

CHAPTER TWO - ENGINE NACELLE

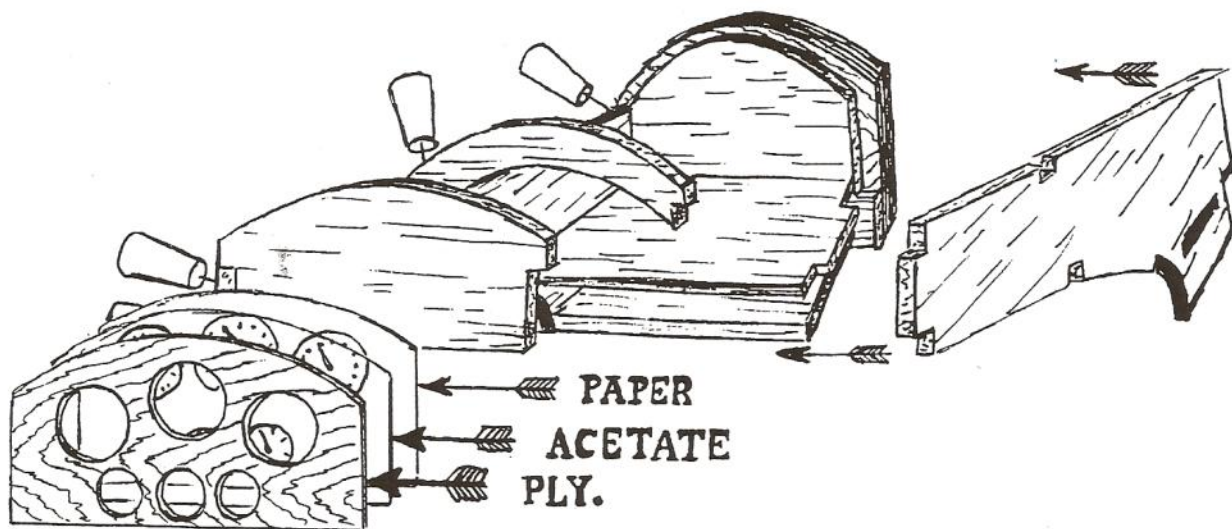
BUILDING SEQUENCE

The building sequence is important on the Speedy Bee, because you need to have the wing built first. I recommend that you follow the building sequence in this instruction book. However, it doesn't matter when you build the tail, just as long as you do build it, as I don't think the plane will fly without it. But you are welcome to try and prove me wrong - send an in-flight photo please!

ENGINE NACELLE

Make the firewall by laminating the two 1/16" plywood **NF1** parts together using epoxy. Then glue **NF2** to the firewall. The gas tank shelf should now be fitted into the locating slots of the 1/8" nacelle sides. Now pin the firewall **NF3** and the nacelle formers in place panel in place between the nacelle sides. Make sure the nacelle fits on the wing before you dribble thin CA into all the glue joints. Use two layers of flexible 1/16" sheet balsa for the nacelle top sheeting. After the nacelle has been covered, the instrument panel can be installed.

Use white glue to glue the the paper instrument panel **IS** to **NF4**. Then carefully glue the clear, .010 thick acetate (part **IG**) over the paper instrument panel. Make sure that you don't get any glue on the instrument dials. Now glue the 1/32 plywood face plate on top of the acetate, again being careful not to get glue on the instrument dials.



