

ASSEMBLY INSTRUCTIONS

FOR

REAR AXLE DISC / DRUM INTERNAL PARKING BRAKE KIT WITH 12.19" DIAMETER VENTED ROTOR (2.75 OFFSET)

12 BOLT CHEVY

PART NUMBER GROUP

140-6293

WARNING

INSTALLATION OF THIS KIT SHOULD **ONLY** BE PERFORMED BY PERSONS EXPERIENCED IN THE INSTALLATION AND PROPER OPERATION OF DISC BRAKE SYSTEMS. 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.

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!

BEFORE OPERATING VEHICLE, TEST THE BRAKES UNDER CONTROLLED CONDITIONS IN A SAFE AREA. TEST THE SYSTEM IN STATIC CONDITIONS FOR PROPER PEDAL HEIGHT AND THE ABILITY TO HOLD PRESSURE BEFORE ATTEMPTING TO MOVE THE VEHICLE. MAKE SEVERAL STOPS IN A SAFE AREA AT SLOW SPEEDS AND GRADUALLY WORK UP TO NORMAL OPERATING CONDITIONS. **ALWAYS** UTILIZE SAFETY RESTRAINT SYSTEMS AND ALL OTHER REQUIRED SAFETY EQUIPMENT WHILE OPERATING THE VEHICLE.

IMPORTANT

READ THE DISCLAIMER OF WARRANTY INCLUDED IN THE KIT.

WARNING: 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.
- Rear brake kits are not supplied with hydraulic lines or fittings and may require the purchase of additional lines or fittings to complete the installation. Wilwood offers an extensive listing of brake lines and fitting on our web site: www.wilwood.com.
- Rear brake kits are not supplied with parking brake cables hardware or adapters. Please see the note in the assembly instructions for vendor recommendations to purchase.
- 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

