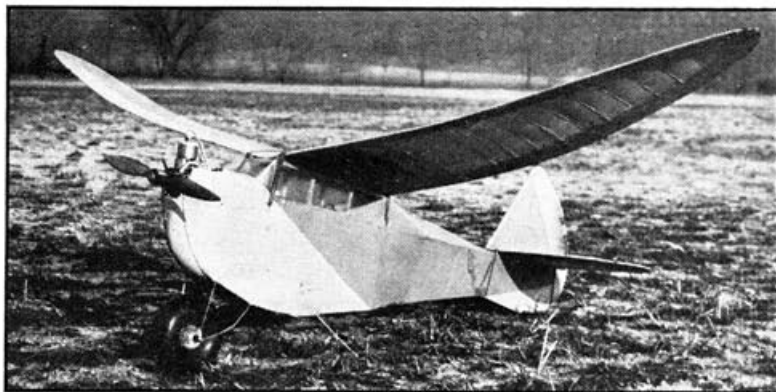


How to Build A Universal One Wheeler

A Gas Model That Will be a Consistent Winner in Any Contest. It Recently Won a Contest at Miller Field, Staten Island, N.Y., by Making a Flight of Seven Minutes With a Thirty Second Engine Run. It Has a Very Flat Glide



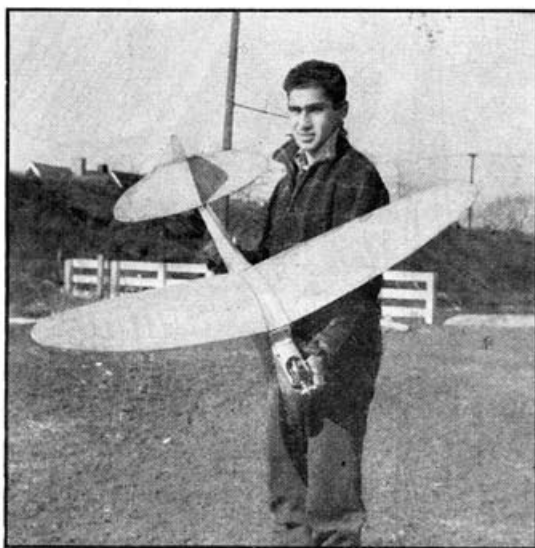
Unusual in design but a plane that climbs fast and has great soaring qualities. A wing section of the latest design is used

SOMETHING new in gas model aviation—a one-wheeler gas model that will accommodate most any motor on the market. To date the ship has been flown with a Trojan, Husky, Cyclone, Gwinn-Aero and Brown "B," "C," and "D"; giving most gratifying results with all of them. The ship can be flown in both the large and small N.A.A. events at contests. On occasions it has flown over five minutes without covering more than 200 feet distance from the take-off spot. Its outstanding flight characteristic is the extreme stability. Due to a low center of gravity and a low center of lateral area, the climb is a tight, vertical spiral. The glide is very flat and slow due to the high lift, stable airfoil. A great deal of airfoils were tested on this ship till the present airfoil was chosen. The ship rides thermals with remarkable facility as has been proven at various times. An associate model builder who constructed the same job, and used a Husky for power, attained flights of over eight minutes. The ship weighed 1½ pounds at the time. If a small motor is used, it is recommended that the builder use lighter wood which will cut down on the wing loading.

Construction Fuselage

The fuselage is built of 3/16" square balsa strips. From the nose back to section X-X the fuselage has an oblong cross-section, and that part of the body is built in the orthodox manner. While building it allow the side longerons to extend the full length of the fuselage. Note that the outside motor mounts are integral with the side longerons. Make all the

By LEON SHULMAN



The author with the completed plane. Note the compact but efficient design

joints running into the motor mount especially accurate and strong, as this part of the body must absorb a great deal of strain. The two sides are completely joined from X-X forward before the rear of the body is built up. Then the two side longerons are joined at the back.

