

Journeyman/Senior Team Events

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FMEA • 15th Annual Florida Lineman Competition • April 17-18, 2015 • Tallahassee, FL



69 KV Deadend Bell Change Out

Mean Time: 10 Minutes

Drop Dead Time: 13 Minutes

Event Summary:

This event consists of replacing a string of six-10 inch porcelain bells on a 69 kV dead end structure.

- The Conductor will be 336.4 AAC
- Conductor must be checked for absence of voltage
- A personal protective ground must be installed with a rated stick/tool from the static to the conductor prior to climbing inside of the minimum approach distance
- All connections must be brushed, no simulations
- The wire will be sagged to at least 2,000 lbs. and rated tools must be used for the rigging
- No Haven grips (with teeth); smooth jaw grips only
- Bells must be sent to the ground and a new set sent up

Event Specifications:

1. Teams will be allowed a five-minute setup time before starting the event.
2. Climbers must wear approved leather gauntlet type gloves.
3. Time will start with the judge's signal and the fall arrest detached from the pole.
4. Time will stop when the last climber has both feet on the ground and the fall arrest is detached from the pole.

Material Provided

- Six- Ten Inch Porcelain Ball/Socket Insulators
- For Construction and Material details, see photo and spec. sheet.

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69 KV Deadend Bell Change Out



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Mystery Event – 15kV Take-off Tap/Phase Change

Mean Time: 15 Minutes

Drop Dead Time: 18 Minutes

Event Summary:

Teams will be required to install a new bracket, cutout, jumpers and hotline clamps on the D.A. bolt opposite the existing energized cutout and bracket. In order to minimize the outage time between phase changes, there will be no handline operation, nor will there be any tools or material allowed on the handline during the outage time. During installation of the new cutout assembly, both phases of primary must be covered on that side of the pole.

During removal of the old cutout assembly, both phases must be covered on that side of the pole. Minimum approach distance must be maintained with sticks as well as with any uncovered phases.

Event Specifications:

1. Teams will be allowed a 5 minute set up time before the start of the event
2. Tools may be re-arranged on the tarp and any material rigged during the set up time
3. Top and bottom jumpers will be the same length and pre-cut for you
4. Rubber gloves will be required ground to ground
5. Time starts at judges signal with fall arrest detached from the pole
6. Time stops when both Linemen are on the ground with fall arrests detached from pole
7. Judging will continue until material is returned to its original condition
- 8.

Tools and materials provided

1 - Tarp	2 - Hotline Clamps
2 - Shotgun Sticks	2 - Jumpers, 48 inches long
1 - Switch Stick w/Brush	1 - Bracket
2 - Primary Covers	1 - 5/8" Square Nut
3 - Guts to cover Neutral	1 - 60" Gut Bag
1 - Split Blanket w/pins to cover Neutral	
1 - Cutout w/Solid Door	

Teams will provide their own:

Handline, Climbing Tools, Hand Tools

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Transformer Change Out

Mean Time: 12 Minutes

Drop Dead Time: 15 Minutes

Event Summary

1. Teams are replacing a bad single phase 25kVA pole mount transformer on a single phase tangent structure where the primary voltage will be 12kV. Primary and neutral conductor will be 1/O AAAC and secondary leads will be 1/O AL 3-wire insulated.

Event Specifications:

1. Teams will provide their own tools for this event.
2. Time starts when first climber starts to ascend and will stop when second climber descends and is on the ground with fall arrest detached from the pole.
3. Must use 2-2 blocks minimum with rated transformer gin and can be raised and lowered by all three team members. Capstans are not permitted.
4. Cutout will be open with a broken fuse and must be replaced before closing in. Fuse must be replaced by the Groundman. Groundman may remove door from the cutout with an extendo stick but not while either Journeyman is ascending or descending the pole (fuses will be provided at the event tent).
5. Topside jumper will be connected to the primary with an aluminum hotline clamp only and must be removed to install rated cover to both sides of the primary conductor and insulator.
6. Both sides of the neutral must be covered with rated cover.
7. All transformer connections must be disconnected and reconnected in the proper order due to possible backfeed. Secondary leads must be covered until reconnecting.
8. The team will energize transformer and check voltage before connecting hot leads to the service.
9. All permanent connections must be wire brushed with brush in hand or in/on hotstick or shotgun.
10. Transformer must come down under control and make contact with the ground before returning the transformer to its original position. The team does not have to disconnect transformer sling

