

STOPPING AN EARLY FORD HOT ROD

Installing Wilwood disc brakes on an early Ford with a TCI chassis



The 140-5883-P kit features aluminum hubs, adapter plates and in this case E-coated rotors. The kit also comes with polished aluminum calipers and chrome plated rotor brackets. BP-10 Smart Pads were also delivered with the kit, along with the bearings and hardware required to complete the installation. The kit will improve the stopping ability of the Ford and it will look good doing it.

A few years ago, when this early Ford was built, a Total Cost Involved Engineering (TCI) chassis was selected and it was delivered with independent front suspension outfitted with the basic GM disc brake package. The brakes were working fine to stop this lightweight rod, but this brake setup is big and clunky and since it was all cast iron, it started to rust and look even worse.

When this car was driven to events, the owner saw many cars just like his with very attractive brakes, so he talked to the owners to find out how well they worked. Wilwood Engineering manufactured the attractive brake package he liked and it works directly with the Total Cost Involved Engineering spindles. The owner decided to step up and purchase the nice looking brake package because it looks great and it will also improve the stopping ability of the coupe. The owner contacted a Wilwood Engineering supplier and purchased the 140-5883-P kit along with a universal brake line kit. Since this kit works on the TCI front suspension, this story can be translated to any rod using the company's IFS equipped chassis from a Model A to a '40 Ford.

Wilwood Engineering specifies that persons experienced in the installation and proper operation of disc brake systems should only do the installation of this kit. In this case the dealer also installs the brakes so he had the company perform the installation. If you are thinking about



installing the same kit on your street rod and do most of the work on your car, the installation is easy, and start to finish it will take less than a day to finish the job. The tools required to do this installation include a floor jack and jack stands, an assortment of hand wrenches and socket wrenches, an impact gun, an inch-pound and foot-pound torque wrench, safety wire pliers, and in this case a can of black spray paint to detail some of the rusty parts that will be retained. This installation was done on a TCI independent front suspension, but a very similar kit can be installed on an early I-beam style suspension system. Follow along and you can decide for yourself if you have the ability and knowledge to do the installation or if it would be a better idea to have a professional do the installation for you.



This coupe in this story features a Total Cost Involved Engineering independent front suspension that was outfitted with the standard GM disc brake setup. Since this car isn't running fenders, the brake system is easy to see and the rusty parts are unsightly. The owner decided that it was time to upgrade the Ford with an attractive Wilwood disc brake setup.



The car was elevated with a floor jack and stands were used underneath it as a safety feature. The lug nuts were removed with a 13/16-inch socket on an impact gun.



The cotter key was straightened out and then it was removed from the castle nut cover and spindle.



The GM calipers were removed by disconnecting the two special Allen head bolts as seen here. There is one on each side of the single piston caliper.



Using channel lock pliers, the large spindle nut was disconnected from the spindle. The nut, washer and castle nut cover were kept for the reassembly. The spindle nut could also be removed with a large Crescent wrench.



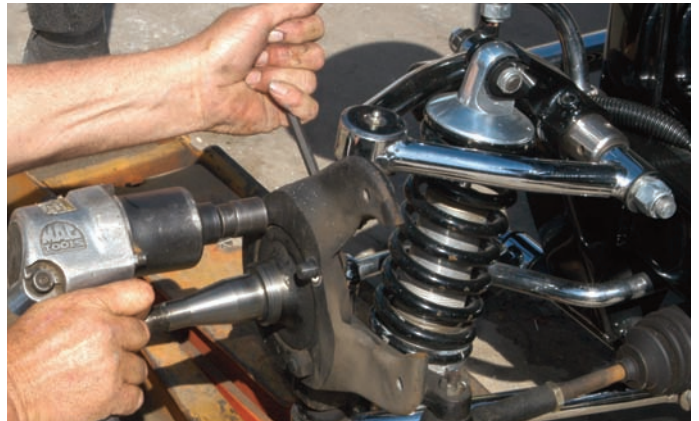
A small pry bar was used to separate the caliper from the bracket. When it was loose, the caliper was removed from the car. The brake line was still attached to the caliper so it was disconnected at the frame.



The rusty rotor was removed from the spindle. The non-coated cast iron rotor doesn't take long to rust and look terrible.



