



SERVICE MANUAL LED LIGHTING

RV

VERTICAL ARM AWNINGS



Read this manual before installing or servicing this product. Failure to follow the instructions and safety precautions in this manual can result in personal injury and/or cause the product to not operate properly.



SPECIFICATIONS

Mounting Options:	a) LED light strip is mounted in the roller tube. The power harness is concealed in the canopy hem. b) LED light strip is mounted at the awning rail. Requires special canopy with integrated strip holder	
Length:	Available for awnings 10' – 21'	
	<u>White LED:</u>	<u>Color LED:</u>
Power:	1A, 12Vdc	2A 12Vdc
Colors:	a) Bright White 6000K (standard) b) Warm White 3000K (OEM option)	RGB (with variable color control)
Controls:	a) Single pole, single throw switch (SR0101) b) Lighted single throw switch (SR0111) <i>Note: For an installer furnished switch, see notes in "Switch Installation" on page 11.</i>	IR (infrared) Remote and Controller Kit (SR0109)
<i>Note: Aftermarket upgrade kits from Carefree use RF remotes and controllers for white and RGB installations. These controls are not interchangeable with the factory installed controls.</i>		

This manual covers LED lighting applications used with vertical arm awnings. For box awning applications, refer to 070013-301 "LED Service Manual for Box Awnings" available on-line at www.carefreeofcolorado.com

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PROPRIETARY STATEMENT

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The information contained in this manual pertains to the current configuration of the models listed on the title page. Earlier model configurations may differ from the information given. Carefree of Colorado reserves the right to cancel, change, alter or add any parts and assemblies, described in this manual, without prior notice.

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SAFETY INFORMATION



This is the safety alert symbol. It is used to alert individuals to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible personal injury or death.



Indicates a hazardous situation, which if not avoided, could result in death or serious bodily injury.



Indicates a hazardous situation, which if not avoided, may result in minor or moderate bodily injury.



Indicates a situation that may result in equipment-related damage.

General Safety:



Shock Hazard. Always disconnect battery or power source before working on or around the electrical system.



Always wear appropriate safety equipment (i.e. goggles).



Always use appropriate lifting devices and/or helpers when lifting or holding heavy objects.



When using fasteners, do not over tighten. Soft materials such as fiberglass and aluminum can be "stripped out" and lose the ability to grip and hold.

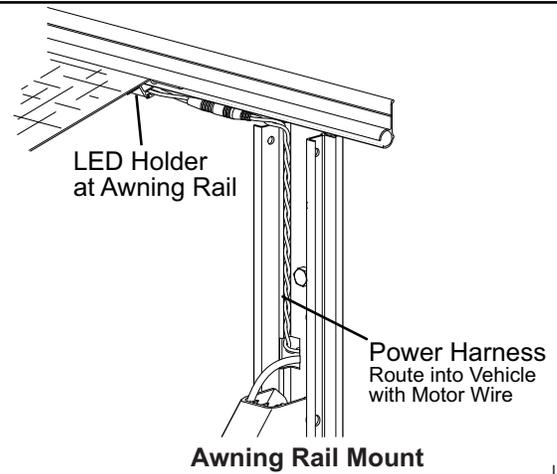
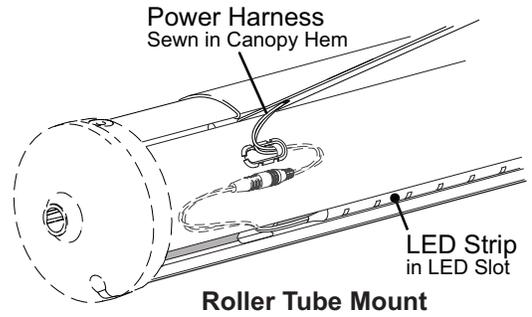
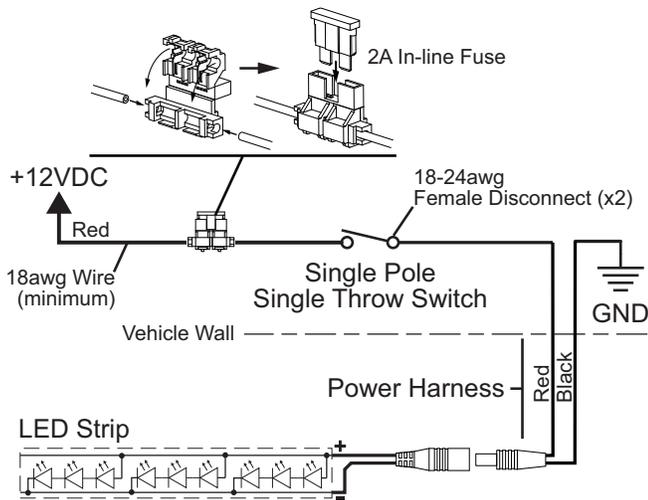
CALIFORNIA PROPOSITION 65



This product contains chemicals known to the state of California to cause cancer or birth defects or other reproductive harm. California's Proposition 65 requires this warning to be given to customers in the state of California.

WHITE LED LIGHTS

WHITE LED SCHEMATIC AND LAYOUT

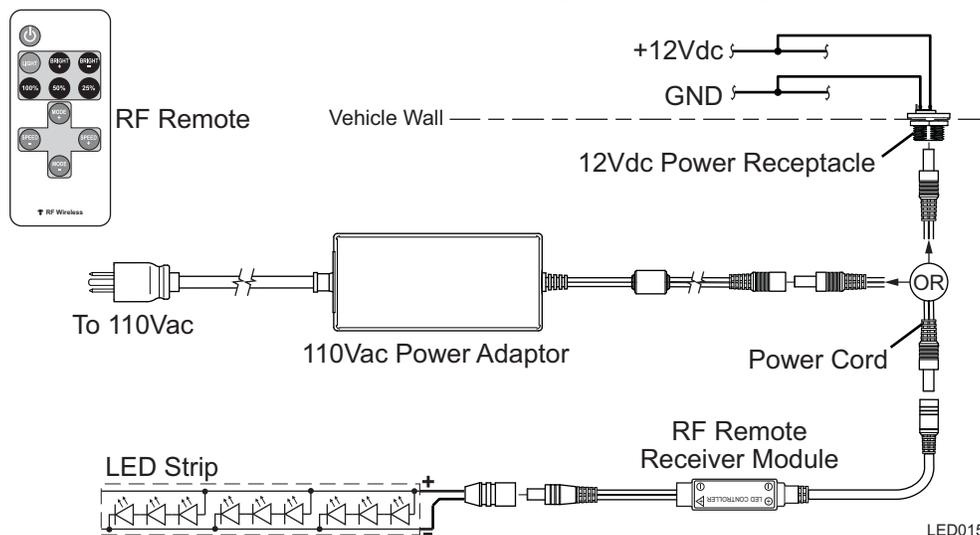


LED002

- For examples of routing the power harness into the vehicle, refer to page 11.
- The single pole switch is used as a power on/off control. Refer to page 11.

