JAP ZERO

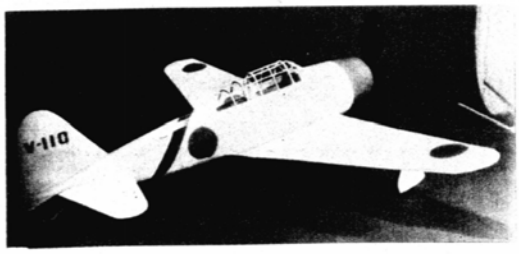
FLYING SCALE

Plans for an excellent-performing job that may be built with a minimum of effort.

By JACK GRIFFIN

FROM OUT OF THE EAST, cornea the white angel of death in the form of the Mitsubishi "Zero" fighter. As to its ability as a fighter, that is a bone of contention, but those who have fought against it agree that at slow speeds the ship is very maneuverable. Its wing span is 39 feet, 8 inches and the overall length is 30 feet, 3 inches. The gross weight is 5200 pounds thus making one of the lightest fighters in the war. It derives its lightness from the absence of armor plating which protects the pilot and engine. The cockpit is so small there is no room for a parachute. It has a 900-1000 h.p. replica of the British Armstrong Siddley 14 cylinder air-cooled motor. The propeller is a very excellent copy of our Hamilton Standard model. As for armament, the "Zero" has two 303 caliber machine guns mounted in the nose synchronized to fire through the propeller, and a 22-mm cannon in each wing panel. The top speed is around 300 m.p.h. Range is 1000 miles, ceiling, 30,000 ft.

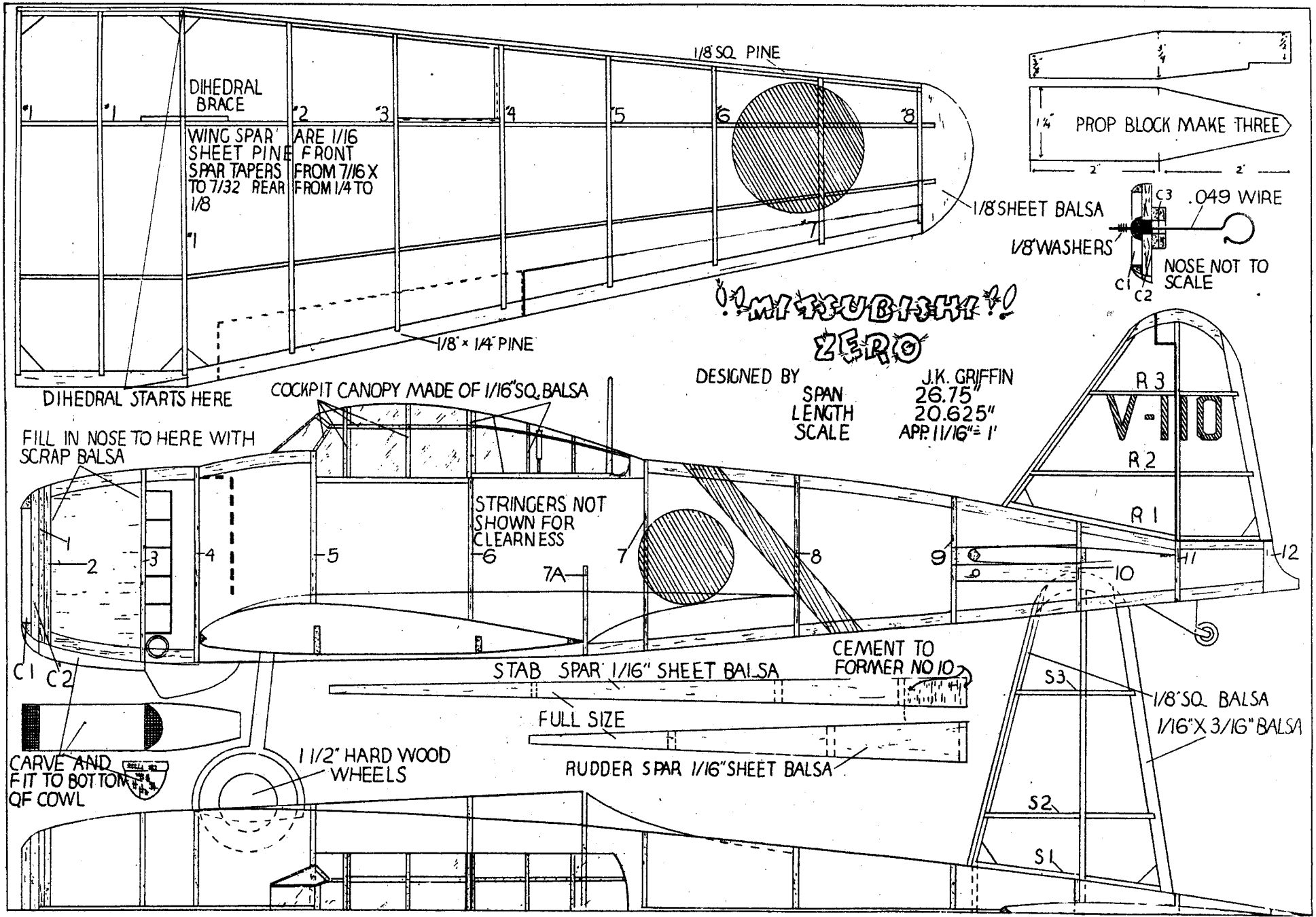
The model is designed using the former and keel method. Some parts have been made of pine where balsa

