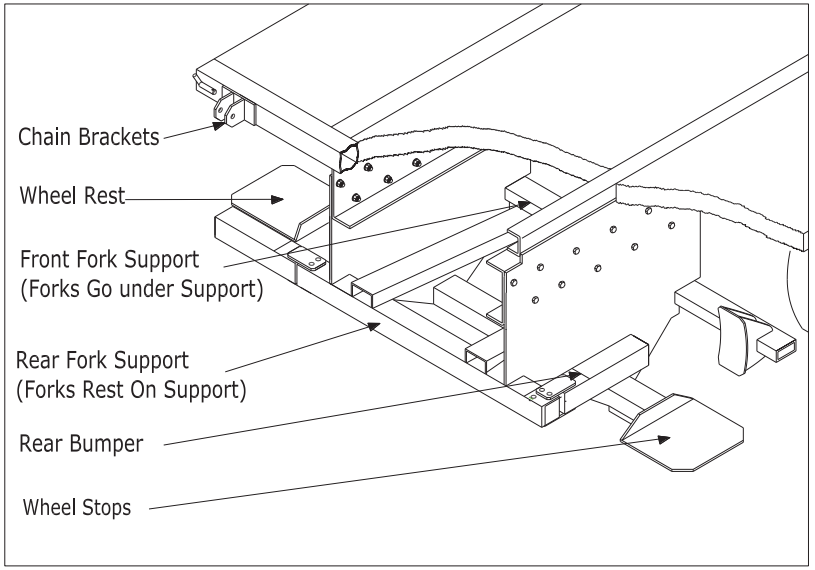
DANGER:

Transport. A manufacturer approved mounting kit must be fitted to your vehicle for transporting the Truck Mounted Forklift. Contact your Truck Mounted Forklift distributor for further details of approved mounting kits.

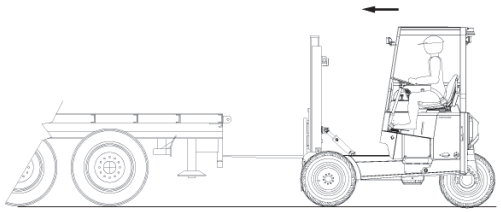
WARNING:

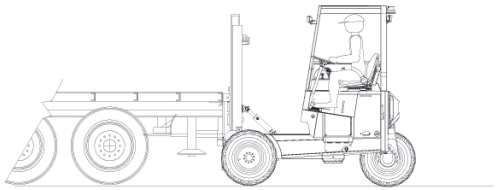
Transport. Do not attempt to transport the Truck Mounted Forklift unless you have read the mounting section of the manual very carefully!

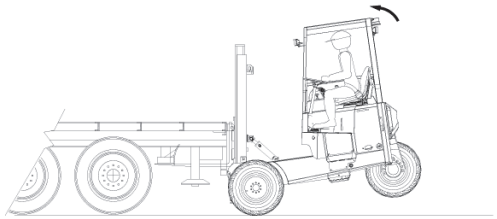
Note: When the Truck Mounted Forklift is not on the mounting kit, the D.O.T bumper **MUST** be folded out and pinned at all times ensuring the lights are visible at all times.



Mounting Procedure – Smooth Ride

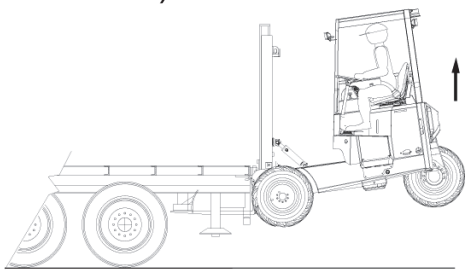




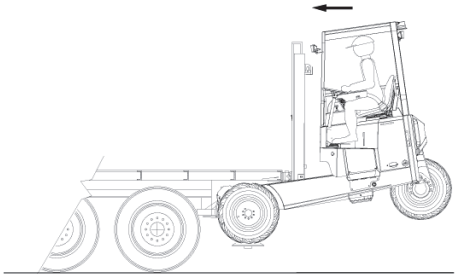


1. On trailers, the folding ICC bumper should be folded in and pinned on both sides.
2. Approach the rear of the truck or trailer slowly and squarely. Extend the mast fully and center the side-shift.
3. Adjust the forks equally on the fork carriage to align them with the fork guides and ensure they are positively locked in place on the forkrail.
4. Raise the forks to align them for entry between the fork guides or below the fork bar.
5. Drive slowly forward until the forks are fully engaged between the front and rear fork supports in the mounting kit.
6. Tilt the mast fully rearward to raise the rear wheel.

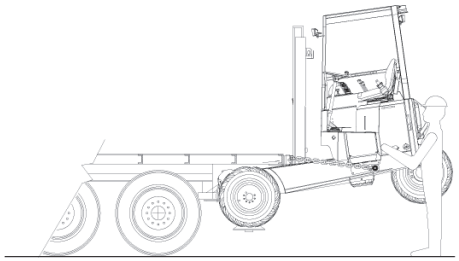
Mounting Procedure – Smooth Ride (continued)



7. Lower the forks using the lift lever until the bottom of the front wheel of the forklift is slightly higher than the wheel rests of the mounting kit.



8. Retract the mast fully to move the forklift forward "into" the mounting kit until the front wheels contact the wheel stops.
9. Turn the steering wheel to ensure that the rear wheel is pointing straight ahead where local and state laws allow.
10. Turn the engine off.
11. Dismount using the three point contact method.



12. Attach both transport chains securely to the rear of the truck or trailer and put the lock pins in place.
13. Push and hold in the bottom of the Lower N' Go button to release the hydraulic pressure in the mast.
14. Observe that the forklift settles on the mounting kit and that the weight of the machine is taken up by the chains.
15. Connect the electrical pigtail and check that all lights are functioning properly.

Mounting Procedure – Smooth Ride (continued)

CAUTION:

Electrical Connector. It is important to ensure the electrical (electrical pigtail) connector is fitted correctly and that the lights on the rear of the Truck Mounted Forklift are functioning properly.

CAUTION:

Hydraulic Pressure. It is important to release the hydraulic pressure so that the weight of the Truck Mounted Forklift is carried by the mounting kit and transport chains and NOT by the mast. Otherwise damage will result from the forklift's weight resting on the mast.

CAUTION:

Rear Bumper. The rear bumper must be folded back out to full length and the locking pin and lynch pin fitted when the forklift is not being transported or removed for the purposes of loading or unloading.

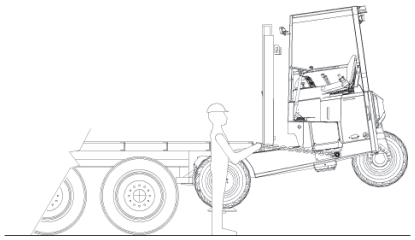
Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage and make mounting difficult.

Note: Always remember:

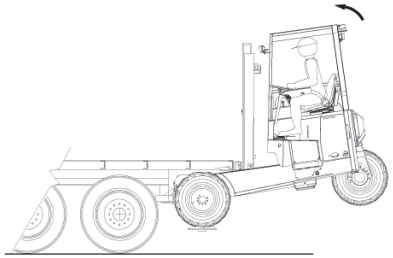
- To lower the forklift you must raise the mast.
- To raise the forklift you must lower the mast.
- To tilt the forklift up you must tilt the mast back.
- To tilt the forklift down you must tilt the mast forward.

Note: Ensure that your vehicle complies with relevant federal, state and local laws and regulations.

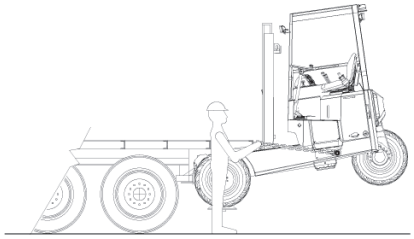
Dismounting Procedure – Smooth Ride



1. Disconnect the electrical pigtail and store in a safe place.
2. Climb Aboard using the three point contact method.
3. Fasten your seatbelt
4. Start the forklift.

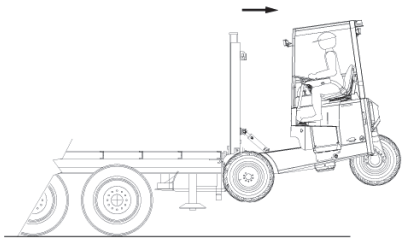


5. Raise the forklift off the wheel rests by lowering the forks until the wheels slightly clear the wheel rests.
6. Tilt the mast fully rearward. The weight of the forklift is now on the forks and the chains have become slack.
7. Turn off the engine.
8. Unfasten seatbelt.
9. Dismount using the three point contact method.

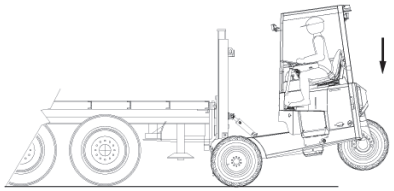


10. Remove both slackened transport chains from the rear of the truck or trailer. If the chains are to stay with the Truck Mounted Forklift, attach the loose ends of the chains to the hooks provided.
11. Replace the pins and locks in the chain brackets.

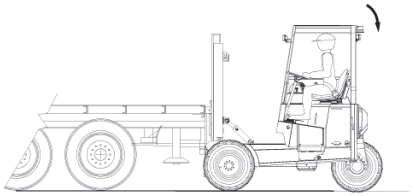
Dismounting Procedure – Smooth Ride (continued)



12. Climb aboard the forklift using the 3-point contact method.
13. Fasten the seatbelt.
14. Start the engine.
15. Extend the mast slowly forward to move the forklift backward out of the mounting kit.

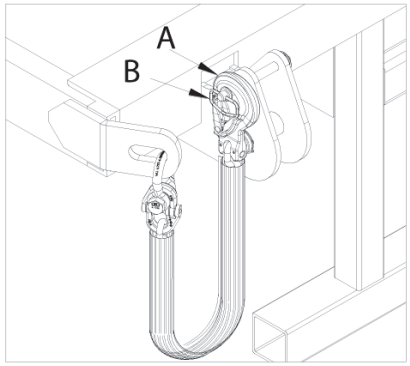


16. Raise the forks to lower the forklift to the ground.
17. Tilt the mast forward until the wheel touches the ground.



18. Raise the mast slightly to pressurize the mast lift cylinder and to clear the fork brace.
19. Ensure the rear wheel is pointing straight ahead.
20. Back up slowly until the forks are fully clear of the front and rear guides.
21. Lower the forks as low as possible, keep the mast extended fully and drive off, looking in the direction of travel.

Dismounting Procedure – Smooth Ride Kit (continued)



22. If the chains are to be kept with the truck/trailer, once the forklift is clear of the truck/trailer, connect both chain ends "A" through hitch pin "B"
23. On trailers, the folding D.O.T bumper should be extended and pinned on both sides.
24. Before load handling it may be necessary to adjust the forks to suit the load or pallet.

Dismounting Procedure – Smooth Ride (continued)

Note: Ensure that your vehicle complies with relevant federal, state and local laws and regulations at all times. Make sure all operating and directional signal lights are functioning and visible. The rear bumper must be locked at full length when the forklift is not being transported.

Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage.

Rules for Safe Transportation

When transporting the forklift on a truck or trailer, know the overall height to avoid coming in contact with overhead obstructions such as bridges, power lines etc.

DANGER:

Transport. Do not attempt to transport the Truck Mounted Forklift on a truck or trailer that is not equipped with a mounting kit designed and installed to Truck Mounted Forklift specifications.
When carrying a Truck Mounted Forklift, make certain that your vehicle complies with the relevant national and local laws and regulations regarding maximum vehicle weight, axle loading, overall vehicle length and overhang.

Note: Before mounting your machine on a truck or trailer ensure all relevant calculations have been carried out by an approved Truck Mounted Forklift Distributor.
Ensure an approved mounting kit is fitted to the truck or trailer and that it is suitable to mount the particular Truck Mounted Forklift.
All our mounting kits must only be fitted by approved personnel.

Daily Maintenance

Before you begin your work-day, take time to check your machine and make certain that all its systems are in good operational condition.

- Check the engine oil level. Add oil if required (see section Engine Oil).
- Check the hydraulic oil level sight glass. The oil level must be between the red line (minimum) and the black line (maximum) when all hydraulic cylinders are in the closed position. Top up if necessary (see section Hydraulic Fluid).
- Check the fuel level and top up if necessary.
- Lift the engine cover and check the engine coolant level on the expansion bottle. Fill to the proper level if necessary. The proper coolant level is just below the radiator cap. Do not remove the radiator cap when the engine is hot. Escaping steam could cause severe burning (see section Engine Coolant).
- Check all hydraulic hoses and connections for wear or leaks.
- Check for broken, missing or damaged parts.
- Check the forks, mast and lift chains.
- Check the wheels for any damage or for missing or loose wheel nuts.
- Check the tires for cuts, bulges, tread depth and proper inflation pressure.
- Stroke all cylinders fully in and out and check for leaks. If the machine is parked up for a long period of time, ensure all cylinders are fully stroked on a regular basis.
- Check all lubrication and grease points as per the grease point charts. All grease points should be lubricated/greased at least once per week.
- If any parts are not ok contact your supervisor and do not use the forklift until it is properly repaired.

If operating in a dusty or sandy environment;

- Clean the engine air filter element and replace if necessary.
- Clean all dust etc. from between the radiator fins. Remove the filter mesh from the radiator and/or oil cooler where fitted and clean thoroughly. Where necessary, remove the radiator for proper cleaning.

CAUTION:

Temperature. Always turn off the engine and allow it to cool before checking:

- Engine coolant level
- Engine oil level
- Hydraulic oil level

Daily Maintenance (continued)

WARNING:

Hydraulic Pressure. The hydraulic tank is pressurized and hydraulic oil may be hot. To avoid injury and spillage when removing the cap, stop the engine and remove the cap very slowly.

A6. MAINTENANCE

Daily Pre-Shift Inspection Checklist

Visual Checks
The Truck Mounted Forklift must be parked on a firm level surface in a SAFE ZONE with the keys removed and the park brake engaged. Starting at the operator's station, walk around the forklift and complete the following visual checks.
If defects are identified during the pre-shift visual inspection, notify your supervisor immediately.

1. **Decals –** Inspect all decals and the data plate. There should be no missing, damaged or faded decals on the forklift.
2. **Seat** – The seat must not be loose. The vinyl should not be torn. Inspect the seat to ensure the seat cushions and frame are secure. Inspect the seat to ensure the seat slides are functional, and check the latch mechanism for excessive play.
3. **Seatbelt** – The seatbelt should extend smoothly and retract fully. The seatbelt must not be frayed or worn. The latch must be fully functional.
4. **Steering Wheel** – The steering wheel should be free of cracks or damage. The steering knob should have no excess wear.
5. **Overhead Guard** – The overhead guard must not be distorted, cracked or modified by drilling or welding.
6. **Operator Manual/Manual Box** - The Operator Manual must be kept in the manual box at all times.
7. **Hydraulic Level Oil Sight Gauge** - Check the hydraulic fluid level with all cylinders in the CLOSED position. Ensure that the maximum amount of oil is in the hydraulic tank. If it is below the minimum, it must be topped off ONLY with the proper hydraulic fluid. If top-off is required, remove the hydraulic cap slowly and carefully as the hydraulic tank is pressurized. If the hydraulic fluid is discolored, the hydraulic oil system should be inspected.
8. **Fuel Level** – Check the fuel level and top off if necessary. Do not overfill tank. Ensure that the seal on the inside of the fuel cap is not damaged. If your fuel tank runs out of fuel, please see section "Priming the Fuel System" in the Special Procedures section of this manual
9. **Valve Levers –** The valve levers should be clean and clear of debris.

Daily Pre-Shift Inspection Checklist (continued)

10. **Left Carriage Cylinder** - Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
11. **Left Tilt Cylinder** - Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
12. **Left Front Tire and Wheel** - Look for debris, mud, or binding behind and around the wheel. Ensure that there are no missing or loose wheel nuts. There should be no chunks, cuts, or excessive wear on the tire. Check the tire for proper inflation in accordance with the manufacturer's recommended tire pressure. Any tire with the body ply cords visible, or showing any signs of cuts, bulges or other signs of damage, should be replaced immediately. Look for bent or corroded rims.
13. **Side-Shift Cylinder** – Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
14. **Left Side-Shift Pin** - Check for missing or loose bolts on either end.
15. **Left Stabilizer** - Check for damage and bends. Ensure the wear pads are intact. Adjust with shims if necessary.
16. **Left Fork** – Inspect the lock pins to ensure that they are functional and making positive engagement in the fork board. Check the top and bottom fork carriage mountings on the fork for cracks and wear. Check the fork for bends, cracks and surface wear horizontally (along the blade), vertically (along the shank), and at the heel. Ensure both forks are in the same level plane.
17. **Mast** - Check that the mast is not bent or has any debris on it. Check the bolts on the base of the mast cylinder for tightness.
18. **Mast Chains** – Check all mast chains. All chains should be lubricated. There should be no seized links or rotated connecting pins over the entire length of the chains. When the chains are without tension, ensure that they have equal slack, and that the slack is not excessive.
19. **Load Backrest (if fitted)** - The load backrest should not be bent or loose.

Daily Pre-Shift Inspection Checklist (continued)

20. **Mast Lift Cylinder and Mounts** – Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
21. **Hydraulic Hoses and Connections** - Observe any leaks or loose fittings. Look for oil spots on the ground where the forklift has been parked and on the frame of the forklift for the source of a leak.
22. **Right Fork** – Inspect the lock pins to ensure that they are functional and making positive engagement in the fork board. Check the top and bottom fork carriage mountings on the fork for cracks and wear. Check the fork for bends, cracks and surface wear horizontally (along the blade), vertically (along the shank), and at the heel. Ensure both forks are in the same level plane.
23. **Right Side-Shift Pin** – Check for missing or loose bolts on either end.
24. **Right Stabilizer** – Check for damage and bends. Ensure the wear pads are intact. Adjust with shims if necessary.
25. **Right Front Tire and Wheel** – Look for debris, mud, or binding behind and around the wheel. Ensure that there are no missing or loose wheel nuts. There should be no chunks, cuts, or excessive wear on the tire. Check the tire for proper inflation in accordance with the manufacturer's recommended tire pressure. Any tire with the body ply cords visible, or showing any signs of cuts, bulges or other signs of damage, should be replaced immediately. Look for bent or corroded rims.
26. **Right Tilt Cylinder** – Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
27. **Right Carriage Cylinder** – Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
28. **Hood** – The top hood should have no broken latches or hinges.
29. **Engine Oil –** Remove the dipstick and clean with a cloth or paper. Re-insert it fully. Remove the dipstick again and observe the location of the oil mark. It should be between the minimum and maximum marks. If the oil mark is below the minimum level, it must be topped off. If the engine oil needs frequent topping off, the engine should be inspected for damage or leaks.

Daily Pre-Shift Inspection Checklist (continued)

30. **Coolant –** The coolant should be no more than 4” below the neck of the radiator. Do not attempt to remove the radiator cap if the engine is hot.
31. **Rear Steering Cylinder** – Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
32. **Rear Tire and Wheel** – Look for debris, mud, or binding behind and around the wheel. Ensure that there are no missing or loose wheel nuts. There should be no chunks, cuts, or excessive wear on the tire. Check the tire for proper inflation in accordance with the manufacturer’s recommended tire pressure. Any tire with the body ply cords visible, or showing any signs of cuts, bulges or other signs of damage, should be replaced immediately. Look for bent or corroded rims.
33. **Rear Door** – The rear door should have no broken latches or hinges.
34. **Battery Access Panel** – The battery access panel should be locked and have no broken latches and hinges.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT VISUAL INSPECTION, NOTIFY YOUR SUPERVISOR IMMEDIATELY.

Daily Pre-Shift Inspection Checklist (continued)

Operational Checks

Operational inspections are done by starting the engine, operating all controls, and test driving the Truck Mounted Forklift. Never start the Truck Mounted Forklift to perform the operational inspections if the visual inspection indicates an immediate safety hazard. Constantly monitor the gauges, listening for unusual noises, loose parts, fluid leaks and unusual conditions. If a problem is suspected, take the forklift out of service and have it inspected and repaired.

1. **Noises/Emissions** – Listen for unusual noises and observe engine emissions at all times when operating the Truck Mounted Forklift. If you suspect an engine or hydraulic problem during start up immediately shut down the forklift and contact your supervisor.
2. **Gauges and Indicators** – The engine oil light and the battery light should illuminate when the ignition is turned on. Both lights should extinguish when the engine is started. The preheat indicator (if equipped) should illuminate when preheating and go out after the engine is started. As the forklift is operated the temperature gauge should rise to the safe operating temperature. If the operating temperature reaches the upper end of the gauge, this indicates a problem and the forklift must be shut down. If the Truck Mounted Forklift is difficult to start, have your supervisor arrange for an inspection of the glow plugs and starting system. If the lights do not go out after start up, or illuminate during the operation of the Truck Mounted Forklift, immediately shut down the forklift and report the situation to your supervisor. The air filter indicator should not be illuminated.
3. **Hour Meter** – The hour meter should count as the forklift is operated.
4. **Malfunction Indicator light** – If a red light is illuminated on start up or any stage during operation, this means that the ECU has detected a malfunction. You should park the Truck Mounted Forklift safely, shutdown the forklift and contact your supervisor. If a flashing red light should illuminate, you should turn off the engine immediately and contact your supervisor.

