

# Reading Electrical Schematics

These basic tutorials start with electrical symbols and schematic design and proceed to include the specific schematics for the production machines you use in your plant. They are designed to help you use an electrical schematic to work your way through any problem that may occur during the manufacturing process.

Being able to read and understand an electrical schematic is the fastest way to solve an electrical problem. We suggest that you start with the tutorial named **What is an Electrical Schematic**, to help you understand what some of the electrical symbols represent and how the electrical schematics work. The tutorials will run automatically in *Windows® Media Player*.

You can pause, go forward, or go backward during the presentation. When finished, just close *Media Player*. Each module takes about ½ hour to complete.

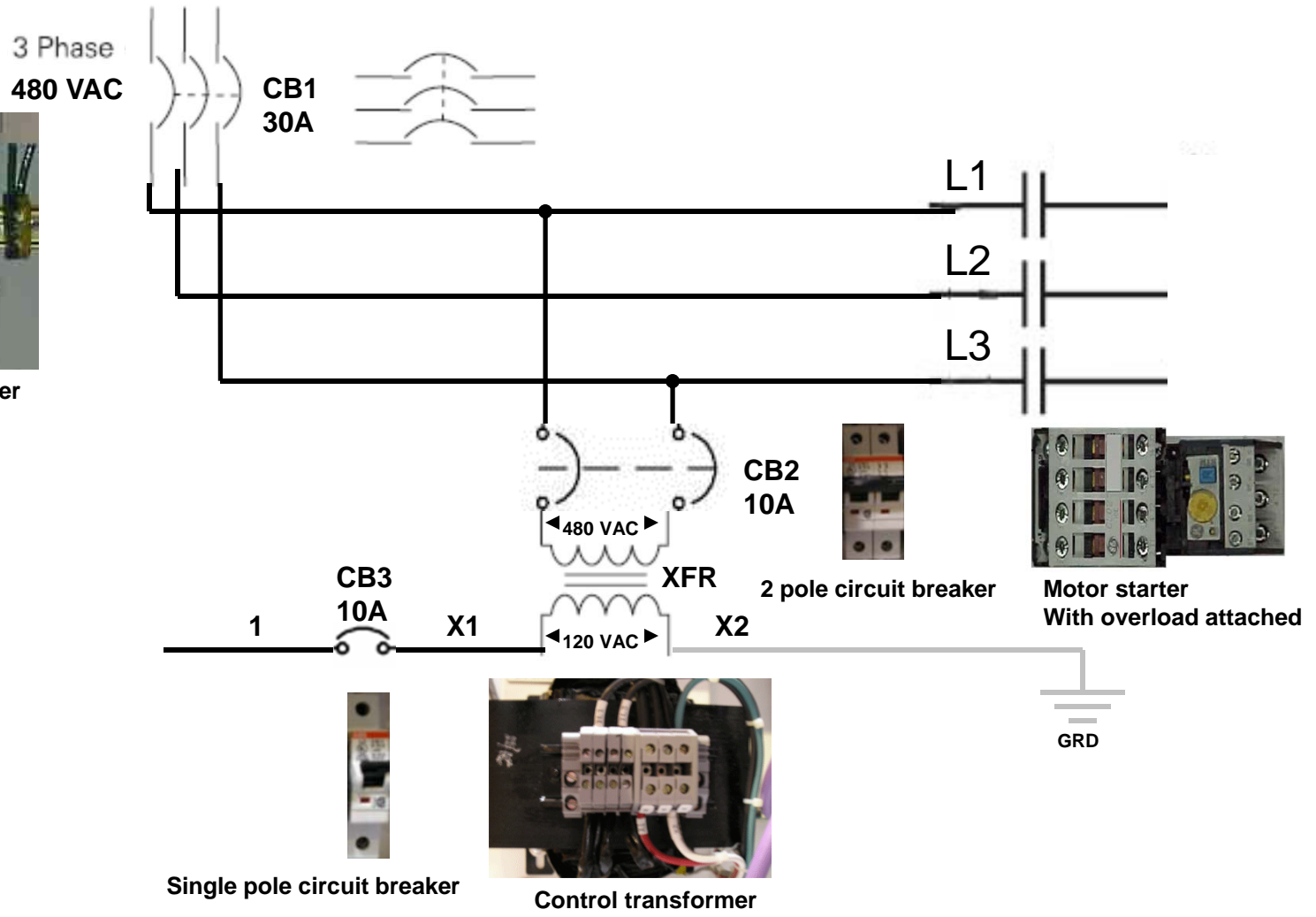
What Is an  
Electrical  
Schematic?







