



# INSTALLATION MANUAL

## APEX 2 STAGE

### CAREFREE STYLE CODE “ZJ, Z2”

#### 110V MOTORIZED ROOF MOUNTED BOX AWNING

## RV



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



## TABLE OF CONTENTS

<b>Product Overview</b> .....	<b>1</b>
Apex 2-Stage Patio Awning Specifications .....	1
Component Checklist.....	2
<b>Installation – Mechanical</b> .....	<b>3</b>
Required Pre-Installation Parameters .....	3
Mounting Bracket Layout and Installation for ZJ .....	4
Mounting Bracket Layout and Installation for Z2 .....	6
Mounting the Awning Unit.....	8
<b>Controller Installation</b> .....	<b>9</b>
<b>Standard System Adjustments</b> .....	<b>10</b>
Adjusting the Pitch.....	10
Manual Override .....	10
Setting the Motor Limits .....	11
Adjusting the OUT Limit Switch .....	11
Adjusting the IN Limit Switch .....	11

## PROPRIETARY STATEMENT

The Apex 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



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



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



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



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

### General Safety:



This product can expose you to chemicals including Di-isodecyl phthalate (DIDP), Vinyl Chloride and Formaldehyde, which are known to the state of California to cause cancer or birth defects or other reproductive harm. For more information visit [www.P65warnings.ca.gov](http://www.P65warnings.ca.gov)



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



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



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



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

Electric components in this product have been tested by the following agencies:



**Motor:** UL Recognized (USA)  
CSA Approved (Canada)  
**Controls:** UL Listed (USA & Canada)



## **PRODUCT OVERVIEW**

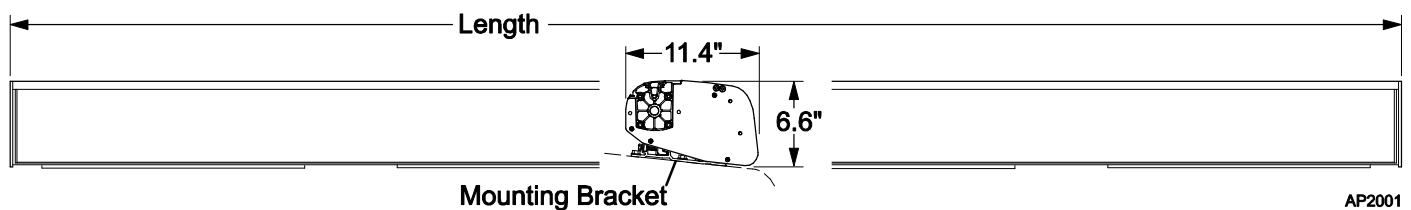
The Apex 2-Stage Patio Awning offers the coach owner an awning system that provides as much or as little shade as required. The canopies are housed in an aluminum case that easily blends in with the coach roof. The awning extends to a maximum of 10 feet from the side wall. The canopy is made from Acrylic fabric.

Each unit is equipped with lateral support arms that are the strongest available on the market. No vertical arms interfere with coach sidewalls or equipment that may be mounted on the roof. These arms can also be adjusted to vary the canopy pitch up to 3 feet (it is strongly recommended that service and adjustments be performed by trained technicians).

The unique and innovative 110V electronic control system provides Carefree's *Direct Response* system with interior touch pad controls for standard extend/retract functions. At the master control panel the auto-retract system can be engaged to automatically retract the awnings in windy conditions with sensitivity, set by the user, to respond to a variety of wind speed conditions. An RF remote is furnished with the *Direct Response* system.

