



INSTALLATION MANUAL
FREEDOM FREESTYLE

12V MOTORIZED LATERAL ARM BOX AWNING W/ DIRECT RESPONSE

RV



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PROPRIETARY STATEMENT

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

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SAFETY INFORMATION

⚠ 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:

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

Reference Publications located @ www.carefreeofcolorado.com:

052573-001 Installation Manual

052573-201 Owner's Manual

PRODUCT OVERVIEW

The Freedom Freestyle Awning is a state of the art lateral arm awning. When retracted, the housing provides protection against the elements while the streamlined styling blends in with the coach sidewall. The full tension canopy fabric allows the awning to be partially or fully extended 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 Awning Specifications:

- Fully retractable and self storing;
- 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.
- Direct Response is standard.

SPECIFICATIONS

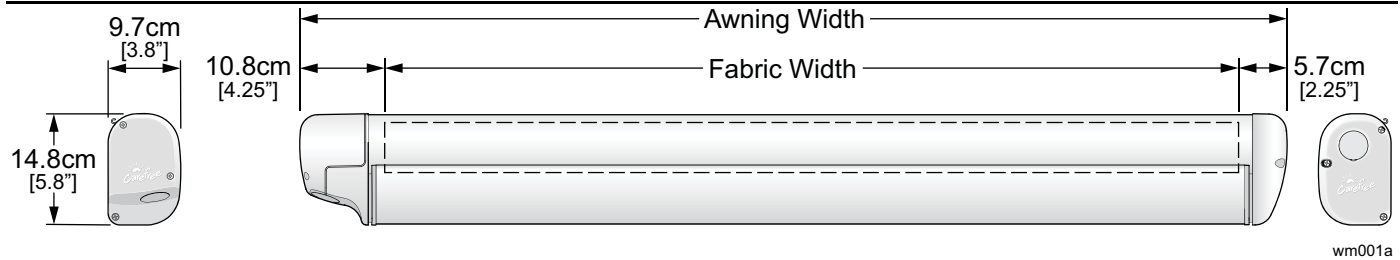


Figure 1. General Dimensions.

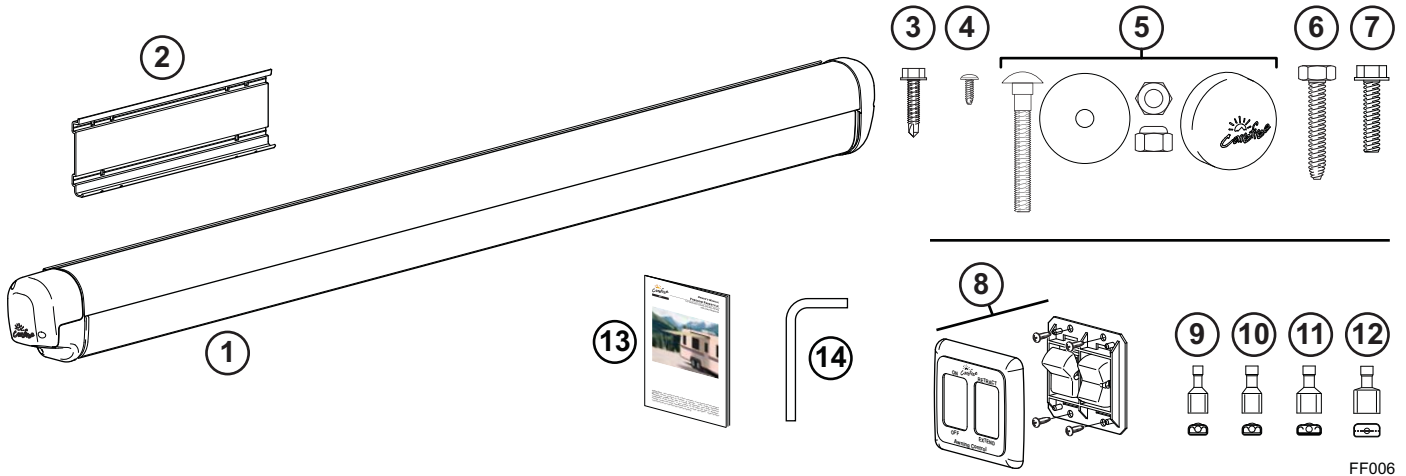
LENGTHS:	meters	3.0	3.5	4	4.5	5.0
	feet	9.8	11.5	13	14.75	16.4
EXTENSION:	250cm [98"]					
LEAD RAIL SUPPORT:	4m or less: 2 Lateral Spring Arms; 4.5 & 5m 3 Lateral Spring Arms					
POSITION CONTROL:	12V Motorized w/ tubular motor					
	12V Direct Response - Standard					
MOTOR SPECIFICATIONS						
<i>Motor 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;

