

The pitot static option kit for the Glasair I, II, II-S, and III aircraft series is of conventional aircraft design. It includes a heated pitot tube and sufficient mounting material to install the pitot tube on either outboard wing inspection panel.

The 1/4" O.D. tubing provided with the kit is supplied in two colors to reduce the possibility of incorrectly connecting the tubing to the instruments. Nylon flareless tube fittings are supplied to provide a solid leak-free pitot-static system that can be certified to IFR standards. Assembly instructions for the tube fittings are shown in FIGURE (1) on the following page.

NOTE: When pressing the insert into the tube, as shown in Step 2 of FIGURE (1), it is not necessary for the shoulder on the insert to bottom against the end of the tube.

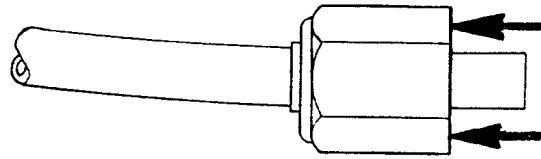
An airspeed indicator (brand new, not rebuilt) is also available as an additional option.

The static system consists of two fuselage mounted static ports, an alternate static source which also functions as a low point water drain, and sufficient tubing and fittings to connect the static line to the airspeed indicator, altimeter, vertical speed indicator (VSI), and transponder altitude encoder.

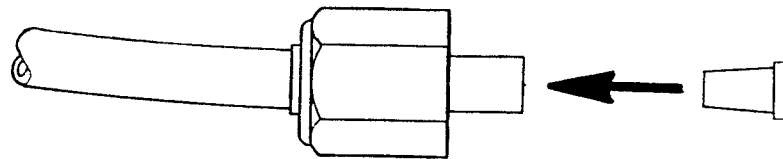


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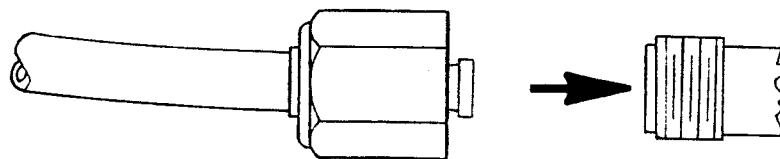
ASSEMBLY INSTRUCTIONS FOR THE FLARELESS FITTINGS



① SLIDE NUT ONTO END OF TUBE



② PRESS INSERT INTO END OF TUBE



③ THREAD TUBE ASSEMBLY ONTO FITTING

FIGURE (1)

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STEP 1 POSITIONING THE STATIC PORT OPENINGS IN THE FUSELAGE SIDES

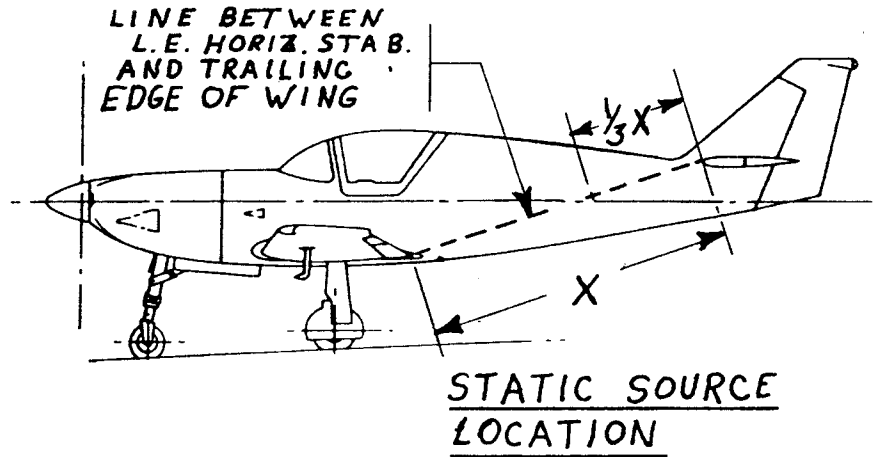


FIGURE (2)

Accurate location of the static ports on the sides of the fuselage is very important to obtain correct airspeed readings.

