

1986 Rear Disk Brake Upgrade

Being well prepared for a project of this size is the key to success. I thought I was well prepared by doing a lot of research and getting all of the required parts before starting. As you will see later in this article, I still had some hick ups during the installation. Before I go any further I would like to give credit where credit is due. I would like to thank Richard at North Cobras www.northcobras.com for supplying the mounting brackets.

First thing I did was go to the local Junk Yard (Pick & Pull) and collect all of the necessary parts off an 88 Thunderbird Turbo Coupe. The following table is a list of the parts collected. Make sure to read the following table and get the necessary tools before making the trip to the local salvage yard. We all know what it is like to be somewhere without the right tools. Yes, I forgot the stupid torques head drivers. I believe it is a T45, but I cannot be sure of that, so bring a set with you. The whole bucket of parts set me back 75 dollars.

Quantity	Description
2	All hard lines mounted to the rear axle with mounting screws. 1/4" fittings
1	The tee connector with the built in soft line which connects the rear axle to the hard lines of the car which is attached with a 9/16" nut on the axel. The tee is equipped with 1/4" fittings. Also grab the mounting bracket (10mm bolts X 2) off of the car that houses the soft line.
2	Soft line connecting the caliper to the hard-line of the rear axle. 1/4" fittings
2	Self-tapping torques head screws for the two above soft line mounting brackets.
2	Dust Shield
6	Dust Shield mounting screws 5/16"
2	Rotor
2	Caliper
4	Caliper mounting bolts. 1/2" bolts
2	Intermediate Bracket (Caliper to Axle Bracket) Make sure the rubber boots are not ripped.
4	Caliper mounting bolts. 15mm collared bolts
2	Axle bracket (Axle to Intermediate Bracket)
8	Axle bracket hardware 9/16" nuts and 9/16" bolts.

You will need to purchase some additional parts. The parts that I purchased are in the following table. **Note** the washers can be replace with bolts that do not have collars. I will explain in more detail later.

Quantity	Description	Cost	Cost
1	DOT 5 Brake fluid (large bottle)	\$1.20	\$1.20
1	M-2450-A proportioning valve plug (Summit Racing)	\$9.95	\$9.95

8	1/2" Washers (for intermediate bracket mounting bolts)	\$0.30	\$2.40
2	Quarts of differential fluid (I used Castrol Synthetic 90W)	\$3.99	\$7.98
1	Tube of 3M Black Silicon	\$2.50	\$2.50
2	Mounting Brackets from North Cobras 150 + shipping	\$162.00	\$162.00
1	3/16" Female to 1/4" Male reducer.	\$2.75	\$2.75
2	M2809-A Brake cables	\$30.00	\$60.00
			\$248.78

Ok lets get started, first thing put the vehicle in park or in gear depending on the transmission, and leave the E-brake off. Make sure you are doing this on level ground and not on some sort of incline. You're going to need some kind of chocks or blocks under the front wheels. Loosen the lug nuts on the rear wheels before lifting the vehicle. Once the vehicle is in the air and you try to remove the wheels, the axles will spin preventing you from removing the wheels. This is why I said to loosen the lug nuts before lifting the vehicle. Now put the rear of the vehicle up in the air on two jack stands. The jack stands need to be under the vehicle support rails and **NOT** the axle itself. This is to allow the axle to drop down as far as possible, which will give you more access room to the pumpkin. Once the wheels are off the ground and the vehicle is properly supported by the jack stands remove both rear wheels and drums. Some times the drums can get a little sticky and need some finagling to get them lose. I used a shop hammer and tapped on the center axel to loosen the drums.



Remove the 10 bolts (1/2") securing the axel cover. Make sure to have something below the axle to catch the Differential fluid. The axle should contain about two quarts of fluid. While the fluid is draining, scrape off all of the old gasket and silicon from the pumpkin and cover. I also painted the brackets purchased from North Cobra and the pumpkin cover. I painted them with high temp gray paint. You can choose any paint color, but I recommend using high temp paint.



Now it is time to pull the axels out, but first you have to remove the C clips holding the axels in. Put the vehicle in neutral and spin the drive shaft until the center retaining pin bolt is visible. The retaining bolt is a 8mm or 5/16". After the bolt is removed slide the center pin out, and put the vehicle back in park or in gear depending on the transmission. Now push the axels inward as far as possible. This will expose the C clips that need to be removed. I used a small set of needle nose pliers to remove the C clips. I heard of someone using a magnet to accomplish the same thing. You might want to put something under each axle end to catch any residual fluids. Once both C clips are removed the axels will slide out. Make sure when removing the axels that you are careful not to mar up the axels or destroy the axle seals.



