

SI OF RELIEF

Installing Wilwood disc brakes on a hot Honda Civic coupe



The front of the Honda SI was equipped with a part number 140-11978 brake improvement kit that features narrow Superlite 6R (SL6R) calipers working together with a 12.88-inch drilled and slotted rotors. The kit features the calipers, the rotors, the aluminum rotor adapters, the caliper brackets, the BP-10 Smart Pads and all of the hardware required to finish the installation.

The rear of the Honda SI was equipped with a part number 140-11979 brake improvement kit that works with the 12.19-inch drilled and slotted rotors. The kit features Combination Parking Brake Calipers (CPB) working together with 12.19-inch drilled and slotted rotors. The kit features the calipers, the rotors, the aluminum rotor adapters, the caliper brackets the BP-10 Smart Pads and all of the hardware required to finish the installation.

Honda entered the United States auto market in the early '70s with a totally different marketing strategy. While the American auto manufacturers were building large cars with powerful engines, Honda did just the opposite by selling really small cars with tiny low powered engines. Honda's saving grace was the cars were released during the Oil Embargo when gas lines were forming at every gas station in the country. It made perfect sense to people who just wanted transportation, to purchase a small car with a little engine that would get really outstanding gas mileage, even though the first cars were slow and moderately comfortable.

In time Honda did find that the American buyer still enjoyed a car that performed well, so they came out with a Honda Civic SI as a performance model. The SI has gone through several generations and the current model features a very sleek aerodynamic body style and power is provide by a healthy 197 horsepower 2.0-liter, K20Z3 I-VTEC engine hooked to a six-speed manual transmission. The Honda performance model will do 0-60 in 6.7 seconds according to Honda results. There is a big difference between the standard Civic and the SI version. The SI has stiffer springs, bigger sway bars and it is running 17-inch wheels wrapped with Michelin 215/45R17 tires. A sedan model is also available and it is equipped with 18-inch wheels, and because it is only 60 pounds heavier, the performance is very similar.

Honda became successful because they built a good reputation with their motorcycle offerings. Starting with their Honda 50 that was released in the '60s, they started building bigger and better motorcycles and people quickly learned that they definitely knew how to build a powerful engine when they wanted to. One of their outstanding engineering achievements was the Honda 750 that featured a four-cylinder engine that was fast and dependable. Car buyers figured that if they could build a quality motorcycle engine, they could also build a durable and reliable automobile engine, and they were right in that assumption. While other car manufacturers were having a difficult time meeting the government fuel mileage and emissions standards, Honda built an engine that met even the most stringent requirements.

The owner of this 2008 Civic SI purchased the car because of it's performance capabilities, and along with driving it to work everyday, he also takes it to track events on the weekends. He quickly learned that the car handled well and it had spirited acceleration, but after slowing down around the corners, he learned that the brakes left a lot to be desired on a road course. He started looking at many of the cars at the track events to see what they were using and the best performing cars were equipped with a Wilwood disc brake upgrade. He talked to a few enthusiasts and they told him that Wilwood built its reputation by manufacturing racing brakes, and the engineering learned from

that is used in every brake kit they make. Wilwood brakes are designed to handle the high heat requirements found in road racing, so the brake system works as well at the end of the road course as it does at the beginning. Convinced, the owner of this 2008 Civic SI looked at the Wilwood website and found the 140-11978 brake kit that features Narrow Superlite 6R (SL6R) calipers working together with large 12.88-inch rotors. The bolt-on kits come with the caliper brackets, BP-10 Smart Pads and all of the hardware needed to finish the installation. The Honda uses a rather small rear brake, so it was also upgraded with a part number 140-11979 Combination Parking Brake Caliper (CPB) that works with 12.19-inch rotors. The rear kit also features the caliper brackets, BP-10 Smart Pads and the hardware required to finish the installation. Along with the front and rear brake kit, the brake hoses also had to be ordered along with a parking brake cable kit.

