



## 2010 43QGP Allegro Bus

5/15/2016

### **ONE HUNDRED TWENTY-SEVENTH - coach modification – INSTALLATION OF A WINEGARD RAYZAR RZ-8535 ANTENNA,**

**r1.** Installation of a Winegard Rayzar RZ-8535 (OTA) Over the Air Antenna was recently completed. The previous Mini-State OTA antenna was time consuming to setup as the system required MANUAL tuning.

Research still states the best antenna on the market is the Winegard crank-up antenna mainly due to the height of the antenna's array when deployed, for height and obstruction avoidance I decided to retain the aluminum rooftop mounts from the wireless Mini-State antenna to use in mounting the Rayzar.



The bottom of the new Rayzar antenna is a thin plastic, in an effort make the bottom of the new antenna more sturdy as I decided to NOT use the three Rayzar OEM mounting ears instead I cut two 10" long sections of 1/8" x 1" Aluminum angle they are mounted as seen above between the Rayzar antenna and the Mini-State's metal legs.

The OEM Mini-State bolt pattern was square and measured 3- 5/16" on each of the four sides. Stainless steel button head 10 x 24 x 1/2" cap screws with Nylock nuts were used to mount the two 10" aluminum angle pieces to the OEM Mini-State mounts. Rather than cut off the three wire control cable it was coiled it up and tie wrapped to the antenna coax just in case there is a future need for the cable.



Also I do not like to make holes in the roof as in my opinion there are too many chances to damage something hidden under the fiberglass yet unseen. Those are my two main reasons to reuse what I can of the Tiffin installed equipment.

Next issue was to remove the plastic dome to drill holes in the bottom for mounting to the mounted aluminum angle. The inner gear drive circle for the antenna is four inches there is also an outer raised rib in the bottom of the antenna at eight inches. The attachment point needed to be outside the eight inch circle so nine inches was picked. As seen in the first photo the four holes were drilled  $\frac{1}{2}$  inch from each end of the aluminum angle centered on the 1" width.

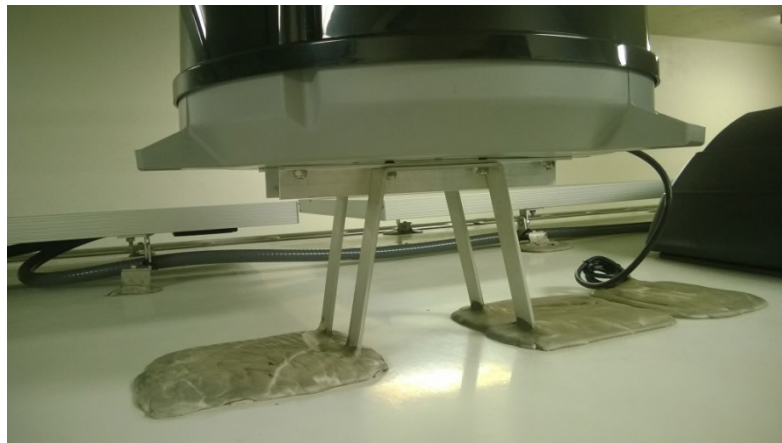
The antenna was mounted to the aluminum angle using 10 x 24 x  $\frac{3}{4}$ " Button head screws with Nylock nuts as seen at the right.

Seen in the following photo hard round and rectangular plastic washers were cut

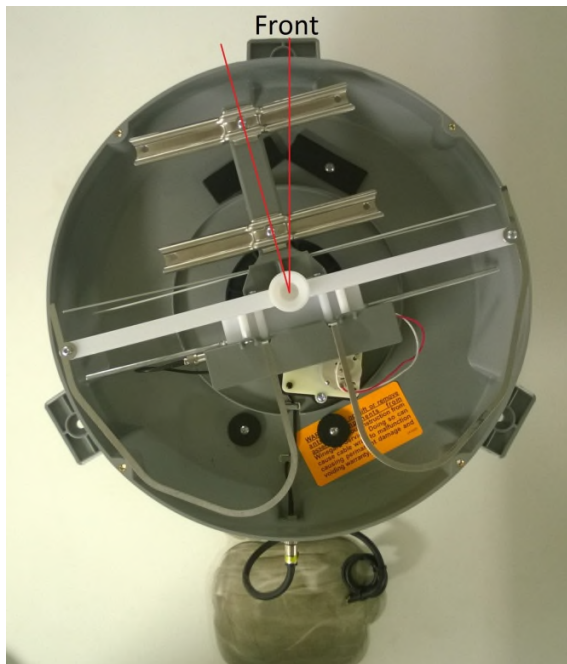
and installed to prevent the screws from being pulled thru the thin plastic bottom of the antenna.

The antenna is pointed toward the front of the coach, the in coach display lights a green LED located at the top of the inside display when the antenna is positioned as shown to the right. The antenna rotates to the RIGHT (clock-wise) from this position traveling approximately  $345^\circ$  where the motor stops and will not allow further rotation in the clock-wise direction.

The next photo shows the antenna array in its fully clock wise location.

