

# ASSEMBLY INSTRUCTIONS

FOR

## SUPERLITE 6 BIG BRAKE FRONT HAT KIT WITH 14.00" DIAMETER VENTED ROTOR

1998 - 2002 CAMARO / FIREBIRD

PART NUMBER GROUP

**140-9834**

**DISC BRAKES SHOULD ONLY BE INSTALLED BY SOMEONE  
EXPERIENCED AND COMPETENT IN THE INSTALLATION AND  
MAINTENANCE OF DISC BRAKES**

**READ ALL WARNINGS**



## Photographic Tip

**Important** and highly recommended: Take photos of brake system before disassembly and during the disassembly process. In the event, trouble-shooting photos can be life savers. Many vehicles have undocumented variations, photos will make it much simpler for Wilwood to assist you if you have a problem.

## Exploded Assembly Diagram

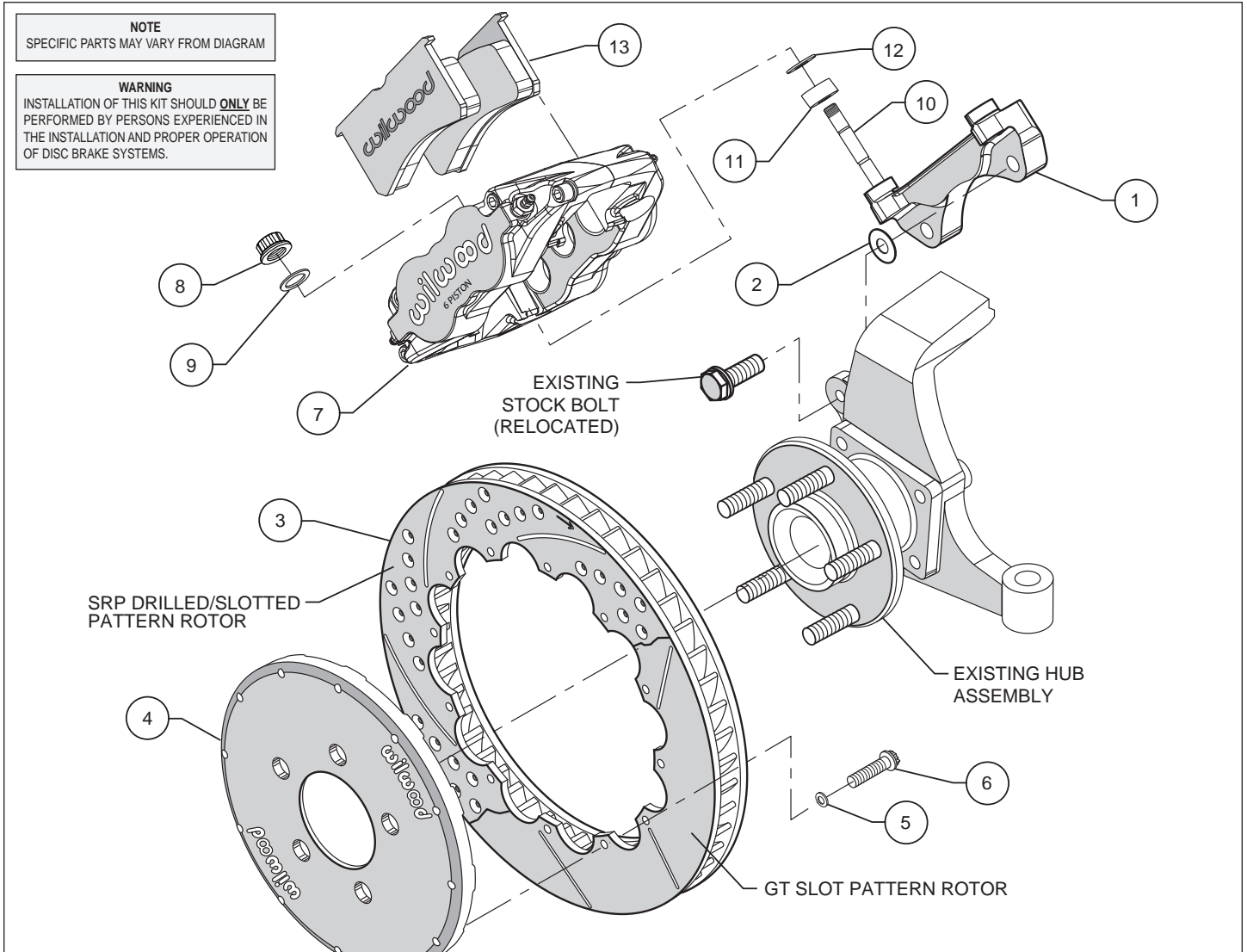


Figure 1. Typical Installation Configuration

## Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	250-9829	Bracket, Caliper Mounting	2
2	240-6320	Shim, .033 Thick	16
3	160-8398/99	Rotor, 1.25" Thick x 14.00" Dia, 12 x 8.75" Bolt Circle	2
3A	160-8396/97	Rotor, Drilled and Slotted, one each, right and left hand	2
4	170-6837	Hat, 5 x 4.75, .875 Offset, 12 x 8.75 Bolt Circle	2
5	240-11240	Washer, .265 I.D. x .500 O.D. x .063 Thick	24
6	230-6737	Bolt, 1/4-20 x 1.00 Long, 12 Point	24
7	120-11778/79-BK	Caliper, Superlite 6R	2
7A	120-11778/79-RD	Caliper, Superlite 6R, Red	2
8	230-9183	Nut, 3/8-24 Self-Locking, 12 Point	4
9	240-10190	Washer, .391 I.D. x .625 O.D. x .063 Thick	4
10	230-9079	Stud, 3/8-16 x 3/8-24 x 3.15 long (pre installed in bracket)	4
11	300-9491	Spacer, .470 Long	4
12	240-1159	Shim, .035 Thick	16
13	150-8855K	Pad, BP-10 Compound, Axle Set	1
Optional	220-6746	Braided Stainless Steel Hose Kit (not included)	1

### NOTES:

Part Number 230-4572 Rotor Bolt Kit, includes part numbers 230-6737 and 240-11240

Part Number 250-9877 Caliper Bracket Mounting Bolt Kit, includes P/N 230-9183, 230-9079, 240-1159, 240-10190, 240-6320, 250-9829 & 300-9491

Item 3A is an optional item and is included with the "-D" drilled rotor kits. Add "-D" to end of part number when ordering.

Item 7A is an optional item and is included with the "-R" red caliper kits. Add "-R" to end of part number when ordering.