Daily Pre-Shift Inspection Checklist (continued)

5. **Pedals** – There are two pedals that need to be inspected – the accelerator pedal and the forward/reverse or inching/brake pedal.
   - **Accelerator Pedal** – Depress the accelerator pedal slowly and then return it to neutral. The engine should run smoothly. It should accelerate and decelerate to idle.
   - **Forward/Reverse Pedal** – At a low RPM, drive the forklift forward and backward, gradually depressing the forward/reverse pedal fully in each direction. The forklift should respond accordingly. Release the forward/reverse pedal. The pedal should return to neutral and the forklift should come to an immediate stop.
6. **Seatbelt** – With the parking brake in the OFF position and the seatbelt unfastened the Truck Mounted Forklift should not be able to drive in either the forward or reverse direction. With the parking brake in the OFF position and the seatbelt fastened ensure the machine will drive in both the forward and rearward direction.
7. **Seat Presence (if fitted)** – The Seat Presence alarm must be operational. The seat presence alarm should never be disconnected.

Daily Pre-Shift Inspection Checklist (continued)

8. **Valve Levers** - Cycle all controls fully and ensure that there is no free play in the valve levers. Look for jerking movement and listen for unusual noises. Never extend your head, arms or body into the mast or mast carriage. All levers should return to the center position (neutral) when released. Test the following levers with the forks low to the ground.
    - **Mast** – Ensure that the mast raises and lowers fully and smoothly. Lateral movement is an indication that the wear pads need adjusting or that there may be a broken roller.
    - **Carriage** – Ensure that the mast carriage moves forward and backward fully and smoothly. There should be no lateral movement. Lateral movement is an indication that the wear pads need adjusting or there may be a broken roller.
    - **Tilt** – Tilt the mast fully forward and rearward. There should be no binding or jerking.
    - **Side-Shift** – Side-shift the mast fully left and fully right. There should be no binding or jerking.
    - **Stabilizers** – Ensure the stabilizers lower and raise fully.
9. **Park Brake** – Switch on the parking brake and attempt to drive forward and reverse. If the parking brake is functioning properly the Truck Mounted Forklift should not move. It is also necessary to carry out a park brake test.
10. **Steering Response** – Drive the forklift making a complete left turn and a complete right turn. The steering should be responsive. There should be no excessive free play, jerking, binding, or unusual noises.
11. **Diff-Lock** – Engage the diff-lock and attempt to drive forward and reverse. There should be a noticeable drag on the engine to indicate that the diff-lock is functioning.
12. **Back-up Alarm** – The back-up alarm must be operational. The back-up alarm should NEVER be disconnected.
13. **Horn** – The horn should be operational. Do not operate the forklift if the horn does not work.
14. **Work Lights** – All the work lights should be operational.
15. **Strobe** – The strobe should be operational when the ignition is switched to the ON position.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT OPERATIONAL CHECK, TAKE THE FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

Daily Pre-Shift Inspection Checklist (continued)

Transport Checks
Transport inspections are done by inspecting the mounting kit and then mounting the Truck Mounted Forklift onto a truck or trailer before making deliveries. Never attempt to mount the forklift to perform the transport inspections if the visual or operational inspections indicate an immediate safety hazard. If a problem is suspected with the mounting kit or forklift, take either the mounting kit or forklift out of service and have it inspected and repaired.

1. **Mounting Kit** – Check the mounting kit and chain hanger brackets for cracks and bends.
2. **Tie Downs (Dump bed mounting kit only)** – The tie downs should be positively locked in place.
3. **Pins and Locks** – Ensure that the transport pins on either side are not worn and that both flip locks are working.
4. **Transport Chains** – Check for damaged or dislodged pins on the end shackles at either end of both chains. The bolts and lock nuts that retain the transport chains on either side of the Truck Mounted Forklift should be in place. Mount the forklift on the rear of the truck or trailer. If any unusual noises, jerking, or binding are noticed, immediately lower the forklift to the ground and have it inspected by a forklift technician.
5. **Angle of Forklift to Ground and Ground Clearance (when mounted)** – The rear wheel should be 3° higher than the front wheels when mounted except when mounted in a top mount kit.
6. **Rear Lights (when mounted)** – All rear lights should be working:
   - Side marker (left and right) - 2
   - Corner marker (left and right) - 2
   - Row center – 3
   - Rear marker/brake – 2
   - Rear marker/turn – 2
   - Reverse - 2
7. **Conspicuity Tape (when mounted)** – The conspicuity tape should be clean and intact. Ensure the conspicuity tape obeys all local and national legislation for the vehicle.
8. **Lower N' Go** – On machines equipped with Lower N' Go it will be necessary to first raise the machine off the kit manually using the hydraulic levers before testing Lower N' Go. Press and hold the Lower N' Go button until the hooks settle onto the mounting kit and both tires contact the wheel stops as shown on the Mounting Procedures section of this manual.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT TRANSPORT CHECK, TAKE THE KIT OR FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

Interlocking Seatbelt

Inspect the seatbelt regularly to check for damage and to make sure it functions properly mechanically and electrically.

WARNING:

Seatbelt. Failure to properly inspect and maintain the seatbelt can lead to a seatbelt failure in the event of an accident.
Any time the Truck Mounted Forklift is being operated and is involved in an accident, the whole seatbelt assembly must be replaced. This is to ensure that if any unseen damage has occurred it is replaced.
If the seatbelt is worn or damaged it must be replaced.
The seatbelt must be inspected in detail at least once a year and more often if exposed to harsh conditions.
If replacement of any part of the seatbelt is required then the entire assembly must be replaced (retractor and buckle) with manufacturer recommended items from a service provider.

Inspection
The following guidelines detail how to inspect the seatbelt fitted to a Truck Mounted Forklift:

1. **Webbing** - To check the webbing, pull the seatbelt completely out of the retractor and inspect the full length for deterioration. The seatbelt must be replaced if it has any signs of nicks, cuts or holes, is frayed or fluffed at the edges, shows excessive fading due to UV exposure, if the webbing is packed with dirt or if the stitching is frayed, insecure, incomplete or repaired.

2. **Buckle Operation** – Check the buckle for damage and check the latch for correct operation. Determine if the latch plate is excessively worn or deformed. Establish if the buckle is damaged or the casing is broken. Check the security and operation of the seatbelt by connecting the buckle and tongue, and then trying to pull them apart. While pulling the buckle and tongue, press the release button to ensure correct release. Make sure the button does not stick after release.

3. **Retractor** - Fully extend the webbing to determine if the retractor spools in and out correctly. All webbing must retract back fully into the retractor. When the webbing is quickly pulled from the retractor the belt should lock automatically.

Interlocking Seatbelt (continued)

4. **Connection to Forklift** - The seatbelt anchorage points should be checked to ensure all bolts are tight. Check the mounting plates are OK and in the case of the flexible cable type seatbelt, ensure that the cable is not broken or frayed.

5. **Electrical Connection** - The seatbelt is fitted with an electrical connection and wired to the machine. Check that the wire is not cut, pinched or damaged in any way and ensure when the seatbelt is disconnected that the machine will not drive.

If the inspection finds any damage, wear, or malfunction of the seatbelt, the complete unit must be replaced with manufacturer recommended equipment. The seatbelt fitted has been designed and tested specifically for the Truck Mounted Forklift. Care must be taken when replacing parts to ensure that they are fitted correctly to maintain the integrity and function of the seatbelt system.

Note: The seatbelt must only be cleaned with warm soapy water; do not use chemical cleaners, bleach or dies. Contamination with fuel, grease or acid will damage the seatbelt. Do not make any modifications or additions to the seatbelt.

A6. MAINTENANCE

Service

In order to carry out a service/inspection of your Truck Mounted Forklift it is important that the vehicle is first thoroughly cleaned. While doing so, please note the following points:

- Ensure that the engine is shut down prior to washing.
- Do not wash directly onto any bearings.
- Do not wash directly onto the mast chains, the mast chains must be cleaned using a kerosene-based cleaning agent and a brush. It is very important to remove all traces of the cleaning agent using an airline to blow dry the chains.
- Lubricate the chains immediately after cleaning.
- Take care when washing close to electrical connections.

WARNING:

Compressed Air. When using compressed air ensure that relevant personal protection equipment/safety equipment is used at all times. Adhere to all company/manufacturer safety information and guidelines.

Note: In regions that have extreme temperature changes, it may be necessary to change the hydraulic oil and engine oil to meet the ambient operating temperature as outlined in the fluid specification chart. Also in accordance with the operator manual, the air filter must be cleaned/changed more frequently if operated in dusty or sandy environment.

CAUTION:

Maintenance. The maintenance section of this manual outlines the recommended preventative maintenance schedule. Always adhere to the recommended operating and maintenance procedures. Only trained, authorized and experienced personnel should be allowed to operate the Truck Mounted Forklift. Service personnel should read and study this manual, the service manual, the preventative maintenance manual and parts manual in order to gain a thorough understanding of the unit prior to making any repairs. Exercise all necessary safety precautions when performing maintenance covered in the preventative maintenance manual. Ensure that the engine is switched off, the battery is disconnected and the engine and exhaust are cool.

Service (continued)

In order to attain full benefit and service from your Truck Mounted Forklift, it is important that the following service information & guidelines are fully adhered to at all times. We recommend servicing take place at the following intervals:

1. Service Checks are required at 50 hrs.
2. Servicing is required quarterly.
3. Servicing of the RKM filter is required every 300 hours.
4. Servicing is required at 500 hours or every 12 months (whichever occurs first) and every 500 hours/12 month thereafter.
5. Additional items required at 1000 hours or every 2 years.

All service and preventative maintenance should be carried out in accordance with the tasks listed on the Maintenance Check Sheet.

Note: We recommend that the Truck Mounted Forklift is serviced at least quarterly in each year.

A6. MAINTENANCE

Maintenance Check Sheet

Table 1

Codes	
CH	Change
CK	Check
G	Grease
CL	Clean
A	Adjust

Table 2

1.	**VISUAL INSPECTION**	First Service at 50hrs	Every Quarter	Additional Every		
				300hr Intervals or Every Year	500hr Intervals or Every Year	1000hr Intervals or Every 2 Year
A.	Driver Consultation/ Debrief	CK	CK			
B.	Oil / Fluid Leaks	CK/A	CK/A			
C.	Overhead Guard	CK	CK			
D.	Forks / Fork Pins / Carriage	CK/A	CK/A			
E.	Load Backrest	CK	CK			
F.	Mast Assembly					
	- Lift Chain and Rollers	CK/A	CK/A			
G.	Tire and Wheel Condition					
	- Right Front	CK	CK			
	- Left Front	CK	CK			
	- Rear	CK	CK			
H.	Seat / Seatbelt: Conduct a Detailed Inspection of the Seat Assembly to Ensure Seat Stability	CK	CK			

A6. MAINTENANCE

	VISUAL INSPECTION - Continued	First Service at 50hrs	Every Quarter	Additional Every		
				300hr Intervals or Every Year	500hr Intervals or Every Year	1000hr Intervals or Every 2 Year
I.	Engine Guards In Place	CK	CK			
J.	Steering Wheel Condition	CK	CK			
K.	Accelerator / Directional Pedals	CK	CK			
L.	Covers / Locks / Hinges	CK/A	CK/A			
M.	Safety Decals and Data Plates In Place	CK/CL	CK/CL			
N.	Operator Manual	CK	CK			
2.	**LUBRICATE AND CLEAN**					
A.	Blow Off Truck	CL	CL			
B.	Blow Out Radiator	CL	CL			
C.	Lubricate All Grease Fittings	G	G			
D.	Lubricate Lift Chains	CL/G	CL/G			
E.	Lubricate Slide Blocks – if fitted. (Spray Lube Only)	G	G			
3.	**ELECTRICAL**					
A.	Wiring and Connector conditions	CK	CK			
B.	Fuse Panel Conditions	CK	CK			
C.	Alternator Output	CK	CK			
D.	Glow Plug Operation	CK	CK			
E.	Starter / Solenoid Operation and Condition	CK	CK			
F.	Battery and Terminal Condition	CK	CK			
G.	Battery Water Level	CK	CK			

A6. MAINTENANCE

	ELECTRICAL - CONTINUED	First Service at 50hrs	Every Quarter	Additional Every		
				300hr Intervals or Every Year	500hr Intervals or Every Year	1000hr Intervals or Every 2 Year
H.	Battery Hold Down	CK	CK			
4.	**STEERING SYSTEM**					
A.	Hoses and Fittings	CK	CK			
B.	Leaks	CK	CK			
C.	Steering Linkage	CK	CK			
D.	Steer Bearing Adjustment	CK	CK			
E.	Steer Motor Mounting Secure	CK	CK			
F.	Cylinder Condition and Leaks	CK/A	CK/A			
5.	**WHEEL MOTORS**					
A.	Hoses and Fittings	CK	CK			
B.	Leaks	CK	CK			
C.	Mounting Secure	CK	CK			
D.	Wheel Studs and Lug Nuts Secure	CK	CK			
E.	Axle Assembly Free From Debris	CK	CK			
6.	**MAST ASSEMBLY**					
A.	Mounting Bolts and Pins Secure	CK	CK			
B.	Cylinder Leaks and Mounting Condition	CK	CK			
	- Mast Cylinder	CK	CK			
	- Tilt Cylinders	CK	CK			
	- Carriage Cylinders	CK	CK			
	- Side-Shift Cylinder	CK	CK			

A6. MAINTENANCE

	MAST ASSEMBLY- Continued	First Service at 50hrs	Every Quarter	Additional Every		
				300hr Intervals or Every Year	500hr Intervals or Every Year	1000hr Intervals or Every 2 Year
	- Stabilizer Cylinders	CK	CK			
C.	Mast Cylinder Hose Condition	CK	CK			
D.	Mast Bearings Condition and Tightness	CK/A	CK/A			
E.	Carriage Bearings Condition and Tightness	CK/A	CK/A			
F.	Mast Alignment/Wear Pad Adjustment*	CK/A	CK/A			
G.	Carriage Alignment /Wear Pad Adjustment*	CK/A	CK/A			
H.	Mast Chain Rollers	CK/A	CK/A			
I.	Mast Chain Condition – Wear	CK/A	CK/A			
J.	Mast Chain Adjustment	A	A			
K.	Mast Chain Mounting Pins and Anchors	CK	CK			
7.	**GENERAL**					
A.	Park Brake Operation	CK	CK			
B.	Steering Response	CK	CK			
C.	Load Test	CK	CK			
D.	Mount/Dismount From Mounting Kit	CK	CK			
E.	Engine RPM	CK	CK/A			
F.	Driver Debrief	CK	CK			
G.	Replace Hydraulic Oil					CH
H.	Clean In - Tank Filters					CH

A6. MAINTENANCE

8.	ENGINE	First Service at 50hrs	Every Quarter	Additional Every		
				300hr Intervals or Every Year	500hr Intervals or Every Year	1000hr Intervals or Every 2 Year
A.	Hoses and Fittings	CK	CK			
B.	Leaks	CK	CK			
C.	Mounting Secure	CK	CK			
D.	Electrical Connections	CK	CK			
E.	Radiator Mounts and Hoses	CK	CK			
F.	Alternator V Belt	CK/A	CK/A			CH
G.	Coolant Level and Condition	CK/A	CK/A			CH
H.	Coolant Hoses	CK	CK			CK/CH
I.	Air Filter	CK	CK	CH		
J.	Fuel Filter Cartridge	CH	CK	CH		
K.	Water Removal From Fuel Filter Cartridge	CK/A	CK/A			
L.	Engine Oil	CH	CK/A	CH		
M.	Muffler Mount and Condition	CK	CK			
N.	Replace Engine Oil Filter Cartridge	CH	CK	CH		
9.	**TRANSPORT**					
A.	Chains and Hammer Locks	CK	CK			
B.	Chain Anchor Points & Tie Downs (Dump Bed)	CK	CK			
C.	Pins and Locks	CK	CK			
D.	Lights	CK	CK			
E.	Reflective Tape	CK	CK			
F.	Mounting Kit	CK	CK			
G.	Transport Angle		CK			

A6. MAINTENANCE

10.	OPERATION AND TEST DRIVE	First Service at 50hrs	Every Quarter	Additional Every		
				300hr Intervals or Every Year	500hr Intervals or Every Year	1000hr Intervals or Every 2 Year
A.	Horn	CK	CK			
B.	Travel Alarm	CK	CK			
C.	Strobe and Work Lights	CK	CK			
D.	Pedals and Cables Operation	CK	CK			
E.	Return To Neutral	CK	CK			
F.	Gauges/Hour Meter/Warning Lights	CK	CK			
G.	Differential Lock (Forward and Reverse)	CK	CK			
H.	Control Valve Levers	CK	CK			
11.	**HYDRAULIC SYSTEM**					
A.	Oil Level and Condition	CK/A	CK/A			
B.	Hoses and Fittings	CK/A	CK/A			
C.	Leaks	CK/A	CK/A			
D.	Pump Mounting	CK/A	CK/A			
E.	Pump Leaks	CK/A	CK/A			
F.	Hydraulic RKM filter (first 50hr service)	CH	CK	CH		
12.	**WIPE OFF TRUCK AND CLEAN AREA**	CK	CK			

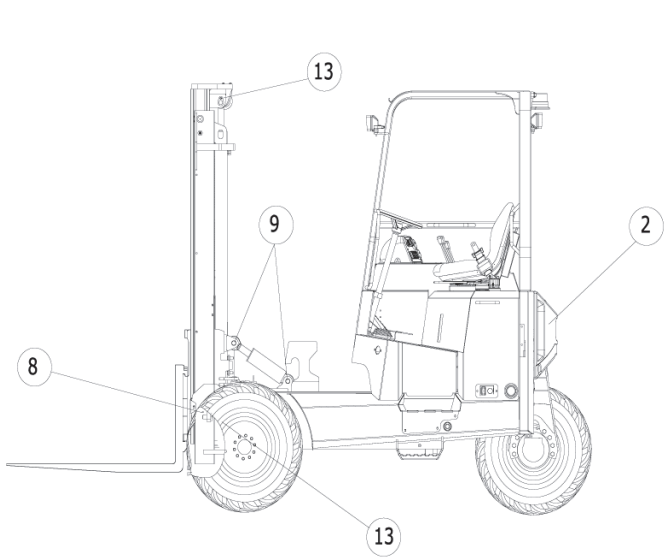
A6. MAINTENANCE

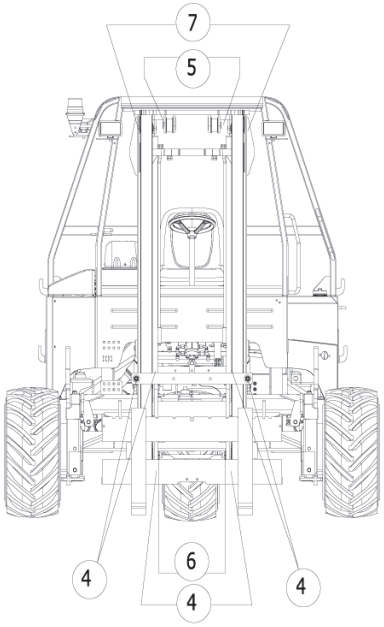
Grease Point Chart

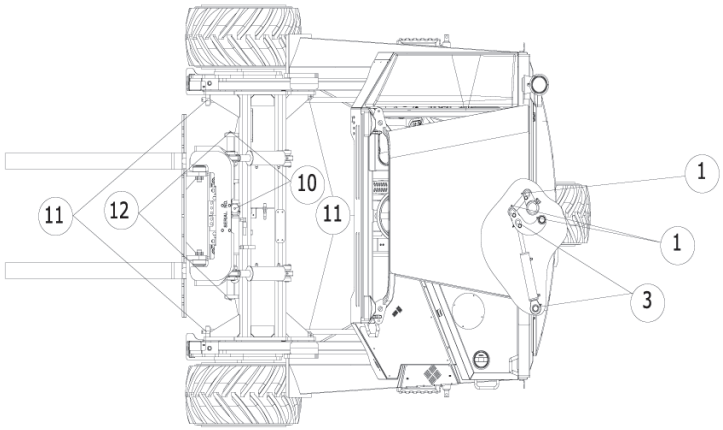
Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Steering Linkage	3	120
2	Spindle Housing	1	120
3	Steering Cylinder	2	120
4	FEM 2 Fork Carriage	8	121
5	FEM 3 Fork Carriage	12	122
6	Top Chain Rollers	2	123
7	Bottom Chain Rollers	2	123
8	Mast Outer Section	2	124
9	Mast Inner Section	2	124
10	Tilt Cylinder	4	125
11	Side-Shift Cylinder	2	126
12	Mast Carriage	4	127
13	Side-Shift Bushing	2	128
14	Lift Cylinder	2	129
15	Nylon Wear Pad	2	130

