



Strobe
WARNING LIGHTS

REMOTE STROBE PACKS

Models RP242, RP244, RP906, RP310, RP320, and RP330

Owner's Manual

&

Installation Instructions

<u>Model</u>	<u># of Heads</u>	<u>Total Watts</u>	<u>Joules per Side</u>	<u>Amps</u>	<u>Special Features</u>
RP242	2	40	16	5.5	Selectable Flash Pattern [‡]
RP244	4	75	20	7.0	Selectable Flash Pattern [‡] , Visual Diagnostics*
RP310D.....	2.....	24.....	11.25.....	2.1.....	Doubleflash
RP310Q	2	24	17.5	2.1	Quadflash
RP320	4	42	21	3.2	Doubleflash
RP330.....	4.....	60.....	30.....	6.0.....	Doubleflash
RP330Q	4	70	30	7.0	Quadflash
RP330S-S	4	60	30	6.0	Independent Switching Capability [†]
RP330S-A	4.....	60.....	30.....	6.0.....	Independent Switching Capability [†]
RP330SQ-A	4	70	30	7.0	Independent Switching Capability [†]
RP330SQ-S	4	70	30	7.0	Independent Switching Capability [†]
RP906	6	90	36	8.5	Selectable Flash Pattern [‡]

[‡] User may wire pak to flash in any of the following patterns: Double, Triple, Quad, or Five Flash

* Pak contains LEDs which mimic flashing, allowing user to identify any head failures and flash patterns

[†] Allows user to switch one pair of heads on and off independently of the other pair (ex. front pair and rear pair)

Made In USA

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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.

- ▶ **IMPORTANT:** Please read all of the following instructions before installing your new strobe system. This instruction sheet applies only to the models listed.
- ▶ **CAUTION:** All of our remote power supplies are polarity sensitive. They 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 system before this fuse is properly installed will void the warranty on the light.**
- ▶ **Opening or tampering with your remote power supply will void the warranty.** The remote power supply must be mounted against a smooth metal surface in a dry location. **Water damage to the power supply will also void the warranty.** Typical mounting locations of your power supply include the interior firewall, beneath the seat of a truck, or inside a large toolbox.



This light utilizes high-intensity strobe lights. **DO NOT** stare directly into the light while it is on, as momentary blindness and/or permanent eye damage may occur.

**STAR
WARNING
SYSTEMS**

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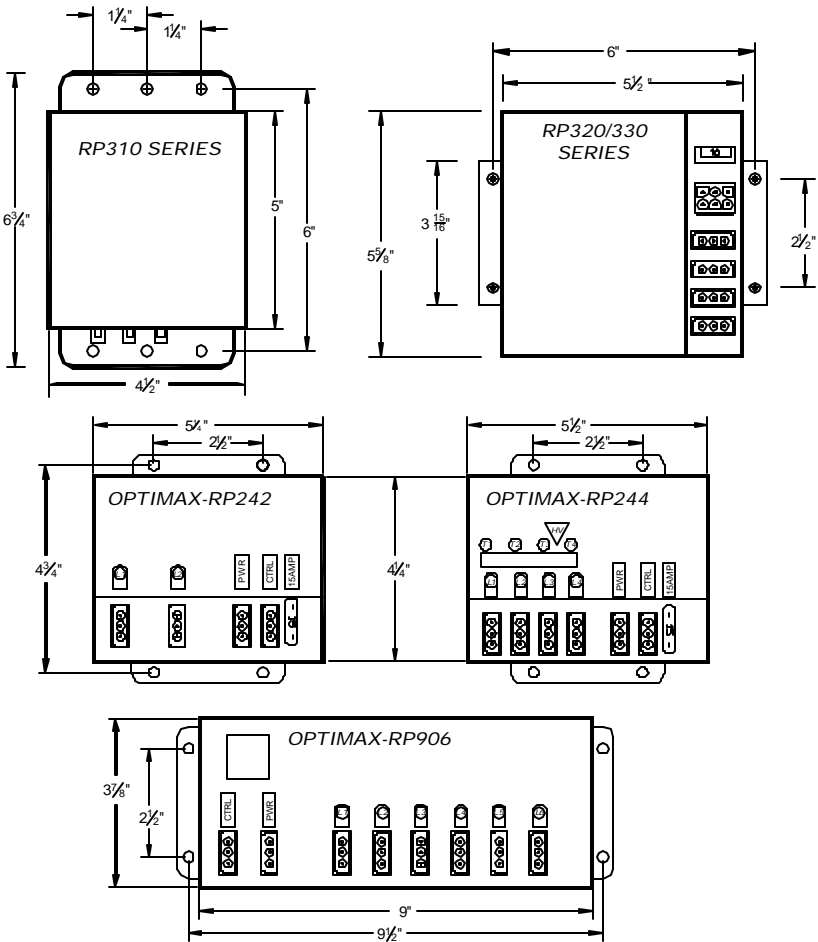


