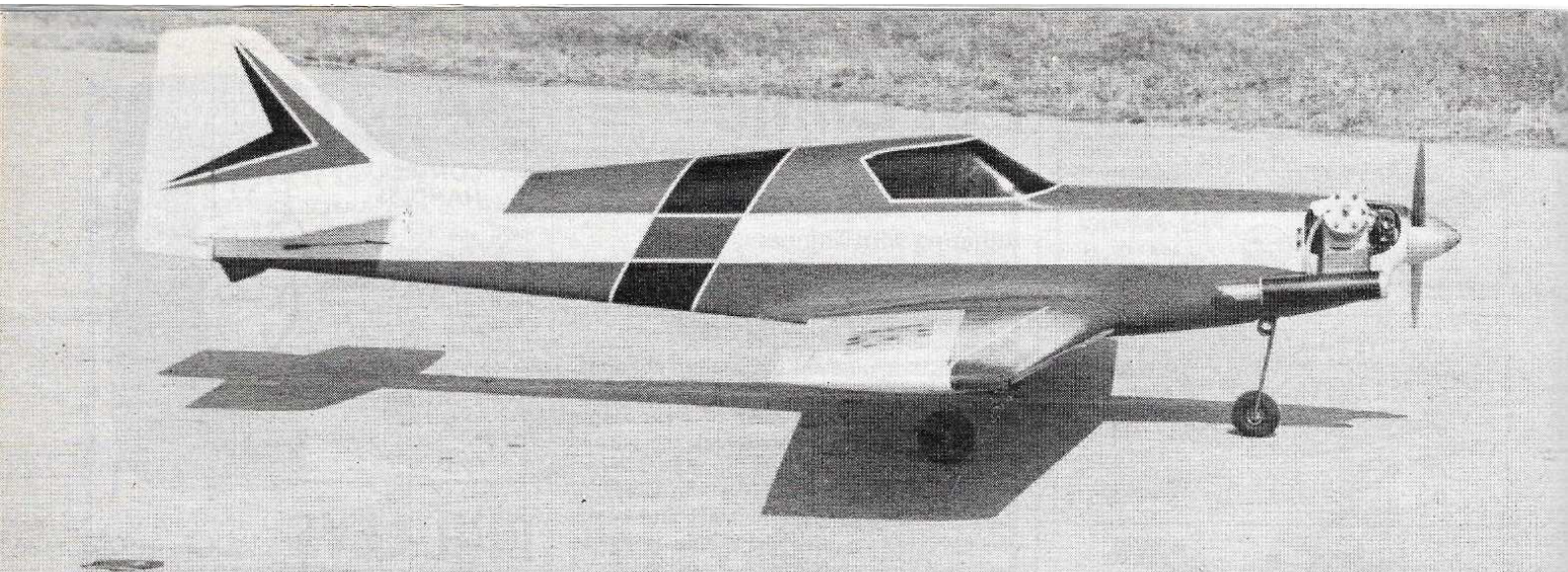


Checkers—for R/C Pattern

PHOTOGRAPHY: JEFF PEREZ

Jarold and his Checkers. Enough engine, area and moments to make a practical, competitive design. **At top:** Side area helps in knife-edges. **Below:** Canted engine position works well, clears muffler.

