# CHAPTER 33
# REVISION LIST

The following list of revisions will allow you to update the Lancair IV construction manual chapter listed above.

Under the "Action" column, "R&R" directs you to remove and replace the pages affected by the revision. "Add" directs you to insert the pages shown and "R" to remove the pages.

| Page(s) affected | Current Rev.# | Action | Description |
|---|---|---|---|
| 33-1 thru 33-8 | 0 | None | |
| 33-9 & 33-10 | C14 | R&R | Added new Figure and moved text. |
| 33-11 thru 33-32 | 0 | None | |

# CHAPTER 33
# ODDS & ENDS

**REVISIONS**

From time to time, revisions to this assembly manual may be deemed necessary. When such revisions are made, you should immediately replace all outdated pages with the revised pages. Discard the out dated pages. Note that on the lower right corner of each page is a "revision date". Initial printings will have the number "0" printed and the printing date. All subsequent revisions will have the revision number followed by the date of that revision. When such revisions are made, a "table of revisions" page will also be issued. This page (or pages) should be inserted in front of the opening page (this page) of each affected chapter. A new "table of revisions" page will accompany any revision made to a chapter.

**ARROWS**

Most drawings will have arrows to show which direction the parts are facing, unless the drawing itself makes that very obvious. **"A/C UP"** refers to the direction that would be up if the part were installed in a plane sitting in the upright position. In most cases the part shown will be oriented in the same position as the part itself will be placed during that assembly step. However, time goes on and changes are made, so careful attention should be paid to the orientation arrows.

## CONTENTS

## 1. INTRODUCTION

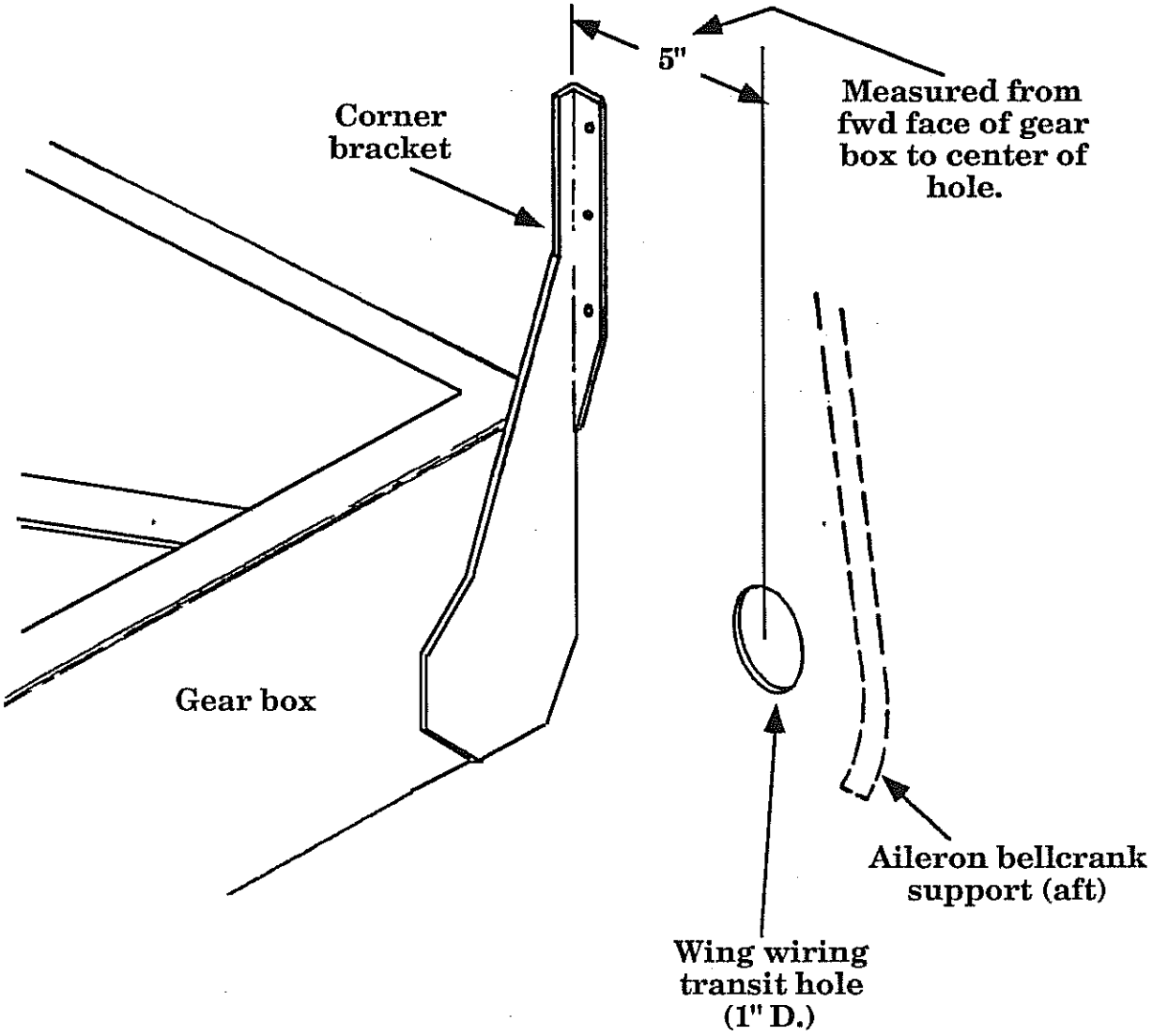
This chapter will cover the construction of those parts which just didn't fit into other chapters, such as sound proofing, pitot/static lines,etc.

## 3. CONSTRUCTION PROCEDURE

## A. WING ELECTRICAL HOLES

The wires from your wings can enter the fuselage in three places. The rear spar hole through the fuselage is a handy transit hole, the area just ahead of the rear spar holes also works well, or (if you have your electrical conduit in the leading edge) in front of the main spar.

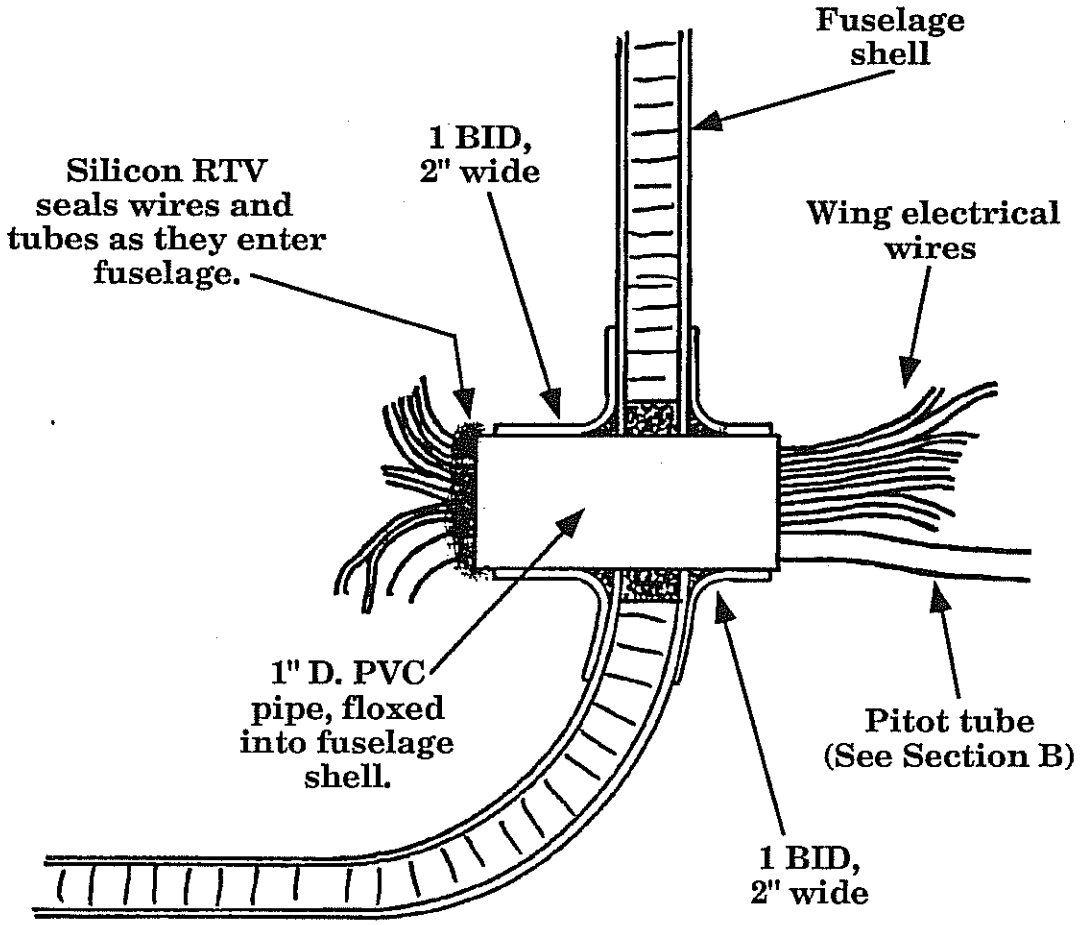
**Wing Electrical Hole**
Figure 33:A:1



A1. Grind a 1" diameter hole in the fuselage as shown in Figure 33:A:1.

A2. To prevent chaffing of wires, install rubber grommets or pieces of 1" D. PVC tube into the holes you have just ground. Scuff the tube with 40 grit and bond it in place with epoxy/flox, reinforcing the bond with 1 BID. To seal the wires, push them through the tube, then use a silicon RTV compound as an air seal. See Figure 33:A:2.

