

Three Goodyears:

Here are three designs for Control Line 1/2A Scale Racing, each with its own distinct personality. They fit the rules for Goodyear handily. Hold down the prop and the nitro, and they're great sport fliers as well.

■ John Penhallow

AIR RACING FANS were introduced in 1947 to the 190 cu. in. class of racing airplane which became popularly known as the Goodyear Racer. This class has always been popular with model builders and was picked for Scale Racing because of the consistent size of the models. This consistency is due to the fact that man-carrying craft are designed to a strict set of rules much like our own FAI Team Racers.

Rivets and La Jollita first raced when the Goodyear Tire and Rubber Co. sponsored the event, making them real Goodyear Racers. Rivets raced continuously from 1948 with its owner-builder-pilot, Bill Falk, until a fatal crash in 1977. La Jollita has raced intermittently since 1949 and can still be seen from time to time at air races.

Misty I is a relative newcomer, arriving after the class name was changed to Formula I. Misty I first appeared in 1969 as a standard Cassutt design named Fae Foo. It returned to Reno the next year with its third owner, Ken Haas, and a new name: Lil' Misty. After that race, Ken embarked on an ambitious rebuilding program which included a lengthened fuselage, new wing, a new cowl with updraft cooling, and the name Misty I.

More history on these and other racers can be found in the Aero Publishers series *Racing Planes and Air Races*, beginning with Volume 4.



Side view shows how to mount a Testors 8000 on the nose of any of the planes. Side-mounted cylinder and valve of Testors are convenient.

These models were designed with 1/2A Scale Racing in mind, but there is no reason they can't be built and flown just for the fun of it. They are not hard to fly, and a Class I model with sport power won't be too fast for a less-than-expert pilot.

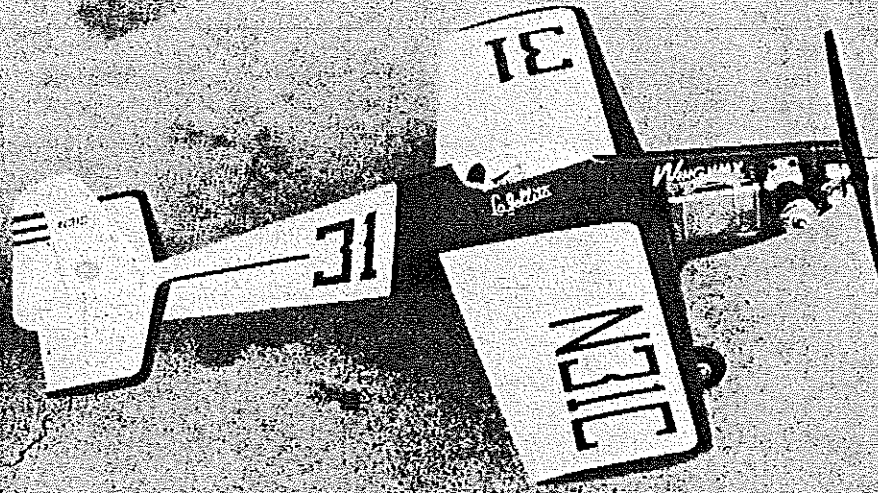
If you look at the photos, you will notice that the models have scale-like finishes but not AMA numbers as required by the 1/2A Scale Racing rules. These particular models were never flown competitively due to a change in engine specifications of AMA rules for Class I. For competitions, do note the need for a scale-like finish as well as AMA and racing numbers.

The Misty I was the first of these three 1/2A Scale Racing (Goodyear) models that I built. At the time, the Class I rules called for a "sport"

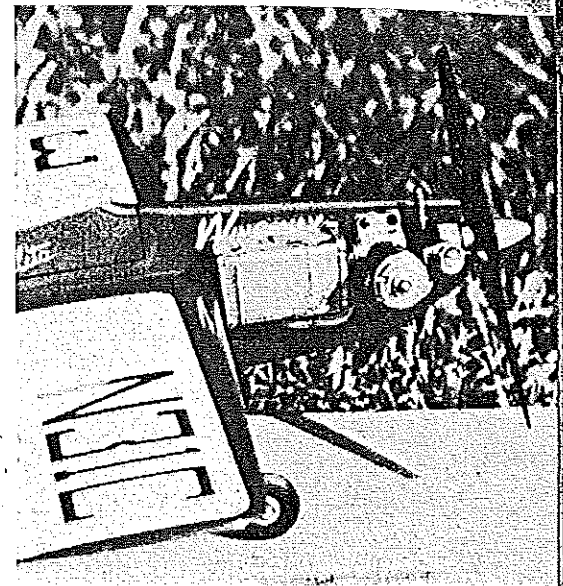
engine, and what could have been more "sport" than the shaft-valve Testors .049 engine I already had?

