

IMPROVING TOYOTA BRAKES

Installing Wilwood six-piston racing quality brakes on a Toyota Matrix

Toyota imported its first car to the U.S. in 1957 and dealerships started appearing in the early '60s. Young American car enthusiasts thought the funny looking cars would never have a chance of making it, but they were proven wrong. The young performance oriented car enthusiast didn't buy them, the general public that didn't want to pay the high cost of gasoline at the time did. In the '60s, gas prices for regular topped out at 25 cents a gallon and it was a whopping 29 cents a gallon for high octane, and that seemed outrageous to many folks. A lot of people thought a car that gets 20 miles to the gallon would save them a great deal of money and they didn't care if the car was funny looking and slow. After all, the goofy looking VW bug and the embarrassingly slow VW bus were successful, so the huge and very frugal American car buying public would buy almost anything that would save them money, and the management staff at Toyota knew that.

In the '60s, the young car enthusiasts were surprised that the Toyota actually did make it and over the years people who looked at cars as totally utilitarian flocked to the car dealerships to buy economical cars. The quality of the Toyotas got better and the body designs improved so the company got a strong foothold in the American market. Who would have thought back in the '60s that Toyota would become the best selling car in America, over Ford, General Motors and Chrysler? Toyota was successful because they were able to come out with cars that were correct for the buying public at a specific period of



The toyota was outfitted with a Wilwood part number 140-10752 disc brake kit that features Superlite 6R calipers and slotted 12.90-inch rotors with aluminum rotor adapters. The kit also comes with caliper brackets, BP-10 Smart Pads and all of the hardware required to complete the installation.

Motors could market them as a Chevy or Pontiac product.

The latest joint venture car is the Toyota Matrix and its American sister, the Pontiac Vibe. The Toyota Matrix, a sporty looking four-door hatch back, was introduced in 2003 as a replacement for the Corolla wagon. The cars of this type are categorized as a CUV: Car Utility Vehicle. The car provides increased storage space and length when compared to a normal hatchback, it's not as high as a SUV so it handles better, and the fuel economy is respectable. This car has been marketed to the younger buyers and has been successful so it is not unusual to see one that is getting the full performance treatment.

The car in this article is a Matrix that is getting the full complement of performance enhancements and one of them is a new set of Wilwood disc brakes. The owner of this Matrix ordered a Wilwood

time, and the company also built cars with good quality and nice detailing.

Toyota also made sure the cars and trucks were built to last so the company marketed that fact and many women purchased.

them because they wanted a car that wouldn't break down on the road. General Motors was seeing the success Toyota was having so they got together with them to manufacture some joint venture cars in a manufacturing plant in Northern California. General Motors must have figured that if you can't beat them join them. Several cars were built there that were mechanically the same, but the outside styling changed enough so Toyota could market them as a Toyota and General

part number 140-10752 disc brake kit that features six-piston Superlite 6R calipers and slotted 12.90-inch E-coated rotors. This installation also requires a Wilwood part number 220-10803 hose kit. The improved brakes will work better on the street and certainly a lot better if this car sees any track time. Since the Matrix and Pontiac Vibe suspension parts are interchangeable, this kit will also work on the Vibe.

Wilwood recommends persons experienced in the installation and proper operation of disc brake systems should only perform the instal

lation of this kit. A hobby builder can install this kit if he has good mechanical knowledge and ability, car building experience and a good assortment of tools. You will need a floor jack and jack stands, an impact gun, SAE and Metric wrenches and sockets, an inch-pound torque wrench, and a foot-pound torque wrench. Other things that will come in handy include a bottle of Loctite 271, Teflon tape, and Wilwood Hi-Temp 570 Racing Brake Fluid or Wilwood EXP 600 Plus Hi-Temp Racing Brake Fluid. We are going to show you how this installation is done so you can decide for yourself if you can perform this installation or if it would be better to have a professional do it for you.



You can see the original calipers and disc brake system through the large windows in the stock Matrix wheel. The front of the car was elevated using a floor jack and then jack stands were placed under the car. After the front wheels were off of the ground, the lug nuts were disconnected with an impact gun and then the wheels were removed.



The small bracket that secures the brake hose to the inner fender was disconnected.



The caliper bolts were removed with a socket and a large breaker bar as seen here. This is a floating style caliper with a piston on one side applying the force. The six-piston caliper should be a big improvement.



The caliper was removed from the assembly, but at this point it will remain hooked to the system.



For now, the caliper was hung on a piece of coat hanger behind the rotor. The line will be disconnected a little later.



The rotor is secured to the hub assembly with a couple of small bolts. Here the bolts are being disconnected in order to remove the rotor from the hub.



After the bolts were loose, the rotor was removed from the assembly. The rotor is in good condition so it can be stored with your other swap meet parts.



