the Fokker D-7

by DICK ENOS and SHORTY WRIGHT

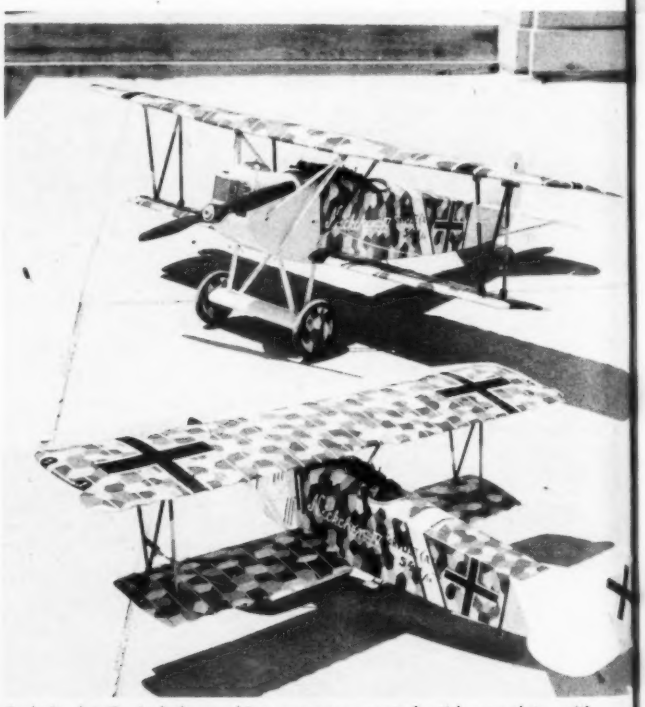
"We actually lived out these models, and felt the excitement that the fliers of the originals must have felt when airborne in their D-7's," say Dick Enos and Shorty Wright of the twin masterpieces.

We decided to build the Fokkers after seeing Joseph Nieto's drawings in the 1951 August and September issues of MAN, using a scale of 1-1/4 in. to the foot. The only prefabricated parts are the compasses, engines and propellers. Both models are covered with silk with all lettering and details hand painted. The wingspan is 37-1/4 in. Both were successfully flown with an Atwood Champ .60 engine.

