



SERVICE MANUAL

FREEDOM FREESTYLE

12V MOTORIZED LATERAL ARM BOX AWNING W/ DIRECT RESPONSE

RV



TABLE OF CONTENTS

Product Overview	2
Canopy Replacement	3
Replacing the Lead Rail	5
Installing the New Lead Rail.	5
Arm Replacement	6
Replacing the Lead Rail Connector	7
Pitch Adjustment	7
Middle Arm Replacement 4.5 and 5 Meter Awnings	8
Motor Replacement	9
Remove Old Motor	9
Install the New Motor	10
Adjusting the Motor Limits	11
Out Limit Switch	11
IN Limit Switch	11
Troubleshooting and Diagnostics	12
Common Operational Items	12
Wiring	14
Replacing the Direct Response Module	14
Optional LED Lighting	15
Switch Installation	15
Replacing the LED Strip	16
Harness Replacement	16
Standard Maintenance	17
Fabric Care	17
Mildew	17
Pooling	17
Leaking	17
Motor Maintenance	17
Arm Noise	18
Manual Override	18
Part Number Listing	19
Freedom Freestyle Part Number Configuration	19
Serial Number/Part Number Location	19
Freedom Freestyle Illustrated Parts List	20
Optional LED Lighting	21

PROPRIETARY STATEMENT

The Freedom Freestyle Awning is a product of Carefree of Colorado, located in Broomfield, Colorado, USA. The information contained in or disclosed in this document is proprietary to Carefree of Colorado. Every effort is made to ensure that the information presented in this document is accurate and complete. However, Carefree of Colorado assumes no liability for errors or for any damages that result from the use of this document.

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.

Carefree of Colorado agrees to allow the reproduction of this document for use with Carefree of Colorado products only. Any other reproduction or translation of this document in whole or part is strictly prohibited without prior written approval from Carefree of Colorado.

SAFETY INFORMATION

WARNING

A WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION THAT, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY AND/OR MAJOR PROPERTY DAMAGE.

CAUTION

A CAUTION INDICATES A POTENTIALLY HAZARDOUS SITUATION THAT MAY CAUSE MINOR TO MODERATE PERSONAL INJURY AND/OR PROPERTY DAMAGE. IT MAY ALSO BE USED TO ALERT AGAINST UNSAFE PRACTICES.

NOTE: A note indicates further information about a product, part, or step.

Tip: A tip provides helpful suggestions.

Safety Notes:

- 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, use care not to over tighten. Soft materials such as fiberglass and aluminum can be "stripped out" and lose the ability to grip and hold.

PRODUCT OVERVIEW

Freedom Awnings are state of the art lateral arm awnings. When retracted, the housing provides protection against the elements while the streamlined styling blends in with the coach sidewall. The tensioned canopy fabric allows the awning to be extended partially or fully for best shade coverage.

Each unit is equipped with lateral support arms. No vertical arms interfere with coach sidewalls, custom graphics or equipment that may be mounted on the sidewalls.

Freedom Freestyle Specifications:

- Fully retractable and self-storing;
- Motorized;
- The sealed awning motor operates on standard 12VDC (range 10VDC to 14VDC);
- Case and frame are constructed of high-strength aluminum extrusions, protected with a polyester paint finish;
- Stainless steel fasteners and hardware.

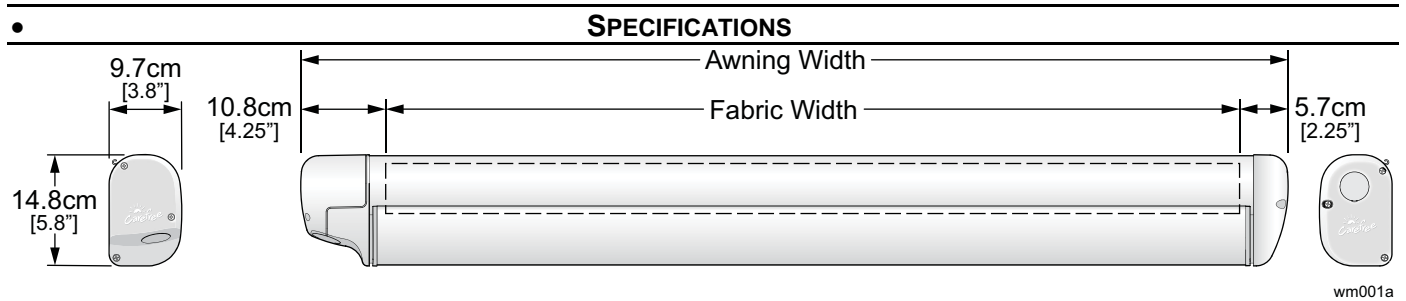


Figure 1. General Dimensions.

LENGTHS:	meters	3.0	3.5	4	4.5	5.0
	inches	118	168	157	177	197
EXTENSION:	250cm [98"]					
LEAD RAIL SUPPORT:	4m or less: 2 Lateral Spring Arms; 4.5 & 5m 3 Lateral Spring Arms					
POSITION CONTROL:	12V Motorized w/ tubular motor					
	12V Direct Response - Standard					
MOTOR SPECIFICATIONS						
<i>Motor Type:</i>	Tubular					
<i>Power:</i>	12VDC		<i>Minimum:</i> 10VDC		<i>Output:</i> 30 Watts	
	<i>Nominal Current:</i> 2.5Amps			<i>Max Current:</i> 14Amps (stall @ min voltage)		
<i>Torque</i>	<i>Continuous:</i> 6Nm/4.5 ft-lbs.			<i>Tightening:</i> 18Nm/13.2 ft-lbs.		
<i>Speed</i>	24 rpm					
COLORS AVAILABLE						
<i>Case</i>	Satin, White or Black					
<i>Fabric:¹</i>	Vinyl					

Special Note: Dimensions are provided in centimeters. Conversion formulas are provided below.

$$\text{Inches} = \frac{\text{Centimeters}}{2.54} = \frac{\text{Millimeters}}{25.4}$$

$$\text{Centimeters} = \text{Inches} \times 2.54 \quad \text{Millimeters} = \text{Inches} \times 25.4$$

CANOPY REPLACEMENT

This procedure requires two people.

1. Open the awning 18"-24".
2. Disconnect power to the awning.
3. Carefully push the lead rail toward the case so that the arms collapse and the fabric is slack. While holding the lead rail in this position, firmly tie the elbows of the spring arms together. Use a minimum 1/2" rope - do not use bungee cords. When tying the rope, use a non-slip knot such as a square knot or equivalent.

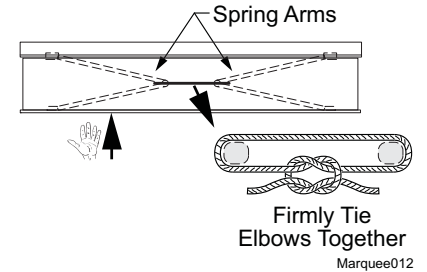


Figure 2. Tying the Arms.

⚠ CAUTION FAILURE TO SECURE THE LEAD RAIL AS DESCRIBED WILL ALLOW THE SPRING ARMS TO EXTEND OUT POSSIBLY CAUSING PERSONAL INJURY AND DAMAGE TO THE AWNING.

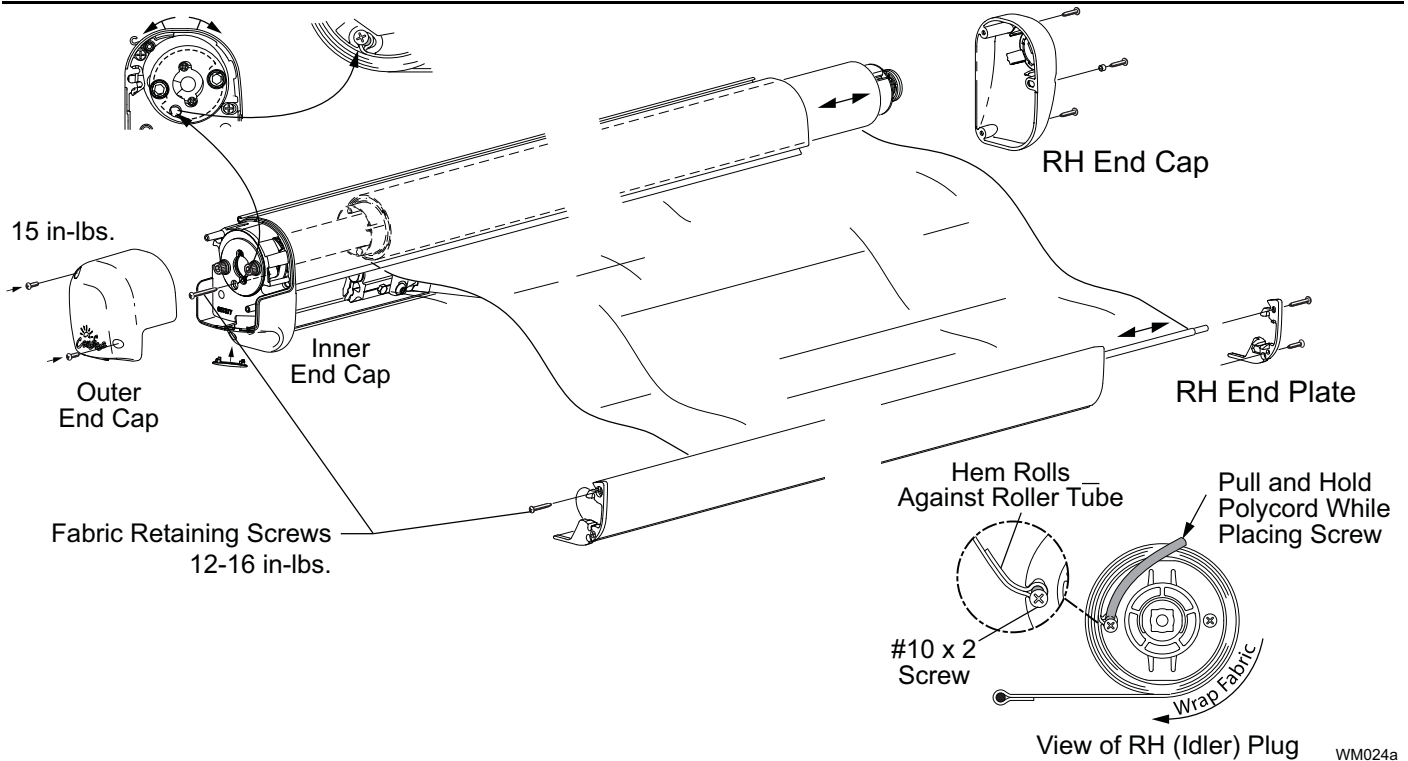


Figure 3. Fabric Replacement.

1. Remove the two (2) screws holding the outer end cap. Set the cap and screws aside.
2. On the motor side, remove the fabric retaining screw. It may be necessary to rotate the roller tube to align the screw with the access hole in the inner cap.
3. Remove the fabric retaining screw from the left lead rail end plate.
4. Remove the RH lead rail end plate and the RH end cap.
5. Slide the roller tube and fabric out of the case and lead rail.
6. Remove the fabric retaining screw located through the RH end plug.
7. Unroll the old fabric and slide off the roller tube.
8. Unfold the replacement fabric.

⚠ CAUTION WHILE THE AWNING FABRIC IS FAIRLY ROBUST, CARE MUST BE TAKEN NOT TO SNAG IT WHILE SLIDING THE NEW FABRIC INTO THE ROLLER TUBE OR LEAD RAIL.

Tip: Lightly spraying the slots with a dry silicone lubricant will help the fabric slide into the slot without staining the material.

9. Slide the black polycord of the fabric into the fabric slot. Orient the fabric with the hem on the top (the hem will then roll against the roller tube). Center the fabric in the roller tube.
 10. After the fabric is centered, on the RH end plug, pull and hold the excess polycord to one side of the fabric slot. Place one (1) #10 x 2 PHSD screw through the fabric slot hole and polycord. The screw must be positioned to thread into the metal of the roller tube slot and the edge of the polycord. The screw action will pull the polycord further into the slot hole. DO NOT OVERTIGHTEN, maximum torque 16 in-lbs.
 11. After the screw is installed, trim the excess polycord.
 12. Roll the fabric onto the roller tube. Note the direction of the wrap as shown. The view is of the RH plug. Allow adequate fabric to extend past the roller tube to cover the distance to the lead rail..
 13. Slide the fabric into the lead rail and the roller tube into the case.
 14. Align the roller tube with the motor drive and bearing. Press the roller tube into the case.
 15. Align the RH end cap with the roller tube and case and attach using the screws and spacer removed previously. Torque screws 15 in-lbs.
 16. On the motor side, align the fabric slot of the roller tube and the access slot through the inner end cap.
 17. Attach the fabric retaining screw through the motor bearing and into the roller tube.
 18. Open and close the awning to confirm that the fabric rolls and unrolls squarely. Adjust the fabric position in the lead rail as required.
 19. Center the fabric in the lead rail. Trim any excess polycord flush with the inside of the lead rail end plates.
 20. Attach the RH end plate and the fabric retaining screws (both ends).
- NOTE: The top screw secures the fabric in the lead rail. The screw should be positioned to thread into the metal of the lead rail and the edge of the polycord.**
21. Reattach the outer end cap on the LH side. Torque screws to 15 in-lbs.
 22. After installing the canopy, it may be necessary to adjust the motor limits for motorized awnings. Refer to "Adjusting the Motor Limits" on page 11.

REPLACING THE LEAD RAIL

This procedure requires a minimum of two people. This can be done while the awning is mounted on the vehicle. If being done before the awning is mounted, set the awning on a clean hard surface such as the floor of the shop.

1. Open the awning completely. There should be some slack in the fabric. If necessary, adjust the motor limits so that the motor can extend far enough to create slack in the fabric (refer to page 11).

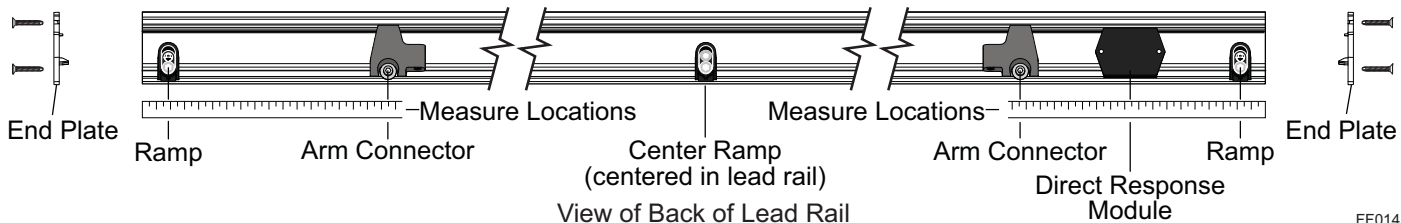


Figure 4. Replacing the Lead Rail.

FF014

2. Remove the LH and RH end plates and set aside.
3. Carefully measure and record the locations of the ramps, arm connectors and Direct Response module.
4. Loosen and slide out the outer ramps.
5. Loosen the screws on the Direct Response module. Twist the brackets slightly and lift the sensor and brackets away from the lead rail. Disconnect the module from the wire harness. Quick connects are found behind the module.

NOTE: It will be necessary to hold and support the lead rail during the removal and assembly.

6. Loosen the arm connector screw for one arm and slide the arm and connector out of the lead rail. Allow the arm to extend fully and support the arm with a ladder or scaffolding.
7. Repeat for the second arm.

NOTE: If the unit has a center arm, loosen the screw. The arm connector is moved as the lead rail is slipped from the canopy.

8. Loosen and slide out the center ramp.
9. Slide the lead rail off the canopy fabric. If the unit has a center arm, slide the arm out of the lead rail while sliding the lead rail off the fabric.

INSTALLING THE NEW LEAD RAIL.

1. Mark the new lead rail with the dimensions and locations measured previously.

⚠ CAUTION WHILE THE AWNING FABRIC IS FAIRLY ROBUST, CARE MUST BE TAKEN NOT TO SNAG IT WHILE SLIDING THE NEW FABRIC INTO THE LEAD RAIL.

Tip: Lightly spraying the slots with a dry silicone lubricant will help the fabric slide into the slot without staining the material.

2. Lift the lead rail up and slide onto the fabric. Center the fabric in the lead rail. If the unit has a center arm, begin sliding the arm into the lead rail at the same time.
3. Slide the center ramp into the lead rail. Do not tighten at this time.
4. Slide one arm connector into the lead rail.
5. Slide the other arm connector into the lead rail.
6. Align the arm connectors with the measurement marks made previously and tighten the screws.
7. Route the sensor cable behind the new connector. Reconnect the module to the wire harness. Position the module and brackets and tighten the screws.
8. Slide the outer ramps onto the lead rail and align with the measurement marks. Align the center ramp in the center of the lead rail. Tighten all screws to 25-30 in-lbs.
9. Attach the end plates. The top screws are the fabric retaining screws.

NOTE: The top screw secures the fabric in the lead rail. The screw should be positioned to thread into the metal of the lead rail and the edge of the polycord.

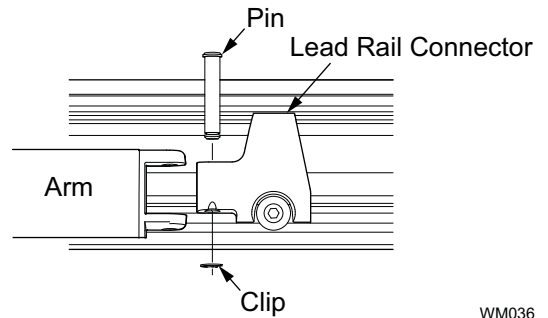
10. After installing the lead rail, it may be necessary to adjust the motor limits for motorized awnings. Refer to "Adjusting the Motor Limits" on page 11.

ARM REPLACEMENT

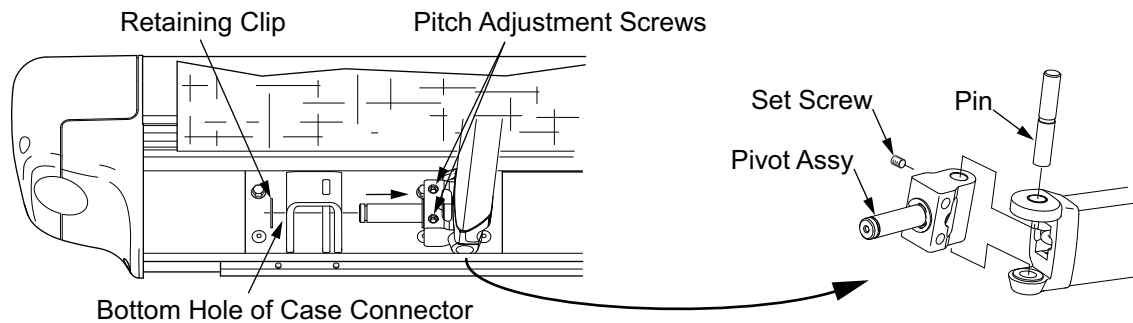
This procedure is for replacing the outside arms. For the middle arm on 4.5 and 5 meter awnings, refer to page 8.

⚠ CAUTION THE SPRING ARM IS UNDER TENSION TO OPEN. USE EXTREME CARE AND FIRMLY HOLD THE SPRING ARMS DURING ASSEMBLY AND DISASSEMBLY TO AVOID ANY SUDDEN OR UNEXPECTED MOVEMENT BY THE ARM. SERIOUS PERSONAL INJURY AND/OR PROPERTY DAMAGE COULD OCCUR.

1. Open the awning to the maximum extension or as wide as possible. Adjust the motor limits (see page 11) to allow the lead rail to over extend and create slack in the fabric. This is to minimize the spring tension in the arms during this procedure.
2. Disconnect power to the awning.
3. Use a scaffold, ladder or other means to support the lead rail.
4. If replacing the LH (motor side) arm, carefully remove the sensor cable from the wire channel on top of the arm. Use care to not bend, break or compromise the cable.
5. At the lead rail, firmly hold the spring arm and remove the clip and pin that secures the arm to the lead rail connector. Set parts aside to be reused.
6. Allow the arm to extend below the lead rail. Support the end of the arm.
7. Loosen the pitch adjustment screws.
8. Remove the retaining clip from the case connector. Remove the arm from the awning.



WM036



FF013

If replacing the lead rail connector, go to page 7 then return here.

9. Remove the pivot assembly from the arm by removing the set screw and pin.
10. If the arm has wire channel mounted for the sensor cable, carefully remove the channel from the arm to reuse on the new arm.
11. Install the pivot assembly on the new arm using the pin and set screw removed previously. Torque set screw to 15-20 in-lbs.
12. Using two people firmly hold the new arm assembly and remove the shipping ties. Allow the arm to open slowly to its maximum extension.

⚠ CAUTION When the arm is closed, it can open with significant force. Use care when opening the arm.

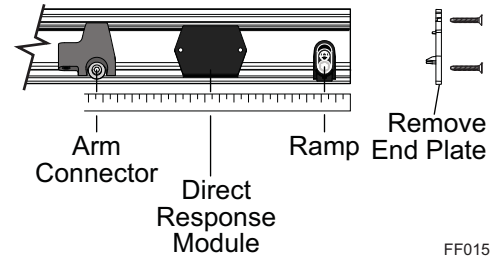
Tip: Use a floor or ground cover and place one knuckle and arm half on the ground. Have one person firmly hold the arm half on the ground while the second person carefully opens the other arm half.

13. If the sensor cable is routed on the replacement arm:
 - a. Attach a piece of wire channel to the top of each section of the arm using double sided tape. If using new channel, cut each piece slightly shorter than the arm extrusion.
14. Lift the arm assembly into position and slide the pivot into the lower hole of the case connector.

15. Secure the pivot assembly to the case connector with the retaining clip.
16. Slide the arm onto the lead rail connector and secure using the pin and clip removed previously.
17. For the LH arm, route the cable through the wire channel. At the arm joints, arch the cable slightly to avoid binding. Do not twist the cable.
Tip: Use a small tool, such as a flat bladed screwdriver to gently spread open the channel then insert the cable. Do this for the entire length of the channel until the cable is fully inserted.
18. Remove the supports from the lead rail.
19. After replacing the arm, it will be necessary to adjust the pitch to align the lead rail and case. See page 7.
20. Adjust the motor limits as required. See page 11.

REPLACING THE LEAD RAIL CONNECTOR

1. Remove the arm according to the instructions on page 6.
 2. Remove the lead rail end plate.
 3. Carefully measure and mark the location of the existing connector and ramp and sensor (when installed).
 4. Loosen the securing screw and slide the existing ramp from the lead rail.
 5. Loosen the screws on the sensor. Twist the brackets slightly and lift the sensor and brackets away from the lead rail. Disconnect the module from the wire harness. Quick connects are found behind the module.
 6. Loosen the securing screw and slide the existing connector from the lead rail.
 7. Insert the new connector assembly into the lead rail and position at the marks made previously.
- ⚠ CAUTION Failure to position the connector correctly will cause the arm and lead rail not to close correctly.**
8. Tighten the outer securing screw.
 9. For the sensor cable. Route the cable behind the new connector. Reconnect the module to the wire harness. Position the module and brackets and tighten the screws.
 10. Install the ramp.
 11. Attach the lead rail end plate.
 12. Return to Replacing the Arm on page 6.

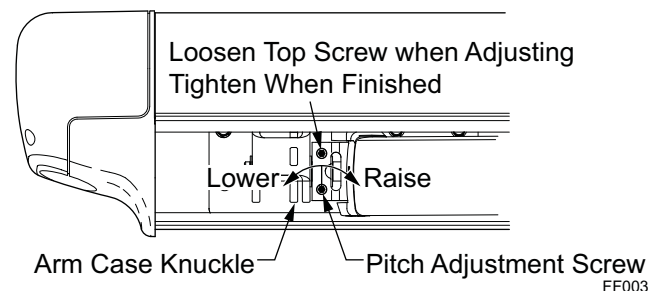


FF015

PITCH ADJUSTMENT

The pitch for Freedom Freestyle can be adjusted to optimize the installation.

1. Open the awning to access the adjustment screws located on the arm case knuckles.
2. Have a second person lift up on the lead rail to relieve the pressure on the adjustment screws.
3. Using a 4mm allen wrench, loosen the top screw. Turn the bottom adjustment screw clockwise to raise the lead rail; turn the adjustment screw counterclockwise to lower the lead rail.
4. When the pitch is set at the desired angle, tighten the top screw.
5. Repeat for each arm. Ensure that the lead rail is parallel with the awning case.



FF003

Figure 5. Pitch Adjustment.

Special Note: The Freedom Freestyle lead rail self-adjusts to accommodate the pitch. No adjustment is required to the lead rail when the pitch is adjusted.

MIDDLE ARM REPLACEMENT 4.5 AND 5 METER AWNINGS

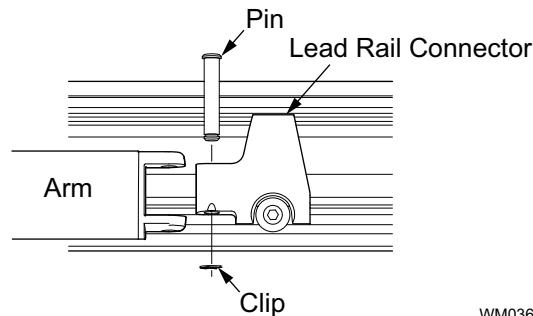
⚠CAUTION THE SPRING ARM IS UNDER TENSION TO OPEN. USE EXTREME CARE AND FIRMLY HOLD THE SPRING ARMS DURING ASSEMBLY AND DISASSEMBLY TO AVOID ANY SUDDEN OR UNEXPECTED MOVEMENT BY THE ARM. SERIOUS PERSONAL INJURY AND/OR PROPERTY DAMAGE COULD OCCUR.

⚠CAUTION THE MIDDLE SPRING ARM IS DIFFERENT THAN THE OUTER ARMS. CENTER ARMS CAN BE IDENTIFIED BY THE BLUE DOT LOCATED ON OR NEAR THE CASE CONNECTOR OF THE ARM. DO NOT USE CENTER ARMS FOR REPLACING OUTER ARMS, DO NOT USE OUTER ARMS TO REPLACE THE CENTER ARM.

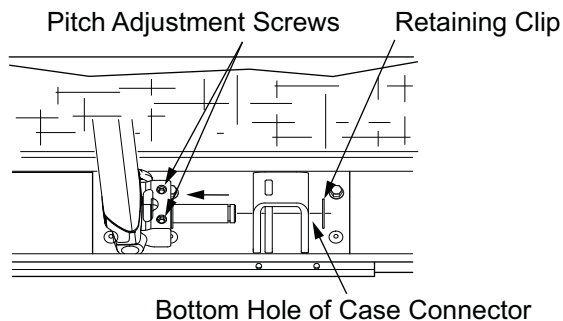
Tools Required: Flat blade screwdriver (1/4"), needle nose pliers, regular pliers and/or e-ring tool. New e-clips are included with the replacement arm.

Special Note: Carry the necessary tools, ties or sleeves and new e-clips. These must readily available during the procedure.

21. Open the awning 2 to 3 feet.
22. Disconnect power to the awning.
23. At the lead rail, firmly hold the spring arm and remove the clip and pin that secures the arm to the lead rail connector. Set pin aside to be reused.
24. Fold the arm and secure using a large zip tie or cord. Do not use bungee cords.
25. Loosen the pitch adjustment set screws.
26. Remove the retaining clip from the case connector.



WM036



27. Remove the arm from the awning and set aside.

⚠CAUTION When the arm is closed, it can open with significant force. Use care when opening the arm.

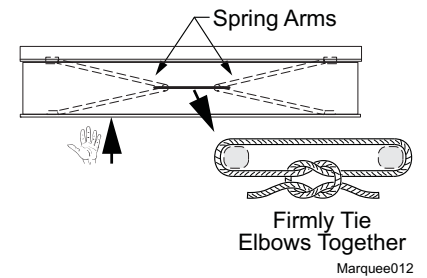
28. Lift the arm assembly into position and slide the pivot assembly into the case connector. NOTE: the pivot goes into the lower hole of the connector.
29. Secure the pivot assembly to the case connector with a new retaining clip (large).
30. Firmly hold the new arm assembly and remove the shipping ties. Allow the arm to open slowly.
31. Slide the arm onto the lead rail connector and secure using the pin removed previously and a new clip (small).

