# Job Aid: Overhead Inspection

## Summary

This job aid is designed to assist Inspectors in assessing and prioritizing **compelling abnormal conditions** on overhead facilities during scheduled GO 165 Inspections.

It is meant to provide guidance on issues that Inspectors may encounter most frequently during an inspection and is not intended to be an all-inclusive listing of all abnormal conditions or corrective actions.

Field assessments are activities performed by Inspectors to identify Compelling Abnormal Conditions. arrest

Compelling Abnormal Condition is defined as being any electric distribution pole, equipment, component, conductors, vegetation or third party condition that cause a safety or fire ignition risk that may adversely impact public safety and/or service reliability in the next five (5) years.

## Target Audience

Qualified Electrical Workers (QEW).

## Before You Start

- Follow all applicable safety rules, procedures, and protocals.
- Wear appropriate personal protective equipment (PPE) for specific tasks and work area.

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# Third Party Communication Antennas

## 1. Broken/Damaged Cellular Antenna

**General Guidance:** If the broken antenna is creating a non-emergency safety or reliability issue, create a third party notification.

If the antenna is causing an emergency safety or reliability issue, contact your supervisor for instructions. Do not leave the location until it is made safe.

**Minor Work:** No

**Related Documents:** 027911

## 2. Third Party Communication Antenna - Inadequate Clearance

**General Guidance:** Create a third party notification if a cellular antenna does not have adequate clearance from supply lines or equipment.

If the antenna is causing an emergency safety or reliability issue, contact your supervisor for instructions. Do not leave the location until it is made safe.

**Minor Work:** No

**Related Documents:** 027911, T&D Bulletin 2009-20

# Climbing Space

## 1. Climbing Space - Obstructed

**General Guidance:** Evaluate pole to determine whether there is an obstruction caused by PG&E facilities or by third party facilities that is causing a compelling safety issue – based on the location of the pole and exposure to the worker - that needs to be addressed in 5 years.

Example: Equipment pole that cannot be accessed in a bucket truck.

Example: Pole in rear easement with secondary or service connection failures.

Example where the climbing space **is not** a compelling condition: Equipment pole that is accessible 100% of the time in a bucket

**For PG&E obstructions:** Create an EC notification.

**For third party obstructions:** Create a third party notification if they pose a significant safety hazard.

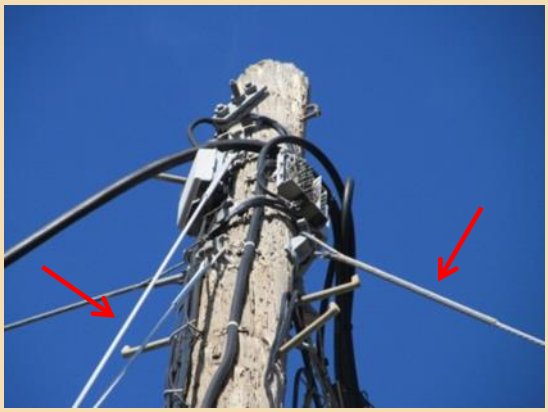
If a third party obstruction is causing an emergency safety or reliability issue, contact your supervisor for instructions.

**Minor Work:** No

**EC Form:** Yes, if not able to perform minor work

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 066210

| COMMUNICATION IN CLIMBING SPACE | CLIMBING SPACE OBSTRUCTED |
|---|---|
|  |  |
| **At this Location:** Obstructed climbing space, access via bucket truck from street below. Also clearance issues between communications facilities and the PG&E down guys. | **At this Location:** Climbing space obstruction by communication facilities on pole with equipment. Communication messengers are too close. No bucket truck access. |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third Party Notification:** No | **Write Third Party Notification:** Yes |
| **Write EC Form:** No | **Write EC Form:** No |

## 2. Climbing Space – Obstructed by Vegetation

**General Guidance:** For incidental vegetation in climbing space that can be moved when climbing, or quickly cleared prior to climbing, no action is required.

For major vegetation that cannot be quickly cleared or moved prior to climbing, evaluate the pole:

- Is there supply equipment on the pole that may need to be operated during emergency conditions?
- Should the obstruction be cleared for any other safety or reliability reason in the veg

If the answer is yes to any of these questions, the inspector will need to create an EC Notification to clear vegetation unless it can be addressed as minor work.

**Minor Work:** Yes

**EC Form:** Yes, if not able to perform minor work

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 066210

| OBSTRUCTED CLIMBING SPACE | CLIMBING SPACE OBSTRUCTED |
|---|---|
|  |  |
| **At this Location:** Obstructed climbing space. Inspector cannot see enough of the pole to complete Inspection (heavy vegetation, cannot see through) No equipment on pole. The only reason to address is to complete the inspection. | **At this Location:** Climbing space obstruction, able to perform inspection, no equipment on pole (able to see guys, able to see up the pole under tree) |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No, only need clearing to perform inspection | **Write Third Party:** No |
| **Write EC Form:** Yes<br>• FDA=OH Facility / Limited Access/Obstruct / Inspect (Primary)<br>• FDA=OH Facility / Limited Access/Obstruct / Remove<br>• Priority ”B”, 0-3 months depending upon exposure; must complete before CPUC due date for map | **Write EC:** No, not compelling |

| POLE WITH VEGETATION | IVY COVERED POLE |
|---|---|
|  |  |
| **At this Location:** 360° pole inspection not possible | **At this Location:** 360° pole inspection not possible |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA= OH Facility / Limited Access/Obstruct / Inspect (Primary)<br>• FDA=OH Facility / Limited Access/Obstruct / Remove<br>• Priority ”B”, 0-3 months depending upon exposure; must complete before CPUC due date for map | **Write EC Form:** Yes<br>• FDA= OH Facility / Limited Access/Obstruct / Inspect (Primary)<br>• FDA=OH Facility / Limited Access/Obstruct / Remove<br>• Priority ”B”, 0-3 months depending upon exposure; must complete before CPUC due date for map |

# Conductor

## 1. Conductor Broken/Damaged

### General Guidance:

Visually check all conductors (primary/secondary/service), associated attachments and dead-ends for damage throughout the entire span. Examples: cracked or damaged insulation, arcing or burn marks, corrosion, broken strands, gun shot, deterioration, annealing, or bird caging.

Is service conductor cracked, exposing hotleg? Guidance: Evaluate service drops looking for cracked or damaged insulation exposing hotlegs. If insulation is cracked or damaged to the point where hotleg is exposed, this is an Emergency/Standby condition.

Does conductor have splices tied in or within 2’ of insulator preventing free movement of splice with conductor? Guidance: Create EC Notification to replace conductor in order to relocate splice.

Is hand or preform tie wire broken, damaged, burnt, loose, showing signs of wearing, missing, or missing armor rod? If yes, create EC notification to replace tie wire.

Is Vegetation entangled in open-wire secondary conductor? If yes, create EC notification to replace secondary conductor with covered conductor, and include vegetation trimming.

Visually check for excessively-corroded or damaged connectors and dead-end hardware (potential to drop conductor).

Visually check all conductors, connectors, and splices under existing bird protection; utilize binoculars if necessary.

Visually check all splices in a span. Create EC notification for splices that appear to be damaged, corroded or tied in too close to the insulator, preventing free movement of the splice with the conductor.

Does open wire secondary conductor have missing spreader brackets for spans >135’, or for spans that are longer, have spreader brackets every 135'? Guidance: Create EC Notification to have spreader brackets installed where bucket truck accessible; use line of sight and if available, foreman-cane or range-finder. If no access, create EC notification to remove vegetation and install spreaders.

### Minor Work: Yes

- Repair damaged conductor as minor work if possible and if safe to do so.

**EC Form:** Yes, if not able to perform minor work

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

### Record Keeping Items:

Are there vibration dampers present this location? Yes/No

Primary Splices:

- What is the total number of splices on all phases of primary conductor (count only load side spans from pole)? [___] Enter number
- What is the highest number of splices in a single phase of conductor within 1 span of the pole? [___] Enter number
- Are splices installed on conductor that crosses over major roadways (highway, freeway, expressway, railroad tracks, or communication crossing)? Yes/No

Are connectors installed at this location? Yes/No

- If yes, are the connectors installed on conductor that crosses over major roadways (highway, freeway, expressway, railroad tracks, communication crossing)? Yes/No

### Visual examples of types of conductor damage referenced under conductor general guidance

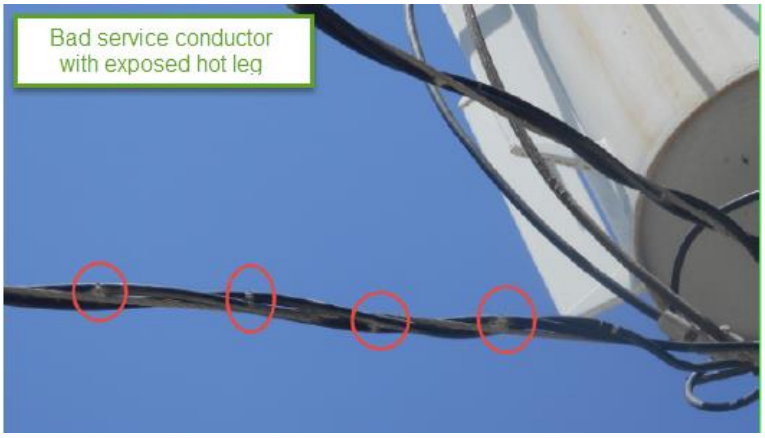
**Example: Bird-caged conductor**


**Example: Open wire rack construction**

**Example: Open wire on crossarm**

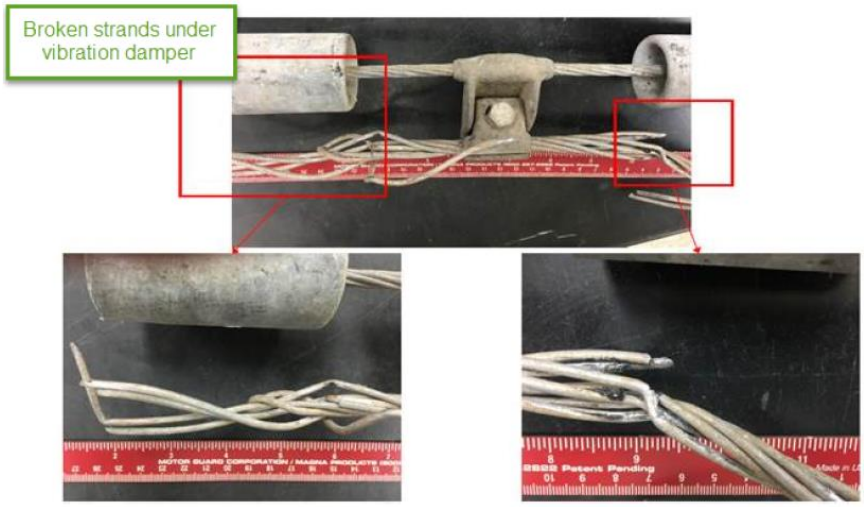

**Example: Gun-shot conductor**


**Example: Bad service conductor with exposed hotleg.**



**Example: Vibration Damper**


**Example: Broken strands under vibration damper**



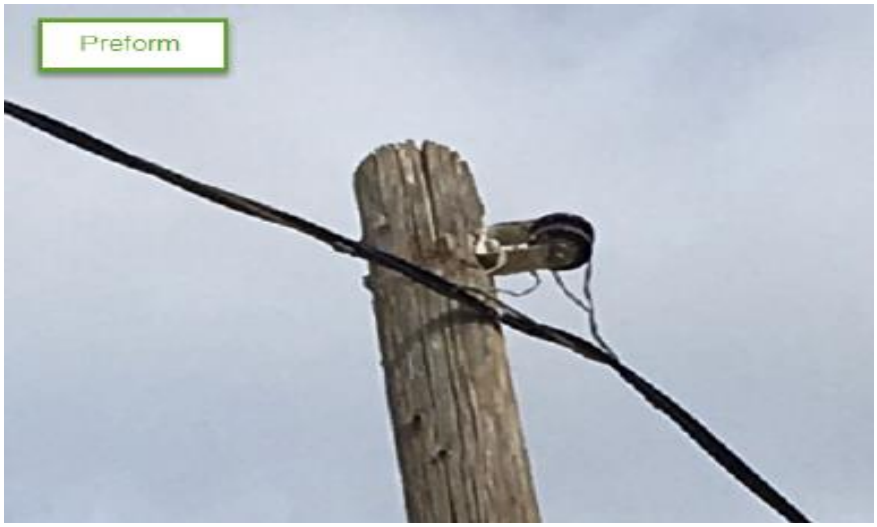

**Example: Splice tied in to insulator**

**Example: Less than 2' from point of support**


**Example: Splice tied in to insulator**


**Example: Loose primary neutral ground:**

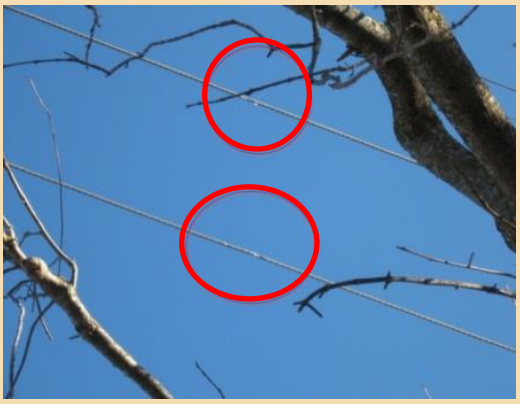
**Example of preform:**



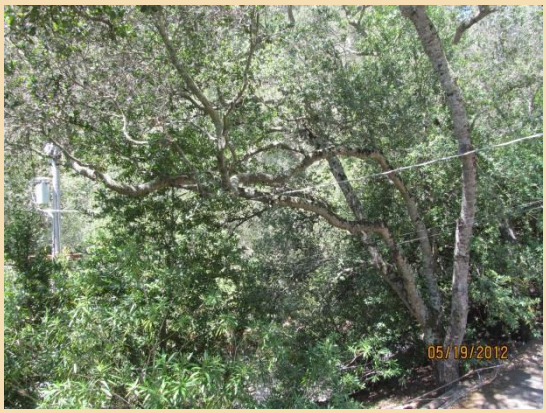

**Example: Burnt conductor:**


**Example: Bird protection installed on conductor:**

| BROKEN SERVICE NEUTRAL | DAMAGED/CRACKED GREY SERVICE |
|---|---|
|  |  |
| **At this Location:** Broken service neutral | **At this Location:** Cracked grey service. Older grey services tend to crack and will appear to have rings around the insulation. |
| **Perform Minor Work:** Yes, if safe to do so. If you replace the service conductor, this is capital Minor Work.<br>Fill out EC Form to account for this minor work; charge time to your Division standing order | **Perform Minor Work:** Yes, if safe to do so. If you replace the service conductor, this is capital Minor Work.<br>Fill out EC Form to account for this minor work; charge time to your Division standing order |
| **Write Third Party Notification:** No | **Write Third Party Notification:** No |
| **Write EC Form:** Yes, if minor work is not possible, or to document completed capital minor work<br>• FDA=Conductor / Broken/Damage / Repair or Replace<br>• Priority “A”, follow Emergency Process | **Write EC Form:** Yes, if minor work is not possible, or to document completed capital minor work<br>• FDA=Conductor / Broken / Replace - *OR*<br>• FDA=Conductor / Damaged / Replace - *OR*<br>• FDA=Conductor / Burnt / Replace<br>• Priority ”A”, emergency, due to exposed hotleg. |

| DAMAGED SECONDARY | EXPOSED SERVICE CONNECTOR |
|---|---|
|  |  |
| **At this Location:** Damaged strands | **At this Location:** Exposed conductors |
| **Perform Minor Work:** No | **Perform Minor Work:** Yes, if safe to do so. |
| **Write Third Party Notification:** No | **Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA= Conductor / Damage / Repair<br>• Priority ”E”, 3-12 months depending upon exposure | **Write EC Form**: Yes, if minor work is not possible<br>• FDA= Conductor / Broken/Damage / Repair<br>• Priority ”E”, 3-12 months depending upon exposure |

| CONDUCTOR TEARING APART | HARDWARE BROKEN |
|---|---|
|  |  |
| **At this Location:** Primary conductor damage (possibly shotgun) | **At this Location:** The #6 solid copper is broken causing strain on the conductor. Unsecured service. |
| **Perform Minor Work:** No | **Perform Minor Work:** Yes, if safe to do so |
| **Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA= Conductor / Broken/Damage / Repair<br>• Priority ”B”, 0-3 months depending upon exposure | **Write EC Form:** Yes, if minor work is not possible<br>• FDA= Hardware/Framing / Broken/Damaged / Repair<br>• Priority ”E”, 3-12 months depending upon exposure |

| OVERHEAD SERVICE STRAIN ABRASION | OVERHEAD SERVICE STRAIN ABRASION |
|---|---|
|  |  |
| **At this Location:** Service strain abrasion, with possible burning at some sections. Damaged insulation. | **At this Location:** Service strain abrasion, no slack remaining |
| **Perform Minor Work:** Yes, if safe to do so. If you replace the service conductor, this is capital Minor Work.<br><br>Fill out EC Form to account for this minor work; charge time to your Division standing order. | **Perform Minor Work:** Yes, if safe to do so. If you replace the service conductor this is capital Minor Work.<br><br>Fill out EC Form to account for this minor work; charge time to your Division standing order. |
| **Write Third Party Notification:** No | **Write Third Party Notification:** No |
| **Write EC Form:** Yes, if minor work is not possible, or to document completed capital minor work<br>• FDA=Conductor / Broken/Damaged/ Repair or Replace<br>• Priority ”E”, 3-12 months depending upon exposure, in comments add note about strain abrasion burnt conductor<br>• If abrasion has caused an exposed hotleg, assign Priority A, emergency, and stand-by. | **Write EC Form:** Yes, if minor work is not possible, or to document completed capital minor work<br>• FDA=Conductor / Broken/Damaged/ Repair or Replace<br>• Priority ”E”, 3-12 months depending upon exposure, in comments add note about strain abrasion burnt conductor<br>If abrasion has caused an exposed hotleg, assign Priority A, emergency, and stand-by. |

## 2. Connector Broken/Damaged

### General Guidance:

Visually check all connectors for signs of damage, corrosion, or incorrect installation.

Are secondary connectors (mini wedge and Insulink) installed on primary conductor? If yes, write EC notification to replace connector.

Are connections made with dissimilar metals installed incorrectly? Guidance: Proper installation is Aluminum over Copper. If yes, write EC notification to replace connector.

Are tap clamps installed incorrectly? If yes, write EC notification to replace connector.
Guidance: Identify improperly installed tap clamps (aka chance clamps);e.g.:

- No tap guards installed on conductor smaller than 1/0 Al and/or smaller than #2 Cu
- Installed on tap lines (jumpers) feeding more than 2 transformer banks.
- Installed on armor rod (used for tying in conductor with hand ties; not an appropriate method of attaching tap clamps)
- Used on any other type of equipment (recloser, capacitor, regulator, risers, etc.) other than a transformer.

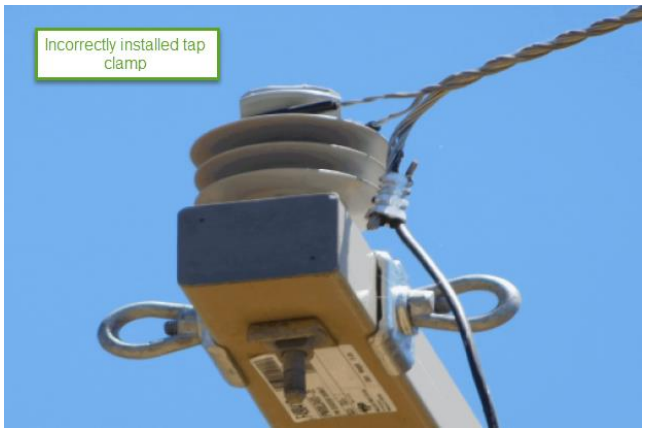
Reference: Chance Clamp is a brand name; this is also known as a hot-line clamp.

Is the connector excessively-corroded or damaged (potential to drop conductor)? If yes, write EC notification to replace connector.

