Spectra and Spectra II Series™
Plug-in and Feeder Busway

With BlueCoat® Epoxy Insulation System

DEH-40087
Installation and Maintenance Instructions
WARNINGS, CAUTIONS AND NOTES AS USED IN THIS PUBLICATION

WARNINGS
Warning notices are used in this publication to emphasize that hazardous voltages, currents, or other conditions that could cause personal injury are present in this equipment or may be associated with its use.

Warning notices are also used for situations in which inattention or lack of equipment knowledge could cause either personal injury or damage to equipment.

CAUTIONS
Caution notices are used for situations in which equipment might be damaged if care is not taken.

NOTES
Notes call attention to information that is especially significant to understanding and operating the equipment.

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# Spectra and Spectra II Series™ Plug-In and Feeder Busway

## Table of Contents

**Contents**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing Spectra Series Busway</td>
<td>3</td>
</tr>
<tr>
<td>Storage Precautions</td>
<td>3</td>
</tr>
<tr>
<td>Pre-Installation Procedure</td>
<td>3</td>
</tr>
<tr>
<td>Installation of Spectra Series Busway</td>
<td>3</td>
</tr>
<tr>
<td>Installing Indoor Busway</td>
<td>5</td>
</tr>
<tr>
<td>Horizontal Mounting</td>
<td>5</td>
</tr>
<tr>
<td>Vertical Mounting</td>
<td>5</td>
</tr>
<tr>
<td>Joining Lengths</td>
<td>8</td>
</tr>
<tr>
<td>Expansion Lengths</td>
<td>9</td>
</tr>
<tr>
<td>Busway Field Check Pieces and Replacement Pieces</td>
<td>10</td>
</tr>
<tr>
<td>Installing an End Box</td>
<td>10</td>
</tr>
<tr>
<td>Installing and Removing Busway Plugs</td>
<td>11</td>
</tr>
<tr>
<td>Installing a Plug Not Equiped with Plug-Assist</td>
<td>12</td>
</tr>
<tr>
<td>Installing a Plug Equipped with Plug-Assist</td>
<td>12</td>
</tr>
<tr>
<td>Removing a Plug</td>
<td>12</td>
</tr>
<tr>
<td>Installing Dripproof, Splashproof, and Outdoor Busway</td>
<td>14</td>
</tr>
<tr>
<td>Installation Tips</td>
<td>15</td>
</tr>
<tr>
<td>Installing an End Box</td>
<td>18</td>
</tr>
<tr>
<td>Installing Spectra II Series Busway</td>
<td>21</td>
</tr>
<tr>
<td>Horizontal Mounting</td>
<td>21</td>
</tr>
<tr>
<td>Vertical Mounting</td>
<td>21</td>
</tr>
<tr>
<td>Installing an End Box</td>
<td>22</td>
</tr>
<tr>
<td>Joining Lengths</td>
<td>22</td>
</tr>
<tr>
<td>Remove the Joint or Captive Piece of Busway</td>
<td>23</td>
</tr>
<tr>
<td>Busway Plugs</td>
<td>25</td>
</tr>
<tr>
<td>Busway Maintenance Procedures</td>
<td>26</td>
</tr>
<tr>
<td>Protecting the Busway from Contamination</td>
<td>26</td>
</tr>
<tr>
<td>Maintenance Procedures</td>
<td>26</td>
</tr>
<tr>
<td>Inspecting the Busway</td>
<td>26</td>
</tr>
<tr>
<td>Inspecting Current-Carrying Components</td>
<td>26</td>
</tr>
<tr>
<td>Busway Installation Checklist</td>
<td>28</td>
</tr>
</tbody>
</table>
Spectra and Spectra II Series™ Plug-In and Feeder Busway