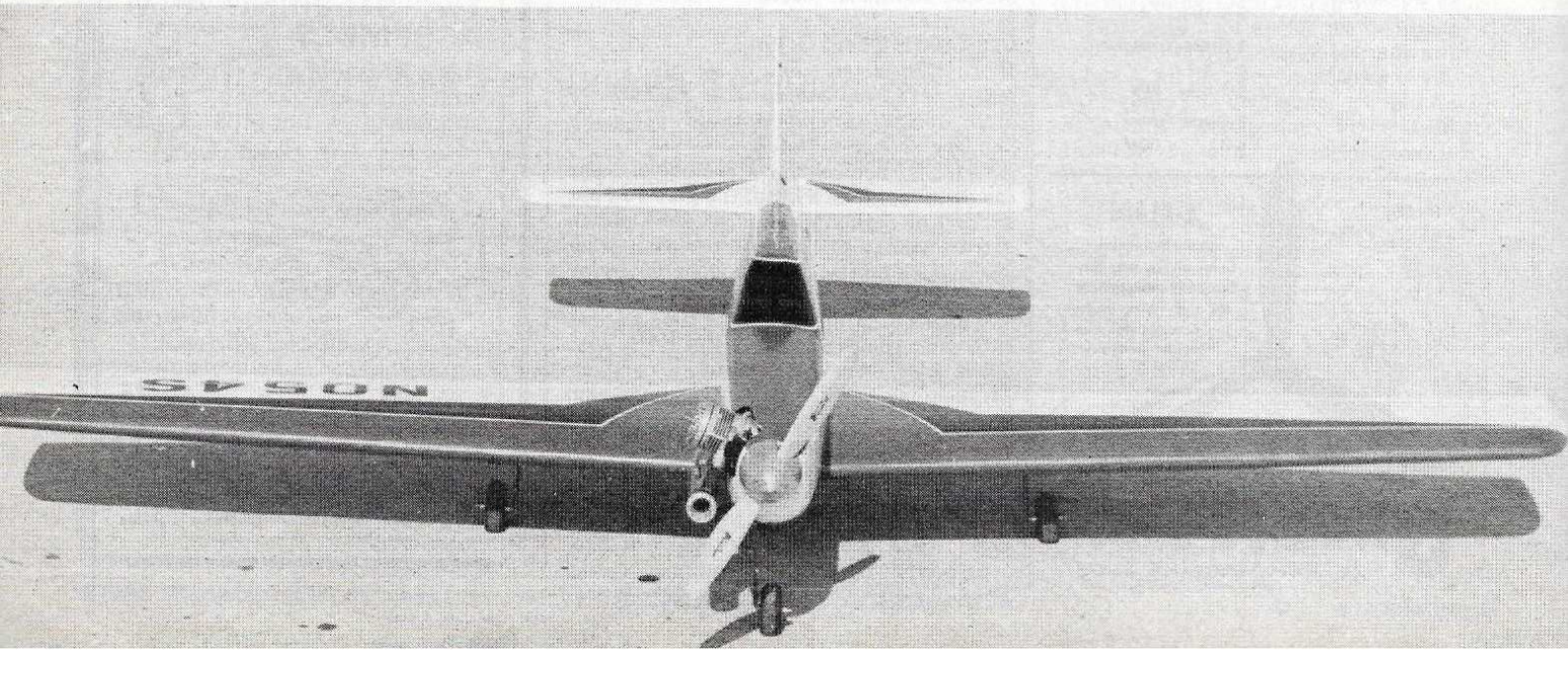
by Jarold Schmidt

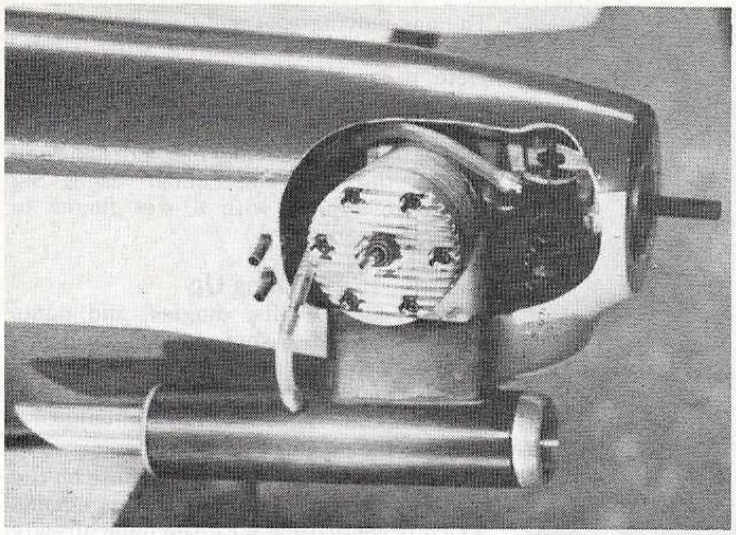
TEXT BY LARRY KRUSE

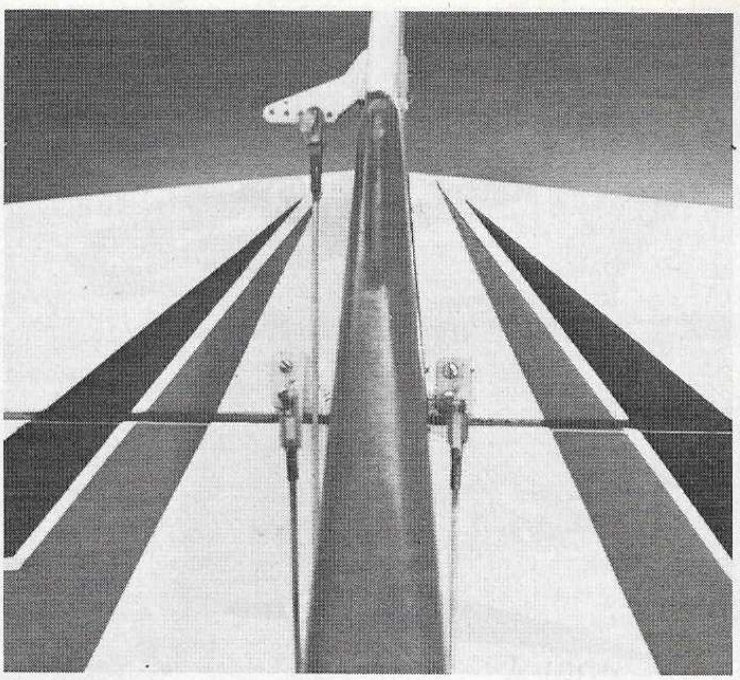
Here's an R/C pattern ship that's competitive, easy to handle and has good landing capabilities for .60 engines.

There's a very obvious kind of teamwork evident in all types of model flying, whether we consider Free-Flight, Controline or R/C. The flyer and his plane must be a matched pair. Many times, particularly early in a modeler's development, the aircraft he selects will have more potential than he has ability. That observation, however, is usually subject to change, and, as the modeler gains experience and improves his skills, he will be able to fully utilize the built-in potential of his ship.

It is at this point that a type of leapfrog effect takes place. In order to continue to advance, the modeler must have a better







The engine installation. Note cowl is cut-out for reasonable clearance. **At right:** Dual elevator horns preclude the need for hardwood crossbar. Rudder horn is also visible here. The inboard holes increase the throw. Take the time after your test flights to add or subtract a turn of trim. **Below:** The nose gear is visible here. Spinner should clear cowl easily.

plane, or at least a plane more suited to his abilities—one that will help him compensate for any weaknesses he may have begun to develop, a design that will emphasize his strengths.

Checkers was designed by Jarold Schmidt to fill just such a void in his own development as an R/C pattern flyer. Jarold wanted a plane that was both competitive and easy to handle, with good landing capability. The design has a large lateral fuselage area for sustaining knife-edge flight, a generous fin and rudder for stall turns, a wing and stabilizer planform set up for good stability, and plenty of room to install retracts, if desired. As an added bonus, Checkers does not need to be powered with a super-hot Schneurle in order to groove through the pattern. The prototype had a K&B .61 in it, and subsequent editions have had Mercos and other non-racing engines installed with good success.