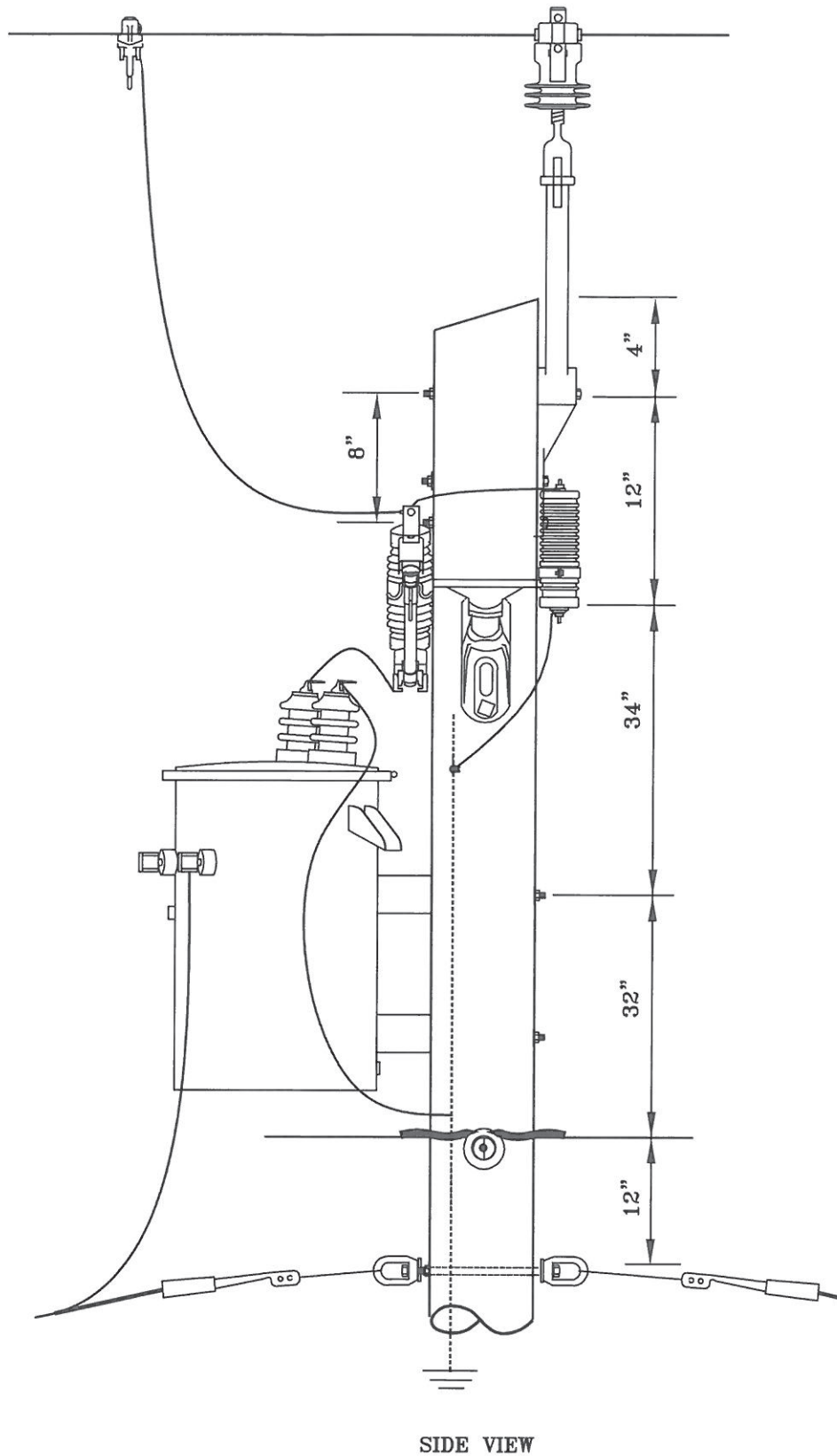
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Transformer Change Out



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VERTICAL HURTMAN RESCUE

Mean time: 4 minutes/Drop Dead: 8 minutes

This team event will be run one time with all three team members participating to rescue the hurt man. Teams have 5 minutes to set up and ask questions. The switch (cutout) feeding the transformer must be opened before the climber can step onto the pole. It will be opened from the ground using an extendo stick and rubber gloves. The stick must be off the ground and the body anytime it is touching anything energized. The climber must wear rubber gloves ground to ground. Lineman will split handline and loop bottom part of handline around mannequin's legs. Next take the top part and wrap around the pole a minimum of one and a half wraps, take the rope under mannequin's arms and tie three half hitches (the splice cannot be part of the knot). The mannequin can then be lowered to the ground while the third member of the team uses the bottom part of handline tied to the mannequin's legs to pull mannequin on to the tarp. You must attempt to keep the mannequin off of the pole and hardware. There will be NO gigs for incidental contact of the mannequin on the pole, neutral or service provided the tagman is making an honest attempt. The mannequin must land with all of the body on the tarp provided, and he must hit the ground gently as if it were a real person. A 10x10 tarp will be provided and placed 5' from pole centered under switch.

* Video will be posted on www.publicpower.com under the Competition section on how to do this event.

Event Specifications:

1. Time starts at judges signal with all team members at least an arm's length from pole and extendo stick.
2. All rubber gloves will be in glove bag cuffs down with no fingers protruding.
3. Lineman's belt and hooks will be on the ground opposite the switch side of the pole.
4. Extendo stick will be lying flat on tarp fully retracted.
5. All three team members must be used. One must climb, one must open switch, and one must tag the mannequin.
6. Time will stop when mannequin is on the tarp with slack on the handline, and extendo stick is fully retracted and back on tarp.
7. Climber will stay on pole and help hang mannequin.
8. Team will close switch back after time stops. Any team member can close it back and work gloves can be used.
9. You must use the eye to open and close switch.
10. When time starts extendo stick will be lying flat on tarp and must be back on tarp fully retracted before time will stop.
11. Climber must stay in 5 foot circle while he has his gaffs on.
12. Rubber gloves or work gloves must be worn anytime you are working or handling tools and equipment.
13. You must cut the Bashlin 57-A insert. There will be a 10 point deduction for cutting the belt in the wrong place
14. The blade of the climber's knife must not be exposed while climbing.
15. Judges will use a 4" PVC conduit between the rope and the mannequin to evaluate the rope knot, the eye splice cannot be in any part of the knot.
16. You may use any standard knot or hitch on the mannequin's legs that can be easily removed. (including placing the rope through the hook, but it must not come off)

Teams will provide their own:

