

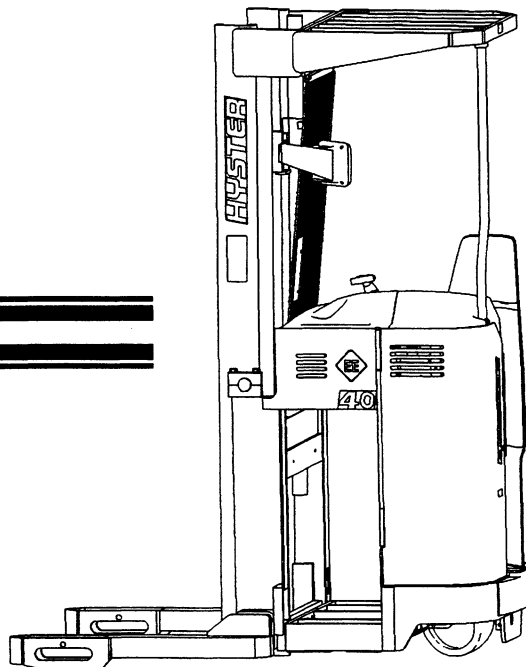
PERIODIC MAINTENANCE

N25/30XMDR, N30/40/45XMR, N50XMA
(E138)

N25XMDR2, N30/40XMR2
(B470)

N50XMA2
(B471)

N30XMDR2, N45XMR2
(F138)



HYSTER

CONTENTS

<p>INTRODUCTION 1</p> <p style="padding-left: 20px;">GENERAL 1</p> <p style="padding-left: 20px;">HOW TO MOVE A DISABLED LIFT TRUCK 1</p> <p style="padding-left: 40px;">How to Tow a Lift Truck 1</p> <p style="padding-left: 20px;">HOW TO PUT A LIFT TRUCK ONTO BLOCKS 2</p> <p style="padding-left: 40px;">How to Raise the Load Wheels 2</p> <p style="padding-left: 40px;">How to Raise the Steer Wheel 2</p> <p style="padding-left: 20px;">SAFETY PROCEDURES WHEN WORKING NEAR THE MAST 3</p> <p>MAINTENANCE SCHEDULE 4</p> <p>MAINTENANCE PROCEDURES EVERY 8 HOURS OR DAILY 6</p> <p style="padding-left: 20px;">CHECKS WITH KEY SWITCH TURNED OFF 6</p> <p style="padding-left: 40px;">Battery 6</p> <p style="padding-left: 40px;">Hydraulic System 7</p> <p style="padding-left: 40px;">Tires and Wheels 8</p> <p style="padding-left: 40px;">Safety Labels 9</p> <p style="padding-left: 40px;">Overhead Guard 9</p> <p style="padding-left: 40px;">Mast, Forks and Lift Chains 9</p> <p style="padding-left: 40px;">Reach, Tilt and Sideshift 10</p> <p style="padding-left: 40px;">Forks, Removal 10</p> <p style="padding-left: 40px;">Forks, Installation 11</p> <p style="padding-left: 40px;">Lift Chain Adjustments 11</p> <p style="padding-left: 20px;">CHECKS WITH KEY SWITCH TURNED ON 13</p> <p style="padding-left: 40px;">Instruments and Controls 13</p> <p style="padding-left: 40px;">Lift System Operation 15</p> <p style="padding-left: 40px;">Control Handle and Levers 15</p> <p style="padding-left: 40px;">Brake 16</p> <p style="padding-left: 40px;">Steering System 16</p> <p>EVERY 350 HOURS OR TWO MONTHS ... 16</p> <p style="padding-left: 20px;">MASTER DRIVE UNIT 16</p> <p style="padding-left: 20px;">BRAKE 16</p> <p style="padding-left: 20px;">HYDRAULIC SYSTEM 17</p> <p style="padding-left: 20px;">ARTICULATION STOP ADJUSTMENT ... 17</p> <p style="padding-left: 40px;">Adjustment Procedure 17</p>	<p>LIFT SYSTEM OPERATION 18</p> <p style="padding-left: 20px;">Forks 18</p> <p style="padding-left: 20px;">Mast 18</p> <p style="padding-left: 20px;">Lift Chains 19</p> <p>OTHER LUBRICATION 19</p> <p>ELECTRICAL INSPECTION 19</p> <p style="padding-left: 20px;">Fuses 19</p> <p style="padding-left: 20px;">Contactors 20</p> <p style="padding-left: 20px;">Motor Brushes 20</p> <p>2000 HOURS OR YEARLY 22</p> <p>HYDRAULIC SYSTEM 22</p> <p style="padding-left: 20px;">Change the Hydraulic Oil 22</p> <p style="padding-left: 20px;">Change the Hydraulic Oil Filter 22</p> <p style="padding-left: 20px;">Check the Hydraulic Oil Strainer 22</p> <p>BRAKES 22</p> <p>GENERAL PROCEDURES 23</p> <p style="padding-left: 20px;">CHECK FOR LEAKS IN THE LIFT AND TILT SYSTEM 23</p> <p style="padding-left: 20px;">LIFT SYSTEM 23</p> <p style="padding-left: 20px;">TILT SYSTEM 23</p> <p style="padding-left: 20px;">HOW TO ADJUST THE BRAKES 24</p> <p style="padding-left: 20px;">HOW TO CHARGE THE BATTERY 24</p> <p style="padding-left: 20px;">HOW TO CHANGE THE BATTERY 26</p> <p style="padding-left: 20px;">TIRES AND WHEELS 28</p> <p style="padding-left: 40px;">Drive Tire 28</p> <p style="padding-left: 40px;">How to Change the Drive Tire 28</p> <p style="padding-left: 40px;">Tandem Load Wheels 29</p> <p style="padding-left: 40px;">Single Load Wheel 30</p> <p style="padding-left: 40px;">Caster Wheels 30</p> <p>PREPARATION FOR STORAGE 31</p> <p style="padding-left: 20px;">Short Term Storage (1 to 6 months) 31</p> <p style="padding-left: 20px;">Long Term Storage (6 months or longer) . 31</p> <p>TRANSPORTING 32</p> <p style="padding-left: 20px;">Loading 32</p> <p style="padding-left: 20px;">Unloading 32</p> <p>PREPARATION FOR USE 32</p> <p style="padding-left: 20px;">Preparation After Shipment 32</p> <p style="padding-left: 20px;">Preparation After Storage 33</p>
---	---

This section is for the following models:
 N30/40/45XMR, N25/30XMDR, N50XMA
 N30/40/45XMR2, N25/30XMDR2, N50XMA2

INTRODUCTION

GENERAL

This section contains a Maintenance Schedule and the instructions for maintenance and inspection.

The Maintenance Schedule has time intervals for inspection, lubrication and maintenance. The time intervals are based on a normal operation. A normal operation is considered to be one eight hour shift per day in a relatively clean environment on an improved surface. Multiple shifts, dirty operating conditions, etc., will require a reduction in the recommended time periods in the Maintenance Schedule.

WARNING

Do not make repairs or adjustments unless you have both authorization and training. Repairs and adjustments that are not correct can make a dangerous operating condition.

Do not operate a lift truck that needs repairs. Report the need for repairs to your supervisor immediately. If repair is necessary, put a "DO NOT OPERATE" tag on the control handle. Remove the key from the key switch.

Your Hyster lift truck dealer has the facilities and trained personnel to do the maintenance. A complete program of inspection, lubrication, and maintenance will help your lift truck perform efficiently and operate over a longer period of time.