NOTE: When aligning the pin through the arm and lead rail connector, it may be necessary to pivot the lead rail. The lead rail is made to pivot on the lead rail connectors.

32. Tighten the lower pitch adjustment screw until snug.
33. Tighten the upper pitch adjustment screw.

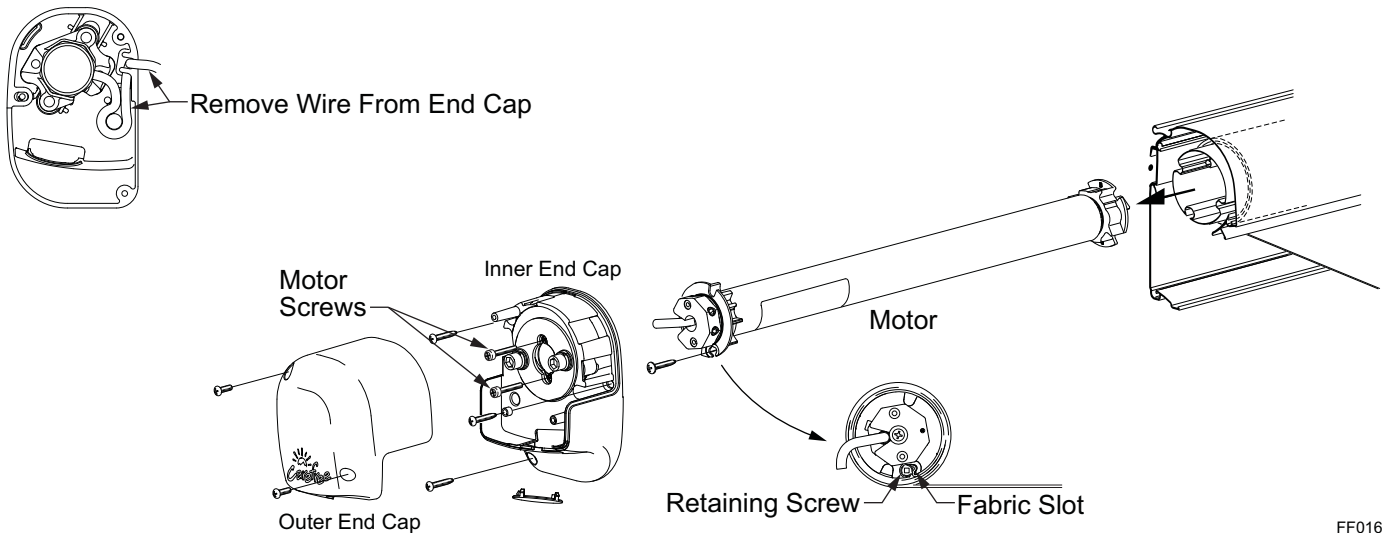
MOTOR REPLACEMENT

1. Disconnect power to the awning.
2. If the awning is extended: Carefully push the lead rail toward the case so that the arms collapse. While holding the lead rail in this position, firmly tie the elbows of the spring arms together. Use a minimum 1/2" rope - do not use bungee cords. When tying the rope, use a non-slip knot such as a square knot or equivalent.
3. If the awning is closed: Firmly brace the lead rail in the closed position. A second person can hold the lead rail steady during the disassembly process.



⚠ CAUTION FAILURE TO SECURE THE LEAD RAIL AS DESCRIBED WILL ALLOW THE SPRING ARMS TO EXTEND OUT SUDDENLY POSSIBLY CAUSING PERSONAL INJURY AND DAMAGE TO THE AWNING.

REMOVE OLD MOTOR



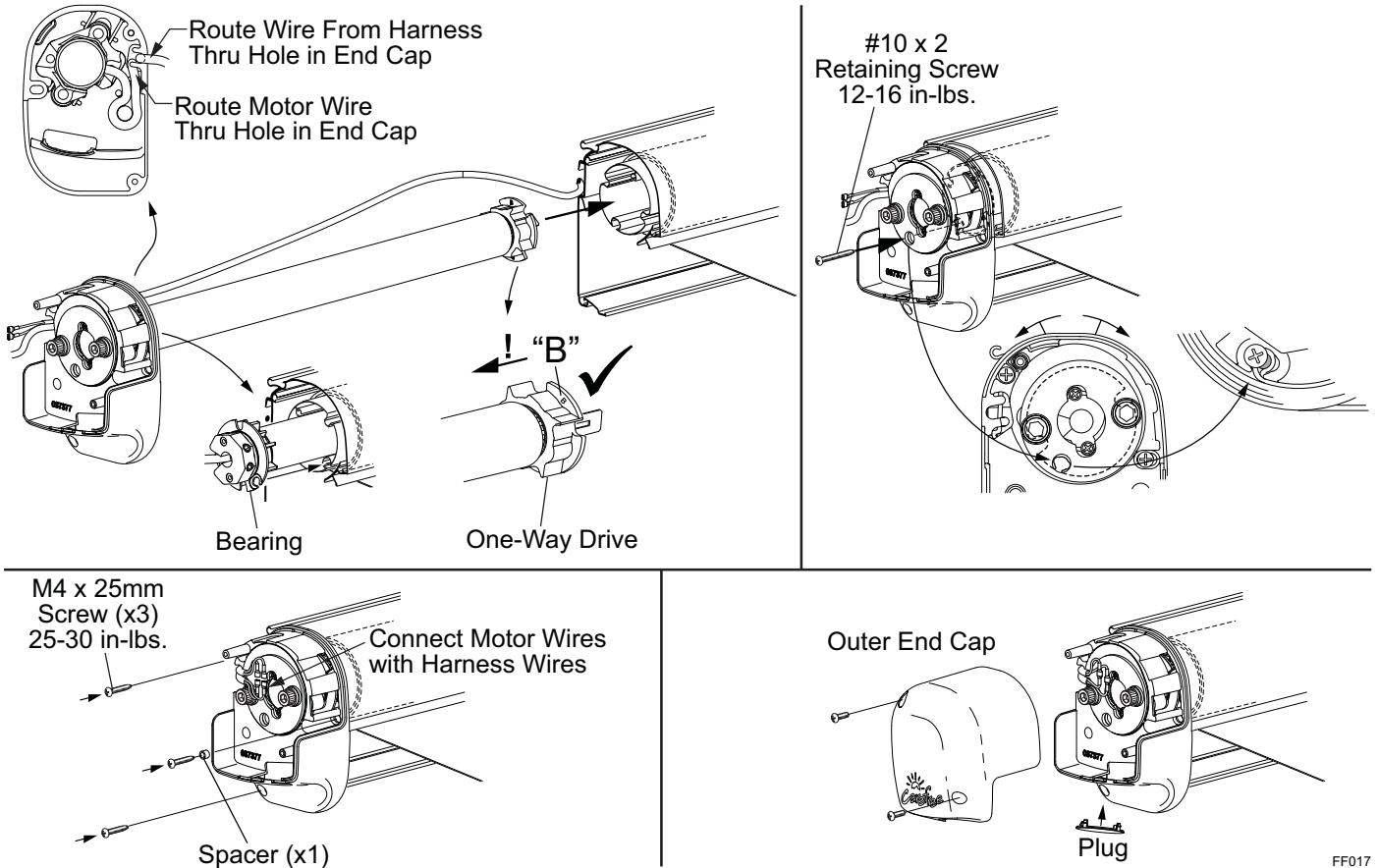
1. Remove the two (2) screws holding the outer end cap. Set the cap and screws aside.
2. Disconnect the motor wire quick disconnects located under the outer cap.
3. Remove the three (3) screws and spacer holding the inner end cap to the case. Remove the two (2) motor screws.

⚠ CAUTION IF THE AWNING IS CLOSED WHEN THE INNER END CAP IS DETACHED, THE SPRING ARMS WILL TRY TO OPEN. CONTINUE TO HOLD THE LEAD RAIL CLOSED.

4. Carefully pull the inner end cap away from the case and remove the wires from the end cap. Set the end cap aside.
5. Remove the fabric retaining screw then pull the motor out of the roller tube and set aside.

⚠ CAUTION IF THE AWNING IS CLOSED WHEN THE MOTOR IS REMOVED, THE SPRING ARMS WILL TRY TO OPEN. SUPPORT THE ROLLER TUBE AND ALLOW THE AWNING TO OPEN SLOWLY THEN SECURE THE ARMS BY TYING THE ELBOWS TOGETHER AS DESCRIBED PREVIOUSLY.

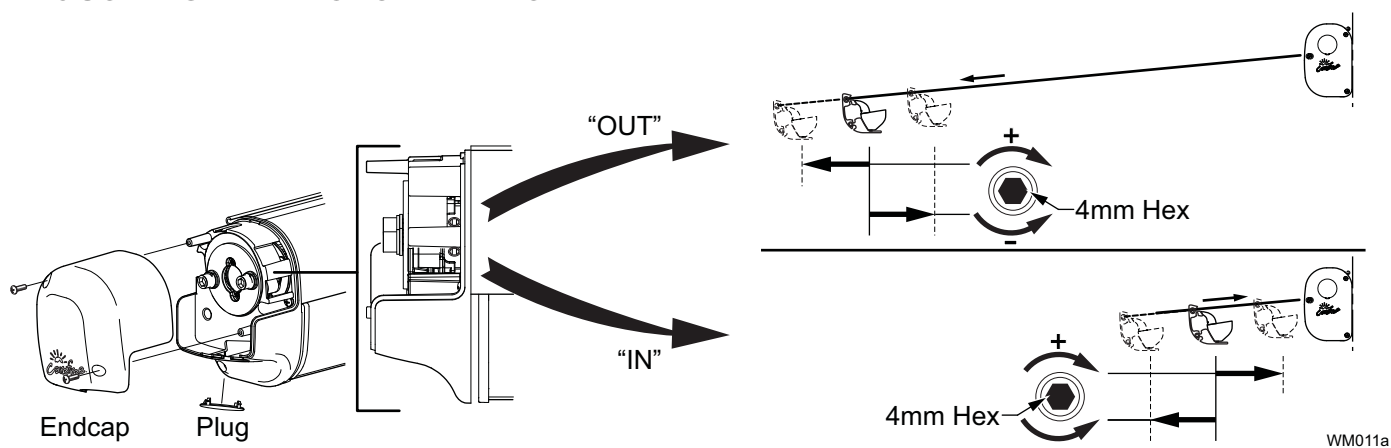
INSTALL THE NEW MOTOR



1. Check that the one-way drive is installed on the new motor assembly with the "B" pointing toward the motor.

⚠️ WARNING THE ONE-WAY DRIVE MUST BE ORIENTED WITH THE "B" FACING THE MOTOR. IF THE DRIVE IS NOT ORIENTED CORRECTLY, THE AWNING NOT TO OPERATE AND THE ARMS WILL SPRING OUT WHEN RELEASED.
2. Route the new motor wire through the hole in the end cap.
3. Align the one-way drive with the roller tube and start sliding the new motor into the roller tube.
4. Route the wire from the harness through the hole in the end cap.
5. Align the bearing on the motor and slide into the roller tube.
6. Through the access hole in the inner end cap, attach the fabric retaining screw through the bearing and in the fabric slot. The screw must be positioned to thread into the metal of the roller tube slot and the edge of the polycord. It may be necessary to rotate the roller tube to align the access hole and fabric slot.
7. Align the screw holes in the inner end cap and attach to the awning case using three (3) M4 x 25 screws and 1 spacer in the front attach hole.
8. If not previously done, terminate the wires from the motor with .187 male disconnects to match the harness wire. Attach the motor and harness wires, matching the wire colors (Blue to Blue and Brown to Brown). Fold and tuck the wires and connectors to fit inside the outer end cap.
9. While holding the lead rail, carefully remove any roller tube supports and arm ties. Allow the lead rail to extend until the fabric is taut. If the lead rail continues to extend after the fabric is taut, the one way drive was installed backwards. Retie the arms, remove the motor and orient the one way drive as shown.
10. To test, restore power then extend and retract the awning.
11. After replacing the motor, it will be necessary to adjust the motor limits (page 11).
12. After testing and adjusting the motor limits, attach the outer end cap.

ADJUSTING THE MOTOR LIMITS

*Out Limit Switch*

The "OUT" limit switch stops the motor when the awning is fully extended

1. Extend the awning out completely.
2. Confirm that the arms are fully extended. The motor should stop and the fabric should be tight. If the motor continues to run, the fabric will sag; or, if the motor quits before the arms are fully extended, it will be necessary to adjust the "OUT" limit switch.
3. Using a 4mm Allen wrench turn the "OUT" limit switch. CLOCKWISE increases time the motor runs during extension, COUNTERCLOCKWISE reduces the time the motor runs.

NOTE: It is best to make the adjustments in increments of a single turn. 3 full turns of the screw equals approximately 2" of fabric extension.

4. Extend and retract the awning several times to confirm that the adjustment is correct.
5. Repeat steps 3 and 4 as required until the awning extends correctly.

IN Limit Switch

NOTE: The "IN" limit switch is not adjusted when the Direct Response system is installed. The system electronics monitors the motor and shuts the motor off when the awning is fully retracted.

If the "IN" limit switch is accidentally adjusted, the motor may shut off before the awning is fully closed. If this occurs, turn the "IN" adjustment screw clockwise. It is not necessary that the screw position matches the closed position. The Direct Response electronics controls the closed position.

TROUBLESHOOTING AND DIAGNOSTICS


The following procedures are intended to aid the service technician to resolve operational issues with the electronics installation.

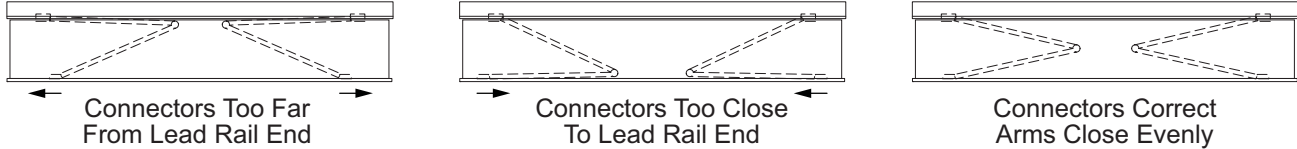
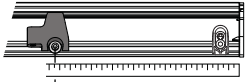
Common Operational Items

The following are operational items that may come up as questions during normal operation.

1. The awning seems to extend and retract slowly. The operational range is 20-25 seconds to extend or 25-35 seconds to retract. If the power supply is on the low side of the range (10V) the awning will move slower.
2. After a period of use, the arm knuckle joints may slide together slightly making a squeaking or squealing noise; this is normal and not a reason for concern. Refer to page 18.

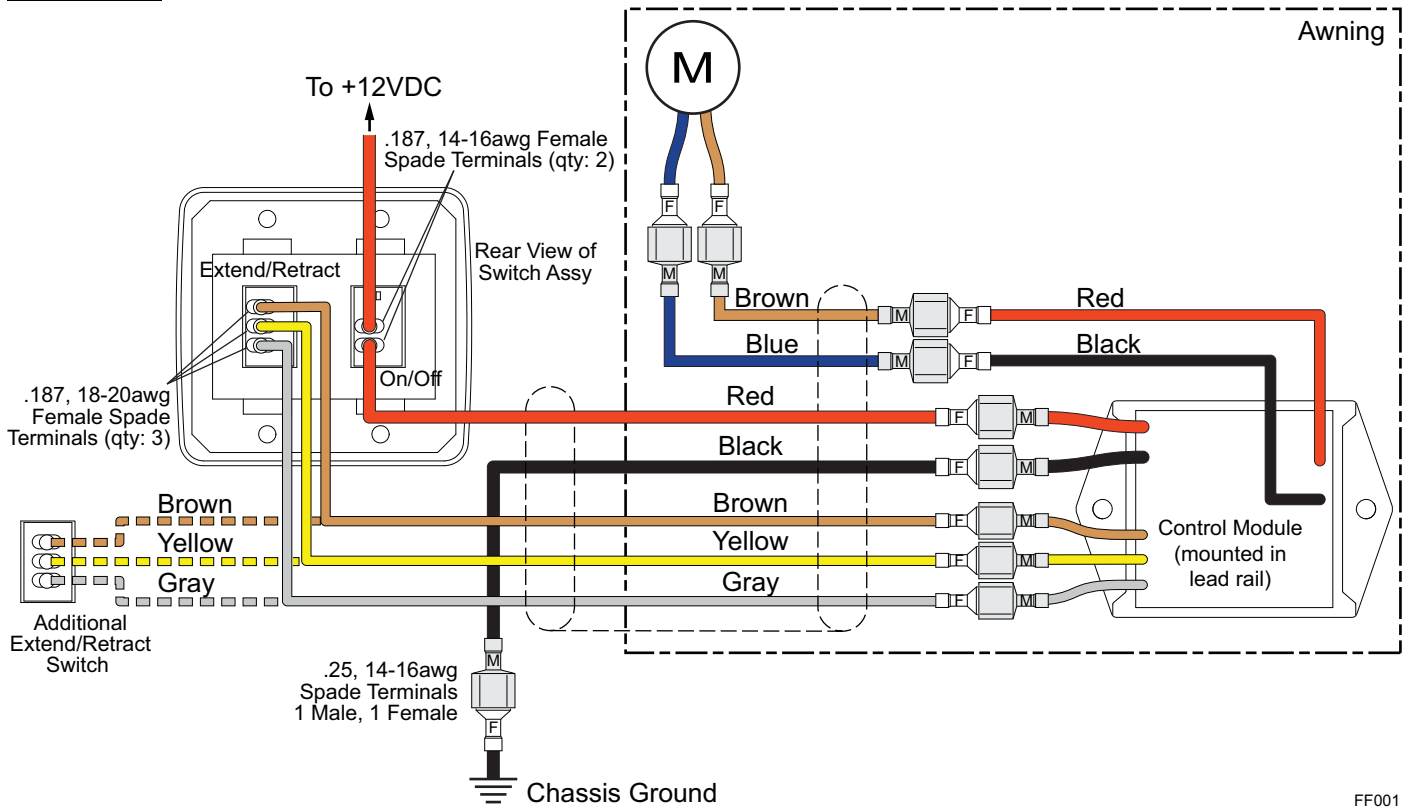
In the charts below, YES is a positive response to the test; NO is a negative response.

D01 THE AWNING DOES NOT EXTEND AND/OR RETRACT			
A	Check Installation Integrity Use the wiring diagram and confirm that the components and wiring are properly installed and connected	YES	Go to test B
		NO	Correct as required
B	Confirm Power Supply Is vehicle battery or power source providing 10V to 14V to the Switch? NOTE: The battery may have a "surface charge" when not in use. This will give a false value if testing. Test the battery under load to receive a valid value.	YES	Go to test C
		NO	Correct as required
C	Test Motor Function 1. Remove the outer end cap on the motor side. 2. Disconnect the motor wires from the harness. 3. Connect the motor wires to a 12-14VDC power source (i.e. drill battery). If the awning does not move, reverse the leads on the battery and try again.  CAUTION Be sure to attach the MOTOR leads to the battery. Connecting the harness wires to the power source will seriously damage the Direct Response module. 4. Does the motor run?	YES	Motor is good, go to test D
		NO	Motor is defective - replace
D	Test wire continuity in the harness 1. There are two wires from the module to the motor connection. 2. There are four wires from the module to the switches. 3. There is one wire to chassis ground. 4. Confirm the wires are isolated and not shorted against the vehicle or each other	YES	Wire continuity good – reconnect the wires disconnected in the previous test then go to test E
		NO	Repair as required then reconnect the wires
E	Test Switch Function 1. Test Power Switch 1.1. Disconnect wires from Power Switch. 1.2. Using a continuity tester place one lead on each terminal. 1.3. With the switch in the OFF position, circuit should be open. 1.4. With the switch in the ON position, circuit should be closed. 2. Test the Extend/Retract Switch 2.1. Using a continuity tester, place one lead on center pin. Place the second lead on bottom pin. Put the switch in the center position and measure the continuity. Circuit should be open. 2.2. Press the switch down (Extend). Circuit should be open. 2.3. Press the switch up (Retract). Circuit should be closed. 2.4. Move the second lead to the top pin. Put the switch in the center position and measure. Circuit should be open. 2.5. Press the switch down (Extend). Circuit should be closed. 2.6. Press the switch up (Retract). Circuit should be open	YES	Switches are good. Module is defective - replace
		NO	Switches are defective - replace

D02 LEAD RAIL DOES NOT CLOSE CORRECTLY			
A	Does lead rail close parallel to the case?	YES	Go to test B
		NO	Correct the pitch setting so arms are even. Refer to page 7.
B	Does lead rail stop before reaching case?		
	1. Is the fabric rolling onto the roller tube correctly? The fabric must roll onto the roller tube from the bottom.	YES	Go to test B2
		NO	Using the close position of the switch, overextend the awning until the fabric rolls under the roller tube. Check the motor "out" limit switch (page 11) so that the motor stops when the fabric is extended and still wrapped beneath the roller tube
2. Is the motor stopping before the awning is closed?	YES	If the "in" motor limit switch is not correct, the lead rail can stop before reaching the case. Refer to page 11	
	NO	Go to test C	
C	Is the arm lead rail connector in the wrong position		
	1. Do the arm elbows strike the case before the awning is closed?	YES	The lead rail connectors are set too far from the end of the lead rail. Loosen the screw and slide the connector toward the end of the lead rail. Make sure both sides are even. Make adjustments in small increments and retest.
		NO	
2. Do the arm elbows strike the lead rail before the awning is closed?	YES	The lead rail connectors are set too close to the end of the lead rail. Loosen the screw and slide the connector away from the end of the lead rail. Make sure both sides are even. Make adjustments in small increments and retest.	
 <p style="text-align: center;">Connectors Too Far From Lead Rail End Connectors Too Close To Lead Rail End Connectors Correct Arms Close Evenly</p>			
 <p style="text-align: center;">Arm Connector</p>			

FF019

WIRING



FF001

REPLACING THE DIRECT RESPONSE MODULE

The Direct Response Module is located on the LH side (motor side) of the lead rail.

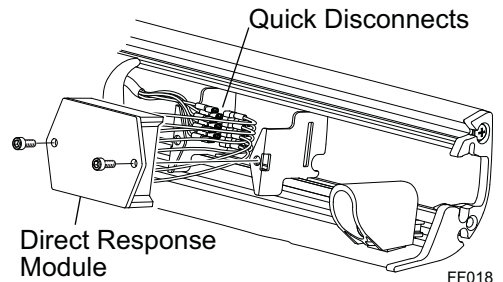
NOTE: The Freestyle awning will not operate electrically when the module is disconnected.

To Remove:

1. Disconnect power to the awning.
2. Remove the two screws holding the module. Pull the module from the lead rail.

NOTE: The mounting brackets are held in place by tension from the screws. When the screws are removed, the brackets will sit loosely in the lead rail. Use care save the brackets.

3. Detach the quick release connectors.
4. Set the module aside.



FF018

To Install:

1. Connect the wires. Make sure to match wire color and size when making connections.
2. Position the brackets.
3. Tuck the wires and connectors behind the module and attach the module with the two screws removed previously.

OPTIONAL LED LIGHTING

An LED light strip is available as a factory installed option. The strip is mounted in the lead rail with the harness routed through the awning with the Direct Response cable.

Route the twisted wire cable for the LED lighting into the vehicle with the motor cable. Seal the hole and wires with a quality silicone sealant.

NOTE: There is approximately 13 feet of wire from the wall entry point. Controls should be located within this distance.

CAUTIONS:

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

SWITCH INSTALLATION

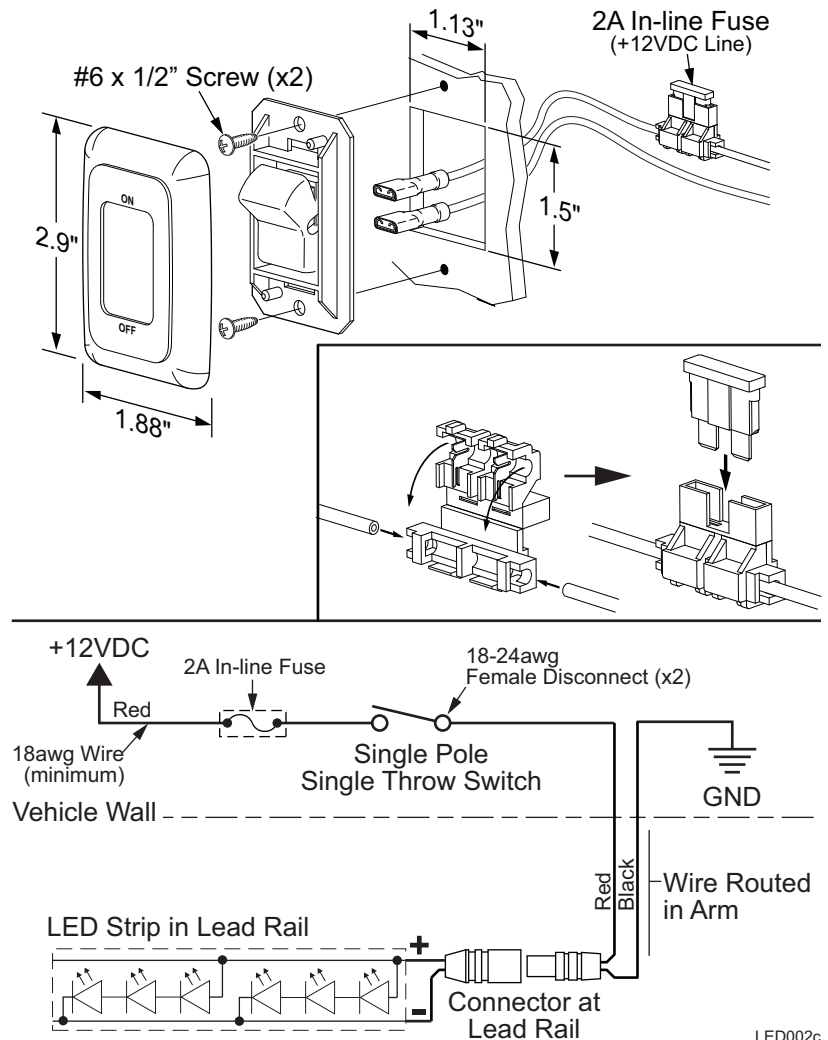
NOTE: Installers may choose to furnish the control switch. The installation requires that the power line (+12VDC) be attached to a dedicated 2A circuit breaker or a 2A in-line fuse must be installed between the switch and power source. For easy access, locate the fuse close to the switch.

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.

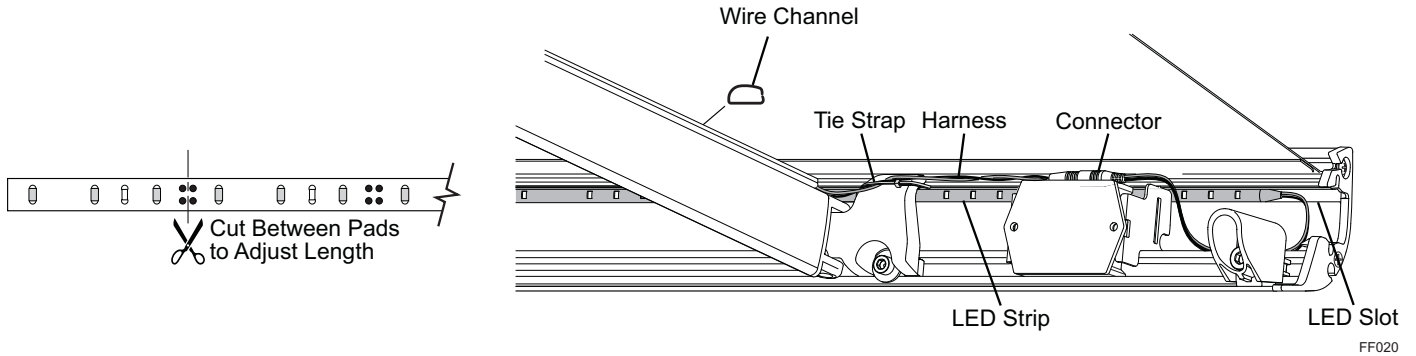
NOTE: Allow adequate slack in the 12VDC power line so that the in-line fuse (installed in step 4) can be accessed from behind the switch.

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.