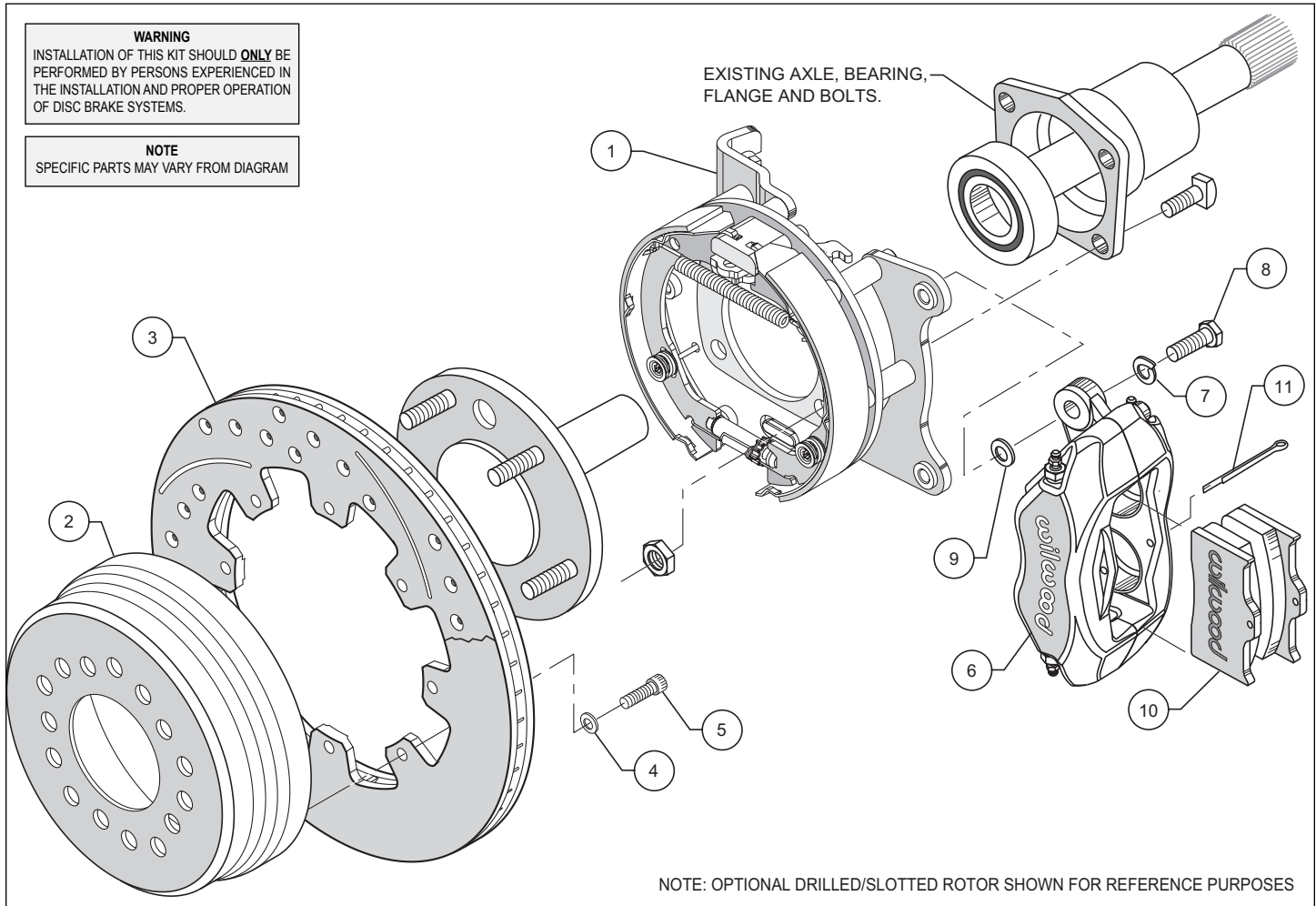


Figure 1. Typical Installation Configuration

Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	249-6875/76	Bracket Kit (pair, one each, left and right)	1
2	170-6239	Hat, Rotor Mounting, Parking brake	2
3	160-6218	Rotor	2
3A	160-6924/25	Rotor, Drilled and Slotted (pair, one each)	2
4	240-2509	Washer	16
5	230-6312	Bolt, 1/4 x 28 x 1.00 Long	16
6	120-6806	Caliper, Forged Dynalite	2
6A	120-6791-P	Caliper, Forged Dynalite, Polished	2
7	240-0140	Washer, Lock	4
8	230-0228	Bolt, 3/8-24 x 1.25 Long	4
9	240-1159	Shim	12
10	150-8850K	Pads, BP-10, Axle Set	1
11	180-0054S	Cotter Pin	2

NOTES:

Part Number 230-6409 Rotor Bolt Kit, includes part numbers 230-6312 and 240-2509

Part Number 230-0204 Mounting Bolt Kit, includes P/N's 230-0228, 240-0140 & 240-1159

Item 3A is an optional item and is available in the (D) Drilled kits

Item 6A is an optional item and is available in the (P) Polished kits

General Information

Installation of this kit should **ONLY** be performed by persons experienced in the installation and proper operation of disc brake systems. Before assembling the Wilwood rear axle disc brake kit, double check the following items to ensure a trouble-free installation.

- Make sure this is the correct kit to fit the axle housing flange, not necessarily the rear end make. Many times after market manufacturers put a different make of axle housing flange on the stock rear end housing (see Figure 5). Example; Big Ford rear ends with Olds-Pontiac flanges, therefore, an Olds-Pontiac rear disc brake kit would be the correct kit to order. Also, shock clearance may be a problem. They may have to be modified and/or relocated to clear the Wilwood kit after final assembly.

- Inspect the package contents against the parts list to ensure that all components and hardware are included.

•Verify The Following Measurements Before Assembly.

- Tubing outside diameter.
- Axle housing flange mounting pattern to pattern in bracket.
- Stud pattern on axle flange to stud pattern in hat.
- Dimension from wheel side of axle flange to wheel side of axle housing flange (see Figure 5, lower right hand corner). This dimension is critical to ensure proper alignment of the rotor to the caliper, and should match offset given in the kit description.
- Verify that the wheel axle stud size is 0.50" diameter. The Wilwood hats utilized in these kits are drilled for 0.50" diameter wheel studs.
- Maximum axle flange diameter must be no larger than 6.61" w/.050" x 45° chamfer (see Figure 3).

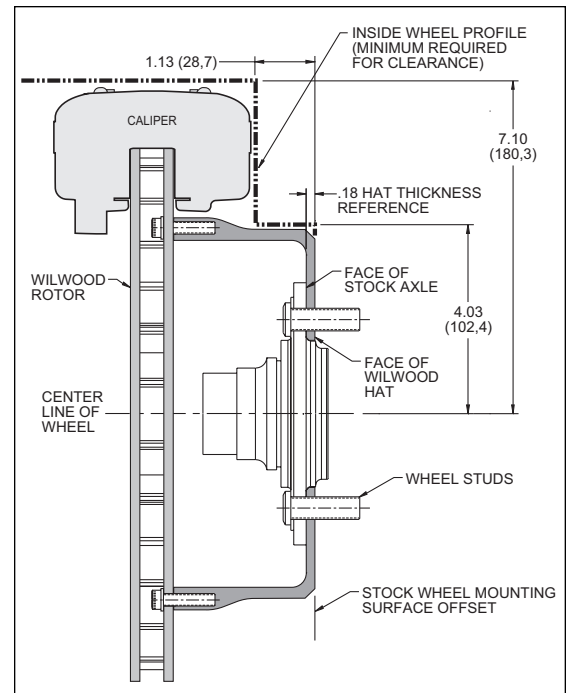


Figure 2. Wheel Clearance Diagram

Disassembly and Assembly Instructions

Disassembly Instructions (numbers in parenthesis refer to the part list and 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.

