

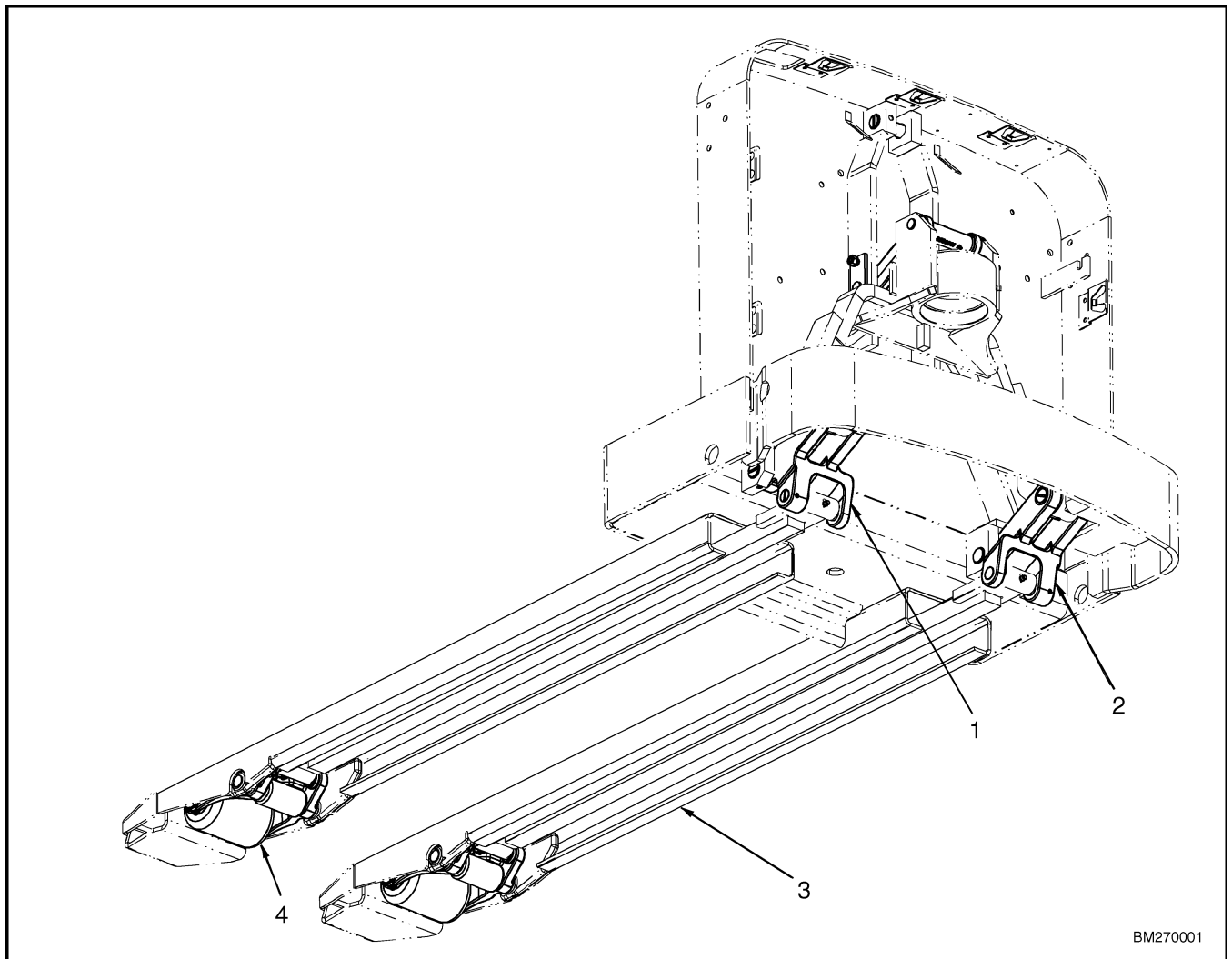
## General

### LIFT LINKAGE

This section has the description and repair procedures for the W40/45/50Z units. The lifting mechanism is operated by the hydraulic system. Hydraulic fluid extends the lift cylinder, operates the lift linkage, and raises the forks.

