

## SmartStart Installation

The following describes how I installed a Dometic SmartStart Model #4220040 on the Dometic 600312.331 Penguin Air Conditioner on my Escape 19 Trailer. I had no problems following the instructions that came with the SmartStart, although they are somewhat general in nature since the same unit can be used on many different models of air conditioner. This write-up is not intended to be instructions for others but is rather a detailed description of what I did.

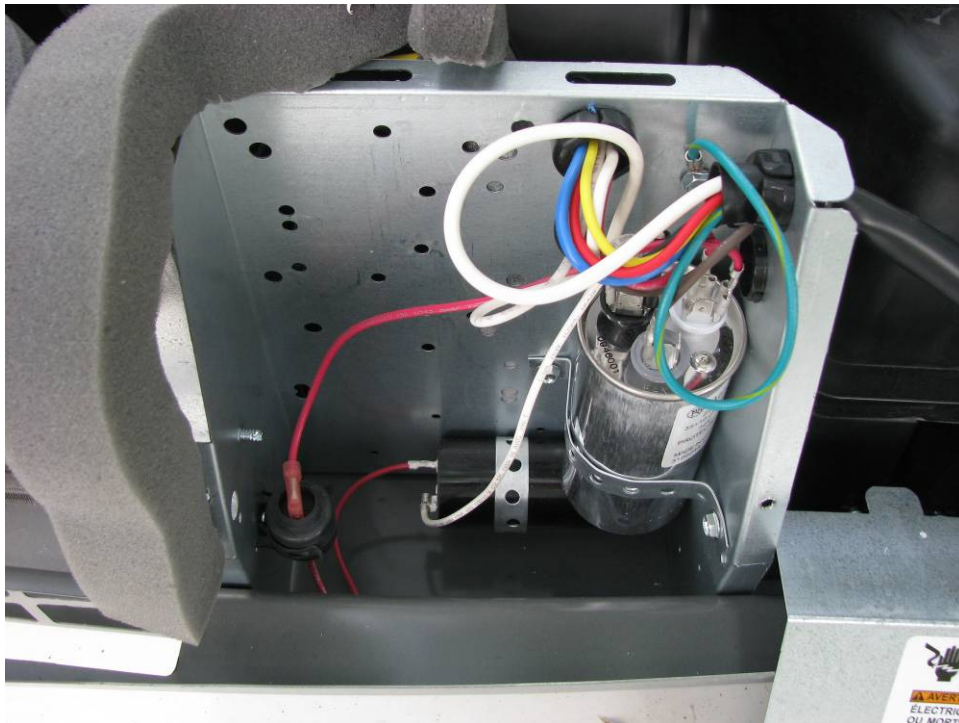
I found the job quite straightforward and would have done it in about half an hour if I hadn't kept stopping to take pictures and write notes.