Mounting the pak

Mount the pak on a smooth metal surface to allow for adequate heat dissipation. Do not mount the pak near any external heat source as this will retard its ability to dissipate heat sufficiently. Mount the Pak using four bolts (not included). When mounting, make sure a good electrical connection exists between the mounting plate and the vehicle chassis. This will help to eliminate any RF interference.



When mounting the power pak and accessories, please be sure to keep any radio frequency sensitive equipment at least 20" from the power pak, cables, and/or wires which make up your strobe system. The pak has been designed to limit RF emissions, but certain very sensitive equipment may still be affected. Symptoms may include, but are not limited to, sporadic operation and degraded performance. Star Headlight & Lantern Co., Inc. cannot assume any responsibility for any radio frequency induced malfunction or damage to any radios, sirens, lightbars, or any other equipment mounted within 20" of this strobe system. Any antennae mounted in the proximity of the system may cause your radio to suffer the aforementioned results.



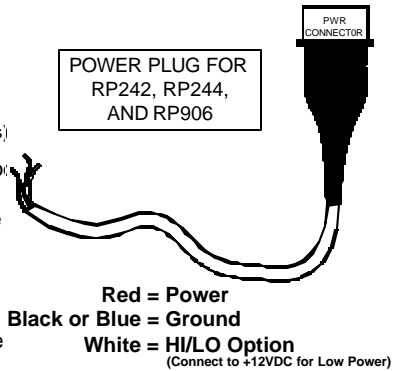
Connecting the power plug for Optimax Systems (RP242, RP244, & RP906)

The power plug should be included with your power pak and comes complete with an 8-12" wiring harness. This will be connected to the outlet on your pak labeled **PWR**. Connect these wires as follows:

BASIC ON/OFF WIRING:

(This setup is typically used for most "On/Off" applications)

- A. The **black** wire should be connected to a good chassis ground.
- B. The **red** wire from your power plug should be connected to +12VDC through your on/off switch (optional).
- C. If you are only operating your power pak with an On/Off switch, you should leave the **white** wire unconnected and terminate it with a wire nut to run on constant high power.



----- If you intend to utilize the HI/LO option follow the instructions below -----

For HI/LO Operation: Make your connections as illustrated below, using the optional #SP3860-2H-OP swtch available from your dealer.

- A. The **black (or blue)** wire from your power plug on the pak should be connected to a good chassis ground, as should the **black** wire from terminal 3 of SW1 on the switch panel.

- B. The **red** wire from your power plug will connect to the **red** wire extending from terminal 2 of SW1.

- C. The **fused lead** from terminal 1 of SW1 on the switch panel will connect to your +12VDC power supply.

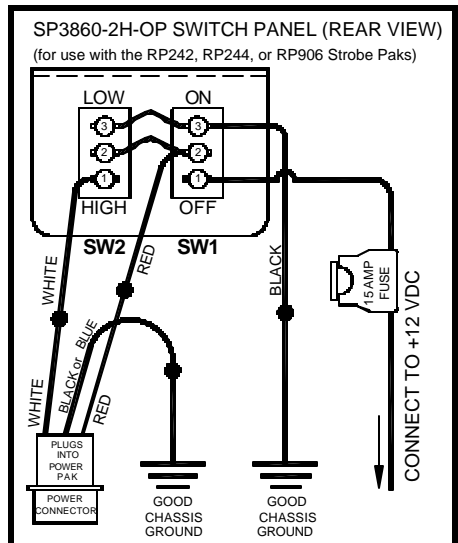
- D. The **white** wire from the power plug allows utilization of the HI/LO (Day/Night Mode) option. It will be connected to the **white** wire from terminal 1 of SW2 on the switch panel. When the white wire is connected to power through SW2 the pak will operate in "Night Mode" (low power).

- E. When properly wired, SW1 will be on the left side (Front View) and switch the pak on and off. SW2 will be located on the right side of the switch panel and will be used to select between low or high power.

