

SERVICE INSTRUCTIONS

8500™, 8500™ PLUS, 9000™, 9000™ PLUS, SUNCHASER® II, SUNCHASER® EXPRESS FABRIC ROLLER TUBE ASSEMBLY (FRTA)

REPLACEMENT INSTRUCTIONS

- FABRIC ■ WEATHERSHIELD
- ROLLER TUBE ■ TORSION



Read these instructions carefully. These instructions **MUST** stay with this product.

REVISION D

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INTRODUCTION

These instructions apply to manual type patio awnings (hereinafter referred to as “awning,” or “product”). The Roller Tube Assembly (hereinafter referred to as “FRTA”) consists of a vinyl or acrylic fabric, roller tube, and two torsion assemblies. Some FRTA models may also include a weathershield.

Read these instructions and highlight the appropriate steps for your particular procedure BEFORE starting the replacement. Replacements can be performed by one person with brief help from additional personnel. Use these instructions to ensure correct installation, function, and operation of product.

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DOCUMENT SYMBOLS



Indicates additional information that is **NOT** related to physical injury.

Indicates step-by-step instructions.

IMPORTANT SAFETY INSTRUCTIONS

This manual has safety information and instructions to help you eliminate or reduce the risk of accidents and injuries.

A. Recognize Safety Information



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

B. Understand Signal Words

A signal word will identify safety messages and property damage messages, and will indicate the degree or level of hazard seriousness.

⚠ WARNING indicates a hazardous situation that, if **NOT** avoided, could result in death or serious injury.

⚠ CAUTION indicates a hazardous situation that, if **NOT** avoided, could result in minor or moderate injury.

NOTICE is used to address practices **NOT** related to physical injury.

C. Supplemental Directives



Read and follow all safety information and instructions to avoid possible injury or death.

Read and understand these instructions before [installing / using / servicing / performing maintenance on] this product.

Incorrect [installation / operation / servicing / maintaining] of this product can lead to serious injury. Follow all instructions.



The installation **MUST** comply with all applicable local and national codes, including the latest edition of the following standards:

U.S.A.

- ANSI/NFPA70, National Electrical Code (NEC)
- ANSI/NFPA 1192, Recreational Vehicles Code

CANADA

- CSA C22.1, Parts I & II, Canadian Electrical Code
- CSA Z240 RV Series, Recreational Vehicles

D. General Safety Messages



Failure to obey the following warnings could result in death or serious injury:

- This product **MUST** be [installed / serviced] by a qualified service technician.
- Do **NOT** modify this product beyond the scope of these service instructions. Modification (beyond these service instructions) can be extremely hazardous.
- **IMPACT OR CRUSH HAZARD.** This product should be installed in a controlled environment (inside). Do **NOT** install product during windy conditions, or when wind is expected. Otherwise, product could move unpredictably, become unstable, and could [detach / bend / collapse].

GENERAL INFORMATION

A. Required Kits

- Fabric, roller tube, and torsion replacement:
- (1) 3308334.006U Torsion Crank Assembly

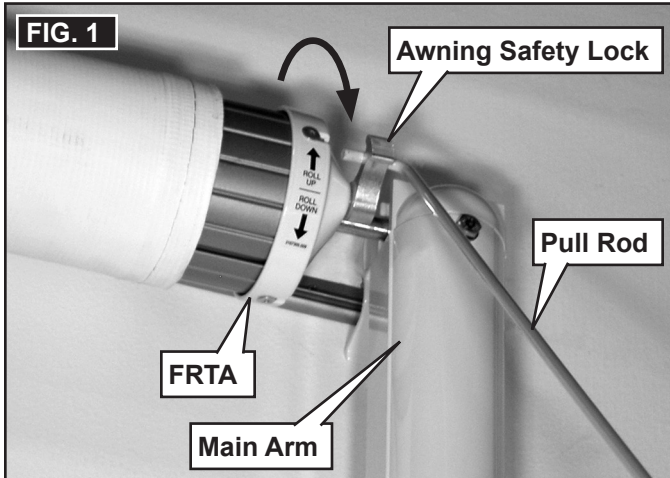
- Fabric and roller tube replacement:
- (1) 3109976.005 (End Cap) Fabric Guide

PREPARE THE AWNING

A. Staging The Awning For All Procedures

With the awning safety lock in the roll down position, open the awning two revolutions of FRTA. See FIG. 1.

i See “Open Awning” in Operating Instructions (or User’s Guide) for complete instructions.



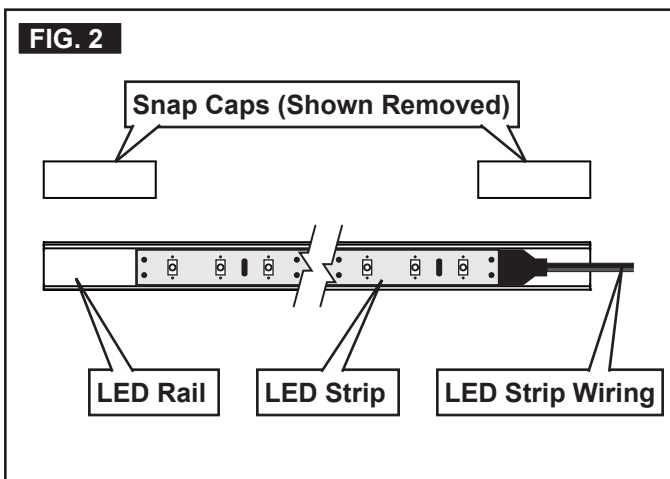
B. Disconnecting The LED Light (If Equipped)

This subsection applies to awning fabric and roller tube replacement.

i To replace weathershield or torsion(s) only, it is **NOT** necessary to remove the awning from the RV. Skip to subsection, “G. Pinning The Torsions” on page 7.

1. **NOTICE** Disconnect the positive (+) 12 Vdc terminal from supply battery. Otherwise, damage to unit could occur.
2. Disconnect LED strip wiring from the switch wiring (inside RV). Then pull LED strip wiring through the wiring hole (outside RV). See FIG. 2.

i Wiring from the RV switch may vary. See RV manufacturer’s instructions and wiring diagram for connection and location details.



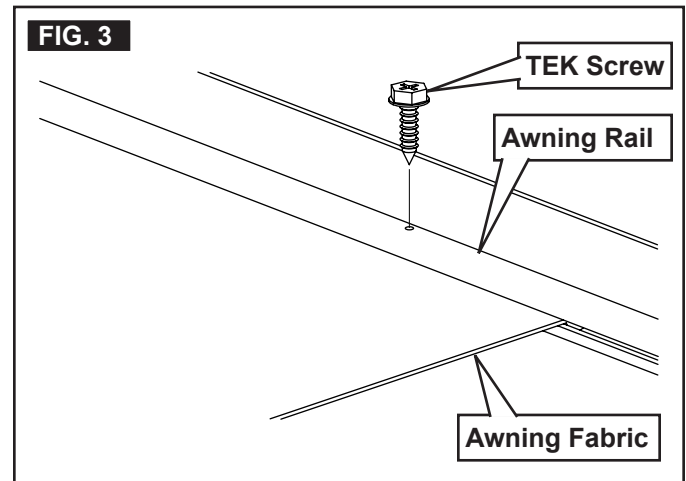
C. Preparing For Awning Removal

This subsection applies to awning fabric and roller tube replacement.

1. Prepare an area large enough for FRTA and unrolled awning fabric.

i Area **MUST** be smooth, clean, and clear of debris to prevent fabric damage. It is **NOT** necessary to unroll awning fabric to replace the weathershield.

2. Remove TEK screws that secure the awning fabric at both ends of the awning rail. Save for reinstallation later. See FIG. 3.

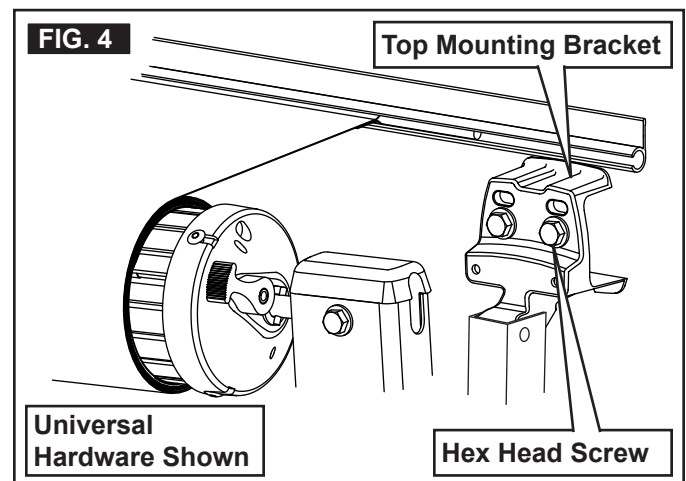


D. Detaching The Universal Style Arm Assemblies

This subsection applies to 8500, 8500 Plus, 9000, 9000 Plus, and Sunchaser II awnings.

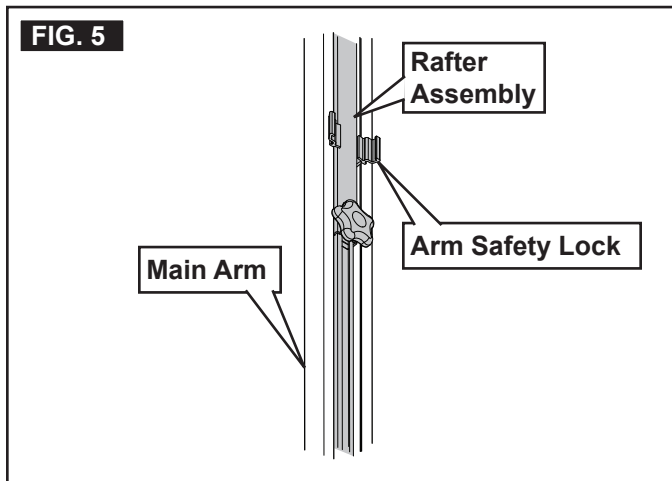
i For Sunchaser Express awnings, skip to subsection, “E. Detaching The Express Style Arm Assemblies” on page 5.

1. Remove hex head screws that secure the top mounting brackets (both ends of the awning) to the RV. Save for reinstallation later. See FIG. 4.