List of Figures and Tables

Figures
1. The bar end and joint end of the busway ................................................................. 3
2. Minimum clearances to be maintained in various installations .................................. 4
3. Dimensions between drop rods for dual-hanger installations .................................. 5
4. Single-rod hanger with one stack (a) (standard) mounted flat and (b) mounted edgewise . 5
5. Rigid riser hanger installation .................................................................................... 6
6. Spring riser hanger installation .................................................................................. 6
6A. Seismic spring riser hanger installation .................................................................... 6
7. Bus plugs with door hinges at the left end ................................................................. 7
8. Bus plugs with door hinges at the top ......................................................................... 7
9. Indoor joint cap ........................................................................................................... 8
10. Outdoor joint cap ......................................................................................................... 8
11. Busway joint at the standard distance ....................................................................... 8
12. Busway joint at the minimum distance ...................................................................... 9
13. Busway joint at the maximum distance .................................................................... 9
14. Installing an expansion length .................................................................................... 10
15. Measuring Spectra busway for a field check ............................................................ 10
16. Installing an end box .................................................................................................. 10
17. Plug handle positions ............................................................................................... 12
18. Mounting a bus plug on Spectra Series busway ......................................................... 13
19. Assembly of a typical dripproof, splashproof, or outdoor busway joint .................... 16
20. Assembly shown without joint caps, wireform springs connected ......................... 16
21. View of completed joint assembly with joint caps installed .................................... 17
22. View of completed joint assembly showing joint caps ............................................ 17
23. End box installed on the end of a run ........................................................................ 18
24. Edge wise outdoor Elbow Joint ................................................................................ 19
25. Edge wise outdoor Elbow Joint asm instructions ..................................................... 19
26. Edge wise outdoor Elbow Joint ................................................................................. 20
27. Edge wise outdoor Elbow Joint asm instructions ..................................................... 20
28. Minimum clearances Spectra II ................................................................................ 21
29. Lowamp busplug data .............................................................................................. 21
30. Spectra II flatwise hanger ......................................................................................... 22
31. Spectra II edgewise hanger ....................................................................................... 22
32. Spectra II trapeze edgewise hanger .......................................................................... 22
33. Spectra II trapeze flatwise hanger ............................................................................ 22
34. Spectra II cross section ............................................................................................. 22
35. Spectra II end box ..................................................................................................... 22
36. Spectra II busway joint at minimum ....................................................................... 22
37. Spectra II busway joint at standard ........................................................................ 23
38. Spectra II busway joint at maximum ...................................................................... 24
39. Joint cap ................................................................................................................... 24
40. Bus plug mounting .................................................................................................... 24

Tables
1. Selection of spring hanger based on Seismic load ..................................................... 5
2. Selection of spring hanger based on Seismic load ..................................................... 5
3. Dimensions for Spectra RMS™ circuit breaker bus plugs ........................................ 7
4. Dimensions for Types QMR and QMW fusible switch bus plugs ............................ 7
5. Dimensions for molded-case circuit breaker bus plugs ............................................ 7
6. Busway and hanger mounting dimensions ................................................................ 7
7. Number of busway springs required per busway weight ......................................... 7
8. Busway weights ......................................................................................................... 7
9. Busway torque requirements .................................................................................... 10
10. Lowamp plug sizes .................................................................................................. 21
11. Spectra II busway cross section .............................................................................. 22
12. Lowamp plug weight .............................................................................................. 22
13. Spectra II busway weight ....................................................................................... 22
Installing Spectra Series™ Busway

**Storage Precautions**
Before storing, unpack sufficiently to make a check of the busway for possible concealed damage resulting from shipping and handling. If damage has occurred, notify the shipper immediately. If the busway is free of damage, restore the packing until ready for installation.

Store indoors in a clean, dry area, preferably close to the installation points.

Protect the busway from mechanical damage and any contact with or exposure to corrosive fumes, liquids, salts, or concrete.

Failure to store and protect the busway properly can cause serious damage and will void the warranty.

**Pre-Installation Procedure**
When possible, deliver the busway to its installation location before unpacking. Large labels on each shipping carton or crate designate the items contained. Additionally, each busway piece is identified with an item number label.

