

## MODELLING THE JUNKERS D.I by N. Forrester.

For the modeller in search of something a little different, the Junkers all-metal types provide the ideal solution.

Construction of all the Junkers all-metal series was similar, a corrugated metal skin over a steel tube framework, and this same external appearance has been achieved on the model by employing the conventional wooden solid method and covering it with aluminium foil. It is not a really difficult job, and the technique opens up possibilities of many similar models.

A suitable foil thickness is .006 , and can be obtained commercially or collected from various domestic commodities, such as wrappers from ice cream, powdered milk, instant coffee and even pies. Such foil of course must be flattened first by rolling or beating on a perfectly flat surface. It is then pinned over a backing sheet of cardboard, and with straight edge and ball-point pen (or stylus) parallel lines are ruled across it to form the corrugations. For 1/72 scale, the corrugations are about 40 to the inch, but difficulty will be experienced in getting more than 30. A little exaggeration however, goes un-noticed in this case...indeed is desirable, for otherwise the corrugations would be too close to be readily visible, and would fill with paint.

After corrugating sufficient foil to see the job through, carve the wings, fuselage and tail from wood, using a firm, straight-grained wood such as pine, particularly if the corrugations are to be scribed directly into the wood (see later section). All parts must be made thinner by the thickness of the foil or the finished model will appear too bulky and out of scale. Covering with the foil may now be commenced.

Take a piece of foil large enough to cover both sides of the tailplane, and fold it over the straight trailing edge (Fig 1) making sure that the fold is at 90 degrees to the corrugations. Press it carefully down and trim off the edges. Remove the foil and carefully open the fold enough to coat the inner surfaces with rubber-based cement. Coat also the surface of the tailplane, and when tacky, apply the foil back to the wood, starting at the trailing edge. Firm finger pressure should suffice to obtain adhesion. Fig I gives details of the entire operation.

An identical process is adopted for the wings, which do however present a small problem in that the wing tapers both in thickness and chord at the tips. At this stage a glance at Fig 2 will reveal how the problem is tackled. Note that cover and capping strips on joints and wing tips are cemented into place first and the corrugated foil cut to fit.

The wrap around technique can only be used where the leading edge is straight and the section substantially without change. Cover strips for the 1/72 model were cut from 20 s.w.g. aluminium and the tip capping strips from 0.010 aluminium (from a cigarette tin) and araldite used to secure them, as contact cement is effective only on larger areas. The centre section was then covered with foil, wrapping round the L.E. and trimming carefully to fit between the cover strips joining the wing outer panels to the centre section. This is then opened out as for the tailplane, cement applied, and pressed back firmly into place. The outer panels present the main

problem, and though the covering for this section could possibly be cut from a single piece of foil, it was considered that for ease of handling, it would be better to cover the section of the wing up to the capping strip with a single piece of foil, and then cut upper and lower panels to fit the contour of the wing tip. Fig.2 shows the break up of these areas. Work carefully, gradually trimming the foil down with scissors, or even cut out a paper template if necessary. Then, having applied the cement, allow it to dry till tacky and press the foil firmly into place as before. Excess contact cement may be removed with petrol, and the control surfaces can then be scored.

FUSELAGE.... this too may be covered with foil as are the wings and tail but the method favoured by the author is to score the corrugations directly into the wood. This is possible with the fuselage as the grain runs in the right direction, and, provided that the wood is carefully selected for straight and even grain, no difficulty should be encountered. As shown in Fig.3, the author used a flexible steel or celluloid rule, supported by a piece of scrap block shaped to match the fuselage contour. This support block is a most important item, as otherwise the rule tends to slip off the working surface. It is a good idea to try the scribing technique on a piece of scrap wood before attempting it on the fuselage.

