Building the double J..by Rockfish9

complied from Stripe-Bass forum post http://www.striped-bass.com/Stripertalk/showthread.php?t=56021)

As promised here it is, this is a long one, lots of pictures,(over 40) I think there will be something for everyone (I think) some of this is down right basic, other stuff a little funky... Enjoy... BTW my spelling sucks and my fingers don't communicate with my noggin, so don't blame me for the spelling...

This has been a project of mine for many years, it was on "ice" for nearly a decade when I stopped making plugs altogether...

The first picture is of the very first one I made... I still have it and it never caught a fish.... below it, is the first successful version, not laminated and sporting a surfster lip, she was front heavy cast like crap but she caught many a fish before her retirement...

The fished plug is jointed, 9" long and weighs in the vicinty of 2.5 ounces..

Materials :

- Gorrilla glue,
- 1 1/8"X 9/16" X 6" maple and cedar(to be glued together), I used WRC, if you use something else you may have to adjust your weighting,
- 2, 9" lengths of 304 SS malleable wire (NJtackle). If is not malleable, it will split if you attempt to wire the plug as I will show...

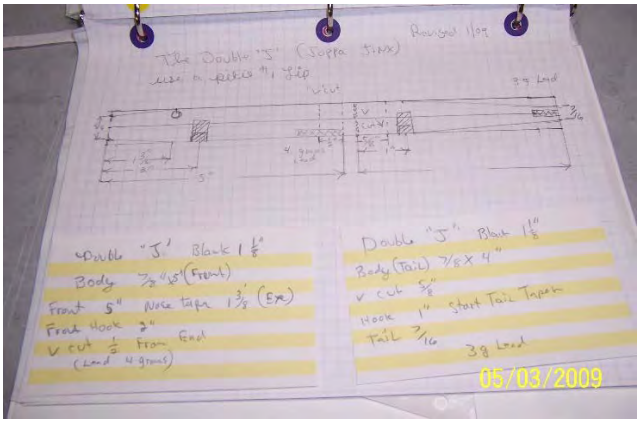
- 2 #1 swivels, I use Kroc SS swivels
- 2 #2/0 VMC trebles.. a length of SS wire approx .032" for making the fins and tail...
- bucktail (your color choice) and saddle hackles (again your choice of color) and fly tying thread...
- 1 #1 pikie lip and
- 2 ...341 belly gromets as well as 2 nose gromets and a .375 tail gromet..
- 4 gram weight (15/64X1 1/8) for the body and a 2 gram weight for the tail, (1/4"X 1/2")
- I'm sure there is something else but lets get started!

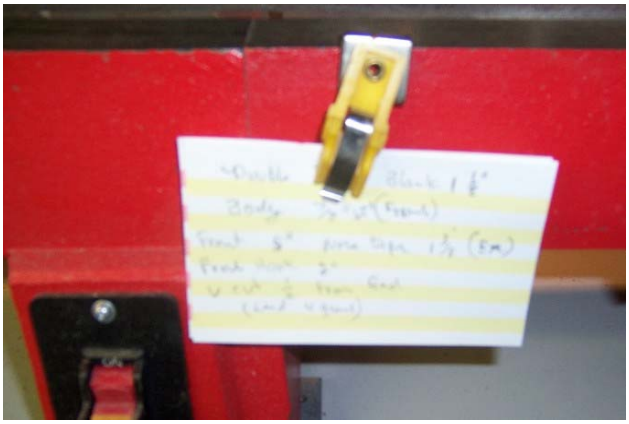
First prepare your blanks, wet each half of your 1 1/8X9/16X6" blanks with water, coat the entire surface of one blank/half with Gorilla Glue, it is very important to cover the entire blank, although it expands greatly, you don't want to have any voids when you are turning... don't ask me how I know!

Now align and clamp the halves tightly and allow to dry 3-4 hours, overnight is better... if you're wondering about the strength of this stuff, I took an unsealed, glued, through drilled blank and soaked in water for 48 hours, I then put it onto my lathe and applied as much tail stock pressure as I could... it held, the then removed it from the lathe, drove my awl in to it so far, water was running everywhere out of the blank... it took a hammer and the vise to remove the awl. The blank never split!! Back to the build…

Once the blank/glue is dry, you will see the "ooze" on both edges, I remove it with the belt sander when I square up the ends. You can also remove it with a utility knife.