**Example: Incorrectly installed chance clamp**

**Example: Secondary connector installed in primary**

**Example: Insufficient clearance**




## 3. Tie Wire Damaged

### General Guidance:

Ensure splices are not located under tie wires. Repair damaged secondary tie wire as minor work if possible.

Visually inspect hand ties to identify wear prior to failure; utilize bucket truck, binoculars or camera to get a closer look - especially on older installations.

If damage to primary, create EC notification.

**Minor Work:** Yes, on secondary only

- Repair damage to secondary as minor work if possible and if safe to do so.
- IF not able to perform minor work, THEN create EC notification.

**EC Form:** Yes, only if not able to perform minor work on secondary or primary damaged/broken.

- FDA: Tie Wire/ Broken/Damaged / Repair or Replace
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 021439, 057855

## 3. Floaters

**General Guidance:** Does primary or secondary conductor(s) float? A floater is when the conductor is not attached to the crossarm/pole. Floaters are **always** an Emergency/Standby condition. Create EC Notification using FDA Conductor / Floater / Repair.

**Minor Work:** No

**Related Documents:** 022088

**FLOATER**


**At this Location:** Floater, conductor is not contacting the arm. Rotten crossarm.

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**Perform Minor Work:** No

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**Write Third Party Notification:** No

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**Write EC Form:** Yes

- FDA=Crossarm / Decayed/Rotten/ Replace
- Priority ”A”, follow Emergency Process

## 4. Broken or Unsecured Service Bob

**General Guidance:** Repair or Replace broken insulator, wires, pins, etc.

**Minor Work:** Yes

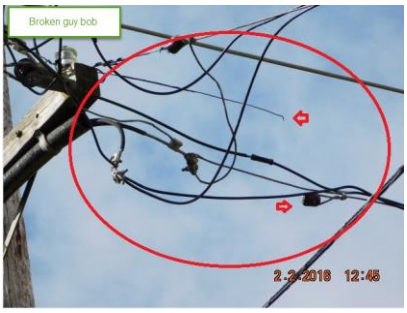
- Make repairs as minor work if possible and if safe to do so.
- IF not able to perform minor work, THEN create EC notification.

**EC Form:** Yes

- FDA: Hardware / Broken/Damaged / Repair or Replace
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** None

**Example: Broken service bob**




## 5. Conductor Clearances (Refer to Clearance Job Aid)

## 6. Conductor: Uneven, Improper Sag or Diminished Clearance

**General Guidance:** Check for primary or secondary conductor with improper sag or diminished clearance midspan or uneven conductors, phases touching, or broken at dead end supported by jumper. Guidance: Any spans with uneven conductor - different tension, "bellies" (one is lower than the conductor next to it - when wind blows it may sway at different rates, etc.), then re-sag or install spreader brackets.

Look for damaged dead-end hardware that may cause uneven sag. Look for signs of annealing, excessive sag, splices or discoloration that can result in failed conductor.

Identify clearance requirements utilizing the Clearance Evaluation Job Aid.

**Minor Work:** Yes.

- Make repairs as minor work if possible and if safe to do so. Re-sag or install spreader brackets.
- IF not able to perform minor work, THEN create EC notification.

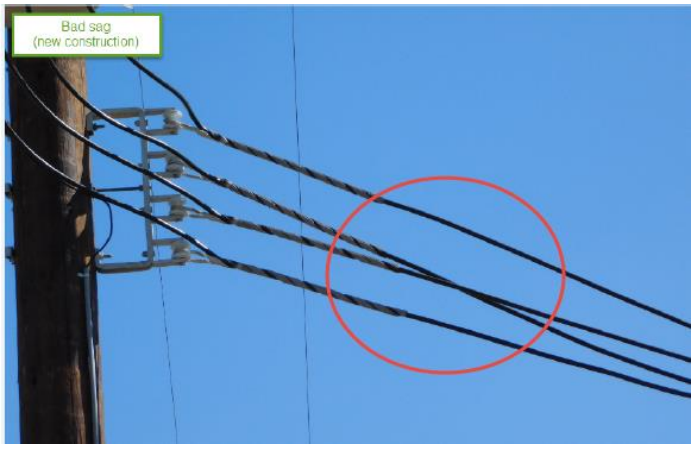
**EC Form**: Yes

- FDA: Conductor / Sag / Adjust
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

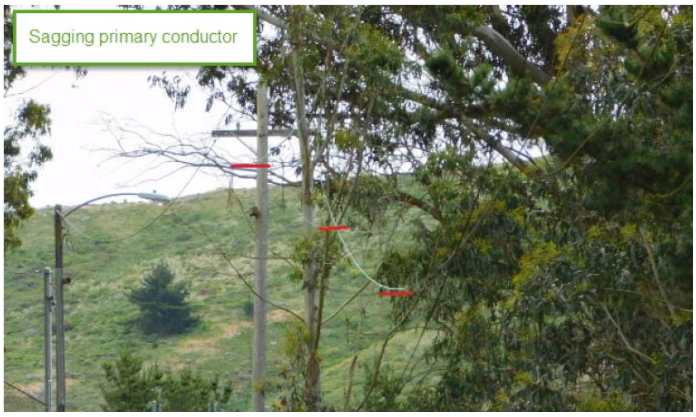
**Related Documents:** TD-7103P-09 pg16, appendix B, table 1

**Example: Secondary sagging conductor**


**Example: Sagging conductor**




**Example: Sagging conductor**

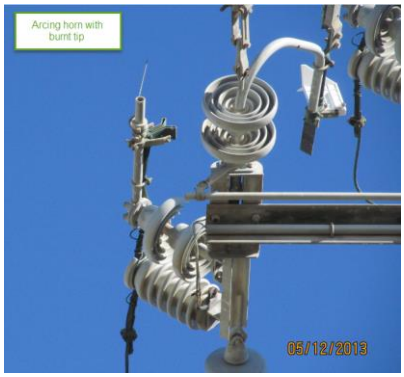


# Cutouts / Fuses / Switches

## 1. Damaged Arcing Horns

**General Guidance:** Call Restoration Dispatch to get a T-Man dispatched to the location to create a COE (CE) notification. Consider installing a warning tag on the pole.

**Example: Arcing horn with burnt tip**




**Minor Work:** No

**EC Form**: Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 015225

## 2. Cutouts

**General Guidance:** Are cutouts broken, damaged, cracked, loose, or flashed? Yes/No, if yes, THEN create an EC Notification.

**Minor Work:** No

**EC Form**: Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 056425

| BROKEN DAMAGED CROSSARM MOUNTED CUTOUT | BROKEN INSULATOR ON AIR SWITCH |
|---|---|
|  |  |
| **At this Location:** Broken/Flashed cutout | **At this Location:** Broken insulator on air switch |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Cutout / Broken/Damaged / Replace<br>• Priority ”E”, 3-12 months depending upon exposure<br>• COE = No | **Write EC Form:** Yes<br>• FDA=Cutout / Broken/Damaged / Replace<br>• FDA Switch / Broken/Damaged / Replace<br>• Priority ”E”, 3-12 months depending upon exposure<br>• COE = Depending on voltage & Insulation value remaining if not operable |

## 3. Jumpers

**General Guidance:** Are jumpers burnt or are there clearance issues? If yes, create EC notification.

**Minor Work:** No

**EC Form**: Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Example: Jumper**


## 4. Switch Handle/Control Box is not Locked

**General Guidance:** Ensure that boxes or enclosures located 8 feet or less above the ground are locked.

**Minor Work:** Yes

- Perform minor work if possible and if safe to do so.
- IF not able to perform minor work, THEN create EC notification.

**EC Form:** Yes, only if not able to perform minor work

- FDA: Switch / Broken / Repair or Hardware / Missing / Install
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 066195

# Distribution Towers / Steel Lattice

**General Guidance:** Inspectors are required to inspect distribution towers / lattices for the following:

- Steel Covered by Earth
- Rust or Corrosion at Tower Footings
- Tower Footing Damaged
- Tower Member Loose
- Marking Hi-Sign Missing/Not Legible
- Guarding - Tower Not Guarded (Where Applicable)
- Guy Attachment, Turn Buckles, or Preformed Guys Loose
- Tower Rusty – Needs Paint

**Minor Work:** No

**Related Documents:** 022168, Utility Standard

# Framing

## 1. Crossarm Broken/Deteriorated

**General Guidance:** Refer to TD-2305M-JA_07 “Crossarm Evaluation” Job Aid in this job aid.

## 2. Bridging Exists and Needs to be Repaired

**General Guidance:** Visual observation of broken / unattached bridge wire. Create EC notification.

**Minor Work:** No

**Related Documents:** 056845

| BRIDGING | |
|---|---|
|  | **At this Location:** Pole, burnt, pole failed<br><br>**Perform Minor Work:** No<br><br>**Write Third-Party Notification:** No<br><br>**Write EC Form:**<br>• FDA = Hardware/Framing / Broken/Damaged / Replace<br>• Priority ”E”, 3-12 months depending upon exposure |

## 3. Underarm Bus Not Securely Attached

**General Guidance:**

It is a requirement to have at least two attachment points, secured to an underarm bus, one on each side.

It is a requirement to use the following corrosion resistant materials for attaching the underarm bus to the crossarm: straps, plumber's tape, lags, galvanized nails, staples, screws, bolts, zip ties, etc.

If an inspector finds an underarm bus secured with non-authorized material, such as duct tape, electrical tape, or rope, it must be secured by at least two additional approved attachment points.

When an inspector re-secures a bus, it must be brought up to construction standards; four attachment points using corrosion resistant materials.

Complete as minor work/re-secure the bus. IF it cannot be completed as minor work, then create EC notification if compelling and needs to be addressed within 5 years.

**Minor Work:** Yes

**EC Form:** Yes, only if not able to perform minor work

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years.

**Related Documents:** 021924, Crossarm Evaluation TD-2305M-JA_07

**UNDER-ARM BUS LOOSE AND DETERIORATED**

**Side View**

**Front View**

**At this Location:** UAB deteriorated, partial repair with rope, secured with one strap.

**Perform Minor Work:** No

**Write Third-Party Notification**: No

**Write EC Form:** Yes

- FDA=Under-Arm Bus / Broken/Damaged / Repair
- At minimum – must write up as Priority "F-R", next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F)

## UNDER-ARM BUS LOOSE

**At this Location:** UAB Loose

**Perform Minor Work:** Yes

**Write Third-Party Notification:** No

**Write EC Form:**

- FDA=Under-Arm Bus / Broken/Damaged / Repair
  Priority ”E”, 3-12 months depending upon exposure

## 4. Wood Pin Burnt/Tracking or Broken

**General Guidance:**

Primary wood pins: If the primary wood pin is leaning or broken, or if there are signs of burning or tracking, create a 0-3 month Priority “B” EC Form.

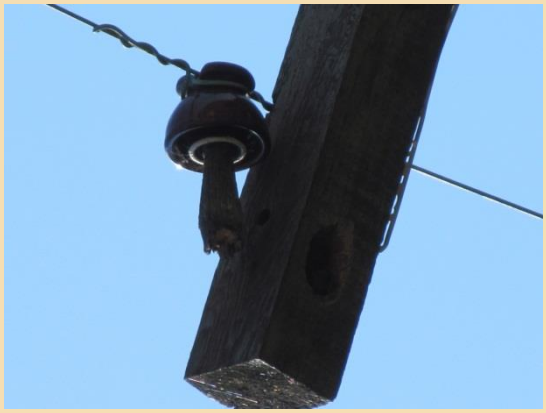
Primary or Secondary wood pins: If wood pin is broken or “floating”, create emergency EC to address immediately.

**Minor Work:** No

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 015202, G12021, TD-2305M-JA_07 Crossarm Evaluation

| PIN BROKEN | PIN BROKEN (FLOATER) |
|---|---|
|  |  |
| **At this Location:** Primary wood pin is broken, and the conductor is laying on the crossarm. Wood pin arm replace with Composite arm | **At this Location:** Secondary wood pin is broken, and the conductor is laying on the crossarm. Woodpin arm. Replace arm. |
| **Perform Minor Work:** No | **Perform Minor Work:** Yes, replace wooden pin with steel pin. |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Hardware/Framing / Broken/Damage / Replace<br>• FDA= Crossarm/Broken Damaged/Replace<br>• Priority ”A”, follow Emergency Process | **Write EC Form:** Yes<br>• FDA= Conductor / Floating / Repair<br>• FDA= Crossarm/Broken Damaged/Replace<br>• Priority ”A”, follow Emergency Proces |

| PRIMARY WOOD PIN AT ANGLE | PRIMARY WOOD PIN SQUATTER |
|---|---|
|  |  |
| **At this Location:** Deteriorated primary wood pin at angle. All insulators need to be replaced. Replace the crossarm with a composite arm. | **At this Location:** Primary wood pin squatter. Replace Crossarm. No armor rod with hand-tie. |
| **Perform Minor Work: No** | **Perform Minor Work:** No |
| **Write Third-Party Notification: No** | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA= Crossarm/Broken Damaged/Replace<br>• FDA=Hardware/Framing / /Broken/Damaged / Replace<br>• Priority ”B”, 0-3 Months depending on exposure. | **Write EC Form:** Yes<br>• FDA= Crossarm/Broken Damaged/Replace<br>• FDA=Insulator / Primary Squatter/ Replace<br>• Priority ”E”, 3-12 months depending upon exposure |

# Grounds / Ground Molding

## 1. Exposed Ground below 8'

**General Guidance:** Exposed grounds 8 feet or less from the ground must be covered. Inspectors must make every effort to cover the ground as minor work. If the exposed ground can be completed as minor work - preferred repair method is to use 1-1/2 inch plastic molding and not wood molding; if wood molding is used to make repair, use straps and not staples.

Consider a higher priority based on how much of the ground is exposed, and on the amount of public exposure. Inspector should “make safe” if cannot be addressed as minor work, based on location and exposure to the public.

The correct FDA is Ground/Exposed/Repair and not Molding Broken/damaged/ repair or replace.

Gaps in between molding segments should be covered if, in the inspector's judgment, they are large enough to allow human contact.

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** Utility Bulletin TD-2990P-01

| EXPOSED GROUND | |
|---|---|
|  | **At this Location:** Exposed grounds near sidewalk<br><br>**Perform Minor Work:** Yes, at a minimum make safe<br><br>**Write Third-Party Notification:** No<br><br>**Write EC Form:** Only if not able to perform minor work<br>• FDA=Ground / Exposed / Repair<br>• Priority “A”, emergency – due to public exposure at ground level. |

## REPAIR WITH 1.5” MOLDING

**Before**: Copper Wire sticking out from under the wood molding

**After:** 1.5 inch u-shaped molding installed over existing wood molding

**At this Location:** Wood molding with ground exposed

**Perform Minor Work:** Yes

**Write Third-Party Notification:** No

**Write EC Form:** Only if not able to perform minor work

## REPAIR WITH 2” PLASTIC

**At this Location:** Condition acceptable after repair of exposed ground

## REPAIR WITH WOOD MOLDING

**At this Location:** Condition acceptable after repair with wood molding

## 2. Exposed Ground above 8' to the Communication Level

**General Guidance:** If there are communication facilities on the pole, exposed grounds above 8 feet to the communication level must be covered. Cover the ground as minor work if possible. If not, create an EC Notification.

Gaps in between molding segments should be covered if, in the inspector's judgment, they are large enough to allow human contact.

If the pole is not a joint pole, no action required, because there is no exposure to the communication worker.

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 021904, 036229

| EXPOSED GROUND AT COMMUNICATION LEVEL | EXPOSED GROUND DUE TO TWISTED MOLDING |
|---|---|
|  |  |
| **At this Location:** Exposed ground at communications level. Wood molding broken in climbing space. | **At this Location:** Exposed ground in wood molding. |
| **Perform Minor Work:** Yes, if safe to do so. | **Perform Minor Work:** Yes, when safe to do so. |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Only if unable to perform minor work.<br>• FDA=Ground / Exposed / Repair<br>• At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F) | **Write EC Form:** Only if unable to perform minor work.<br>• FDA=Ground / Exposed / Repair<br>• FDA=Molding / Broken/Damaged / Repair<br>• At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F) |

## 3. Ground Molding Unsecured/Loose

**General Guidance:** Ensure that the molding is in good condition and secured to the pole.

Look for unsecured and loose wood ground molding, unglued PVC ground molding joints, molding joints that have come apart exposing the ground wire, etc.

Gaps in between molding segments should be covered if, in the inspector's judgment, they are large enough to allow human contact.

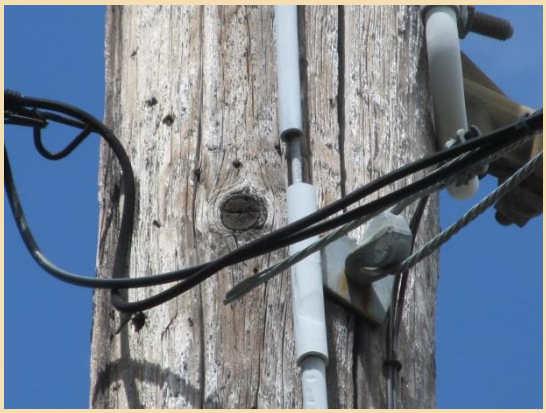
When making repairs - must meet construction standards.

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 02904

| WOOD MOLDING NOT SECURE EXPOSING GROUND | PVC MOLDING NOT SECURE EXPOSING GROUND |
|---|---|
|  |  |
| **At this Location:** Wood molding not secure, allowing human contact. | **At this Location:** PVC molding not secure, due to failure of previous repairs, allowing human contact. |
| **Perform Minor Work:** Yes | **Perform Minor Work:** Yes |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Only if unable to perform minor work.<br>• FDA=Ground / Exposed / Repair<br>At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F) | **Write EC Form:** Only if unable to perform minor work.<br>• FDA=Ground / Exposed / Repair<br>At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F) |

| PVC MOLDING SECURED | WOOD MOLDING SECURED |
|---|---|
|  |  |
| **At this Location:** PVC molding adequately secured with staples upon arrival. No action is required. | **At this Location:** Wood molding adequately secured with straps spacing 36 inches or less upon arrival. No action required. |

## 4. Exposed Ground Rod

**General Guidance:** If the ground rod can be permanently covered as minor work, do so. If not, create EC notification.

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** None

| EXPOSED GROUND ROD | |
|---|---|
|  | **At this Location:** Exposed ground rod<br>**Perform Minor Work:** Yes<br>**Write Third-Party Notification:** No<br>**Write EC Form:**<br>• FDA=Ground / Exposed / Repair<br>At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F) |

### 5. Broken Ground

**General Guidance:** Inspector identifies a broken ground; refer to bulletin **TD-2999B-023** for specific guidance about testing/replacing grounds

**Minor Work: Yes**

- Perform minor work if possible and if safe to do so.
- IF not able to perform minor work, THEN create EC notification.

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** Utility Bulletin TD-2990P-01; TD-2999B-023

## Guys / Anchors

### 1. Down Guy Preform Buried

**General Guidance:**

Top of anchor head must be above grade. Expose anchor as minor work. Evaluate the unburied anchor guy pre-forms and visually inspect them.

Perform minor work to add extension or grade around anchor so the anchor head becomes visible,

If the pre-form cannot be unburied as minor work, create an EC notification.

Notes:

- If you cannot dig up the anchor, and create an EC with a photo of a buried anchor **only** - the Gatekeeper will **not know** if the anchor can be replaced or if an extension can be installed; you should make every effort to dig up the anchor to perform a complete assessment. If your photo is of a buried anchor only, the general rule of thumb is that the EC will be created to **replace** the anchor.
- If you **cannot** dig up the anchor, but you can see most of the pre-form - an extension can *usually* be added (only one extension can be installed)

**Minor Work:** Yes

- Perform minor work if possible and if safe to do so.
- IF not able to perform minor work, THEN create EC notification.

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022221

## BURIED ANCHOR

**Before**: Vegetation covers anchor

**After**: Vegetation cleared from anchor

**At this Location:** Anchor below grade overgrown with vegetation. After minor work inspector decides if the anchor can be adjusted or needs replaced.