Some users have service personnel and facilities to do the items listed in the Maintenance Schedule. Service Manuals are available from your Hyster lift truck dealer to help users who do their own maintenance.

Do not make repairs or adjustments unless specifically authorized to do so.

Put the lift truck on a level surface. Lower the carriage and forks, apply the parking brake and turn the key switch to "OFF". Open the access panels and inspect for leaks and conditions that are not normal. Clean any oil spills. Make sure that lint, dust, paper, and other materials are removed from the compartments.

HOW TO MOVE A DISABLED LIFT TRUCK

WARNING

Use extra care when moving a lift truck during the following conditions:

- a. Brakes do not operate correctly.
- b. Steering does not operate correctly.
- c. Tires are damaged.
- d. Traction conditions are bad.
- e. The lift truck must be moved on a steep grade.

If the steering pump motor does not operate, steering control of the lift truck can be slow. This can make the control of the lift truck difficult. If there is no electrical power, steering can be difficult. Poor traction can cause the disabled lift truck or towing vehicle to slide. Steep grades will require additional brake force to stop the lift truck.

Never carry a disabled lift truck unless the lift truck MUST be moved and cannot be towed. The lift truck used to carry the disabled lift truck MUST have a rated capacity equal to or greater than the weight of the disabled lift truck. The capacity must be for a load center equal to half the width of the disabled lift truck. See the nameplate of the disabled lift truck for the approximate total weight. The forks must extend the full width of the disabled lift truck. center the weight of the disabled lift truck on the forks and be careful not to damage the under side of the lift truck.

How to Tow a Lift Truck

1. The towed lift truck must have an operator.
2. Tow the lift truck slowly.
3. Raise the carriage and forks approximately 30 cm (12 in) from the surface.
4. If a counterbalanced lift truck is used to tow the disabled lift truck, that lift truck must have an equal or larger capacity than the disabled lift truck. Install an approximate half-capacity load on the forks of the lift truck that is being used to tow the disabled lift truck. This half-capacity load will increase the traction of the lift truck. Keep the load as low as possible. Do not attempt to tow a reach truck with another reach truck.

HOW TO PUT A LIFT TRUCK ONTO BLOCKS

WARNING

The lift truck must be put on blocks for some types of maintenance and repair. The removal of the following assemblies will cause large changes in the center of gravity: mast and load axle, battery, and the counterweight. When the lift truck is put on blocks, put additional blocks under the rear of the frame before removing the mast so that the lift truck cannot fall backward or to the side.

Put the lift truck on blocks only if the surface is solid, even, and level. Make sure that any blocks used to support the lift truck are solid, one piece units. Put blocks in front and back of the tires to prevent movement of the lift truck.

NOTE: Some lift trucks have lifting eyes. These lift points can be used to raise the lift truck so that blocks can be installed.

How to Raise the Load Wheels (See FIGURE 1)

1. Put blocks on each side (front and back) of the steer tires to prevent movement of the lift truck.
2. Use a hydraulic jack under the side of the frame near the front. Make sure that the jack has a capacity equal to at least half the weight of the lift truck. See the Nameplate.
3. Put additional blocks under the frame behind the drive tires.

How to Raise the Steer Wheel (See FIGURE 1)

1. Apply the parking brake. Put blocks on both sides (front and back) of the drive tires to prevent movement of the lift truck.
2. Use hydraulic jacks to raise the steer tire. Make sure that the jacks have a capacity of at least $2/3$ of the total weight of the lift truck as shown on the nameplate.
3. Put the jacks under the rear of the frame to raise the lift truck. Put blocks under the frame to support the lift truck.

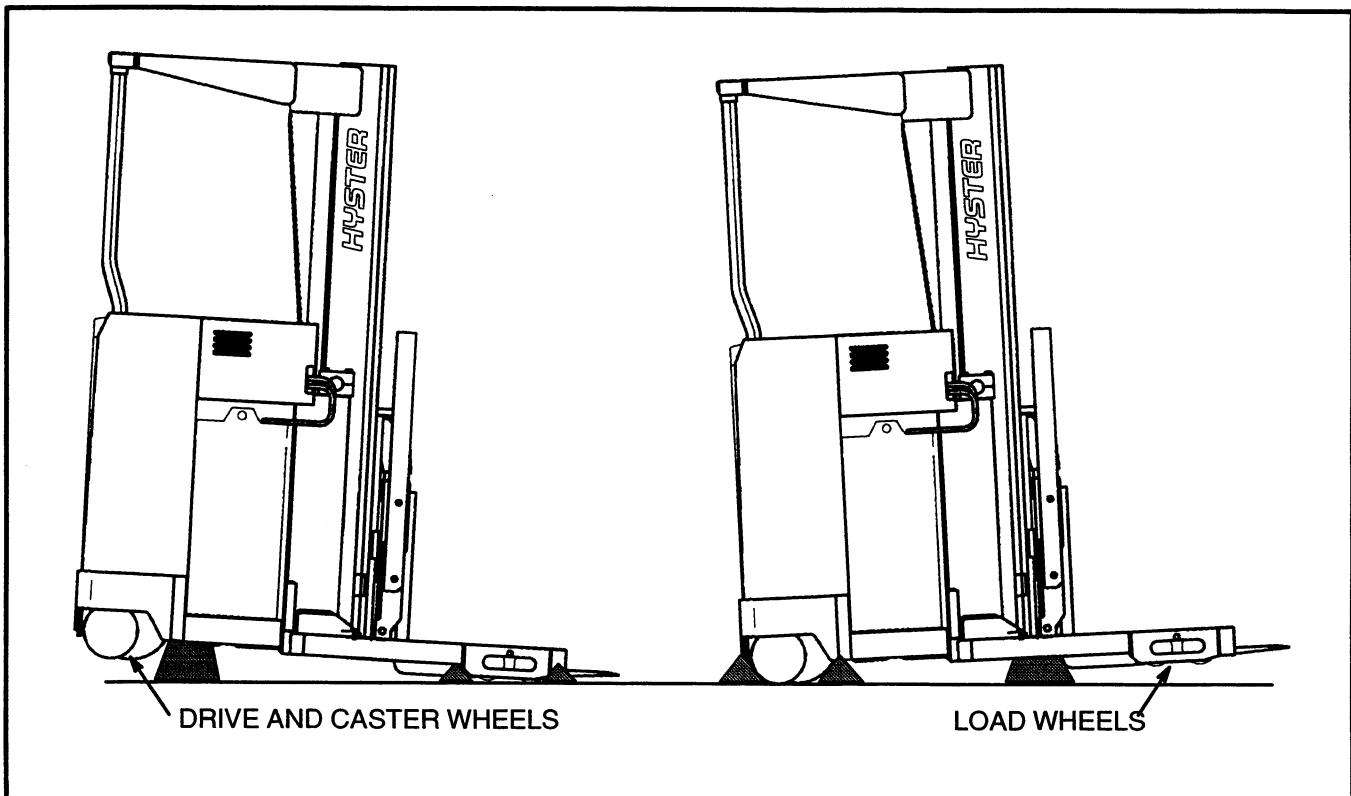


FIGURE 1 – PUTTING THE LIFT TRUCKS ON BLOCKS

SAFETY PROCEDURES WHEN WORKING NEAR THE MAST (1 of 2)

The following procedures must be used when inspecting or working near the mast. Additional precautions and procedures can be required when repairing or removing the mast.