Construction

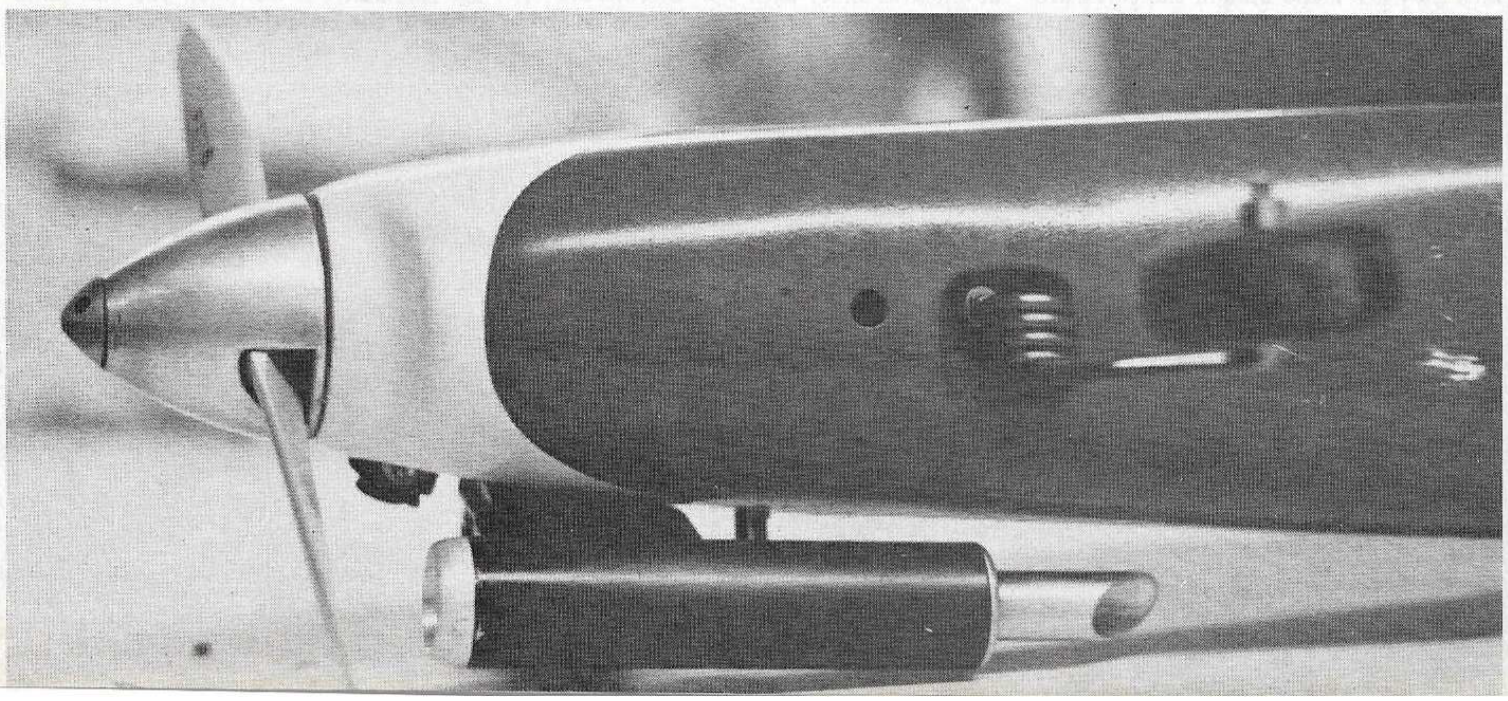
The fuselages on later versions of Checkers have been done in fiberglass, which is probably the easiest and most durable way to go, over the long haul. A plug can be made using dimensions shown on the side and top views of the plan.

If balsa is your bag, though, begin by cutting out the fuselage sides of 1/8" medium hard balsa and laying up 1/8" doublers. Use Titebond for this procedure. Cut the nose ring and all bulkheads out of the wood prescribed on the plans and set the fuselage sides together. Make sure all bulkheads are epoxied in place squarely and the fuselage is pulled together at the 1/8"x1/2" tailpost in the rear without bowing to one side. A good way of maintaining alignment is to draw a center reference line on your work board and place the fuselage over that line, clamping the sides to the bulkheads until the epoxy cures.

