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TECHNICAL INSTRUCTIONS

727.347.9915

VEGA / MONZA SUNBIRD SKYHAWK KIT INSTRUCTIONS

RACE, STREET, 2 PISTON AND 4 PISTON
FRONT KITS ARE ALL COVERED IN THESE
INSTRUCTIONAL SHEETS.



IMPORTANT!

THIS BRAKE KIT WILL REQUIRE WELDING.

The steel tabs included in this kit must be **T.I.G.** welded to the spindle. Welding on the tab greatly increases the strength and durability of the brake kit. **DO NOT** install this kit without the steel tabs properly welded to the spindle. Failure will occur, possibly causing complete loss of braking ability. Follow the “Attaching the caliper mounting bracket” instructions 100%, for a safe brake kit installation.

If you need further help, call us @ 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. Using the new caliper mounting bracket as a guide determine which dust shield holes line up and will be used to attach the bracket.
2. Drill the mounting holes with a 5/16 drill bit then tap with a 3/8-16 tap.(make sure you keep the drill and tap parallel to the spindle snout and square to the spindle bosses)
3. Mark and cut off the factory caliper mounting ears making room for the new caliper. (Remove as little as possible, just make enough room for the new caliper)

Attaching rotor to hub:

Drag race kit:

Using the hub and wheel that will be used on the vehicle, determine which bolt pattern in the hub will be used. Screw in each 1/2-20 x 3.0 long stud from the back side of the flange using red loctite and torque to 40 ft. lbs. Make sure you used the correct bolt pattern by double checking the hub fitment into the wheel at this time.

Locate the hardware bag containing QTY (10) of a 3/8-24 x 3/4 long hex head bolt and QTY (10) 3/8 internal ring lock washer. Clean the hex head bolts with acetone or brake cleaner. Make sure the surface of the hub and rotor are free from burrs or debris on the mounting surfaces. Place 1 lock washer on each of the 10 bolts. Put a few drops of red high temp loctite on each bolt. Slide bolt between wheel flange and rotor mounting flange and drop through one of the rotor mounting bolt holes then start threading into rotor. After all bolts have been started into the rotor clamp rotor into a vise (take care not to harm rotor surface in vise jaws). Then using an open end 9/16 wrench tighten each bolt and then torque with a "crows foot" socket to 35 ft lbs. (see diagram)

Street kits:

Using the hub and wheel that will be used on the vehicle determine which bolt pattern in the hub will be used. Screw in each 1/2-20 x 3.0 long stud from the back side of the flange using red loctite and torque to 40 ft. lbs. Make sure you used the correct bolt pattern by double checking the hub fitment into the wheel at this time.

Locate the hardware bag containing QTY (17) of a 5/16-18 x 3/4 long low head bolt and QTY (1) 5/32 hex key. Clean the low head bolts with acetone or brake cleaner. Make sure the surface of the rotor adapter and rotor are free from burrs or debris on the mounting surfaces. Place rotor adapter cupped side facing down on a table (counter sunk holes facing up). Place rotor over the top of adapter with the side with tabs facing up. Put a few drops of red high temp loctite on each screw. Install each screw finger tight first then tighten all screws to 20 ft lbs or as tight as possible. Place hub nose cap side down onto table then place rotor/adapter assembly on top of hub with the counter sunk holes facing upward. Locate the hardware bag that contains

