

Corvette C4 brakes on 1st gen

One important component in a Pro Touring car is good brakes. Here you will get information on how it can be done.

I started last fall ('03) a project to convert my '69 Z/28 to a Pro-touring car. I had checked a few web sites and forums to find that it is quite simple to convert the first gen. Camaro to Corvette C4 brakes.

Brake kits

When I started the survey there wasn't that many sources for kits for this type of conversion. The only one really was Baer brakes who has different kits using calipers from the Australian manufacturer PBR, they are the supplier to GM and the PBR calipers are used on Corvettes and Camaros. One problem for me was the cost for the Baer kits.

How ever during my project several small companies has started to market kits that uses the PBR components to a much lower price than Baer, worth mentioning here is Touring Classics and Speed Tech Performance. One alternative for the front wheels is the C5/Camaro Z/28 4th gen. calipers, also from PBR.

What parts do you need?

The first generation Camaro has a small difference between the spindles if it has drum brakes or discs, the best suited for this conversion is the drum brake spindles. They are quite easy to find and are not that expensive.

The C4 Corvette had two different sizes on the rotors, twelve or thirteen inches diameter. With the twelve inch rotors it is possible with some rims to fit 16 inch wheels on this combination, otherwise you must have 17 inch wheels. Rotor discs are found from many sources. Note that the calipers are the same for the both rotors, what differs is the cradle for the caliper.

For the rear wheels I choosed calipers from the C4 or Camaro '93-'97 with emergency brake. It is not the best system but it will do. GM changed the emergency brakes in '98. Since GM has had the same distance between the axle flange and the brake shield over all the years everything will fit. What you need is the caliper, bracket and rotor.

I bought the calipers as rebuilt ones and got them to a lower cost than new ones. With the rebuilt ones you get the cradle, if you buy new ones the cradle is another part number.

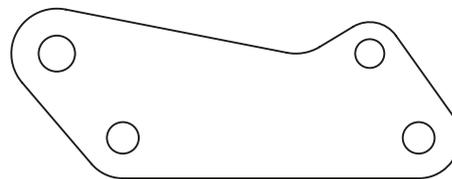
Another detail is the brake hoses, since the rear calipers are the floating type you will need hoses for the too. One problem is that the calipers have M10x1 and the

lines are 3/8" we need something special here. I found hoses at Touring Classics that are braided with all the necessary couplings to make this fit. They also have the emergency brake cables that will be needed here. The cables on the '69 will not fit as they are. You can probably find cables and hoses from other sources as well.

Assembly and fabricating

For the front wheel brakes a bracket has to be fabricated from 5mm steel plate or 6mm aircraft grade aluminum. The bracket was laser cut from a template. There are a few templates on the web, I used one of those but made it a little sleeker.

The hubs has to be turned down slightly so that the rotors fit over the hub the same goes for the axle flanges in the rear. On the spindles you have to cut down the upper part so that the bracket is in perfect angle to the axle, see the drawing. It is important that this is straight otherwise you will get binding. Now you can fit the calipers and brackets to the spindle. If you are lucky everything will fit. Apparently there is some differences here and in some cases you have to mill away some on the cradles to align the calipers over the rotor. Now you can assemble everything.



Rearwheels

I bought the GM original brackets for the rear brakes. They fit as they come directly on the 12-bolt axle. Unfortunately the calipers come in a not so good position then. The emergency brake hardware will interfere with the leaf springs. Remember that the 4-TH generation Camaro has coil springs so it works there.



This show how the caliper comes with the standard holes in the bracket. Note how it will interfere with the leafspring. The 4th gens don't have this interference.

To make it better I drilled new holes and countersunk them to make the caliper sit in a 2 a clock position. Then the emergency hardware and cable will go just over the leaf spring. On the '69 Camaro with the staggered shocks you would use two right side brackets to avoid interference with the shocks. I choosed another approach where I mounted the shocks on the inside of the springs instead. Doing so I could have the calipers facing backward on both sides which looks more consistent I think.



