

'A' FOR EFFORT

Installing Wilwood disc brakes on a Model A Ford



There are many older street rods running around today with various brake systems that were developed in the early-'70s. Most were a slight improvement over the popular '40 Ford drum systems, but they still weren't up to today's standards. One of the most popular systems used on many of the early street rods, especially the small light ones such as Model T and Model A Fords, was the installation and adaptation of a Volkswagen system. The VW brakes featured a disc brake system with a small rotor and caliper and they seemed to work reasonably well on a 2500-pound Model T or Model A roadster. The problem was the brakes were actually designed to stop an 1800 pound VW so they were marginal on a larger heavier car such as a fully loaded Model A sedan with a V8 engine and Automatic transmission. This Model A was built many years ago and was running the VW brakes, but with the recent installation of a 400 horsepower Chevy engine and a heavy Turbo 400 transmission, the owner felt that he needed better brakes. We will have to agree.

The owner who has been attending many car shows over the years knew he could improve the stopping power of his Model A with a set of Wilwood disc brakes. The caliper and pads are more than twice the size of the VW unit, so the system should be considerably more efficient. Being familiar with the VW installation, the owner was told by the rod shop he selected, that he would need a new set of '40 Ford-style spindles

because the originals had to be machined smaller to work with the VW bearings. The rod shop also told the owner that a new set of spindles could be purchased from Total Coast Involved Engineering that would work perfectly with the disc brake installation kit from Wilwood Engineering. The kit the rod shop selected was a 140-2260 front brake system that came complete with everything needed to make the complete changeover. He said it was a very straightforward installation and the Model A could be done in two days start to finish. The owner was pleased with what he heard, and the installation of the new brakes was put in motion. We will show you how the upgrade was made so you can do the same thing if you have VW brakes or something similar on your street rod.

Wilwood 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 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 wrenches and sockets, and an inch-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 Super Hi-Temp Racing Brake Fluid. 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 hot rod shop ordered a set of spindles and kingpins from Total Cost Involved Engineering (not shown) and the brake installation kit from Wilwood Engineering. The part number 140-2260 brake kit came with the disc brake rotors, aluminum calipers, and aluminum hubs with bearings, caliper brackets and all of the hardware needed to complete the installation.



Volkswagens used a four-lug bolt pattern so the first thing that had to be done was get an adapter that would change the brakes to a Ford or Chevy pattern. Here's the original VW brake system with the adapter installed.



Removing the thick adapter plate started the installation. It is secured with three bolts and one of the VW lugs.



The brake line to the caliper had to be removed. This was done with a line-wrench to avoid stripping the fitting. The brake line will be retained and used with the new calipers. After the line was disconnected it was plugged to stop the fluid from leaking.



The two caliper bolts were removed next, and then the caliper was removed from the brackets.



The grease cap was removed from the disc brake rotor. This cap was removed with a large screwdriver used as a pry bar.



Although many American spindle bolts are secured with a cotter key, the Germans feel that it would be better to use an Allen lock bolt. Here the Allen lock is being loosened so that the spindle nut can be removed.



After the Allen bolt was loose, the spindle nut was removed using large channel lock pliers.



After the Allen bolt was loose, the spindle nut was removed by hand and then the rotor was removed from the spindle.



The kingpin retainer was loosened by tapping it with a hammer. Some WD40 was sprayed on first.



The disc brake caliper brackets were removed from the spindle. The top uses nuts and bolts and the lower bolts actually attach to the steering arms.



After the kingpin retaining bolt was removed, the kingpin could be pulled out of the axle. The kingpin also connects to the spindle, so it was also removed.



The bolts securing the steering arms were removed with an impact gun.



The new Total Cost Involved Engineering spindle was set in place. The spindle uses a large bearing underneath. If the spindle seems a little loose, shims can be used to tighten it up. In this case a thin shim was used.



The large acorn nut on the side of the axle connects to the kingpin retaining bolt. It was removed in preparation for kingpin removal.