Like all plugs I make, there is a blue print, prior to the final blue print there are lots of scribbles and notes, I also make a "quick reference" index card that clamps on a magnet on my lathe. My memory just isn't what it once was...





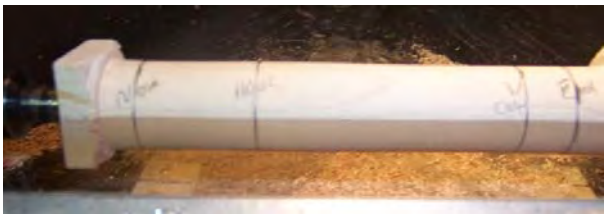
After truing up the ends, either with a belt sander or a saw, mark you center, normally I eye ball it, but here, you don't have a lot of extra to work with, so an exact center is a must, find your center by marking the blank corner to corner, or with a center finder...

You will find that when you chuck up the blank on the lathe that it wants to move towards the cedar, or soft wood, this is OK, when you turn the blank, you will be removing a little more of the denser maple than the softer, more buoyant cedar, it was part of the plan, originally, I made the maple 1/4" thicker so I could drill into the maple...long story short, it was a bad idea and the plug was too bottom heavy, a lot of the action was lost..

Once the blank is on the lathe, make two marks on one of the flats, 6" apart to mark the front half of the plug (beginning and end) this will be repeated with the second piece for the rear half, be sure to leave the square ends, you will need them. Once the blank is marked, even though you only marked one flat, you will be able to see the ghost image and using your roughing gouge, turn the blank to a round cylinder that will be 7/8" in diameter when it's sanded, so leave a little extra. A word of caution --- use SHARP tools, because of the difference in wood densities, dull tools are a bad omen. For safety, please wear a full face shield. Eye goggles don't help when a blank or errant hunk of wood whacks you in the cheek...

Once you have a roughed out cylinder, mark out the nose and rear of the front section, I've drawn all the marks as a reference but normally would only mark the start finish and nose taper.

You should have a 7/8" (or close to finished) diameter, 2" back from the nose is the start of you nose taper, the target for the nose is 5/8", I prefer to round off the nose a bit but a square nose tends to make a little more water disturbance..



Once you have the nose taper turned, sand the blank, I never go any finer than #220.. IMHO, anything finer than that can cause adhesion problems latter on... just my own findings...

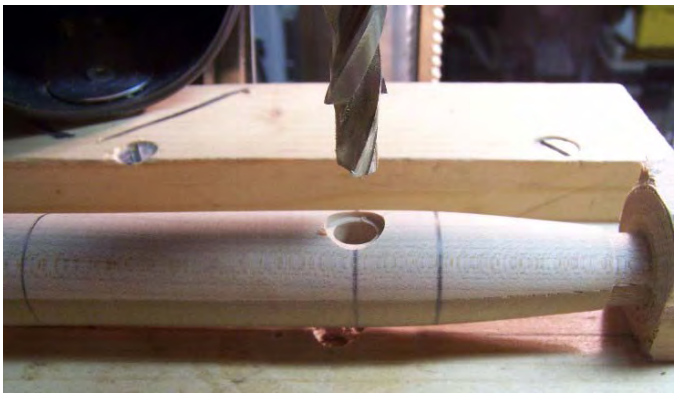
Now make marks at 1 3/8" (for the eye) 2" for the hook and 1/2" from the rear of the front half, this will be the end of your "v" cut.. Bring the marks all the way around the plug, I do it manually, some turn the lathe on. Your choice...

Repeat the process with he rear blank, marking out a 5" section and rounding it out to 7/8".. the rear taper starts 1" from the front of the rear half and gradually tapers to 7/16" at the tail...

After sanding, make a mark at 5/8" (rear "v"cut) and 1" for your rear belly hook..

Proceed to your drill press and drill your belly holes, they should extend approx. half way through the plug, I use a step(multi-diameter) drill for this, so it's a one shot deal, I had the size written down but somewhere misplaced it... if anyone is interested i can give you the size, it fits the .341 belly grommet perfectly...