---

**Perform Minor Work:** Yes, remove the vegetation
Yes, expose anchor and evaluate condition/corrosion
Yes, preferred method is to adjust anchor by adding extension

---

**Write Third-Party Notification:** No

---

**Write EC Form:** If cannot be addressed as minor work

- FDA=Anchor / Soil/Eroded/Graded / Replace (if the anchor cannot be adjusted)
- At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F)

## ANCHOR EXTENSION

**Anchor extension**

**Close-up**

**At this Location:** Inspector performed minor work, exposed anchor, evaluated anchor to be in good condition so that extension could be installed, then installed extension. (Back fill not shown)

**Perform Minor Work:** Yes

**Write Third-Party Notification:** No

**Write EC Form:** No

## ANCHOR COVERED BY CONCRETE

**At this Location:** Anchor covered by concrete

**Perform Minor Work:** **No**

**Write Third-Party Notification:** No

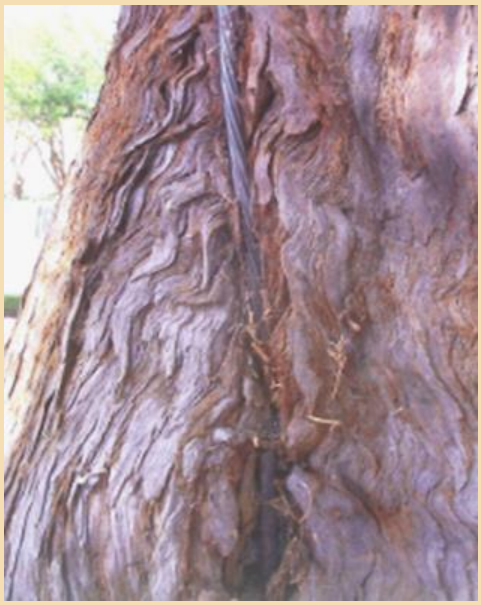
**Write EC Form:** Yes

FDA=Anchor /Soil/Eroded/Graded / Replace

At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F)

**ANCHOR BURIED BY VEGETATION**

**Anchor buried by roots**



**Anchor buried by tree**

**At this Location:** Anchor buried by ivy roots / tree

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Anchor / Soil/Eroded/Graded / Replace
- At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F)

## 2. Visible Portion of Anchor Rod has Significant Corrosion

**General Guidance:** IF the anchor rod is significantly corroded, THEN create EC notification.

**Minor Work:** No

**EC Form:** Yes, only if not able to perform minor work

- FDA: Anchor Corroded Replace
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 025998

## ANCHOR ROD WITH SIGNIFICANT CORROSION

**Anchor above ground**

**Below**

**At this Location:** Corroded Anchor

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Anchor / Corroded / Replace
- Priority ”E”, 3-12 months depending upon exposure

## 3. Guy Broken/Slack

**General Guidance:** Important: Before any work is performed on a down guy, inspect the guy insulator; if broken, check for presence of voltage. Guys must be taut (straight, no belly). Tighten the guy as minor work if possible. If not possible, create an EC Notification.

If tightening the guy would exacerbate any pre-existing conditions on a facility (e.g. increase the lean of an already leaning pole, deform an already deforming pole), create an EC Notification with comments describing the situation.

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022178

| GUY CLEARANCE | GUY DAMAGED REPAIR |
|---|---|
|  |  |
| **At this Location:** Acceptable solution through plastic barrier.<br><br>GO 95 requires 3” of radial clearance.<br>Plastic barriers can be installed if less than 3” of clearance. | **At this Location:** Guy tail extends beyond the preform **near sidewalk**, safety hazard.<br><br>**Perform Minor Work:** Yes<br><br>**Write Third-Party Notification:** No<br><br>**Write EC Form:** Only if minor work cannot be performed.<br>• FDA Guy / Broken/Damaged/ Repair<br>• Priority ”E”, 3-12 months depending upon exposure |

| OVERGROWN GUY | TREE GROWING AROUND GUY |
|---|---|
|  |  |
| **At this Location:** Extensive dead ivy covering half of length of guy. | **At this Location:** Tree growing around guy |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Guy / Broken/Damaged / Replace<br>• Priority ”E”, 3-12 months depending upon exposure | **Write EC Form:** Yes<br>• FDA=Guy / Broken/Damaged / Replace<br>• Priority ”E”, 3-12 months depending upon exposure |

| SLACK GUY | |
|---|---|
|  | **At this Location:** Loose guy on left side<br>**Perform Minor Work:** Yes<br>**Write Third-Party Notification:** No<br>**Write EC Form:** Yes, only if minor work is not possible<br>• FDA=Guy / Loose / Adjust<br>• At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F) |

## GUY GROUNDED BY VEGETATION

**Guy grounded by vegetation**

**Guy grounded by vegetation**

**Guy overgrown by vegetation**

**At this Location:** Guy grounded by vegetation, above the bob.

**Perform Minor Work:** Yes

**Write Third-Party Notification:** No

**Write EC Form:** Yes, only if minor work cannot be performed

- FDA=Guy / Overgrown / Trim
- Priority ”E”, 3-12 months depending upon exposure

## IVY ON GUY AND PRIMARY

**At this Location:** Ivy on guy and on primary. Safety issues, possible energized guy and pole, transformer weeping – no oil on ground, evaluate per oil spill matrix.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Transformer / Leaks/Seeps/Weeps / Replace (primary)
- FDA=Guy / Overgrown / Trim
- Priority ”B”, 3 months or less depending upon exposure

## TREE LIMB GROWING AROUND GUY

Guy through tree

Close-up

**At this Location:** Tree limb growing around guy, below the bob.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Guy / Strain/Abrasion / Remove
- Priority ”E”, 3-12 months depending upon exposure

## 4. Guy Insulator Broken/Missing

**General Guidance:** Guys in the cylinder of “proximity” to conductors less than 35kV:

- 8 ft. or less above or below the conductor level
- 6 ft. or less horizontally from the surface of the pole

**Example: Broken guy insulator**


Must be sectionalized and ungrounded. Ensure there is an intact guy insulator.

**Minor Work:** No

**EC Form:** Yes

- FDA: Guy / Broken/Damaged / Replace or Guy / Missing / Install
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022178

## 5. Down Guy Grounded above Guy Insulator (vegetation or other)

**General Guidance:** Ensure that all guys are not grounded above the guy insulator. Remove any foreign objects (e.g. vegetation) contacting and grounding the guy above the insulator as minor work. Clear so that new growth will not contact or ground the guy. (Rule of thumb is that growth per year is 1 foot, so trim back 5 feet.)

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022178

| DOWN GUY GROUNDED ABOVE GUY INSULATOR | DOWN GUY GROUNDED ABOVE GUY INSULATOR CAUSING STRAIN AND ABRASION |
|---|---|
|  |  |
| **At this Location:** Vine growing up and across the guy insulator grounding the guy. | **At this Location:** Tree grounding the guy above the guy insulator causing strain and abrasion. |
| **Perform Minor Work:** Yes | **Perform Minor Work:** Yes, if minor work not possible |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes, only if minor work cannot be performed<br>• FDA=Guy / Overgrown / Trim<br>• Priority ”E”, 3-12 months depending upon exposure | **Write EC Form:** Yes, only if minor work cannot be performed<br>• FDA=Guy / Strain/Abrasion / Remove<br>• FDA=Guy / Overgrown / Trim<br>• Priority ”E”, 3-12 months depending upon exposure |

## 6. Down Guy Marker Missing/Damaged

**General Guidance:** For poles installed **after 1996,** Guy Markers are required on **all** down guys. The markers must be a minimum 8 ft. in length. For poles installed ***prior to 1996*****,** guy markers are **only required** on poles which are exposed to traffic. **Inspector should confirm the age of the pole via the date nail to verify the requirement.**

Install a single guy marker on multiple guys which are clamped together. For guys that are not clamped together, but on the same anchor, consider separate guy markers on each guy if the separation is large.

**Note:** Installing yellow colored guy marker does not negate the need to install visibility strips on the markers. Install visibility strips around traffic areas, on state highways, near curbs, driveways, etc. See visibility strip entry for more details.

**Note:** Install a segment of guy marker above cattle guards to ensure a minimum 8 ft. of guarding.

**Minor Work:** Yes

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 06542, 022178, 99-34

| GUY MARKER MISSING | CATTLE GUARD LESS THAN 8 FT |
|---|---|
|  |  |
| **At this Location:** Guy marker missing | **At this Location:** Cattle guard is less than 8 feet in length |
| **Perform Minor Work:** Yes, install new guy marker | **Perform Minor Work:** Yes, lower cattle guard and add guy marker to meet 8 feet requirement. |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** No, perform minor work | **Write EC Form:** No, perform minor work |

| DOWN GUY: MARKER NOT REQUIRED | |
|---|---|
|  **At this Location:** Acceptable down guy attached to building, no marker required. |  **At this Location:** Acceptable down guy in marsh, no marker required. |

# Idle Facilities

## 1. Identifying and Documenting Idle Facilities

PS&R inspectors continue to identify and document idle lines as they would for any other field condition found, per the requirements and procedures in the Electric Distribution Preventative Maintenance (EDPM) Manual.

If idle lines are documented on hard copies (paper) rather than with PS&R mobile devices, PS&R inspectors update the Daily Log as follows:

- Create a new numbered entry.
- Write “IF” in the “Notification Type” column
- Include any applicable notes in the “Note” column.
- Create one IF Notification (TD-2459S-F01) for each section of idle line.

  Example: If there is an idle line with five poles, only one IF Notification is required for the entire section of line. ***Do not create an IF Notification for each pole.***

At a **minimum**, attach the following two attachments to each IF Notification:

- Photo of the field condition
- Map with the idle area clearly identified

**Do not** initiate an IF Notification or an EC Notification when **attachments to poles** (cross-arms, miscellaneous hardware, brackets, insulators, etc.) do not pose a safety or reliability risk to an idle facility.

Continue to document safety or reliability issues that meet criteria for vegetation notifications.

**NOTE:** Vegetation management personnel **do not** patrol or maintain vegetation on de-energized tap lines.

**Identify specific field conditions on Page 1 of the IF Notification. (The PS&R supervisor refers to these field conditions to prioritize the IF Notification.)**

- The service planning due date (SPDD) on the IF Notification is specific to the investigation only and is the date that the investigation must be completed.
- For a list of field conditions and related QCR actions, refer to Table 1, "IF Field Conditions and Investigations Priorities," below.

**NOTE:** QCRs use IF Notifications to document potentially idle facilities. Customer service delivery (CSD) personnel use IF Notifications to investigate, classify, and document idle facility investigation results.

**Table 1. IF Field Conditions and Investigation Priorities**

| Condition | Action | Investigation Priority |
|---|---|---|
| Safety Situation/Risk | • Mitigate hazard and make safe, which may include de-energizing.<br>• Initiate an IF Notification for investigation.<br>• Initiate an Electric Corrective (EC) Notification to document any other abnormal conditions to resolve. | **High**<br>Submit to supervisor by end of day.<br>Enter in SAP, and communicate to service planning personnel within 2 business days. |
| Idle transformers that do not have a blue sticker indicating a polychlorinated biphenyl (PCB) content of less that 5 parts per million (ppm) may be classified as High, Medium, or Low priority.<br>Consider current field conditions, the transformer condition, and if the following sensitive locations are nearby:<br>• Surface or ground waters<br>• Sewers or sewage treatment systems<br>• Private or public drinking water sources or distribution systems<br>• Grazing lands<br>• Vegetable gardens or agricultural areas<br>• Daycare centers and schools | • If High priority, mitigate hazard and make safe, which may include de-energizing.<br>• Initiate an IF Notification for investigation; priority is dependent upon field and equipment conditions.<br>• Note the specific field conditions, transformer condition, and transform locations (see "Condition" column notes) in the Comments section. | **High – Medium-Low**<br>To designate as High priority, consider the identified idle transformer locations, current condition of the transformer (see "Condition" column notes), and current condition of associated facilities (pole, crossarm, etc.) |
| Future work required to maintain existing idle facility (EC Notifications to repair/replace/relocate facilities). | • Initiate an IF Notification for investigation.<br>• The IF priority depends on the due date of the EC. | **High – Medium-Low** |
| PG&E and Modesto Irrigation District (MID) service areas. | • Initiate an IF Notification for investigation. | **Medium** |
| Idle facilities in raptor concentration zones (RCZs) with suitable habitat to support threatened or endangered raptors. | • Initiate an IF Notification for investigation.<br>• Initiate a Priority E, 3-month EC Notification to de-energize the facility. | **Medium – Low** |
| Oil-filled equipment considerations:<br>• Surface or ground waters<br>• Sewers or sewage treatment systems<br>• Private or public drinking water sources or distribution systems<br>• Grazing lands<br>• Vegetable gardens or agricultural areas<br>• Daycare centers and schools | • Initiate an IF Notification for investigation.<br>• For idle transformers, note the absense or presence of a blue sticker on the IF Notification.<br>• A blue sticker indicates a PCB content of less than 5 ppm. | **Medium** |
| Potential use for agricultural pumps or vacant buildings. | • Initiage an IF Notification for investigation. | **Low** |
| Entire primary tap is identificed as idle and is unfused. No future work is required to maintain the existing idle facility. | • Initiate an IF Nofication for investigation.<br>• Initiate a Prioirty E, 3-month EC Notification to de-energize the line. | **Low** |

Identify idle facilities in RCZs.

Determine whether there is any potential use for agricultural pumps and/or vacant buildings.

**Classify facilities that are to remain in the field as follows:**

- De-Energized – Temporary Out of Service (TOS):
- Potential agricultural pump – TOS-AG
- Vacant building use – TOS-V

**Energized – Temporary Idle Facility (TIF):**

- Potential agricultural pump – TIF-AG
- Vacant building use – TIF-V

**The following Table 2 is a complete listing of TOS/TIF classifications.**

**Table 2. TOS/TIF Classifications**

| Temporary Out of Service (TOS) De-Energized<br>Temporary Idle Facility (TIF) Energized | | |
|---|---|---|
| Facilities with a future use are grouped into one of the following classifications: | | |
| TOS-AG | Potential agricultural use | De-energized |
| TIF-AG | Potential agricultural use | Energized |
| TOS-V | Potential service to an existing vacant building | De-energized |
| TIF-V | Potential service to an existing vacant building | Energized |
| TOS-CAP | Potential PG&E use for capacity or reliability | De-energized |
| TIF-CAP | Potential PG&E use for capacity or reliability | Energized |
| TOS-F | Future customer use identified by service planning | De-energized |
| TIF-F | Future customer use identified by service planning | Energized |
| TOS-MLX | Current Main Line Extension Agreement | De-energized |
| TIF-MLX | Current Main Line Extension Agreement | Energized |
| TOS-SFA | Current Special Facilities Agreement | De-energized |
| TIF-SFA | Current Special Facilities Agreement | Energized |

**When pending maintenance is identified on idle facilities, write a minimum of two notifications:**

- One IF Notification (TD-2459S-F01) for the entire idle line
- One EC Notification per location requiring maintenance

**After identifying pending maintenance on idle facilities, ensure that the IF Notification has the Field Condition box, "Future work required to maintain existing idle facility," checked. See Figure 1 below.**

- Enter the following note in the EC Notification comments section: "IDLE notification created."
- Enter a note in both IF Notification and EC Notification comments with corresponding notification numbers, when available.

**Figure 1**

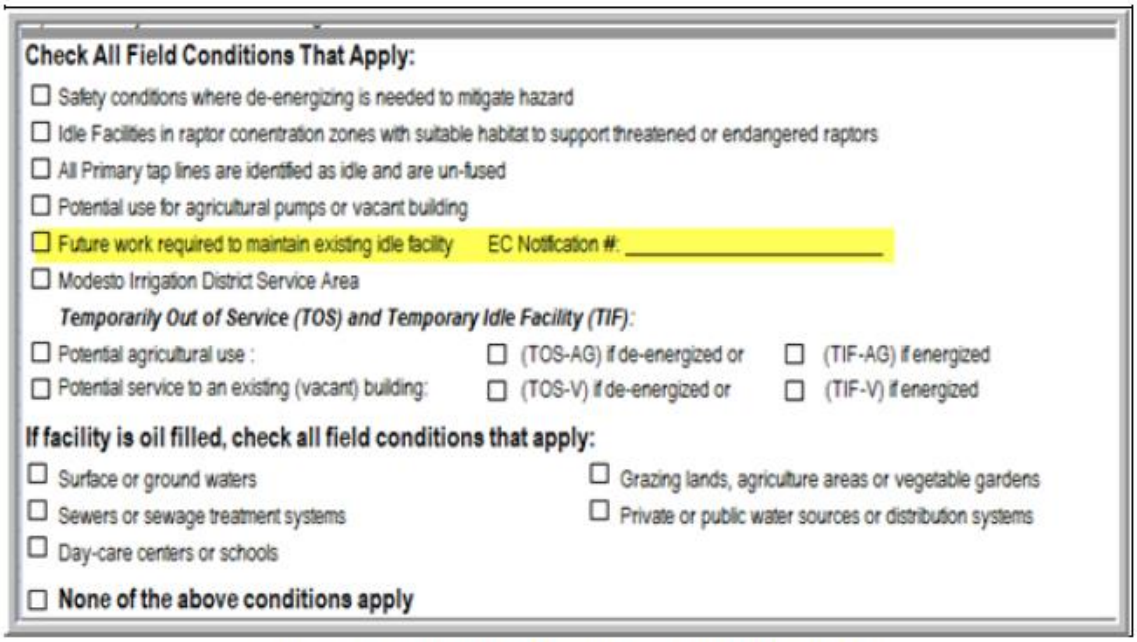



**Figure 1. IF Notification – Future Work Required Field Condition and EC Notification Number**

## 2. Energized Electric Line Facility No Longer Used to Serve Customer Load

**General Guidance:** It may be necessary to de-energize the idle facility:

If primary lines are energized, de-energize line sections by opening cut-outs. In raptor concentration zones (RCZs) or if the primary tap line is unfused, create a Priority E, 3-month Electric Corrective (EC) Notification to de-energize the jumpers.

> **NOTE**
>
> When idle transformers or sections of line de-energized by cut-outs are located in non-raptor areas, an EC Notification is **not** required to de-energize the jumpers.

**Do not** initiate an IF Notification or an EC Notification when attachments to poles (cross-arms, miscellaneous hardware, brackets, insulators, etc.) do not pose a safety or reliability risk to an idle facility. If it is not necessary to de-energize the idle facility, create a Priority "F" EC Notification.

Continue to document safety or reliability issues that meet criteria for vegetation notifications.

**Minor Work:** No

**EC Form:** Yes, to de-energize

- FDA: OH Facility Idle De-Energize
- Select the Priority "E"
- Select the 0-3 month Due Date

**Idle Facility Form:** Yes

**Related Documents:** TD-2459P-01

### 3. De-Energized Electric Line Facility Already Identified on a Pending EC Notification but Not Mapped

**General Guidance:** Create a map change request if the facility is not mapped as idle.

**Minor Work:** No

**Map Correction:** Yes

**Related Documents:** TD-2459P-01

## Insulators

### 1. Arcing or Tracking on Insulators

**General Guidance:** If there is evidence of arcing or tracking on a primary insulator, call the construction supervisor, create Emergency EC notification, and follow emergency EC processes.

Note: Inspector should always consider replacing wood crossarm with composite crossarm.

Construction Note: Cannot mix insulator types, always replace full set of insulators.

**Minor Work:** No

**EC Form:** Yes, create an Emergency EC Notification

**Related Documents:** Utility S2405

## 2. Damaged Insulators

**General Guidance** Are Insulators chipped, cracked, corroded, contaminated, flashed, have signs of tracking, broken, or damaged? If yes, create EC notification.

Replace ALL insulators if one is chipped, cracked, contaminated, broken, or damaged.

Note for construction: If an insulator is damaged due to gunshot, replace with epoxy or polymer insulators.

Note for construction: Cannot mix insulator types, always replace full set of insulators.

Note: Inspector should always consider replacing wood crossarm with composite crossarm, based on condition of crossarm.

