

$\frac{1}{4}$ " SQUARE

$\frac{1}{8} \times \frac{1}{4}$ "

$\frac{1}{16}$ " SQUARE SPAR

FLATTENED ALUMINUM TUBE

BRACE

CONTROL SURFACE MARKINGS

CEMENT SPAR TO FUSelage

#1 RIB SLANTED

DAB OF SOLDER

①

②

③

④

⑤

TIP $\frac{3}{16}$ " Balsa

$\frac{1}{16}$ " Balsa SEGMENTS (COVER WITH FALSE FLOOR)

$\frac{3}{32}$ " THICK

$\frac{3}{16}$ TO $\frac{1}{4}$ " THICK

AIR-INTAKE DIVIDER $\frac{1}{16}$ " Balsa

#1 BULKHEAD

$\frac{1}{8}$ " CIGAR-BOX WOOD #2 BULKHEAD

JETEX CLIP

1" DIA.

FLATTENED ALUMINUM TUBE

.045" MUSIC WIRE

$\frac{7}{16}$ "

HATCH

$\frac{1}{16}$ " Balsa

.045" MUSIC WIRE

$\frac{1}{16}$ " THICK

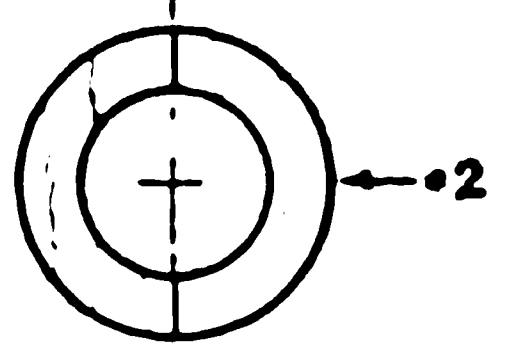
$\frac{1}{8}$ " Balsa TAIL BUMPER

$\frac{3}{8}$ " DIA.

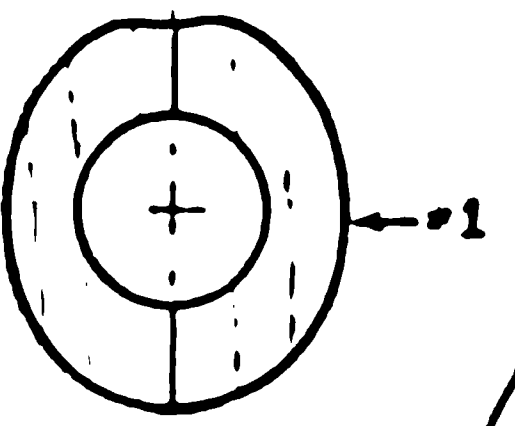
1" DIA.

