

Bendix Hydro-Boost Service Instructions

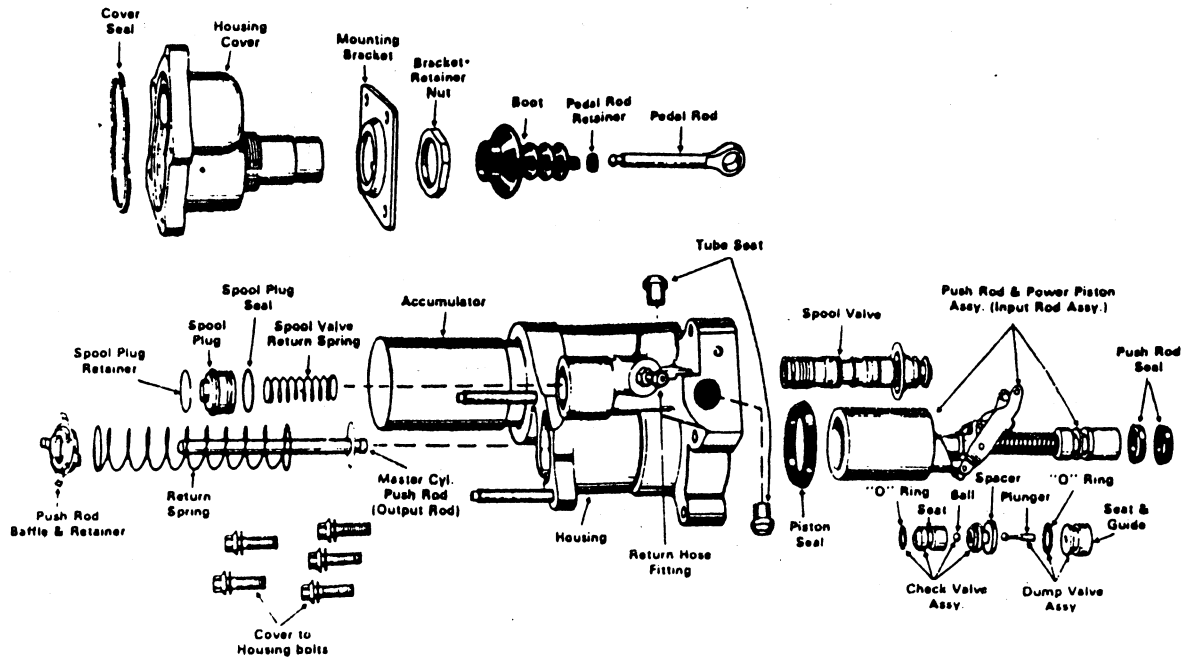


Fig. 1 EXPLODED VIEW OF HYDRO-BOOST

(Parts illustrated are for reference only and may differ from actual parts required.)

CAUTION: Before removal of master cylinder or disconnecting hydraulic hoses from Hydro-Boost, accumulator reserve pressure must be depleted. With ignition off, apply brake pedal 5-10 complete applications.

HYDRO-BOOST REMOVAL FROM VEHICLE (Firewall Mounted)

1. Unbolt master cylinder from Hydro-Boost. Disconnecting hydraulic steel lines should not be necessary if cylinder can be supported to avoid kinking lines.
2. Disconnect (3) hydraulic hoses and cap open ends.
3. Disconnect pedal rod from brake pedal.
4. Unfasten booster mounting nuts or bolts and remove unit from vehicle.

MOUNTING BRACKET REMOVAL

1. Position booster in vise, pedal rod end up. **DO NOT CLAMP ONTO OR AGAINST ACCUMULATOR.**
2. Remove bracket retainer nut. **NOTE:** Early units used a staked, steel nut. Use a hammer and chisel to cut nut at slot in threaded portion of housing cover hub. **DO NOT DAMAGE THREADS ON HUB.** Spread nut apart for removal and discard.

A powdered metal nut and snap ring replaced the staked nut on later designs. Remove snap ring from threaded hub. Using special tool J-24554, remove nut.

3. Separate mounting bracket from housing.

PEDAL ROD RETENTION

Two methods of pedal rod retention are used on Hydro-boost units. Early designs use a rubber grommet. Later designs have a staked pedal rod.

In order to service seals on the input rod end, the pedal rod must be detached to allow removal of the power piston assembly from the housing cover.

Hydro-boost with a staked pedal rod and input rod end diameter of .680" or greater are serviceable with an Input Rod Kit and replacement Pedal Rod.

NOTE: Units with staked pedal rod and input rod diameter of .600" or less ARE NOT SERVICEABLE. Service in this area is by unit replacement only.

