

Secondary Sensor on a Window A/C

IMPORTANT!

If your cooler does not reach the desired set temperature, or it fluctuates vastly in temperature (e.g. from low 40's to 50's), it may be because of a secondary sensor on the A/C unit. However, to discard other possibilities as well, we recommend you checking our [“Room Won't Get Cold”](#) troubleshooting video.

Please refer to our A/C compatibility chart at: <https://www.storeitcold.com/build-it/ac-selection/> to check the compatibility of your A/C brand and model.

Window A/C Brands with NO secondary Sensors:

Skip this guide if you have:

- An LG window A/C (except IVSM models - their dual inverter compressor models have secondary sensors)
- A Haier window A/C.

Window A/C Brands with secondary Sensors:

Frigidaire, Danby, GE, and all other brands listed on the A/C compatibility list, may have secondary sensors depending on their model and size - usually 12K and larger sizes will have secondary sensors. Some 10K will also have them.

DISCLAIMER

Because manufacturers change their models from year to year, and many brands change their design, branding, parts, sourcing, etc., it is very difficult for CoolBot to keep track of all models of A/Cs that hit the market every year, and to know which of these have secondary sensors and which ones don't.

LOCATING THE SECONDARY SENSOR ON YOUR WINDOW A/C

STEP 1

The easiest way to check for a secondary sensor, is to look at your A/C's Wiring Diagram - if available. Some A/Cs include one with their paperwork and some others may have it stamped on the A/C itself. Some A/Cs won't come with it, but generally a search on the web or at their website, may help you find one for your corresponding Model.

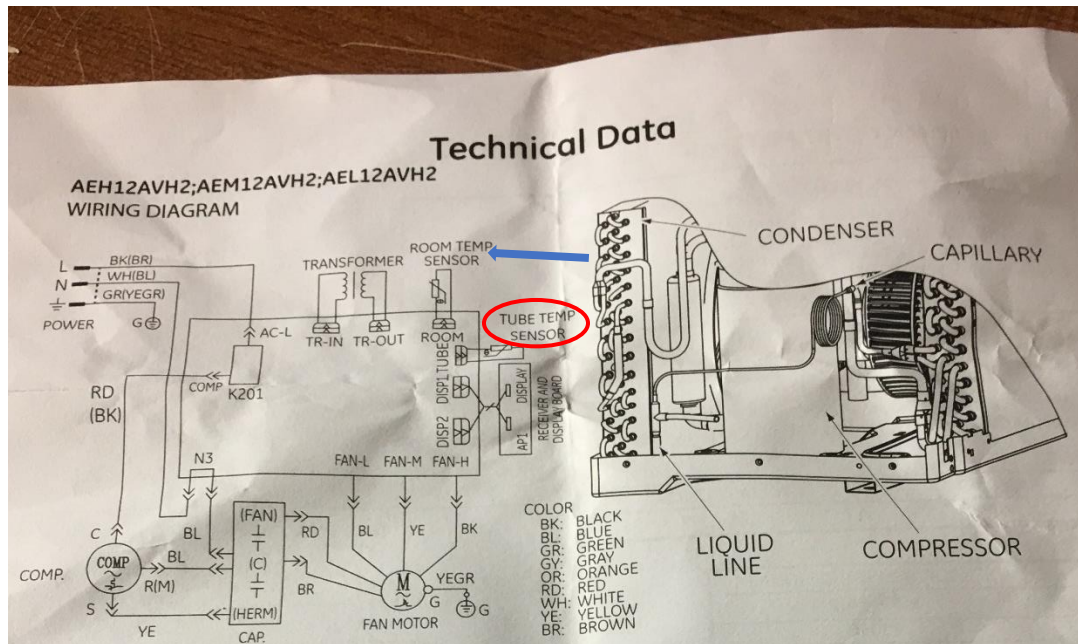
- Make sure that the Wiring Diagram corresponds to the A/C Model you have.
- Look in the Wiring Diagram for a part described as (or along the lines of):
 - ✓ Tube Sensor
 - ✓ Frost Sensor
 - ✓ Evaporator Sensor
 - ✓ Discharge Sensor
 - ✓ Freeze thermistor
 - ✓ Freeze protection Thermistor
- A schematic diagram is also useful.
- Sometimes a complete parts list of your unit may be available. An "exploded diagram" will also work, as long as it has the list of parts. Look for the same part names described above.

