



**RV**

**with DR110 Awning Control System**



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

For LED replacement parts and service procedures refer to 070013-301 “LED Service Manual for Box Awnings” available on-line at [www.carefreeofcolorado.com](http://www.carefreeofcolorado.com)



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## PROPRIETARY STATEMENT

The Mirage 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.

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## SAFETY INFORMATION



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



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



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



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

### General Safety:



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:** ETL Listed (USA & Canada)



# PRODUCT OVERVIEW

The Mirage 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 side wall. The canopy is made from woven acrylic fabric.

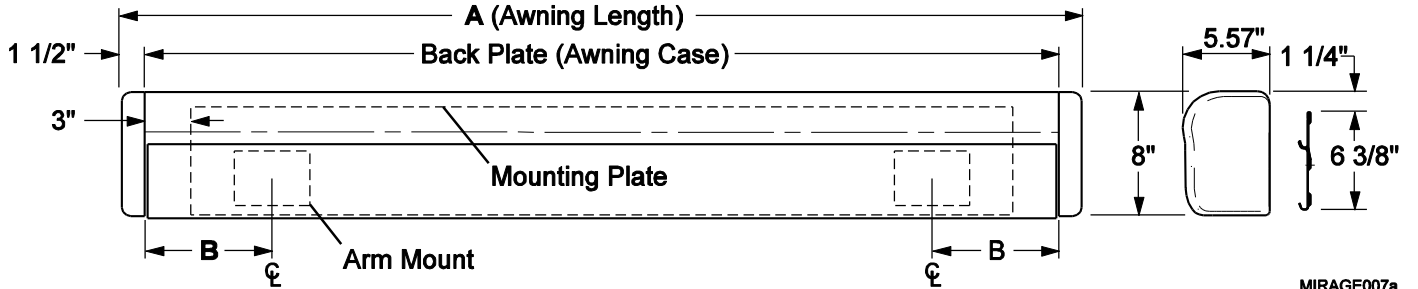
Each unit is equipped with Mirage lateral support arms that are the strongest available on the market. No vertical arms interfere with coach sidewalls or equipment that may be mounted on the sidewalls or sidewall graphics. These arms can also be adjusted to vary the canopy pitch up to 2 feet (it is strongly recommended that service and adjustments be performed by trained technicians).

The DR110 Awning Control System provides flexibility for 110V awning controls for a single patio awning or for multiple awnings including 12V window and door (OtD) awnings.

The Carefree mobile app uses BLUETOOTH® enabled controls. The app provides awning control, adjustable white and RGB LED control and adjustable sensitivity for auto-retract. The app provides individual controls for each awning and allows awnings and lights to be grouped to operate simultaneously.

## MIRAGE PATIO AWNING SPECIFICATIONS

The following information is for reference only.



<b>LENGTHS:</b>		14' – 14' 11"	15' – 17' 11"	18' – 20' 11"	21' – 22'
<b>AVAILABLE EXTENSIONS:</b>	10'	●	●	●	●
	12'	n/a	●	n/a	●
<b>SUPPORT ARMS</b>		2	2	3	3
<b>FUNCTION CONTROLS:</b>		DR110 Awning Control System			
<b>MOTOR SPECIFICATIONS:</b>		Available in LH or RH configurations			
<i>Type:</i>		Tubular Motor			
<i>Power:</i>		120V, 60HZ, 2.5A			
<i>Torque:</i>		60 nm			
<i>Speed:</i>		14 RPM			
<i>Cycle:</i>		40 Sec ON / 1 Min OFF			
<b>COLORS AVAILABLE:</b>		Case:	Black		
		Fabric:	Woven Acrylic Fabric refer to order form for available colors		