AFTERMARKET WHITE LED UPGRADE

The aftermarket White LED upgrade uses an RF receiver and remote to operate the lights. Power for the LED lights can be provided through the vehicle's 12Vdc system using an exterior receptacle for the power cord plug. Alternately, an 110Vac adaptor is furnished so that the lights may be plugged into a standard 110Vac outlet.



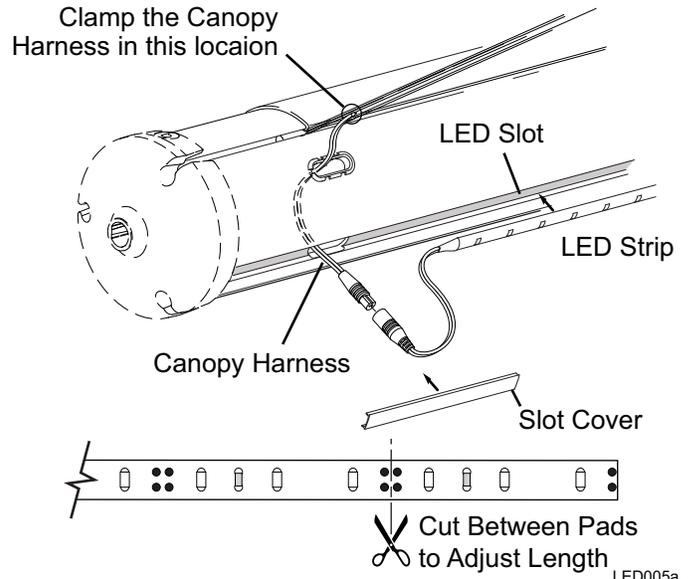
LED015

REPLACING THE LED STRIP

Springless Rollers

These instructions apply to Travel'r, Eclipse, Pioneer and Pioneer Lite installations with LED's in the roller tube.

1. Extend the awning out completely.
2. Disconnect power.
3. Use a non-permanent marker to mark the location of the ends of the LED strip.
4. Clamp the canopy harness in the canopy to prevent the wire from pulling up into the seam of the canopy. This can be done with a paper clip or similar device that will not damage the wires or canopy.
5. Remove the slot covers from the ends of the LED strip and set aside.
6. Carefully pull the wires and connectors out of the roller tube through the hole that is located behind the slot cover location. Disconnect the connectors.
7. Remove the existing LED strip.
8. Clean the slot to remove any dirt and tape residue.
9. Starting at the reference mark made previously, remove the release paper from the back of the new strip and press the strip into the LED slot.
10. At the end of the roller tube, cut the LED strip to match the mark made previously. To trim the LED strip, always cut through the center of the 4-pad cluster as shown.



NOTICE Ensure that power is off to the LED strip. Cutting the strip with power on can short the LED strip.

11. Connect the canopy harness connector and LED connector. Then carefully push the connectors into the roller tube.
12. Press the slot covers into the LED slot.
13. Restore power and test.

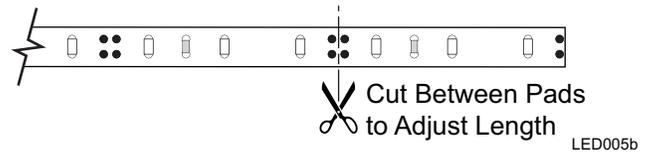
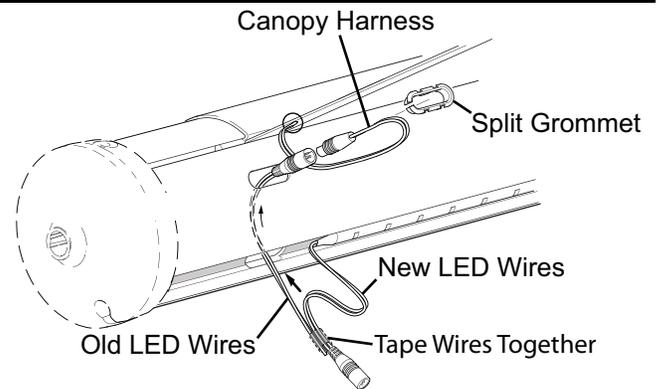
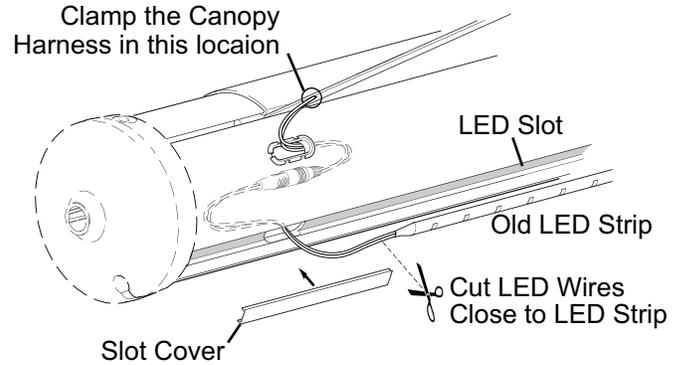
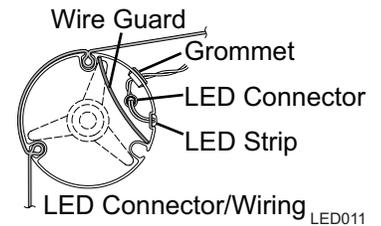
Spring Driven Rollers

These instructions apply to Fiesta and Fiesta Lite installations with LED's in the roller tube. Spring driven rollers have a wire guard inside the roller tube to prevent the wires and connectors from being caught in the spring.

