PERIODIC MAINTENANCE

J40-65Z [B416]

HYSTER

PART NO. 1616867

8000 SRM 1226

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This section is for the following models:

J40-65Z [B416]

General

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 immediately. If repair is necessary, put a DO NOT OPERATE tag in the operator's area. Remove the key from the key switch. Disconnect the battery connector.

CAUTION

Disposal of lubricants and fluids must meet local environmental regulations.

Disposal of batteries must meet local environmental regulations.

This section contains theMaintenance Schedule 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 8-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.

Your dealer for Hyster lift trucks has the equipment and trained service personnel to do a complete program of inspection, lubrication, and maintenance. A regular program of inspection, lubrication, and maintenance will help your lift truck provide more efficient performance and operate for a longer period of time.

Some users have service personnel and equipment to do the inspection, lubrication, and maintenance shown in the Maintenance Schedule. **Service Manuals** are available from your dealer for Hyster lift trucks to help users who do their own maintenance.

SERIAL NUMBER DATA

The serial number code for the lift truck is on the nameplate. The code is also stamped on top of the rear bulkhead of the frame. It is on the bulkhead inside the right rear leg of the overhead guard.

HOW TO MOVE A DISABLED LIFT TRUCK

How to Tow a Lift Truck

WARNING

Use extra caution when towing a lift truck if any of the following conditions exist:

- **Brakes do not operate correctly.**
- **Steering does not operate correctly.**
- **Tires are damaged.**
- **Traction conditions are bad.**
- **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 and difficult. Do NOT tow the lift truck if there is no power. 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. Put the weight center of the disabled lift truck on the load center of the forks. Do not damage the underside of the lift truck.

1. The towed lift truck must have an operator.
2. Raise the carriage and forks approximately 300 mm (12 in.) from the surface. Install a chain to prevent the carriage and mast channels from moving.
3. Tow with another lift truck of *equal* or *greater* capacity than the disabled lift truck. Install a load of approximately half-capacity on the forks of the lift truck that is being used to tow the disabled lift truck. The half-capacity load will increase the traction of the lift truck. Keep the load as low as possible.

4. Use a towing link made of steel that fastens to the tow pins in the counterweights of both lift trucks.
5. Release the parking brake.
6. Tow the lift truck slowly.

HOW TO PUT LIFT TRUCK ON BLOCKS

How to Raise Drive Tires

WARNING

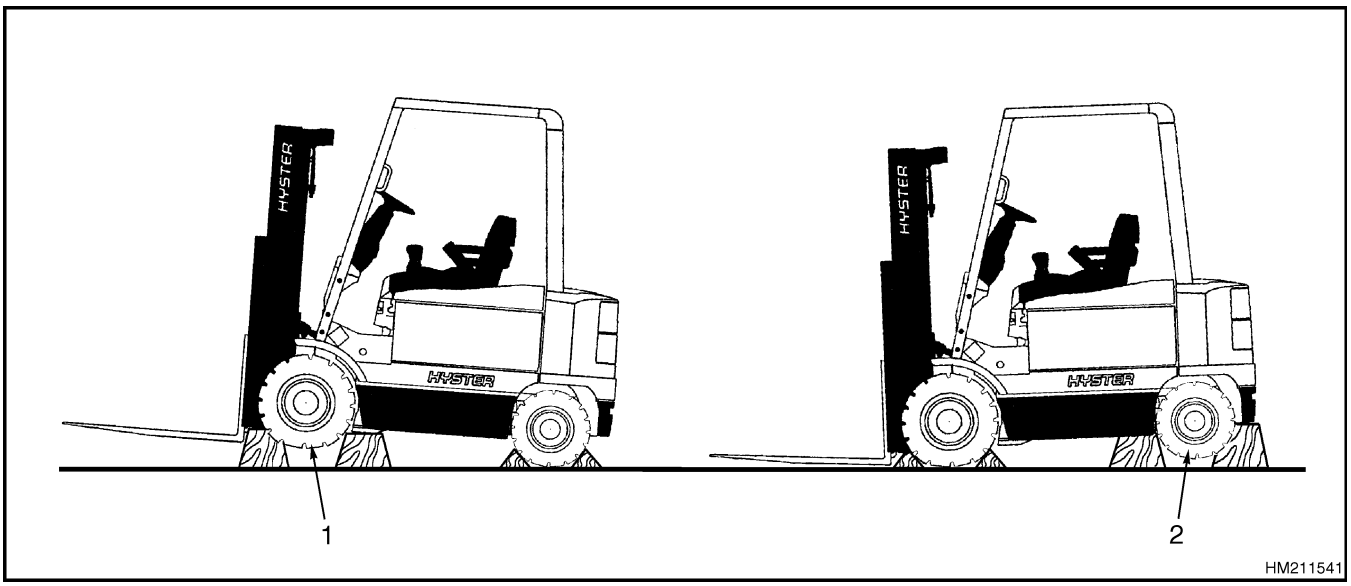
The lift truck must be put on blocks for some types of maintenance and repair. The removal of the following assemblies will cause large changes in the center of gravity: mast, drive axle, battery, or counterweight. When the lift truck is put on blocks, put additional blocks in the following positions to maintain stability:

a. Before removing the mast and drive axle, put blocks under the counterweight so the lift truck cannot fall backward.
b. Before removing the counterweight, put blocks under the mast assembly so the lift truck cannot fall forward.

The surface must be solid, even, and level when the lift truck is put on blocks. Make sure that any blocks used to support the lift truck are solid, one-piece units.

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

1. Put blocks on each side (front and back) of the steering tires to prevent movement of the lift truck. See Figure 1.
2. Put the mast in a vertical position. Put a block under each outer mast channel.
3. Tilt the mast fully forward until the drive tires are raised from the surface.
4. Put additional blocks under the frame behind the drive tires.
5. If the hydraulic system will not operate, 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.



1. DRIVE TIRES
2. STEERING TIRES

Figure 1. Put Lift Trucks on Blocks

How to Raise Steering Tires

1. Apply the parking brake. Put blocks on both sides (front and back) of the drive tires to prevent movement of the lift truck. See Figure 1.
2. Use a hydraulic jack to raise the steering tires. Make sure that the jack has a capacity of at least 2/3 of the total weight of the lift truck as shown on the nameplate.
3. Put the jack under the steering axle or frame to raise the lift truck. Put blocks under the frame to support the lift truck.

