

WHELEN[®]

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Installation Guide:
Inner Edge[®] FST Interior Lightbar
(LC & WC)

Warnings to Installers

Whelen's emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen's written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that they can operate the system without taking their eyes off the roadway. Emergency warning devices can require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to insure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. **PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.**

Warnings to Users

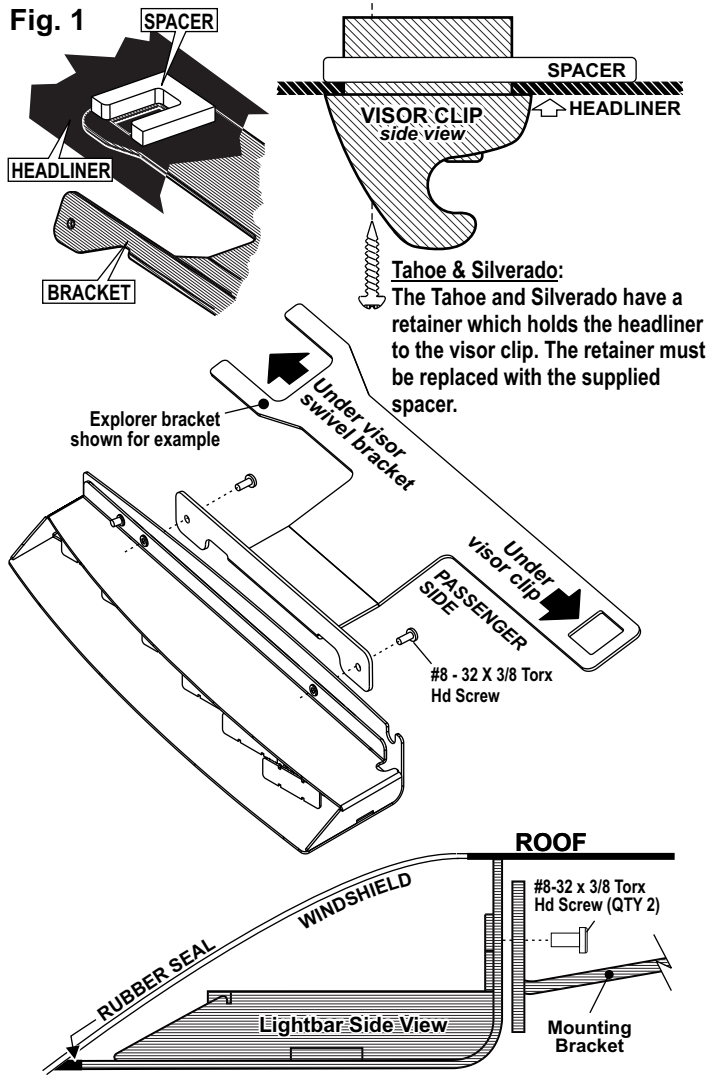
Whelen's emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen's audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.

Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**
- **Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.**
- **Any holes, either created or utilized by this product, should be made both air- and watertight using a sealant recommended by your vehicle manufacturer.**
- **Failure to use specified installation parts and/or hardware will void the product warranty.**
- **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr the holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro[®], clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**
- **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post (this does not include products that use cigar power cords).**
- **If this product uses a remote device for activation or control, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.**
- **Do not attempt to activate or control this device in a hazardous driving situation.**
- **This product contains either strobe light(s), halogen light(s), high-intensity LEDs or a combination of these lights. Do not stare directly into these lights. Momentary blindness and/or eye damage could result.**
- **Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration. Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

IMPORTANT! The lightbar should be located a minimum of 16" from any radio antennas!