## General Information and Disassembly Instructions

• Installation of this kit should **ONLY** be performed by individuals experienced in the installation and proper operation of disc brake systems. Prior to any attempt to install this kit, please check the following to ensure a trouble free installation.

• Inspect the contents of this kit against the parts list to ensure that all components and hardware are included.

• Verify the year and model of your spindle. This kit is designed for direct bolt-on installation to 1998 through 2002 model year production spindles that were originally equipped with twin piston calipers. This kit will not fit 1993 through 1997 production year spindles originally equipped with single piston floating mount calipers. The correct spindles are identified by casting numbers 18023021 and 18023022. 1993 through 1997 model year vehicles may be updated with the later model spindle to accommodate installation of this kit.

• Verify your wheel clearance using figure 2.

• Verify that the factory hub and stud pattern matches the stud hole pattern in the hats supplied with this kit. Hubs that have been modified with different size studs or lug patterns may require modifications to the hat that must be performed by a qualified machinist.

### Disassembly

• Disassemble the original equipment front brakes: Raise the front wheels off the ground and support the front suspension according to the vehicle manufacturer's instructions.

• Remove the wheel. Remove the two bolts from the backside of the spindle that hold the stock caliper mounting bracket and lift off the bracket and stock caliper as one unit. If space is a problem, you may have to unbolt the stock caliper from the caliper bracket before removal. Save the stock caliper mounting bracket bolts, they will be utilized during reassembly, then slide off the stock hat and rotor assembly. Optional: Removal of the dust face plate to facilitate easy removal of additional parts and/or for aesthetic purposes if you will be running spoked wheels and would like to see the slotted rotor.