•Disassemble the original equipment rear brakes:

Raise the rear wheels off the ground. Support the rear suspension by placing jack stands under the rear axle or vehicle frame. The vehicle's weight must be on jack stands. The vehicle must not be supported by a car jack or hoist.

Completely disassemble the stock brake system down to the bare. Axles will need to be removed from the housing to install the bracket assembly. This will require draining of the axle fluid and removal of the rear end cover to access c-clips retaining axles. Degrease and remove any dings or burrs on the housing flange as well as the axle flange which may interfere with the brake assembly.

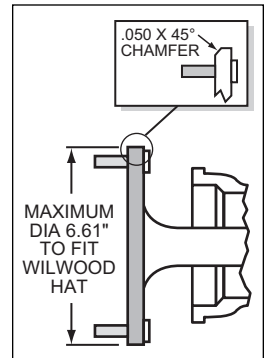


Figure 3. Axle Flange Maximum Dimension

Assembly Instructions

•Slide the caliper mounting bracket kit assembly (1) onto the housing flange and then insert the axle assembly through the center hole of the caliper mounting bracket assembly (1) and secure using the stock Original Equipment Manufacturer (OEM) bolts and nuts. Stock OEM hex nuts that retain the caliper mounting bracket assembly (1) should be on the wheel side of the bracket. Apply red *Loctite*® 271 to the stock OEM bolt threads and torque to OEM specifications. Make sure the heads of the caliper mounting bracket assembly (1) insert nuts are FACING OUTWARD TOWARDS THE WHEEL.

•Bolt the hat (2) to the rotor (3) using washers (4) and bolts (5). Torque bolts (5) to 103 **in-lb**. Safety wire rotor bolts (5) using standard 0.032 inch diameter stainless steel safety wire as shown in Figure 4. Please refer to Wilwood's data sheet DS-386 (available at www.wilwood.com/pdf/ds386.pdf) for complete safety wire installation instructions.

•Align the correct hole pattern in the hat (2) with the stud pattern on the axle flange. **NOTE:** Some OEM and after market axles come with stud sizes larger than 0.50" diameter. Verify stud size and have a qualified machine shop drill the hats to the correct size. Slide the hat/rotor assembly (2 and 3) over the wheel studs covering the mounting bracket assembly (1) and against the axle flange face.

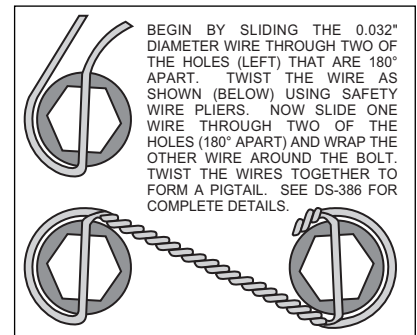


Figure 4. Safety Wire Diagram

•**NOTE:** Please reference the caution statement at the beginning of the assembly instructions. WITH THE BLEED SCREWS POINTING UP, mount the caliper (6) over the rotor (3) and onto the caliper mounting bracket (1) using lock washers (7) and mounting bolts (8). View the rotor through the top opening of the caliper. The rotor should be aligned in the center of the caliper. If not, adjust the caliper by using 0.032 inch shims (9) by placing them between the caliper mounting bracket (1) and the caliper (6). Apply red *Loctite*® 271 to the mounting bolt threads (8), torque to 30 ft-lb. Safety wire the caliper mounting bolts (8).

•Position the Wilwood disc brake pads (10) into the caliper (6) and fasten with cotter pin (11). Steel backing plate side of brake pad should face the caliper pistons.

•**NOTE:** Clevis and cable kits which attach to the parking brake assembly are not included in the Wilwood parking brake kit. Because of the numerous variations it is impossible to supply a generic style that would be applicable to all applications. Hot Rods USA does carry a complete line of cable kits and accessories that will fit this system. They can be reached at 888 / 875-6666.

•Before final installation of the wheel, install a couple of lug nuts and adjust the parking brake shoes outward (using a drum shoe adjustment tool available at your local auto parts store) while spinning the hat (2) until a slight drag is felt again the hat/drum.

