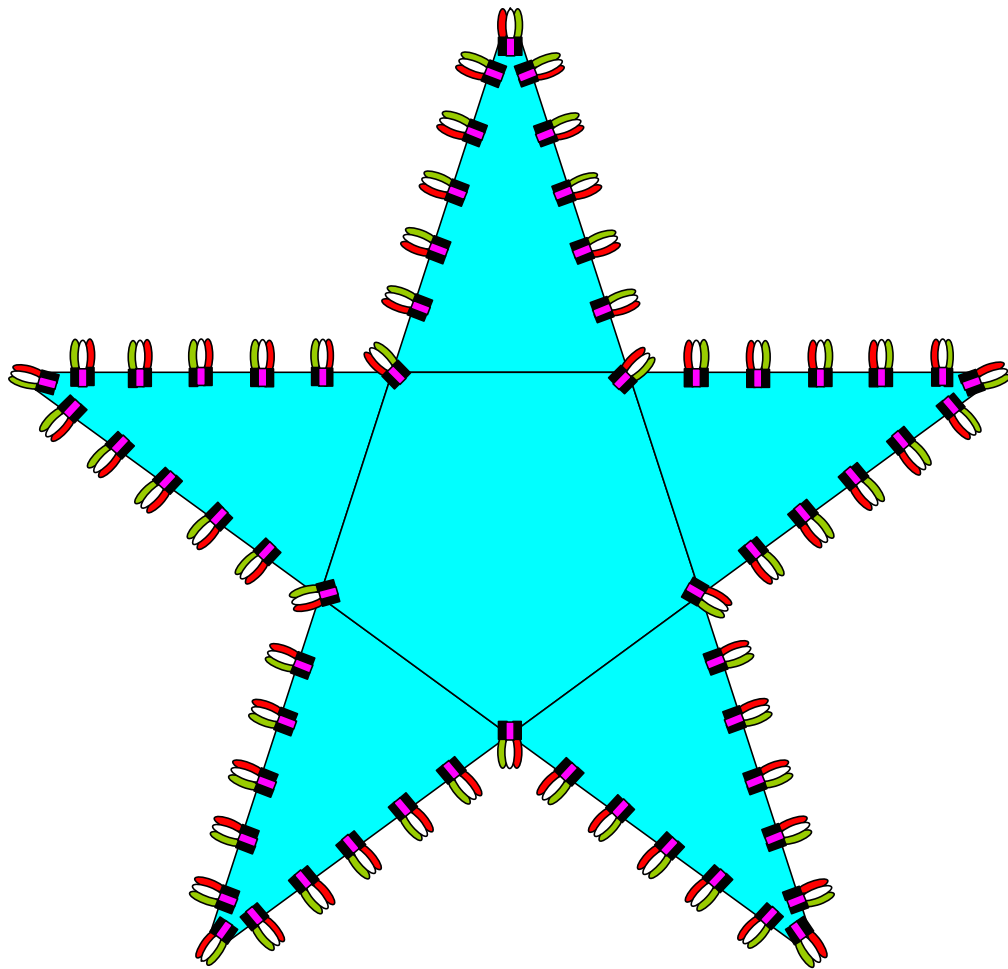


Build This 9' Mega-Star



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Introduction

This document describes how to build a nine foot high animated star. The lights can be strung in three patterns, each of which supports a number of effects. The star that was built to illustrate this document was strung in all three patterns. Each pattern was populated with a different lamp color to add even more variety to the effects possible. The cover figure shows how the star is lit. There are groups of three bulbs at each lit point, two colored bulbs next to each other and a clear bulb on top of them. The clear bulb allows the colored bulbs to be seen through it and keeps the light sources tight together.

What This Star Can Do

There are 180 bulbs total, 60 red, 60 green and 60 clear. As described herein, the red bulbs are one circuit. The effects available on this circuit are: fading up, fading down, set intensity, twinkle and shimmer.

The green bulbs are wired as five circuits, one for each point of the star. The effects available on these circuits include those available to red and the star can be made to appear to spin clockwise or counter-clockwise by controlling the points individually.