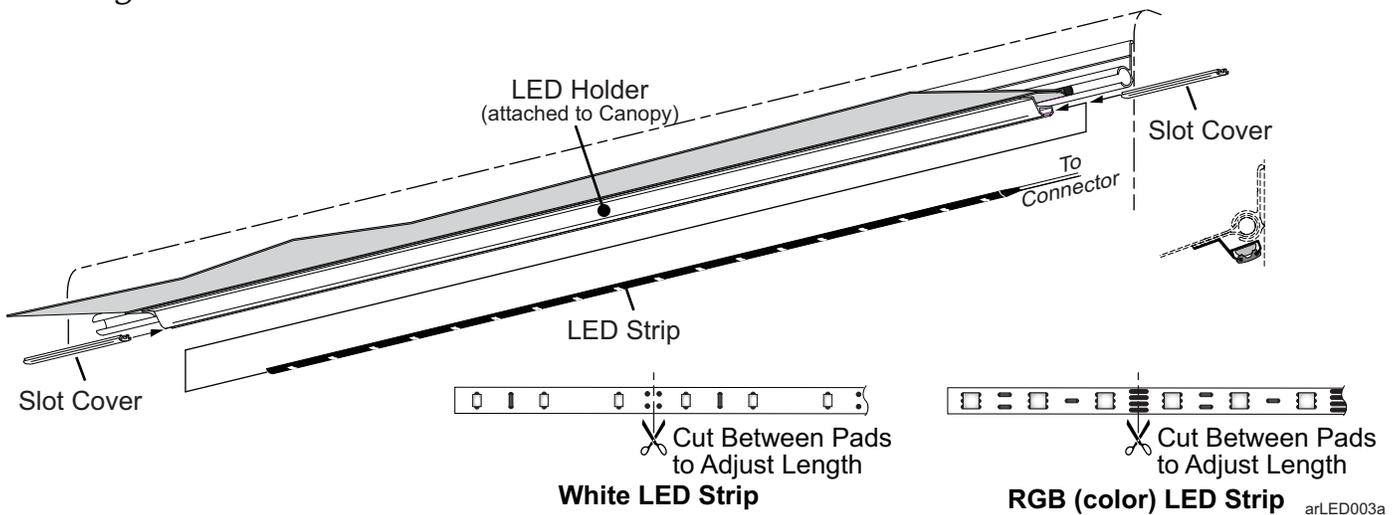
1. Extend the awning out completely.
2. Disconnect power.
3. Use a non-permanent marker to mark the location of the ends of the LED strip.
4. Clamp the canopy harness in the canopy to prevent the wire from pulling up into the seam of the canopy. This can be done with a paper clip or similar device that will not damage the wires or canopy.
5. Remove the slot covers from the ends of the LED strip and set aside.
6. Remove the existing LED strip from the LED slot.
7. Cut the old LED wires close to the LED strip. Tape or secure the wires on the outside of the roller tube.
8. Clean the slot to remove any dirt and tape residue.
9. Starting with the wire leads at the reference mark made previously, remove the release paper from the back of the new strip and press the strip into the slot.

NOTICE Ensure that power is off to the LED strip. Cutting the strip with power on can short the LED strip.

10. At the end of the roller tube, cut the LED strip to match the mark made previously. To trim the LED strip, always cut through the center of the 4-pad cluster as shown.
11. Tape the old LED wires to the new LED wires and connector.
12. Locate and remove the split grommet from the roller tube.
13. Carefully pull the canopy harness and connectors out of the roller tube. Disconnect the connectors.
14. Carefully feed the new LED connector through the hole in the slot.
15. Using the old LED wire, pull the new connector through the roller tube and out of the grommet hole. Remove the tape and old wire and discard.
16. Connect the canopy harness connector and new LED connector. Then carefully push the connectors back into the roller tube.
17. Place the split grommet around the canopy harness and press the grommet into the hole of the roller tube.
18. Press the slot covers into the LED slot.
19. Restore power and test.



Awning Rail LEDs



1. Extend the awning out to access the LED strip mounted at the awning rail (strip holder is sewn to the canopy).
2. Disconnect power.
3. Disconnect the connector from the LED strip.
4. Use a non-permanent marker to mark the location of both ends of the LED strip.
5. Slide the slot covers from the ends of the LED strip and set aside.
6. Slide the existing LED strip out of the holder.
7. Clean the slot to remove any dirt and tape residue.
8. Slide the new strip into the holder.
9. At the end of the holder, cut the LED strip to match the mark made previously. To trim the LED strip, always cut between the 4-pad cluster as shown.

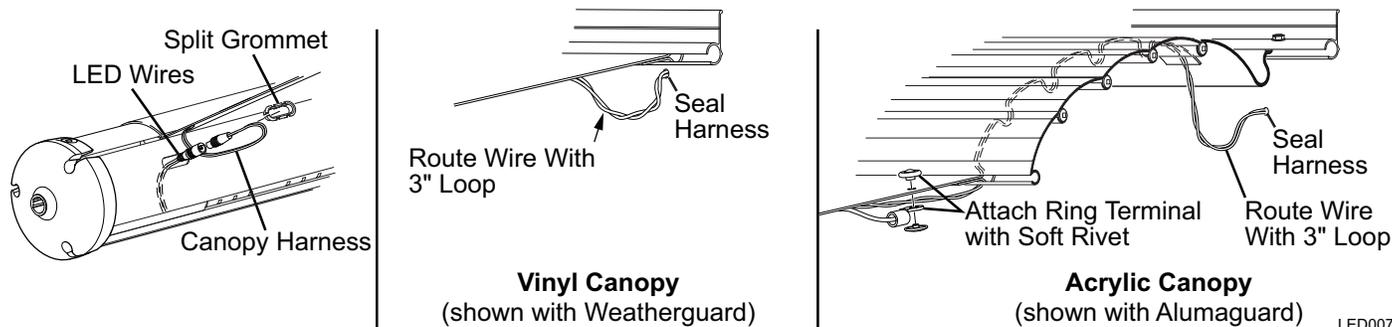
NOTICE

Ensure that power is off to the LED strip. Cutting the strip with power on can short the LED strip.

10. Connect the LED connector to the power harness (White LED).
11. Slide the slot covers into the LED slot.
12. Restore power and test.

CANOPY WIRE HARNESS REPLACEMENT

NOTE: Acrylic canopies use a soft rivet in the hem next to the metal wrap to hold the harness in place. Dual tapered canopies do not use the rivet. If replacing a harness in a tapered canopy, skip steps 6 and 11.1.



