ANTIQUE SCALE

PROCTOR'S NIEUPORT

NORMAN BUTCHER'S

FOKKER D.VII

IS THE FIRST IN A SERIES OF ANTIQUE SCALE AIRCRAFT CONSTRUCTION ARTICLES TO BE PRESENTED BY RCM. A PRACTICAL FLYING SCALE MODEL, WITH AN EMPHASIS ON THE FLYING, THE FOKKER HAS AN IMPRESSIVE ARRAY OF CONTEST WINS.

What is a scale model? This is one of the most difficult of all questions to determine. I've seen models which vary from starkly practical flying machines, which are admittedly recognizable as the prototype aircraft, to super-detailed masterpieces which, on close examination, turn out to be just as much a caricature. Yet each, for contest purposes, classifly as a scale model along with machines which really deserve the title. I think the answer to the question can only lie with the individual, and if he is satisfied with his creation, then who dares criticize it unless, of course he subjects it to the scrutiny of others by entering contests. This certainly sorts the scale from the semi-scale with the allocation of authenticity points, although the final results usually emphasize the flying ability of the model as well. And why not? It is, after all, FLYING scale!

It was with contest flying in mind that I embarked on this D. VII. I love building and flying models for pleasure, but this enjoyment is greatly enhanced by entering contests. Now the D. VII is a superb contest choice, but this was not primarily what convinced me to build it. After all, there are many aircraft which can offer equal, or better, contest chances, but the D. VII has always intrigued me.

In fact, this is the fourth D. VII I have built and I hope I've now have this particular model out of my system for a few years! To qualify the "fourth" part, I should say that the first two were control-line and, although they won the first two scale aerobatic events held in Great Britain, they were, by present day standards, travesties of a scale model. The third D. VII was the "prototype" of the present machine, but with flat-bottomed wings, sheeted construction, and so on — equally a travesty and, at 10½ lbs. with an O.S. 50, it didn't fly too well either! However, it taught me many things and guaranteed, in advance, the success of number four.

Before embarking on the present version I took a hard look at the objects I wished to achieve:

1. Straightforward model technique construction.
2. Practicality.
3. Good flying ability.
4. Scale authenticity in keeping with (3).

Now, if one studies the F.A.I. rules, it will be seen that although one CAN win purely on flying, or on fidelity, but this pre-supposes the absence of a model which combines reasonable authenticity with reasonable flight performance. I am not a "rivet counting" scale modeler who delights in intricate cockpit details, and so on, but I do insist on authenticity where it really shows — in such matters as wing sections, incidences, control linkages and so on, and it will be seen that attention to these aspects can gain (or lose) as many points as a fully detailed cockpit, for example.

As I built it then, this D. VII is a compromise aimed at good flying and authenticity, to gain high overall contest marks. If to this were added plenty of authentic details, such as is the delight of many scale modelers, then it could be formidable indeed. However, let us consider a further point, which is, that the more time and effort one puts into a model, the more reluctant one is to chance it off the ground. I know some modelers to who it seems an imposition that they should actually have to FLY their models at each competition. Yet, to me, this is the fun of it. If I didn't think I was really going to enjoy flying a particular model, I wouldn't start building it in the first place.

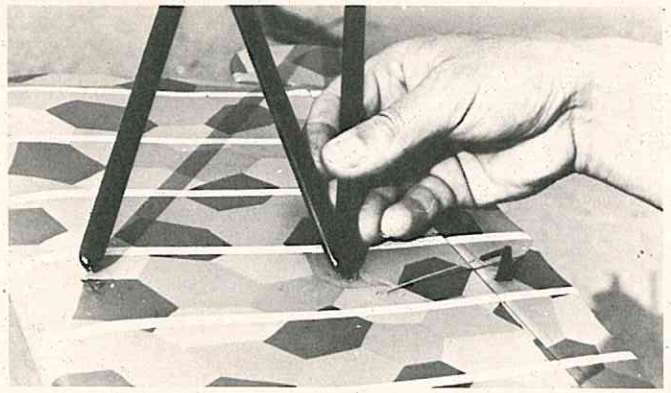
There you have my philosophy of scale modeling. I don't expect everyone to agree, indeed I hope they don't, because I would then cease to learn from more experienced scale modelers, but it has brought me contest success, albeit totally unexpected. When I completed this model for our Nationals, I anticipated a 5th place if I was lucky, because I knew there would be many better scale models present. What I did not anticipate was that my compromise of a good flying score, with rather above-average authenticity and workmanship points, would consistently result in a total winning score. For the record, the D. VII won our Nationals and All Scale Meeting — the biggest events of the year — and also made two other firsts, a second, and third, in National contests.

CONSTRUCTION

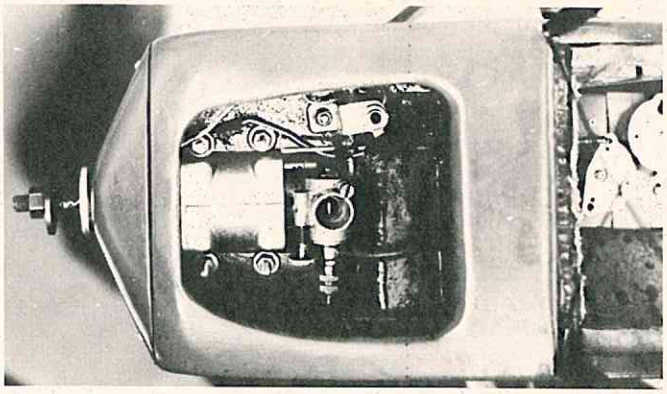
Now let us consider the model itself. No, don't switch off, I'm not going to tell you how to build it — if you can't do that, from these admittedly rather stark drawings, go and learn the basic techniques on something simple, and by that time, you will also have learned to fly! Seriously though, the drawings tell enough for any reasonably competent builder to complete the basic structure, after which you are on your own for details. These varied extensively between different aircraft, so get them form a reliable reading source.

