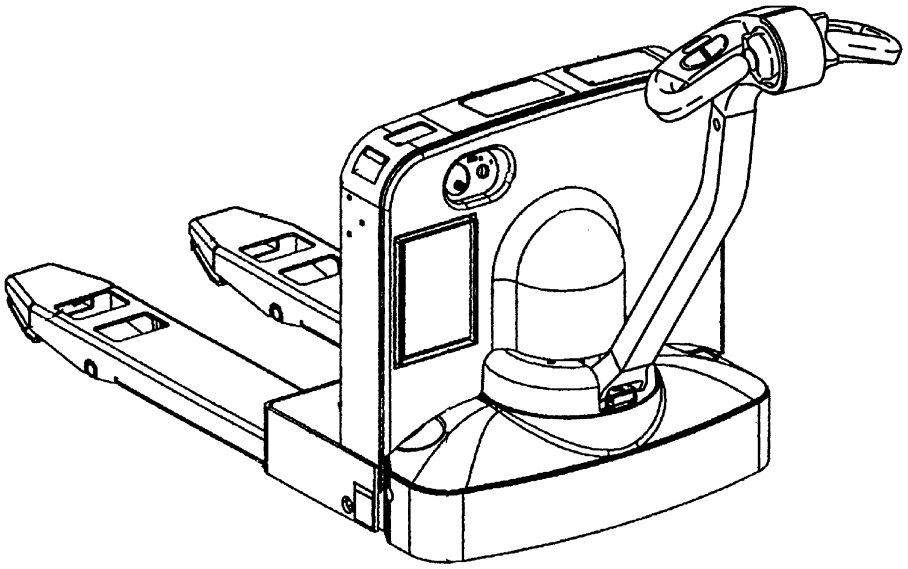
PERIODIC MAINTENANCE

W40Z [B218]; W45Z [C215]; W50Z [D215]



HYSTER

PART NO. 1499808

8000 SRM 1009

SAFETY PRECAUTIONS
MAINTENANCE AND REPAIR

- When lifting parts or assemblies, make sure all slings, chains, or cables are correctly fastened, and that the load being lifted is balanced. Make sure the crane, cables, and chains have the capacity to support the weight of the load.
- Do not lift heavy parts by hand, use a lifting mechanism.
- Wear safety glasses.
- DISCONNECT THE BATTERY CONNECTOR before doing any maintenance or repair on electric lift trucks. Disconnect the battery ground cable on internal combustion lift trucks.
- Always use correct blocks to prevent the unit from rolling or falling. See HOW TO PUT THE LIFT TRUCK ON BLOCKS in the **Operating Manual** or the **Periodic Maintenance** section.
- Keep the unit clean and the working area clean and orderly.
- Use the correct tools for the job.
- Keep the tools clean and in good condition.
- Always use **HYSTER APPROVED** parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.
- Make sure all nuts, bolts, snap rings, and other fastening devices are removed before using force to remove parts.
- Always fasten a DO NOT OPERATE tag to the controls of the unit when making repairs, or if the unit needs repairs.
- Be sure to follow the **WARNING** and **CAUTION** notes in the instructions.
- Gasoline, Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Diesel fuel are flammable. Be sure to follow the necessary safety precautions when handling these fuels and when working on these fuel systems.
- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area is well ventilated.

NOTE: The following symbols and words indicate safety information in this manual:

WARNING

Indicates a condition that can cause immediate death or injury!

CAUTION

Indicates a condition that can cause property damage!

TABLE OF CONTENTS

This section is for the following models:

W40Z [B218];
W45Z [C215];
W50Z [D215]

"THE
QUALITY
KEEPERS"

HYSTER
APPROVED
PARTS

General

WARNING

DO NOT make repairs or adjustments unless you have been properly trained and authorized to do so. Repairs and adjustments that are not correct can create dangerous operating conditions.

DO NOT operate a lift truck that needs repairs. Report the need for repairs to your supervisor immediately. If repair is necessary, attach a DO NOT OPERATE tag to the control handle and remove the key from the key switch.

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

The Maintenance Schedule has time intervals for inspection, lubrication, and periodic maintenance. The time intervals are based on a normal operation. 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 reduce the time intervals between services recommended in the Maintenance Schedule.

NOTE: The front end of the lift truck is the control handle end. Forward travel is movement with the forks trailing. Rear travel is movement in the direction of the forks. The right hand side of the lift truck is to the operator's right hand, facing the truck from the control handle end in the position for operating the controls.

Your Hyster® lift truck dealer has the trained personnel and equipment to do a complete program of inspection, lubrication, and maintenance. This complete program will help your lift truck operate better 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 repairs.

HOW TO MOVE A DISABLED TRUCK

This lift truck is not normally towed. If the traction system will not operate, make repairs at the location if possible. If the lift truck must be towed, refer to the Maintenance Manual.

How to Tow the Lift Truck

WARNING

Never carry a disabled lift truck unless the lift truck MUST be moved. The lift truck used to lift 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 capacity plate on the disabled lift truck for the approximate total weight. The forks must extend the full width of the disabled lift truck. Put the weight of the disabled lift truck at the center of the forks and be careful not to damage the under side of the disabled lift truck.

Make sure no one except the driver is near the lift trucks during towing. Both the tow truck and the disabled truck can cause personal injury during towing.

Stay clear of the tow chain, towing vehicle, and the lift truck during the towing operation to prevent personal injury.

Until repairs are complete, keep a DO NOT OPERATE tag on the control handle. Remove the key.

To avoid personal injury, use extra care when moving a lift truck during the following conditions:
- **Brake does not operate correctly.**
- **Steering does not operate correctly.**
- **Tire is damaged.**
- **Traction conditions are bad.**
- **The lift truck must be moved up a steep grade.**

CAUTION

Never tow the lift truck faster than the speed of a person walking. Steering can be difficult and motor damage can occur at higher speeds. Always travel smoothly without sudden starts.

The electric brake must be released before the lift truck can be moved. If there is not sufficient battery power, placing the control handle in the operating position will not release the electric brake. Use the control handle to steer the lift truck while it is being towed. Use one hand and walk to one side of the lift

truck. **DO NOT** walk or stand between the towing vehicle and the lift truck.