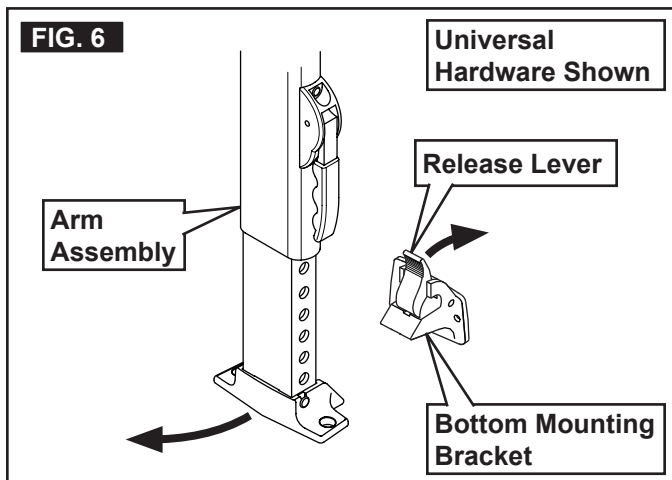


PREPARE THE AWNING

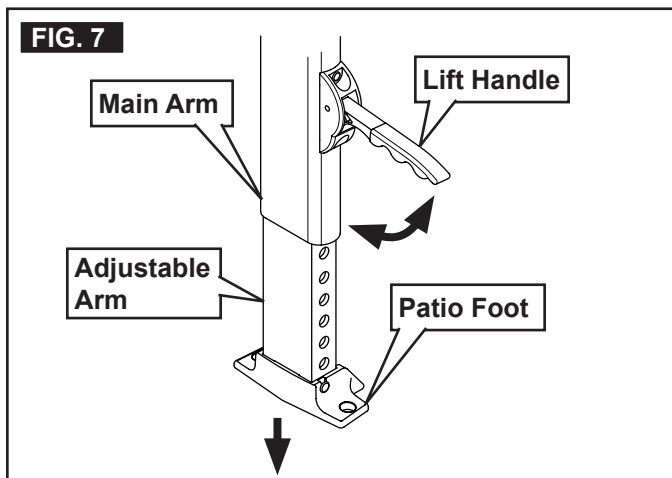
2. Squeeze the rafter assembly into the main arm until the arm safety lock clicks securely in place. See FIG. 5.



3. Press the release lever on the bottom mounting bracket and lift (detach) the arm assembly out and away from the RV. See FIG. 6.



4. While holding the main arm, pull the lift handle out. Then slide the adjustable arm down until the patio foot contacts the floor. See FIG. 7.



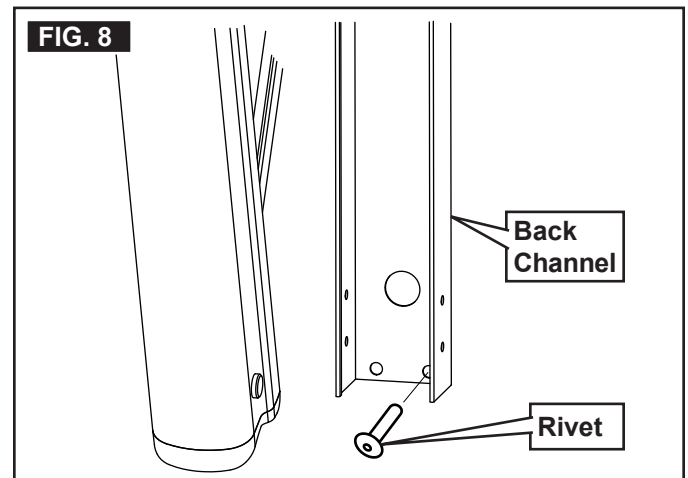
5. Release the lift handle to lock the adjustable arm into the new position. See FIG. 7.
6. While one person holds and controls the detached arm assembly, repeat steps 1 through 5 for the opposite side.

E. Detaching The Express Style Arm Assemblies

This subsection applies to Sunchaser Express awnings.

i For all other (universal style) awning models, skip to subsection, "F. Removing The Awning From The RV" on page 7.

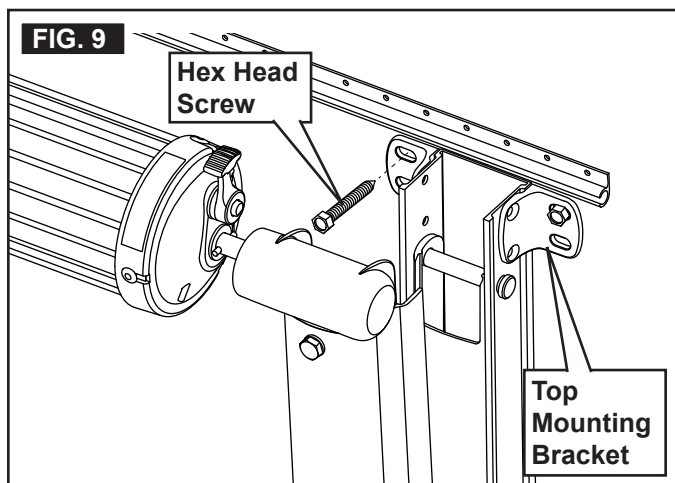
1. Remove all rivets that secure the back channels (both ends of the awning) to the RV. See FIG. 8.
 - i** If hex head screws were used instead of rivets, remove screws from the back channels. Save for reinstallation later.
 - a. Drill a 3/16" diameter hole through the center of the rivet.
 - b. Remove the rivet (with debris) and discard.
 - c. Repeat steps a through b for each rivet that secures the back channel to the RV.



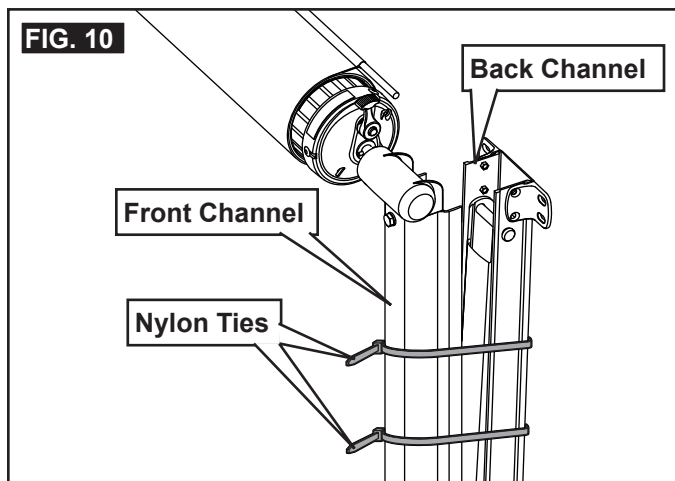
PREPARE AWNING

2. **NOTICE** Control arm assemblies while removing top screws. When weight of FRTA is **NOT** supported, downward force could cause arm assemblies to swing sideways and damage RV.

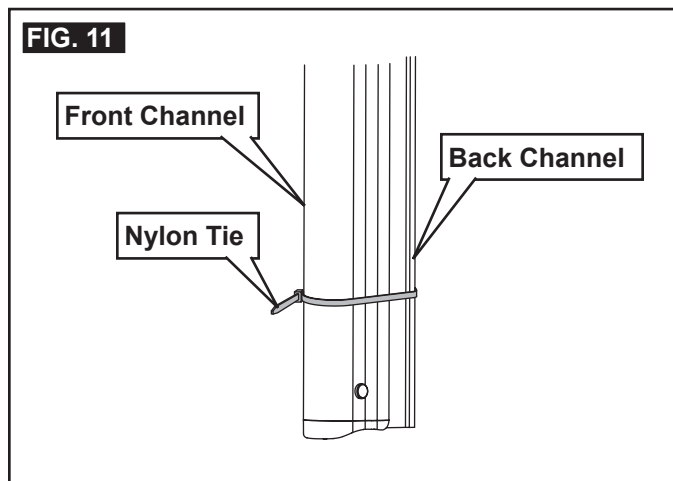
With one person grasping each arm assembly, remove the hex head screws (from the inside slot) that secure the top mounting brackets (both ends of the awning) to the RV. Save for reinstallation later. See FIG. 9.



3. Push the front channel to close against the back channel, and engage the channel safety lock.
i See Operating Instructions (or User's Guide) for instructions on safety lock.
4. Wrap at least two nylon ties around the front and back channel near the top mounting bracket, and tape in place. See FIG. 9 & FIG. 10.



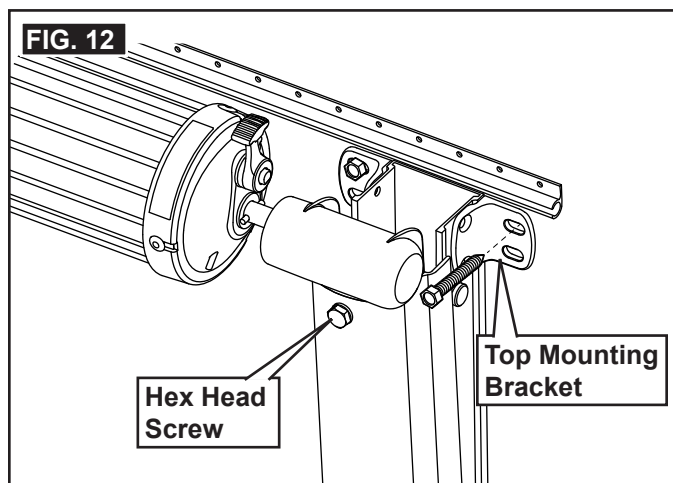
5. Wrap at least one nylon tie around the front and back channel near the bottom of the arm assembly, and tape in place. See FIG. 11.



6. Repeat steps 3 through 5 for the opposite side.
7. **⚠ WARNING** IMPACT OR PINCH HAZARD. Do **NOT** detach awning from RV until ties are wrapped around each arm assembly. Arm assemblies are under tension from gas strut. Detaching awning without these ties could allow arms to extend quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

⚠ WARNING IMPACT OR CRUSH HAZARD. Control arm assemblies while removing top screws. When weight of FRTA is **NOT** supported, downward force could cause awning to [detach / bend / collapse]. Failure to obey this warning could result in death or serious injury.

With one person grasping each arm assembly, remove hex head screws (from outside slot) that secure the top mounting brackets (both ends of awning) to RV. Save for reinstallation later. See FIG. 12.