**Minor Work:** No

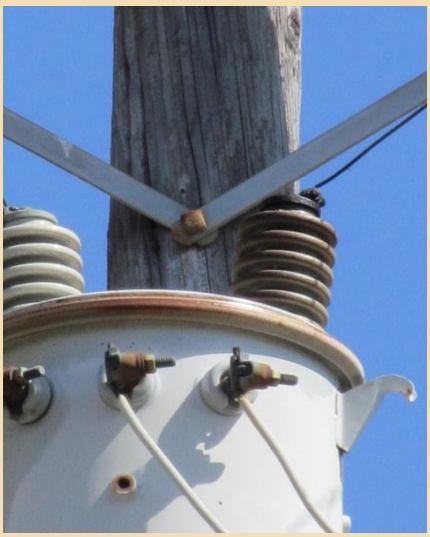
**EC Form:** Yes

- FDA: Insulator Broken Replace
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022088, 068180 (composite crossarm), TD-2305M-JA_07 Crossarm Evaluation job aid

| DAMAGED INSULATOR | INSULATOR LAYING ON ITS SIDE / PRIMARY ON THE ARM |
|---|---|
|  |  |
| **At this Location:** Damaged insulator with an insulator that I no longer approved. Replace all insulators and the arm | **At this Location:** Insulator lying on its side. Primary on the arm. |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA= Crossarm / Decayed/Rotten / Replace<br>• FDA=Insulator / Broken/ Damage / Replace<br>• Priority ”E”, 3-12 months depending upon exposure | **Write EC Form:** Yes<br>• FDA= Crossarm / Decayed/Rotten / Replace<br>• Priority ”A”, follow Emergency Process |

## FLASHED INSULATOR ON TRANSFORMER



**At this Location:** Flashed insulator on transformer

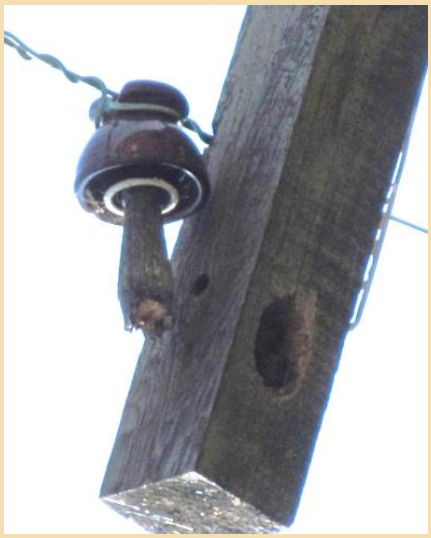
**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA= Transformer / Flashed / Replace
- Priority ”E”, 3-12 months depending upon exposure

## BROKEN WOOD PIN ON PRIMARY



**At this Location:** Broken wood pin. Primary (High Voltage Sign). Conductor on arm. Replace all insulators and the crossarm with a composite arm.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA= Crossarm / Decayed/Rotten / Replace
  FDA=Insulator / Squatter-(Primary) / Replace
- Priority ”A”, follow Emergency Process, (Conductor contacting crossarm)

## FLASHED INSULATOR POTHEAD


**At this Location:** Flashed pothead

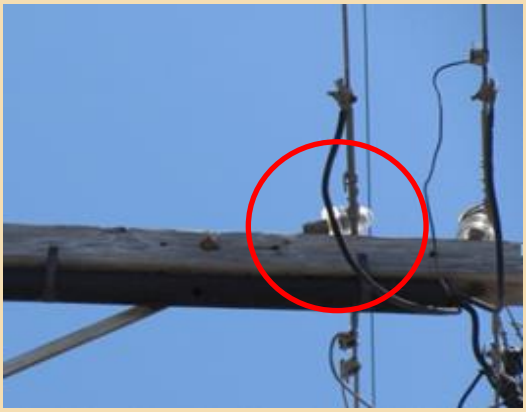
**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes or COE (pin or energized)

- FDA=Riser/Pothead / Flashed / Replace
- At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F)

## BROKEN WOOD PIN ON SECONDARY



**At this Location:** Broken secondary wood pin. Conductor lying on the arm, tangent pole. (excluding urban wildfire areas, use risk priority matrix). Wood pin arm at end of life replace arm with composite arm

**Perform Minor Work:** Yes

**Write Third-Party Notification:** No

**Write EC Form:** Yes, if minor work not possible

- FDA= Crossarm / Decayed/Rotten / Replace
- FDA= Insulator / Squatter (Secondary) / Replace
- Priority ”B”, 0-3 months depending upon exposure

## BROKEN SECONDARY INSULATOR


**At this Location:** Broken secondary insulator

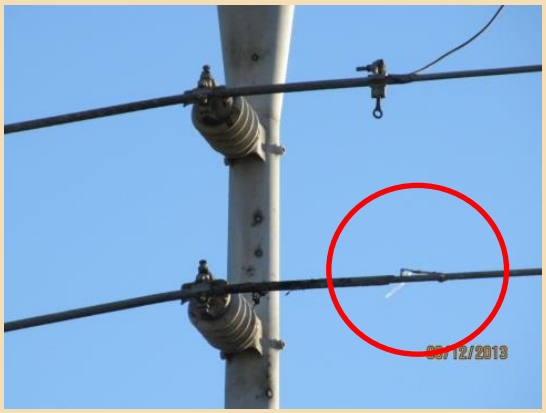
**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA= Crossarm / Decayed/Rotten / Replace
- FDA=Insulator / Broken/ Damage / Replace

## FLASHED INSULATOR MYLAR BALLOON



**At this Location:** Flashed insulator by Mylar balloon

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Insulator / Flashed / Replace
- Priority ”E”, 3-12 months depending upon exposure

## 3. Squatters – Primary or Secondary

**General Guidance:** Are primary or secondary insulators squatting? If yes, create EC Notification.

**Minor Work:** No

**EC Form:** Yes

- FDA = Insulator / Primary Squatter / Replace - OR
- FDA = Insulator /Secondary Squatter / Replace
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

Note: Inspector should always consider replacing wood crossarm with composite crossarm.

Construction Note: If an insulator is damaged due to gunshot, replace with epoxy of polymer insulators.

Construction Note: Cannot mix insulator types, always replace full set of insulators.

**Related Documents:** 022088, Crossarm Evaluation TD-2305M-JA_07

## PRIMARY SQUATTER

**At this Location:** 2 Primary Wood Pin Squatters; replace wood crossarm with composite crossarm.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA = Crossarm Decayed/Rotten / Replace
  FDA = Insulator / Primary Squatter / Replace
- At minimum – must write up as Priority "E", based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, or E)

## SECONDARY SQUATTER AND DECAYED CROSSARM

**At this Location:** Secondary Squatter and decayed crossarm.

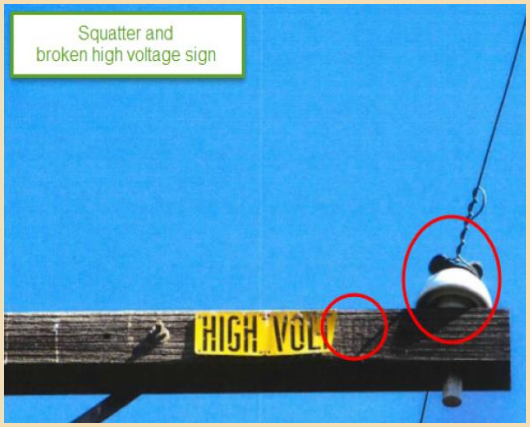
**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA= Crossarm / Decayed/Rotten / Replace
- Priority "E", 3-12 months depending upon exposure
- Note: When replacing insulators, do NOT mismatch insulators.

## PRIMARY SQUATTER AND BROKEN HIGH VOLTAGE SIGN




**At this Location:** Primary squatter and broken high voltage sign

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

FDA = Insulator / Primary Squatter / Replace
FDA = High Sign / Broken / Replace

- Assign priority depending upon condition of asset/component, location, and public safety & exposure
- Note: Consider replacing wood crossarm with composite.

## 4. Flying Bells

**General Guidance:** Are flying bells broken or damage? If yes, create EC notification.

Note: If flying bells were installed to de-energize idle facilities, assess vegetation around idle conductor; create EC notification to trim, as vegetation management does not perform trimming on idle facilities.

**Example: Flying bells installed**


**Minor Work:** No

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

# Lightning / Surge Arrestors

## 1. Broken or Flashed

**General Guidance:** Are arrestors broken, damaged, flashed, or is the ground lead disconnect activated? If yes, Creat EC notification to replace lightining arrestor.

**Example: Blown lightning arrestor**


**Example: Approved ABB-type surge arrestor**

**Minor Work:** No

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 031822

# Markings

## 1. High Voltage Sign Not Installed as Required

**General Guidance:** Inspectors are required to look for missing or broken high voltage signs during inspections. If inspectors find missing or broken signs, they should install new signs as minor work if they have the appropriate materials and equipment and can perform the work safely. If the inspector cannot install a sign as minor work, the inspector must create a Priority 'F' EC notification. Below is guidance on how to evaluate high voltage signage.

**High Voltage Sign Requirements:**

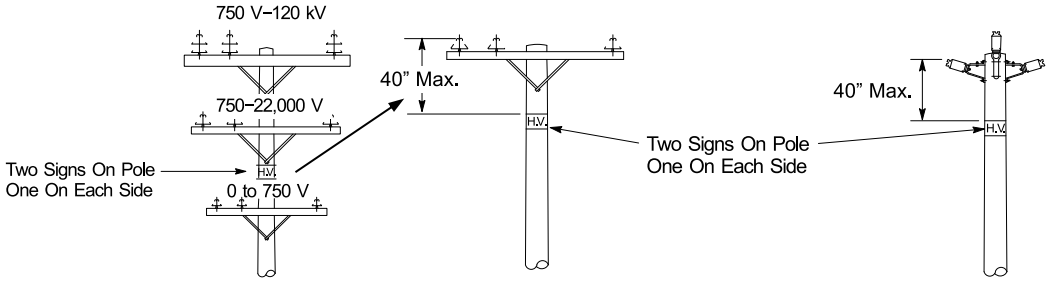
Poles that support line conductors or risers energized at **more than 750 volts** must be marked with high voltage signs. **IMPORTANT: If a pole is marked under any of the options below, it satisfies the high-voltage marking requirement** When installing new high voltage signs using one option, inspectors are not required to remove signs previously installed under different options.

**Marking Options:**

A. **Sign the Pole Below the Lowest 750V+ Line Conductor (Preferred Method)**

Marking requirements are satisfied under this option if:

1. There are two signs, attached to the surface of each side of the pole[1].
2. The top of each sign is no more than 40'' below the lowest level line conductor that exceeds 750V.

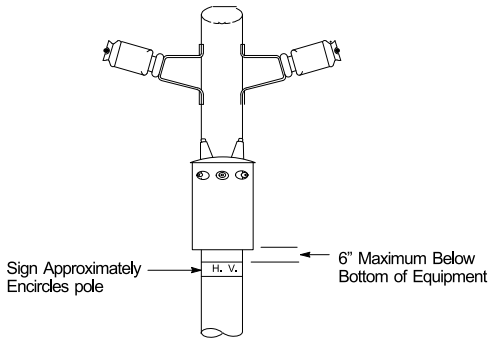



[1] **Exception:** If an inspector finds only one high-voltage sign within 40'' below the lowest 750V or greater conductor, the inspector is not required to install a second sign. However, when performing work at the lowest crossarm level, a second sign must be installed.

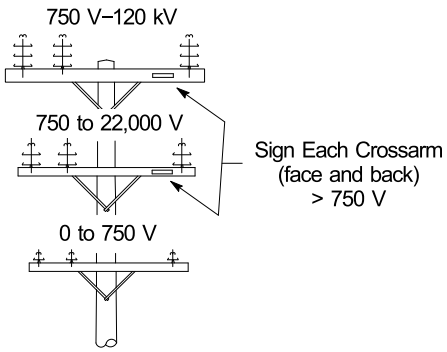
**B. Sign the Pole Below Equipment**
Marking requirements are satisfied under this option **if:**

1. There are two signs attached to the surface of each side of the pole2.
2. The top of each sign is no more than 6'' below the equipment.
3. The signs are above all 0-750V supply and communication line conductors.

2 **Exception:** If an inspector finds only one high-voltage sign installed within 6'' below the equipment, the inspector **is not required to install a second sign.** However, when performing work at the equipment level, a second sign must be installed.



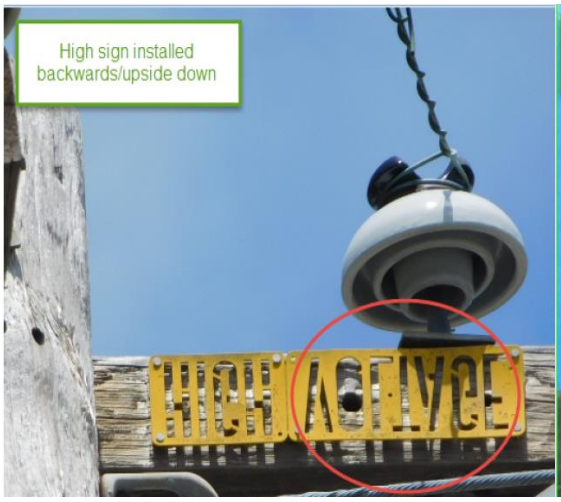

**C. Sign Each Crossarm**
Marking requirements are satisfied under this option **if:**
1. Each crossarm (line arm) supporting line conductors in excess of 750V are signed both front and back. Signs are not required on the inside faces of double arms.

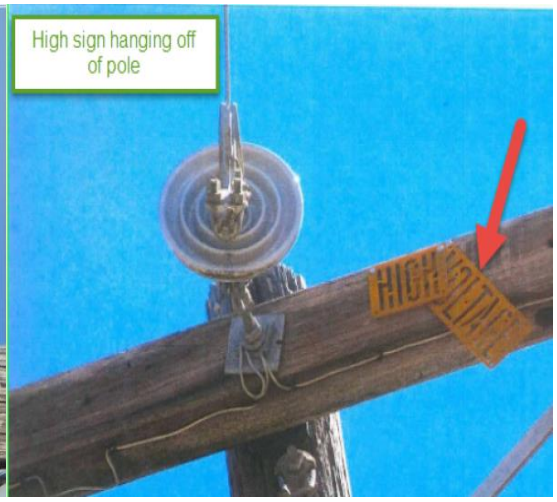



**The exceptions in Sections A and B do not apply when, in the judgment of the inspector, the two high voltage signs should be installed so that they may be visible from all sides of the pole. Typical examples are poles near water areas suitable for sailboats, near established boat ramps and associated rigging areas, adjacent to swimming pools, and in agricultural areas with moveable irrigation piping.**

**High Voltage Sign Examples**






**Minor Work:** Yes

**EC Form:** Yes, if cannot be completed as minor work.

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022168

## 2. Operating Number Incorrect / Illegible/ Missing

**General Guidance:**

IF the operating number on the field equipment does **not** match the operating number printed on inspection map;

THEN (1) **contact the local Distribution Operation (DO)** to confirm the discrepancy and to get further instructions

(2) DO confirms the field equipment number is **correct;** then complete a **map correction**

(3) DO confirms the field equipment number is **not correct**; then **perform minor work to correct the operating numbers** on the field equipment

(4) DO **cannot confirm the operating number**; then get a PIN from DO and complete a **map correction** to get an operating number assigned

(5) DO confirms the field equipment number for equipment in the field that **does NOT** have a field equipment number installed; then **complete minor work to install the equipment number OR create an EC** to have M&C install the field equipment number

**Note:** Alpha characters may differ between divisions. Be sure to confirm the "number" with the local DO and PS&R Supervisor.

Operating number should be installed in the operating position; if missing, they should be installed on the operating position, not at the 6' level. Consider also adding the # at the 6' level for ease of identification for field EE's.

If operating number exists, is it legible (faded, etc.); if not legible replace them as minor work or create an EC notification.

If operating number is not installed in the field, but on the inspection map - call the DO to confirm the correct number before installing.

If confirmed that the field is wrong, correct as minor work or create an EC to have corrected.

If confirmed that the operating number is mapped but not installed in the field, install the operating number as minor work.

If operating number is not installed in the field, but on the inspection map and/or in GIS - call the team lead who will contact the DO to confirm the correct number before installing.

If confirmed that the number is mapped but not installed in the field, or the field is incorrect, correct as minor work if possible, or write EC notification.

**Minor Work:** Yes

**Map Correction:** Yes, if operating number needs to be corrected

**EC Form:** Yes, if you cannot perform minor work

- FDA: Marking / Broken/Damaged / Replace or Marking / Missing / Install
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 057352

## FADED OPERATING NUMBER

**Before:** Faded operating number

**Close-up**


**After:** Minor work completed, operating number applied below operating position.

**At this Location:** Operating number is faded

**Perform Minor Work:** Yes

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Marking / Broken/Damaged / Replace
- At minimum – must write up as Priority ”F-R”, next inspection cycle; based on field condition and exposure, corrosion, etc.; prioritize as needed (A, B, E, or F)

## 3. Damaged or Missing Visibility Strips on Poles/Guy Markers

**General Guidance:** Reflective visibility strips shall be installed on wood, fiberglass, or steel poles, streetlight poles, and guy markers as follows:

A. On poles and guy markers installed on state highways.

B. On poles and guy markers located within 15 feet from the paved surface or 15 feet from the edge of the traveled, unpaved portion of city or county roads (streets) where not protected by curbs.

C. On poles and guy markers within 6 feet of an adjacent driveway, private roadway (street), turnaround, parking lot, or thoroughfare in rural district, capable of being traversed by vehicles, where these are not protected by curbs.

Notes:

Visibility strips are not required on poles or guy markers behind a curb, approximately 5-1/2” x 5-1/2” and 90 degrees to the surface.

Visibility strips should not be installed if there is no reasonable expectation of traffic. For example: Cross country poles, poles through waterways or wetlands, rear easements poles, poles behind guardrails, or poles on embankments that are well above or below the road.

**Reminders:**

- Do not install visibility strips on top of the old one. Inspectors must remove the old strip first.
- If the old strip is in good condition, but became loose, re-secure the strip to the structure.
- Do not install metal visibility strips over any vertical molding/riser.
- If any visibility strip work is required, bring the location up to the current visibility strip standard (all must be the same color – yellow)
- Install visibility strips on the side facing oncoming traffic when known.
- Do not install visibility strips within 1-1/2” of U-shaped molding
- If unable to install at time of inspection due to lack of material return and complete minor work if still in the area and can do so and document minor work or write up EC notification to correct.

**Minor Work:** Yes

**EC Form:** Yes, if cannot be completed as minor work.

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022168, GO 95 Rule 56.9 (1964, 1990, 1996 Change to Guy Marker)

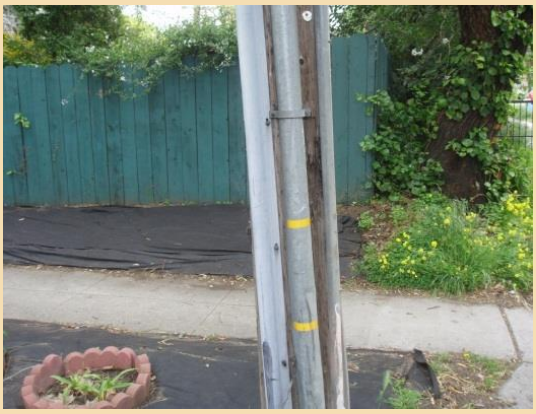
## ADHESIVE VISIBILITY STRIPS

**At this Location:** Acceptable application of plastic and adhesive visibility strips

## CLEARANCE FROM GROUND

**At this Location:** Acceptable metal visibility strips attached 1 ½“from ground.

## INADEQUATE VISIBILITY STRIPS



**At this Location:** Pole with vehicular exposure. Two small sections of yellow adhesive visibility strips.

**Perform Minor Work:**

Yes, apply 3 adhesive visibility strips on the pipe.

Yes, apply 3 adhesive visibility strips to the plastic molding.

