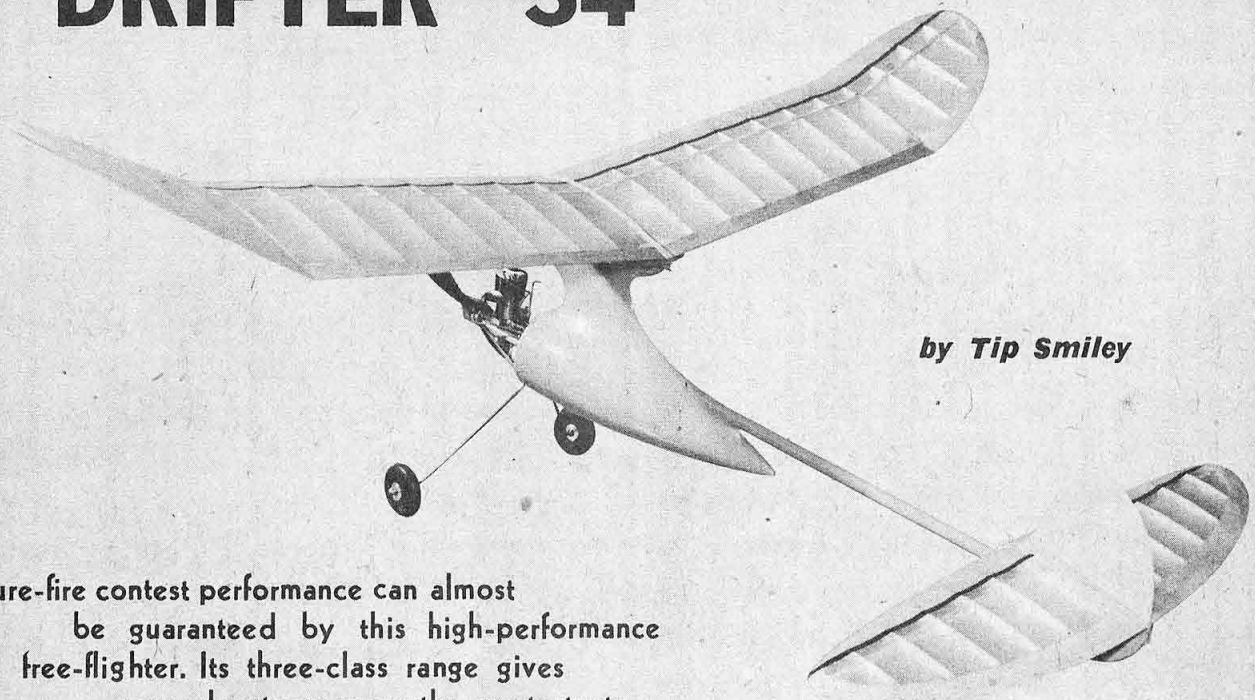
DRIFTER "54"



by Tip Smiley

Sure-fire contest performance can almost be guaranteed by this high-performance free-flighter. Its three-class range gives you advantages over other contestants

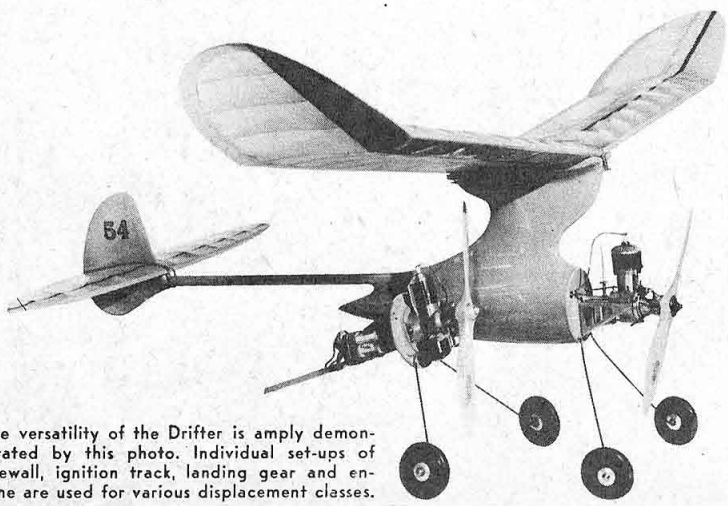
● Tired of the flimsy, temperamental contest jobs you've seen for so many years? The Drifter 54 is a hot performer, but it's not flimsy or temperamental in the least. This plane has a degree of stability and reliability seldom seen in a contest model. Performance is terrific!

