SERVICE REPAIR

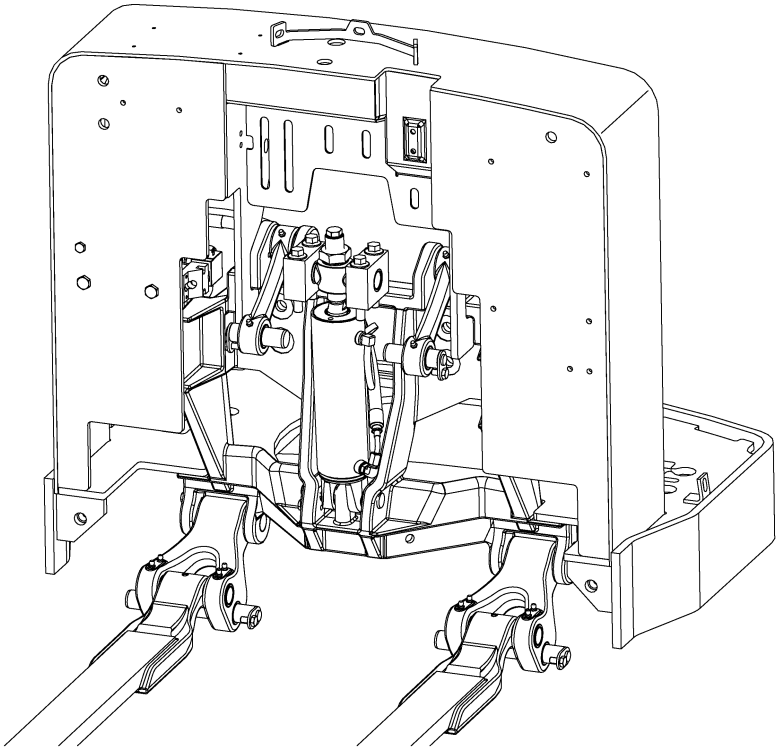
MANUAL

Hyster A282 (C60ZHD, C80ZHD) Forklift

HYSTER

LIFTING MECHANISM

$C80Z_{HD}$ [A282];
$C60Z_{HD}$ [A373]



HYSTER

PART NO. 4096002

4000 SRM 1589

SAFETY PRECAUTIONS
MAINTENANCE AND REPAIR

- The Service Manuals are updated on a regular basis, but may not reflect recent design changes to the product. Updated technical service information may be available from your local authorized Hyster® dealer. Service Manuals provide general guidelines for maintenance and service and are intended for use by trained and experienced technicians. Failure to properly maintain equipment or to follow instructions contained in the Service Manual could result in damage to the products, personal injury, property damage or death.
- 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 hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and property damage.

On the lift truck, the WARNING symbol and word are on orange background. The CAUTION symbol and word are on yellow background.

TABLE OF CONTENTS

This section is for the following models:

(C80ZHD) [A282];
(C60ZHD) [A373]

"THE QUALITY KEEPERS"

HYSTER APPROVED PARTS

General

This section contains the description, repair, and adjustment procedures for the lifting mechanisms installed on the C60Z^{HD} and C80Z^{HD} lift trucks. Additional information concerning the lifting mechanism may be included in other sections when the information is more closely related to that system.

Sections that may contain related information include:

- **Periodic Maintenance** 8000SRM1635
- **Walkie Hydraulic System** 1900SRM1629
- **Electrical System** 2200SRM1632

Description of Operation

The lifting mechanism consists of:

- Lift cylinder, 1 each
- Upper links, 2 each
- Rocker arms, 2 each
- Pull rods, 2 each
- Pull rod ends, 2 each
- Pull rod yokes, 2 each
- Load wheel assemblies, 2 each
- Rear links (wheel support), 2 each

The lifting mechanism connects the main frame to the fork frame. The lift cylinder, upper links, and rocker arms are parts that connect the main frame to the fork frame. The pull rods are installed between the lower links and the pull rod yokes. The pull rod yokes are attached to the rear links. Refer to Figure 8 in this section.

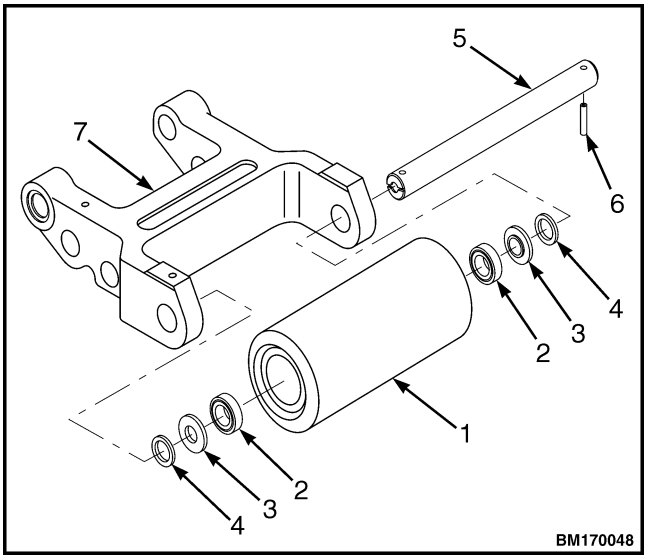
The lifting mechanism is operated by the lift pump and motor assembly. When the lift button on the control handle is depressed, the lift pump sends hydraulic fluid to the lift cylinder. The lift cylinder extends, lifting the fork frame. This action operates the rocker arms, which move the pull rods forward in the direction of the drive motor. The movement of the pull rods cause the rear links and load wheels to pivot down, lifting the rear of the fork frame. This helps lift the fork frame and keep the forks parallel with the ground.

The lift linkage is adjustable by turning the adjusting nuts at the rear of each pull rod. Refer to Figure 10 in this section. Proper adjustment of the pull rods is required to raise and lower the forks evenly.