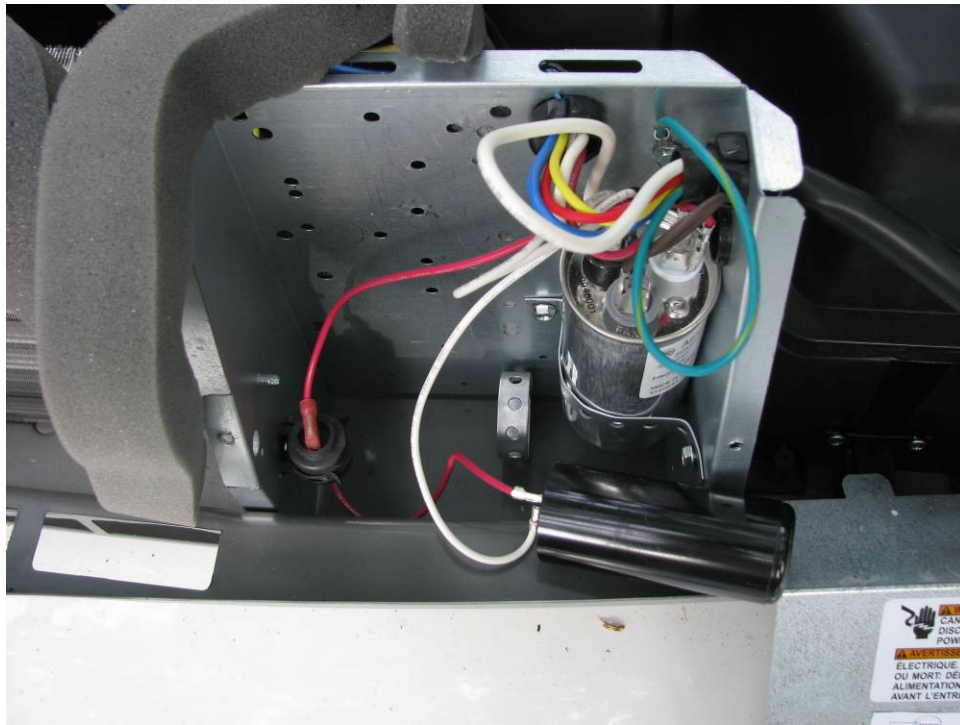
I performed the entire operation without getting on the roof of the trailer by putting one foot on the top of a 6 ft stepladder and one knee on the edge of the roof. It would have been safer to use an 8 ft stepladder but I didn't own one at the time. I do now since I went out and bought one the next day.



I removed the 4 screws holding the white plastic cover on, one on each side towards the back and 2 on the front using a #2 Phillips screwdriver. I lifted the right side of the cover up and slid it half off towards the left side of the trailer. At the front of the right side there is a metal box with a wiring diagram on the cover that contains the electrical components.



I removed the 2 screws holding the cover plate on the box using a 5/16 socket and removed the cover plate. I had to carefully peel away some foam insulation to get at one of the screws. Inside the electric box there was a silver run capacitor mounted vertically at the front, a black start capacitor mounted horizontally right at the bottom, and a black PTCR (Positive Temperature Coefficient Resistor) start assist mounted vertically at the back. The run capacitor has 3 terminals labelled: Fan, C (Common), and HERM (Hermetic compressor).

