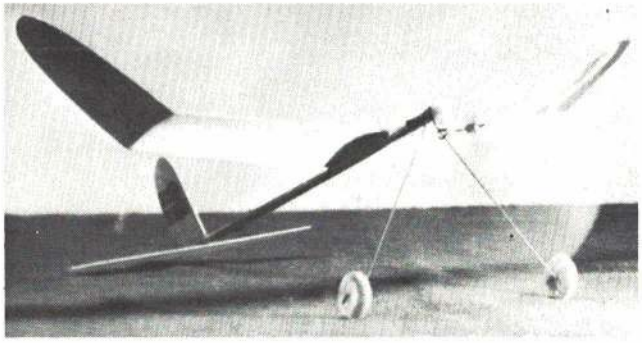
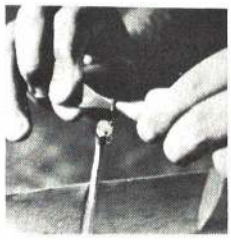
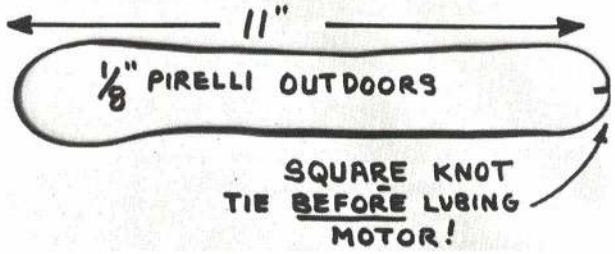
Optimizing flight performance of a simple dimestore ready-to-fly plane is challenging fun.





Left: Twisting more pitch into propeller makes it run longer and slower. Lower: Your hobby shop should stock contest rubber. Prepare several motors as shown.



by BILL WARNER

SUPER SLEEK STREEK

MAKE SEVERAL IMPROVEMENTS to the readily-available Sleek Streek by North Pacific Products, and the result is a fast-climbing, fire breathing, high-performance model. During ten years of working with junior-high-age modelers, I have seen hundreds of Sleek Streeks built and flown. With care they can top a minute consistently, indoors or out. Many have flown out of sight at five minutes plus, while the best indoor times have run around two minutes, fifteen seconds!

Construction

Begin construction by sanding the wings, with a gentle touch, from the center towards the tip. A wing needs strength at its root but should be lighter at the tip to improve flying ability. However, tips should not be paper-thin, or else they may split or be too weak. A little airfoil may be sanded in or the curved shape on top of each wing emphasized in the direction of its natural curve.

Cut the wing tips off exactly where shown on the plan. Sanding the dihedral joints (where the wing changes direction) is probably the hardest job, so take your time. The trick is to sand a little bevel (angle) on each wing section, while keeping the wing curved in its airfoil shape. A sanding block and a couple of sanding fixture blocks (see plan) simplify this step. The fixture blocks hold the curve and the angle at the same time, while the wing pieces are sanded straight across the ends.

After sanding the correct bevel on each wing joint, spread a line of cement about the thickness of a fat pencil lead along the edges to be joined. Fit the joint together, rub in any extra cement which squeezes out, take apart and let dry to fill the pores in the wood. Repeat this operation a second time, but now hold the parts together until dry. Holding the assembly is essential. Drying flat on the table will ruin the curved airfoil, which is necessary for top performance. To prevent warping or adding extra weight, wipe off any gobs of cement which are on the wing.

Pull the staple out of the fuselage (body) and cut down the bottom side to reduce weight (unless the fuselage balsa is very soft). Note the angle at the end of the fuselage where the stab will go later. Bend a pin for the rear motor hook and bind and cement it just in front of the stab position.

With a pair of pliers, take out the old prop shaft and throw it away. The new rubber motor would just climb out of the original hook. From the white plastic front-end part, cut out the piece (shown on the plan) to allow for rubber clearance. Cement the front end to the fuselage and bind with thread. Spread cement around it, rubbing into the thread wrapping.