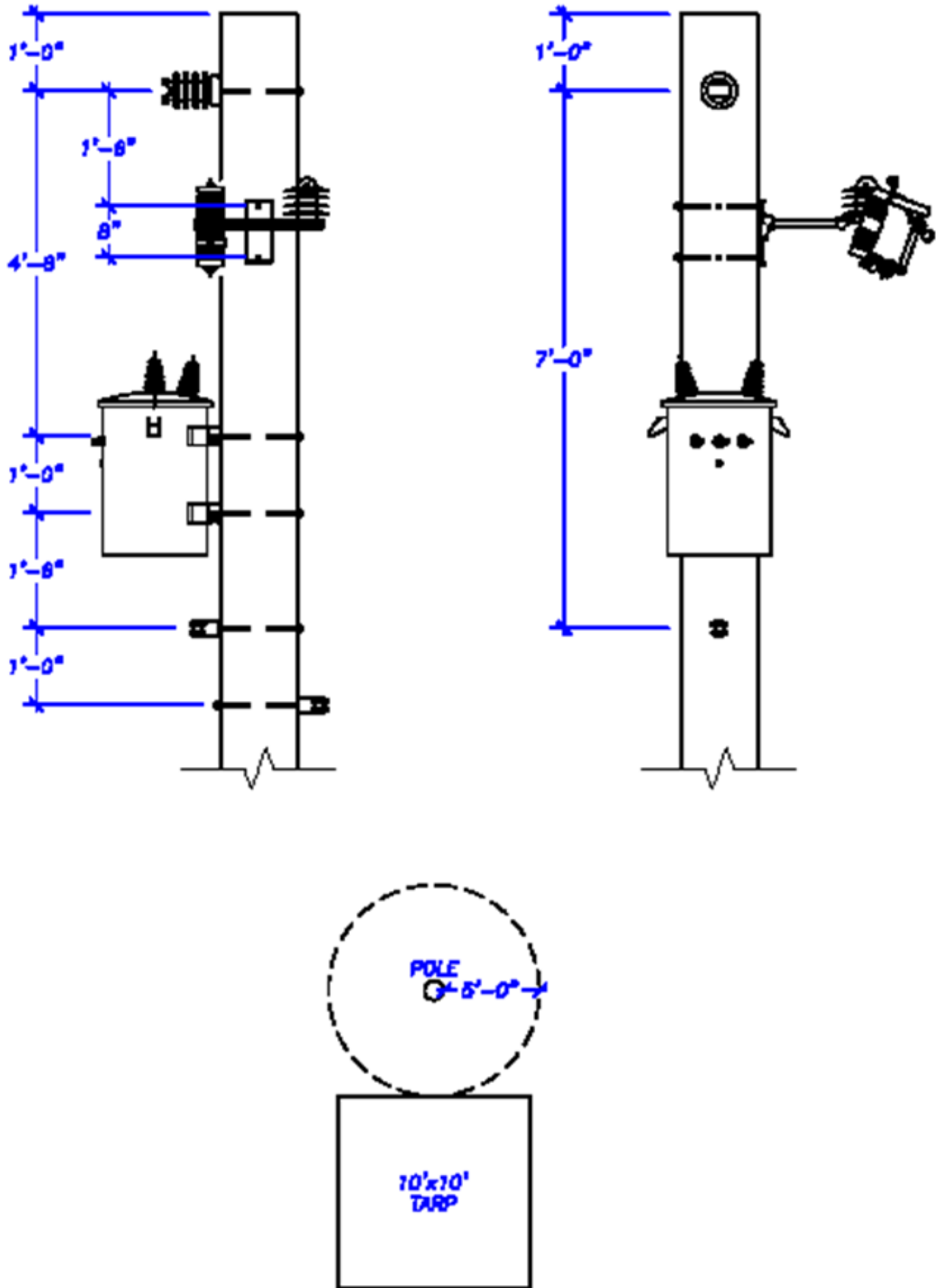
Extendo Stick

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VERTICAL HURTMAN RESCUE



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Wire Down

Mean Time: 10 minutes

Drop Dead Time: 12 minutes

Event Summary

This event simulates a repair of a down single-phase primary line. The primary conductor will be broken in mid-span with both ends lying on the ground. A new section of conductor must be attached using an automatic sleeve. The conductor must be pulled up, sagged, and dead-ended using an automatic sleeve. There will be three different work locations: Pole #1, Pole #2 and the Splice area.

Event Specifications:

1. Teams are allowed a 5-minute set-up time. No alterations to the conductor may be made in the setup time.
2. The conductor must be tested and grounded on the source side of the break, and team/judge notified when line is grounded.
3. An automatic sleeve/splice will be used to repair the conductor. The sleeve/splice must be made according to manufacturer's instructions.
4. The conductor must be sagged equivalent to neutral (this is a judgment call by the event judge).
5. A strap/hot hoist must be utilized to sag conductor.
6. No cover-up will be required in this event.
7. Time starts at judge's signal with the fall arrest detached from the pole.
8. Climbers must wear class 2 or higher rated rubber gloves ground to ground.
9. For all work on the structure(s); conductor must be either equal-potential grounded or worked as de-energized with rubber-gloves, keeping conductor and conductor potential off body.
10. Any team member working on the splice must wear rubber-gloves. Since equal potential grounding is not possible at the point of the splice, the conductor must be treated as if energized. The groundman may wear leather work-gloves during any other work that is not at conductor potential.
11. Handline(s) must be operated by groundman only.
12. All tools and equipment for each work location must remain inside the circle at that work location (exception: the end of the handline attached to the conductor to raise it on pole #2). Due to the nature of the event, the groundman DOES NOT have to stay inside the circle. Any or all team members may work on the splice; however, standard safety rules (gaff guards, PPE) apply.

