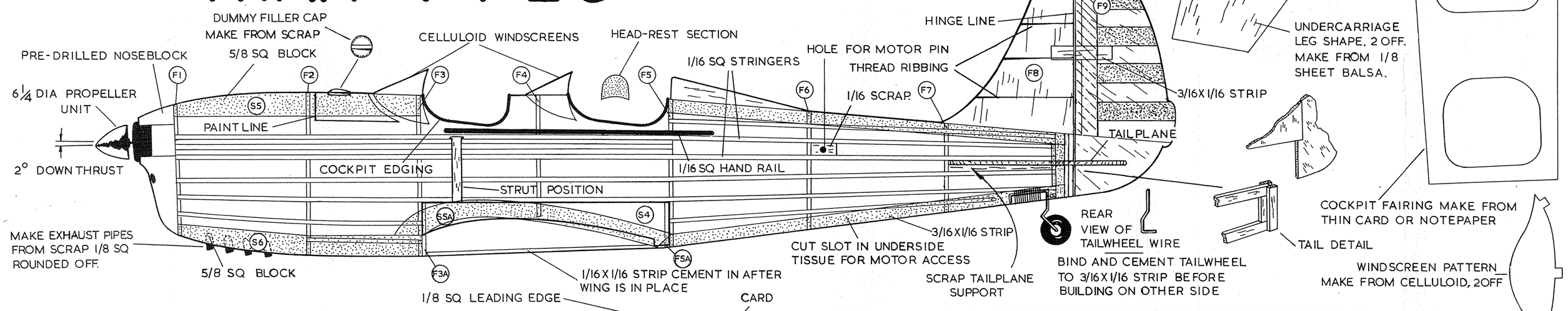
FROG TRADE MARK

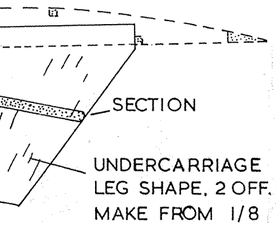
DE-LUXE SCALE SERIES

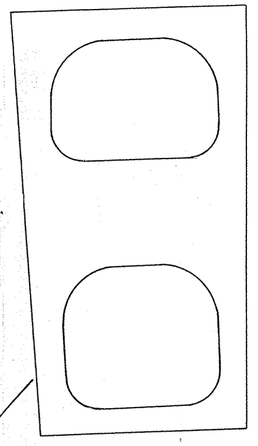
RYAN PT 20

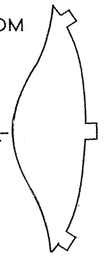
21" SPAN
RUBBER MODEL
CAT No 735 FK

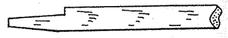
DESIGNED & DRAWN BY Bill Knox.



