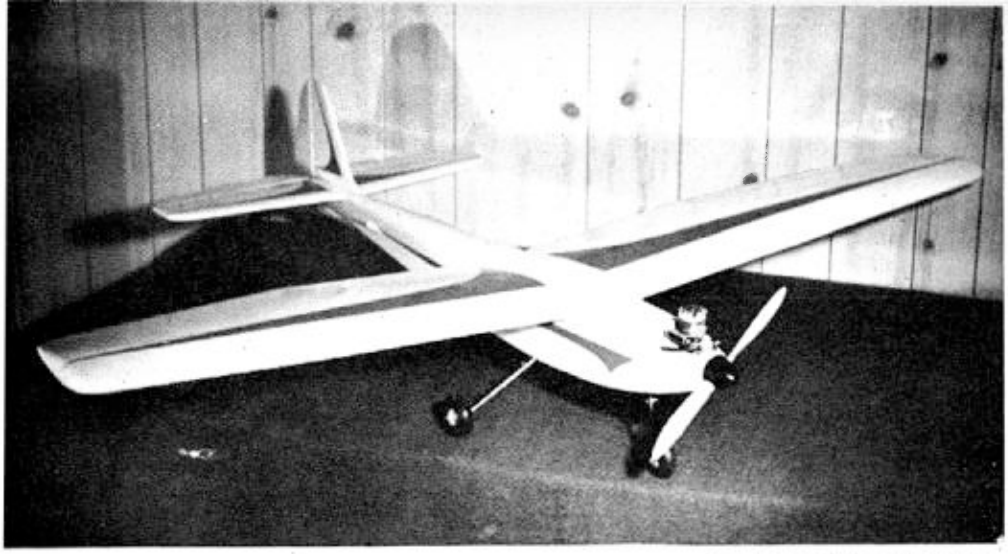
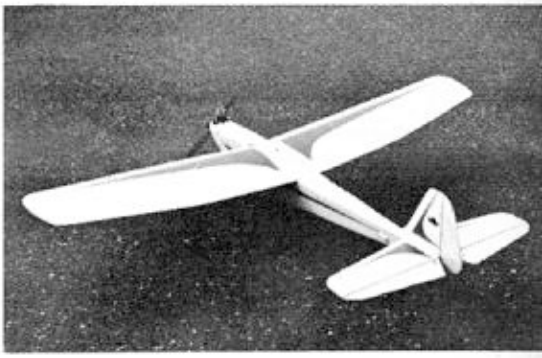


Long tail moment gives smoothness. Ample tail area makes spins, tail slides cinch in flight.



An Enya .45 and similar mills ideal for this shoulder-wing . . .
60" Wingspan, shoulder-wing streamliner, 600 sq. inches area.

Gene Rogers'

"LUCKY" II

CLASS II **R.C.** INTERMEDIATE

FULL SIZE "MODEL PLAN SERVICE" PLAN AVAILABLE AS ADVERTISED

Author's Lucky II has Orbit 3 plus 1, proportional radio, two-stick transmitter. Powered by a Super Tigre .46 engine, good combination.

Nose wheel steering bellcrank is mounted on a ply base, epoxied to side of fuselage. Pushrod to steering gear has "V" bend to absorb shock being transmitted to servo. Hatch holds tank.

♦ During the past few years a great deal of thought and effort has been expanded in creating class III Multi aircraft. The results speak for themselves. These sleek beauties have captured the imagination of all, thus making plans, kits and even finished models available in great variety.

Somewhere along the line, class II designs have been generally neglected. They have been overlooked by the pros, and sometimes considered a bothersome step by the newcomer, working his way up to the ultimate; a high performance low winger. A true class II design has been hard to find, as most designs make compromises by doubling as a rudder-only class I, or an aileron equipped class III.

The results of the 1965 contest season will bear out the fact that the class II flights were very creditable indeed. At the Nats, and many other large contests, the total flight point scores for the winning class II ship, were almost as high as the winning class III; and usually higher than the lower placing scores in class III. This proves that high performance and maneuverability can be had without the use of ailerons. Many class III competition aircraft were doing all 23 pattern maneuvers. Most were capable of at least 20, to win or place. In the majority of these cases, planes were of a one-of-a-kind variety, or a highly modified standard design, with very few kits or plans available for contest caliber performance.

The "Lucky II" was designed as a class II airplane for contest and sport

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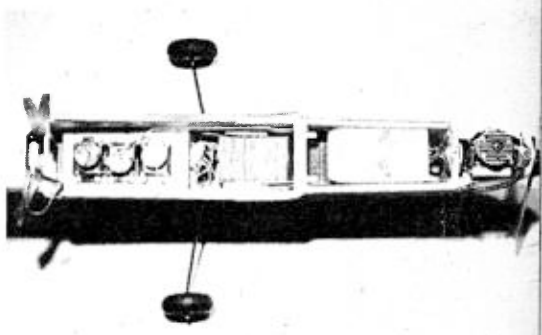

Hatch hides the wing rubber for clean appearance, yet retains advantages of rubber bands.

