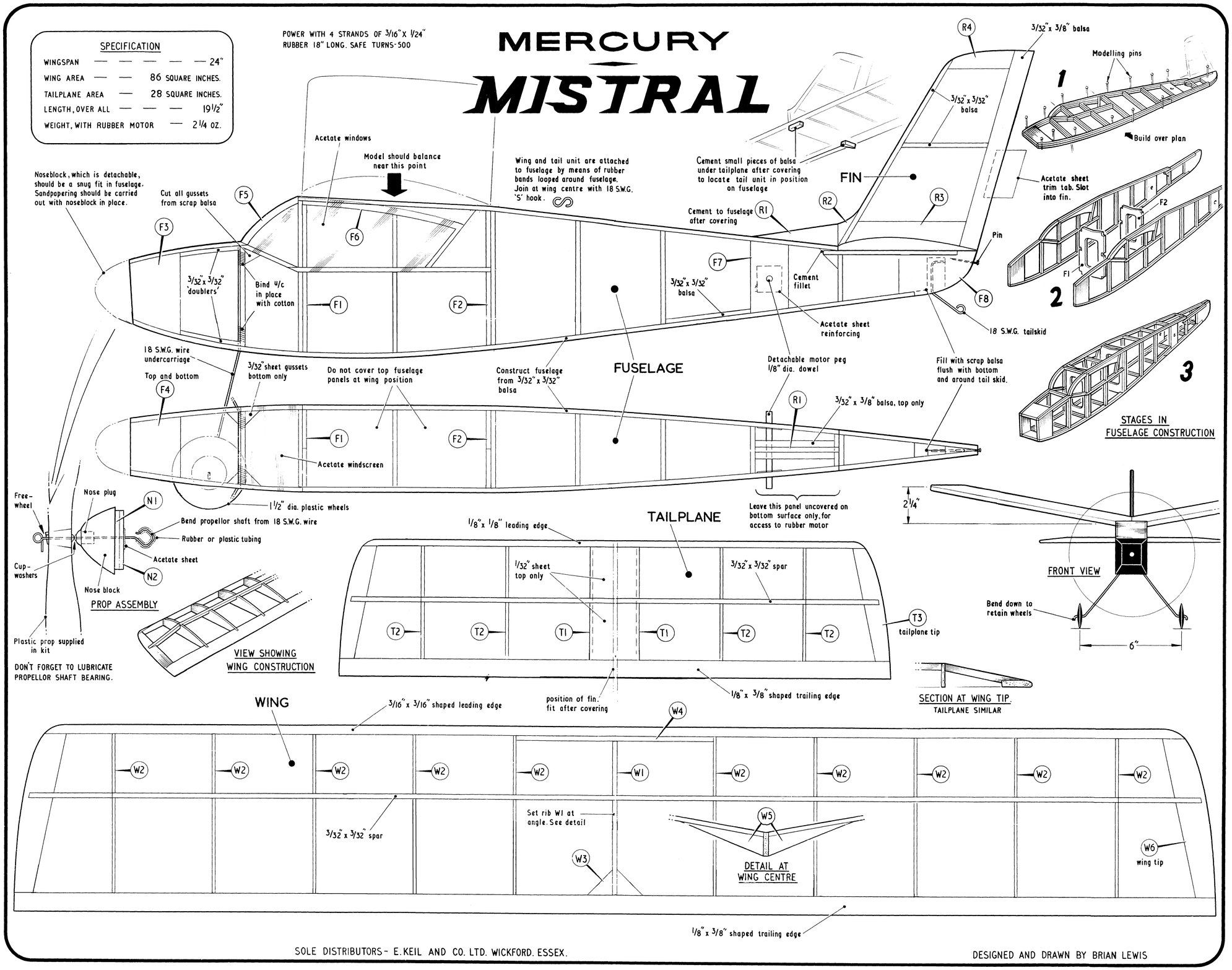
MERCURY MISTRAL

POWER WITH 4 STRANDS OF 3/16" X 1/24" RUBBER 18" LONG. SAFE TURNS-500

SPECIFICATION

WINGSPAN	24"
WING AREA	86 SQUARE INCHES.
TAILPLANE AREA	28 SQUARE INCHES.
LENGTH, OVER ALL	19½"
WEIGHT, WITH RUBBER MOTOR	2¼ OZ.