LED002c

REPLACING THE LED STRIP



1. Extend the awning out completely.
2. Disconnect power to the awning and the LED strip.
3. Use a non-permanent marker to mark the location of the ends of the LED strip.
4. Inside the lead rail, disconnect the strip connectors.
5. Remove the existing LED strip from the lead rail.
6. Clean the slot to remove any dirt and tape residue.
7. Thread the new strip behind the lead rail connectors.
8. Starting at the reference mark on the harness end, press the new strip into the LED slot.
9. At the end of the lead rail, cut the LED strip to match the mark made previously. To trim the LED strip, always cut between the 4-pad cluster as shown.
10. Route the new LED strip wires as shown and connect to the harness.
11. Restore power and test.

HARNES REPLACEMENT

1. Extend the awning out completely.
2. Separate the LED connectors at the lead rail. Carefully pull the harness from the wire channel at the top of the arm.
3. At the awning case:
 - 3.1. The wire is routed with the motor wire. To access the wire, it will be necessary to remove the outer end cap from the motor side.
 - 3.2. Clip the harness then clamp the harness to prevent it from falling in the vehicle wall.
4. Connect the new harness to the LED strip.
5. Route the harness through the wire channel. At the arm joints, arch the cable slightly to avoid binding.

Tip: Use a small tool, such as a flat bladed screwdriver, to gently spread open the channel then insert the cable into the channel. Do this for the entire length of the channel until the cable is fully inserted.
6. At the vehicle wall:
 - 6.1. Route the new harness through the wall to the switch or dimmer module.

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.
 - 6.2. Seal the wall entrance hole and harness with a quality silicone sealant.
 - 6.3. Connect the new harness to the switch. Two (2) .187, 18-24 awg female disconnects are provided if connecting to a switch.
 - 6.4. 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 arm to provide a slack in the harness and adequate length for the connectors to be pushed inside the wall before sealing the hole and harness with a quality silicone sealant.

STANDARD MAINTENANCE

Maintaining a Carefree Awning is easy. Just follow these basic steps:

- Always operate the awning according to the instructions.
- Periodically check that the fasteners are tight. Tighten if necessary.
- Keep the awning fabric and arms clean.

FABRIC CARE

CAUTION

DO NOT USE OIL BASED CLEANERS OR ANY CAUSTIC, GRANULATED, OR ABRASIVE TYPE CLEANERS ON YOUR CAREFREE PRODUCT.

1. One of the best ways to keep the fabric looking good and to delay the need for deep or vigorous cleanings is to hose fabrics off on a monthly basis with clear water. This practice will help prevent dirt from becoming deeply imbedded in the fabric. In most environments, a thorough cleaning will be needed every two to three years.
2. When it is time for a thorough cleaning, the fabric can be cleaned while still on the awning frame.
 - For Vinyl Fabric – Use a soft brush and warm water with soap.
 - For Acrylic Fabric – Use a stiff brush and warm water with soap.
3. When cleaning the fabric, it is important to observe the following:
 - Always use a natural soap, never detergent.
 - Water should be cold to lukewarm, never more than 100°F.
 - Air-dry only. Never apply heat to the fabric.
 - Always allow the fabric to dry thoroughly before rolling up the awning.

Mildew

Mildew is a fungus growth that looks like dirt. Vinyl coated polyester fabrics are mildew resistant because of a chemical biocide in the vinyl coating. Under ordinary conditions, mildew will not appear. However, in areas where high temperature and humidity are common, mildew can be a problem and require the material to be washed more frequently.

Pooling

When water collects on the top of the fabric, this is known as "pooling". This can occur during inclement weather or if a running air conditioner discharges over the awning. The water is dumped when the awning is retracted. It is recommended that if water accumulates; retract the awning in steps (8"-12") to dump the water. This will help prevent the fabric from stretching or distorting.

Leaking

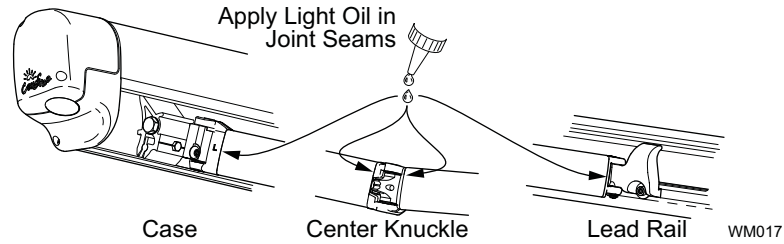
On vinyl canopies, side hems and poly cords are stitched in with a sewing machine. On occasion, this stitching may allow water to seep or leak through the stitches. This is normal and not a defect covered by warranty. Treat the seams with a quality seam sealer.

MOTOR MAINTENANCE

- Check all wiring and connections for wear. Repair when needed.
- Check that the sealant is providing a good seal and no water is accumulating on the wiring.

ARM NOISE

After a period of use, the arm knuckle joints may slide together slightly making a squeaking or squealing noise; this is normal and not a reason for concern. To reduce the sound, apply a few drops of multi-purpose oil (3-IN-1^{® 1} or equivalent) on the knuckle joint seams. Operate the awning and repeat 3-4 times to allow the oil to penetrate into the joint.

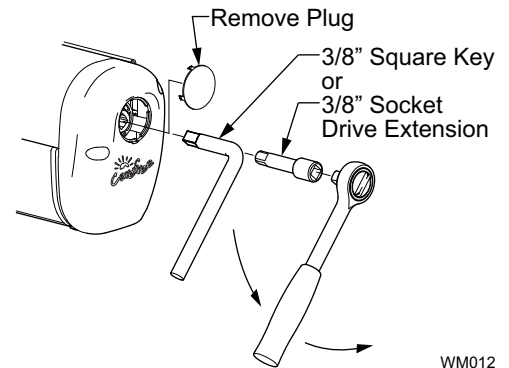


MANUAL OVERRIDE

If power to the vehicle is not available, the awning can be safely retracted using the manual override located on the idler (right) end of the case.

NOTE: This procedure cannot be used to extend the awning.

1. Remove the plug from the right end cap and save.
2. Insert the optional override key or a 3/8" socket drive extension and handle into the square drive hole inside the end cap.
3. Turn the handle counterclockwise until the awning is retracted.
4. Replace the plug.



⚠ CAUTION After closing the awning with the manual override, the lead rail may move out from the case 1/4" -1/2". This is normal and the awning is secure for travel until power is restored or repairs are completed. Do not attempt to force the lead rail in with the override, serious damage can occur to the awning.

¹ 3-IN-1[®] is a registered trademark of the WD-40 company.

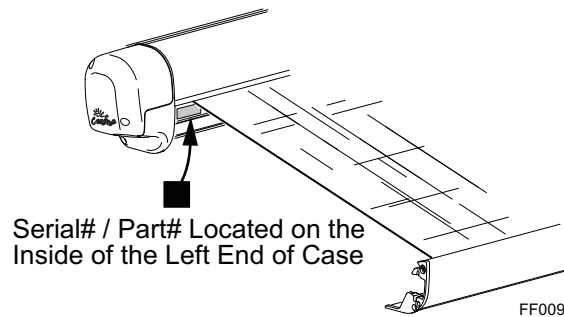
PART NUMBER LISTING

FREEDOM FREESTYLE PART NUMBER CONFIGURATION

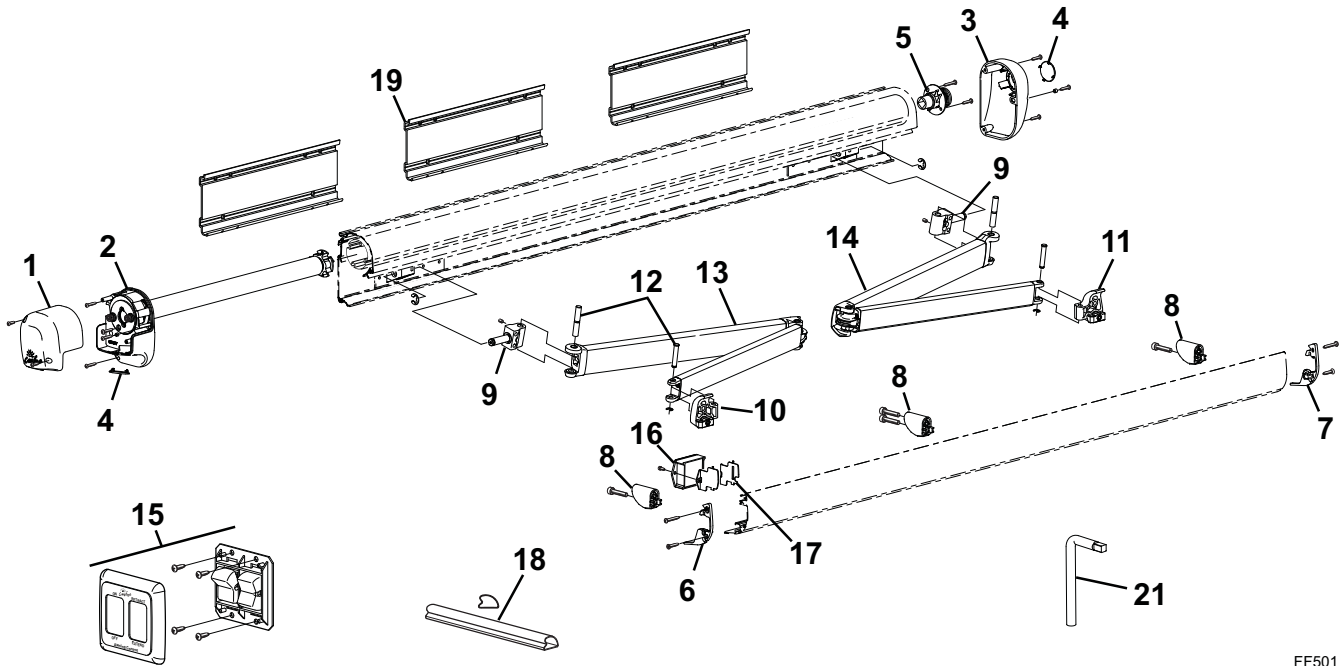
Example Part Number: CA13858JVTM

CA	138	58	JV	TM
Freedom WM Patio Awning	138" [3.5 m]	Black/Gray	Black	TM
SERIES CODE	SIZE	CANOPY COLOR	CASE COLOR	MOTORIZED
CA = Freedom Freestyle Patio Awning	118" [3 m]	AVAILABLE FABRICS: <u>VINYL</u> (COLOR KEY 1) <u>ACRYLIC</u> (COLOR KEY 2) <u>CUSTOM ACRYLIC</u> (SEE NOTES)	STANDARD 25 = WHITE JV = BLACK 23 = SATIN	TM = Motorized
	138" [3.5 m]			
	157" [4 m]			
	177" [4.5 m]			
	197" [5 m]			

Serial Number/Part Number Location



FREEDOM FREESTYLE ILLUSTRATED PARTS LIST

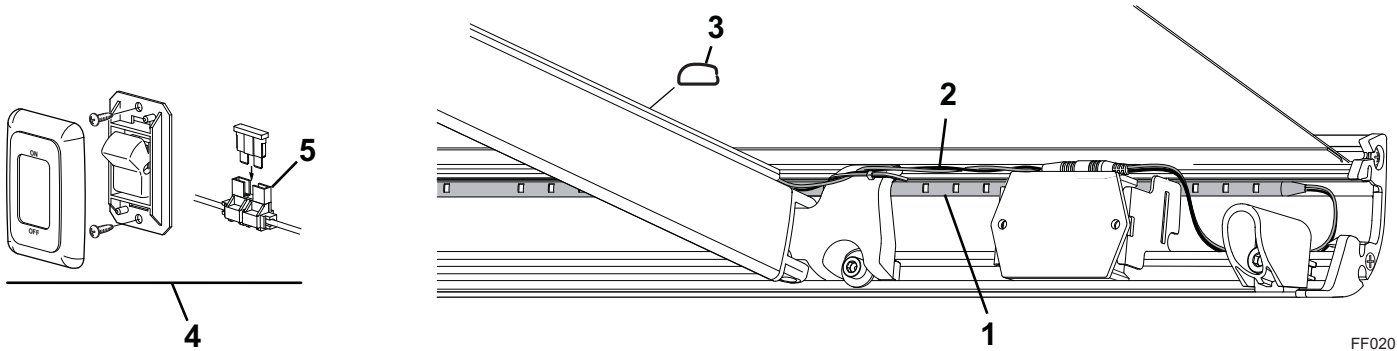


FF501

Item	Part Number	Description	Notes
1	R001618XXX	Endcap, LH, Outer	1
2	R001712XXX	Motor Assy, LH	1,2
3	R001620XXX	Endcap, RH	1
4	R040792-005 R040792-006	Plug, White Plug, Black	
5	R001623	Roller Tube Endplug, RH	
6	R001624XXX	End Plate, Lead Rail, LH	1
7	R001625XXX	End Plate, Lead Rail, RH	1
8	R001621	Ramp Kit, Leadrail	
9	R001677	Pivot Assy, Case	3
10	R001678	Pivot Assy, Lead Rail, LH	3
11	R001680	Pivot Assy, Lead Rail, RH	3
12	R001630	Hardware Pack, Arm Attach, 1 Arm	
13	R012530-TB94L	Spring Arm Assy, LH	3
14	R012530-TB94R R012530-TB94M	Spring Arm Assy, RH Spring Arm Assy, Center	3 Used on 4.5 and 5 meter only 3,4,6
15	R019468-006	Switch Kit	
16	R060686-002	Sensor/Control Module	
17	R001679	Bracket Kit, Sensor	
18	R040616-006 R040616-005	Cable Channel, Black Cable Channel, White	
19	019867-001 019867-002	Bracket Kit, 3m-4m Bracket Kit, 4.5m-5m	5 5
20	019868-001 019868-002	Screw Pack, Awning Mount, 3m-4m Screw Pack, Awning Mount, 4.5m-5m	Not Shown Not Shown
21	901075	Manual Override Key	

- NOTES
1. XXX = Color; WHT = White; BLK = Black; GRY = Satin
 2. Motor Assy (item 2) includes motor, inner endcap, bearing and one-way drive. Parts not available separately.
 3. Attaching hardware not included with spring arm assemblies. Order item 12.
 4. Center arm for 4.5m and 5m awnings uses pivot assembly (item 11).
 5. Bracket kit 3m-4m contains 3 brackets and screws. Bracket Kit for 4.5m-5m contains 4 brackets. Bracket kits do not include awning mounting screws; order item 20.
 6. The middle spring arm is different than the outer arms. Center arms can be identified by the blue dot located on or near the case connector of the arm. Do not use center arms for replacing outer arms, do not use outer arms to replace the center arm.

OPTIONAL LED LIGHTING



FF020

Item	Part Number	Description	Notes
1		LED Strip	1
2	R001729	Harness	
3	R040616-206	Wire Channel	
4	SR0101	Switch Kit (includes item 5)	
5	019493-001	Fuse Kit (includes in-line fuse holder and 2A fuse)	

Notes: 1. LED strip (item 1) is sent on a roll and cut to length during installation.



SERVICE MANUAL

BOX AWNING LED

RV

SPECIFICATIONS

<i>MOUNTING:</i>	LED light strip is factory mounted in specially designed groove in the lead rail.
<i>LENGTH:</i>	Available for awnings 10' – 21' <i>* Maximum LED strip length is 16' 5". For awnings greater than 18', strip is centered in the lead rail.</i>
<i>POWER:</i>	1A, 12VDC
<i>CONTROLS:</i>	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 notes in "Switch Installation".</i>

PROPRIETARY STATEMENT

The LED Lighting is a product of Carefree of Colorado, located in Broomfield, Colorado, USA. The information contained in or disclosed in this document is considered proprietary to Carefree of Colorado. Every effort has been made to ensure that the information presented in the document is accurate and complete. However, Carefree of Colorado assumes no liability for errors or for any damages that result from the use of this document.

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.

Carefree of Colorado agrees to allow the reproduction of this document for use with Carefree of Colorado products only. Any other reproduction or translation of this document in whole or part is strictly prohibited without prior written approval from Carefree of Colorado.

SAFETY INFORMATION

⚠ WARNING A WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY AND/OR MAJOR PROPERTY DAMAGE.

⚠ CAUTION A caution indicates a potentially hazardous situation that may cause minor to moderate personal injury and/or property damage. It may also be used to alert against unsafe practices.

NOTE: A note indicates further information about a product, part, or step.

Tip: A tip provides helpful suggestions.

Safety Notes:

- To avoid shock hazard and/or accidental system shorting, always disconnect battery or power source before working on or around the electrical system.
- Always wear appropriate safety equipment (i.e. goggles).
- Awnings have significant weight. Always use appropriate lifting devices and/or helpers when lifting or holding heavy objects.
- When using fasteners, use care to not over tighten. Soft materials such as fiberglass and aluminum can be "stripped out" and lose the ability to grip and hold.

SWITCH AND FUSE INSTALLATION

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.

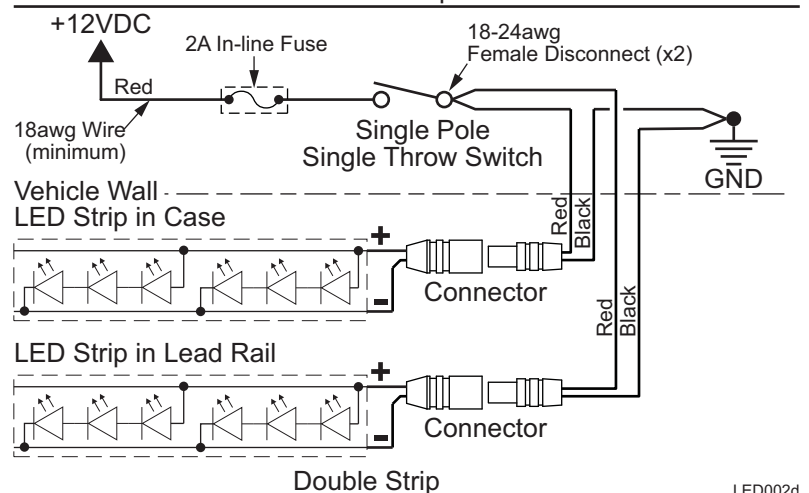
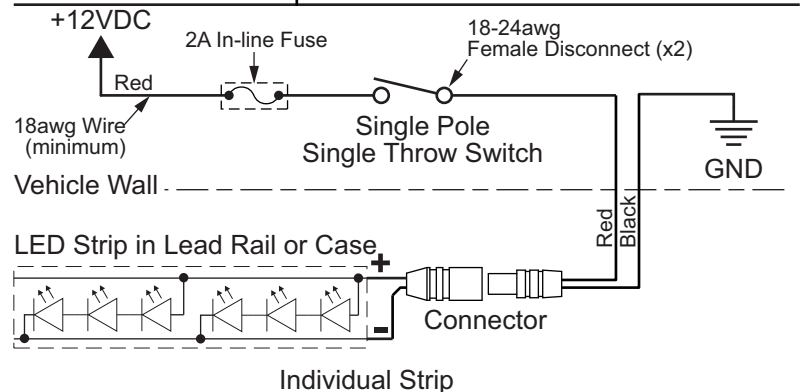
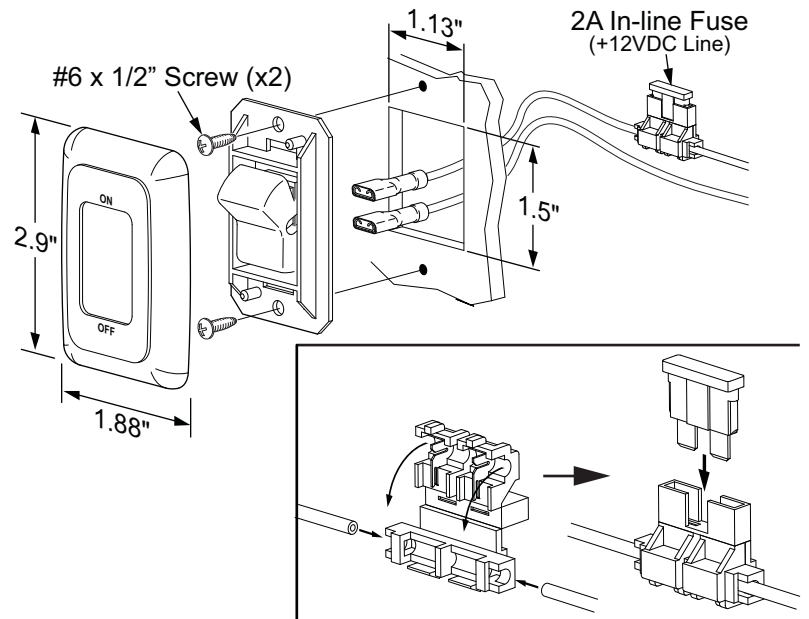
The following steps describe the switch and fuse installation using the switch and fuse kit available from Carefree.

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 it 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.

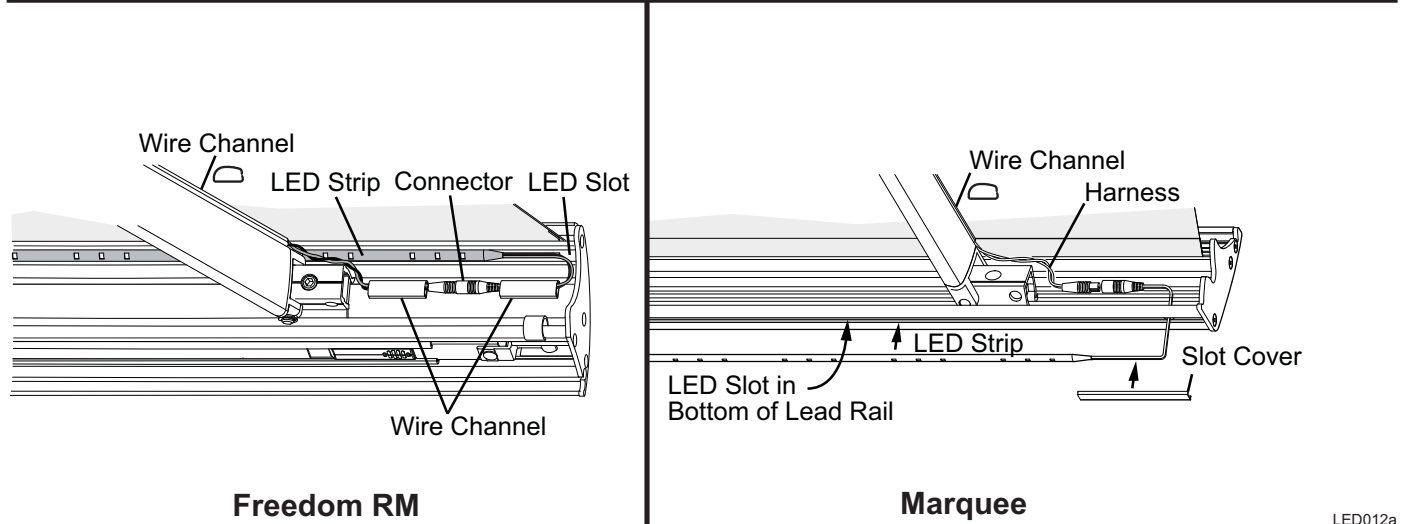
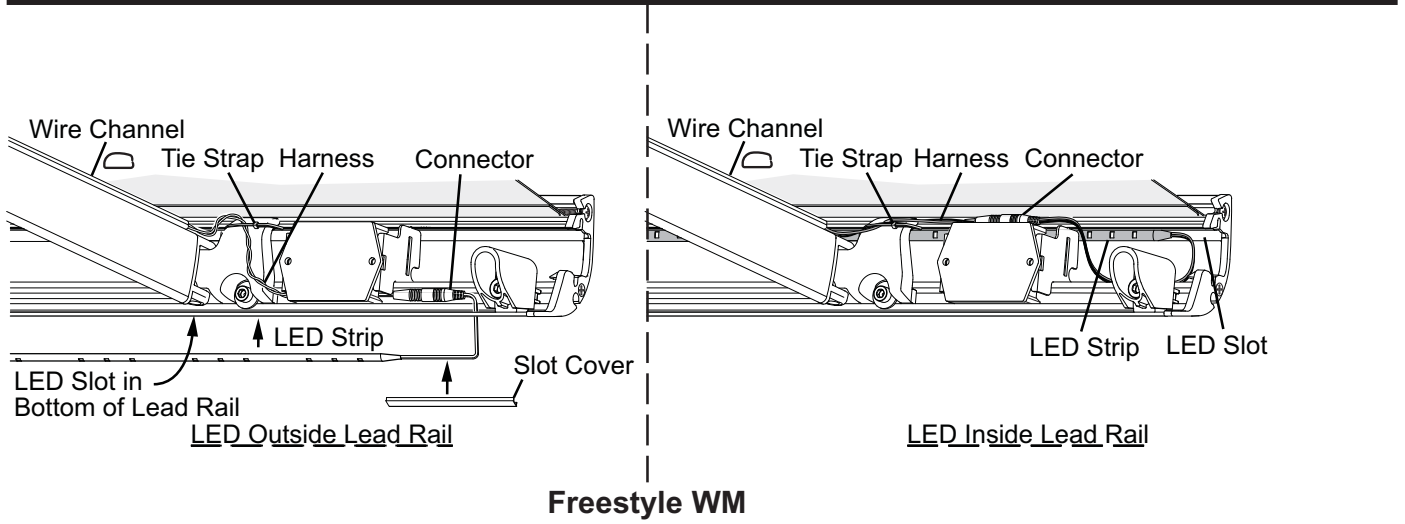
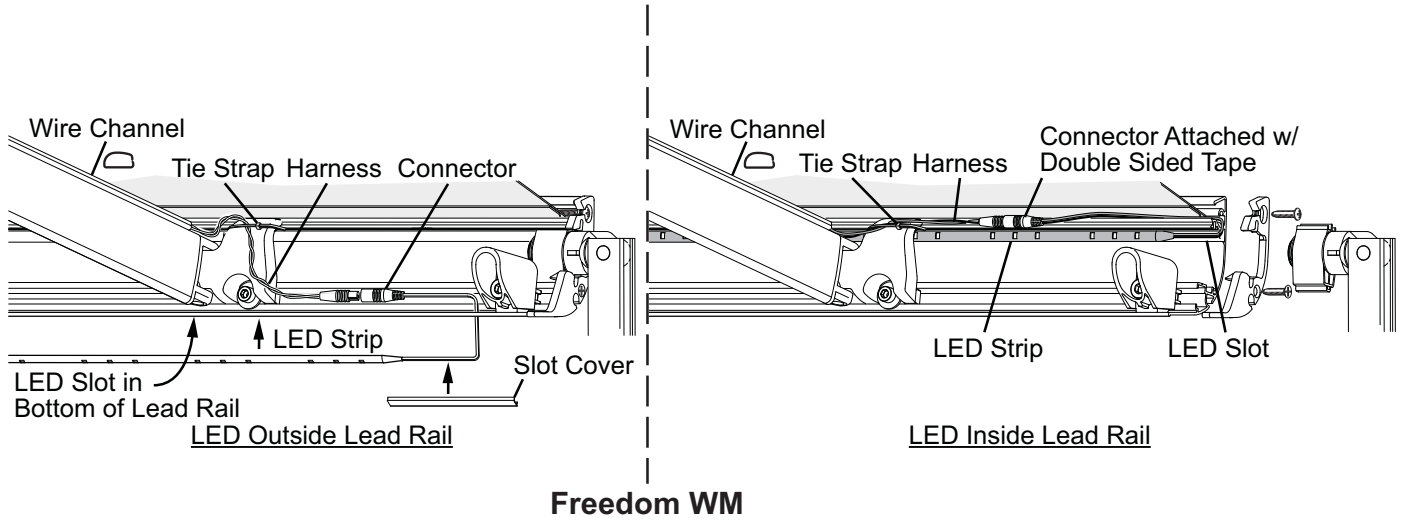
NOTE: The factory installed double strip option is only available on the Paramount.