Load Wheel

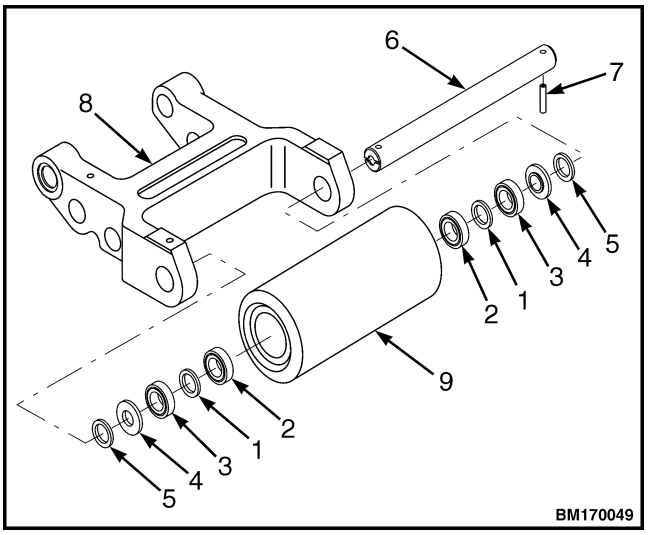
REMOVE

1. Move the lift truck to a safe and level area.
2. Use the lift button to raise the lift truck to its maximum height.
3. Put blocks under both forks and on both sides (front and back) of the drive tire to prevent movement of lift truck. See the section **Periodic Maintenance** 8000SRM1635 - **How to Put a Lift Truck on Blocks**.
4. Turn the key switch to the **OFF** position.
5. Drive the roll pin retaining the axle shaft to the rear link out of the link and axle shaft.
6. Turn the key switch to the **ON** position and retract the lift cylinder using the lower button. This will raise the load wheels off the floor.
7. Turn the key switch to the **OFF** position. Disconnect the battery.
8. Remove the axle shaft. Remove bearings and load wheel from the link. See Figure 1, Figure 2, Figure 3 and Figure 4. It may be necessary to use a brass or hardwood drift to drive the bearing out of the wheel. Drive the bearing out from the opposite side.
9. Remove all old lubricant. Clean and inspect all parts. Replace all defective parts.



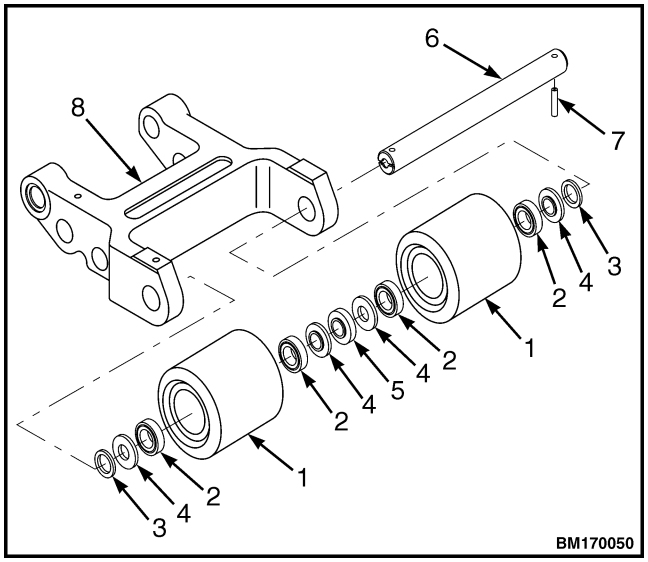
1. LOAD WHEEL
2. BALL BEARING
3. BEARING SHIELD
4. WASHER
5. AXLE SHAFT
6. PIN
7. REAR LINK

Figure 1. Single Load Wheel Assembly



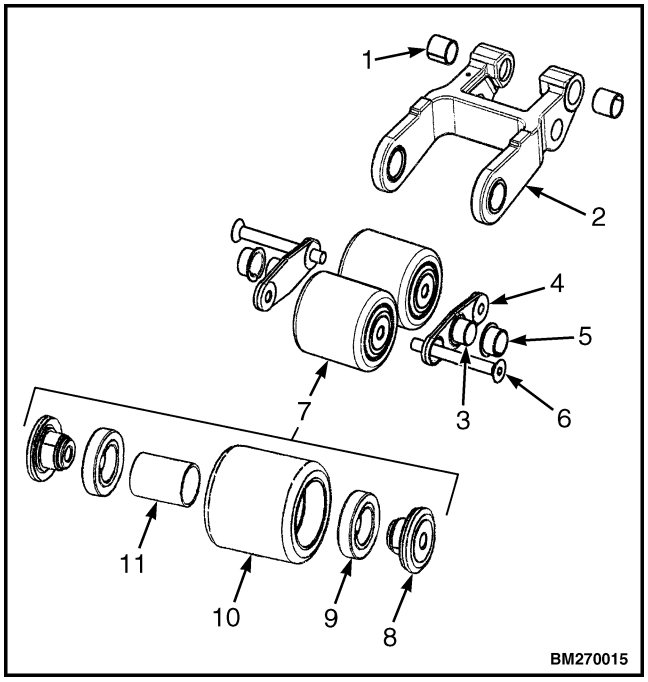
1. SPACER
2. BALL BEARING
3. BALL BEARING
4. BEARING SHIELD
5. WASHER
6. AXLE SHAFT
7. PIN
8. REAR LINK
9. LOAD WHEEL

Figure 2. Single Load Wheel Four Bearing Assembly (Option)



1. LOAD WHEEL
2. BALL BEARING
3. WASHER
4. BEARING SHIELD
5. THREAD GUARD
6. AXLE SHAFT
7. PIN
8. REAR LINK

Figure 3. Dual-Load Wheel Assembly (Option)



1. BUSHING
2. LEVER
3. WASHER
4. ROCKER PLATE
5. BUSHING
6. CAPSCREW
7. LOAD WHEEL
8. BUSHING
9. BALL BEARING
10. ROLLER
11. SPACER

Figure 4. Tandem Load Wheel Assembly (Option)

INSTALL

1. Prelubricate the bearings with multipurpose grease. See the section **Periodic Maintenance** 8000SRM1635 - **Maintenance Schedule** for the proper lubrication specifications. Install the bearings in the load wheel.

NOTE: Bearing seals can only be installed on the outer side of the bearings as assembled in the load wheel.

2. Align the load wheel and bearing assembly, shield bearings, and washers with the opening in the link. On dual wheel assemblies, install the thread guard between the both inner bearing shields. Install the axle shaft.
3. Install the roll pin in the link and through the axle shaft.
4. Connect the battery and turn the key switch to the **ON** position. Press the lift button to raise the forks and lower the load wheels. Lubricate the load wheels.
5. Remove the blocks from under the forks and from each side of the drive tire. Lower the lift truck.
6. Test the operation of the lift truck before returning the truck to service.

