Part 4 – High Voltage Overhead

DISTRIBUTION CONSTRUCTION STANDARDS HANDBOOK
### Drawing Register

<table>
<thead>
<tr>
<th>Number</th>
<th>Revision</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 PH DRAWINGS</td>
<td></td>
<td>BARE</td>
</tr>
<tr>
<td>H01-1</td>
<td>F</td>
<td>3 PHASE INTERMEDIATE WITH RUNNING EARTH</td>
</tr>
<tr>
<td>H01-2</td>
<td>C</td>
<td>3 PHASE INTERMEDIATE WITHOUT RUNNING EARTH</td>
</tr>
<tr>
<td>H01-3</td>
<td>J</td>
<td>3 PHASE INTERMEDIATE ANTI-SWAN CROSSARM GUIDE</td>
</tr>
<tr>
<td>H02</td>
<td>D</td>
<td>SINGLE SLACK TEE-OFF 3 PHASE WITHOUT DROP OUT FUSE</td>
</tr>
<tr>
<td>H03</td>
<td>E</td>
<td>4 WAY INTERMEDIATE</td>
</tr>
<tr>
<td>H04</td>
<td>E</td>
<td>HORIZONTAL TERMINATION</td>
</tr>
<tr>
<td>H05</td>
<td>D</td>
<td>IN-LINE WITH OR WITHOUT DROP OUT FUSE</td>
</tr>
<tr>
<td>H06</td>
<td>J</td>
<td>RUNNING DISC ANGLE OR VERTICAL TERMINATION (900mm SPACING)</td>
</tr>
<tr>
<td>H07</td>
<td>G</td>
<td>RUNNING DISC ANGLE OR VERTICAL TERMINATION (1200mm SPACING)</td>
</tr>
<tr>
<td>H08-1</td>
<td>B</td>
<td>INTERMEDIATE CABLE WITH DROP OUT FUSES</td>
</tr>
<tr>
<td>H08-2</td>
<td>C</td>
<td>INTERMEDIATE CABLE WITH DROP OUT FUSES (ALTERNATE CROSSARM)</td>
</tr>
<tr>
<td>H09-1</td>
<td>G</td>
<td>TERMINATION CABLE WITH DROP OUT FUSES UPSTREAM</td>
</tr>
<tr>
<td>H09-2</td>
<td>C</td>
<td>TERMINATION &amp; CABLE WITH DROP OUT FUSES</td>
</tr>
<tr>
<td>H09-3</td>
<td>C</td>
<td>3 PHASE TERMINATION &amp; CABLE WITH FUSED SINGLE PHASE TEE-OFF</td>
</tr>
<tr>
<td>H10-1</td>
<td>H</td>
<td>INTERMEDIATE TRANSFORMER HV TO OPEN AERIAL</td>
</tr>
<tr>
<td>H10-2</td>
<td>J</td>
<td>INTERMEDIATE TRANSFORMER HV TO ABC</td>
</tr>
<tr>
<td>H11-1</td>
<td>G</td>
<td>IN-LINE TERMINATION TRANSFORMER</td>
</tr>
<tr>
<td>H11-2</td>
<td>D</td>
<td>SIDE MOUNTED TERMINATION TRANSFORMER WITH DROP OUT FUSES</td>
</tr>
<tr>
<td>H11-3</td>
<td>A</td>
<td>REMOTE DATA ACQUISITION FOR TX TERMINATION TRANSFORMER STOCK NO.</td>
</tr>
<tr>
<td>H12</td>
<td>B</td>
<td>POLE TOP SWITCH INCLUDING EARTH</td>
</tr>
<tr>
<td>H13-1</td>
<td>E</td>
<td>TEE-OFF WITH DROP OUT FUSES</td>
</tr>
<tr>
<td>H13-2</td>
<td>A</td>
<td>TEE-OFF WITHOUT DROP OUT FUSES</td>
</tr>
<tr>
<td>H14-1</td>
<td>E</td>
<td>COMBINATION SWITCH &amp; FUSE WITH RAISER (11KV &amp; 22KV) (FLY-OVER SWITCH)</td>
</tr>
<tr>
<td>H14-2</td>
<td>B</td>
<td>COMBINATION SWITCH &amp; FUSE (11 &amp; 22KV)</td>
</tr>
<tr>
<td>H14-3</td>
<td>B</td>
<td>PTS &amp; FUSES/ISOLATORS LAYOUT FOR 2 CABLES</td>
</tr>
<tr>
<td>H15-1</td>
<td>E</td>
<td>3 PH RECLOSER WITH LV AERIAL SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H15-2</td>
<td>E</td>
<td>3 PH RECLOSER WITH LV UNDERGROUND SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H15-3</td>
<td>F</td>
<td>3 PH RECLOSER WITH TRANSFORMER SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H15-4</td>
<td>C</td>
<td>3 PH RECLOSER HV BARE - HV ABC WITH LV AERIAL SUPPLY</td>
</tr>
<tr>
<td>H15-5</td>
<td>C</td>
<td>3 PH RECLOSER WITH TRANSFORMER SUPPLY ARRANGEMENT WITH O/H EARTH</td>
</tr>
<tr>
<td>H15-6</td>
<td>B</td>
<td>LV SUPPLY TO RADIO COMMUNICATION USING RECLOSER TRANSFORMER</td>
</tr>
<tr>
<td>H16-1 sht 1</td>
<td>K</td>
<td>POLE MOUNTED RECLOSER WITH BYPASS SWITCH VHF ANTENNA (RURAL AREAS)</td>
</tr>
<tr>
<td>H16-1 sht 2</td>
<td>G</td>
<td>POLE MOUNTED RECLOSER WITH BYPASS SWITCH VHF ANTENNA (LV SUPPLY)</td>
</tr>
<tr>
<td>H16-2 sht 1</td>
<td>D</td>
<td>POLE MOUNT LOAD BREAK SWITCH WITH BYPASS SW ON ONE BUSH TX VHF ANTENNA (RURAL AREAS)</td>
</tr>
<tr>
<td>H16-2 sht 2</td>
<td>C</td>
<td>POLE MOUNT LOAD BREAK SWITCH WITH BYPASS SW ON TWO BUSH TX VHF ANTENNA (LOCAL AREAS)</td>
</tr>
<tr>
<td>H16-2 sht 3</td>
<td>C</td>
<td>POLE MOUNT LOAD BREAK SWITCH WITH BYPASS SW AND LV SUPPLY VHF ANTENNA (LOCAL AREAS)</td>
</tr>
<tr>
<td>H16-3</td>
<td>E</td>
<td>POLE MOUNT LOAD BREAK SWITCH IN-LINE STRAIN</td>
</tr>
<tr>
<td>Number</td>
<td>Revision</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>H16-4</td>
<td>C</td>
<td>POLE MOUNT LOAD BREAK SWITCH WITH TRANSFORMER ARRANGEMENT</td>
</tr>
<tr>
<td>H16-5</td>
<td>C</td>
<td>POLE MOUNT LOAD BREAK SWITCH WITH LV AERIAL SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H16-6</td>
<td>C</td>
<td>POLE MOUNT LOAD BREAK SWITCH WITH LV UNDERGROUND SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H17-1 sht 1</td>
<td>E</td>
<td>RECLOSER ON TERMINATION PTS POLE ARRANGEMENT</td>
</tr>
<tr>
<td>H17-1 sht 2</td>
<td>C</td>
<td>COMBINATION PTS AND RAISER WITH RECLOSER &amp; CABLE ARRANGEMENT</td>
</tr>
<tr>
<td>H17-2</td>
<td>C</td>
<td>INTERMEDIATE POLE WITH RECLOSER AND CABLE</td>
</tr>
<tr>
<td>H17-3</td>
<td>C</td>
<td>TERMINATION POLE WITH RECLOSER</td>
</tr>
<tr>
<td>H17-4</td>
<td>A</td>
<td>TRANSFORMER CABLE SUPPLIED</td>
</tr>
<tr>
<td>H17-5</td>
<td>D</td>
<td>INTERMEDIATE TRANSFORMER (1PH) 3PH INLINE CABLES/2X1PH SPURS WITH/WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H18</td>
<td>B</td>
<td>TERMINATION POLE TOP SWITCH WITH CABLE AND DROPOUT FUSE</td>
</tr>
<tr>
<td>H19</td>
<td>B</td>
<td>TERMINATION POLE TOP SWITCH WITH CABLE ARRANGEMENT</td>
</tr>
<tr>
<td>H20-1</td>
<td>B</td>
<td>ISOLATION TRANSFORMER</td>
</tr>
<tr>
<td>H20-2</td>
<td>D</td>
<td>ISOLATION TRANSFORMER 3PH TERMINATION 1PH IN-LINE WITHOUT 1PH DROPOUT FUSE</td>
</tr>
<tr>
<td>H20-3</td>
<td>C</td>
<td>ISOLATION TRANSFORMER 3PH TERMINATION 1PH IN-LINE WITH DROPOUT FUSE</td>
</tr>
<tr>
<td>H20-4</td>
<td>D</td>
<td>ISOLATION TRANSFORMER 3PH TERMINATION 1PH IN-LINE WITH/WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H20-5</td>
<td>E</td>
<td>ISOLATION TRANSFORMER 3PH CABLE/1PH TEE-OFF WITH/WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H20-6</td>
<td>D</td>
<td>ISOLATION TRANSFORMER 3PH IN-LINE/1PH TEE-OFF WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H20-7</td>
<td>D</td>
<td>ISOLATION TRANSFORMER 3PH TERMINATION/1PH CABLE WITH DROPOUT FUSE</td>
</tr>
<tr>
<td>H20-8</td>
<td>A</td>
<td>TERMINATION TRANSFORMER 2 PHASE LINE/ 1 PHASE SPUR</td>
</tr>
<tr>
<td>H21</td>
<td>B</td>
<td>METERING TRANSFORMER</td>
</tr>
<tr>
<td>H22</td>
<td>B</td>
<td>INTERMEDIATE WISHBONE WITH OVERHEAD EARTHWIRE</td>
</tr>
<tr>
<td>H23</td>
<td>B</td>
<td>INTERMEDIATE FLAT CONSTRUCTION WITH OVERHEAD EARTHWIRE</td>
</tr>
<tr>
<td>H24</td>
<td>B</td>
<td>TERMINATION TRANSFORMER WITH OVERHEAD EARTHWIRE</td>
</tr>
<tr>
<td>H25</td>
<td>A</td>
<td>INTERMEDIATE TRANSFORMER WISHBONE CONSTRUCTION</td>
</tr>
<tr>
<td>H26</td>
<td>B</td>
<td>VERTICAL INLINE STRAIN WITH OVERHEAD EARTHWIRE</td>
</tr>
<tr>
<td>H27</td>
<td>B</td>
<td>WISHBONE CONSTRUCTION WITH TEE-OFF</td>
</tr>
<tr>
<td>H28</td>
<td>A</td>
<td>VERTICAL STRAIN ANGLE WITH OVERHEAD EARTHWIRE</td>
</tr>
<tr>
<td>H29-1</td>
<td>B</td>
<td>FAULT INDICATOR LV AERIAL SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H30</td>
<td>B</td>
<td>SURGE ARRESTER STANDARD LINE INSTALLATION</td>
</tr>
<tr>
<td>H31-1</td>
<td>F</td>
<td>22KV POLE MOUNTED CAPACITOR BANK (SIDE MOUNTED) WITH 10KVA TRANSFORMER (SINGLE BUSHING) CONNECTION DETAILS</td>
</tr>
<tr>
<td>H31-2</td>
<td>D</td>
<td>22KV POLE MOUNTED CAPACITOR BANK (SIDE MOUNTED) WITH 10KVA TRANSFORMER (TWO BUSHING) CONNECTION DETAILS</td>
</tr>
<tr>
<td>H32-1</td>
<td>D</td>
<td>33KV CAP BANK WITH TSC OIL SWITCH (SIDE MOUNTED) WITH 10KVA TRANSFORMER (SINGLE BUSHING) CONNECTION DETAILS</td>
</tr>
<tr>
<td>H32-2</td>
<td>D</td>
<td>33KV CAP BANK WITH TSC OIL SWITCH (SIDE MOUNTED) WITH 10KVA TRANSFORMER (TWO BUSHING) CONNECTION DETAILS</td>
</tr>
<tr>
<td>H33-1</td>
<td>C</td>
<td>INLINE LAYOUT TYPE GE VR-1 50A-100A DETAILS</td>
</tr>
<tr>
<td>H33-2</td>
<td>C</td>
<td>INLINE DETAIL TYPE GE VR-1 50A-100A CONSTRUCTION DETAIL</td>
</tr>
<tr>
<td>Number</td>
<td>Revision</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>H33-3</td>
<td>A</td>
<td>OFFSET DETAIL TYPE GE VR-1 50A-100A ARRANGEMENT</td>
</tr>
<tr>
<td>H33-3A</td>
<td>A</td>
<td>OFFSET DETAIL TYPE GE VR-1 50A-100A DETAILS</td>
</tr>
<tr>
<td>H33-4</td>
<td>A</td>
<td>OFFSET DETAIL TYPE GE VR-1 50A-100A CONSTRUCTION DETAIL</td>
</tr>
<tr>
<td>H60-1</td>
<td>A</td>
<td>3 PH. RECLOSER / LOAD BREAK SWITCH WITH LV ARIAL SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H60-2</td>
<td>A</td>
<td>3 PH. RECLOSER / LOAD BREAK SWITCH WITH LV UNDERGROUND SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H60-3</td>
<td>A</td>
<td>3 PH. RECLOSER / LOAD BREAK SWITCH WITH Tx. SUPPLY ARRANGEMENT</td>
</tr>
<tr>
<td>H60-4</td>
<td>A</td>
<td>3 PH. RECLOSER / LOAD BREAK SWITCH HV BARE – HV ABC/HENDRIX WITH LV ARIAL SUPPLY</td>
</tr>
<tr>
<td>H60-5</td>
<td>A</td>
<td>3 PH. RECLOSER / LOAD BREAK SWITCH WITH Tx. SUPPLY ARRANGEMENT WITH O/H EARTH</td>
</tr>
<tr>
<td>H61-1</td>
<td>B</td>
<td>POLE MOUNTED 3 PH RECLOSER / LOAD BREAK SWITCH WITH BY-PASS SWITCH (ARIEL LV SUPPLY)</td>
</tr>
<tr>
<td>H61-2</td>
<td>B</td>
<td>POLE MOUNTED 3 PH RECLOSER / LOAD BREAK SWITCH WITH BY-PASS SWITCH (ARIEL LV SUPPLY)</td>
</tr>
<tr>
<td>H62-1</td>
<td>B</td>
<td>3 PH. RECLOSER / LOAD BREAK SWITCH ON TERMINATION PTS POLE ARRANGEMENT</td>
</tr>
<tr>
<td>H62-2</td>
<td>B</td>
<td>COMBINATION PTS &amp; RAISER WITH 3 PH RECLOSER / LOAD BREAK SWITCH &amp; CABLE ARRANGEMENT</td>
</tr>
<tr>
<td>H62-3</td>
<td>B</td>
<td>INTERMEDIATE POLE WITH 3 PH RECLOSER / LOAD BREAK SWITCH AND CABLE</td>
</tr>
<tr>
<td>H62-4</td>
<td>B</td>
<td>TERMINATION POLE WITH RECLOSER / LOAD BREAK SWITCH</td>
</tr>
</tbody>
</table>