On all motorized lift trucks, when the lift button on the control handle is depressed, the hydraulic pump

sends high pressure hydraulic fluid to the lift cylinder. This action extends the cylinder, operates the lift linkage, and raises the forks. At the same time, the rocker arms and the rear links mounted under the drive unit platform are pulled upward. This causes the push rod assembly to be pushed toward the load wheel end of the truck. The movement of the push rods in this direction causes the load wheels to pivot down on their pivot pins. See Figure 1.



- 1. LOWER LINK (RH)
- 2. LOWER LINK (LH)

- 3. FORK
- 4. LOAD WHEEL

*Figure 1. Lift Linkage*

## Load Wheel

### REMOVE



#### 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. Remove the battery from the lift truck. Position the battery close enough to the lift truck to allow power cable connection during servicing. Connect the battery and turn the key switch to the **ON** position.
2. Use the lift button to raise the lift truck to its maximum height.
3. Put blocks under both forks and under the drive end of truck. See the section How to Put a Lift Truck on Blocks.
4. Press the lower button just enough to relieve pressure from the load wheels.
5. Move the key to the **OFF** position. Disconnect the battery.
6. Drive out the roll pin retaining the load wheel axle shaft to the link. Repeat for other side.
7. Remove the axle shaft and bushings from the link. Remove bearings and load wheel assembly from the link. It may be necessary to drive the bearing out of the wheel using a soft punch. Drive the bearing out from the opposite side. See Figure 2.

**NOTE:** Some models are equipped with sealed bearings. Do not attempt to clean or lubricate sealed

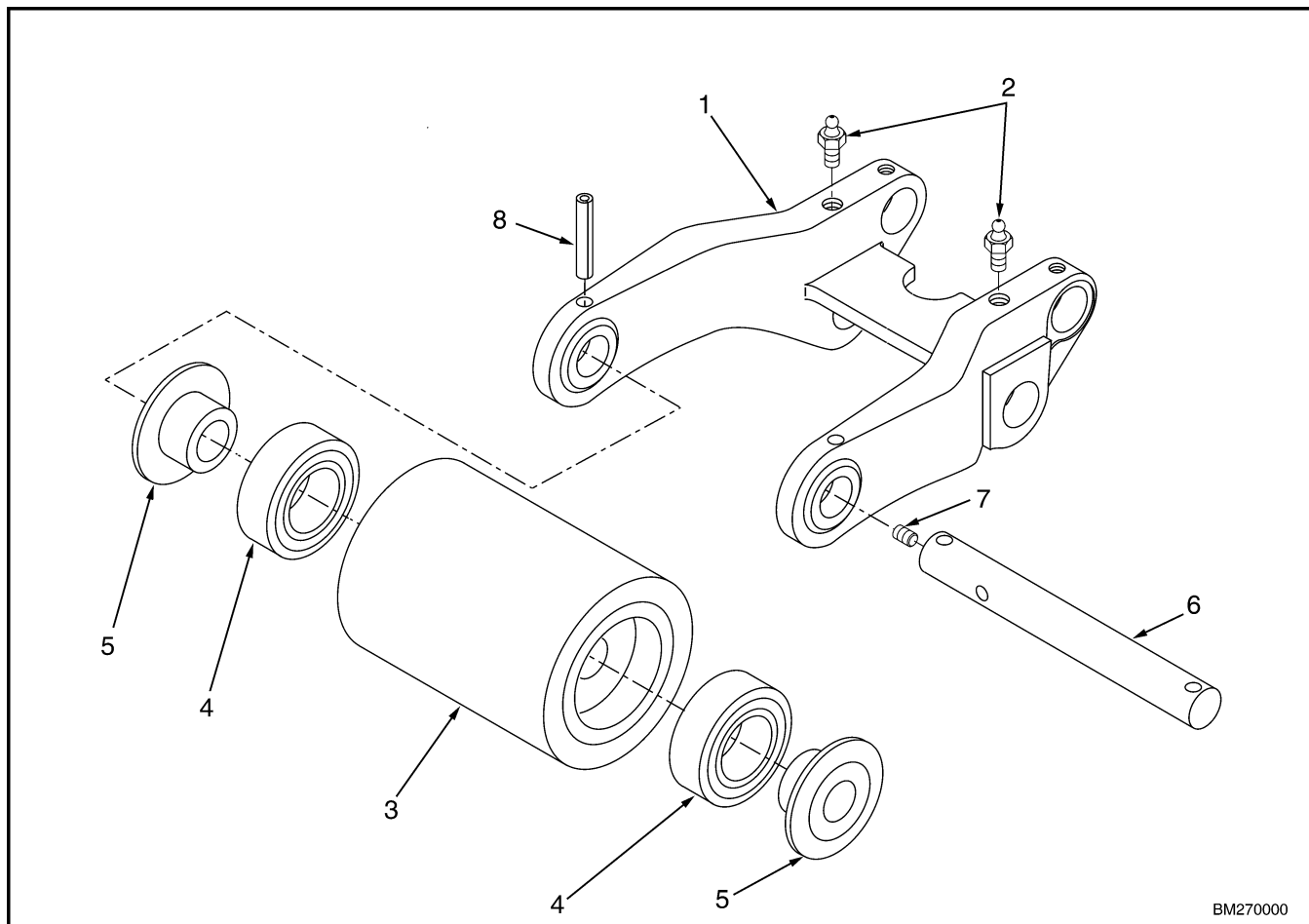
bearings. Sealed bearings in need of service must be replaced.

