

Creating Ladder Diagram

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First create the ladder that will show where the wires will come from the power connection to connected components. This will outline our workspace.

1. Paper Size.
 - a. Choose Template: ANIS B Color
2. Select Schematic Tab > Insert Ladder



3. Set the following Settings > Select Ok

Sheet: 1 - Insert Ladder

Width: 5.0000

Length: 8.0000

Rungs: 17

Phase: 1 Phase 3 Phase

Spacing: 0.5000

Spacing: 0.5000

1st Reference: 101

Index: 1

Without reference numbers

Draw Rungs: No Bus No Rungs Yes

Skip: 0

Buttons: OK, Cancel, Help

Annotations:

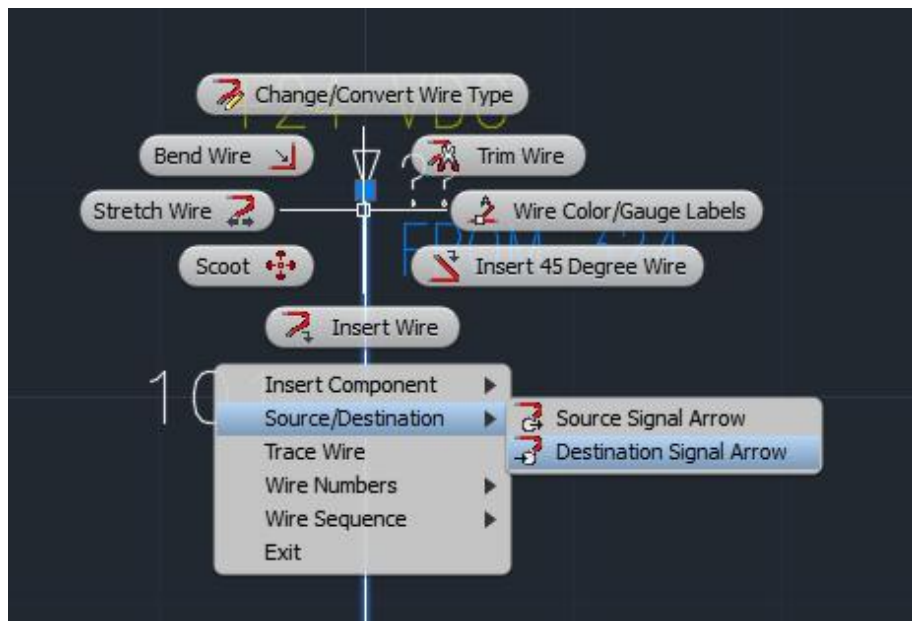
- Predefine the overall size of the ladder (points to Width, Length, Rungs)
- Predefine the On Center Spacing of the rungs (points to Spacing)
- 1st Reference = Start Number for Rungs
- Index is the numbers between rungs
Index = 1; 1,2,3,4 ,etc.
Index =10; 1,10,20,30,etc.
- No Bus = No vertical or horizontal Ladder Lines
- No Rungs = No horizontal lines
- Yes = Vertical and Horizontal

- Place the Ladder relative center of page. Place cursor on the page and left click and drag. NOTE: where your cursor is placed will be the top left of the ladder.
- Screen should look as follows