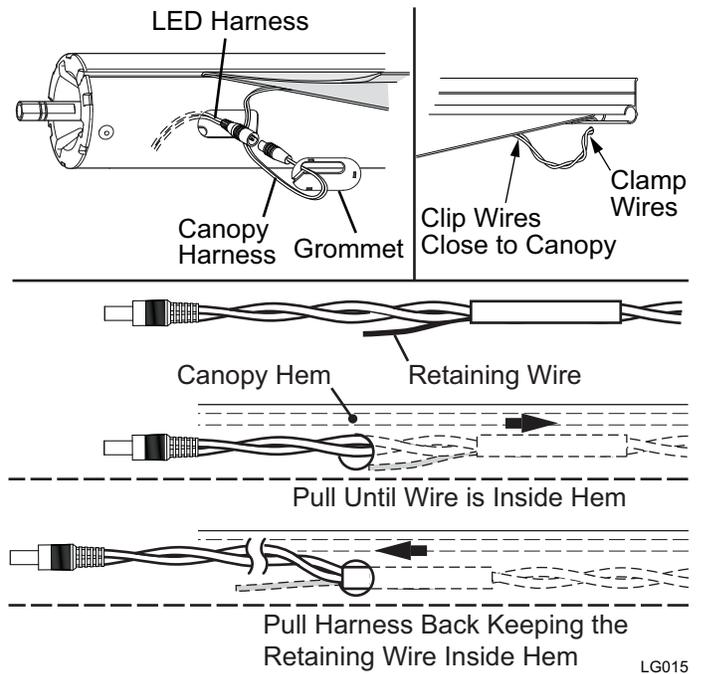
1. Extend the awning out completely.
 2. Locate and remove the split grommet from the roller tube.
 3. Carefully pull the wires and connectors out of the roller tube. Disconnect the connectors.
 4. Clamp the LED harness connector outside the roller tube to prevent it from falling back into the roller tube. This can be done with a paper clip or similar device that will not damage the wires.
 5. At the awning rail, clip the harness close to the canopy. Clamp the harness going into the vehicle to prevent it from falling in the vehicle wall.
 6. For acrylic canopies only: Remove the rivet from the canopy. This is a soft rivet and can be cut off with side cutters.
 7. At the roller tube, cut off the connector from the old canopy harness.
 8. Securely tape the new harness to the old harness.
 9. Carefully use the old harness to pull the new harness through the hem of the canopy.
 10. After the new harness has been routed in the canopy hem:
 - 10.1. Connect the canopy harness connector and LED connector. Then carefully push the connectors into the roller tube.
 - 10.2. Place the split grommet over the canopy harness and press the grommet into the hole of the roller tube.
 11. At the vehicle wall:
 - 11.1. For acrylic canopies only: Attach the new harness terminal ring to the canopy using a new rivet.
 - 11.2. If the canopy has a metal wrap, attach the wire to the inside of the wrap (see page 6) then proceed with the next step.
 - 11.3. At the vehicle wall, route the new canopy harness through the wall to the switch.

Tip: Tie the new harness to the old harness that was cut previously. Use the old harness to pull the new harness through the wall to the desired location.
 - 11.4. At the vehicle wall, provide a 3" loop of harness between the canopy and wall. Seal the wall entrance hole and harness with a quality silicone sealant.
 - 11.5. Connect the new harness to the switch. Two (2) .187, 18-24 awg female disconnects are provided if connecting to a switch.
 - 11.6. Alternate method: At the wall, splice the new harness to the existing harness using 24 awg butt connectors. Push the connectors into the vehicle wall. Seal the wall entrance hole and wires with a quality silicone sealant.
- NOTE:** Be sure to allow enough harness from the canopy to provide a 3" loop of harness and adequate length for the connectors to be pushed inside the wall before sealing the hole and harness with a quality silicone sealant.

Harness Replacement - Latitude, Longitude

1. Over extend the awning so that the split grommet in the roller tube is accessible.
2. Disconnect power to the awning and LED controls.
3. Locate and remove the split grommet from the roller tube.
4. Carefully pull the wires and connectors out of the roller tube. Disconnect the connectors.
5. Clamp or tape the LED harness connector outside the roller tube to prevent it from falling back into the roller tube.
6. At the awning rail, cut the harness close to the canopy. Clamp the harness going into the vehicle to prevent it from falling in the vehicle wall.
7. At the roller tube, remove the connector from the canopy harness.
8. Firmly attach the wire ends of new harness to the old harness. Carefully use the old harness to pull the new harness through the hem of the canopy.
 - 8.1. The harness has a retention wire attached near the connector. When pulling the harness, pull the harness so that the retaining wire is inside the hem.
 - 8.2. Gently pull the harness back toward the roller tube to seat the retention wire inside the canopy hem as shown.
9. At the roller tube:
 - 9.1. Connect the canopy harness connector and LED connector. Then carefully push the connectors into the roller tube.
 - 9.2. Place the split grommet over the canopy harness and press the grommet into the hole of the roller tube.
10. At the vehicle wall:
 - 10.1. At the vehicle wall, route the new canopy harness through the wall to the switch.

Tip: Tie the new harness to the old harness that was cut previously. Use the old harness to pull the new harness through the wall to the desired location.
 - 10.2. Connect the new harness to the switch. Two (2) .187, 18-24 awg female disconnects are provided if connecting to a switch.
 - 10.3. Alternate method: At the wall, splice the new harness to the existing harness using 24 awg butt connectors. Push the connectors into the vehicle wall. Seal the wall entrance hole and wires with a quality silicone sealant.



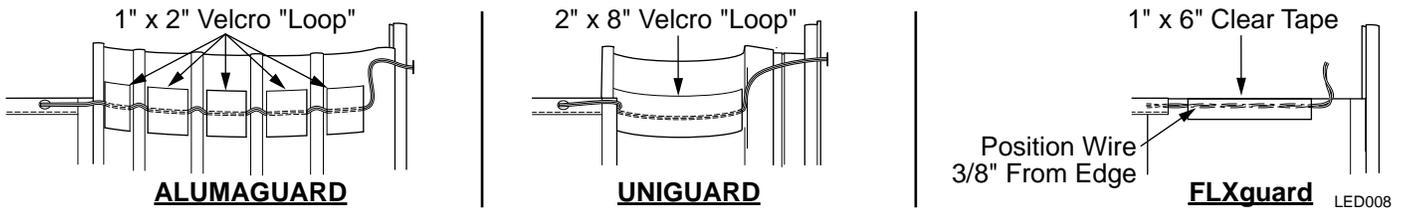
Attaching the Harness to Fabric Wrap

When replacing the canopy only or replacing the canopy harness, it is necessary to attach the cable to the inside of the wrap.

For a vinyl canopy with Weatherguard, the harness is routed in the seam of the Weatherguard, no additional attachment is necessary.

