PRECISE-FLOW AIR VENTS FOR CESSNA AIRCRAFT

INSTALLATION INSTRUCTIONS

The Precise-Flow Cabin Vents you have just purchased for your Cessna aircraft are designed to easily install in your wing root vent feed tubes by simply removing the original vents (sometimes referred to as juice can vents) and sliding the Precise-Flow vents in place. To insure ease of installation and long service life, a few easy steps must be followed.

REMOVING THE OLD VENTS

Removing your old vents can be made easier by spraying light oil on the spring-loaded stops located on the sides of the vent (LPS1 or WD40 are both good). Spray the oil on the stops with the old vents in the full on or out position.

CLEANING THE TUBES

Since the Precise-Flow vents are retained and sealed by precision "O" rings, it is imperative that the inside diameter of the vent feed tube be thoroughly cleaned and free from corrosion. Included in this kit is a Scotchbright® pad for this purpose. With the old vent removed, use the Scotchbright® pad to vigorously clean about 4" of the inside of the vent feed tube. All roughness must be removed. Do not use a sharp tool to scrape the inner surface of the tube, as the resulting scratches will damage the "O" ring seals on your new Precise-Flow vents. When you are finished, run your finger around the entire inside surface to make sure that it is smooth.

LUBRICATION

Once the surfaces of the vent tubes are clean, use the supplied DC4 lubricant to help insure a good seal and long "O" ring life. Using your finger, apply a liberal coat of the lubricant to approximately 4" of the inner surface of the feed tube. Now apply some of the DC4 lubricant to both "O" rings on each Precise-Flow vent.

INSTALLATION

Slide the vents into the vent feed tubes. You may have to coax the "O" rings past the ends of the feed tubes. Keep wiggling and working the new vents as you apply a rotating pressure and they will go in. Once installed, you will need to clean up any excess lubricant or smudges.

MAINTENANCE

Remove vent from feed tube. Using a soft towel, clean the "O" rings and inside surface of feed tube; re-lubricate with DC4 compound and reinstall. Nozzles may be cleaned with alcohol and a cotton swab, and lightly sprayed with a silicon lubricant.

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REGARDING THE OUTSIDE AIR TEMPERATURE GAUGE (OAT)

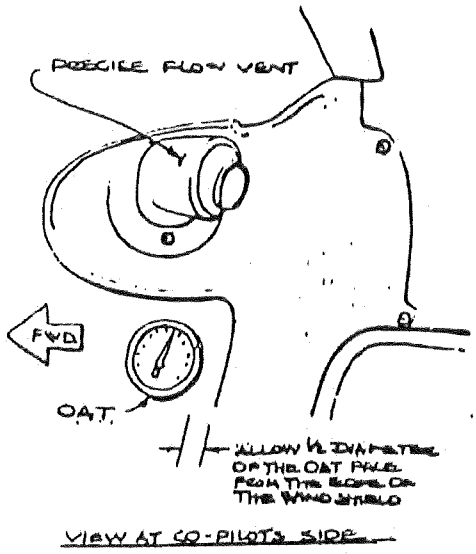
Cessna originally installed the OAT in the co-pilot's vent pull handle. Testing has shown that the OAT may be inaccurate when the vent is closed. If your airplane is not equipped with an alternate approved OAT, it will be necessary to install the old OAT through the windshield.

REMOVING THE OLD OAT

Remove the old OAT by loosening the mounting nut located down inside the old vent. Save the rubber sealing and washers, 1" stainless base washer and mounting nut, as they will be needed when reinstalling the OAT in its new location. In some Cessnas there is a larger 1½" aluminum washer included in addition to the 1" stainless washer. If this is the case with your OAT, discard the 1½" washer.

NEW OAT LOCATION

In selecting a suitable location in the windshield for the OAT gauge, it is important to avoid an area where the windshield has a compound curve. The corner forward of the door post is a good place (see drawing). This location is convenient because the windshield is flat in this area and an OAT placed here will be easy to read. Install the OAT so that the clearance between it and the edge of the windshield is at least one-half the diameter of the OAT itself. Since this process involves drilling a hole through your windshield, it must be done by a certified aircraft technician. Drilling in plexiglass demands great caution, especially in old or thin windshields. It is prone to cracking without the use of proper tools and technique. Some heat is to your advantage when drilling in plexiglass, so take care that you are working in a warm place and the windshield has warmed to at least 70°.



