

INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR SMART VECTOR™ SV SERIES LIGHT BAR

SAFETY MESSAGE TO INSTALLERS AND USERS OF FEDERAL SIGNAL LIGHT SYSTEMS

People's lives depend on your safe installation of our products. It is important to read, understand and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

- To properly install a light assembly: you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.
- When drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could be damaged.
- A light system is a high current device. In order for it to function properly, a separate ground connection must be made. It should be connected to the negative battery terminal.
- Locate light system controls so the VEHICLE and CONTROLS can be operated safely under all driving conditions.
- This product contains high intensity LED devices. To prevent eye damage, DO NOT stare into the light beam at close range.
- You should frequently inspect the light system to ensure that it is operating properly and that it is securely attached to the vehicle.
- File these instructions in a safe place and refer to them when maintaining and/or reinstalling the product.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

I. UNPACKING.

After unpacking the Smart VECTOR™ light bar, inspect it for damage that may have occurred in transit. If the unit has been damaged, file a claim immediately with the carrier, stating the extent of damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them.

II. INSTALLATION.

WARNING

Improper smart pod activation may occur if the lightbar is installed less than 18-inches away from a two-way radio antenna. Ensure that the lightbar is installed at least 18-inches away from any two-way radio antenna.

The light bar is completely wired at the factory and does not require any additional internal wiring. All the

conductors necessary for control of any and all basic and optional functions are contained in the cable(s).

NOTE

If the unit is supplied with the SignalMaster™ option, two cables exit the light bar. The larger cable is the light bar control cable and the smaller cable is the SignalMaster control cable.

The basic light functions of the unit must be controlled by a user supplied control head.

Before proceeding, ensure that the light bar has been installed on the vehicle roof in accordance with the instructions packed with the mounting kit. Route the light bar cable as described below.

WARNING

Light system controls must be located so that VEHICLE and CONTROLS can be operated safely under all driving conditions.

A. Route the control cable(s) into the vehicle and under the dash, near the eventual location of the user-supplied control head.

NOTE

The switches used for the jog functions MUST be momentary contact switches.

B. For proper light operation, the light bar control cable must be properly terminated inside the user supplied control head. Using figure 1 as a guide, make the appropriate electrical connections shown in Table 1. Ensure that the lines are adequately fused as shown in figure 1.

NOTE

Any of the light bar functions can be activated by applying 12VDC (from switched ignition) to the BLK/WHT smart pod (+) wire and to the appropriate control line. The heavy black lead (-) must be connected to the fusible link at the negative battery terminal, to perform a function check.

C. *Primary and Secondary Option (see figure 2).*

Five or six (depending on the model number) of the seven pods in the Smart Vector light bar are used for customer selected options (rotating lights, oscillating lights and traffic clearing lights).

1. Primary.

All rotating and fast rotating light options are connected to the red wire.