AWNING LED LAYOUTS

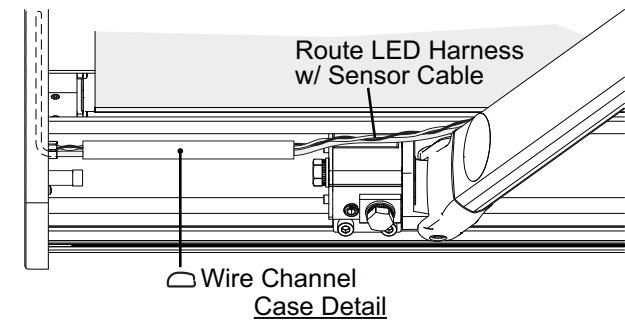
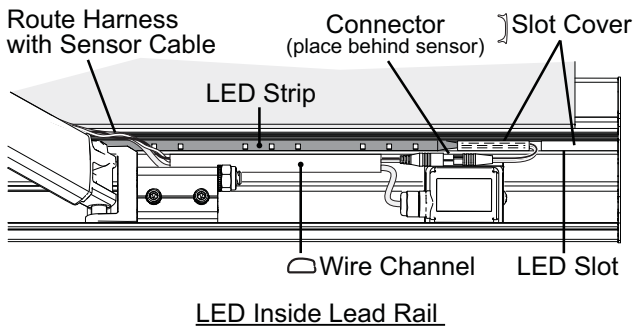
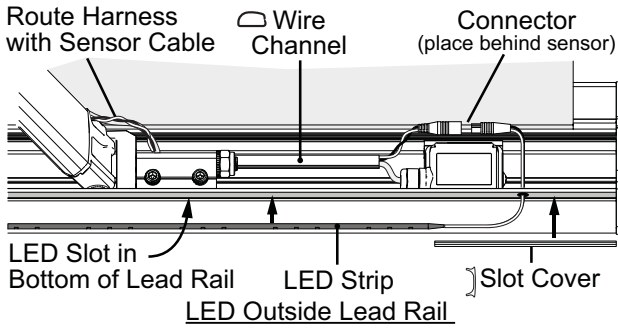
SMALL BOX AND MARQUEE LED LAYOUTS

These illustrations show the basic LED layout for the Freedom WM, Freestyle WM, Freedom RM and Marquee. Refer to the next page for big box awnings.

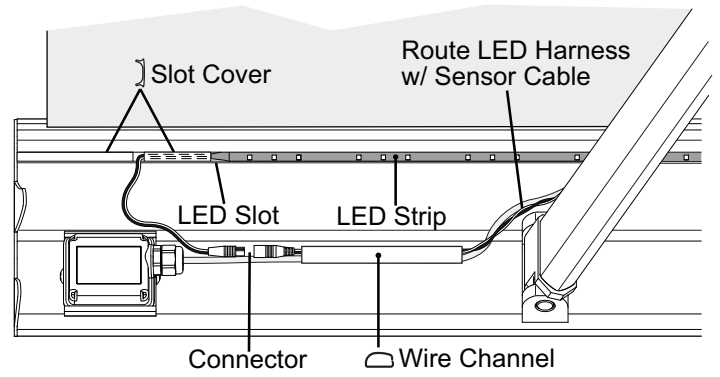


BIG BOX LED LAYOUTS

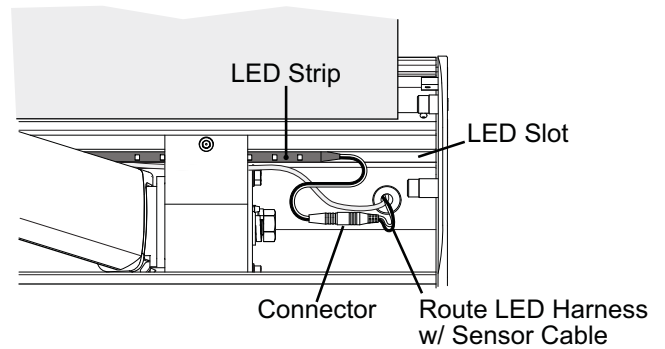
These illustrations show the basic LED layout for the Mirage, Mirage 2-Stage, Apex and Paramount. Refer to the previous page for small box awnings.



Mirage & Mirage 2-Stage



Apex & Paramount Lead Rail

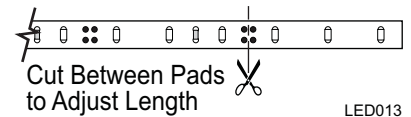


Paramount Case LED

REPLACING THE LED STRIP

Refer to the appropriate awning LED layout illustrations on pages 2 and 3.

1. Extend the awning out completely.
2. Disconnect power to the awning and LED strip.
3. Use a non-permanent marker to mark the location of the ends of the LED strip.
4. If installed, remove the slot covers from the ends of the LED strip and set aside.
5. *For Freedom WM with LED's inside the lead rail:* Remove the lead rail end plate and support leg.
6. Disconnect the LED strip connector.
7. Remove the existing LED strip.
8. Clean the slot to remove any dirt and tape residue.
9. *For LED's inside the lead rail:* Thread the LED strip behind the arm/lead rail connectors before pressing the strip into the slot.
10. 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.
11. At the end of the LED slot, cut the LED strip to match the mark made previously. To trim the LED strip, always cut between the 4-pad cluster as shown.



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

12. Route the wires as shown and connect LED and harness connectors.
13. Install the slot covers and other parts that were removed previously.
14. Restore power and test.

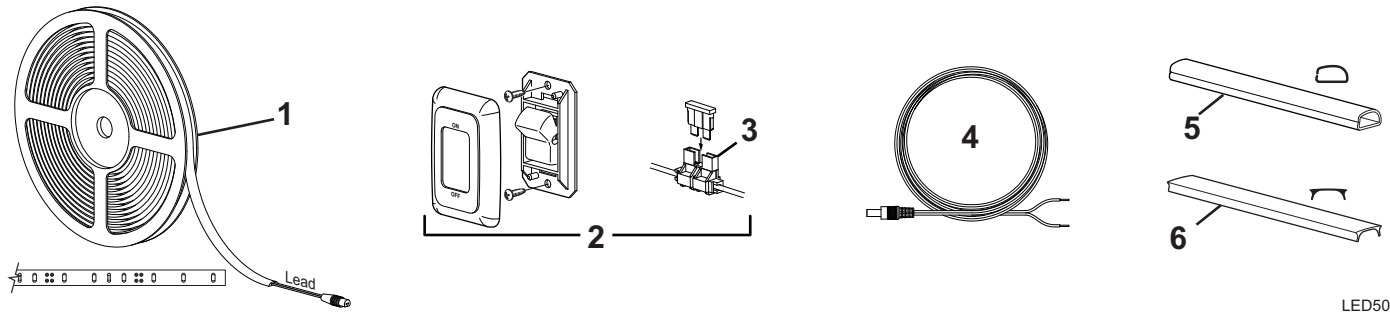
WIRE HARNESS REPLACEMENT

(refer to the illustrations on pages 2 and 3)

1. Extend the awning out to access the inside of the case or lead rail as required.
 2. Disconnect power to the awning and LED.
 3. Separate the LED connectors.
 4. *For lead rail LEDs:*
 - 4.1. The wire is routed along the top of the arm. Remove the harness from the arm channels.
 - 4.2. At the case, clip the harness and clamp the harness at the case to prevent it from falling in the vehicle wall.
 - 4.3. Connect the new harness to the LED strip.
 - 4.4. Route the harness through the wire channel in the arms. At the arm joints, arch the cable slightly to avoid binding.
 5. *For all LEDs:*
 - 5.1. Route the new harness through the case and vehicle 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.
 - 5.2. Seal the entrance hole and harness with a quality silicone sealant.
 - 5.3. Connect the new harness to the switch. Two (2) .187, 18-24 awg female disconnects are provided if connecting to a switch.
 - 5.4. 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 entrance hole and wires with a quality silicone sealant.
- NOTE:** Be sure to allow enough harness from the arm to provide a slack in the harness and adequate length for the connectors to be pushed inside before sealing the hole and harness with a quality silicone sealant.

LED COMPONENTS



LED503

Item	Part Number	Description	Notes
1a	R001714	LED Strip, White, 16' Length, 8" Lead	For awnings 18' or less 1
1b	R001715	LED Strip, White, 16' Length, 26" Lead	For awnings 19' or longer 1
1c	R001736	LED Strip, White, 49" Length, 8" Lead	Used w/ Marquee 66" or less 1
2	SR0101	Switch and Fuse Kit (includes item 3)	
3	R019493-001	Fuse Kit (includes fuse holder and 2A fuse)	
4a	R060740-001	Harness, Factory Installed LED Roller Assy, 16' Length	
4b	R060718-001	Harness, Factory Installed LED Box Awning, 22' Length	
5	R040616-206	Wire Channel	43" Length
6	R001716	Slot Cover	24" Length

Notes: 1. LED Strips (item 1) are sent on rolls and cut to length during installation.



RV



IMPORTANT NOTICE: The adjustments and repairs described in this book should be performed by trained technicians at Authorized Carefree Dealerships. Work performed by non-authorized persons or businesses may void warranty.

PROPRIETARY STATEMENT

The Mirage 2-Stage Patio Awning is a product of Carefree of Colorado, located in Broomfield, Colorado, USA. The information contained in or disclosed in this document is considered proprietary to Carefree of Colorado. Every effort has been made to ensure that the information presented in the document is accurate and complete. However, Carefree of Colorado assumes no liability for errors or for any damages that result from the use of this document.

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.

Carefree of Colorado agrees to allow the reproduction of this document for use with Carefree of Colorado products only. Any other reproduction or translation of this document in whole or part is strictly prohibited without prior written approval from Carefree of Colorado.

SAFETY INFORMATION

⚠ WARNING A WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY AND/OR MAJOR PROPERTY DAMAGE.

⚠ CAUTION A caution indicates a potentially hazardous situation that may cause minor to moderate personal injury and/or property damage. It may also be used to alert against unsafe practices.

NOTE: A note indicates further information about a product, part, or step.

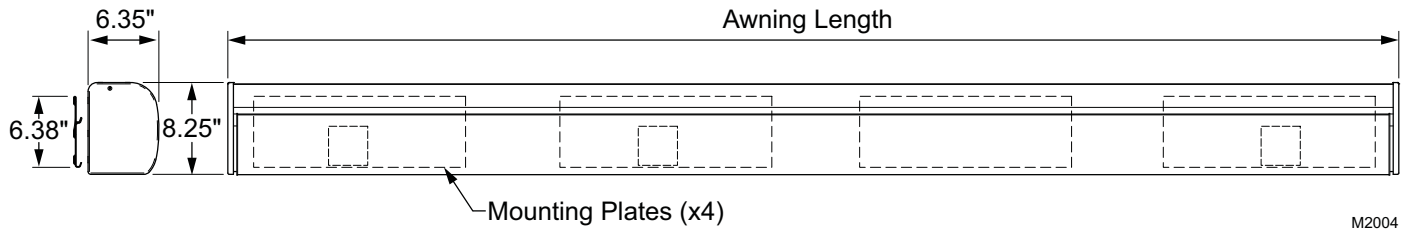
Tip: A tip provides helpful suggestions.

Safety Notes:

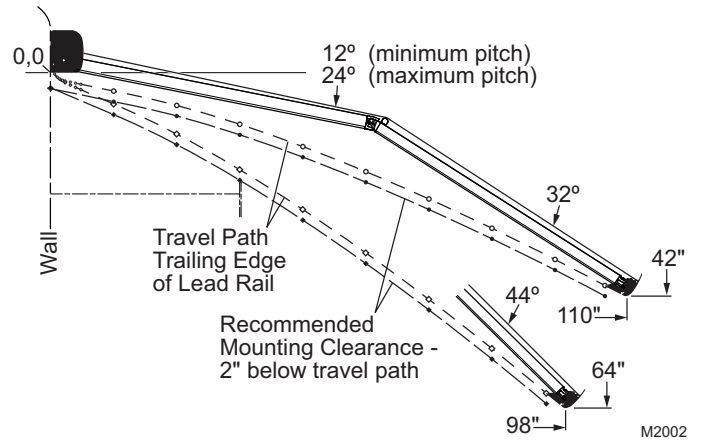
- To avoid shock hazard and/or accidental system shorting, always disconnect battery or power source before working on or around the electrical system.
- Always wear appropriate safety equipment (i.e. goggles).
- Awnings have significant weight. Always use appropriate lifting devices and/or helpers when lifting or holding heavy objects.
- When using fasteners, use care to not over tighten. Soft materials such as fiberglass and aluminum can be "stripped out" and lose the ability to grip and hold.

PRODUCT OVERVIEW

Specifications



NOTE: Dimensions are at maximum extension and shown for reference only. Refer to installation manual for required mounting heights and positions. Values are approximate, actual dimensions may vary with specific installations.



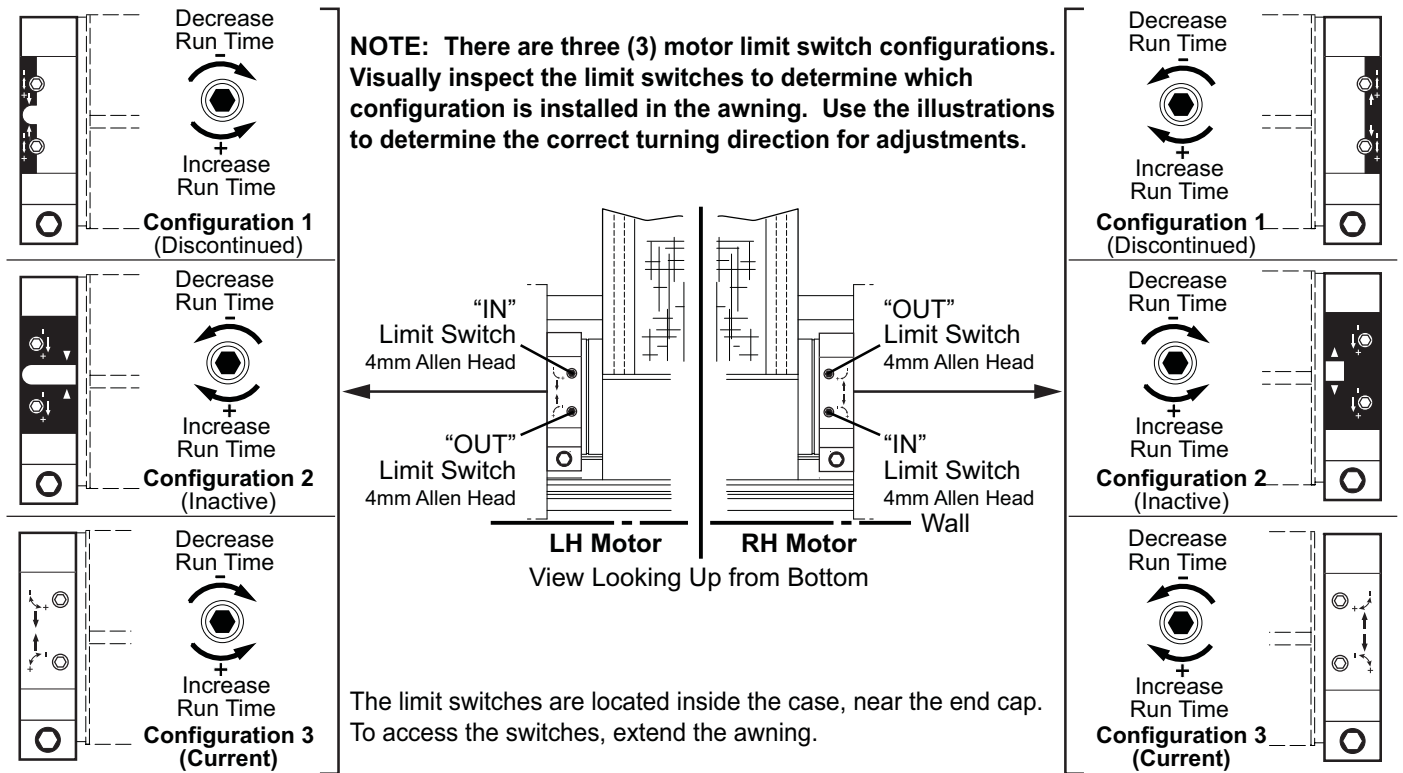
LENGTH	14' – 21' [4.27m - 6.4m] (in 1 foot [.305m] increments)				
HORIZONTAL PROJECTION	110" [279.5cm] @ minimum pitch				
	98" [249cm] @ maximum pitch				
DROP:	42" [107cm] @ minimum pitch				
	64" [162.5cm] @ maximum pitch				
SUPPORT:	Lateral Spring Arms				
MOTOR:	Tubular	Available in LH or RH configurations			
	Power:	120V, 60Hz, 2.5A	Torque:	60nm	Speed:
CONTROLS:	Carefree Direct Response				
COLOR:	Hardware:	Black			
	Fabric:	Woven Acrylic (refer to sales literature for colors)			

Optional factory installed 12V LED lighting (mounted in the lead rail) is available for the Mirage 2-Stage awning. LED lighting requires a separate 12V control switch.

STANDARD SYSTEM ADJUSTMENTS

SETTING THE MOTOR LIMITS

The motor limit switches are preset at the factory for best operation of the awning. The "OUT" limit switch is used to stop the motor when the awning is fully extended. The "IN" limit switch is used to stop the motor when the awning is fully retracted. The "IN" limit is NOT USED when the *Direct Response* system is installed.



mirage023

Adjusting the OUT Limit Switch

NOTE: During normal operation, the awning will extend out then roll back slightly to tension the fabric.

1. Extend the awning out completely.
2. Confirm that the arms are fully extended. The motor should stop and the fabric should be tight.
3. If the motor continues to run, the fabric will sag; use a 4mm allen wrench to turn the "OUT" limit switch to DECREASE the motor run time.
4. If the motor quits before the arms are extended; use a 4mm allen wrench to turn the "OUT" limit switch to INCREASE the motor run time.

NOTE: It is best to make the adjustments in increments of a single turn. 3 full turns of the screw equals approximately 2" of fabric extension.

5. Extend and retract the awning several times to confirm that the adjustment is correct.
6. Repeat as required until the awning extends correctly.

Adjusting the IN Limit Switch

NOTE: The "IN" limit switch is not adjusted when the Direct Response system is installed. The system electronics monitors the motor and shuts the motor off when the awning is fully retracted.

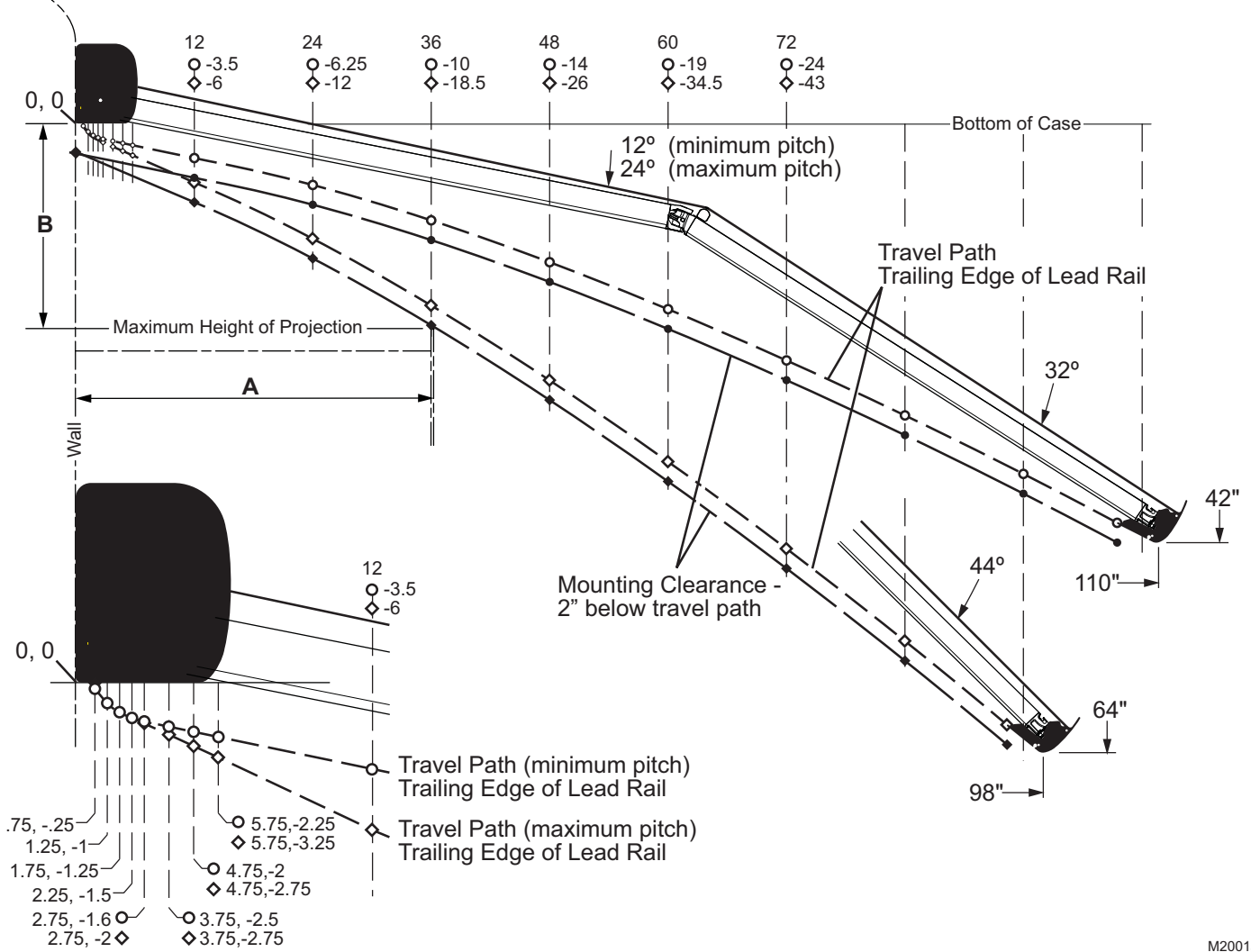
If the IN limit switch is accidentally adjusted, the motor may shut off before the awning is fully closed. If this occurs, turn the "in" adjustment screw to increase the motor run time. It is not necessary that the screw matches the closed position. The Direct Response electronics control the closed position.

NOTE: It is normal for the lead rail to slightly relax after the awning closes completely.

ADJUSTING THE PITCH

Mounting Height

When adjusting the pitch, it is important to check the clearance above any projections such as open doors or slide outs. The chart below provides the recommended clearance allowances based on the minimum distance from the top of a projection (i.e. open door or slide out) to the bottom of the mounting plate ("B"). This provides clearance for the travel path of the lead rail.



A Projection (Door/Slideout) →	0"	12"	24"	36"	48"	60"	72"
● B Min. Mounting Height (min. pitch) ↑	3"	5.5"	8.25"	12"	16"	21"	26"
◆ B Min. Mounting Height (max. pitch) ↑	3"	8"	14"	20.5"	28"	36.5"	45"

The minimum mounting height (B) is measured from the uppermost edge of the projection (i.e. door, slideout room flange) to the bottom of the mounting plate. The value given is a minimum requirement, adjust upward as required to clear casing, trim etc.

⚠ CAUTION During installation or when the pitch of the awning is adjusted, it is important that the lead rail is parallel to the awning housing.

1. Extend the awning fully.
2. SLIGHTLY loosen the 3/4" nut on the side of the knuckle.
3. Loosen the 3/4" hex head screw.
4. Turn the 6mm set screw located on the bottom of the knuckle. CLOCKWISE lowers the pitch, COUNTERCLOCKWISE raises the pitch. One complete turn of the set screw equals approximately 2° of pitch.

NOTE: When adjusting the pitch, it is helpful to have a second person lift up on the lead rail.

5. Tighten the 3/4" hex head screw.
6. Repeat steps 2 through 5 for the other end. Note the caution information above.
7. When the pitch adjustments are completed, tighten the 3/4" nut on the side of the knuckle.

When the pitch is adjusted, it is necessary to adjust the angle of the lead rail for the awning to close correctly.

8. SLIGHTLY loosen the 3/4" nut on the side of each arm knuckle on the lead rail.
9. Turn the INSIDE 6mm hex screws of each knuckle to increase or decrease the angle of the lead rail. When closed, the face of the lead rail should be parallel with the coach wall.
10. When the lead rail adjustments are completed, tighten the 3/4" nut on the side of the knuckles.

MANUAL OVERRIDE

If 110V power is not available to the vehicle, the awning can still be safely retracted using the manual override. The bypass may be accessed from inside the case on the motor housing or from the top of the case above the motor housing.

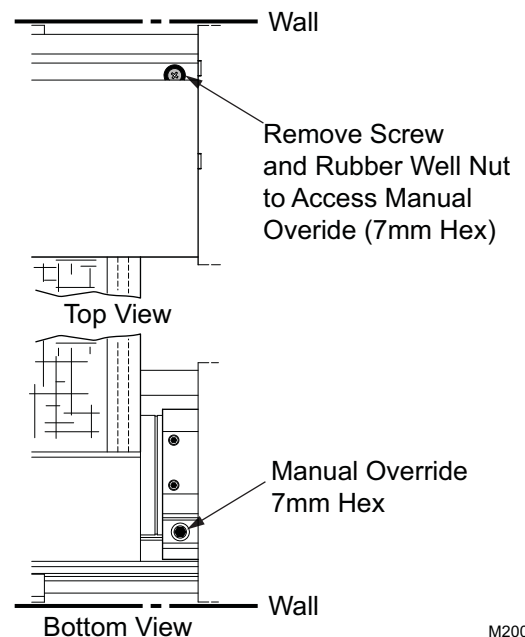
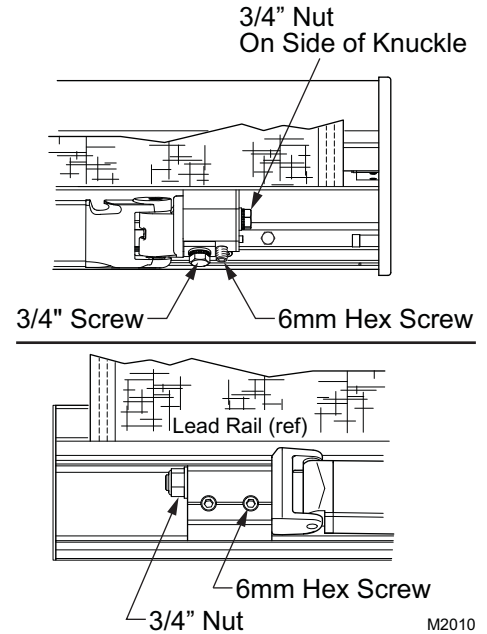
To use the inside bottom access: The awning must be open a minimum of 8" to afford access to the override.

To use the top bypass access: Remove the screw and well nut that is used to secure the end cap.

1. Chuck the 7mm hex key into a 3/8" battery powered drill.
2. Insert the hex key into the manual override on the awning. For the top access, it will be necessary to locate the hex by feel; it is not visible with the key inserted in the hole.
3. Operate the drill in the forward (clockwise) direction to close the awning. Reverse the drill to open the awning.

NOTE: When using the bottom override, the awning can only be closed within 6-8". It will be necessary to use the top access to close the awning completely.

4. When done, return the screw and well nut to the top of the case if removed.



Programming the RF Receiver for a Remote

When adding or replacing a remote control or receiver, it is necessary to program the transmitter and receiver.

1. Power to the control box must be on.
2. Locate the receiver box.
3. Press and release the "Press to Learn Transmitter" button on the bottom of the receiver. The receiver is in program mode when the red light comes on.
4. For Single Awning Key FOBS: Press and release the STOP button on the remote. The red light will go out after the receiver learns the remote signal.

NOTE: Pressing the stop button will cause the blue up arrow button to default as the open (extend) function.

If a function button is pressed to train the receiver, it will be programmed as the open (extend) button. Example: Pressing the bottom button will program the bottom button for extend and the top button as retract.

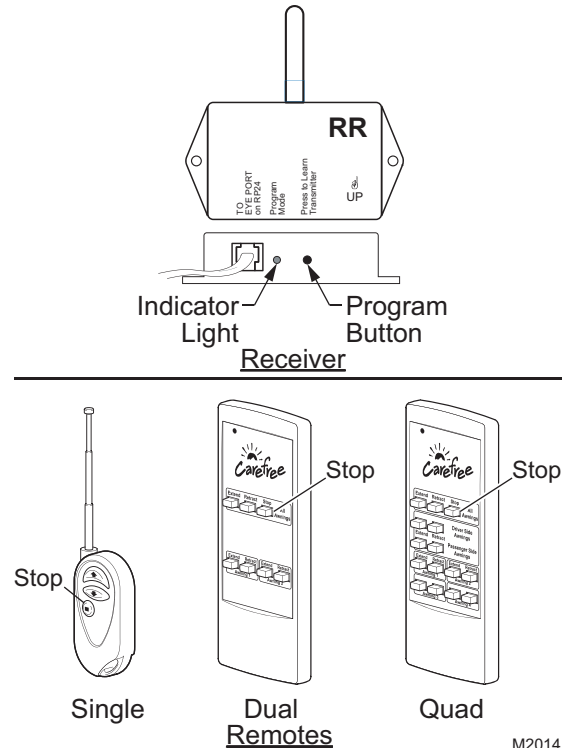
5. For Multiple Awning Remotes: Press and release the ANY button on the remote. It is recommended to use the STOP button. The red light will go out after the receiver learns the remote signal.

