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# INSTALLATION AND INSTRUCTION MANUAL

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## TRAFFIC DIRECTORS



**TD77**



**TD92**



**TD93**



**TD93DLXT**  
**TD93DLXT24**



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### **Star Headlight & Lantern Co., Inc.**

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PLITSTR241 REV. F 5/11/10

**Important** This product is used to **direct** traffic. Improper use may result in vehicular collision, personal injury and/or death. Star Headlight & Lantern Co., Inc., and its subsidiaries shall not be held responsible for damages directly or indirectly caused by improper use of this product. Always carefully consider the effect on traffic that the selected light pattern will have before engaging the lights.



This light utilizes one or more of the following light sources: Strobe Lights, Halogen Lights, and/or High-Intensity LED Lights.

**DO NOT** stare directly into the light while it is on, as momentary blindness and/or permanent eye damage may occur.

Before beginning the installation:

- Determine where the Traffic Director is to be mounted (on your lightbar, on your roof, in your rear window, etc).
- Check to see that there are no obstructions hindering the visibility of your traffic director.
- Then select a location to mount your controller. The controller must be located in a dry location out of direct sunlight, free of dirt and dust. Under the vehicle's instrument panel is usually the best choice.
- Once you have selected these locations, determine the path your cable, which connects the controller to the Traffic Director, will take. The cable should exit the left side of the Traffic Director when you are facing both the stick and the controller.

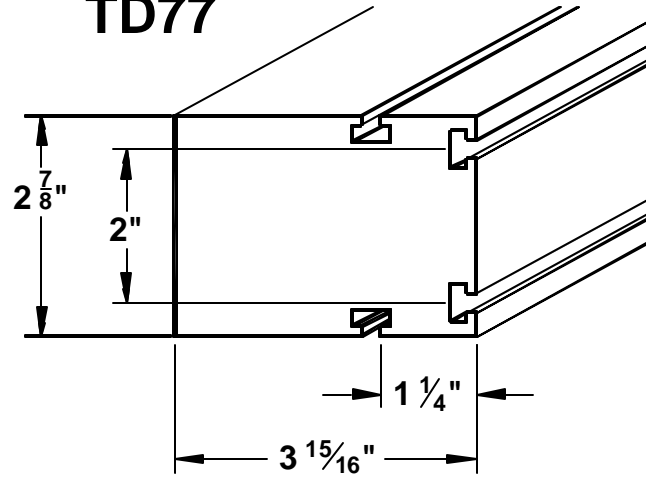


Be sure the cable attached to your Traffic Director is long enough for proper installation. If it is too short, you will need to order a Traffic Director with the correct length cable *pre-installed*. The standard length for the cables is 15'. **Star does not recommend "splicing in" additional cable when the supplied cable is too short.** Traffic Directors with 30', 45', and 60' cables are available upon request.

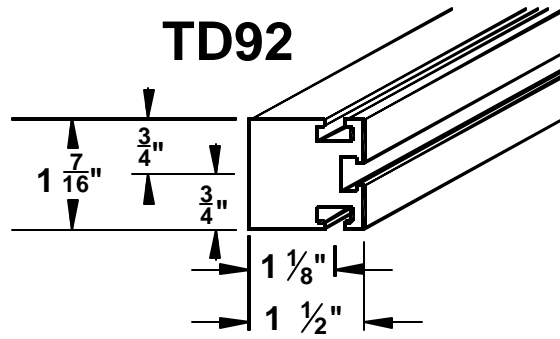


*It is the sole responsibility of the owner to ensure the lightbar is mounted securely. Check your light every time you enter the vehicle to ensure that it is mounted securely. The manufacturer assumes no responsibility for the secure mounting of this light.*

