



Single Line Brake Servo Installation Instructions

For mid-sized British cars with single line brake systems

PART # 182-290

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Notes: *A single line brake system has only one brake line exiting the master cylinder. This single line will lead to a distribution block. The distribution block will distribute the master cylinder pressure to both of the front brake lines individually and provide one more outlet for the rear brakes. The rear brake line will split again somewhere near the rear end of the car, feeding each of the rear brakes.*

Glycol based brake fluid (DOT 3 and 4) will ruin paint. Wipe up any brake fluid immediately and pour water on it to wash it off.

Glycol based brake fluid is hygroscopic and will pull moisture from the atmosphere, ruining the fluid. Make sure to use brake fluid from a new, sealed bottle. If the fluid in your car is over 18 months old, we suggest a complete fluid flush and refill.

Most older British cars use "bubble flare" on their brake lines. This brake servo unit requires 3/16" line- U.S. thread -bubble flare for the inlet and outlet ports. Aftermarket brake lines will sometimes have "universal flare" which are also suitable. These are generic instructions so it is impossible to tell which style thread and flare your vehicle uses. You will need to fabricate at least 1 (most likely 2) brake line(s) in order to complete the installation. See steps 3, 4 and 5 for more information.

This brake servo is intended to supplement a properly functioning brake system. It is not intended to "fix" any problems your brakes may have. Please make sure your brakes are in good working order before installing this servo.

It is best to use flare nut wrenches when connecting or disconnecting brake lines. Often times regular open end wrenches will result in rounded off fasteners. Make sure you have the proper sized flare nut wrenches for the fasteners on your brake lines.

Tools required:

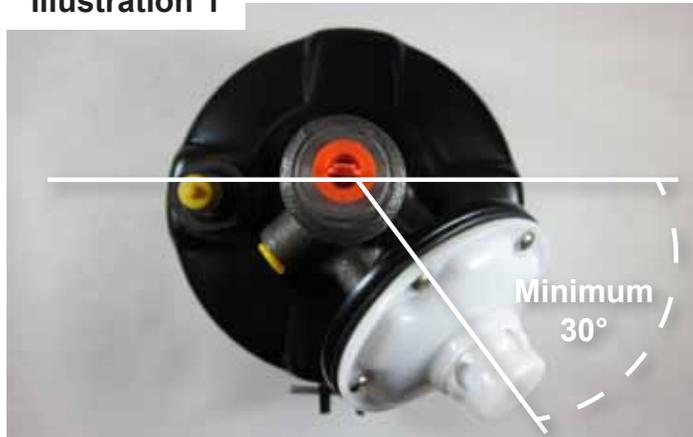
Brake flaring tool
Tubing cutter
Tubing bender
Brake fluid
Flare nut wrenches

- 1) Find a location for the brake servo keeping in mind the following:
 - a. It must be mounted to the body or the frame of the car. Do not mount the servo to the engine, transmission or any suspension components.
 - b. A brake line from the master cylinder to the servo will need to be run. Another brake line from the servo to the distribution block will need to be run. A vacuum line from the servo to the intake manifold will need to be run. The engine bay is a good place because it is close to these components making plumbing the servo and bleeding the brake system easier.
 - c. Make sure its location will allow the surrounding components to function properly, i.e. the hood will close, the engine can rock on the engine mounts unimpeded, the wheels will turn full lock to lock and cycle all the way through the suspension travel, ect.
 - d. Do not mount the servo or brake lines within 6 inches of any exhaust pipe or manifold.
 - e. For bleeding purposes, the snout of the servo (output port) must be positioned up hill from horizontal 25°-45°. Also, the air valve must be at least 30° below the center line of the servo. If not, the brake system may be impossible to bleed.
 - f. The servo can be mounted higher or lower than the master cylinder. However, it is best to keep the height difference to a minimum for ease of bleeding the system.

Installation Instructions



Illustration 1



- 2) Once a location has been determined, mount the servo. You can use the three studs on the back of the servo to mount directly to the body or you can fabricate a bracket in-between. Note the studs are not equal distance from each other. The studs are 5/16"-24.



Illustration 2

You can also fabricate a support bracket for the front

of the unit to insure it stays put. Use a thin strap of metal and form it around the snout of the servo. Drill holes for screws and you now have an attachment point.



Illustration 2 cont.



- 3) After the servo is securely bolted in place, run the master cylinder to servo brake line. Find the brake line that exits the brake master cylinder and eventually makes its way to the distribution block. Disconnect the master to distribution block brake line. Depending on where you mounted the servo, you may be able to use this existing brake line to connect to the brake servo inlet port. If the line will reach, make the connection so the original master cylinder's output line is now plumbed in to the servo inlet port. Use a tubing bender or you risk kinking the line. If the existing line will not reach, you will need to fabricate a new brake line to make the connection. See step 5 for brake line fabrication.



Illustration 3

- 4) Next run the servo to distribution block brake line. Once again, you may be able to use the existing master to distribution block line if you did not use it in the previous step and it will reach. If the line can be used, make the connection from the brake servo outlet port, to the distribution block. If not, you will need to fabricate a brake line to make the connection. See step 5 for brake line fabrication.
- 5) The easiest way to get a brake line if you do not have access to a brake flaring tool is at your local auto parts store. Most auto parts store carry a selection of straight brake lines ranging anywhere from 8 inches to 5 feet and a variety of flares and threads. Remember the servo requires 3/16" line – U.S. thread- bubble flare. If you are not sure what your vehicle is, bring the brake line from the vehicle to the auto parts store and they can help you determine what thread and flare to use. You will need to pick a length of brake line close to what you need and bend it to fit your application. A little longer than you need is okay because you can make extra bends to effectively shorten the line. You will need a tubing bender to avoid kinking the line. Inexpensive brake flaring tools often times do not work well and may cause leaks. Expensive brake flaring tools work well but are often cost prohibitive. You may be able to rent a flaring tool and a tubing bender from an auto parts store.
- 6) Run a 3/8" PCV rated hose from the intake manifold to the vacuum port on the servo. If your intake manifold does not have an orifice suitable for a 3/8" fitting, you will need to remove the manifold from the engine to drill and tap it for a suitable fitting. A smaller diameter fitting may result in poor servo performance. A larger fitting can be stepped down to 3/8".
- 7) Bleed the brake system. You will need to bleed the entire brake system to expel any trapped air. When installing a master cylinder it is usually a good idea to "bench bleed" it before installation. This servo is essentially another master cylinder and since bench bleeding is not an easy task, you will need to bleed it in car. Start by cracking the inlet line of the servo (line from master) until fluid flows out when pedal is depressed. Once fluid is at this point, move onto the outlet of the servo (to distribution block). Once fluid has reached this point bleed the brakes as normal. As a general rule, start from the caliper or wheel cylinder farthest from the master cylinder and work your way to the closest.
- 8) Test the brake system. Before you go out driving make sure there are no fluid leaks and the reservoir is filled to proper height with new brake fluid. With the engine off, the brake pedal should be firm and high just as before the servo was installed. Start the engine and the pedal should be much easier to push but it should not sink to the floor. After shutting the engine off, there should be at least one more assisted pedal stroke.
- 9) If everything checks out in the last step, go for a slow 5mph test drive on a level surface. Once you have determined the brakes are functioning properly go on a normal road test to get a feel for the new assistance provided by the servo. Make sure to go over all your work once again to assure no leaks or interference between new and old parts. Happy motoring!