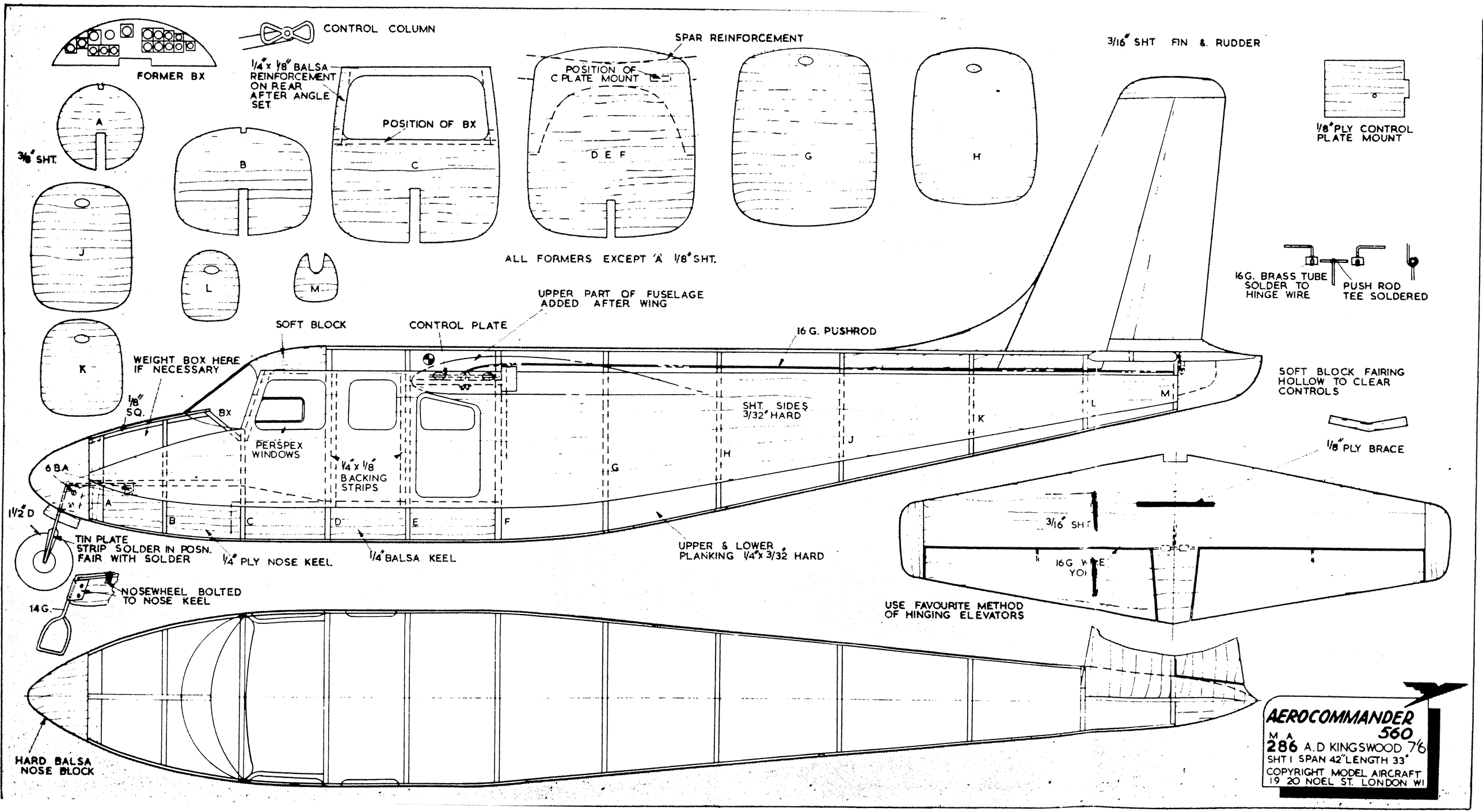

FORMER BX
CONTROL COLUMN
1/4" x 1/8" BALSA REINFORCEMENT ON REAR AFTER ANGLE SET
POSITION OF BX
SPAR REINFORCEMENT
POSITION OF C PLATE MOUNT
3/16" SHT FIN & RUDDER
1/8" PLY CONTROL PLATE MOUNT
3/8" SHT.
A
B
C
D E F
G
H
J
K
L
M
ALL FORMERS EXCEPT 'A' 1/8" SHT.
16G. BRASS TUBE SOLDER TO HINGE WIRE
PUSH ROD TEE SOLDERED
UPPER PART OF FUSELAGE ADDED AFTER WING
SOFT BLOCK
CONTROL PLATE
16 G. PUSHROD
WEIGHT BOX HERE IF NECESSARY
1/8" SQ.
BX
SHT. SIDES 3/32" HARD
SOFT BLOCK FAIRING HOLLOW TO CLEAR CONTROLS
PERSPEX WINDOWS
1/4" x 1/8" BACKING STRIPS
6 BA
1 1/2" D
1/8" PLY BRACE
3/16" SHT
16G WIRE YOKE
TIN PLATE STRIP SOLDER IN POSN. FAIR WITH SOLDER
1/4" PLY NOSE KEEL
1/4" BALSA KEEL
UPPER & LOWER PLANKING 1/4" x 3/32 HARD
NOSEWHEEL BOLTED TO NOSE KEEL
14 G.
USE FAVOURITE METHOD OF HINGING ELEVATORS
HARD BALSA NOSE BLOCK
AEROCOMMANDER 560
M A 286 A.D KINGSWOOD 7/6
SHT 1 SPAN 42" LENGTH 33"
COPYRIGHT MODEL AIRCRAFT 19 20 NOEL ST. LONDON W1

COVER WING WITH 1/16" SHT.

ENGINES 1·5 - 2·5 CC

C

3/8" SHT. 2 OFF

D

1/2" SHT 4 OFF

B

3/8" SHT
2 OFF

A

1 OFF 1/4" SHT.

1 OFF WITH
CENTRE 1/8" PLY

SCREW TO BEARERS

ENGINE BEARERS
1/2" x 3/8" HARD
WOOD

ENGINE COWL
3/8" & 1/2" SHT.
LAMINATED

1/8" PLY C PLATE
MOUNT

SOFT BLOCK
FAIRING

NF1

L.E. 9/16" x 1/4"

LEAD OUT WIRES
PORT SIDE

1 OZ LEAD

