A view of our SP-ZHP. The sharply swept back wing effectively moves the C.G. back so that short nose is not a problem as it often is.

RWD-8

My many years in the R/C hobby have been devoted mostly to aerobatic competition, culminating with my winning the Polish Championship in 1977. I then decided that it was time to try something different, and something different turned out to be a realistic looking and flying scale airplane.

After much deliberation, in the manner of scale model builders everywhere, I finally settled on the Polish RWD-8, a 1932 training airplane. It was such a successful design in its day that it was built in a larger quantity than any other similar machine, and was eventually used in many European countries as a training, commercial, and military airplane.

My replica is of a scout version, in 1:5 scale, which results in a 90" wingspan. The RWD-8 has a number of features that are interesting and challenging to the builder, yet are relatively simple to achieve, or can even be ignored altogether. For example, the shock absorbing landing gear is shown on the plans and can be built to operate exactly as did the full size version, or it can be made up of music wire and fairings in a more common version. The wings of the full size airplane folded, so as to make it easier

Our intrepid author, designer, flyer poses with his prototype RWD-8, which he flies to relax from FAI aerobatic flying and competition.

This view of our Polish two-holer makes it look droopy winged, but it really isn't, though it doesn't have any dihedral at all, builds easily.

A beautiful 1/5 size model of the 1932 Polish trainer. Sporting a 90" wing span, an O.S. .60 4 cycle is the ideal engine; however, any good .60 will handle it nicely.
By Marek Klimczak

to hangar. While this is not a feature of the model, it could be duplicated if desired.

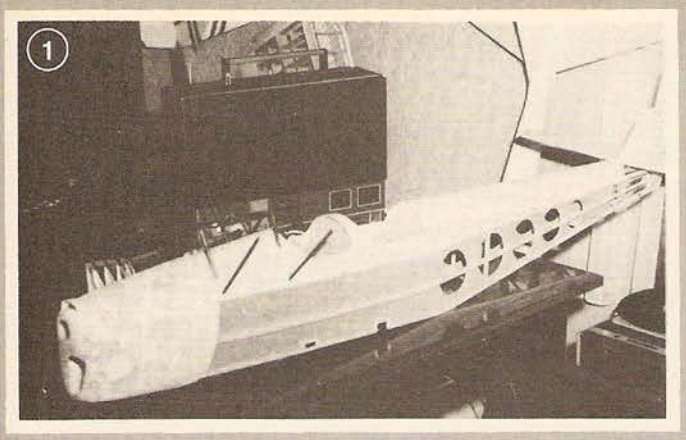
The rudder and elevator are operated by external cables and control horns, which are duplicated on the model. As on the full size machine, Frise type ailerons are employed, which are very effective and easy to construct. The wing struts on the model are functional, so don't even think about flying without them.

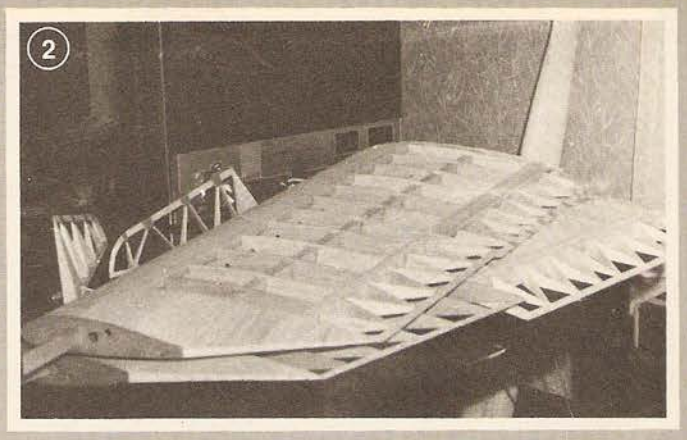
The velocity of the full size plane was about 87 mph, where as the model flies at about 25 mph. it is suggested that a four cycle model engine might not only provide a slower more scale-like speed, but would also sound more realistic.