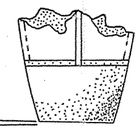


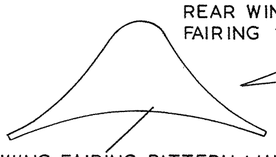


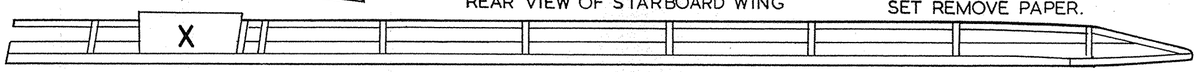


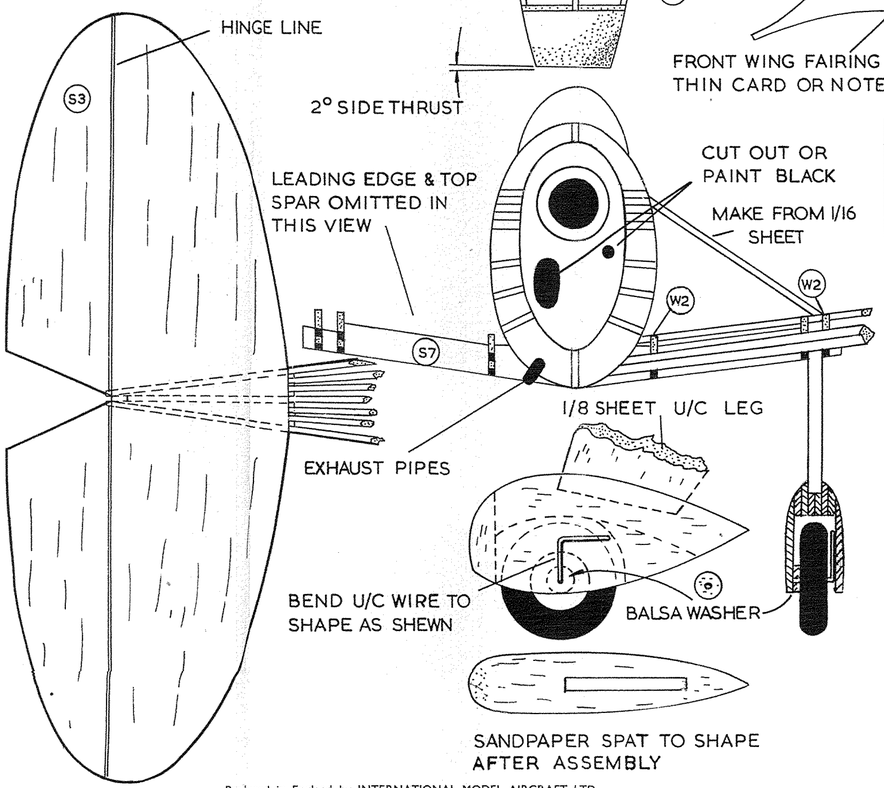


CUT MAINSPAR TO THIS SHAPE AT TIP.



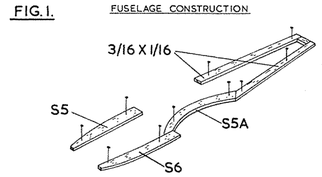






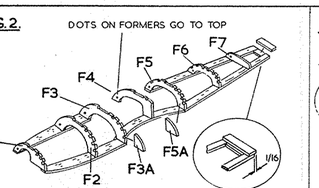
USE TEMPLATE X TO OBTAIN ANGLE ON RIBS W2.

FIG.1. FUSELAGE CONSTRUCTION



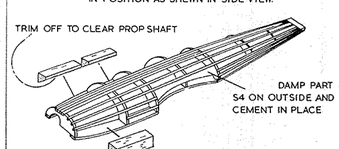
PIN PARTS S5 S6 S5A AND 3/16X1/16 STRIP IN POSITIONS SHEWN SHADED ON PLAN——

FIG.2. DOTS ON FORMERS GO TO TOP



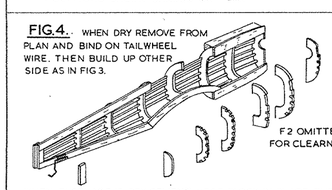
THEN CEMENT ALL FORMERS IN POSITION AS SHEWN ON FUSELAGE SIDE VIEW. ALSO 3/16X1/16 FIN SUPPORT STRIP LEAVING 1/16 OVERLAP AS SHEWN.

FIG.3. WHEN DRY CEMENT 1/16 SQ STRINGERS IN POSITION AS SHEWN IN SIDE VIEW.



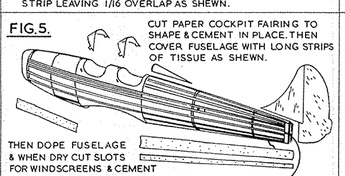
THEN CUT 5/8 SQ COWL BLOCK TO LENGTH AND CEMENT IN PLACE.

FIG.4. WHEN DRY REMOVE FROM PLAN AND BIND ON TAILWHEEL WIRE. THEN BUILD UP OTHER SIDE AS IN FIG 3.



WHEN FUSELAGE IS DRY, CEMENT NOSE BLOCK IN PLACE. THEN CARVE AND SANDPAPER ALL COWL BLOCKS TO SHAPE. ALSO SANDPAPER REST OF FUSELAGE TO REMOVE PROTRUDING EDGES FROM FORMERS & STRINGERS.