- F. Please note: When utilizing the HI/LO option, only apply power (+12VDC) to the white wire when

the pak is on. Applying constant voltage to the white wire from the PWR plug, while the pak is switched off, may result in damage to the circuitry of the pak and will void the warranty.

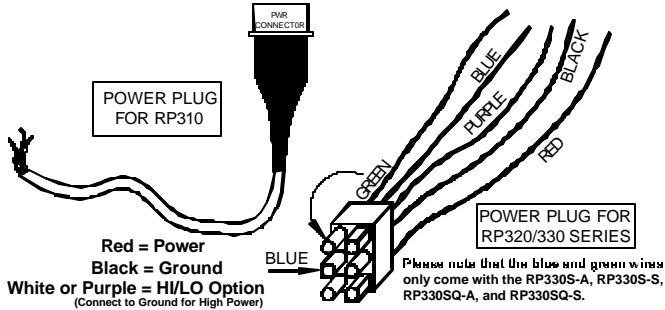
**Wiring Diagram For Optimax Systems
Utilizing the HI/LO Option**



Connecting the power plug for Star Pak Systems (RP310, RP320, & RP330 Series)

BASIC ON/OFF WIRING:

(This setup is typically used for most "On/Off" applications)



- A. The **black** wire should be connected to a good chassis ground.
- B. The **red** wire from your power plug should be connected to +12VDC through your on/off switch (optional).
- C. If you are only operating your power pak with an On/Off switch, you may run on high power all the time by hooking the **white or purple** wire to the black wire (good chassis ground).

----- If you intend to utilize the HI/LO option follow the instructions below -----

For HI/LO Operation: Make your connections as illustrated on the following page in Figure 1, using the optional #SP3860-2H switch available from your dealer.

- A. The **black** wire from your power plug on the pak should be connected to a good chassis ground, as should the **black** wire from terminal 3 of SW1 on the switch panel.
- B. The **red** wire from your power plug will connect to the **red** wire extending from terminal 2 of SW1.
- C. The **fused lead** from terminal 1 of SW1 will connect to your +12 VDC power supply.
- D. The **white or purple** wire from the power plug allows utilization of the HI/LO (Day/Night Mode) option. It will be connected to the **purple** wire from terminal 2 of SW2 on the switch panel. When the **white** wire is connected to ground through SW2 the pak will operate under high power.
- E. When properly wired, SW1 will be on the left side (Front View) and switch the pack on and off. SW2 will be located on the right side of the switch panel and will be used to select between low or high power
- F. **Please note that the blue and green wires only come with the four-outlet Star paks that have a switching feature (RP330S-A, RP330S-S, RP330SQ-A, and RP330SQ-S). These terminals are not present on the RP310 and are left empty for the RP320, RP330, and RP330Q.**
- G. ***For RP330S-A, RP330S-S, RP330SQ-A, and RP330SQ-S only*** For proper utilization of the independent switching feature on these paks, please use in conjunction with a #SP3860-4H-10 switch panel (shown on the following page). One of the switches will operate heads 1 & 2, while another will operate heads 3 & 4. The main power switch (SW1) must be on for either pair of heads to flash. SW1 will turn the system on, SW2 will control whether you are running under HIGH or LOW power, SW3 will switch heads 1 & 2 on or off, and SW4 will switch heads 3 & 4 on or off. In the "-A" models, heads 1 & 2 will flash alternately when power is applied to the blue wire, and heads 3 & 4 will flash alternately when power is applied to the green wire. In the "-S" models, heads 1 & 2 will flash simultaneously when power is applied to the blue wire, as do heads 3 & 4 with power applied to the green wire. You will be connecting the blue and green wires from the pak with the corresponding blue and green wires on the switch panel. Refer to Figure 2 on the next page for proper wiring.