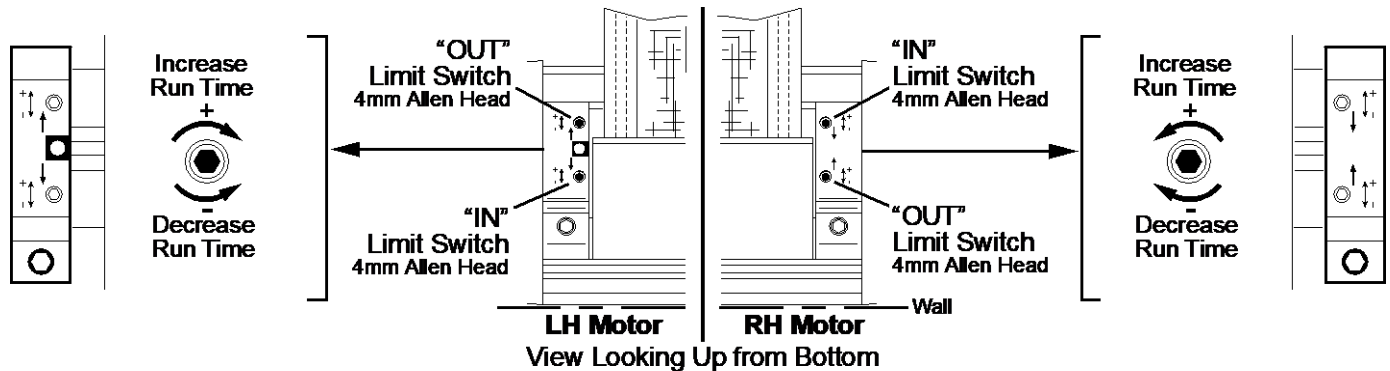
APPROXIMATE WEIGHT (LBS.)								
Awning Length	Weight	Dim B	Awning Length	Weight	Dim B	Awning Length	Weight	Dim B
12	134	6.5in	15	160	11.25in	19	194	17in
13	143		16	169		20	203	
14	152		17	177		21	211	
			18	186				

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## STANDARD SERVICE PROCEDURES

### MOTOR LIMIT SWITCHES

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 cap. To access the switches, extend the awning 6-8".

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### 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.

## ADJUSTING THE PITCH

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

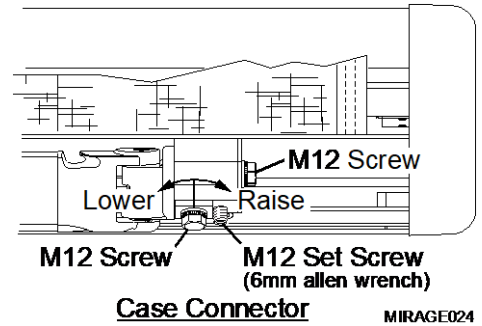
1. Extend the awning fully.

*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.

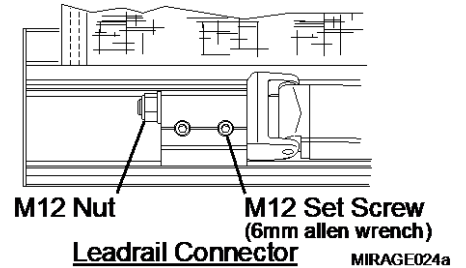


**NOTE:** When raising the pitch, it is helpful to have a second person lift up on the lead rail.

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.

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.



## 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.

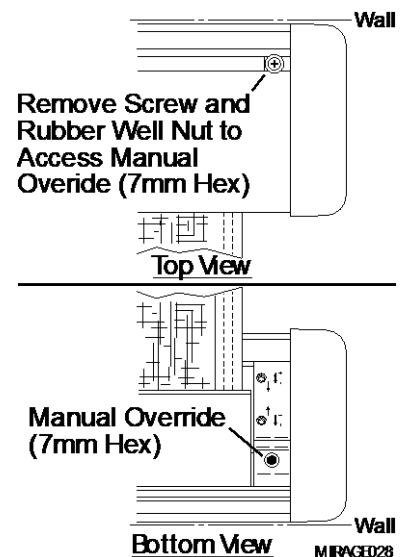
*To use the inside bottom access:* The awning must be open a minimum of 8" to afford access to the override.

*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.



## STANDARD MAINTENANCE

Maintaining the Carefree Manual Patio 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***

**NOTICE** 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 an 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 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.

**NOTE:** Avoid introducing water into the motorized housings.

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 with a dry silicone lubricant. After the arms have been cleaned and dried thoroughly.

### ***Motor Maintenance***

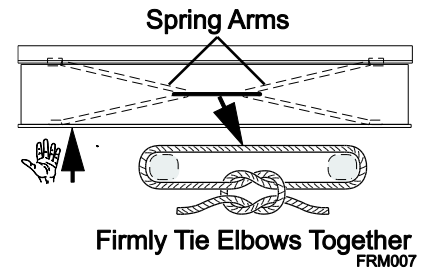
- Check all wiring and connections for wear. Repair when needed.

