

# **Trailer Tower Setup Instructions** **For Scorpion Trailer Tower Units**



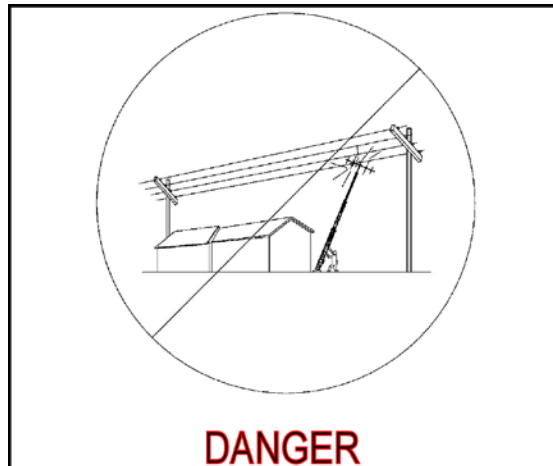
To be used for the following trailer tower models:

- TM53-70EB4/T-50UGHL
- TM53-70EB4/T-60UGHL
- TM53-70EB4/T-75UGH
- TM53-70EB4/T-85UGH
- TM53-70EB4/T-100UGH
- TM53-70EB4/T2-50UG
- TM530-70EB4/T2-60UGL
- TM53-70EB4/T2-60UGXL
- TM53-70EB4/T2-85UG
- TM53-70EB4/T2-100UG

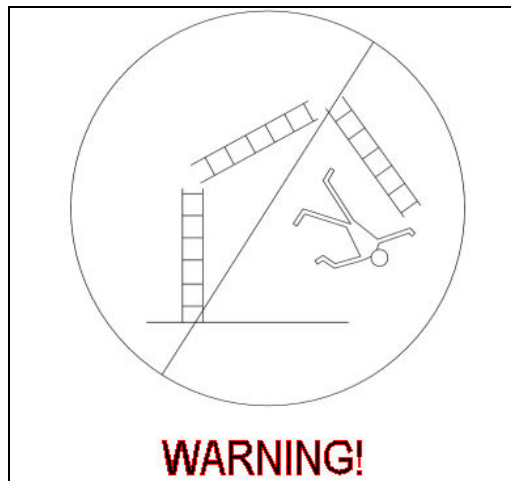
**Aluma Tower Company, Inc.**  
**1639 Old Dixie Hwy.**  
**Vero Beach, FL 32961**  
**(772)567-3423**

# SCORPION TRAILER TOWER SETUP INSTRUCTIONS

## *CAUTIONS AND WARNINGS*



⇒ **NEVER** setup the tower within 120 feet of a power line.



⇒ **NEVER** attempt to climb your tower under any circumstances. Always lower tower completely and access your tower by use of a suitable ladder. The rungs cannot support the weight of a person.



⇒ **ALWAYS** tow the trailer in a level position to meet height restrictions. Adjust coupler height as needed.

- ⇒ **ALWAYS** insure your tow vehicle and hitch capacity are suitable for the trailer you are towing. These items must be rated according to the GVWR on the V.I.N. decal on the front of your trailer tower unit.
- ⇒ **NEVER** overload your trailer or the tongue of your trailer. The GVWR noted on your V.I.N. decal is the maximum loaded weight of your trailer tower unit.
- ⇒ **ALWAYS** evenly distribute your load to maintain safe handling conditions when towing your trailer tower unit (see “weight Distribution” notice)
- ⇒ **ALWAYS** maintain the proper tire pressure according to the specification decal located on the front of your trailer tower unit
- ⇒ **NEVER** tow the trailer with the outrigger jacks in place. Remove them and stow on rear frame or in storage box.
- ⇒ **BEFORE** transporting trailer/tower check to see that the tower hold down cables are in place and secure.
- ⇒ **WHEN** transporting trailer and tower, drive within the speed limits and do not exceed 55MPH.

## ***GETTING READY TO TRANSPORT***

After hooking up the trailer to the tow vehicle, fully retract the front tongue jack by cranking the handle. Next, remove the pin for the dropleg portion, then push the dropleg up into the jack body until the two lowest holes are aligned. Reinsert the pin to retain the dropleg portion at the highest position.