Grease Point Chart (continued)

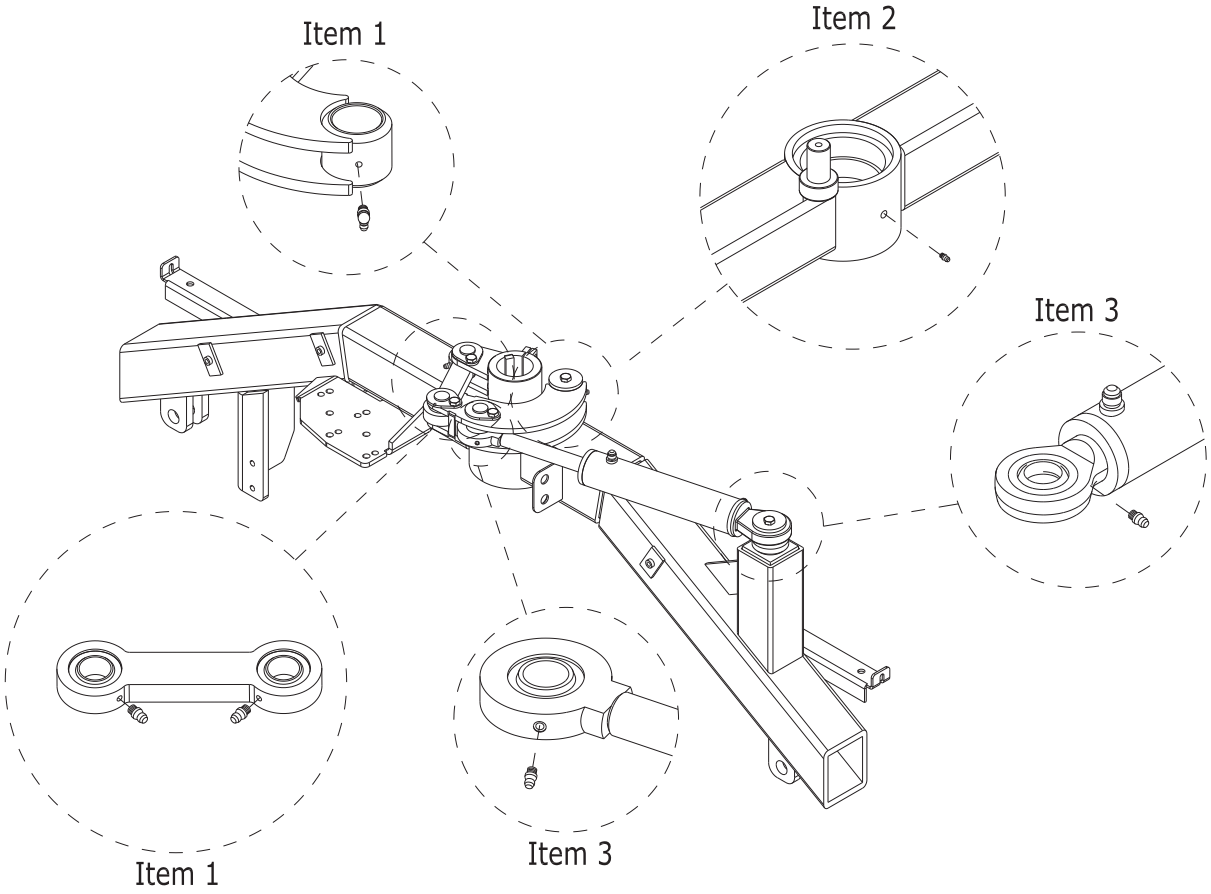






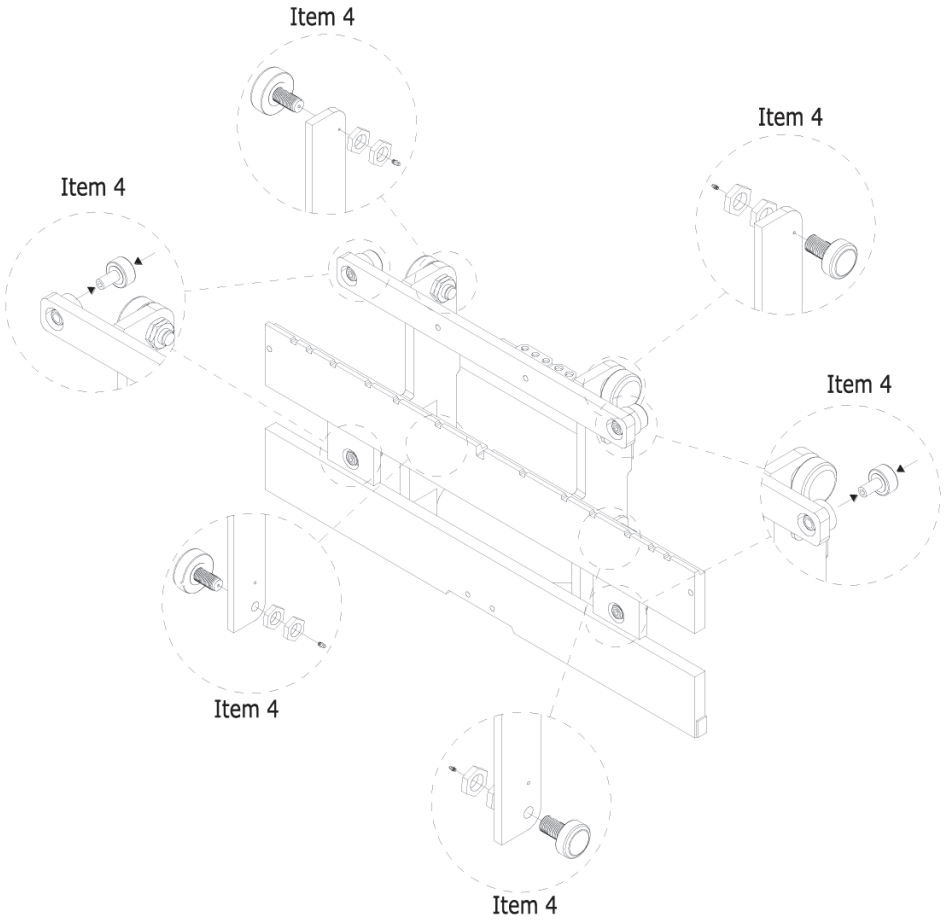
Grease Point Chart (continued)

Steering Linkage, Spindle Housing and Steering Cylinder Grease Point



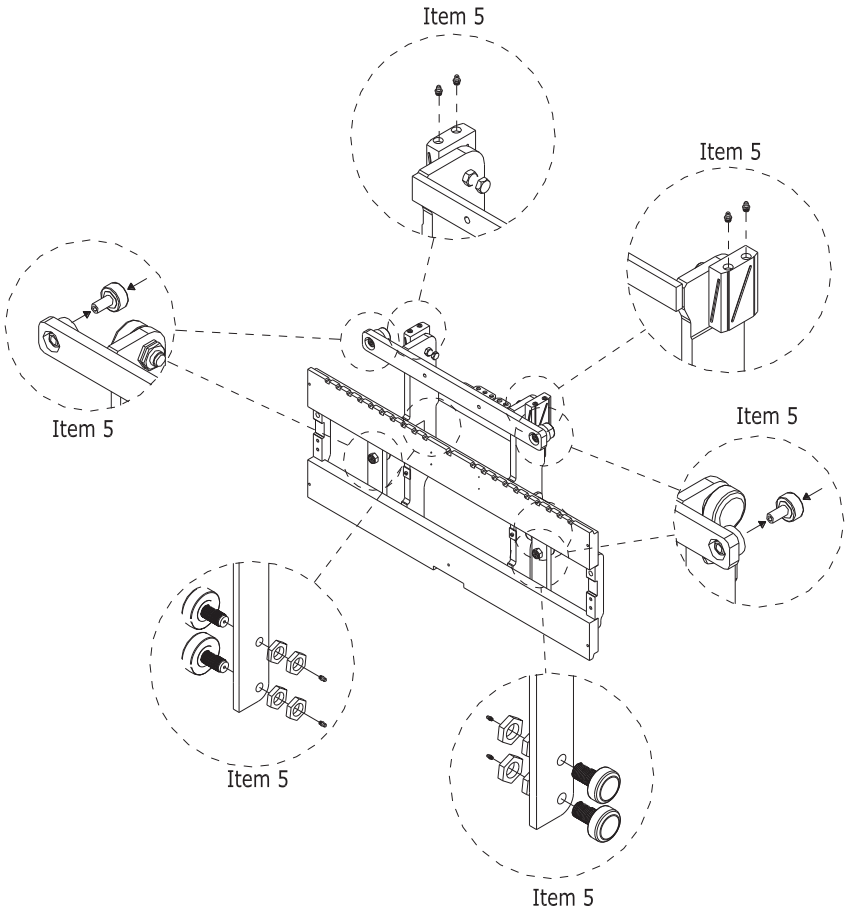
Grease Point Chart (continued)

FEM 2 Fork Carriage Grease Points



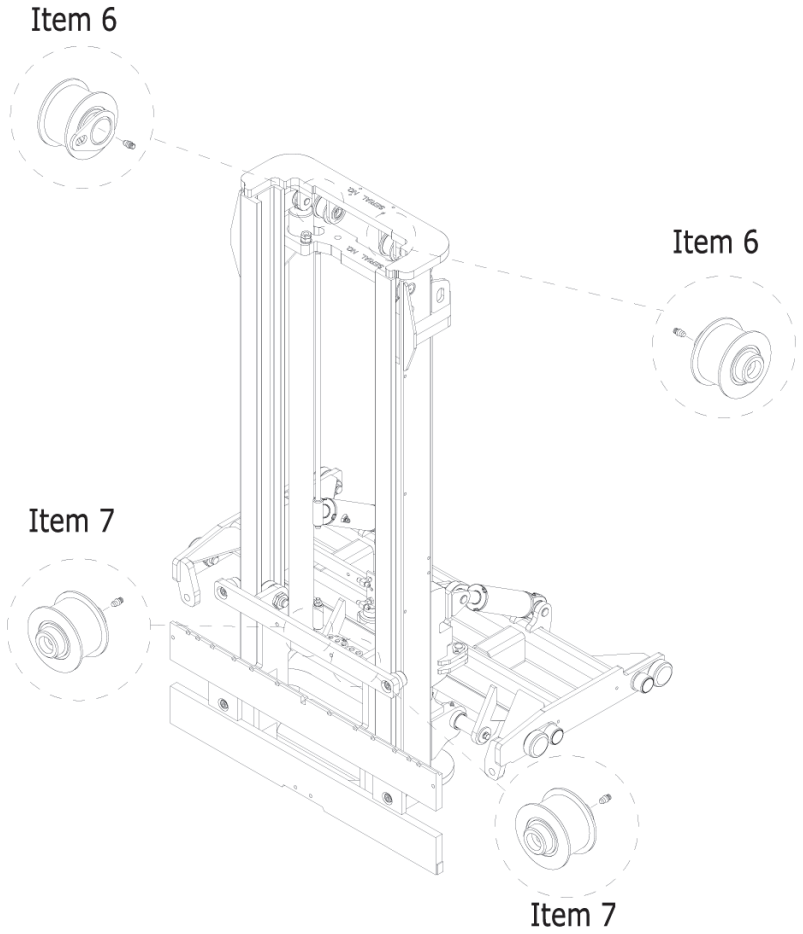
Grease Point Chart (continued)

FEM 3 Fork Carriage Grease Points



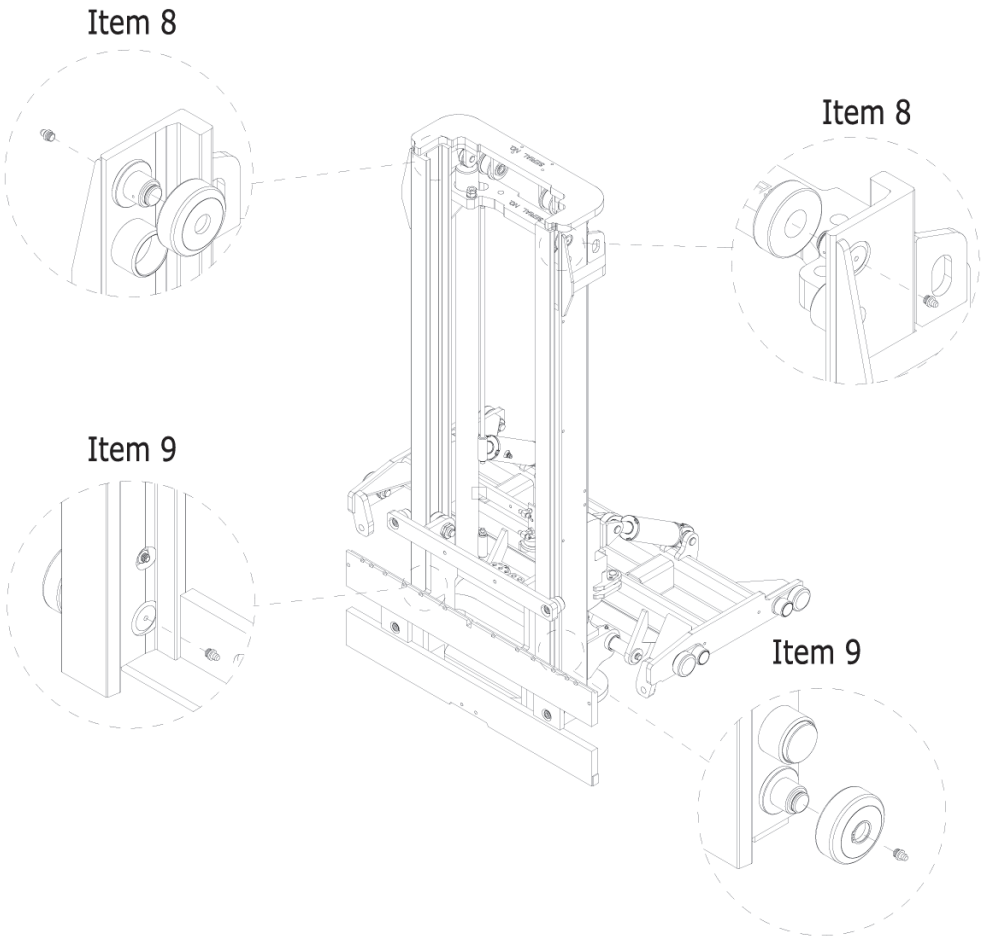
Grease Point Chart (continued)

Chain Rollers Grease Points



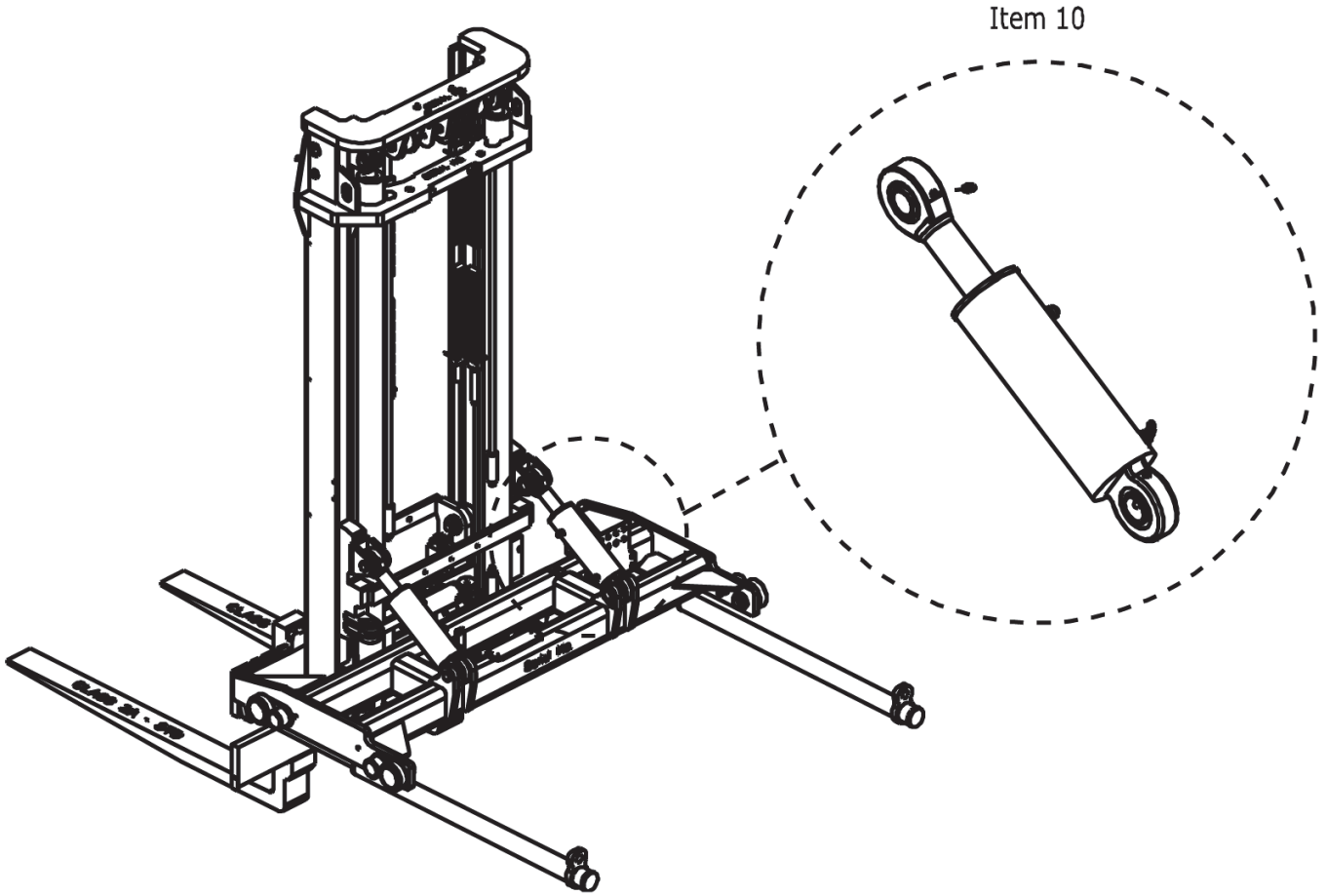
Grease Point Chart (continued)

Mast Section Grease Points



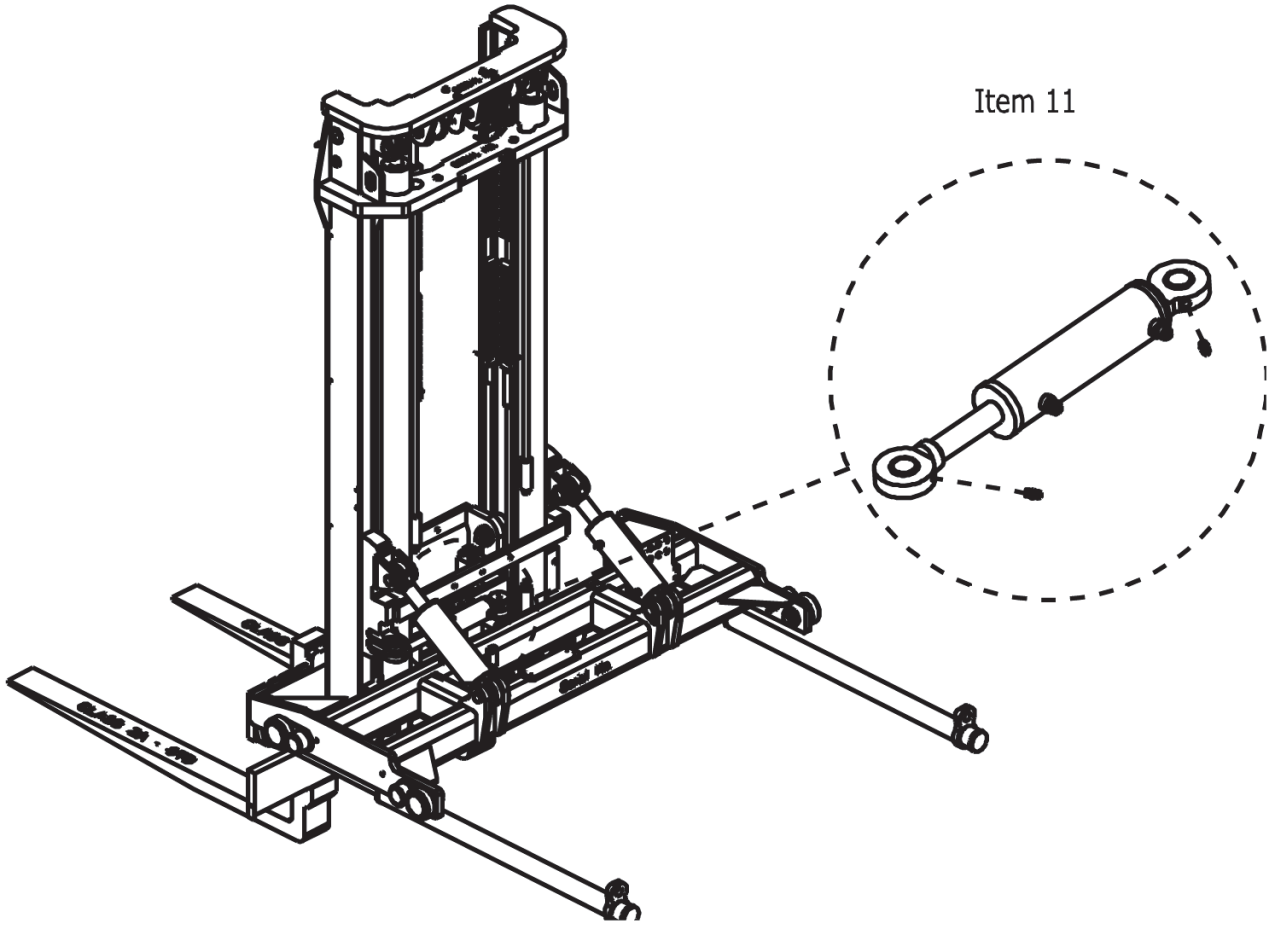
Grease Point Chart (continued)