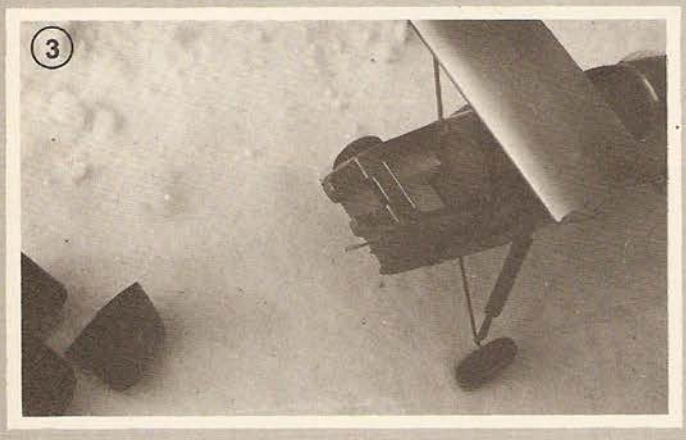
CONSTRUCTION

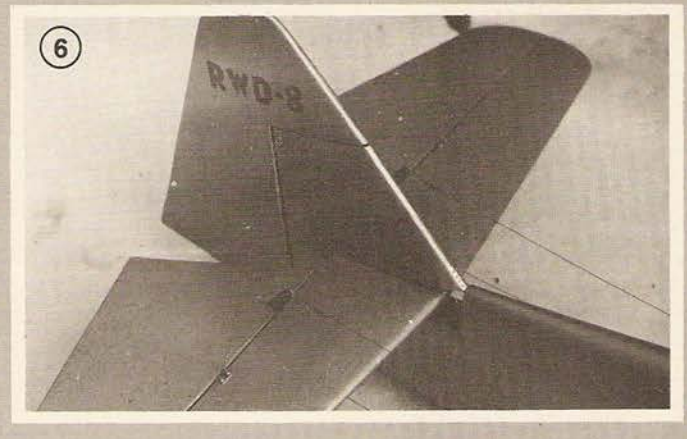
There is nothing startling or exotic about the building techniques; only proven methods and materials are used throughout the construction of the RWD-8. The fuselage sides are 3/32" plywood, or a lamination of plywood and balsa may be used. Contact cement is recommended for the laminating process. The engine mounts of the original model are made of beech, however, one of the firewall mounted metal or filled plastic mounts could be used. Brackets for the struts and landing gear are formed from light (16 gauge) sheet metal.

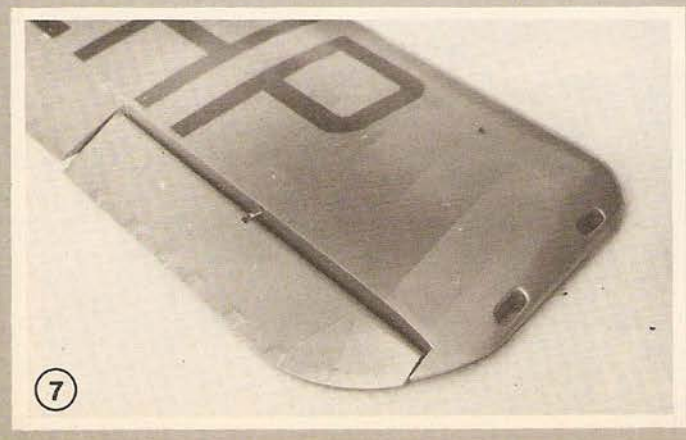
Ready to take to the Polish skies. The RWD-8 stands on the tarmac waiting for its pilot to take up that Webra, that's right, Webra transmitter.