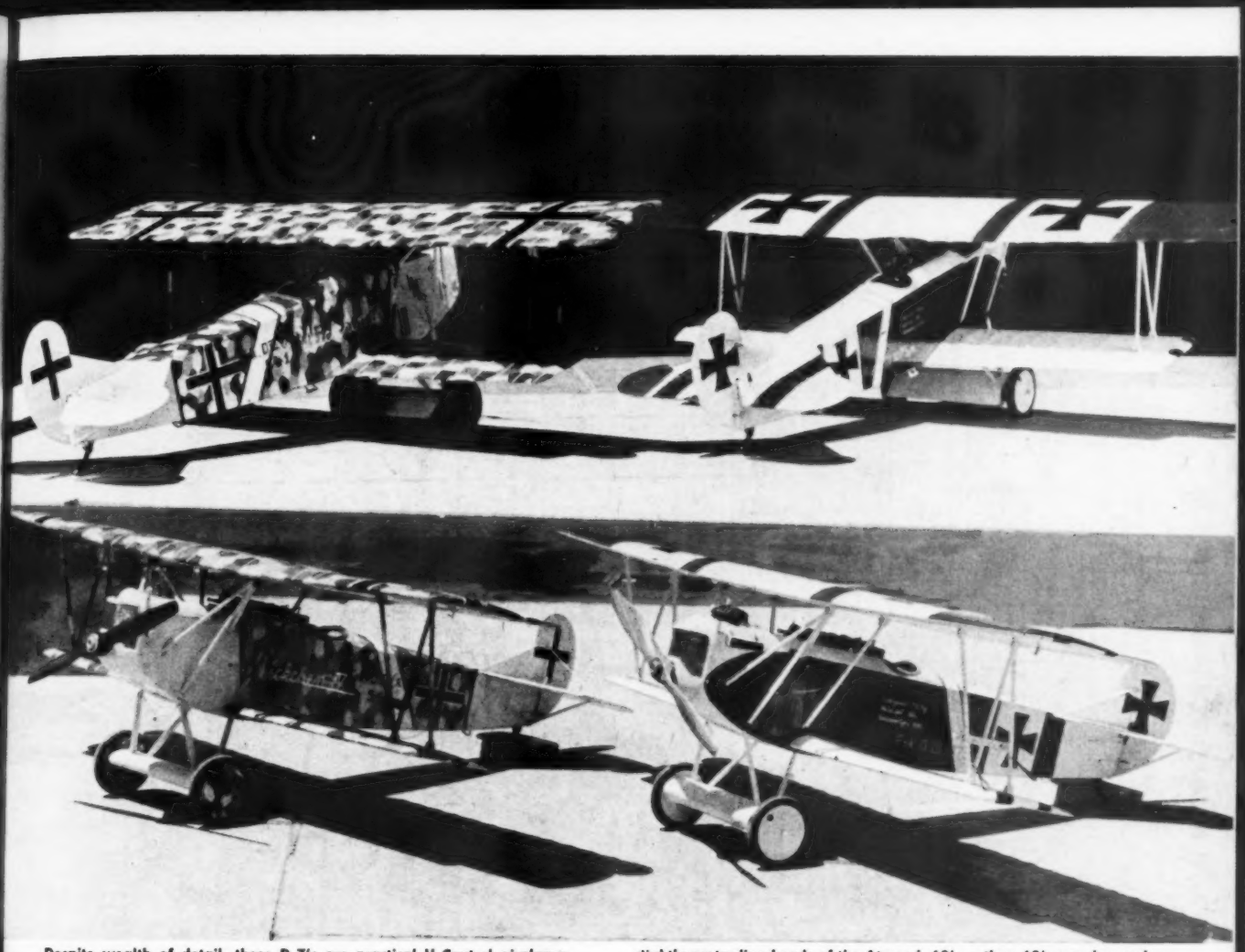
The fuselage is built up with 1/4 in. sq. medium hard balsa. The forward section of the fuselage is laminated, a core of 1/8 medium sheet balsa and 1/16 sheet plywood sides. This forms the front curve to the bottom of the fuselage where the lower wing recesses, then tapers along the lower longeron. The lamination is made before this section is cut. By this construction we found scale lines could be followed with maximum strength needed in this area. When both laminations are completed, the upper and lower longerons are spliced into position, cemented and clamped until dry. These sections are placed over the drawings and both fuselage sides then built.

When the fuselage sides are built, locate the motor mounts

Both D-7's are precise scale, including the paint schemes. Machine guns, visible in rear view, are built up of sheet brass and wood; are removable.



Cockpit details include working compass; control stick complete with auxiliary throttle; machine gun trigger; throttle and spark controls; pedals.



Despite wealth of detail, these D-7's are practical U-Control airplanes. Wings disassemble by means of fittings, nuts and bolts. Except for the slightly protruding heads of the Atwood .60's—other .60's may be used—and the lead-outs for line attachment, ships would pass for real thing.

inside to suit the engine to be used. The rear sections of the fuselage sides are brought together, cemented and clamped and the remaining cross braces put in.

Locate and secure No. 1 and 2 bulkheads. The No. 2 bulkhead locates the gas tank and the front landing gear strut. No. 3 bulkhead is then made and cemented into position. This bulkhead locates the rear landing gear struts and the bellcrank foundation. The platform is made of 3/32 plywood. The bellcrank is now located and the elevator control wires installed according to the drawings.

The stabilizer is built from the drawings and cemented securely to the fuselage. It will be necessary to cut away a small section of the upper rear corner of fuselage for elevator control horn travel. The elevator is then built with the elevator horn and the scale horns attached before it is hinged to the stabilizer. The rudder fin is built and cemented securely to the stabilizer. The rudder post runs down the rear section of the fuselage. Notch the post wherever necessary for elevator control horn clearance. Build the rudder and attach rudder horns, then hinge to the fin the same as elevator. Fabric hinges are used. Now it is necessary to build the cockpit and all cockpit details so that all control cables can be connected before covering.

