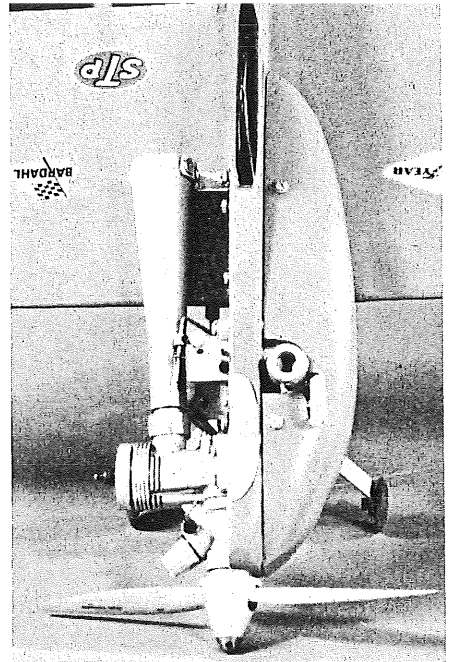


Close-up of model shows most of the salient features of the design. Of particular note is the cheek cowl which covers the fuel tank. The cowl is removable for access to tank. The Rossi 15 produces sizeable rpm increase over Supertigre but is three times the cost.



The shut-off shown actuated by the pushrod in full-down position. The megaphone fits snugly over the wing, and adds 1,000 to 1,500 rpm in the static thrust.

John F. Kilsdonk

Control Line Goodyear—An Update

THE CL GOODYEAR or Scale Racing event has enjoyed seven very popular years as an official AMA event. While the event, at least rule-wise, is basically the same as it was in 1968, some noticeable changes have taken place. It is the intent of this article to attempt to describe the technological changes and to update the so-called state-of-the-art.

The Zipper model presented in this article was designed to take full advantage of the new technology currently available for the event. Perhaps the most noticed improvement in the event has been the increased airspeed of the models. The primary reason for this has been the advent of the Scheurle-ported engine design. Although there now are quite a few different engines available with this three-intake-ported design, the Rossi 15 has quickly emerged to rule the Goodyear event.

On a one-for-one basis, this engine produces 2,000 rpm more than the previous king of the event, the Super Tigre 15. This improvement does not come easily though, as the Rossi is difficult to find at times and is approximately triple the price of the ST. Replacement parts are limited, but not impossible to locate. If you put forth the effort to locate one and are willing to pay the asking price, you are two-thirds of the way home. Now you have to rework the engine or, as most of us do, have some professional do it for you. There are several people who rework engines with varying degrees of proficiency. Without a doubt, George Aldrich has the best track record for reworking Rossi 15's for Goodyear. His rework of the engine consists of

zipper

Because so little has been published of late on this type of model, this definitive article and plan fill a deep information gap. The author is well known in CL Racing circles.