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INTRODUCTION

The Mercury Mistral is a simple to build rubber duration model, which should prove ideal for a beginner's first attempt at scrmodelling. Carefully built and finished the Mercury will provide many hours of enjoyment and should last for years. Before building is commenced—a building board (an ironing board is ideal) a sheet of pre-cut balsa, a round-nosed pliers, a modelling knife or razor blade, some glass headed modelling pins, a tube of balsa cement, a small bottle of thinners and a small brush for doping, should be assembled. Before you start, study the plan and instructions carefully and check that you understand the construction and know where each part goes. When removing parts from the die-cut sheets, use a modelling knife or razor blade to avoid splitting the wood. It is a good plan to remove parts only as you need them, to avoid loss.

BUILDING THE FUSELAGE

Pin plan to building board and cover with a sheet of polythene (kitchen wrap) to prevent the balsa sticking to it. Rubbing the plan over with a candle will also have the same effect.

Build two sides flat on the plan, one directly on top of the other, using waxed paper between them. The uprights should be cut to length in pairs to ensure that both fuselage sides are the same. All end grain should be coated with cement and allowed to dry before finally cementing together. Allow plenty of time for the fuselage sides to dry thoroughly before removing from the plan. Assemble the wing or tailplane and then remove from plan. Cement the former F4 in place, ensuring that it is square as shown in illustrations making sure assembly is true and square. Hold together with pins or rubber bands whilst drying. Make noseblock from balsa and cement in place. Carve noseblock to shape but leave slightly oversize to allow sandpapering to fuselage contours later. Cut gussets to shape and cement into position.

BUILDING THE WING

First join the leading edges together with Part W4. Pin left hand leading edge and trailing edge to plan and cement ribs W1 and W2 and wing tip W6 in place after pre-cementing. Add 3/32" sq. spar and leave to set. When dry—rock wing onto right leading edge support-ing blocks and cement ribs W3 and W5 in place. Add wing struts and construct right hand wing in the same sequence. When dry remove from plan and add parts W5.

BUILDING THE TAILPLANE & FIN

This follows a similar sequence to that of the wing. Pin 1/8" x 1/8" leading edge and trailing edge to plan and tip pieces after pre-cementing end grain. Fit 3/32" sq. spar and add 1/32" sheeting to centre section. Build fin on top of tailplane and remove when set. Do not cement to tailplane yet.

SANDPAPERING ETC.

Sandpapering should be done lightly and carefully using a fine grade garnet paper on a sandpaper block. Noseblock should be cemented in place in fuselage. After sandpapering remove noseblock and cement nose on drawing and cement cabin windows in place as shown on drawing and cement cabin windows in place.

COVERING

The covering of a model is most important. In the first place it determines whether the model looks nice or not, and it also has a great effect on its flying capabilities. Care must be taken in covering therefore, to weld warps out.

Start with the fuselage. This can be covered in five panels of tissue, one piece each for the sides and bottom and two pieces for the top. Cut the panels out of the fuselage but not on the spacers. Stretch the tissue over the longeron, using paste as the adhesive and first cover the sides using tissue paste on the outline of the fuselage but not on the spacers. Stretch the tissue over the longeron, using paste as the adhesive and without any wrinkles. Overlap the edges of the tissue on the top and bottom longerons and cement down without any wrinkles. Overlap the edges of the tissue on the top and bottom longerons and cement down using the same method but do not overlap at all. Instead trim the tissue to the edge of the longeron so that the edge of the paste has set. When the paste is dry, give the whole fuselage one coat of clear dope and put on one side for the dope to dry.

The wing is covered in six separate pieces. Two panels for the two halves of the bottom and two panels for the two halves of the top and one panel for the tip. Cut the panels out of the tissue allowing an inch all round for the edges. Cut tissue for the leading edge, trailing edge, root rib and tip rib. Do not cut out the tissue for the underside of the root rib (N1) to try to hide the tissue on every rib so that it can be doped and put on one side to dry while you get on with covering the tailplane and fin.