CHAPTER THREE - FUSELAGE

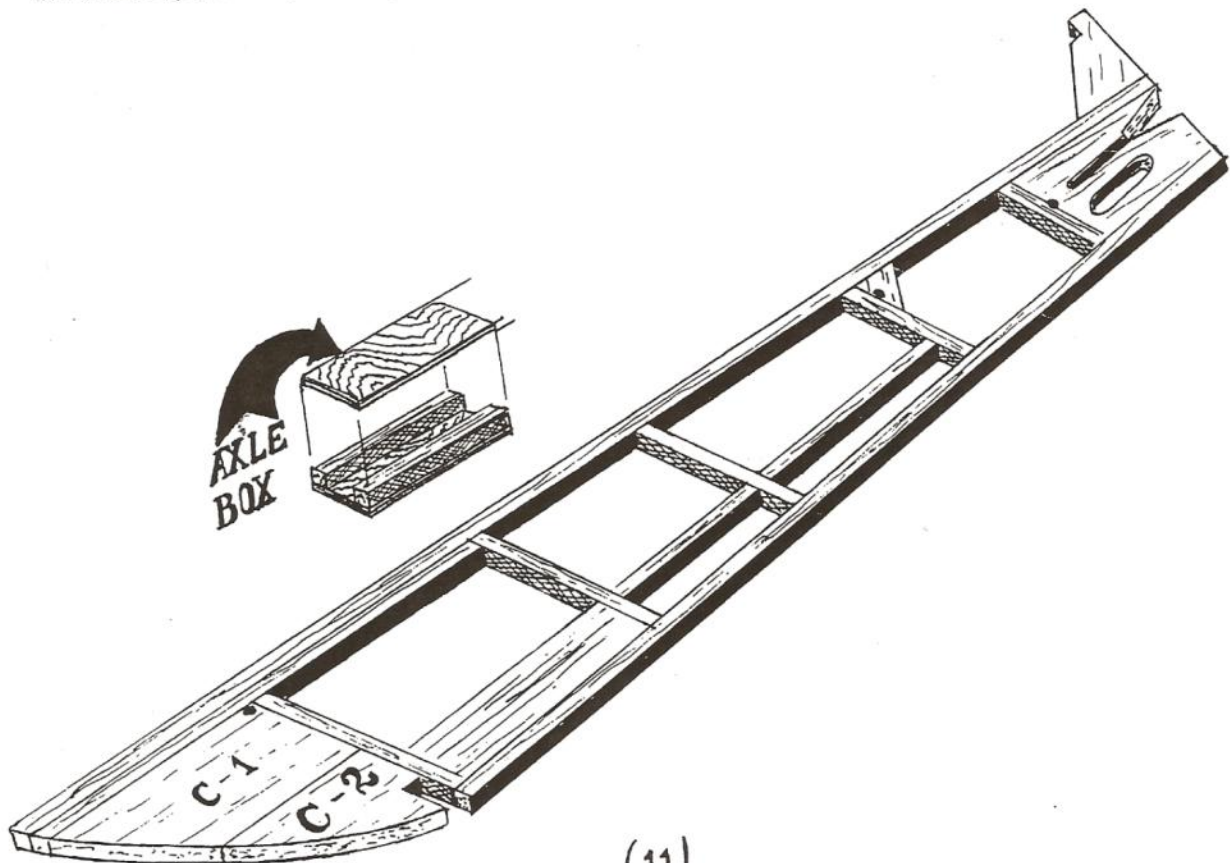
STEP ONE

The first fuselage side frame is built over the side frame drawing on the plans. Do NOT use the side view of the fuselage, because the side view shows the *projected* length of the side frame in the completed fuselage. This length is shorter than the actual side because the sides are curved.

Cut all sticks to length for both side frames at the same time. Build the first side frame, then *remove* it from the plans, and flip it over. Now build the second side frame over the first side. Be sure to flip the first side over, or you may make two identical sides instead of a left side and a right side. Before you separate the two finished sides, drill the holes for the wing, rudder, and stabilizer dowels.

Now notice that the glue bumps tend toward the side of each frame that was facing the plastic wrap on your building board. The sides with the glue should face inwards on the plane. Carefully sand the outer side of each side frame.

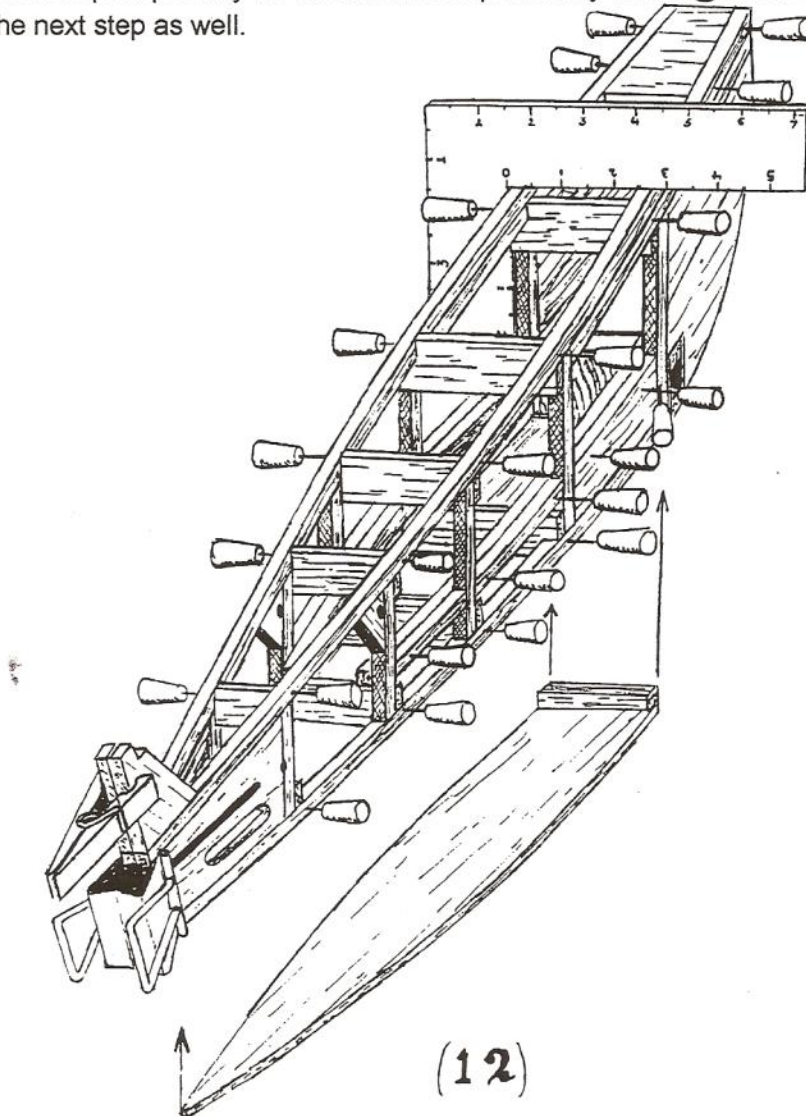
Assemble the axle box. First cut, then epoxy the two hard balsa sticks to the first plywood part and let dry. All the inner surfaces of the axle box should be coated with epoxy before the second plywood piece is glued into place.



