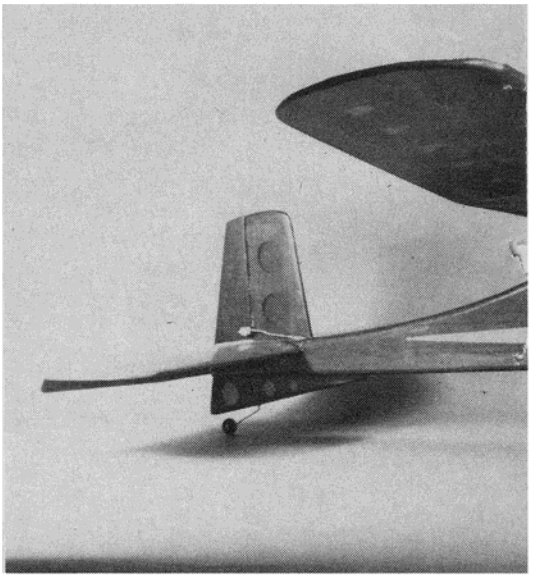
We do recommend MonoKote—ours is done in transparent blue on the fuselage and vertical tail and is trimmed in red. All red is nice for lightness or how about yellow wings and blue fuselage. Make it dark though, because this crate can go to the moon. We have golden trim arrows on the sides to flash in the sun during soaring turns.

Now let's get into stuff no one has ever told you. Begin with the aircraft profile and side thrust. On a pylon model, or any high-wing cabin job with considerable profile area above the thrust line, (which is rather low on this one) the corkscrewing affect of that prop slipstream, forces the model into a right turn. Remember, this is a contest-type cabin free flight, and Wally did it on purpose. If you are a Sniffer lover, you won't mind living with this problem. But it is a problem with a silver lining, so to speak, because it makes possible some very effective strategy for soaring flight while under low power.

Consider a .35 on four ounce tank. It is frequently possible to obtain 18-minute-plus engine runs at moderate throttle, and glide periods of up to an hour or more. (We brought it down at the end of one hour if we encountered lift). Even at six pounds, the ship easily takes off the ground at ⅔ throttle without control of any kind, and that is on grass that has not been manicured for a month or more. For that reason, our models sport giant, William Brothers Vintage wheels. They cut through grass more readily and don't hang up on sharp runway dinks. The easiest take-off occurs if you hold a spot of up just until the

Golden



The first step in building this model was to bow to the east (we should say west) and render homage to one of the greatest designers of the ages: Wally Simmers (now the S in K&S). He was remembered by pedigree oldtimers as the creator of the Gollywock and Jabberwock, and by mere oldtimers for his postwar ½ A Sniffer. That was a truly mass built charmer of a cabin model which cleverly incorporated pylon characteristics and so outflew everything—but the pylons.

You don't know this, but, Frank "Big Stoop" Garcher (who built the Midwest Empire) was a partner of Simmers in the old days. At the National site hotels, before the War, they hung crude signs in corridors which said, "Midwest"—with a big red arrow. After encountering these signs at both Detroit and Chicago, we finally got the point that if you needed sticks, you followed the red arrows.

When Wally sees the Golden Sniffer he will sing "Look What They've Done To My Song Ma". Forgive us, Wally, but we changed a "few" things. Look at it this way, R/C is a nasty task-master. What did we do to it, Wally? Glad you asked that question.

First of all, we were after a strange breed of cat, a model that could soar with the buzzards, yet be purposely heavy and strong; to be tossed around like a hot sport model and fly in the gales which harrass all modelers. We quickly learned not to toss this plane around close to the ground. It has a mischievous streak. But, when one guy gave it a catapult launch he threw it in to the ground in a full-bore cartwheel. Nothing broke. When it got caught in a rolling wind cloud in a freak summer strom, we dived it like a stone and landed within 50'. Meanwhile, John Worth's ancient Bombshell (a lightweight) went squirrely and blew away for two-and-a-half miles. The radio fought valiantly on the burning deck, as its world came unglued.