My plan was to use scale colors and decorations. I had the orange and yellow on and was about to put my first name on the left wing and AMA number on the right, when someone decided that Class I should require reed valve, tank mount engines. Since my Testors engine would have to run with the TDs, I used a scale finish and just set it aside for fun flying. When my interest in 1/2As was rekindled in 1978, there were no 1/2A Scale Racing contests in my area, so you still don't see the AMA number, hot glove contacts, or fast fills—all of which can be added if activity demands.

Misty I and Rivets were entered in a Sport



LA JOLLITA



Here is a Cox TD .049 mounted in La Jollita. Engine uses crankcase pressure from a Kustom Kraftsmanship pressure tap backplate.

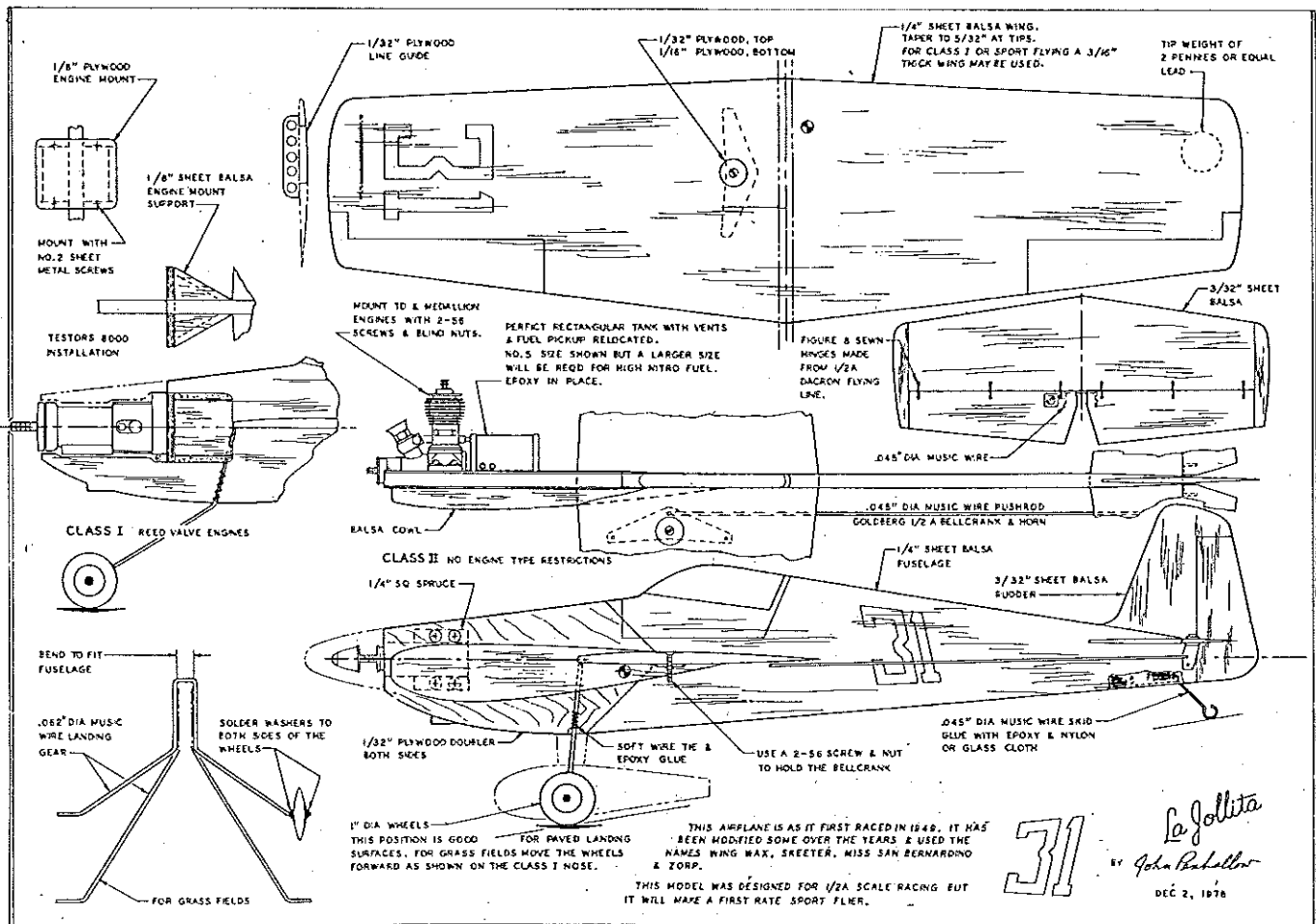
your own enjoyment.