$\frac{3}{4}$ " WHEEL

1" WHEEL

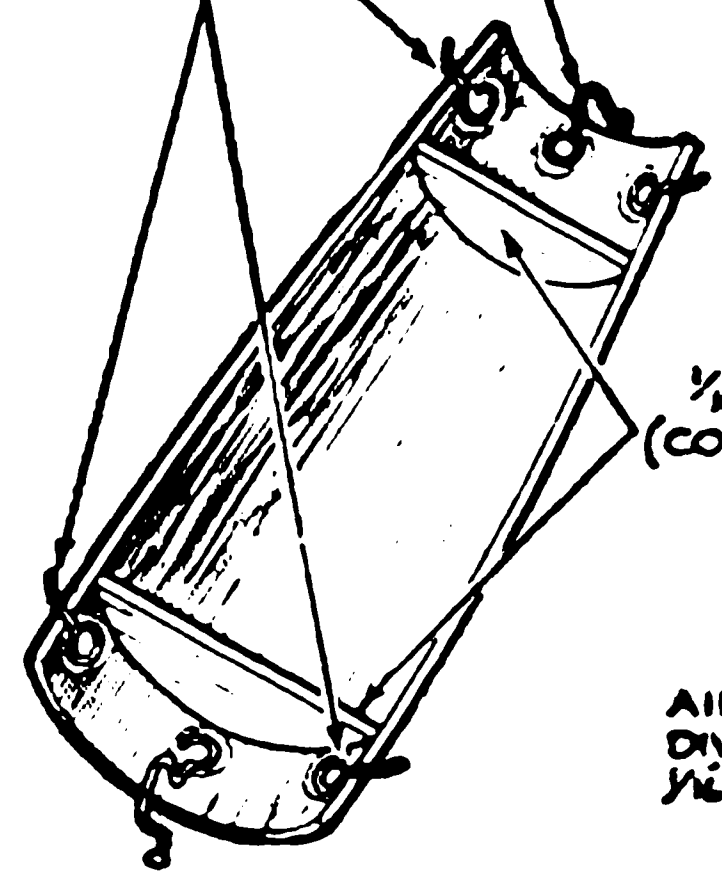


BULKHEADS



#1

SPRING CLIPS BENT FROM PINS, CEMENTED TO HATCH



1" SQUARES

You Can Build and Fly Your Own Thunderjet

By E. L. Garrett



It has the handsome looks of a desk model and the fly-ability of a balsa job.

ONCE just a science-fiction dream, propellerless aircraft are proving themselves safe, maneuverable and packed with unpulled punches. Pilots are getting a whole new set of kicks out of herding these pressure torches at sound-velocity speeds.

The Air Force's all-purpose Thunderjet makes a handsome model that will provide many of the thrills of actual jet flight. By choosing the straight-wing version, you avoid the difficulty of fashioning swept wings in small scale.

Fuselage. Two 1" by 2¼" by 15½" blocks of lightweight balsa are lightly cemented together to form a carving block. Rough-cut the block to the profile and plan views of the fuselage and finish the shaping with a sharp knife or chisel. No templates are needed to form the fuselage. The forward section is oval in shape, changing to

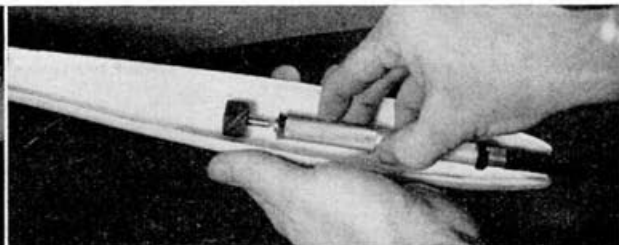
circular at the tail and extreme tip of the nose. Finish with fine sandpaper and force a double-edge razor blade into the thinly cemented joint to separate the two halves.

Hollowing the fuselage. Carve out the forward end to a wall thickness of about 3/16", then reduce the center section to 3/32" and the rear section to 1/16". This lightens the tail yet retains plenty of strength up front. Sand the inside smooth by hand or with a small drum sander chucked in a flexible shaft.