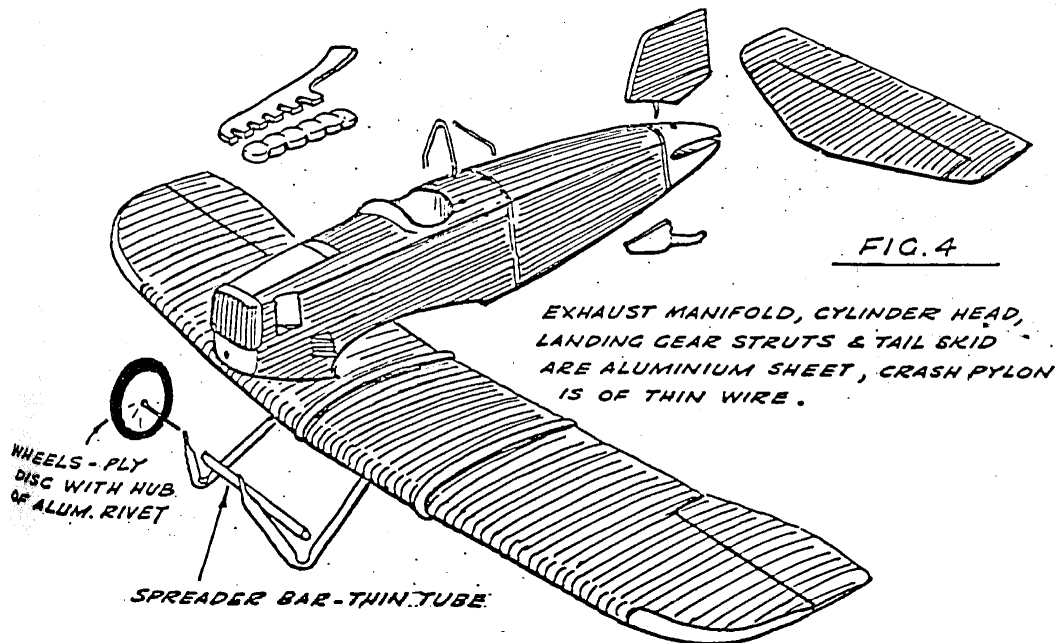
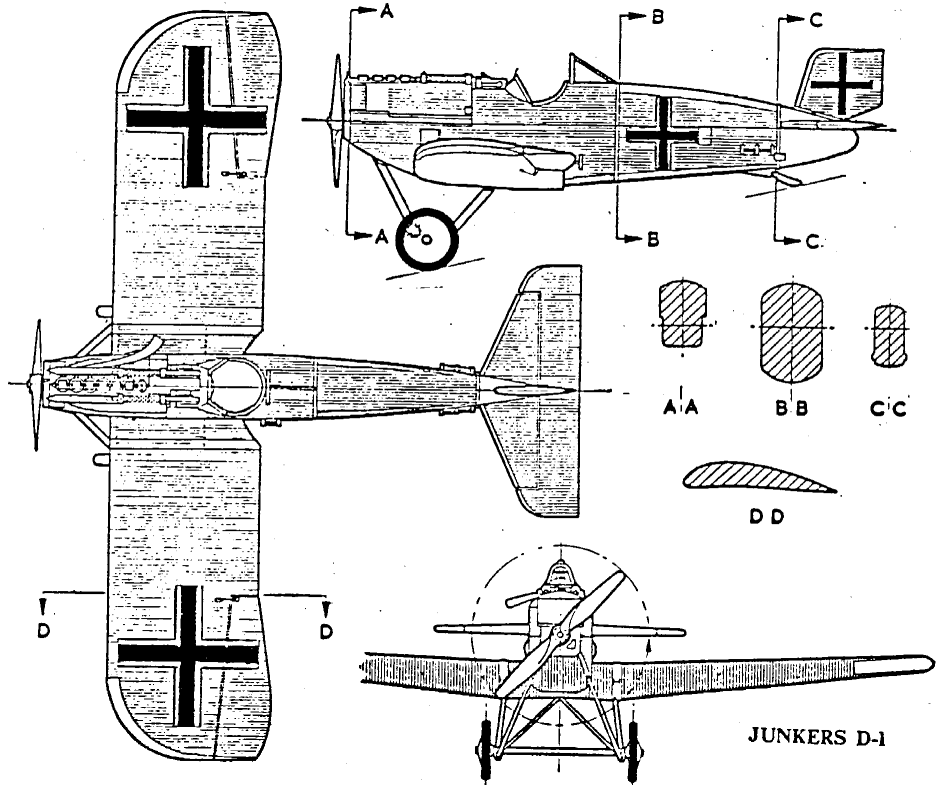
Direct scoring is impossible of course on the wings as scoring across the grain will only tear the surface of the wood fibres instead of merely compressing them. It is also mentioned here that the foil is corrugated before being applied to the model parts as there is considerable variation in the hardness of the wood, particularly in cases of annular growth rings, which precludes even penetration of the stylus and results in a lumpy and uneven finish to the corrugations.

