

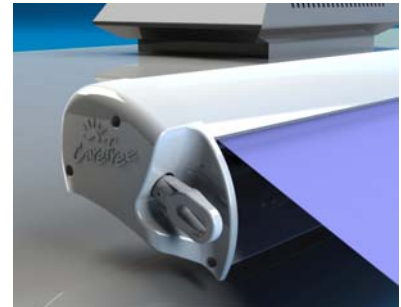


# INSTALLATION MANUAL

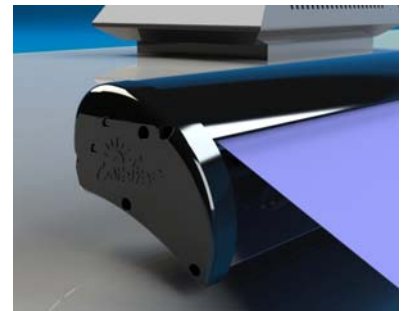
## FREEDOM RM AWNING

### ROOF MOUNTED BOX AWNING

**RV**



*Manual*



*Motorized*

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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

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### WARNING

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

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### 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.

## PRODUCT OVERVIEW

The 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 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;
- Available as manual or motorized (Note: 4.5 & 5 meter only available as 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;

### SPECIFICATIONS

Widths:	centimeters	243	257	300	350	400	450	500
	inches	96	101	118	138	157	177	197
Extension:		180cm (72")	200cm (80")	250cm (98")				

### LEADING EDGE POSITION ACTUATION AND CONTROL

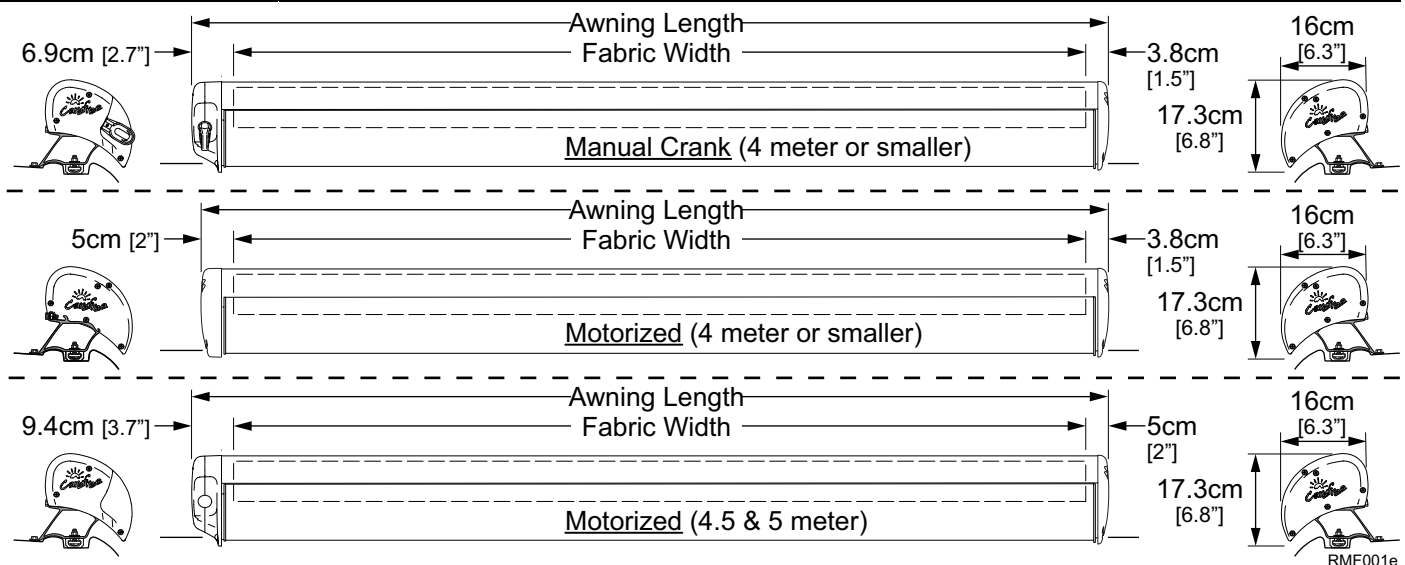
Power:	Lateral Arm Spring	Minimum Tension	Open
Position Control:	Motorized:	Roll Out/In Controlled by Electrical Motor	
	Manual:	Roll Out/In Controlled by Manual Crank	
Note: 4.5 meter and 5 meter awnings are only available in the motorized configuration.			