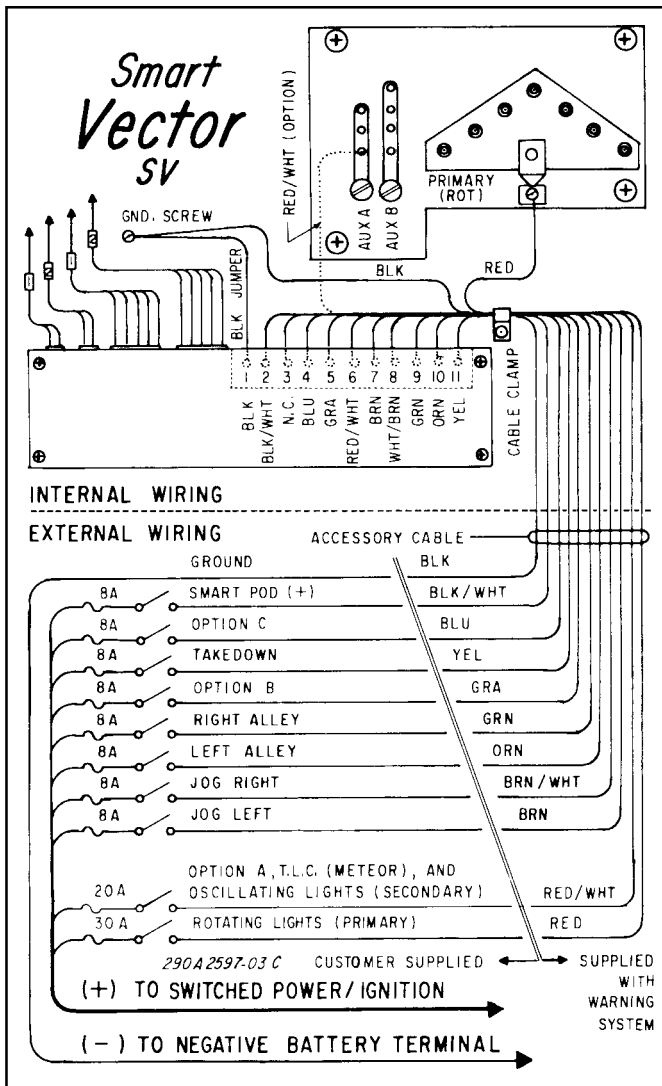


Figure 1.

2. Secondary.

All traffic clearing light and oscillating light options are connected to the red/white wire (AUX A) and interconnected to the Option A (oscillating intersection or oscillating front) smart pod function.

D. Route the black lead to the fusible link at the front fender between the negative (-) battery terminal and

Table 1. Electrical Connections.

Wire Color	Functions
RED/WHT	Option A, Traffic Clearing Lights, Oscillating Lights (Secondary)
BRN/WHT	Jog Right
BRN	Jog Left
BLU	Option C
ORN	Left Alley
YEL	Takedown
GRN	Right Alley
GRY	Option B
RED	Rotating Lights (Primary)
BLK	Power (-)
BLK/WHT	Smart Pod Power (+) /Ignition

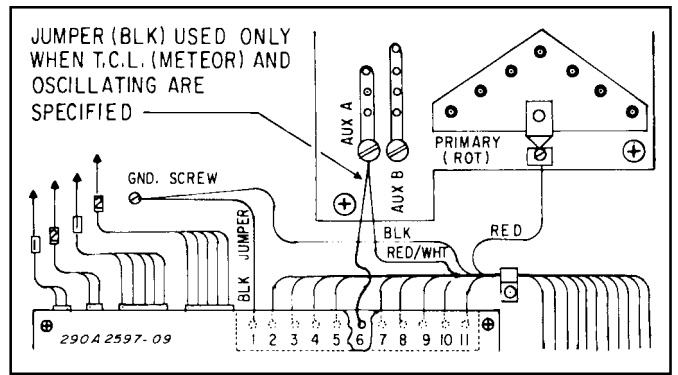


Figure 2.

chassis ground This is the **ONLY** chassis ground allowed for this wire.

E. Smart Pod Option Selection.

The Smart VECTOR light bar includes one or two smart pods. These microprocessor based smart pods allow selection of front flashing (alternating or simultaneous at 90 or 120 FPM), rear flashing (alternating or simultaneous at 90 or 120 FPM), rotating (90 FPM, 120 FPM, or 175 FPM), oscillating front (120 FPM), oscillating rear (90 FPM), or oscillating intersection (80 FPM). The takedown function can be changed to a work light function. The smart pods' factory option settings are as follows:

- Option A (two pods) is the oscillating intersection mode.
- Option A (one pod) is the oscillating front mode.
- Option B is the 90 FPM mode.
- Option C is the alternating rear flashing (90 FPM) mode.
- Priority feature: Option B will override Option C, and Option A will override both Options B and C.
- Takedown/work light function is set for takedown.
- Left alley light.
- Right alley light.
- Jog left.
- Jog right.

To change the smart pods' factory settings, proceed as follows:

NOTE

If one smart pod is used, S1-8 (marked "1/2") **must** be in the "ON" position. If two smart pods are used, S1-8 (marked "1/2") **must** be in the "OFF" position.

1. See figure 3. Remove and retain the four screws which secure the cover on the light bar. Slide the cover back slightly and carefully lift to remove.

2. Remove and retain the four screws which secure the large circuit board. Turn the circuit board over. See figure 3 and refer to Tables 2 through 4. Set the switches on the circuit board for the desired smart pods' settings.

