Avoid one of the most common restoration errors with our complete guide to Mopar brake master cylinders 1967-1974.

About the Author

Brad Schroeder is a long time Mopar guy. His personal preference leans towards Challengers, with a '70 ragtop, and a T/A (that he’s owned since 1978) currently filling his Midwest garage. Brad is a Senior Product Engineer for one of the largest brake outfits in the world: Brake Parts, Inc, who we best know as the manufacturer of Raybestos and NAPA’s United brands. Brad has long been frustrated by the eyesores that pass as "correct" master cylinders in muscle era Mopars, so, after years of research, he graciously hooked us up with this article, which will be the reference for decades to come.

-R.E.

Story and Photos By
Brad Schroeder

As the Mopar muscle car restoration hobby has evolved over the years it seems as though almost every part, nut and bolt of the cars of the era has been thoroughly studied and documented, with one glaring exception: brake master cylinders. As a result, when admiring show cars and restored cars featured in magazine articles you’ll no doubt see a hodge-podge of different master cylinders on otherwise similar cars.

Unrestored cars, typically the most invaluable source of reference data, are also often not accurate in this area. Standard non-mineral based brake fluid is hygroscopic and tends to absorb moisture from the air, which can cause the fluid level and pressure to drop over time, leading to poor brake performance.

1. Drum brake master cylinders can be identified by their equal size front/rear reservoir areas (left). Disc brake master cylinder (right) has one reservoir much larger than the other. This assures ample fluid even as pads wear and caliper pistons move out.
2. The most common master cylinder seen on muscle-era Mopars is the 2808577 (same as 2808599), which was installed on hundreds of thousands of cars and light trucks with 4-wheel drum brakes from 1967 through 1970. Note that the cover is held in place by a bolt-on retainer. There's no bail wire.

3. Disc brake-equipped B-bodies from 1967 through 1969 had one of two styles of master cylinders. PIN 2883058, shown here, has outlet ports on the engine side of the casting. PIN 2944477 for 1970 B Body (except Hemi) is the same except for some minor internal (piston stroke) differences. Note overall narrowness, the Bendix logo, casting number (2226821), and piston retainer screw visible on the bottom.

meaning it absorbs water, and over time enough water can be absorbed to cause rust in internal brake system components. Even a low-mileage unrestored car that has been stored for 30 years may have had its master cylinder fail and then replaced with a non-correct part. The purpose of this article is to help to identify correct original

4. The second style of '67-'69 B-body disc brake master cylinder is the 2881868 (same as 2944376). This unit has outlets located on the fender side of the casting. Note date code and manufacturing info metal-stamped into the casting (circled, see photo 7 also). Casting number (bottom) on these is 2225621.

5. Disc brake master cylinders manufactured prior to mid-1969 have a bail wire tag which contains date code information. This example, reading "9043", was manufactured on the 43rd day of 1969.

Mopar musclecars of this era had one of two types of braking system: either 4-wheel drum brakes, or front disc brakes and drum brakes in the rear. These two types of brake systems use different master cylinder designs.

Four-wheel drum systems use a master cylinder with equal-sized front and rear fluid chambers. They usually also have internal residual check valves in the two outlets where the brake lines thread in, in order to maintain a small amount of pressure in the system when the brakes are not applied. This residual pressure keep the lip seals of the wheel cylinders' internal cups in position to prevent brake fluid from leaking past the
cups and air from being drawn back into the
wheel cylinders when pedal pressure is relaxed.
(Residual pressure valves were discontinued
soon after this period, rendered superfluous by
a wheel cylinder redesign.)

Chrysler drum brake master cylinders from
this era were manufactured by the Bendix
Corporation. The Chrysler part numbers and
casting numbers for drum brake master
cylinders are shown in Table 1. The casting
numbers can be found on the bottom of the
casting. Through 1970, drum brake cylinder
bodies were bare metal, lightly coated with a
rust preventative, and had a yellow zinc
dichromate plated cap. In most cases this was
the same for ’71-’72 drum brake cylinders.
though some NOS examples of these have a
dull dark gray phosphate coating on the body
and filler caps.

