table. You want to build this table accurately because all of the major components need to be built on a flat surface. We usually paint the table top with white latex, as it is easier to see the pencil marks when you are drawing out the various structures. Also, when the particular structure is completed, the pencil lines can be painted out with a second coat, enabling you to go to the layout of the next assembly to build. I prefer to build the fuselage first, as I believe it is easier to move about and store and less likely to get damaged than a set of uncovered wings. The fuselage, when finish welded, can be brought up to nearly cover stage before the wings are even started, and as well, all of the other components have to bolt to the fuselage in some way, so this will keep you busy for quite some time.

Draw the fuselage side view on the table full-size, using the centerline dimensions shown on the plans. Once all the centerlines are all in place, scale the tube sizes and diameters on. These lines give you the edges to nail your jig blocks to. Jig blocks are small pieces of wood cut 2" x 2" x2" or so, to firmly hold the tubes in place on the table. Make up plenty of them in advance, they will be needed. Pre-drill holes in them so the nails or screws you use don't split the little blocks. These are then removed from the table after the fuselage sides and bulkheads are tack-welded.. If you are an experienced Tubing fuselage builder, you may have another method to hold the tubing to the table, but this method works for everybody with little fuss.

Chapter 2- Fuselage Assembly

A Raceair Designed fuselage presents less challenge than a conventional steel-tube fuselage, because over the years we have learned a great deal about how to build things with less elaborate tooling investment. A straight fuselage is the building block for the whole airplane, and our method is about as simple as it is ever going to get.

In addition to laying out two fuselage 'sides', you will notice on the drawings that we use two 'bulkheads' in the fuselage- The first one is the firewall Station, which is built flat on the table. The second is the seat back/ lower wing rear spar carry-thru bulkhead. With these fabricated and tack welded, along with having the two sides tacked, the obvious alignment advantages can be seen. Bulkheads A-A, and B-B, can be clamped to the upside-down fuselage sides, with the foreward end of the fuselage slightly hanging off the end of the table. All this work is referenced from a Centerline drawn down the table, or a string/wire used to keep the fuselage straight. These two bulkheads clearly define the basic shape and alignment of the foreward fuselage, and cross tubes and diagonals can be fitted and tacked in place in this foreward section at this time. Next, the upper and lower longerons can be heated and bent towards the centerline, till they contact at the tailpost area. This heating and bending, just behind the seat back, is at the longeron splice area, and careful, slow heating and bending is a must. It helps to have a helper for this task. At the tailpost area, drill a hole in your table for the tailpost tube to pass thru, for alignment purposes. Clamping scrap boards across the tailcone area longerons will aid in keeping everything true while tack welding in all the cross tubes and diagonals in the tailcone area. A note about tack welding the fuselage sides- All tubing centerlines must score out to the best of your ability- When fitting a 3/8" diagonal to a ½" longeron in the side view assembly, place a scrap piece of 1/16" welding rod under either end of the smaller tube, thereby shimming it up to the centerline of the bigger tube.

When all of the fuselage tubing is in place, finish welding of the clusters can begin, except for the longeron to tailpost clusters, which must wait for the fin tubes, and headrest tubes to be

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