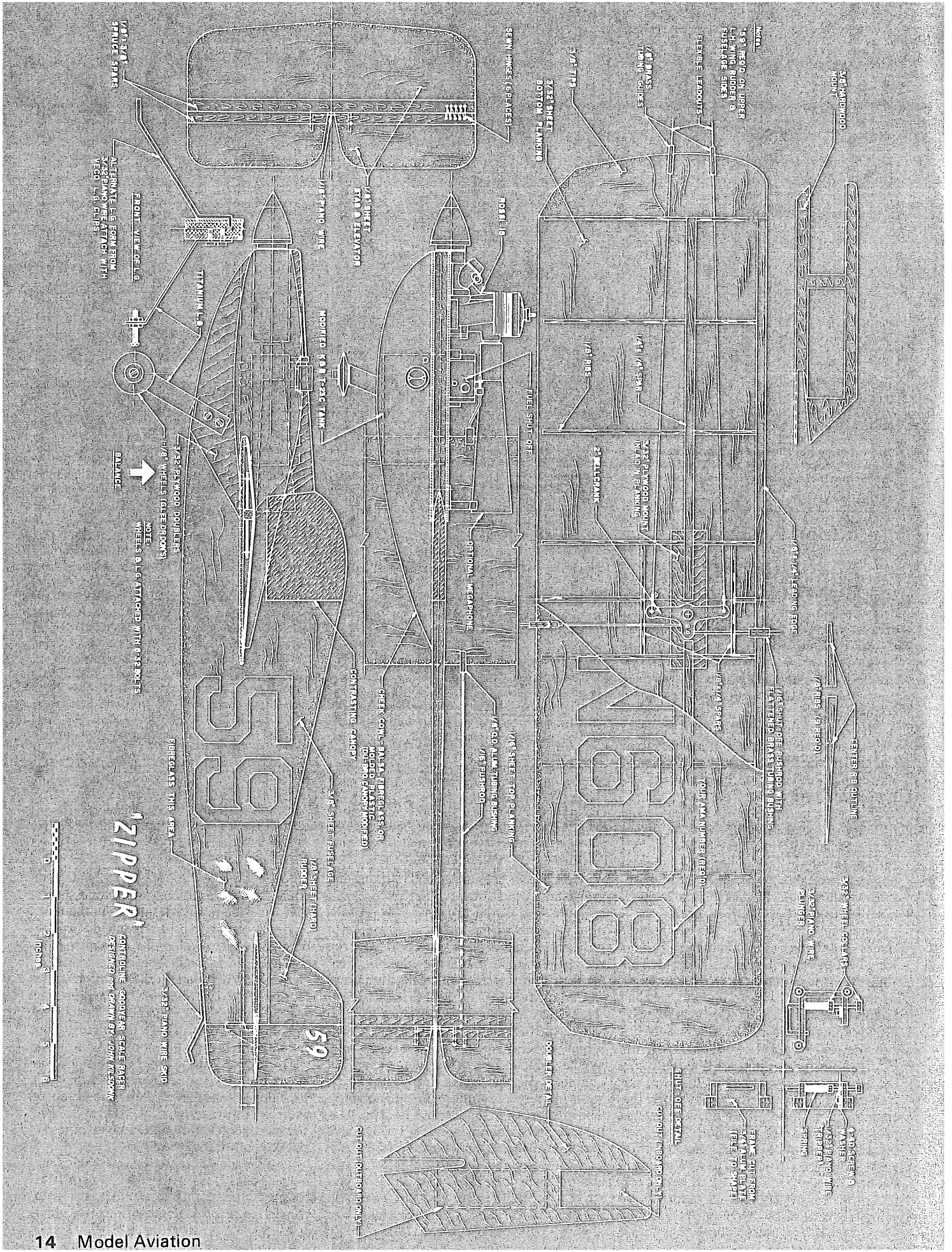
making a new cylinder head, retiming the crankshaft and fitting the piston and cylinder. The piston-to-cylinder fit is probably the most critical item, as it must not only run fast, but it *must* restart. George seems to have the magic touch in this area. Contact him directly for details and prices at GMA Models, 1317 St. Marie, Mission, Texas 78572.

For further performance increases you might experiment with exhaust tuning. We have not had much luck with expansion chambers ala CL speed, but we have seen some interesting results using megaphones. The megaphone shown in Fig. No. 1 is basically a Rossi megaphone. If you can't find one of these, look for a Rossi expansion chamber and cut off the back section and you will have the same thing. If you strike out there also and still want to pursue the project, you can make one

yourself on a lathe. We have made and tried several variations of the one shown and have found this design to be the best.

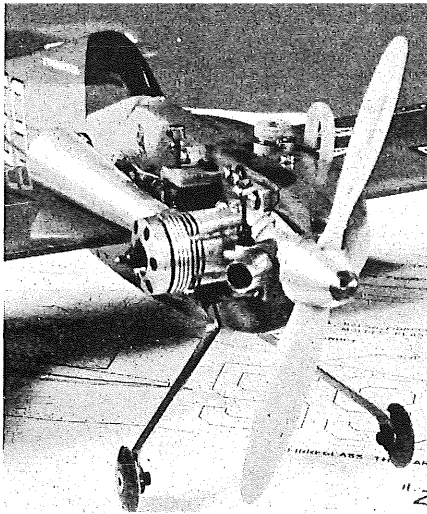
Bench tests on a properly tuned Rossi on 50 percent nitro fuel, and a prop pitched as in Fig. No. 2, should show an rpm reading between 20,000 and 21,000 rpm. Using a leather glove, and holding the megaphone on the engine should indicate a 1,000 to 1,500 rpm increase above that figure. This is quite interesting and looks like a quick performance gain. However, this gain in static rpm due to the megaphone may not be fully realized in the air due to some increase in drag from the frontal area of the megaphone, although some definite improvement will be found.