## CANOPY REPLACEMENT

During the following instructions, use the manual override procedure on page 2 to open and close the awning.

This procedure requires two people.

1. Open the awning 18"-24".
2. Disconnect power to the awning.
3. Carefully push the leadrail toward the case so that the arms collapse and the fabric is slack.
4. While holding the leadrail firmly tie the elbows of the outer 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.



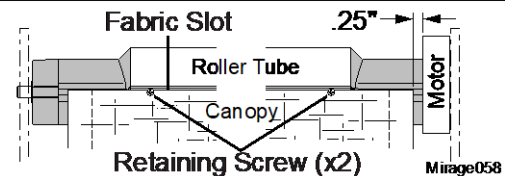
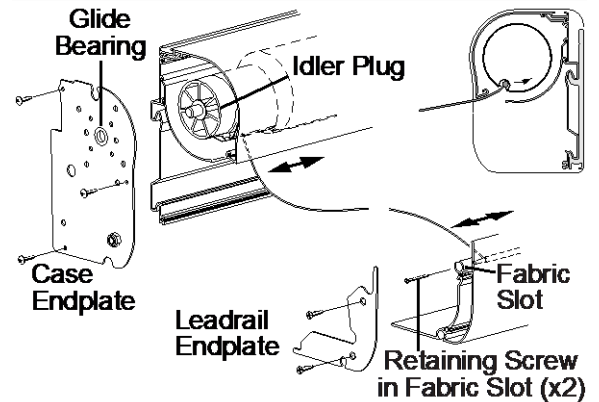
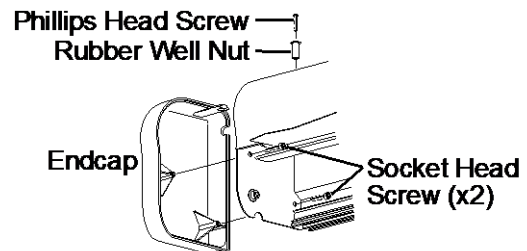
### CAUTION

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

5. Remove the lead rail endplates and fabric retainer screws from the fabric slot on both sides
6. Remove the phillips head screw and rubber well nut from the top of the case and the (2) socket head screws inside the awning case. Set endcap aside.
7. Use the manual override (refer to page 2) to unroll the canopy until the slot in the tube is aligned with the case opening.
8. Remove the fabric retaining screw(s) from the roller tube. There is a retaining screw on both ends of the roller tube.
9. Remove the awning case endplate from the idler side.

**NOTE:** It will be necessary to firmly support the roller tube and keep it from coming out of the case.

10. From the idler end of the roller tube, simultaneously slide the old canopy out of the roller tube and leadrail.
11. Inspect the slots in the roll bar 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 fabric in.
12. Slide the new canopy into the leadrail and roller. Both edges must be done at the same time. Orient the fabric so that the large polycord goes into the leadrail, the smaller polycord goes into the roller tube. The hem should be on the down side.
13. The canopy should be approximately .25" from the end of the motor crown.



14. On the motor side, stake the canopy with one (1) #8 x 1" flat head. The screw goes through the material, polyrod and roller tube in the fabric slot.
15. On the idler side, pull the fabric smooth in the roller tube then secure with a retaining screw through the material, polyrod and roller tube in the fabric slot.
16. Remove any support material from the roller tube and install the case endplate.
17. Use the manual override to roll the canopy onto the roller tube, the material rolls under the roller tube. Ensure the fabric rolls evenly onto the roller tube without wrinkling or folding.
18. Once the fabric is snugly rolled up, remove the rope used to tie the arms together.
19. Restore power to the awning.
20. Extend and retract the awning. Adjust the canopy position in the leadrail as necessary.
21. Install the fabric retainer screws in the leadrail. Attach the leadrail endplates.
22. It may be necessary to adjust the motor limits. Refer to "Adjusting the Motor Limits" on page 1.