Inspect each busway piece for possible damage or contamination. Contact surfaces must be clean. However, do not attempt to polish tarnished contact surfaces.

Check to ensure that joint insulators are not damaged or cracked and are firmly in place.

Megohm test each piece before installation.

**Installation of Spectra Series Busway**
Establish the bus bar phase sequence (Ø side is labeled) to determine how the busway is to be installed, so that correct phasing is maintained throughout the system. Note that phase transposition lengths, when furnished, may relocate the Ø to the opposite side of a busway run.

Each busway piece has a “bar end” and a “joint end,” as illustrated in Figure 1. Normally the busway is oriented end for end with bar ends pointing away from the source. Also, the Ø side should be oriented down for horizontal plug-in applications.

In vertical riser installations, it is easier to lower the busway into place than it is to raise it.

If installation drawings have been furnished, information regarding the orientation of the busway and location of the Ø side, as well as other pertinent data, will be furnished. These drawings should be followed carefully to ensure a proper busway system.

**Where to Start**
Start the installation, if at all possible, at the most critical point, such as a main feed box, switchboard or switchgear, elbow, or other critical fitting or termination.
**Obstructions**
Where a busway run must pass through a wall or floor, an opening one inch larger than the busway cross-section should be provided. Joints may not occur inside walls or floors per the NEC. A flange is available to mask the opening after the busway is installed.

**Minimum Clearances**
Figure 2 illustrates the minimum clearances that must be maintained in various installation situations.

\* 4" minimum provides clearance for 30–100 A fusible plugs. 7" minimum for 200 A fusible plugs. 8" minimum for all other plugs. See Tables 1, 2, and 3.

Figure 2. Minimum clearances to be maintained in various installations.
Installing Indoor Busway

Horizontal Mounting

Overhead Support
For overhead-supported busway, 1/2-inch drop rods are recommended with a maximum 10-foot spacing. Drop rods and other hardware must be furnished by the installer. Figure 3 illustrates mounting dimensions for typical installations.

- Maintain good alignment of the drop rods along the busway run.
- Do not support busway at the joints.
- After the busway is secured in the hangers, adjust the hangers on the rods for the correct elevation.
- Sway braces (furnished by the installer) may be required to keep the run straight or to prevent rotation.

Wall or Column Support
Single-rod hangers, as shown in Figure 4, may be used for mounting busway on walls or columns with the addition of an angle support supplied by the installer.

![Figure 3](image)

Figure 3. Dimensions between drop rods for dual-hanger installations.

![Figure 4](image)

Figure 4. Single-rod hanger with one stack (a) (standard) mounted flat and (b) mounted edgewise.

Vertical Mounting
Support Busway on maximum 16-foot centers. Use Table 7 to determine the number of springs required based on busway weight, as listed in Table 4, Table 5 and Table 8. Select the spring hanger based on the seismic load, amperage and Vertical support spacing mentioned in table 1 & 2.

### Table 1: Selection of spring hanger based on Seismic load and amperage.

<table>
<thead>
<tr>
<th>CODE BOARD</th>
<th>SPRING HANGER CATALOGUE NUMBER</th>
<th>SEISMIC LEVEL</th>
<th>AMPERAGE</th>
<th>VERTICAL SPACING (Ft)</th>
</tr>
</thead>
</table>
| IEEE-693-1997 | SBSS *x* | SDS = 1.5 | I.P = 1.5 | 250A - 1000A Copper & 
 | | | | 225A - 3000A Aluminum | Less than or equal to 16 foot centers |
| High/IBC 2009 | | | | 250A Copper | Less than 12 foot centers |
| | | | | 400A Aluminum | Less than 13 foot centers |