The floorboard is made of 1/16 plywood. The control stick is of dowling and sanded to shape. The pivot section of the control stick is made of brass tubing. The tubing on the control stick has an elongated hole drilled to give forward and backward motion. The pivot bar passes through this hole by a small hole drilled horizontally through both and a pin secured through it. This pivot bar, made of 1/16 in. brass tubing, is anchored at each end with short pieces of tubing soldered to brass plates and anchored to the floorboard. This acts as the bearings. At the front end of the pivot bar the rudder pedals are located.

An upright shaft is soldered to a short piece of brass tubing through which the pivot bar passes. This tubing also has a plate soldered to it and anchored to the floorboard. The rudder bar is built to swivel on this shaft and is made of 1/16 steel wire. Two loops are formed for the toe rest and are soldered on the rudder bar. A small eyelet is mounted on the inside of each loop. The rudder control cables pass through these and are secured by wrapping and soldering. The heel plates are then installed.

Two eyelets are placed on the control stick for elevator control cables. Control stick accessories are built up of scrap balsa and (*Continued on page* 40)

These magnificent miniature Fokker D-7's perform as well as they look. In 1-1/4 inch scale, they are the absolute top in realistic flying enjoyment. Completely detailed drawings appear on the following two pages.

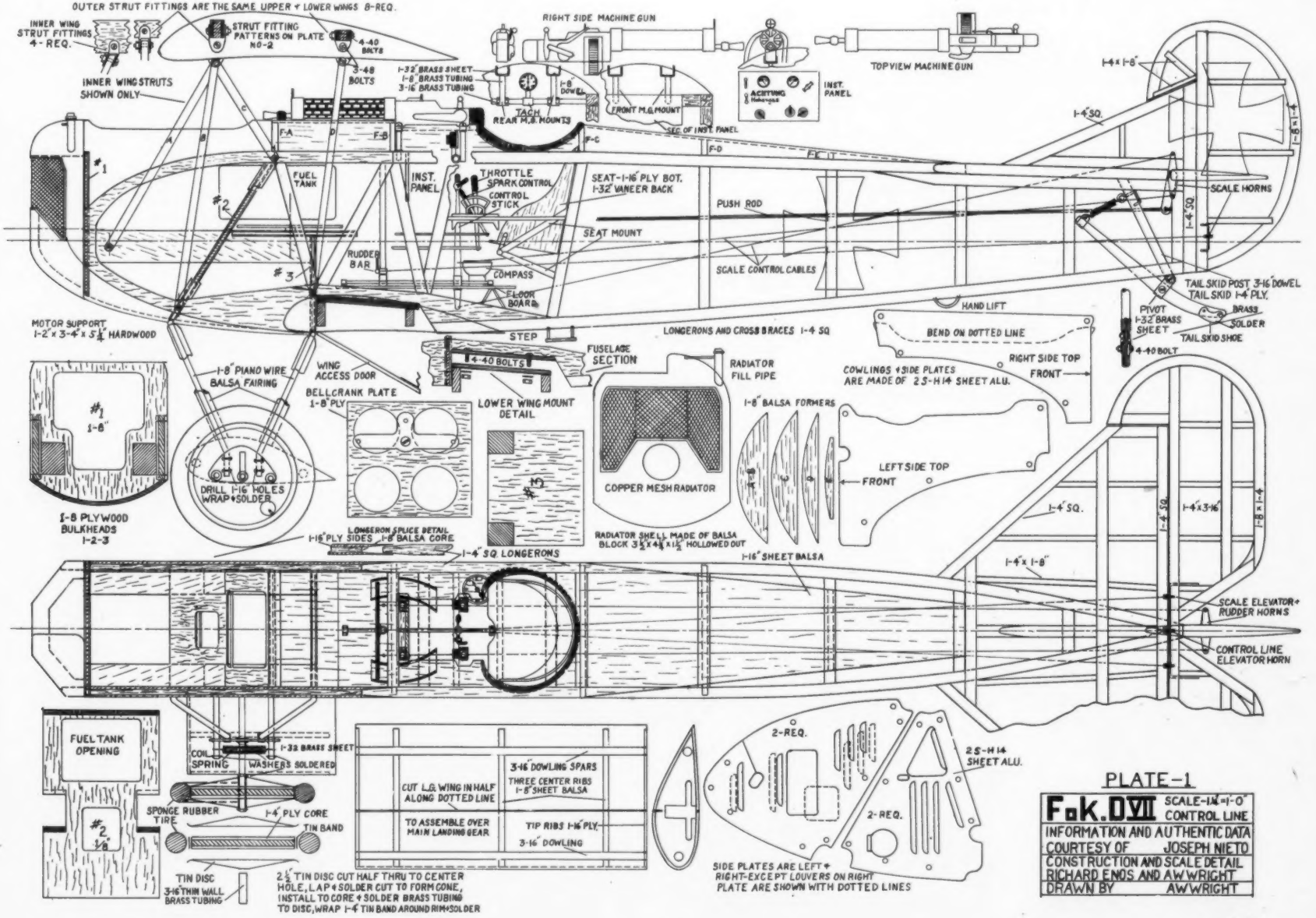


PLATE-1

Fok. D VII	SCALE-1" = 1'-0" CONTROL LINE
INFORMATION AND AUTHENTIC DATA COURTESY OF	JOSEPH NIETO
CONSTRUCTION AND SCALE DETAIL	RICHARD ENOS AND A.W. WRIGHT
DRAWN BY	A.W. WRIGHT

FULL SIZE PLANS FOR "FOKKER D-7" AVAILABLE. SEE PAGE 50.