The Zipper was used as a test bed for the megaphone. This particular design was selected due to its wing location with respect to the axial centerline. In other

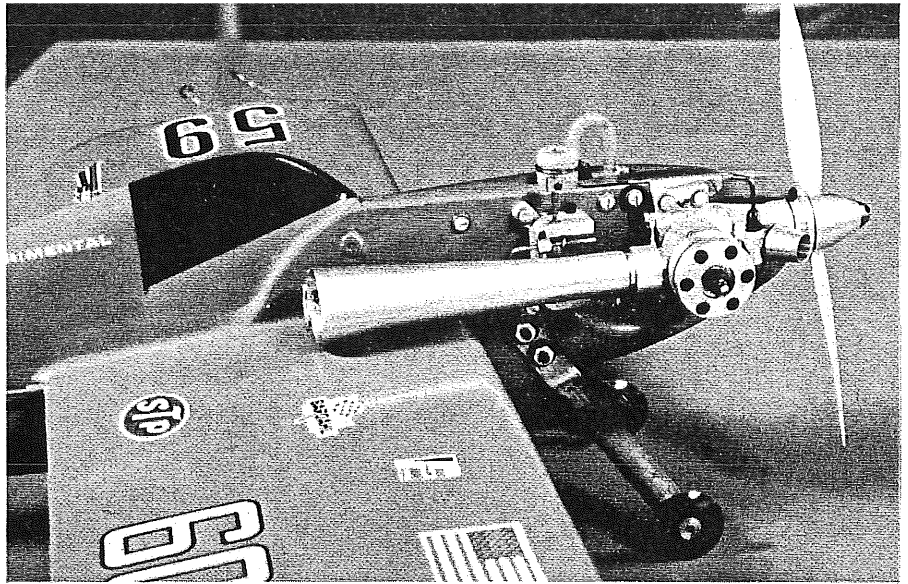


'ZIPPER'
 CONTROL LINE - GOOD YEAR SCALE RACER
 DESIGNED AND DRAWN BY - JOHN WILSON





Above: Fuel shut-off fits neatly between the megaphone and fuselage. Right: Another view of megaphone, source given—also for gear.



Control Line Goodyear

words, the megaphone has to clear the wing. The Midget Mustangs and several other designs with low wings fit this criteria also, but the wings are too low, causing peculiar flying characteristics, especially at higher altitudes. Flight tests both with and without the megaphone indicate that the megaphone gives approximately 0.5 seconds advantage in eight laps (about three mph).

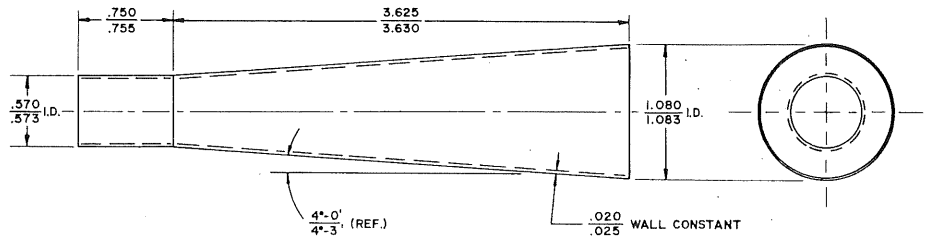
Construction

The construction is very straightforward and typical of all Goodyear racers. The only exception to this is the fuel tank installation on the inboard side of the fuselage. This is necessary to provide clearance for the megaphone and fuel shut-off. It also necessitates fabricating a large cheek cowl to house the fuel tank. I have access to a vacuum-forming facility, so I fabricated one from .060" acetate plastic. This turned

out similar to a bubble canopy, which you could also probably use. Alternate construction of the cowl is also possible from balsa and/or fiberglass. The fuel tank is held in position with rubber bands and the cowl is held in place with angle brackets on the model shown. However, you could just as well epoxy both the fuel tank and cowl

in place, which would sacrifice removability in case of repair.