3 pole circuit breaker

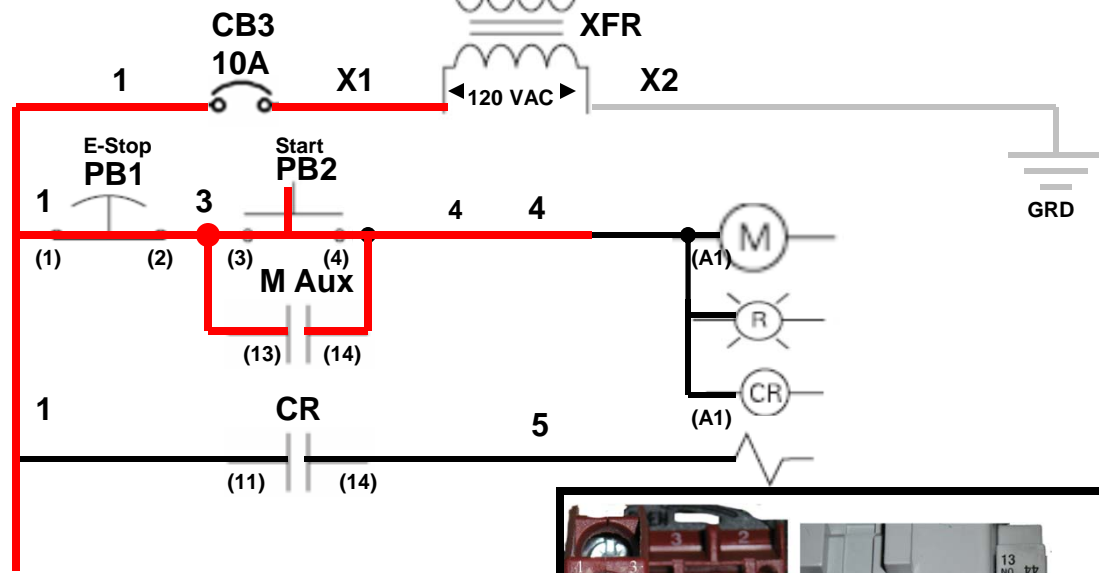
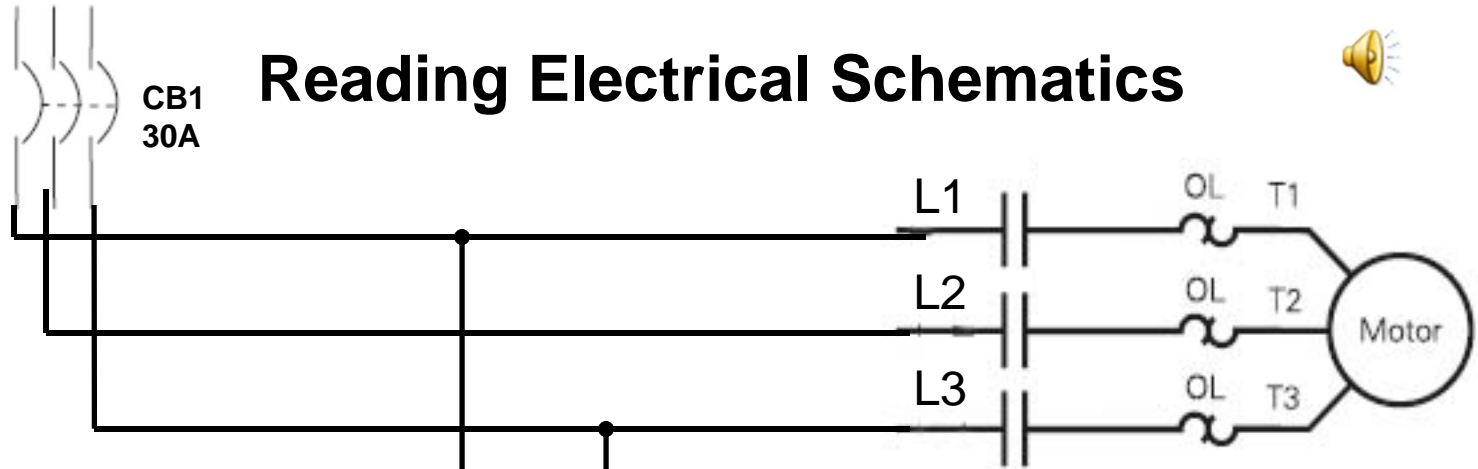