Wiring Diagram For Star Pak Systems Utilizing the HI/LO Option

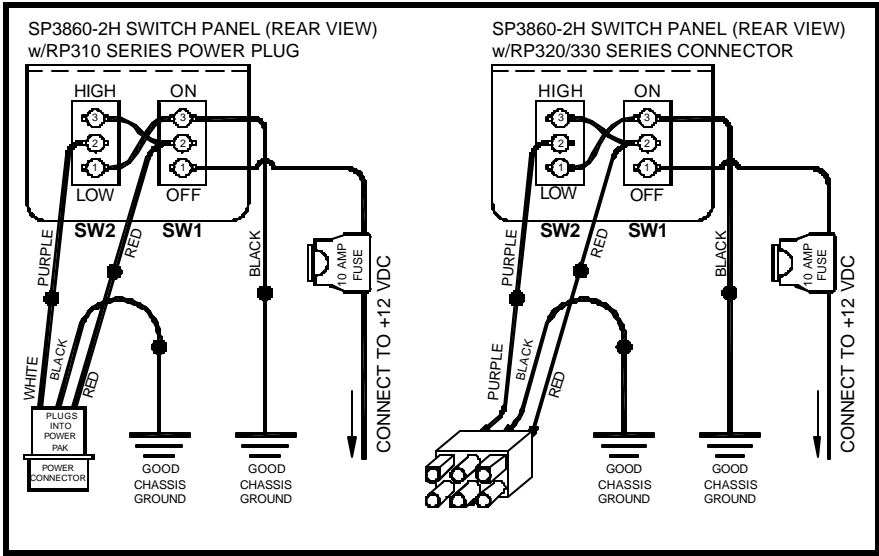


Figure 1

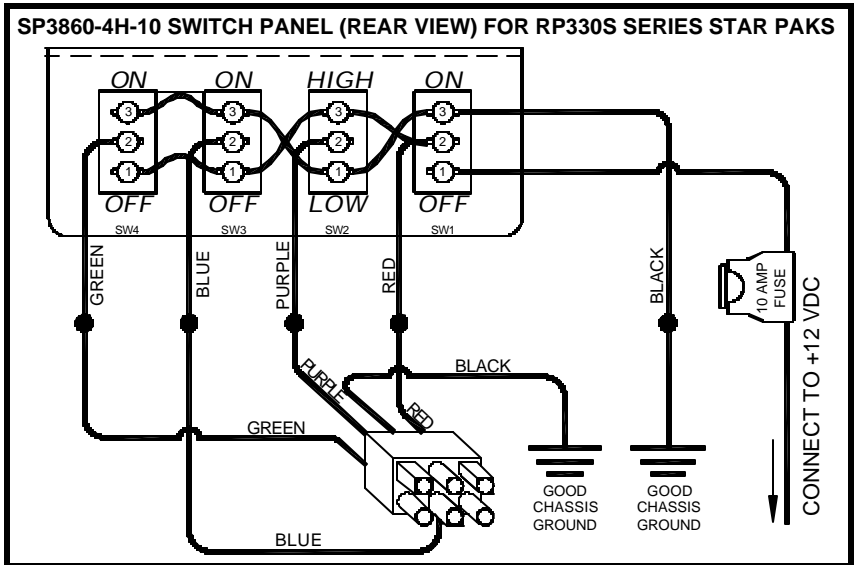


Figure 2

Connecting the Pattern Control Cable: **Optimax Systems Only (RP242, RP244, & RP906)**

A. The RP242, RP244, and RP906 paks allow the user to select the flash characteristics that will be exhibited by the power pak, including flash patterns and head selectability. Refer to the table below for proper connection of the correct **CTRL** wires to +12 VDC required to achieve the desired flash characteristic(s).

B. Please be sure that the power (+12VDC) connected to the **CTRL** wires is *switched by the main power switch to your pak*. Applying constant voltage to the wires from the **CTRL** plug, while the pak is switched off, may result in damage to the circuitry of the pak and will void the warranty.

C. Using the correct table to the right which corresponds to your Optimax power pak, select your desired flash pattern and note which wires are necessary to connect to +12VDC.

D. Connect the wires you have noted from the table on the right to the switched +12VDC power supply. This is the wire that the red wire from your power plug is also connected to (terminal 2 of SW 1 in the figure on the bottom of page 3). This will apply +12VDC to those **CTRL** wires only when the pak is switched on.

Wire From CTRL Outlet Connected to +12 VDC			242 Flash Characteristics
Red	Blue or Black	White	
-	-	-	No Flashing
X	-	-	Double Flash / L1 Alternates with L2
-	X	-	Quad Flash / L1 Only
X	X	-	Quad Flash / L1 Alternates with L2
-	-	X	Quad Flash / L2 Only
X	-	X	Triple Flash / L1 Alternates with L2
-	X	X	Quad Flash / L1 Alternates with L2
X	X	X	Five Flash / L1 Alternates with L2

Wire From CTRL Outlet Connected to +12 VDC			244 Flash Characteristics
Red	Blue or Black	White	
-	-	-	No Flashing
X	-	-	Double Flash / L1 & L2 Alternate with L3 & L4
-	X	-	Two Heads Only - Quad Flash / L1 Alternates with L4 *
X	X	-	Quad Flash / L1 & L2 Alternate with L3 & L4
-	-	X	Two-Heads Only - Quad Flash / L2 Alternates with L3 *
X	-	X	Triple Flash / L1 & L2 Alternate with L3 & L4
-	X	X	Quad Flash / L1 & L2 Alternate with L3 & L4
X	X	X	Five Flash / L1 & L2 Alternate with L3 & L4

WARNING: DO NOT USE THE FIVE FLASH PATTERN IF YOU ONLY ARE CONNECTING TWO HEADS TO THE RP244 OR RP906.