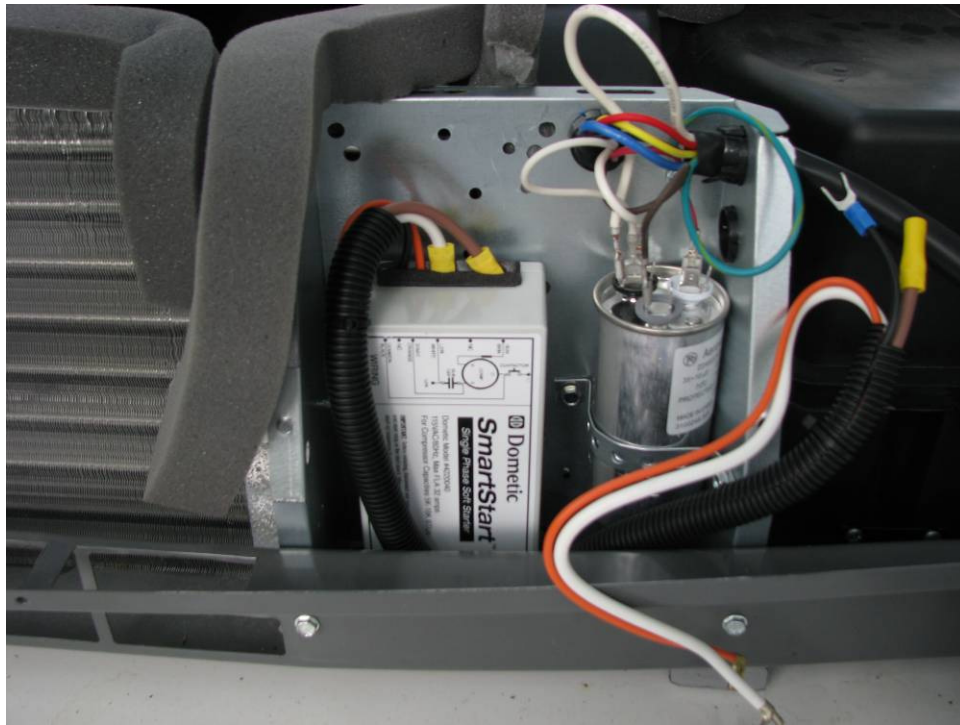


I removed the start capacitor. The mounting bracket is screwed to the back of the box with a sheet metal screw that has a 5/16" hex head. The problem is that it is almost impossible to get at the screw head with the capacitor in the bracket. One solution is to cut the bracket strap, remove the capacitor, and then remove the screw that holds the bracket in place. Another solution, and the one I used, is to use a pair of long needle nose pliers to reach behind the box where the pointy end of the screw sticks out, and loosen the screw by turning the threaded part with the pliers until the bracket is loose enough for the capacitor to slide out. I then bent the bracket until the screw head was accessible.

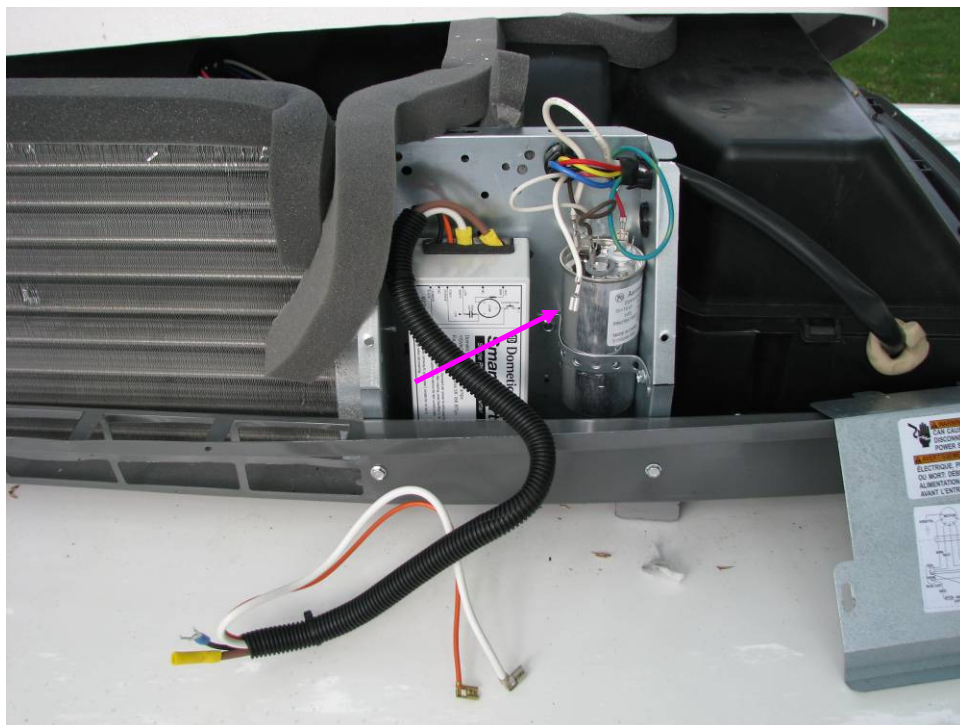


I removed the PTCR start assist by pulling it out of its bracket and then unscrewing the mounting screw. As you can see in the picture, there was lots of room to mount the SmartStart in the box.