* Does not include 2000A-5000A 4X CU Vertical and 4000A - 5000A 3W CU Vertical

### Table 2: Selection of spring hanger based on Seismic load.

<table>
<thead>
<tr>
<th>CODE BOARD</th>
<th>SPRING HANGER CATALOGUE NUMBER</th>
<th>SEISMIC LEVEL</th>
<th>AMPERAGE</th>
<th>VERTICAL SPACING (Ft)</th>
</tr>
</thead>
</table>
| IEEE-693-2005 | SBSS *x* | SDS = 1.395 | I.P = 1.5 | 250A - 6000A Copper and 
 | | | | 225A - 4000A Aluminum | Less than or equal to 12 foot centers |
| High/IBC 2006 | | | | 250A - 6000A Copper and 
 | | | | 225A - 4000A Aluminum | Less than or equal to 16 foot centers |

After placing the length of busway through the floor, follow this procedure to assemble hangers to the busway, as illustrated in Figure 5 Figure 6 & 6A. For convenience in assembly, step 8 may be completed before the hangers are attached to the busway.

**NOTE:** Check that the initial height is 8 inches, as shown in Figure 6.

**NOTE:** Veuillez vous assurer que la hauteur initiale est de 8 pouces, tel que montré à la Figure 6.

1. Loosen the hanger bolt A, shown in Figure 5.
2. Assemble the hangers to each side of the busway.
3. Position the hangers on the busway so that the base channel (B) rests on the floor or other support. A floor flange (C) may be placed under the hanger, but it will not support the busway weight.
4. Fit the hanger clamps (G) to the busway housing and hand tighten the hanger bolts (A).
5. Anchor the base channels to their supports.
6. Tighten the hanger bolts (A).
7. Install the next length and make the joint assembly (see the instructions for joining lengths below).

8. If springs are furnished, they must be adjusted as shown in Figure 6 at this time. Determine the required dimension $H$ of the hanger springs, found on the layout drawing or by using the formula,

$$H = \frac{59}{8} - \frac{W}{150}$$

$W = \frac{\text{Busway wt/ft} \times \text{ft/floor} + \text{devices on floor}}{\text{total number of springs/floor}}$

Using the final adjusting nuts (E), set the springs on the hangers to the dimension $H$. With the springs adjusted, hold nut (E) in position and tighten jam nut (F) against nut (E) to retain the spring setting. Tighten all jam nuts (F) using this procedure. Note that when you are calculating the dimension $H$ for the bottom floor of a riser with an elbow and busway directly below the floor, the following must be included in the footage calculation:

- Busway below the floor to the elbow,
- The elbow,
- 8 feet of horizontal busway.

For the riser to function as a free end, the last horizontal hanger must be 8 feet from the bottom elbow.

9. After the busway run is installed and all “$H$” dimensions are set to the required settings, starting at the top hanger raise the initial adjusting nuts (D) of all hangers to the top of the spring studs. The studs are crimped to hold the nuts in the uppermost position.

NOTE: Failure to properly adjust the spring hangers could damage the bus and void the warranty.
Table 3. Dimensions for Spectra RMS™ circuit breaker bus plugs.

<table>
<thead>
<tr>
<th>Frame</th>
<th>Dimensions, in.</th>
<th>Handle L/Ht.</th>
<th>Wt., lb.</th>
<th>Outlets</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB8 (fused)</td>
<td>11.00</td>
<td>13.00</td>
<td>8.00</td>
<td>11.00</td>
<td>24</td>
</tr>
<tr>
<td>THJK4, THJK6</td>
<td>11.25</td>
<td>13.00</td>
<td>18.63</td>
<td>8.75</td>
<td>11.00</td>
</tr>
<tr>
<td>THK</td>
<td>16.75</td>
<td>24.50</td>
<td>12.50</td>
<td>20.50</td>
<td>95</td>
</tr>
<tr>
<td>TEB, TFD, TFD</td>
<td>16.75</td>
<td>24.50</td>
<td>12.50</td>
<td>20.50</td>
<td>95</td>
</tr>
<tr>
<td>TBJ (fused)</td>
<td>16.75</td>
<td>24.50</td>
<td>12.50</td>
<td>20.50</td>
<td>95</td>
</tr>
<tr>
<td>TBB (fused)</td>
<td>16.75</td>
<td>24.50</td>
<td>12.50</td>
<td>20.50</td>
<td>95</td>
</tr>
</tbody>
</table>

Table 4. Dimensions for Types QMR and QMW fusible switch bus plugs, as illustrated in Figure 7.