Wire From CTRL Outlet Connected to +12 VDC			906 Flash Characteristics
Red	Blue or Black	White	
-	-	-	No Flashing
X	-	-	Double Flash / L1, L5, & L6 Alternate with L2, L3, & L4
-	X	-	Four Heads Only-Quad Flash / L1 & L6 Alternate with L2 & L3
X	X	-	Quad Flash / L1, L5, & L6 Alternate with L2, L3, & L4
-	-	X	Four Heads Only-Quad Flash / L1 & L5 Alternate with L2 & L4
X	-	X	Triple Flash / L1, L5, & L6 Alternate with L2, L3, & L4
-	X	X	Quad Flash / L1, L5, & L6 Alternate with L2, L3, & L4
X	X	X	Five Flash / L1, L5, & L6 Alternate with L2, L3, & L4

X: Connected to +12VDC

** : Not connected

*** Star Headlight does not recommend the use of the Alternating Quadflash pattern for "Hide-Away" applications utilizing only two heads in headlights or taillights. The heat generated by both the strobes and your pre-existing lighting can damage your vehicle and/or lighting system. When utilizing only two outputs from the RP244 and RP906 for hide-away applications, Star recommends using a "simultaneous" flashing pattern (both strobes flashing at the same time), or using a double or tripleflash mode.**

Connecting the Remote Heads:

1. Cable is required to connect the power pak to your remote strobe heads. This cable can be purchased from Star. Ask for part #3820 for light duty cable, #3814 for heavy duty cable, or 4415 for shielded cable (used with the Optimax paks).
2. If you intend to use your own cable for connecting the remote heads, it must meet certain specifications as follows: It must be three-conductor with 600V insulation, minimum 18 AWG for 0-20 ft., 16 AWG for 21-30 ft. or 14 AWG for 31-50 ft. Star does not recommend the use of any cable length greater than 50 feet, as the resistance might cause a drop in voltage resulting in inconsistent or complete loss of firing in the heads. Please use the Table below for proper cable sizes.
3. If you are using your own cable and need connectors to attach the cable to the power pak, order part **#CK473**. The #CK473 consists of one connector (30041-20) and three male terminals (30042-16).
4. If you need a weatherproof connector kit *for your cable* to attach to our remote strobe heads, please order part **#CK702**. This kit contains one connector (30185-3), three female terminals (30042-30), and three rubber seals (30186-2).
5. If you need to order a weatherproof connector kit *for your strobe head* to mate with the connector on your cable (#CK702), please order part **#CK703**. This kit contains one connector (30185-4), three male pins (30042-29), and three rubber seals (30186-2).
6. For good, reliable connections between the cable system and the strobe heads in various weather and contamination conditions, it is strongly recommended that a dielectric grease or more specifically **Truck-Lite NYK Corrosion Preventative Compound** (2 fl. oz. tubes) be used on the connectors (available from Truck-Lite). It should be applied to the rear of the connectors, where the wires enter, as well as into each terminal area where the connectors mate, before joining the two connectors together. We have found this procedure to be effective even under the most extreme of conditions. **Do Not Seal The Connectors Using Silicon Or RTV.**

Remote Power Pak Cabling Requirements

	0-20 ft.	21-30 ft.	31-50 ft
Input Power and Ground Wires	16 AWG	14 AWG	12 AWG
Wires to Remote Heads	18 AWG	18 AWG	16 AWG



CAUTION: High voltages exist in electronic strobe lights. Before attempting service on any strobe light, be sure to disconnect the power for at least five minutes to allow the capacitor to discharge. Failure to heed this warning may result in severe electrical shock and/or injury.

Please Note: Most strobe and rotating beacon failures can be traced to wiring and battery problems. Before attempting any service on the circuit itself, please be sure to check all connections and wiring to ensure the correct voltage and/or polarity is reaching your light or remote head.