1. Disconnect the battery, remove the hood, and fasten the chain to the lift truck. Make sure the tow chain has the capacity to tow the weight. Carefully fasten the tow chain completely around the motor and battery compartments on top of the forks. The chain must not cause damage to either lift truck.

2. The electric brake must be released before the lift truck can be towed. Disconnect connector 6 and plug in brake override connector. See **Diagrams** 8000 SRM 1011 or **Diagrams** 8000 SRM 1228.

NOTE: The brake override connector must be removed after repairs are completed before returning the truck to service. Otherwise the truck will not operate.

3. If there is not sufficient battery power, placing the control handle in the operating position will not release the electric brake.

4. Steer the lift truck with the control handle while it is being towed. Use one hand and walk to one side of the lift truck. **DO NOT** walk or stand between the towing vehicle and the lift truck.

5. Tow the lift truck slowly.

6. If another lift truck that has the drive wheels near the forks is used to tow the disabled lift truck, that lift truck must have weight added to the forks. The total weight of the lift truck and load must be equal to or greater than the weight of the disabled lift truck. Install a load of approximately half the maximum capacity on the forks of the lift truck that is used for towing. This load will increase the traction of the lift truck. Keep the load on the forks lowered as much as possible.

   If the lift truck used for towing has a master drive unit (MDU) or drive unit similar to this lift truck, **DO NOT** add weight to the forks. Additional weight on the forks may decrease the traction of the drive wheel(s). Make sure that the lift truck has a total weight equal to or greater than the weight of the disabled lift truck.

HOW TO PUT A LIFT TRUCK ON BLOCKS

WARNING

DO NOT put the lift truck on blocks if the surface is not 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 in back of the tires to prevent movement of the lift truck.

DO NOT raise the lift truck by attaching an overhead crane to areas that will be damaged. Some of these points are not designed to support the weight of the lift truck. The lift truck can be damaged or it can fall causing serious personal injury. Attach the chain or sling to a support structure of the lift truck frame.

See Figure 1.

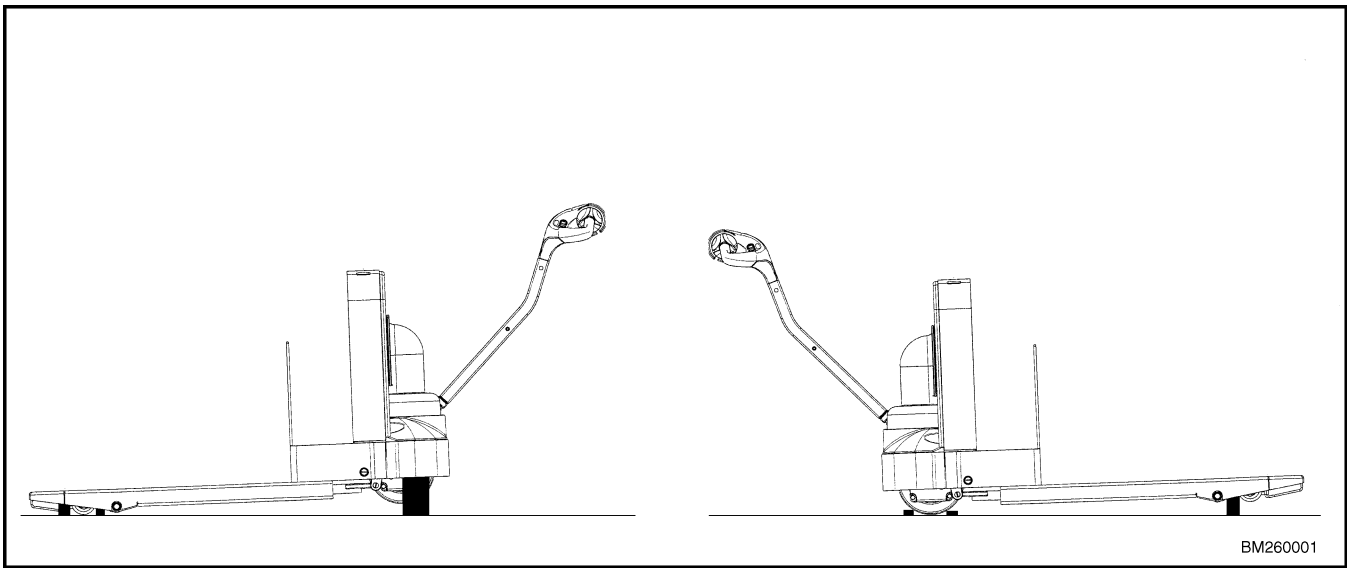


Figure 1. Putting Lift Truck on Blocks

How to Raise Drive/Steer Tire

1. Put blocks on each side (front and back) of the load wheels to prevent movement of the lift truck.
2. Use a special low clearance hydraulic jack, crane, or another lift truck to raise the drive tire. Make sure that the jack, crane, or other lift truck has the correct capacity rating. The capacity must equal to 2/3 the weight of the lift truck including the battery. See the capacity plate.
3. Raise the lift truck only enough to suspend the drive tire. Install additional blocks under the frame near the drive tire.

How to Raise Load Wheels

WARNING

Never raise the forks any higher than necessary to change the load wheels. Always raise both forks at the same time. Raising the forks too high can make the lift truck tip over and cause property damage or possible, personal injury.

1. Put blocks on both sides (front and back) of the drive tire to prevent movement of the lift truck.
2. Use an overhead crane and web sling under the forks to raise the load wheels. Another lift truck can also be used to raise the forks. Make sure that the crane and sling or other lift truck has a capacity of at least 2/3 the total weight of the lift truck as shown on the capacity plate.
3. Raise the forks only enough to suspend the wheels. Install blocks under the forks at the rear of the wheels to support the lift truck.

WELDING REPAIRS

WARNING

Forklift truck frames and components may have polyurethane paint. Welding, burning, or other heat sufficient to cause thermal decomposition of the paint may release isocyanates. These chemicals are allergic sensitizers to skin and respiratory tract and overexposure may occur without odor warning. Should work be performed, utilize good industrial hygiene practices including removal of all paint (prime and finish coats) to the metal around the area to be welded, local ventilation, and/or supplied-air respiratory protection.