Tilt Cylinder Grease Points



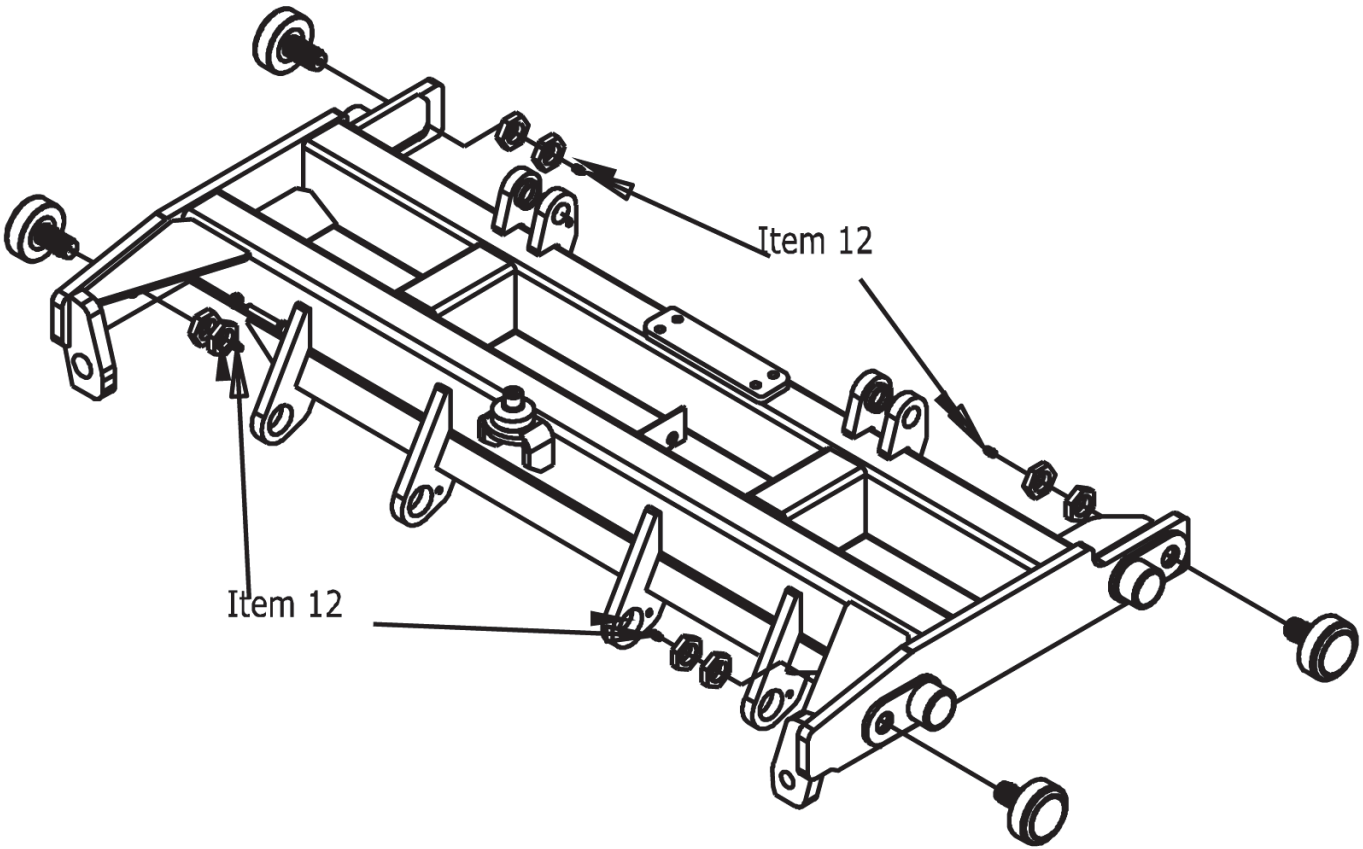
Grease Point Chart (continued)

Side-Shift Cylinder Grease Points



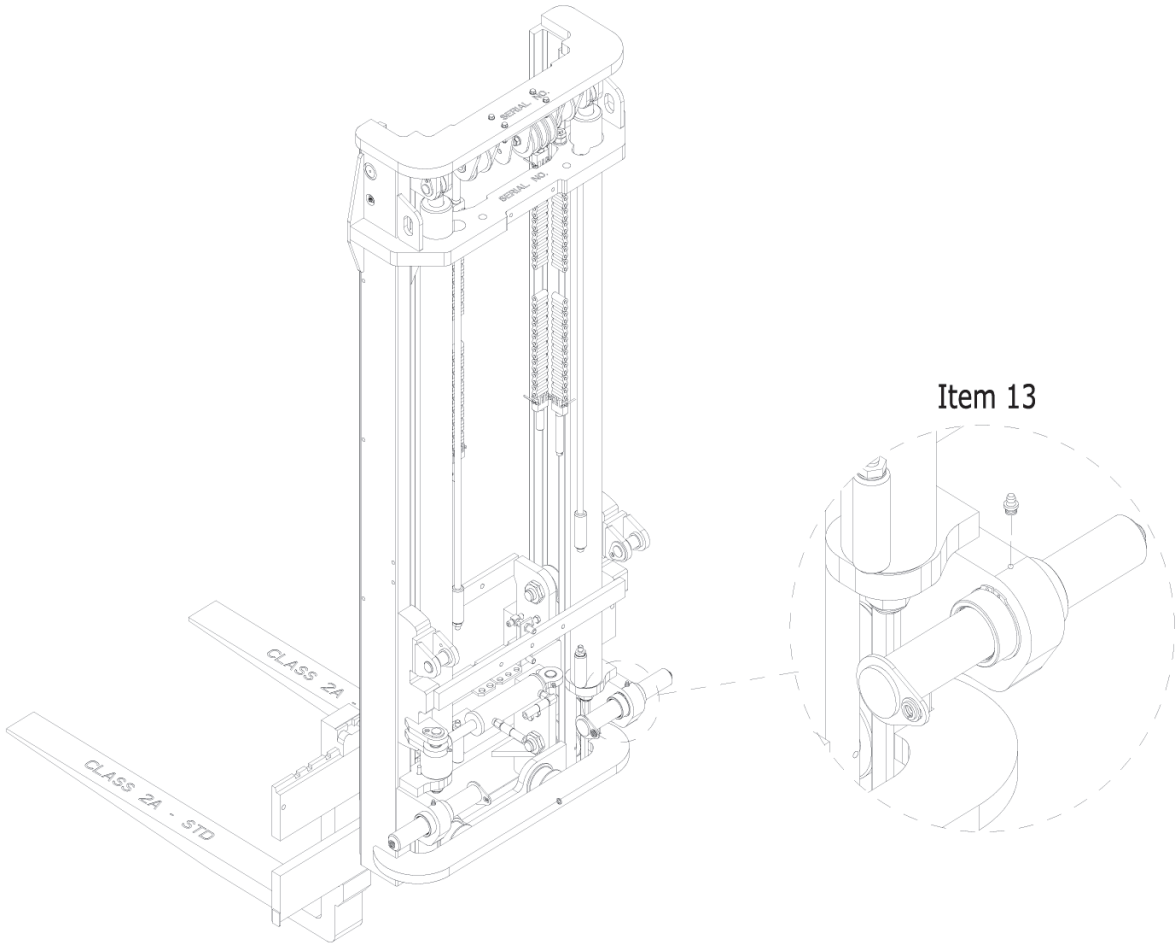
Grease Point Chart (continued)

Mast Carriage Grease Points



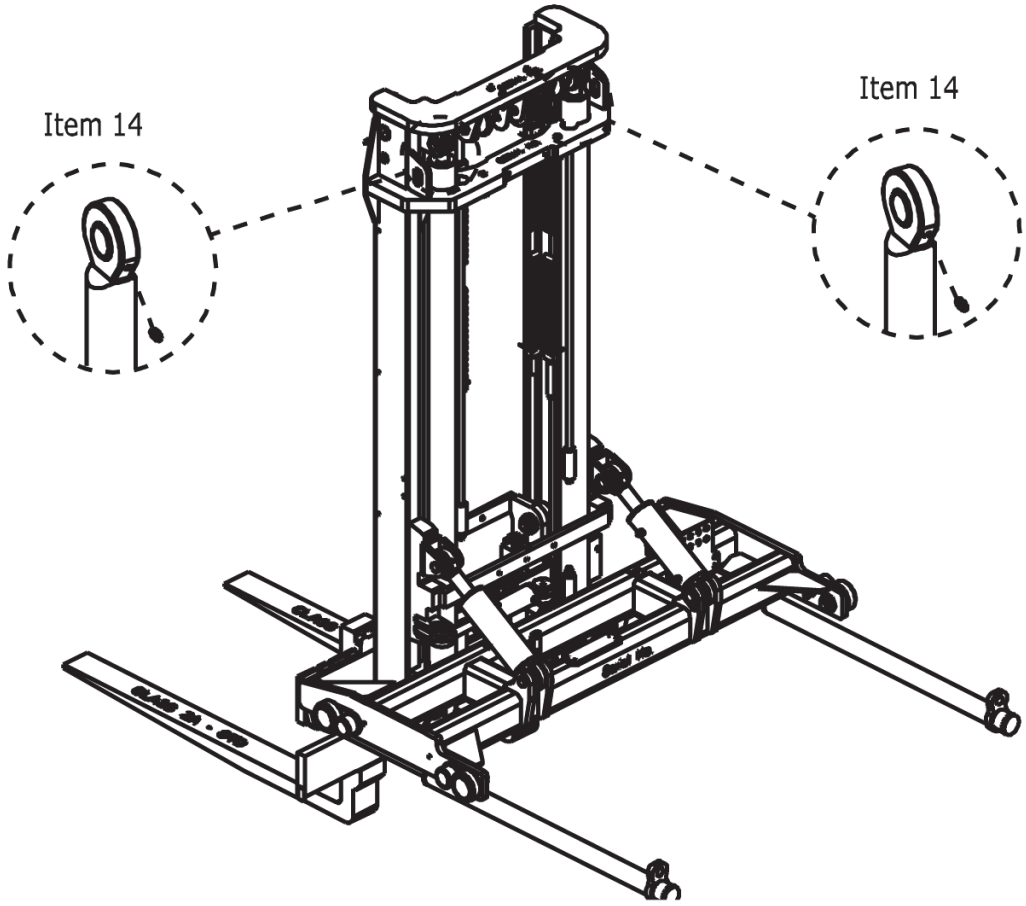
Grease Point Chart (continued)

Side-Shift Bushing Grease Points



Grease Point Chart (continued)

Lift Cylinder Grease Points



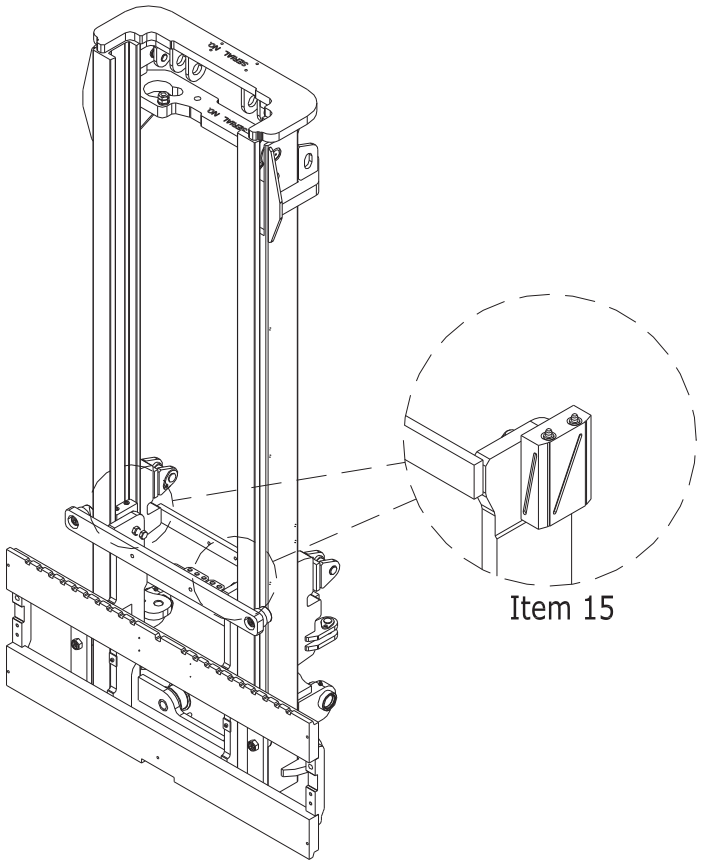
Grease Points (continued)

Nylon Wear Pad (Fem 3 Fork Carriage)
In order to ensure that the fork carriage nylon blocks are reliable and have the optimum performance, additional maintenance is required during the initial bedding in period and during periods of infrequent use of the Truck Mounted Forklift.

The Truck Mounted Forklift is supplied with a stabilizing kit which includes lubricant for this purpose. Cargotec Ireland recommends the use of Maxol Super Grease or similar spray grease with PTFE, extreme resistance to washout and extreme pressure.

The lubricant must be applied to the entire length of the channel that the nylon blocks slide in, once per week. This should be done after using the machine to give the grease time to adhere to the channel section.
This must be done until the nylon block has worn through the layer of paint and the metal surface of the channel on which the blocks slide appears polished.

Corrosion or a lack of lubrication on the steel channels may cause the nylon blocks to stick or judder when lifting a load or mounting the Truck Mounted Forklift. In situations where this occurs the frequency of lubrication must be increased to prevent damage to the nylon blocks or the machine structure.



Engine Oil

The engine oil should be SYNT SAE 5W-40 or 0W-30, LOW SAPS EURO 6 or API-CJ4. Change the type of engine oil according to the ambient temperature.
When using oil of different brands from the original one, be sure to drain all the previous oil before adding the new engine oil.
8.6L of oil is required to fill the engine.

Note: It is recommended that you consult with your local dealer before changing oil brands.

WARNING:

Engine Oil. Do not exceed the MAX level on the dipstick.

AMBIENT TEMPERATURE	OIL SPECIFICATION
Above -13°F (-25°C)	SAE 5W-40
Below -13°F (-25°C)	SAE 0W-30

Max. Oil Level (Lt)	Min. Oil Level (Lt)	Difference (Lt)
8.6	4.7	3.9

Engine Oil and Filter Cartridge Replacement Procedure

Note: Always replace the oil filter before changing the oil to prevent any contamination of dirty oil from the oil filter.

a) Place machine on a level surface.
b) Loosen the oil filter cartridge cap and let sit for 1 minute to allow the filter oil drain into the sump.
c) Remove both the oil filter cartridge cap and filter cartridge.
d) Check that the oil has drained from the filter housing.
e) Remove and replace the oil cartridge and gaskets with new ones.
f) Fit and tighten the cap to the oil filter support (25Nm, 18.4lb.ft)
g) Remove the oil filler cap and dipstick.
h) Remove oil drain plug and gasket.
i) Drain oil in an appropriate container.
j) Replace gasket and tighten the drain plug. (35Nm, 25.8lb.ft)
k) Add the correct specification and type of oil.
l) Fit and remove the oil dipstick to check the level, add additional oil if required.
m) Upon completion, reinstall the dipstick and tighten the oil filler cap.

Engine Coolant

A mix of 50% permanent type antifreeze and 50% distilled water should be used to fill the cooling system. The coolant mix inhibits corrosion, galvanic currents and calcium deposits. Coolant should comply with one of the following specifications:

Technical Specifications:

1. 50% Ethylene Glycol 50% Decalcified Water
2. 50% Propylene Glycol 50% Decalcified Water

Coolant concentration (freeze protection) and condition (rust inhibitors) will deteriorate over time. Test the coolant using a hydrometer for freeze protection and inspect the cooling system for contamination at least once per year or at each service, whichever occurs first.

A6. MAINTENANCE

Engine Fuel Specification

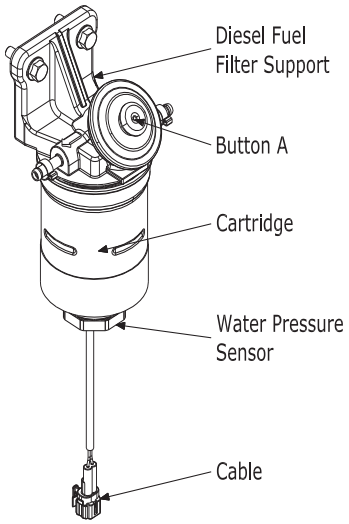
Use a No.2-D grade of ultra low sulfur diesel fuel oil according to ASTM D975-09B regulation - S 15. This is a distillate fuel oil of lower volatility for engines in industrial and heavy mobile service (SAE J313 Jun87). Be sure to use a strainer when filling the fuel tank, as dirt or sand in the fuel may cause trouble in the fuel injection pump. Always use diesel fuel. Use of other type of fuel could damage the engine. Do not use dirty diesel fuel or mixtures of diesel fuel and water since this will cause serious engine faults. When operating the engine in ambient temperatures lower than 0°C (32°F), use suitable low temperature fuel corresponding to the table below.

EN 590, DIN 51628 – Military NATO fuel F-54 (S=10 ppm)
No 1 Diesel (US) – ASTM D 975-09 B Grade 1-D S 15 (S=15 ppm)
No 2 Diesel (US) – ASTM D 975-09 B Grade 2-D S 15 (S=15 ppm)
ARCTIC (EN 590/ASTM D 975-09 B)
Bio Fuels (EN14214) See Note

Note: Bio Fuel
Fuels containing 10% methyl ester or B10 are suitable for use in this engine provided that they meet the specifications listed in the Tab 2.4.
DO NOT USE vegetable oil as a biofuel for this engine.
Any failures resulting from the use of fuels other than recommended will not be warranted.

Fuel Filter Cartridge Replacement Procedure

a) Disconnect the water presence sensor cable.
b) Remove the water presence sensor from its cartridge.
c) Loosen the cartridge.
d) Lubricate the new cartridge gasket (Not shown). DO NOT FILL THE NEW CARTRIDGE WITH FUEL.
e) Tighten the new empty cartridge on the diesel fuel filter support. (17Nm, 12.5lb.ft)
f) Tighten the water presence sensor on to the new cartridge. (5Nm, 3.6lb.ft)
g) Reconnect the water presence sensor cable.
h) Push button A on the top of the fuel filter repeatedly to fill the circuit.



A6. MAINTENANCE

Hydraulic Fluid

Oils conforming to the International Standard I.S.O. 6743-4HV VG grade with improved viscosity/temperature characteristics should be used. (Some countries may still use DIN 51524 PART 3). The hydraulic oil used in the Truck Mounted Forklift must have the correct temperature range for the ambient temperature in which the machine is being operated. If the operating temperature is outside the range of the oil supplied with the Truck Mounted Forklift, the oil should be replaced with the correct grade. Some examples of commercially available oils are listed below. Make sure the correct type is used in the relevant ambient environment.

Note: The sequence in which the brand names are listed does not signify any grading as to their quality or preference.