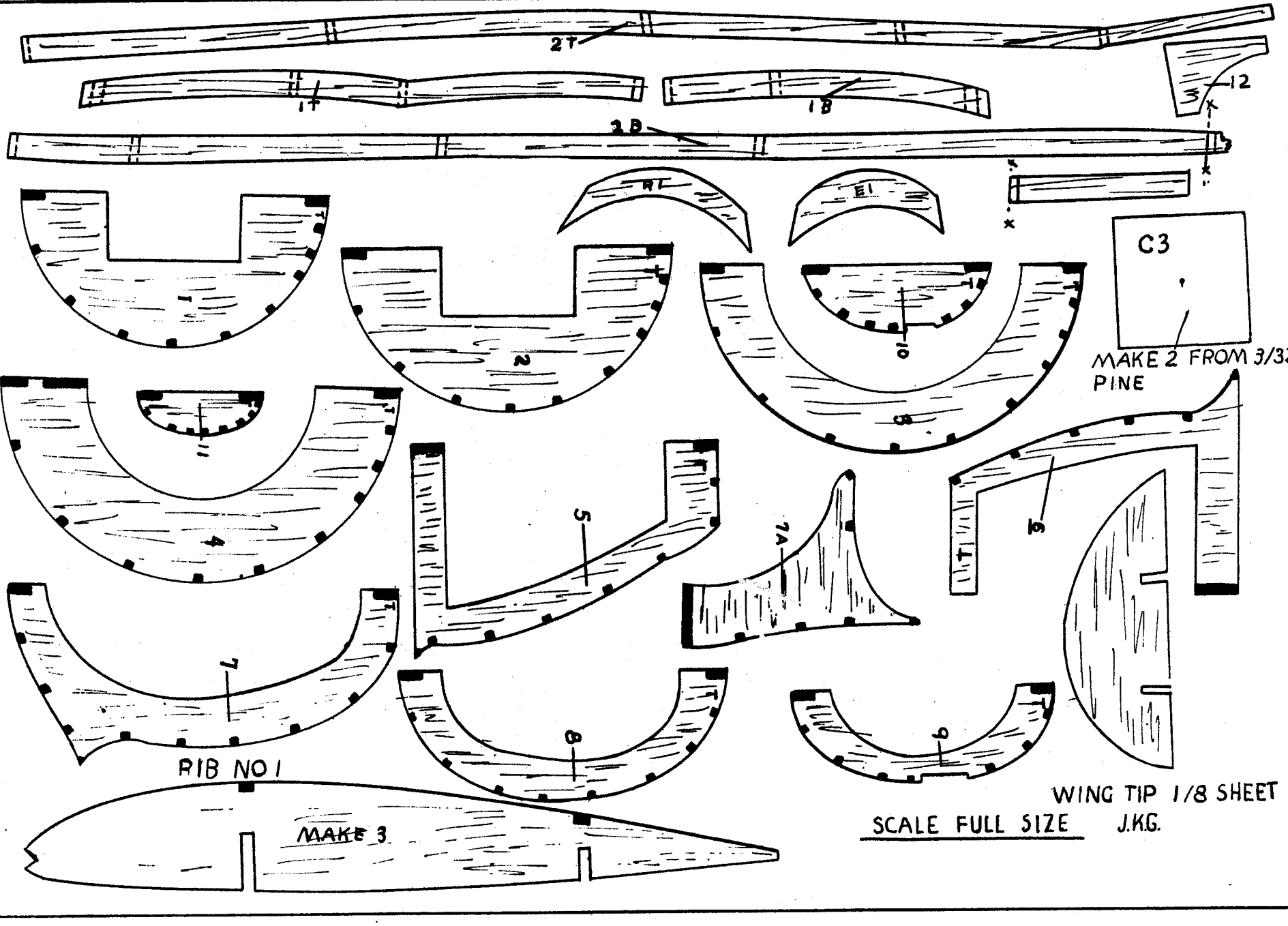


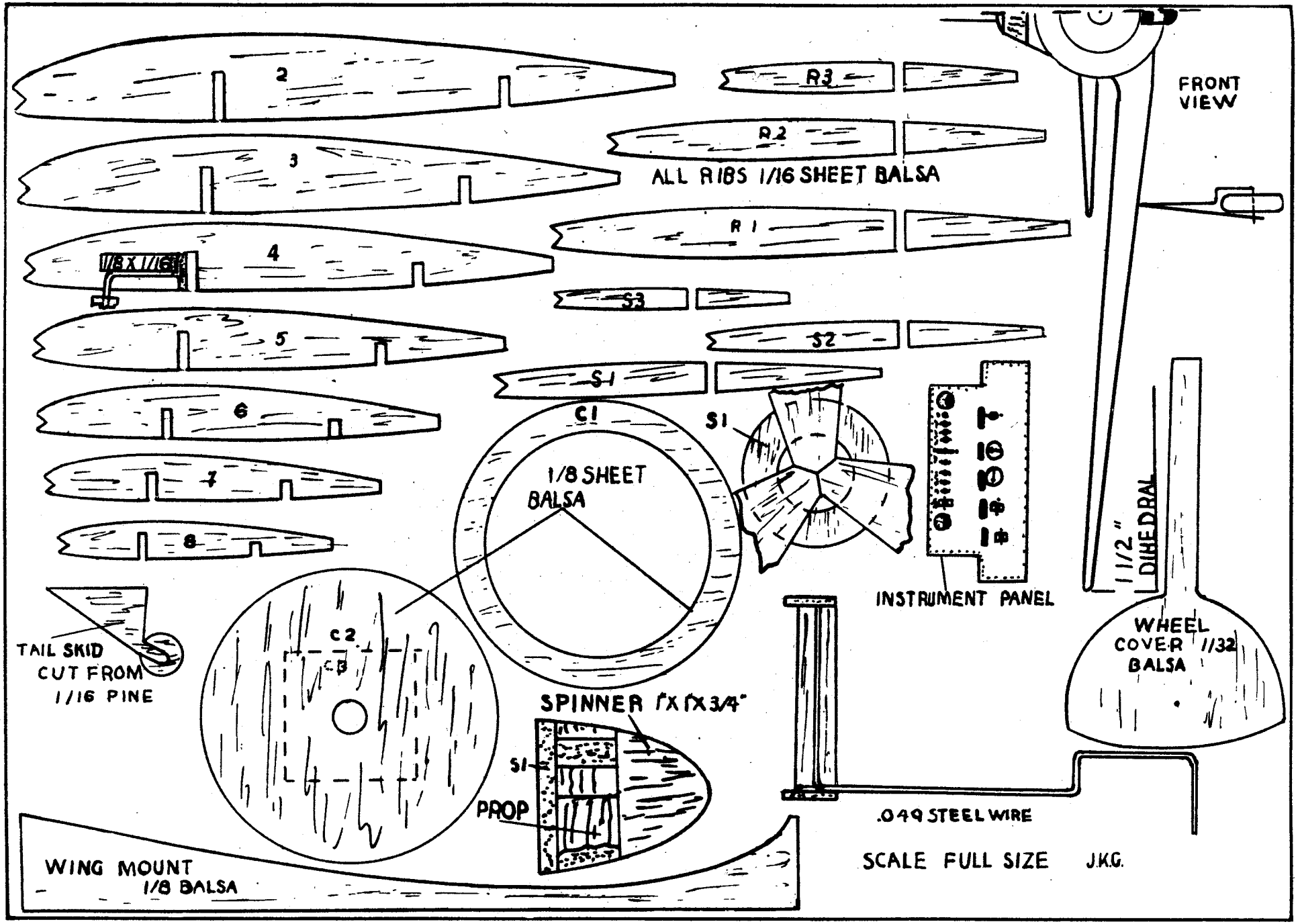
was not available. The first step in building the model is to double the size of Plate No. 1. This may be done by using a scale ruler, proportional dividers or by photostating. This should not be hard for all that is really needed is the outline of the fuselage, as formers and keel are drawn in full scale.