Construction: There are several things to consider before starting construction. First, will it be Class I or Class II? For the pilot who hasn't flown too much, it must be Class I, and he/she may even have a reed valve engine from a plastic ready-to-fly airplane handy. Not all engines in the ready-to-fly models have a tank mount, so they may take some extra parts to convert for use in these models. If a trip to your local hobby store doesn't get the parts or

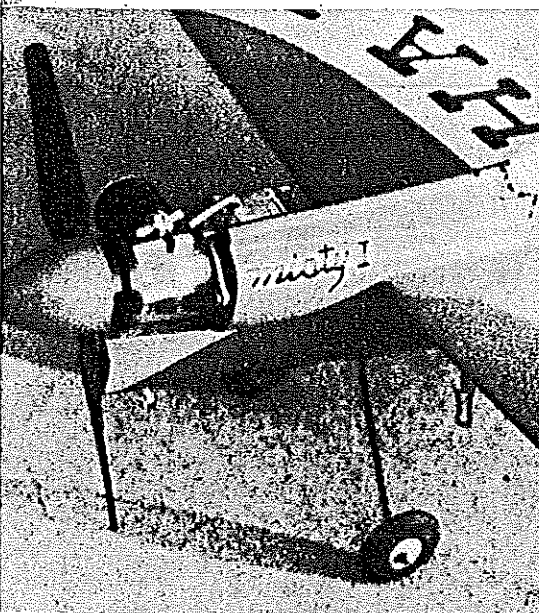
Here they are: Rivets, Misty I, and La Jollita. These three easy-to-build racing planes will be competitive in Goodyear racing, or good for fun flying with less nitro. If you have an old .049 around, like the Testors shaft-valve engine, here are three crates to put it in.

Scale contest and placed second and third in the final point standing. Since I was allowed only one trophy, Misty I was second, and Rivets was dropped out. It's not that my

models were that good, but on that day some better models had poorer proof-of-scale packages. So you see, profile Goodyear models don't have to be just for racing. They can be for



FULL-SIZE PLANS AVAILABLE ... SEE PAGE 140



Misty I with an old-style Testors engine, radially mounted with a separate tank.

information you need, then a letter to the manufacturer should. If that old engine doesn't run well, start easily, and run smoothly, then get a complete new engine. The grief you avoid will be worth the extra money.

If you are going to build one of these models just for fun, then any old .049 engine will work if it runs well. You may have to redesign the nose for some old engines—like the shaft-valve Testors—but that will add to the enjoyment by making it some of your design.

Why the thick wing on the Class II model? Because I feel the power of the TD needs the extra lumber. The thick wing won't hurt a Class I model.

