

**ASSEMBLY INSTRUCTIONS**  
FOR  
**DYNALITE PRO SERIES REAR KIT FOR OE PARKING BRAKE**  
**WITH 12.27" DIAMETER VENTED ROTOR**

**1995 - 2000 BMW E36, M3**

PART NUMBER GROUP

**140-8798**

**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.
- 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 fittings on our web site: [www.wilwood.com](http://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

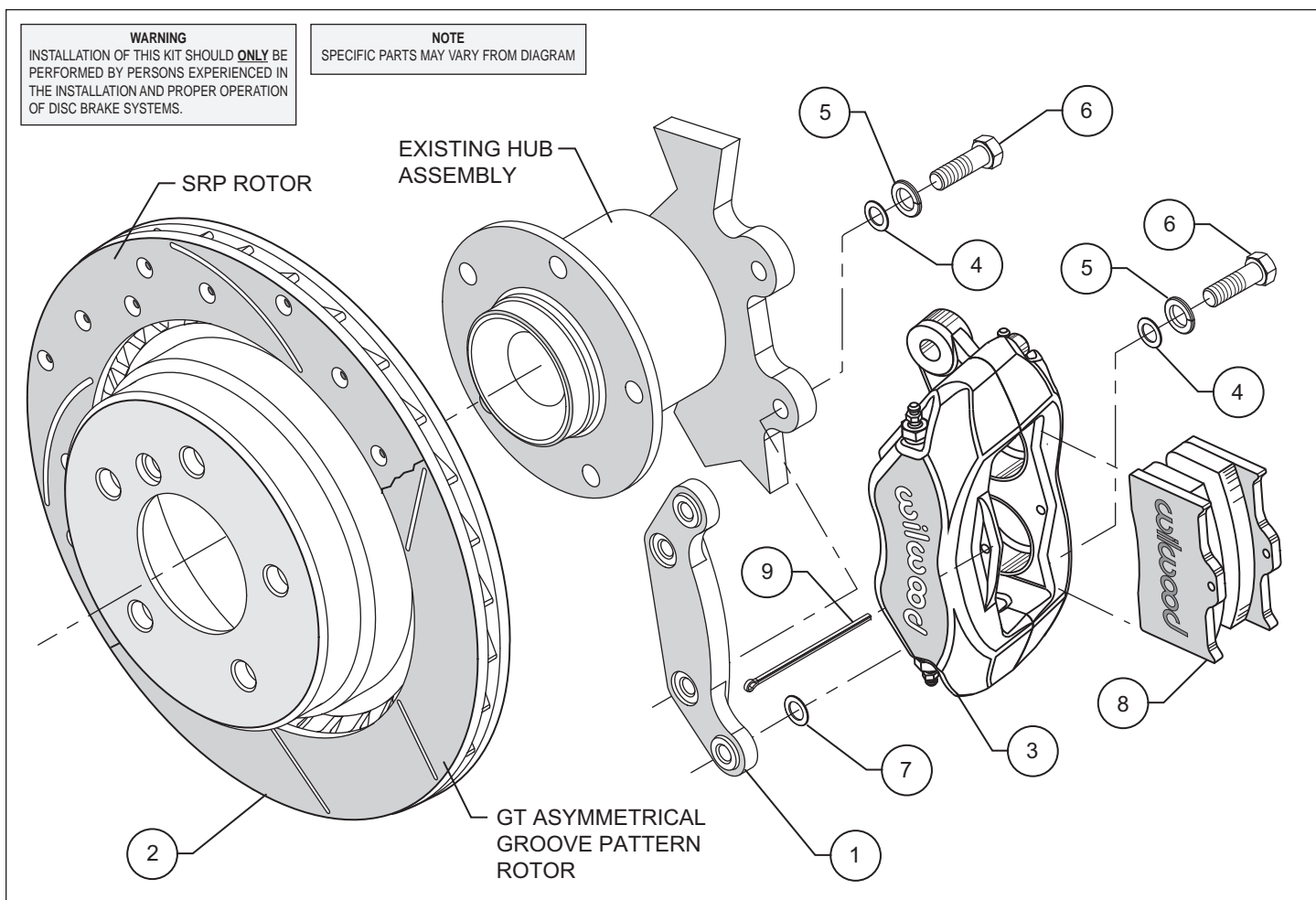


Figure 1. Typical Installation Configuration

## Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	250-8782	Bracket, Caliper Mounting	2
2	160-8683/84	GT Rotor - 0.78" X 12.27" Dia, 5 x 4.75" Bolt Circle (one each, right and left)	2
2A	160-8685/86	Rotor, SRP Drilled and Slotted (one each, right and left)	2
3	120-9706	Caliper, Billet Dynalite	2
4	240-2510	Washer, .391 I.D. x .625 O.D. x .057 Thick	8
5	240-0140	Washer, .375 I.D. x .68 O.D., Lock	8
6	230-0228	Bolt, 3/8-24 x 1.25 Long, HXHD	8
7	240-1159	Washer, .375 I.D. x .875 O.D. x .035 Thick	16
8	150-8946K	Pad, BP-10, Axle Set	1
8A	15Q-6824K	Pad, PolyMatrix, SRP Rotor Kit	1
9	180-0055S	Cotter Pin	2

### NOTES:

Part Number 250-8765 Caliper Mounting Bolt Kit, includes P/N 230-0228, 240-0140, 240-1159 and 240-2510  
 Items 2A and 8A are optional item and included with the "-D" kits. Add "-D" to end of part number when ordering  
 Wilwood offers an optional Braided Stainless Steel Hose Kit. Order part number 220-8800 (not included in kit)

## 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 the vehicles spindle. This kit is designed for direct bolt-on installation to 1995 through 2000 model year BMW E36, M3 hubs.
- Verify your wheel clearance using Figure 2.
- Verify that the factory hub and bolt pattern matches the hole pattern in the hats supplied with this kit.