STEP TWO - BOXING UP THE FUSELAGE

Start by getting a helper. Glue the stick to the belly sheet. Then clamp both sides frames together at the tail post. Before the pre-cut cross members are pinned in place, you need to realize that the pre-cut belly sheet fits between the lower fuselage longerons and NOT below them as is the normal practice. The bottom cross members are cut undersize to allow for the bottom sheeting. Also, take notice that some of the cross members are forward or aft of their uprights.

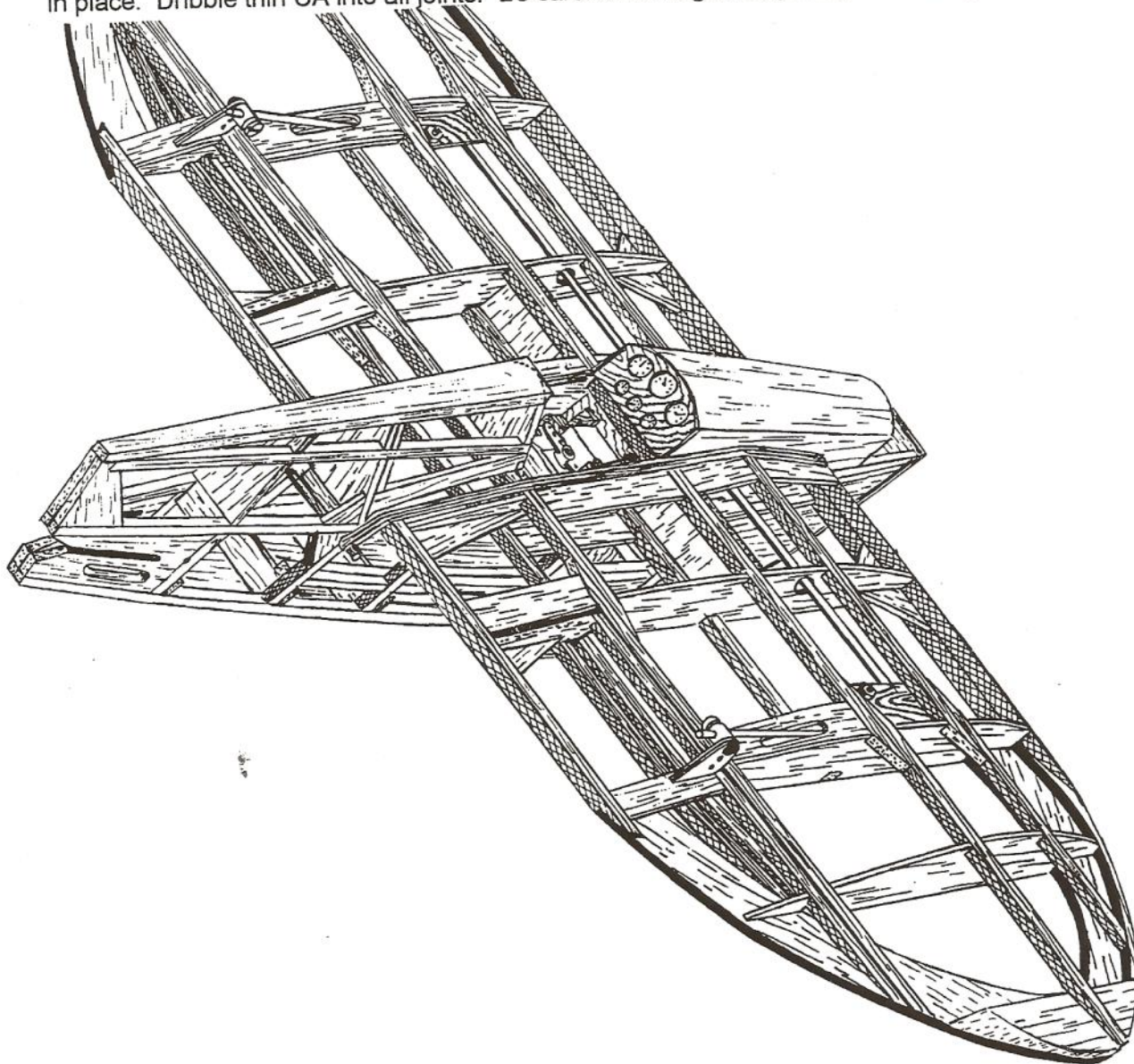
All the cross members, the axle box, and the belly sheeting should be pinned in place. Before gluing, check each of the cross sections for squareness, then glue them in place. In addition to the pins, rubber bands may be carefully stretched around each station if difficulty is caused by longerons springing the pins loose. You'll have to get the bottom sheet in position before rubber bands are used. Next, sheet the bottom of the nose with two layers of 1/16" sheet balsa (crossgrain). I would be pleased to learn that there was no swearing during this step, especially no curses aimed specifically at the @\$%&#! designer. This applies to the next step as well.