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

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

COMPONENT CHECK LIST



FF006

<input checked="" type="checkbox"/>	ITEM	DESCRIPTION		QTY	NOTE
<input type="checkbox"/>	1	Awning Assembly		1	1
<input type="checkbox"/>	2	Mounting Plate	40cm	NOTE	2
<input type="checkbox"/>	3	Screw, Self Drilling	#10 x 5/8"	NOTE	3
<input type="checkbox"/>	4	Screw, Self Drilling, Hex Head	#6 x 3/8"	NOTE	3
<input type="checkbox"/>	5	Bolt thru hardware	M6 x 60mm	NOTE	4,6
<input type="checkbox"/>	6	Lag screw	1/4" x 1.5"	6	5,6
<input type="checkbox"/>	7	Screw, Thread Cutting	1/4-20 x 3/4"	6	5,6
<input type="checkbox"/>	8	Switch Kit		1	
<input type="checkbox"/>	9	Terminal, Female, .187	18-22 awg	3	
<input type="checkbox"/>	10	Terminal, Female, .187	14-16 awg	2	
<input type="checkbox"/>	11	Terminal, Female, .25	14-16 awg	1	
<input type="checkbox"/>	12	Terminal, Male, .25	14-16 awg	1	
<input type="checkbox"/>	13	Owner's Manual		1	
<input type="checkbox"/>	14	Manual Override Key, 3/8"		1	

- NOTES:
- Product configuration is specified at time of order, including length, fabric, color etc. Check assembly against original purchase order.
 - 4 meter and less uses a quantity of 3 plates; 4.5m and 5m uses a quantity of 4.
 - Screw (item 3) quantity is 3 per mounting plate. Screw (item 4) quantity is 2 per mounting plate. (reference note 2). Screws are included with mounting plates.
 - Bolt thru hardware (item 5) includes M6 x 60 carriage bolt, fender washer, nylock nut and bolt cover. Quantity is 6 each per mounting plate (reference note 2).
 - Quantities included in screw pack for items 6 and 7 are for one mounting plate only.
 - Screw packs include items 5 thru 7. Packs are ordered separately.
 - Place the Owner's Manual (item 13) and override key (item 14) with RV owner information. Installation manual, if included is for installer reference.

INSTALLATION

The awning is mounted using a set of mounting plates that attaches to the vehicle wall. For structural and operation integrity, the Freedom Freestyle awning cannot be mounted using an awning rail.

Prior to mounting the awning, ensure that the awning will not interfere with light fixtures, exhaust vents, openings, etc.

ATTACHING THE MOUNTING PLATES

1. Determine the optimum positioning of the awning.
 1. The centerline of the awning fabric is offset from the centerline of the awning assembly. To align the center of the fabric, use the backplate of the awning assembly for measurements.
 2. The bottom of the mounting plates should be 28cm [11"] above any openings or frames to avoid interference when the awning is installed.

NOTE: Height is based on clearance over a 76cm [30"] door extension. The mounting height will vary 1.9cm [.75"] for every 5cm [2"] change in extension. For longer door extensions, add the calculated difference. For shorter extensions, subtract the difference.

Dimensions are based on the steepest pitch. The height can be reduced by reducing the pitch.
3. Measure each end of the awning position from the ground so that the awning is mounted parallel to the ground.