**1 PH DRAWINGS BARE**

<table>
<thead>
<tr>
<th>Number</th>
<th>Revision</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>H40-1</td>
<td>E</td>
<td>INTERMEDIATE</td>
</tr>
<tr>
<td>H40-2</td>
<td>C</td>
<td>1 PHASE ANTI CLASH / ANTI GALAH INTERMEDIATE</td>
</tr>
<tr>
<td>H40-3</td>
<td>B</td>
<td>1 PHASE ANTI CLASH / ANTI GALAH TERMINATION</td>
</tr>
<tr>
<td>H41-1</td>
<td>A</td>
<td>RUNNING DISC OR TERMINATION</td>
</tr>
<tr>
<td>H41-2</td>
<td>A</td>
<td>3 x 1 POLE LONG BAY SOLUTION</td>
</tr>
<tr>
<td>H42-1</td>
<td>C</td>
<td>SINGLE PHASE TEE-OFF TO STRAIN WITH OR WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H42-2</td>
<td>A</td>
<td>INTERMEDIATE WITH CABLE TERMINATION</td>
</tr>
<tr>
<td>H43</td>
<td>A</td>
<td>TEE OFF WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H44-1</td>
<td>D</td>
<td>DOUBLE TERMINATION</td>
</tr>
<tr>
<td>H44-2</td>
<td>A</td>
<td>TRIPLE TERMINATION</td>
</tr>
<tr>
<td>H46</td>
<td>G</td>
<td>INTERMEDIATE TRANSFORMER WITH OR WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H47-1</td>
<td>E</td>
<td>TERMINATION TRANSFORMER WITH OR WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H47-2</td>
<td>D</td>
<td>3 PH INLINE/1 PH TRANSFORMER WITH DROPOUT FUSE</td>
</tr>
<tr>
<td>H47-3</td>
<td>B</td>
<td>DOUBLE TERMINATION TRANSFORMER WITHOUT DROPOUT FUSE</td>
</tr>
<tr>
<td>H48-1</td>
<td>E</td>
<td>TWIN MOUNTED TRANSFORMER (1 PHASE) EACH SIDE OF POLE</td>
</tr>
<tr>
<td>H48-2</td>
<td>A</td>
<td>VERTICAL MOUNTED TRANSFORMER SINGLE PHASE 2 BUSHING</td>
</tr>
<tr>
<td>H49</td>
<td>B</td>
<td>EARTH &amp; LV PHASE CONNECTIONS</td>
</tr>
<tr>
<td>H50</td>
<td>B</td>
<td>EARTH &amp; LV PHASE CONNECTIONS THREE &amp; FOUR TRANSFORMERS SETUP</td>
</tr>
<tr>
<td>H51-2</td>
<td>C</td>
<td>SINGLE PHASE RECLOSER IN LINE ANTI-CLASH WITH SINGLE PHASE TX SUPPLY</td>
</tr>
<tr>
<td>H51-4</td>
<td>D</td>
<td>SINGLE PHASE RECLOSER BY-PASS ISOLATORS/STRAIN TERMINATION WITH SINGLE PHASE TX SUPPLY</td>
</tr>
<tr>
<td>H52-1</td>
<td>A</td>
<td>STANDARD DOWN EARTH – RUNNING EARTH</td>
</tr>
<tr>
<td>H52-2</td>
<td>A</td>
<td>EXTENDED OR REMOTE DOWN EARTH – RUNNING EARTH</td>
</tr>
<tr>
<td>Number</td>
<td>Revision</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>H53</td>
<td>B</td>
<td>1 PHASE IN-LINE STRAIN WITH SECTIONALISER &amp; BYPASS FUSE</td>
</tr>
<tr>
<td>H63-1</td>
<td>B</td>
<td>SINGLE PHASE RECLOSER / LOAD BREAK SWITCH IN-LINE ANTI-CLASH WITH SINGLE PHASE TX/LV SUPPLY</td>
</tr>
<tr>
<td>H63-2</td>
<td>A</td>
<td>1 PHASE RECLOSER / LOAD BREAK SWITCH BY-PASS ISOLATORS/STRAIN TERMINATION WITH SINGLE PHASE TX SUPPLY</td>
</tr>
</tbody>
</table>

**Drawings**

**HV HENDRIX**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H100</td>
<td>INTERMEDIATE POLE 0 - 2 DEGREES</td>
</tr>
<tr>
<td>H101</td>
<td>INTERMEDIATE ANGLE POLE 2 - 30 DEGREES</td>
</tr>
<tr>
<td>H102</td>
<td>INTERMEDIATE ANGLE POLE 31 - 60 DEGREES</td>
</tr>
<tr>
<td>H103</td>
<td>DOUBLE TERMINATION 61 - 90 DEGREES</td>
</tr>
<tr>
<td>H104</td>
<td>TERMINATION POLE FOR CABLE CONNECTION</td>
</tr>
<tr>
<td>H105</td>
<td>INTERMEDIATE TEE-OFF FROM EXISTING COVERED CONDUCTOR WITH DOF DRILLING DETAILS</td>
</tr>
<tr>
<td>H106</td>
<td>INTERMEDIATE TEE-OFF FROM EXISTING BARE CONDUCTOR WITH D.O.F DRILLING DETAILS</td>
</tr>
<tr>
<td>H107</td>
<td>INTERMEDIATE POLE CROSSING DRILLING DETAILS</td>
</tr>
<tr>
<td>H108-1</td>
<td>OPEN AERIAL TO COVERED CONDUCTOR WITH SURGE ARRESTERS</td>
</tr>
<tr>
<td>H108-2</td>
<td>IN-LINE (0-6°) STRAIN COVERED CONDUCTOR WITH SURGE ARRESTERS</td>
</tr>
<tr>
<td>H109</td>
<td>PTS COVERED CONDUCTOR TERMINATED MESSENGER WIRE DRILLING DETAILS</td>
</tr>
<tr>
<td>H110</td>
<td>PTS COVERED CONDUCTOR TO OPEN AERIAL DRILLING DETAILS</td>
</tr>
<tr>
<td>H111</td>
<td>INTERMEDIATE TRANSFORMER COVERED CONDUCTOR DRILLING DETAILS</td>
</tr>
<tr>
<td>H112</td>
<td>TERMINATION TRANSFORMER WITH DROP OUT FUSE DRILLING DETAILS</td>
</tr>
</tbody>
</table>

