## APPLICATION OF UNDERGROUND DISTRIBUTION TRANSFORMERS

**Asset Type:** Electric Distribution  
**Function:** Construction

**Issued by:** Michael Thibault (MLTC)  
**Date:** 03-25-22

**Rev. #27:** This document replaces PG&E Document 062111, Rev. #26. For a description of the changes, see Page 26.

### Purpose and Scope

This document provides a convenient reference for the types of transformers that are purchasable and used for underground distribution. The available voltages and kVA ratings are indicated along with the applicable codes to facilitate ordering.

### General Information

1. To conserve space and avoid overlap with other documents, the description of transformers shown has been shortened. Individual characteristics of these transformers such as dimensions, accessories, and protection can be determined by making reference to the application documents.

2. **Application**
   
   **A. Single-Phase:** The standard transformer for single-phase service is the Style DF-LB, single-phase, pad-mounted transformer (see Table 1 through Table 3 on Page 5). The 25 kVA through 100 kVA sizes are used for new construction. The 167 kVA size is reserved for replacement use, to solve loading or voltage problems. Where their use is required, several other types may be available with the required voltage and kVA ratings.
   
   (1) Chester area pad-mount transformer (see Table 4 on Page 5).
   
   (2) Subsurface horizontal transformer (see Table 5 and Table 6 on Page 6).
   
   (3) Subway-LB transformer (see Table 8 on Page 7).
   
   **B. Three-Phase:** The standard transformer for three-phase service is Style MTP, Style IIE-LB, or Style IIG pad-mount transformer (see Table 12 through Table 19 on Pages 8 through 10). Where their use is required, several other types may be available with the required voltage and kVA ratings.
   
   (1) Duplex-LB pad-mount transformer (see Table 9 on Page 7).
   
   (2) Duplex subsurface transformers (see Table 21 on Page 10).
   
   (3) Radial dead-front transformer (see Table 18 on Page 10).
   
   (4) Style IIC transformer (see Table 20 on Page 10).
   
   (5) Style IIH transformer (see Table 41 on Page 16).
   
   (6) UCD-LB transformer (see Table 22 on Page 11).
   
   **C. “-LB” designation means that the transformer has the following characteristics:**
   
   (1) Uses bayonet fuses.
   
   (2) Has backup current-limiting (CL) fuses.
   
   (3) Has a load-break switch between bayonet and CL fuses.
   
   (4) Will accommodate load-break elbows.

3. For replacement options of older style transformers, see Document 068195 for recommendations.

4. See Document 072149 for when to use pad-mount, subsurface, or vault-type transformers.

5. Each transformer code has been assigned a footnote indicating the desired use of the transformer as defined below:

   **A. “1 − Current Standard Design and May Be Purchased” −** these are transformers with the most current type, size, and voltage rating and are regularly purchased and used.

   **B. “4 − Use for Replacement Only and May Be Purchased” −** may be purchased as required for replacements. They should not be used for new construction.
C. Transformers coded with an “E” are included in emergency stock.

D. Transformers coded as 1 are available for use on new business jobs.

E. Transformers coded as 4 are to be used only when required to replace an existing installation.

6. Transformers indicated as "stainless steel" have all exterior metal parts (unless otherwise noted in the referenced documents) fabricated out of stainless steel or other material of equal or superior corrosion resistance. These units shall be used whenever a transformer is to be installed in the severe or moderate corrosion areas of Document 032911. Stainless steel units should also be used whenever local experience has determined that transformers experience accelerated corrosion leading to early replacement.
Table of Contents

Types Suitable for New Construction

<table>
<thead>
<tr>
<th>Table/Figure</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types Suitable for New Construction</td>
<td></td>
</tr>
<tr>
<td>Single-Phase:</td>
<td></td>
</tr>
<tr>
<td>• Pad-Mount Style DF-LB</td>
<td>Table 1 – Table 3</td>
</tr>
<tr>
<td>• Pad-Mount Chester Area</td>
<td>Table 4</td>
</tr>
<tr>
<td>• Subsurface, Horizontal</td>
<td>Table 5 – Table 6</td>
</tr>
<tr>
<td>• Subsurface, Round</td>
<td>Table 7</td>
</tr>
<tr>
<td>• Subsurface, Subway-LB</td>
<td>Table 8</td>
</tr>
<tr>
<td>Three-Phase, Pad-Mount:</td>
<td></td>
</tr>
<tr>
<td>• Duplex-DF</td>
<td>Table 9</td>
</tr>
<tr>
<td>• Style MTP</td>
<td>Table 10 – Table 11</td>
</tr>
<tr>
<td>• Style IIIE-LB</td>
<td>Table 12 – Table 17</td>
</tr>
<tr>
<td>• Radial Dead-Front</td>
<td>Table 18</td>
</tr>
<tr>
<td>• Style IIG</td>
<td>Table 19</td>
</tr>
<tr>
<td>• Style IIC</td>
<td>Table 20</td>
</tr>
<tr>
<td>Three-Phase, Subsurface:</td>
<td></td>
</tr>
<tr>
<td>• Duplex</td>
<td>Table 21</td>
</tr>
<tr>
<td>• UCD-LB</td>
<td>Table 22</td>
</tr>
<tr>
<td>Specialty Transformers</td>
<td></td>
</tr>
<tr>
<td>Three-Phase, Subsurface:</td>
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</tr>
<tr>
<td>• Network</td>
<td>Table 23 – Table 25</td>
</tr>
<tr>
<td>Three-Phase, Dry Type:</td>
<td></td>
</tr>
<tr>
<td>• Network</td>
<td>Table 26 – Table 27</td>
</tr>
<tr>
<td>Three-Phase, Pad-Mount:</td>
<td></td>
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<tr>
<td>• Network</td>
<td>Table 28</td>
</tr>
<tr>
<td>• System Tie</td>
<td>Table 29 – Table 30</td>
</tr>
<tr>
<td>• Grounding Bank</td>
<td>Table 31</td>
</tr>
<tr>
<td>• Zigzag-Radial Dead-Front</td>
<td>Table 32</td>
</tr>
<tr>
<td>Types for Replacements Only</td>
<td></td>
</tr>
<tr>
<td>Single-Phase:</td>
<td></td>
</tr>
<tr>
<td>• Pad-Mount Live-Front, Clam Shell</td>
<td>Table 33 – Table 34</td>
</tr>
<tr>
<td>• Subsurface, Round</td>
<td>Table 35 – Table 37</td>
</tr>
<tr>
<td>Three-Phase, Pad-Mount:</td>
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</tr>
<tr>
<td>• Style IIC</td>
<td>Table 38</td>
</tr>
<tr>
<td>• Style IIF</td>
<td>Table 39 – Table 40</td>
</tr>
<tr>
<td>• Style IIH</td>
<td>Table 41</td>
</tr>
<tr>
<td>• Radial, Dead-Front</td>
<td>Table 42</td>
</tr>
<tr>
<td>• Radial, Live-Front</td>
<td>Table 43 – Table 44</td>
</tr>
<tr>
<td>Three-Phase, Subsurface Vault</td>
<td>Table 45</td>
</tr>
<tr>
<td>Transformer Winding Designations</td>
<td>Table 47 – Table 48</td>
</tr>
<tr>
<td>Transformer Insulating Fluid</td>
<td>Table 49</td>
</tr>
<tr>
<td>System Primary Voltages</td>
<td>Table 50</td>
</tr>
<tr>
<td>Pictorial Index</td>
<td>Figure 1 – Figure 6</td>
</tr>
</tbody>
</table>