WARNING

Mast parts are heavy and can move. Distances between parts are small. Serious injury or death can result if part of the body is hit by parts of the mast or the carriage.

- Never put any part of the body into or under the mast or carriage unless all parts are completely lowered or a safety chain is installed. Also make sure that the power is off and the key is removed. Put a "DO NOT OPERATE" tag in the operator's compartment. Disconnect the battery on electric lift trucks and put a tag or lock on the battery connector.
- Be careful of the forks. When the mast is raised, the forks can be at a height to cause an injury.
- DO NOT climb on the mast or lift truck at any time. Use a ladder or personnel lift to work on the mast.
- DO NOT use blocks to support the mast weldments nor to restrain their movement.
- Mast repairs require disassembly and removal of parts and can require removal of the mast or carriage. Follow the repair procedures in the correct Workshop Manual for the mast.

WHEN WORKING NEAR THE MAST ALWAYS:

- Lower the mast and carriage completely. Push the lift/lower control lever forward and make sure there is no movement in the mast. Make sure that all parts of the mast that move are fully lowered

OR

- If parts of the mast must be in a raised position, install a safety chain to restrain the moving parts of the mast. Connect moving parts to a part that does not move. Follow these procedures:
 - a. Put the mast in a vertical position.
 - b. Raise the mast to align the bottom crossmember of the weldment that moves in the outer weldment with a crossmember on the outer weldment (1). On the two stage and free lift mast, the moving part is the inner weldment (2). On the three stage mast it is the intermediate weldment (3).
 - c. Use a 3/8 inch minimum safety chain with a hook (5) to fasten the crossmembers together so that the movable member cannot lower. Put the hook on the back side of

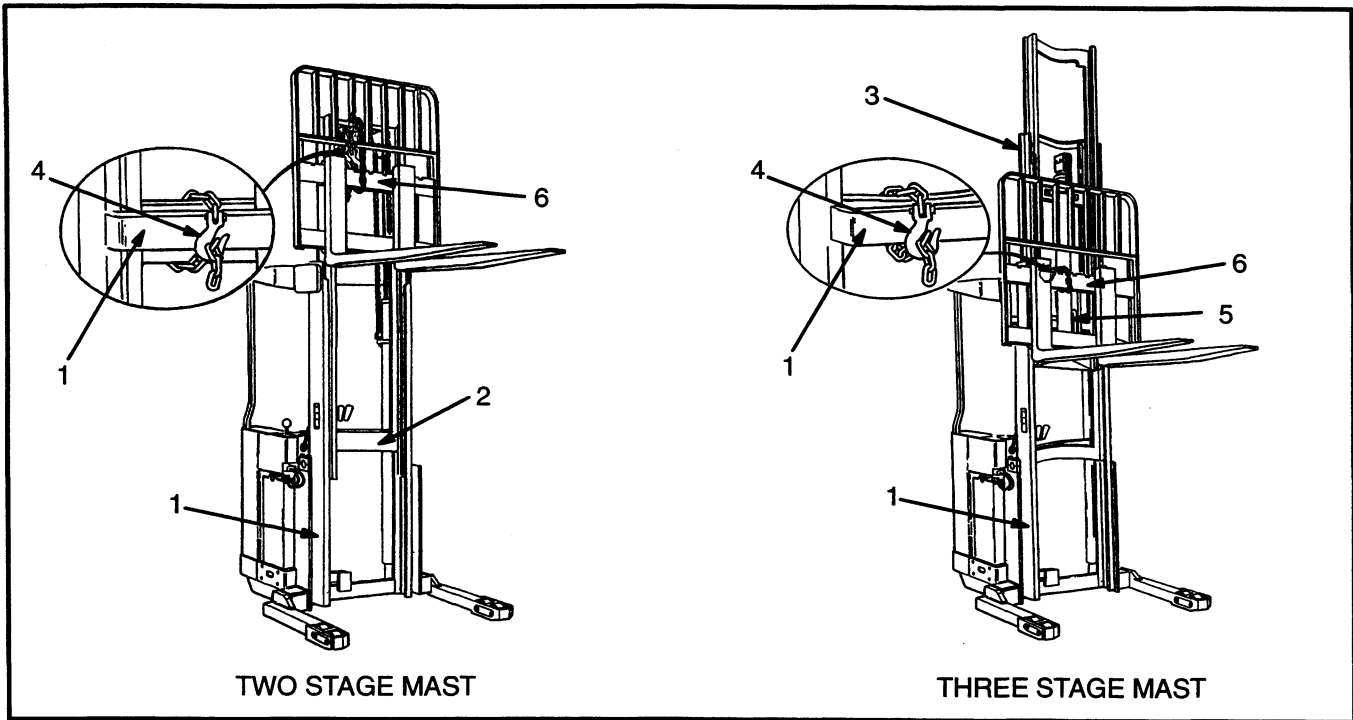
the mast. Make sure the hook is completely engaged with a link in the chain. Make sure the safety chain does not touch lift chains or chain sheaves, tubes, hoses, fittings, or other parts on the mast.

d. Lower the mast until there is tension in the safety chain and the free lift cylinder (6) (free lift and three stage) is completely retracted. If running, stop the engine. Apply the parking brake. Install a "DO NOT REMOVE" tag on the safety chain(s).

e. Install another safety chain (3/8 inch minimum) between the top or bottom crossmember of the carriage (7) and a crossmember on the outer weldment (8).

- Apply the parking brake. After lowering or restraining the mast, shut off the power and remove the key. Put a "DO NOT OPERATE" tag in the operator's compartment. Disconnect the battery on electric lift trucks and put a tag or lock on the battery connector.

SAFETY PROCEDURES WHEN WORKING NEAR THE MAST (2 of 2)



MAINTENANCE SCHEDULE

The MAINTENANCE SCHEDULE has two time periods in which the service engineer can perform the maintenance. For lift trucks operated less than eight hours each day, use the 1 DAY, 2 MONTH, and 1 YEAR pe-

riod schedule. For lift trucks operated more than eight hours each day, use the 8 HOUR, 350 HOUR, and 2000 HOUR schedule.