⚠ CAUTION When the receiver learns the transmitter signal, the system will perform the operation of the button pressed. Example: Pressing an "Extend" button during the learning phase will cause the awning to extend when the receiver learns the signal. Use caution to avoid unexpected movement by the awning.

6. Repeat for each additional remote.

OPERATIONAL NOTES:

- The transmitter and receiver operate on a frequency of 433MHz.
- The receiver exits the program mode after ten seconds.
- If the light does not come on in step 2, the memory is full and must be cleared. If the light still does not come on, check the continuity of the cord between the boxes and repair or replace as required. Pin 1 of the 1st connector goes to pin 1 of the 2nd connector etc.
- If the light does not go out above, the receiver knows the transmitter signal or the battery in the Remote needs to be replaced.
- To clear the memory: PRESS AND HOLD the receiver learn button. While holding the button, the indicator light should be OFF for the full 5 seconds then come on.
- The receiver may be programmed for up to 5 remotes. Additional remotes may be ordered separately.



CANOPY REPLACEMENT

⚠️WARNING TO AVOID SHOCK HAZARD AND/OR ACCIDENTAL SYSTEM SHORTING, ALWAYS DISCONNECT THE VEHICLE BATTERY AND ELECTRICAL SOURCES BEFORE WORKING WITH ELECTRICAL WIRING AND COMPONENTS.

1. Disconnect power to the awning.
2. Using the manual override (page 3), open the awning 18"-24".
3. Carefully push the lead rail toward the case so that the arms collapse and the fabric is slack. While holding the lead rail in this position, firmly tie the elbows of the spring arms together. Use a minimum 1/2" rope - do not use bungee cords. When tying the rope, use a non-slip knot such as a square knot or equivalent.

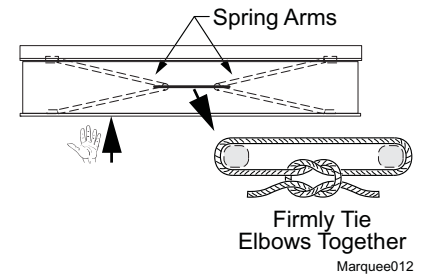
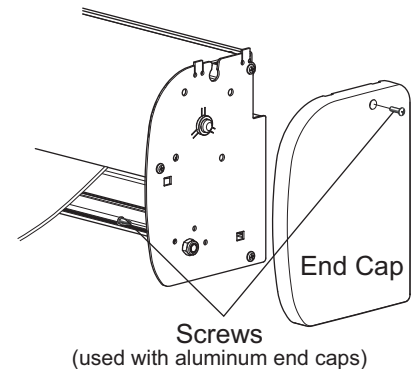


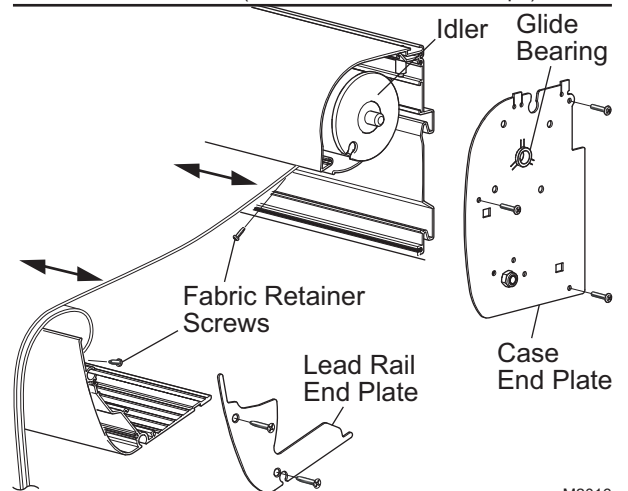
Figure 1. Tying the Arms.

⚠️CAUTION FAILURE TO SECURE THE LEAD RAIL AS DESCRIBED WILL ALLOW THE SPRING ARMS TO EXTEND OUT POSSIBLY CAUSING PERSONAL INJURY AND DAMAGE TO THE AWNING.

4. Remove the outer end cap.
 - 4.1. For machined aluminum end caps, remove the two screws. There is one inner and outer screw.
 - 4.2. For molded end caps, snap the bottom out and lift up. No screws are used with the molded end cap.
5. Remove the fabric retainer screws. One is in the roller tube on the idler side. The other is located in the lead rail.
6. Remove the end plate from the lead rail assembly.
7. Remove the idler end plate from the case.



- NOTE:** It will be necessary to firmly support the roller tube and keep it from coming out of the case.
8. From the idler end of the roller tube, simultaneously slide the old canopy out of the roller tube and lead rail.
 9. Inspect the slots in the roller tube and lead rail. Clean and deburr as required. Lightly spraying the inside of the slot with a dry silicone lubricant will aid in sliding the new fabric.
 10. Slide the new canopy into the lead rail and roller tube. Both edges must be done at the same time. Orient the fabric so that the large polycord goes into the lead rail, the smaller polycord goes into the roller tube. The hem should be on the down side.



M2016

11. Center the canopy in the roller tube and lead rail.
12. Reattach the end plate to the case with the roll bar idler seated into the glide bearing.
13. In the canopy slot on the idler side, stake the canopy to the roller tube using one (1) #8 x 1" flat head screw through the fabric, polyrod and roller tube.
14. Reattach the lead rail end plate.
15. Use the manual override to roll the canopy onto the roller tube. The canopy rolls under the roller tube. Ensure the fabric rolls evenly onto the roller tube.
16. Once the fabric is snugly rolled up, remove the rope used to secure the arms.
17. Restore power to the awning.
18. Extend and retract the awning several times to confirm the canopy is centered and rolls up correctly.
19. Install the fabric retainer screws in the lead rail.
20. It may be necessary to adjust the motor limits. Refer to page 1.

MOTOR REPLACEMENT

⚠️ WARNING TO AVOID SHOCK HAZARD AND/OR ACCIDENTAL SYSTEM SHORTING, ALWAYS DISCONNECT THE VEHICLE BATTERY AND ELECTRICAL SOURCES BEFORE WORKING WITH ELECTRICAL WIRING AND COMPONENTS.

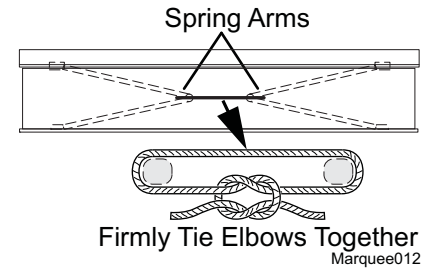
This procedure requires two people.

1. Disconnect power to the awning.

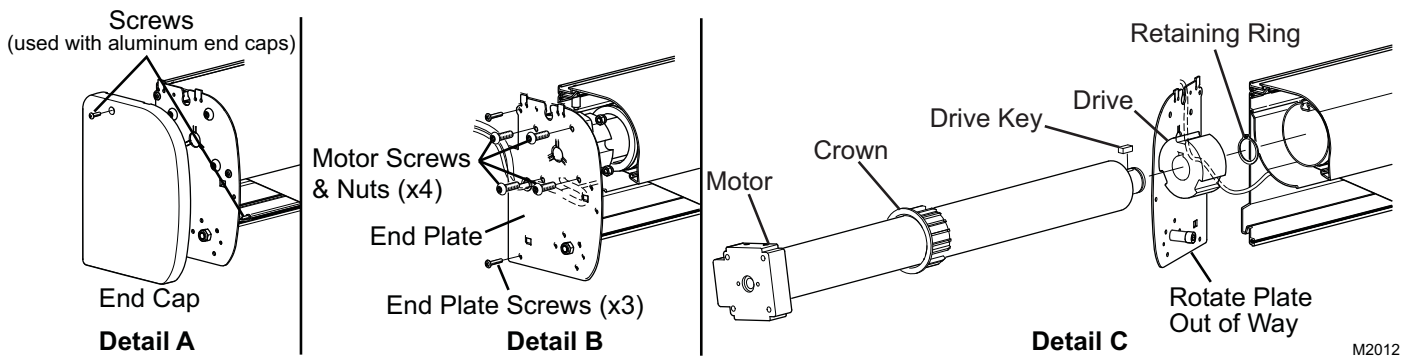
⚠️ CAUTION Failure to secure the arms as described will allow the spring arms to unexpectedly extend out possibly causing personal injury and damage to the awning.

2. Secure the awning arms.

- 2.1. Using the manual override (page 3), open the awning 18"-24".
- 2.2. Using a minimum 1/2" rope, firmly tie the elbows of the spring arms together, do not use bungee cords. When tying the rope, use a non-slip knot such as a square knot or equivalent.
- 2.3. Use the manual override to partially unroll the canopy to provide slack in the fabric.



3. Disconnect the motor wires at the junction box or control box and pull out.



4. (Detail A) Remove the outer end cap.

- 4.1. For machined aluminum end caps, remove the two screws. There is one on the outside and one on the inside.
- 4.2. For molded end caps, snap the bottom out and lift up. No screws are used with the molded end cap.

5. (refer to Detail B) Remove the attaching screws for the end plate then carefully pull the end plate and motor partially out from the awning case.

⚠️ CAUTION When pulling the motor, do not let the roller tube come out more than 1"; otherwise the idler will disengage from the opposite end plate. If this occurs, reinsert the idler into the endplate before continuing

⚠️ CAUTION When pulling the motor out of the case, the servicing technician must use care to not break or damage the sensor and LED cables.

NOTE: When pulling the motor, it will be necessary to firmly support the roller tube to keep it from coming out of the case. Do not let the roller tube come out more than 1"; otherwise the roller tube idler will disengage from the opposite end plate. If this occurs, reinsert the idler into the endplate before continuing.

6. Remove the attaching screws and nuts holding the motor to the end plate. Make note of the motor orientation on the end plate.
7. Rotate the end plate out of the way then remove the motor with the crown and drive.
8. (Detail C) Assemble the new motor:

Note: The new and old motor components are not interchangeable.

- 8.1. Slide the new crown onto the motor.

- 8.2. Place the drive key into the slot of the motor shaft and slide the new drive onto the motor shaft and over the drive key.
- 8.3. Secure the drive using the supplied retaining ring.
9. Partially insert the new motor with the crown and drive into the roller tube. Ensure that the motor drive gear and crown are properly seated inside the roller tube.
10. Attach the end plate to the motor the using the new screws and nuts provided. Make sure to match the orientation from the old motor.
11. Route the new motor cable through the end plate.
12. Press the motor and end plate into the roller tube and attach the end plate to the housing using the screws removed previously.
13. Route the new motor wire into the vehicle and attach at the junction box or control box (refer to wiring diagrams on page 18 for the appropriate control system). **All wiring must conform to NEC (National Electrical Code) and local codes.**
14. Use the manual override to roll the canopy onto the roller tube.
15. Once the fabric is taut, remove the rope used to secure the arms.
16. To test, restore power then extend and retract the awning.
17. It will be necessary to adjust the motor limits. Refer to page 1.
18. Install the end cap.

ARM REPLACEMENT

⚠ CAUTION The spring arm is under tension to open. Use extreme care to firmly hold the spring arms during assembly and disassembly to avoid any sudden or unexpected movement by the arm. Serious personal injury and/or property damage could occur.

It is recommended that the following procedure is done with two people.

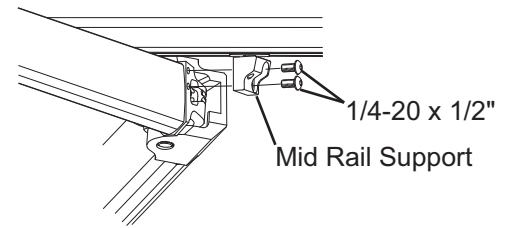
1. Open the awning to the maximum extension or as wide as possible. This is to minimize the spring tension in the arms during this procedure.
2. Disconnect power to the awning.
3. If replacing an outer arm it will necessary to firmly support the lead rail and middle rail during disassembly and assembly.
4. For arms with the sensor cable mounted, carefully remove the sensor cable from the wire channel on top of the arm. Use care to not bend, break or compromise the cable.
5. (Detail A) At the middle rail remove the two (2) 1/4-20 screws that attach the rail support to the arm. Do not discard screws.
6. (Detail B) At the lead rail, remove the M12-1.25 lock washer and nut from the arm and lead rail connector.
7. Slightly loosen the 6mm adjustment screw. DO NOT loosen the outer set screw.
8. Firmly grasp the spring arm and slide the lead rail arm knuckle out of the lead rail connector. Allow the arm to extend to its maximum length outside the lead rail. Have a second person hold or otherwise support the unattached end.
9. (Detail C) Inside the case, remove the M12-1.25 x 25 bolt and washer from the side of the arm support. Remove the M12-1.25 x 40 bolt, washer and saddle from the front of the support.
10. Slightly loosen the 6mm locking screw.
11. Firmly grasp the spring arm and slide the case arm knuckle out of the arm support. Set the arm aside.
12. (Details D & E) Remove the set screws, rotation pins and knuckles from the old arm.
13. Attach the knuckles to the new arm as shown. Make sure that the orientation is the same as the old arm.

If replacing the lead rail connector or case arm support, go to page 9 then return to step 14.

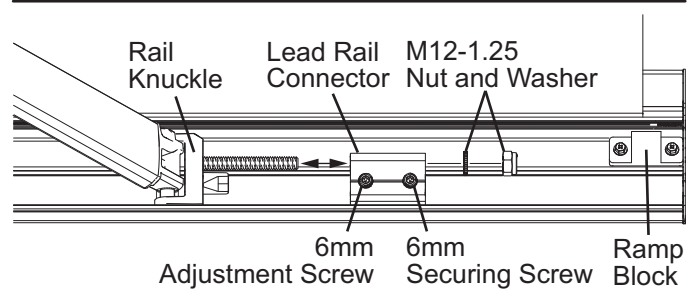
14. Using two people firmly hold the new arm assembly and remove the shipping ties. Allow the arm to slowly open to its maximum extension.

⚠ CAUTION The arm can open with significant force. Use care when opening the arm.

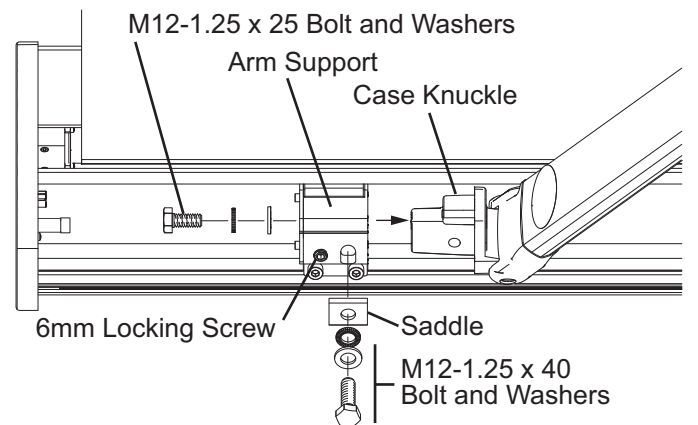
Tip: Use a floor or ground cover and place one knuckle and arm half on the ground. Have one person firmly hold the arm half on the ground while the second person carefully opens the other arm half.



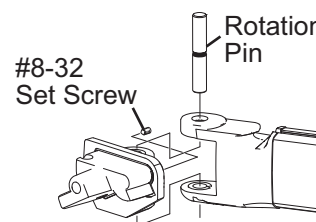
Detail A (Mid Rail)



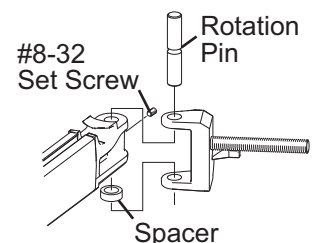
Detail B (Lead Rail)



Detail C (Case)



Detail D
(Case Knuckle)



Detail E
(Lead Rail Knuckle) M2011

15. Lift the arm assembly into position.
16. *(Detail C)* Slide the case arm knuckle into the support inside the case and secure with 1 each M12-1.25 x 25 bolt and washer and 1 each M12-1.25 x 40 bolt, washer and saddle. Do not tighten at this time.
17. *(Detail B)* Insert the lead rail arm knuckle into the lead rail connector and secure with 1 each M12-1.25 bolt, washer and nut. Do not tighten at this time.
18. *(Detail A)* Reattach the arm to the mid rail support using the two (2) 1/4-20 screws removed previously.
19. *If the sensor cable is routed on the replacement arm:* Route the cable through the wire channel in the arm. At the arm joints, arch the cable slightly to avoid binding. Do not twist the cable.
20. Adjust the arm pitch as required. Follow the procedure for pitch adjustment on page 1.

Replacing the Lead Rail Connector:

1. Remove the lead rail end plate and ramp block.
2. Carefully mark the location of the existing connector.
3. Loosen the 6mm securing screw and slide the existing connector from the lead rail.
4. Insert the new connector assembly into the lead rail and position at the marks made previously.
5. Tighten the outer 6mm securing screw.
6. Attach the lead rail end plate.
7. Return to step 14 on the previous page.

Replacing the Case Arm Support

1. Carefully mark the location of the existing support.
2. Remove the end cap if installed.
3. Remove the end plate.
 - *For the idler side*, remove the end plate screws then slide the end plate off of the roll bar idler and set aside.
 - *For the motor side*, pull the motor and end plate out slightly and rotate out of way. Use care to not break, bend or damage the wires.
4. Loosen the clamping screws on the support and slide the old support out of the case.
5. Insert the new support assembly into the case and position at the marks made previously.
6. Tighten the clamping screws.
7. Reinstall the end plate. Ensure that the idler pin of the roll bar is properly seated
8. Reinstall the end caps.
9. Return to step 14 on the previous page.

DIAGNOSTICS

COMMON OPERATION ITEMS

The following items are operational items that may come up as questions during normal operation. These are also given in the operator's manual.

1. If the optional Carefree EL ignition lockout is installed the system will disable the extend function while the vehicle ignition key is in the ON position.
 - 1.1. Special order RTL ignition lockouts will fully retract the awning(s) and disable the extend function.
 - 1.2. Functions will return to normal operation when the ignition key is turned OFF.
 - 1.3. Coach manufacturers may install their own lockout design. Refer to the coach literature for AC power for accessories.
2. Direct Response Controls:
 - 2.1. When 110VAC power is removed from the system, the controller DOES NOT retain previous positioning information. When power is restored, positioning information is updated when the first function is initiated.
 - 2.2. The function LEDs (extend, retract and stop) perform a dual function. When the button is pressed, the LED illuminates. The LED stays illuminated during the selected operation and after the awning has fully extended or retracted. This provides an indicator of the awning position. When the stop button is pressed, the LED will illuminate and stay on until a function is pressed. If on, it indicates that the awning is partially extended/retracted.
 - 2.3. All function buttons are press ON/press OFF. The auto-functions will continue until the awning is fully extended/retracted or when the stop button is pressed.
3. Each awning has an independent motion sensor. During windy conditions, the awnings may not retract concurrently.
4. For multiple awning installations: Pressing multiple buttons at the same time may cause the awnings to appear to move erratically. If this occurs, press the stop button. Use the individual controls to set the awning(s) to the desired position.
5. When 110VAC power is removed from the system, the controller DOES NOT retain previous positioning information. When power is restored, positioning information is updated when the first function is initiated.

DIAGNOSTIC TESTS – DIRECT RESPONSE FOR SINGLE AWNING

Refer to the Wiring Diagrams in the next section for wire and cable connections.

TESTING THE SYSTEM – SINGLE AWNINGS

The function LEDs (extend, retract and stop) perform a dual function. When the button is pressed, the LED illuminates. The LED stays illuminated during the selected operation and after the awning has fully extended or retracted. This provides an indicator of the awning position. When the stop button is pressed, the LED will illuminate and stay on until a function is pressed. If on, it indicates that the awning is partially extended/retracted.

All function buttons are press ON/press OFF. The auto-functions will continue until the awning is fully extended/retracted or when the stop button is pressed.

1. While observing the control panel, have a second person initiate 110VAC power to the coach and awning system. The following should occur:
 - 1.1 The Auto-Retract and Wind Speed LEDs should illuminate briefly then extinguish.
 - 1.2 The Power ON/OFF and function/position LEDs will briefly illuminate.
 - 1.3 The system then goes to the default settings: The POWER “ON”, AUTO-RETRACT “ON” and MEDIUM Wind Speed LED will be on.

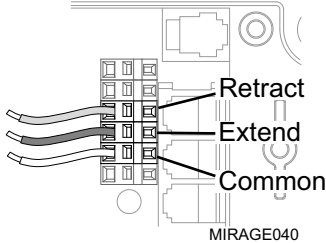
NOTE: The function/position LEDs (extend, stop and retract) will not be illuminated. During power up the controller does not retain position information. The controller is updated with the first function used.

2. Press the POWER “OFF”. ALL LEDs should extinguish. The POWER ON/OFF button disables all functions including Auto-Retract and the optional RF remote if installed. It does not disconnect the 110VAC power.
3. Press the POWER “ON”. Press the EXTEND button, the LED should illuminate while the awning extends and stay on after the awning auto-stops. Observe the awning, it should fully extend. The system performs an auto-tension action when the awning is fully extended. The awning rolls in reverse to tension the fabric. The auto-tension feature works only with the extend function when the awning is fully extended or the stop button is pushed while extending.
4. After the awning is fully extended, press the RETRACT button, the EXTEND LED should extinguish and the Retract LED should illuminate while the awning is retracting. Press the STOP button.
5. When the STOP button is pressed, the awning will stop, the RETRACT LED should extinguish and the STOP LED should illuminate.
6. Press the RETRACT button, allow the awning to retract fully, the Retract LED will illuminate and stay lit.
7. Press the AUTO-RETRACT OFF. The AUTO-RETRACT and WIND SPEED LEDs should go out.
8. Press the AUTO-RETRACT ON. Press each Wind Speed button and confirm that the LEDs illuminate.
9. Test the Auto-Retract function:
 - 9.1 Fully extend the awning.
 - 9.2 With the AUTO-RETRACT ON, set the WIND SPEED to the lowest setting.
 - 9.3 Create a firm but gentle rocking motion with the leading edge of the awning. The awning should retract after 2-3 seconds of the motion.
10. *If the optional Ignition Sensor is installed:*
 - 10.1 Partially retract the awning.
 - 10.2 Turn the ignition key ON.
 - 10.3 Press the EXTEND button. The LED should flash for 2 seconds then shut off and the previous function LED will come back on.

In the charts below, YES is a positive response to the test; NO is a negative response.

D01 THE AWNING DOES NOT OPERATE			
A	Confirm 110VAC power to control box.		
	1. Shut off power source. 2. Open control box. 3. On some early units a fuse is installed on the circuit board (if installed). Check that fuses on circuit boards are intact. 4. Check that 110VAC connections are correct and secure. Refer to correct system schematic.	YES	Power is present; go to test B
		NO	Check vehicle circuits and fuses. Repair as required and retest
B	Confirm awning motor is functioning		
1	1.1 With power off, disconnect motor wires and AC power in from switches (system #1) or control box. 1.2 Connect awning motor directly to 110VAC power source. Motor White to Neutral (White) of AC cord Motor Green to Ground (Green) of AC cord Motor Red & Black are Motor Direction Control – connect Red to AC Hot (Black). 1.3 While observing awning, briefly apply power. 1.4 Disconnect power and attach other motor direction control wire (Black) to AC Hot (Black). 1.5 While observing awning, briefly apply power. 1.6 Does awning move when power is applied? Note: If the awning runs but does not extend or retract completely, it may be necessary to adjust the motor limits (refer to page 1).	YES	Awning motor is good, control circuit is defective – test and repair Go to Step C
		NO	Go to step B-2
2	Test continuity and connections of motor wire between control box and junction box.	YES	Continuity is good, motor is defective – replace
		NO	Repair wire as required and retest

D01 Continued on next page

C	Test Touch Pad		
	1 Confirm 110VAC power to control box 1.1 Shut off power source. 1.2 Open control box. 1.3 On some early units a fuse is installed on the circuit board. Check that fuses on circuit boards are intact. 1.4 Check that 110VAC connections and splices to board is correct and secure. Refer to system schematic. 1.5 While observing the circuit boards, have power restored. The LEDs on the boards should blink red then green.	YES	Power is present; go to test B
		NO	Check vehicle circuits and fuses. Repair as required and retest
	2 Press the "Power On" button on the touch-pad. The "Power On" LED should illuminate.	YES	Power is on, go to step D-4
		NO	LED does not illuminate, go to step D-3
	3 Check the cable between the switch and control box. As a continuity check, Pin 1 of connector 1 goes to Pin 1 of connector 2; pin 2 goes to pin 2; pin 3 goes to pin 3 and pin 4 goes to pin 4.	YES	Continuity OK; go to step D-4
		NO	Replace cable and retest
	4 Check the function of the Touch pad 4.1 On the control board, locate the terminal strip next to the phone cord connectors. 4.2 Insert 3 wires into the terminals shown below 4.3 While observing the awning, short the wire ends between the Common and Extend terminals. Does the awning move? 4.4 Short the wire ends between the Common and Retract terminals. Does the awning move?	YES	Control Board is good, Touch pad is defective - replace
		NO	Control Board is defective – replace control box.
			

D02 THE AWNING OPERATES DIFFERENTLY THAN THE SWITCH MARKINGS			
<i>This condition generally occurs during new installations or when major components have been replaced.</i>			
A	Does Awning operate in reverse of the switch plate labeling (i.e. extends when retract is pushed)?	YES	Motor wires from awning are reversed - locate motor wires in the control box, reverse the red and black wires.

D03 AWNING DOES NOT AUTO-RETRACT IN WIND			
A	Press the power on button then press the auto-retract button. Does the auto-retract LED flash?	YES	The flashing LED indicates that the sensor has been disengaged or otherwise disabled. Go to step C.
		NO	Function does not work with switch; go to procedure D01
B	Confirm that the retract function works using the push buttons.	YES	Function works using the switch; go to test C
		NO	Function does not work with switch; go to procedure D01
C	Test Motion Sensor		
	1 Confirm cable is plugged into connector on box marked "Shaker"	YES	Go to step 2
		NO	Correct as required and test.
	2 2.1 Unplug sensor from control box. 2.2 Connect a second sensor into control box. 2.3 Set the control switches for the auto retract function 2.4 Hold the second sensor horizontally and gently move up and down.	YES	Awning retracts; original sensor defective - replace
NO		Awning does not retract; control box defective - replace	

DIAGNOSTIC TESTS – DIRECT RESPONSE FOR MULTIPLE AWNINGS

Refer to the Wiring Diagrams in the next section for wire and cable connections.

TESTING THE SYSTEM – MULTIPLE AWNINGS

All function buttons are press ON. The auto-functions continue until the awning is fully extended or retracted. Pressing the button a second time will stop the function. It is not necessary to hold the button while the function is active.

1. While observing the control panel, have a second person initiate 110VAC power to the coach and awning system. The following should occur:
 - 1.1 The Power ON/OFF and Wind Speed LEDs will briefly illuminate.
 - 1.2 The system then goes to the default settings: The POWER “ON”, AUTO-RETRACT “ON” and MEDIUM Wind Speed LED will be on.

NOTE: If the awnings operate from the touch pad but no LEDs are illuminated, check that the jumper cable between the controllers is plugged into AUX (motor #1) and ACC (motor #2).

2. Press the POWER “OFF”. ALL LEDs should be extinguished. The POWER ON/OFF button disables all functions including Auto-Retract and the optional RF remote. It does not disconnect the 110VAC power.
3. Check the extend function.
 - 3.1 Press the POWER “ON”.
 - 3.2 Press the Awning #1 EXTEND button. The awning should extend.
 - 3.3 Press the extend button again. The awning should stop
 - 3.4 Press the extend button a third time. Observe the awning, it should fully extend. The system performs an auto-tension action when the awning is fully extended. The awning rolls in reverse to tension the fabric. The auto-tension feature works only with the extend function when the awning is fully extended.
4. Check the retract function.
 - 4.1 Press the Awning #1 RETRACT button. The awning should retract.
 - 4.2 Press the retract button again. The awning should stop
 - 4.3 Press the retract button a third time. Observe the awning; it should fully retract to the closed position.