For other wraps follow the directions below:

1. Open the awning to access the inside surface of the wrap.
2. Clean the inside surface of the wrap.



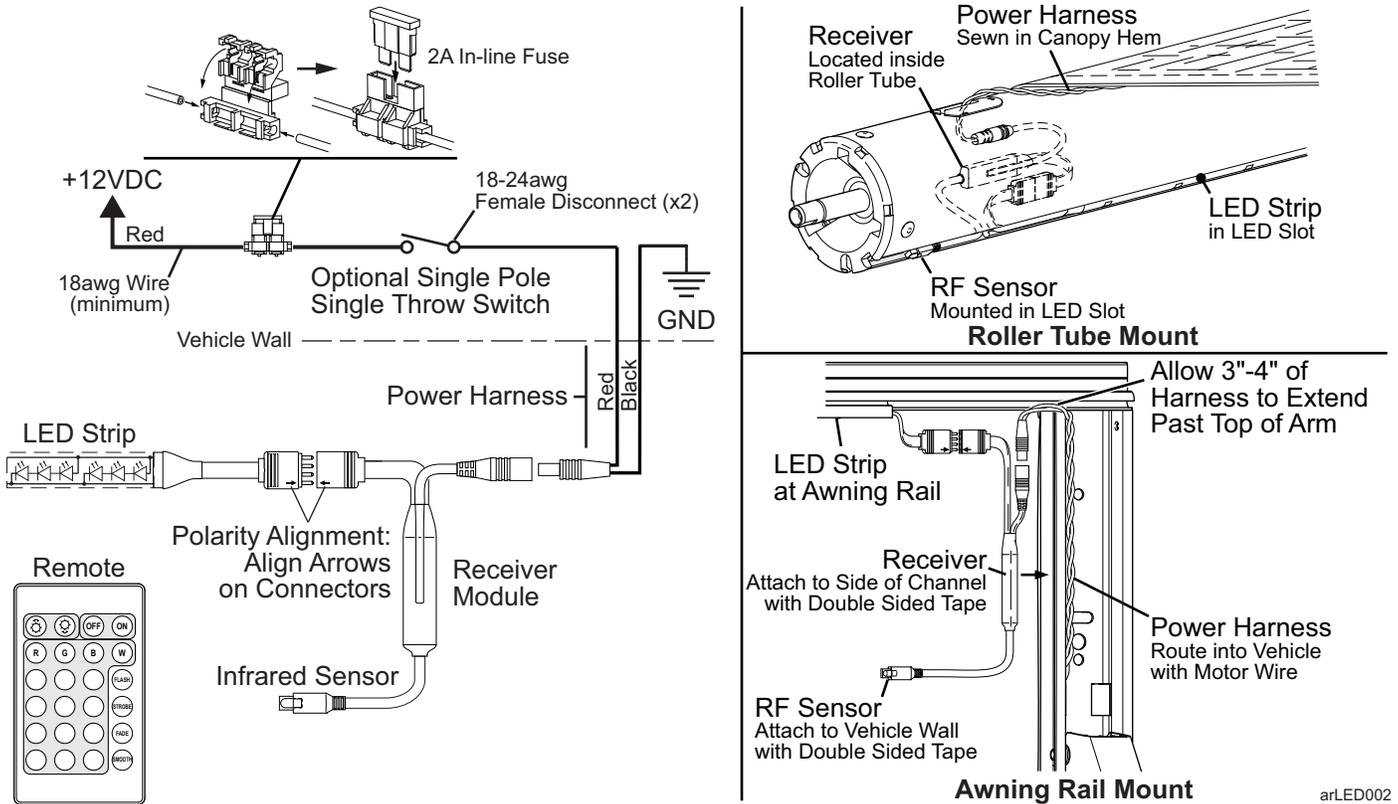
3. Attach the harness to the inside surface.

- 3.1. **For Alumaguard:** Use 1" by 2" pieces of Velcro (loop) taping the harness on each slat between the joints.
- 3.2. **For Uniguard:** Tape the harness to the inside surface using a 2" x 8" piece of Velcro (loop).
- 3.3. **For FLXguard:** Position the harness approximately 3/8" from the edge of the material. Attach using a 1" x 6" piece of clear tape (the tape is a special bond tape available from Carefree).

RGB LED LIGHTS

Factory installed RGB lights installed on the roller tube are available on Latitude, Longitude and Travel'r awnings. The RF receiver is located in the roller tube on the motor side of the awning. RGB lights are also available at the awning rail.

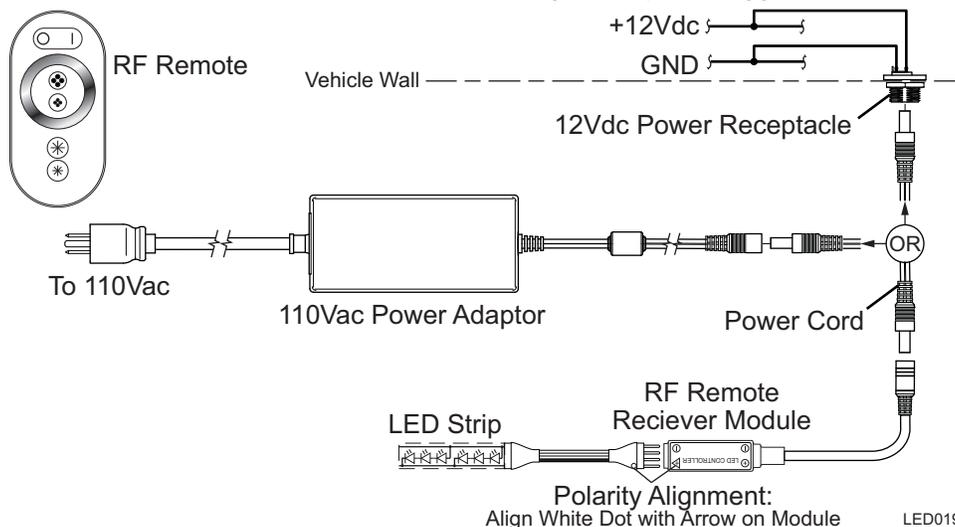
RGB SCHEMATIC AND GENERAL LAYOUT



- For examples of routing the power harness into the vehicle, refer to page 11.
- The single pole switch is used as an optional power on/off control. This allows the lights to be shut off if the awning is retracted with the lights on. Refer to page 11.

