

DETROIT TUNED BIG BRAKE KIT INSTALLATION INSTRUCTIONS



Thank you for purchasing the Detroit Tuned Big Brake Kit. We feel confident that you will love the new braking power that this kit will bring you. Please read all instructions before beginning the installation.

READ AND UNDERSTAND ALL INSTRUCTIONS BEFORE YOU BEGIN! BRAKES ARE THE MOST IMPORTANT SAFETY ITEM ON YOUR CAR. IMPROPER INSTALLATION CAN CAUSE YOU TO LOSE CONTROL, WHICH CAN RESULT IN LOSS OF VEHICLE OR LIFE, SO PROPER INSTALLATION IS CRITICAL. IF YOU DO NOT FEEL YOU CAN COMPLETE THE INSTALLATION AFTER READING THESE INSTRUCTIONS, PLEASE FIND A LOCAL MECHANIC THAT CAN DO THE WORK FOR YOU.

Application Disclaimers:

Wheel Disclaimer:

Detroit Tuned has designed our BBK to clear most wheel applications, but it is up to the customer to make sure their wheels fit and provide enough clearance. If wheels spacers are needed, we recommend using a wheel stud kit along with centering rings on the spacers. However, we do not recommend the use of wheel spacers if avoidable.

Coating Disclaimer:

The parts in this kit are coated for longevity, but care must be taken when cleaning. Most wheel cleaners have strong acids that can strip off these coatings. Detroit Tuned is not liable for damage produced as a result of cleaning products. The best way to keep these items looking good for years to come is to clean them with mild soap and water on a regular basis to make sure brake dust and road grim will come off and not build up.

Noise Disclaimer:

Big brake kits are designed to give ultimate braking under extreme conditions. Because of this, we use a race caliper. You may get a higher level of noise during normal use. Anti-noise shims and lubricants can be used to help prevent this.

Pad Disclaimer:

Proper pad selection is important for correct operation. We offer pads to run on the street, for low dust and noise that give light wear to the rotors. We also offer track pads that will offer the best stopping power on the track. Track pads are designed to stop in a certain heat range. When track pads are forced to stop in a much lower heat range, you may get a loud squeal and wear out rotors much faster. Make sure you have the correct pads for your intended application. If you have any questions, please contact us.

Tools needed:

- Torque Wrench (s) (inch and foot lbs.)
- Grinder
- 19mm 1/ 2" inch socket & 19mm wrench for new caliper brackets
- 9/16 1/ 2" inch socket & 9/16 wrench for new caliper brackets
- 14mm wrench to tighten line to fitting
- 11mm straight & line wrench for fitting on the caliper & hard line to brake flex line
- Torx 25 socket to remove backing plate screws
- Assorted Pliers (large channel lock pliers)
- 1/ 4" wrench for bleeder screws on DT calipers
- Assorted flat blade screwdriver
- Torx 50 socket to remove countersunk bolt on rotor
- 7mm Allen socket to remove old caliper
- 16mm 1/ 2" drive socket to remove caliper-mounting bracket
- 17mm wrench to remove old lines from hardliner
- 1/ 4", 3/8", & 1/2" drive ratchet
- 7/16 wrench for rotor assembly
- 8mm socket for rotor assembly
- Assorted 1/4", 1/ 2", & 3/8" extensions(as needed)
- Teflon Thread Sealer (liquid or tape)
- Brake Cleaner
- Lint free paper towels (blue shop towels work well)
- Jack & jack stands
- Loc-tite thread locker (Red)
- Paint pen (optional)

Installation instructions:

1. Loosen all lug nuts one turn before jacking the car up. Use the 17mm ½ inch socket with the ½ inch drive ratchet. **Re-torque to 95 ft. lbs. (gen1) or 108 ft. lbs (gen 2) when finished**
2. Jack the car from a jack point and add jack stands to evenly support the weight of the car. **Make sure the car is secure on the stands before proceeding or getting under car.**
3. Once the car is in the air and level, you can now remove the lug nuts and take off the wheels. Set the wheels off to the side so that they are out of the way. It should now look like Fig. 1



4. Remove dust caps (screw driver) & caliper bolts (7mm allen socket) (Fig. 2) from rear of caliper, and the spring (screw driver) (Fig. 1) from the front of the caliper. With a pair of large channel lock pliers, slowly press the inside pad and piston to loosen caliper pressure. Some cars will need the brake pad sensor to be removed on the driver side. Use a small screwdriver to pop it out of its slot from the inside pad. This part is plastic and is in extreme heat most of the time, so don't be surprised if it breaks. Don't worry if it does, as this part will not be used again, and can be zip tied out of the way wherever you would like it to be (behind the fender liner where it mounts to the core support is a good place). Now remove the caliper and brake pads. (Fig. 3) Unclip the brake line from the shock bracket and let caliper hang the from line behind rotor. (Fig. 4)



