

INSTALLATION INSTRUCTIONS:

66-77 Bronco Premium Power Brake Kit

3706 - Cast Aluminum Master Cylinder + Factory Brass PV

3708 - Wilwood MC + Wilwood APV

CONTENTS:

1-Booster
1-Master Cylinder
1-Mounting Bracket

3742B CONTENTS: (use with 3706)

1-9/16"-18 inverted flair -4 adapter
2-7/16"-24 inverted flair -4 adapters
2-inverted seat seals
2-3/8"-24 inverted flair nut plug
2- -4 block off caps
2-1/2"-20 inverted flair -4 adapters
2-3/8"-24 inverted flair - 4 adapters
1-3/8"-24 inverted flair - 1/2"-20 inverted flair adapter
2-3/16" Stainless Brake Hoses

Note: Extra hardware is included to account for any variables.

PLEASE READ INSTRUCTIONS COMPLETELY BEFORE YOU BEGIN.

DOT 3 BRAKE FLUID AND SOME ADDITIONAL FITTINGS MAY BE NECESSARY.

BEFORE YOU START:

Adjust brake shoes, inspect for faulty or worn hoses (replace as needed), check for worn linkage, inspect fluid and flush the old fluid out if necessary.

INSTALLATION:

1. Disconnect and remove existing brake lines from master cylinder. Note the orientation of front and rear brake line locations for later installation (i.e. which port on the master cylinder connects to which port on the block valve or proportioning valve). Reinstallation will vary depending on whether or not you are installing our new proportioning valve- refer to the diagram provided with the valve. Caution: Be careful not to get any brake fluid on painted surfaces as it will remove paint. (Water will rinse off brake fluid, don't spray water on open brake hoses)
2. Remove old master cylinder by disconnecting the connections to the brake pedal and unbolting the unit from the firewall. Now is a good time to clean and paint this area.
3. Thread the supplied clevis to the threaded rod on the new booster. The position of the clevis can be threaded in and out for proper adjustment, pedal travel and pedal height from floor. Now is a good time to bench bleed the master cylinder, see separate page. If additional instructions are needed for bleeding, please consult a instruction manual.
4. Be sure the brake pedal rod is in the correct position to attach the brake pedal. Tighten the mounting bolts and pull the assembly firmly to the firewall.
5. Loosely bolt the booster to the mounting bracket with the four serated flange 10mm nuts included with the booster. Block up the brake pedal approximately 4 3/4-5" from the floor. This is a starting point for adjusting the pedal height. Align the clevis to the upper mounting tab, adjust the clevis on the booster as needed to align holes. Once aligned, secure with supplied clevis pin and cotter pin. Connect the supplied brake rod to the lower tab by placing it through the boot and then threading it into the supplied long clevis. Attach this clevis to the lower mounting tab using the supplied clevis pin and secure with the cotter pin. Tighten the jam nut against the clevis. Note: The cotter pin should be on the bottom.
6. Attach the brake rod to the brake pedal. Adjust your rod length starting with your brake pedal in the rest position. It should be resting against the rubber stop bumper. Adjust the rod length until the rod slips onto the brake pedal post easily (most of the adjustment should have been done using the clevis on the booster). Reusing the nylon bushing, install the brake switch and clip. If the condition of the brake switch looks marginal, it should be replaced. Press the brake pedal a few times to insure proper fit and movement of all the components. Tighten up all booster and bracket bolts.

7. 3706 - Connect the fittings and hoses to the master cylinder, use the hose end with a 90° fitting on the master cylinder. Now connect the hoses (to either the block valve or the proportioning valve) in the correct orientation as noted in step #1 or on the instruction sheet provided with the valve. Note: We have included adapter fittings for a stock proportioning valve (disc brakes) and



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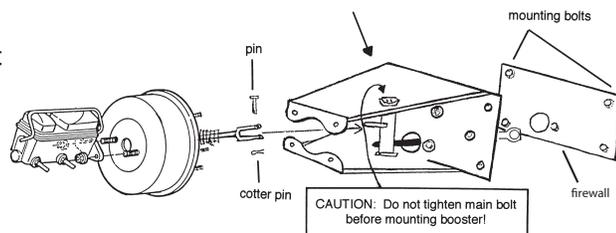
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stock block valve (drum brakes.) Caution should be taken to route the hoses so that they don't contact the steering shaft or the exhaust manifold.

