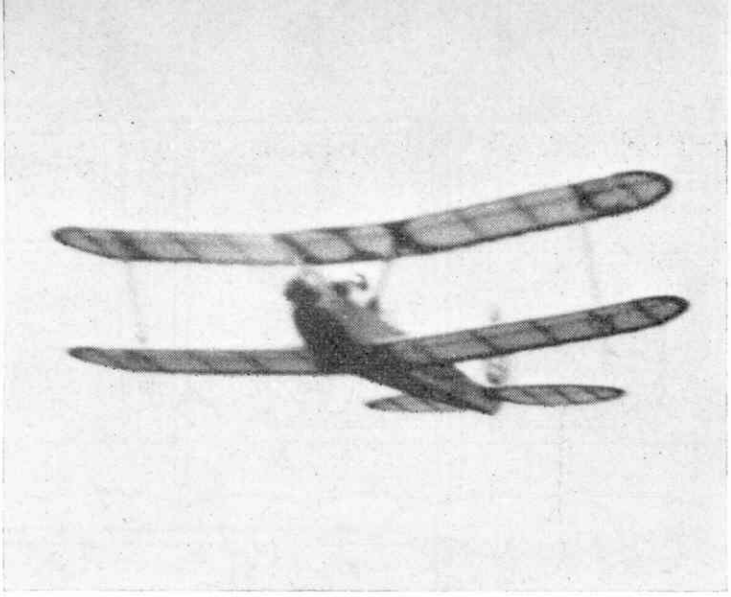


Shades of 1923! The Avro 558 flies again—in model form

After reading John Taylor's account of the Lympne Trials, you will be eager to build this exciting model of the

AVRO 558

An unusual biplane of yesteryear, modelled exclusively for Meccano Magazine

by Ray Malmström

OVER 40 years have passed since the full size AVRO 558 felt the rush and surge of wind under its wings. There is no doubt, however, about the fascination of building a flying scale model of such an unusual aeroplane. The original AVRO 558 caused quite a stir among aircraft enthusiasts way back in 1923, and you can be sure of attracting a lot of attention when you take your model AVRO out for an afternoon's flying in 1966.

The plans are full size, and if you follow the 'easi-build' sketches you will find construction quite straightforward, so we will not take up precious space by detailing building procedure in these notes. Accurate alignment of the centre-section struts is important, as is wing incidence and dihedral. Time and care taken in construction will result in a very flyable little model.

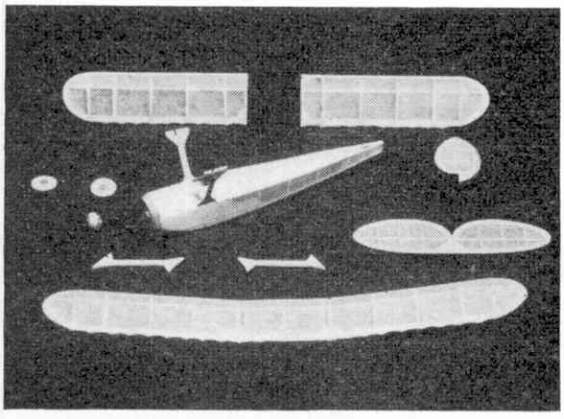
Flying Notes

You will need some weight in the nose to achieve correct balance. Recesses are provided in the nose for pieces of sheet lead, lead pellets, or folded cement tube. When you have carefully balanced your model, these recesses can be covered with $\frac{1}{32}$ in. sheet balsa, or tissue stuck on the front of the model. With the rubber motor installed, suspend the model from the balance point shown on the plan. Your AVRO 558 should hang level or slightly nose down. Avoid any tendency for the model to hang *tail* down.