### MOTOR SPECIFICATIONS

Motor Type:	Tubular		
Power:	12VDC	Minimum: 10VDC	Output: 30 Watts
	Nominal Current: 2.5Amps		Max Current: 14Amps (stall @ min voltage)
Power Source:	Motor and controls are routed and hardwired into the vehicle's 12V system		
Torque	Continuous: 6Nm/4.5 ft-lbs.		Tightening: 18Nm/13.2 ft-lbs.
Speed	15 rpm		

### COLORS AVAILABLE

Case	2.43 meter - 4 meter: Satin, White or Black	4.5 meter - 5 meter; White or Black only
Fabric: <sup>1</sup>	Vinyl	

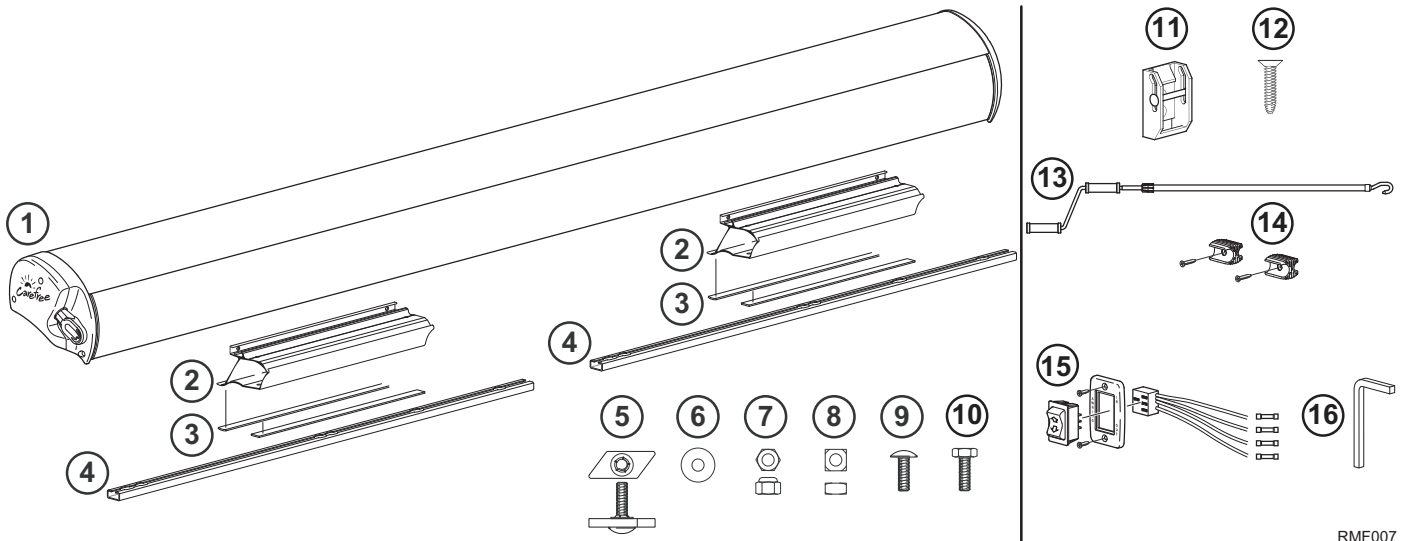


**Special Note: Dimensions are provided in centimeters. Conversion formulas are provided below;**

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

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

COMPONENT CHECKLIST



RMF007

<input checked="" type="checkbox"/>	ITEM	DESCRIPTION	QTY		NOTE
<input type="checkbox"/>	1	Awning Assembly, Complete	1		
		Bracket Kits: S = Sprinter; F = Flat Roof	S	F	
<input type="checkbox"/>	2	Mounting Bracket	2	2	2, 3
<input type="checkbox"/>	3	Pad, Mounting Bracket	4	4	2, 3
<input type="checkbox"/>	4	Mounting Rail	2		2, 4
<input type="checkbox"/>	5	Twist Lock Stud	4	--	2
<input type="checkbox"/>	6	Washer, Flat, .25 ID, .75 OD, .08 thick	10	--	2
<input type="checkbox"/>	7	Nut, Nyloc	M6 14	--	2
<input type="checkbox"/>	8	Nut, Square	M6 4	4	2, 3
<input type="checkbox"/>	9	Screw, Truss Head	M6 x 20 14	4	2, 3
<input type="checkbox"/>	10	Screw, Hex Head	4	4	
<input type="checkbox"/>	11	Bottom Bracket	2		
<input type="checkbox"/>	12	Screw, Flat Head	#10 x 3/4" 4		
<input type="checkbox"/>	13	Manual Crank Handle	Used with Manual Crank Only 1		5
<input type="checkbox"/>	14	Clip, Manual Crank Handle	Used with Manual Crank Only 2		5
<input type="checkbox"/>	15	Switch Kit	Used with Motorized Only 1		6
<input type="checkbox"/>	16	Override Key	3/8" 1		7

- NOTES:
- Specific awning configuration is specified at time of order, including awning length, fabric, color etc. check awning assembly against original purchase order.
  - 2 bracket kits are available. Kit for applications with a Sprinter rail includes items 2 thru 8. Kit for flat roof applications includes items 2, 3, 8 and 10. Bracket kit is specified at time of order.
  - Brackets quantities for the 4.5 and 5 meter are: item 2 qty: 4; items 3, 8 and 10 qty: 8.
  - The mounting rail (item 4) is included and used for Sprinter applications when the vehicle does not have the OEM sprinter rail installed.
  - Crank Handle (item 12) and crank handle clip (item 13) used with manual crank version only.
  - Switch kit (Item 14) and override key (item 15) used with motorized version only
  - Place the override key (item 15) with RV owner information.

## INSTALLATION

**SPECIAL NOTE:** Some OEM's may furnish the mounting brackets. Install the brackets according to the bracket design. To best support the awnings, the brackets must be positioned below the arm case knuckles. After the brackets are installed, go to "Mounting the Awning" on page 7.