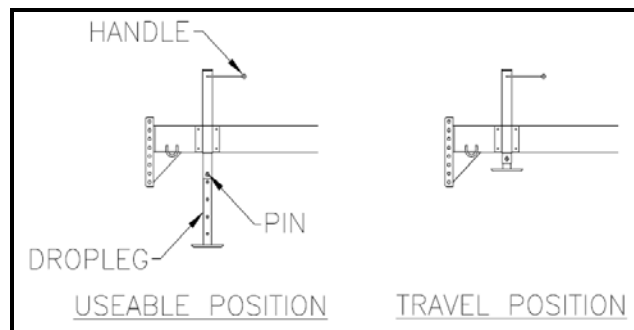


Fig. 1 Tongue Jack Positions

Attach the hooks on the safety chains to the tow vehicle frame. Be sure to cross the chains under the coupler and leave enough slack for turning (*see Fig.2*). Hook up the trailer lights by plugging the connector into the receptacle on the tow vehicle. Check all lights (Brake, Stop, and Running) to see that they are functioning properly. Check to see that the electric brakes are properly connected and that the brake controller is in proper working order. Next, hook up the small wire cable that operates the breakaway brake control (*see Fig. 3*).

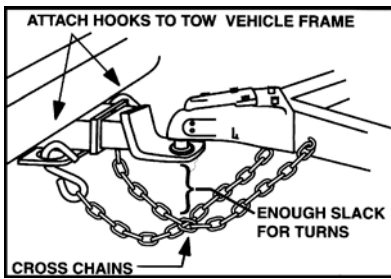


Fig. 2 Proper Safety Chain Hook Up

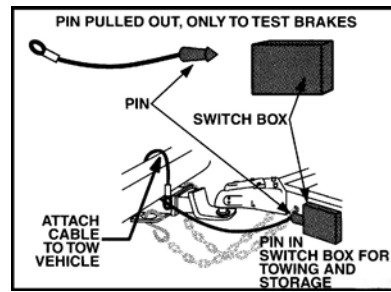


Fig. 3 Proper Breakaway Cable Hook Up

## POSITIONING THE TRAILER/TOWER

1. Locate the trailer tower unit in a place that will allow a minimum clearance of 27 ft. wide by 36 ft. long to allow for full extension of the outrigger assemblies (*see Fig. 4*).