Bend a new prop shaft out of 1/32" or smaller music wire. Round-nosed pliers are best, but needle-nosed will do. Practice on some softer wire first to get the hang of it. Assemble front end parts, using a glass bead between the front end and the prop. Bend the end of the shaft over at a right angle only when sure the prop is put on properly (at the prop's center is a little spiral ramp which faces front for free-wheeling when the rubber motor is out of winds).

Taper the stab and rudder slightly from the fuselage out to the tips and sand smooth. Cement these pieces onto the fuselage as shown. Then tie the rubber motor to be used and hang it between the prop hook and rear motor hook. Support the fuselage with a

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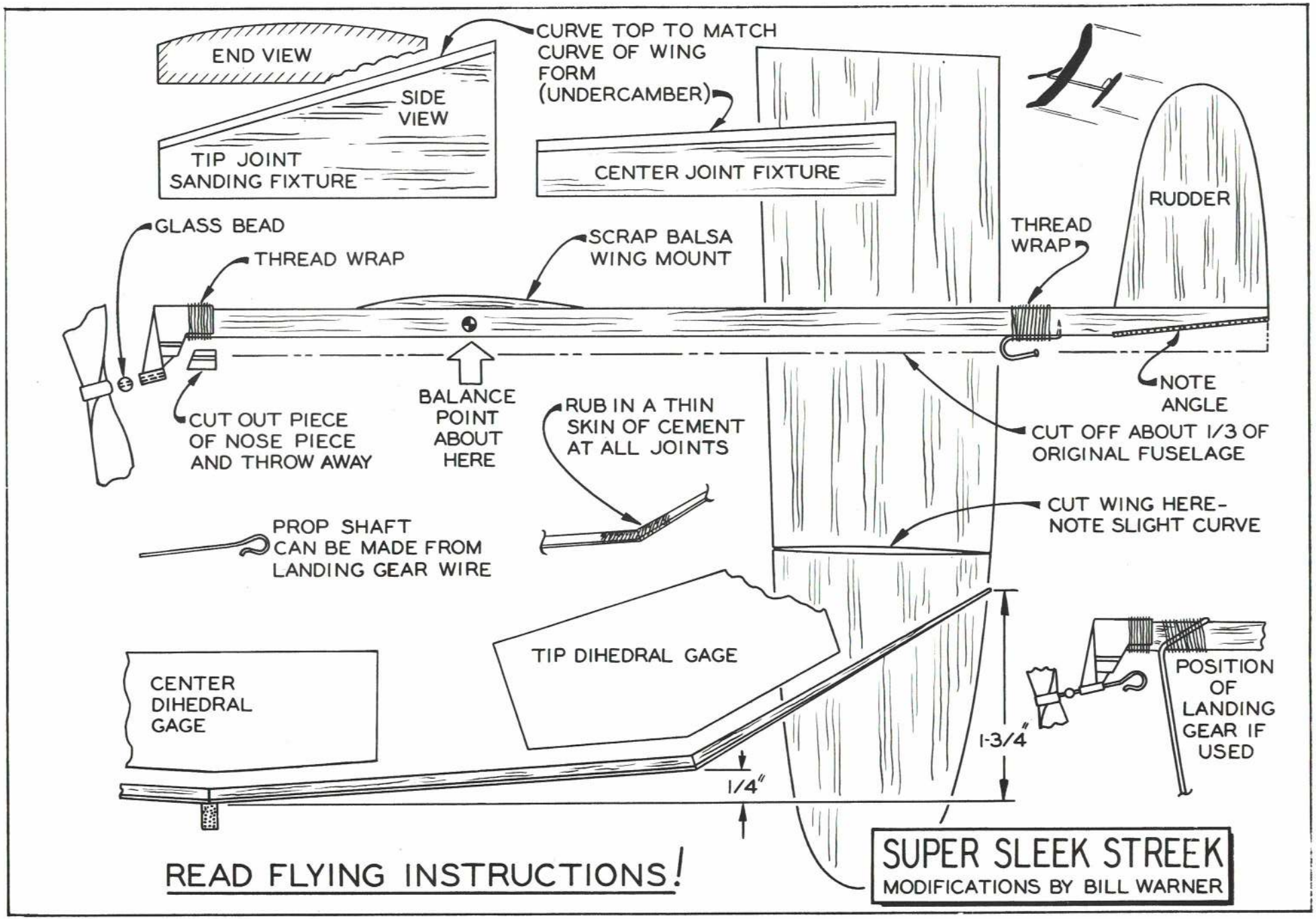
END VIEW
SIDE VIEW
TIP JOINT SANDING FIXTURE
CURVE TOP TO MATCH CURVE OF WING FORM (UNDERCAMBER)
CENTER JOINT FIXTURE
RUDDER
GLASS BEAD
THREAD WRAP
SCRAP BALSA WING MOUNT
THREAD WRAP
CUT OUT PIECE OF NOSE PIECE AND THROW AWAY
BALANCE POINT ABOUT HERE
RUB IN A THIN SKIN OF CEMENT AT ALL JOINTS
NOTE ANGLE
CUT OFF ABOUT 1/3 OF ORIGINAL FUSELAGE
CUT WING HERE- NOTE SLIGHT CURVE
PROP SHAFT CAN BE MADE FROM LANDING GEAR WIRE
TIP DIHEDRAL GAGE
CENTER DIHEDRAL GAGE
1/4"
1-3/4"
POSITION OF LANDING GEAR IF USED
READ FLYING INSTRUCTIONS!
SUPER SLEEK STREEK
MODIFICATIONS BY BILL WARNER