Awning		
2.44m	5.0"	13 cm
2.57m	5.0"	13 cm
3.0m	3.25"	8 cm
3.5m	13.25"	33.5 cm
4.0m	13.25"	33.5 cm
4.5m	4.0"	10 cm
5.0m	14.0"	35 cm

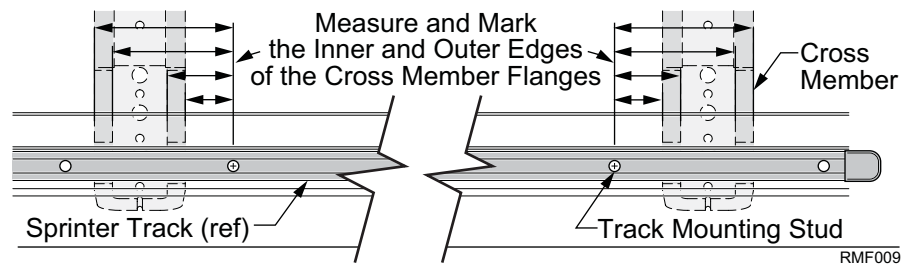
  

Center Knuckle 4.5m & 5m		
4.5m	60.0"	152 cm
5.0m	69.75"	177 cm

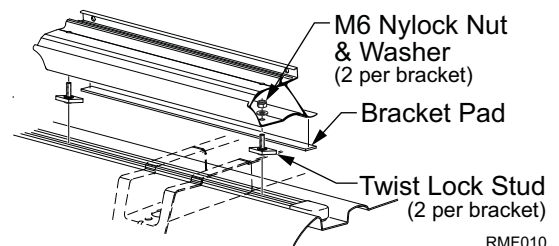
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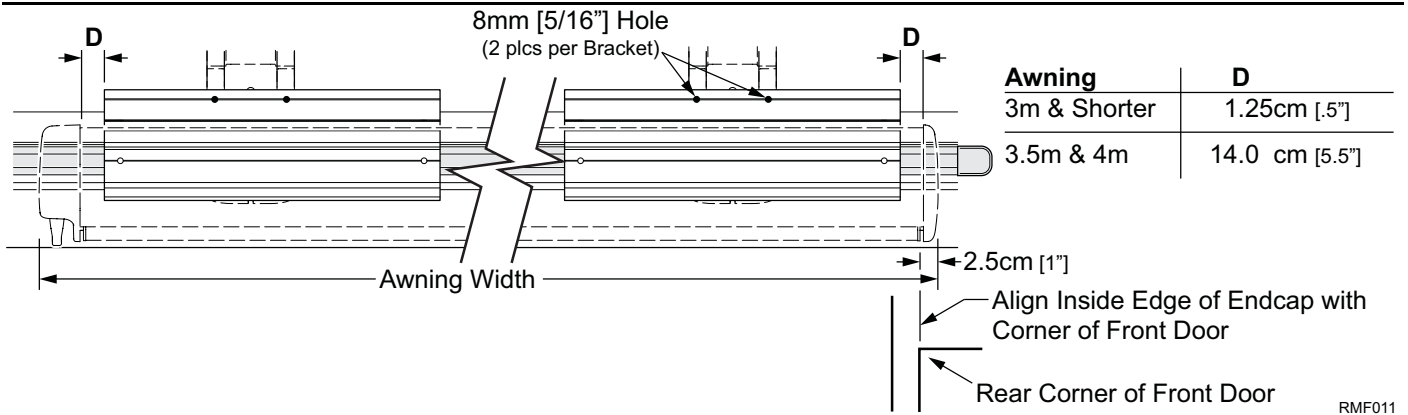
### MOUNTING THE BRACKETS USING THE SPRINTER RAIL

**Special Note:** Sprinter rails are used to mount the 4 meter and shorter awnings on Sprinter style vans. For 4.5 and 5 meter awning, use "Mounting the Brackets On a Flat Roof" on page 5.



1. Mark the position of the awning.
2. On the interior of the van, determine which roof cross members the awning will cover. Generally, the awning is placed forward to go over the sliding door. The front cross member will be the first cross member above the door.
3. Detach any wiring that is routed along the cross members to avoid damage during drilling and installation.
4. Using a common reference point such as the center of a mounting stud location for the sprinter rail, measure the location of the inner and outer edges of the cross member flanges inside the vehicle. Do this for the first and last cross members that the awning covers.
5. Using a non-permanent method of marking, on the exterior (using the same reference point) measure and mark the locations of the inner and outer edges of the flanges.
6. *For sprinter vans without the OEM mounting rail:* Go to "Attaching the Carefree Mounting Rails" on page 4. After the rails have been attached, continue with step 7.
7. Loosely attach a twist lock stud with a flat washer and nylock nut to each end of both mounting brackets.
8. Remove the release paper from the bracket pads and attach the pads to the bottom edges of the brackets. For units using the Carefree mounting rail, stack two of the pads on the rear edge of the bracket. The front edge does not require a pad.
9. *For vans with the OEM mounting rail:* Set the brackets on the sprinter rail with the twist lock fasteners inserted into the track. Do not tighten the nuts for the twist lock studs.
10. *For vans with the Carefree mounting rail:* From one end of the track, slide the brackets onto the rail with the twist lock fasteners inside the rail.