The original model was completed just three days before the Waterloo Prop Twisters' first annual contest in 1947, so tests were made right at the meet. Two low power flights were made to determine the flight path. A fifteen-second engine run was used on both flights. Satisfied with the flight pattern, the timer was reset for twenty seconds, and the Arden .19 advanced to half throttle. Since this was still in the nature of a test flight, we did not call for an "official," much to our regret. After fifteen minutes, the model went out of sight!

Three months later we received word that the plane had landed in a cornfield, some twenty miles away. Due to snow, mud, rain and exposure, the wing and tail were warped and the covering badly torn. Remarkably, though, not a single piece of framework was broken.

The fuselage and engine were still in fine shape, so a new wing and tail were built. The model pictured is the original fuselage with the new wing and tail assembly. She's still going strong. Incidentally, a new Forster power unit has been added so the plane can be flown in Class A, B, and C events.

Pod and boom styling was chosen for a definite reason. The Drifter "54" will pass the cross-section rules, and has ample space for the ignition components but, due to its *(Turn to Page 61)*



The versatility of the Drifter is amply demonstrated by this photo. Individual set-ups of firewall, ignition track, landing gear and engine are used for various displacement classes.

DRIFTER "54"

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design, skin friction is cut very noticeably, thus eliminating a great deal of power loss. A pylon is employed to get that wonderful climb. The pod and boom are nearly indestructible, due to the birch dowel and planking incorporated in the construction.

If you're really interested in building a fine, reliable contest ship, enlarge the plan (which is half-size) to full scale and let's go!

POD, BOOM AND PYLON ASSEMBLY: First cut the pod outline from hard ¼" sheet balsa. Then pin the outlines over the side view (Since the cross section is round, a top view is not necessary). Add four or five balsa cross-pieces between the outlines to retain their position while adding the formers. Be sure to mark the former positions on the crutch while those temporary cross-pieces are drying.

Now cut out all the formers. Accuracy is a "must" at this point, for the alignment of the entire assembly is dependent on these pod formers. The notches for the crutch, boom, and pylon must be cut for a snug fit. This is a small item, but a very important one.

Now remove the crutch from the plan and cement the formers in place, taking care to keep them in perfect alignment. When the formers are thoroughly dry, the tail boom may be added. Slide it in from the rear until it butts against former No. 3. Cement generously where the boom makes contact with the formers.

Next the pylon is made of three plies of 3/16" hard sheet balsa. The two outer plies run forward, as shown by the solid arrow on the plan, while the center ply runs rearward, as shown by the broken line arrow. When this assembly has been completed, slip it in place on the pod. Notch it into formers 2 and 3, and butt against former No. 1 and the tail boom. Use cement liberally.

Now cut the firewall from ⅛" birch plywood and drill three holes, as indicated, for attachment to the pod assembly. Three corresponding holes are drilled in former No. 1, which is made of plywood. Now bolt the firewall in place, and cement the nuts to the back of former No. 1. When the cement has hardened thoroughly, remove the bolts and firewall from the pod assembly.

Now remove those temporary cross pieces from the crutch, and begin planking the pod with ⅛" x ¼" soft balsa. It is best to alternate the strips from side to side, in order to keep the pod in alignment. When the planking is complete, sandpaper the entire assembly (pod, boom, and pylon) and add fillet putty to streamline the pod, boom, and pylon junction. With the addition of the wing and tail platforms, and the sub-rudder, the assembly is complete.

