The Goldberg Ranger 28 is basically a scaled up Ranger 21 that uses a tissue covered built up structure. The structure is fairly unique as it does not use traditional sticks for the fuselage framing. The fuselage structure is made from pieces of 1/16” balsa fit together like a jigsaw puzzle. The original kit plan does not show a profile view of the fuselage. Assembly of the fuselage sides depends on the fit of the die cut parts. This drawing package does include a fuselage profile drawing to help make sure the sides are assembled properly and are the same.

Two modifications have been made to the layout of the model from the original configuration. The first change was to fuselage parts 1, 5, 12, and 16. These parts were too long to fit on letter or legal size printer paper. As a result those parts were separated into two pieces each. When assembled they do match the original parts.

The other modification made was to change parts 32 and 33 that make up the fuselage nose former. The original kit included a vacuum formed nose piece that supported the prop bearing/nose button. That arrangement is really not necessary so a drawing for a vacuum formed part has not been included. The opening in formers 32 and 33 has been changed from a circle to a square set on edge. This allows for a removable nose plug that fits in the opening in the former. A sketch of the suggested nose plug configuration is included in the drawing package.

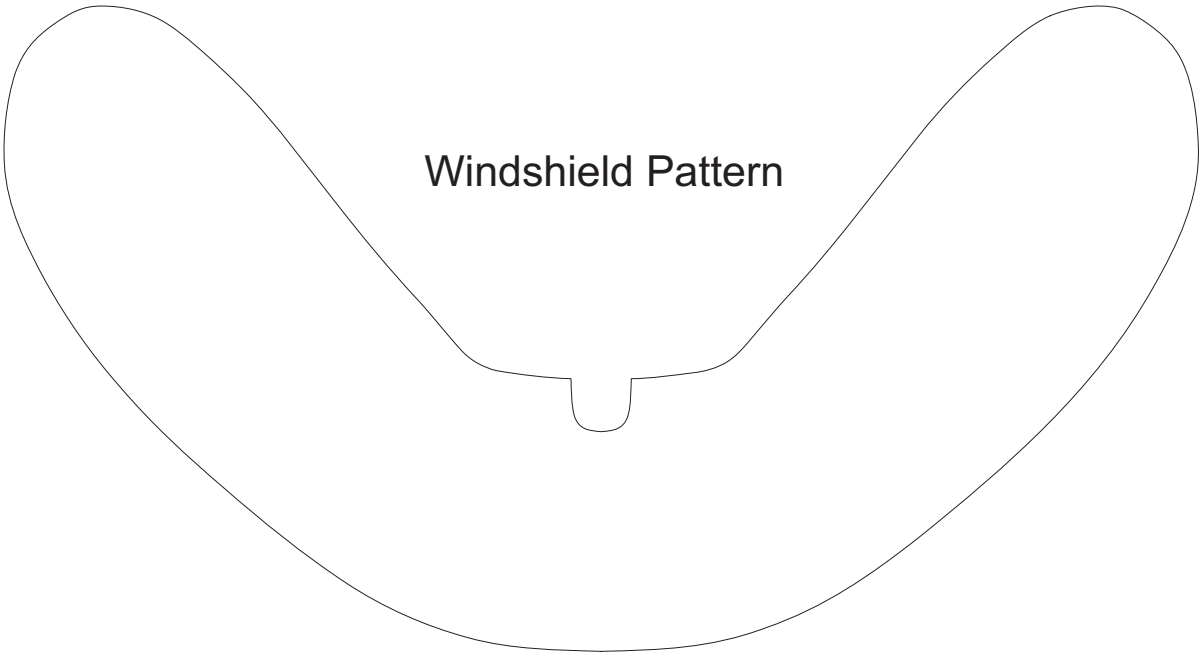
The kit Ranger 28 used 1/16” balsa for all of the parts cut from sheet wood. Structurally it is important to retain 1/16” balsa in the assembly of a model from this drawing package. If you are able to print the parts directly on balsa it will likely be limited to 1/32” material. This is not a problem. Print the provided part layouts on 1/32” balsa. Once printed laminate each printed sheet with another sheet of 1/32” balsa. Use of a spray contact glue makes that process very easy with little weight gain.

This package has been organized to print on letter (8 ½” x 11”) and legal (8 ½” x 14”) sheets. The assembly plan sheets print on the letter size sheets. The parts layouts and the tiled image of the original kit plan print on legal size sheets. **It is important that when printing the sheets you have print scaling set to none.**

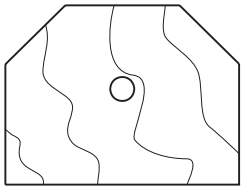
The Ranger 28 has the potential for very good performance. Build it straight and light and watch out for passing thermals.

I do hope you build and enjoy a model from this plan package.

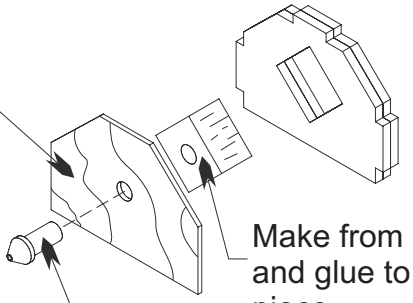
Paul Bradley

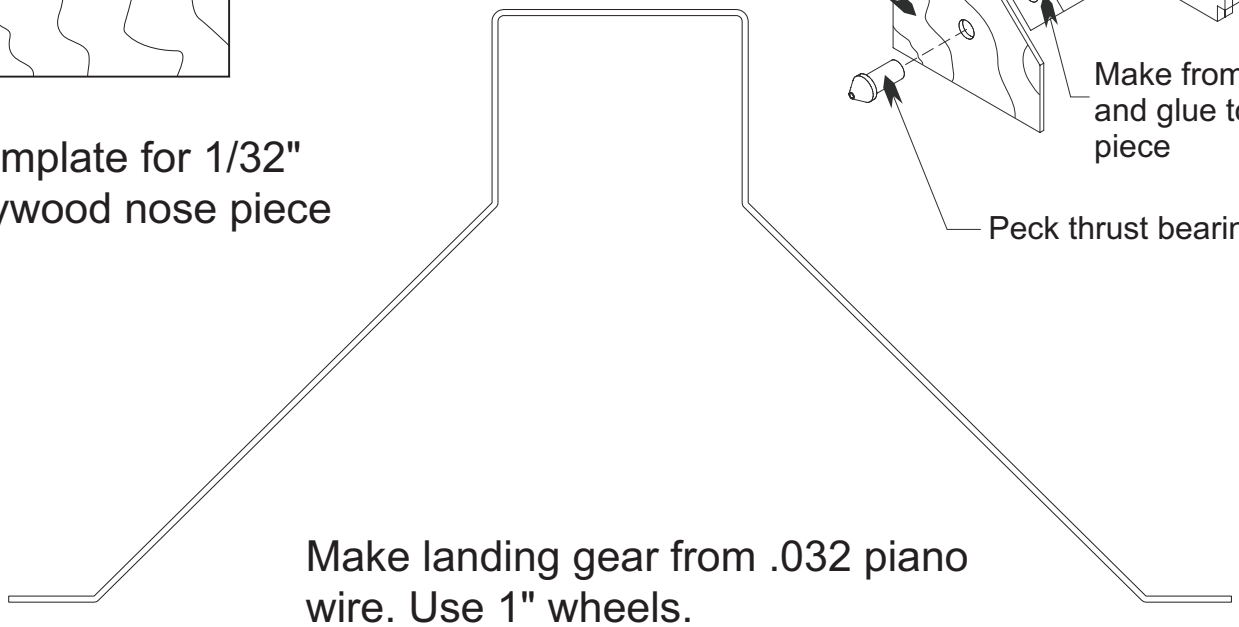



The kit came with a 7" plastic prop and vacuum formed nose piece. The vacuum formed piece is not necessary. Formers 31 and 32 have been drawn for use of a removable nose plug to facilitate stretch winding the rubber motor. A sketch of a suggested arrangement is shown here.



Template for 1/32" plywood nose piece



Make landing gear from .032 piano wire. Use 1" wheels.