5. Remove the 2-16mm bolts that hold the caliper-mounting bracket shown in Fig. 3.

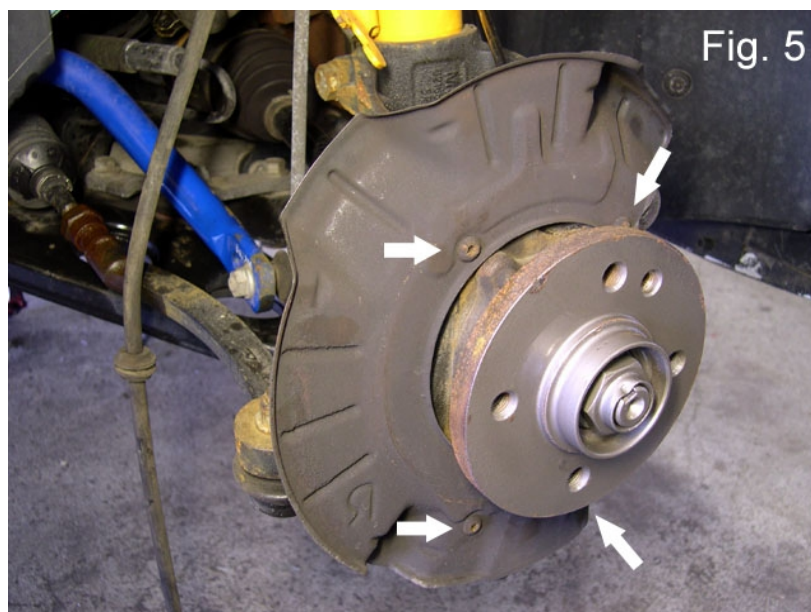


6. Remove the Torx bolt from the front of the rotor (Fig. 1) and the rotor will come off. An impact gun will make removal of the Torx bolt quick and easy. If one is not available, loosen the bolt before you

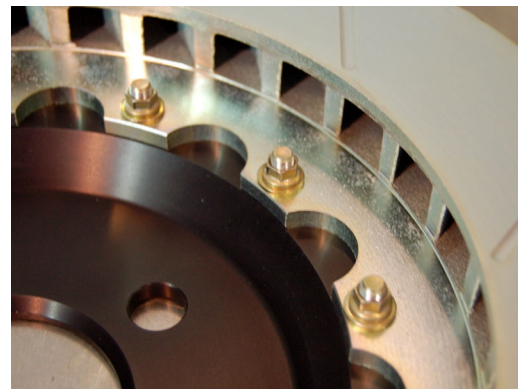
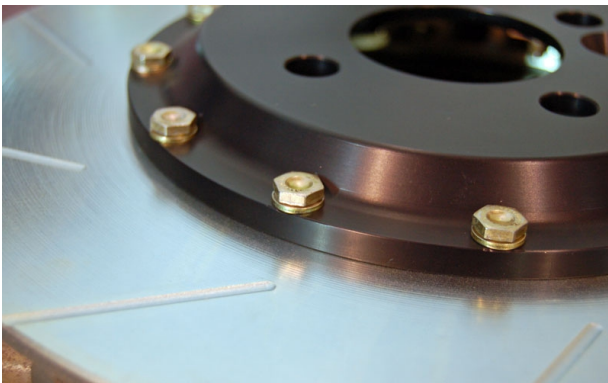
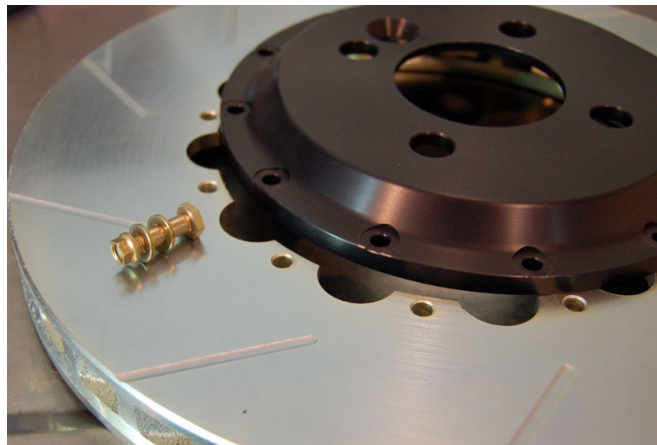
remove the caliper bracket. Insert a large screwdriver into a rotor vent to brace against the bracket to keep the rotor from spinning. Also the usage of a lubricant like PB Blaster or heat from a propane torch can help to loosen up a bolt that has not been loosened for a long while. If this bolt does break, it is only there to hold the rotor in place while to put everything together. This bolt would not be needed to be replaced if you did not want too. But make sure any broken parts are flush too the bearing so the rotor will fit flush. Sometime rotors will stick to the wheel bearing and a small tap with a hammer will help them come right off. Watch your toes when the rotor falls! Set all parts aside as these parts will no longer be used. Your car should now look like this. (Fig 4)