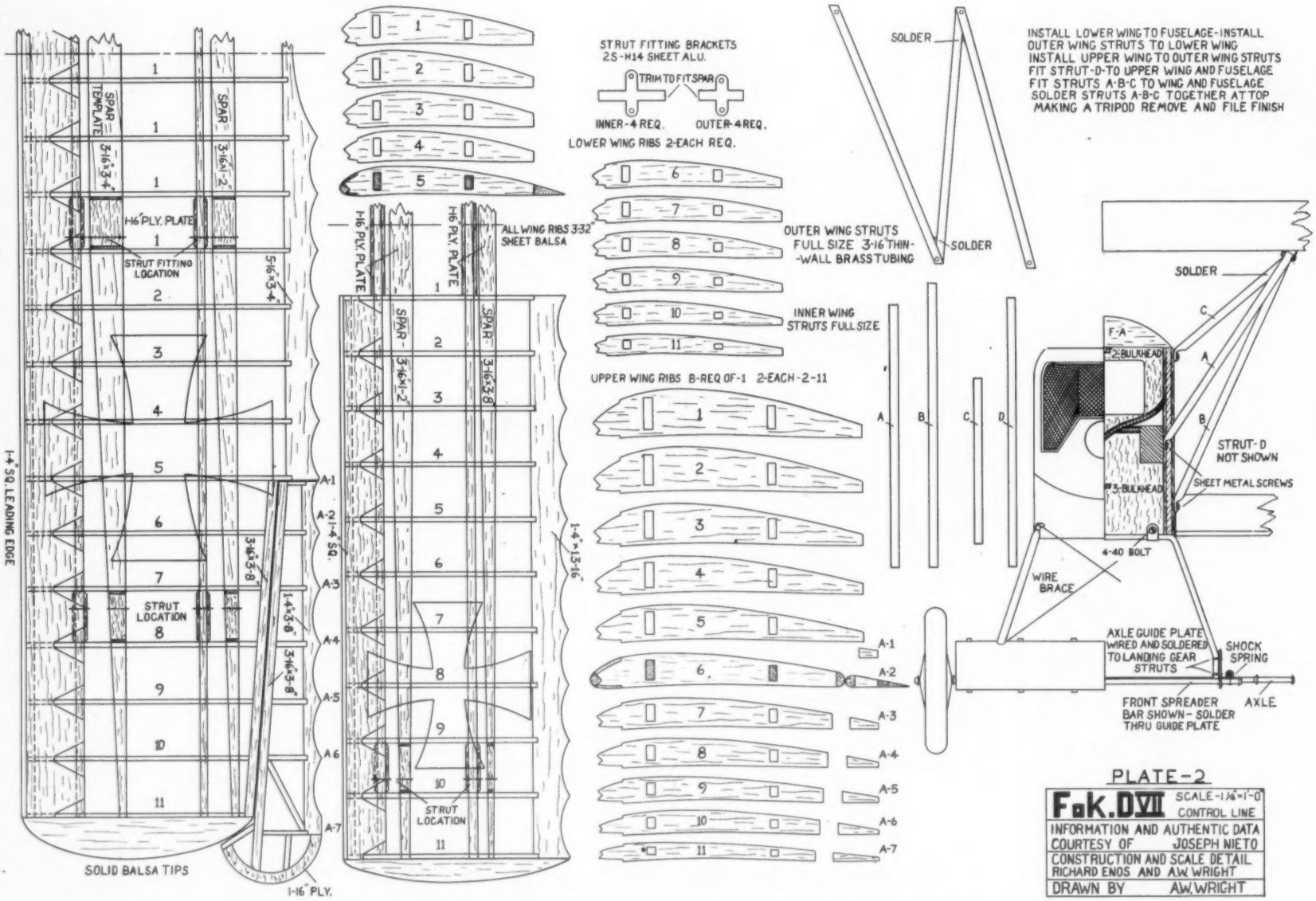


PLATE-2

FoK.DVII	SCALE-1½"=1'-0" CONTROL LINE
INFORMATION AND AUTHENTIC DATA COURTESY OF	JOSEPH NIETO
CONSTRUCTION AND SCALE DETAIL	RICHARD ENOS AND A.W. WRIGHT
DRAWN BY	A.W. WRIGHT

FULL SIZE PLANS FOR "FOKKER D-7" AVAILABLE. SEE PAGE 50.

developed models that would pay off in this kind of weather. Judging from the early morning test flying we saw going on prior to the contest, there were several models capable of doing *well over* five minutes every time—from a standard 328 ft. line. Had the expected weather conditions prevailed at the contest, there would almost certainly have been a good number of treble maximums in this year's results.

There were so many interesting designs at the meeting, it would take pages to describe them all, so the photos will have to speak for themselves. However, we couldn't finish without at least mentioning two outstanding models that caught our attention. Oskar Czepa had a graceful development of his Toothpick '51 winner, which featured an ultra-thin solid balsa wing and stab. He put up a maximum in Round One, but the rain upset the delicate trim and he didn't stand a chance after that. His fellow Austrian team member, Gerald Skalla, also flew a sheet surfaced design (he placed sixth), which had elliptihedral tips and a bird section based on that of the Flamingo (Czepa used an Eagle section).

Several entries sported elliptihedral tips and one mid-wing Dutch entry had full-span dihedral of this kind. We noticed a few models fitted with turbulators (Denzin had one on his stab), some slightly swept-forward wing plan forms and a frequent use of dihedralled stabs. As usual, auto-rudders were a standard fitting. The most noticeable trends, however, were toward longer fuselages, smaller stabs (one Yugoslav entry had a 9 per cent area stab), smaller