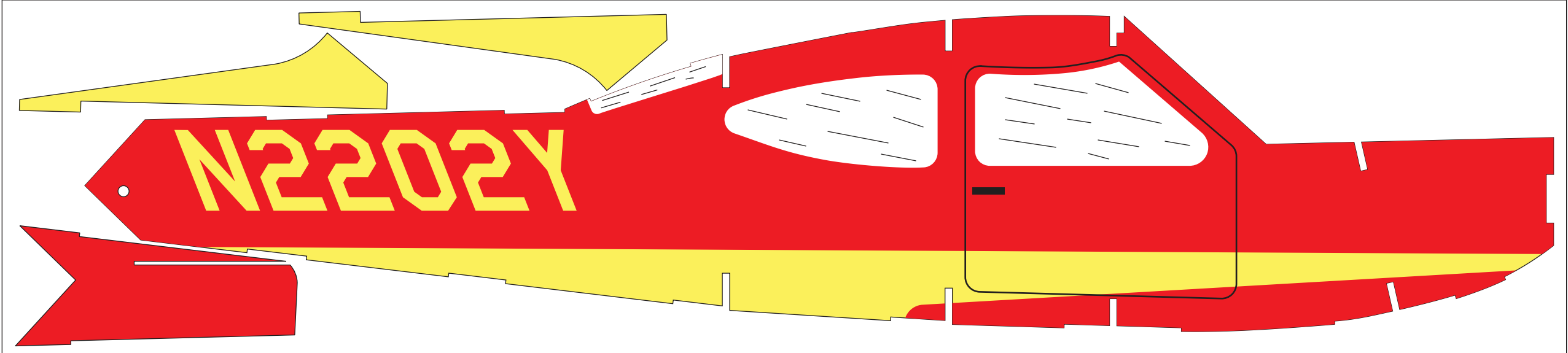
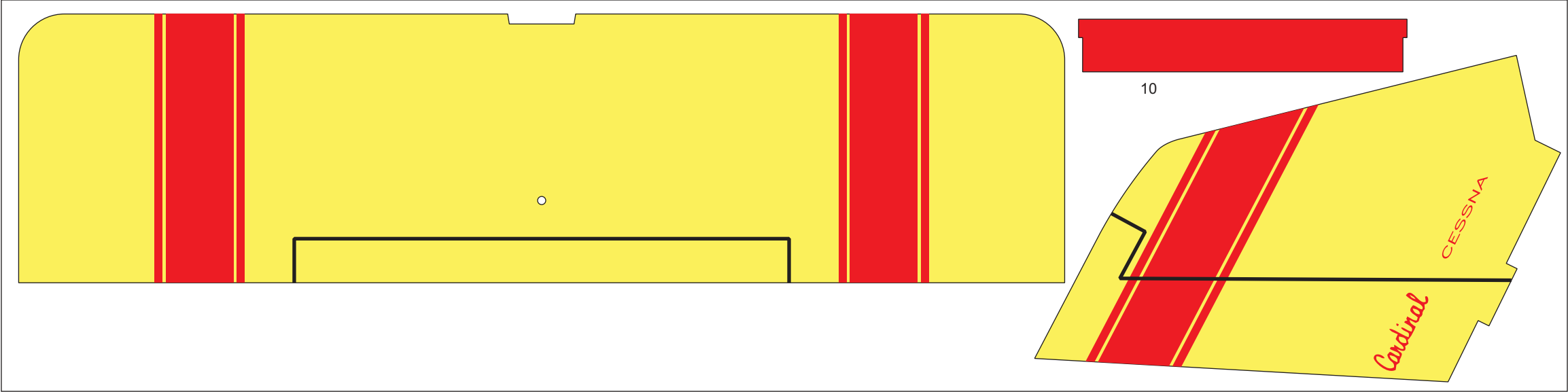