**Write Third-Party Notification:** No

**Write EC Form:** No, perform minor work

## VISIBILITY STRIPS PAINTED OVER NO LONGER REFLECTIVE

**At this Location:** Visibility strips painted brown (3rd visibility strip located above not shown in picture)

**Perform Minor Work:** Yes, remove old visibility strips and install new.

**Write Third-Party Notification:** No

**Write EC Form:** No, perform minor work

## METAL OVER MOLDING


**Before**


**After**

**At this Location:** Metal visibility strips under wood molding and over wood molding with protruding edge.

**Perform Minor Work:** Yes, remove old metal visibility strips and apply new visibility strips; **visibility strips on after photo are fiber, not metal** (coded item)

**Write Third-Party Notification:** No

**Write EC Form:** No, perform minor work

## OLD METHOD VISIBILITY STRIPS


**At this Location:** Aged visibility strips have lost reflectivity.

**Perform Minor Work:** Yes, replace with 3 yellow visibility strips

**Write Third-Party Notification:** No

**Write EC Form:** No, perform minor work

## OLD AND NEW VISIBILITY STRIPS


**At this Location:** Yellow visibility strips mounted over old white visibility strips.

**Perform Minor Work:** Yes, remove old visibility strips

**Write Third-Party Notification:** No

**Write EC Form:** No, perform minor work

# Oil-filled Equipment

## 1. Equipment Oil: Leaking/Weeping Stain

**General Guidance: Refer to the EDPM Manual - Assessments and Notifications Section for additional information about addressing oil in the field.**

IF you observe a **stain or leak**

THEN (1) Look for **exposure or contamination**

**Refer to the PCB Spill/Leak Category Response Matrix** in order to determine the appropriate action and priority.

**PCB Spill/Leak Category Response Matrix**
**Overhead & Sub-surface Equipment**

| Indicator | PCB Equipment Manufactured Before July 1979 | | Non-PCB Equipment Manufactured July 1979 or later | |
|---|---|---|---|---|
| | EC Notification Priority | Standby at Site | EC Notification Priority | Standby at Site |
| Equipment has failed and insulating fluid has run off the surface of the equipment and is in contact with the soil, vegetation, or water. | A<br>Replace | Yes | A<br>Replace | Yes |
| Insulating fluid has run off the surface of the equipment and is in contact with the soil, vegetation, or water<br>OR<br>Insulating fluid Is actively dripping. | A<br>Replace | Yes | A<br>Replace | Supervisor discusses with EFS to determine need to standby based on location and size of spill. |
| Insulating fluid is about to run off the surface of the equipment but has not made contact with the soil, vegetation, water, or structure. | A<br>Replace | Yes | A<br>Replace | Supervisor discusses with EFS to determine need to standby based on location and size of spill. |

**PCB Spill/Leak Category Response Matrix**
**Overhead & Sub-surface Equipment**
**(Continued)**

| Indicator | PCB Equipment Manufactured Before July 1979 | | Non-PCB Equipment Manufactured July 1979 or later | |
|---|---|---|---|---|
| | EC Notification Priority | Standby at Site | EC Notification Priority | Standby at Site |
| Insulating fluid is on the surface of the equipment and is **not** about to run off the surface and has **sheen** (Weeps or Seeps). | Supervisor discusses with EFS to determine EC notification category based on sensitivity of location and upcoming weather.<br>IF no timely response from EFS within ½ hour, THEN assumed to be sensitive area. | | | |
| Sensitive Areas | A<br>Replace | Not needed | B<br>3 month Recheck<br>• Describe sheen in notification<br>• Re-check in 3 months. | Not needed |
| Non-sensitive Areas | B<br>30 day Replace<br><br>IF estimating cannot be completed in time to meet 30 day deadline, THEN replace with like. | | | |
| Residual stain is a mark on the equipment that appears dried.<br>Examples:<br>• Stain on side of overhead transformer<br>• Stain on concrete | No further action needed | Not needed | No further action needed | Not needed |

## PCB Spill/Leak Category Response Matrix, continued

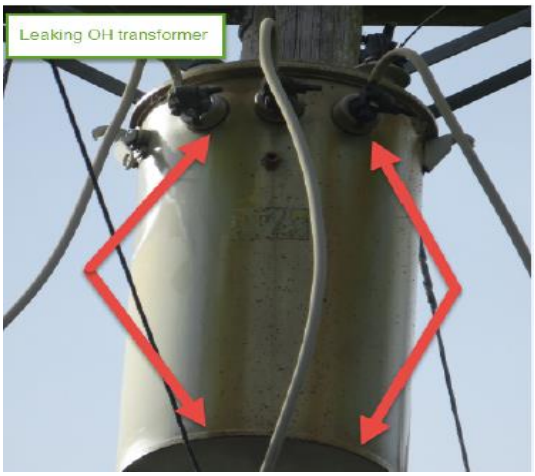
**PCB Spill/Leak Category Response Matrix**
**Padmount Equipment**

| Indicator | PCB Equipment Manufactured Before July 1979 2 | | Non-PCB Equipment Manufactured July 1979 or later | |
|---|---|---|---|---|
| | EC Notification Priority | Standby at Site | EC Notification Priority | Standby at Site |
| Equipment has failed and insulating fluid has run off the surface of the equipment and is in contact with the soil, vegetation, or water. | A<br>Replace | Yes | A<br>Replace | Supervisor discusses with EFS to determine need to standby based on location and size of spill. |
| Insulating fluid Is actively dripping either outside or inside the cabinet doors. | A<br>Replace | Yes | A<br>Contain & Clean<br>Complete cleaning<br><br>A, B, or E<br>Replace | Supervisor discusses with EFS to determine need to standby based on location and size of spill. |

**Minor Work:** No

**Related Documents:** TD-2320P-01 Attachment 4

**Examples: Leaking OH Transformer**

## 2. Corrosion

**General Guidance**: In many parts of PGE's service territory, facilities are exposed to conditions that both cause and accelerate corrosion of metal components.

During detailed inspections, examine facilities and assess their condition for corrosion. If corrosion is minor, repairs to the protective coatings that cover the metal surfaces on the equipment should be made. In addition, during the diagnostic testing for specific types of distribution line equipment, perform an examination for corrosion.

**Minor Work:** Yes

**EC Form:** Yes, if compelling

- Select the appropriate FDA
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** TD-2305M-JA_05 "Corrosion Evaluation Job Aid", G12020, TD-3322B-066-JA08

**IF you observe corrosion:**

THEN (1) Look for exposure

(2) Refer to the below table for to determine the corrosion rating and the required actions to perform. Visual examples follow:

| Description | Symptoms | Required Actions |
|---|---|---|
| Integrity is breached | Hole(s) in metal (public exposure to high voltage, cover not securable, significant oil leak or spill, etc.) | EC notification Priority A – replace immediately or make safe and issue Priority B – replace/repair |
| Metal is damaged | Separation, layering, bubbling | EC notification Priority E – replace/repair<br><br>Not to exceed 12 months |
| Moderate to heavy corrosion | No sign of metal degradation | Inspect at next interval<br>Pad-mounted equipment – clean and paint |
| Little or no corrosion | Discolored paint, staining | No action required |

## OH CORROSION EXAMPLES

**At this Location:** Corrosion Weakening Integrity of Tank

Metal is separating into layers

Corrosion will breach tank

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:**

- FDA=Transformer Leaks/Seeps/Weeps Replace
- Priority ”E”, 3-12 months depending upon exposure

**At this Location:** Transformer with moderate/heavy corrosion

Metal structure still sound (rust staining from attachments)

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** No


**At this Location:** Bonding hardware corroded

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Transformer Leaks/Seeps/Weeps Replace

Priority ”E”, 3-12 months depending upon exposure

| TRANSFORMER WITH STAINING, NO CORROSION | TRANSFORMER CASE WITH LITTLE OR NO CORROSION |
|---|---|
|  |  |
| **At this Location:** Transformer with dirt and salt spray staining, no metal damage | **At this Location:** Transformer with little to no corrosion, no metal damage |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** No | **Write EC Form:** No |

## 3. Parallel Transformer

Is there an obvious paralleled transformer condition at this location? If yes, create EC notification to address parallel condition in the field.

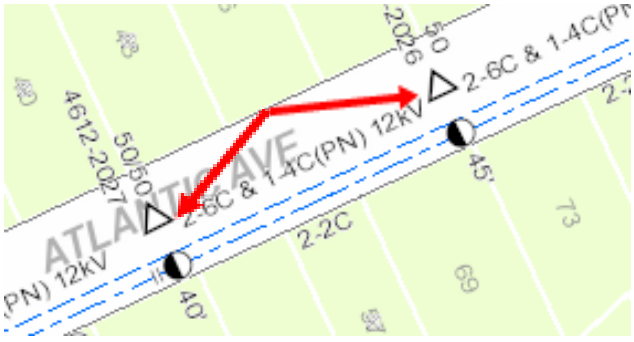
**Minor Work:** No

**EC Form:** Yes

- FDA = Transformer / Parallel / Replace
- Priority ”B”, 0-3 months

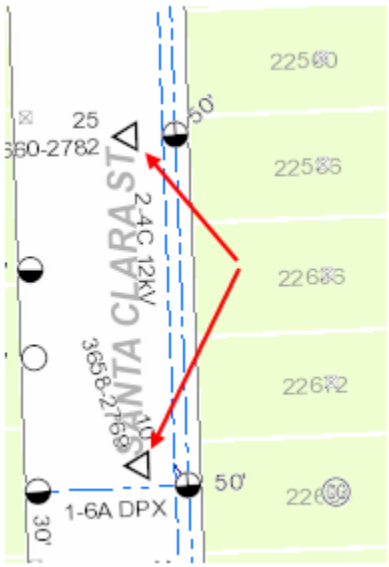
**Related Documents:** TD-2424B-001

**Example: Banked transformers on separate poles should be indentifed as banked.**

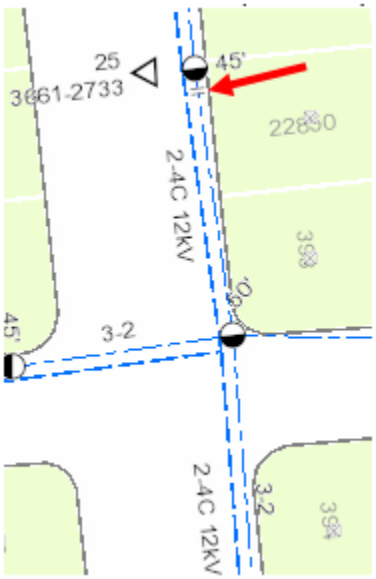


**Example:**

**OH Paralelled Transformers**




**OH Transformers separated by bobs are ok**




## 4. Transformer – Record keeping items

Does the transformer have a blue sticker? Yes/No

Is this a SP (self-protecting) transformer? Yes/No

**Example: SP transformer**

# Poles

## 1. Solely-Owned Poles with Third-Party Attachments

**General Guidance:** Identify all solely owned pole with third-party attachments (based on how it is mapped). Write EC Notification for Pole / Overloaded / Test, for Estimating to confirm pole loading.

Determine if additional clearing is needed for access to pole; if so - create EC Notification.

**Minor Work:** Yes, create an EC Notification to clear vegetation unless it can be addressed as minor work

**Related Documents:** EDPM Pole Inspection, Utility S2325

## 2. Broken, Deterioriated, Deformed Poles

**General Guidance:** Observations in the field may include the following types of pole damage:

1. Broken
2. Split
3. Decayed / Rotten
4. Woodpecker damage
5. Vandalized
6. Any pole deformity
7. Any condition that may impair conductor clearance
8. Cracked poles: assess for potential failure
9. Significant reduced circumference

Is pole damaged, broken, burnt, deformed, corroded, gunshot, or showing signs of cracking, or decay that needs to be addressed in the next 5 years? If yes, create EC notification.

Does the pole have woodpecker damage that needs to addressed in the next 5 years? Refer to EDPM Manual for how to assess woodpecker damage. If yes – create EC notification to repair, assess, or replace pole.

Does pole have significant reduced circumference? Guidance: For example, animal, vehicle, vandalism, burnt, shell rot, that has caused a pole circumference reduction that could cause the pole to be overloaded or deformed needs to be written up on an EC Notification, FDA = Pole Overloaded Test. If circumference is significant and needs to be addressed in the next 5 years, create EC notification to replace pole.

An ‘N’ tag indicates previously identified damaged pole.

**Minor Work:** No

**Related Documents:** EDPM Pole Inspection, TD-2325S, 066209

**Record Keeping Items:**

Does the location have a buddy pole (i.e. cut & kick pole with un-transferred communications) Yes/No

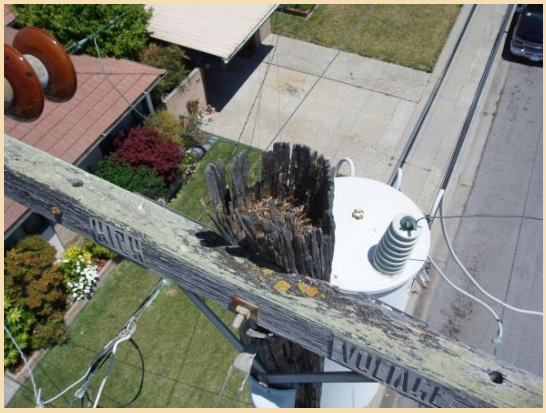
Is there a support structure or stub present? Yes/No; If yes, select type of reinforcement (fiberglass wrap, mod pole, pole splint, pole top extension, steel truss, steel wrap, wood stub, other). **Related Document**: TD-2325P-06

**Record Keeping Items – Examples:**

| Composite Pole | Composite Pole |
|---|---|
|   |   |
| **Pole with steel stub** | **Pole with wood stub** |
|   |   |
| **Example: Pole top extension** | **Example: "California" pole top extension** |
|   |   |

| POLE BROKEN AT THE COMMUNICATION LEVEL | POLE BROKEN AT MIDDLE SECTION |
|---|---|
|  |  |
| **At this Location:** Pole broken at the communication level in HFTD area.<br>Complete Pole Inspection Test Report | **At this Location:** Broken pole. Complete Pole Inspection Test Report |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Pole / Broken/Damaged / Replace<br>• Priority “A” address immediately | **Write EC Form:** Yes<br>• FDA=Pole / Broken/Damaged / Replace<br>• Priority ”B”, 0-3 months depending upon exposure |

| BROKEN POLE | POLE SPLIT AT COMMUNICATION LEVEL |
|---|---|
|  |  |
| **At this Location:** Broken pole. Complete the Pole Inspection Test Report. Pole supported in four directions. | **At this Location:** Pole split at communication level. Complete the Pole Inspection Test Report. |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Pole / Broken/Damaged / Replace<br>• Priority ”B”, 0-3 months depending upon exposure | **Write EC Form:** Yes<br>• FDA=Pole / Broken/Damaged/ Replace<br>• Priority ”B”, 0-3 months depending upon exposure |

| DAMAGE TO POLE FROM SPECIFIC EVENT | DECAY OF POLE OVER TIME |
|---|---|
|  |  |
| **At this Location:** Pole burnt<br><br>If pole has reduced circumference. Write EC notification for estimating to confirm pole loading. | **At this Location:** Pole top decayed. Entire pole failed pole test. Complete the Pole Inspection Test Report. |
| **Perform Minor Work: No** | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes, Write EC notification for estimating to confirm pole loading.<br>• FDA=Pole/Overloaded/Test<br>• Priority “E”, 3-12 months depending on exposure. | **Write EC Form:** Yes<br>• FDA=Pole Decayed/Rotten/Replace<br>• Priority ”E”, 3-12 months depending upon exposure |

## SAW CUT INTO POLE

**At this Location:** Vandalized pole. Chain saw cut into lower portion of pole. Half of pole circumference cut into.

Notify supervisor of possible vandalism. Supervisor will have to communicate to damage claims. Complete Poles Inspection Test Report.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Pole / Broken/Damaged/ Replace
- Priority “A” or ”B”, 0-3 months depending upon exposure

**At this Location:** Vandalized pole. Chain saw cut into lower portion of pole. More than half of pole circumference cut into.

Notify supervisor of possible vandalism. Supervisor will have to communicate to damage claims. Complete Poles Inspection Test Report.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Pole / Broken/Damaged / Replace
- Priority “A” or ”B”, 0-3 months depending upon exposure

## POLE DAMAGED ON THE BOTTOM BUT OK

**At this Location:** Pole damaged by vehicle. Splint installed as temporary repair. Inspection shows adequate circumference/strength. Sharp ragged splinters. Curb is adequate protection – visibility strips not required.

If pole has reduced circumference write EC notification for estimating to confirm pole loading. If damage requires replacement, create an EC notification to replace the pole.

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**Perform Minor Work:** Yes, Remove sharp edges, remove splint.

---

**Write Third-Party Notification:** No

---

**Write EC Form:** Yes.

- FDA= Pole / Overloaded / Test

**If needs replaced:**

- FDA=Pole / Broken/Damaged / Replace

## DETERIORATION AROUND GROUND LINE

**Before extraction**


**After extraction showing below ground deterioration**

**At this Location:** Deteriorated condition found during normal inspection. Complete Pole Inspection Test Report. If pole has reduced circumference. Write EC notification for estimating to confirm pole loading.

---

**Perform Minor Work:** No

---

**Write Third-Party Notification:** No

---

**Write EC Form:** Yes

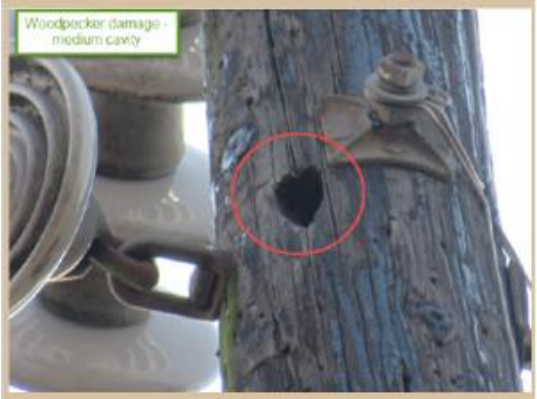
- FDA=Pole / Decayed/Rotten / Replace
- Priority ”A”, follow Emergency Process

**Examples: Poles with woodpecker damage – assess using woodpecker assessment guidelines.**

Woodpecker damage at top of pole


Woodpecker damage - multiple holes within ~2'


Woodpecker damage - medium cavity



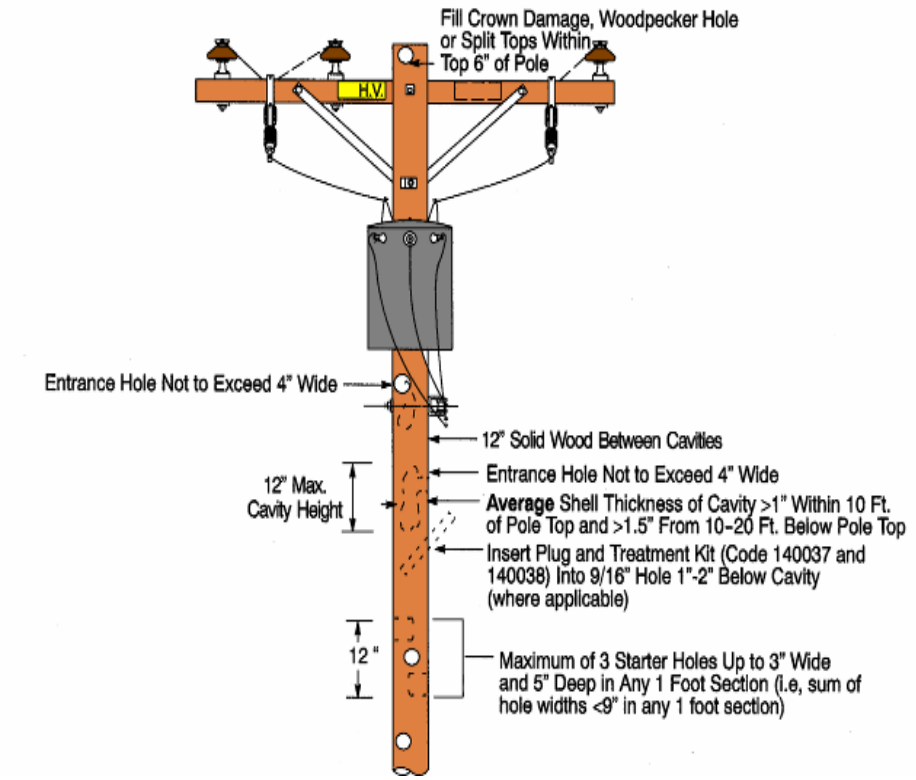

Woodpecker damage - large cavity


**Examples: Significant reduced circumference**

Signifcant reduced circumference (bear damage)

Signifcant reduced circumference (tractor damage)

## Repair of Woodpecker-Damaged Pole Tops




**Assessing woodpecker damage**

- The QCR should note the approximate location, number, and size of woodpecker holes on the “Pole Inspection/Test Report” (Exhibit A, Part 3).
- Determine whether identified above-ground or pole-top damage is suitable for restoration. Poles are suitable for restoration and can remain in service if they meet the criteria listed below:
  - There is 1 vertical inch of solid wood directly below any throughbolt to support existing or proposed attachments.
  - Nesting cavities or other open pockets have an outside hole diameter that is less than 4 inches wide.
  - Internal cavities are estimated to be less than 12 inches high and 7 inches in diameter.
  - The average shell thickness of the cavity is greater than 1 inch within the top 10 feet of the pole, and greater than 1½ inches between 10 feet and 20 feet from the top. See Exhibit B, Part 1, for shell thickness between 20 feet of the pole top and the groundline.
  - There is more than 12 inches of sound wood vertically between nesting cavities.
  - There are three or fewer starter holes less than 3 inches wide, 3 inches high, and 5 inches deep within any 1-foot vertical section of the pole. The maximum sum of the diameters of the holes must be less than 9 inches wide in a 1-foot vertical section.
  - The pole-top crown damage or split tops extend downward less than 6 inches from the pole top.

