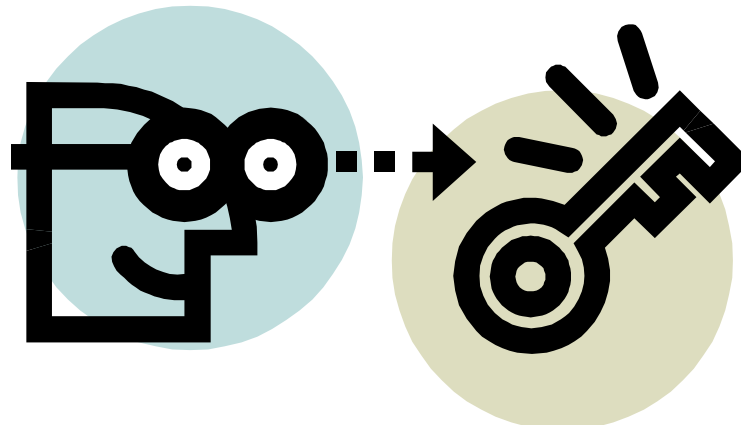


Symbols

In order to read and understand an electrical diagram you need to know how different controls and loads are drawn.



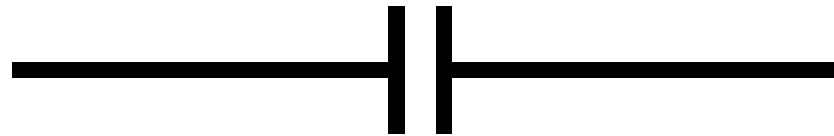
SYMBOLS



SINGLE POLE SINGLE THROW

SPST

SYMBOLS



SINGLE POLE SINGLE THROW

NORMALLY OPEN

SPST - NO

SYMBOLS

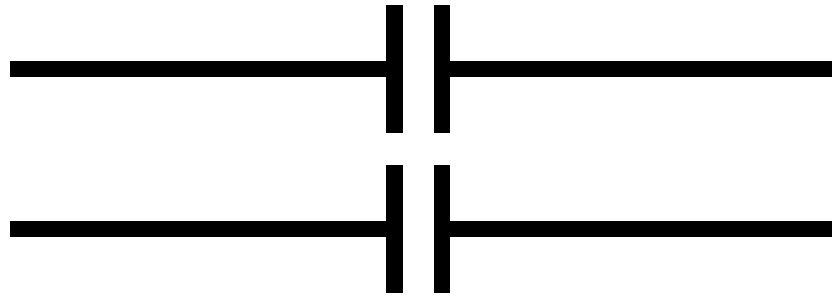


SINGLE POLE SINGLE THROW

NORMALLY CCLOSED

SPST - NC

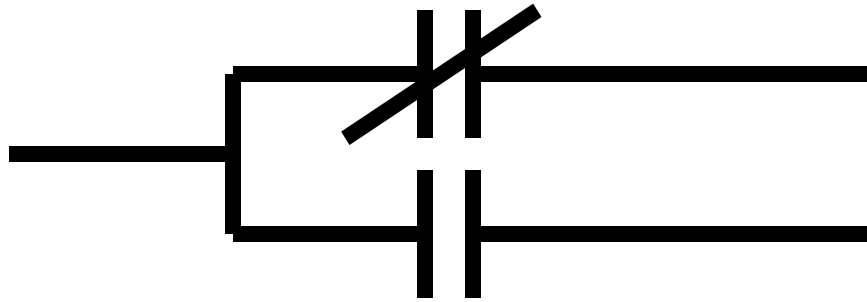
SYMBOLS



DDOUBLE POLE SINGLE THROW

DPST – 2 NO

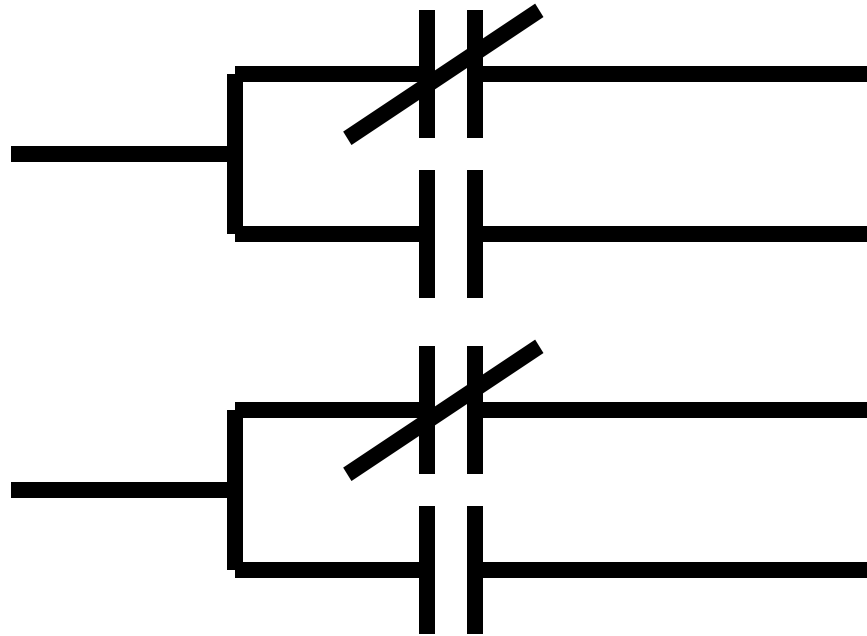
SYMBOLS



SINGLE POLE DOUBLE THROW

SPDT

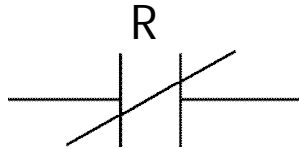
SYMBOLS



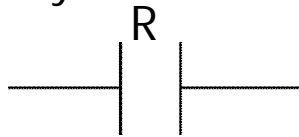
DDOUBLE POLE DDOUBLE THROW

DPDT

Relays or Contactors



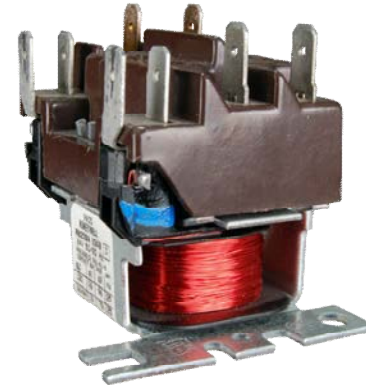
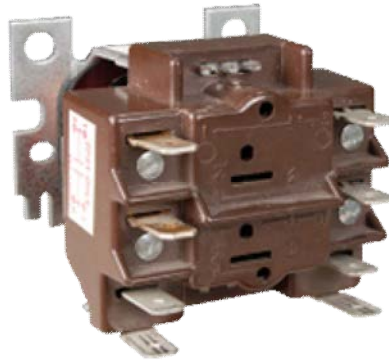
Normally Closed Contact