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

### INSTALL

**NOTE:** Some models are equipped with sealed bearings. Do not attempt to clean or lubricate sealed bearings. Sealed bearings in need of service must be replaced.

1. Prelubricate the bearings with the recommended grease. Install bearings into the load wheel and install the bushings into the bearings.
2. Position the load wheel assembly into the link. Insert the axle shaft through the link, bushings, and bearings. Insert a punch to align the roll pin hole in the axle shaft with the hole in the link.
3. Install the roll pin through the link to secure the axle shaft.
4. Reconnect the battery. Move the key to the **ON** position.
5. Press the lift button to fully extend the lift link.
6. Remove the blocks from under the forks and drive end of truck. Lubricate the load wheel and link fittings then press the lift and lower buttons to raise and lower the forks. The truck should lift and lower evenly.
7. Install the battery in the battery compartment.
8. Test the operation of the motorized hand truck before returning the truck to service.



- 1. LINK
- 2. GREASE FITTING
- 3. ROLLER
- 4. BEARING

- 5. BUSHING
- 6. AXLE SHAFT
- 7. FITTING
- 8. ROLL PIN

*Figure 2. Load Wheel and Link Assembly*

## Rear Link and Load Wheel

### REMOVE



### 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. Remove the battery from the lift truck. Position the battery close enough to the lift truck to allow power cable connection during servicing. Connect the battery and turn the key switch to the **ON** position.
2. Use the lift button to raise the lift truck to its maximum height.
3. Put blocks under both forks and under the drive end of truck. See the section How to Put a Lift Truck on Blocks.
4. Press the lower button just enough to relieve pressure from the load wheels.
5. Move the key to the **OFF** position. Disconnect the battery.