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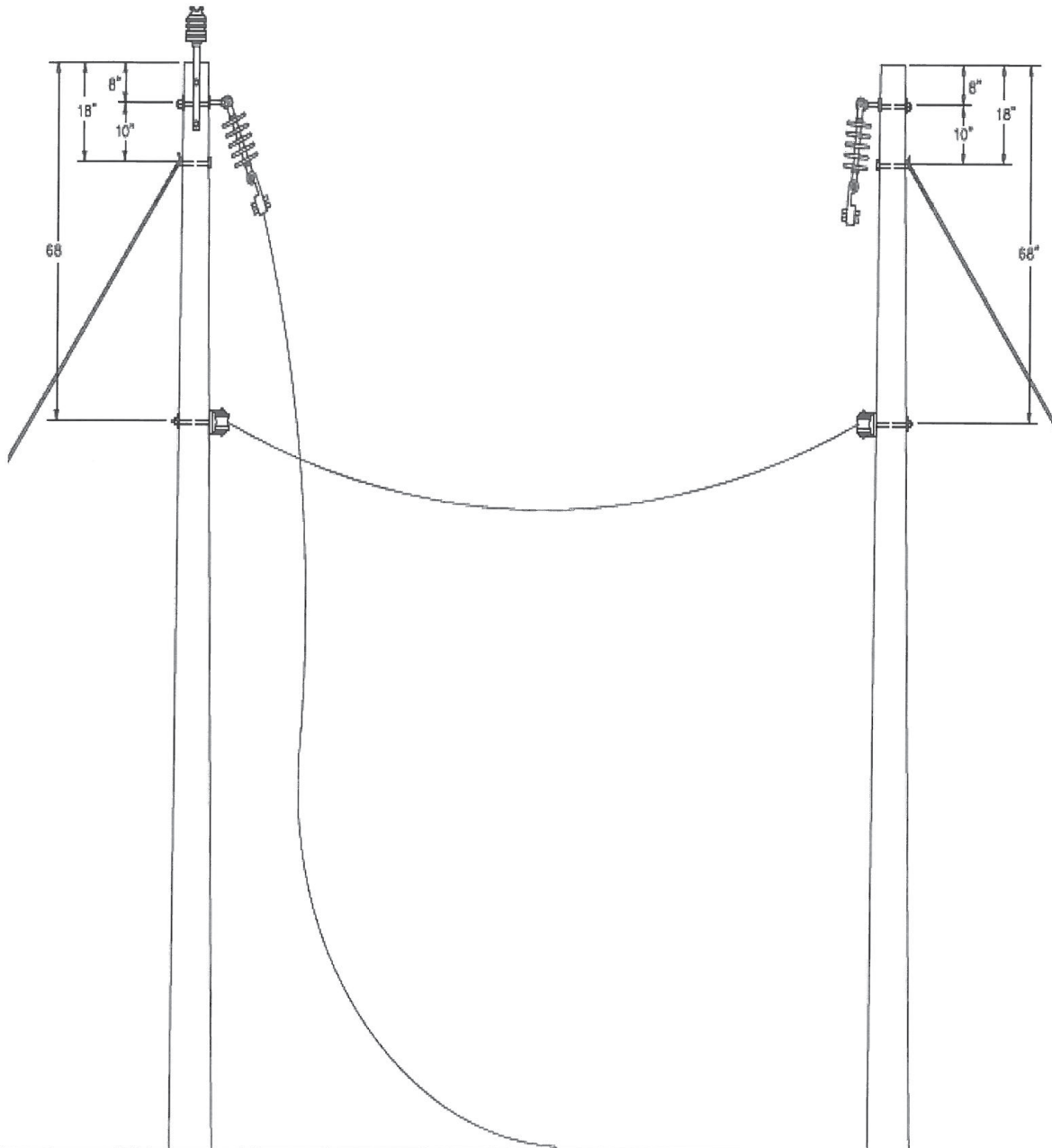
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Wire Down (continued)

13. The hoist must be removed and sent down the handline to the ground; lineman must be safetied below neutral before grounds are removed. Handline may be left on pole #2 for disassembling of event.
14. 14. Lineman on pole # 2 must be safetied at or below the neutral before grounds are removed
15. 15. Time stops when the grounds and handline have been removed and lowered to the ground and lineman on source pole has descended to the ground and the fall arrest is detached from the pole.
16. 16. Teams must tear event site back down for the next team. Judging will continue until the team leaves the event site.



Apprentice Events

Apprentice Events

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Cross Arm Relocation

Mean Time: 8 minutes

Drop Dead: 10 minutes

Event Summary:

The apprentice will relocate a 10' fiberglass arm 90 degrees from its original location.

Event Specifications:

1. Apprentice will remove both of the arm bolts and reinstall using same hardware. The new location (holes) will be either 6" above or below the original location.
2. Time starts when the judge signals for the apprentice to begin.
3. The apprentice can start with their tools on, at an arm's length from the pole with fall arrest detached from the pole.
4. The apprentice will climb the pole and relocate the arm at 90 degrees either direction, their choice.
5. The arm will be a ten foot arm with three 15kV post insulators on it. Bolts will have 2" square washers on them. The bolts will be put in through the arm with the nut and washer on the backside of the pole.
6. All nuts will be tightened with a wrench. Please Do Not Over-Tighten for the next competitor.
7. The apprentice will not carry any extra nuts or washers with them. If they drop something they need to have a handline with them, so the judge can put the material on the hook for the apprentice to pull back up.
8. Time stops when both feet are on the ground with fall arrest detached from the pole.