The fuel shut-off shown on the plans is a "mouse trap" design and is fabricated from 1/4 in. aluminum plate using a hack or band saw and some file work. The other components are ordinary piano wire, DuBro wheel collars, and a spring. The



Note: INSIDE DIAMETERS ARE CRITICAL
OUTSIDE DIAMETERS VARY WITH WALL THICKNESS

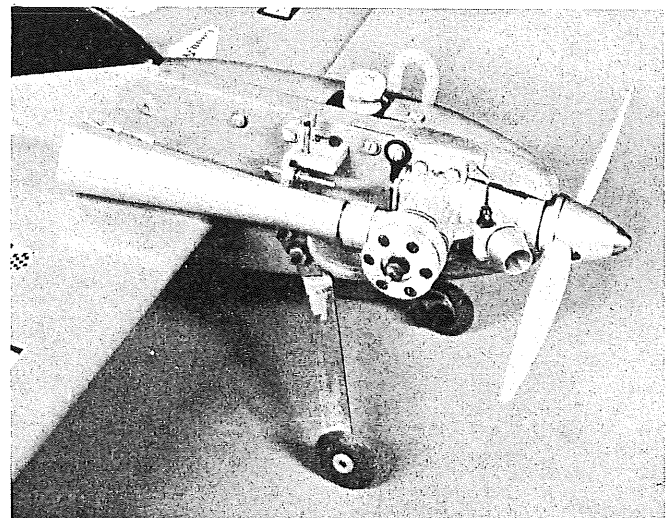
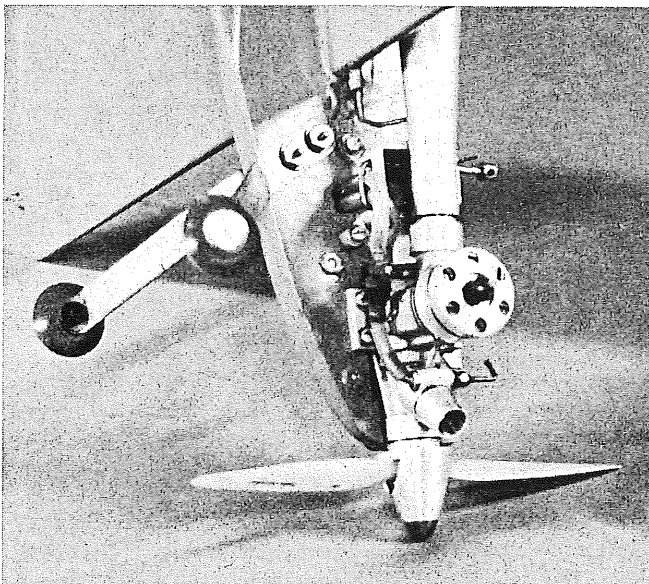
MTL. ALUMINUM