Maintenance Schedule

The Maintenance Schedule has time intervals for inspection, lubrication, and maintenance for your lift truck. The service intervals are given in both operating hours recorded on the lift truck hourmeter, and in calendar time. The recommendation is to use the interval that comes first. The approximate locations of the items indicated in the Maintenance Schedule are shown in Figure 2.

The Maintenance Schedule has the maximum service intervals for usage under normal conditions. Inspect and lubricate more frequently if the lift truck operates in dirty, dusty, wet, or difficult conditions.

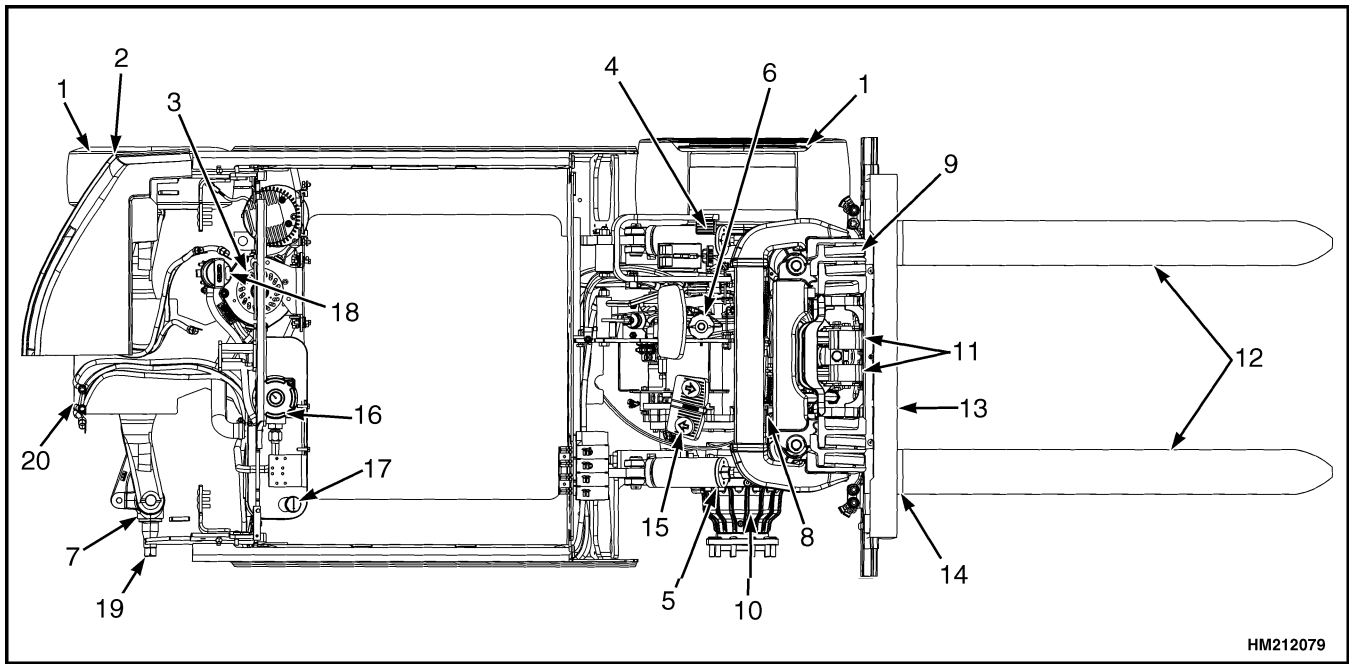


Figure 2. Maintenance Points

Table 1. Maintenance Schedule

Item No.	Item	8 hr/ 1 day	500 hr/ 3 mo	1000 hr/ 6 mo	2000 hr/ 1 yr	Procedure or Quantity	Specification
1	Tires	X				Check Condition	
2	Steer Wheel Nuts		X			Check Torque	237 to 305 N•m (175 to 225 lbf ft)
3	Hydraulic Motor DC Motor (Standard)			X		Check Condition	See **Parts Manual**
X=Check C=Change L=Lubricate CIL=Check Indicator Light during operation							

Table 1. Maintenance Schedule (Continued)

Item No.	Item	8 hr/ 1 day	500 hr/ 3 mo	1000 hr/ 6 mo	2000 hr/ 1 yr	Procedure or Quantity	Specification
3	Hydraulic Motor AC Motor (Optional)			X		Check Condition	See **Parts Manual**
4	Parking Brake	X CIL	X			Check Operation and adjust as necessary	Must hold a full capacity load on a 15% grade
4	Parking Brake			L		Lubricate Linkage See NOTE 2	Silicone spray Hyster Part Number 328388
5	Service Brake	X CIL				Check Operation	See **Parts Manual**
5	Brake Linkage and Shafts			L			Multipurpose Grease See NOTE 1 and NOTE 2
6	Brake Oil (Master Cylinder)	CIL					
6	Brake Oil (Master Cylinder)			X		0.25 liter (0.5 pt)	ISO-VG32
6	Brake Oil (Master Cylinder)				C	0.25 liter (0.5 pt)	ISO-VG32
7	Wheel Bearings Steer Wheels				L	Check Grease	Multipurpose Grease See NOTE 1
8	Pivots (Mast)		L			2 Fittings Lubricate As Necessary	Multipurpose Grease See NOTE 1
9	Mast Sliding Surfaces		L			Lubricate As Required	Multipurpose Grease See NOTE 1
9	Header Hoses		X			Check Condition	
10	Gearbox Right Hand Side				C	0.9 liter (1.9 pt) Change Oil	Use Gear Lube SAE 80W or Gear Oil SAE 80W-90 or equivalent
10	Gearbox Left Hand Side				C	1.3 liter (2.8 pt) Change Oil	Use Gear Lube SAE 80W or Gear Oil SAE 80W-90 or equivalent
10	Brake Oil Each Side				C	0.8 liter (1.7 pt) Change Oil	JDM J20
11	Mast, Carriage, Header Hoses, Lift Chains, Attachment	X				Check Condition	
11	Lift Chains			L		Check and Lubricate NOTE 2	Engine oil
11	Lift Chains			X		Check Adjustment and Length See NOTE 2	
X=Check C=Change L=Lubricate CIL=Check Indicator Light during operation							

Table 1. Maintenance Schedule (Continued)