Lacking the step drill, use a 1/2" forstner bit to spot face the grommet, then finish with a 3/8 forstner bit...repeat for the rear section..

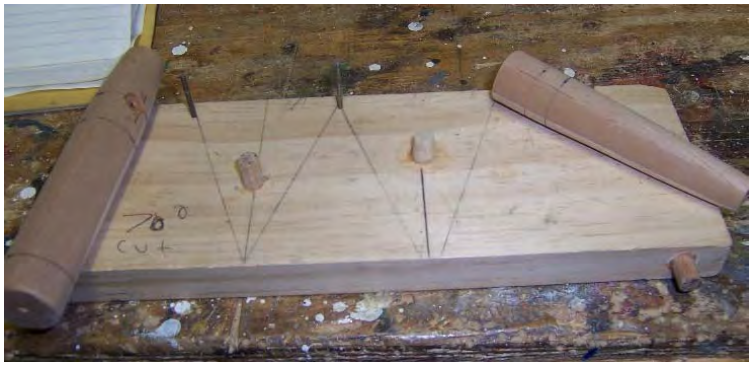


Now return to your lathe (use your drill press if you want) for this process, I use a 5/32" drill bit, drilling from the rear of the front half, drill through until the drill comes through the belly hole... stop her, you will finish the front latter... repeat with the rear, you can go all the way through here..

Before you cut off the square ends, place the plug on a flat surface, using a block of wood (3/4" thick) mark the eye location and drill them to what ever size you like, I like 5/16 for these.

Now remove you square ends...band saw is the easiest tool, but a hand saw will suffice (yuk!)

The first picture is of the jig I made specifically for making this plug, it's been modified a few times but it serves several functions, a dowel centered 7/16" near the front holds the plug in place as I cut the lip slot, because the pikie 1 lip is so thin, I use the scroll saw instead of the table top band saw to cut this slot....

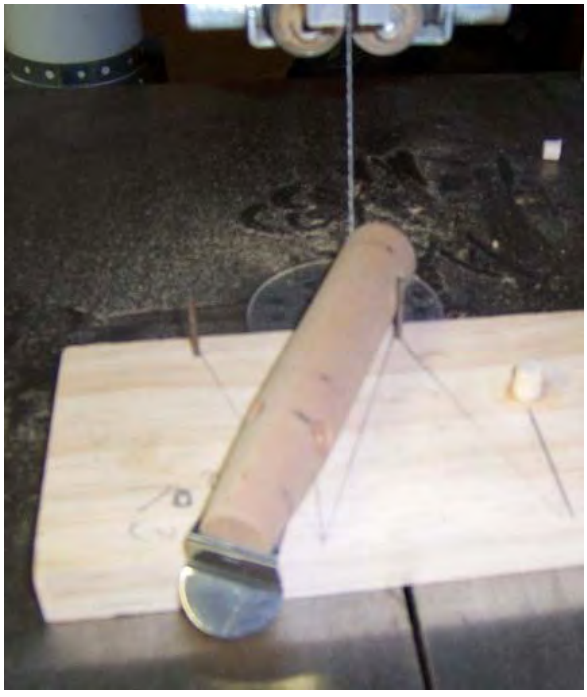


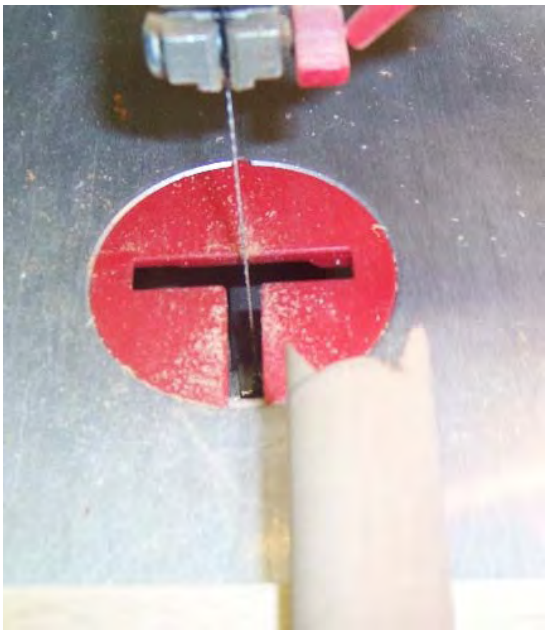
The lip slot is 5/16" deep in the plug; it would be too simple to mark it while I was laying out the plug, so I end up holding the lip to the plug most of the time...