Covering the tailplane is very easy. Use the same method as for the wing. Cut the panels out of the tissue allowing an inch all round for the edges. Cut tissue for the leading edge, trailing edge, root rib and tip rib. Do not cut out the tissue for the underside of the root rib (N2) to try to hide the tissue on every rib so that it can be doped and put on one side to dry while you get on with covering the fin.

When the first coat is quite dry give a second coat of clear dope to which you should add a little thinners to make it easier to brush. When dry, rub down with fine glass paper and give a third and last coat should give you a good shiny finish that will be weather proof and will have brought the tissue up fully taut.

Cement fin to tailplane and R1 to the fuselage. Cement wing struts in place and add R2 to the fuselage. Cement wing to fuselage and add R3 to the fuselage. Cement tailplane to the top of the fin. Cement R4 to the fuselage and the tailplane and fit the small trim tab to the back of the fin.

PREPARING FOR FLIGHT

First make up the rubber motor from 2 yds. of 3/16" rubber. Tie the ends of the motor together with a really good knot and then stretch out and wind in the knot to lubricate it. Now lubricate it by rubbing it thoroughly between the palms of your hands with a few drops of castor oil. Hook one end of the motor on the rear peg and your left hand in the exact middle of the motor and with the other hand double the motor back on itself as shown in illustrations. Hold the doubled motor in the free end of the motor on to the hook together with the other end of the motor. On letting go of the motor it should wind itself up on itself and be just long enough to fit into your motor but if you don't want to use them just hold the ends with small rubber bands leaving the loops of the motor free ready for putting over the motor hook and the rear dowel.

Check that the length of the motor is just a nice fit between the prop shaft and dowel. If it is too long unwind and prewind again with more turns to shorten it.

If you do not intend to use bobbins cover the hook on the prop shaft with a piece of rubber tubing to stop the motor being cut by the wire.

Check model all over for warps. If you have built and covered the model there should be no warps but just in case you have a built-in twist this can be removed by holding the affected part over the spout of warm air (such as you get from an electric iron or heater) and gently twisting against the warp. Hold in the new position until cooled off. The warm air and steam will make the balsa pliable and the wood will retain that position until cooled off.

TRIMMING AND FLYING

Before attempting any trimming flights check that the balance point of the model is in the right place i.e. 40-50% from the leading edge of the wing. If the C.G. is not in the right place it can be adjusted by adding a little weight to the nose. Plasticene is ideal for this purpose and can be moved about until the balance is correct. If the C.G. is a little too far forward do not worry about this C.G. as it will be easy to trim the model for flight.

Choose a gentle slope preferably with any wind blowing up the slope. Hold the model at about shoulder height down the slope with the nose pointing as horizontally as possible for trimming. Launch the model gently from shoulder height down the slope with the nose pointing slightly upwards. The model should glide gently about 20 yds. If the model does not glide gently launch the model gently into the air with the nose upwards as this will always lead to a crash. The model should glide gently and then dive to the ground, pick up the leading edge of the tailplane 1/32" at a time with scrap sheet balsa. Remember, however, that this trimming procedure applies only to the tailplane. Do not touch the main plane in the first places. If, on the other hand, the model tends to dive straight into the ground then you must pick up the trailing edge of the tailplane 1/32" at a time until it is corrected. Remember too that overtrimming, i.e. bending too much up or down, will cause the model to undertrimming will cause the model to 'dive'. So be careful in all your test flying to launch the model at just the right speed to get it to glide naturally.

Now you can try your first power flight. Give the prop. a few turns and launch the model into the air. Start with about fifty or sixty turns clockwise and launch the model gently left under power and gentle right on the glide. This will make the model circle to the right. If the model will be a tendency to turn to the left. If the model turns to the right. Bending it to the right will produce a turn to the right.

The maximum number of turns will be about four hundred and the motor must have been well lubricated to take this number without motor strands breaking.

Do not attempt to fly in windy weather. It is easy to lose the model in a strong wind. Do not attempt to fly over trees or buildings. Do not attempt to fly in the rain as this will damage the model. Do not attempt to fly in the dark as you will be unable to see the model. Do not attempt to fly in the middle of a crowd of people. Do not attempt to fly in the middle of a crowd of people. Do not attempt to fly in the middle of a crowd of people