Installing the kit is the next step in the process. Wilwood Engineering Specifies that persons

experienced in the installation and proper operation of disc brake systems should only do the installation of this kit. This installation requires a jack and jack stands, a good assortment of metric wrenches and sockets, an impact gun, socket wrench, an impact screwdriver, line wrenches, a foot-pound torque wrench and an inch-pound torque wrench. It would also be a good idea to have a bottle of Loctite 271, PTFE Thread Tape, and Wilwood Hi-Temp 570 Racing Brake Fluid or Wilwood EXP 600 Plus Super Hi-Temp Racing Brake Fluid on hand.

Before the 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 components with the parts list on the instruction sheet to make sure everything is there. 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. A professional mechanic should be able to install the kits in a day and a half.



The Honda was elevated on a car lift, but this could also be done with a floor jack and jack stands. Using an impact Gun and the appropriated size socket, the lug nuts were disconnected in preparation for removing the wheels and tires.



The two small screws that attach the rotor to the hub were disconnected. The screws are tight so they were broken loose with an impact screwdriver.



Using an impact gun and the appropriated size socket, the two caliper mounting bolts were removed.



The original brake hose has a built-in bracket that connects to the spindle assembly. The bolt was removed followed by the caliper assembly.



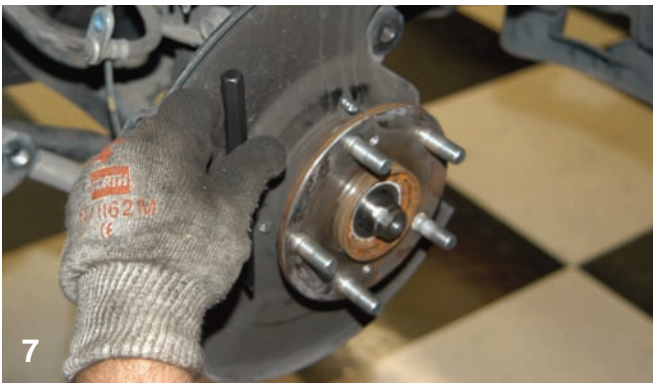
5

The original rotor was removed from the hub assembly. If the rotor is stuck to the centering ring, hitting the rotor from side to side with a rubber hammer will break it loose.



6

The hub assembly and centering ring were cleaned with a wire brush.



7

The screws that fasten the dust shield to the hub assembly had to be removed, but a screwdriver won't fit so tapping the side of the screw with a chisel will loosen it enough for it to be removed by hand.



8

The shield was cut with a hand shear to be able to remove it from the hub assembly.



9

Here is the dust shield being removed from the hub assembly. Notice that a section just large enough to remove it was cut away.



10

Depending upon the wheels that are being used, installing longer wheel studs might be necessary. We found that longer wheel studs were necessary with the original Honda wheels because they had to be spaced outward a little to clear the large calipers. Here the longer stud is being drawn through the hub with an impact gun and a nut.



11

The inlet fitting was wrapped with PTFE Thread Tape and then it was screwed into the caliper assembly. After it was started, it was tightened with an open-end wrench.



12

Here is the hub assembly after it was equipped with the longer studs. The long studs will probably not be necessary with aftermarket wheels that are designed for large disc brakes.



13 Using a line wrench, the hard line was disconnected from the original flex line.



14 The Wilwood braided steel line and adapter were connected to the original hard line. It is important that all of the connections are tight to eliminate the chance for leaks.



15 The caliper bracket has to be installed next. Here the bolts feature a washer on the outside and two shim washers on the inside. Shims can be added or subtracted to get the caliper centered over the rotor.



16 The caliper bracket bolts were coated with Loctite 271 before the bracket was installed permanently.



17 The bracket was held up to the original mounting ears and then the bolts were carefully screwed into the caliper bracket mounting holes.



18 After the bracket bolts were started, they were tightened with an impact gun followed by tightening them again to 65 ft-lbs with a torque wrench.



19 After the bracket is installed, two shim washers per stud were loaded on prior to installing the caliper.



20 A spacer ring was attached to the centering ring to align the rotor assembly.



21

The rotor was connected to the hat assembly using the bolts and washers in the kit. Notice the way the rotor is facing so you don't mount it backwards. All four rotors were done at this time.



