2010 43QGP Allegro Bus

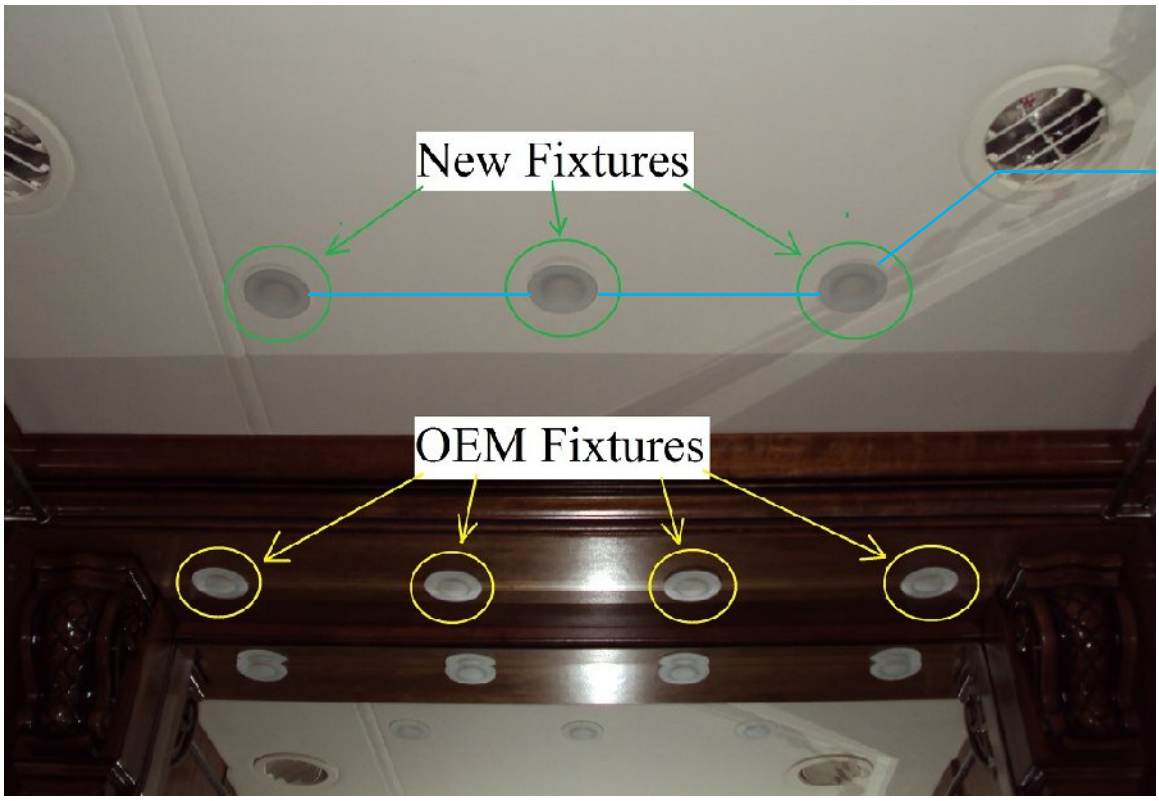
6/5/2013

SEVENTY-NINETH - coach modification – **ADDITIONAL LED FIXTURES IN THE REAR BATHROOM.** This modification was made based on a rare request by my wife. Cathey found the location of the over the sink lighting in the rear bath on our 2010 Allegro Bus did not allow her to clearly see what she was doing while putting on her makeup. The OEM location of the lighting placed too much light on the mirror and very little on her face and provided no lighting over her head.
During a recent trip to Red Bay three additional LED fixtures were purchased for installation over the rear bath sinks.
Now the hard part begins locating the components Tiffin buried inside the ceiling so they could be avoided while installing the new LED fixtures and their wiring. The decision was made to add the three new fixtures to the same electrical circuit which already had four LED fixtures mounted near the mirror, making a total of seven LED fixtures controlled by one wall switch, the LEDs draw about 1/5 the current as the OEM halogen lights.
While in Red Bay several hours were devoted to observing the construction of the ceiling and roof panel for a 2013 43QGP Allegro Bus. Knowing the locations of the 12 VDC wiring, 120 VAC wiring, Audio/Video wiring and AC condensate tubes and how they were routed thru the roof along with the placement of the structural tubing of the roof in the ceiling was critical. Prior to cutting holes in the ceiling several hours of preparation was done including measuring, the use of a stud locator to find the structural members in the ceiling after everything was located blue painters tape was used to mark the locations on the ceiling for the three new fixtures. Based on previous conversations with Cathey I was satisfied with the marked locations for the three new fixtures. Now all that remained was to get final authorization from Cathey to proceed with the modification.
This is where I get jittery cutting into an undamaged ceiling panel is hard for me to do. After measuring the LED fixture at a hair over 2” in diameter a 2” round template was made, this template was placed over the center mark on the first of three marked fixture locations. A pencil line was drawn around the template then the template was moved to the second location where a second line was drawn then the template was moved to the third location and a line drawn. A pilot bit the same size as the pilot bit on my hole saw was used to drill a hole thru the vinyl, foam then thru the Luan ceiling panel at all

three fixture locations. A razor knife was used to cut thru the ceiling vinyl along the drawn pencil line also thru the ¼" foam pad stopping at the ¼" Luan paneling. After the vinyl and foam had been removed the two inch hole saw with pilot bit was mounted to my battery powered drill. It was used to drill a hole thru the Luan paneling stopping before penetrating too far into the dense white foam in the ceiling. A flat blade screwdriver was used to scoop out the foam inside the cutout about two inches into the ceiling panel allowing adequate space for any excess wiring and the fixture to fit into the ceiling. The new fixtures are centered on the mirror with a 13" spacing between the fixtures and 10.5" out from crown molding to the fixture center.

There are three structural members in this portion of the ceiling two of them are located between each of the new fixture locations the third member is located between the closet and the new fixtures. The structural members are denoted by the **RED** lines in the above photo. Those members are located on 16" centers at least in the area of this ceiling modification.
A heavy gauge steel wire was pushed thru the dense foam above the structural members located between each new fixture. 20 gauge wiring was used to power the LEDs 12+ VDC (yellow) and 12- VDC (black), after the hole was made the pair of wires were fished from hole to hole thru the ceiling foam. It was quickly discovered the easiest method was use the AC/HP supply duct as a chase for getting the wiring for the new LEDs back to the closet where the wiring for the four OEM fixtures was located.

To route the wiring the rear supply duct vent was removed, a stiff wire was pushed thru the wall of the supply duct into the hole made for the fixture on the right in the below photo. A ceiling wiring port in the closet seen in the above photo was used to push a wire back into the same supply duct where I was able to connect to the new wiring pull that pair of wires out thru the ceiling wiring port where the new wiring was soldered to the OEM wiring for the OEM 4 mirror LEDs. A piece of ¼" black loom was used to protect the wiring at the top of the closet. The **BLUE** lines denote the location of the wiring for the new fixtures. After all above wiring connections were made the seven LEDs are controlled by the OEM mirror light switch.
After the wiring was installed inside the supply duct aluminum foil tape was used to secure the opening punched thru the duct for the wiring.



NOTE: Our 2010 coach puck light fixtures have three spring clips keeping them in the ceiling. Recently Tiffin began using/selling the same puck light fixtures without the spring clips. The fixture has three screw holes around the perimeter. When installing the three new light fixtures I decided not to install those three screws. My reasoning, if in the future a LED required replacing it would be harder to remove the lens if the fixture had the screws installed. I can always install the screws if a fixture will not stay in place.