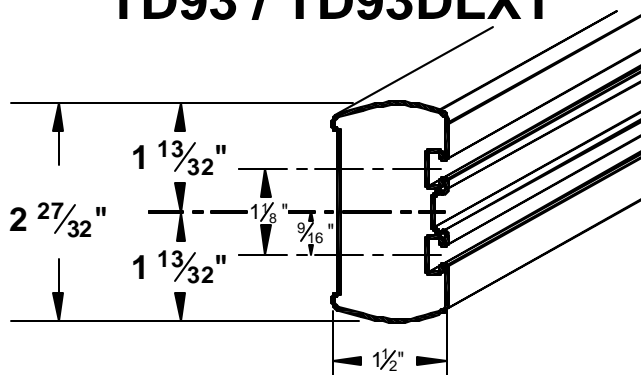
### TD77



### TD92



### TD93 / TD93DLXT



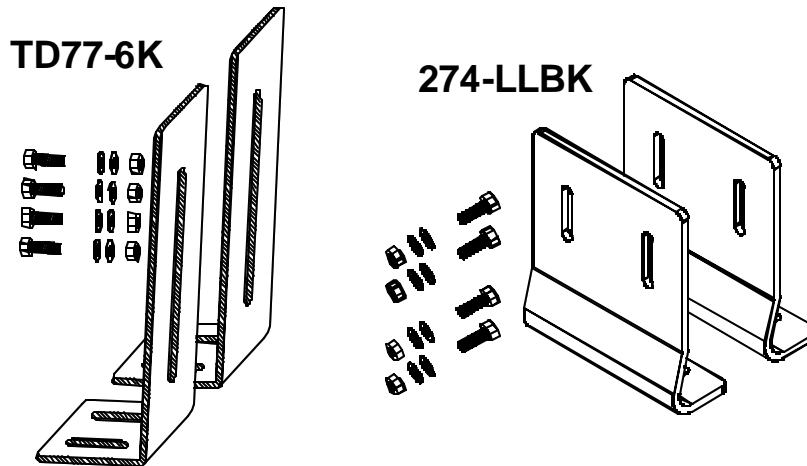
### NOTICE

Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice. Star Headlight & Lantern Co., Inc. makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Star Headlight & Lantern Co., Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

## Mounting Instructions

**Please Note:** These instructions are provided as a general guideline only. *Some vehicles may require special mounting, wiring, and/or weather-sealing. This is the sole responsibility of the installer.* Star Headlight & Lantern Co., Inc. assumes no responsibility for the integrity of the installation for this or any of its products.

1. **Caution:** There are two vapor vent holes drilled in the bottom slot of the TD92. Check the extrusion for these holes to be sure they are located at the bottom when you mount the bar.
2. Each bar light assembly comes equipped with slots along the entire length of the extrusion that will retain 1/4" hex head bolts. The TD77 and TD92 have slots along the top, bottom, and rear. The TD93 and TD93DLXT only have slots along the rear.
3. Two "L"-Brackets are included with each traffic director to assist in mounting it to a lightbar or other secure base. The #TD77-6K L-Bracket Kit is shipped with the TD77 and TD92. The 274-LLBK L-Bracket Kit is shipped with the TD93 and TD93DLXT.

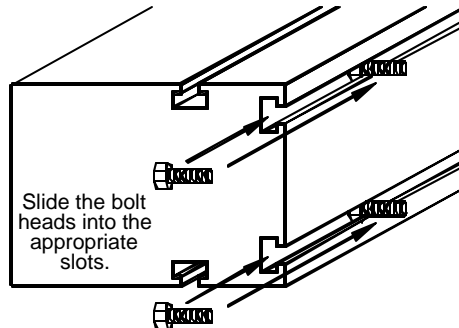


4. Also included are four 1/4" x 20 x 3/4" hex head bolts, four flat washers, four split washers, and four nuts to attach the L-Brackets to your traffic director. You can mount your traffic director directly to your vehicle using the enclosed bolts or your own 1/4" hex head bolts. You may also use the enclosed hardware to mount the L-Brackets to your traffic director.