The remainder of the construction and assembly is quite conventional. Landing gear struts, tail skid, engine block and exhaust manifold are fashioned from aluminium sheet, and the radiator from a small piece of the corrugated foil. The propeller is carved from a laminated block comprised of 1/16 sheet layers of contrasting wood, and is finished off with oil varnish stain tinted with oil colours to the desired depth. (Raw umber and burnt sienna match most weed colours.) Alternately, the laminations can be painted on after the propeller is carved and before varnishing, or enamelled in several shades of brown.

Natural aluminium finish is achieved by painting or spraying all over with silver enamel, finished with a coat of semi-flat clear varnish to take away that raw look of new aluminium paint. The foil covered areas must not be too thickly painted or the corrugations will fill up.

Some D.I s were finished in irregular patches of pale green on an even paler field of mauve on all side and upper surfaces, all lower surfaces being a very pale blue. One is quoted as having green & mauve wings as above, but its fuselage was over-painted chocolate, brown, obscuring the serial number. All production D.I s were marked with the narrow straight-sided black cross, its sides thinly outlined in white.

Having mastered the technique of working with corrugated foil, there are other possible subjects in the Junkers J.1, CL.1, and some bomber projects. A little experimenting will doubtless reveal other uses for the foil, such as the already-mentioned radiator surfaces, cowlings with scored ventilation louvres, and so on.