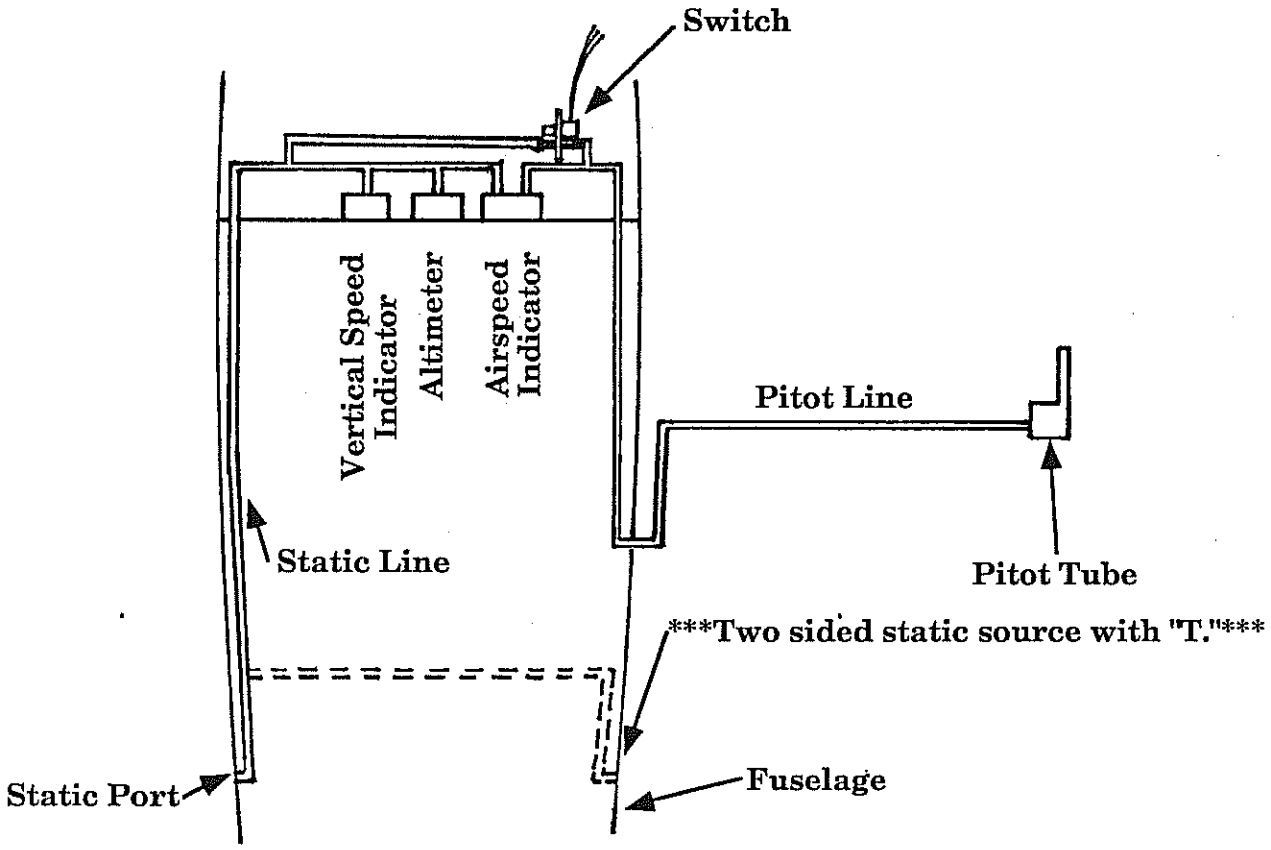
**Anti-chaff Methods**
Figure 32:A:2



## B. PITOT / STATIC COMPLETION

You have already installed the pitot tube in the right wing (or left wing, it doesn't matter) of your Lancair IV. To complete the system, you need to connect the pitot tube to the appropriate instruments and install a static outlet.

**Pitot static system**
Figure 33:B:1

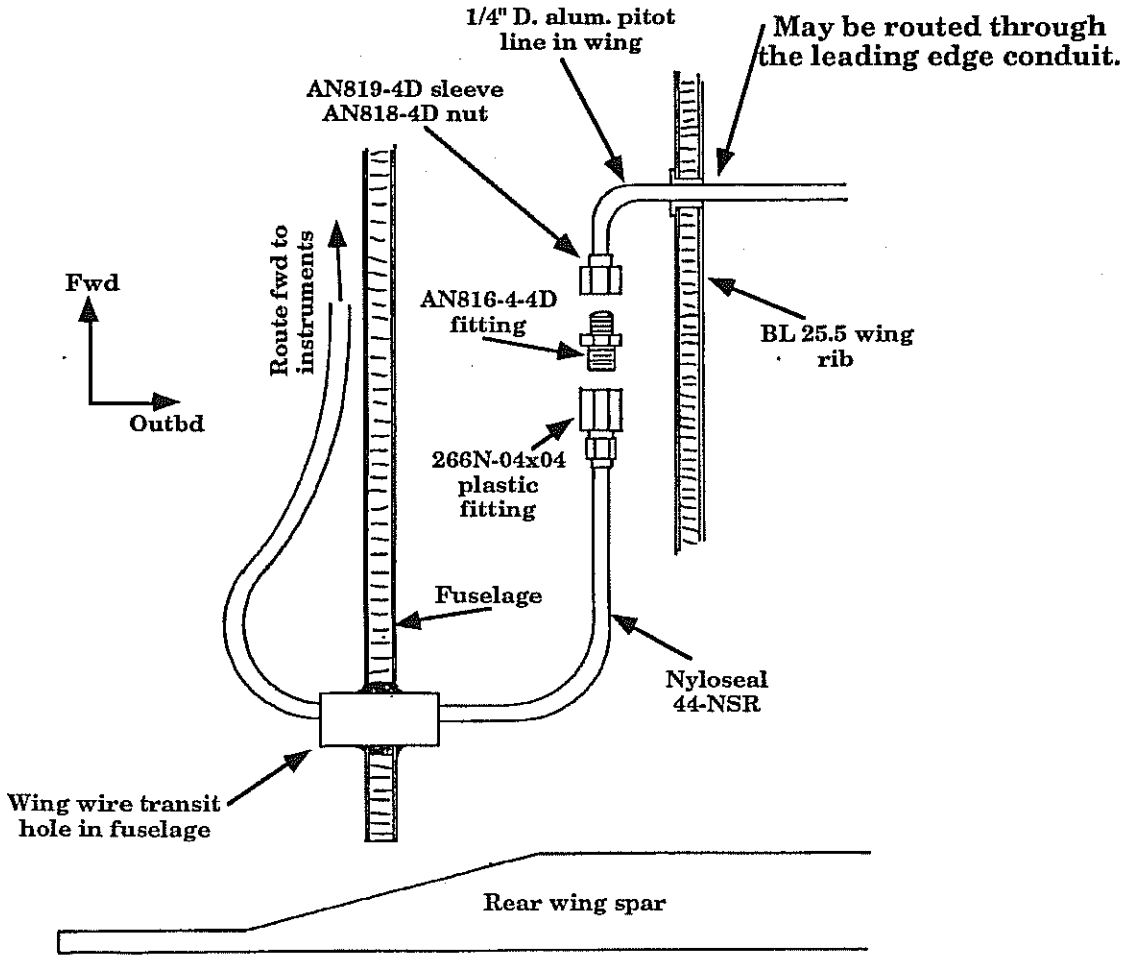



*** *If you wish to install a two sided static source, mount the static ports on opposite sides of the fuselage and run one static line behind the rear seat. "T" into the other static line.****

B1. To get the pitot line into the fuselage, the aluminum pitot line in the wing should be transformed into a flexible line. Cut off the 1/4" aluminum pitot line 6" inbd of the BL 25.5 rib. Bend the aluminum tube so it's pointed aft (avoiding the aileron pushrod). Slip an AN818-4D nut and an AN819-4D sleeve onto the tube and flare the end.

To transform the pitot into a flexible, 44-NSR line, use an AN816-4-4D and a 266N 04x04 fitting as shown in Figure 33:B:2. Route the 44-NSR tubing through the fuselage transit hole you made in Section A of this chapter (for the wing wires). From this point, the pitot line can run fwd to the necessary instruments. Routing is not critical, just avoid conflicts with other systems.