The first point to consider is the engine installation. In Great Britain we have to use a silencer, so I either had to make up an elaborate manifold to

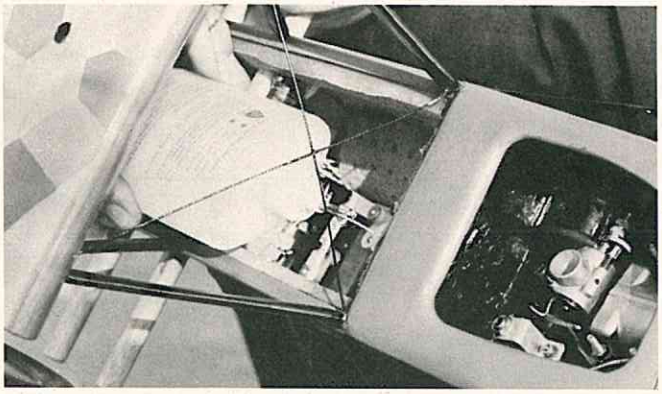
(Continued on Page 49)



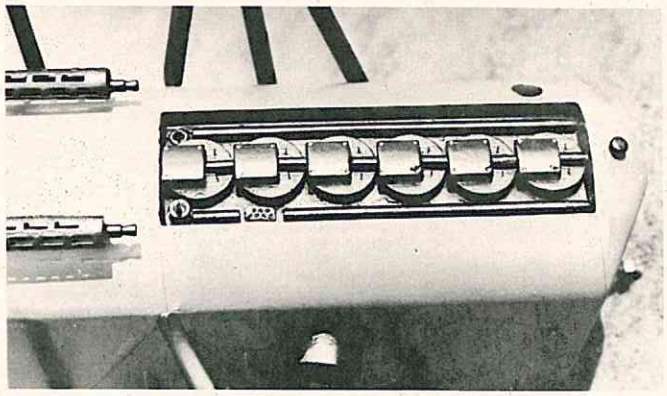
Closeup detail of interplane strut fairing connection.



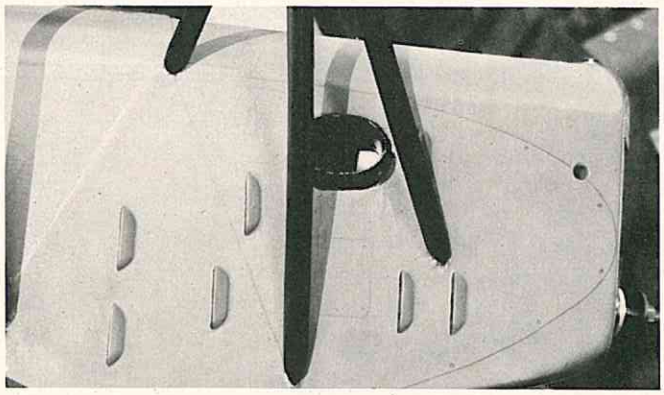
Bottom view of engine installation.



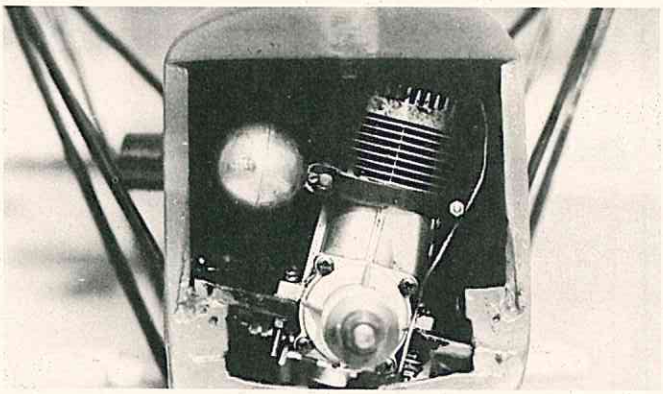
Tank installation detail. Oval glue bottle used.



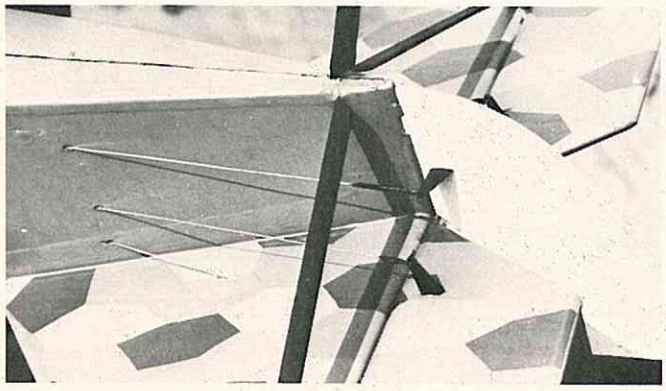
Dummy engine detail illustrates 'practical' scale.



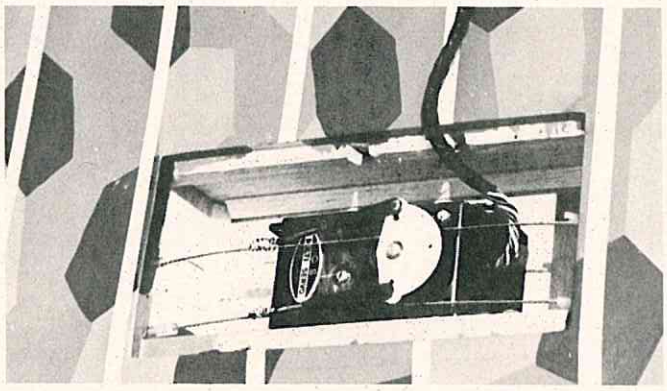
Empennage control wires simulate scale rigging.