The Sniffer had huge decalage, (yes—you engineer pests, we do know what that is) modelers call that angular difference, we cut that in half. Corkscrew vertical climbs were out. The negative stab was put at zero and the thick stab lifting section drastically reduced. It was ⅛" thicker on the plan for a higher speed, level cruise. We took out a good bit of dihedral and knocked the poly in half. It came in at six pounds on less than six square feet of area, and was motivated by an OS .35. The OS is a premier sport engine. Quick starts, stingy on fuel, able to rotate an 11-3 or 3½ prop, it idled so low one often did not know it was still running until late in the "glide" apprach. (Incidently, Wally used a Clark Y bottom and an RAF 32 top for the airfoil).

To F.M.'s kind-hearted readers, we "redesigned" on paper the plans you see here. The plane now is lighter, has a bit less center dihedral and more poly to look more Snifferish. It isn't tested in this light form on a range of smaller engines from Veco (K&B) 19 to Supertigre .23 or .25 Schnuerles. But if you cannot handle that, we'd be surprised. This is not a beginner's crate. It is not a paper napkin floater—but oh, how it will soar. The heavier .35 powered machine is great for any practised three-channel pilot. Perhaps, we are too cautious. Bob Aberle flew it once and said that if beginners cannot learn to fly with the sniffer, they cannot learn to fly at all.

This is not a step-by-step thing. You are on your own as to construction. We are all big boys now and can tackle projects like these.

ship has gained some momentum—say 10 to 15 feet in front of you. As soon as the sniffer is off and safely on the way begin the climb-out. Keep coming back on throttle feeding it down trim occasionally until the climb is at a shallow RC sport plane angle and the high air speed is reduced for a comfortable feeling.

Rudder-guide it on a straight path until 150 to 250 feet out, and set up the slightest turn right that will result in a wide circle without passing behind you. Once safely positioned, allow it to free flight. Thereafter, you can play with all three trims, rudder first, power second, elevator third. Underway, the Sniffer will stand a good bit of down trim for flatter flight and to avoid a free flight type of climb. During that stage, power is reduced until a slight climb remains. After this , control is almost entirely rudder and engine trim combinations.

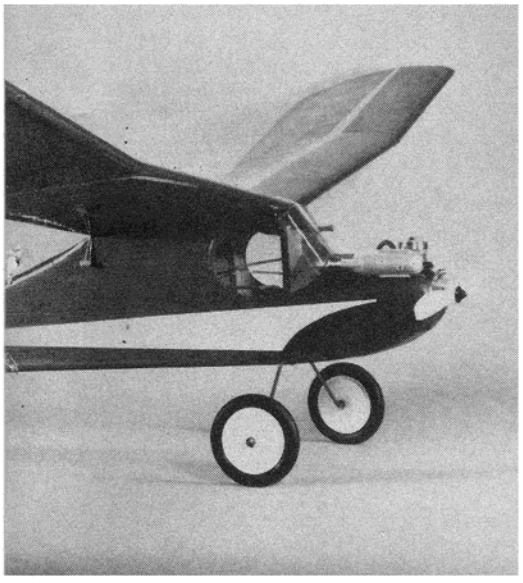
Now, let's consider that thrust offset question. When first tested, the ship has two degrees right thrust, as well as two degrees down thrust. On climb-out it leans slightly to the right due to the prop slipstream against the high fuselage side. We take out the right thrust, naturally. The ship becomes virtually unmanageable on the first hand launching and leans wildly to the right, not the left. So why not left thrust? That would be disastrous since the angle of the slipstream striking the fuselage side and fin/rudder change with offsets, and our right thrust really is the "apparent" effect of left thrust. Slipstream is far more powerful than thrust offsets.

Opening the engine makes the plane turn

PHOTOGRAPHY: JOHN PRESTON

Sniffer

An update of an old F/F favorite to R/C/**Bill Winter**



right, with more power, it achieves steeper right turns. Throttling back far enough so the ship flies straight is usually a tip to us that the engine is dead. By adjusting the clevis, we set the rudder before flying with about ⅛" left at its trailing edge. When hand launching, we trim slight-up at the transmitter, get rid of it as the climb-out steepens. You never heard of left-rudder take-offs? During the throttle-back, turning climb, (about 200' circles in calm air or slight wind) we permit the ship to go free flight. To occasionally tighten the turn we add a click of right, sometimes two. Circle like that and the lift will find you—you won't search for it. Long, low-power runs give you hover time to spare.