FIGURE NO.1

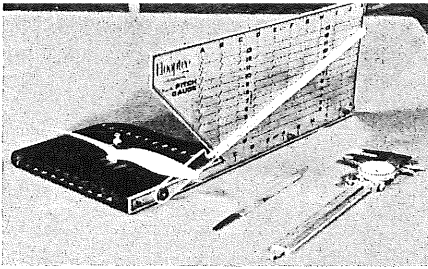
ROSSI 15 MEGAPHONE

DO NOT SCALE

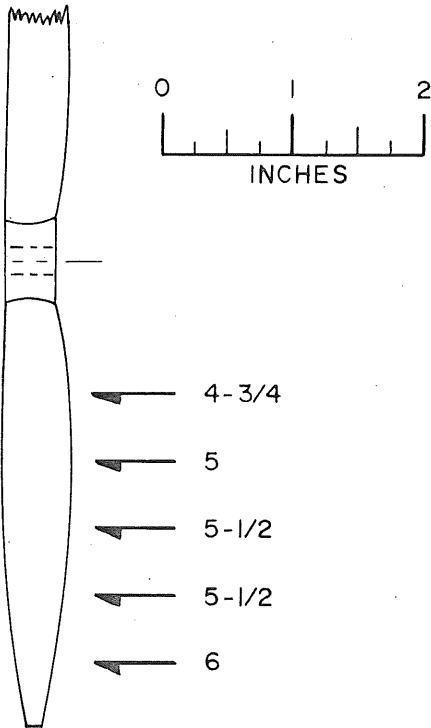
Drawn by: JFK



Left: Underneath view shows more landing gear and fuel line details. Another type landing gear may be substituted. Right: Overall view of the model. Design selected positions wing to clear megaphone.

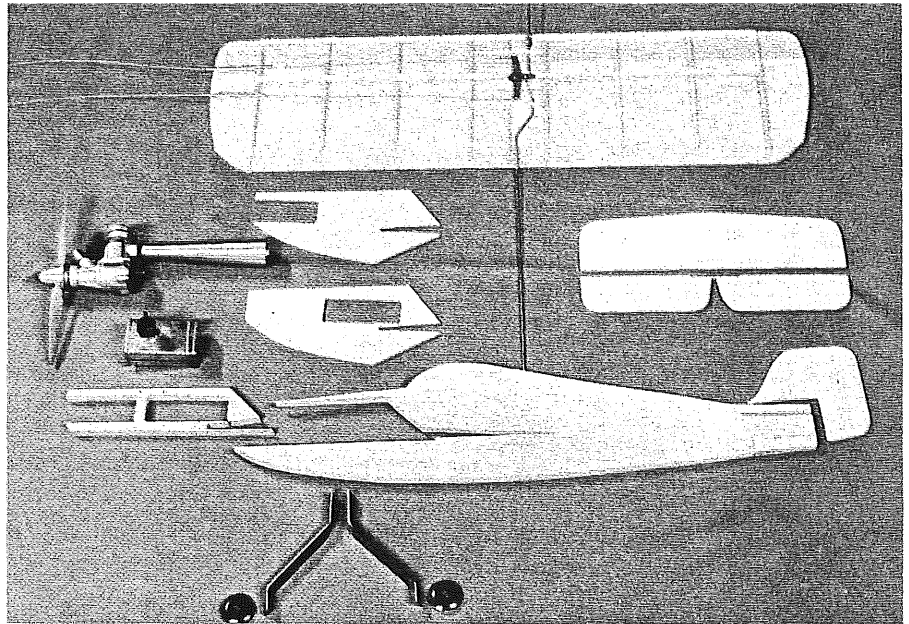


Prop pitch gauge important to top performance. File is used to rework blades. Calipers help control the thickness of the blades.