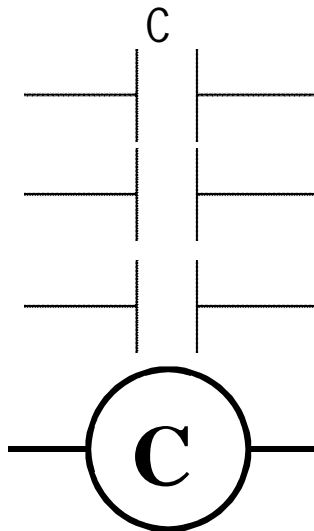
Normally Open Contact



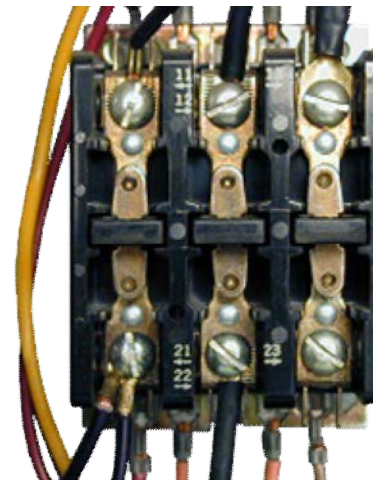
Relay Coil



Relays

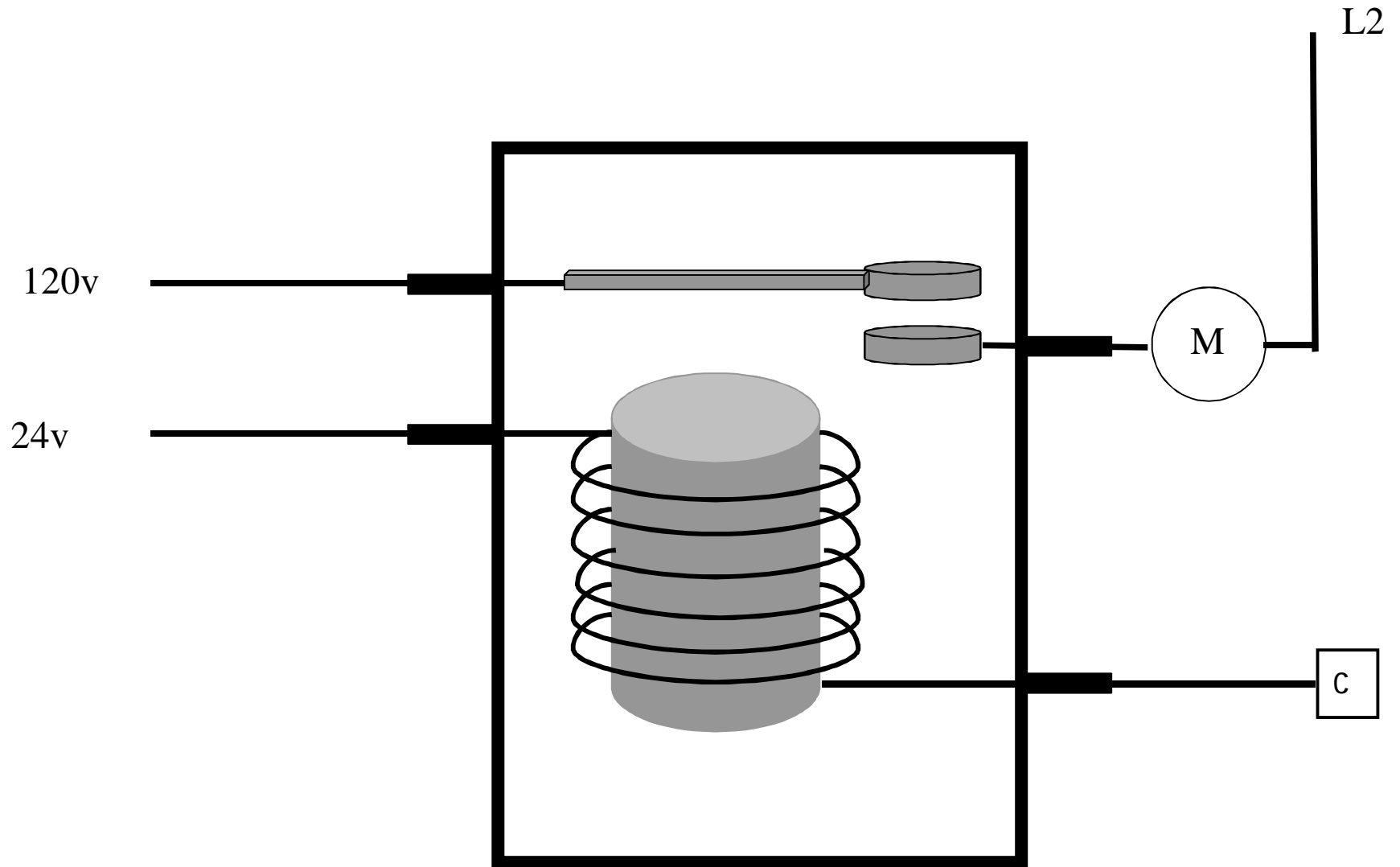


Contactor Coil

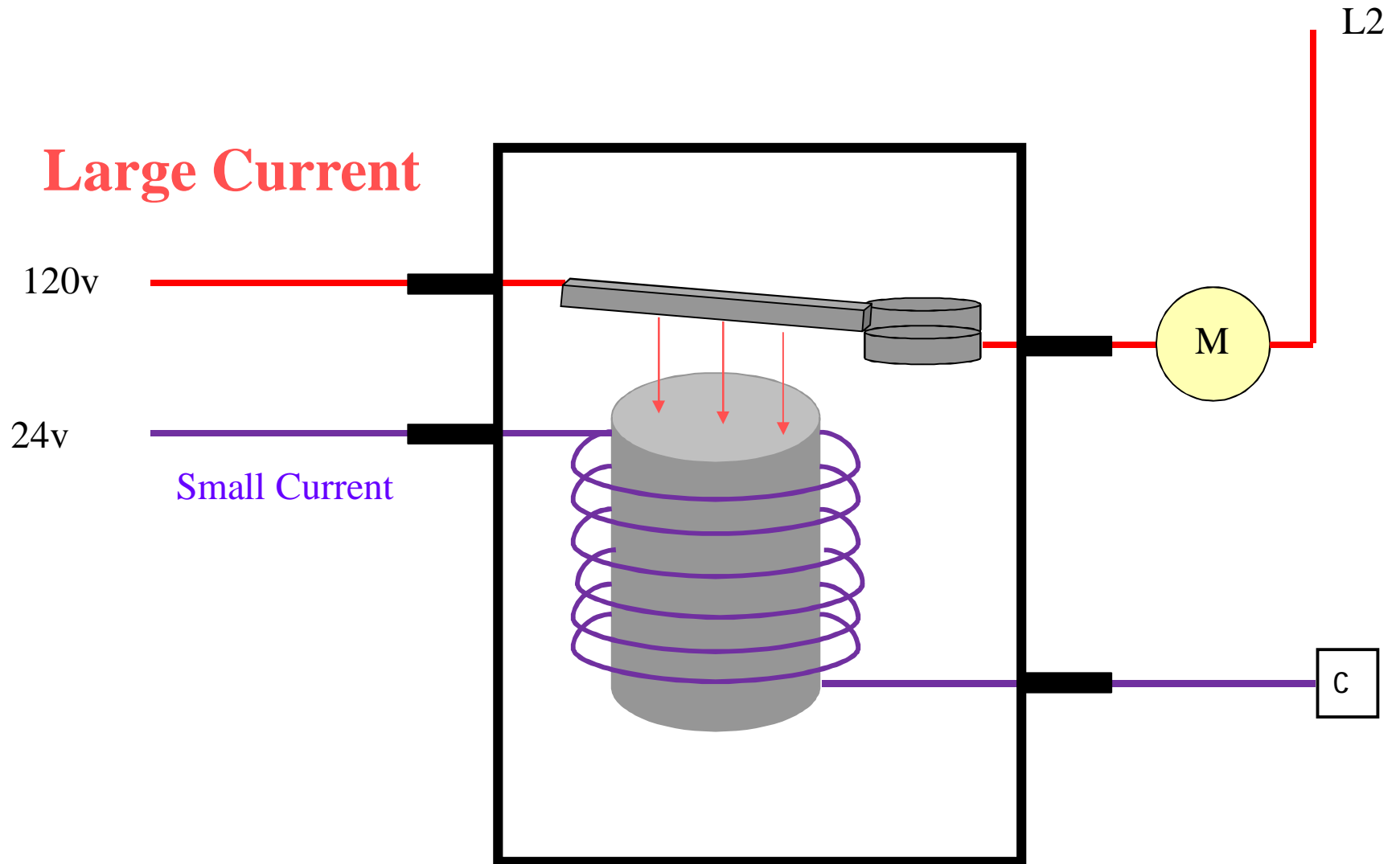


Contactors

Relays

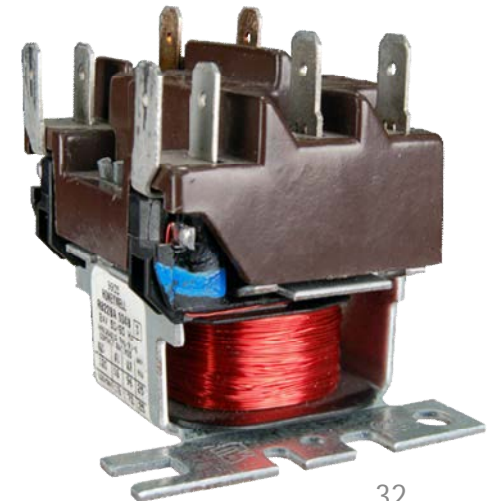
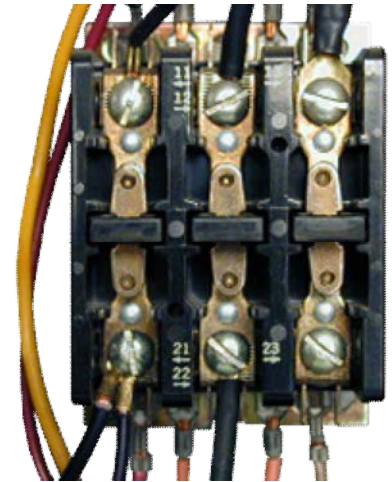
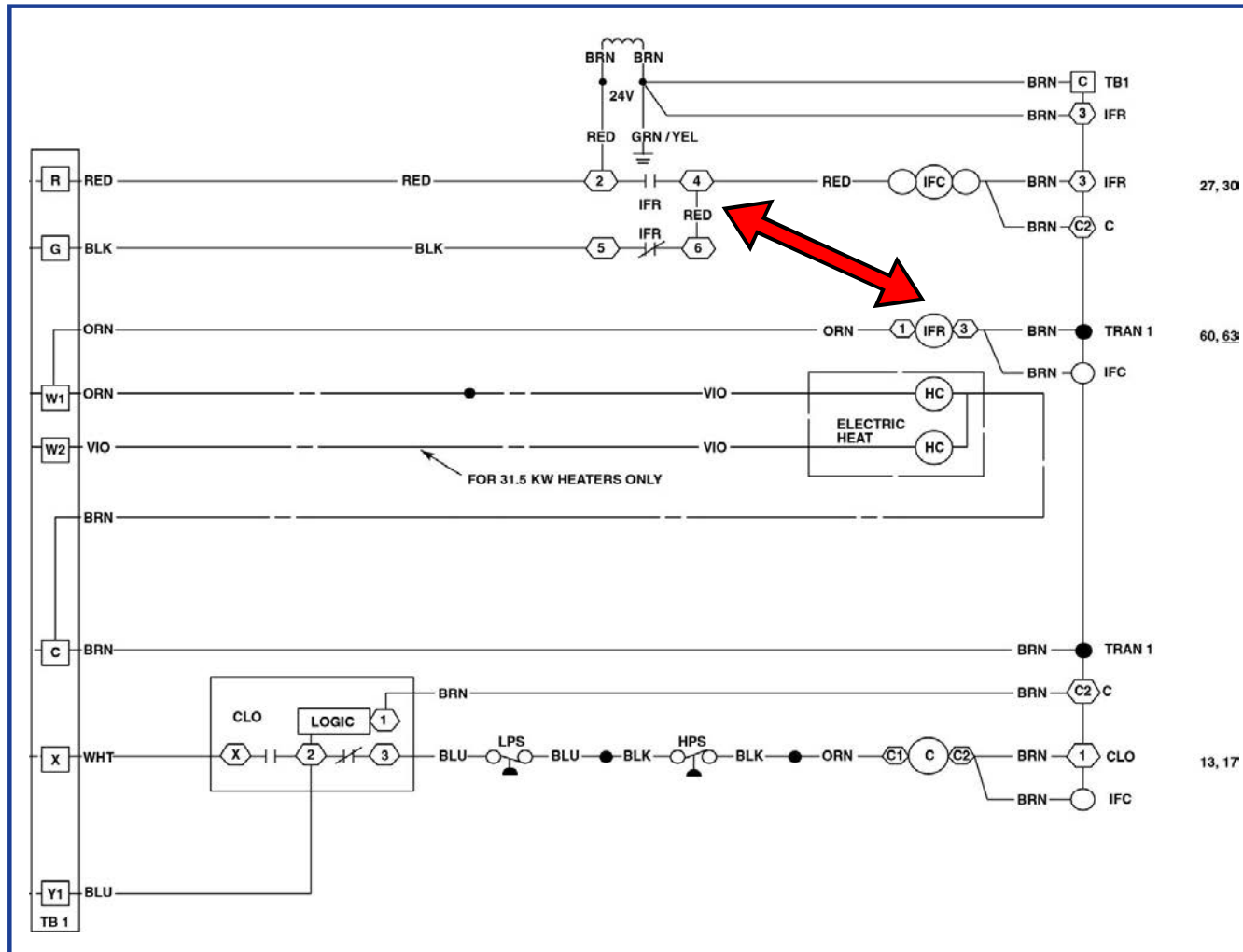


Relays

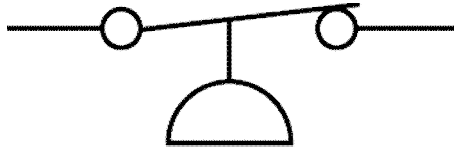


Relays or Contactors

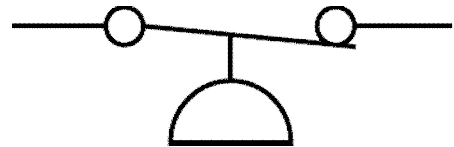
THE CONTACTS OF A RELAY OR CONTACTOR ARE DRAWN
IN A DE-ENERGIZED CONDITION



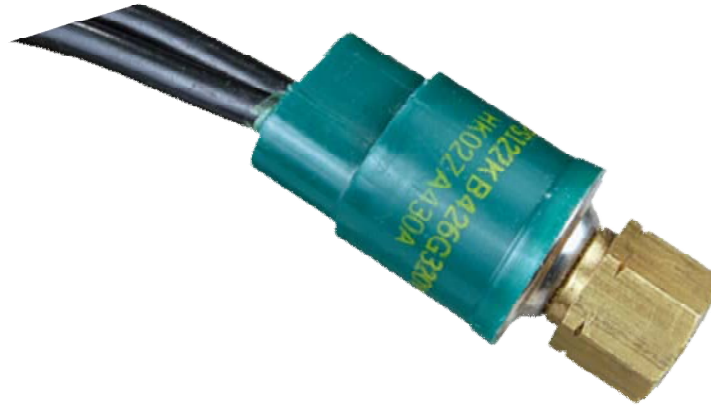
Pressure Switches



SPST Opens on Rise