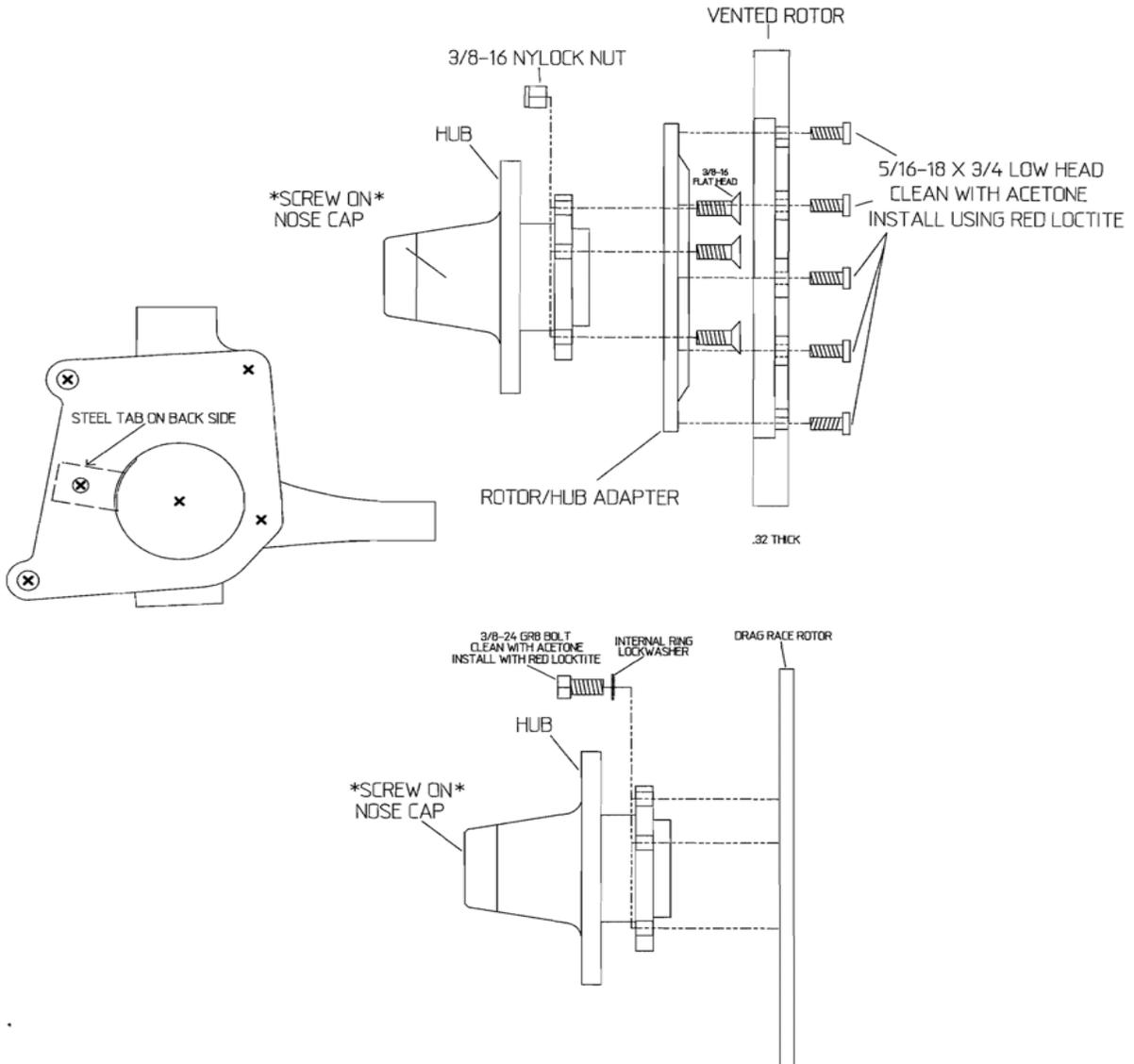
QTY (10) 3/8-16x 1 ¼ long flat head screws and QTY (10) 3/8-16 Ny-lock nuts. Place flat head screws through rotor adapter and hub and thread into 3/8-16 Ny-lock nuts and torque to 30 ft lbs. (see diagram)

Attaching the caliper mounting bracket:

Note: This step requires a Tig welder and possibly a lathe. If you do not have access to a tig welder or are not capable of welding using the tig method you will need to locate a capable chassis shop to complete this portion of the install. You can also send your spindles, mounting brackets, bracket bolts and steel tabs to us. We will drill, tap, cut and weld on the steel tabs to your spindles. *(call 727-347-9915 for a price quote and shipping information)*

Using the 3/8 flat head bolts attach the mounting bracket to the spindle with the caliper mounting ears pointing opposite of the steering arm and the raised head of the stainless insert facing towards the outside of the car. (These will be torqued and loctited during final installation.) An aluminum spacer is included and needs to be placed between the bracket and spindle at the upper bracket mounting location.

1. After tightening the bracket to the spindle place hub/rotor assembly on spindle and check the spacing between the rotor and bracket in multiple locations. Many times the thickness of the aluminum spacers will have to be modified due to variances between spindles. When alignment is correct the bracket should be parallel to the rotor within .010 of an inch. If it is necessary to adjust the spacer thickness a lathe should be used so the mounting faces stay parallel.
2. Attach the steel mounting tab to the bracket using 1 stainless shim between the bracket and the tab. Some grinding may be required on the spindle or tab to obtain a close fitment for welding.
3. With all the mounting bolts tight, bracket sitting parallel to the rotor and steel tab bolted to the bracket tack weld the tab to the spindle.
4. Check that the bracket stays parallel to the rotor and that the tab is not moving while welding.
5. Weld as much of the tab to the spindle as possible before removing the caliper bracket. When this is achieved, remove bracket and finish welding the tab to the spindle. 100% welding is required.
6. Do not try and install this brake kit without these tabs properly welded in place. The tab is required for rigidity and strength of the kit, omitting these tabs will result in failure of the brake system and may result in a serious accident.



