# CABINAIRE


SIG

SIGFF20 CLASSIC SERIES

# BUILDING AND FLYING INSTRUCTIONS

## General Notes

Cover the plans with wax paper or plastic kitchen wrap to keep the structure from sticking to them. Hold parts in place over the plans with pins, but do not push the pin **through** the balsa pieces

Use Sig Bond or Sig-Ment for balsa wood joints.

Don't use loose scraps of sandpaper. Always glue it to a block. A 4" piece of 1" x 2" lumber makes a good sanding block.

## Fuselage

Build 2 fuselage side frames from 3/32" square at the same time directly over the plans. Separate the two frames with a razor blade when the cement is dry.

- Build one Bulkhead B5 over the plans and cut 4 additional 3/32" square spacer pieces to match the width of B5. Working over the top view of the fuselage, cement B5 and the 4 spacers between the side frames. Carefully pull the tail ends of the sides together and insert the 3/32" square spacers cut to the proper length.
- Crack the sides just in front of B5, pull them together at the nose, and cement B1 in place. Complete the nose structure as shown on the plans and then thoroughly coat the 4 cracked places with cement. Don't forget the small pieces of 1/16" square shown on the sides of B2. Sandpaper them to a smooth curve to round out the rear of the cowling.
- Cover the cowling area with the heavy paper provided. Use the pattern from the instruction sheet to cut out the top half. Cement the paper in place and trim away the overhang. Cut the bottom half to approximate fit and pre-bend it by carefully shaping it over a round pencil. After the cement is dry and the excess paper is trimmed, sandpaper the front surface of B1 flat.
- Add the supports for the rear rubber peg and other small fuselage detail.
- If you are inexperienced at covering with Japanese tissue, omit the 1/16" square stringers from the sides and top of the fuselage. Covering will be much easier and can be done in larger pieces.

## Landing Gear

- Sandwich the landing gear wire between the 2 pieces of 1/16" x 3/8" over the pattern on the plans. Before the glue dries completely, clamp the assembly tightly between two flat surfaces so the wire is actually imbedded in the wood. Cement the completed assembly into the fuselarge, glueing it thoroughly wherever it touches the framework. Add the 1/16" x 3/8" reinforcements.
- Make a tailwheel assembly, cement in place, and bind with a few turns of thread.

## Noseblock

- First, cement together the Laminating Jig as shown on the plans. Use a pin to pierce holes in two N1s, N2 and the square cutout from B1. Coat the mating surfaces with cement and slide pieces on the projecting wire of the jig, being careful not to bend the wire. Let the wire locate the pieces - don't force.
- When the glue has partially set, carefully push a couple of pins into the stack and twist the noseblock off the jig. **Don't let the assembly dry on the jig.** It may stick there permanently. Plug the nose block into the fuselage while sandpapering to the finished shape so it will match the cowling perfectly. Enlarge the shaft hole with a nail and cement eyelets in place. **Do not cement the noseblock to the fuselage.**

## Wheels And Pants

- Laminate the wheels and pants one at a time on the jig, in the same way as you did the noseblock. Sandpaper to tht finished shape when the glue is dry. Cement the eyelets in the wheels last.
- Complete the landing gear as shown on the plans. Thoroughly cement the 1/16" x 1/4" struts to the landing gear wire and pants - not to the fuselage. Two wraps of tissue will help hold the struts to the wire.

## Tail Surfaces

- Build the fin and stabilizer over the plans. Thoroughly soak the strips which must be bent, in warm water. Then bend to the correct shape over the plans, holding with lots of pins, close together. Allow to dry before cementing the other pieces in place.