# Reading Electrical Schematics

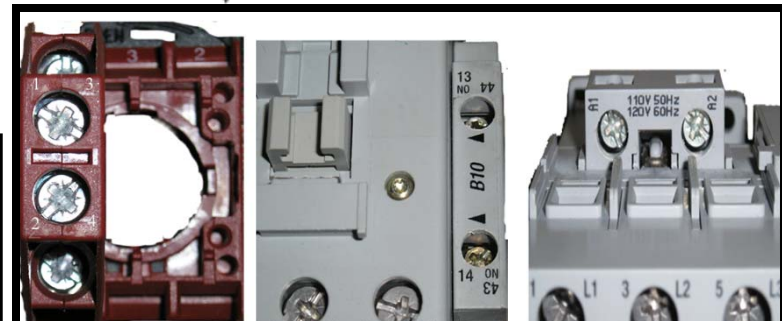
3 Phase  
480 VAC

CB1  
30A

# Reading Electrical Schematics

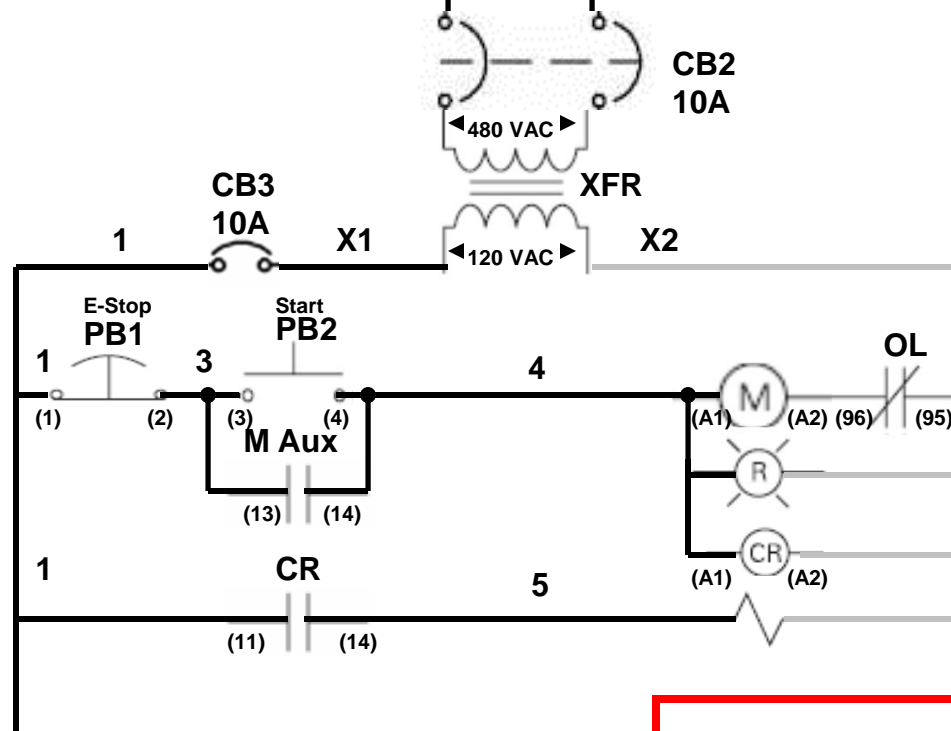
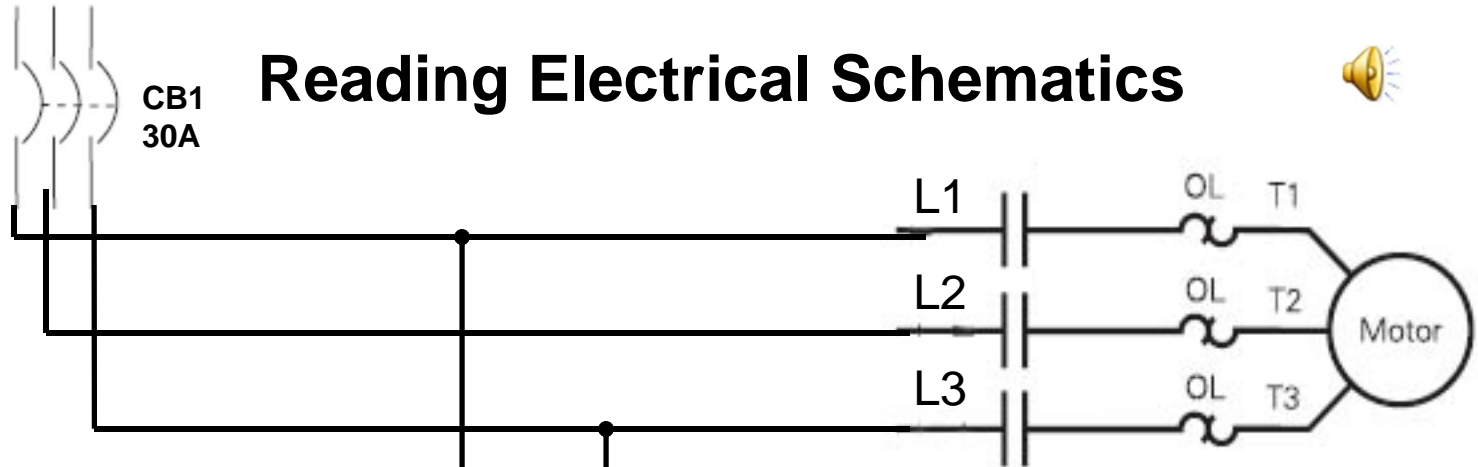