Installation:

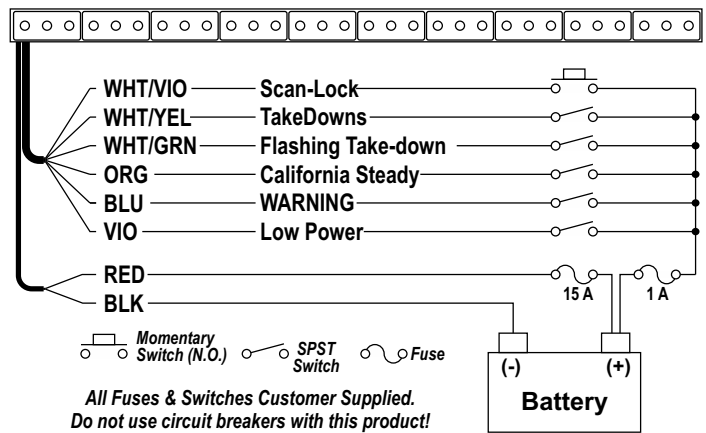
Note: When routing wires, it is important to choose a path that will keep the wires away from excessive heat or any vehicle equipment that could compromise the integrity of the wires (ex. trunk lids, door jams, etc.)

- Using a screwdriver, loosen (do not remove) the three screws securing the passenger-side visor swivel bracket to the vehicle. (See reference to retainer in Figure 1 for Silverado and Tahoe)
- Remove the screws securing the visor clip to the vehicle. Remove and retain the clip and all hardware.
- Secure the bracket to the Inner Edge housing using the hardware provided.
- Position the keyed opening of the mounting bracket directly under the mounting location for the visor clip. With the bracket in position, remount the visor clip in its original location using the original hardware (Fig. 1).
- Firmly tighten any hardware loosened in this procedure.
- Repeat this procedure for the driver-side assembly.
- When properly mounted, the rubber seal will be in full contact with the vehicle windshield and roof. This is to prevent light output from entering the passenger compartment. When this has been achieved, tighten mounting hardware firmly to maintain contact (Fig. 1).
- Route the lightbar cable down the vehicle A-pillar to your control head.
- Make all wiring connections using the information in the wiring diagram.

Wiring:

WARNING! All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and **FUSED** at the battery to carry that load. **DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!**

LC Operation:



WHT/GRN: Flashing Take-downs

Apply +12 VDC to WHT/GRN wire to activate the Flashing Take-downs. Fuse wire @ 1 Amp. Flash patterns: SingleFlash 120 ALT and DoubleFlash 60 ALT

WHT/YEL: Take-downs

Apply +12 VDC to WHT/YEL wire to activate the Take-downs. Fuse @ 1 Amp.

ORANGE: California Steady

Apply +12 VDC to the ORG wire to activate lighthoods using the California Steady pattern table. Refer to the California Steady Table on page 4 for light-head identification. Fuse this wire @ 1 Amp.

BLUE: Warning

Apply +12 VDC to BLU wire to activate warning lights. (SingleFlash 120) Fuse wire @ 1 Amp.

WHT/VIO - Scan-Lock™

The WHT/VIO wire allows you to choose from the available flash patterns. A normally open momentary switch is best used for Scan-Lock operation. First you must activate the lighthouse(s) you wish to change:

TO CYCLE THROUGH PATTERNS: To cycle forward apply +12 VDC to the WHT/VIO wire for less than 1 second and release. To cycle backward apply +12 VDC to the WHT/VIO wire for more than 1 second and release.

TO SET A PATTERN AS DEFAULT: When the pattern is displayed, allow it to run for over 5 seconds. The lighthouse will now display this pattern when active.

TO RESET TO THE FACTORY DEFAULT PATTERN: Turn off power then apply +12 VDC to WHT/VIO while turning on the function you want to reset. See Flash Pattern table on page 4.

VIOLET: Hi/Low Power

The type of switch used is dependent on how you want Hi/Low to function:

Latching Mode: By applying +voltage to the Violet wire for less than 1 sec., the power supply is "latched" into low power operation. The unit must be turned off and then back on to restore normal, Hi power operation. A momentary switch is best for this option.

Level Mode: Applying +voltage to the Violet wire for more than 1 sec. holds the power supply in low power mode until that voltage is removed. A toggle switch is best for this option.