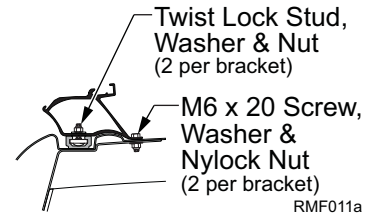




RMF011

## 11. Position the brackets on the roof.

- 11.1. The brackets must straddle the roof cross members, they do not need to be centered over the cross members. Reference the marks made previously.
- 11.2. Make sure that the outer edges of the brackets are within the dimension range (D) shown for the end of the awning. Adjust the bracket position as necessary.



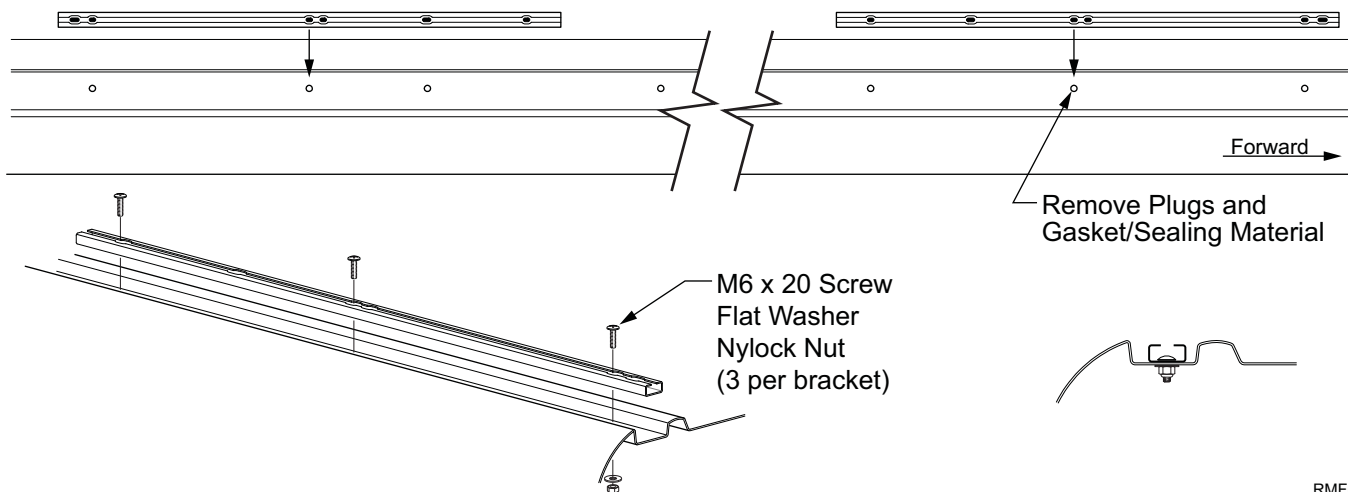
RMF011a

## 12. Tighten the nuts for the twist lock fasteners.

13. For each bracket, drill two (2) 5/16" [8mm] holes through the bracket, roof and cross member flanges.
14. Secure the brackets to the roof using two (2) each M6 x 20 screws, flat washers and nylock nuts.
15. Go to "Mounting the Awning" on page 7.

## Attaching the Carefree Mounting Rails

When the Sprinter van is not equipped with the OEM Sprinter mounting rails, two (2) mounting rails are included in the mounting bracket kit. The rails are pre-drilled to match stud locations for the OEM rail.



RMF022

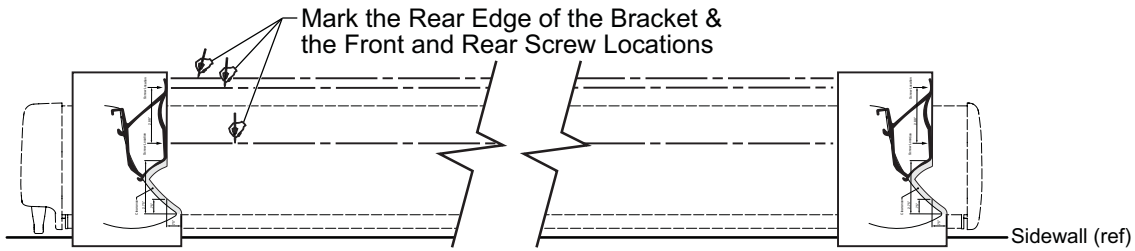
1. Set the rails on the van to determine the correct mounting holes to be used. Each rail must be attached with 3 screws. It may be necessary to turn the rail mounted at the rear of the vehicle 180° to match the existing mounting locations.

