CAMARO CAPER

Bringing a fourth generation Camaro Z/28 to a quick stop

The Superlite 6 Big Brake Front Hat Kit features Platinum-E coated Billet Narrow Superlite six-piston calipers, 14-inch E-coated slotted rotors, aluminum rotor adapters, caliper brackets, BP-10 Smart Pads, and all of the hardware required to finish the installation.

The forth generation Camaro was a winner when it came to handling and performance so young enthusiasts are starting to buy them for street driving and for slalom courses and track action. If you want to have some fun, the cars are currently available for very affordable prices.

The Internal Drum Parking Brake Kit features Platinum-E coated Billet Narrow Superlite four-piston calipers, 12.90-inch E-coated slotted rotors, aluminum internal drum rotor adapters caliper brackets, BP-10 Smart Pads, and all of the hardware required to finish the installation.

When the Camaro was introduced in 1967 it was an instant hit with Chevy enthusiasts and it offered something for everyone, from a basic grocery getter, to a drag racing super stocker. The enthusiasts who like small-block horsepower had two good performance engines to choose from: the new 350ci engine rated at 295 horsepower and the Z/28 302 engine rated at 290 horsepower. The high horsepower offerings in small-block or big-block form only lasted four years before the lead additive was taken out of gasoline and octane ratings started to decrease. The engineers at Chevy, similar to many of the other car companies, started to decrease compression ratios to enable the engines to run on the lower octane gas and they started installing complicated “smog” systems to meet the mandated emissions requirements. Basically meeting strict emissions and gas mileage requirements was new to the mechanical engineers and they were doing the best they could at the time period.

The pinnacle of Chevy performance came in 1970 when the new Z/28 was introduced with a 360 horsepower LT-1 350ci small-block engine that featured a four-bolt main block, large port and valve heads, a solid lifter camshaft and a high-rise intake manifold topped by a large Holley carburetor. The same engine was offered in the Corvette and it was rated at 370 horsepower. In contrast, the 396 engine offered in the Camaro was developing 350 horsepower. In 1971 compression ratios dropped and the engine horsepower rating was changed from gross to net, so horsepower ratings plummeted. All of the Camaro horsepower ratings were less than 300 horsepower and would stay that way for many years to come.

It took the engineers over 10-years to finally come up with new ways to make engine horsepower and still meet fuel and emission standards. In 1982 Chevy released the Cross Fire Injection system on the Corvette and it was also available for the Camaro and it provided a fair horsepower increase combined with decent fuel economy. This became the start of computer controlled engines and new electronic fuel injection technology. The first really unique fuel injection system was released in 1985 in the Corvette and the IROC Camaro. The Tuned Port Injected 305ci Camaro engine was rated at 215 horsepower and it provided good seat-of-the-pants performance. Throughout the ‘80s Camaro horsepower increased a little each year so it was easy to see that performance was once again an important sales tool. Chevy also worked on the suspension systems so the cars became fantastic handling cars.

Chevy ran the third generation Camaro body design for ten years from 1982 until 1992 before a new improved Camaro was released. The new

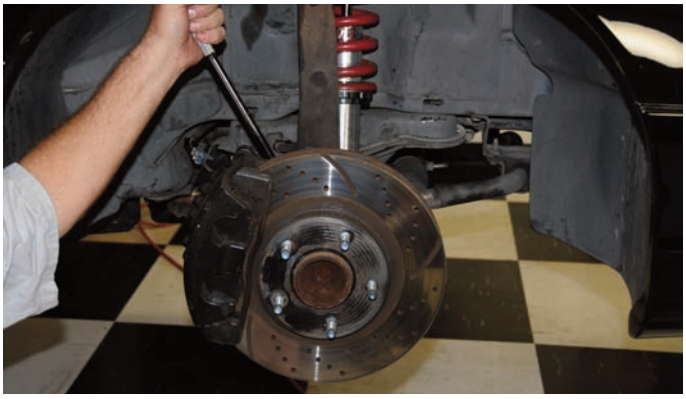
1993 Camaro was offered in two variations, the base Camaro powered by a six-cylinder engine and the Z/28 powered by an all new LT1 350 engine that was rated at 275 horsepower in the Camaro and 300 horsepower in the Corvette. The gross horsepower ratings of the new LT1 engine were about the same as the original LT-1 engine and that's why the cars were running quick quarter mile times. The new engine was a throwback to the good old days when Camaros had plenty of horsepower. When that engine was combined with the new suspension system that featured rack and pinion steering, the Camaro was a very impressive performance car. The fourth generation Camaro was a great car even though it was competing with the emerging SUV market. Because of that the sales were hovering around the 50,000-vehicle mark and Chevy had to make a decision to continue the Camaro or drop it. Chevy provided a visual change to the Camaro in 1998 with a new front fascia and the LT1 engine was dropped and a new aluminum LS1 engine, that was shared with the Corvette, was used. The LS1 engine was developing 320 horsepower so the Camaro performance increased again. When you consider that this was net horsepower, the gross horsepower would be over 400. The new car also featured some suspension improvements and the handling was improved so today the cars are being purchased by young enthusiasts for pleasure driving and for slalom courses and track events.

