HOLE IN ONE

Installing Wilwood disc brakes on a Volkswagen Golf

The Wilwood Engineering disc brake kit comes with a pair of Billet DynaPro calipers, aluminum caliper brackets, SRP drilled and slotted rotors, aluminum hats, BP-10 Smart Pads and all of the hardware required to complete the installation.

Volkswagen, as we know it today, started after WWII when the British took over and rebuilt a German factory, where what was known as the "People's Car" was going to be mass-produced. Before the War, Ferdinand Porsche had an idea of producing a low priced car that every German could afford. Adolph Hitler agreed with his idea and that's when the body and the air-cooled, horizontally opposed four-cylinder rear engine design were conceived. Hitler wanted a car that would hold two people and three children, could go at least 60 mph and had to get 30 mpg. He also wanted it to sell for 1000 Reichmarks, which was about the same as a motorcycle. Unfortunately only a few cars were produced before the War broke out and the basic running gear combined with a different body design were converted into use as German Army personnel carriers, similar to an American Jeep. After the War, the British took over the plant and put Germans with an automotive background back to work building the cars. The unusually shaped body that was designed before the war looked like a Beetle and that's where the name came from. The Beetle became successful in Europe because the car remained low priced and it provided good performance when compared to other European cars at the time. After the war, Henry Ford II was offered the company but he thought the cars were funny looking and slow and the small car would never become popular in the United States.

The Volkswagen was eventually imported into the Unites States and to Ford's surprise, the low sales price and good gas mileage appealed to many economically minded Americans. Apparently, many people thought the Beetle body design was cute and the lackluster performance didn't bother them. The VW Beetle or Bug as some called it, sold more than 20,000,000 units over the years but the air cooled engine was having a difficult time meeting the restrictive United States and even more restrictive California emissions standards. Volkswagen knew they needed another car to replace the Beetle so they came out with a totally different, front wheel drive car that had a very angular and unique design. The car was actually released before the Beetle was phased out to make sure it was accepted and it was known as the Golf everywhere except in the United States where it was called the Rabbit. A water-cooled engine that could meet the emission standards powered the car, and the body was designed to be light, but at the same time it could hold five people comfortably. When the new Volkswagen was introduced it became successful because it was obvious to many people that the Beetle hadn't changed in decades and was outdated.

The first generation of the Rabbit/Golf body design ran from 1975 to 1984 and there were some small performance improvements over the years. In 1985 the second generation Golf was introduced and it continued until 1993. The third generation was short lived when compared to the first two and it went from 1994 to 1998. Every year the Golf became a little larger and the engine also grew in size and horsepower. The fourth generation Golf was introduced in 1999 and ran to 2005 and every year the power grew and the price increased. In 2004 the Golf was available with an optional all-wheel-drive package so it could compete with the

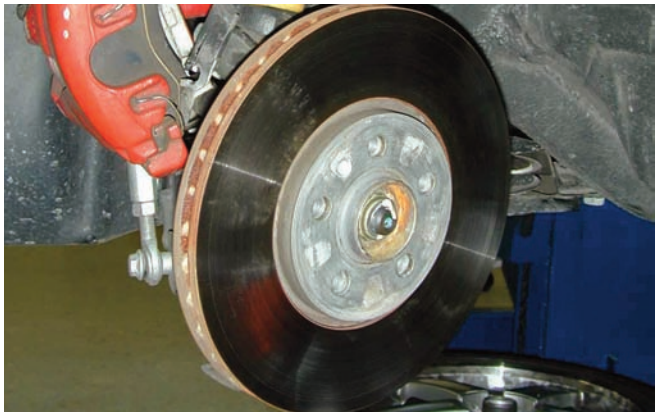
Subaru WRX. It was also offered with a 2.8-liter VR6 engine that produced 240 horsepower and 236 pound-feet of torque. The golf was updated once again in 2006 and this time only a four-door was offered. In mid 2006 the Golf name was dropped and the Rabbit name was resurrected. When the original Rabbits were introduced in 1975 their 0-60 time was 12.7-seconds. In 2006 the 0-60 time for the GTI dropped to 6.7 seconds. In 2010 the Rabbit name was once again dropped in favor of the Golf name and this new series offers the high performance GTI model.

The later model Golf became an excellent performer and a threat to the Subaru WRX so there are a lot of young performance enthusiasts who are improving them for street and track action. One improvement that can be made easily is a brake upgrade. The fellow who owns the Golf in this story wanted improved brakes so he contacted Wilwood Engineering and ordered a 140-8276 front brake kit along with a 220-8339 steel braided hose kit.

After the fellow purchased the kit and he was ready to install it or have it installed. 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. We are going to show you the installation to give you a chance to decide whether you want to install the system on your car, or have a professional do it for your.

