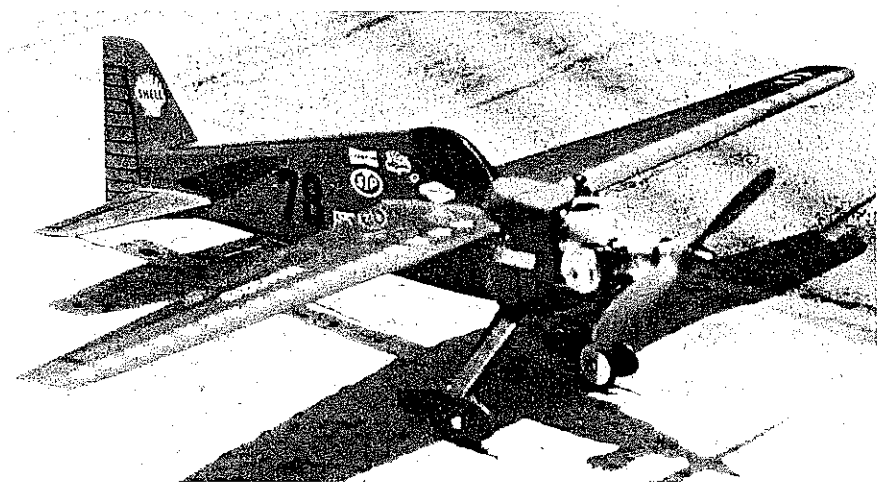


1/2 A Owl Racer

YOU'D THINK I'd defected from the faith. "Racing? Scale? What is this?" my modeling buddies protest at sight of the Lil' Quickie. "We thought you were a Stunt flier!"

I thought so too. Still do, in fact, despite

certain recent contest results. (Some judges just don't appreciate the "Underground Eight.") As it happens, however, my favorite event, OTS (Old-Time Stunt) requires the use of OPDs (Other Peoples' Designs), and so I've yet to produce an original Stunt



Top picture: Lil' Quickie completed and ready for its first race. The model is finished with Pactra Formula-U over a wet-sanded auto primer base. The stars and racing-oriented decals were obtained from a hobby shop catering to RC cars. Two lightly sprayed coats of polyurethane finished it off. Above: An outboard shot showing the modified Cox .049 Baby Bee engine swinging a Cox 5 1/2 x 4 prop cut down to 4 1/4-in. dia. Williams Bros. 1-in. wheels are used.

The author posed with his Lil' Quickie. He's an avowed Stunter and flies 1/2 A CL Scale Racing as a diversion—"to relax", he says.

This 20-in.-span 1/2A Scale Racer is a fast, easy-to-build, fun-to-fly airplane. It's a great way to break into the Class I circuit without breaking your bank. ■ Mike Keville

model. It's generally agreed that the Stunt community hasn't suffered as a result of this.

At any rate, the Lil' Quickie is the product of one of my forays into the 1/2A CL racing world. Competition modelers sometimes need a safety valve, or alternate interest, to help avoid burnout. A Stunter can find that outlet flying events such as 1/2A racing.

It's a category that offers a lot of fun for a reasonable investment. You don't have to take out a second mortgage to try 1/2A racing. Not in Class I, anyway. Class II is another story, and an alternate front end is shown on the drawing for those desiring to build the Top Fuel version.

Thanks to a good pitman, I've been able to participate in the category without total embarrassment. My friend Don Repp, a.k.a. the Wizard of LaHabra, seems to have been born with a Glo-Bee strapped to his arm. Right in step with our kinder, gentler nation, Don is an irrepressible source of valuable helpful hints: "Hey, PAMPA-brain, you need more than 8,600 rpm here," or, "I don't think Bolly makes a three-blade 5 x 3." And my favorite: "Lose the white pants!" With a coach that sharp, you can't bungle *everything*.

Like most modelers, I'm a closet Scale fan, so when a local 1/2A Racing Day was announced, it didn't take me long to decide to build and enter a Scale Racer. A few min-

utes' browsing through some air racing books produced a three-view of the attractive Formula One Owl Racer, OR-71. Designed by George Owl, the Lil' Quickie raced at Mojave in the 1970s. (It was the name that inspired me: Like many of us, I just can't resist a quick one.)