## Wing

- Begin the wing by cutting 4 pieces of 1/16" x 1/8" to the length shown on the plans. Make all 4 exactly the same length and pin securely to the plans. Then build both wing halves carefully fitted against, **but not cemented to** these 4 center section pieces. Each completed wing half can be removed from the plans for sandpapering. But **do not move the center section pieces**.
- You are now ready to fasten the wing panels together. Use small blocks of 1" x 2" lumber, or something similar, to prop each wing tip 1 1/2" above the plans. Be sure the wings are **not twisted** during this operation. Now lightly cement each wing half to the ends of all the center section pieces except the one at the leading edge. That one is just for assembly help - not part of the finished wing. When these joints are dry, cement 2 pieces of 1/16" square into the notches in the top of the ribs R1. Allow to dry. Now re-glue all center section joints with another coat. Allow to dry completely before lifting your finished wing from the plans.

## Covering

- Cover all structures with light colored Japanese Tissue. Use clear dope to attach paper to the framework at the outside edges. Rounded surfaces must be covered in small sections. The fuselage covering may be shrunk with water spray and doped. The wing and tail surfaces are best not sprayed or doped because they may warp and twist. The paper will tighten over a period of time, anyway, because of changes in the weather. Dark colored tissue trim and plastic windows are applied to the completely assembled model.

## Assembly

- Never cement parts to the tissue covering. Always cut and peel away a small section of tissue to expose the bare wood.
- Cement the fin to the stabilizer as shown. Then cut a slot in the fuselage top covering to let the front half of the fin slide into the fuselage. Then slide the stabilizer onto the rear of the fuselage and cement. **Do not forget the 1/16" x 1/8" x 1/8" incidence block** under the rear edge of the stabilizer. Note that the front edges of the fin and stabilizer are not cemented to the fuselage at this time.
- Attach the wing to the fuselage with spots of glue at the intersection of the wing and fuselage members.
- Make 2 sets of wing struts over the plans. Then trim to an exact fit. **Do not twist the wings** by using poorly fitted struts. Instead, carefully tailor the strut lengths so they hold the wing in an untwisted position.

## Windshield And Windows

- Cut out the windshield from clear plastic using the pattern on this sheet. With the front and center of the winshield approximately in place, tuck the ears of the windshield under the wing and the rounded projections on the front of the cabin frame. Use large tabs of tape to hold the plastic to the sides of the fuselage. Allow the windshiel to assume a natural fit. Attach the top edges to the top surface of the wing cutout with narrow strips of Scotch tape.
- Then, one side at a time, cement the plastic to the triangular side window frames only. The plastic is not cemented to the 1/16" square V-struts or the cowling. Trim away extra plastic when the cement is dry.
- Dope Japanese tissue over the window frame cutouts on this sheet and then cut them out. Be sure to make a right and one left. Cut side windows from clear plastic and carefully cement to the frames. Then neatly cement these assemblies in place on the fuselage.
- Slide the propeller shaft through the noseblock, bead, and propeller, with rounded boss of the propeller next to the bead. Bend over the projecting end of the shaft as sharply as possible.
- Tie ends of rubber strand with a square knot. Wet the knot with water before pulling it tight. Hook the rubber band over the prop shaft, drop the rubber into the fuselage, and slide the dowel throught the loop at the rear end.

## FLYING YOUR SIG CLASSIC

Now you are ready to fly your plane, and FLYING is what the Sig Classic models are designed for. Most models as realistic looking as your Classic make poor flyers. They're often tricky to adjust and clumsy in the air. But Sig's Classic kits give you three important features that assure you of successful flights:

1. A PROVEN flyable design.
2. A reliable way to make flight adjustments.
3. Complete flying instructions.

Read and follow these instructions carefully. They are the key to satisfying flying.

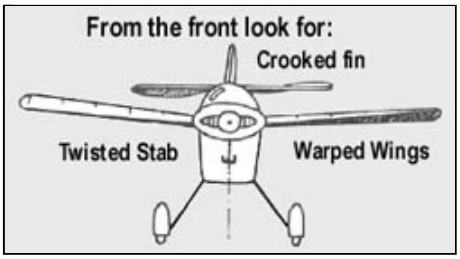
### Testing And Adjusting

You have invested a lot of time and effort in building your model, don't waste it all now with careless testing. Most models fail to fly because of poor adjustment, not poor craftsmanship. Be as careful in your testing as you were in your building.