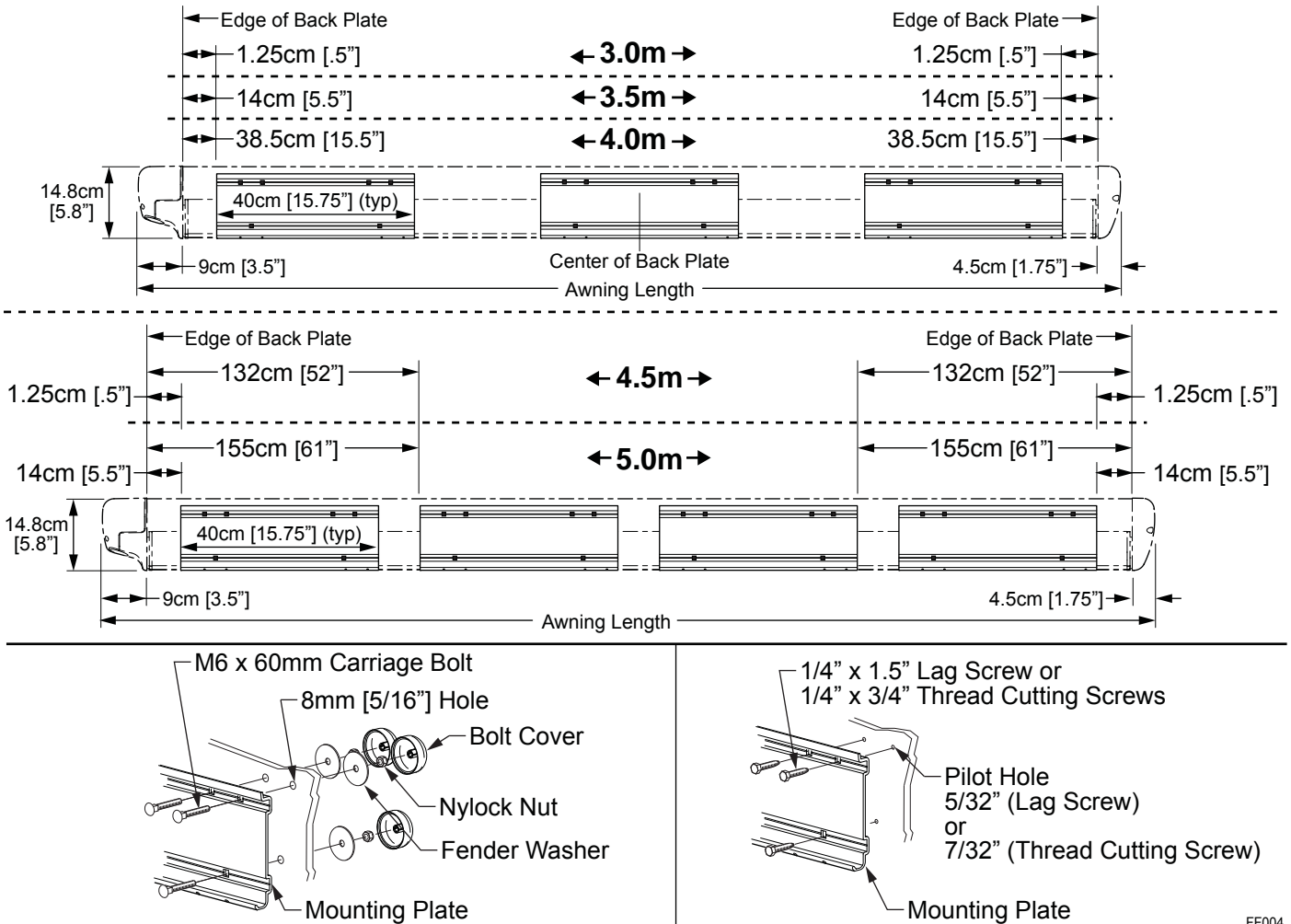


Figure 2. Mounting Plate Pattern.

4. Mark the position with a chalk line.
5. Determine the correct plate pattern then use the plates as a template.

NOTE: The brackets can be mounted using the bolt through hardware or with lag screws or thread cutting screws.