**NOTE: The rail must be positioned to support the entire length of the mounting bracket.**

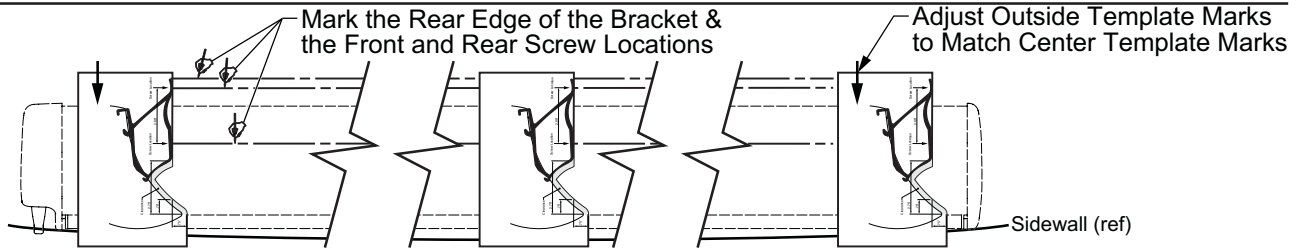
2. Remove the hole plugs from the roof and clean any gaskets and sealing material.
3. Coat the bottom of the rails with a quality silicone sealant and place the rails in position.
4. Coat the hole locations with sealant then attach each rail to the roof using 3 ea M6-20 screws, flat washers and nylock nuts.
5. Seal the edges of the rail.
6. Return to step 7 on the previous page to install the mounting brackets.

## MOUNTING THE BRACKETS ON A FLAT ROOF

1. Determine the location of the awning.
2. To aid in positioning the brackets, a full size template is furnished on the last page of this manual. Copy and paste or tape the page to a piece of cardboard then cut along the dotted line.



**Vehicles with Flat Sides**



**Vehicles with Tapered Sides**

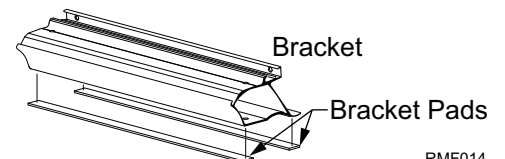
RMF015

3. On each end of the awning location, set the template on the roof and mark the position of the rear edge and the mounting hole locations. Connect the marks; these will be the installation guidelines.

For vehicles with tapered sides: Use the template and mark the locations in the center of the awning. Adjust the outer marks to align with the center marks. The brackets must be straight to properly mount the awning.

4. In the interior, there must be structural framing beneath the locations of the both the front and rear mounting hole locations. If there is none, the installer must furnish structural framing in these areas.
5. Mounting Hardware: The installer must furnish the mounting hardware to match the type of structural framing that is used. Hardware suggestions are provided below:

- For open aluminum supports: \_\_\_M6 or 1/4"-20 screws, washers and nylock nuts (*i.e. open channel*).
- For closed aluminum supports: \_\_\_M6 or 1/4" self drilling or self tapping screws & washers (*i.e. box or tube channel*).
- For wood supports: \_\_\_\_\_ 1/4" lag screws & washers.



RMF014

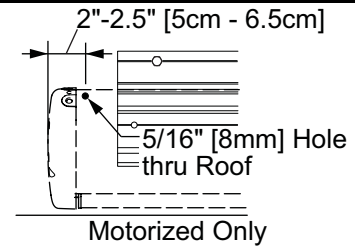
6. Remove the release paper from the bracket pads. Attach the pads to the bottom of the front and rear edges of the brackets.





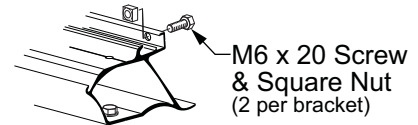
## MOUNTING THE AWNING

1. For Motorized Awnings: The motor wire comes out of the motor endcap under the awning. Use the dimensions shown to locate and drill an 5/16" [8mm] hole into the vehicle.

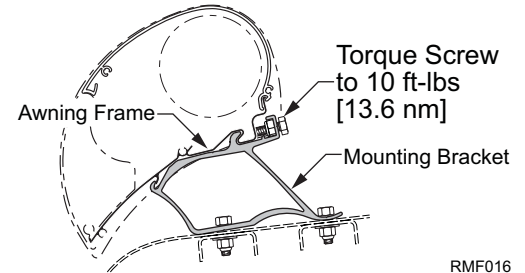


**NOTE:** Locate the hole to avoid interior framing, cabinets and electrical components that could be damaged or interfere with the hole location.

Ensure that the motor wires are accessible after routing. There is 70" [180cm] of wire furnished with the motor. If the final routing to the switch location is greater than 180cm, the installer must splice additional 18awg wire to the motor wires. Wire and splices are furnished by the installer.



2. In the rear track of each mounting plate, start two (2) M6 x 20 screws and square nuts through the holes in the back of the mounting plate. Do not tighten at this time.
3. Lift and set the awning into the hooks of the mounting brackets. Pull the case forward to engage the brackets fully.
4. Horizontally position the awning on the brackets. Align the inside edge of the RH Endcap with the rear corner of the front door.
5. Tighten the rear screws. Torque to 10 ft-lbs [13.6 nm].