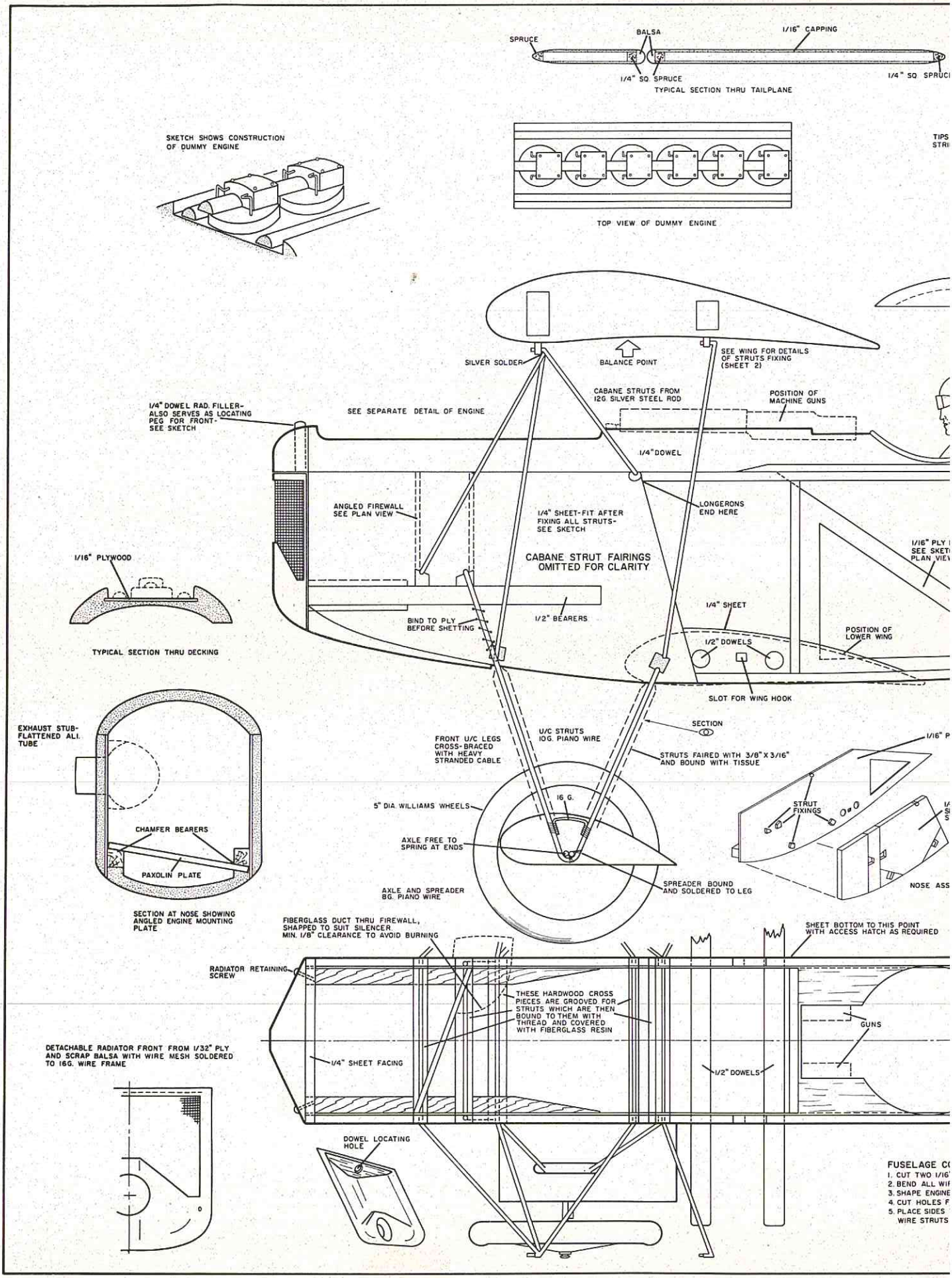
Front view of engine. Note method of clearing muffler.

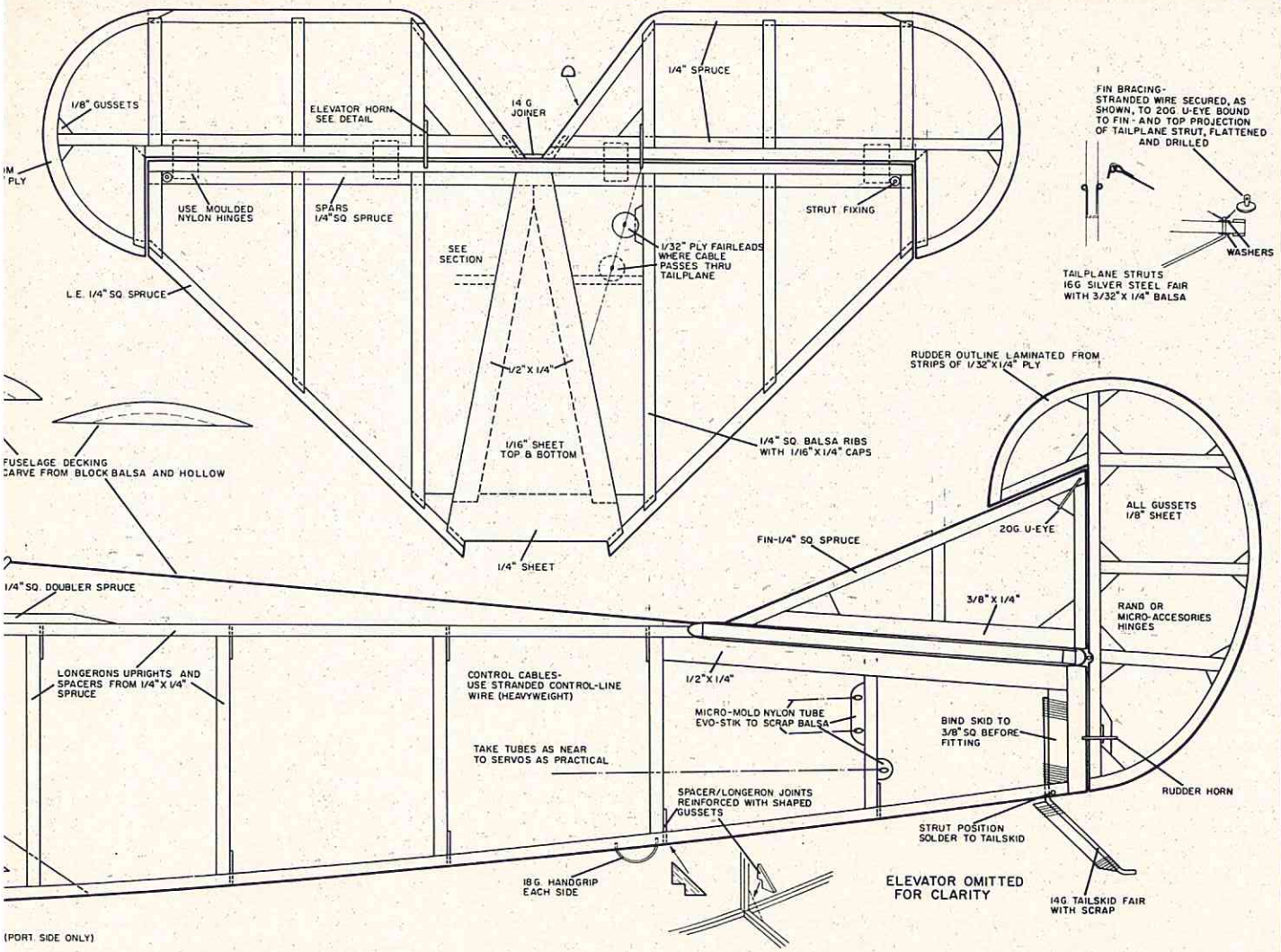


Side view — note end of muffler visible in exhaust.