STEP THREE

Once the fuselage has been boxed up, the wing should be installed before building the turtle deck. This will be built in one piece and the front part will be cut away after the assembly. This will be glued to the wing after covering.

All turtle deck formers require beveling on top before they are pinned in place on the wing and fuselage. Next, the spine, which is a pre-cut 3/16" balsa part, should be marked where the formers touch it and then pinned in place on the assembly. The top of this part will be round. You may want to shape it before you pin it in place. Pin the remaining parts in place. Dribble thin CA into all joints. Be careful not to glue anything to the wing.

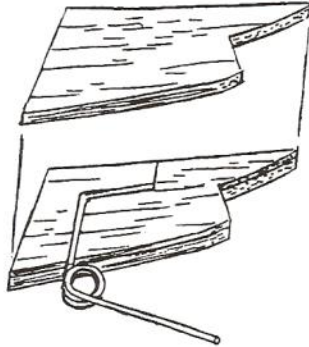


CHAPTER FOUR - TAIL FEATHERS

BUILDING THE RUDDER

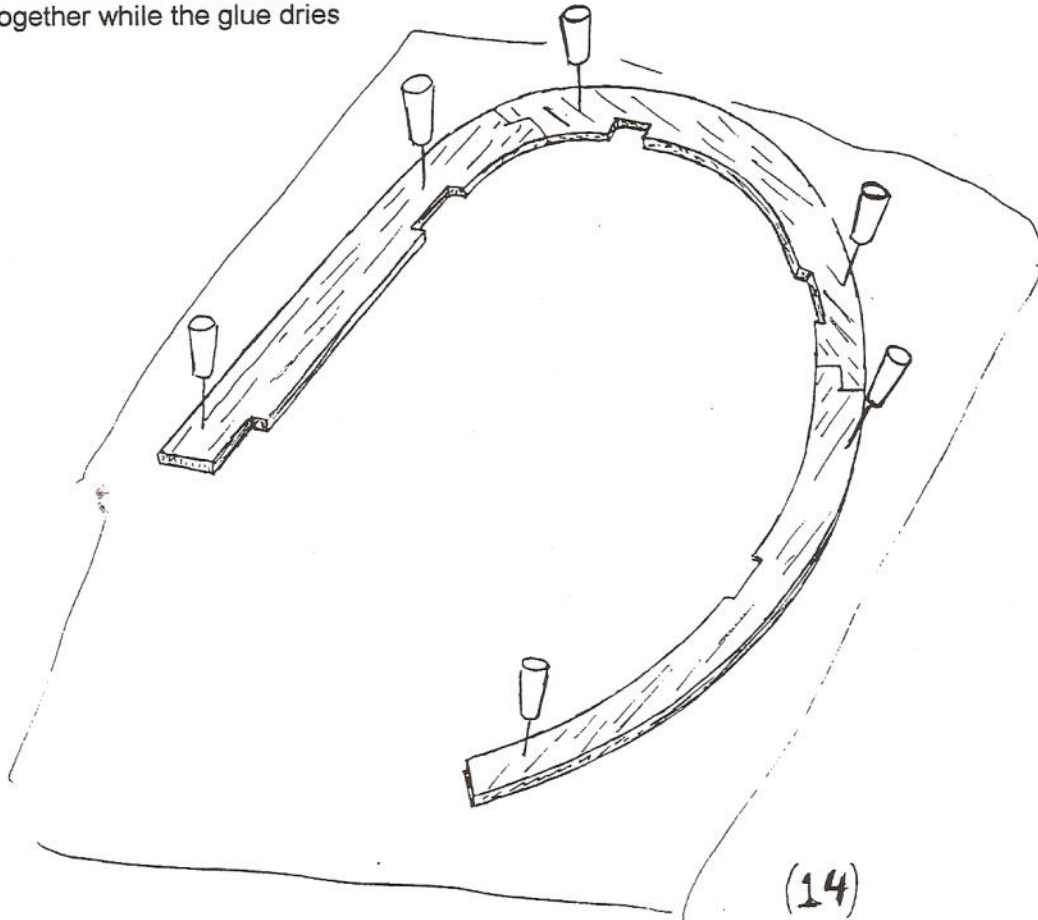
STEP ONE

Bend the upper portion of the tail spring to fit in the slot in part **R1**. Do not bend the axle portion of the tail spring until after the rudder is completely assembled. Part **R1** is sandwiched between the two **R2**'s, locking the tail spring in place. The sketch shows this about to be done.