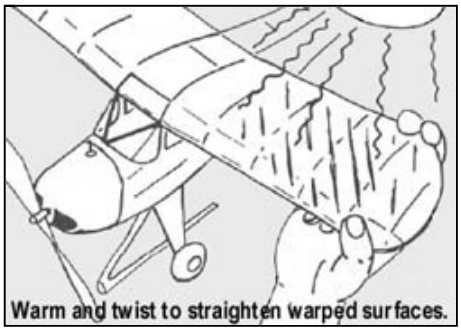
Every model is a little different and needs its own special set of adjustments. Contest winning flyers make dozens, even hundreds, of test flights "trimming" a model for best performance. So don't give up if your first flights aren't perfect.

### Preflight Preparations

Before you leave the workshop for the flying field, take these important steps.



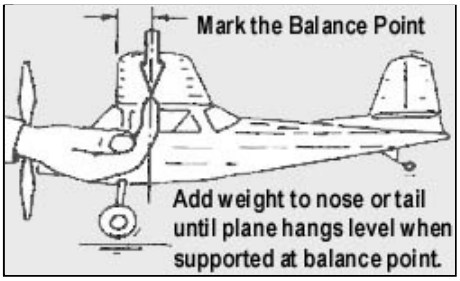

Looking from the front of the model, check that the bottom of the wing and tail surfaces are flat - not twisted. Sight down the center line of the fuselage as shown in the drawing. Right and left wing should look alike; you shouldn't see the top of one wing and the bottom of the other. The fin should point straight ahead, and the stabilizer should be flat. (This does not mean that the stabilizer and the wing sit on the fuselage at the same angle. The wing will be tilted upward more than the tail).




A model can be made to fly with twisted surfaces, but it's confusing to adjust and if the warps change from day to day, you can't detect it. The drawing shows how a surface can be straightened by twisting it in the desired direction while holding it under a heat lamp or other electric heater. Work with it until it is as flat as possible. If your wing has struts, loosen them before bending and re-cement them afterward.

The correct "Balance Point" for your ship is shown on the plans. Mark this point on the bottom surface of each wing. When supporting your plane on your finger tips at these points, the fuselage should hang level. See the drawing. Add weight to the nose or tail until it DOES hang level. Don't be afraid to add the necessary weight. CORRECT BALANCE IS MORE IMPORTANT THAN LIGHT WEIGHT.

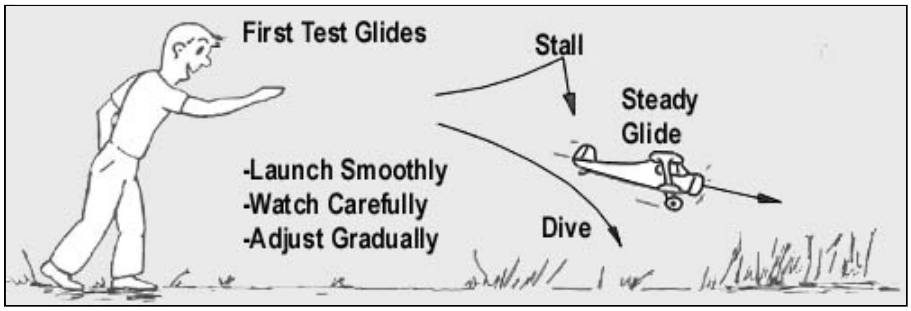
Modeling clay makes handy balancing weight - it can be pressed permanently in any corner. Wire solder or BB shot can be used by cementing in place.




If one blade of your propeller always swings to the bottom, a tiny smear of clay on the other tip will improve the prop's balance and reduce vibration.