Super Sleek Streek

(Continued from page 50)

finger and mark the point where it balances. The curved wing-mounting pillow block is installed directly over the balance point. Rub a little glue "skin" on each wing's dihedral joint and let dry. Cement the wing to the mounting block and "glue skin" the joint after it has dried. Sight the wing from the top and from the rear while it is drying to make sure it does not get tilted or skewed in relation to the fuselage or the stab.

When the model is completely dry, sight under the wings from the front and from the rear to make sure there are no warps or twists. Warps can be removed by holding over steam and twisting in the opposite direction. The wings must have no warps if the Super Sleek Streek is to fly at high speed!

Flight Testing

Outdoors: Tie a 1/8" Pirelli rubber motor (square knot) and rub in a few drops of castor oil for lubrication. Oil the prop shaft also, with a light oil like 3-in-1. Pick a calm day and find the largest field around. Have a friend hold the prop while you stretch-wind the motor from the rear. Walk gradually toward the model. A hand drill with a wire hook is a handy winder. Use only 150 to 200 winds for the first hops. Gradually work up to a fully-wound motor when the model is flying well.

Holding the wound model as shown, release it into the breeze. Observe carefully exactly what the model does. Did it climb steeply? Spiral right or left? Did it dive all the way? To the right or left? Did it stall (climb steeply, then fall)? Did it loop?

Do not fly again without making a change (unless the model made a smooth spiral climb up and a smooth glide down in about 20-ft. circles).

Making Corrections: To cure a loop or stall, check the wings for warps. Breathing on the wings and then bending them in the opposite direction will help. Re-check. If the wings are okay, try bending down the rear edge of the stab just a little. As a last resort, add a little modeling clay to the nose.

If the loop or stall was in straight flight, bend the rear of the rudder a little toward the desired direction for the plane's turn. (The SSS will fly in right or left circles). A little turn will help kill a stall. Be careful, because at high speed, too much rudder bend will spin the ship into the ground.

To cure a dive, make sure it is a true dive, and not the result of a bad roller-coaster stall effect. If it dives straight in all the way from release (assuming that the wings are not warped), bending the rear edge of the stab up a bit probably will cure it. Dives to the right or left usually are caused by warped wings or the rudder's being bent toward the inside of the circular flight (dive) path. Is the stab tilted as seen from the rear? SSS's almost never need clay on the tail to cure dives.

Indoors: The main difference for indoor flight is that less rubber is needed (3/32" Pirelli works well).

Sources for Materials: Rubber is available in fifty-cent packs from W. C. Hannan Graphics, P.O. Box A, Escondido, Calif. 92025. (A chain of No. 16 rubberbands will work, but not too well. Never use the too-powerful rubber that comes with the kit.) Nice 16:1 ratio winders can be purchased from Marlow Engineering, 6850 Vineland Ave., North Hollywood, Calif. 91605