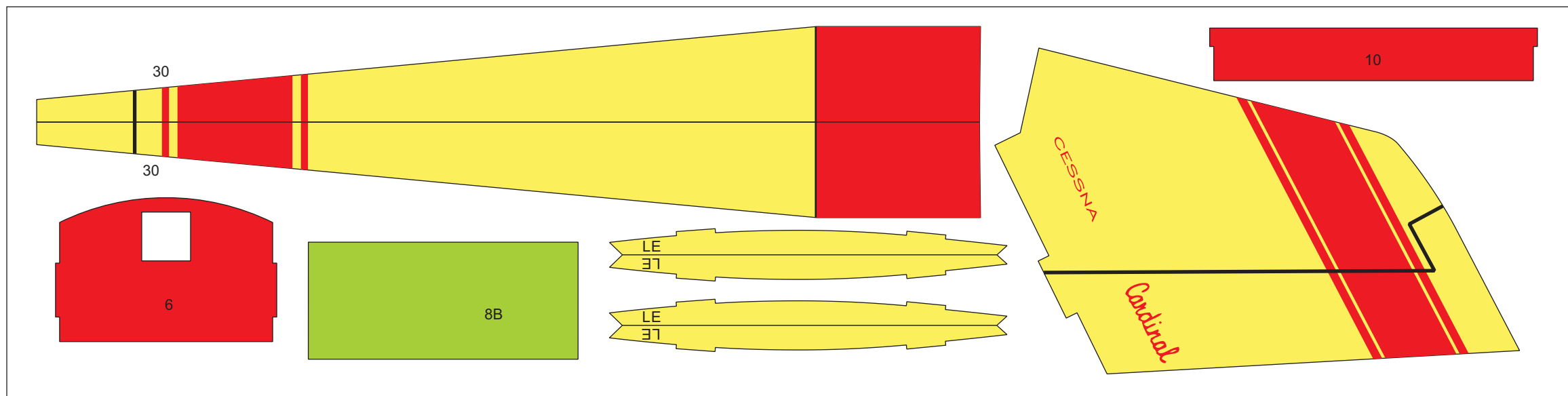
Main LG Covers

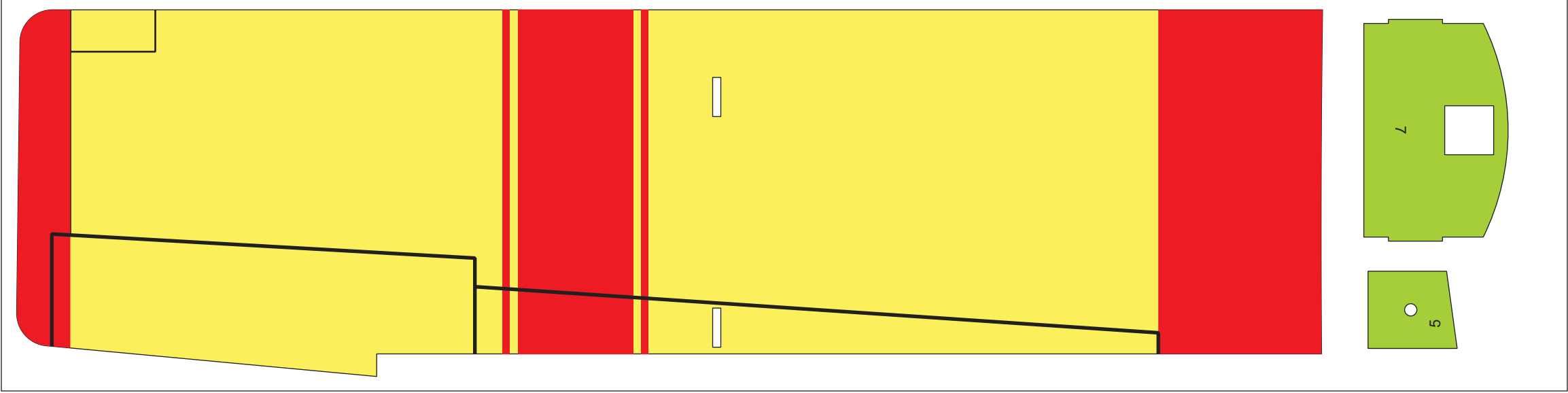
Nose Block Keys

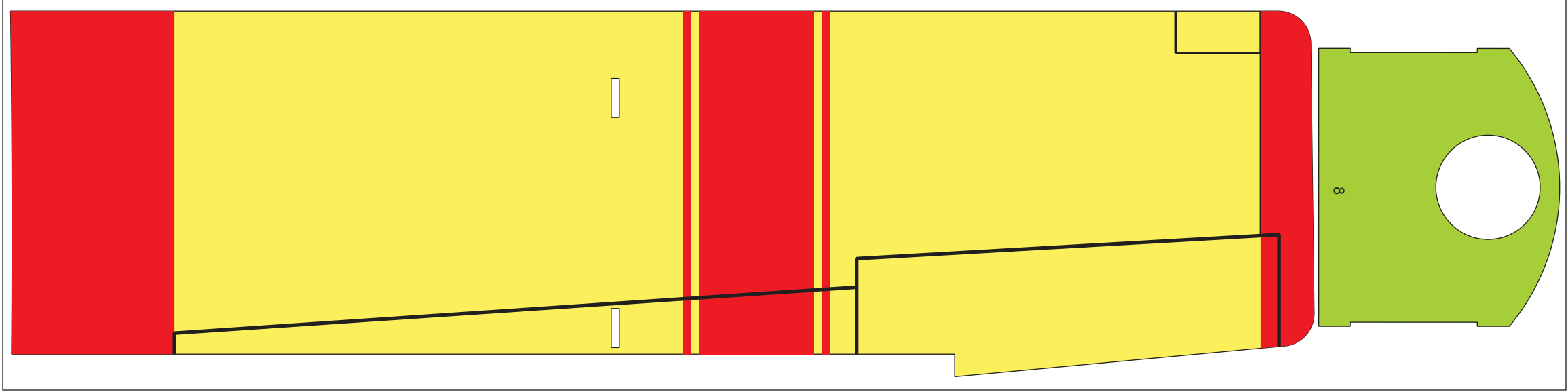
N2202Y

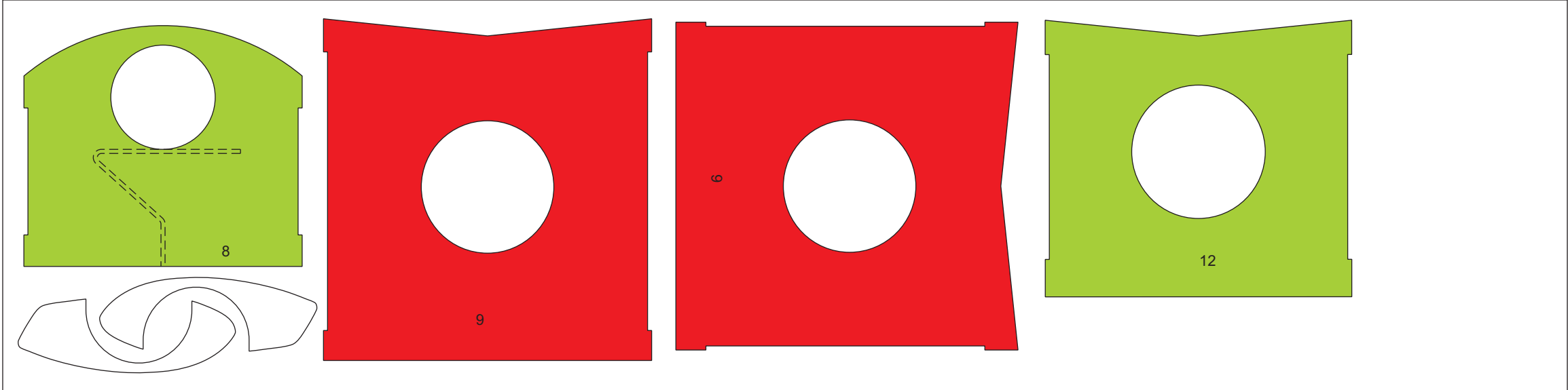