Choose a calm day and some long grass for first glide and power tests. Check the balance, and freedom from warps of the wing, tailplane and fin. If there is a slight breeze launch your AVRO 558 from shoulder height directly into wind. Launch gently, with a follow-through movement of the arm, and with the nose of the model level or pointing *slightly* downwards. Never *throw* the model. It should glide down and land about 20 ft. ahead of you. If it turns sharply either to left or right, correct this by bending the trim tab on the fin slightly in the opposite direction to the turn. Obtain a straight glide and you are ready for your first power-on flight. Before winding, check that the propeller (incidentally the propeller is a 5 in. diameter Keil Kraft plastic one, obtainable from your aeromodelling shop price 11d.) is pointing downwards, and towards the right (model viewed from the rear). *These adjustments are most important.* Do not neglect to see you have built them in correctly as shown on the plan. Well lubricate the rubber motor (special rubber lubricant costs 6d. per tube) and then wind on 150-250 turns. Launch gently, as for glide tests. Model should climb away, cruise for a short distance, and then glide in to a landing. If your AVRO 558 turns violently to the left *increase* the propeller off-set angle. If it stalls, increase the degree the propeller shaft is pointing downwards. A gentle climbing turn to the left is fine. You can increase the turns with each successful flight up to a maximum of 580. These turns are best put on with a hook fixed in the chuck of a drill (gearing about $3\frac{1}{2}:1$). Pull the rubber motor well out, and stretch it as you wind on the turns. And now a small tip. Give an added 30-40 turns *by hand* before launching. These hand turns give just the necessary boost for a good climbing take-off.

I am sure you will get lots of fun from this little AVRO 558. Perhaps some keen aeromodeller will scale it up to say $22\frac{1}{2}$ to 30 in. span, when power could be a Cox T.D. 010 or 020 glo-motor. (*Full size plans are on the next two pages*)

1



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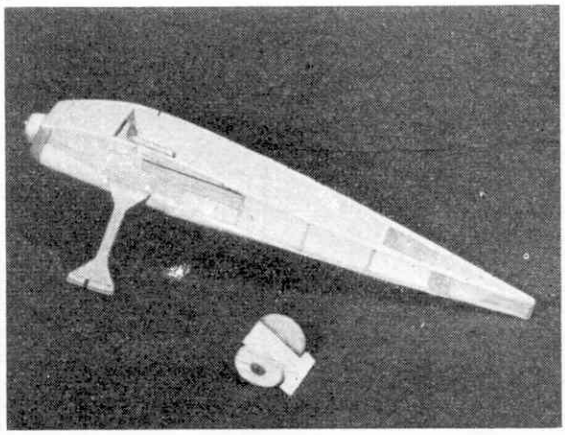