6. For bolt through:
 - 6.1. Using the plates as a template, drill 8mm [5/16"] holes through the vehicle wall to match the plates.
 - 6.2. Attach the plates using M6 x 60mm carriage bolts, fender washers, nylock nuts and bolt covers (6 per plate).
7. For lag screws or thread cutting screws:

Two optional screw types are furnished. The lag screws can be used for mounting into wood or aluminum frames. The thread cutter screws can be used when attaching into steel plate.

 - 7.1. Using the plates as a template, drill 5/32" pilot holes for lag screws or 7/32" pilot holes for the thread cutter screws. Use care to not drill through the wall.
 - 7.2. Attach the plates (6 per plate).
8. Use the dimensions shown to locate the routing hole for the motor cable..

NOTES: The hole location can be located in the areas shown to avoid interior framing, cabinets and electrical components that could be damaged or interfere with the hole location.

Ensure that the awning cable is accessible after routing. The cable extends from the awning 72" - 89" depending on the awning configuration. If the final routing to the switch location is greater than the supplied wire, the installer must splice additional wire to the awning cable. Ensure that the new wire matches the gauge of the existing wire.

Wire and splices must be furnished by the installer.

This is a preliminary step, the wire and switch installation are completed after the awning is mounted.

- Drill an 8mm hole through the outer vehicle wall.

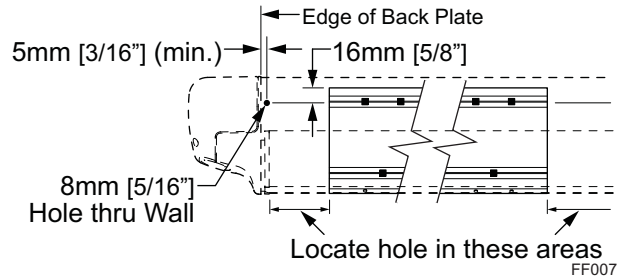


Figure 3. Motor Wire Routing.

MOUNTING THE AWNING

1. Set the awning into the hooks of the mounting plates.

Route the awning cable through the hole drilled previously while lifting the awning into position.

Tip: If the wire is routed along the back of the case, use small pieces of tape to hold the wire in place while lifting the awning.

2. Adjust the position of the awning horizontally as required.

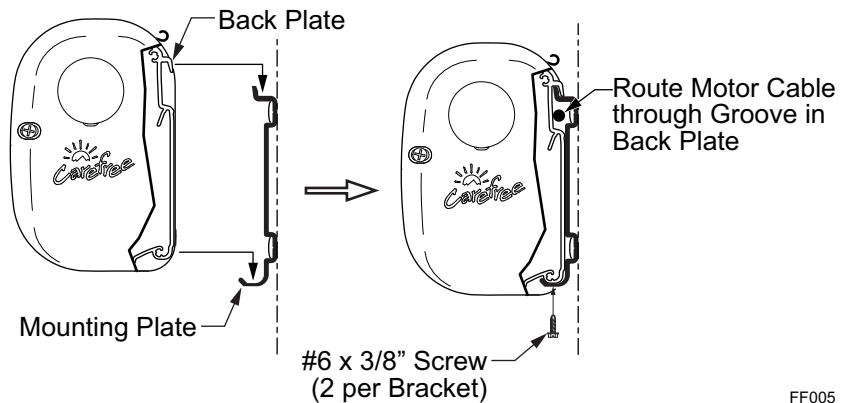


Figure 4. Mounting the Awning.

3. Firmly hold the awning in the brackets and attach the awning case to the brackets using two (2) #6 x 3/8" screws through the bottom of the bracket into the awning case.

SECURING THE AWNING

The awning must be secured as described below. This step can be done after the wiring is completed and the awning can be opened using the switch or the awning can be opened using the procedure below "Jumping the Motor".

⚠ CAUTION For proper awning operation and structural integrity, the awning must be secured as described. Failure to secure the awning may result in damage to the awning and vehicle and void the warranty.

1. Open the awning.
2. Through the flat plate of each case knuckle, use three (3) #10 x 5/8" self drilling screws and attach the awning to the mounting brackets.