## Power-Off Tests

A rubber-powered model is adjusted in two steps. First, the tail surfaces are adjusted to produce a good glide. Then the propeller assembly is adjusted to give a smooth, powered flight. Wait for a calm day.

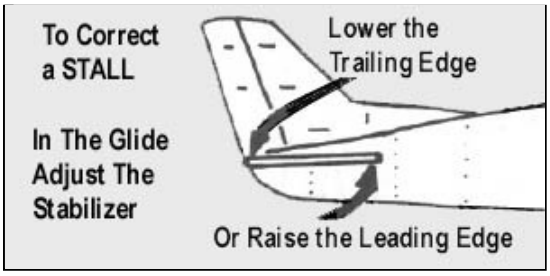


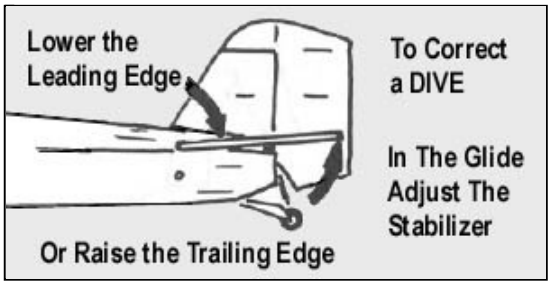

Begin by gliding the model from your hand into a patch of tall grass. Grasp the ship by the fuselage near the balance point, and aim the nose at a spot on the ground about twenty feet in front of you. Launch the ship forward about the way you would a paper dart airplane, nose down.

Your goal is a steady glide to the ground, moving at a CONSTANT SPEED, and travelling straight ahead or turning gently. You will find the trick is to launch the model at its natural speed and glide angle. If the glide is poor, it can mean that the ship needs adjustment or that you need more launching practice. So try several launches before deciding on adjustment changes. When your ship acts the same way on each launch, you can be pretty sure that you are seeing its true characteristics, and not just a poor launch.

## Stalling

If your plane noses up, LOSES SPEED, and then falls clumsily or dives, that is a STALL. To cure a stall, adjust the angle of the stabilizer by changing the thickness of the incidence block under it. Lower the front edge or raise the rear edge. See drawing. But make SMALL changes - 1/32" at a time. If a change of more than 1/16" is needed, go back and perform the Preflight checks again. It's likely your Classic is incorrectly balanced (tail-heavy) or the surfaces are warped.



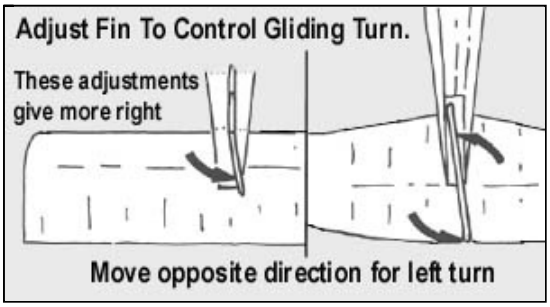

## Diving

A model that darts quickly into the ground without swooping or stalling, is diving. The dive can be cured by adjusting the stabilizer in the direction shown in figure 5 (in 1/32" steps). Here again, don't change the height of the incidence block more than 1/16" without first re-checking the Pre-flight steps. Warps or nose-heaviness may be causing the dive.

## Turning

A plane that glides in a straight line takes a lot of flying space and a lot of chasing, so it's best to adjust the glide for a slight turn. The plans for your model will tell which direction.

The size and direction of the glide circle can be controlled by adjusting the fin. The drawing shows adjustment for a right turn. Moving the fin opposite, of course, gives left turn.



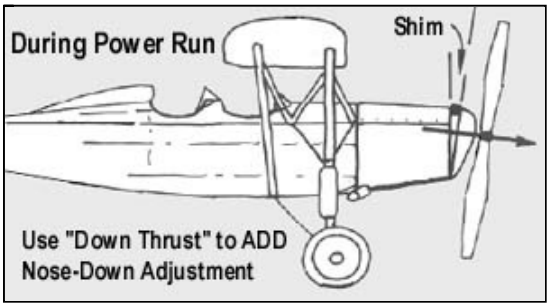

Small changes in fin setting can be made by bending the surface. But if more than 1/32" or so of change is required, cut the fin loose and re-cement it at the desired angle. When the glide is smooth and steady, you are ready to go on to powered tests.