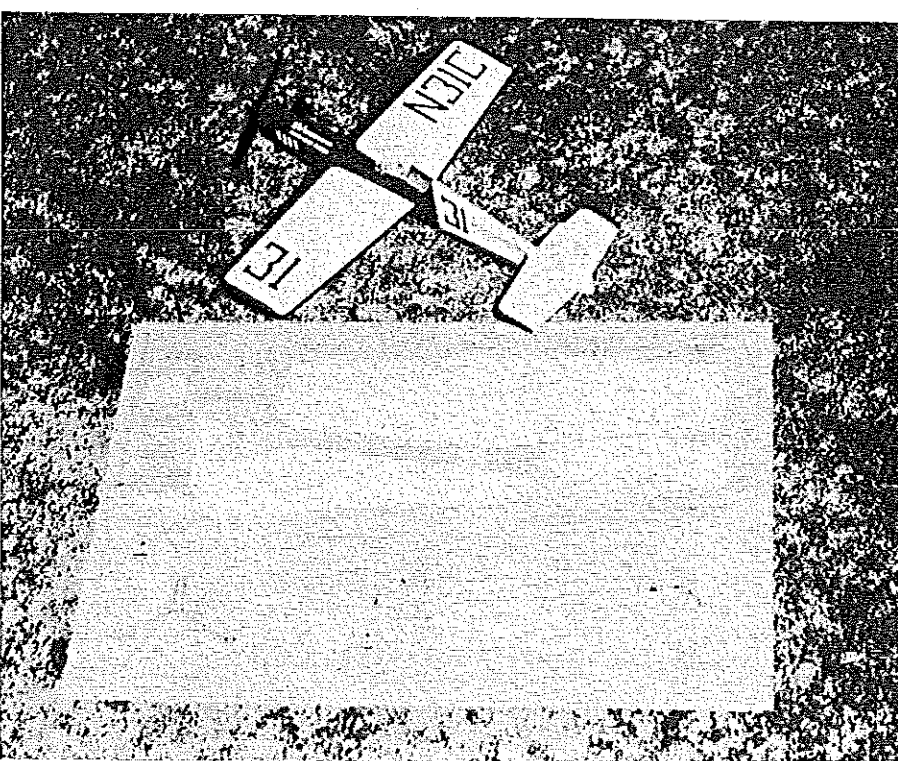
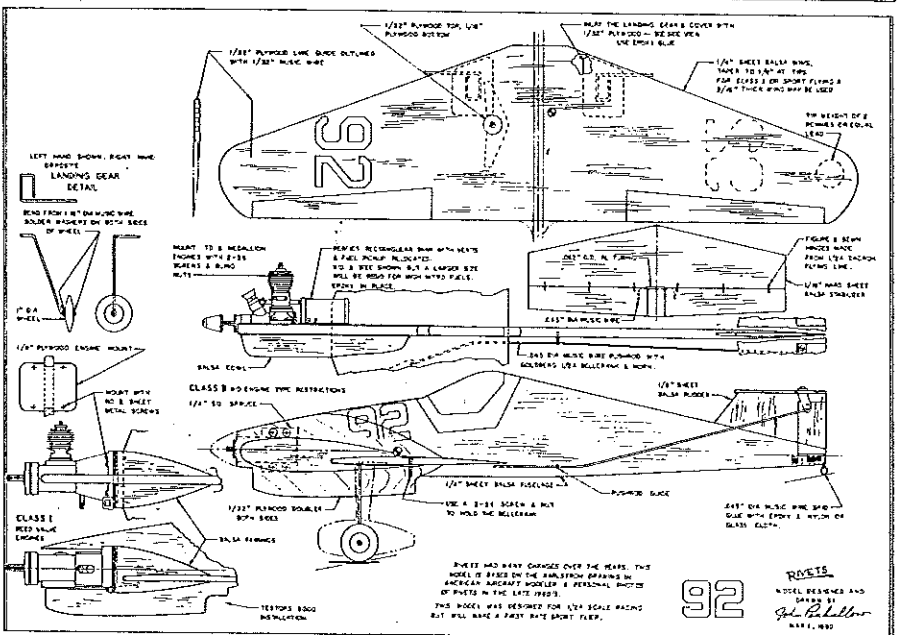
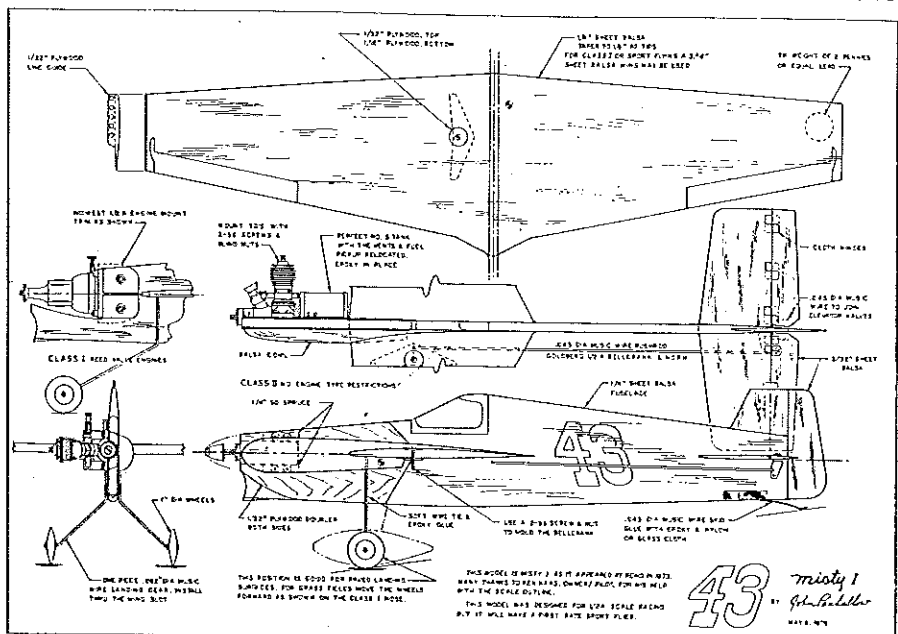
For the landing gear, I use 1/16-in. diameter wire straight down, since I fly from smooth paved surfaces. If you fly from a rough field, you should lengthen the gear and swing it forward. Some people like the wheels forward no matter where they fly; I don't understand why—on smooth pavement they land like a kangaroo. A bolt-on aluminum gear (not shown on the plans), such as is used on the Midwest Products Co. Goodyear kits, would also be a good bet for those who destroy the landing gear with some regularity. Replaceability is the attraction of the aluminum landing gear.