**Pitot line to instrument panel**
Figure 33:B:2



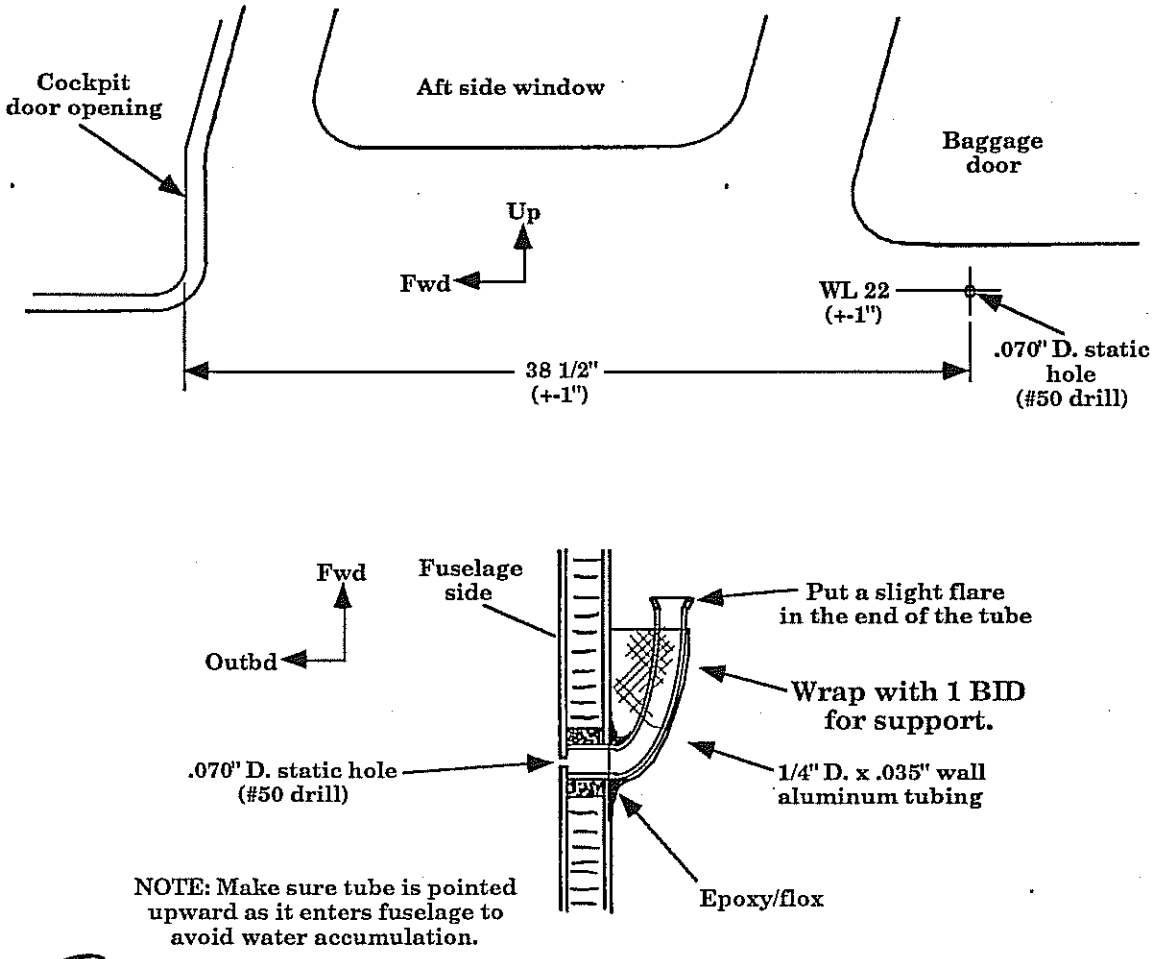
B2. The static line exits the fuselage just below the baggage door. From outside the fuselage, drill a .070" hole through the fuselage shell at the location shown in Figure 33:B:3. From inside the fuselage, open up the hole to 1/4" diameter, ONLY through the inner laminate and core. In the outer laminate leave the hole .070" D..

B3. Cut a 3" long piece of 1/4" D. x .035" wall aluminum tubing. Put a small flare in one end and bend a tight radius in the tube as shown in Figure 33:B:3.

B4. Bond the aluminum tube in position with epoxy/flox. As the flox cures, push the .070" D. drill bit through the air passage to keep it clear. When the flox has dried, blow through the tube to assure no blockage. Note that the tube is pointed upward as it enters the cabin area to prevent water from pooling inside the tube. Lets call the aluminum tube bonded into the fuselage a "static port".

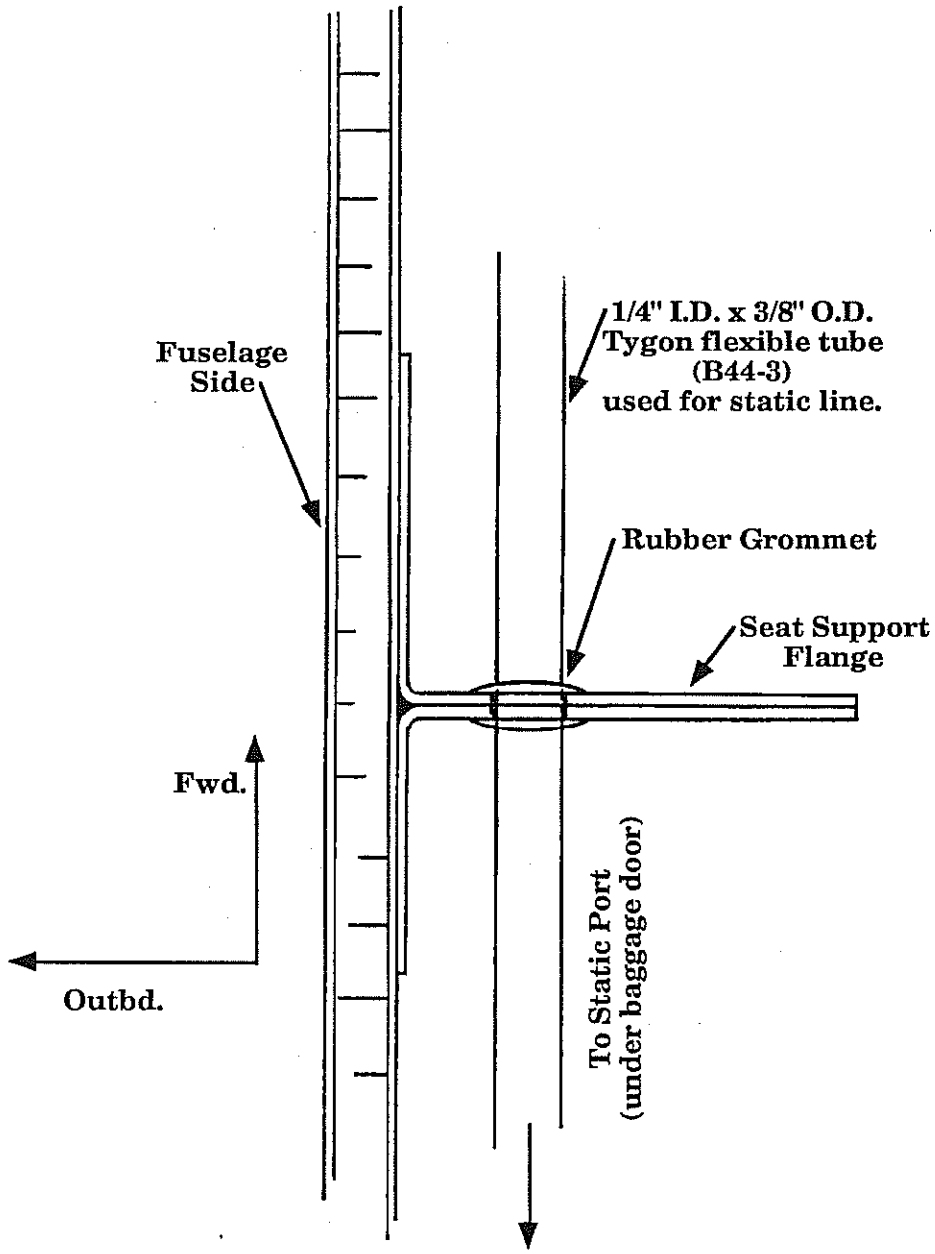
B5. Fill the area between the tube and fuselage with scraps of pre-preg or foam and wrap with 1 BID for support.

