

1965-66 MUSTANG DISC BRAKES
PROPORTIONING VALVE RUBBER KIT

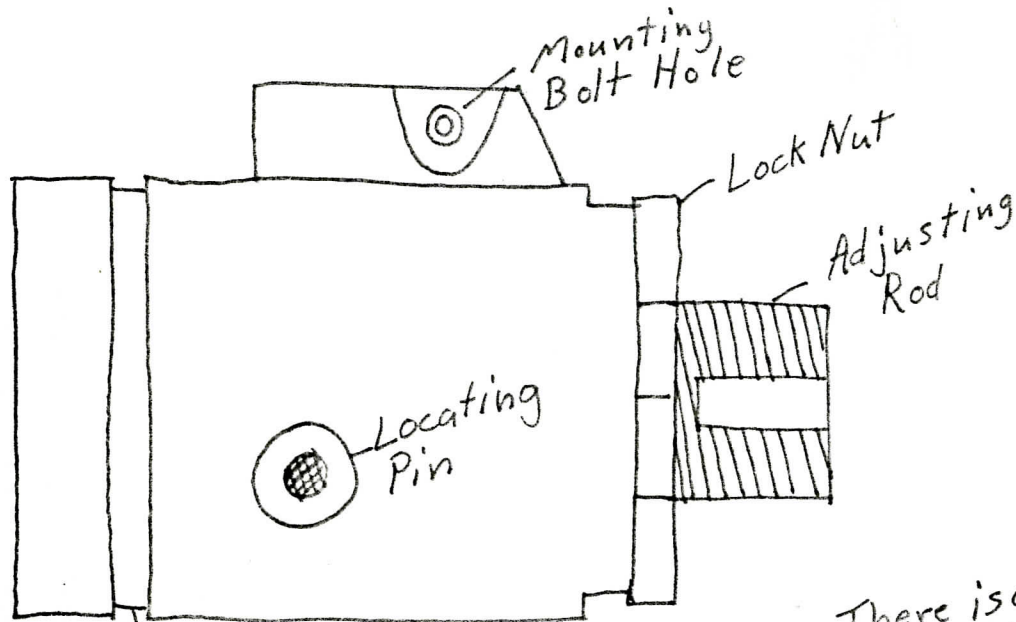
2B091-1K

DIRECTIONS

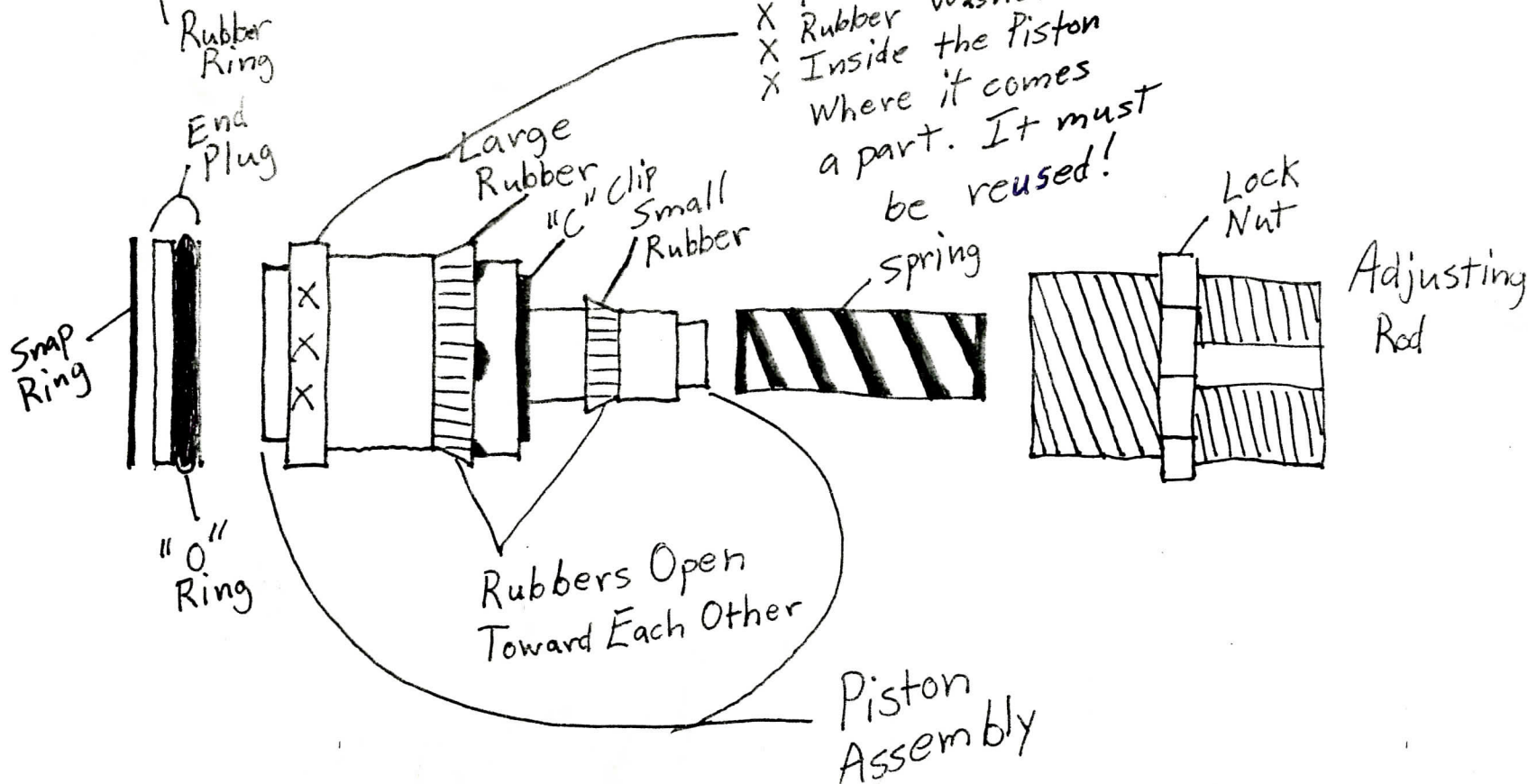
1. Remove the valve from the car.
2. Clean the outside before disassembly.
3. Back out the adjusting rod completely from the casting after loosening the lock nut.
4. Remove the snap ring from the plug end. If snap ring needs replaced, it can be matched at any parts house.
5. Put the valve casting in a vise with the adjusting end up.
6. With a wooden dowel or soft rod placed on the end of the piston, gently tap the end plug and piston assembly out.

7. Clean all parts.
8. Hone the casting inner bore as necessary.
9. Remove the "C" clip from the piston assy.
10. Pull the piston into two sections.
11. Carefully remove the flat rubber washer that fits at point AAAAA on the illustration. It must be reused.
12. Remove the old cups and install the new ones being careful to place them in the same direction as the old. Lubricate generously with brake fluid during the installation. It might be necessary to remove the seal rings from inside the new cups prior to installation. This will allow the new cups to stretch on easier. After the cups are on, then replace the seal rings inside the cups.
13. Place the rubber washer AAAAA back in place and reassemble the two piston parts into one.
14. Reinstall the "C" clip and squeeze it closed in its groove.
15. Generously lube the casting bore and piston with brake fluid.

16. Push the piston into the casting from the plug end, being very careful to align it properly and to not tear the cups.
17. Replace the end plug with the new "O" ring on it and install the snap ring to hold it.
18. Install the spring inside the adjusting rod and screw the rod into the casting being careful to place the spring over the nipple on the end of the piston.
19. Turn in the adjusting rod and secure it with the lock nut. A basic adjustment would be about 1 1/4 threads showing outside the lock nut on the flat side of the adjusting rod with the flat side up.
*** It is suggested that you count the threads on your unit before disassembly and to reassemble it the same.
20. Reinstall the valve on the car and bleed the brakes as necessary.
*** If the flat rubber washer in the groove around the outside of the casting is unusable, two "O" rings will do the job.
*** THE SUCCESS OF THIS REBUILD DEPENDS UPON THE SKILL OF THE REBUILDER AND THE CONDITION OF THE CYLINDER BORE AND PISTON PARTS.

