

**ASSEMBLY INSTRUCTIONS**  
FOR  
**SUPERLITE 6 BIG BRAKE FRONT HAT KIT,  
WITH 12.90" DIAMETER VENTED ROTOR**

**2008 - PRESENT TOYOTA MATRIX**

PART NUMBER GROUP

**140-10752**

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

**READ ALL WARNINGS**

**WARNING**

IT IS THE RESPONSIBILITY OF THE PERSON INSTALLING ANY BRAKE COMPONENT OR KIT TO DETERMINE THE SUITABILITY OF THE COMPONENT OR KIT FOR THAT PARTICULAR APPLICATION. IF YOU ARE NOT SURE HOW TO SAFELY USE THIS BRAKE COMPONENT OR KIT, YOU SHOULD NOT INSTALL OR USE IT. DO NOT ASSUME ANYTHING. IMPROPERLY INSTALLED OR MAINTAINED BRAKES ARE DANGEROUS. IF YOU ARE NOT SURE, GET HELP OR RETURN THE PRODUCT. YOU MAY OBTAIN ADDITIONAL INFORMATION AND TECHNICAL SUPPORT BY CALLING WILWOOD AT (805) 388-1188, OR VISIT OUR WEB SITE AT [WWW.WILWOOD.COM](http://WWW.WILWOOD.COM). USE OF WILWOOD TECHNICAL SUPPORT DOES NOT GUARANTEE PROPER INSTALLATION. YOU, OR THE PERSON WHO DOES THE INSTALLATION MUST KNOW HOW TO PROPERLY USE THIS PRODUCT. IT IS NOT POSSIBLE OVER THE PHONE TO UNDERSTAND OR FORESEE ALL THE ISSUES THAT MIGHT ARISE IN YOUR INSTALLATION.

RACING EQUIPMENT AND BRAKES MUST BE MAINTAINED AND SHOULD BE CHECKED REGULARLY FOR FATIGUE, DAMAGE, AND WEAR.



**WARNING**

**DO NOT OPERATE ANY VEHICLE ON UNTESTED BRAKES!  
SEE MINIMUM TEST PROCEDURE WITHIN**

**ALWAYS** UTILIZE SAFETY RESTRAINT SYSTEMS AND ALL OTHER AVAILABLE SAFETY EQUIPMENT WHILE OPERATING THE VEHICLE.

**IMPORTANT • READ THE DISCLAIMER OF WARRANTY INCLUDED IN THE KIT.**

NOTE: Some cleaners may stain or remove the finish on brake system components. Test the cleaner on a hidden portion of the component before general use.

## Important Notice - Read This First

Before any tear-down or disassembly begins, review the following information:

- Review the wheel clearance diagram (figure 2, page 3) to verify that there is adequate clearance with the wheels you will be using with the installation.
- Front brake kits do not include flex lines. OEM brake lines will not adapt to Wilwood calipers. Check the assembly instructions, or associated components section for brake line recommendations before assembly. In addition, Wilwood offers an extensive listing of brake lines and fittings on our web site: [www.wilwood.com](http://www.wilwood.com).
- Due to OEM production differences and other variations from vehicle to vehicle, the fastener hardware and other components in this kit may not be suitable for a specific application or vehicle.
- It is the responsibility of the purchaser and installer of this kit to verify suitability / fitment of all components and ensure all fasteners and hardware achieve complete and proper engagement. Improper or inadequate engagement can lead to component failure.