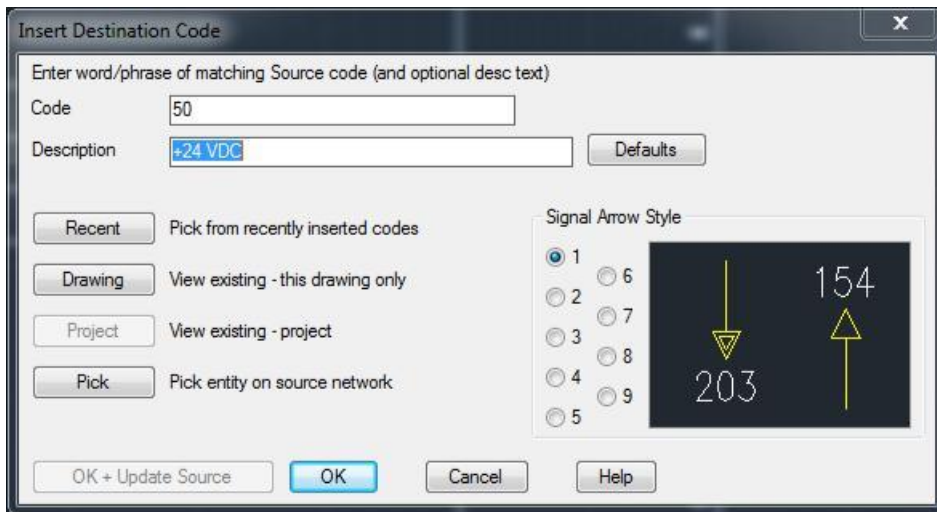
Adding Source

- Select Left Vertical Bus > Right Mouse Button > Select Source/Destination > Destination Arrow

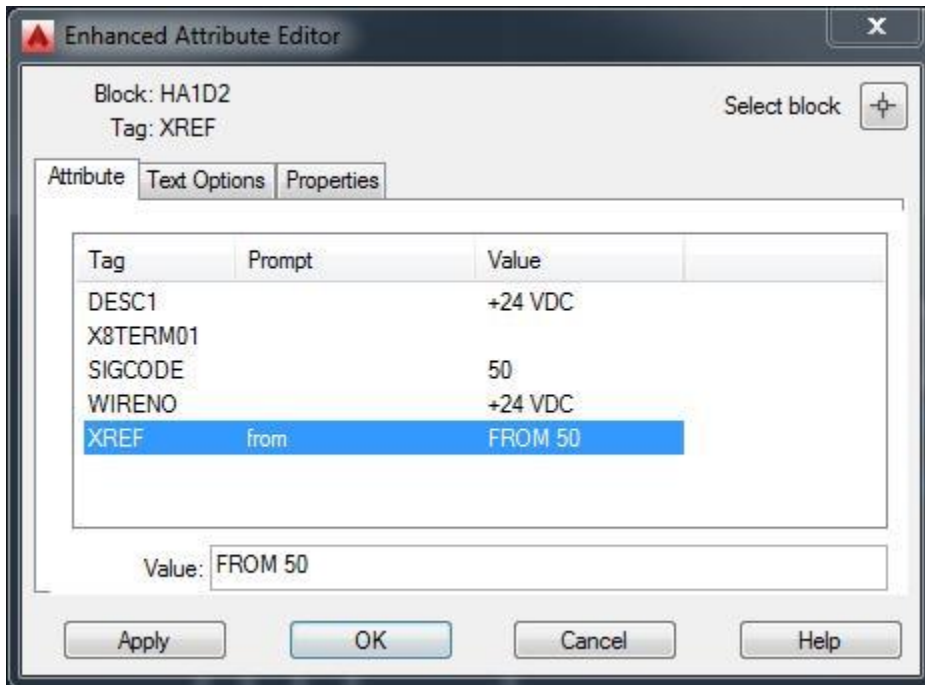


2. Set the following Settings

NOTE: +24 VDC represents a 24 Volt Direct Current (DC) power source



3. Adjust Location Data > Double Click on the ??? > Set the following



Adding Wires

Wires are designed to connect components of your circuit.

