

# Supplementary Instructions

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## → IMPORTANT ←

READ THIS SHEET BEFORE STARTING CONSTRUCTION

Due to the present war emergency many materials used by model builders have become unavailable. Of special importance has been the "freezing" of balsa by the War Production Board of the United States. Fortunately the Guillo research staff anticipated this trend months ago and is now ready to offer new, and in many cases better materials and ways of building models.

One of the most successful experiments conducted has been the use of cardboard and softwood in place of balsa. The softwood strips are stronger and more flexible than balsa and by cutting them in smaller sizes the weight factor has been eliminated. Cardboard formers, ribs and tips are very satisfactory when reinforced as illustrated on this sheet. A new cardboard propeller has also been designed that is more efficient and decorative than the usual balsa type. It requires much less time and skill to prepare for flying.

### SPECIAL NOTE

With this kit has been included a direction sheet showing how to build this model. However, this sheet was designed prior to the present emergency and it calls for the use

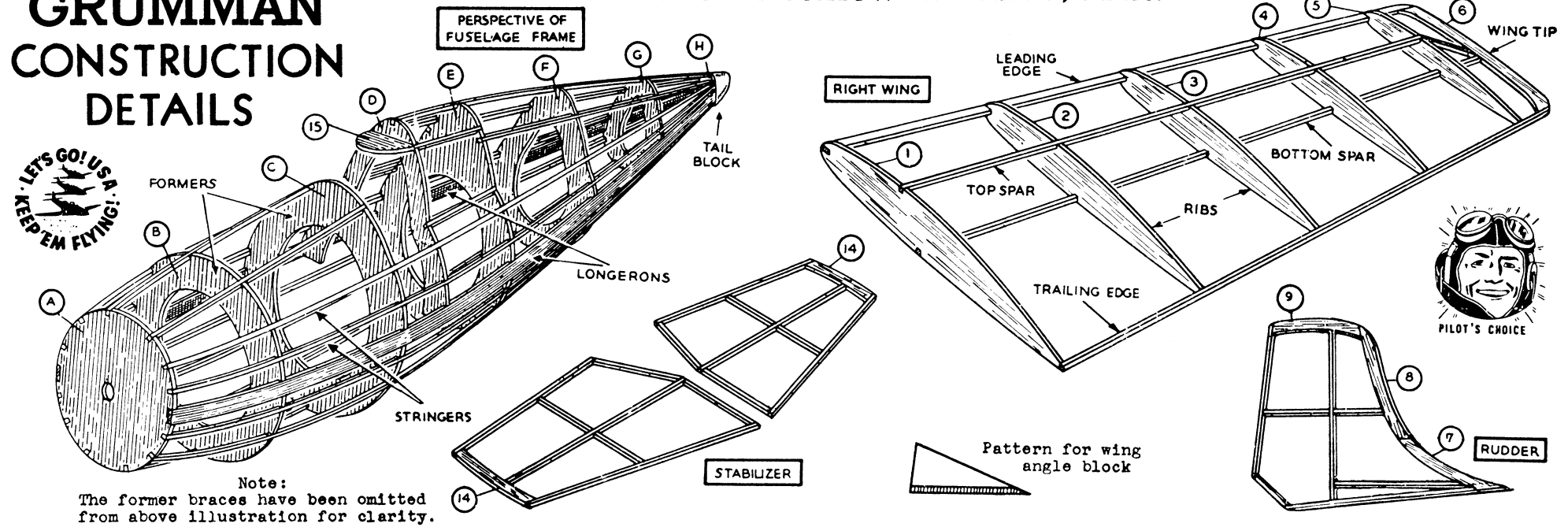
1. Balsa parts are not furnished. 2. Refer to this sheet for methods of reinforcing of balsa strips, formers, ribs, tips, landing gear, prop, etc. This kit furnishes cardboard parts and softwood strips instead of balsa and it will be necessary for the model builder to refer to this sheet for methods of reinforcing the cardboard formers, ribs, tips, etc.