VIEW AT CO-PILOT'S SIDE

DRILLING THE HOLE

Using the 5/32" plexiglass drill bit, drill a pilot hole through the windshield by running your drill at full speed and using only the slightest pressure to feed the drill into the hole. Let the bit build heat as it cuts the hole. It is very important not to allow the bit to rapidly break out of the exit side of the glass, as this would increase the chance of a crack occurring. Just let it go through as slowly and smoothly as possible. It's also a good idea to have someone hold a piece of wood against the exit side of the hole throughout the entire drilling process. The cut-off end of a two-by-four is ideal for this extra precaution.

ENLARGING THE HOLE

Once the 5/32" pilot hole is made, you will need to enlarge the hole to 3/8". The use of a tapered stone can be a safe way to do this in aircraft plexiglass provided the stone and plexiglass do not become too hot from friction. It is imperative that you work in small steps; it is also important that you allow time for the stone and plexiglass to cool to room temperature between steps. To enlarge the hole, chuck the 3/8" tapered stone (the longer of the two stones) tightly in your 1/4" drill. Using the pilot hole as a guide, and running the drill at full speed with moderate pressure, ream the hole for 3 - 4 seconds. Stop and allow stone to cool to room temperature. (continued)

ENLARGING THE HOLE (continued)

Scrape off any plastic residue that may have collected on the stone with a pocket or putty knife. Moving to the opposite side of the glass, ream the hole on that side for 3 - 4 seconds and allow the stone to cool to room temperature and clean as before. Repeat this reaming, cooling and cleaning process as many times as necessary on both sides until you have a 3/8" diameter hole. Remember, do not allow excessive heat build-up in either the stone or the glass.

POLISHING THE HOLE

Cool and clean the tapered stone. Dip it in cold water and, with the drill running at full speed, polish the hole by running the wet stone in and out of the hole, moving it radially to polish the inside surface until it is very smooth (no pits or grooves). Wipe out the hole with a paper towel and look for whitish spots indicating an imperfection. Repeat the process until the surface is clean and smooth with no spots.

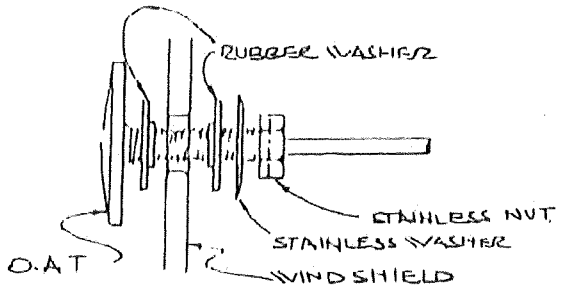
ROUNDING THE EDGE OF THE 3/8" HOLE

Sharp edges in plexiglass promote cracking. Our final step here is to round the edges of the 3/8" hole. Install the shorter, fatter tapered stone in your drill. Dip the stone in water, and with the drill running at full speed, round the edges by moving the drill with light pressure in a circular motion. As before, do not let the stone get too hot. Repeat the process several times on both sides until the edges become a soft polished radius. Remember to dip the stone in water between steps.

(This drilling method has served us well for many years. This is not the only way to drill a hole in plexiglass, however, and your mechanic may prefer another procedure. The newer the windshield, the better.)

OAT INSTALLATION

Before installing the OAT, make sure that the threaded part of the OAT fits loosely in the 3/8" hole. Plexiglass expands and contracts with heat & cold, and this clearance is essential for crack avoidance. Install the OAT with a rubber washer on the inside of the windshield and both a rubber washer and the stainless washer on the outside (see drawing). Do not overtighten the mounting nut, but snug it up enough to securely hold the OAT and insure a good seal.



PAPERWORK

Complete the proper maintenance record entries and revise the weight and balance to reflect the addition of .8 lbs at the proper ARM. You are now ready to enjoy the quiet performance of your Precise-Flow Cabin Vents.

NOTE

The Wemac™ nozzles in your Precise-Flow air vents can be opened, closed and rotated for years to come. However, the swiveling outlet end of the nozzle cannot take a forceful hit, as this may cause a critical internal frangible mounting clip to pop out, rendering the nozzle unusable.