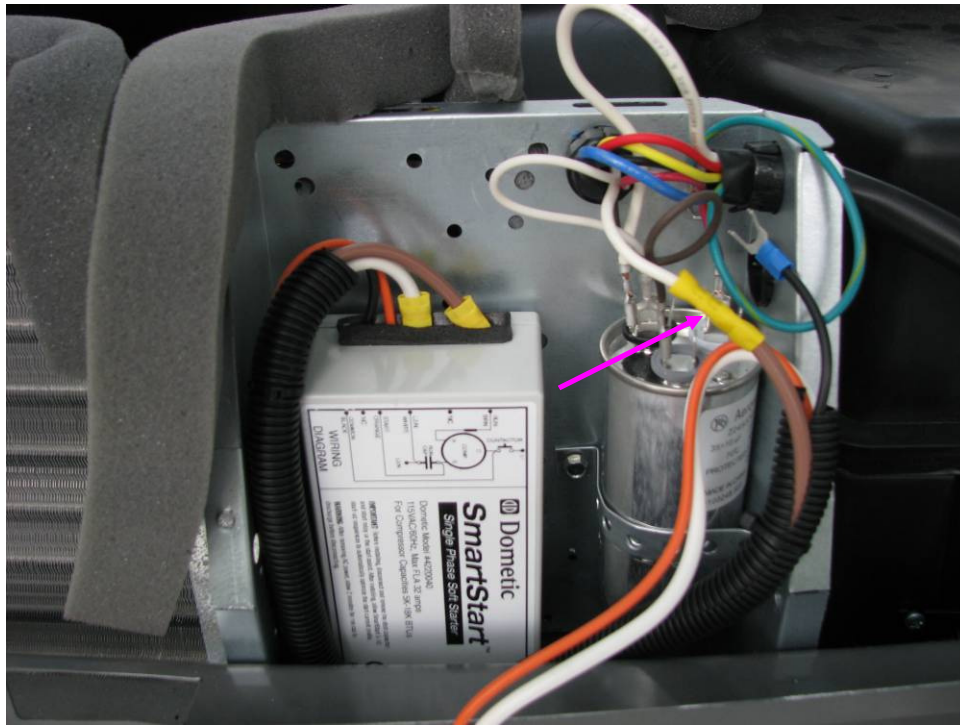




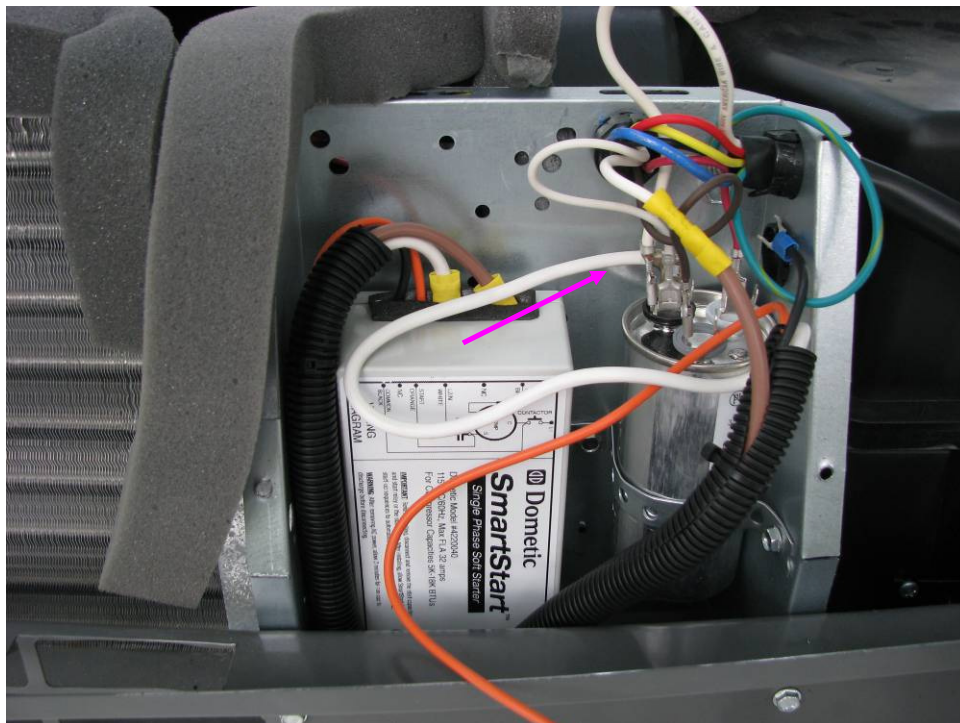
I used the provided alcohol swap to clean the area where the box was to be mounted and then stuck it in place using the double sided tape that was already mounted on the SmartStart box. This type of tape takes some time to cure, so I resisted the urge to tug on the box it to see if it was firmly mounted.