## 3. Leaning Pole

**General Guidance:** Consider the following when evaluating a leaning pole:

- Is the pole leaning/out of plumb by more than 10% of its height above the ground?
- Is the leaning pole causing excessive conductor sag or reduced clearance issues that could result in contact, fire risk, or public safety?
- Does the lean appear as if it will become worse or affect safety or reliability in the next 5 years (considering environmental and configuration factors -soil, wind, pole attachments, equipment, guying)?

If the answer is **yes** to any of these questions, at minimum **create an EC Notification (Pole /Overloaded /Test) and fill out Pole Test Data Sheet**. All poles need to be load calculated prior to straightening. Estimating will create an EC to straighten (Pole/Lean/Adjust) or replace (Pole/Lean/Replace). If Inspector determines that pole needs to be replaced, create EC notification to replace pole.

**Note:** If the Inspector suspects that a third party attachment is causing the pole to lean, consider writing a Third Party Utility notification in addition to an EC Notification.

**Minor Work:** No

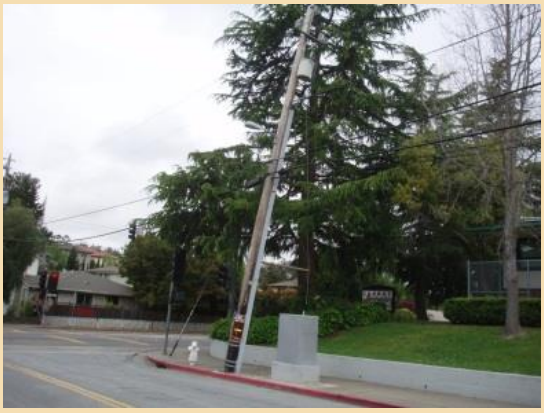
**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 023058, TD-2014S – Third Party Damage

| LEANING POLE | LEANING SLACK SPAN |
|---|---|
|  |  |
| **At this Location:** Leaning pole greater than 10% out of plumb. Pole is stable. No equipment in rural area. Causing reduced clearance. | **At this Location:** Leaning pole more than 10% out of plumb. Pole test indicates that pole is solid below ground and can be straightened. Probability of equipment failure is moderate. |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Pole / Leaning / Replace<br>• Priority ”E”, 3-12 months depending upon exposure | **Write EC Form:** Yes<br>• FDA=Pole / Leaning / Adjust<br>• Priority ”E”, 3-12 months depending upon exposure |

## STUBBED POLE LEANING TOWARDS SCHOOL



**At this Location:** Stubbed pole leaning towards school, supported by down guy. Pole Bands are loose due to additional deterioration of the pole. Pole test data sheet indicates that pole no longer meets stubbing criteria causing reduced clearance issues

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Pole / Decay/Rotten / Replace
- Priority ”E”, 3-12 months depending upon exposure

## POLE LEANING 3 POT TRANSFORMER IN BUCK POSITION

**At this Location:** Pole is leaning less than 10% out of plumb, leaning in direction of offset equipment. Pole inspection found pole stable.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** No

## POLE LEANING NEAR RAILROAD TRACKS

**At this Location:** Severe lean being held up by the primary conductors. Low clearance over active railroad tracks. Pole located in a swamp area with standing water.

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Pole / Decayed/Rotten/ Replace
- Priority ”A”, follow Emergency Process

## 4. Deformed Pole

**General Guidance:**

For deformed poles, write EC Notification for Pole / Overloaded / Test, for estimating to confirm pole loading.

If the deformity appears as if it will become worse or affect safety or reliability in the next 5 years (considering environmental and configuration factors - soil, wind, pole attachments, equipment, guying) - write EC notification to replace pole.

Common drivers for deformed poles: Improper/lack of guying, third party attachment.

Review clearances to verify no reduced clearance issues, all levels of clearance requirements that could result in contact, fire risk, or public safety.

**Minor Work:** No

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** EDPM Pole Inspection

| POLE BENT 4 FEET OUT OF LINE | INADEQUATE SUPPORT AT COMMUNICATIONS LEVEL |
|---|---|
|  |  |
| **At this Location:** Pole bent 4 feet out of line, less than 10% lean | **At this Location:** Two guys stabilizing communication level. |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes, only when the inspector decides that further assessment is required.<br>• FDA=Pole / Overloaded / Test<br>• Priority ”E”, 3-12 months depending upon exposure | **Write EC Form:** Yes, only when the inspector decides that further assessment is required.<br>• FDA=Pole / Overloaded / Test<br>• Priority ”E”, 3-12 months depending upon exposure |

| OVER STRESSED POLE | UNBALANCED LOAD AT TOP |
|---|---|
|  |  |
| **At this Location:** Pole is twisted, cracked, due to communication. | **At this Location:** Deformed pole with bowed top in line with conductor. |
| **Perform Minor Work:** No | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Pole / Overloaded / Replace Pole Test Data Sheet is Required<br>• Priority "E", 3-12 months depending upon exposure; add in field comments "overloaded by communications." | **Write EC Form:** Yes<br>• FDA=Pole / Overloaded / Test Pole Test Data Sheet is Required<br>Priority "E", 3-12 months depending upon exposure. |

## 5. Soil Excessively Eroded or Washed Away at Base of Pole

**General Guidance:** If the inspector notices that a large amount of soil was washed or eroded away at the base of a pole, consider writing an EC notification to investigate whether the pole still meets its designed set depth.

**Minor Work:** No

**EC Form:** Yes

- FDA = Pole / Overloaded / Test
- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 015203, page 2, table 1

**Example: Soil eroded at base of pole**


## 6. Pole Steps

**General Guidance:** Remove any pole steps less than 8 feet 6 inches above the ground or any other accessible surface; this allows for grading, landscaping, etc.

**Minor Work:** Yes

**EC Form:** Yes, if cannot be completed as minor work.

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents:** 022616 page 2, section 5

## 7. Mud sill

**General Guidance:** Repair/replace deteriorated mud sill.

**Minor Work:** No

**Related Documents:** 030109

## 8. Transmission Poles

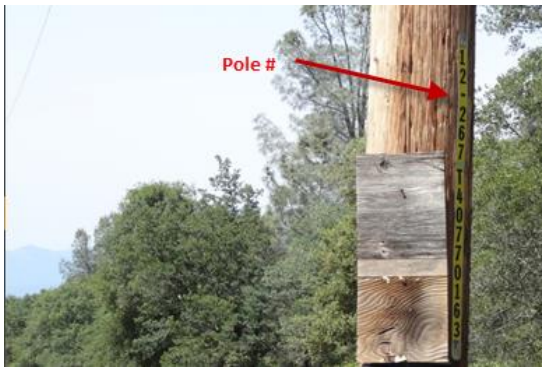
**General Guidance:** At minimum, when performing GO 165 patrols or inspections, Inspectors should perform a “patrol” of the transmission assets in the area being patrolled or inspected in order to identify any **obvious structural problems or hazards** that need to be addressed by the Transmission Organization. Review clearances to verify no reduced clearance issues, all levels of clearance requirements that could result in contact, fire risk, or public safety.

Examples of the types of issues that could be identified:

- Damaged or broken poles
- Broken or decayed crossarms
- Broken insulators
- Damaged tie wire
- Vegetation issues

**If you identify an obvious structural problem or hazard in the field that is NOT an emergency:**

- Assign a location # of your map
- *Document the location # on your P&I Daily Log
- Take a photo of the pole # on the pole; example:




- Take a **minimum** of one photo to document the issue at the location
- Refer to the Transmission key contact map to identify the **T-Line contact** for that area
- Contact the appropriate **Transmission Supervisor** (leave a VM if not available)
- In the comments section of your log entry, note the following:
  - The issue identified (i.e. bad pole, broken crossarm, etc.)
  - The transmission pole #
  - The date, name and phone number of the T-Line employee that you contacted
  - The digital photo number(s) associated with the location

**When in doubt call your Supervisor or PG&E Lead**

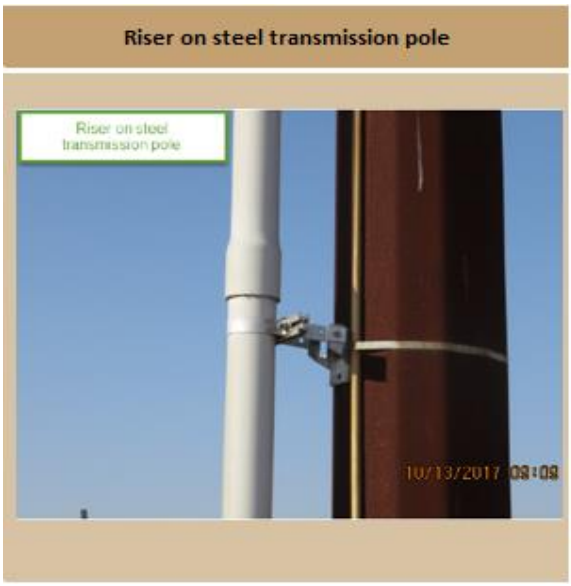
**Minor Work:** No

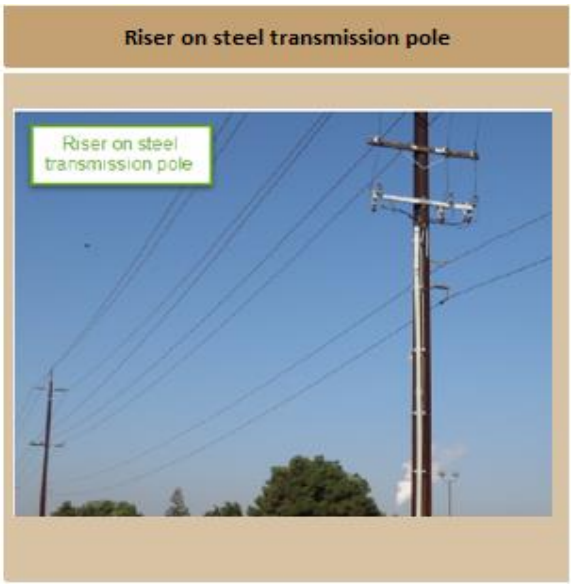
## 9. Transmission Pole with Distribution Underbuild

Is there a distribution riser on this pole? If yes, create EC notification to relocate riser.

**EC Form:** Yes

- FDA=Riser/Pothead / Installed in Error / Relocate
- Priority "E", 3-12 months depending upon exposure




Is there a distribution transformer serving an external customer installed on a steel pole without a common neutral present? If yes, create EC notification to relocate the transformer.

**EC Form:** Yes

- Select the Priority and Due Date based upon compelling abnormal condition that may adversely impact public safety and/or service reliability in the next five (5) years

**Related Documents: 068177**

**Example: Distribution transformer on steel transmission pole without common neutral.**

# Riser Molding

## 1. Broken/Missing Riser Ground

**General Guidance:**

See ‘Ground / Ground Molding’ in this job Aid

**Minor Work:** None

**Related Documents:** 027742

## 2. U-Shape Riser Molding Broken/Damaged or Unsecured

### General Guidance – Existing Molding:

Ensure bottom section of ground molding is flush against the pole

**IF** molding is NOT firmly attached to pole

**THEN** Perform Minor Work to secure molding to pole by attaching all lags ***OR*** Create EC Notification

Address any gaps identified via minor work or create an EC notification

### General Guidance if Installing New Molding or Repairing Existing Molding:

Below 8 feet: Both sides of the molding must be secured to the pole at least every 18 inches

Above 8 feet: Both sides of the molding must be secured to the pole at least every 36 inches

**Examples**

| Cracked riser boot | Broken riser |
|---|---|
|  |  |



**Minor Work:** Yes

**Related Documents:** 021924

# SmartMeter/SCADA Equipment/Other Equipment on Poles

## 1. Broken/Damaged SmartMeter Relay/Access Point/Data Collector Unit or SCADA Equipment

**General Guidance:** If, through visual inspection, an inspector sees broken or damaged SmartMeter antenna, DCU, or SCADA equipment, create EC notification. Be sure to check the SmartMeter box on the EC Form. If visible, note the operating number and/or serial number of the equipment.

Supervisors will contact SmartMeter Operations to notify them of the issue.

**Minor Work:** No

**Related Documents:** 072145, 072150, 068190, SMRT-9000WBT, 054421

**EXAMPLES OF SMARTMETER ON POLE**

# Streetlights

## 1. Broken or Damaged Streetlight Pole

**General Guidance:** Test for out of plumb, then create EC notification.

**Minor Work:** No

**Related Documents:** TD-2309S, TD-2307M

| MISSING STREET LIGHT | LEANING AGGREGATE POLE |
|---|---|
|  |  |
| **At this Location:** Cone indicates location of missing decorative street light and pole. Exposed wire is de-energized. Include picture of similar street light for replacement. | **At this Location:** Leaning aggregate pole more than 10% out of plumb. Pole is broken at base and not stable. Light still working. |
| **Perform Minor Work:** Yes, make safe. | **Perform Minor Work:** No |
| **Write Third-Party Notification:** No | **Write Third-Party Notification:** No |
| **Write EC Form:** Yes<br>• FDA=Streetlight / Missing / Install<br>• Priority "B", 30 days for regular streetlights, add in field comment section if pole is missing.<br>• Priority “E”, 6 months for decorative streetlights, add in field comment section – describe if pole is missing. | **Write EC Form:** Yes<br>• FDA=Pole / Broken/Damaged / Replace<br>• Priority ”B”, 0-3 months depending upon exposure |

### 2. Day Burner

**General Guidance:** Do not create an EC Notification for a day burner. Call a clerk to contact Restoration Dispatch to get a T-Man to respond. This is to ensure correct accounting for streetlight work (depending on the rate that the customer is one, etc.).

**Minor Work:** Yes; if you have the materials on your truck

**Related Documents:** Utility S2309

### 3. Missing Streetlight

**General Guidance:** If the inspector notices that a missing streetlight, first, make safe then create EC notification to install a missing streetlight.

**Minor Work:** No

**Related Documents:** Utility S2309

## Trees

### 1. Trees within 4 Feet of a Primary Line

**General Guidance:** If you have any questions about the integrity of tree that could impact electric facilities, (causing damage to our facilities, dead or dying, causing conductor height issue, could fall into line etc.), write a Vegetation Notification to remove dead/dying tree.

**Broken Limb on Conductor:** Remove the limb as minor work with a hot stick if it is safe to do so.

**Vegetation Touching Bare Conductor or Signs of Burning or Arcing:** Create an emergency Priority “A” Vegetation Management Tag and call vegetation management for assistance. Wait at the location until relieved by Vegetation Management personnel.

**Vegetation Not Touching Bare Conductor and No Signs of Burning or Arcing:** Create a Vegetation Management notification.

**Minor Work:** Yes

**Related Documents:** None

## 2. Tree Attachments

**General Guidance:** If you have any questions about the integrity of the tree, (causing damage to our facilities, dead or dying, causing conductor height issue, etc.), create an EC Notification to install a clearance pole.

**Minor Work:** No

**Related Documents:** None

## 3. Trees Causing Strain or Abrasion to a Secondary Conductor or Service

**General Guidance:**

**If vegetation is:**

A. Causing damage to the conductor insulation due to friction (Note: scuffing and polishing is NOT damaged) or

B. Causing strain on the conductor that is adversely affecting other supply facilities.

**Note:** The inspector should clear the vegetation or move the conductor as minor work if possible. Inspectors should leave the trimmings at the location; use door hanger to notify customer.

**If the inspector cannot clear the vegetation or move the conductor:**

- For service drops: Create an EC notification
- For secondary conductor spans serving 2 or more customers: Write a Vegetation Management notification with priority based on severity.

**Note:** Vegetation Management considers secondary as conductor that feeds more than one physical address (per Rule 16); i.e. multiple “service” conductors feeding the **same customer/property are considered service**, not secondary; Inspector will need to **create an EC** in this scenario.

If the inspector sees a hazardous vegetation issue on communication facilities, create a third-party notification.

**Minor Work:** Yes

**Related Documents:** None

## PHONE TREE CONDITION

**At this Location:** Tree putting strain on the pole, due to communication line

**Perform Minor Work:** No

**Write Third-Party Notification:** Yes

**Write EC Form:** No

## SECONDARY HARD AGAINST TREE

## SECONDARY OVERGROWN REDUCING CONDUCTOR CLEARANCES


**At this Location:** Secondary conductor resting on tree/vegetation

**Perform Minor Work:** No

**Write Third-Party Notification:** No

**Write EC Form:** Yes

- FDA=Tree / Overgrown / Trim
- FDA= Conductor / Clearance / Adjust
- Priority ”E”, 3-12 months depending upon exposure

# Wildlife Protection

## 1. Existing Migratory Bird Protection Damaged

**General Guidance:** Evaluate locations where animal mitigation has previously been installed to assess if it is sufficient, or is missing or broken. If not sufficient or needs repair, create EC notification to replace.

Note: If there is a nest at the location, write EC Notification to install animal mitigation if nest is already abandoned.

**Example: Bird nest on transformer**


**Minor Work:** No

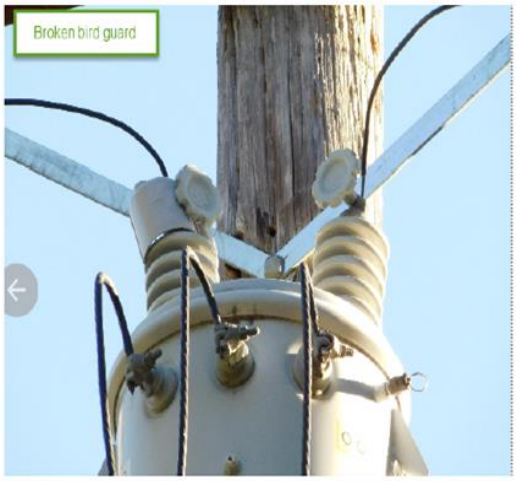
**Related Documents:** Utility S2321, 061149

## 2. Existing Wildlife Protection Damaged

**General Guidance:** Inspector should create EC notification to repair/replace existing wildlife protection installed in the field (cow guards, etc.)

Note where there are signs of animal activity/nesting/debris. Write EC Notification to install animal mitigation if nest is already abandoned.

