ASSEMBLY INSTRUCTIONS
FOR
GP 320 TOP / FRONT SPINDLE MOUNT ASPHALT MIDGET KIT
WITH 10.50” DIAMETER UNCOATED SCALLOPED ROTOR*

*For additional vehicle compatibility, visit www.wilwood.com

BASE PART NUMBER
140-11809

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. 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:

- This brake kit does 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.

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
Disassemble the existing front brakes. Raise the front wheels off the ground and support the front suspension per applicable racing guidelines.

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

Assembly Instructions

NOTE: Numbers in parenthesis refer to the parts list and Figure 1 on the preceding pages.

CAUTION: All mounting bolts must fully engage clinch nuts. Be sure to check that all bolts are either flush or protruding through flanged side of clinch nut.

Install the caliper mounting bracket (1 for front mount) or (1a for top mount) onto the inboard side of the spindle mounting tabs using customer supplied bolts and washers by first coating bolt threads with red Loctite® 271 and sliding bolt through washer, then through caliper mounting bracket and thread into the tabs on spindle as shown in Figure 1. The bracket must tighten squarely against the inboard side of the spindle mounting tabs. Inspect for interference from casting irregularities, machining ridges, burrs, etc. Torque bolts to specification.

With the T-notches of the rotor adapter (2) facing away from the rotor (3), attach adapter to rotor using bolts (4), washers (5), and t-nuts (6) as shown in Figure 1. Finger tighten. After all t-nuts have been installed, torque bolts in an alternating sequence to 220 ± 20 in-lbs (~19 ± 1 ft-lb). Please refer to Wilwood’s data sheet DS-669 (available at www.wilwood.com/Pdf/DataSheets/ds669.pdf) for complete t-nut bolt kit installation instructions.

Safety wire bolts using standard 0.032 inch diameter stainless steel safety wire as shown in Figure 2. Please refer to Wilwood’s data sheet DS-386 (available at www.wilwood.com/Pdf/DataSheets/ds386.pdf) for complete safety wire installation instructions.

General Information

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 your spindle. This kit is designed for direct bolt-on installation to standard midget type car applications.

Parts List

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250-10534</td>
<td>Bracket, Caliper Mounting, Top Mount (only for kit 140-11809)</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>300-10530</td>
<td>Adapter, Rotor, Floating Mount</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>160-11217</td>
<td>Rotor, 0.78” Thk x 10.50” Dia, 6 x 5.50” Bolt Circle</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>230-10849</td>
<td>Bolt, 5/16-24 x .625” Long, Hex Head</td>
<td>12</td>
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<tr>
<td>5</td>
<td>240-10191</td>
<td>Washer, .328” I.D. x .562” O.D. x .063” Thick</td>
<td>12</td>
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<tr>
<td>6</td>
<td>300-8430</td>
<td>T-Nut, 5/16-24</td>
<td>12</td>
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<tr>
<td>7</td>
<td>230-10851</td>
<td>Bolt, 1/2-20 x 1.75” Long, FHCS (use with 6 pin hub only)</td>
<td>6</td>
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<tr>
<td>8</td>
<td>230-0848</td>
<td>Bolt, 1/2-20 x .75” Long, FHCS (use with wide 5 hub only)</td>
<td>6</td>
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<tr>
<td>9</td>
<td>300-10850</td>
<td>Spacer, .516” I.D. x.875” O.D. x .995” Long (use with wide 5 hub only)</td>
<td>6</td>
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<td>10</td>
<td>120-15753</td>
<td>Caliper, GP 320A</td>
<td>2</td>
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<tr>
<td>11</td>
<td>230-10024</td>
<td>Bolt, 3/8-24 x 1.00” Long, Hex Head</td>
<td>4</td>
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<tr>
<td>12</td>
<td>240-10190</td>
<td>Washer, .391” I.D. x .625” O.D. x .063” Thick</td>
<td>4</td>
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<tr>
<td>13</td>
<td>240-1159</td>
<td>Shim, .035” Thick</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>240-10306</td>
<td>Shim, .016” Thick</td>
<td>4</td>
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<tr>
<td>15</td>
<td>180-4948</td>
<td>Pad, Pin Retainer</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>150-13335K</td>
<td>Axle Set, Pad, Purple Compound</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTES:
P/N 230-10854 Bolt Kit, Rotor, includes part numbers 230-10849, 240-10191, and 300-8430
P/N 230-10852 Bolt Kit, Caliper, includes part numbers 230-10024, 240-1159, 240-10190 and 240-10306
P/N 230-10853 Bolt Kit, Adapter, includes part numbers 230-0848, 230-10851 and 300-10850
**Assembly Instructions (Continued)**