E

F

1/8" PLY
SPAR

NF 2 GLUE AND
SCREW TO SPAR

SPAR 5/8" x 1/4"

TAPER TO 1/4" SQ

R9

R10

TIP SOFT
BALSA

TANK
SPACE

R4

R5

R6

R7

R8

AUXILIARY SPAR

G

R1

R2

R3

NF 3

SOLID OR BUILT
UP AILERON

AUXILIARY SPAR 1/8" SHT.

SOFT BLOCK
FILLING

POSITION OF R3

NF3

NF2

NF1

POSITION OF R4

REAR NACELLE

H

T E BRACE 1/4"
HARD SHEET
CARVE TO PROFILE

EXHAUST PIPE. ONE
EACH SIDE OF
BOTH NACELLES

AIR INTAKE

A2 1/8" SHT.
2 OFF

R1

R2

R3

R4

R5

R6

R7

R8

R9

R10

RIBS R1-R4 & R6 1/8 SHT.
RIBS R2-& R5-R10 1/16 SHT.

1/8" PLY SPAR REINFORCEMENT
TO HERE

SPAR TRIMMED DURING
CONSTRUCTION TO CONFORM
WING PROFILE

NF 2 1/8" PLY

BIND & CEMENT
TO ENGINE
BEARER

12 G. LEG

TUBING
SOLDERED
TO LEG

2" D WHEELS

FORMER NF1
1/8" PLY

FORMER NF3
1/8" PLY

A3

A2

A1

A2

A3

REAR NACELLES

A1 1/4" SHT.
1 OFF

A3 3/8" SHT
2 OFF

D D C B A

COWL CONSTRUCTION

AEROCOMMANDER 560

M A 286 SHT 2 — 7/6 — A D KINGSWOOD

19-20 NOEL ST. LONDON W1

by Alan D. KINGSWOOD

ONE of the few light " twins " on the American market with a high-wing, the *Aero Commander* is produced in 560 and 680 super versions, by the Aero Design and Engineering Co. of Bethany, Oklahoma. A good-looking five to seven seater, it is powered by two horizontally-opposed Lycoming engines and its only detraction from the conventional is its swept fin and rudder.