You have a choice of using the maple motor mounts as shown, or omitting them and opting for a radial mount such as a Kraft-Hayes, if you prefer. In either case, there should be 2° of down thrust in reference to the fuselage centerline. The nose blocks should be tack glued in place and shaped after all superstructure planking is completed. The top portion of the fuselage ahead of the cockpit area is planked with 1/8" balsa; the bottom is 1/4" stock. Hollow out the nose blocks to accept whatever engine you have chosen to use and fiberglass the area for additional strength. The turtledeck and cockpit area are built up of 3/8" balsa. Carve and sand the cockpit and aft area to a rounded contour. The top block is slotted to accept the rudder, as are the fuselage sides to accept the stabilizer. The fuselage bottom is rounded through the use of the triangular longerons and 1/8" planking.

Rudder and fin are of medium hard 3/8" balsa and hinged with Rocket City hinges. Note the grain direction of all vertical tail pieces. The stabilizer is framed from 1/4" sq. stock and sheeted with 1/16" balsa. Elevators are shaped from 3/8" balsa with tips being carved from the same size stock.

When all wood construction is complete, sand the fuselage and tail pieces carefully and give them two to three coats of clear dope. Cover all wood surfaces with Silkspan to help fill the grain. The Silkspan will need to be cut in small pieces in areas where compound curves must be negoti-



Bob Arnett and his Checkers, at Mack Field. Aircraft is a well flown, time-proven Pattern design. **Beneath:** Jarold's Checkers leaves the earth below. It's a model that stands up to daily practice.

ated. A couple of coats of sanding sealer will assist in preparing a good surface prior to spraying on finish coats.

The wings are cut from high density foam using the root and tip templates furnished. Foam cutting is somewhat simplified with this ship. By using solid balsa leading edge pieces there is no necessity of cutting around the leading edge airfoil shape. 1/16" wing skins are also easier to make since they do not have to wrap neatly around the leading edge, but can be blended in during the sanding process.

Use light weight and relatively flexible 1/16" balsa in making up the wing skins. Once they are made up and the cores are cut, glue the 1/4"x1/2" trailing edge and the pre-shaped leading edge pieces to the core with epoxy or white glue. The 3/8"x3/4"x6" landing gear blocks can be epoxied in place after gouging out the necessary room in the foam core.

Fasten the wing skins with your favorite contact cement, being sure that no warps are introduced into the panels during the process.

Sand the sheeting flush with the leading and trailing edge and add the tip blocks. After carefully sanding the two wing halves to shape, glue them together using Hobbypoxy II or similar epoxy and fiberglass the center-section. Note that the wing has 1" of dihedral under each tip. Ailerons are of 1/2"x1 1/4" balsa sanded to airfoil shape. The non-moving root and tip pieces are of the same material. When the wing is complete, it can be given the same treatment as the fuselage and tail as far as dope and Silkspan are concerned.

Add fillets to the wing/fuselage joint and around the stab and rudder using Sig Epoxolite applied with a wet finger to minimize sanding.

Finishing Up

When all the pits, dingies, and dents have been filled to your satisfaction, you'll need to make a choice as to the type of finish to employ. If you want to do the usual clear and color dope thing, go right ahead—the surface should be ready.

Jarold went a little different route on the prototype and used duPont DuLux enamel which is compatible with the dope already on the ship. The duPont primer should be sprayed on in two thin coats. Sand down the first one until the finish is dulled and then spray a light second coat if you've sanded through the first one at any place. Color coats should be applied beginning with the lightest coat first. The original Checkers was done in white, red, and black with the white going on first in a thin coat and then being wet sanded. Repeat the procedure as often as necessary to get a satisfactory base coat, then add the other colors using the same process. Checkers will adapt well to any number of color schemes.

You may want to polish the final coats of color using rubbing compound, rubbing the finish out to produce the depth of color desired. Such activity is a bit of work, but well worth the time spent for a number one pattern ship.

Follow your own experience and the manufacturer's directions in installing the radio equipment and control functions. The ailerons should have 3/16" up and down movement, as should the elevator. The rudder throw should be 1" to the right and the left. These movements are exact measurements and should be followed to the letter, assuming the C.G. is as indicated on the plans.

Check out everything prior to that first flight and be sure that all control surfaces move freely with no binding at any location. Checkers was designed to supply a specific type of performance in AMA pattern flying. Hopefully, it will keep you one jump ahead of the competition.