The owner of this 2001 Camaro drives the car on the street and has updated it with handling components to improve the cars performance on the track. The car features many Global West components to improve the car's handling ability and he quickly found that the car's brake system needed an upgrade so he contacted Wilwood Engineering Engineering to get a better brake system for the Camaro. The system that was selected was a Superlite 6 Big Brake Front Hat Kit part number 140-9834 with a 220-6746 line kit and a Drum Internal Parking Brake Kit part number 140-9830 in the rear with a 220-9882 line kit. The front kit features Platinum-E Coated Billet Narrow Superlite 6R calipers that feature six pistons for superior clamping force along with BP-10 Smart Pads. This kit features 14-inch diameter slotted rotors that were E-coated for protection. The rear brake kit features Platinum-E coated Billet Narrow Superlite 4 calipers that feature four-pistons for superior clamping force and the perfect front to rear brake bias. The rear uses 12.90-inch E-coated slotted rotors with an aluminum hat that works with the Camaro's internal drum parking brake system. This kit is definitely an improvement over the stock brake system on the street and on the track plus it also adds to the car's appearance when you look through the large window wheels.

This kit was actually installed at the Wilwood Research and Development center in Camarillo, California by the chief technician, Tony Porto. Tony did one side first to find the correct amount of shims needed to get the caliper centered over the rotor, so on the side we photographed the same shim arrangement was used. Wilwood Engineering recommends that 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 standard and metric wrenches, line wrenches, standard and metric sockets, a socket wrench, an impact gun, a foot-pound torque wrench and an inch-pound torque wrench. Before the installation begins it would be a good idea to spread all of the components out so you can make sure that all of the parts are included in the kit. Check the items you have with the parts listed on the instruction sheet. We are going to show you the complete installation so you can decide whether you want to install the system yourself or have a professional do it for you.

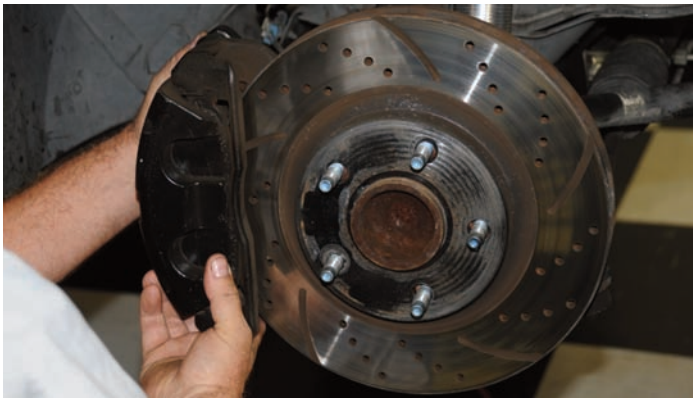
The Camaro was elevated to a comfortable working height and then the lug nuts were loosened with an Impact Gun.

After the lug nuts were disconnected, the wheel and tire assembly was removed from the car and it was set aside for reinstallation later.



Using a large breaker bar and the appropriate size socket, the caliper bolts were broken loose.

After the bolts were broken loose, they were removed quickly with a socket wrench. The drilled and slotted rotors on this car are not stock, they were upgraded in the past.