**Static port installation**
Figure 33:B:3

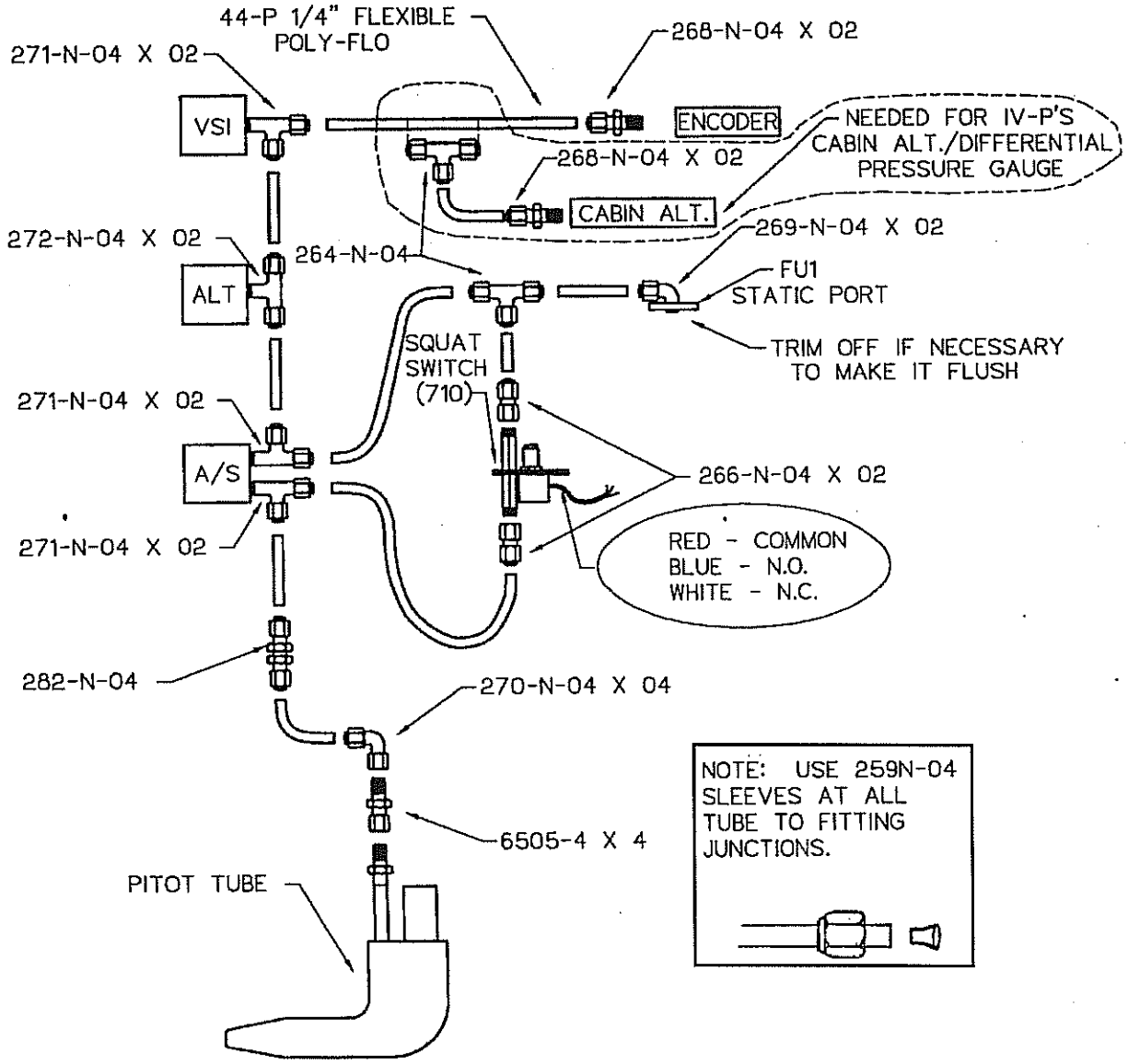


B5. Connect the static port to the appropriate instruments using Tygon flexible tubing (1/4" I.D. x 3/8" O.D.). Drill a hole through the seat support flange, as close to the fuselage as possible, for the tubing to pass. (See Chapter 29-8.) It is suggested that a rubber grommet be installed in the space through the flange. When routing the tubing, avoid any conflicts with other systems.

**Routing Static Line**
Figure 33:B:4



# STANDARD IV & PRESSURIZED PITOT STATIC SYSTEM WITH PITOT STATIC SYSTEM OPTION



## C. DOOR SEAL PUMP

The Lancair IV has an inflatable door seal. The seal can be pumped up with a rubber bulb (looks like a blood pressure tool) which is standard for the non-pressurized. Or, it can be automatically inflated with an electric pump, which is standard for the pressurized and optional for the non-pressurized.

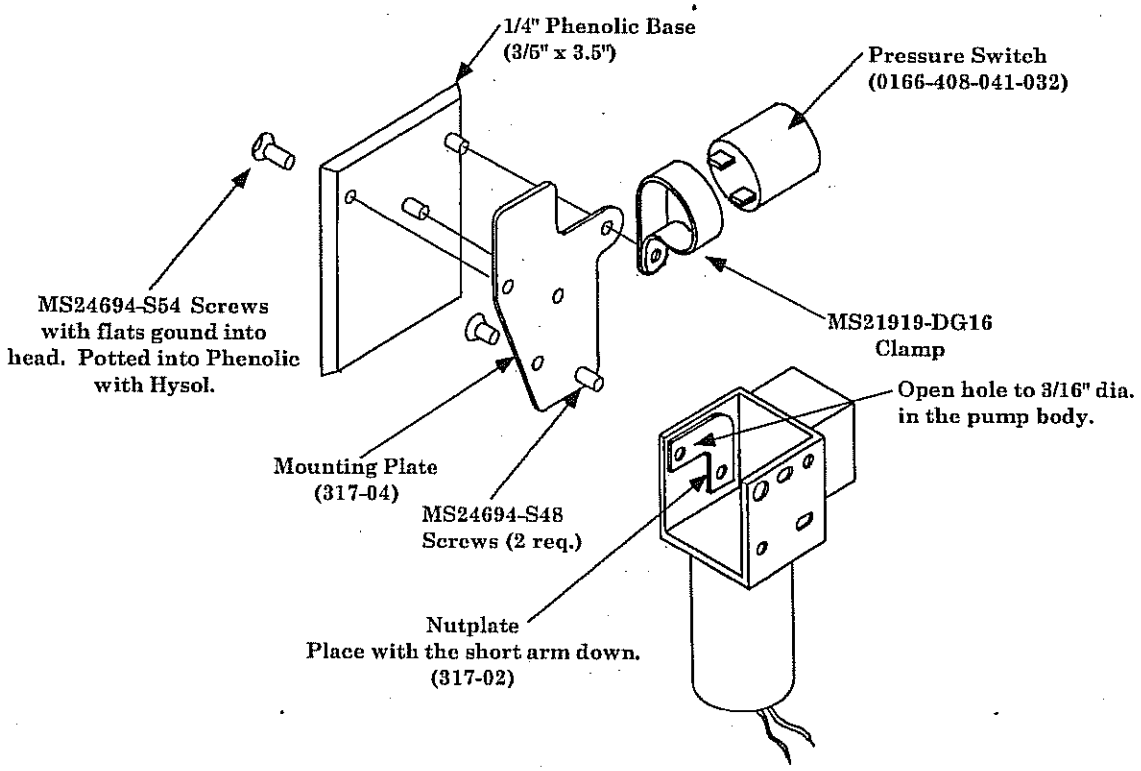
**NOTE: The electrical door seal pump comes in a 12 or 24 volts version. Read the pump label to determine if you have the proper voltage.**

C1. Use the 317-02 nutplate to mount the pump to the 317-04 plate. The 317-04 plate is countersunk to accommodate MS24694-S48 screws. See Figure 33:D:1.

C2. The 317-04 pump mounting plate is secured to the left side of the fuselage behind the shear panel supports. A phenolic block with studs is bonded to the side of fuselage as a mounting base for the 317-04 plate. Grind flats on the heads of three MS24694-S54 screws, then pot them into the phenolic base with Hysol. At the same time, use the Hysol to bond the phenolic base to the fuselage side.

C3. When the studded phenolic base hase cured, secure the 317-04 plate to the base with AN365-1032A locknuts. Notice that the fwd, upper stud is also used to secure the pressure switch with a MS21919-DG16 clamp.

**Mounting the Pump to the Left Fuselage Side**
Figure 33:D:1

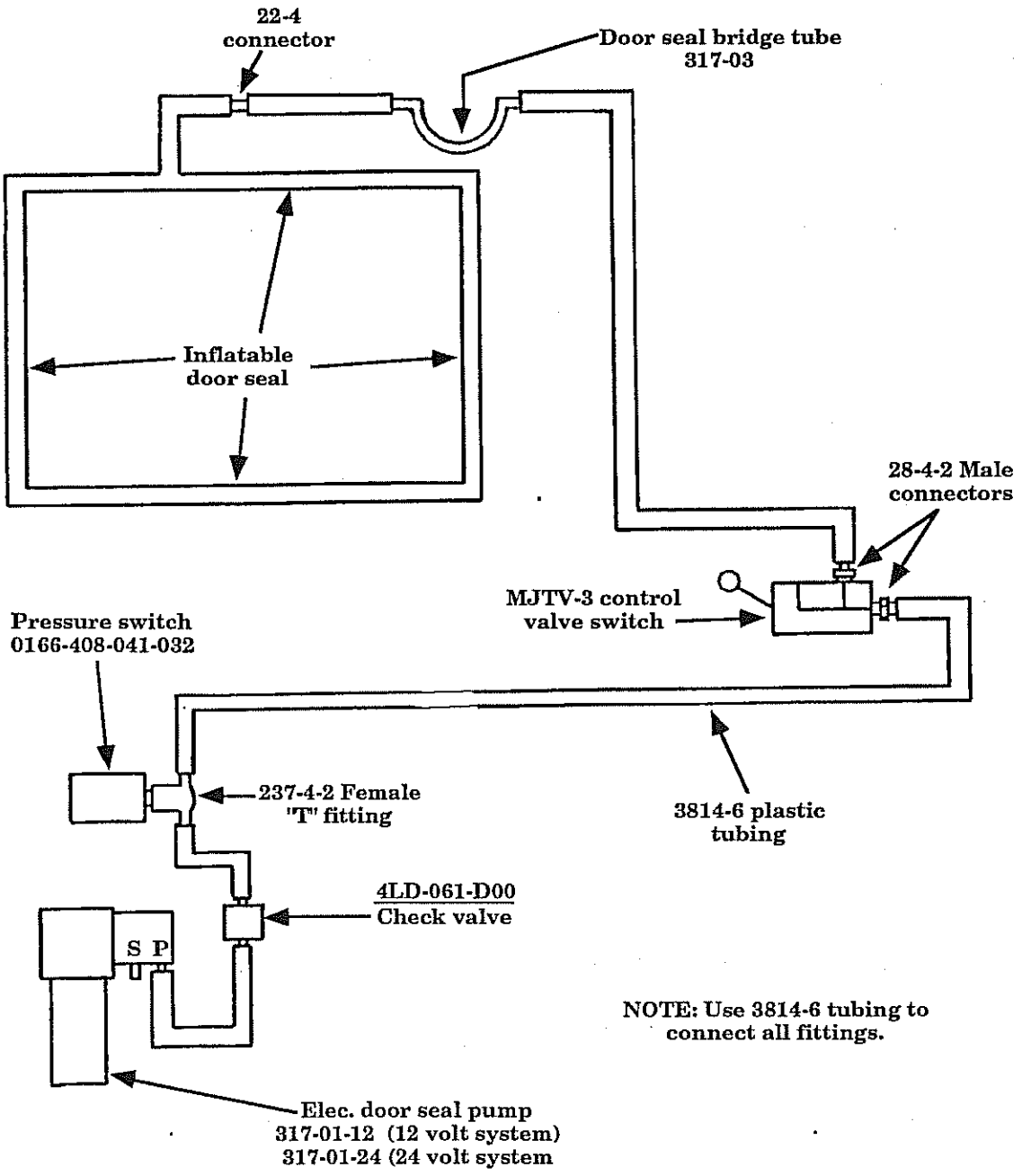


D4. Mount the MJTV-3 control valve switch to the instrument panel in a location of your choice.