Wiring Terminal	WIRING Terminal on that device (#) (A#)
•	

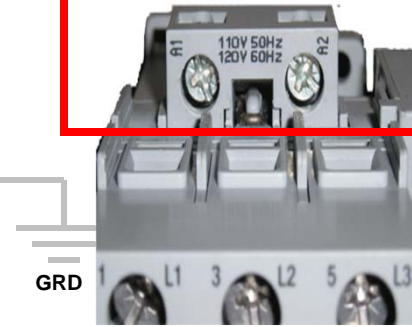


3 Phase  
480 VAC

# Reading Electrical Schematics



Screw terminals for the coil on the motor starter

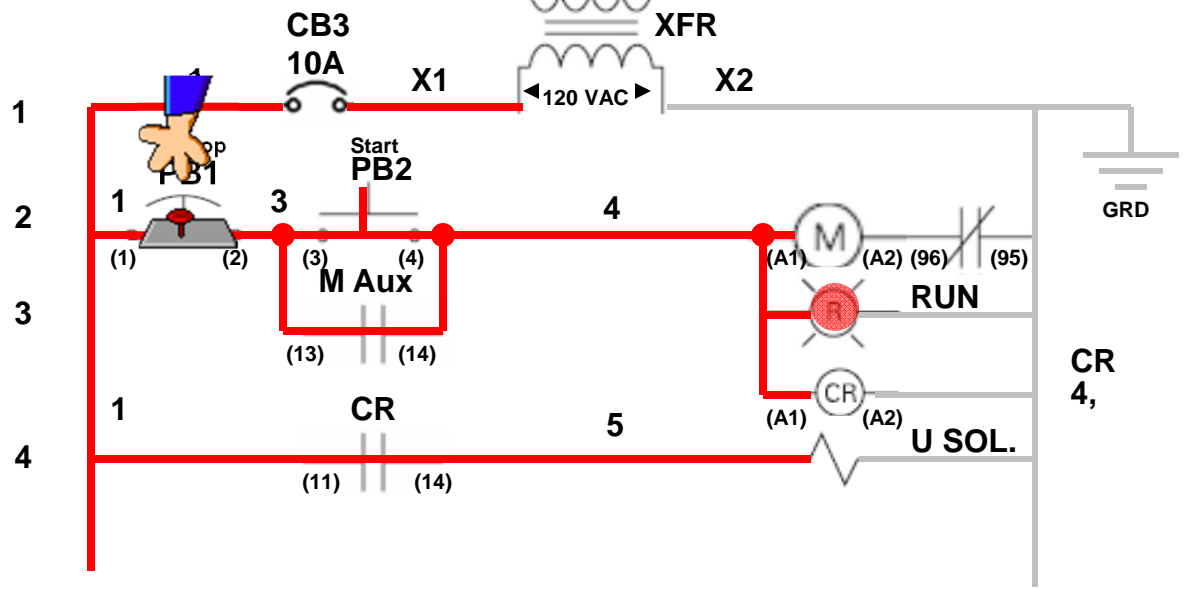
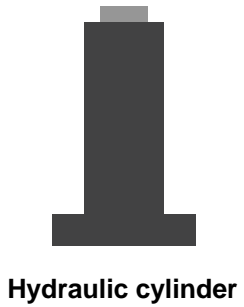
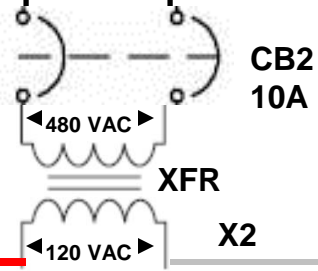
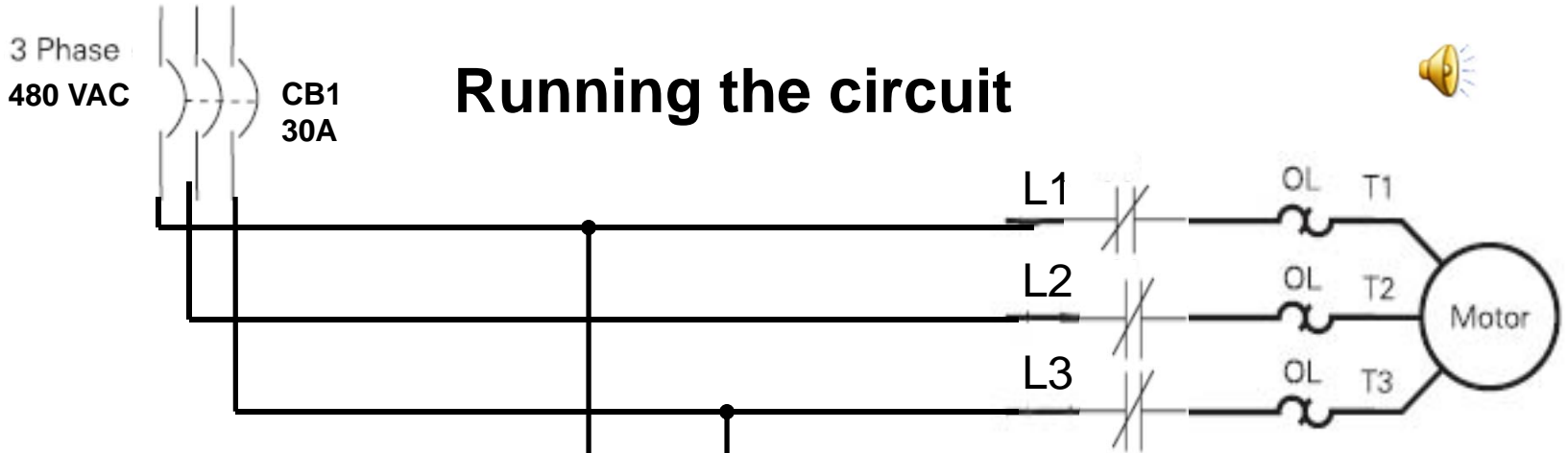


