



Take Care of the Plane—

—AND THE FLIGHTS WILL TAKE CARE OF THEMSELVES

Everything, in model flying, depends on the accurate adjustment and proper care of the plane. These tips will show you how to get the best out of yours.

ISOMETIMES see fellows hopefully trying to fly their model planes with the wing the wrong way round. Obviously they haven't read carefully enough the instructions about assembling, but perhaps there is some excuse for them, because I have seen models put together that way in the shops!

If you look at the wing, you will notice that the short strips of wood, called ribs, running from the front edge to the rear, are curved or "cambered." This curvature is greatest about one third of the distance from the *front* of the wing—the leading edge, as it is called.

Make sure that the undercarriage, wing, and tail of your model fit quite tightly, because the model will give trouble if they wobble in flight. If necessary, jam them in place with bits of matchbox wood. Smear a little vaseline on the propeller spindle, and cover the hooks for the elastic with pieces of cycle-tyre valve tubing, so that they cannot cut through your rubber motor, as at Fig. 1.

The rubber should not be used dry. Model shops sell tubes or tins of lubricant, which make the rubber last longer and gives more power. Pour a little of it into the palm of your hand, and rub it thoroughly

into every part of the rubber before you use it on your plane. If you cannot get this special rubber lubricant, you can make quite a useful kind by mixing soft soap and glycerine in about equal parts.

The instructions given with your plane will tell you how many strands of rubber to use. They should all be exactly the same length, and the ends should be knotted and then tied with thread to prevent the knot slipping. Get someone to hold the ends stretched, as at Fig. 2, while you tie thread tightly round several times.

Now you are almost ready for the first flight, but first you must make sure exactly where the wing should be placed along the motor spar. To begin with, place it so that, when you hold the spar very lightly between finger and thumb, the model balances at a point about one-third of the width of the wing, measured from the front edge.

Now wind the propeller about 50 turns, watching that the rubber does not get caught around either hook. Most propellers wind to the right—and unwind to the left, Fig. 3—but in case yours should be different, see that the draught from the propeller blows towards the tail. I saw an expert "pilot" so

TAKE CARE OF THE PLANE



Fig. 1.—A cycle valve-tube slipped over the hooks carrying the rubber motor will double the life of the elastic by preventing cut strands.

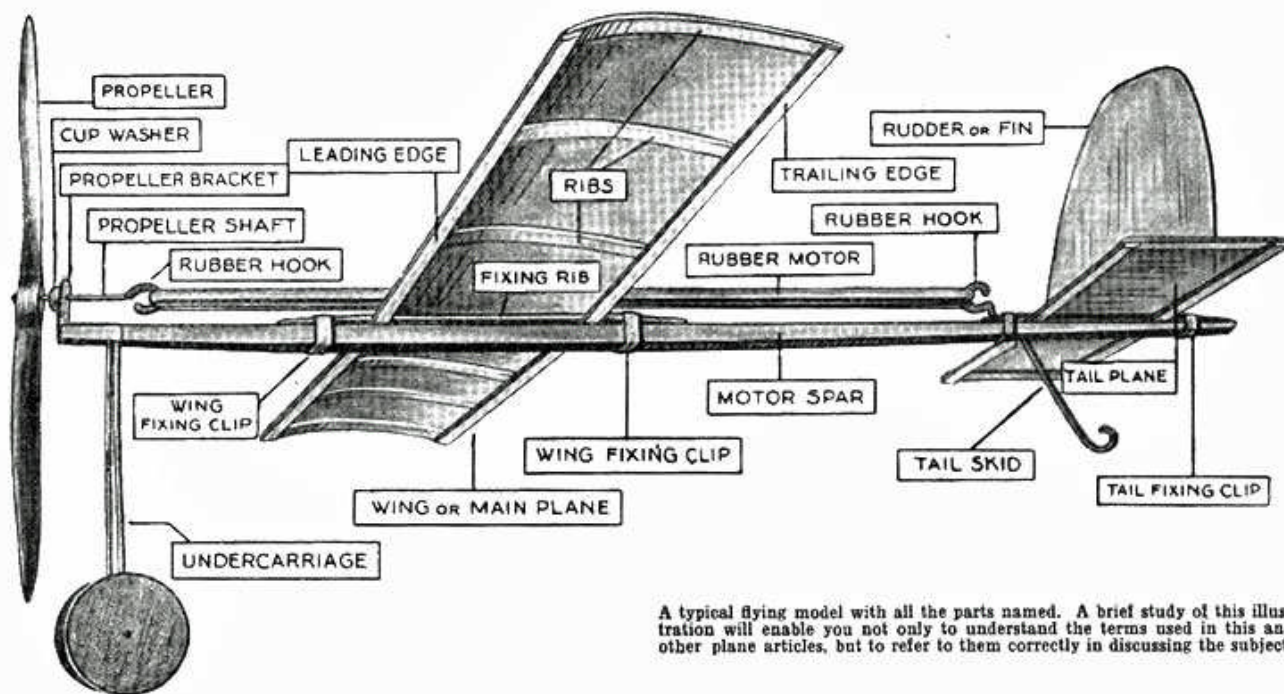
far forget himself as to wind the wrong way, and you should have seen the surprised look on his face when, as he launched his plane, it came back into his hand instead of flying!