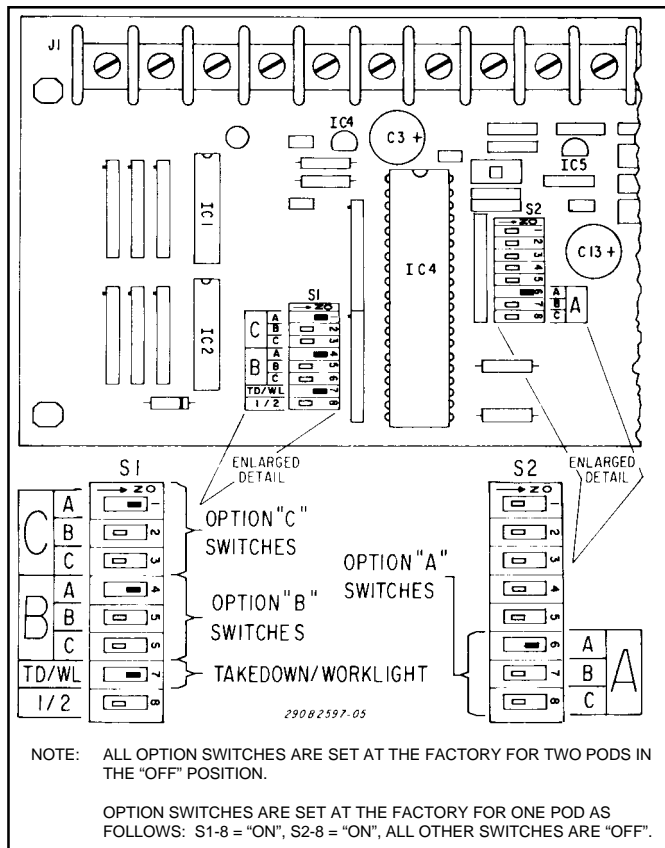


Figure 3.

Table 2. Option A Switch Settings.

Option A Switches (S2)	Oscillating Intersection*	Oscillating Front**	Rotate (175 FPM)	Rotate (120 FPM)	Rotate (90 FPM)	Front Flashing	Oscillating Rear	Rear Flashing
A (6)	OFF	OFF	OFF	OFF	ON	ON	ON	ON
B (7)	OFF	OFF	ON	ON	OFF	OFF	ON	ON
C (8)	OFF	ON	OFF	ON	OFF	ON	OFF	ON

* Option A - Factory Settings - Two Pods
 ** Option A - Factory Settings - One Pod

3. See figure 3. To change the takedown function to a work light function (if desired), set the switch marked "TD/WL" to the "ON" position.

4. See figure 3. To change the flashing pattern from alternating (factory setting) to simultaneous, set switch S2-5 to the "ON" position.

5. See figure 3. To change the flashing pattern's flash rate from 90 FPM (factory setting) to 120 FPM, set switch S2-4 to the "ON" position.

Table 3. Option B Switch Settings.

Option B Switches (S1)	Rotate (90 FPM)*	Rotate (120 FPM)	Rotate (175 FPM)	Oscillating Intersection	Oscillating Front	Front Flashing	Oscillating Rear	Rear Flashing
A (4)	OFF	ON	OFF	ON	OFF	ON	OFF	ON
B (5)	OFF	OFF	ON	ON	OFF	OFF	ON	ON
C (6)	OFF	OFF	OFF	OFF	ON	ON	ON	ON

* Option B - Factory Settings

Table 4. Option C Switch Settings.

Option C Switches (S1)	Rear Flashing*	Oscillating Rear	Oscillating Intersection	Oscillating Front	Rotate (90 FPM)	Rotate (120 FPM)	Rotate (175 FPM)	Front Flashing
A (1)	OFF	ON	OFF	ON	OFF	ON	OFF	ON
B (2)	OFF	OFF	ON	ON	OFF	OFF	ON	ON
C (3)	OFF	OFF	OFF	OFF	ON	ON	ON	ON

* Option C - Factory Settings

6. After switch settings are completed, test ALL light bar functions to ensure that all functions operate as intended.

7. Reassemble the light bar.

F. SignalMaster or LED SignalMaster Option.

The SignalMaster/LED SignalMaster option is completely wired at the factory and does not require any additional wiring inside the light bar. All conductors necessary for control of the SignalMaster/LED SignalMaster are contained in the smaller cable.

For installation, wiring, and operation instructions, refer to the instruction sheet packed with the SignalMaster control unit.