fins and higher aspect ratio wings. From the many fine examples we saw at this contest, we can quite definitely say that model glider design has reached a stage at least as advanced as that of the present day Wakefield—and that, as anyone who attended the '53 Wakefield will tell you, is saying plenty!

RESULTS OF 1953
A-2 WORLD CHAMPIONSHIPS

		1	2	3	TOTAL
1.	Hans Hansen (Denmark)	300	300	300	900
2.	Karl Heinz Denzin (Germany)	285.4	300	258	843.4
3.	Jean Pierre Templier (France)	300	235	300	835
4.	Bora Gunic (Yugoslavia)	300	270	254	824
5.	L. Bausch (Holland)	300	251	265	816
6.	Gerald Skalla (Austria)	200	300	300	800
7.	Walter Schönborn (Saar)	211.7	288	300	799.7
8.	Giovani Federici (Italy)	452	300	281.3	733.3
9.	Lennart Persson (Sweden)	300	243	189	732
10.	Borge Hansen (Denmark)	242	290	195	729

the Fokker D-7

(Continued from page 15)

wire, formed to shape and located. When the floorboard assembly is complete it is located in the fuselage and cemented. The elevator and rudder cables are then connected to horns in the tail assembly. The instrument panel is then built and cemented into place. The compass used was on a small magnifying glass which was found in a novelty shop, its size to scale. This is now placed in position. Now the hand pump is built and placed on the right side of instrument panel. The seat frame is built and cemented to the fuselage, then the seat made and cemented into place. The cushion is of sponge rubber cemented to a plywood base covered with suede and pins used for a button effect. The throttle and spark control are then made and installed on the left side of the fuselage. The tachometer is mounted on the tubular cross-

(Continued on page 42)

bar on which the rear gun mounts are located. Build the front gun mounts and locate. This completes the cockpit except for the machine-guns.