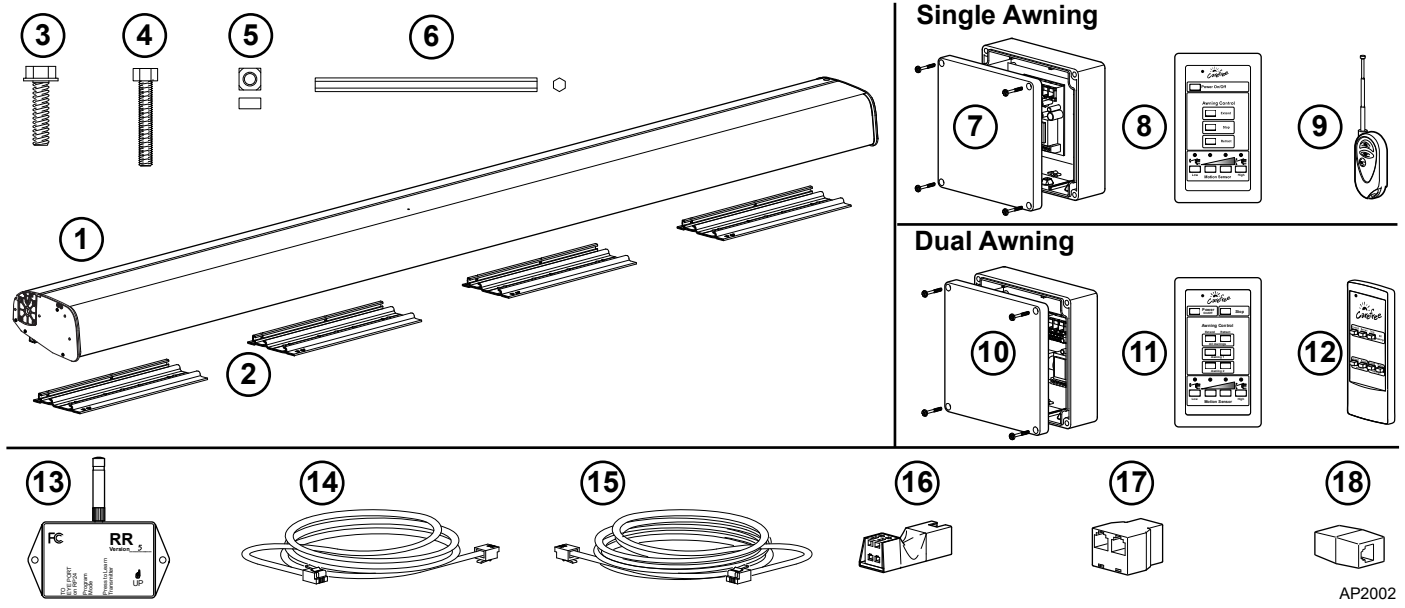
### ***Apex 2-Stage Patio Awning Specifications***

The following information is for reference only. Specific information is detailed in the installation instructions.



<b>LENGTHS:</b>	12' – 22'	
<b>EXTENSIONS:</b>	10' (standard)	
<b>COLORS AVAILABLE:</b>	Case:	Black
	Fabric:	Woven Acrylic Fabric refer to order form for available colors
<b>MOTOR SPECIFICATIONS:</b>	Available in LH or RH configurations	
Type:	Tubular Motor	
Power:	120V, 60HZ, 2.5A	
Torque:	60 nm	
Speed:	14 RPM	
Cycle:	40 Sec ON / 1 Min OFF	

### COMPONENT CHECKLIST



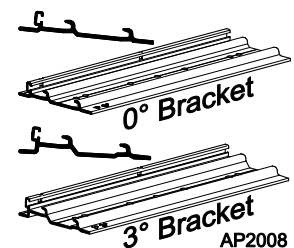
☑	ITEM	DESCRIPTION		QTY	NOTE
<input type="checkbox"/>	1	Apex 2-Stage Awning Assembly		1	1
<input type="checkbox"/>	2	Mounting Bracket		4	2
<input type="checkbox"/>	3	Screw, Rolock, Thread Cutting	3/8 x 1 1/2	24	
<input type="checkbox"/>	4	Screw, Hex Head	5/16-18 x 2	4	
<input type="checkbox"/>	5	Square Nut	5/16-18	4	
<input type="checkbox"/>	6	Hex Key	7mm x 133mm	1	
<input type="checkbox"/>	7	Control Box	Single Awning	1	3
<input type="checkbox"/>	8	Key Pad Assy	Single Awning	1	3,4
<input type="checkbox"/>	9	Remote Control Key FOB, 433MHz	Single Awning	1	3,5
<input type="checkbox"/>	10	Control Box	Dual Awning	1	3
<input type="checkbox"/>	11	Key Pad	Dual Awning	1	3,4
<input type="checkbox"/>	12	Remote w/ stop, 433 MHz	Dual Awning	1	3,5
<input type="checkbox"/>	13	RF Receiver, 433 MHz		1	
<input type="checkbox"/>	14	RJ11 Cable	60 inches	1	6
<input type="checkbox"/>	15	RJ11 Cable	240 inches	1	8
<input type="checkbox"/>	16	Sensor, Ignition Lock-Out		1	7
<input type="checkbox"/>	17	Splitter		1	7
<input type="checkbox"/>	18	Coupler, Cable		1	8