Rev. #27: 03-25-22

062111 Page 3 of 26
<table>
<thead>
<tr>
<th>References</th>
<th>Location</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet and Transformer for Single-Phase 12 kV</td>
<td></td>
<td>032732</td>
</tr>
<tr>
<td>Pad-Mounted Transformer Installation</td>
<td>ELS</td>
<td>032732</td>
</tr>
<tr>
<td>Underground Residential Areas</td>
<td></td>
<td>032732</td>
</tr>
<tr>
<td>Corrosion Area-Overhead Lines</td>
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<td>032911</td>
</tr>
<tr>
<td>Requirements for Conventional Three-Phase</td>
<td></td>
<td>033705</td>
</tr>
<tr>
<td>Small Power Transformers</td>
<td>ELS</td>
<td>033705</td>
</tr>
<tr>
<td>Single-Phase, Subsurface, Round Transformers</td>
<td>UG-1: Transformers</td>
<td>035313</td>
</tr>
<tr>
<td>Underground Commercial Distribution, Three-Phase, Subsurface</td>
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<td>039830</td>
</tr>
<tr>
<td>Subsurface Transformer</td>
<td>UG-1: Transformers</td>
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</tr>
<tr>
<td>Live-Front, Low-Profile, Single-Phase, Pad-Mounted Transformers</td>
<td>UG-1: Transformers</td>
<td>042761</td>
</tr>
<tr>
<td>Cabinet and Transformer for Low-Profile, Single-Phase, 6.9 kV Transformer</td>
<td>ELS</td>
<td>042764</td>
</tr>
<tr>
<td>Pad-Mounted Transformer Installation</td>
<td>ELS</td>
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<td>Underground Residential Systems</td>
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<td>UG-1: Transformers</td>
<td>045290</td>
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<tr>
<td>Pad-Mounted Network Transformer</td>
<td>UG-2: Transformers</td>
<td>045774</td>
</tr>
<tr>
<td>Open Wye to Zigzag Wye Transformation</td>
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<tr>
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<td>UG-1: Transformers</td>
<td>045786</td>
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<tr>
<td>Duplex-Type, Three-Phase, Subsurface Transformer</td>
<td>UG-1: Transformers</td>
<td>051776</td>
</tr>
<tr>
<td>Horizontal, Single-Phase, Subsurface Transformers</td>
<td>UG-1: Transformers</td>
<td>060578</td>
</tr>
<tr>
<td>Pad-Mounted Ground Fault Sensing for Cogeneration</td>
<td>UG-1: General</td>
<td>062264</td>
</tr>
<tr>
<td>Single-Phase, Dead-Front, and Duplex, Pad-Mounted Transformer</td>
<td>UG-1: Transformers</td>
<td>064307</td>
</tr>
<tr>
<td>4 kV Circuit Supply</td>
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<td>064307</td>
</tr>
<tr>
<td>Distribution Transformer Replacement Options</td>
<td>UG-1: Transformers/EDM</td>
<td>068184</td>
</tr>
<tr>
<td>Three-Phase Subsurface Network Transformers</td>
<td>UG-2: Transformers</td>
<td>072137</td>
</tr>
<tr>
<td>Three-Phase Subsurface Vault Transformers</td>
<td>UG-2: Transformers</td>
<td>072138</td>
</tr>
<tr>
<td>Single-Phase Subway Transformers</td>
<td>UG-2: Transformers</td>
<td>072139</td>
</tr>
<tr>
<td>Pad-Mounted Transformers-Style IIIG and Style IIH</td>
<td>UG-1: Transformers</td>
<td>072146</td>
</tr>
<tr>
<td>Selection of the Type of Underground Equipment</td>
<td>UG-1: Transformers/Greenbook</td>
<td>072149</td>
</tr>
<tr>
<td>Engineering Material Specification 91, &quot;Single-Phase and Three-Phase Subsurface Distribution Transformers&quot;</td>
<td>TIL</td>
<td>EMS 91</td>
</tr>
</tbody>
</table>
**Single-Phase, Pad-Mount, for New Construction**

Table 1  Codes for Style DF-LB, 1-Wire (2-Bushing) No Loop Switches With Transformer Switch With 2 Primary Bushings and 3 Secondary Bushings Including the Insulated Neutral (reference Document 064307 and Spec. 86) – Self-Protected

<table>
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<tr>
<th>kVA</th>
<th>20,780GRDY/12,000</th>
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<tbody>
<tr>
<td></td>
<td>240/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>25</td>
<td>261501</td>
</tr>
<tr>
<td></td>
<td>262890</td>
</tr>
<tr>
<td>50</td>
<td>261502</td>
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<tr>
<td></td>
<td>262891</td>
</tr>
<tr>
<td>100</td>
<td>261503</td>
</tr>
<tr>
<td></td>
<td>262892</td>
</tr>
<tr>
<td>167</td>
<td>261504, E</td>
</tr>
<tr>
<td></td>
<td>262893, E</td>
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</table>

Table 2  Codes for Style DF-LB, 2-Wire, (4-Bushing) No Loop Switches With Transformer Switch With 4 Primary Bushings and 3 Secondary Bushings Including the Insulated Neutral (reference Document 064307 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>240/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>25</td>
<td>261507</td>
</tr>
<tr>
<td></td>
<td>261519</td>
</tr>
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<td></td>
<td>261511</td>
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<td>261521</td>
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<td></td>
<td>261513</td>
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<tr>
<td></td>
<td>261517</td>
</tr>
<tr>
<td>167</td>
<td>261510, 4</td>
</tr>
<tr>
<td></td>
<td>261522, 4, E</td>
</tr>
<tr>
<td></td>
<td>261514, 4, E</td>
</tr>
<tr>
<td></td>
<td>261518, 4, E</td>
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</table>

Table 3  Codes for Style DF-LB, 3-Wire, (6-Bushing) No Loop Switches With Transformer Switch and With 6 Primary Bushings and 3 Secondary Bushings Including the Insulated Neutral (reference Document 064307 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>2,400/4,160GrdY</th>
<th>4,160 x 12,000</th>
<th>12,000/20,780GrdY</th>
<th>17,200</th>
<th>20,780</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>240/120 V</td>
<td>240/120 V</td>
<td>240/120 V</td>
<td>480/240 V</td>
<td>240/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
<td>Mild Steel</td>
<td>Stainless</td>
<td>Mild Steel</td>
<td>Stainless</td>
</tr>
<tr>
<td></td>
<td>261531, 1</td>
<td>261543, 1</td>
<td>262721, 1, E</td>
<td>261535, 1</td>
<td>261539, 1</td>
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<tr>
<td></td>
<td>261532, 1</td>
<td>261544, 1</td>
<td>–</td>
<td>261536, 1</td>
<td>261540, 1</td>
</tr>
<tr>
<td></td>
<td>261988, 1, E</td>
<td>261533, 1</td>
<td>261545, 1</td>
<td>–</td>
<td>261537, 1</td>
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<tr>
<td></td>
<td>261534, 4</td>
<td>261546, 4, E</td>
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<td>261538, 4, E</td>
<td>261542, 4, E</td>
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Table 4  Codes for Chester Style Specialty Transformers - Single-Phase, Pad-Mount, Load-Break, Dead-Front With Single-Phase Cabinet for Use in the Chester, CA Area. With 2 Primary Bushings and 3 Secondary Bushings Including the Insulated Neutral (see ANSI/IEEE Type 2(a) per IEEE C57.12.25) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,470GrdY/7,200 – 240/120 V</th>
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<tbody>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>50</td>
<td>017414, 1, E</td>
</tr>
<tr>
<td>100</td>
<td>–</td>
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</tbody>
</table>