ATTENTION

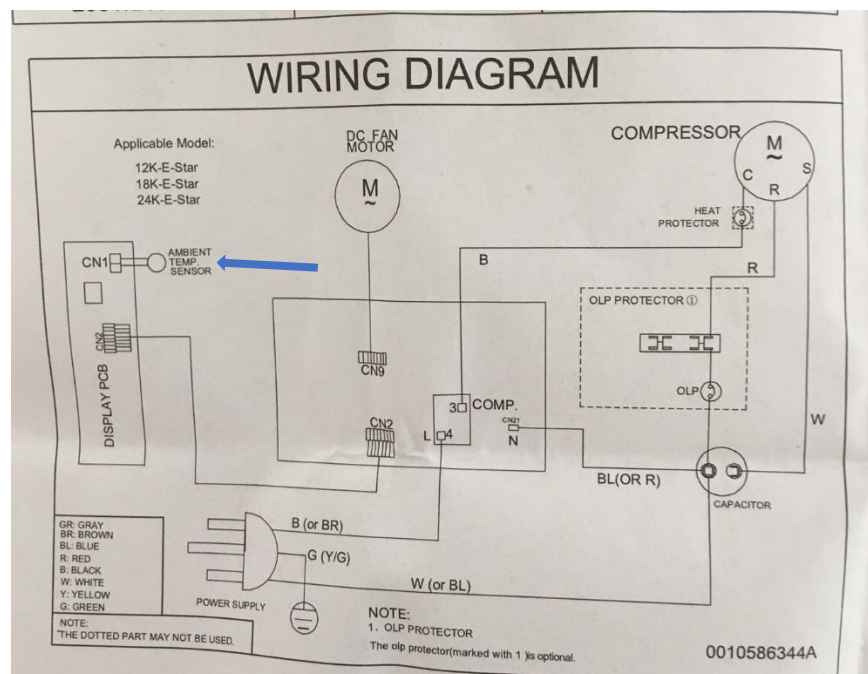
You will find in some Wiring Diagrams that the secondary sensor is depicted inside a dotted line or thin line rectangle with an optional footnote. This means that your unit MAY or MAY NOT have it. The ONLY way to be sure in this case is to get inside the A/C and inspect (Step 2).

- Here are some examples of diagrams from different window A/Cs where the **main sensor is identified with a blue arrow** and the **secondary sensor is on red**:

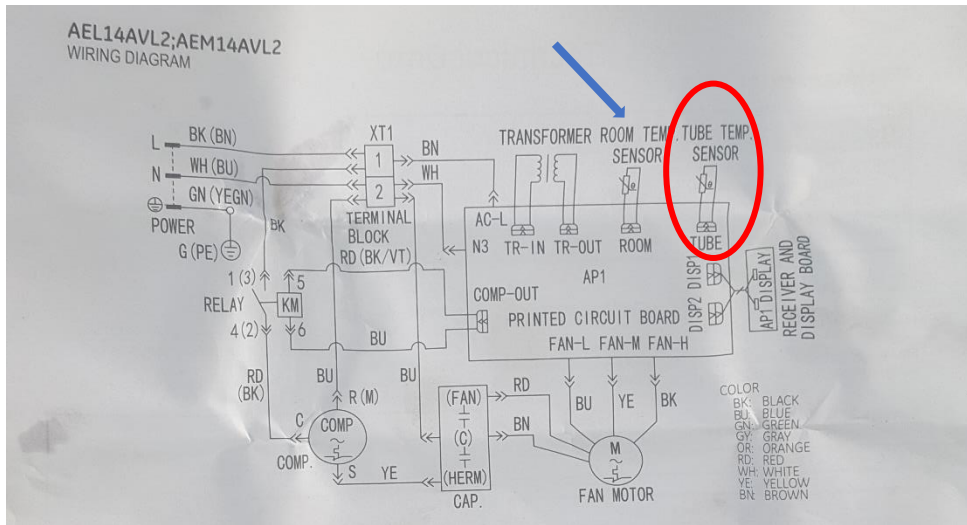
This is from a 12K unit that has a secondary sensor:



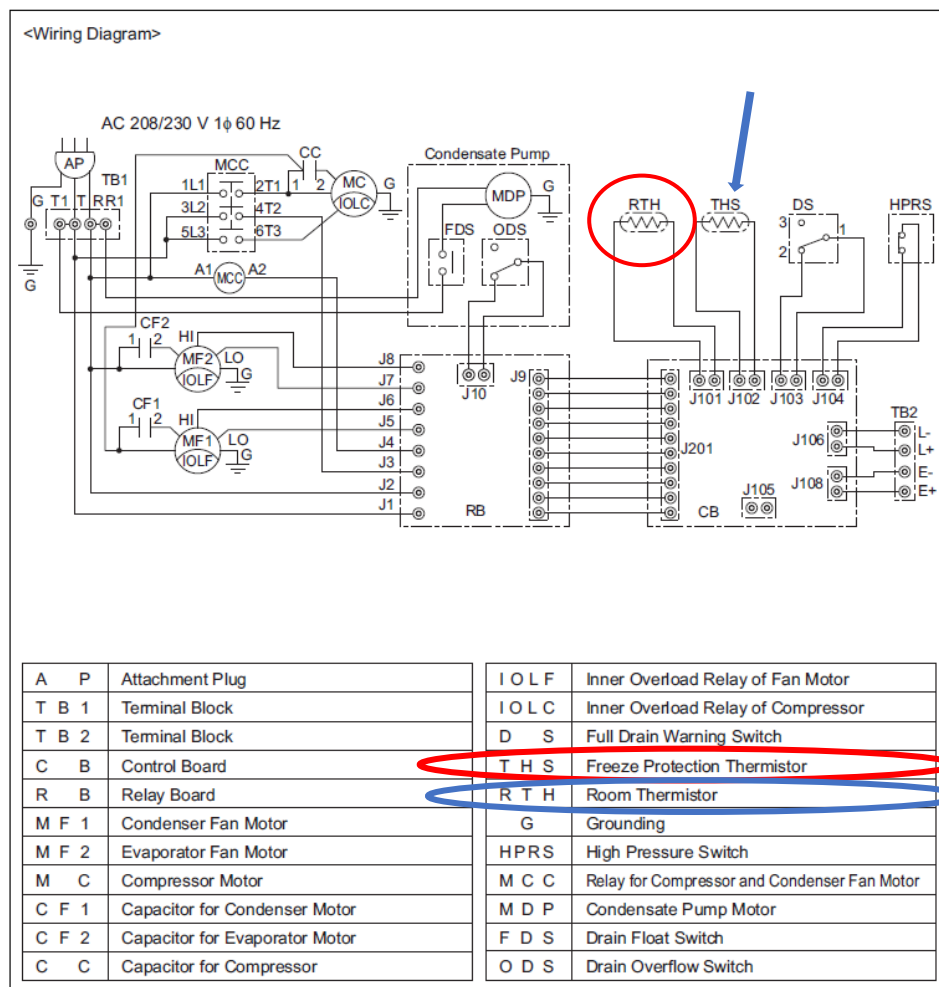
This is from a 24K that DOES NOT have a secondary sensor. Notice on the Wiring Diagram there is only one sensor depicted (Ambient temperature Sensor).