Notes: 1. Awning configuration is specified at time of order, including awning length, LH or RH configuration, fabric color etc. Check awning assembly against original purchase order.

2. Mounting brackets (item 2) are ordered separately. QTY varies by length.

2 mounting bracket configurations are available:


- The "0°" bracket is used for roofs with a pitch greater than 3°.
- The "3°" bracket adds 3° of pitch for use on roofs with a flat pitch from 0° to 3°.



3. Electronic components are not interchangeable between systems.
4. Mounting screws are included with switches and mounting plates.
5. Additional remotes can be ordered separately.
6. 60" cable (item 14) is furnished with items 8 and 11.
7. The optional ignition lockout and splitter (items 16, 17) must be ordered separately. Two versions of the lockout sensor are available; refer to page **Error! Bookmark not defined.** for description.
8. Long cable (item 15) and /or coupler (item 18) are specified at time of order.

## **INSTALLATION – MECHANICAL**

The following instructions are for the physical installation of one awning. Repeat the instructions for each awning to be installed.

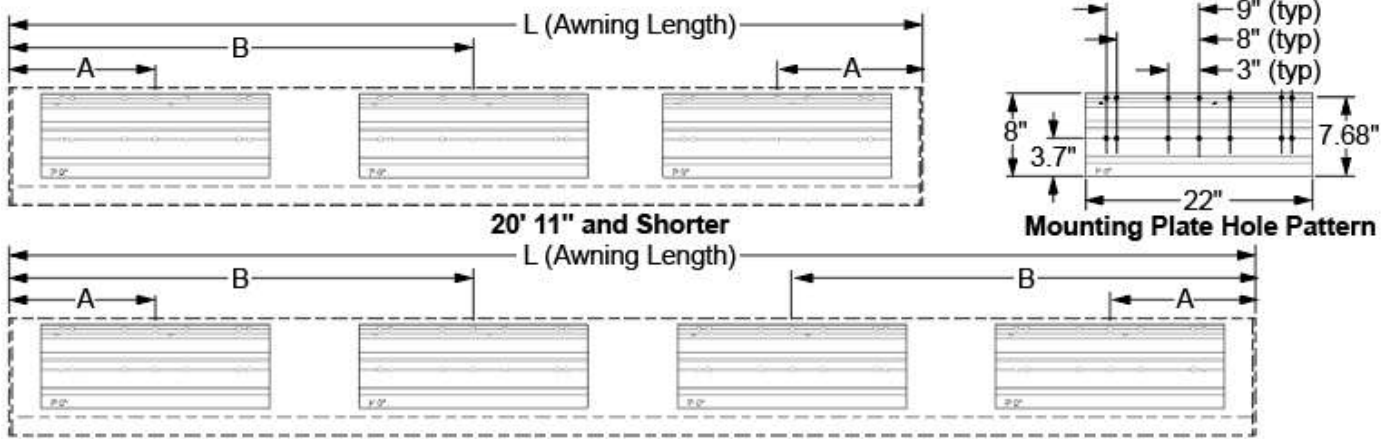
** WARNING** The Apex 2-Stage awning has significant weight. The awning and attaching brackets must be securely attached to the structural frame of the roof. Consult the coach manufacturer to determine the type and position of the roof's structural members and the structure's ability to support the weight. Failure to heed this warning can result in serious injury and property damage.

### **REQUIRED PRE-INSTALLATION PARAMETERS**

Prior to installing the awning system, the installer must determine the layout of the system and provide specific construction elements to successfully assemble the awning components.