At this time the formers A, B, C, D & E are made and placed into position. The cowl covering A and B formers is made to template and 1/16 balsa fairing is placed over formers C to E. The tail skid and landing gear are next to be built.

The entire tail skid assembly is made as a unit and installed. The main body of the tail skid is cut from 3/16 in. plywood. The metal pivots, brackets and the shoe are made of 1/32 in. brass sheet. The shoe is secured to the tail skid by drilling two small holes, placing pins through them and soldering. The swollen portion on the bottom of the shoe is built up of solder. The pivot bracket is made up of two parts: one flat and cemented into the slot at base of diagonal dowling and wrapped to form the pivoting body; the other formed around the tail skid and attached to the pivoting body by a 3/48 machine screw and nut. This part is secured to the tail skid by drilling a small hole through bracket and skid body, placing a pin through and soldering. The bracket at top of tail skid is formed and cemented into position; the spring for shock action is secured to it at one end and secured through eyelet on diagonal dowling at the other end. The tail skid assembly is then cemented into position in the fuselage.

The landing gear is 1/8 steel wire formed in two sections, front and rear. Two metal plates are made of 1/32 brass sheet. These brass plates bond the two landing gear struts together and are the foundation for the spreader bars and shocking mechanism and are also slotted for the axle travel. After these plates have been soldered to the landing gears the spreader bars are soldered into place. Cut the axle shaft from 1/8 steel wire to length and place through slots in brass plates. Evenly divide the shaft and solder a washer on each end allowing 1/32 in. clearance between plate and washer. This prevents the axle from sliding out of position. Small springs are used for shock cords. Small metal brackets are wrapped around top of landing gear wires and drilled and bolted to the front side of bulkheads No. 2 and 3.

Before the lower landing gear wing is made and the struts faired, the nose block is made and the bottom of the fuselage planked to the lower wing recess. The nose block is carved to shape from solid balsa. The opening in the front of this block allows sufficient engine cooling and scale radiator appearance. The radiator grill is made of fine copper mesh wire and cemented into place. Locate the radiator and mount, cementing to No. 1 bulkhead. After this has completely dried, plank the bottom of the fuselage nose section. This hides the cross-over wire of your landing gear struts. The hole for the propeller shaft of the engine you have chosen is now cut in the radiator shell. We found in using an Atwood .60 that an extension was necessary. We used an Atwood 49-51 extension shaft by filing off the sixteenth flange at the back of the extension. This slips over the 60 shaft against the original ignition cam and the propeller nut and washers from the 49-51 are used.

The landing gear wing is built from the drawing, then cut at the center line and cemented over the landing gear assembly. The front strut crosswires are added. Then the landing gear struts are fared.

We found it impossible to locate wheels of the exact scale size and authentic appearance. Therefore, we made our own in the following manner: the core of the wheel is made of 1/4 in. plywood with two cone shaped discs on each side. The discs are made of metal from an old fuel can. Select

flat material. The templates are found on the drawings, the seam is lapped 1/16 in. and soldered securely to form the proper cone.

The rim flange is then flared out. 1/8 in. inside diameter brass tubing is put through the center and acts as a bushing. The wheels are then lined up very carefully and soldered to the discs on all sides. A band 1/4 in. wide cut from an old fuel can is wrapped around the plywood core and tack soldered securely to the discs, then solidly soldered around, and filed to a radius for tire recess. The tires are made of 1/2 in. round sponge rubber found in the windlacing of automobiles and available at any auto trim shop. Peel off the fabric cover, fit around the wheel and secure with any good rubber cement. The air valve hole on the outside disc of each wheel is drilled 1/4 in.