Available Flash Patterns:

- | | | |
|------------------------------|-------------------------------|---------------------------|
| 1. ActionScan™ | 14. SingleFlash 90 ALT | 27. PingPong 75 ALT/IO/CB |
| 2. SignalAlert™ 75 ALT | 15. SingleFlash 90 ALT/IO/CB | 28. FlimFlam™ ALT |
| 3. SignalAlert™ 75 ALT/IO/CB | 16. SingleFlash 120 ALT | 29. FlimFlam™ ALT/IO/CB |
| 4. CometFlash® 75 ALT | 17. SingleFlash 120 ALT/IO/CB | 30. ModuFlash™ ALT |
| 5. CometFlash® 75 ALT/IO/CB | 18. SingleFlash 240 ALT | 31. ModuFlash™ ALT/IO/CB |
| 6. DoubleFlash 75 ALT | 19. SingleFlash 240 ALT/IO/CB | 32. ZigZag™ 1 lamp |
| 7. DoubleFlash 75 ALT/IO/CB | 20. DoubleFlash 120 ALT | 33. ZigZag™ 2 LAMP |
| 8. SingleFlash 75 ALT | 21. DoubleFlash 120 ALT/IO/CB | 34. ZigZag™ CHASER |
| 9. SingleFlash 75 ALT/IO/CB | 22. ActionFlash™ 75 ALT | 35. Eyes SYNC |
| 10. LongBurst™ 75 ALT | 23. ActionFlash™ 75 ALT/IO/CB | 36. Eyes IN/OUT |
| 11. LongBurst™ 75 ALT/IO/CB | 24. MicroBurst™ ALT | 37. FastEyes SYNC |
| 12. SingleFlash 60 ALT | 25. MicroBurst™ ALT/IO/CB | 38. FastEyes IN/OUT |
| 13. SingleFlash 60 ALT/IO/CB | 26. PingPong 75 ALT | |

ALT = Alternating IO = In-Out CB = Checkerboard SYNC = Synchronous

Installation Ford Fusion:

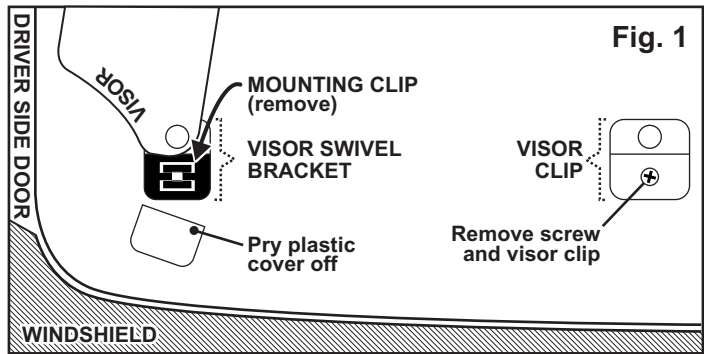
IMPORTANT AIR BAG WARNING! Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owners manual for the air bag deployment area. The User/ Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers.

IMPORTANT! The lightbar should be located a minimum of 16" from any radio antennas!

Note: When routing the wires, it is important to choose a path that will keep the wires away from excessive heat or any vehicle equipment that could compromise the integrity of the wires (ex. trunk lids, door jams, etc.)

Figures 1 thru 3 show the driver side of the interior of the vehicle, shown looking up at the roof.