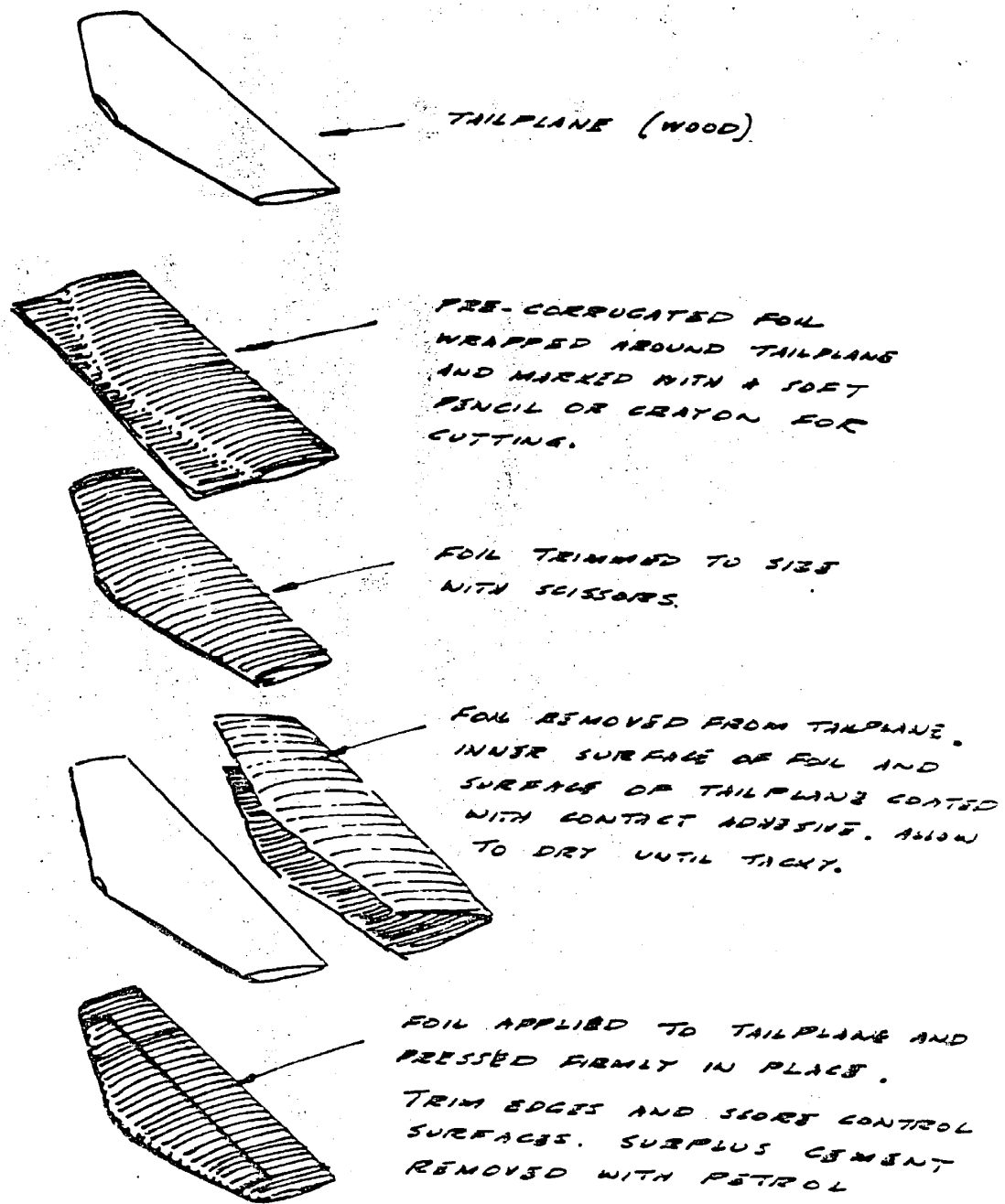


FIG. 1

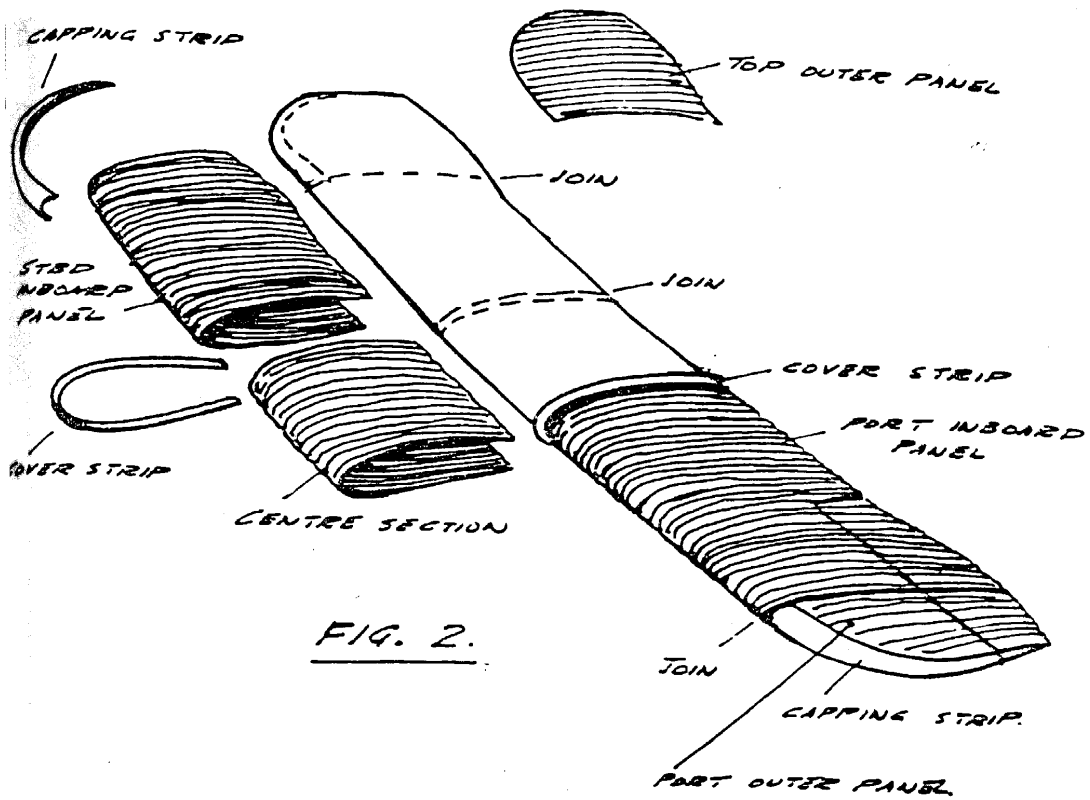


