

INSTALLATION AND INSTRUCTION MANUAL  
FOR

The  
***Star Phantom***®  
TRAFFIC DIRECTOR

Model ULB42-TD

Rear Window Undercover Interior  
LED Traffic Director



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**Please Note:** These instructions are provided as a general guideline only. Specific mounting, wiring, and/or weather-sealing may be necessary and are 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.

## Table of Contents

<b>WARNINGS</b> .....	<b>1</b>
<b>JUMPER SETTINGS</b> .....	<b>2</b>
<b>MOUNTING INSTRUCTIONS</b> .....	<b>3-8</b>
Center Bracket Installation .....	3-6
Corner Post Bracket Installation .....	6-8
<b>WIRING INSTRUCTIONS</b> .....	<b>9-10</b>
<b>OPERATION</b> .....	<b>10-12</b>
<b>TROUBLESHOOTING</b> .....	<b>13</b>
<b>SERVICE</b> .....	<b>13-14</b>
<b>WARRANTY</b> .....	<b>14</b>

*The Phantom*<sup>®</sup> uses state-of-the-art Light Emitting Diode (LED) technology. This warning light is comprised of ultra-high intensity LEDs that are operated by a micro-controller to efficiently produce light output with lifetimes up to 100,000 hours.



**CAUTION:** All of our DC powered warning lights are polarity sensitive. These lights are polarity protected *only if the appropriate fuse* is used. All wires connected to the positive terminal of the battery should be fused at the battery for their rated load. **Testing the light before this fuse is properly installed will void the warranty on the light.**

### **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. The manufacturer 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. The manufacturer 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.

**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.

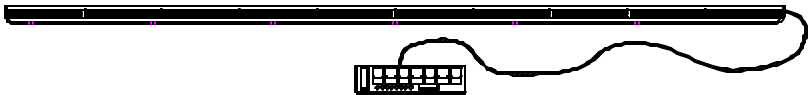


This warning light utilizes high-intensity LED lights.

**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.
- 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 right side of the Traffic Director when you are facing both the lightbar 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.

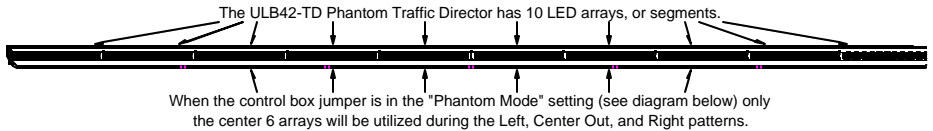
**Limited mounting hardware is supplied because of the many mounting possibilities of these products.** The installer assumes responsibility for the integrity of the installation. ***It is the sole responsibility of the owner to ensure the traffic director is secure***

# Jumper Settings

The ULB42-TD-2 control box and the TD77-2 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 ULB42-TD-2 comes with the jumper defaulted to "Phantom mode".

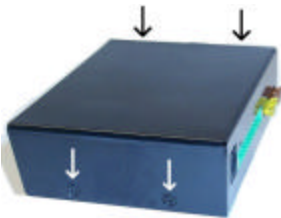
In the "Phantom" mode, the end lights are not part of the "traffic directing" patterns. When the Alt button is pressed, both of the end lights will flash back and forth in a "warn" type display. (In the TD77-2 mode, the end lights will follow the normal "traffic directing" pattern you select on the control box.)

**Please note:** *The control box controls 8 light segments. The ULB42-TD has 10 segments. The last two segments on either end are electrically "tied" together internally and thus will flash together.*

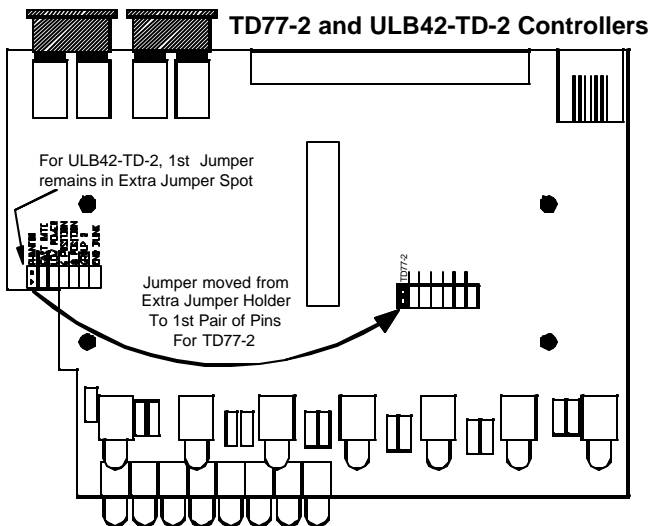


The ULB42-TD is shipped with the jumper in the Phantom slot of the "Extra Jumpers" section (see diagram below). The TD77-2 has the jumper moved over to the 1<sup>st</sup> (and only) set of pins in the center jumper section. If you do not wish to operate your ULB42-TD in Phantom Mode, follow the instructions below to remove the cover and change the jumper setting. If the Phantom Mode is acceptable, skip to the **Mounting Instructions**.