Overload relay



Screw terminals 95 and 96 on the overload relay NC means normally closed

Wiring Terminal	WIRING Terminal on that device (#) (A#)
•	

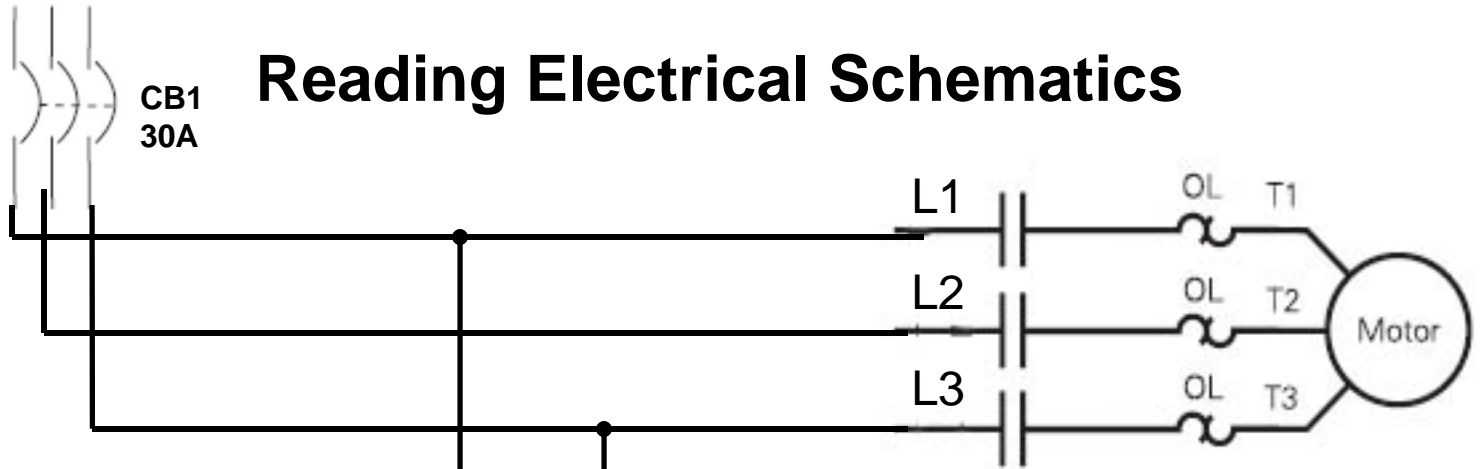


Wiring Terminal	WIRING Terminal on that device (#) (A#)