NOTE: If the awning moves in the opposite direction than the label, the red and black MOTOR wires are reversed in the control box.

5. Repeat steps 3 and 4 for each of the Extend/Retract button combinations.

NOTE: The Extend All and Retract All buttons should extend/retract all awnings.

6. Test the Auto-Retract function:
 - 6.1 Fully extend awning #1.
 - 6.2 Set the WIND SPEED to the lowest setting.
 - 6.3 Create a firm but gentle vertical rocking motion with the leading edge of the awning. The awning should retract after 2-3 seconds of the motion.
7. Repeat step 6 for each of the awnings.
8. *If the optional Ignition Sensor is installed:*
 - 8.1 Partially retract the awning.
 - 8.2 Turn the vehicle ignition key ON.
 - 8.3 Press the EXTEND button. The awning(s) should not extend.

In the charts below, YES is a positive response to the test; NO is a negative response.

D04 THE AWNING(S) OPERATE DIFFERENT THAN THE SWITCH MARKINGS			
<i>The power switch at the touch pad must be on; the LED will be illuminated if power is present.</i>			
A	Does a different awning move when pressing the controls are pressed (i.e. Awning #2 moves when Awning #1 is pressed)? Board marked "Motor 1" corresponds with touch pad "Awning 1" etc.	YES	Awning #Y moves when Awning #X buttons are pressed. - Awning motor wires from Awning #X and Awning #Y are reversed. Remove motor wires from control boards, reattach motor #X wires to motor #X control board; motor #Y wires to motor #Y control board.
		NO	Go to test B
B	Does the awning operate in reverse of the switch plate labeling (i.e. extends when retract is pushed)	YES	Motor wires from affected awning are reversed in control box. - Open control box and locate motor wires from affected awning. Reverse the red and black wires. NOTE: <u>For LH motor configurations:</u> RED WIRE goes to terminal RED (1); BLACK WIRE goes to terminal BLACK (1). <u>For RH motor configurations:</u> BLACK WIRE goes to terminal RED (1); RED WIRE goes to terminal BLACK (1).
		NO	Reanalyze condition

D05 THE AWNINGS DO NOT OPERATE (ALL)			
<i>For one awning that does not operate, refer to D03</i>			
A	Confirm 110VAC power to control box 5. Shut off power source. 6. Open control box. 7. On some early units a fuse is installed on the circuit board. Check that fuses on circuit boards are intact. 8. Check that 110VAC connections and splices to both boards are correct and secure. Refer to system schematic. 9. While observing the circuit boards, have power restored. The LEDs on the boards should blink red then green.	YES	Power is present; go to test B
		NO	Check vehicle circuits and fuses. Repair as required and retest
B	Confirm that touch-pad operating.		
1	Press the "Power On" button on the touch-pad. The "Power On" LED should illuminate.	YES	Power is on, go to step B-4
		NO	LED does not illuminate, go to step B-2
2	At bridge, disconnect cable then observe LED while plugging cable into "BUS" of bridge. LED should flash red then green.	YES	Power is present, go to step B-4
		NO	Go to step B-3
3	Check the cable between the bridge and control box. As a continuity check, Pin 1 of connector 1 goes to Pin 1 of connector 2; pin 2 goes to pin 2; pin 3 goes to pin 3 and pin 4 goes to pin 4.	YES	Continuity OK; go to step B-4
		NO	Replace cable and retest
4	4.1 Disconnect jumper cable between controller boards. 4.2 Disconnect touch-pad from "ACC" of controller #1 and connect to "ACC" of controller #2. 4.3 Does Awning #2 operate when pressing a command button on the touch pad?	YES	Awning operates, Controller #1 is defective – Replace control box.
		NO	Awning does not respond, touch-pad/bridge is defective - replace

D06 ONE AWNING DOES NOT OPERATE

NOTE: The awnings are programmed sequentially (i.e. #1, #2, #3, #4). If power is missing from an awning, the subsequent awnings will not function (i.e. #1 and #2 works, #3 and #4 don't) and the touch-pad LEDs do not illuminate. Check the power to the first non functioning control board in sequence (i.e. #3) and correct as necessary before proceeding.

A	<ol style="list-style-type: none"> Shut off power source if not already done. Open control boxes and disconnect the non-working awning motor wires and a working awning's motor wires. Connect the non-operating awning to the functioning control board (i.e. awning #2 to control board #1). Restore power Test the operation of the awning using the controls for the functioning awning (in the example above #1 awning). 	YES	Awning functions, control board of non-working awning is defective – replace control box.
		NO	Return wires to original configuration. Go to step B
B	Confirm awning motor is functioning		
	<ol style="list-style-type: none"> <ol style="list-style-type: none"> With power off, connect awning motor directly to 110VAC power source. White = Hot Green = Ground Red & Black are Motor Direction Control – connect one Briefly apply power. Does awning move when power is applied? Test continuity and connections of motor wire between control box and awning motor. 	YES	Awning motor is good, control box is defective - replace
		NO	Go to step B-2
		YES	Continuity is good, motor is defective – replace
		NO	Repair as required and retest

D07 AWNING(S) DO NOT RETRACT DURING WINDY CONDITIONS

The Direct Response auto-retract system operates by gauging the motion of the awning's leading edge, not by the direct wind speed. Refer to the description in the operations section of the manual.

NOTE: The awnings have independent sensors and may not retract concurrently.

A	Press the power on button then press the auto-retract button. Do the auto-retract LED flash?	YES	The flashing LED indicate that the sensor(s) have been disengaged or other wise disabled. Go to step C
		NO	Go to test B
B	Confirm standard awning operation. From the touch-pad, operate the awnings.	YES	Operation is normal, Go to step C
		NO	Refer to the appropriate test D02 or D03
C	<ol style="list-style-type: none"> Check function of shaker sensor Open the affected awning (does not have to be open all the way). Open the second awning. Open control box and disconnect sensor from controller board of awning that does not auto-retract. If cable has been spliced between sensor and control box, check continuity of splice. Repair as required and retest before proceeding. Disconnect the sensor from the other controller and plug the cable into the "SHAKE" terminal of the affected awning controller. At touch-pad, turn power ON and auto-retract ON. Set auto-retract to the lowest setting. At the unaffected awning, create a firm but gentle rocking motion with the leading edge of the awning for about 3-4 seconds. 	YES	The affected awning retracts. Original sensor is defective replace. Return second shaker to the unaffected awning controller.
		NO	Awning does not retract, control box is defective – replace

NOTE: The touch pad LEDs will continue to flash after connecting good sensors. It is necessary to power off the system then turn it back on so that the touch-pad recognizes the sensors are connected

D08 AWNING DOES NOT MOVE WHEN REMOTE CONTROL BUTTONS ARE PUSHED			
	1. Confirm power is ON at the touch-pad	--	Correct as required
	2. Confirm batteries in remote are good. Pressing any button on the remote will illuminate the LED at the top of the remote.		Replace as needed
	3. Check the cable between the Receiver and control box. As a continuity check, Pin 1 of connector 1 goes to Pin 1 of connector 2; pin 2 goes to pin 2; pin 3 goes to pin 3 and pin 4 goes to pin 4. Cable must be plugged into the "BUS" port of controller #1.	YES	Cable is OK. Confirm that cable is securely plugged in; go to step 4
		NO	Repair or Replace cable as required.
	4. Confirm that the Receiver is programmed for the Remote	--	Refer to "Programming the Receiver" on page 4 and retest. If system does not work; go to step 5
	5. Program a second remote and test	YES	2 nd remote works. 1 st remote is defective.
		NO	2 nd remote does not work; go to step 6
	6. Replace the Receiver and test. (it will be necessary to program receiver for remote)	YES	System works OK. 1 st receiver is defective
		NO	System does not work. Reinstall 1 st receiver; go to step 7
	7. Replace control box	--	

ELECTRONICS

⚠ WARNING TO AVOID SHOCK HAZARD AND/OR ACCIDENTAL SYSTEM SHORTING, ALWAYS DISCONNECT THE VEHICLE BATTERY AND ELECTRICAL SOURCES BEFORE WORKING WITH ELECTRICAL WIRING AND COMPONENTS.

IMPORTANT NOTICES:

- Failure to follow the wiring instructions in this publication may void the warranty.
- All wiring must conform to NEC (National Electrical Code) and local codes.
- Do NOT wire two or more motors to one motor controller.
- The SO cable from the 110VAC awning motor can only pass directly through a wall, it cannot be laid up in the wall and must be connected to NM wire or individual wires in conduit no more than 6 inches past the point of entry.
- The installer must provide enclosed junction boxes for all 110VAC wire splices. Boxes are required in conformance with prevailing construction codes. Installers are required to furnish the UL approved electrical boxes where required.
- At the control box location, AC input is required. It is recommended that the installer provide a dedicated AC circuit for the awning system that is protected by an appropriate sized fuse/circuit breaker. Each patio awning draws a maximum of 3 amps.
- The motion sensor for the *Direct Response* system is mounted on the patio awning. 10 feet cable is available from the awning wall mount, and will require a routing path to the control box. If the control box is located at a distance greater than 10 feet, the installer must provide a terminated jumper cable from the box location to the cable end.
- Terminated cable is a 4-wire RJ11 terminated phone cord (straight, no twist).

The 110V electronic control system provides the user with simple pushbutton controls for the awnings installed. Three configurations are available:

1) Direct Response for Single Awning Installations.

- System includes: Control box (single control board), Master control panel (w/ pushbutton awning control and windspeed sensitivity settings), motion sensor; and, an RF remote control.
- An optional ignition lockout is available.

2) Direct Response for Dual Awning Installations.

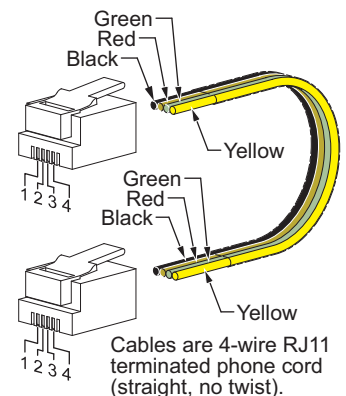
- System includes: Control box (2 control boards), Master control panel (w/ touchpad awning control and windspeed sensitivity settings), motion sensors; and, an RF remote control i.
- An optional ignition lockout is available.

3) Direct Response for Dual Awning Installations.

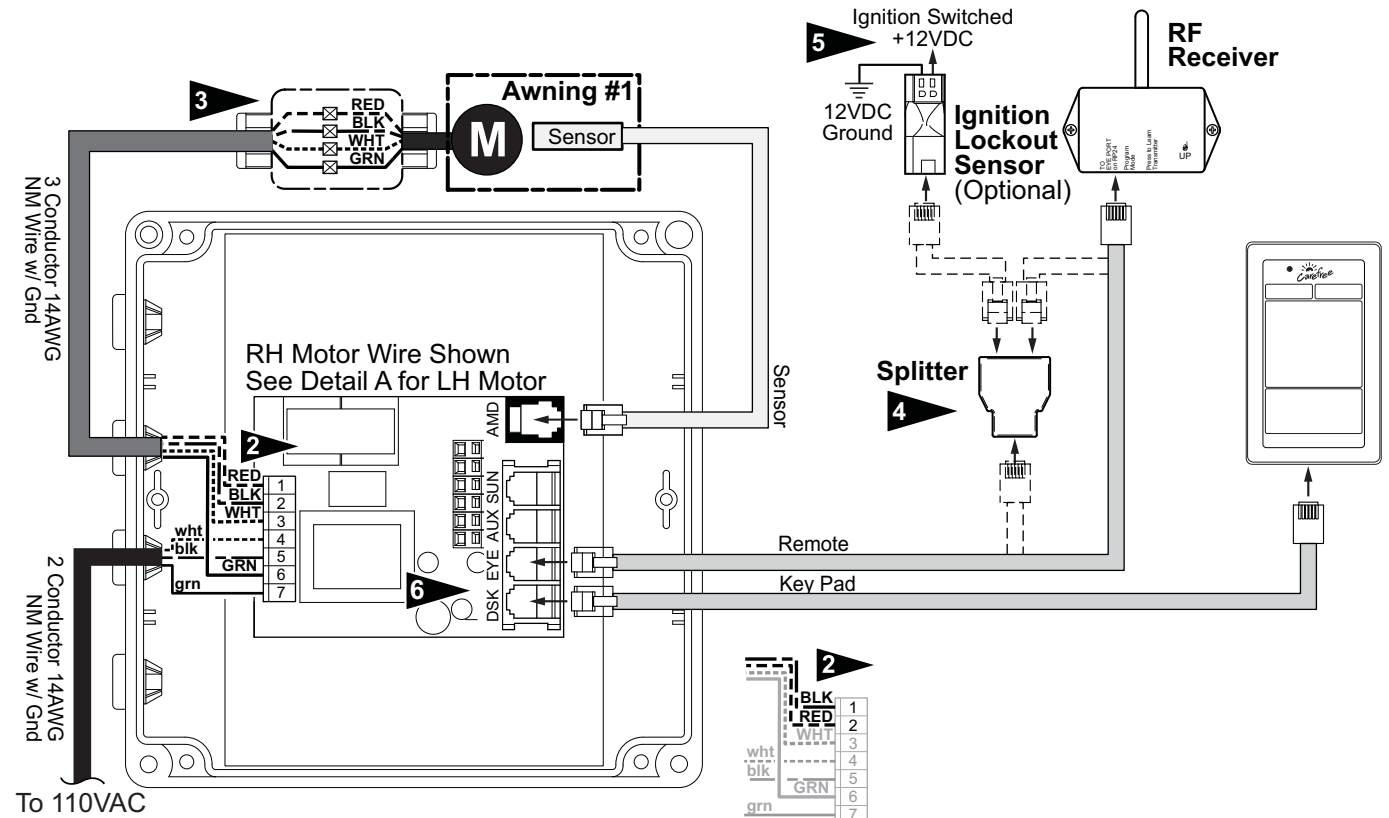
- System includes: 2-Control box (2 control boards each), Master control panel (w/ touchpad awning control and windspeed sensitivity settings), motion sensors; and, an RF remote control i.
- An optional ignition lockout is available.

The switches use a 5VDC signal to operate the control box; thus eliminating the need for a junction box for the control panel.

Electronic components are connected using terminated cables. Terminated cable is 4-wire RJ11 terminated phone cord (straight, no twist). This does not include 110VAC power in or awning motor power.

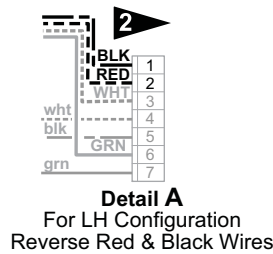


WIRING DIAGRAM – SINGLE AWNING



NOTES:

- 1 Wire Legend:
 - Red
 - · - · - · Black
 - White
 - Green (Ground)
- 2 For RH Motor Configurations: Motor Red goes to Pin (1); Motor Black goes to Pin (2)
 For LH Motor Configurations: Motor Red goes to Pin (2) Black; Motor Black goes to pin (1)
- 3 The SO cable from the 110VAC awning motor can only pass through a wall, it cannot be laid up in the wall and must be connected to NM wire or individual wires in conduit no more than 6 inches past the point of entry.
- 4 Splitter is used only when Optional Lock-Out Sensor is installed. Connect RF Receiver directly to "EYE" if Lock-Out is not installed.
- 5 Wires for the Ignition Lock-Out Sensor are not pin specific.

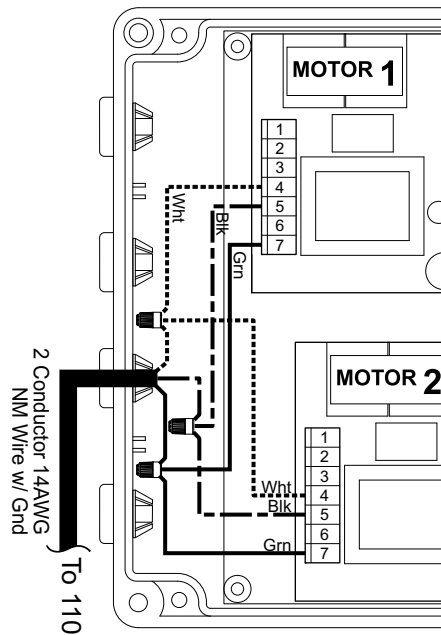
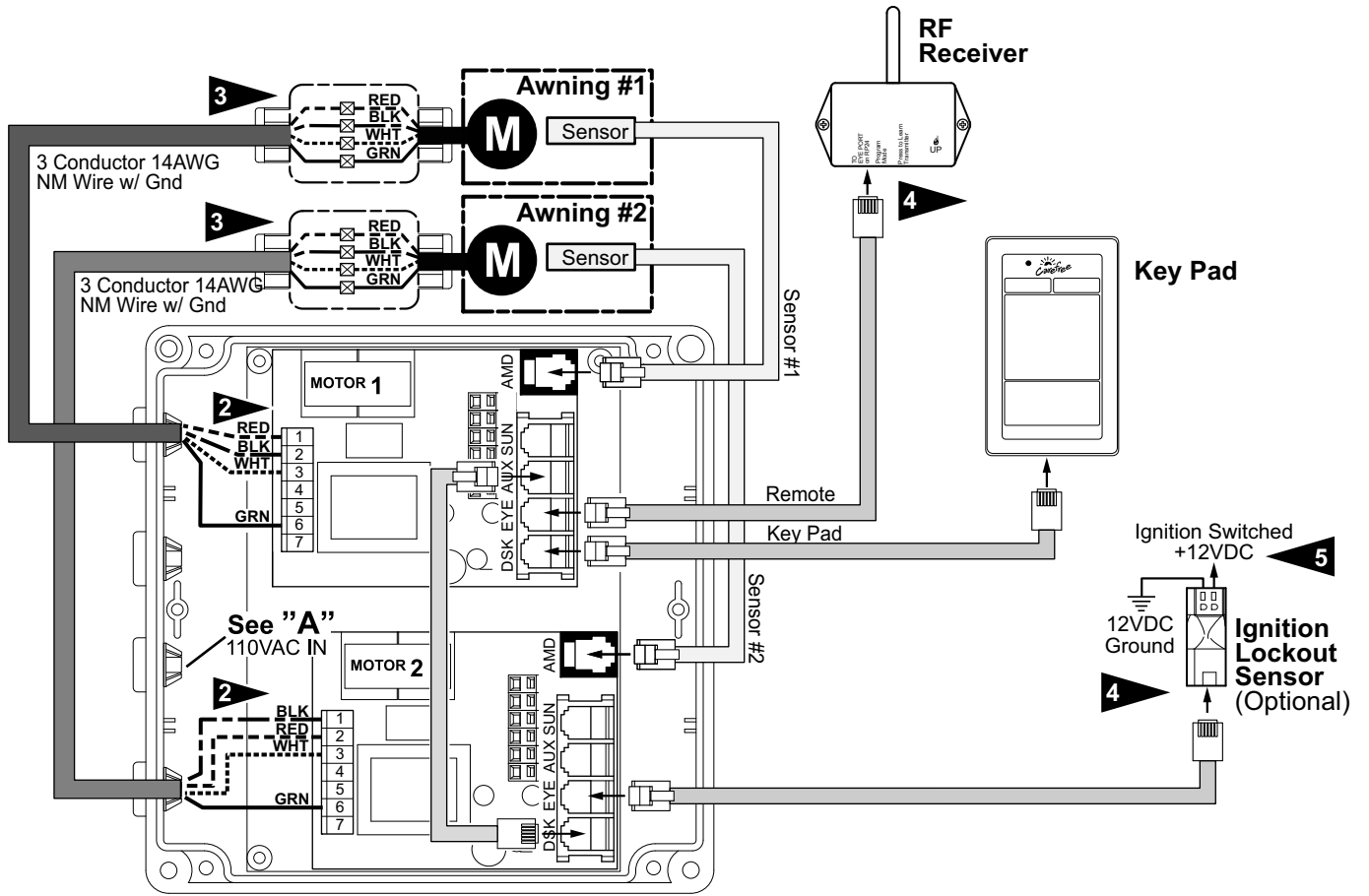


DR012a

FROM		To (RH CONFIGURATION)		To (LH CONFIGURATION)	
Motor	Black	Control Box	1	Control Box	2
	Red		2		1
	White		3		3
	Ground		6		6
AC Power Source	White	Control Box	4	Control Box	4
	Black		5		5
	Ground		7		7
Awning Sensor	10' Cable	Control Box	"AMD"	Control Box	"AMD"
Key Pad	60" Cable	Control Box	"DSK"	Control Box	"DSK"
Splitter	60" Cable	Control Box	"EYE"	Control Box	"EYE"
RF Receiver	60" Cable	Splitter		Splitter	
Ignition Lockout	60" Cable	Splitter		Splitter	






Notes: 1. Cable lengths are the lengths of the furnished cables. If a connection requires a length greater than the supplied cable, the installer must provide a terminated jumper cable from the box location to the cable end.

WIRING DIAGRAM - 2-AWNINGS



DETAIL A
110VAC Power Line In

NOTES:

- 1  Wire Legend
-  Red
 -  Black
 -  White
 -  Green (Ground)


- 2  Awning #1 shown as LH Motor, Awning #2 shown as RH Motor


For LH Motor Configurations:


Motor Red goes to Pin (1); Motor Black goes to Pin (2)


For RH Motor Configurations:


Motor Red goes to Pin (2); Motor Black goes to Pin (1)

- 3  The SO cable from the 110VAC awning motor can only pass directly through a wall; it cannot be laid up in the wall and must be connected to NM wire or individual wires in conduit no more than 6" past the point of entry.

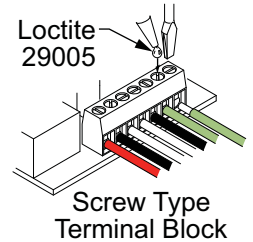
- 4  The RF Receiver and the optional Ignition Lockout may be plugged into any open "EYE" port.

- 5  Wires for Ignition Lock-Out Sensor are not pin specific.

- 6  For screw type terminals: After testing connections, use Loctite 29005 or equivalent to secure screws in terminal block

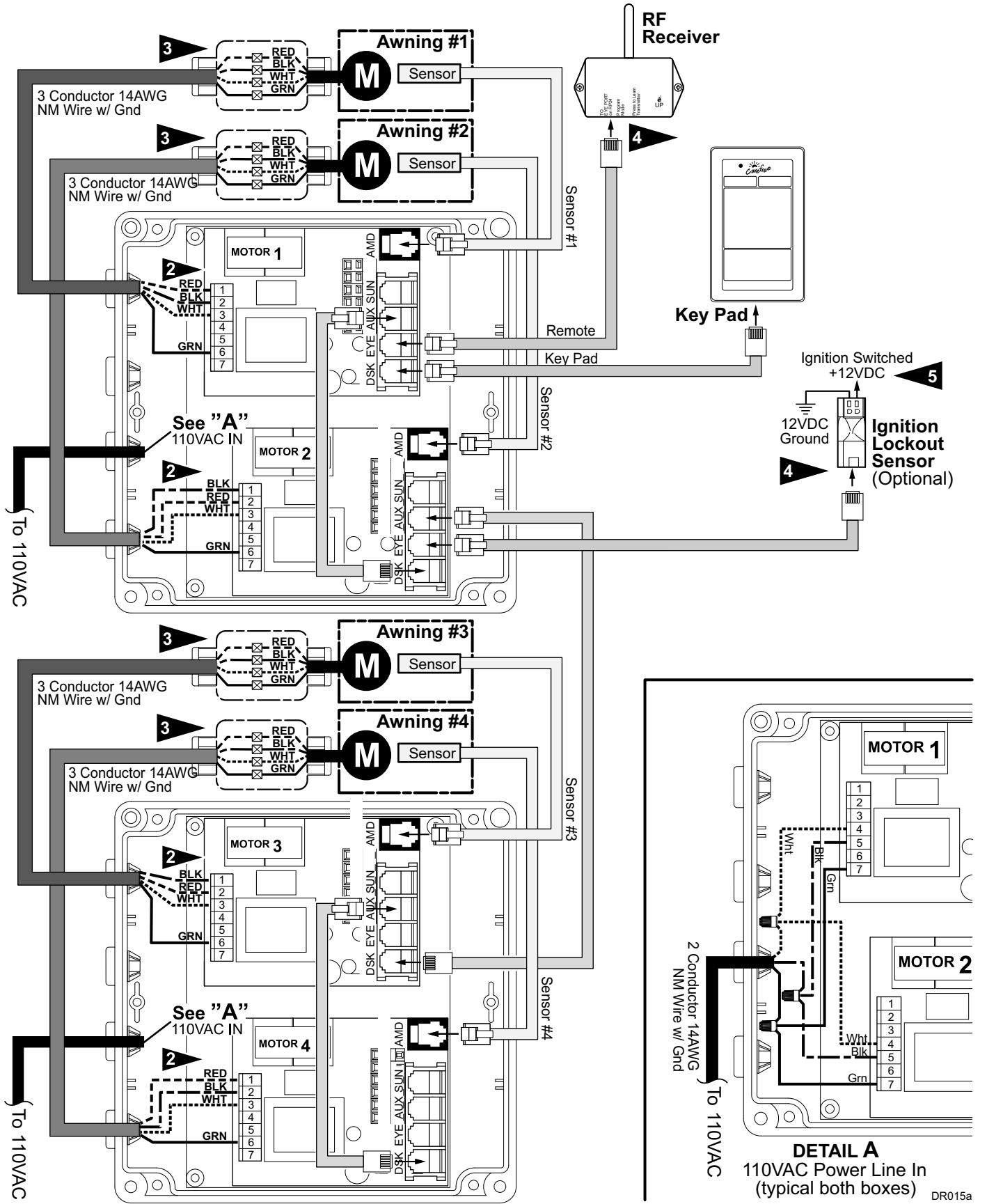
- 7  Cables are 4-wire RJ11 terminated phone cord (straight, no twist).

- 8  Terminal block designations are for reference only. Actual boards may not be marked.

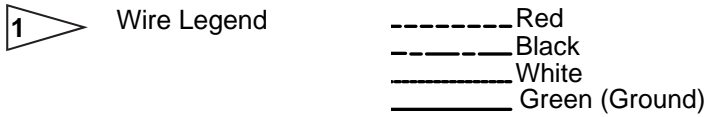


FROM		TO CONTROL BOARD		
		MOTOR #1	MOTOR #2	
AC Power Source	White	4	4	
	Black	5	5	
	Ground	7	7	
Awning #1 Motor	Black	Refer to Flag Note 2		
	Red			
	White			3
	Ground			6
Awning #2 Motor	Black		Refer to Flag Note 2	
	Red			
	White			3
	Ground			6
#1 Sensor	10' Cable	"AMD"		
#2 Sensor	10' Cable		"AMD"	
Key Pad	25' Cable	"DSK"		
RF Receiver	60" Cable	"EYE" see note 4		
Ignition Lockout	60" Cable	"EYE" see note 4		

WIRING DIAGRAM - 4 AWNINGS



NOTES:

- 1  Wire Legend
- Red
 - - - - - Black
 - _____ White
 - _____ Green (Ground)


2  Awnings #1 & #4 shown as LH Motor, Awnings #2 & #3 shown as RH Motor


For LH Motor Configurations:


Motor Red goes to Pin (1); Motor Black goes to Pin (2)


For RH Motor Configurations:

Motor Red goes to Pin (2); Motor Black goes to Pin (1)

3  The SO cable from the 110VAC awning motor can only pass directly through a wall; it cannot be laid up in the wall and must be connected to NM wire or individual wires in conduit no more than 6" past the point of entry.

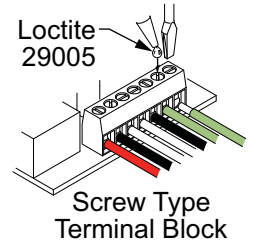
4  The RF Receiver and the optional Ignition Lockout may be plugged into any open "EYE" port.