The clear bulbs are wired as seven concentric circles. The tips are the first circuit, the next in concentric circle of lights are the second circuit, ... the innermost concentric circle of lights form the seventh circuit. The effects available on these circuits include those available to red and the star can be made to appear to explode or implode by controlling the concentric circles individually.

Of course, the 13 circuits can be manipulated in any way you want. You could fade from red to green to clear, turn on all colors at once or have a red star with clear shimmering tips, etc.

Bill of Materials

Quantity	Description
5	10' long furring strip, 2 3/8" (actual) wide and 5/8" (actual) thick (Provides sufficient rigidity without too much weight)
10	1/8" x 1 3/4" nut & bolt with two 3/4" washers
1	Quart outdoor paint
2	Hinges for top point of start (optional, but they make moving and storage easier), also required for this option: <ul style="list-style-type: none"> • two 18" long, 2" wide, 1/2" thick boards to support hinged point • four 1/8" x 2" long bolts, nuts and washers • four wing nuts
1	500' spool wire (SPT1 is lighter and depending upon how many circuits you wire and how you wire them, you may use up to 400' of wire) www.actionlighting.com -> Holiday Installation Accessories -> SPT1 Wire white or green
2	100 count package of squeeze-on bulb sockets www.actionlighting.com -> Holiday Installation Accessories -> C9 Socket SPT1 white or green
180	Bulbs, three sets of 60 (3 colors) www.actionlighting.com -> bulbs -> C7 – C9 -> C9 bulbs in 25 count packages
1	Box 9/16" T25 staples (wire staples, require a T25 staple gun)
1	Light-O-Rama CTB-16D controller (Hobbyist or Showtime) If Hobbyist and mounting controller in you own box on the star: <ul style="list-style-type: none"> • 1 Plastic food contrainer for controller • 1 Power cord for controller • 4 Mounting standoffs for controller • 3 screws to mount plastic box to star
1	www.lightorama.com -> Support -> Free Sequences -> MegaStar

Table 1

Laying Out the Furring Strips

Figure 1 below shows how to layout and bolt the boards together. The notes on the diagram are only important if you intend to hinge the top point. Hinging the top point make the star much easier to store and carry around.

Don't install the "Support bolts" at this time. Mark a point approximately 6" above and below the cut on both sides of the top point so you remember to leave a clear area there or near there to drill the holes for these four bolts. Don't wrap wires around the back of the star for one foot on each side of the hinge. The support boards will be bolted here. To see a diagram of the hinge installation, skip ahead to the "Hinge Finish-Up section."