PREPARE AWNING

F. Removing The Awning From The RV

This subsection applies to awning fabric and roller tube replacement.

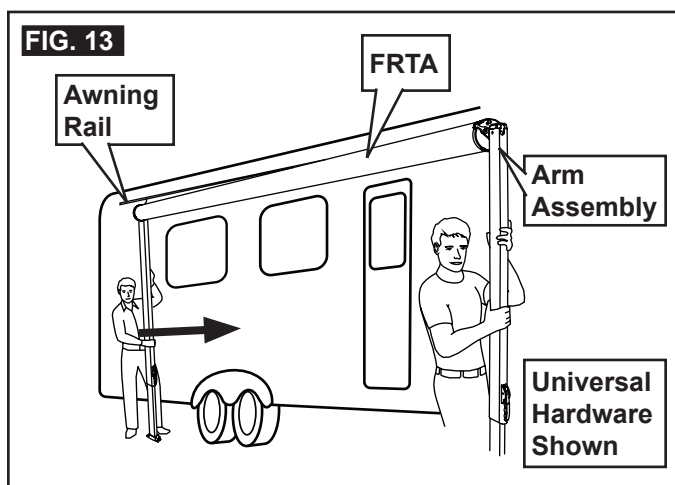
1. Make sure the awning safety lock is securely in the roll down position before proceeding.

i Maintaining roll down position (of the awning safety lock) prevents the FRTA from uncontrolled unwinding when fabric is removed from the awning rail.

2. **CAUTION** LIFTING HAZARD. Use proper lifting technique and control when lifting product. Failure to obey this caution could result in injury.

NOTICE Keep both arm assemblies parallel to each other to avoid twisting.

With one person grasping each arm assembly, carefully lift the entire awning assembly upright. See FIG. 13.



3. Carefully move (carry) the awning assembly forward until awning fabric (with awning roller cover, if equipped) slides free from awning rail (on RV). See FIG. 13.
4. Carefully place the FRTA on a clean, well protected surface to prevent fabric damage.

G. Pinning The Torsions

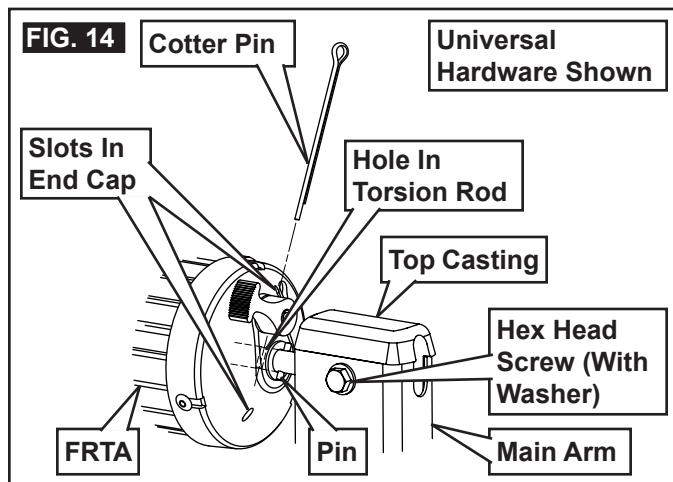
This subsection applies to all replacement procedures.

i If the awning is installed on the RV, you **MUST** extend the FRTA two revolutions (turns) from the awning rail.

Pin both torsions to prevent uncontrolled unwinding of the spring, or unintended awning movement.

1. Rotate the FRTA (by hand) until the pin near the top casting is parallel with the two slots in the end cap. See FIG. 14.

i The hole in torsion rod **MUST** align with the slots in the end cap.



2. Insert a 7/64" X 2-3/4" cotter pin through the end cap and torsion rod. Then tape the head of the cotter pin to the end cap to secure in place. See FIG. 14.
3. Repeat steps 1 through 2 for the opposite side.

REMOVE TORSION(S)

This section applies to awning fabric, roller tube, and torsion replacement.

i To replace weathershield only, it is **NOT** necessary to unwind or remove torsions. Skip to section, "Remove The Weathershield" on page 10.

If the awning is installed on the RV, you **MUST** extend the FRTA two revolutions (turns) from the awning rail.

A. Unwinding The Torsion(s)

1. Secure the arm assembly.

i This step applies to Sunchaser Express style awnings only. Skip to step 2 for Universal or Sunchaser II style awnings.

- a. Push the front channel to close against the back channel.

i Allow the hardware to be open far enough to remove the top casting from the front channel.

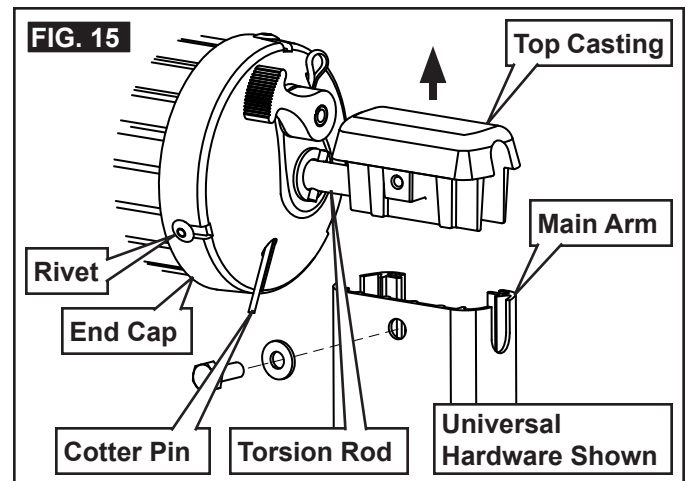
- b. Wrap at least two nylon ties around the front and back channel near the top mounting bracket, and tape in place. See FIG. 9 & FIG. 10.

- c. **⚠ WARNING** IMPACT OR PINCH HAZARD. Do **NOT** remove top casting from front channel until ties are wrapped securely around each arm assembly. Arm assemblies are under tension from gas strut. Removing these ties could allow arms to extend quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

2. **⚠ WARNING** IMPACT OR PINCH HAZARD. Do **NOT** remove top casting from [main arm / front channel] until torsion (rod) is securely pinned at end cap. Otherwise, rapid casting spin off will occur. Spring tension will attempt to spin the top casting and/or roller tube quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

With the torsion securely pinned, remove the hex head screw (and washer) that secures the top casting to the main arm / front channel. Save for reinstallation later. See FIG. 14.

3. Separate (lift) the top casting from the main arm / front channel. See FIG. 15.

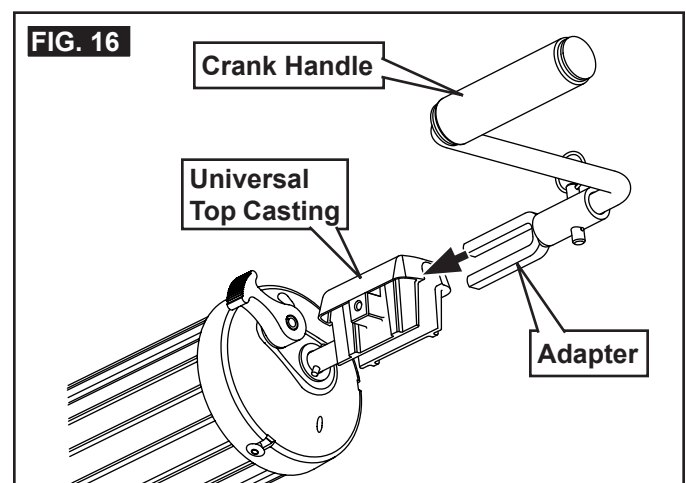


4. Attach the correct adapter to the crank handle. Then secure the crank assembly to the top casting.

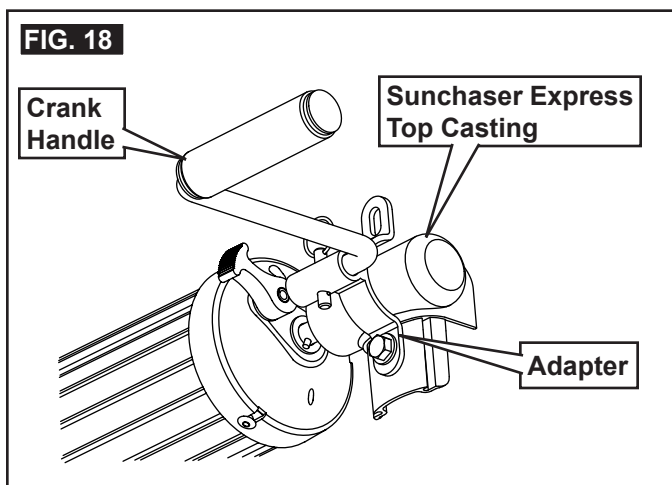
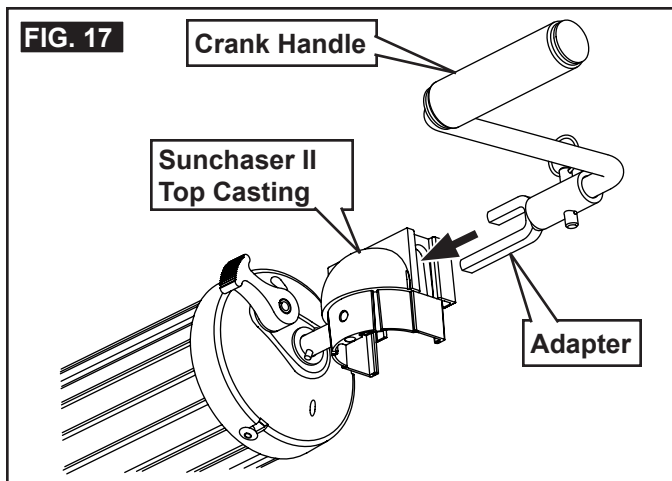
i The adapter to use, and procedure to follow (below) depends on awning model (top casting style).

See subsection, "A. Required Kits" on page 3 for torsion crank assembly.

- Universal or Sunchaser II style:
Insert the correct (torsion crank assembly) adapter into the top casting until it is securely in place. See FIG. 16 & FIG. 17.
- Sunchaser Express style:
Place the correct (torsion crank assembly) adapter over top casting. Then place and tighten the hex head screw through the adapter and into the top casting. See FIG. 18.



