

Wilwood Disc Brake Installation

Front Big Brake Installation on a 1993 Mazda RX-7



Mazda ceased production of the RX-7 in 2002 and as time passes these high-performance older cars have become less expensive, making them popular “track day cars”. As these vehicles are modified for performance applications, one thing that is sometimes overlooked is the brakes. This becomes evident when one realizes that more cars are passed under braking than anywhere else on the track. **Wilwood Disc Brakes** has the solution! You need Wilwood’s if you want to stop your souped-up RX-7.

Wilwood is offering performance braking solutions for the third generation RX-7 (our test fit vehicle was a 1993 model year). The base kit (P/N 140-11963) features Wilwood’s Superlite 6 piston differential bore radial mount calipers clamping down on oversized 12.88” diameter GT slot pattern vented rotors. The kit comes with aluminum hats, mounting brackets, and all hardware for an easy bolt-on installation. BP-10 high performance street pads round out the kit. Other brake pad compounds for off-road applications are an available option. For extreme performance applications, a 14.00” kit (P/N 140-11964) is also available. Optional items include SRP drilled and slotted rotors, and/or red powder coated calipers.

As you read through the installation procedure you will see that it is basically a bolt-on kit, just as Wilwood advertises, with only a minor modification to the brake line bracket required. Kits includes everything necessary for an easy and complete installation. However, the stainless steel braided flexline kit, P/N 220-7010 is a necessary item and must be



Wilwood part number 140-11963 comes complete with Superlite 6R calipers, caliper mounting brackets, GT rotors, aluminum hats, BP-10 brake pads and all necessary hardware for an easy bolt-on installation.

ordered separately. You will be amazed as to how much better the Wilwood brake kit performs over the original factory brakes.

A complete set of mechanics tools including torque wrenches will be necessary. Also, a bottle of red *Loctite*® 271, PTFE thread tape, and Wilwood’s Hi-Temp 570 racing brake fluid or Wilwood EXP 600 Plus Hi-Temp racing brake fluid for extreme temperature applications.

Before you begin the installation, read over the instructions carefully to be sure you understand the procedure, and make note of any additional steps that may have to be performed by a qualified machine shop. Compare the parts with the parts list on the installation document that came with the kit to ensure all necessary components are included.

NOTE: *Disc brakes should only be installed by someone knowledgeable and competent in the functioning and maintenance of disc brakes. 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, e-mail for technical assistance at: support@wilwood.com, or visit our web site at www.wilwood.com.*



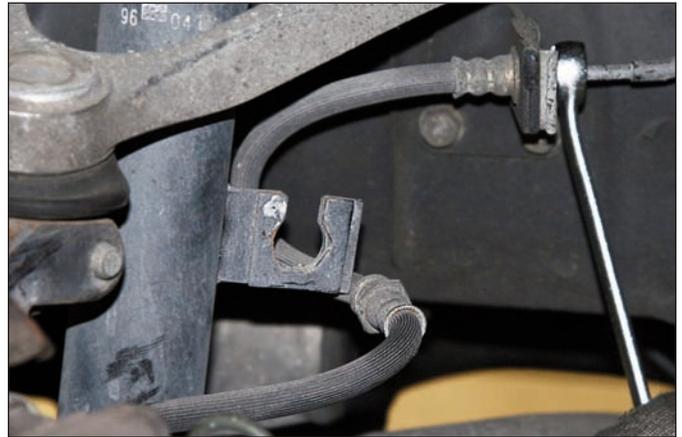
Sequence 1: Raise the front wheels off the ground and support the front suspension according to the vehicle's manufacturer's instructions. Remove the lug nuts, then slide off the wheel.



Sequence 4: On the backside of the OEM brake hose retaining bracket, remove the clip holding the hose fitting (arrow). Lift the hose up from the bottom portion of the bracket assembly.



Sequence 2: Break loose the hat locator screws using an impact screw driver. Then remove the screws.



Sequence 5: Disconnect the rubber hose where it connects to the brake hard line. Try to keep fluid leakage to a minimum.



Sequence 3: Using a breaker bar and socket, break loose the caliper mounting bolts from the back side. Do not completely remove at this time.



Sequence 6: Using a fitting from the new Wilwood flexline hose kit, P/N 220-7010 install the fitting on the end of the hard line. Temporarily cap or plug the fitting to keep fluid from draining out of the line while continuing with the installation.