View of aileron servo linkage.


SPRUCE
BALSA
1/16" CAPPING
1/4" SQ. SPRUCE
1/4" SQ. SPRUCE
TYPICAL SECTION THRU TAILPLANE
SKETCH SHOWS CONSTRUCTION OF DUMMY ENGINE
TOP VIEW OF DUMMY ENGINE
SILVER SOLDER
BALANCE POINT
SEE WING FOR DETAILS OF STRUTS FIXING (SHEET 2)
CABANE STRUTS FROM 12G SILVER STEEL ROD
POSITION OF MACHINE GUNS
1/4" DOWEL RAD. FILLER- ALSO SERVES AS LOCATING PEG FOR FRONT- SEE SKETCH
SEE SEPARATE DETAIL OF ENGINE
1/4" DOWEL
ANGLED FIREWALL SEE PLAN VIEW
1/4" SHEET-FIT AFTER FIXING ALL STRUTS- SEE SKETCH
LONGERONS END HERE
CABANE STRUT FAIRINGS OMITTED FOR CLARITY
1/16" PLYWOOD
TYPICAL SECTION THRU DECKING
BIND TO PLY BEFORE SHETTING
1/2" BEARERS
1/4" SHEET
1/2" DOWELS
POSITION OF LOWER WING
SLOT FOR WING HOOK
EXHAUST STUB- FLATTENED ALI. TUBE
CHAMFER BEARERS
PAXOLIN PLATE
SECTION AT NOSE SHOWING ANGLED ENGINE MOUNTING PLATE
FRONT U/C LEGS CROSS-BRACED WITH HEAVY STRANDED CABLE
U/C STRUTS 10G. PIANO WIRE
SECTION
STRUTS FAIRED WITH 3/8" X 3/16" AND BOUND WITH TISSUE
5" DIA. WILLIAMS WHEELS
16 G.
AXLE FREE TO SPRING AT ENDS
AXLE AND SPREADER 8G. PIANO WIRE
SPREADER BOUND AND SOLDERED TO LEG
STRUT FIXINGS
NOSE ASS
FIBERGLASS DUCT THRU FIREWALL, SHAPPED TO SUIT SILENCER MIN. 1/8" CLEARANCE TO AVOID BURNING
SHEET BOTTOM TO THIS POINT WITH ACCESS HATCH AS REQUIRED
RADIATOR RETAINING SCREW
THESE HARDWOOD CROSS PIECES ARE GROOVED FOR STRUTS WHICH ARE THEN BOUND TO THEM WITH THREAD AND COVERED WITH FIBERGLASS RESIN
GUNS
1/4" SHEET FACING
1/2" DOWELS
DETACHABLE RADIATOR FRONT FROM 1/32" PLY AND SCRAP BALSA WITH WIRE MESH SOLDERED TO 16G. WIRE FRAME
DOWEL LOCATING HOLE
FUSELAGE C
1. CUT TWO 1/16
2. BEND ALL WI
3. SHAPE ENGINE
4. CUT HOLES F
5. PLACE SIDES
WIRE STRUTS



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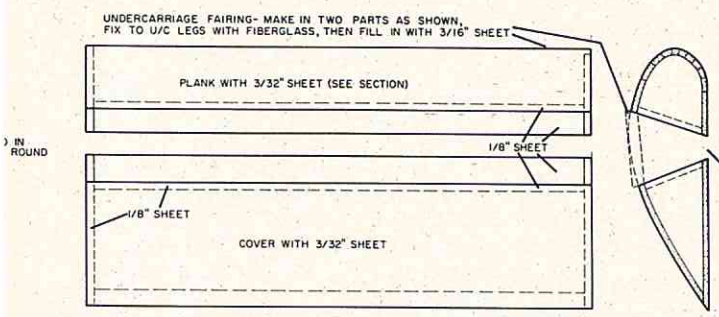
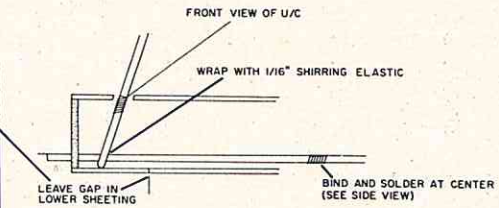
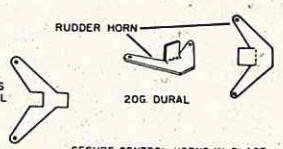
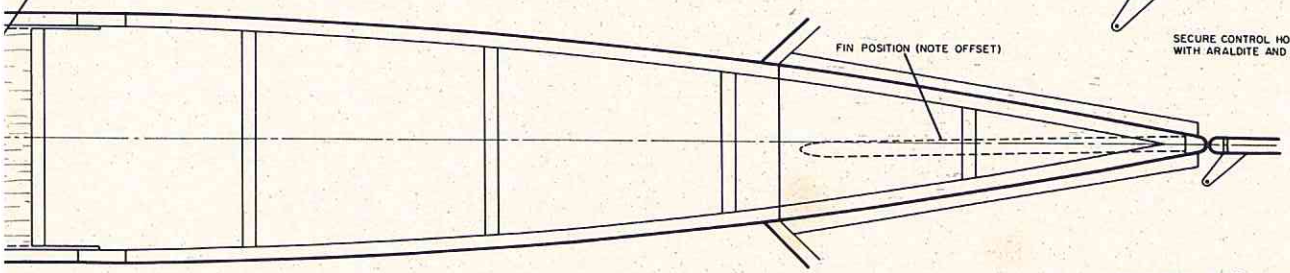






SECURE CONTROL HORNS IN PLACE WITH ARALDITE AND GUSSETS

(PIT SHAPE (REMAINDER OF TOP DECKING OMITTED FOR CLARITY)



SCALE MODEL FOR "FULL-HOUSE" MULTI RADIO CONTROL
FOR .49 TO .61 POWER

N SEQUENCE
TLINE.
HAPE.
CES.
LY SIDES.
THREAD
X-PIECES

6. OPEN SIDES TO EXACT WIDTH, SQUARE UP WITH FALSE FORMERS.
7. GLUE X-PIECES TO SIDES; WHEN DRY BIND WIRE STRUTS SECURELY AND COVER WITH FIBERGLASS RESIN.
8. COVER PLY WITH 1/4" SHEET SOFT BALSA (GRAIN VERTICAL), SAND FLAT AND FLUSH WITH 1/4" PROJECTION OF STRUT MOUNTING X-PIECES.
9. GLUE SEPARATELY CONSTRUCTED REAR FUSELAGE SIDES TO PLY.
10. BEND STRUT ENDS, CUT TO LENGTH AND SILVER SOLDER AS INDICATED.