D5. Use 3814-6 flexible plastic hose to connect the electric inflation system as shown in Figure 33:D:2. The simple pump wiring is described in Chapter 32, Section H. Note that there is a checkvalve installed between the pump and the pressure switch to prevent air from leaking back through the pump when it is not running.

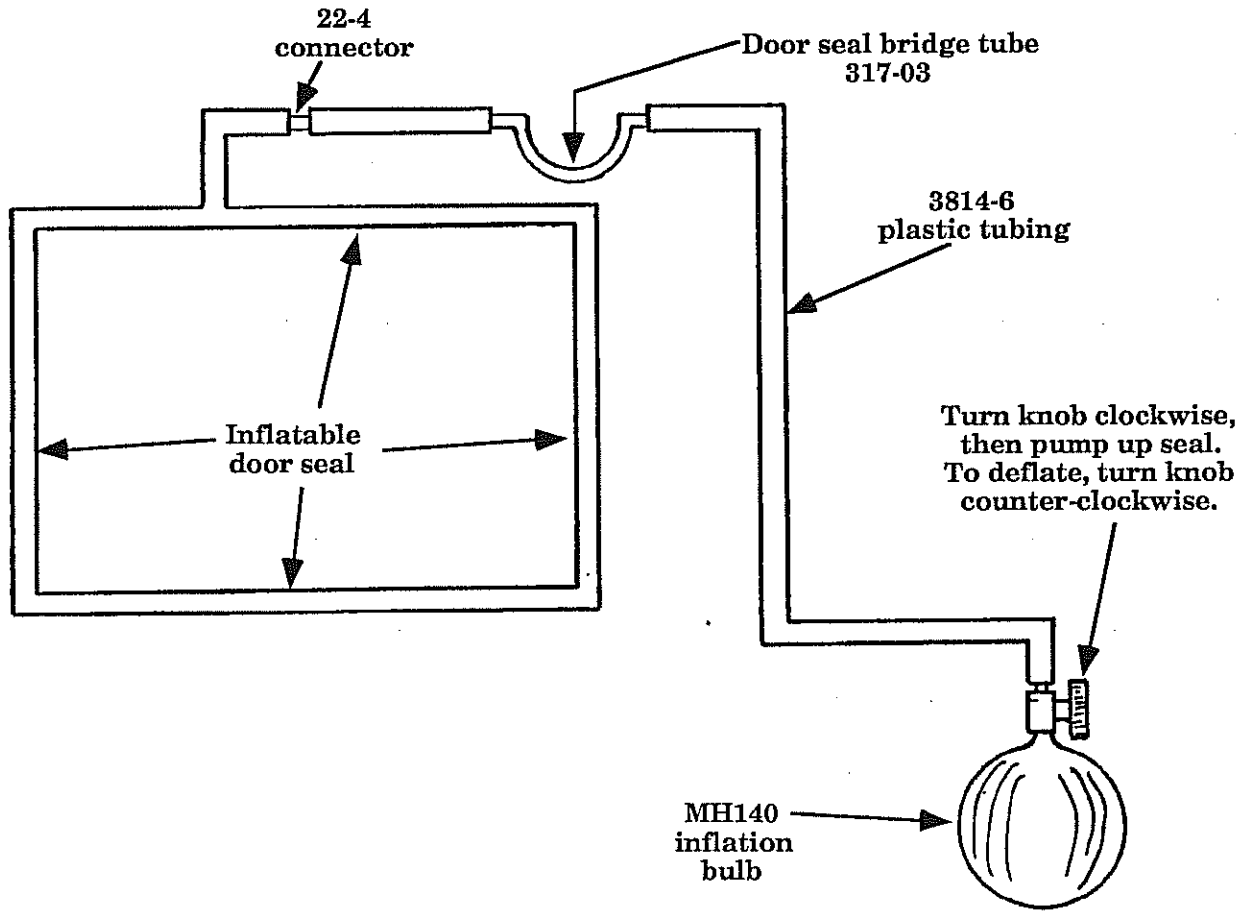
**Door Seal Hookup (electric)**

Figure 33:D:2



D6. The manual inflation bulb, can be mounted anywhere on the left side of the cockpit. It is connected to the door seal with 3814-6 tubing as shown in Figure 33:D:3.

**Door seal hookup (manual)**
Figure 33:D:3



## E. SOUND PROOFING

The use of sound proofing material is desirable on the aft face of the firewall, nose gear tunnel, and certain areas of the fuselage. Sound proofing material is heavy, so don't even consider lining your entire cabin with it. Lancair sells a package of sound proofing material that will cover the firewall, nose gear tunnel, and key portions of the fuselage sides and floor.

E1. Figure 33:E:1 shows suggested locations for sound proofing material. The material has an adhesive backing so all that's required is to clean the surface, then apply the sound proof material. By now you probably have quite a few cables, tubes, and wires going through the firewall. Don't try to cover the entire firewall with one piece of sound proof material. Instead, concentrate on covering one quarter of the firewall at a time, slicing and notching the sound proof material as required. The sound proof material for the firewall is 1" thick in the optional kit from Lancair. If the fuselage top is not installed, leave the protective cover on the top 6" (to prevent bonding) to allow glassing of firewall to top.

Cover the floor of the cabin from the firewall back to the spar with sound proof material (1 1/4" thick in the optional kit). This is the highest noise transmission area because of the exhaust stacks. The sound proof material does not go under the hydraulic and fuel lines, so just butt the material up to the white plastic tunnel. The material can be pushed down to get at the tunnel screws. The pilot and copilot floor boards should be above the sound proof material. This doesn't mean you have to cut back the edges of the floorboards, just notch the sound proof material where the floorboards meet the floor.

The sides of the fuselage in the cabin are covered up to about the engine mounts with a less dense material (1" thick in the optional kit). These sections also extend from the firewall aft to the spar area.

The nose gear tunnel is covered with 1/2" thick sound proof material. Again, you'll have to notch, cut and piece in the material around the accessories already attached to the tunnel.

*a.) FIREWALL (cut 1 piece)*
*Soundcoat 1" thick soundmat PB Plain with adhesive on the 3/4" foam side.*

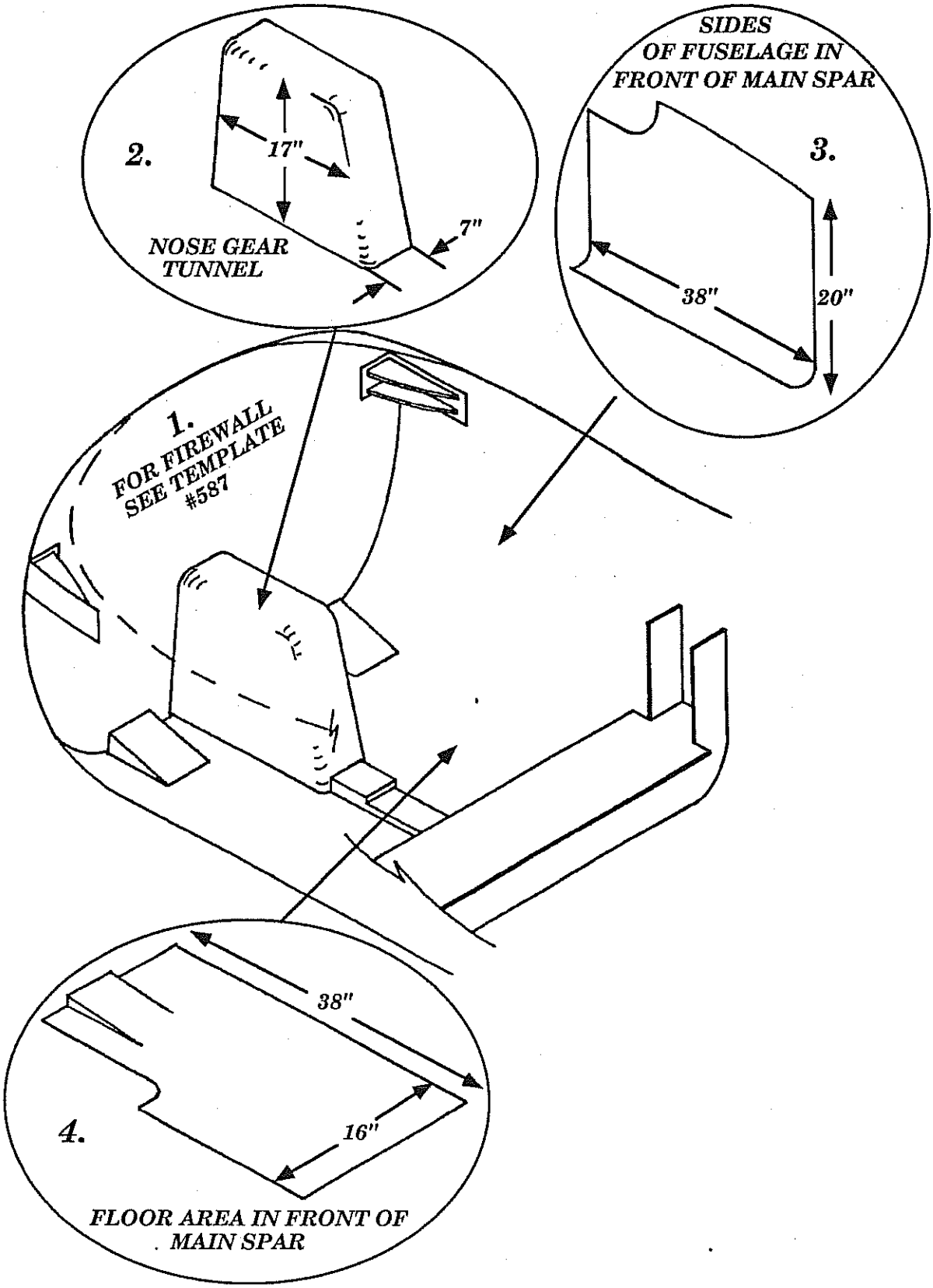
*b.) NOSE GEAR TUNNEL (cut 2 opposite pieces and a strip for the center)*
*Soundcoat 1/2" thick soundmat PB Plain with adhesive.*

*c.) SIDES (cut 2 opposite pieces)*
*Soundcoat 1" thick 1.) Soundfoam embossed with adhesive. 2.) Soundfoam ML Plain with adhesive. 3.) Soundfoam ML white matte with adhesive.*

*d.) FLOOR (cut 2 opposite pieces)*

## Sound Proof Material Locations

Figure 33:E:1



## 3. PAINTING & INTERIORS

The final look of your airplane is obviously an important aspect. It will affect performance but its primary effect is on ones ego. Luckily, it is not difficult to achieve an attractive finish on your Lancair, after all, you're starting with the best looking airframe in the air! Some very simple hints and techniques are all it will take.