•	

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3 Phase  
480 VAC

CB1  
30A

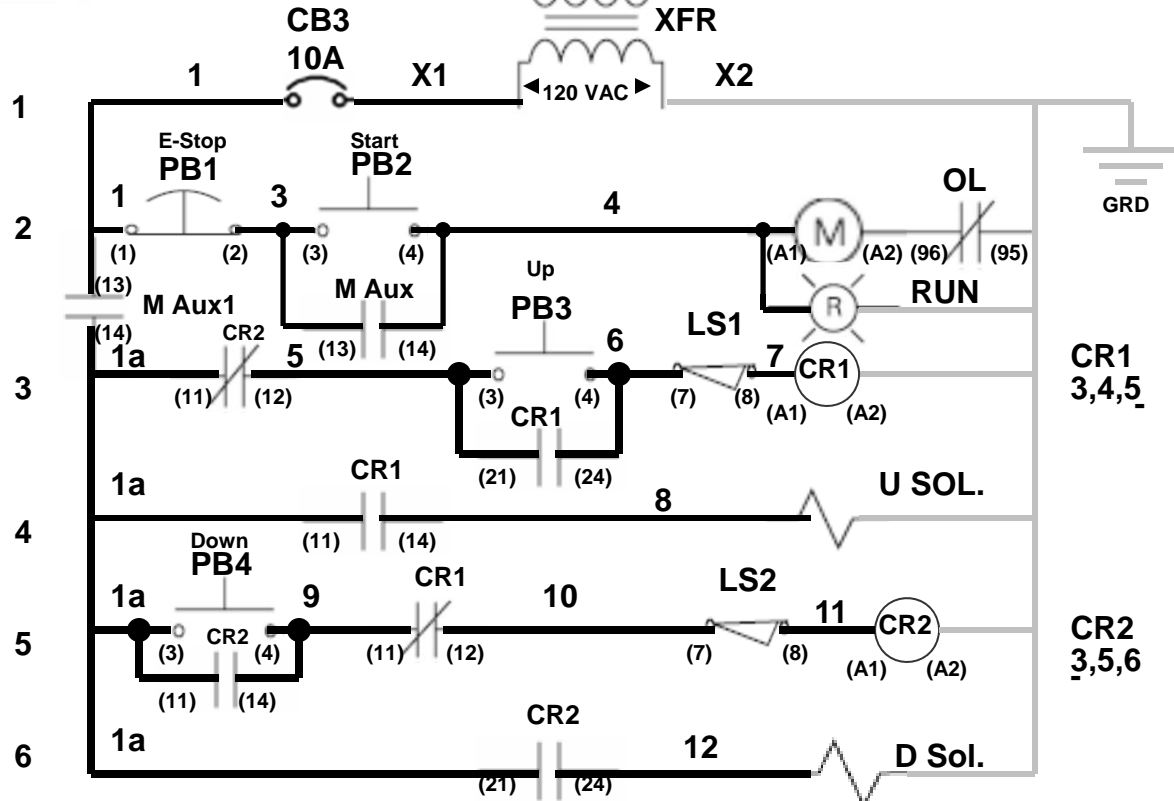


Limit switch



CB2  
10A

XFR



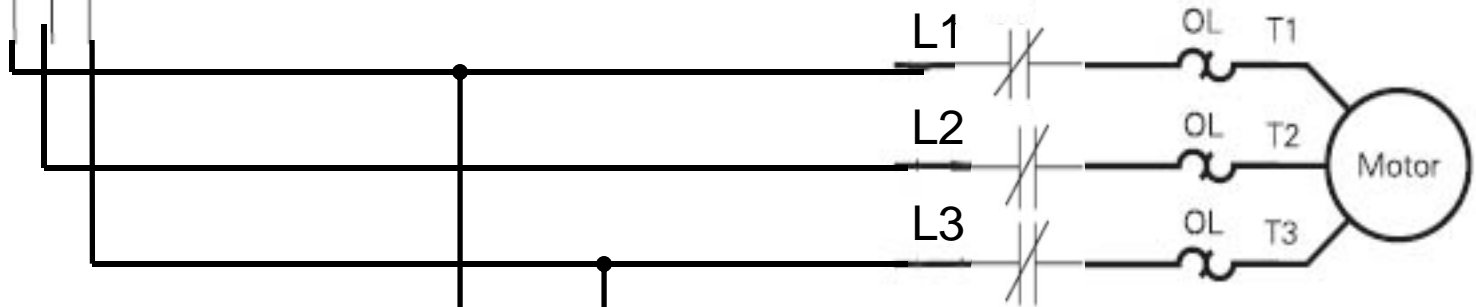
CR1  
3,4,5

CR2  
3,5,6

3 Phase  