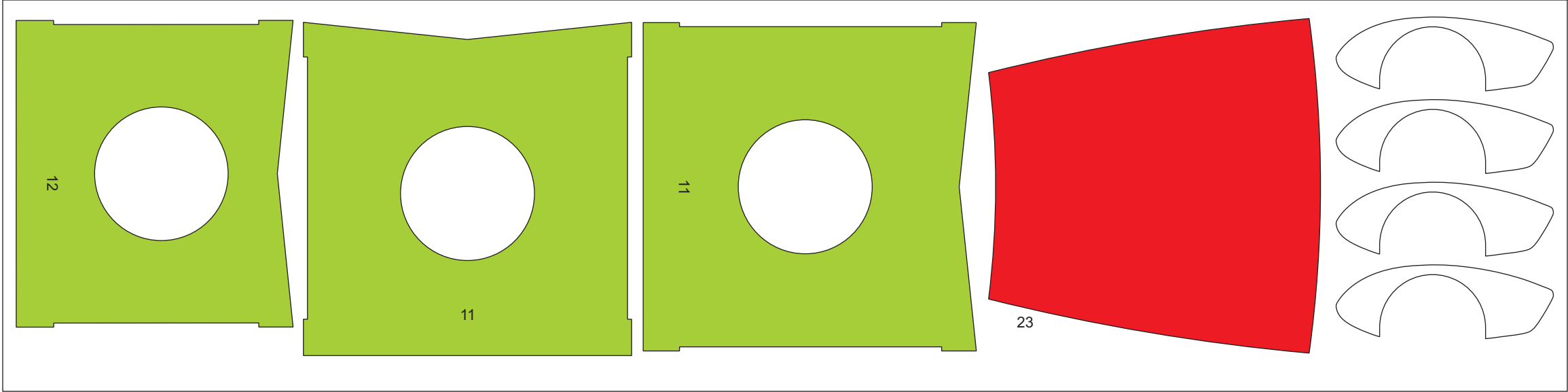


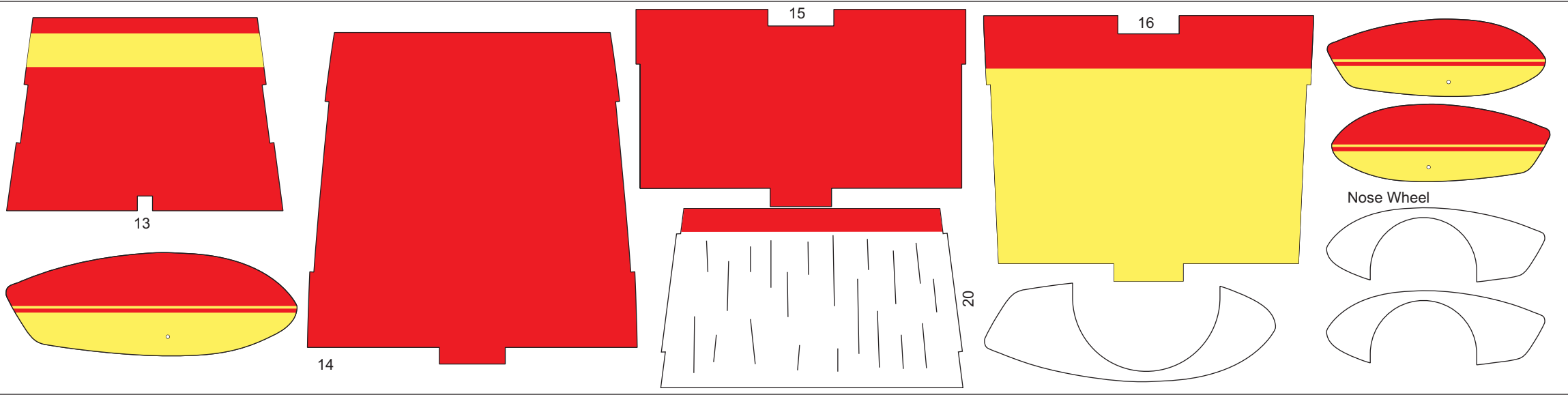


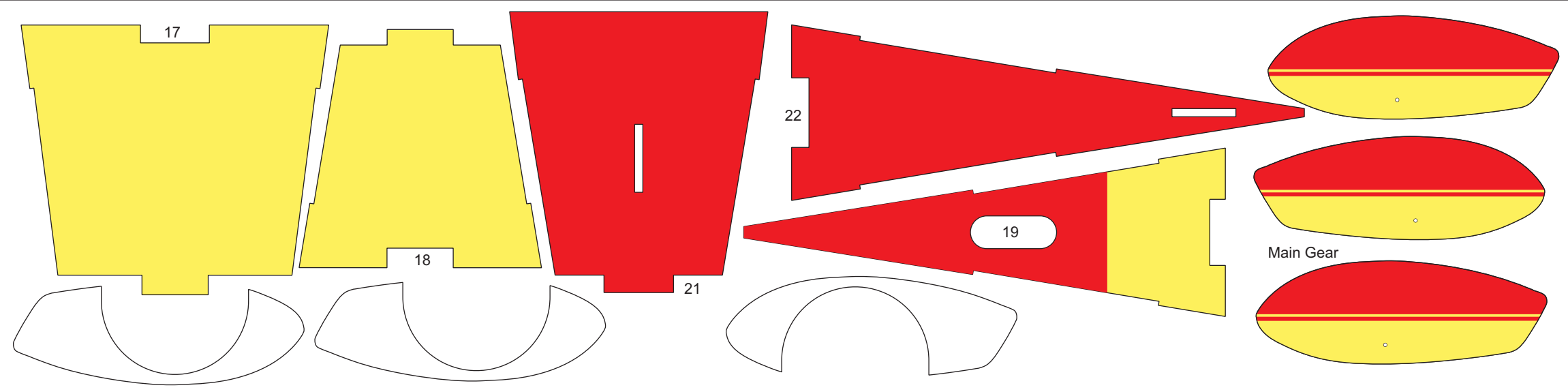


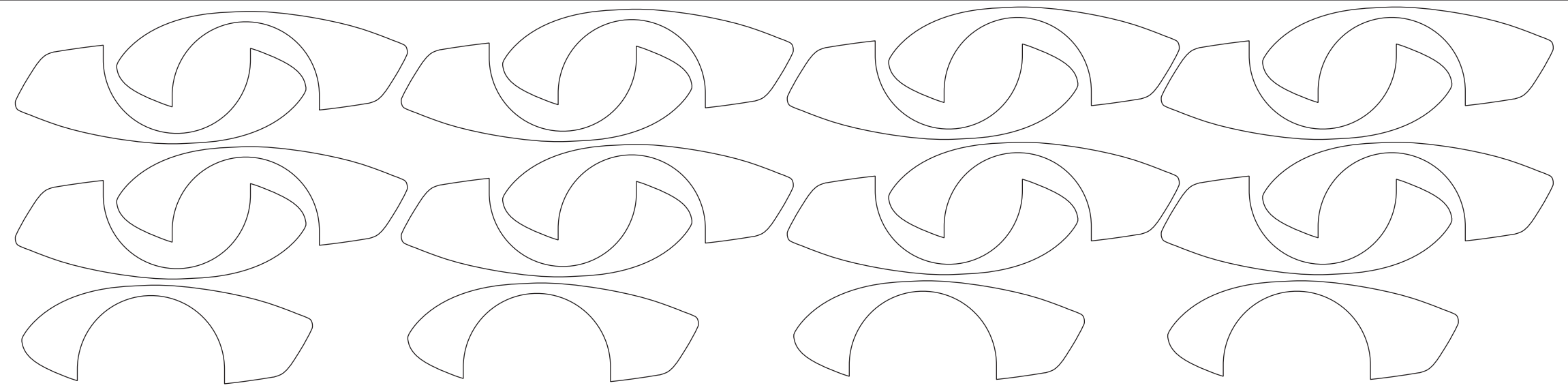


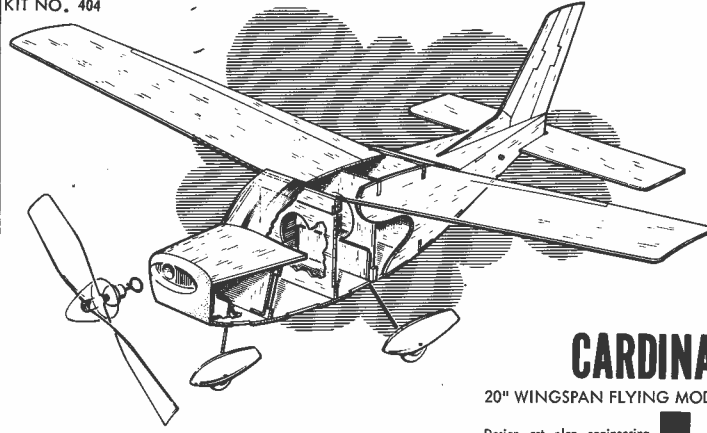












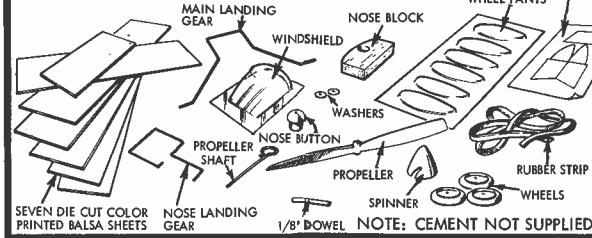
CARDINAL

20" WINGSPAN FLYING MODEL

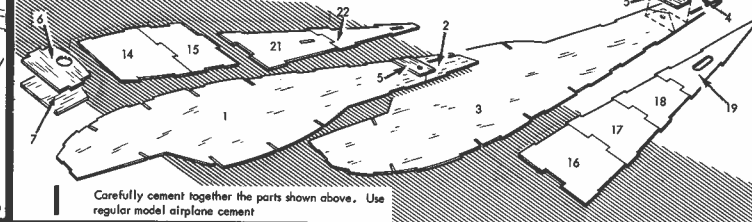
Design, art, plan, engineering and original model by -
Jim Newman

