

CURTISS JENNY - BUILDING INSTRUCTIONS

This model Curtiss Jenny duplicates the fine performance of the real aeroplane. Whether you decide to power your model by rubber, CO2 or electric you should strive to build it as lightly as possible.

The following tools and materials will help in building:-

1. A flat, soft wood building board for a working surface, about 1' x 2'.
2. Plenty of straight pins.
3. Plastic food wrap or candle.
4. Pliers, long nose type are best.
5. Modelling knife.
6. A steel ruler.
7. Balsa Cement or Cyanacryltye glue.
8. Tissue paste.
9. Clear dope/thinners.
10. Epoxy glue
11. Sandpaper (medium).

It's a good idea to read through the instructions a couple of times to familiarise yourself with the construction. Cut out all of the parts from the printed balsa sheets and store them safely.

FUSELAGE

Lay the plan on the work board and cover with plastic wrap or rub with a wax candle to prevent the structure from sticking to the plan.

Begin by constructing the fuselage sides directly over the plan, one at a time using pins to hold the parts in place while the glue dries. Pin down the 1/16" sheet fuselage side piece and the rubber motor support brace X (delete if model is to fly CO2 or electric).

Complete the side by pinning and gluing all the 1/16" sq. longerons and uprights into position on the shaded portion of the plan. Note that the rear post is 1/16" x 1/8" strip.

When this structure is dry remove from plan and build another identical side.

Join the two sides together by gluing in place between them F2, F4 and F6, making sure that the sides are parallel and that they are at the same level at the nose and tail.

Chamfer the inside faces of the fuselage at the rear, (as shown on the top view) and pull the two fuselage sides together, gluing and holding with a clothes peg until dry.

View from above to ensure the structure is symmetrical and that you haven't constructed a balsa banana!

Cut out the centres of the two F1's according to your chosen powerplant (see engine installation sheet), glue together and glue into position to the front of the nose (you will have to chamfer the underside of the F1's slightly).

Now add the remainder of the formers F3, F5, F6A, F7 and F8.

Add the 1/16" sq. fuselage cross-braces, marked on the side view with black squares.

Glue into position the 1/16" sheet skid plate and 1/16" sq. rear stringer support.

If you intend to fly your Jenny CO2 or electric, drill the relevant ply engine mount and glue into position shown on the engine instruction sheet. Now install your chosen power plant.

Using pliers, bend to shape the two wire cabane strut braces, epoxy and bind with thread to the position shown on the plan.

With a brown felt pen or pencil colour the instrument panels, cut from the plan and glue to F3 and F5.

Now sheet-in the curved top deck between F1 and F6A using 1/32" sheet. Make a paper template first, then trace this on to the 1/32" sheet provided, glue in place and cut out the two cockpits.

Glue the seven 1/16" sq. stringers in place.

Glue to the balsa cabane struts to shape from 3/16" x 1/16" strip provided, seal the grain with a couple of coats of dope and glue to the wire as shown (cut slots in the top-deck as required).

Using pliers again, bend the wire undercarriage to the correct shape. Cut the wire axle to length and either solder or epoxy and bind with thin fuse wire into position shown.

Using plenty of epoxy, glue the undercarriage firmly into position. You can reinforce the undercarriage by gluing a scrap of 1/16" sheet over the wire creating a 'sandwich' effect.

Fill in with 1/16" sheet the lower forward portion of the fuselage from F1 to the position shown on the plan between F5 and F6. Don't forget to cut out the slots for the rear undercarriage legs.

Cut from the plan and glue to F1 the paper radiator pattern, then glue the 1/16" surround over the top-round of the top and sides of the radiator with sandpaper as shown on the plan.