### Disassembly

- Disassemble the original equipment rear brakes: Raise the rear wheels off the ground and support the rear suspension according to the vehicle manufacturer's instructions.
- Remove the wheel. Disconnect the caliper brake hose from the brake line at the body. Remove the two bolts that hold the stock caliper to the stock caliper mounting bracket. Remove the caliper, then slide off the stock hat and rotor assembly. Save the stock caliper mounting bolts and washers, they will be utilized during reassembly.
- Clean and de-grease the stock bolts, washers and spindles while removing any nicks or burrs.

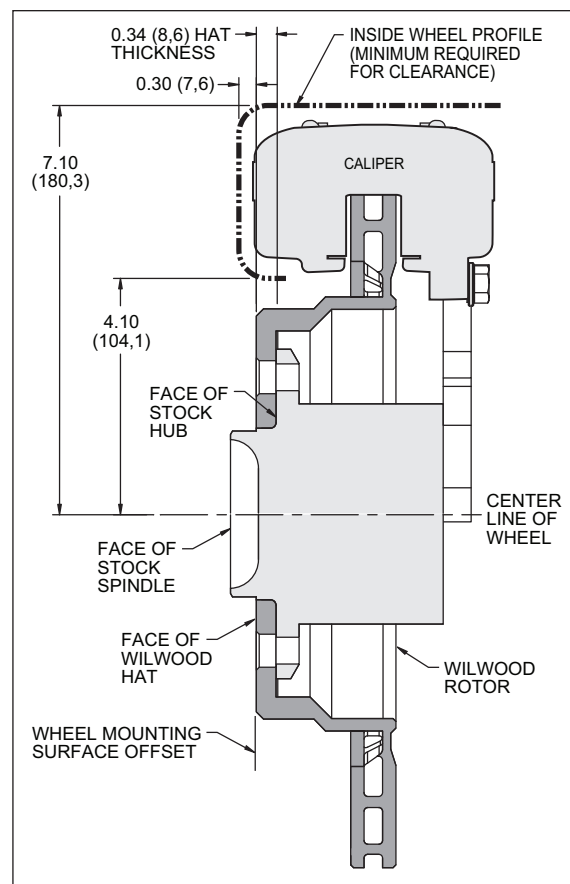


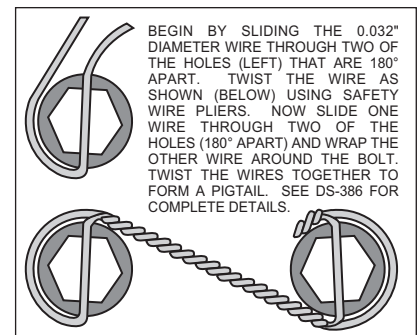
Figure 2. Wheel Clearance Diagram

## Assembly Instructions

**Assembly Instructions** (numbers in parenthesis refer to the part list/diagram on the preceding page): **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 mount bracket assembly (1) should be installed first with clean, dry threads on the mounting bolts. Mount the bracket (1) using bolt (6), flat washer (5) and lock washer (4) from the backside of the spindle with the threaded inserts facing the outside of the vehicle. The bracket must tighten squarely against the outboard side of the caliper mount bosses on the spindle body. Inspect for interference from casting irregularities, machining ridges, burrs, etc. After the caliper, pad, and rotor alignment has 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.
- Slide the rotor/hat assembly (2) onto the spindle. 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. Install a couple of wheel bolts (finger tighten) to keep the rotor/hat assembly in place while continuing with the installation and clearance checking procedures.

•**NOTE:** Please reference the caution statement at the beginning of the assembly instructions. WITH THE BLEED SCREWS POINTING UP, mount the caliper (3) over the rotor (2) and onto the caliper mounting bracket (1) using flat washers (4), lock washers (5) and mounting bolts (6). 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 0.035 inch shims (7) by placing them between the caliper mounting bracket (1) and the caliper (3). Finger tighten and recheck alignment. Add as many shim washers (7) as necessary to achieve the correct alignment. Always use the same amount of shims on both the top and bottom caliper mounting bolts (6). Loosen the two bolts (6) and apply red *Loctite*<sup>®</sup> 271 to the mounting bolt threads (6) and torque to 30 ft-lbs. Safety wire the caliper mounting bolts (6) 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.org/ds386.pdf](http://www.wilwood.org/ds386.pdf)) for complete safety wire installation instructions.



**Figure 3. Safety Wire Diagram**

- Slide the brake pads (8) into the caliper (1) and secure with cotter pin (9). They should install easily without interference with the steel backing plate side of the brake pad facing the caliper pistons. Check that the outside radius of the brake pad is aligned with the outside diameter radius of the rotor face. Add or subtract shims (7) between the caliper and mount bracket (1) to gain the proper alignment.
- Remove the wheel bolts that were holding the rotor in place. Install the wheel and torque the wheel bolts to specification. Check to see that the wheel rotates freely without interference.
- Install Wilwood's optional stainless steel braided flexline hose kit, part number 220-8799 (NOT included in kit). **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 page 5 for proper bleeding instructions.
- Repeat this entire procedure for the other wheel.

## Additional Information and Recommendations

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

This BMW 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>®</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. **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 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>PART NO.</b>	<b>DESCRIPTION</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)
220-8799	Flexline Kit, BMW E36, M3

#### **Bolt Torque Specifications**

<b>BOLT SIZE</b>	<b>TORQUE</b>
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.