### REMEMBER

cardboard parts. 3. Disregard references to "balsa" in the instruction sheet. 4. Take special note of any changes in construction shown on this sheet.

## GRUMMAN CONSTRUCTION DETAILS

PAUL K. GUILLOW • WAKEFIELD, MASS.



## BUILDING THE GRUMMAN FIGHTER

U.S. Pat. No. 2163075

### IMPORTANT!

See supplementary instruction sheet showing how to reinforce cardboard formers, ribs, wing tips and tail surface outlines.

BEFORE STARTING CONSTRUCTION: Study plan carefully - work accurately. Obtain the following tools and materials: Razor blade - about 50 small common pins - pair of pliers - sandpaper - and a sheet of wax paper. Pin wax paper over plan (to prevent frames from adhering to plan.) Use drawing board, bread board, cardboard, etc., as base (a balsa base is better if obtainable.) Strip panel cut balsa. Use a straight edge to guide razor blade. Sandpaper rough edges of stock smooth. Use a thick quick drying cement to fasten the balsa parts together.

Steps one, two and three show the new patented Guillo Method for building fuselage frames. With this it is possible to complete a fuselage frame in much less time than the conventional side frame method.

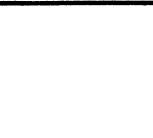
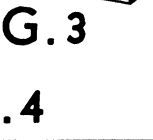
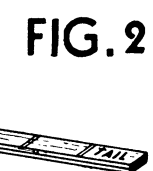
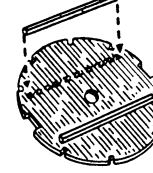
### STEP ONE FUSELAGE CONSTRUCTION

Out all the formers from print stock. Use a broken razor blade with the top protected by adhesive tape (Fig. 1). Out and cement the braces over cross hatched lines on formers (Fig. 2). Lay the two pieces of longeron stock over the longerons on the side view of plan

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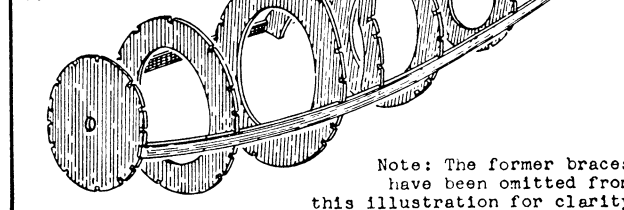
(CONTINUED IN NEXT COLUMN)

and mark on them the actual length and position of formers - also indicate "Nose" and "Tail" on stock. Set the longerons together with the marked sides out and cement ends together at tail (Fig. 3). Pin former "A" to table or board (Fig. 4). Spread the longerons apart except at tail and cement the free ends into side notches of former "A". Hold in place with pins. Set former "B" in place with pins. Set former "C" in place with pins. Remove frame from table when dry (Fig. 5).



### STEP TWO FUSELAGE CONSTRUCTION (continued)

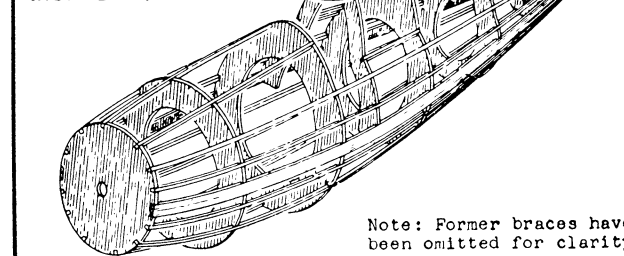
Cement the rest of formers between the longerons, working from front to back