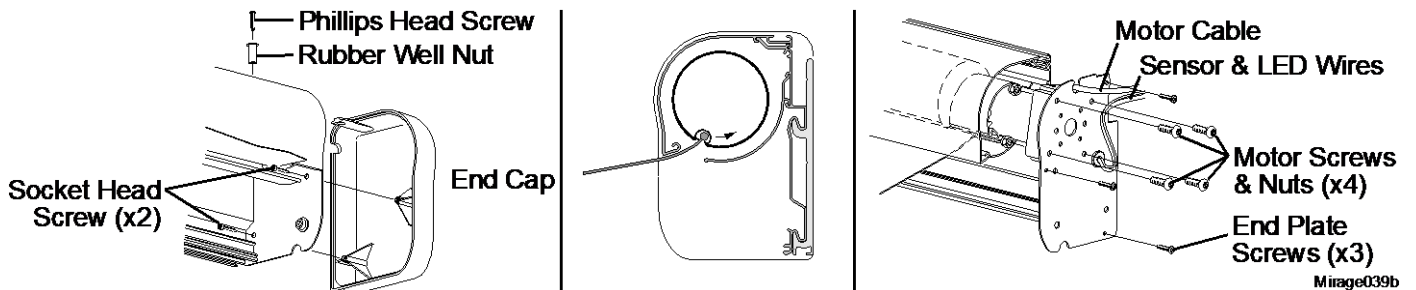
## MOTOR REPLACEMENT



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

This procedure requires two people.

1. Disconnect power to the awning.
2. Disconnect the motor wires at the junction box or control box and pull out.
3. Remove the outer end cap: remove the phillips head screw and rubber well nut from the top of the case and the (2) socket head screws that attach the end cap from the inside of the awning case.
4. Using the manual override (refer to page 1) over extend the awning. The arms should be extended completely, the canopy should be relaxed and the fabric slot of the roller tube should point toward the fabric slot in the case.



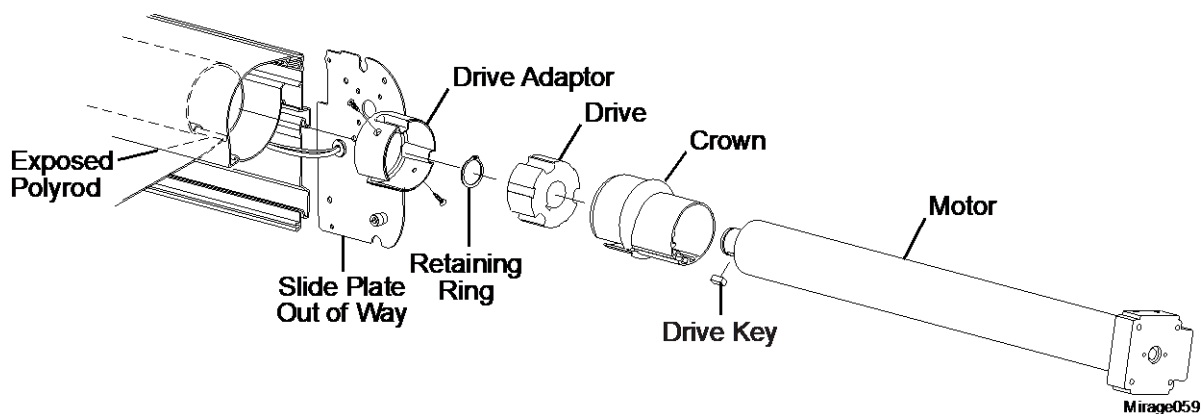
5. Remove the attaching screws for the endplate then carefully pull the endplate and motor partially out from the awning case.

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

**NOTICE** When pulling the motor out of the case, the servicing technician must use care to not break or damage the sensor and LED cables routed through the endplate.

**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 endplate. If this occurs, reinsert the idler into the endplate before continuing.

6. Remove the attaching screws and nuts holding the motor to the endplate. Make note of the motor orientation on the endplate.
7. Slide the endplate along the remaining wires and out of the way then remove the motor with the crown and drive.



**Note:** When the crown is removed the canopy edge with the polyrod will be exposed and extend past the roller tube.

8. Remove the crown from the old motor. This will be used with the new motor.

9. Assemble the new motor:
  - 9.1. Slide the crown onto the motor.

**NOTE:** Discard the included crown and use the existing crown that was removed previously.
  - 9.2. 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.
  - 9.3. Secure the drive using the supplied retaining ring.
  - 9.4. Attach the drive adaptor over the drive and secure with two (2) #8 x .75" self-drilling screws.
10. 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.