Now, if you add a click of power, the right circle tightens and you'll trade off with a click of left rudder. Take-off power, and you trade click for click with right rudder. Sometimes it is two rudder clicks for one on power. The entire flight, unless it is a windy day, (or you wish to reach a different area) is made, once set-up, with nothing but trim movements—for an hour or more. Beginners heed, adding even a click tightens the turn and requires a click of left rudder if the plane is flying to the right. The throttle stick is essentially a thermal sniffer and when it is all the way back and the plane is climbing, it is in good lift.

As the dead-engine approach period starts, fly the rudder with the stick, and pass down wind for the long approach, position rudder for neutral and a straight glide, at the transmitter trim. It is smart to feed in a tiny bit of rudder trim in the direction of the intended cross wind left turn onto final—so you don't get boobytrapped in late sun conditions, or when far out as a silhouette. When you start your turn into final, that trim assures the ship will keep coming toward you, and won't fade imperceptibly into an opposite, going away turn. As you get closer on final, take out the slight rudder trim or just fly with stick.

I make the final with sufficient down trim to avoid bobbing. The plane comes in a bit fast and can "reach out". About two feet off the ground add slight-up with the stick and increase the up as you skim the ground. It settles on like a real plane.

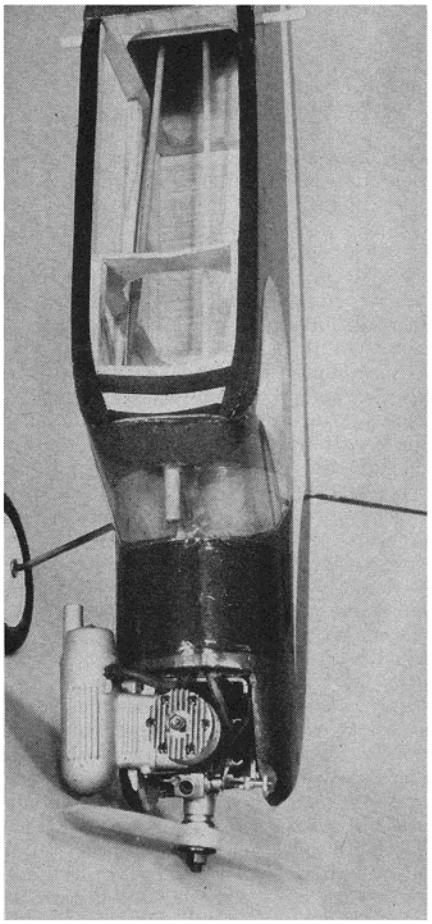
Normal planes have one natural cruising speed at an appropriate throttle setting and according to any elevator trim you are carrying. A pattern job is neutrally stable and has no such characteristics. But the big Sniffer flys like a Cub or Champ. It is ridiculous to expect your normal sport model not to loose its cruise settings when you change power. And, a model cannot be designed (except Pattern and perhaps Pylon) which won't challenge your flying technique as you alter power and controls. Sometimes that level-flight cruise point comes at rather a slow airspeed with fairly low power. Adding power causes climb and rudder and/or elevator control (staying on the sticks to maintain an apparent groove.) If you trim down and add power you can find a faster straight and level cruise speed. It is good for our purposes to get the ship flying at its cruise—which gives you an exact idea of the throttle lever position. Then you add power, a click at a time to obtain the rate of climb desired. To establish a wide climbing turn add another click or two of power.

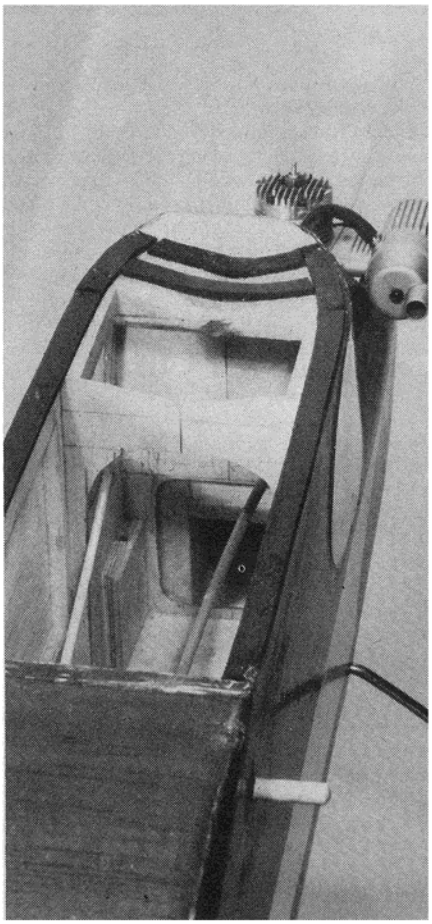
This six pound ship flies at ½ throttle in no lift conditions and maintains altitude, if it's not a slight climb. With general lift about, it climbs on ⅓ power, and in lift will spiral-up