PLATE 1 OF 2

Fokker DVII

DESIGNED AND DRAWN BY	N.J. BUTCHER	INKED BY	GERARDO FLORES

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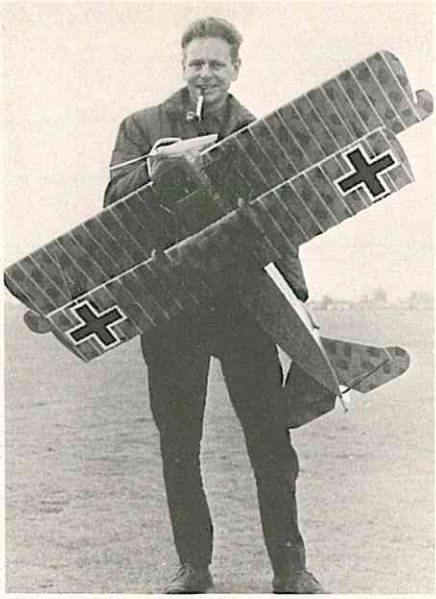
368



Norm holds the Fokker so that the lozenge pattern effect can be seen on the underside of the wings and stab.

FOKKER D. VII

(Continued from Page 24)

suit the most common type of Mercedes exhaust, or else take the easy way out by copying the aircraft which had the exhaust venting half way down the fuselage. Guess which I chose? Right! The exhaust, as shown, is about correct scalewise, except for being too big. Now, to closely cowl the motor, a rear intake device was preferable, and the O.S. Max H 60R, with its reversible carburetor is perfect, allowing a flat tank to be installed in the bottom of the fuselage, and leaving ample room above for the receiver, servos, and battery.

This brings us to equipment. I used O.S. Minitron 12 reeds, because they hadn't let me down in three years of flying. However, proportional is to be preferred and, assuming the popular disc-type output servos are used, it is simplicity itself to couple the control cables to either side of the disc. This scale closed-loop control linkage is simple to install and has given no trouble at all. However, remember that the attachment point of the cable to the control horn must exactly coincide with the hinge line, otherwise differential causes the system to bind solid. O.K.?

You will note that silver steel (mild steel is fine also) is used for the cabane structure, as it is easier to cut and bend. Silver soldered joints are as easy, if not easier, to make than ordinary soft soldered ones, and a lot stronger and neater. For the landing gear, however, 1/8" piano wire is essential, with 5/32" for the axles. You will note some cheating here, with the axle fairing structure repositioned and deepened to allow maximum travel. The system of springing is scale and provides ample shock absorbing, even for some real bouncers.

The wing structures are entirely cantilevered. The interplane struts are for decoration only. The box spars make more work, but pay big dividends in strength combined with lightness. I piled this thing in on its wingtip on the first flight, and it survived almost unscathed. The plywood trailing edge gives a very authentic appearance, but not so the leading edge. It is shown on the plan as it should be, as well as how I did it and, if you want the best appearance, you know what to do.

The dowel fixing of the lower wings has given no trouble at all — except when I neglected the connecting rubber band and one wing slid off — hence the wingtip landing. However, weight could be saved by using a one piece wing if preferred, although there would have to be a cut-out in the leading edge for the rear landing gear strut.

COLOR SCHEMES

Covering is nylon, clear doped as necessary, and then the color scheme added. There are a few all non-lozenge schemes one can use although, apart from Goerings all white D. VII (which color, incidentally, "kills" the shape of the model), any German Air Force ones are of doubtful authenticity. However, after the war several other Nations used the D. VII and there are many "plain" schemes available here. In my view though, a D. VII has to be in warpaint and the lozenges present no real sweat. You trace them with a soft pencil onto the nylon before covering, then fill in the spaces by numbers after clear doping. Even if you use fuel proof colors, you will still have to give a final coat of clear proofer to prevent fuel seepage through the hairline cracks where the patterns join. Details of the lozenge colors are on the plan, the remainder of my scheme was taken from the "Profile" of the D. VII, which saved some work.

Now, whatever scheme you adopt, do not have a glossy finish — it looks terrible. Equally, a completely matte one is wrong. Probably the most authentic is what we call "eggshell', which just has the slightest sheen.

FLIGHT PERFORMANCE

As I've said already, this is not the kind of model you learn to fly with, but anyone who is reasonably proficient will have no trouble. Take-offs are short, with a minimum of rudder correction necessary (it has never ground looped once in well over 100 flights from both grass and tarmac), while landings are slow, and you can hold the nose right up for a 3-pointer, without fear of it dropping a wing. However, with all that built-in headwind, when you chop the motor it is like hitting a brick wall, so I come in with some power on and cut to completely slow motor at about 3-4 ft., when it settles in nicely. Despite a photograph in the February RCM, which would make me out a liar, nose-overs are rare, and only occur through pilot error.

My D. VII weighed in at 8½ lbs., of which 1½ lb., was the reed equipment. With the latest proportionals, one third of this weight can be "lost", with a resulting gain in performance, not, mind you that this is lacking in anything. The O.S. 60, on a 12 x 6 Top Flite nylon prop, will pull her through loops, rolls, reversals, Immelmans, Cuban 8's, wingovers and so on. I did try inverted once, but it stalled out — no need to explain why!