In any racing event, results are determined by a balance of speed, fuel economy, and fast restarts. Being new at this event, I'm hardly qualified to suggest fuel/prop combinations (though of course I will anyway!).

Experimentation is the key. High speeds *look* impressive but are often at the expense of mileage and—worse yet—glow heads. (Keville's Law states: "With high-nitro fuel, glow heads last indefinitely—during practice. And about a half-lap during an official.") I use 25% nitro fuel during practice—which mostly involves perfecting my pit stops (or attempting to)—and 40-to-60%, depending on ambient temperature, humidity, and the state of the ol' family budget, in actual heats.

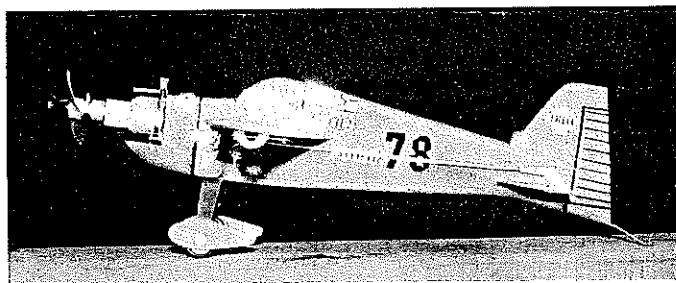
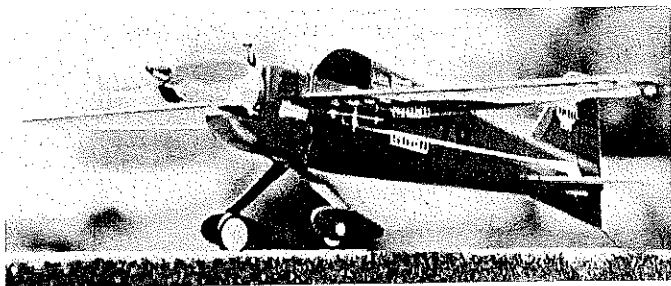
Most participants agree that there's no free lunch in the often-hilarious 1/2A racing events. Bolt on a stock Black Widow .049, get a few friends together, and have at it. Model specs are in the AMA rule book. For higher performance, order special engines, solid flying wires, and other accessories from Kustom Kraftsmanship (or move in with John McCollum). Addresses of suggested sources appear at the end of this arti-

cle. Ask your local racing fraternity for advice, too. They love priming newcomers and will welcome your questions.

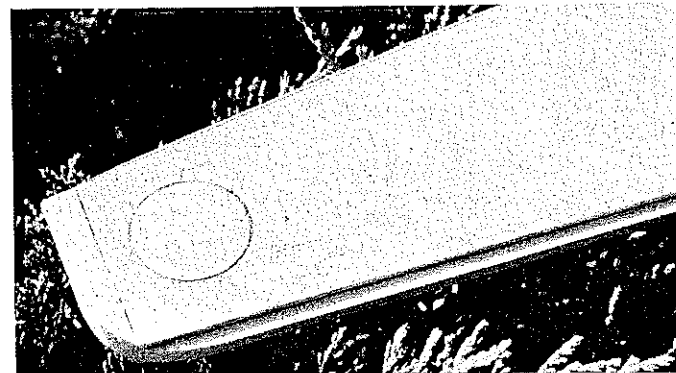
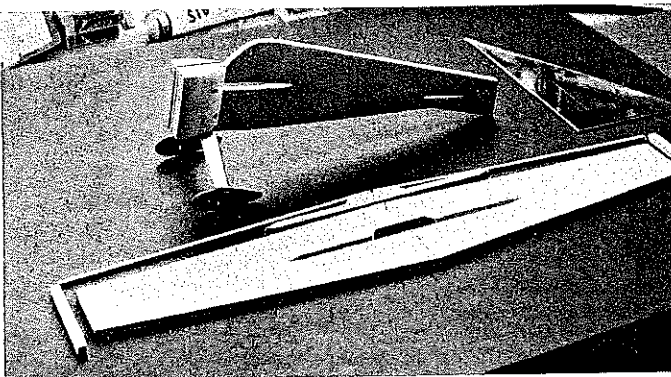
Built to 1-in. = 1-ft. scale, as required by AMA rules, our little Owl spans 20 inches. The Class I prototype shown has a reed-valve engine that was massaged by Repp. (When it comes to engines, all I can tell you is, "They're the heavy metal things that go up front.") The KK bellcrank has Monoline buttons to eliminate parasite drag from line clips. I fly on 42 ft. (center-to-center) of .010 solid wire.

