

ASSEMBLY INSTRUCTIONS

FOR

GP 320 TOP / FRONT SPINDLE MOUNT ASPHALT MIDGET KIT WITH 10.50" DIAMETER SCALLOPED ROTOR

PART NUMBER GROUP

140-10855 / 140-10856

**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:

- 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.
- 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

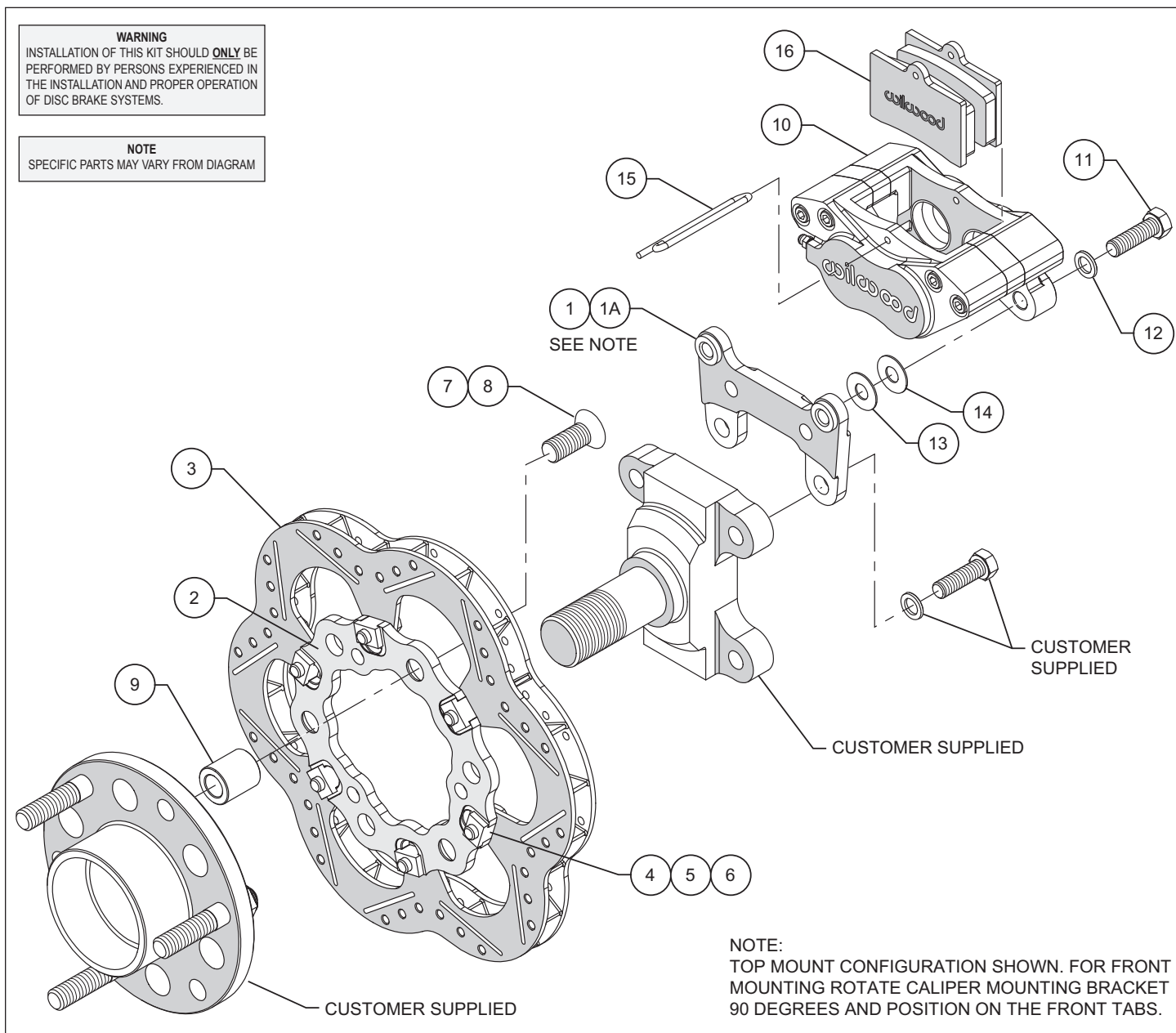


Figure 1. Typical Installation Configuration

Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	250-10796	Bracket, Caliper Mounting, Front Mount (only for kit 140-10855)	2
1A	250-10534	Bracket, Caliper Mounting, Top Mount (only for kit 140-10856)	2
2	300-10530	Adapter, Rotor, Floating Mount	2
3	160-9929	Rotor, 0.78" Thk x 10.50" dia, 6 x 5.50" Bolt Circle	2
4	230-10849	Bolt, 5/16-24 x .625 Long, Hex Head	12
5	240-10191	Washer, .328 I.D. x .562 O.D. x .063 Thick	12
6	300-8430	T-Nut, 5/16-24	12
7	230-10851	Bolt, 1/2-20 x 1.75 Long, FHCS (use with 6 pin hub only)	6
8	230-0848	Bolt, 1/2-20 x .75 Long, FHCS (use with wide 5 hub only)	6
9	300-10850	Spacer, .516 I.D. x .875 O.D. x .995 Long (use with wide 5 hub only)	6
10	120-10714/15	Caliper, GP 320 (left and right hand)	1
11	230-10025	Bolt, 3/8-24 x 1.25 Long, Hex Head	4
12	240-10190	Washer, .391 I.D. x .625 O.D. x .063 Thick	4
13	240-1159	Shim, .035 Thick	8
14	240-10306	Shim, .016 Thick	4
15	180-4948	Pad, Pin Retainer	2
16	150-10396K	Axle Set, Pad Type 6211, CM Compound	1

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 230-10025, 240-1159, 240-10190 and 240-10306

P/N 230-10853 Bolt Kit, Adapter, includes part numbers 230-0848, 230-10851 and 300-10850

General Information, Disassembly, and Assembly 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 your spindle. This kit is designed for direct bolt-on installation to standard midget type car applications.

Disassembly (if applicable)

- 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 (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 while making sure all other mounting bolts fully engage threaded holes, where applicable.