After the bolts were disconnected, the calipers were removed from the rotor assembly. This car is equipped with heavy cast iron calipers.

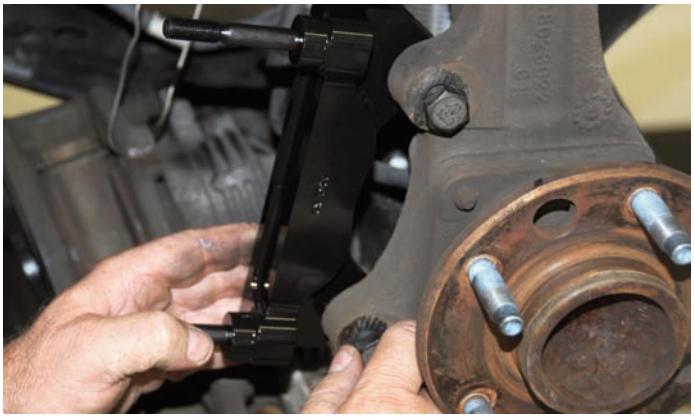
The rotor is connected to the caliper with these small spinner fasteners. The fasteners can be loosened a little but they usually break when pressure is applied.

The aftermarket drilled and slotted rotor was removed from the hub assembly and it was set aside.

After the rotor was removed, the hub assembly was cleaned thoroughly with a wire brush.

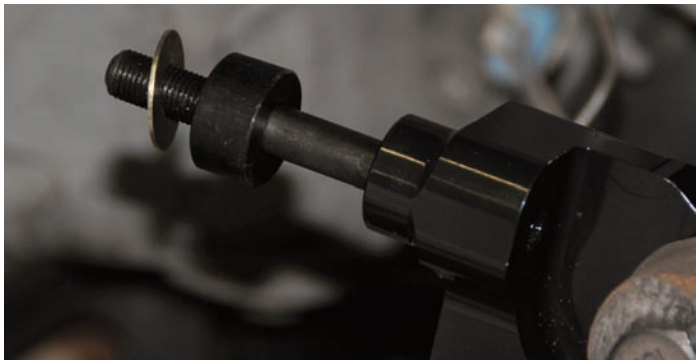
Using the original caliper mounting ears, the bolts were installed and one shim washer was installed between the ears and the caliper.

Before the bolts were connected to the caliper bracket, they were coated with Loctite 271 to keep them in place.



The bracket was set in place and then the bolts were connected to the bracket finger tight to start the process. After the bolts were connected they were tightened with a socket wrench.

After the bracket is secure, the bolts should be tightened to 65 ft-lbs using a foot-pound torque wrench.



The mounting bracket for the caliper should be loaded with the spacer in the kit and the shim washer as seen here.

Using a line wrench, the connection between the steel hard line and the rubber flex line is disconnected.

The Wilwood part number 220-6746 flex line was connected to the steel line using the adapter supplied in the kit. After the line was in place, the spring clip was installed to hold it to the bracket.

The E-coated 14-inch slotted rotor has to be connected to the hub adapter using the bolts in the kit.

The small mounting bolts were loaded with a washer per bolt and then the bolts were coated with Loctite 271 before they were used to connect the rotor adapter to the rotor.

All of the rotor adapter bolts were tightened with an impact gun to get them snug.

After the rotor adapter bolts were snug, they were tightened to 85 in-lbs using an inch pound torque wrench.

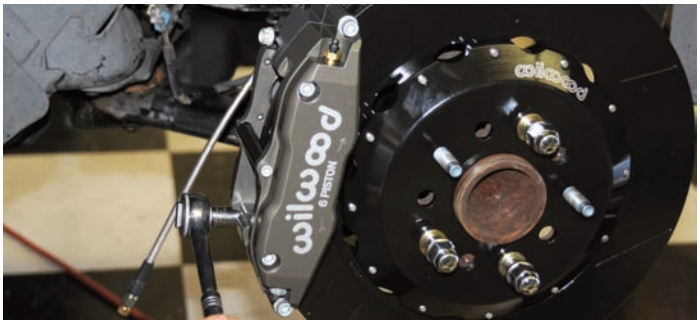
The large E-coated rotor was installed on the hub assembly. Notice the hub adapter is drilled with two mounting bolt patterns for the Chevy and for Ford, Chrysler, and AMC cars that all use the same lug pattern.