0
1
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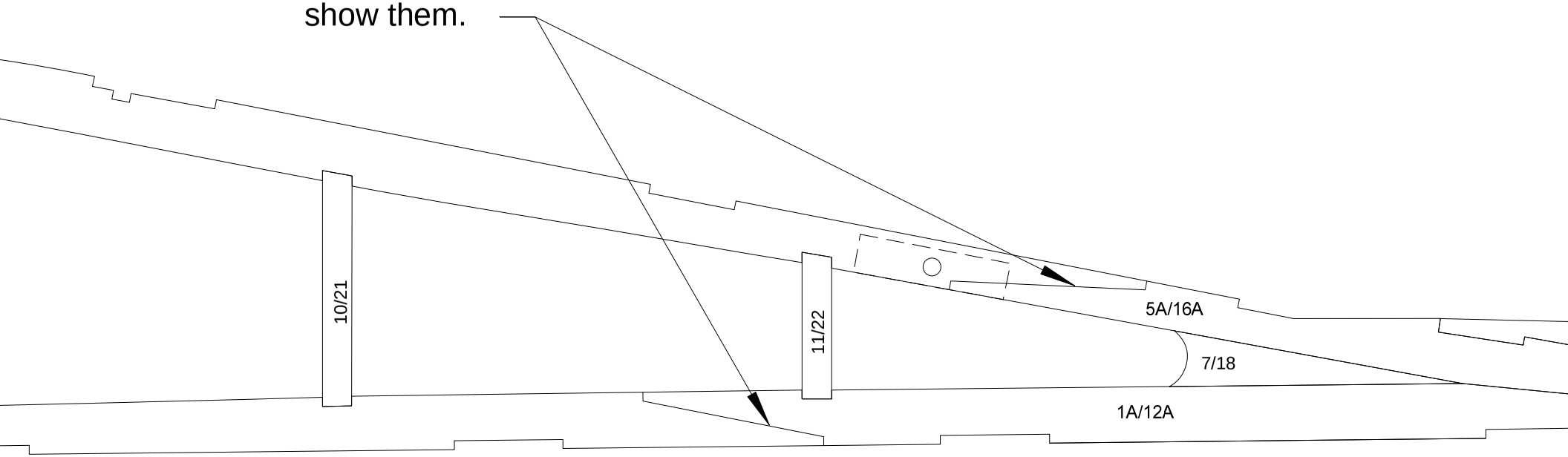
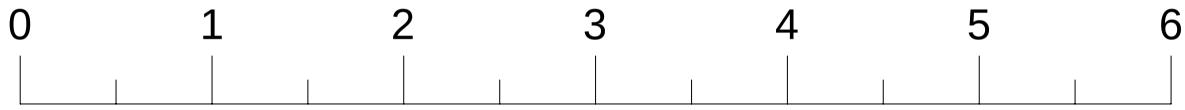
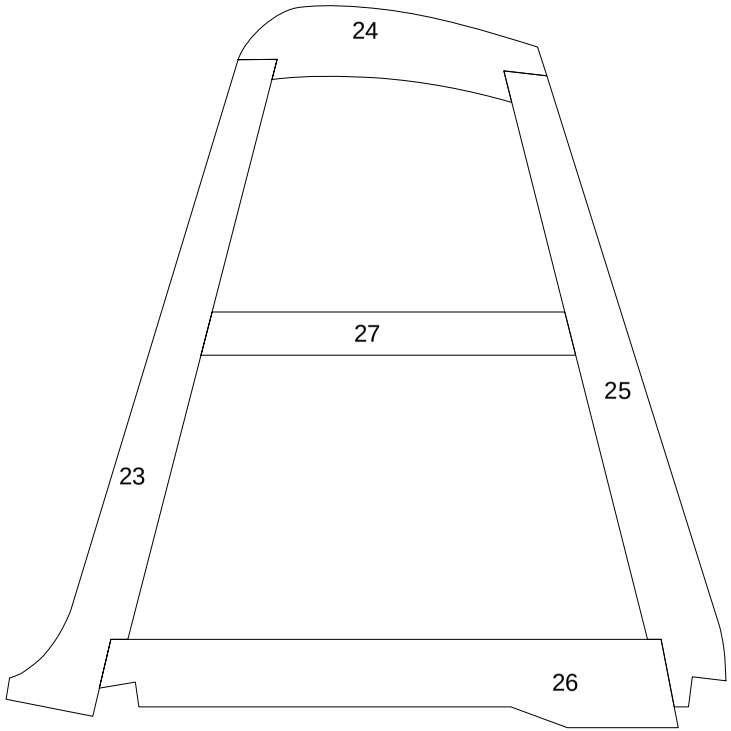
2/13
3/14
8/19
9/20
1/12
4/15
5/16
10/21

Note: These joints were added to the reproduction drawings to allow for printing on letter size paper. The kit plan does not show them.

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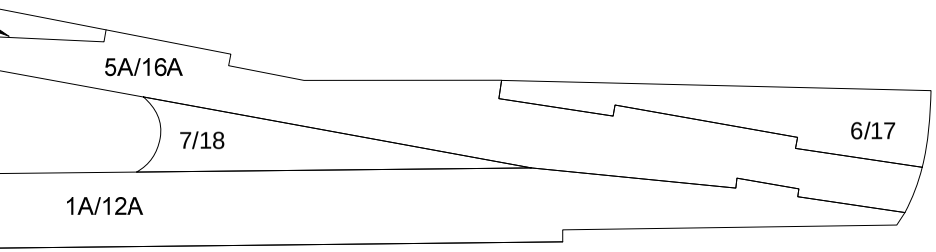
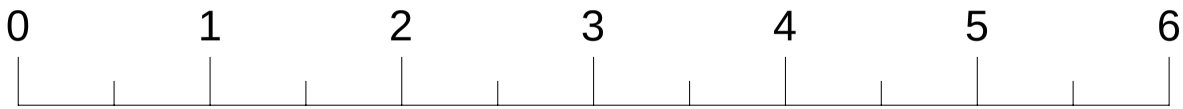

5A/16A
7/18
6/17
1A/12A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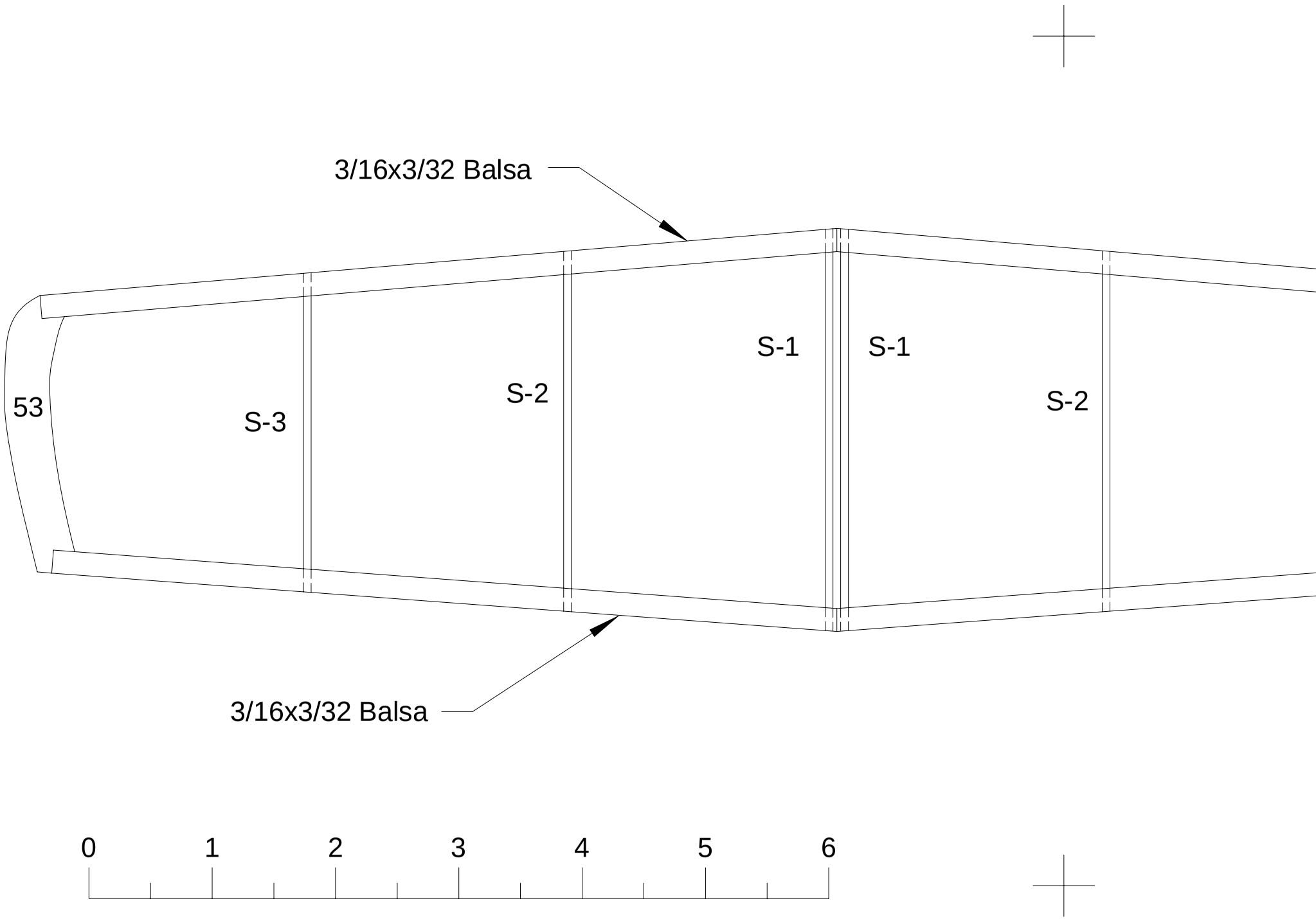
3/16x3/32 Balsa
53
S-3
S-2
S-1
S-1
S-2
3/16x3/32 Balsa
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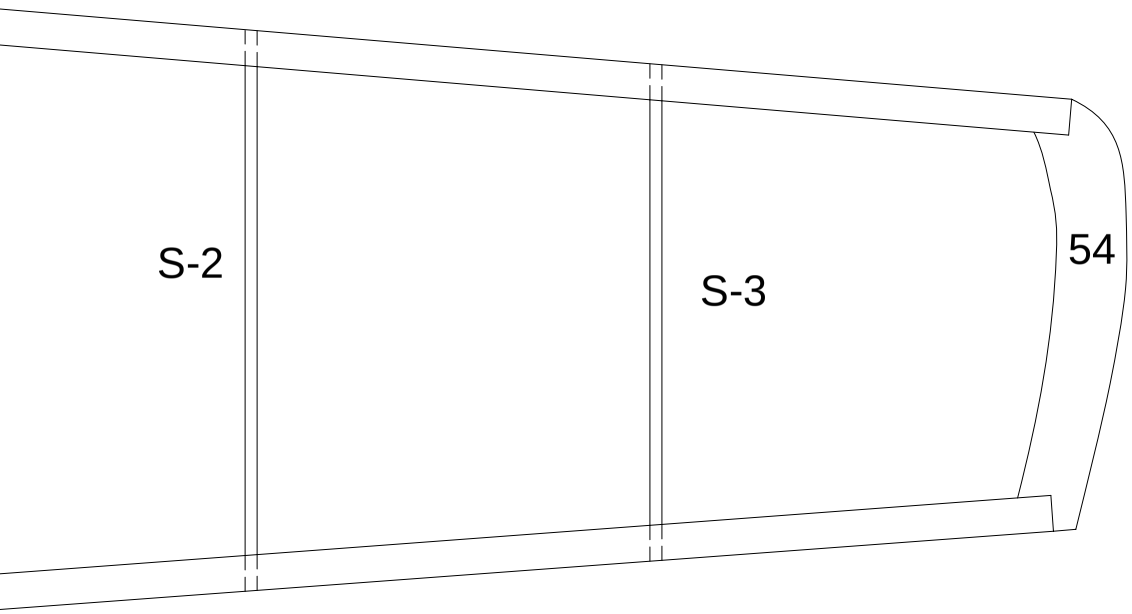
S-2
S-3
54


