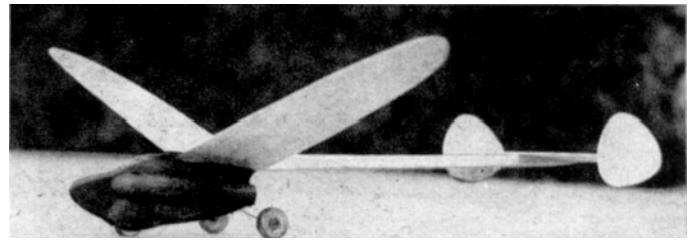


Building THE ROCKETEER

A Rocket Plane That Gives Consistent Thrilling Flights -- Here You Have Complete Building Instructions

THOSE of you who think you have seen real performance in some 300-square-inch, quarter-horse gas job just sit back and hold tight "You haven't seen anything yet!!"

The "Spitfire" is the fifth of a series of experimental rocket ships and has proved itself a sensational and dependable performer. Powered with five- or ten-centstore two-ounce rockets, it climbs to an altittde of 150 feet, turning in flights of over one minute.

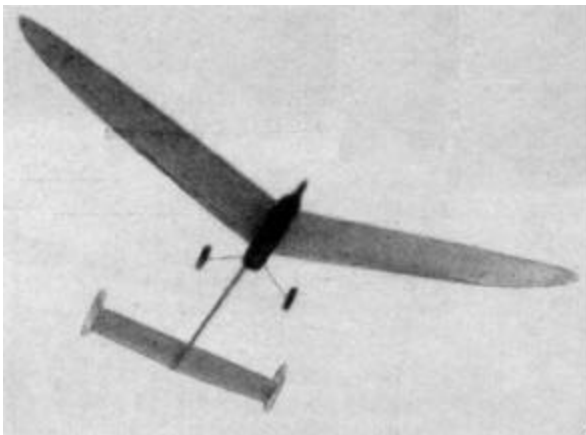


This easily built rocket plane ready for takeoff

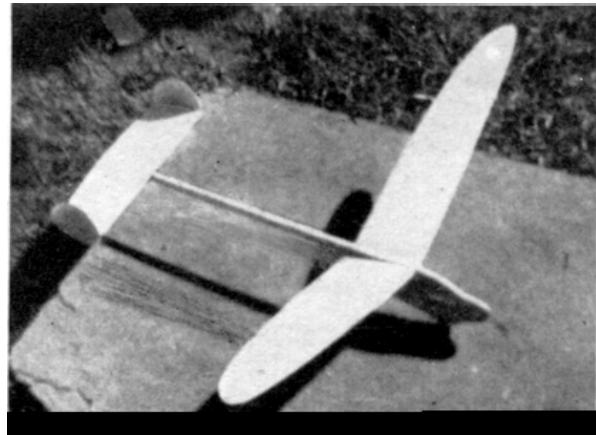
By TOM ENGELMAN

After ignition of the rocket, the ship pauses on the runway for about four seconds and then WHOOOOOSH !! Your next glimpse of the model is as it starts its flat spiral glide high overhead.

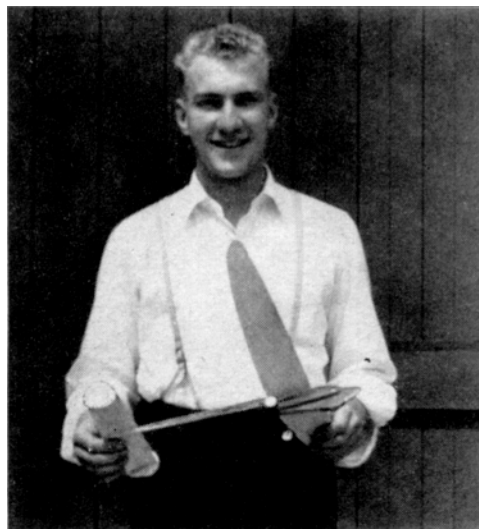
Novice or champion will find this unusual performer a worthy addition to his model collection. The wing loading of "only" 5.97 ounces per square foot insures the builder his share of thrills and "gray hairs."



An actual flight picture of the Rocketeer taken as it glided in



Spouting fire as it starts on a flight



The author with his Rocketeer

Construction

The rocket plane's general construction is very similar to that of a hand-launched glider. Special care should be taken to insure strong joints and precision alignment as at the high speeds at which the little ship flies a structural failure or a slight error in rigging is apt to cause some fancy cavorting.