AMBIENT TEMPERATURE	**Low Range -4°F to 77°F -20°C to 25°C**	**Standard Range 14°F to 95°F -10°C to 35°C**	**High Range 32°F to 113°F 0°C to 45°C**
Castrol: Hypsin	AWH 32	AWH 46	AWH 68
BP: Bartran	HV 32	HV 46	HV 68
Esso: Univis	N 32	N 46	N 68
Mobil:	13 M	15 M	16 M
Shell: Tellus Oil	T 32	T 46	T 68
Texaco:	HDZ 32	HDZ 46	HDZ 68

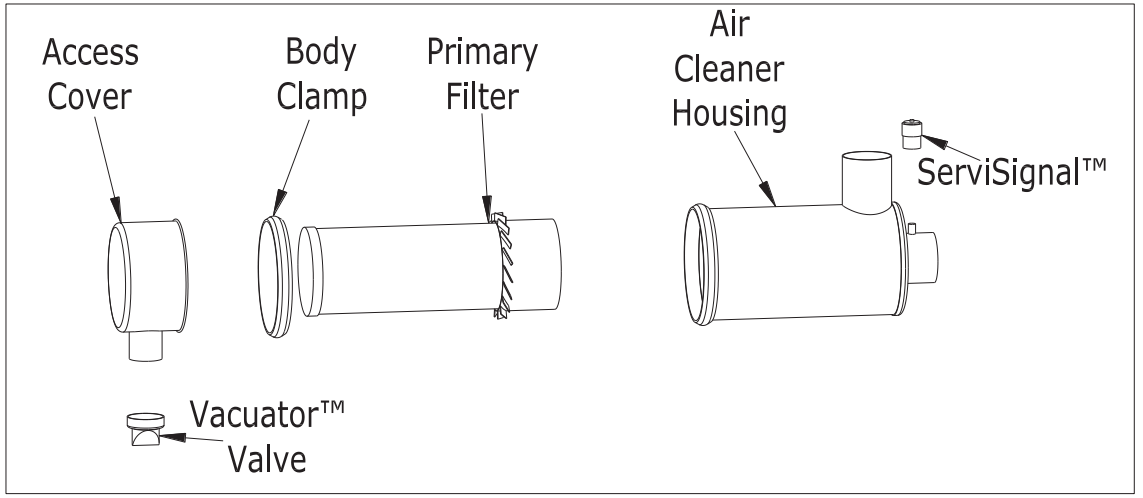
Air Filter Unit

The Air Filter Unit supplied on your Truck Mounted Forklift consists of a single stage filter system. The ServiSignal™ shows a highly visible, bright red flag in the full-view window when the restriction limit is reached. To reset, push the top button after replacing the filter.

Note: Never attempt to clean any dirty or blocked filters, always replace them.

Servicing the Filter.

1. Loosen the body clamp to remove the access cover assembly and wipe clean.
2. Ensure the Vacuator™ Valve is clean and clear.
3. If the ServiSignal™ had indicated the inlet restriction limit was reached, you must then replace the primary filter.
4. Reinstall the access cover, ensuring the Vacuator™ Valve is facing downward.
5. Tighten the body clamp.



Cleaning Mast Chains Using Steam Jet Equipment

Recommended Jet Equipment Cleaning Method for Leaf Chain

The following method is recommended for when the use of jet equipment cannot be avoided in leaf chain and forklift chain maintenance:

1. **Cleaning** - Clean the leaf chain using steam or hot water only. Absolutely no additives should be used.
2. **Compressed Air** - Immediately after cleaning the leaf chain, all water should be removed both from the surface and from inside the chain joints using high pressure compressed air. The articulating links of the chain should be moved several times during this process.
3. **Re-lubricating** – Make sure that the chain is slack and then spray with a preservative and lubricant. Articulate the chain several times so that the lubricant penetrates the chain joint.
4. **Products to be used** – The following characteristics are recommended for forklift truck leaf chain lubrication:

- Satisfactory corrosion protection and lubrication
- Ability to penetrate through / under water
- Continuously viscous after application
- Good adhesion properties
- Layer thickness and protective film able to withstand later aggression (rain / hail etc.)

Chain Lubricant Specification

The lubricant oil's viscosity should be chosen so that it will remain fluid at all occurring ambient temperatures. Under normal temperature conditions, lubricating oils with a viscosity from SAE 20 to SAE 40 (0.07 to 3.1in^2/s at 104°F) are suitable. Properties should include: penetrating spray grease, with minimal residue. The following are examples of commercially available chain lubricating products.

1. Molykote MKLN.
2. Klubber Stroctovis BHD75.
3. Fuchs Stabylan G100.
4. Lubriplate Chain and Cable Fluid.

Grease Specification

The recommended grease for all moving parts is Lithium EP2 or a grease of equivalent specification. This is particularly important for all bearings and rollers.

Note: When carrying out maintenance/service work always use kluberpaste® on pins, bearing stubs, 4-Way swivels, steering collars etc. Refer to the service manual for further details.

Tire Inflation

See the chart for the recommended tire inflation pressures used by the Truck Mounted Forklift.
It is recommended that the tread depth should never fall below 20% of the original tread depth.

WARNING:

Compressed Air. Using compressed air can be dangerous. Obey all statutory notices and apply all relevant health and safety regulations.

Wheel Nut Torque	
Torque	**Wheel Nut Part Number**
150lb.ft	503.055.0345

Note: Changes in the tire ply will affect the inflation pressure. Always check the max inflation pressure indicated on the tire.

Specification			
Tire	**Ply**	**PSI**	**Bar**
31.5x13-16.5	10	70	4.8
31x15.5-15	8	45	3.1
29x12.5-15	6	30	2.07

Noise and Vibration data

Noise Data
Noise (In accordance with EN12053)
The figures below are a combination of the values for the operating modes "DRIVE", "LIFT" and "IDLE" weighted with a proportion factor and is made in accordance with EN12053, 2001

1. Sound Power Level	101 LWA dB
2. Sound Pressure Level	84 LPA dB

The figure below is a guaranteed sound power level to Noise for Outdoor Noise Directive 2000/14/EC

1. Guaranteed Sound Power Level	107 LWA dB

Vibration Data
Vibration (In accordance with EN13059)
Weighted rms Acceleration Whole Body Vibration (M/s^2) 1.58

Note: Please be aware that the vibration levels may vary from those shown depending on the specification of the machine.

Jump Starting

Safety

WARNING

Procedure. If you are unsure how to follow this procedure, we strongly recommend that you seek the help of a competent mechanic.

Batteries contain sulfuric acid which is poisonous and corrosive. Wear protective safety glasses when jump starting and avoid spilling acid on your skin, clothing or the vehicle.

Do not try to charge a frozen battery. If you try to charge a frozen battery or jump start and run the engine, the battery could explode.

Do not use the battery if the electrolyte is frozen. To prevent the battery electrolyte from freezing, keep the battery at full charge.

Do not smoke when checking the battery electrolyte levels. Batteries give off a flammable gas that can explode. When starting another machine, make sure the two machines do not touch as this could cause sparks. Sparks could ignite the battery gas. If this happens the battery could explode.

Even with the starter switch set to the off position some circuits will still be energized when the external power supply is connected. Ensure all machine switches are set to the off position before connecting the external power supply.

Only use jump start cables that are in good condition with securely attached connectors.

Connect both ends of one jump start cable before connecting the other cable.

CAUTION:

Jump Start Supply. The jump start supply should not be more than 12 volts. Using a higher voltage supply will damage your machines electrical system. Do not connect two batteries together to give 24 volts. This could burn out the induction manifold heater and damage the starter motor.

WARNING:

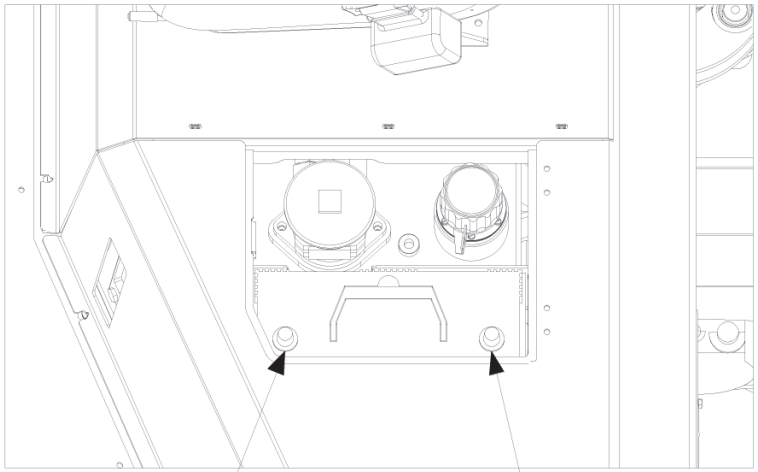
Electric Shock. Keep all metal straps and fasteners from clothes or jewelry clear of the positive (+) battery terminal. Such items can cause a short between the battery terminal and nearby metal framework. If this happens you could get burned.

Jump Starting (continued)

Procedure

Note: Your machine has a 12 volt starting system. The negative terminal (-) is connected to the engine cylinder block.

A) Make sure that the park brake is engaged and the forward/reverse pedal is in neutral.
B) Ensure all switches are set to the off position.
C) Open the battery access panel.
D) Connect the positive (+) jump start cable to the positive (+) terminal on the forklifts battery. Connect the other end of this cable to the positive (+) terminal on the spare battery.
E) Connect the negative (-) jump start cable to the negative (-) terminal on the forklifts battery. Connect the other end of the negative (-) cable to the negative (-) terminal on the spare battery.
F) Start the engine. (Refer to Starting the Engine).
G) Disconnect the negative (-) jump start cable from the negative terminal on the forklifts battery, and then disconnect it from the spare battery supply. Disconnect the positive (+) jump start cable from the positive (+) terminal on the forklifts battery, and then disconnect it from the spare battery supply.
H) Close and lock the battery access panel.



Priming the Fuel System

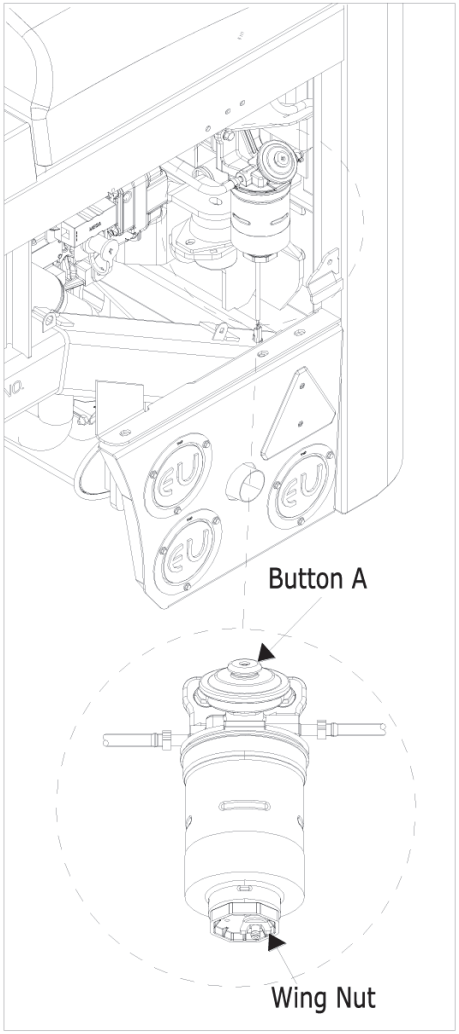
Procedure. In the event of the machine running out of fuel, or the fuel tank being drained, the fuel system must be primed before the next startup.

Fill the tank as normal, you must then press button A repeatedly in order to fill the circuit. Once the button become difficult to press, your machine should be ready to start as normal.

Checking Water Separator

Procedure. If the "FUEL" message code is displayed on the dash, it is possible that there is water in the fuel system which must be drained.

Gently loosen the wing nut without removing it. Drain the water if present. Re-tighten the wing nut as soon as the fuel begins to flow.



Using other Attachments

The Truck Mounted Forklift is available with a range of attachments fitted from the factory. The general rule is that any attachment used on this forklift must be intended for the function of lifting only. This forklift is not designed to PULL, TOW or DRAG other objects. DO NOT use attachments that perform these functions with this forklift.

All machines supplied with attachments have special capacity charts taking into account any additional attachment weight and lost load center and how this affects the stability and capacity of the machine. Third party suppliers may not supply this information with their attachments and so only approved attachments must be fitted to the Truck Mounted Forklift.

We make no representations or warranties, express or implied as to the design, manufacture or fitness for use with this forklift of any third party source attachments.

This forklift is not intended to be used and should not be used with any attachment that would alter the center of gravity stability of this forklift. We assume no liability for any third party attachment that would alter the center of gravity stability.

If in doubt contact your local dealer for advice.

A9. CERTIFICATE OF CONFORMITY

Certificate of Conformity

The Truck Mounted Forklift is supplied with a certificate of conformity. This document certifies the directives that the Truck Mounted Forklift is in compliance with.

CARGOTEC

MANUFACTURER'S CERTIFICATE OF CONFORMITY IN RESPECT OF SELF-PROPELLED FORKLIFT TRUCKS

Cargotec Ireland Ltd.
Ardee Road, Dundalk, Co. Louth, Ireland

I hereby certify that the self-propelled moving mast forklift truck:

Type	**Serial Number:**
XX Range	XXXXXXXX – XXXXXXXX

Conforms in all respects to the requirements of:

Council Directive 2006/42/EC & 98/37/EC of 22nd June 1998 on the approximation of the Laws of the Member States relating to machinery - The Machinery Directive (formerly Directive 89/392/EEC amended by 91/368/EEC, 93/44/EEC and 93/68/EEC)

Directive on Electromagnetic Compatibility (EMC) 89/336/CEE as amended by EC Directive 92/31/EEC. BS EN 12895:2000 - Industrial Trucks EMC

BS EN 1726-1:1999 Safety of Industrial Trucks

Directive ASME / ANSI B56.6-1998 Safety standard for rough terrain forklift trucks

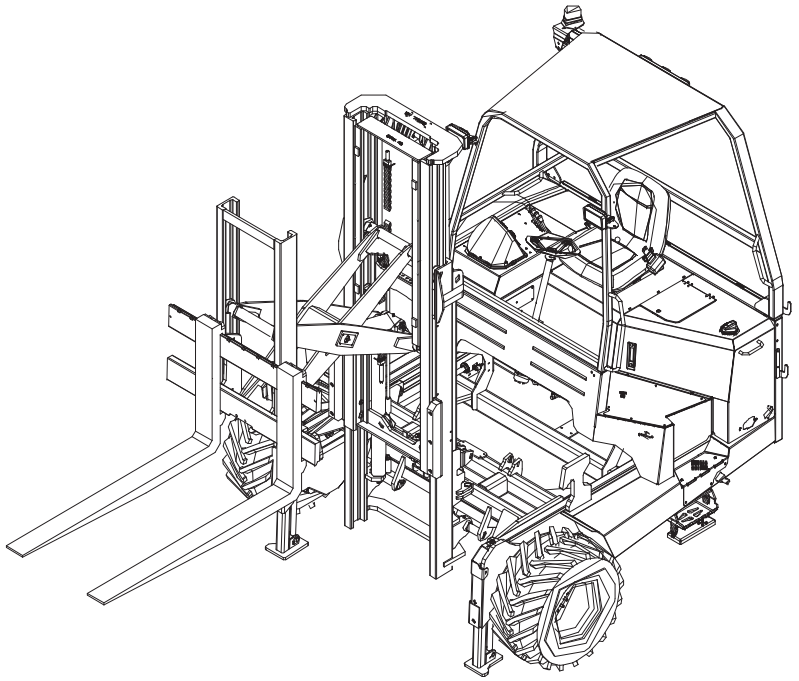
Year of Manufacture: 2016

Engineering Director

Operator Manual

The Truck Mounted Forklift with Pantograph.

Note: This section of the manual describes the additional operating instructions for the Truck Mounted Forklift Pantograph unit and should only be used as a supplement to the operator manual.



B1. SAFETY CHECKLIST - PANTOGRAPH

Pantograph Safety

Note: The additional safety checklist in this section is specific to the pantograph. This should be used in conjunction with the safety checklist for the standard machine as outlined at the start of this manual.

WARNING:

Pantograph. Do not lift the load more than 4” clear of the bed while the pantograph is extended.

WARNING:

Capacity. Do not exceed the capacity shown on the load chart for pantograph reach device.

WARNING:

Stabilizers. Always retract the pantograph prior to raising stabilizers.

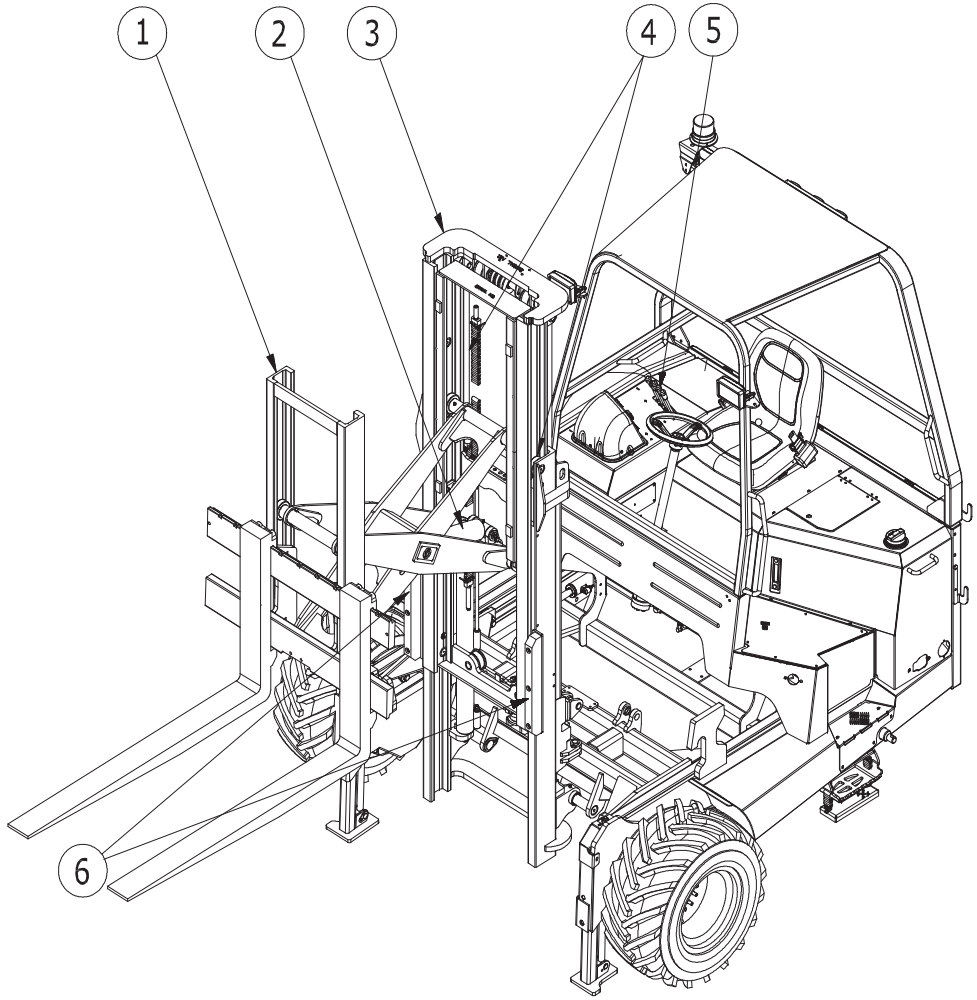
CAUTION:

Truck Mounting. Never truck mount with the pantograph extended. Always truck mount with the pantograph retracted as outlined in the normal mounting procedure.