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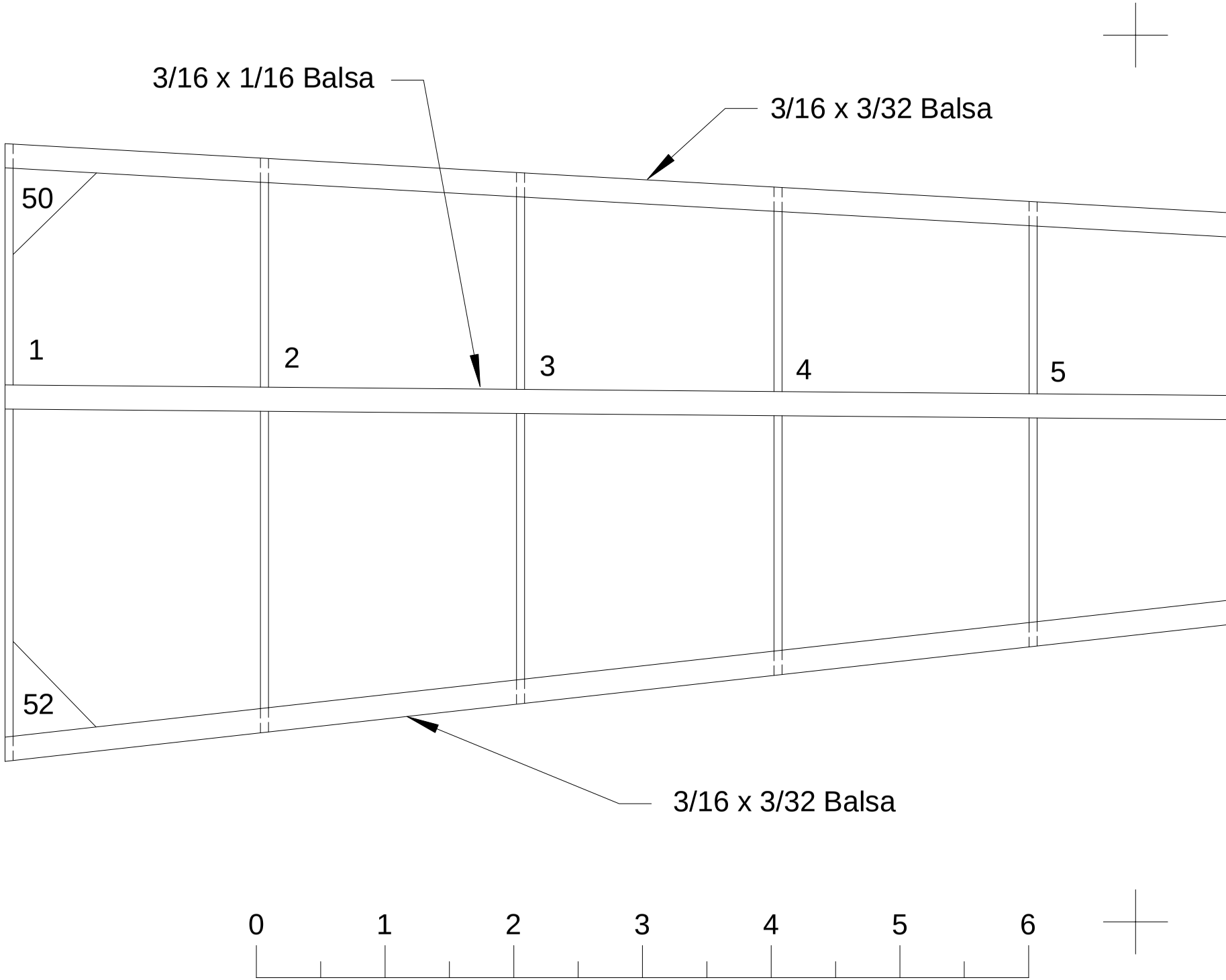
3/16 x 1/16 Balsa
3/16 x 3/32 Balsa
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3/16 x 3/32 Balsa
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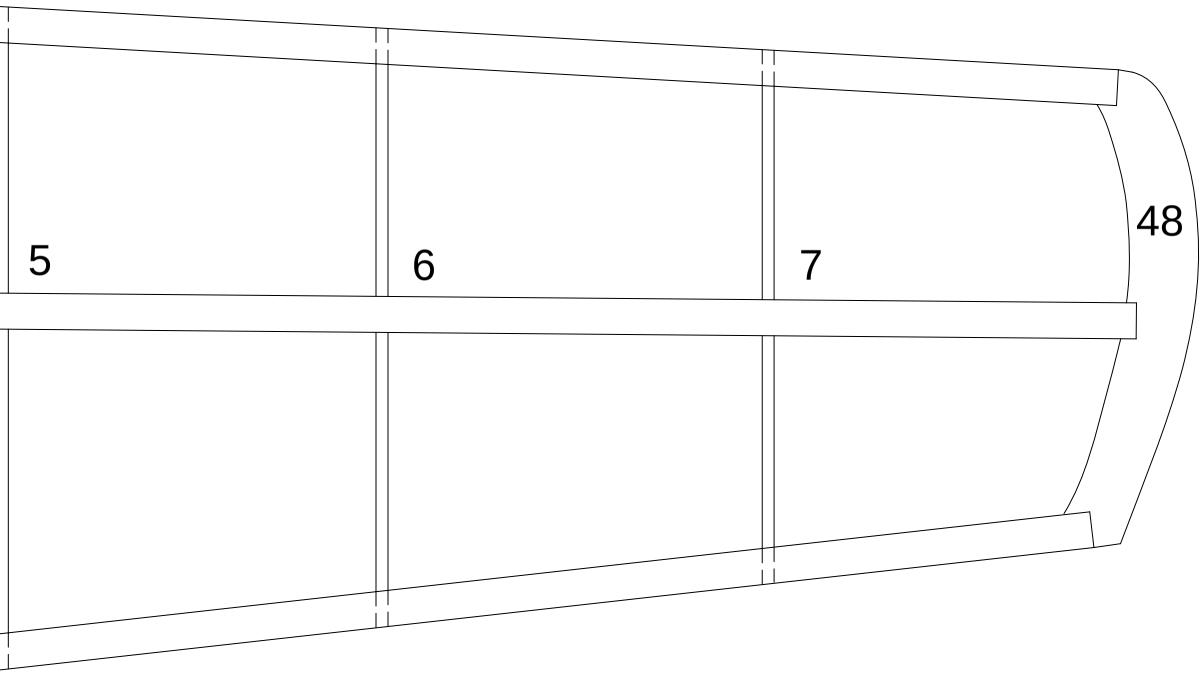
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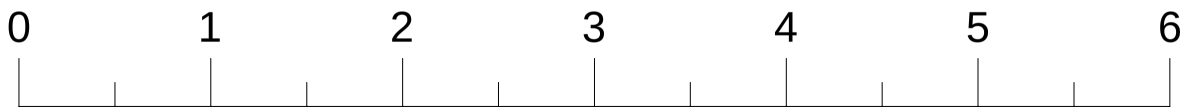
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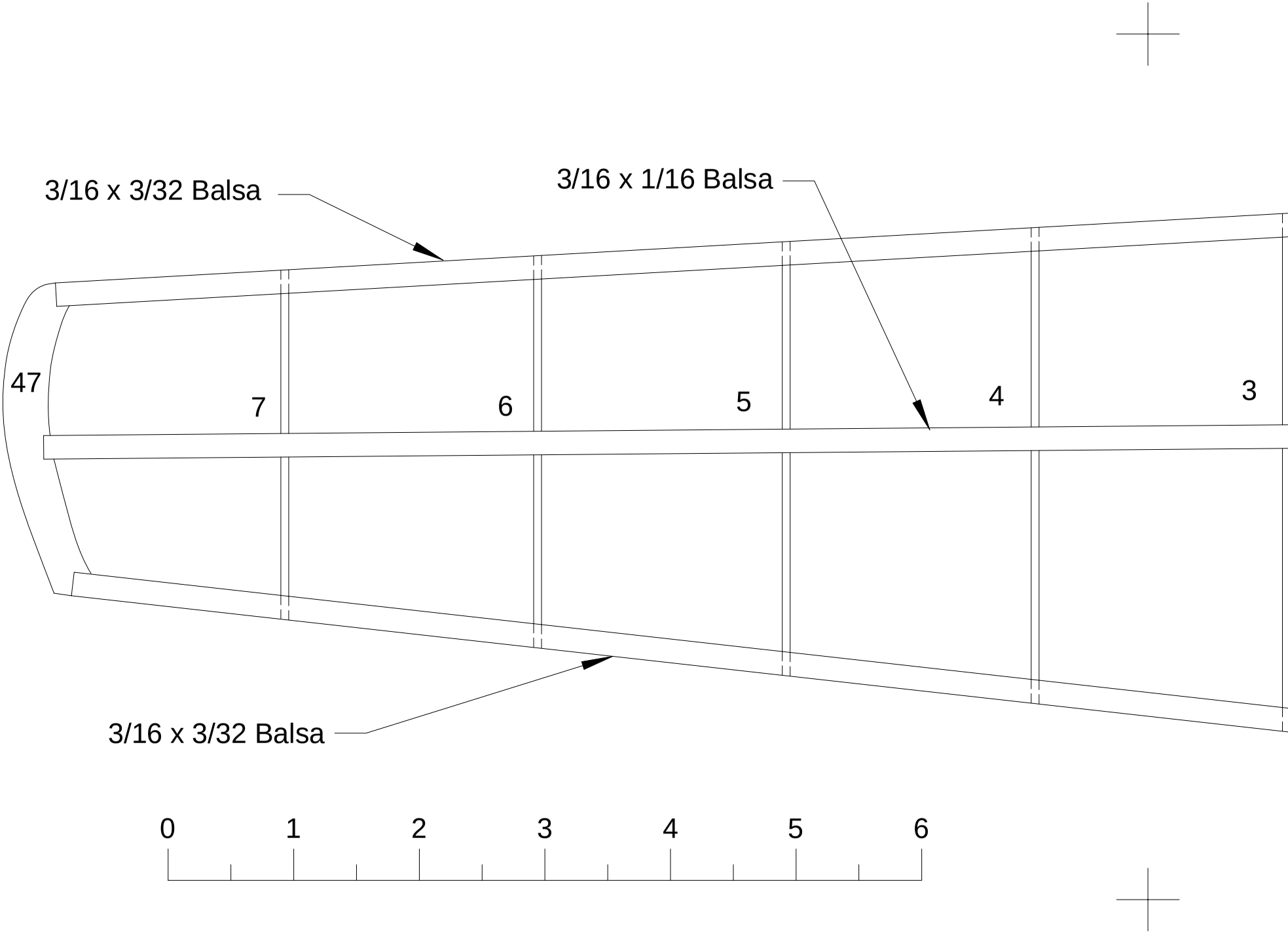