A disc brake master cylinder can be
identified by the size of the fluid reservoir
chambers. The chamber that supplies the fluid
to the front brake circuit is much larger than
that of the other chamber. This is because the
pistons in the disc brake caliper displace
further out of their housing as the brake pads
wear, and more fluid is displaced from the
cylinder during this process than is needed to
displace the pistons of the wheel cylinder and
prevent the compensating port (in the master)
from sucking air.

This is why it is very important to never use
a drum brake master cylinder on a car with disc
brakes. As the brake pads wear, the fluid level
can lower in the reservoir to the point where air
is ingested into the system, resulting in a very
soft pedal or even brake failure. Having a drum
brake cylinder on a disc brake car looks bad to
someone with a trained eye, sure, but seeing
someone’s beautiful Mopar rear end another
car at a traffic light because of this error looks
bad to everyone.

The original equipment manufacturer for all
disc brake master cylinders during this era was
also Bendix. Bendix painted most of their disc
brake master cylinders gloss black well in to
the ’70s. The filter caps and bail wires had
been installed prior to this painting process.
That’s right, those shiny gold filler caps may
look nice, but they are never concours correct
for a ’67-’74 Mopar with disc brakes. Like in the
case of drum brake master cylinders, a few
NOS examples from the early ’70s have been
observed with the dark gray phosphate coating.
The Chrysler part numbers and casting
numbers for disc brake applications are shown
in Table 2. (page 84)

Identifying master cylinders not in their
original Chrysler boxes can be a challenge as
the Chrysler part number was not cast or
stamped on the part. Starting sometime in
1971, many master cylinders included a
stamped metal tag attached to the filler cap
bail wire which included the last 4 numbers of
the Chrysler part number. For those parts that
do not have such a tag the Bendix casting
number located on the bottom of the casting is
the best guide in identification.

Sometimes, the same casting number was
used in more than one master cylinder. In the
examples covered here, there could

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be minor differences in the internal pistons. In some cases, there was no apparent difference and there would appear to have been several Chrysler part numbers assigned to the same part.

For those doing factory-correct restorations, there is an alternative to the fun and financial hardship that comes from trying to track down NOS master cylinders. Don’t throwaway those old original equipment cores. Used original master cylinders can usually be rebuilt and restored. Aftermarket kits are available to rebuild original master cylinders. These provide new internal components such as rubber cups and seals to replace those that have worn out.

If the cylinder bore is not badly pitted from rust, it can be lightly honed. Cylinders that have pitted bores, that won't clean up at a few thousandths oversize, can be professionally resleeved with stainless steel or brass and no show judge will ever see this repair—100% stock external appearance will be retained.

7. Starting sometime in 1969, date code and manufacturing information was stamped into the fender side of disc brake castings. This master cylinder coded “0 100” was assembled on the 100th day of 1970.

We found two companies able to perform this operation, both with good reputations—see sources. It is best to deal directly with these specialty companies. Sad stories exist of people sending rare original parts in through local auto parts stores for resleeving, only to receive back a different equivalent rebuilt aftermarket cylinder. Companies such as the