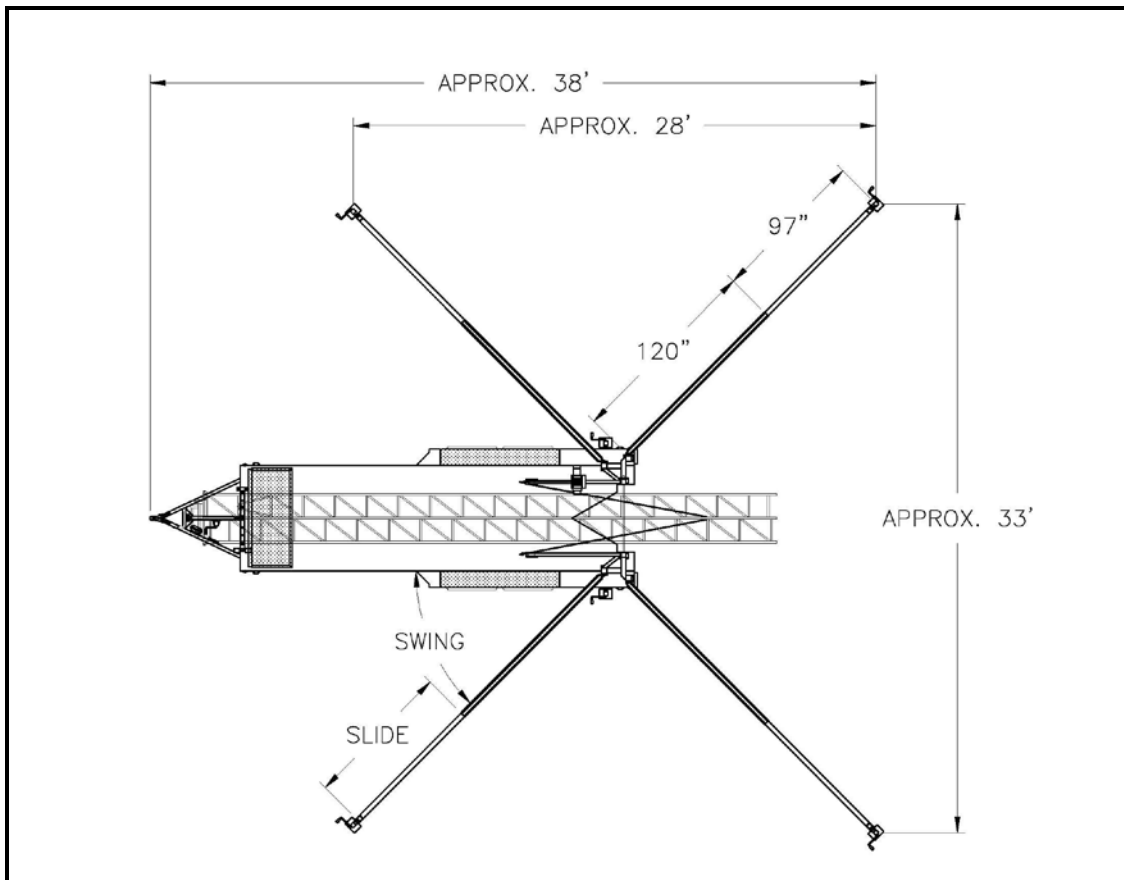


Fig. 4 Dimensions with Outriggers Fully Extended

2. The tow vehicle must now be uncoupled from the unit. Remove the safety pin and unlatch the coupler. Pull the pin on the dropleg tongue jack and allow the leg to drop to its lowest position (*see Fig.'s 1 & 5*). Realign the through holes and reinsert the pin. Crank down the jack to raise the trailer coupler high enough so the tow vehicle can be moved away. Disconnect the safety chains, light connector cable, and breakaway cable from the tow vehicle.

## ATTACHING THE MAST, ANTENNA, AND COAX CABLE

1. Remove the thru bolts from the upper and lower mast adaptor plates. Insert mast through upper plate mast adaptor. Slide mast into lower plate mast adaptor until it

is fully seated against plate. Turn mast to align bolt thru holes. Reinsert bolts and fully tighten nuts.

2. Feed the coax cable through the bottom middle of the smallest section and up through the mast at the top of the tower.
3. Attach your antenna to the supplied mast per the manufacturer's specifications.
4. Connect the coax cable(s) to the antenna(s).

**NOTE:** Aluma Tower Company, Inc. recommends the trailer tower unit to always be grounded to a suitable grounding system during deployment.

### ***ATTACHING THE GUY WIRES (IF APPLICABLE)***

**NOTE: GUY WIRES ARE NECESSARY IF WIND GUSTS EXCEED 50 MPH, LOAD EXCEEDS 10 SQ. FT. OF SURFACE AREA, ERECTING TOWER AT LESS THAN FULL HEIGHT OR OTHERWISE DEEMED NECESSARY**

1. Attach the color coded ends of the guy wires to the corresponding color coded guy ears at the top of each section of the tower, using the screw pin shackle (*see Fig. 5A*). Be sure to tighten the screw pin shackle with a wrench. Lay the appropriate sets of three each guy wires in the general direction to which they will be anchored. (*see Fig. 5B*). See below if ***“Erecting the Tower at Less Than Full Height”***.