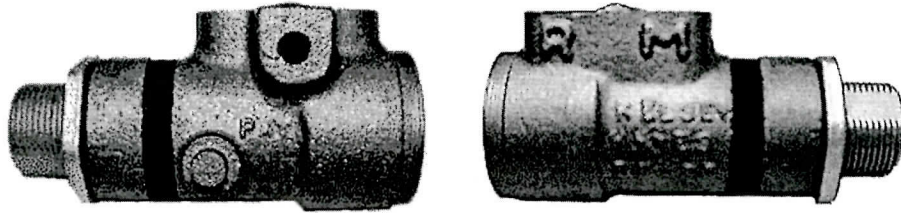


X There is a flat
 X Rubber Washer
 X Inside the Piston
 X Where it comes
 X a part. It must
 X be reused!



1965-1966 Disc Brake Proportioning Valve

PAGE 1



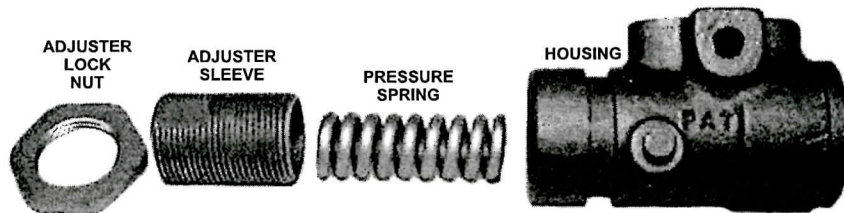
This section deals with the *Proportioning Valve* used primarily on the 1965 & 1966 Ford Mustangs with *Front Disc Brakes*. It is mounted on the drivers side rear fender apron, between the shock tower and the firewall, under the hood hinge. This is not to be confused with the *Distribution Block*, a brass piece that distributes the fluid coming from the master cylinder.

A Proportioning Valve is only found on cars with *disc brakes*. It is spliced in the brake line running from the master cylinder to the rear wheels. Its purpose is to dampen and reduce brake pressure going to the rear brakes.

Because front disc brakes are not self-energizing like drum brakes, they require more pressure to work properly. Also, front brakes do most of the stopping and thus require more pressure. Without a Proportioning Valve in the system, both the front and rear brakes receive the same pressure. This will cause the rear brakes to lock up long before the front brakes are engaged enough to stop the car. The Proportioning Valve allows full pressure to the front brakes and dampens the pressure to the rear brakes, allowing the correct pressure so both can stop equally. The valve is adjustable to allow for differences in front-to-rear brake pressure due to variations of weight distribution, tire size and compounds, brake pad/shoe material and brake fade.

DISCLAIMER: This section deals with the Proportioning Valve made by Kelsey-Hayes as shown above. I have heard that K-H did not consider the valve to be a rebuildable unit since it was constructed with high tolerances by professionals. Indeed, Ford never sold rebuild kits or individual parts for this valve or ever offered a breakdown of it in any shop manual. Recently two different seal kits have become available to rebuild this valve but caution should be observed. Due to differences in valves, production and accumulated wear and corrosion often present in these valves, a successful rebuild is not guaranteed. This section shows the teardown and reassembly of a K-H valve but in no way represents this as a guaranteed or foolproof rebuild. The success of the rebuild lies with the quality of the part being rebuilt, the parts used and the skill of the mechanic. The author of this article in no way implies or accepts any responsibility as to the use of this article.

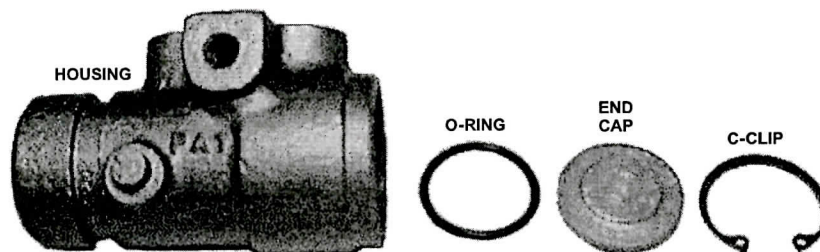
Please note: This webpage is the result of several rebuilds that I did for my own cars. In researching for the rebuild, I found that there was virtually no pictures or information available on these valves. I built this webpage so that others would have as much information as possible if they decided to undertake their own rebuild. I do not do any rebuilding of these valves for others, nor do I sell any of the parts and kits to rebuild them.