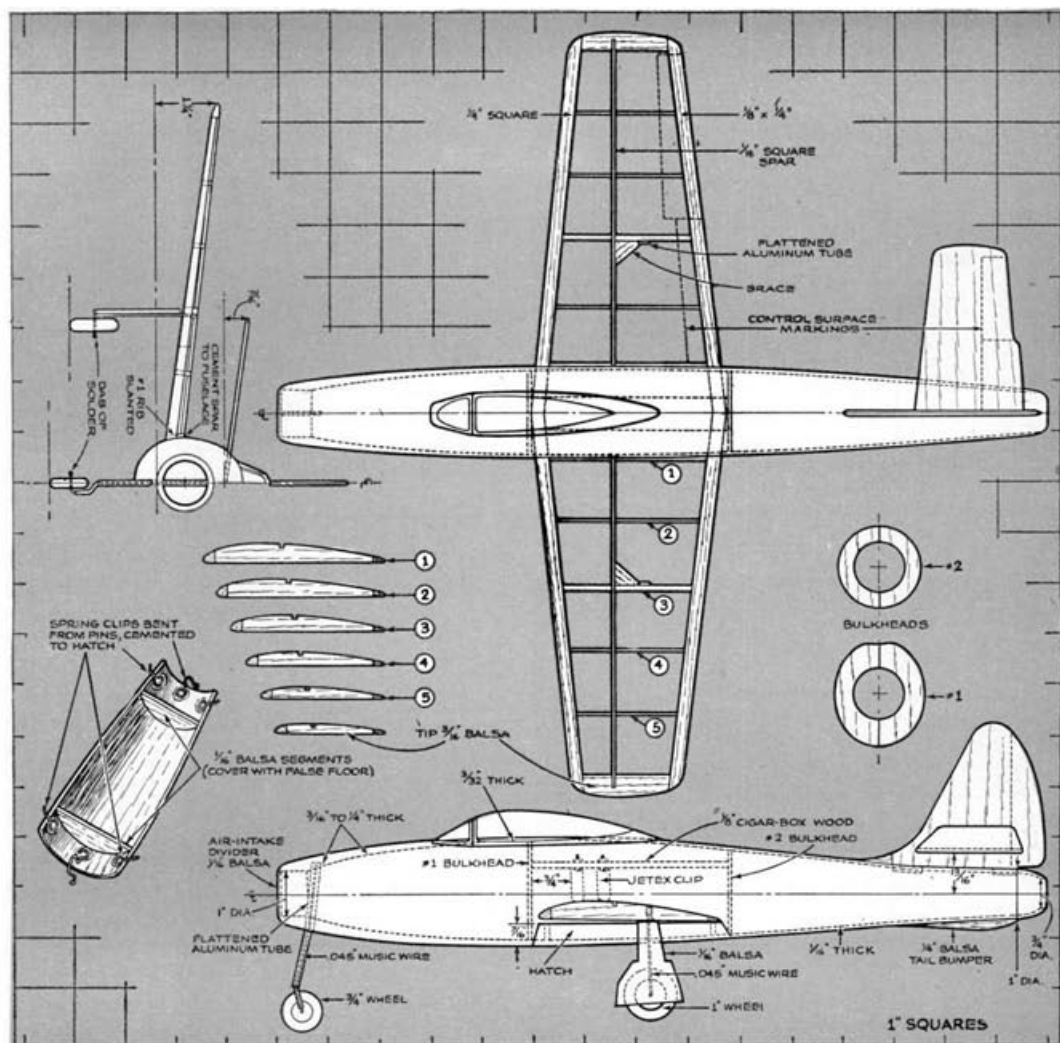
Cut notches for the flattened tube that secures the nose wheel, and fit the two half-bulkheads in place. Now cement the two halves together, using a slow-drying cement, and wrap the fuselage with model-plane



1 FUSELAGE HALVES are hollowed out with 3/8" gouge, well sharpened. Exterior shape is first carved from 1" balsa blocks lightly joined with cement; then halves are pried apart.



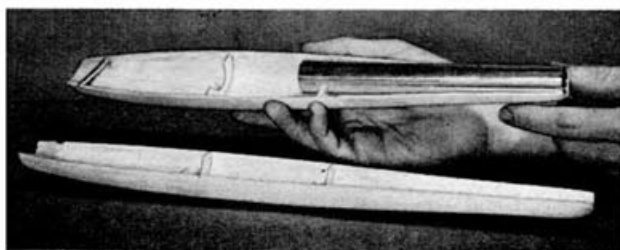
2 SMOOTH INSIDE of fuselage with sandpaper or small sanding drum in flexible shaft. Check constantly for thin spots by holding work up to a strong light.



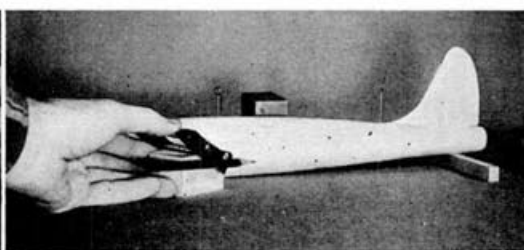
rubber or rubber bands. When dry, cement the nose-wheel tube and air-intake divider in the nose opening.

The 1/16"-balsa rudder will serve as a reference for aligning all other parts, so install it next, taking care to get it vertical.

Hatch. Block the fuselage up to level or flying position, using the rudder as a vertical guide. Lay out the hatch and mark the rudder for cutting the stabilizer slot. Cut out the hatch with a razor blade held in a level position to bevel the edges and cement two



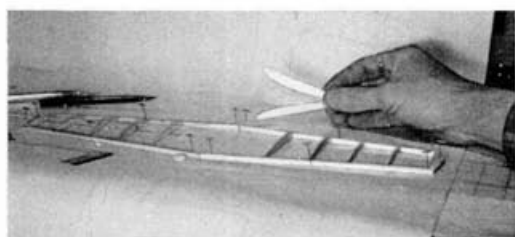
3 HALF-BULKHEADS are cemented in place before joining finished halves. Rolled-up aluminum foil should lie parallel to centerline and fit tail and bulkhead openings.