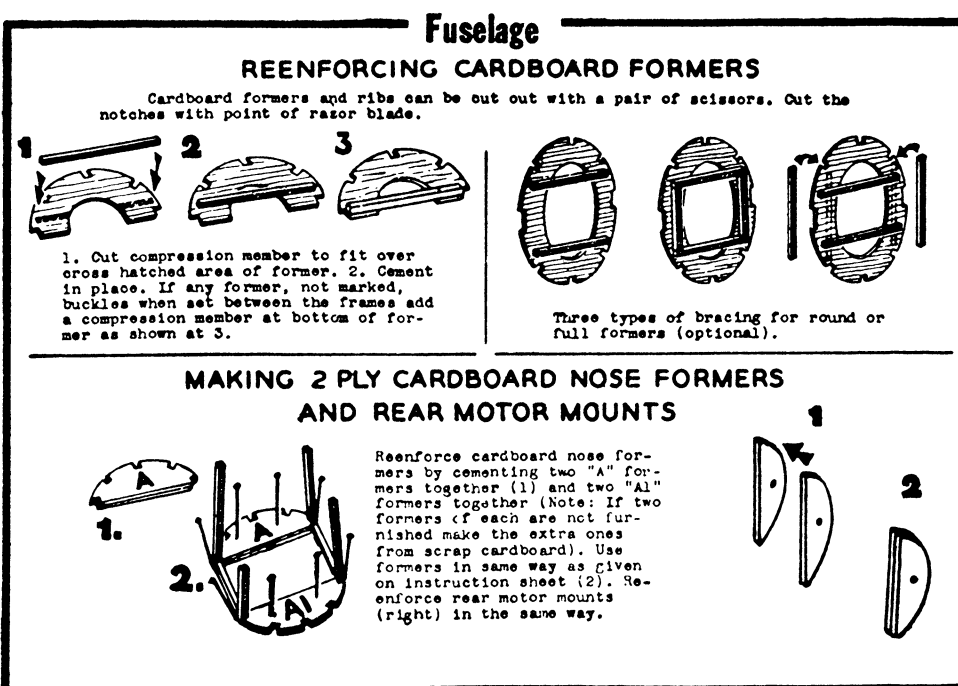
Note: The former braces have been omitted from this illustration for clarity

### STEP THREE FUSELAGE CONSTRUCTION (continued)

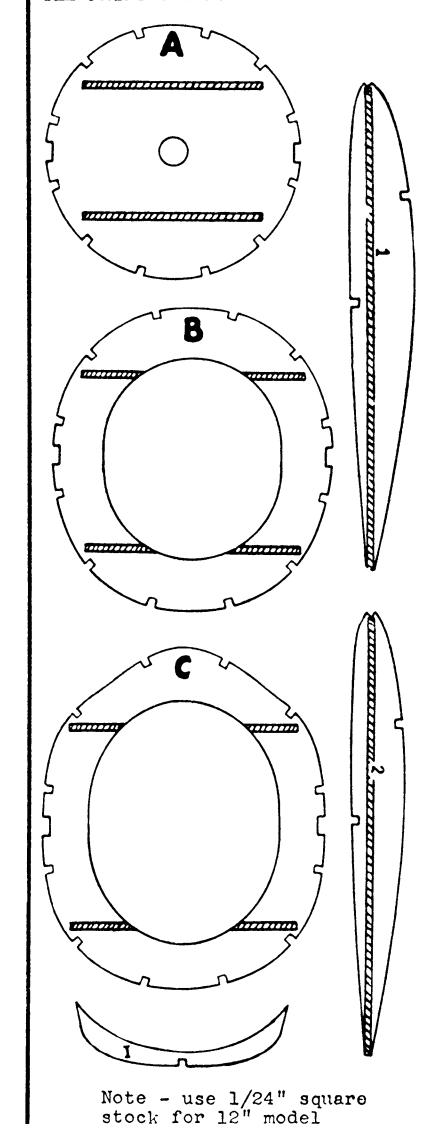
Add stringers to fuselage as shown. Lastly add nose block.