480 VAC

CB1  
30A

# Test the circuit



LS1

CB2  
10A



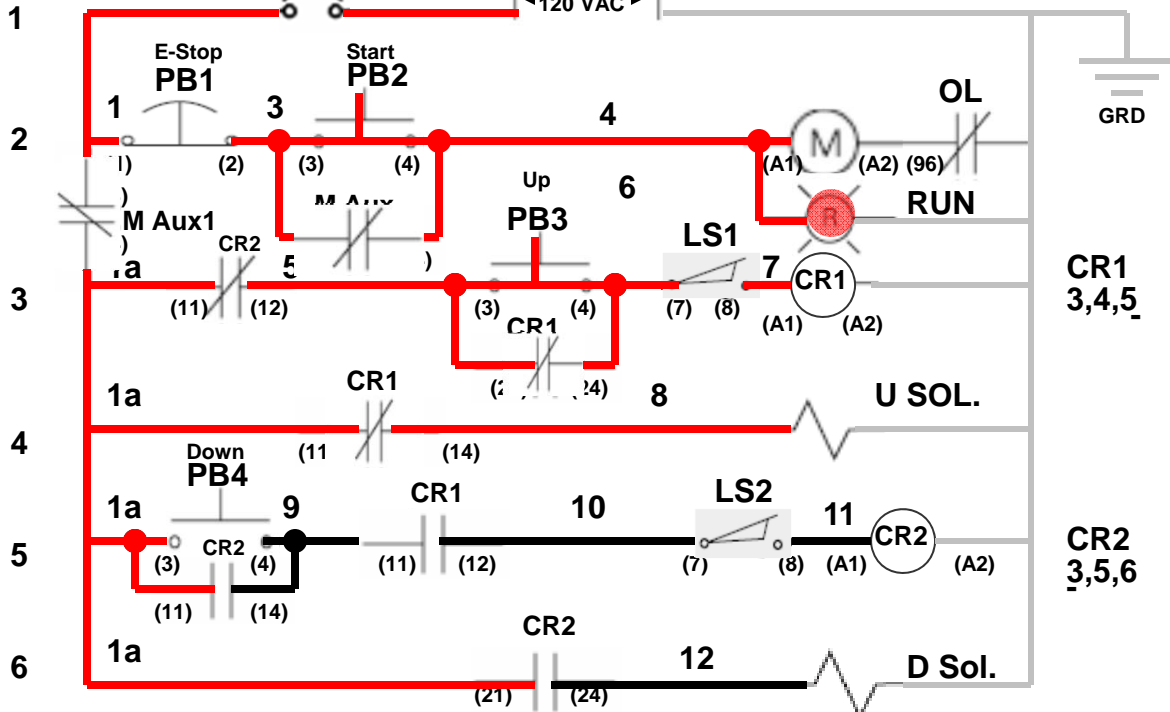
LS2

XFR

CB3  
10A

X1

X2



Hydraulic cylinder

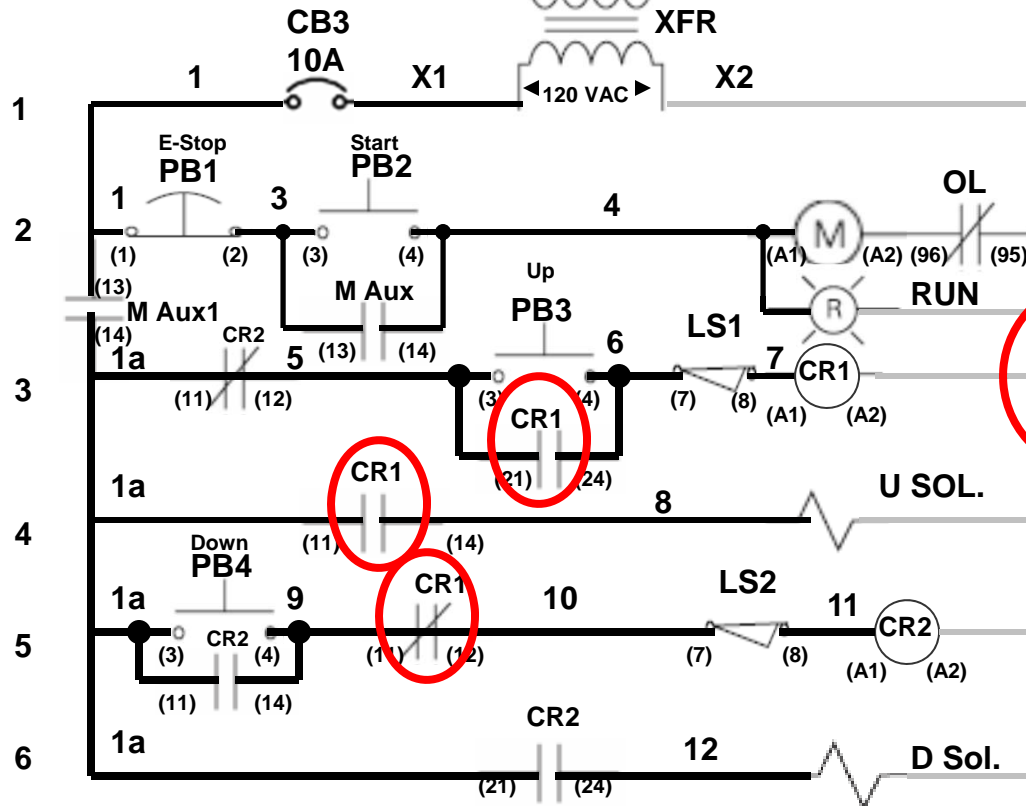
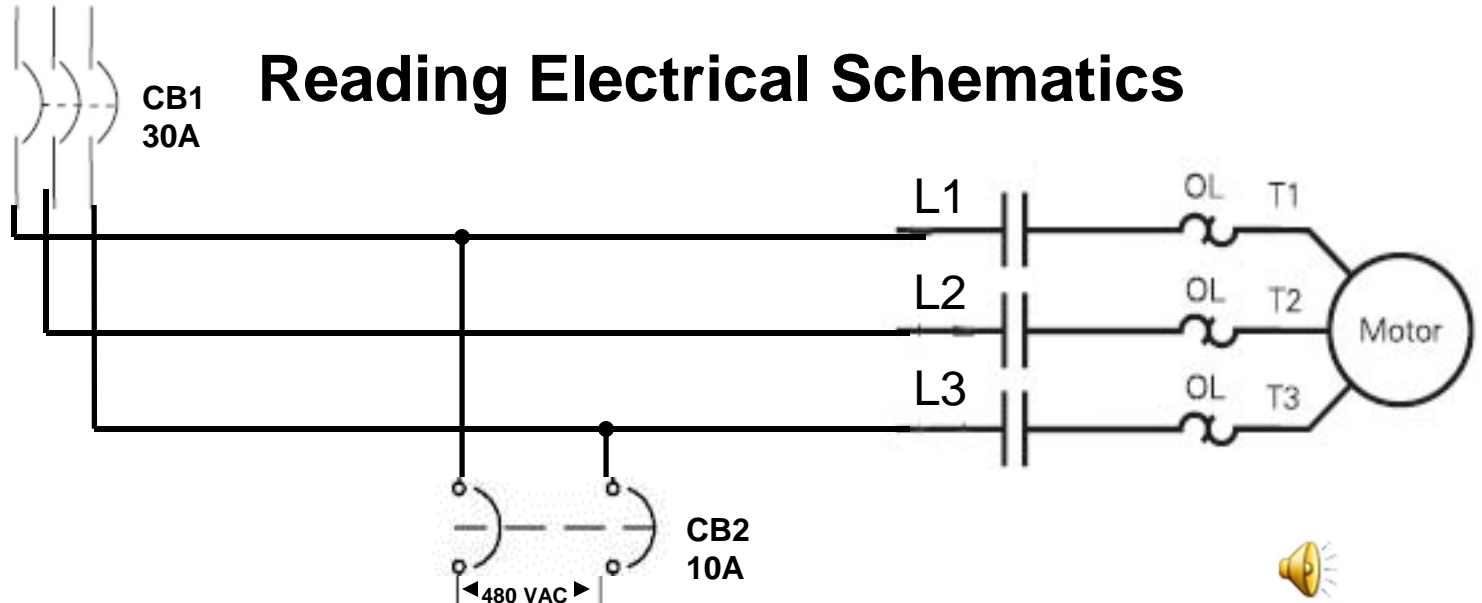
CR1  
3,4,5