Fuselage

The fuselage is built in two parts; boom and pod. Cut the boom from 1/4" medium hard sheet balsa and sand to a symmetrical streamline section. The pod is cut from the same stock. Cut out the section where the rocket tube and wheel will fit. Form the rocket tube by soaking a piece of 1/32" sheet, cut to proper size, in water until flexible and then wrap it around a 3/4" dowel or a two-ounce rocket.

Hold in place with strips of cloth and bake until dry. As soon as the tube is thoroughly dry cement the seam and secure the tube to the pod. In order to insure strength make sure the seam on the tube comes at one of the junctions of the tube with the pod. Fair the front of the tube to the pod, with soft balsa blocks. Cut the skirts for the front wheel; install the nosewheel and sand the skirts until they fair into the pod. Round off the pod corners until it has a streamline section. Bend the landing gear strut from .028 gauge music wire and secure to the fuselage. Solder or cement small washers to the inside of the axles to prevent the wheels from climbing the struts. Bush each wheel by cementing washers to both sides; secure the wheels by gluing a small washer to the end of the axle. Carefully cement the boom to the pod; sand the completed fuselage and finish with two coats of glider polish.

Wing and Tail Surfaces

The wing is a double ellipse planform. If you are not familiar with one, the method for plotting a double ellipse is:

Mark the scale wing plan off in 1/8" squares; then enlarge to proper size. Make the wing in halves, from 1/8" medium hard sheet and cut to the specified section. Sand and finish with two coats of glider polish.

Cut the stabilizer from medium soft 3/32" sheet and sand to the sections shown on the plans. Cement the rudders to the stabilizer, making sure they meet at right angles. Sand and give two coats of glider polish.

Assembly

Set the fuselage in some sort of a jig so that it stands perpendicular to the table. Block up the tail surfaces to their relative position; apply cement freely

and secure the tails to the fuselage. Coat wing roots with glue and fasten to the fuselage at the location shown on the plans. Block up the wing tips to make sure that the wing will have the proper amount of dihedral when dry. When the glue is dry remove the wing from the jig and completely cover the wing and tail junctions with cement; return to the jig until the glue again sets.

Paint the wing and fuselage joint twice more with cement, taking special care to see that the wing retains its correct dihedral. The rocket ship as a complete unit should be sanded and given one coat of glider polish.

Although it will not improve the model's flying qualities, some form of trim will greatly enhance its appearance. Use your own discretion when decorating your craft; the original Spitfire had a flaming red pod set off by black and white wheels.

Flying

Spitfire is powered with ordinary five-and-ten-centstore two-ounce sky-rockets that have been stripped of all superfluous trimmings. Rub some cement around the inside of the mouth of the rocket tube and pinch the tube to an elliptical shape; hold until dry. This will pinch the rockets and keep them from sliding in the tube and changing the plane's balance. Insert a rocket and slide it back and forth until the ship balances at the middle point of the wing. Glide the plane, remembering that due to the high wing loading it will glide quite fast. Since the balance of the plane is changed as the powder in the rocket burns, adjust for a slightly nose-heavy glide; the glide will flatten out as the powder is consumed. Warp the rudders to turn the plane in approximately 40 foot right circles.

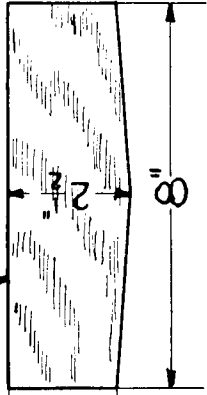
Takeoffs should be made from a four foot cardboard runway set at an angle of about 30 degrees to the wind. Elevate the front edge of the runway about two inches and "clear the decks" for action. Set the plane on the runway, take two deep breaths, and light the rocket fuse. If adjustments are O.K. you will really see a spectacular performance. Study the first flight and make adjustments just as you would with a hand-launched glider. After a couple of trials you will be rewarded with the fastest climbing, flattest gliding model you ever built.

Don't worry about your model getting damaged. Contrary to all appearances the tails will NOT catch fire and the wings will NOT pull off. This is our fifth rocket flier and so far only two have been damaged; one collided on the way "upstairs" with a gas model on the way "downstairs"; the other, a beauty by the way, was sat on in the shop by -- yes you've guessed it -- yours truly!!