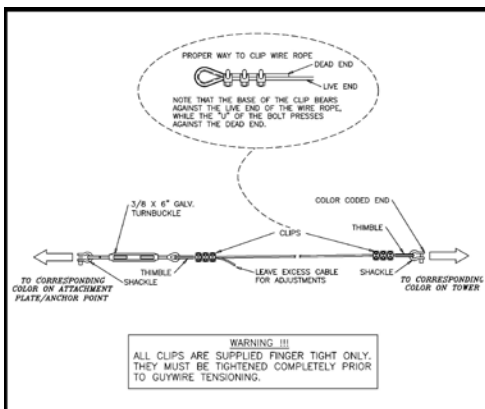


Fig. 5A Proper Guy Wire Configuration

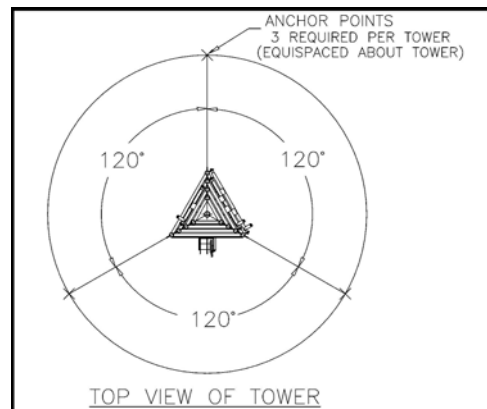


Fig. 5B Standard Guy Wire Anchor Points

### ***DEPLOYING THE SWINGING SLIDEOUT OUTRIGGERS***

1. **First**, remove 2 leveling jacks from storage box and install jacks on the rear fixed jack tubes of the trailer, one on the curbside and one on the roadside (*see Fig. 5*). **NOTE:** This must *always* be done first (before swinging outriggers into position) to properly support the trailer frame while swinging the outriggers into the deployment position.
2. Remove bent pins & hairpins from hinged end of all 4 outriggers (*see Fig. 5*). The 4 outriggers consist of 2 on each curbside and roadside of the trailer.
3. Remove handle pins & hairpins from forward end of all 4 outriggers (*see Fig. 5*).

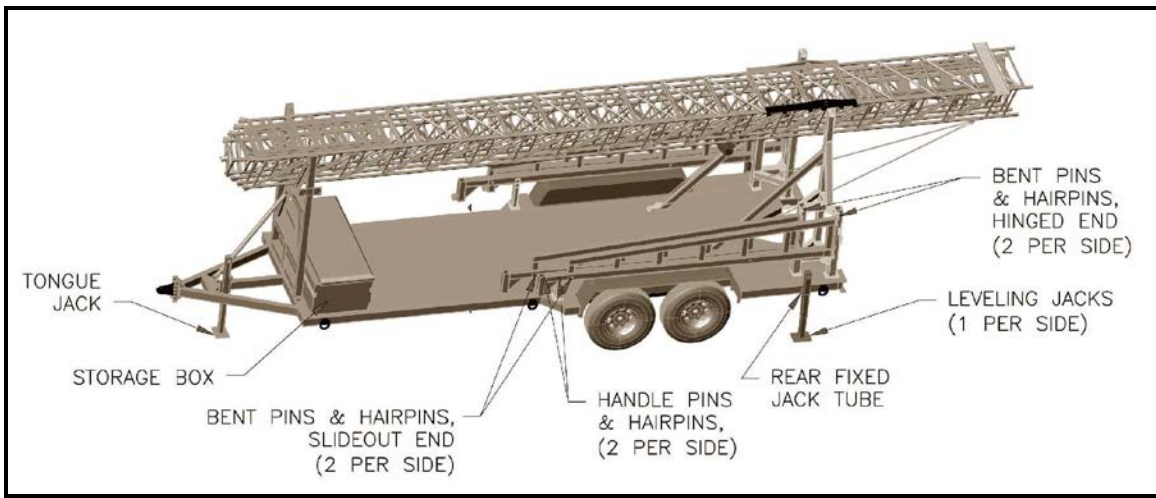


Fig. 5 Stowed Outrigger Details

4. **Slowly** swing all 4 outriggers into deployment position. The rear outrigger will swing to about 45° toward the rear of the trailer and the front outrigger will swing to about 45° toward the front of the trailer. This will provide about 90° between the 2 outriggers on each side (*see Fig. 6*).