1. Determine the location, size and type of awning to be mounted.
  - There must be structure at the awning mount locations. Fiberglass or sheet metal alone is **NOT** strong enough to support the weight of the awning!
  - The brackets must be secured to a backing plate as large as the brackets. The backing plate must be fully attached to the structure of the vehicle.
    - Aluminum backing plates must be a minimum .25" thick.
    - Steel backing plates must be a minimum 7 gauge (.18" thick).
2. Determine the mounting locations for the control box and switch assemblies.
  - For 110VAC installations, the installer must provide enclosed junction boxes for all wire splices. Boxes are required in conformance with prevailing construction codes.
  - 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 lead rail of the patio awning. 10 feet cable is available from the awning mount position, 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 jumper cable from the box location to the cable end.

# MOUNTING BRACKET LAYOUT AND INSTALLATION FOR ZJ

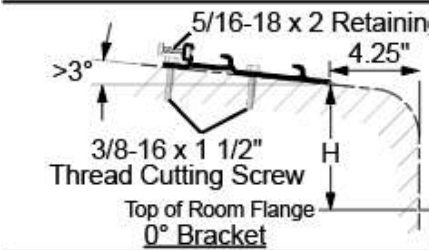


### 10' Arms

L (feet)	A (inches)	B (inches)	# of Arms	L (feet)	A (inches)	B (inches)	# of Arms
12'	13"	Centered	2	18'	13"	73.75"	3
13'	13"	Centered	2	19'	13"	76.75"	3
14'	13"	Centered	2	20'	15.5"	85.75"	3
15'	13"	Centered	2	21'	15.5"	88.75"	3
16'	13"	Centered	2	22'	21.5"	94.75"	3
17'	13"	Centered	2				

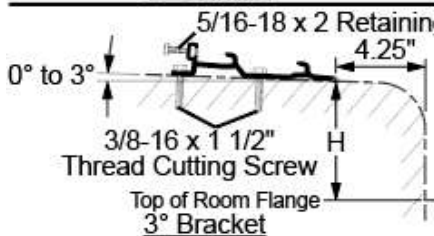
### 12' Arms

L (feet)	A (inches)	B (inches)	# of Arms	L (feet)	A (inches)	B (inches)	# of Arms
14'-3"	13"	Centered	2	19'	13"	Centered	2
15'	13"	Centered	2	20'	13"	Centered	2
16'	13"	Centered	2	21'	13"	83.5"	3
17'	13"	Centered	2	22'	15.5"	87.5"	3
18'	13"	Centered	2				



Projection (Door/Slideout) →	0"	12"	24"	36"	48"	60"	72"
H @ Minimum Pitch ↑	3"	5.5"	8.25"	12"	16"	21"	26"
H @ Maximum Pitch ↑	3"	8"	14"	20.5"	28"	36.5"	45"

The minimum height (H) is measured from the top edge of the projection (i.e. door, slideout room flange) to the bottom of the mounting plate. This table is for reference only.



**NOTE:** 2 mounting bracket configurations are available:

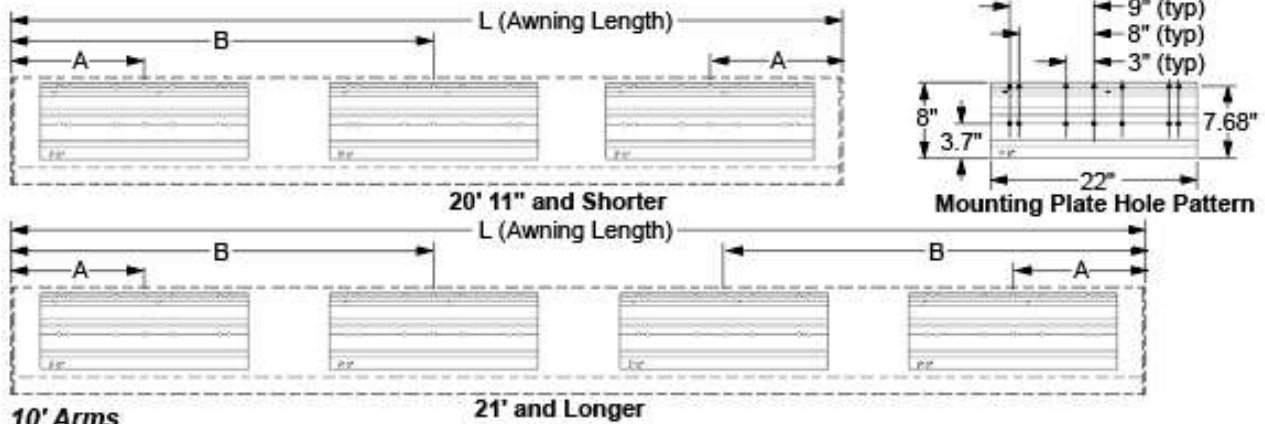
- GJ0008 "0°" bracket is used for roofs with a pitch greater than 3°.
- GJ0009 "3°" bracket adds 3° of pitch for use on roofs with a pitch from 0° to 3°.