*Scanned From September, 1941
Model Airplane News*

"SPITFIRE"
DESIGNED BY
TOM ENGELMAN
PLATE I

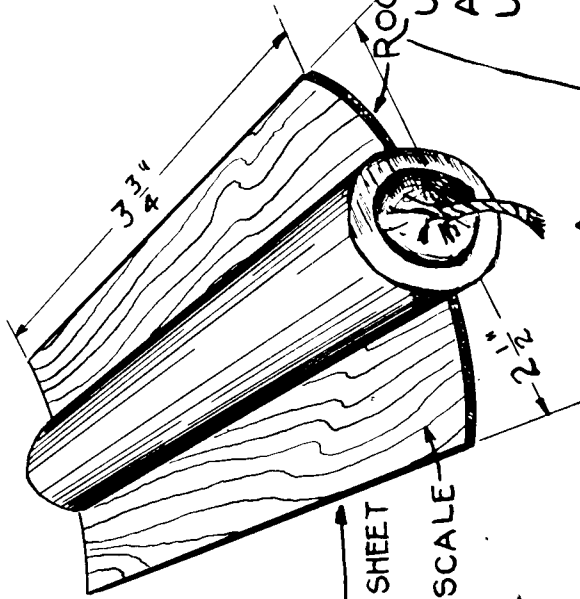
DRAWN TO $\frac{1}{4}$ SCALE



STABILIZER SECTION
ACTUAL SIZE



ROCKET TUBE - SOAK
UNTIL FLEXIBLE - WRAP
AROUND ROCKET - BAKE
UNTIL DRY - CEMENT SEAM



$1 \frac{1}{32}$ "
FLEXIBLE SHEET

NOT TO SCALE

2° INCIDENCE

$\frac{5}{16}$ " SOFT BLOCKS
USE FOR FAIRINGS

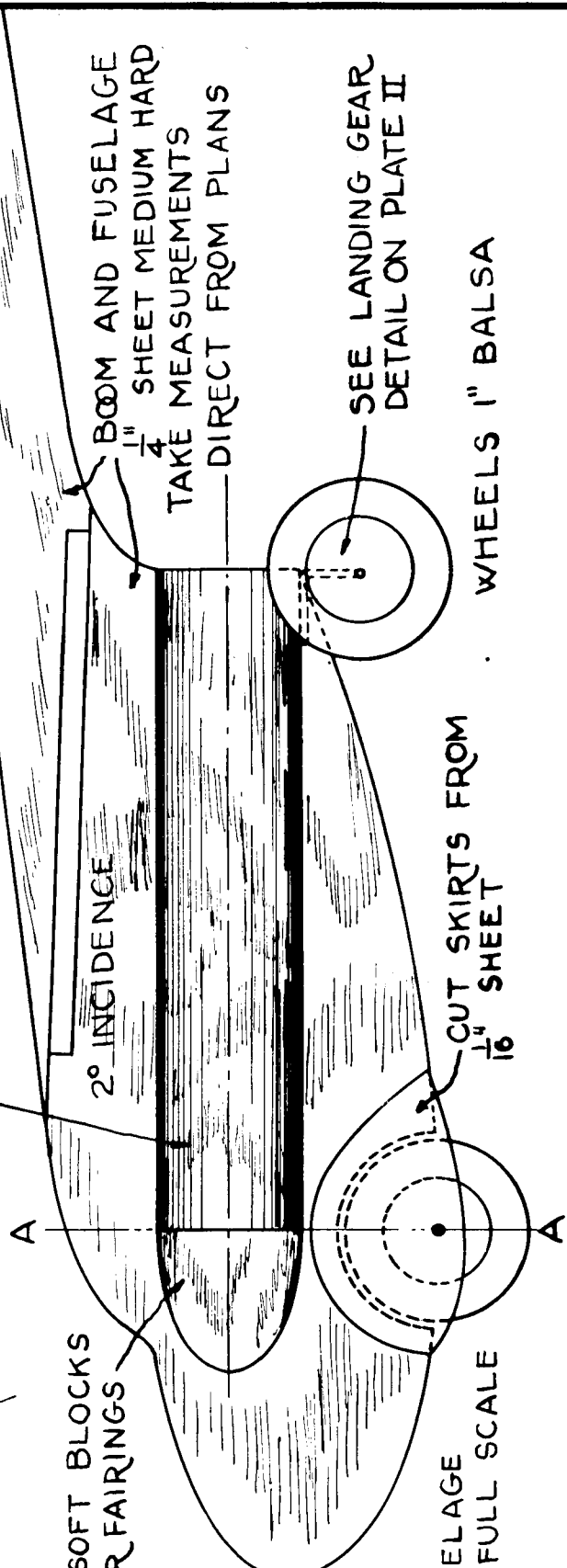
BOOM AND FUSELAGE
 $\frac{1}{4}$ " SHEET MEDIUM HARD
TAKE MEASUREMENTS
DIRECT FROM PLANS