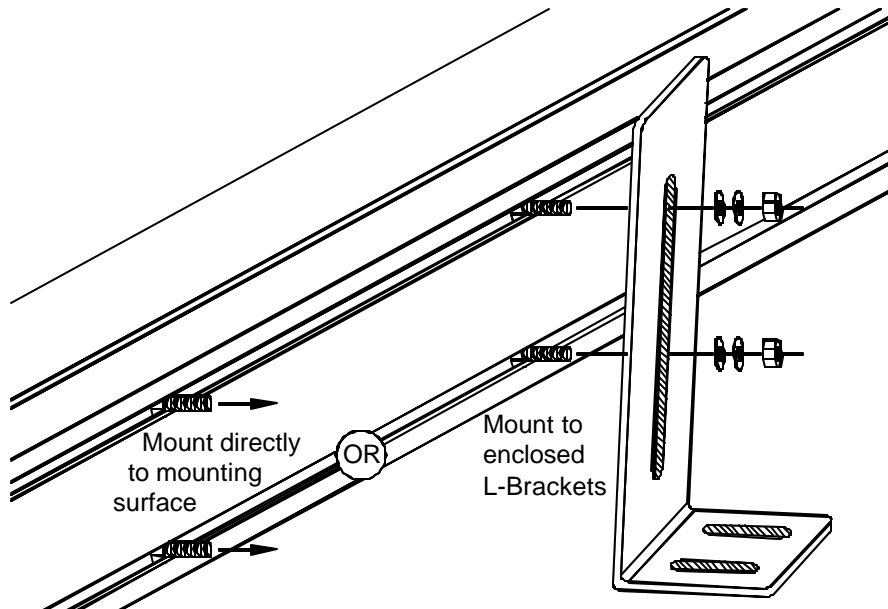
(Mounting CONT'D)

5. Models with endcaps have the bolts pre-installed. The additional bolts enclosed in the hardware kit will not be needed.

If yours are NOT installed, slide the necessary number of bolts into the appropriate channels on your traffic director.



6. Slide the bolts to their desired location along the tracks and mount the bolts through pre-drilled holes in your vehicle or mounting bracket. Use a flat washer, split washer, and nut on the bolt. If you are using the L-brackets provided, you will need to supply appropriate bolts or other fasteners to attach the brackets to your mounting surface.

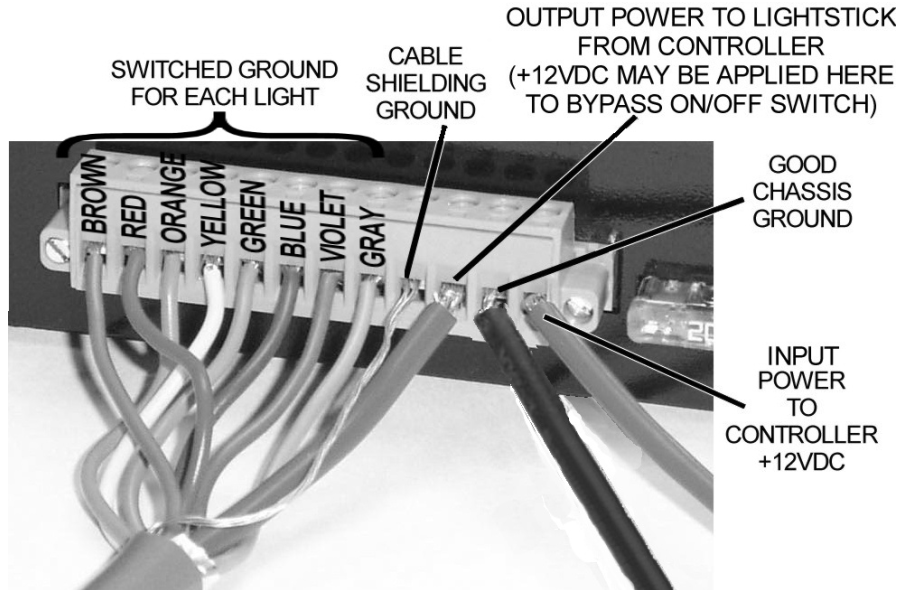


**CAUTION:** Be sure to carefully inspect and test the integrity of your mount.



*Because of the wide variety of mounting applications, Star Headlight & Lantern Co., Inc. assumes no responsibility for the secure mounting of this light. It is the responsibility of the installer and/or owner to ensure the lightbar is mounted securely. Check your light every time you use the vehicle to ensure that it is mounted securely.*