(Safety Control)



SPST Opens on Drop
(Safety Control)

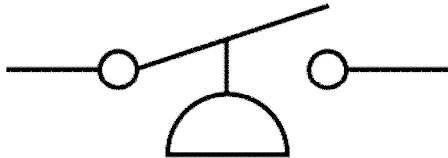


High-
Pressure
Switch



Low-Pressure
Switch

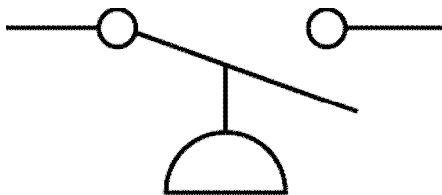
Pressure Switches



SPST Closes on Drop
(Operating Control)



Air Pressure
Switch

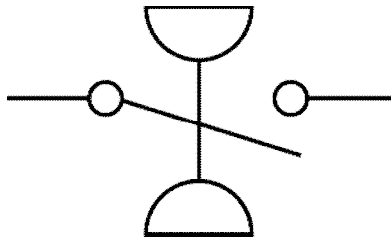


SPST Closes on Rise
(Operating Control)

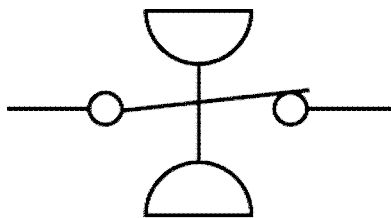


Fan Cycling
Pressure Switch

Pressure Switches



SPST Closes on Rise
(Differential)



SPST Opens on Rise
(Differential)



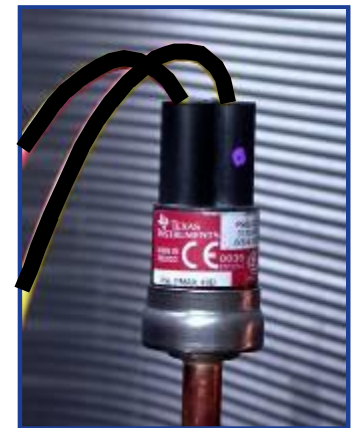
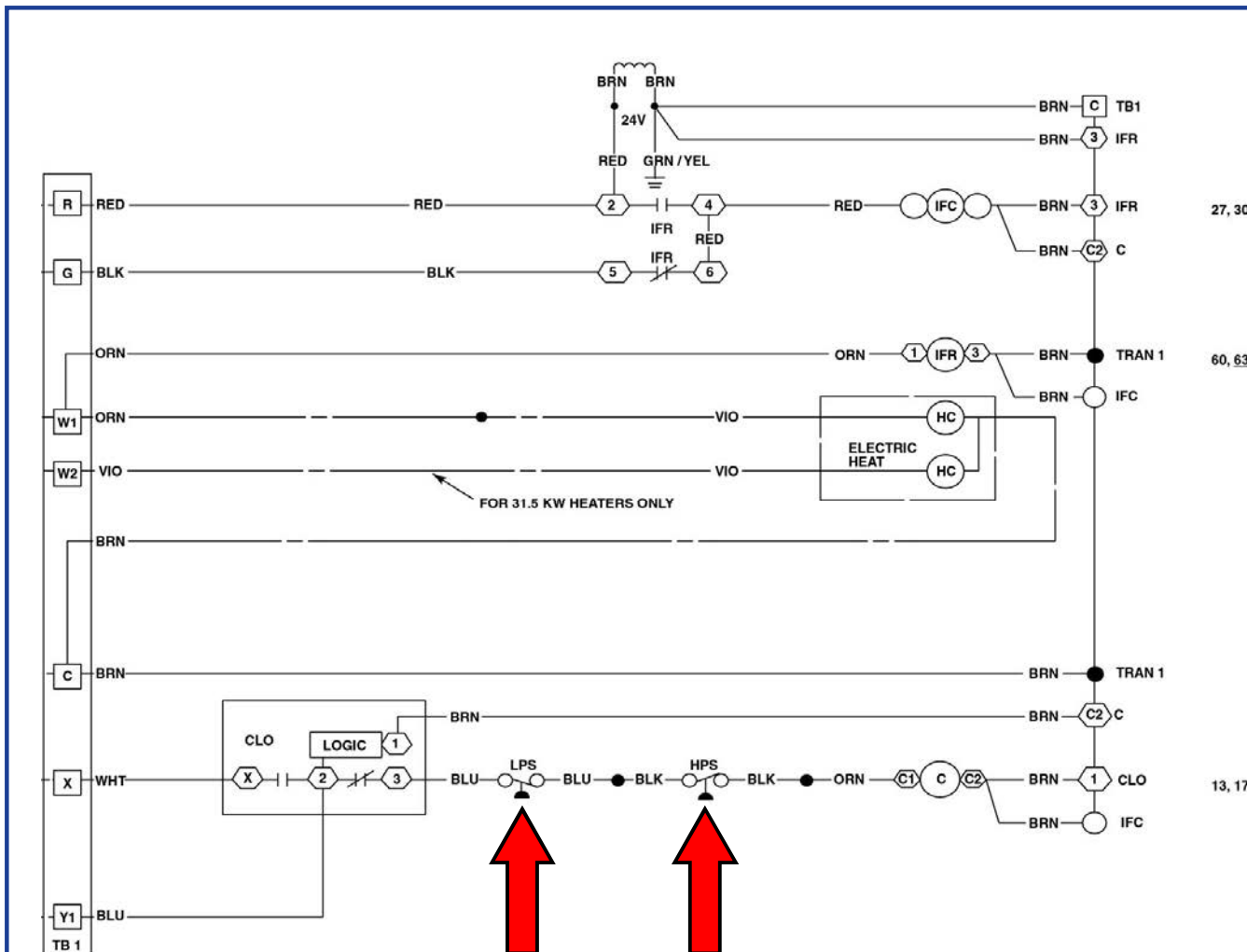
Differential
Air Pressure Switch