Item No.	Item	8 hr/ 1 day	500 hr/ 3 mo	1000 hr/ 6 mo	2000 hr/ 1 yr	Procedure or Quantity	Specification
11	Lift Chains				L	Remove Lift Chains to Clean and Lubricate	Engine Oil
12	Forks	X	X		X	Check Condition and Replace if Necessary	
13	Intergral Sideshift Carriage		L			4 Fittings	Multipurpose Grease See NOTE 1
13	Integral Sideshift Carriage (Upper/Lower Bearings)			X		Check Wear 4 Bearings	2.5 mm (0.098 in.) Minimum Thickness
13	Integral Sideshift Carriage (Upper/Lower Bearings)				C	Replace Bearings 4 Bearings	
14	Fork Pins and Guides			L		Lubricate as Necessary	Engine Oil
15	Direction and Speed Control Pedals	X				Check Operation Lubricate as Necessary	See NOTE 1
16	Hydraulic Filter				C	1 Filter See NOTE 2 and NOTE 6	See **Parts Manual**
17	Hydraulic Oil (FULL Mark)	X				Check Oil Level	
17	Hydraulic Oil (FULL Mark)				C	27.4 liter (29.0 qt)	−18 to 38°C (0 to 100°F)ISO-VG46
18	Hydraulic Tank Breather				C	Replace See NOTE 2	See **Parts Manual**
19	Steering Axle Spindles King Pins			L		2 Fittings See NOTE 2 and NOTE 3	Multipurpose Grease See NOTE 1
19	Steering Tie Rods			L		4 Fittings See NOTE 4	Multipurpose Grease See NOTE 1
20	Contactors			X		Check Condition	See **Parts Manual**
	Horn, Lights, and Alarm	X				Check Operation	
	Hinges, Levers, Linkage, Pedals, and Seat Rails			L		As Required	Multipurpose Grease See NOTE 1 and NOTE 2
X=Check C=Change L=Lubricate CIL=Check Indicator Light during operation							

Table 1. Maintenance Schedule (Continued)

Item No.	Item	8 hr/ 1 day	500 hr/ 3 mo	1000 hr/ 6 mo	2000 hr/ 1 yr	Procedure or Quantity	Specification
	Oil Leaks	X				Check for Leaks	
	Safety Labels	X				Replace as Necessary	See **Parts Manual**
	Battery	X				Check Condition	See NOTE 5
	Seat Belt and Seat Rails	X CIL				Check Condition	
	Seat Plate Pivots			L			Use Silicone spray (Hyster Part Number 328388) See NOTE 2
	Seat Switch	X				Check Operation	
	Battery Restraint	X				Check operation	
	Steering Column Tilt Mechanism	X				Lubricate as Necessary	Use Silicone Spray (Hyster Part Number 328388)
	Hydraulic Control Levers	X				Lubricate as Necessary	Use Silicone Spray (Hyster Part Number 328388)
NOTE 1: Multipurpose grease with 2 to 4% Molybdenum Disulfide.							
NOTE 2: Service interval is for trucks working in a clean and dry warehouse environment. Trucks working in more severe environments (dirty, dusty, corrosive, or wet environments) should reduce service intervals as advised by your dealer for Hyster lift trucks based on their survey of the application.							
NOTE 3: Lubricate lower spindle bearings at 1000 hours and upper bearings during assembly. If truck is used outdoors or on wet floors, lubricate lower spindle bearings at 250 hours.							
NOTE 4: If lift truck is used outdoors or on wet floors, reduce service interval to 500 hours.							
NOTE 5: Equalization charge is required approximately each month.							
NOTE 6: Replace Hydraulic filter after first 100 hours.							
NOTE 7: Replace the contacts in the contactors when the thickness is 30% of a new contact. See for procedures.							
NOTE: Never use steam to clean electrical parts.							
X=Check C=Change L=Lubricate CIL=Check Indicator Light during operation							

Maintenance Procedures Every 8 Hours or Daily

HOW TO MAKE CHECKS WITH KEY SWITCH OFF

WARNING

Do not operate a lift truck that needs repairs. Report the need for repairs immediately. If 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 to the **OFF** position. Apply the parking brake. Remove the floorplates and inspect for leaks and condition that are not normal. Clean any oil spills. Make sure that lint, dust, paper, and other materials are removed from the compartments. Make the additional checks as described in the following paragraphs of How to Make Checks With Key Switch OFF and How to Make Checks With Key Switch ON.

Tires and Wheels

WARNING

Air pressure in pneumatic tires can cause tire and wheel parts to explode. The explosion of wheel parts can cause serious injury or death.

Put the lift truck on blocks as described in How to Put Lift Truck on Blocks at the beginning of this section.

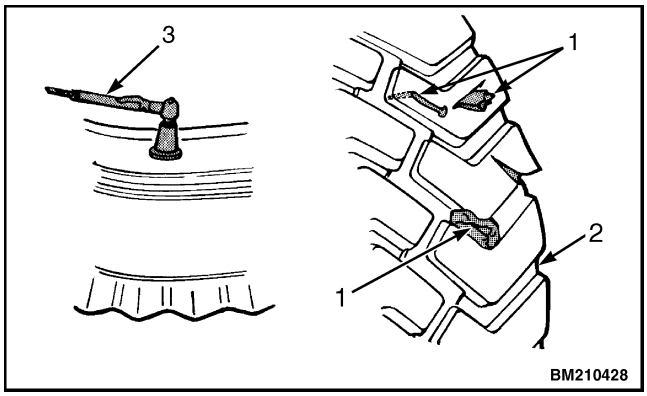
Remove all of the air from the tires before the tires are removed from the lift truck.

If the air pressure is less than 80% of the correct air pressure, the tire must be removed before air is added. Put the tire in a safety cage when adding air pressure to the tire. Follow the procedures described in Add Air to Tires section in your manual.

When air is added to the tires, use a remote air chuck. The person adding air must stand to the side of the safety cage and not in front of it.

Inspect the tires for wire, rocks, glass, pieces of metal, holes, cuts, and other damage. See Figure 3. 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.

Keep the tires at the correct air pressure. See the Nameplate. Check the air pressure with a gauge when the tires are cold. If it is necessary to add air to a tire that is warm, check one of the other tires on the same axle and add air to the tire that has low pressure so the air pressures are equal. The air pressure of the warm tires must always be equal to or greater than the specification for air pressure for cold tires. Check pneumatic wheels for bent or damaged rims. Check for loose or missing parts.