REMOVE TORSION(S)



5. **⚠ WARNING** IMPACT OR PINCH HAZARD. Do **NOT** remove cotter pin from torsion rod (at end cap) until top casting is securely held. Otherwise, rapid casting spin off will occur. Spring tension will attempt to spin the top casting and/or roller tube quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

While keeping a tight, secure hold on crank handle, pull cotter pin from torsion rod at end cap. See FIG. 15, FIG. 16, FIG. 17, & FIG. 18.

6. **⚠ WARNING** IMPACT OR PINCH HAZARD. Use extreme care when [winding / unwinding] top casting. If **NOT** controlled, rapid casting spin off will occur. Spring tension will attempt to spin the top casting and/or roller tube quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

Carefully and slowly unwind torsion (top casting) until all torsion spring tension is relaxed. Then remove the crank assembly from the top casting.

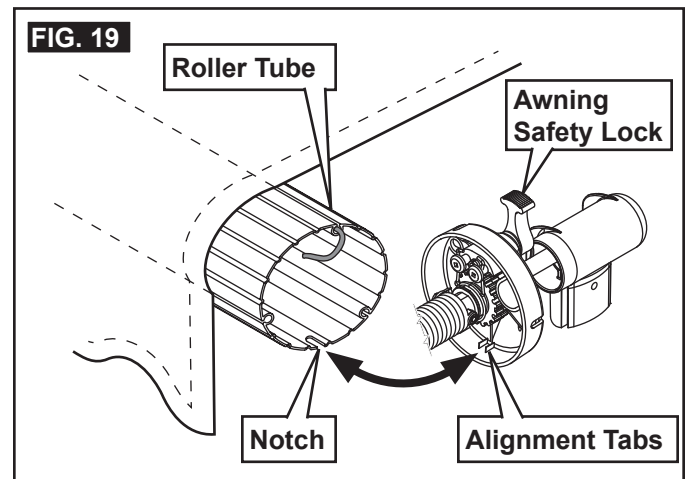
7. Repeat steps 1 through 6 for the opposite side (if applicable).

i Repeat steps **ONLY** if replacing **BOTH** torsions, roller tube, or awning fabric. Do **NOT** repeat steps if replacing (1) torsion only.

B. Removing The OLD Torsion(s)

1. Mark or make note of the awning safety lock location on the roller tube. See FIG. 19.

i This step applies to RH torsion only. Skip this step if the end cap has alignment tabs. The alignment tabs mate with a notch in the roller tube, and allow only one orientation (between the roller tube and end cap).



2. **⚠ WARNING** IMPACT OR PINCH HAZARD. Do **NOT** remove torsion from fabric roller tube until spring tension is released (unwound). If torsion rod is also **NOT** pinned at end cap, rapid casting spin off will occur. Spring tension will attempt to spin the top casting and/or end cap quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

With the torsion spring tension released (unwound), remove the three rivets that secure the end cap to the roller tube. See FIG. 15.

- Drill a 3/16" diameter hole through the center of the rivet.
- Remove the rivet (with debris) and discard.
- Repeat steps a through b for each rivet that secures the end cap to the roller tube.

REMOVE TORSION(S)

- Slide the torsion (assembly) out from the roller tube. See FIG. 20.

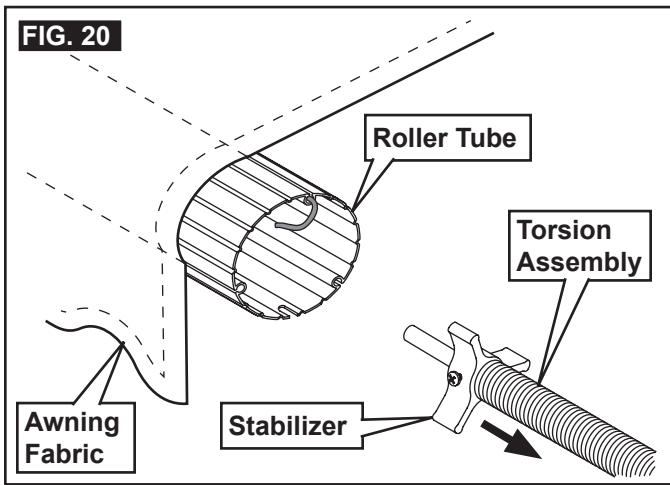
i Discard the torsion if defective. Otherwise, save for reinstallation later.

- Remove burrs, and discard any rivet bodies and debris from the roller tube. See FIG. 20.

i Skip this step if replacing the roller tube.

- Repeat steps 1 through 4 for the opposite side (if applicable).

i Repeat steps **ONLY** if replacing **BOTH** torsions, roller tube, or awning fabric. Do **NOT** repeat steps if replacing (1) torsion only.



REMOVE THE WEATHERSHIELD

This section applies to awnings equipped with a weathershield.

i If replacement does **NOT** involve weathershield or if **BOTH** weathershield and awning fabric will be replaced, skip to section, "Replace The Awning Fabric / Roller Tube" on page 12.

If the awning is installed on the RV, extend the FRTA two revolutions (turns) from awning rail.

A. Removing The Metal Weathershield

This subsection applies to awnings equipped with a metal weathershield.

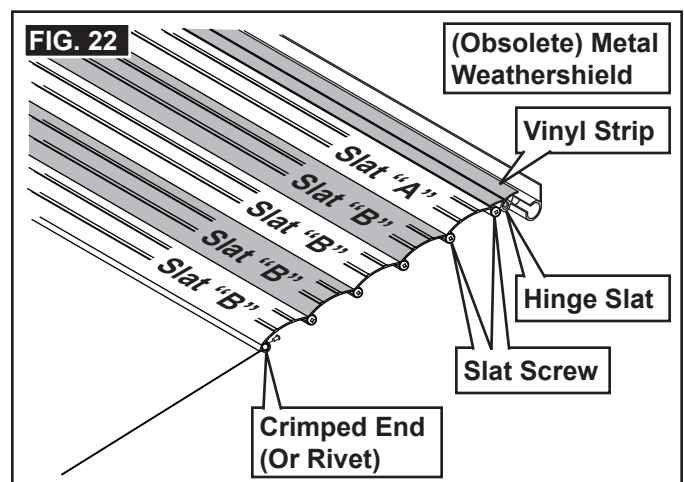
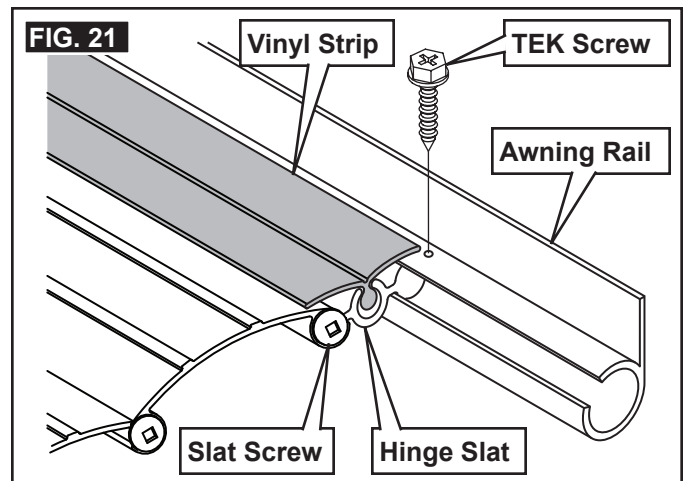
- Remove the metal hinge slat (if equipped) that connects the weathershield to the awning rail. See FIG. 21 & FIG. 22.

i Skip to step 2 if metal weathershield is **NOT** equipped with the hinge slat.

- Remove the two TEK screws (one at each end) that secure the hinge slat to the awning rail. Save for reinstallation later.

i Skip this step if the awning is removed from the RV.

- Remove the two slat screws (one at each end) that secure the weathershield to the hinge slat. Save for reinstallation later.
- Slide the hinge slat with vinyl strip from slat "A" and from the awning rail, and discard.



REMOVE THE WEATHERSHIELD

2. Unfasten the weathershield from the awning fabric. See FIG. 23.

- a. Disconnect bottom slat "B" from the awning fabric using one of the following procedures.

i The procedure to follow (below) depends on the method used to attach slat ends.

- Set screw fastened ends:

Remove the two set screws (one at each end) that secure the slat to the awning fabric and discard.

i If keeping old weathershield, save set screws for reinstallation later.

- Riveted ends:

Drill a 1/8" diameter hole through the center of the two rivets (one at each end) of the slat.

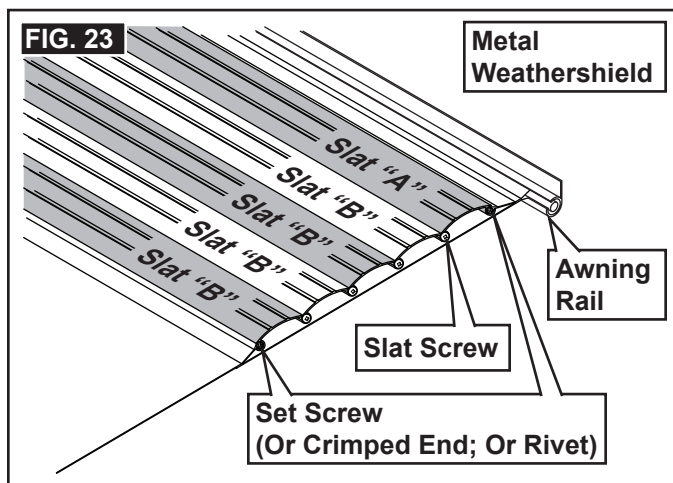
Remove rivets (with debris) and discard.

- Crimped ends:

Using a screwdriver, spread open the two crimped ends (one at each end) that secure the slat to the awning fabric.

- b. Repeat appropriate procedure under step a to disconnect top slat "A" from the awning fabric.

i Skip to step 3 if metal weathershield was equipped with the hinge slat. See FIG. 21.



3. Remove the weathershield from the awning fabric. See FIG. 22 & FIG. 23.

- a. Slide the weathershield from the awning fabric.

i Discard the weathershield if damaged. Otherwise, save for reinstallation later.

- b. Carefully place the weathershield on a clean, well protected surface to prevent damage.