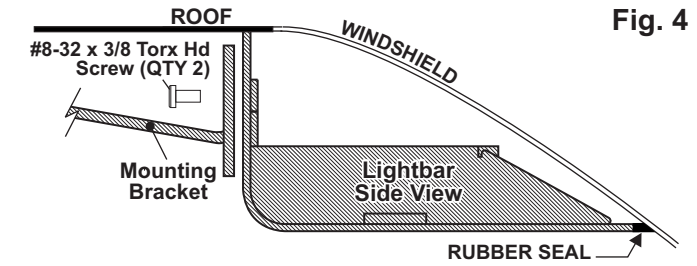
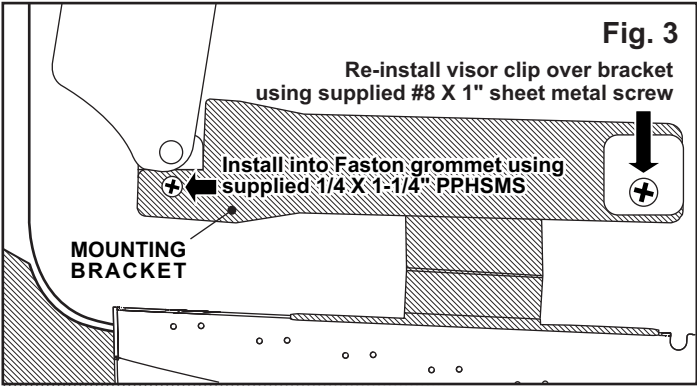
1. On the driver side **visor swivel bracket**, carefully pry the plastic cover off the front of the bracket (Fig. 1). The lightbar mounting bracket will sit in the space that the cover occupied. **NOTE: Pry the cover off using two flat blade screwdrivers on each side to avoid braking the cover. The cover will not be used but should be saved in case you wish to remove the lightbar in the future.**



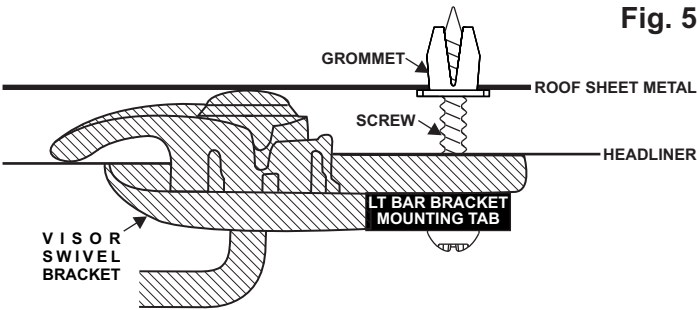
2. Remove the **swivel bracket** mounting clip (located under the cover you removed in step 1) and lift the **swivel bracket** assembly out. Install the supplied fastex grommet into the hole in the roof sheet metal which the clip snapped into. Reinsert the **swivel bracket** assembly (Figs. 1 & 2).



3. On the vehicle **visor clip**, remove the screw holding on the clip and remove the clip. The supplied #8 X 1" sheet metal screw will replace the screw you removed (Fig. 2).



When properly mounted, the rubber seal should be in full contact with the vehicle windshield. The rear of the lightbar should be in contact with the roof. This is to prevent light from entering the passenger compartment. When this has been achieved, tighten mounting hardware firmly to maintain contact.



4. Secure the mounting bracket to the lightbar and position the bracket where it will mount on the vehicle (Figs. 3 & 4).
5. Secure the lightbar bracket to the **swivel mount** using the supplied 1/4 X 1-1/4" Phillips Pan Head Sheet Metal Screw. This screw will thread into the fastex grommet you installed in step 2 and the bracket will sit where the cover was (Fig. 5).
6. Line the rectangular hole in the other end of the lightbar bracket, up with the **visor clip** and install the visor clip over the lightbar bracket using the supplied #8 X 1" Sheet Metal Screw (Fig. 3).
7. Make sure all mounting hardware is tightened firmly and repeat procedure for the passenger side of the vehicle.

Extend the cables and connect to power. Refer to the lightbar manual for wiring and fusing information.

Wiring and Operation WC Lightbar:

Connecting the Power Cable:

WARNING! All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and **FUSED** at the battery to carry that load. **DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!**

1. Follow the factory wiring harness through the fire wall. It may be necessary to drill a hole in the fire wall. If so, be absolutely sure that there are no components that could be damaged by drilling. After the hole has been drilled, insert a grommet to protect the cable.
2. Route the cable along the factory wiring harness towards the battery. Install a 25 amp fuse block (customer supplied) on the end of the RED wire in the power cable. **NOTE: Remove the fuse from the fuse block before connecting any wires to the battery.**
3. Connect the BLACK wire to Chassis Ground.

