# 12kV LINE DEVICES

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This guide concerns the installation or removal of three phase sets of line disconnect switches.

**COMPATIBLE UNIT CODING FOR “LINE DEVICES”**

Overhead line switches have been assigned Compatible Unit codes with various prefix designations as follows:

- **DB** = Blade disconnect switches, operated single phase
- **DC** = Cutout type disconnect switches, operated single phase
- **DG** = Gang operated, three phase unitized (pre-assembled) switch to be used for new construction
- **KPF** = Gang operated, three phase switch to be assembled when installed on a wood pole; no longer standard for new construction
- **DR** = Reclosure, three phase, to be special ordered for specific applications
- **DS** = Sectionalizer, three phase, to be special ordered for specific applications
900 AMP BLADE DISCONNECT

SWITCH BLADE MAY BE ENERGIZED IN OPEN POSITION.
CLEARANCE MUST BE MAINTAINED BETWEEN SWITCH BLADE
AND ANY OTHER EQUIPMENT OR GROUNDS.
CONDUCTORS-AC312, A2, A266, A397, C1, C2, C20, C4, C8, R2, R266, R30

IF UNDERBUILD DESIGNATE CIRCUIT SEPARATION

10' MIN.

12''

2'-6''

9'-6''

35' MAX. ABOVE FINAL GRADE

12kV LINE DEVICES
600 AMPERE LINE DISCONNECTS
VERTICAL CONSTRUCTION, TANGENT ONLY
CONDUCTORS - AC312, A2, A266, A30, A397, C1, C2, C20, C4, C6, R2, R266, R30

10" MIN.
6" MIN.
6"
6" 12"
2' - 6" 5" 6" 12"
9' - 6" 35' MAX.

36' MAX.
ABOVE FINAL GRADE

12kV LINE DEVICES
600 AMPERE LINE DISCONNECTS, VERTICAL DOUBLE DEADEND, INTERMEDIATE ANGLE

REV. REMOVED POLE GROUND MOLDING

Overhead Distribution Construction Standards

SKP

9-5-1
CONDUCTORS-A2, A266, A30, A397

FOR ALUMINUM CONDUCTOR ONLY

NOTE:
MAXIMUM POLE HEIGHT OF 45'

12kV LINE DEVICES
600 AMPERE LINE DISCONNECTS, VERTICAL DEADEND WITH 180 DEG. SLACK SPAN

ISSUE DATE: 1985
REV. DATE: 06/06/11
APPROVAL: B. PRIEST

REV. REMOVED POLE GROUND MOLDING
SWITCH ASSEMBLY WITH EXTENSION STRAPS

If underbuild, designate circuit separation.

Jumper between switch and line shall be 397 MCM AA.

35 MAX. ABOVE FINAL GRADE

Rev. removed pole ground molding

12kV LINE DEVICES
600A POLE MOUNTED DISCONNECTS
CROSSARM CONSTRUCTION

Issue date: 06/13/76
Rev. date: 06/06/11
APPROVAL: B. PRIEST

9-8-1
IF UNDERBUILD, DESIGNATE CIRCUIT SEPARATION

12kV LINE DEVICES
CUTOUT TYPE SWITCHES, 300 AMP
SWITCHED SLACK SPAN TO CUSTOMER WELL

REV. REMOVED POLE GROUND MOLDING

ISSUE DATE: 04/30/91
REV. DATE: 06/08/11
APPROVAL: B. PRIEST

Overhead Distribution
Construction Standards

SKP®

PROPRIETARY MATERIAL
DCH30N__ CONDUCTORS A2, C4, C6

12kV LINE DEVICES
CUTOUT TYPE SWITCHES, 300 AMP
SWITCHED SLACK SPAN TO CUSTOMER WELL, CROSSARM

APPROVAL: B.PRIEST

ISSUE DATE: 07/20/76
REV. DATE: 06/09/11

REV. REFORMAT
NOTES:
1. CUTOUT LEADS ARE #2 CU, INSULATED WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.
2. SECTIONALIZER MAY BE MOUNTED IN DC1 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.
3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
NOTES:
1. CUTOUT LEADS ARE #2 CU WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.
2. SECTIONALIZER MAY BE MOUNTED IN DC2 OR DC3 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.
3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
NOTES:

1. CUTOUT LEADS ARE #2 CU, INSULATED, WHICH ARE SUITABLE FOR USE WITH 200 AMP FUSES.

2. SECTIONALIZER MAY BE MOUNTED IN DCH2 OR DCH3 CUTOUTS. SECTIONALIZER MUST BE ORDERED SPECIFICALLY FOR JOB.

3. FUSE SIZE SHALL BE IDENTIFIED ON POLE USING 2 INCH ALUMINUM NUMBERS AND CHARACTER.
1. Cutout leads are #2 Cu, insulated which are suitable for use with 200 amp fuses.