Each of the two static ports is located on the side of the fuselage one third of the distance forward along the line between the leading edge of the horizontal stabilizer and the trailing edge of the wing, as shown in FIGURE (2). Mark this point on each side of the fuselage.


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STEP 2 INSTALLING THE STATIC PORTS IN THE FUSELAGE SIDES

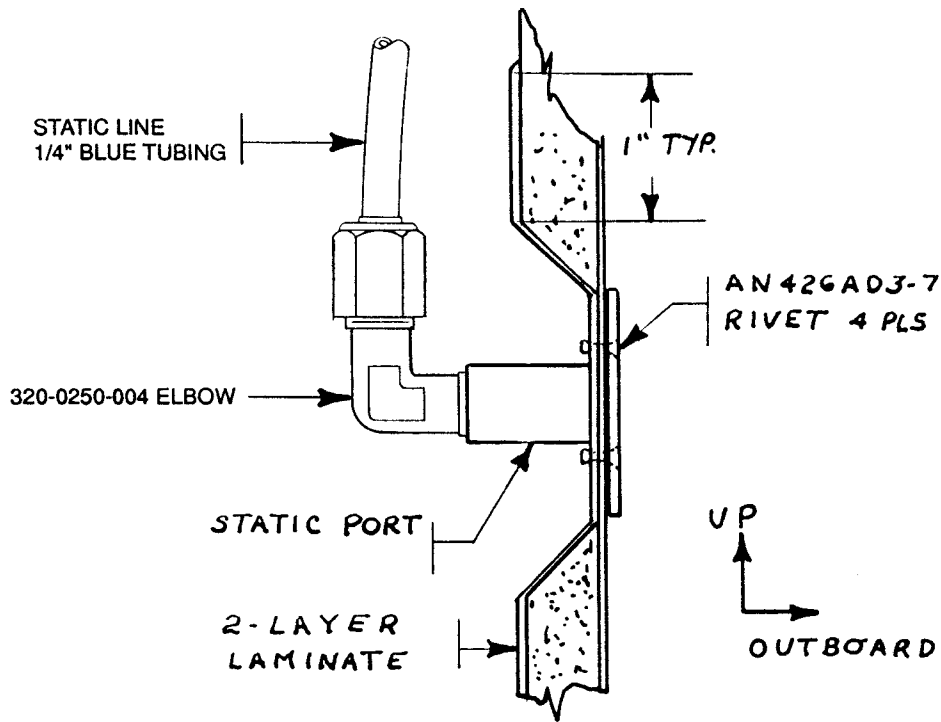


FIGURE (3)

Drill a 1/8" diameter pilot hole through each side of the fuselage at the marked static port location.


Using a 2-1/2" hole saw centered on the 1/8" pilot holes, cut 2-1/2" diameter holes through the inner laminates only of the fuselage side panels, and bevel the foam core at a 45° angle, as shown in FIGURE (3). Seal the exposed foam core with a thin Q-cell resin mixture. Let cure.

Cut four 5" diameter pieces of bidirectional cloth and use these to apply a two-layer laminate on the inside of the fuselage at each static port location, as shown in FIGURE (3). Let cure.

Use a 1/2" diameter hole saw to cut a hole through each side of the fuselage centered at the static port location. The static ports will later be installed through these holes.

Insert the 521-1501-001 static ports into the 1/2" holes in the fuselage. Use the #40 holes in the static ports as drill guides to drill matching holes in the fuselage laminates. Insert a cleco into each hole to maintain alignment while drilling the rest of the holes.

Rivet the static ports to the fuselage using the supplied AN426AD3-7 rivets, as shown in FIGURE (3).