### **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 to the "Option" jumper location near the center of the board. (See diagram below).



# Mounting Instructions

The following mounting instructions describe the standard, most common way to mount this light. This method may or may not apply to your vehicle. Because vehicles can vary widely in their design, it may be necessary to configure the brackets differently than described. Some applications may require you to design your own custom brackets. The installer assumes all responsibility for the integrity of the installation. **It is the sole responsibility of the owner to ensure the traffic director is secure.**



***The Star Phantom® is designed to be mounted on the inside of your vehicle. It is not intended for exterior applications and is not warranted against water damage.***

***It is the sole responsibility of the owner to ensure the warning light is secure. 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.***

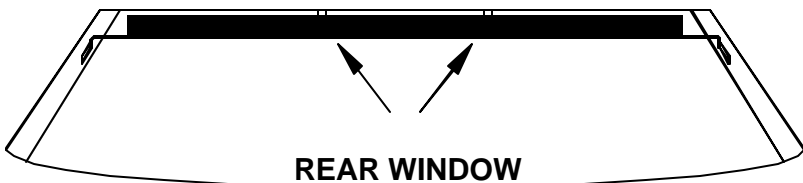
The mounting hardware enclosed with your *Star Phantom®* should include the following:

- 2 Single-Slotted "L" Brackets
- 2 Forked "L" Brackets
- 2 Double-Slotted "L" Brackets
- 2 Slotted Straight Brackets
- 4 #8-32 3/8" Phillip's Head Screws
- 10 #8 x 3/8 Self-Tapping Phillip's Head Screws
- 14 #8 Flat Washers
- 4 #8 Tooth Washers
- 4 #8 Nut

The ULB42-TD *Star Phantom®* is designed to be mounted in the rear window of a vehicle.

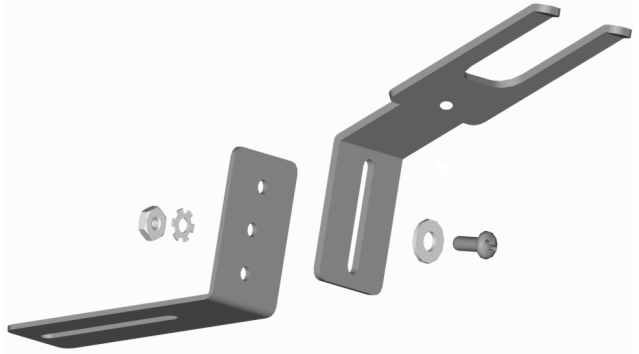
## **CENTER BRACKET INSTALLATION**

1. The visor clip brackets that are used for the front windshield mounting of the ULB42 are also enclosed with the Traffic Director version (ULB42-TD).



2. These brackets (or other custom designed brackets) ***must*** be installed ***in addition to the corner post mounts***. ***Failure to use a center support bracket will void the warranty.*** If your vehicle is not compatible with these brackets you must custom design mounting brackets to support the center of the *Star Phantom*®.

3. Connect one of the slotted "L" brackets to one of the forked "L" brackets using one of the screws, a flat washer, a tooth washer, and a nut.

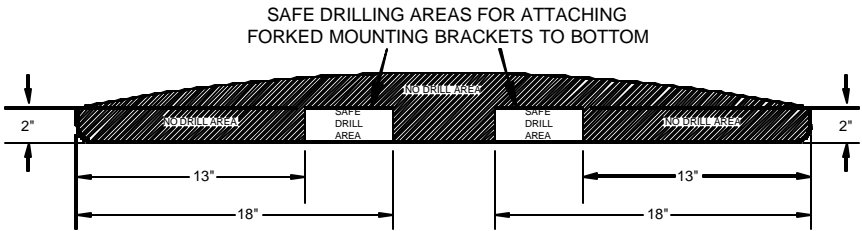


4. Repeat this using the other slotted "L" bracket and forked bracket. You should now have two adjustable forked mounting brackets.

