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TECHNICAL INSTRUCTIONS

727.347.9915

FOR ANY QUESTIONS, PLEASE CALL US @ 727.347.9915 M-F 8:00a.m.-8:00p.m. EST.

MOPAR

**RACE/STREET FRONT
BRAKE KIT
INSTRUCTIONS**



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You will need some items for best results when installing your Aerospace Brake kit.

The following is recommended:

- At least two 12 oz. bottles of brake fluid with a minimum wet boiling point of 298 degrees and a minimum dry boiling point of 450 degrees. We recommend that you do not use silicone based brake fluids.
- Teflon tape for brake line fittings
- Red Loctite®
- A moly type grease for wheel bearings.

For safe operation there are things to consider with your Aerospace Brakes:

- If the master cylinder is mounted level with or lower than the calipers, a 2lbs residual valve is required.
- Check all the brake lines (worn lines will not work).
- You will need a 1 1/8" Bore master cylinder.
- You will need a minimum of 1" bore master cylinder if you are using four piston calipers at all four wheels
- You will need to remove the residual valve from the brake lines if changing from a front drum system.
- Check all the brake lines (worn lines will not work).
- Check for proper wheel clearance by fitting the kit up inside of the wheel. If it appears that there is a clearance problem, correct it, before you begin.

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Disassembly of stock brakes:

Remove all pieces of brake system being replaced. These instructions begin with a clean bare spindle.

Pre-assembly of parts:

1. Test fit hub & bracket before using any Red Loctite®!
2. Compare the hub and wheel to determine the correct bolt pattern for the wheel studs.
3. Install the wheel studs in the hub and torque to 50-ft lbs.
4. Attach the rotor to the hub assembly using the five 3/8" – 24 x 3/4" bolts with star washers, hand start the bolts through the hub onto the rotor. Tighten to 40 ft-lbs using Red Loctite®.

Pre-Assembly of Vaned Rotor and Hub: (If applicable)

- 1 & 2 same as above.
3. Attach the rotor to the hub adapter by placing the rotor with the bolt hole tabs flat against a table. Place the hub adapter into the rotor so that it looks like a bowl. Using the five 5/16" – 18 x 3/4" low head socket cap screws, place the bolts through the rotor then the hub adapter. Using Red Loctite® torque bolts to 20 ft-lbs.
4. Using the 5 3/8" – 24 x 3/4 " bolts with nuts, attach the rotor/adapter to the hub. The hub should be sitting inside of the hub adapter.
5. Place the bolts through the hub adapter up through the hub. Secure the bolts with supplied nuts. Using Red Loctite®, torque the assembly to 35 ft-lbs.

Attaching the Caliper mounting bracket:

The caliper mount bracket should be installed with the counter sunk holes facing away from the spindle face and positioned with the caliper mounting holes opposite the steering arm. Using the flat head bolts, attach the bracket to the spindle using either the dust cover holes or the mounting holes for the drum system. Do not loc-tite bolts at this point.

Test fitting before final installation:

1. Without using grease, install inner bearing (*do not install grease seal*) hub/rotor assembly, outer bearing, washer and spindle nut.
2. Tighten nut until there is zero play with the hub assembly.
3. Choose a caliper that when mounted will allow the bleed ports to point upwards. Fit the caliper over the rotor. Slide the spacers between the caliper and the bracket and install two 3/8"-24 x 1" bolts, lock washer, and washers. Tighten the bolts, watching the caliper and the rotor positions. The caliper should not be in contact with the rotor. If the caliper is or does contact the rotor, shims will have to be installed. After the caliper is attached check the alignment of the caliper and the rotor. The parting line of the two caliper halves should line up with the rotor centerline.
4. Try to install brake pads. If pads slide right in, the caliper is properly positioned. If pads do not slide in with complete ease, shims will have to be installed.

Installing shims:

When installing shims it is necessary to determine which way the caliper needs to be moved. If the caliper needs to move towards the wheel, shims are needed between the bracket and spindle. If the caliper needs to move towards the center of the car, shims are needed between the bracket and caliper. The proper caliper positioning is achieved when the brake pads slip into the caliper freely. When shimming, you must use equal number of shims per bolt to move bracket parallel to its original position. After you have shimmed, go back and test fit the system again. Be patient, proper positioning is important for safety and system longevity.

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Final Installation:

1. After you have determined proper bracket position, use loc-tite on bracket mount bolts.
2. Using moly type grease, pack bearings, install the inner bearing and grease seal.
3. Mount rotor/hub assembly and install the outer bearing, retaining washer and spindle nut. We recommend rotating the hub assembly and slowly tightening the spindle nut until the bearings are seated and zero clearance is obtained. Then back off the spindle nut to the first cotter pin opening, install cotter pin and dust cap.
4. Install caliper and shims if necessary. Make sure bleed ports point upwards. Tighten bolts securely. Torque to 35-40 ft. lbs.
5. Drop in pads. Pads should drop in freely. Be sure pad bolt protrudes through nylock nut. Slide the pad retaining bolt through and use nylock locking nut to hold secure. Make sure the rotor turns freely and only the brake pads are touching the rotor. This is a fixed caliper system; the bracket and rotor will have minimal clearance, but should not be touching.