**Examples: Broken bird guard**


**Minor Work:** No

**Related Documents:** 061149

# Clearance Evaluation Job Aid

TD-2305M-JA12
Publication Date: 3/2013 Rev: 1

## Overhead Clearance Evaluation

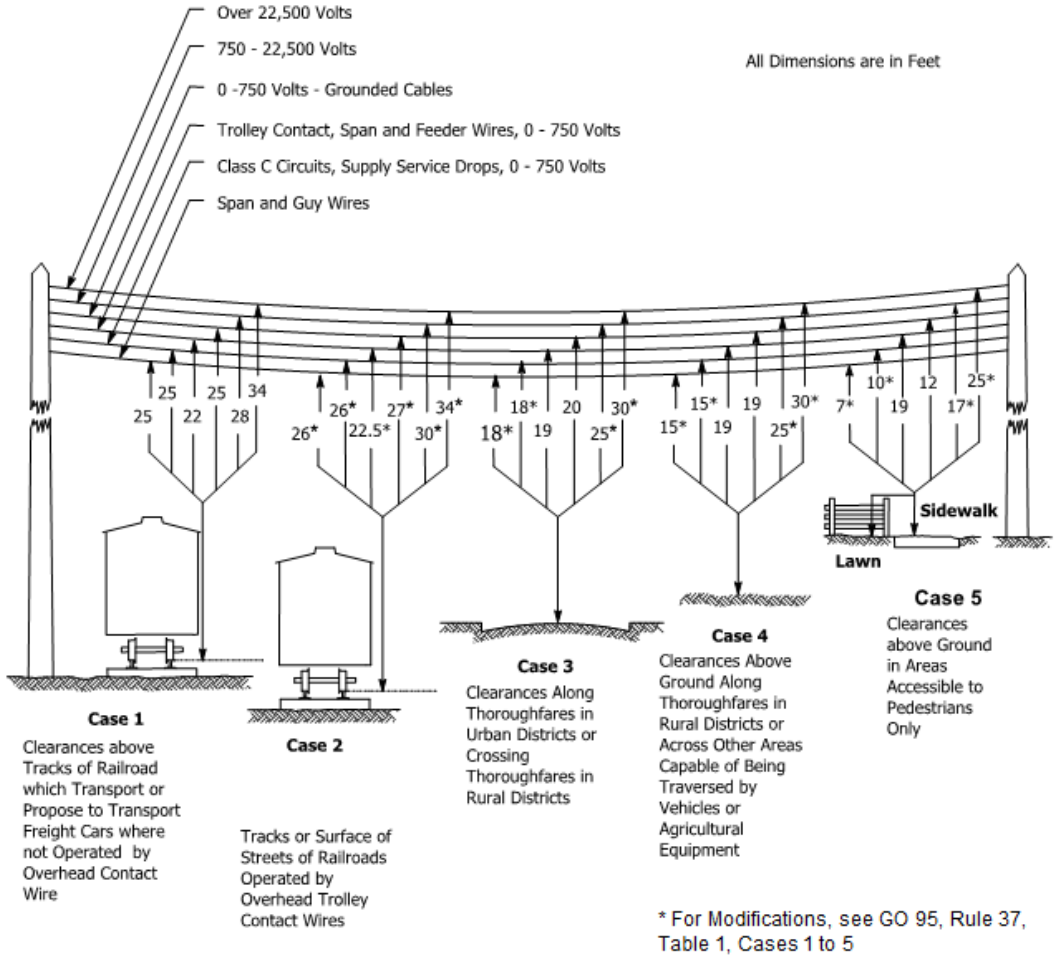
**Guidance Document References:**
TD-2305M – EDPM 2011 Manual
Engineering Document 022158 – Clearance Tables CPUC General Order 95

**Level of Use:**
- ❑ Information
- ✓ Reference
- ❑ Continuous

**General Information**

This job aid contains reference material to help compliance inspectors evaluate conductor clearance issues they visually identify in the field.

Ground Clearances - General

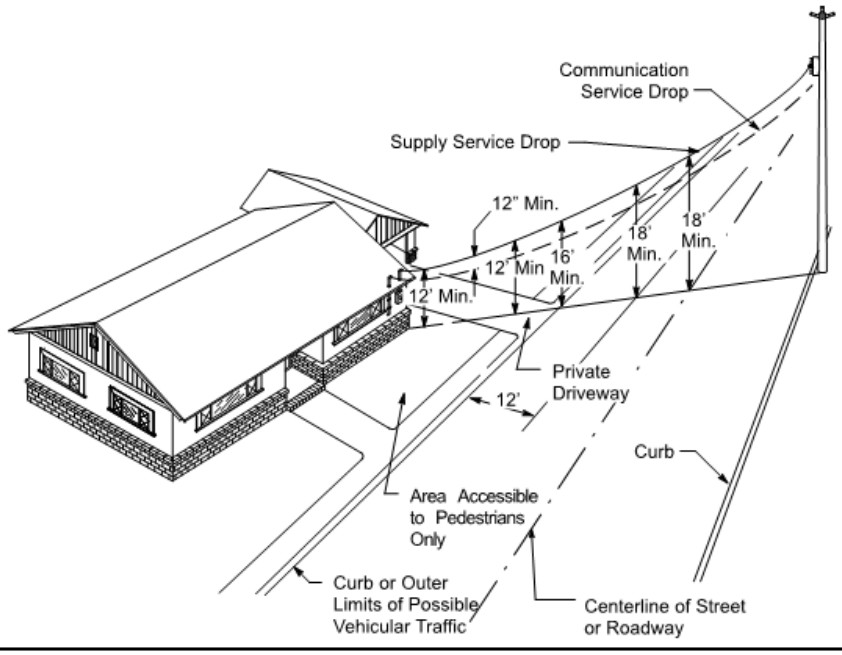



**Page 1, Clearance Job Aid**

TD-2305M-JA12
Publication Date: 3/2013 Rev: 1

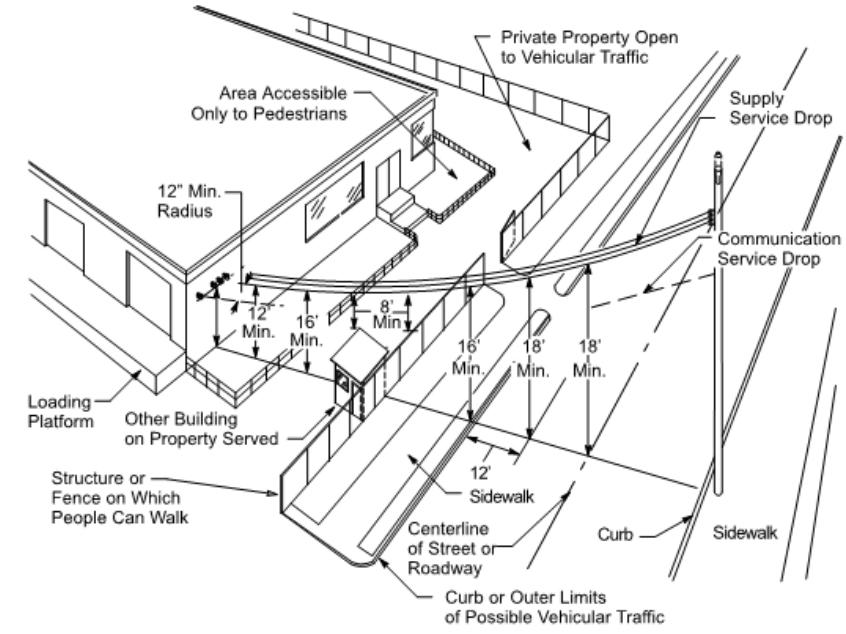
## Overhead Conductor Clearances

### 0-750V Service Drops - Residential

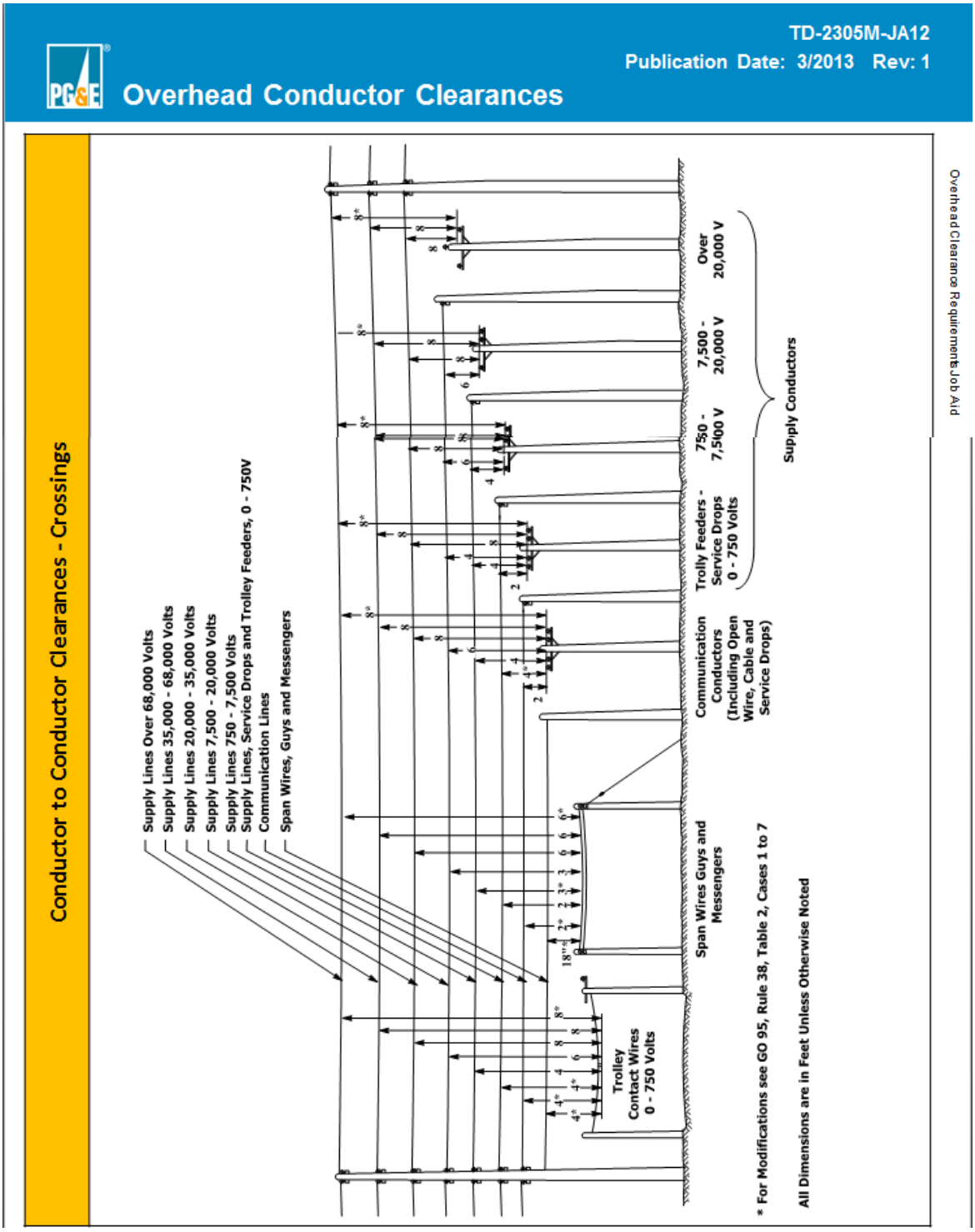



Overhead Clearance Requirements Job Aid

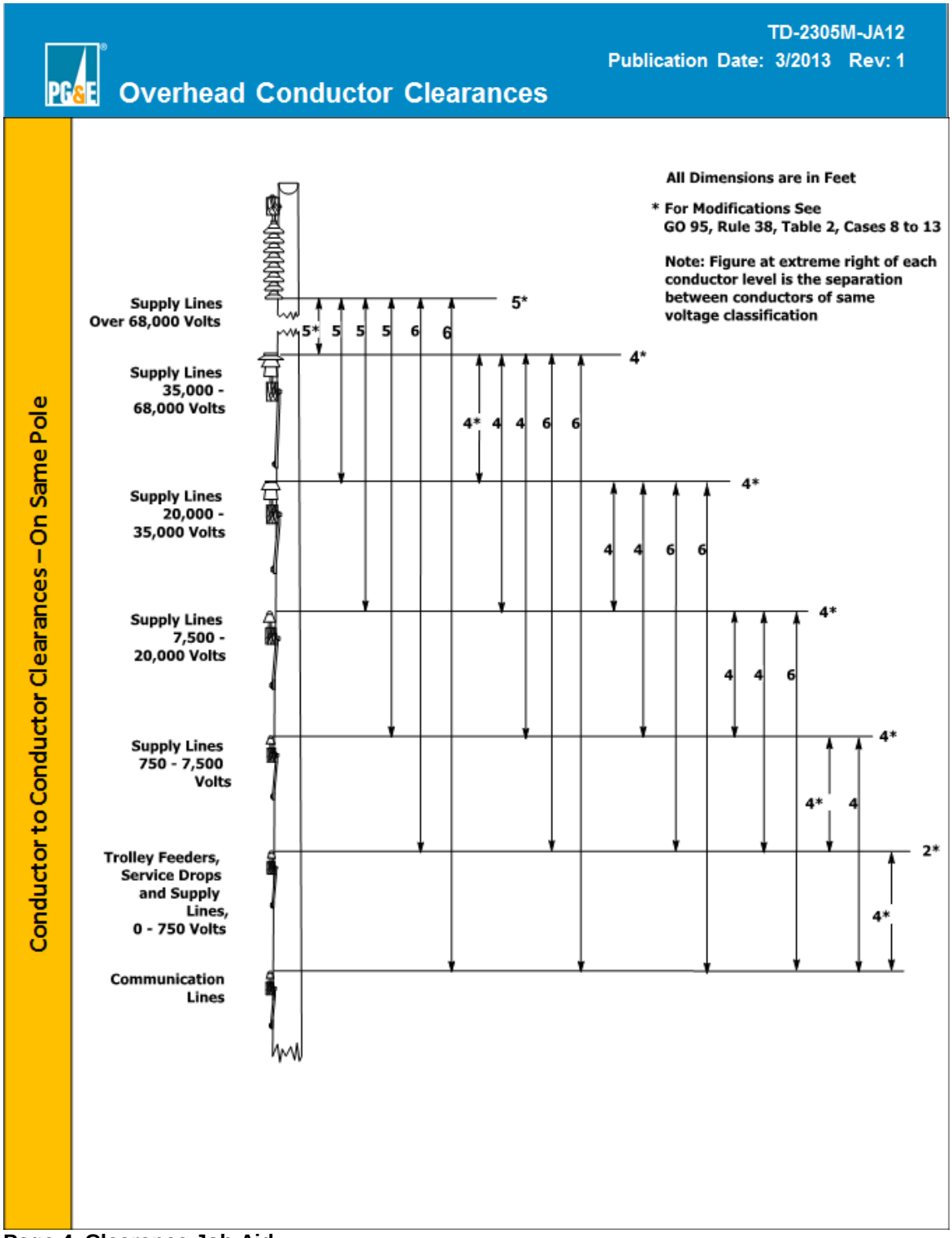
### 0-750V Service Drops - Industrial &Commercial




**Page 2, Clearance Job Aid**




**Page 3, Clearance Job Aid**

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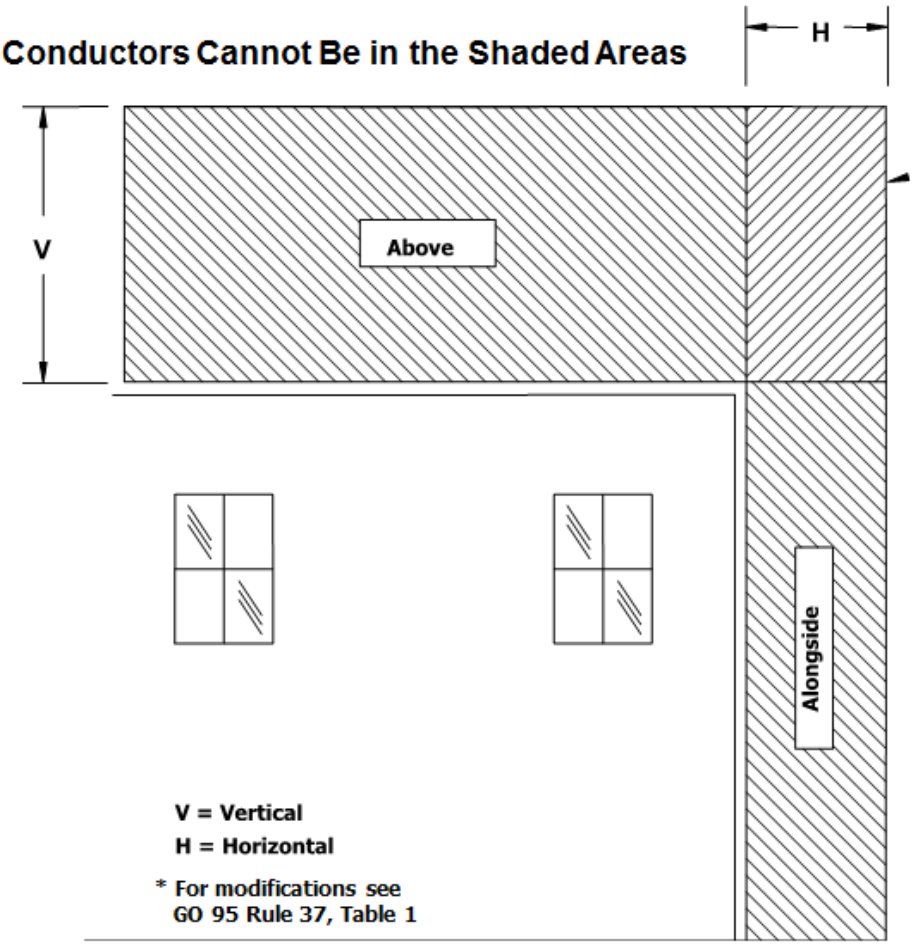
## Overhead Conductor Clearances

Conductor to Building Clearances

### Conductors Cannot Be in the Shaded Areas




**V = Vertical**
**H = Horizontal**

* For modifications see GO 95 Rule 37, Table 1

| | Conductor Type | | | | | |
|---|---|---|---|---|---|---|
| | Guys | Service Drops (not Attached) | 0-750 V Spans | 750V-22.5kV | 22.5 – 300kV | 300-550kV |
| V (Walkable Surface) | 8 ft. * | 8 ft. * | 8 ft. | 12 ft. | 12 ft. | 20 ft. * |
| V (Non-Walkable Surfaces: Handrails, Chimneys, Patio Covers, etc.) | 2 ft. | 8 ft. * | 8 ft. * | 8 ft. | 8 ft. | 20 ft. |
| H | | 3 ft. * | 3 ft. * | 6 ft. | 6 ft. * | 15 ft. * |

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# Overhead Conductor Clearances