FUSELAGE, WINGS, TAIL

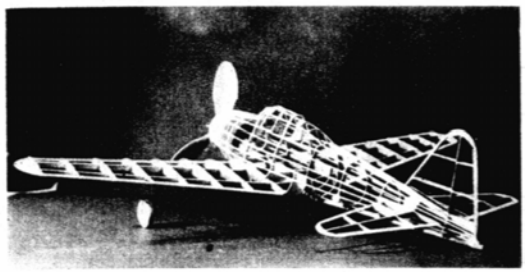
USE CARBON PAPER and trace fuselage formers on 1/16" sheet balsa. Trace and cut formers 1 and 2 from 3/32" sheet. Cut the keel parts and wing mount from 1/8” hard sheet. Assemble over plan using pins to hold in place. Cement formers in place using a small triangle to make sure they are perpendicular to the keel. Cement middle stringers next. When dry, remove from plans and attach


DIHEDRAL BRACE
WING SPAR ARE 1/16 SHEET PINE FRONT SPAR TAPERS FROM 7/16 X TO 7/32 REAR FROM 1/4 TO 1/8
1/8 SQ. PINE
1/8 SHEET BALSA
1/8 WASHERS
.049 WIRE
NOSE NOT TO SCALE
PROP BLOCK MAKE THREE
1/8 x 1/4 PINE
DIHEDRAL STARTS HERE
COCKPIT CANOPY MADE OF 1/16 SQ. BALSA
FILL IN NOSE TO HERE WITH SCRAP BALSA
STRINGERS NOT SHOWN FOR CLEARNESS
?! MITSUBISHI ?!
ZERO
DESIGNED BY J.K. GRIFFIN
SPAN 26.75"
LENGTH 20.625"
SCALE APP. 11/16" = 1'
R3
V-10
R2
R1
CEMENT TO FORMER NO 10
STAB SPAR 1/16" SHEET BALSA
FULL SIZE
RUDDER SPAR 1/16" SHEET BALSA
1/8" SQ. BALSA
1/16" X 3/16" BALSA
CARVE AND FIT TO BOTTOM OF COWL
1 1/2" HARD WOOD WHEELS


2T
1T
1B
2B
12
R1
E1
C3
MAKE 2 FROM 3/32 PINE
RIB NO 1
MAKE 3
WING TIP 1/8 SHEET
SCALE FULL SIZE
J.K.G.


2
3
4
1/8X1/16
5
6
7
8
R3
R2
R1
S3
S2
S1
ALL RIBS 1/16 SHEET BALSA
C1
1/8 SHEET BALSA
S1
INSTRUMENT PANEL
FRONT VIEW
1 1/2" DIHEDRAL
WHEEL COVER 1/32 BALSA
TAIL SKID CUT FROM 1/16 PINE
C2
C3
SPINNER 1"X1"X3/4"
S1
PROP
.049 STEEL WIRE
WING MOUNT 1/8 BALSA
SCALE FULL SIZE J.K.G.

formers from the other side in place. Remaining stringers are set in position taking care to alternate from one side to the other so as to not pull the fuselage out of line. *Note: Do not assemble bottom stringers until wing is in place.*



Fill in nose by inserting scrap pieces of 1/16" balsa between stringers from former No. 2 to No. 3 as shown.

Cut C-l and C-2 from 1/8" balsa. C-3 is cut from 3/32" pine and cemented to the back of C-2. Cross-grain all pieces. Cement nose plug as shown. Cement instrument panel to former No. 5. Build up cockpit canopy from 1/16" square balsa, sand round and cover with cellophane.

Add 1/8" by 1/4” balsa stabilizer mount and cement to formers No. 9 and 10. Fill in directly underneath mount with 3/32" pine. Drill a 1/8" hole for dowel to hold rubber motor. Complete the fuselage by sanding the formers half round in between the stringers. This will leave an un-broken covering job the length of the fuselage. When building flying models remember that sand paper has no priority rating, so use it freely! The smoother the framework, the neater your covering job will be.

The front wing spar is made first by cementing the two tapered 7/16" to 7/32" outer spars to the short 7/16" by 2" center section spar at a proper angle for dihedral. Add dihedral braces and allow to dry. This method insures perfect dihedral on each side. The rear spar is made of three separate pieces and is assembled as progress is made with the wing.