My prop secrets? Balance them. That's it. (So the whole world was waiting for *this*?) Try a Cox gray 5 1/2 x 4 cut to a 4 3/4-in. diameter. I've also tried the Cox and Tornado 5 x 3 prop with some success. Guys who are *really* into this are using those radical glass-epoxy props (and, I might add, are blowing our doors off). Prop experiments are mandatory, though, if you intend to get serious.

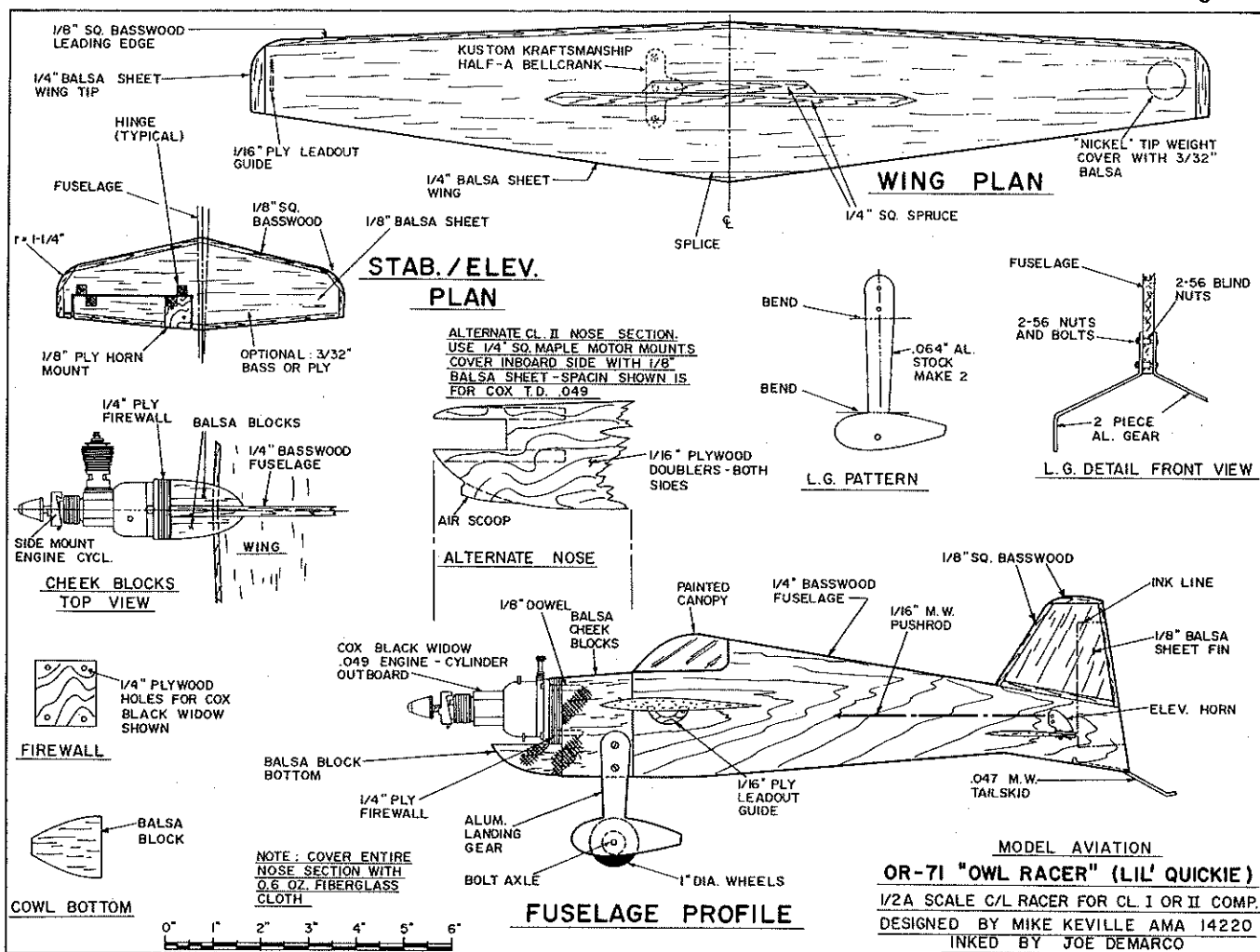
With its basswood content, this design may appear to be a bit on the porky side. A chat with two excellent Mouse Racing opponents revealed that they themselves prefer a heavier model; they seem to groove better, are relatively bulletproof, and can be whipped around to the pitman more easily. That last point is important, since failure to pit quickly is guaranteed to make you an also-ran—just ask me. The tradeoff is that you sacrifice some initial acceleration for a higher probability of advancing to the next



