

Javelin Glider



One of England's top authorities on gliding brings you this high performance, easily built craft by Ray Jessop.

Here is a glider of unusual lines that will repay anybody who builds, it with a contest-winning performance. It will give non thermal flights of 3 minutes plus from 300 ft. line every time and will take advantage of even the slightest trace of a thermal. Tow line stability is excellent. It is about the minimum in size for maximum efficiency and is strong enough to stand the hardest knocks and stiffest breezes.

All materials are medium quality balsa unless otherwise stated. Build square fuselage to basic side view from 3/32" sq. hard balsa. Former 1 is cut from 1/16" sheet and cemented in position. Four 3/32" sheet panels are cemented in first bay to form weight box. Nose block is then shaped from block balsa and glued in position.

Formers 2, 3, 4, 5, 6, & 7 (2 of these) are cut from 1/16" sheet, member 8 being cut from 3/32" sheet. The diamond section of the basic fuselage is merely obtained by turning the square fuselage through 45 degrees. The cabin is next built in the following order: formers 5 & 6 are glued to basic fuselage as shown, followed by member 8 which is cemented in slot of former 6 and butted to former 5 and top longeron of fuselage at station 1. These are followed by formers 3 & 4. Wing platform 7 (2) is cemented to top of formers 3, 4 & 5. The top of former 2 is cemented to the front of wing platform and the bottom to station 1 on basic fuselage. Wing retaining dowels are then

glued in position, being reinforced by two pieces of 1/4" x 1/8".

Top longeron of fuselage is cut away between station 3 and rear for stab platform. Tow hooks are bent from 1/16" spring wire these are bound and glued to bottom longeron. Fuselage is finally covered with lightweight tissue and given two coats of clear dope. Two 3/32" sq. cabin supports are cemented in position to these the celluloid cabin panels are cemented.

Cut fin members R1, R2, R3, R4, R5 & R6 from 3/32" sheet. R1, R2, R3 & R5 are then cemented in their correct positions, with 3/32" sq., forming the cross braces. The trim tab R4 is attached to this main fin with soft wire as shown. It is then covered with lightweight tissue and given one coat of clear dope. The main fin and sub fin R6 are then securely cemented to the fuselage in their appropriate positions.

For ribs of wings, first make an accurate plywood template of the airfoil section minus L.E. & T.E. Using this template, cut 24 ribs from 1/16" sheet and 3 from 3/32" sheet.

Tips may either be cut from 3/16" hard sheet in the orthodox manner or laminated as follows: first cut a thick cardboard template to the inner contour of the tip. Next cut 1/4" strips from 1/32" sheets, then one of these strips is bent round the template and held in position with a few dabs of cement. This is followed by another strip which is cemented to it and held in position until dry. Strips are then added in the same way until required width is obtained. The tip is then sanded to section and removed from template.

L. E. is made from 1/2" x 3/8" very hard balsa and sanded to section shown on airfoil. It is most important that the right section is obtained as the whole wing's efficiency depends on it.

T. E. is made from 1" x 3/16" hard balsa sanded to triangular section shown on airfoil. Slots 1/16" wide by 1/8" deep are then cut in it at rib stations shown.

Wing is built in two halves. Pin L.E. & T.E. in position, the T.E. being packed up 1/16" in the front so that a

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true airfoil is obtained. The tip and all ribs except those at dihedral stations are then cemented in position. When dry a V shaped slot is cut in L.E. & T.E. at outer dihedral station. L.E. & T.E. are then cracked and cemented at the correct dihedral angle. Next plywood dihedral braces 11 & 12 are added.

The 3/32" outer dihedral station rib is finally cemented in position. The other half is built in the same way and the two halves are at the correct dihedral angle, being reinforced by dihedral braces 9 & 10.

The wing is then covered with lightweight tissue and given one coat of clear dope.

L.E. & T.E. of stabilizer are made from 1/2" x 1/8" hard balsa which is sanded to given sections. Tips are then constructed in the same way as the wing. Ribs are then made from 1/8" x 1/16" strip. Stabilizer is assembled and set at dihedral angle shown, being braced by two dihedral braces 13. Cover with lightweight tissue and give one coat of clear dope.

Dethermalizer is the drag parachute type operated by slow burning string fuse.

Parachute is a flat piece of lightweight tissue about 10 inches in diam. with 8 cotton cords about 8 inches long which are attached, equally spaced, to the edge of it. The free ends of the cords are then tied together with one piece of cotton 8 inches long which is attached to the rear of the fuselage.

The string fuse is made by soaking white butcher's string of about 1/12" diam. in a saturated solution of saltpeter and water.

Two pieces of 3/32" sheet are cut as shown and cemented to the longerons on the bottom left-hand side as shown. These prevent the fuse from burning the fuselage.

The parachute is held in the position shown by a band which consists of a rubber band and a loop of cotton joined together. This band is looped round the fuselage at point indicated so that the looped cotton portion runs between the two balsa supports. A piece of string fuse of required length is hung with the end loosely inserted between this loop of cotton. Prior to

launching, the fuse is lit and burns for a given time (according to its length) during flight until it reaches the cotton and burns through it. This breaks the band and releases the parachute which opens and brings the model out of any thermal in a steep dive.

Assemble the model with rubber bands holding wing and tail plane in position. Add lead shot through small hole in weight box until model balances at 1/3 chord from the leading edge of wing. The model should then be gently hand launched and should glide slowly for about 20 yards. If it does not do this it means that slight misalignment of the wing has occurred during construction and the wing should be adjusted by adding positive or negative incidence.

When a flat straight glide has been obtained the model should be tow launched on front hook from about 300ft. line. The back hook should only be used on very still days. For thermal flying slight turn by use of trim tab may be used to advantage. For those who decide to build this model good luck, use a dethermalizer and bring home the hardware.