The rotor was connected to the hub assembly using three lug nuts. This will allow Tony to check the rotor to caliper centering to make sure it was the same as the other side.

The caliper inlet fitting threads were coated with Teflon tape and then it was screwed into the caliper.

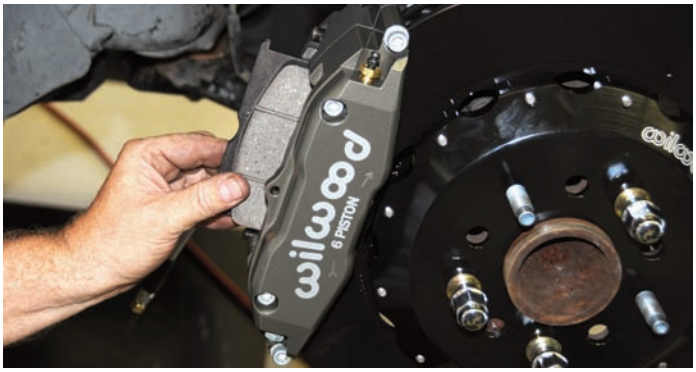
The fitting was tightened with a small open-end wrench. All of the hose connections should be as tight as possible to avoid brake fluid leaks.

The caliper was placed over the studs and then it was lowered into place. This is a good time to check the caliper to rotor centering.



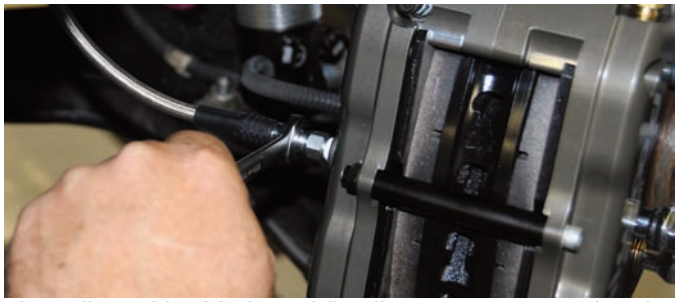
The washers and locknuts were connected to the mounting studs and then the nuts were tightened with a small socket wrench.

After the caliper mounting nuts were snug, they were tightened to 35 ft-lbs using a foot-pound torque wrench.

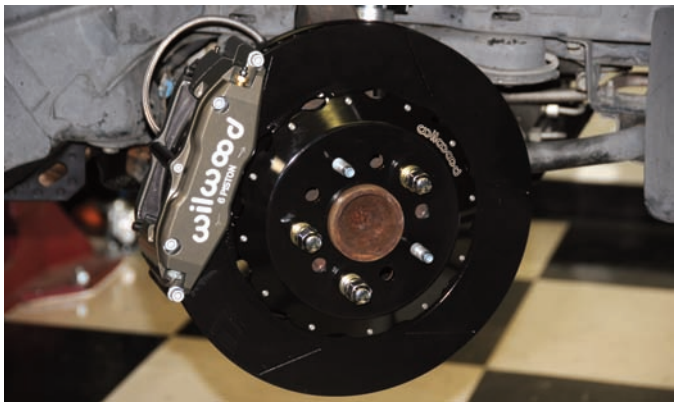


The bridge bolt was removed so that the BP-10 Smart Pads could be installed. Notice the arrow on the caliper indicating the direction the rotor will be moving in. There is a right and left side caliper, so make sure they are installed properly.

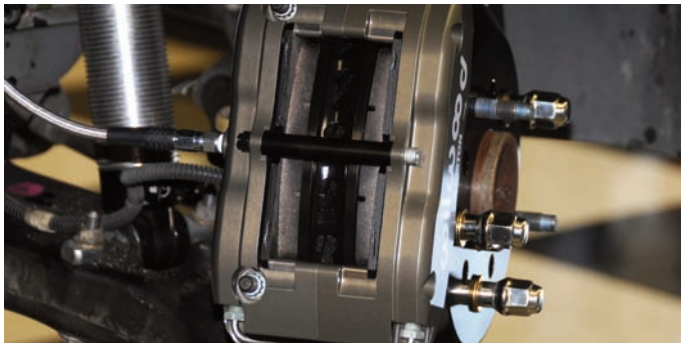
After the brake pads are in place, the bridge bolt was installed and it was tightened with an Allen wrench and an open-end wrench.