## A. BID Tapes

A1. The BID tapes that are applied to the exterior joggles will naturally require the most finishing and a little blending.

One simple trick in starting the process off is to apply an epoxy/micro blend (heavy on the micro here) to the tapes within just a few hours of application. When the tapes are still tacky, mix up a small batch of micro and apply it to the joint area. Be sure that the tapes are set up enough that you won't disturb them with the application of micro. Of course, you can always wait until they are fully cured, that's perfectly acceptable.

You'll probably find that it is a good idea to perform the basic finish on the BID tapes as you progress through the assembly of the airframe as opposed to waiting until all the glass work is completed and then starting on the finish. If you break it up a little, the task will seem much easier and in fact it will likely *be* easier.

A2. As you are progressing through the assembly processes, you will usually have some excess epoxy mixed up from time to time and it should not be wasted. Simply mix it with generous amounts of micro and find a BID tape somewhere that can use it.

## B. Mixing the Micro

B1. When you are applying the initial micro to an area, you should mix it quite thick. Thick means LIGHT and inversely thin and runny means HEAVY. The thick micro should have the consistency of bread dough (or perhaps just a *little* bit less thick. Next, you might experience a bit of difficulty in the application of this thick micro. It may want to roll up behind your squeegee. If that proves to be an unsolvable problem, then perhaps it is just a little too thick, thin it back down with a little more epoxy. (But, always premix the epoxy thoroughly before adding it to an existing batch of epoxy/micro.)

One final method of evaluating the micro blend is by its sheen. If it smooths out, sags or runs on vertical surfaces and/or achieves a nice smooth shiny look to it as it sets up, then it definitely is too thin. You can usually determine this quickly after an application since it will quickly smooth out and get shiny on the surface. If you see that, then you will still have time to remove it and add some more micro to the mix and reapply. Generally, one or two applications will be all that is required to "get the hang of it." And, that's why it is best to start with small areas first so if you didn't quite get the blend figured out, you won't be stuck with large areas to deal with.

B2. In general, the first applications of micro will be the thickest mixture. As you apply a second coating for "fine adjustments", the mixture should be somewhat thinner since you don't need much "build" and you don't want to trap any air bubbles in the mixture. Any trapped air bubbles, if they are too large or too close to the surface can result in popping the paint loose in that small area as the air in the bubble heats up, expands and loosens the grip of the finished paint. That's obviously of no structural concern but you sure don't want any shiny bumps in your otherwise smooth paint job.

B3. When you're ready to first sand the micro, use a 50 grit paper on a long board. These "long boards" area available in any auto body repair shop and use the standard 3"x14" sanding sheets. It's a good idea to buy a pack of 50 grit and 80 grit.

B4. You should always sand on a 45 degree angle to the contour and run the sanding board in a bit of a diagonal direction. Also, change directions of stroke regularly so that you achieve a nice smooth transition across the BID tapes thus not generating any grooves or waves.

B5. If you start with a 50 grit sandpaper, you should only use that to get the lumps and bumps off of the micro, then switch to an 80 grit to get down to a nice smooth blend. Any second applications of micro will usually be best treated with 80 & 120 grit.

B6. A small 3" x 6" sanding block is also quite helpful as is a "half round" sanding board. The half round is used along sharply rolled surfaces like the wing to fuselage joggles, etc. The half-round sanding boards will use 1/4 of a standard sheet.

B7. With micro well dressed over the BID tapes, etc., you're ready for primer.

## C. General Surface Preparations

C1. As mentioned above, the general means to attaining good smooth transitions is with micro. Small spot touch-ups can be made easiest with the light weight body fillers available in auto supply stores. Use only the light weight types (typically about 5-7 lbs. per gallon), these will have micro balloons mixed into them already - but to a much lesser degree than with our epoxy/micro. This type of filler should NOT be used in large amounts, but only for small touch up areas. It dries very quickly and thus allows for final prep on a fast basis.

C2. To achieve the best possible adherence of paint, all surfaces should be cleaned with a suitable cleaner to remove dirt and oils. After cleaning, sand the surfaces with 80-120 grit prior to applying any primers.

## D. Priming Materials

The best filling primers are of an epoxy basis. Lacquers should generally be avoided. Polyesters are acceptable, however, they will shrink and the shrinkage will eventually allow imperfections to show through the finished paintjob. Again, epoxies are highly recommended.

We have tested a wide variety of filling primers. Sure, there are many excellent types available that we have not had the opportunity to test out, however we have found one that does work very well. It is our WLS system and is generally stocked by Neico, consult our options catalog.

The WLS system is a two part epoxy system and can be reduced by up to 10% for thin applications. When applying the last coat of primer, it is generally best to thin it. Thinner / reducer is supplied with each WLS set.

D1. The first application of primer is primarily to fill the small depressions in the weave. These are very shallow and are very small. It is generally effective to first squeegee or brush a filling primer onto the surfaces, this helps get the material down into the tiny depressions.

If you were to begin by sprayinga heavy application of filling primer onto the surfaces, it would tend to bridge the small depressions, but, when sanded back down, the bridging would be sanded away and the depressions would reappear. A spray technique that does work satisfactorily is to spray a very light coat of filling primer and allow it to set up a bit. Follow with another very light coat. These coats should be so light that it requires about four passes to get a solid color change. Then allow that to cure. This process helps allow the filling primer to get into the depressions and exclude the air that must be displaced without causing any bubbling on the surface. If you see any bubbles occurring, it is because the primer is displacing small amounts of trapped air which causes a bubble in the too thick application of primer.

D2. After the primer cures, use either a machine sander or sand by hand. Start with 120 grit and progress up to 150 grit for this sanding. (If you are careful, you can speed the process by starting with 80 grit, but don't sand with that course of a paper too long or you'll not have anything left to sand with the finer grits.) This sanding will go quite quickly since you are not doing any contour work, just knocking down the primer. We generally will sand an entire wing surface down in about 30-40 minutes. An air driven 8" dual action sander (DA) and the air file (long board 3"x14"), will work the best. The 6" orbital sanders will take *much* more time and leave hard to fill sanding marks. The 8" DA will require a 2 hp compressor which it will work pretty hard, and it usually can just keep up with the air demand. Keep the sander moving and use a similar diagonal motion so that no grooves or waves result.

D3. You should sand this application down until you just begin to see the prepreg starting to show through.

**NOTE:** It is very important to keep the primer applications THIN. Excess amounts of primer could easily increase the weight of your aircraft by as much as 30 lbs.

Also, remember that the goal should be to achieve a finish on the bottom surfaces that is conducive for good aerodynamics *only*.

D4. With that first application of primer sanded down, go over the surfaces and look for imperfections. Use a spot light at a low angle to the surfaces in a dark room to quickly point out any imperfections. You should use compressed air to blow off the surfaces first. Wiping them will leave sanding material down in any imperfections that may exist and you'll miss seeing them.

D5. Spray a second coat of primer. This coat can be a thinner application. After curing, sand it down with 220 grit. You can either wet or dry sand. If you wet sand, the sandpaper will not tend to clog up (use 3M wet / dry - black sandpaper). However, with wet sanding, you should allow at least one to two weeks for the surfaces to fully dry before painting. If you dry sand, use the aluminum oxide sandpaper (light grayish color).

D6. If you are intending to use a urethane type of paint, then generally a 220 grit finish is acceptable as a paint base. If you choose an acrylic / enamel type of paint, you should go to a 360 grit finish since it will show the scratches more readily than a urethane.

D7. The second coating of primer should also be sanded down quite thoroughly. If the prepreg begins to show through, touch-up with a spray of primer and lightly resand. This will assure the thinnest possible primer coat, yet allow full coverage.

D8. If you have some (few) imperfections located after everything else is readied for paint, limited use of a lacquer spotting putty is acceptable. This should be used sparingly. It is packaged in a tube and will set up in about 20 minutes. Use a small squeegee to apply it, then spot sand with 220 grit. Make sure that it is feathered out nicely or else an edge will result and show through in the paint. The two part spot putties or glazing compounds are much better and will set up equally fast.

## E. Painting

This is not intended to be a painting instruction, we will only touch on a couple of basics. You should consult local sources or available technique books for tips on painting.

E1. Generally, the urethane paints are preferred. That is because they will allow the greatest amount of flex without cracking or chipping. You will generally use less spraying volume with these, but they are heavier, with less evaporative solvents. So, the weights come out about the same in the end. Imron is the most readily identified name brand but there are several excellent brands available such as Sterling and Ditzler.

