Fridge updates

Fridge updates 1.1
Add to end of RC4
The diode has a current limiting resistor which is part of the PCB, see 10.2

Add to RC10
10.2 LED (Light Emitting Diodes)

When using a LED as an indicator, use the formula to determine the series resistor for various voltage:

$R = (E-1.7)\times 1000/I$ where R is resistance in ohms, E is the DC Voltage, I is LED current (mA).

For a 20mA LED the resistance is:
 6V use 220Ω
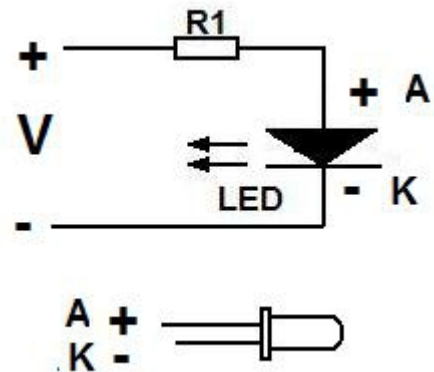 9V use 390Ω
12V use 560Ω
24V use 1.2kΩ

Illustration 1: LED information

Add

RA6.1 Temperature Sensor. They are temperature dependent resistance, which change resistance with temperature. They are a metal or plastic cylinder with two wires and a plug for the PCB. They can partly fail by giving the wrong temperature resulting in the fridge running too hot or cold. The the PCB controller show the temperature, it can be an indicator. Also check if there is a crack in the plastic sensor. In portable fridges the sensor is located in a tube near the bottom near the compressor out side the fridge compartment. The sensor has silicone heat transfer compound on it, put more on it when replacing. Sensor from other devices may not work as they have different resistance at room temperature. They do not have any marking on them, so need to get a replacement part. It is a good idea when replacing the temperature PCB controller to replace the sensor at the same time in case of any variations.

Updates to RA
RB2 Start Relay:
It has a input terminal for power and 2 sockets for the run and start pin of the compressor. Test: If 240 V is on the input terminal and the compressor is not running then start relay, overload or motor is faulty. Remove The start relay and if it rattles it is likely to be faulty. Ohmmeter measurement should be zero from the input terminal to both the run and start pins. Substitute with good start relay or use the Compressor motor tester. (RB5)   The start relay needs to be matched to the wattage of the compressor unit. Also the starter has to physical fit , which may be difficult with metal surrounds. A collection of various types are need for repair, to select the correct one. There is also a solid state start relay with built in overload protection, but are more expensive and the terminals need to be identified, see later.
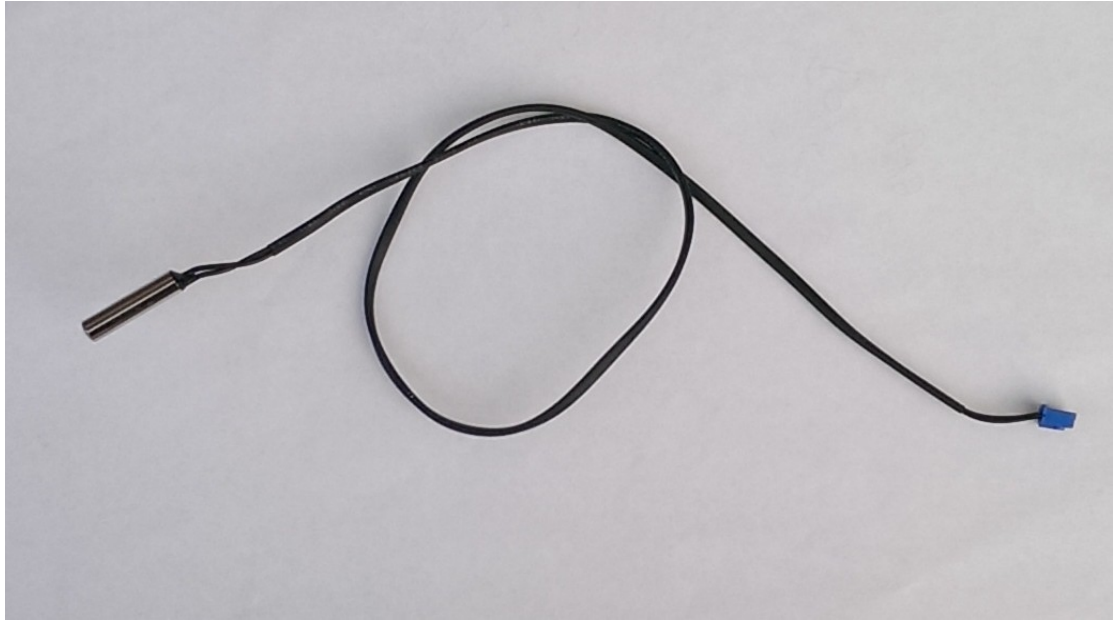
Illustration 2: Temperature Sensor