1 Current standard design and may be purchased.  
4 Use for replacement only and may be purchased.  
E Included in Emergency Stock
### Single-Phase, Subsurface, for New Construction

#### Table 5  Codes for Subsurface Horizontal, Single-Phase With 4 Primary Bushings With 2 (25-50 kVA) or 4 (75-167 kVA) Hot Secondary Leads. Neutral Lead May Be Permanently Grounded. (reference Document 060578 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY 240/120 V</th>
<th>17,200 240/120 V</th>
<th>20,780 240/120 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Switch With Single-Phase Switch</td>
<td>No Switch No Switch</td>
<td>With Single-Phase Switch</td>
</tr>
<tr>
<td>25</td>
<td>262389&lt;sup&gt;1&lt;/sup&gt; – 262395&lt;sup&gt;1&lt;/sup&gt; 262436&lt;sup&gt;1&lt;/sup&gt; –</td>
<td>– 262396&lt;sup&gt;1&lt;/sup&gt; 262437&lt;sup&gt;1,E&lt;/sup&gt; –</td>
<td>–</td>
</tr>
<tr>
<td>50</td>
<td>262391&lt;sup&gt;1&lt;/sup&gt; – 262396&lt;sup&gt;1&lt;/sup&gt; 262437&lt;sup&gt;1,E&lt;/sup&gt; –</td>
<td>– 262397&lt;sup&gt;1&lt;/sup&gt; 262438&lt;sup&gt;1,E&lt;/sup&gt; 262439&lt;sup&gt;1,E&lt;/sup&gt;</td>
<td>–</td>
</tr>
<tr>
<td>100</td>
<td>262393&lt;sup&gt;1,E&lt;/sup&gt; 013884&lt;sup&gt;1,E&lt;/sup&gt; 262397&lt;sup&gt;1&lt;/sup&gt; 262438&lt;sup&gt;1,E&lt;/sup&gt; 262439&lt;sup&gt;1,E&lt;/sup&gt;</td>
<td>– 262438&lt;sup&gt;1,E&lt;/sup&gt; 262439&lt;sup&gt;1,E&lt;/sup&gt;</td>
<td>–</td>
</tr>
<tr>
<td>167</td>
<td>262394&lt;sup&gt;4,E&lt;/sup&gt; 262181&lt;sup&gt;4,E&lt;/sup&gt; 262398&lt;sup&gt;4,E&lt;/sup&gt; 263050&lt;sup&gt;4,E&lt;/sup&gt;</td>
<td>– 262398&lt;sup&gt;4,E&lt;/sup&gt; 263050&lt;sup&gt;4,E&lt;/sup&gt;</td>
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#### Table 6  Codes for Subsurface Horizontal, Single-Phase With 6 Primary Bushings With 2 (25-50 kVA) or 4 (75-167 kVA) Hot Secondary Leads. Neutral Lead May Be Permanently Grounded. (reference Document 060578 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY 240/120 V</th>
<th>17,200 – 240/120 V</th>
<th>20,780 – 240/120 V</th>
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<tr>
<td></td>
<td>No Switch With Three-Phase Switch</td>
<td>No Switch With Three-Phase Switch</td>
<td>No Switch With Three-Phase Switch</td>
</tr>
<tr>
<td>25</td>
<td>260328&lt;sup&gt;1&lt;/sup&gt; 027264&lt;sup&gt;1,E&lt;/sup&gt; 261106&lt;sup&gt;1&lt;/sup&gt; – 261102&lt;sup&gt;1&lt;/sup&gt; –</td>
<td>261106&lt;sup&gt;1&lt;/sup&gt; – –</td>
<td>261102&lt;sup&gt;1&lt;/sup&gt; – –</td>
</tr>
<tr>
<td>50</td>
<td>260668&lt;sup&gt;1,E&lt;/sup&gt; – 261107&lt;sup&gt;1,E&lt;/sup&gt; – – 261103&lt;sup&gt;1,E&lt;/sup&gt; –</td>
<td>261107&lt;sup&gt;1,E&lt;/sup&gt; – –</td>
<td>261103&lt;sup&gt;1,E&lt;/sup&gt; – –</td>
</tr>
<tr>
<td>100</td>
<td>260882&lt;sup&gt;1,E&lt;/sup&gt; 027266&lt;sup&gt;1,E&lt;/sup&gt; 261108&lt;sup&gt;1&lt;/sup&gt; 027269&lt;sup&gt;1,E&lt;/sup&gt; 261104&lt;sup&gt;1,E&lt;/sup&gt; 027267&lt;sup&gt;1,E&lt;/sup&gt;</td>
<td>027269&lt;sup&gt;1,E&lt;/sup&gt; 261104&lt;sup&gt;1,E&lt;/sup&gt; 027267&lt;sup&gt;1,E&lt;/sup&gt;</td>
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<tr>
<td>167</td>
<td>261000&lt;sup&gt;4,E&lt;/sup&gt; – 261109&lt;sup&gt;4,E&lt;/sup&gt; – 261105&lt;sup&gt;4,E&lt;/sup&gt;</td>
<td>– 261109&lt;sup&gt;4,E&lt;/sup&gt; –</td>
<td>261105&lt;sup&gt;4,E&lt;/sup&gt; –</td>
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#### Table 7  Codes for Subsurface Round, Single-Phase With 3 Secondary Bushings, Neutral May be Permanently Grounded. Use to Supply Single-Phase Load. (reference Document 035313 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>4160/7200Y 240/120 V 4 Primary Bushings</th>
<th>4,160GrdY/2,400 240/120 V 2 Primary Bushings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Switch No Switch With Single-Phase Switch</td>
<td>No Switch</td>
</tr>
<tr>
<td>100</td>
<td>262371&lt;sup&gt;1,E&lt;/sup&gt; 262120&lt;sup&gt;1,E&lt;/sup&gt; 262143&lt;sup&gt;1,E&lt;/sup&gt;</td>
<td>–</td>
</tr>
</tbody>
</table>

(See Table 36 on Page 14 for other single-phase round transformers.)

---

1. Current standard design and may be purchased.

4. Use for replacement only and may be purchased.

E. Included in Emergency Stock
Single-Phase, Subsurface, for New Construction (continued)

Table 8  Codes for Subsurface Subway-LB, Single-Phase, (reference Document 072139 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>2.400/4.160Y-120/240</th>
<th>12,000/20,780Y – 120/240</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 Primary Bushings</td>
<td>2 Primary Bushings</td>
</tr>
<tr>
<td></td>
<td>4 Secondary Bushings</td>
<td>4 Secondary Bushings</td>
</tr>
<tr>
<td>50</td>
<td>261388 1, E</td>
<td>261384 1</td>
</tr>
<tr>
<td>100</td>
<td>261389 1</td>
<td>261385 1, E</td>
</tr>
<tr>
<td>167</td>
<td>261390 1, E</td>
<td>261386 1</td>
</tr>
<tr>
<td>250</td>
<td>–</td>
<td>261387 1, E</td>
</tr>
</tbody>
</table>