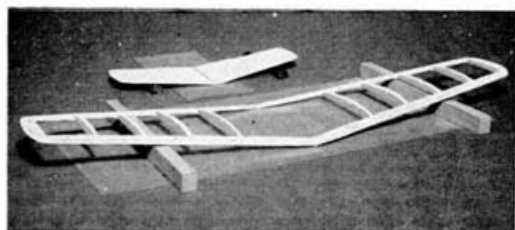
4 OUTLINE OF HATCH is put on fuselage with soft pencil clamped to wood block. Rudder is cemented into 1/16" slot cut in top of rear fuselage section. Make sure it is vertical.

$\frac{3}{8}$ " balsa braces along the inside of the hatch opening. Brace the hatch cover with two balsa segments and cement the spring clips, bent from pins, in place.

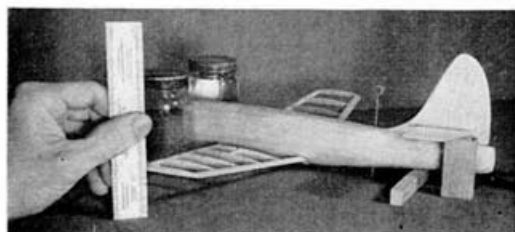
Wing and stabilizer. Enlarge the wing plan to full size, cover it with wax paper and



5 WINGS are assembled directly on plan covered with wax paper to prevent sticking. Wing ribs are cut in pairs for uniformity. Note No. 3 ribs are $\frac{1}{8}$ " thick, others $\frac{1}{16}$ ".



6 DIHEDRAL of wing and stabilizer is obtained by blocking up tips while cementing. Wing tips are raised $1\frac{1}{4}$ ", stabilizer tips $\frac{7}{16}$ ". Bevel meeting edges so they butt securely.



7 WING AND STABILIZER are checked against vertical rudder when cementing in place. Hatch has been cut out and fuselage notched for leading and trailing edges of wing.



8 HAND LAUNCHING, with wheels removed, is recommended for flying the Thunderjet. Fuse is ignited with cigarette or punk and plane held until jet unit hisses vigorously.

assemble the framework on it, using pins to hold the parts together while cementing. Notch the ribs for the top spar after they have been assembled to insure alignment. Block up the two wing halves, bevel the inside edges and cement them together. Notch out the hatch opening for the leading and trailing edges and cement the wing to the fuselage, using the rudder as reference for aligning it. Now cement the top spars in the rib notches, butting the ends firmly against the outside of the fuselage.

Cut the stabilizer halves from $\frac{1}{16}$ " balsa, bevel the edges and cement them together. When dry, insert the stabilizer in the slot in the rudder and cement the joint.

Landing gear. The prototype flies with wheels retracted; on our model the wheels should be removed for flight to get rid of their weight. Use .045" music wire for the landing gear, bending the ends to spring into the flattened tubing in the nose and on the No. 3 wing ribs. Slip radio spaghetti over the nose-wheel wire and cement $\frac{1}{16}$ " balsa wheel-well fairings over the landing-wheel wires.

Jet Engine. I used a Jetex, a British-made solid fuel engine that's sold complete with holding clip, a coil of fuse wire and cartridge refills. Fasten the holding clip to a strip of $\frac{1}{8}$ " cigar-box wood or plywood and cement the strip between the two bulkheads, centering the jet-engine orifice in the tail opening. Line the engine compartment and the inside of the hatch with household aluminum foil to protect the balsa from sparks. Roll up a tube of this foil and insert it in the tail opening to carry the hot exhaust gases through. The jet engine delivers full power for about 20 seconds.

Finish. Seal the fuselage and tail surfaces with two coats of balsa sealer. Sand smooth and paint the entire plane with silver model-airplane dope. Mask off the nose and tail and paint them red. Do the black center strip in the same way. The canopy, decals and wheels are available at large hobby shops. Control surfaces can be outlined with black decal material or paint.

Flight tests. Before sending the ship up under its own power, make hand-launched glides with the jet unit in place to check its balance. If it stalls, add weight to the nose. If it dives, load the tail. Launching is ideally a two-person job, with one ready to snap on the hatch while the other lights the fuse. The foil tube is slid back for loading and lighting, then pushed forward.