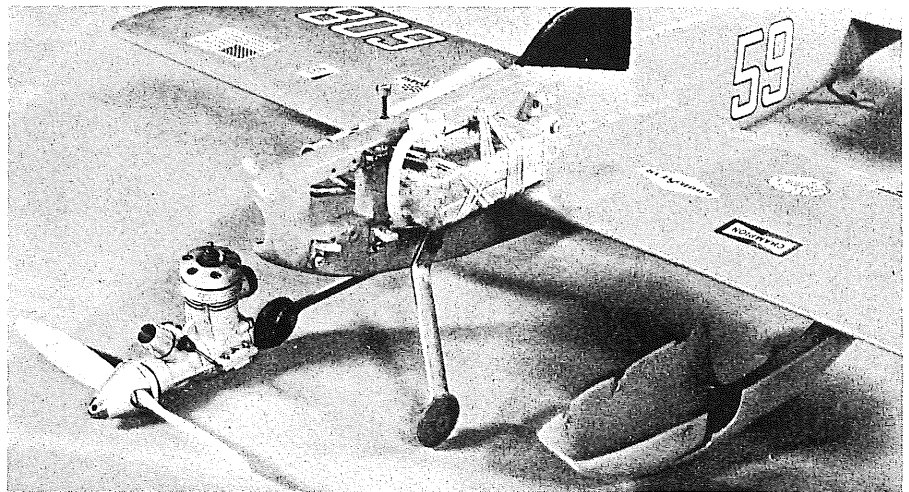


PROP PITCH TABLE

FIGURE NO.2



This picture of the parts layout makes things look a great deal simpler. Note the hardwood motor mount to left of picture, also the matching ply doublers. Below: Cheek cowl and engine removed to show motor mount and tank installation details. The tank is rubber-banded in its position, fits through opening in one ply doubler and in the motor mount itself. The entire wing is covered with 1/2-oz. fiberglass cloth and polyester resin—such as K&B, Hobby Pox, Sig. Fiberglass props seem to give the best performance and also are most durable.



Control Line Goodyear

springs I have found to be the best can be purchased at most good hardware stores. They are Select-A-Spring No. 1. Make sure that after the shut-off is assembled it will completely squeeze off the two pieces of tubing when it is tripped. Alternate shut-offs are also commercially available from W-K Hobbies, 19 N. Main, Centerville, Ohio 45459, (513) 433-0752.

The landing gear shown is .060-inch titanium. Since this material is hard to find and even more difficult to work with, I get mine pre-bent and ready to install from Glenn Lee, 819 Mandrake, Batavia, Ill. 60510. Glenn also has available some excellent polyurethane wheels.

The finishing technique that I prefer is to cover the entire wing with 1/2-oz. fiberglass cloth and polyester surfacing resin (K&B, Hobbypoxy, Sig, etc.), using microballoons for fillets and for nicks.

After the surface has been prepared and finish sanded with 150-grit paper, two coats of Hobbypoxy color are sprayed on, wet sanding between coats. The decals are applied, canopy trim put on, and then a coat of clear Hobbypoxy is sprayed on. This is then wet sanded with 600 paper, rubbed out, and waxed. Install the engine and other hardware and you're ready to fly.

The propeller is the next critical item. The fiberglass props not only seem to give the best performance, but also are the most durable. Bartels props are made in Germany and are about as elusive as Rossi engines. K&W also makes some nice props. These are available through Joe Klaus, 5851 Sandstone Dr., Durham, N.C. 27707, and also other outlets. A basic 7-6 prop is used and pitched, at least for a start, to the values shown in Fig. No. 2. For best results, a pitch gauge should be used. You might experiment some with

different prop pitches. The values shown are what I have found to be the best. It is also necessary to maintain the same width and thickness on both prop blades at each pitching station. A dial caliper works best for this. After you have completed the pitching routine, make sure that your prop is properly balanced.

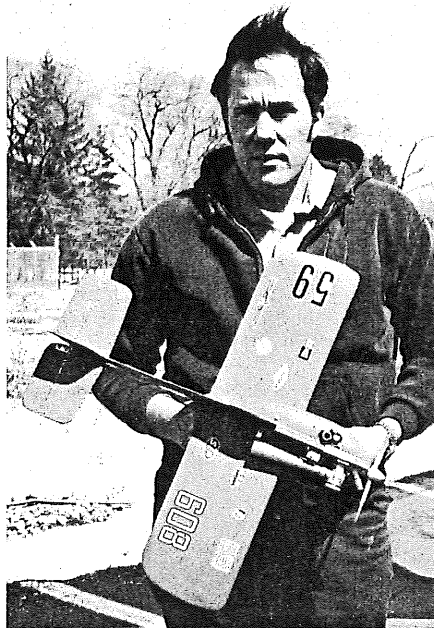
For fuel, we have found that a 50 percent nitromethane blend is a good place to start. A minimum of 20 percent synthetic oil (Ucon LB1025 or Klotz) should be used in all blends, with the balance being made up of methanol. If you increase the nitro, decrease the methanol, maintaining the same percentage of oil. Premixed fuel is available from W-K Hobbies (address same as for fuel shut-offs), World Engines; and Randy's Model Aeronautics, 515 Coleman Blvd., Mount Pleasant, S.C. 29464, (803) 884-7411.

continued on page 79

continued from page 16

I gave a set of preliminary plans for the Zipper to my pilot, John Ballard, and we each built one late last fall. We took them to the King Orange Contest in Jacksonville, Florida, over the Christmas holidays and—you guessed it—he beat me and won the event. So, the first contest entered made the Zipper a winner. It could help make you a winner also if you are putting forth the time and effort necessary.