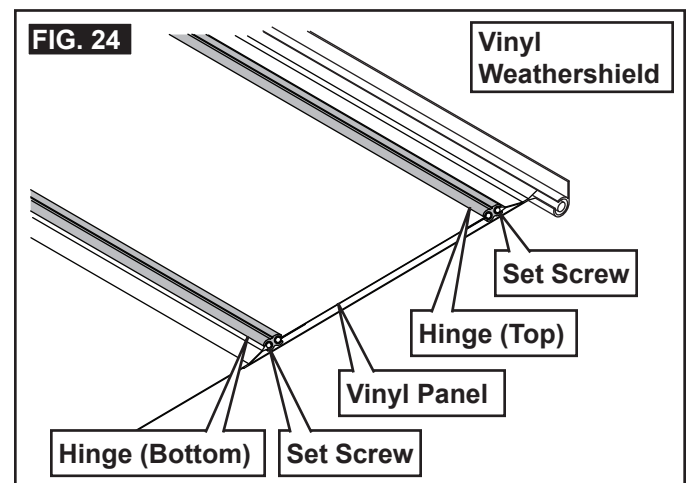
i Skip this step if discarding the weathershield.

B. Removing The Vinyl Weathershield

This subsection applies to awnings equipped with a vinyl weathershield.

1. Remove the two set screws (one at each end) that secure the top hinge to the awning fabric and discard. See FIG. 24.

i If keeping the old weathershield, save set screws for reinstallation later.



2. Remove the two set screws (one at each end) that secure the bottom hinge to the awning fabric and discard. See FIG. 24.

i If keeping the old weathershield, save set screws for reinstallation later.

3. Slide the weathershield from the awning fabric.
4. Discard the weathershield if damaged. Otherwise, save for reinstallation.

REPLACE THE AWNING FABRIC / ROLLER TUBE

This section applies to awning fabric and roller tube replacement.

i To replace torsion(s), skip to section, “PREPARE FOR TORSION(S) REPLACEMENT” on page 14.

A. Preparing The Work Area

NOTICE Prepare a clean and smooth work area (large enough for unfurled awning fabric) before servicing awning. This will help prevent damage to awning fabric during replacement.

B. Removing The Awning Fabric / Roller Tube

1. Carefully place the FRTA on a clean and smooth work surface.
2. Unroll awning fabric until completely unfurled.
3. With awning fabric laying flat, slide the roller tube from the fabric to remove.

i Discard the roller tube if damaged. Otherwise, save for reinstallation later.

If replacing the awning fabric, leave the old fabric on the work surface as added protection for the new fabric during installation.

C. Preparing The New Awning Fabric

This subsection applies to awning fabric replacement.

i To replace the roller tube, skip to subsection, “D. Installing The Awning Fabric / Roller Tube” on page 12.

⚠ WARNING IMPACT OR CRUSH HAZARD. Do **NOT** remove LED rail from awning fabric (if equipped). Otherwise, awning fabric could separate from awning rail (on RV) and cause awning to extend quickly or [detach / bend / collapse]. Failure to obey this warning could result in death or serious injury.

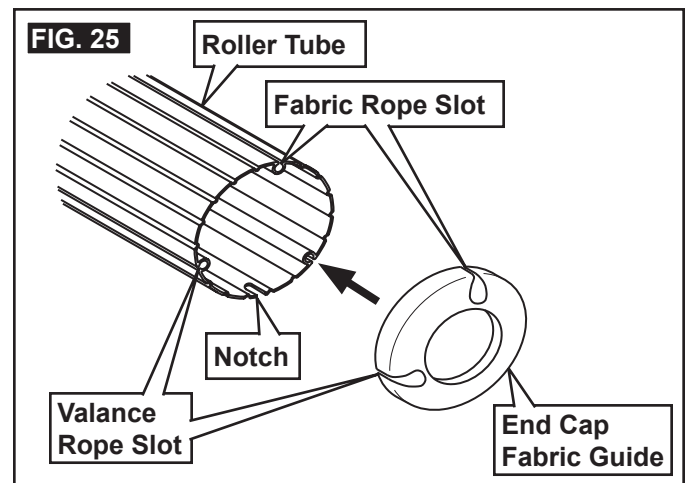
i If LED light strip is **NOT** desired, standard fabric **MUST** be used. Otherwise, you may remove the LED light strip from the LED rail, and leave the empty LED rail on the fabric rope.

1. Unroll / unfold new awning fabric on top of the old fabric (in prepared work area) with the bottom side of the fabric facing up.
i Position new awning fabric in the same orientation as the old fabric.
2. Make sure the new awning fabric size matches the old fabric.

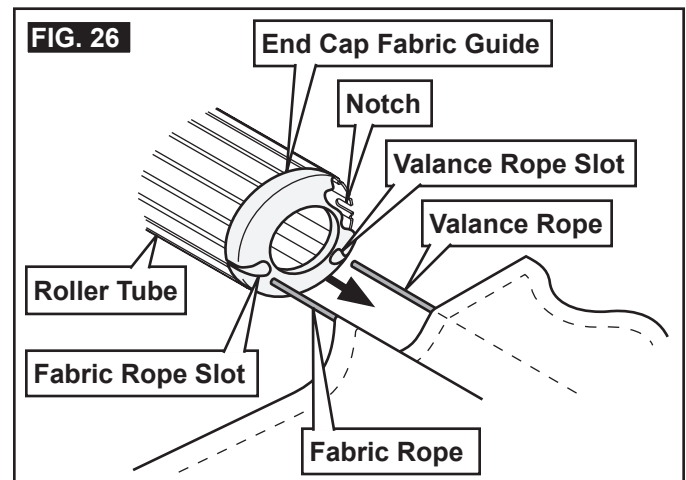
D. Installing The Awning Fabric / Roller Tube

1. **NOTICE** Do **NOT** install awning fabric on roller tube without using a fabric guide. Otherwise, damage to awning fabric could occur.

Align the fabric rope and valance rope slots of the end cap fabric guide to corresponding slots on the roller tube. Then place on the open end of the roller tube. See FIG. 25.



2. Insert the fabric rope and valance rope of the awning fabric into corresponding slots on the roller tube (through end cap fabric guide). See FIG. 26.



3. Slide (move) the roller tube forward until the awning fabric is centered on the tube. See FIG. 26.
i Awning fabric will feed into the roller tube's slots while moving the roller tube forward. Awning fabric will be secured to roller tube when torsions are reinstalled later.
4. Remove the end cap fabric guide from the roller tube.
i Save the end cap fabric guide in case further adjustments are required.

REPLACE THE WEATHERSHIELD

This section applies to awnings equipped with weathershield.

i If replacement does **NOT** involve weathershield or if weathershield was pre-installed on awning fabric, skip to section, "PREPARE FOR TORSION(S) REPLACEMENT" on page 14.

If an awning is installed on the RV, extend the FRTA two revolutions (turns) from the awning rail.

A. Preparing The Metal Weathershield

This subsection applies only if keeping old metal weathershield (that was equipped with hinge slat) for reinstallation onto new awning fabric. See FIG. 21.

i Skip to subsection, "B. Installing The Metal Weathershield" on page 13 if old metal weathershield:

- will be discarded, or
- has no more than five slats.

1. Remove slat "A" from the weathershield. See FIG. 23.

- Remove the two slat screws (one at each end) that secure slat "A" to top slat "B".
- Slide slat "A" from the weathershield. Save for reinstallation later.

2. Remove extra slats from the awning rail end of the old weathershield. See FIG. 23.

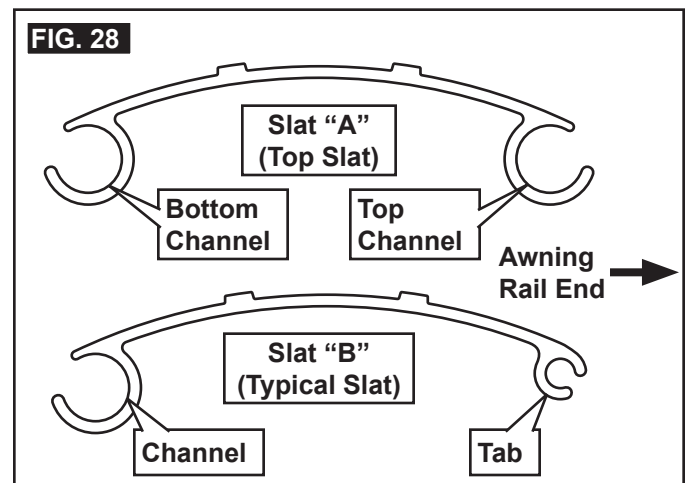
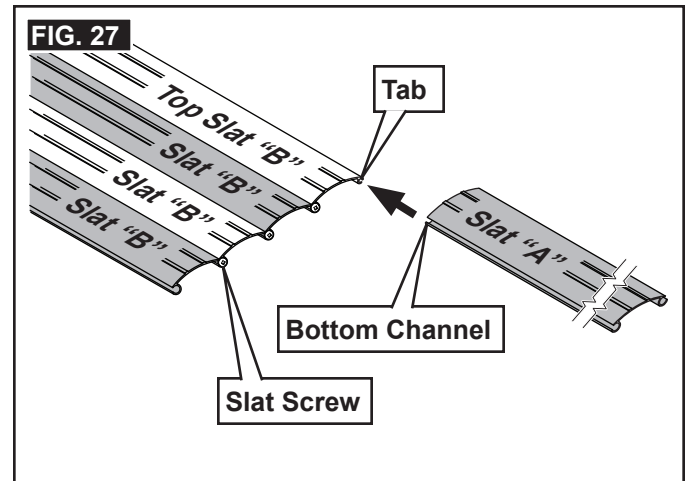
- Determine the number of extra slats to remove from the old weathershield.

i Slat "A" is counted in the number of slats.

- If old weathershield has seven slats, two "B" slats must be removed.
- If old weathershield has six slats, one "B" slat must be removed.

- Remove the two slat screws (one at each end) that secure the extra "B" slat(s) to the remaining weathershield slats.
- Slide extra "B" slat(s) from the weathershield and discard.

3. Insert the bottom channel of slat "A" onto the tab of top slat "B". See FIG. 27 & FIG. 28.



- Slide slat "A" forward until it is centered on slat "B".
- Reinstall the two slat screws (one at each end) to secure slat "A" to top slat "B". See FIG. 23 & FIG. 27.