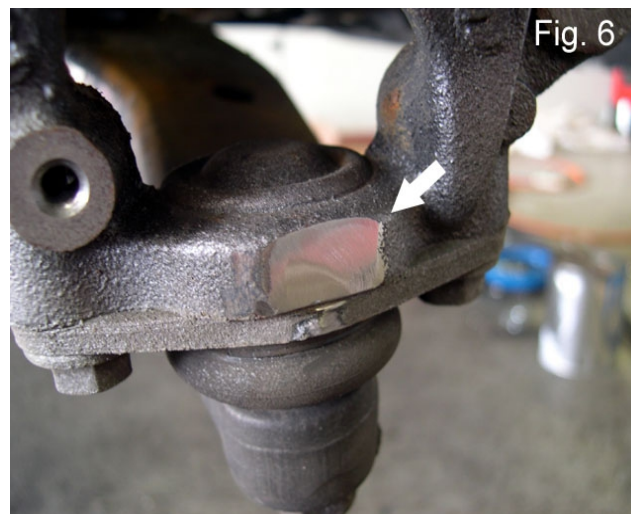
7. Remove the 4 Torx 25 screws that hold on the splash shield and remove it. Note: Make sure the bit is seated in there fully. You might need to tap it lightly with a hammer since the bolts do not have a straight shot to take them off. They are also really tight, so make sure that it is set in correctly. Set these parts aside as these will no longer be used. (Fig. 5)



8. Now it's time to assemble the rotor assemblies. Set the aluminum hat on top of the rotor and insert the small 1/4" gold bolt assemblies as shown. Make sure there is a washer on top and a washer on the back. Run the nuts down till they are just snug using the 7/16 wrench on the head side and the 8mm socket on the nut side. **Torque then to 120 inch lbs....Inch lbs, NOT ft lbs!!!**

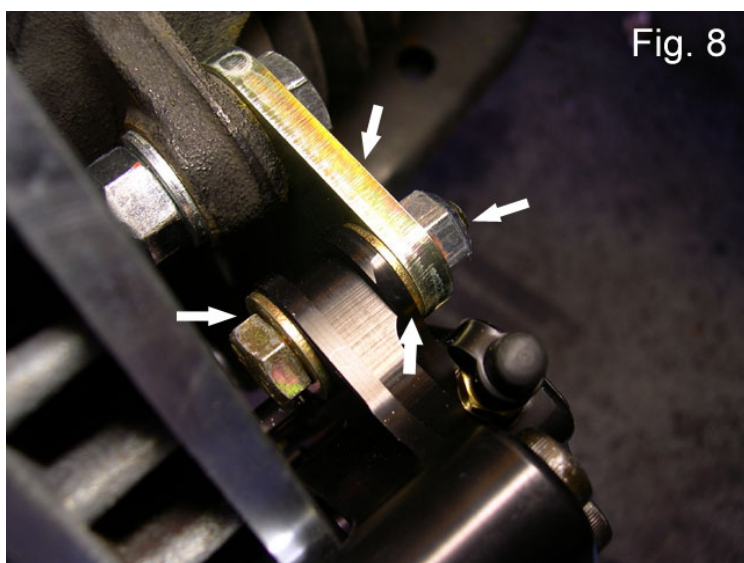
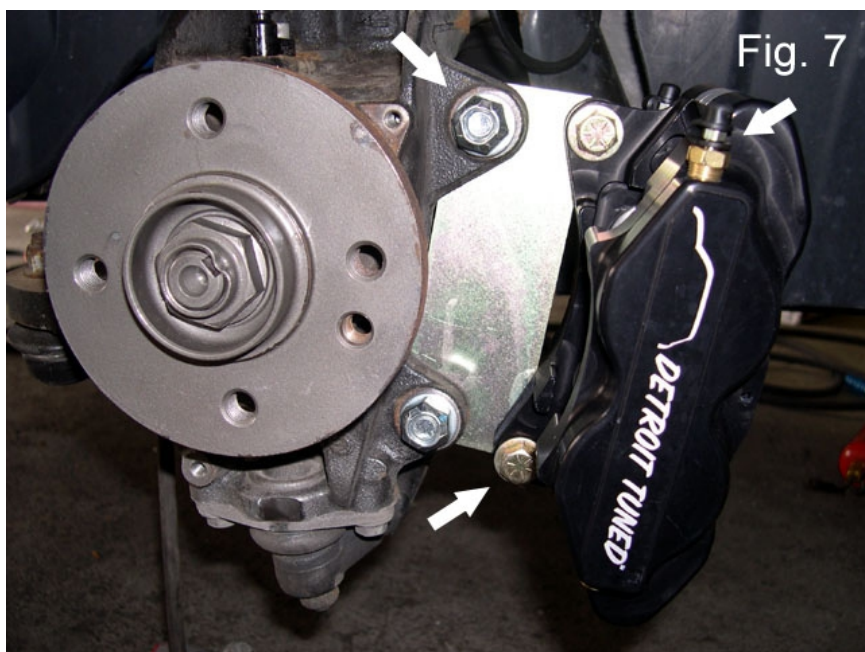