FIG.5. CUT PAPER COCKPIT FAIRING TO SHAPE & CEMENT IN PLACE. THEN COVER FUSELAGE WITH LONG STRIPS OF TISSUE AS SHEWN.

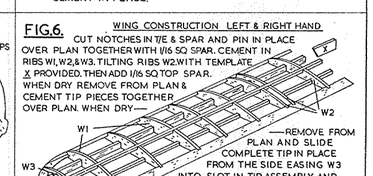


THEN DOPE FUSELAGE & WHEN DRY CUT SLOTS FOR WINDSCREENS & CEMENT IN PLACE. COCKPIT EDGING CAN BE MADE FROM PLASTIC TUBING STRIPPED FROM SMALL DIA. ELECTRICAL FLEX CUT DOWN ONE SIDE AND CEMENTED OVER EDGE OF COCKPIT FAIRING IN POSITIONS SHEWN ON PLAN.

CUT OUT SLOT FOR TAILPLANE IN 3/16X1/16 STRIP AT REAR BEFORE —— CEMENTING TAIL-PLANE & FIN IN PLACE.

FIG.6. WING CONSTRUCTION LEFT & RIGHT HAND

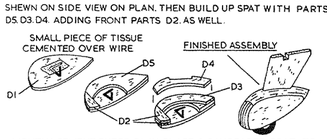
CUT NOTCHES IN T/E & SPAR AND PIN IN PLACE OVER PLAN TOGETHER WITH 1/16 SQ SPAR. CEMENT IN RIBS W1, W2, & W3. TILTING RIBS W2 WITH TEMPLATE X PROVIDED. THEN ADD 1/16 SQ TOP SPAR. WHEN DRY REMOVE FROM PLAN & CEMENT TIP PIECES TOGETHER OVER PLAN. WHEN DRY——



SPARS TO ANGLE. THEN JOIN BOTH SIDES TOGETHER WITH PART S7. ADD SCRAP BRACES & FINALLY SAND DOWN WHOLE STRUCTURE

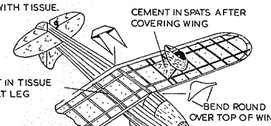
FIG.7. SPAT ASSEMBLY

BEND U/C WIRE TO SHAPE AND CEMENT TO PART D1. IN POSITION SHEWN ON SIDE VIEW ON PLAN. THEN BUILD UP SPAT WITH PARTS D5. D3. D4. ADDING FRONT PARTS D2. AS WELL.



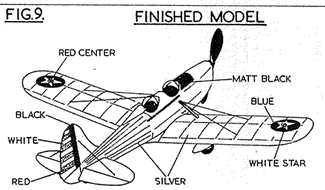
LIGHTLY CEMENT OUTER D1. IN PLACE & SANDPAPER SPAT TO SHAPE. CAREFULLY REMOVE D1 & PLACE WHEEL AND BALSA WASHER OVER AXLE THEN FIRMLY CEMENT BACK PART D1. THEN CUT LEG TO SHAPE FROM 1/8 SHEET AND CEMENT FIRMLY IN SPAT.

FIG.8. COVER TOP OF CENTER SECTION WITH THIN CARD OR NOTEPAPER AND COVER WING WITH TISSUE. THEN CEMENT WING IN PLACE ON FUSELAGE. ADD 1/16 SQ STRIP & COVER CENTRE SECTION WITH TISSUE.



CEMENT IN PLACE CARD FAIRINGS, SOLDER ON TAILWHEEL AS SHEWN IN SKETCH A. CUT SMALL SLOT IN UNDERSIDE OF FUSELAGE WHERE SHEWN. THEN ASSEMBLE MOTOR AND AIRSCREW AS IN INSTRUCTIONS.

FIG.9. FINISHED MODEL



COLOUR SCHEME

INTRODUCTION

This Model is one of the FROG DE-LUXE SCALE SERIES which consists of a range of Models representing popular full-size aircraft.
To ensure a satisfactory job carefully study the plan and check the parts with it before cementing them together. As with other Frog Models most of the parts are supplied ready cut to shape for easy assembly. Cement and dope are not included in this Kit but they can be bought at any Model Shop. Use quick-drying balsa cement such as FROG UNIVERSAL, you will also need a sharp balsa knife or single edge razor blade and a few pins.