The Misty I drawing shows old-style cloth zee hinges, while the other two models show sewn hinges. The sewn hinges are made with 1/4A Dacron flying line and are my preference. The way I do it, everything is built and painted before the hinging is done. When making the stab and elevator parts, drill 1/16-in. holes for the hinges, and then soak the holes with clear epoxy paint. When the paint has cured, redrill and you will have fuzz-free holes. When you paint the model, be sure to paint the holes. If you use dope to finish your models use clear dope to seal the holes. Epoxy paint and glue build a more durable model and help in making a better finish. There is no substitute for sandpaper and elbow grease, regardless of what finishing material you use.

As for weight, my models averaged 6.65 oz. and handle the wind well. If you like lots of glass cloth and resin over hard balsa, the

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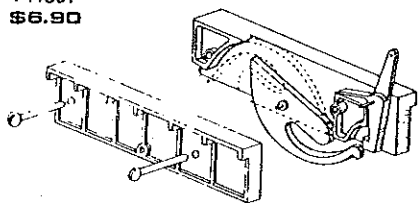
Kit of parts for La Jollita atop the plan, after shaping and before assembly. Above is the finished ship, in Class II configuration. All photos by the author.



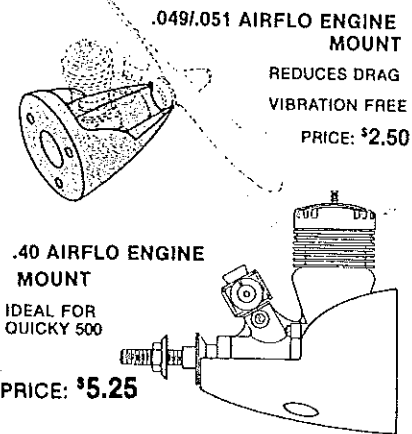
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CL Scale/Byron

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hope to cover several contests this year—including the Nats in detail—and I plan to take large amounts of photographs for your future enjoyment. Please submit any and all photos to:

Dick Byron, 2506 So. 161st Circle, Omaha, NE 68130.

Three Racers/Penhallow

Continued from page 66

weight will go up—but it won't hurt unless it gets over 8 oz. In fact, 7 1/2 to 8 oz. will improve the ability to handle the wind—and will improve pit stops by making it easier to get the model back to the pit man. Remember, these aren't Stunt models; they were meant for racing, and a higher wing loading is tolerable.

On Misty I and Rivets, the two colors are sprayed on, and all of the trim is done with decals or India ink. I made decal sheets of the required colors by spraying epoxy paint on decal paper and cutting out the numbers or letters I needed. The pilot pictures are painted

decal sheet, covered with clear epoxy paint, and then applied to the model. The black lines are ink applied with a drafting pen. Be very sure the area you are going to put the ink on is clean, or it will ball up. Even a fingerprint will cause the ink to skip. On La Jollita I tried painting the racing and wing registration numbers. The Union 76 logo was cut from a Dodger's baseball schedule, which isn't exactly the same as the 1949 logo.

Whether you paint on the trim or use decals is your choice. The decals are easier, if you mess up one you just cut another and try again. After all of the trimming is done, give the model one coat of clear epoxy paint. This keeps the decals and ink in place and makes it all look better. If you used dope for the finish and trim, use dope for the clear final coat. In other words, keep the finish materials compatible.