Left: An inboard shot of Lil' Quickie showing the KK bellcrank setup. External controls are required according to the Class I Scale Racing rules. Right: An inboard side view showing the Goldberg 1/2A elevator horn, cut down as per the plan and bolted on after the finish was applied.



Left: The basic fuselage blank with slots cut out for the wing and stabilizer. The landing gear, wheel pants, and cheek blocks are in place. Also shown are the wing/spar basic components. Right: The partially finished upper right wing showing the covered wing tip (one nickel) weight.



heat. One thing is certain: No matter what the event, Murphy lurks nearby.

Okay, let's cut some wood.

Construction. Begin by cutting and shaping the flat sheet metal for the two aluminum landing gear legs. I used K&S .064 stock obtained from a hobby shop, and sawed it to shape on a jigsaw with a few drops of 3-in-1 oil as a lubricant. Drill holes for the mounting bolts and wheel axles, then file the units to a smooth section before bending them to shape. The plan shows the basic, flat pattern as well as the bent-to-shape measurements.

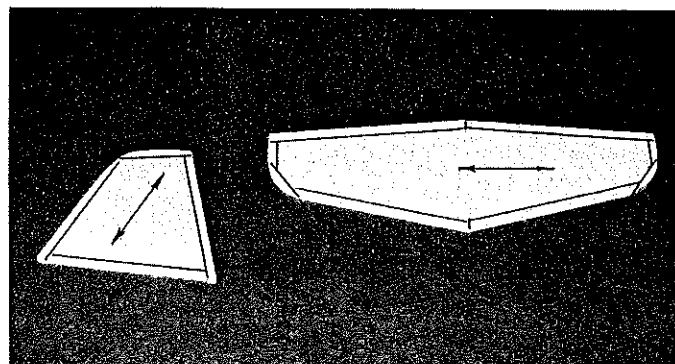
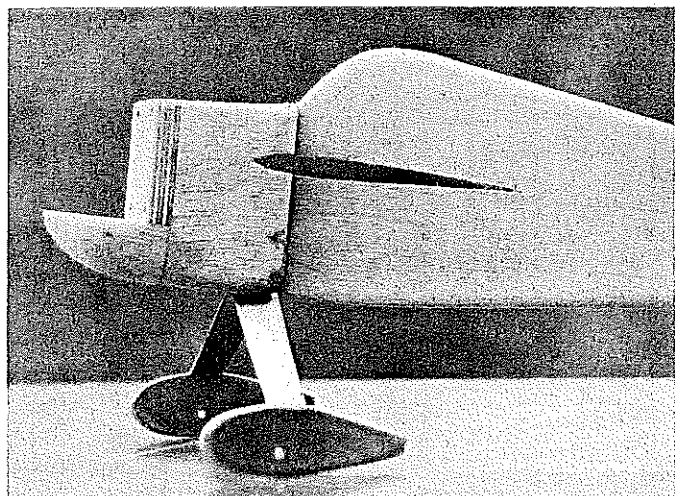
Fuselage. Depending on whether you're building the Class I or II racer, cut the appropriate fuselage blank to outline from a straight piece of 1/4 x 3-in. basswood. Cut slots for the wing and stab, then install the gear halves (see detail). Blind nuts reinforce the holes in the fuselage during those slam-dunk pit stops. (Remember Cougar's deck-crushing F-14 in Top Gun? That was gentle compared to the average arrival in CL racing!)