MIDWEST PRODUCTS CO. HOBART, IND.

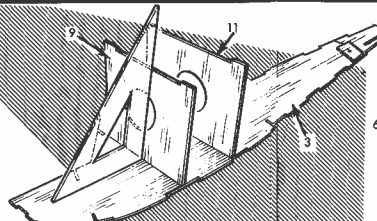
IDENTIFY AND CHECK YOUR PARTS :



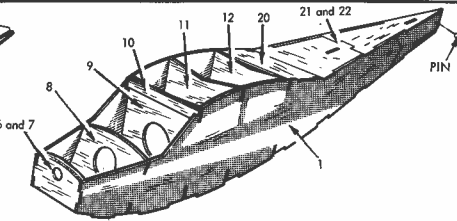
Follow these steps for EASY BUILDING!



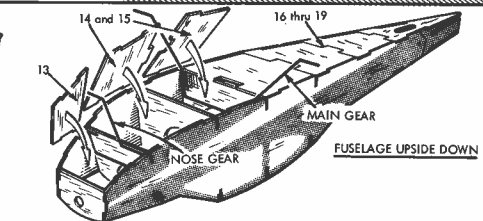
Carefully cement together the parts shown above. Use regular model airplane cement.



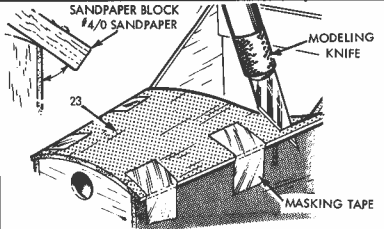
2 Carefully cement 9 and 11 to side 3. Use triangle to get parts upright.



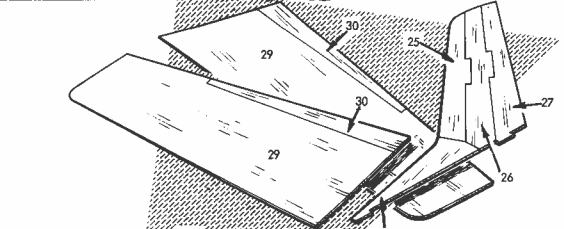
3 Cement side 1 to formers and accurately cement sides at tail, holding with a pin. Pull sides together at nose and cement 6 and 7 in place keeping 7 facing rear. Hold with masking tape and cement 8, 10, 12, 20, 21 and 22.



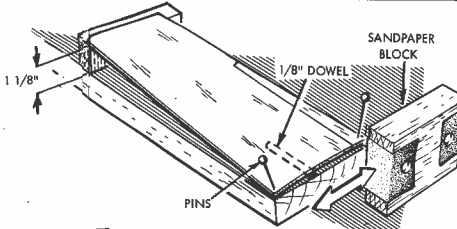
4 Firmly cement nose gear to front of 8 and main gear to front of 11. Cement bottom parts 16 thru 19, 14 and 15, finally 13.



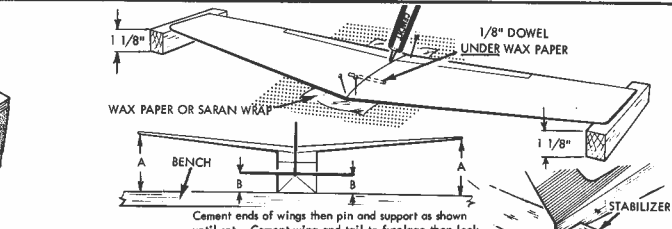
5 Sand bevel on sides then cement on 23, holding with masking tape. Carefully trim off excess with sharp knife.



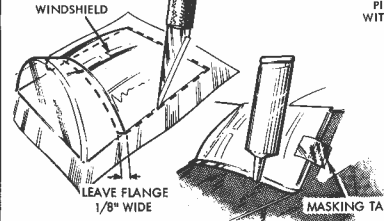
6 Cement together wing and tail parts pictured.



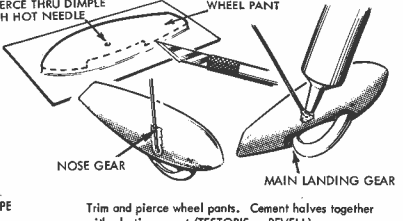
7 Prop up wing tip, place 1/8\"/>



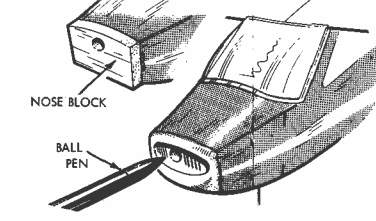
8 Cement ends of wings then pin and support as shown until set. Cement wings and tail in fuselage then look at model from rear. Line up wing and tail before glue dries. Hole in stabilizer lines up with rear of fuselage.