B. Installing The Metal Weathershield

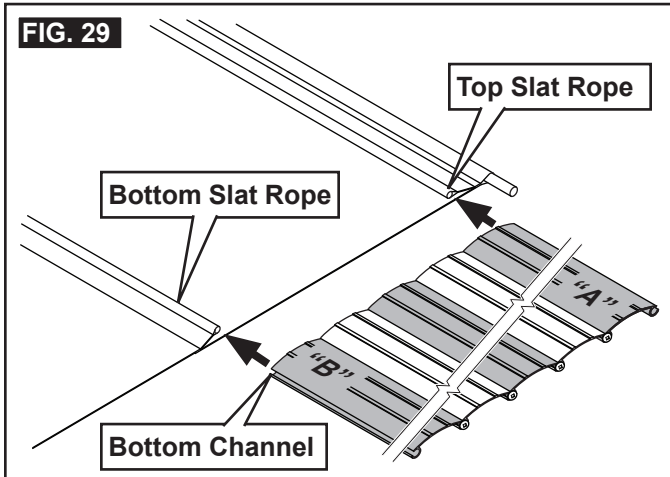
This subsection applies to the new metal weathershield installation onto old awning fabric, or replacement of old metal weathershield onto new awning fabric.

1. Remove (file) any sharp edges inside channels (both open ends) of bottom slat "B", and top slat "A". See FIG. 23 & FIG. 28.

i These channels will be attached to the awning fabric.

REPLACING THE WEATHERSHIELD

2. Insert the weathershield onto the awning fabric. See FIG. 29.
 - a. Bottom channel of slat "B" corresponds to bottom slat rope of awning fabric.
 - b. Top channel of slat "A" corresponds to top slat rope of awning fabric.

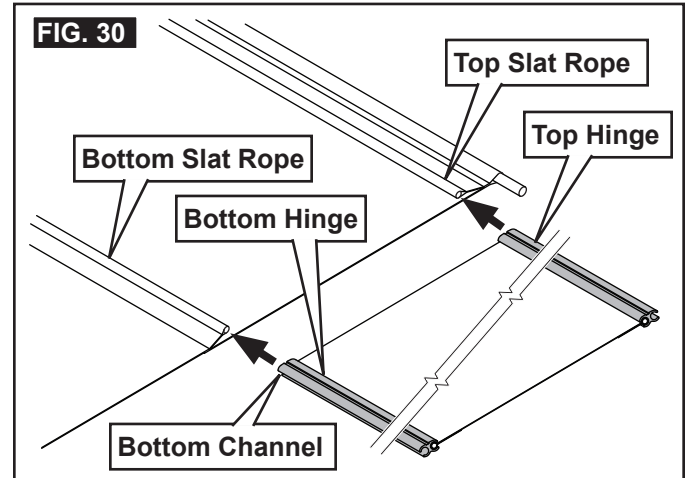


3. Slide the weathershield forward until it is centered on the awning fabric. See FIG. 29.
4. Secure the weathershield to the awning fabric. See FIG. 23, FIG. 28, & FIG. 29.
 - a. Install the two set screws (one at each end) to secure the top channel of slat "A" to the top slat rope of the awning fabric.
 - b. Install the two set screws (one at each end) to secure the bottom channel of slat "B" to the bottom slat rope of the awning fabric.

C. Installing The Vinyl Weathershield

This subsection applies to new vinyl weathershield installation on old awning fabric, or replacement of old vinyl weathershield on new awning fabric.

1. Insert the weathershield onto the awning fabric. See FIG. 30.
 - a. Bottom channel of the bottom hinge corresponds to bottom slat rope of awning fabric.
 - b. Top channel of the top hinge corresponds to top slat rope of awning fabric.



2. Slide the weathershield forward until it is centered on the awning fabric. See FIG. 30.
3. Secure the weathershield to the awning fabric. See FIG. 24 & FIG. 30.
 - a. Install the two set screws (one at each end) to secure the top channel of the top hinge to the top slat rope of the awning fabric.
 - b. Install the two set screws (one at each end) to secure the bottom channel of the bottom hinge to the bottom slat rope of the awning fabric.

PREPARE FOR TORSION(S) REPLACEMENT

This section applies to awning fabric, roller tube, and torsion replacement.



If only the weathershield is replaced, skip to section "Finish Installation" on page 20.

If the awning is installed on the RV, extend the FRTA two revolutions (turns) from the awning rail.

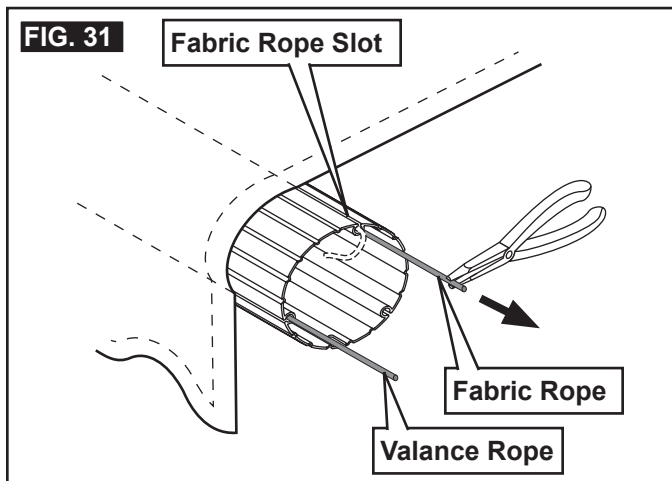
The following steps apply to both old and new awning fabric. However, the way these steps should be used is different:

- **NEW** awning fabric: Perform the following steps to complete installation.
- **OLD** awning fabric: Review the following steps to make sure installation is correct.

PREPARE FOR TORSION(S) REPLACEMENT

1. Make sure the awning fabric is centered on the roller tube. See FIG. 25.
2. Pull / stretch the fabric rope and bend the rope over toward the center of the roller tube. See FIG. 31.

i Make sure the fabric rope locks securely into notch (if applicable) at end of fabric rope slot.



3. Trim the fabric rope length according to the appropriate procedure.

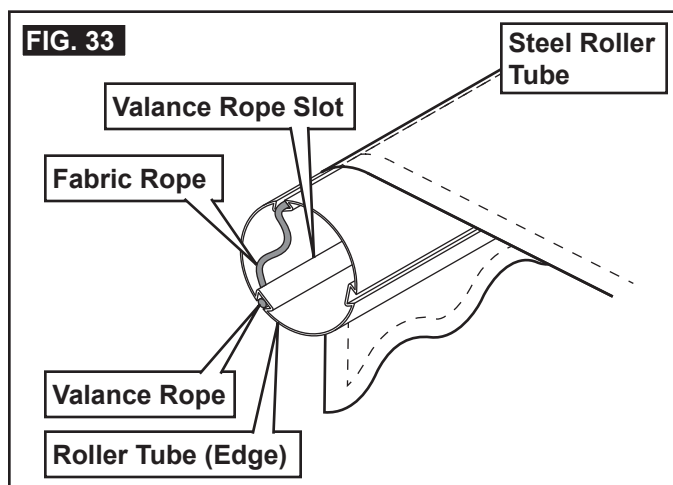
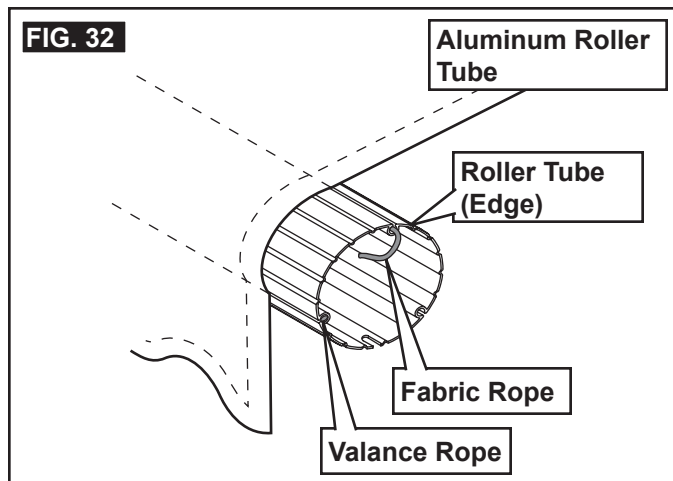
i This helps prevent interference with torsion, and shifting of awning fabric. The procedure to follow (below) depends on roller tube material.

a. **ALUMINUM** roller tube:

Trim the fabric rope 2" (50.8 mm) below the edge of the roller tube. See FIG. 32.

b. **STEEL** roller tube:

Trim the fabric rope leaving enough length to wedge behind the valance rope slot (inside the roller tube). See FIG. 33.



4. Trim the valance rope flush with the edge of the roller tube. See FIG. 32 & FIG. 33.

i This helps prevent interference with torsion, and shifting of awning fabric.

5. Repeat steps 2 through 4 for the opposite side.

REPLACE THE TORSION(S)

A. Identifying The Torsion Spring

NOTICE Before winding a torsion, identify whether torsion spring is standard or heavy duty. Incorrect winding may damage product or cause unstable performance.

1. Check the color code (paint mark) on both ends of the torsion spring and compare with the Torsion Spring Identification table.

i Alternatively, a green dot on the side of the top casting or end of the torsion rod also indicates a heavy duty torsion.

You can verify identification by measuring across the end of the hook for wire thickness (torsion spring wire diameter).

Torsion Spring Identification					
Duty:		Standard		Heavy	
Wire Diameter:		0.135"		0.148"	
RH Torsion Paint On Spring:	Stabilizer End	None	Blue	Red	Black
	Cap End	Red	Red	Yellow	White
LH Torsion Paint On Spring:	Stabilizer End	None	Blue	Red	Black
	Cap End	None	Red	Yellow	White

REPLACE THE TORSION(S)

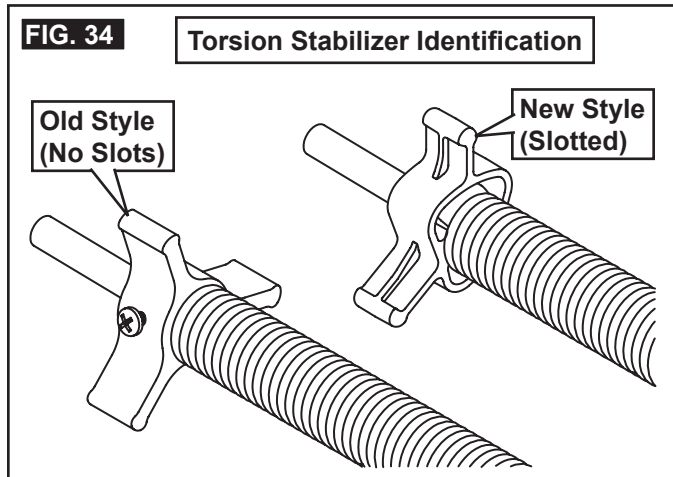
- Circle the appropriate "duty" of the torsion spring in the Torsion Spring Identification table.

i This information will be needed in subsection, "D. Winding The Torsion" on page 18.