Remove the battery before welding. Welding can cause a fire and or an explosion. Make sure there is no fuel, oil, or grease near the weld area. Make sure the area is well ventilated.

CAUTION

When using an arc welder, always disconnect the battery connector to prevent damage to circuit components. Connect the welding ground clamp as close to the weld area as possible to prevent welding current from damaging bearings.

Observe previous **WARNINGS** and **CAUTIONS** before doing any welding.

Battery Maintenance

HOW TO CHARGE THE BATTERY

WARNING

DO NOT put tools on the battery.

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

Make sure the key switch is in the OFF position and the park brake is set before connecting the battery.

The acid in the electrolyte can cause injury. If the electrolyte is spilled, use water to flush the area. Use a solution of sodium bicarbonate (soda) and water to make the acid neutral. Acid in the eyes must be immediately flushed with water continuously for 15 minutes, then seek medical attention.

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.

CAUTION

Never connect the battery charger plug to the plug of the lift truck. You can damage the electronic controller. Make sure the battery charger voltage is the correct voltage for the battery.

Correct use of the hydrometer and proper operation of the battery charger is important. Operate the battery charger according to the instructions of the charger manufacturer. Never let the battery discharge below the minimum value given by the battery manufacturer. A fully charged battery will have a specific gravity of 1.265 to 1.310 at 25°C (77°F). See Table 1. Never charge a battery at a rate that will raise the electrolyte temperature above 49°C (120°F). Never permit a battery to stay discharged for long periods.

Table 1. Specific Gravity Corrections

Specific Gravity Reading	Electrolyte Temperature	Correction Points	Correct Value
1.210	31°C (88°F)	+0.003	1.213
1.210	27°C (81°F)	+0.001	1.211
1.210	25°C (77°F)	+0.000	1.210
1.210	18°C (64°F)	−0.004	1.206
+0.001 for each 1.7°C (35°F) from the 25°C (77°F). Base Value (Degrees C × 1.8) + 32 = Degrees F.			

Equalizing Charge

This charge is at a low rate and balances the charge in all of the cells. The equalizing charge is normally given approximately once a month. It is a charge at a slow rate for 3 to 6 hours in addition to the regular charging cycle.

DO NOT give an equalizing charge more than once a week. The most accurate specific gravity measurement for a charged battery will be after an equalizing charge. If the difference in specific gravity is more than 0.020 between cells of a battery after an equalizing charge, there may be a cell that has a malfunction. Consult your battery dealer.

NOTE: Many customers have battery chargers that can follow a program to automatically charge a battery according to recommendations of the battery manufacturer. Use the recommendations of the battery manufacturer for charging the battery. Use only battery chargers approved by the battery manufacturer or dealer.

Normal Charge

This charge is normally given to a battery that is discharged from normal operation. Many customers charge the battery at regular intervals that depend on use. This procedure will keep the battery correctly charged if the battery is not discharged below the limit. Always use a hydrometer to check the battery if the battery is charged at regular intervals. Frequent charging of a battery that has a 2/3 or more charge can decrease the life of the battery.

Maintenance-Free Battery Charger

WARNING

To reduce the risk of fire, use only on circuits provided with 5 amps branch circuit protection in accordance with the National Electrical Code, ANSI/NFPA 70.

For lift trucks equipped with maintenance-free batteries or industrial batteries, the battery connector must be disconnected from the truck and connected to a suitable battery charger. Refer to **Operating Manual**.

Battery Charger (W40Z Only)

For lift trucks equipped with the standard battery pack and on-board charger, it is not required to disconnect the battery connector before charging the battery. Connect AC cord to a 120-volt AC outlet. This will automatically charge the batteries. Refer to **Operating Manual**.

NOTE: The utility tray must remain open during charging to allow batteries proper ventilation.

HOW TO CHANGE THE BATTERY

WARNING

Make sure the capacity of the crane and spreader bar is greater than the weight of the battery. The weight of the battery is normally shown on the battery case. The spreader bar must NOT be made of metal or it must have insulated straps.

Batteries are heavy. Use care to avoid injury.

The replacement battery must fit the battery compartment correctly. Use spacers to prevent the battery from moving in the battery compartment.

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

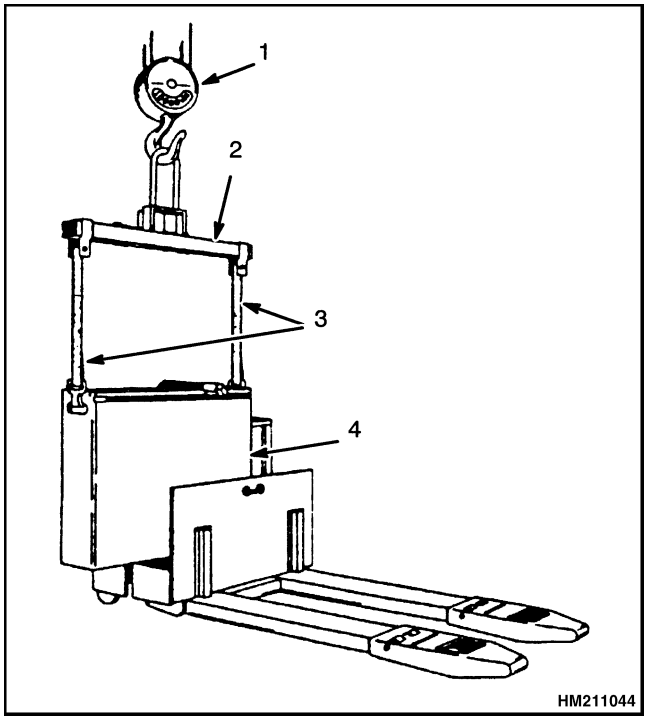
Make sure the key switch is in the OFF position and the park brake is set before connecting the battery.

CAUTION

If the lift truck was operated using a low battery, inspect for welded contacts BEFORE connecting a charged battery. The circuit will not reset and lift truck operation cannot be controlled if the contacts are welded. Prevent side-to-side movement of the battery by adjusting the brackets on each side of the battery and tighten the capscrews, lockwashers, and nuts to retain the batteries.