Once the lip slot is cut, install the lip and with an awl, mark the center of the through wire with a hand drill, drill a 5/32" hole at an upwards angle into the front hook hole, this allows the use of a #1 swivel without it hanging down like an untucked shirt...

Making the V cut... the V not only makes the plug stream line, but by using a tight joint, the sides rattle as the plug swims along, slapping from side to side, this was by design, as I tried my best to make a rattle work on this plug, normally, I install them between the eyes, no could do here, just too narrow, so the next best thing --- a working body. This wouldn't be possible if the plug were not epoxied.

So, with you fence set up on your band saw, the plug on the jig, make you 70 degree cut, move the fence, put the plug on the opposite pin and cut the other side, I leave approx 1/8" on each edge, I sometime make a few straight cuts on the band saw before moving to the scroll saw (a coping saw also can be used) I then clean out (rough) the cut with the scroll saw, afterwards, I finish the slot with a small sanding drum on a Dremel tool, be sure to round out the edges, or they will be brittle (the maple gives them strength this was another reason I went to the maple laminate) and not hold the epoxy well...





The rear section is done a little differently, again, it is placed on a pin on the fixture, starting at the mark, I draw the plug towards the front of the rear section, leaving a 1/8" space from center... I repeat on the other side...

Once the "V" cuts are finished, a hole is drilled in the lower half of the front section for your belly weight, in my case, I drilled a 15/64 hole 1 1/8" deep to accommodate the 4 grams of lead, the weight was then installed and the hole sealed with Elmers 2 part epoxy, wood repair putty. I also use the 5 minute 2 part putty made by Locktite, it comes in a tube and you slice off a chunk, mix it up and it's good to go in just a few minutes, I use this when I'm only doing a few pugs, for big jobs, and an extended working time, I use the Elmers.

The tail section gets 2 grams of lead, the hole I drill is 1/4"X 1/2" deep. Once the weight is installed, I fill the hole with epoxy filer and push a wire down through it, then pull it back out. When the putty hardens, I use a counter sink to open up the end so once installed, I can use a tail grommet.

Enough for tonight... tomorrow night, I'll go through the epoxy sealing, painting and wiring....

Now that the putty has dried, sand the putty and the rest of the plug, test fit all the parts, now is the time to do it, saves a lot of fighting latter on....

Time to seal, these are the only plugs I epoxy seal, IMHO, it just isn't worth the time it takes or the mess it creates, I can turn a half dozen in the time it takes to epoxy seal, my original fear was the sealer absorption rates of the two woods when using BLO, I made a bunch of test subjects for this season sealed with BLO, I'll know by October if it is reusable..

Most guys I know that epoxy seal use their wives oven(obviously when she's not home) and preheat to 250 and heat the plugs for about 20 minutes, it is my understanding that toaster ovens don't get it done.... however, I have my own heat source.... yup, the GRILL.. it's still fairly clean from the fall cleaning so it doesn't take much to bake off the residue, I wrap the plug in foil and place them on the warming rack for 15 minutes, while I'm preparing the grill, I have the epoxy sitting next top the light bulbs in my spinner, soaking the bottles in warm water accomplishes the same thing, warm epoxy is a hell of a lot easier to pour and mix correctly... I use a plastic teaspoon and a plastic mixer that came in a west system package, it is the perfect tool for scraping the spoon and mixing the epoxy..

Mixing epoxy: I use Envirotex Lite, once I mastered it, I love it, I haven't had an issue in years... here are the steps I follow, this also applies to the finish coat, not just when I am sealing plugs...