Long removable hatch exposes all. Hatch fastens with two nylon screws. Note rubber bands, anchored to dowel aft of the wing. Works well.

Three proportional servos mount on flat aluminum chassis. Receiver and battery pack wrapped in rubber type carpet underlayment, protected.

"LUCKY" II R.C.

(Continued from Page 19)

performance. No compromises have been made to allow it to be used as a class III trainer, or dual purpose ship of any kind. It wouldn't do well as a rudder only ship, and it's a little too small for full house use, packing a screaming .60 engine. While it's not difficult to construct, I wouldn't recommend it to the beginner for his first R/C attempt.

The design makes full use of the new three channel proportional systems recently made available. These systems being less expensive, more compact and lighter in weight, the "Lucky II" has followed through in the size and power requirements. Being about 20% smaller than the average class III, the design does very well with a .45 up front for contest flying, and a good .29 being ample for sport use.

The original ship as shown in the photos, is equipped with Orbit 3+1 Radio gear, and was designed with this equipment in mind. A reed ship utilizing 8 channels was simultaneously constructed by a courageous fellow Suffolk Falcon club member. However this brave volunteer made the reasonable condition that my ship be test flown first. Since he was using four servos instead of my three, and his were servos of the larger variety, the fit was snug, but still practicable.

On the first few flights, my "Lucky II" indicated the original precaution of 2° down thrust and 2° right thrust were not needed. With the motor being off center 1/16" as shown on the plans, this alone was ample in the thrust requirements for this long nose moment design. Since the ship had what is considered to be a super finish, it brought the weight to 5 lbs. 6 ozs. This being slightly on the heavy side, I moved the C.G. to the point shown on the plans, to prevent low speed stalls on the landing approaches. With a lighter ship, this can be moved about 3/8" to the rear.

A warp free, well trimmed replica is capable of doing all 23 contest pattern maneuvers. Doing an inverted eight with the precision of an aileron ship, gives the class II flyer great satisfaction. When inverted, the yaw control on this ship is not reversed; making inverted maneuvers much easier. With the wing and stabilizer incidence at zero degrees, inverted flight is a natural.

Wing fastening has received much attention as of late. "Anything to eliminate those unsightly, fuel soaked rubber bands" is the aim. Having tried most of the alternative methods, Dzus fasteners, nylon screws, shear plates, etc. I am convinced rubber gives the best energy absorbing effect on impact. Wings that let go suddenly have the habit of shearing off other large portions of the aircraft, on their quick release, making sudden release methods disastrous. The "Lucky II" uses rubber bands in an inconspicuous way. They are hidden from the slip stream and grime, under the access hatch. If the wing is knocked ajar on wing tip type landings, the force of the rotating wing pushes the hatch up, shearing the rear nylon hatch fastening screws. It works! Missing the mowed runway on the second test flight, the wing tip hit a large clump of weeds, causing the ship to cartwheel, moving the wing tip off center, thus breaking the rear nylon screw. If screws break flush with the bulkhead, they can be removed with a double pronged pointed music wire device, or a small sharp screwdriver.

Construction is straightforward, and should present no particular problems. I will therefore only discuss the highlights of the project.

Wing Construction:

Since the wing is made of fairly large structural members, medium weight balsa should be used throughout, with the exception of the leading edge. If you fly in an area with no obstructions, this can be fairly soft too. By cutting four wedged shaped pieces of balsa, about 2" long for supporting the trailing edge, and using 1/4" thick balsa under the leading edge, the wing jigs itself.

The tapered ribs can be made by making either a 1/16" thick plywood, or an aluminum template of the largest and the smallest size rib. Cut the intermediate size blanks to the required length and to the height of the largest rib template. Mark the camber centerlines on each blank. Sandwich all blanks between the large and small templates, keeping the leading edges flush. Drill through, and fasten the sandwich together with two No. 4-40 machine screws. Carefully carve and shape with a sanding block, following the contours of the largest and smallest template. Take apart, and sand the top and bottom cambers square with the sides of the ribs. Lay these intermediate ribs over the wing plans, and mark off the spar notches. The large straight section ribs can be cut out, using the large template, with pins pressed through the template and clipped off, leaving 1/16"

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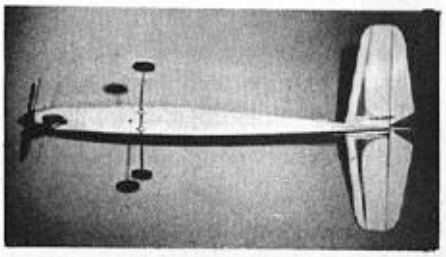
35 flights! Waxed finish keeps ship like new.



