

"THE BIG APPLE"

by Dick Sarpolus

Twin .40s give this sleek bird all the pattern performance any flier could wish for—and it's legal in competition!

IN THE QUEST for better flying performance, R/C pattern aircraft have been growing larger and heavier. All the power available from today's piped Schnuerle .60 engines is necessary for these larger aircraft. It has been more than a few years now since our AMA pattern rules were changed to permit the use of twin .40 engines; single engines are still limited to .61 maximum. Presumably, this was intended to encourage variety in aircraft design, but that certainly hasn't been the result. I'm not aware of any serious pattern competitor using twin .40s. Why not? I would think that two good .40s could fly a larger aircraft than any single .60 could. Of course, the FAI limit is still .61, so fliers with the FAI team in their future plans are stuck with single-engined

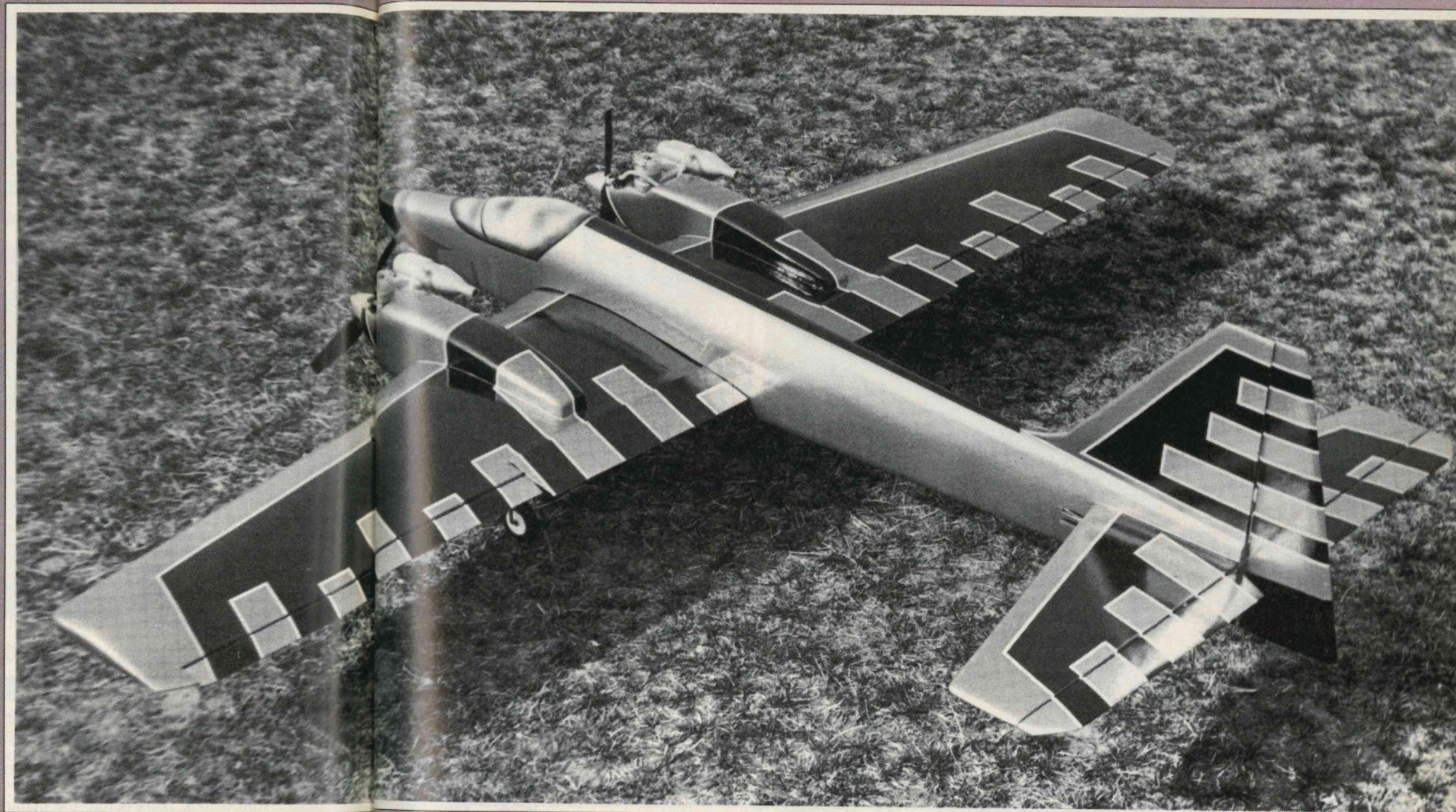
aircraft; that still leaves plenty of AMA competition.