BUILDING

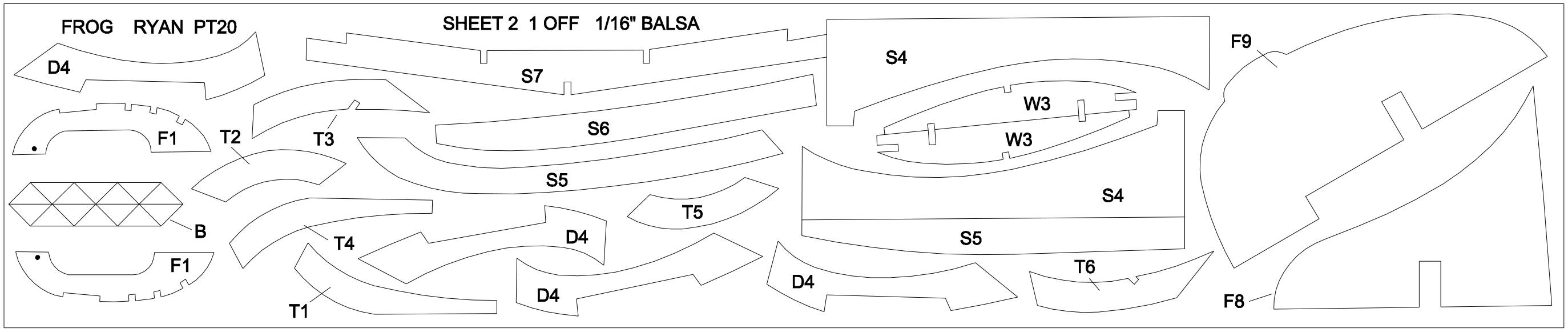
Lay a sheet of grease-proof paper over plan and bend all wire parts to shape before commencing construction. IT IS MOST IMPORTANT THAT ALL FORMERS IN THE FUSELAGE ARE CEMENTED IN AN UPRIGHT POSITION AS SHEWN IN FUSELAGE SIDE VIEW. Build up fuselage as shewn in Figs. 1 to 5 and wings in Fig. 6. The spats are made up from the printed parts as shewn in Fig. 7. The leg is cut to shape from ⅛" sheet as shewn in side view on plan.

Covering
Cover the Model with the tissue supplied using office paste or clear dope as an adhesive.
Wings Cut the tissue to approximate shape leaving a ¾" margin all round. Apply adhesive to underside edges of wing then lay the tissue over it and pull gently all round. Do not attempt to get it drumtight, but aim at getting an even surface, with no deep wrinkles. When dry trim off excess and cover the top side.
Cover this fuselage with long strips as shown in Fig. 5, covering one bay at a time and gradually working round until complete.
Then cover fin and tailplane applying adhesive to edges and pulling tissue over and trimming off excess. Before applying clear dope lightly spray or brush each item with water, pinning wing and tailplane down on a flat board to prevent warping. When thoroughly dry apply a thin coat of clear shrinking dope to each part, pinning wing, tailplane and fin down on to a flat board covered with greaseproof paper to prevent sticking. When dry give fuselage two more thin coats of dope and the wing one. (If Model is to be used for flying do not use colour dope unless sprayed on thinly.)
Soldering
Clean parts to be soldered with glasspaper, then apply flux to parts to be joined. Heat up soldering iron and clean tip with file; dip in small container of flux and apply solder on to end of iron, then apply iron to joint until solder flows round it. When set wipe off excess flux to prevent rusting.
Motor
This is composed of two 9" elastic bands which are supplied. Lubricate them with Frog Rubber Lubricant or Castor Oil, and insert them into the fuselage with the help of a length of wire or thread. Bend a hook at one end of the wire and insert it into the front end of the fuselage. (If a thread is being used, tie a weight to one end and drop it through.) Hook the bands on to it through the opening at the rear and insert the rear motor pin (cane) through the holes in the fuselage and through the loops of elastic. Pull the bands out through the front, and hook them on to the airscrew shaft (complete with Airscrew). The model is now complete and ready for flying. A drop of thin oil on the airscrew shaft will improve the running.
Flying
This model is intended to be flown out of doors, but choose a very calm day for your first test.
The model should balance level when held on the fingertips at X-X positions on wing. Small pieces of plasticine should be added to nose or tail until balance is correct.
Test glide the model to check the balance. Hand launch it in a slight downward direction. If it dives add weight to the rear of fuselage, if it climbs sharply and drops back on tail (this is called stalling) add weight to the nose.
When the glide seems satisfactory put a few turns on the motor and launch the model into wind (if any). The turn can be adjusted by bending the fin. Increase the turns on the motor gradually, up to a maximum of approximately 300; if the motor is not lubricated, the turns must be limited to 150. An unlubricated motor will wear and break very quickly. Stretching the elastic while winding will enable more turns to be obtained.
If model stalls under power, cement a thin strip of balsa between top of nose plug and nose block.