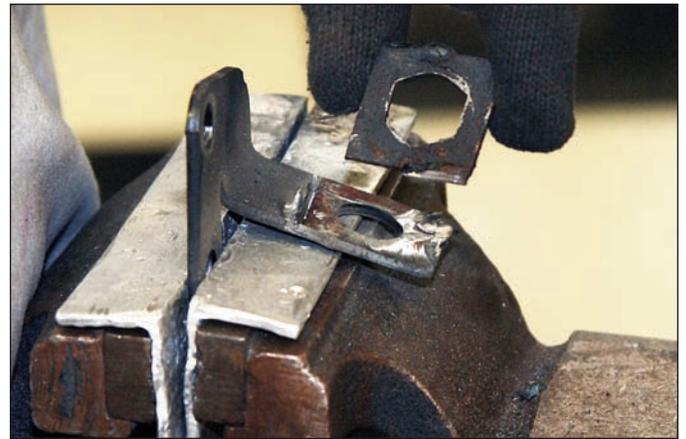
Sequence 7: Finish removing the caliper mounting bolts and lift off the caliper. Save bolts for reinstallation. Remember there is still some fluid in the rubber hose attached to the caliper.



Sequence 10: After the welds have been cut, pry off the top plate from the base using a screw driver or chisel.



Sequence 8: Remove the two bolts (save) that attach the hose line bracket to the inner wheel well adjacent to the hard line where the line fitting was installed earlier.



Sequence 11: After the top plate is removed, grind the base to remove any rough edges. Then spray paint any exposed surfaces to prevent corrosion.



Sequence 9: Secure the hose clamp in a vise and grind off the welds on both ends (arrows) that secure the top plate to the base of the bracket. This needs to be done to facilitate the installation of the Wilwood flexline.



Sequence 12: Reinstall the modified bracket in the original position using saved original bolts on the wheel well. Slide the new fitting into the bracket and secure in place with the retaining clip.



Sequence 13: Slide off the rotor from the hub. If it is stuck, it may be necessary to hit it a few times with a rubber mallet to break loose.



Sequence 16: After the dust cap is removed, the crimped over area of the spindle nut needs to be straightened so that it can be removed (arrow).



Sequence 14: Clean the hub assembly with a wire brush and remove any nicks, burrs, or grease that may interfere with installation of the new brake components.



Sequence 17: Remove the spindle nut from inside the hub assembly using the corresponding socket size.



Sequence 15: Carefully pry off the dust cap from the face of the hub using a chisel or screw driver and a hammer.



Sequence 18: After the spindle nut is removed, slide off the hub assembly and save for reinstallation later.



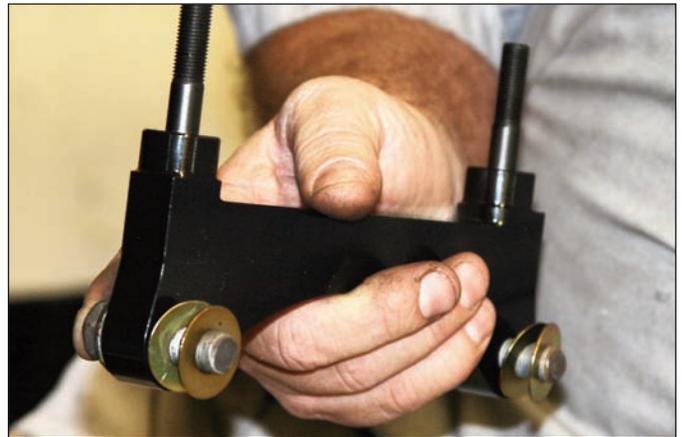
Sequence 19: Remove the three bolts (arrows) that hold the dust shield in place. Remove the dust shield and discard, it will not be utilized in the installation of the Wilwood brake kit.



Sequence 22: Reinstalled the OEM dust cap.



Sequence 20: Clean and remove any nicks or burrs on the spindle as well as the OEM caliper mounting ears that may interfere with the installation of the new Wilwood caliper mounting bracket.



Sequence 23: Slide the two saved OEM caliper mounting bolts through the Wilwood caliper mounting bracket and initially install two shim washers on each bolt.



Sequence 21: Slide the saved hub assembly onto the spindle and secure with spindle nut. Torque to OEM specifications. Follow the OEM recommendations regarding the reuse of spindle nuts. It may be necessary to source new spindle nuts. Using a screw driver, crimp over the flange of the spindle nut to keep it from unscrewing.



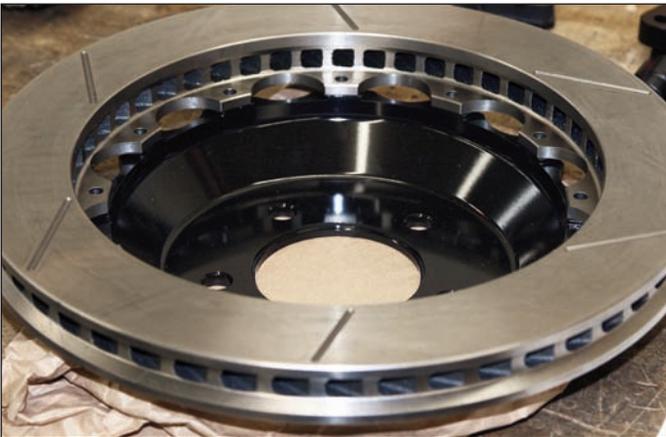
Sequence 24: Attach the Wilwood caliper mounting bracket to the OEM mounting ears from the back side. Temporarily tighten the mounting bolts. **NOTE:** The bracket must fit squarely against the mounting ears. Inspect for interference from casting irregularities, burrs, etc. Grind as necessary. Do not Loctite at this time.



