

## BRAKES / FINAL DRIVE

### Type H4 Brake System Service

#### Cleaning and Inspection

Check all parts for wear or damage and replace any found to be defective.

1. Clean all parts with denatured alcohol and wipe dry with a clean, lint free cloth.
2. Using compressed air, blow out the drilled passages and bores.
3. Inspect casting cylinder bore for scoring, pitting or corrosion. A corroded or deeply scored casting should be replaced. Light scores and stains may be removed by polishing with a *crocus cloth only*. Use finger pressure and rotate the crocus cloth in the cylinder bore. Do not slide the cloth in and out of the bore under pressure. Do not use any other kind of abrasive cloth. Black stains on the piston are caused by the seal and do no harm.
4. Check piston to see if it is pitted, scored or worn. If so, discard and replace the piston. **CAUTION:** Do not attempt to polish or sand piston.
5. Clean piston with denatured alcohol and wipe dry with a clean, lint free cloth. Using compressed air, blow dry.
6. Check inlet and bleeder hole threads for damage.
7. Inspect seat insert for damage and replace if necessary.

#### Assembly

1. Reassemble by reversing disassembly process. Be sure all parts are clean and serviceable before reassembling the unit.
2. Coat a new piston seal in clean DOT 3 brake fluid and place in groove in the cylinder bore. Seal should be positioned at one point in groove and then gently worked around the groove by hand until properly seated. **CAUTION:** Never reuse an old seal.
3. Coat piston thoroughly with brake fluid and work down into bore by hand carefully until bottomed. **CAUTION:** Apply even pressure to avoid cocking the piston in the bore.
4. Examine pads for wear or damage. If pad thickness is less than 1/32" (.08 cm) install new pad holder assemblies. If pads are not worn or damaged, they may be reused. Be sure pads are reinstalled in their original positions. If pads are replaced, replace in sets and make sure the new pads have the same friction material type code number as the old set.
5. Connect hose or line to caliper.
6. Place new pads with friction material facing each other into housing. Hold in place using clips.
7. Slide brake assembly into bracket until both clips snap into grooves in bracket.
8. Separate pads for installation over disc.
9. Place brake assembly over disc and push bracket into chaincase.
10. Replace 3/8" bolts, rope guide, and washers. Torque to 25-30 ft. lbs. (3.45-4.14 kg/m).
11. Actuate brake several times to set brake pads to proper operating position.
12. Make sure master cylinder reservoir brake fluid level is 1/4" (.6 cm) from the top of the reservoir.

#### Bleeding

Each hydraulic brake is fitted with a bleeder valve. This is a special valve which seals when turned in tight, but which allows air or fluid to pass out through a hole in the valve nipple when the valve is loosened one turn.

1. Clean any dirt from master cylinder cover and remove cover.
2. Attach a flexible tube to nipple of bleeder screw on caliper.
3. Place other end of flexible tube into a jar containing a small amount of clean brake fluid. See that end of tube is below fluid surface to prevent air from getting back into the system.
4. Loosen bleeder screw.
5. Slowly operate brake and check for air bubbles rising in fluid, indicating air is being forced out of the system.
6. Tighten bleeder screw as master cylinder is being depressed and reaching end of stroke.
7. Repeat steps 4 through 6 until air bubbles stop, adding new fluid to reservoir as needed.
8. Add new DOT 3 brake fluid to reservoir to bring level back up to within 1/4" (.6 cm) of top. Replace diaphragm and cap.
9. Re-check system for proper operation and for leaks.
10. Discard fluid in jar. This fluid contains air and should not be reused.
11. **WARNING:** Upon completion of brake service, test vehicle at low speeds before putting vehicle in regular service.

A thorough brake check should be made every ten days under normal conditions. This check should be made more often as the pads wear down. Under hard usage, check the fluid level often. As the brake pads wear, fluid fills the area behind the piston, lowering the fluid level in the reservoir.

