



INSTALLATION MANUAL LONGITUDE ARMS AND CANOPY

THIS MANUAL PROVIDES INSTRUCTIONS FOR
ORIGINAL EQUIPMENT MANUFACTURER (OEM) INSTALLATIONS

RV



Read this manual before installing or using 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.



TABLE OF CONTENTS

Product Overview	1
Specifications:.....	1
Component Checklist.....	2
Installation	3
Required Pre-Installation Preparation.....	3
Installing an Awning Rail.....	3
Assembling the Awning	3
Mounting the Awning	5
Securing the Fabric.....	7
Center Support	7
Switch and Wiring Installation	8
Wire Routing.....	8
Optional Factory Installed Speakers.....	9
Accessory Harness.....	10
Awning Control Switch.....	11
Optional LED's	12
LED Power Harness Routing.....	12
Switch Installation for LED's	13
Power Connection for RGB LED's	14
Optional Wire Covers	15

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.

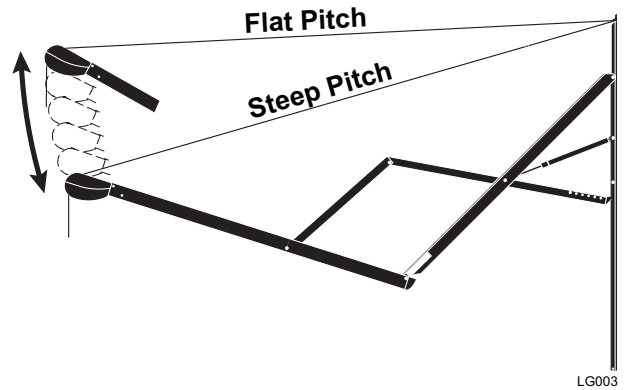
PRODUCT OVERVIEW

The adjustable pitch Longitude provides motorized awning comfort with Carefree's standards for looks, strength and dependability with a successful blend of style, quality and economy.

The variable pitch offers 6 settings from flat (3°) to steep (16°).

The awning roller tube and arms are made from light weight, no-rust aluminum. The awning fabric is heavy weight vinyl.

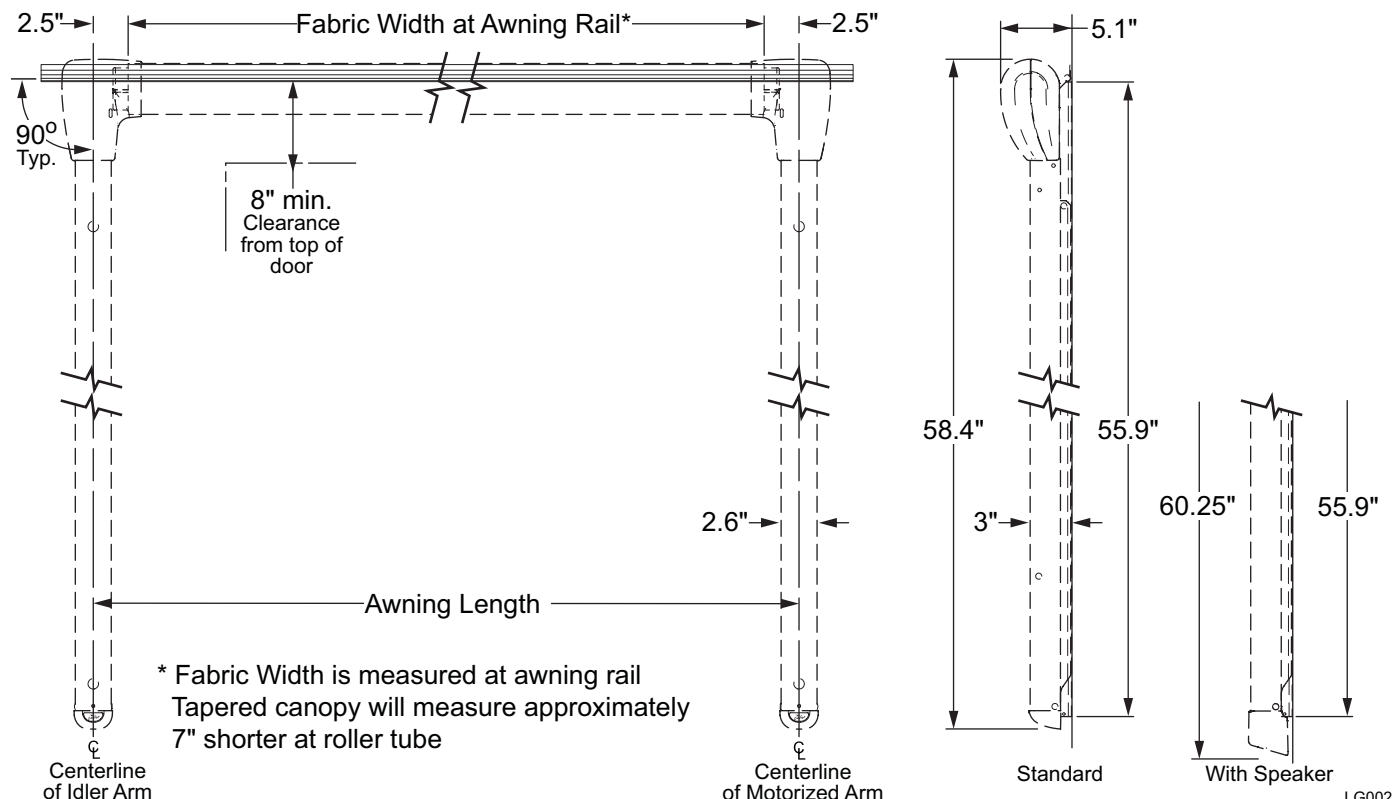
White and RGB LED lighting is available with the strip mounted in the roller tube or at the awning rail.