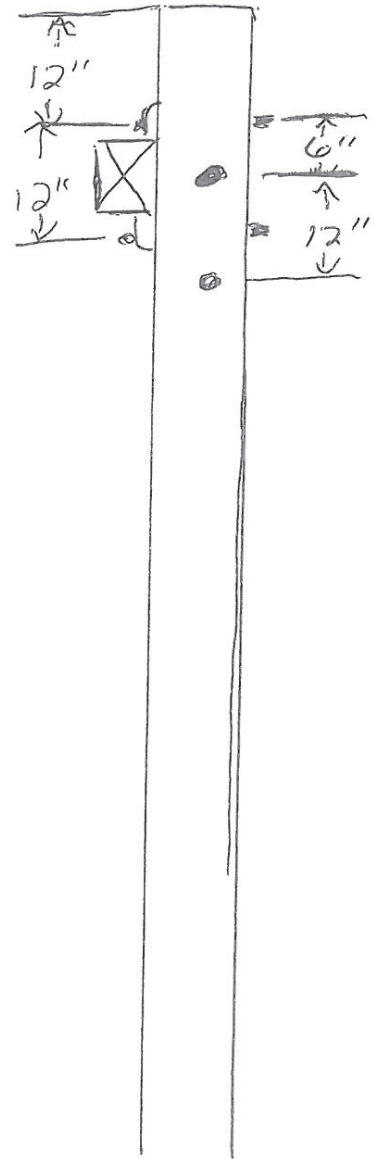
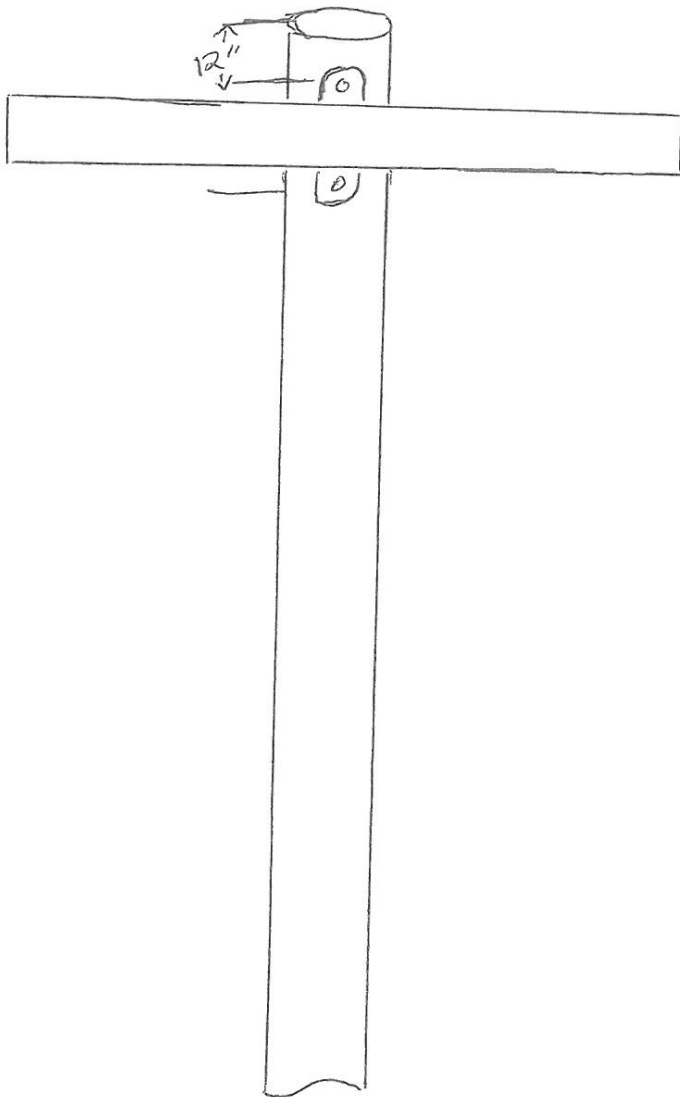
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Cross Arm Relocation



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Fused Cutout Relocation

Mean Time: 8 minutes

Drop Dead: 10 minutes

Event Summary:

The apprentice will relocate a fused cutout mounted on an L-bracket from its original position to the opposite side of the pole. The cutout will be mounted on a double dead end single phase pole with the jumpers connected to the line by hotline clamps and stirrups. The source side will be considered to the left of the mounted position. This is considered to be a dead and grounded event

Event Specifications:

1. The apprentice will have 5 minutes to setup and ask questions.
2. Leather gloves with gauntlets may be worn ground to ground.
3. Time starts when the judge signals for the apprentice to begin.
4. The apprentice will start an arm's length from the pole with their fall arrest system detached from the pole.
5. The apprentice must remove the hotline clamps from the stirrups and switch the stirrups to face the side where the cutout is going to be mounted.
6. The apprentice will relocate the cutout and bracket to the opposite side of the pole.
7. After relocating the cutout the apprentice will connect the hotline clamps to the stirrups with the top side jumper connected to the left.
8. Time stops when both feet are on the ground and fall arrest system detached from the pole.

Notes:

There will be no need to open the cutout door.