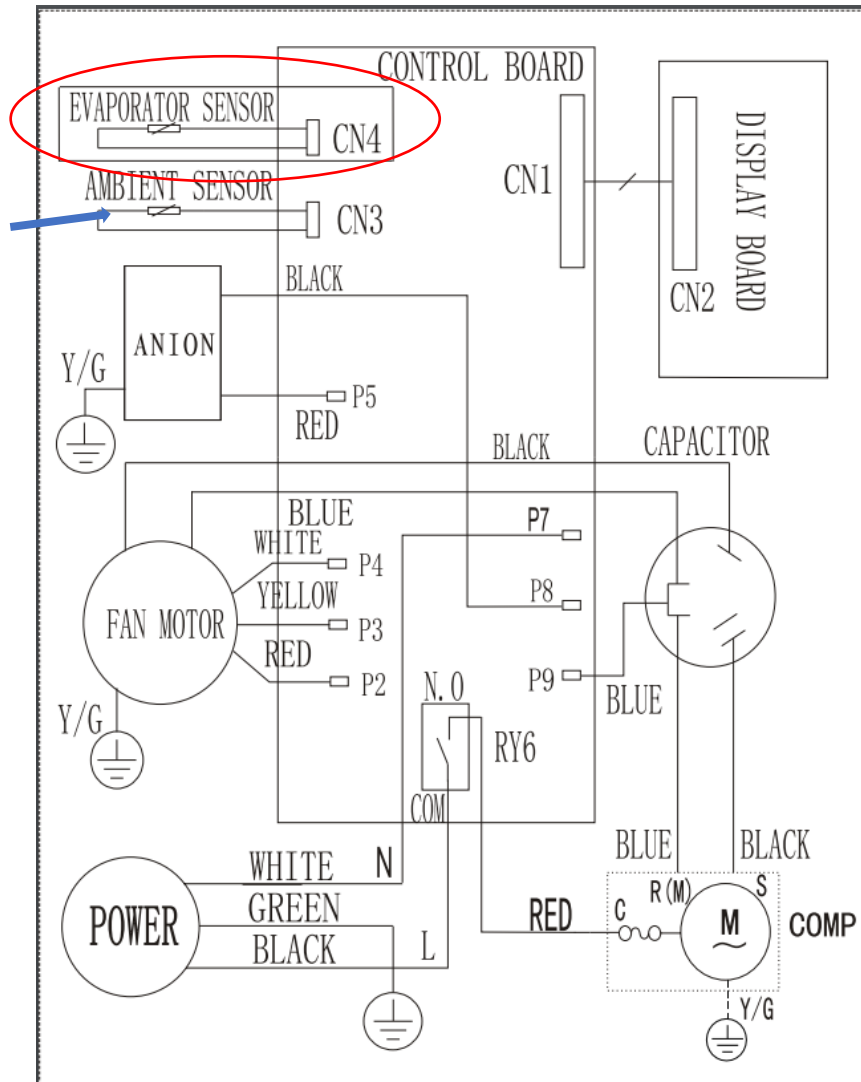
This is for a 14K



An 18K A/C with a Sec sensor



Here is one with the “optional” secondary sensor. Notice the rectangle around it, look for a note at the bottom where it would explicitly say that it is an optional component.



NOTE:

1. The wiring diagram is for explanation purpose only. The actual shape of the components may be different.
2. Symbol 1 indicates optional components

STEP 2

The best way to know if your A/C has a Secondary sensor is by inspecting the A/C unit.

DISCLAIMER

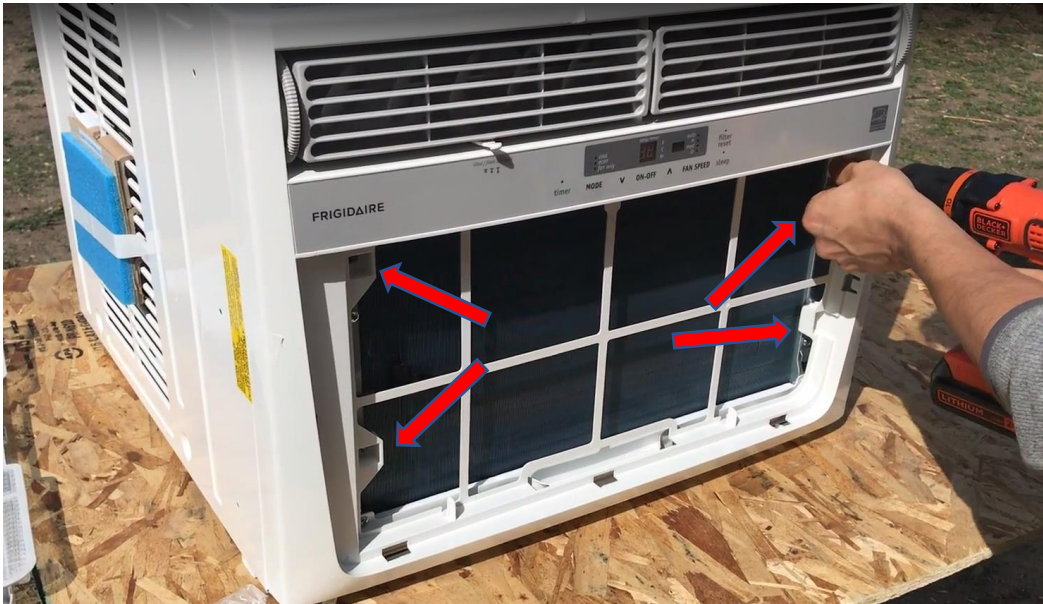
The pictures shown here are for educational purposes and for visual guidance only, and may not represent your actual A/C or secondary sensor location. Your secondary sensor might be harder to locate than what is shown here but the process to find it is the same.

- Disconnect your A/C unit from the power source
- Remove the front grill that holds the filters. This is different on every brand. We are looking to expose the screws that hold the front panel to the rest of the unit.



STEP 3

- Remove the front screws that hold the front panel to the A/C unit.