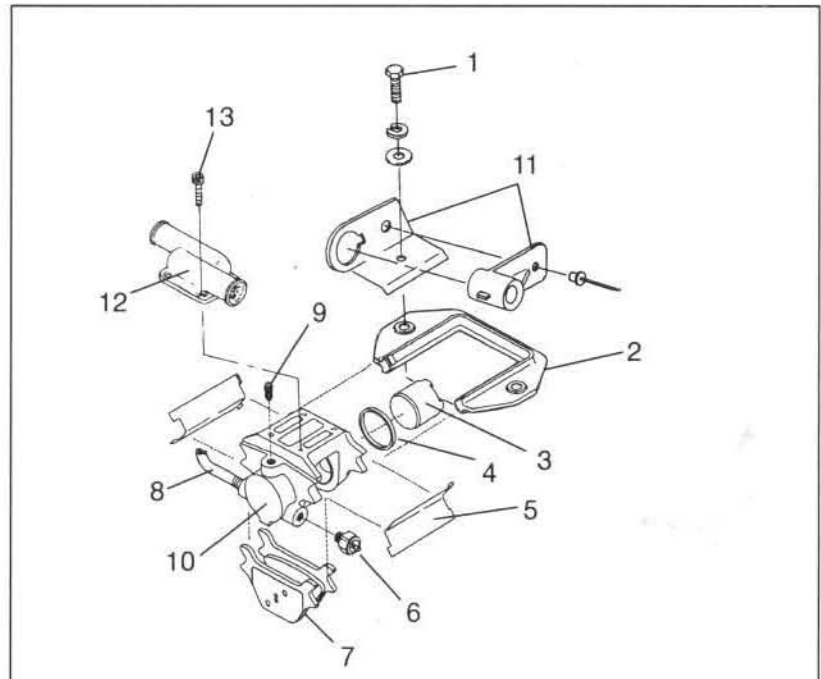
## Maintenance

The routine maintenance procedures below are suggested as a means of keeping the brake system in good working order.

1. Clean any dirt from master cylinder cover and remove cover.
2. Check fluid level in reservoir. Add new DOT 3 fluid to within 1/4" (.6 cm) of the top of the reservoir. Do not overfill.
3. Make sure floating parts move freely and all other parts are mounted securely. Tighten hardware as required.
4. Inspect for hydraulic leaks and repair any found.
5. Inspect disc surface condition. If warped or badly pitted, replace.
6. Check to see if friction pads are worn to less than 1/32" (.08 cm) thick. Replace if they are.
7. Check brake lever travel. Brake lever should not feel spongy. Replace pads. Bleed or add fluid as needed.
8. Check cooler hose connections for leaks and replace hoses as required.

## Replacing Friction Pads

1. Carrier Bracket Attaching Bolts
2. Carrier Bracket
3. Piston
4. Piston Seal
5. Spring Clip
6. Stop Light Switch
7. Brake Pads
8. Brake Line
9. Bleeder Screw
10. Caliper (Liquid Cooled)
11. Rope Guide
12. Water Cooler Manifold
13. Screws (Cooler Manifold)



**WARNING:** The rider's safety depends on correct installation. Follow the procedures carefully.

1. Clean any dirt from mount bracket and bolts.
2. With a 9/16 socket, remove two 3/8 hex bolts and washers from bracket. Remove rope guide. **NOTE:** Do not disconnect brake line.
3. Remove hose clamp from engine side of cooler. Twist and remove hose from cooler, catching and disposing of antifreeze properly.
4. Lift bracket and brake assembly off vehicle. Raise open end of cooler and pad assembly to trap antifreeze in cooler.
5. Slide brake assembly out of bracket. Discard old pads and clips. **NOTE:** Pad and spring clip must be replaced as a pair.
6. Clean dirt from end of piston and nearby area with a clean shop cloth.

**CAUTION:** Protect eyes from brake fluid.

7. Remove reservoir cover. Using a hardwood dowel or the flat of a large screwdriver, work piston back into bore by carefully prying between parts.