5  Wires for Ignition Lock-Out Sensor are not pin specific.

6  For screw type terminals: After testing connections, use Loctite 29005 or equivalent to secure screws in terminal block

7  Cables are 4-wire RJ11 terminated phone cord (straight, no twist).

8  Terminal block designations are for reference only. Actual boards may not be marked.



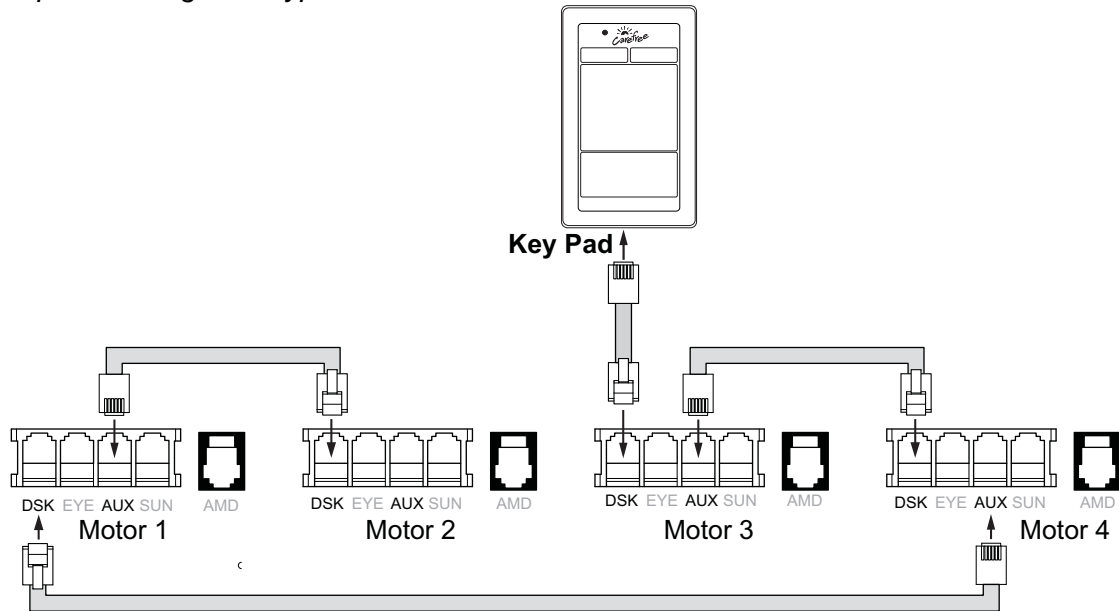
FROM		TO CONTROL BOARD				
		MOTOR #1	MOTOR #2	MOTOR #3	MOTOR #4	
AC Power Source	White	4	4	4	4	
	Black	5	5	5	5	
	Ground	7	7	7	7	
Awning #1 Motor	Black	Refer to Flag Note 2				
	Red					
	White					3
	Ground					6
Awning #2 Motor	Black		Refer to Flag Note 2			
	Red					
	White					3
	Ground					6
Awning #3 Motor	Black			Refer to Flag Note 2		
	Red					
	White					3
	Ground					6
Awning #4 Motor	Black				Refer to Flag Note 2	
	Red					
	White					3
	Ground					6
#1 Sensor	10' Cable	"AMD"				
#2 Sensor	10' Cable		"AMD"			
#3 Sensor	10' Cable			"AMD"		
#4 Sensor	10' Cable				"AMD"	
Key Pad	25' Cable	"DSK"				
RF Receiver	60" Cable	"EYE" see note 4				
Ignition Lockout	60" Cable	"EYE" see note 4				

CONNECTION FLEX W/ "110VDR" CONTROL BOXES

The wiring diagrams show the standard installation for multiple awning configurations. For control boxes marked w/ "110VDR", the installer may adjust the cable interconnections for greater flexibility during installation.

1. The key pad may be installed in the unused DSK port of any board with the jumper cables sequentially connected from the AUX port to the DSK port of the next board.

Example: Placing the keypad in the DSK of Board 3.



DR024

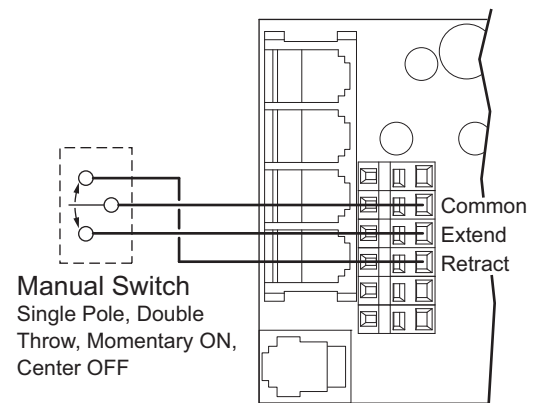
2. The RF Receiver and the optional ignition lock-out can be plugged into any unused "EYE" port. It is not necessary to use the splitter as shown in the diagrams.
3. The "110VDR" control boxes are compatible with integrator interfaces. Contact Carefree engineering for information and system requirements.

OPTIONAL MANUAL BYPASS SWITCH

Installers may elect to install a manual bypass switch for testing or emergency operation of the awning. The simple switch allows the operator to extend or retract the awning without using the keypad control panel. For multiple awning installations, a separate switch must be installed for each awning.

1. Open the control box and identify the terminal block next to the phone cord jacks.
2. Connect the switch to the terminal block as shown in the diagram.

The switch is a single pole, double throw, momentary ON, center OFF. Components are installer furnished.



DR011

SENSOR REPLACEMENT FOR DIRECT RESPONSE

NOTE: Sensors must be mounted vertically as shown and will not work properly if mounted horizontally.

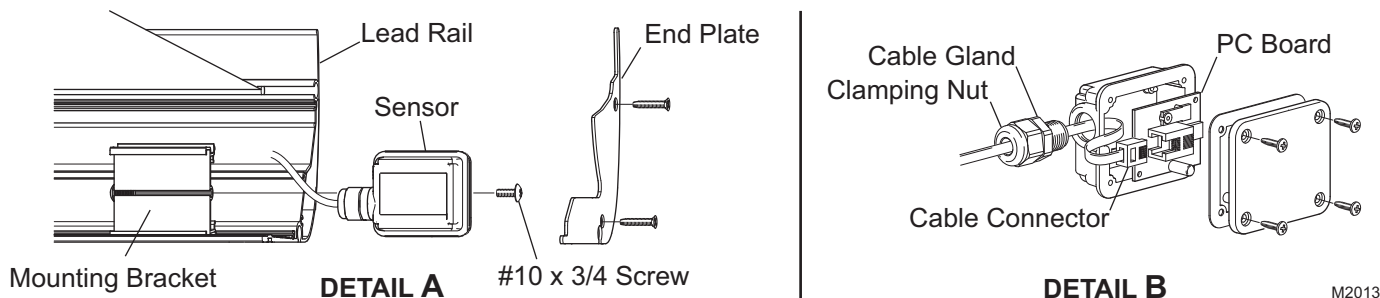


Figure 2. Replacing the Sensor.

The replacement sensor is furnished with a 25 foot cable. The cable is furnished in case the installed cable has been damaged or compromised.

⚠ CAUTION Do NOT attempt to cut and splice the cable. If damaged, the cable must be replaced to ensure system integrity.

REMOVING THE OLD SENSOR

1. Remove the lead rail endplate. Set parts aside to reuse.
2. Remove the #10 x 24 screw from the sensor bracket and slide the sensor assembly out of the bracket.
3. Test the cable integrity:
 - 3.1. After detaching the sensor from the lead rail, loosen the clamping nut on the wire gland.
 - 3.2. Unscrew the wire gland from the sensor case and slide down the wire and out of the way.
 - 3.3. Remove the back of the sensor case to reveal the PC board.
 - 3.4. Carefully remove the board from the case. In some instances, the board may be tacked with adhesive and must be pried out. Use care to not damage the cord or connector.
 - 3.5. Disconnect the cable from the board and slip the connector out of the sensor case.
 - 3.6. Test the continuity of the installed cable. Several cable testers are commercially available. If the cable is faulty, go to "Replacing a Sensor and Cable". If the cable is OK go "Installing a Sensor Only".

REPLACING A SENSOR AND CABLE

1. Remove the existing cable. Pay particular attention to the routing and attachment points of the existing cable.
2. Slide the new sensor into the vertical mounting bracket and secure with a #10 x 3/4 screw as shown.
3. Route the new cable and sensor to the control box. Arch the cable slightly at the arm joints to avoid binding.

INSTALLING A SENSOR ONLY:

1. On the new sensor, loosen the clamping nut on the wire gland.
2. Unscrew the wire gland from the sensor case and slide down the wire.
3. Remove the back of the sensor case to reveal the PC board.
4. Carefully remove the board from the case.
5. Disconnect the cable from the board and slip the connector out of the case.
6. Slide the connector of the installed cable into the new sensor case.
7. Attach the wire gland to the case. Do not tighten the clamping nut at this time.
8. Attach the cable to the new board.
9. Reassemble the new sensor.
10. Tighten the cable gland clamping nut.
11. Slide the new sensor into the vertical mounting bracket and secure with a #10 x 3/4 screw as shown.

OPTIONAL WHITE LED LIGHTING

Switch Installation

An optional factory installed LED light strip is available for the Mirage 2-Stage awning. The strip is mounted in the lead rail; the harness is routed through the awning with the Direct Response cable.

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. Route the harness into the vehicle with the Direct Response cable and the motor power cable.

2. Determine the location of the switch.

3. At the switch location, cut a 1 1/8" x 1 1/2" hole.

4. 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.

5. Install the in-line fuse:

5.1. Near the switch, cut the red 12VDC power line to the switch. Do not strip the insulation.

5.2. Insert a wire end into one of the wire channels until it butts up against the stop.

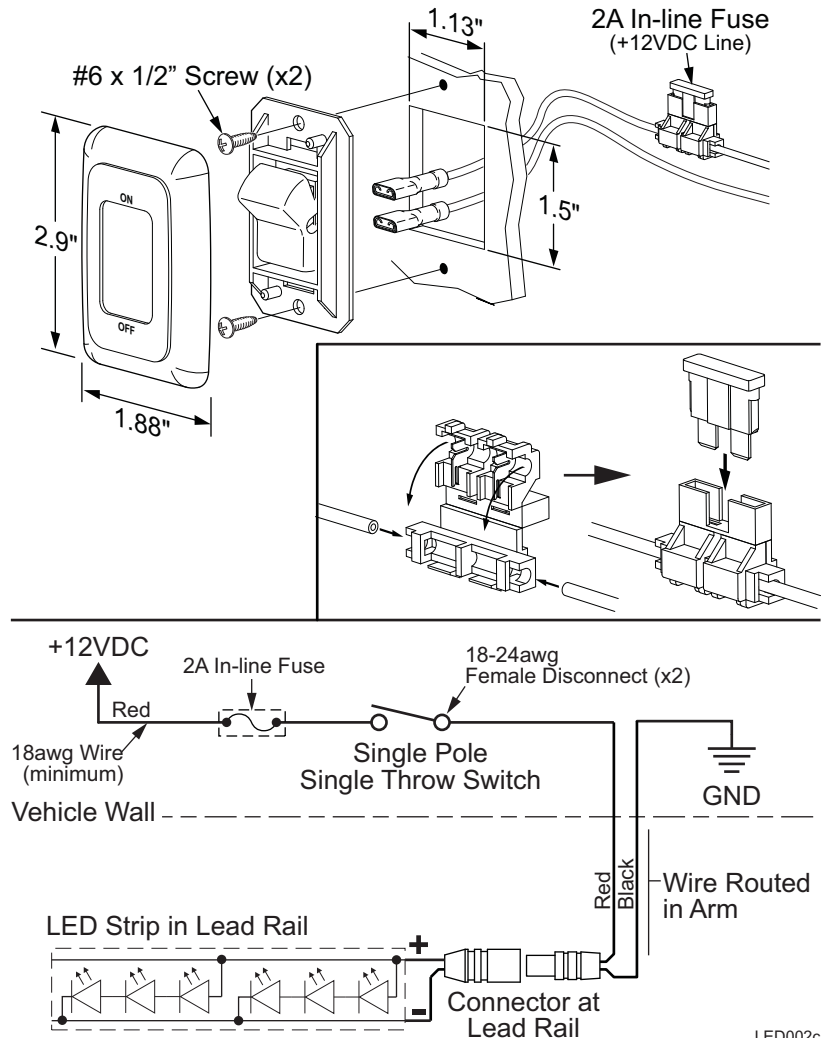
5.3. Fold that half of the connector body over until the element contacts the wire. Use pliers to crimp the connector closed.

5.4. Repeat for the second wire end.

5.5. Slide the fuse into the fuse port. Ensure that is firmly seated.

6. Press the in-line fuse, wires and switch into the mounting hole. Secure the switch using two (2) #6 x 1/2" screws.

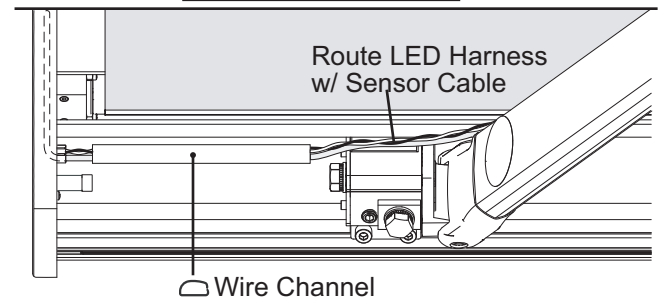
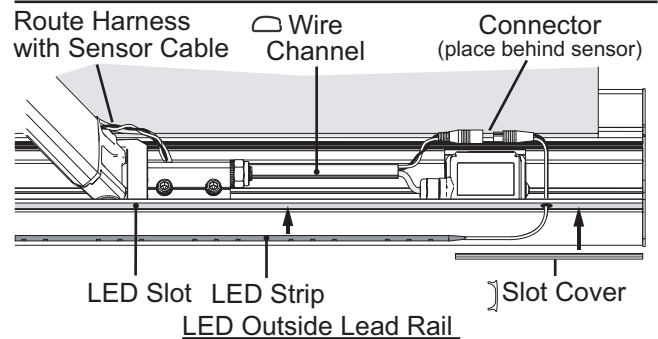
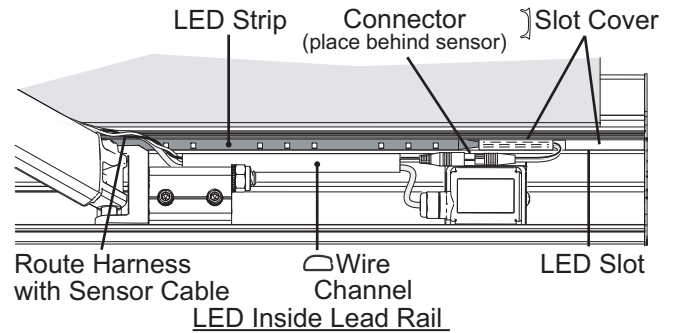
7. Snap the switch bezel over the switch frame.



LED002c

Replacing the LED Strip

1. Extend the awning out completely.
2. Disconnect power to the awning and the LED strip.
3. Use a non-permanent marker to mark the location of the ends of the LED strip.
4. Remove the slot covers from the ends of the LED strip and set aside.
5. Inside the lead rail, disconnect the connectors. For strips mounted on the outside of the lead rail, carefully pull the wire and connector for the LED strip out of the lead rail through the hole that is located behind the slot cover location.
6. Remove the existing LED strip from the lead rail.
7. Clean the slot to remove any dirt and tape residue.
8. Starting at the reference mark made previously, press the new strip into the LED slot.
9. At the end of the lead rail, cut the LED strip to match the mark made previously. To trim the LED strip, always cut between the 4-pad cluster as shown.
10. Route the new LED strip wires into the lead rail and connect to the harness.
11. Press the slot covers into the LED slot.
12. Restore power and test.



Cut Between Pads to Adjust Length

M2015

Harness Replacement

1. Extend the awning out completely.
 2. Separate the LED connectors at the lead rail. Carefully pull the harness from the wire channel at the top of the arm.
 3. At the awning case, clip the harness. Clamp the harness going into the vehicle to prevent it from falling in the vehicle wall.
 4. Connect the new harness to the LED strip.
 5. Route the harness through the arm wire channel with the direct response cable. At the arm joints, arch the cable slightly to avoid binding.
 6. At the vehicle wall:
 - 6.1. Route the new 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.
 - 6.2. Seal the wall entrance hole and harness with a quality silicone sealant.
 - 6.3. Connect the new harness to the switch. Two (2) .187, 18-24 awg female disconnects are provided if connecting to a switch.
 - 6.4. 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 arm to provide a slack in the harness and adequate length for the connectors to be pushed inside the wall before sealing the hole and harness with a quality silicone sealant.

STANDARD MAINTENANCE

Maintaining a Carefree Awning is easy. Just follow these basic steps:

- Always operate the awning according to the instructions.
- Periodically check that the fasteners are tight. Tighten if necessary.
- Keep the awning fabric and arms clean.

FABRIC CARE

⚠ CAUTION Do not use oil based cleaners or any caustic, granulated, or abrasive type cleaners on your Carefree product.

1. One of the best ways to keep the fabric looking good and to delay the need for deep or vigorous cleanings is to hose fabrics off on a monthly basis with clear water. This practice will help prevent dirt from becoming deeply imbedded in the fabric. In most environments, a thorough cleaning will be needed every two to three years.
2. When it's time for a thorough cleaning, the fabric can be cleaned while still on the awning frame. For Acrylic Fabric – Use a stiff brush and warm water with soap.
3. When cleaning the fabric, it is important to observe the following:
 - Always use a natural soap, never detergent.
 - Water should be cold to lukewarm, never more than 100°F.
 - Air-dry only. Never apply heat to the fabric.
 - Always allow the fabric to dry thoroughly before rolling up the awning.

Mildew

Mildew is a fungus growth that looks like dirt. Vinyl coated polyester fabrics are mildew resistant because of a chemical biocide in the vinyl coating. Under ordinary conditions, mildew will not appear. However, in areas where high temperature and humidity are common, mildew can be a problem and required the material to be washed more frequently. Thoroughly rinse the fabric with clean water and allow to air dry completely before rolling up the awning.

Pooling

When water collects on the top of the fabric, this is known as "pooling". This can occur during inclement weather or if a running air conditioner discharges over the awning. The water is dumped when the awning is retracted. It is recommended that if water accumulates on the top; retract the awning in steps (8"-12") to dump the water. This will help prevent the fabric from stretching or distorting.

The effects of wind and rain on an awning are unpredictable. Severe damage to the awning and the vehicle may result. IF WIND OR EXTENDED PERIODS OF RAIN ARE EXPECTED, ROLL UP THE AWNING AND SECURE FOR TRAVEL.

ARM CARE

The best method of keeping the arms and braces operating smoothly is to clean them. Dirt and debris can cause the channels not to slide easily.

Periodically wash out the channels with running water (i.e. a hose) to keep them clean. If the channels still do not slide easily, lightly spray the joints and/or inside of the channels with a dry silicone lubricant, after the arms have been cleaned and dried thoroughly.

Hardware Maintenance

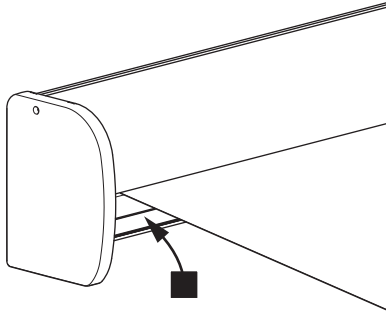
- Replace any parts that become damaged.
- Periodically check all mounting hardware, screws, lags, etc., and re-tighten when necessary.

MOTOR MAINTENANCE

- Check all wiring and connections for wear. Repair when needed.
- Check that the sealant is providing a good seal and no water is accumulating on the wiring.

PART NUMBER LISTING

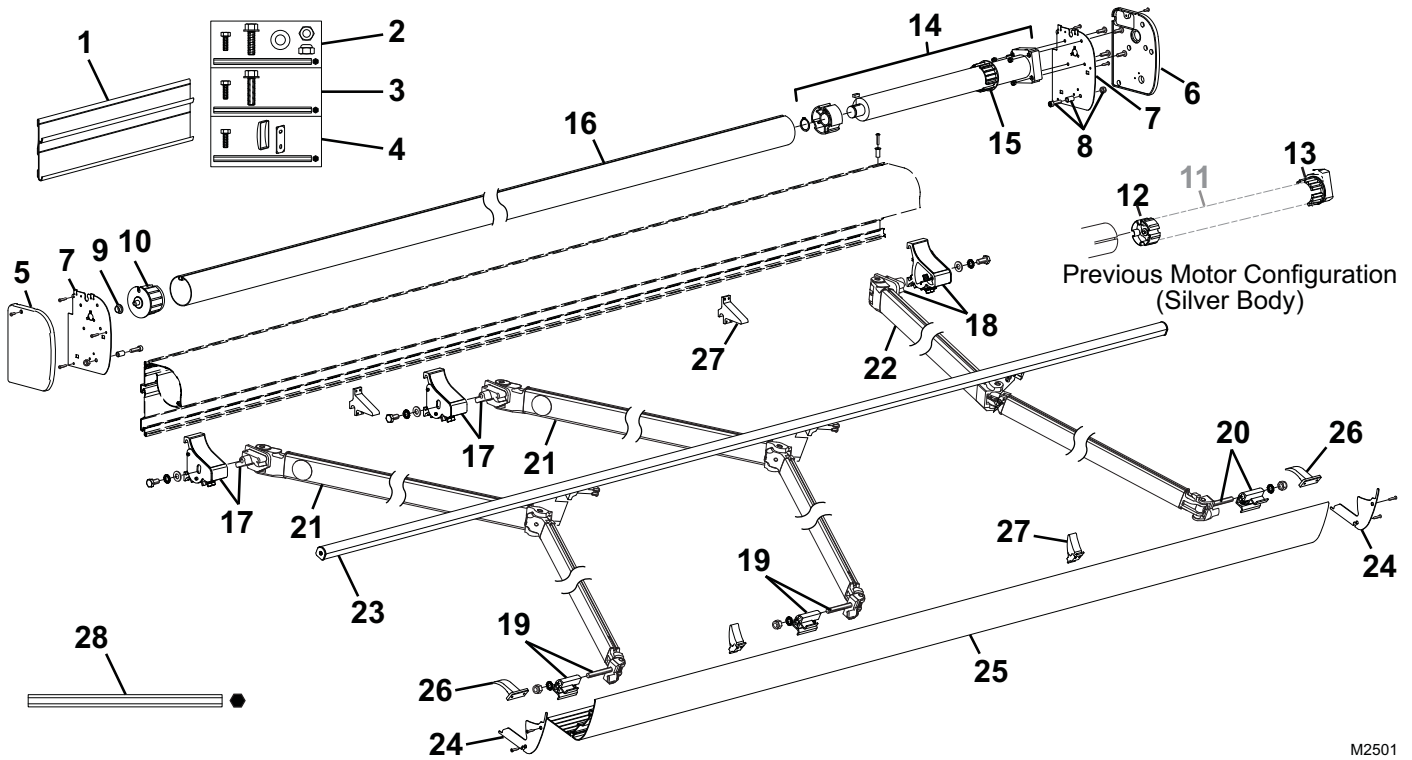
PART NUMBER/SERIAL NUMBER LOCATION



Serial# / Part# Located Inside
Case on Motor Side

M2017

ILLUSTRATED PARTS LIST

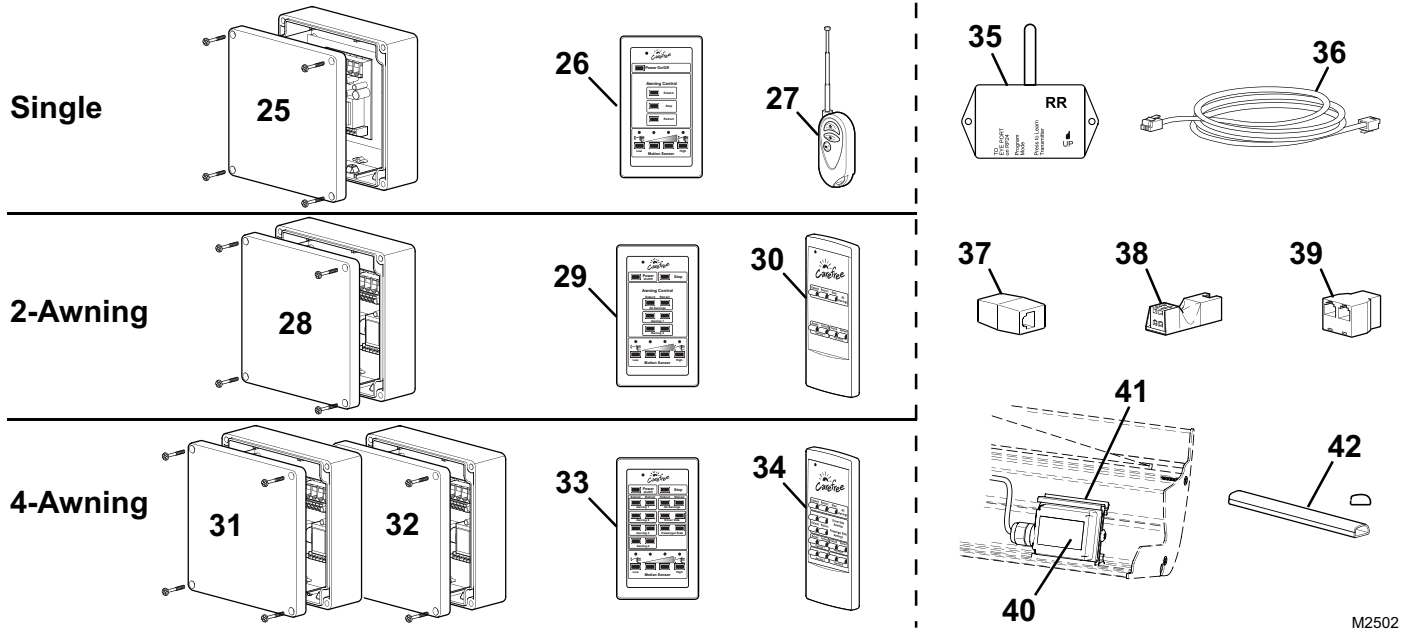


M2501

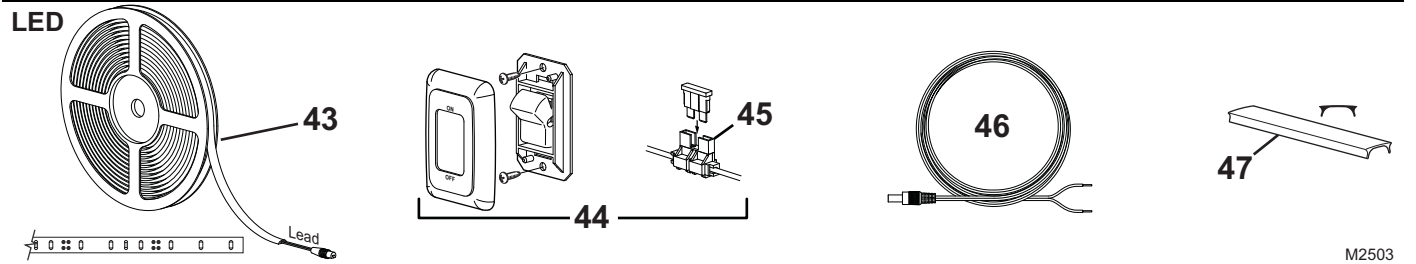
Item	Part Number	Description	Notes
1	R035468-001	Mounting Bracket	Pkg of 1
2	R001765	Hardware Pack, Roof Mount	1
3	R001766	Hardware Pack, Wall Mount	2
4	R001767	Hardware Pack, Through Wall	3
5	R035454-006	End Cap, LH	
6	R035453-006	End Cap, RH	
7	R036618-JV1	End Plate, Housing	
8	R001768	Lead Rail Guide Post Kit	
9	R035310-002	Bushing, Idler	
10	R001054	End Plug, Idler	
11	NLA	Motor Assy, Silver Body	Discontinued FSO R001853
12	R030886-001	Drive Gear, Motor	Used with item 11
13	R030885-001	Crown, Motor	Used with item 11
14	R001853	Motor Assy, Orange Body, includes Crown, Drive and attaching hardware	
15	R041369-001	Crown	Used with item 14
16	R001069-xxx.xx	Roller Tube	
17	R062764-001	Case Connector, LH	
18	R062765-001	Case Connector, RH	
19	R019366-23L	Lead Rail Connector, LH	
20	R019366-23R	Lead Rail Connector, RH	
21	R012598-JVL115	Spring Arm Assy, LH	
22	R012598-JVR115	Spring Arm Assy, RH	
23	R001769xxx	Middle Rail Assy	
24	R036609-006	End Plate, Lead Rail	
25	R001770XXX-xxx.xx	Lead Rail	
26	R001812	Ramp Block, Mid Rail Lift	
27	R001813	Ramp Block Kit, Lead Rail Lift	4
28	R030796-001	Hex Key, Manual Override, 7mm	

- Notes:
1. Hardware pack (item 2) contains 24 ea 3/8-16 x 1.25 flange head screw, nylock nut and washer; 4 ea 1/4-20 x .75 thread forming screws.
 2. Hardware pack (item 3) contains 24 each 3/8 x 1.5" Rolock screws; 4 ea 1/4-20 x .75 thread forming screws.
 3. Hardware pack (item 4) contains 4 ea 1/4-20 x .75 thread forming screws; 6 ea backing plate and cover.
 4. Ramp Block Kit (item 27), Awnings under 18' uses one kit, awnings over 18' uses two kits.

