Transformers lab

Program: Electrician Technician

Course: EL170 – Motor and Industrial Controls

Objectives: Under the supervision of your instructor, you should be able to do the following:

- Identify the primary and secondary of a transformer.
- Identify if the transformer is a step-down or step-up.
- Be able to connect primary and secondary winding.
- Identify if the transformer is 3 phases or 1 phase. Be able to understand the transformer plate information.

Lab Equipment:

- 1 - Circuit breaker mono phasic 10 amps or similar
- 1 – Circuit breaker mono phasic 20 amps or similar
- 1 - Transformer 0.75 Kva 240/120 or similar
- 1 – Circuit breaker
- 1 – Electrical conductor different sizes
- 1 – Electrical Transformer
- 1 – Terminal board

Required Tools

- 1 – Multi-meter 600 volts / 400 amp.
- 1 - Insulation tester

Materials:

- 12” - #14 AWG THHN red
- 12” - #14 AWG THHN black
- 12” - #14 AWG THHN blue

Safety (PPE):

- Safety glasses/goggles

Resources: N/A

Required Time: 120 Minutes

Shop Maintenance:

- All work will cease 20 minutes prior to the end of class.
- All work areas must be cleaned.
- Tools and equipment must be cleaned and returned to the designated areas (cage, tool room, cabinets etc.)
- Any broken or missing tools must be reported immediately.
- Tools and equipment are students' responsibility.

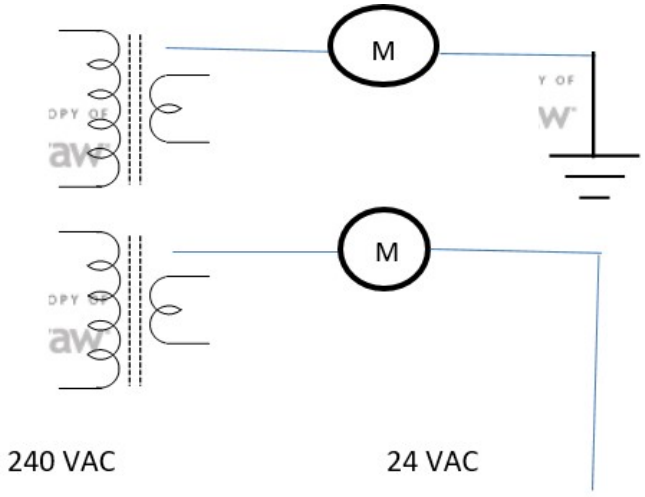
Procedures: *(Eye protection must always be worn, and power must be turned off till testing)*

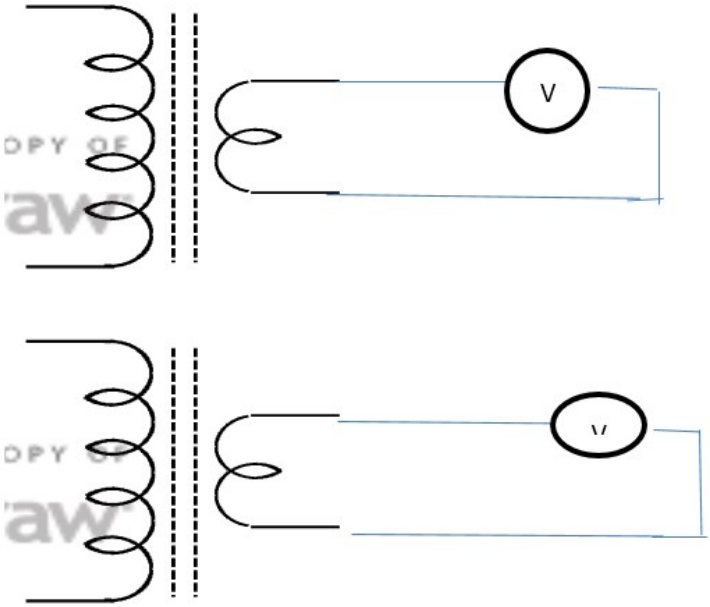
Section 1:

1. Use the Ohmmeter to check that there is not a short circuit on the primary and secondary wiring.
2. Connect H1-H4 to a terminal board.
3. Use the appropriate conductor size to connect H1 and H4 to 120 VAC with the appropriate circuit breaker to protect the primary winding. All circuit breakers must be off.
4. Connect X1, X2, X3, and X4 to the appropriate terminal board.