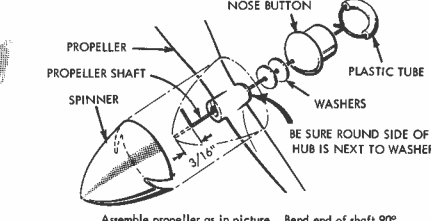
9 Trim excess material from windshield, leaving 1/8\"/>



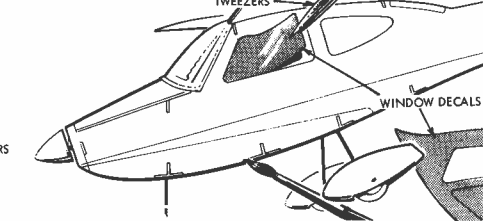
10 Trim and pierce wheel pants. Cement halves together with plastic cement (TESTOR'S or REVELL) or use contact glue (ELMER'S). Slip assembly onto axle and cement solidly.



11 Cement nose block to 6, round off corners then draw on airfoils.

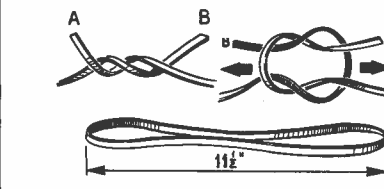


12 Assemble propeller as in picture. Bend end of shaft 90° and slip plastic tube from electrical wire over hook to protect rubber. Cement spinner to propeller.

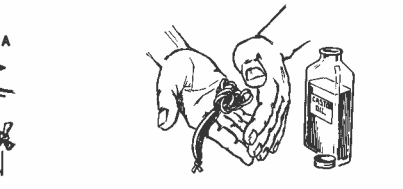


13 Peel window decals from backing sheet and apply to model. Tweezers are helpful. Use your paint box to touch up edges of bare wood.

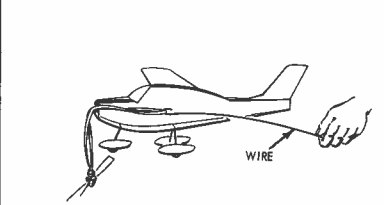
PREPARING THE RUBBER MOTOR



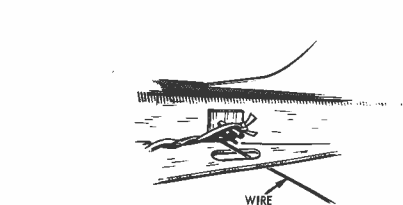
1 Join ends of rubber with square knot to make loop.



2 Put small drop of castor oil in palm of hand. Rub motor between hands KEEPING OIL OFF KNOT or it may slip open.

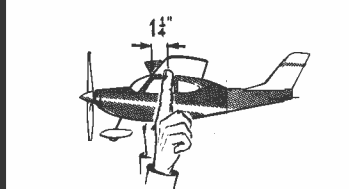


3 Use florist's wire or solder to pull rubber through model. Keep knot to rear.

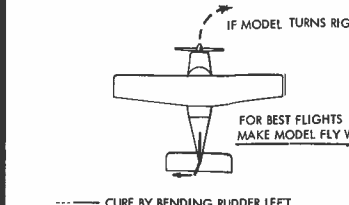


4 Before unhooking wire, push dowel through fuselage, making sure it goes through rubber loop.

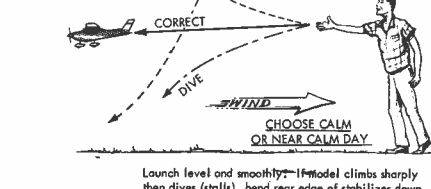
FLYING INSTRUCTIONS



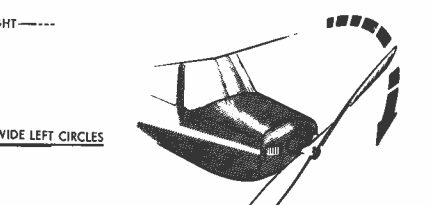
1 Balance model on fingertips. Add modeling clay under nose or tail until it stays level.



3 Control turning by bending rudder. Aim for a wide circle.



2 Launch level and smoothly. If model climbs sharply then dives (stalls), bend rear edge of stabilizer down a little or put clay under nose. If it dives, bend it up or put clay under tail. Continue until smooth glide is obtained.



4 Turn propeller in direction shown to wind up rubber 150 turns for average 10 second trip.

HI!

We have put a lot of effort into making sure that each of our models gives you maximum enjoyment in assembly and flying. After this model we are sure you will want to build the other exciting airplanes in the same range and which are pictured below.

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CITABRIA BIRD-DOG PIPER CUB

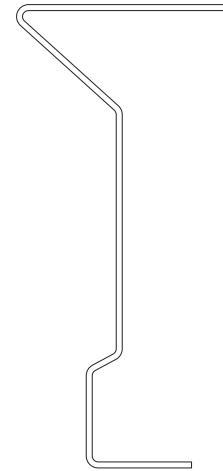
Please send me your illustrated catalog of models and accessories. I enclose 25¢ to cover cost.