3/16 x 3/32 Balsa
3/16 x 1/16 Balsa
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4
3
3/16 x 3/32 Balsa
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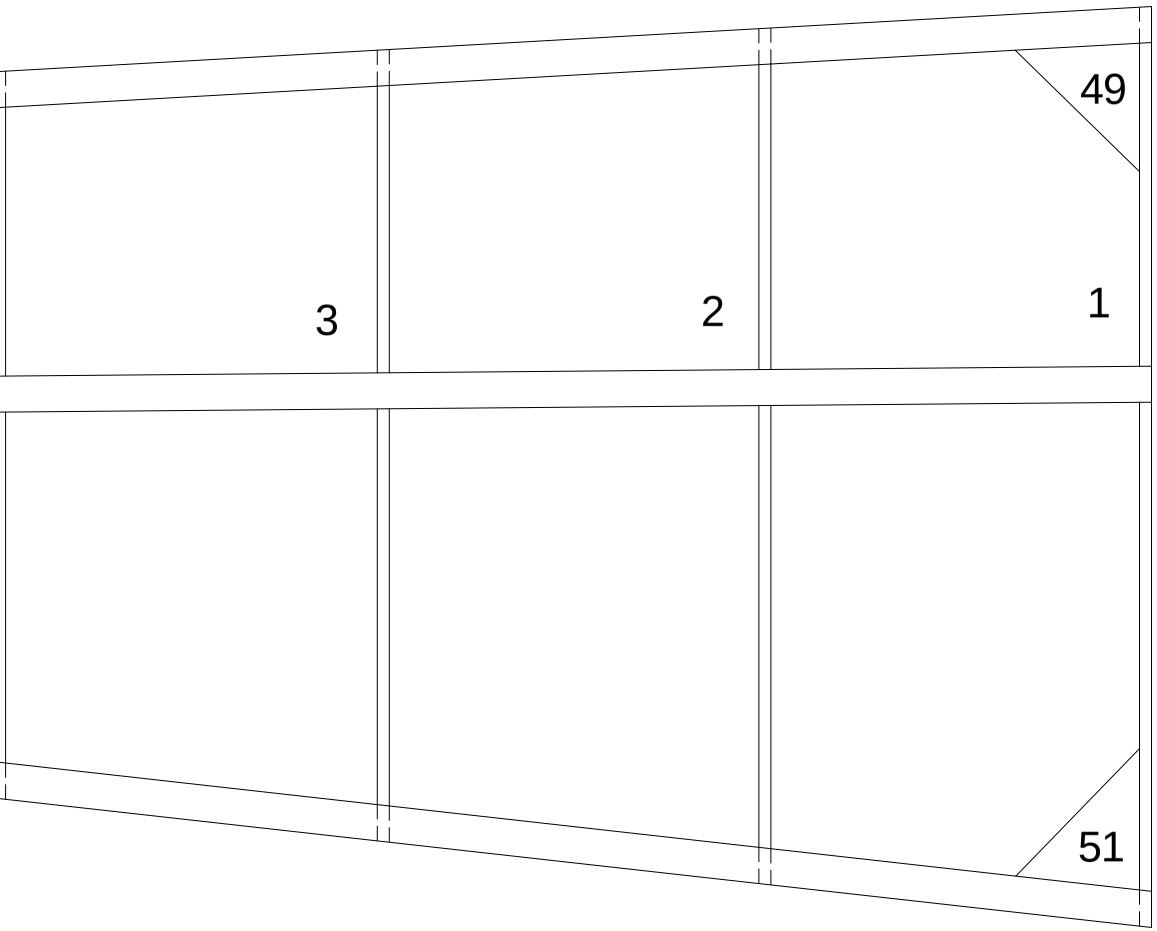
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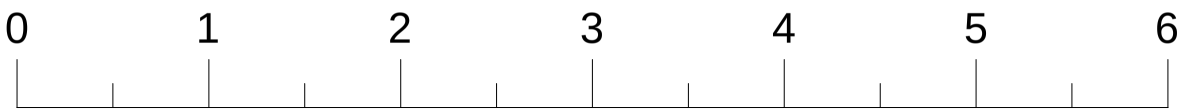
51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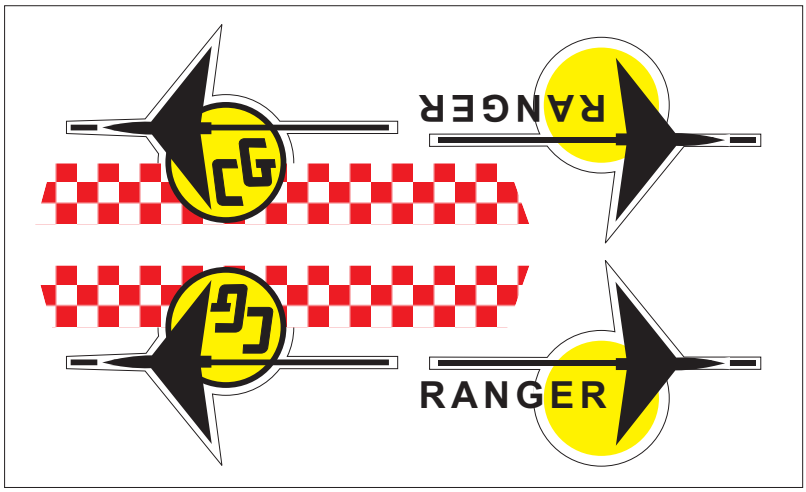
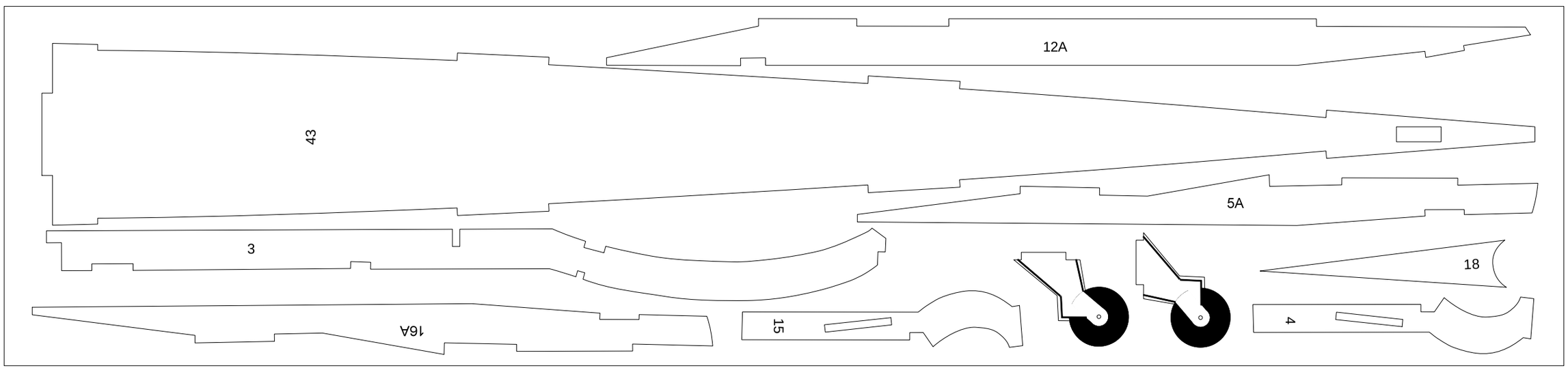