NOTE: For 4 meter and smaller awnings, there are two (2) arm case knuckles. For 4.5 and 5 meter awnings there are three (3) arm case knuckles.

Jumping the Motor

If it is necessary to open the awning before the switch and wiring are complete, it is possible to jump the motor to open the awning.

1. Separate the wires at the end of the harness cable.
2. Attach the RED wire to the positive terminal of a 12-14V battery.
3. Attach the BLACK wire to the negative terminal of the battery.

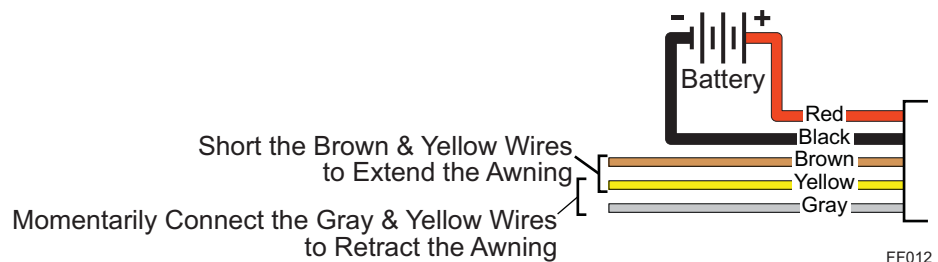


Figure 6. Jumping the Motor.

NOTE: The awning circuitry includes "Reverse Polarity Protection" if the battery connections are accidentally reversed the awning electronics will not be damaged. If the wires are reversed, remove from the battery and reconnect in the correct order.

4. To extend the awning: Short and hold the BROWN and YELLOW wires together until the awning is open.
5. To retract the awning: Momentarily connect the GRAY and YELLOW wires together until the awning is closed.

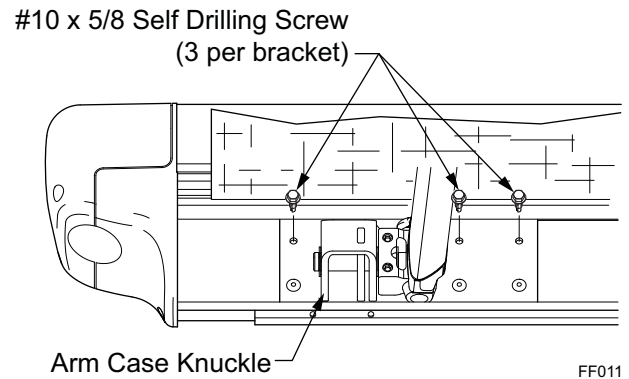


Figure 5. Securing the Awning.

SWITCH INSTALLATION

1. At the switch location cut a 2 5/16" [5.9cm] x 1 1/2" [3.8cm] hole.
2. Route the cable from the awning through the hole.
3. Terminate the three (3) 22awg wires (Brown, Yellow, Gray) with .187, 18-20 awg female terminals. Attach to the EXTEND/RETRACT switch as shown in the wiring diagram.
4. Terminate the RED wire from the cable with a .187, 14-16 awg female terminal. Attach to one terminal of the ON/OFF switch.
5. Terminate the BLACK wire from the cable with a .25, 14-16 awg male terminal.
6. Run a minimum 14 awg wire to chassis ground. Suitable ground would be the vehicle chassis or conductive structure connected to the chassis. Terminate the wire with .25, 14-16 awg female terminal.
7. Connect the ground wire to the black wire from the cable.
8. Run a minimum 14 awg wire from the power distribution panel (auxiliary battery circuit) or equivalent. The circuit should be protected by a 15-amp fuse. Terminate the wire with a .187, 14-16 awg female terminal. Attach to one terminal of the ON/OFF switch.