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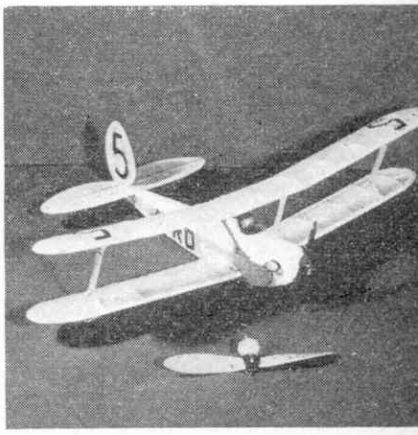
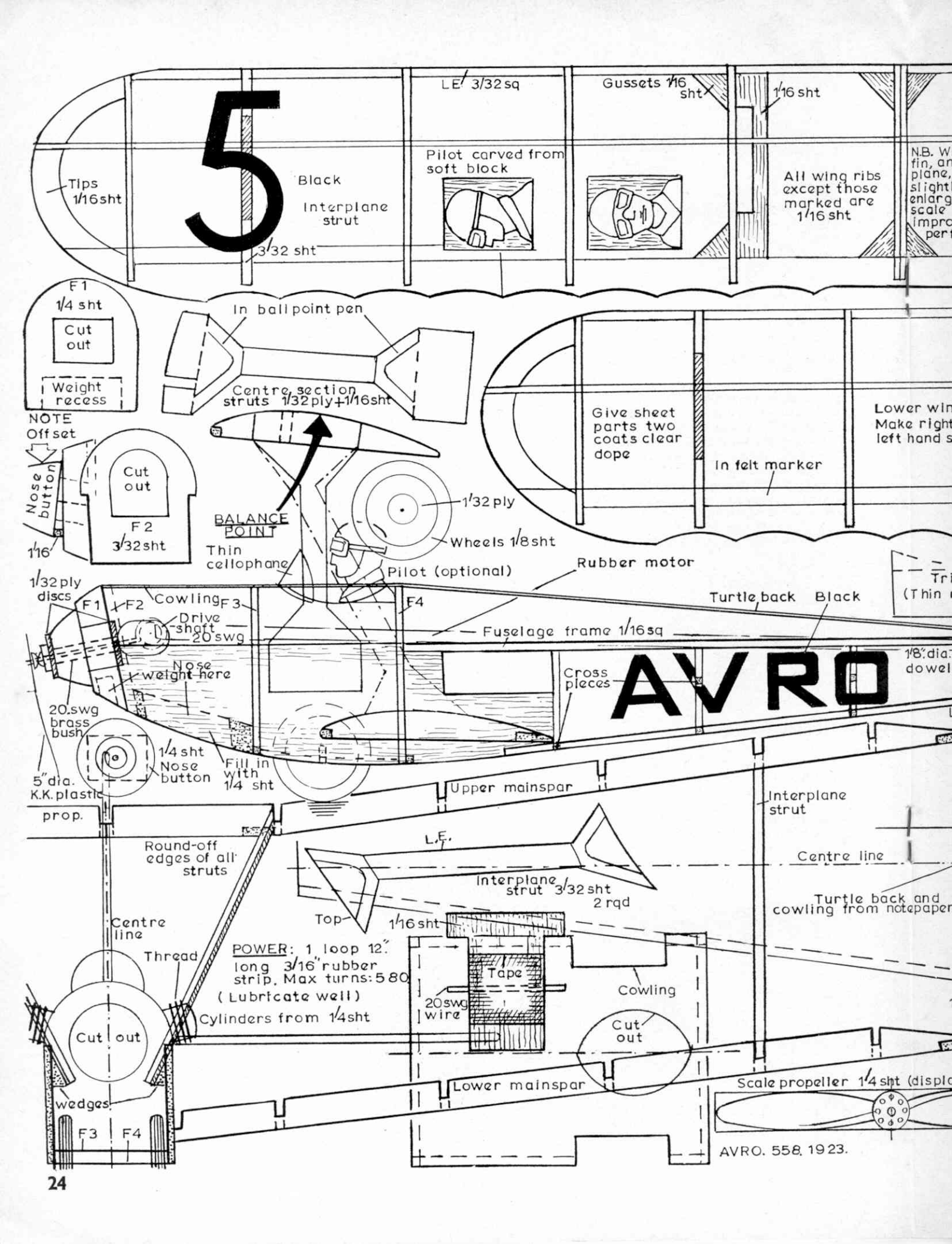