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STEP 3 INSTALLING THE ALTERNATE STATIC SOURCE ON THE INSTRUMENT PANEL

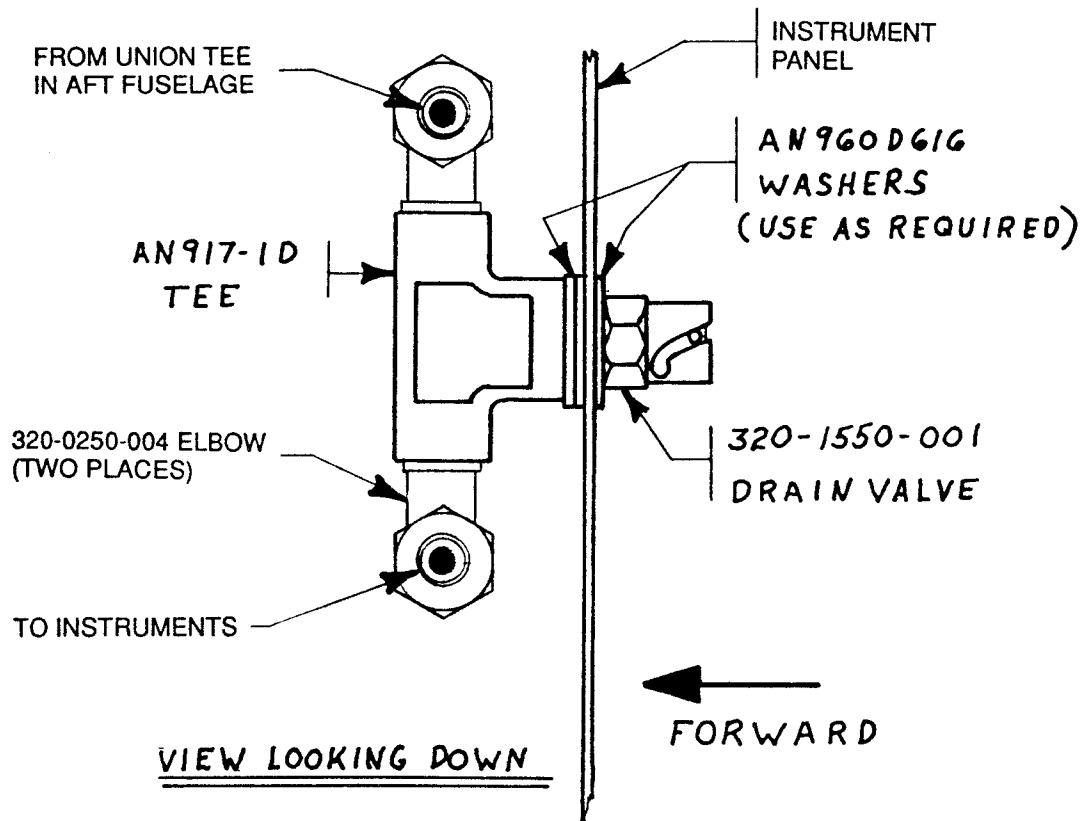


FIGURE (4)

Position the alternate static air source on the instrument panel where it is both the lowest point in the static system and is easily accessible to the pilot. We suggest mounting the alternate static source in the lower center control panel area, below the throttle and mixture knobs.

Install a 320-0250-004 elbow into each end of the AN917-1D Tee, as shown in FIGURE (4).

Drill a 13/32" hole through the instrument panel at the chosen alternate air source location. Install the 320-1550-001 drain valve through the hole and into the AN917-1D Tee, shimming with the AN960-D716 washers, as shown, so that the drain valve clamps the instrument panel tightly when it is fully threaded into the Tee.

NOTE: It is very important that a drain be installed at the low point of the static system since condensation in the lines can cause erroneous airspeed indications.