<table>
<thead>
<tr>
<th>rating, Volts</th>
<th>Amps</th>
<th>W</th>
<th>L</th>
<th>D</th>
<th>Handle L/Ht.</th>
<th>Wt., lb.</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>30</td>
<td>11.25</td>
<td>13.00</td>
<td>18.63</td>
<td>8.75</td>
<td>11.00</td>
<td>24</td>
</tr>
<tr>
<td>600</td>
<td>60</td>
<td>11.25</td>
<td>13.00</td>
<td>18.63</td>
<td>8.75</td>
<td>11.00</td>
<td>24</td>
</tr>
<tr>
<td>600</td>
<td>100</td>
<td>11.25</td>
<td>18.75</td>
<td>NA</td>
<td>8.75</td>
<td>11.00</td>
<td>28</td>
</tr>
<tr>
<td>600</td>
<td>200</td>
<td>16.00</td>
<td>18.75</td>
<td>24.50</td>
<td>8.75</td>
<td>11.00</td>
<td>46</td>
</tr>
<tr>
<td>600</td>
<td>400</td>
<td>20.50</td>
<td>18.75</td>
<td>NA</td>
<td>18.75</td>
<td>24.00</td>
<td>135</td>
</tr>
<tr>
<td>600</td>
<td>600</td>
<td>20.50</td>
<td>24.50</td>
<td>NA</td>
<td>18.75</td>
<td>28.00</td>
<td>160</td>
</tr>
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Table 5. Dimensions for molded-case circuit breaker bus plugs.

<table>
<thead>
<tr>
<th>Frame</th>
<th>Dimensions, in.</th>
<th>Handle L/Ht.</th>
<th>Wt., lb.</th>
<th>Outlets</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEB, TFD, TFD</td>
<td>11.00</td>
<td>13.00</td>
<td>8.00</td>
<td>11.00</td>
<td>24</td>
</tr>
<tr>
<td>TBJ (fused)</td>
<td>16.75</td>
<td>24.50</td>
<td>12.50</td>
<td>20.50</td>
<td>95</td>
</tr>
<tr>
<td>TBB (fused)</td>
<td>16.75</td>
<td>24.50</td>
<td>12.50</td>
<td>20.50</td>
<td>95</td>
</tr>
</tbody>
</table>

Table 6. Busway and hanger mounting dimensions, as illustrated in Figure 2 and Figure 3.

<table>
<thead>
<tr>
<th>Bars per Phase</th>
<th>Ampere Rating</th>
<th>Dimensions, in.</th>
<th>Busway A</th>
<th>Hanger B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>225–800</td>
<td>225–600</td>
<td>6/8</td>
<td>10 1/4</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>–</td>
<td>5</td>
<td>10 1/4</td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>800</td>
<td>5 1/2</td>
<td>10 1/4</td>
</tr>
<tr>
<td></td>
<td>1350</td>
<td>1000</td>
<td>6 1/8</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>1200</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>1350</td>
<td>8 1/2</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>1600</td>
<td>9 1/4</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>2500</td>
<td>–</td>
<td>10 1/4</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>2000</td>
<td>11</td>
<td>18 1/2</td>
</tr>
<tr>
<td>2</td>
<td>3000</td>
<td>–</td>
<td>15</td>
<td>18 1/2</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>2500</td>
<td>15 1/2</td>
<td>22 1/2</td>
</tr>
<tr>
<td></td>
<td>4000</td>
<td>3000</td>
<td>18</td>
<td>22 1/2</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>5000</td>
<td>21 1/2</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>–</td>
<td>4000</td>
<td>23</td>
<td>26</td>
</tr>
</tbody>
</table>

Table 7. Number of busway springs required per busway weight.