The preceding information is intended only as a guide to the "what and where" of the new advancements in Goodyear. It by no means is the last word. This wonderful hobby of ours is always changing and improving, so no one ever has the last word. A novice can always catch up if he is willing to work and learn by his mistakes.



The author and completed Zipper.

MA Note: The AMA Control Line Contest Board currently is considering a request for official interpretation as to whether the cheek cowl of Scale Racers, if used, must comply with the plus/minus five percent rule; if so interpreted, the Zipper (and other Scale Racers) would need to be entered in competitions without a cheek cowl or a substitute cheek cowl within plus/minus five percent of scale.

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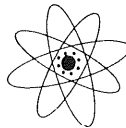
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CL Aerobatics

continued from page 34

It seems hard enough right now to find three-in. nylon bellcranks, at least in the Kentucky area, but how about a 3 1/2 in. bellcrank. This would allow a less sensitive control setup with more leverage.

Adjustable leadouts are standard items on most stunt planes now. How about a ready-made item that gives a travel of at least two inches. Lew McFarland has used the Pylon item, but split it end to end and used a press-in piece of tubing for more adjustment.

A number of flyers would like to use the solid lines if they could obtain them without buying a reel of 1,000 ft. The writer was told by the local hobby shop that solid lines are in the catalog but seldom available.

Finally, sooner or later someone is going to come up with a set of retract gear that comes in at better than five ounces. When this happens there will be a large stampede to the model shop and there will probably be 500 sets sold the first year. Maybe even carrier would be able to use them. The greatest hindrance for using them now is the weight problem; solve this and some manufacturer will have a winner.

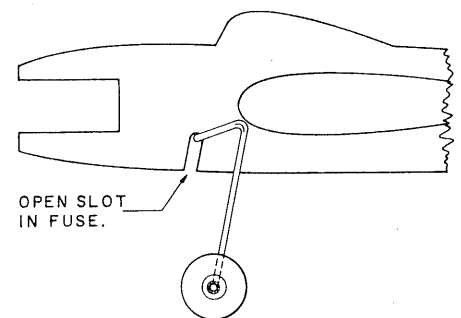
The pictures of a Flying Demonstration put on for a "Primary School" in Korea on April 19 at a town called Uijongbu, 25 KMs north of Seoul, were sent by SSG Gary L. Brown, presently in the 44th Engineers and at a nearby camp. He works in the Craft Shop in the evenings and taught a few people to build and fly model airplanes, one of which became a member of the AMA (37170).

Mr. Yi, the manager of the Craft Shop, asked SSG Brown if he would put on a "Flying Demo" for the kids in the school near his home. Brown brought along a Nieuport 28, two Ringmasters, a Nobler and scratch-built Rat Racer, all powered by Enya 29s. He flew a few simple stunts and put on a Demo of busting some balloons.

The kids, from 8 to 12 years old, really enjoyed it. (There were 1,735 kids watching.) Brown thinks this is what the whole hobby is all about.

There's quite a bit of model flying here in Korea too, he reports, much of it easy "Sunday Flying."

Art Oberstaedt of Brighton, Mich., sent in his method of making a drop-away landing gear for profile planes when flying in deep grass. He states that the plane looks better in the air, and gives better flight characteristics with the drop-away gear. The trick is done by cutting a slot in the bottom of the fuselage about 3/4 in. in front of the wing leading edge. The landing gear wire is bent so that it can be placed in the slot, and at the same time rest against the wing's leading edge. The plane's weight holds the gear in place while on the ground. The gear drops away once the plane is airborne. By setting the propeller on compression he does not break props on landings. See the diagram.



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