STEP 4

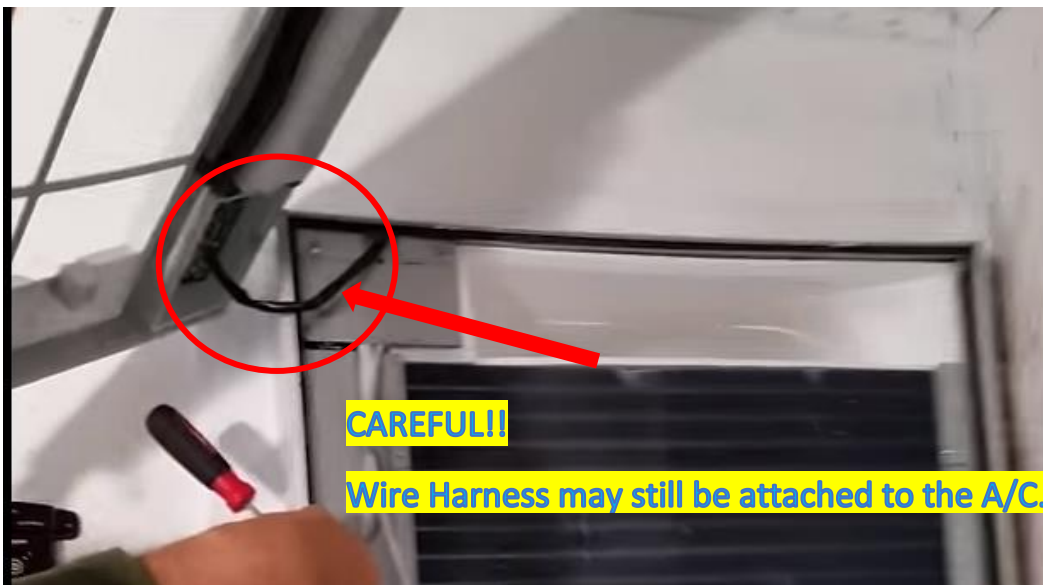
- To remove the front panel, use a flat screwdriver to gently pry the side panel away from the casing of the unit. The panel is held by plastic tabs that snap into slots on the metal casing.



STEP 5

- Carefully, work your way around the perimeter until the front is free. Be gentle, DO NOT pull the panel away too hard as it comes off the A/C, as the main input panel may still be attached by a wire harness to the A/C body.





- At this point you can either disconnect the harness from the front panel to work more comfortably, or carefully, place the panel away from the A/C resting on another surface, without putting pressure on the wire harness to avoid damage.



STEP 6

- Now it is time to look for the Secondary Sensor. **DO NOT** confuse the secondary sensor with your **MAIN** sensor. The MAIN sensor on a window A/C is the small wire that is attached to the front fins of the A/C usually with a plastic clip. **Secondary sensors are NEVER in front of the fins and are ALWAYS touching the copper pipes.** They will usually have a copper (or brass) tip at the end.

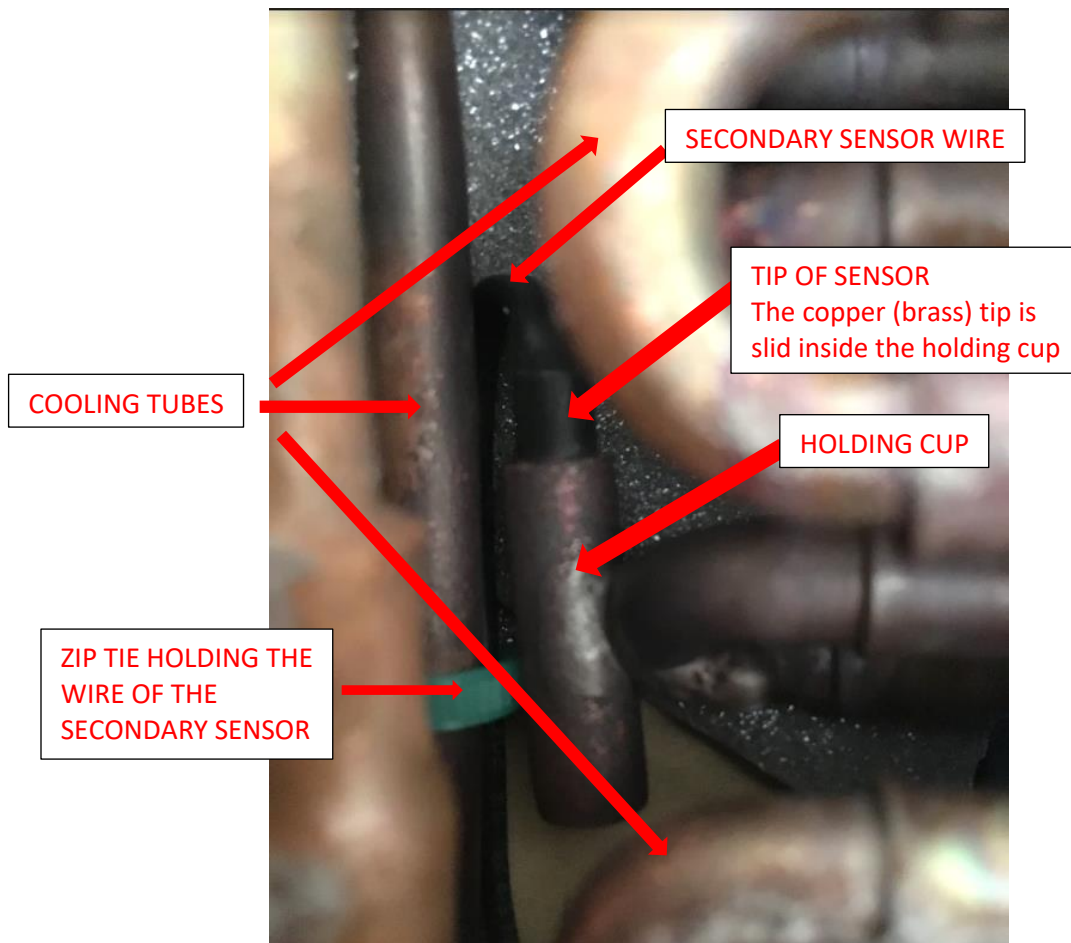
- Look for a wire that comes out of the control box (place in the A/C where all the wires are coming out from) which is attached to a copper tube. This copper tube is soldered to one of the refrigerant pipes (*cooling tube*) coming out of the front fins of the A/C.