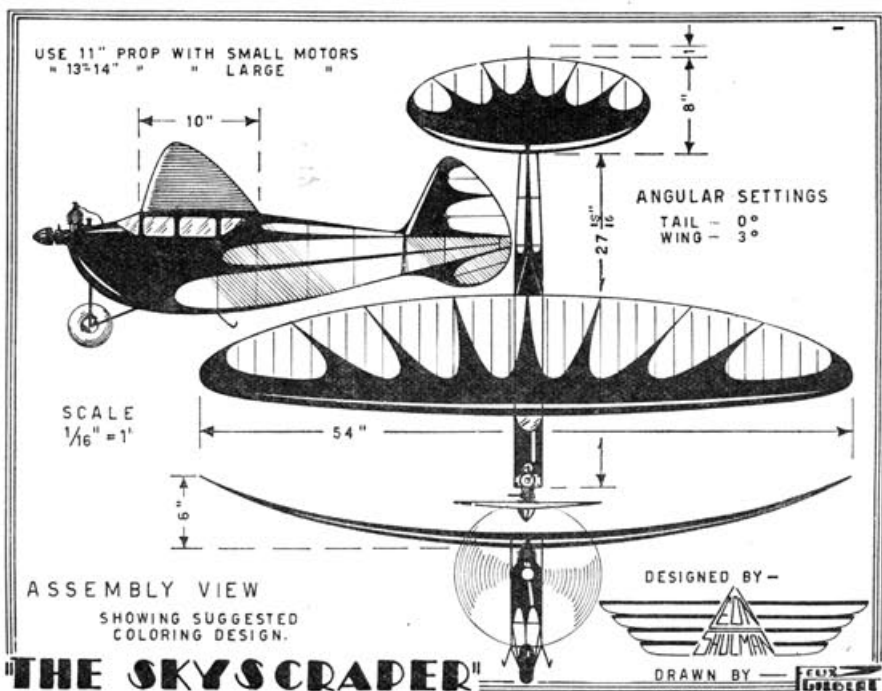
The front of a new top and bottom longeron is now glued in place, and then joined to the respective rear positions as indicated on the plans. The rest of the braces are now set in place; so that when finished, the sections from Y-Y to Z-Z will be diamond shaped, and from Z-Z to the back they will be triangular. The nose block of soft balsa is glued to the body and then carved to conform to the outline of the nose. It should be rounded as much as possible. The cowl formers are shown in full size on the bottom right of plate one. Landing gear and skid details are shown clearly on plate one with everything labeled. Note that the skid is one complete piece.

The landing gear is one piece. The axle is a straight piece of wire, bound with iron wire and soldered to the wire struts. Battery box details are shown on plate two. The coil box is built around the coil. Note the hooks near the side longerons to hold the wing rubber bands. The circuit diagram is shown on plate two. The upper timer is the self-timer, while the lower one is the one on the motor.

Tail

All tail construction is covered completely on the plans. The rib sections are shown on plate two and should be used as a guide in construction.

(Continued on page 52)



How to Build a Universal One Wheeler

(Continued from page 11)

structing the rest of the tail sections. The bent strips will assume a natural curve. In building the elevator, first do the bottom, which is straight.

Wing

All the stock is labeled. The wing outline is a double-ellipse which is highly streamlined. The front minor axis is three inches at the center, and the back minor axis is seven inches, thus giving the root chord of ten inches. Or else, the draw-

ings may be scaled up to four times the size of those on the page by means of dividers or proportional dividers which would save time.

To cut the ribs, note that they are all derived from the root rib. As the ribs get shorter, they are decreased from the trailing edge, but they must always taper to $5/32$ " at the back, which is the trailing edge thickness. The wood that is removed is always taken away from the top and at the back, never at the bottom. The drawing at the top of plate two illustrates this method exactly. This system provides a negative angle at the tips, approaching a symmetrical section which offsets stalling tendencies.

The method of putting diedral into the wing is clearly outlined in the top and bottom center of plate one. This type of dihedral not only enhances the appearance of the wing but provides a much smoother airflow, especially at the tips.

Flying

It is highly recommended that the model

be absolutely complete before any sort of testing is undertaken. The model should balance when held by the extreme tips.

The plane should be tested on a calm evening in a large field. The model should be pushed along the ground by the tail till it lifts a few feet and then glides in gently. If a small motor is used, give it about half-throttle and push it off the ground gently into the wind. The climb should be slow and with the torque. For better flights "rev" up the motor.

For big motors, set the spark to neutral, lean the mixture and close the choke about half then launch the ship the same as with a small motor. With big motors and at this power the model should nose up steeply with torque and climb. The glide on both ships should be flat and slow, and against torque. The skids should keep the model in an upright position. Due to the one wheel on the nose the prop toll is at a minimum, as is the parasite resistance.