1. CHECK FOR DAMAGE (REMOVE NAILS, GLASS, AND OTHER OBJECTS FROM THE TREAD)
2. CHECK FOR SMOOTH EDGES
3. CHECK THE TIRE PRESSURE

Figure 3. Tires Check

Forks

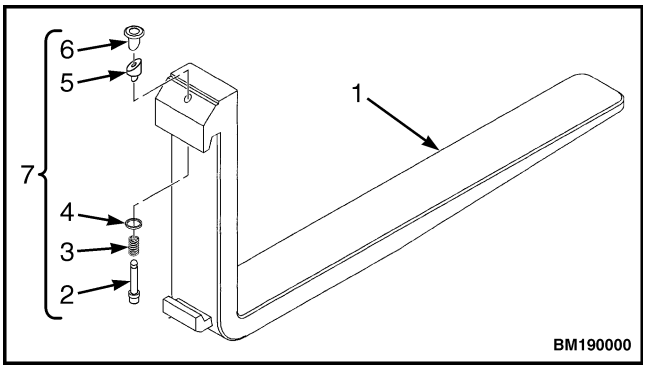
Inspect

WARNING

Do not try to repair fork tip alignment by bending the forks or adding shims. Replace bent forks. Forks are to be replaced only in sets and not individually.

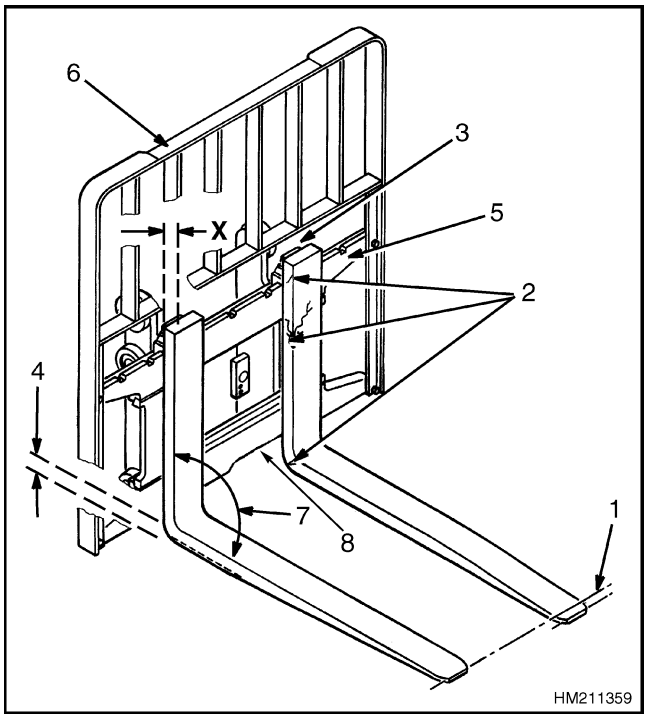
1. Inspect the forks for cracks and wear, and replace if necessary. Check that the fork tips are aligned as shown in Figure 5. Check that the bottom of the fork is not worn (Item 4, Figure 5).

2. Replace any damaged or broken parts that are used to keep the forks locked in position. See Figure 4



1. FORK
2. LOCK PIN
3. SPRING
4. WASHER
5. WEDGE
6. KNOB
7. LOCK PIN ASSEMBLY

Figure 4. Fork Lock Pin Assembly



Fork Tip Alignment	
Length of Forks	**3% Dimension**
915 mm (36 in.)	27 mm (1.10 in.)
1067 mm (42 in.)	32 mm (1.26 in.)
1220 mm (48 in.)	37 mm (1.46 in.)
1372 mm (54 in.)	41 mm (1.61 in.)
1524 mm (60 in.)	46 mm (1.81 in.)
1830 mm (72 in.)	55 mm (2.17 in.)

1. TIP ALIGNMENT (MUST BE WITHIN 3% OF FORK LENGTH)
2. CRACKS
3. LATCH DAMAGE
4. HEEL OF FORK (MUST BE 90% OF DIMENSION X)
5. CARRIAGE
6. LOAD BACKREST EXTENSION
7. MAXIMUM ANGLE 93°
8. FORK REMOVAL NOTCH

Figure 5. Forks Check

Mast, Carriage, Header Hoses, and Lift Chains, Inspect

WARNING

NEVER work under a raised carriage or forks. Lower the carriage or use chains on the mast weldments and carriage so they cannot move. Make sure the moving parts are attached to a part that does not move.

1. Inspect welds on the mast and carriage for cracks. Make sure the nuts and bolts are tight.

WARNING

Cleaning solvents can be flammable and toxic and can cause skin irritation. When using cleaning solvents, always follow the recommendations of the manufacturer.

When working on or near the mast, see Safety Procedures When Working Near Mast.

Metal particles can fall into the eyes during the operation of the mast. Failure to remove these particles can cause eye injury. Remove metal particles that are attached to the edges of mast parts with a disc sander if necessary. Always wear hearing protection, gloves, and eye protection when using a disc sander.

CAUTION

DO NOT use steam or high-pressure water to clean the load rollers or the lift chains. Steam and high-pressure water can remove the lubrication from the bearings in the load rollers. Water in the bearings of the sheaves and the link pins of chains can also shorten the service life of these parts.

2. Clean the mast assembly. Inspect the mast channels in the areas where the rollers travel. If there are loose particles or metal particles that are attached to the edges of mast parts, remove these particles.

3. Inspect the channel for excessive wear in the areas of roller contact. Check the rollers for wear or damage.

4. Inspect the load backrest extension for cracks and damage.

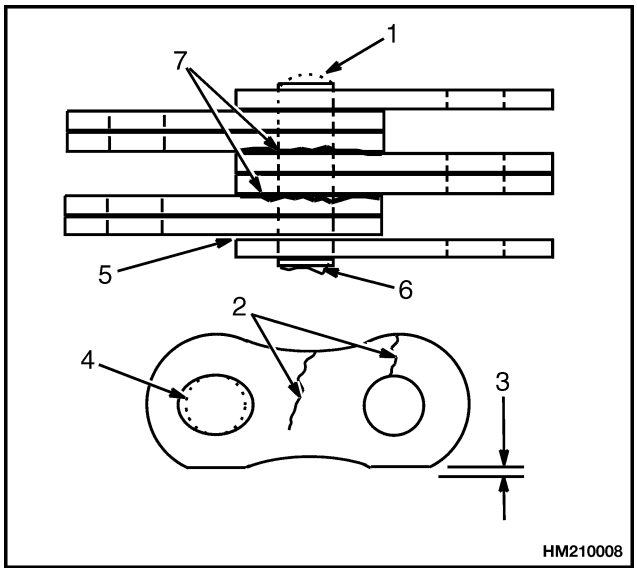
5. Inspect the lift chains for the correct lubrication. Use engine oil or Hyster Chain and Cable Lubricant (Hyster Part Number 171350) available from your dealer for Hyster lift trucks.