All of the lower wing parts should be cut first. Both of the lower wing spars taper from the bottom and the top as well. Mark wing rib positions on spars, slide ribs over spars and locate. Notch the trailing edge for the wing rib recess and cement into position. Then taper the leading edge and cement. Templates for lower wing strut brackets are on the plans (make four). The brackets are formed and holes drilled, then they are located and the spar which has been reinforced with 1/16 in. plywood is marked for drilling. These brackets are bolted into position with 3/48 machine screws and nuts.

The cap stripping on the leading edge can now be made and cemented into position; this is on the top and bottom of each wing. After the wings are complete the trailing edge is scalloped. Sand this carefully so that the points will not be broken. A 1/16 plywood plate is cemented on top of the wing spar at center section. This bolts to the fuselage at the lower wing recess where a 1/16 plywood plate is placed. Both plates are fitted together, marked for the four bolts and drilled. The bolts are then placed in fuselage section from the top and cemented securely. The four bolt holes in the lower wing section are elongated as the lower wing leading edge is slid into position first and the back edge falls into place. Bolt the wing to fuselage temporarily. Build the lower wing cover door and hinge at front, with a brass spring friction lock placed at the back. This holds the door in position.

The upper wing is built from the plans in a like manner. However, the spars taper only from the bottom. The outer wing strut brackets are made from template and mounted on the underside of this wing in the same way as the lower wing. Take special note that you have placed the brackets on the two wings in corresponding positions. The inner strut brackets are made differently from the outer wing strut brackets, as they angle in toward the fuselage.

All of the wing tips are made of solid balsa carved to shape. After the construction of both wings is completed, make the outside wing struts. The exact size will be found on the drawings. All of the struts are made of 3/16 brass tubing. When the N struts are completed bolt them to the wings to suspend the top wing above the model. The inner struts are then built. All of these are flattened out on the lower end where they fasten and bent to desired angles, filled with solder for reinforcement. These are marked A, B, C and D. B and D are through struts; they are bolted to the wing with 3/48 machine screws and nuts and wood screws secure them to the fuselage framework. There are two each of B and D. After these struts are in place, A strut is cut to length and is fastened to the motor mount with wood screws, filed carefully to fit at top of B strut and tack soldered. There are two of these. C strut is made in like manner but is screwed to the upper longeron. When A and

C struts have been tack soldered, place model in inverted position and solder A, B and C struts together securely, checking wing alinement. The wings and D strut are removed at this time and the soldering is filed smooth. These tripod struts are left on the model while the aluminum cowl panels are made.

The cowl panels are made of 2S-H14 sheet aluminum. They are cut from templates shown on drawings. The louvers are then cut and shaped and the doors made and attached. The louvers on the two front panels are different, as noted on the plan. Drill the holes for attaching to fuselage and attach with small wood screws. Make hole in front panels for A strut to pass through and slot to outside edge. This allows panel to be removed and replaced without disturbing the strut. Before painting, these panels must be primed with zinc chromate. Remove the panels and struts before you cover.

Silk or a heavy grade of Silkspan can be used. Apply three coats of clear dope before applying color. For scale color detail refer to the Aug.-Sept., 1951 issues of MAN. After your color detail is finished, the external scale details can be completed.

The receiver body of the machine guns is made of balsa; add the hardware, then make the barrels and attach. The barrels are of very thin metal and the holes made with a small punch which may be an old screwdriver ground to shape. The barrels are stamped with a hardwood block for a backup, then formed in a tubular shape. At both ends of the barrel cylinder add a small balsa plug. Holes are drilled at the base of the balsa plugs to receive a 1/16 in. dowling passed the length of the barrel and extending 3/16 in. beyond the back plug to help secure the receivers. Cement barrel and receivers securely together. A small ring crosshair site is made and cemented to the top front edge of the machine gun barrel. The nozzles are carved to shape and cemented to the front of the guns.

Mount the guns. Running a pin through the small holes in the mounts will secure your machine guns to the fuselage. The ammunition belts and shell ejection tubes are now made and secured to the fuselage and receivers. This completes construction of your model. The gas tank and engine can now be installed and the model assembled.