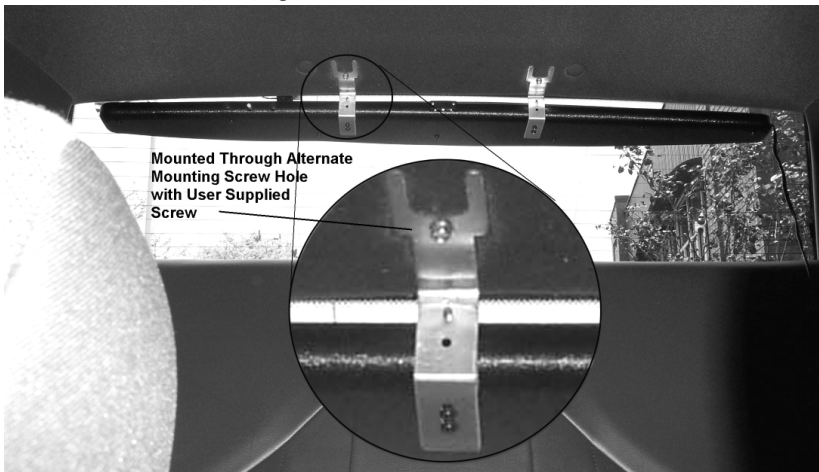
5. To use the alternate mounting screw hole, you will need to locate the roof brace under the headliner of the vehicle or some other appropriate mounting surface.




- Once you have located the roof brace, determine an appropriate location to mount each bracket, approximately 3"-8" from the center of the window. Refer to the diagram below for the "Safe" areas to attach your forked mounting bracket to your *Star Phantom*<sup>®</sup>. Be sure the location you have chosen for your brackets falls within the "Safe Area".



- Once you have determined the exact location you will mount the brackets, determine an appropriate size screw to penetrate the headliner and securely mount the bracket to the roof brace.
- Carefully drill the appropriate holes in your roof brace. ***CAUTION: Take care to ensure when selecting a screw and drilling the hole that it is capable of supporting the weight of the light and that it does not penetrate the roof of the vehicle.***
- Install the screws through each bracket as shown below.



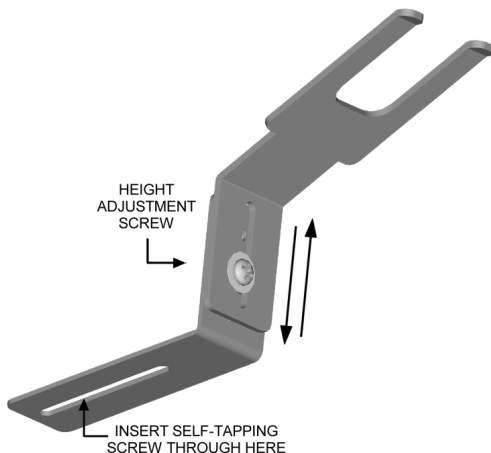


**WARNING!**

***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 enter the vehicle to ensure that it is mounted securely.***

10. Once the brackets are installed securely to your vehicle, use a Philip head screwdriver, to loosen the Height Adjustment Screw slightly and set the bracket at the desired height. Once your desired height is set, tighten the screw to secure the bracket.

11. Check to see that the bottoms of the brackets are level. If they are not level, remove the brackets and carefully bend them as necessary. Reinstall them and check again for levelness. Repeat this process until the brackets are level.



12. Once the brackets are set in the desired position, mark the two screw holes for each bracket in the bottom of *The Star Phantom*®. Use a 1/8" drill to make a pilot hole in the bottom of *The Star Phantom*® for your self-tapping screws.

13. After the holes are drilled, use two self-tapping screws to attach the lightbar to each bracket.

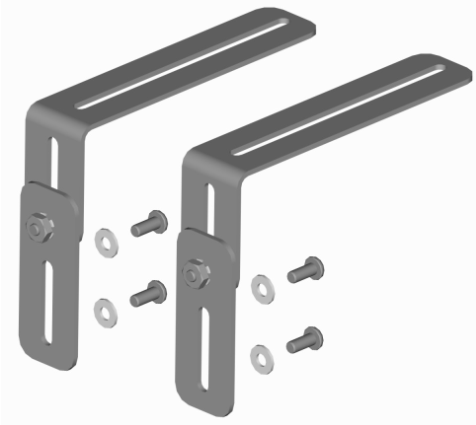
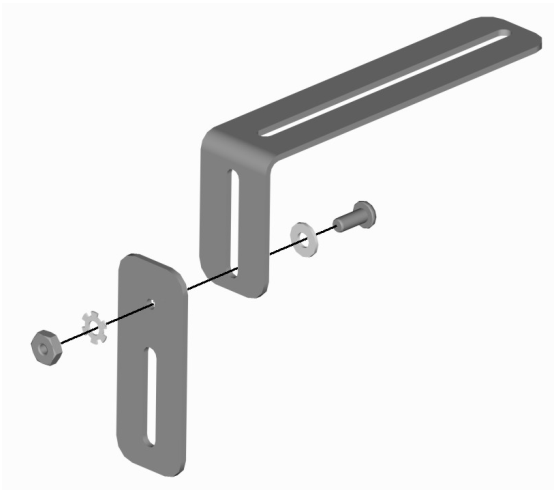
***CAUTION: Take extreme caution not to over tighten the screws!!! Over tightening of the screws can strip the holes and result in a faulty mount.***