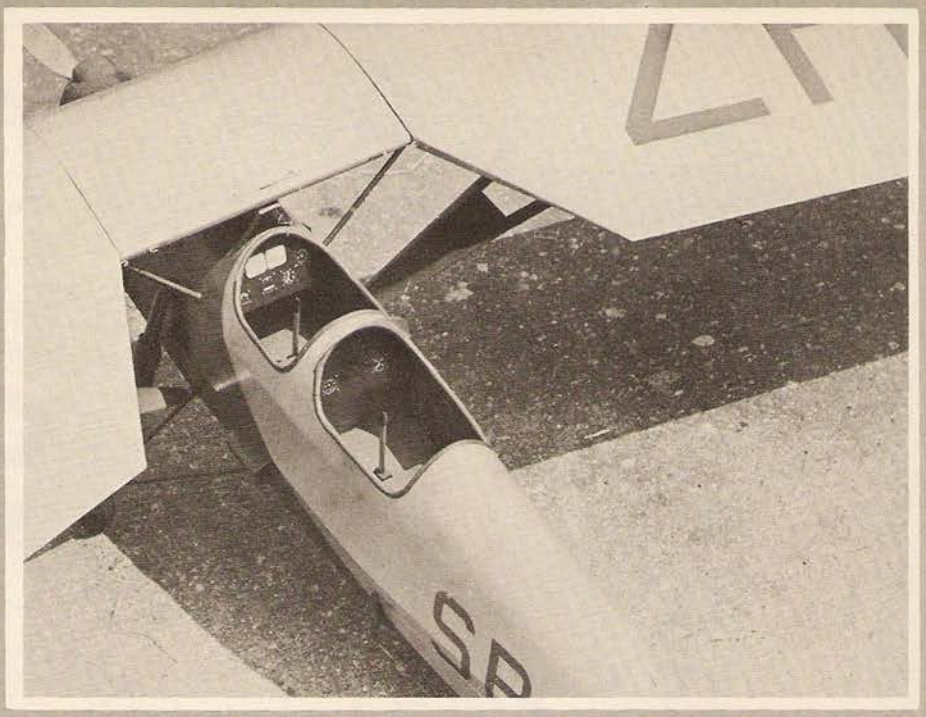
(1) The uncovered fuselage shows the plywood with lightening holes construction and the stringers that give it its final shape. Glass cowl. (2) The wings are made in three pieces. The inboard is permanently bolted to the cabanes, and the outboard sections plug-in and are removable. (3) Though a hardwood motor mount is shown on the plans and was used on the original, a metal or plastic firewall mount may be used instead. (4) A view of the gear, which is completely removable and functional. The struts work in the same manner as they did in the full size RWD. (5) The cabane, all made of 1/4" dural tubing is attached to plywood bulkheads with aluminum U-shaped brackets and 6-32 machine screws. (6) The tail feathers use only standard building techniques, with the exception of the external control horns and functional wire bracing. (7) Even the hand holds in the wing tips are scale, clearly shown in this view. The scale-like aileron control horn protrudes from wing.

and bolted directly to the plywood sides. A 3/8" x 3/16" stringer is glued along the bottom. The top and bottom of the fuselage is sheeted with 1/8" balsa sheet. On the original, the sides were covered with Japanese tissue, however, since weight is not a critical consideration, silk, Silron, or any one of the more recently introduced covering materials may be used. Just be sure that it is compatible with whatever you plan to use for a final finish coat.

RWD-8
Designed By: Marek Klimczak

TYPE AIRCRAFT
Stand-Off Scale
WINGSPAN
90 Inches
WING CHORD
15⅝ Inches
TOTAL WING AREA
2416 Sq. In.
WING LOCATION
Parasol
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Swept-Constant Chord
DIHEDRAL EACH TIP
None
O.A. FUSELAGE LENGTH
64 Inches
RADIO COMPARTMENT AREA
(L) 13¼" x (W)4" x (H)2¼"
STABILIZER SPAN
26½ Inches
STABILIZER CHORD (incl. elev.)
6¾" (Avg.)
STABILIZER AREA
143 Sq. In.
STAB. AIRFOIL SECTION
Symmetrical
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
7½ Inches
VERTICAL FIN WIDTH (incl. rudder)
8" (Avg.)
Rec. ENGINE SIZE
.60-.80 cu. in.
FUEL TANK SIZE
12 Ounce
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
4
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa and Ply
Wing ..... Balsa and Ply
Empennage ..... Balsa
Wt. Ready To Fly ..... 192 Oz.
Wing Loading ..... 11.4 Oz./Sq. Ft.