## G.O. 95 Table 1 – Vertical Clearances

| Case | Nature of Clearance | Wire or Conductor Concerned | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A<br>Span Wires (Other than Trolley Span Wires) Overhead Guys and Messengers | B<br>Communication Conductors (Including Open Wire, Cables and Service Drops), Supply Service Drops of 0 - 750 Volts | C<br>Trolley Contact, Feeder and Span Wires, 0 - 5,000 Volts | D<br>Supply Conductors of 0 - 750 Volts and Supply Cables Treated as in Rule 57.8 | E<br>Supply Conductors and Supply Cables, 750 - 22,500 Volts | F<br>Supply Conductors and Supply Cables, 22.5 - 300 kV | G<br>Supply Conductors and Supply Cables, 300 - 550 kV |
| 1 | Crossing above tracks of railroads which transport or propose to transport freight cars (maximum height 15 feet, 6 inches) where not operated by overhead contact wires. (a) (b)(c)(d) | 25 Feet | 25 Feet | 22.5 Feet | 25 Feet | 28 Feet | 34 Feet | 34 Feet (kk) |
| 2 | Crossing or paralleling above tracks of railroads operated by overhead trolleys. (b) (c) (d) | 26 Feet (e) | 26 Feet (e)(f)(g) | 22.5 Feet (h)(i) (eee) | 20 Feet (i) | 25 Feet (o) (ii) | 30 Feet (o)(ii) | 30 Feet (o)(ii)(kk) |
| 3 | Crossing or along thoroughfares in urban districts or crossing thoroughfares in rural districts. (c) (d) | 18 Feet (j)(k)(ii) | 18 Feet (j)(l)(m) (ii) (aa) | 19 Feet (hh)(eee) | 20 Feet (i) | 25 Feet (o) (ii) | 30 Feet (o)(ii) | 30 Feet (o)(ii)(kk) |
| 4 | Above ground along thoroughfares in rural districts or across other areas capable of being traversed by vehicles or agricultural equipment. | 15 Feet (k) | 15 Feet (m) (n) (p) | 19 Feet (eee) | 19 Feet | 25 Feet (p) | 30 Feet (p)(p) | 30 Feet (o)(kk) |
| 5 | Above ground in areas accessible to pedestrians only | 8 Feet | 10 Feet (m)(q) | 19 Feet (eee) | 12 Feet | 17 Feet | 25 Feet (o) | 25 Feet (o)(kk) |
| 6 | Vertical clearance above walkable surfaces on buildings, (except generating plants or substations) bridges or other structures which do not ordinarily support conductors, whether attached or unattached. | 8 Feet (r) | 8 Feet (r) | 8 Feet | 8 Feet | 12 Feet | 12 Feet | 20 Feet (ll) |
| 6a | Vertical clearance above non-walkable surfaces on buildings, (except generating plants or substations) bridges or other structures, which do not ordinarily support conductors, whether attached or unattached | 2 Feet | 8 Feet (yy) | 8 Feet | 8 Feet (zz) | 8 Feet | 8 Feet | 20 Feet |
| 7 | Horizontal clearance of conductor at rest from buildings (except generating plants and substations), bridges or other structures (upon which men may work) where such conductor is not attached thereto(s)(t) | - | 3 Feet (u) | 3 Feet | 3 Feet (u) (vv) | 6 Feet (v) | 6 Feet (v) | 15 Feet (v) |

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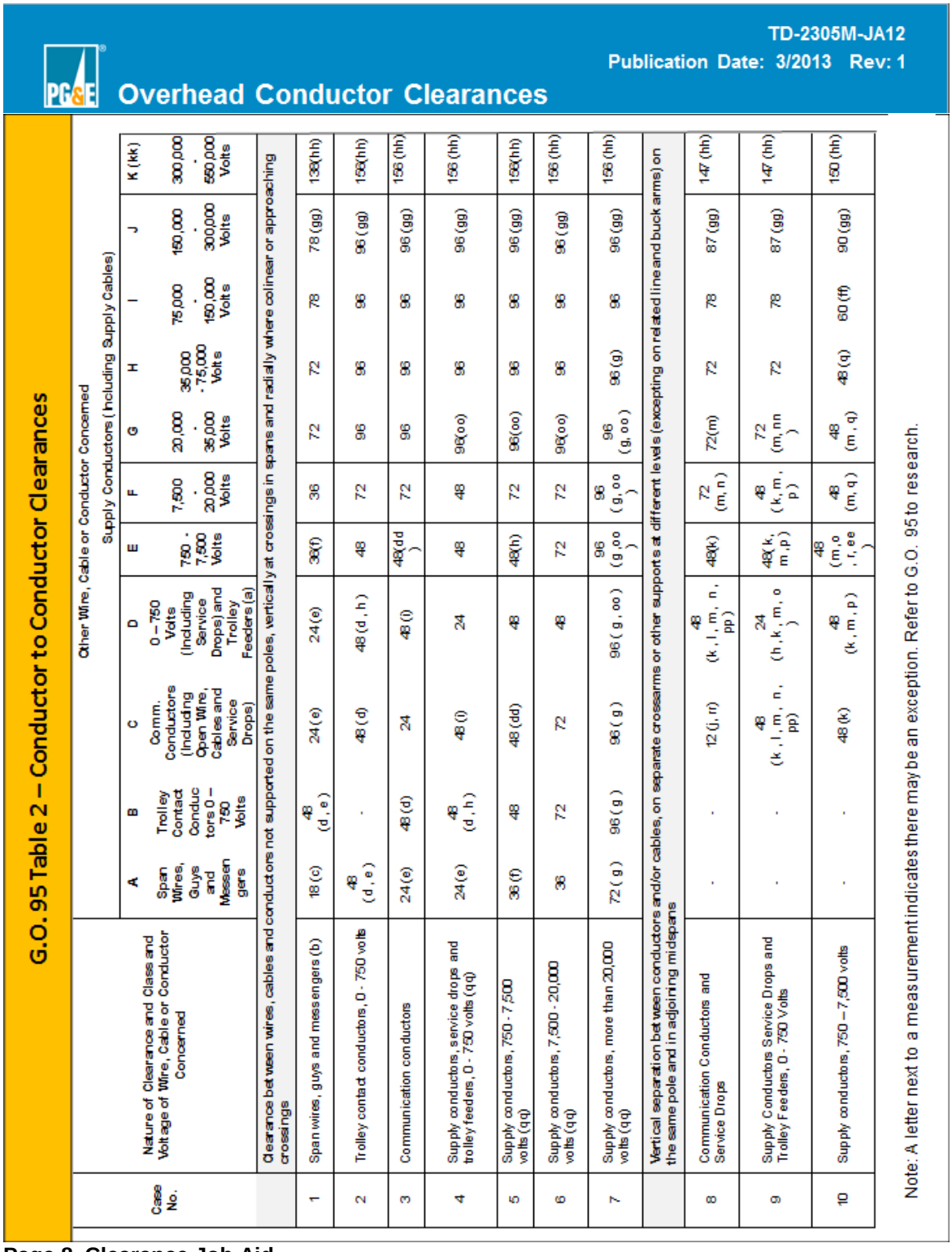
## Overhead Conductor Clearances

### G.O. 95 Table 1 – Vertical Clearances (cont'd)

| Case | Nature of Clearance | Wire or Conductor Concerned | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| | | Span Wires (Other than Trolley Span Wires) Overhead Guys and Messengers | Communication Conductors (Including Open Wire, Cables and Service Drops), Supply Service Drops of 0 - 750 Volts | Trolley Contact, Feeder and Span Wires, 0 - 5,000 Volts | Supply Conductors of 0 - 750 Volts and Supply Cables Treated as in Rule 57.8 | Supply Conductors and Supply Cables, 750 - 22,500 Volts | Supply Conductors and Supply Cables, 22.5 - 300 kV | Supply Conductors and Supply Cables, 300 - 550 kV |
| 8 | Distance of conductor from center line of pole, whether attached or unattached (w)(x)(y) | - | 15 inches (s)(aa) | 15 inches (aa)(bb)(cc) | 15 inches (o)(aa)(dd) | 15 or 18 inches(o)(dd)(ee)(ii) | 18 inches (dd)(ee) | Not Applicable |
| 9 | Distance of conductor from center line of pole, whether attached or unattached (w)(x)(y) | - | 3 inches (aa)(ff) | 3 inches (aa)(cc)(gg) | 3 inches (aa)(dd)(gg) | 3 inches (dd)(gg)(ii) | 1/4 Pin Spacing Shown in Table 2 Case 15 (dd) | 1/2 Pin Spacing Shown in Table 2 Case 15 (dd) |
| 10 | Radial centerline clearance of conductor or cable (unattached) from non-climbable street lighting or traffic signal poles or standards, including mastarms, brackets and lighting fixtures, and from antennas that are not part of the overhead line system. | - | 1 Foot (u)(rr)(ss) | 15 inches (bb)(cc) | 3 Feet (oo) | 6 Feet (pp) | 10 Feet (qq) | 10 Feet (tt) |
| 11 | Water areas not suitable for sailboating (tt) (uu) (ww) (xx) | 15 Feet | 15 Feet | - | 15 Feet | 17 Feet | 25 Feet | 25 Feet (kk) |
| 12 | Water areas suitable for sailboating, surface area of:(tt) (vv)(ww) (xx) | | | - | | | | |
| | (A) Less than 20 acres | 18 Feet | 18 Feet | - | 18 Feet | 20 Feet | 27 Feet | 27 Feet (kk) |
| | (B) 20 to 200 acres | 26 Feet | 26 Feet | - | 26 Feet | 28 Feet | 35 Feet | 35 Feet (kk) |
| | (C) Over 200 to 2,000 acres | 32 Feet | 32 Feet | - | 32 Feet | 34 Feet | 41 Feet | 41 Feet (kk) |
| | (D) Over 2,000 acres | 38 Feet | 38 Feet | - | 38 Feet | 40 Feet | 47 Feet | 47 Feet (kk) |
| 13 | Radial clearance of bare line conductors from tree branches or foliage (aaa)(ddd) | - | - | 18 inches (bbb) | - | 18 inches (bbb) | 1/4 pin spacing shown in table 2, Case 15(bbb)(ccc) | 1/2 pin spacing shown in table 2, Case 15 |

Note: A letter next to a measurement indicates there may be an exception. Refer to G.O. 95 to research.

**Page 7, Clearance Job Aid**



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## Overhead Conductor Clearances

### G.O. 95 Table 2 – Conductor to Conductor Clearances

| Case No. | Nature of Clearance and Class and Voltage of Wire, Cable or Conductor Concerned | Other Wire, Cable or Conductor Concerned | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Supply Conductors (Including Supply Cables) | | | | | | | | | | | |
| | | A Span Wires, Guys and Messengers | B Trolley Contact Conductors 0 – 750 Volts | C Comm. Conductors (Including Open Wire, Cables and Service Drops) | D 0 – 750 Volts (Including Service Drops) and Trolley Feeders (a) | E 750 - 7,500 Volts | F 7,500 - 20,000 Volts | G 20,000 - 35,000 Volts | H 35,000 - 75,000 Volts | I 75,000 - 150,000 Volts | J 150,000 - 300,000 Volts | K (kk) 300,000 - 550,000 Volts |
| | Clearance between wires, cables and conductors not supported on the same poles, vertically at crossings in spans and radially where colinear or approaching crossings | | | | | | | | | | | | |
| 1 | Span wires, guys and messengers (b) | 18 (c) | 48 (d , e ) | 24 (e) | 24 (e) | 36(f) | 36 | 72 | 72 | 78 | 78 (gg) | 138(hh) | |
| 2 | Trolley contact conductors, 0 - 750 volts | 48 (d , e ) | - | 48 (d) | 48 (d , h ) | 48 | 72 | 96 | 96 | 96 | 96 (gg) | 156(hh) | |
| 3 | Communication conductors | 24 (e) | 48 (d) | 24 | 48 (i) | 48(dd ) | 72 | 96 | 96 | 96 | 96 (gg) | 156 (hh) | |
| 4 | Supply conductors, service drops and trolley feeders, 0 - 750 volts (qq) | 24 (e) | 48 (d , h ) | 48 (i) | 24 | 48 | 48 | 96(oo) | 96 | 96 | 96 (gg) | 156 (hh) | |
| 5 | Supply conductors, 750 - 7,500 volts (qq) | 36 (f) | 48 | 48 (dd) | 48 | 48(h) | 72 | 96(oo) | 96 | 96 | 96 (gg) | 156(hh) | |
| 6 | Supply conductors, 7,500 - 20,000 volts (qq) | 36 | 72 | 72 | 48 | 72 | 72 | 96(oo) | 96 | 96 | 96 (gg) | 156 (hh) | |
| 7 | Supply conductors, more than 20,000 volts (qq) | 72 ( g ) | 96 ( g ) | 96 ( g ) | 96 ( g , oo ) | 96 ( g ,oo ) | 96 ( g ,oo ) | 96 (g, oo ) | 96 (g) | 96 | 96 (gg) | 156 (hh) | |
| | Vertical separation between conductors and/or cables, on separate crossarms or other supports at different levels (excepting on related line and buck arms) on the same pole and in adjoining midspans | | | | | | | | | | | | |
| 8 | Communication Conductors and Service Drops | - | - | 12 (j, rr) | 48 (k , l , m , n , pp ) | 48(k) | 72 (m, n ) | 72(m) | 72 | 78 | 87 (gg) | 147 (hh) | |
| 9 | Supply Conductors Service Drops and Trolley Feeders, 0 - 750 Volts | - | - | 48 (k , l , m , n , pp) | 24 (h , k , m , o ) | 48( k, m ,p ) | 48 ( k, m , p ) | 72 (m, nn ) | 72 | 78 | 87 (gg) | 147 (hh) | |
| 10 | Supply conductors, 750 – 7,500 volts | - | - | 48 (k) | 48 (k , m , p ) | 48 (m ,o , r, ee ) | 48 (m, q ) | 48 (m , q) | 48 (q) | 60 (ff) | 90 (gg) | 150 (hh) | |

Note: A letter next to a measurement indicates there may be an exception. Refer to G.O. 95 to research.

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# Overhead Conductor Clearances

## G.O. 95 Table 2 – Conductor to Conductor Clearances (Cont'd)

| Case No. | Nature of Clearance and Class and Voltage of Wire, Cable or Conductor Concerned | Other Wire, Cable or Conductor Concerned | | | | | Supply Conductors (Including Supply Cables) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A Span Wires, Guys and Messengers | B Trolley Contact Conductors 0 – 750 Volts | C Comm. Conductors (Including Open Wire, Cables and Service Drops) | D 0 – 750 Volts (Including Service Drops) and Trolley Feeders (a) | E 750 - 7,500 Volts | F 7,500 - 20,000 Volts | G 20,000 - 35,000 Volts | H 35,000 - 75,000 Volts | I 75,000 - 150,000 Volts | J 150,000 - 300,000 Volts | K (kk) 300,000 - 550,000 Volts |
| | **Vertical clearance between conductors on related line arms and buck arms** | | | | | | | | | | | |
| 14 | Line arms above or below related buck arms (s , t) | - | - | 6 | 12 (u) | 18 (u) | 18 (u) | 24 | 48 | 60 (ff) | 90 (gg) | 150 (hh) |
| | **Horizontal separation of conductors on same crossarm** | | | | | | | | | | | |
| 15 | Pin spacing of longitudinal conductors vertical conductors and service drops (v , w) | - | - | 3 (x) | 11½ ( h , x ) | 11½(x) | 17½(x) | 24 (x) | 48 | 60 (ff) | 90 (gg) | 150 (hh) |
| | **Radial separation of conductors on same crossarm, pole or structure—incidental pole wiring** | | | | | | | | | | | |
| 16 | Conductors, taps or lead wires of different circuits (v , y , s) | - | - | 3 (x) | 11½ ( h , x ) | 11½(x) | 17½(x) | 24 (x) | 48 | 60 (ff) | 90 (gg) | 150(hh) |
| 16a | Uncovered, grounded, non-dielectric fiber optic cables on metallic structures, in transition (ss) | - | 15 | 15 | 15 | 18 | 18 | 18 | 18 | 24 | 36 | 120 |
| 17 | Conductors, taps or lead wires of the same circuit (v , s , aa) | - | - | 3 | 3 | 6 | 6 | 12 | 24 | 60 (ff) | 90 (gg) | 150 (hh) |
| | **Radial separation between guys and conductors** | | | | | | | | | | | |
| 18 | Guys passing conductors supported on other poles, or guys approximately parallel to conductors supported on the same poles | - | - | 3 | 11½ | 11½ | 17½ | 24 | 36 | 36 (ff) | 78 (gg) | 138(hh) |

Note: A letter next to a measurement indicates there may be an exception. Refer to G.O. 95 to research.

**Page 9, Clearance Job Aid**

# Crossarm Evaluation Job Aid

**General Information:**

Environmental conditions throughout the service territory expose support structures to a variety of conditions that can cause or accelerate deterioration of wood components. This section provides guidelines for assessing wood crossarms. Engineering requirements are identified in the Electric Wood Crossarm Assessment Utility guideline TD-2301P-01-JA01.

**Guidance:** During detailed inspections, examine wood crossarms and assess their condition: Is primary or secondary crossarm damaged, broken, burnt, decayed, rotten, loose, missing hardware or showing signs of bent bolts or brackets, gun shots, insect damage or woodpecker damage, or splitting that compromises the integrity of the crossarm? If yes, create EC notification to replace crossarm; always consider replacing wood crossarms with composite.

**Additional Guidance:**

Identify conditions such as crossarm configuration, number of phases, location (eg, urban, rural, forest, inaccessible, traffic, etc.), loading (eg, double/triple arms, dead ends, alley arms, proximity to trees, angles/conductor size, heavy loading, damaged wood pins, etc) and the likelihood of these conditions contributing to further deterioration or failure of the crossarm or attached components.

Often cross arms experience significant decay on the top of the arm without exhibiting clues that are visible from the ground[1]. For this reason, arms that exhibit two or more of the following characteristics are more likely to decay on the top and should be considered for a more detailed aerial/climbing inspection:

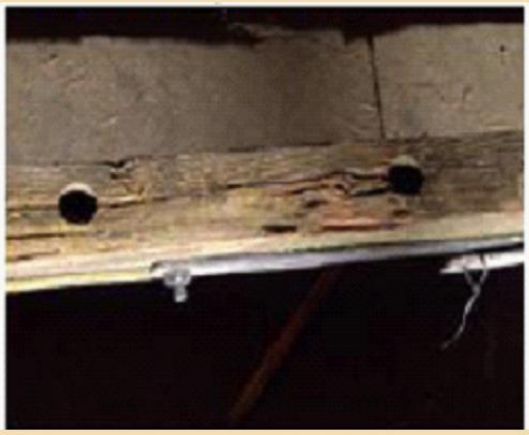
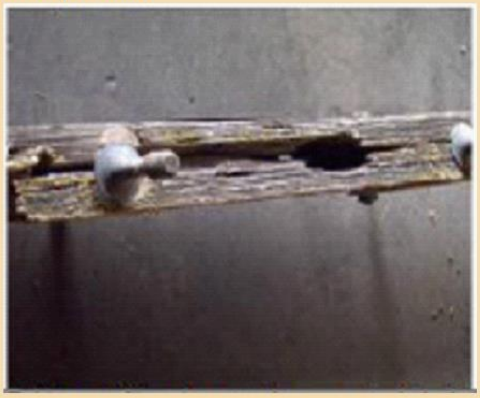
- Arms that appear to be greater then 50 years old[2](based on age of pole, presence of wood pins, brown/glass insulators, or other indicators).
- Arms mounted on poles where the pole top is showing signs of decay or crowning.
- Severely weathered arms or arms rounded or apparently decayed ends.
- Damaged wood pins or elongated pinholes.
- Active moss/vegetation growth.
- Presence of woodpecker holes (greater than one inch diameter) on the arm
- Arms in areas of higher rainfall/moisture and reduced sunlight such as those in many coast and mountain areas.
- Wood pins on arms located in agricultural areas or orchards contaminated by aerial spraying and dirt, which contributes to tracking and arm or pin deterioration.

[1] Examples of top and bottom views of crossarm conditions are shown in table 2

[2] Many, but not all, arms prior to 1955 were untreated.

## Crossarm Evaluation Job aid – photo examples

**Table 2 – Crossarm Grading Aid**

| BOTTOM VIEW | TOP VIEW |
|---|---|
| Evidence of decay near hole  | Evidence of Significant Decay  |
| Enlarged hole, minor moss/discoloration/splits near pin hole  | Enlarged hole, minor moss/discoloration/splits near pin hole  |
| Evidence of tracking/burning near brace and pin holes  | Evidence of burning near brace and pin holes  |

### BROKEN CROSSARM

Crossarm is completely broken/fractured

Emergency - make safe immediately

### SPLIT CROSSARM

Primary Squatter (wood pin). Crossarm split within 2" of pinhole.

Replace in the next 3 months.

### TOP OF CROSSARM DECAYED

Evidence of pole top decay and face of crossarm decay; may need additional assessment of crossarm.

Replace 3-12 months

### DETERIORATED CROSSARM

Significant deterioration, both arms are broken/split. Evidence of previous temporary repair.

Replace 3-12 months

### BROKEN SECONDARY CROSSARM

Secondary arm broken; split/fractured within 2" of bolt holes in heavy tree area.

Replace 3-12 months