The machine is in use in many parts of the world. Performance capabilities have been shown by a non-stop trans-U.S.A. flight by a 680 super and a non-stop single-engine flight from Oklahoma City to Washington, D.C., by a model 560.

The *Aero Commander* 560-A serves in the U.S.A.F. as the L-26B V.I.P. transport and the 680 with the U.S. Army as the L-26c. One is also used by President Eisenhower.

The model was produced from factory drawings supplied by Aero Design and Engineering. It was originally powered by Mach-1 engines in an effort to find the minimum size model for two 2.5s and was overpowered as a result. Consequently, a pair of good 1.5 c.c. engines should do the job well, or even maybe two A-M 10s if the construction is kept light.

Fuselage

Commence construction by cutting and assembling the nose keel from ¼ in. ply and balsa. Form the nose-wheel leg from piano wire and, not forgetting the brass or tinplate reinforcement soldered in position, securely bolt it in place on the keel (the wheel should be inserted during bending).

Cut all the formers from the wood specified on the plan, and cement A, B, C, D, E, and F to the keel in their respective positions. Cut the fuselage sides from hard 3/32 in. balsa sheet and cement into position, taking care that the tail end comes together properly. Cement the rest of the formers between the sides, making sure the fuselage is true about the fore-and-aft centre line.

Add the backing strips around the inside of the cabin, and also former B/X, then lay aside to dry thoroughly.

Wing

Cut the wing spar joiner from ⅛ in. plywood, cut the spars from ¼ in. hard sheet balsa and, using pre-cementing technique, carefully bond the spars to the ply joiner. It is worth while to bind the spar-roots with silk and cement.

Fix the starboard spar in position over the plan and cement the wing-ribs in place. Ensure that ribs 3 and 4 are spaced correctly for the nacelle formers. Repeat with the other wing, then add the tips, auxiliary spars and leading edges, using a scarf joint at the leading edge join. Sheet the underside of wings from R1 to the tips (leaving a space for the addition of the nacelle formers from leading edge to N3).

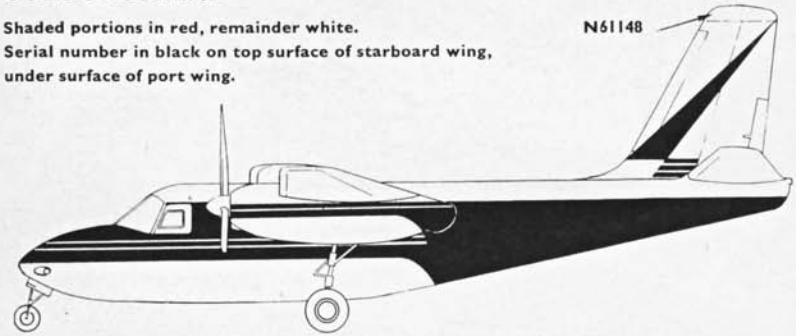
Nacelles

Assemble the engine bearers and nacelle formers using a good glue that is impervious to fuel and oil, not balsa cement.

Form the main undercarriage members from 12 S.W.G. piano wire and bind and cement in position as per plan. The bearer holes and spacing shown suit the

COLOUR SCHEME

Shaded portions in red, remainder white.
Serial number in black on top surface of starboard wing, under surface of port wing.



Webra Mach-1. It is advisable to bolt the engine to the bearers while assembling the nacelles to ensure the correct alignment. Cut any necessary holes in NF1 to clear air intakes on rear induction engines before assembly. When all is correct leave overnight to thoroughly set.