All of the R/C equipment is installed under the cockpit floor, so the lower part of the fuselage under the cockpit has to be made removeable. It, and the cowling, can both be easily formed from fiberglass, by first tack gluing on balsa blocks which are then carved and sanded to shape, and used as plugs for a mold. Alternately, they can both be built-up using conventional balsa planking methods.



No Omni, no DME, no radar — almost no nothing. The simple cockpits of the era of the RWD-8 are easy to duplicate. Note external control crank.

In 1932, airplane interiors were not noticeably complicated, and this one is no exception. Thus, there is almost no possible reason for not duplicating the simple seats, sticks, and instrument panels. Note also that there was a baggage compartment at the back of the rear cockpit, with access through a hinged panel.

Wing:

The wing is constructed in three pieces. The center section is bolted to the cabane struts, which are installed in plywood slots in the fuselage. They are retained in the slots with locking pins made of short lengths of piano wire. All of the struts are made of 1/4" aluminum tubing, with a balsa fairing added.

The wings are joined in the center by a metal tongue that mates with a plywood box running through the center section plywood ribs. This box should be assembled around the metal piece, and then installed in the structure. The wings then plug together, similar to sailplane wings. They are retained by rubberbands across wire hooks installed on the leading and trailing edges. A locating dowel is installed in the rear half of the wing.

The wing folding feature on the full sized airplane required that the inboard portion of the right wing fold up, so the two wings could fit tightly together. The difference in the wings is detailed on the plans.

Naturally, if you are fortunate enough to have a vehicle that can carry a 90" wing, it would be advantageous to construct it in one piece. Some weight savings is to be expected, but don't sacrifice it for strength; use some plywood bracing along the spars, leading and trailing edges.

The ailerons on the original model are operated by a cable in a tube, however, the traditional pushrod and bellcrank system could be used, which would allow aileron differential to be used. However, aileron differential is not really necessary except possibly for the most demanding flyers.

Tail Assembly:

Both the horizontal and vertical tail surfaces are built-up in the normal manner. The large external control horns can be cut out of thin aluminum and faired to a streamlined section with light balsa. Note the struts on the bottom of the horizontal stab, and the bracing wires on the top. Proctor Enterprises cable and hardware is highly recommended for this as well as for the control surface rigging. Elevator and rudder movement should be adjusted as indicated on the plans.

Radio Installation:

There is nothing unusual or critical about the radio installation, with the exception that an extension will be required for the aileron servo. In fact, to keep things neat, this extension should be routed inside one of the wing cabane struts.

Editors Note: We have found that most modern radio systems don't need the receiver antenna externally installed. After all, the materials commonly used for model construction are non-insulating and do not shield out radio signals. A paper or plastic tube could be installed internally along the top of the fuselage, and the antenna threaded into it. However, in this case, the wire control cables can act as a shield to the radio signals and, in certain positions of the airplane relative to the transmitter, might block out the signal enough to cause a