Casters

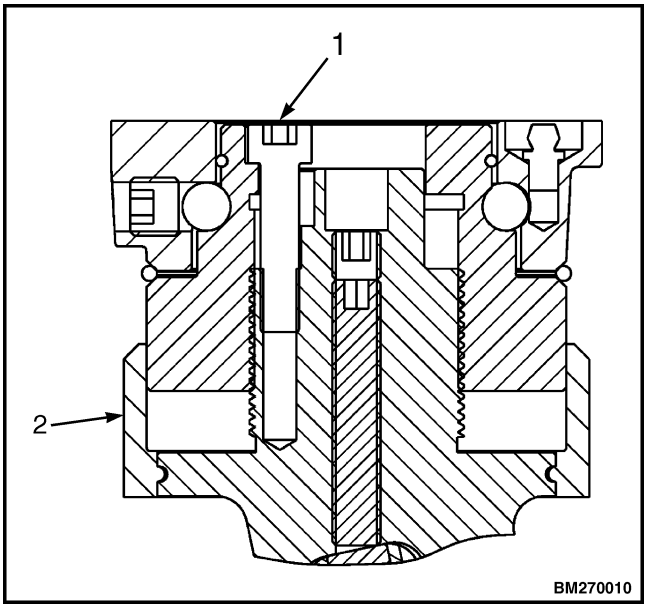
CASTER ADJUSTMENT CHECK

Periodically, the casters must be adjusted to compensate for drive tire wear/replacement. Excess rocking is often a sign of under adjusted casters. This may occur when a new drive tire is installed. Loss of traction may be caused by over adjusted casters. This may occur when the drive tire diameter has decreased because of regular wear. The casters should ideally be preloaded 6 mm (0.250 in.) from the unloaded condition.

1. Select a smooth and level surface where the adjustment can be checked.
2. Place a 6 mm (0.250 in.) thick steel plate approximately 75 mm × 75 mm (3 in. × 3 in.) on the floor.
3. Park the lift truck with the drive tire centered on the plate, the control handle centered and no load on the forks. Lower the forks completely.
4. If the casters are properly adjusted, they will just touch to floor with the truck on the 6 mm (0.250 in.) plate.
5. If the caster does not touch the floor with the truck on the plate, adjust the caster until it touches the floor. See Caster Adjust Heavy-Duty in this section.
6. If the caster is still touching the floor with the truck on the plate, adjust the caster unit until it touches the floor. See Caster Adjust Heavy-Duty in this section.

CASTER ADJUST HEAVY-DUTY

1. Select a smooth and level surface where the adjustment can be checked.
2. Place a 6 mm (0.250 in.) thick steel plate approximately 75 mm × 75 mm (3 in. × 3 in.) on the floor.
3. Park the lift truck with the drive tire centered on the plate, the control handle centered, and no load on the forks. Lower the forks completely.
4. Turn the key switch to the **OFF** position and disconnect the battery. (DO NOT remove the battery.)
5. Check to see if the casters require adjustment. See Caster Adjustment Check in this section.
6. Remove the floor mat from the truck.
7. Remove the height adjustment locking bolt from the top of the caster. See Figure 5.



1. HEIGHT ADJUSTMENT LOCKING BOLT
2. CASTER HOUSING

Figure 5. Caster Height Adjustment

8. Rotate the caster housing clockwise to lower the caster. Rotate the caster housing counterclockwise to raise the caster.

9. Adjust the caster until the caster wheel just touches the floor.

10. Install the height adjustment locking bolt into the top of the caster.

11. Install the floor mat, reconnect the battery, and turn the key to the **ON** position. Test for proper operation.

CASTER REPLACEMENT

WARNING

Put blocks under both forks and on both sides of the drive tire. The blocks must prevent the lift truck from falling and causing personal injury or property damage.

1. To remove the caster, park the lift truck on a smooth and level surface. Turn the key switch to the **OFF** position, and disconnect the battery.

2. Raise the drive wheel off the floor. Block the lift truck. See the section **Periodic Maintenance** 8000SRM1644 **- How to Put a Lift Truck on Blocks**.

3. Remove the four screws retaining the caster to the frame. Remove the caster.

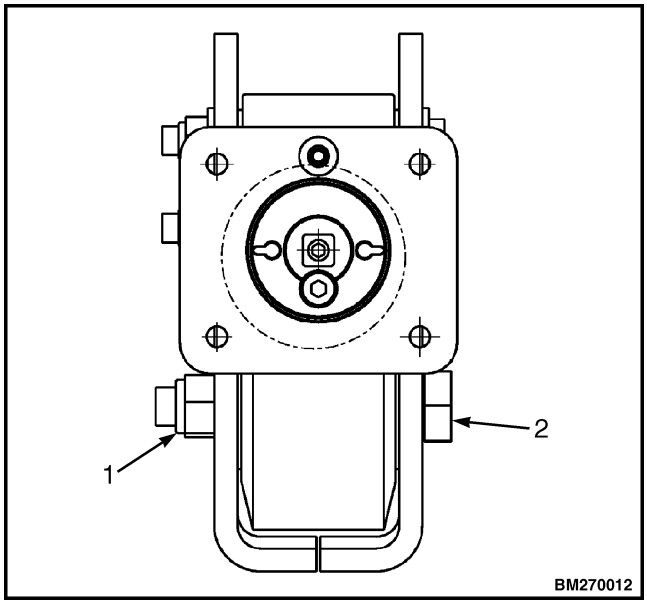
NOTE: The caster does not have to be removed from the lift truck frame in order to replace the wheel or the wheel axle. To replace the wheel or wheel axle, follow these steps:

a. Remove the lock nut retaining the wheel on the wheel axle. Drive the wheel axle out of the arms and remove the wheel. See Figure 6.

b. Align the wheel between both arms and install the wheel axle. Install the nut on the wheel axle. Tighten the nut to 34 to 47 N•m (25 to 35 lbf ft).

4. To reinstall the caster, align the caster with the holes in the frame and install the four screws. Tighten the nuts to 56 to 58 N•m (41 to 43 lbf ft).