I removed the white compressor run wire that was connected to the C terminal of the run capacitor. It is the fat one that goes to the compressor along with the blue and red wires, not to be confused it with the skinny white wire that goes to the fan.

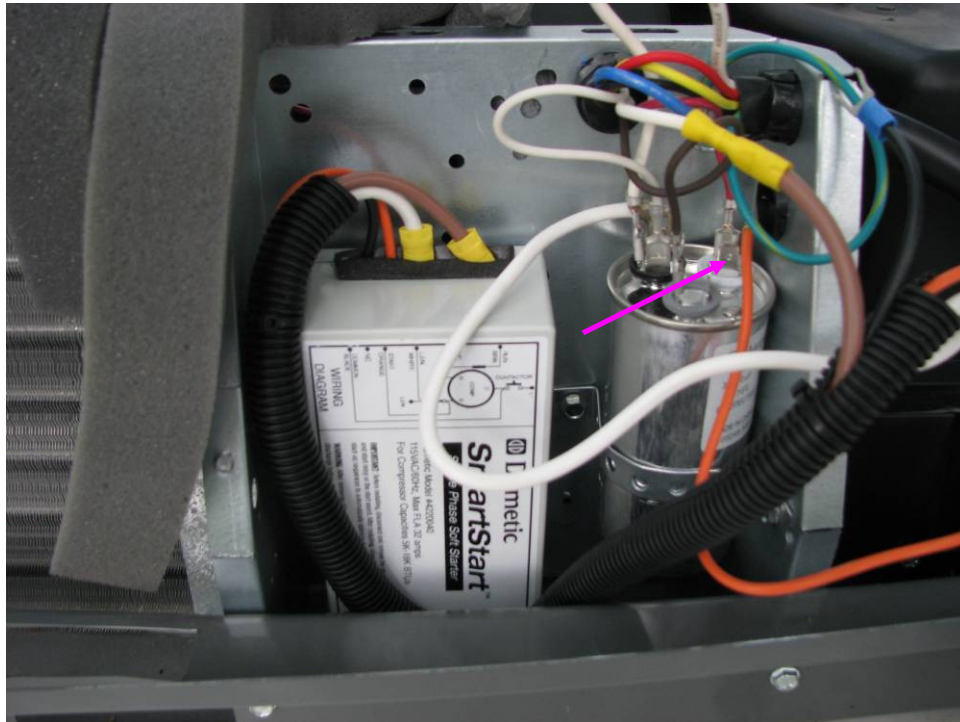


I cut the flag terminal from the end of the white compressor wire. The yellow butt splice connector on the end of the brown wire from the SmartStart that it is supposed to connect to is for 10 or 12 gauge wire. Since the white wire is only 14 gauge, I didn't trust it to make a good connection. My solution was to strip  $\frac{1}{2}$  inch of insulation from the white wire and fold it back on itself to double its thickness. I then stuck the resulting  $\frac{1}{4}$  inch of thicker wire into the butt splice connector and crimped it.