With the axels removed, you can now remove the old drum brakes and E-brake cable. The E-brake cable has a flared type connector on the end of the cable housing. Simple use some pliers to compress the flared ends and push the cable back through the backing plate. You can also use a hose clamp to compress the fingers on the cable end once the fingers are compressed you can then simply pull the cable out. Remove the backing plate by removing the four 9/16" bolts and nuts. You should now have two bare axle ends with nothing on them. Now is a good time to remove the axle hard lines. I had two 5/16" screws at each axle end. There was one 9/16" nut holding the supply line tee to the pumpkin itself. One last thing to remove is the soft line going from the pumpkin to the vehicle. The fitting is 3/16", which I had to use a 11mm tube wrench to remove. This part took me a while because the fitting was frozen on there, and I did not want to destroy the fitting, especially since it is made of copper. You should now have all of the hard and soft lines removed. Now is a good time to clean the axel ends, since they are bare.



Now comes the installation. This is where I ran into a few hick ups. First I tried to install the bracket purchased from North Cobras and they would not bolt up. The $\frac{3}{4}$ " offset on the new bracket was rubbing the mounting bracket on the axel. I had to grind off a little on the axel bracket in order to get the new caliper bracket to mount flush. The four $\frac{9}{16}$ " nuts and bolts can now be installed on the caliper bracket. One of the four mounting bolts will most likely rub the new mounting bracket as it is tightened. The axels can also be re-installed. Be careful not to scar the axel or destroy the axel seals. It 's not a bad idea to replace the axel seals before re-installing the axels.



Since the Thunderbirds axels are $\frac{3}{4}$ " longer than the mustangs the dust shield needs to be installed on the backside of the new caliper bracket. This means the dust shields need to be modified because the brackets from North Cobra are offset $\frac{3}{4}$ " and the dust shields will not slide around the offset without a few cuts. The picture below shows the cuts that are needed due to the offset on the caliper brackets. After mounting the dust shields with the three $\frac{5}{16}$ " screws, place the rotor on the axel and check the clearance between the dust shield mounting screws and the rotor. I had to shave the mounting screws about a $\frac{1}{4}$ ". I used a dremel to shave the $\frac{5}{16}$ " bolts.



You should now have the axels in, caliper brackets on, and the dust shields installed. Now mount the intermediate bracket with two $\frac{1}{2}$ " washers on each of the two 15mm collared bolts. The picture below shows the difference in thickness of the Ford caliper bracket versus the North Cobra caliper bracket. It should now be evident why the washers were installed. You could buy shorter bolts, but I used washers instead. Now place the brake aligning shims and new brake pads onto the intermediate bracket. The rotor should be directly in the center of the intermediate bracket. Use the special tool or channel locks to twist (clockwise) the caliper piston back in. Also lube the brake guides before you slip the caliper over the new pads. Now mount the calipers to the intermediate bracket with

the 1/2" bolts. Now re-install the pumpkin cover using the 3M black adhesive and the 10 1/2" bolts and install the new axel fluid.



You should now have the brakes installed with exception of the brake lines and Emergency Brake cables.



Now mount the brake line tee to the axel using the 9/16" nut and mount the attached soft line to the vehicle using the 3/16" Female to 1/4" Male reducer. This reducer may need to

be a different size depending on your vehicle. Depending on the axel in your mustang, you might have the holes for the caliper soft lines. On mine I had to drill two holes on each of the shock bracket. One hole was for the aligning pin and the other for the mounting screw (T-45 torques).

The new E-brake cables (M2809-A) should be a simple replacement of the old cables. Remember the M2809-A cables are for 92 and earlier years. 93 Cobra cables are required if you have a 93. The E-Brake was adjusted using a ½” socket just under the E-Brake Handle. This adjustment is to simply get rid of the slack in the cables and **NOT** to adjust the brakes themselves.

The M-2450-A proportioning valve plug also needs to be installed. I used two in-wrenches to loosen the old proportioning valve bolt. One wrench was used to support the proportioning valve while the other was used for the bolt. I did not have to remove the proportioning valve to accomplish this task. Once the bolt was removed the internal spring and plunger was removed. The new M-2450-A proportioning valve plug was then installed. Remember that brake fluid will eat paint, so make sure to thoroughly rinse the area once the proportioning plug has been installed.

The last step is to bleed the brakes. I used a vacuum pump to bleed the brakes. Remember to bleed the brakes in the following sequence:

Right rear

Left rear

Right front

Left front

I did this procedure three times just to make sure.

I have also heard of people putting in an adjustable pressure regulator for the rear brakes. This is only required if the rear brakes lock up before the front brakes. In my case the rear brakes locked up just after the front brakes.

I hope this article helps you in your brake upgrade ventures.