6. Disconnect the load wheel link from the compression rod yoke:
    - a. Remove the roll pin securing the pivot pin in the yoke.
    - b. Remove the pivot pin.
  7. Remove the load wheel link from the fork frame:
    - a. Remove the roll pin securing the link and exit roller to the fork.
    - b. Drive out the roll pin securing the pivot pin to the fork.
    - c. Remove the pivot pins.
    - d. Remove any bushings as necessary.
  8. Disassemble the load wheel. See Load Wheel.
  9. Remove all old lubricant. Clean and inspect all parts for damage. Replace all defective parts.
2. Install the load wheel and link assembly to the fork:
    - a. Align the pallet exit roller and load wheel link with mounting holes in fork.
    - b. Install the connecting pivot pin and align holes with a punch.
    - c. Secure with the roll pin.
  3. Connect the load wheel link with the compression rod:
    - a. Check condition of yoke components including bushings and compression rod jam nuts. Replace as required.
    - b. Align the compression rod yoke and the load wheel link.
    - c. Install the connecting pivot pin and secure with the roll pin.

## INSTALL

1. Assemble the load wheel assembly to the link. See Load Wheel.

**NOTE:** Some models are equipped with bushings in the load roller link where the compression rod yoke attaches. Install new bushings if removed as required.

4. Connect the power cables and turn the key switch to the **ON** position. Press the lift button to fully extend the load wheels. Remove the blocks from under the forks and from each side of the drive tire.
5. Lubricate the load wheel link fittings. Lift and lower the lift truck to check for proper operation. The truck should lift and lower evenly.
6. Install the battery into the battery compartment.

## Compression Rod

### REMOVE

#### 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.

#### WARNING

Batteries are heavy and can cause a personal injury. Use care 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. Use the lift button to raise the lift truck to its maximum height.
2. Put blocks under both forks and on both sides of the drive tire. See How to Put a Lift Truck on Blocks.
3. Lower the hoist cylinder using the lower button. This will raise the load wheels off the floor.
4. Move the key to the **OFF** position. Disconnect the battery. Remove the battery.

5. Remove the roll pin retaining the load wheel link pivot pin to the fork frame. Remove the pivot pin.
6. Remove drive unit and lower cover.
7. Remove the roll pin retaining the lower link pivot pin to the compression rod. Remove the pivot pin.
8. Remove all old lubricant. Clean and inspect all parts. Replace defective parts.

## INSTALL

1. Install pivot pin retaining lower link and compression rod. Install roll pin.
2. Align and install the pivot pin connecting the compression rod and the load wheel. Install roll pin.

3. Install the pivot pin connecting the load wheel link and pallet entry/exit roller and install the roll pin to retain the pivot pin.
4. Raise the load wheels. Lubricate the load wheel and all linkage pivot pins.
5. Install the battery in the battery compartment and connect the battery.
6. Remove the blocks from under the forks and from each side of the drive tire. Turn the key to the **ON** position and use the lower button to lower the lift truck to its minimum height. The truck should lift and lower evenly.
7. Test the operation of the motorized hand truck before returning the truck to service.