Why haven't twin .40 powered, pattern aircraft shown up in competition? Because of engine reliability? Engines are so good today that their reliability shouldn't be a serious concern. I have been flying a twin .40 ship for the past two seasons and can recall only once that an engine stopped prematurely; and this particular aircraft can roll and loop, turn right or left, and land safely on one engine. Good .40s are available with the same desirable features as any pattern .60—Schnuerle porting, excellent carburetors, rear exhaust if appropriate, tuned pipes, etc. The power is there.

Is aircraft design a problem? Dave Platt's pattern twin, the Duellist, has been



Lance Schneider proudly displays his "Big Apple" that was designed by his flying buddy, Dick Sarpolus. Ship is powered with two .40 c.i. engines and is a hot performer.



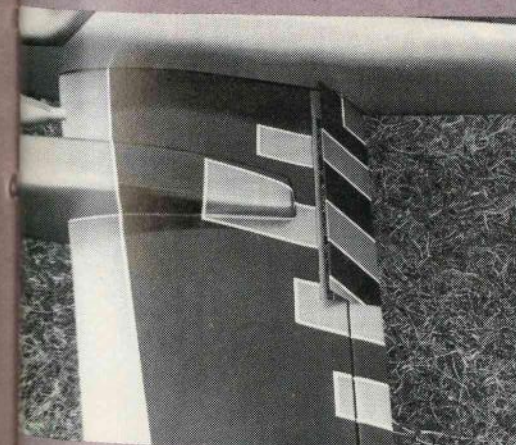
available in kit form or *M.A.N.* plans for scratch-builders. An earlier .40 twin of mine, the Magnum 80, has been published. The overall aircraft design considerations are certainly the same for twin- or single-engine power; the maneuvers to be flown are still the same. The overall proportions of a good twin will be the same as a single-engined pattern ship, with a few excep-

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tions. Additional fin/rudder area is probably necessary to ensure safe single-engine flight. The wing must be strengthened to handle the loads imposed by mounting the two .40s; conversely, the fuselage nose structure can be lightened as it no longer mounts an engine. Nacelle design is not hard; the engine and fuel tank can be accommodated easily. Retracts and radio equipment are handled in the usual man-

ner.

Will a twin .40 pattern ship fly as well as a .60 aircraft? I don't see why not, and with the more favorable power-to-weight ratio which is achievable, it should fly better. I can't speak from competitive experience flying a twin, but after flying



Flap arrangement on "Big Apple"; as flap/airbrake, they really slow ship down.

several over the past few years I'm convinced a twin can be competition capable. One of mine with two hot .40s, but without retracts, was radar clocked at 109 mph in level flight, and had all the vertical climb performance you would want.

This twin-engined pattern idea isn't so new; Hal DeBolt presented a twin-powered ship right here in the pages of

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M.A.N. back around 1963, and he had a lot of good reasons for going to a twin. He had an idea that was ahead of its time.

The model presented here was designed for my friend Lance Schneider. He wanted to build a full competition twin, incorporating retractable landing gear, flaps/air brakes, and of course a modern, rakish appearance. The canopy area and vertical

fin/rudder shape were borrowed from the Northrop F-5, while the rest of the model is of "typical" pattern aircraft layout. Full symmetrical wing airfoil, of course, tapered planform, and 14% thickness; planform has a straight trailing edge and sweptback leading edge. The model is large: 72" wingspan, 760 sq in. wing area, with a 57" long fuselage. The nacelle size was kept to a minimum, big enough to mount the engines and contain the fuel tanks, and mounted as close as possible to the fuselage. Fuselage cross-section was held down for less drag. Retracts, of course. The inboard flaps/air brake setup has been seen before on other pattern designs, but the slots cut through the wing beneath the air brake area were Lance's idea. I'm not sure what the slots do; but with the flaps down, the model slows and handles easily on the approach for really good landings. I feel that the flaps are definitely worth the added installation work.

(Plans on next pg.; text continued on pg. 122)

TRACK TIMES

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shop. If the shop is in a shopping center, many times you can get permission from the shop owner to stage a modest demonstration directly in front of the shop (preferably in an inside mall). The small 1/18 or 1/12 cars are obviously well suited for this.