Wires can be drawn at the following directions

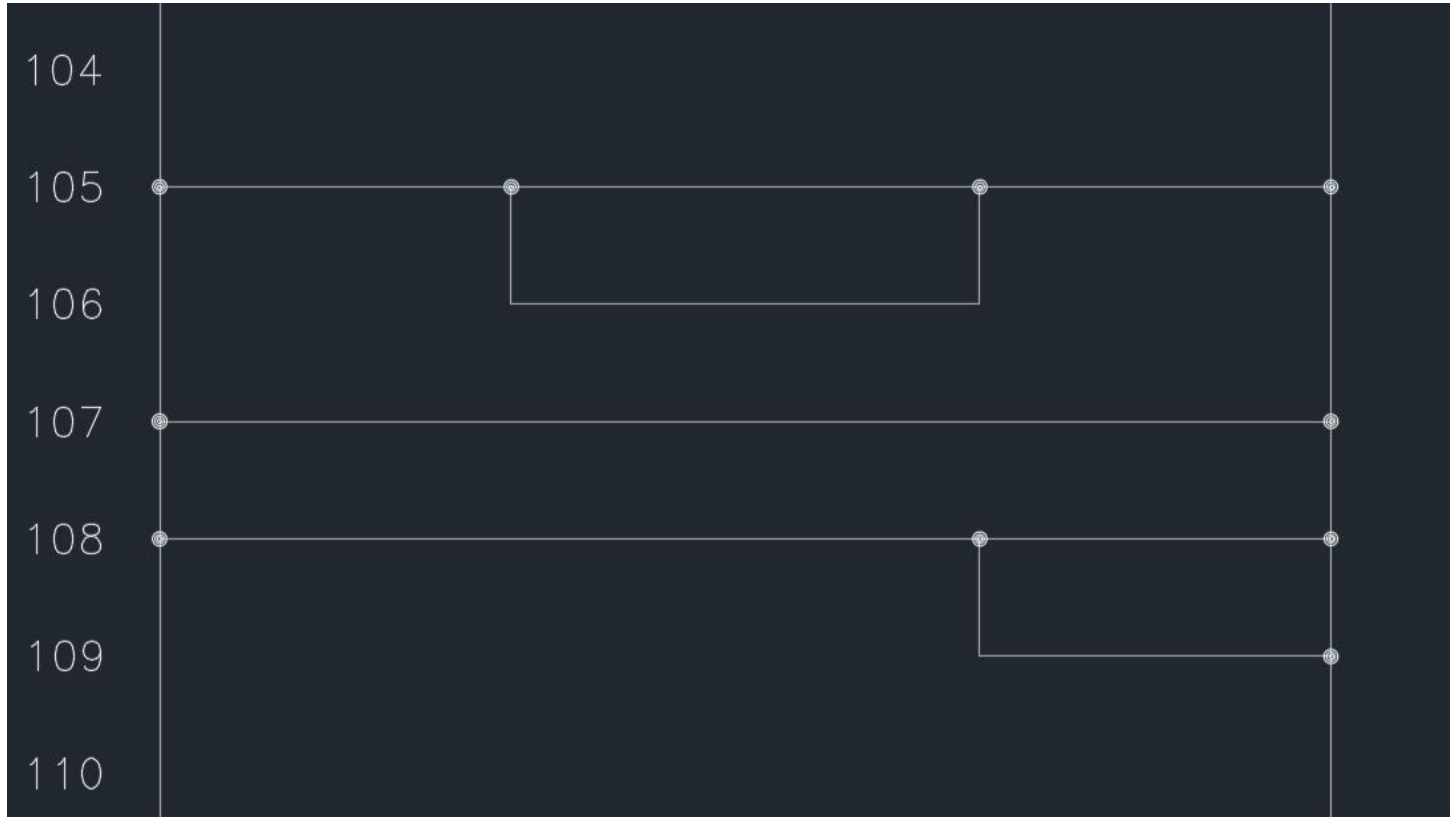
- Horizontally
- Vertically
- 22.5 Degrees
- 45 Degrees
- 67.5 Degrees

1. Tab Schematic > Wire (Icon) > Place cursor next to the line number (Cursor should snap to the bus (vertical line) and align with the line number < Left Click to start the line < Drag cursor to end location < When right bus line is highlighted left click to place < Place the following lines.