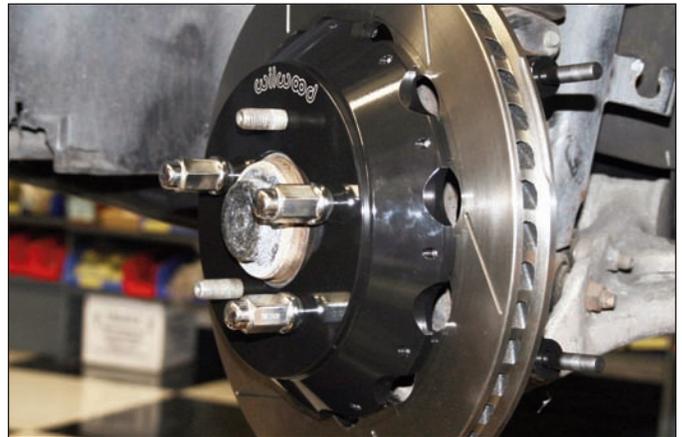
Sequence 25: Install the rotor registration adapter over the hub dust cap against the hub face with the larger O.D. facing inward toward the hub face.



Sequence 28: Install the hat/rotor assembly over the studs on the hub assembly. **NOTE:** The hat/rotor must fit flush against the axle hub flange or excessive rotor run out may result.



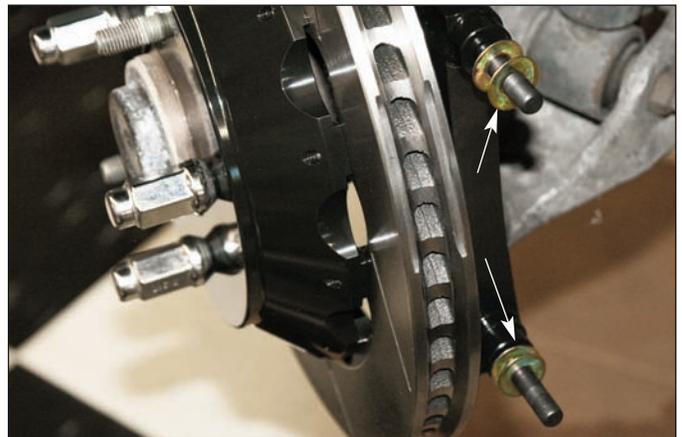
Sequence 26: The hat needs to be bolted to the rotor. Orient the rotor over the hat in the configuration shown above.



Sequence 29: Secure the hat/rotor with three lug nut (finger tight) to keep the hat/rotor assembly in place while continuing with the installation.



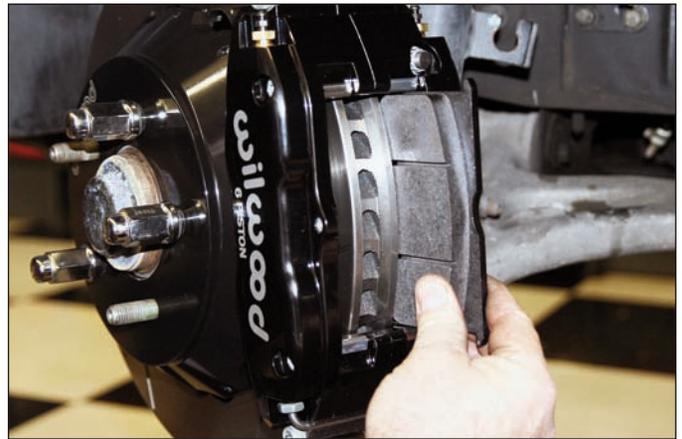
Sequence 27: Place one flat washer over each hole on the rotor mounting tabs. Coat the mounting bolts with red *Loctite*® 271 and slide through the washer and thread into the hat. Using an alternating sequence, torque bolts to 155 in-lbs.