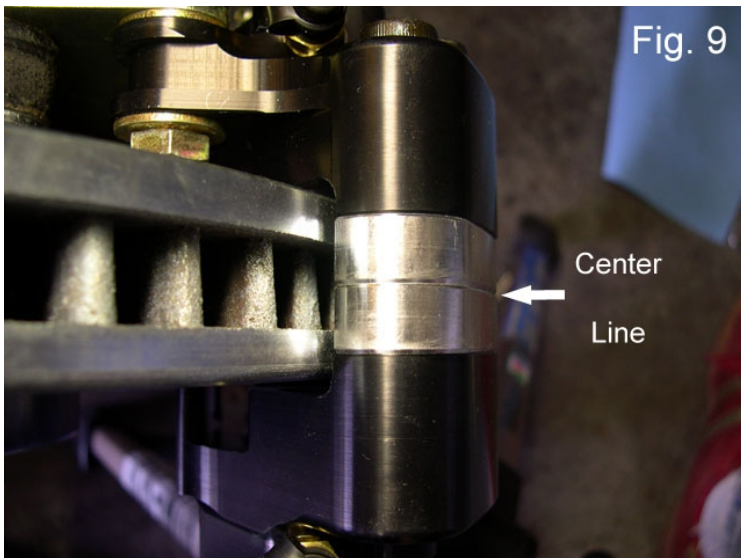
9. The only modification that is needed to make the DT brake kit fit is to grind a few flat flat spots depending on which kit you have. **Both kits** will need a small flat spot on the lower ball joint mounting area to clear the rotor. **The 16"** kit takes a bit more grinding on the lower area (as shown with the arrows in the photo). It will be evident as you test for the rotors how much you need to grind and where as test fit the rotors. The ball joint area will measure about 1/2 inch wide and about a 1/8 of an inch deep as you can see in Fig. 6. Grind a small flat spot and test fit the rotor for clearance. **Once you have the rotor flush and bolted down with the one flat head Torx, you should have about 1/8 clearance from rotor face to flat.** The steering knuckles are just cast parts, and every car is different. Some car need very little grinding, other cars need more of a drastic cut. Take your time in this step and be careful with the grinder. Wear a face shield and go slowly to not nick the ball joint boot. Taking your time in this step will make the whole job smooth and easy. **The 16" kit** will also need some grinding in the bracket location to clear the caliper. It is shown in the caliper mounting photo. Again every car is different, keep grinding till both items do not touch each other. Grind and test fit as needed. Again spend extra time in these steps will ensure a perfect fit.



10. The next step is to mount the caliper with the bracket and hardware supplied. Loosely assemble all of the items together as shown in Fig. 7, 8, and 9. The bracket will go onto the backside of the stock casting and will only fit one way. The 19mm bolts will go in either way and since the direction photos have been taken we put the head on the inside. This makes putting thread locker easy after fitting everything. The gold 9/16 bolts must go in head first with the nut on the backside. There are two washers included on each bolt. One washer must go between the caliper and bracket as shown in Fig. 8 for the 17" kit but is not normally used in the 16" kit. Make sure the caliper is centered on the rotor no matter what kit you have. Most of our calipers have bleeder screws on both sides, but if yours has only one set like in the photos, the bleeder screw must point up. For calipers with 4 bleeder screws, check and make sure the bottom bleeder screws are tight before adding fluid and bleeding.

