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Coleman mach 3 thermostat wiring

12/2016 – added a fix if your ecobee restarts when gas heating is called Let's get started installing ecobee si right off the bat, here's a chart/matrix/truth table you need when you wire Si up and to help understand what's going on. I recommend cutting off the wires on the back of the Coleman-Mach thermostat and soldering the thermostat wire to the bore wire, otherwise it is very difficult to push the boring threads of the Ecobee terminal strip. Those connectors were designed for fixed wire! (Yes, you can tin the groped thread but it's still hard to try it.) Note: CM - Coleman Mach, Si - Ecobee Si wiring. CM condition refers to what leads go high for the different modes with the original Coleman-Mach thermostat - this is the truth table part of the chart and it helps to understand what is happening with the original thermostat. No potential in the chart means a dry lead that has no voltage on it. CM Connector CM Colors Si Colors (My Wiring) CM Function & Condition; CM off CM cool CM electric heating CM gas heat P1-1 red/white red (note 1) +12V source +12V +12V +12V P1-2 blue/white blue (note 2) mark (-12V) ground ground ground ground P1-3 white white gas oven (W2) no potential no potential +12V P2-1 gray (note 3) freezer switch n/a n/a n/a P2-2 red (Note 1) + 12V to heat pump +12V +12V +12V +12V P2-3 grey (note 3) freezer switch n/a n/a n/a P2-4 blue ground (-12V) ground ground ground ground P2-5 yellow yellow yellow compressor 1 (Y1) no potential +12V no potential (note 5) no potential P2-6 orange orange compressor 2 (Y2) no potential +12V if 2 : a stage is called no potential (note 5) no potential P2-7 black green fan high speed +12V if the fan turn on +12V no potential no potential P2-8 white/black brown electric heat (W1) no potential no potential +12V no potential P 2-9 purple (note 4) fan low speed n/a n/a n/a Note 1 – the red/white wire from contact P1-1 is the source of +12 volts that powers the thermostat and then gets sent out to the various leads to the RVP heat pump control board. I connected the red/white thread from P1-1 to the red wire from P2-2, and soldered these two wires to the red solid wire that goes to either RH or RC on Si. This will make more sense later. Note 2 - the blue/white wire from the connector P1-2 is ground and I connected it to the blue wire from the connector T2-4 (also ground) and soldered it to the solid wire blue wire that goes to the C terminal on Si. Note 3 - the grey wires are normally closed dry contacts from the guideboard of the heat pump. I got fancy and installed a blue LED light bulb to indicate when the evap coil was NOT frozen up, i.e. normal heat pump operation. If you want to do the same, get an LED and a 1.2K (or so) resistance and place in series with the wires and a 12 volt source. Note 4 - the purple thread is for the fan low speed. I've never purpose anyway) set the fan to low speed, if you want to wire in a separate switch for fan low, tap yerself out ;-) I guess for fan low you apply +12V to this thread and remove +12V from white/black wire on contact P2-7, but that's just an educated guess. Note 5 - this is not a mistake! Y1 and Y2 are NOT called in electric heat mode. For electric heating, all heat pump control board wants to see is +12V on the white/black wire in contact P2-8. This is why you have to set the Si as two step cool and two step heat and not as a heat pump! Then heat step 1 will be the two compressors that work (and check valve) as in a heat pump but heat step two is GAS heat. No, you will not be able to manually select gas heat from the Si user interface, just a minor drawback. Time for my favorite part - the pictures! 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I've suspected all along that the oven was pulling the 12V source for ecobee down so much ecobee didn't have enough voltage to work. The first solution I tried was a great value electrolytic capacitor (over red/+12V and blue/ground) which to my great surprise didn't solve the issue. So back to my previous plan to pick up a better source of +12V for ecobee. In the following two photos I'll show you a good source of +12V to pickup and drive over to ecobee, adding the extra wire from the new +12V source directly to the existing red wire on the back of the ecobee. You can bind in to either RC or RH on the back of the thermostat - whichever is easier. Note in the photo that I point to is the rear part of the volt meter where you can read the house or chassis battery bank voltages. ^^Reference the above image^^ The other side of the small black thread (top left of the connector) is the +12V source I'm pointing to. The little black thread goes to the back the volt meter that I have shown in the second picture. And the finished Let's set up Ecobee Si Smart! On to Page 3>>> <Back to= page= 1= = 12/2016= -= added= a= 'fix'= if= your= ecobee= reboots= when= gas= heat= is= called= let's= get= installing= the= ecobee= s i= right= off= the= bat,= here's= a= a= chart/matrix/truth= table= you= will= when= you= wire= the= si= up= and= to= help= what's= going= on.= i= recommend= you= cut= the= wires= off= the= back= of= the= the= coleman-mach= thermostat= and= solder= solid= thermostat= wire= to= the= stranded= wire,= otherwise= it's= very= difficult= to= the= the= stranded= wires= into= the= ecobee= terminal= strip.= those= connectors= were= for= for= solid= wire!= (yes,= you= tin= the= stranded= wire= but= it's= still= a= hassle= to= try= that.=) = note.= cm= -= coleman= mach,= si= -= ecobee= si= wiring,= cm= condition= refers= to= what= go= go= for= the= different= with= the= original= coleman-mach= thermostat= -= this= is= the= the= table= part= of= the= chart= and= it= helps= understand= what's= going= on= with= the= original= thermostat.= no= potential= in= the= the= means= a= lead= that= has= no= voltage= on= cm= connector= cm= colors= si= colors= (my= wiring)cm= function= &= condition=>> CM off CM cool CM electric heating CM gas heat P1-1 red/white red (note 1) +12V source +12V +12V +12V +12V P1-2 blue/white blue (note 2) ground (-12V) ground ground ground ground P1-3 white white gas furnace (W2) no potential no potential no potential +12V P2-1 grey (Note 3) freezer switch n/a n/a n/a P2-2 red (note 1) +12V to heat pump +12V +12V +12V +12V P2-3 grey (note 3) freezer switch n/a n/a n/a P2-4 blue mark (- 12V) ground ground ground land mark P2-5 yellow yellow compressor 1 (Y1) no potential +12V no potential (note 5) no potential P2-6 orange orange compressor 2 (Y2) no potential +12V if the 2nd stage is called no potential (note 5) no potential P2-7 black green fan high speed +12V if the fan switch at +12V no potential no potential P2-8 white/black brown electric heat (W1) no potential no potential +12V no potential P2-9 purple (note 4) fan low speed n/a n/a n/a Note 1 – the red/white wire from contact P1-1 is the source of +12 volts that power the thermostat and then get sent out to the various leads to the RVP heat pump board. 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