Three-Phase, Pad-Mount, for New Construction

Table 9  Codes for Duplex-Style DF, Three-Phase, Pad-Mount, No Loop Switch, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 064307 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
<th>17,200</th>
<th>20,780</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>240/120 V</td>
<td>240/120 V</td>
<td>240/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
<td>Stainless</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>25/10</td>
<td>261547 1</td>
<td>–</td>
<td>261551 1</td>
</tr>
<tr>
<td>50/10</td>
<td>261548 1, E</td>
<td>262047 1, E</td>
<td>261552 1, E</td>
</tr>
<tr>
<td>100/25</td>
<td>261549 1</td>
<td>–</td>
<td>261553 1</td>
</tr>
<tr>
<td>100/50</td>
<td>261550 1, E</td>
<td>262049 1, E</td>
<td>261554 1, E</td>
</tr>
</tbody>
</table>

Table 10  Codes for Style MTP, Three-Phase, Pad-Mount With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>480Y/277 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td></td>
<td>Stainless</td>
</tr>
<tr>
<td>45</td>
<td>261897 1</td>
</tr>
<tr>
<td>150</td>
<td>261899 1, E</td>
</tr>
</tbody>
</table>

Table 11  Codes for Style MTP, Three-Phase, Pad-Mount With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>480Y/277 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>45</td>
<td>–</td>
</tr>
<tr>
<td>150</td>
<td>262782 1, E</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased.
4 Use for replacement only and may be purchased. E Included in Emergency Stock
### Three-Phase, Pad-Mount, for New Construction (continued)

#### Table 12 Codes for Style IIE-LB, No Loop Switches, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160 x 12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>261397 ¹</td>
</tr>
<tr>
<td>150</td>
<td>261398 ¹</td>
</tr>
<tr>
<td>300</td>
<td>261399 ¹, E</td>
</tr>
<tr>
<td>750</td>
<td>261400 ¹, E</td>
</tr>
</tbody>
</table>

#### Table 13 Codes for Style IIE-LB, No Loop Switches, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) (continued) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>261405 ¹</td>
</tr>
<tr>
<td>150</td>
<td>261406 ¹</td>
</tr>
<tr>
<td>300</td>
<td>261407 ¹, E</td>
</tr>
<tr>
<td>750</td>
<td>261408 ¹</td>
</tr>
<tr>
<td>1,000</td>
<td>261409 ¹, E</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
</tr>
</tbody>
</table>

#### Table 14 Codes for Style IIE-LB, No Loop Switches, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) (continued) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>17,200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>261423 ¹</td>
</tr>
<tr>
<td>150</td>
<td>261424 ¹, E</td>
</tr>
<tr>
<td>300</td>
<td>261425 ¹</td>
</tr>
<tr>
<td>750</td>
<td>261426 ¹, E</td>
</tr>
<tr>
<td>1,000</td>
<td>261427 ¹, E</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
</tr>
</tbody>
</table>

¹ Current standard design and may be purchased.

³ Use for replacement only and may be purchased.

⁴ Included in Emergency Stock
### Three-Phase, Pad-Mount, for New Construction (continued)

#### Table 15 Codes for Style IIE-LB, No Loop Switches, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) (continued) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>208Y/120 V</th>
<th>480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mild Steel</td>
<td>Stainless</td>
</tr>
<tr>
<td>75</td>
<td>261437 1</td>
<td>261452 1</td>
</tr>
<tr>
<td>150</td>
<td>261438 1</td>
<td>–</td>
</tr>
<tr>
<td>300</td>
<td>261439 1</td>
<td>261453 1, E</td>
</tr>
</tbody>
</table>

#### Table 16 Codes for Style IIE-LB, With Three-Phase Loop Switches, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>261456 1</td>
</tr>
<tr>
<td>300</td>
<td>261457 1, E</td>
</tr>
<tr>
<td>1,000</td>
<td>261458 1, E</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
</tr>
</tbody>
</table>

#### Table 17 Codes for Style IIE-LB, With Three-Phase Loop Switches, With Transformer Switch With 6 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) (continued) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>17,200</th>
<th>20,780</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
<td>480Y/277 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>261462 1</td>
<td>261465 1</td>
</tr>
<tr>
<td>300</td>
<td>261463 1, E</td>
<td>261466 1, E</td>
</tr>
<tr>
<td>1,000</td>
<td>261464 1, E</td>
<td>261467 1, E</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
<td>261896 1, E</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased.  
4 Use for replacement only and may be purchased.  
E Included in Emergency Stock
### Three-Phase, Pad-Mount, for New Construction (continued)

#### Table 18 Codes for Radial Dead-Front, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 043816 and Spec. 86) – Conventional

<table>
<thead>
<tr>
<th>kVA</th>
<th>20,780</th>
<th>480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mild Steel</td>
<td>Stainless</td>
</tr>
<tr>
<td>750</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>1,000</td>
<td>263029 1</td>
<td>261523 1, E</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

(See Table 42 on Page 16 for other three-phase radial DF.)

#### Table 19 Codes for Style IIG, Three-Phase, Pad-Mount With Vacuum Fault Interrupter, With 6 Primary Bushings, 4 Secondary Bushings Including Insulated Neutral With Stainless Steel Cabinet and FR3 Insulating Fluid (reference Document 072146 and Spec. 86)

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780Grd/12,000</th>
<th>12,000/20,780Grd/12,000</th>
<th>17,200</th>
<th>20,780</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>480Y/277</td>
<td>2,400/4160Y/2,400</td>
<td>480Y/277</td>
<td>2,400/4160Y/2,400</td>
</tr>
<tr>
<td></td>
<td>No Loop Switch</td>
<td>With 2 Loop Switches</td>
<td>No Switch</td>
<td>No Loop Switch</td>
</tr>
<tr>
<td>2955/3325</td>
<td>262702 1, E</td>
<td>262703 1, E</td>
<td>262704 1, E</td>
<td>262705 1, E</td>
</tr>
<tr>
<td></td>
<td>262706 1, E</td>
<td>262707 1, E</td>
<td>262708 1, E</td>
<td></td>
</tr>
</tbody>
</table>

#### Table 20 Codes for Style IIC, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160 x 12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
</tr>
</tbody>
</table>

(See Table 38 on Page 15 for other Style IIC.)

### Three-Phase, Subsurface, for New Construction

#### Table 21 Codes for Subsurface Duplex, Three-Phase With 6 Primary Bushings and 3 Hot Secondary Leads or Insulated Spades. The Neutral is a Welded Spade. (reference Document 051776 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000 – 240/120 V</th>
<th>17,200 – 240/120 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Switch</td>
<td>With Three-Phase Switch</td>
</tr>
<tr>
<td>25/10</td>
<td>262122 1</td>
<td>262131 1</td>
</tr>
<tr>
<td>50/10</td>
<td>262128 1, E</td>
<td>262132 1, E</td>
</tr>
<tr>
<td>75/15</td>
<td>262130 1</td>
<td>262133 1</td>
</tr>
<tr>
<td>100/25</td>
<td>262130 1</td>
<td>262134 1</td>
</tr>
<tr>
<td>100/50</td>
<td>262363 1, E</td>
<td>262318 1, E</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased.

