

# CALIPERFEXION STUD KIT INSTRUCTIONS



**Caliperfexion front brake caliper stud kits are designed for specific applications. These instructions show images of brake hardware for the GT350/GT350R. The installation process for our GT500 stud kits is identical (including torque figures). Note - the GT500 studs are longer than those used on the GT350/GT350R so do not mix the two and be sure to order the stud kit appropriate for the vehicle you intend to install them on.**

Congratulations on your purchase. The use of these studs will allow for much quicker brake pad changes as the six piston Brembo calipers on these cars have a cast-in bridge which precludes removing the pads up and out through the top of the caliper. This means that you must remove the caliper in order to do a pad change as the pads need to come out through the bottom. The issue in this case is that you are then removing the M14 bolt from the aluminum knuckle rather frequently. This requires thoroughly removing the bolt and thread locker from the threaded bore in the knuckle. Aluminum is not the best material for high traffic, especially when torqued to a figure of 130+ ft-lbs. By switching to a stud, you alleviate this issue and allow much quicker brake maintenance. However, proper installation and maintenance is key to long fastener life in this case so please read the instructions carefully.

If you are not experienced in servicing brake hardware or typical automotive mechanical operations please refer this modification to a professional. Just be sure that they have read and understand these instructions prior to proceeding.

## **Removing Factory Hardware**

The factory Brembo caliper is fastened to the upright or knuckle by an M14 x 2 large headed capscrew. Using a T60 Torx bit, remove each bolt. *Do not let the caliper hang freely by the brake hose.* Support the caliper by other means so as not to damage the hose.

You can now slide the factory SHW two-piece rotor off of the wheel hub/studs. This will allow for much easier access to the knuckle. Clean any thread locker on the mating faces of the knuckle or the brake caliper. A sharp razor blade on edge works well here – just be careful to not cut yourself.

One of the most critical steps in this installation is cleaning the threaded holes in the knuckle. Ford uses plenty of blue thread locker (medium strength) and although you may not readily see it, the hole will have residual amounts of it between the threads. We do not recommend using a tap to clean the threads as a tap will cut into and remove material, something you do not want to do at this location. The ideal tool to use is a chase tap, such as those offered by ARP. This type of tap only cleans instead of cutting. The problem is that nobody offers a chase tap in an M14 x 2 size. An alternative is to use an M14 x 2 bolt, ideally, with grooves to allow any foreign material to collect in as opposed to the threads. A Dremel with a tapered stone works well here to groove . At the very least, you can use this bolt without grooves and run it in and back at least twice to remove the old thread locker, followed by a quick hit of compressed air.

### Prepping And Installing The Studs

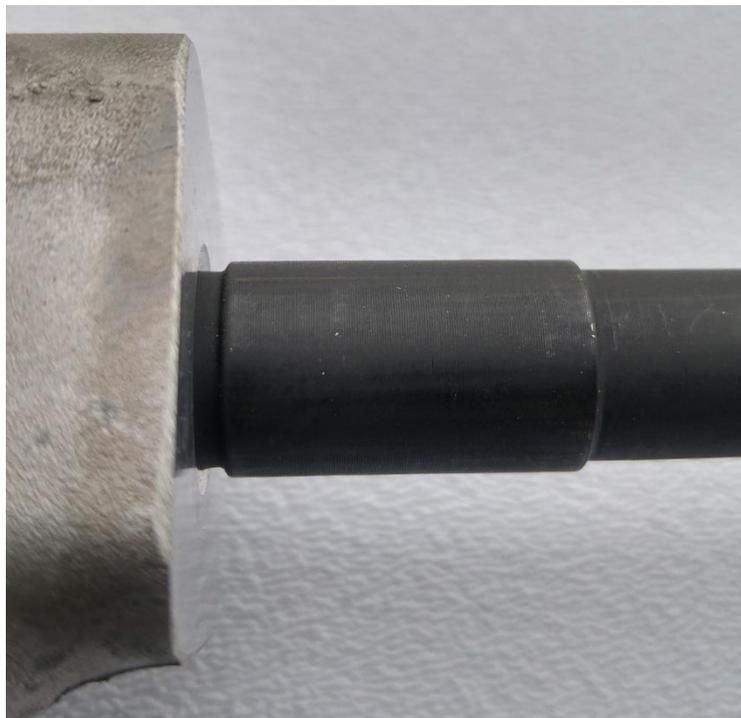
The best way to install the studs once the knuckle holes are clean is to “double nut” the ½” x 20tpi threaded end. Don’t use Vice-Grips or any related tool that grips the shank. Temporarily install the two included jam nuts against each other (lightly) on the ½” threaded end. ***Do not use the supplied ARP 12 point nuts as jam nuts!***