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STEP 4 ROUTING THE STATIC LINES FROM THE STATIC PORTS TO THE INSTRUMENTS

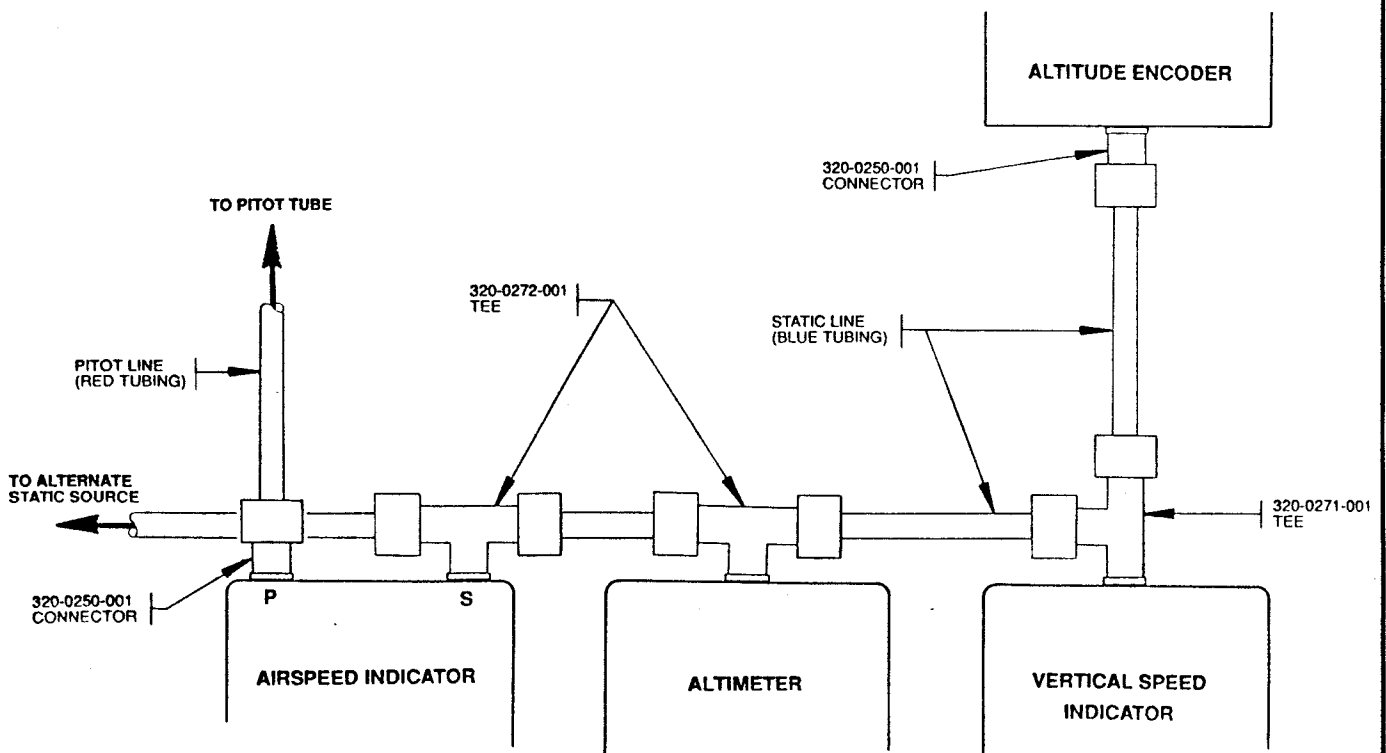
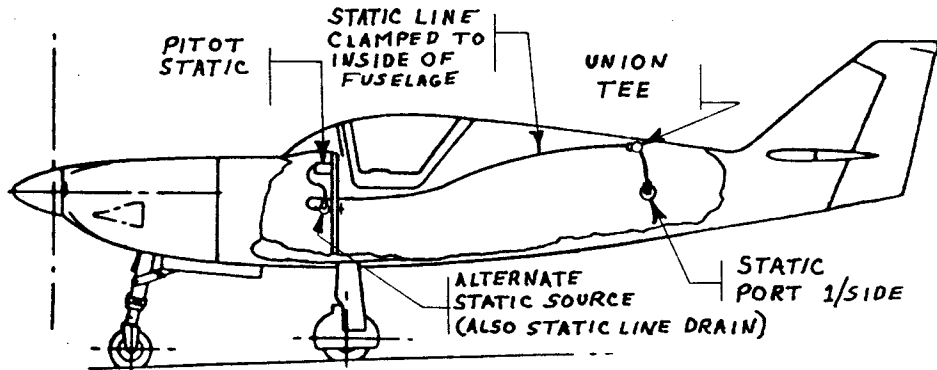