An ignition track is built according to the plan, and cemented in place on the back side of the firewall. The landing gear is bent from 3/32" diameter steel wire. "J" bolts may be used to anchor the landing gear to the firewall, although the method shown on the plan was used on the original. The engine is mounted in the conventional manner. The original Drifter "54" has two complete, separate power units; one Arden .19 and one Forster unit. Due to the Arden's light weight, all ignition components were placed as far forward as possible, while on the Forster unit, all components were placed towards the rear.

STABILIZER AND FIN: These are of conventional construction and very simple to build. Both fin and stabilizer outlines are cut from medium hard 3/16" sheet balsa. Stabilizer ribs are of 3/32" sheet balsa, preferably quarter grain stock. The spar is tapered from 3/16" x ⅜" at the center, to 3/16" square at the tips. Very hard balsa should be used for this spar. The leading edge is ¼" square and built up of two ⅛" x ¼" balsa strips laid edgewise. The fin is flat, and sanded to a streamlined cross-section.

BUILDING THE WING: This too is of a conventional type construction, with the exception that it is made in four separate panels.

Start construction with the right inboard panel. Pin the lower spar and the trailing edge in place. Lean the ribs to the right against the inboard dihedral template and cement in place (The dihedral template assures uniform alignment of all the ribs). Now add the top spar and the leading edge, and when thoroughly dry remove the section from the plan.

The left inboard panel is built in the same manner, and over the same plan—only this time place the template on the left side of the ribs, so they will lean to the left. Both tip panels are built in the same way, but a different dihedral template is used. Taper the spars, both top and bottom, from 3/16" x ⅜" at rib No. 1 to 3/16" square at the tip.

When all four panels are complete, cement them together, butting the end ribs of corresponding panels. This automatically puts the correct dihedral angle in the wing. Spars are reinforced at the dihedral breaks with 1/16" birch plywood spar joiners. When correctly built, this is one of the strongest wings we've seen.

COVERING: Lightweight (rubber powered) silkspan was used on the original model. Cover the pod, fillets and pylon also, as this offers fine resistance to splitting on rough landings. Before covering, give the entire fuselage assembly and framework two or three coats of sanding sealer, and sand well. You are less likely to be bothered by warps, and a finer covering job may be had. The original color scheme is International Orange for the fuselage assembly, fin, and leading edges of the wing and stabilizer, with the remainder of the plane white silkspan, clear-doped. A black stripe separates the two colors on the wing and stabilizer. Testor's liquids were used throughout on the original model.

FLYING: This is the easiest contest

ship to adjust we've seen to date. Due to its remarkable stability, the Drifter "54" flies itself right off the workbench. Incidence is already built into the pylon, so no "blocking" is needed. Check the engine thrust line to insure a zero-zero setting. The stabilizer might be propped up a negative 1/16" and the fin set about 3/16" to the right to offset torque.

This plane isn't the least bit critical, so you needn't worry too much about "over-controlling" on your adjustments. Just use a little discretion, experiment with low-power flights at first, and you'll have one of the finest, reliable, contest models you could possibly ask for!

Incidentally, if you own one of the new midget engines, (Infant, Cub, etc.), don't enlarge the half-size plans given on these pages, but use them as they are, and you'll have the proper size plane for this power. Of course you will have to reduce the parts drawn full size to one-half the size shown. If you do not relish redrawing these parts, a photostat will fill the bill perfectly for you, for only a few cents.

BILL OF MATERIALS
(Balsa unless otherwise specified)

3—1/4" x 1/4" x 36" (hard) . . . . Leading edge of wing, stabilizer and pod crutch
4—3/16" x 3/8" x 36" (medium).....Wing and stabilizer spars
1—3/16" x 3/4" x 36" (medium).....Trailing edge
1—3/16" x 3/16" x 36" (medium).....Wing mount platform
12—1/8" x 1/4" x 36" (soft).....Planking for pod
1—1/4" x 1/2" x 12" (hard).....Ignition track
1—1/2" diameter dowel (birch).....Boom
3—3/32" x 3" x 36" (medium).....Wing and stabilizer ribs
2—3/16" x 2" x 36" (medium) . . . . Wing and stabilizer tips, trailing edge and pylon
1—1/4" x 2" x 12" (medium) . . . . Wing tips, leading edge and pod crutch

1/8" plywood for gussets, firewall; 3/32" plywood for gear mount, gussets, etc.; 1 length 1/16" wire; 1 length 3/32" wire; assorted block balsa, short length aluminum tubing; 2—1/4" airwheels; timer, nuts, bolts and washers; cement, dope; silkspan; .19 to .29 engine.