Set up a fairly simple road course. If dune buggies are your bag, set up an obstacle course for them to climb over and around. Any demonstration will be much more effective if given by more than one driver at a time. If you have an extra unit or two, it will be no problem to enlist the aid of a youngster. Usually about half-an-hour practice will have these kids looking like pros. If more than one vehicle is used, it is important to agree beforehand that you will race slowly and in complete control. Keep the vehicles "neck and neck"—close racing will drive the spectators wild with excitement. An hysterical display of crashing cars and cursing drivers will result in a lot of belly laughs, but little respect for your sport.

Even though you may receive many names on your sign-up sheet at your demonstration, do not expect these people to call you. Be sure to contact each person a day or so before your organizational meeting, because you can figure that a lot of people somehow lost the paper with your name on it.

Remember to work closely with your hobby dealer in all aspects of establishing a racing club in your area. Call him or stop by every few days to let him know of your progress. From his standpoint, his bucks are on the line in stocking equipment for a hobby in which he has very little personal knowledge.

Sources of information for R/C vehicle racing:

- 1) Send for literature from advertisers in this and other hobby publications.
- 2) All major model magazines are now carrying articles on R/C car racing. Your hobby dealer is probably carrying all of these magazines.
- 3) Most manufacturers are happy to answer specific questions concerning their equipment. Organize your questions before writing or phoning.
- 4) Join the national organization for R/C car racing: R.O.A.R. (Radio Operated Auto Racing), 12008 Welland, Cumberland, IN 46229. They publish a bi-monthly newsletter that is required reading. They also set our national standards and rules.
- 5) A recent and very interesting newsletter is *R/C Racing News*, Box 411, Woodland Hills, CA 91364. It has coverage of many R/C events, including dune buggy races.

If at all possible, try to visit a racing event at least once early in your racing efforts. A phone call or letter to some of

the above sources may locate some activity close to your home town.

In case you might feel like a twit in approaching a hobby dealer with the above proposition, it should help you to know that several of the most successful clubs in the States were started in exactly this manner.

Give it a try and let me know how it turns out. Ken Campbell, c/o *Model Airplane News*, 837 Post Rd., Darien, CT 06820. ■

BIG APPLE

(Continued from page 17)

So much for the thought behind the model; I'll get into the construction now. This plane is not hard to build. I try to keep the parts count to a minimum so it will go together quickly. For any scratch-building project I recommend cutting out all the parts before starting assembly; making your own kit first will speed up the job. Although I like foam wings, I feel that for a model of this type with so much in the wing—engine nacelles, throttle servo and controls, ailerons, flaps, and retracts—that a built-up wing structure makes the installation much easier. The wing ribs are cut with "feet" attached so the wing panels can be assembled on a good flat work surface. The bottom spar is pinned in place, ribs positioned, then top spar and leading and trailing edges added. Make the cutouts

for the nacelles later, after the wing panels have been assembled. The entire wing surface is sheeted with 3/32" balsa; I sheet the top surface before lifting the panel from the building board, then add partial sheeting on the bottom leading and trailing edge areas. After the nacelles, retracts, and aileron linkage have been installed, the balance of the sheeting is added. The wing halves are epoxied together at the proper dihedral angle and reinforced with 6" wide fiberglass cloth and epoxy. I also use a piece of 6" fiberglass cloth around the leading edge, between the two nacelles, for vibration resistance. The wing center-section gets pretty crowded with three servos installed, but it can be done. Of course, the use of retracts and flaps is optional, but they certainly add performance to the model.

Nacelle construction goes quickly...balsa sides, plywood doublers, plywood firewall and former, balsa top blocks. The nacelles are epoxied into the wing openings; be sure to keep the nacelle firewalls aligned so the engine thrust lines will be perpendicular to the trailing edge and parallel to the airfoil centerline. I have used no thrust offsets in several twins now, and feel that none is needed. The model tracks well through the maneuvers, and I have flown mine with one engine out, either one, at full throttle on the remaining engine and have done loops and rolls. Radial mounts of your choice (I prefer aluminum for high-power engines) are mounted to the nacelles, engines installed, and cowling blocks added to fair into the spinners. The engines can be mounted upright or on their sides; I prefer upright engines with rear exhausts, as the tuned pipes can be run over the nacelle tops. I would like to try cowling in the upright engines, with the pipes enclosed inside higher nacelles for an unusual look.

Fuselage construction is basic; plywood doublers epoxied to the balsa sides. The

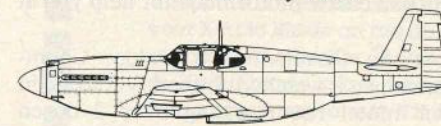
sides are parallel between bulkheads 2, 3, and 4, and after assembly to these bulkheads, the sides are pulled together for the nose and rear bulkheads. The fuselage sides are curved in toward the top. I install the bulkheads in place first, gluing only along the straight bottom sections, curving the upper areas in later, holding them in place with tape while gluing. Shaping of the nose and canopy blocks is important for a good-looking model; do a good job here. Provision for mounting the nose gear and its steering linkage should be made, and the rudder and elevator pushrods should be installed before closing in the fuselage bottom.