CR2  
3,5,6



3 Phase  
480 VAC

# Reading Electrical Schematics



**CR1  
3,4,5**

**CR2  
3,5,6**

# Reading Electrical Schematics

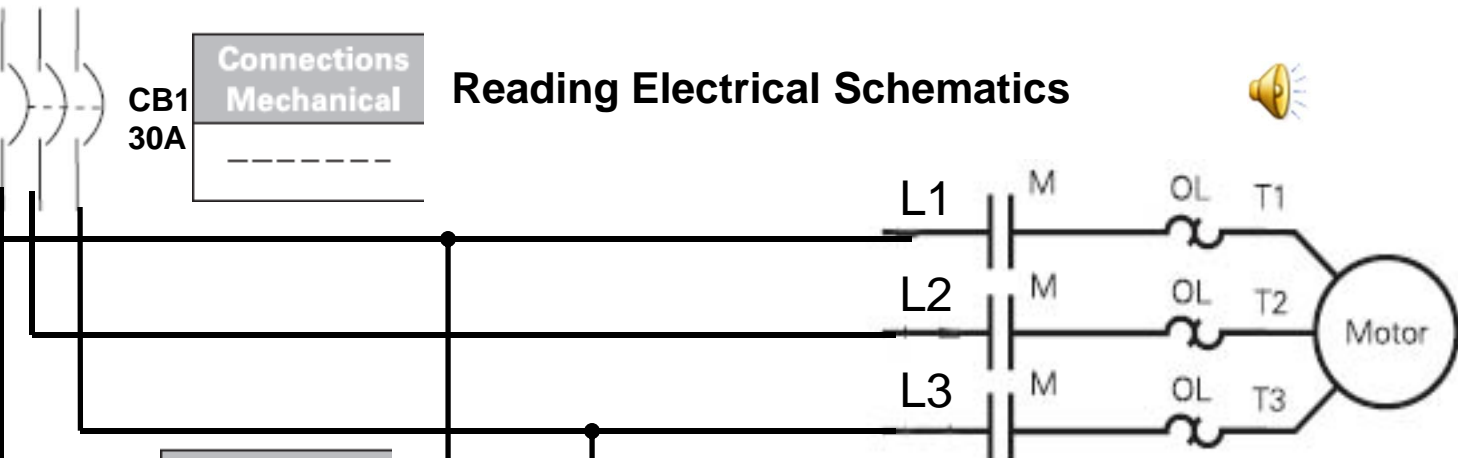


3 Phase  
480 VAC

CB1  
30A

Connections  
Mechanical

- Abbreviations are frequently used in control circuits. The following list identifies a few commonly used abbreviations.
- D Down
  - U Up
  - M Motor Starter
  - CB Circuit Breaker
  - CR Control Relay
  - OL Overload
  - XFR Transformer
  - PB Pushbutton
  - SOL Solenoid
  - GRD Ground



Connections  
Mechanical

CB2  
10A

XFR

