



## Disc Brake conversion on early drum brake SPRIDGETS

A properly set up Spridget disc brake conversion will require the right components.

It has been a customary practice to bolt on spindles and hubs from later Spridgets, but the hydraulic components mistakenly remain unchanged. While in some cases this can be made to work, it does not work the way the system was originally designed. This discussion does not attempt to cover all the requirements or possibilities; it is just intended to focus on the master cylinder issue. I will cover other factors in a separate discussion. [Go to rear brakes](#)

When disc brakes were first fitted to the Sprite and Midget (HAN7-24732, GAN2-16184) in September '62 along with the introduction of the 1098cc engine, both the master cylinder bores were resized to 3/4" down from 7/8". In addition the hydraulic piston was slightly shortened along with some other modifications, including a shorter pushrod. These tandem master cylinders were used until 1967 when separate brake and clutch master cylinders were introduced. Later changes included a dual line brake master cylinder.

For those who do not wish to modify the footwell, pedal box and pedals to accept the later system, the best solution is to install a 3/4" bore master cylinder from a disc brake car. Externally, it appears identical and is a straight bolt into the original pedal box. Unfortunately, these 3/4" bore units seem to be scarce and many have been modified with oversize Roadstar pistons, for which seals are no longer available.

The only solution then is to resize (sleeve) either a 7/8" bore MC or the oversized 3/4" Roadstar unit to the correct original size to accept original seals. Unfortunately, 3/4" bore master cylinders and original pistons are no longer available.

For this reason, I have been working with an expert in this field to reproduce the correct pistons along with a solution to the pushrod issue. Re-sleeving the original style master cylinder with the correct seals and pistons will greatly improve and simplify installing the disc brake conversion. You may choose to do one or both bores. So, your only additional cost is the replacement piston. *Keep in mind:* combining 3/4" and 7/8" seals will require two seal kits as kits come in pairs.

Below are a couple pictures to clarify the differences.

Since a small batch of these pistons will initially be made, let me know if you want to be included in either having one or more reserved for you (regardless whether you want the sleeving done now or later).

Contact [me](#) for more information.

Thanks for your interest.

Gerard

Various master cylinder pistons., pictured below.



Original 7/8" piston. (far left) / Roadstar 7/8" and 3/4" (center) / Original 3/4" piston (far right)

Note the Roadstar pistons have no seal locating rib present and that outside diameter is approximately .025" dia. larger than stock piston. This is the case for both 7/8" and 3/4" Roadstar pistons.

Seals for the Roadstar are NLA and will render a cylinder unusable without being sleeved back to either 7/8" or 3/4 " bore.



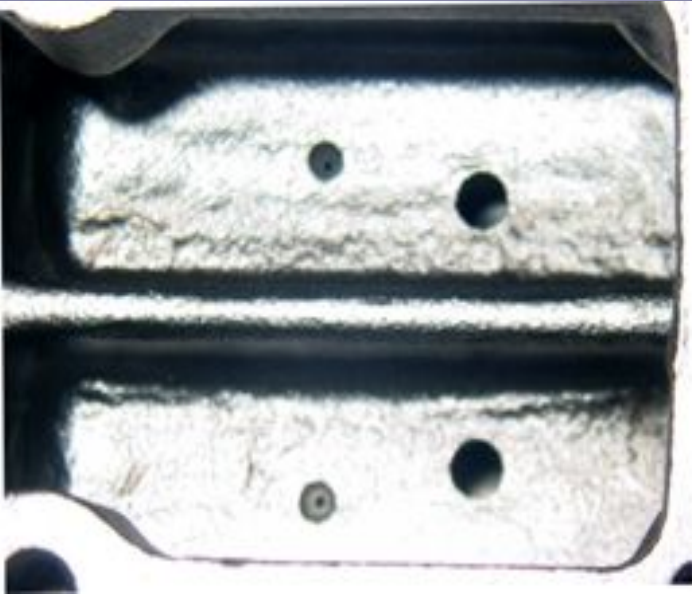
Shorter pushrod used on disc brake master cylinders

Appropriate length pushrods are needed for your application.

New Push-rod (below)



Prototype piston (pictured below)



Ports (above)

At first glance, it might seem a simple thing just to make 3/4" pistons, but the situation is a little more complicated. In addition to the obvious difference in diameter, there are two other important differences. The 3/4" pistons are about 0.050" shorter, and the pushrod socket is about 1/2" shallower than the 7/8" pistons. The fluid ports in the bottom of the reservoir of the 3/4" casting are drilled to match the shorter piston length, and the pushrods used in the later cars are 1/2" shorter as well.

Below: combination 7/8" and 3/4" bores





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Final product anodized, now ready (left).

Cad plated master cylinders (below)



## About Residual vs Restrictor Valves

I hear a lot of discussion about residual valves and there seems to be a lot of misunderstanding and confusion, as well as incorrect terminology about what a residual valve is and when they are used. A residual valve will maintain a certain pressure for a sustained period of time. A restrictor valve is used to sustain pressure only momentarily, and then let pressure equalize.



In the case of these tandem master cylinder Sprites and Midgets, the early 7/8" MC for drum applications uses a residual valve, while the 3/4" disc brake master cylinders use a restrictor valve. A residual valve left in place on a disc brake application will maintain too much pressure for the disc brakes and will keep the pads in contact with the rotors. This will cause heat build up and premature wear of the pads. Though the 7/8" MC can and should be modified to use a restrictor valve, this is another good reason to use the correct master cylinder for your disc brake conversion.



[Principles of Hydraulics Explained](#)

[Footnote regarding using silicon brake](#)

[2007 Disc brake article by John E Davies \(appeared in Mascot and Marque One](#)

[Part 2](#)

[Tech Tips](#)

[Go to rear brakes](#)