



# AeroConversions

A Product Line of Sonex Aircraft LLC

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## Hydraulic Brakes

(Rev B 022217, 3 pages)

### Installation

This instruction sheet provides the "big picture" for installing the AeroConversions Hydraulic Brake system. Sonex Airframe kits include detailed for each airframe.

### Other Items You Will Need

Review the engineering drawings to determine additional parts you may need for your particular installation.

- DOT 5 or MIL-PRF-5606H Hydraulic Brake Fluid
- Tapered Roller Bearing Wheel Bearings (All Sonex Aircraft-provided wheels have the proper bearings)

*Important: Tapered roller bearings must be used as they can withstand the axial loads applied to the disks.*

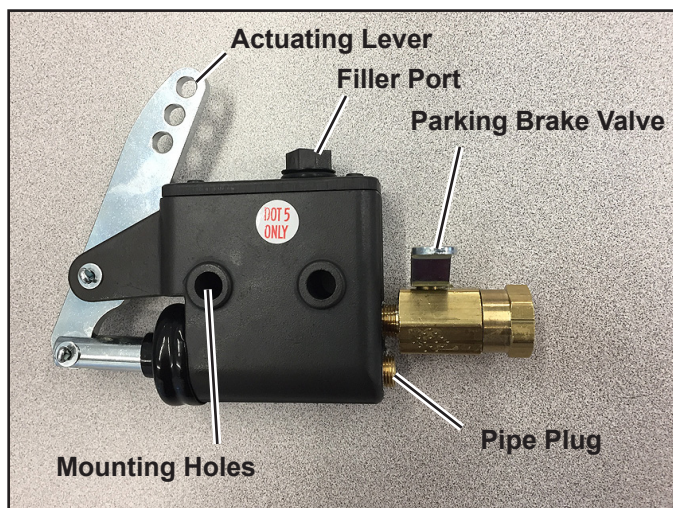
### Master Cylinder

The master cylinder has a single piston/lever which pressurizes two hydraulic lines simultaneously. Each line actuates one wheel cylinder to apply equal braking pressure. Differential braking is not supported using this master cylinder.

Alternate master cylinders must be compatible with DOT 5 or MIL-PRF-5606H hydraulic brake fluid and must have a bore equivalent to 7/8" to operate both brake cylinders.

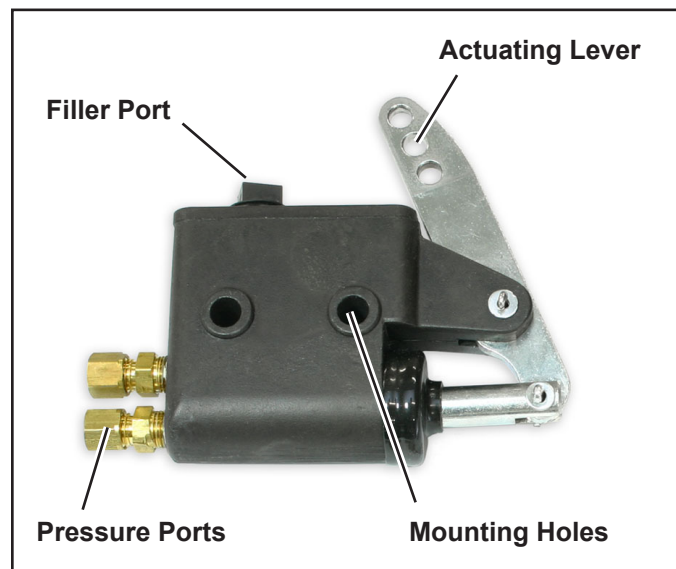
### Installations With Parking Brake Valve

To use the supplied valve as a parking brake, install the valve in the top pressure port and install the supplied pipe plug in the lower. A union tee (supplied) will need to be installed after the valve to split the single brake line into two line, one for each brake caliper.



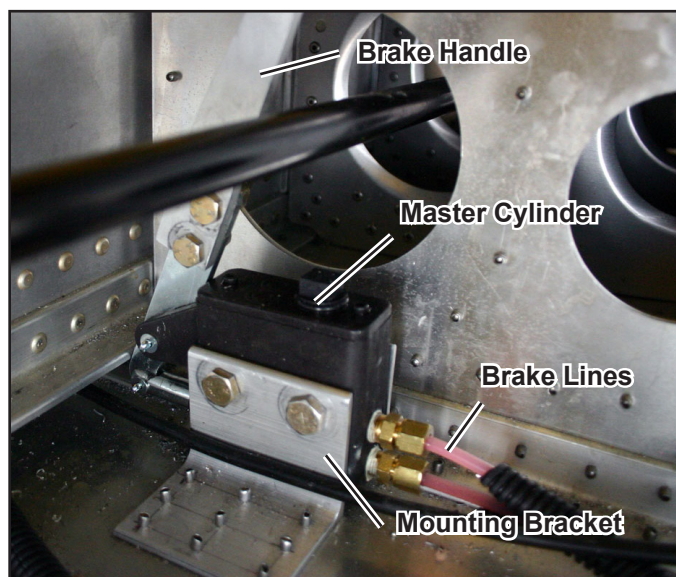
### Installations Without Parking Brake Valve

If you wish to install the master cylinder without the parking brake valve you will run a brake line from each of the straight pressure port fittings directly to the brake calipers.