5. Repeat procedure to replace the second caster, if necessary.



1. LOCK NUT 2. WHEEL AXLE

Figure 6. Load Wheel Replacement

DISASSEMBLE

Heavy-Duty

1. Remove the caster from the frame. Refer to Caster Replacement in this section.

2. Loosen and remove the lock nut holding the wheel axle to the caster arms.

3. Drive the wheel axle out of the arms and remove the wheel. See Figure 7.

CAUTION

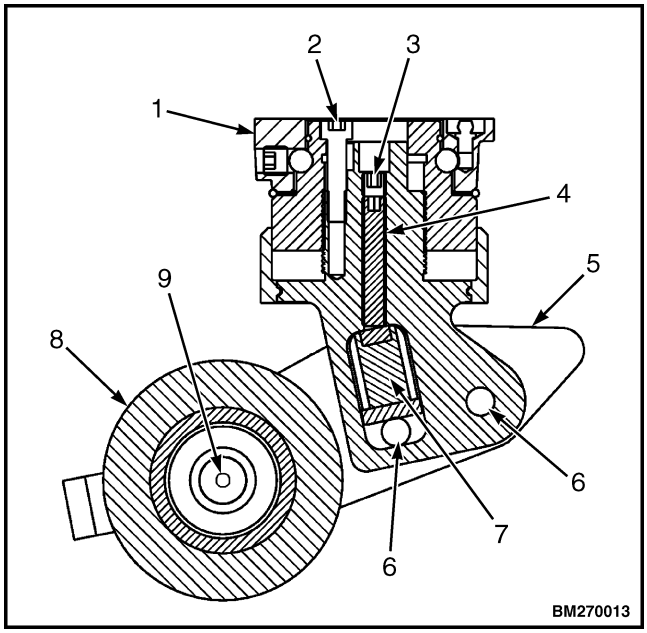
The caster is under tension from the elastomeric spring. The tension must be released before the caster can be disassembled.

4. Remove the setscrew from the center of the caster swivel assembly.
5. Loosen the tension setscrew until there is no tension remaining on the elastomeric spring.
6. Remove the lock nuts and washers retaining the pivot bolts.
7. Remove the arms, pivot bolts, and spacers.
8. Remove the elastomeric springs and thrust plate.
9. Remove the height adjustment locking bolt from the swivel assembly.
10. Unscrew the yoke from the swivel assembly.

ASSEMBLE

Heavy-Duty

1. Screw the yoke into the swivel assembly.
2. Install the elastomeric spring and thrust plate into the yoke.
3. Align the arms and spacers with the yoke. Install the capscrews, washers, and lock nuts to secure the arms to the yoke.
4. Align the wheel between the arms and install the axle, spacers, washer, and lock nut.
5. Tighten the tension setscrew.
6. Install the locking setscrew.
7. Install the caster into the truck. See Caster Replacement in this section.
8. Check caster height adjustment. See Caster Adjustment Check in this section.
9. Install the height adjustment locking screw.



1. SWIVEL ASSEMBLY
2. HEIGHT ADJUSTMENT LOCKING BOLT
3. SETSCREW
4. TENSION SETSCREW
5. ARM
6. PIVOT BOLT
7. SPRING
8. LOAD WHEEL
9. WHEEL AXLE

Figure 7. Heavy-Duty Caster

Rear Link and Load Wheel

REMOVE

1. Move the lift truck to a safe and level area.
2. Use the lift button to raise the lift truck to its maximum height.
3. Put blocks under both forks and on both sides of the drive tire. See the section **Periodic Maintenance** 8000SRM1635 - **How to Put a Lift Truck On Blocks**.
4. Retract the lift cylinder using the lower button. This will raise the load wheels off the floor.
5. Remove the capscrew (3) retaining the pivot pin (24) to the yoke assembly. Remove the pivot pin. See Figure 8.
6. Remove the capscrew retaining the pivot pin (22) to the load wheel assembly. Remove shims (17). Remove the pivot pin. The load wheel assembly and rear link can be removed after the pivot pin is removed. See Figure 8. Remove spacer and felt seals from rear link assembly (18).
7. Disassemble the load wheel. Refer to Load WheelRemove in this section.
8. Remove pin (21).
9. Remove pallet exit roller and axle.
10. Remove the bushings from the rear link.
11. Remove all old lubricant. Clean and inspect all parts for damage. Replace all defective parts.

INSTALL

1. Press new bushings into the rear link. Using the grease fitting hole as a guide, align hole in bushing with hole in casting. See Figure 9. Press the bushing flush with outside of casting.

2. Assemble the load wheel. Refer to Load WheelInstall in this section.

3. Press new bushings into the exit roller.

4. Install exit roller shaft (20) and install pin (21).

NOTE: If the clearance between the roll pin is more than 1.78 mm (0.07 in.), add washer(s) to shim.

5. Place the rear link in position on the fork frame. Align and install felt seals (32) and spacer (31) into the rear link assembly (18). Align and install the pivot pin (22) in the rear link. Install the capscrew. See Figure 8.

6. Install the pivot pin (5) through the rear link and yoke assembly, and install the capscrew to retain the pivot pin. See Figure 8.

7. Lubricate the load wheel assembly and all linkage pivot pins with multipurpose grease. See the section **Periodic Maintenance** 8000SRM1635 - **Maintenance Schedule** for the proper lubrication specifications.