1) Warm your epoxy..2)lay out your utensils ...3) keep paper towels handy... 4) measure carefully, if you use a spoon scrape the soon completely between pours... 5) always pour the hardener FIRST, a little extra hardener will not make the epoxy cure any faster (unlike polyester resin) but it will not make the epoxy sticky and not cure... ...6) always add the resin to the hardener, scrape thoroughly between pours.... 7) mix completely, at first the mixture will become cloudy, keep mixing, be sure to scrape the sides as you mix, after a minute or so of mixing the mixture will become clear and v=begin gassing freely... your ready to go...

Go retrieve your plugs from the grill (or oven) I keep a heat gun handy, I'll explain in the next frame....

A few items I forgot to mention, an acid brush, I prefer a 3/8" one for this, prepare the acid brush by adding a dab of super glue all the way around the base, this will keep all the hair intact... you also might want to have some pipe cleaners, I've used wooden q tips as well..

Retrieve your plus from the foil, they should be heated up pretty well by now, prepare to make a mess... wearing rubber gloves is the obvious move here, I run a length of wire down the plug and make a loose loop in the end, so the plug can slide up and down the wire but not fall off, using the pipe cleaner start pouting epoxy into the plug, get it good and juicy, I keep pouring it in until it runs out the belly hole, I then block it with my thumb and keep putting more in until it runs out the other end...once I have accomplished this, I apply epoxy to the outside, by now the plug may have started to cool on the outside, that's where the heat gun comes in, if I feel the epoxy is not

soaking in or is getting thick, I hit it with the heat, it becomes fluid again, I do not wipe off the excess as some guys do, I just keep hitting the plug with heat, all the excess drips off...once the majority of the epoxy has run off and begun the thicken I install a piece of wax paper (here I have a page to a mini calendar, it's waxy surface is perfect, playing cards also work well) at this point, I stick wire in the belly hole and reposition the plug on it's hanging wire, it make removal a cinch... if done correctly, you now have a plug that is pretty much bullet proof...

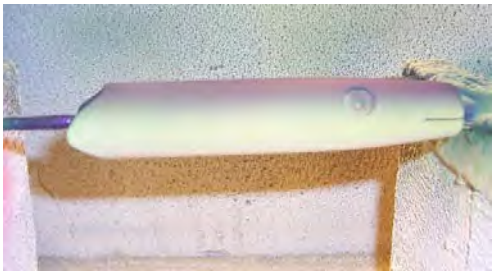
Priming... normally, I use Zinsser oil based cover stain over my BLO (oil over oil) and apply it with an automotive type spray gun (I've got a 850 cfm blower in my paint hood that exhausts outside)but in cases like this where the plug is sealed with something other than BLO, I'll use the Zinsser shellac based primer , the plug will have a glass like finish, IMHO, not good for paint adhesion, so I scuff the plug body up with #220 paper... remove your wire and give the plug one final inspection, be sure the through hole is clear, it is a lot easier now to do a repair then it is after you have the plug painted and then discover the through hole is blocked!

For priming and solid colors I use this stand to put the plugs on, it allows me to prime/paint a bunch of plugs with minimal handling... it's just a board with a bunch of finish nails...

I generally give each step at least 24 hours cure time, as long as I do not break this rule, I have never had an issue... the last time I did, I was rewarded with a bunch of snake skins (peeled e-tex)..

For paint, I use mostly Delta Ceramacoat, a 50/50 mixture works well for me, I put a 1" piece of tape on the bottom of the jars and fill with water to the line, top off with paint and shake like hell...

For air brushes, I have 4, a Badger 175 that is a great gun and will spray gravel as long as you don't bend the tip (which I do often) I use it exclusively for spraying all my pearlized paints... I have a badger 150 that I call the spitter... I rarely use it.. I have a pair of Iwata, top feed. I can't say enough about them. Bullet proof IMHO... I spray most paint at 35psi from a 17 gallon compressor (over kill but it never runs once the tank is full) I have water traps in line and coalescing disposable filters on each line.. Again over kill, but I never have issues either...



So after an over night cure, I now apply a coat of white, I like Ivory or antique white... this gives the following coats a base and still gives me one more chance to see any imperfections I don't like...

After the white has dries, I give the belly two coats of pearlized paint (Delta gleams) when that has dried, I then layer my colors.