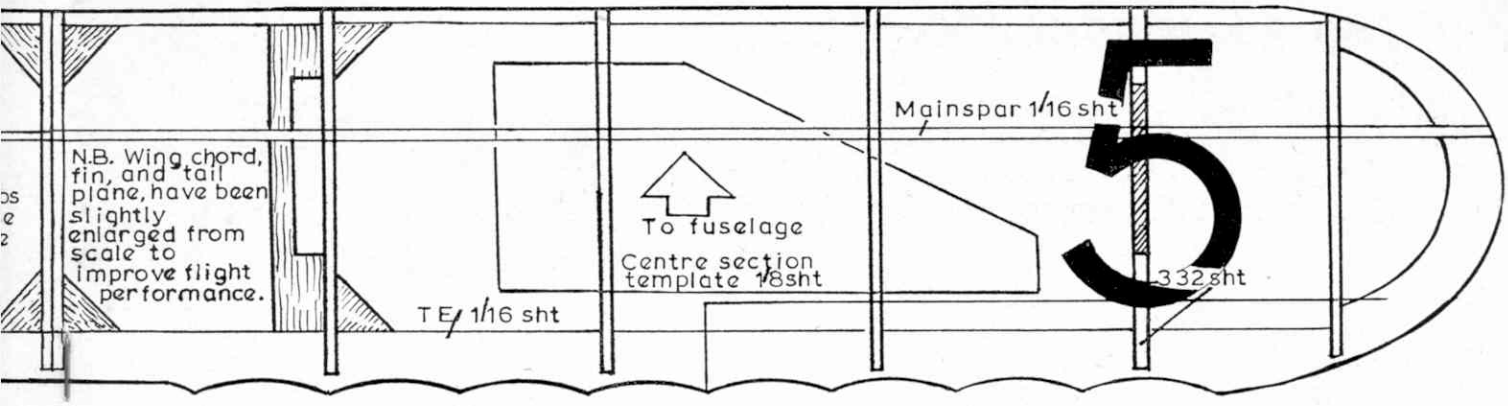
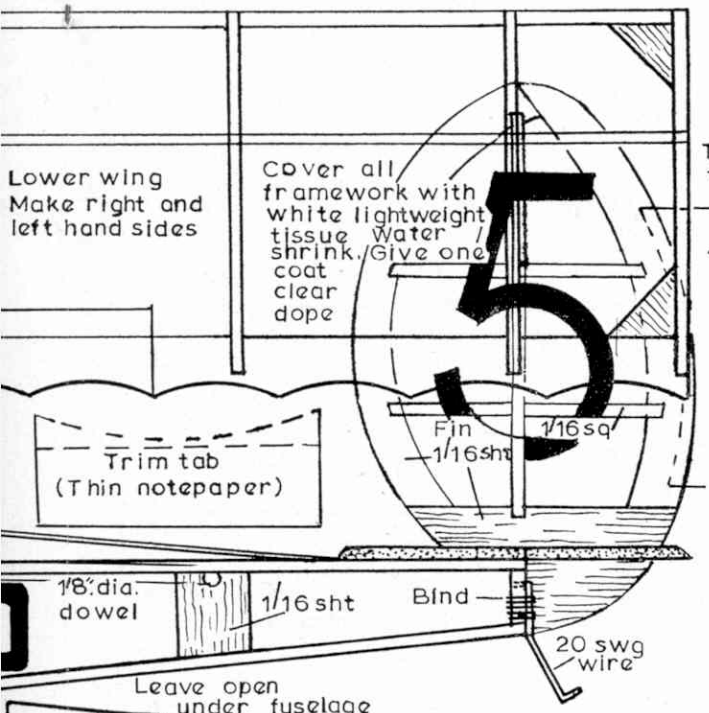
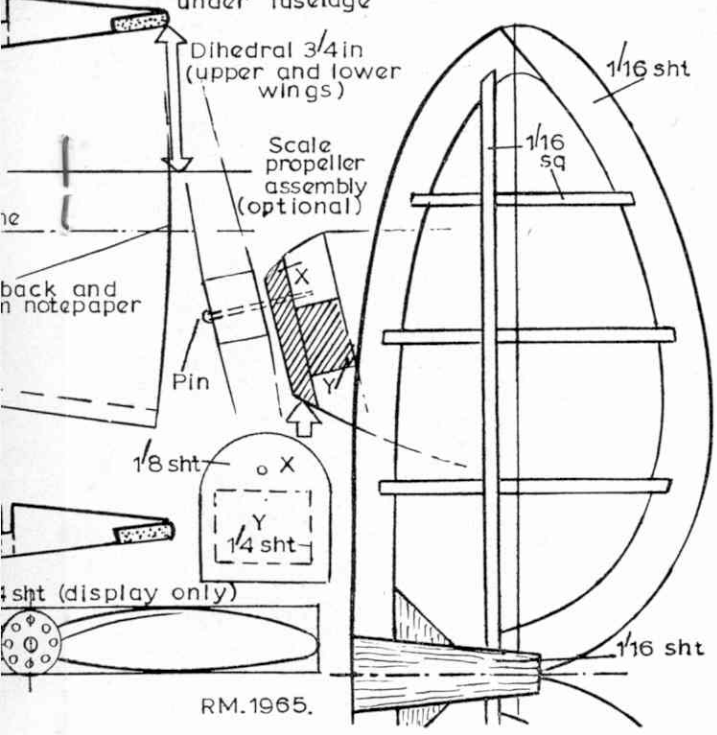