B2. INTRODUCTION - PANTOGRAPH

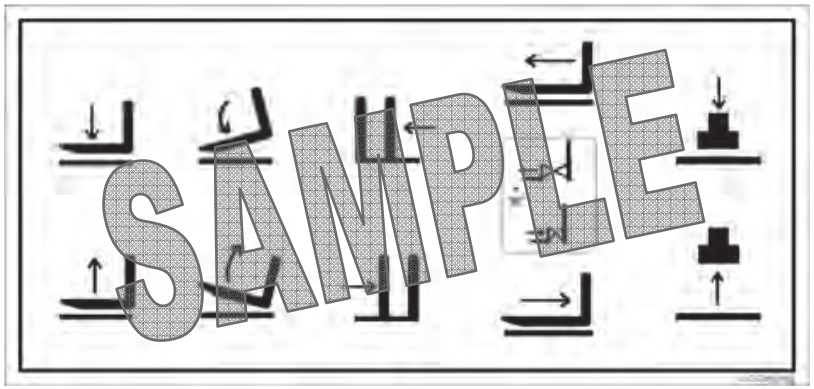
Major Components

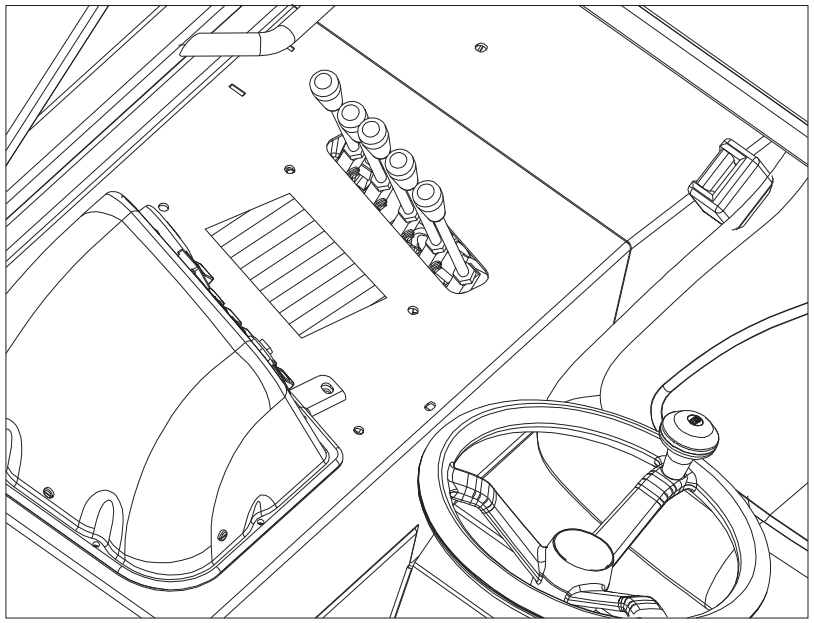
1. Pantograph Device
2. Scissor Cylinder
3. Pantograph Mast
4. Lift Rams x 2
5. Hydraulic Controls
6. Bump Strips



Safety Decals

Part Number 517.230.0002



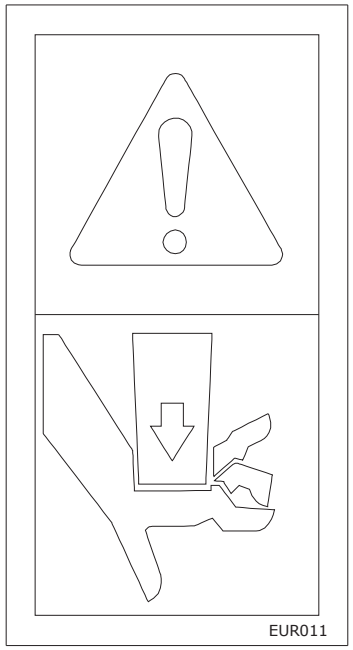


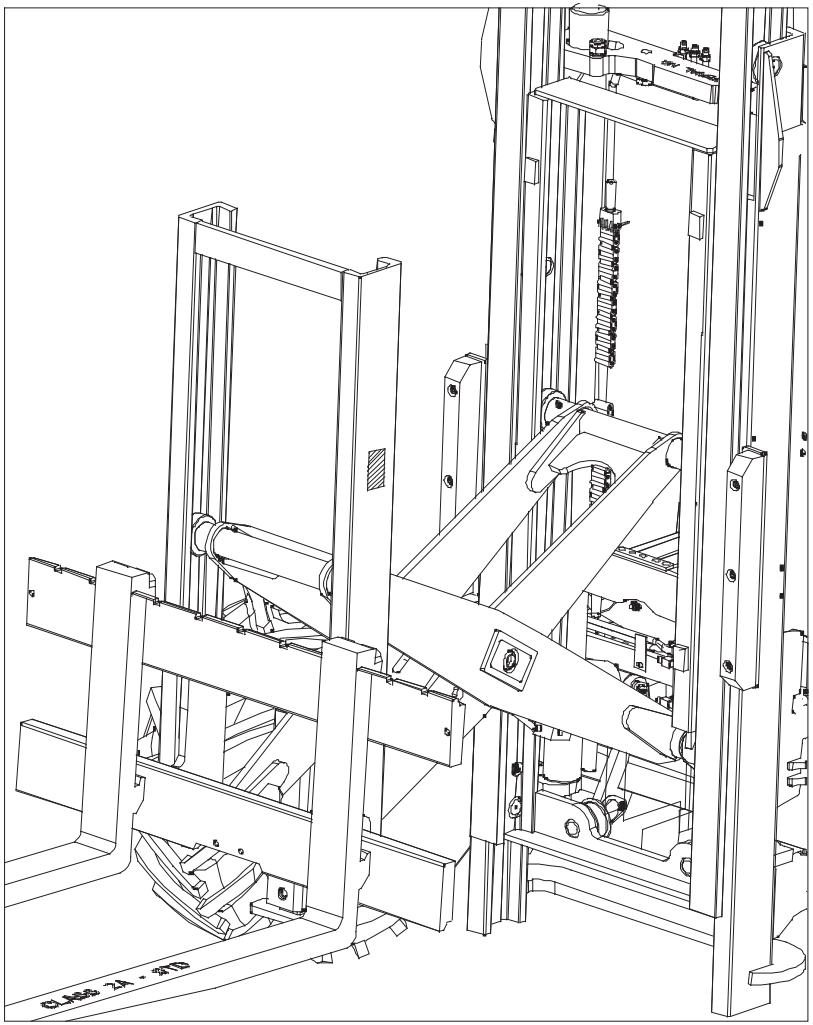
Note: The valve bank and load chart decals in this section are only examples and may differ from those found on your machine.

Safety Decals (continued)

Note: There are additional EUR011 decals on right hand side that are not shown here.

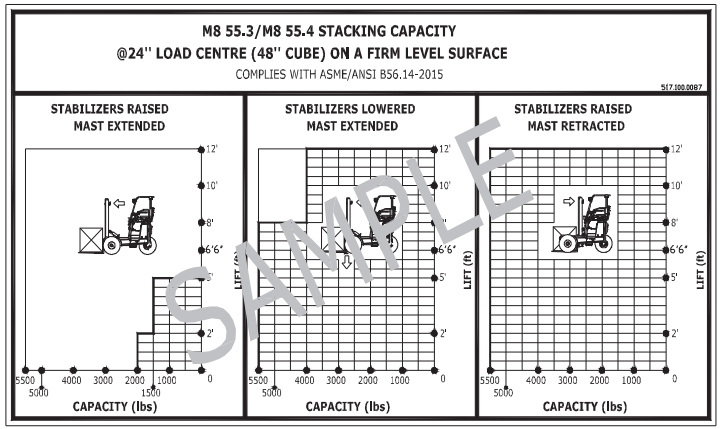
Part Number EUR011

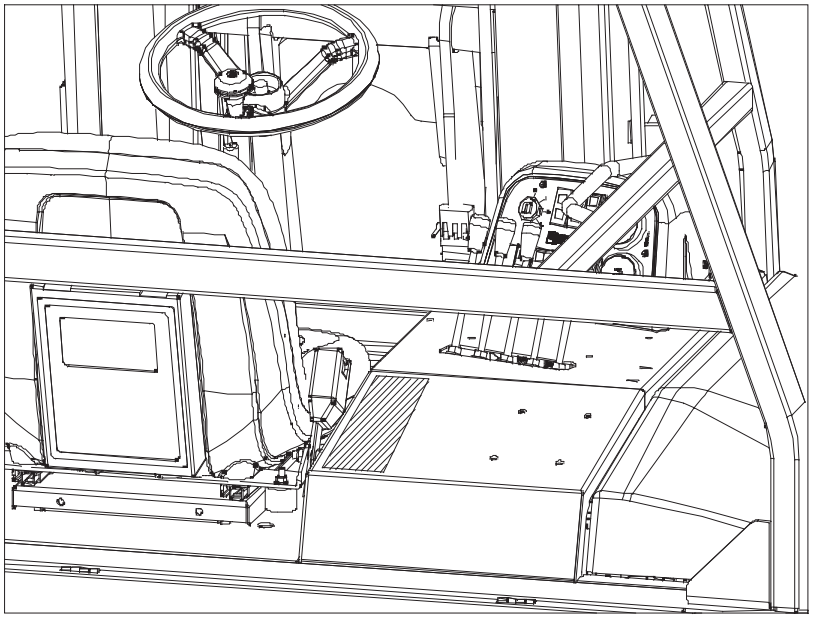




Safety Decals (continued)

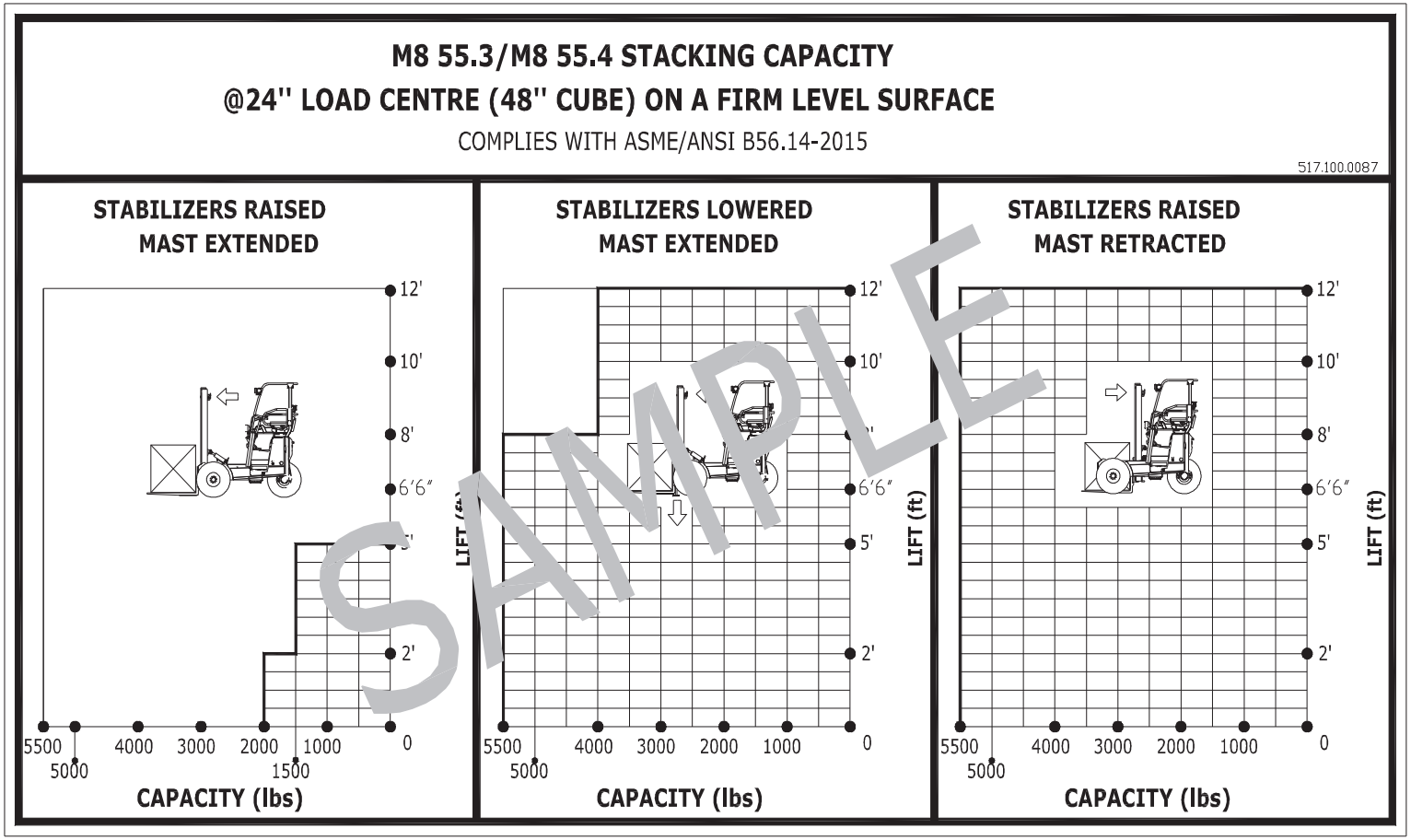
Part No. 517.233.0002





B2. INTRODUCTION - PANTOGRAPH

Safety Decals (continued)



B2. INTRODUCTION - PANTOGRAPH

Hydraulic Levers

The pantograph machine is fitted with two dual function levers. The function of these levers is outlined below and on the valve bank decal. Study the valve bank decal for your Truck Mounted Forklift before operating the machine. Understand the function of the hydraulic levers fully before operating the machine.

A **Forks – Raise and Lower:** This lever raises and lowers the forks. Forward movement of the lever will lower the forks down. Backward movement of the lever will raise the forks up.

B **Tilt – Forward and Back:** This lever tilts the mast forwards and backwards. Forward movement of the lever tilts the mast forward (forks down). Backward movement of the lever tilts the mast rearward (forks up). Loads should normally be transported with the mast tilted back.

C **Side-Shift – Left and Right:** This lever moves the mast to the right or left. Forward movement of the lever shifts the mast to the left. Backward movement of the lever shifts the mast to the right.

D **Mast or Pantograph:** This lever is fitted with a button which gives the lever two functions D1 and D2.

D1. **Mast – Extend and Retract:** Without the red button pressed (off), this lever moves the mast forwards and backwards. Forward movement of the lever extends the mast forward, away from the operator (out). Backward movement of the lever retracts the mast back towards the operator (in). When placing a load, the mast should be extended only when the stabilizers are fully lowered.

D2. **Pantograph – Extend and Retract:** With the red button pressed (on), pushing this lever forward will extend the pantograph section (out). Pressing the button (on) and pulling this lever backwards will retract the pantograph section (in).

E **Stabilizers:** This lever raises and lowers the stabilizing legs. When placing a load, the stabilizers must always be fully lowered before moving the mast forward. Forward movement of the lever will lower the stabilizers down. Backwards movement of the lever raises the stabilizers up. When lifting a load, never raise the stabilizers until the mast is fully retracted.

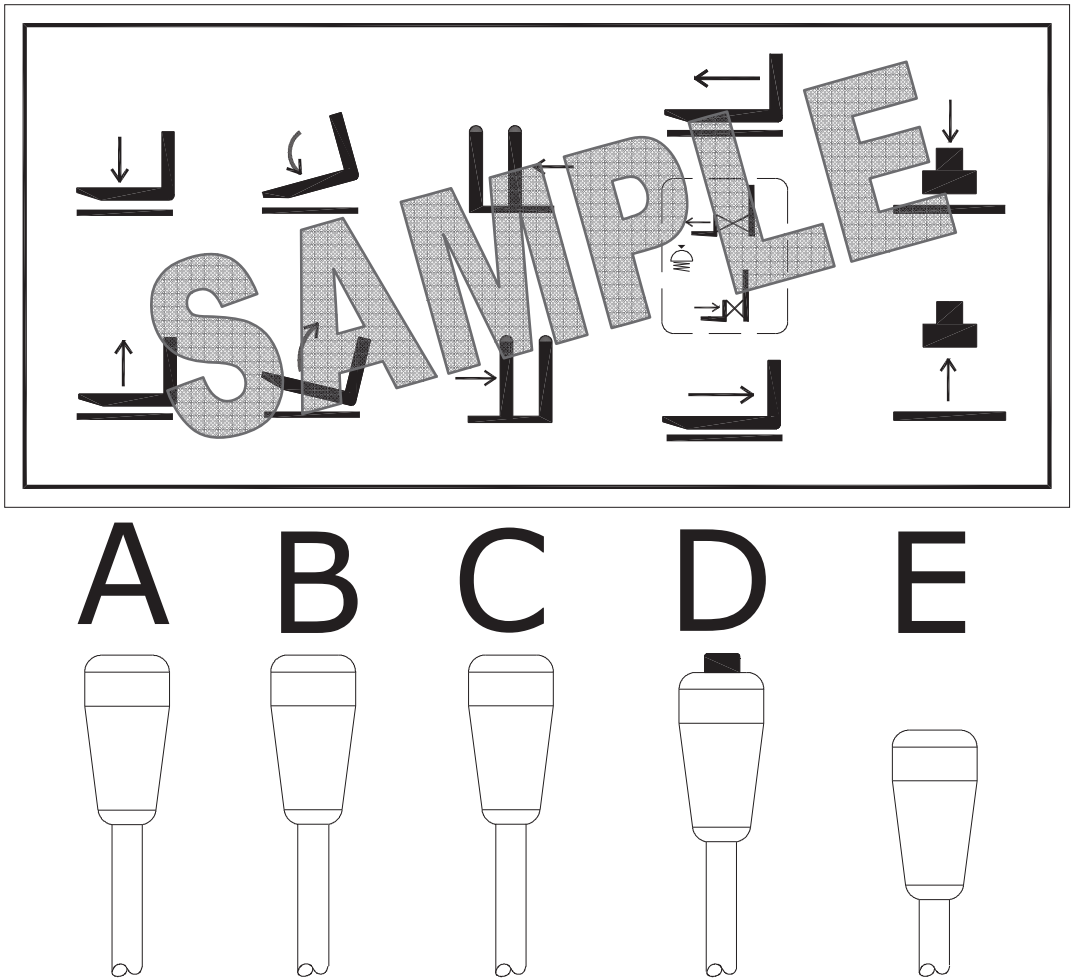
Hydraulic Levers (continued)

Note: When the ground is not firm enough to support the stabilizers extra support plates must be used of sufficient size and strength to ensure they do not sink, bend or buckle during operation. A second person may be required to check the support plates. If at any time the stabilizers or pads show signs of sinking, the procedure must be stopped immediately, the mast fully retracted and an alternative location found. If in doubt prior to or during an operation on loose, uneven or soft surfaces, stop. Always consider safety first.

Note: If during the lifting operation the stabilizers start to slip, the load must be lowered immediately and a smaller load center lifted or improved ground conditions found.

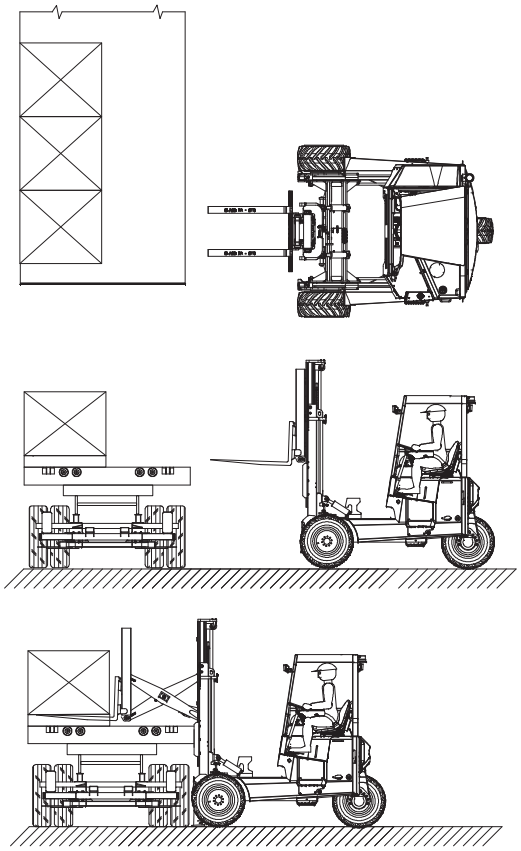
B2. INTRODUCTION - PANTOGRAPH

Hydraulic Levers (continued)



B3. OPERATING PROCEDURES - PANTOGRAPH

Operating the Pantograph



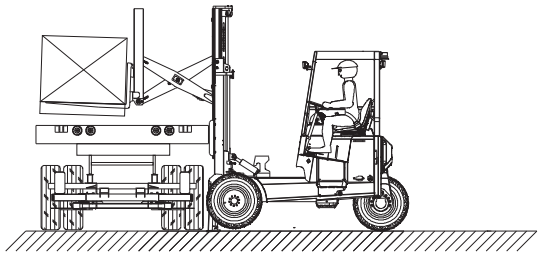
Note: These procedures are in addition to the operating procedures outlined for the standard machine in Section 4 of this manual.

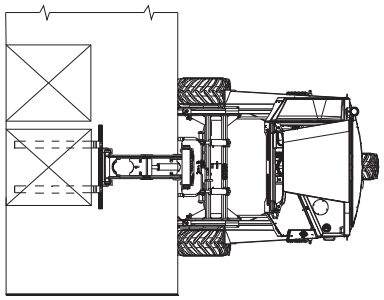
1. Align the forklift and the forks with the center of the load.
2. Approach at 90 degrees to the truck/trailer bed with the mast fully forward and the forks as low as possible.

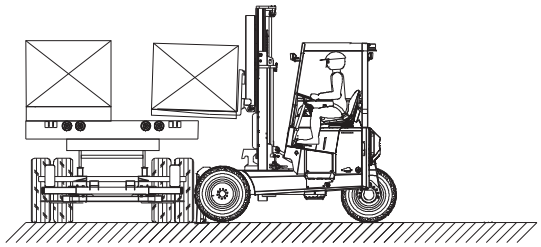
3. Drive forward slowly until the front of the forks are approximately 6” from the truck or trailer bed.
4. Tilt the mast forward to the vertical position and raise the forks to bed height.
5. Drive forward as far as possible with the Bump Strips just making contact with the bed.
6. Do not contact the tires or any part of the truck or trailer with the stabilizers.

7. Extend the pantograph fully to engage the pallet.
8. Ensure the surface is firm and level and then LOWER the stabilizers fully.
9. Never lower the stabilizers near the edge of a curb because they may slip off the edge or the edge may break away.

