

## Journeyman Event – **INSULATOR CHANGE**

Event Time: 10 Minutes  
Drop Dead Time: 15 Minutes

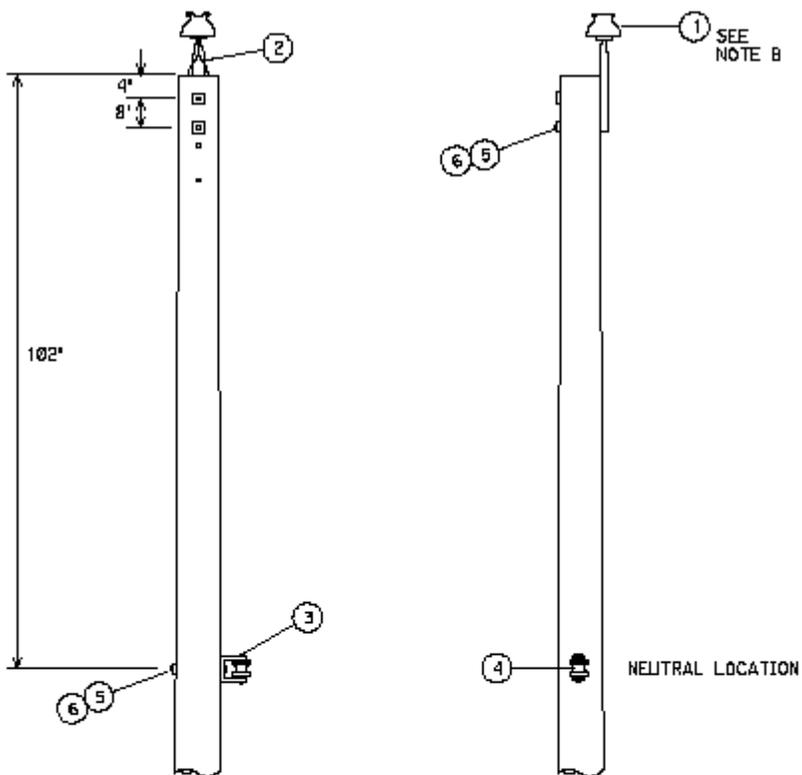
This event is simulated energized 12kV. Teams will replace a pole top pin insulator on a single phase structure. The #2 ACSR conductor will be tied in with a single hot tie (see attachment) and when tied in should have no more or no less than six complete wraps with the loops on top. The conductor must be tied and controlled with insulated hot sticks. At least two positive points of control must be maintained at all times after one side of the hot tie has been removed... the same applies for tying back in.

1. Teams will cut their own tie wire (#4 Aluminum) when they enter the event arena.
2. A tarp must be utilized to keep all tools and equipment off the ground.
3. Teams will have 5-minutes to setup. The team may direct questions to the judge at this time.
4. Time starts at the judge's signal.
5. The hot-ties will be made up on the new insulator after the event time begins.
6. Rubber gloves, (class II minimum) must be worn by the climber's ground to ground. The ground man must wear work gloves.
7. The neutral and neutral clevis must be covered before ascending above.
8. Pole top must be covered with rated cover-up when tying and un-tying conductor.
9. A maximum of three inches of tie wire will be allowed sticking up after the six complete wraps have been made when tying in.
10. NESC minimum approach distance must be maintained at all times.
11. Blocks or handline must be used to raise and lower conductor.
12. Time stops when the last climber down has both feet on the ground.
13. Judging will continue until the event site is restored to the original condition.
14. All general rules apply.



# OVERHEAD DISTRIBUTION STANDARDS

DRAWING: TS-8  
PAGE: 1A-1  
DATE: 7-7-03



**NOTES:**

GROUNDING

A. GROUNDING DETAILS CAN BE FOUND IN THE GROUNDING SECTION OF THIS MANUAL.

COASTAL AREAS

▶ B. IN COASTAL AREAS USE INSULATOR \*022-220125.