The replacement battery must fit the battery compartment. Make sure the battery cables have clearance to move during lifting and lowering of the forks. Make sure that the replacement battery is the correct voltage and weight as shown on the capacity plate. See Figure 2.

1. Turn the key switch to the **OFF** position. Disconnect the battery. Use a spreader bar and lifting device to remove the battery.



1. CRANE
2. SPREADER BAR
3. INSULATOR STRAPS
4. BATTERY

Figure 2. Changing the Battery

2. Position blocks under both sides of the truck in the area of the battery compartment.
3. Loosen and remove buckle and strap from around battery.
4. Lift the battery out of the truck. **DO NOT** allow the battery to shift from side to side. Make sure the battery cables have clearance.
5. Before installing a new battery, make sure the battery is the correct size and weight for the lift truck. Make sure the battery has clearance for installation. Check that the battery connector can be attached to the lift truck connector without pulling during lifting and lowering operations. **DO NOT** damage the battery cables during installation. Install the battery.
6. Replace buckle and strap and tighten to prevent the battery from moving.
7. Remove the blocks from under the truck.
8. Connect the battery. Test the operation of the motorized hand truck before returning the truck to service.

Maintenance Schedule

CHECKS AND INSPECTION PROCEDURES

WARNING

DO NOT make repairs or adjustments to the lift truck unless you been properly trained and specifically authorized to do so. Repairs and adjustments that are not performed correctly can create dangerous operating conditions.

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.

CAUTION

Disposal of lubricants and fluids must meet local environmental regulations.

Trucks operating in non-standard or severe applications may require special optional environmental packages, additional maintenance procedures, more frequent service intervals and/or special lubricants.

The Recommended Schedule of Maintenance is located in this section. The Maintenance Schedule has the time intervals for inspection, lubrication, and maintenance. The Maintenance Schedule is based on normal operations. Severe or unusual operating conditions will require a reduction in the recommended time periods in the Maintenance Schedule.

Your Hyster® dealer has the facilities and trained personnel to do complete lift truck maintenance. A complete program of inspection, lubrication, and maintenance will help your lift truck perform efficiently and operate over a longer period of time. Service manuals are available from your Hyster dealer to help users who do their own maintenance.

Put the lift truck on a level surface. Lower the forks, turn the key switch to the **OFF** position and disconnect the battery. Remove the hood. If repair is required, attach a **DO NOT OPERATE** tag to the control handle. **DO NOT** operate a lift truck until all repairs have been performed.

Hydraulic System

WARNING

Always wear the proper protective equipment including eye protection and petroleum-resistant gloves when handling hydraulic oil. Thoroughly wash oil from exposed areas of skin as soon as possible.

Completely lower forks to relieve hydraulic pressure before disassembling any part of the lift pump or disconnecting any hydraulic hoses.

The hydraulic oil is hot at normal operating temperatures. Be careful when draining the oil.

Never check for leaks by putting hands on hydraulic lines or components under pressure. Hydraulic oil under pressure can be injected into the skin.

CAUTION

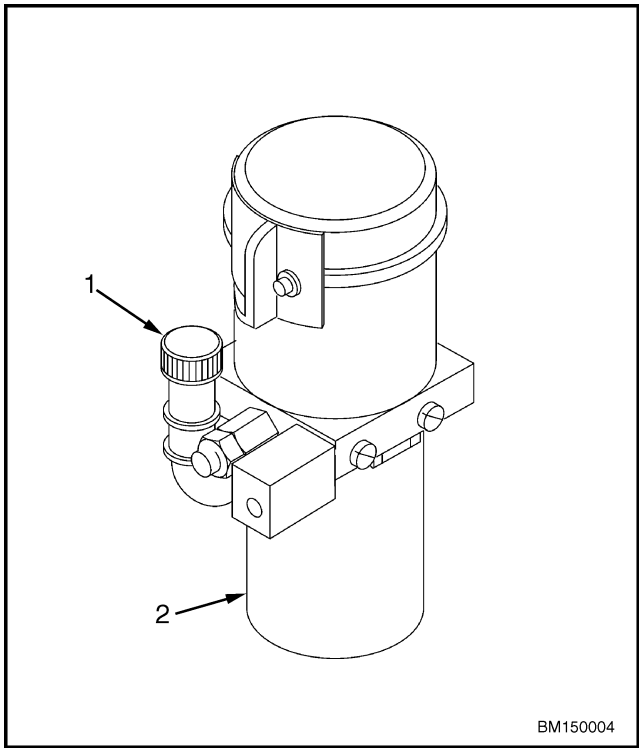
Protect the hydraulic system from dirt and contaminants when servicing the hydraulic system.

Never operate the pump without the proper amount of oil in the hydraulic system. The operation of the hydraulic pump with low oil levels will damage the pump.

NOTE: There is no filter on this hydraulic system. There is a screen on the pump inlet. The screen and the magnet in the bottom of the reservoir must be cleaned each time the reservoir is removed for repairs.

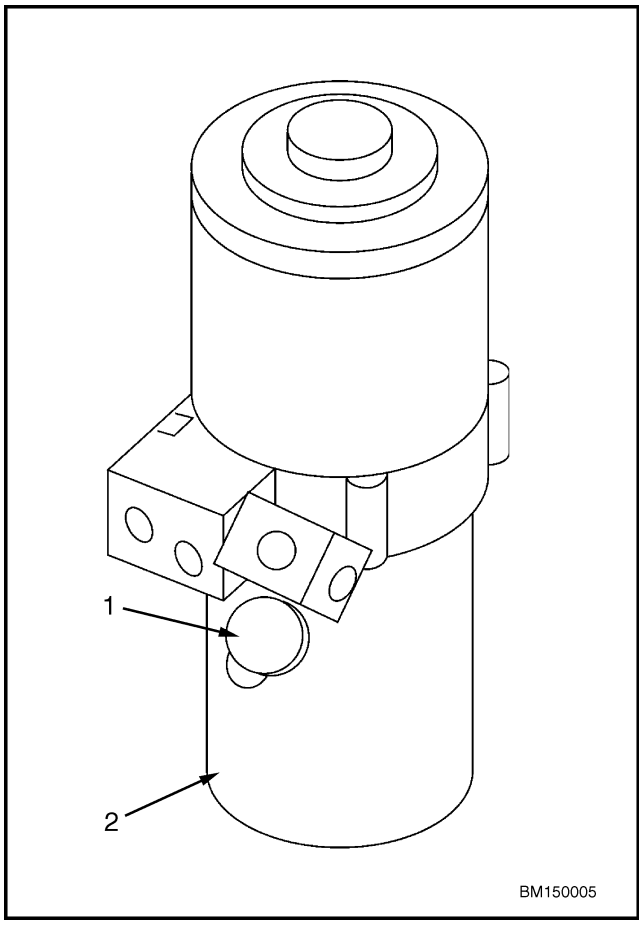
To check the hydraulic oil level, make sure the temperature of the oil is at least 32°C (90°F), and the forks are fully lowered. Remove the electrical compartment cover from the lift truck, and locate the hydraulic pump assembly. The fluid level full mark is labeled on the hydraulic reservoir. The hydraulic reservoir fluid level can be seen through the reservoir. If levels do not meet necessary requirements, add hydraulic oil. **DO NOT** overfill. Oil will leak from the breather if too full. After filling, make sure to tighten the breather cap to prevent oil leaks. See Figure 3 and Figure 4.