B. Preparing The Torsion(s)

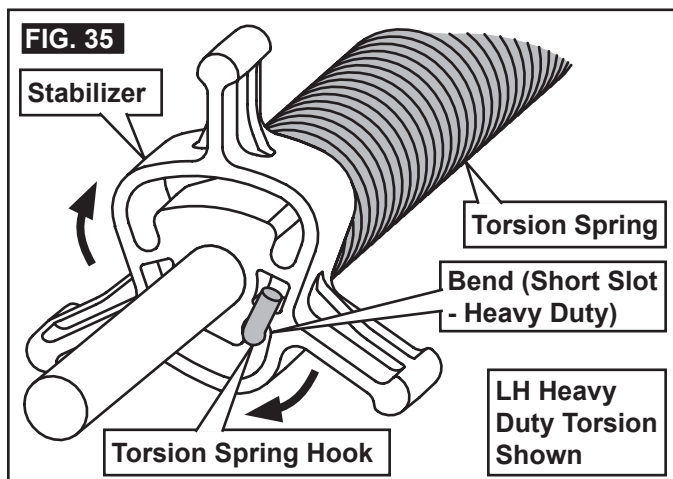
This subsection applies to torsions equipped with a slotted stabilizer. See FIG. 34.

i If torsion is equipped with an older style stabilizer (without slots), skip to subsection, "C. Installing The Torsion(s)" on page 17.



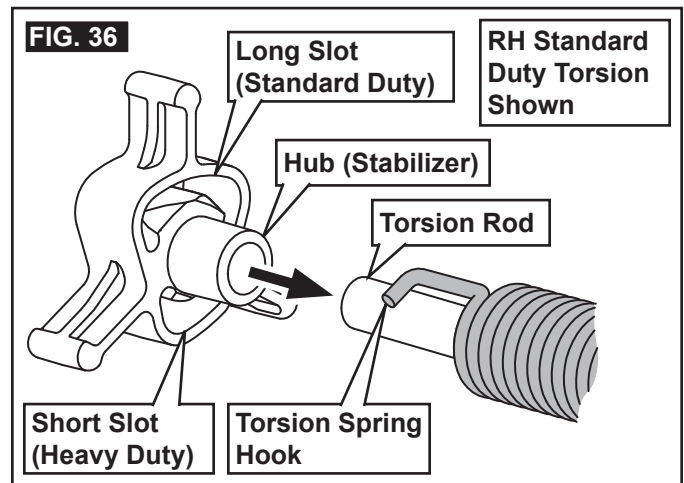
- Make sure the slotted stabilizer is seated securely on the new torsion assembly. See FIG. 35.

i The torsion spring hook **MUST** protrude through the stabilizer slot, and fully engage the bend of the slot.



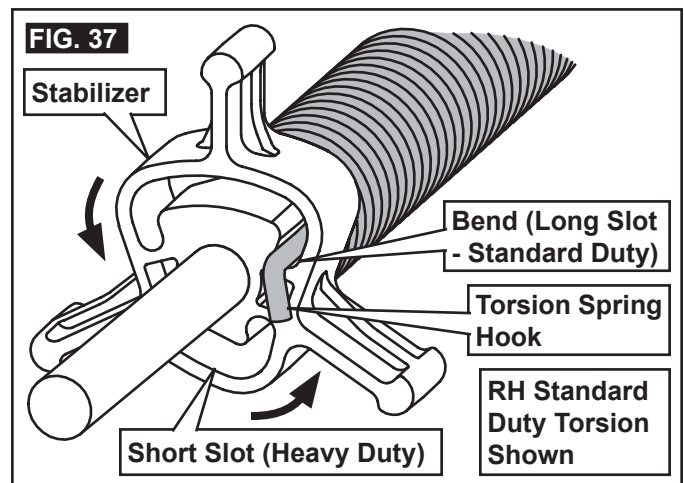
- If the stabilizer is seated securely, skip to subsection, "C. Installing The Torsion(s)" on page 17.
If the stabilizer is loose, proceed with step 3.

- Place the stabilizer onto the torsion rod with the hub facing toward the torsion. See FIG. 36.



- Slide the stabilizer toward the torsion until the hub seats inside the torsion spring, and the torsion spring hook passes through the appropriate stabilizer slot. See FIG. 36 & FIG. 37.

i Long slot for standard duty torsions; short slot for heavy duty torsions.



- Turn the stabilizer toward the point of the torsion spring hook until the hook snaps securely into the bend of the stabilizer slot. See FIG. 35 & FIG. 37.

REPLACE THE TORSION(S)

C. Installing The Torsion(s)

1. Make sure the fabric rope is secured correctly inside the roller tube. See FIG. 32 & FIG. 33.

i Do **NOT** cut fabric rope again.

2. Insert the torsion assembly into the roller tube. See FIG. 38.

- a. Align the end cap to the roller tube using one of the following procedures.

i The procedure to follow (below) depends on whether the roller tube is notched.

- **WITH NOTCH** (new roller tube):

Align alignment tabs on the end cap to the notch in the roller tube. See FIG. 19.

- **WITHOUT NOTCH** (old roller tube):

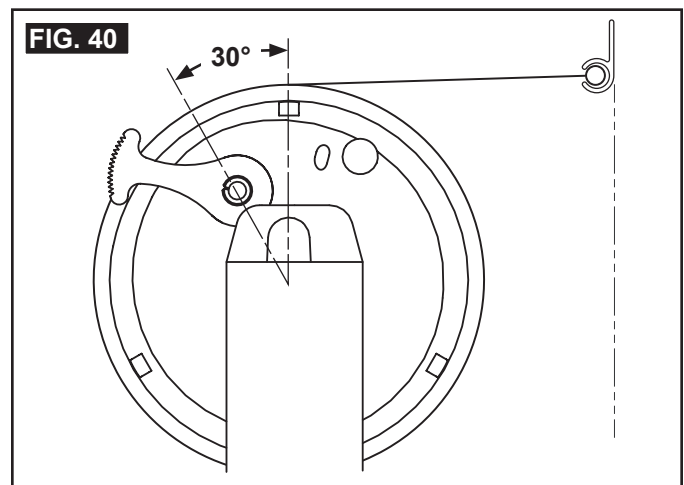
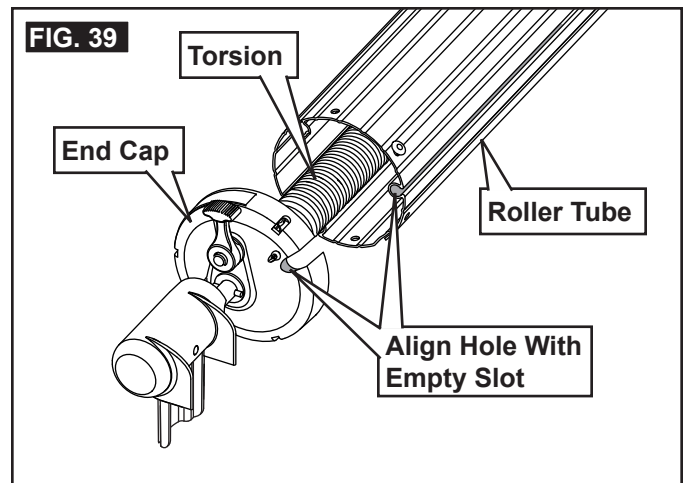
Align the hole in the end cap to the empty (auxiliary) slot in the roller tube. See FIG. 39.

i Rivet holes in the end cap and the roller tube **MUST** also align.

If a new torsion is being installed on an old roller tube (without notch), the alignment tabs inside the end cap **MUST** be removed (broken off). See FIG. 19.

- b. While maintaining alignment, insert the stabilizer end of the torsion into the roller tube.
- c. Slide the torsion inside the roller tube until the end cap seats onto the end of the tube.

i If RH torsion is being installed, make sure the awning safety lock lever will be approximately 30° from the RV wall (11 o'clock position) when the awning is closed. See FIG. 40.



3. Secure the end cap to roller tube. See FIG. 15 & FIG. 39.

- a. Make sure the end cap is aligned properly and fully seated on the roller tube.

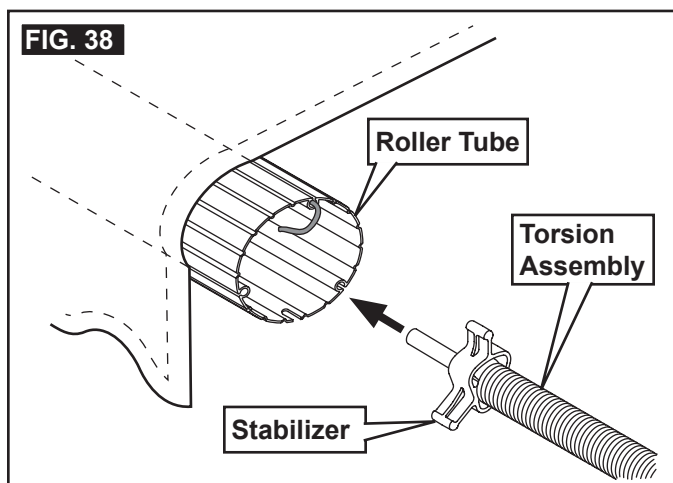
- b. If the roller tube has pre-drilled rivet holes, skip to step d.

If the roller tube does **NOT** have pre-drilled rivet holes, proceed with step c.

- c. Drill 3/16" diameter holes into the roller tube using the rivet holes / slots in the end cap as a guide.

- d. Insert 3/16" x 3/8" blind rivets through rivet holes in the end cap and secure to the roller tube.