8. Press the lift button to raise the forks and lower the load wheels.

9. Adjust the pull rods. Refer to Pull Rod, Fork Height Adjustment in this section.

10. Remove the blocks from under the forks and from each side of the drive tire. Lower the lift truck.

11. Test the operation of the lift truck before returning the truck to service.

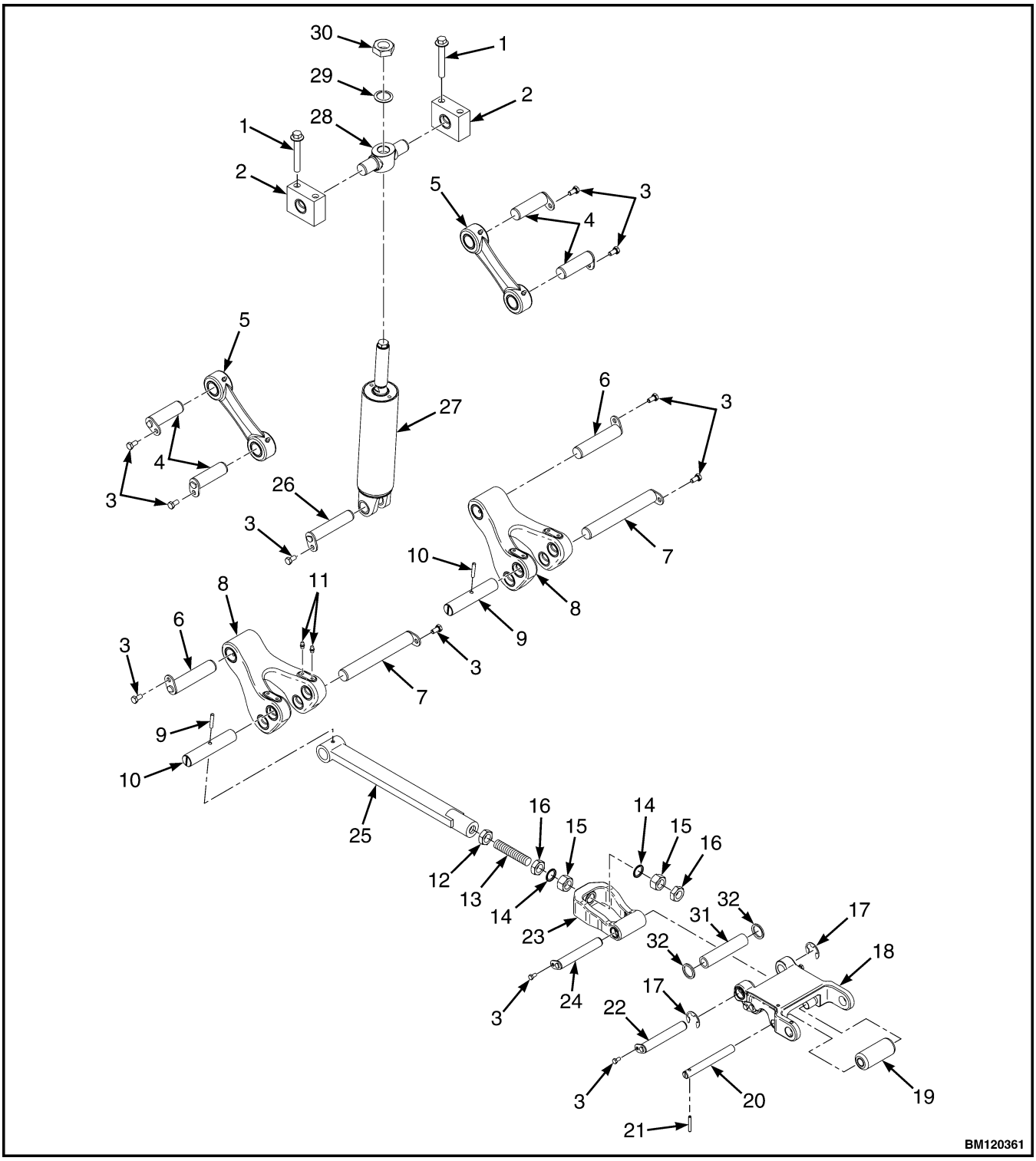
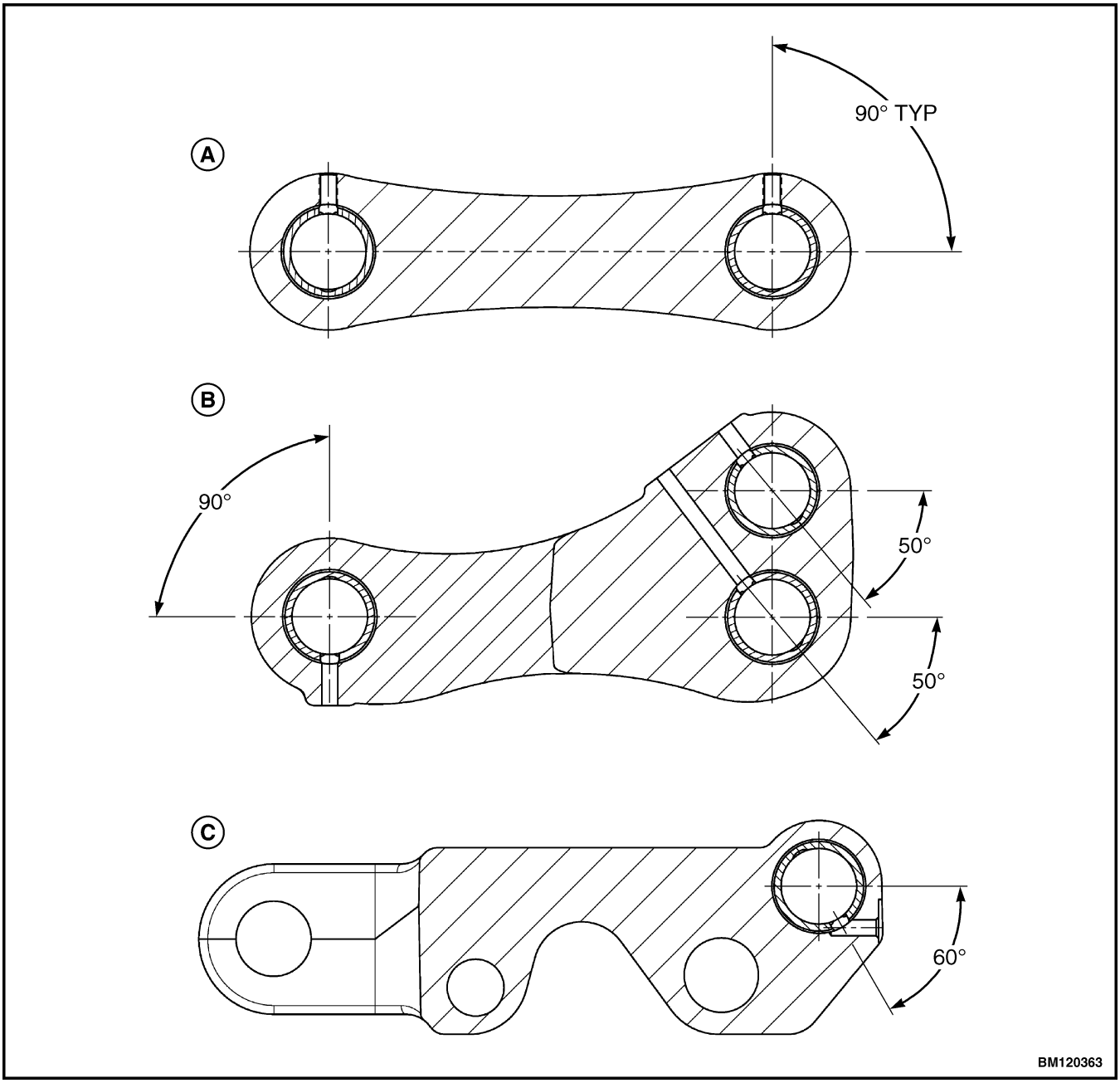