on idle. Soaring turns should be fairly fast, nose level, not up. Slowing the glide causes sink, and the ship settles out-of-lift because of the poor L/D. The O.S. Max .35 is shown. But, with a lighter ship, you need to be an expert "rudder Man" to handle things at full bore without excessive stresses. This plane takes off and climbs well enough with a Veco (K&B) .19 or the Supertigre (or Similar) .23 and .25, the prop spins faster, there will be more noise, but the ship is more "obedient". What we have done is reduce the slipstream volume striking the fuselage and its area of impact, thus, we reduced power-change vaiations.

The plans show a more forward location for the airborne system (this to maintain CG position as called for on the plan). The plane must be balanced as shown. We suggest leaving in the right thrust, which is restored on the plan. If the ship glides cleanly, without slow-flight sink, (or has an extra fast glide), then play with down-thrust only for fore and aft trim under power. If the glide trim is not right—that is too tail (or nose-heavy) move back the battery pack to slow it up, or add ballast to speed up glide if elevators are set truly neutral.

This is a real aircraft, and like all aircraft it has its own performance envelope and its own flying characteristics. It differs from the others. For what you want, if you are indeed a pilot who understands big machines, you accept the envelope and those individual foi-





The windshield is made in two pieces from medium thick butyrate sheet, joined on ¼" sheet support above and below ⅜" hold-down dowel (**left**). Note the use of muffler pressure. This is recommended for easy starting. The plywood landing gear box is visible in this photo (**right**). The front bulkhead is shown on the plans with more of a lightening hole and thinner doublers to save weight.