## **CORNER POST BRACKET INSTALLATION**

1. The ULB42-1 *Star Phantom*® should also be mounted with the corner post brackets.

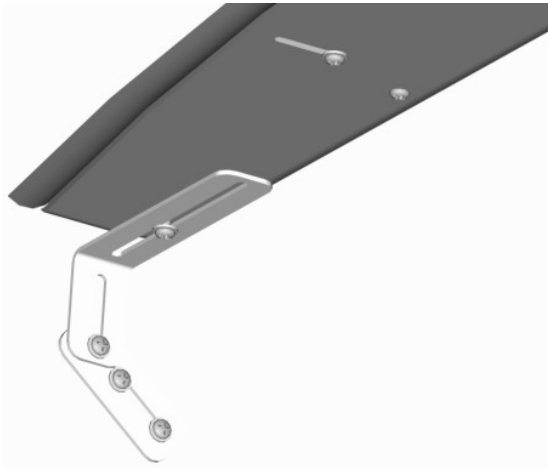


2. Connect one of the double-slotted "L" brackets to one of the slotted straight brackets using one of the screws, a flat washer, a tooth washer, and a nut.



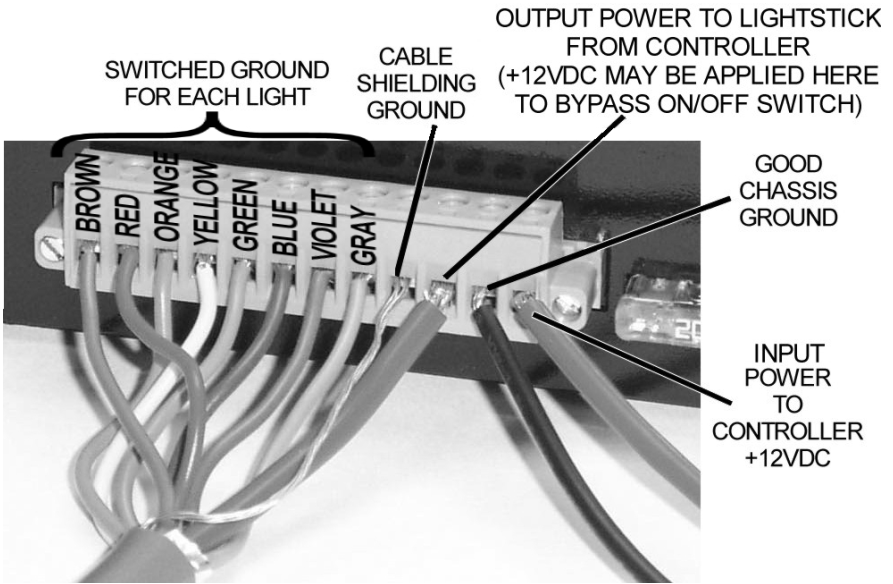
3. Repeat this using the other double-slotted "L" bracket and slotted straight bracket. You should now have two adjustable "L" mounting brackets.

4. Connect one bracket to each end of your *Star Phantom*<sup>®</sup> using the screws provided. Loosen both screws slightly to allow for adjustability when installing the lightbar.





5. Adjust the mounting brackets so that they rest flat against the corner post on each side of the vehicle.
6. Once the brackets are adjusted to the desired position, tighten all the screws on the brackets.
7. Mark the two spots where you will be attaching each screw to the corner post.
8. Loosen the brackets, temporarily slide them aside, and drill a 1/8" hole in each of the marked locations.  
***Caution:*** *Be sure to check that there are no wires or anything else behind the molding that may be damaged by the screw holes.*
9. Return the brackets to their original position against the corner post and use two of the self-tapping screws in each side to secure each bracket to the corner posts.
10. Once all of the brackets are securely tightened, check your mount to ensure the desired angle is achieved. ***Stand behind the vehicle and inspect the light through the rear window.*** The screws may be loosened slightly to allow for any final adjustments necessary.
11. Once all the necessary adjustments are made retighten all the screws. ***CAUTION: Take extreme caution not to over tighten the screws!!! Over tightening of the screws can strip the holes and result in a faulty mount.***