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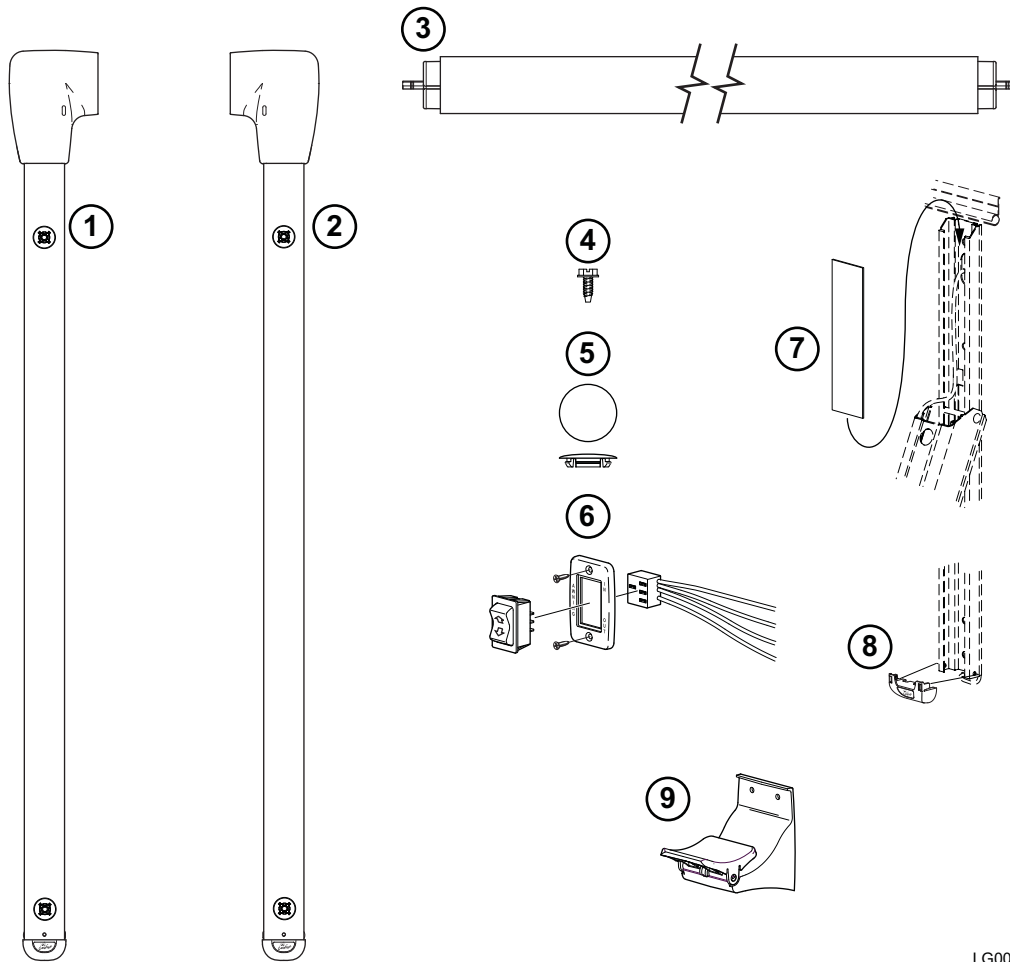
SPECIFICATIONS:

EXTENSION:		90 inches	LENGTH:		5 - 21 feet
PITCH:	FLAT	3°	DROP:	approximately 6 inches	
	STEEP	16°		approximately 26.5 inches	
Angle is Canopy vs horizontal			Measurement is from centerline of Awning Rail to centerline of roller tube		
MOTOR:		Power: 10VDC-14VDC	Circuit Rating: 15 amp	motor mounted in arm	
POWER SOURCE:		Motor and controls are routed and hardwired into the vehicle's 12V system			
EXTEND ACTUATION:		Gas Shock			
POSITION CONTROL:		Motorized roll out/in			
CONTROLLER:		3 position, momentary ON, center OFF; DC polarity reversing switch with dynamic brake.			
COLOR:	Frame:	White, Black			
	Canopy:	Vinyl with Weatherguard or FLXguard. Refer to sales literature for options.			
LED		LED strip mounted in roller tube or at the awning rail			
Power:		1A, 12VDC			
Control		<u>White:</u> Single pole, single throw switch (SR0101) <i>Note: The Switch kit is ordered separately. Kit includes in-line fuse holder and 2A spade type fuse. For an installer furnished control switch, see note under "Switch Installation".</i>			
		<u>RGB</u> IR (Infrared) Controller with sensor and remote.			



LG002

COMPONENT CHECKLIST



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<input checked="" type="checkbox"/>	ITEM	DESCRIPTION	QTY	NOTE
<input type="checkbox"/>	1	Arm Assembly, LH	1	1
<input type="checkbox"/>	2	Arm Assembly, RH	1	1
<input type="checkbox"/>	3	Roller tube Assembly	1	Ordered Separately
<input type="checkbox"/>	4	Screw, Hex Washer Head	2	#6 x 3/8
<input type="checkbox"/>	5	Hole Plug	4	
<input type="checkbox"/>	6	Switch Kit	1	3
<input type="checkbox"/>	7	Wire Cover, Upper, Optional	1	4
<input type="checkbox"/>	8	Wire Cover, Lower, Optional	2	4
<input type="checkbox"/>	9	Center Support	1	5

Notes:

1. Awning configuration is specified at time of order, including awning length, fabric, color etc. Check awning assembly against original purchase order. Arms are configuration specific and are not interchangeable.
2. Attaching hardware is furnished by installer. Refer to "Mounting the Awning" for requirements.
3. OEM's may choose to furnish the control switch. The switch must be a DC polarity reversing switch with dynamic brake.
4. Wire Covers (7, 8) are optional and must be specified at time of order.
5. Cradle Support (item 9) is ordered separately. Recommended for awnings 18' to 19' 11". Required for awnings 20' and longer.

INSTALLATION

REQUIRED PRE-INSTALLATION PREPARATION

1. Park the vehicle on a flat surface and level the unit.
2. Check where the awning arms will be installed. The arms fit snug to the side of the vehicle and must not cover or interfere with exhaust vents, lights etc.
3. If there is an awning rail installed, check that the awning rail runs the full length of the awning. Please refer to the note under "Installing an Awning Rail" before proceeding.

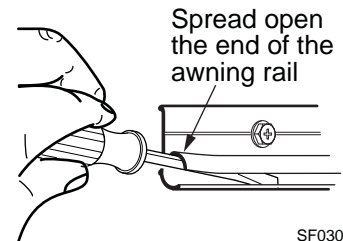
INSTALLING AN AWNING RAIL

NOTE: If the vehicle already has a full-length awning rail installed, skip to step 5. The awning rail and arms must be positioned so that any existing trim does not interfere with the awning arm when in the closed position.

1. Determine the optimum positioning of the awning so that the arms will not interfere with the door frame or light fixtures. The centerline of the awning rail should be above the door opening a minimum of 6". After determining mounting position, mark the position with a chalk line.
2. Awning rail must be level.
3. Seal the back of the rail with silicone sealant or putty tape.
4. Align the awning rail onto the wall and secure with #10 x 3/4" screws. Use all the attach holes in the rail.

NOTICE Make sure the screws are securely mounted to the structural frame of the vehicle.

5. Use a screwdriver to spread open one end of the awning rail on the installation side.
6. File any sharp edges or burrs from the end of the rail. This will help protect the awning fabric from damage during installation.
7. Spray inside the awning rail track with a dry silicone lubricant.



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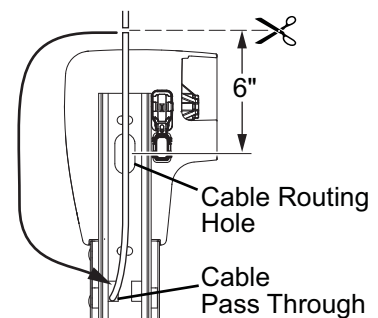
ASSEMBLING THE AWNING

1. Decide on the location of the switch to determine the cable routing.
2. If the motor cable is to be routed through the RV wall at the bottom of the arm, Go to step 5.
3. *Motor cable routing at the top of the arm using the full length of the supplied cable:*
 - 3.1. Remove the cable tie at the top of the motorized arm. Partially open the arm being careful to not let the arm extend more than 6".

CAUTION The arm is under tension from the gas shock located in the arm.