## Lower Link

### REMOVE



#### WARNING

**Batteries are heavy and can cause a personal injury. Use care 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.**



#### 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.**

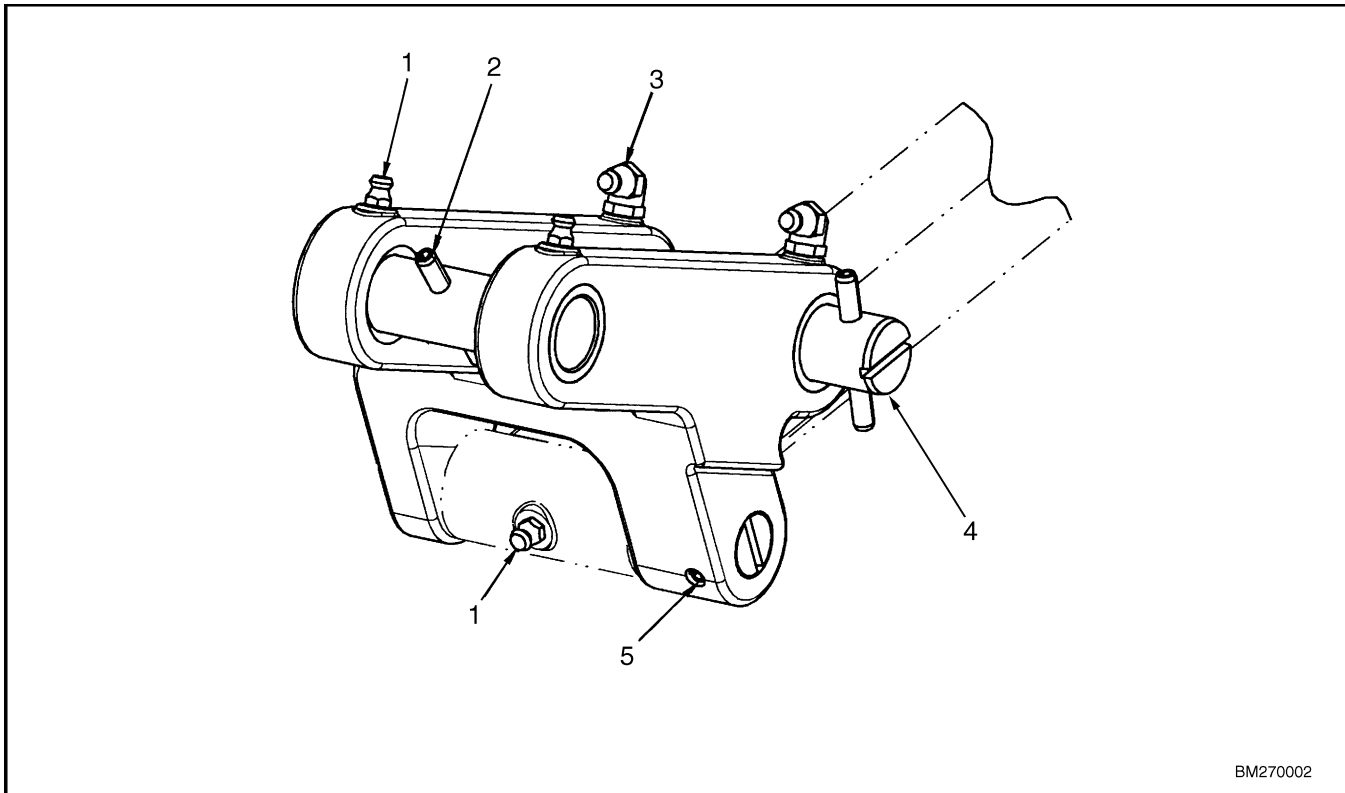
1. Use the lift button to raise the lift truck to its maximum height.
2. Move the key to the **OFF** position. Disconnect and remove the battery.
3. Put blocks under both forks and on both sides of the drive tire. See the section How to Put a Lift Truck on Blocks.
4. Remove covers.

5. Remove the roll pin retaining the drive frame pivot pin to the lower link. Use a drift to drive the pivot pin out of the lower link and the drive frame. See Figure 3.
6. Remove the roll pin retaining the lower link pin to the fork frame. Drive the pin out of the frame using a drift pin.
7. Remove the bushings from the lower link.
8. Remove all old lubricant. Clean and inspect all parts. Replace all defective parts.

### INSTALL

1. Install new bushings into the lower link using the grease fitting hole as a guide.
2. Align the lower link with the fork frame and install the lower link pivot pin. Install the roll pin to retain the pivot pin.
3. Align the lower link with the drive frame and install the drive frame pivot pin. Install the roll pin to retain the drive frame pivot pin.
4. Align the pull rod and the lower link and install the pivot pin. Install the roll pin to retain the pivot pin.
5. Lubricate the grease fittings.