NOTE: OEM rubber brake hoses will not adapt to Wilwood calipers and should not be used. The caliper inlet fitting is a 1/8-27 NPT. Use steel adapter fittings at the caliper, either straight, 45 or 90 degree and enough steel braided line to allow for full suspension travel. **Carefully route lines to prevent contact with moving suspension, brake, or wheel components.** Periodically check hose and components for any wear. Wilwood brake and 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.

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

Assembly Instructions (Continued)

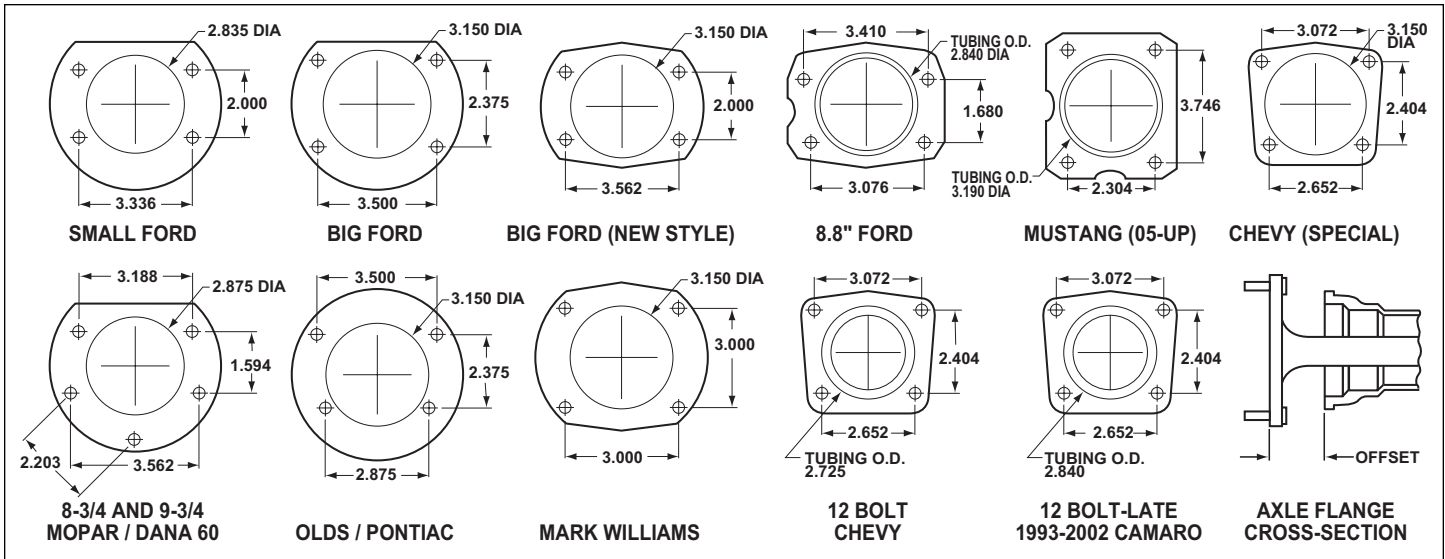


Figure 5. Rear Housing Flange Chart and Axle Flange / Offset Cross-Section

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 brake kit can be operated using the stock OEM master cylinder and proportioning system. 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/balance bar 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.

Additional Information and Recommendations (Continued)

- For optimum performance, fill and bleed the new system with Wilwood Hi-Temp[®] 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.
- 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 2 lb. Residual Pressure Valve installed near the master cylinder will stop the fluid flowback and keep the pedal firm and responsive.
- 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).

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 by driving at moderate speed and avoid use of the brakes. This process will properly burnish the brake pads, offering maximum performance.

Associated Components

PART NO.	DESCRIPTION
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, Knob Style
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
260-8555 / -P	Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder
260-8556 / -P	Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder
260-9439 / -P	Wilwood 7/8 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)

(Consult the Wilwood Catalog for a complete parts list)

Bolt Torque Specifications

BOLT SIZE	TORQUE
1/4-20	85 in-lb
1/4-28	103 in-lb
5/16-18	180 in-lb
5/16-24	198 in-lb
3/8-16	22 ft-lb
3/8-24	30 ft-lb
7/16-14	42 ft-lb
7/16-20	47 ft-lb
1/2-13	65 ft-lb
1/2-20	77 ft-lb
9/16-12	95 ft-lb
9/16-18	105 ft-lb
5/8-11	110 ft-lb
5/8-18	120 ft-lb

NOTE: This bolt torque specification list is for use with specific grades of bolts as supplied in the particular Wilwood kit and is not intended as a guide for any other application.