Brake lines:

The inlet port in the caliper is 1/8" pipe thread. If you choose to use the stock flex hose, an adapter to 1/8" male pipe thread will be needed. Wrapping the threads with teflon tape will allow a tighter seal at a lower torque. The threads should only go into the caliper about 3 turns.

Bleeding the system:

An initial gravity bleeding is recommended to remove 90% of the air in the system. This is accomplished by:

1. Filling the master cylinder with fresh fluid and opening the bleed ports, leaving the top off the master cylinder. Fluid will flow into and fill the calipers. Do not let the fluid level in the master cylinder get low. This process takes some time.
2. A final bleeding is accomplished by firmly pressing the brake pedal and having someone open the bleed port until the pedal goes to the floor, closing the bleed port before the pedal is lifted. Do not pump the pedal while bleeding, this only foams the fluid and prevents proper bleeding.
3. Repeat this process for all brakes until the pedal is high and firm and until no air bubbles come from the calipers. Remember to fill the master cylinder occasionally. This process is made easier with the use of a pressure bleeder.

Mounting your wheels:

On a rare occasion some wheels may interfere with the brake system. The drop center of the wheel may have been designed for the more compact drum system. Changing to the next larger diameter wheels should solve this problem. Do not grind the brake parts.

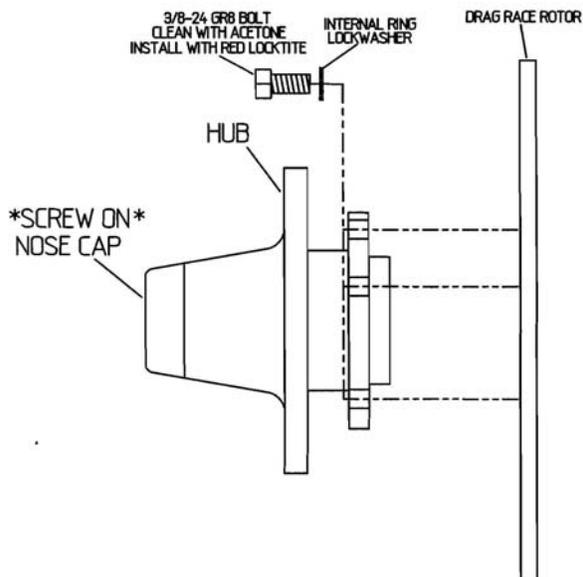
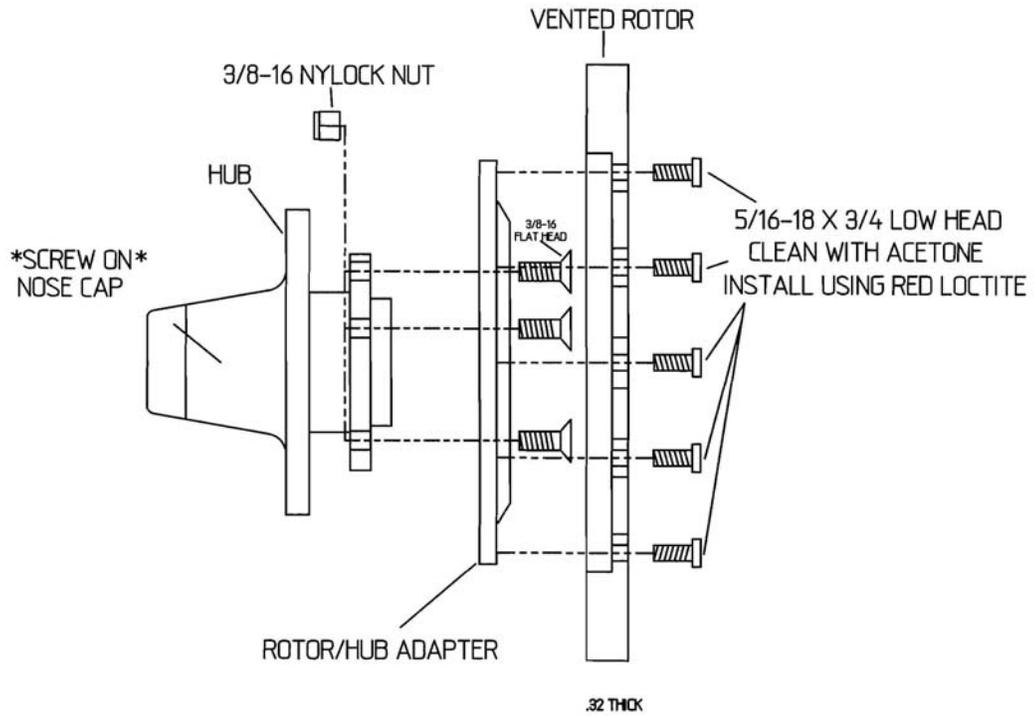
System Check:

1. Start the engine and check for proper pedal action and feel. Do not leave work area until you are absolutely sure the system is developing adequate brake pressure to stop the car.
2. Test-drive cautiously! Check for leaks.