ITEM	QTY.	DESCRIPTION	ITEM ID NO.	ITEM	QTY.	DESCRIPTION	ITEM ID NO.					
1	1	INSULATOR, PIN TYPE	022-220134									
2	1	PIN, STEEL POLE TOP	072-185252									
3	1	CLEVIS, SEC.	071-229174									
4	1	INSULATOR, SEC. SPDDL	060-225102									
5	3	BOLT, MCH. 5/8" X REQ'D										
6	3	WASHER 2" SQ. 11/16" HOLE	070-181964									
GROUNDING MATERIAL - SEE GROUNDING SECTION												
06	1-03	POLY INSULATOR CHG	KT	JEC	SER	SINGLE PRIMARY SUPPORT SINGLE PHASE CONSTRUCTION 7.2kV						
05	6-95	RM. POLE FROM B.D.M.	BT	JEC	GC							
04	9-94	REV. POLE TOP PIN	PS	JEC	GC							
03	02-92	CSTL AREAS NOTE	SL	SL	GC							
REV	DATE	DESCRIPTION	BY	D.ENG	D.SUP	D.ENG	KB	BY	KB	APVD	H+I	APVD

▶ REVISION

dist/ods/ts-8.dgn

# Journeyman Event – Insulator Change

## 1. INSTALLING SINGLE "HOT" TIE ON SINGLE INSULATOR

### CAUTION

This tie should be installed on the insulator by ground crew or lineman before the insulator is placed in position.

### NOTE

On both single and double ties, tie wires should be attached to the insulator with a clockwise twist. The ties should also be wrapped around the conductor in a clockwise direction on each side of the insulator to prevent untwisting the tie wire where it is attached to the insulator.

a. Form a loop in the end of the tie wire approximately one inch in diameter, and make two complete turns around the tie wire at the base of the loop. These turns must be tight enough to prevent slippage, which would alter the size of the loop. Determine the length of tie wire required for six full turns around the conductor plus the length required around the insulator, and allow for two or more of the turns to secure the tie to the insulator. After the proper length has been determined, cut the tie wire at the un-looped end.

b. Prepare a second tie wire in the same manner.

c. Form a "U" in each tie wire to fit around the insulator and place the tie wires in position on the insulator. Be sure to form the loop so that the wire will fit closely around the insulator, and pull both tie wires tightly into position.

d. Tie each wire to the insulator with at least two close turns at the un-looped ends of the tie. Make certain that the ties are tight around the insulator.

e. Shape the ties to form a letter "S" slightly below the groove of the insulator to prevent their extending too far from and above the insulator.

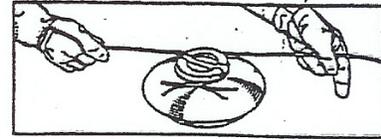
f. With the conductor transferred to and held securely in the groove of the insulator, the tie wires are ready to be wrapped around the conductor. This job can be done with whatever tie sticks the linemen prefer. The rotary-prong stick is employed by many for *faster* tying of looped ties:

g. Engage the tie wire with the rotary prong and begin the wrapping operation. Two or three turns can usually be performed with the prong acting against the tie wire near the conductor. After the first few turns, the prong should be hooked into the loop at the end of the tie wire and wrapping continued until the end of the tie wire is reached. The tie wire must be turned six times around the conductor. When the tie is complete, the loop should be left up.

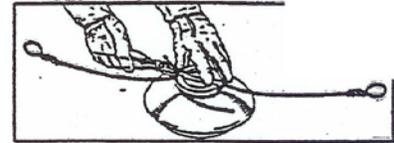
### NOTE

The tie wire should be rotated in opposite directions at each side of the insulator.

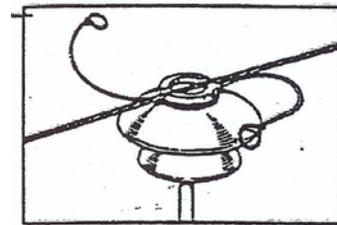
h. The tie wire should be wrapped around the conductor evenly as a neat job is always the one having greater strength.



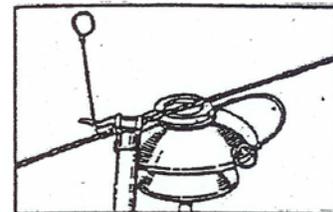
Pulling the ties tight around the insulator.



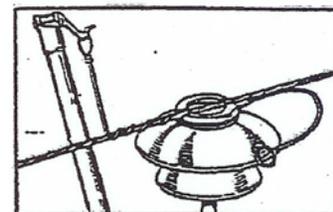
Wrapping one of the ties with lineman's pliers.



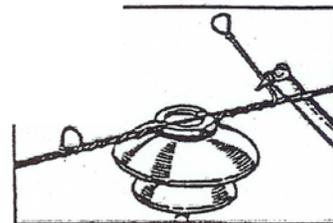
Both single ties in place ready for rying-in.



Starting the tying-in process with a rotary prong.



Rotary prong hooked into tie wire loop.



Tying at opposite side of insulator