Offer up the nacelles to the wing and glue and screw them into position on the leading edge and spar; the bearers must be horizontal and the undercarriage vertical. Check the alignment before the glue sets.

Make the tanks from brass shim or thin tin plate and install them in the nacelles, making sure there will be no kinks in the fuel lines to the engines. Extend the vents to the upper surface of the wing. The original tanks were made similar to those used for team racing.

Tail Assembly

Construct the tailplane and fin from wood as specified. Hinge the elevators by your favourite method after connecting them with the two wire yokes. Fix the tailplane into position on the fuselage at 0 deg. incidence. (The top of the fuselage sides should be parallel to the datum line.) Add the fin, vertically, on the rear fuselage with the rudder cemented for a slight turn to starboard. Fit the rear fairing block and carve to shape.

General Assembly

Join the wing to the fuselage, again pre-cementing the joints. Check the alignment carefully. Use plastic wood for wing filleting internally to strengthen. Install bell-crank and mount in the port wing root—see plan. The mount is slotted into former F and is cemented to the top of the wing leading edge. Thread the leadout wires through the wing and fix *securely* to the bell-crank. (Note:—a leadout pulling out while flying makes a mess of the model—I know!) Use metal tubes at the wing tips.

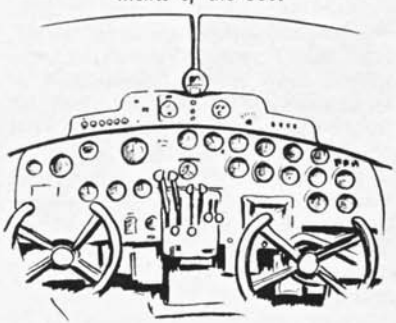
Fix the 16 S.W.G. push rod between bell-crank and tail horn. The rod should be a close sliding fit through the small holes in each former to prevent it bowing. Solder the pivot nut on and do not leave flux around moving joints. Now check the controls for free movement.

Using $\frac{1}{4} \times \frac{1}{8}$ in. balsa, plank the top of the fuselage and nose and add the fairing block at the front of the cabin. Plank the sides of the nacelles and fair-in the rear with soft sheet as indicated on the plan. Leave a hole in the underside for the undercarriage well. At this time check the following: undercarriage, controls, tanks, then add cabin details if required, and tip weight to starboard wing. Use plastic wood for the wing and tail fillets, fill in the underside of the fuselage and the nacelles, chamfer the trailing edge of the lower wing sheet and sheet cover the upper surface with $\frac{1}{16}$ in. balsa. The original ailerons were cemented in position to induce a turn to starboard, but were found undesirable as they produced a lateral rocking when engines ran rough. The overpowered condition also contributed to this no doubt.

Cement the hard balsa nose block in place then carve and sand it to shape. Cut holes for the landing lights and add the nose-wheel doors. Construct the cowlings from laminated sheet (as plan) and cut away to clear the engines, then add exhausts to nacelles. The cowlings are held in position by wood screws passing through the ply front into the ends of the bearers.

Above: Alan Kingswood with his original Aero Commander 560. Alas! the model is no longer with us. Alan took off in the dusk with the handle upside down—need we say more!

Below: Sketch of the controls and instruments of the 560.



a quick tip on PUSH RODS

A BETTER "engineering" way of mounting the push rod on the bellcrank is to make off the end of the push rod in the form of a circular eye to fit a screw in the bellcrank hole.

A suitable screw size is 6 B.A. If necessary, open up the bellcrank hole to take the screw, which is then rigidly secured with a nut. The push rod wire is usually 16 S.W.G. A matching eye diameter can be formed in the end by wrapping the 16 S.W.G. wire round a short length of 12 S.W.G. wire held in a vice. Form the loop close on the 12 S.W.G. wire, cut off the surplus with wire cutters or a hacksaw, and close the loop flat. A 6 B.A. washer can be fitted above and below the bellcrank eye, and if you want to do the job properly use a Simmonds nut for securing.