

**ASSEMBLY INSTRUCTIONS**  
FOR  
**SUPERLITE 4 BIG BRAKE ROAD RACE FRONT BRAKE KIT**  
**WITH HAT AND 12.19" DIAMETER VENTED ROTOR**

**2005 - PRESENT FORD MUSTANG (5 LUG, STOCK OFFSET)**

PART NUMBER GROUP

**140-12508**

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



**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) to verify that there is adequate clearance with the wheels you will be using with the installation.
- There are spindle modifications that need to be performed before installation of the Wilwood caliper bracket. Please reference Figure 3, page 4. These modifications should be performed by a qualified machinist.
- 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.

## Photographic Tip

We suggest you take digital photos of the brake system setup before and during the disassembly procedure. This will aid in the event that something is not compatible with the new brake components and be a valuable tool to assist in the trouble-shooting process.

## Exploded Assembly Diagram

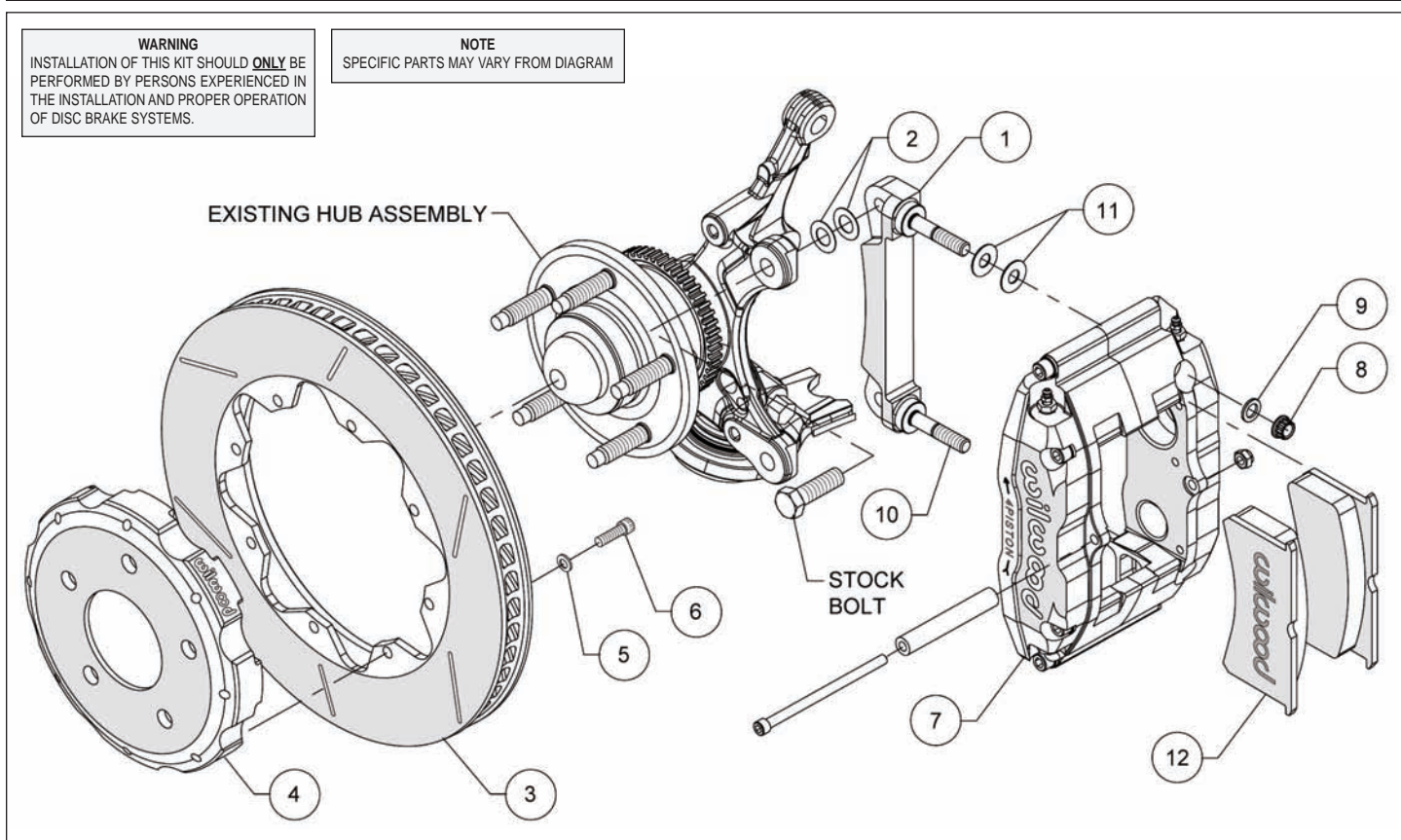


Figure 1. Typical Installation Configuration

## Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	250-12523	Bracket, Caliper Mounting	2
2	240-5680	Shim .020 Thick	16
3	160-11839/40	Rotor, GT, 1.25" Thk x 12.19" Dia, 8 x 7.00" Bolt Circle, Right and Left	2
4	170-10040	Hat, 5 x 4.50", .790" offset, 8 x 7.00" Bolt Circle	2
5	240-3923	Washer, .314 I.D. x .470 O.D. x .048 Thick	16
6	230-3960	Bolt, 5/16 x 18 x 1.00 Long, Socket Head	16
7	120-10693/94-RS	Caliper, Billet Superlite 4R	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	230-9078	Stud, 3/8-16 x 3/8-24 x 2.50 long (pre installed in bracket)	4