**CAUTION!** Do not try to swing outriggers beyond these positions as it may cause the stops and pin tubes to become damaged.

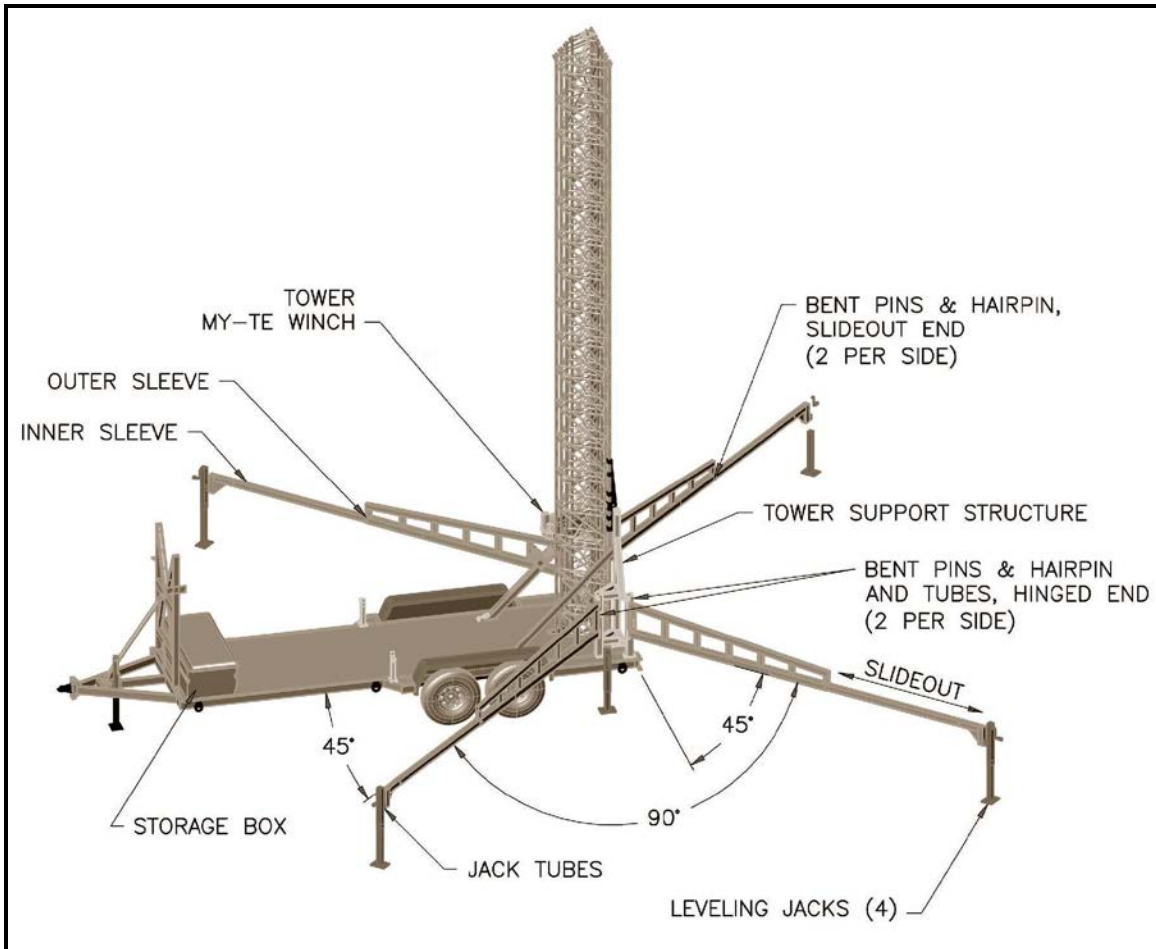


Fig. 6 Deployed Outrigger Details

5. Once the outriggers are in deployment position, align the bent pin tubes on the hinged end of the outriggers and insert the bent pins on all 4 outriggers. Once pins are inserted, place hairpin retainers through hole on end of each bent pin (*see Fig. 6*).
6. Remove the bent pin & hairpin from the slideout end of each outrigger, 2 per side (*see Fig. 6*).
7. Slide out each of the 4 outriggers inner sleeves until the holes on the inner sleeves are aligned with the holes on the outer sleeves and reinsert the bent pin and hairpin (*see Fig. 6*).
8. Remove 4 leveling jacks from storage box and place on jack tubes on each end of all 4 outriggers, then pin into place (*see Fig. 6*).
9. Level the trailer by using the Hoppy Levels installed on the tower support structure and the 4 foot beam level in the storage box. Adjust all 6 of the leveling jacks to achieve the proper levelness. The trailer should be level within 3° in both directions, front to rear and side to side so the tower will be plumb when raised. The beam level should be placed flat on the deck of the trailer while leveling, in both directions (*see Fig.'s 6& 7*).

