

## Capacitor De-Energize / Isolate (Individual)

Mean Time = 10 minutes ~ Dead Time = 12 minutes

**Event Description:** This event will simulate the proper procedure for de-energizing and isolating a unit on a fixed, 3-phase capacitor bank. Pole will be 40' with neutral positioned below capacitor rack. Lineman will follow proper safety procedures for working on capacitors.

### **Basic Outline:**

1. The lineman will have a maximum of 5 minutes for questions and set-up.
2. Pole must be sounded with hammer prior to climbing. This may be done during set-up time.
3. The load break cutouts above the capacitor bank will be in closed position at the start of the event.
4. Time starts upon judge's "GO"
5. The lineman will open each cutout with an extendo stick.
6. The lineman will then clearly state to the judge the proper time required to allow capacitors to discharge.
7. After previous steps, the pole may be climbed.
8. Lineman will use ground chain and shotgun stick to properly "short out" all 3 capacitor units. All connections made with ground chain must be done using shotgun stick.
9. Lineman will be required to lower the shotgun stick and ground chain with the hand line.
10. Lineman will remove primary stinger wire from bottom of B-phase cut out. He will then state, "capacitor in the clear."
11. Time stops when previous steps completed and lineman declares "capacitor in the clear."

### **Set-up Notes:**

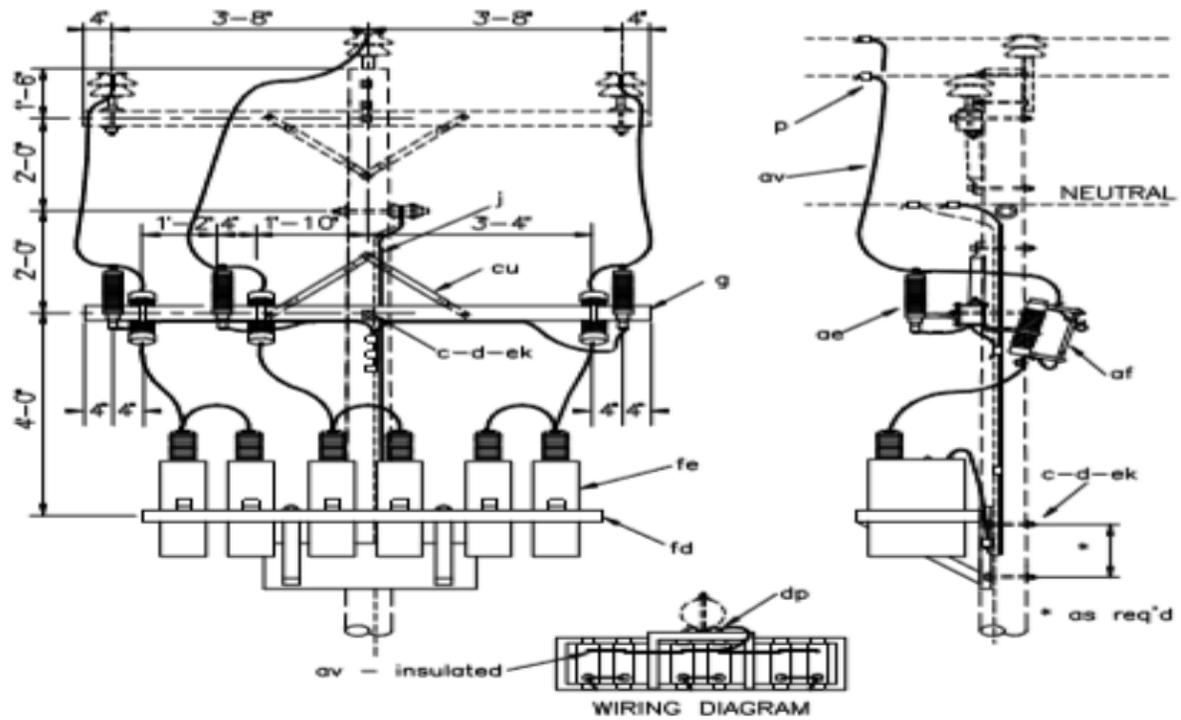
- 8' cross arm with load-break cut outs will be mounted at lower gain hole. There will be no primary wire installed on this event.
- Top hanger for capacitor rack will be 4' below cut out arm.
- Neutral will be installed approximately 1' below bottom of capacitor rack.
- Neutral will be covered with 2 line hoses and 1 split blanket.

### **Possible Deductions :**

1. Infractions of any rules listed in the General Rules.
2. Failure to sound pole prior to climbing.
3. Failure to complete the event as described not otherwise defined here (2 pts. per occurrence)
4. Failure to state proper time for capacitor discharge (2 pts.)
5. Wearing belt or hooks while operating extendo stick (2 pts.)
6. Cut out doors must be opened with ring on cut out door (2 pts.)
7. Failure to raise and lower shotgun stick and ground chain with hand line (2 pts.)
8. Contact with uncovered neutral (2 pts.), or leaving neutral conductor uncovered (2 pts.)
9. Failure to lower shotgun stick and ground chain before declaring work complete (2 pts.)
10. Failure to wear rubber gloves and sleeves as stated (10 pts.)

### **Other Notes / Reminders:**

1. Time stops while lineman is on the pole after B-phase capacitor is declared in the clear, however, lineman will continue to be judged until he reaches the ground.
2. Shotgun stick and ground chain must be raised and lowered using a hand line (see deduction #5).
3. Shotgun stick & ground chain may be tied on line during set up time.
4. Belt or hooks may not be worn while using extendo stick (see deduction # 4).
5. Gloves and sleeves must be worn while climbing pole – and while working during timed portion of event. The extendo stick may be operated with rubber gloves or leather gloves, but not bare-handed.
6. There will need to be a re-set volunteer (or judge) in a bucket for this event.
7. Shotgun stick, extendo stick, ground chain and hand line are supplied by the competitor.



**NOTE:**

1. Specify insulating caps for primary terminal bushings.
2. For two-phase assemblies, omit capacitors and other material on center phase; designate assembly as "VY3.2".

ITEM	QTY	MATERIAL	ITEM	QTY	MATERIAL
c	3	Bolt, machine, 5/8" x req'd length	av		Jumpers, bare, stranded, as req'd
d	4	Washer, square, 2 1/4"	av		Jumpers, insulated, as req'd
g	1	Crossarm, 3 5/8" X 4 5/8" X 8'-0"	cu	2	Brace, 2B"
i	2	Bolt, carriage, 3/8" x 4 1/2"	dp	1	Clamp, ground wire
j	1	Screw, lag, 1/2" x 4"	ek	5	Locknuts
p		Connectors, as req'd	fc		Capacitor, shunt, 24.9/14.4 kV
p		Connectors, compression, as req'd			(specify number and kVAR)
ae	3	Arrester, surge (18 kV)	fd	1	Hanger, capacitor
af	3	Cutout, dist., loadbreak, (27 kV)			

**THREE PHASE CAPACITOR BANK**

DEC 1998  
RUS

3 - PHASE PRIMARY  
24.9/14.4 kV

VY3.3