To get good flights you must launch the plane correctly. This is quite easy when you know how, and with a little practice you should become quite expert. Hold the motor spar tightly, just behind the wing, with the thumb and first finger of the right hand, and grip the lower blade of the propeller with the left hand, Fig. 4. See that you are holding the model with the wings level. Face the wind.

Keeping the model as level as you can, give it quite a gentle push forward, letting go with both hands at the same time.

Many fellows make the mistake of launching much too fast, and nearly all want to point the model upwards. It is a good plan to practise the correct way of launching without actually letting the model go. This "launching drill" may save you from a number of crashes. Clumsy launching will spoil your flights, and if really bad may mean a broken propeller.

If your plane climbs too steeply, then comes to a stop and nose-dives, as at Fig. 5, the wing is too far forward. If it switchbacks, Fig. 6, instead of flying level or climbing, move the wing back about $\frac{1}{16}$ in. If it dives each time you launch it, try moving the wing forward $\frac{1}{16}$ in. at a time, until you get it right.



A fast-spinning propeller may cause the plane to turn as it flies, though it will probably glide straight when the rubber is unwound. You can get straight flights by altering the rudder. Bend the wire frame of the rudder at the top, so that, when you look at it from the front of the model, you can see a little of its side surface showing, as at Fig. 3, where the dotted lines indicate the bent rudder. Of course, if your propeller unwinds the opposite way to that shown, the rudder should be bent on the opposite side to that indicated.

Some planes have the wings arranged so that they fly straight without the rudder being altered. When you get the plane flying as you want it, you can put more turns on the propeller—up to the maximum quoted by the makers—and you should then get a higher and a longer flight.

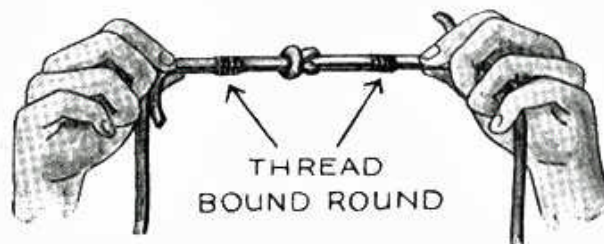


Fig. 2.—The proper way to bind the ends of the rubber strands. The thread should be tied while the rubber is stretched by a friend.

It is very important to examine the plane after every flight. The wing may be found to have been knocked forward on landing, the tail moved out of place, or the undercarriage bent. You must watch out for these things, and put them right before you try to fly the plane again. Sometimes the propeller shaft will bend through a heavy landing. Straighten it very carefully, or the propeller will vibrate and not give sufficient power to fly the model.

If there is a really smooth patch of ground handy, and your plane is in perfect order, you can get rise-off-ground flights. This needs the maximum number of turns on the propeller. If the plane is set for straight flights, place it on the ground exactly facing the wind, but if it usually turns place it on the ground facing slightly sideways to the wind, to left or right, as the case may be.

Hold the propeller with your left hand, and steady the motor spar with your right. Release the left hand, and a second later, when the propeller is running at full speed, release the right. If you have followed these instructions, the plane should take off well, and make a good flight, though usually it will not fly quite so far as when it has been hand-launched.

About storing your plane. Nearly every modern plane takes to pieces, which not only helps you to get it home undamaged, but makes it easier to find a

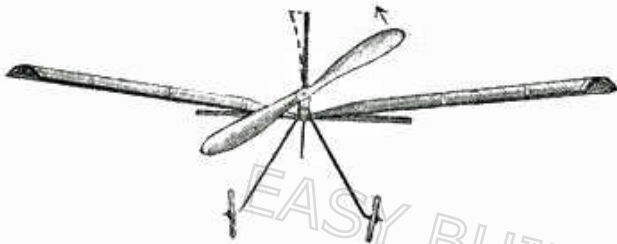


Fig. 3.—Wing trim and rudder-control. The dotted lines, referred to in text, indicate the bending of the rudder to correct faulty flying.

safe place in which to keep it. Be careful not to crush it into such a small space that the wing or tail gets bent, and try to find a place away from damp, draughts, or great heat. All these things twist or warp the plane, and next time you try to fly it, you will wonder if it has gone mad!

