

## VII. Wing Pressure Ports Installation

Wing pressure ports are used to measure the local wing lift. These ports may be located on the upper and lower surface of your aircraft's wing.

Due to the numerous wing pressure port location options, consider the following. Upper pressure ports are subject to moisture contamination and should be provided with an air water separator. While parked on the ramp a method to prevent the ports from being contaminated by debris or insects is advisable.

The ports should be marked with a placard similar to the markings for static ports. The ports must be located outboard of propeller wash even with the aircraft in a slip. There is a different wing kit depending upon what type of



material the wing is constructed. For aluminum, fabric and wood skinned wings we supply a white Delrin air/water separator. For composite skinned wings we supply phenolic air/water separator parts.



*Typical composite wing installation*

The size of the wing pressure port holes may be small #60 bit (.040") to prevent insect contamination. The ports should be accessible either through

the wing tip or an access panel. Hose barbs compatible with 1/16" ID hose and a 10/32 thread are provided, as is the air/water separator. The ideal location for the pressure ports is where the local pressures vary linearly with AOA. A sure way to determine good wing pressure port locations is by noting what others have found to work. There are some places where pressure ports should not be located on the wing such as in line with the propeller wash, too close to the wing tip, and in areas difficult to access. Generally 15% to 40% chord and forward of the ailerons will work well. The upper and lower ports should be located at the same % chord but offset by 2" to 4" spanwise.

- ◇ A. Pick the pressure port locations. For the best wing port locations, check the Appendix I or better yet, our web site at [www.angle-of-attack.com](http://www.angle-of-attack.com) for the most recent information.

## WING PRESSURE PORTS INSTALLATION

- ◇ B. Install the supplied air water separator. The drain should be at the bottom and the hose barb installed with gasket on the side near the top of the air water separator. It is not necessary to over tighten the barb fitting. Torque the barbs to a maximum of seven (7) inch pounds. Seal all surfaces and do a pressure check. For metal installations, ProSeal may be used as a sealant.
- ◇ C. Install a hose barb and gasket over the lower wing pressure port. A strip of phenolic or Delrin tapped with a 10/32 thread and bonded, screwed and or riveted to the bottom skin is adequate. Seal all mating surfaces and pressure check. A 3/8" diameter cavity just below the barb that acts to break capillary action is required for proper operation.
- ◇ D. Route a blue (sky) colored tube from the upper wing pressure barb to the AOA CPU barb marked upper wing. Route a green tube (grass) from the lower wing pressure barb to the AOA CPU barb marked lower wing. Don't confuse the two colors which may be difficult to tell apart if you are color blind or working in a poorly lit environment.

# WING PRESSURE PORTS INSTALLATION

## Aluminum Wing Installation

ADA Pressure Ports	May 1, 1999
Aluminum Wing	ADA_460b_rev2.dwg JBF
Proprietary Software Systems, Inc.	

Offset the upper and lower pressure ports by 2" to 4" span wise  
alleron area of wing span wise is optimum span location  
Keep the upper and lower pressure ports at the same % chord  
Avoid locating the ports near round head rivets

Clean all mating surfaces prior to installation  
Use sealant between pressure blocks and wing  
Pressure ports drilled with #60 bit (.040 dia.) after block placement  
Pressure test all systems for leaks prior to flight  
Use acceptable methods, techniques and practices in accordance with DOT FAA circular AC 43.13-1B

Chord - Distance from the leading edge to the trailing edge of the airfoil including the alleron

INSTALLATION