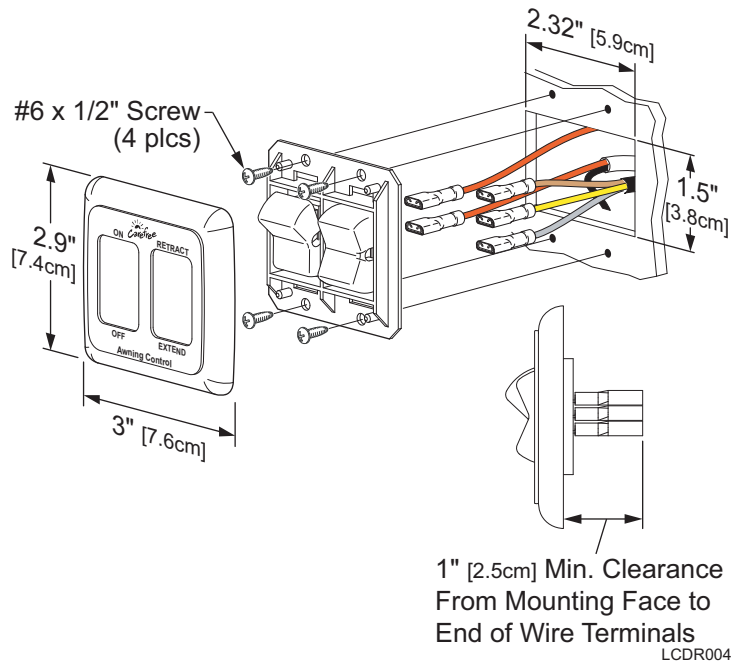
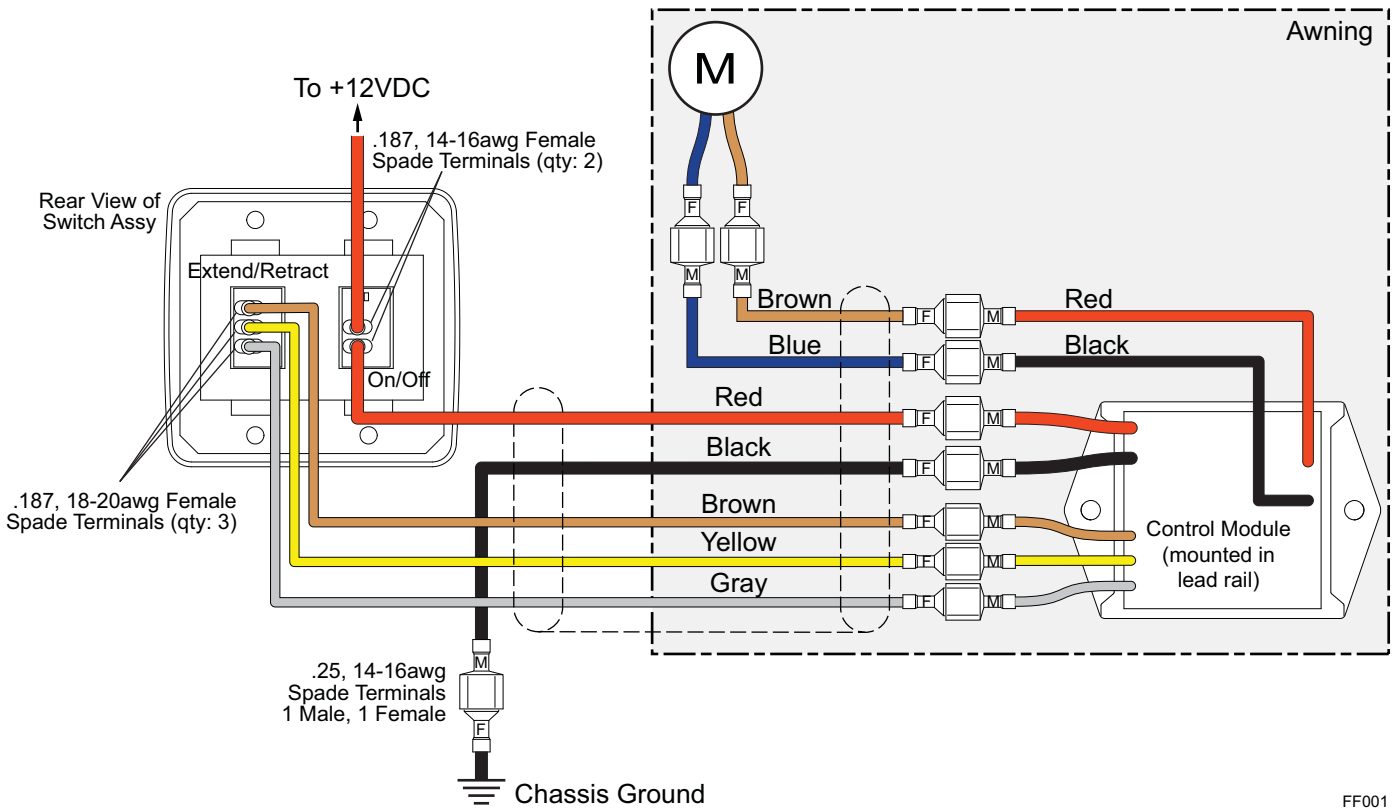