6. Visually inspect hoses/fittings for hydraulic leaks; hose cover for cuts, cracks or exposed reinforcement; defective/broken clamping devices or sheaves; proper tracking during operation. Adjust/repair/replace hose/components as necessary.

7. Inspect the lift chains for cracks or broken links and pins. See Figure 6.

8. Inspect the chain anchors and pins for cracks and damage.

9. Make sure the lift chains are adjusted so they have equal tension. If the chains need repair or adjustment, it must be done by authorized personnel. See Figure 38.



1. WORN PIN
2. CRACKS
3. EDGE WEAR (MAXIMUM 5% OF NEW)
4. HOLE WEAR
5. LOOSE LEAVES
6. DAMAGED PIN
7. CORROSION

Figure 6. Lift Chains Check

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 **Frame** 100 SRM 1222 for the correct locations of the safety labels.

Steering Column Latch

Make sure the latch for the steering column operates correctly. The latch must NOT allow the column to move unless the latch is released.

Operator Restraint System

There is an indicator light on the display panel for the seat belt. The red light **ON** as described in the **Operating Manual.** The light can help operator remember to fasten the seat belt.

NOTE: The lift trucks covered in this SRM may be equipped with optional swivel seat. See Figure 8.

The seat belt, hip restraint, seat, hood, and hood latch are all part of the operator restraint system. See Figure 7. Each item must be checked to make sure it is fastened correctly, functions correctly, and is in good condition. The system helps the operator stay within the lift truck in case of a tip over.

Make sure that the seat is not loose on the rails. Make sure that the seat rails are not loose. The seat rails must lock securely in position, but move freely when unlocked. The seat rails must be securely attached to the mounting surface.

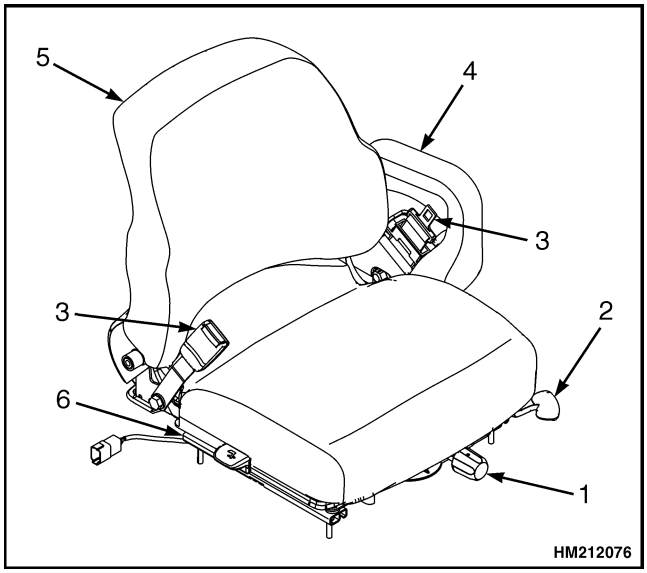
Emergency Locking Retractor (ELR)

When the ELR style seat belt is properly buckled across the operator, the belt will permit slight operator repositioning without activating the locking mechanism. If the truck tips, travels off a dock, or comes to a sudden stop, the locking mechanism will be activated and hold the operator's lower torso in the seat.

A seat belt that is damaged, worn, or does not operate properly will not provide protection when it is needed. The end of the belt must fasten correctly in the latch. The seat belt must be in good condition. Replace the seat belt if it is damaged or worn. See Figure 7.

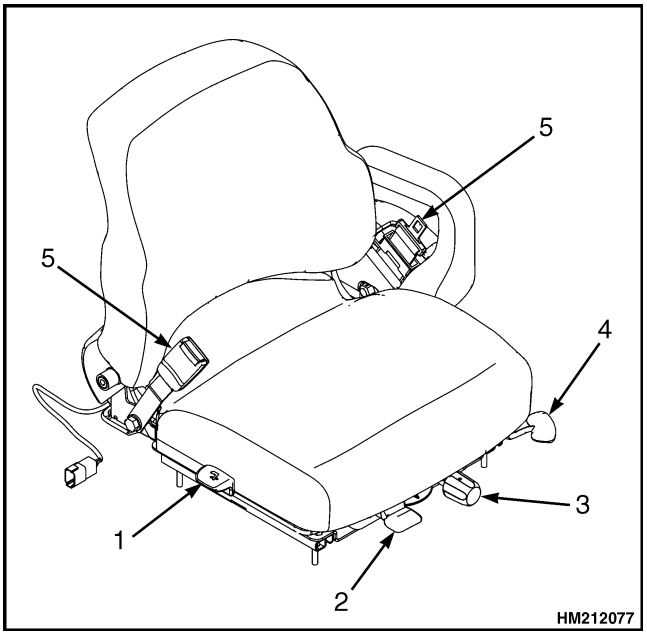
The following seat belt operation checks must be performed:

- With the hood closed and in the locked position, pull the seat belt slowly from the retractor assembly. Make sure the seat belt pulls out and retracts smoothly. If the seat belt cannot be pulled from the retractor assembly or the belt will not retract, replace the seat belt assembly.
- With the hood closed and in the locked position, pull the seat belt with a sudden jerk. Make sure the seat belt will not pull from the retractor assembly. If the seat belt can be pulled from the retractor, when it is pulled with a sudden jerk, replace the seat belt assembly.
- With the hood in the open position, make sure the seat belt will not pull from the retractor assembly. If the seat belt can be pulled from the retractor, with the hood in the open position, replace the seat belt assembly.



1. OPERATOR WEIGHT ADJUSTMENT
2. FORWARD BACKWARD ADJUSTMENT
3. SEAT BELT
4. HIP RESTRAINT
5. SEAT
6. SEAT RAIL

Figure 7. Hood and Seat Check



1. FORWARD/BACKWARD ADJUSTMENT
2. SWIVEL ADJUSTMENT
3. OPERATOR WEIGHT ADJUSTMENT
4. SEAT POSITION ADJUSTMENT (SEAT RAIL)
5. SEAT BELT

Figure 8. Swivel Seat Option

Seat Rails

Make sure the seat rails and latch striker are not loose. The seat rails must lock tightly in position, but move freely when unlocked (see Figure 7 and Figure 8). The seat rails must be correctly fastened to the hood and to the hinges on the frame. Try to lift the hood to make sure it is fastened correctly and will not move.