The fin and rudder are 1/4" sheet balsa, epoxied in place. The horizontal stabilizer is 3/32" balsa sheet over an internal structure, for lightness, and it is epoxied into the fuselage.

Everyone has their own favorite finishing method; on this model, Lance Schneider used Silkspun Coverite on all surfaces, followed by DuPont acrylic lacquer primer, spot putty where needed, and silver and black acrylic lacquer, with a clear top coat.

For his model, Lance used two of K&B's .40 R/C engines, model No. 8011, with their latest bolt-on muffler and Irvine carburetor. They're excellent engines, extremely reliable with a dependable idle. For even more power, K&B's Schnuerle 6.5s could be used, or any of the other fine Schnuerle .40s now available.

The sound of two synchronized .40s roaring together in flight is a big part of the fun when flying this model, and I suspect it might help a little when flying in competition. Twins aren't twice the work, but they are twice the fun. Try two! ■



R&B: PANTHER

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ma with an "A-" on their efforts.

RADIO SHAKER PLATE. This item brings the Panther back up to an "A." Cut from 1/16" fiberglass, the shaker plate is all pre-drilled for the speed resistor, battery tie-wraps and radio components, and has a slot for a radio switch, should you elect to use one. The throttle servo slot is cut for the mini servos, such as Futaba's S-20s. It could be cut to fit other minis, but standard servos would be too big. This car is designed for the serious racer—beginners will just have to buy a pair of small servos.

The 1-ohm speed resistor supplied with the kit is mounted with pre-bent aluminum brackets that are screwed to the shaker plate. The resistor can be slid back and forth about 1/2" to line up with the wiper arm.

In the "Racing Tips" section of the instruction booklet, you will find a detailed explanation on how to set up the shaker plate for the track conditions you may encounter, by simply adjusting the mounting screws for long straight tracks or short twisty ones.

Finishing up the assembly job, I wired all the electronics with Parma No. 4055 connectors. Not supplied with the basic kit, these little jewels are impossible to hook up backwards once they are properly wired. They're small and light, and snap-lock together.

The antenna shown in the photos is the No. 5002 Roll-over Antenna Kit, which I purchased separately. It can be fitted to any make of car, and pays for itself in the first race. It is a semi-stiff wire that will spring a flipped car back on its wheels. If you've never turned turtle with your car, you don't need the Roll-over Antenna, but I've seen the pros use it during qualifying races, then take it off for the mains. We "C" and "D" drivers need it in every race!

(Continued on page 124)

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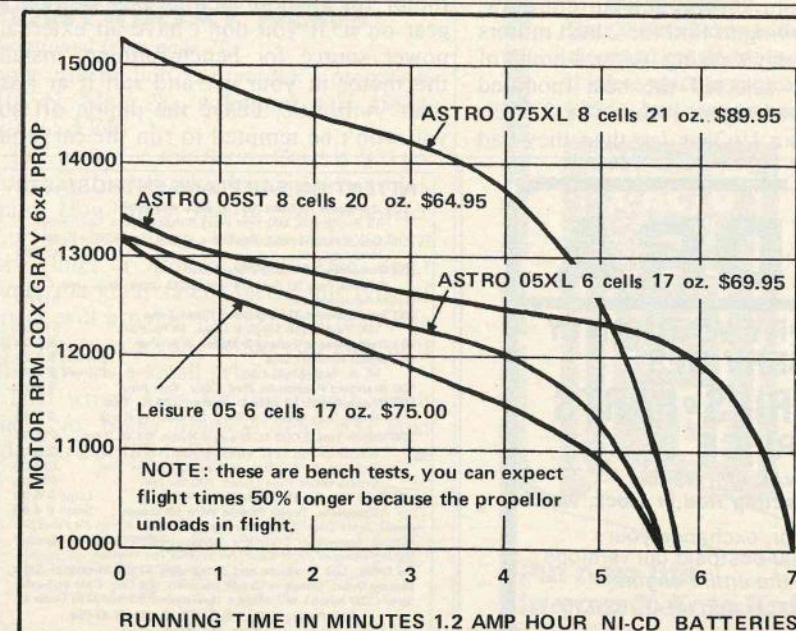
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