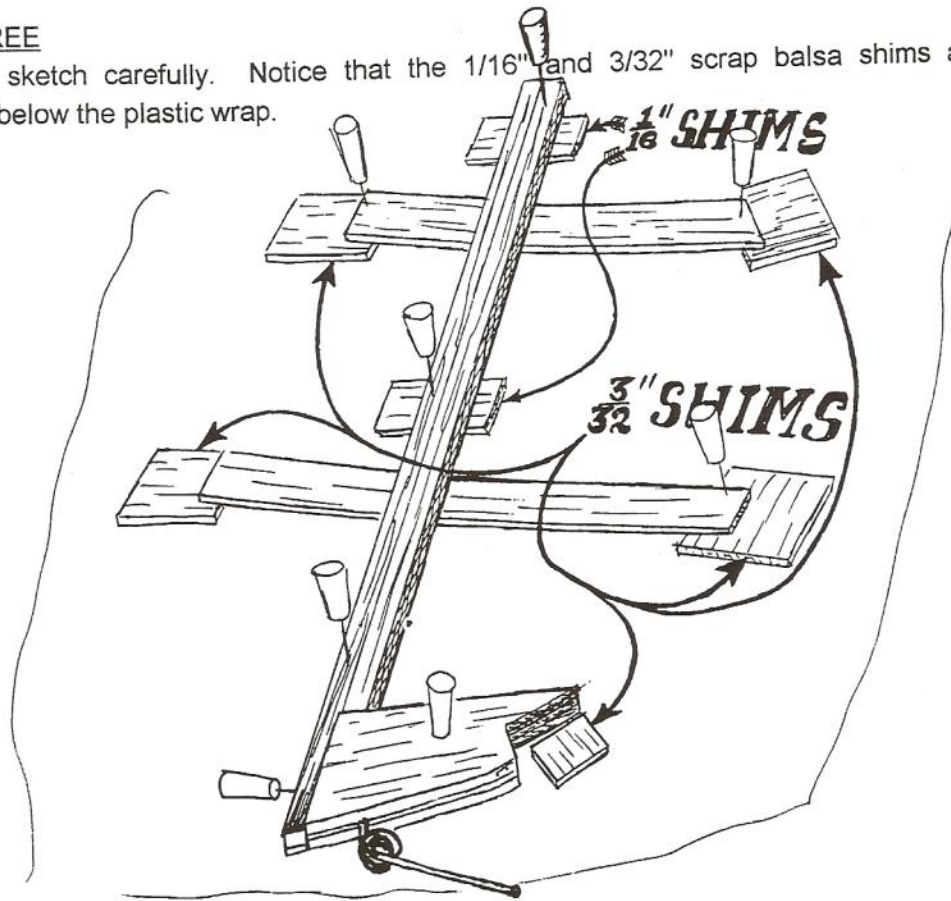
STEP TWO

Build the 1/8" balsa rudder outline flat over the plan. I use Modela modeling pins to hold the things together while the glue dries



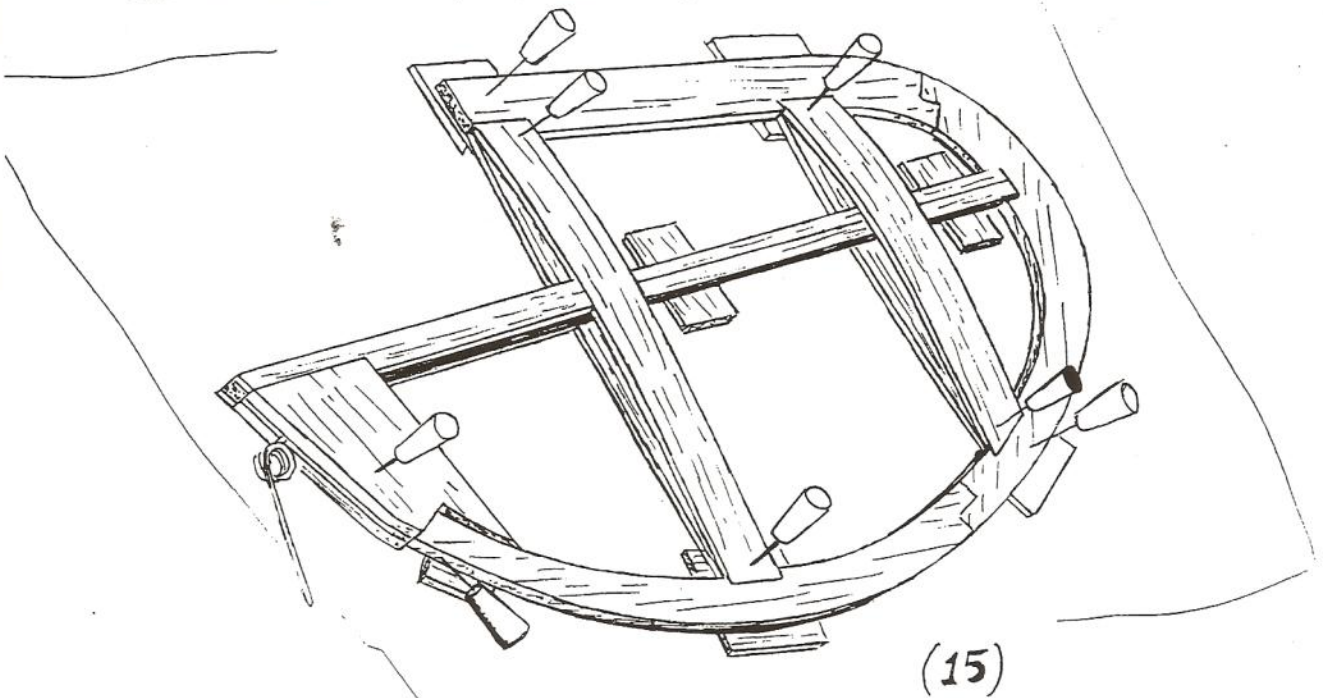
STEP THREE

Study this sketch carefully. Notice that the 1/16" and 3/32" scrap balsa shims are positioned below the plastic wrap.



