

SLOWING A SCION

Installing Wilwood brakes on a Scion xB



The Wilwood part number 140-8335 disc brake kit comes with Forged Superlite 4 calipers, 12.88-inch rotors, aluminum rotor hat adapters, caliper brackets, BP-10 Smart Pads, and all of the hardware necessary to finish the installation. This particular kit was ordered with the SRP drilled and slotted rotors.



Toyota didn't go from nowhere to the best selling car in the United States by accident. When the company started opening dealerships in the United States in the late '60s it did plenty of homework to make sure the American buying public was ready to purchase a car from Japan. They knew the WWII veterans wouldn't buy a Japanese car, but maybe 20 years later the offspring of the veterans would. They saw the success the Germans were having with the VW, so the company did several marketing surveys, and from the results they felt comfortable opening dealerships in specific areas of the country, liberal California being one of them. The gamble paid off, because the small, reasonably priced, economical cars they were offering were perfect for the people who simply wanted cheap transportation from home to the office and back.

Over the years, Toyota stayed at the forefront of knowing what the general public wanted for transportation and the company was flexible enough to change to suit the buyer's aspirations. The company produced many comfortable sedans, they released their Z-car competitor the sporty Supra, they saw the change from small cars to trucks and SUVs, so they built their SUV versions, and they even came out with a full size truck to compete with trucks from the big three. A few years ago, Toyota even became involved in NASCAR racing in an effort to win over American buyers and buyer loyalty. The Toyota trucks became popular with a lot of American men, while the Toyota sedans and SUVs became the women's vehicles of choice. Toyota was having good success with the baby boomer market, but when they did a survey of the age of Toyota buyers they found out the median age was 48-years-old. The younger buyers were not pur-

chasing Toyotas, because the last thing they wanted was the same kind of boring car mom or dad was driving. Toyota just didn't have a car that inspired the youth market or one that was affordable. The company knew it was important to capture some of the young buyers, so they started Project Genesis with the introduction of the Echo, the MR2 and the Celica but soon found out that their plans were not working. The Toyota brand name had a stigma of being an old person's brand and basically they were right. The marketing people at Toyota started realizing that the brand name was the problem, so they started Project Exodus and came up with a completely new brand called the Scion that was directed at the youth market. The name means the descendent or offspring and that is what the new brand was to Toyota. The company started out with the bean and the box car designs and began a technique called guerrilla marketing using posters, ads in movie theaters and other high-tech methods to get the youth market to go to the Scion website. The low base price of \$13,880 for a standard shift car and \$14,680 for an automatic shift car certainly helped the cause. For reasons unknown, the box on wheels, the Scion xB became the young buyer's car of choice. Older buyers just thought it was weird looking.

Through marketing surveys Toyota probably found out that the older buyers would not purchase the box, so it became the perfect car for the younger buyers who would because they liked the quirky design. The Scion was only offered in one trim level but it could be ordered with 38 special accessories so that the buyer could customize the car at the point of purchase. The car was also offered at the "pure price" which is the posted price

to avoid the hassle of negotiating the price, although that would probably not stop some people of trying.

The box was being offered in Japan as a Toyota, so for the United States buyer the suspension was stiffened up for improved handling. The steering was also tightened to make the cars steer better on the highways. The cars were offered with a 1.5 liter engine that offered 105 horsepower, but they were able to be supercharged to get more, so some of the people like the fellow who owns this one realized he needed better brakes to stop the runaway box.