New kingpins are being used and they were greased before being installed. The new kingpins will tighten up the front suspension.



The upper felt washer and retainer were installed on the kingpin and then it was installed through the spindle and axle. The small notch in the kingpin should be lined up with the hole in the axle.



The kingpin retaining bolt was installed in the axle. This is a tapered retainer nut that keeps the kingpin from turning in the axle.



The nut was installed on the kingpin retaining bolt and then it was secured. It's a good idea to install a little Loctite.



The Wilwood caliper bracket was installed on the spindle. The part of the bracket that secures the caliper faces toward the back of the car.



The bolts that secure the bracket should be installed with Loctite. These are high strength Allen bolts.



The two lower bolts secure the steering arms. It is very important to make sure these bolts are tight and won't back out so coat them with Loctite.



The Wilwood aluminum hubs have two sets of holes, one for the Ford pattern and another for the Chevy pattern. Because of this, you have to pick the correct bolt pattern and then install the lug studs. The studs should be tightened to 77 ft-lbs using a foot-pound torque wrench.



The rotor bracket is secured to the hub with five Allen bolts. The rotor is attached to the adapter with six bolts. All of the bolts should be coated with Loctite 271 and then the hub to rotor bolts should be tightened to 180 in-lbs using an inch-pound torque wrench. The hub to rotor bolts should be tightened to 22 ft-lbs using a foot-pound torque wrench.



The kit comes with all of the bearings so the large bearings were packed and they were installed in the rear side of the rotor. The races for the rear and front bearings come installed in the hub assembly.



The next step is to install the grease seal that also comes installed in the kit. Here the seal is resting on the seal opening.



Using a grease seal installation tool, the seal was set in place. One or two hammer hits and the seal is in place and level with the rotor.



The hub bolts were finger tight so they were tightened with an impact gun followed by the inch-pound torque wrench. They should be tightened to 180 in-lbs.



The rotor was placed on the spindle and then the small front bearing was thoroughly greased and was installed in the front of the hub. That was followed with the large washer and the spindle nut.



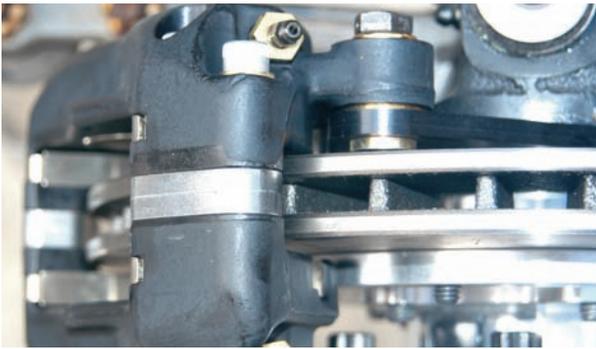
The hub assembly and rotor are secured with a large castle nut. A castle nut has to be used with a cotter key. The nut should be tight but not enough to create binding in the bearings.



The Wilwood grease cap was installed to finish off the rotor installation.



The aluminum calipers were installed with two case hardened bolts. If you look close, the bolts are drilled for safety wiring. It's important for the calipers to be centered over the rotor so shims have been included in the hardware package.



One shim per side was used to center the caliper over the rotor. If you look close, the silver center portion of the caliper should be centered over the opening in the rotor.



The pads can now be installed in the caliper. We really shouldn't have to say this, but the lining should be pointing toward the rotor.



The brake pads are secured with a large retaining pin. Bend the ends so the pin doesn't come out but make sure it can come out when the pads need replacement.



The kit comes with an AN fitting that should be secured to the caliper. It should be installed with some Teflon tape to prevent leaks.



An aircraft line was used on the old system so we were able to connect it to the new caliper. It should be very tight to prevent leaks.



Using two wrenches, the brake line is tightened. After the hoses are installed the brakes will need bleeding to get the system working properly.



The finished brake looks great and works even better. This installation was completed in a day start to finish. The best part is only normal hand tools are required.

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