

2014 – 15 FFA/GEMC Speech/Demonstration Topic

PROBLEM:

Explain the wiring principals and connections needed to complete the **residential** installation of a single-phase underground service which includes an **EMC provided** meter base socket and a **customer provided** 100 amp Service Entrance Panel.

Notes:

- This installation **does not** require a combination Meter/ main breaker disconnect.
- The Service Entrance Panel is assumed to be in compliance with **NEC Article 230.70(A)**.
- Assume that **Local EMC Code** requires that you ground the Service Entrance Panel through the meter base to a driven ground.

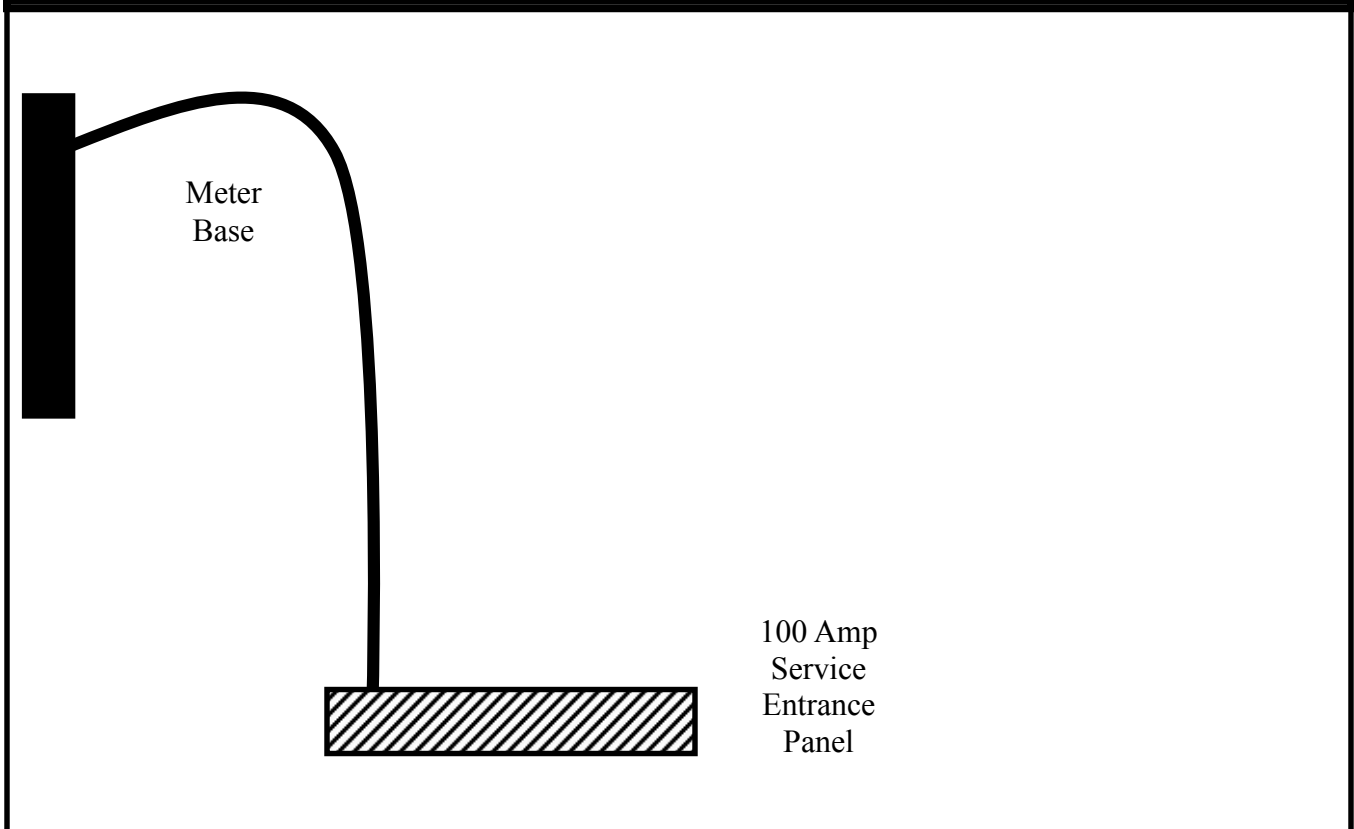
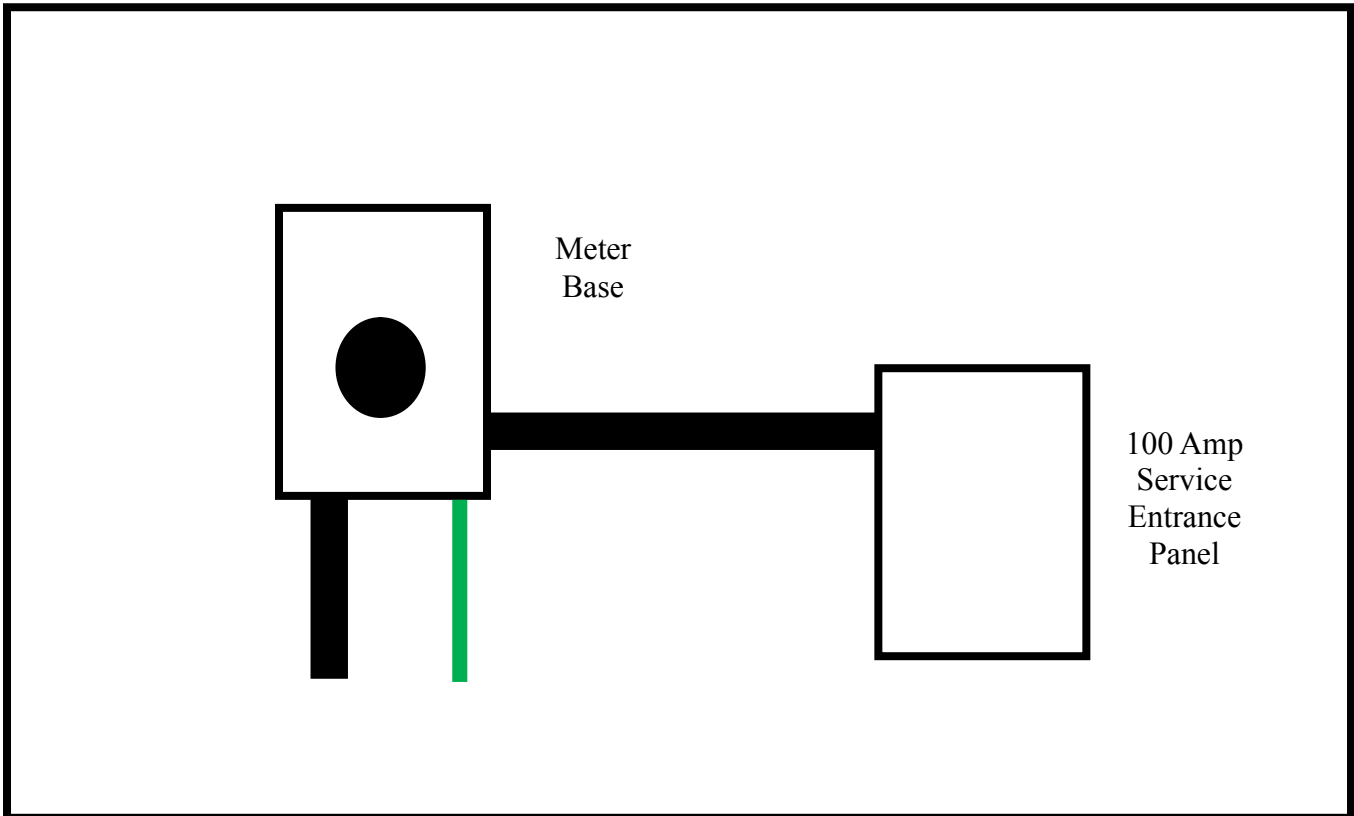
Size #2 stranded copper with THHN or THHW insulated conductors will be fed through 1 ¼ ” electrical PVC conduit used between the underground feed and the meter socket. From the meter socket, size #2 stranded copper conductors with THHN or THHW insulation, as well as a #6 bare copper grounding conductor, will be fed through 1 ¼ ” electrical PVC conduit to a 100 amp service entrance panel with main breaker installed. A #6 bare copper grounding conductor will be installed from the meter base to a driven ground.