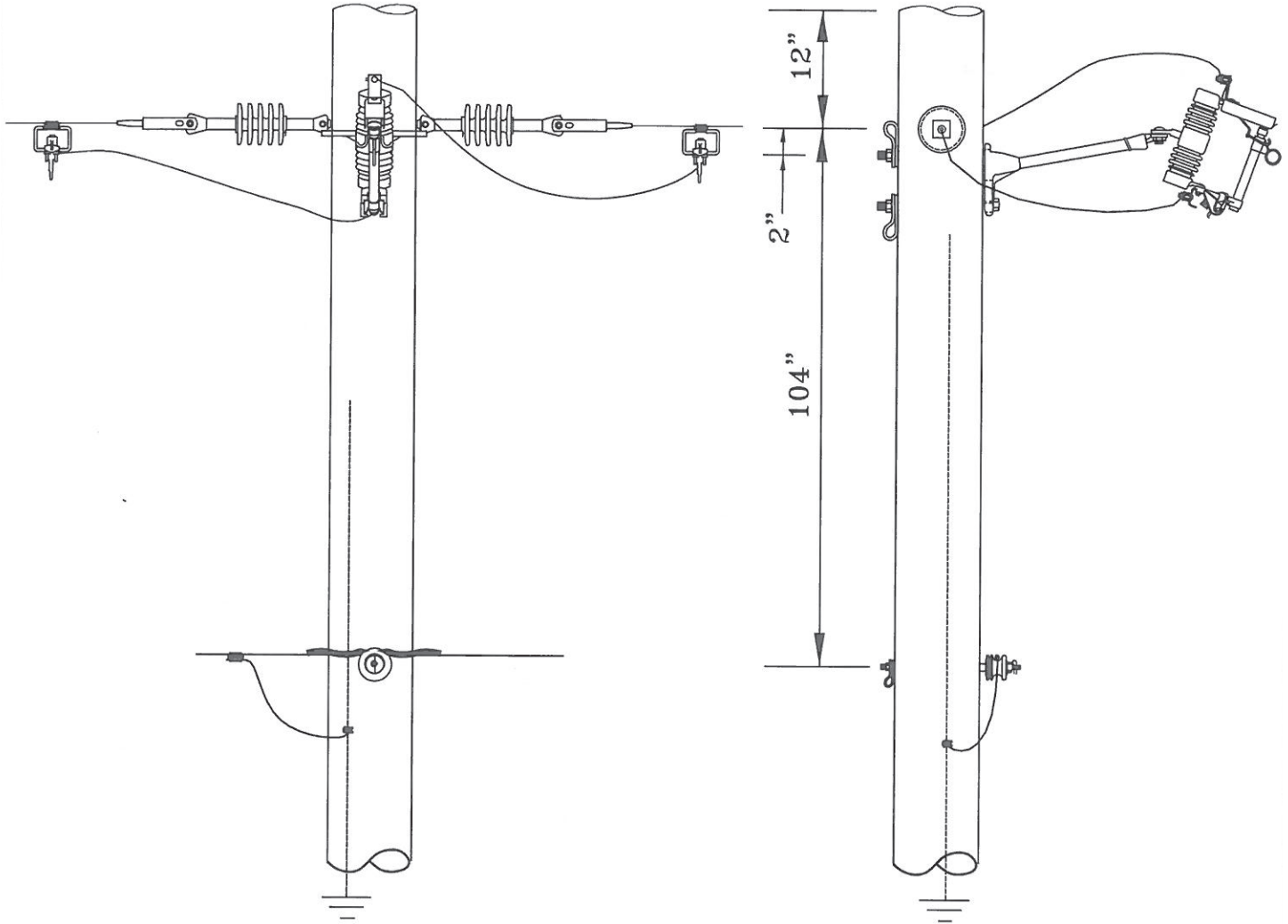
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Fused Cutout Relocation



FRONT VIEW

SIDE VIEW

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Obstacle Course

Mean Time: 8 minutes

Drop Dead: 10 minutes

Event Summary:

The Apprentice will climb the pole and perform specific tasks at three different stations. The purpose of the event is to follow the guidelines exactly, climbing safely and professionally.

Event Specifications:

1. Time starts at the judge's signal with apprentice standing an arm's length from pole with the fall arrest detached from the pole.
2. Apprentice must take a handline up the pole.
3. Apprentice must start at top of pole and work down.
4. Work gloves with a gauntlet must be used ground to ground. (No driving gloves etc.)
5. Climb pole to the top cross arm, remove switch and install on opposite side of cross arm.
6. Descend to next cross arm, remove insulator and install on opposite side of cross arm.
7. Descend to next cross arm, remove fiberglass bell and install on opposite side of cross arm.
8. No free fall or hot-dogging is allowed. The Apprentice must be in control at all times.
9. Any tools or material dropped may be sent back up by the judge but all general rules apply.
10. Time stops when the apprentice is on the ground with the fall arrest detached from the pole.