<table>
<thead>
<tr>
<th>Busway Weight, lb</th>
<th>No. of Springs Required per Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–600</td>
<td>2</td>
</tr>
<tr>
<td>601–1200</td>
<td>4</td>
</tr>
<tr>
<td>Over 1200</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 8. Busway weights.

<table>
<thead>
<tr>
<th>Amperes</th>
<th>Copper</th>
<th>Busway Weight, lb/ft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 Wire</td>
<td>4 Wire</td>
</tr>
<tr>
<td>225</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>400</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>600</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>800</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>1000</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>1200</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>1350</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>1600</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>2000</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>2500</td>
<td>33</td>
<td>17</td>
</tr>
<tr>
<td>3000</td>
<td>40</td>
<td>19</td>
</tr>
<tr>
<td>4000</td>
<td>52</td>
<td>25</td>
</tr>
<tr>
<td>5000</td>
<td>66</td>
<td>–</td>
</tr>
</tbody>
</table>

Important Note:
On vertical riser applications use a minimum of 18” of unsupported flexible conduit connecting to bus plugs.
Installing and Removing Spectra Busway Plugs

**Joining Lengths**

Use the following procedure to join two lengths of busway.

1. Remove at least one joint cap, shown in Figure 9 and Figure 10, from the two pieces to be joined, retaining the bolts.
2. Align the sections to be joined by matching up the Ø SIDE labels attached to the ends of each section.
3. If necessary, loosen the joint bolt slightly.
4. Slide the sections together. Ensure that the busbars interweave the insulators, as shown in Figure 11, Figure 12, and Figure 13.

**WARNING:** The housing-ground side plates must pass between the outside insulators and the joint-ground side plates to avoid a phase-to-ground short circuit.

**AVERTISSEMENT:** Les plaques de côté reliant le boîtier à la mise à la terre doivent passer entre les isolateurs extérieurs et les plaques de côté du joint à la terre pour éviter un court-circuit de phase à la terre.

5. In nominal position, the standard distance between the joint cap bolt holes is 10 1/4 inches for outdoor busway, as shown in Figure 11. On indoor busway, the standard distance between the two housings is 8 3/8 inches, in nominal position, as shown in Figure 11. An alignment line marked “N” on the joint cap window should line up with the edge of the housing at nominal position. However, the joint is also adjustable, as shown in Figure 12 and Figure 13. Simply move the sections in or out to the desired length, as shown, and remove the twist-outs in both joint caps (outdoor only) if needed, as shown in Figure 10.

**NOTE:** If any adjustments are made in Step 5, remove the shipping screws and center the joint between the two housings.

6. If the joint caps are not already in place, reattach them and hand-tighten the mounting screws.

7. When joining old-style indoor to new-style indoor busway, use a 3/8” x 1/2” bolt to attach
Installing and Removing Spectra Busway Plugs

the joint cap to the housing spacer of old-style indoor and the 5/16” x 2” bolt provided on the new-style indoor and attach to the U clip.

8. When joining Spectra Series Busway to Spectra II Plug-in Busway, a combination joint cap will be provided, use the 5/16” X 2” bolt to attach this joint cap to the Spectra Series Busway and the M10 X 16 bolts to attach the cap to the Spectra II Busway.

9. When joining Style II outdoor to new-style indoor busway, use the existing 3/8” x 1/2” bolt to attach the joint cap to the housing spacer of Style II outdoor and the 5/16” x 2” bolt provided on the new-style indoor and attach to the U clip.