# Ranger 28
# Decal Set


12A
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5A
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16A
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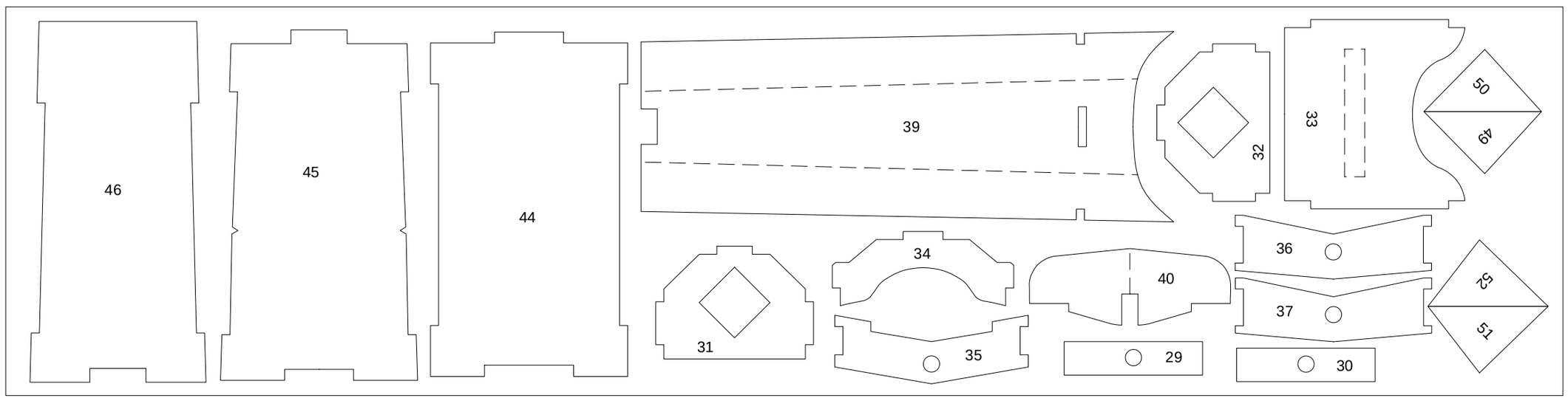
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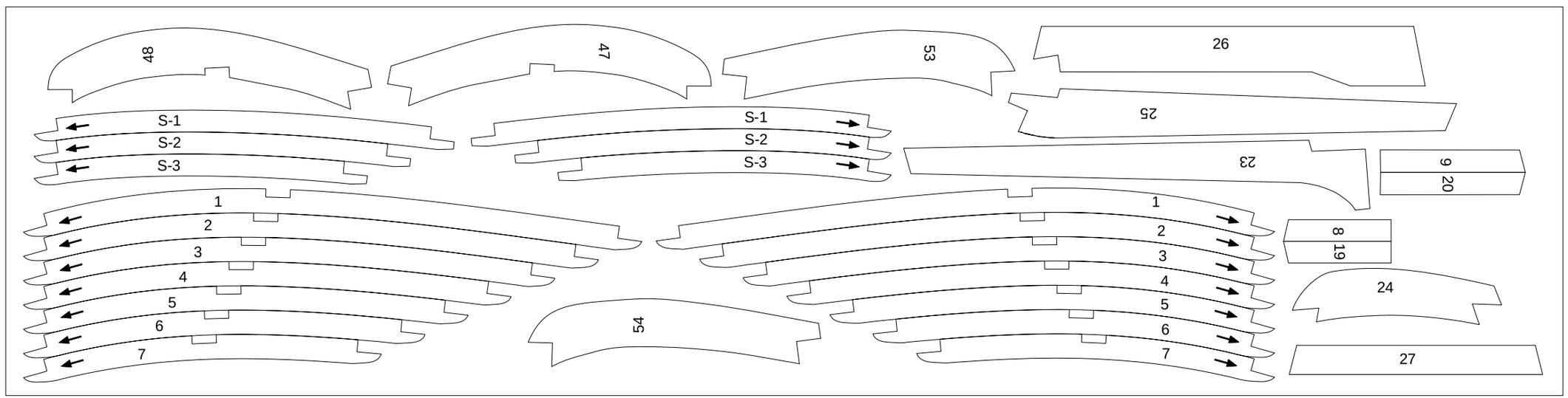
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S-2
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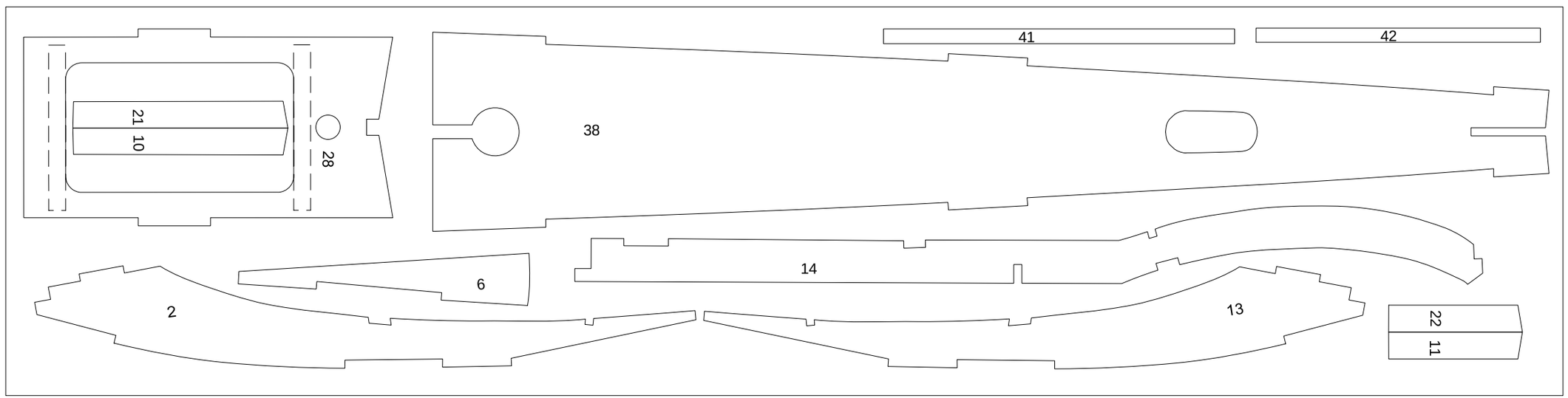
41
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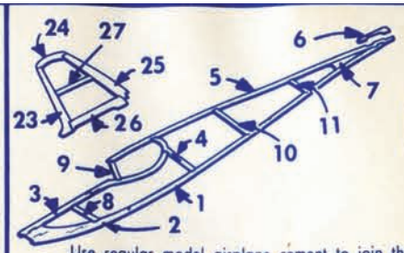
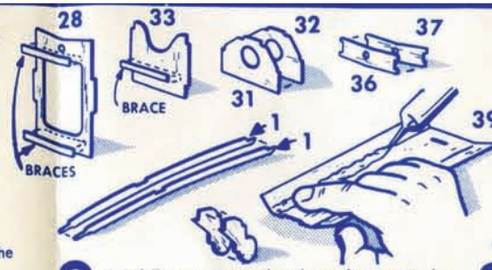
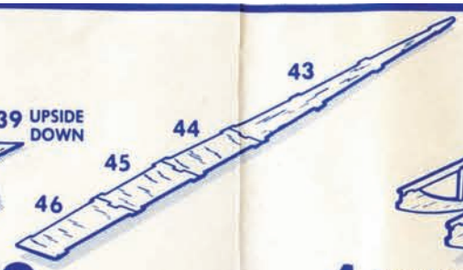
# HERE'S HOW TO BUILD YOUR MODEL RIGHT!