Produced in England by INTERNATIONAL MODEL AIRCRAFT LTD.,
Morden Road, Merton, London, S.W.19

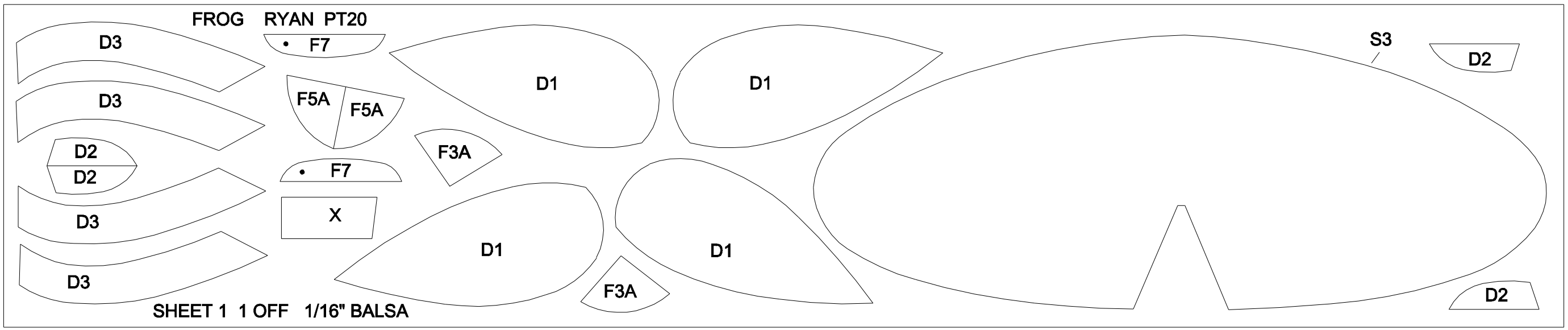
FROG RYAN PT20

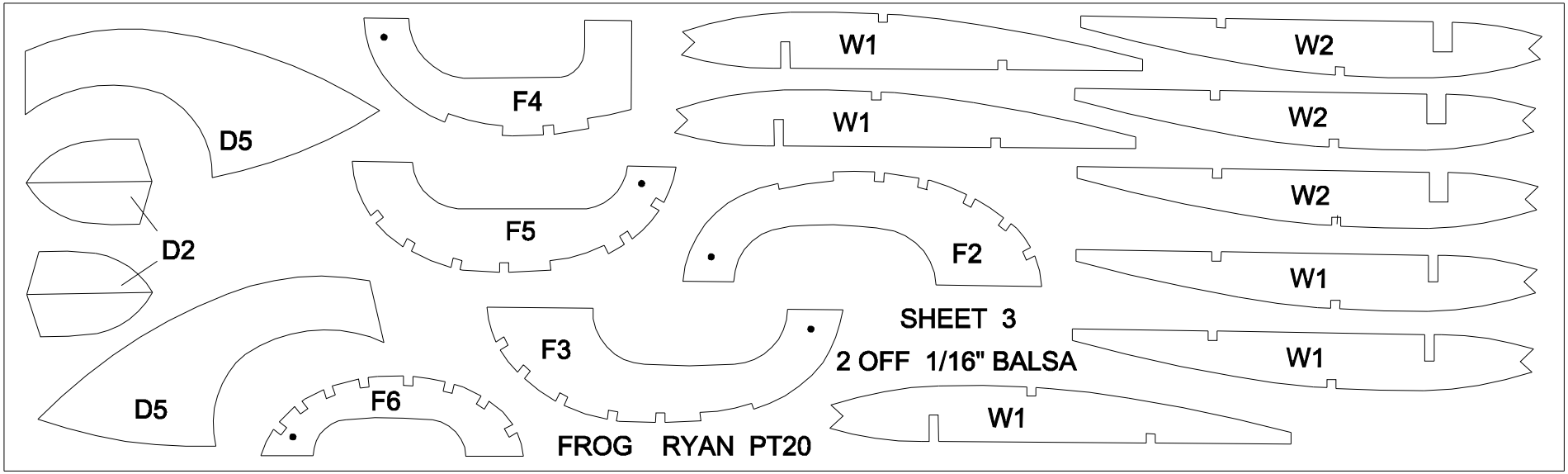
SHEET 2 1 OFF 1/16" BALSA

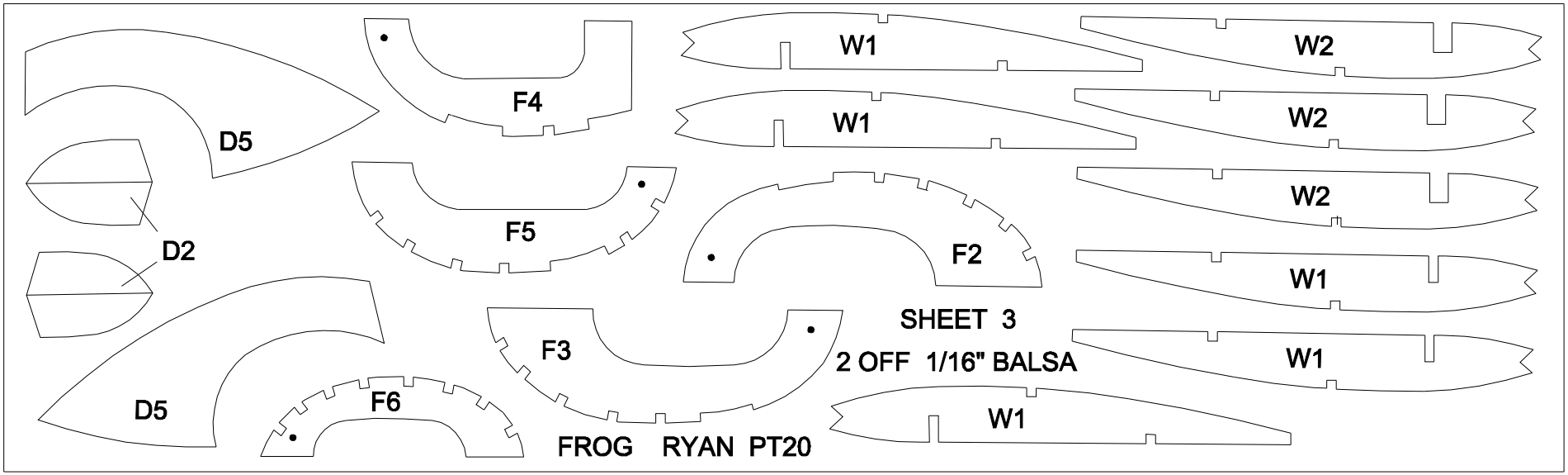


FROG RYAN PT20

SHEET 1 1 OFF 1/16" BALSA




D5
F4
W1
W2
W1
W2
D2
F5
W2
F2
W1
SHEET 3
F3
2 OFF 1/16" BALSA
W1
D5
F6
W1
FROG RYAN PT20


D5
F4
W1
W2
W1
W2
D2
F5
W2
F2
W1
SHEET 3
F3
2 OFF 1/16" BALSA
W1
D5
F6
W1
FROG RYAN PT20