Dry fitting before final installation:

(Do not use grease yet!)

1. Install inner bearing, hub/rotor assembly, outer bearing, washer and spindle nut. (Do not use grease yet!)
2. Tighten spindle nut until zero bearing backlash is achieved.
3. Fit the caliper over the rotor making sure that the bleeder screw is above the intake port.
4. Tighten the bolts and observe the caliper position in relation to the rotor. The parting line of the caliper should match the centerline of the rotor. If caliper is not centered or is rubbing on rotor, shims will be required. Shims placed between the caliper and bracket will move the caliper towards center of car, shims placed between bracket and spindle will move caliper towards outside of car.
5. If the assembly appears to be aligned properly slide in brake pads. If brake pads slid in easy you are aligned correctly if not recheck your alignment.
6. Install wheel/tire and spin to make sure they do not interfere with the brake system. If they touch you may need to use a wheel spacer or in the worst case change to a different wheel. The wheel can be as close as 3/32" to the caliper with no problems.

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

Final installation:

1. Once you have determined proper bracket and caliper positioning, loctite and torque the 3/8-16 bracket bolts to 35 ft. lbs. and red loctite. Clean the bolts with acetone or brake cleaner before installing. Use a Ny-lock nut on the back side when ever possible.
2. Pack the bearings with moly-type grease and install the inner bearing and grease seal.
3. Mount hub/rotor assembly and slowly turn assembly while you tighten spindle nut until you achieve zero bearing backlash.
4. Line up cotter pin hole in spindle with a slot in the spindle nut (if necessary loosen nut slightly to get alignment) install cotter pin and bend over the ears to secure. Check that the hub spins freely. Install dust cap.
5. Install the caliper making sure the bleeder port is above the intake port on the caliper. Using the same shim arrangement from the dry fitment tighten the caliper mounting bolts to 35 ft. lbs.
6. Install the brake pads and slide the pad retention bolt through the calipers and brake pads and secure with the locking nut. (Make sure the pad bolt protrudes through the locking feature of the nut by more than 4 threads)
7. Make sure the rotor spins freely and that the only thing contacting the rotor is the brake pads. This is a fixed caliper braking system; therefore, there will be minimal clearances between the rotor, bracket and caliper. But they should not be touching.

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.

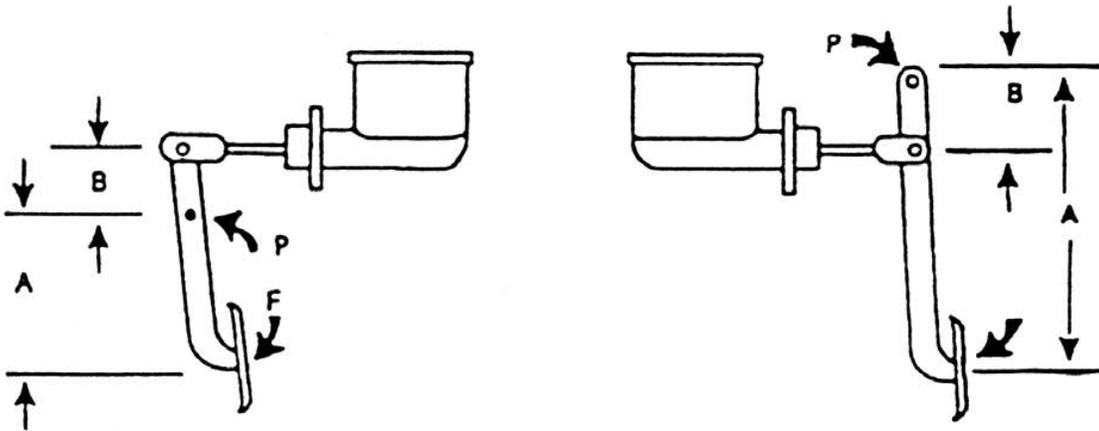
Brake pad bedding:

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, 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!**