

Project 300F Front Brake Conversion

By Merle Wolfer

I've got a 300F that is a driver now and will be restored at some future time. Along the way I'm going to rebuild some of its systems with the plan that some of the hard work will be done before I get to the serious stuff. Also it will make the car more dependable when I do take it out for that casual cruise-in or show.

The current project is the brakes. When the 300F was new it was criticized by road test jockeys who said that the car would go a lot better than it would stop. I agree with that assessment but I want to stay with drum brakes to keep the original look.

By 1961 Chrysler had decided that the cars were too powerful for the total contact brake system and began exploring ideas for a better system. This new Bendix system arrived in 1963. The new design was called servo-contact brakes. We will use these on our brake swap complete with the self-adjusters. The self-adjusters work well but have their own needs. We will look at that as the project moves forward.

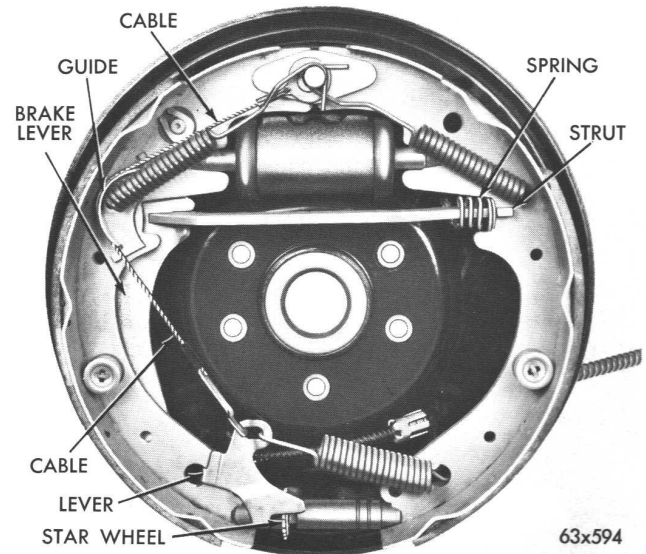
There will be some guidelines for this project. I'm going to start by converting only the front brakes to a better system but NO disc brakes.

Number 1 guideline is to maintain the stock appearance of the car while improving its stopping ability.

Number 2 is to try to achieve a complete front brake conversion for about \$500. This may be the biggest challenge since I don't want to compromise on quality. We'll see.

This car will be in concours shows when it is fully restored so stock appearance is a must. While disc brakes are the conversion that many people prefer they are generally both expensive and more difficult to do. They also make a definite change in appearance that is not wanted in this case.

It seems to me that a good place to look for a brake upgrade is to see what Chrysler chose to use when they replaced the total contact brake system.



63 rear brake w/ auto adjustment

This new system had 3" drums up front with 2.5 " in the rear. 3" rears were used in heavy-duty applications such as wagons and the 300J. These are 11" brakes versus 12" for the 300F.

The wider 3" brake drums will not be completely covered by the wheels and that will allow better cooling for the brakes when they get hard use.

The rear brakes will be a later project. If we use 3-inch wide rear drums we may need a compensating valve to reduce fluid pressure to the rear brakes. There are such valves available from different sources. But that will come later.

For lining surface then we'll be matching 11x3 inch against 12x2.5. We get a bit more square inches of braking surface with the 11x3 brakes.

So lets start by gathering some pieces and some information and we'll see what it takes to make this change.

Master cylinder bore is the same for the two systems so we'll use the original master cylinder. That will make it easy to retain the original brake light switch.

I bought a 64 Chrysler parts car for \$100 and then sold more than \$100 in parts from the car so the brake parts were FREE. From the 64 I gathered 2 front drums with shoes and backing plates. Also the spindles and steering arms that attach to the spindles on one end and the tie rod on the other end.



*New hardware kit will make a better job.
Hardware kit was \$24.*

The drums were standard and I had them turned the minimum to clean and true them. Cost was \$20 to turn the pair of drums. Bearing seals were more expensive at \$29 for the pair.

Backing plates and drums were then glass beaded to get rid of surface rust and make them ready for paint. Meanwhile the spindles were sent out to a machine shop.