11	240-1159	Shim, .035 Thick	16
12	15H-8114K	Pad, PolyMatrix H Compound, Axle Set	1
13	220-9111	Stainless Steel Flexline Hose Kit (not shown)	1

### NOTES:

Part Number 230-2589 Rotor Bolt Kit, includes part numbers 230-3960 and 240-3923

Part Number 250-12524 Caliper Bracket Kit, includes P/N's 230-9183, 230-9078, 240-1159, 240-5680, 240-10190, and 250-12523

## General Information and Disassembly Instructions

- Installation of this kit should **ONLY** be performed by persons experienced in the installation and proper operation of disc brake systems. Before assembling this Wilwood front disc brake kit, double check the following to ensure a trouble free installation.
- Make sure this is the correct kit to fit the exact make and model year of your vehicle. This kit is designed for direct bolt-on installation to 2005 through present model year Mustang.
- Verify that the factory axle hub center register diameter and lug pattern match those in the new hat. **NOTE:** Axle hubs that have been modified with different size studs or lug patterns may require modifications to the new hat that must be performed by a qualified machinist.
- Verify your wheel clearance using Figure 2.
- Inspect the contents of this kit against the parts list to ensure that all components and hardware are included.

### Disassembly Instructions

- 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 front wheels, calipers, rotors, and dust shields. Save the Original Equipment Manufacturer (OEM) caliper mounting bolts.
- Remove any nicks or burrs on the axle hub and upright that may interfere with the installation of the new brake components.
- Clean and de-grease the axle hub, upright, and saved components.