**Drawings**

**HV ABC**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H200</td>
<td>INTERMEDIATE ANGLE 0 - 25 DEGREE</td>
</tr>
<tr>
<td>H201</td>
<td>INTERMEDIATE ANGLE 26 - 44 DEGREE</td>
</tr>
<tr>
<td>H202</td>
<td>STRAIN ANGLE 0 - 90 DEGREE</td>
</tr>
<tr>
<td>H203</td>
<td>IN-LINE STRAIN TRANSFORMER POLE MOUNTED</td>
</tr>
<tr>
<td>H204</td>
<td>TERMINATION TRANSFORMER POLE MOUNTED</td>
</tr>
<tr>
<td>H205</td>
<td>CABLE TERMINATION POLE</td>
</tr>
<tr>
<td>H206</td>
<td>TERMINATION POLE</td>
</tr>
<tr>
<td>H207</td>
<td>IN-LINE STRAIN UNDERGROUND CABLE TEE-OFF FROM HVABC</td>
</tr>
<tr>
<td>H208</td>
<td>IN-LINE STRAIN NON-TENSION JOINT</td>
</tr>
<tr>
<td>H209</td>
<td>POLE TOP SWITCH</td>
</tr>
<tr>
<td>H210</td>
<td>TEE-OFF CONSTRUCTION</td>
</tr>
<tr>
<td>H211</td>
<td>HVABC/ ABC TEE-OFF WITH DOF</td>
</tr>
<tr>
<td>H212</td>
<td>BARE HVABC WITH HVABC TEE-OFF WITH DOF</td>
</tr>
<tr>
<td>H213</td>
<td>FOUR WAY STRAIN HVABC - HVABC</td>
</tr>
<tr>
<td>H214</td>
<td>BARE - HVABC INTERMEDIATE</td>
</tr>
<tr>
<td>H215</td>
<td>INTERMEDIATE BARE - HVABC TEE-OFF</td>
</tr>
<tr>
<td>H216</td>
<td>POLE TOP SWITCH - HVABC- BARE</td>
</tr>
<tr>
<td>H217</td>
<td>BARE TERMINATION HVABC TEE-OFF</td>
</tr>
<tr>
<td>H218</td>
<td>BARE - HVABC WITH HVABC TEE-OFF WITHOUT DOF</td>
</tr>
</tbody>
</table>
General Notes

Clearances of conductors from ground, other structures and other conductors shall be undertaken in accordance with AS/NZS 7000:2010, Standard for Overhead Line Design – Detailed Procedures, and the following Western Power references:

- Distribution Overhead Line Design Manual
- High Voltage Aerial Bundled Cable Manual
- High Voltage Hendrix Manual

HV Insulated Taps are to be used where wildlife protection against contact with earth or another phase is required, using either –

1) LVABC may be used for connection to for mounted transformers and cable heads supplying ground mounted transformers,

2) For all other applications, use a conductor to match the conductors being joined, and fit this conductor with grey flexible hose with drain holes cut at the bottom of the drip loops to drain moisture.
HV BARE
NOTES:
1. ALL HOLES 1/8, 1/4, 1/2 IN.
2. R2 = REFER BONDING
3. DOWNEARTH = R6
4. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
5. USE CROSSARM STRAP [CB0485] IF DEVIATION IS >10°
6. 650 IF R/E IS SCAC OR SCGZ
    1100 IF R/E IS AAAC,
    450 IF LV IS ABC
7. FOR TWO PHASE CONSTRUCTION, POSITION CONDUCTORS ON EITHER END OF CROSSARM.
NOTES:
1. ALL HOLES 1/8" DIA. U.D.N.
2. R1 - REFER BONDING
3. DOWNEARTH - R6
4. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 metres
5. USE CROSSARM STRAP (80x48x5) IF DEVIATION IS >10°
6. FOR TWO PHASE CONSTRUCTION, POSITION CONDUCTORS ON EITHER END OF CROSSARM

DM #4831000
NOTES:
1. ALL HOLES 18dia U.O.N.
2. R2 - REFER BONDING
3. DOWN EARTH - R6
4. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 metres
5. USE CROSS ARM STRAP (CB0485) IF DEVIATION IS >10°
6. FOR TWO PHASE CONSTRUCTION, POSITION CONDUCTORS ON EITHER END OF CROSSARM.

STANDARD INTERMEDIATE USE

CB0111

TO AND FROM RDA POLES TO FLAT REQUIREMENTS
USE WITH RDA POLE WITH WHITE (CENTRE PHASE) AT THE TOP
WHERE RDA POLES THAT HAVE RED or BLUE AT THE TOP USE SHORT RAISER - CB0114

3 PHASE INTERMEDIATE
ANTI-SWAN CROSSARM GUIDE

**NOTES:**
1. ALL ROLES 180 U.O.N.
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH ≥ 600m.
4. USE RUNNING EARTH INTERMEDIATE ANGLE, IF DEVIATION IS >2°.
5. USE CROSSARM STRAP (C80485) IF DEVIATION IS >10°.
6. R2 – REFER BONDING.
7. FOR TWO PHASE CONSTRUCTION, POSITION CONDUCTORS ON EITHER END OF CROSSARM.

**STRUCTURE**
3 PHASE INTERMEDIATE SINGLE PHASE TEE-OFF WITH/ WITHOUT DROPOUT FUSE
NOTES:
1. ALL HOLES VIDE UNB.
2. BORE DIAMETER = Rn
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS = 400m
4. REFER TO DWG. H03-1 NOTES FOR CLEARANCES
   BETWEEN REAL LV.
5. THE CROSSARMS CAN BE AT DIFFERENT ANGLES.
   PROVIDED STAY CONFIGURATIONS ARE SATISFACTORY.
NOTES:
1. ALL HOLES 18Dia U.D.N.
2. DOWN-EARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWN-EARTH = 600m
4. REFER TO DWG. H05-1 NOTES FOR CLEARANCES BETWEEN RE & LV.
5. FOR TWO PHASE CONSTRUCTION, POSITION CONDUCTORS ON EITHER END OF CROSSARM.
6. USE RUNNING EARTH INTERMEDIATE ANGLE, IF DEVIATION IS >2°.
NOTES:
1. ALL HOLES 1/8DIA U.O.N.
2. FOR BAY LENGTHS LESS THAN 55M WITH R/E -12.5M POLE.
3. FOR BAY LENGTHS LESS THAN 80M WITHOUT R/E -12.5M POLE
   IF ALL OTHER GROUND CLEARANCES COMPLY.
4. FOR BAY LENGTHS GREATER THAN 80M ON A 12.5m POLE H7 CONDUCTOR
   SPACING APPLY AND ALL OTHER GROUND CLEARANCES COMPLY.
5. FOR RDA USE BOW SHACKLE – OS0055.
6. REFER TO DWG. H01-1 NOTES FOR CLEARANCES
   BETWEEN RE & LV.
7. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m.
1. All holes 18 dia U.D.N.
2. Down Earth - R6
3. Maximum distance between Down Earth = 600m
4. For R.D.A use bow shackle - OS0095
5. 650 IF R/E IS SCAC OR SCG2
   1100 IF R/E IS AAAC
   450 IF LV IS ABC

Notes:

Running Disc Angle
or Vertical Termination
(1200mm Spacing)
FOR INTERMEDIATE CABLE POLE WITHOUT DROPOUT FUSES USE 1: 1: 1 DIMENSIONS FROM CROSS ARM TO CABLE BRACKET AND IF REQUIRED FROM TOP OF POLE TO RUNNING EARTH

NOTES:
1. ALL HOLES 1½DIA U.O.N.
2. DOWN EARTH = R6
3. MAXIMUM DISTANCE BETWEEN DOWN EARTH = 600m
4. 650 IF R/E IS SCA/1 OR SCAZ
   1100 IF R/E IS AACA.
   450 IF LV IS ABC.
FOR INTERMEDIATE CABLE POLE WITHOUT DROP OUT FUSES USE R-4-1 DIMENSIONS FROM CROSSARM TO CABLE BRACKET AND IF REQUIRED FROM TOP OF POLE TO RUNNING EARTH.

NOTES:
1. ALL HOLES 15mm O.D.N.
2. DOWN EARTH = R6
3. MAXIMUM DISTANCE BETWEEN DOWN EARTH = 600m
4. 650 IF R/E IS SCC 6 OR SC 6Z
   1000 IF R/E IS AAAC
   450 IF LV IS ABC

12.5M 6kN POLE
NOTES:
1. TRAIN INSULATED JUMPERS AWAY FROM R/E & TOP OF TX TANK.
2. ALL HOLES 180 U.O.N.
3. DOWNEARTH - R6.
4. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m.
5. USE RUNNING EARTH INTERMEDIATE ANGLE, IF DEVIATION IS >2°.
6. FOR 2 BUSHING TRANSFORMER OMIT CENTRE PHASE.

12.5 m POLE min.

INTERMEDIATE TRANSFORMER
HV TO OPEN AERIAL
NOTES:
1. TRAIN INSULATED JUMPERS AWAY FROM R/E & TOP OF TX TANK.
2. ALL HOLES 180 U.O.N.
3. DOWNEARTH - R6.
4. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m.
5. USE RUNNING EARTH INTERMEDIATE ANGLE, IF DEVIATION IS >2°.
6. FOR 2 BUSHING TRANSFORMER OMIT CENTRE PHASE.

12.5 m POLE min.