## Electrical Connections



**Please note: If you are connecting a TD93DLXT24 (which operates only on 24VDC) the Input Power (and bypass power) would be 24VDC in the diagram above.**

1. The cable attached to your Traffic Director should have a green connector (part #CPSS-153) attached to it. Eight colored 18 AWG wires, one bare drain wire, and a large red 12AWG wire should already be connected from the cable to the connector.
2. Connect a ground wire to the interior empty terminal on the green connector. (See diagram above) The corresponding terminal plugs into the outlet on the back of the controller and is marked **BAT-**.



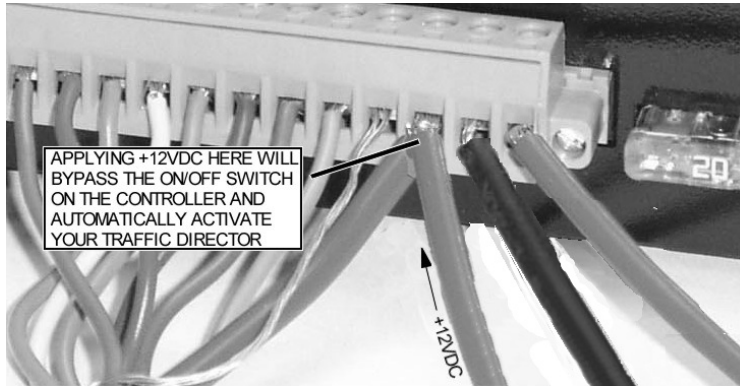
***It is imperative that you supply a ground wire to the terminal marked "BAT -" on the controller. You must not let the controller's case supply ground. Use 12 AWG wire for all power and ground connections***

3. Supply power for the unit from a **fused**, +12 VDC source (or 24VDC for the TD93DLXT24) capable of delivering at least 15 amps of current (use a 20 amp fuse). Star recommends the use of an ignition switched supply to avoid the possibility of draining the vehicle's battery should the unit be accidentally left on.
4. Connect your power supply to the terminal on the green connector that corresponds to the outlet on the back of the controller marked **BAT+**.
5. The lamp brightness will be somewhat diminished if a large voltage drop exists between the vehicle's battery and the controller. If voltage drop is a problem, use a relay to control a direct battery feed. A generic relay designed for automotive lamp service should be available from most automotive stores for this purpose. If using a relay, don't forget to **fuse the feed and signal wires** at their source, with appropriate values. It is imperative that you supply a ground wire to the terminal marked "BAT -" on the controller; you must **not** let the controller's case supply ground. Use 12 AWG wire for all power and ground connections.
6. Your Traffic Director should now be ready to operate.

(Wiring CONT'D)

### **Wiring for Optional Automatic Activation**

1. The Traffic Director may also be wired to automatically bypass the TD77-2 (or TD77-2-24) controller On/Off switch and turn on through the use of an alternate power source (i.e. lightbar switch, siren switch, reverse switch, etc.).
2. When you apply +12VDC to the 12AWG wire supplying the stick with power, you will bypass the On/Off switch and activate the Traffic Director. When activated, the Traffic Director will automatically enter the "Warn" pattern.



**Please note:** If you are connecting a TD93DLXT24 and TD77-2-24 (which operate only on 24VDC) the bypass power would be 24VDC in the diagram above.

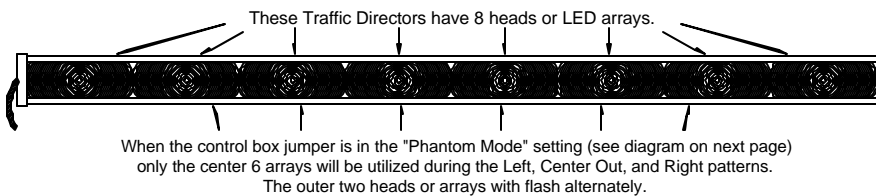
## **Jumper Settings**

The TD77-2 control box and the ULB42-TD-2 control box are identical except for the factory default setting of a jumper located inside the control box. This jumper will control the output of the two arrays on each end. The TD77-2 comes with the jumper defaulted for standard operation.