7a. 3708 - Wilwood Master cylinder/Prop Valve install.

Remove the factory H-Block/Prop Valve and bracket. Remove the short front brake hardline to the frame/axle hose block. Install the JDI frame bracket for the rear brake hardline. The Master cylinder/prop valve hose with the section of heat shield on it gets attached to the front frame/axle block (heat shield side down). Install the other brake hose with the larger horse shoe clip in the JDI frame bracket. Use the adapter from this line to your existing rear brake hard line. (Note there is a copper crush washer for between the hose fitting and adapter if you run into a sealing issue here)



7b. 3708 Wilwood Master cyl./Prop Valve install.

Loosely install the prop valve onto the mounting bracket. Install the brake line block off plugs in the center FO hole in the bottom of the prop valve and front brake light switch hole. Install the prop valve and bracket onto the master cylinder mounting studs using the 2 aluminum spacers under the bracket. Install the 2 short master cylinder to prop valve lines. Rear line of the master cylinder to RI and the front line to FI. Install the master cylinder hoses previously installed on the chassis to the prop valve. Rear line to RO and front line to FO.

RI- Rear input | RO- Rear output | FI- Front input | FO-Front output

8. Next, hook up the vacuum line from the booster fitting to the intake manifold. Find a good clear access to engine vacuum, this can vary depending on your carburetor and manifold set up. If your carburetor or its base plate doesn't have a fitting, the back of the intake manifold should have either a fitting or a plug which can be removed and a fitting added. Fittings are available at most auto parts stores.

9. Now bleed the system. Be sure to properly bleed the master cylinder. The best method is to power bleed. This forces all the old fluid out of the entire braking system, ridding it of rust and moisture. See pages 3 and 4 for bleeding instructions.

10. Once the installation is complete, double check all connections and fittings for leaks and be sure all hardware is properly secured. Press brake pedal and check for proper operation. Brake fluid must be free of air bubbles to work properly. - DO NOT OVER TIGHTEN/TORQUE FITTINGS! USE PROPER TOOLS TO TIGHTEN OR LOOSEN FITTINGS.

TESTING POWER BRAKES:

1. With engine off, push brake pedal several times to deplete all vacuum reserve in system.

2. Press brake pedal and hold light foot pressure on pedal. Start vehicle engine. If power brake is operational, pedal will fall away under foot pressure and less pressure is required to hold pedal in applied position. If no action is felt when engine is started, power brake is not functioning. Inspect for proper vacuum.

3. Turn off engine. Again deplete all reserve in vacuum system. Press brake pedal and hold foot pressure on pedal. If pedal falls away under foot pressure, hydraulic system is leaking.

4. If brake pedal travels to within 1" of floorboard, brake shoes require adjustment.

5. Start engine and run to medium speed: then turn off ignition. Immediately close throttle. This builds up vacuum. Wait at least 90 seconds and then try brake action. Two or more applications should be vacuum assisted. If not, vacuum check valve is faulty or there is a leak in the vacuum system.

WARNING: DO NOT DRIVE VEHICLE UNTIL A FIRM BRAKE PEDAL IS OBTAINED!

6. Road test a vehicle in a safe area by making a brake application at about 20 mph to determine if vehicle stops evenly and quickly. If pedal has a spongy feel, hydraulic system may contain air. Bleed the system thoroughly to remove all air.

7. A properly working brake system should have a normal height brake pedal with power assist on the first application each time (no pumping required). If not, the system should be reexamined for cause of low pedal.

LIMITED WARRANTY

James Duff Inc. warrants our products to the original purchaser to be free from defects in materials and workmanship. Warranty periods begin at the date of purchase and varies by product. Shocks have a limited lifetime warranty. Headers, Radiators, Suspension Products, Power Brake Boosters and Master Cylinders have a one year warranty. Adapters and soft goods such as vinyl and rubber products have a 90 day warranty. All warranties are to the original purchaser with proof of purchase only. Such obligations under this warranty shall be limited to the repair or replacement, at JDI's discretion, of any assembly or part which upon examination by JDI proves to be defective. Any costs of removal, installation, reinstallation or freight charges are expressly excluded from this warranty. This warranty covers only manufacturers defects, and does not cover product finish or damage resulting from abuse, misuse, negligence, racing, alteration, accident or damage in transit.