• Clean and de-grease the spindles as well as the stock caliper bracket bolts. Remove all nicks or burrs on the spindle snout and threads.

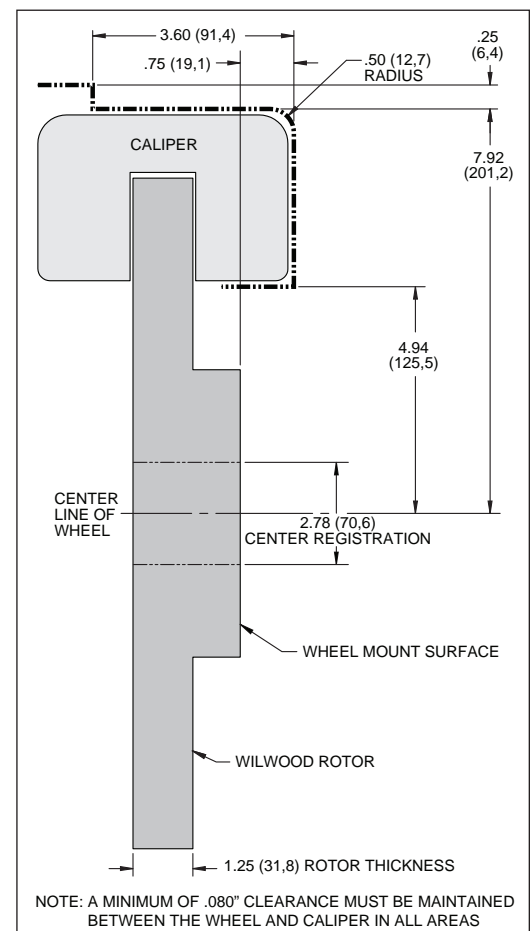


Figure 2. Wheel Clearance Diagram

## Assembly Instructions

**Assembly Instructions** (numbers in parenthesis refer to the parts list/diagram on the preceding page):

- The caliper mount bracket assembly (1) should be installed first with clean, dry threads on the mounting bolts. Install the bracket using the original caliper mount bolts. The bolts will now pass through the spindle from the opposite direction that they were removed as shown in Figure 1 and Photo 1. Use one thin shim (2) between the bracket and spindle during initial trial fitting, Figure 1 and Photo 2. The bracket must tighten squarely against the inboard side of the caliper mount bosses on the spindle body, Photo 3. Inspect for interference from casting irregularities, machining ridges, burrs, etc. Later, after the caliper, pad, and rotor alignment have been checked, and any necessary shims have been put in place, the mount bolts should be coated with red *Loctite*<sup>®</sup> 271 and torqued to 65 ft-lbs.



Photo 1



Photo 2

- Orient the rotor (3) and hat (4) as shown in Figure 1 and Photo 4. Attach the rotor to the hat with bolts (6) and washers (5). Be sure all bolts thread in smoothly and are snug. Using an alternating sequence, apply red *Loctite*<sup>®</sup> 271 to the threads and torque bolts to 155 **in-lbs**. For an added measure of security, the bolts may be safety wired using standard 0.032 inch diameter stainless steel safety wire as shown in Figure 3. Please refer to Wilwood's data sheet DS-386 for complete



Photo 3



Photo 4

safety wire installation instructions.

- Install the hat and rotor assembly (3/4) onto the hub, Photo 5. Check to be sure the hat seats squarely against the hub. The hub must be free from any rust, debris, casting burrs, machining irregularities, etc. Use three lug nuts to hold the rotor and hat firmly against the hub during the next phases of the installation and clearance checking procedures.