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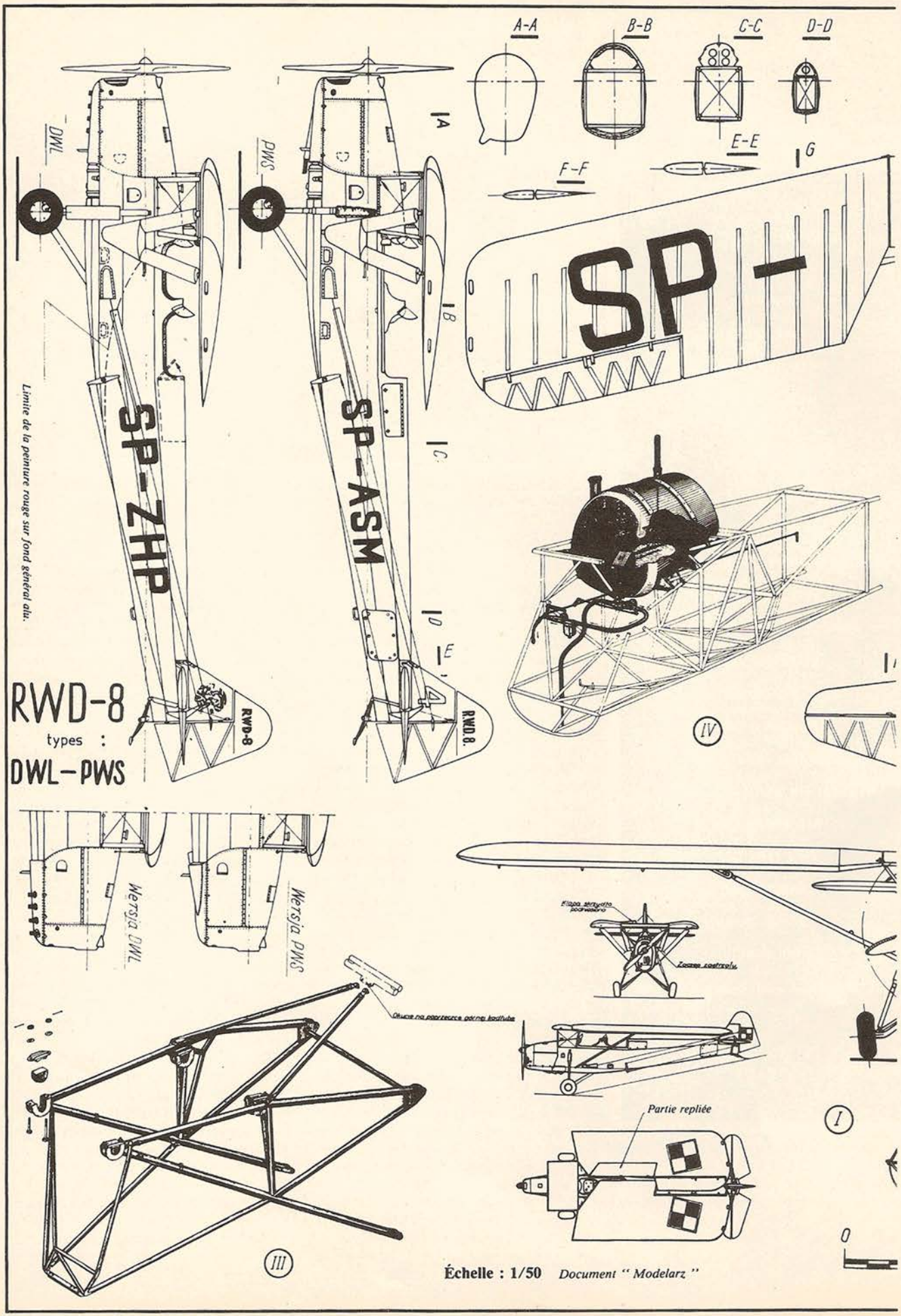