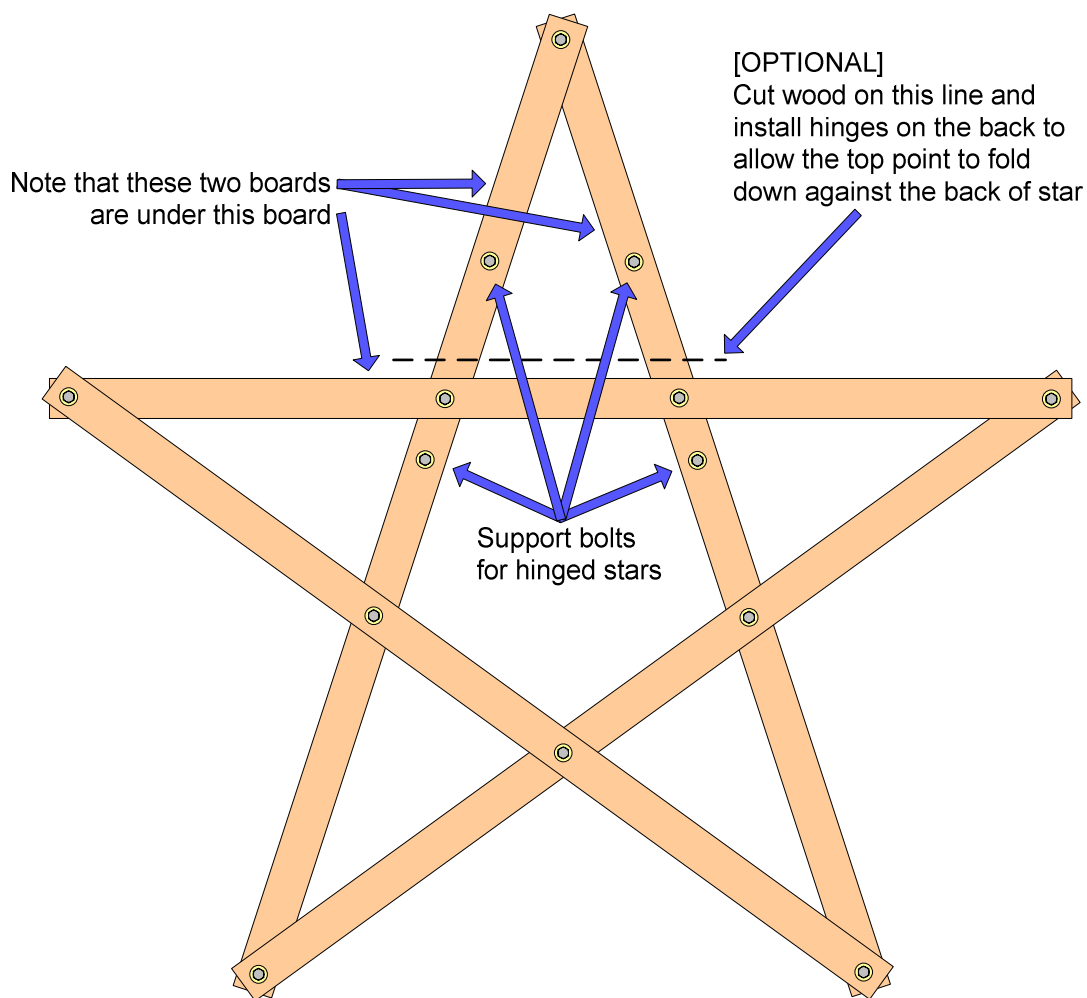


Figure 1

After assembling the boards and optionally installing the hinges, paint the star. If you hinged the star, also paint the 18" boards that will be used to support the hinged point.

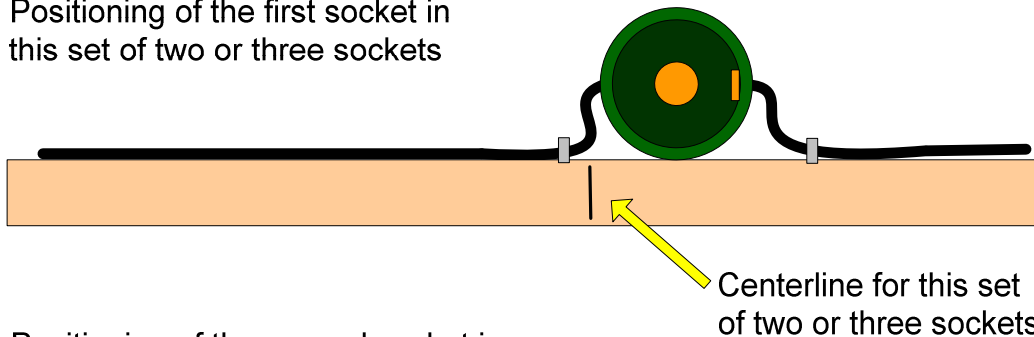
Socket Installation and Positioning

Pressing the sockets onto the wire requires some care. The sockets are somewhat fragile and if you do not squarely compress the socket onto the wire it may crack or not work. The sockets are polarized. Be sure to position the socket such the ribbed conductor of the power cord is pierced by the copper point for the socket contact that touches the screw part of the bulb. Make sure you line up the small projection on the socket with the projection on the snap-in bottom.

