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TECHNICAL INSTRUCTIONS
727.347.9915

Lightning/ F150 Front Instructions

1 AEROSPACE COMPONENTS 727.347.9915

Preparing the spindle:

You will need to remove all factory braking components from your spindle and clean all mounting surfaces. Remove any old grease from spindle snout. A bare clean spindle is required before new installation can begin.

1. Mount the caliper bracket to the spindle using the 9/16-18 x 2 ¼ hex head bolts (turned down heads) with nylock nuts.

Prepping the hub:

1. Install the 10 wheel studs into the hubs.
2. Locate the hardware bag containing QTY (17) of a 5/16-18 x ¾ long low head bolt and QTY (1) 5/32 hex key. Clean the low head bolts with acetone or brake cleaner. Use the same process to clean the threaded holes in the hubs. Place rotor over the top of the hub with the counter bored side facing up, nose cap of hub should be pointed down. Put a few drops of red high temp loctite on each screw. Install each screw finger tight first then tighten all screws to 18 ft lbs or as tight as possible.

Final assembly of parts:

1. Pack grease into the inner and outer wheel bearings and put a very light amount on the grease seal lip. Place inner bearing into the hub and then install the grease seal into the hub.
2. Slide hub/rotor assembly over the spindle shaft and install outer bearing the tanged washer and nut, then lightly snug the nut.
3. Adjust the bearings by spinning the hub assembly while tightening the nut, ideal is to have zero lash and very slight drag felt when rotating the hub assembly.
4. Place the spindle nut locking ring over the spindle nut lining up notches in ring with cotter pin hole in spindle shaft. If the hole does

not line up just spin the lock ring only until you can achieve alignment. Then place cotter pin through hole and bend the legs to prevent the spindle nut from loosening.

5. Install brake caliper to the mounting brackets with the bleeder screw above the brake line port so the bleed screw is to the highest point. You will need to use the 3/8-24 x 1 1/4 hex head bolts. Be sure caliper is centered on rotor within .050 of an inch by using the supplied shims. Torque to 35 ft-lbs.
6. The inlet port of the brake caliper is 1/8-27 pipe thread. The stock hoses will not work. Aerospace Components sells line kits to fit most applications.
7. Drop the brake pads into the calipers and secure them with the pad retaining bolt and nylock nut. Be sure the bolt extends through the locking feature of the nut. This nut should be replaced every time you replace your brake pads.
8. Make sure the brake pads are the only thing touching the rotor and that the rotor spins freely. This is a fixed caliper system and the bracket and rotor will have minimal clearance, but should not touch.

The caliper *must be parallel* to the rotor. A different number of shims may be required to achieve this for one caliper.

Final Check:

1. Make sure all fasteners are tightly loctited in place.
2. Make sure all fittings are tight
3. Check for wheel clearance between brakes and wheels as well as brake lines and wheels/tires.

Brake Lines:

The intake port on the brake caliper is 1/8-27 pipe thread (1/8 npt). Banjo style bolts and fittings will not work with this kit. Wrap the pipe fitting with a couple turns of Teflon tape before installing in the caliper. The fitting should screw in about 2 turns by hand then use a wrench to finish tightening it up. When installing the brake lines make sure they are positioned where they will not contact any moving parts. Check that the brake lines are long enough by jacking the front end of the car up and turn the steering from wheel lock to wheel lock making sure that the lines are not being pulled on at any time. If there is tension on the brake line at any time a longer line will be required.

Brake Fluid:

Dot 3 or Dot 4 fluids are recommended for best results, DO NOT use DOT 5 or any fluid that contains silicone. Many Dot 5 fluids contain silicone which will cause damage to the piston O-rings and will also damage most master cylinders. Chose a good brand fluid, we have always had good luck with Valvoline and Castrol brands.

Master Cylinder:

The master cylinder requirements vary depending on front/rear brake combination. If you are using 4 piston calipers on the front and rear it will require a master cylinder with a minimum bore size of 1 1/32. Call 727-347-9915 if you have any questions about your current setup.

Bleeding the System:

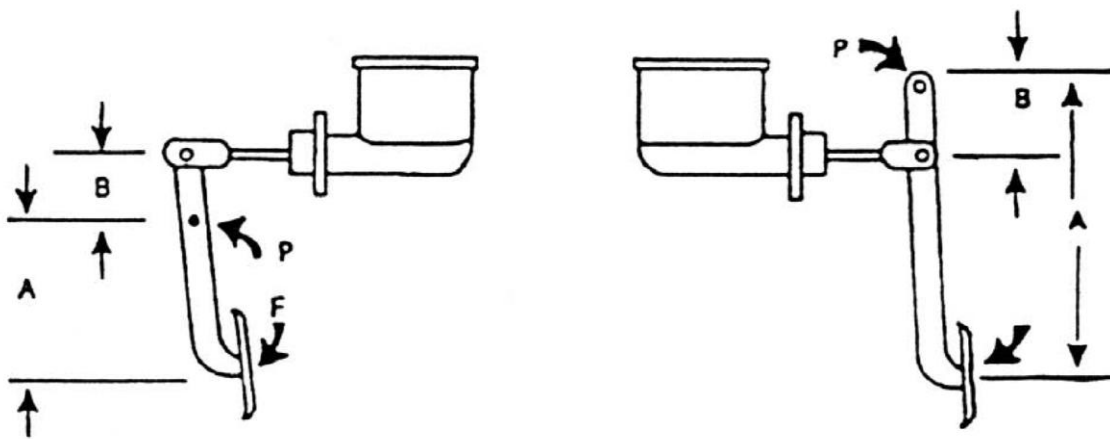
An initial gravity bleeding is recommended to remove most of the air in the system. This is accomplished by filling the master cylinder with fresh fluid and opening the bleed ports. Leave the top off the master cylinder. Fluid will flow into and fill the calipers. Be sure to keep fluid in the reservoir to keep air out of the system. This process will take some time. 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. Repeat this process for all brakes until pedal is high and firm. Be sure no air bubbles come from the calipers.

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 packing plate.

Getting the right 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, ROLLCAGE, 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!**