All returns must be pre-authorized by JDEI and accompanied with a Return Goods Authorization Number (RGA) and a dated proof of purchase. Returns must be made within 90 days of purchase, shipped prepaid, packaged in sufficiently to prevent damage in shipment to JDI, 6609 Bronco Lane, Knoxville, TN 37921 Returns without an RGA# will be refused.

This warranty is expressly in lieu of all other warranties, expressed or implied, including the implied warranties of merchantability and fitness for use. This warranty gives you specific legal rights including other rights that vary from state to state. Some states do not allow limitations on how long an implied warranty lasts, or do not allow the exclusion of limitation of incidental or consequential damages, so the above limitations and/or exclusions may not apply to you.

INSTALLATION INSTRUCTIONS: 66-77 Bronco Power Brake Booster Master Cylinder Bleeding Instructions

WITH DUAL SYSTEMS ON MOST VEHICLES TODAY, THE PRESSURE BALL BLEEDER IS THE MOST EFFECTIVE ITEM IN REMOVING AIR FROM THE HYDRAULIC SYSTEM. IF PROPERLY CONNECTED AND OPERATED, THIS BLEEDING METHOD WILL REMOVE MORE AIR THAN ANY OTHER METHOD. IT IS HIGHLY RECOMMENDED OVER THE PEDAL PUMPING METHOD.

BENCH BLEEDING: (SEE ILLUSTRATION ON REVERSE SIDE OF PAGE) Available at most Auto Parts Stores.

1. Clamp master cylinder securely in vise. (Do not clamp bottom of cylinder where pistons travel inside bore.)
 2. Install and tighten the bleeding plugs provided as per illustration A.
 3. Fill the reservoir with NEW brake fluid that meets DOT-3 specifications.
 4. Apply master cylinder piston repeatedly. **APPLY AND RELEASE SLOWLY.** Repeat until you no longer see any air bubbles coming up through the brake fluid in the reservoir.
 5. Due to various port sizes, bleeder kits are not available for all part numbers. Units provided without kits, please refer to the bleeder ball or pedal pumping methods.
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BLEEDER BALL METHOD: Attach the proper cover to the master cylinder reservoir. Allow the pressurized fluid to enter the reservoir. Open the bleeder screws at the wheel in the following order; right rear, left rear, right front, left front. If disc brakes, it is necessary to deactivate the metering valve in order to bleed the front calipers. **NOTE:** Be sure to allow an ample amount of brake fluid to travel through each line to be sure all air is removed. **CAUTION:** Do not operate vehicle until a firm pedal is obtained.

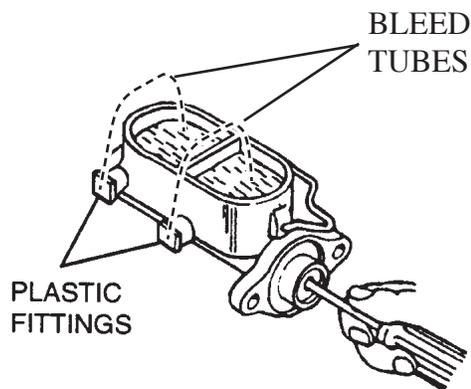
PEDAL PUMPING METHOD: Best results are achieved if the master cylinder is bench bled first. After this has been done, install the master cylinder and connect hydraulic brake lines. As someone inside applies the brake pedal **SLOWLY and holds it down**, the person outside "cracks" loose both of the brake lines. This forces air out at this point. Retighten the tube nuts *before* the brake pedal is allowed to return. Both lines should be loosened at the same time to prevent one side of the system from developing pressure and not allowing the other side of the master cylinder to completely bleed out. Repeat this procedure until a steady stream of fluid is released each time the tube nuts are loosened. Next, bleed at each wheel cylinder and caliper in succession, beginning with the wheel farthest from the master cylinder and working up to the closest one. **CAUTION:** Do not operate vehicle until a firm pedal is obtained. **WARNING:** do not allow brake fluid to spray into eyes. If this occurs, flush with water immediately.