## Power-On Flight

ALL ADJUSTMENTS TO THE "WOUND UP" PART OF THE FLIGHT ARE MADE BY POINTING THE PROPELLER AND NOSEBLOCK IN THE DIRECTION YOU WANT THE PLANE TO GO. This kind of adjustment affects only the powered flight, and will not upset the glide pattern you have developed.

Now - wind the propeller 150 turns and launch your Classic into the wind with the same motion you used in glide testing. The model should cruise steadily forward, turning in the desired direction, and gaining or loosing altitude gently.

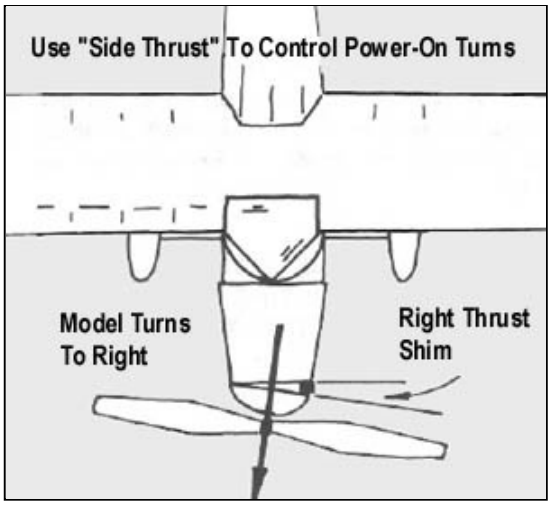
If your ship tries to climb, but loses speed and stalls, point the propeller downward by slipping a scrap of 1/32" balsa or a paper book match between the top of the noseblock and the front of the fuselage. The wedge is called a "shim" and the adjustment is called "downthrust". Downthrust is illustrated in the drawing.




It's not likely that your plane will dive on first power flights, but if it should, put the shim at the bottom of the noseblock, tipping the propeller upward (upthrust).

Downthrust is the "magic adjustment" that can make experts out of beginners. Learning to use it is the most important part of your test program.

Increase or decrease the amount of downthrust (by changing the thickness of the shim behind the noseblock) until power flights are smooth and free of stalling with 150 winds in the motor. Don't wind the motor any tighter until the lower-powered flights are under control.




## Power-On Turns

Because of the effects of the rotating propeller, models usually turn better in one direction than the other. Your plans will say which way to circle.

Don't circle any tighter than necessary. Circles smaller than about 50 ft. diameter are tricky. If you have plenty of flying space, turns can be as large as you like.

The drawing shows how side thrust is used to control power-on turning. Making small changes, 1/32 at a time, adjust downthrust and sidethrust together to produce smooth flights on 150 winds.

You may notice that turning to the right tends to hold the nose down-right thrust acting a little like downthrust. If your plane begins to circle so sharply that it loses altitude in a steep bank, reduce the amount of sidethrust until the turn opens up to a safer size.

## Longer, Higher Flights

When your Classic is flying smoothly with 150 turns in the motor, wind to 175 and try it. Make any necessary noseblock adjustments, and then wind to 200, and so on. The safe number of turns that your motor will stand is shown below.

| Rubber Motor Winding Chart | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Length of Loop 1/4" | | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Safe Number of Turns | Hand Wound | 180 | 200 | 220 | 235 | 250 | 270 | 290 |
| | Stretch Wound | 440 | 485 | 525 | 570 | 615 | 660 | 700 |

A plane's weight determines how much power it needs. If your ship is huskier than average, it may not climb, even when fully wound. In that case, add one strand (not a complete loop) of 1/8" Sig rubber to the motor. Tie an eye (like a slip knot) in each end. This will provide the extra horse power needed for higher climb.