The 60 ball joints are slightly larger than the 63 and later so I needed a machine shop to use a properly tapered reamer to slightly enlarge the ball joint shaft holes in the spindles. The idea is to only alter the parts being attached to the car. This method allows you to return to bone stock at any time with minimum work.



Freshly painted backing plates

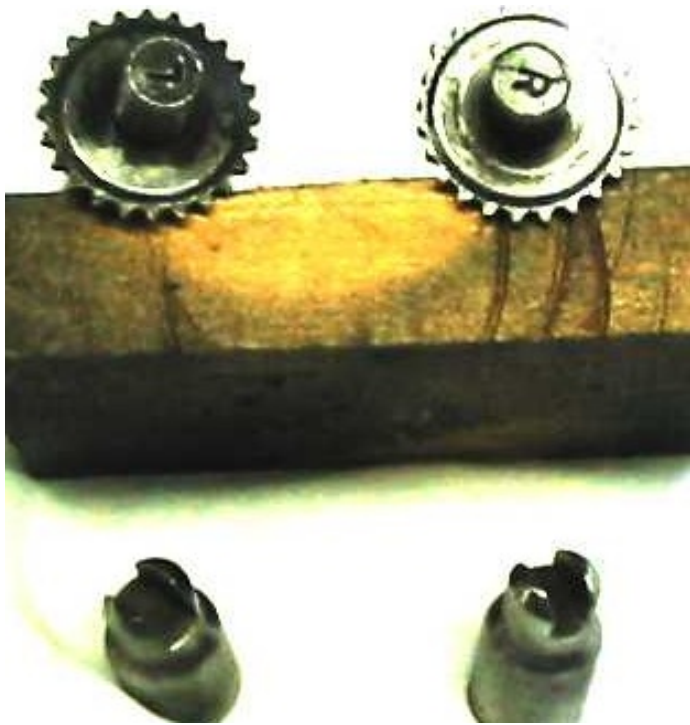
With the backing plates and drums looking bright from their cleanup it was time to do some painting. They all got a couple of coats of primer. Then the drums and the outside of the backing plates got a couple coats of gloss black.

New wheel cylinders have been purchased at \$23 each and a new set of front brake shoes for \$26.85. The shoes will be a change also. Chrysler had been using a loop on the side of the brake shoe to guide the shoe where it traveled on the backing plate. That small contact patch would sometimes allow the shoe to twist giving less than full lining contact.



Look closely and you will see the loops on the top shoe and tabs on the bottom shoe. We'll use the shoe with tabs.

In 1967 Chrysler replaced the 'loop' style brake shoe with a shoe that has tabs, an improvement in providing better contact with the backing plate. This project will use the 67 tab style shoes.



As the brakes are assembled attention should be focused on the star wheel adjusters. There is a right and left and they are marked under the end cap. They must go on the correct side for the self-adjusting system to work. Also the lever that moves the star wheel is marked either right or left. There is also a difference between the star wheel for 10" and 11" brakes. You need to be sure that the adjusters are correct for 11" brakes.



Re-assembled unit w/new hardware
 With the spindles returned from the machine shop we now have everything ready to go. Cost of the machining was \$100. Now it's time to remove the spindles and brakes from the 300F so we can install our new parts.

After removing the old spindles and related

parts it was obvious that new ball joints were needed. A call to Kanter and \$132 later we had new ball joints. NAPA provided 2 new brake hoses, part number 24058 for a total of 45.98.

With all the brakes and related parts removed I used an air hose to blow all the old brake fluid from the master cylinder and brake lines. I will be using Silicone brake fluid on this project and it doesn't mix with regular brake fluid.



Old spindle on left, replacement on right. 64 spindle is huskier and upper portion is more recessed to accommodate recessed backing plate for 3" brakes.



Old and new brakes. A completely different system.

The assembly of the new components is straightforward. New ball joints, followed by spindles and steering arms, backing plates complete with brake assemblies and connect the new brake hoses to the lines.

The drums with freshly packed wheel bearings slide on with ease. I had backed off the

adjustment on the shoes before installation to make sure the assembly was easy.