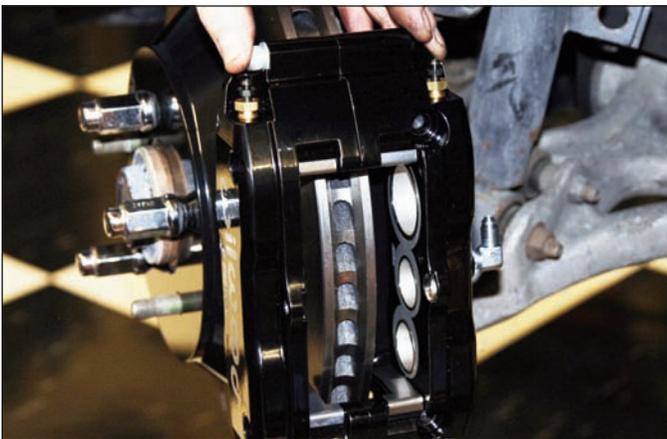
Sequence 30: Lubricate the caliper mounting studs with lightweight oil. Initially place two shim washers (arrows) on each stud between the bracket and caliper.



Sequence 31: Remove the protective sticker from the caliper fluid inlet. Coat the inlet fitting with PTFE thread tape and screw into the caliper with the 90° angle perpendicular to the length of the caliper.



Sequence 34: Having already removed the caliper center bridge pad retainer bolt, nut, and tube from the caliper, insert the brake pads into the caliper with the friction material facing the rotor.



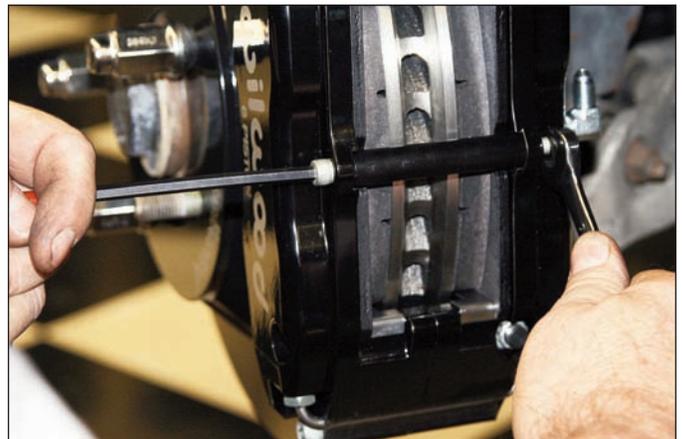
Sequence 32: This kit includes distinct right and left hand calipers. Mount the caliper onto the bracket so that the largest pistons are at the rotor exit end of the caliper, in relation to the direction of rotor rotation. Left hand installation shown.



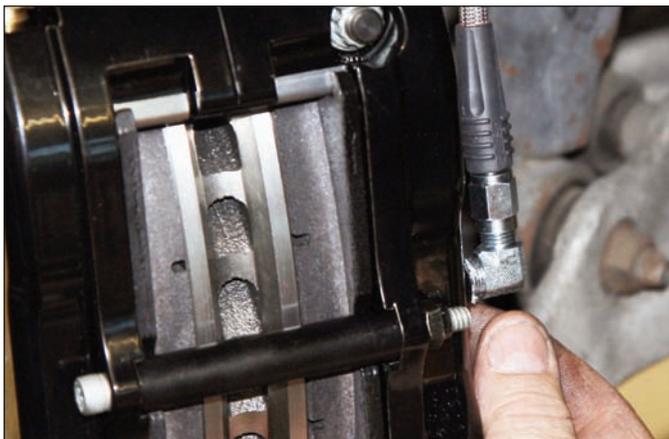
Sequence 35: Check that the top of the brake pad is flush with the outside diameter of the rotor (arrow). If not, adjust by adding or subtracting shim between the bracket and the caliper.



Sequence 33: Secure the caliper with washer and locknut, temporarily tighten. View the rotor through the top opening of the caliper. The rotor should be centered in the caliper. If not, adjust by adding or subtracting shims between the bracket and the mounting ears. Once the caliper alignment is correct, remove the bracket bolts one at a time and apply red *Loctite*® 271 to the threads and torque to manufacturer's specifications.



Sequence 36: After the pad height is set, install the center bridge pad retainer tub, bolt, and lock nut using an Allen wrench and open-end wrench. The lock nut should be snug without play in the bolt or tube. Be cautious not to over tighten. Then finalize the caliper mounting by torquing the caliper mounting lock nuts to 35 ft-lb.



Sequence 37: Connect one end of the Wilwood flexline hose kit, P/N 220-7010 to the fitting that was previously installed into the caliper. Route the line along the same path as the old rubber OEM line.



Sequence 39: Install the wheel and torque the lug nuts to manufacturer's specification. Bed in the brake pads and rotor in a safe location before general use driving.



Sequence 38: Connect the other end of the flexline to the fitting at the brake hard line. Secure line as necessary to prevent contact with moving suspension, brake, or wheel components. Bleed the system referring to the additional information in the data sheet as necessary for proper bleeding instructions.

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.

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