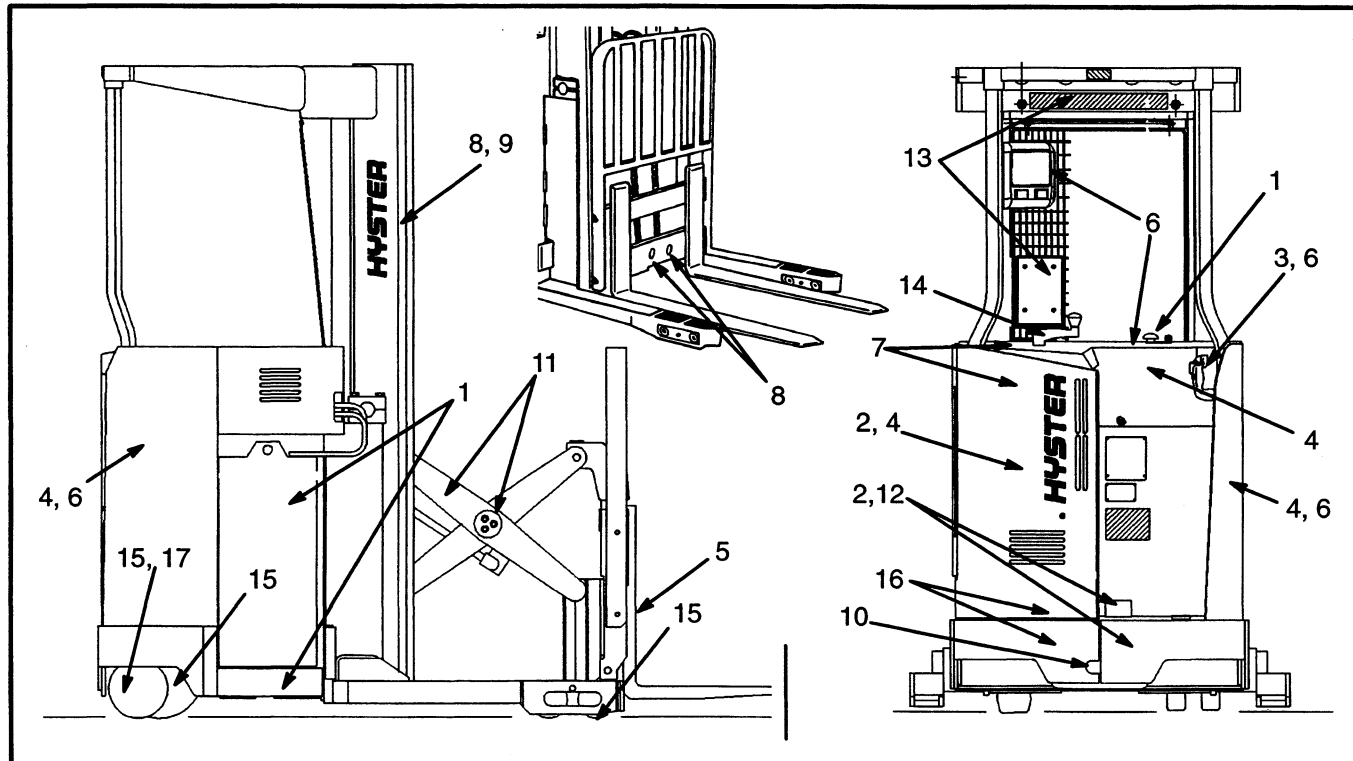


FIGURE 2 - MAINTENANCE POINTS

ITEM NO.	ITEM (Reference FIGURE 2)	8 HR or 1 day ⁴	350 HR or 2 month ⁴	2000 HR or 1 year ⁴	PROCEDURE OR QUANTITY	SPECIFICATION
1	Battery Restraint Panels Power Disconnect	X X X	5		Check Level Check Condition Check Operation	See Specifications
2	Brake Fluid Rods and Drum Splines Master Cylinder	X	X L	C	Check Operation 0.45 litres (.12 gal.) As Required Drain, Flush, Fill	SAE J-1703 Brake Fluid Anti-Seize Lubricant ³ SAE J-1703 Brake Fluid
3	Control Handle	X			Check Operation	
4	Electrical Circuits Contactors Motor Brushes	X	X X		Check Operation Check Condition Check Condition	
5	Forks-All Hook Fork Guides and Locks	X X	L		Check for Damage As Required	Anti-Seize Lubricant ³
6	Gauges, Horn, Lights, Fuses	X			Check Operation	
7	Hydraulic Oil Leaks Hydraulic Oil Level (Full Mark) Dipstick/Breather Cap Hydraulic Oil Filter Hydraulic Oil Strainer	X X	X	C C C	Check for Leaks 18 litres (4.75 gal.) Clean or Replace Replace Clean or Replace	Above 0°C (32°F) ¹ Below 0°C ² See Parts Manual See Parts Manual
8	Lift Chains Articulating Chain Anchors N50XMA/XMA2 – 3 Stage Mast	X	L L		Check for Damage 2 Lube Fittings	Engine Oil Multi-Purpose Grease ⁶
9	Mast and Carriage Pivots, Sliding Surfaces	X	L ⁶		Check Operation As Required	Multi-Purpose Grease ⁶
10	Articulation Shaft Articulation Shaft Retaining Bolt Articulation Shaft Ends		L L L		1 Lube Fitting	Multi-Purpose Grease ⁶ Anti-Seize Lubricant ³ Anti-Seize Lubricant ³
11	Reach Arms-N30/40/45XMR/XMR2 Reach Arms-N25/30/XMDR/XMDR2 Reach Cylinder Pivot Pins Thrust Rollers-Reach Frame	X	L L L L		6 Lube Fittings 12 Lube Fittings 4 Lube Fittings 2 Lube Fittings	Multi-Purpose Grease ⁶ Multi-Purpose Grease ⁶ Multi-Purpose Grease ⁶ Multi-Purpose Grease ⁶
12	Pedals, Levers, Cables, Hinges, Linkages		L L		As Required As Required	Anti-Seize Lubricant ³ Anti-Seize Lubricant ³
13	Safety Labels & Operating Man.	X			Replace if Necessary	See Parts Manual
14	Steering Operation	X			Check Operation	
15	Tire & Wheels Caster Wheel Assembly Load Wheel Bolts	X X	L L		Check Condition 4 Lube Fittings	Multi-Purpose Grease ⁶ Anti-Seize Lubricant ³
16	Master Drive Unit Bearing Master Drive Unit Chain Master Drive Unit, N30/40XMR/XMR2 N25XMDR/XMDR2, N50XMA/XMA2 Master Drive Unit, N45XMR/XMR2, N30XMDR/XMDR2 Articulation Adjustment Stops Adjustment Stop Retaining Bolt		L L X, C ⁷ X, C ⁷ X, L L		2 Lube Fittings Apply to Chain 0.66 litres (0.17 gal.) 0.98 litres (0.26 gal.) Adjust	Multi-Purpose Grease ⁶ Multi-Purpose Grease ⁶ SAE 80W-90 or Mobilgear 627 SAE 80W-90 or Mobilgear 627 Anti-Seize Lubricant ³ Anti-Seize Lubricant ³
17	Wheel Bolt Torque Drive Wheel Lugs		X L		Tighten if Required	135 N•m (100 lbf ft) Anti-Seize Lubricant ³

X = Check C = Change L = Lubricate

1 Hydraulic Oil, Hyster P/N 131820
2 Chevron EP Hydraulic Oil 68 or equivalent
3 Anti-Seize Lubricant, Hyster P/N 328388
4 Whichever comes first
5 Equalization Charge approximately each month but not more than each week

6 Multi-Purpose Grease with 2-4% Molybdenum Disulfide for normal operations, Hyster P/N 344117
7 Change after 150 to 500 hours. No subsequent change for life of unit

NOTE: Never use steam to clean electrical parts.

TABLE 1 – MAINTENANCE SCHEDULE

MAINTENANCE PROCEDURES EVERY 8 HOURS OR DAILY

WARNING

Do not operate a lift truck that needs repairs. If a repair is necessary, put a “DO NOT OPERATE” tag in the operator’s area. Remove the key from the key switch.

Inspect the lift truck every eight hours or daily before use. Put the lift truck on a level surface. Lower the carriage and forks, and turn the key switch to “OFF”. If repair is required, put a tag in the operator’s area that indicates the lift truck cannot be operated. DO NOT operate a lift truck until the problems are corrected.

WARNING

Make sure the capscrew that holds the vertical post that supports the overhead guard is in the correct position and is tight. The capscrew allows the support post to provide protection to the operator if the truck hits a rack.

CHECKS WITH KEY SWITCH TURNED OFF

Make the following checks:

- Electrolyte and specific gravity of the battery
- Make sure the battery is clean and the correct size and weight for the lift truck
- Check that the battery restraint plates are in place
- Oil level in the hydraulic tank
- Leaks in the hydraulic system
- Condition of the wheels and tires
- Condition of the forks, carriage, mast, and overhead guard

Battery

WARNING

Do not put tools on the battery.