The Wilwood braided steel flex line was connected to the caliper inlet fitting. The aircraft-style line was super tight to make sure the connection was leak free.



Here is the finished brake assembly with the large six-piston Platinum-E coated Superlite caliper and the large 14-inch rotor. The face of the rotor is black now but after a few applications of the brakes it will go back to bare metal.

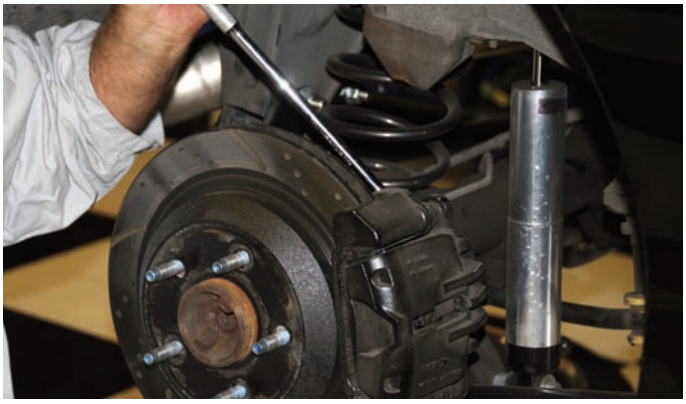


Looking from the top you can see the alignment of the rotor to the caliper and how the curve of the rotor matches the curve of the brake pads.

Now it is time to remove the rear wheels. The lug nuts were removed with an impact gun as seen here.

After the lug nuts have been removed the rear wheel and tire assembly could be lifted away from the car.

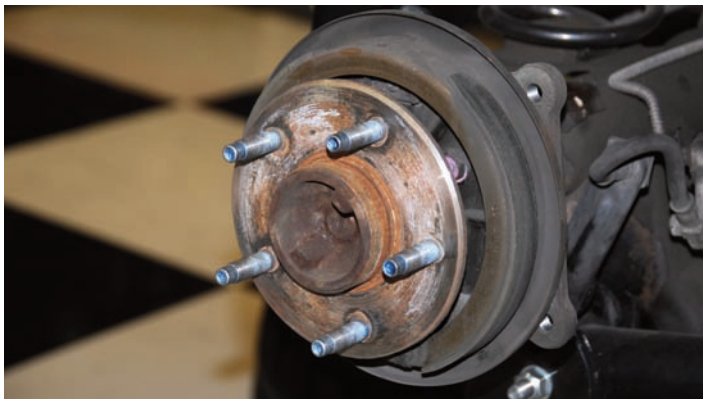
The small spinner ring was removed using cutting pliers. This rotor was connected with several small spinner nuts.



The caliper mounting bolts were very tight so they were disconnected with a large breaker bar.

After the bolts were loose, they were disconnected using a small socket wrench. When the bolts were disconnected the caliper was removed.

After the caliper was removed, the rotor assembly was removed from the hub assembly as seen here.



The Camaro uses a small drum-style parking brake assembly. The Wilwood rotor adapter was designed to work with this parking brake mechanism.

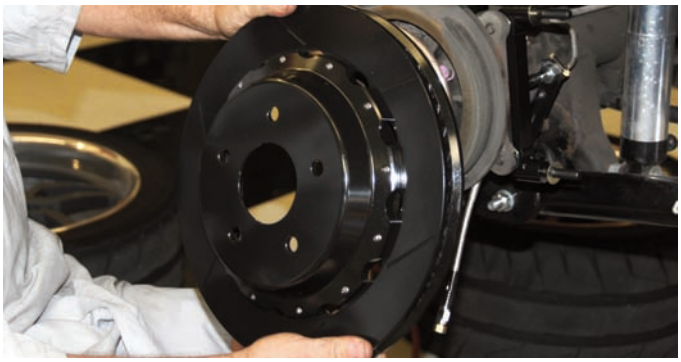
The spring clip was removed from the steel brake line to original hose assembly as seen here. After the clip was removed, the steel line to original hose connection was disconnected.