IMPORTANT!!

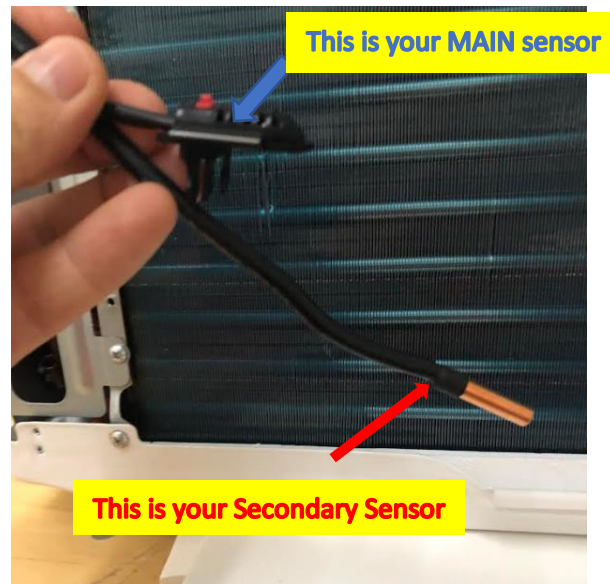
On some A/Cs, the secondary sensor is accessible right in front of the unit as you take off the front panel. However, on most A/C units, you will have to inspect the entire side of the coil next to the fins (INSIDE the A/C), and look for a wire that is attached to one of the copper pipes. This can require removing metal covers, the A/C enclosure, and/or sliding the unit out of the casing (A/C shell) to be able to gain access to the sensor.

- The secondary sensor is usually slid inside a copper cup (holding cup) that is soldered onto a refrigeration pipe (*cooling tube*). That *cooling tube* is inside, it is not a tube from the back part of the A/C (the part that sits outside when installed in the wall)



STEP 7

- Once you have located your secondary sensor, whether it's on the front or further inside of your A/C, gently pull the sensor out of the cup using your fingers. It should slide out.
- **DO NOT** cut the sensor
- **DO NOT** use pliers or other tools to slide the sensor out of its position
- **DO NOT** disconnect the sensor from the main control board
- **IT'S OK** to cut the zip tie holding the wire to the pipes (*cooling tubes*). **DON'T USE PLIERS** – YOU WILL RISK PUNCTURING A COOLING TUBE!! The **heated tip of a screwdriver** will melt the zip tie and free the wire. Be careful removing the zip ties so you don't accidentally cut or damage the wire of the secondary sensor.



- After successfully removing the secondary sensor from its original position, let it hang towards the front of the A/C next to the main sensor. If the sensor wire is strapped along the way with zip ties to any other parts of the A/C, it is OK to cut the zip ties in order to get some slack from the wire, allowing the sensor to hang free towards the front of the A/C. **DON'T USE PLIERS – YOU WILL RISK PUNCTURING A COOLING TUBE!!** The **heated tip of a screwdriver** will melt the zip tie and free the wire. Be careful removing the zip ties so you don't accidentally cut or damage the wire of the secondary sensor.