This fellow started looking for a brake improvement kit and after visiting the Wilwood Website he found a Wilwood part number 140-8335 kit that offered Forged Superlite brakes and 12.88-inch rotors in the buyer's choice of GT slotted rotors or SRP drilled and slotted rotors. The buyer also ordered the 220-8336 braided stainless steel brake hoses to finish off the installation. After purchasing the kit, it had to be installed on the car and it is a rather straightforward installation because no modifications were nec-

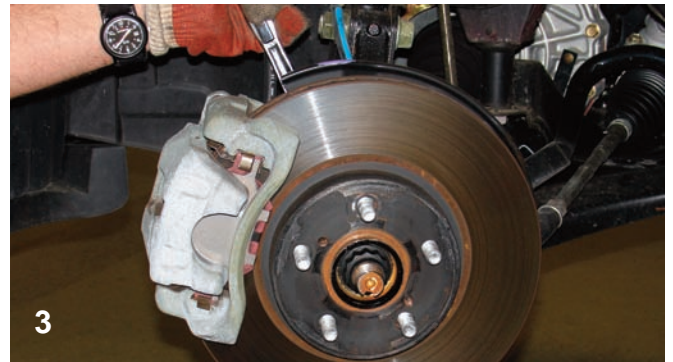
essary. Wilwood Engineering recommends persons experienced in the installation and proper operation of disc brake systems should only perform the installation of this kit. A hobby builder can install this kit if he has good mechanical ability, car building experience and a good assortment of tools. In order to complete this installation you need a floor jack and jack stands, an assortment of metric wrenches and sockets, a socket wrench, an impact gun, a foot-pound and an inch-pound torque wrench. Before the brake installation begins, it would be a good idea to spread all of the parts out so you can make sure that all of the parts are included in the kit. Check the parts with the parts list on the instruction sheet. It would also be a good idea to have PTFE thread tape, Loctite 271 and Wilwood Hi-Temp 570 Racing Brake Fluid or Wilwood EXP 600 Plus Super Hi-Temp Racing Brake Fluid on hand. We will show you the entire installation so you can decide whether you can do the work yourself, or if it would be better to have a professional do it for you.



The car was elevated with a floor jack and then jack stands were placed underneath it. Using an impact gun and the appropriate size socket, the lug nuts were disconnected and the wheels and tires were removed.



Here is the stock brake system after the wheels and tires were removed. This car uses a single-piston floating caliper for stopping power.



Using a socket wrench and the appropriate size socket, the caliper mounting bolts were disconnected and the caliper was removed, but the hose was not disconnected at this time.



Using a box-end wrench, the bolt securing the built-in hose brake bracket was removed.



5 Here is the hose and the built-in bracket. It would be a good idea to fabricate a small bracket for the Wilwood Engineering 120-8336 hose so you should keep the bolt and reuse it.



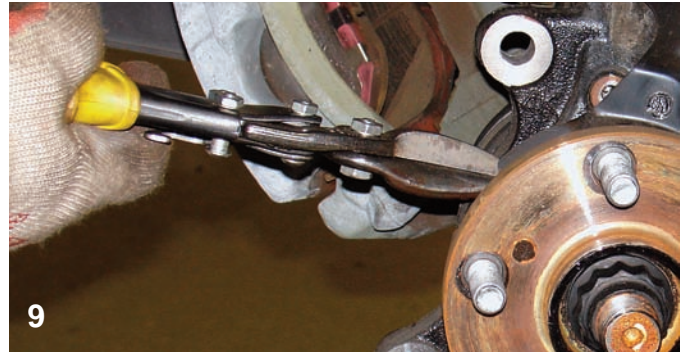
6 Here is the rotor after the caliper was removed. The rotor rides on the centering ring and it is held in place with the lug studs. Some persuasion may be needed to break the rotor away from the hub assembly.



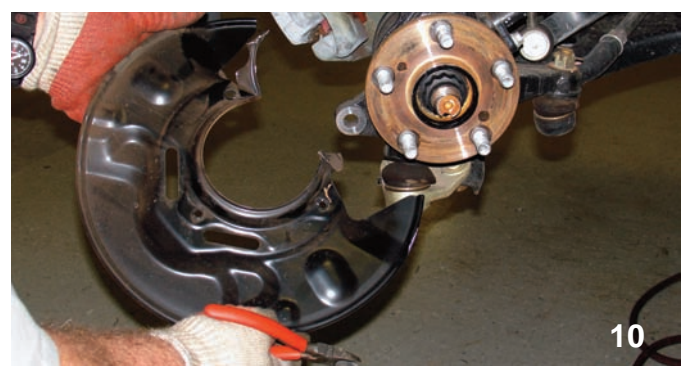
7 Here is the rotor after it was removed from the Hub assembly.



