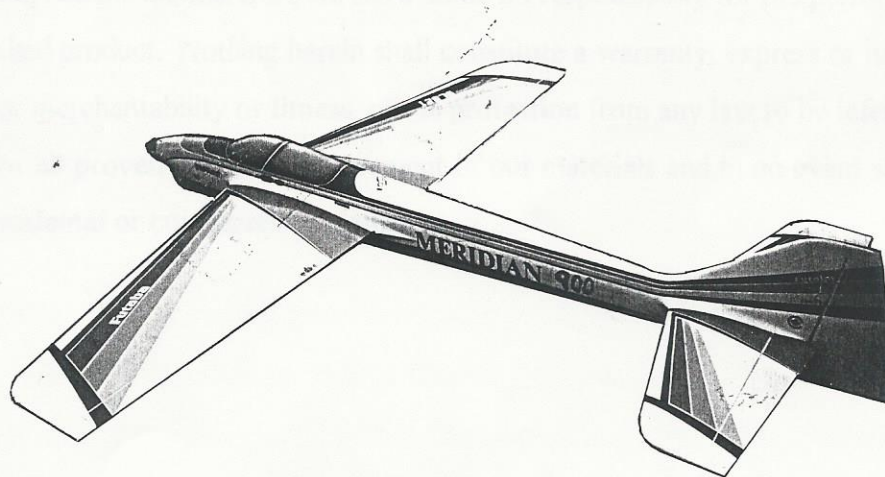


***The* MERIDIAN 900**

CONSTRUCTION NOTES

Designed by HENRY PIORUN



PIORUN MODELS

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BONEYCOMB WING ASSEMBLY

The first step in the construction of the honeycomb wing cores is to install the shearweb and the spars. Make the spars from $1/4" \times 1/4"$ balsa and .007" $\times 1/4"$ carbon fibre. Another method of making the spars is to glue the $1/4" \times 1/4"$ balsa into the slot of the wing core, making sure it is slightly below the surface of the foam (thickness of the carbon fibre). When you apply epoxy resin to the spar, lay down carbon fibre strands, make sure its properly wetted, then lay up the wings as usual.

LIMIT OF LIABILITY

This kit is a high performance aerobatic model intended for experienced competition flyers and it is the sole responsibility of the purchaser to satisfy himself as to the suitability of the product. The performance and reliability of the finished model is dependent on the building skills and the materials used to complete the kit, therefore we can assume no responsibility for the performance or the safety of the finished product. Nothing herein shall constitute a warranty; express or implied including any warranty or merchantability or fitness, nor is protection from any law to be inferred. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental or consequential damages.

While that's drying, take the fiberglass sockets and cap off one end with 1/16" plywood. Glue the socket in with a liberal amount of epoxy resin, coating the inside of the hole and the tube itself. Push the socket into the hole with a twisting motion. A little excess epoxy is good as it will be forced into the surrounding foam making for a very strong bond. Leave 1/8" of socket protruding out of the wing root. Note: The glue for the shearweb and spars should be fully cured before gluing in the sockets.

Install the retract mounting plates as per manufacturers instructions or as shown on the plans (1/4" or 3/8" carbon fibre balsa laminate provides a small weight savings over 1/16" plywood). Glue this in with epoxy resin.

HONEYCOMB WING ASSEMBLY

The first step in the construction of the honeycomb wing cores is to install the shearwebb and the spars. Make the spars from $\frac{1}{8}$ " x $\frac{1}{4}$ " balsa and .007 x $\frac{1}{4}$ " carbon fibre. Another method of making the spars is to glue the $\frac{1}{8}$ " x $\frac{1}{4}$ " balsa into the slot of the wing core, making sure it is slightly below the surface of the foam (thickness of the carbon-fibre). When you are ready to sheet the wing apply epoxy resin to the spar, lay down carbon-fibre strands, make sure its properly wetted, then lay up the wings as usual.

What ever method you use, glue in the top spar first. Cut out the shearwebb from $\frac{1}{32}$ " plywood (template shown on plan). Check the fit of the shearwebb and bottom spar, making sure it is flush with the surface of the core or slightly below as described above. Also, check that the shearwebb fits around the end of the fibreglass wing sockets inside the hole. Once all this fits properly glue it in with white glue or epoxy.