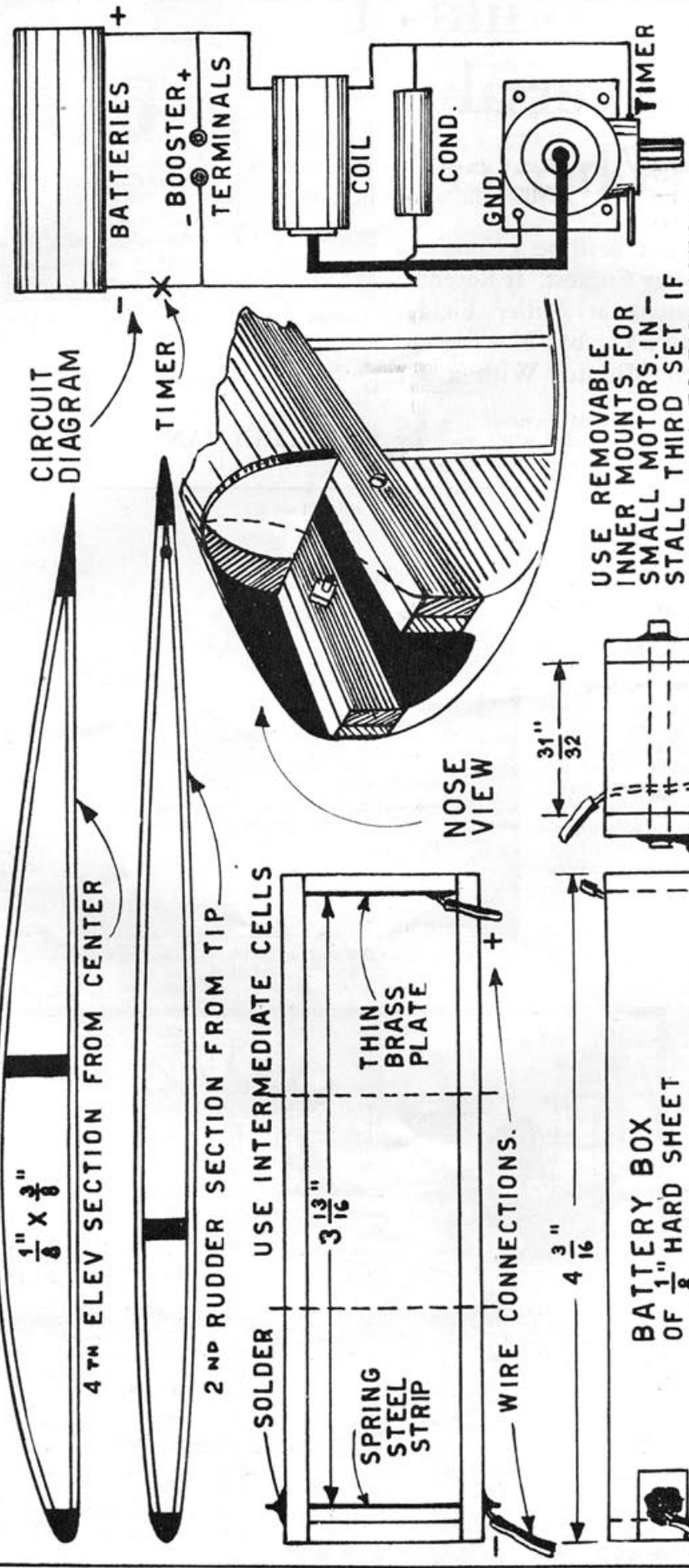
Inquiries, accompanied by a self-addressed stamped envelope, should be sent to the writer care of MODEL AIRPLANE NEWS.

ROOT RIB OUTLINE
10TH " "
14TH " "

SEE ARTICLE

CHORD LINE

ROOT RIB SECTION — MODIFIED GRANT M2-10
DOTTED LINES SHOW HOW TO DERIVE THE OTHER RIB SECTIONS



CIRCUIT
DIAGRAM

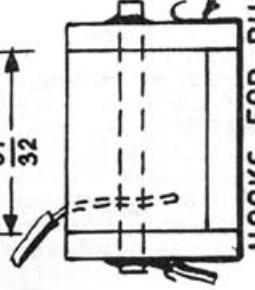
TIMER

BATTERIES
- BOOSTER +
TERMINALS

SOLDER
SPRING
STEEL
STRIP
THIN
BRASS
PLATE
WIRE CONNECTIONS.

NOSE
VIEW

31"
32



HOOKS FOR RUBBER

USE REMOVABLE
INNER MOUNTS FOR
SMALL MOTORS. IN —
STALL THIRD SET IF
NECESSARY TO FIT MOTOR.

OUTSIDE MOUNTS FOR 1/3 HP MOTORS.

"THE SKYSCRAPER"

SCALE
FULL SIZE
PLATE 2

DESIGNED BY —
LEON
SHULMAN
DRAWN BY —
FEDEX
GILBERT