## Exploded Assembly Diagram

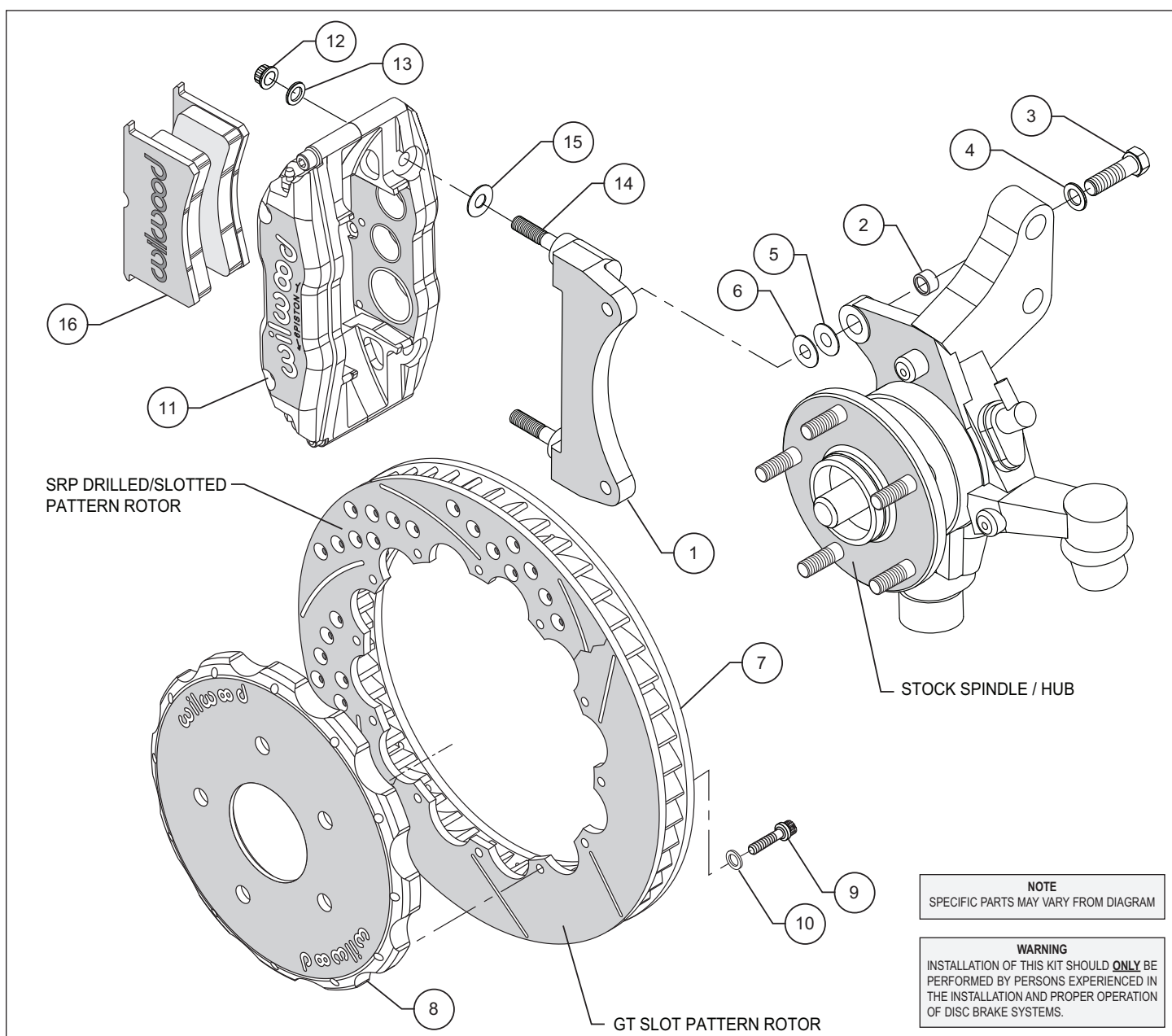


Figure 1. Typical Installation Configuration

## Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	250-10758	Bracket, Caliper Mounting	2
2	300-8359	Sleeve	4
3	230-9458	Bolt, 7/16-14 x 1.50 Long, HHCS	4
4	240-0476	Washer, .477 I.D. x .922 O.D. x .063 Thick	4
5	240-3902	Washer, .441 I.D. x 1.000 O.D. x .016 Thick	8
6	240-1848	Washer, .441 I.D. x 1.003 O.D. x .030 Thick	12
7	160-6833/34	Rotor, GT 1.10" Thk x 12.90" Dia, 12 x 8.75" Bolt Circle, (one each, right and left)	2
7A	160-6835/36-BK	Rotor, SRP Drilled and Slotted (one each, right and left)	2
8	170-10761	Hat, 5 x 4.50, .543 offset, 12 x 8.75 Bolt Circle	2
9	230-6737	Bolt, 1/4-20 x 1.00 Long, 12 PTCS	24
10	230-2509	Washer, .250 I.D. x .500 O.D. x .063 Thick	24
11	120-8079/80-FS	Caliper, Superlite 6R (one each, right and left)	2
12	230-9183	Nut, 3/8-24 Self-Locking Hex Head	4
13	240-2510	Washer, .391 I.D. x .625 O.D. x .057 Thick	4
14	230-9078	Stud, 3/8-16 x 3/8-24 x 2.50 Long (pre installed in bracket)	4
15	240-1159	Washer, .375 I.D. x .875 O.D. x .035 Thick Shim	8
16	150-8855K	Pad, BP-10 Compound, Axle Set	1

