

# THE MERLIN

BY RAYMOND MALMSTRÖM

**T**HE Merlin is an attempt on the part of the writer to create a model that follows, without being a copy, the general layout of a type of aircraft that has won battle honours in every theatre of war.

The fighter bomber provided the inspiration for the Merlin, and the result has been the creating of a model which, for appearance and flying performance, has stood up to the criticism of men who have been servicing the sleek fighter bombers of the Allied Air Forces, which, at every hour of the day and night, have been carrying destruction and death to the enemy.

Construction has been simplified as much as possible, and extra care, patience and accuracy will be more than repaid when the Merlin stands on the bench ready for first tests.

**Fuselage.** Of normal construction, the fuselage is built on the keel principle. Sheet is inserted in the sides to form a solid anchorage for the ribs of the inner wing bays. Carefully insert, line up, and cement the wing bridge in position. Cover and apply two coats of clear dope.

**Engine Nacelles.** Cut out and steam, bend the two halves of each nacelle. Cement in the formers and blocks (for receiving undercart tubes and locking pegs). The two halves are then glued together and covered with two layers of cross-grained tissue, well doped on.

This type of construction has proved to be far easier to build and also stronger than a built-up framework, and if a nacelle is badly damaged in flying, it is more easily replaced than a built-up one.

**Wings.** The plan furnishes all details of the inner and outer wing bays. Note the sheet covering on the leading edge of the inner bay. The blocks X1 and Y1, for taking the upper parts of the locking pegs, should be firmly cemented on to rib R.1. Sheet wood is employed to form a seating for the engine nacelle mounting, also for bombslips.

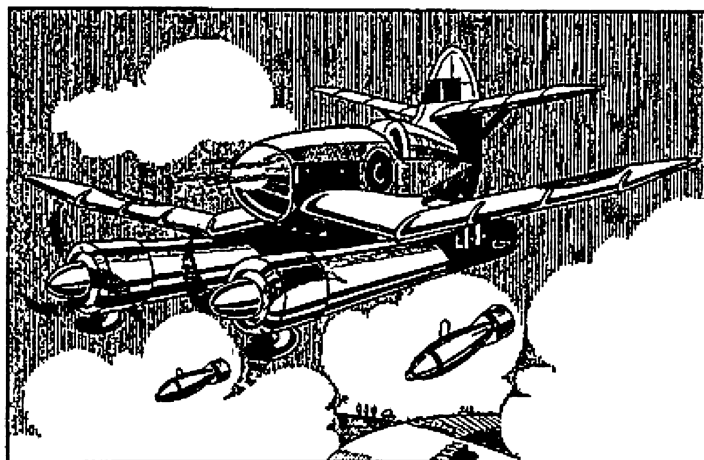
Cut lightening holes only when using hardwood. Sand L.E.s. and T.E.s. to streamline shape. Cover bays with one layer of tissue. Give one coat of clear dope.

Engine nacelle mountings and locking pegs are glued in position, and then the completed nacelles are slid on to the locking pegs and cemented.

**Tailplane and Fin.** These should be built up directly on the plan. A small hardwood or, preferably, celluloid sheet should be incorporated into the lower portion of the fin. Tailplane and fin one coat of clear dope. Nought degrees incidence to datum, on tailplane.

**Undercarriage:** Use the undercarriage when flying over short grass. The rubber band to each leg should be very small, so that maximum tension is put on the legs.

**Bomb Slips.** Although the author claims no originality for these they have not been consciously copied from any other layout, and they do give very great certainty of operation. The moment of release is fixed by the adjusting of the rear rubber band which passes over the dowel retaining the motor. The release rods should be sliding fits, and ensure that the bombs are free to fall,



Sketch by Author.

and not too tightly held on the slips. A tiny lead shot in the nose of the bomb causes it to fall nose first.

**Propellers and Motors.** Props. These should be three-bladed, left and right handed. They should be balanced before fitting, and identical in weight and blade area and pitch. Spinners may be built from scrap and the nose blocks drilled at the correct downthrust and bushed. A freewheel should be incorporated behind the spinners. Torque is cancelled out by the opposed rotation of the airscrews. The motors should be well lubricated and stretch-wound.

**Flying.** Testing for glide must always be the first operation and not until this glide is flat and free from diving and stalling may power be used. Tail heaviness, the curse of semi-scale and scale types, is not troublesome in twin motor types with the engines set well forward. Any tendency to nose heaviness should be corrected by either warping the T.E. of the tailplane upwards or by a very small piece of plasticine located in the rear of the fuselage. If built according to the plan, little difficulty should be experienced before long steady flights are obtained.

In conclusion, the designer of the Merlin believes that the future development of and research into the hobby of aeromodelling must, and eventually will, be directed to the production of models that are in real truth MODEL AIRCRAFT. These models, because they will bear a direct relationship to the full-size machines, will ensure that there is a lively and very real link between the men who design and fly model aircraft and the men who design and fly the full-size machines.

A 1-size plan of the model is to be found overleaf.

