

WING ROOT MAIN SPAR  $\frac{3}{32}$  SHT

WINDSCREEN FRAME OF  $\frac{1}{16}$ " Balsa  
STRETCH PRESS CANOPY FROM  $\frac{1}{16}$ "  
CELLULOID

SPAR  $\frac{1}{4}$ " X  $\frac{3}{32}$ " TAPER  
TO  $\frac{1}{16}$ " X  $\frac{3}{32}$ "

SPINNER BACKPLATE  
1MM. PLY

2-NOSEBLOCK  $\frac{1}{8}$ " PLY

FILL BETWEEN STRINGERS  
WITH  $\frac{1}{16}$ " SHT. TO THIS  
LINE

DASHBOARD  
 $\frac{1}{16}$ " SHT

20 STRINGERS TO  
THIS POINT

SOFT Balsa  
FARING  $\frac{1}{16}$ " X  $\frac{1}{8}$ "

RIB  $\frac{1}{16}$ "

FILLET  
 $\frac{1}{16}$ " SHT.

CELLULOID  
TUBING

18 S.W.G.

1MM  
PLY SEW  
& GLUE  
TO  
TUBING

2" DIAM. WHEELS

11 STRINGERS  
TO THIS POINT

$\frac{3}{4}$ " CELLULOID T.WHEEL  
22 G. SOFT WIRE  
BOUND TO Balsa  
GLUED TO FORMER  
12 & STRINGERS

3-  $\frac{1}{4}$ " X  $\frac{1}{4}$ " COMPRESSION STRUTS

RUBBER MOTOR 8 STRANDS  
 $\frac{1}{4}$ " X  $\frac{1}{24}$ " X 25" LONG

C.G.  
ON M.SPARE

RADIATOR FROM  
SOFT Balsa

FORMERS

- 4 - SIDE THRUST WEDGE & FRONT BULKHEAD - PLY
  - 5,6,7,10 - FIVE LAYERS  $\frac{1}{64}$ " X  $\frac{3}{32}$ " FIBRE
  - 11,12,13 - FOUR " " " "
  - 9 - SIX " " " "
  - 8 -  $\frac{3}{32}$ " Balsa LEAVE  $\frac{3}{8}$ " WIDE
  - 14 -  $\frac{1}{16}$ " Balsa
- USE  $\frac{1}{64}$ " X  $\frac{3}{32}$ "  
Balsa AS  
ALTERNATIVE

CARD TEMPLATES  
FOR WOUND FORMERS

- 1 SPINNER 4 LAYERS  
GUMMED BROWN PAPER  
FORMED ON WAX  
PATTERN
- 2 SELF SETTING CLUTCH  
18 G. IN 18 G. TUBING
- 3 THRUST RACES
- 4 16 G. SHAFT RUNNING  
IN SCREWED BUSH
- 5 KNOCK OUT NOSE BLOCK
- 6 18 G. HOOK FOR BOB. IN PIVOTING  
IN BRASS BLOCK SCREWED TO SHAFT

6° BUILT IN FOR THRUST

NOSE SHEETING ON OUTER  
WINGS OF  $\frac{1}{32}$ " SOFT SHT.

TOP NOSE SHEETING  $\frac{1}{32}$ "  
BOTTOM "  $\frac{1}{16}$ " TO M.S.  
 $\frac{1}{32}$ " SHT. BEHIND M.S.

L.E.  $\frac{3}{16}$ " SQ.

CUT CLEARANCE  
HOLES IN LOWER  
SHEET FOR U.C.

U.C. PLUGS INTO CLEARANCE  
HOLES IN 18 G. TUBING SOLDERED  
TO 18 G. WIRE SPRING  
RUNNING FROM WING BOXES  
TO WHICH THEY ARE BOUND  
& CEMENTED

TYPICAL  
SECTION

CARVE FROM CLOSE GRAINED  
HARDWOOD BLOCK 10-5 X 1-4 X 0-8

6 LAYERS OF  
 $\frac{1}{64}$ " X  $\frac{3}{32}$ "

L.E.  $\frac{1}{8}$ " X  $\frac{3}{16}$ "

RIBS OF  $\frac{1}{32}$ " SHT

$\frac{3}{32}$ " SHT. MAIN SPARS

MAIN  
SPARS  $\frac{1}{4}$ " X  $\frac{3}{32}$ "

TAPER TO  $\frac{3}{32}$ " SQ  
TOP & BOTTOM

RIBS  $\frac{1}{16}$ " SHT.

18 G. U.C.  
SPRING

$\frac{3}{32}$ " SQ. TOP &  
BOTTOM

TAPER SYMMETRICALLY  
TO TIP

T.E.  $\frac{3}{32}$ " X  $\frac{3}{8}$ "  
TAPER TO  $\frac{3}{32}$ " X  $\frac{1}{4}$ "

WING TONGUES OF IMM. PLY  
WING BOXES  $\frac{1}{16}$ " Balsa

COVER MODEL WITH  
JAP TISSUE

L.E.  $\frac{3}{16}$ " X  $\frac{1}{16}$ "

FILLET

T.E.  $\frac{3}{8}$ " X  $\frac{3}{32}$ "

T.P. RIBS FROM  $\frac{1}{32}$ " SHT.