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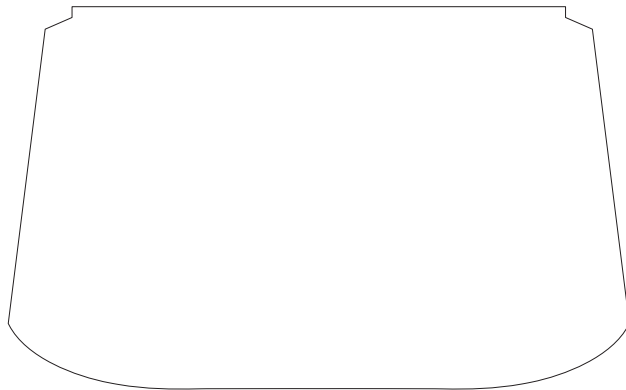
City _____ State _____ Zip _____



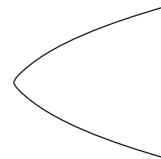
Main Landing Gear Pattern - Make from .032 music wire. Use 1" Wheels



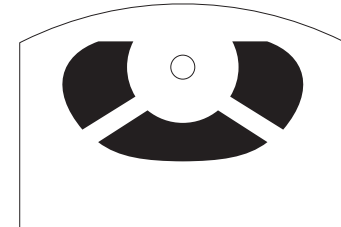
Nose Wheel Pattern - Make from .032 music wire. Use 3/4" wheel



Windshield Pattern



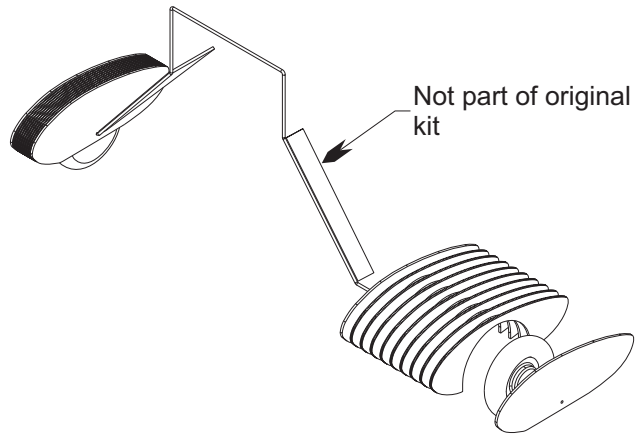
Spinner



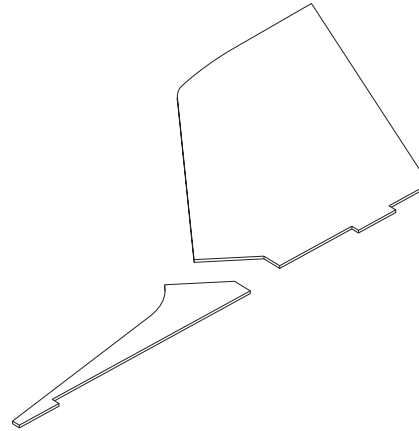
Nose Block - Make from 1/4" balsa

Midwest Cessna Cardinal

Modifications to Original

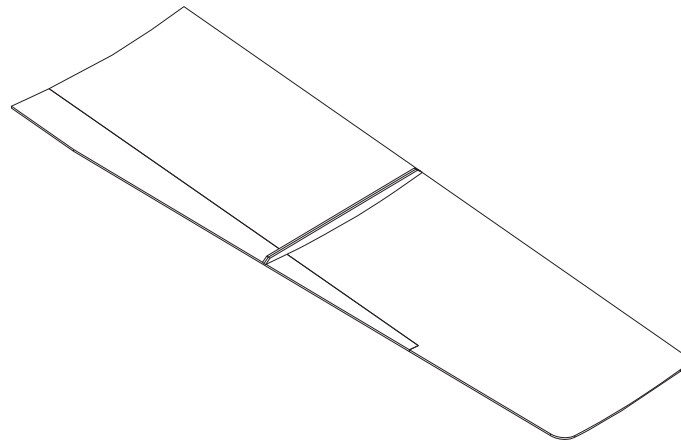


The original kit used vacuum formed wheel pants. For the reproduction the wheel pants are made from laminated balsa pieces. The shape is the same as the kit. Colored faces are provided. If sanding the wheel pants to a streamlined shape is desired, they will have to be painted. Use enough laminations to accommodate the thickness of your wheels.

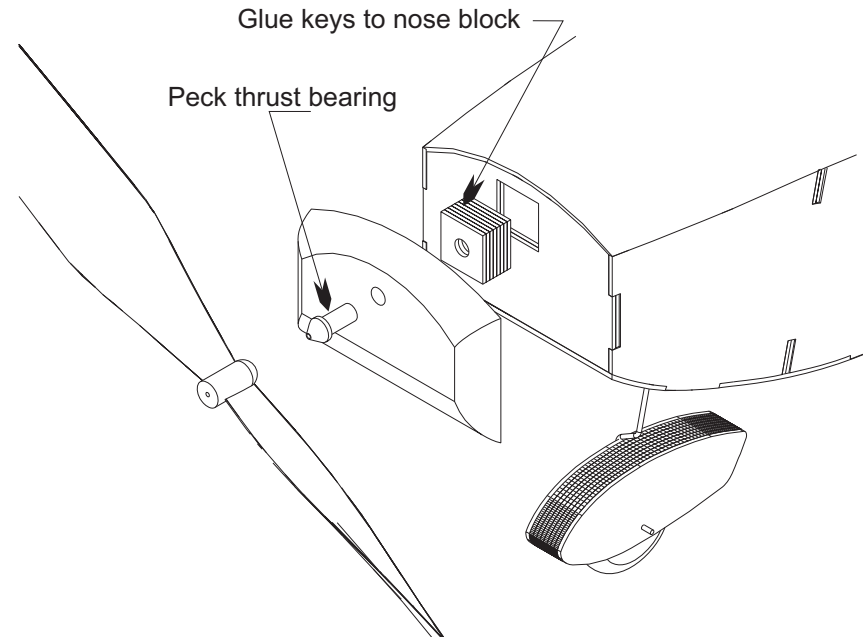


Note: The fin/rudder is one piece rather than three pieces as shown on the plan. The dorsal fin is the same as the kit layout.