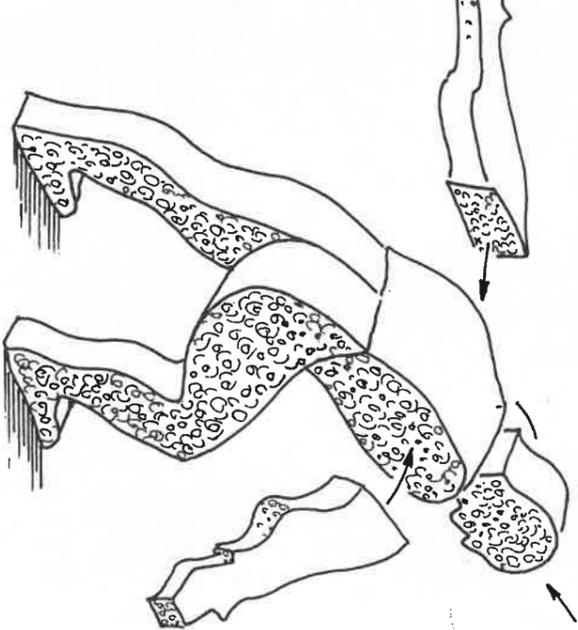
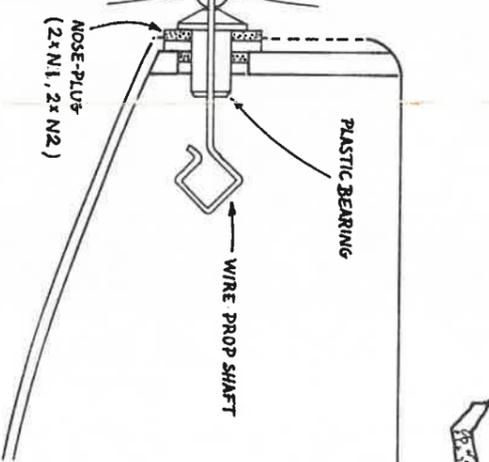
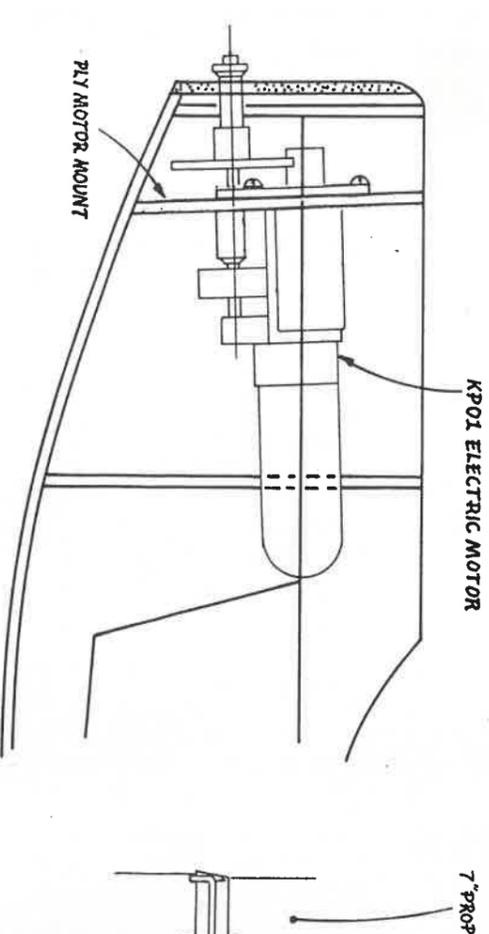
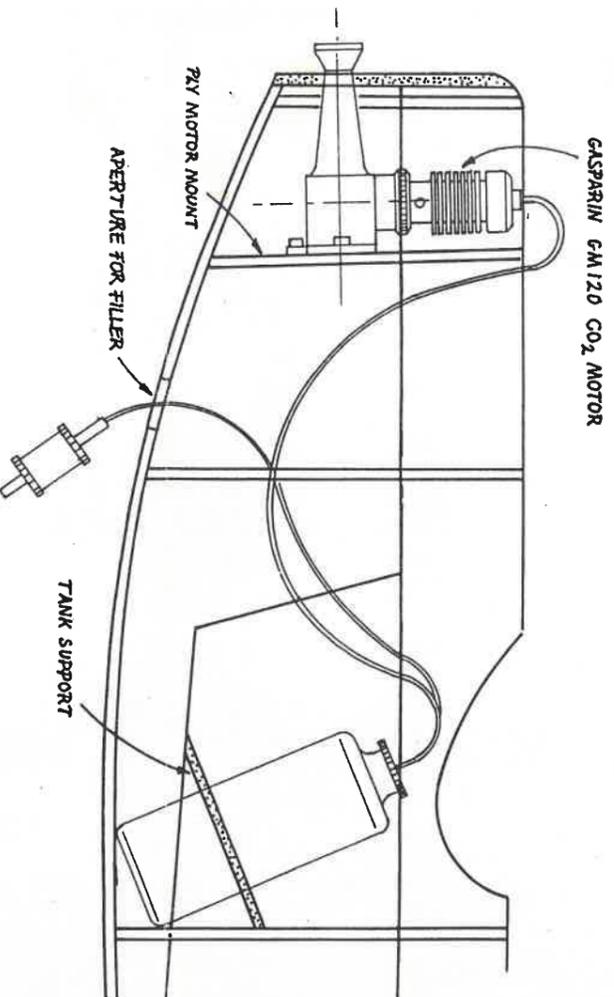
secure to the axle with a blob of epoxy. Paint the tyres light grey. The undercarriage should be free to flex back.