The acid in the electrolyte can cause injury. If the electrolyte is spilled, use water to flush the area. Make the acid neutral with a solution of sodium bicarbonate (soda). Acid in the eyes must be flushed with water immediately.

Batteries generate explosive fumes. Keep the vents in the caps clean. Keep sparks or open flames away from the battery area. Do not make a spark from the battery connections. Disconnect the battery when doing maintenance.

The battery must fit the battery compartment so that the battery restraint panels will operate correctly. Use spacers to prevent the battery from moving more than 13 mm (0.5 in) in any direction.

CAUTION

Disposal of batteries must meet local environmental regulations.

Make sure the battery weight is within the maximum and minimum weight shown on the nameplate.

Keep the battery case, top cover and the area for the battery clean and painted. Leakage and corrosion from the battery can cause a malfunction in the electric controls of the lift truck. Use a water and sodium bicarbonate solution (soda) to clean the battery and the battery area. Keep the top of the battery clean, dry and free of corrosion.

Make sure the battery is charged and has the correct voltage and ampere hour rating for the lift truck. See the nameplate.

Inspect the battery case, connector and cables for damage, cracks or breaks. See the battery dealer in the area to repair any damage. Check the level of the electrolyte daily on a minimum of one cell. The correct level is half-way between the top of the plates and the bottom of the fill hole. Add only distilled water.

Make certain that the battery restraint panels are properly installed.

WARNING

Make sure the key switch is “OFF” and the brake is set before connecting the battery.

If the lift truck was operated with a discharged battery, check all contactors for welded tips before a charged battery is connected.

NOTE: The battery should have an equalization charge each month, but not more than each week.

Hydraulic System (See FIGURE 3 and FIGURE 4)

⚠ WARNING

At operating temperature the hydraulic oil is **HOT**. Do not permit the oil to contact the skin and cause a burn.

⚠ CAUTION

Do not permit dirt to enter the hydraulic system when the oil level is checked or the filter is changed. Never operate the pump without oil in the hydraulic system. The operation of the hydraulic pump without oil will damage the pump.

Check the hydraulic oil level when the oil is at operating temperature, the carriage is lowered, the reach mechanism retracted and the key switch is in the "OFF" position. Add hydraulic oil only as needed. If more hydraulic oil is added than the "FULL" level on the dipstick, hydraulic oil will leak from the breather during operation. See TABLE 5, Page 22 for the capacities of the hydraulic tanks used on these models of lift trucks.

Inspect the hydraulic system for leaks and damaged or loose components.

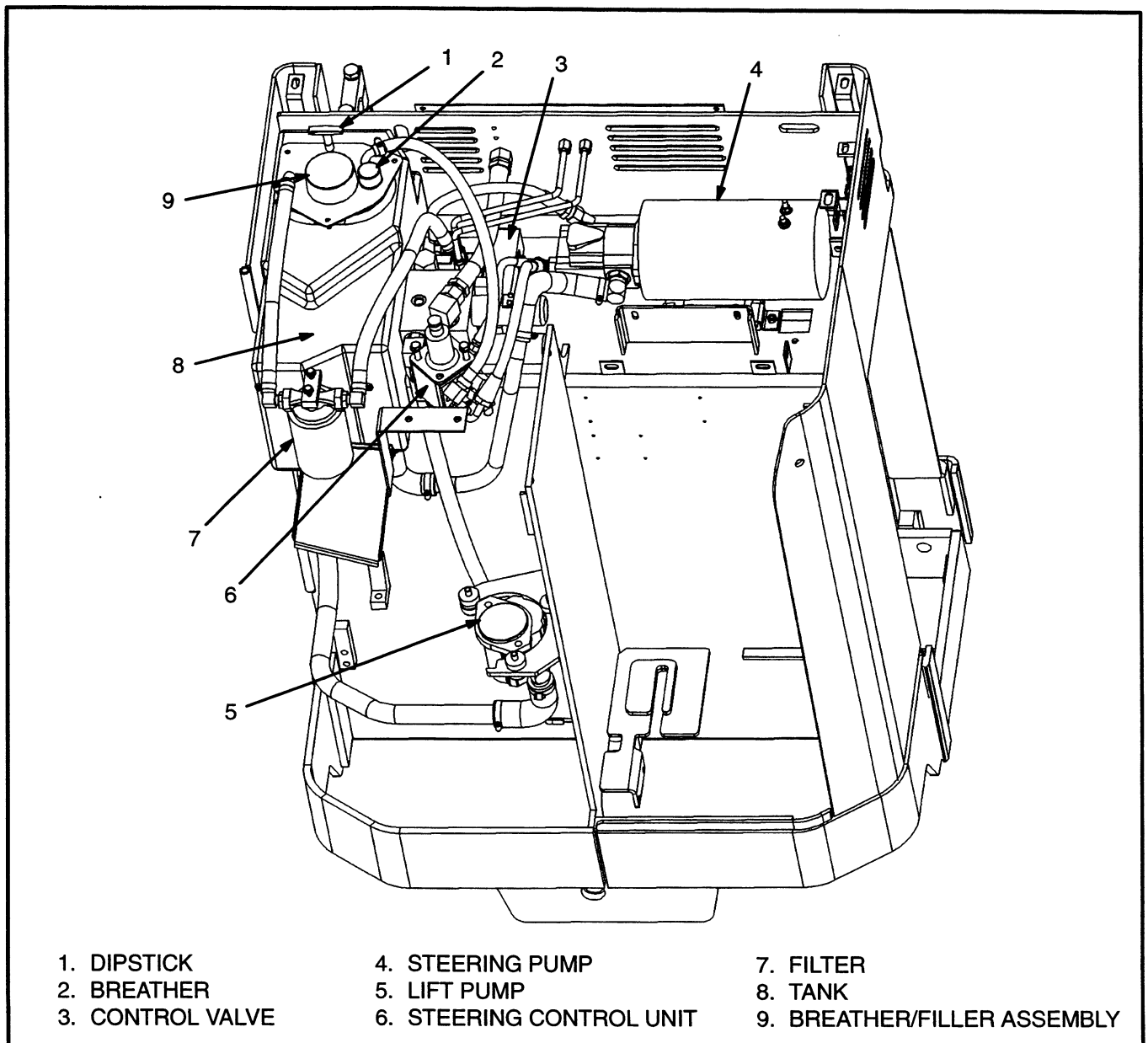
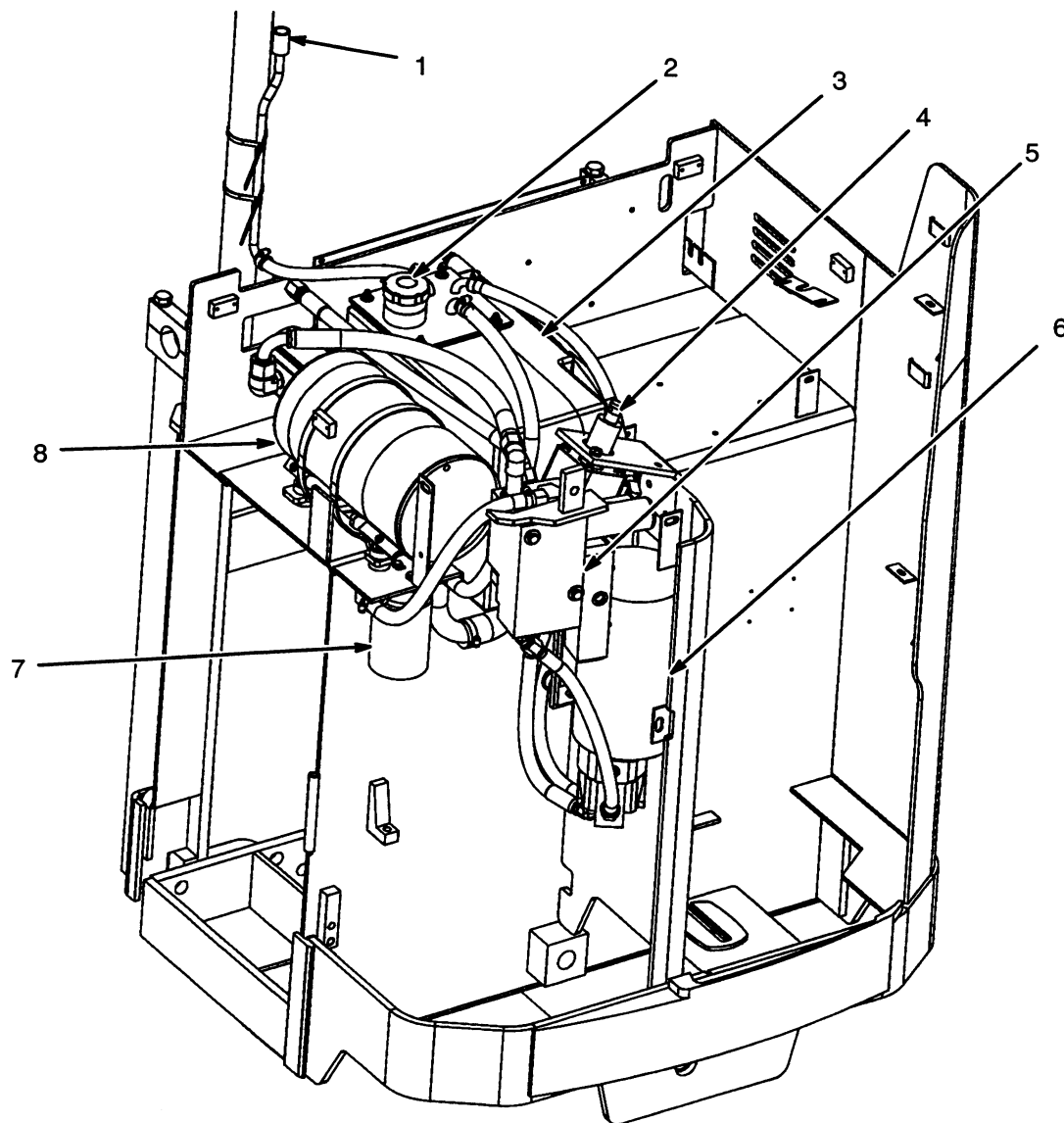