The Wilwood part number 220-9882 brake line was connected to the original steel line using the adapter fitting in the kit. After the hose was in place. it was secured to the bracket with a small spring clip.

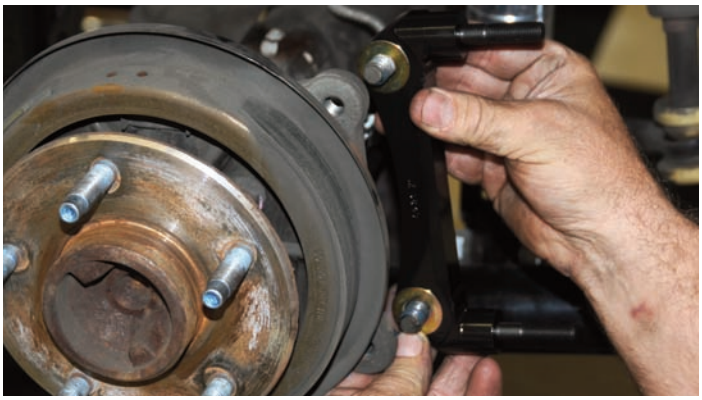
The face of the hub assembly was thoroughly cleaned with a wire brush.

The caliper mounting bracket studs were loaded with a shim washer before the caliper was installed.

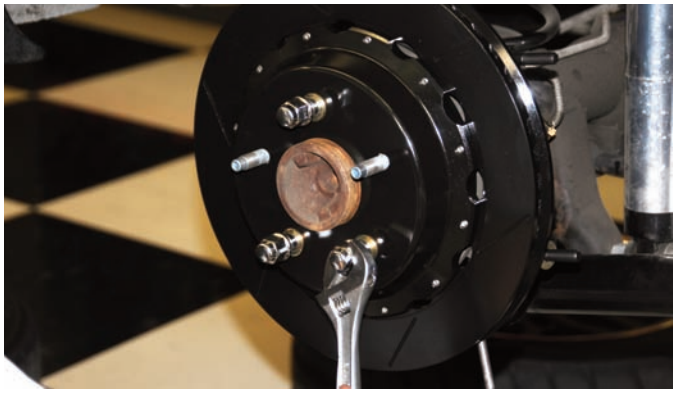
The original caliper mounting bolts were reused along with a new washer. The bolts were coated with Loctite 271 before the caliper brackets were installed.



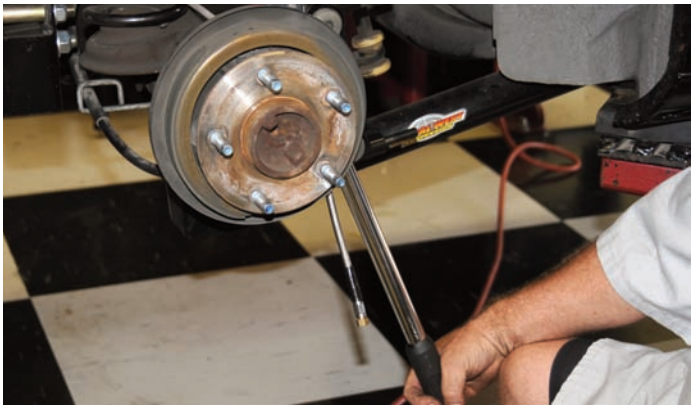
The rear rotor was assembled in the same manner as the front rotor. After it was assembled it was mounted on the rear hub assembly. This hub adapter works perfectly with the Camaro internal drum parking brake assembly.



The caliper mounting brackets were installed to the original mounting ears. Notice the shim washer that is used between the bracket and the mounting ears.