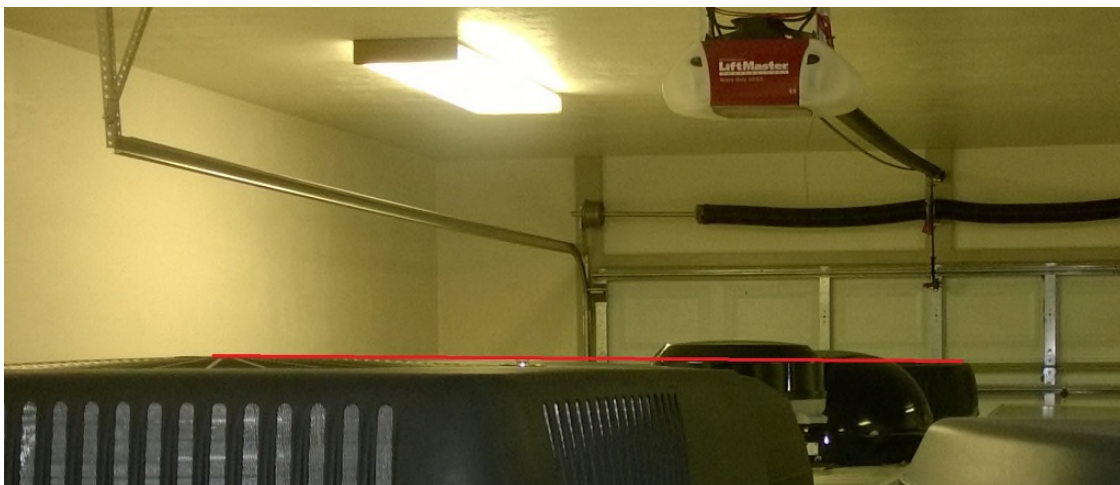


The angle between the two Red lines is approximately 22 °. The control head has eight LED's, the LED's are used to display which direction the antenna is pointing. LED 1 is located at the top of the display each LED clockwise from the front LED is 45 ° from the previous LED, so their at 45 °, 90 °, 135 °, 180 °, 225 °, 270 °, and 315 °.



However there are 16 STOPS as the antenna rotates clockwise. 8 LEDs and 16 STOPS, the method to note a stop between LEDs is for two adjacent LEDs to illuminate.

When two adjacent LEDs are displayed the antenna is pointed at one of the following angles relative to the front of the coach, 22.5 °, 67.5 °, 112.5 °, 157.5 °, 202.5 °, 247.5 °, 292.5 ° or 337.5 °.



As seen denoted by the RED line above the Winegard Rayzar is the tallest device on the top of the coach other than the CB Antenna at 13' 5.5" and the AM/FM Antenna at 13' 4.5".

The following heights were measured with the coach's air suspension ready to drive.

Winegard Rayzar Antenna – **12' 7.75"**

Kingdome Antenna – **12' 6.88"**

AC/HP – **12' 5.5"**

Revision 1,

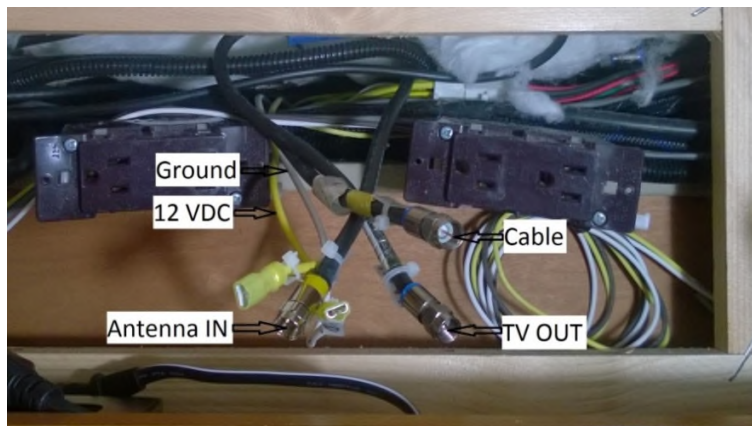
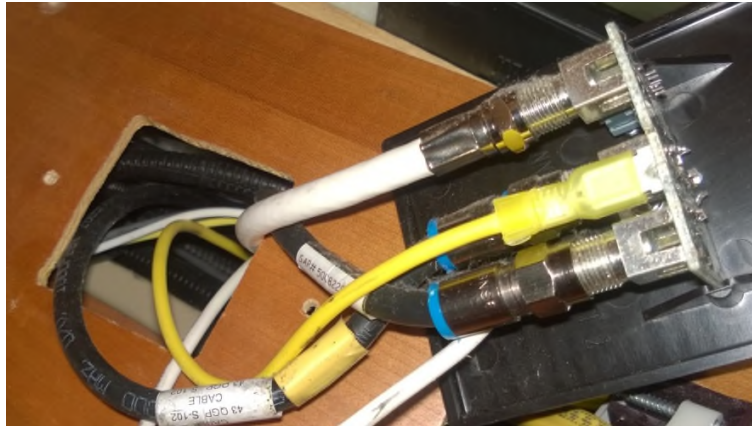
In my haste to finish the original document it did not contain important information.

The OEM Winegard wall plate has five connections, 12 VDC, ground, Antenna (Ant), Cable, and TV. Those connections are shown in the following photo.

Tiffin mounted the original Winegard wall plate horizontally. Rather than mounting the Rayzar control board in the original location I decided to fabricate two new cabinet panels replacing the two original panels with various holes.

After the two old panels had been removed, all connections were labeled with their function.

The bottom photo shows the five labeled connections attached to the Rayzar control board prior to mounting the controller. The labeling is the same on both old and new modules making installation very easy. The original layout installed the wall plate to the left with two duplex outlets installed horizontally to the right, rather than using the original configuration I decided to



separate the two outlets installing the Rayzar control panel between the outlets.

This last photo shows the new Rayzar installation.



We have not had the opportunity to take a trip yet, that will wait until the end of May when we attend my 50<sup>th</sup> class reunion.

At this point in front of our garage I picked up THREE PBS stations (5.1, 5.2, and 5.3) and have a WIFF of 28.1 but not enough to display without pixelating.

Is the antenna worth the \$ 320.00 time will tell.