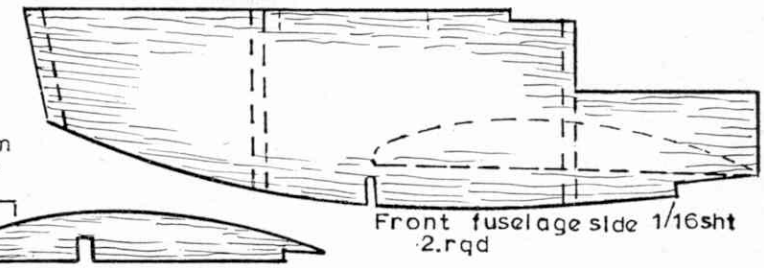
1 *Flying surfaces etc. ready for assembly to the fuselage structure.* **2** *The undercarriage unit ready for assembly to bottom of fuselage.* **3** *The Avro 558 with scale display propeller, flying prop. in foreground*

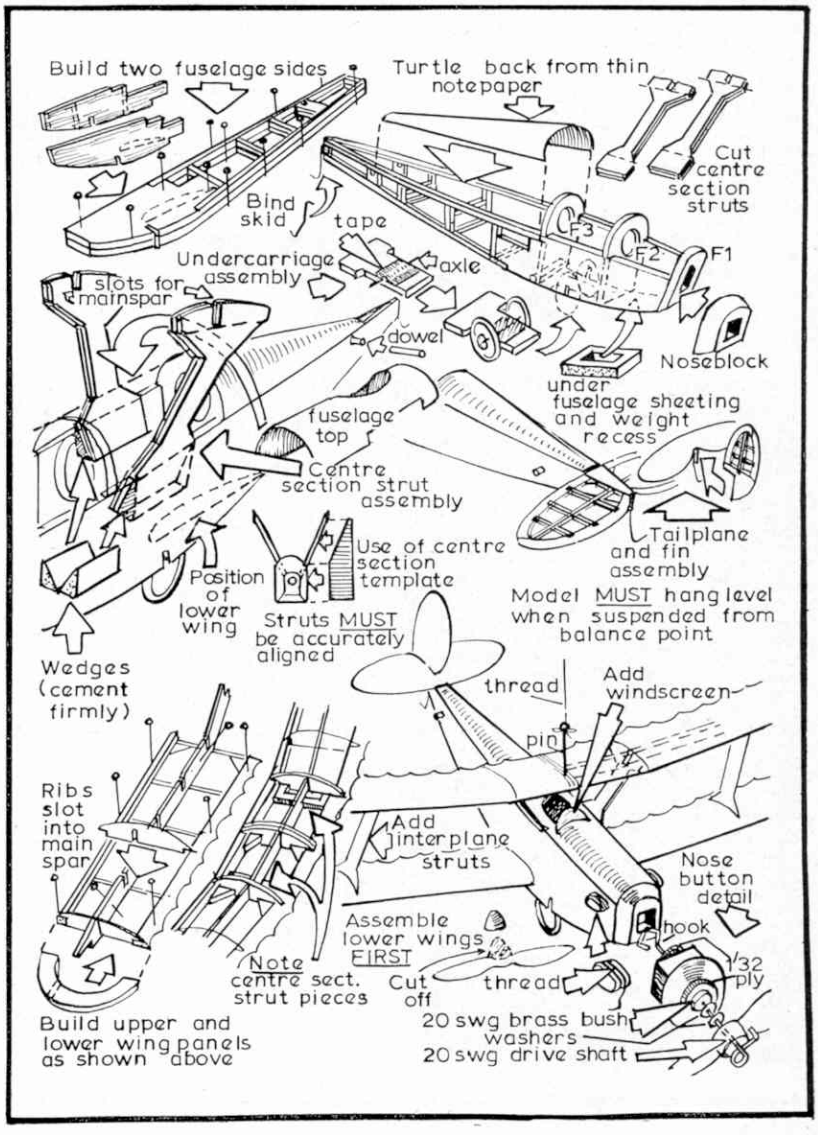

5
AVRO
LE 3/32 sq
Gussets 1/16 sht
1/16 sht
Tips 1/16 sht
Black
Interplane strut
3/32 sht
Pilot carved from soft block
All wing ribs except those marked are 1/16 sht
N.B. W
fin, ar
plane,
slightl
enlarg
scale
impro
perf
F1
1/4 sht
Cut out
Weight recess
In ball point pen
Centre section struts 1/32 ply + 1/16 sht
NOTE
Off set
Nose button
1/16
Cut out
F2
3/32 sht
BALANCE POINT
Thin cellophane
1/32 ply
Wheels 1/8 sht
Pilot (optional)
Rubber motor
Give sheet parts two coats clear dope
In felt marker
Lower win
Make right
left hand s
1/32 ply discs
F1
F2
Cowling
F3
F4
Drive shaft 20 swg
Turtle back
Black
Fuselage frame 1/16 sq
Nose weight here
Cross pieces
1/8" dia.
dowel
20 swg brass bush
1/4 sht
Nose button
Fill in with 1/4 sht
5" dia. K.K. plastic prop.
Upper mainspar
Interplane strut
Round-off edges of all struts
L.E.
Centre line
Interplane strut 3/32 sht 2 rqd
Turtle back and cowling from notepaper
Top
1/16 sht
Centre line
Thread
POWER: 1 loop 12" long 3/16" rubber strip. Max turns: 580
(Lubricate well)
Tape
20 swg wire
Cowling
Cylinders from 1/4 sht
Cut out
Cut out
Lower mainspar
Scale propeller 1/4 sht (displ