TROUBLESHOOTING GUIDE

If a problem exists in only one head, a strobe tube may have burned out, or there may be an open electrical connection in the wiring harness or strobe head. Check connections at and between the strobe pak and the strobe head, including all wiring. Replace the malfunctioning heads and/or wiring harnesses if necessary.

If none of your heads are flashing, follow these steps to determine the problem:

1. Check all fuses, including those at the battery, at the switch panel, in the dash, and on the pak (if applicable). The RP242, RP244, RP320, RP330, and RP330Q paks all have automotive "blade" type fuses. Remove these fuses, and check them to confirm they have not blown. The RP906 has a fuse located inside the cover. There is an access panel in the upper left hand corner of the cover, which can be opened by removing the two screws holding it in place. Using long needle nose pliers, grasp the fuse and remove it for inspection. Replace any blown fuses with only fuses of identical values. Replacing the fuse with the wrong rating may damage your pak and/or vehicle, and will void your warranty.
2. Check that the proper voltage is reaching the pak. With the vehicle turned off and while the pak is running, measure the voltage across the red wire (pin 1) and the black or blue wire (pin 2) of the **PWR** connector on the power pak. Push the probes of the test meter down into the connector at the wire entry points to contact the terminals for the measurement. Note this reading. A nominal 12.5 volts should be present. Low voltage to the pak can cause erratic flashing in the heads or even complete failure of the heads. A minimum of 9.5 volts should be present for the pak to operate properly. If you do not have proper voltage present skip to step 5. If your pak is receiving sufficient voltage then continue to step 3.
3. For Optimax paks: Check that the proper voltage is reaching the necessary **CTRL** inputs. Using the correct chart from Table 1 in this manual which corresponds to your Optimax power pak, select your desired flash pattern and note which wires are necessary to connect to +12VDC. With the vehicle turned off and while the pak is running, measure the voltage across the black wire (pin 3) of the **PWR** and any of the wires of the **CTRL** connector which need to have power applied to them for your desired flash pattern. Push the probes of the test meter down into the connector at the wire entry points to contact the terminals for the measurement. Note this reading. A nominal 12.5 volts should be present. A minimum of 9.5 volts should be present for the pak to operate properly. If you do not have proper voltage present skip to step 5. If your pak is receiving sufficient voltage then continue to step 4.

4. If the leads in one of the heads have shorted out, the output voltage of the other heads may be held down as well. To test for this, unplug all of the heads and plug them in individually. If your problem is a result of a shorted head, then the other heads should function properly if the faulty head is no longer connected. Note: A burned out strobe tube does not cause a short and will not affect the operation of the remaining heads. If the problem is not with a shorted head and if proper voltage is reaching the pak, the problem is most likely internal to the pak. Call Star to obtain an R.G.A. number to return the pak for service.
5. If sufficient voltage is not reaching the pak perform the following tests: With the vehicle turned off and while the pak is running, measure the battery voltage *at the battery*. A nominal 12.5 volts should exist. Note this voltage. If this voltage is below 10.0 volts the pak will not function properly and the problem is with the battery. This reading should not be more than 1-1.25 volts higher than the reading in the second step. If there is an excessive difference then continue on to the next step.
6. Move to the ON/OFF switch in the cab and gain access to the rear of the switch panel.
NOTE: *Excessive voltage drop may be occurring in the connections on the switch panel. For the Star switch, you can increase the contact pressure by removing the FASTON terminal from the tab on the switch. Using long nose pliers, gently squeeze the FASTON terminal together in the area which slides on to the tab of the switch. This will increase the pressure applied between the tabs and the connector and reduce voltage drop.* With the vehicle not running and the pak on at the high power setting, measure the voltage in the red wire by taking a reading from the positive side of the battery to pin 1 of your switch. If this reading exceeds 0.25 volts then there is a poor connection between the switch and the battery in the red wire and it should be checked.
7. If you still have not located the problem, troubleshoot the connections between the good chassis ground and pin 2 (black or blue wire) of the **PWR** connector on the power pak, while the pak is running. If this reading exceeds 0.25 volts then there is a poor connection between the switch and the ground in the black wire and it should be checked.
8. This same procedure can be used to check the wires between the switch panel and the pak. Place one probe on the terminal at the switch and the other probe into the terminal with the corresponding wire color in the **PWR** connector on the pak. Once again if any of the readings exceed 0.25 volts then you should check those wires and their connections.



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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.

If you have any questions concerning this or any other 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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