The rubber wants looking after, too, if you are to prevent it quickly breaking, and are to get consistently good flights. The elastic should be kept away from air and light. A good storage place is a large tin with a tight-fitting lid, and large enough to allow the rubber to expand.

When you have finished flying for the day, it is best to take the rubber off the plane, and put it back in the tin. Keep it "moist" by putting on some more rubber lubricant after about every twenty flights. Do not give new rubber too many turns. Begin with fifty turns, and gradually increase the number, but

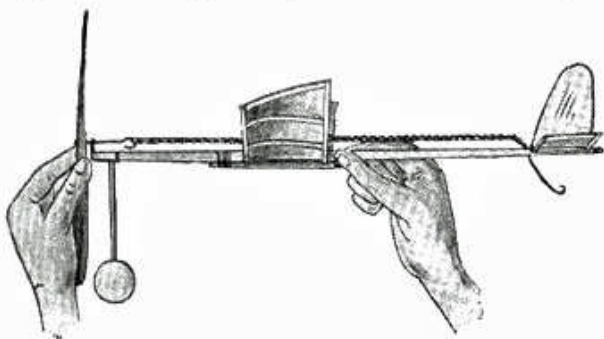


Fig. 4.—How to launch the plane. Wings level and facing the wind is the rule.

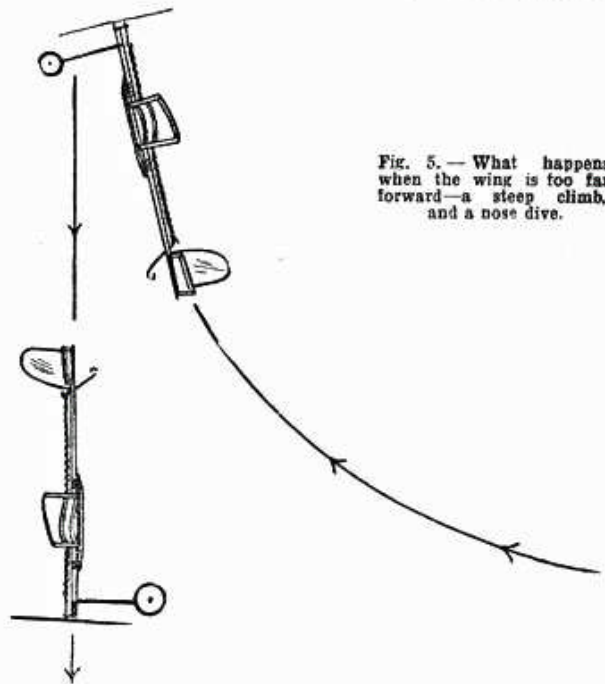


Fig. 5.—What happens when the wing is too far forward—a steep climb, and a nose dive.

only give full turns now and again when you specially want a long flight.

Rubber has two great enemies, water and dirt. So if you get caught in the rain, dry your plane carefully (but do not put it near a fire), and dry the rubber thoroughly, too, lubricating it before you put



Fig. 6.—A switchbacking plane indicates wrong wing adjustment also. Experiments will soon show the right position.

it to "bed" in its tin. If the rubber has fallen on the ground, wash the grit off with a little lubricant, dry it well, and put on some fresh lubricant.

When you can handle your plane perfectly, you will probably like to try looping the loop. This needs plenty of power, and, of course, a bigger crash than usual if things go wrong! So you had better fly over a big patch of long grass, which will absorb the shock. First get the plane flying quite straight. Then you have to alter the tail plane. If it is made of wire, bend the outer edges, so that, when you look at it from the front of the model, you can see the rear edge about $\frac{1}{4}$ in. above the front edge.

Don't try to bend a wooden tail. Prop it up by placing a piece of wood, about $\frac{1}{4}$ in. thick, between the rear edge of the tail and the motor-spar. Look the plane over to make sure everything is in place and firmly fixed. Face the wind, and launch the plane rather faster than usual. You must be very careful to have everything correct, because there is no pilot on board to put right any mistakes, but with a little practice you should soon manage a perfect loop.