FIGURE (5)

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Install the 320-0250-004 elbow fittings into the fuselage static ports, orienting the tube openings upwards. Using the 1/4" blue nylon tubing, route static lines from each of the elbow fittings to the 320-0250-002 union tee fitting at the top of the fuselage, as shown in FIGURE (5). Use 450-0006-250 nylon clamps and 720-0420-006 or -007 screws to secure the static lines to the inside fuselage laminates. From the tee fitting, route a blue nylon static line forward to the alternate air source on the instrument panel.

NOTE: The foam core in the aft fuselage is thinner than in the forward fuselage. Use the shorter -007 screws in the thinner foam core areas.

NOTE: Before installing any securing screws into the fuselage panels, verify that the foam core is sufficiently thick to prevent the screws from penetrating through the outside laminates.

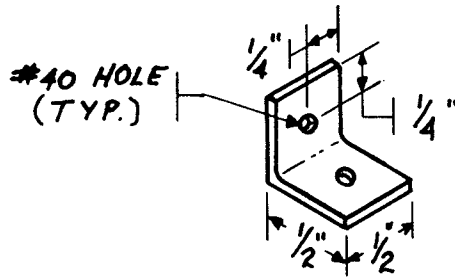
NOTE: Carefully route the static lines in the fuselage so that they run level or slightly downhill relative to waterline 100 for the complete distance from the tee fitting in the aft fuselage to the alternate static source in the instrument panel.

Install 320-0250-001 male connectors and 320-0271-001 and 320-0272-001 tees into the ports of the pitot static instruments, as shown in the schematic in FIGURE (5). Route a blue nylon static line from the alternate air source and connect it to all the instruments, as shown.



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STEP 5 FABRICATING AND INSTALLING THE PITOT TUBE MOUNTING MAST



**PITOT MAST MOUNTING ANGLE
FABRICATE (4) 1/2" x 1/2" x .063"
2024-T3 ALUM. ANGLE**

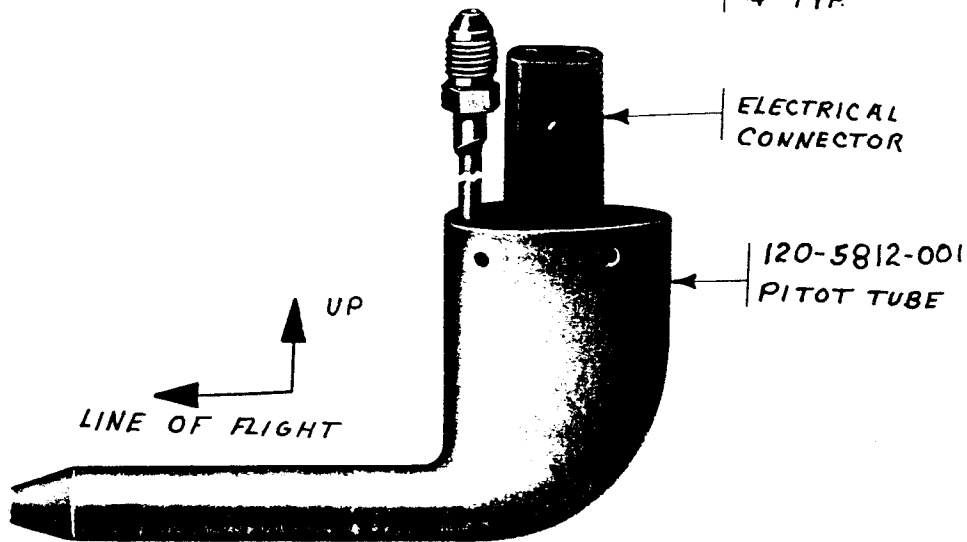
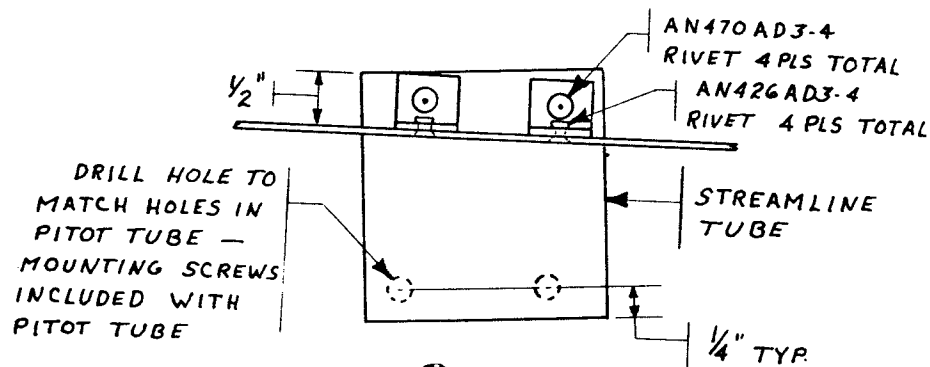