Operating the Pantograph (continued)







10. Raise the load slowly just enough to clear the bed.

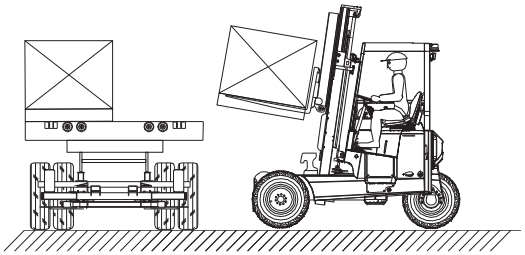
WARNING:

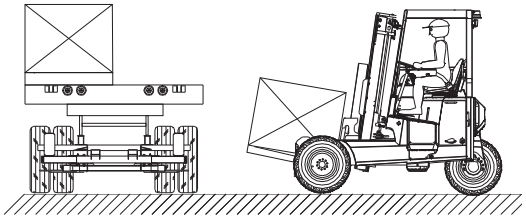
Pantograph. Do not lift the load more than 4" clear of the bed while the pantograph is extended.

11. Side-shift enough to clear the adjacent pallet or headache rack.
12. Retract the pantograph fully.
13. Double fork if necessary to ensure load is in contact with fork face.
14. Tilt the mast rearward enough to stabilize the load.

15. Retract the mast fully.
16. Raise the stabilizers fully.

Operating the Pantograph (continued)

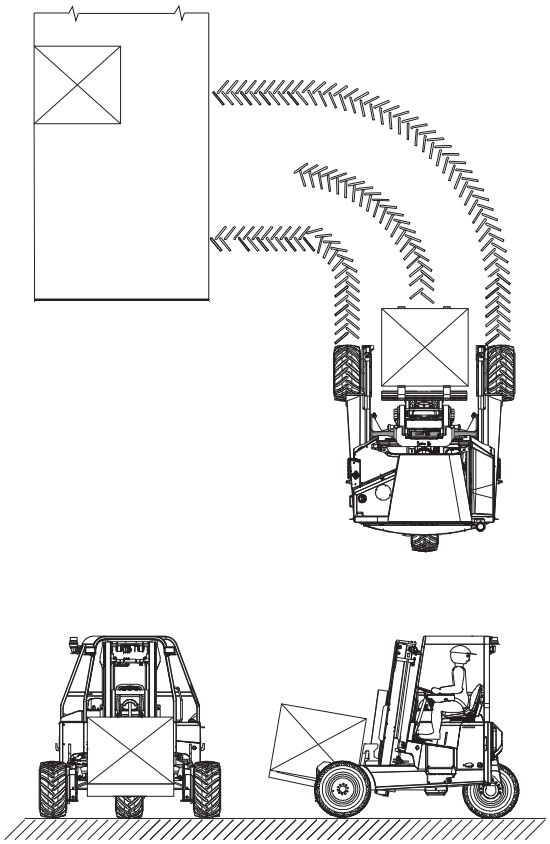




17. Ensure the rear wheel is pointing straight ahead.
18. Reverse straight back to clear the truck or trailer bed (looking in the direction of travel).

19. Lower the load to a level just above the frame.
20. Side-shift the mast to the center position.
21. Lower the load as low as possible within the frame.

Operating the Pantograph (continued)



22. Turn the forklift in the intended direction of travel.

23. Slowly drive away, looking in the direction of travel.

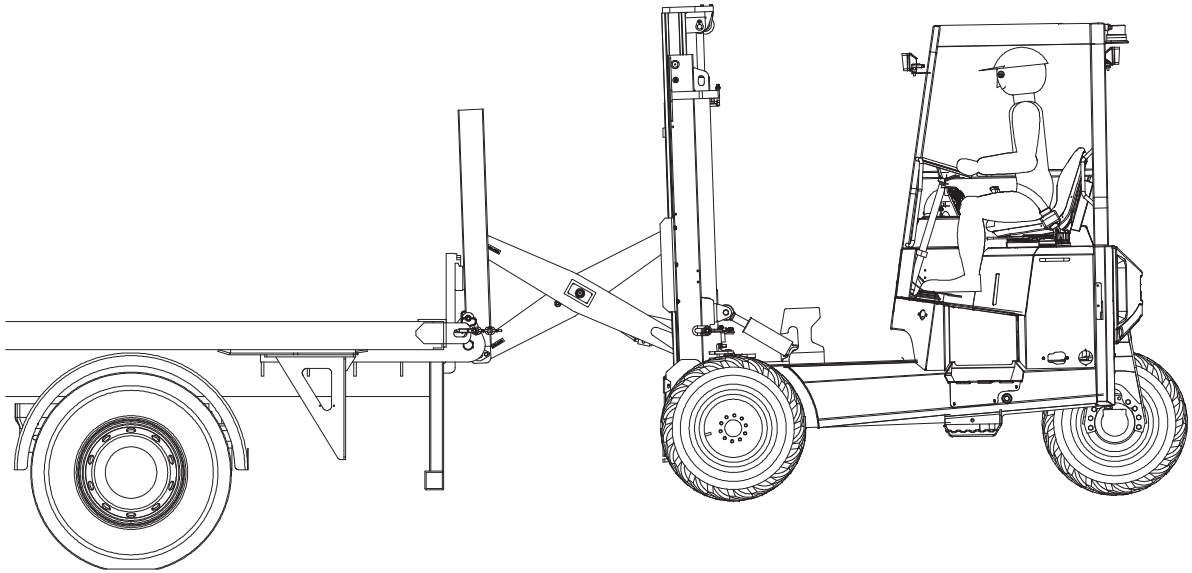
B4. MOUNTING PROCEDURES - PANTOGRAPH

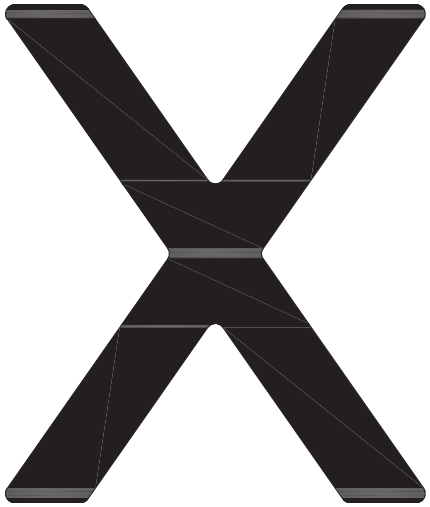
Mounting Procedure

When mounting this machine the standard mounting procedure applies, however the pantograph machine is fitted with a pressure sensor in the rod side of the lift cylinder. This sensor detects when the machine is lifted off the ground during truck mounting. When the sensor detects pressure e.g. the machine is lifted off the ground the pantograph is disabled. This stops the pantograph being used to mount or dismount the machine on the mounting kit.

If the machine is mounted with the pantograph extended the machine will lift however the Pantograph function will be disabled. To continue mounting the machine you must first lower the machine to the ground and then fully retract the pantograph. Continue to mount the machine with the pantograph retracted.

NEVER MOUNT THE MACHINE USING THE PANTOGRAPH, ALWAYS ENSURE THE PANTOGRAPH IS FULLY RETRACTED





B5. MAINTENANCE - PANTOGRAPH

Daily Pre-Shift Inspection Checklist

Note: The additional checks listed in this section are specific to the pantograph and should be used in conjunction with the daily pre-shift inspection checklist on the standard machine, for this refer to section 6 in this operator manual.

Visual Checks
The Truck Mounted Forklift must be parked on a firm level surface in a SAFE ZONE with the keys removed and the park brake engaged. Starting at the operator's station, walk around the forklift and complete the following visual checks.
If defects are identified during the pre-shift visual inspection, notify your supervisor immediately.

1. **Pantograph Scissor Assembly** – Check for damage and bends. Check the center pin for wear and cracks.
2. **Pantograph Cylinder** – Check for leaks at the fitting and glands (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
3. **Bump Strips -** Check the bump strips for damage, cracks, missing bolts.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT VISUAL INSPECTION, NOTIFY YOUR SUPERVISOR IMMEDIATELY.

B5. MAINTENANCE - PANTOGRAPH

Daily Pre-Shift Inspection Checklist (Continued)

Operational Checks
Operational inspections are done by starting the engine, operating all controls, and test driving the Truck Mounted Forklift. Never start the Truck Mounted Forklift to perform the operational inspections if the visual inspection indicates an immediate safety hazard. Constantly monitor the gauges, listening for unusual noises, loose parts, fluid leaks and unusual conditions. If a problem is suspected, take the forklift out of service and have it inspected and repaired.

1. **Pantograph –** Ensure the pantograph extends and retracts smoothly.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT OPERATIONAL CHECK, TAKE THE FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

B5. MAINTENANCE - PANTOGRAPH

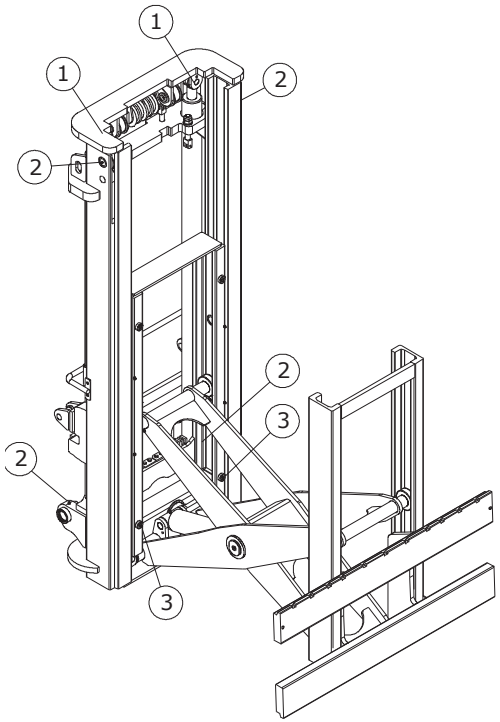
Grease Points

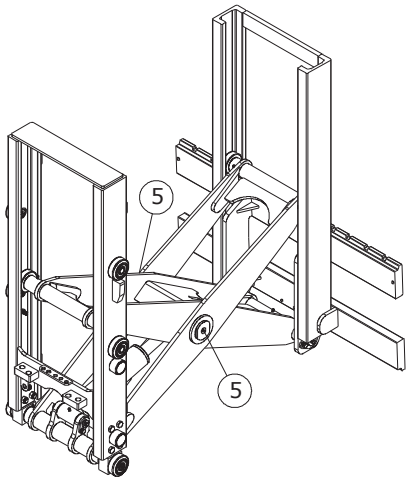
Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

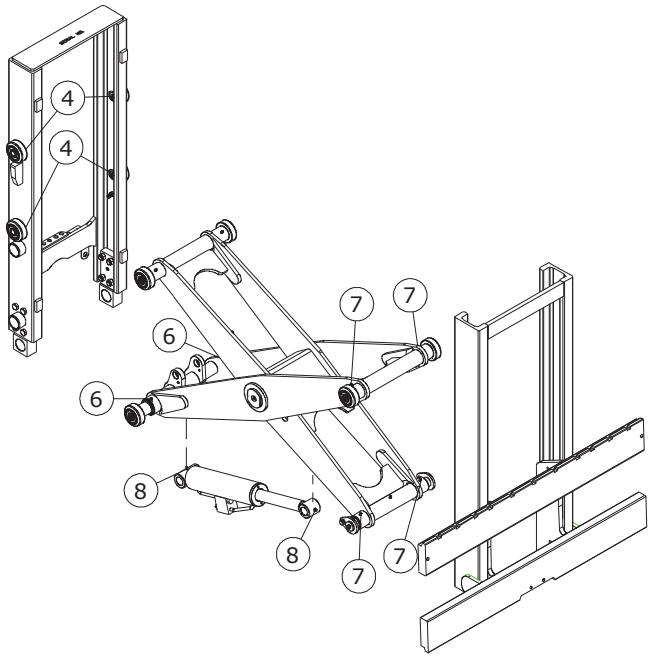
Note: The grease points listed in this section are specific to the pantograph. Refer to Section 6 of this operator manual for the standard grease points on the machine.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Lift Cylinders	2	166
2	Mast Outer	4	167
3	Mast Inner	6	168
4	Pantograph Mast	4	169
5	Pantograph Arm Middle Section	2	170
6	Pantograph Arm Rear Section	4	171
7	Pantograph Arm Front Section	5	172
8	Pantograph Cylinder	2	173

Grease Points (continued)

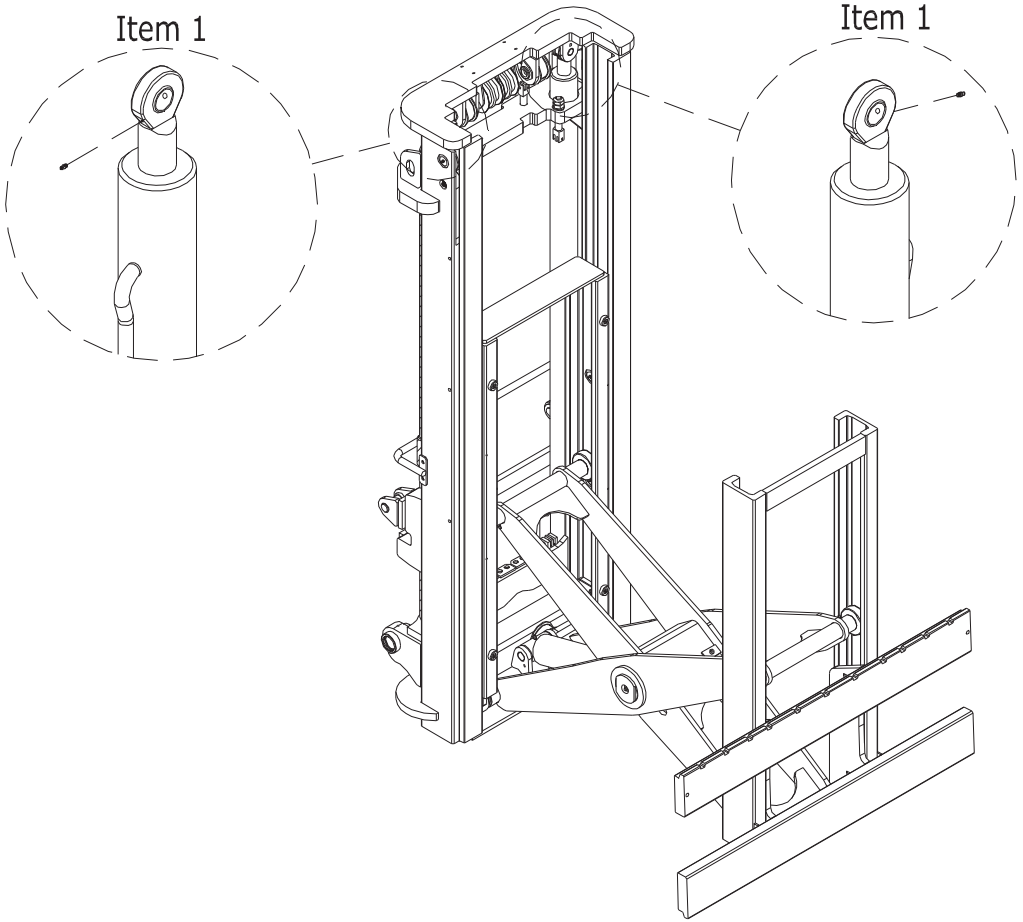






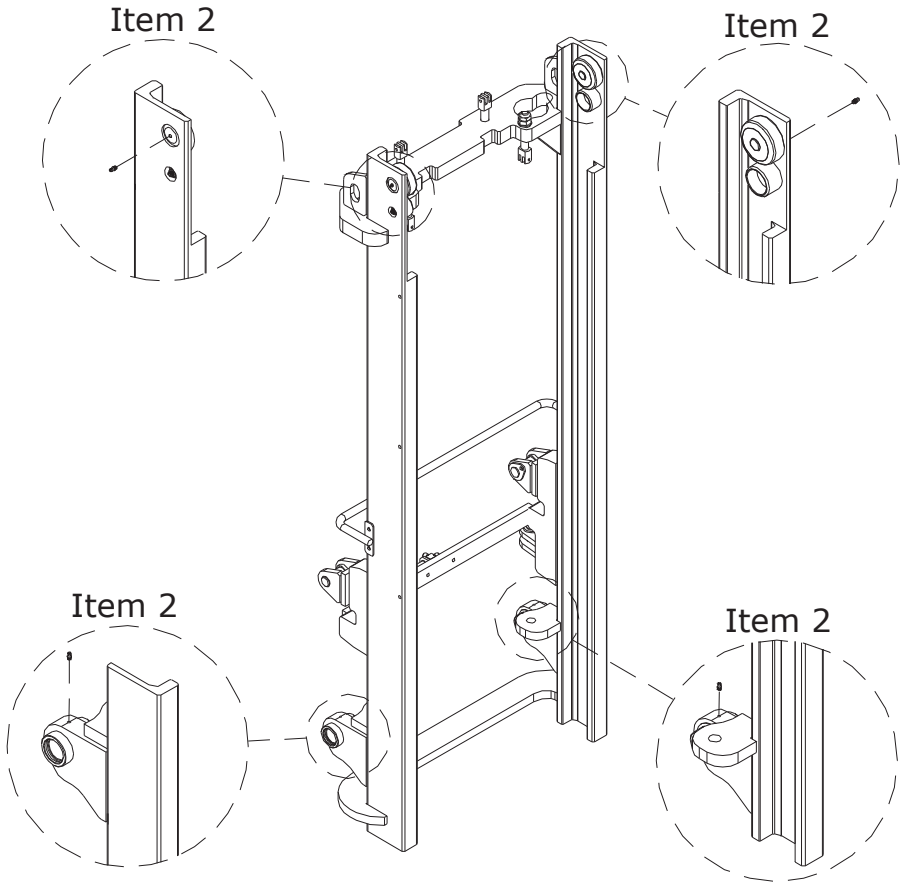
Grease Points (continued)

Lift Cylinder Grease Points



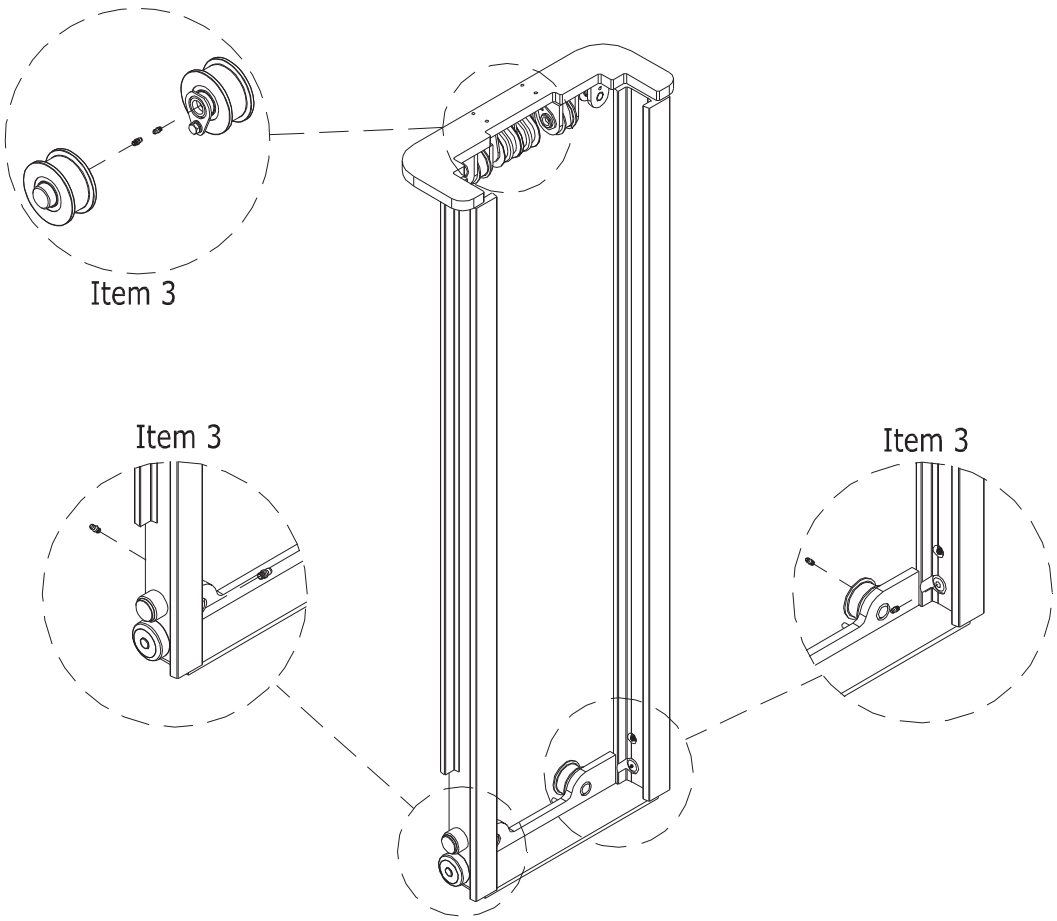
Grease Points (continued)