$\frac{1}{16}$ " SHT

SPARS  
 $\frac{1}{16}$ " X  $\frac{1}{16}$ "

T.E.  $\frac{1}{4}$ " X  $\frac{1}{16}$ "

$\frac{1}{32}$ " SHT ON UPPER SURFACE

MA.82



# MUSTANG

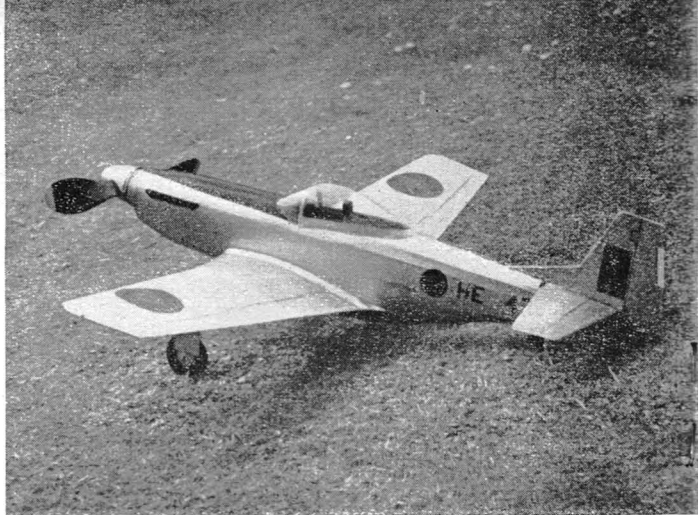
N. GREGORY  
SPAN 30  $\frac{1}{4}$ " LENGTH 26  $\frac{1}{2}$ "



# Mustang IV

By N. Gregory

A RUBBER-DRIVEN FLYING SCALE  
FREE-FLIGHT MODEL OF 30 IN. SPAN



THIS scale fighter has been designed and engineered expressly for flying of the full-scale type, and the model has been made sufficiently robust to survive high speed contact with hard ground without damage. The undercarriage fixing is novel. It is almost indestructible and it gives an extremely shock-absorbing suspension. The undercarriage may be removed for a better flight performance: in this case, the nose will take any crash loads with its three compression members distributing the stress over the wing root. The airscrew is arranged so that if the unit is levered out by a blade in contact with the ground, the hook folds and avoids damage to the top of the fuselage.

Construction is best commenced by making the wing boxes, tongues and outer panels. The undercarriage springing should be bound to the boxes which are then built into the wing root. Carefully cement fuselage formers 7, 8 and 9 into position and then cover the top of the wing root with  $1/32$  in. sheet. The wound fuselage formers should be separated from their templates to make certain they are not stuck, and then replaced. Line up all formers, and the wing root, on a straight piece of  $1/4$  in. square hardwood as a jig and add the stringers and planking.

The model is covered with Jap tissue and finished silver for lightness. The tailplane and fin should not be water shrunk, and should receive one coat of banana oil only. The required finish can be ob-



tained by mixing aluminium powder with the shrinking dope and banana oil used. Roundels should be cut from coloured transfer paper and control surfaces marked with Indian ink. Colour doping should be kept to a minimum.

The pilot's cockpit canopy is stretch-pressed from  $1/16$  in. sheet celluloid. A block of hardwood should be carved to the final shape with a skirt of about  $1/2$  in. The block should be filled and finished as smooth as possible. A female template is cut to the maximum section of the pattern plus a drawing allowance of  $1/8$  in. all round. A sheet of celluloid should be pinned to the template with many drawing pins, fixed at least 2 in. away from the edge. The template and celluloid should now be heated in an oven or close in front of an electric fire until the sheet begins to sag under its own weight. The pattern may now be pressed home until flush with the template; a simple system of guide rods will ensure a straight press. The resulting canopy should be about as thick as a film negative. It should be polished to perfect transparency with good metal polish.

The spinner is made from four layers of the gummed brown paper strip used for sealing parcels. The pattern is simply turned from a lump of paraffin wax or candle wax with the aid of a wheel brace and a metal edge. Well grease the pattern and lay down four layers of paper petals. Leave 24 hours to harden and remove. Fill the spinner with cellulose grain filler, sand smooth and finish.

The finished model should balance on the main spar. It is essential that all flying surfaces should be absolutely true and free from warps. Insert the tensioned motor and roughly adjust for glide. I prefer to fly without the undercarriage which is replaced by a small piece of plasticene ballast in the nose. When adjusted, the model should have a fast climb and cruise for about 20 sec. and will cover about 220 yd. over the whole flight. The stall of the model is abrupt and should be avoided; under torque the left wing will drop. This may be taken advantage of to yield a spectacular "ground-strafe" type of flight if the model is slightly over-elevated. Under full turns, the model will rapidly climb to 100 ft., do a 180 deg. stall turn, and dive back at the launcher, levelling out at zero height and then climbing away downwind for the rest of the power run.