END

Radio Control News

(*Continued from page* 30)

These ships weighed between 6 and 6 1/2 lb. and featured five tube, two channel audio filter receivers. The actuators for rudder, elevator and engine were, naturally, Bonner escapements. Another example that the escapement is far from being counted out, even on multi-channel installations. Inverted flying seemed to be second nature to these two ships.

From the East Coast the boys from Jersey were out en masse with Fran McElwee flying a last year's converted 6 ft. low wing ship. This plane used a Schmidt five channel reed unit and was capable of low level maneuvers.

Last but definitely not least was the winning of first place by Jack Port of Fairborn, Ohio. Jack spent all of the week until Thursday at a nearby abandoned airport checking his ship. This procedure really paid off in a well trimmed model. The plane itself was a 5 ft. job using rudder-only control and Jack's own design receiver. This was a hard tube receiver employing a CK5672 tube and a Sigma relay. The plane and escapement were modifications of the writer's design of several years ago. Incidentally, the radio installation in this model is one of the neatest we've ever seen and this one item alone gave him more time to concentrate on trimming the plane itself, instead of repairing and checking the radio.

NEW YORK MIRROR FLYING FAIR

The fifth New York Mirror Flying Fair saw the weather hot and the wind steady at about 18 mph. Approximately 30 ships were on the field, including Live Wires, Rudderbugs, Bootstraps, Robots and original designs. Radio equipment included the ED line of carrier and tone operated sets, Miller and Lorenz receivers. Aerotrols, simple singles, C-S 465 mc and originals using single RK-61's. The majority of flying was done on 27.255 mc and an occasional trace of interference was picked up on this frequency by several DF loop receivers. 50-54 mc and 465 mc were also used.

Mr. F. P. Jacobs of Woodridge, N. J., took first place with his Forster .29 powered Rudderbug. Using two single RK-61 receivers in the 50-54 mc band, rudder, elevator and engine control were obtained through the use of Bonner escapements, and a pulsed Wilson electric motor. Fran McElwee of New Jersey came in second with his original Robot, using a Lorenz receiver and rudder actuated by an original escapement.

We did see some wonderful amphibian flying. Henry Struck flew his new 5 1/2 ft. 550 sq. in. creation powered with an Arden .199. Rudder-only was had with Aerotrol escapement and receiver. The entire hull was waterproofed, even to the extent of a rubber gasket on the radio hatch cover. Take-offs and landings, on the removable two wheel gear, were perfect and we understand the water performance characteristics are likewise perfect.

The Mirror Meet uses a basic point system and no particular pattern has to be followed when flying.

EASTERN RC CONVENTION

The third annual Eastern RC Convention was held at Selinsgrove, Pa., during the Labor Day week-end. Perhaps this get-together should be more affectionately known as the RC Rainmakers' Conference since this is the third year in a row there has been rain for at least one and a half of the three days.

The Pittsburgh Flying Circuits are the originators and directors of this unique meeting of RC manufacturers, writers, designers, committeemen, etc. There is no contest flying but everyone gets in the air. The days, weather permitting, are spent in flying and the evenings are filled with bull sessions. At this session it was felt that if more groups throughout the country began such events over week-ends or some long holiday week-end, RC work in general would be greatly stimulated.

It was brought to the attention of Walt Good, chairman of the evening sessions, that more information is needed by the AMA in order to formulate rules and flying patterns for RC work. We must all remember that unless you or your club writes to the AMA concerning rules, there should be no "gripes" if things aren't as you like at the next contest. What should be done about single and dual channel ships in the same contest? Do you believe that multi-channel reed equipment should be on a par with a simple single channel gas tube receiver? Or do you consider placing a rudder-only ship in the same class as one with rudder and engine control, even though both controls are actuated by a single channel receiver? These are a few of the questions that were discussed and will have to be answered by next year. Write your opinion to Walter Good, c/o AMA, 1025 Connecticut Ave., Washington, D. C.

Major Bourgeois mentioned a "club transmitter" set-up, whereby everyone uses the same heavy duty transmitter. This would eliminate transmitter interference.

Harold deBolt pressed for sending in suggestions on new rules. All sections of the country should be equally represented.

(*Continued on page* 46)