Whenever you add rubber, re-balance your model as outlined in the pre-flight instructions. Additional rubber tends to make a plane tail heavy.

## Take-Offs

When your Classic has been adjusted according to instructions, it should have no trouble taking off by itself from a smooth surface. No adjustment changes should be necessary. You may find that take-offs are better if you release the ship pointed at a slight angle to the wind instead of headed straight into it. Experiment to find the best system.

## Rubber Motor Hints

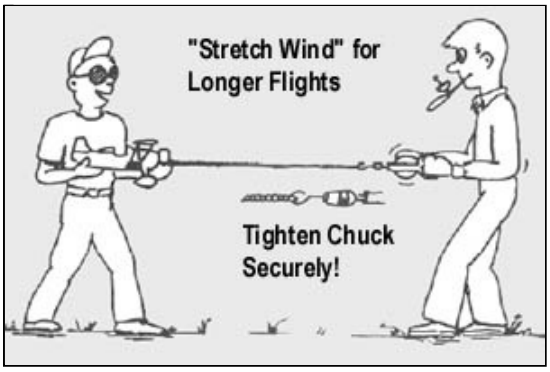
The rubber motor in your Classic kit will safely give you a whole season of flying if you stick to the chart. "Hand Wound" means winding the propeller with your finger while the rubber is inside of the fuselage. "Stretch winding" is a more complicated two-man operation, but gives longer flights.

Before a motor can be safely stretch wound, it must be lubricated. Rub a few drops of Sig Rubber lubricant into the rubber (AFTER the knot has been securely tied). Use just enough to make the motor barely damp. If it's too juicy, it will splatter all over the inside of the fuselage. Next, make a strong wire hook, like a teacup hook, and lock it VERY TIGHTLY in the chuck of a hand drill.

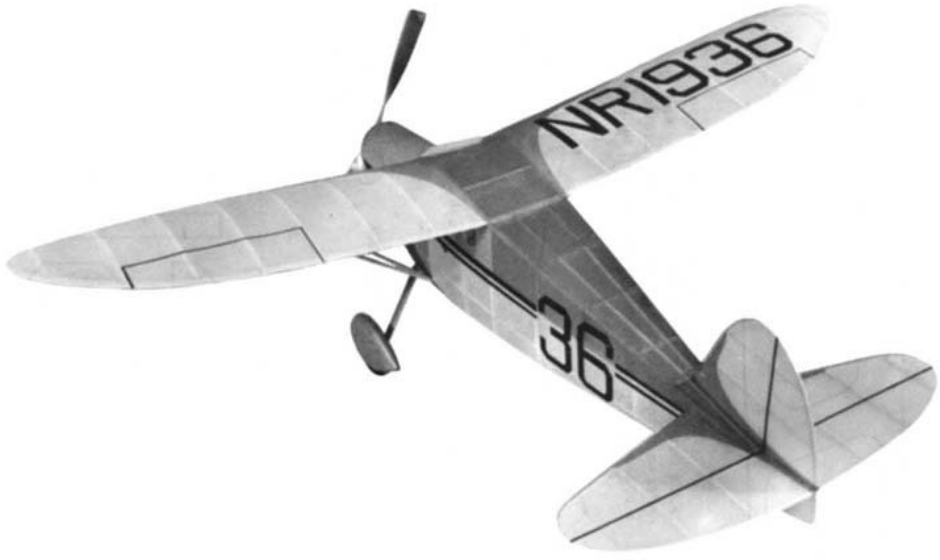
Then, while your helper holds the model by the rear rubber peg and the cowling, stretch the motor out the front of the model to about twice its normal length, unhook the propeller, hook up the winder, and wind while slowly walking back toward the plane.