Battery Restraint System

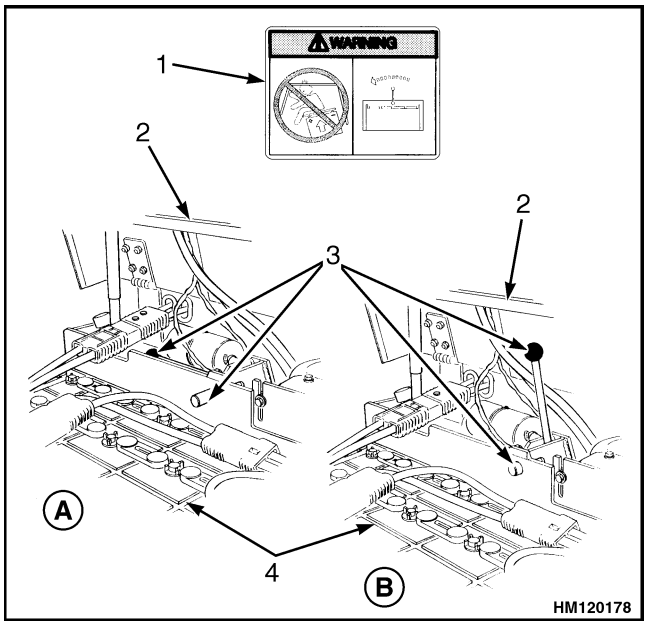
WARNING

The hood and battery restraint, with its latch mechanisms, must operate correctly before a lift truck is operated.

NOTE: For hood latch operation, see **Frame** 100 SRM 1222.

The battery restraint is a heavy steel rod at the rear of the battery compartment. See Figure 9. An adjustable spacer plate is used inside the battery compartment to prevent forward and backward movement of the battery. The batteries for these lift trucks must fit the battery compartment width with a maximum of 13 mm (0.5 in.) clearance.

The hood cannot be closed unless the battery restraint is engaged. The battery restraint rod at the top rear of the battery compartment must be aligned over the edge of the battery. The handle of the battery restraint must also be in the down position to close the hood. Use the handle to move the battery restraint rod over the edge of the battery so the handle can be moved to the down position.



A. EXTENTED

B. RETRACTED

1. BATTERY RESTRAINT WARNING LABEL
2. HOOD
3. BATTERY RESTRAINT
4. BATTERY

Figure 9. Battery Restraint

If necessary, adjust the front and side spacer plates for the battery as shown in Figure 36.

Battery

WARNING

Never put tools or other metal on the battery. Metal on the battery can cause a short circuit and possible damage or injury.

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.

NOTE: There can be one of two types of batteries. One type has removable cell caps. The other type has sealed cells. The sealed batteries require a different charger, the electrolyte level or specific gravity cannot be checked, and water cannot be added to the electrolyte.

Make sure that the voltage and the weight of the battery are correct as shown on the Nameplate.

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

On batteries with cell caps, check the level of the electrolyte daily on a minimum of one cell. Add only distilled water, as necessary, to all cells that do not have the correct electrolyte level. The correct level is halfway between the top of the plates and the bottom of the fill hole.

Hydraulic System

WARNING

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

CAUTION

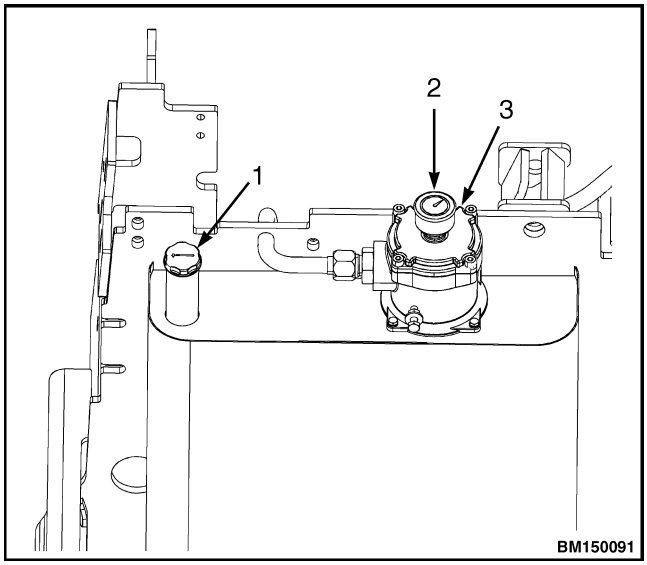
Do not permit dirt to enter the hydraulic system when the oil level is checked or the filter is changed.

Never operate the pump without oil in the hydraulic system. The operation of the hydraulic pump without oil will damage the pump.

NOTE: The dipstick/fill is under the hood in front of the counterweight. See Figure 10.

Before checking the hydraulic oil level, make sure the hydraulic oil is at operating temperature, the carriage is lowered, and the key is in the **OFF** position. The operating temperature is 54 to 66°C (130 to 150°F). Add hydraulic oil only as needed. If more hydraulic oil is added than the FULL level, the hydraulic oil will leak from the breather during operation.

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



1. FILL CAP AND DIPSTICK
2. GAUGE
3. HYDRAULIC FILTER ASSEMBLY

Figure 10. Hydraulic Tank Fill and Dipstick

HOW TO MAKE CHECKS WITH KEY SWITCH ON

WARNING

Do not operate a lift truck that needs repairs. Report the need for repairs immediately. If repair is necessary, put a DO NOT OPERATE tag in the operator's area. Remove the key from the key switch.

WARNING

FASTEN YOUR SEAT BELT! The seat belt is installed to help the operator stay on the truck if the lift truck tips over. IT CAN ONLY HELP IF IT IS FASTENED.

Make sure the area around the lift truck is clear before moving the lift truck. Proceed carefully when making the checks.