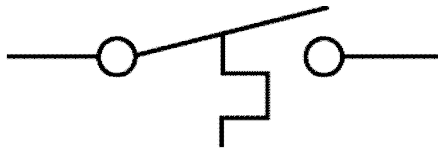
Differential
Refrigerant
Pressure
Switch

Pressure Switches

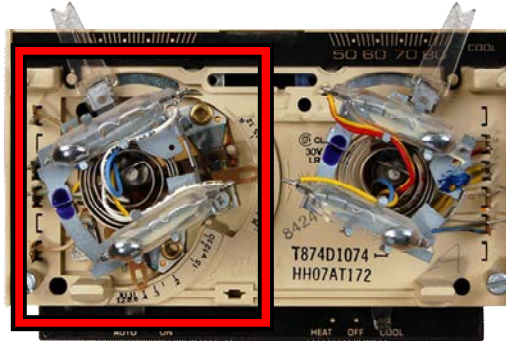
THE CONTACTS OF A SAFETY CONTROL ARE DRAWN IN THE NORMAL RUN POSITION, USUALLY CLOSED



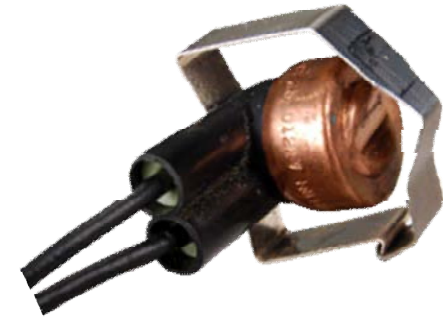
Temperature Switches



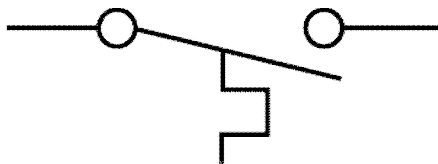
SPST Closes on Drop
(Operating Control)



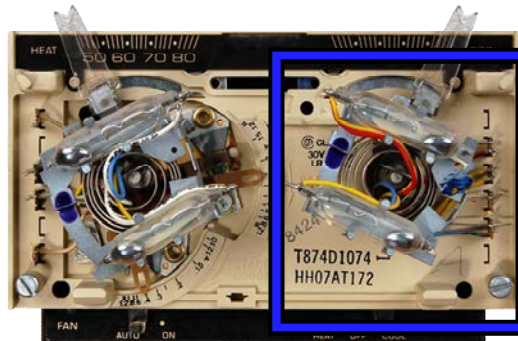
Heating
Thermostat



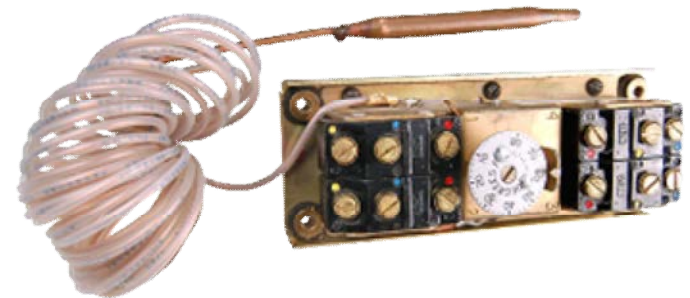
Defrost Thermostat



SPST Closes on Rise
(Operating Control)

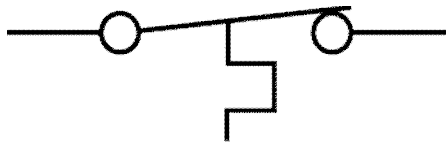


Cooling Thermostat



Return Water
Temperature Controller

Temperature Switches



SPST Opens on Rise
(Safety Control)



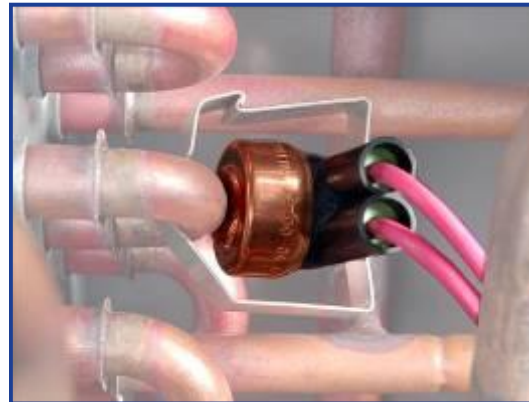
SPST Opens on Drop
(Safety Control)



Overtemperature
Limit Switch

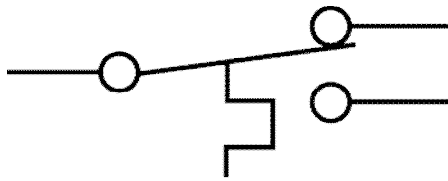


Discharge Gas
Thermostat

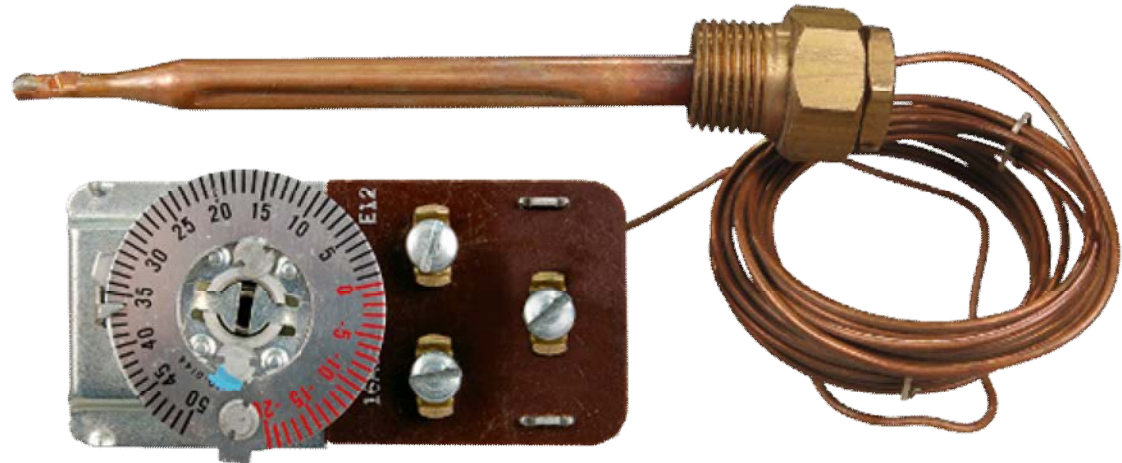


Freeze Protection Thermostat

Temperature Switches



SPDT Temperature
(Safety or Operating)