Section 2:

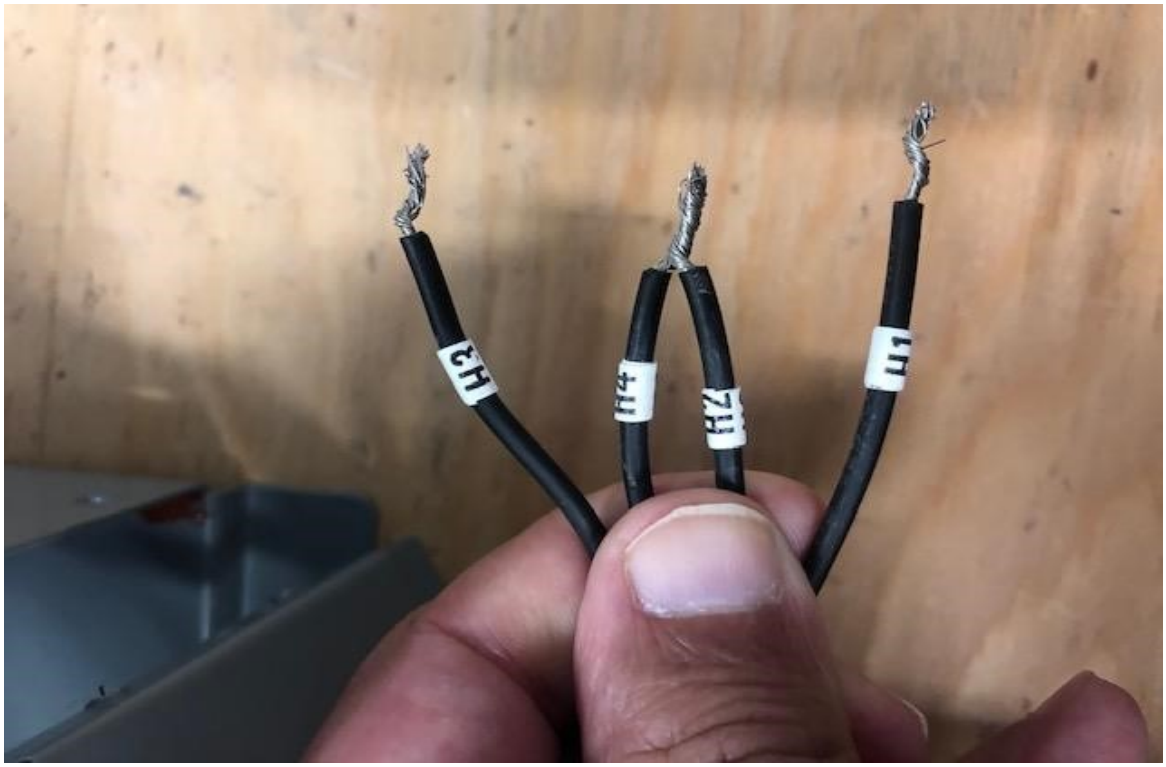
1. Turn on the circuit breaker.
2. Use a voltmeter to check the primary winding voltage 120 VAC.
3. Use a voltmeter to check the secondary winding voltage 12 VAC.
4. Section 1 and Section