AP2003

- Determine the location of the awning mounts:
  - 1.1 Mounting area must be flat and clear of obstacles,
  - 1.2 The awnings have appreciable weight; the mounting screws MUST fasten into the structure.
- Position the mounting brackets on the coach roof. Horizontally position the brackets using the dimensions in the chart.
- Mount the brackets:
  - 3.1 For each bracket, on one end of the bracket, use the bracket as a template and drill an 11/32" pilot hole into the structure. Attach the bracket using a 3/8-16 x 1 1/2 thread cutting screw.
  - 3.2 Confirm position of bracket and repeat step 6 on the opposite end of the mounting bracket.

- 3.3 Continue to drill and attach using the 3/8-16 x 1 1/2 thread cutting screws. Use six (6) screws minimum per bracket.
4. In the rear track of each mounting bracket, start one (1) 5/16-18 x 2 screw and square nut through hole in back of mounting bracket. Do not tighten at this time.
5. At the motor location, drill one (1) 1/2" hole through outer surface. The position may be under or behind the end cap position.

# MOUNTING BRACKET LAYOUT AND INSTALLATION FOR Z2

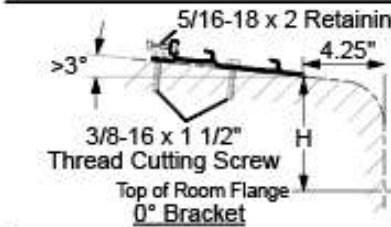


### 10' Arms

L (feet)	A (inches)	B (inches)	# of Arms	L (feet)	A (inches)	B (inches)	# of Arms
12'	13"	Centered	2	18'	13"	73.75"	3
13'	13"	Centered	2	19'	13"	76.75"	3
14'	13"	Centered	2	20'	15.5"	85.75"	3
15'	13"	Centered	2	21'	15.5"	88.75"	3
16'	13"	Centered	2	22'	21.5"	94.75"	3
17'	13"	Centered	2				

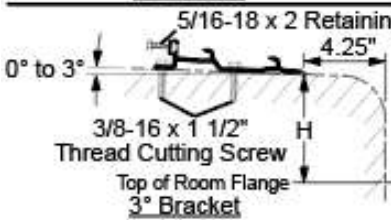
### 12' Arms

L (feet)	A (inches)	B (inches)	# of Arms	L (feet)	A (inches)	B (inches)	# of Arms
14'-3"	13"	Centered	2	19'	13"	Centered	2
15'	13"	Centered	2	20'	13"	Centered	2
16'	13"	Centered	2	21'	13"	83.5"	3
17'	13"	Centered	2	22'	15.5"	87.5"	3
18'	13"	Centered	2				