III. BASIC MAINTENANCE.

A. Cleaning the Plastic Domes.

Ordinary cleaning of the plastic domes can be accomplished by using mild soap and a soft rag. Should fine

scratches or a haze appear on the domes, they can ordinarily be removed with a non-abrasive, high quality, one-step automotive paste cleaner/wax and a soft cloth.

CAUTION

The use of other materials such as strong detergents, solvents, petroleum products, etc. can cause crazing (cracking) of the plastic domes.

B. Lamp Replacement.

WARNING

A serious injury may result if lamp is touched when hot. Always allow lamp to cool before removing. Halogen lamps are pressurized and if broken can result in flying glass. Always wear gloves and eye protection when handling the lamps.

CAUTION

Service life of lamp will be shortened if glass portion is touched. If glass has been handled, clean carefully with a grease solvent.

1. Smart Pod or TCL Lamps.

See figure 4. To replace the lamp, Twist to unlock and then pull the defective lamp out of the socket. Install a new lamp of the same type (#795) in the socket.

2. Rotating or Oscillating Lamps.

CAUTION

Forced rotation of the light mechanism will cause damage to the worm gear. ALWAYS rotate the light mechanism by rotating the motor shaft.

- a. Rotate the reflector until the C-clip (located at the base of the lamp) can be removed, and remove the C-clip by sliding it away from the reflector.
- b. See figure 5. Note the lamp's orientation and replace the lamp (Federal Part No. 8440A265A-01) with the straight edge of the lamp's base toward the reflector.
- c. Reassemble the light.

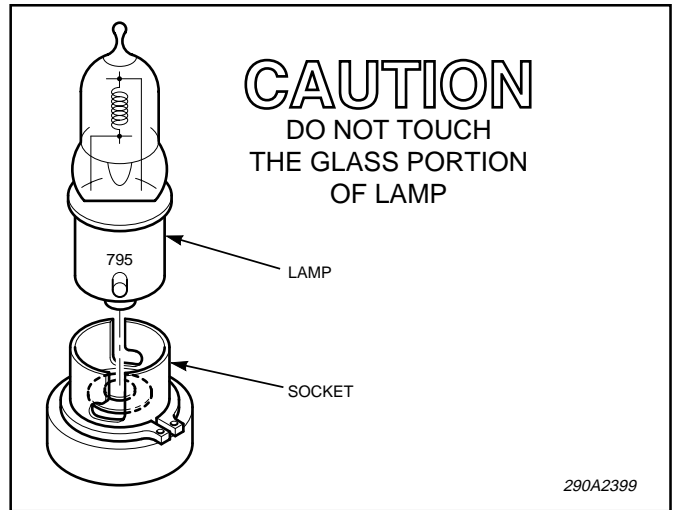


Figure 4.

C. Cleaning Reflectors and Mirrors.

Use a soft tissue to clean the reflector and mirrors. Avoid heavy pressure and the use of caustic or petroleum base solvents which will scratch or dull the surface.

IV. REPLACEMENT PARTS LIST.

Description	Part No.
Lamp, Smart Pod/TCL	8107141
Lamp, Rotating/Oscillating	8440A265A-01
Lamp, SignalMaster	8573007
Cable, 11 conductor	175746
Opto Isolator PCB	2001079
Smart Pod Control PCB	2001128
Smart Vector Power PCB	2001121
Rotator Motor, Standard	8559A055
Rotator Motor, Fast	8559A055A-01
Module, LED SignalMaster, Amber LED's w/Clear Lens	8573229-02

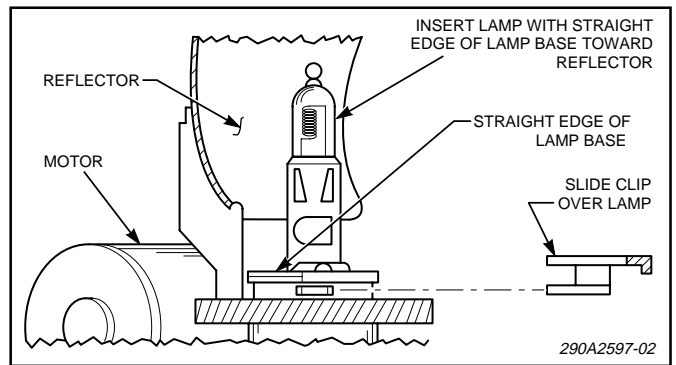


Figure 5.