Add the remaining details such as rear skid, windscreens, tail struts, wing tip skids and engine details from scrap balsa.

FLYING

Do not attempt to fly your Jenny unless you have checked the following:

1. The model **MUST** balance at the position shown (add weight to nose or tail as required).
2. Check that you have enough downthrust.
3. The wings must be free from warps.



TAIL SURFACES

The tail surfaces are built directly over the plan, in a similar manner to the fuselage sides. Use parts R1, R2 and R3 as well as the strip wood specified for the fin and rudder. Build the fin and rudder separately, they are to be hinged together at a later stage.

The tailplane and elevator should also be built separately with parts T1, T2 and T3 and the relevant strip wood.

WINGS

Study the plan of the wings carefully, try not to be put off by all those ribs!

Both of the right and both of the left wings are built directly over the plan. The parts for the bottom wing are shown in dotted lines, note they are shorter and that the strut attachment points are different.

Build the top wings first:

Cut to length strips of 1/4" x 1/16" trailing edges and cut the notches for the ribs, pin to the plan. Cut to shape the 1/4" x 1/16" tip pieces, glue to the trailing edge and pin to the plan. Glue and pin in place W7, W2, W3 and W4 holding down with pins where necessary. Use the template to set angle of W1.

Cut to shape and glue the 3/16" x 1/16" top spars into the notches in the top of the ribs. Glue the tip gussets W8 into position.

Select the hardest strips of 1/16" sq for the leading edges and glue into position in the notches at the front of the ribs. Finally cut to shape and notch the 3/16" x 1/16" strip strut attachment points, glue into position flush with the bottom of the ribs.

When dry remove the wings from the plan and build the two lower wings in a similar manner. Note the tip pieces shown dotted on the plan are cut from the printed sheet wood (W5 and W6). Remember to tilt the rib W1 again with the aid of the template. The strut attachment plates are glued flush with the top of the wing this time.

Consult the top of the plan for details of the top skid plates (scrap 3/16" x 1/16").

CENTRE SECTION

The centre section is built over the plan and is easy to construct. Chamfer the front edge of the 1/16" centre section sheeting (see section through A-A), glue the two centre section ribs into position and add the leading edge.

Glue the top wings either side, cementing the ribs and spars securely to the centre section and raising the tips 7/8" each side.

Glue the 3/16" x 1/16" web to the front of the spars on the centre section. Cut to shape and glue the 1/32" top sheeting into position.

Sand the entire structure smooth to eliminate all rough edges and bumps that may show through the tissue covering.