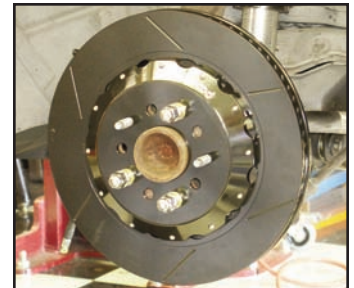
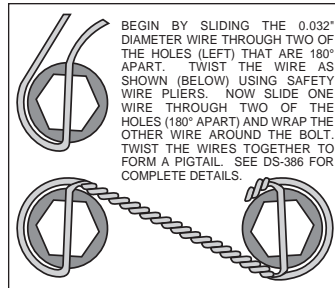


Photo 5

- NOTE:** This kit contains distinct right and left hand calipers that must be mounted in a specific direction, as described below. Lubricate the caliper mounting studs (10) with lightweight oil. Initially place one .035" thick shim (12) and spacer (11) on each stud as shown in Figure 1 and Photo 6. Mount the caliper (7) onto the bracket (1) using lock nuts (8) and washers (9), Figure 1 and Photo 7. Ensure that the caliper is mounted so that the largest pistons are at the rotor exit end of the caliper, in relation to the direction of rotor rotation. Temporarily tighten the lock nuts and view the rotor through the top opening of the caliper. The rotor should be centered in the caliper. If not, adjust by adding or subtracting shims (2) between the bracket and the upright. Always use the same amount of shims on each of the two mounting bolts. Once the caliper alignment is correct, remove the bracket mounting bolts one at a time, apply red *Loctite*<sup>®</sup> 271 to the threads, and torque to manufacturer's specifications.

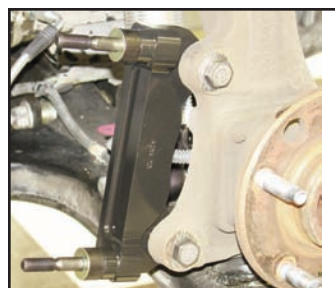


Photo 6



Photo 7

- Remove the caliper center bridge pad retainer bolt, nut, and tube from the caliper. Slide the brake pads (13) into place, Photo 8. They should install easily without interference. Check that the outside radius of the brake pad is aligned with the outside diameter radius of the rotor face. Add or subtract shims (12)

## Assembly Instructions (Continued)

between the caliper and mount bracket to gain the proper alignment. Reinstall the center bridge pad retainer tube, bolt, and lock nut, Photo 9. The locknut should be snug without play in the bolt or tube. Be cautious not to over tighten.

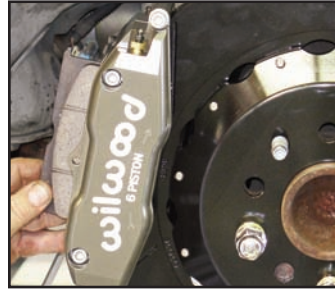


Photo 8



Photo 9

- Remove the lug nuts that were holding the hat in place. Install the wheel and torque the lug nuts to specification. Check to see that the wheel rotates freely without interference.
- Once all clearances have been checked, remove the wheel, caliper, hat, and rotor from the spindle and hub. Secure the caliper mounting bracket (1) to the spindle using red *Loctite*® 271. Torque the bolts to 65 ft-lbs. Reinstall the hat and rotor assembly and again use several lug nuts to hold it in place. Lubricate caliper mounting studs and nuts with lightweight oil, reinstall the caliper, torque the caliper nuts (8) to 28 ft-lbs.
- Install braided flexline kit part number 220-6746 (not included). The 10mm x 1 to -3 (P/N 220-6890) male fitting installs to the stock bulkhead. Then install the straight 1/8-27 to -3 NPT (P/N 220-6956) fitting into the caliper (7). Finally, install the flex line (P/N 220-6411) to the two previously installed fitting. **Carefully route lines to prevent contact with moving suspension, brake or wheel components.** Wilwood hose kits are designed for use in many different vehicle applications and it is the installer's responsibility to properly route and ensure adequate clearance and retention for brake hose components.
- Specified brake hose kits may not work with all Years, Makes and Models of vehicle that this brake kit is applicable to, due to possible OEM manufacturing changes during a production vehicle's life. It is the installer's responsibility to ensure that all fittings and hoses are the correct size and length, to ensure proper sealing and that they will not be subject to crimping, strain and abrasion from vibration or interference with suspension components, brake rotor or wheel.
- In absence of specific instructions for brake line routing, the installer must use his best professional judgment on correct routing and retention of lines to ensure safe operation. Test vehicle brake system per the 'minimum test' procedure stated within this document before driving. After road testing, inspect for leaks and interference. Initially after install and testing, perform frequent checks of the vehicle brake system and lines before driving, to confirm that there is no undue wear or interference not apparent from the initial test. Afterwards, perform periodic inspections for function, leaks and wear in a interval relative to the usage of vehicle.
- Repeat the procedure for the other wheel.
- Bleed the brake system. Reference the general information and recommendations on page 6 for proper bleeding instructions.