FIGURE 3 – HYDRAULIC SYSTEM – N25/30XMDR, N30/40/45XMR, N50XMA



- | | |
|--------------------------|----------------------------|
| 1. BREATHER | 5. CONTROL VALVE |
| 2. DIPSTICK/FILLER CAP | 6. STEERING PUMP AND MOTOR |
| 3. TANK | 7. FILTER |
| 4. STEERING CONTROL UNIT | 8. LIFT PUMP AND MOTOR |

FIGURE 4 – HYDRAULIC SYSTEM – N25/30XMDR2, N30/40/45XMR2, N50XMA2

Tires and Wheels (See FIGURE 5)

Inspect the tires for wire, rocks, glass, pieces of metal, holes, cuts and other damage. Remove any object that will cause damage. Check for loose or missing hardware. Remove any wire strapping or other material that is wrapped around the axle. Make sure the drive wheel nuts are tight. Tighten the drive wheel nuts in a cross pattern to the correct torque value shown in the Maintenance Schedule TABLE 1.

CAUTION

When the wheels have been installed, check all wheel nuts after 2 to 5 hours of operation. Tighten the nuts in a cross pattern to the correct torque value shown in the MAINTENANCE SCHEDULE, TABLE 1. When the nuts stay tight after an eight hour check, the interval for checking the torque can be extended to 350 hours.

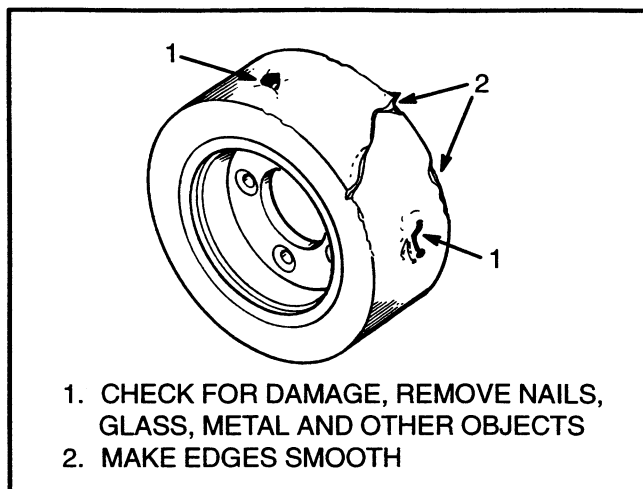


FIGURE 5 – CHECK TIRES

Safety Labels

⚠ WARNING

Safety labels are installed on the lift truck to give information about possible hazards. It is important that all safety labels are installed on the lift truck and can be read.

Check that all safety labels are installed in the correct locations on the lift truck. See the **PARTS MANUAL** or **THE FRAME, 100 SRM 604** for the correct locations of the safety labels.

Overhead Guard

⚠ WARNING

Do not operate the lift truck without the overhead guard correctly fastened to the lift truck. Do not make changes to the overhead guard by welding. Changes that are made by welding, or by drilling holes that are too big in the wrong location, can reduce the strength of the overhead guard.

Do not weld mounts for lights or accessories to the legs of the overhead guard. The strength of the overhead guard can be reduced by welding or heating.

Make certain that the overhead guard is in place and securely attached to the body of the lift truck. Make certain that the mast guard is installed between the mast and the operator's compartment.

Mast, Forks and Lift Chains

⚠ WARNING

When working on or near the mast or carriage, see **SAFETY PROCEDURES WHEN WORKING NEAR THE MAST**.

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

Adjust the forks as far apart as possible for maximum support of the load. Hook forks are connected to the carriage by hooks and lock pins. These lock pins are installed through the top fork hooks and fit into slots in the top carriage bar. Raise the lock pin in each fork to slide the fork on the carriage bar. Pin type forks have a tubular mounting at the top of the fork. A pin passes through the mounting allowing the forks to move sideways by sliding within the reach mechanism. Raise the lock pin to adjust the forks. Make sure the lock pin is engaged to lock the fork in position after making adjustments.

⚠ WARNING

Do not try to correct fork tip alignment by bending the forks or adding shims. Never repair damaged forks by heating or welding. Forks are made of special steel using special procedures. Replace damaged forks.