- 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 (1 or 1a) and thread into the tabs on spindle (see 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.
- Mount the rotor adapter (2) to rotor (3) by placing rotor adapter with t-notches facing away from the rotor lugs against the outside face of the rotor lugs using bolts (4), and washer (5) slid through rotor holes from the backside and into the t-nut (6). 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 .
- **NOTE:** *When cross-drilled bolts are supplied with the rotor bolt kits, the additional step of safety wiring bolts is recommended.* Safety wire bolts using standard 0.032 inch diameter stainless steel safety wire as shown in figure 2. PPlease refer to Wilwood's data sheet DS-386 (available at www.wilwood.com/Pdf/DataSheets/ds386.pdf) for complete safety wire installation instructions.

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 (2) and thread into hub. For wide 5 hubs, install spacer (9) between rotor adapter (2) and hub before threading bolt (8) 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 (10) 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 (1 or 1a). Initially place one shim each (13 and 14) between the caliper (10) and caliper bracket (1 or 1a). The caliper bleed screws should be horizontal to the bracket (1) 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 (10). Add or subtract .035" shims (13) and/or .016" shims (14) as necessary between the caliper mounting bracket (1 or 1a) and the caliper (10) to center the caliper (10) on the rotor (3).

- 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 (15).

- 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 (11) 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 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 general information and recommendations below for proper bleeding instructions.

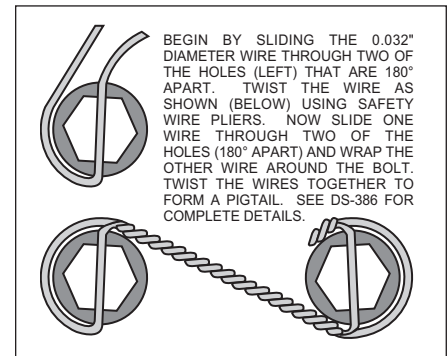


Figure 2. Safety Wire Diagram

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).

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

<u>PART NO.</u>	<u>DESCRIPTION</u>
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)