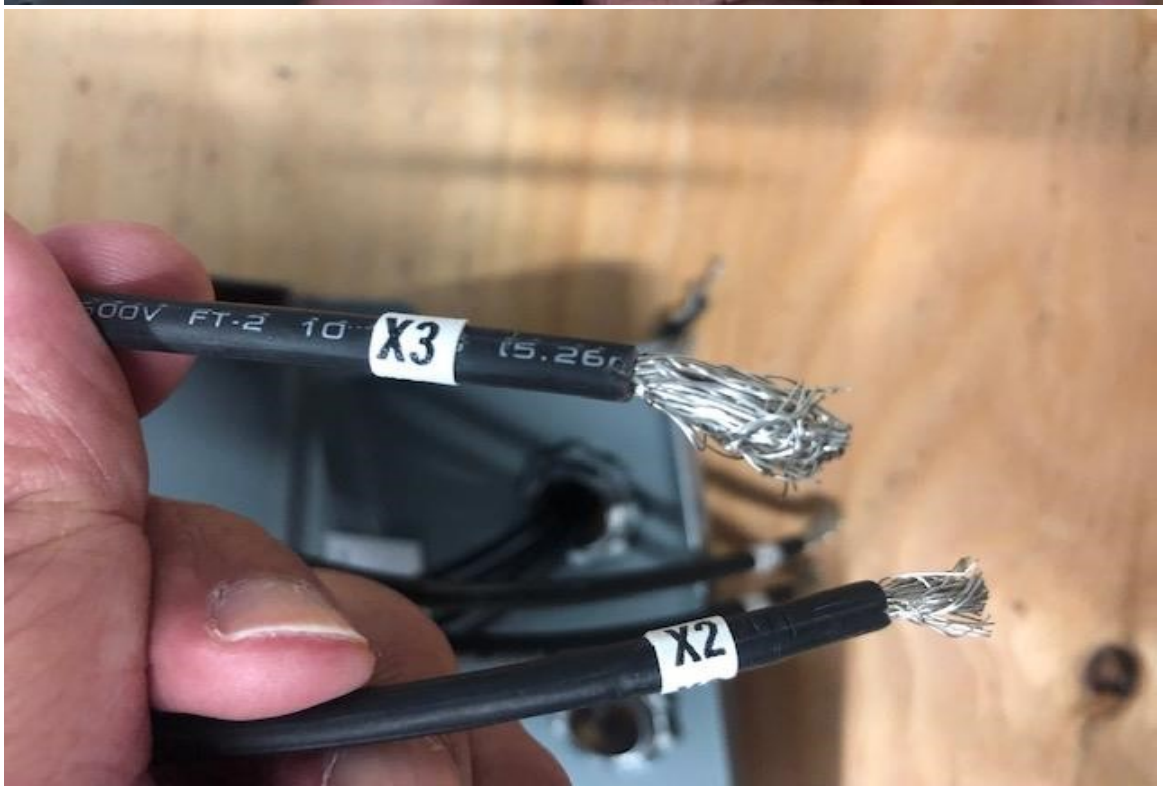




120 VAC 12 VAC


FEDERAL PACIFIC
CATALOG NO: K1XGF12-0.75
N/P K1XGF12-0.75
7 08281 06058 3
0.75 KVA 60HZ 115 C TEMP RISE TYPE FB
1PHASE WT. 25 LBS TYPE 3R ENCLOSURE
180 C INSUL. SYS. FB1A FILE NO. E121540
PRIMARY CONNECTION
VOLTS: 120X240
LEADS ON H1 & H4
SECONDARY CONNECTION
VOLTS: 12/24
LEADS ON X1 & X4
VOLTS AMPS CONNECT VOLTS AMPS CONNECT
240 3.1 H2-H3 24 31.3 X2-X3
120 6.3 H1-H3, H2-H4 12 62.5 X1-X3, X2-X4
H1 H3 H2 H4
X4 X2 X3 X1
BUCK-BOOST AUTOTRANSFORMER CONNECTION, SEE INSTRUCTIONS IN-7900.
FIELD CONNECTIONS SHOULD BE MADE WITH WIRE SUITABLE FOR AT LEAST 90 C AND SIZED ON BASIS OF 60 C AMPACITY.
"ATTENTION: EMPLOYER DES FILS POUR AU MOINS 90 C."
c UL us LISTED
LISTED GENERAL PURPOSE TRANSFORMER 89E6
MADE IN MEXICO
K1XGF12-0.75
SERIES M


H3
H4
H2
H1


X3
X2