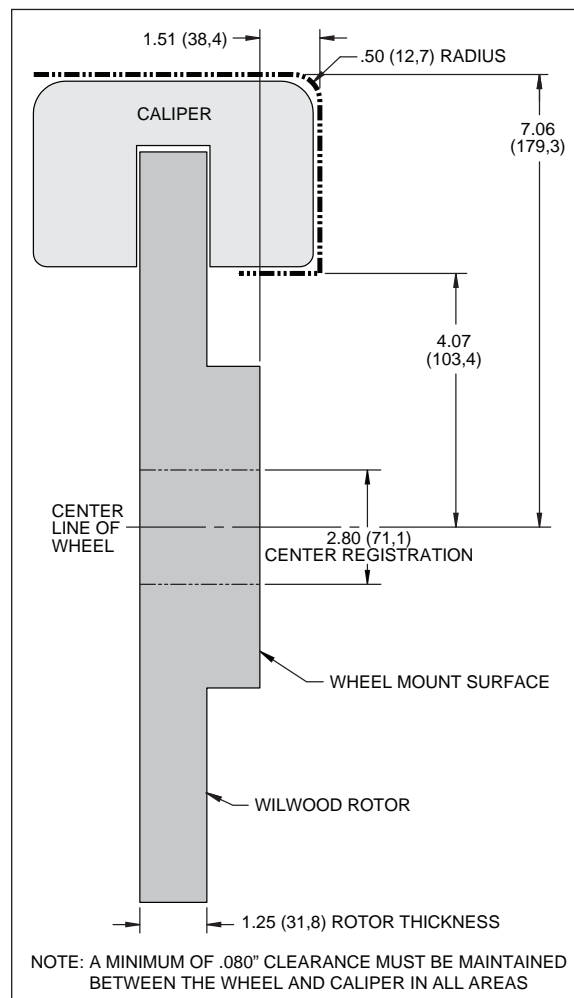


Figure 2. Wheel Clearance Diagram

## Spindle Modifications

- These modifications should be performed by a qualified machinist. Refer to Figure 3, right. Only one view of the spindle is shown, but the modifications need to be performed on both spindles.
- The inboard side of the OE caliper mounting tabs need to be modified for proper installation of the new Wilwood caliper mounting bracket. Referring to the dimensions in Figure 3, remove the shaded material from both mounting tabs. Be sure the area is free of sharp edges and burrs. Remove only the material indicated to clear the new caliper bracket.

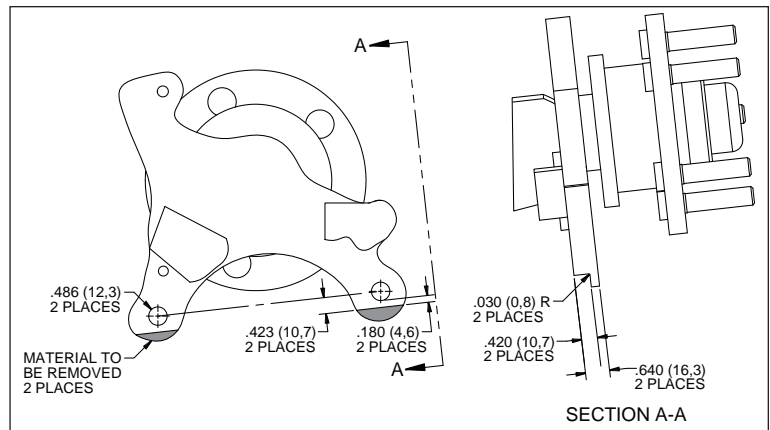


Figure 3. Spindle Modifications

## Assembly Instructions

**Assembly Instructions** (numbers in parenthesis refer to the parts list and Figure 1 on the preceding pages):

- The caliper mount bracket (1) should initially be installed with clean, dry threads on the mounting bolts. Orient the bracket as shown in Figure 1 and Photo 1, then install using OEM mounting bolts. Initially place two .020" thick shims (2) on each bolt between the bracket and upright, Figure 1. Temporarily tighten the mounting bolts. **NOTE:** *The bracket must fit squarely against the mount bosses on the upright.* Inspect for interference from casting irregularities, machining ridges, burrs, etc. Later, after the caliper alignment has been checked, the mount bolts will be secured using red *Loctite*<sup>®</sup> 271.



Photo 1



Photo 2

- Orient the rotor (3) and the hat (4) as shown in Figure 1 and Photo 2. Attach rotor to hat using bolts (6) and washers (5). Using an alternating sequence, apply red *Loctite*<sup>®</sup> 271 to the threads, and torque to 25 ft-lbs. Safety wire bolts using standard 0.032 inch diameter stainless steel safety wire as shown in Figure 4.

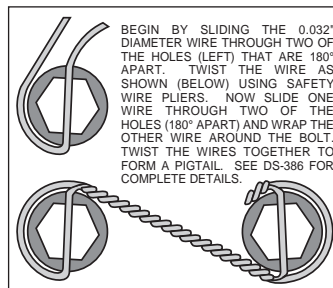


Figure 4. Safety Wire Diagram



Photo 3

- Slide the hat/rotor assembly onto the axle hub. **NOTE:** *The hat must fit flush against the axle hub flange or excessive rotor run out may result.* Install three lug nuts (finger tight) to keep the hat/rotor assembly in place while continuing with the installation.

