



2-Wheel to 4-Wheel Brake Conversion Kit

MH-400 Material Delivery Unit

Model No. 44945

Form No. 3373-346 Rev B

Installation Instructions

Installation

Installing the Electric Brakes

Before installing the electric brakes, remove the protective coating that is applied at the factory to protect the drums from corrosion.

1. Remove all of the brake shoes and brake drums from the kit and place them in a well-ventilated area.
2. Use an automotive brake cleaner to spray the brake drums until the protective coating is completely removed. You may need to spray twice for best results.

Installing the Four Wheel Brake Kit

1. The machine must be stable. Start by carefully raising and safely supporting the machine off the ground, so that the tire being worked on is off the ground by about 2 inches (5 cm).
2. Remove the outside wheel from the unit.
3. Remove the dust cap, cotter pin, bearing tension nut, and washer.
4. Lastly, remove the hub assembly. The spindle and a fastening plate will be left.
5. Check all bearings and races. Replace them if necessary.
6. Ensure that the hubs are free of moisture and dirt. Repack components with grease before reinstalling.
7. Mount the hub assembly onto the outside of the drum using six 1/2 x 1-1/4 inch socket head bolts. Apply Blue Loctite to the bolt threads prior installation. Thread the bolts by hand from the inside of the drum before using an impact tool.
8. Torque in a crossover pattern (same as a wheel) to 50–60 ft-lb (68–81 N-m).
9. Install the brake assembly onto the axle. Ensure that the magnet arm faces the front of the machine and the magnet is on the bottom. Secure the brake shoe assembly to the axle with four 1/2 x 1-1/2 inch bolts and locknuts. Torque the fasteners to 67–83 ft-lbs (91–112 N-m) in a crossover pattern.

Note: Make sure the mounting bolts are installed so the heads are located on the brake assembly (Figure 1) and the nuts are against the axle flange.

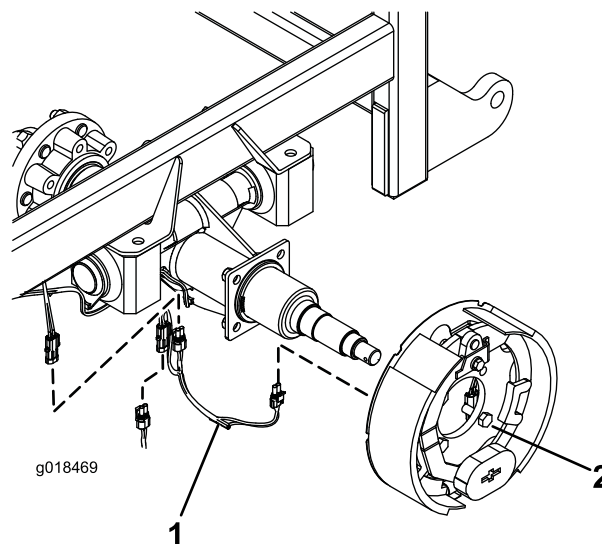


Figure 1

Brake assembly shown removed for clarity

1. New jumper harness
2. Brake assembly mounting bolt (4)

Note: Do not use air tools when tightening the backing plate and shoe assembly.

10. Install the hub and drum assembly onto the spindle.
11. Adjust the wheel bearings as follows:
 - Tighten the jam nut while turning the hub to seat the bearings to remove all end play. The necessary torque should be a minimum of 75 in-lbs (8 N-m) to a maximum of 180 in-lbs (20 N-m).
 - Loosen the jam nut until it is away from the tab washer and the hub has end play. Tighten the jam nut to 15 - 20 in-lbs (1.6–2.3 N-m) while rotating the hub.
 - Place the nut retainer over the jam nut. If the cotter pin hole is not aligned with the nut retainer's slot, remove the nut retainer and reorient it until alignment occurs.

12. Insert the cotter pin. Bend both legs of the cotter pin and tap out of the way. Position and secure the new hub cap.
13. Install the new jumper harness (Figure 1) as follows:
 - Unplug the existing wire harness from the connector on the existing brake.
 - Plug the shorter end of the jumper wire into the connector on the existing brake.
 - Plug the wire harness into the jumper wire.
 - Plug the other end of the jumper wire into the connector on the new brake assembly.
 - Secure all loose harness wires with the cable ties.
14. Remount the tire.
15. Torque the tire assembly to 100 ft-lb (135 N-m).
16. Repeat the procedure on the other side of the unit.
17. A 10 amp fuse is installed in the tow vehicle wire harness. Replace the 10 amp fuse with the provided 15 amp fuse. The fuse is located in the wire connected to the “+” battery terminal.
18. Before lowering the machine, set the brakes on the outside tire assemblies to slightly drag on the drum. Refer to Adjusting the Electric Brakes in the Maintenance Section.

