The Hybrid Spiral Mega Tree

Planning

Basically this is just a mega-tree with spirals wrapped around it. Since they share the same base, center pole and support cables, I decided to call it the Hybrid Spiral Mega Tree.

The calculator that I used was the Spiraltreespreadsheet-97. I mainly used it to estimate how many times to wrap the tree, and how long the strands would be. I wanted to keep it simple, so I tried to come up with a combination that used a single strand for each spiral. I also used it to help design my preview in Vixen.

I wanted to keep the spirals manageable without needing a bucket truck, scaffolding, or a death defying extension ladder leaning on the pole. That being said, this method can be used with seemingly any size of tree. The only real issue you will have is when it comes time to wrap the spirals. Once you get higher than the 15ft mark you need to be able to wrap the spirals at a better angle. I am only 5’8 but I can stand on the ground and wrap the spirals while keeping a nice looking angle. If you look at some pictures or videos of taller trees, many have a very steep angle on the first few feet of the wrap, then the angle changes when it is easier to manage at a lower height. While this works, I think the uniform spirals really “ADD” to the effect.

Your mega-tree light strands will be a decent amount longer than your spiral light strands. The green lights on our tree go from the top, down to the stake, then from the stake to the center pole, and then out to the rear of the tree. (this can be seen quite well in one of the photos later)
The Srands

I used 3/32 galvanized cable for the support wires. Honestly, I didn’t do any highly technical figuring here for the cable size. We use it at work, and I was able to get scraps for free. All I was really looking for was something that would not stretch very much. I wanted to be able to put a good deal of tension on the cables to prevent them from sagging. The look I was going for was a tree with nice straight sides, no sagging.

To make the strands the length I wanted, I made the base, attached the poles, then attached one cable. I stood the tree up, drove a stake 3.5 feet out from the center pole and measured out the actual cable length I needed to reach the stake.

Once the cable was made, I used it for my pattern to make 19 more.

I used eye-bolts at each end instead of turnbuckles. This was mainly a cost issue. The photo below shows the eyebolt on the cable.

![Image of cable with eye-bolt](image)

This photo is the top of the cable. You can see that the green and the white strands are zip tied at the top. The green lights are actually zip tied all the way down the cable. The whites are only tied at the top.

At the other end of the cable I attached another eyebolt using the same method as above.

I took out the trusty sharpie and numbered the plugs at the bottom end of the cable. (both the green and the white)
Stakes and Attaching to Them

Cost was another driving factor in the choice of stakes. I chose stakes instead of a base ring for several reasons. Mainly, I was not sure how much tension I could put on a ring, and I can store the stakes much easier than the large ring.

I used 2 foot rebar stakes. Readily available at your favorite home center. Since I waned the ability to adjust the tension on the cable I came up with what I call the “Variable tension mechanical connector” or hose clamp and pvc pipe. I just cut 1 ½ sections of half inch pvc and used hose clamps to hold them to the rebar. Then you put the threaded end of the eyebolt through the pvc, place the nut on the end and you can adjust the tension either by loosening the hose clamp and moving the pvc up and down, or tightening the nut. (The hose clamp is much easier though)
The Base

I chose to use the modified Portable Hole II. The base is a square made from treated 2x6 then filled with concrete. It is approx 1 ½ ft sq and weighs about 130lbs. The center of the concrete has a threaded connector and you just screw in sections of black water pipe. Once you screw in the first section of pipe, you can grab the pipe and tilt the base over to lean the pipe on a sawhorse to finish the assembly.
Attaching the lights

The top of the tree is made from a grey plastic threaded base plate that I found at Lowes. I just drilled holes around the edge that I could slide the eyebolts through. I actually made the one in the photo for a smaller tree we had last year, and as you can see it is really too small for the amount of lights we had this year. I will certainly have to expand the top plate.

When attaching your lights, take care to attach them in the order you plan to lay out your channels.
Stand it up

Once all the lights are attached, add your topper. You must do everything you need on the top now, because once you stand the tree up, your options for fixing things are quite limited.

There really is not a great organized way to stand it up, other than try to spread out the strands and make yourself a little walking room around the pole.

Just hold on to the pole and start walking towards the base, tilting it back into place. The weight of the base will make this a fairly easy process. Depending on the weight of your lights and topper, this may or may not be a possibility for you. No matter how you get your tree standing up, the spiral portion will essentially be the same.