- 3.2. Pull the motor cable from the back of channel and out the hole in the top of the channel.
- 3.3. Close the arm.
- 3.4. Secure the top of the arm in the closed position using a plastic wrap or equivalent.
4. *Motor cable routing at the top of the arm with cable attached to a prewired vehicle harness:*

- 4.1. Pull the motor cable from the back of the channel.
- 4.2. Stretch the cable above the top of the arm.
- 4.3. Cut the cable approximately 6" above the cable routing hole.
- 4.4. Route the cut end of the cable back through the cable pass through hole and into the arm channel.



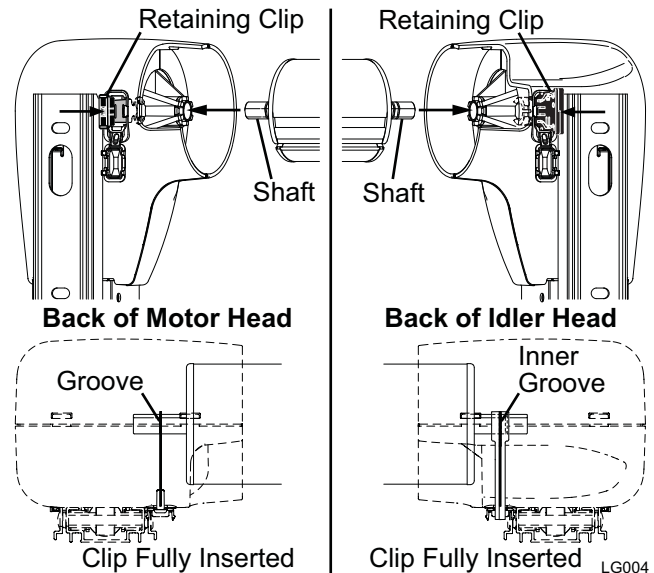
LG014

5. On the RH (motor) arm, press the roller tube shaft into hole in the motor head. It may be necessary to twist the roller tube to align the flats on the roller tube shaft with the flats in the motor head bearing.

NOTE: The retaining clips are factory installed in the rear head cover as shown.

6. With the roller tube shaft FULLY INSERTED, press the retaining clip onto the shaft. The clip goes in only when the shaft is fully inserted. Press the clip until it is firmly seated in the groove of the roller tube shaft.

NOTICE The roller tube must be fully inserted into the head for the clip to align with the groove on the shaft. The roller tube can disengage if the clip does not seat in the groove of the shaft.



7. On the LH (idler) arm, press the roller tube shaft into hole in the idler head.
8. With the roller tube shaft fully inserted, press the retaining clip onto the shaft. Move the roller tube shaft until the clip aligns with the inner groove of the shaft. Press the clip until it is firmly seated in the groove of the shaft.

IMPORTANT NOTE: DO NOT remove the plastic covers from the retaining clips until instructed to do so.

NOTICE During assembly and installation, the arm assemblies must remain perpendicular to the roller assembly. Failure to handle the arm assemblies carefully can bend the drive shaft.

MOUNTING THE AWNING



CAUTION

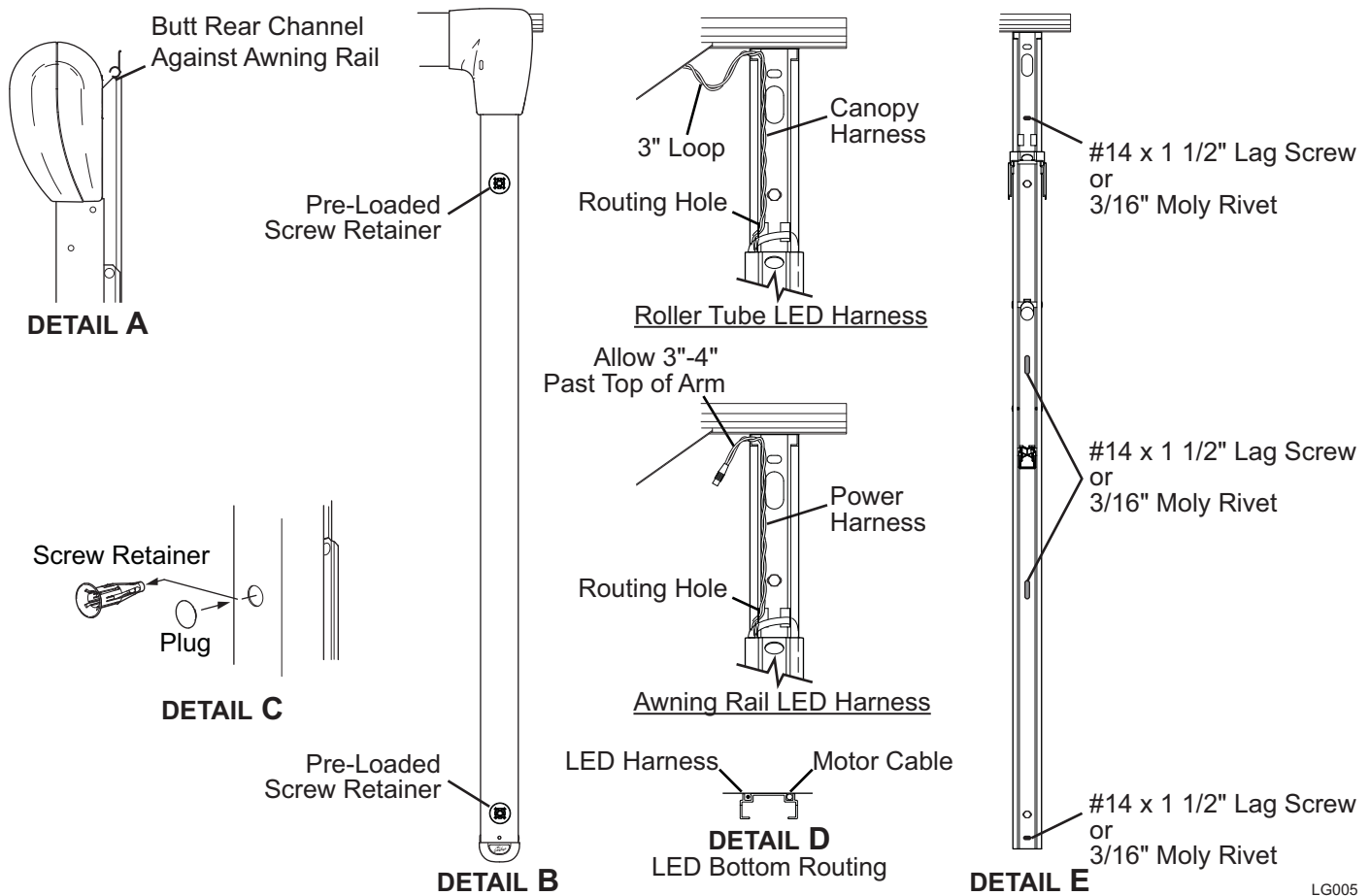
It is recommended that at least three people install the awning due to its size and weight.

1. Check the location the awning is to be mounted. Ensure that the awning will not interfere with other equipment on the vehicle, such as a slide out room, light fixtures, exhaust vents etc.
2. On the awning rail, mark the location of the centerline of the motorized arm assembly.
3. Unroll the canopy one wrap.