11. With everything very loosely bolted together, insert the rotor so that the slots point back. (Referencing the photo on page 1, this is the driver side.) Bolt the rotor on with the stock flat head bolt, and then tighten all the other hardware. The 9/16 caliber bolts torque is 50 ft. lbs. The large caliber bracket bolts are 19mm, torque them to 75 ft. lbs. Always use Loc-tite when reinstalling bolts. Make sure the caliper is centered on the rotor like Fig. 9 shows. Assembly note: when tightening caliper bolts down, make sure the caliper is pulled all the way out. Since the holes in the bracket are clearance hole, you can actually bolt the caliper to the bracket with it to far in. This can be a problem when things get hot and as the rotor expands under the extreme heat a rotor is subjected to. With the caliper all the way out, it has enough room to move and grow as needed. After everything is assembled, spin the rotor to make sure everything has clearance and moves easily. The rotor should spin freely and quietly. If not you need to figure out why and adjust it.





12. Installing Fittings

On the back of both calipers is a 1/8-inch pipe tap that is ready to accept a 90 deg. elbow that comes with the kit. Start by applying a pipe sealer of some type. We have found that a liquid pipe sealant (**FIG #11**) is easier to use and gives a better seal over using the tape variety, but any kind will work. Test fit the elbow before adding the sealant to ensure easy starting and proper fitment. Once you know everything fits, use your 11mm wrench to tighten down the fitting after applying the thread sealant. Plan ahead! As the fitting gets tighter, think about where it is going to point. In the end you want the fitting to point up with about a 30 deg backwards sweep as shown in the photo of the passengers side caliper (**FIG #10**). Again this item will need to be tight, but not over tightened, and has to point up. You may still be able to turn it another half a turn or more until it tightens up to fully stop. If you do this, you may have gone to far and will need to back it off. Try not to go any farther than you have to as that can loosen up the threads and possibly cause a leak.

FIG #10



FIG #11



13.) Adding the Brake Lines

Clip the bushing into the shock as shown in photo (**FIG #12**). Attach the brake line to hard line at car and tighten.

Note: One of the features of the Detroit Tuned Big Brake Kit are the OEM bushings that come on the stainless steel lines. They fit much tighter than other brake line kits on the market. Once everything is assembled, move the line in the bushing so that you have even loops on each side and that the line is not rubbing against any items like sway bars, sway bar end links or the wheel. Once you set the lengths on each side of the bushing, the line will not move around. (Fig. #13)

FIG #12



Fig. 13



14.) Attach Brake Line to Caliper

Attach the brake line to the fitting on the caliper and tighten. Slide the brake line so that it has the least amount of slack from the bushing to the caliper, and the most slack from the hard line to the bracket. The bushing might need a bit of lubrication to allow it to slip on the brake line easy. Work it a bit and you will be able to adjust the line as needed. It must be adjusted as the bushing is not in the correct place.

Note all the yellow marks on all the bolts. It is a good practice to mark on all the bolts after torque for easy inspection before track days or any time you are working on your car. By making a line on the bolt that extends onto the surface, you can quickly see if the bolt has moved or loosened. You can use any color you like, but a bright contrasting color like yellow or red tends to work better. You can buy paint marking pens at any good hardware store for under \$2.00. (Fig. 14)