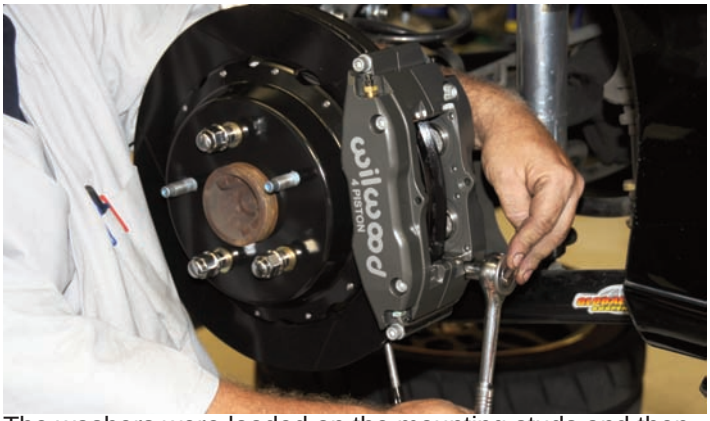
Three lug nuts were used to connect the rotor to the hub assembly. With the rotor on snugly, the rotor to caliper centering can be determined.



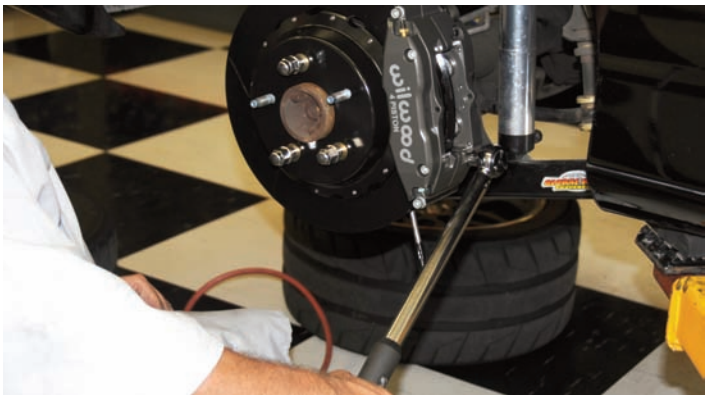
The caliper mounting bracket bolts were installed and then they were tightened to 75 ft-lbs using a foot-pound torque wrench.

The rear caliper uses a 90-degree angle inlet fitting as seen here. The threads were covered with Teflon tape and then the fitting was screwed into the caliper.

The Platinum-E coated four-piston Superlite caliper was carefully placed on the mounting studs.



The washers were loaded on the mounting studs and then the locknuts were installed. After they were started by hand, the nuts were tightened with a socket wrench. At this point the caliper to rotor centering was determined.

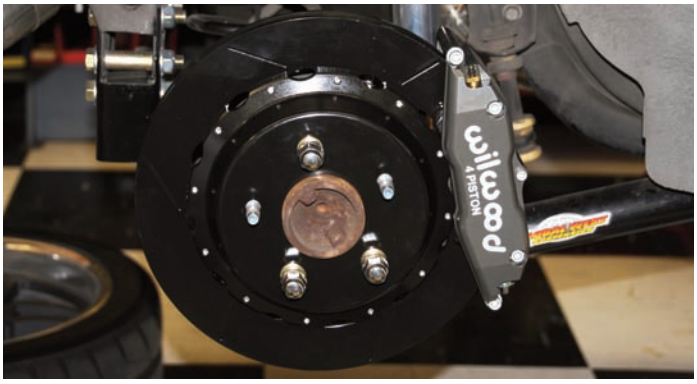


After the nuts were tightened down with the socket wrench they were tightened to 35 ft-lbs using a foot-pound torque wrench.

The Wilwood flex line was routed to the caliper and then it was attached. The hose should be very tight to avoid brake fluid leaks.

The bridge bolt was removed so that the BP-10 Smart Pads could be installed.

After the pads were in place, the bridge bolt was reinstalled and it was tightened with an Allen wrench and an open-end wrench.



Here is the rear brake ready for action. The rear brake features the nice Platinum-E coated Superlite caliper and the large 12.90-inch rotor assembly. Now the brake assembly will need bleeding and pad bedding.

Here you can see the brake assembly through the spokes in the Camaro custom wheels. Notice that the pad bedding procedure cleaned the black coating off of the rotor face.

Here is the brake assembly seen though the spokes in the Camaro custom wheels. The nice feature of this kit is the front and rear calipers match in appearance, but the rear features four pistons to get the proper brake bias front to rear.

Wilwood Engineering
4700 Calle Bolero
Camarillo, CA 93012
(805) 388-1188
www.wilwood.com