EARTH Ø LESS THAN 30Ω

MINIMUM 5000

LV BUNDLE MIN. DISTANCE TO NEAREST BARE LIVE HV CONNECTION IS 900mm

TO EARTH POINT

R13
R6

GL

R1 (HOLES 22Φ1)

TRANSFORMER HANGER ARM

R8
R6

SEE NOTE 1

R/E

(SEE NOTE 5)
Notes:
1. All holes 18DIA. 
2. Down earth = R6
3. Maximum distance between down earth = 600m
4. 650 JF R/E J5 SCAC or SGGZ 
   1100 JF R/E J5 AAAC. 
   450 JF LV J5 ABC

Earth ≤ 30Ω
NOTE:
1. REFER DRG PQM07-1 Sht. 1 & 2 DGN FOR MATERIALS
   CURRENT C.T. BOX TO BE MOUNTED IN
   A POSITION NOT TO INTERFACE WITH OTHER
   EQUIPMENT ATTACHED TO THE STRUCTURE.
   MOUNT C.T. BOX ABOVE LV MAINS (PREFERRED)
   BEHIND OR BELOW TRANSFORMER
   WITH 1 COACH SCREW AND 2 BANDIT STRAPS
2. MOUNT METERING BOX ON SHADED
   SIDE OF POLE IF POSSIBLE
3. IF REQUIRED CUT CABLES TO SUIT
   RECONNECT IN ENCLOSURES
4. SECURE ALL CABLES TO POLE
RECOMMEND TO BE INSTALL ON A 12.5m POLE FOR ALL RURAL AREA.

NOTES:
1. ALL HOLES 10cm ID, 0.01
2. DOWNEARTH = F6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
4. 650 IF R/E IS SCAC OR SGZ
1000 IF R/E IS AAAC,
450 IF LV IS ABC
5. USE RUNNING EARTH INTERMEDIATE ANGLE, IF DEVIATION ANGLE IS ≥5°.

Structure Distribution (Design) Standards

Tee-Off with Dropout Fuses H13/1

Distribution Construction Standards Handbook – Technical Requirements DM #4831000
Part 4 – High Voltage Overhead Distribution Construction Standards Handboook – Technical Requirements

CARRY OVER INSULATOR FOR JUMPER

SEE NOTE 5

NOTE:
1. ALL HOLES 10DA M.D.N.
2. DOWN EARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWN EARTH = 600m
4. 650 IF R/E IS STAC OR SEC
   1100 IF R/E IS AAAC
   450 IF LV IS AFC
5. USE RUNNING EARTH INTERMEDIATE ANGLE,
   IF DEVIATION ANGLE IS >2°.

RECOMMEND TO BE INSTALL ON A 12.5m POLE
FOR ALL RURAL AREA.
NOTES:
1. ALL HOLES 10mm 4.0 DIA.
2. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600mm
3. USE RUNNING EARTH INTERMEDIATE ANGLE,
   IF DEVIATION IS >9°.
3 extra rod guides required position to suit

Anti-climbing guard

Rod guide 150

Handle bolts M12 R9 handle base hole 1 4φ

2070

720

EARTH Ø LESS THAN 30Ω

12.5m x 6kN pole
MAXIMUM SEPARATION BETWEEN EARTH & UMBILICAL CABLE

12a COACH BOLTS STOCK
CODE AST441 IF FULL LENGTH
BOLTS CANNOT BE FITTED

25mm CONDUIT FOR MECHANICAL
PROTECTION OF CABLES

1 PH C.B.

1800

R36-1 OR R36-2
(SEE NOTE 2)

2700

EARTH Ø LESS THAN 302

NOTES:
1. RECLOSE INDICATION TO FACE ROADWAY.
2. USE R36-1 FOR SCHNEIDER INLECI CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVC2 CONTROLLER.
NOTES:
1. RECLOSE INDICATION TO FACE ROADWAY.
2. USE R36-1 FOR SCHNEIDER (MULE) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADV2 CONTROLLER.
NOTES:
1. RECLOSER INDICATION TO FACE ROADWAY.
2. USE R36-1 FOR SCHNEIDER (NULTE) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADV2 CONTROLLER.

R36-1 OR R36-2
(SEE NOTE 2)
1. RECLOSER INDICATION TO FACE ROADWAY.
2. USE R36-1 FOR SCHNEIDER (NULEC) CONTROLLER OR R36-2 FOR SCHNEIDER - ADV(C2 CONTROLLER).
NOTES:
1. Switching handle oriented for operator to face oncoming traffic.
2. Recluser preferably face supply.
3. Single bushing TX may be installed on side of pole below fuse.
4. LV fuse on TX, 10A.
5. Train recluser & TX jumpers away from running earth and other phases.
6. See HC series for COMMS (if applicable).
7. All holes 0.054, 0.079.
8. Down earth continues from TX.
9. FTs handle bolts - remove sharp edges.
10. Isolator stopper in top hole.
11. Where required insulation sleeve 0.059 with wire clamp to suit (0G00501, 0G00502).
12. Recluser indication to face roadway.
13. Use R36-1 for Schneider block controller or R36-2 for Schneider - survey controller.

POLE MOUNTED RECLOSER WITH BY-PASS SWITCH

STRUCTURE

Distribution Construction Standards Handbook – Technical Requirements  DM #4831000
Part 4 – High Voltage Overhead

**Maximum Separation Between Earth & Umbilical Cable**

**Antenna Model & Orientation to Radio Base to be Provided Before Installation**

**Reconnector Bolt Hole**

**King Bolt LV Aerial**

**Upper Edge of Antenna**

**3 Extra Rod Guides Required Position to Suit**

**25mm Conduit for Mechanical Protection of Cable**

**Earth Spear**

**Earth Mat**

**R3+1 or R3+2 (See Note 11)**

**Notes:**

1. Switching handle orientated for operator to face oncoming traffic.
2. Reconnector preferably face supply.
3. LV pole on crono-4rn - 25a.
4. Train reconnector & TX jumpers away from other phases to achieve max. clearance.
5. See H1 series for commas if applicable.
6. All holes 10mm. Hon.
7. Downearth = 600cm.
8. Down earth continuous from PTS.
10. Bolts to be used in the pole.
11. Reconnector position to face roadway.
12. Use R3+1 for Schneider (Ivolex) controller or R3+2 for Schneider - Advac controller.

**Structure**

**Pole Mounted Reconnector with BY-PASS Switch (LV Supply)**

**Distribution Construction Standards Handbook – Technical Requirements**

DM #4831000
NOTES:
1. LOAD BREAK SWITCH TO FACE ROADWAY.
2. SEE H'5 SERIES FOR COMMS (IF APPLICABLE).
3. ALL HOLES MEDIA, UNIM.
   DOWNEARTH - R6
   MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
4. RECLOSER INDICATION TO FACE ROADWAY.
5. USE R36-1 FOR SCHNEIDER (NILEC) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVIC2 CONTROLLER.
NOTES:
1. LOAD BREAK SWITCH TO FACE ROADWAY.
2. SEE HS SERIES FOR COMMS IF APPLICABLE.
3. ALL HOLES 7B/DIA, 8, 9.
4. MAXIMUM DISTANCE BETWEEN DOWNREACH = 600m
5. RECLOSER INDICATION TO FACE ROADWAY.
6. USE R36-1 FOR SCHNEIDER (MULBE) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVC2 CONTROLLER.

EARTH MAT

R36-1 OR R36-2
(SEE NOTE 5)

TOP OF POLE
Ø 22 HOLES

MINIMUM 1200 (NTS)

TRANSIENT TOP BOLT
600

3 EXTRA ROD GUIDES REQUIRED
POSITION TO SUIT
TOP HOLE (LB. SWJ)

200

ANTENNA MODEL & ORIENTATION
TO RADIO BASE TO BE
PROVIDED BEFORE INSTALLATION

WARNING SIGN

MAXIMUM SEPARATION BETWEEN
EARTH & UMBILICAL CABLE

1000 C.L.

1800

150

ROD GUIDE

2070

R1 (HANDLE BASE HOLE 14 Ø)

720

R6

EARTH MAT

600 SQ. [EARTH MAT]

POLE

600 SQ. [EARTH MAT]

600 SQ. [EARTH MAT]

R6

R6

ROADSIDE

EARTH SPAR (R6)

NOTES:

1. LOAD BREAK SWITCH TO FACE ROADWAY.
2. SEE HS SERIES FOR COMMS IF APPLICABLE.
3. ALL HOLES 7B/DIA, 8, 9.
4. MAXIMUM DISTANCE BETWEEN DOWNREACH = 600m
5. RECLOSER INDICATION TO FACE ROADWAY.
6. USE R36-1 FOR SCHNEIDER (MULBE) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVC2 CONTROLLER.
NOTES:
1. LOAD BREAK SWITCH TO FACE ROADWAY.
2. SEE HIS SERIES FOR COMMS (IF APPLICABLE).
3. ALL HOLES 180mm, DN.
4. DOWNEARTH - R6
5. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
6. QUICKER INDICATION TO ROADWAY.
7. USE R36-1 FOR SCHNEIDER (INULE) CONTROLLER OR R36-2 FOR SCHNEIDER - ADVIC2 CONTROLLER.

12.5m MIN. POLE
NOTE:
1. LOAD BREAK SWITCH INDICATION TO FACE ROADWAY.
2. SEE HIS SERIES FOR COMMS (IF APPLICABLE).
3. ALL HOLES 105A, UON.
4. DOWNEARTH - R6
   MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 METRES
5. RECLOSING INDICATION TO FACE ROADWAY.
6. USE R36-1 FOR SCHNEIDER (CABLE) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVOLV CONTROLLER.

EARTH ≤ LESS THAN 30Ω
NOTE:
1. LOAD BREAK SW INDICATION TO FACE THE ROADWAY.
2. RECLOSING INDICATION TO FACE ROADWAY.
3. USE R36-1 FOR SCHNEIDER (INULE) CONTROLLER OR R36-2 FOR SCHNEIDER - ADVICZ CONTROLLER.

POLE MOUNT LOAD BREAK SWITCH WITH TRANSFORMER ARRANGEMENT
NOTE:
1. LOAD BREAK SW INDICATION TO FACE THE ROADWAY
2. RELEASER INDICATION TO FACE ROADWAY
3. USE R36-1 FOR SCHNEIDER (NULEC) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVANCED CONTROLLER.
NOTE:
1. LOAD BREAK SW INDICATOR TO FACE THE ROADWAY.
2. RECLOSING INDICATOR TO FACE ROADWAY.
3. USE R36-1 FOR SCHNEIDER (INULEC) CONTROLLER OR R36-2 FOR SCHNEIDER ADV CY CONTROLLER.
Part 4 – High Voltage Overhead

NOTE:
1. RECLOSER INDICATION TO FACE ROADWAY (IF POSSIBLE).
2. SEE H15 SERIES FOR LV CONNECTION DETAIL AND COMMS (IF APPLICABLE).
3. ALL HOLES 19.01A U.D.N.
4. R6 - DOWNEARTH
5. R9 - CABLE TERM. BRACKET EARTHING.
6. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
7. USE R36-1 FOR SCHNEIDER (INILEC) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVCC2 CONTROLLER.