2. Add the following wires

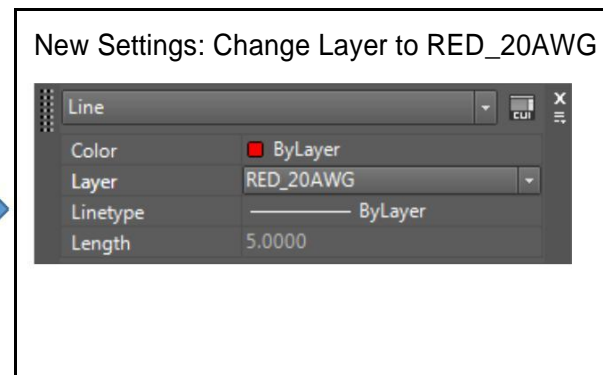
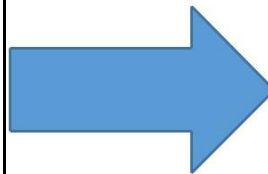
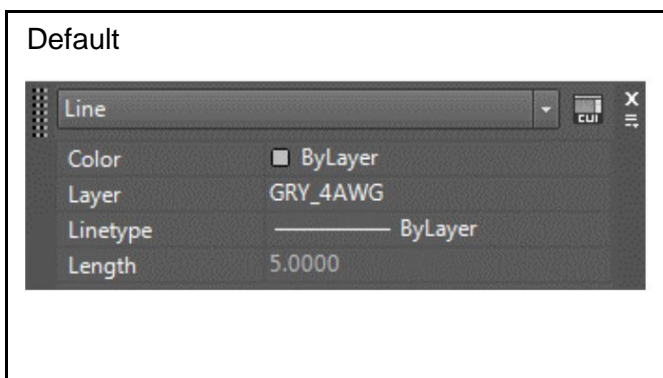
NOTE: Use the Trim Wires tool to remove parts of a wire between segments



3. Select The follow wires

4. Changing Single Wire Type. Select Create/Edit Wire Type

- a. Double Click on wire 105
- b. Menu pops up change the wire color and gauge



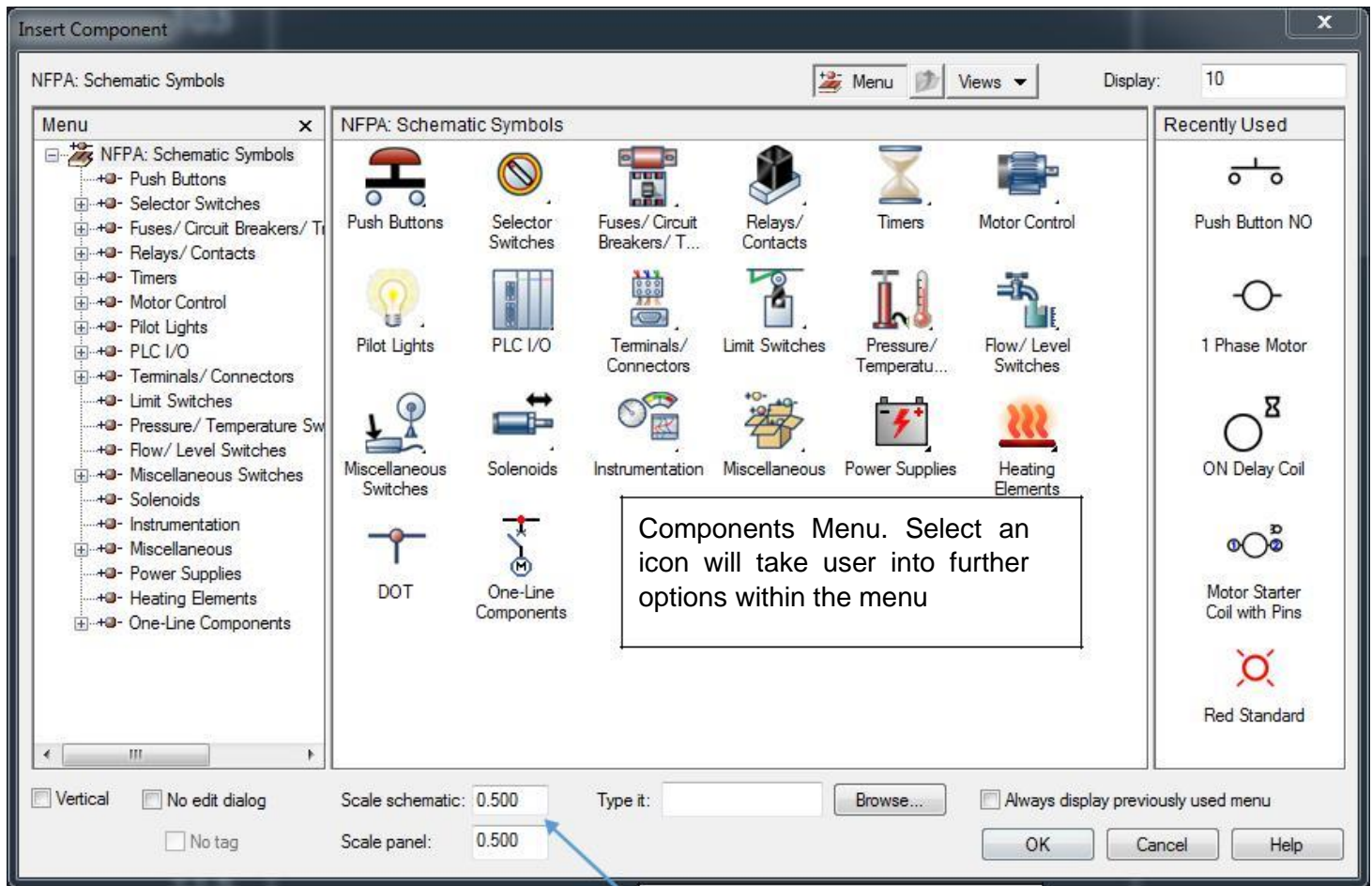
5. Multiple lines: Select other lines that will be the same type > Press Enter > Select the type of wire to be used