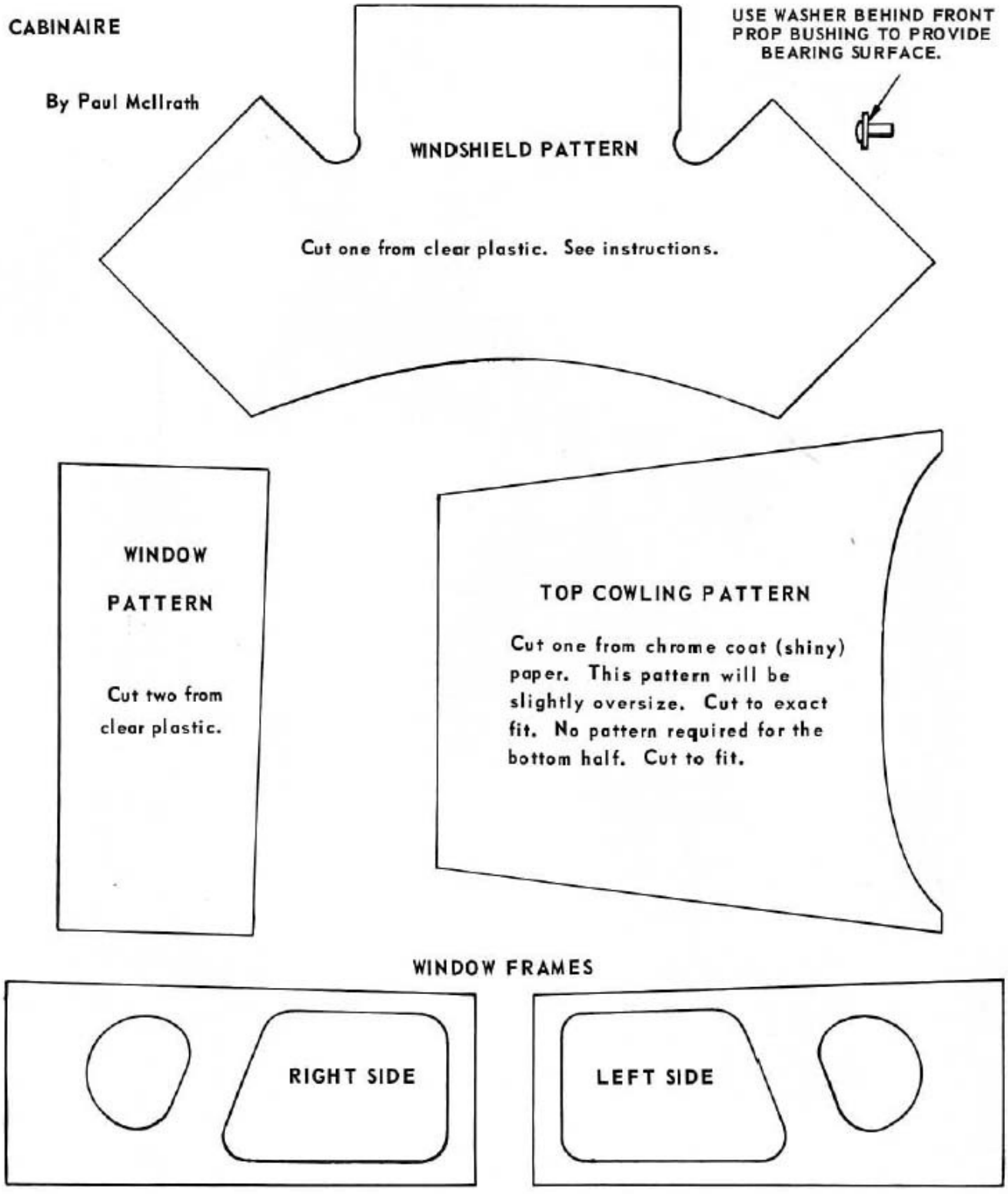
All the models in Sig's Classic series have been carefully designed and flight tested to assure flying ability. Hand wound, you can expect flights of 10 to 25 seconds and stretch wound, 20 to 50 seconds. Like model builders, some of the designs have more ability than others, but all are proven dependable flyers.