Once the tree vertical I placed a level on the pole and shimmed the base to get the pole fairly plumb. In the Portable Hole instructions they used turnbuckles on the corners and sides of the base. I chose to only use them on the corners. Use your judgment as to what you are comfortable with for the weather conditions in our area. I say fairly plumb because you will be able to adjust that some when you attach the first few cables.

Since my base is 7ft in diameter, I made a string that was 3 ½ ft long and attached it to the center pole. To determine the spacing of my stakes, I just took my diameter and found the circumference. Then multiplied that by 12 to convert ft to inches. Then I divided that by the number of strands, 20.

\[
3.14 \times (7) = 21.98\text{ft in circumference} \\
21.98 \times 12 = 263.76\text{ in} \\
263.76 / 20 = 13.18\text{ inches between stakes}
\]

I then cut me a piece of pvc 13in long to use as a measuring stick. Drive your stakes into the ground leaving about a foot above ground.

(USE EXTREME CAUTION HERE: THE STAKES CAN BE VERY DANGEROUS)

You can make some pvc caps to put on them while you work, or you can buy the protective caps at the home center.
Once all the stakes are in the ground, attach your pvc to the stakes with the hose clamps.

**Now the fun begins.**

Go around the tree untangling and spread the strands out away from the center pole. The more room you can create around the center pole and stakes the better. You will spend a decent amount of time working under the strands.

Attach two opposite cables. I chose to use my channel 1 and channel 11 cables. Once they are attached you can make adjustments to make the pole plumb. Do the same with the cables that are ¼ the way around the tree. This should give you cables that are attached in four directions. Make the cables nice and tight, remember, the weight of ALL of the lights will be placed on the cables.

Since my green strands were longer than what was needed to go from top to bottom, I was able to run them back to the center pole, then out of the back of the tree. Instead of attaching the lights to the pole, I mounted yet another plumbing fixture around the base of the pole.
Once your mega tree is complete, power it up and test the megatree portion. Do this BEFORE continuing on to the spirals. Once the spirals are on, you will not have access to the center of the tree.

Also I am sure you can see the bundle of lights exiting the back of the tree in the previous photo. I covered the bundle with black plastic. This hid the lights and prevented me from using more extension cords.

The Spirals

I wish I could say that there is a magic to this step, but the reality is you just have to work with them a little.

I started with channel 1 and worked my way around the tree. I only attached the strand to the stake at the bottom. This will allow you to adjust the lay of your spirals. For the first few strands, you may want to step back and see if the spacing looks ok. You might have to remove one and rewrap it. Just remember, not to pull the spirals very tight. I just let them lay on the megatree lights and didn’t try to pull the spirals very tight at all.

I did about 4 or 5 strands starting with ch1 working to 5 or so, then I actually worked backward a little. Starting at 20 and going to about 17 or 16. This will help you “SEE” the spirals spreading from the center of the tree out to the top and the bottom.

Just keep and eye on the spacing, it should start out almost on top of each other at the top, and gradually get wider as it goes down.

Once all the spirals are in place, you can walk around the tree and check the spacing. Use wireties where needed to hold them in place. For the most part the lights from the migatree underneath will hold the spirals in place. You can see in the photo below, the spiral are not perfect, especially near the center.
Your Preview

Now that you have built the tree, how are you going to sequence it? The conventional spoke type diagram for a megatree just does not give you a decent idea as to what the spirals will look like.

I wanted a template to draw my preview channels by so this is how I did it. The final outcome is to have a printout for each spiral that you can attach to your monitor and use as a template.

This is where the SPIRALTREESPREADSHEE-97 will come in handy.

The important part here is the Viewing Rotation section. I just divided 360 by the number of channels I was using for the spirals to get what I call the step value. This gave me a step value of 18. I changed the Viewing Rotation value to 0. Since my channel 1 starts at that spot. You can look at the bottom graph on the calculator to see where the spiral is starting (at the top).

This part took a little trial and error, but you can resize the graph next to your values. Once I did that I printed the copy for channel one. Select the tree diagram and then print it. You may have to adjust margins and scale to get the desired size. When satisfied with the look, just added my step value to the Viewing Rotation and printed the graph again. Keep adding the step value and printing the graphs until you have all the channels. Make sure you number each of the printouts.

Place you a couple of pieces of tape on your monitor to act as guides so you can align each printout fairly close to where the previous one was attached. Just go in order, attaching each sheet to the monitor, and drawing the spiral for that channel on your preview. It will look strange at first, but have faith, it will eventually will come together.
Here is a snapshot of the tree in my preview.

I have tried to answer all of the questions people have had about the tree. I am sure I have left something out, so feel free to msg me with any questions.