NOTE: While the awning fabric is fairly robust, care must be taken not to snag it on the awning rail.

4. With one person holding each arm, the third person should thread the polyrod (the plastic rod on the edge of the fabric) into the awning rail, starting at one end. Carefully move across the vehicle, gently pulling the fabric into the rail, until the awning is in the pre-determined location.

NOTE: For awning rail LED's: the LED rail adaptor is mounted onto the canopy. The adaptor and canopy slides into the awning rail together.



LG005

5. Position the motorized arm on the coach: Align the center of the motorized arm with the centerline marked in step 2. Butt the top of the rear channel against the awning rail as shown (Detail A).

NOTE: Each arm is equipped with 2 screw retainers pre-loaded with #14 x 1 1/4" self-drilling screws.

6. Hold the motor arm assembly perpendicular to the awning rail and drive the screw in the upper retainer into the vehicle wall (Detail B).
7. Confirm that the arm is perpendicular to the awning rail then drive the screw in the lower retainer into the vehicle wall.
8. Position the roller assembly so that it is perpendicular to the motorized arm assembly. Position the idler arm perpendicular to the roller assembly.

9. Hold the idler arm in position and drive the screw in the upper retainer into the vehicle wall (Detail B).
10. Confirm that the arm is perpendicular to the awning rail then drive the screw in the lower retainer into the vehicle wall.
11. (Detail C) Remove and discard the screw retainers and install the hole plugs.
12. Hold the awning closed and carefully remove the cable ties at the top of the arms. The awning will open a few inches.
13. Open the awning to access the remaining mounting holes (Detail E). To open:
 - 13.1. Temporarily connect the ends of the motor wires to a 12V-14V source (i.e. drill battery). If the awning does not begin to move, reverse the leads.
 - 13.2. Remove the battery after the awning is open.
14. For LED Harness routed with the motor cable at the bottom of the arm: (Detail D)

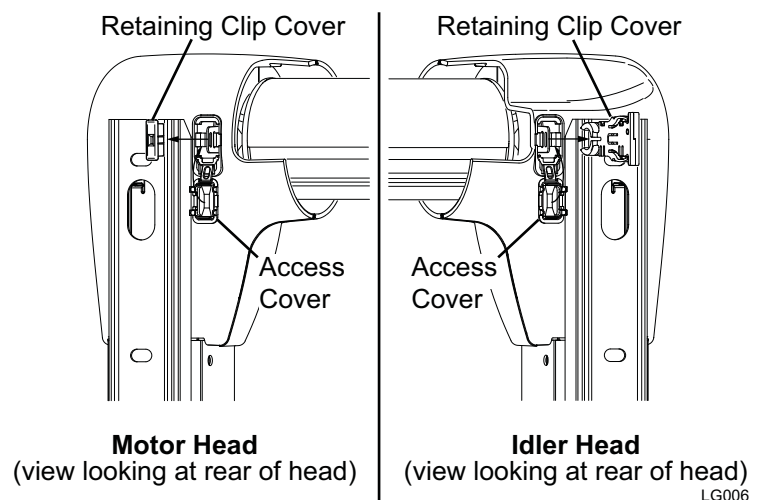
NOTE: The LED harness and optional speaker wires in the motor arm are routed together. Refer to page 9 for additional information about the optional speakers and wiring.

- 14.1. Carefully back out the mounting screws on the RH arm so that the arm can be pulled away from the wall (about 1/8").
- 14.2. Leave a 3" loop between the canopy and the arm channel.
- 14.3. *For roller tube LED's:* Route the canopy harness over the arm channel, through the routing hole and down the rear channel groove to the bottom of the arm.
- 14.4. *For awning rail LED's:* Route the canopy harness over the arm channel, through the routing hole and down the rear channel groove to the bottom of the arm. Allow approximately 3" - 4" to extend past the top of the arm
- 14.5. Hold the arm in position; make sure that the wires are not pinched. Tighten the screws loosened previously.

NOTE: The attaching parts in the next steps are furnished by the installer. Hardware packs are available from Carefree and must be ordered separately.

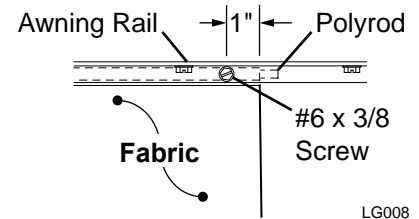
15. Attach the each arm in the 4 additional positions shown in Detail E.
 - 15.1. If mounting into structure: Drill a 5/32" hole and attach using #14 x 1 1/2" lag screws.
 - 15.2. If mounting to the outer skin only: Drill a 1/4" hole and attach using 3/16" moly rivets.

16. On the back of the motor and idler heads, remove the plastic retaining clip covers and discard.
17. Rotate the access covers up and snap into the retaining clip openings.



SECURING THE FABRIC

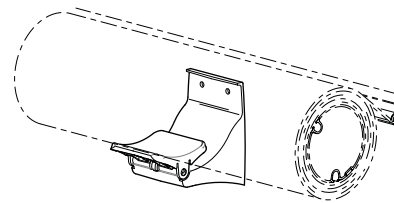
1. Roll the awning in and out several times to make sure that the fabric rolls up straight.
2. Secure the canopy using one, #6 x 3/8" hex head screw at both sides of the awning. Place screw through awning rail, polyrod and canopy approximately 1" in from the end of the fabric.



CENTER SUPPORT

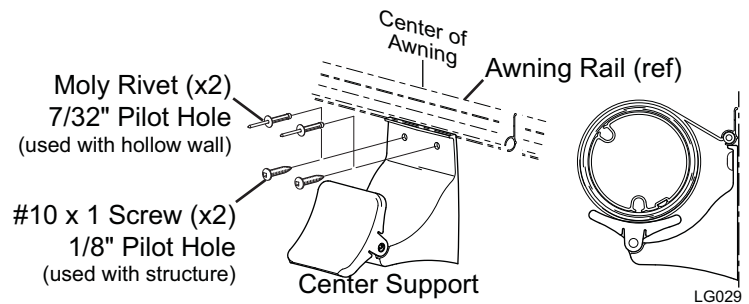
The center support is recommended for awnings 18' to 19' 11". Required for awnings 20' and longer.

- Provides support and eliminates the weight and natural sag in the middle of the roller.
 - The cradle automatically pivots out of the way when the roller is extended.
 - The cradle support automatically captures the roller when the awning is retracted.
1. Open the awning and raise it to the highest pitch. This is to provide access clearance to attach the components.
 2. Measure and mark the center of the awning.
 3. Center the support on the center line mark and butt the top of the support against the bottom of the awning rail as shown. Mark the location of the mounting holes.



NOTE: Two types of fasteners are included with the support assembly. The #10 x 1 PHSD screws are used when there is structural backing in the wall. The 3/16" moly rivets are used for hollow walls.

4. Drill two pilot holes:
 - 4.1. *If there is structural backing:* Drill two (2) 1/8" holes. These are for the #10 screws.
 - 4.2. *For hollow walls:* Drill two (2) 7/32" holes. These are for the 3/16" moly rivets.