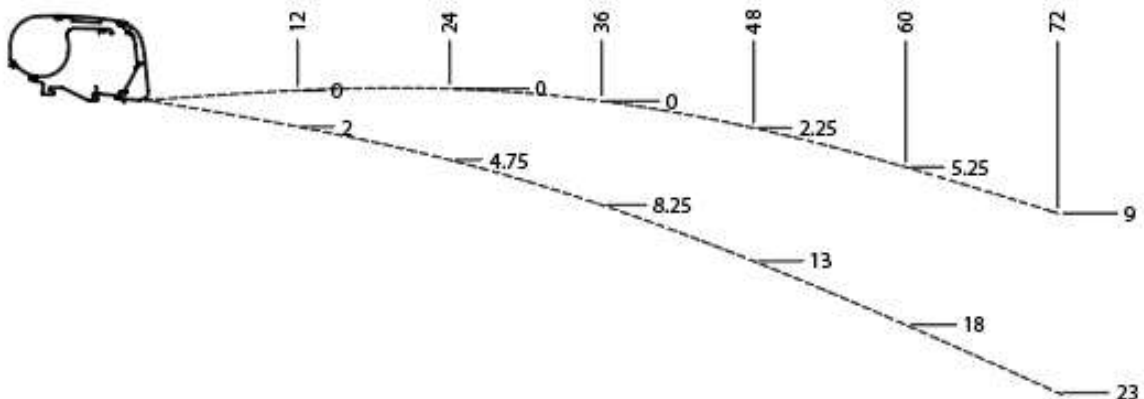
Projection (Door/Slideout)	0"	12"	24"	36"	48"	60"	72"
H @ Minimum Pitch	0"	0"	0"	0"	2.25"	5.25"	9"
H @ Maximum Pitch	0"	2"	4.75"	8.25"	13"	18"	23"

The minimum height (H) is measured from the top edge of the projection (i.e. door, slideout room flange) to the bottom of the mounting plate. This table is for reference only.



NOTE: 2 mounting bracket configurations are available:

- GJ0008 "0" bracket is used for roofs with a pitch greater than 3°.
- GJ0009 "3" bracket adds 3° of pitch for use on roofs with a pitch from 0° to 3°.



AP2003b

1. Determine the location of the awning mounts:
  - 1.1 Mounting area must be flat and clear of obstacles,
  - 1.2 The awnings have appreciable weight; the mounting screws MUST fasten into the structure.
2. Position the mounting brackets on the coach roof. Horizontally position the brackets using the dimensions in the chart.
3. Mount the brackets:
  - 3.1 For each bracket, on one end of the bracket, use the bracket as a template and drill an 11/32" pilot hole into the structure. Attach the bracket using a 3/8-16 x 1 1/2 thread cutting screw.
  - 3.2 Confirm position of bracket and repeat step 6 on the opposite end of the mounting bracket.
  - 3.3 Continue to drill and attach using the 3/8-16 x 1 1/2 thread cutting screws. Use six (6) screws minimum per bracket.
4. In the rear track of each mounting bracket, start one (1) 5/16-18 x 2 screw and square nut through hole in back of mounting bracket. Do not tighten at this time.
5. At the motor location, drill one (1) 1/2" hole through outer surface. The position may be under or behind the end cap position.

## MOUNTING THE AWNING UNIT



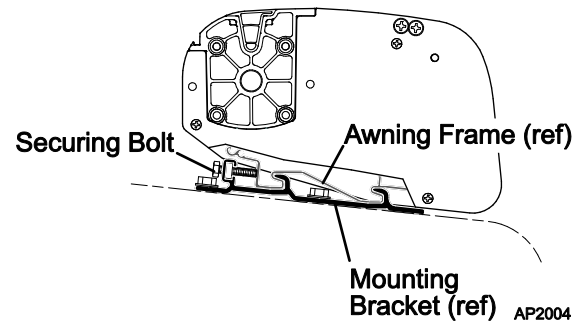
### CAUTION

The awning is extremely heavy. Moving and/or lifting the awning requires a minimum of 3 people. The use of a lifting device is strongly recommended.

1. While lifting the awning, route the awning motor wires through the 1/2" hole drilled previously.

**NOTE:** It is necessary to first insert the sensor cable and connector through the hole then insert the motor wires.

2. Set the awning into the hooks of the mounting bracket. Pull the case forward to fully engage the bracket.
3. Adjust the horizontal position of the awning as required.
4. Tighten the securing bolts. Torque to 10 ft-lbs.
5. Seal the wires and access hole with a quality silicone sealant.



---

## **CONTROLLER INSTALLATION**



When installing the DRC110 Awning Control System, use the wiring and setup instructions in “070040-006 DRC Awning Control System”.

Manual is available on-line at [www.carefreeofcolorado.com](http://www.carefreeofcolorado.com)

## STANDARD SYSTEM ADJUSTMENTS

### ADJUSTING THE PITCH

The awning is factory set with minimum pitch. The amount of adjustment for increasing pitch may be limited by the mounting height above a door opening. Refer to the chart and diagrams on page 4.