After an overnight cure, I like to clear coat, I've tried many options, some were good, some melted away good paint jobs, back in the day before I epoxied (thanks to the internet) I used lacquer as a clear... last year I went back to my roots, the lacquer gives a nice protecting to the plug should I drop it prior to epoxying, at first I was afraid of it reacting with the paint but I've never had a problem, it make s the paint very hard, almost chip proof....

Rigging: I go back and forth on when to rig, I done it both ways, prior to epoxy and after epoxy, both has their pros and cons... For this build, we will rig prior to epoxy coating...

Select a length of annealed wire, install it into the body cavity(front half) with the preformed loop nestled in at the joint, so the loop is horizontal.... where it come out the nose, measure 3/8" and mark with a sharpie, this will be the center of your line pull...

Withdraw the wire, install a nose grommet onto the wire.. do it now or you wont be able to use one.... now use a pair of needle nose pliers and bend the wire back double, making the mark your center, I find the if I pre-form a small loop at the center with a #0 Phillips prior to crimping the wire, the wire will form the line pull more easily due to the memory in the wire... now trim back the excess wire to about 1" or so, the same as the preformed loop, crimp the end of the wire enough to fit through your swivel, I fond that the double wire will go through the #1 swivel before it will go through the slot in the #1 pikie lip, so I use a small file to widen the slot a tiny bit so I don't have to crimp the wire anymore than I have to....reinsert the wire in the plug body (did you remember to put the nose grommet on???) be sure to capture the swivel (give it a good tug) slide the lip over the double wire...

On my bench, I have a small aluminum jig I made for opening the wires, it has a series of holes several different sizes, the smallest hole will be the farthest away from the edge, the largest will be the closest, the jig is cut on an angle, so most plug lips will fit under it with out distorting them.... I insert my awl into the split in the wire in the first hole and hit it with a hammer to spread it....

As the awl spreads the wire to each size hole, move it to the next... you are probably wondering why not just have one hole.... well, you need a progression of holes , if the hole is too big, you end up driving the wire into it with out spreading it, if the hole is too small, the awl cant spread the wire... hence the progression of holes...

When you finish, sometimes the wire or lip will have marks or burrs, simply polish it with a piece of # 600 sand paper. Do it now!! Or you will forget...

Now get your tail piece., select a length of wire, the factory loop is too large, you must form another, start by bending approx 2" of wire around a small pair of needle nose pliers, pushing the round jaws of the pliers as tight as possible inside the loop bend each "leg" out at about a 45degerre angle, then close the loop, like all thing sin plug making, practice makes perfect... this loop should be considerably smaller than the factory one.... if it's not. DO IT AGAIN!

Slide a nose grommet onto the wire, hook the loop onto the front half of the plug and insert the wire into the tail section. be certain to seat the nose grommet... install a .375 tail grommet onto the wire and bend it up on a 45 degree angle, using your needle nose pliers, make a neat round lop around the pliers... some guys continue the wrap in their hands, I have small hands and arthritis so I use the vise, I have substituted the original jaws in my vise with a pair of soft jaws, made from 1" aluminum angle (it can be bought at Lowes) Counter sink the screws and you have a set of jaws that won't mar your wire. Clamp the loop in the vise, as you make the first wrap pull the plug the opposite way (slightly) to bind the wire tight to the body, as you continue around push the plug in the opposite direction, now continue around the plug with each successive wrap on top of the other, forming a neat loop that doesn't look like it was spun in a boat propeller!

Now using a dab of 5 minute epoxy secure your belly grommets, this could have (should have) been done prior to wiring, but I am trying to keep things in related fields for the purpose of simplicity.

The eyes... one of the few problems I ever had with Envirotex was on occasion I had foaming of the eyes, it was a random thing, after much head scratching and a little reading, I figured out the problem, seems the tiny divit made by the Forstner bit trapped an air pocket in the plug, my spinner is heated with a pair of 40 watt light bulbs, as the trapped air expanded, it caused microscopic bubbles, much like an aerator to from, I could hit them with the torch and they would disappear, but, seeing as both my spinners have timers, I like the Ron Propeal approach... set it and for get it!... so, now using a wooden q tip that I have sharpened the wooden end on, I apply a thin coating of 5 minute epoxy to the eye hole, smoothing it along the whole eye socket, one it becomes tacky, I apply the eye... no more eye rabies!