The original kit came with a vacuum formed windshield. This allowed the curve of the Cardinal windshield to be modeled. To simplify building a reproduction model, a simple windshield made from sheet plastic is shown.

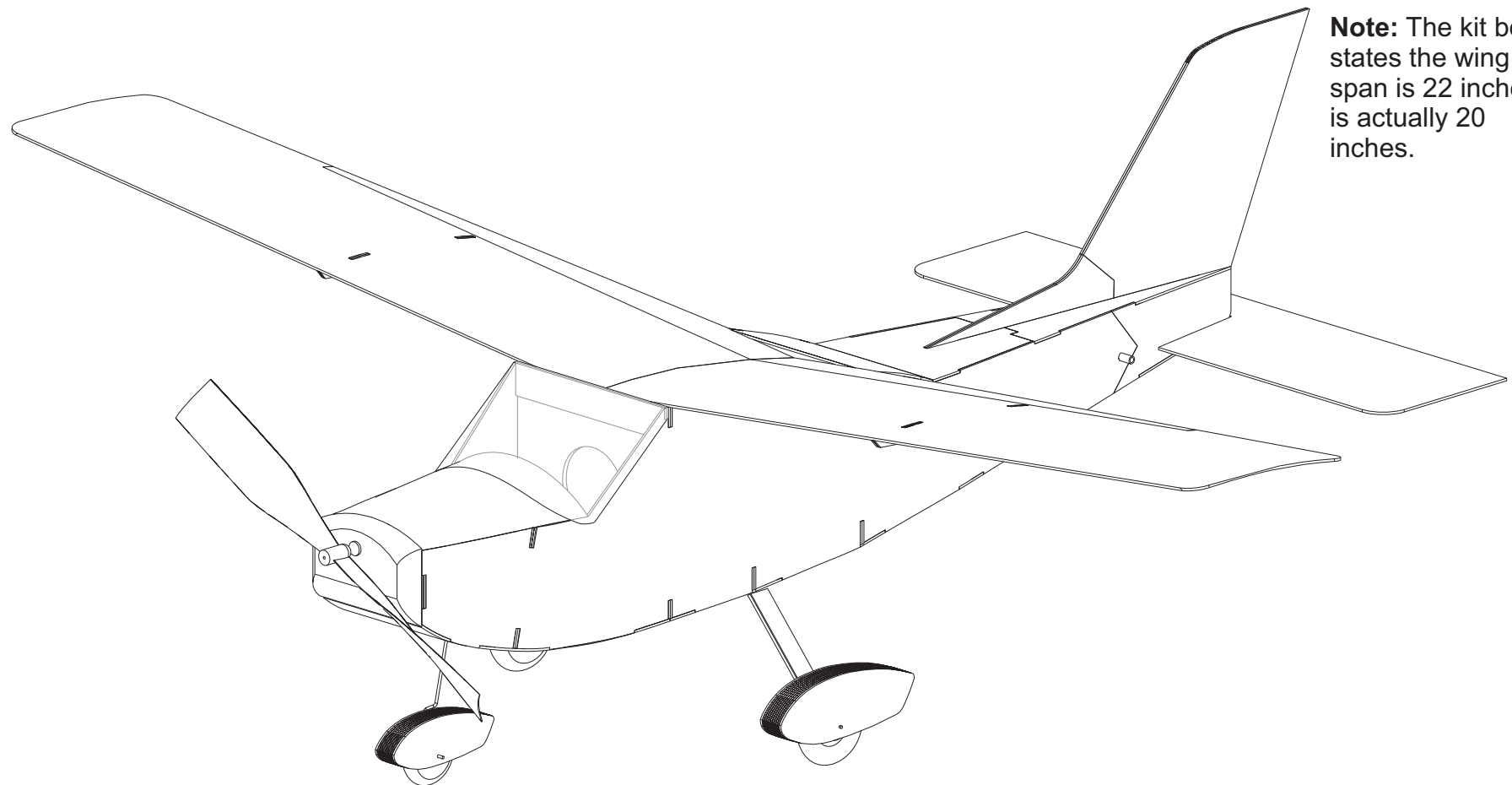


The original kit did not use ribs in the wing panels to hold the camber. The only camber was formed at the wing root and held by the top of the fuselage sides. Camber is important to the span wise stiffness of the wing, especially when made from 1/32" balsa. For that reason ribs were added to the wing panels.



The nose block is removable for stretch winding as opposed to the fixed block shown on the kit plan. The nose block is made from 1/4" balsa. Glue the laminated key block to the rear face of the nose block.

Midwest Cessna Cardinal



Note: The kit box states the wing span is 22 inches. It is actually 20 inches.