EL130- Conduit Cutting and Reaming Lab

Program: Electrician Technician

Course: EL130 Flexible Cables/Conduit Bending and Raceways

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

- Cut, Ream and thread conduit.

Lab Equipment:

- Pipe Vise

Required Tools:

- 1 – Tape measure
- 1 –Calculator
- 1 – Hack Saw
- 1 – Reamer
- 1 – Hand Operated Threader

Consumables:

- 2 – ½" EMT Conduit 10-Feet
- 1 – ½" Rigid Conduit 10-Feet

Safety (PPE):

- Safety glasses/goggles
- Hard Hat

Resources: N/A

Required Time: 180 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 student's responsibility

Procedures: (Eye protection must be always worn)

1 - **Hacksaw**

- Inspect the blade of the hacksaw and replace it if needed. A blade with 18, 24, or 32 cutting teeth per inch is recommended for conduit. Use a higher tooth count for EMT and a lower tooth count for rigid conduit and IMC. If the blade needs to be replaced, point the teeth toward the front of the saw when installing the new blade.
- Secure the vice in the pipe vise.
- Rest the middle of the hacksaw blade on the conduit where the cut is to be made. Position the saw so the end of the blade is pointing slightly down and the handle is pointing slightly up. Push forward gently until the cut is started. Make even long strokes until the cut is finished.
- Check the cut. The end of the conduit should be straight and smooth. f

2 - **Reaming**

- When the conduit is cut, the inside edge is sharp. This edge will damage the insulation of the sire when it is pulled through. To avoid this damage, the inside edge must be smoothed or reamed using a reamer.
- Place the conduit in a pipe vise
- Insert the reamer tip in the conduit.
- apply light forward pressure and start rotating the reamer in a downward motion. The reamer can be damaged if you rotate it in the wrong direction. the reamer should bite as soon as up apply the proper pressure
- Remove the reamer by pulling back on it while continuing to rotate it. Check the progress and then reinsert the reamer. rotate the reamer until the inside edge is smooth. You should stop when all burrs have been removed.

Threading conduit

- Insert the pipe in a pipe vise
- Determine the correct die and head. Inspect the die for damage such as broken teeth. Never use a damaged die.
- Insert the die securely in the head. Make sure the proper die is in the appropriately numbered slot on the head.
- Determine the correct thread length to cut for the conduit size used (match the manufacturer's thread length).
- Lubricate the die with cutting oil at the beginning and throughout the threading operation. Avoid skin contact with the oil.
- Cut the thread to the proper length. Make sure that the conduit enters the tapered side of the die. Apply pressure and start turning the head. you should back off the head each quarter-turn to clear away chips.
- Remove the die when the proper cut is made. threads should be cut only to the length of the die. Overcutting will leave the threads exposed to corrosion.
- Inspect the threads to make sure they are clean, sharp, and properly made. Use a thread gauge to measure the threads. The finished end should allow for a wrench tight fit with one or two threads exposed.