Check the hydraulic system for leaks. Inspect all hydraulic hoses and fittings for leaks. Check for broken or defective clamping devices. Repair or replace any damaged components as necessary.



1. BREATHER CAP
2. HYDRAULIC OIL RESERVOIR

Figure 3. 12-Volt Hydraulic Reservoir



1. BREATHER CAP
2. HYDRAULIC OIL RESERVOIR

Figure 4. 24-Volt Hydraulic Reservoir

Lifting Mechanism

WARNING

DO NOT put any part of your body in or through the lift mechanism unless the forks are completely lowered, the key is removed, and the battery is disconnected.

Always wear the proper protective equipment including eye protection and petroleum-resistant gloves when handling hydraulic oil. Thoroughly wash oil from exposed areas of skin as soon as possible.

Never check for leaks by putting hands on hydraulic lines or components under pressure. Hydraulic oil under pressure can be injected into the skin.

1. Raise the forks slowly without a load. Check for smooth operation and mechanical interference. Mechanical interference is caused by damaged or worn linkage or shafts, or by incorrect adjustment of the tension rods.
2. Check for damaged or worn linkage bushings or shafts.
3. Check for missing or loose shaft pins.
4. Check load wheels and support bearings, shafts, and shaft pins for wear, damage, or missing parts.

Controls

WARNING

If any function does not operate or operates incorrectly, report the faulty operation immediately. DO NOT operate the lift truck until the problem is corrected. Put a DO NOT OPERATE tag on the control handle. Remove the key and disconnect the battery.

Perform the following checks in an area that is clear of other personnel or equipment.

1. Check the operation of the key switch. Functions should not operate with the key switch in the **OFF** position, except the steering. Turn the key switch to the **ON** position. Lower the control handle to the operating position. The horn, hydraulic system, traction system, and brake should now be operational.
2. Check the operation of the brake switch. Release the control handle to allow it to return to the vertical position. Move the speed/direction control without lowering the control handle. The traction system must not operate.
3. Check the operation of the speed/direction control. Lower the control handle to release the brake. Slowly rotate the speed/direction control. The lift truck must accelerate smoothly. Rotate the control in the opposite direction. The lift truck must stop smoothly and then change direction. The control must return to the **OFF** position when released.
4. Check the operation of the lift and lower functions. Push the lift button and then the lower button. Check that the forks raise and lower.

5. Check the operation of the traction reverse function. Slowly rotate the speed/direction control for slow travel in the control handle direction. Push the traction reverse button without changing the position of the speed/direction control. The lift truck must stop and then accelerate in the opposite direction. The horn will sound. Once the lift truck changes direction and moves with the control handle trailing, release the traction reverse button without releasing the speed/direction control. The lift truck should not accelerate in the control handle direction. (Once the traction reverse button has been pressed, the traction motor should not accelerate the lift truck toward the control handle.) Full direction control may be reestablished by rotating the speed/direction control to the **OFF** position or moving the control handle to a brake **ON** position.

6. Check the steering function. Move the control handle to the right and left. Check for smooth movement of the steer (drive) wheel in the same direction. Steering will be more difficult if the lift truck is stopped.

7. Check the operation of the optional creep speed button. The optional slow speed or "turtle" mode button enables the truck to be operated at a slow speed, with the control handle in the fully upright position. To operate, press and hold the slow speed button, and rotate the speed/direction control button in the direction of desired travel. Releasing the button will reapply the brake. If the control handle is lowered to the normal drive position while the slow speed button is depressed, the truck will continue to operate in the slow speed mode until the button is released. The truck should operate at only 1.6 km/h (1.0 mph).

Electrical and 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) and water. Acid in the eyes must be immediately flushed with water continuously for 15 minutes, then seek medical attention.

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 with the battery connections. Disconnect the battery when doing maintenance.

The battery must fit the battery compartment so the battery restraint panels will operate correctly. Use spacers to prevent the battery from moving more than 13.0 mm (0.5 in.) in any direction.

Broken electrical connections, damaged wires or cables, and leakage or corrosion from the battery can cause the electrical controls of the lift truck to operate incorrectly.

Check for loose or broken electrical connections and damaged wires or cables. Examine the battery case for damage and leakage. See the battery dealer in the area to repair any damage to the battery or cables.

Keep the battery case, top cover, and battery areas clean and painted. Use a water and soda solution to clean the battery and the battery area (1 pound of baking or commercial soda ash to 1 gallon of water). Keep the top of the battery clean, dry, and free of corrosion.

NOTE: The following electrolyte level and specific gravity checks are not necessary for low maintenance batteries.