Another acceptable type is the acrylic / enamels. These, when used with the catalyzed hardeners, produce an excellent finish. One such paint type is DuPont's Centari. Often, the acrylic / enamels are easier to touch up and blend in with the existing paint finish. The urethanes often do not blend very well together when making any spot repairs. On aluminum, (rivet-bucket) aircraft, that problem is more easily dealt with since you can mask off individual panels. But, with our composite airframes, there are no "panels" since all parts are blended into one another. Thus, there is simply no convenient place to stop a spot repair short of an entire wing surface or fuselage.

E2. A word of caution, when preparing to paint, be sure to read the safety instructions and follow them carefully. The fumes from these paints can cause serious harm or death.

## F. Paint Preparation

F1. It is recommended that the airframe be disassembled as much as possible for painting. This will make for more pieces but a better paint job when it's all put back together.

F2. Remove the control surfaces, gear doors, wings, door and cowling. Mask off all appropriate areas. Tape off the gear wells and wrap plastic bags around the wheels. If you roll the plane up onto some stands, the lower surfaces of the fuselage will be easier to spray but be sure that you can still reach the top or have a stool available.

F3. Blow off everything with compressed air and be extra careful to blow off areas that are near any possible spray gun blast. Even, if some areas are not destined for paint, such as, the gear wells, back by the flap attach locations along the aft spar webs, etc. Sometimes these areas can have big cakes of dried sanding residue that is just waiting to be launched into the air when your spray gun hits it. And that can make a huge mess on a nice clean, wet paint surface. Also check the hose near the area of the spray gun since it will likely be suspended over some wet paint as you make your spray passes.

F4. Wings, control surfaces, etc. can be hung on wires or clamped up to make-shift fixtures. Again, be sure these fixtures are also dirt free. Use recommended surface cleaner (prep-sol, etc.) and tack rags to remove any contaminants.

F5. It's not easy to paint all surfaces at the same time but it is recommended to at least mix all the paint cans so that the color is guaranteed to be identical from one gallon can to another.

Generally, three gallons of top coat paint (plus its recommended thinner and catalyst, etc.) is sufficient. So, mix the two gallon cans together by pouring them into a bucket, mix them and then pour them back into their own gallon cans again. Even though the colors are supposed to be the same, they often have slightly different hues from one can to another. Whites are particularly susceptible to this problem.

## G. Base Colors

G1. Keep your color choices to **LIGHT pastels ONLY.** Yes, you've seen other darker colors on aircraft and one of our company planes has had a darker color but that was for a testing program and **IS ABSOLUTELY NOT RECOMMENDED. In fact by policy, we prohibit dark base colors on all Lancairs.**

Yes, our Lancair materials are better suited to higher thermal tolerances but as with all composites with any type of resin system, strength will drop as temperature rises.

The biggest difference with Lancair materials involves the core materials. Our high temperature cores will not sustain any permanent damages from elevated temperatures, but the common low temp cores would. Our materials will tolerate elevated temperatures without any permanent damages but, as with all resin systems, a temporary strength drop will result as temperatures rise. This temporary drop reduces the effective safety margins until the composite cools.

When it cools, all strength will return. But, due to this temporary, potentially in-flight drop in margins, we only recommend light pastels for a base color. We cannot stress the importance of this enough. Keep your colors LIGHT and let us do the testing.

However, with your Lancair, you can enjoy a much wider color choice than any other kit plane on the market, since all the vinylester / low temp foam kits should ONLY be painted white. Any other color choices (even light pastels) could run their expected surface temperatures too high, thus causing permanent structural damages. This will never happen with your Lancair and it is just one of the many reasons why we have chosen these superior, high temperature advanced composites for the Lancair. That is also one of the key reasons why virtually all of the commercial composite industry uses ONLY high temperature epoxy based composites for airframe applications.

## H. Trim Colors

H1. There really is no problem with any of the trim colors provided you keep them down in size. It is recommended that you not paint any trim on the fwd 50% of chord along the wing. This is because the resultant paint edge, even though it might only be .010" thick, could trip the laminar flow and cause added drag. Fwd / aft orientated wing tip striping is however acceptable.

H2. Generally, the trim is painted onto the airframe after the base coat has been applied. Usually, the more simple the trim design, the better it looks. Designs that have a lot of vertical direction changes within them generally tend to break up the smooth flowing lines of the Lancair and detract from it in the process.

H3. It is highly recommended that you use the 3M type "fine line tape" for masking the paint areas. This should be used for the base coat colors as well, such as around the canopy and windows, etc.

This fine line tape is usually found to be slightly greenish / gray in color and of a mylar type material. It is much thinner than the masking tapes and produces a very nice, crisp line.

**WARNING:** When you are finished with the painting, etc., be sure to check your pitot and static ports, especially the static. Verify that it is still clear and functioning as primer and paint could plug it up. Also, check the balance of the rudder and aeilerons to make sure they are perfectly balanced.

## I. Interiors

I1. The interiors of the aircraft are generally painted and upholstered. The point here is to stress the importance of covering ALL exposed surfaces of fiberglass with either paint, upholstery or both. The fiberglass must be shielded from ultra violet rays to insure longevity of the structure.

I2. In the baggage compartment, the side walls can be either upholstered or painted. Paint is cheaper and lighter but will allow for more noise to bounce around in the cabin during flight, upholstery looks better but it's heavier, and more costly.

I3. Once again, it is recommended that these interior colors be kept to light pastels as well. Also, on a hot day, you will definitely appreciate a light colored interior. However, the instrument panel should be painted with a dark flat color. The windshield will have the ability to reflect the instrument panel and a glossy finish panel will really distract from good visibility.

## J. Upholstery

J1. A nice upholstery need not be elaborate to look good. What is most important is that you use materials that are suitable for an aircraft interior. The important issues are fire resistance, how much toxic smoke is given off and weight. Interiors can become very heavy if you are not careful in your upholstery selections. Carpeting can be particularly heavy but luckily, there is not much in the way of square feet of carpeting required. Seat cushions can range from 1 lb. to over 5 lbs. depending on type of foam cushioning and type of fabric chosen so think "weight" when selecting upholstery.

J2. Rear seat cushions and seat back should be removable. The seat back panels can simply lay against the seat back bulkhead and attach with velcro. If you run the side panels forward under the instrument panel, the look will be better. Also a small side close out panel on each side of the nose gear tunnel that extends back and attaches to the sides of the instrument panel make for a nice finished look.

## 4. WEIGHT AND BALANCE

**THE FAA REGULATIONS REQUIRE THAT A CURRENT AIRCRAFT WEIGHT AND BALANCE SHEET BE CARRIED IN THE AIRCRAFT AT ALL TIMES!**

# WEIGHT AND BALANCE
# WORK SHEET

"N" Number_____

Builder_____

CG Range: (8 Inches)

FS 86.5 to FS 94.5

| | A<br>Wt. (lbs.) | B<br>Tare Wt. | C<br>Net Wt. | D<br>Mom. Arm | E<br>Mom. Wt. | Sta. |
|---|---|---|---|---|---|---|
| Nose Gear | | | | | | |
| Rt. Main | | | | | | |
| Lt. Main | | | | | | |
| EMPTY CG (with oil) | | | | | | |

E/C = A/C Station

| | C<br>Net Wt. | D<br>Mom. Arm | E<br>Mom. Wt. | Sta. |
|---|---|---|---|---|
| Aircraft | | | | |
| Pilot Only | | | | |
| Max. Fwd. CG Condition | | | | |