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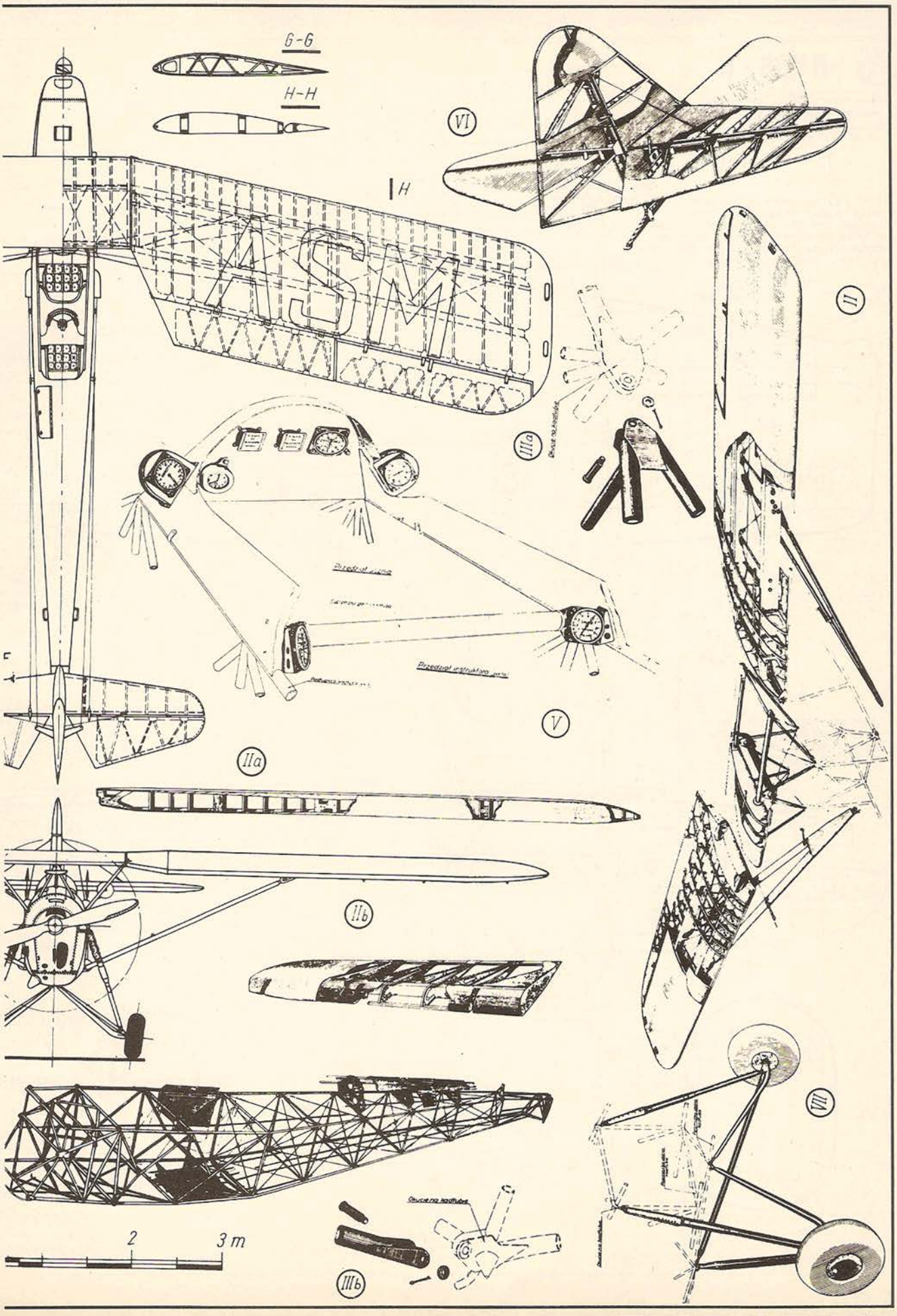
G-G
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momentary loss of control, or "glitch." In severe cases, the installation of a vertical receiver antenna should cure the problem.

Finishing:

Like the rest of the model, none of this is critical. Apply whatever you like and are most familiar with. The paint scheme is simple, mostly aluminum with the exception of the underside and cowling, landing gear, and struts, which are red. After painting, all the external details such as steps, hand holds, cockpit edging, instruments, etc., may be added as desired. The letters can be painted, or cut out of one of the sticky films especially made for this purpose.

Flying:

After carefully checking that the C.G. is within the limits indicated, and that all of the controls work in the proper direction, you are ready to test hop. Even though the wing loading is light, the RWD-8 is a comparatively heavy model, so let it build up speed before attempting the take-off. Most of the basic aerobatic maneuvers, such as loops, rolls, and stall turns are possible, though realistically slow. In the air, the RWD-8 has the old time appeal that is a pleasure to watch. □

RCModeler
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