Cut the two main cheek blocks to shape, then add notches to accept the wing and landing gear. Epoxy the blocks in place, making sure that they're flush and square

all around. Cut the firewall from 1/4-in. (No, that's *not* a typo) plywood. If you're weight-conscious, you might try the 1/4-in. carbon-fiber/end-grain balsa laminate available from Bob Violett and a few other sources. Though I have no personal experience with this product, it seems to be this year's "zoot" item. The thinner (1/8-in.) plywood used on earlier racers simply wasn't up to the constant beating these machines receive.

Install 2-56 blind nuts in the firewall, then test fit the engine using all four mounting bolts. I once drilled a firewall a wee bit

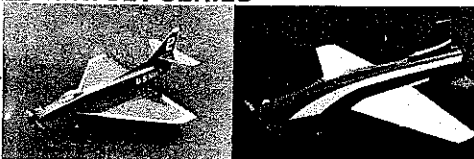
Continued on page 168



Left: Close-up view of the partially finished fuselage. Seen are the firewall, chin block, and aluminum landing gear assembly. The landing gear and wheel pants are made from a single flat piece of .064 K&S aluminum stock, sawn on a jigsaw, filed smooth, and bent to shape. Above: The tail group components. The inked lines designate 1/8-in.-sq. basswood caps. The arrows signify grain direction.

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By the way, the radio that has become very popular this year for racing is the Futaba five-channel PCM. This is what I am using. I'll fill you in on how it performs in the near future.

I've received several letters this year. Most of them that come with self-addressed stamped envelopes (SASE) I've answered. Here are a few that I've missed:

• Captain James M. Carter writes: "I need your help in explaining how to set up my Formula I. I've checked all the back issues but can't find a picture or article explaining ST X.40 installation, minipipes, fuel cutoffs (especially), cowl attachments, etc. Please help."

Jim, I could write a book on some of your questions, but I'll do my best to give some brief answers here.

Engine installation: Most of us put our 2-in. spinner on the engine after it's been screwed to the engine mount (with the engine and mount already in the plane). Tape the spinner to the nose with about a 1/2 space between the spinner and the nose of the plane.

Then slide the firewall into the fuselage (I use a little epoxy on its base) right against the back of the engine mount. Now position your engine exactly where you want it. When the epoxy dries, you can secure the firewall to the fuselage. Of course you're going to put mounting screws

through the mount and firewall, too. I think you can go from here.

Fuel shutoffs: I use a wire through the firewall to pinch off the fuel line.

Check cowls: Jim, most people who sell Formula One kits tell you in the instructions how to attach cheek cowls.

• Gavin Botha writes from Arlington, TX: "How do you find out about Q-500 Racing in your area?"

Well, the "Competition Newsletter" section of this magazine is a good place to start. Look in the "Sanctioned Events Calendar" for contests in your vicinity having Event 428. For local non-sanctioned Races, check with your local hobby shops.

• Mart Soude asks what FCC license is needed for the new frequencies?

No license is needed unless you operate on the Ham (six-meter) band.

• For those who are interested in having a Q-500, Quarter Midget, or Formula One built, you might want to contact Gary Walker, 2200 King St., Cocoa, FL 32926; phone 1-407/636-5116.

I've received quite a lot of contest reports this year. If you haven't seen yours in print yet, I will try to run the rest of them this winter, so be patient.

See you next month.

Owl Racer/Keville

Continued from page 64

out of alignment, and didn't notice it until it had been epoxied in place (fully cured, of course). This limited me to using only three mounting bolts, and the excessive in-flight vibration was not exactly helpful!

Install the firewall with slow-curing epoxy. Carve the lower chin piece from balsa block, and install. Reinforce the firewall with short lengths of dowel, then apply lightweight fiberglass cloth overall, including the chin block.

Do not omit these last steps. Trust me. At one contest, I had been doing quite nicely—until the firewall nearly fell off during a pit stop. Poor Randy Heydon was frantically waving his arms and shouting something unintelligible at me. (Probably, "Where'd you learn to build, pal?")