1. Inspect the welds on the mast and carriage for cracks. Make sure that the nuts and capscrews are tight.
2. Inspect the channel for excessive wear in the areas of roller contact. Check the rollers for wear or damage.
3. Inspect the forks for cracks and wear. Check that the fork tips are aligned within 3% of the length of the fork of each other [40 mm (1.6 in) for a 1220 mm (48 in) fork]. Some applications can require closer alignment. Check that the bottom of the fork is not worn (Item 5, FIGURE 6). Check the heel of the fork using fork tool 3020387. The heel of the fork must be 90% of DIMENSION "X", see FIGURE 6.
4. Replace any damaged or broken parts that are used to keep the forks locked in position.
5. If the lift truck is equipped with a sideshift carriage or attachment, inspect the parts for cracks and wear. See **REACH, TILT AND SIDESHIFT**.

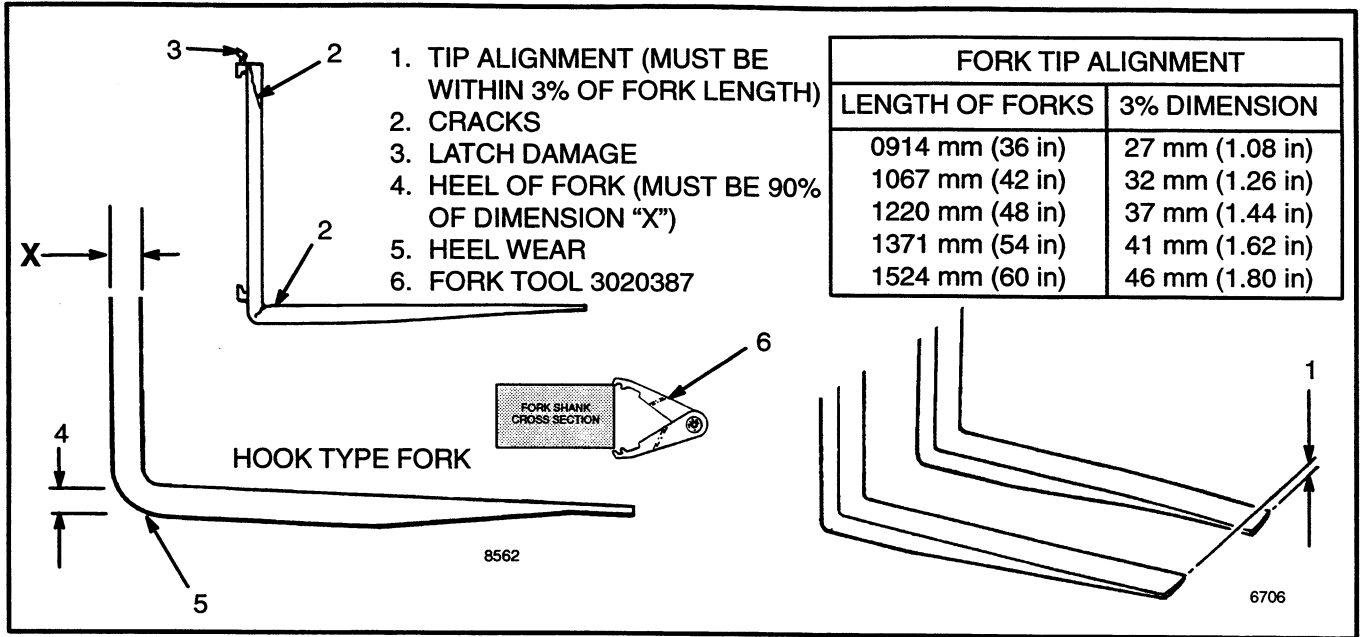


FIGURE 6 – CHECK THE FORKS

6. Check that the lift chains are correctly lubricated.
7. Inspect the lift chains for cracks or broken links and pins.
8. Inspect the chain anchors and pins for cracks and damage.
9. Make sure the lift chains are adjusted so that they have equal tension. If the chains need to be replaced or adjusted, it must be done by authorized personnel.

Reach, Tilt and Sideshift

WARNING

Make sure the key switch is in the "OFF" position and the key is removed from the switch before doing this check.

1. Check for cracks at the welds on the reach frames and scissor arms.
2. Check the frame channel for excessive wear in the areas of roller contact. Check the rollers for wear or damage.
3. Check the load backrest extension for cracks and damage. Make sure that the nuts and bolts for the load backrest extension are tight.

Forks, Removal

WARNING

Do not try to move a fork without a lifting device. Each hook fork for these lift trucks can weigh 45 kg to 115 kg (100 to 250 lb).

Hook Forks—Slide a hook fork to the fork removal notch on the carriage. Lower the fork onto blocks so that the bottom hook of the fork moves through the fork removal notch. Lower the carriage further so that the top hook of the fork is disengaged from the top carriage bar. Move the carriage away from the fork, or use a lifting device to move the fork away from the carriage.

Pin Forks—Operate the tilt function so that the forks are fully tilted back. Operate the reach function to fully extend the forks. Raise the forks off the floor and put a block of wood under each fork. Lower the forks until they rest on the block of wood. Remove the load backrest extension. Remove the lock pins. Remove the cap-screw and nut at the center of the fork pin. Use a brass drift to remove the fork pin toward the center of the lift truck until the fork comes off the pin. Use a crane and sling to move the fork. Remove the other fork by following the same procedure. The fork pin can be completely removed if necessary.