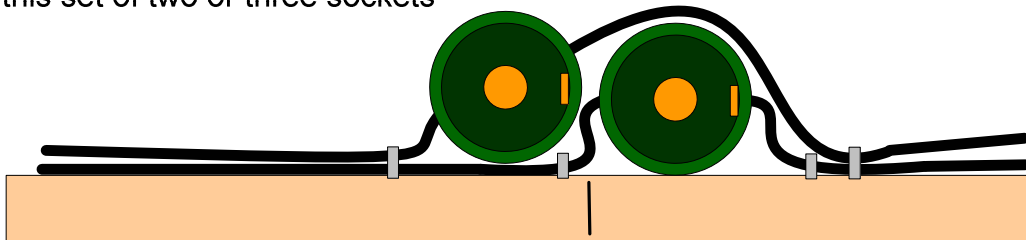
You should allow yourself extra wire and only staple one side down. After a circuit is mounted, connect it to power and test each socket. It is a nuisance to remove three sockets to get at one that does not work. When all sockets on a circuit are known to be OK, remove the power and complete the mounting.

If you are going to wire two or three sockets at each light position you should offset the sockets as shown in this figure 2. This figure is an edge on view of the star looking into the empty sockets.

Positioning of the first socket in this set of two or three sockets



Positioning of the second socket in this set of two or three sockets



Positioning of the third socket in this set of three sockets

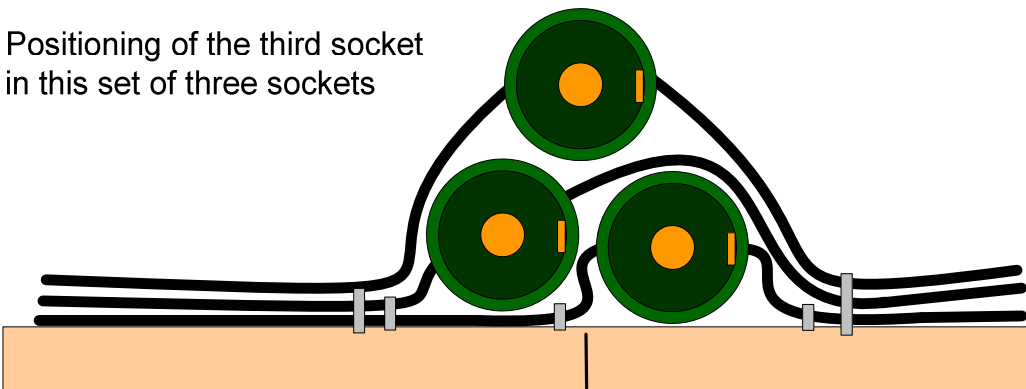


Figure 2

Wiring for One Circuit

Note that the sockets are slightly offset anticipating the installation of a second color as shown in Figure 2. If you are only installing one socket at each position, center it.