***TD77-2 or TD77-2-24***

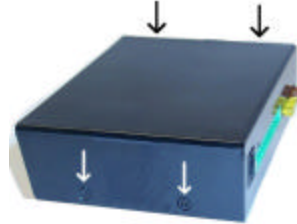
Optionally you may wish to set the jumper so that your arrowstick operates in "Phantom" mode. In the "Phantom" mode, the end lights are not part of the "traffic directing" patterns. When the Alt button is pressed, both of the end lights will flash back and forth in a "warn" type display. (In the "standard" mode, the end lights will follow the normal "traffic directing" pattern you select on the control box.) If you wish to operate your traffic director in Phantom Mode, (6-head traffic directing), follow the instructions below to remove the cover and change the jumper setting. If the standard mode is acceptable, skip this section.



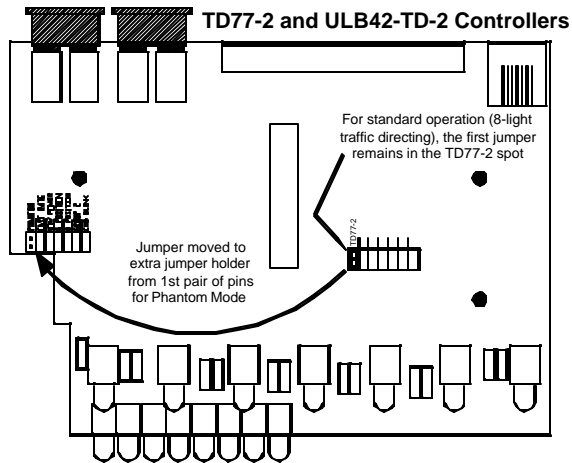
((Jumper Settings CONT'D))

### Arrow stick Control Box Cover Removal

Remove the four recessed Philip head screws (two on each side of the arrow stick control box). Remove the top cover by sliding it towards the front of the unit.



Locate the extra jumper location near the fuses. Move the jumper from the "Option" jumper location near the center of the board over to the extra jumper section. (See diagram below).



## Operation

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1. Your new traffic director is a powerful tool that can aid you in traffic control; or if used *improperly*, it could direct traffic into a *dangerous situation*.

**USE CAUTION!!!**

2. Operation of your Traffic Director is straightforward. The controls include an *On/Off* switch, four *Pattern Select* buttons, and three additional "option" buttons.

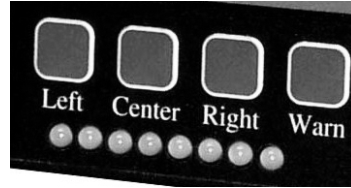
### TD77-2 or TD77-2-24Controller



3. Turn the vehicle's ignition switch to the on or accessories position to supply power to the controller (if necessary) and press the On/Off switch on the control box. The LED display should begin to show the "Warn" pattern and the "Warn" label should glow red.

(Operation CONT'D)

4. Select the desired pattern (if different from the current pattern) by using any of the *Pattern Select* buttons. The **Pattern Select** buttons include *Left*, *Center*, *Right*, and *Warn*. The selected pattern label should change to red and the roof display should mimic exactly the display on the controller.



5. The TD77-2 series controllers also have three "option" buttons: Fast, Dim, and Alt.



#### **Dim**

When the "Dim" button is pressed the "Dim" label will change to red and the Traffic Director will dim slightly (Night Mode). Pressing it again will return the Traffic Director to full brightness.

***The Alt and Fast buttons will affect the Left, Center Out, and Right patterns differently than the Warn pattern.***

#### **Alt**

**Note:** This option only applies if you have your controller in Standard Mode. If you set the jumper for Phantom Mode as described on page 4, this button will only enable or disable the two outer flashing arrays/heads.