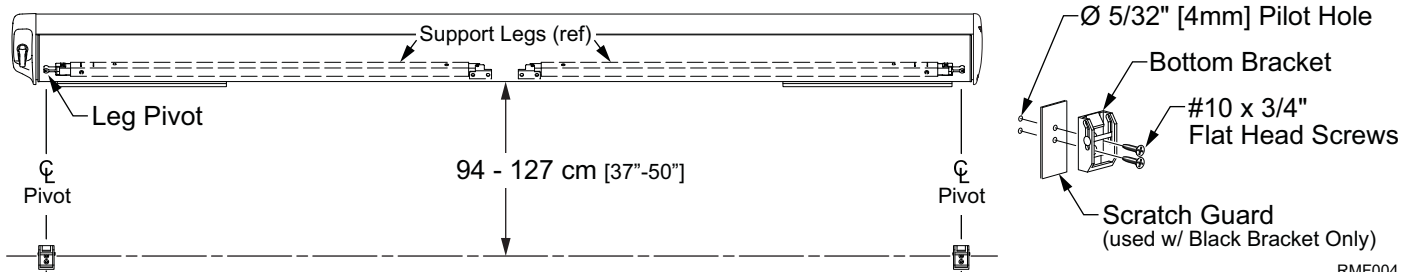


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## MOUNT BOTTOM BRACKETS

The patio awning is equipped with vertical supports. These supports extend from the leading edge of the awning to a bracket mounted on the wall or may be used in a carport position on the ground.

1. Determine the location of the wall brackets:
  - 1.1. Open the awning enough to see the support legs in the leading edge.
  - 1.2. On the coach wall mark the location of the pivot point of the legs.
  - 1.3. From the bottom of the awning, measure down vertically 94-127 cm [37"-50"] and mark the location of the brackets.



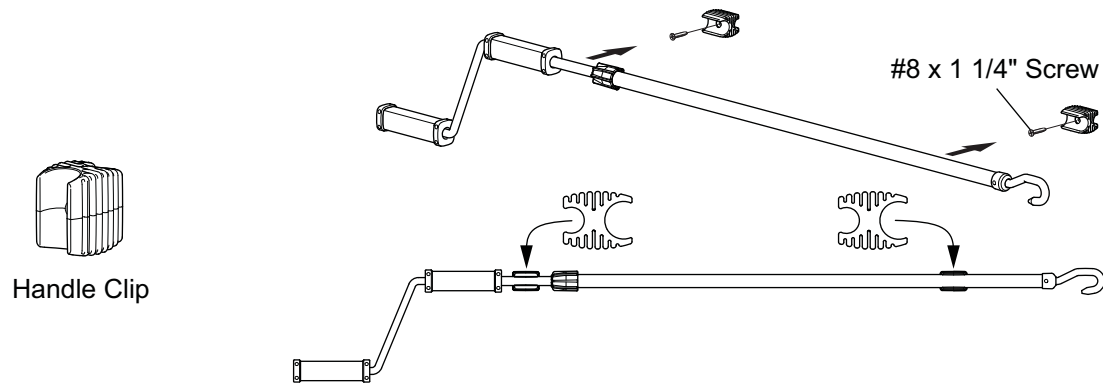
RMF004

2. Center the brackets on the location marks, then using the bracket as a template, drill two (2) 5/32" [4mm] pilot holes. Attach the plate with two (2) #10 x 3/4" flat head screws. For black hardware, a scratch guard is included. The guard mounts between the bracket and wall as shown.

This completes the installation of the manual awning. For motorized awnings go to "Switch Installation" on page 9.

## MANUAL CRANK HANDLE STORAGE CLIPS

Two clips are provided to store the manual crank handle. These may be mounted horizontally or vertically.



CH001

The clips are designed so that one side has a smaller diameter to fit the smaller tube of the handle. The other side has a larger diameter to fit the larger tube of the handle. The clips can be arranged as shown or the clips can be oriented so both attach to the larger tube (i.e. if the handle is fully collapsed for storage).

1. Snap the clips on to the crank handle.
2. Position the handle in the desired location and mark the locations of the clips.
3. Remove the clips from the crank handle and mount at the marks made previously. Use the #8 x 1 1/4" screws provided.

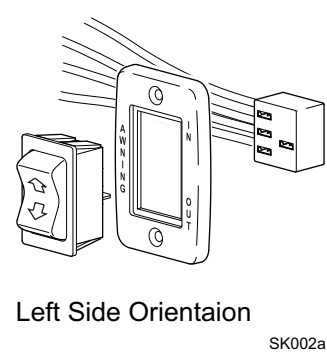
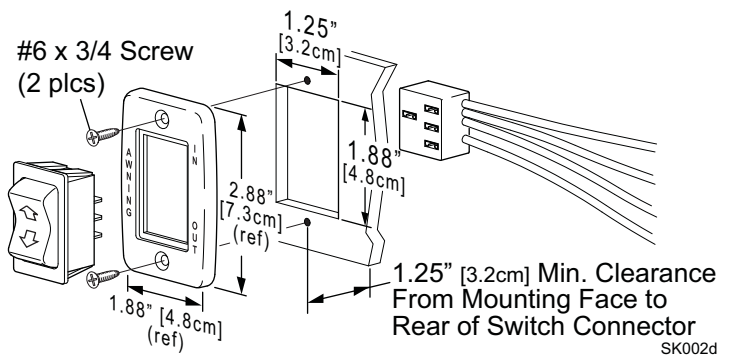
**NOTE:** The screws will go through the mounting surface approximately 1/2"; if the mounting surface material is thinner than 1/2" the screws will protrude through the opposite side.