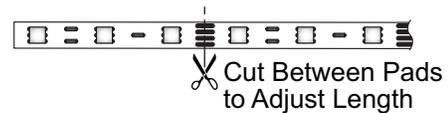
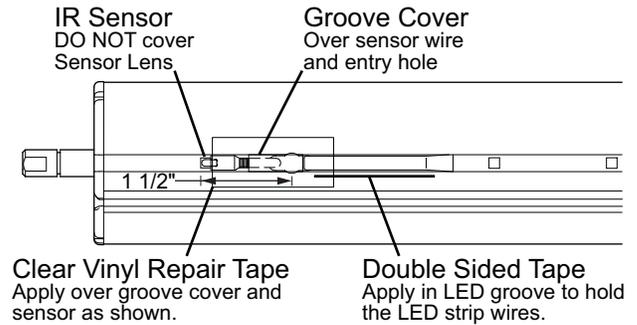
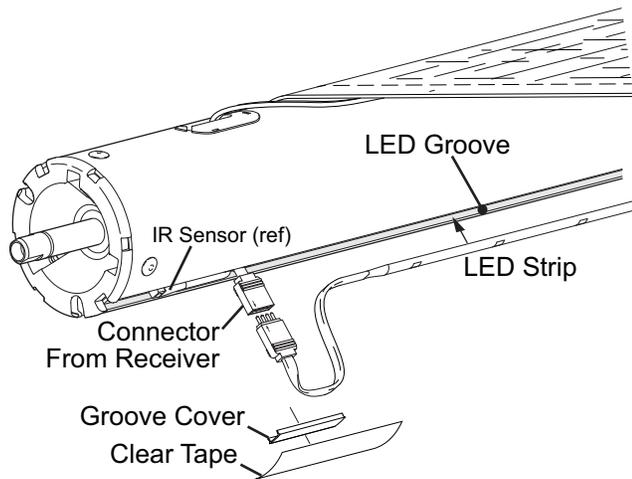
AFTERMARKET RGB LED UPGRADE

The aftermarket RGB LED upgrade uses an RF receiver and remote to operate the lights. Power for the LED lights can be provided through the vehicle's 12Vdc system using an exterior receptacle for the power cord plug. Alternately, an 110Vac adaptor is furnished so that the lights may be plugged into a standard 110Vac outlet.



REPLACING THE LED STRIP

1. Extend the awning out completely.
2. Disconnect power.



LED016

3. Use a non-permanent marker to mark the location of the ends of the LED strip.
4. Remove the clear tape and the slot covers from the ends of the LED strip and set aside.
5. Carefully pull the strip wires and connectors out of the roller tube through the hole that is located behind the slot cover location. Disconnect the connectors.
6. Clamp or tape the connector from the receiver to prevent it from pulling back into the roller tube.
7. Remove the existing LED strip.
8. Clean the slot to remove any dirt and tape residue.
9. Starting at the reference mark made previously, remove the release paper from the back of the new strip and press the strip into the LED slot.
10. At the end of the roller tube, cut the LED strip to match the mark made previously. To trim the LED strip, always cut through the center of the 4-pad cluster as shown.

NOTICE Ensure that power is off to the LED strip. Cutting the strip with power on can short the LED strip.

11. Remove the release paper from the LED strip wires.
12. Connect the LED connector to the receiver connector. Then carefully push the connectors into the roller tube. Make sure that the arrows on the connector halves are lined up.
Tip: The connectors do not lock together. Place a piece of tape around the connectors to insure that the connectors do not separate.
13. Firmly press the strip wires into the slot. Wires should lay flat in the groove.
14. Position the IR sensor in the groove and secure using a groove cover. The cover should cover the sensor wire and the entry hole.
15. Place a piece of clear vinyl repair tape over the groove cover and sensor. DO NOT cover the sensor lens.
16. Place a second piece of groove cover into the slot at the opposite end of the groove.
17. Restore power and test.

Awning Rail RGBs

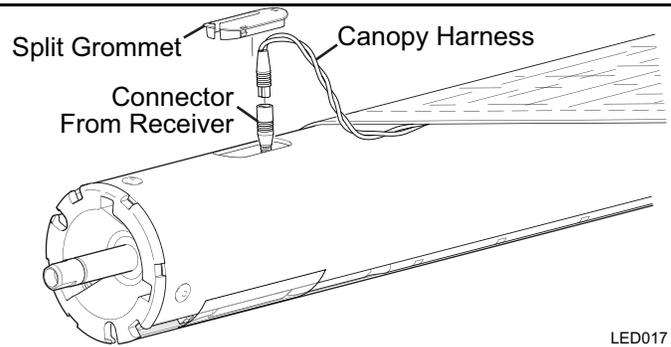
To replace the RGB strip at the awning rail, follow the directions on page 4.

CANOPY WIRE HARNESS REPLACEMENT

The canopy power harness is the same for RGB and white LED lights with the difference that the harness for RGB connects to the RF receiver inside the roller tube.

For *Travel'r* awnings, follow the directions on page 5.

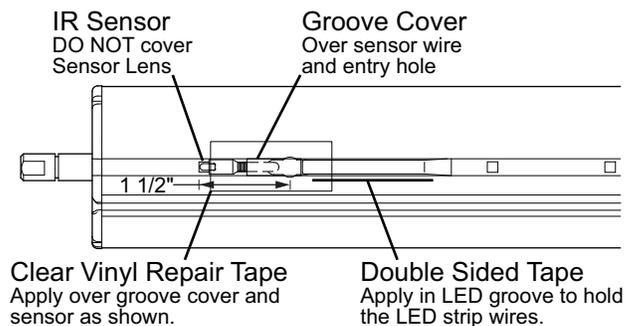
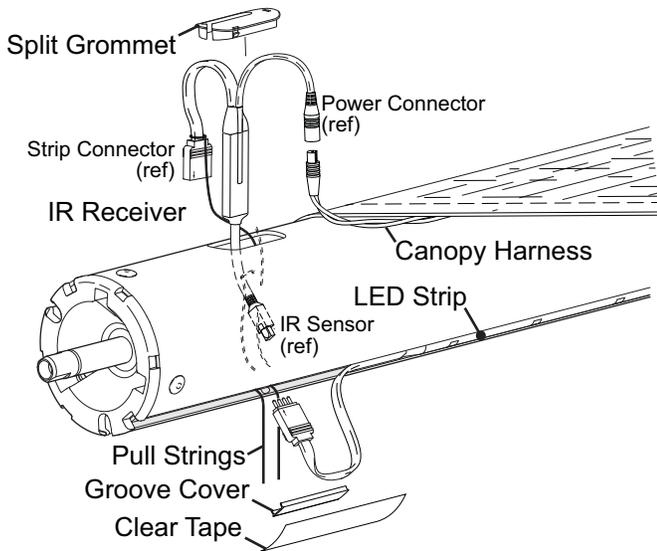
For *Latitude and Longitude* awnings, follow the directions on page 6.