5. Coat the holes and outside edge of the back face with a quality urethane based sealant.
6. Attach the support assembly to the vehicle wall with the supplied hardware.

SWITCH AND WIRING INSTALLATION



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

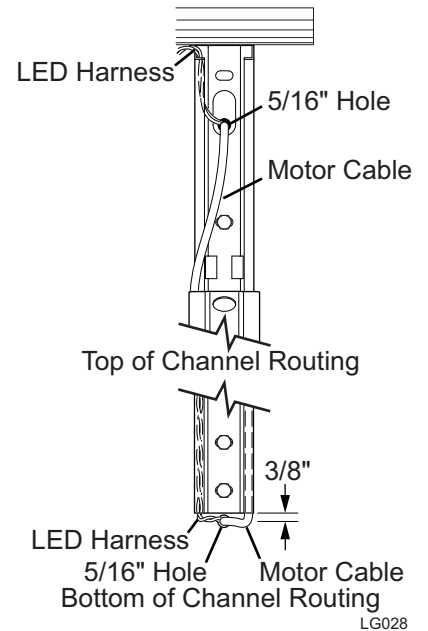
- Notes:**
1. Failure to follow the wiring instructions in this publication may void the motor warranty.
 2. DO NOT wire two or more motors to one switch—No parallel wiring.
 3. All wiring must conform to NEC (National Electrical Code) and local codes.
 4. OEM's may choose to furnish the control switch. The switch must be a DC polarity reversing switch with dynamic brake.

WIRE ROUTING

1. Determine the final location of the switches.

NOTE: There is approximately 8 feet of wire from the wall entry point for upper wire routing, approximately 4 feet of wire from the wall entry point for lower wire routing. Controls should be located within this distance.

- 1.1. If the distance from point of entry to the switch location is greater than stated above, the installer must furnish a splice between the cables and switch location.
 - Motor Wires are 16awg.
 - LED wires are 24awg.
2. Drill a 5/16" hole through the vehicle wall.
3. Route the motor cable and LED harness (if installed) through the hole to the switch location(s).
4. Seal the cables and entrance hole using a silicone sealant.

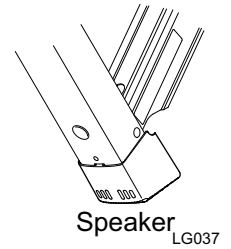


OPTIONAL FACTORY INSTALLED SPEAKERS

The Longitude arms can be ordered with factory installed speakers at the arm elbows. The arms are prewired for the speakers.

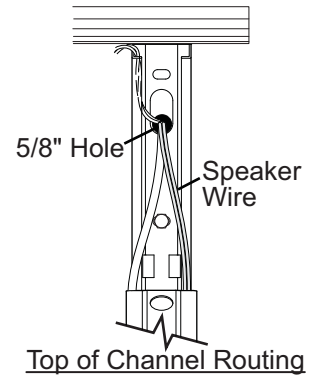
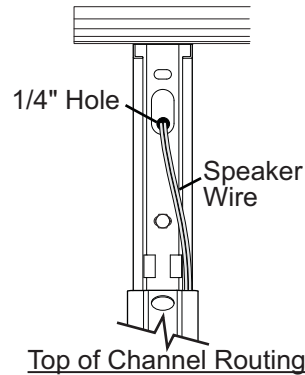
The wires can be individually routed into the vehicle at the top or bottom of the arms.

When it is necessary to extend the speaker wires use 22 awg, 2-strand, flat wire (wire furnished by installer).



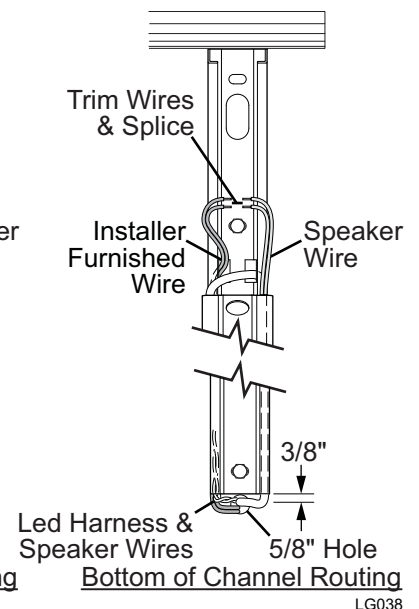
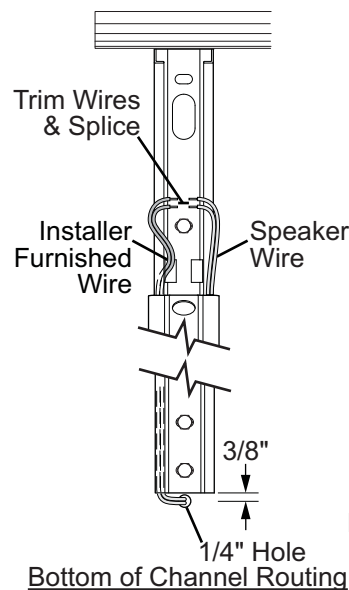
Top of the Arm Routing:

1. Pull the speaker wire from the back of the rear rail before mounting the arms.
2. On the idler side, drill a minimum 1/4" hole to route the wires into the vehicle.
3. On the motor side, route the wires with the motor cable and LED harness.



Bottom of Arm Routing:

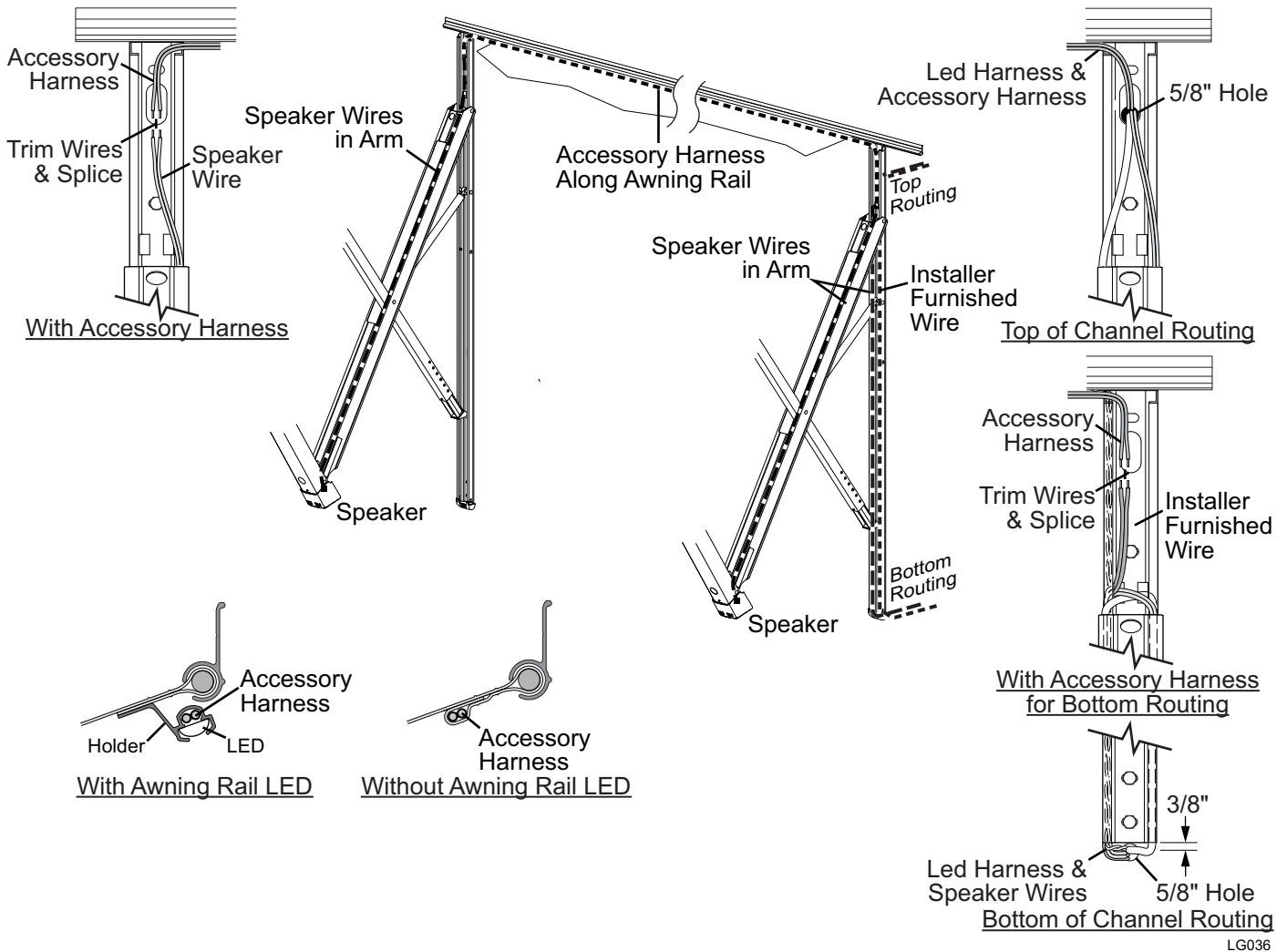
1. Carefully back out the mounting screws on the arm so that the arm can be pulled away from the wall (about 1/8").
2. Route a piece of 22 awg, 2-strand, flat wire (wire furnished by installer) down the back of the mounting rail in the rear groove. For the motor side, this would be the same groove as the LED Harness.
3. Hold the arm in position; make sure that the wires are not pinched. Tighten the screws loosened previously.
4. Strip and splice the routed wire with the speaker wire.
5. On the idler side, drill a minimum 1/4" hole to route the wires into the vehicle.
6. On the motor side, route the wires with the motor cable and LED harness.
7. Seal the holes and wires with a quality sealant.



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ACCESSORY HARNESS

Some installers may wish to have a single wire entry hole into the vehicle. A special canopy from Carefree contains an accessory harness at the awning rail that extends the idler speaker wire over to the motor arm.



When it is necessary to extend the speaker wires use 22 awg, 2-strand, flat wire (wire furnished by installer).

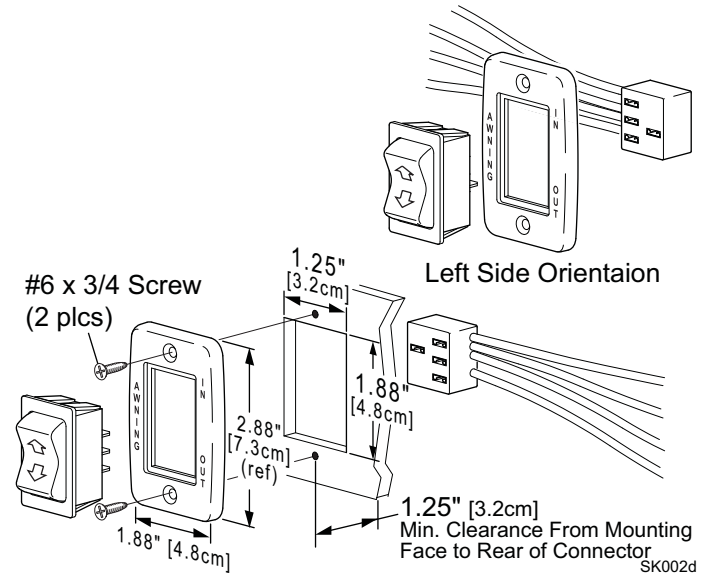
1. On the idler side:
 - 1.1. Route the harness from the canopy into the rear rail.
 - 1.2. Trim and strip the speaker wires and accessory harness. Splice the wires together.
2. On the motor side:
 - 2.1. Route the harness from the canopy into the rear rail.
 - 2.2. For bottom routing: the installer must furnish an extension wire (22 awg, 2-strand, flat wire). This wire is routed with the existing speaker wire and the LED wires in the back of the rear rail. Refer to page 6.
 - 2.3. Trim and strip the wires from the extension wire and accessory harness. Splice the wires together.
3. Route the speaker wires into the vehicle with the motor and LED wires.
4. Seal the holes and wires with a quality sealant.



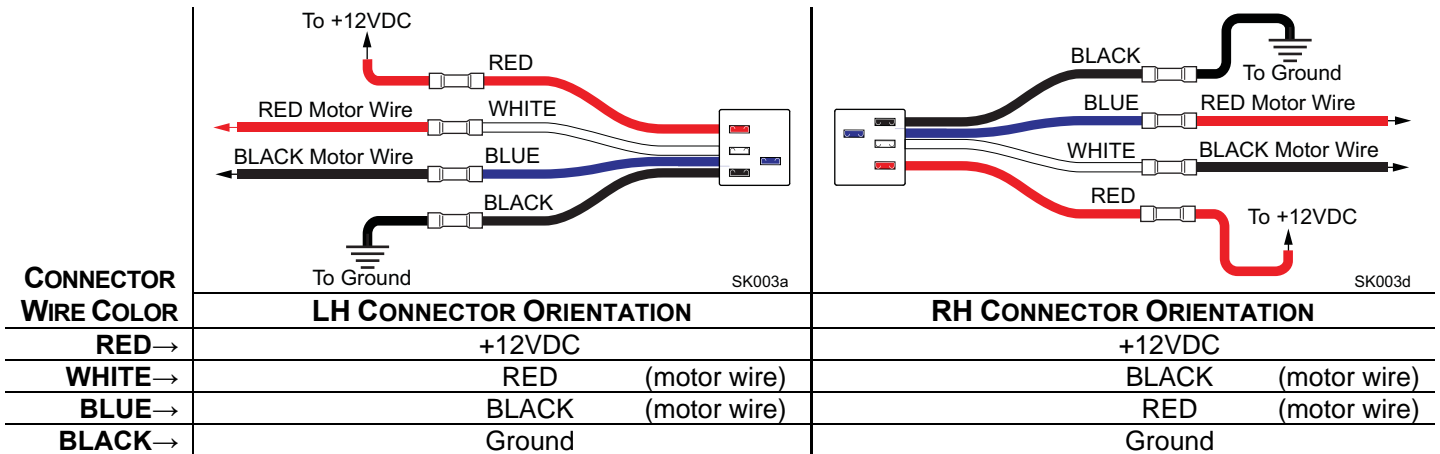
If installing the BT12 Wireless Awning Control System use the instructions in 070029-001 "BT12 Installation Manual" for controls wiring and setup.