wedges
F3
F4
AVRO. 558. 1923.


N.B. Wing chord, fin, and tail plane, have been slightly enlarged from scale to improve flight performance.
Mainspar 1/16 sht
To fuselage
Centre section template 1/8sht
TE 1/16 sht
3 32 sht


Lower wing
Make right and left hand sides
Cover all framework with white lightweight tissue. Water shrink. Give one coat clear dope
Trim tab
Fin 1/16 sq
1/16 sht
Trim tab (Thin notepaper)
1/8" dia. dowel
1/16 sht
Bind
20 swg wire
Leave open under fuselage


Dihedral 3/4 in (upper and lower wings)
Scale propeller assembly (optional)
back and n notepaper
Pin
X
Y
1/8 sht
Y 1/4 sht
sht (display only)
1/16 sht
1/16 sq
1/16 sht
RM. 1965.


Trim tab
Wing ribs
Front fuselage side 1/16sht 2.rqd


Build two fuselage sides
Turtle back from thin notepaper
Cut centre section struts
Bind skid
tape
F3
F2
F1
Undercarriage assembly
axle
slots for mainspar
dowel
Noseblock
under fuselage sheeting and weight recess
fuselage top
Centre section strut assembly
Tailplane and fin assembly
Use of centre section template
Position of lower wing
Struts MUST be accurately aligned
Model MUST hang level when suspended from balance point
Wedges (cement firmly)
thread
Add windscreen
pin
Ribs slot into main spar
Add interplane struts
Nose button detail
hook
Assemble lower wings FIRST
Note centre sect. strut pieces
Cut off
thread
1/32 ply
Build upper and lower wing panels as shown above
20 swg brass bush washers
20 swg drive shaft