600 SQ EARTH MAT

EARTH SPEAR (R6) 450

POLE

ROADSIDE

R6

EARTH MAT

R1 (HANDLE BASE HOLE 14φ)

R1 (HOLES 22φ)

230 TOP OF POLE

R3

RAYCHEM BRACKET EXTENSION

R8

R4

R7 LV ABC

3 EXTRA ROD GUIDES REQUIRED
POSITION TO SUIT

ANTENNA SUPPORT

1 PH CB

ANTENNA AND LV SUPPLY ARRANGEMENT NOT SHOWN

CONTROL BOX

R36-1 OR R36-2
(SEE NOTE 7)

150

ROD GUIDE

ANTI-CLIMBING GUARD

2700

2070

R6

GL

R6

R6

EARTH © LESS THAN 30Ω

2000

R7

R1 (HOLES 22φ)

R3

R2

R4

R9

R8

L.V.

INTERMEDIATE POLE WITH RECLOSER AND CABLE

NOTE:
1. RECLOSER INDICATION TO FACE ROADWAY (IF POSSIBLE).
2. SEE HIS SERIES FOR LV CONNECTION DETAIL AND COMMS (IF APPLICABLE)
3. ALL HOLES 1901A, UON.
4. DOWNEARTH - R6 MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 METRES
5. USE R36-1 FOR SCHNEIDER INOLED CONTROLLER OR R36-2 FOR SCHNEIDER - ADVANCE CONTROLLER.

EARTH Ø LESS THAN 30Ø

CONTROL BOX

2700

1800

R36-1 OR R36-2 (SEE NOTE 5)

25mm CONDUIT FOR MECHANICAL PROTECTION OF CABLE

MAXIMUM SEPARATION BETWEEN EARTH & UMBILICAL CABLE

RECLSOER OMITTED FOR CLARITY

ANTENNA AND LV SUPPLY ARRANGEMENT NOT SHOWN

L.V. / PILOT

L.V.

GL

R6

R7

R1 (HOLES 22 DIA)

R6

R8

R9

R10

R11

R12

R13

2000

2300

1200

800

NOTE:
1. RECLoSER INDICATION TO FACE ROADWAY (IF POSSIBLE).
2. ALL HOLES 18DIA., VDN; DOWN-EARTH = R6
   MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 Meters
3. USE R36-1 FOR SCHNEIDER (NULECO) CONTROLLER
   OR R36-2 FOR SCHNEIDER - ADVOC Controller

TERMINATION POLE WITH RECLoSER

Distribution Construction Standards Handbook – Technical Requirements DM #4831000
NOTE
ALL HOLES 18DIA, UON,
DOWNEARTH - R6
MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 metres
CROSS ARM NOT TO BE EARTHED.
12.5m 6kN Pole Country Networks

**NOTE**

- All holes 18dia U.D.N.
- R2 - Refer bonding (BK4)
- Downearth = 60
- Maximum distance between downearth = 600 metres
NOTES:
1. ALL HOLES 100A M.N.
2. USE CABLE TERMINATION POLE TOP SWITCH BRACKETS - CB3027 x 2.
Notes:
1. All holes 18dia. U.D.N.
2. Use Pole Top Switch Cable Termination Extension Brackets - CE5027 x 2

Termination Pole Top Switch with Cable Arrangement
NOTE:
1. ALL HOLES 100IA U.S.N.
2. DO NOT INSTALL R6 ON THE LOAD SIDE IF 1PH RECLOSER IS INSTALLED DOWNSTREAM.
3. PLANNING ENGINEERS TO BE CONSULTED TO DETERMINE FUSE GRADING

12.5M 6KN POLE

EARTH R LESS THAN 30Ω
**Part 4 – High Voltage Overhead**

**Diagram:**

- **Legend:**
  - R1, R2, R3, R4, R5, R6, R7, R8, R10, R12, R13, R14
  - R1 – See Note 500
  - R/E
  - 230, 1500, 1000, 750, 7800
  - Top of Pole

- **Text:**
  - Earth bond must be checked and confirmed before installation.
  - Earth © less than 300Ω
  - All holes 1800A U.L.O.N.
  - Stay position to suit taps
  - Minimum of 400mm to nearest HV conduit
  - Downearth - R6: Maximum distance between
  - Downearth ≤ 600 metres
  - Do not install DDF on the load side if 1PH recloser is installed downstream.
  - Planning engineers to be consulted to determine fuse grading.

**Structure:**

- **Isolation Transformer**
  - 3 PH Termination 1 PH In-Line
  - With 1 PH dropout fuse

---

**Distribution Construction Standards Handbook – Technical Requirements**

**DM #4831000**
Part 4 – High Voltage Overhead

NOTE
ALL HOLES 18DI [A U,D,N]
R2 - REFER BONDING [BK4]
DOWNEARTh - R6
MAXIMUM DISTANCE BETWEEN
DOWNEARTh = 600 metres
Do not install DDF on the load side if 1 ph recloser is installed downstream.
Planning engineers to be consulted to determine fuse grading

12.5M 6KN POLE COUNTRY NETWORKS

EARTH IM LESS THAN 300hms

17.5M 6KN POLE COUNTRY NETWORKS

[Diagram of high voltage overhead distribution construction standards]

DISTRIBUTION CONSTRUCTION STANDARDS

ISOLATION TRANSFORMER
3 PH TERMINATION 1 PH IN-LINE
WITH DROP OUT FUSE

REVISION C
DATE 20.07.2011
DRAWING No. H20-3
Part 4 – High Voltage Overhead

NOTE
ALL MILES `80DA U.N.
DOWNVARD - R6
MAXIMUM DISTANCE BETWEEN DOWNEARTH - 600M
DO NOT INSTALL DOWNEARTH ON THE LOAD SIDE IF 1 PH RECEPTOR IS INSTALLED DOWNSTREAM PLANNING ENGINEERS TO BE CONSULTED TO DETERMINE FUSE GRADING

STRUCTURE

ISOLATION TRANSFORMER
3 PH TERMINATION 1 PH IN-LINE
WITH/WITHOUT DROP OUT FUSE

DM #4831000
NOTES:
1. RISE MIN 100 B.O.S.
2. R4 - DOWNSTREAM
3. R9 - CABLE TERM. BRACKET OFFSET TO INSTALL STAY.
4. MAXIMUM DISTANCE BETWEEN DOWNSTREAM & 400ft.
5. DO NOT INSTALL DOP ON THE LOAD SIDE IF 1PH RECLOSER IS INSTALLED DOWNSTREAM.
6. PLANNING ENGINEERS TO BE CONSULTED TO DETERMINE PART ORDERS.

EARTH © LESS THAN 30Ω

PLAN VIEW

STRUCTURE

ISOLATION TRANSFORMER
3 PH CABLE / 1 PH TEE-OFF
WITH DROPOUT FUSE / LINK
Part 4 – High Voltage Overhead

**NOTE**

- ALL HOLES 180IA W.D.N.
- R8 - DOWNEARTH
- R9 - CABLE TERM. BRACKET EARTHING,
- MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
- DO NOT INSTALL DDF ON THE LOAD SIDE IF 1PH
- RECLOSER IS INSTALLED DOWNSTREAM,
- PLANNING ENGINEERS TO BE CONSULTED TO DETERMINE
- FUSE GRADING

**STRUCTURE**

**DISTRIBUTION CONSTRUCTION STANDARD**

**ISOLATION TRANSFORMER**

3 PH TERMINATION / 1 PH CABLE

WITH DROPOUT FUSE

**3.5M 6IN POLE COUNTRY NETWORKS**

**EARTH @ LESS THAN 30Ω**

**R4/E**

**750**

**1X SUPPORT**

**400**

**EARTH BOND MUST BE**

**CHECKED AND CONFIRMED**

**BEFORE INSTALLATION**

**G.I.**

**R13**

**R9**

**R6**

**R1**

**R2**

**R14**

**R3**

**R5**

**R14**

**R8**

**R3**

**R8**

**R1**

**R10**

**R5**

**R14**

**H20-7**

**GRANT STAGY**

**20-06-2016**

**D™**

**DM #4831000**

Part 4 – High Voltage Overhead

**NOTE**
ALL HOLES 18DIA U.O.N.

STAY POSITION TO SUIT TAPS
MINIMUM OF 400mm TO NEAREST HV CONDUIT
R2 - REFER BONDING (BK4)
DOWN EARTH - R6 MAXIMUM DISTANCE BETWEEN
DOWN EARTH = 600 METRES
Do not install DOF on the load side if 1ph recloser is installed downstream.
Planning engineers to be consulted to determine fuse grading.

---

**STRUCTURE**

TERMINATION TRANSFORMER
2 PHASE LINE / 1 PHASE SPUR

**REVISION**
A

**DATE**
20.07.2011

**DRAWING NO.**
H20-B
NOTE
A1 TERMINAL CLOSEST TO SOURCE
A2 TERMINAL CLOSEST TO LOAD
--- CURRENT FLOW FROM A1 TO A2
ALL HOLES 18dia U.D.N.
MAXIMUM DISTANCE BETWEEN
DOWN EARTH = 600 METRES
NOTE:
1. ALL HOLES 18 gA UON
2. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 metres

12.5m POLE min
12.5 m POLE

NOTE
ALL HOLES 18DIA U.D.N.
DOWNEARTH - R6
MAXIMUM DISTANCE BETWEEN
DOWNEARTH = 600 metres

Earth @ LESS THAN 50Ω

R3

R6

R6

R12

PH

L.V.

N

R1

R14

R5

R3

R2

R6

R5

R1 (HOLES 22#)
NOTE

ALL HOLES 18D)A U.O.N.
R2 - REFER BONDING
DOWNEARTH - R6
MAXIMUM DISTANCE BETWEEN
DOWNEARTH = 600 metres

R1 (HOLES 22 DIA) TO TRANSF

R12

OPEN L.V.

PH

G.L.