4. Repeat steps 1 through 3 for the opposite side (if applicable).



REPLACE THE TORSION(S)

D. Winding The Torsion

This subsection applies to awning fabric, roller tube, and torsion replacement.

i If an awning is installed on the RV, extend the FRTA two revolutions (turns) from the awning rail.

1. Attach the correct adapter to the crank handle. Then secure the crank assembly to the top casting.

i The adapter to use, and procedure to follow (below) depends on awning model (top casting style).

See subsection, "A. Required Kits" on page 3 for torsion crank assembly.

- Universal or Sunchaser II style:

Insert the adapter of the torsion crank assembly into the top casting until it is securely in place. See FIG. 16 & FIG. 17.

- Sunchaser Express style:

Place the adapter of the torsion crank assembly over the top casting. Then place and tighten the hex head screw through the adapter and into the top casting. See FIG. 18.

2. **⚠ WARNING** IMPACT OR PINCH HAZARD. Use extreme care when [winding / unwinding] top casting. If **NOT** controlled, rapid casting spin off will occur. Spring tension will attempt to spin the top casting and/or roller tube quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

Note the position of the top casting for winding start position. Then carefully and slowly turn the top casting to apply correct torsion spring tension.

Turn the RH top casting counterclockwise, and LH top casting clockwise. See FIG. 41 & FIG. 42.

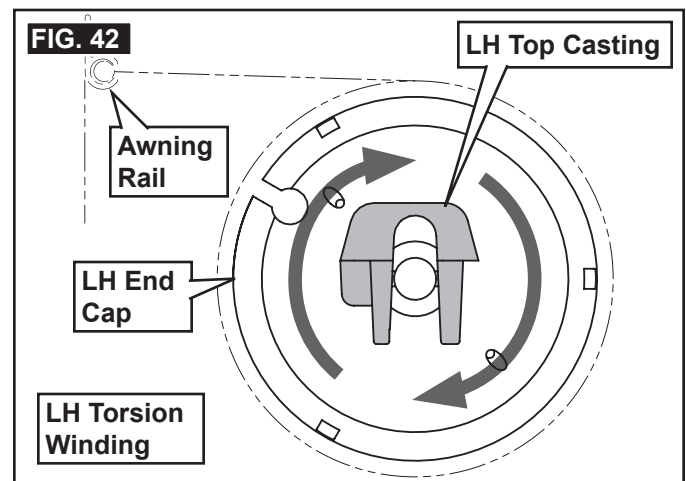
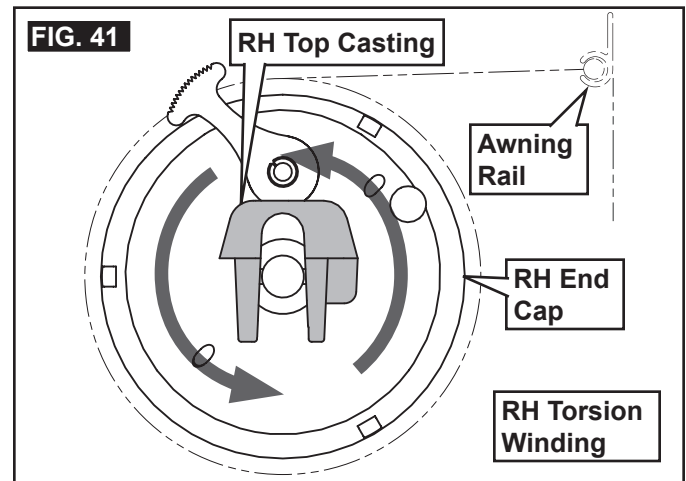
i The number of turns to achieve the correct torsion spring tension depends on awning model and width. See the appropriate Torque Specifications table for correct number of turns.

If the awning is installed on the RV and extended two revolutions (turns) from the awning rail, **ADD** two turns to the number of turns in the table.

3. Turn the top casting (or rotate the FRTA) until the pin near the top casting is parallel with the two slots in the end cap. See FIG. 14.

i The hole in the torsion rod **MUST** align with the slots in the end cap.

Torque Specifications		
8500; 8500 Plus; 9000; 9000 Plus; Sunchaser II		
Awning Width	Number Of Turns	
	Standard Duty	Heavy Duty
≤ 12'	8	N/A
12'-1" → 14'	9	N/A
14'-1" → 16'	10	N/A
> 16'	12	8
Sunchaser Express		
All	10	



4. Insert a 7/64" X 2-3/4" cotter pin through the end cap and torsion rod. Then tape the head of the cotter pin to the end cap to secure in place. See FIG. 14.
5. Repeat steps 1 through 4 for the opposite side (if applicable).

REPLACE THE TORSION(S)

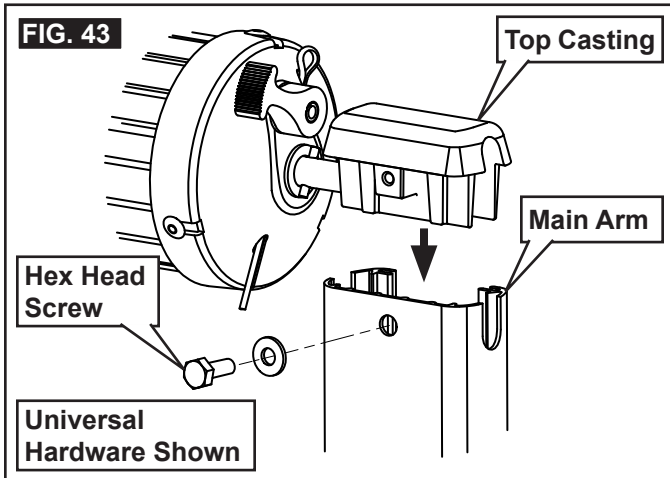
E. Reattaching The Torsion To The Hardware

This subsection applies to awning fabric, roller tube, and torsion replacement.

i If the awning is installed on the RV, extend the FRTA two revolutions (turns) from the awning rail.

F. Attaching A Universal Style Awning

1. Insert each top casting into the corresponding main arm. See FIG. 43.

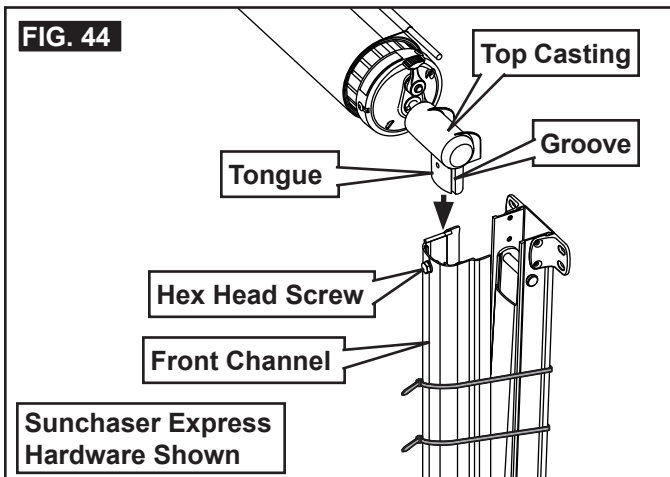


2. Reinstall the hex head screw (and washer) to secure the main arm to top casting. See FIG. 43.

G. Attaching An Express Style Awning

1. Insert each top casting into the corresponding front channel. See FIG. 44.

i Do **NOT** force the top casting into the front channel. The top casting (tongue and groove) should slide easily into the front channel.

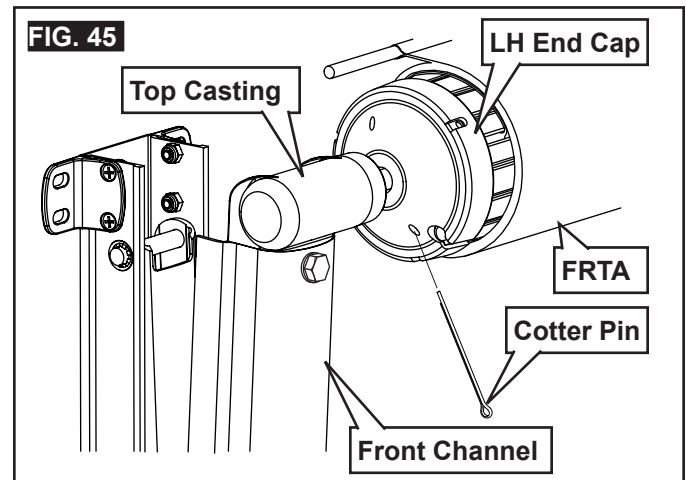


2. Reinstall the hex head screw and washer to secure the front channel to the top casting. See FIG. 44.

H. Removing The Cotter Pin(s)

⚠ WARNING IMPACT OR PINCH HAZARD. Do **NOT** remove cotter pin from torsion rod (at end cap) until **BOTH** top castings are secured to corresponding [main arms / front channels], and awning safety lock lever is in roll down position. Otherwise, rapid casting spin off will occur. Spring tension will attempt to spin the hardware and/or roller tube quickly and unexpectedly. Failure to obey this warning could result in death or serious injury.

1. Straighten, remove, and discard the cotter pin from the left end of the torsion rod (LH end cap; if applicable). See FIG. 45.



2. With the awning safety lock lever in the roll down position, straighten, remove, and discard the cotter pin from the right end of the torsion rod (RH end cap; if applicable). See FIG. 1 & FIG. 14.

i If the awning is **NOT** installed on the RV, do **NOT** remove the cotter pin at this time. Skip to section, "Finish Installation" on page 20.

FINISH INSTALLATION

This section applies to awning fabric and roller tube replacement, or if the awning was removed from the RV.



Some additional procedures may need to be performed to complete the replacement. These procedures will vary in detail based on awning model. See latest Installation Instructions for your specific awning model.

Additional procedures may include:

- Secure awning fabric to awning rail.
- Secure hardware to RV.
- Remove RH cotter pin **AFTER** awning is installed.
- Connect LED light (if equipped).
- Etc.

VERIFY INSTALLATION

A. Testing Operation

Operate the awning according to the Operating Instructions (or User's Guide) to verify all parts are functioning correctly.

B. Securing The Awning For Travel

1. Fully close the awning. See "Close Awning" in Operating Instructions (or User's Guide).
2. Verify the awning is secure for travel. See "Prepare Awning For Travel" in the Operating Instructions (or User's Guide).

C. Keeping The Literature

Keep these instructions with the awning.