If your controller has the jumper set for **Standard Mode**, for any of the four patterns, the "Alt" button will scroll through seven different alternate versions of each pattern.

#### **Alt Versions for Left / Center Out / Right Patterns**

The first three versions are 7-light patterns designed for use with the TD77 Star Sticks which may have an arrow painted on each end. The second three are the same as the first three, but utilize all eight lights. The seventh alternate version uses only the center six lights. In this version, the outer two lights are rapidly flashed.

#### **7-Light Patterns**

- A. Normal - Starts with one light and consecutively adds lights to the pattern until they are all lit. The first light (usually in the shape of an arrow) will not illuminate.
- B. End Blink - Same as the Normal pattern with the exception that the last light will double blink.
- C. Dual Light - Only two lights will be lit at the same time. The two lights will "roll" in the direction of the selected pattern. The first light will not illuminate in this pattern.

#### **8-Light Patterns**

- D. Normal - Same as the 7-Light pattern above, except all lights are used.
- E. End Blink - Same as the 7-Light pattern above, except all lights are used.
- F. Dual Light - Same as the 7-Light pattern above, except all lights are used.

#### **6-Light Pattern**

- G. Outer Flashing - Same as the Normal pattern, but only uses the six center lights. The outer two light alternate quickly back and forth.

(Operation CONT'D)

***Fast Function for Left / Center Out / Right Patterns***

The "Fast" button provides the user with the option to display any of the patterns (Left, Center Out, or Right) in a "faster" mode. Pressing the "Fast" button once should change the "Fast" label to red and speed up the pattern. Pressing the button again will change the "Fast" label back to green and revert the pattern to the standard speed.

***Alt and Fast Functions for Warn Pattern (Standard Mode Only)***

When the Traffic Director is in the Warn pattern, the Alt button will scroll through 7 different versions. The 7 versions differ depending upon if you have the Fast button activated or not. Review the chart below for the different versions that can be scrolled through.

**Fast Button De-Activated**

1. 6-Head Warn Pattern
2. 6-Head Warn w/Alternating Ends
3. 8-Head Warn
4. Search Light
5. Side Band Alternate
6. Random 1†
7. Random 2†

**Fast Button Activated**

1. Random 1†
2. 6-Head Warn w/Alternating Ends
3. 8-Head Warn
4. Search Lights†
5. Side Band Alternate†
6. Hyper Random 1†
7. Hyper Random 2†

† - These patterns are not recommended for use with the TD77 or other incandescent traffic directors

6. When using the Traffic Director, always be sure that the pattern selected is appropriate for the present hazard condition. **The potential danger in displaying an inappropriate pattern cannot be overstated.**
7. To avoid possible damage, the controller should be turned off prior to engine starting. It is possible, though not likely, to confuse the controller if the vehicle's battery is low and the engine is started with the controller running. If you notice that the controller's display shows something out of the ordinary, simply push the power switch to the off position and back on again. This should clear any fault caused by improper voltage being supplied to the unit.

Once your Traffic Director is installed, please test all the patterns, options, and alternate versions to familiarize yourself with the various patterns and the operation of the controller.



## Replacement Parts

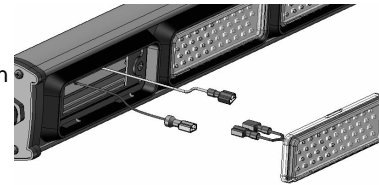
The **TD92, TD93, and TD93DLXT** all use state-of-the-art light Emitting Diode (LED) technology. These lightsticks are comprised of eight segments of Ultra-Bright LEDs that are operated in a multiplexed mode to efficiently produce light output with lifetimes up to 100,000 hours. Under normal circumstances, you will not need to replace any lights in these lightsticks.

### TD92 and TD93

If any of the LED's in your lightstick do fail, please contact the factory for arrangements to have them repaired.