A Classic flying model is not a ready-to-fly toy. Your skill in building and flying DOES make a difference. So whether your flights are short or long, you can be proud of completing a job which was successful because of your own effort and ability.

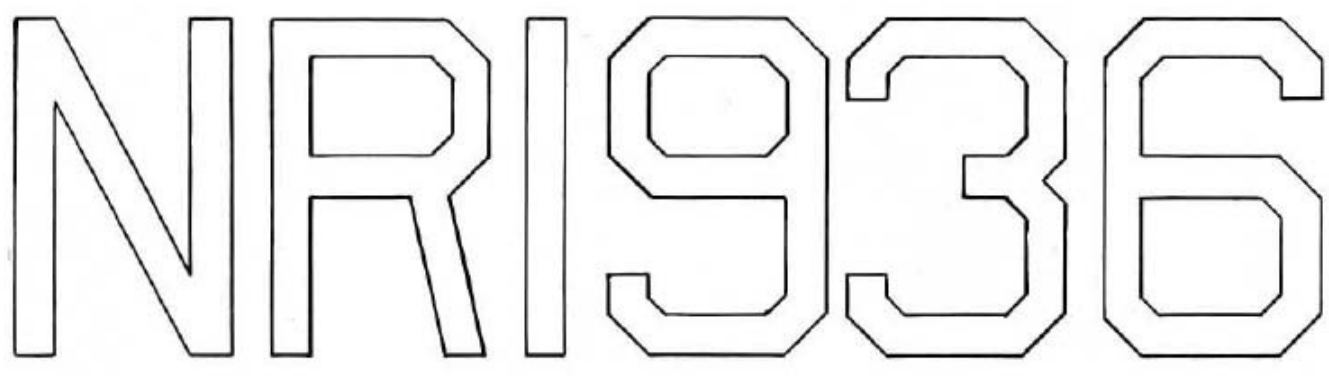



**Good Flying!**



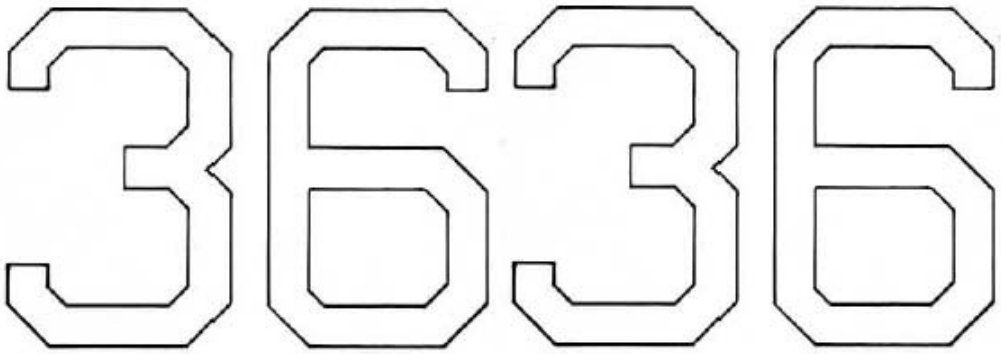



Cut two window frames, one right and one left, from this sheet or from typewriting paper




1 – NR 1936 required.
2 – 36 required.

Cut the licence numbers from tissue. Tape tissue to a cardboard backing sheet Tape paper pattern on top of the tissue. Cut out numbers with a sharp razor knife and straight edge. Fasten to model with dope.




SIG MFG. CO., INC. is totally committed to your success in both assembling and flying the Cabinaire. Should you encounter any problem building this kit or discover any missing or damaged parts, please feel free to contact us by mail or telephone.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|---|---|---|
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| | SIG MODELER S HOTLINE (for technical support) | 1-641-623-0215 |
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