2. Sectionalizer may be mounted in DCB2 or DCB3 cutouts. Sectionalizer must be ordered specifically for job.

3. Fuse size shall be identified on pole using 2 inch aluminum numbers and character.

NOTES:
**NOTE:**

1. This construction is limited to a maximum line tension of 2000 pounds per phase.
2. Operating rod guides:
   - Top bolt eye shall not be greater than 6 ft from switch crank.
   - Bottom bolt eye shall not be lower than 8 ft from grade.
   - Intermediate bolt eyes shall not be spaced greater than 5 ft.

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<td>5029882</td>
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<td>2</td>
<td>DEADEND CLAMP, VARIOUS</td>
<td>6</td>
<td>BD__</td>
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<td>3</td>
<td>INSULATOR, SUSPENSION, 6-1/4 IN., CLEVIS</td>
<td>12</td>
<td>5034718</td>
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<tr>
<td>4</td>
<td>STRAP, EXTENSION, 1/4 X 1.5 X 11.5</td>
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<td>ROD, INTERPHASE, 1 IN. DIA., FIBERGLASS</td>
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<td>SPLICE, FOR INTERPHASE ROD</td>
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<td>7</td>
<td>SWITCH, UNITIZED POLE MOUNT, 600A</td>
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### OVERHEAD DISTRIBUTION CONSTRUCTION STANDARDS

**12kV LINE DEVICES**

**GANG OPERATED SWITCHES**

**600A UNITIZED, EXISTING HORIZONTAL**

**Issue Date:** 05/20/91  
**Rev. Date:** 04/25/13  
**Approval:** B. Priest

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**Table: Material Description and Stock No.**

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<td>6</td>
<td>LINK</td>
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**Note:**

1. Operating Rod Guides
   - Top Bolt Eye shall not be greater than 5ft from switch crank.
   - Bottom Bolt Eye shall not be lower than 8ft from Grade.
   - Intermediate Bolt Eyes shall not be spaced greater than 8ft.

---

**Use When Future Equipment Will Not Be Installed on Pole**

**Use When Future Equipment Will Not Be Installed on Pole**

**Use When Future Equipment Will Not Be Installed on Pole**

---

**Front View**

**Existing Construction Alternative**

**Front View**

**Front View**

---

**Diagram:**

- Use when future equipment will not be installed on pole.
- Existing construction alternative.
- Front view.

---

**9-15-1**

**REV: UPDATED STOCK CODES.**
NOTE:
FOR DOUBLE CIRCUIT THE TANGENT CIRCUIT MUST BE REBUILT PER P65. THE BOLT HEADS FOR THE EXTENDED BRACKETS SHALL BE ON THE POLE SIDE.
NOTES:
1. THE BOLT EYE OF OPERATING ROD GUIDE SHALL NOT BE GREATER THAN 5 FEET FROM SWITCH CRANK.
2. BOTTOM BOLT EYE OF OPERATING ROD GUIDE SHALL NOT BE LOWER THAN 5 FEET FROM GRADE.
3. INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5 FEET.

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<td>SWITCH, UNITIZED POLE MOUNTED, 800A</td>
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<td>INSULATOR, SUSPENSION, 6 1/4 IN. CLEVIS</td>
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<td>DEADEND CLAMP, VARIOUS</td>
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<td>6</td>
<td>EXTENSION STRAP</td>
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<td>ANCHOR SHACKLE</td>
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<td>PIN, INSULATOR, 5/8&quot; X 1.5 IN. SHORT</td>
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<td>SIDE TIE, VARIOUS</td>
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**Overhead Distribution Construction Standards**