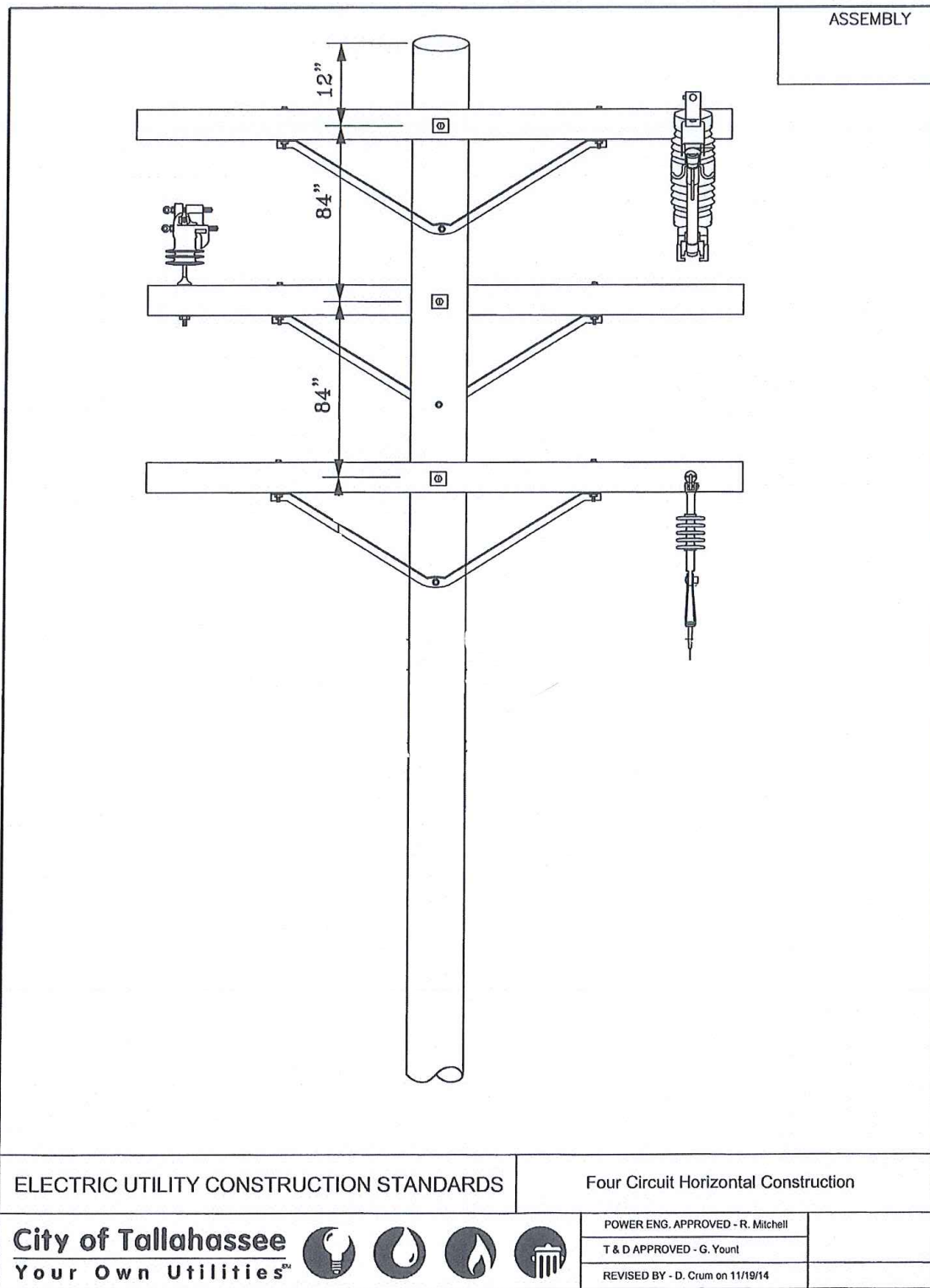
DIAGRAM ON NEXT PAGE (Please note diagram was updated on Feb. 5)

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Obstacle Course



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Single Phase Dead End Transfer

Mean Time: 10 minutes

Drop Dead: 12 minutes

Event Summary:

The Apprentice will be required to transfer a single phase #2 AL primary dead-end from an existing pole onto a new pole set 4' to the side. Both primary and neutral conductors will be moved to the new pole. This event will be considered dead and grounded.

Event Specifications:

1. Apprentice will have 5min. to setup and ask questions.
2. Leather gloves with gauntlets may be worn ground to ground.
3. The apprentice must carry a handline to pull up a grunt sack with rigging and new primary dead-end insulator and shoes. The bag may be secured on the pole while work is being performed.
4. The new pole will have a down guy and an eye bolt in the primary and neutral position.
5. The apprentice will install the primary dead-end insulator and neutral shoe on the new pole. The pins must be installed with the cotter keys facing inwards toward the opposite pole.
6. Approved type of rigging that will be allowed is (1) set of slack blocks or strap hoist with (1) flat grip. Grips must be smooth flat jaws, Bulldog grips will not be accepted.
7. The primary and neutral conductor shall be removed from the existing dead end shoe and re-secured into the new dead end shoe on the new pole.
8. When the transfer of both conductors has been completed, the primary insulator and neutral shoe must be removed from the eye bolts of the old pole and sent to the ground with rigging.
9. Time will stop when the apprentice is on the ground and fall arrest is detached from the pole.
10. Material must be left out at the base of the pole with the pins properly installed in the dead-end shoe prior to leaving the event. Points will be deducted if any material is missing or taken from the event area.

Minimum List of Tools for Event:

