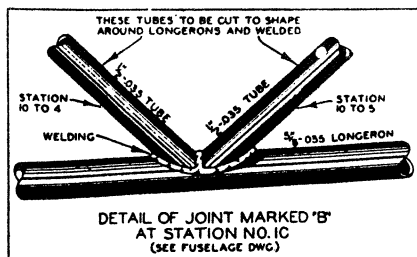


the plans are shown in this installment. The tubing specified is of the standard variety, obtainable from any aeronautical supply house such as the Heath Airplane Co., 1727 Sedgwick St., Chicago, Ill., or the Church Airplane Co., 4844 Nevada St., Chicago, Ill. The size of the tubing is shown by the letters alongside the different members in the drawings. For instance, $\frac{1}{2}$ in-.035 means half-inch diameter tubing of .035 gauge.

In building the steel fuselage, several precautions are necessary. First, you must have the right tubing in the right place. Second, the welding must be done by a man who knows how to weld. If you don't know how yourself, you can hire a welder to come to your shop. In a day



This drawing shows the way the strut tubes "land" on the longerons. Use care in welding.

or a day and a half he should be able to completely weld the fuselage together. Third, the material must be all cut to fit right to the dot and brightened up at the weld so you get a clean fit and one in which the weld is from tubing to tubing rather than filled in with welding rod too much. Given these conditions, the complete fuselage will in every way be equal to a factory job.

I will weld up these fuselages myself for anybody who wants them. I can give you a reasonable price, too. Or if I'm too busy to do it myself, I'll have a fellow weld it who knows his groceries.

The first thing to do is to lay out the sides and the top and bottom plans of the fuselage full size on a floor. Then the tubes are cut with a hack saw so that all the longerons are in place, and so that all the struts in the bays, of the right sized tubing, are in place right to the dot. Lay out the center lines and then

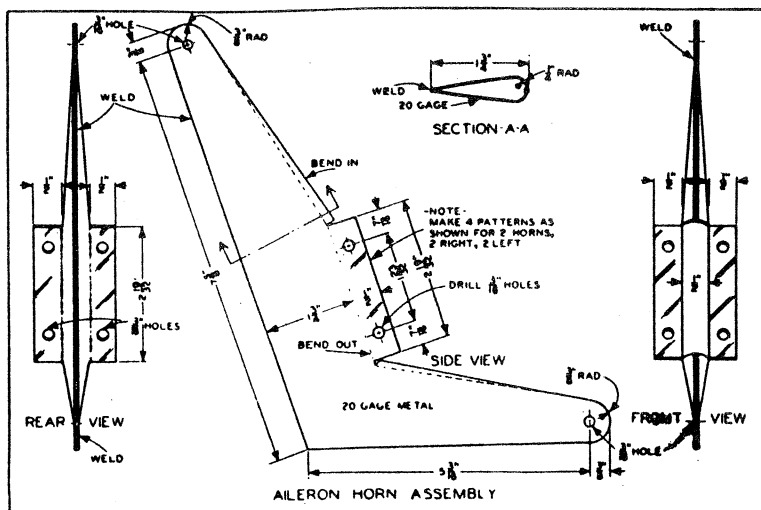


Fig. 3A. The aileron horns, two required, are laid out as above drawing shows. Allow for the bend at the head face of the cross section A-A.

make the center lines of the tubes coincide with the center lines of the fuselage as laid out. This assures that all the joints will hit at critical load points and that there will be no eccentric loadings on any of the tubes.

Then tack-weld each of the sides together. Then turn them bottom side up, and with the top longerons on the floor over the top view, tack in the cross members for the top. Jigs will have to be made to hold the work while you are welding it. These can be made from wood as well as not. By referring to the blueprint you can see that the cross frames run from 4 left to 11 right, and 3 left to point 12 right, and 1 left to point 14 right. All these tubes are $\frac{1}{2}$ in-.035 S.A.E.

1025 tubing. Figure 1A shows how the fuselage, after being tacked, is put on a horse and welded up completely. The torch is applied joint by joint, going in a clockwise and rearwards direction.

This is done to avoid twisting. The alternate expansion and contraction of the metal would give you a badly warped fuselage if you jumped about hit and miss in your welding.

The detail of the joint at point 10 on the fuselage is shown to enable you to visualize how the weld should look.

All the dimensions are shown. It is not necessary to scale the drawing, although a scale is shown. This is more for handy reference than for anything else.

Fig. 4A. This shows the wing horn anchorages and the wing construction. Note hinged flap at rear of wing (shown following page) to admit pilot.