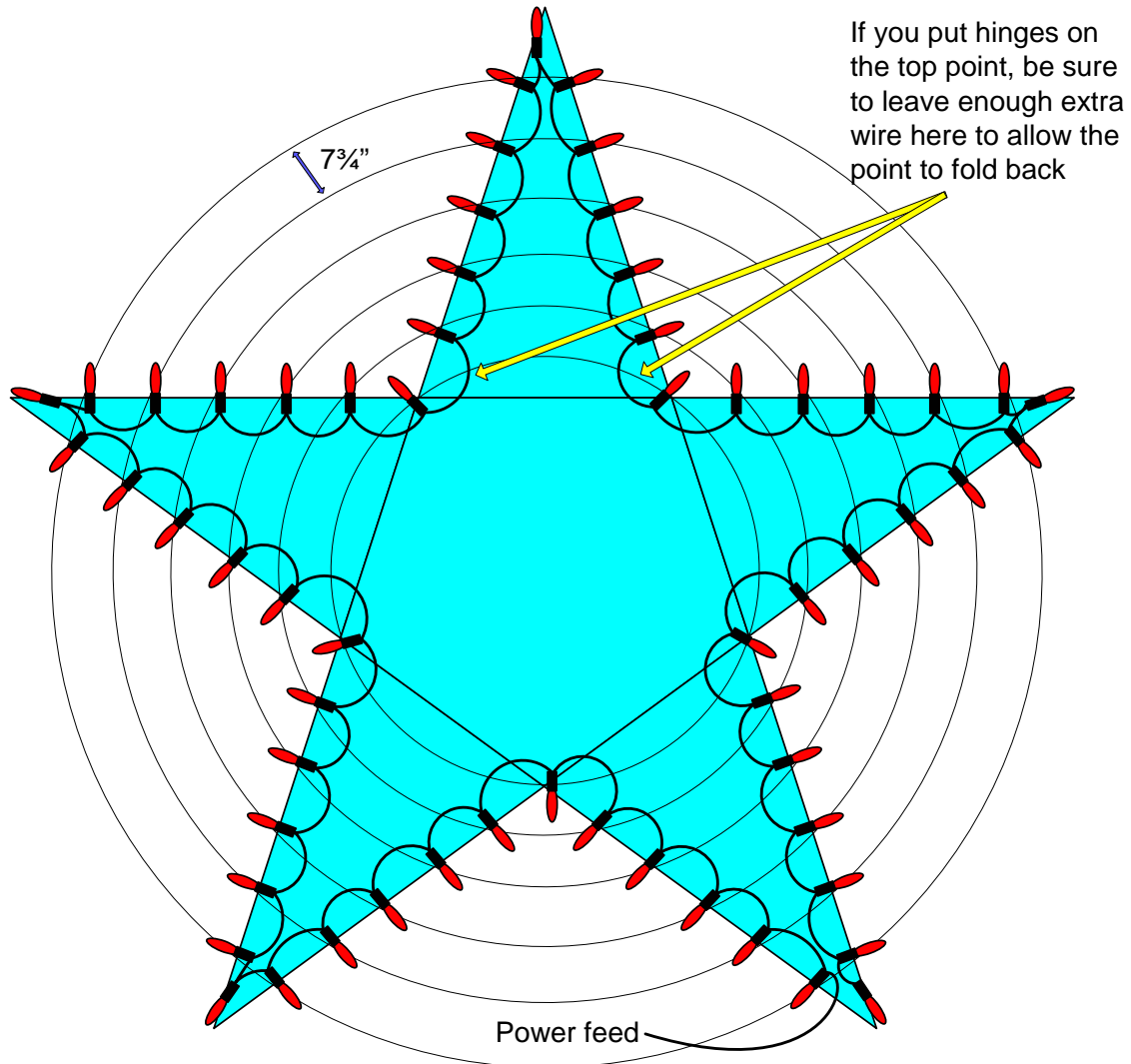


Figure 3 (One circuit all lights)