STEP FOUR

This sketch shows the completed rudder ready to be removed from the plan.



CHAPTER FIVE - COVERING & FINAL ASSEMBLY

COVERING THE SPEEDY BEE

For covering I use a new product called Easytex. It is an iron-on fabric that is incredibly easy to use (hence the name). It comes in a wide range of colors and covers itself without bubbling, goes around compound curves with ease, and is so strong that you can't poke a ball point pen through it! It's the best covering I have ever used and I like it so much that I decided to import it for our Clancy Aviation customers.

If your Speedy Bee has a smaller gas engine (under .15) or if you are using electric power, saving weight is important, so you may want to use Litespan, our light weight covering. You can save 3 or 4 oz by using Litespan. Litespan requires a special adhesive: Balsaloc.

All aileron linkage should be installed before the wing is covered. The top of the ailerons should be covered before the aileron control horns are glued in place. Only after the control horns are in place should the bottom of the ailerons be covered.

FINAL ASSEMBLY

The gas tank should be installed in the nacelle before it is glued to the wing. The stabilizer is pulled forward in its slot by two #30 rubber bands on each side. First, one end of the rubber band is attached to the dowel in front of the stab. The rubber band then goes from the dowel through the hole in the stab, and then back to the dowel again. Use this procedure for installing each rubber band. The rudder is held on with hinges that have a removable hinge pin. I had to cut the lower rudder hinge down in size.

The pilot's shoulders will need to be cut to fit inside the cockpit. The beard was made by gluing balsa sawdust onto the pilot's face with some thin CA.

CONTROL THROWS

The elevator and rudder should each have a control throw of 3/4" in each direction, measured at the trailing edge of the control surface. The ailerons should have a 1" control throw, measured at the trailing edge of the aileron.

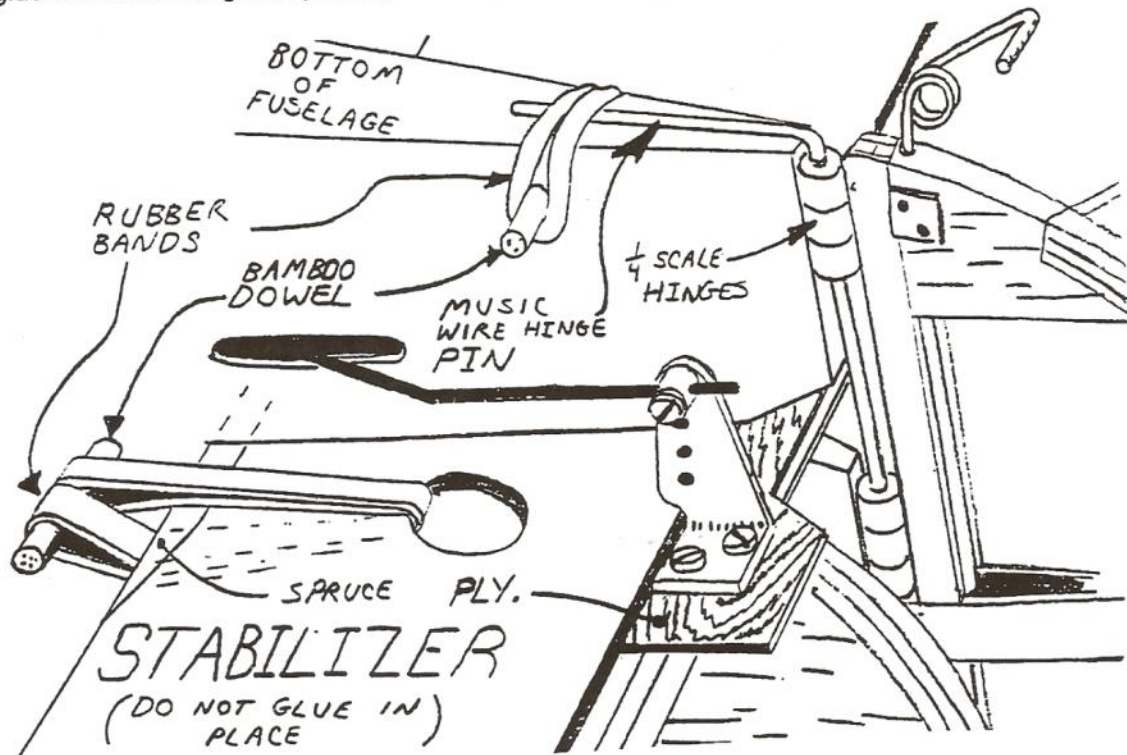
The engine should be mounted square to the firewall; two degrees of right thrust is optional. Add downthrust only if the plane stalls at full throttle. The Speedy Bee should climb steeply at full throttle. If the model balloons upward when going from full throttle to idle, you should add some upthrust.