AWNING CONTROL SWITCH

1. At the switch location, cut a rectangular hole 1.25" [3.2cm] x 1.88" [4.8cm].
2. Determine the switch orientation:
 - 2.1. The wires of the connector extend from the side of the switch with 3 terminals on the back.
 - 2.2. For wire routing on the right side of the switch as shown orient the switch with the 3 terminals on the right.
 - 2.3. For wire routing on the left side of the switch as shown in Detail C, orient the switch with the 3 terminals on the left.
 - 2.4. Push the switch into the faceplate until the tabs on the switch "click" into place behind the faceplate. Ensure that the switch and faceplate are oriented so that the lettering is up and the wires are oriented as desired.
 - 2.5. Set switch aside.



3. Route the awning motor wires through the switch hole and attach to the switch connector:



4. Run a minimum 14 awg wire from the power distribution panel (auxiliary battery circuit) or equivalent. The circuit should be protected by a 15-amp fuse.
5. Run a minimum 14 awg wire to system ground.

NOTE: If the wire run is 30 feet or longer, use 12awg wire to prevent voltage drop.
6. Route the two wires through the mounting hole. Butt splice the 12VDC wire to the RED connector wire. Butt splice the ground wire to the BLACK connector wire.
7. Attach the connector to the switch.
8. Restore power and test the switch operation. If the awning operates opposite to the switch plate markings:
 - Shut off power;
 - Reverse motor wires connected to the blue and white connector wires;
 - Restore power and test.
9. Push the wires, connector and switch into the mounting hole and secure the switch plate. Use two (2) #6 x 3/4" flat head screws.

OPTIONAL LED'S

LED options available on the Longitude:

- 1) White LED strip mounted in the roller tube with the power harness routed through the canopy.
- 2) RGB LED strip mounted in the roller tube with the power harness routed through the canopy.
- 3) White LED strip mounted at the awning rail (strip holder is sewn to the canopy).
- 4) RGB LED strip mounted at the awning rail (strip holder is sewn to the canopy).

NOTICES:

- a. **Do not route the wire over sharp edges or heat sources that can cut or fray the wires or wire insulation.**
- b. **Damage that is a result of improper routing may void warranty.**

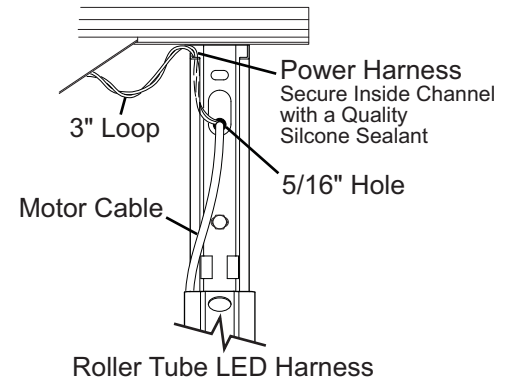
LED POWER HARNESS ROUTING

This information applies to both White and RGB lights.

Below is for routing the power harness at the top of the arm with the motor wires. For routing of the harness at the bottom of the awning with the motor wires refer to page 5.

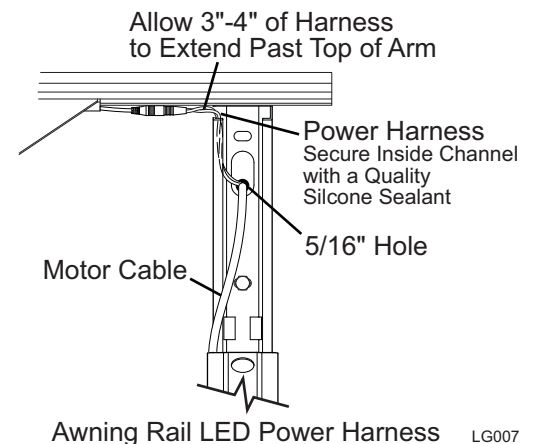
5. For roller tube LED's:

- 5.1 Route the LED canopy harness wires into the vehicle with the awning motor wires as shown.
- 5.2 Allow a minimum 3" loop between the canopy and rear channel
- 5.3 Secure the LED harness inside the channel with a quality silicone sealant.



6. For awning rail LED's:

- 6.1 Route the LED power harness into the vehicle with the awning motor wires. Allow 3" - 4" to extend past the top of the channel.
- 6.2 For white LED's: On the outside of the vehicle connect the power cord to the LED strip.



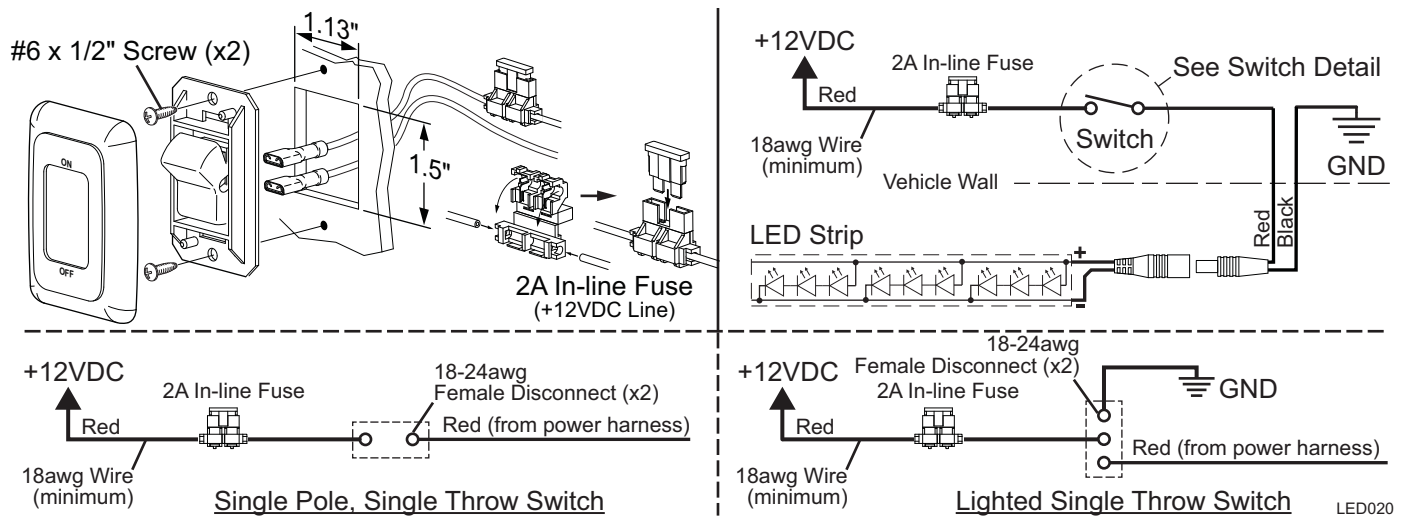
NOTE: The LED harness and optional speaker wires in the motor arm are routed together. Refer to page 9 for additional information about the optional speakers and wiring.

