

Tuning Up The Air Conditioning System in Your Coach

Contributed by Chinook Glacier Owner/Club Member **George Poulsen** of Arlington, TX

Recently, we have had a little discomfort from the heat so I decided to study it a bit since the Air Conditioning System puts out super cold air no matter where we are....but...

On the A/C...we have experienced some really hot weather at night, and we found that we had to turn the thermostat up to 82-87+ in 105 degree weather to turn it off when we got comfortable during the day (or it would just keep running). But then we had to turn it back down at night to 74 degrees or it would not come back on during the cooler night hours, almost as though it was responding to the outside temperature more than the inside temperature.

The Owner's Manual mentioned a second sensor wire located in bonnet, (cover on the top of the coach that houses the Air Conditioning mechanicals), and I could not find it. So I suspected another temperature sensor for "zone 2" might be buried in the bonnet, and was sensing the outside temperature.

An air conditioning technician at a local RV dealer told me the second sensor was really an outside sensor that helps govern the heat pump differential with outside temperatures if you have a heat pump (which we do). So that one did not help.

Ok.....so I went home and sat in our RV for an entire afternoon playing with combinations of temperatures and vent directions equipped with a stop watch, a small fan, three thermometers in vents and tweaked the thermostat and intake positions.

Here are my observations from that experience in our Glacier (with roof-ducted Air conditioning)

1. When the Air Conditioning System takes in about 80 degree air from inside the coach at the intake in the ceiling, it pushes out about 50-55 degree air from the vents. Ed Note: Most residential air conditioning systems are designed to produce a 20 degree differential between the intake and outlet, so by this criteria, George's unit was performing very well!
2. Taking off the air conditioning system intake grill and filter material may reveal that the intake collar from the intake grill up into the rooftop air conditioning unit is not properly sealed from the in-ceiling distribution ducts. If these two systems are not adequately sealed off from each other, you could very well be simply sucking cool air right back through the unit rather than directing 100% of it out through the distribution ducts to the outlets in the ceiling. Ed Note: George was "right on" on this point, as I opened our ceiling intake and found big gaps between the intake collar and the distribution side of the system. I used ample quantities of duct tape and even caulking material in the smaller openings to provide a much tighter seal. Now there's no question about "which air is which."

To quote George, "SEAL that thing tight with contact cement or use duct tape or you are just re-cooling the cool air and not pushing 100% thru the ceiling vents. This will only make your a/c run longer!"

3. Air stagnates big time around the thermostat, with the fan on or off, and with the slide either in or out. It doesn't matter
4. Rotating all vents so they circulate air in a circle "driver side to thermostat," to rear, to the front on the passenger side, makes a very large difference in temperature cycles and therefore temperature settings for consistency, while keeping air from stagnating around thermostat. This configuration also keeps the air in the bed compartment/slide much fresher and "circulating more comfortably".
5. Leaving the system fan on low also helps to achieve a shorter operating cycle and maintains a better comfort level by keeping air from stagnating around the thermostat.

6. Alternatively-----A small fan, placed on the table operating to move air in the same circular fashion helps to move air to the front and then back past the thermostat and create better cycles and comfort (without the system fan running constantly). I believe this is because it is not bringing the hot air from the RV bonnet/ceiling areas under the roof into the inside when the air conditioner is not running. I think the hot air in the roof bonnet area has a definite slight heating effect on the overall comfort levels when the system fan is running but the a/c compressor is not running even though it also shortens the a/c cycling.
7. Another alternative (per Duotherm/Dometic manual) is to flip a DIP switch in the a/c roof top box to enhance the differential temp cycle. Effectively this shortens the cycle degrees between on and off temps. However the Dometic manual says this may negate the warranty, since it effectively may try to shorten cycles inside the expected 2-3 minute wait for the system to turn on while losing head pressure after a turn-off. (I have not tried this one but it sounds valid if someone also timed the cycles after flipping their dip switch, to be sure the cycle wasn't too short especially in really hot weather.)

I've run out on this one but will sleep more comfortably this next week in 100+ degrees in the Hill country of Texas.

One final Ed Note: I have religiously followed George's advice up through #4 and can personally vouch that it is sound, and it will make a difference. B.P.