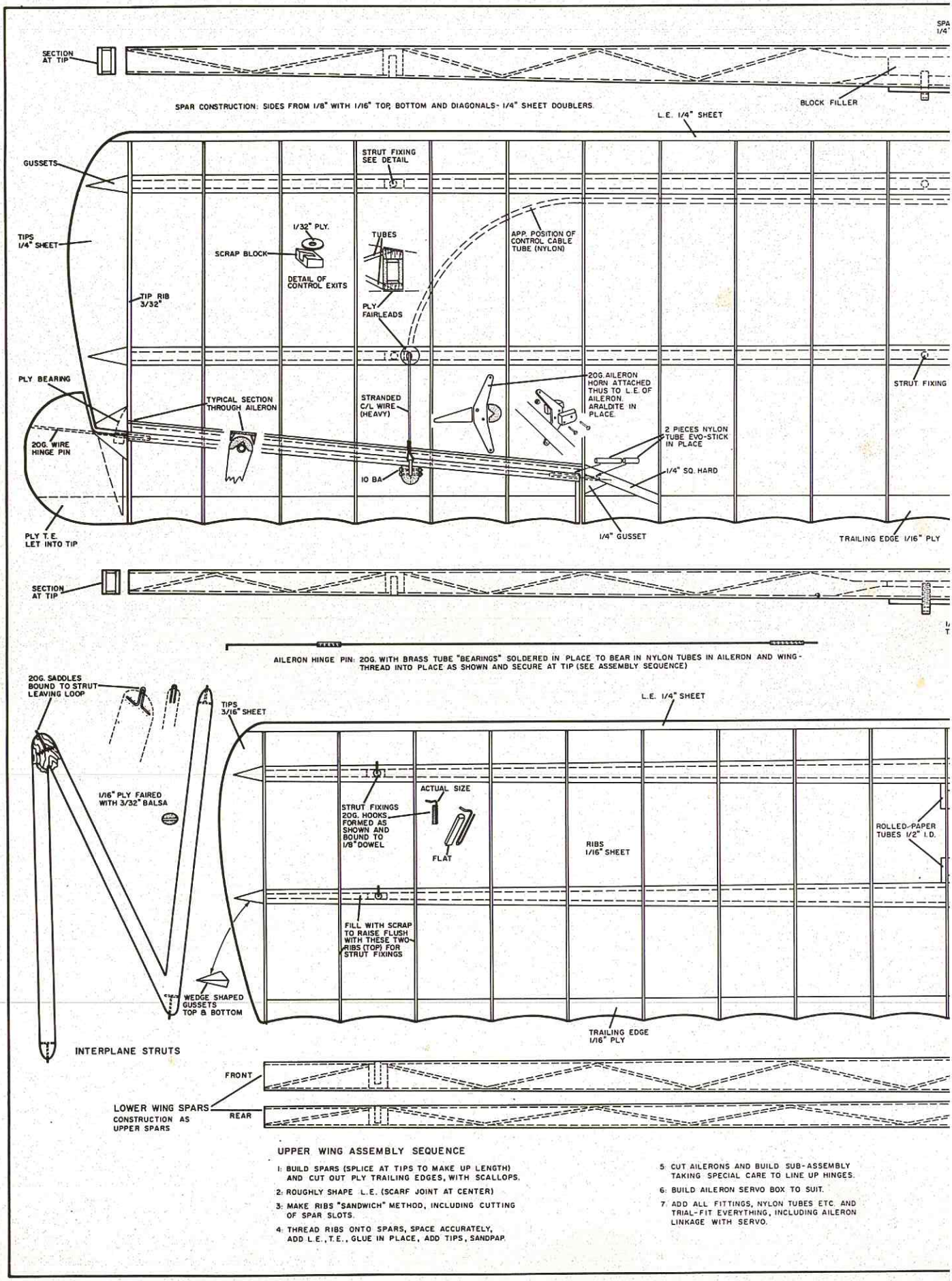
REQUIRED READING

Anyone building models of any of the Fokker aircraft, should obtain A. R. Weyl's definitive study "Fokker — the Creative Years". In addition to telling a fascinating story, the book contains an absolute wealth of information, structural dimensions and photographs, all invaluable to the modeler. But treat the 3-views with care. Harleyford's "Fokker — the Man and the Aircraft", "Aircraft Camouflage and Markings 1907-1954," "Air Aces of the 1914-1918 War" and "Von Richtofen and the Flying Circus" are also most valuable sources, while one can hardly attempt any scale model without the appropriate "Profile".

CONCLUSION

I am letting the thought simmer for the moment, but I might build yet one more of these D. VII's, with the object of making it as definitive as possible. Quite apart from scale details, there are many points I could improve on next time. However, first I must finish the D. VIII, which is well under way as a "warm up" for the Triplane, both having an almost identical fuselage, with attendent problems of a very short nose moment.

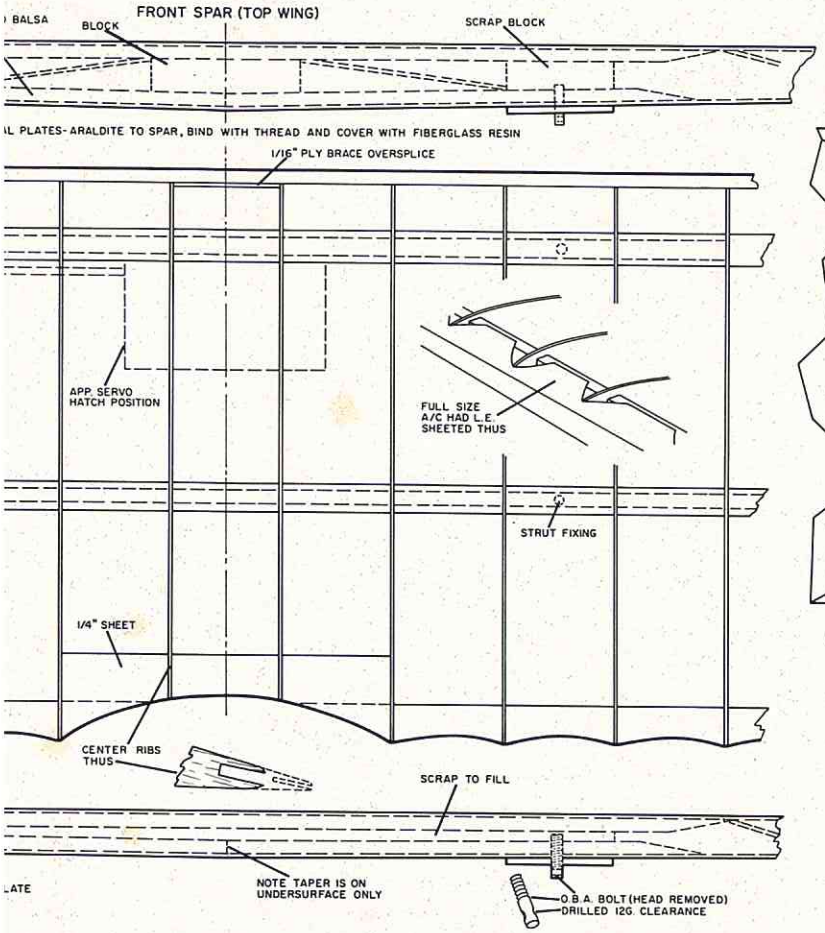
Meanwhile, this D. VII is still in perfect condition, after a year's hard flying from all sorts of fields and in all sorts of weather, which is proof indeed that it is a really practical FLYING scale model. If I have over-emphasized its contest potential, this is because contest flying is my idea of fun. If it's not yours, don't pass over this model as just another contest freak, it is quite capable of giving real everyday fly-for-fun pleasure. Try it and see.