4 Use for replacement only and may be purchased.

E Included in Emergency Stock
### Three-Phase, Subsurface, for New Construction (continued)

Table 22 Codes for Subsurface UCD-LB, Three-Phase With Two, Three-Phase Loop Switches and With Transformer Switches With 6 Primary Bushings and 3 Hot Secondary Bushings. The Neutral May Be Permanently Grounded. (reference Document 039830 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160 x 12,000</th>
<th>12,000/20,780GrdY/12,000</th>
<th>17,200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
<td>208Y/120</td>
<td>208Y/120</td>
</tr>
<tr>
<td>150</td>
<td>480Y/277</td>
<td>480Y/277</td>
<td>480Y/277</td>
</tr>
<tr>
<td>300</td>
<td>261798 1</td>
<td>261802 1</td>
<td>261806 1</td>
</tr>
<tr>
<td>750</td>
<td>261799 1,E 2</td>
<td>261801 1,E 2</td>
<td>261807 1,E 2</td>
</tr>
<tr>
<td>1,000</td>
<td>262327 1,E 3</td>
<td>262332 1,E 3</td>
<td>261804 1</td>
</tr>
</tbody>
</table>

Specialty Transformers

Table 23 Codes for Subsurface Network, Three-Phase With 3 Primary Bushings and 3 Secondary Bushings With No Ground Switch, No Termination Chamber (reference Document 072137 and Spec. 91) – Conventional, Plate Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000 – 208Y/120 V</th>
<th>12,000 – 480Y/277 V</th>
<th>12,000X34,500GrdY/19920 480Y/277 V</th>
<th>34,500GrdY/19,920 480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>262664 1</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>500</td>
<td>262665 1</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>750</td>
<td>262666 1</td>
<td>262667 1,T</td>
<td>262673 1</td>
<td>262671 1</td>
</tr>
<tr>
<td>1,000</td>
<td>–</td>
<td>262668 1,T</td>
<td>262674 1</td>
<td>262662 1</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>262669 1,T</td>
<td>262675 1</td>
<td>262672 1</td>
</tr>
<tr>
<td>2,000</td>
<td>–</td>
<td>262670 1,T</td>
<td>262676 1</td>
<td>262663 1</td>
</tr>
</tbody>
</table>

Table 24 Codes for Subsurface Network, Three-Phase With 3 Primary Bushings and 3 Secondary Bushings With Ground Switch and Termination Chamber (reference Document 072137 and Spec. 91) – Conventional, Plate Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000 – 208Y/120 V</th>
<th>12,000 – 480Y/277 V</th>
<th>12,000X34,500GrdY/19920 480Y/277 V</th>
<th>34,500GrdY/19,920 480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>262407 4</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>500</td>
<td>262408 4</td>
<td>262410 4,T</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>750</td>
<td>262409 4,E</td>
<td>262411 4,T</td>
<td>262419 4</td>
<td>262415 4</td>
</tr>
<tr>
<td>1,000</td>
<td>–</td>
<td>262412 4,E,T</td>
<td>262420 4</td>
<td>262416 4</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>262413 4,T</td>
<td>262421 4</td>
<td>262417 4</td>
</tr>
<tr>
<td>2,000</td>
<td>–</td>
<td>262414 4,T</td>
<td>262422 4,E</td>
<td>262418 4</td>
</tr>
</tbody>
</table>

Table 25 Codes for Subsurface Vault, Three-Phase with 3 Primary Bushings and 3 Secondary 600A ESNA Bushings (Spec. 91).

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000 x 34,500GrdY/19,920 – 4,160Y/2400 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,000</td>
<td>262889 1</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased. 4 Use for replacement only and may be purchased. E Included in Emergency Stock T With high voltage taps.
**Specialty Transformers (continued)**

Table 26 Codes for Dry-Type Network. Three-Phase With 3 Primary Bushings and 3 Secondary Bushings – Conventional, 65/115° Rise Cast Coil, Rotated Layout

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000 – 208Y/120 V</th>
<th>12,000 – 480Y/277 V</th>
<th>34,500GrdY/19,920 480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>262777 1,T</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>750</td>
<td>262778 1,T</td>
<td>262773 1,T</td>
<td>262779 1,T</td>
</tr>
<tr>
<td>1,000</td>
<td>–</td>
<td>262774 1,T</td>
<td>262780 1,T</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>262775 1,T</td>
<td>–</td>
</tr>
<tr>
<td>2,000</td>
<td>–</td>
<td>262776 1,T</td>
<td>262781 1,T</td>
</tr>
</tbody>
</table>

Table 27 Codes for Dry-Type Network. Three-Phase With 3 Primary Bushings and 3 Secondary Bushings – Conventional, 65/115° Rise Cast Coil, In-Line Layout

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000 – 208Y/120 V</th>
<th>12,000 – 480Y/277 V</th>
<th>34,500GrdY/19,920 480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>750</td>
<td>–</td>
<td>–</td>
<td>262816 1,T</td>
</tr>
<tr>
<td>1,000</td>
<td>–</td>
<td>262813 1,T</td>
<td>262817 1,T</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>262814 1,T</td>
<td>–</td>
</tr>
<tr>
<td>2,000</td>
<td>–</td>
<td>262815 1,T</td>
<td>262818 1,T</td>
</tr>
</tbody>
</table>

Table 28 Codes for Pad-Mount Network, Three-Phase With 3 Primary Bushings and 3 Secondary Bushings (reference Document 045774 and Spec. 86) – Conventional, Mild Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000 – 480Y/277 V</th>
<th>34,500GrdY/19,920 - 480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>750</td>
<td>260666 1</td>
<td>260655 1</td>
</tr>
<tr>
<td>1,000</td>
<td>260667 1</td>
<td>260656 1</td>
</tr>
<tr>
<td>1,500</td>
<td>260684 1</td>
<td>260657 1</td>
</tr>
<tr>
<td>2,000</td>
<td>260699 1</td>
<td>260658 1</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased.  
2 Use for replacement only and may be purchased.  
E Included in Emergency Stock  
T With high voltage taps
### Specialty Transformers (continued)

#### Table 29 Codes for System Tie, Three-Phase, Pad-Mount With 3 Primary Bushings and 3 Secondary Bushings (reference Document 068184 and Spec. 86) – Conventional, Mild Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000 - 4,160GrdY/2,400 V</th>
<th>12,000 - 4,800</th>
<th>6,930/12,000Y - 4,160Y/2,400 V</th>
<th>20,780 - 4,160GrdY/2,400 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0° Phase Shift @ 21 kV</td>
<td>0° Phase Shift @ 12 kV</td>
<td>30° Phase Shift @ 21 kV</td>
<td>30° Phase Shift @ 12 kV</td>
</tr>
<tr>
<td>With One Recloser on Secondary Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,500</td>
<td>261381 (^1, E)</td>
<td>–</td>
<td>262578 (^1, E)</td>
<td>262579 (^1, E)</td>
</tr>
<tr>
<td>3,000</td>
<td>–</td>
<td>262696 (^1, E)</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

#### Table 30 Codes for System Tie, Three-Phase, Pad-Mount With 3 Primary Bushings and 3 Secondary Bushings (reference Document 051119 and Spec. 86) (continued) – Conventional, Mild Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>20,780Y/12,000</th>
<th>17,200 V Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12,000Y/6,930 V</td>
<td>12,000Y/6930 V</td>
</tr>
<tr>
<td>Without Recloser</td>
<td>With 2 Reclosers</td>
<td>30° Lead to 30° Lag Switch With Recloser on 21 kV Side</td>
</tr>
<tr>
<td>3,600</td>
<td>264134 (^1)</td>
<td>262661 (^1, E)</td>
</tr>
<tr>
<td>7,500</td>
<td>261943 (^1)</td>
<td>262473 (^1, E)</td>
</tr>
</tbody>
</table>

#### Table 31 Codes for Pad-Mount, Grounding Bank, Three-Phase, (for cogeneration fault sensing with \(H_o\) bushing, 2.5% impedance) With 6 Primary Bushings and 3 Secondary Bushings (reference Document 062264 and Spec. 86) – Self-Protected, Mild Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>20,780GrdY/12,000 - 480 V Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>225</td>
<td>017072 (^1)</td>
</tr>
</tbody>
</table>

