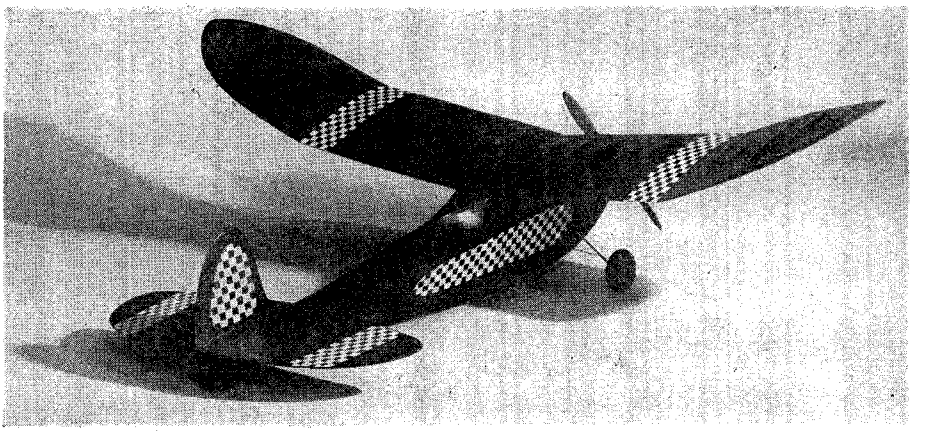


# sporty

by WALTER A. MUSCIANO

DESIGNED strictly for stable, realistic flying, *Sporty* surprised everyone, including the author, by performing better than the average pylon job because of the well-balanced force arrangement. The prototype won a first-place trophy with a flight of over 17 mins. O.O.S.; another model of the same design won three medals and an engine. This was back in 1940. In climbing, the nose does not point skyward as on most designs, but the model certainly gains altitude in a hurry. There is no appreciable dip when the engine stops, partially due to the comparatively short tail moment-arm. Center of lateral area is low, affording excellent spiral stability, while the thrust line is high to prevent excessive nose-up moments and consequent looping under high power. The airfoil was designed especially for models and is neither extremely high nor low speed. An inverted *Tiger-Aero* engine was used on the original model and this was lost O.O.S. A second ship was built using an upright *Mighty-Midget* which performed with equal success, but was recovered. The design is stable enough to handle the power of a .60 cu. in. engine and a light model should perform well with a .30 cu. in. power plant. Our latest version is glow-plug powered, with an *Ohlsson .29* up front and performance is better than ever.

Plans are one-fourth full size and therefore must be enlarged four times. Incidentally, by enlarging the plans only twice you will have a swell ½A performer of 165 sq. in., which could use engines like the K&B *Infant*, or the *Cub .049*.

General dimensions for the design are: wingspan 65", wing area 600 sq. in., length 39", aspect ratio 6 to 1, stabilizer area 209 sq. in.

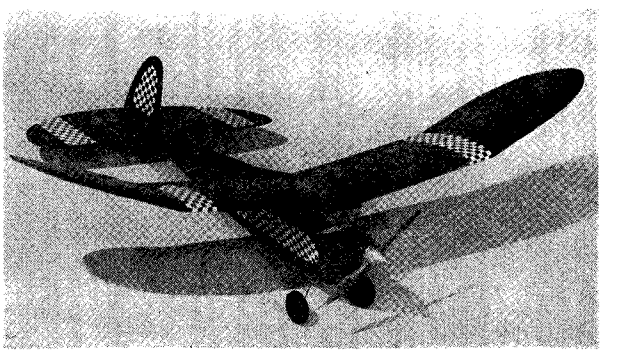
Fuselage construction is simple, durable and does not require intricate bending of longerons. A conventional "crutch" is constructed using hard balsa. The 1/4" x 5/8" engine bearers are spliced onto the crutch before assembly. These are made of hardwood and serve as a foundation for the engine mounts which are cemented to it. While this is drying, the bulkhead and 1/4" sheet balsa fuselage sides are cut out. After the landing gear is bolted to the bulkhead, these units may be assembled as shown in step one. The 3/16" sheet balsa longerons are now cut and cemented in place, to be followed by the 1/4" square uprights to complete the diamond shape. A nose block of soft balsa on the upper and lower portion of the hardwood bearers not only streamlines the plane but also adds much strength. The cabin is covered with rather heavy celluloid as this also adds to the strength of the ship. A thorough sanding should be given the fuselage before covering with heavy *Silkspan* or *Sky-sail*.

The stabilizer is quite conventional, utilizing a lifting type of airfoil, and the fin is symmetrical in cross section. Stabilizer ribs are 2-1/2" apart. Both are easy to construct and require no further description except that the stabilizer is cap stripped on both top and bottom. Cap stripping adds strength to the ribs and also reduces the covering sag between ribs, thereby increasing the airfoil efficiency.

Instead of the more conventional monospar wing, two main spars were used in conjunction with an auxiliary spar. The 1/4" square hard main spars are assembled using joiners made from hard balsa 1/4" sheet, 9/16" high and cut to the correct dihedral. When dry, the ribs are inserted horizontally between the spars and twisted upright so the spars fit in the rib notches. Spacing between ribs is 2-1/2". The leading and trailing edges, auxiliary spar and sheet tip are now added. Only after the leading edge covering is attached are the cap strips cemented in place on both top and bottom. It will be noted that the trailing edge of the wing and stabilizer are notched 3/8" x 3/8" x 1/16" deep, to accommodate the cap stripping. The center section covering is on the top only. After sanding this assembly, it can be covered with heavy *Silkspan*, *Sky-sail* or double covered with tissue, cross-grained.

The engine mounts are lightly cemented to the bearers so they will separate in the event of a serious crash thereby preventing damage to the engine or model. Dope the cowl interior before installing the engine. Fuelproof also if required.

All surfaces received four coats of clear dope and two thin coats of pigmented dope. Colored dope was used in spite of the many claims that it adds unnecessary weight. The author has found that the additional few ounces of additional weight is compensated by the finer appearance, durability, (*Turn to page 57*)



and more oil-tight qualities of the covering. *Trim Film* was used for decorations. If electric ignition is to be used, install it now. The ignition system can be installed before or after the fuselage is covered because of the high location of the coil and batteries. Incidentally, be sure to mount the ignition accessories in the location shown on the plan because otherwise the force arrangement will be changed. For upright engine installation, the batteries should be lowered until they are in line with the crutch. All wiring should be soldered well and the system should be tested before the model is taken out to fly.

Glow-plug models should receive a coat of *Comet* or equivalent, fuelproofer to protect the finish from the alchohol fuel.

All our *Sporty* models performed best when they were balanced three fourths of the chord behind the leading edge. Movement of the batteries forward or back can correct any deviation from this balance point. On glow-plug jobs the addition of weight in the nose or tail can be used to balance the model. The model should be thoroughly glide-tested by hand until a flat glide to the left is obtained before powered flights are attempted. First flights should be conducted using very little power, and the performance should be carefully noted. The climb as well as the glide should be to the left; if the model banks too sharply when climbing, slight "wash-out" in the left wingtip should correct this. When the flight appears smooth, power may be increased gradually until, as you will discover, *Sporty* turns in top-notch flights on 15 secs. of engine run.