Low-Water Temperature Cutout Control



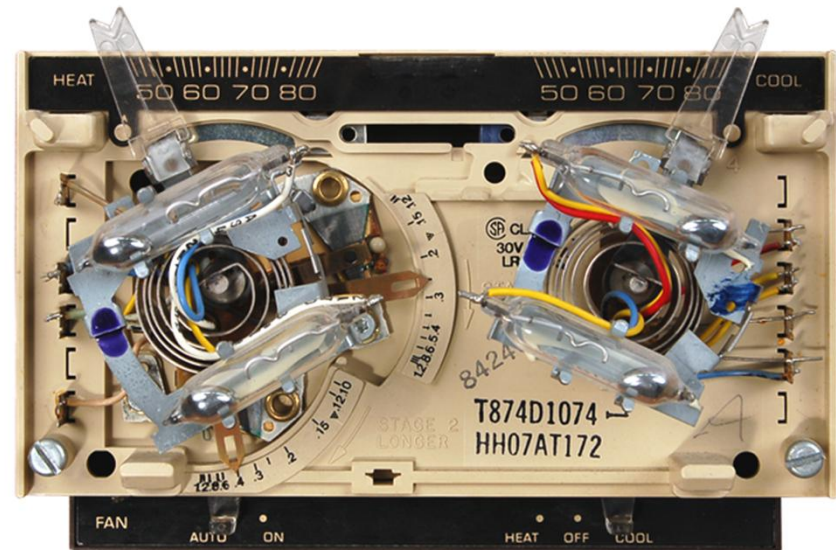
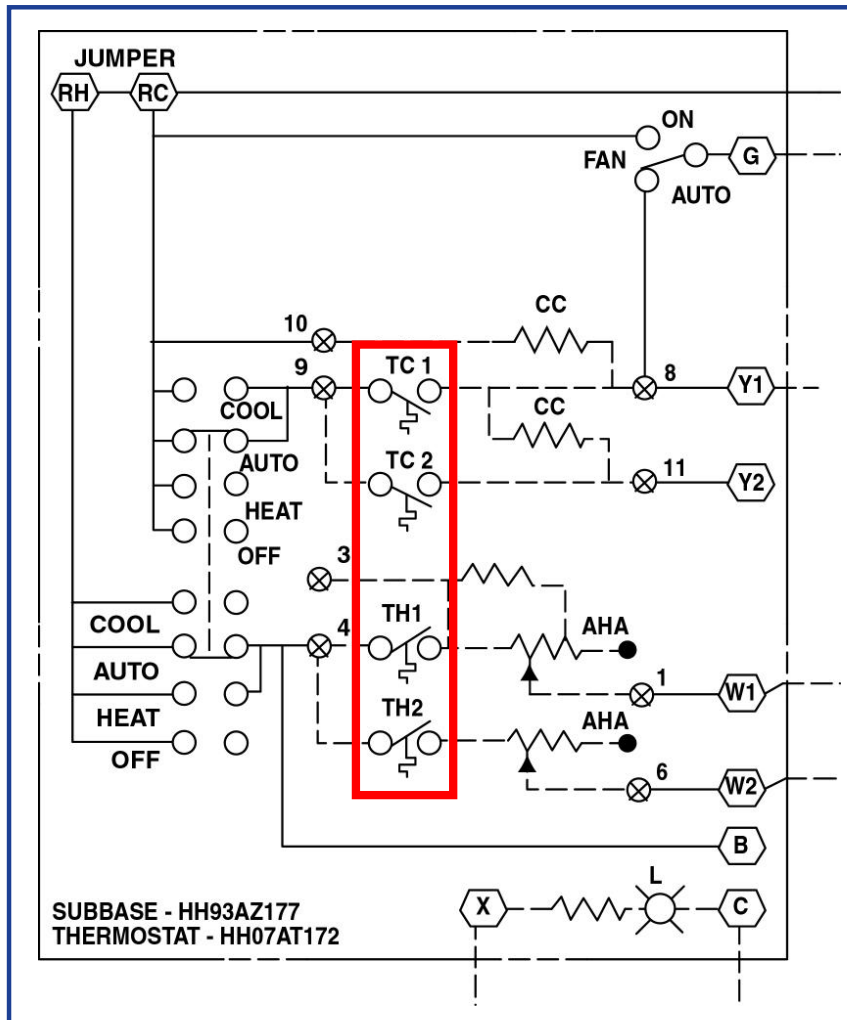
Bi-Metal Temperature
(Safety)



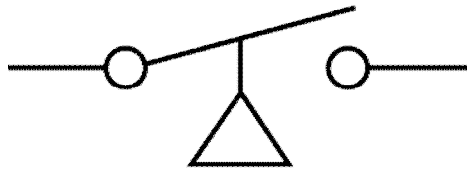
Klixon®
Overtemperature
Cutout Control

Temperature Switches

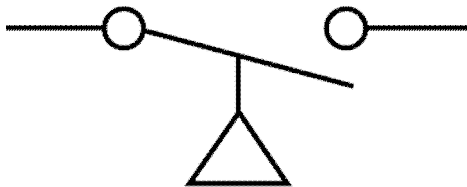
THE CONTACTS OF AN OPERATING CONTROL ARE DRAWN OPEN, WITH NO CALL FOR COOLING, HEATING



Humidity Control



SPST Humidistat
Closes on Drop
(Operating Control)



SPST De-Humidistat
Closes on Rise
(Operating Control)



Time Delay



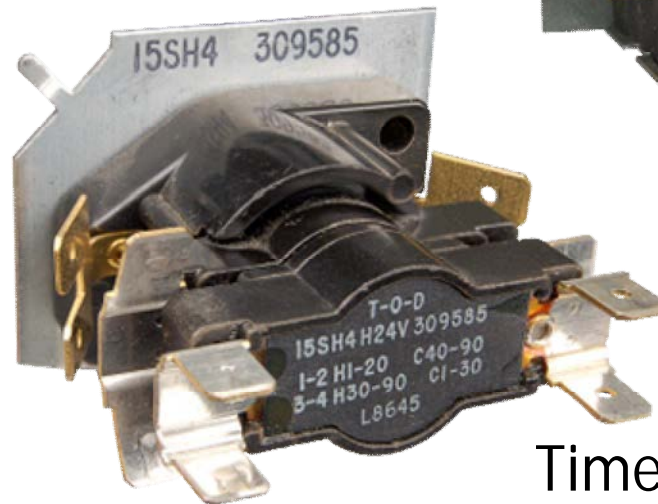
Time Delay Relay
Delays Closing
(Mechanical/Thermal)
(Electronic)



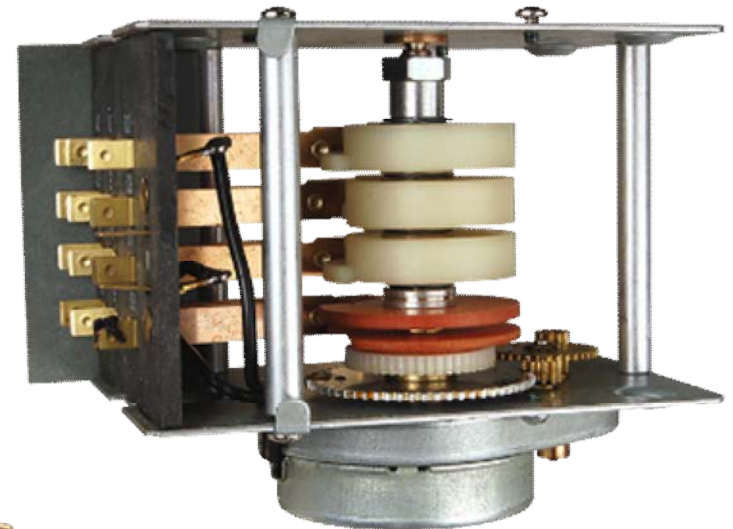
Time Delay Relay
(Electronic)



Time Delay Relay
Delays Opening
(Mechanical/Thermal)
(Electronic)