## Additional Information and Recommendations

- Please read the following concerning balancing the brake bias on 4 wheel disc vehicles.

This brake kit can be operated using the stock OEM master cylinder. However, as with most suspension and tire modifications (from OEM specifications), changing the brakes may alter the front to rear brake bias. Rear brakes should not lock up before the front. Brake system evaluation and tests should be performed by persons experienced in the installation and proper operation of brake systems. Evaluation and tests should be performed under controlled conditions. Start by making several stops from low speeds then gradually work up to higher speeds. Always utilize safety restraint systems while operating vehicle.

Use a Wilwood adjustable proportioning valve if necessary to achieve proper brake balance, or

Use a Wilwood brake pedal/balancebar assembly with dual master cylinders (requires custom mounting as used in fabricated chassis race cars). A balance bar brake system permits incremental front to rear brake pressure adjustments.

- For optimum performance, fill and bleed the new system with Wilwood Hi-Temp<sup>o</sup> 570 grade fluid or EXP 600 Plus. For severe braking or sustained high heat operation, use Wilwood EXP 600 Plus Racing Brake Fluid. Used fluid must be completely flushed from the system to prevent contamination. **NOTE:** *Silicone DOT 5 brake fluid is **NOT** recommended for racing or performance driving.*

- To properly bleed the brake system, begin with the caliper farthest from the master cylinder. Bleed the outboard bleed screw first, then the inboard. Repeat the procedure until all calipers in the system are bled, ending with the caliper closest to the master cylinder. **NOTE:** *When using a new master cylinder, it is important to bench bleed the master cylinder first.*

- If the master cylinder is mounted lower than the disc brake calipers, some fluid flowback to the master cylinder reservoir may occur, creating a vacuum effect that retracts the caliper pistons into the housing. This will cause the pedal to go to the floor on the first stroke until it has "pumped up" and moved all the pistons out against the pad again. A Wilwood in-line two pound residual pressure valve, installed near the master cylinder will stop the fluid flowback and keep the pedal firm and responsive..

### For all types of pedals and master cylinders:

- Test the brake pedal. It should be firm and consistent. If not, first try re-bleeding the system. The pedal should stop at least 1" or more from the floor under heavy load. Pedal height must be comfortable to the driver.
- If the pedal is initially firm, but then travels to the floor, check the entire system for leaks. This may also be a sign of a faulty master cylinder.
- If the pedal is constantly spongy, and repeated bleeding does not correct the problem, the master cylinder selection and pedal geometry may need re-evaluated.
- If you are still experiencing difficulty after all instructions have been followed, consult your chassis shop, the retailer where the kit was purchased, or the Wilwood Tech Line.