MONO-SPORTSTER

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Any details that the builder may desire can be added now. The windows may be painted in with black dope. Control outlines are made with India ink and ruling pen. Decals may be used for numbers, etc. Be cautious about adding too much dead weight in the form of paints or structures.

FLYING: No model airplane can fly at peak performance without much time being put into the initial adjustments. This little job is no exception. The model is an "all weather" flyer, so you need not wait for a calm day to make the first test hops.

Install eight strands of well-lubricated 1/8" flat brown T-56 rubber between the prop shaft and the rear dowel. A long wire hook helps a lot in getting the rubber back to the rear dowel. If you have difficulty, cut a 3/8" square inspection patch in the side of the fuselage behind the rear dowel. Scotch tape is used to hold the patch in place.

Warp the rudder slightly so that the glide is in left circles and add right thrust so that power flights are in a right circle, causing the model to climb to the right under power and circle down to the left in the glide. When you feel that you have the model pretty well adjusted, change the motor to a ten-strand one—then watch that climb!

BILL OF MATERIALS
(Balsa unless otherwise specified)

3—1/20" x 3" x 36" (medium).....Wing, stabilizer, rudder, fuselage sides
1—1/32" x 1/2" x 24".....Fuselage braces, top
1—1" x 1 1/4" x 1 1/2".....Nose block

Scrap 1/8" and 1/16" balsa sheet; 1/8" dowel; .040" piano wire; 10 feet 1/8" brown rubber; 1" diameter balsa wheel; Jasco free-wheeling unit; ball-bearing washer; 8" diameter P/D 1.5 machine-cut prop; cement; dope.

HANDY HINTS

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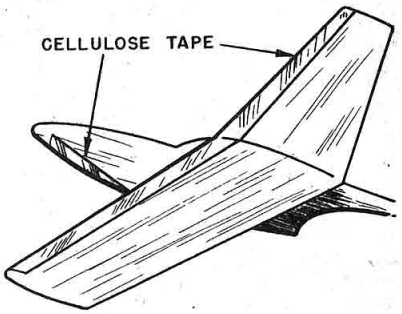
Glider Insurance

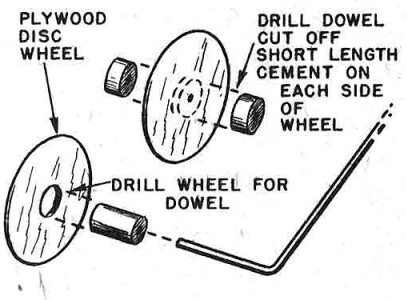
To prevent minor dents and splits in the leading edges of glider wings, fold a strip of 3/4" or 1" wide cellulose tape



over the length of the leading edge. The same trick applied to the nose and belly will save the surface at these points.—MICHAEL KRIM, N. Y., N. Y.

Wheel Hubs

Lightweight wheel hubs for rubber-powered or free-flight gas jobs can be made from a short length of hardwood dowel. Drill the axle hole first, then cut dowel to the desired length. The wheel disc can either be drilled for the dowel or the dowel can be cut in short lengths



and cemented on each side of the wheel. —JAMES H. HARVEY, Santa Maria, Calif.

Another Stunt Tank

Thin-walled brass or copper tubing of 3/8" or 1/2" inside diameter forms this control-line stunt-model tank which is mounted inside the wing leading edges. The outboard end has a simple plug for filling. Centrifugal force keeps fuel flow constant. *(Turn to Page 64)*