R1

R6

R13

R10

R8

R6

TX1, TX2

14 m POLE

1200

750

230

1000

750

1100

380

TOP OF POLE

R1 (R.E. HOLE)

R3

CENTRE PHASE

R2

R1

R8

XARM HOLE (22 dia)

XARM HOLE (22 dia)

14 m POLE

EARTH < LESS THAN 30ohms

wesrernpower

DISTRIBUTION CONSTRUCTION STANDARDS

Customer Services Division

STRUCTURE

INTERMEDIATE TRANSFORMER WISHBONE CONSTRUCTION

REVISION

DATE 23.5.2000

DRAWING No. H25
NOTES:
1. ALL HOLES 1/8" U.D.N.
2. DOWNEARTH – R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS = 600m.
4. INSTALL STAYS IF REQUIRED.
NOTE:
1. ALL HOLES 18dia B.O.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
NOTE
ALL HOLES 18DIA U.G.N.
R2 - REFER BONDING
DOWN EARTH - R6
MAXIMUM DISTANCE BETWEEN
DOWN EARTH = 600 METRES

14m POLE

VERTICAL STRAIN ANGLE
WITH OVERHEAD EARTHWIRE

Customer Services Division

Drawing No. H28
NOTES:
1. CONNECTION TO LV DEPENDANT ON SUPPLY ARRANGEMENT.
2. 25mm CONDUIT FOR MECHANICAL PROTECTION OF CABLES.
3. CORRUGATED CONDUIT FITTED AS MECHANICAL PROTECTION OVER COAX BUNDLED AND SECURED AGAINST POLE.
4. ORIENTATION OF ANTENNA DEPENDANT ON SELECTED RADIO BASE
5. FAULT INDICATOR NUMBER TO BE DISPLAYED WITH REFLECTIVE NUMBERS ON ROAD SIDE OF ENCLOSURE
6. WARNING SIGN (SEE L00-1704)
7. ARRANGEMENT DEPENDANT ON ANTENNA, USUALLY INSTALLED ON SOUTH SIDE OF POLE TO MINIMISE UV EXPOSURE.
8. SINGLE PHASE CONNECTION BOX - ENCLOSURE TO BE ISOLATED PRIOR TO MAINTENANCE.
9. FOR HV ONLY STRUCTURE, SEPARATION TO LOWEST CONDUCTOR SHOULD BE 2-3 METRES. FOR HV/LV, LOCATE AT NULL POINT
NOTE:
1. SELECT SURGE ARRESTER ACCORDING TO NETWORK VOLTAGE
2. RUNNING EARTH AND DOWN EARTH CONNECTED TO SURGE ARRESTER BRACKET
NOTES:-
1. ALL HOLE 18G UNLESS NOTED OTHERWISE.
2. FRAME & CONTROL BOX MUST BE GROUNDED WITH 70mm² STRANDED COPPER CABLE.
3. WARNING SIGN FITTED 1.8m-2m ON CAPACITOR FUSE SIDE.
4. LV ABC CABLE TO BE USED FOR PHASE CONNECTIONS.
5. 1000kVA BANKS REQUIRE 40A DQF’s.
6. 500kVA BANKS REQUIRE 25A DQF’s.
6. FIT SIGN “TRANSFORMER MUST BE SET TO TAP 1.
7. ADJUST TRANSFORMER TAP POSITION & TX DATA PLATE.
8. LV FUSE ON TX - 32A.
9. TRAVERSE JUMPERS TO MAINTAIN MINIMUM CLEARANCE.
Part 4 – High Voltage Overhead

NOTES:-
1. ALL HEAVY 10# UNLESS NOTED OTHERWISE.
2. FRAME & CONTROL BOX MUST BE GROUNDED
   WITH 70mm² STRANDED COPPER CABLE.
3. WARNING SIGN FITTED 1.8m-2m ON CAPACITOR FUSE SIDE
4. LV ABC CABLE TO BE USED FOR PHASE CONNECTIONS
5. 1000kVA BANKS REQUIRE 40A DOP’s
6. 500kVA BANKS REQUIRE 25A DOP’s
7. FIT SIGN “TRANSFORMER MUST BE SET TO TAP 1.
8. ADJUST TRANSFORMER TAP POSITION & TX DATA PLATE.
9. LV FUSE ON TX – 32A
10. TRAN JUMPERS TO MAINTAIN MINIMUM CLEARANCE

22kV POLE MOUNTED CAPACITOR BANK
(SIDE MOUNTED) WITH 10 kVA TRANSFORMER
(TWO BUSHING) CONNECTION DETAILS

DM #4831000
Part 4 – High Voltage Overhead

NOTES –
1. ALL HOLES 10Ø UNLESS NOTED OTHERWISE.
2. FRAME & CONTROL BOX MUST BE GROUNDED WITH 70mm² STRANDED COPPER CABLE.
3. WARNING SIGN FITTED 1.8m-2m ON CAPACITOR FUSE SIDE.
4. LV ABC CABLE TO BE USED FOR PHASE CONNECTIONS.
5. 1000kVA BANKS REQUIRE 25A DDF's.
6. 500kVAR BANKS REQUIRE 16A DDF's.
6. DDD SIGN TRANSFORMER MUST BE SET TO TAP 1.
7. ADJUST TRANSFORMER TAP POSITION & TX DATA PLATE.
8. LV FUSE ON TX – 32A.
9. TRANSFORMER TO MAINTAIN MINIMUM CLEARANCE.

STRUCTURE

33kV CAP BANK WITH TSC OIL SWITCH (SIDE MOUNTED) WITH 10 kVA transformer (SINGLE BUSHING) CONNECTION DETAILS

DM #4831000
NOTE:
1. ALL HOLES 1/8 UNLESS NOTED OTHERWISE.
2. FRAME & CONTROL BOX MUST BE GROUNDED
   WITH 70mm² STRANDED COPPER CABLE.
3. WARNING SIGN FITTED 1.8m-2m ON CAPACITOR FUSE SIDE
4. LV ABC CABLE TO BE USED FOR PHASE CONNECTIONS
5. 1000kVA BANKS REQUIRE 25A DOPS,
   500kVA BANKS REQUIRE 16A DOPS
6. FIT SEW TRANSFORMER MUST BE SET TO TAP 1.
7. ADJUST TRANSFORMER TAP POSITION & TX DATA PLATE
8. LV FUSE ON TX - 32A
9. TRAIN JUMPERS TO MAINTAIN MINIMUM CLEARANCE

STRUCTURE

33kV CAP BANK WITH TSC OIL SWITCH
SIDE MOUNTED WITH 10 kVA TRANSFORMER
TWO BUSHING CONNECTION DETAILS
NOTE
1. ALL HOLES 180IA U.O.N.
2. MIN. 6kN POLE.
3. LOCAL/SOIL CONDITIONS MAY REQUIRE STAYS.
4. EARTH LINK REQUIRED BETWEEN REG. POLES
5. ISOLATORS ON REGULATOR POLE OR AT BOTH "TEE" OFF POLES

EARTH @ LESS THAN 30 ohms
NOTES:
1. ALL HOLES 100 (UNLESS SHOWN).
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m

R6

TOP OF POLE

R6

EARTH > LESS THAN 30 ohms
NOTES:
1. ALL HOLES 1\(\frac{3}{8}\) UNLESS SHOWN. 
2. DOWNEARTH = R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
NOTE
ALL HOLES 19DIA U.J.N.
DOWNEARTH = R6
MAXIMUM DISTANCE BETWEEN
DOWNEARTH = 600 metres

EARTH # LESS THAN 30 ohms

G.L.

R13

R6

R6

R6

R8

R14

R3

R2

R5

R5

R3

TOP OF POLE

230

300

900

RUNNING EARTH

RUNNING DISC ANGLE PHASE

RUNNING DISC ANGLE EARTH

western power
DISTRIBUTION CONSTRUCTION STANDARDS

REVISION A
DATE 10-10-2013
DRAWING No. H41-1
R/E TERMINATIONS & STAY WIRE (EYEBOLT) POSITIONED TO AVOID CONTACT, BONDING TO STAT, SEE R14

NOTES:
ALL HOLES 180A U.D.N.
R2 - REFER BONDING (BK2)
DOWNEARTH - R6
MAXIMUM DISTANCE BETWEEN
DOWNEARTH = 600 METRES

Earth @ LESS THAN 30 ohms

3 x 1 POLE
LONG BAY SOLUTION

REVISION A
DATE 23.06.2013
DRAWING No.
H41-2
PART 4 – HIGH VOLTAGE OVERHEAD

NOTES:-
1. ALL HOLES 180 U.N.O.
2. DOWN EARTH = R6.
3. MAXIMUM DISTANCE BETWEEN DOWN EARTH = 600m.
4. USE RUNNING EARTH INTERMEDIATE ANGLE, IF DEVIATION IS >2°.
5. USE CROSSARM STRAP (CB0405) IF DEVIATION IS >10°.
6. R2 = REFER BONDING.
7. FOR TWO PHASE CONSTRUCTION, POSITION CONDUCTORS ON EITHER END OF CROSSARM.

SINGLE PHASE TEE-OFF TO STRAIN WITH OR WITHOUT DROPOUT FUSE
Notes:
1. All holes 180 u.d.n.
3. Maximum distance between downearth = 600m.
4. Tap must maintain 400mm from pole.
NOTE
ALL HOLES 180IA U.O.N.
DOWN EARTH - R6
MAXIMUM DISTANCE BETWEEN DOWN EARTH = 600 metres
STAY NOT REQUIRED FOR SLACK BAY APPLICATIONS.
NOTES:
1. ALL HOLES 18Φ U.O.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m.
NOTES:
1. ALL HOLES 18Ø U.O.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 m.
PART 4 – HIGH VOLTAGE OVERHEAD

**NOTES:**
1. ALL HOLES 188 Ø, L.A.N.
2. DOWNEARTH = R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m
4. SEE R12/1 FOR LV ARRANGEMENT DETAILS.
5. SEE H19 FOR EARTH & LV PHASE CONNECTIONS.
6. STAND-OFF INSULATOR IF REQUIRED FOR BACK TO BACK Tx INSTALLATION

**SINGLE PHASE – ONE BUSHING**

**STRUCTURE**

**INTERMEDIATE TRANSFORMER WITH OR WITHOUT DROPOUT FUSE (1 PHASE)**

---

**Distribution Construction Standards Handbook – Technical Requirements**

DM #4831000
NOTES:
1. ALL HOLES 18DIA U.O.N.
2. DOWNEARTH – R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m

SINGLE PHASE - ONE BUSHING

TERMINATION TRANSFORMER WITH OR WITHOUT DROPOUT FUSE
Part 4 – High Voltage Overhead

NOTES:
1. ALL HOLES 18° U.D.N.
2. DOWNEARTH – R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600m.