### TD93DLXT and TD93DLXT24

The TD93DLXT series are designed such that if there is a failure in one of the arrays, the array can easily be replaced without removing the lightstick from the vehicle. The replacement head is a part #TD93DLXTRH-\* or TD93DLXT24RH-\* (\*=color).



### TD77

The bulbs in the TD77 lightstick are user replaceable.

1. REPLACE BULBS WITH # 1142. This bulb will outlast the #1076 unit recommended on the rear panel of the controller.
2. To gain access to the bulbs, remove the left (drivers side) end cap from the bar assembly drawing the string of lenses out by the cable.
3. Remove the bulb sockets from the individual lens by twisting in a clockwise direction approximately one quarter turn.
4. Be certain that the replacement bulb is of the correct type; faults caused by improper bulb type will not be covered under warranty. When re-inserting the lamp assemblies into the bar make sure that the flange of the bulb socket aligns with the top and bottom groves in the aluminum extrusion, also make sure the wiring harness does not catch on the edge of the bar as you slide each lamp into place.
5. Re-install the plastic end cap making sure the gaskets are seated correctly.

### TD77-2 Series Controllers

The TD77-2 controller, used with all of the traffic directors, contains two ATO "blade-type" fuses located in the back of the controller. The fuses are accessible from the rear of the controller. The 20 amp fuse controls power to the bar light assembly, while the 5 amp fuse powers the controller. If the 20-amp fuse blows the controller will continue to function normally, however, the roof lamps will not. It is important to note that under normal circumstances the only reason a fuse will blow is because there is a fault in the system. **If a fuse blows repeatedly it is a signal that something is wrong.** Do not replace a blown fuse with anything other than the same amperage rating as marked on the rear panel of the controller; doing so may damage the unit, or worse yet start a fire. Likely causes of blown fuses are improper wiring, harness damage, and/or improper bulb type.

**ONE YEAR LIMITED WARRANTY  
LED FIVE YEAR LIMITED WARRANTY**

The manufacturer warrants each new product, under normal use, against factory defects in material and workmanship for **one year** after the date of purchase. The manufacturer warrants the **LED components** in this light against factory defects in material and workmanship for **five years** after the date of purchase. The owner will be responsible for returning to the Service Center any defective item(s) with the transportation costs prepaid. The manufacturer will, without charge, **repair or replace at its option**, products, or part(s), which its inspection determines to be defective. Repaired or replacement item(s) will be returned to the purchaser with transportation costs prepaid from the service point. A copy of the purchaser's receipt must be returned with the defective item(s) in order to qualify for the warranty coverage. If a copy of the receipt is not provided, the warranty period shall cover five years from the date of manufacture.

Exclusions from this warranty include, but are not limited to, bulbs, strobe tubes, domes, and/or the finish. This warranty shall not apply to any light, which has been altered, such that in the manufacturer's judgment, the performance or reliability has been affected, or if any damage has resulted from abnormal use or service. This warranty does not apply to defect or damage occurring as a result of disaster, accident, abuse, misuse, lightning, power surges, or failure to follow instructions in any enclosed manuals. Any damage or defects occurring as a result of any unauthorized service or repairs by unauthorized persons shall be excluded from this warranty.

There are no warranties expressed or implied (including any warranty of merchantability or fitness), which extend these warranty period. **The loss of use of the product, loss of time, inconvenience, commercial loss or consequential damages, including costs of any labor, are not covered.** The manufacturer reserves the right to change the design of the product without assuming any obligation to modify any product previously manufactured.

This warranty gives you specific legal rights. You might also have additional rights that may vary from state to state. Some states do not allow limitations on how long an implied warranty lasts. Some states do not allow the exclusion or limitation of incidental or consequential damages. Therefore, the above limitation(s) or exclusion(s) may not apply to you.

If you have any questions concerning this or any other Star product,  
please contact our **Customer Service Department** at (585) 226-9787.

If a product must be returned for any reason,  
please contact our Customer Service Department to obtain a  
Returned Goods Authorization number (RGA #) before you ship the product to Star.  
Please write the RGA # clearly on the package near the mailing label.

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