The car was jacked up in the front and jack stands were placed underneath it. The front wheels and tires were removed and here is the original brake system.

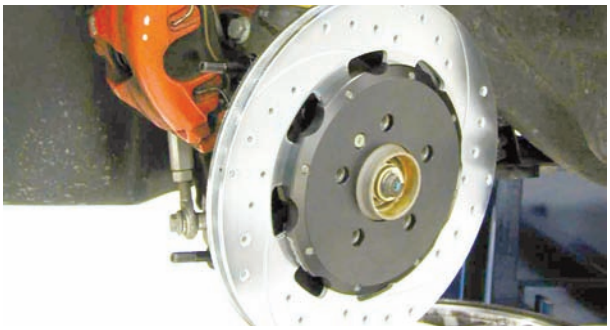
Before the caliper was removed, there was a small electrical plug that had to be disconnected.



The caliper was removed and for now it was moved out of the way until the brake line could be removed and replaced.

The rotor is connected to the hub assembly with a small screw. This screw was loosened with an impact screwdriver and then was removed as seen here. The same screw will be used to connect the Wilwood rotor.

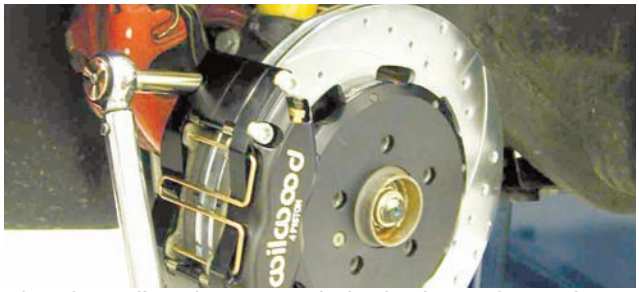
Here you can see the original caliper mounting ears. The Wilwood caliper bracket will be attached to these mounting holes.



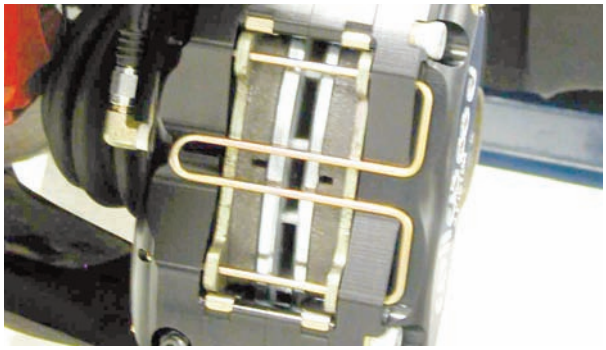
The caliper mounting brackets and rotors were set in place. The brackets were secured with an open-end wrench. The caliper bolts use a 7/8-inch lock washer and a 59/64-inch flat washer on the outside and a 1-inch spacer and 1/16-inch washer between the bracket and the mounting ears. The rotor was bolted to the hat using the mounting bolts and washers in the kit. The bolts were coated with Loctite 271 and then they were tightened to 144 in-lbs.

The rotor was connected to the hub assembly and it was screwed in place. To make sure the screw was tight it was connected with an impact screwdriver.

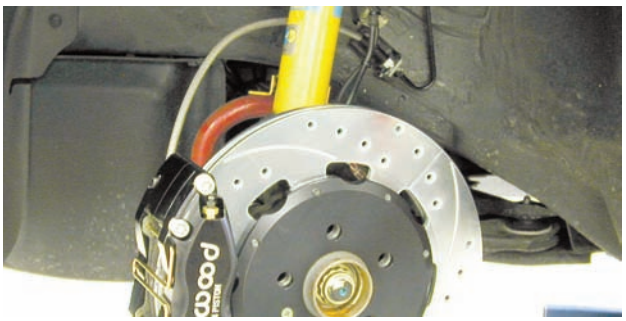
The caliper was loaded on the mounting studs and the caliper to rotor centering was checked. If an adjustment is necessary, shims can be used to get the centering perfect.



After the caliper is centered, the brake pads can be installed and then the caliper can be tightened. The flat washers should be installed and then the mounting nuts can be tightened to 35 ft-lbs. The caliper bracket should be tightened to 47 ft-lbs.



Here is a close look at the centered brake pads and you can also see how the radius of the pad matches the radius of the caliper. The quick clip retainer is also installed. Notice that the caliper inlet fitting is installed and the Wilwood 220-8339 brake hose is connected.



The hose runs from the caliper to the bracket on the inner fender well where is connects to the original hard line. At this time the old caliper can be removed.

Here is the black DynaPro caliper and the drilled and slotted rotor ready for bleeding and bedding. This system will give the Golf superior stopping power and since the brake system is also lighter, it will also improve the car's handling.

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