Install everything on your plane except the rudder and elevator servos, and the receiver and its battery, and check the balance. Position these last items wherever they are needed to achieve the proper balance. The wing should be attached with eight #19 rubber bands. Note: All rubber bands should be replaced after each flying session. Make sure you have the correct control surface throws, proper balance, and a motor that runs reliably at all attitudes before test flying on a calm day (Both the wind and the pilot should be calm!). Have fun and fly safely!

REMOVABLE TAIL

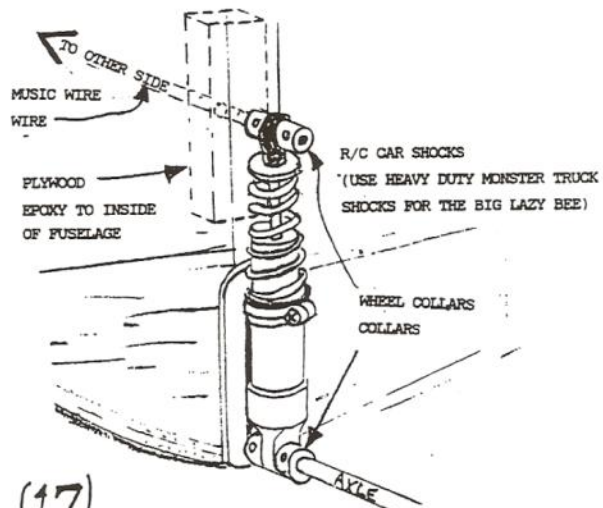
A removable tail on your Speedy Bee or Lazy Bee makes storage, transport, and repairs easier to accomplish. In addition, the rubber band mounting for the stabilizer makes it less likely to be damaged in a crash. I use two #30 rubber bands per side to attach the stabilizer and the long rudder hinge pin is held in place by two #30 rubber bands.

The drawing below shows the removable tail of the Lazy Bee, but the installation details are the same as on the Speedy Bee. The plans show where to position everything. When you glue the rudder hinges in place, you should have the covered stab in place.



HEAVY DUTY SUSPENSION

A few guys have done this modification to their Big Lazy Bees or Speedy Bees and are very happy with the results. This provides better shock absorption than the standard set-up. I think it is such a good idea that I use it on my Speedy Bee and my Big Lazy Bee. You can see it in our new video. I use a special spring with oil-damped Monster R/C Truck Shocks. We sell the Heavy Duty shocks for \$30.



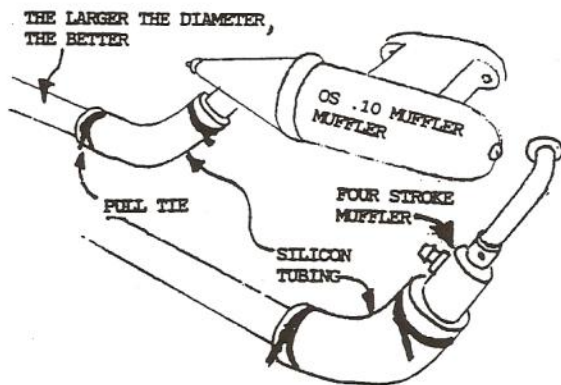
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SPEEDY BEE WITH EXTENDED EXHAUST PIPE

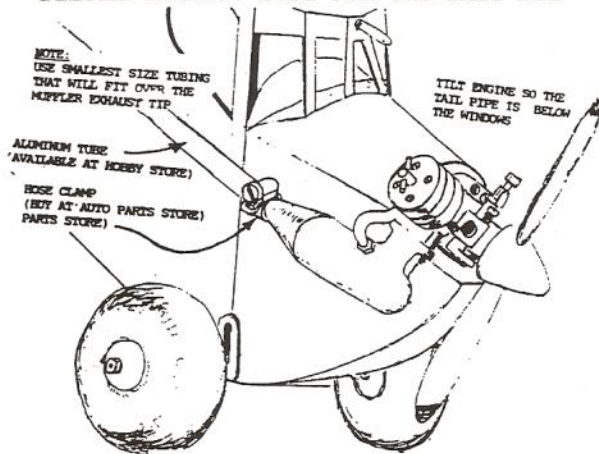
Many builders have noticed the long exhaust pipes on some of the Lazy Bees and Speedy Bees in our videos and advertisements. On these planes the exhaust pipe runs from the end of the muffler out to (and under) the stabilizer. Both diesel and 4-stroke engines work well with extended exhaust pipes. However, 2-cycle engines are very sensitive to back pressure, so your pipe needs to be large enough to avoid back pressure.

The extended exhaust is designed so that the oily exhaust is dumped out below the elevator instead of getting sprayed all over the covering. All that you need to build an extended exhaust is some aluminum tubing, a small automobile hose clamp, and a clamp to attach the exhaust tube to the stabilizer. If you cannot find good aluminum tubing, we sell an aluminum pipe with an inner diameter of 3/8" and an outer diameter of 1/2". The tubes weigh 3 oz and they are around 34" - 35" long. The tubes cost \$6, plus S & H.