Setting the Electric Brake Adjustments

Before operating the machine for the first time, the electric brakes must be synchronized to the tow vehicle's brakes (so that they operate at the same time).

The machine and the tow vehicle will seldom have the correct amperage flow to the brake magnets to provide comfortable, safe braking. Changing the load weight, as well as uneven alternator and battery output, can result in unstable current flow to the brake magnets.

The Load Control compensates for trailer load variations by limiting the maximum torque output of the brakes by adding dropping resistance in the electrical control line. When towing a trailer loaded to brake rated capacity, the Load Control must be set at maximum braking. When pulling an empty or partially loaded trailer, the Load Control must be set between maximum and minimum braking at a position just before the point at which trailer tire skidding occurs when actuating the hand control fully on. Failure to install and use the Electric Load Control will result in excessive brake torque when stopping a trailer loaded to less than brake capacity.

Maintenance

Maintaining the Electric Brakes

Inspecting the Electric Brakes

Once a month, conduct a simple visual inspection of your brake shoes and linings.

Inspect and service your electric brakes once a year.

Adjusting the Electric Brakes

Adjust the electric brakes after the first three months of operation, or sooner depending on use or performance.

1. Jack up the machine securely.
2. Ensure that the wheel and drum rotate freely.
3. Remove the adjusting hole cover from the slot on the bottom of the brake backing plate.
4. With a screwdriver, rotate the star wheel of the adjuster assembly to expand the brake shoes (Figure 2).

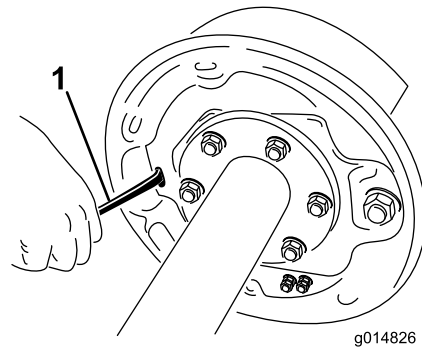


Figure 2

1. Screwdriver

5. Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel difficult to turn.
6. Rotate the star wheel in the opposite direction until the wheel turns freely with a slight drag on the lining.
7. Replace the adjusting hole cover.
8. Repeat the above procedure on each brake.

Inspecting the Brake Shoes and Linings

Once a month, conduct a simple visual inspection of your brake shoes and linings.

When a brake shoe becomes worn, replace both shoes on each brake, and both brakes on the same axle. This ensures that the brakes remain balanced.

Replace the brake linings when they are

- worn to 1/16 inch (1.6 mm) or less remaining thickness
- contaminated with grease or oil
- abnormally scored or gouged

Note: Hairline heat cracks are normal in the brake linings and should not cause concern.

Yearly Brake Cleaning and Inspection

Inspect and service your electric brakes once a year or more often with heavy use or declining performance

- Change magnets and shoes when they become worn or scored.
- Clean the backing plate, magnet arm, magnet, and brake shoes with an automotive brake cleaner.
- Ensure that all parts removed are replaced in the same brake and drum assembly that they were removed from.
- Inspect the magnet arm for any loose or worn parts.
- Check the shoe return springs, the hold-down springs, and the adjuster springs for stretch or deformation and replace them if required.

⚠ CAUTION

Brake dust can be hazardous to your health if inhaled, take precautions when servicing brakes:

- Do not create or breathe dust.
- Do not machine, file, or grind the brake linings
- Do not use compressed air or dry brushing for cleaning.

Lubrication

Before reassembling the electric brakes, apply a light film of anti-seize compound, or grease such as “Lubriplate,” on the:

- brake anchor pin
- actuating arm bushing and pin
- areas on the backing plate that are in contact with the brake shoes and magnet lever arm
- actuating block on the actuating arm

Important: Do not allow grease to contact the brake linings, drums, or magnets.

Inspecting the Magnets

The brakes’ electromagnets are designed to provide the proper input force and friction.

Inspect the magnets regularly, and replace if they become unevenly worn. Use a tool with a straight edge to check wear.

Even if the wear is normal, you should replace the magnets if any part of the magnet coil is visible through the friction material on the magnet face. Replace the magnets in pairs (both sides of an axle).

When replacing the magnets, also resurface the drum armature surface.



Count on it.