## ***ERECTING THE TOWER***

1. Release tension on the rear tower support ratchet strap. Unlatch the locking carabiner from eyebolt and remove strap from under the tower to allow tower to pivot to vertical position (*see Fig. 7*).
2. Release tension on both front tower holddown ratchet straps. Unlatch both locking carabiners from eyebolts and remove strap from over tower to allow to pivot to vertical position (*see Fig. 7*).

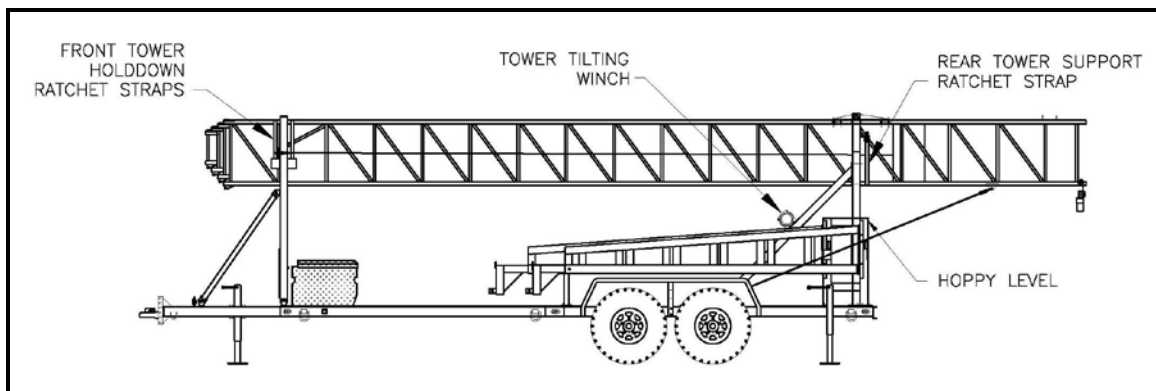


Fig. 7 Items for Titling Tower to Vertical Position

3. Remove hairpins and outer nuts from lockdown rods located on rear of trailer (*see Fig. 8*).
5. Operate tower tilting winch on rear tower support structure to tilt tower from

horizontal to vertical position (*see Fig. 7*). Guide the slots in the tower lockdown channel over the lockdown rods at the opening on the rear of the trailer frame (*see Fig. 8*).

**NOTE:** If equipped with a manual brake winch, sufficient load must be applied to the cable to overcome internal resistance and operate brake properly. **NEVER CONTINUE TURNING THE HANDLE COUNTER-CLOCKWISE IF THE CABLE DOES NOT KEEP MOVING OUT.** This will disengage the brake mechanism and create an unsafe or hazardous condition.

MINIMUM OPERATING LOAD REQUIREMENTS - MODEL 5353 - 525 lbs.

Failure to read and apply the instructions and warnings contained in this manual can result in sudden failure of equipment, property damage and serious injury.

