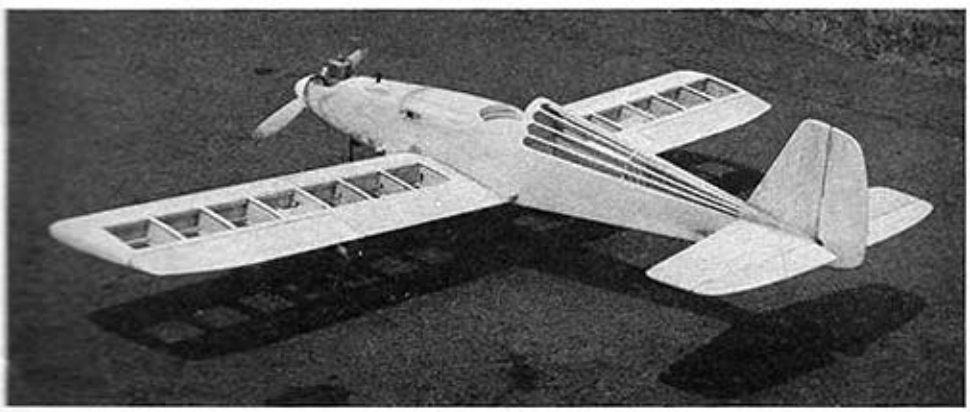
Flower Power II

Nimble flyer for full-house gear and 35 engine is inexpensive sport model.

JAMES TROVILLION

Look closely, it has flowers all over and what's more, the background color of the model is purple!



THE name of the plane has no real significance except that it is the result of a family discussion during dinner one evening. My wife has always wanted me to paint one of my models purple. I asked, "How shall I trim it?" The fourteen-year-old daughter says, "Paint daisies on it, Dad." I say, "Egads, what would we call a thing like that?" The thirteen-year-old daughter says, "Call it Flower Power." With the help of number three daughter and number one and only son, that was five against one. The name stuck. Now, no one can say I am dragging my feet in trying to narrow the generation gap.

There is not an abundance of original thinking in this design. But, after all, the purpose of any new design is to obtain what the designer wants in performance, size, construction, appearance and compatibility with his radio gear. Flower Power fits all these for me, and I hope it will fill a gap for many others. Many, many designs have come and gone for the 45 to 60 engines and now, with the new small R/C equipment, designs for the 19 engines are beginning to flourish. Most of us fly from grass strips. There are not many 19 designs which will get out of the grass very well. Personally, the price and the appetite of the 60's just doesn't appeal to me, so I decided to work on something in between.

I must give credit to a few people for their influence on this design. One was George Harris for his Firefly, with the surface shapes and the washout idea in the ailerons. (This really pays off in slow-speed stability.) Another was Maurice Franklin for his Henchman, with its low thrustline and low stab and centerline coupled for a zero-zero-zero (engine, wing, stab) relationship. (Result here is space to mount the fuel tank in proper relationship to an upright engine and a more mid-wing type performance.) Also Jerry Hilliard and his Sky Mite (Dec. 1968 *AAM*) for his turned-in main gear. (These are not so easily knocked out of alignment.)

Flower Power will fly straight out with very little trim adjustment. Of course, any aerodynamically sound ship will if it is built true and balanced properly. The outstanding trait is its linear response to stick movements. Axial rolls are smooth and will stop, with no rocking or overshoot, the instant the stick is returned to neutral. Inverted flight is as good as any ship with a symmetrical airfoil. Outside loops are as easy as inside, and no aileron corrections are needed. If a wing is low when entering it will still be near the same position when the loop is completed. Point rolls are precise and business-like. A Supertigre 35 makes this little machine move quite lively. It will point-roll going straight up. Yet it will slow up nicely for good landings.

Flower Power II has only slight modifications from the first. It has more dorsal area behind the cockpit and increased rudder area. This change is incorporated on the plans. The initial model would not quite hold true knife-edge flight and would not spin well to the left. It spins fast to the right and recovers instantly when the controls are neutralized. The controls are sensitive but solid, which is necessary for full aerobatic capability. There is no tendency to overshoot when a control position change is stopped. Nor does this plane wiggle or buffet in turbulent wind conditions. I can give no scientific explanation for this unless it is the relatively high wing loading coupled with the high lift of the semi-symmetrical airfoil at zero incidence. The wing loading at 4½ lbs. is 26.2 oz. per sq. ft. Sounds heavy, but it slows up nicely with no tendency to fall off to either side. Quite a variety of R/C equipment will fit, although the plane is fairly small. It actually was built around the old large Heathkit GD-47.

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The wing is built with the lower rear sheeting flat on the board. A length of 1/8" TE is just right to elevate the lower front spar to the correct position. The ailerons can be built right in the wing at the same time and then cut out. If done this way slant the aileron leading edge in reverse. When the aileron is cut out, it is merely turned over and transferred to the opposite panel. Result — instant washout, no pain, no strain. The aileron control horns are from the Midwest accessory pack with the flanges cut off. The rib at the root end of the aileron is cut out to nest the modified control horn and the two small sheet-metal type screws must enter into the 1/16" ply rib doubler.

The aileron servo mount is a quickie and convenient for the KPS-9 servo. It allows the servo to be installed or removed easily, and it does not project above the surface of the wing. Two narrow strips of G Pad are placed below the servo for vertical support. The packing around the receiver will hold it down. Be sure the hardwood blocks hold the grommets snug without excessive compression. Also, there must be no end play.

I used Celastic cloth for doubler strength in the radio compartment. It can be installed after the basic structure is completed, and, if cut a little oversize, can be pressed into the corners for fillet strength. The inside tube of Nyrod was used to guide nylon-covered steel cable for nose gear and throttle control. These Nyrod tubes are installed before the Celastic. Rand Swing-in keepers were used at both ends of the nylon-covered steel cables. Just bend a sharp right angle in the cable and attach the keeper. Adjustments can be made by merely straightening the cable and re-bending at the corrected length.

Nyrods were used for rudder and elevator. If care is taken to align all holes in the bulkheads, a length of 1/8" music wire may be inserted to maintain alignment while the glue sets. The result is smooth-working Nyrods. The smooth Quick Link shafts are easily anchored in the Nyrod ends by nicking with wire cutters, dipping in carbolic acid (liquid phenol) and inserting into the Nyrod. Do not disturb overnight. This allows the softened nylon to set.

The ship is quite economical to build. I used 2¾" Banner wheels which are neat and have less drag in the grass.

The entire model was sealed with clear dope and covered with Shrink-Tite. The covering was then sealed with a minimum amount of clear dope — just enough to close the weave in the open areas on the wing. After that, three coats of polyurethane enamel (available at most any paint store) were brushed on and wet-sanded (with no mercy) between coats. One final spray coat and it was done except for trim. Do not attempt to trim with dope unless a crinkle finish is desired. Polyurethane enamel fills surprisingly well. After four coats, two of which almost have been sanded away, the little jewel will look like a fine piece of china — and that is no exaggeration. By the way, this stuff is totally fuel-proof. Thinning and cleanup are done with turpentine. The enamel part of this project can be done for less than $2.50.

Be sure all control surfaces are aligned and that all linkages have minimum free play with no bind. The CG should be as indicated and deviation should be forward — definitely not to the rear. If trim corrections are needed during the first flight, attempt to correct these conditions so very little control surface deflection is trimmed in for straight level flight. This is necessary on almost any ship to obtain smooth performance at all speeds.

I am just a Sunday flier, but this ship has been wrung out in just about all maneuvers possible. It should do well in any pattern event, and on a small budget too.