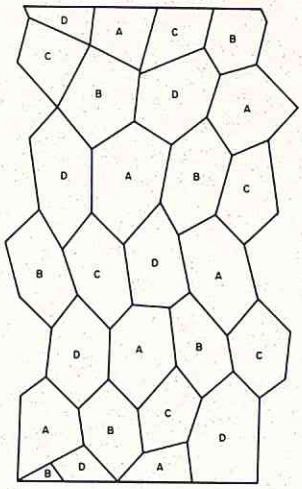
UPPER WING ASSEMBLY SEQUENCE

1. BUILD SPARS (SPLICE AT TIPS TO MAKE UP LENGTH) AND CUT OUT PLY TRAILING EDGES, WITH SCALLOPS.
2. ROUGHLY SHAPE L.E. (SCARF JOINT AT CENTER)
3. MAKE RIBS "SANDWICH" METHOD, INCLUDING CUTTING OF SPAR SLOTS.
4. THREAD RIBS ONTO SPARS, SPACE ACCURATELY, ADD L.E., T.E., GLUE IN PLACE, ADD TIPS, SANDPAP.
5. CUT AILERONS AND BUILD SUB-ASSEMBLY TAKING SPECIAL CARE TO LINE UP HINGES.
6. BUILD AILERON SERVO BOX TO SUIT.
7. ADD ALL FITTINGS, NYLON TUBES ETC. AND TRIAL-FIT EVERYTHING, INCLUDING AILERON LINKAGE WITH SERVO.

ABLE — SEE PAGE 65



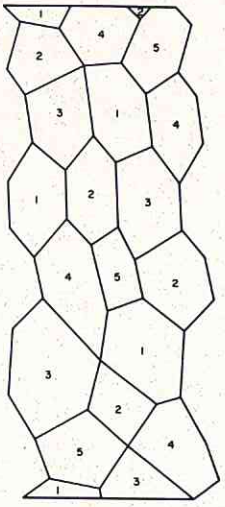
LOZENGE CAMOUFLAGE (PRINTED FABRIC)
PATTERNS REPEATED SPANWISE - WIDTH OF TOP WING MADE UP BY ADDITIONAL STRIP AT TRAILING EDGE. (NOTE: PATTERN WILL NOT "MATCH")



UNDERSURFACE PATTERN

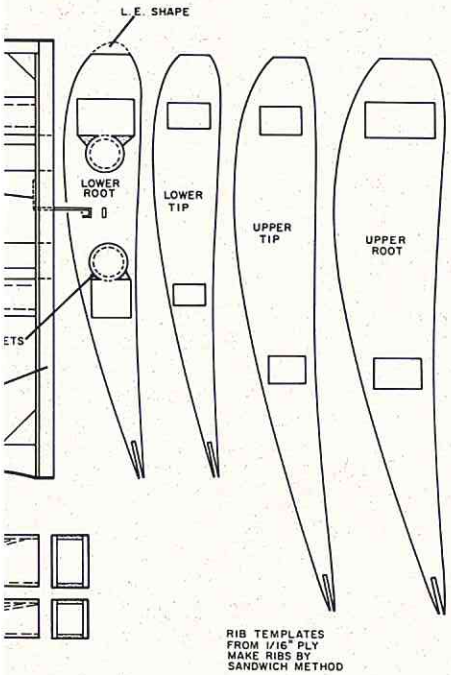
A: PALE COBALT BLUE, TINGED GREY
B: PALE LEAF GREEN, TINGED GREY
C: PALE TERRA COTTA
D: REDDISH PINK TINGED GREY

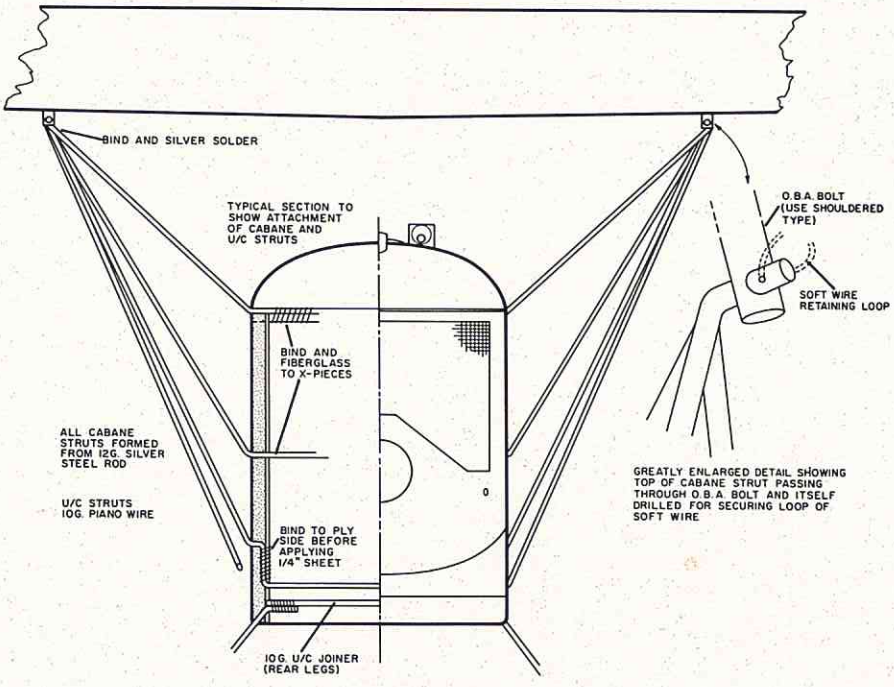
NOTE: SOME DVII'S HAD THE FOUR COLOUR SCHEME OVERALL, WHEN THE UPPER SURFACE COLOURS WHERE:
A: PALE VIOLET TINGED GREY
B: DARK BLUE-GREEN, TINGED GREY
C: WARM BEIGE
D: LIGHT SAGE GREEN



UPPER SURFACE PATTERN

1: PINK, TINGED BLUE
2: LEAF GREEN, TINGED GREY
3: PALE CERULEAN BLUE, TINGED GREY
4: BRIGHT REDDISH PINK
5: CREAM, TINGED CRIMSON





WITH NYLON; DOPE, IR AND FUEL PROOF.
FINAL ASSEMBLY
LERONS.