PUSH ROD IDENTIFICATION — Staked Design — (Fig. 2)

1. Staked pedal rods will taper down to a smaller diameter shank, ahead of the input rod end.

2. Three to four stake marks will be apparent on the input rod end.

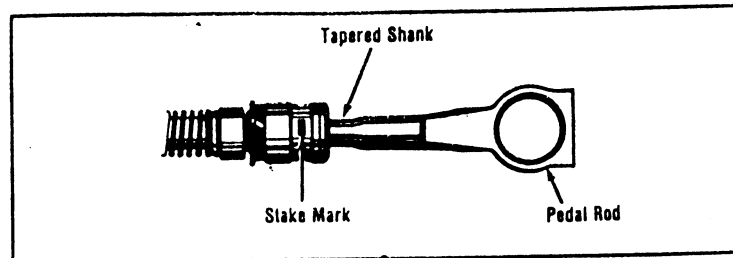


Fig. 2 STAKED PEDAL ROD

PUSH ROD REMOVAL

- A. GROMMETTED DESIGN (Fig. 3)

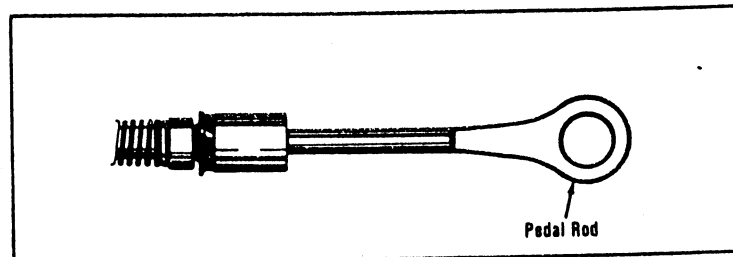


Fig. 3 GROMMETTED PEDAL ROD

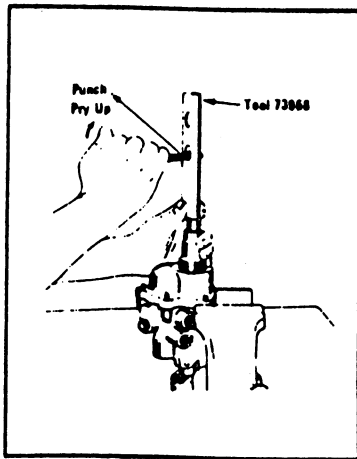
1. Place Hydro-boost in vise, pedal rod up.
 2. Position special tool J-24569 around pedal rod (Fig. 4). Allow tool to rest against input rod end.
 3. Note that the holes of the tool are lower on one side. Insert pry bar (or similar tool) from the low side through opening of the tool that aligns with the pedal rod eyelet. Pry upward, shearing grommet and freeing pedal rod. (Fig. 3)
- B. STAKED DESIGN
Review NOTE outlined under heading **PEDAL ROD RETENTION** before proceeding.
 1. Pry Push Rod OUT.
 2. Once housing cover is separated from booster main housing, power piston assembly may be removed.

CAUTION: When extracting power piston assembly avoid scratching bore

ACCUMULATOR

From 1974 thru 1978 a spring loaded accumulator was used on Hydro-Boost. SERVICE OF THIS DESIGN ACCUMULATOR WILL REQUIRE REPLACEMENT OF BOOSTER.

A self-contained, gas charged accumulator superseded the spring loaded design. The accumulator cap is machined aluminum, tinted blue or gold. The warning, CAUTION: COMPRESSED GAS is stamped on the cap. If required, the gas charged accumulator is replaceable. DO NOT EXPOSE CARTRIDGE TO FLAME. Before disposing of old accumulator, drill a $\frac{1}{8}$ " hole in flat end of cap to relieve pressure.



(Fig. 4)

ACCUMULATOR REMOVAL (Gas Charged Only)

1. Depress accumulator $\frac{1}{4}$ " using tool J-22269 or 6" C clamp, relieving tension upon snap ring.

CAUTION: If accumulator is difficult to compress $\frac{1}{4}$ ", pressure has not been relieved. This can indicate internal failure in the area of accumulator valves. Booster must be disassembled.

2. With a punch inserted into access hole of housing, push in to expose snap ring end.
3. Extract snap ring from around accumulator base.
4. Slowly relieve tension on clamp until accumulator is free of housing. Allow fluid to drain.

HYDRO-BOOST DISASSEMBLY

(Refer to Fig. 1 for parts identification)

1. Secure Hydro-Boost in vise, master cylinder end up. DO NOT CLAMP ONTO OR AGAINST ACCUMULATOR.
2. Remove output rod baffle and retainer, return spring and output rod.
3. Depress spool valve plug, remove and discard snap ring. (Some units have an access hole in spool valve housing, allowing use of a small punch to unseat snap ring.)
4. Remove spool valve plug, sleeve (if present), and spring.
5. Unscrew return fitting and discard O-ring.
6. Reverse position of hydro-boost in vise.
7. Unscrew cover to housing bolts. Holding unit over a drip pan, carefully separate cover from housing and allow fluid to drain. Avoid dropping spool valve.
8. Detach spool valve from ratio arm.
9. Remove and discard housing to cover seal.
10. Extract power piston assembly from housing cover.
11. Remove power piston seal from machined groove in bore and discard.
12. With a small wire hook, extract dump valve and check valve assembly from housing. Discard.
13. Remove brass tube seats using a No. 4 easy-out.