22

The bolts connecting the rotor to the hat were tightened with a socket wrench first and then they were tightened again to 180 in-lbs using an inch pound torque wrench.



23

The rotor was aligned with the studs making sure the mounting screw holes are also lined up correctly. After the alignment is correct the rotor can be pushed back until it is seated.



24

The mounting screws were installed with the impact screwdriver. After the screws are tight a tap with a hammer will increase the tightness.



25

A small bracket was installed on the Wilwood braided steel flex line prior to installation.



26

After the rotor was in place, the caliper was mounted on the studs and was pushed downward until it was seated. This is a good time to make sure the rotor is centered inside of the caliper.



27

Using a washer and a locknut, the caliper was attached to the bracket. Here the nut is being tightened with a socket wrench. After the caliper nuts were snug they should be tightened to 47 ft-lbs using a foot-pound torque wrench.



28

The BP-10 brake pads were installed as seen here. They will fit easily when the caliper is centered over the rotor.



The bridge tube was installed followed by the long bridge bolt. The bridge bolt and tube keep the pads in place.



Using an open-end wrench and a T-handle, the bridge bolt locknut was tightened.



The braided steel flex line was connected to the caliper assembly as seen here. The hose connection was tightened with an open-end wrench.



The small securing bracket that we attached to the braided steel line can now be fastened to the original location on the strut assembly.



Here is the finished brake assembly featuring the Superlite 6R caliper and the drilled and slotted rotors. This system is a huge improvement over the original brake system.



Using an impact screwdriver, the two small screws that fasten the rotor to the hub were removed.



Using a long breaker bar and the correct size socket, the caliper bolts were disconnected.



After the caliper bolts were removed, the small caliper was removed from the assembly.



The rotor was removed from the hub assembly. This is a solid rotor that will be replaced by a vented rotor that is better in high heat situations.



Using a socket wrench and the correct size socket, the bolts that secure the rear hub to the aluminum strut assembly were removed.



After the hub assembly bolts were disconnected, the hub was removed so that the rear dust shield could be removed.



Using a socket wrench and the correct size socket, the small bolts that connect the dust shield to the strut assembly were removed.



The dust shield was removed from the strut assembly and it will not be reused.



The hub assembly was reinstalled to the aluminum strut assembly using the original bolts.



The centering ring spacer was installed over the centering ring. The spacer should be flush against the hub assembly.



The caliper bracket was attached to the mounting ears using a socket wrench and the correct size socket. There should be a flat washer on the outside of the bolt and one shim washer between the mounting ears and the bracket.



The rotor mounting holes were aligned with the holes on the hub assembly and then the rotor was installed and seated. Here the screws are being connected using an impact screwdriver.



The caliper bolts were installed in the caliper and they were loaded with a flat washer on the outside and two shim washers on the other side. Here the bolts are being coated with Loctite 271.



The caliper was installed over the rotor assembly and then the bolts were tightened with a socket wrench.



Using a line wrench, the hard line was disconnected from the flex line. The bracket assembly is actually part of the hose assembly.



After the line was loose, the bracket bolt was disconnected and the line was removed.



The small bracket in the kit was connected to the inner fender well and then the hard line was connected to the Wilwood flex line. Here the line is being tightened with an open-end wrench.



Here is the finished rear brake with the Combination Parking Brake caliper. This brake also features a drilled and slotted rotor. The final step is hooking up the Wilwood parking brake cable assemblies.



Looking through the spokes in the Honda wheels you can see the rear brake assembly with the Combination Parking Brake caliper and the drilled and slotted rotor. After pad contact the surface of the rotor is cleaned to bare metal.



Looking through the spokes in the Honda wheels you can see the front brake assembly. The front reveals the large Superlite 6 calipers and the drilled and slotted rotors. After pad contact, the surface of the rotor is cleaned to bare metal.

Wilwood Engineering

4700 Calle Bolero

Camarillo, CA 93012

(805) 388-1188

www.wilwood.com

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