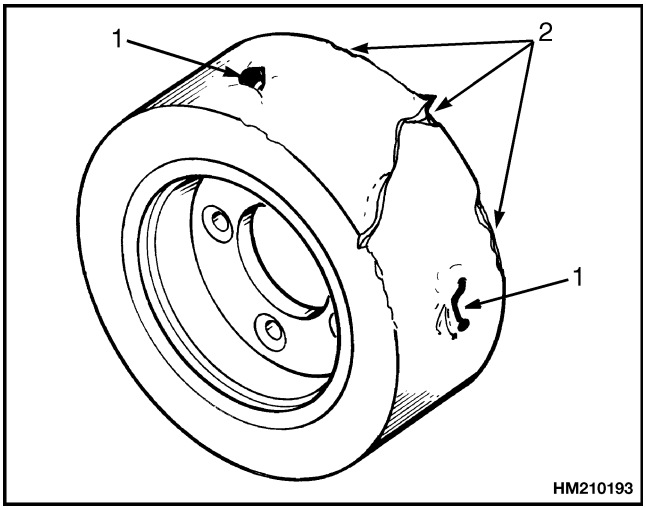
Check that the vent caps are clear. Check the electrolyte level daily on a minimum of one cell and weekly on all cells. Fill to the correct level according to the battery manufacturer's recommendations. Add only distilled water. Use a hydrometer to check that the battery is not discharged below the minimum specific gravity given by the manufacturer and has enough charge to complete a work period.

Wheels and Tires

CAUTION

Whenever 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 Capacities and Specifications 8000 SRM 1010. When the nuts stay tight after an 8-hour check, the interval for checking the torque can be extended to 350 hours.

Inspect the drive tire, caster, and load wheels for foreign material, cuts, and tears. Remove all foreign material and smooth any cuts or tears to prevent further damage. See Figure 5.



1. SMOOTH EDGES
2. REMOVE NAILS, GLASS, AND ALL METAL

Figure 5. Tires

NOTE: The load wheel bearings have lube fittings. Under normal conditions, it is recommended that they be lubricated every 50 hours minimum or once per month. The load wheel bearings are cleaned and repacked every 1000 hours or once per year.

Trucks equipped with the food processing package use sealed bearings, which do not require periodic maintenance. Inspect every 350 hours or 2 months.

CASTERS

CAUTION

In normal operation, the casters should be in contact with the floor. As the drive tire wears, the casters will move closer to the floor and will carry more of the load. If the casters are not shimmed properly, the caster can reduce the load on the drive tire and reduce the ability of the drive tire to stop the truck.

1. Place the truck on a level surface. Lower the forks, turn the key switch to the **OFF** position and disconnect the battery.
2. Ensure the caster wheel is pointed toward the battery. See Figure 6.

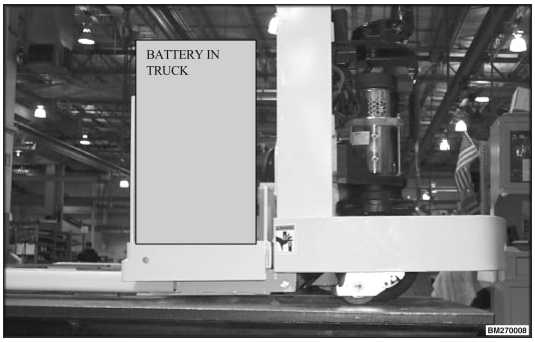


Figure 6. Caster Orientation

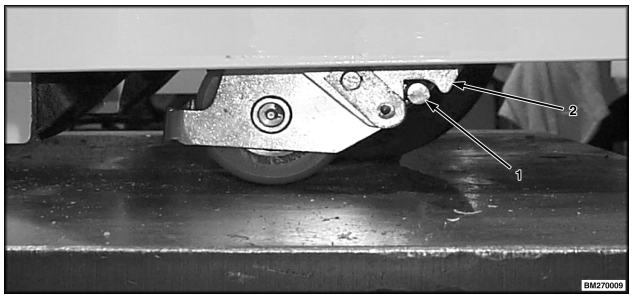
3. The caster should be in contact with the floor. If there is a gap between the floor and the bottom of the caster wheel, the gap should not exceed 1.50 mm (0.06 in.).

NOTE: DO NOT install too many shims.

4. If the gap is greater than 1.50 mm (0.06 in.), add shims to adjust the caster to the floor.

NOTE: Step 5 and Step 6 can be performed to check that the casters have not been over shimmed.

5. Look for a gap between the round bar and the frame of the caster wheel. See Figure 7.



1. ROUND BAR
2. CASTER WHEEL FRAME

Figure 7. Caster Measurement

6. The gap should be no greater than 4.50 mm (0.19 in.) with the caster touching the ground. Remove excess shims if gap exceeds 4.50 mm (0.19 in.).

Recommended Schedule of Maintenance

Although this Recommended Schedule of Maintenance is intended for use with all motorized hand lift truck models, not all models are equipped with all the items listed in this schedule. Be certain this schedule is read thoroughly and all operations are followed. If in doubt of any procedure or component to be inspected, adjusted, and lubricated, or if the truck is specially equipped and used for special applications, consult your nearest authorized Hyster® Industrial Truck Dealer for assistance.

CAUTION

Trucks operating in non-standard or severe applications may require special optional environmental packages, additional maintenance procedures, more frequent service intervals, and/or special lubricants.

NOTE: Some items on the following charts may not be applicable to your truck.

SAFETY AND OPERATIONAL CHECK
(Prior to each shift)
Only the 8-hour checks are to be performed by the operator. Have a qualified technician correct all problems in accordance with appropriate Hyster maintenance instructions.

A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**

Component:	**A**	**B**	**C**
Leaks - Hydraulic Fluid	**X**		
Tires - Condition (See Note 1)	**X**		
Forks - Condition	**X**		
Load Backrest - Cracks and Mounting	**X**		
Hydraulic Hoses and Fittings - Inspect for Leaks and Damaged or Defective Components	**X**		
Safety Warnings - Attached (Refer to Parts Manual for Location)	**X**		
Internal Checks:			
Battery - Water/Electrolyte Level and Charge	**X**		
Hydraulic Reservoir Fluid Level - Check Level	**X**		
Operating Manual in Container	**X**		

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5. Recycle all waste oils.