Aluminum plates and grooved maple cross-member lock gear in place. Small machine screws used.

"LUCKY" II R.C.

(Continued from Page 31)

protruding, thus making a few cleats to aid in cutting along the edge of the template without the template shifting on the sheet stock.

Stabilizer Assembly:

Stabilizer ribs can be made by using the same method as the wing ribs. Work with care to assure accuracy.

The leading edge and trailing spar are tapered. These tapers can be drawn on the stock, using a ball point pen, and trimmed after assembly. Block up the leading edge over the plans with 3/16" shims, and 3/32" under the trailing spar.

After the frame has dried thoroughly, lift from the plans and trim the tops of the spars and stabilizer tips to match the rib contours. Cement the top 1/16" thick balsa covering on. Pin the stabilizer down on a flat surface, using shims under the leading edge and trailing spar to prevent warping. After allowing it to dry thoroughly, lift up, trim the bottom edge of the spars, and cover with sheet balsa.

Rudder Fin:

The fin construction is obvious; but notice the grain direction, to get maximum strength and warp prevention.

Fuselage Construction:

A few pointers and this stage of construction are in order. Try to purchase full length 3/32" balsa sides and pieces of equal hardness to get a true shaped fuselage. Make each inside doubler of 1/16" plywood, one continuous length, if possible. These extra long pieces of balsa and plywood are available in 48" lengths, from SIG manufacturing, and should be available at all well stocked hobby shops.

Notch plywood doublers as per plans, and bond to balsa sides with epoxy adhesive to prevent warping. White glue is excellent, but not for this particular application. Make sure birch aircraft plywood is used for the firewall, regular fir plywood is too soft, and doesn't have enough laminations for aircraft requirements.

When joining fuselage sides, make sure the nose gear plywood mounting platform and the tank mount are in place, since the plywood doublers are notched to receive them, making it impossible to install them later. The 3/8" beveled strips used for rounding fuselage sides with the bottom, should be of light balsa, and well rounded, to prevent tail heaviness, and to give a pleasing appearance to the aft end of the fuselage.

The fiberglass engine cowling was made using the male mold and balloon method, described in recent and past modeling publications, and won't be described here, except to say that it's an excellent method, with fine results obtainable, with a minimum of effort. The finished product looks like metal, and is very durable. I've used it on many ships.

Covering and Finishing:

The "Lucky II" pictured was finished as follows: The entire plane was covered with Silkspan, with open areas of the wing, double covered. All surfaces were then given three coats of clear dope, with a small amount of talcum powder added. Two light coats of colored dope were sprayed on next. After 48 hours of drying, two coats of clear dope were then sprayed over. The dope was allowed to cure 72 hours, before the ship was rubbed down with auto rubbing compound. This was followed by an application of paste wax.

The model is kept clean and bright by washing down with a 50% mixture of liquid detergent and water, after each flying session. By fuel-proofing the tank compartment, and cleaning the exterior religiously, the service life of any plane can be extended.

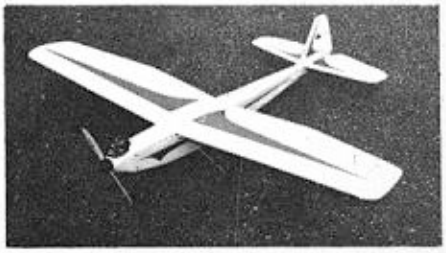
Final Check-Out:

The possibility of that first flight disaster is generally feared by most flyers, even by those with considerable experience. With a well designed ship, this simply should not happen!! Such disasters are caused by two things. The first being a hasty, a not really thorough pre-flight check.

(A) Does the plane balance as per plans?
(B) Is the motor in position exactly, with the thrust alignment, as per plans?
(C) Is the wing, stab, and fin in perfect alignment with the fuselage, and to each other?
(D) Is every surface true and warp free?
(E) Is all control movement free and ample in each direction?
(F) Does the motor run properly, and feed fuel at all angles?
(G) Do all controls function perfectly with the engine running at any speed?

When you can answer all the above on the positive side, the SHIP WILL FLY! The rest is completely in the hands of the pilot which incidently, is the second cause of that first flight disaster. If you are not an experienced R/C pilot, put the ship in the hands of a fellow with plenty of R/C hours, for that first takeoff in the heavens. That is, with his promise to turn the transmitter over to you when he gets sufficient altitude! With the proper pre-flight check, you have eliminated his biggest headache. You have presented him with a ship that will fly, and he can't miss. (We hope!)

Good luck with the ship, and I hope to see you on the flight lines at the Nats. ●



Natural design for new 3-channel proportional. That extra servo isn't needed in this aircraft.