**NOTICE** During installation or when the pitch of the awning is adjusted, it is important that the leadrail is parallel to the awning housing.

1. Extend the awning fully.

*To Lower the Pitch:*

2. SLIGHTLY loosen the M12 hex screw on the side of the knuckle.
3. On the front of arm knuckle turn the M12 hex screw COUNTERCLOCKWISE to lower the pitch.
4. Tighten the M12 setscrew until snug.

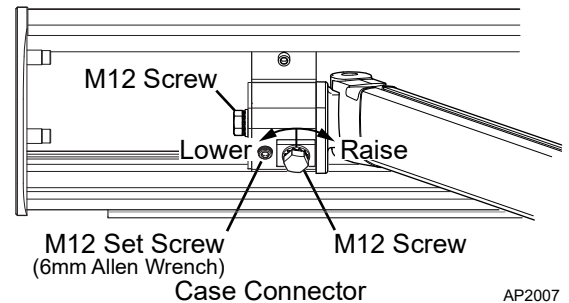
*To Raise the Pitch:*

5. SLIGHTLY loosen the M12 hex screw on the side of the knuckle.
6. Loosen the M12 set screw several rotations.
7. On the front of arm knuckle turn the M12 hex screw CLOCKWISE to raise the pitch.
8. Tighten the M12 set screw until snug.
9. Repeat steps 5 through 8 for the other end.
10. When the pitch adjustments are completed, tighten the M12 screws on the side of the knuckle.

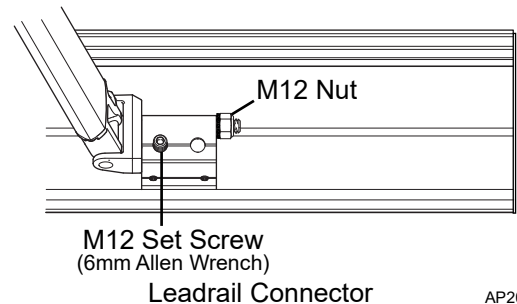
**NOTE:** When raising the pitch, it is helpful to have a second person lift up on the lead rail.

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

11. SLIGHTLY loosen the M12 nut on the side of each arm knuckle on the lead rail.
12. Turn the M12 setscrews of each knuckle to increase or decrease the angle of the lead rail. The bottom of the lead rail should be parallel with the ground.
13. When the lead rail adjustments are completed, tighten the nut on the side of the knuckles.



AP2007

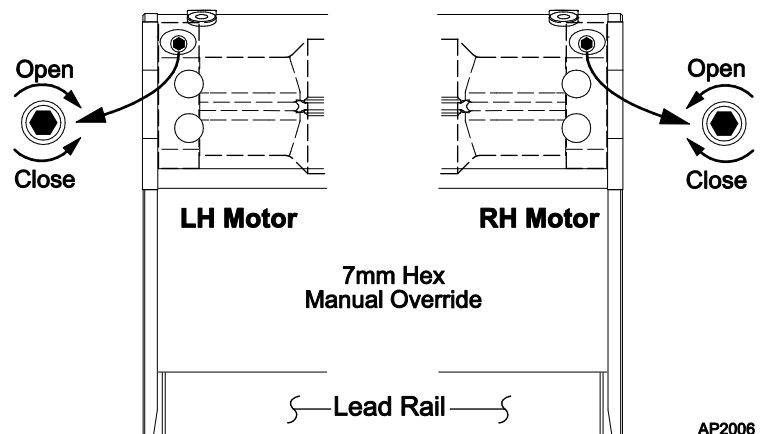


AP2007a

### MANUAL OVERRIDE

If 110V power is not available to the coach, the Apex awning can still be safely retracted using the manual override.