SAFETY AND OPERATIONAL CHECK (Prior to each shift) Only the 8-hour checks are to be performed by the operator. Have a qualified technician correct all problems in accordance with appropriate Hyster maintenance instructions.			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
Nameplate Attached - Information Matches Model, Serial Number, & Attachments	**X**		
Battery Restraints in Place	**X**		
Controls (Turn Truck On) Unusual Noises Must Be Investigated Immediately:			
Brake System - Functioning Smoothly	**X**		
Directional/Speed Control - Functioning Smoothly	**X**		
Lift and Lower Control - Functioning Smoothly	**X**		
Gauges, Horn, and Fuses - Functioning	**X**		
Steering Operation - Functioning Smoothly	**X**		

NOTES:

1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5.  Recycle all waste oils.

NOTE: The following inspections and necessary corrections are the responsibility of the user.

LUBRICATION CHECK Blow off, clean when necessary, and inspect for damage.			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
Lubricate - Chassis (All Fittings)		**X**	
All Linkage and Load Wheels (See Note 2)		**X**	
Clean and Repack Load Wheel Bearings			**X**
Hydraulic Reservoir Oil Level		**X**	**O**
Hydraulic Reservoir Breather		**X**	
Caster Wheel Clearance		**X**	
Drive Unit Oil Level (See Note 5)		**X**	**O**

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5. Drain and refill drive unit gear oil after initial 350 hours of operation.
6.  Recycle all waste oils.

HYDRAULIC SYSTEM CHECK			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
Hydraulic Pump for Noise and Operation		**X**	
Hydraulic Control Valve for Leaks and Operation		**X**	
Relief Valve Settings		**X**	

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5.  Recycle all waste oils.

HYDRAULIC SYSTEM CHECK			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
All Hydraulic Hoses and Fittings for Leaks, Wear, Kinks, Flattening, and Charring		**X**	
For General Leaks		**X**	

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5.  Recycle all waste oils.

DRIVE UNIT CHECKS			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
Brake Wear and Adjustment		**X**	
Electric Motor and Drive Unit Mounting Bolts		**X**	
Wheel Bolts - Torque to Specifications		**X**	

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5.  Recycle all waste oils.

ELECTRICAL SYSTEM CHECKS NOTE: DO NOT use Steam to Clean Electrical Parts			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
Clean all Controls		**X**	
Interlock Switches - Functioning		**X**	
All Motors - Clean with Compressed Air - Functioning		**X**	
All Motors - Clean Power Wire Terminals - Functioning		**X**	
Battery Box and Connectors - Neutralize and Clean		**X**	
Battery Condition - Physical and Electrical	**X**	**X**	
All Wire Connections - Tightness and Corrosion		**X**	
Contactors - Tips and Wire Connections - Tightness and Corrosion			**X**

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5.  Recycle all waste oils.

GENERAL CHECKS			
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**		
Component:	**A**	**B**	**C**
All Bolts, Nuts, Cotter Pins, Etc.			**X**

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5.  Recycle all waste oils.

ROAD AND LOAD TEST TRUCK The following items must be tested at initial installation of the truck and after every maintenance inspection or repair. Test the rated load in a clear area. Report any questionable functions or unusual noises.	
A - Every 8 Hours **B - Every 350 Hours** **C - Every 2000 Hours**	**X - Indicates Visual Inspection, Repair, or Replace as Required** **O - Indicates Drain and Fill**
Component:	**As Required**
Steering System	Test the unit for proper operation in a clear area with the rated load.
Brake System	
Emergency Disconnect Switch	Test for proper operation

NOTES:
1. Tires - Condition affects stability, safety, and load capacity that can be handled safely.
2. Under **Normal Conditions**, it is recommended that the Load Wheel Bearings be lubricated every 200 hours, minimum. The load wheel bearings are cleaned and repacked every 2000 hours. For trucks equipped with the **Food Processing Package** or operate under **Wet or Corrosive Conditions**, it is recommended to lubricate the lift linkage every 50 hours. Load wheel bearings should be inspected every 350 hours.
3. See **Capacities and Specifications** 8000 SRM 1010 for all lubrication specifications.
4. The presence of hydraulic fluid on cylinder rods and fittings does not necessarily indicate a leak.
5. Recycle all waste oils.

Lubrication Instructions

THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) REQUIRES THAT THE USER EXAMINE THE TRUCK BEFORE EACH SHIFT TO BE SURE IT IS IN SAFE WORKING ORDER.

EVERY 8 HOURS OR DAILY

Perform all safety and operational checks as outlined in the Recommended Schedule of Maintenance found in this manual.

Check battery level and add water if necessary to maintain the level that is recommended by the manufacturer. A certain amount of water loss in battery cells is normal. Always replace water at the end of a charge. Use approved tap water or distilled water.

EVERY 350 HOURS OR 6 MONTHS

NOTE: Freezer and other specialized applications may require specific greases and lubricant types other than that normally used. Refer to **Capacities and Specifications** 8000 SRM 1010.

Refer to **Capacities and Specifications** 8000 SRM 1010 for proper specifications on lubrication requirements for the lubrication fittings. Clean the lubrication fittings before and after lubricating. See Figure 8.

Check Hydraulic Oil Level

NOTE: Refer to **Capacities and Specifications** 8000 SRM 1010 for proper oil selections.

Hydraulic System Check - Check the hydraulic oil level when the oil is at normal operating temperature and forks are in the lowered position.

Remove drive unit cover. Remove breather cap from hydraulic pump and reservoir. Add hydraulic oil, if necessary, through the breather filler pipe until oil is at Full mark on reservoir. Install breather cap and tighten. **DO NOT OVERFILL**.

Hydraulic Reservoir Breather - Remove drive unit cover. Remove breather and clean with a suitable cleaning solution, blow dry with compressed air, and install. Replace breather if it cannot be cleaned or is damaged.

Drive Unit (Initial 350 hour check) - Keep truck level. Place a drip pan under front end of the truck and drain the oil. Remove drive unit cover. Remove drain and fill plugs to drain gear oil. Replace drain. Add gear oil through fill plug until oil runs out. Replace fill plug. Drive unit capacity is 0.18 liter (6 oz). **DO NOT OVERFILL**.

Drive Unit - With the truck level, remove the fill plug and check the oil level, add gear oil until full. **DO NOT OVERFILL**.

EVERY 2000 HOURS OR 2 YEARS

WARNING

Always wear the proper protective equipment including eye protection and petroleum resistant gloves when handling oil. Thoroughly wash oil from exposed areas of skin as soon as possible.