Figure 7. Mounting the Switches.

- NOTE:** If the wire run is 30 feet or longer, use 12awg wire to prevent voltage drop. Use the appropriate wire terminals for the wire size.
9. Push the wires and switches into the hole then attach the switch frame using 4 #6 x 1/2" screws.
 10. Snap the switch bezel over the switch frame.



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.

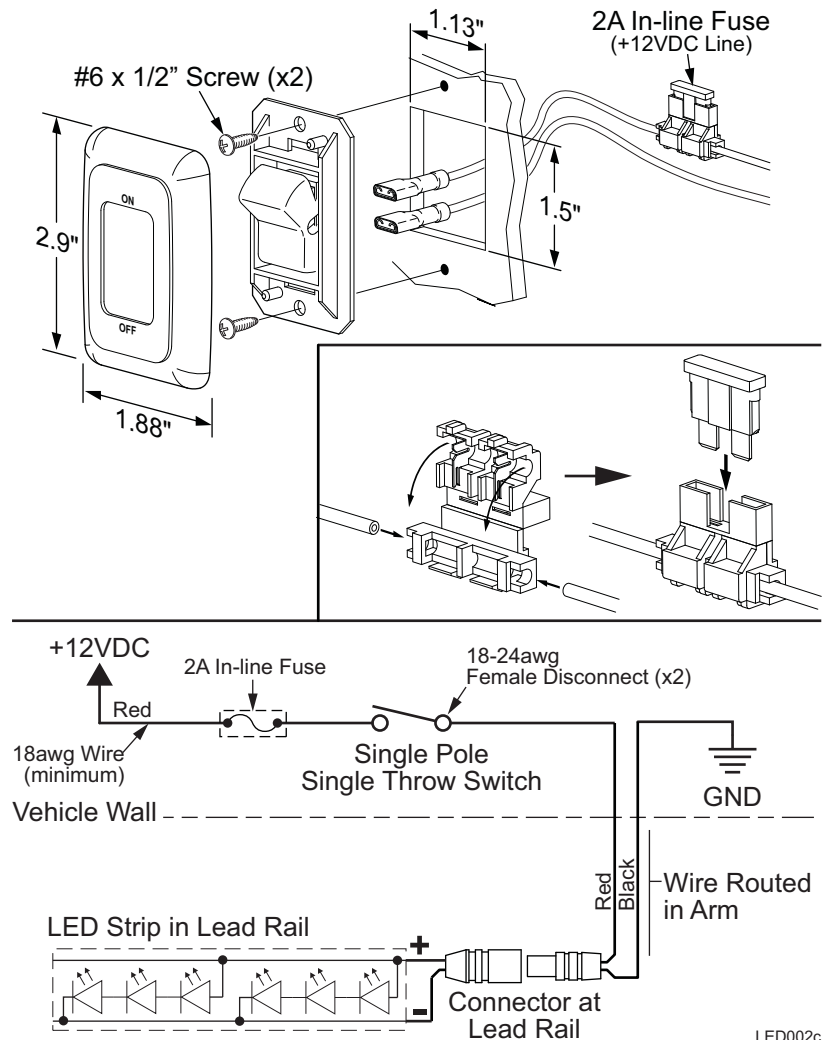
SWITCH INSTALLATION

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.