6. Press ESC to exit the tool

Placing components

Placing components is the same as when creating a circuit schematic

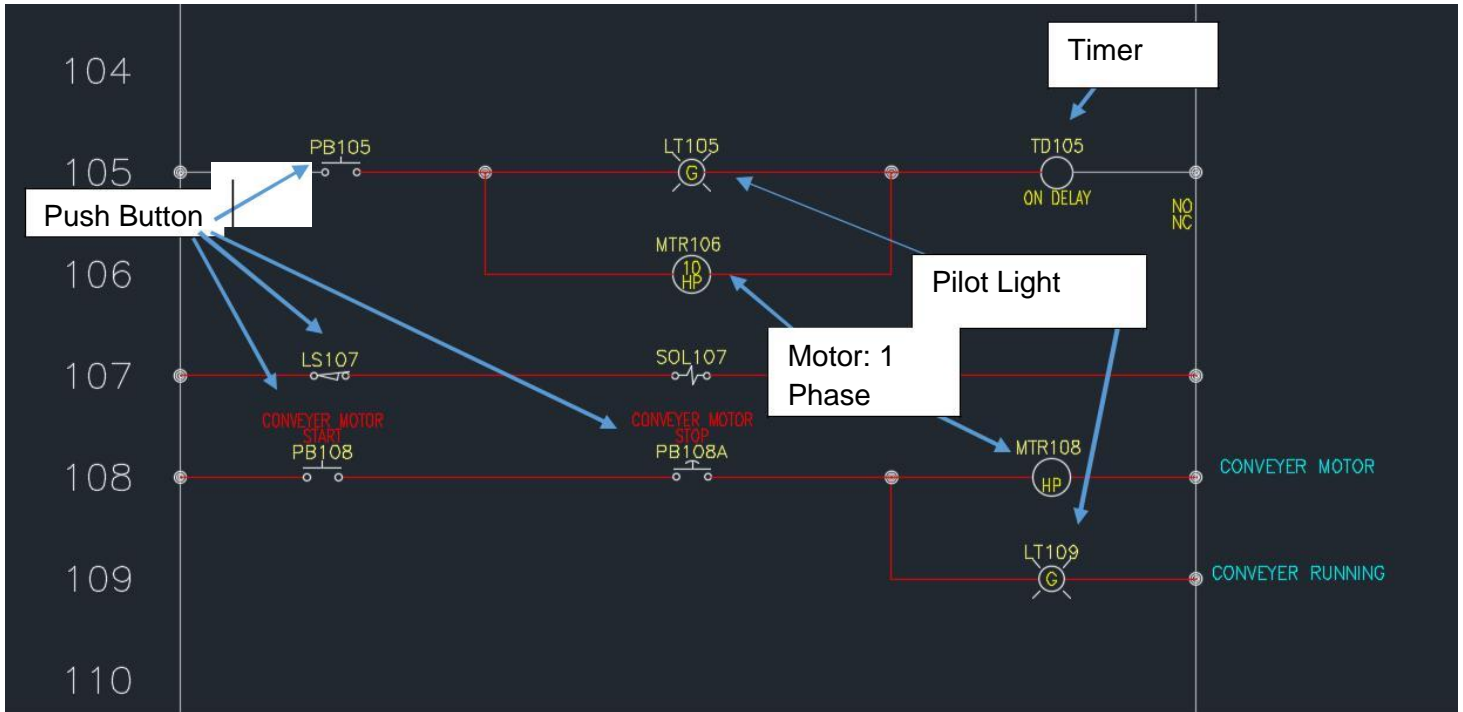
1. Select Icon Menu or right click on a line > select Insert Component