Figure 8. Lift Linkage

Legend for Figure 8

1. CAPSCREW
2. TRUNNION MOUNT
3. CAPSCREW
4. UPPER LINK PIVOT SHAFT
5. UPPER LINK
6. LOWER LINK PIVOT SHAFT
7. ROCKER ARM PIVOT SHAFT
8. ROCKER ARM ASSEMBLY
9. PULL ROD PIVOT SHAFT
10. PIN
11. GREASE FITTING
12. NUT
13. THREADED ROD
14. LOCKWASHER
15. NUT
16. NUT
17. SHIM
18. REAR LINK ASSEMBLY
19. EXIT ROLLER ASSEMBLY
20. EXIT ROLLER SHAFT
21. PIN
22. REAR LINK PIVOT PIN
23. YOKE
24. PIVOT PIN
25. PULL ROD
26. CYLINDER PIVOT PIN
27. LIFT CYLINDER
28. TRUNNION
29. WASHER
30. NUT
31. SPACER
32. FELT SEAL



NOTE: THE BUSHINGS INDICATED REQUIRE ALIGNMENT. ALL OTHER BUSHINGS DO NOT REQUIRE ALIGNMENT.

A. UPPER LINK **B.** ROCKER ARM **C.** REAR LINK

Figure 9. Bushing Alignment

Pull Rod

REMOVE

WARNING

Batteries are heavy. Use care when working near or moving to avoid injury. DO NOT put hands, arms, feet, and/or legs between the battery and a solid object. Make sure the capacity of the lifting device and spreader bar is greater than the weight of the battery. The weight of the battery is normally shown on the battery case. The maximum battery weight is shown on the lift truck nameplate. The spreader bar must NOT be made of metal or it must have insulated straps.

1. Move the lift truck to a safe and level area.
2. Use the lift button to raise the lift truck to its maximum height.
3. When performing service that will require the rocker arms or the upper links to be removed, put a solid wood or metal block under each side of the main frame, near the rocker arms. The blocks must be thick enough to just fit under the main frame. The main frame must not lower or tilt when the rocker arms or upper links are disconnected. Put blocks under both forks and on both sides of the drive tire. See the section **Periodic Maintenance** 8000SRM1635 - **How to Put a Lift Truck on Blocks**.
4. Retract the lift cylinder using the lower button. This will raise the load wheels off the floor.
5. Turn the key switch to the **OFF** position. Disconnect the battery. Remove the battery. See the section **Periodic Maintenance** 8000SRM1635 - **How to Change Battery**.
6. Remove the nuts from the rear of the pull rod end. See Figure 8.
7. Remove the capscrew from the pivot pin retaining the rear link to the fork frame.
8. Remove the rear link and yoke from lift truck.
9. Remove the rocker arm from the frame. Refer to Rocker Arm, Remove in this section.
10. Drop the pull rod down and remove from lift truck.
11. Remove roll pin from pivot pin (10) retaining the pull rod to the rocker arm.
12. Remove the bushings from the yoke.
13. Remove all old lubricant. Clean and inspect all parts. Replace all defective parts.

END REPLACEMENT

Refer to Figure 8 for the following procedures.

CAUTION

The pull rod ends are designed to absorb stress and may break if too much stress is applied to them. They should be inspected for damage or wear whenever the pull rods are removed and replaced if necessary.

1. Remove the pull rod end (13) by loosening the nut (12) and unscrewing the pull rod end from the pull rod (25) and the yoke (23).
2. Replace the pull rod end (13) by screwing it all the way into the pull rod (25), and then installing the nut (12). Apply Loctite® 271 and tighten just until the pull rod end is held tightly to the pull rod.
3. Install nuts (15 and 16) and washer (14) onto pull rod end and then insert end into yoke. Install other nuts (30) and (25) to pull rod end and adjust. See Pull Rod, Fork Height Adjustment in this section. Tighten jam nuts. Torque to 130 N•m (95 lbf ft).

INSTALL

1. Press new bushings into the yoke. Press the bushing flush with outside of casting.
2. Install pull rod into rocker arm and insert the pivot pin (10). See Figure 8.
3. Install the roll pin into the pull rod through the pivot pin (10).
4. Install rocker arm into main frame and fork frame. Refer to Rocker Arm, Install in this section.
5. Insert pull rod end into yoke and install nuts (15 and 16) and washer (14) onto pull rod end. Leave nuts loose.
6. Install the rear link/load wheel assembly into the fork frame. Align and install the pivot pin (22) to retain the rear link to the fork frame. Install the capscrew (3) in the fork frame.

7. Lubricate the load wheel assembly and all linkage pivot pins with multipurpose grease. See the section **Periodic Maintenance** 8000SRM1635 - **Maintenance Schedule** for the proper lubrication specifications.

8. Install the battery in the battery compartment and connect the battery. See the section **Periodic Maintenance** 8000SRM1635 - **How to Change Battery**.

9. Remove the blocks from the truck.

10. Turn the key switch to the **ON** position and lower the forks to the fully lowered position.

11. Adjust the pull rods. Refer to Pull Rod, Fork Height Adjustment in this section.

12. Test the operation of the lift truck before returning the truck to service.

FORK HEIGHT ADJUSTMENT

CAUTION

Improper adjustment to the pull rods can cause excessive and uneven wear to the load wheels which may result in poor pallet entry and exit. When making any adjustments, be certain the measurements are the same on both forks. If an equal measurement cannot be obtained, the problem may be a twisted frame. A twisted frame cannot be repaired; it must be replaced.

The pull rods must be adjusted so the machined surface on top of the rear link contacts the stop blocks on the underside of the fork frame in the lowered position. If the rear link machined surface does not contact the stop blocks on the fork frame or if the load wheels are not carrying the load equally, an adjustment must be made. Make certain to check both forks and both load wheels.

NOTE: A full size battery must be installed in the truck to obtain accurate fork height measurements.

1. Move the lift truck to a fork set table or a smooth and level surface.

2. Completely lower the forks. Loosen the large jam nuts and regular nuts on either side of the yoke on each fork. Ensure the nuts are loose enough to spin freely by hand.

3. Loosen and remove the large jam nut on the top of the lift cylinder.

NOTE: The height of the forks is the distance from the top of the forks to the ground. If the forks do not have the same height, make sure the height of the lower fork is set properly.

4. Set the height of the forks immediately in front of the battery box to a height of 88.7 mm (3.49 in.) (88.1 - 89.4 mm (3.47 - 3.52 in.)). Adjust the height by turning the bolt on top of the lift cylinder rod. Turning the cylinder rod clockwise will **RAISE** the forks while turning the cylinder rod counterclockwise will **LOWER** the forks. One complete revolution of the cylinder rod equates to about 1.78 mm (0.07 in.) in fork height.