- Handline
- Grunt Sack
- Slack blocks or hoist
- 9/16" wrench

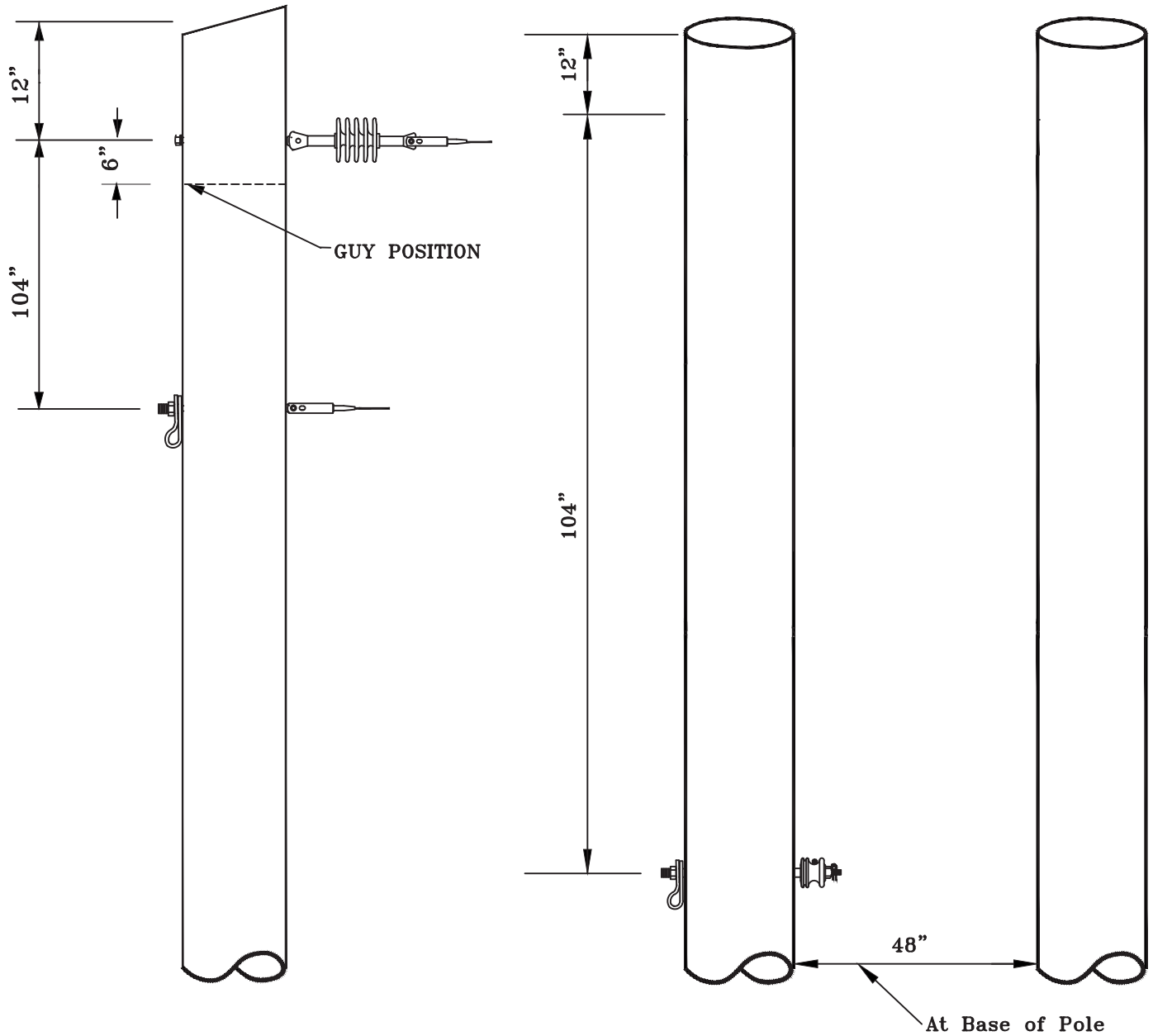
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Single Phase Dead End Transfer



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Vertical Hurtman Rescue

Mean Time: 4 minutes

Drop Dead: 8 minutes

Event Summary:

This is an individual Apprentice event where assistance will be needed by a Groundman. The Apprentice may bring someone to be a Groundman for them or use one that will be provided by the event staff. The Groundman must use the proper PPE while assisting (i.e. leather work gloves, hard hat, and eye protection). The Apprentice WILL NOT be judged on anything that is the result of the Groundman's actions. Apprentices have 5 minutes to set up and ask questions. The switch (cutout) feeding the transformer will be opened prior to the start of the event and be simulated that the transformer is de-energized. The Apprentice must wear rubber gloves ground to ground to protect from possible backfeed. The Apprentice will split the handline and loop the bottom part of handline around mannequin's legs. Then they must take the top part and wrap around the pole a minimum of one and a half wraps, run the rope under mannequin's arms, and tie three half hitches (the splice cannot be part of the knot). The mannequin will then be lowered to the ground while the Groundman uses the bottom part of handline tied to the mannequin's legs to pull mannequin on to the tarp. You must attempt to keep the mannequin off of the pole and hardware. There will be NO gigs for incidental contact of the mannequin on the pole or neutral conductor. The mannequin must hit the ground gently as if it were a real person. A tarp will be provided and placed 5' from pole centered under switch.

* Video will be posted on www.publicpower.com under the Competition section on how to do this event.

Event Specifications:

1. Time starts at judge's signal with the Apprentice at least an arm's length from the pole.
2. All rubber gloves will be in glove bag cuffs down with no fingers protruding.
3. Apprentice's belt and hooks will be on the ground opposite the switch side of the pole.
4. When time starts the Apprentice will tool up and ascend the pole.
5. Climber must stay in 5 foot circle while he has his gaffs on.
6. You must cut the Bashlin 57-A insert. There will be a 10 point deduction for cutting the belt in the wrong place
7. The blade of the climber's knife must not be exposed while climbing.
8. Time will stop when mannequin is on the tarp with slack in the handline.
9. Judges will use a 4" PVC conduit between the rope and the mannequin to evaluate the rope knot, the eye splice cannot be in any part of the knot.
10. You may use any standard knot or hitch on the mannequin's legs that can be easily removed. (including placing the rope through the hook, but it must not come off)

NOTE

The actual field will be built to the specs on the drawing on the next page. There will not be any secondary conductors below the neutral.

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