Before mounting the engine, rotate the crankcase and cylinder 90° counterclockwise, leaving the reed-valve tank upright. This is to reduce drag, make priming easier—and because all the cool guys do it. You want to give every appearance of being competitive.

Sand the fuselage so that the edges are

rounded in cross section, tapering it to about 1/8 in. at the rear. Add the tail skid by cutting a groove in the fairing to accept the .047 (or other size) wire. Epoxy the wire in place, and reinforce it with glass cloth or gauze.

Tail surfaces. Cut the vertical fin from 1/4-in. balsa, then glue it in place with 1/8-in.-sq. basswood caps. Use a good model cement such as Sig-ment or Ambroid; it sands more easily than epoxy, CyA, or aliphatic resin. (In fact, some among this group cannot be sanded at all.)

On the prototype I used the same balsa-and-basswood construction for the stab and elevator as was used for the fin, but found it to be a bit of a hassle and probably not worth the effort. A good substitute would be 3/32 plywood or basswood. Though slightly heavier, it's much more practical.

As a concession to nostalgia, I used small over-and-under cloth hinges. On the balsa-and-basswood version you could use small nylon hinges, but be forewarned that cutting hinge slots in 1/8-in. material requires great patience and a sense of humor. If you choose the ply or all-basswood version, Figure-8 sewn hinges are recommended.

Note that the elevator is hinged on one side only. This reduces drag and weight (it also obliges my lazy streak). Sand these components to a knife-edged symmetrical section, then drill holes for the control horn. I used a Goldberg 1/2A horn, cut down as shown and bolted on after the finish was applied. Glue the hinged, predrilled assembly into the fuselage, again carefully noting alignment.


Wing. Choose a light but firm grade of 1/4-in. sheet balsa for the wing blank; C-grain stock is ideal. Using Sig-ment or Ambroid for the same reasons noted above, edge-glue the sheets together and cut the blank to outline. Note the grain direction of the 1/4-in.-sq. tips, and also note the leading edge cap of 1/8-in.-sq. basswood.

Make the spar/bellcrank mount from two pieces of 1/4-in.-sq. spruce or other hardwood. Be certain that the spar fits tightly. Also, use extra care in cutting the spar opening. Cut this slot a bit undersized, and then finesse it with a sanding stick until the spar assembly is an accurate press-fit. Install it using cellulose cement.

Cut a circle the size of a nickel (*Note to Henri: Use a 20 pfennig coin!*) in the outboard tip to accept the coin as a tip weight. Cut two circles of 3/32 balsa, and, again using model cement, glue them over the top and bottom with the grain running spanwise. Drill the hole for the bellcrank bolt, cut a shallow groove for the plywood lead-out guide, and shape the blank using a large sanding block. (Razor planes will make a mess of the hardwood and the cross-grained tips.)

Taper the blank toward the tips, then shape the semisymmetrical airfoil with a sanding block. Start with 80-grit paper, and progress to increasingly finer grades.

The airfoil, by the way, is the world-



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famous LAR-type section (as in "Looks About Right.") Note that a slight degree of washout is shaped into each tip. A habit from my Free Flight days, this follows full-scale practice and is an aid to low-speed stability for landings. The model would probably fly just as well (or better?) without the washout, but some habits die hard.

Fuss with the foil until the wing fits snugly in the fuselage opening, then install it with epoxy. Measure and align everything so that the wing is true and square with the tail surfaces. After the assembly has cured, add small fillets of Epoxolite or other material, then install a lead-out guide. Starting to look pretty racy, isn't it?

Temporarily hook up the controls and check for freedom of movement. Because of the short distance between the bellcrank and horn, no pushrod guide was used—nor has one seemed necessary. (Bet I'll hear about that!) Remove the controls, and sand the entire model in preparation for finishing.

Finishing. There are four basic things to remember: 1) You can't do enough sanding. 2) Be sure all products are compatible. 3) You can do anything you want to as long as you do it with *style*. 4) An "expert" is anyone from out of town.

The model shown here is finished in Pactra Formula-U over a wet-sanded auto primer base. Initial filler coats (five) were a mixture of Sig Lite Coat and talcum. Be sure to prime the aluminum landing gear legs, unless you like flaking paint.