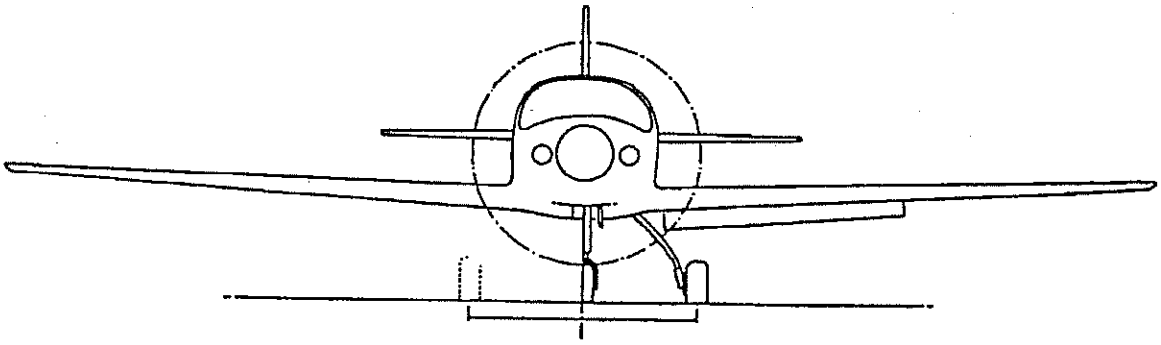
E/C = A/C Station

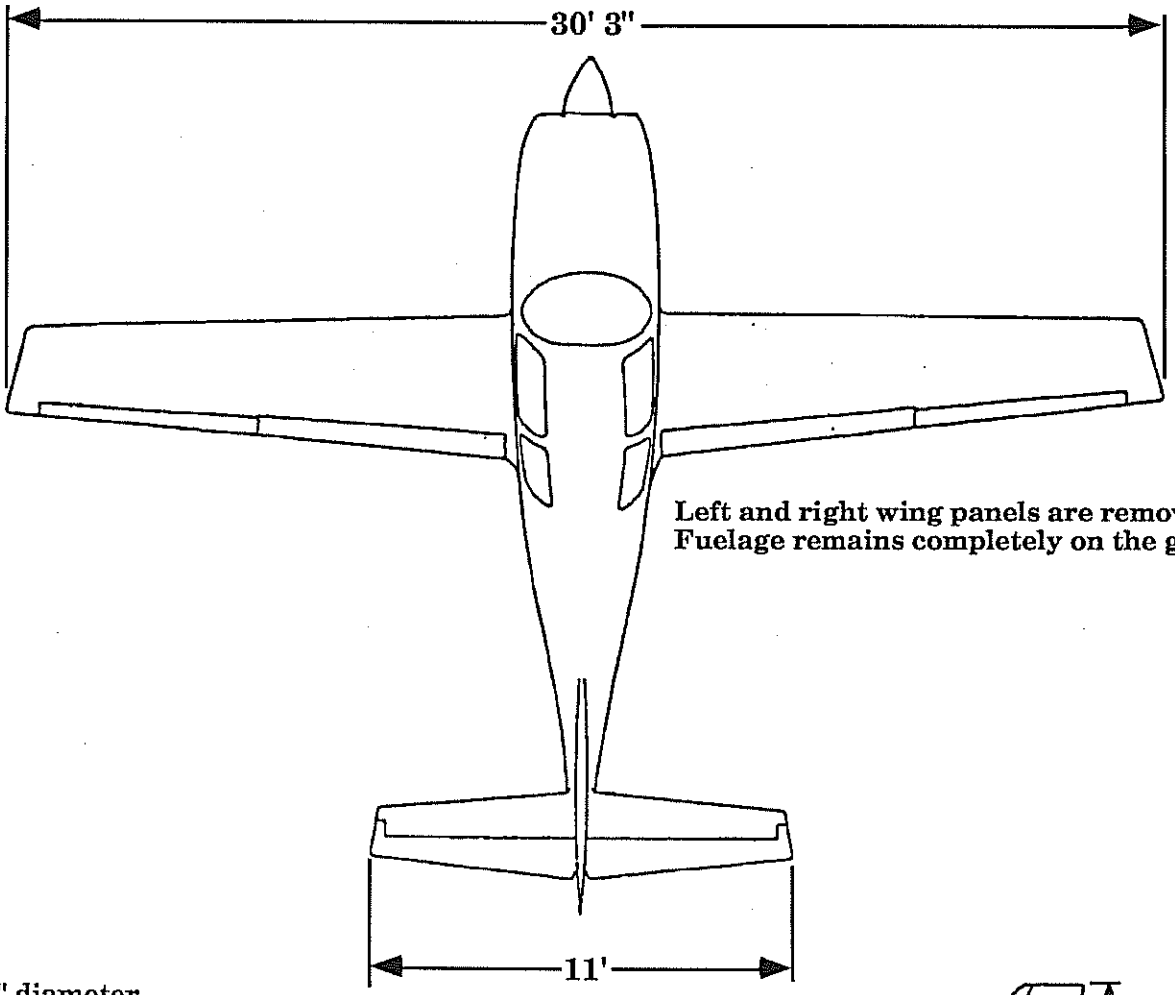
| | | | | |
|---|---|---|---|---|
| Aircraft | | | | |
| Copilot | | | | |
| Pass. 3 | | | | |
| Wing Tanks Full | | | | |
| Luggage | | | | |
| Max aft CG Condition | | | | |

E/C = A/C Station

| | | | | |
|---|---|---|---|---|
| Aircraft | | | | |
| Copilot | | | | |
| Pass. 3 | | | | |
| Fuel (Wings) | | | | |
| Luggage | | | | |
| Sample Condition | | | | |

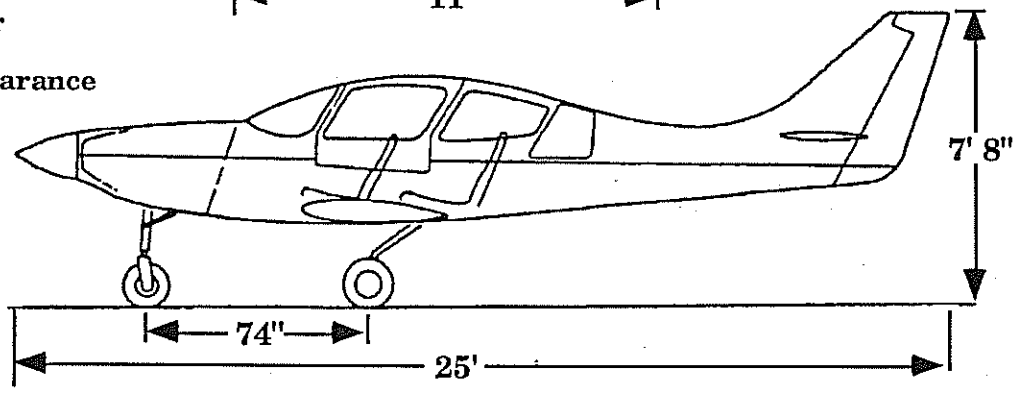
E/C = A/C Station






**Left and right wing panels are removeable.**
**Fuelage remains completely on the gear.**

**76" diameter propeller**
**26" prop. clearance**



# WEIGHT AND BALANCE
# LANCAIR IV SAMPLE LOADING

LE @ BL 25.5 = FS 82.25
MAC = 40", LE @ FS 83.5

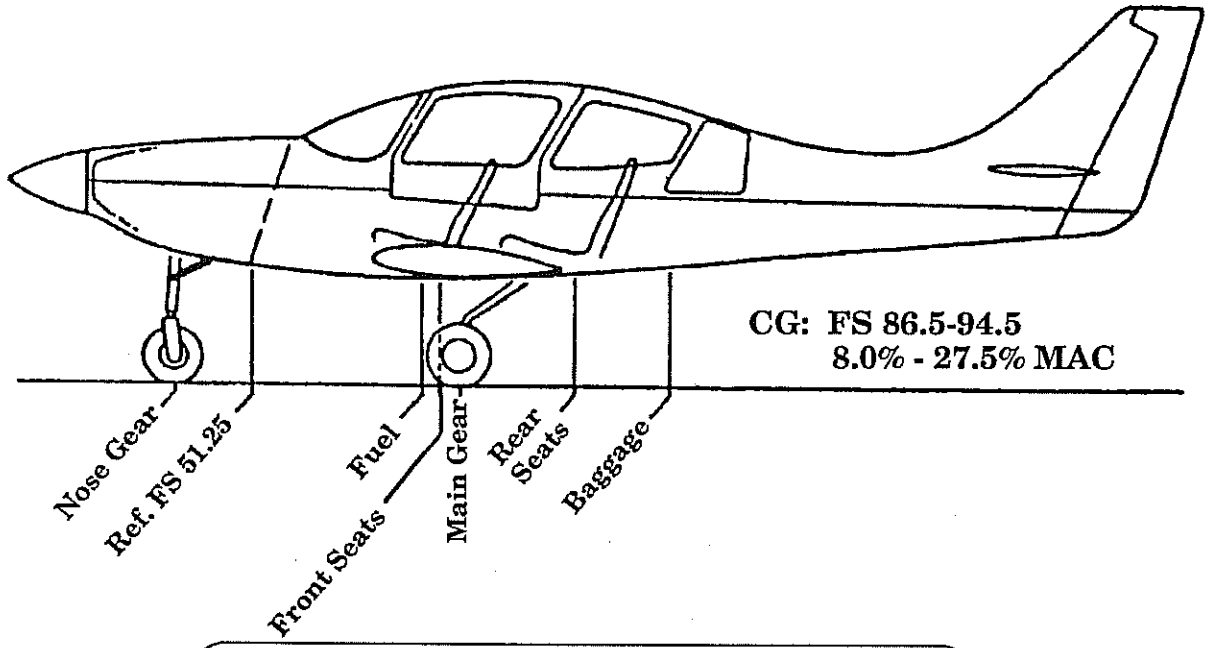
| | WEIGHT | STATION | M/W | FS LOCATION | % MAC |
|---|---|---|---|---|---|
| Mains | 1456 | 107.25 | 156156 | | |
| Nose Gear | 620 | 33.75 | 20925 | | |
| Main gear up position (@69 lb.) | 16" shift aft | 0 | 1088 | | Gear up ref. |
| Empty Wt. | 2076 | | 177780 | 85.6 | 5.340 |

| SAMPLE LOADING | WEIGHT | STATION | M/W | FS LOCATION (cumulative) | %MAC (cumulative) |
|---|---|---|---|---|---|
| Pilot | 170 | 98 | 16660 | 86.6 | 7.679 |
| Copilot | 170 | 98 | 16660 | 87.4 | 9.690 |
| Fuel (70 gallons) | 411 | 94.8 | 38962.8 | 88.5 | 12.388 |
| Pass. 3 | 170 | 129 | 21930 | 90.8 | 18.138 |
| Pass. 4 | 170 | 129 | 21930 | 92.8 | 23.270 |
| Baggage | 70 | 140 | 9800 | 93.8 | 25.821 |
| TOTAL WT. | 3237 | | | | |

NOTE: This example shows the over gross takeoff by 37 lbs. Fuel or baggage could be reduced to eliminate the problem.

# WEIGHT AND BALANCE SHEET

**Lancair IV**




**N Number:**

**Owned By:**

| | Weight | Mom. Arm | Mom. Wt. (lbs.) | Station |
|---|---|---|---|---|
| Nose Gear | | | | |
| Main Gear | | | | |
| Empty CG | | | | |
| Aircraft | | | | |
| Pilot | | | | |
| Min. Fuel (10 gallons) | | | | |
| + | | | | |
| Copilot | | | | |
| Full Fuel (75 gallons) | | | | |
| + | | | | |
| Pass. 3 | | | | |
| Pass. 4 | | | | |
| + | | | | |
| Baggage | | | | |