EARTH @ LESS THAN 30ohms

1 PH TRANSFORMER WITH DROPOUT FUSE

Distribution Construction Standards Handbook – Technical Requirements DM #4831000
Part 4 – High Voltage Overhead

NOTES:
1. ALL HOLES 180° U.O.N.
2. DOWNEARTH = R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTH = 600 m.
4. POSITION Tx TO SUPPLY CUSTOMER AND MAINTAIN CLEARANCE.
5. STAY POSITIONING AND NUMBER OF STAYS AS PER OVERHEAD LINE DESIGN MANUAL.
6. SEE R12/1 FOR LV ARRANGEMENT DETAILS.
NOTE:
1. All holes 180 U.O.N.
2. Downearth - R6, maximum distance between downearth = 600m.
3. Twin TX's are to be mounted in back to back configuration only.
4. See R12/1 for LV arrangement details.
5. See H49 & H50 for earth & LV phase connections.
Part 4 – High Voltage Overhead

Connection for 240V LV Supply

Connection for 480V LV Supply

Parallel TX's for 240V LV Supply

Parallel TX's for 480V LV Supply

Note: See R12/1 for LV Arrangement Details.
Part 4 – High Voltage Overhead

4 TX’s FOR 480V LV SUPPLY

CONNECTIONS FOR THREE PARALLEL TX’S - 240 LV SUPPLY

NOTE: SEE R12/1 FOR LV ARRANGEMENT DETAILS.
Part 4 – High Voltage Overhead

- **TOP OF POLE**
- **RENCLOSER BOLT**
- **SURGE ARRESTER**
- **ANTENNA SUPPORT**
- **CB**
- **EARTH & LESS THAN 30Ω**

**NOTES**
- The H51-4 drawing details options to suit operational and construction variation requirements.
- These options must maintain the phase to phase, phase to earth and ground clearances required.
- Crossarm length, if required a 3.3m arm may be used.
- R/E location between upper and lower positions.
- TX and recloser positions 2 dimensions shown.

**H51-4 SINGLE PHASE RECLOSER BY-PASS**

**DISTANCE BETWEEN DOWNEARTHS = 600 METRES**
- 70mm MAIN EARTH DIRECT FROM RECLOSER EARTH STUD TO EARTH STATE UNBROKEN, ALL OTHER EARTHS TO BE FG BONDED TO THE MAIN EARTH R/E, local to control box etc.
- Surge arresters direct mounted on recloser frame, considered earther.

**SINGLE PHASE ISOLATORS/STRAIN TERMINATION**
- WITH SINGLE PHASE TX SUPPLY

---

**Distribution Construction Standards Handbook – Technical Requirements**

DM #4831000
RUNNING EARTH

REMOTE O/H EARTH (MIN 7/4.75 AL)

R3

R8

R6

IF THE DOWN EARTH IS FOR REMOTE EARTHING, THEN A LABEL MUST BE FITTED INDICATING THE DIRECTION/LOCATION AND NAME OF EARTHED EQUIPMENT. LABEL TO BE FITTED BETWEEN 1.3m & 1.8m FROM G/L ADJACENT TO THE (70mm) DOWN EARTH.

R6

EARTH RESISTANCE LESS THAN 30ohms OR APPROVED DESIGN SPECIFIED

NOTE

ALL HOLES 18DIA U.O.N.
R2 - REFER BONDING (BK1)
DOWNEARTH - R6
MAXIMUM DISTANCE BETWEEN DOWNEARTH ≤ 600 metres

REFER TO FIELD INSTRUCTION 2.3 IN THE WP MANUAL “NOTIFY TELSTRA OF HV EARTH INSTALLATIONS”
REMOTE/EXTENDED EARTH INSTALLATION NOTES TO BE USED WHEN STANDARD DOWN EARTH INSTALLATION CANNOT BE APPLIED.

1. EARTH PIT CANNOT BE FITTED ADJACENT TO POLE DUE TO TELSTRA OR OTHER TECHNICAL REQUIREMENTS.

2. THE 15M SEPARATION APPLIES TO TELSTRA EQUIPMENT UNLESS SPECIFIC SITE VARIATION IS APPROVED.

3. IF 15Ms OR THE APPROVED SEPARATION CANNOT BE ACHIEVED, THEN A O/H EARTH (MIN 7/4.75 AL) TO THE NEXT POLE MAY BE INSTALLED AND A STANDARD H52-1 CONNECTION APPLIED. UPGRADE R/E SECTION IF REQUIRED.


5. STANDARD UDS CABLE PROTECTION APPLIES SUCH AS CONDUIT AT 750mm DEPTH.

---

**Note:**
- All holes 180mm U.O.N.
- R2 - Refer bonding (BKII)
- Maximum distance between downearth = 600 metres

---

**Western Power**

DISTRIBUTION CONSTRUCTION STANDARDS
Customer Services Division

**Structure:**
EXTENDED OR REMOTE DOWNEARTH-RUNNING EARTH

**Revision:**
H 52-2

**Date:**
10-05-2008
NOTES:
CONDUCTOR TERMINATED DIRECTLY ONTO
SECTIONALISER - PREFERRED
AL CONDUCTORS - TAPS COVERED OR LVABC
SCAC CONDUCTOR USE COVERED SCAC TAP
DRAIN HOLE REQUIRED IN BOTTOM OF TAP
BY-PASS FUSE NOT TO BE LEFT IN OPEN POSITION,
REMOVE & HANG ON POLE.

USE 1M POLE
12.5M IF INADEQUATE GROUND CLEARANCE
NOTES:
1. 450 IF R/E IS SCAC OR SCGZ
   1100 IF R/E IS AAAC.
   450 IF LV IS ABC
2. FUSE LV SUPPLY TO MCB 10A.
3. ALL HOLES 180 [UNLESS SHOWN].
4. RECLIMER PREFERABLY FACE SUPPLY.
5. LABEL AS PER LABELING STANDARD.
NOTES:
1. FUSE LV SUPPLY TO MCB 10A.
2. ALL HOLES 18Ø (UNLESS SHOWN).
3. RECLOSED PREFERABLY FACE SUPPLY.
4. LABEL AS PER LABELING STANDARD.
NOTES:
1. THE SELECTION OF TX TYPE (1 OR 2 BUSHING)
   FOR LV SUPPLY IS MADE AT THE DESIGN STAGE
   SUBJECT TO THE SUITABILITY OF THE O/H RUNNING EARTH
   FOR A SINGLE BUSHING TX CONNECTION.
2. HV XARM DISTANCE FROM THE BOTTOM O/H EARTH BKT BOLT
   IS SUBJECT TO MAINTAINING REQUIRED CLEARANCE
   BETWEEN PHASES AND EARTH WIRE (R/E) MID BAY.
3. FUSE LV SUPPLY TO MCB 10A.
4. ALL HOLES 18Ø (UNLESS SHOWN).
5. RECLSER PREFERABLY FACE SUPPLY.
6. LABEL AS PER LABELING STANDARD.

3 PH RECLOSER / LOAD BREAK
SWITCH WITH TRANSFORMER SUPPLY
ARRANGEMENT WITH O/H EARTH

DISTRIBUTION CONTROL
STANDARD

H60-5
1. SWITCHING HANDLE ORIENTATED FOR OPERATOR TO FACE ONCOMING TRAFFIC.
2. RECLOSER PREFERABLY FACE SUPPLY.
3. SINGLE BUSHING TX. MAY BE INSTALLED ON SIDE OF POLE BENEATH FUSE.
4. TRAIN RECLOSER & TX. JUMPERS AWAY FROM RUNNING EARTH AND OTHER PHASES TO ACHIEVE MAX CLEARANCE.
5. SEE H60 SERIES FOR COMMS IF APPLICABLE.
6. ALL HOLES 10A (UNLESS SHOWN).
7. PTS HANDLE BOLTS – REMOVE SHARP EDGES.
8. ISOLATOR STOPPER IN TOP HOLE.
9. WHERE REQUIRED INSULATION SLEEVE EC0109 WITH WIRE CLAMP TO SUIT (OG0351, OG0353).
10. FUSE LV SUPPLY TO WCB 10A.
11. LABEL AS PER LABELING STANDARD.

STRUCTURE

POLE MOUNTED 3 PH RECLOSER/
LOAD BREAK SWITCH
WITH BY-PASS SWITCH
Part 4 – High Voltage Overhead

NOTE:
1. SEE H60 SERIES FOR LV CONNECTION DETAIL AND COMMS (IF APPLICABLE).
2. ALL HOLES 3/8" (UNLESS SHOWN).
3. LABEL AS PER LABELING STANDARD.
4. 650 IF R/E IS SCAC OR SCGZ,
   1100 IF R/E IS AAAC,
   450 IF LV IS ABC.
5. TIEWIRE FOR C/C CONDUCTOR IS 10098.
   DON'T STRIP INSULATION ON JUMPERS.
6. RECLOSER PREFERABLY FACE SUPPLY.
7. FUSE LV SUPPLY TO MCB 10A.

ANTENNA AND LV SUPPLY ARRANGEMENT NOT SHOWN

14Ø HOLES (WASHER MUST BE CORRECTLY PLACED)
NOTE:
1. SEE H60 SERIES FOR LV CONNECTION DETAIL AND COMMS (IF APPLICABLE).
2. ALL HOLES 1/8 IN UNLESS SHOWN.
3. LABEL AS PER LABELING STANDARD.
4. TIEWIRE FOR CCT CONDUCTOR IS E-20098.
5. DONT STRIP INSULATION ON JUMPERS.
6. RECLOSER PREFERABLY FACE SUPPLY.
7. FUSE LV SUPPLY TO MCB 10A.
Part 4 – High Voltage Overhead

Diagram of a high voltage overhead distribution system.

Notes:
1. ALL HOLES 1BO (UNLESS SHOWN).
2. ANTEnte SUPPORT - MIN 1200mm FROM HV AND 500mm BELOW LV OR R/E WHICHER IS LOWER.
3. BY-PASS FUSE NOT TO BE LEFT IN OPEN POSITION.
   REMOVE & HANG ON POLE.
4. Tx ORIENTATED ON POLE TO ACHIVE MAX CLEARANCE.
5. UMBILICAL CABLE MAX. DIST. AWAY FROM LV & EARTH.
6. FUSE LV SUPPLY TO MCB 10A.
7. LABEL AS PER LABELING STANDARD.