**12kV LINE DEVICES**

**GANG OPERATED SWITCHES, PARALLELING**

**600A UNITIZED, VERTICAL**

**Approval:** B. PRIEST

**Rev.: Updated Stock Codes.**

**Issue Date:** 05/23/95

**Rev. Date:** 05/01/13

**8612E248.DGN**
NOTES:
1. DIMENSION MAY BE 1'-5 3/4" (W/STEEL BRACES), 1'-8 1/4" (WOOD BRACES) OR 1'-8 7/8" (10' ARMS). SEE NOTE 2.
2. 2" MINIMUM.
3. SEE PRIMARY CONSTRUCTION UNITS SECTION FOR CONSTRUCTION DETAIL.
4. SEE DGR6 IN LINE DEVICES SECTION FOR CONSTRUCTION DETAIL.
5. JUMPERS TO BE A397 OR SAME AS LARGEST PHASE CONDUCTOR.
NOTES:
1. See PH38__ for arm construction details and options.
2. See DGR6, in line devices section, for construction detail.
3. Jumpers to be A397 or same as largest phase conductor.
NOTE:
1. OPERATING ROD GUIDES
   - TOP BOLT EYE SHALL NOT BE GREATER THAN 5 FT FROM SWITCH CRANK
   - BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8 FT FROM GRADE
   - INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5 FT.

ITEM | MATERIAL DESCRIPTION                                         | QUANTITY | STOCK CODE
-----|---------------------------------------------------------------|----------|------------
1    | SWITCH, UNITIZED POLE MOUNTED, 600A                          | 1        | 5034638    
2    | BRACKET, POST INSULATOR                                     | 3        | 5034741    
3    | INSULATOR, VERTICAL LINE POST                               | 3        | 5034587    
4    | CLAMP, PINTLE BOLT                                          | 3        | 5028384    
5    | CONNECTOR, ALUM, NON-TENSION, HOT LINE                       | 6        | 5033937    
6    | SPlice, For INTERPHASE ROD                                  | 1        | 5034631    
7    | ROD, INTERPHASE, 1 IN. DIA. FIBERGLASS                      | 30       | 5034616    

NOTES:
1. DIMENSION MAY BE 1'- 5 3/4" (WITH STEEL BRACES), 1'- 8 1/4" (WOOD BRACES) OR 1'- 8 7/8" (10' ARMS). SEE NOTE 2.
2. SEE DGR6 IN LINE DEVICES SECTION FOR CONSTRUCTION DETAIL.
3. JUMPERS TO BE A397 OR SAME AS LARGEST PHASE CONDUCTOR.
4. LOOSEN THE U-BOLT HOLDING EACH SINGLE PHASE SWITCH TO THE SWITCH ARM. AFTER BOLTING THE LINE POST INSULATOR (5034587) TO BRACKET (5034741) ATTACH THE BRACKET TO THE SWITCH ARM VIA THE U-BOLT.
GANG OPERATED SWITCHES

TOP VIEW

FRONT VIEW

JUMPERS TO BE A397 OR SAME AS PHASE CONDUCTOR

SWITCH MOUNTING BOLT

NOTES:
1. OPERATING ROD GUIDES
   - TOP BOLT EYE SHALL NOT BE GREATER THAN 5FT FROM SWITCH CRANK
   - BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8FT FROM GRADE
   - INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 8FT.

2. SEE URF3UA750K FOR DETAIL OF ADDITIONAL PARTS FURNISHED WITH DGR6B. CABLE TERMINATORS, FEEDER CABLE AND RISER MOLD NOT SUPPLIED.

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<td>TUBING, SPLIT, 3/8&quot;</td>
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<td>5 (NOTE 2)</td>
<td>GUARD, BUSHING (BIRD GUARD)</td>
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<td>6 (NOTE 2)</td>
<td>ARRESTER, LIGHTING, HD (YELLOW GROUND LEAD)</td>
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ISSUE DATE: 05/20/91
REV. DATE: 06/20/81
APPROVAL: B.PRIEST
### Overhead Distribution Construction Standards

#### 12kV Line Devices

**Gang Operated Switches**

600A Unitized, Vertical, on Steel Pole

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**REV: Updated Stock Codes.**

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**REV: 05/02/13**
**APPROVAL: B. PRIEST**

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**Overhead Distribution Construction Standards**

**SKP PROPRIETARY MATERIAL**

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**12kV Line Devices**

**Gang Operated Switches**

600A Unitized, Vertical, on Steel Pole

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**8-22-1**

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**ISSUE DATE: 01/30/94**
**REV. DATE: 06/22/19**

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**DGVM6__**

CONDUCTORS A269, A387

FOR UNDERBUILD, DESIGNATE CIRCUIT SEPARATION

---

NOTE:

1. Operating Rod Guides
   - Top Bolt Eye shall not be greater than 6ft from switch crank
   - Bottom Bolt Eye shall not be lower than 2ft from grade
   - Intermediate Bolt Eyes shall not be spaced greater than 5ft.
REMARKS:

1. CONTROL AND SUPPLY CABLES MUST BE STAPLED TO POLE.

2. P.T. NOT REQUIRED FOR SECTIONALIZER.

3. RECLOSER OR SECTIONALIZER CABLE SECURITY BOX. NOTE 4

4. SUPPLIED SEPARATELY, CONTACT ELECTRIC SYSTEM ENGINEERING.

NOTE 4

- Control and Supply Cables: Must be stapled to pole.
- P.T. Not required for Sectionalizer.
- Security Box for Recloser or Sectionalizer.
- Supplied separately; contact Electric System Engineering.
SECTION 9: 12 kV LINE DEVICES

G.O.S. 600 A Unitized
DGH6 - - - A266, A397
Intellirupter
DRPW - - - -

Pole Drill Pattern

Unitized Switch Mount Plate

Intellirupter Mount Plate

12 kV LINE DEVICES
S & C INTELLIRUPTER, RC PULSE RECLOSER
WOOD POLE, FLAT CONSTRUCTION
NOTES
1. Connect ground lugs to pole neutral with #2 copper 5033850.
2. Attach lifting sling only to lifting brackets. Lift intellirupter until sling is taut. Unbolt intellirupter from steel brackets attached to shipping skids. Bolt intellirupter to pole.
3. Must have bucket truck access.
4. 5034742 weighs 1,100 lbs. EPA= 4,266 inches square.
5. Control Engineering to provide antenna detail.
6. Connect arrester hot lead (#6 CU SOL 600 V, 5033863) to phase terminal with tap lug 5016725. Train hot lead to side.
7. Hold tag operator.
8. G.O.S. operation rod.
9. Arrester ground lead 5033990.
10. A397 or same as phase conductor. Cover with insulated tubing 5035617.
11. Stick operated integral disconnect.
12. Coordinate with Control Engineering for installation of radio controller (RTU).
OVERHEAD DISTRIBUTION
CONSTRUCTION STANDARDS

12kV LINE DEVICES
SCADA-MATE SWITCH
FOR REMOTE SUPERVISORY CONTROL
ON WOOD POLE FLAT CONSTRUCTION

NOTE:
1. MOUNT CONTROL CASE ON NON-TRAFFIC SIDE OF POLE.

CONNECT GROUND LUG ON CONTROL CASE TO POLE GROUND WITH #6 COPPER.

APPROVAL: B. PRIEST

ISSUE DATE: 09/10/99
REV. DATE: 05/28/13

REV. MARKED AS OBSOLETE, UPDATED STOCK CODES.
NOTE 1: POLE BANDS AND BRACKETS
(2) 5028858, (1) 5028857.

NOTE 2: BRACKET 5028858
SEE DGH6
G.O.S. 600A UNITIZED (HORIZONTAL)

NOTE 3: GROUND LUG 5034347
DRILL AND TAP FOR 1/2".

NOTE 4: MOUNT CONTROL CASE ON NON-TRAFFIC SIDE OF POLE.

1. SECURE CONTROL CABLE WITH BRACKET (5028143) EVERY 5 FT. UP POLE.
2. POLE BANDS AND BRACKETS (2) 5028868, (1) 5028867.
3. GROUND LUG 5034347
DRILL AND TAP FOR 1/2".
4. MOUNT CONTROL CASE ON NON-TRAFFIC SIDE OF POLE.

CONNECT GROUND LUG ON CONTROL CASE TO POLE GROUND WITH #6 COPPER.
PRIMARY METERING DETAIL

NOTES:
1. CONTACT POLICY, PROCEDURES & STANDARDS TO USE THIS ON 22kV.
STOCK CODE DEFINITION TABLE

A. 5022489  8” x 8” x 6” Junction Box
B. 5022778  1” Liquid Tight Connector – 14 ea.
C. 5022634  Liquid Tight Flex Conduit – 65’
   5021220  1” Conduit Straps – 15 ea.
D. 5031100  Alumaform Cluster Mount
E. 5008706  1/0 Copper Wire, 600V
F. 5033845  #6 Copper Wire, 600V Bare – Grounding
   5035188  Framing Channel – 10’ (brackets for J-box & meter box)
G. 5008700  #6 Copper Wire, 600V Insulated
H.  —  Meter Socket M/S