Self-adjusting brakes are adjusted a bit differently than the old center plane units. The star wheel is adjusted up until the tire won't turn. Then you back off the adjustment 12 notches. In order to back off the adjustment you need to use a narrow blade screwdriver through the adjustment hole to hold the adjustment lever away from the star wheel. This allows the star wheel to reverse direction.

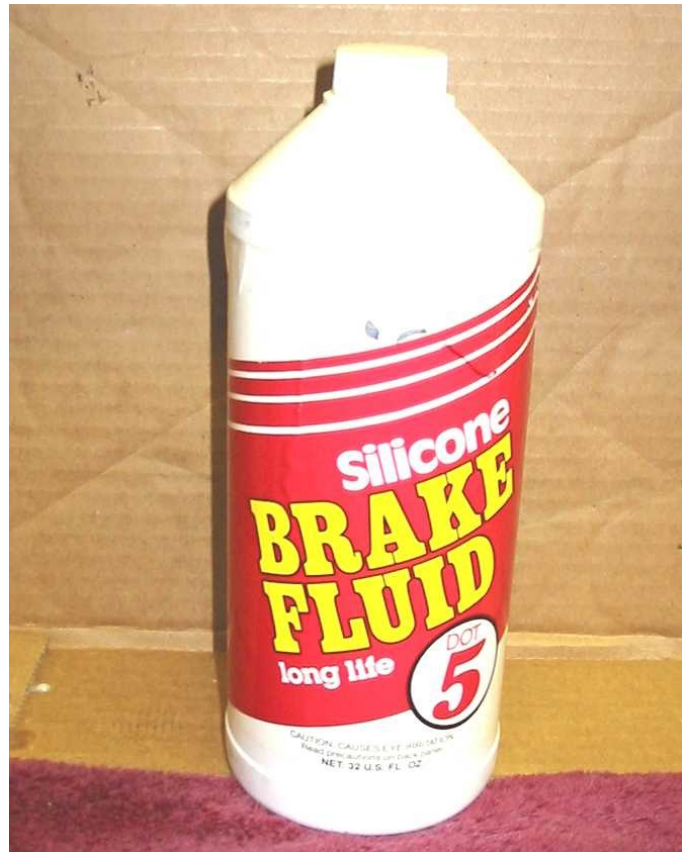
With the brakes all adjusted it's time to fill the system with fluid. As I mentioned earlier I will use silicone fluid. For anyone who doesn't know, regular brake fluid attracts moisture. In cars that are routinely parked for periods of time it will rust up your hydraulic system.

Silicone brake fluid won't do that. Also silicone fluid won't attack paint as regular brake fluid will. But to be successful with silicone fluid it must be used as intended. **IT WILL NOT MIX WITH REGULAR BRAKE FLUID.** Since I'm starting with an empty master cylinder and lines and new wheel cylinders all of the old fluid is gone. (Yes, I replaced the rear wheel cylinders as part of this brake upgrade).

Silicone fluid can trap air bubbles in the fluid if handled vigorously. Don't shake any container of the fluid and if you are bleeding the brakes by pumping the brake pedal don't be too vigorous with the pumping.

Silicone fluid also will leak from a system that is not in perfect condition. If you rebuild a cylinder, make sure that you don't remove more than .002 with the hone but don't leave any pits. If you have to hone more than .002 from the cylinder you should replace it. If pits are left silicone fluid will escape the cylinder.

For bleeding the brakes I use the newer type vacuum bleeder. I prefer it over the older style pressure tank bleeder. The vacuum bleeder won't introduce any air bubbles into the brake fluid and as fluid is removed from the system the clear jar that the fluid runs into will show any fluid contamination if it exists. This will help you see how well you did at getting rid of the old brake fluid.



This is the type of brake fluid I prefer on all those old cars that are not driven daily.

With the bleeding and adjusting done it's time to put the 300F back on the ground and take a drive. That will be the final test of the work that has been done.

How did we do for cost? I estimated \$500 at the start. We actually spent 436.83 which includes \$13 for a quart of silicone brake fluid and \$4.32 for brake hole dust covers. We did get the original components free which helped hold the cost down and I didn't include the cost of the rear wheel cylinders that I had to replace to complete the job.

The new system works great and I am pleased with how much better the car stops. It also retains its original look from under the car which was one of my goals.