***\*Photos show installation on parts off-vehicle for clarity. The studs are designed to be installed on the factory knuckle as installed from the factory and on the vehicle.***

Apply a medium strength thread locker to the M14 x 2 threads and carefully start threading the stud. If the stud does not start properly – stop and inspect the threads in your factory knuckle for any visible sign of damage. Note - The supplied stud threads are inspected and supplied damage-free. As such, damage here is the responsibility of the installer.

The stud will install to a certain point (more on this in a moment) and you will start to feel increased resistance. This is the ball end of the stud bottoming out in the knuckle as it was designed to do. The bottom of the collar should not be touching the face of the knuckle so do not try to force the stud further than it needs to go. When installed properly the collar will be approximately 1/8" away from the knuckle, as shown in the following photo.



Do not “reef” on the stud at this point as 5 ft-lbs or so is all you need once bottomed. When properly seated, the end of the stud should project approximately 3-7/16” from the milled knuckle face (+/- 1/16”). Verify this critical dimension after carefully removing the double nuts, and allow the thread locker to cure untouched and to strength as per the thread locker instructions (typically 25 minutes or so). Install the remaining stud on its respective knuckle using the same procedure. Note the following picture for proper stud projection.



### **Reinstalling The Caliper**

Regardless of stud material, it is good practice to swipe the collar with anti-seize. The collar is the large diameter section of the stud that serves to locate the caliper. This will help to eliminate or minimize the potential for corrosion at this interface. It will make servicing or removing the caliper much easier. The factory bolts are by nature “self jacking” and lift up and out of the bore when you remove them. Studs don’t do this as they are fixed in place. So do yourself a favor here and lubricate this area.

You can now slide the caliper into place. *Be careful to not damage the threads on the end of the stud.* Lower the caliper down evenly so that it doesn’t get bound up or cocked. Install one of the supplied washers onto the stud followed by a 12 point ARP nut (a 12 point 9/16” socket is necessary).

#### Torque figures are as follows:

Dry (meaning no oil, anti-seize, etc)

- 4340 CT10 should be torqued to 105 ft-lbs
- 17-4PH should be torqued to 100 ft-lbs

Lubricated (meaning a light coating with the included ARP Thread Lubricant on the nut end of the stud)

- 4340 CT10 should be torqued to 90 ft-lbs
- 17-4PH should be torqued to 80 ft-lbs



**IMPORTANT!** A fastener needs to stretch a certain amount in order to maintain the proper preload. If you over-torque or stretch a fastener too far, you exit the elastic range and fastener becomes what is known as plastic, or in a permanent state of deformation – not good. Under torquing can lead to failure as well. So use a known good torque wrench and do your due diligence here.

In addition, remember to never remove or install the stud hardware when hot. When at the track it is imperative that you wait until everything has cooled sufficiently. You are far more likely to experience galling when everything is hot. And never use an impact gun for removal or installation. It may take longer to do everything by hand but your stud kit will thank you for it in the long run.

**Remember...**

- keep your stud threads clean
- always hand torque and do not use impact tools to remove or install the 12 point nut
- we recommend using the ARP thread lubricant on the nut end of the stud and accompanying torque figure
- if you aren't qualified to do an install such as this then have a qualified professional do it for you

**Be safe and have fun. Happy motoring!**