LED017

REPLACING THE IR RECEIVER

The RGB lights use an IR (Infrared) remote and receiver. The receiver is located inside the roller tube.

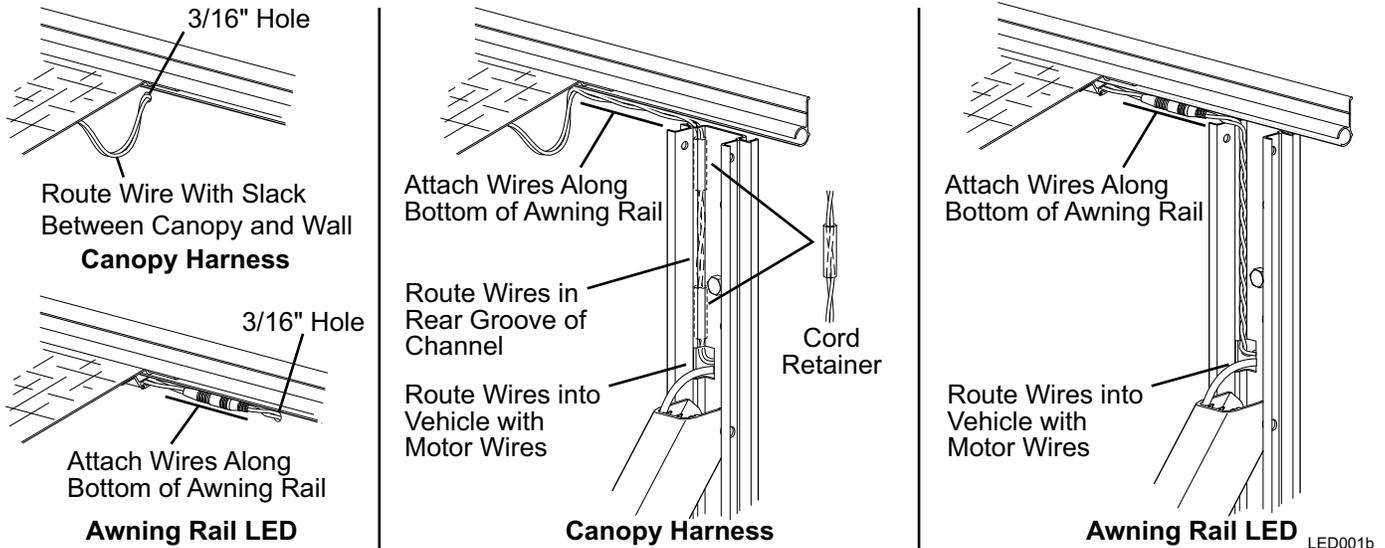


LED018

1. Extend the awning out completely.
2. Disconnect power.
3. Remove the clear tape and the slot cover from the end of the LED strip and set aside.
4. Carefully pull the strip wires and connectors out of the roller tube through the hole that is located behind the slot cover location. Disconnect the connectors.
5. Tie pieces of string around the IR sensor and the strip connector from the roller tube.
6. Remove the split grommet.
7. Pull out the canopy harness and disconnect from the connector of the receiver.
8. Pull the receiver out of the roller tube. Do not pull the strings out of the roller tube.
9. Remove the strings from the old receiver and attach to the new receiver's IR sensor and connector.
10. Connect the canopy harness to the new receiver.
11. Push the new receiver and connectors into the roller tube. Use the strings to guide the sensor and connector to the lower hole in the slot of the roller tube.
12. Connect the LED connector to the receiver connector. Then carefully push the connectors into the roller tube. Make sure that the arrows on the connector halves are lined up.
Tip: The connectors do not lock together. Place a piece of tape around the connectors to insure that the connectors do not separate.
13. Firmly press the strip wires into the slot. Wires should lay flat in the groove.
14. Position the IR sensor in the groove and secure using a groove cover. The cover should cover the sensor wire and the entry hole.
15. Place a piece of clear vinyl repair tape over the groove cover and sensor. DO NOT cover the sensor lens.

HARNESSE ROUTING INTO THE VEHICLE

Below are examples of how the power harness may be routed into the vehicle to 12Vdc and control switch.



SWITCH INSTALLATION

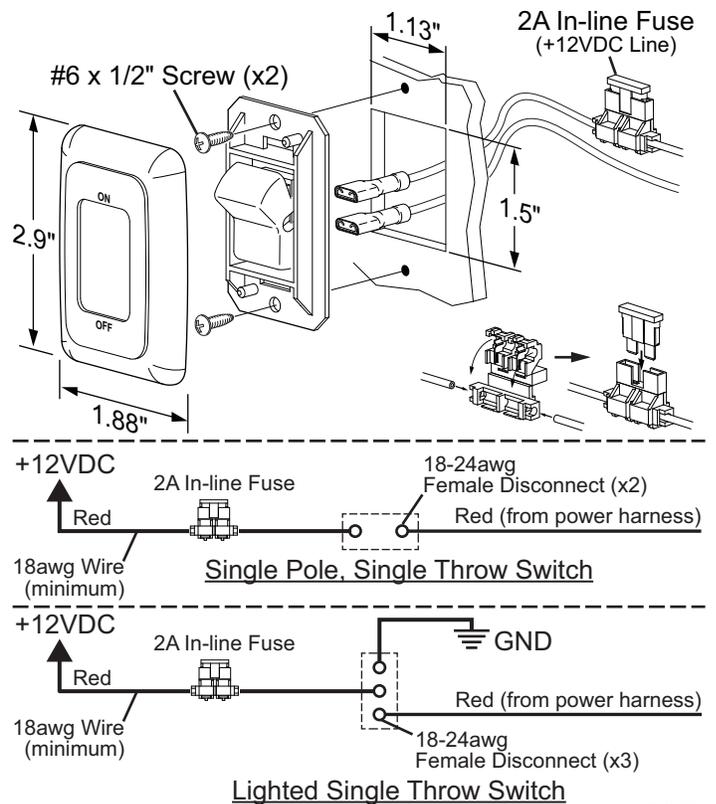
A single pole switch is required for the white LED installations and is optional for RGB installations. Two configurations are available from Carefree. A standard unlit switch and a lighted switch.

NOTE: Installers may choose to furnish the control switch. The installation requires that the power line (+12VDC) be attached to a dedicated 2A circuit breaker or a 2A in-line fuse must be installed between the switch and power source. For easy access, locate the fuse close to the switch.

1. Determine the location of the switch.
2. At the switch location, cut a 1 1/8" x 1 1/2" hole.
3. Wire the switch as shown below. Wire terminals at the switch are .187, 18-24 awg female disconnects.

