

## **Team Event – Cutout Replacements on Two-Phase Bank**

**Mean Time = 20 minutes ~ Dead Time = 25 minutes**

**Event Description:** This event is designed to allow the teams to demonstrate their skills maintaining proper clearances, replacing pole hardware, and utilizing good teamwork. Teams will be replacing two 100 amp cut outs on a 40' VG3.1, on a simulated energized 12 kV circuit containing a 2-phase transformer bank. This event is simulated as being energized. Rubber insulating gloves and sleeves will be worn from ground to ground.

### **Basic Outline:**

1. All tools and material will be located on a tarp outside of the event circle.
2. Teams may begin the event with climbing tools on.
3. Groundman may not assemble any hardware until time starts.
4. Time starts on “Ready, Set, Go” from the judges.
5. Cutouts shall be opened from the ground with an extendo stick prior to any climber contacting the pole.
6. Teams will cover the neutral conductor and down guy with rubber goods provided. A hotline clamp will be provided to hold line hose in place on guy wire.
7. Hand line block may be tied over the neutral bolt, but block shall hang below conductor until properly covered.
8. The linemen will replace each transformer cutout on the lower arm.
9. After cut-outs are replaced, the team will replace stingers and descend pole.
10. Cutouts will be closed with long stick from ground and cannot be closed until both linemen are clear of contact with the pole.

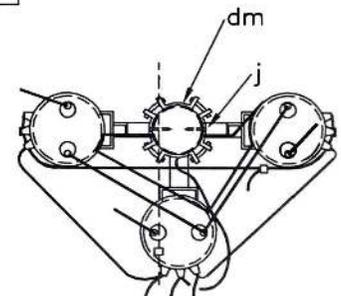
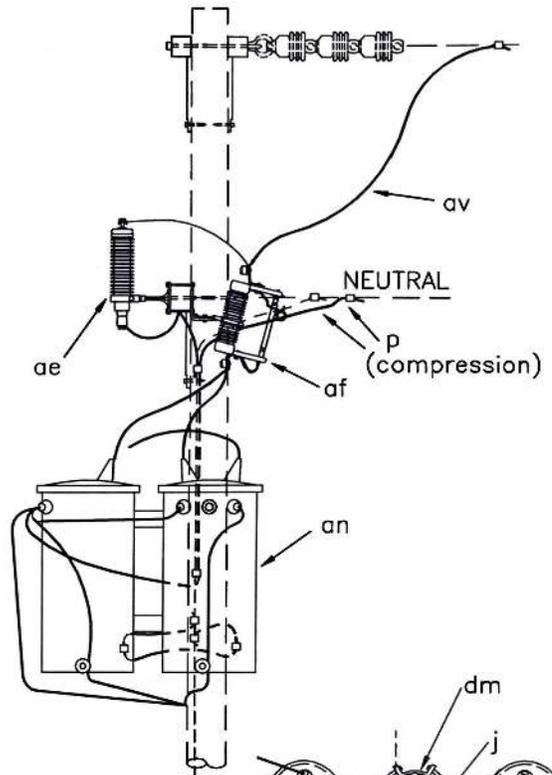
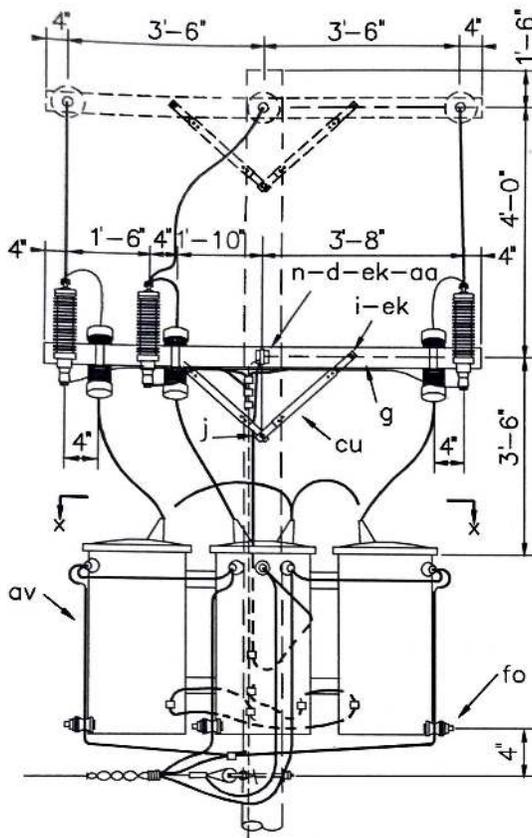
11. Time stops when all equipment other than longstick is placed on tarp, both linemen are on the ground and last cutout has been closed using an extendo stick.

**Possible Deductions:**

1. Infractions of any rules listed in the General Rules. The amount of deduction will be as listed in the General Rules.
2. Failure to return tools to tarp at completion of event (2pt.)

**Other Notes / Reminders:**

1. The team shall furnish 1 extendo stick, 1 shotgun stick, and 1 handline for this event.
2. The use of rubber insulating gloves and sleeves is required.
3. The framing for this event will be the same as the VG3.1 shown, except it will be a 2-phase bank, not 3.
4. For your practice build, remove the center phase transformer, cutout, arrestor, and primary conductor.



NOTES:

1. See Drawing "Q3.1" for additional connection and metering details.
2. All transformer tanks must be grounded.

ITEM	QTY	MATERIAL
d	2	Washer, square, 2 1/4"
g	1	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	2	Bolt, carriage, 3/8" x 4 1/2"
j		Screw, lag, 1/2" x 4" as req'd
n	1	Bolt, dble arm, 5/8" x req'd length
p		Connectors, as req'd
p		Connectors, compression, as req'd
aa	1	Nut, eye, 5/8"
ae	3	Arrester, surge, (18 kv)

ITEM	QTY	MATERIAL
af	3	Cutout, dist. open (27 kv)
an	3	Transformer, 14.4 kv, conventional
av		Jumpers, bare, stranded
av		Jumpers, service, as req'd
cu	2	Brace, 28"
dm	1	Bracket, transformer, cluster with adapter plates as req'd
ek	5	Locknuts
fo	3	Bracket, transformer, insulated

DESIGN PARAMETERS:

See Guide Drawing "G3.1G"

THREE-PHASE TRANSFORMER BANK  
UNGROUND-WYE PRIMARY  
CENTER-TAP GROUNDED DELTA, 4 WIRE SECONDARY

DEC 1998

3 - PHASE PRIMARY

RUS

24.9/14.4 kv

VG3.1