STEP 8

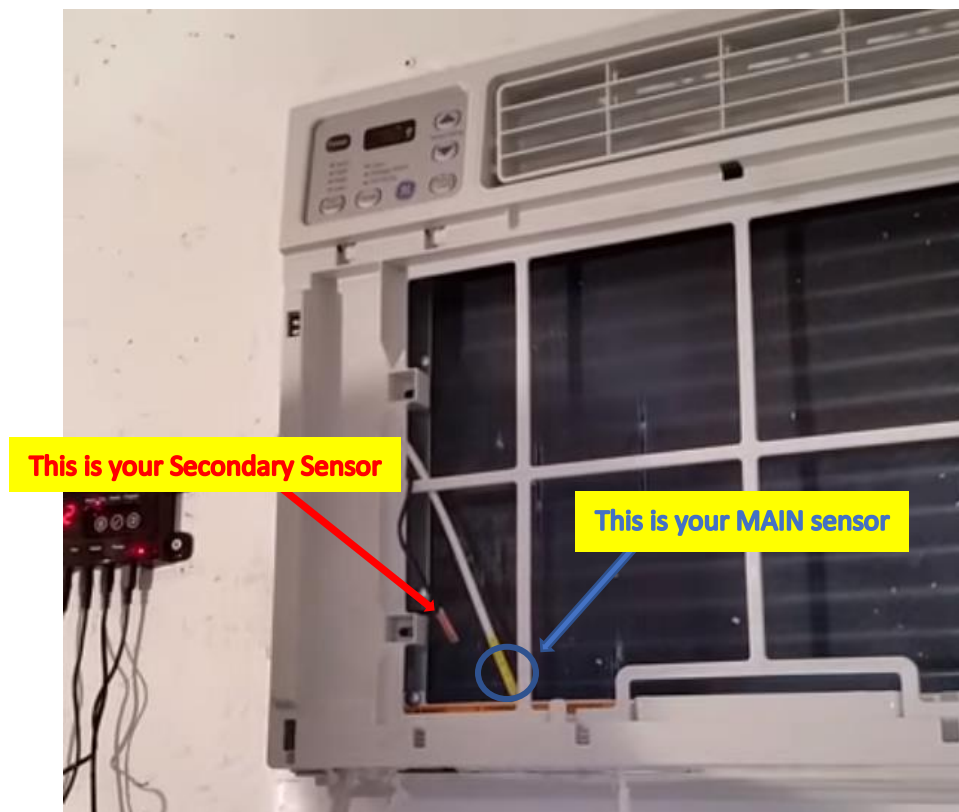
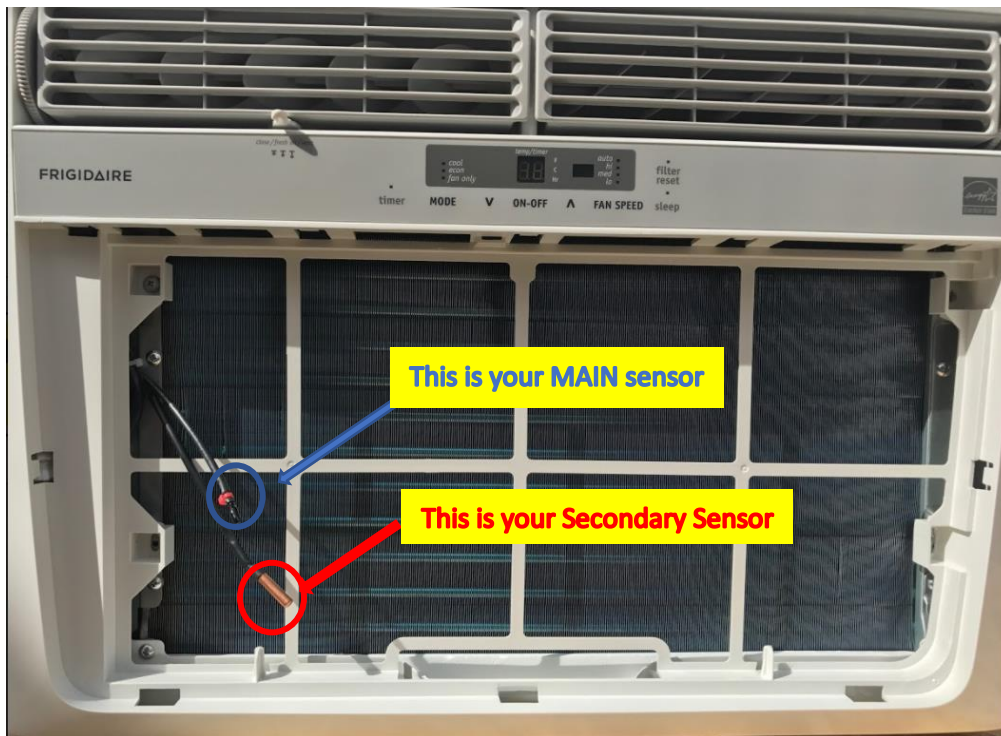
- Proceed to replace the cover of the A/C, allowing both sensors, the Main and the Secondary, to hang free with enough slack in front of the A/C.



Continue on Next page!