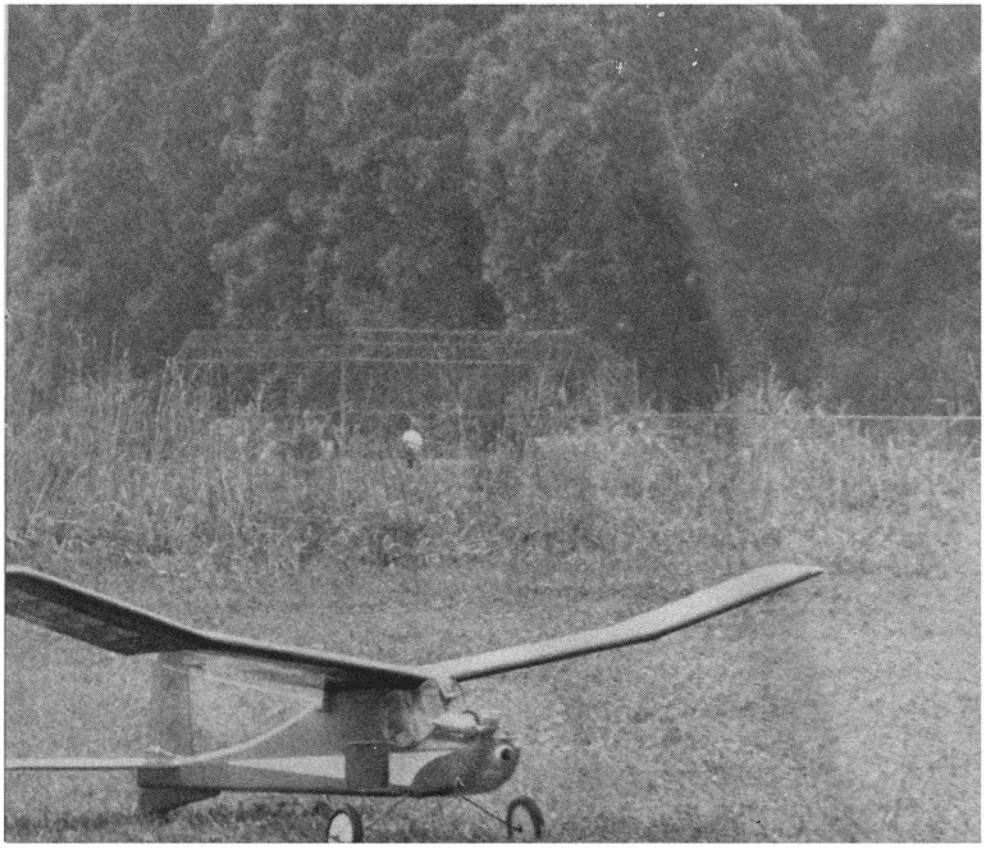
Golden

bles subconsciously. It is much easier to live with them than try to eliminate them. The game is to use them and make them work for you. The Sniffer has a strong character. When you have a firm tendency of a free flying model to seek an natural turn, you have a wide variety of things to play against it, until you get exactly what you want. The Sniffer is a phenomenal soarer on all warm days and when there is hot sucking lift it will stay with the great sailplanes.

A last word about props. Don't use the prop specified by the engine maker. He is telling you what gives max r.p.m. and thrust for his engine. None of these guys dare do otherwise. The prop must be matched to the plane. If you can fly this lighter bird with that big OS .35—you must know what you are doing. You have a bigger disk area on the prop, and a bigger volume of air blast (and those funny adjustments we described). Compared with an 11-4, a 9-4 is like a sport car pacing in a lower gear ratio or an economy auto engine without enough muscle.

Here is a specific example. My son's Concept Models Aero 15 is a swell cabin sport. The engine maker recommends an 8-4. You should hear the plane scream. When a small prop screams, the crate is rigid and groovy in flight. Rigid is the word really. His Aero makes a hell of a lot of noise, flies like a bomb. Who wants that in a nice cabin model like the Aero 15 (an Owen Kampen design, which is the best you can get). We installed a 9-4. The OS Max 15 turned that without a quiver. The plane became "loose" and free in the air.

Here is another example. We once had a Live Wire on an old Veco .29. With an 11-3, the hand launch was miserable. The Live



Just yesterday, we flew a ship on grass in 90 degree temperatures with a "moonshine mix" of old fuels and apparently too much nitro. It took the entire strip to get off, and the engine had to be run rich to avoid overheat failures. We switched to K&B 100 at that point and the improvement was obvious. Remember, engine performance varies greatly with big temperature and humidity variations.

In your area you may have to go with a slightly smaller prop. The crossover seems to come at about 85 degrees and high humidity but (or closer to 90 degrees with low eastern humidity) this can be as wet as a sponge to a guy living in Arizona.

We have cans of FAI fuel—no nitro. We mix this with a bit of our ten percent nitro fuel for good idle and dependable low-motor approaches. Bury the fuel tank forever, but use black neoprene fuel tubing, the heavy wall stuff. Pin holes don't exist. Always use a fuel line filter.

I laid something on you with the design changes. They are the changes I would make the next time around. You can handle it. Only a controlled free flight can be steered around and touched-up a bit with elevator trim. Learn more about flying machines than you thought possible. Get to know your airplane and never expect any plane to do absolutely everything perfect. They say that people tend to look like their pets. Perhaps you'll get to look like your Golden Sniffer.