Components Menu. Select an icon will take user into further options within the menu

Changes scale of components to fit the layout. Scale all components to .5 scale

- Place the following components and modify colors as required. After placing the component the wire will be split. Double click on the wire to change its color.



Assignment

1. Tutorial Ladder Circuit

a. Left Bus: Place a Source Signal Arrow w/ the following information +24VDC, TO 118, +24VDC

b. Right Bus: Place a Source Signal Arrow w/ the following information 24VCOM, TO 118, 24VCOM

2. Create second ladder with the following settings

a. Width = 5

b. Spacing = .500

c. Number of Rungs = 10

d. 1st Reference = 118

e. No Rungs

3. Right and Left Top Bus (Top Left Right/Left Rung): Place a Destination Signal Arrow w/ the following information 24VCOM, FROM 117, 24VCOM

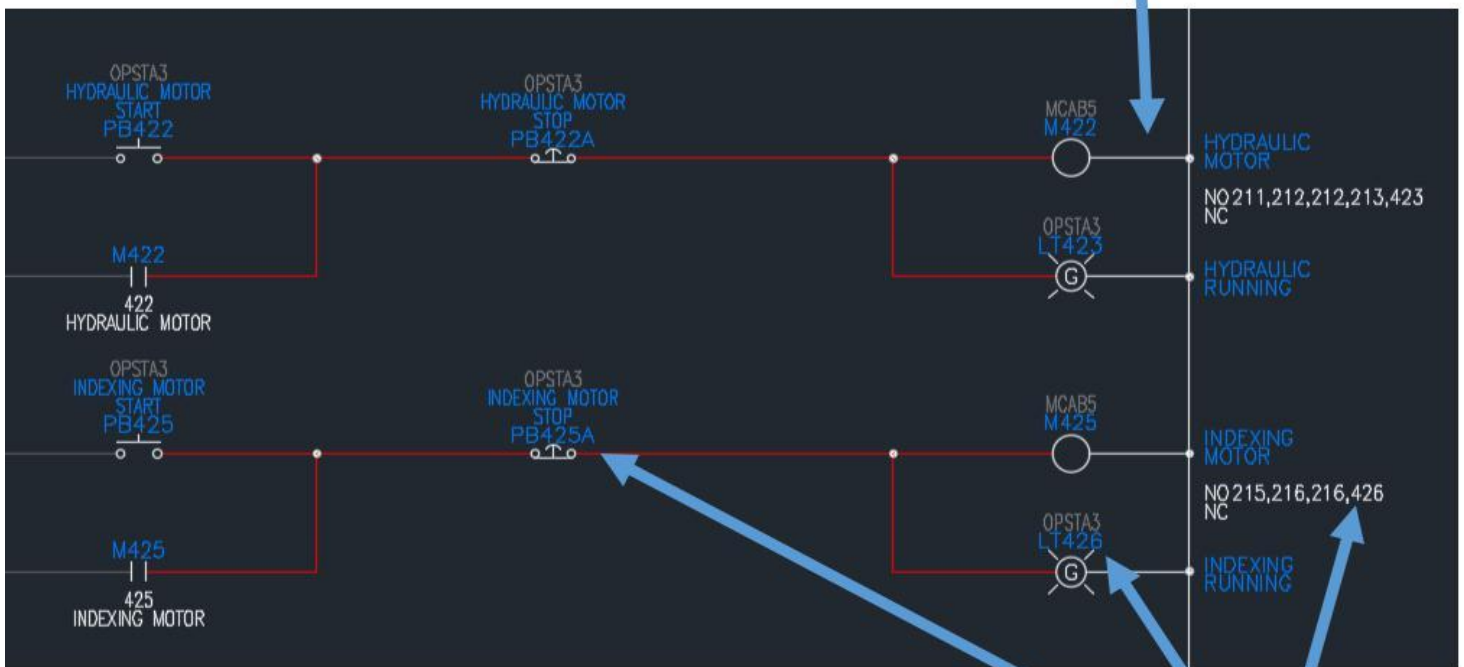
4. Rebuild the following Circuit on Rungs 119-126.

5. All Wires 20AWG

6. Components notes will be part of the component.

Use the information within the properties of each component

