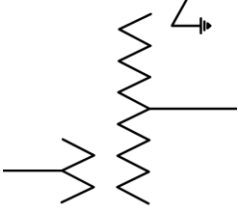

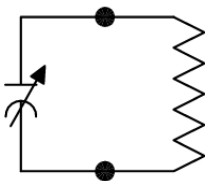


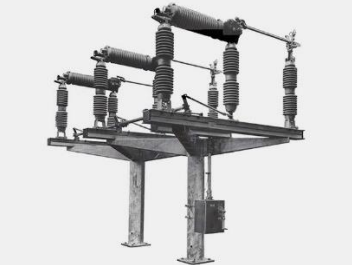
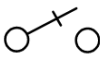

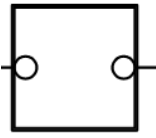



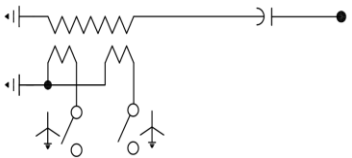

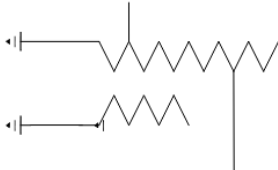

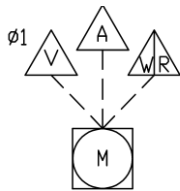

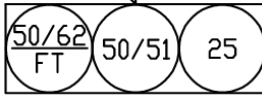



One Line Symbol	Physical Equipment	Meaning
		<p>Service station voltage transformer (SSVT) – provides 120 VAC @ 60 Hz to the substation to charge batteries, operate relays, and lights.</p>
		<p>Wave trap – used to isolate higher frequency communication signals from other substations which are sent over transmission lines.</p>
		<p>Motor operated air breaker (MOAB) – a switch which isolates a section of the substation and is primarily operated via a motor.</p>
		<p>Manual disconnect switch – a switch which is operated manually to isolate sections of the substation for servicing.</p>
		<p>Breaker – an automated switch to de-energize sections of the substation and is controllable via relaying.</p>

One Line Symbol	Physical Equipment	Meaning
		<p>Current transformer (CT) – Decreases currents detected in the substation to a level which can be tolerated by relaying equipment</p>
		<p>Capacitively coupled voltage transformer (CCVT) – Decreases the voltages in the substation to a level which can be tolerated by relaying equipment.</p>
		<p>Power Transformer – Used to decrease or increase an input voltage. Such transformers can handle large currents and voltages.</p>
		<p>Meter – Similar to conventional multi-meters but tailored towards use in a substation. It takes both current and voltage inputs and displays them for field personnel.</p>
		<p>Relay – Used to protect the substation from adverse system conditions such as faults. The relays trip the circuit breakers to de-energize transmission lines and protect substation equipment.</p>

One Line Symbol	Physical Equipment	Meaning
		<p>Lockout relay – Physically locks the substation out from flipping a breaker. These often times can only be reset by manually turning the handle. These devices are used to protect field personnel performing system maintenance as well.</p>