DESIGNING A MODEL PLANE

It is not easy to lay down hard-and-fast rules for building model planes, because every model usually requires special treatment. Th chart on this page, however, gives a general guide to the design of any model plane.

Every model plane should follow a standard set of loading proportions, which are found by dividing the length of machine into ten equal parts. The first three-tenths contain the general weight in the nose, and the next two-tenths—referred to as one-fifth in the chart—are devoted to wing-lift area. The rest of the fuselage, which is the rear half of it, contains the tail-unit, and should be lighter than the front half.

Every model plane has what is called its pivot of gravity on which it seems to swivel when diving or stalling. The position of this pivot is shown by a big arrow in the diagram, and is usually about one-third the width of the wing from the rear, or trailing, edge of the wing.

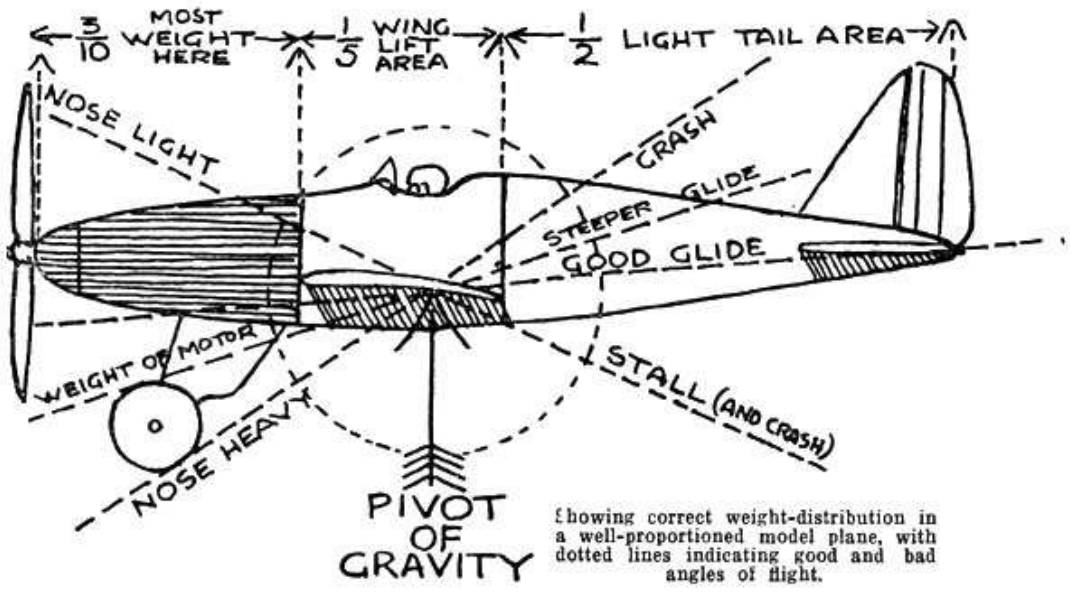
The dotted lines show the various angles of flight. Some will produce a good gliding angle, others make the machine crash. If the model is nose-heavy it will dive steeply to earth, but provided the motor is only moderately heavy and proportionately extra-powerful the machine will fly well enough, though crashing when the power gives out. The angle of flight of such a model is shown by the dotted line marked "weight of motor."

On a nose-light plane, the model tends to fly with its nose higher than its tail, and the tendency is to stall—that is, lose flying-speed and crash. The dotted line most nearly horizontal indicates the best gliding angle.

The model shown in the chart on this page is a low-wing monoplane—a single-winged machine with the planes set near the bottom of the fuselage. The principles of design are just the same, however, for all types of machines—biplanes or monoplanes, models with built-up fuselages or models with "stick" fuselages.

The position of the model plane in the illustration is that of level-keel flight, which, of course, is different from the "good glide" angle indicated by one of the dotted lines. Nearly all model aeroplanes climb at a slight angle when the propeller is revolving at full speed, and only fly on a level keel for a fraction of a second when the motor begins to run down.

As soon as the power slackens a little more, flying speed is lost and the model should take up the "good glide" angle. Later, it probably assumes a steeper glide, finally diving until within a few feet of the ground, when it should flatten-out and make a good landing.



Showing correct weight-distribution in a well-proportioned model plane, with dotted lines indicating good and bad angles of flight.