1. The contestant will be expected to thoroughly explain the operating principles and installation process of the stated problem.
2. The source will be installed from the underground lateral feed to the meter socket but will **not be attached to the meter terminals**. The conductors from the meter socket to the service entrance panel will also be **installed but not connected**.
3. #6 bare copper will be installed from the meter socket to the Service Entrance Panel.
4. #2 stranded copper with THHN or THHW insulated conductors will be installed in 1 ¼ ” electrical PVC conduit between the meter socket and the service entrance panel. The #2 stranded copper with THHN or THHW insulated conductors **will not be attached to any breaker or grounding bars in the service entrance panel**.
5. A “chart size” schematic drawing will be on display.
6. The contestant will make no actual connections during the demonstration.

Materials that will be on display for contestant to use in making their presentation:

1. Wiring Demonstration Board with Meter Base, SEP w/ cover.
2. A minimum 24 inch long piece of 5/8” grounding electrode.
2. Anti-Oxidant compound
3. 3 Grounding Clamps (Ground Rod Clamp, Ground Clamp-Pipe, Ground Clamp-Flat Bar)
4. Split-Nut for # 6 Bare Copper Ground
5. Torque Wrench
6. 2014 National Electrical Code Book
7. AAVIM – “Electrical Wiring” 7th Edition Book
8. Agricultural Wiring Handbook 15th Edition
9. EMC Student Guide to Wiring

2014 – 15 EMC Wiring
Speech
Demonstration Panel



These images will NOT be posted during the speech demo.



Ground Clamp – Pipe



Ground Clamp- Flat Bar



Ground Rod Clamp