Horn, Lights, and Alarm

1. Check the operation of the horn by pressing the horn button on the steering column. The horn will operate when the key is in any position.
2. Check the operation of the lights using the appropriate rocker switch located on the right-hand side of the dash panel. The lights will operate when the key is in any position.
3. Check the strobe light by turning the key in the **ON** position and check the operation of the light. The strobe light can also be operated with a rocker switch.
4. Check the backup alarm on lift trucks equipped with forward and reverse lever, by sitting in the seat, turning the key to the **ON** position, and pulling back on the forward and reverse lever. The alarm will sound.
5. Check the backup alarm on lift trucks equipped with MONOTROL pedal, by sitting in seat, turning the key to the **ON** position, and pressing the reverse arrow on the MONOTROL pedal.

Steering System

WARNING

Because the lift truck has hydraulic power steering, the steering can be difficult when the power steering pump is not operating.

Make sure that the steering system operates smoothly and provides good steering control.

Service Brakes

WARNING

Loss of oil from the brake oil reservoir indicates a leak. Repair the brake system before using the lift truck. Replace the brake oil in the system if there is dirt, water, or oil in the system.

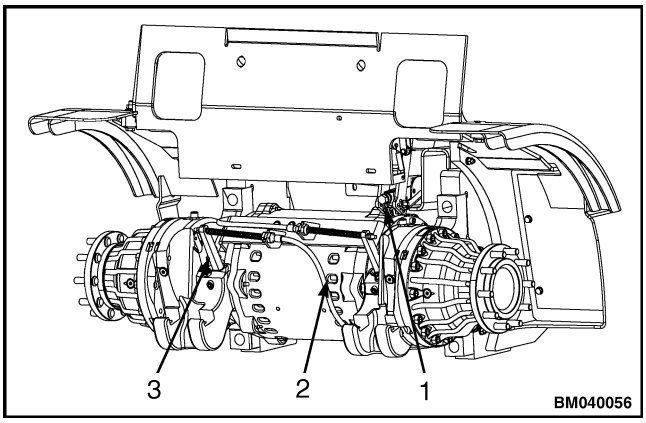
There is an indicator light on the display panel for the brake oil level. The red light is ON as described in the **Operating Manual**. If the light is ON during operation, the oil in the reservoir for the brake master cylinder is too low. Add brake oil and check for leaks. The reservoir is under the brake pedal and floor plate. Clean the area around the fill cap so no dirt enters the reservoir.

Check the operation of the brake system. Push on the brake pedal. The brakes must be applied before the pedal reaches the floor plate. The brake pedal must stop firmly and must not move slowly down after the brakes are applied. The brakes must apply equally to both drive wheels with no noticeable pull to either side.

Parking Brake

There is an indicator light on the display panel for the parking brake. The red light is **ON** as described in the **Operating Manual**. This indicator light is illuminated when the parking brake is applied and the key is in the **ON** position. The indicator light will go **OFF** when the parking brake is released. If the parking brake is not applied and the operator leaves the seat or turns the key to the **OFF** position, the light will stay illuminated and a warning alarm will sound for approximately 10 seconds.

Adjust the parking brake by first making sure the lift truck cannot move (block wheels). Release the parking brake and access the adjustment knob located on the lower left hand side, outside of the cowl weldment. See Figure 11. Turn the knob clockwise to increase the braking force. The parking brake, when in good condition and correctly adjusted, will hold a lift truck with a capacity load on a 15% grade [1.5 m (1.5 ft) rise in 10 m (10 ft)].



NOTE: MAST AND WHEELS NOT SHOWN FOR CLARITY.

1. ADJUSTMENT KNOB
2. PARK BRAKE CABLE
3. PARK BRAKE LEVER

Figure 11. Parking Brake Adjustment Knob Location

Hydraulic Control Levers

Check that the hydraulic control levers for the mast and attachment operate as described in the **Operating Manual**. Lubricate manual control levers as necessary. See the Maintenance Schedule.

Direction and Speed Control Pedals

Check that the direction and speed control pedals operate as described in the **Operating Manual**. Lubricate the direction lever and accelerator pedal joints as needed. See the Maintenance Schedule.

Lift System Operation

WARNING

NEVER work under a raised carriage or forks. Lower the carriage or use chains on the mast weldments and carriage so they cannot move. Make sure the moving parts are attached to a part that does not move.

Do not try to locate hydraulic leaks by putting hands on pressurized hydraulic components. Hydraulic oil can be injected into the body by pressure.

1. Check for leaks in the hydraulic system. Check the condition of the hydraulic hoses and tubes.

NOTE: Some parts of the mast move at different speeds during raising and lowering.

2. Slowly raise and lower the mast several times without a load. The mast components must raise and lower smoothly in the correct sequence. The carriage raises first, then the inner weldment and intermediate weldment (three-stage masts only).

3. The inner and intermediate weldments and the carriage must lower completely.

4. Raise the forks 1 m (3 ft) with a capacity load. The inner weldment and carriage must raise smoothly. Lower the forks. All moving components must lower smoothly.

5. With the load lowered, tilt the mast backward and forward. The mast must tilt smoothly and both tilt cylinders must stop evenly.

6. Check that the controls for the attachment operate the functions of the attachment. See the symbols by each of the controls. Make sure all of the hydraulic lines are connected correctly and do not leak.

Oil Leaks

Visually check the hydraulic system, steering system, brake system, and differential for leaks.

Seat Switch

WARNING

Always make sure the parking brake is fully applied before leaving the lift truck. If the operator leaves the lift truck without applying the parking brake, a seat activated switch will cut off power to the lift truck.

There is a switch in the seat that senses the presence of the operator. The operator must be in the seat before turning the key switch **ON** to provide power to the lift truck. See Figure 12.

If the operator leaves the seat while the truck is moving, the seat switch will cut off power to the lift truck.

If the seat switch is damaged, see **Electrical System (Trucks With AC Controllers)** 2200 SRM 1055 for replacement procedures.

