

ASSEMBLY INSTRUCTIONS
FOR
WILWOOD REAR D154 CALIPER (1.12"/1.12" PISTONS) KIT
FOR VEHICLES USING D154 CALIPERS AND BRAKE PADS
WITH 1.04" THICK ROTORS

PART NUMBER GROUP

140-12101

**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.



Need Additional Information?
Use Your SmartPhone and
Jump to Our Technical Tips
Section on Our Web Site.



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:

- OEM brake lines (using 10 mm banjo bolt fittings) will adapt to the Wilwood D154 calipers. Other fitting size OEM brake lines will require line replacement. 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

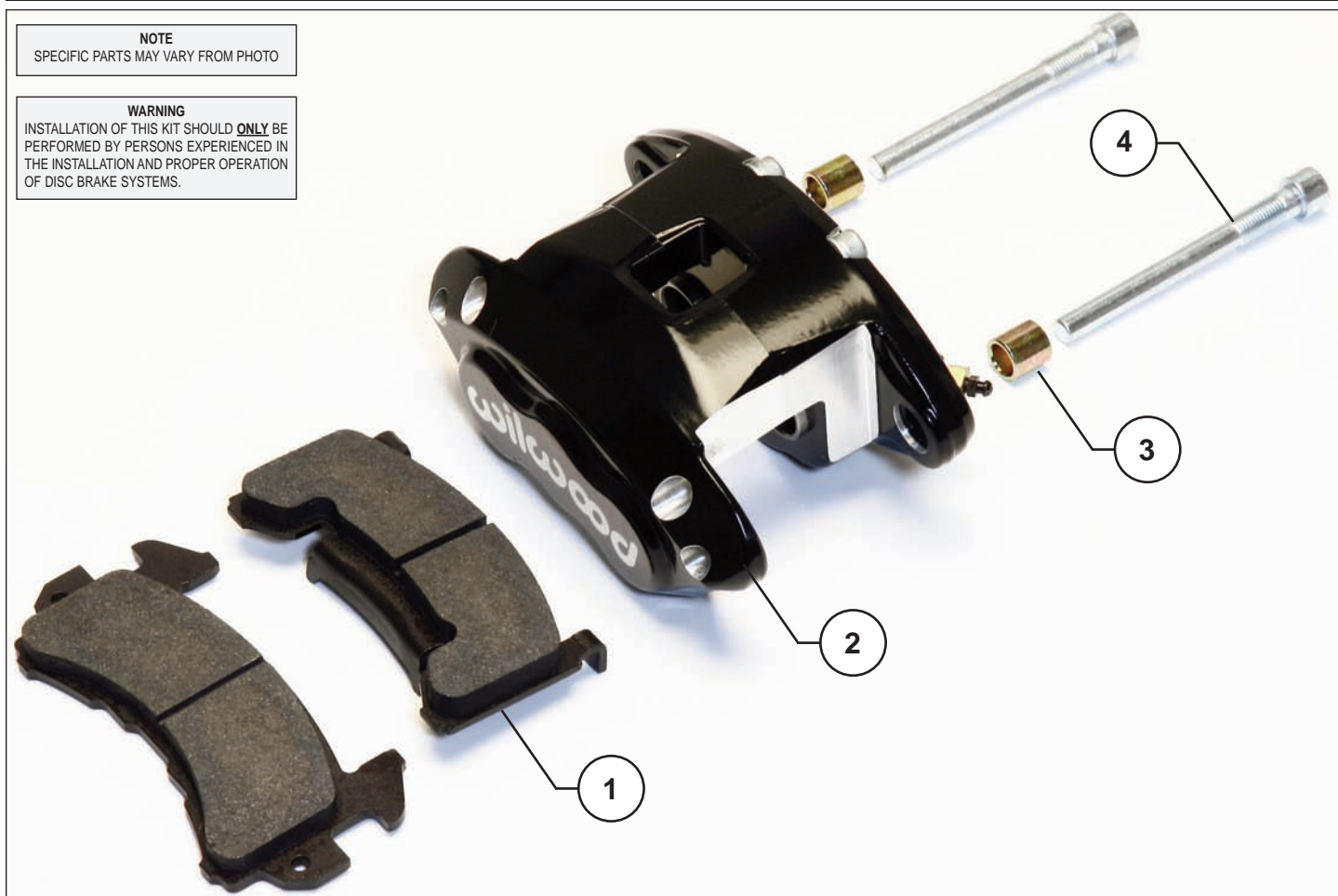


Photo 1. Typical Assembly Configuration

Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	150-8936K	Pad, BP-10 Compound, Axle Set	1
2	120-11874-BK	Caliper, D154, Black	2
2A	120-11874-R	Caliper, D154, Red	2
2B	120-11874-P	Caliper, D154, Polished	2
3	300-5968	Sleeve	4
4	230-10933	Slide Pin Bolt	4

NOTES: Item 2A is an optional item and is included in the -R red kit. Add -R to end of part number when ordering.
Item 2B is an optional item and is included in the -P polished kit. Add -P to end of part number when ordering.

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.