#### Table 32 Codes for Zigzag - Radial Dead-Front, Three-Phase, Pad-Mount With 2 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045786 and Spec. 86) – Conventional, Mild Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>20,780GrdY/12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td>300</td>
<td>263073 (^1, E)</td>
</tr>
</tbody>
</table>

### Single-Phase, Pad Mount, for Replacements Only

#### Table 33 Codes for Live-Front, Clam Shell, Single-Phase, Pad-Mount With 2 Primary Bushings and 2 Hot Secondary Bushings. Neutral May Be Permanently Grounded. (reference Document 042761 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>With Single-Phase Cabinet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12,000GrdY/6,930 - 240/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>50</td>
<td>–</td>
</tr>
<tr>
<td>100</td>
<td>261274 (^4, E)</td>
</tr>
<tr>
<td>167</td>
<td>261275 (^4, E)</td>
</tr>
</tbody>
</table>

\(^1\) Current standard design and may be purchased.  
\(^4\) Use for replacement only and may be purchased.  
\(^E\) Included in Emergency Stock  
\(^T\) With high voltage taps
### Single-Phase, Pad Mount, for Replacements Only (continued)

**Table 34 Codes for Live-Front, Clam Shell, Single-Phase, Pad-Mount With 3 Primary Bushings and 2 Hot Secondary Bushings. Neutral May Be Permanently Grounded.** (reference Document 042761 and Spec. 86) (continued) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>With Three-Phase Cabinet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>12,000GrdY/6,930 240/120</td>
<td>4,160X12,000 240/120 V</td>
</tr>
<tr>
<td>Mild Steel</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>50</td>
<td>–</td>
</tr>
<tr>
<td>100</td>
<td>261276 4, E</td>
</tr>
<tr>
<td>167</td>
<td>261277 4, E</td>
</tr>
</tbody>
</table>

### Single-Phase, Subsurface Round, for Replacements Only

**Table 35 Codes for Subsurface Round, Single-Phase, 3 Secondary Bushings With Insulated Neutral.** Use as the Power Transformer in the Bank. (reference Document 035313 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160/7,200Y – 240/120 V</th>
<th>4,160/2,400 – 240/120 V</th>
<th>12,000/20,780GrdY 240/120 V</th>
<th>17,200 – 240/120 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 Primary Bushings</td>
<td>2 Primary Bushings</td>
<td>4 Primary Bushings</td>
<td>4 Primary Bushings</td>
</tr>
<tr>
<td>No Switch</td>
<td>With Single-Phase Switch</td>
<td>No Switch</td>
<td>With Single-Phase Switch</td>
<td>No Switch</td>
</tr>
<tr>
<td>25</td>
<td>262362 4, E</td>
<td>262316 4</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>50</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>75</td>
<td>–</td>
<td>–</td>
<td>262328 4</td>
<td>–</td>
</tr>
<tr>
<td>100</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>167</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

**Table 36 Codes for Subsurface Round Single-Phase With 3 Secondary Bushings, Neutral May Be Permanently Grounded.** Use to Supply Single-Phase Load or as the Lighting Transformer in a Bank. (reference Document 035313 and Spec. 91) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160/7,200Y – 240/120 V</th>
<th>4,160/2,400 – 240/120 V</th>
<th>12,000/20,780GrdY 240/120 V</th>
<th>12,000/20,780GrdY 480/240 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 Primary Bushings</td>
<td>2 Primary Bushings</td>
<td>4 Primary Bushings</td>
<td>4 Primary Bushings</td>
</tr>
<tr>
<td>No Switch</td>
<td>No Switch</td>
<td>With Single-Phase Switch</td>
<td>No Switch</td>
<td>With Single-Phase Switch</td>
</tr>
<tr>
<td>25</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>50</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>262058 4, E</td>
</tr>
<tr>
<td>75</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>262058 4, E</td>
</tr>
<tr>
<td>100</td>
<td>(see Table 7 on Page 6)</td>
<td>262060 4, E</td>
<td>262098 4, E</td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>262372 4, E</td>
<td>262121 4, E</td>
<td>262144 4</td>
<td>262062 4, E</td>
</tr>
</tbody>
</table>

1. Current standard design and may be purchased.
4. Use for replacement only and may be purchased.
E. Included in Emergency Stock.
### Single-Phase, Subsurface Round, for Replacements Only (continued)

Table 37 Codes for Subsurface Round, Single-Phase With 3 Secondary Bushings, Neutral May Be Permanently Grounded. Use to Supply Single-Phase Load or as the Lighting Transformer in a Bank.  
(reference Document 035313 and Spec. 91) (continued) – Self-Protected, Stainless Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000GrdY/6,930 240/120 V 2 Primary Bushings</th>
<th>17,200 240/120 V 4 Primary Bushings</th>
<th>20,780GrdY/12,000 240/120 V 2 Primary Bushings</th>
<th>20,780GrdY/12,000 480/240 V 2 Primary Bushings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Switch</td>
<td>With Single-Phase Switch</td>
<td>No Switch</td>
<td>With Single-Phase Switch</td>
</tr>
<tr>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>50</td>
<td>262054 4, E</td>
<td>262090 4, E</td>
<td>262186 4, E</td>
<td>262147 4, E</td>
</tr>
<tr>
<td>100</td>
<td>262056 4, E</td>
<td>262092 4, E</td>
<td>262188 4, E</td>
<td>262149 4, E</td>
</tr>
<tr>
<td>167</td>
<td>262086 4, E</td>
<td>262093 4, E</td>
<td>262189 4, E</td>
<td>262150 4, E</td>
</tr>
</tbody>
</table>

### Three-Phase, Pad-Mount, for Replacements Only

Table 38 Codes for Style IIC*, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160X12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>480Y/277 V</td>
</tr>
<tr>
<td>1,500</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>2,500</td>
<td>260789 1</td>
</tr>
</tbody>
</table>

(Style IIC and Style II F transformers are completely interchangeable except for the primary fuses.)

*See Table 20 on Page 10 for others of this type.

Table 39 Codes for Style II F, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>300</td>
<td>261284 4, E</td>
</tr>
<tr>
<td>750</td>
<td>261285 4</td>
</tr>
<tr>
<td>1,000</td>
<td>261286 4, E</td>
</tr>
<tr>
<td>1,500</td>
<td>-</td>
</tr>
<tr>
<td>2,500</td>
<td>-</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased.  
4 Use for replacement only and may be purchased.  
E Included in Emergency Stock
### Three-Phase, Pad-Mount, for Replacements Only (continued)

#### Table 40 Codes for Style IIF, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 045290 and Spec. 86) (continued) – Self-Protected

<table>
<thead>
<tr>
<th>kVA</th>
<th>4,160X12,000</th>
<th>17,200</th>
</tr>
</thead>
<tbody>
<tr>
<td>208Y/120</td>
<td>480Y/277</td>
<td>208Y/120</td>
</tr>
<tr>
<td>Mild Steel</td>
<td>Mild Steel</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>300</td>
<td>261281 4</td>
<td>261283 4</td>
</tr>
<tr>
<td>750</td>
<td>261287 4,E</td>
<td>261282 4,E</td>
</tr>
<tr>
<td>1,000</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

#### Table 41 Codes for Style IIH, Three-Phase, Pad-Mount, Live-Front With Vacuum Fault Interrupter, with 3 Primary Bushings and 4 Secondary Bushings With Insulated Neutral With Stainless Steel Cabinet and FR3 Insulating Fluid (reference Document 072146 and Spec. 86)