- 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 two .035" thick shims (11) on each stud between the caliper and the bracket, as shown in Figure 1 and Photo 3. With the bleed screws pointing up, mount the caliper (7) onto the bracket (1) using lock nuts (8) and washers (9), Figure 1. Temporarily tighten the lock nuts. Ensure that the caliper is mounted so the largest pistons are at the rotor exit end of the caliper, in relation to the direction of the rotor. View the rotor through the top opening of the caliper. The rotor should be centered in the caliper, Photo 4. 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 OEM manufacturer specifications.

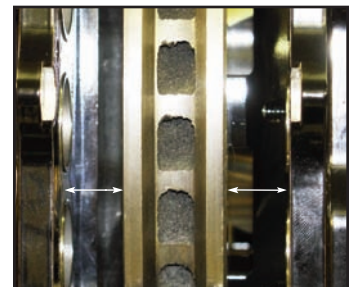


Photo 4

## Assembly Instructions (Continued)

- Remove the caliper center bridge pad retainer bolt, nut, and tube from the caliper. Insert the brake pads (12) into the caliper, with the friction material facing the rotor, as shown in Photo 5. Check that the top of the brake pad is flush with the outside diameter of the rotor, Photo 6. If not, adjust by adding or subtracting shims (11) between the caliper and the bracket. After the caliper pad height is set, torque the caliper lock nuts (8) to 30 ft-lb. Secure the brake pads in place with 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.

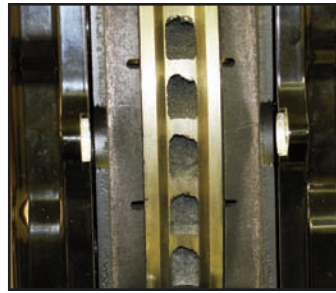


Photo 5

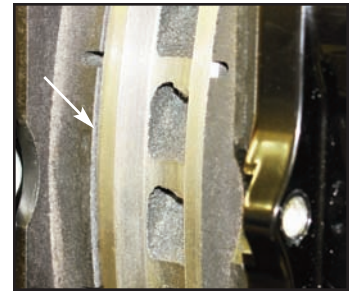


Photo 6

- Temporarily install the wheel and torque the lug nuts to the manufacturer's specification. Ensure that the wheel rotates freely without any interference.

• **NOTE:** The caliper in this brake kit utilizes a 1/8-27 NPT pipe thread inlet. OEM rubber brake hoses generally cannot be adapted to Wilwood calipers. Install Wilwood's stainless steel braided flexline hose kit, P/N 220-9111 included with this kit. **Carefully route hoses to prevent contact with moving suspension, brake or wheel components.** **NOTE:** 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.

• **NOTE:** 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.

• Bleed the brake system, referring to the additional information and recommendations on page 6 for proper bleeding instructions. Check system for leaks after bleeding.

• Install the wheel and torque the lug nuts to manufacturer's specifications.

## Additional Information and Recommendations

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

This Mustang 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 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.*

- 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 fluid 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, a master cylinder with increased capacity (larger bore diameter) may be required. Wilwood offers various lightweight master cylinders with large fluid displacement capacities.

- 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.*

- If after following the instructions, you still have difficulty in assembling or bleeding your Wilwood disc brakes, consult your local chassis builder, or retailer where the kit was purchased for further assistance.

## 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 STEPS:**

Once the brake system has been tested and determined safe to operate the vehicle, follow these steps for bedding of all pad materials and rotors. This procedure should 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 8-10 light stops from approximately 30 MPH down to 15 MPH allowing 20-30 seconds for cooling between each stop.
- Progress to a series of 8-10 moderate stops from around 45 MPH down to 30 MPH allowing a 20-30 second cool down period between each stop.
- Proceed with a series of 8-10 hard stops from 55-65 MPH down to 25 MPH allowing 20-30 seconds of cool down time between each stop.
- 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.

## 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
260-4893	1-1/16 inch Tandem Master Cylinder (aluminum housing)
250-2406	Mounting Bracket Kit (tandem master cylinder)
260-8555	Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder
260-8556	Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder
350-2038	1971 - 1973 Pinto Rack and Pinion (new, not rebuilt)
270-2016	Quick Release Steering Hub (3/4 inch shaft)
270-2017	Quick Release Steering Hub (5/8 inch shaft)
220-9111	Flexline Hose Kit, 2005-up Mustang