## Brake Testing

### **WARNING • DO NOT DRIVE ON UNTESTED BRAKES BRAKES MUST BE TESTED AFTER INSTALLATION OR MAINTENANCE MINIMUM TEST PROCEDURE**

- Make sure pedal is firm: Hold firm pressure on pedal for several minutes, it should remain in position without sinking. If pedal sinks toward floor, check system for fluid leaks. DO NOT drive vehicle if pedal does not stay firm or can be pushed to the floor with normal pressure.
- At very low speed (2-5 mph) apply brakes hard several times while turning steering from full left to full right, repeat several times. Remove the wheels and check that components are not touching, rubbing, or leaking.
- Carefully examine all brake components, brake lines, and fittings for leaks and interference.
- Make sure there is no interference with wheels or suspension components.
- Drive vehicle at low speed (15-20 mph) making moderate and hard stops. Brakes should feel normal and positive. Again check for leaks and interference.
- Always test vehicle in a safe place where there is no danger to (or from) other people or vehicles.
- Always wear seat belts and make use of all safety equipment.

## Pad and Rotor Bedding

### **BEDDING STEPS FOR NEW PADS AND ROTORS – ALL COMPOUNDS**

Once the brake system has been tested and determined safe to operate the vehicle, follow these steps for the bedding of all new pad materials and rotors. These procedures should only be performed on a race track, or other safe location where you can safely and legally obtain speeds up to 65 MPH, while also being able to rapidly decelerate.

- Begin with a series of light decelerations to gradually build some heat in the brakes. Use an on-and-off the pedal technique by applying the brakes for 3-5 seconds, and then allow them to fully release for a period roughly twice as long as the deceleration cycle. If you use a 5 count during the deceleration interval, use a 10 count during the release to allow the heat to sink into the pads and rotors.
- After several cycles of light stops to begin warming the brakes, proceed with a series of medium to firm deceleration stops to continue raising the temperature level in the brakes.
- Finish the bedding cycle with a series of 8-10 hard decelerations from 55-65 MPH down to 25 MPH while allowing a proportionate release and heat-sinking interval between each stop. The pads should now be providing positive and consistent response.
- If any amount of brake fade is observed during the bed-in cycle, immediately begin the cool down cycle.
- Drive at a moderate cruising speed, with the least amount of brake contact possible, until most of the heat has dissipated from the brakes. Avoid sitting stopped with the brake pedal depressed to hold the car in place during this time. Park the vehicle and allow the brakes to cool to ambient air temperature.

### **COMPETITION VEHICLES**

- If your race car is equipped with brake cooling ducts, blocking them will allow the pads and rotors to warm up quicker and speed up the bedding process.
- Temperature indicating paint on the rotor and pad edges can provide valuable data regarding observed temperatures during the bedding process and subsequent on-track sessions. This information can be highly beneficial when evaluating pad compounds and cooling efficiencies.

## Pad and Rotor Bedding (Continued)

### POST-BEDDING INSPECTION – ALL VEHICLES

- After the bedding cycle, the rotors should exhibit a uniformly burnished finish across the entire contact face. Any surface irregularities that appear as smearing or splotching on the rotor faces can be an indication that the brakes were brought up to temperature too quickly during the bedding cycle. If the smear doesn't blend away after the next run-in cycle, or if chatter under braking results, sanding or resurfacing the rotors will be required to restore a uniform surface for pad contact.

### PRE-RACE WARM UP

- Always make every effort to get heat into the brakes prior to each event. Use an on-and-off the pedal practice to warm the brakes during the trip to the staging zone, during parade laps before the flag drops, and every other opportunity in an effort to build heat in the pads and rotors. This will help to ensure best consistency, performance, and durability from your brakes.

### DYNO BEDDED COMPETITION PADS AND ROTORS

- Getting track time for a proper pad and rotor bedding session can be difficult. Wilwood offers factory dyno-bedded pads and rotors on many of our popular competition pads and **Spec 37** GT series rotors. Dyno-bedded parts are ready to race on their first warm up cycle. This can save valuable time and effort when on-track time is either too valuable or not available at all, Dyno-bedding assures that your pads and rotors have been properly run-in and are ready to go. Contact your dealer or the factory for more information on Wilwood Dyno-Bedding services.

### NOTE:

*NEVER allow the contact surfaces of the pads or rotors to be contaminated with brake fluid. Always use a catch bottle with a hose to prevent fluid spill during all brake bleeding procedures.*