*This completes the installation of the manual awning. For motorized awnings go to "Switch Installation".*

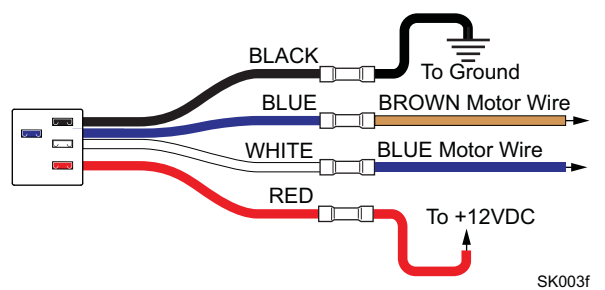
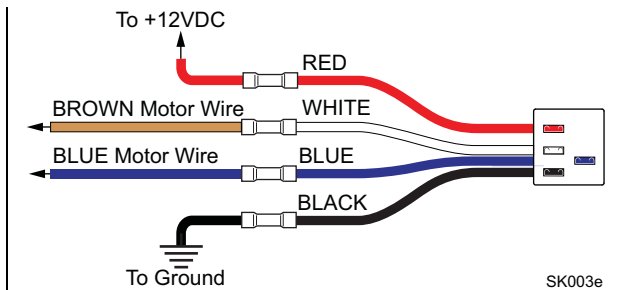
# SWITCH INSTALLATION (MOTORIZED AWNINGS ONLY)

**⚠ CAUTION Always disconnect the vehicle battery before working with the electrical wiring.**

1. Determine the location for the switch.
  - There is approximately 70" [180cm] of wire from the awning motor. If the distance to the switch exceeds the furnished wire, the installer must furnish 18 awg wire and butt splice to the motor wires.
  - Location should provide the operator a view of the awning during operation.
  - The switch requires a 1 7/8" x 2 7/8" [4.8cm x 7.3cm] area on the mounting surface and a minimum clearance depth of 3.2cm [1.25"] from the mounting surface.
1. At the switch location, cut a rectangular hole 1.25" [3.2cm] x 1.88" [4.8cm] through the mounting surface.



2. Determine the switch orientation:
  - 2.1. The wires of the connector extend from the side of the switch with 3 terminals on the back.
  - 2.2. For wire routing on the right side of the switch as shown in Details A and B, orient the switch with the 3 terminals on the right.
  - 2.3. For wire routing on the left side of the switch as shown in Detail C, orient the switch with the 3 terminals on the left.
  - 2.4. Push the switch into the faceplate until the tabs on the switch "click" into place behind the faceplate. Ensure that the switch and faceplate are oriented so that the lettering is up and the wires are oriented as desired.
  - 2.5. Set switch aside.
3. Route the awning motor wires through the switch hole and attach to the switch connector:



CONNECTOR WIRE COLOR	LH CONNECTOR ORIENTATION	RH CONNECTOR ORIENTATION
RED →	+12VDC	+12VDC
WHITE →	BROWN (motor wire)	BLUE (motor wire)
BLUE →	BLUE (motor wire)	BROWN (motor wire)
BLACK →	Ground	Ground

5. 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.
6. Run a minimum 14 awg wire to system ground.
 

**NOTE: If the wire run is 30 feet or longer, use 12awg wire to prevent voltage drop.**
4. Route the two wires through the mounting hole. Butt splice the 12VDC wire to the RED connector wire. Butt splice the ground wire to the BLACK connector wire.
5. Attach the connector to the switch.

6. Restore power and test the switch operation.
7. If the awning operates opposite to the switch plate markings: Shut off power; Reverse motor wires connected to the blue and white connector wires; then, Restore power and test.
8. Push the wires, connector and switch into the mounting hole and secure the switch plate. Use two (2) #6 x 3/4" flat head screws.

## OPTIONAL LED LIGHTING

Optional LED lighting may be mounted in the lead rail. The wiring runs along the top of the arm.

*For motorized awnings:* Route the LED wire harness with the motor cable.

*For manual crank awnings:* The harness through the end of the case. Drill a 3/16" hole into the vehicle wall as shown on page 7.

### CAUTIONS:

- ⚠ The wire should be secured to the wall of the vehicle where it is exposed on the outside of the vehicle. Use a quality silicone sealant/adhesive.
- ⚠ 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.