After the caliper was removed, the rotor could be removed. Here the dust cap is being separated from the rotor exposing the spindle nut assembly.



Using an impact gun, the bolts were removed from the caliper bracket assembly. Two of the bolts also secure the steering arms.



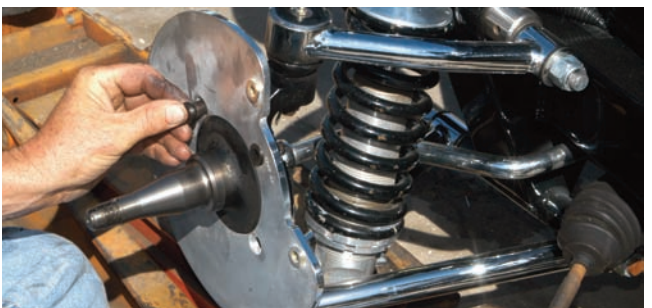
Here the rack and pinion ball joint was disconnected from the steering arm. First the cotter key had to be removed, then the nut was disconnected and the steering arm and ball joint were separated using a "pickle fork" ball joint separator tool.



The steering arm was detailed to look nice. This arm can be chrome plated if you have the time and money to have it done, or in this case it will be painted black.



After all of the parts were removed from the spindle assembly, it was wire brushed to get it clean. After the dirt was removed, it was wiped down with lacquer thinner to remove any oily residue and it was painted with shiny black paint. Several coats were applied to keep it from rusting in the future.



The chrome-plated caliper mounting bracket was bolted to the spindle using the two flat head Allen bolts on the top. The steering arm bolts through the lower mounting holes.



The steering arm was wire brushed, wiped down with lacquer thinner and then it was painted with several coats of shiny black paint.



After the paint dried, the steering arm was connected to the two lower spindle holes. The lower portion of the caliper bracket was secured to the spindle with a washer and nut on each steering arm stud.



After the nuts were applied hand tight, they were tightened with an impact gun to get the nuts really tight.



The upper bolts were tightened with an Allen head socket and a large open-end wrench.



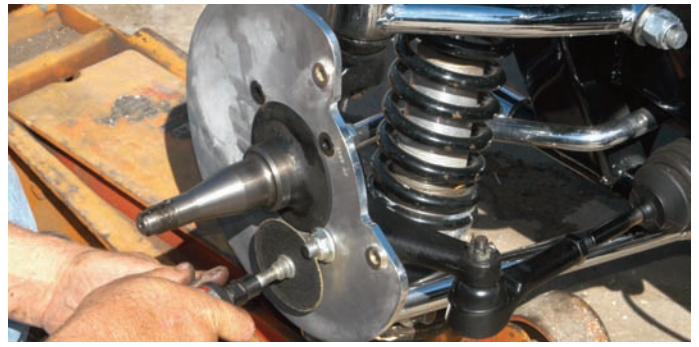
The rack and pinion ball joint was also removed and it was painted black. Here the ball joint is being connected to the rack arm. It was turned in until it fit perfectly into the tapered hole in spindle, but it would be a good idea to set the alignment after the brakes have been installed.



Here the ball joint castle nut is being connected with a 3/4-inch open-end wrench. The castle nut should always be used with a cotter key.



This close-up view shows the cotter key being installed in the nut and steering arm. The cotter keys are very important to keep the nuts secured to the tapered shaft. The last thing anyone needs is a steering mishap on the freeway!



The steering arm studs stick out past the nuts so it would be a good idea to shave the studs back flush with the nut to provide adequate rotor clearance. Here the end of the stud is being cut off with a three-inch cutting wheel.



The studs in the kit were coated with anti-seize before they were installed in the hub assembly.



Here the studs are being screwed into the hub assembly finger tight. This polished aluminum hub assembly is very attractive and will stay that way.



The studs were installed into the correct Ford mounting holes and then the bolts were tightened with an impact gun. The wheel stud bolts should be tightened to 77 ft-lbs using a torque wrench.



Here is the hub assembly after all of the bolts have been tightened. The hub is facing down because the adapter plate will have to be installed.