Mast Outer Section Grease Points



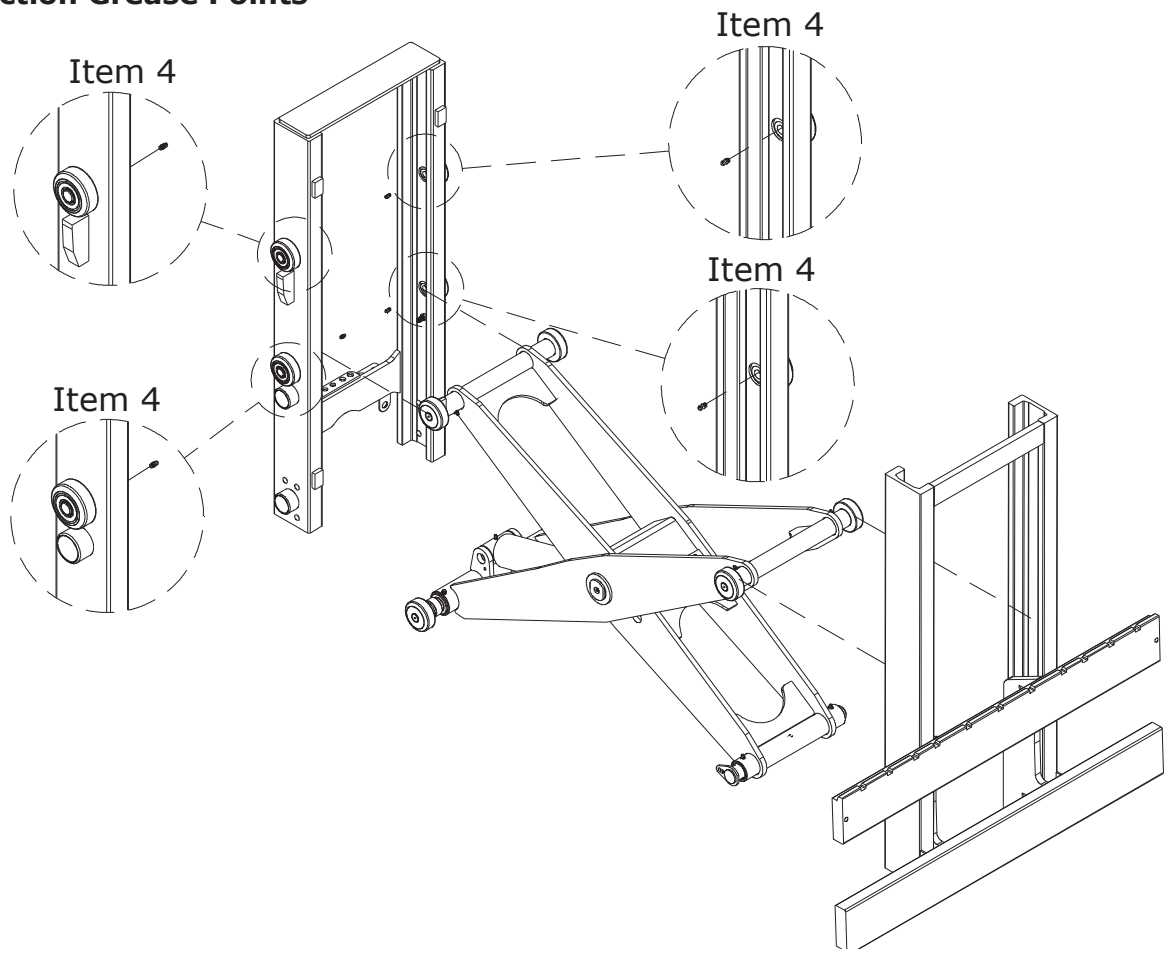
Grease Points (continued)

Mast Inner Section Grease Points



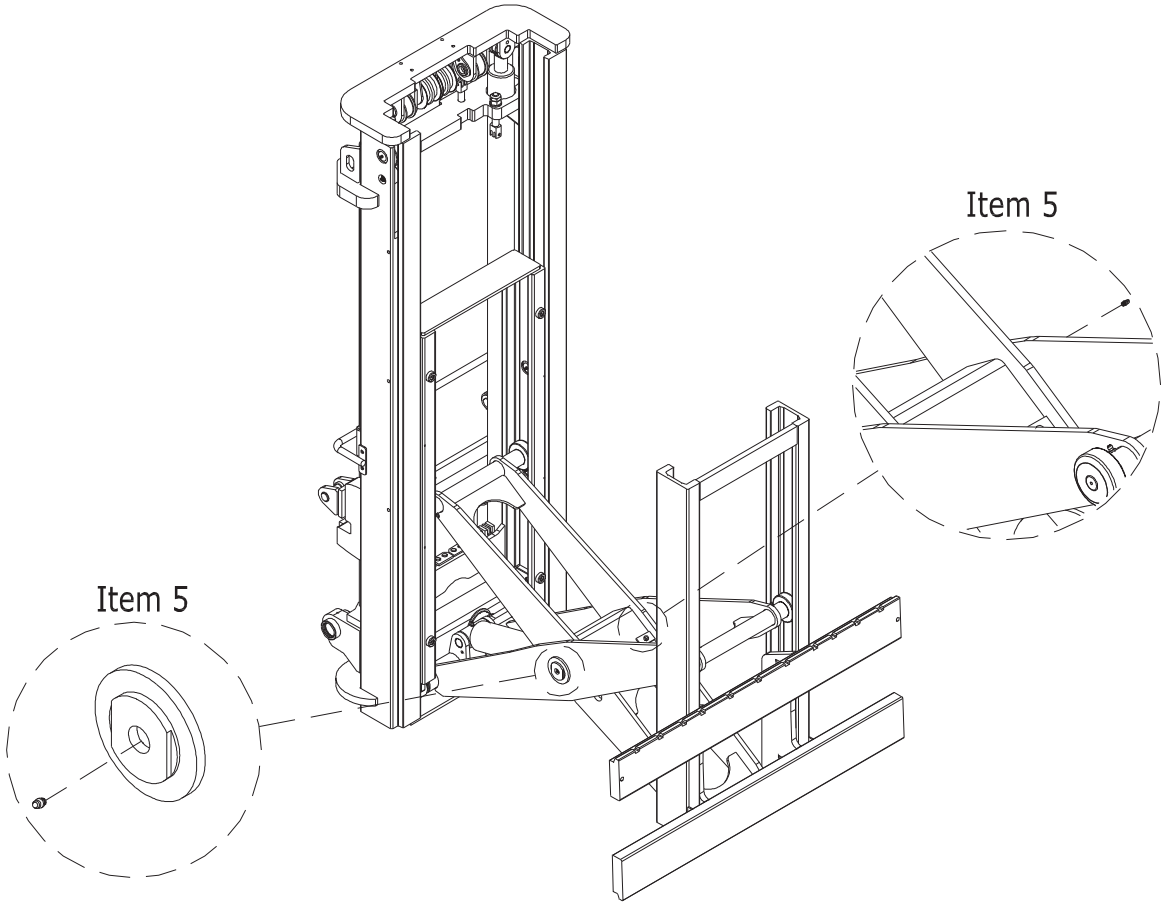
Grease Points (continued)

Pantograph Mast Section Grease Points



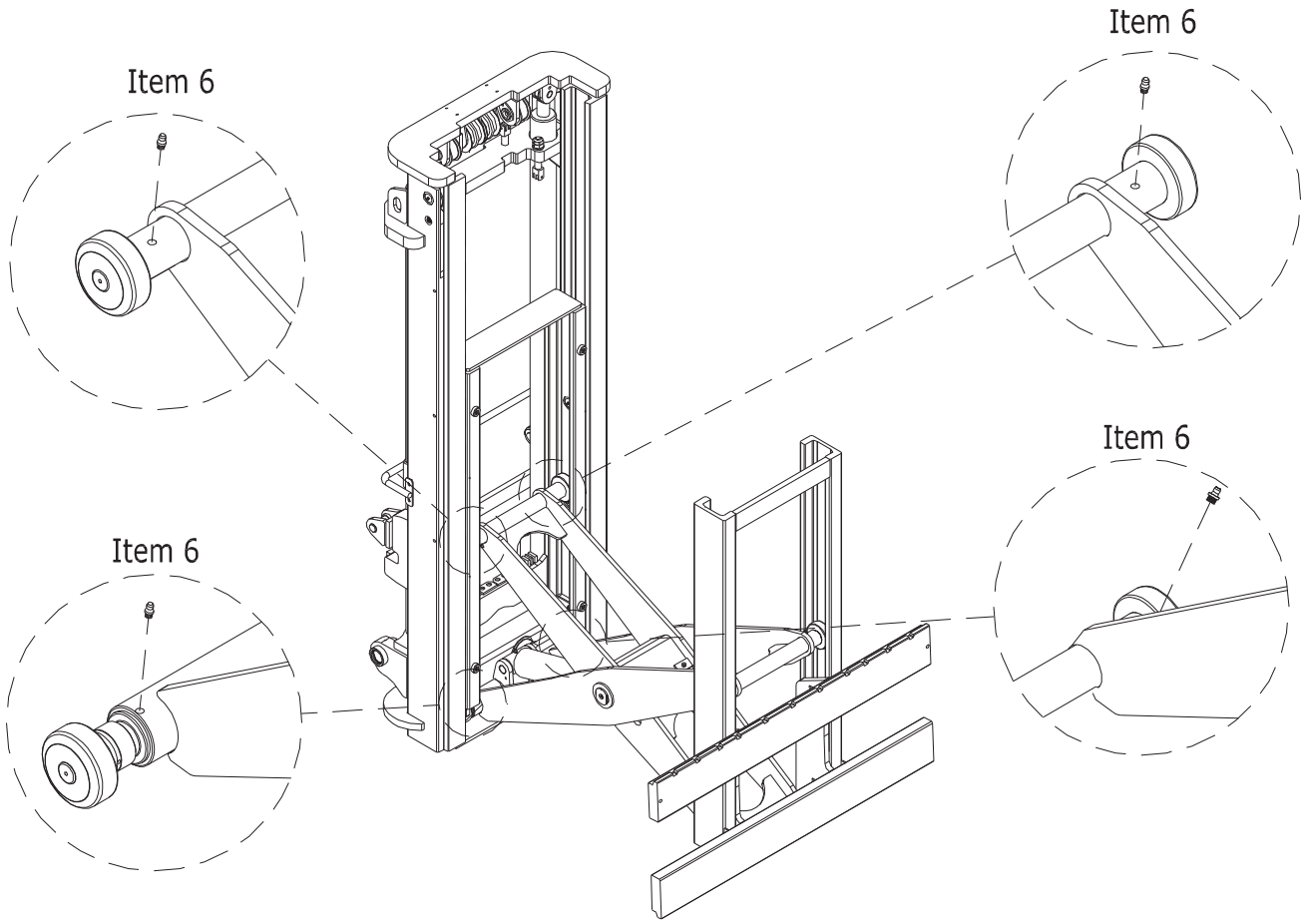
Grease Points (continued)

Pantograph Arm Middle Section Grease Points



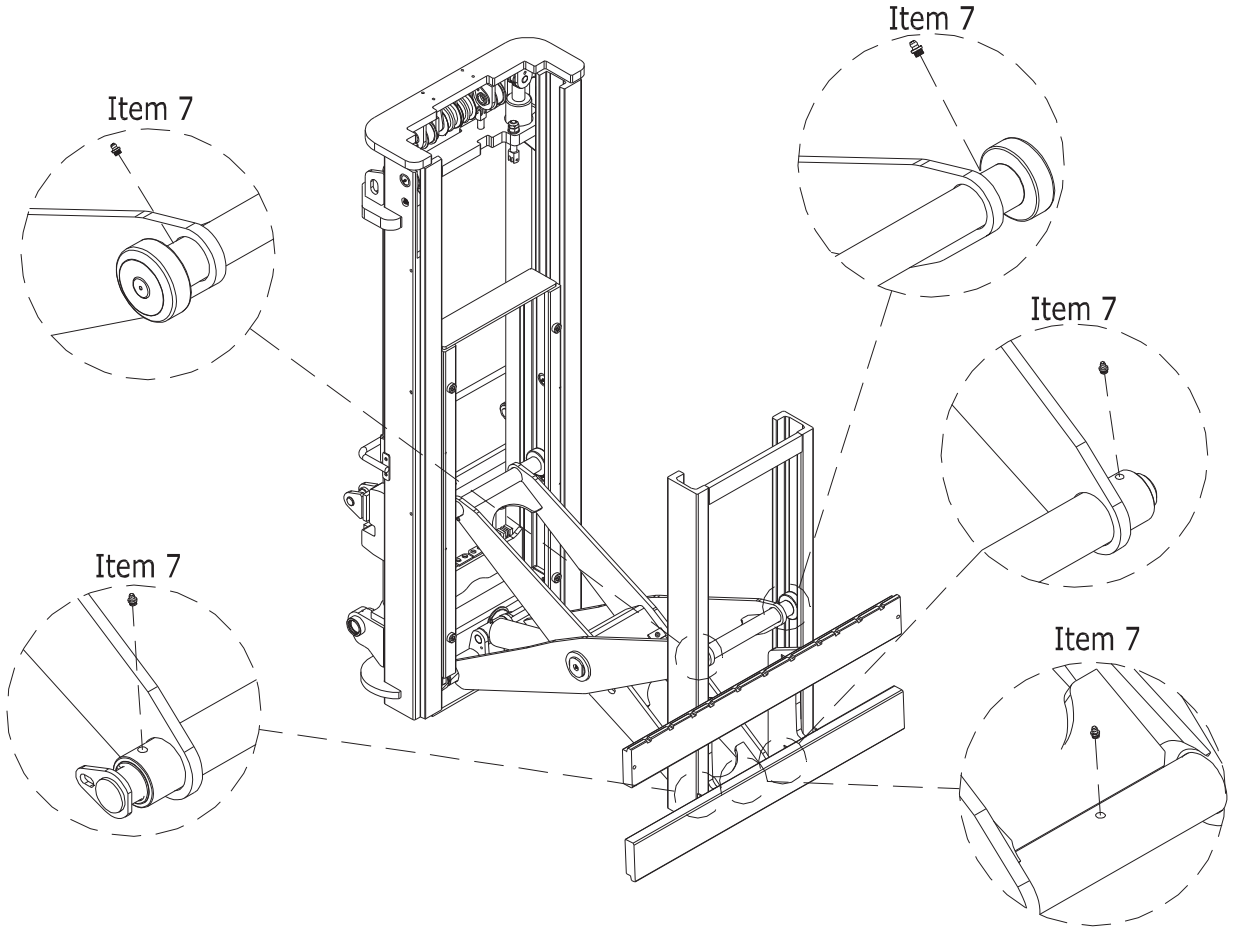
Grease Points (continued)

Pantograph Arm Rear Section Grease Points



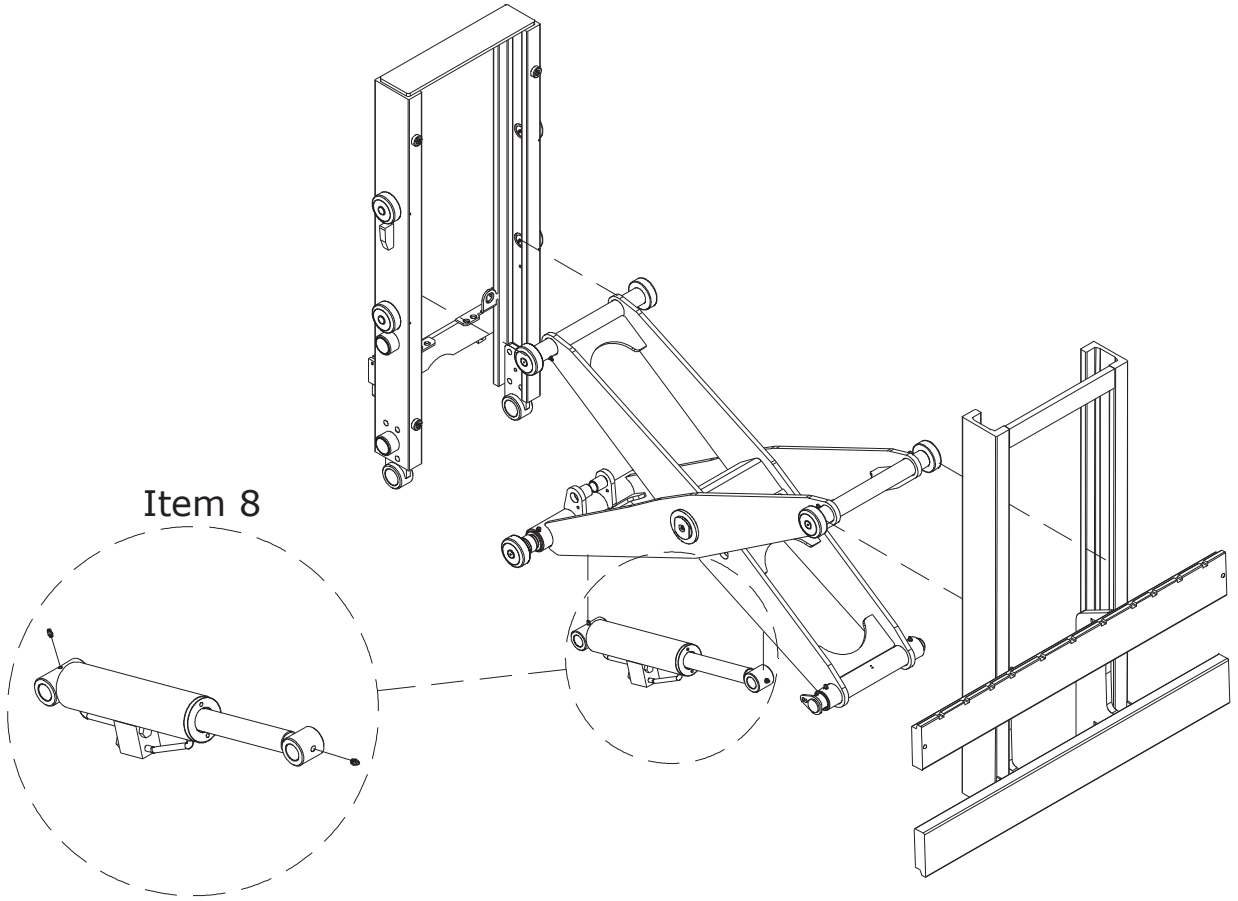
Grease Points (continued)

Pantograph Arm Front Section Grease Points



Grease Points (continued)

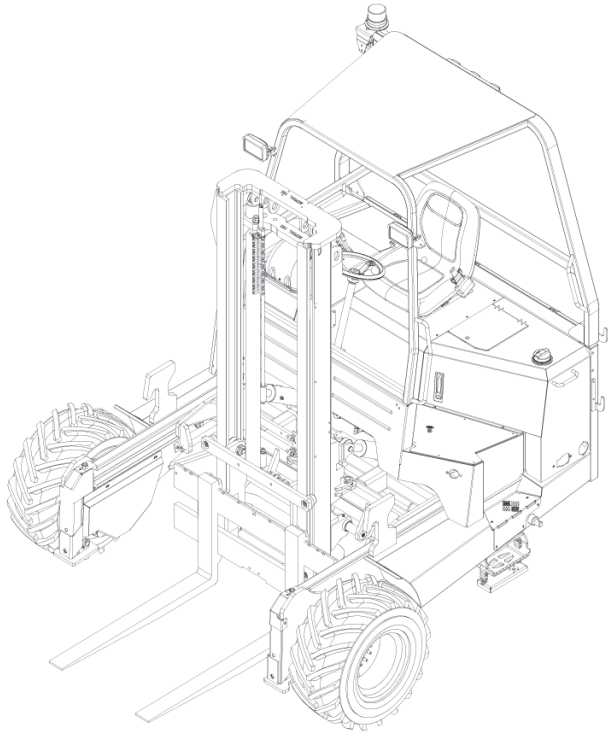
Pantograph Cylinder Grease Points



The Princeton Truck Mounted Forklift

LOG BOOK

Note: This section of the manual allows for the recording of machine services, machine damage and machine transfer.



Machine Model:

Serial Number:

Capacity:

Customer Name:

Customer Address:

Date:

DEALER'S STAMP

C1. RECORD OF SERVICE INTERVALS

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

C1. RECORD OF SERVICE INTERVALS

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

C1. RECORD OF SERVICE INTERVALS

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
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Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

Service type : _____ Hours :_____	
Date:	Signature:
Hour Count:	Company stamp:
Remarks:	
Next service:	Related service bulletin:

C2. RECORD OF DAMAGE

Date	Name	Brief Details of Damage or Accident	Job No	Reported to

C3. RECORD OF TRANSFER OF FORKLIFT

Date	Transferred From	Comments	Transport No.	Transferred to:

C4. Notes

⚠ WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

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