**NOTICE** When the crown is seated in the roller tube, the canopy edge with the polyrod must be in the fabric groove of the crown.
11. Attach the endplate to the motor the using the new screws and nuts provided. Make sure to match the orientation from the old motor.
12. Route the new motor cable through the endplate.
13. Press the motor and endplate into the roller tube and attach the endplate to the housing using the screws removed previously.
14. Route the new motor wire into the vehicle and attach at the junction box or control box (refer to wiring diagrams on pages **Error! Bookmark not defined.** - **Error! Bookmark not defined.** for the appropriate control system). **All wiring must conform to NEC (National Electrical Code) and local codes.**
15. Use the manual override to roll the canopy onto the roller tube. The fabric must roll under the roller tube.
16. Install the end cap.
17. To test, restore power then extend and retract the awning.
18. It will be necessary to adjust the motor limits. Refer to page 2.

## SPRING 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.

### REPLACING THE ARM

The following procedure requires 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. Use a scaffold, ladder or other means to firmly support the leadrail.
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. (refer to Detail A) At the leadrail, remove the M12-1.25 lock washer and nut from the arm and leadrail connector.
6. Slightly loosen the 6mm adjustment screw. DO NOT loosen the outer set screw.
7. Firmly grasp the spring arm and slide the leadrail arm knuckle out of the leadrail connector. Allow the arm to extend to its maximum length outside the leadrail. Have a second person hold or otherwise support the unattached end.
8. (refer to Detail B) 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.
9. Slightly loosen the 6mm locking screw.
10. Firmly grasp the spring arm and slide the case arm knuckle out of the arm support. Set the old arm aside.
11. If the arm has wire channel mounted for the sensor cable, carefully remove the channel from the arm to reuse on the new arm.
12. On the replacement arm assembly, remove the leadrail connector and arm support bracket from the arm knuckles.

**NOTE:** The leadrail connector and arm support bracket are included in case there is damage to the existing brackets. If there is no damage, it is not necessary to replace them with the arm.

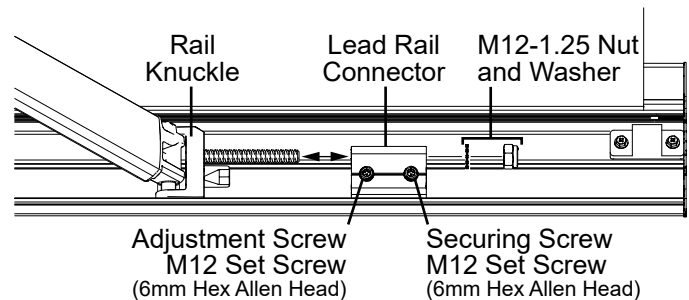
13. If replacing the leadrail connector or case arm support, go to page 8 then return to step 14.

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.

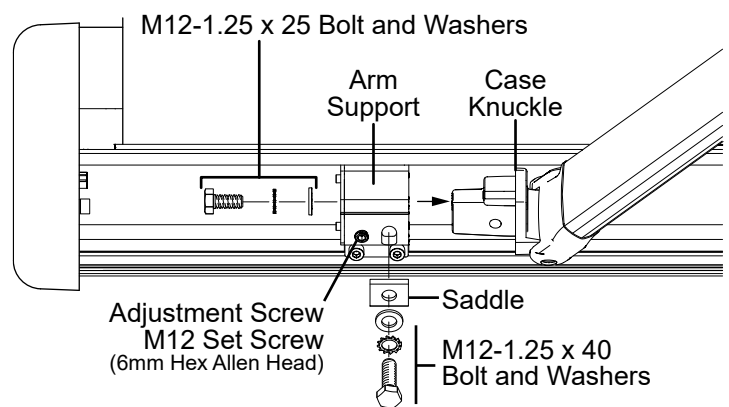
**CAUTION** When the arm is closed, it can open with significant force. Use care when opening the arm.

*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.