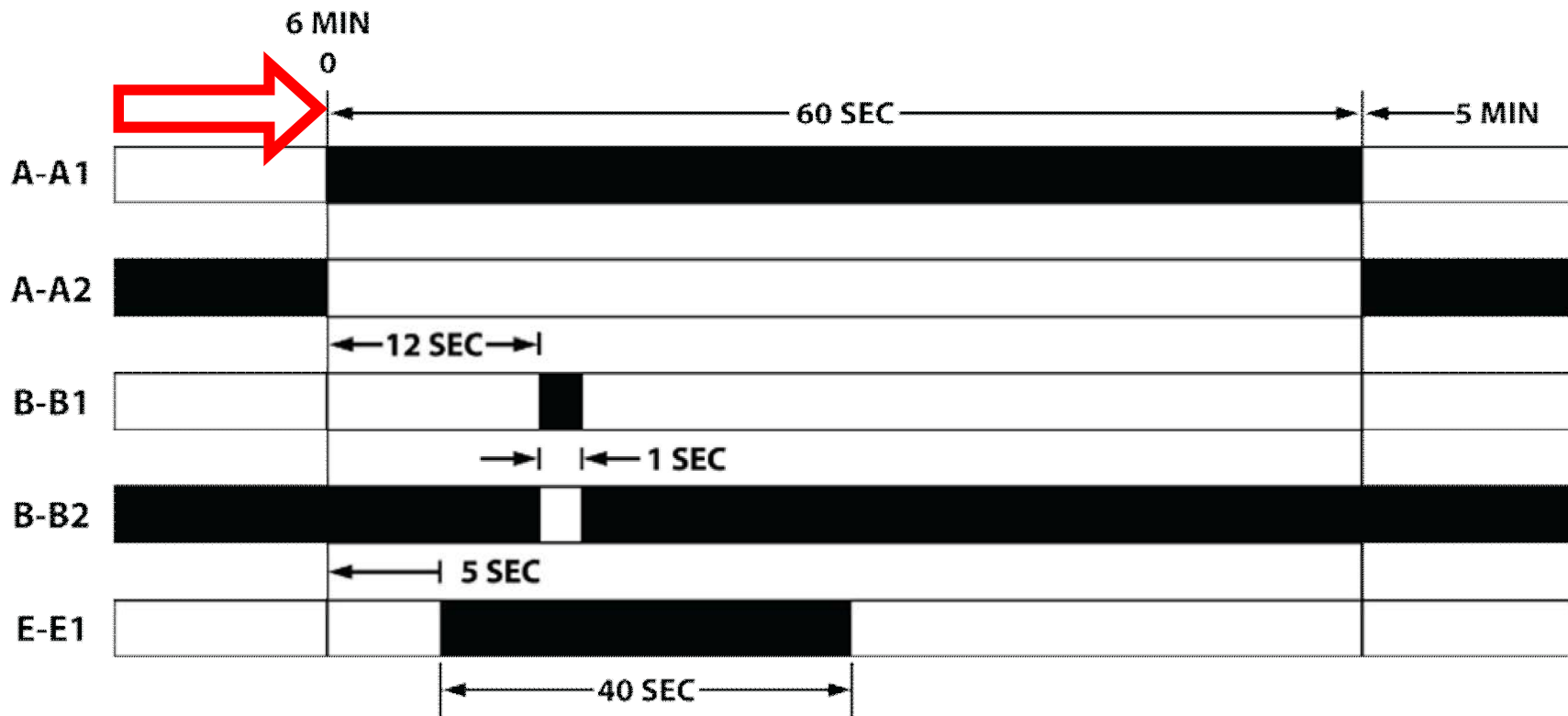
Time Delay Relay
(Thermal)



Time Delay Relay
(Mechanical)

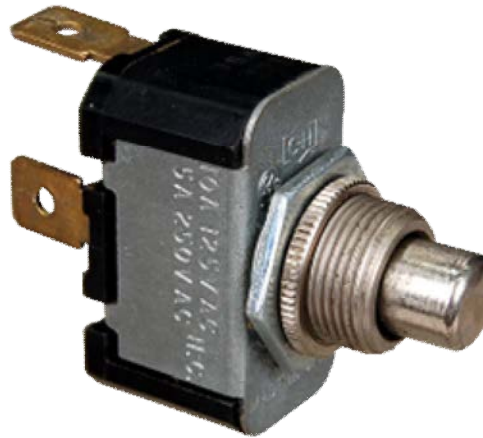
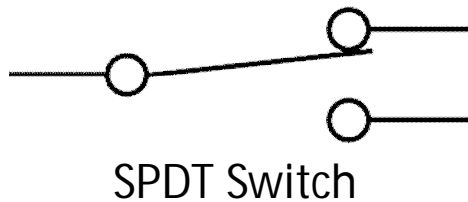
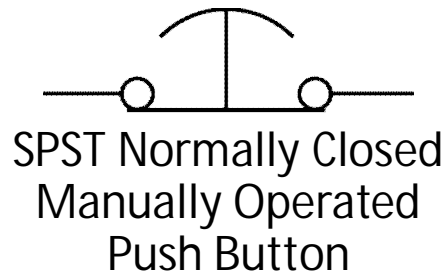
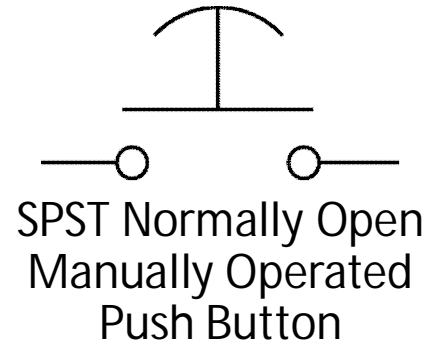
Time Delay

THE CONTACTS OF A TIMER ARE DRAWN IN THE READY-TO-START POSITION OR AT TIME ZERO ON A BAR CYCLE DIAGRAM

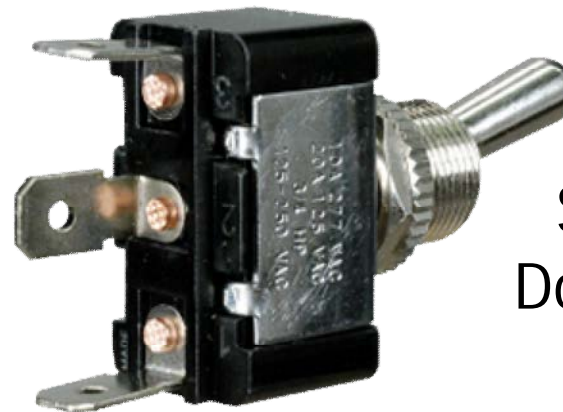


NOTE: BLACK DENOTES CLOSED CIRCUITS

Manual Switches

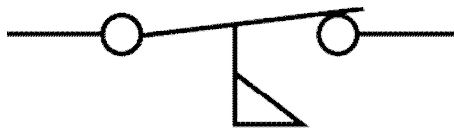


Momentary Push Button

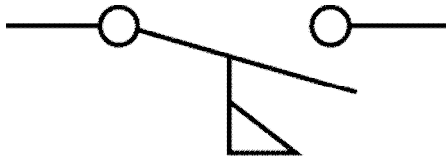


Single-Pole
Double-Throw
Switch

Flow Switches



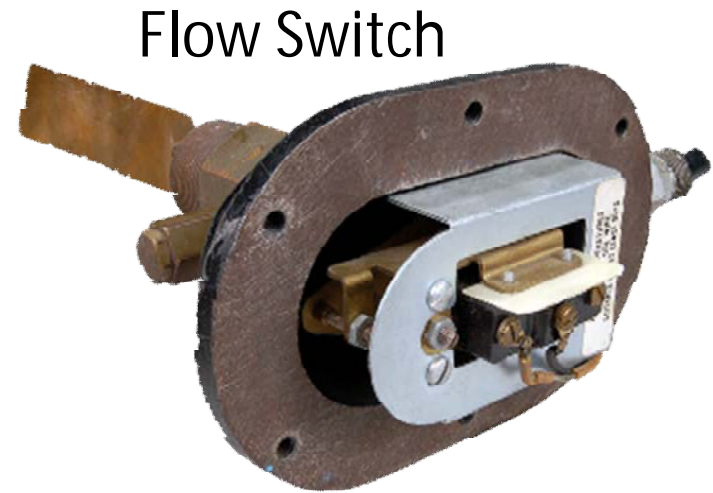
SPST Flow Switch
Opens on Rise
(Safety Control)



SPST Flow Switch
Closes on Rise
(Safety and Operating)



Sail Switch

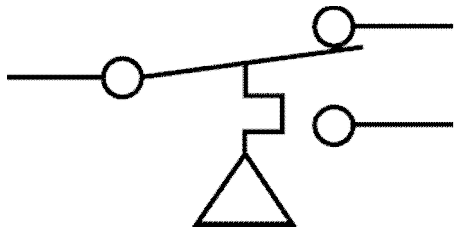


Flow Switch



Thermal Dispersion
Flow Switches

Enthalpy Switches



SPDT Enthalpy Control
(Operating Control)

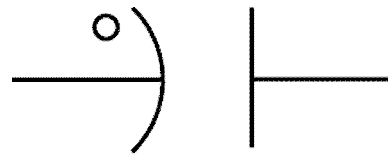


Electronic
Enthalpy Control



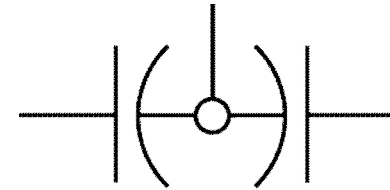
Mechanical
Enthalpy Control

Capacitors

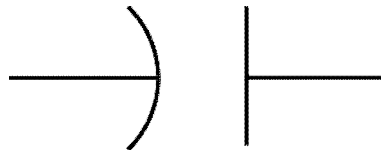


Run Capacitor
(Marked Terminal)