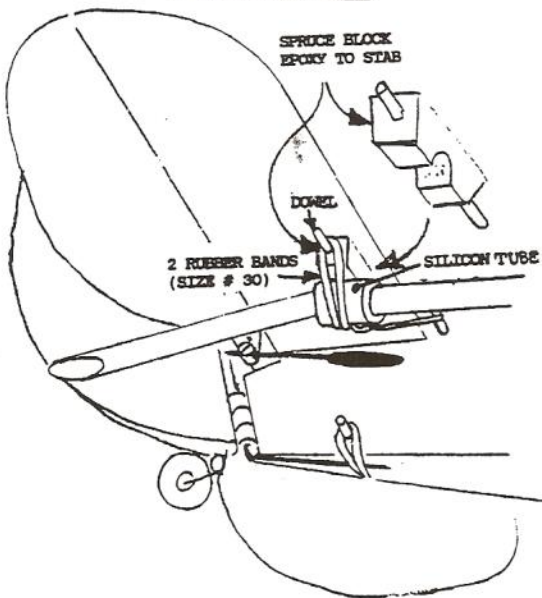
EXHAUST TUBE FOR GLOW ENGINES



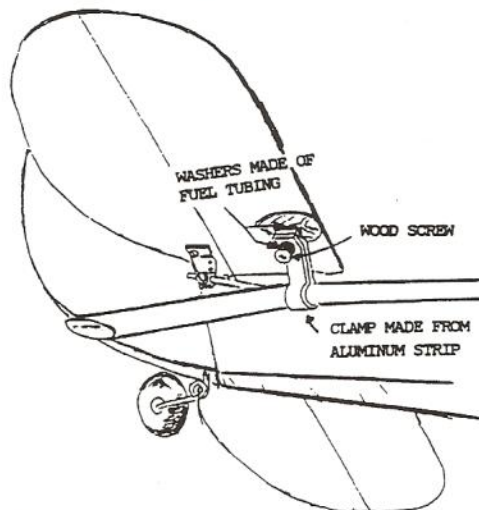
DIESEL EXHAUST TUBE FOR THE LAZY BEE



REMOVABLE TAIL



FIXED TAIL

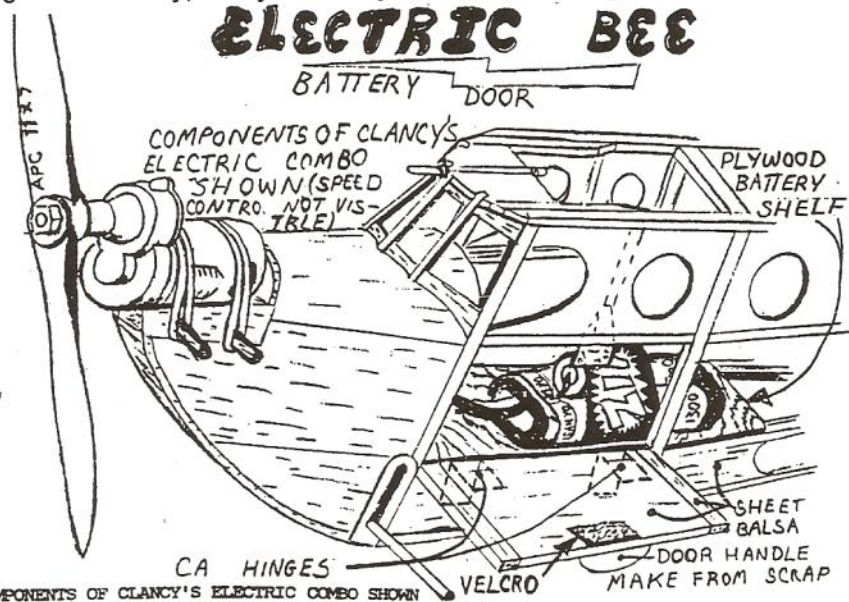


WHY ELECTRIC?

There are a lot of good reasons, here are a few: 1) Because it's reliable - more reliable than the car I take to the flying field. 2) Less frustration. 3) It's clean, so there's no need to coat a beautiful plane with oil. 4) It's quiet and has plenty of power (Seeing is believing, check out our video!)

I have six battery packs; each one gives 6 minutes at full throttle. I can change the battery pack in 1/4 the time it takes to refuel and restart a glow engine. The cost is comparable - A .15 motor, mount, prop, glow plug, a micro-servo for the throttle, throttle cable, and a can of fuel costs more than our Deluxe Electric Combo deal with the battery charger!

If you have never used electric power before, you might want to consider trying it on our Lazy Bee, or with the Speedy Bee. Electric power is a lot cheaper and more efficient than it used to be. The Lazy Bee performs so well as an electric that people often ask me what kind of muffler I'm using! Consider the advantages: No mess, No noise, No trouble starting the motor, great reliability, and you can fly when and where you want!



NOTE: This Motor Mount, Battery Mount, & Access Door can be used on the Speedy Bee.