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
<th>17,200</th>
</tr>
</thead>
<tbody>
<tr>
<td>480Y/277</td>
<td>2,400/4160Y/2,400</td>
<td>480Y/277</td>
</tr>
<tr>
<td>Mild Steel</td>
<td>Mild Steel</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>2955/3325</td>
<td>262708 4,E</td>
<td>262709 4,E</td>
</tr>
</tbody>
</table>

#### Table 42 Codes for Radial, Dead-Front*, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 043816 and Spec. 86) (continued) – Conventional

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
<th>17,200</th>
</tr>
</thead>
<tbody>
<tr>
<td>208Y/120 V</td>
<td>480Y/277 V</td>
<td>480Y/277 V</td>
</tr>
<tr>
<td>Mild Steel</td>
<td>Mild Steel</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>260315 4</td>
<td>260314 4</td>
</tr>
<tr>
<td>150</td>
<td>260732 4</td>
<td>260317 4</td>
</tr>
<tr>
<td>300</td>
<td>260682 4</td>
<td>260326 4</td>
</tr>
<tr>
<td>750</td>
<td>260080 4,E</td>
<td>260039 4,E</td>
</tr>
<tr>
<td>1,000</td>
<td>260107 4,E</td>
<td>260041 4</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>260002 4</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
<td>260042 4,E</td>
</tr>
</tbody>
</table>

* See Table 18 on Page 10 for others of this type.

1 Current standard design and may be purchased.

4 Use for replacement only and may be purchased.

E Included in Emergency Stock
Three-Phase, Pad-Mount, for Replacements Only (continued)

Table 43 Codes for Radial, Live-Front, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 043816 and Spec. 86) – Conventional

<table>
<thead>
<tr>
<th>kVA</th>
<th>4160X12000</th>
<th>17,200</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
<td>480Y/277 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>260695 4</td>
<td>–</td>
</tr>
<tr>
<td>150</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>300</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>750</td>
<td>260921 4</td>
<td>–</td>
</tr>
</tbody>
</table>

Table 44 Codes for Radial, Live-Front, Three-Phase, Pad-Mount With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 043816 and Spec. 86) (continued) – Conventional

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>208Y/120 V</td>
</tr>
<tr>
<td></td>
<td>Mild Steel</td>
</tr>
<tr>
<td>75</td>
<td>260710 4</td>
</tr>
<tr>
<td>150</td>
<td>260755 4</td>
</tr>
<tr>
<td>300</td>
<td>260757 4</td>
</tr>
<tr>
<td>750</td>
<td>260759 4</td>
</tr>
<tr>
<td>1,000</td>
<td>260760 4, E</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
</tr>
</tbody>
</table>

Table 45 Codes for Subsurface Vault, Three-Phase With 3 Primary Bushings and 4 Secondary Bushings Including the Insulated Neutral (reference Document 072138 and Spec. 91) – Conventional, Plate Steel

<table>
<thead>
<tr>
<th>kVA</th>
<th>12,000/20,780GrdY/12,000 – 208Y/120 V</th>
<th>12,000/20,780GrdY/12,000 – 480Y/277 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>262428 4</td>
<td>–</td>
</tr>
<tr>
<td>750</td>
<td>262430 4</td>
<td>262432 4</td>
</tr>
<tr>
<td>1,000</td>
<td>262107 4, E</td>
<td>262433 4, E</td>
</tr>
<tr>
<td>1,500</td>
<td>–</td>
<td>262434 4</td>
</tr>
<tr>
<td>2,500</td>
<td>–</td>
<td>015641 4, E</td>
</tr>
</tbody>
</table>

Table 46 Power Interconnection Hub (PIH) Transformers – for usage only on specific designated projects. Contains Quick Connect Cabinet on 480V Secondary.

<table>
<thead>
<tr>
<th>mVA</th>
<th>Primary</th>
<th>Secondary</th>
<th>Mild Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>20780 GrdY/12000</td>
<td>480Y/277</td>
<td>263175</td>
</tr>
<tr>
<td>2.5</td>
<td>12000 GrdY/6930</td>
<td>480Y/277</td>
<td>263176</td>
</tr>
<tr>
<td>2.5</td>
<td>17200 GrdY/9930</td>
<td>480Y/277</td>
<td>263178</td>
</tr>
</tbody>
</table>

1 Current standard design and may be purchased.

4 Use for replacement only and may be purchased.

E Included in Emergency Stock
Designation of Voltage Ratings of Windings - Single-Phase Transformers

Table 47 Designation of Voltage Ratings of Windings – Single-Phase Transformers

<table>
<thead>
<tr>
<th>Item</th>
<th>Designation</th>
<th>Typical Voltage Rating</th>
<th>Typical Winding Diagram</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E</td>
<td>12,000</td>
<td></td>
<td>Indicates a winding of E volts which is suitable for delta connection on an E volt system.</td>
</tr>
<tr>
<td>2</td>
<td>E/E₁Y ¹</td>
<td>2,400/4,160Y</td>
<td></td>
<td>Indicates a winding of E volts which is suitable for delta connection on an E volt system or for wye connection on an E₁ volt system.</td>
</tr>
<tr>
<td>3</td>
<td>E/E₁Grd.Y ¹</td>
<td>12,000/20,780 Grd. Y or 2,400/4,160 Grd. Y</td>
<td></td>
<td>Indicates a winding of E volts having insulation suitable for delta connection on an E volt system or for wye connection on an E₁ volt effectively grounded system.</td>
</tr>
<tr>
<td>4</td>
<td>E₁Grd.Y/E ¹</td>
<td>20,780 Grd. Y/12,000 or 12,000 Grd. Y/6,930</td>
<td></td>
<td>Indicates a winding of E volts which has one end of the winding grounded internally. Windings with one end grounded internally are suitable for single-phase or wye operation on a three-phase E₁ volt effectively grounded system.</td>
</tr>
<tr>
<td>5</td>
<td>E/2E</td>
<td>120/240 or 240/480</td>
<td></td>
<td>Indicates a winding, the sections of which can be connected in parallel for operation at E volts, connected in series for operation at 2E volts, or connected in series with a center terminal for 3-wire operation at 2E volts between the extreme terminals and E volts between the center terminal and each of the extreme terminals.</td>
</tr>
<tr>
<td>6</td>
<td>2E/E</td>
<td>240/120</td>
<td></td>
<td>Indicates a winding having a mid-tap and suitable for 3-wire operation at 2E volts between extreme terminals and at E volts between the mid-tap and each of the extreme terminals (not reconnectable).</td>
</tr>
</tbody>
</table>

¹ \( E_1 = \sqrt{3} E \)
### Designation of Voltage Ratings of Windings – Three-Phase Transformers