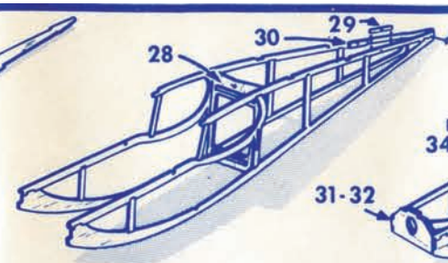

**1** Use regular model airplane cement to join the fuselage side pieces and rudder as shown. Make the second fuselage side with pieces 12 to 22.



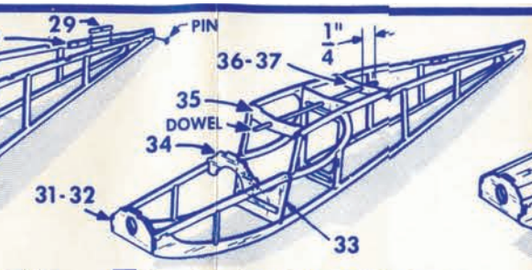

**2** Carefully cement together the various parts pictured above. Turn 39 upside down, and rub cement into the underside of the creases.



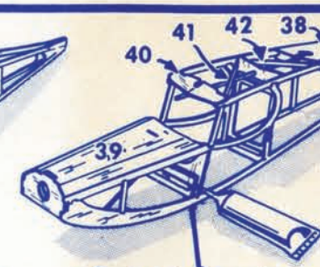

**3** Join bottom panels as shown.



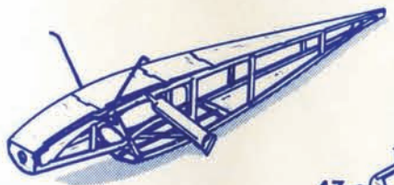

**4** Cement former 28 between fuselage sides. Very accurately cement rear of fuselage together. Add hole doublers 29 and 30 inside 5 and 16.

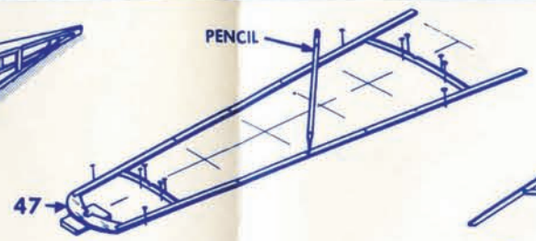


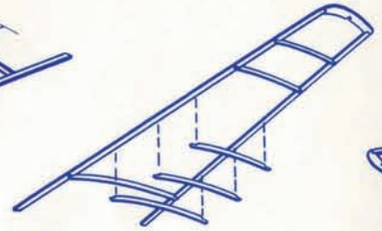

**5** Cement in place all the remaining formers and long dowel. Dowel protrudes ¼" behind 36-37.




**6** Set 38 in place. Lift up pa at a time, and cement. A parts as shown. Cement lar



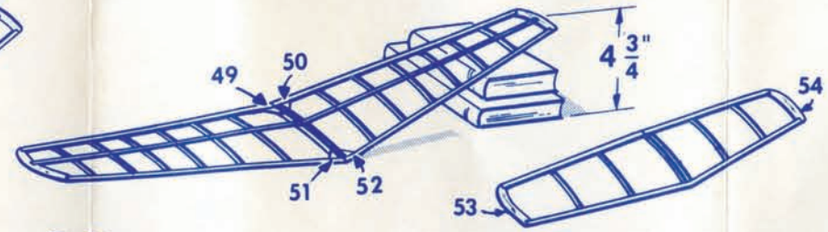


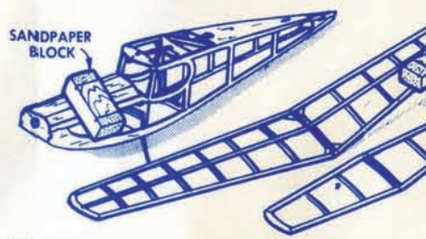
**7** Set entire bottom in place. Lift up part of one edge at a time, and cement.

**8** Support wing ribs over plan with pins as shown. Cement tip and leading and trailing edges. Lightly mark location of remaining ribs.

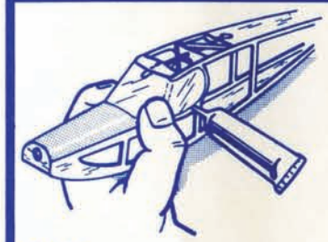
**9** Cement remaining ribs in place with wing off plan.



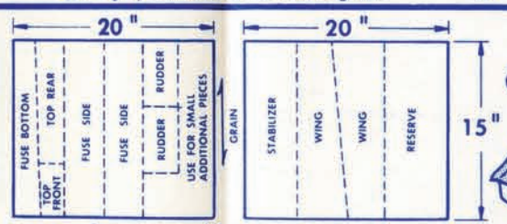

**10** Pre-cement ends of edges and join wing halves. Add center ribs and gussets. Double cement center joints. Add center spars. Assemble stabilizer similar to wing.




**11** Sand all parts smooth using 4/0 sandpaper. Ro edges on fuselage, wings and tail except wher

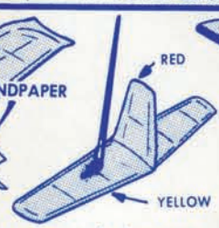


**12** Using clear dope, cover 39 with red tissue. See step 13. Then cement windshield in place.

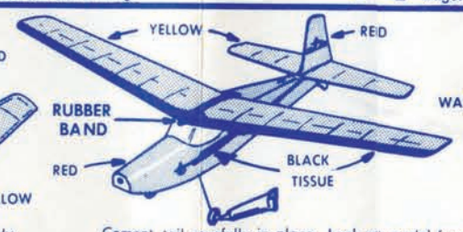



**13** Cover bottom of fuselage first, sides next, and top last. Follow paper cutting pattern as shown, and cut strips of paper slightly larger than area to be covered. Apply clear dope to one end of framework, set paper in place. Gradually work to other end, removing wrinkles as you go. Sand excess paper off, dope edges down.

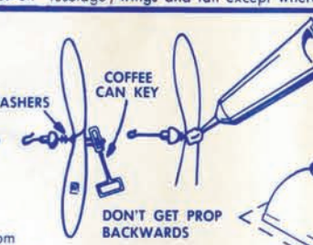

Paper top of wing from center outwards to tip. Dope to center rib, but to no other rib. Cover top of stabilizer and both sides of rudder. Slit center of stabilizer, cement rudder in place.