Electronics



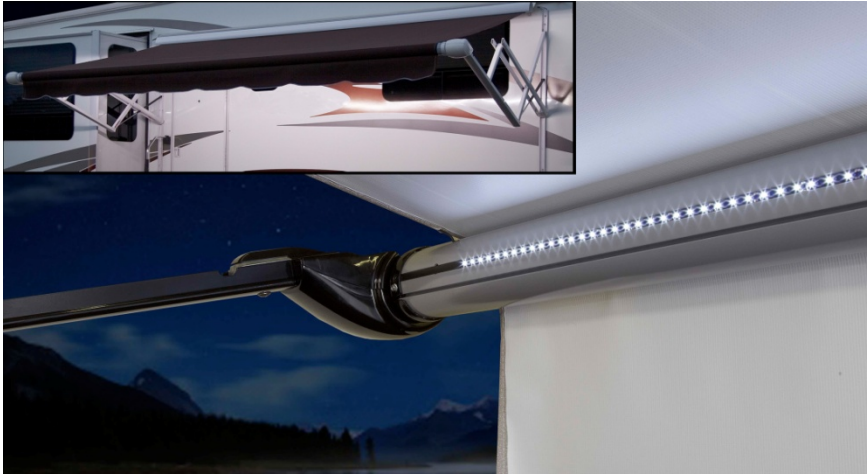
M2502



M2503

Item	Part Number	Description	Notes
25	R060633-001	Control Box 110VDR	Single Awning
26	R060616-102	Key Pad	Single Awning
27	R060622-001	Key FOB, Remote, 433 MHZ, Version 2	Single Awning
28	R060633-002	Control Box, Motor 1 & 2 110VDR	2-Awning
29	R060616-202	Key Pad	2-Awning
30	R001393	Remote w/ Stop, 433 MHz	2-Awning
31	R060633-002	Control Box, Motor 1 & 2 110VDR	4-Awning
32	R060633-004	Control Box, Motor 3 & 4 110VDR	4-Awning
33	R060616-402	Key Pad	4-Awning
34	R001394	Remote w/ Stop, 433 MHz	4-Awning
35	R060429-002	RF Remote Receiver, 433 MHz	
36	R060434-001	Phone Cable, 60"	
	R060434-008	Phone Cable, 240"	
37	R060596-001	Coupler, Cable	
38	R060532-001	Ignition Lockout Sensor	
	R060532-002	Ignition Lockout Sensor, RTL	
39	R060589-001	Splitter	
40	R060538-002	Motion Sensor w/ cable	
41	R001355	Bracket Kit, Vertical Sensor Mount	
42	R040616-206	Cable Channel	
43a	R060732-001	LED Strip	used for awnings 18' or less
43b	R060732-004	LED Strip	used for awnings 19' or longer
44	SR0101	Switch and Fuse Kit (includes item 3)	used with White LED
45	R019493-001	Fuse Kit (includes fuse holder and 2A fuse)	
46	R060718-001	Harness	22' Length
47	R001716	Slot Cover	24" Length

Notes: 1. Control boxes, switches and remotes are NOT interchangeable between systems.
 2. LED strip (item 43) is sent on a roll and cut to length during installation.



Product Description

MOUNTING:	<i>LED:</i>	LED light strip mounts on the roller tube.
	<i>Wiring:</i>	Harness and remote control module are removable for storage when the awning is retracted
LENGTH:	Available for awnings 10' – 21' <i>*Maximum LED strip length is 16' 5". Strip is centered on roller tube for units 18' and longer</i>	
POWER:	2A, 12Vdc wired into the vehicle's 12Vdc system. A 110Vac adaptor is furnished to allow the lights to be plugged into a standard 110Vac outlet.	
CONTROL:	The infrared remote control provides: <ul style="list-style-type: none"> • Simple push button on/off • Infinite adjust dimming • 15 color choices + white • Special effects (flash, strobe, fade and smooth) 	

The enclosed directions are for mounting the LED strip on a standard roller tube. The LED strip can be mounted on any flat surface. Follow the directions for cleaning, trimming and wiring for all applications.

INTRODUCTION

From its beginning in the early 70's, Carefree of Colorado has emerged as the premier manufacturer of quality awnings and accessories for Recreational Vehicles (RVs). Our full line of products can provide the accessories that match your life style; no matter what type of RV you own.

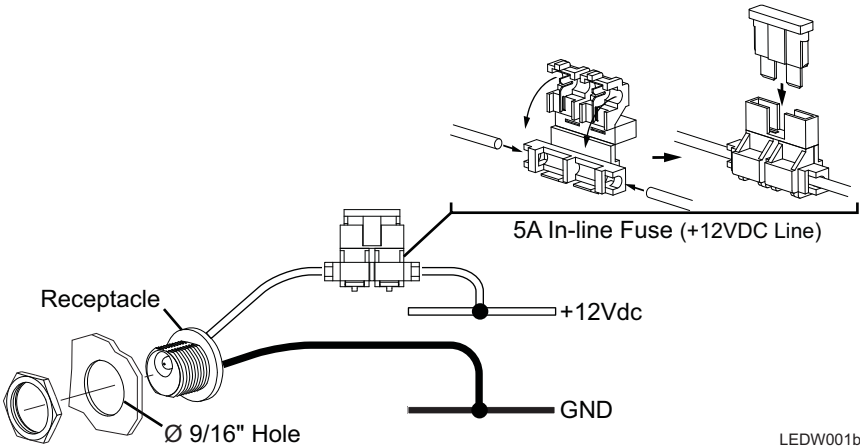
Check with your dealer to discover the products that can make your life more Carefree.

PROVIDING POWER

Power for the LED Lights can be provided through the vehicle's 12Vdc system. An exterior receptacle is used for the power cord plug. Alternately, an 110Vac adaptor is furnished so that the lights may be plugged into a standard 110Vac outlet.

INSTALLING THE 12VDC RECEPTACLE

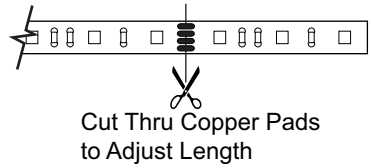
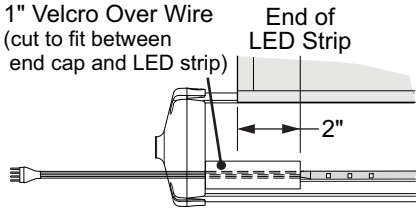
- Determine the location of the receptacle.
 - Locate the receptacle to provide easy access to a 12Vdc power source such as interior overhead cabinet lights or a 12Vdc switch near the door etc.
 - The receptacle location should be comfortably accessible.
 - Position receptacle so that when the cord is plugged in it does not create an obstacle (i.e. headroom for walking under).



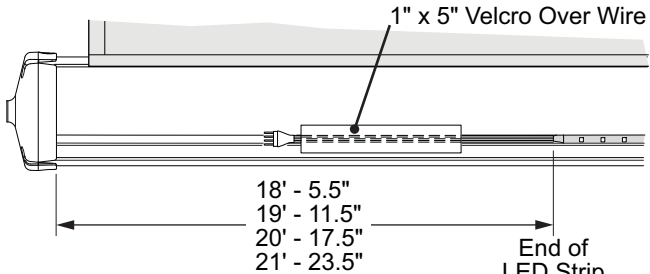
LEDW001b

- At the mounting location, drill an 9/16 inch hole through the mounting surface.
- From inside, insert the receptacle through mounting surface and secure with the supplied nut.
- Route the wires from the receptacle to +12Vdc and ground wires in the vehicle. Receptacle wires are marked (+) for 12Vdc and (-) for ground.
- Splice the receptacle wires to the existing vehicle wires. Ensure that the splices are tight, solid and sealed when completed.
- Install the in-line fuse:
 - Cut the 12Vdc power between the receptacle and the clip. Do not strip the insulation.
 - Insert a wire end into one of the wire channels until it butts 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.

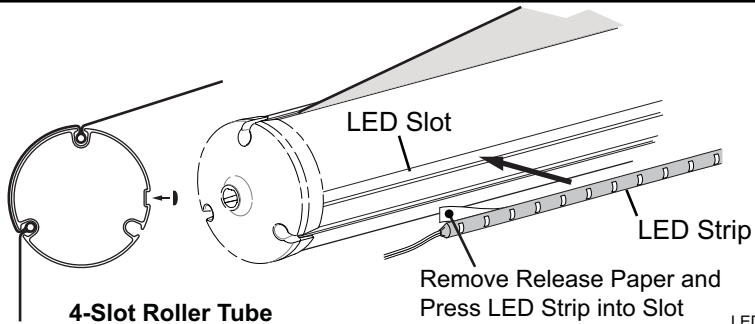
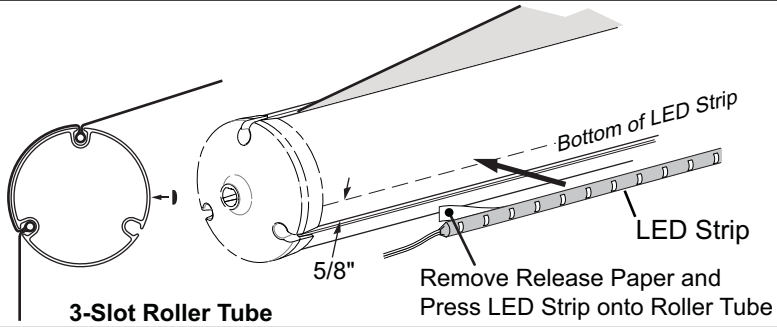
INSTALLING THE LED STRIP



Awning Lengths of 17' or Less



Awning Lengths of 18' and Larger



LEDW002

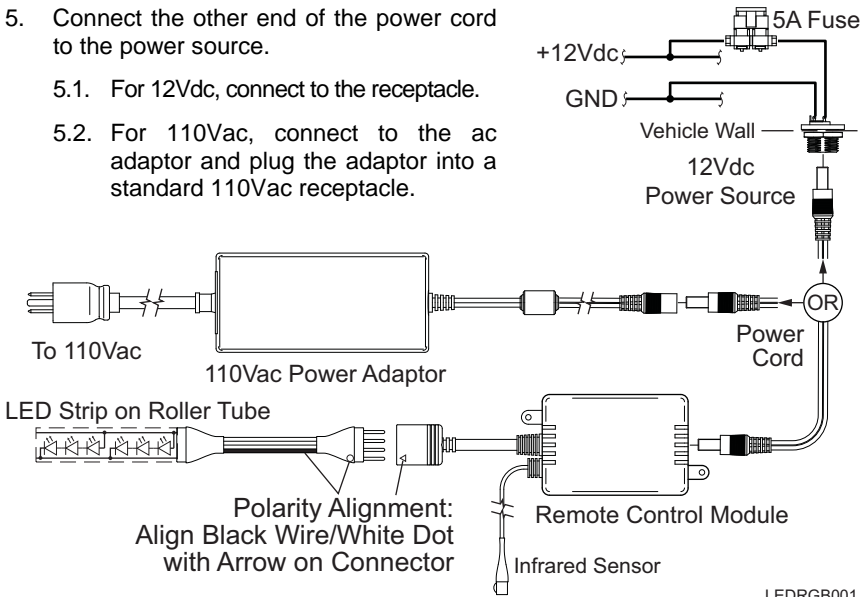
Two types of roller tubes are used on Carefree products. Older roller tubes (3-slot) have a smooth surface between the canopy and the accessory slot. Newer roller tubes (4-slot) have an additional shallow slot for mounting LED strips.

NOTE: The LED strip is sent on a roll and must be cut to length during installation for awnings 17' 6" or less.

1. Open the awning to expose the roller tube.
2. Use the isopropyl wipe included with the kit and thoroughly clean the area where the LED strip is to be mounted on the roller tube.
3. Measure the horizontal position of the strip:
 - 3.1. *For awnings 17' 6" or less:* Mark a vertical line on the roller tube that is 2" inside the edge of the canopy. This will be the start of the LED strip (not including the wire).
 - 3.2. *For awnings 18' or longer:* Mark a vertical line using the distances shown on the diagram. This will be the start of the LED strip (not including the wire).
4. *For 3-slot roller tubes:* Using a non-permanent marker, mark a line 5/8" above the accessory slot.
5. Remove the release paper from the back of the strip.
 - 5.1. *For 3-slot roller tubes:* Align the bottom of the strip with the line made in step 5. Start the strip at the mark made in step 3.
 - 5.2. *For 4-slot roller tubes:* Start the strip at the mark made in step 3. Press the strip into the groove.
6. *For awnings 17' 6" or less:* At the end of the roller tube, cut the LED strip approximately 2" inside the canopy edge. To trim the LED strip, always cut through the 4-pad cluster as shown.
7. Lay the wire harness from the LED strip flat against the roller tube. Secure with the 1" x 5" piece of Velcro furnished with the kit. It may be necessary to trim the Velcro to fit as shown.

OPERATION

1. Open and set the awning per the awning manufacturer's instructions.
2. Connect the wire lead from the control module to the LED strip.
3. Connect the power cord to the control module.
4. Attach the control module using the velcro on the roller tube. Make sure that the infrared sensor is hanging down and exposed.
5. Connect the other end of the power cord to the power source.
 - 5.1. For 12Vdc, connect to the receptacle.
 - 5.2. For 110Vac, connect to the ac adaptor and plug the adaptor into a standard 110Vac receptacle.



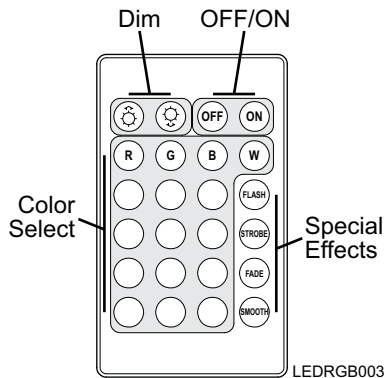
LEDRGB001

6. To operate the lights use the supplied remote.

The remote control provides:

- Simple push button on/off
- Adjustable dimming
- 15 color choices + white
- Special effects (flash, strobe, fade and smooth)

Important Note: The remote uses an infrared signal to the control module. The top of the remote must be pointed at the infrared sensor on the control module.



⚠ CAUTION Make sure to disconnect and remove the control module before retracting the awning.

Tuck the LED connector under the canopy.

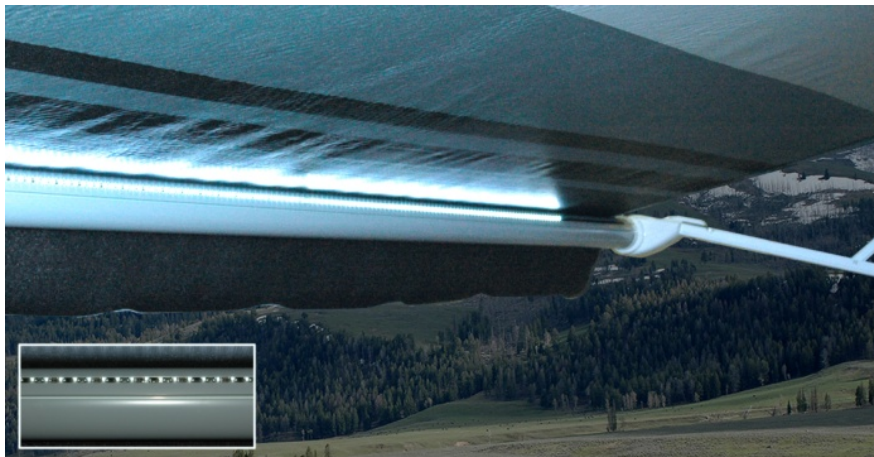
NOTE: Tucking the connector under the canopy will securely hold and protect the connector during storage but may cause minor "dimpling" in the canopy.



RV Accessory

OWNER'S MANUAL
WHITE LED LIGHTING KIT

FOR USE ON STANDARD ROLLER TUBES



Product Description

MOUNTING:	<i>LED:</i>	LED light strip mounts on the roller tube.
	<i>Wiring:</i>	Harness and remote control module are removable for storage when the awning is retracted
LENGTH:	Available for awnings 10' – 21' <i>*Maximum LED strip length is 16' 5". Strip is centered on roller tube for units longer than 18'</i>	
POWER:	2A, 12Vdc wired into the vehicle's 12Vdc system. A 110Vac adaptor is furnished to allow the lights to be plugged into a standard 110Vac outlet.	
CONTROL:	The remote control provides simple push button on/off and infinite adjust dimming.	

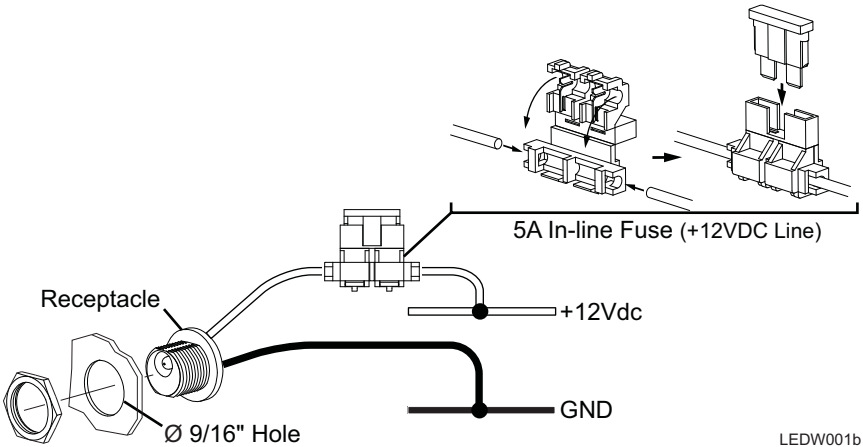
The enclosed directions are for mounting the LED strip on a standard roller tube. The LED strip can be mounted on any flat surface. Follow the directions for cleaning, trimming and wiring for all applications.

PROVIDING POWER

Power for the LED Lights can be provided through the vehicle's 12Vdc system. An exterior receptacle is used for the power cord plug. Alternately, an 110Vac adaptor is furnished so that the lights may be plugged into a standard 110Vac outlet.

INSTALLING THE 12VDC RECEPTACLE

- Determine the location of the receptacle.
 - Locate the receptacle to provide easy access to a 12Vdc power source such as interior overhead cabinet lights or a 12Vdc switch near the door etc.
 - The receptacle location should be comfortably accessible.
 - Position receptacle so that when the cord is plugged in it does not create an obstacle (i.e. headroom for walking under).

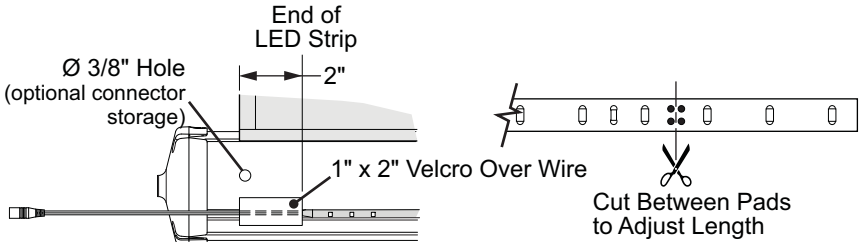


LEDW001b

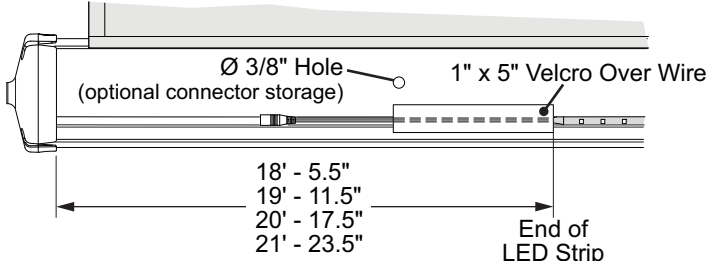
- At the mounting location, drill an 9/16 inch hole through the mounting surface.
- From inside, insert the receptacle through mounting surface and secure with the supplied nut.
- Route the wires from the receptacle to +12Vdc and ground wires in the vehicle. Receptacle wires are marked (+) for 12Vdc and (-) for ground.

NOTE: The vehicle's 12Vdc and ground wires must be a minimum 18awg wire.
- Splice the receptacle wires to the existing vehicle wires. Ensure that the splices are tight, solid and sealed when completed.
- Install the in-line fuse:
 - Cut the 12Vdc power between the receptacle and the clip. Do not strip the insulation.
 - Insert a wire end into one of the wire channels until it butts 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.

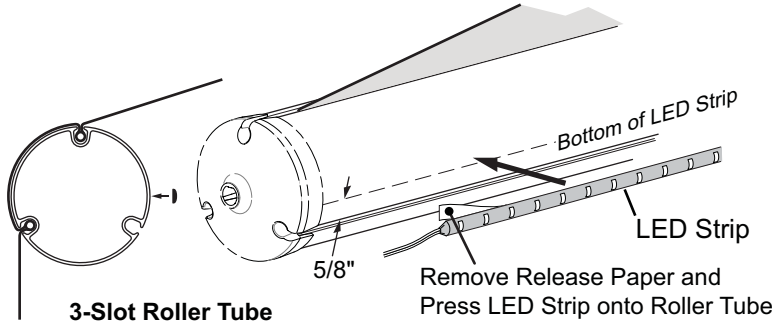
INSTALLING THE LED STRIP



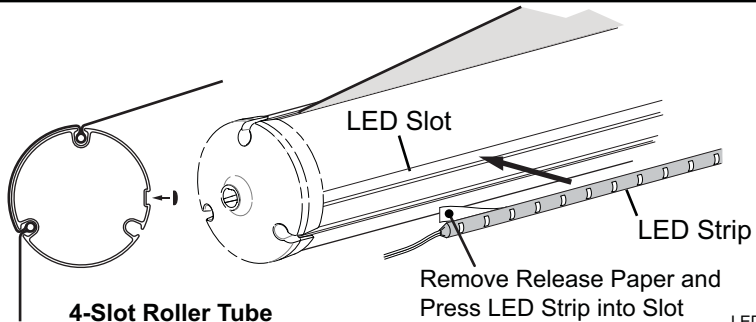
Awning Lengths of 17' or Less



Awning Lengths of 18' and Larger



3-Slot Roller Tube



4-Slot Roller Tube

LEDW002

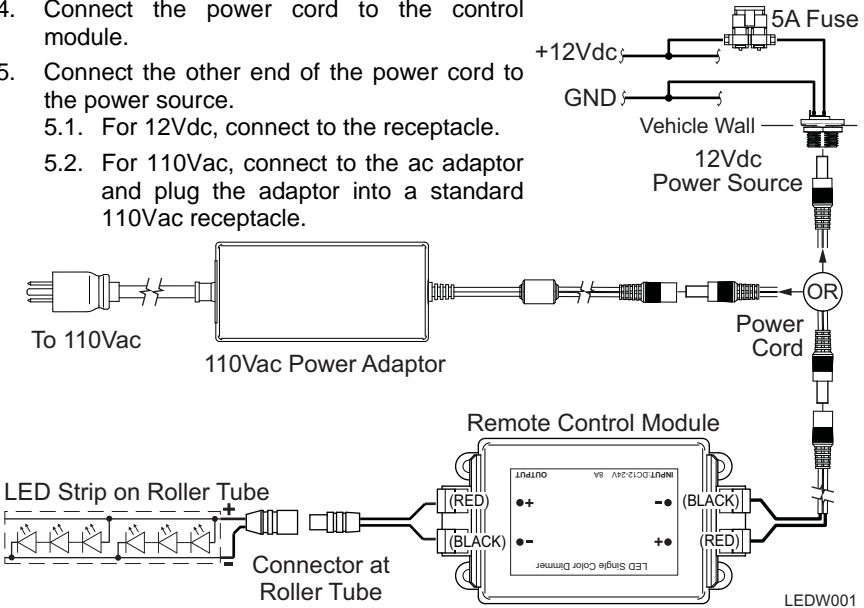
Two types of roller tubes are used on Carefree products. Older roller tubes (3-slot) have a smooth surface between the canopy and the accessory slot. Newer roller tubes (4-slot) have an additional shallow slot for mounting LED strips.

NOTE: The LED strip is sent on a roll and must be cut to length during installation for awnings 17' 6" or less.

1. Open the awning to expose the roller tube.
2. Use the isopropyl wipe included with the kit and thoroughly clean the area where the LED strip is to be mounted.
3. Measure the horizontal position of the strip:
 - 3.1. *For awnings 17' 6" or less:* Mark a vertical line on the roller tube that is 2" inside the edge of the canopy. This will be the start of the LED strip (not including the wire).
 - 3.2. *For awnings 18' or longer:* Mark a vertical line using the distances shown on the diagram. This will be the start of the LED strip (not including the wire).
4. *For 3-slot roller tubes:* Using a non-permanent marker, mark a line 5/8" above the accessory slot.
5. Remove the release paper from the back of the strip.
 - 5.1. *For 3-slot roller tubes:* Align the bottom of the strip with the line made in step 5. Start the strip at the mark made in step 3.
 - 5.2. *For 4-slot roller tubes:* Start the strip at the mark made in step 3. Press the strip into the groove.
6. *For awnings 17' 6" or less:* At the end of the roller tube, cut the LED strip approximately 2" inside the canopy edge. To trim the LED strip, always cut between the 4-pad cluster as shown.
7. Lay the wire harness from the LED strip flat against the roller tube. Secure with the 1" x 5" piece of Velcro furnished with the kit. It may be necessary to trim the Velcro to fit as shown.
8. *Optional LED Connector Storage:* Drill a 3/8" hole into the roller tube. Be sure to clean and deburr the hole. Locate the hole as shown between the LED strip and canopy. This can be used to store the connector out of the way when the awning is retracted.

OPERATION

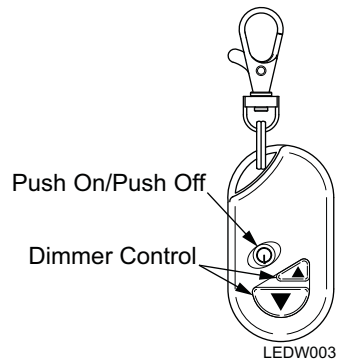
1. Open and set the awning per the awning manufacturer's instructions.
2. Connect the wire lead from the control module to the LED strip.
3. Set the control module in the open arm channel.
4. Connect the power cord to the control module.
5. Connect the other end of the power cord to the power source.
 - 5.1. For 12Vdc, connect to the receptacle.
 - 5.2. For 110Vac, connect to the ac adaptor and plug the adaptor into a standard 110Vac receptacle.



6. To operate the lights use the supplied remote. The remote control provides simple push button on/off and infinite adjust dimming.

Important Note: The module electronics require a power reset periodically. To reset the module, disconnect the power then reconnect. It is recommended to disconnect the power when the LEDs are not in use.

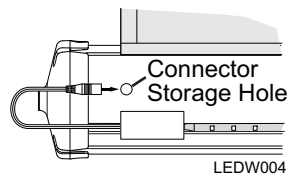
CAUTION Disconnect and remove the control module before retracting the awning. Damage to the control and/or awning can occur.



STORAGE

1. Disconnect and remove the module and power cord.
2. Tuck the LED connector under the canopy or place the LED harness connector into the optional storage hole in the roller tube.

NOTE: Tucking the connector under the canopy will securely hold and protect the connector during storage but may cause minor "dimpling" in the canopy.



3. Retract the awning according to the awning manufacturer's instructions. The LED strip remains on the roller tube when the awning is retracted.