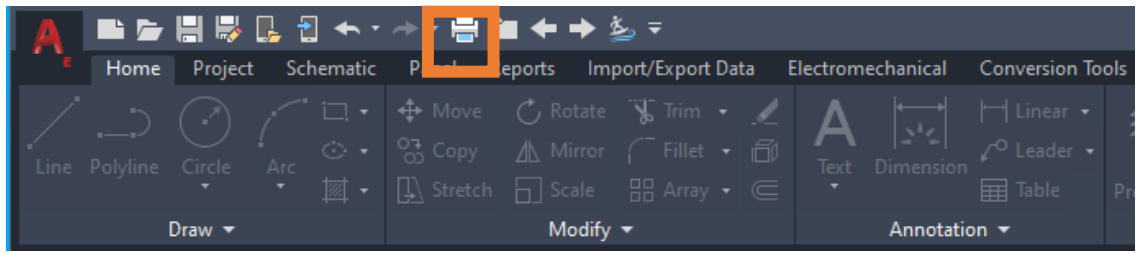
Change color after inputting the component. 20AWG Grey



Numbers represent links to the line number on the vertical bus

Printing From AutoCAD Electrical

1. Select the Print Icon at the top of the screen



2. Set the following
 - a. Printer: Engineering Class Printer SC1
 - b. Plot Style Table = monochrome.ctb
 - c. Paper Size = 11 x 17

A screenshot of the 'Plot - Model' dialog box in AutoCAD. The dialog is divided into several sections. Three red boxes highlight specific settings: 1. The 'Name' field under 'Printer/Plotter' is set to 'Engineering Class Printer SC1'. 2. The 'Plot style table (pen assignments)' dropdown is set to 'monochrome.ctb'. 3. The 'Paper size' dropdown is set to '11x17'. Callout boxes with arrows point to these settings: 'Engineering Class Printer SC1', 'Print Monochrome (Black and White)', and 'Paper Size 11 x 17'. Other visible settings include 'Fit to paper' checked, 'Scale' set to 'Custom' with a value of 1, and 'DPI' set to 300. The 'OK' button is highlighted in blue.