Run Capacitor



Dual Run
Capacitor

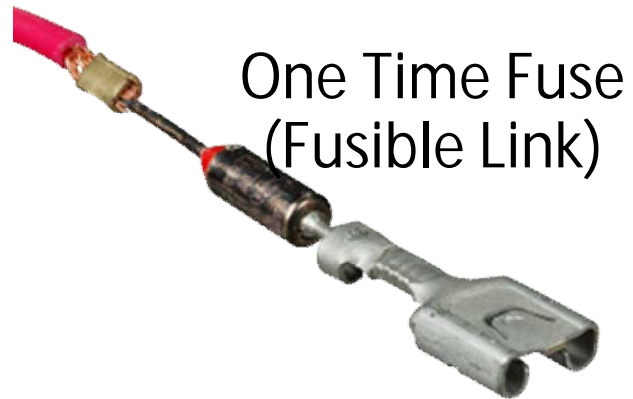
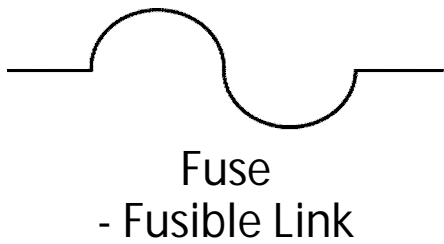


Start Capacitor

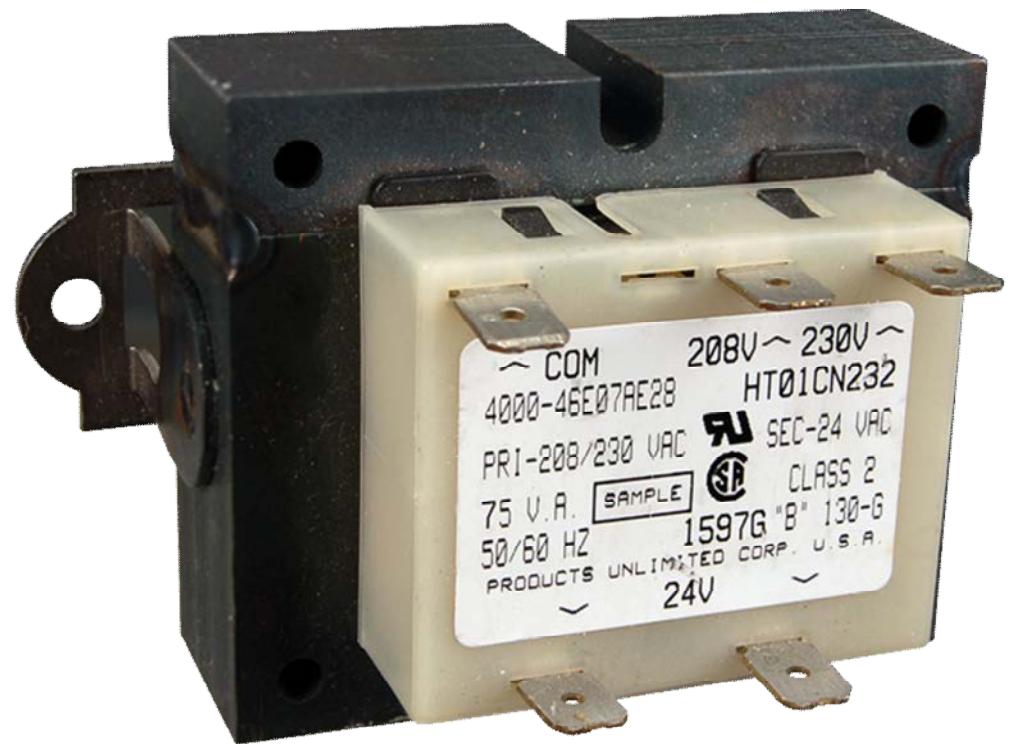
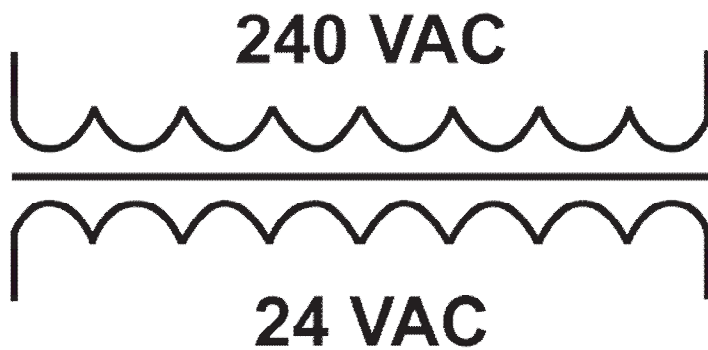
Start
Capacitor

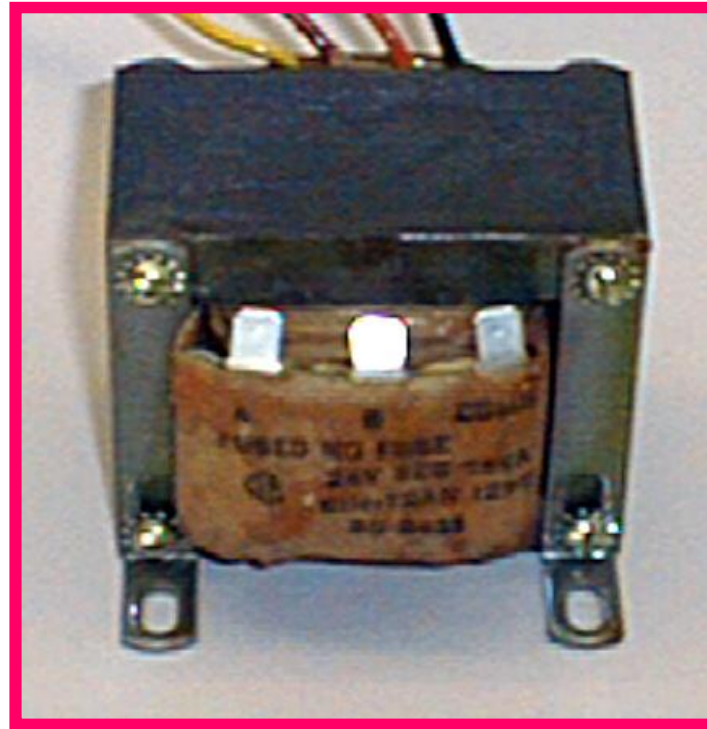
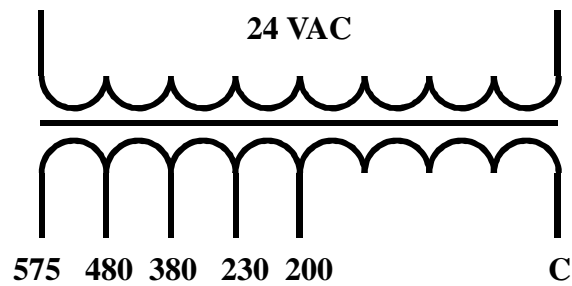
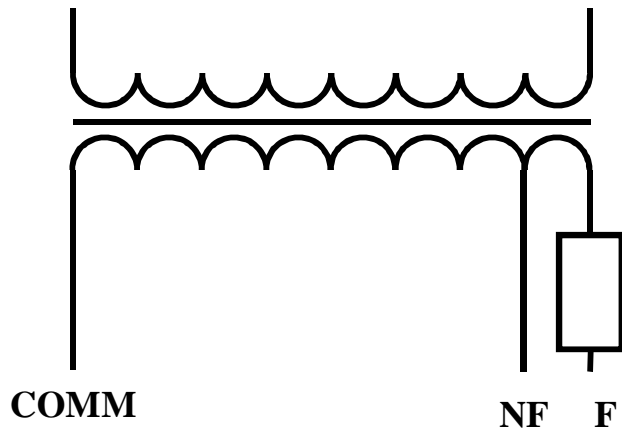
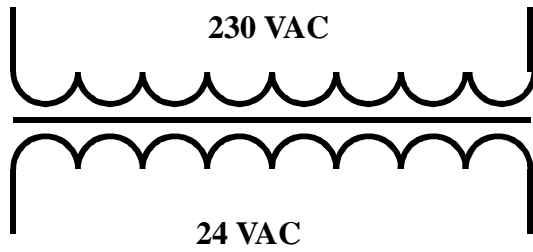