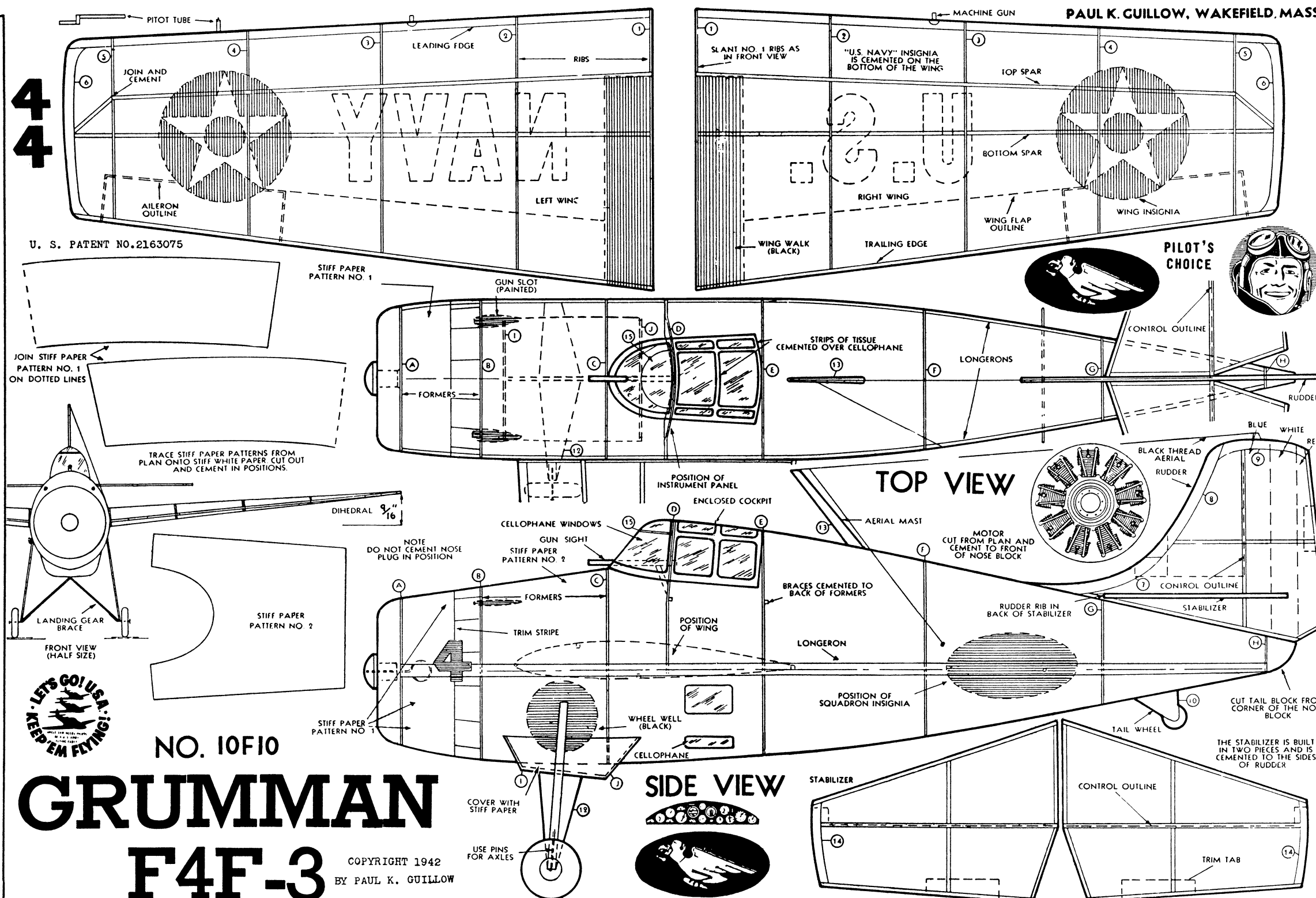
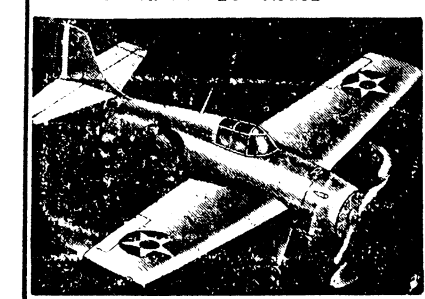
Note: Former braces have been omitted for clarity