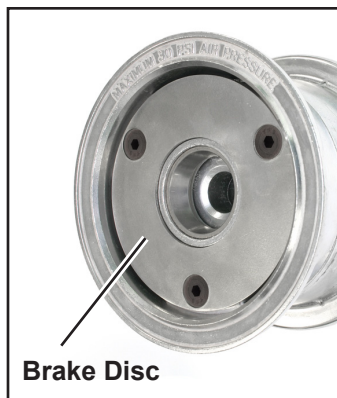
### Example Master Cylinder Installation

This photo provides basic guidance on installing the master cylinder. Sonex Aircraft builders should also reference their airframe plans set.



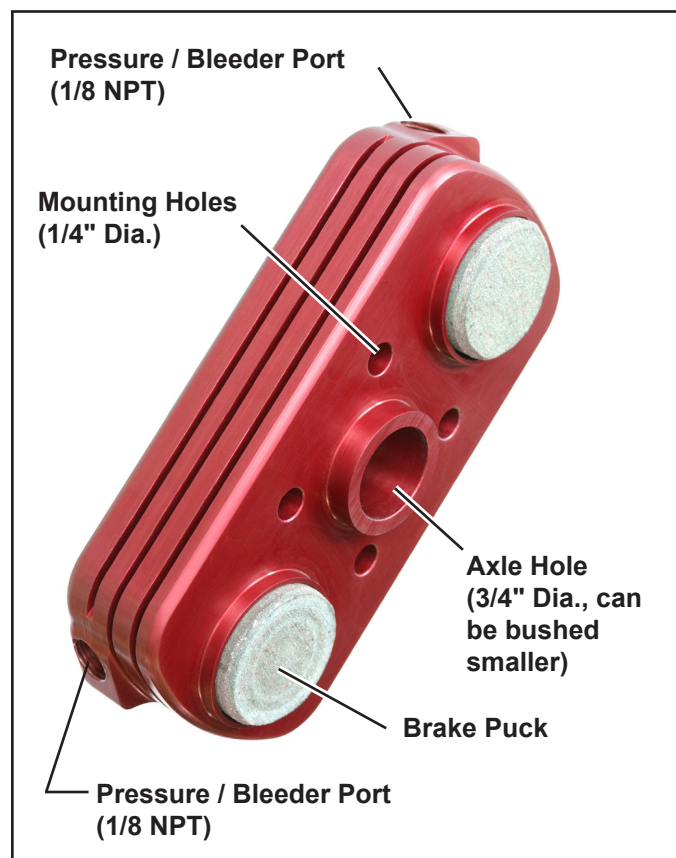
### Brake Disc

The brake disc bolts to the inside of the Azusa wheel with flush screws, replacing the brake drums used in a standard brake installation.