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.

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.

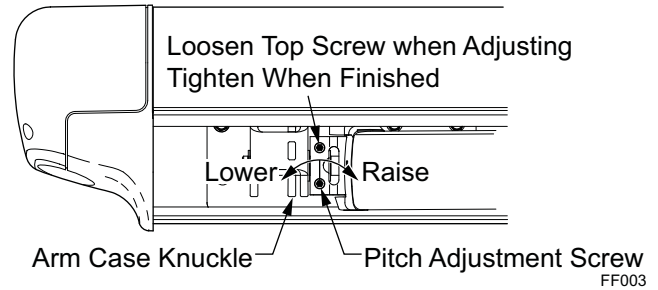


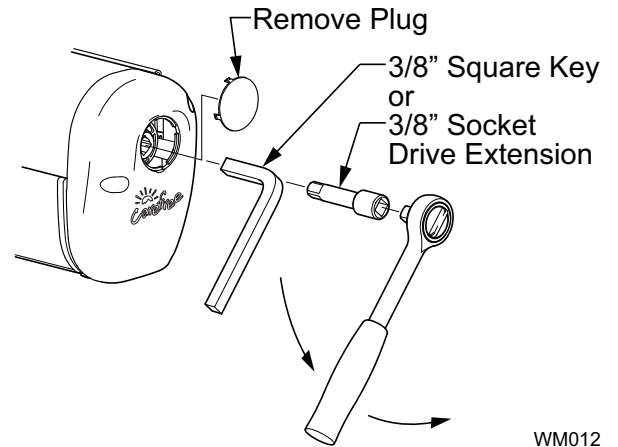
Figure 8. Pitch Adjustment.

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.

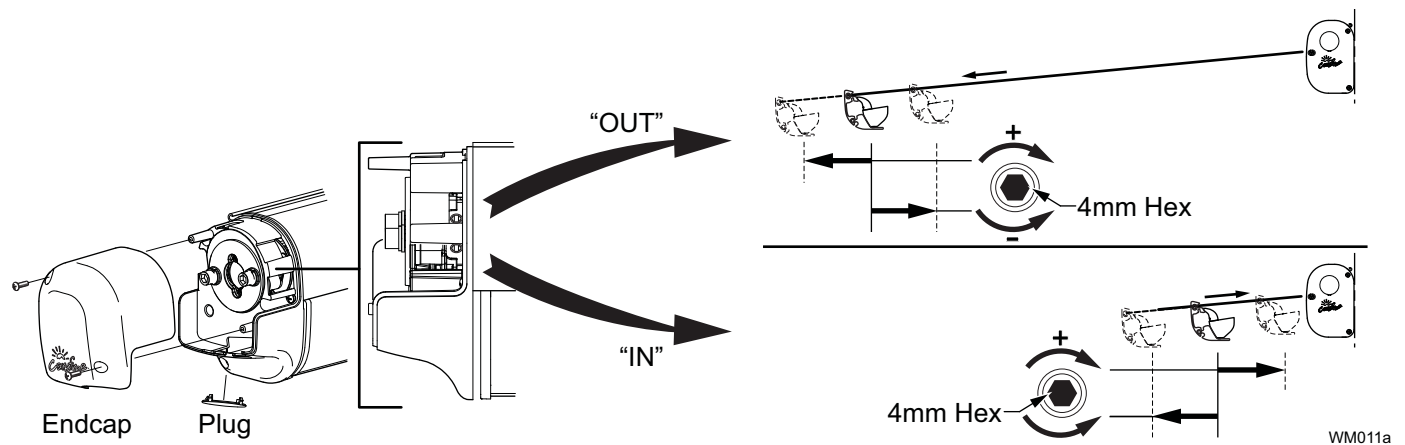
NOTE: This procedure cannot be used to extend the awning.

1. Remove the plug from the right endcap and save.
2. Insert the override key or a 3/8" socket drive extension and handle into the square drive hole inside the endcap.
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.

SETTING 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 matches the closed position. The Direct Response electronics controls the closed position.