COVERING

In general the grain of the tissue should run lengthwise to the component being covered. The Jenny, like many early aircraft is easy to cover as there are very few compound curves.

Use tissue paste or your favourite medium for bonding the tissue to the airframe using adhesive only on the outlines of the panel being covered.

When dry, spray the tissue with a light mist of water to tighten it (it is a good idea to pin the wings and tail surfaces to your building board while the water dries - this prevents warps from creeping in).

When dry give the tissue a coat of dope. You may wish to thin the dope to save weight.

Hinge together the elevators/tailplane and rudder/fin use short strips of thin metal (beer can is ideal) slit the wood and glue the hinges in place with cyanacryltye glue, joining the two surfaces. Glue the tail surfaces in place on the fuselage.

ASSEMBLY

If you wish to paint your model do it now as it will be very difficult once the aircraft is assembled.

The 'Barnstormers' colour scheme shown on the box is fictitious but entirely captures the character of the post war flying circususes. You can leave the tissue its natural colour or give it a light spray coat of cream paint with an airbrush. Paint the top deck brown.

The US Army version is olive drab overall, with white serial numbers on the fuselage and US insignia on the wings. Glue the top wing on the cabane, you must have 21/2°-3° positive incidence in relation to the top fuselage longeron (i.e. the leading edge should be slightly higher than the trailing edge). Check that the wings are level from the front and from above.

Now glue the bottom wings in position (11/2° positive incidence). Using 1/4" x 1/16" balsa strip cut to shape 4 forward and 4 rear wing struts. Seal the grain with a couple of coats of dope and glue in place between the wings.

Complete the undercarriage by epoxying into position the forward 3/16" x 1/16" struts to the outside of the wire. Add the 3/16" x 1/16" spreader bar. Drill the ply rear strut and slip over the axle. Glue together the two wheel halves, drill and

Test glide the model over long grass on a calm day. (If your model is rubber powered take off the prop and rubber and temporarily re-balance with clay). Aim for a nice flat floaty glide. Any tendency to stall can be corrected by slight down elevator or if a dive is present, up elevator.

When satisfied try some power flights, any stalling under power can be cured by adding more downthrust. If the model tries to bank in to the left try some more right thrust.

Trim the model to fly left hand circles using the rudder, you may need to add a small tab to the left wing and bend it down - this will help keep the left wings up and stop the model spiralling into the ground.

Remember, take your time when trimming and observe the flight pattern carefully. You may need to try a combination of the procedures above to obtain a stable flight path.

ENGINE INSTALLATION

CO2: Epoxy the CO2 engine mount into position. Incorporate about 3° down thrust and 2° right thrust. Glue the CO2 tank support into position. Cut a hole in the lower sheeting to allow the filler nozzle to be pulled through. The paper radiator pattern is cut away when engine needs to be removed. Cut out the centres of F1's.

Electric: Epoxy the ply mount into position with 3° right thrust and 3° down thrust. Glue the paper radiator pattern into position after cutting the large holes from the middle of F1's.

Rubber: Make up the nose-plug from parts N1 and N2 (2 of each). Insert the plastic bearing and fix the prop to the wire prop shaft, bending over the end. Cut out the small square holes in the two F1's. You will need to add about 1/32" down thrust and probably some right thrust. (See flying instructions). This should be done by adding thin pieces of wood behind the nose plug. The the rubber in a loop. The power required is directly related to the weight of the model.

FOAM WING-WALKERS

Yes, this model will fly with wing-walkers on its wings! - although performance is affected. If you do attempt to carve these, white expanded polystyrene is best, (the type that electrical appliances are packed in) they only weigh about a gramme each and can be painted with enamel or oil paints. They should be 1/20th scale.

Additional reference is recommended, and don't forget to attach them to the wings with thin pins glued into the feet, and pushed into rib W4, so that they can fall off in the event of a crash, otherwise you will end up with a pair of feet stuck to the top wing!