SWITCH INSTALLATION FOR LED'S

A single pole switch and 2A fuse is required for the white LED installations and is optional for RGB installations. For RGB lights, the single pole switch is used as an optional power on/off control allowing the lights to be shut off if the awning is retracted with the lights on.

NOTES:

- 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.
- Per RVIA Low Voltage Systems in Conversion and Recreation Vehicles Chapter 3, Section 3-1: For Carefree LED strip lighting near the awning rail: when the 24AWG power harness is spliced or connected 10" or less from the harness connector using a heavier gauge wire, the fuse size is determined by the heavier wire gauge.



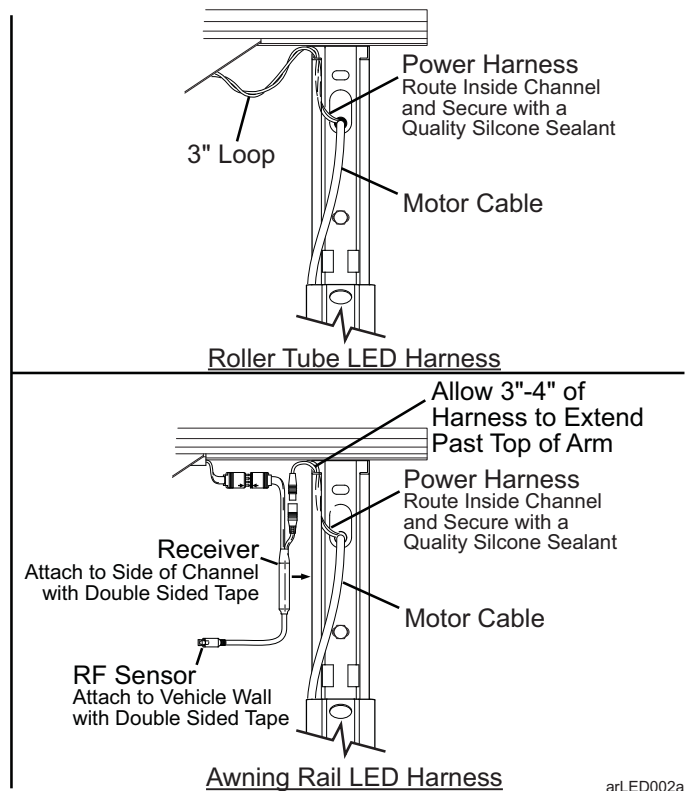
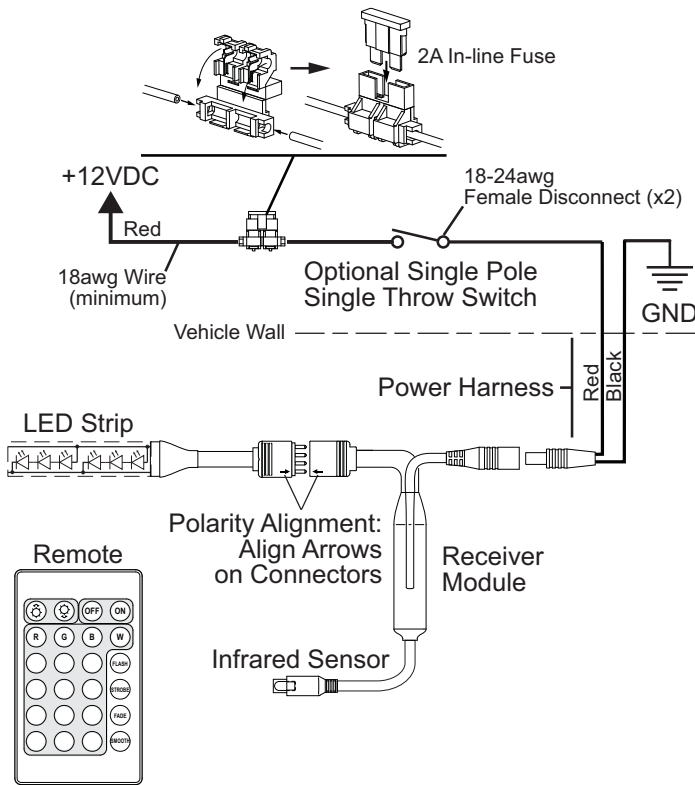
- Determine the location of the switch.
- At the switch location, cut a 1 1/8" x 1 1/2" hole.
- Wire the switch as shown below. Wire terminals at the switch are .187, 18-24 awg female disconnects.
NOTE: Allow adequate slack in the 12VDC power line so that the in-line fuse (installed in step 4) can be accessed from behind the switch.
- Install the in-line fuse:
 - Near the switch, cut the red 12VDC power line to the switch. Do not strip the insulation.
 - Insert a wire end into one of the wire channels until it butts up against the stop.
 - Fold that half of the connector body over until the element contacts the wire. Use pliers to crimp the connector closed.
 - Repeat for the second wire end.
 - Slide the fuse into the fuse port. Ensure that is firmly seated.
- Press the in-line fuse, wires and switch into the mounting hole. Secure the switch using two (2) #6 x 1/2" screws.
- Snap the switch bezel over the switch frame.

POWER CONNECTION FOR RGB LED'S

The RGB LED uses a controller and remote.

NOTES:

- a) 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 control module and power source. Locate the fuse for easy access. Fuse and connector are furnished by the installer.
- b) Per RVIA Low Voltage Systems in Conversion and Recreation Vehicles Chapter 3, Section 3-1: For Carefree LED strip lighting near the awning rail: when the 24AWG power harness is spliced or connected 10" or less from the harness connector using a heavier gauge wire, the fuse size is determined by the heavier wire gauge.



1. Route the power cable into the vehicle with the motor cables from the awning. Refer to page 5 for routing to the bottom of the arm.
2. Route the Red wire to +12Vdc.
3. Route the Black wire to ground.
4. Ensure that the connections are tight, solid and sealed when completed.
5. For awning rail applications:
 - 5.1. Mount the control module and RF sensor on the outside of the vehicle as shown using double sided tape.
 - 5.2. Connect the module wires to the power harness and LED strip.

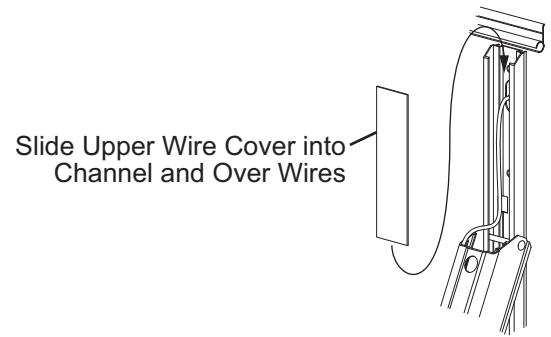
NOTE: The LED connector and receiver connectors must be oriented with the arrows on the connectors lined up. The lights will not work if the connectors are not properly oriented.

OPTIONAL WIRE COVERS

Two optional wire covers are available for the Longitude.

For upper wire routing use the upper wire cover. Cover slides into the channel from the top and over the wires.

For lower wire routing use the lower wire cover. Cover snaps onto the bottom of the rear channel. The lower cover is purchased in sets of two (2). These can be applied to both arms for a balanced aesthetic appearance.



Optional Upper Wire Cover



Optional Lower Wire Cover

LG026