#### Table 48 Designation of Voltage Ratings of Windings – Three-Phase Transformers

<table>
<thead>
<tr>
<th>Item</th>
<th>Designation</th>
<th>Typical Voltage Rating</th>
<th>Typical Winding Diagram</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>E</td>
<td>12,000</td>
<td><img src="image1" alt="Diagram" /></td>
<td>Indicates a winding that is permanently delta connected for operation on an E volt system.</td>
</tr>
<tr>
<td>8</td>
<td>E₁Grd.Y/E₁</td>
<td>20,780 or 34,500 Grd.Y/19,920</td>
<td><img src="image2" alt="Diagram" /></td>
<td>Indicates a winding that is permanently wye connected with neutral grounded to the tank for operation on an E₁ volt effectively grounded system with E volts available from line to neutral.</td>
</tr>
<tr>
<td>9</td>
<td>E₁/E₁Grd.Y/E₁</td>
<td>12,000/20,780 Grd.Y/12,000</td>
<td><img src="image3" alt="Diagram" /></td>
<td>Indicates a winding which may be delta connected for operation on an E volt system or may be wye connected for operation on an E₁ volt grounded system with E volts available from line to neutral.</td>
</tr>
<tr>
<td>10</td>
<td>V x V₁</td>
<td>4,160 x 12,000</td>
<td><img src="image4" alt="Diagram" /></td>
<td>Indicates a permanently delta connected winding for multiple or series operation.</td>
</tr>
<tr>
<td>11</td>
<td>V x V₁</td>
<td>12,000 x 34,500 Grd. Y/19,920</td>
<td><img src="image5" alt="Diagram" /></td>
<td>Indicates a winding which may be delta connected for operation on a 12 kV system or wye connected for operation on a 34.5 kV effectively grounded wye system.</td>
</tr>
</tbody>
</table>

1 E₁ = \sqrt[3]{E}

#### Table 49 Transformer Insulating Fluid Material Codes

<table>
<thead>
<tr>
<th>National Standard</th>
<th>FR3 High-Fire Point Natural Ester</th>
<th>BioTemp High-Fire Point Natural Ester</th>
<th>Mineral Oil</th>
<th>Silicone High-Fire Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Gallon Pail</td>
<td>ASTM D6871</td>
<td>ASTM D6871</td>
<td>M507033</td>
<td>M500046</td>
</tr>
<tr>
<td>55 Gallon Drum</td>
<td>M500046</td>
<td>M507034</td>
<td>M500043</td>
<td></td>
</tr>
<tr>
<td>Bulk</td>
<td></td>
<td></td>
<td>M507017</td>
<td></td>
</tr>
</tbody>
</table>
Primary Voltages

Table 50 System Primary Voltages

<table>
<thead>
<tr>
<th>Phase</th>
<th>Primary Voltages</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Phase</td>
<td>2,400/4,160Y</td>
<td>For 2.4 kV - L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>2,400 x 4,800</td>
<td>For 2.4 kV - L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>4,160/7,200Y</td>
<td>For 4 kV - L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>4,160GrdY/2,400</td>
<td>For 4 kV - 4-Wire L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>4,160 x 12,000</td>
<td>For 4 kV - L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>4,160 x 7,200</td>
<td>For 4 kV - L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>7,200/12,470Y</td>
<td>For 12 kV - 4-Wire L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>12,000</td>
<td>For 12 kV L-L or 21 kV L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>12,000/20,780 GrdY</td>
<td>For 12 kV L-L or 21 kV L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>12,000/20,780Y</td>
<td>For 12 kV L-L or 21 kV L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>12,000GrdY/6,930</td>
<td>For 12 kV - 4-Wire L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>12,470GrdY/7,200</td>
<td>For Use in Chester</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>17,200</td>
<td>For 17 kV L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>20,780</td>
<td>For 21 kV L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>20,780GrdY/12,000</td>
<td>For 21 kV - 4-Wire L-G Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>24,940GrdY/14,400</td>
<td>For Use in Chester</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>44,000</td>
<td>For 44 kV - L-L Connection</td>
</tr>
<tr>
<td>Single-Phase</td>
<td>44,000/25,400</td>
<td>For 44 kV - L-L Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>4,160</td>
<td>For 4 kV - Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>4,160GrdY/2,400</td>
<td>For 4 kV - 4-Wire L-G Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>4,160 x 12,000</td>
<td>For 4 kV - Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>4,160 x 12,480</td>
<td>For 4 kV - Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>12,000</td>
<td>For 12 kV - Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>12,000/20,780GrdY/12,000</td>
<td>For 12 kV Delta or 21 kV GrdY Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>12,000 x 20,780</td>
<td>For 12 kV Delta or 21 kV Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>12,000 x 34,500GrdY/19,920</td>
<td>For 12 kV or 34.5 kV Networks</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>17,200</td>
<td>For 17 kV Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>20,780</td>
<td>For 21 kV Delta Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>20,780GrdY/12,000</td>
<td>For 21 kV GrdY Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>20,780Y/12,000</td>
<td>For 21 kV Y Connection</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>34,500GrdY/19,920</td>
<td>For 34.5 kV Networks</td>
</tr>
</tbody>
</table>

1 Table 50 is intended to be a reference between the transformer’s primary voltage and the type of primary system that it can be used on in the PG&E system.
## Pictorial Index

<table>
<thead>
<tr>
<th>Box Style</th>
<th>Clam Shell Three-Phase Cabinet</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Box Style - Front View" /></td>
<td><img src="image2" alt="Clam Shell Three-Phase Cabinet - Front View" /></td>
</tr>
<tr>
<td>Front View (doors removed)</td>
<td>Front View (hinged top open)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clam Shell Single-Phase Cabinet</th>
<th><img src="image3" alt="1-Wire Cabinet" /></th>
<th><img src="image4" alt="2-Wire Cabinet" /></th>
<th><img src="image5" alt="3-Wire Cabinet" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6" alt="Clam Shell Single-Phase Cabinet - Front View" /></td>
<td>Front View (hinged top open)</td>
<td>Front Views (hinged tops open)</td>
<td>Single-Phase - Style Dead-Front</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><img src="image7" alt="Style MTP and Duplex Style DF" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>Style MTP and Duplex Style DF</td>
</tr>
</tbody>
</table>

---

**Figure 1**

Single-Phase, Pad-Mount Transformers for Loop or Radial Application
Pictorial Index (continued)

<table>
<thead>
<tr>
<th>Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style IIA</td>
<td>Front View (doors removed)</td>
</tr>
<tr>
<td>Style IID 75 – 300 kVA</td>
<td>Front View (doors removed)</td>
</tr>
<tr>
<td>Style IIB 225 – 1,000 kVA</td>
<td>Front View (doors removed)</td>
</tr>
<tr>
<td>Style IIE 75 – 2,500 kVA</td>
<td>Front View (doors removed)</td>
</tr>
<tr>
<td>Style IIC 1,500 – 2,500 kVA</td>
<td>Front View (doors removed)</td>
</tr>
<tr>
<td>Style IIF 300 – 2,500 kVA</td>
<td>Front View (doors removed)</td>
</tr>
</tbody>
</table>

Figure 2
Three-Phase, Pad-Mount Transformers for Loop or Radial Application
Pictorial Index (continued)

Figure 3
Three-Phase, Pad-Mount Transformers for Loop or Radial Application
Figure 4
Three-Phase, Pad-Mount Transformers for Radial Application
### Pictorial Index (continued)

<table>
<thead>
<tr>
<th>Front View</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-Phase, Subsurface, Duplex Horizontal</td>
<td>Single-Phase, Subsurface Horizontal - 6-Bushing</td>
</tr>
<tr>
<td>Single-Phase, Subsurface Horizontal - 4-Bushing</td>
<td>Single-Phase, Subsurface Round-Type</td>
</tr>
<tr>
<td>Three-Phase UCD Transformer</td>
<td>Three-Phase UCD−LB Transformer</td>
</tr>
</tbody>
</table>

**Figure 5**
Subsurface Transformers for Loop or Radial Application
Pictorial Index (continued)

Subway–LB  Single-Phase Subsurface Subway  Three-Phase Network Transformer With Protector

Three-Phase Subsurface Vault

Figure 6
Subsurface Transformers for Radial Application

Revision Notes

Revision 27 has the following changes:

1. Added Table 46 on Page 17.