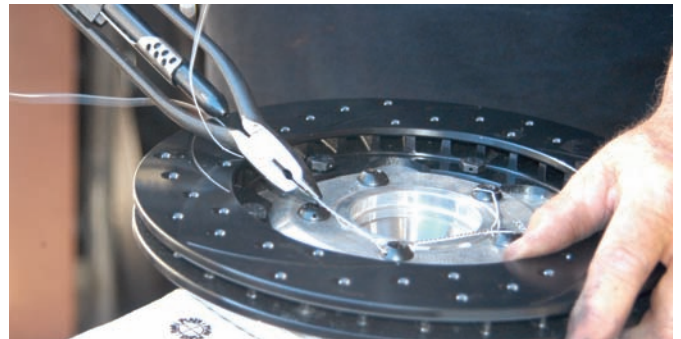
The five button head Allen bolts that secure the adapter to the hub assembly were coated with Loctite 271.



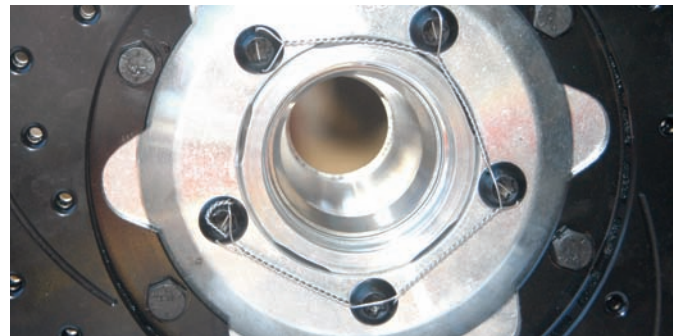
The hub adapter was secured to the hub assembly with the five button head Allen bolts as seen here. The bolts should be tightened to 180 in-lbs using an inch pound torque wrench. Notice that the dish is facing the front side of the hub.



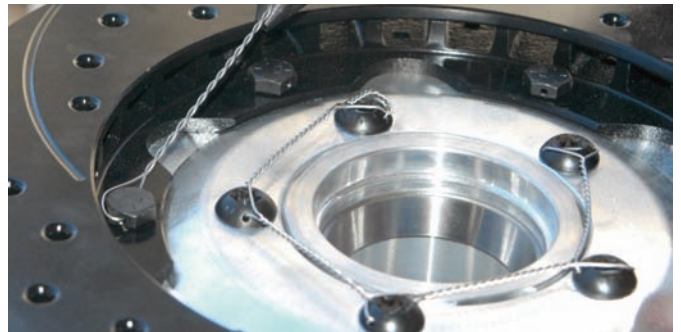
The E-coated rotor was attached to the hub adapter plate. The mounting tabs should be facing the outside of the hub assembly. The bolts were installed and then they were tightened to 22 ft-lbs. The bolts were tightened opposite of each other and after they all seem to be tight, the torque was checked a second time to be sure.



The button head Allen bolts are drilled for safety wire, so following the pattern in the instruction sheet the safety wire was installed.



The bolts are held in place with the safety wire and this is basically an insurance policy to make sure the bolts don't back out.



The rotor to adapter plate bolts are also drilled, so they were safety wired for additional safety. The twisting is done with safety wire pliers that are available from any well-equipped tool store.



All four bearings were packed with high temperature disc break bearing grease using this bearing packer tool. If you don't have one of these in your toolbox, the bearings can be packed by hand but it takes a little longer.



After the bearings were packed, the large bearing was installed in the rotor. The rotors come with the races installed. Here the seal is being placed over the bearing hole in preparation for installation.



The seal was installed in the rotor using this seal installation tool. All it takes is a few hammer hits to get the seal into the rotor tight and straight.



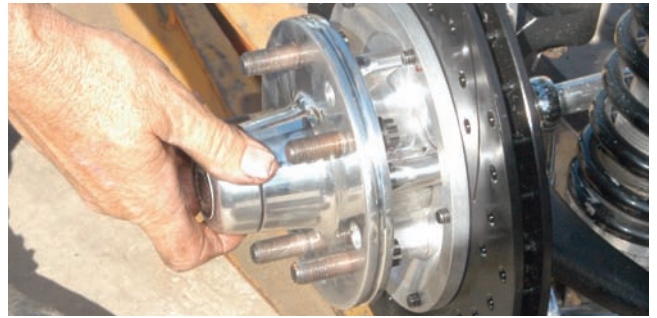
The rotor was placed on the spindle and then the small bearing followed by the flat washer were installed. After the rotor was seated, the spindle nut was also installed.