FIGURE (6)

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To position the pitot tube in undisturbed air, it is installed at the end of a streamlined aluminum mast, which is permanently assembled to the outboard wing inspection panel. The pitot tube must be positioned parallel to the aircraft's line of flight (parallel to Waterline 100 when viewed from the side; parallel to the aircraft's longitudinal centerline when viewed from below). The mast must be long enough to position the pitot tube at least 5" below the lower surface of the wing to minimize errors due to compressibility of the airflow under the wing.

Install the 120-5812-001 pitot tube into one end of the supplied 5" long section of 820-2085-004 streamlined aluminum tubing. Before inserting the pitot tube into the mast, mark the locations of the (4) pitot tube mounting holes onto the mast, as shown in FIGURE (6). (The centerline of the mounting holes is 1/4" above the lower edge of the mast.) Use a 3/16" drill bit to drill the (4) mounting holes through the mast.

NOTE: It may be necessary to squeeze the sides of the mast tube together slightly to match the airfoil shape of the pitot tube. A round file can also be used to enlarge the inside of the mast at the forward and aft ends for additional clearance.

For Glasair IIs and IIIs, mark the aluminum inspection panel to indicate its orientation in the wing inspection opening, and mark a line onto the inspection panel parallel to the centerline of the aircraft. Center the mast streamline tubing on this line and mark around the tubing. Remove the inspection panel and cut away the portion of the inspection panel within the marked area.

Fabricate (4) aluminum mounting angles, as shown in FIGURE (6).

Insert the mast through the cutout area in the inspection panel, position the mounting angles around the mast, as shown in FIGURE (6), and rivet the mounting angles to the inspection panel, using the supplied AN426AD3-4 rivets.

Install the inspection panel in the wing and level the aircraft using waterline 100 as a reference. Install the pitot tube in the mast, and install the mast into the cutout opening in the inspection panel. Level the pitot tube relative to the level flight attitude of the aircraft (waterline 100) and mark the angle of the mast relative to the surface of the inspection panel. Remove the inspection panel.

NOTE: In order to conserve space and to provide access for riveting the mast to the mounting angles, the mast should not extend into the wing more than 1/2" beyond the inside surface of the wing inspection cover.

Install the mast to the inspection panel, using (4) AN426AD3-4 rivets.

NOTE: Glasair Is normally have fiberglass inspection panels. For these aircraft, either relieve the inside laminates and foam core of the inspection panel and rivet the mast to the outside skin using aluminum angles as described above, or fabricate four-layer laminate angles between the inside of the inspection cover and the mast and rivet the mast to the laminates. Alternatively, the builder can fabricate a new inspection panel from .063" thick aluminum sheet.