Wiring for Five Circuits – One Per Star Point

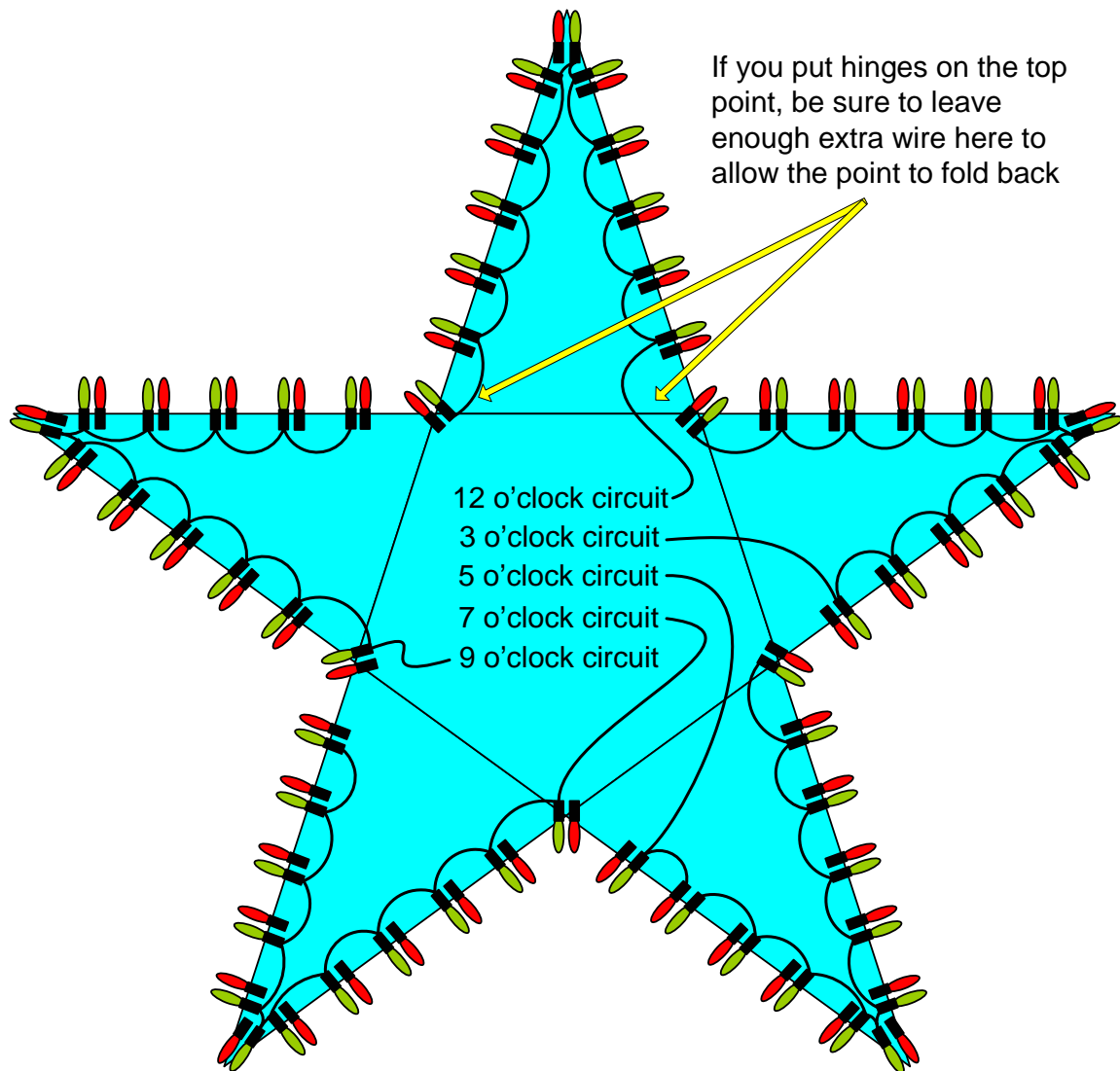


Figure 4 (Five Circuits – One per Star Point)

Wiring for Seven Circuits – Concentric Circuits

There are two ways to wire this pattern:

1. Keep all the wires along the boards, i.e. don't just run the wire between the two lights on a point. This makes it less likely that you will grab and pull off a wire. It also makes the star look a little better during the day.
2. Just run the wire across the opening between lights on a point. This uses a lot less wire.

To keep this figure from being too messy, only the innermost and next ring out are shown wired

If you put hinges on the top point, be sure to leave enough extra wire here to allow the point to fold back