SPECIAL NOTES

1. When bleeding disc brake systems without the aid of a pressure bleeder, more pedal pumping is required during the bleeding procedure than with drum brakes, and the fluid level in the master cylinder reservoirs should be frequently checked.
2. On some GM applications where the master cylinder is mounted on an upward angle, the rear of the vehicle must be raised. This brings the master cylinder to a level position and prevents air from being trapped. **CAUTION:** Be sure wheels of vehicle are properly blocked before raising.
3. Some late model vehicles have a split diagonal system (many front wheel drive vehicles) where one side of the master cylinder applies pressure to the right rear and left front brakes while the other side of the cylinder applies to the left rear and right front brakes. This diagonal sequence must then be followed when bleeding this type system. Also, you must wait *15 seconds* after each pedal pump to allow fluid to return properly.
4. **DO NOT REUSE OLD BRAKE FLUID!**
USE ONLY CLEAN BRAKE FLUID THAT MEETS DOT-3 MOTOR VEHICLE STANDARDS OR SAE 1703 SPECIFICATIONS.

**INSTALLATION INSTRUCTIONS:
66-77 Bronco Power Brake Booster
Master Cylinder Bench Bleeding Tips**

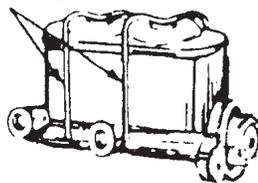
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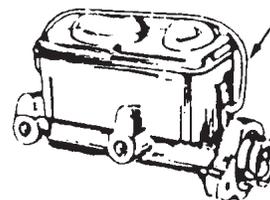
CAUTION: Be careful to avoid spraying brake fluid. Do not hold face directly above reservoirs.

B

DOUBLE BAIL WIRES

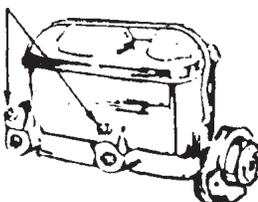


SINGLE BAIL WIRES



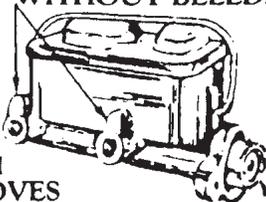
The castings of master cylinders vary by mfg. design. Units purchase for the correct year model will interchange with the original unit even though they may slightly different in appearance.

WITH BLEEDERS



WITH GROOVES

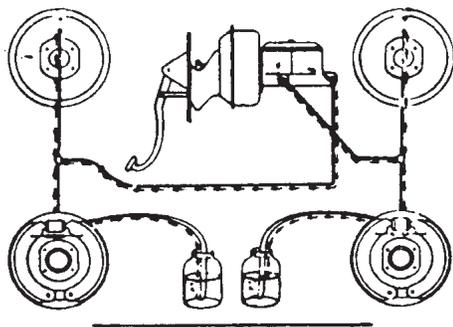
WITHOUT BLEEDERS



WITHOUT GROOVES

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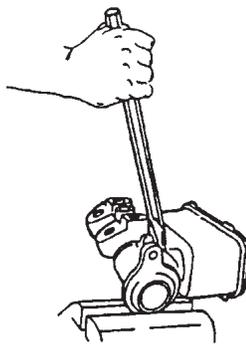
**PEDAL BLEEDING
TANDEM SYSTEMS:**



Due to the split system it is sometimes necessary to leave one bleeder screw open in the front if rear wheels are bled and vice versa. Always use bleeder screw and jar as shown to avoid air being sucked back into system.

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**TO REMOVE
PLASTIC
RESERVOIR**

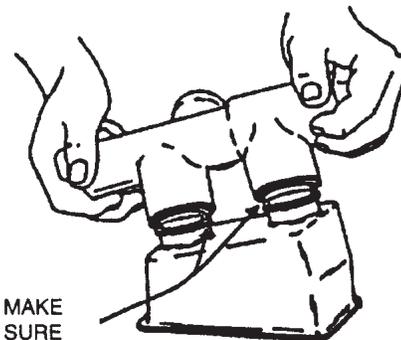


Clamp master cylinder in vise as shown. Insert prybar and lift up on end with a slow firm pressure until reservoir pulls away from the rubber seals.

**TO INSTALL PLASTIC
RESERVOIR**

PLACE RESERVOIR ON A FLAT STURDY SURFACE.

Push master cylinder on reservoir projections with a firm, even pressure, moving slowly from side to side.



MAKE SURE GROMMETS ARE IN PLACE AND RESERVOIR IS COMPLETELY INSERTED. LUBRICATE RUBBER GROMMETS WITH BRAKE FLUID.