15. Lift the arm assembly into position.



Detail A (Lead Rail)



Detail B (Case)

Mirage037

16. (refer to Detail B) 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. (refer to Detail A) Insert the leadrail arm knuckle into the leadrail connector and secure with 1 each M12-1.25 bolt, washer and nut. Do not tighten at this time.
18. 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. If using new channel, cut each piece slightly shorter than the arm extrusion. Attach the channel using double sided tape.
  - b. 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.*
19. Adjust the arm pitch as required. Follow the procedure for pitch adjustment on page 2.
20. After replacing the arm, it may be necessary to adjust the motor limits. Refer to "Adjusting the Motor Limits" on page 2.

### **To Replace the Leadrail Connector:**

1. Remove the leadrail endplate.
2. Carefully mark the location of the existing connector.
3. Loosen the 6mm securing screw and slide the existing connector from the leadrail. This is the outer hex screw.
4. Insert the new connector assembly into the leadrail and position at the marks made previously.
5. Tighten the outer 6mm securing screw.
6. Attach the leadrail endplate.

### **To Replace the Case Arm Support**

1. Carefully mark the location of the existing support.
2. Remove the end cap if installed.
3. Remove the endplate.
  - For the idler side, slide the endplate off of the roller tube idler and set aside. (Refer to details on page 1.)
  - For the motor side, Support the roller tube and carefully pull the motor and endplate out 3"-4". (Refer to details on page 5.)

**NOTICE** When pulling the motor out of the case, the servicing technician must use care to not break or damage the motor cables.

**When pulling the motor, do not let the roller tube come out more than 1"; otherwise the roller tube idler will disengage from the opposite endplate. If this occurs, reinsert the idler into the endplate before continuing (refer to illustration under Canopy Replacement on page 1 for idler description).**

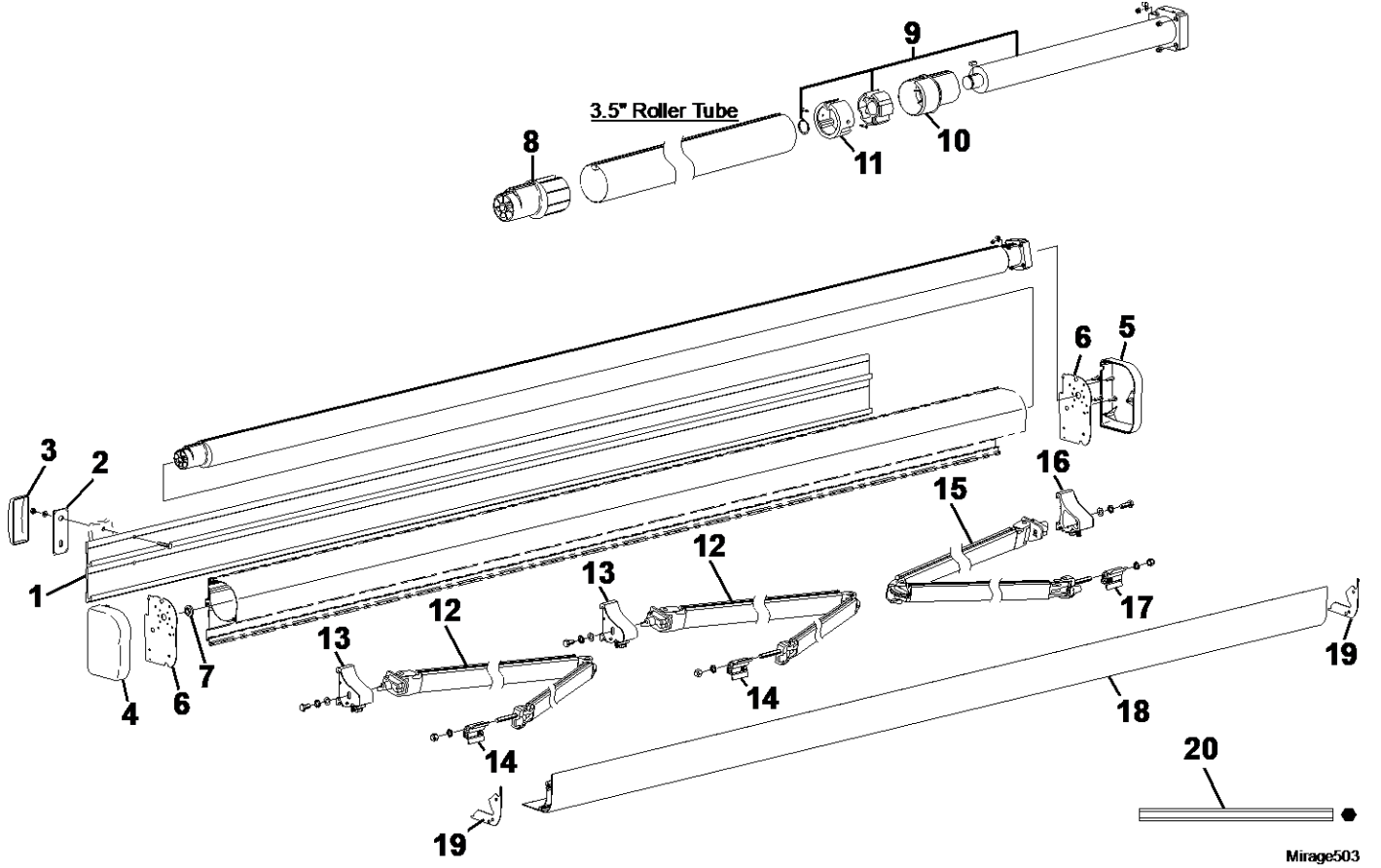
4. Loosen the clamping screws on the support and slide the old support out of the case.
5. Insert the new support assembly into the case and position at the marks made previously.
6. Tighten the clamping screws.
7. For an idler side replacement. Reinstall the endplate. Ensure that the idler pin of the roller tube is properly seated.
8. For a motor side replacement. Press the motor back into the roller tube. Ensure that the idler pin of the roller tube is properly seated on the opposite side. Reattach the endplate to the case.
9. Reinstall the end caps if previously installed.
10. Return to step 14 on the previous page.