6. Remove the blocks from under the forks and from each side of the drive tire.
7. Install the battery in the battery compartment. Connect the battery.
8. Turn the key to the **ON** position and use the lower button to lower the lift truck to its minimum height.
9. Test the operation of the motorized hand truck before returning the truck to service.



- |            |              |
|------------|--------------|
| 1. FITTING | 4. PIVOT PIN |
| 2. PIN     | 5. PIN       |
| 3. FITTING |              |

*Figure 3. Lower Link*

## Upper Link

### REMOVE



### 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. Disconnect the battery.
2. Put blocks under both forks and on both sides of the drive tire. See the section How to Put a Lift Truck on Blocks.
3. Remove the drive unit compartment cover to access the upper link. See Figure 4.
4. Use a drift pin to remove the roll pin retaining the pivot pin to the drive unit frame. Drive the pivot pin out of the frame and upper link.
5. Remove the screw, washer, and nut retaining the pivot pin to the fork frame. Drive the pivot pin out of the fork frame and upper link.

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

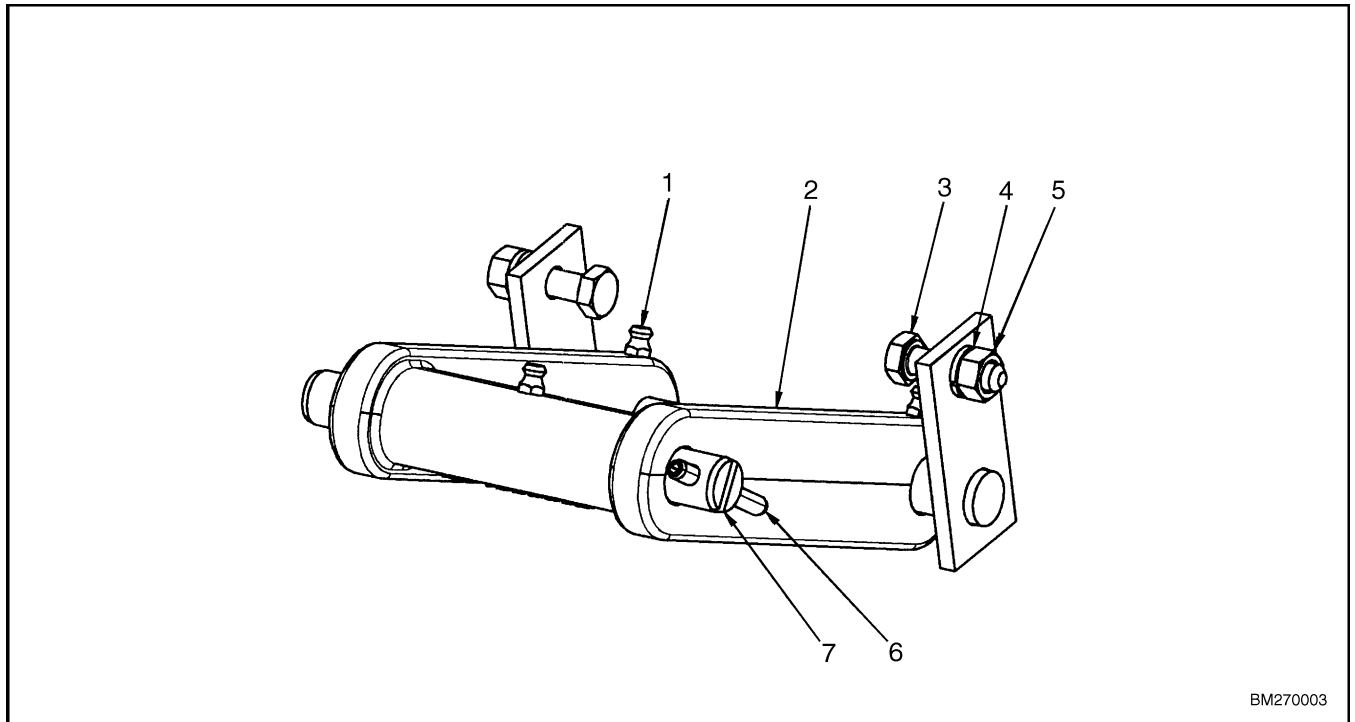
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**INSTALL**