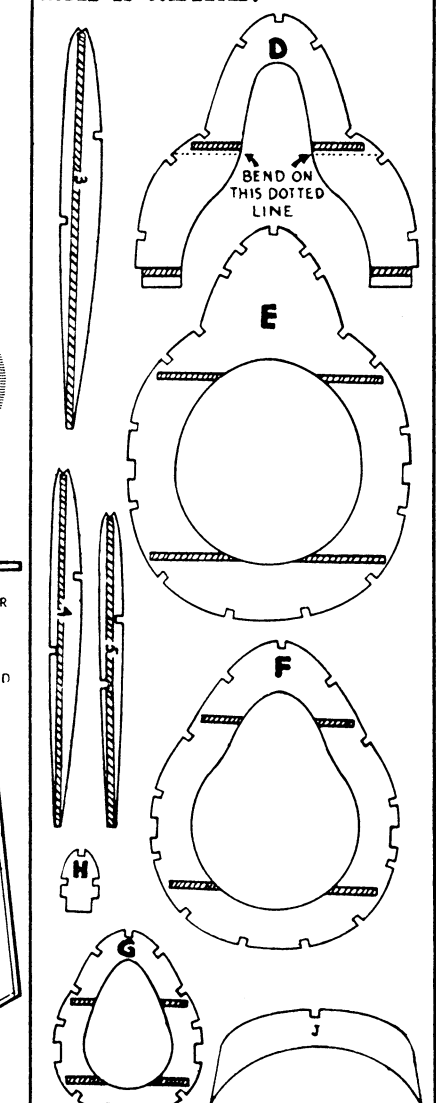
NOTE: THE FORMERS AND RIBS SHOWN HERE AND IN PANEL AT RIGHT ARE FOR CHECKING AND BUILDING EXTRA MODELS. ALL ARE DUPLICATED ON THE PRINT STOCK.



Note - use 1/24" square stock for 12" model



SPECIAL NOTE: DO NOT CUT OUT ANY DECORATIONS OR INSIGNIA UNTIL THE MODEL IS COMPLETED.



USNA VY:

Refer to tissue pattern layout for method of getting tissue patterns.

Diagram illustrating the assembly of a prosthetic foot, showing the following components and labels:

- COVERING**: The top layer of the foot assembly.
- T17 BOTTOM**: The bottom layer of the foot assembly.
- T15 BOTTOM**: The bottom layer of the foot assembly.
- T13+T12 R+L SIDES**: The right and left sides of the foot assembly.
- T9 BOTTOM**: The bottom layer of the foot assembly.
- T7+T8 R+L SIDES**: The right and left sides of the foot assembly.
- T6 BOTTOM**: The bottom layer of the foot assembly.
- T3 RIGHT T12 LEFT SIDES**: The right and left sides of the foot assembly.
- T4**: A label pointing to the side of the foot assembly.
- T5**: A label pointing to the side of the foot assembly.

Balance model on wing tips,  $1/3$  back from leading edge. Add weight to nose or tail if required. Test glide before flying.

Models of 16" wingspread and over require additional bracing between the root and second ribs of fuselage frame. (1) Between top spar of root rib and leading edge at second rib. (2) Between top of root rib where it hits upright on fuselage (locate on plan) and compression brace above bottom spar of second rib. (3) From upright to trailing edge.

2  
1

Cement nose plug pieces to sides as shown. Curve "bottom" to above.

Reinforce cardboard landing gear with strips of stock cemented in place as shown.

1. Cement wheel discs together as shown, and smooth with sandpaper.

2.