Diagram details:
- Load
- Source
- Recloser bypass
- Running Earth
- Lowest MV point
- CB
- L.V.
- Top recloser bolt
- Top Tx bolt
- WARNING sign
- Antenna support
- Antenna model & orientation to radio base to be provided before installation

Structure:
SINGLE PHASE RECLOSER/LOAD BREAK SWITCH IN-LINE ANTI-CLASH WITH SINGLE PHASE TX/LV SUPPLY
1. ALL HOLES 18g. UNLESS SHOWN.
2. SOME SITES MAY REQUIRE A 12.5m POLE.
3. BY-PASS FUSE NOT TO BE LEFT IN OPEN POSITION.
4. REMOVE & HANG ON POLE.
5. UMBILICAL CABLE MAX. DIST. AWAY FROM LV & EARTH
6. FUSE LV SUPPLY TO MCB 10A.
7. CROSSARM LENGTH IF REQUIRED A 3.5m ARM MAY BE USED.
8. R/E LOCATION BETWEEN UPPER AND LOWER POSITIONS.
9. TX AND RECLOSER POSITIONS 2 DIMENSIONS SHOWN.
10. LABEL AS PER LABELING STANDARD.
Part 4 – High Voltage Overhead

SPANNING: OVERHEAD COVERED CONDUCTOR
- TERMINATION STRUCTURES TO SPACER 12m MINIMUM.
- SPACER INTERVAL 10m (MAX. 15m, MIN. 7m)

TOP OF POLE
TANGENT BRACKET
UPPER BOLT

ANTI SWAY BAR

UNIVERSAL BRACKET
UPPER BOLT

UNIVERSAL BRACKET
LOWER BOLT

NOTE:
1. ALL HOLES 18mm DIA. U.O.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS - 150m.

Structure Components
HX1

Intermediate Pole 0° – 2°

DM #4831000
Spanning: Overhead Covered Conductor
- Termination structures to spacer 12m minimum,
- Spacer interval 10m (max. 15m, min. 7m)

Top of Pole
Stay wire eyebolt
Messenger wire eyebolt

Angle Bracket
King bolt

Structure Components
HX2
ST1-6

NOTE:
1. All holes 18mm dia, U.D.N.
2. Downearth - R6
3. Maximum distance between downearths 150 metres
**Spanning Overhead Covered Conductor**
- Termination Structures to Spacing 12m Minimum
- Spacer Interval 10m (Max. 15m, Min. 7m)

**Structure Components**

**HX3 ST1-6**

**NOTE:**
1. All Holes 18 dia. UON
2. Downearth - R6
3. Maximum Distance Between Downearth 150 Metres
SPANNING: OVERHEAD COVERED CONDUCTOR
- TERMINATION STRUCTURES TO SPACER 12m MINIMUM,
- SPACER INTERVAL 10m (MAX. 15m, MIN. 7m)

TOP OF POLE

MESSGER WIRE UPPER EYEBOLT
UPPER STAY
MESSGER WIRE LOWER EYEBOLT
LOWER STAY

UPPER TERMINATION BRACKET
KING BOLT
LOWER TERMINATION BRACKET
KING BOLT

STAY

NOTE:
1. ALL HOLES 16mm DIA. U.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS 150 METRES

Structure
Components

HX4
ST1-6
SPANNING OVERHEAD COVERED CONDUCTOR
- TERMINATION STRUCTURES TO SPACER 12m MINIMUM.
- SPACER INTERVAL 10m (MAX. 15m, MIN. 7m)

NOTE:
1. ALL HOLES 18mm DIA. U.D.N.
2. DOWNEARTH – R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS 150 METRES
4. WIDEN HOLE IN BRACKET FOR STAY EYEBOLT

Structure Components
HX5
ST1 to 6
HU17 to 21
**Spanning: Overhead Covered Conductor**
- Termination structures to spacer 12m minimum.
- Spacing interval 10m (Max. 15m, Min. 7m)

**NOTE:**
1. All holes 18mm dia. U.O.N.
2. Downearth - R6
3. Maximum distance between downearth 150 metres

**Structure Components**
- HV20
- HV34
- 3xCN9
- HX6-2
- CB3002

**Structure**
Intermediate Tee off from existing bare conductor with D.O.F Drilling Details
SPANNING: OVERHEAD COVERED CONDUCTOR
- TERMINATION STRUCTURES TO SPACER 12m MINIMUM.
- SPACER INTERVAL 10m (MAX. 15m, MIN. 7m)

TOP OF POLE
LOWER TANGENT BRACKET BOLT
UPPER L-BRACKET KING BOLT

NOTE:
1. ALL HOLES 18mm DIA, U.O.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS 150 METRES
PART 4 – HIGH VOLTAGE OVERHEAD

STRUCTURE

OPEN AERIAL TO COVERED CONDUCTOR WITH SURGE ARRESTERS

Structure Components

<table>
<thead>
<tr>
<th>Structure</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>HX6-2</td>
<td></td>
</tr>
<tr>
<td>HV5</td>
<td>(CB1121 +1, CB0118 -1)</td>
</tr>
<tr>
<td>HV34</td>
<td></td>
</tr>
<tr>
<td>3xCN1</td>
<td></td>
</tr>
<tr>
<td>3xCN10</td>
<td></td>
</tr>
<tr>
<td>CG0005</td>
<td></td>
</tr>
</tbody>
</table>

Note:

1. ALL HOLES 18mm DIA. U.D.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS 150 METRES
4. DOWN EARTH CONNECTED DIRECTLY TO CROSS ARM
5. MESSENGER WIRE CONNECTED TO DOWN EARTH
6. OUTER PARKING BARS ON SA's TO FACE INWARDS
7. SA'S SHEDS FACING DOWNWARDS
8. CUT 400mm CONDUIT TO COVER BARE TAPS, SEE INSET
9. HOLE IN CROSS ARM T-BRACKET TO BE WIDENED TO 22mm DIA.
   AND COLD GALVANISED TO FIT STAY EYEBOLT
**Spanning: Overhead Covered Conductor**
- Termination structures to spacer 12m minimum.
- Spacer interval 10m (max., 15m, min., 7m)

**Structure Components**
- HX6-2
- HV5-(CB1121 +1, CB0118 -1)
- HV34
- 3xIC0108
- 3xCT0015
- 3xCN10
- 3xCN9
- 5xCB3002

**NOTE:**
1. All holes 18mm dia., U.O.N.
2. Downdearth - R6
3. Maximum distance between downdearths 150m.
4. Downdearth connects directly to T-bracket.
5. Messenger wire connected to down earth.
6. Outer parking bars on S.A's to face inwards.
7. S.A's sheds facing downwards.
8. If deviation angle is more than 12°, stay must be provided for deviation angle up to 15° unless a revised embedment depth is followed.
9. Minimum 6kn rating pole to be used.

---

**Distribution Construction Standards Handbook – Technical Requirements**

**DM #4831000**
NOTE:

1. ALL HOLES 18mm DIA. U.O.N.
2. DOWNEARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS 150 METRES
4. TRAIN CENTRE PHASE CONDUCTOR TO MAINTAIN 600mm CLEARANCE FROM MESSENGER WIRE
1. ALL HOLES 18mm DIA. U.D.N.
2. DOWNHARTH - R6
3. MAXIMUM DISTANCE BETWEEN DOWNHARThS 150 METRES
4. TRAIN CENTRE PHASE CONDUCTOR TO MAINTAIN 400mm CLEARANCE FROM MESSENGER WIRE
**NOTE:**

1. ALL HOLES 18mm DIA. U.O.N.
2. DOWNEARTH – R6
3. MAXIMUM DISTANCE BETWEEN DOWNEARTHS – 150 METRES
**Structure Components**

- HX5
- HV20
- TX4
- 3xGA3003
- 3xGF1591
- 9xFL0401
- 1xCB3002

**NOTE:**

1. All holes 18mm dia. U.O.N.
2. Downearth - R6
3. Maximum distance between downearths 150 metres.
HV ABC
Catenary Wire

Maximum Angle of Line Deviation 25 Deg.

HA1

Structure

Intermediate Angle

0-25 Degree

Revision

Date 1.1.2008

Drawing No. H200

Distribution Construction Standards Handbook – Technical Requirements DM #4831000
HA3

HA3

Catenary Wire

Stay

HVABC

HVABC

0-90 DEGREE

Structures

Revision

Date

Drawing No.

H202
NOTE:
1. Maintain minimum clearance between tapping conductor and HV ABC braid

western power
DISTRIBUTION CONSTRUCTION STANDARDS

STRUCTURE
IN-LINE STRAIN TRANSFORMER POLE MOUNTED

REVISION A
DATE 12.12.2011
DRAWING No. H203
1. Maintain minimum clearance between tapping conductor and HV ABC braid.

**Structure:**

- In-line strain
- Underground cable tee-off from HVABC

**Revision A:**

- Date: 12/12/2011
- Drawing No.: H207
NOTE:
1. MAINTAIN MINIMUM CLEARANCE BETWEEN TAPPING CONDUCTOR AND HV ABC BRAID

12.5m POLE

HV ABC/ABC TEE-OFF WITH DOF

STRUCTURE

DISTRIBUTION CONSTRUCTION STANDARDS

WESTERNPOWER

DM #4831000

NOTE:
1. Maintain minimum clearance between tapping conductor and HV ABC braid

Structure:
Bare HVABC with HVABC tee-off with DOF

Revision: A
Date: 13.12.2011
Drawing No.: H212
**NOTE:**
1. Maintain minimum clearance between tapping conductor and HV ABC braid.

---

<table>
<thead>
<tr>
<th>STRUCTURE</th>
<th>REVISION A</th>
<th>DATE</th>
<th>DRAWING No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUR WAY STRAIN</td>
<td></td>
<td>13.12.2011</td>
<td>H213</td>
</tr>
</tbody>
</table>

HVABC - HVABC
NOTE:
1. MAINTAIN MINIMUM CLEARANCE BETWEEN TAPPING CONDUCTOR AND HV ABC BRAID
NOTE:
1. Maintain minimum clearance between tapping conductor and HV ABC braid.

HA12
CN1
CN10
HA6

HA7

12.5m POLE

DISTRIBUTION CONSTRUCTION STANDARDS

STRUCTURE
BARE-HVABC WITH HVABC TEE-OFF WITHOUT DOF

REVISION A
DATE 14.12.2011
DRAWING No. H218