



BUILDING AND FLYING INSTRUCTIONS:

Begin construction by removing all die-cut parts from the sheets, and grouping them for the wing, tail and fuselage, according to the numbers and letters affixed to them. A few parts, mainly fuselage sheet planking have not been printed, but these are easily identified as you proceed.

Start construction with the wing. A special jig has been included for your convenience, but need not be used if you wish to construct the panels in the usual manner. Tabs on the jig may be bent either way to align structure as it is assembled.

Lay out the two wing bottom spars on the plan, crack halfway through at W-8 and block-up 3/32" off plan. Apply cement skin to strengthen where cracked. Pin trailing edge in place and install ribs W-4 through W-7. Laminate the wing tip parts together as detailed above and block up 3/32" off plan at wing chord center, cementing to trailing edge. The leading edge may now be installed, followed by the upper spars. At this point, cement the spar gussets W-8 and W-10 in place, and cement one of the narrow large gussets (not numbered) between the two 1/16" x 1/8" forward main spars. This gusset should be flush with the forward face of these spars. One of the wider of the two large gussets is then cemented to the face of the spars and gusset mentioned a moment ago. Position rib units W-2A and W-3A. Remaining rib units may be installed after the wing panels are removed from the plan, as the landing gear wire must be inserted between inner gussets as detailed above. After this, the outer gusset is cemented to the rear face of the main spar, and the remaining air rib units installed. The leading edge and center sheeting may now be installed. Note that die-cut parts F-2A, F-2B, F-3A and F-3B are cemented to the under surface of the wing, rather than to the fuselage.

The tail surfaces are die-cut of course, and will offer little problem. Those who wish to fly control line, should cut the stabilizer at the hinge line. Horn details are shown full size. The only pointer spot is the attachment of the rudders to the stab on the control line version. In this case, the remaining stabilizer edge forward of the hinge line is too small for a good joint. We recommend reinforcing top and bottom with two wire right angles.

The fuselage is very easily assembled by sliding the formers in place on the step keel F-1 as detailed above. Note a second keel in the lower nose area, F-12 is installed as you proceed. Former F-2 and F-2A are laminated together, F-1 and F-1A are likewise laminated together, but this should not be done until the fuselage structure has been completed.

Once the formers and partial formers have been installed, the 1/16" x 1/8" top and bottom keel strips should be added. Install F-13 in the center of the fuselage to position the wing. Bear in mind that the angle of the wing must be changed for control line flying. To do this, trim W-13 so that the wing trailing edge will be 1/8" higher, and modify former units accordingly.

A 1/16" thick square of hardwood is provided for mounting the engine. Face this with F-2A, with mounting nuts recessed. Position on F-2, and cement 1/8" sq. strips on either side. F-2C and F-2D are now cemented in place, forming a track for the engine. Note engine mounting is optional; it may be side mounted or upright mounted. If engine mount is to be removable, we recommend the upright mounting for easier cowling. Note thrust suggestions on the plan. Install nose gear and control systems at this time.

All fuselage planking is die-cut, not printed. The smaller of these units with grain running across are used to plank the wing recess. The two long strips which are die-cut are cemented on either side of the fuselage, with the top edge 3/16" lower than the step keel. Other units are die-cut with a slight excess to be trimmed off as necessary. Moisture exterior with hot water to aid in bending sheet. Once the fuselage is fully planked, sand smooth, install celluloid canopy, and test fit cowling, making cut-outs.

Control line versions should have the wing cemented in place. Free-flight models should have a removable wing, strapped with rubber to wire hooks as detailed. Cement tail in place, test control action etc. Landing wires should parallel ground line, and sweep rearward at slight angle as indicated. Pass leadouts through wing, with strip balsa acting as a bearing between ribs where necessary.

The wing may be covered wet or dry in the usual manner. Clear dope several coats, preferably with a wood filler used on all balsa areas as detailed. Cement tail in place, test control action etc. Landing wires should parallel ground line, and sweep rearward at slight angle as indicated. Pass leadouts through wing, with strip balsa acting as a bearing between ribs where necessary.

Test fit on a calm day. Use minimum power, pop on backwards for first free-flight test flight. Use limited fuel and fly from grassy field. Watch pattern of flight carefully, adjust accordingly. Control line models should be flown with wide open engine. Take-off down wind, avoiding over-control. Happy landings!

ELIMINATE DOWNTHRUST FOR CONTROL LINE FLYING
MAXIMUM SIDE THRUST SHOWN.
START ADJUSTING WITH LESS.

ENGINE MAY BE MOUNTED UPRIGHT OR ON ITS SIDE

USE UPRIGHT ENGINE INSTALLATION FOR REMOVABLE ENGINE MOUNT TO SIMPLIFY COWLING

CONTROL LINE CENTER OF GRAVITY

FREE-FLIGHT CENTER OF GRAVITY

WIRE COWL SPRING CLIPS

FORMED PLASTIC NOSE

BEND WIRE AS INDICATED

3/4" WHEEL

WIRE

DIE-CUT 1/20" SHEET

SCRAP Balsa FAIRING

OPTIONAL REINFORCEMENT TO BE USED IF ENGINE MOUNT IS MADE REMOVABLE. USE SHEET PROVIDED, 1 REQUIRED. INSTALL BETWEEN F-2A, F-3, F-11 AND F-12.

CLEAR DOPE INTERIOR OF SHEETING, MOISTEN EXTERIOR WITH HOT WATER TO FACILITATE CURVATURE

OPTIONAL WING JIG

TRAILING EDGE

WING JIG

TAPERED TRAILING EDGE

CROSS-SECTIONS

STABILIZER

ELEVATOR HINGE LINE FOR CONTROL LINE MODELS

ELEVATOR

ELEVATOR HORN

JOGGLE END

"MONOLINE" CONTROL INSTALLATION

MOUNT MONOLINE ON HARDWOOD RECTANGLE BRACE WELL TO FORMERS AND SIDING

"1/2" MONOLINE UNIT

PUSHROD TO BELL CRANK OR MONOLINE UNIT

CUT OUT FOR MOTOR MOUNT AS INDICATED

USE UPRIGHT ENGINE INSTALLATION FOR REMOVABLE ENGINE MOUNT TO SIMPLIFY COWLING

CONTROL LINE CENTER OF GRAVITY

FREE-FLIGHT CENTER OF GRAVITY

ALUMINUM FOIL (OR PAINT) COCKPIT TRIM

CELLULOSE

PUSHROD TO BELL CRANK OR MONOLINE UNIT

CEMENT STABILIZER IN PLACE

RUBBER BAND

DECAL

FUSELAGE SIDE VIEW

ELEVATOR PUSHROD

ELEVATOR HORN

DIE-CUT 1/20" SHEET

1/8" X 1/16"

NOTE: FOR CONTROL LINE FLYING ONLY - RAISE WING TRAILING EDGE 1/8" TO CHANGE WING INCIDENCE.

AIRCOUPE

FOR FREE-FLIGHT OR MONOLINE FLYING

DESIGNED AND DRAWN BY: DON MCGOVERN	FOR .020 TO .049 ENGINES	18-3/4" WINGSPAN
KIT ENGINEERED BY: BILL EFFINGER	FULL SIZE PLANS	5/8" = 1" SCALE

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