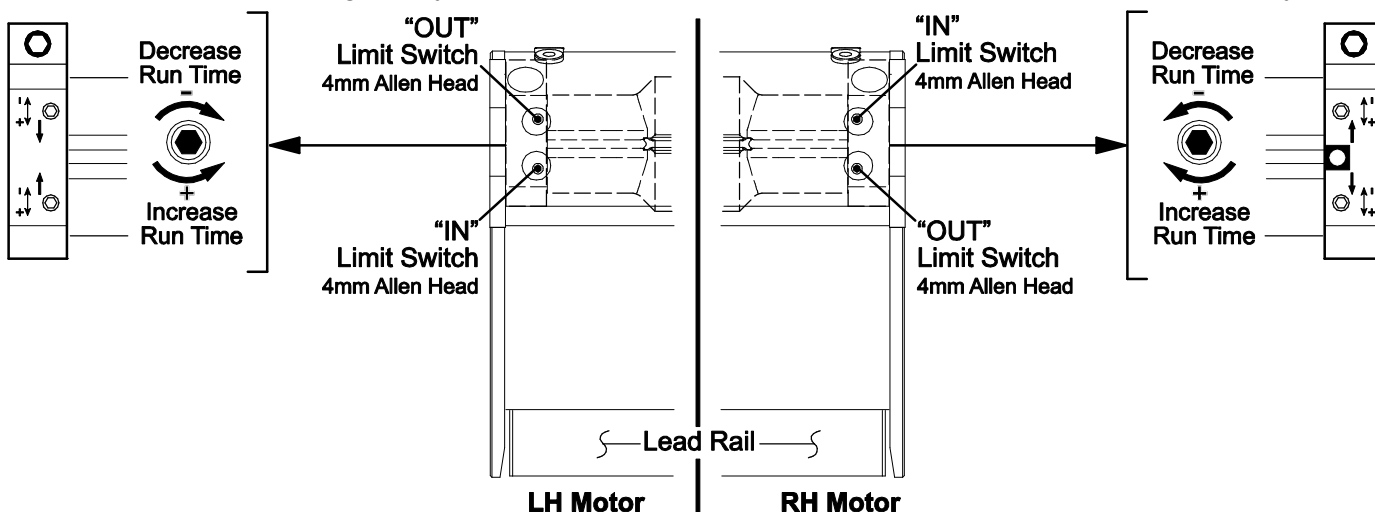
1. The bypass is located inside the case, near the end cap. Remove the large rubber plug located toward the rear of the case on the motor side of the awning.
2. Chuck the 7mm hex key into a 3/8" battery powered drill.
3. Insert the hex key into the manual override on the awning.
4. Operate the drill in the direction shown in the diagram to close the awning. Reverse the drill to open the awning.
5. When done, reinsert the rubber plug.



AP2006

## SETTING THE MOTOR LIMITS

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



The limit switches are located inside the case, near the end plate. To access the switches, remove the rubber plugs on top of the case next to the end plate.

AP2005

### 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. 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.

**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.

3. If the fabric sags:
  - 3.1. Retract the awning until the fabric is tight then retract an addition 10"-12".
  - 3.2. Using a 4mm Allen wrench turn the "OUT" limit switch COUNTERCLOCKWISE to reduce the time the motor runs.
  - 3.3. Extend to confirm that the adjustment is correct.
  - 3.4. Repeat the procedure until the awning extends correctly.
4. If the arms do not extend completely:
  - 4.1. Retract the awning approximately 10"-12".
  - 4.2. Using a 4mm Allen wrench turn the "OUT" limit switch CLOCKWISE to increase the time the motor runs.
  - 4.3. Extend to confirm that the adjustment is correct.
  - 4.4. Repeat the procedure until the awning extends correctly.

### Adjusting the IN Limit Switch

**NOTE:** The "IN" limit switch is not adjusted with the Direct Response system. 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.

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



\_\_\_\_\_  
***OEM Representative (please print)***

\_\_\_\_\_  
***OEM Signature***

\_\_\_\_\_  
***OEM Position***

\_\_\_\_\_  
***Date***

\_\_\_\_\_  
***Carefree Representative (please print)***

\_\_\_\_\_  
***Carefree Signature/Date***

Disclaimer: Carefree performs audits as a service for our customers to help identify situations where installations may not conform to installation instructions, and to identify any potential installation errors. Audits are a random, one-time checkin time and do not verify all the attributes specified in the installation instructions. Carefree cannot be held responsible for any damage or costs as a result of incorrect installation. OEMs must always install products according to installation instructions. This document does not constitute liability or culpability on Carefree’s part for incorrect installations performed by the OEM, dealer, service provider or the consumer.