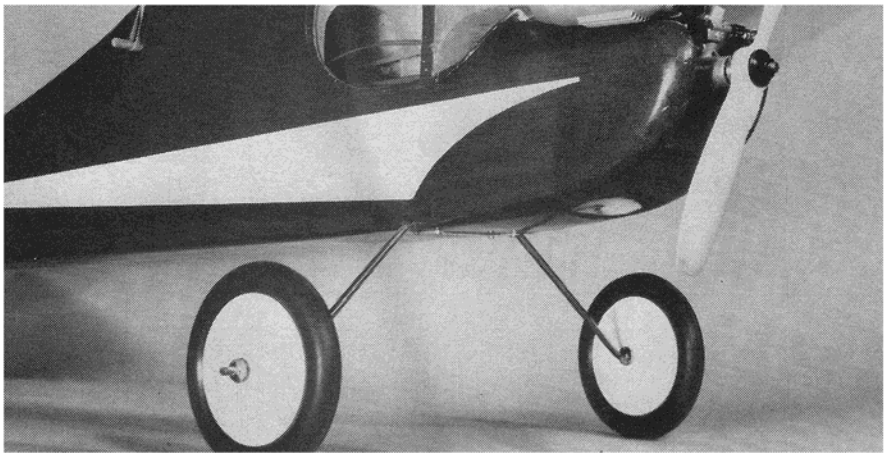
Sniffer

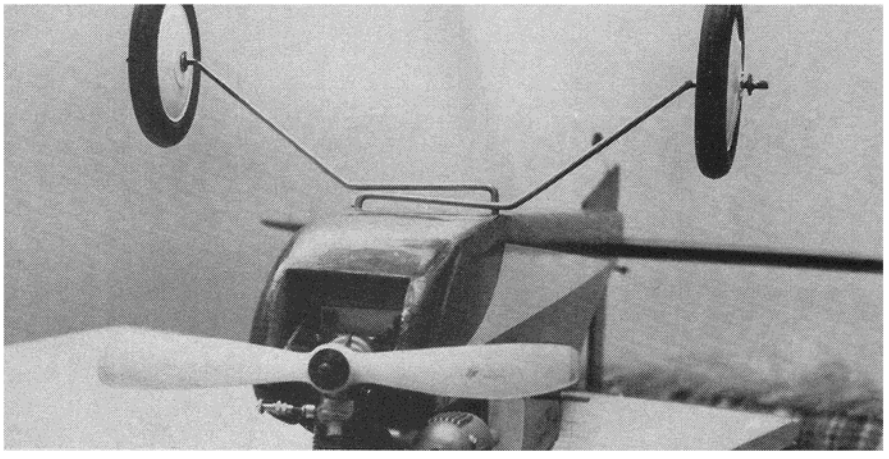
Wire had rotated tail and wing angles to provide incredible downthrust. At low speeds downthrust was effective especially with low pitch props. As speed picked up, the wing lift took over as do all control responses. So the ship swooped at the ground after a mighty heave and gradually came out of it to climb rigidly. In a similar situation, a Royal Rudder Bug would mush all day on its prop—a dragger. But, on cool days we could turn a 12-5 on that .29 on the Live Wire. Then the hand launch was like an R.O.G. model. We didn't move. The plane floated off the hand and bobbed lightly, then climbed sky high—light on its feet, a creature of the air. You didn't want Pattern model rigidity—you weren't after trophies.

The six pound Sniffer flew well on either a 10-6 or an 11-3½ or 11-4. No. it didn't die in the air with low pitch, or scream to remain alive and buoyant.

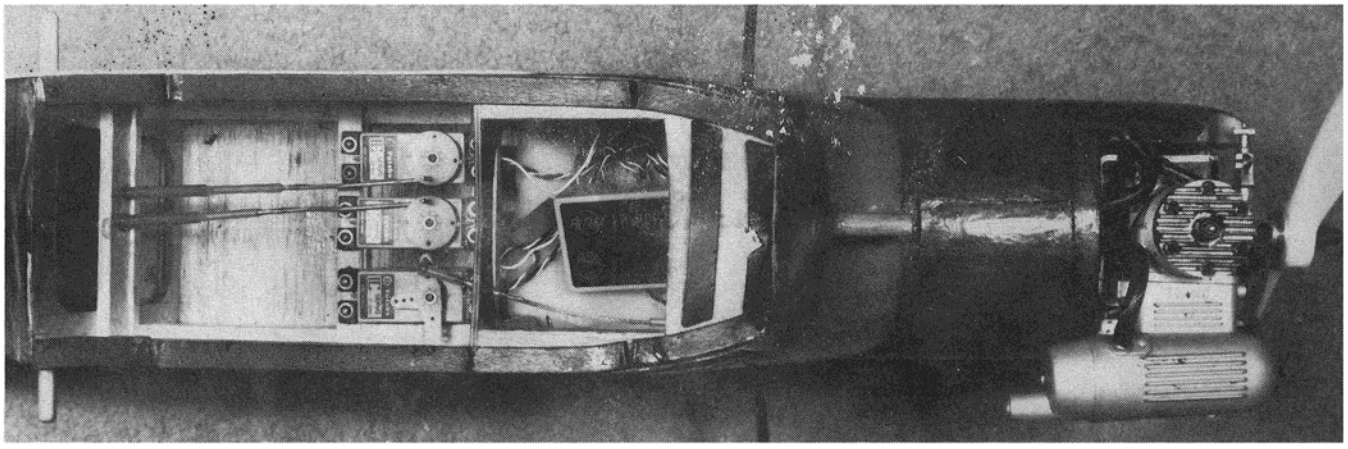
Fly wide open and waste expensive fuel—and you'll find out you have a tiger by the tail. This model moves out. You'll suffer some loss in agility with a 10-4 on the .23 or .25, (yes, we said 10-4 not 9-4) but if we could get away with it, we'd try a 10-6. I use nylon props. Boil them before you use them and occasionally thereafter. My rule is: no nylon above a .35.