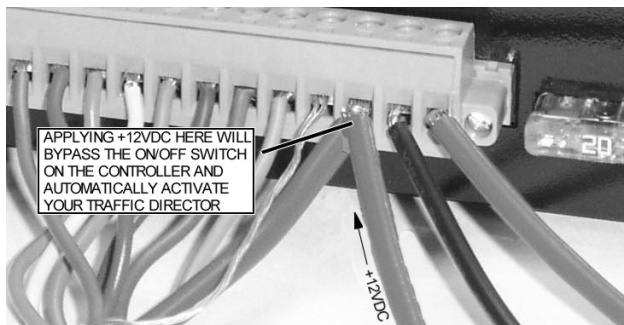


## Wiring Instructions

1. Locate the green connector on the end of the wire connected to your lightstick. It should already have 10 wires connected to it. 8 colored ground wires to each light output, a silver colored cable shield wire, and a larger red wire for delivering power to the stick. These wires should correspond with the colors labeled on the back of the ULB42-TD-2 (or TD77-2) control box.
2. Connect a ground wire to the terminal located on the end of the green connector. The corresponding terminal is marked **BAT-**.
3. Connect +12VDC to the end terminal on the green connector that corresponds to the outlet on the back of the controller marked **BAT+**. Supply power for the unit from a **fused**, 12 VDC source, 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. 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.
5. Your ULB42-TD should now be ready to operate.

## Optional Automatic Activation

1. The ULB42-TD-2 controller may also be wired to automatically bypass the 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.

## Operation

**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.

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.

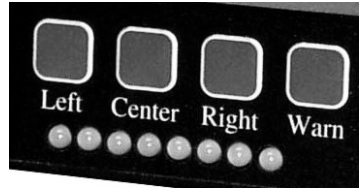
### ULB42-TD-2 (or TD77-2)



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. Whenever the traffic director is powered ON, it should always start in the *Warn* pattern.

**(Operation CONT'D)**

3. You can 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*. These buttons will control the basic pattern displayed by the Traffic Director. Whenever you choose a different pattern, the selected pattern label should change to red and the roof display should mimic exactly the display on the controller.
4. The ULB42-TD-2 controller also has 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 Fast and Alt buttons have different functions, depending upon which mode you have the jumper set in (see page 2).**

**Alt and Fast Functions with Jumper in Phantom Mode**

**Alt** - The "Alt" button will enable and disable the end flashing LED arrays.

**Fast** - This button allows the user the option to display any of the patterns in a "faster" mode. This button will also change the two end lights to flash in a fast random pattern (if they have been enabled by the Alt button). (See the table on the next page) 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 with Jumper in TD77-2 Mode**

**If you moved the option jumper to the TD77-2 mode (see page 2) the Alt and Fast buttons will affect the Left, Center Out, and Right patterns differently than the Warn pattern.**

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

The Alt button will change the version of the pattern you have selected (Left, Center, or Right). 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.

**Please note:** The control box controls 8 light segments. The ULB42-TD has 10 segments. The last two segments on either end are electrically "tied" together internally and thus will flash together

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 Normal pattern, but only uses the six center lights. The outer two light alternate quickly back and forth.

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

This button allows the user the option to display any of the patterns 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/Fast Functions for Warn Pattern** (with option jumper set for TD77-2 mode)

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

**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.**

5. 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.**

6. 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.

## Bulb Replacement

The **ULB42-TD** uses state-of-the-art Light Emitting Diode (LED) technology. This lightstick is comprised of ten 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 this lightstick. If any of the LED's in your lightstick do fail, please contact the factory for arrangements to have them repaired.

## Trouble Shooting

The **ULB42-TD** contains no user serviceable parts. The ULB42-TD-2 or TD77-2 controller 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 2 amp fuse powers the controller. If the 20 amp fuse blows the controller will continue to function normally, however, the lightstick 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 or harness damage.

**NOTE:** Most failures can be traced to wiring and battery problems. Check "quick-connects and wiring to insure that correct voltage/polarity is reaching the controller.

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.

The Star Phantom® uses state-of-the-art Light Emitting Diode (LED) technology. This undercover lightbar is comprised of ten 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 this lightbar. If any of the LED's in your lightbar do fail, please contact Star Headlight for arrangements to have them repaired.

## ONE 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 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.

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 this 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.

**NOTE:** Most failures can be traced to wiring and battery problems. Check "quick-connects" and wiring to insure that correct voltage/polarity is reaching the controller.

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**STAR**  
**WARNING**  
**SYSTEMS**

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