<table>
<thead>
<tr>
<th>Chrysler Part No.</th>
<th>Bore Diameter</th>
<th>Casting No.</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2888600</td>
<td>1&quot;</td>
<td>2225541</td>
<td>'67-'70 A Body Power and Manual</td>
</tr>
<tr>
<td>2888170</td>
<td>1-1/8&quot;</td>
<td>2226811</td>
<td>'67-'69 C Body</td>
</tr>
<tr>
<td>28881868</td>
<td>1-1/8&quot;</td>
<td>2225621</td>
<td>'67 B Body All w/426 Hemi</td>
</tr>
<tr>
<td>2943476</td>
<td>1-1/8&quot;</td>
<td>2226821</td>
<td>'68-'69 B Body except 426 Hemi</td>
</tr>
<tr>
<td>2963058</td>
<td>1-1/8&quot;</td>
<td>2226821</td>
<td>'69-'70 B Body except 426 Hemi</td>
</tr>
<tr>
<td>2944435</td>
<td>1&quot;</td>
<td>2229171</td>
<td>'70 E Body except 426 Hemi</td>
</tr>
<tr>
<td>2944476</td>
<td>1-1/8&quot;</td>
<td>2229191</td>
<td>'70-71 B Body with 426 Hemi</td>
</tr>
<tr>
<td>2944477</td>
<td>1-1/8&quot;</td>
<td>2226821</td>
<td>'70 B Body except 426 Hemi</td>
</tr>
<tr>
<td>2944479 (note 2)</td>
<td>1-1/8&quot;</td>
<td>2225621</td>
<td>'70 B Body Taxi (manual)</td>
</tr>
<tr>
<td>3461176</td>
<td>1-1/32&quot;</td>
<td>3461187</td>
<td>'71-'75 B Body except 426 Hemi or manual brakes</td>
</tr>
<tr>
<td>3461178 (note 1)</td>
<td>1-1/32&quot;</td>
<td>3461187</td>
<td>'71-'74 A Body except manual</td>
</tr>
<tr>
<td>3580184</td>
<td>1&quot;</td>
<td>2229271</td>
<td>'71-'75 B Body manual brakes</td>
</tr>
</tbody>
</table>

Note: Master cylinders with casting number 2225621 have outlets on fender side. Master cylinders with casting number 2226821 have outlets on engine side. All master cylinder numbers with the same casting number are the same externally and have same bore diameter. There are minor differences internally with pistons or in some cases no internal differences. They should be interchangeable except (2). (1) Identical to Chrysler 3461176 except has minor stroke (piston) travel difference. (2) Has 4 dog point mounting studs pressed in flange.
8. In 1970 disc-brake Challengers and Barracudas (except Hemi) used Chrysler part number 2944453. Casting number was 2229171.

9. Installed originally on the less than 1000 Hemi B- and E-bodies in '70 and '71 equipped with disc brakes, the rarest Mopar master cylinder is the 2944476. It is very similar to the 2944453 but can be identified by the raised boss and retaining screw on the bottom of the casting, and also by the casting number (2229191). If you need one of these, expect to pay big bucks.

10. The most common disc brake master cylinder is the 3461176, which was installed on B-, C-, and E-body cars from 1971 through 1975. 3461178, which was installed on many A-bodies, uses the same casting and is identical other than minor internal piston stroke differences. Note that there's no piston retainer screw or boss. '75-up masters were similar to this, but a tad larger-until the changeover to aluminum 2-bolt units that began in 1979.

11. The 3461184 was installed on 1971-1972 B- and E-bodies with 4-wheel drums. Thankfully, starting in 1971, many master cylinders came with a tag on the bail wire which included the last 4 digits of the Chrysler part number. This style master cylinder was used as a semi universal drum replacement by the aftermarket, so it's a common (and obvious) goof to see it installed on earlier cars.

ones listed on page 85 will repair and return the part that you sent them, not give you an "equivalent" part out of their inventory.

Rare brake components installed on vehicles can be maintained in several ways. Many people use silicone (DOT 5) brake fluid in their classic cars because silicone brake fluid does not absorb water. However, water can still get into the system, and since it cannot be absorbed by the silicone fluid, it can collect in pockets where it can cause corrosion.

although the advantages of silicone still outweigh the disadvantages by a wide margin. An alternative preventive measure is to use conventional DOT 3 or 4 brake fluid and change it at regular intervals. This is something that should be done in a car whether it is your daily driver or a never driven trailer queen. Performing this simple maintenance task can dramatically increase the life of hydraulic brake components.

SOURCES:
Brake & Equipment Warehouse, Inc.
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