

Fitting and Adjusting the Piper Entry Door

1. REMOVAL OF DOOR

- a. The only proper way to adjust the door is with the door seal removed. Only then will you know if the door is fitting properly. The following procedure should be done before installing a new seal.
- b. Remove the screw, step bushing and washer attaching the door stop to the door sill plate.
- c. Remove the cotter pins, clevis pins and washers from door hinges. Set door aside on a blanket or protective covering.

2. REMOVING THE OLD SEAL

- a. There is no easy way to remove the old seal and adhesive, but we have found that by using a heat gun (Black and Decker paint remover or equivalent) the process can be helped.
- b. Locate the seal joint and with the heat gun apply heat to the seal and carefully start to lift the seal from the edge of the door. Continue applying the heat in the apex of the seal as you lift it from the edge of the door until you have it completely removed from the door.
- c. Removing the old adhesive can be performed by two methods. One way is to use a small (3") brass brush on a drill motor and literally peel the adhesive off the door. This method does require that the door edge be repainted. Krylon in the aerosol can (available in most hardware stores or Wal-Mart) may be used to repaint the edge of the door and stands up well over the years. The other method is to dissolve the adhesive with a product called (OOPS) which is an adhesive remover that may be purchased from Wal-Mart (paint department). OOPS will not affect paint or Plexiglas. We have found that by applying heat to the old adhesive and wiping the old adhesive with OOPS on a rag it will remove the old adhesive. **Use caution that the OOPS has dried from the liquid state to prevent combustion from the heat gun.**
- d. When the door edge is cleaned up you are ready proceed with the adjustment.

NOTES THAT MUST BE FOLLOWED FOR A PROPER FITTING DOOR

- a. Over the years, the eyebolts and clevis pins on the Piper entry door (door hinge system) can become worn to a point the door will sag and not close or seal properly. It is imperative that these parts be checked for wear before proceeding. A good way to check the parts for wear is to slightly open the door and see if you can raise-up on the door. There should no movement (or very little movement) of the door vertically. If you can raise-up on the door, the eyebolts and clevis pins are worn out and should be replaced (the tolerance when new was only .003 thousands. These items are not expensive, but critical to a properly closing and sealing of the door. These parts are readily available from Aircraft Door Seals and can be replaced in less than five minutes. The eyebolts come with complete instructions for installation. **Do not** replace only the clevis pins, the clevis pins will also wear with the eyebolts and need to be replaced at the same time.

2. REINSTALLING DOOR

- a. Place the door into position over the eyebolts and install the washers and clevis pins in the door hinges. Do not reconnect door stop to the door sill on the fuselage at this time.
- b. Close door and secure upper latch.
- c. With the door closed and latched, verify the front edge of the door is flush with the fuselage. Many times the door will not be flush, but instead will actually be fitting inside of the fuselage anywhere from 1/8 inch to 3/16 inch. It must be flush with the fuselage before you proceed.
- d. If you find it not fitting flush, this may be corrected by the installation of spacers (washers) under each eyebolt which will move the upper or lower portion of the door enhancing the door fit. The washers needed are AN960-516 (thick) and AN960-516L (thin), (quantity as required) which is normally just one or two under each eyebolt. To remove the eyebolt, you must remove the door.
- e. Just inside the cabin in front of the door opening, you will find a 5/16-24 nut (behind of the interior trim) for the upper and lower eyebolt. Slide a 1/2 inch box wrench behind the upholstery placing it over the nut. Using a "Crescent wrench" on the eyebolt, unscrew the eyebolt CCW and remove the eyebolt. It is helpful to have a helper to place the washers on the eyebolts so you do not have to move the wrench and nut. Install one or more washers (as required) on the eyebolt(s) and reinstall the eyebolt. Do not over tighten. Just snug is sufficient
- f. Reinstall the door and verify the front edge of the door fits flush with the fuselage. If not repeat steps 2e and 2f until it does fit flush.

NOTE. Many times the factory installation leaves a little to be desired. With the door fully closed, inspect the clearance between the edge of the door and outer periphery of the fuselage door opening. Many times

I have found the edge of the door skin actually hitting the fuselage especially the front edge. You should have a minimum of 1/16 inch clearance. If not, file the edge of the door until it has the proper clearance

3. ADJUSTING THE DOOR

- a. If the door does not fit flush with the fuselage around the entire opening, start with the adjustment of the main latch by loosening the two flat head screws and move the striker plate (in or out) as required. Re-tighten the two screws. Repeat this as necessary until the door fits flush. The door should have a 1/16 inch to 1/8 inch clearance around the entire edge of the door and fuselage. On early models (pre 1968), many times I have found the latch clevis pin bent which will prevent the door from latching properly. If it is bent, it must be replaced. Aircraft Door Seals also stocks this clevis pin.
- b. To provide the proper vertical adjustment of the door, insert the necessary washer combinations between the cabin door hinge(s), clevis pins and the fuselage eyebolts.
- c. Verify that the fittings riveted to the door have not been bent. The fittings forming the portion that fits over the eyebolts should be straight.

4. ADJUSTMENT OF THE UPPER DOOR SAFETY LATCH

- a. To adjust the door upper (hook) latch, remove the two screws from the latch plate on the top of the fuselage door opening.
- b. Remove the plate and rotate the loop CW or CCW (a small amount of WD-40 on the threads will help) to make necessary adjustments.
- c. Replace the latch plate and secure with the two attachment screws. Re-check the fit of the door.
- d. Many times the upper latch hook can become bent and actually hit the upper portion of the door opening (fuselage). The upper hook should be centered in the upper opening. If not, using "Vise grips", clamp the hook at the point where there is a slight bend in the hook and slightly bend the hook until it is centered in the opening.

Caution: When bending the hook, support the hook with your thumb in the area where you are bending. This will prevent the latch from being damaged

- e. When the door is properly adjusted, there should be approximately a 1/16 to 1/8 inch gap around the outer periphery of the door between the door edge and the fuselage.
- f. Insert the cotter key(s) in the clevis pins and bend the cotter key ends around the clevis pins and trim off the excess cotter key length as required.

SPECIAL NOTE: It is not uncommon for the forward top edge of the door to not fit totally flush with the top edge of the fuselage. This condition was due to the variables in the assembly process of the door. Many times I have found it necessary to adjust the fit of this portion of the door by slightly bending the door upper edge. This procedure will not damage the door and has been done by the factory for years. It must not be done with the door installed. It is best done with the door laying flat on a blanket and manually massaging the upper portion of the door (with you knee just below the window) slightly until you are satisfied with the fit.

5. INSTALLATION OF THE DOOR SEAL.

- a. We certainly hope you will be installing our door seal (www.aircraftdoorseals.com), but regardless of who's seal you decide to use, you now know before the seal is installed that the door is adjusted properly.

If you have any questions, please feel free to contact us at sales@aircraftdoorseals.com.