FIG. #14

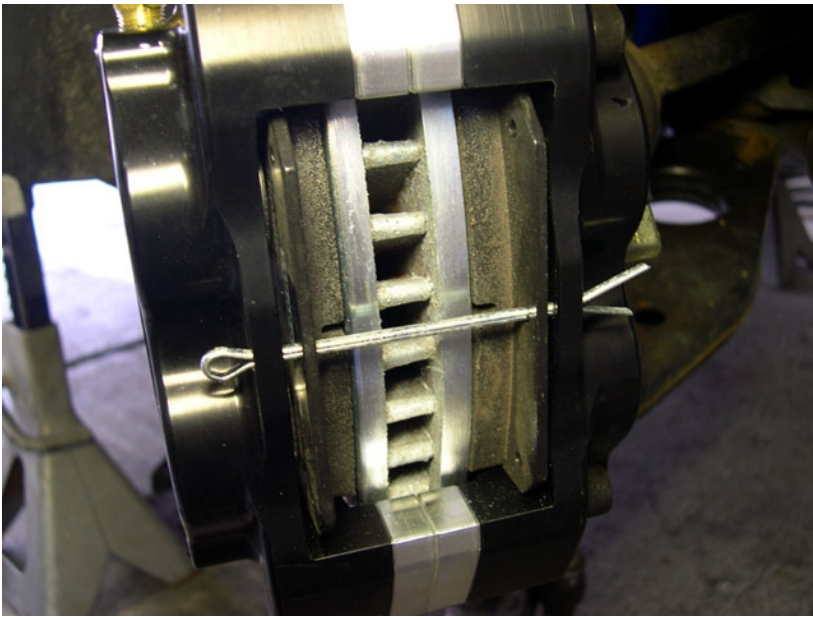


15.) Inserting the Pads

Insert the pads that come with your kit between the rotor and the caliper on each side. The box of pads will have 4 pads in it. Each new pad can be put into any side of the caliper on car at this point, but we recommend that if you switch pads for track days, try to put the same pad back into its original

position. Once the pads are installed, insert the cotter pin and bend the ends just enough to keep it from coming out. (See **Fig. #15**)

FIG. #15



16. Bleeding the System:

Before you start to bleed the system, pump the brakes a few times. This will move the pads and pistons out so that the fluid levels are correct. Once you have opened a line to the point where fluid has leaked out, you now have air in the your brake system. The system **MUST** be bled of all air for proper function. Before you start bleeding the system, wash down the area of each connection with brake cleaner (**FIG. #16**) and wiped down with a lint free towel. This way you can see if there are any leaks during the brake bleed and can tighten up the connection. Make sure the master cylinder is full of fluid at all time so that it does not run dry and reintroduce air back into the system causing you to start over. It is very hard to get air out of the system after the master cylinder has run dry. There are lots of places to get air trapped in modern ABS units, so it is best to take your time and make sure it does not run dry.

It is best to use a power bleeder like the Motive Power Bleeder shown below for a job like this (See **FIG. #15**). Follow their directions.

FIG. #15



If you do not have a power bleeder, you will need to do a two-man bleed. Get a partner and have them get into the car. They will need to push down on the brake pedal and hold it down while you open & close the bleeder screw. You will need a 10mm and $\frac{1}{4}$ wrench for the bleeder screws. Step on the brake, and hold down on it to give pressure. Open the bleeder screw. Have a hose attached to the bleeder screw and a bottle to catch the old fluid. Once you open the bleeder screw you will get air and old fluid out. You need to keep the pedal pushed down to keep from air from re-entering into the system. You will then close the bleeder screw and you can let up on the brake pedal. Repeat until you get clean fluid out of each caliper. Even if you are only installing a front brake kit at this time, we recommend bleeding the entire brake system. While you are bleeding the system and opening and closing the bleeder screws, you do not have to fully tighten them down each time. They need to be just tight enough to not let fluid out or air in. Once you are done bleeding the system, go back and tighten them all down. Again they need to be tight, but not over tightened. When you're completely done, wash down the area with some brake cleaner (**FIG. #16**) and wipe down with a lint free towel or lint free paper towel (blue work towels work well). The cleaner will dry quickly and will allow you to check for leaks. After things are washed down, give the pedal a few hard pumps and check all connections for any leaks. If you find any leaks, re-tighten, wash down, pump & check again. Remember, if fluid is coming out, air is going in. Air in the brake lines will cause problems. **YOU MUST DO THIS CORRECTLY OR YOU CAN HAVE PROBLEMS WITH THE BRAKING SYSTEM. THIS CAN RESULT IN LOSS OF CAR OR LIFE. IF YOU HAVE ANY QUESTIONS, PLEASE CALL US.**

FIG. #16



17.) Rear Brakes!

Don't forget about your rear brakes! A nice set of Power Slot rotors will make your rear rotors match the front rotors. Match it with a set of Hawk or Ferodo 2500 pads along with a set of rear Detroit Tuned Stainless Steel Brake Lines for the ultimate brake kit for your MINI. With a bit of black G2Caliper Paint, you will have a rear setup that will look as good as your front kit for around \$270. (See **FIG. #17**)

FIG. #17



If you have any questions while installing this kit, please give us a call so that we can help you any way that we can.

If you have any questions give us a call or send us an email.

Detroit Tuned (586) 792-MINI or info@detroittuned.com