Brake pad bedding:

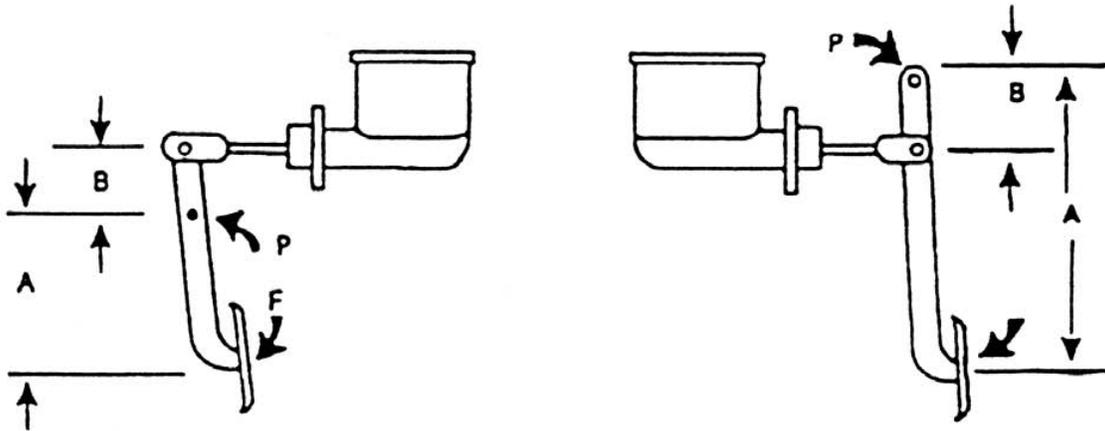
New brake pads require a bedding process. This bedding procedure starts by pumping your brakes at a very low speed to ensure proper brake operation. Make a series of hard stops at progressively higher speeds. Continue this process until brake fade is felt. Park the car and give the pads a chance to cool completely. Improper pad bedding results in glazed pads diminishing stopping ability.

Brake pads should be checked regularly. If pads are wearing evenly, they can be used almost down to the backing plate.



Getting the correct pedal ratio:

In order to get the correct ratio for your Aerospace Components braking system, a few measurements must be taken. First, remove the old master cylinder. Measure from the center line of the pivot point "P" of the brake arm to the pivot point of the master cylinder rod to get length "B". Next, measure from the pivot point of the master cylinder rod to the center of the footpad to get length "A". Finally, divide length "A" by length "B". This will give you your pedal ratio. The recommended ratio should be 7:1. For example, if length "A" was 14 " and length "B" was 2", then $14/2=7$.





WARNING:

ALL AEROSPACE PRODUCTS ARE FOR OFFROAD USE ONLY AND ARE NOT INTENDED FOR STREET USE!

SAFETY IS A REQUIREMENT!! TO ENSURE SAFETY A PARACHUTE, ROLL CAGE, 5 POINT HARNESS, D.O.T. OR SNELL APPROVED HELMET, FIRESUIT AND ALL OTHER NHRA OR IHRA REQUIRED SAFETY DEVICES SHOULD BE UTILIZED AND KEPT UP TO DATE. ALL RACERS SHOULD HOLD A VALID LICENSE FOR THE CLASS IN WHICH THE VEHICLE IS DESIGNED TO RUN. PROPER INSTALLATION OF COMPONENTS IS OF THE UPMOST IMPORTANCE. MAKE SURE THE PERSON INSTALLING ANY COMPONENT ON YOUR RACE CAR IS FAMILIAR WITH THE PROPER INSTALLATION OF THAT COMPONENT. Aerospace Components is not liable for any damages or injuries that may occur due to incorrect installation of parts or components!

Please remember, racing pushes all components that make up a vehicle to their max stress levels. When any part or component is pushed to the max its chances of failure rise dramatically. This is why race parts and components carry no warranty. This is also the same reason why safety gear should be used at all times and why fastener and part inspections should be performed regularly. By installing any Aerospace Components parts you agree that Aerospace components can not be held liable for any damages or injuries resulting from part or component failure. Remember this is racing.... parts break, systems may fail so be prepared mentally before a race. Know where the chute handle is, know where the kill switch is, make sure your safety restraints are tight and have a plan in mind for when things go wrong. Never place the transmission into park, reverse or use the transmission brake to stop a moving race car; if you try YOU WILL CRASH! The best way to stop a runaway race car is to release the parachute and kill the ignition. Please be safe at all times and hope for the best but plan for the worst.

**MOTORSPORTS ARE EXTREMELY DANGEROUS
AND MAY RESULT IN SEVERE INJURY OR EVEN DEATH.
RACE AT YOUR OWN RISK!**