Cut wing ribs from 1/16" balsa, the tips from 1/8" sheet. Notch the trailing edge from 3/32" pine or bass, as shown. When the wing spar is dry, pin one side of the spar in place on the wing panel, also pin tapered wing spar in place. Cement wing ribs and tip in place, being careful not to break the part of the spar that is projecting into the air. Cement leading and trailing edges into position and allow to dry. This completes one panel.

Now, tip the finished panel up and assemble the center section. Do not forget the 1/8" by 1/16" balsa braces across tops of ribs No. 1. The left wing panel may be made by turning plans over and rubbing same with light machine oil which makes plans transparent, and presto change! there is the left hand panel! Finish assembly and the wing is complete.

The tail surfaces are to scale but they are large enough to give the model very good stability. Cut ribs and spars from 1/16" balsa and assemble over plan using pins to hold in place. Cut and notch trailing edge and attach. Cement 1/8" sq. balsa heading edge in place. Cut tips from 1/16" sheet. Be careful to leave the stabilizer spars projecting as shown on the plan. This completes the tail assembly.

LANDING GEAR, PROP, COVERING

THE LANDING GEAR struts are made from .049 wire. Make one left and one right hand strut. Cement to ribs No. 4 and front spar as shown on the plan. Add 1/8" by 1/16" pine braces above and below wire on rib 4 and on wing spar. Cement securely and allow to dry thoroughly. From 1/32" scrap or bond paper cut the landing gear covers. A pair of 1 1/2" hardwood wheels complete the landing gear assembly. Caution: do not assemble covers or wheels until model is covered.

The propeller is very easy to make. Carve three blades as shown on plan or if that is classified as heavy work, go to the nearest model shop and purchase two 8" balsa cut props. Cut in half, use three of the blades and you have practically the same thing. Cut S-1 from pine or bass, cement blades to it as shown on the plan. Make the nose spinner while waiting for blades to dry. Cement the spinner to the prop, drill .049 hole through center of the spinner in the prop. Bend .049 prop shaft, put this through the nose block and add four 1/8" copper washers. Put shaft through the hole in the propeller and bend back into the spinner.

Those who feel ambitious may add free wheeling by inserting 1/16" aluminum tubing so prop will spin free on the shaft. Add a stop of .049 wire, cemented through spinner to S-1. Propeller should be sanded and given two coats of clear dope. Sand after each coat and add final coat of dull black.

Cover the wing with silk span or either wet or dry tissue. Cover the bottom of the wing first, using three pieces of tissue. The center section is covered first and then each wing panel. Note: the top of the center section is not covered.

Weight the wings to prevent warping. Cover the stabilizers and rudder with white tissue. Sides and top of the fuselage is covered in small sections to keep wrinkles at a minimum. Apply a coat of clear dope over the entire model.

After wings dry, cement 1/8" by 1/16" spars on top of rib No. 1 to bottom of formers 5 and 6. Cement center rib to wing mount. The leading edge is cemented to former No. 4 and trailing edge to former 7-A. Allow to dry.

Add bottom stringers to fuselage, cement fillet stringers in place and finish covering the fuselage. Attach rudder in place.

The projections of the stabilizer spars are cemented to the rear of former 10 as shown on the plans.

Attach wheels and cement wheel covers in place. The cowling and the band around the fuselage, also the numbers on the rudder are red. The insignia is red and is added to the bottom and top of the wing panels and to both sides of the fuselage. All other details are drawn in black India ink with a ruling pen.

If you get this far, wait until you have a nice calm day with *no wind!* Use ten strands of 1/8" flat brown rubber well lubricated. Wind about fifty turns and hand launch. The model should climb a little and glide in for a smooth landing. If the model

stalls it may be taken out by the addition of clay or down thrust. The model flies to the right. After careful testing, wind in full turns and hold your hat!

24 pieces 1/16" sq. by 24" Balsa
3 pieces 1/16" by 2" by 18" Balsa
3 pieces 3/4" by 1 1/8" by 4" Balsa
1 piece 1" by 1" by 3/4" Balsa
1 piece 1/8" by 2" by 18" Balsa
1 piece 1/16" by 1/4" by 36" Balsa
1 piece 3/32" by 2" by 6" Pine
1 piece 1/8" sq. by 36" Pine
1 piece 3/32" by 1/4" by 36" Pine
1 piece 1/16" by 2" by 18" Pine
1 pair 1 1/2" Wheels
2-Ft. .049 Piano Wire, Cement, Tissue and Dope.

THE END

Flying Aces, May 1943