CT’s and PT’s ordered by meter shop on a job-by-job basis:

```plaintext
5008690  #10 Copper Wire, 600V Black
5008691  #10 Copper Wire, 600V Red
5008693  #10 Copper Wire, 600V White
5008694  #10 Copper Wire, 600V Blue
5008583  #14 Copper Wire, 600V Black
5008584  #14 Copper Wire, 600V Red
5008585  #14 Copper Wire, 600V White
5008582  #14 Copper Wire, 600V Blue
```

12kV LINE DEVICES
PRIMARY METERING INSTALLATION

Overhead Distribution
Construction Standards

Revised stock code numbers.

Page 2 of 2

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9-27-2

OH9-27-2.doc
CONDUCTORS: A266, A397, AC312, R266

IF UNDERBUILD, DESIGNATE CIRCUIT SEPARATION

Overhead Distribution Construction Standards
12kV LINE DEVICES
DISCONNECT SWITCHES
400 AMPERE LINE TENSION DISCONNECTS
CROSSARM CONSTRUCTION

REV. REFORMAT

ISSUE DATE: 01/01/72
REV. DATE: 06/11/11
APPROVAL: B. PRIEST

9-28-1
Conductor

<table>
<thead>
<tr>
<th>Conductor</th>
<th>Max. Angle</th>
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<tbody>
<tr>
<td>#6 CU. &amp; #2 AA</td>
<td>6 DEG</td>
</tr>
<tr>
<td>#4 CU.</td>
<td>6 DEG</td>
</tr>
<tr>
<td>#2 CU. &amp; #2 ACSR</td>
<td>6 DEG</td>
</tr>
<tr>
<td>#1 CU. &amp; #3/0 AA</td>
<td>6 DEG</td>
</tr>
<tr>
<td>#2/0 CU. &amp; #266.8 AA</td>
<td>6 DEG</td>
</tr>
<tr>
<td>377.5 AA &amp; 312 AAAC</td>
<td>5 DEG</td>
</tr>
<tr>
<td>266 ACSR &amp; 3/0 ACSR</td>
<td>5 DEG</td>
</tr>
</tbody>
</table>

Notes:
1. This standard is designed for installation on a 40' pole. For use with taller poles, order one BKM for each 5' of length above 40'.
2. For in-line construction only. Single dead end cannot be made to horizontal KPF.
3. Space intermediate guides 5' apart.

Overhead Distribution Construction Standards

12kV Line Devices
In-Line Gang Operated Horizontal KPF

Rev. Reformat

Issue Date: 09/01/88
Rev. Date: 08/01/11
Approval: B. Priest
12kV LINE DEVICES
600A PARALLELING DISCONNECTS
VERTICAL CONSTRUCTION

35' MAX. ABOVE FINAL GRADE

IF UNDERBUILD, DESIGNATE CIRCUIT SEPARATION

REV. DATE: 06/11/11
APPROVAL: B. PRIEST
<table>
<thead>
<tr>
<th>UNIT DESCRIPTION</th>
<th>COMPATIBLE UNIT CODE</th>
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<tbody>
<tr>
<td>Switch, directional, 15kV, 200 amp, 3-phase</td>
<td>RAT152</td>
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<tr>
<td>Disconnects, single-pole, 15kV, 100 amp</td>
<td>RD151</td>
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<tr>
<td>Disconnects, single-pole, 15kV, 200 amp</td>
<td>RD152</td>
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<tr>
<td>Disconnects, single-pole, 15kV, 300 amp</td>
<td>RD153</td>
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<tr>
<td>Disconnects, three-pole, 15kV, 250 amp, gang-operated</td>
<td>RK1525</td>
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<tr>
<td>Switch, oil, 15kV, 200 amp, streetlight</td>
<td>RLD2</td>
</tr>
<tr>
<td>Switch, recloser, 15kV, under 600 amp, 3-phase</td>
<td>RCL15</td>
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<tr>
<td>Switch, sectionalizer, 15kV, under 600 amp, 3-phase</td>
<td>RAD15</td>
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<tr>
<td>Regulator, voltage, 14kV, under 600 amp, 3-phase</td>
<td>RR34</td>
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<tr>
<td>Disconnects, single-pole, 15kV, 400 amp</td>
<td>RD154</td>
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