### Brake Caliper Assembly

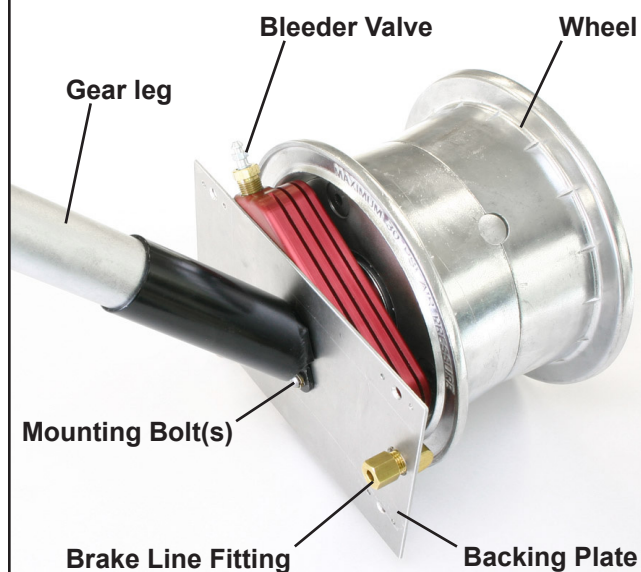
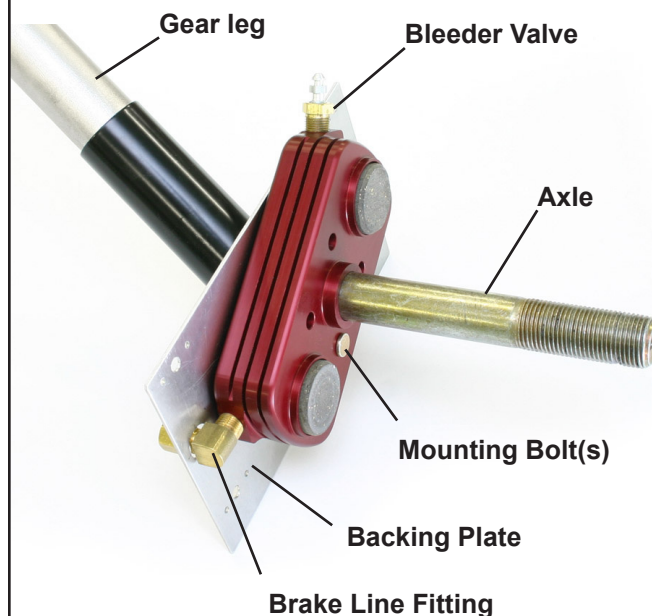
The brake caliper consists of an aluminum billet body which holds a pair of pistons and brake pucks. The pistons are hydraulically actuated. Each caliper has two ports, either of which can be a supply port or a bleeder port. Use teflon paste, not tape, on the threads of the NPT fittings.



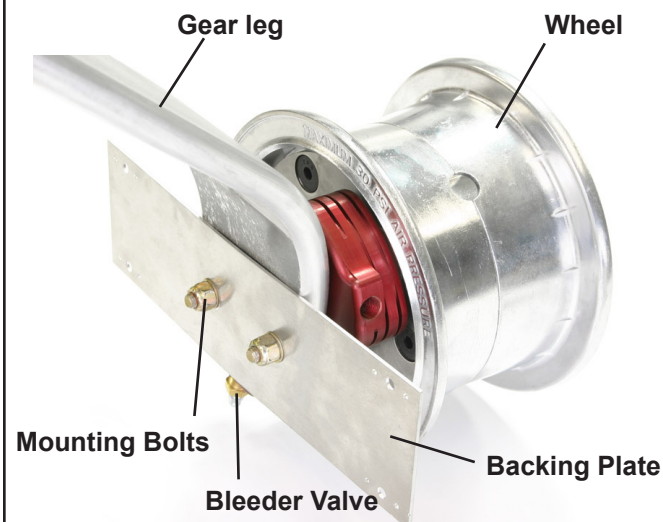
### General Installation Overview

The AeroConversions brake system is designed to fit inside the wheel pant, providing an aerodynamic installation. The photo below shows a typical tube-gear installation with a brake backing plate installed over the axle. This backing plate provides a surface to which the brake cylinder and the wheel pant can be attached.

#### Tube-style Gear Legs (Sonex, Waix, Xenos)



### Leaf Spring-style Gear (Onex)



### Preflight Inspection

Hydraulic brakes require special consideration during the preflight:

- \_\_\_ Inspect for fluid leaks at each cylinder
- \_\_\_ Inspect exposed lines for chaffing or other damage
- \_\_\_ Make sure the filler plug is secure in the master cylinder
- \_\_\_ Apply the brakes while taxiing out to assure proper operation.

### Bleeding and Maintaining the Brakes

This brake system operates in the same manner as any hydraulic brake system and must be maintained as such.

- \_\_\_ Use DOT 5 or MIL-PRF-5606H Hydraulic Brake Fluid
- \_\_\_ Always clean the fill plug and bleeder valves prior to bleeding to prevent contaminating the fluid.
- \_\_\_ Maintain proper fluid level
- \_\_\_ Change the fluid annually

Bleeding the brakes is most easily accomplished by two people: one to apply and hold system pressure with the brake handle while the other momentarily opens and then immediately closes a bleeder valve.

*Note: Monitor the fluid level in the master cylinder while bleeding the brakes. It may be necessary to add fluid during the bleeding process to avoid running low on fluid and re-introducing air into the brake lines.*

When bleeding the brakes it is best to start with the brake cylinder that is furthest from the master cylinder.

Repeat the process at each bleeder valve until only fluid, no air (bubbles), escapes when the bleeder valve is open.

### "Soft" Brakes

Brakes which feel "soft" when applied may have air in the lines or may be leaking. Inspect the system for leaks and bleed the brakes. If the fluid has not been replaced in over year it may be contaminated with water, which is compressible. Replace the brake fluid with new.