

# INSTALLATION INSTRUCTIONS

## 102054 ASSEMBLY INSTRUCTIONS – STAGING TREE KIT

This kit provides all the necessary components to construct a replica of a classical NHRA style race staging tree. We chose to use standard PVC tubing because of its low cost and light weight. The completed project is a full-size display which is designed ONLY to be used as a prop to simulate the actual drag racing staging tree, commonly used on drag racing tracks. It is NOT designed or intended to be used on a public highway or for timed drag racing. The product is programmed to automatically run through three different drag race scenarios, starting with a standard SPORTSMAN TREE, going to a "red-light" stage, then finally to a PRO TREE. The electronic circuit is programmed to go thru all three sequences, then flash all lights in "lamp test" mode, reset, then run thru the sequences again. This will repeat itself over and over when the unit is plugged into a 120V receptacle. Once the tree is completed, you may wish to paint the entire tree using automotive interior spray paint – this paint sticks to plastic quite well.

### LAMPS ARE NOT INCLUDED

Recommended lamps are holiday style 100 watt PAR-38 reflector flood lights for the main lamps, and 40 to 60 watt yellow "bug lights" for the stage and pre-stage lamps. You will need six yellow "bug light" flood lights, two green flood lights, and two red flood lights. You will also need eight yellow "bug lights" for the upper staging lights. Lamps are commonly available at hardware stores or electrical supply houses. The finished unit puts out a fair amount of heat, so lower wattage lamps are desirable.

This kit comes with all necessary components to build the tree except the base, which is a standard "Christmas tree" stand as shown in the image. Since the completed tree is top-heavy, a large base is needed. The stand base can be purchased thru many department stores, for Christmas trees which are a minimum height of 8 ft. high. You can also use a spare tire and wheel assembly but you must attach it to the PVC flange with sufficient bolts, to provide stability. Note that a stand base must be used to properly support the tree. Items included in this kit are as follows:

- 1 ea. PC board Tree Controller assembly
- 1 ea. Grounded AC power cord 6 ft. long
- 1 ea. Pre-Stage and Stage assembly, pre-assembled with 8 sockets and 2 connectors
- 1 ea. Extension 52 in. long "P1 – S1" with flat connector
- 1 ea. Extension 52 in. long "P2 – S2" with square connector
- 2 ea. Extension harness 40 in. long "Y1" and "Y2"
- 2 ea. Extension harness 34 in. long "Y3" and "Y4"
- 2 ea. Extension harness 28 in. long "Y5" and "Y6"
- 2 ea. Extension harness 22 in. long "G1" and "G2"
- 2 ea. Extension harness 16 in. long "R1" and "R2"
- 10 ea. Lamp socket metal shell assembly – remove and discard gasket and nut
- 20 ea. Wire Nut - blue
- 1 ea. 3x3 in. x 1½ x 1½ PVC Double-Tee
- 1 ea. PVC Cap 3 inch with short tube installed (top cover cap)
- 1 ea. PVC Flange 3 inch – must be affixed to a weighed or large base
- 1 ea. PVC drilled long tube 3 inch x 45 inches long with 12 drilled holes – labeled TOP and BOTTOM

Start by opening the 10 lamp socket packets. Remove and discard the black seal washer and the pipe nut, and loosen each angle lock screw. Preset each lamp so that the angle of the threaded mount with respect to the socket shell is about 135 degrees, as seen in the *PROPER ANGLE* illustration. Tighten each lock screw when the angle is achieved. Next, separate each of the extension harnesses by their tagged labels. Study the layout of the staging tree – the wiring hookups will follow the terminals on the controller PC board.

Each lamp has its own location as follows, starting in the upper left corner facing the tree, moving to the right and down. Study the image of the completed tree. This is the proper layout for the completed staging tree.

All extension harnesses are labeled on the bottom end and have a red and a black wire in them. The Pre-Stage and STAGED wiring has mating connectors attached (four cables). Attach a labeled extension to each of the ten sockets. Attach black wire to black on all sockets, and red to white on all sockets. All sockets are the same, so you can use them for any position on the staging tree. Blue wire nuts are used throughout and must be completely threaded onto each wire connection. Twist the wire pairs for each connection before installing the wire nut, and be sure to tighten the wire nuts securely.

## ASSEMBLE AS FOLLOWS:

The pre-stage and stage light sockets are pre-assembled and bonded together as a complete assembly, except for the top cap. Set this assembly aside for now, as you will install it last, after all other wiring is assembled. The top assembly is connected electrically through the square and the flat connectors. When installing the assembly, attach both connectors to their respective mating connector.

Start by feeding the four cables P1, P2, S1 and S2 down the long tube. The square and flat connectors should be at the top of the tube, protruding out, and the four cables will be leading out of the bottom as shown in *FIRST STEP*, with the tags at the bottom. Next, assemble Y1 and Y2. Attach the Y1 harness to a lamp socket using two wire nuts (see *WIRE NUTS INSTALLED* illustration), and feed the extension thru the top left hole, feeding the wire thru to the bottom of the long tube. Repeat this procedure until all of the extension harnesses are fitted thru the long tube, and exit the bottom. Refer to the *SOCKET INSTALL* illustration when threading each socket into the long tube.

All of the tagged cables from every light should be protruding thru the bottom of the tube – there will be 14 wire pairs. All wire harnesses should be labeled with their respective location. You can now attach the wires to the PC board terminal strips (refer to *PC BOARD WIRING* illustration). All red wires should be attached to the COMMON terminals and black wires to the corresponding locations printed on the PC board. Slide the wire into the terminal slot and use a miniature slotted screwdriver to tighten each terminal. Once all terminals are secured, tape the wire bundle together for two inches, to facilitate installation into the tube. Attach the power cable to the power terminals, matching the wire to the color printed on the PC board. BLUE wire is the same as WHT, and BROWN wire is the same as BLK. Tighten the screws securely. Slip the power plug thru the large hole labeled AC CORD in the base of the long tube and then carefully feed the Controller PC board into the lower section of the tube. It will be a snug fit, but **DO NOT FORCE** the circuit board. **Components on the PC board can be damaged if you force the PC board!** Once the board is completely inserted, affix the long tube into the PVC flange. The flange must first be mounted on a suitable base, such as a Christmas tree stand or wheel/tire combination. This will stabilize the "top-heavy" staging tree and allow you to place the lamps into the unit without the chance of it falling over. Note that there is a large hole at the top of the long tube – this is where you store the plug when the unit is not in service. Place the plug into the hole and insert it far enough to take up the slack. COPYRIGHT © 2001 CASPERS ELECTRONICS INC.