Markings were obtained from a hobby shop that caters to RC cars. Such shops offer an incredible variety of racing-oriented decals. If you plan to compete, be sure to include your AMA number on the upper right wing panel. Two light coats of clear polyurethane were sprayed overall.

For some great hints on obtaining a truly Concourse finish, write to Windy Urnowski at Pro-Stunt Products. Ask for his free catalog when you do so; it's the most complete source of CL-oriented items available today. You may be somewhat dazzled by his enthusiasm, but he runs an honest game. If a mirrorlike finish is your goal, Windy is the master.

Install a set of 1-in. wheels, using bolts with soldered retaining nuts. Kustom

Kraftsmanship's 1/2A racing wheels and Williams Bros.' WW I-style wheels have both been used on the prototype. In either case, I recommend bonding the tires to the hubs with a few drops of slow-setting CyA. If using the Williams Bros. wheels, insert short lengths of brass tubing bushings in the plastic hubs (otherwise it's going to be a short day at the ol' flying field). After permanently installing the controls, check the balance point and adjust as required.

Flying. Caution! Use only steel wires, which must be a minimum of .010 for solid wire or .008 for stranded cables. This design is not for use with Dacron or other string-type wires.

You'll need a hard, level surface. Let the model gain speed on release; don't yank it up. Because of a gyroscopic force called P-factor, which is associated with high torque, racers tend to roll in on you. A few full-scale P-51 and F4U drivers have discovered this the hard way—while hanging upside-down from their shoulder harnesses. Some modelers counteract the P-factor by using left-hand props and crankshafts on racing models, and the nickel placed in the outboard tip also helps. Offset it how you will, though, the fact remains that "too soon is too much."

Vary your fuel and props, aiming for 30-35 laps per tank while maintaining good speed. This will drive you nuts.

Races are basically engine-starting contests; they're won or lost in the pits. Practice getting the model to your pitman quickly. He/she will, it goes without saying, have you refueled and back into the air in three seconds flat. (If he/she does, we need to talk. Please have that person contact me at once!)

Races are won or lost on the workbench, too—strength and alignment are critical to success. Don't let the Lil' Quickie's simplicity lull you into carelessness. Don't let that Need for Speed rush the construction.

Fly safely, and above all have fun.

Sources for engines, solid flying wires, and other accessories:

• Kustom Kraftsmanship, P.O. Box 3010, Fallbrook, CA 92028

• Pro-Stunt Products, 9 Union Ave., Little Ferry, NJ 07643

• Bob Violett, 1373 Citrus Rd., Winter Springs, FL 32708

CL Aerobatics/Fancher

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obstacles which would have to be surmounted. Both airplanes would have to be very closely matched. Similar designs, weights, and wing loadings would be very important, as would well-matched flight trim. Power plants and props would have to be tailored to match one another as well. The difference in acceleration on takeoff depending on what engine/prop combination is employed can be substantial.

Apart from the mechanical aspects of the ships themselves, probably the most demanding skill would be an entirely new one... choreography. Will mentioned it in passing, but I can see that developing a plan for who does what, and when he does it would be essential. This might be an area where our friends in the Combat circle could find themselves one up on us, since they routinely must deal with the problems of crossed lines.

One thing I do know for sure is that if you are going to practice your choreography with your flying buddy, it should be done behind closed doors. About 10 minutes of two supposedly mature adults standing in the front yard engaging in a circular *pas de deux* with their right arms extended heavenward, while doing imitations of Bill Werwage imitating a Fox .35, will almost certainly have your "modeling-disadvantaged" neighbors dialing 911!

One other item from Will: He went on to say, "I want to sing the praises for Nostalgia-Era Stunt. That was my era, and I'm thrilled with it. As soon as I have my biplane built for next year's Stunt season (*I told you Will marched to a slightly different drummer.*—Ted), I'm planning on a Steve Wooley Argus, painted with Steve's original 'pond-slime green' paint job."

That last item is the perfect lead-in to announce the Second Annual Vintage Stunt Championships as produced and directed by the dynamic duo of Mike and JoAnn Keville. If you followed the media reviews of last year's first annual event, you know what a great success it was—and next year's looks to be better than ever.

However, there's one great big change you should be aware of: Next year's event is planned for March 24-25, 1990, and will be held at Silver-

Continued on page 172