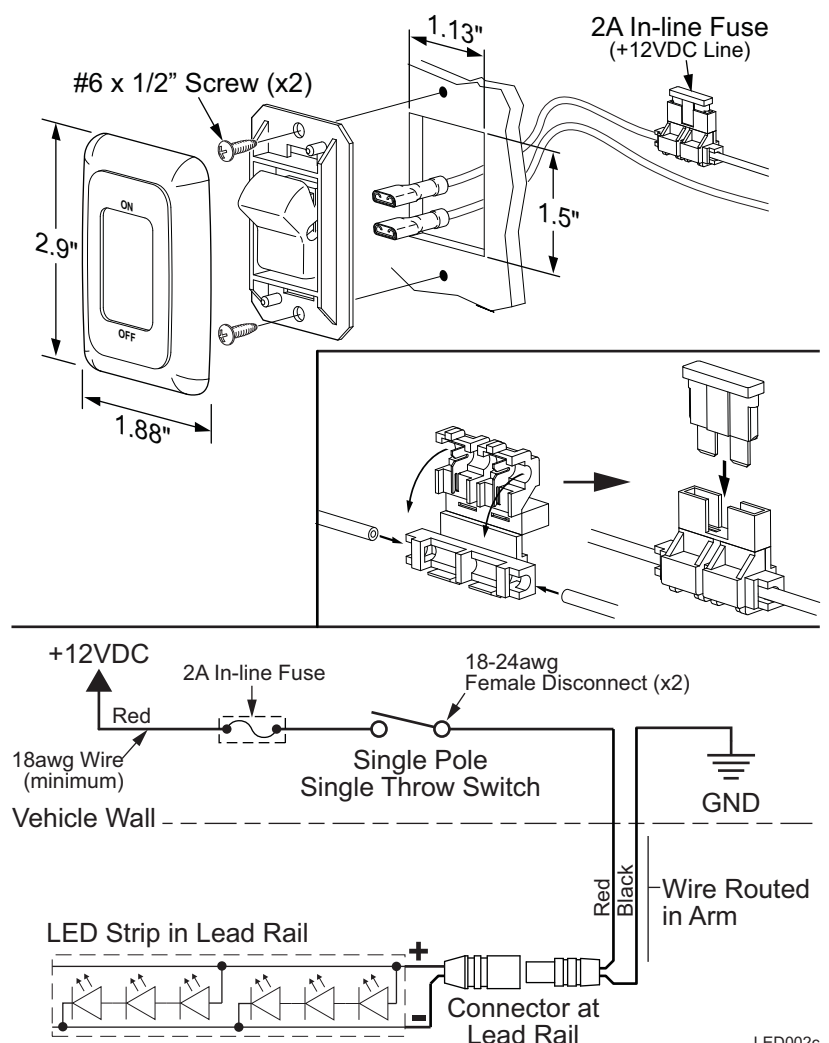
### SWITCH INSTALLATION

**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

## SETTING THE MOTOR LIMITS

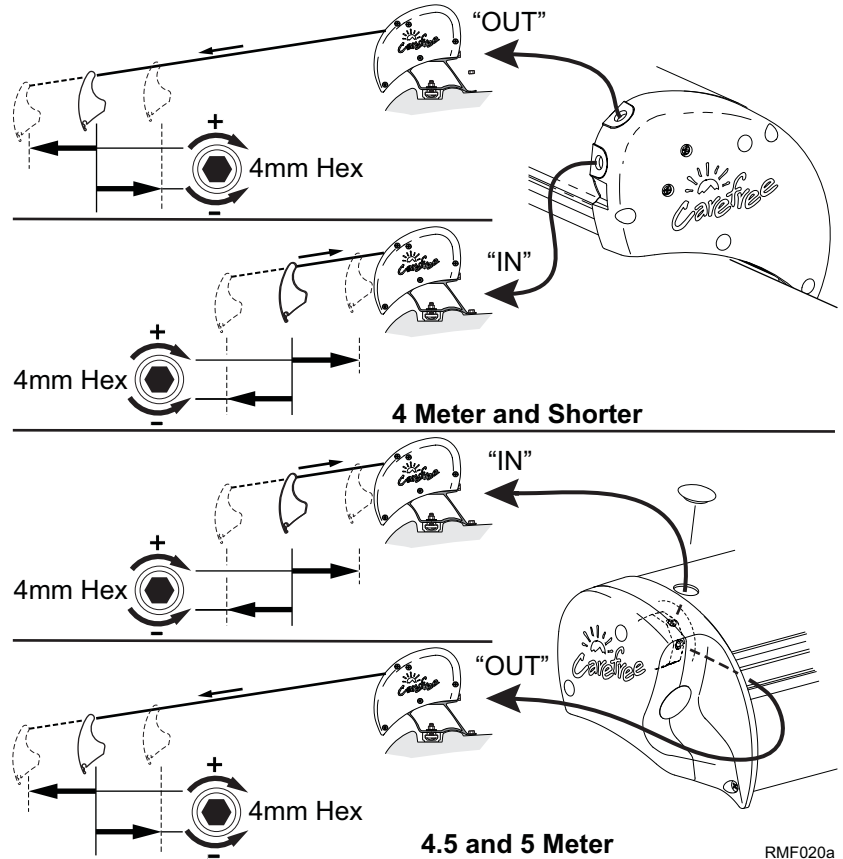
The motor limit switches are preset at the factory for best operation of the awning. It may be necessary to reset the switches. The "OUT" limit switch is used to stop the motor when the awning is fully extended. The "IN" limit switch is used to stop the motor when the awning is fully retracted.

The limit switches are located inside the motor endcap. To access the switches:

- For 4 meter and shorter, remove the plugs from the back of the motor endcap and use a 4mm Hex wrench through the holes.
- For 4.5 and 5 meter, remove the top plug for the "IN" switch; the "OUT" switch is accessed through the front of the case with the awning open.

### Adjusting the OUT Limit Switch

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 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.

### Adjusting the IN Limit Switch

1. Retract the awning in completely.
2. Confirm that the arms are fully retracted. The motor should stop when the awning is fully retracted. If the motor quits before the arms are fully retracted, it will be necessary to adjust the "IN" limit switch.
3. Using a 4mm Allen wrench turn the "IN" limit switch. Clockwise increase time the motor runs during retraction, counter clockwise 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 retracts correctly.

# BRACKET POSITION TEMPLATE

Use this template when mounting brackets without a Sprinter rail.