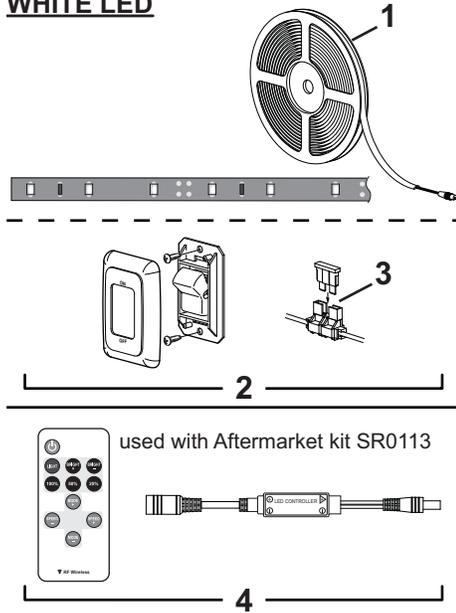
NOTE: Allow adequate slack in the 12VDC power line so that the in-line fuse (installed in step 4) can be accessed from behind the switch.

4. Install the in-line fuse:
 - 4.1. Near the switch, cut the red 12VDC power line to the switch. Do not strip the insulation.
 - 4.2. Insert a wire end into one of the wire channels until it butts up against the stop.
 - 4.3. Fold that half of the connector body over until the element contacts the wire. Use pliers to crimp the connector closed.
 - 4.4. Repeat for the second wire end.
 - 4.5. Slide the fuse into the fuse port. Ensure that is firmly seated.
5. Press the in-line fuse, wires and switch into the mounting hole. Secure the switch using two (2) #6 x 1/2" screws.
6. Snap the switch bezel over the switch frame.

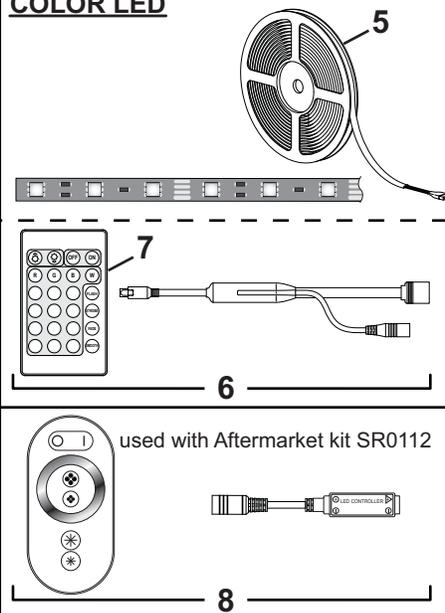


LED COMPONENTS

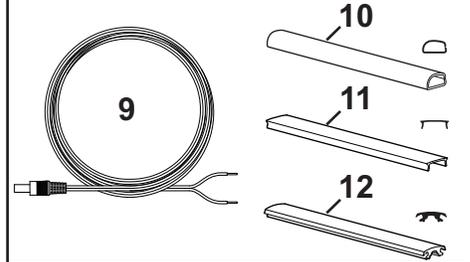
WHITE LED



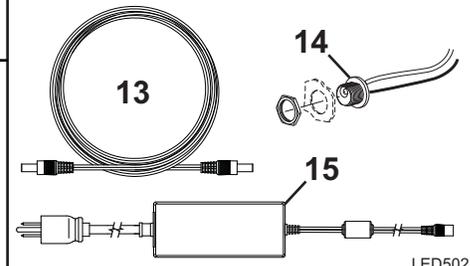
COLOR LED



Factory Installed Power Harness



External Power Harnesses (used with Aftermarket kits SR0112 & SR0113)



LED502

Item	Part Number	Description	Notes
1a	R001714	LED Strip, Bright White 6000K 16' Length 8" Lead 30 LPM	6
1b	R001715	LED Strip, Bright White 6000K 16' Length 26" Lead 30 LPM	5,6
1c	R001735	LED Strip, Bright White 6000K 20' Length 8" Lead 30 LPM	
2	SR0101	Switch and Fuse Kit	
	SR0111	Switch and Fuse Kit, Lighted	
3	R019493-001	Fuse Kit (includes fuse holder and 2A fuse)	
4	R001868	RF Remote and Controller Kit Used with Aftermarket Kit SR0113	2
5a	R060733-001	LED Strip, RGB, 16' Length 8" Lead	
5b	R060733-002	LED Strip, RGB, 16' Length 26" Lead	5
6	SR0109	IR Remote and Controller Kit RGB	
7	SR0114	IR Remote Used with SR0109 (item 6)	
8	R001869	RF Remote and Controller Kit Used with Aftermarket Kit SR0112	2
9a	R001718	Harness w/ Bungee used with canopy with metal wrap	
9b	R060740-001	Harness, Twisted, 24awg, 16' Length	
9c	R060715-002	Harness, Twisted, 24awg Used on Latitude and Longitude Only	
10	R040616-206	Wire Channel 43" Length	
11	R001716	Slot Cover, Roller Tube, Box Awning 24" Length	
12	R041313-001	Slot Cover, Awning Rail Holder	
13	R060724-001	Power Cord, 12V External Power Supply	
14	R060275	Power Socket, 12V External Power Supply	
15	R060725-001	AC/DC Power Supply 110AC to 12Vdc External Power Supply	
16	SR0113	White LED Upgrade Kit Not Shown	3
17	SR0112	RGB LED Upgrade Kit Not Shown	4

- Notes:
- LED strips (items 1 & 5) are sent on rolls and cut to length during installation.
 - RF remotes are not available separately. It is necessary to replace the remote and controller.
 - White LED upgrade kit (SR0113) contains items 1b, 4, 13, 14 & 15.
 - RGB LED upgrade kit (SR0112) contains items 5b, 8, 13, 14 & 15.
 - LED strips with 26" leads are used for awnings 19' and longer to allow the strip to be centered.
 - White and RGB components are NOT interchangeable.
 - IR and RF receivers and remotes are NOT interchangeable.
 - Some OEMs may offer alternate white LED's:

Warm White	R001885	2500K	16' Length	8" Lead	60 LPM
Pink	R001886	2500K	16' Length	26" Lead	60 LPM
Blue	R001907		16' Length	8" Lead	18 LPM
Blue	R001908		16' Length	26" Lead	18 LPM

This manual covers LED lighting applications used with vertical arm awnings. For box awning applications, refer to 070013-301 "LED Service Manual for Box Awnings" available on-line at www.carefreeofcolorado.com