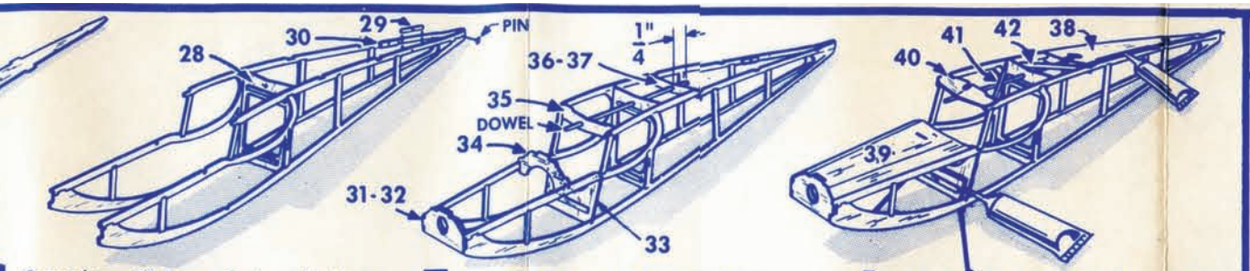

Gently brush or spray water on *fuselage only*. When dry, paper will tighten. To avoid warps, *do not water-shrink* paper on wing and tail. Brush two thin coats of clear dope on wing, tail and fuselage.




**14** Cement tail carefully in place. Look at model from front and rear for correct line-up. Straighten before cement dries. Add wheels and tail wheel. Put drop of cement on ends of axles without touching wheels. Add decals and tissue trim if desired.



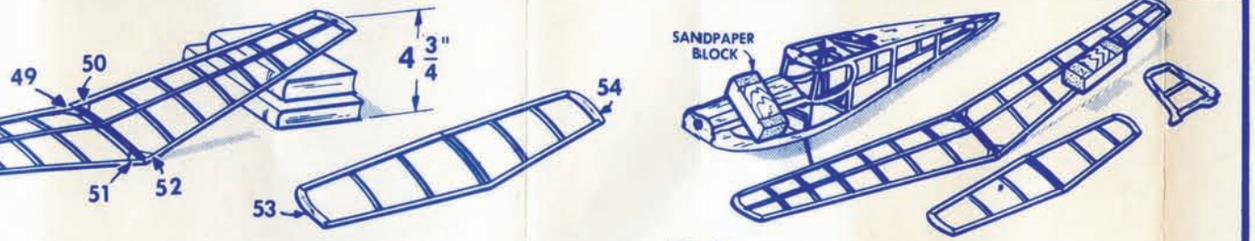

**15** Assemble propeller p Bend and cement sh Trim excess off nose.




4 Cement former 28 between fuselage sides. Very accurately cement rear of fuselage together. Add hole doublers 29 and 30 inside 5 and 16.

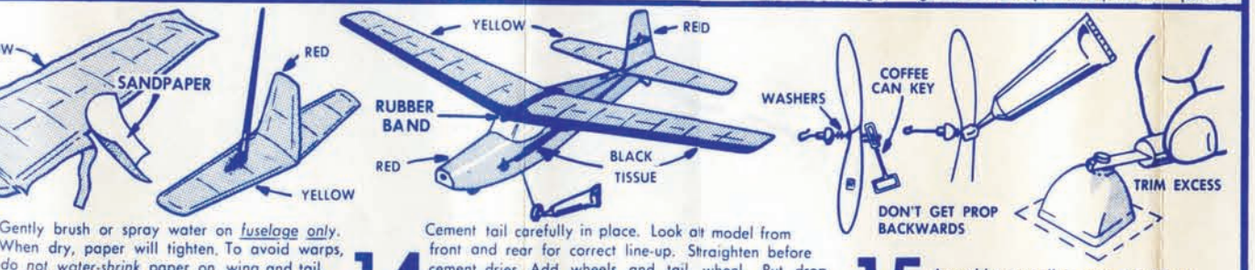
5 Cement in place all the remaining formers and long dowel. Dowel protrudes ¼" behind 36-37.

6 Set 38 in place. Lift up part of one edge at a time, and cement. Add remaining parts as shown. Cement landing gear firmly.




ends of edges and join wing halves. Add center ribs and gussets. Double ter joints. Add center spars. Assemble stabilizer similar to wing.

11 Sand all parts smooth using 4/0 sandpaper. Round off square edges on fuselage, wings and tail except where parts will join.




Gently brush or spray water on *fuselage only*. When dry, paper will tighten. To avoid warps, *do not water-shrink* paper on wing and tail. Brush two thin coats of clear dope on wing, tail and fuselage.

14 Cement tail carefully in place. Look at model from front and rear for correct line-up. Straighten before cement dries. Add wheels and tail wheel. Put drop of cement on ends of axles without touching wheels. Add decals and tissue trim if desired.

15 Assemble propeller parts as shown. Bend and cement shaft to prop. Trim excess off nose.


The Ranger 28 is a new type semi-duration model, easily capable of flights up to a minute, and sometimes much more! It's designed to bridge the gap between the all-balsa model and the long-flying contest ship. The structure takes full advantage of the latest die-cutting and interlocking ideas to make it easy to build. At the same time, by covering with paper the ship is kept light so it can climb high and soar on the slightest rising air current.


# RANGER 28

## FLYING MODEL, KIT D5

## FLIES 30-60 SEC., 300-600 FT.


| | |
|---|---|
| Wingspan | 28" |
| Length | 22" |
| Weight | 1¼ oz. |

Designed and drawn by:
Carl Goldberg
F. C. McVickar
Steve G. Coyne Jr.