While that's drying, take the fibreglass sockets and cap off one end with $\frac{1}{32}$ " plywood. Glue the socket in with a liberal amount of epoxy resin, coating the inside of the hole and the tube itself. Push the socket into the hole with a twisting motion. A little excess epoxy is good as it will be forced into the surrounding foam making for a very strong bond. Leave $\frac{1}{8}$ " of socket protruding out of the wing root. Note: *The glue for the shearwebb and spars should be fully cured before gluing in the sockets.*

Install the retract mounting plates as per manufacturers instructions or as shown on the plans ($\frac{1}{8}$ " or $\frac{1}{4}$ " carbon-fibre-Balsa laminate provides a small weight savings over $\frac{3}{16}$ " plywood). Glue this in with epoxy resin.

Make up the wing skins from 1/16" balsa sheeting, use a long straight sanding block to true the edges of the sheets. Use 80 grit sandpaper for this, it makes the job go faster and the zap will penetrate more thoroughly through the joint, glue only the inside joint of the skins. Sand the skins on a flat surface with a long flat sanding block (120 grit) inside first, levelling off the glue lines, then the outside finishing off with a finer grit sandpaper (240).

When you are ready to glue the skins on, use epoxy resin, brush it directly onto the core, rather than scraping it on the skin itself, a little less is used this way plus you get a better bond. Lay the wings up in typical foam wing fashion (don't be afraid to use a lot of weight, the foam will not crush, I use a 3/4" slab of marble and four large bricks) make sure you use a strong flat surface to do it on. Glue on the leading, trailing edge and tip, carve and sand to shape, cut the ailerons out as shown on the plans. *Note: Aileron size does not change with the shorter wing, it is simply moved inward from the tip.*

Mount the aileron servos in 1/8" balsa wood boxes, run the grain vertically. Make these boxes up outside of the wing. Locate the servos near the root end of the ailerons so that you don't have to use extension leads. Cut through the bottom wing skin using the box as a template, glue it in using 5 minute epoxy or white glue. Be careful not to deform the top skin when gluing in servo boxes. Control horns can be made of 1 1/2" lengths of 4-40 threaded rod, tapped into a 1/4" or 5/16" dowel, glue the dowel in with 5 minute epoxy. *Note: Any holes in balsa wood are best made using a sharpened piece of brass tubing.*

Make the wing root rib out of $\frac{1}{8}$ " Lite-ply, cut it out so that its about $\frac{1}{32}$ " bigger all around than the wing root itself and that the hole for the wing tube socket is nice and tight. Mark the location of the wing pins, drill and glue them in, or, if you are using adjusters install these as per manufacturers instructions. Glue on this rib using epoxy resin or 5 minute epoxy, block sand flush with surface of wing.

To keep the wings from sliding off the airplane while you are preforming precision pattern manoeuvres, use a $\frac{1}{4}$ " or $\frac{5}{16}$ " dowel glued into the wing, drill out to accept a 4-40 bolt, which is tapped into the aluminum tube. Counter sink the head of the bolt into the dowel with a $\frac{3}{16}$ " drill bit, until it is flush with the bottom of the wing.

FUSELAGE

Note: When gluing anything to the inside of the fuselage, give the area a little sanding first too insure good adhesion.

Begin by installing the firewall. Do this by first cutting out the opening for the engine by using a moto-tool with a carbide cutter or a sanding drum. Take the back plate from the spinner you are going to use and tack glue a $\frac{1}{16}$ " balsa wood ring to the back, this will provide the proper spacing between the spinner and the fuselage. Now slip the engine into the cutout and install the spinner onto the engine. Center it on the fuselage and then tack glue the spinner into place with zap. Note: The correct amount of right and down thrust is moulded into the fuselage.

Bolt whatever mounting system you are using onto the engine, then slide the firewall into the fuse and push it tight up against the back of the motor mount. Make sure the engine is slanted slightly inward toward the center of the fuse (to compensate for the right thrust offset) this centers the cylinder head in the bellypan. Once this is done tack glue the firewall to the mount.

Unbolt the motor mount from the engine and slide this assembly back out. Drill out the mounting holes and bolt the motor mount permanently onto the firewall. Drill any fuel line and push rod holes and then slide it all back into the fuselage and bolt it onto the engine. Tack-glue the firewall in place with zap, take off the spinner and remove the engine and the mount. Permanently glue the firewall in with a mixture of epoxy resin and milled fibreglass, fuel proof the firewall with epoxy resin.