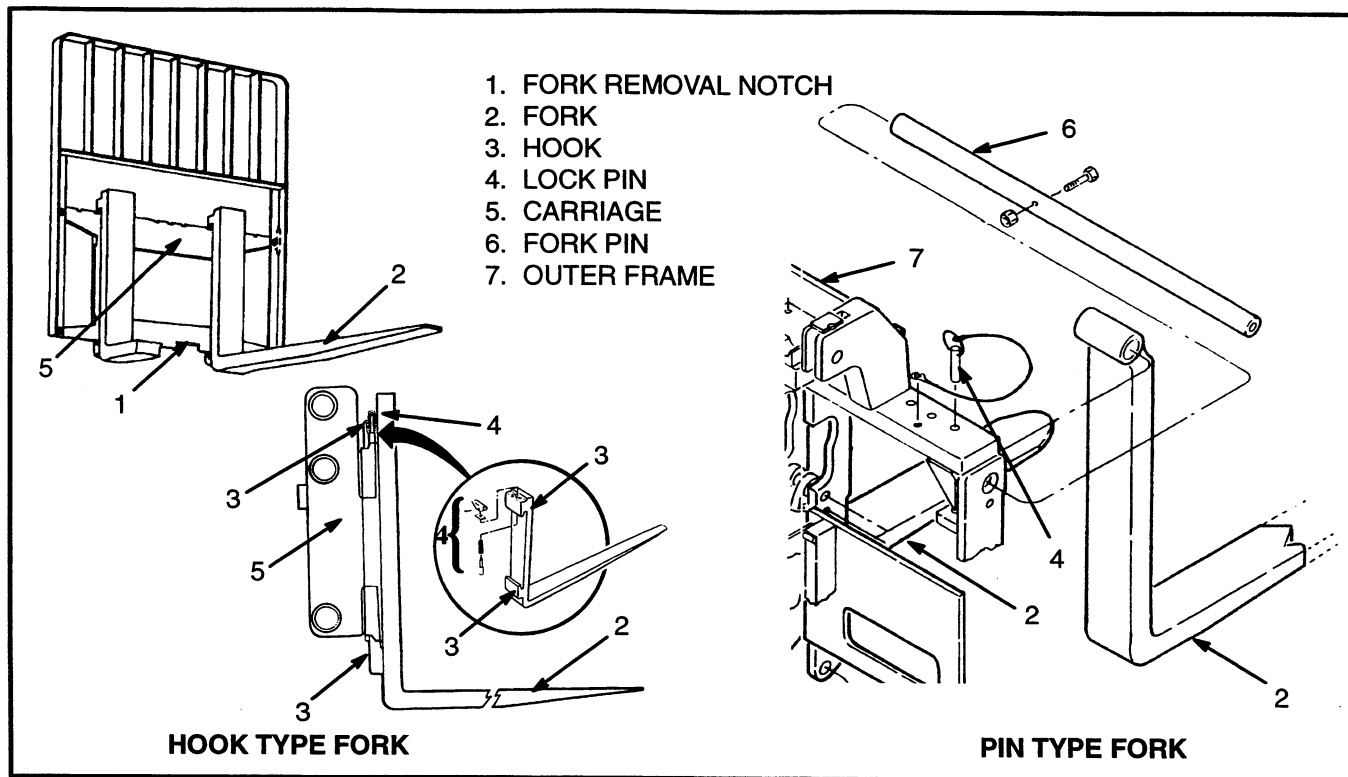


FIGURE 7 – TYPES OF FORKS

Forks, Installation

⚠ WARNING

Do not try to move a fork without a lifting device. Each hook fork for these lift trucks can weigh 45 kg to 115 kg (100 to 250 lb).

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

Pin Forks—Use a crane and sling to lift the forks. Install the fork pin in the outer hole in the frame. Position the fork to align it with the fork pin. Use a brass drift to drive the pin in the frame. Slide the fork on the pin and drive the pin into position. Use the crane and sling to align the other fork and install this fork in the same way. Install the fork pin so that the end of the pin is at the outer edge of the frame. Install the capscrew and nut to fasten the fork pin. Use the crane to move the load backrest for alignment on the frame. Install the load backrest. Slide the forks into position of alignment for the lock pins and install each lock pin in the slot at the top of the fork. The forks should be positioned as far apart as possible for maximum support of the load.

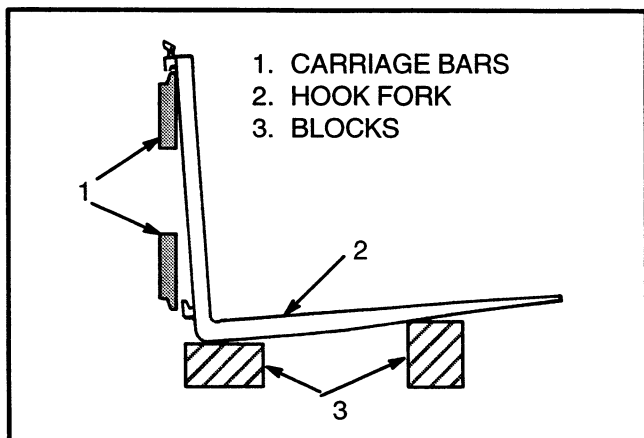


FIGURE 8 – REMOVE A HOOK FORK

Lift Chain Adjustments (See FIGURE 9)

When correctly adjusted:

- The tension will be the same on each chain of the chain set. Check tension by pushing on both chains at the same time.
- The chain length will be correct.
- The chains must travel freely through the complete cycle.

1. Put a load equal to 80 to 90% of the capacity load on the forks. Lower the forks as much as possible.
2. Check the amount that the bottom carriage roller extends below the inner channel of the mast. The carriage roller must not extend more than 1/3 of the roller diameter below the inner channel. If the adjustment is not correct, adjust the chain anchors. Make sure each chain anchor is adjusted the same amount.

3. Remove the load from the forks. Check the clearance of the carriage when the mast is fully extended. The carriage stops must not touch the stop on the top crossmember of the inner weldment. The chains are too tight if the carriage touches the crossmember. Lower the carriage completely. If the forks do not just touch the surface the chains are too tight. If the chains are too tight adjust the chain anchors. Make sure each anchor is adjusted the same amount.

NOTE: When the chain adjustments are complete, make sure that the threads on the nuts of the chain anchors are completely engaged. Make sure that the nuts on the chain anchors are not tight against the mountings. The chain anchors must be free to move in their sockets.

4. Three stage mast chain adjustment: Adjust the main lift chains so that the top of the inner weldment is even with the top of the intermediate weldment within ± 1.5 mm (0.06 in). Adjust the free lift chain as described in Step 3.

5. If a section of chain is 3% longer than a similar section of new chain, the chain is worn and must be replaced. If a chain scale is available, check the lift chains as shown in FIGURE 10. If a chain scale is not available measure 20 links of chain. Measure from the center of a pin to the center of another pin 20 pitches away. Compare the length with the chart in FIGURE 10. Replace the chain if the length of 20 links of the worn section is more than the maximum wear limit.

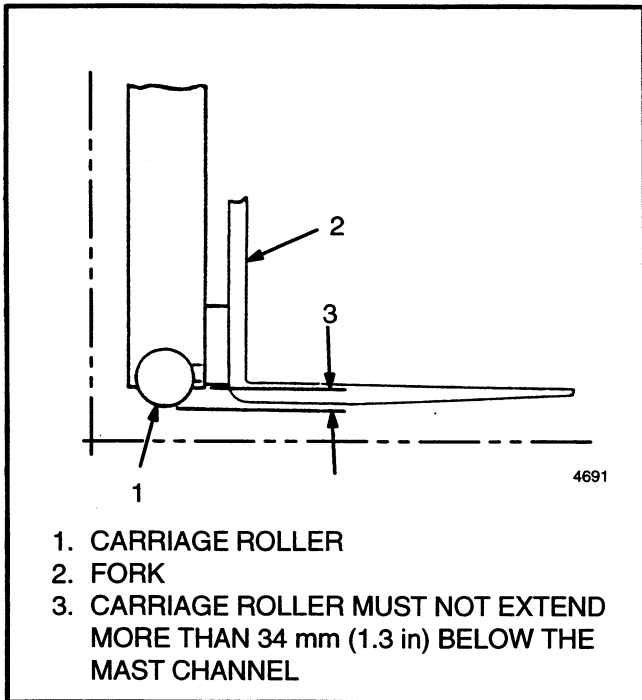


FIGURE 9 – LIFT CHAIN ADJUSTMENTS

pitch		Total length of 20 links (pitch) of new chain		WEAR LIMIT The maximum length of 20 links	
mm	(inch)	mm	(inch)	mm	(inch)
12.7	(0.50)	254.0	(10.0)	261.6	(10.3)
15.9	(0.625)	317.5	(12.5)	327.0	(12.88)
19.1	(0.75)	381.0	(15.0)	392.4	(15.45)
25.4	(1.00)	508.0	(20.0)	523.25	(20.6)
31.8	(1.25)	635.0	(25.0)	654.1	(25.75)
44.5	(1.75)	889.0	(35.0)	915.7	(36.05)
50.8	(2.00)	1016.0	(40.0)	1046.5	(41.2)

NOTE: The instructions for measuring chain wear are shown on the chain wear scale.

1. CHAIN WEAR SCALE

1. WORN PIN 5. LOOSE LEAVES
2. CRACKS 6. DAMAGED PIN
3. EDGE WEAR 7. CORROSION
4. HOLE WEAR

FIGURE 10 – CHECK THE LIFT CHAINS

(More Content includes: Brake system, Capacities, and specifications, Frame, Hydraulic, System, Industrial battery, Main control, Valve, Mast repair, Fasteners, Schematics diagrams, Steering axle, Steering system, Wire harness repair And more)

[Click Here](#)

**Get all the content
after purchase**

**Thank you very
much.**