CARL GOLDBERG MODELS inc.
• CHICAGO ILLINOIS


# FLYING INSTRUCTIONS

3/32" x 3/16"
TRAILING EDGE

GUSSET

2

3

4

5

6

7

WING SPAR

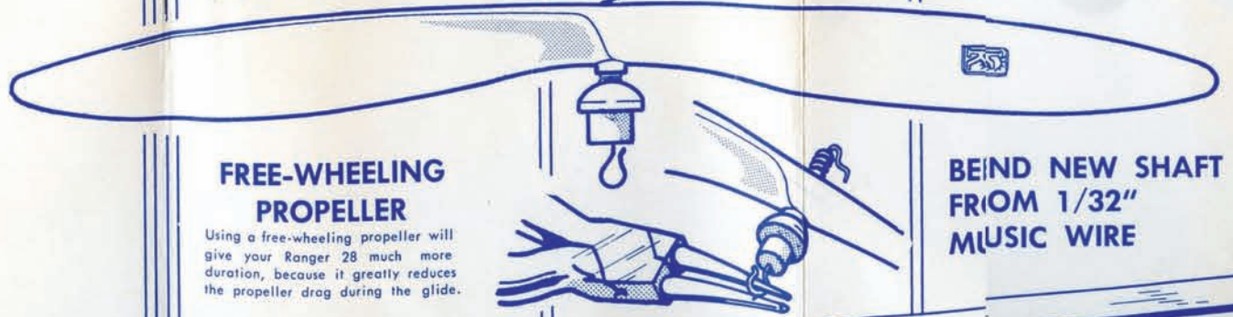
RIB

GUSSET

SPRING FROM
BICYCLE VALVE CORE

TIP

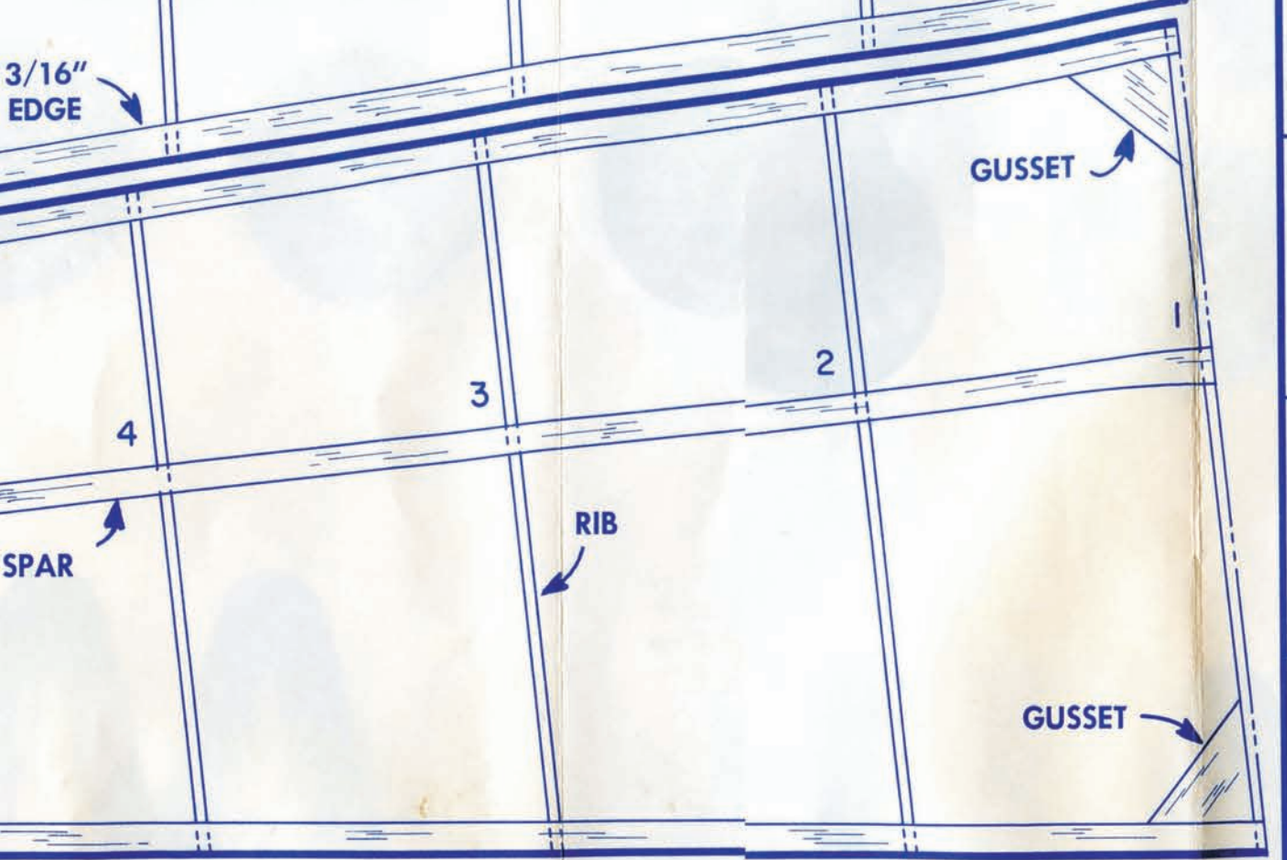
STABILIZER

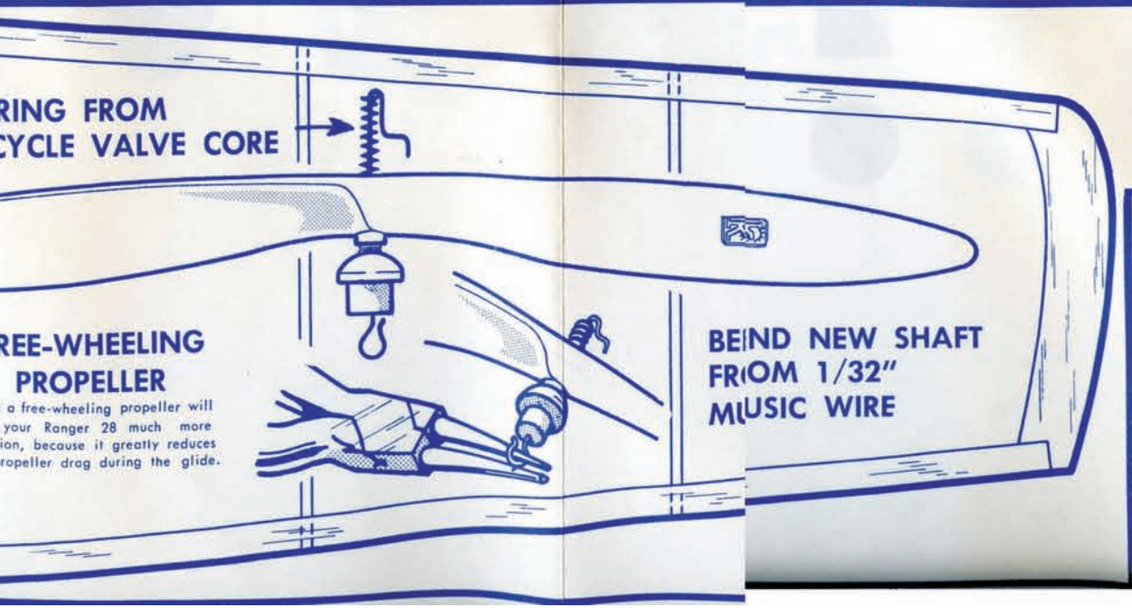


FREE-WHEELING
PROPELLER

Using a free-wheeling propeller will give your Ranger 28 much more duration, because it greatly reduces the propeller drag during the glide.

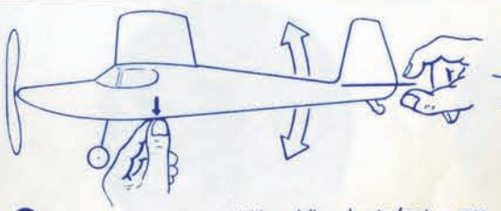
BEND NEW SHAFT
FROM 1/32"
MUSIC WIRE



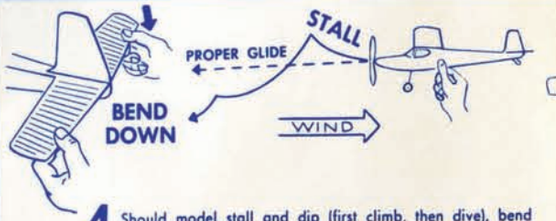


**1** Use long wire (from hobby shop, florist or hardware) to help install rubber motor. Insert dowel at rear.

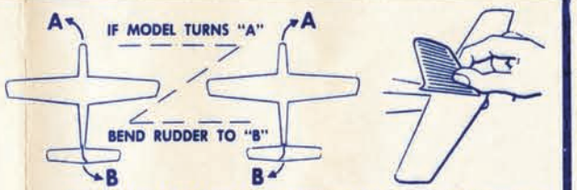


**2** Balance model as shown. Add modeling clay to front or rear to make model balance at arrow.


**3** Make test glides over tall grass. Should model dive, bend tail up a little at a time until the glide is smooth.




**4** Should model stall and dip (first climb, then dive), bend tail down a bit at a time until the glide is smooth and flat.

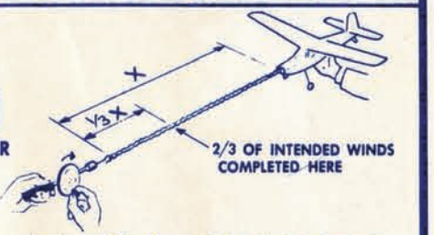



**5** If model turns, bend rudder for opposite turn in order to get straight flights. Wind motor 100 turns, and make several test flights. Make corrections for better flights by bending tail as in steps 3 and 4.

## HOW TO GET EXTRA LONG FLIGHTS!






**6** For a longer, more powerful motor, see your dealer for rubber 3/16 x 1/30 x 72". Tie the ends with a square knot. Rub castor oil into the motor so it can take many more turns without breaking. Don't get castor oil on the knot or it will come undone, and you'll have to rub dust into it to get the knot to hold.

Learn to wind with a drill, with a hook firmly tightened in place for winding. Stretch the motor 3 to 5 times its length, and wind while coming back in gradually. You should have about ⅔ of your intended number of turns by the time you have come back in about ⅓ of the distance.

Practice winding for maximum turns and power. It's best to practice with the motor outside the plane, hooked on a nail, in case it should break. You should be able to get from 600 to 750 turns. In good, calm flying weather, and with your plane adjusted to fly smoothly, this amount of turns should enable you to get long flights of 45 to 60 seconds duration. Good luck!

## YOUR SUGGESTIONS WANTED!

Modelers often have ideas for improvements. We will be happy to hear from you by post card or letter on:

1. Your suggestions.
2. What you like best about our models.
3. What three new models you'd like to see us bring out.

Be sure to include your name, age, and address so we can reply and thank you.

## HOW TO WIN YOUR PILOT'S LICENSE!

A pilot must of course study, practice and finally pass certain tests before he can win the coveted certificate. The performance standard set for your model is not difficult, but it will take some effort. So read the following carefuly.

**First,** build your model carefully and accurately, following instructions. Cement all the joints firmly. Sand the entire model neat and smooth, with rounded edges especially on the wing and tail. Keep it light.

**Second,** follow the Flying Instructions to get your model in perfect "flying trim." Get lots of practice in flying it, and learn to make small adjustments to help it fly more smoothly. Study and follow the section on How to Make Extra Long Flights. Keep practicing.

**Third,** have your model timed to see how long it can stay up. The timer can be your teacher, scoutmaster, parent or a friend, and should use a stopwatch or a sweep-second watch. When you have successfully achieved the necessary time as shown in the application, fill it out and send it in with 10c to cover the handling and mailing costs.

Within a short time (allow three weeks), you will receive a handsome certificate inscribed in your name, giving real recognition to your building and flying achievements!

**LICENSE APPLICATION**

To Carl Goldberg Models, Inc.
Chicago Ill.

I am enclosing 10c to cover the costs of handling and mailing my pilot's license. My plane, Ranger 28, had to fly at least 30 seconds to qualify. It made a flight of _____ seconds.

Timer's Signature

Name
Age
Address
City
State