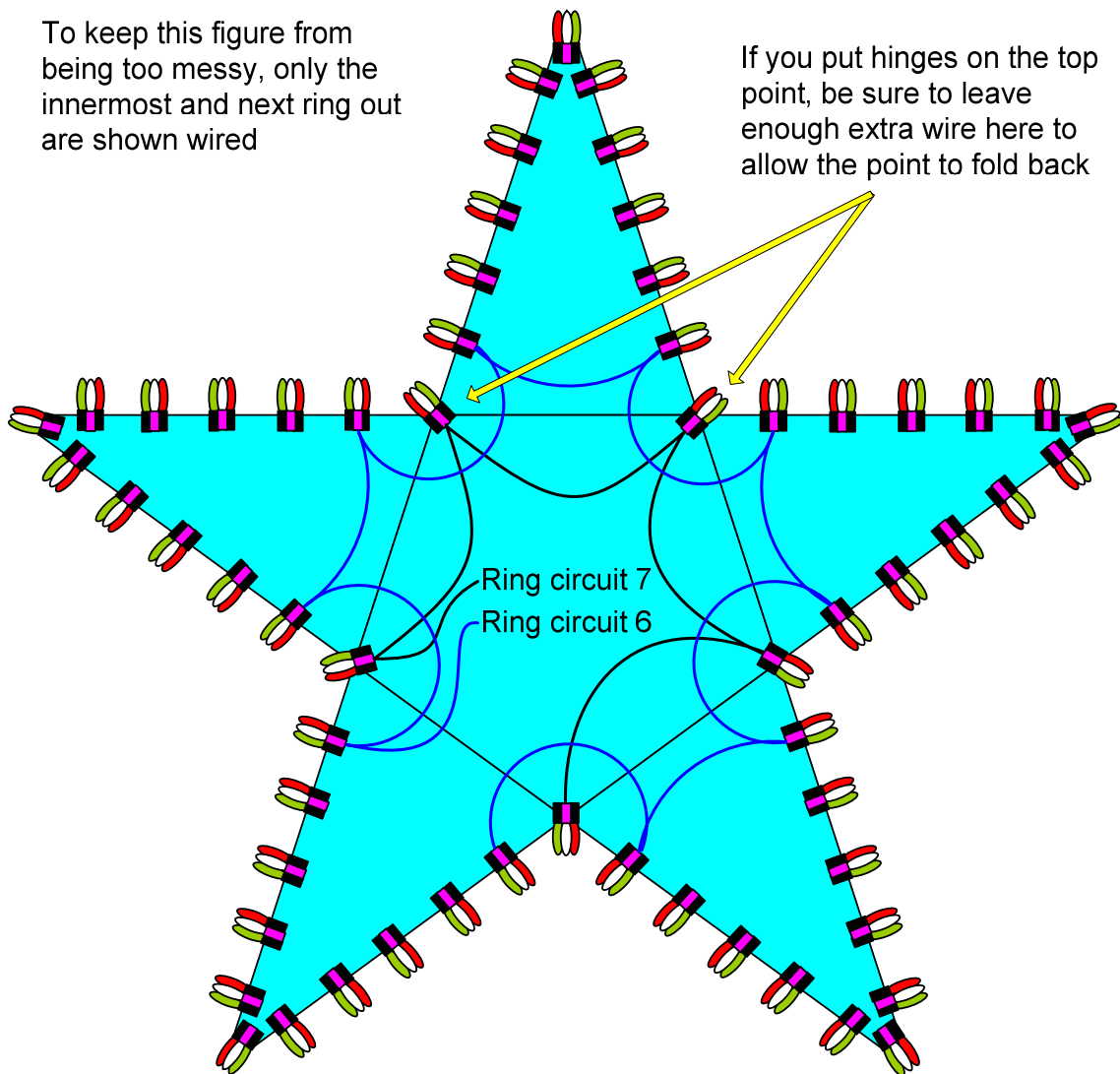


Figure 5 (Seven Circuits – Concentric Circles)

Hinge Finish-Up

If you hinged the top point of your star, now is the time to drill the holes in both the star and the support boards. You should have kept four spots relatively clear 6" above and below the hinges on the front of the star as per the earlier instructions. Place the 18" support boards behind the vertical star boards directly over the hinges. The support boards should extend for 9" on either side of the hinges. You may have to cut off the end of the bolts at the star vertices to make room.

Drill holes through both the star and the support boards approximately 6" above and below the hinges. Install the 2" bolts with washers and nuts on the star boards only. The bolts should extend about a inch out the back of the star.

You may have to drill out the support boards a little more so that the slide easily over the four support bolts. Use the wing nuts to secure the support boards in place. The following diagram show the back of the star.