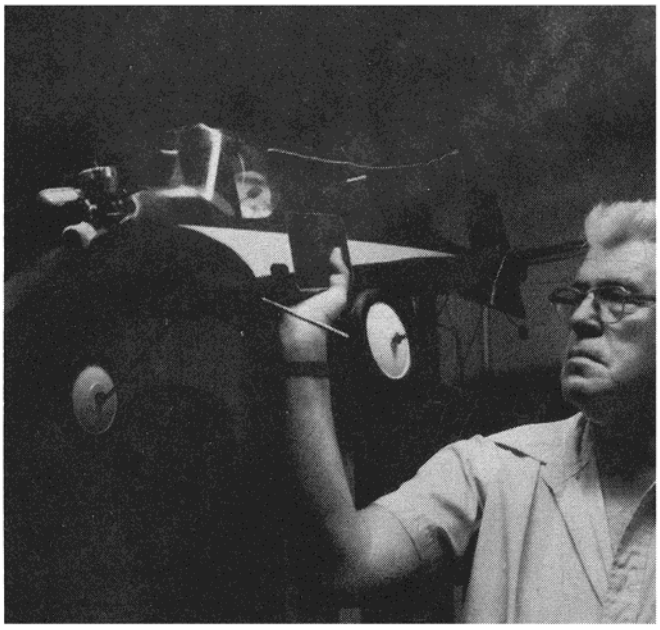
For fuel try low nitro blends. Five percent is best. A high oil content is desirable—like Duke's Fuel. A designer should consider people in other parts of the country. If you live in a higher altitude you will need a .35 perhaps a .40. If you live in hot and especially humid climates, you can't go under the .35. So, in cold climates or spring and fall in other areas, up to 10 percent nitro won't hurt. In cold weather a hot fuel works fine because the engine can cool.



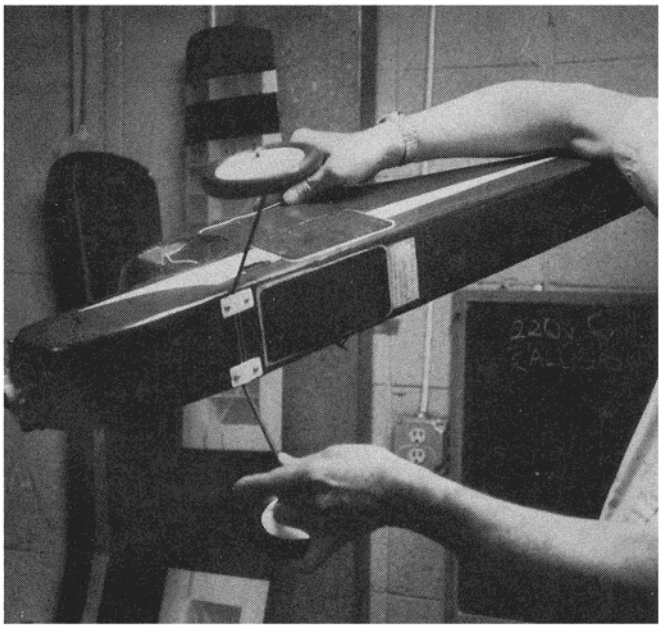


The Sniffer is shown here inverted on the bench. Note the landing gear struts partially inserted to show the torsion bar principle. By careful measurement in early construction stages, pilot holes are drilled to properly align with internal plywood boxes. The finished landing gear installation (**above**). The landing gear legs are made from $^{3}/_{16}$" music wire. The white spot under the nose is an unfinished ballast box.





Bill shows the best hand position for consistent one-hand launches of big ships in heavy winds. This is also good on slippery fuselages.



The landing gear hold-down straps can be seen here. Note the large Williams brothers wheels. The servo installation (**top**). A ship for fun.