8 The dust shield will not be used, so the securing bolts were disconnected in preparation for removal.



9 The dust shield was loosened and then two small areas were cut with a metal hand shear in order to remove it.



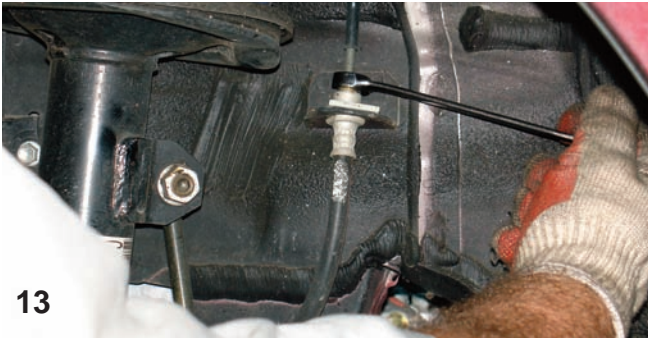
10 The dust shield was removed and it can be discarded because it will no longer be used.



11 The original caliper mounting holes are slightly larger than the bolt size being used to secure the caliper brackets so the holes were filled with sleeves to make up the difference.



12 Here is the caliper bracket after it was connected to the original caliper mounting ears using the bolts and washers in the kit.. After the rotor to caliper centering is complete, the bolts should be coated with Loctite 271 and then the bolts should be tightened to 75 ft-lb.



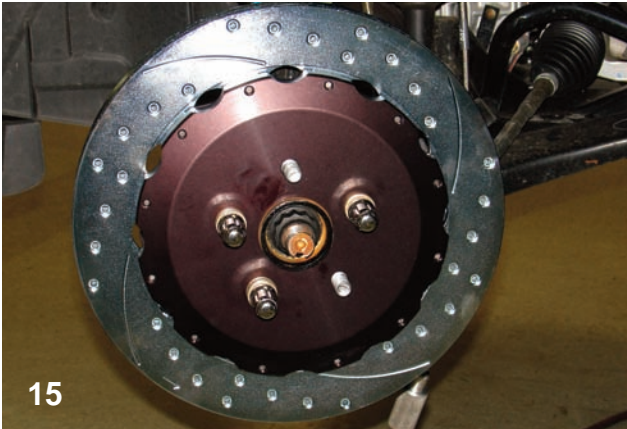
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The steel line to flex line connection was disconnected with a line wrench and then the caliper was removed.



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Here is the Wilwood braided steel line connected to the hard line with an adapter fitting.



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The hat was mounted to the rotor using the bolts in the kit. The bolts were coated with Loctite 271 and then they were tightened to 85 in-lbs. After the rotor was assembled it was connected to the hub assembly and it is held in place with a couple of lug nuts.



16

The BP-10 brake pads were installed in the caliper and the bolts, 0.016-inch thick washers and 0.285-inch thick spacers were installed between the caliper and caliper bracket. A .063-inch washer was also used on the outside of the connection under the bolt head.



17

The caliper was bolted to the caliper bracket and when the rotor to caliper centering was perfect the bolts were coated with Loctite 271 and they were tightened to 75 ft-lb.



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After the caliper was secured to the bracket, the brake pad bridge bolt could be connected using an open-end wrench and an Allen T-handle. The bridge bolt keeps the brake pads in place.



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Here is the finished brake assembly with the super strong 4-piston Forged Superlite 4 calipers. With this disc brake assembly the Scion will stop faster than most racecars. At this point the brakes were bled and the pads were bedded in following the directions on the instruction sheet.

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