5. Raise the forks all the way up and place a block, 38 mm (1.5 in.) minimum, under the fork tips of both forks. Lower the forks all the way down so that the fork tips rest on the blocks and the rear links rise up into the fork.

6. On the battery box side of the yoke, tighten the nut so it moves towards the fork tip. As the nut tightens, the rear link should rise up and make contact with the rear link stops underneath the fork. Stop tightening as soon as the rear link makes contact underneath the fork.

7. Tighten the nut on the opposite side of the yoke. See Figure 10.

8. Repeat Step 6 through Step 7 on the opposite fork.

9. Raise the forks all the way up and remove the blocks from under the fork tips. Lower the forks all the way down.

10. Raise the forks slowly to ensure the both forks rise evenly. If one fork rises before the other, tighten the nut on the battery box side of the yoke on the fork that rises quicker. The nut on the fork tip side of the yoke may need to be slightly loosened to be able to tighten the battery box side nut.

11. Completely lower the forks and recheck the height of the forks in front of the battery box to confirm the height is between 88.1 - 89.4 mm (3.47 - 3.52 in.). If the height is not within this range repeat Step 3 through Step 10.

12. Once the adjustments are complete, tighten the locknut on the top of the cylinder and the jam nuts on either side of the yoke on each fork.

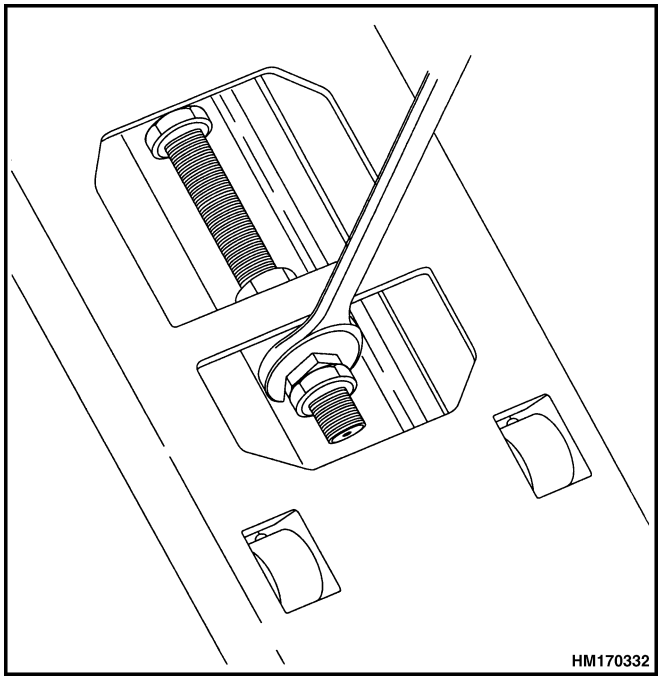


Figure 10. Adjusting Pull Rod

Rocker Arm

REMOVE

WARNING

Batteries are heavy. Use care when working near or moving to avoid injury. DO NOT put hands, arms, feet, and/or legs between the battery and a solid object. Make sure the capacity of the lifting device and spreader bar is greater than the weight of the battery. The weight of the battery is normally shown on the battery case. The maximum battery weight is shown on the lift truck nameplate. The spreader bar must NOT be made of metal or it must have insulated straps.

Put blocks under both forks and on both sides of the drive tire. The blocks must prevent the lift truck from falling and causing personal injury or property damage.

1. Move the lift truck to a safe and level area.

WARNING

When performing service that will require the rocker arms or the upper links to be removed, the main frame and forks must be securely supported so that they cannot lower or tilt when the linkage is disconnected.

2. Raise the forks a little over half way and position solid hardwood blocks under both forks at each end. Lower the forks onto the blocks.

3. Turn the key switch to the **OFF** position. Disconnect and remove the battery. See the sections **Periodic Maintenance** 8000SRM1635 - How to Change Battery.

4. Position solid hardwood blocks under all four corners of the main frame and shim them tight with hardwood shims. The blocks must be sturdy and snug enough to hold the main frame in position when the linkage is removed. Chock the drive tire to prevent unexpected movement. See the sections **Periodic Maintenance** 8000SRM1635 - How To Put A Lift Truck On Blocks.

5. Remove the roll pin (5) retaining the pivot pin (4) to the rocker arm. Remove the pivot pin from the pull rod and the rocker arm. See Figure 11.

6. Remove the capscrew retaining the main frame pivot pin (6) to the rocker arm. Use a drift to drive the pivot pin out of the rocker arm and the main frame.

7. Remove the capscrew retaining the rocker arm pivot pin (3) to the fork frame. Use a drift to drive the pivot pin out of the rocker arm and the fork frame.

8. Remove the bushings from the rocker arm.

9. Remove all old lubricant. Clean and inspect all parts. Replace all defective parts.

INSTALL

1. Install new bushings into the rocker arm. Using the grease fitting hole as a guide, align hole in bushing with hole in casting. See Figure 9. Press bushings flush with outside of casting.

2. Align the rocker arm with the fork frame and install the rocker arm pivot pin (3). Install the roll pin to retain the pivot pin.

3. Align the rocker arm with the main frame and install the main frame pivot pin (6). Install the roll pin to retain the main frame pivot pin.

4. Align the pull rod and the rocker arm, and install the pivot pin. Install the roll pin to retain the pivot pin.

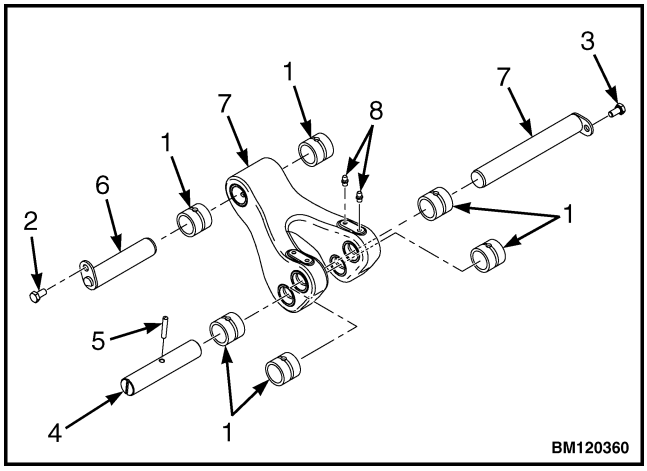
5. Lubricate the bushings through the grease fittings with multipurpose grease. See the sections **Periodic Maintenance** 8000SRM1635 - Maintenance Schedule for the proper lubrication specifications.