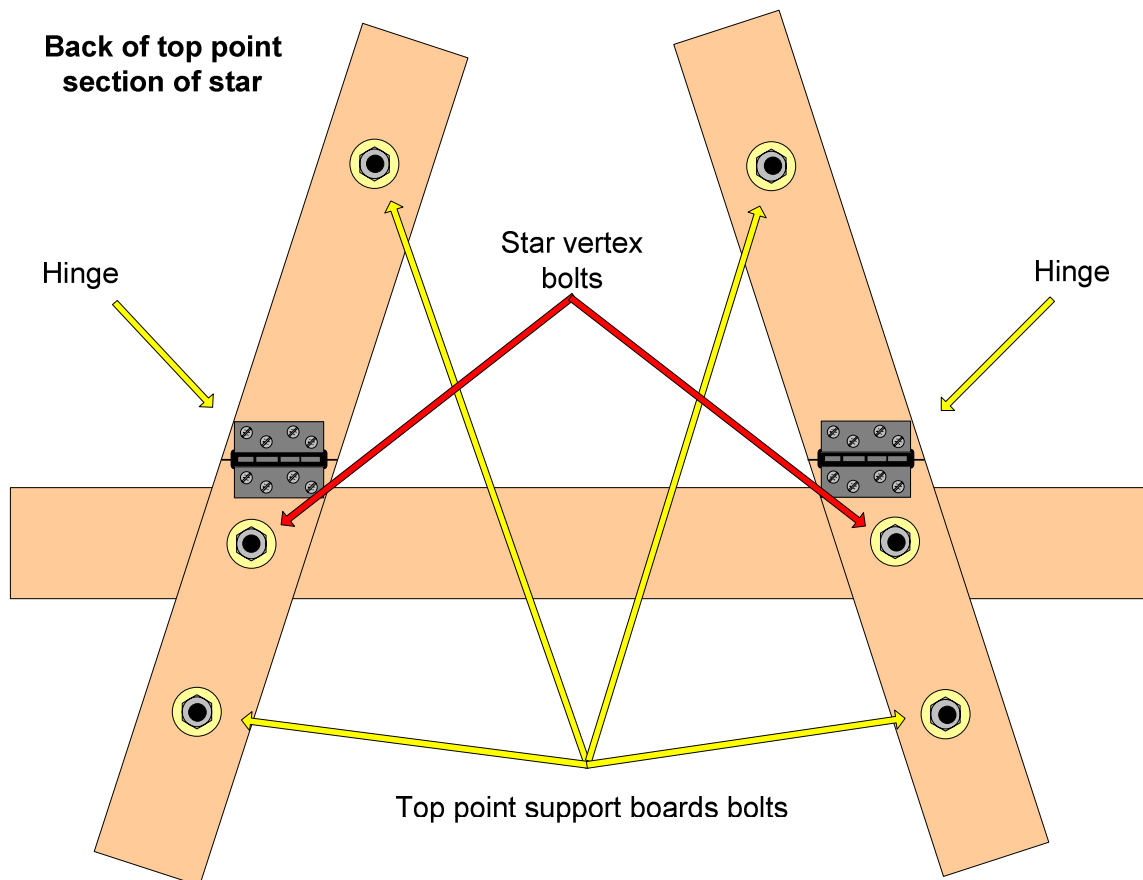


Figure 6

Connecting the Circuits to the CTB-16D

To use the pre-sequenced animations provided on the Light-O-Rama website you must connect the circuits on you star to the Light-O-Rama controller as follows:

Channel 1 or 9	Red
Channel 2	White ring 1
Channel 3	White ring 2
Channel 4	White ring 3
Channel 5	White ring 4
Channel 6	White ring 5
Channel 7	White ring 6
Channel 8	White ring 7
Channel 10	Green 12 o'clock
Channel 11	Green 3 o'clock
Channel 12	Green 5 o'clock
Channel 13	Green 7 o'clock
Channel 14	Green 9 o'clock

Power capabilities when using 7 watt C9s:

- Single power feed CTB-16D can run one MegaStar.
- Dual power feed CTB-16D can run two MegaStars simultaneously. Make sure you put one 'red' (single star circuit with 60 C9s) on channel 1 and the other on channel 9.

Using the Light-O-Rama Demo Animations

Download the demonstration animations:

www.lightorama.com -> Support -> Free Sequences -> MegaStar

The demonstration sequence can be run via the Sequence Editor, or loaded directly into the controller via the Hardware Utility.