The spindle nut was tightened with channel lock pliers but it could also be done with a large Crescent wrench. The nut should be snug but it shouldn't be over tight. If it is too tight it can cause premature bearing failure. Tighten it until the rotor spins about a half turn when you spin it.



After the spindle nut was tightened it was capped with a castle nut cover and then a cotter key was installed to keep the nut from backing off. Here the cotter key end was being bent and cut.



The hub assembly was capped with the screw on dust cover shown here. The cap looks nice and it's easy to install and remove when it is necessary.



The rotor is ready for installation so the bolts were installed and two shims were loaded on. The shims will be used to center the caliper over the rotor.



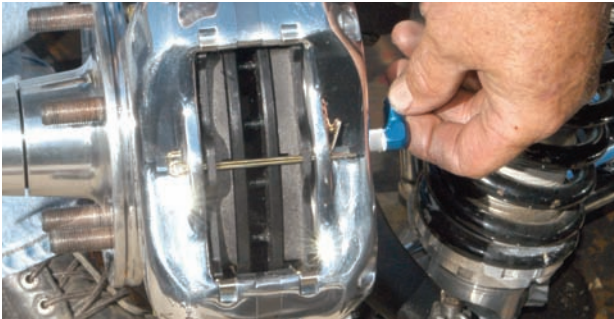
The caliper was installed over the rotor and the bolts were tightened as shown here. The caliper should be centered over the rotor so adjustments can be made by adding or subtracting shims until it is perfect. After the correct centering is found, the bolts should be coated with Loctite 271 and they should be tightened to 30 ft-lbs using a torque wrench.



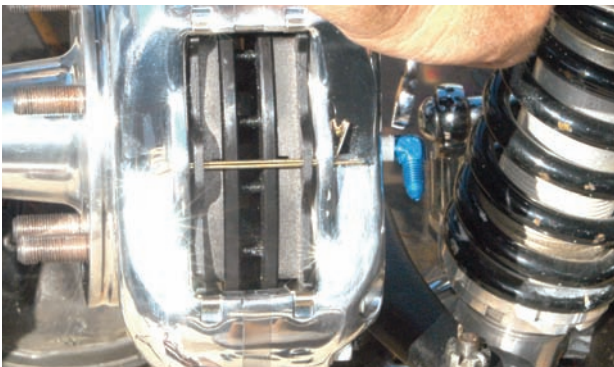
The BP-10 Smart Pads were installed in the caliper and they were secured with the large cotter key. The polished calipers will look great on this clean Ford coupe.



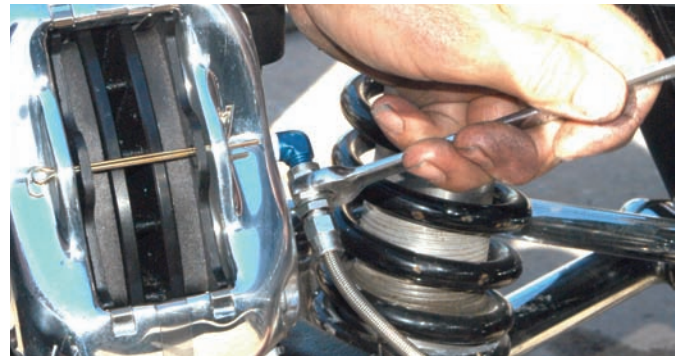
The ends of the cotter key should be bent outward and away from each other but not too much because the keys will have to be removed when the pads are changed sometime in the distant future.



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The caliper inlet fitting was tightened and the inlet should be facing the rear of the car when it was finished.



The brake line was run from the steel line bracket on the frame to the Wilwood caliper fitting making sure the line was clear from any moving parts.



What a difference the Wilwood brakes make to the front suspension of this car. It looks terrific with the polished caliper, chrome-plated caliper bracket, aluminum hub assembly and the E-coated rotor. This system will provide more stopping power plus it looks great and will stay that way if you keep it clean.

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