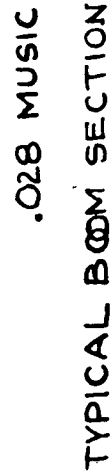
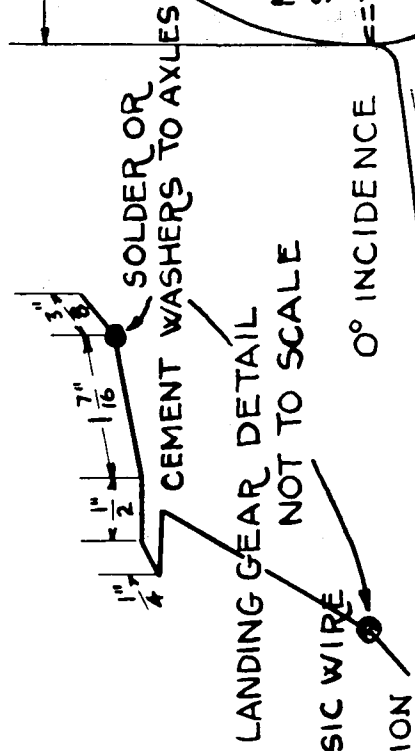
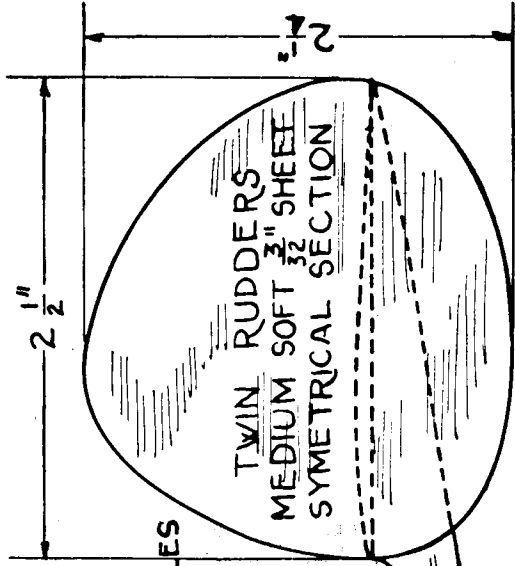
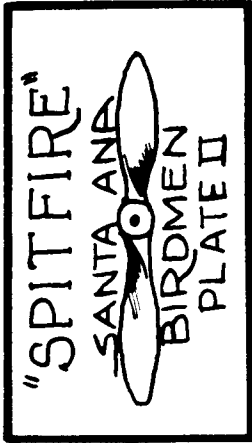
SEE LANDING GEAR
DETAIL ON PLATE II

CUT SKIRTS FROM
 $\frac{1}{16}$ " SHEET

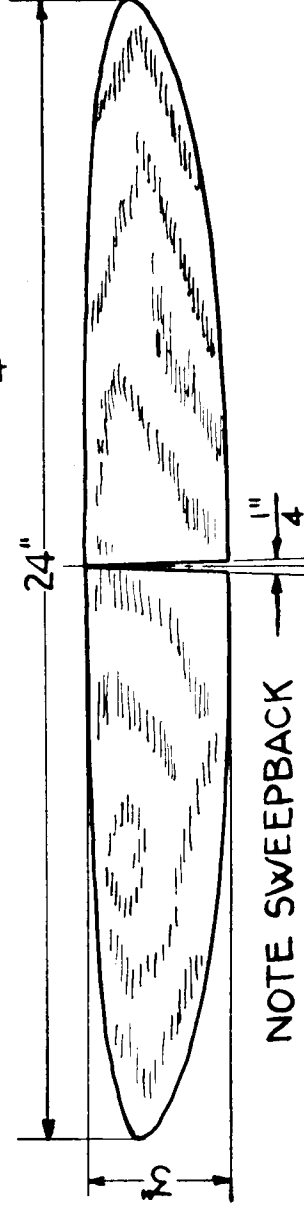
FUSELAGE
FULL SCALE

WHEELS 1" BALSA



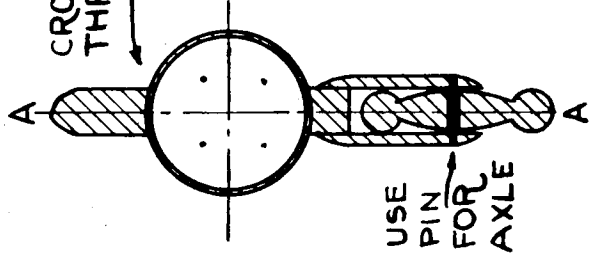


WING DOUBLE ELLIPSE $\frac{1}{4}$ SCALE



WING HAS 3" DIHEDRAL IN EACH TIP

CROSS SECTION
THROUGH A-A



WEIGHT
.35 OUNCES WITHOUT ROCKET

POWER
FIVE OR TEN CENT 2 OUNCE ROCKETS

WING AREA
55.85 SQUARE INCHES