Now we need to revisit the prior post on mixing epoxy... I have found, 6 teaspoons (3 each of hardener and resin) is enough to apply a good flood coat to 6 medium to large plugs...

Once each plug is coated, I like to look at each plug as it spins under different light and angles, checking for "holidays" or bare spots, last year, I started "flaming" each plug using a small propane torch, the carbon dioxide (just like when you exhale on them) breaks the tiny gas bubbles, this is not entirely necessary, most of the bubbles will disappear on their own, but by flaming the plug (4-5" away or you WILL catch them on fire) it gives the finish a glass like look, also if you should discover a bad spot when the epoxy first starts to thicken, a light application of heat will allow you to repair the spot... this can be done for about the first hour.. It depends on the temp in the room (or spinner)

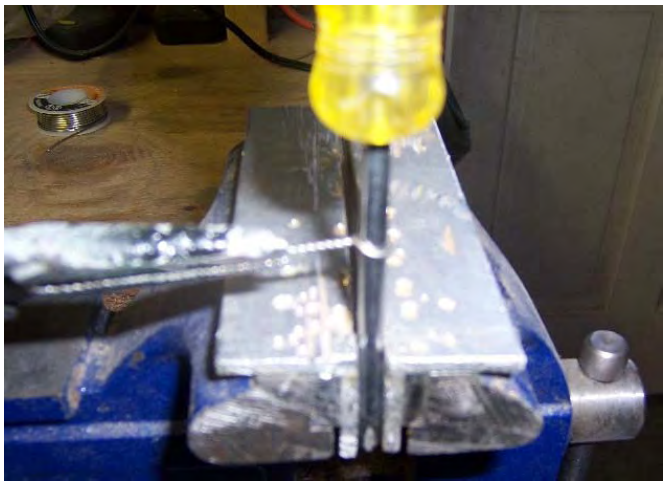
Allow the plugs to cure for 24 hours before you mess with them, yes they will be dry, but full cure on Etex is 72 hours...

To make the fins and tail..

I start with about a 2" section of .030 stainless wire, I wrap it around a 00 Phillips and wind it up...

I cut each "fin:" to about 3/4" and the tail about 1"...

Start by chucking a fin (or tail) "bone" in the vise, wrap the shank with thread secure with a half hitch and coat with Sally Hansens hard as nails...



Start by cutting a small amount of bucktail, less is more... gently pinch it between your fingers and thumb as you roll it onto the "bone", make two loose wraps around the bundle and gently tighten the thread , if done correctly, the hair will roll around the shank covering the entire "bone".. Make two or three more wraps and secure with a half hitch, trim the excess hair on a taper then finish wrapping the thread.... I'm no going to explain a whip finish here, so secure with three half hitches, cut the thread and apply tow coats of Sally Hansen hard as nails...

For the tail, long saddle hackles work best... prepare your "bone" and secure your thread, find 4 saddle hackles approx. the same length and strip the fuzzy fiber away from the base... in a similar manner to the deer hair, arrange two hackles on each side, shiny side out, make two or three tight wraps around the stripped base of the hackles, secure with a half hitch... check that they are straight and lay along the shank, once the are, trim the base of the hackle and wrap in a similar manner to the bucktail ,making a nice tapered finish.. secure and coat...

the fins should be installed mid body in line with the hook, I secure them with tiny SS open eye .eye hooks (purchased from stamina tackle) a pilot hole is drilled and a dab of 5 minute epoxy is applied to the screw eye for sealing purposes... the tail is affixed via a split ring...

On this plug, I prefer to use cut hooks, I cut my 2/0 VMC's with a Dremel, after crimping, I apply a small amount of silver solder to the "wound" to help ward off rust...

That concludes the tutorial, I have other pictures that I left out in the interest of keeping it as short as possible, if something was not quite clear, I'll be happy to post supplemental pictures, this plug has caught me a lot of fish, some real brutes at that, even it's predecessor was a fish killer, often times out-fishing the real thing.... Enjoy!

Tight lines all

Roc