FIG. 2.

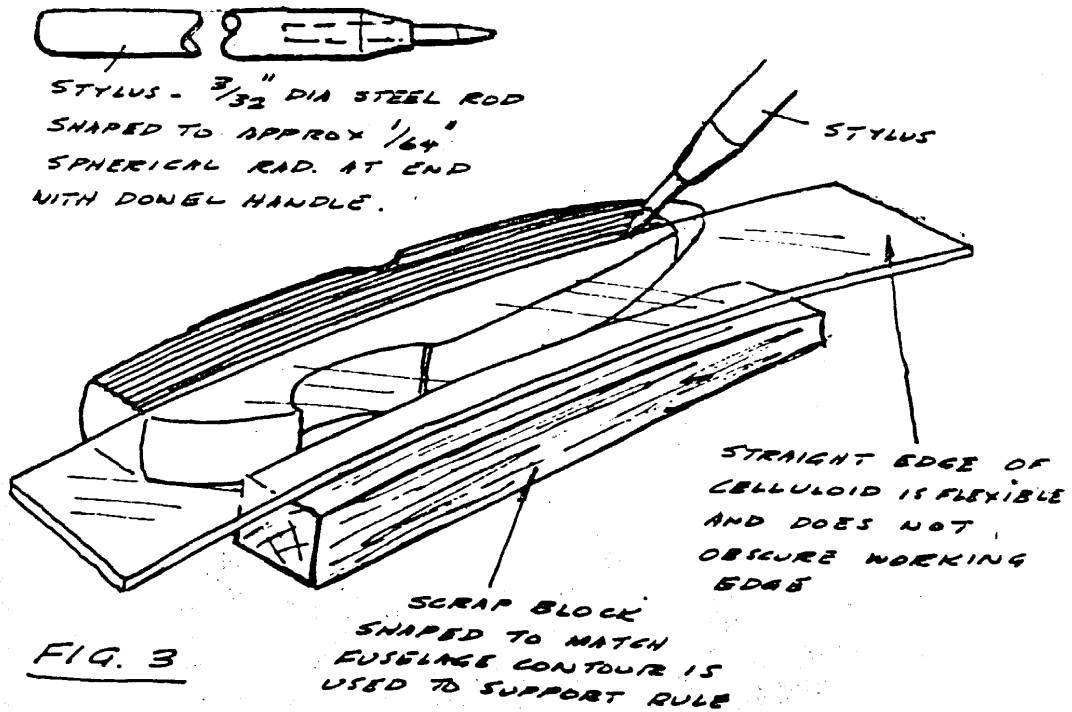


FIG. 3