STEP 1: Measure the height of the *adjuster sleeve* from where it comes out of the *housing*. You will want to return the sleeve to this height

on reassembly to get a basic adjustment.

STEP 2: Remove *adjuster lock nut*. Unscrew *adjuster sleeve* from housing and remove *pressure spring*.



STEP 3: Remove *C-Clip*, *End Cap* and *O-Ring*.

STEP 4: Working from other end, push out and remove the inner piston assemblies.

NOTE: There are two different versions of the K-H Proportioning Valve. *Style "A"* is the "later" version and the most common. It uses a one-piece inner piston assembly. *Style "B"* is the "earlier" version and has a removable washer retained by a special bolt. Each style uses a different pressure spring, the inside diameter being different depending on whether it fits over the larger end of *Style "A"* or the head of the special bolt on the *Style "B"* (smaller). The housings are also different due to the different inside diameters and therefore require different seal kits.



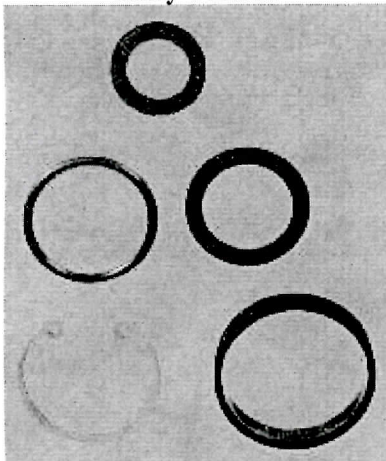
STYLE "A"
Later Version



STYLE "B"
Early Version

You must determine which style of valve you have in order to get the correct seal kit. You must then compare the seals in the kit and the old seals to make sure they are of the correct diameters for your valve.

STYLE "B" KIT
Early Version



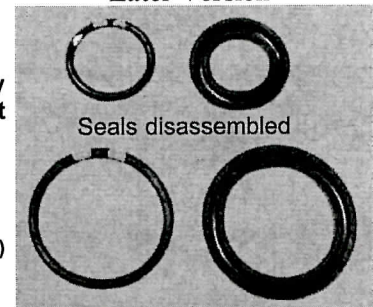
Sold by
National Parts Depot

Part # 2B091-BK

\$27.95 (8/1/08)

Also sold by
Scott Drake Dealers

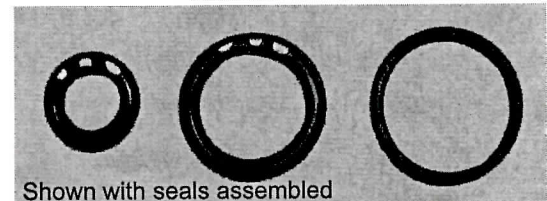
STYLE "A" KIT
Later Version



Sold by
National Parts Depot

Part # 2B091-1K

\$14.95 (8/1/08)



Shown with seals assembled
This seal kit uses O-rings inside of standard seals. The original seals this kit replaces may not have had this style of seal from the factory

You must check the condition of the bores inside the *valve housing* because they are often pitted from rust and corrosion. Surface rust can be polished out with a ScotchBrite pad. In some instances, a light touch with a brake wheel cylinder hone will help clean them up. If the bores are pitted, the seals will leak or blow-out. It is possible to have them "sleeved" to return them to new condition. This operation involves boring out the inside of the housing and pressing in a metal liner which is then machined to the original factory specifications.

One person that is familiar with the Kelsey-Hayes valve is Mark Frappier. He specializes in re-sleeving wheel cylinders and master cylinders, and so is experienced in the operation. He will sleeve the *valve housing* with stainless steel sleeves for about \$80.00 plus \$10 return shipping (as of Dec 2008). This returns them to original specifications and the stainless inserts make the unit more impervious to corrosion than the original unit. He can be contacted at:

Mark Frappier
82 Mountainview Drive
Agawam, MA 01001
800-528-5235