- Install the hub assembly (customer supplied) onto the rotor adapter (2) by sliding bolts (7 for six pin hub) or (8 for wide 5 hub) from the larger I.D. side of the rotor (3) thru holes in rotor adapter and thread into hub. For wide 5 hubs, install spacer (9) between rotor adapter and hub before threading bolt into wide 5 hub. Slide hub/rotor assembly onto spindle and secure with customer supplied spindle nut.

- The caliper (10) should be installed first with clean, dry threads on the mounting bolts. Install the caliper on the inboard side of the bracket (1 or 1a) by sliding bolt (11) thru washer (12) thru caliper mounting tabs and into the caliper mounting bracket. Initially place one shim each (13 and 14) between the caliper and caliper bracket. The caliper bleed screws should be horizontal to the bracket for top fitting applications, or pointing up for the front mount configuration. Snug the bolts (11) and check that the rotor (3) is centered in the caliper. Add or subtract .035” shims (13) and/or .016” shims (14) as necessary between the caliper mounting bracket and the caliper to center the caliper on the rotor.

- Remove the pad pin retainer (15) from the caliper (10). Slide the brake pads (16) into place. They should install easily without interference. Reinstall the pad pin retainer.

- Once all clearances have been checked, secure the caliper (10) to the caliper mounting bracket (1 or 1a) with bolt (11) using red Loctite® 271 on the bolt threads. Torque bolt to 40 ft-lb.

- **NOTE:** 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 (use PTFE tape on pipe threads for proper sealing to caliper) 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. It is the installer’s responsibility to properly route and ensure adequate clearance and retention for brake hose components.

- It is also 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. Reference the additional information and recommendations below for proper bleeding instructions.

- Bed-in the brake pads per the procedure on page 5.

**Additional Information and Recommendations**

- 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 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. 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).
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 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.

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.
**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.

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**Associated Components**

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<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>260-13706</td>
<td>Wilwood Residual Pressure Valve (2 lb for disc brakes)</td>
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<tr>
<td>260-13707</td>
<td>Wilwood Residual Pressure Valve (10 lb for drum brakes)</td>
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<tr>
<td>260-8419</td>
<td>Wilwood Proportioning Valve, Knob Style</td>
</tr>
<tr>
<td>260-8420</td>
<td>Wilwood Proportioning Valve, Lever Style</td>
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<tr>
<td>260-11179</td>
<td>Wilwood Combination Proportioning Valve with Brake Light Switch</td>
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<tr>
<td>290-0632</td>
<td>Wilwood Racing Brake Fluid (Hi-Temp° 570) (12 oz)</td>
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<tr>
<td>290-6209</td>
<td>Wilwood Racing Brake Fluid (EXP 600 Plus) (16.9 oz)</td>
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<tr>
<td>340-13831</td>
<td>Wilwood Floor Mount Brake Pedal (with balance bar)</td>
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<tr>
<td>340-13832</td>
<td>Wilwood Swing Mount Brake Pedal (with balance bar)</td>
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<tr>
<td>260-6764</td>
<td>Wilwood 3/4 inch High Volume Aluminum Master Cylinder</td>
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<td>260-6765</td>
<td>Wilwood 7/8 inch High Volume Aluminum Master Cylinder</td>
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<td>260-6766</td>
<td>Wilwood 1 inch High Volume Aluminum Master Cylinder</td>
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<td>260-6893</td>
<td>1-1/16 inch Tandem Master Cylinder (aluminum housing)</td>
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<td>260-8555</td>
<td>Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder</td>
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<td>260-8556</td>
<td>Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder</td>
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<td>220-7056</td>
<td>Stainless Steel Braided Flexline Kit, Universal, 14 Inch, Domestic, 3/8-24 IF</td>
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<td>220-7699</td>
<td>Stainless Steel Braided Flexline Kit, Universal, 16 Inch, Domestic, 3/8-24 IF</td>
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<td>220-8307</td>
<td>Stainless Steel Braided Flexline Kit, Universal, 18 Inch, Domestic, 3/8-24 IF</td>
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