Now its time to mount the wings. Note: *The wing fillets moulded into the fuselage are quite accurate and can be used for initial incidence setup. Final setup should be measured with the aid of an incidence meter.* Accurately mark out the wing dowel location on the fibreglass wing fillets. Use an under size drill bit to drill the holes and enlarge to the desired size with a round file. Test fit the wing and adjust the holes until the wing slides off and on without binding. Make two $\frac{1}{8}$ " plywood discs with holes that accurately fit the wing dowels. These will be glued to the inside of the fuselage. Now set the fuse on a stand so that the prop shaft is set at 1° negative, (+ or -) a little is okay, its not super critical. Install the wing and adjust the holes in the fibreglass wing fillet until you get a $\frac{1}{4}^\circ$ positive reading on your incidence meter. Slip the plywood disc onto the wing dowel, inside the fuselage, check the

incidence again, then tack-glue the disc into place using thick zap. Take the wings off and permanently glue the discs on by flooding the area between the disc and the fibreglass with thin zap.

Note: *I recommend that wing pins be installed at both leading and trailing edge locations on the wing. However, if wing incidence adjusters are used, these can initially be installed on the leading edge only. Fly the plane a few times, trim it out and then install fixed rear pins. There will still be some adjustment available.*

HORIZONTAL STABILIZER

Build the stab in the same manner as you did the wings. Mount it at 0° incidence relative to the 1° downthrust and .25° positive of the wing, make sure you center it, align it with the wing and all that important stuff, try to be accurate here, but don't drive yourself crazy trying to get it absolutely perfect. Getting the wing and stab incidence right is most important. Other measurements (+ or -) a 1/16" are fine. Glue the stab in using epoxy resin and milled fibreglass. Remember to install the fuselage stiffeners before gluing in the stab.

CANOPY AND BELLY PAN

There are many different ways to mount these, however, the method that is shown on the plans has been used for a number of years without a problem. The nice thing about it is that it holds everything very securely so it won't rattle and produce extra noise. The close up detail on the plans is self explanatory.

RUDDER

Start by making the rudder skins out of 1/16" balsa sheeting, run the grain horizontally, rather than vertically, you will get a much stiffer rudder this way. Lay up rudder the same way as the wing and stab. Glue on and shape the leading and trailing edges, cap the ends and shape the bottom of the rudder to match the bottom shape of the fuselage. You can use the tail wheel assembly I have shown on the plans or use a stock tailwheel bracket. Glue the rudder post into the fin using epoxy resin. Use two straight blocks of wood on either side of the fin and clamp until cured.

RECOMMENDATIONS

- * Use cables for the rudder, they are lighter than pushrods and for a large rudder such as this it will provide more positive control.
- * This airplane has a long tail moment. Try to keep everything aft of the C.G. as light as possible.
- * Use a plastic iron on covering on the wing and stab to save weight.
- * Use an engine mounting system that has a front limiter ring, these will run smoother and quieter than ones without.
- * Mount the fuel tank close to the C.G. (in front of the wing tube is fine), this will eliminate elevator trim changes half way through the flight.
- * For trimming its is more advantagous to have adjustable wings than an adjustable stab.

FINAL NOTES

- * Start with the center of gravity somewhere between the center and the back of the wing tube. You can move it back a bit further if you like a more sensitive feel.
- * Control surface throws are really a matter of personal preference, but if you're not sure:
 - Elevator 10.5° Up
 11° Down
 - Aileron 11° Up
 11° Down
 - Rudder 35° Left-Right
- * Aileron differential either none, or if you have a computer radio maybe 1% or 2% more up than down at the designed 11° throw.
- * True turn FAI spinner will match the fuselage shape best.
- * If you need more vertical performance, use more nitro!

That's about it, keep it light and straight and if you have any questions or comments please feel free to call me at (604) 820-9335 from 9:00 am to 5:00 pm - Weekdays.

BLACK MARK ON REINACT SERVO IS
FOR RIGHT WING

USE TWO NO. 62 RUBBER BANDS

AS YOU SLIDE WINGS ON THEY WILL
SNAP UNDER SMALL SAFETY LATCH
SIMPLY RAISE WING WITH FINGER TIP
TO REMOVE WINGS

FORWARD TWO SCREWS FOR FUEL TANK
IS BEST CG.

13x10 OR 14x10 #1 MAG
OR ~~20/18~~ 20/18 20/18 MAX