INDIVIDUAL COLOUR SCHEMES
INDIVIDUAL SCHEMES, INSIGNIA AND OTHER DETAILS ARE GIVEN IN PROFILE PUBLICATIONS NO. 25

PLATE 2 OF 2

Fokker DVII

DESIGNED AND DRAWN BY	N. J. BUTCHER	INKED BY	GERARDO FLORES

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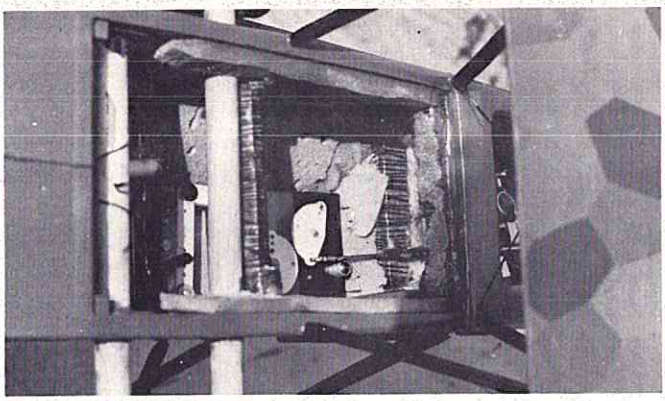
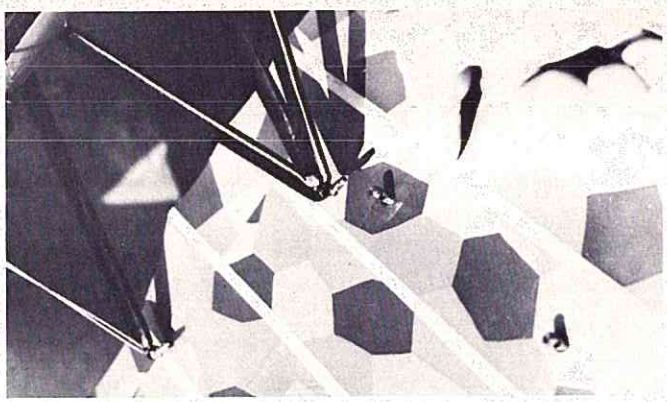
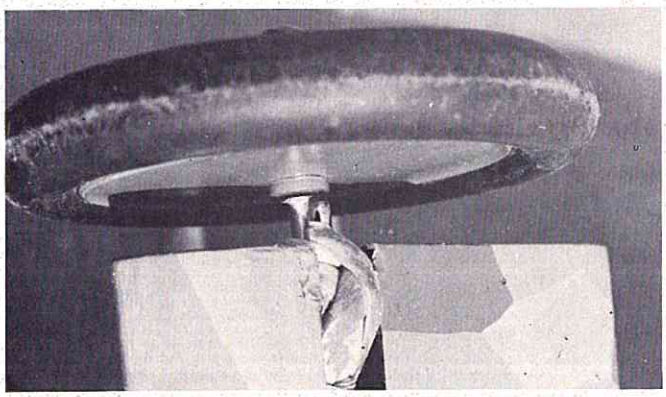
368



Interior view showing O.S. servo installation.

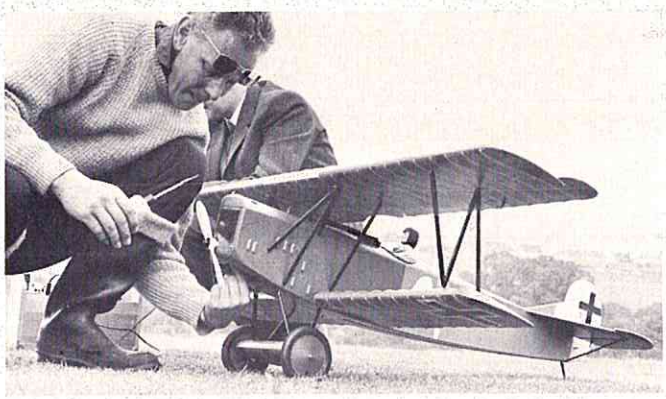


Detail of cabane strut fairing.

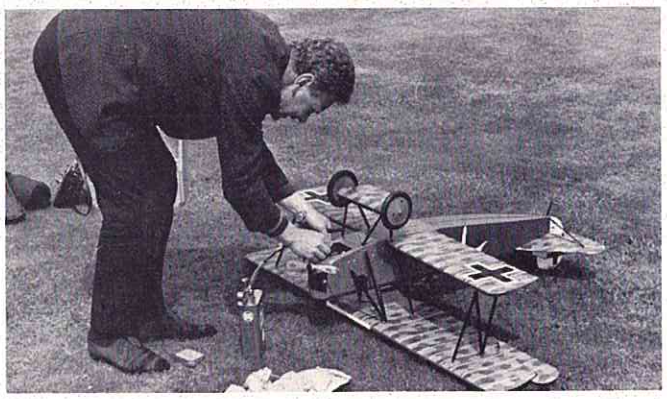


Undercarriage springing. Rubber replaced by elastic.

Profile view of Fokker D. VII.

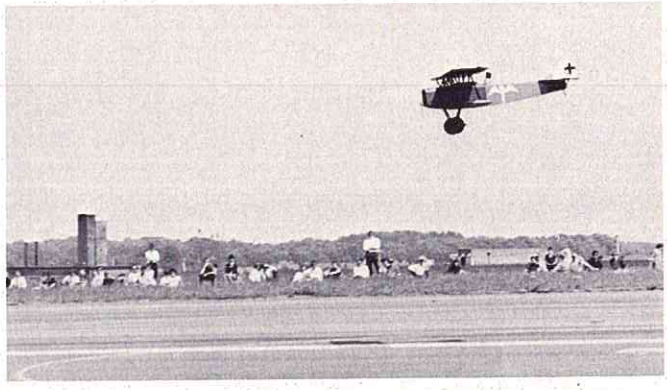


Opening the needle valve prior to starting.



Filling the glue bottle tank.

Judging at the Bath Festival Rally.



End of 3rd Place flight at Bath Festival.