Flying. There are no peculiar traits in these models. Even funny-looking old Rivets behaves admirably. Strangely, I had seen only two Control Line models of Rivets before I built mine, and neither one of them flew well. The problem seemed to be excessive line rake, which causes the model to yaw out badly. The odd looking line guide on Rivets does have a purpose, but does not have as great a range of adjustment as on Misty I or La Jollita. I run the line directly to the bellcrank, but if you use lead-outs, be sure you can pull them back through the line guide and put them through other holes if you want or need to change the line rake. For the first few flights, put one line through the front lead-out guide hole and the other line through the rearmost hole. When you have the feel of the model and want more or less pull, move one of the lines. Move the front line back for more pull, and move the rear line forward for less pull. Making your flights in calm air will make it easier to feel the changes.

Because the models were intended to fit the 1/2A Scale Racing event, they have only been flown on .008 in. diameter by 42 ft. solid steel lines. If you are flying just for fun, the more available .012 in. diameter by 35 ft. stranded lines should work well.

lines should work well. Keep the nitro down and the propeller pitch at 3 in. and the speed won't be too fast to handle. If after a while you think you want to try racing, here are four things you can do:

- 1) Get out the latest AMA rule book, and carefully read the appropriate sections.
- 2.) Find a local racer, and ask his help.
- 3) Start experimenting with fuel and props.
- 4) Join CL-RPM, an organization for Control Line Racing. Their address: Box 316, Yardley, PA 19067. It is \$8 a calendar year and worth it.

**SAFE FLYING
IS NO ACCIDENT**

Scaling/Palumbo

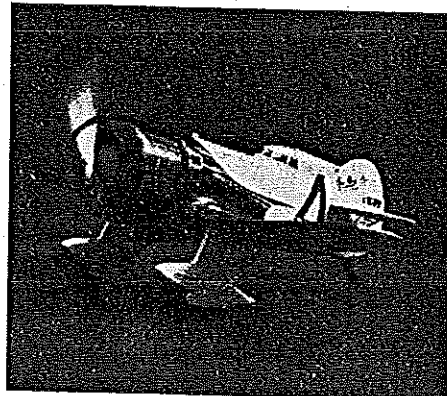
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too much unless the model is quite small; then the designer is faced with the problem of finding an engine that will deliver the required power and still fit in a small model. If we consider that 120 mph of flat-out speed is about all we can expect an RC pilot to be able to handle, you can begin to eliminate certain possible Scale subjects in the same way as when we were considering takeoff length. This can save you a lot of trouble from building an unflyable airplane.

You can, of course, calculate the power requirement right off the bat for various scale factors, or refer to Fig. 6, to determine if you can get power you need in the range of engines we have available to us. For example, a full-scale airplane that has a 150-hp engine would require a 1.17-hp engine in a Quarter Scale model to achieve scale speed. This is quite possible with the engines available for Quarter Scale ships. If, however, your prototype is powered by a 300-hp engine, your Quarter Scale model now requires 2.34 hp. That is pushing the state of the art a bit. A word of caution here. Usually, manufacturers' listings of horsepower for their engines don't take into account the de-rating effect of propellers. A good safe value to use is 70% of the manufacturer's listed horsepower rating.

You can estimate the horsepower available from a standard glow engine with the equation $p = 1.6d$, with p in horsepower and d in cubic inches of displacement. For Schnuerle-ported engines add 10%, and if a tuned pipe is used

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Gee Bee Z Plastic Model Kit, \$7 from Williams Brothers, 181 Pawnee St., Marcos, CA 92069.

Ah, Gee Bees! There hasn't been anything like 'em before or since. The Model Z was the first racer to try out the Granville Brothers' theory that the teardrop was the best shape for a racing airplane. Five wins at the Cleveland Air Races lent some weight to this idea, and the Gee Bee R-1 that Jimmy Doolittle made famous in 1932 followed. This kit is the latest in a line of 1/32 scale Golden Age plastic kits from Williams Bros. The kit features two different cowlings, two types of wheels, a detailed cockpit interior and nylon monofilament rigging. Other ships in the series include the Gee Bee R-1, the Wedell-Williams, and the Caudron C.460. They are suggested for experienced model builders, who can appreciate the degree of accuracy and quality of a Williams kit.

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