Connecting the Communication Cable:

Splice the GREEN and GREY wires from the lightbar to the GREEN and GREY wires from the Whelen WC Controller.

Control Point Module

The Control Point Module serves as the brain of the Whelen WC Series lightbar. The module is programmed with the WeCan™ Programming Software via the USB port and in turn, provides the necessary signals that allow the lightbar to function as desired.

In the WeCan™ Programming software, each of the 18 inputs may be programmed to activate any number or combination of the installed lightbar components by applying +12VDC to an input. Refer to the installation guide included with your switches for wiring information.

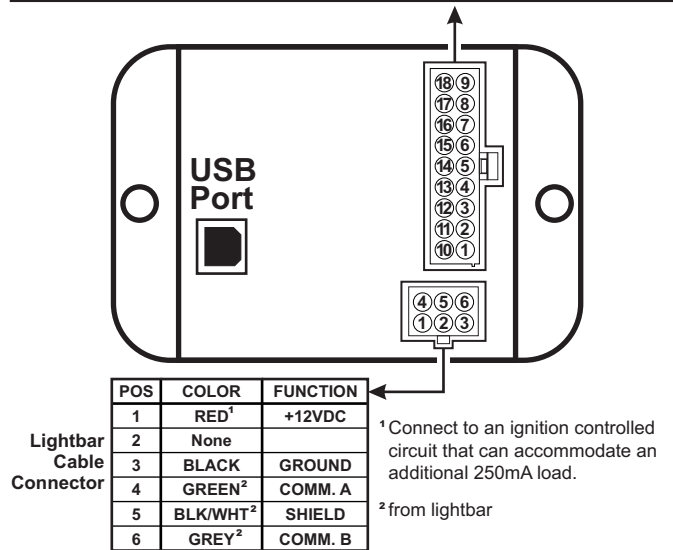
Programming Procedure -

IMPORTANT - It is not necessary to program this device unless changes to the default configuration (for example pattern or switch control changes) are desired.

1. Connect a USB cable from the host PC to the module's USB port.
2. Start the **WeCan™** software on the host PC and open the configuration to be programmed.
3. Click on the **WeCan** button on the menu bar. Select *Transfer* to begin programming. The software will display a window when the programming procedure has been successfully completed.
4. Confirm proper operation of the module. Your lightbar should now be fully operational.

DEFAULT CONFIGURATION (12V Inputs)

POS	COLOR	FUNCTION
1	GREEN	ALTERNATING DRIVER-PASSENGER (SignalAlert™ 75)
2	GRN/WHT	ALTERNATING SIDE-TO-SIDE (SignalAlert™ 75)
3	GRN/BLK	IN-OUT (SignalAlert™ 75)
4	WHT/RED	ALTERNATING DRIVER-PASSENGER (ASYNC) (SignalAlert™ 75)
5	WHITE	DRIVER OUTBOARD DUO (STEADY)
6	YELLOW	PASSENGER OUTBOARD DUO (STEADY)
7	WHT/VIO	California Steady
8	WHT/GRN	OUTBOARD DUO FLASH (SingleFlash150)
9	WHT/ORG	CRUISE LIGHTS
10	BLUE	CA BAR PATTERN
11	BLU/WHT	ULTRA SCAN BAR PATTERN
12	BLU/BLK	CA SINGLE ULTRA SCAN BAR PATTERN
13	WHT/BRN	ZigZag CALIFORNIA 75 Bar Pattern
14	WHT/BLK	TAKEDOWNS
15	WHT/BLU	ALTERNATING SIDE-TO-SIDE (DUO DoubleFlash 75)
16	RED/WHT	ALL TRIO STEADY AND DUO DISABLED
17	WHT/YEL*	TAKEDOWNS SingleFlash 150
18	VIOLET	LOW POWER



IMPORTANT WARNING!
CAUTION! DO NOT LOOK DIRECTLY AT THESE LED'S WHILE THEY ARE ON. MOMENTARY BLINDNESS AND/OR EYE DAMAGE COULD RESULT!

California Steady Table