# PART NUMBER LISTING

## PART NUMBER/SERIAL NUMBER LOCATION



## ILLUSTRATED PARTS LIST



<i>Item</i>	<i>Part Number</i>	<i>Description</i>	<i>Notes</i>
1	R001077SAT-xxx	Mounting Plate	
2	R036333-001	Backing Plate	
3	R040548-001	Cover, Backing Plate	
4	R001051XXX	End Cap, Standard, LH	
5	R001056XXX	End Cap, Standard, RH	
6	R001052	Endplate, Housing	
7	R035310-002	Bushing, Used on Idler endplate	
8	R041581-001	End Plug, Idler	3.5" Roller Tube
9	R001853	Motor Assy, Orange Body	5
10	R041580-001	Crown, Motor	3.5" Roller Tube
11	R001992-001	Drive Adaptor	3.5" Roller Tube
12	R001616SAT	Spring Arm Assy, LH & Center, Satin	2,4
	R001616BLK	Spring Arm Assy, LH & Center, Black	2,4
13	R019260-101	Case Connector, LH and Center, Mill	2,4
	R019260-JVL	Case Connector, LH and Center, Black	2,4
14	R019261-23L	Leadrail Connector, LH	2,4
15	R001617SAT	Spring Arm Assy, RH, Satin	3
	R001617BLK	Spring Arm Assy, RH, Black	3
16	R019260-001	Case Connector, RH, Mill	3
	R019260-JVR	Case Connector, RH, Black	3
17	R019261-23R	Leadrail Connector, RH	3
18	R001173-XXX-xxx	Leadrail	
19	R001053	Endplate, Leadrail	
20	R030796-001	Hex Key, Manual Override, 7mm	
21	R012458-001	Hardware Pack, Motorized, Aftermarket	not shown
22	R012459-001	Hardware Pack, OEM	not shown

- Notes:
1. XXX = Color; xxx = Length in inches.
  2. Item 12 (LH Spring Arm Assy) contains items 13 and 14 (LH Knuckle and Leadrail Connector).
  3. Item 15 (RH Spring Arm Assy) contains items 16 and 17 (RH Knuckle and Leadrail Connector).
  4. For awnings 19' and longer with 3 arms, use LH arm (item 12) for middle arm.
  5. Motor assembly (item 14) includes drive and attaching hardware. It does not include crown.

For LED replacement parts and service procedures refer to 070013-301 "LED Service Manual for Box Awnings" available on-line at [www.carefreeofcolorado.com](http://www.carefreeofcolorado.com)