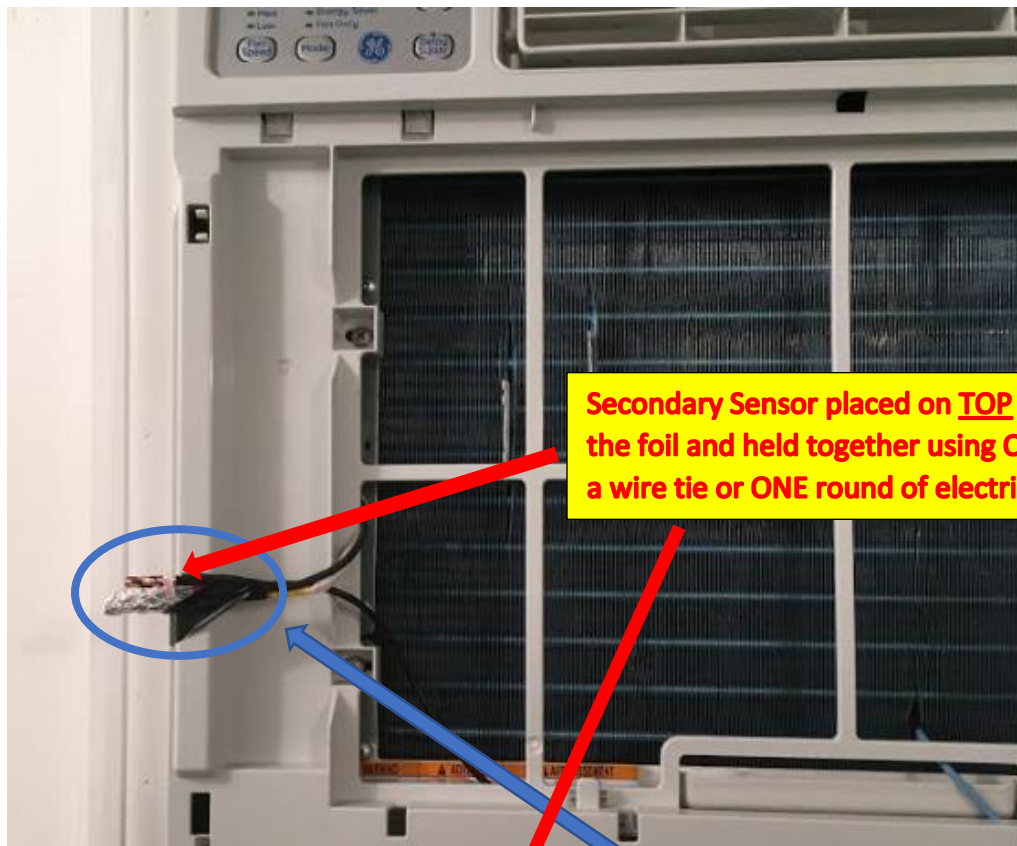
- After your cover is back on it should look something like the pictures below:

Continue on Next page – Last important Step!!

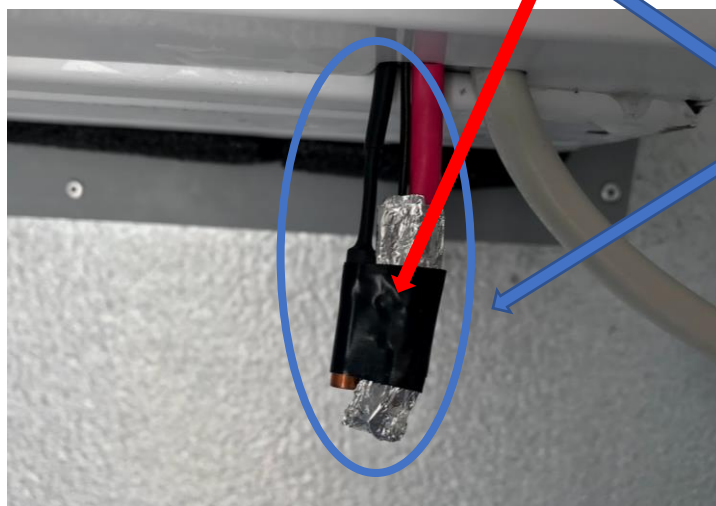


STEP 9

- Use just 1 layer of electrical tape (or a wire tie) to attach the end of the Secondary Sensor to the OUTSIDE of the aluminum foil. DO NOT place the secondary sensor inside of the foil. **Make sure the foil bundle does NOT hang in front of the A/C fins or hangs directly in front of the air flow of the air conditioner – It should hang free, to the side or below the A/C not touching anything cold or metal.** See pictures below for examples:



Secondary Sensor placed on TOP of the foil and held together using ONLY a wire tie or ONE round of electrical



**Foil bundle away from the A/C Fins
Not touching anything metal**