With new holes it will be much better

You can not mount the caliper much higher than the two a clock position because it might hit the framerrails when the suspensions compacts during driving.

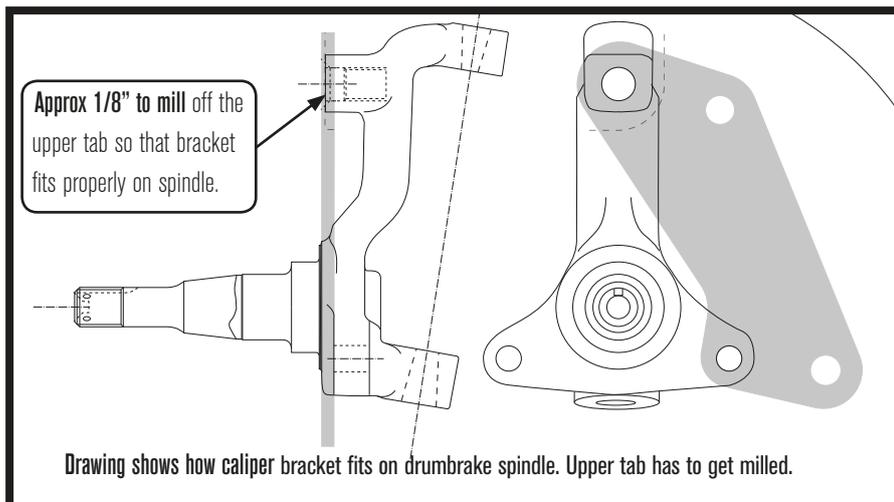


Brackets for the calipers can also be fabricated from steel plates for a sleeker look. If doing so it is very important that the caliper gets centered over the rotor.

Frontwheel brakes

In the front I got the impressive 13" rotors, they where found on the Corvette ZR1 (RPO J55) I had them grooved for better appearance.

In the front there is a little bit more to do to get it together than in the back. But when the brackets are done, the cradle and spindle milled it is just to bolt it together and check the clearance to the wheels.



Mastercylinder

For these calipers to get the right amount of brake fluid and pressure it is important to choose the correct master cylinder. The Camara 1LE from 1989 had the same system with calipers and all so that mas-



ter cylinder can be used. A better choice is how ever the cylinder from the 1988 S-10 pickup with manual brakes. The reason for the S-10 cylinder is that it has it lines routed to the left instead of the Camaros right side. The S-10 don't have



metric fittings so it can be easier to find fittings for it. The S-10 fluid reservoir is straight so you have to get one from a Camaro to be able to close the hood.

The part of the master cylinder that goes in to the booster has to be turned down approximately 1/8" to fit. The push rod might also need to be shortened because there are two different types on the '69 Camaro. If you have the shallow master cylinder, usually found on cars with drum brakes the push rod will fit, otherwise you have to find a short one or cut the one you have. When you do that it is important that it is cut to the correct length so that the master cylinder retracts properly but not with any lash between the push rod and piston. If the piston doesn't retract it can be difficult to refill the cylinder and brake failure can occur.

The original distribution block can still be used to route the lines however one thing of importance is the routing from the master cylinder. The rear outlet should go to the front brakes and the front outlet to the rear.

You will also need a proportioning valve to the rear brakes to adjust the balance between front and rear. I bought mine from Summit but the same valve can be found at other places. The one disc brake cars have has to be removed. To adjust it you have to be careful. I did it by turning it so that it had maximum balance to the rear and then I adjusted it back until the rear brakes didn't lockup. Be careful doing that because driving fast and locking up the rear wheels can be dangerous.

Be aware of that the brakes are important for your cars safety, use your own sense and judgement. I will not take responsibility for anything that happens with your car or brakes.

Jan Subr



Resources on the Internet

Torker www.geocities.com/torkerscamaro/torker.html

David Pozzi ourworld.compuserve.com/homepages/David_Pozzi/first_gen_suspension.htm

C4 Brakes web.tampabay.rr.com/68ss/frontdiscpage.htm