The original brake system uses this large dust shield that will have to be removed. You can also see the two ears that secured the original caliper



Using a small box-end wrench, the bolts that secure the dust shield to the spindle were removed.



The dust shield was removed and it will not be used with the Wilwood brakes.



The hub assembly was thoroughly cleaned with a wire brush to remove any grease or debris.



The rubber line was disconnected from the hard line using a line wrench. This connection is located on the inner fender well behind the strut.



After the rubber hose was disconnected from the hard line, the caliper was removed from the car. Be careful not to get brake fluid on the car's painted surface because it works as good paint stripper.



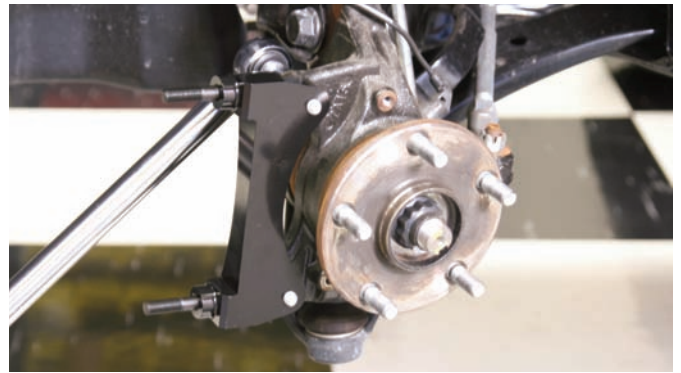
The former caliper mounting ears will have to be sleeved down slightly to the size of the Wilwood caliper bracket bolts.



The caliper bracket bolts were installed in the mounting ears. There should be a washer on the outside and a 0.016-inch thick and a 0.030-inch thick washer between the original mounting ears and the caliper bracket.



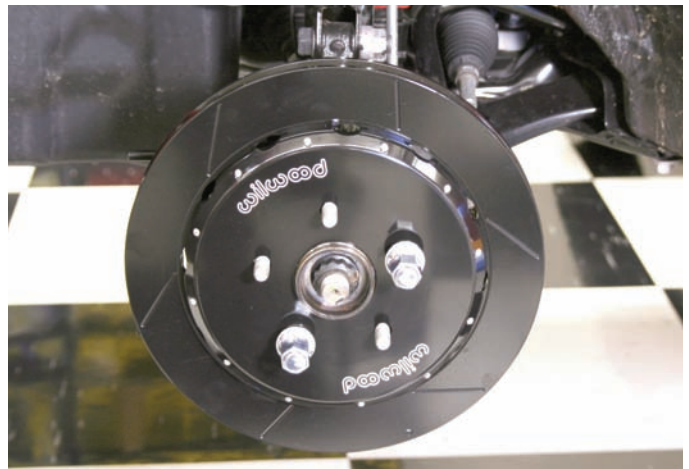
The caliper bracket was held against the original mounting ears and the bolts were installed hand tight.



After the bolts were hand tight, they were tightened down with a large socket wrench. At this point they shouldn't be too tight because they may have to be loosened to add or subtract shims when the caliper to rotor centering is done. After the centering is complete, the bolts should be coated with Loctite 271 and tightened to 42 ft-lbs using a foot-pound torque wrench.



The hat was attached to the rotor using the 12 bolts and washers in the kit. The small bolts should be coated with Loctite 271 and then they should be tightened in an alternating sequence to 85 in-lbs using an inch-pound torque wrench. After the bolts were tight they were safety wired using the safety wire diagram in the instruction sheet. The completed rotor was installed on the hub assembly.



After the rotor was placed on the hub assembly, it was secured with two lug nuts in order to check the rotor to caliper centering.



Before the caliper was installed on the caliper mounting bracket, each stud was loaded with a 0.035-inch shim.



Here the caliper inlet fitting is being attached to the caliper. Before the installation, the threads were wrapped with Teflon tape.



Carefully the large six-piston caliper was loaded onto the caliper mounting bracket.



After the caliper was resting on the studs the 0.057-inch thick washers and self-locking nuts were installed and tightened. At this point the centering process was done and when it was finished, the caliper was tightened to 35 ft-lbs using a foot-pound torque wrench.



After the caliper was installed and tightened, the pads were installed from the top. After the pads were in place the caliper center bridge pad retainer bolt was installed.



At this point the Wilwood part number 220-10803 hose assembly was installed. The hose runs from the bracket and hard line on the frame to the caliper assembly making sure the line is away from any moving parts.



Here is the brake assembly finished and ready to go. At this point the brake system will have to be bled and the bedding process will have to be done to get the brakes working well and to full capacity.



Looking at the stock wheel and tire assembly you can see the attractive Wilwood brake assembly sitting behind the wheel. The brake looks much better than the original brakes and certainly works better on the street and on the track.

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