The following is a brief description of the coating system used at the Badger Drive assembly plant for Eaton’s Cooper Power series Voltage Regulators.

1. **Pretreatment Systems.**
   There are two pretreatment systems used at the Eaton Badger Drive assembly plant. The first system is a seven-stage, spray washer used to prime coat relatively flat cabinetry and tank cover component parts. This process consists of the following seven stages: an alkaline cleaner, rinse, conditioner, zinc phosphate, rinse, reactive organic polymer sealer, and a deionized water rinse.

   Parts which have complicated shapes, such as voltage regulator tanks, are processed through the immersion eight-stage, pretreatment wash system; immersion allows pretreatment chemicals to clean and treat all surfaces of product. The immersion pretreatment process consists of the following stages: alkaline cleaner, rinse, conditioner, zinc phosphate, rinse, reactive organic polymer sealer, and a deionized water rinse.

2. **Prime Paint System.**
   The prime paint systems consist of a high-build, cathodic epoxy electrocoating. The application process is the same for component parts processed through either pretreatment system. The cleaned and zinc phosphatized parts are immersed into a bath of cathodic epoxy paint and the paint is applied by electrodeposition. This coating is followed by several permeate and deionized water rinses. The coating is then cured in a convection oven until the metal reaches a temperature of 350 °F for 30 minutes. This completes the application of the primer system.

3. **Top Coat System**
   Assembled voltage regulators are cleaned and painted with a two component urethane enamel. The regulators are cleaned in a two stage manual wash booth with a cleaning stage combination iron phosphate surfactant cleaner coater followed by a clean water rinse. The units are held for 15 minutes in a convection dry-off oven to remove any residual surface moisture and then cooled after exiting the dry-off oven.

   A two component polyurethane top coat is manually applied using an advanced design air-assisted, airless high-pressure, high-flow spray gun. A Graco proportioning system is utilized to ensure that a proper ratio is maintained between the two components of the coating and that thorough mixing occurs. The topcoat is then baked in a convection oven for 35 minutes at 185 °F. This completes the application of the top coat system.

4. **Materials**
   A. **Prime Paint Line Pretreatment**
      - Alkaline Cleaner
      - Zinc Phosphate
      - Reactive Organic Sealer (non-Chromic Acid)
   
   B. **Final Wash Before Top Coating**
      - Iron Phosphate Cleaner Coater
   
   C. **Paint**
      - Primer - High-Build, Cationic Epoxy Electrocoat
      - Top Coat - Two Component Urethane Enamel