CLEANING AND INSPECTION

Clean all parts in denatured alcohol or clean power steering fluid. DO NOT USE TRANSMISSION FLUID. If parts are left exposed for eight hours or more they must be rewashed at time of assembly.

Inspect spool valve and valve bore for scratches or signs of wear. If scratches can be detected by fingernail, complete Hydro-Boost unit must be replaced. Due to critical clearance tolerances, spool valve or housing cannot be substituted.

Inspect power piston sealing surface area for scratches or signs of wear. If scratches can be detected by fingernail, the power piston should be replaced.

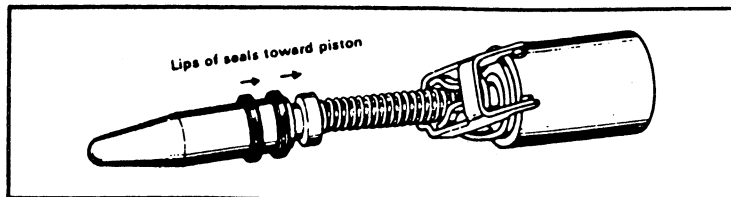
HYDRO-BOOST ASSEMBLY

Upon reassembly, lubricate all parts and bores with clean power steering fluid.

1. Set new tube seats in position. Use old tube seats, brass drift, or special tool J-6217 to install new tube seats. Plug ports to prevent contamination, until installation of unit on vehicle.

If unit does not use tube seats, O-rings on hose lines should be replaced.

2. Position housing in vise, master cylinder end down. Place new O-ring onto return port hose fitting and install.
3. Place new lubricated seat, check valve and dump valve into accumulator valve bore. Assure plunger position is correct, (ball end towards seat).
4. Using tool J-24553, install new seal (or seals) onto input rod end (Fig. 5). Lip of seal should face toward power piston.

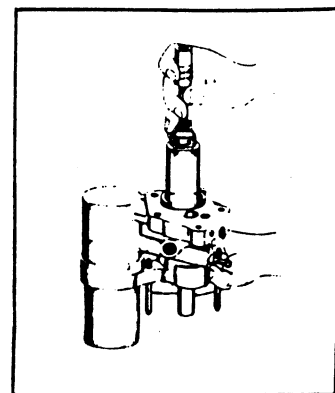


(Fig. 5)

5. Install new power piston seal into housing bore; lip of seal towards firewall of vehicle.
6. Lubricate power piston installation tool J-24551. Align piston into bore. Attach spool valve to tabs of ratio lever and carefully install piston and spool valve into appropriate bores. (Fig. 8).

CAUTION: Spool valve is precision machined fit. DO NOT FORCE VALVE INTO BORE. Assure that bore and valve are clean, free of scratches and well lubricated.

7. Position new cover to housing seal.
 8. Carefully guide cover over input rod end. Bolt cover to housing. Torque bolts to 20 ft. lbs.
 9. Reverse booster position in vise.
 10. Position new O-ring onto spool valve plug. Install return spring, sleeve (if present) and spool plug. Depress spool plug and install new snap ring. Be sure snap ring end is adjacent to access hole (if present) to aid future removal.
 11. Place output rod and spring into bore. Install baffle and spring retainer. Retainer tabs should seat under ledge in bore.
 12. Remove old grommet material from pedal rod. Install new grommet. Push grommetted end of rod into pedal rod end until secure.
- * In some cases you will need to re-stake push rod.



(Fig. 6)

MOUNTING BRACKET INSTALLATION

1. Position mounting bracket onto booster, aligning tab of bracket with slot in threaded area of housing cover hub. Using tool J-24554 and torque wrench, tighten nut to 110 ft. lbs.

NOTE: On earlier staked nut design, install new nut using tool J-24554 and torque nut to 110 ft. lbs. With hammer and punch, stake nut at slot in housing cover hub.

2. Install snap ring.
3. Slide rubber boot over pedal rod end.

BLEEDING HYDRO-BOOST:

- A - Fill power steering reservoir.
- B - Crank engine for several revolutions (do not start engine).
- C - Check reservoir, add fluid if necessary.
- D - Start engine, turn steering wheel to left stop then to right stop.
- E - Shut off engine and discharge accumulator. Depress pedal four or five times.
- F - Repeat Step D.
- G - If fluid is foaming, shut engine off and wait for one hour.
- H - Repeat Step D.
- I - Check reservoir, add fluid if necessary.

Special Tools Required Can Be Purchased From Kent Moore.