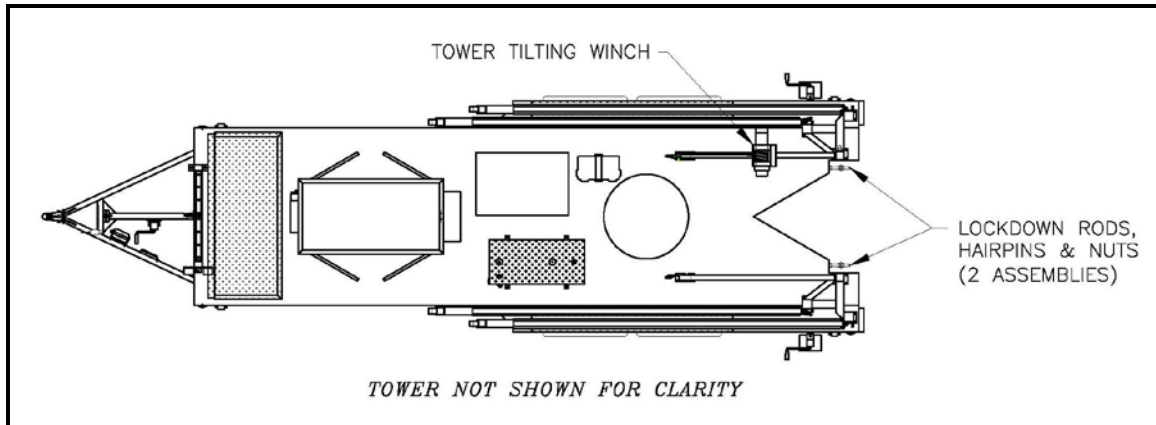


Fig. 8 Tilting Tower to Vertical Position

6. Once the slots are over the rods, adjust the inner and outer lock nuts so the tower is plumb and within 3° of being perfectly vertical. Use the 4 ft. level to achieve this, in 2 different vertical planes along the legs of the tower (front to rear and side to side of trailer).
7. Once this is achieved tighten both the inner and outer nuts securely against the lockdown channel with the supplied wrenches in the tool kit located in the storage box. Recheck the plumbness of the tower to confirm it has not changed. Adjust as needed. Reinstall lockdown hairpins.

### **TELESCOPING THE TOWER UPWARD**

1. **IMPORTANT:** Undo the Red Safety strap from the bottom of the tower (if equipped) and remove it from the inner sections. It is necessary for this strap to be removed. The power winch raising the tower is capable of damaging the tower if this strap is not removed. *Please note that this strap is used to keep the tower from telescoping out on its own when in the transport mode.* Additionally, you should pull the orange safety stop release cord to insure the safety stop releases properly before raising the tower.

**CAUTION !** Do not attempt to raise tower in winds over 30 mph.

2. Plug in the winch control and power cord to the corresponding terminals on the tower winch. Plug in the power cord for the winch to the proper power source.



3. Raise the tower by operating the winch controls. The safety stop engages at a rung approximately every 20 inches. Remember that the electric winch is capable of damaging the tower, so be alert to any unusual noises or signs that may indicate that you are doing damage to the tower. **Do not try to overextend the tower.**

**IMPORTANT!** When at maximum height, the rung marked with orange reflective tape is just above the safety stop mechanism located at the top of the lowest section. **Serious damage will occur if overextended!** (as an additional safety feature, there are electrical limit switches to reduce the possibility of over-extending and over-retracting the tower during telescoping.)

THE TOWER IS NOW READY FOR USE.

## ***ERECTING THE TOWER AT LESS THAN FULL HEIGHT***

In some instances, erecting the tower at less than it's full height may prove to be adequate for desired communications.

Raise the tower to the desired height by operating the winch controls. The safety stop engages at a rung approximately every 20 inches. Remember that the electric winch is capable of damaging the tower, so be alert to any unusual noises or signs that may indicate that you are doing damage to the tower. The tower can be used at any height below full extension provided that the safety stop is engaged in a fully horizontal position.

**NOTE:** The radial pressure slide bar mechanism is only engaged when at full height. If expected winds exceed 30 mph or excessive movement is noticed, guy wires must be used. See “*ATTACHING THE GUY WIRES*” if erecting at less than full height and winds exceed 30 mph.