1. Align the pivot pin with the fork frame and upper link and install the pivot pin. Install the screw, washer, and nut to retain the pivot pin to the fork frame. Repeat for opposite side.
2. Align the pivot pin with the drive unit frame and the upper link and install the pivot pin. Install a roll pin to retain the pivot pin.
3. Install the drive unit compartment cover.
4. Remove the blocks from under the forks and from each side of the drive tire. Connect the battery.
5. Test for proper operation before returning the truck to service.



1. FITTING
2. UPPER LINK
3. CAPSCREW
4. LOCKWASHER

5. NUT
6. PIN
7. PIVOT PIN

**Figure 4. Upper Link**



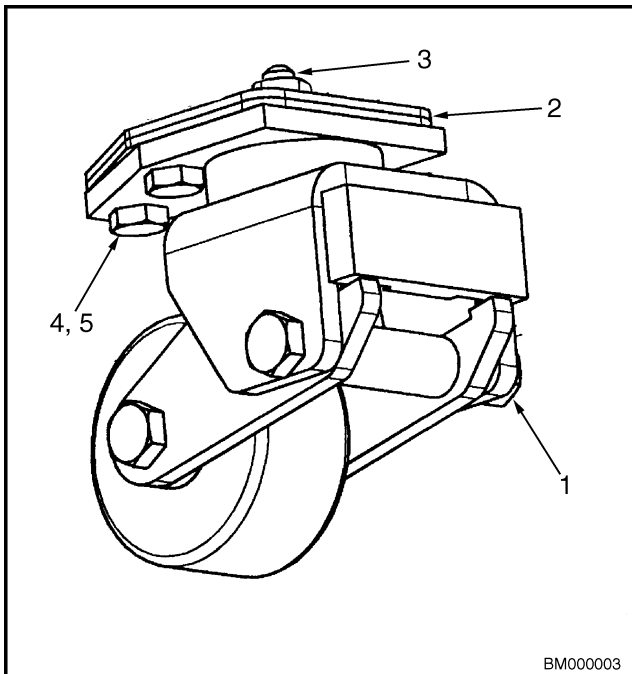
## Caster Wheels (Optional)

### REMOVE

#### 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. Raise the drive wheel off the floor. Block the lift truck. See How to Put a Lift Truck on Blocks. Disconnect the battery.
2. Remove the three screws retaining the caster and spacer to the frame. Remove the caster wheel. See Figure 5.



- |                    |               |
|--------------------|---------------|
| 1. CASTER ASSEMBLY | 4. LOCKWASHER |
| 2. PLATE           | 5. NUT        |
| 3. BOLT            |               |

*Figure 5. Caster Wheel*

3. Repeat Step 2 to remove other caster if necessary.

### INSTALL

1. Align the caster and spacer with the holes in the frame and install the three screws. Tighten the nuts to 56 N•m (42 lbf ft).
2. Repeat Step 1 to install other caster if necessary.
3. Remove the blocks from under the lift truck and lower the truck to the floor. Test the operation of the truck prior to returning the truck to service.

### REPLACE

#### 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.

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

1. Raise the drive wheel off the floor. Block the lift truck. See How to Put a Lift Truck on Blocks.
2. Remove the lock nut retaining the wheel on the wheel axle. Drive the wheel axle out of the arms and remove the wheel.
3. Align the wheel between both arms and install the wheel axle. Install the nut on the wheel axle. Tighten the nuts to 34 to 47 N•m (25 to 35 lbf ft).
4. Remove the blocks from under the lift truck and lower the truck to the floor. Test the operation of the truck prior to returning the truck to service.