Fuses

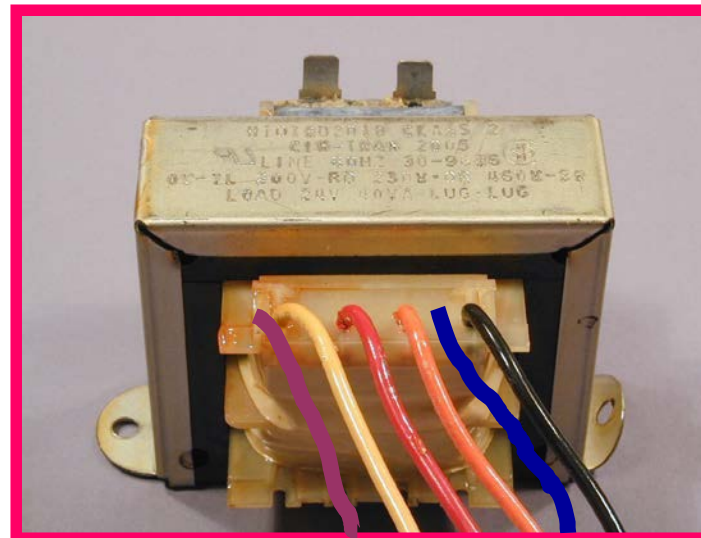


Transformers

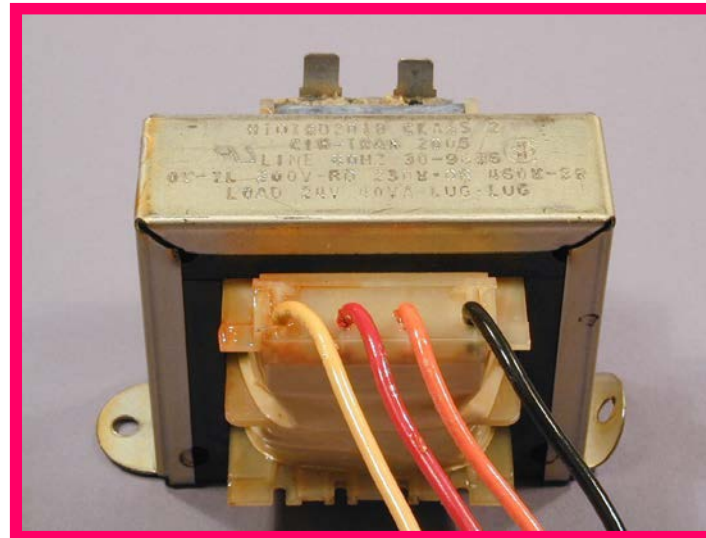
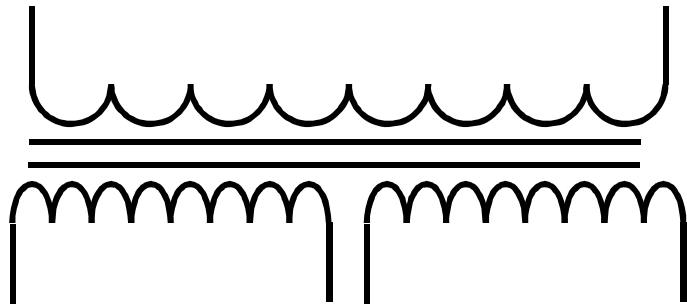




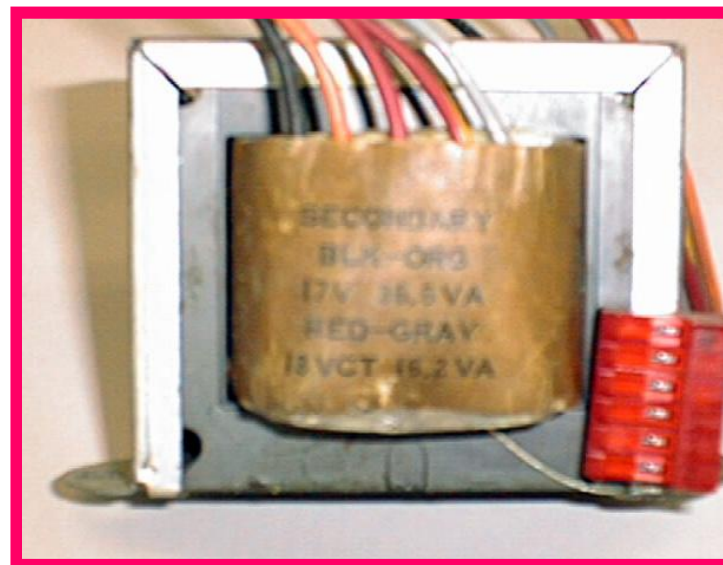
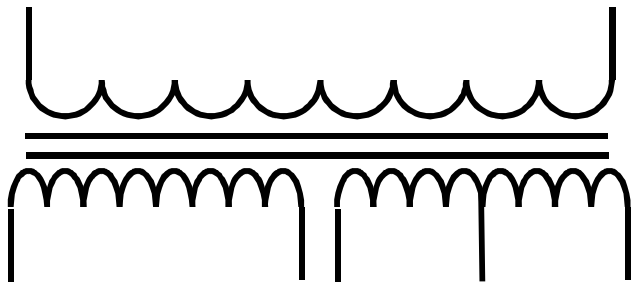
Fused & Non Fused
Secondary



Multi Tap Primary

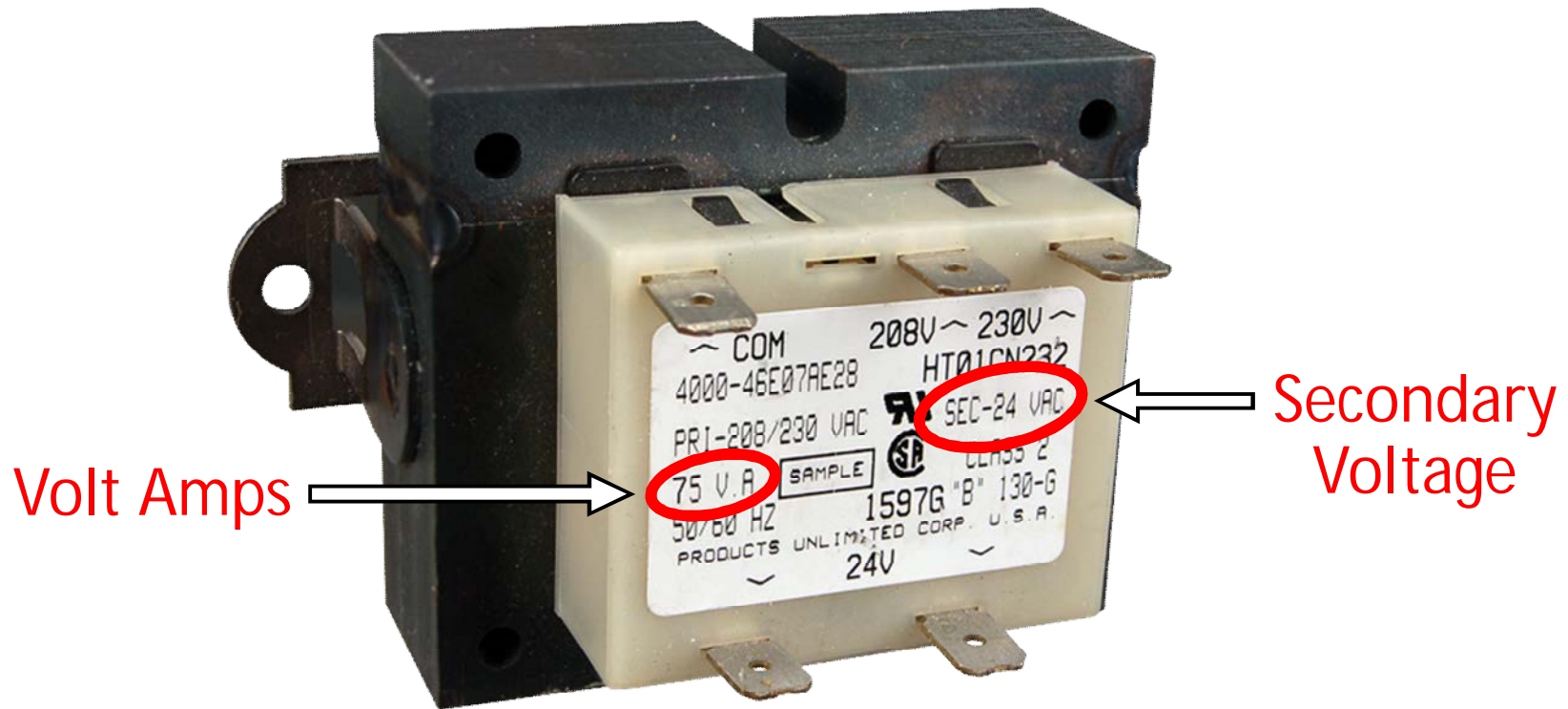


Dual Secondary
Transformer



Dual Secondary
With
Center Tapped
Transformer

Transformers



$$\begin{aligned} \text{TOTAL AMP DRAW OF A CIRCUIT} &= \frac{\text{VA RATING}}{\text{SECONDARY VOLTAGE}} \\ &= \frac{75\text{VA}}{24\text{V}} = 3.1 \text{ AMPS} \end{aligned}$$