NOTES: P/N 230-4572 Rotor Bolt Kit, includes part numbers 230-6737 and 240-2509  
P/N 230-10171 Bracket Bolt Kit, includes part numbers 230-9458, 240-1848, 240-3902, 240-0476 and 300-8359  
P/N 250-10759 Caliper Bracket Kit, includes P/N's 230-9183, 230-9078, 240-1159, 240-2510 and 250-10758  
Item 7A is an optional item and included with the "-D" kits. Add "-D" 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.
- Make sure this is the correct kit to fit the exact make and model year of your axle. This kit is designed for direct bolt-on installation to 2008 - present model year Toyota Matrix.
- Verify your wheel clearance using Figure 2.
- Verify that the factory axle and stud pattern matches the stud hole pattern in the rotors supplied with this kit. Axles that have been modified with different size studs or lug patterns may require modifications to the rotor 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. Loosen the bolts from the outboard side of the upright that holds the stock caliper mounting bracket and lift off the bracket and stock caliper as one unit. You may have to unbolt the stock caliper from the caliper bracket before removal. Then slide off the rotor.
- Remove the dust shield by removing the three bolts with a 10 mm wrench. Then using tin snips, cut the shield loose and discard (it is possible to remove the dust shield without cutting it by removing the hub). If you choose to do this, reinstall the hub to manufacturer's specifications prior to installing the Wilwood brake kit.

- Clean, de-grease the stock spindle while removing any nicks or burrs.

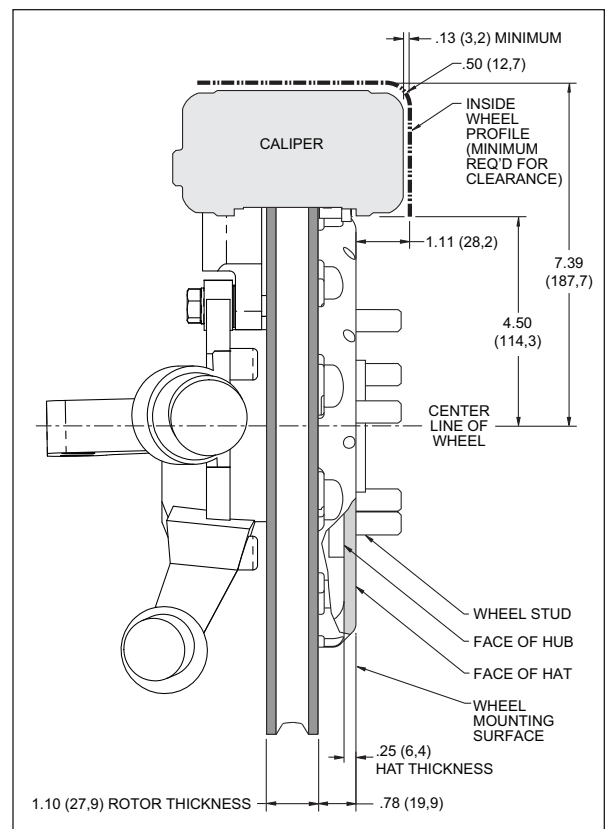


Figure 2. Wheel Clearance Diagram

## Assembly Instructions

**Assembly Instructions** (numbers in parenthesis refer to the parts list/diagram on the preceding pages): **CAUTION:** All mounting bolts must fully engage insert nuts. Be sure to check that all bolts are either flush or protruding through flanged side of insert nut after shimming.

•The caliper mounting bracket assembly (1) should be installed first with clean, dry threads on the mounting bolts. Install the bracket on the outboard side of the spindle by sliding bolt (3) through washer (4), and through sleeve (2) which will be inserted into the spindle "ears" from the back side of spindle. Place two shim washers (6) between the bracket (1) and the spindle (see Figure 1). The bracket must tighten squarely against the side of the spindle body. Inspect for interference from casting irregularities, machining ridges, burrs, etc. Use two thin shims (6) between the bracket (1) and spindle during initial trial fitting.

•With the larger I.D. side of the rotor (7) facing away from the hat (8), bolt rotor (7) to hat (8) through the backside of the rotor using bolts (9), and washers (10). Torque bolts (9) in an alternating sequence to 85 **in-lb**. Safety wire bolts (9) using standard 0.032 inch diameter stainless steel safety wire as shown in Figure 3. Please refer to Wilwood's data sheet DS-386 (available at [www.wilwood.com/pdf/ds386.pdf](http://www.wilwood.com/pdf/ds386.pdf)) for complete safety wire installation instructions. Slide the rotor/hat assembly onto the spindle. Check to be sure the hat seats squarely against the hub. Install a couple of lug nuts (finger tighten) to keep the rotor/hat assembly in place while continuing with the installation.