Never check for leaks by putting hands on hydraulic lines or components under pressure. Hydraulic oil under pressure can be injected into the skin.

Completely lower forks to relieve hydraulic pressure before disassembling any part of the lift pump or disconnecting any hydraulic hoses.

The hydraulic oil is hot at normal operating temperatures. Be careful when draining the oil.

CAUTION

Protect the hydraulic system from dirt and contaminants when servicing the hydraulic system.

Never operate the pump without the proper amount of oil in the hydraulic system. The operation of the hydraulic pump with low oil levels will damage the pump.

Disposal of lubricants and fluids must meet local environmental regulations.

Load Wheel Bearings - Disassemble, clean, and inspect for wear or damage. Pack the bearings with grease and assemble.

Drive Unit Gear Oil - Keep truck level. Place a drip pan under front end of the truck and drain the oil. Remove drive unit cover. Remove drain and fill plugs to drain gear oil. Replace drain. Add gear oil through fill plug until oil runs out. Replace fill plug. Drive unit capacity is 0.18 liter (6 oz). **DO NOT OVERFILL**.

Hydraulic System - Lower the forks. Remove the drive unit cover. Remove the reservoir. Empty hydraulic oil into a suitable container and discard in accordance with local regulations. Clean the hydraulic reservoir using a suitable cleaning solution and dry with compressed air. Clean and inspect the strainer. Replace the strainer if clogged or damaged. Make sure reservoir is clean and dry. Install the reservoir.

To Fill Hydraulic Reservoir

Lower the forks. Remove the breather filler cap. Add hydraulic oil through the breather filler pipe until at Max Mark on reservoir. Capacity is approximately 0.95 liter (1.0 qt). Install the breather cap and tighten. Raise and lower the forks, while bringing oil to normal operating temperature. Then recheck hydraulic oil level. **DO NOT OVERFILL**.

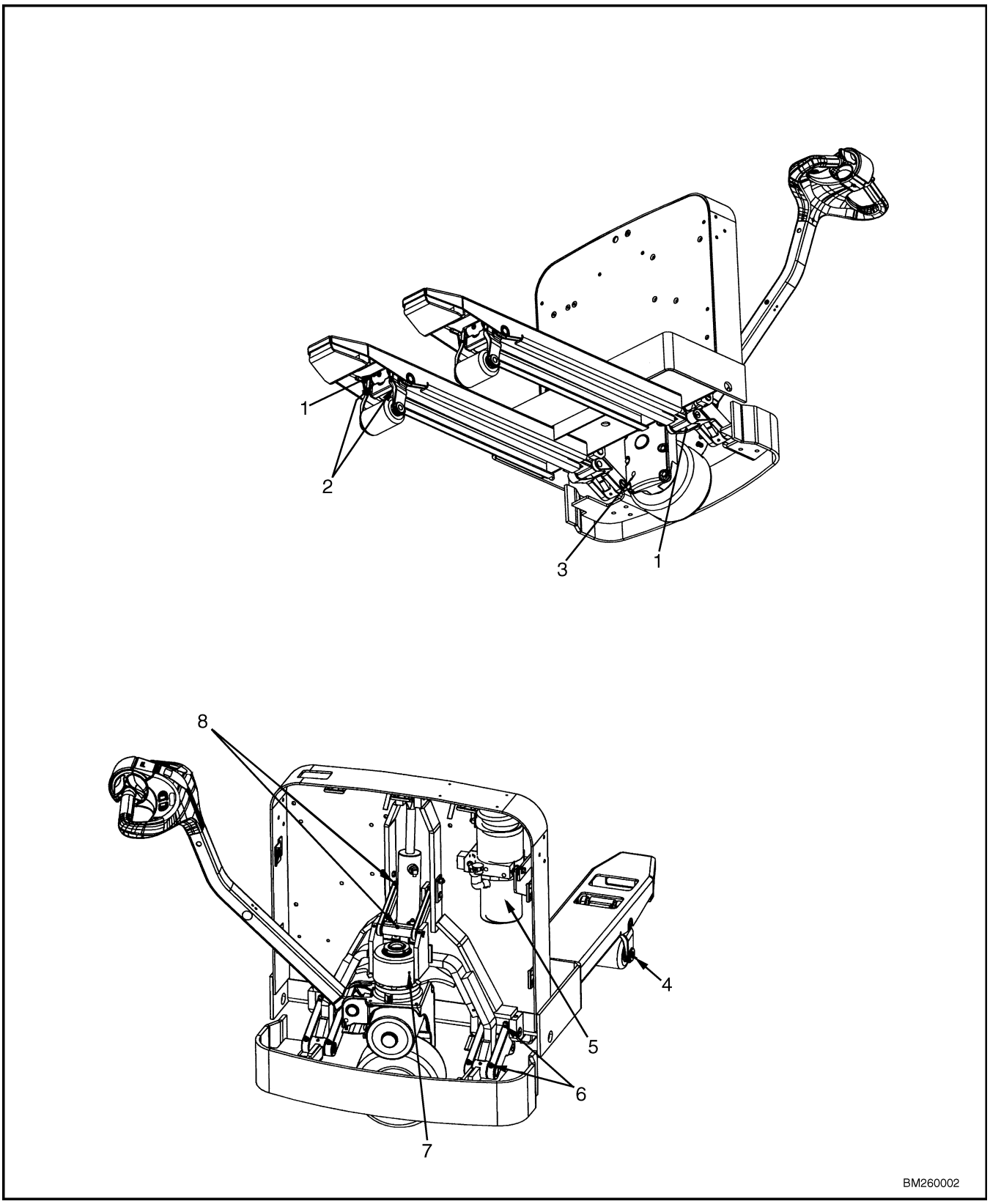


Figure 8. Lubrication Locations

Legend for Figure 8

Item	Location	No. of Fittings
1	Compression Rod	2 per rod
2	Load Link	2 per load link
3	Gear Oil	
4	Load Wheel	1 per load wheel
5	Hydraulic Oil	
6	Lower Link	4 per lower link
7	Steer Bearings	1
8	Upper Link	3

NOTES

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