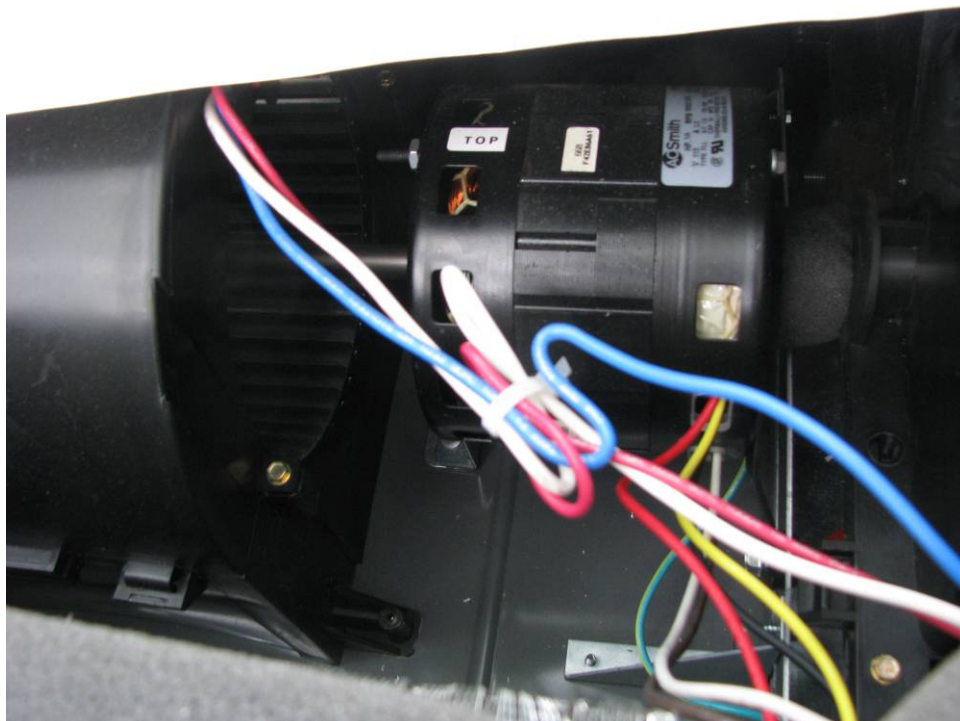


I connected the white wire from the SmartStart to the C terminal of the run capacitor using the flag terminal already attached.



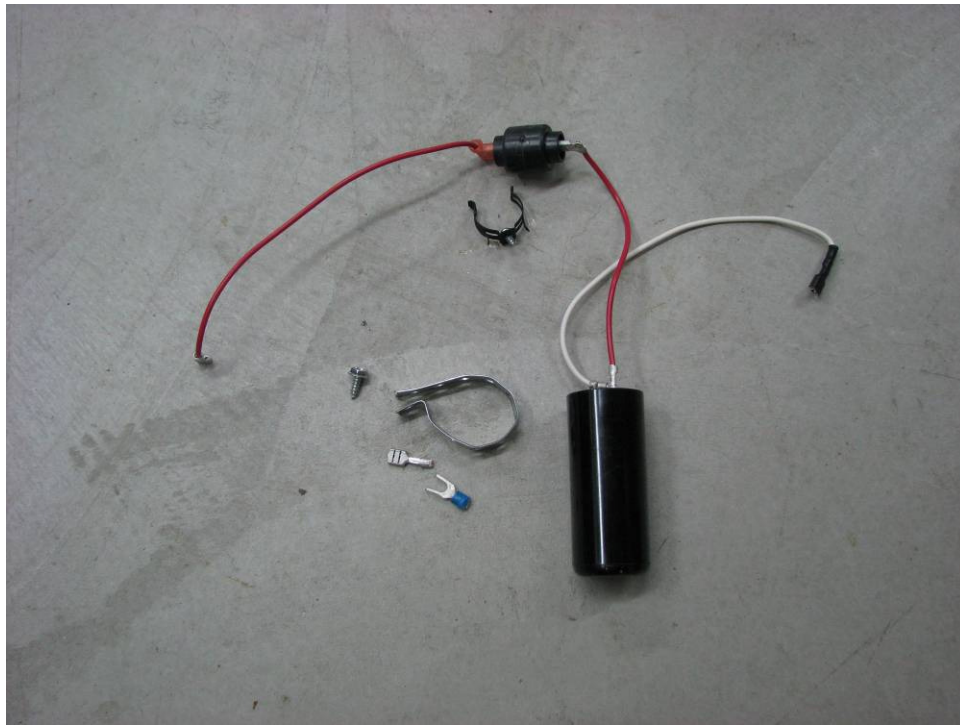


I connected the orange wire from the SmartStart to the Herm terminal of the run capacitor using the flag terminal already attached.



I connected the black wire from the SmartStart to the blue wire from the compressor. The problem here was that the blue wire just passes through the junction box but does not connect to anything. I created a bit of slack in the blue wire by undoing the fold in the wire between the box and the compressor.





These are the parts that I had left over when I was done.