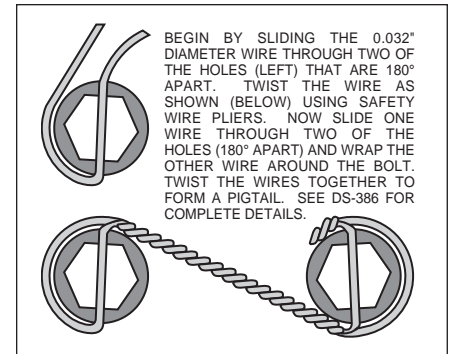


Figure 3. Safety Wire Diagram

•**NOTE:** Please reference the caution statement at the beginning of the assembly instructions. Lubricate caliper mounting studs (14) and nuts (12) with lightweight oil. Install two shim washers (15) over each pre-installed stud (14) on the radial mount bracket (1). Slide the caliper (11) in place over the studs and rotors, then install the washer (13) and lock nut (12) to hold the caliper in place. The caliper bleed screws should be pointing up. Snug the lock nuts (12) and check that the rotor (7) is centered in the caliper (11). Add or subtract .016" shims (5) and/or .030" shims (6) as necessary between the caliper mounting bracket (1) and the spindle to center the caliper (11) on the rotor (7).

•Remove the caliper center bridge pad retainer bolt, nut, and tube from the caliper. Slide the brake pads (16) into place. They should install easily without interference. Check that the outside radius of the brake pad is tangent with the outside diameter of the rotor face. Add or subtract shims (15) between the caliper and mount bracket to gain the proper alignment. Reinstall the center bridge pad retainer tube, bolt, and locknut. The locknut should be snug without play in the bolt or tube. Be cautious not to over tighten.

•Remove the lug nuts that were holding the hat in place. Install the wheel and torque the lug nuts to manufacturer's 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 with bolt (3) using red *Loctite*® 271. Torque bolt (3) to 42 ft-lb. Reinstall the hat and rotor assembly and again use lug nuts to hold it in place. Reinstall the caliper (11), torque the caliper nuts (12) to 30-35 ft-lb.

•**NOTE:** OEM rubber brake hoses generally cannot be adapted to Wilwood calipers. The caliper inlet fitting is a 1/8-27 NPT. The preferred method is to use steel adapter fittings at the caliper, either straight, 45 or 90 degree and enough steel braided line to allow for full suspension travel and turning radius, lock to lock. **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. Wilwood offers a hose kit, P/N 220-10803, which includes hoses, fittings, etc., all in one package for this application.

•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 this entire procedure for the other wheel.

•Bleed the brake system. Reference the general information and recommendations on page 5 for proper bleeding instructions.

•Remove the lug nuts that were used to hold the rotor/hat assembly in place during caliper installation. Install the wheel and lug nuts, torque to OEM specifications.

## Additional Information and Recommendations

•**NOTE:** With the installation of after market disc brakes, the wheel track may change depending on the application. Check your wheel offset before final assembly.

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

This Toyota Matrix front 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.

•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.

•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. If the caliper is fitted with bleed screws on four corners, make sure the bottom bleed screws are tight. Only bleed from the top bleed screws. **NOTE:** When using a new master cylinder, it is important to bench bleed the master cylinder first.

•Test the brake pedal. It should be firm, not spongy, and stop at least 1 inch from the floor under heavy load.  
If the brake pedal is spongy, bleed the system again.

If the brake pedal is initially firm, but then sinks to the floor, check the system for leaks. Correct the leaks (if applicable) and then bleed the system again.

If the brake pedal goes to the floor and continued bleeding of the system does not correct the problem, either air may be trapped in the system, or a master cylinder with increased capacity (larger bore diameter) may be required. Wilwood offers various lightweight master cylinders with large fluid displacement capacities (custom fabricated mounting may be required).

## Brake Testing and Pad Bedding

### **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 BEDDING PROCEDURE:**

• Pump brakes at low speed to assure proper operation. On the race track, or other safe location, make a series of hard stops until some brake fade is experienced. Allow brakes to cool while driving at moderate speed to avoid use of the brakes. This process will properly burnish the brake pads, offering maximum performance.

## Associated Components

<b><u>PART NO.</u></b>	<b><u>DESCRIPTION</u></b>
260-1874	Wilwood Residual Pressure Valve (2 lb for disc brakes)
260-1876	Wilwood Residual Pressure Valve (10 lb for drum brakes)
260-8419	Wilwood Proportioning Valve
290-0632	Wilwood Racing Brake Fluid (Hi-Temp° 570) (12 oz)
290-6209	Wilwood Racing Brake Fluid (EXP 600 Plus) (16.9 oz)
340-1285	Wilwood Floor Mount Brake Pedal (with balance bar)
340-1287	Wilwood Swing Mount Brake Pedal (with balance bar)
260-6764	Wilwood 3/4 inch High Volume Aluminum Master Cylinder
260-6765	Wilwood 7/8 inch High Volume Aluminum Master Cylinder
260-6766	Wilwood 1 inch High Volume Aluminum Master Cylinder
270-2016	Quick Release Steering Hub (3/4 inch shaft)
270-2017	Quick Release Steering Hub (5/8 inch shaft)
220-10804	Flexline Hose Kit, 2008 - Present Toyota Matrix