6. Remove the blocks from under the truck and remove chocks from the drive tire.

7. Install the battery in the battery compartment. Connect the battery. See the sections **Periodic Maintenance** 8000SRM1635 - How to Change Battery.

8. Turn the key switch to the **ON** position and use the lower button to lower forks completely. Adjust the pull rods so the lift truck lifts and lowers evenly. Refer to Pull RodFork Height Adjustment in this section.

9. Test the operation of the lift truck before returning the truck to service.



1. BUSHING
2. CAPSCREW
3. ROCKER ARM PIVOT PIN
4. ROCKER ARM PULL ROD PIN
5. ROLL PIN
6. MAIN FRAME PIVOT PIN
7. ROCKER ARM
8. LUBE FITTING

Figure 11. Rocker Arm

Upper Link

REMOVE

WARNING

Batteries are heavy. Use care when working near or moving to avoid injury. DO NOT put hands, arms, feet, and/or legs between the battery and a solid object. Make sure the capacity of the lifting device and spreader bar is greater than the weight of the battery. The weight of the battery is normally shown on the battery case. The maximum battery weight is shown on the lift truck nameplate. The spreader bar must NOT be made of metal or it must have insulated straps.

Put blocks under both forks and on both sides of the drive tire. The blocks must prevent the lift truck from falling and causing personal injury or property damage.

1. Move the lift truck to a safe and level area.

WARNING

When performing service that will require the rocker arms or the upper links to be removed, the main frame and forks must be securely supported so that they cannot lower or tilt when the linkage is disconnected.

2. Use the lift button to raise the forks a little over half way and position solid hardwood blocks under both forks at each end. Lower the forks onto the blocks.

3. Turn the key switch to the **OFF** position. Disconnect and remove battery. See the sections **Periodic Maintenance** 8000SRM1635 - How to Change Battery.

4. Position solid hardwood blocks under all four corners of the main frame and shim them tight with hardwood shims. The blocks must be sturdy and snug enough to hold the main frame in position when the linkage is removed. Chock the drive tire to prevent unexpected movement. See the sections **Periodic Maintenance** 8000SRM1635 - How To Put A Lift Truck On Blocks.

5. Remove the drive unit compartment covers to access one end of the upper link.

6. Remove the capscrews retaining the pivot pins to the main frame. Drive the pivot pins out of the frame and upper link. See Figure 12.

7. Remove the capscrews retaining the pivot pins to the fork frame (at the rear of the battery box). Drive the pivot pins out of the fork frame and upper link.

8. Remove the bushings from the upper link.

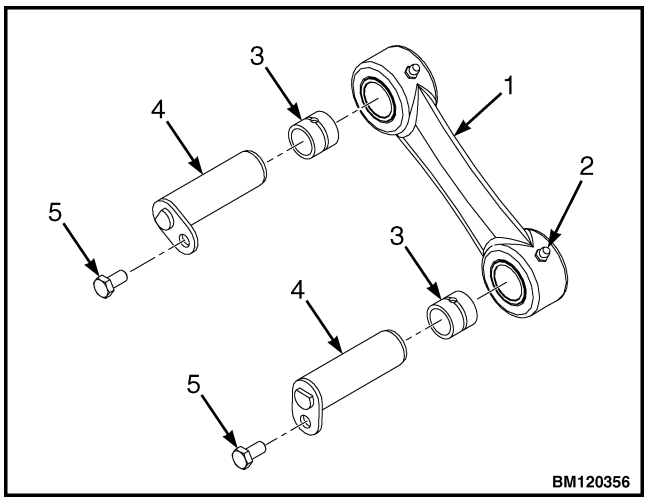
INSTALL

1. Install new bushings into the upper link. Using the grease fitting hole as a guide, align hole in bushing with hole in upper link. Press bushings flush with outside of casting. See Figure 9.

2. Align the pivot pins with the fork frame and upper link, and install the pivot pins. Install roll pins to retain the pivot pins.

3. Align the pivot pins with the main frame and the upper link, and install the pivot pins. Install capscrews to retain the pivot pins.

4. Lubricate the linkage pivot pins with multipurpose grease. See the sections **Periodic Maintenance** 8000SRM1635 - Maintenance Schedule for the proper lubrication specifications.



1. UPPER LINK
2. LUBE FITTING
3. BUSHING
4. UPPER LINK PIVOT SHAFT
5. CAPSCREW

Figure 12. Upper Link

5. Install the drive unit compartment covers.

6. Remove the blocks from under the forks and from each side of the drive tire. Connect the battery.

7. Test the operation of the lift truck before returning the truck to service.

Troubleshooting

PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
Forks fail to elevate.	Battery is discharged.	Charge or replace battery. See the sections **Periodic Maintenance** 8000SRM1635.
	Oil in the hydraulic reservoir is low.	Fill reservoir to correct level. Check for leaks. See the section **Walkie Hydraulic System** 1900SRM1629.
	Faulty hydraulic equipment.	See the section **Walkie Hydraulic System** 1900SRM1629.
	Deformed lifting components.	Disassemble and replace damaged parts.
	Load exceeds lifting capacity.	Select loads within capacity rating.
	Lift switch not operating properly.	Troubleshoot lift switch and wiring.
Slow lifting speed and insufficient handling capacity.	Battery is discharged.	Charge or replace battery. See the sections **Periodic Maintenance** 8000SRM1635.
	Oil in the hydraulic reservoir is low.	Fill reservoir to correct level. Check for leaks. See the section **Walkie Hydraulic System** 1900SRM1629.
	Faulty hydraulic equipment.	See the section **Walkie Hydraulic System** 1900SRM1629.
	Deformed lifting components.	Disassemble and replace damaged parts.
	Load exceeds lifting capacity.	Select loads within capacity rating.
Forks fail to lower.	Battery is discharged.	Charge or replace battery. See the sections **Periodic Maintenance** 8000SRM1635.
	Deformed forks.	Disassemble, repair, or replace.
	Deformed lifting components.	Disassemble, repair, or replace.

PROBLEM	POSSIBLE CAUSE	PROCEDURE OR ACTION
	Bent lift cylinder piston rod.	See the section **Walkie Hydraulic System** 1900SRM1629.
	Lower switch or solenoid not operating properly.	Troubleshoot lower switch, lowering solenoid, and wiring.

NOTES