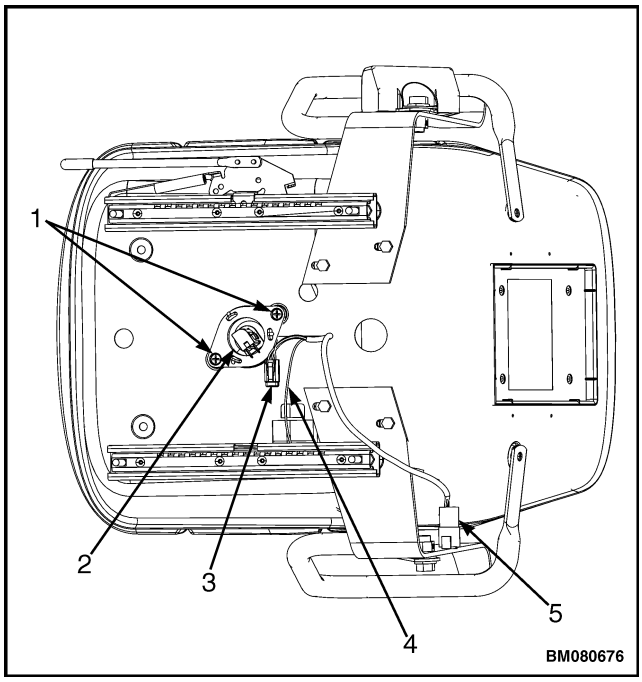


Figure 12. Seat Switch Location

Legend for Figure 12

NOTE: BOTTOM VIEW OF SEAT SHOWN

1. CAPSREWS
2. SEAT SWITCH
3. SEAT SWITCH ELECTRICAL CONNECTOR
4. SEAT GROUND WIRE
5. TO MAIN HARNESS

First Service After First 100 Hours of Operation

Perform 8-hour checks prior to performing the procedures in this section.

CHANGE FILTER FOR HYDRAULIC OIL

Remove

WARNING

Turn Key to the OFF position, and remove key and unplug the battery before removal of the hydraulic filter.

WARNING

The hydraulic oil is HOT at operating temperature. Do not permit the hot oil to contact the skin and cause a burn.

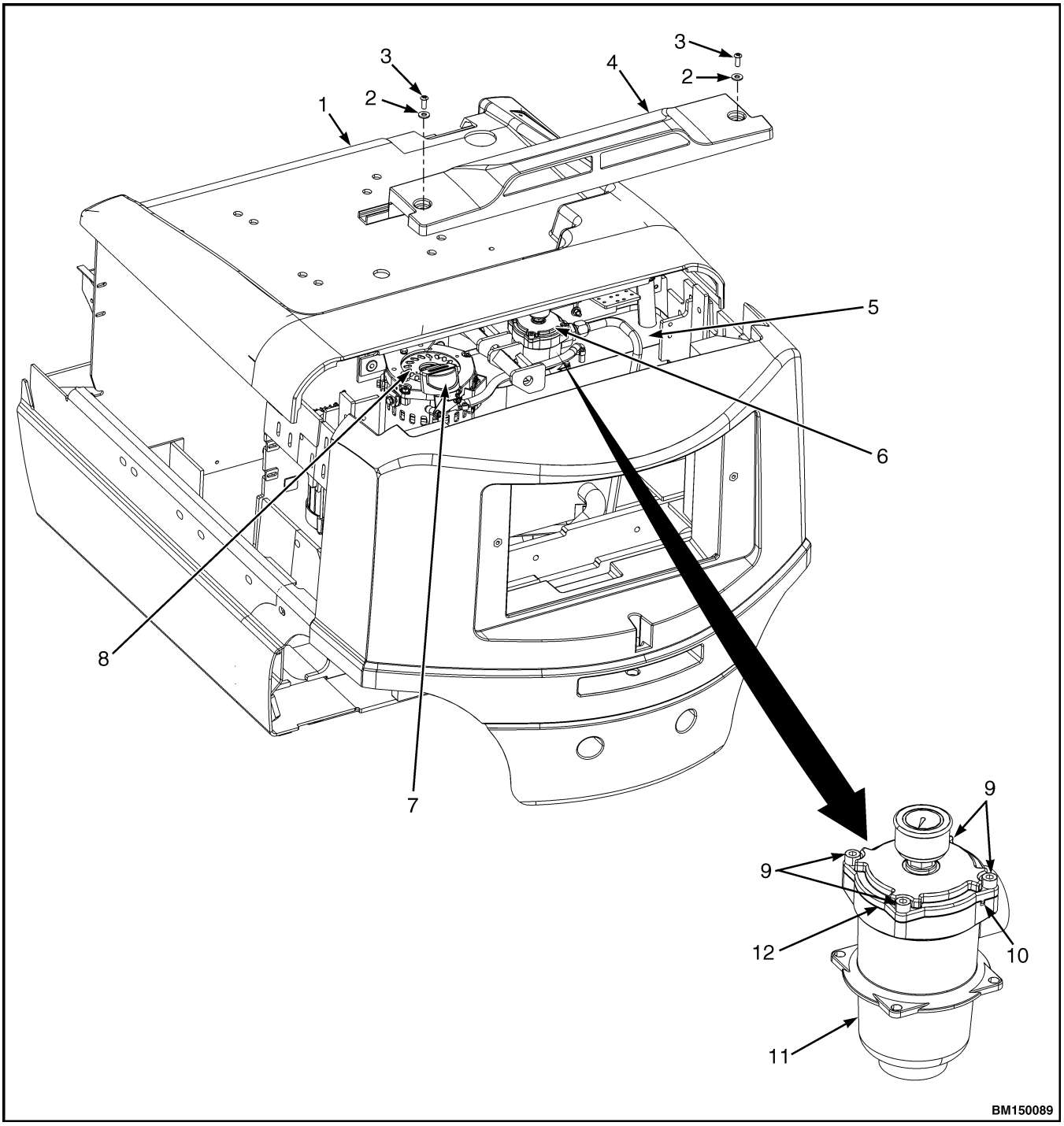
CAUTION

Do not permit dirt to enter the hydraulic system when the oil level is checked or the filter is changed. Dirt can cause damage to components of the hydraulic system.

Never operate the pump without oil in the hydraulic system. The operation of the hydraulic pump without oil will damage the pump.

NOTE: Change the oil filter for the hydraulic system after the first 100 hours on new lift trucks. See Figure 13.

1. Remove top counterweight cover and open hood for access to hydraulic filter assembly. See Figure 13.
2. Remove the four socket head screws from filter cover. See Figure 13. Remove O-ring seal from filter cover and discard O-ring. See Figure 14.
3. Remove filter element from filter housing and discard filter element. If debris cap was removed with filter element, remove cap from filter element. See Figure 14.
4. Remove debris cap from filter element and clean and inspect.



1. HOOD
2. WASHER
3. CAPSCREW
4. COUNTERWEIGHT COVER
5. HYDRAULIC TANK
6. HYDRAULIC FILTER
7. HYDRAULIC BREATHER
8. HYDRAULIC MOTOR
9. SOCKET HEAD SCREWS
10. ALIGNMENT PIN AND NOTCH
11. FILTER HOUSING
12. FILTER COVER

Figure 13. Hydraulic Filter Removal