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. Before assembling the Wilwood kit, double check the following to ensure a trouble-free installation.
- Make sure this is the correct kit to fit vehicle application. This kit is intended for use as a rear caliper for vehicle rear ends modified to use 1.04" rotor width OEM D154 style calipers by welding or bolting on brackets to attach to the rear end.
- Inspect the contents of this kit against the parts list to ensure that all components and hardware are included.
- **WARNING:** Caliper does not have a provision for parking brake. It is recommended that an additional parking brake mechanism be installed in the vehicle for street use.

Disassembly

- Disassemble the rear brakes, if assembled: Raise the rear wheels off the ground and support the rear suspension according to the vehicle manufacturer's instructions.
- Remove the rear wheels, existing D154 calipers, and brake hoses (if installing replacements). **NOTE:** It is recommended that the brake hoses be replaced for all applications with braided steel hoses, refer to the assembly instructions below.
- Clean and de-grease the caliper mounting brackets.
- To ensure proper action of the caliper, brackets must be square and parallel to the rotor face. Bent or poorly installed brackets can cause caliper pistons to stick and accelerated or uneven pad wear.
- **NOTE:** It is recommended that the rotors be replaced or lathe turned by a qualified machine shop, prior to installing the Wilwood kit.

Assembly Instructions (numbers in parenthesis refer to the parts list/photo on the preceding page): **CAUTION:** All mounting bolts must fully engage threaded holes.

- Install the disc brake pads (1) into the caliper (2) with the friction material facing the rotor, as shown in Photo 2.
- Install sleeves (3) onto slide pin bolts (4). Apply white lithium grease (available from your local auto parts store) to the slide pins/sleeves, as shown in Photo 3. **Do not apply to threads.** Mount the caliper onto the OEM mounting bracket using slide pin bolts, as shown in Photo 4. Torque to 35 ft-lbs.

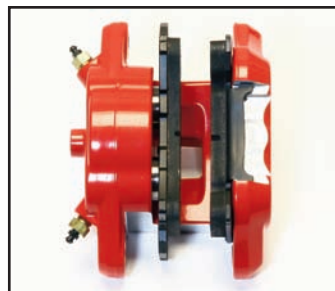


Photo 2



Photo 3

- Check wheel clearance: Gently slide the caliper inboard, so as to remove any excess gap between the outboard brake pad, the rotor face and the caliper. This will approximate the location of the caliper in service. Temporarily install the wheel and torque lug nuts to manufacturer's specification. Ensure that the wheel rotates freely without any interference.

- Once the wheel clearance has been confirmed, remove wheel and connect brake hose as outlined below.

• **NOTE:** The caliper in this brake kit utilizes a 10mm x 1.50 thread inlet. OEM rubber brake hoses with 10mm fittings can be adapted to Wilwood D154 calipers. The preferred method is to use steel banjo adapter fittings at the caliper, and enough steel braided line to allow for full suspension travel and turning radius, lock to lock. **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. Wilwood



Photo 4

Assembly Instructions (Continued)

offers universal brake flex line hose kits, for 3/8-24 IF chassis fittings order P/N 220-12104 for the 14 inch length, P/N 220-12105 for the 18 inch length, or P/N 220-12106 for the 22 inch length. For 10mm x 1 BF chassis fittings order P/N 220-12107 for 18 inch length. Hose kits include hoses, fittings, banjo bolts, etc. all in one package for use with this caliper.

- **NOTE:** Specified brake hose kits may not work with all Years, Makes and Models of vehicle that this caliper 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.
- If using a Wilwood flexline hose kit, proceed as follows: Do not lubricate bolt. With two new crush washers installed, torque bolt to 96 - 120 in-lbs. (**do not exceed 144 in-lbs**). Torque to lighter specification and check for leakage, increasing torque only to stop leakage without exceeding maximum specification. Replace crush washers and banjo bolt whenever re-assembly is required.
- If reusing the OEM brake hoses, install new crush washers (not included) and torque banjo bolt to manufacturer's specification.
- 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 below for proper bleeding instructions. Check system for leaks after bleeding.
- Install the wheel and torque the lugs nuts to manufacturer's specifications.

Additional Information and Recommendations

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

This General Motors rear 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[®] 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. Repeat the procedure until all calipers in the system are bled, ending with the caliper closest to the master cylinder. 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).
- 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

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 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 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.

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.

Pad and Rotor Bedding (Continued)

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

<u>PART NO.</u>	<u>DESCRIPTION</u>
220-12104	Flexline Hose Kit, D154 Caliper, 14 Inch, 3/8-24 IF to 10mm Banjo
220-12105	Flexline Hose Kit, D154 Caliper, 18 Inch, 3/8-24 IF to 10mm Banjo
220-12106	Flexline Hose Kit, D154 Caliper, 22 Inch, 3/8-24 IF to 10mm Banjo
220-12107	Flexline Hose Kit, D154 Caliper, 18 Inch, M10 BF to 10mm Banjo
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)
260-8555	Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder
260-8555-P	Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder-Polished
260-8555-BK	Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder-Black
260-8556	Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder
260-8556-P	Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder-Polished
260-8556-BK	Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder-Black