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STEP 6 FABRICATING THE PITOT LINE TO THE AIRSPEED INDICATOR

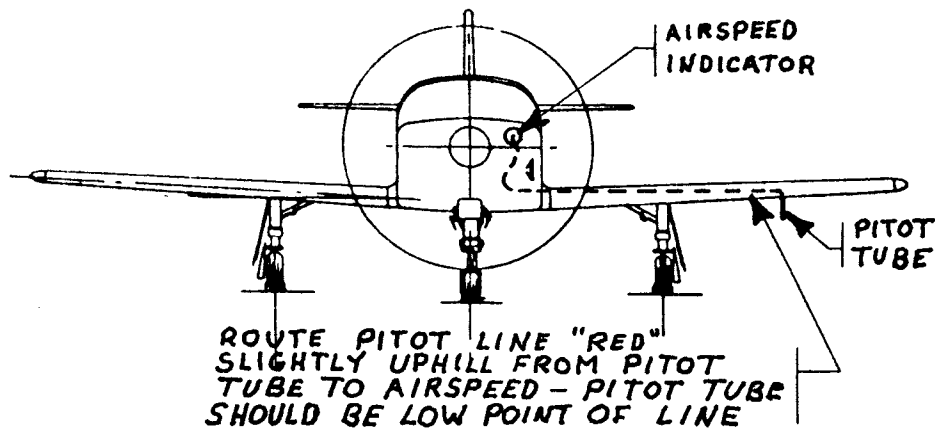
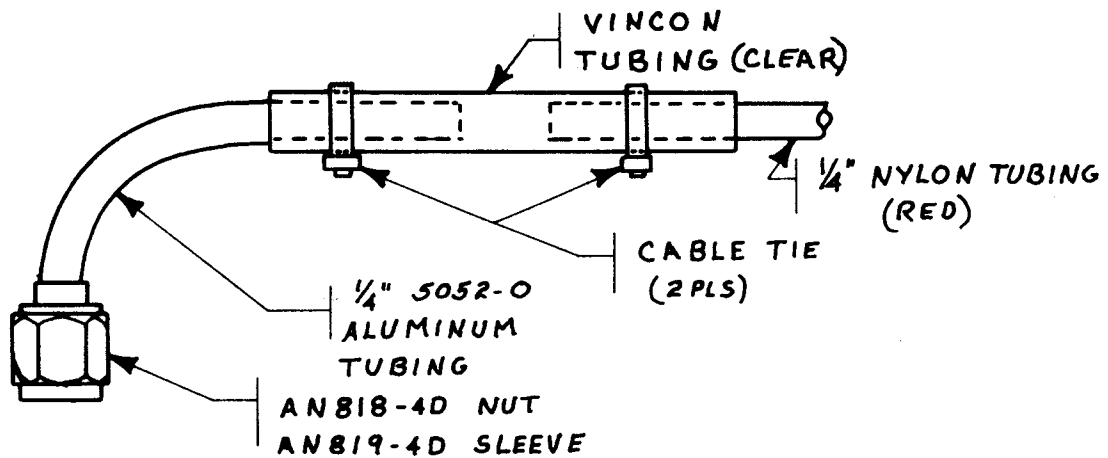


FIGURE (7)

The 1/4" diameter red nylon pitot line and the (2) #14 electrical wires (pitot heat) should have been installed in the wing electrical conduit before closing the wing. If the lines and wires have not yet been installed, do so at this time.

Fabricate the pitot line coupling for the pitot tube, as shown in FIGURE (7). The aluminum tube must be of sufficient length to allow the coupling to extend through the mast and be tightened onto the pitot tube before the tube is inserted into the mast.

Connect the pitot line coupling tube to the red nylon pitot line, using a 3" section of 830-0410-001 Vincon tubing sleeve and 210-0018-001 cable ties, as shown in FIGURE (7).

Route the inboard end of the red nylon pitot line to the airspeed indicator. The supplied 320-0250-003 union connector can be installed at any convenient location in the wing center section to simplify future wing removal.

COMPLETED []

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