## ***LOWERING THE TOWER***

1. To start the procedure of lowering the tower, it is first very important to insure the safety stop is disengaged. The safety stop is controlled by an orange cord attached to one leg of the tower. Pull the orange cord until the safety stop clears the rung above it. It may be necessary to raise the tower up slightly to allow the safety stop to swing out of the way. Start lowering the tower while keeping tension on the orange cord. *The safety stop must be kept out of the way for the complete lowering of the tower or serious damage may occur.* **As an additional safety feature, a safety stop interlock switch has been installed to reduce the possibility of damaging the safety stop.**
2. Lower the tower by operating the winch controls. Remember that the electric winch is capable of damaging the tower, so be alert to any unusual noises or signs that may indicate that you are doing damage to the tower. **Do not try to over-retract the tower.** Lower the tower so the guy ears at the top of each section are just above the section below it. *Care should be taken to not lower the tower more than necessary or serious damage may occur.* **As an additional safety feature, a limit switch has been installed to reduce the possibility of damaging the tower due to over retraction.** After the tower has been lowered to the retracted position, **be sure to** reattach the “**Red Safety Strap**” around the inner sections.
3. Unplug in the winch control and power cord from the corresponding terminals on

the tower winch. Unplug in the power cord for the winch from the power source.

1. Remove the nuts and hairpins from the lockdown bolts on tower lockdown channel.
5. Operate tower tilting winch on rear tower support structure to tilt tower from vertical to horizontal position. Lower the tower to the horizontal position and secure the tower with both ratchet straps and carabiner latches. Be sure locking mechanism on carabiners is engaged. Ratchet the lockdown straps with a fair amount of tension to keep tower from bouncing up and down while traveling (*see Fig. 7*).
6. Reinstall the lockdown nuts and hairpins on the rear lockdown rods. Be sure to tighten with a wrench so they will not vibrate loose during transportation.
7. Reinstall the rear tower support ratchet strap, securing the carabiner latch to the corresponding eyebolt. Ratchet the strap with a fair amount of tension to provide support during transportation.
8. Remove the coax cable, antenna and mast and put in stowage position.

## ***STOWING THE OUTRIGGERS***

1. Crank 4 outrigger leveling jacks to remove vertical pressure. Remove the 4 leveling jacks from the outriggers and place into storage box.
2. Remove hitch pins from slideout end of outriggers and slide inner sleeves into outer sleeves until holes are aligned. Reinsert hitch pins through both the inner and outer sleeves to secure into position. Place hairpin through hole in end of hitch pin to secure.
3. Remove bent pins & hairpins from hinged end of all 4 outriggers (*see Fig. 5*). The 4 outriggers consist of 2 on each curbside and roadside of the trailer.
4. Swing all 4 outriggers towards inward to the fully stowed position, parallel to the sides of the trailer. Place all 4 handle pins through the outrigger bracket and the stowage support bracket to secure for transport.  
**NOTE:** It may be necessary to slightly lift the outriggers to get the holes in full alignment so the pins may be reinserted.
5. Remove the 2 rear leveling jacks by cranking the handle and alleviating the vertical pressure. Place the jacks into the storage box for transport.
6. You are now ready to hook up the trailer to the tow vehicle. Once again recheck all securing straps and safety wires. Repeat procedure for “***Getting ready to transport***”.

**NOTES:**

***APPROVED FINAL REVISION June 26, 2009***

***REV. 1: UPDATED GRAPHICS PER DESIGN CHANGES, 10 MPH WIND LIMIT FOR RAISING TOWER WAS CORRECTED TO 30 MPH LIMIT AUGUST 3, 2009***

***REV. 2: ADJUSTED MAX. WIND WHERE GUY WIRES ARE NECESSARY FROM 68MPH TO 50 MPH WIND GUSTS OCTOBER 21, 2009***

***REV. 3: ADDED T2 TOWERS TO COVER PAGE, ADDED RECOMMENDATION OF GROUNDING TRAILER TOWER DURING DEPLOYMENT OCTOBER 12, 2011***

***REV. 4: ADDED TESTING SAFETY STOP RELEASE VERBIAGE TO #1 UNDER "ERECTING THE TOWER AT FULL HEIGHT" JANUARY 10, 2012***