10. Inspect the busway run for straightness in all planes and make any adjustments necessary for good alignment.

11. Grease has been applied to the joint bolt head and threads to reduce friction. Do not remove this grease.

12. Tighten the joint bolt with a 5/8” or 16-mm socket wrench until the smaller, top head breaks off. When the Belleville washers on both sides are flattened, the bolt is fully tightened. If the optional Joint-Guard™
Installing and Removing Spectra Busway Plugs

torque-indicating bolt is used, tighten using a 3/4" or 19-mm socket torque wrench set at 50ft-lb (68N-m). The color indicator should turn fully black and can be viewed periodically to insure proper torque.

**NOTE:** The bolt head may be relocated to the opposite side of the busway to improve accessibility.

**NOTE:** La tête du boulon peut être repositionnée sur le côté opposé de la canalisation pour bars omnibus pour la rendre plus accessible.

13. Tighten all 3/8" joint cap screws to 25 lb-ft (34 N-m) with a 9/16" or 14-mm socket wrench and all 5/16" joint cap screws to 10 lb-ft (14 N-m) with a 1/2" or 12-mm socket wrench.

14. During installation, occasionally megohm test the assembly to check for any improperly made joints. Resistance should not drop below 1 megohm per 100 feet of busway.

15. Megohm test the complete run before energizing.

**Expansion Lengths**

Expansion lengths compensate for thermal expansion of a long busway run or for differential expansion between two buildings spanned by a busway run. One end wall of the expansion box is free to move, but only after the eight 1/4-20 shipping screws are removed.

Install the expansion length and the remaining busway run, as shown in Figure 14. All but the farthest busway supports beyond the box's free end must be nonrigid, such as spring hangers for riser (vertical) busway or drop rod assemblies on a horizontal run. Before energizing the run, remove the eight 1/4-20 shipping screws, four on each side of the box, as identified by two labels.

Tips for installing expansion lengths

- The label and shipping screws are near the box’s free end.

- Use a 3/8" (6- or 12-point) or 10-mm (6-point) socket wrench to remove the 1/4-20 shipping screws.

- An elbow below a riser that is supported by a drop rod less than 8 feet from the elbow should be considered rigidly mounted.

**Busway Field Check Pieces and Replacement Pieces**

A field check piece is a length of busway inserted into a run after the major portion of that run has been installed. To determine the length of the piece to be inserted, measure the opening length L between the ends of the bars and the center of the joint of the adjacent piece and subtract .875 inches, as shown in Figure 15. This is equal to the busway length X measured from the center lines of joint to joint and is the way to measure all Spectra Series busway pieces.

Figure 14. Installing an expansion length.
### Spectra and Spectra II Series™ Plug-In and Feeder Busway

Installing and Removing Spectra Busway Plugs

#### Installing and Removing Busway Plugs

**WARNING:** HAZARD OF ELECTRICAL SHOCK OR BURN! The plug must be turned OFF before installing on or removing from the busway. Failure to do so may cause serious injury or death! It is a good safety practice to de-energize the busway before inserting or removing bus plugs. In the United States, it is necessary to comply with all Federal and local safety procedures, including NFPA 70E 2-1.3 directing the use of appropriate PPE (Personal Protective Equipment) such as face shield, insulating gloves, and flame-resistant clothing. In Canada, be sure to comply with the appropriate requirements of the Canadian Electrical Code. Only properly trained personnel may install bus plugs on or remove them from energized busway. In addition, all bus plug installation instructions must be followed completely.

#### Table 9. Spectra busway torque requirements.

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Torque (ft-lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼-20 low carbon</td>
<td>6-10</td>
</tr>
<tr>
<td>¼-20 med carbon</td>
<td>8-12</td>
</tr>
<tr>
<td>5/16-18 med carbon</td>
<td>14-18</td>
</tr>
<tr>
<td>3/8-16 low carbon</td>
<td>14-18</td>
</tr>
<tr>
<td>3/8-16 med carbon</td>
<td>22-26</td>
</tr>
<tr>
<td>½-13 low carbon</td>
<td>32-36</td>
</tr>
<tr>
<td>½-13 med carbon</td>
<td>32-36</td>
</tr>
<tr>
<td>½-13 joint thru bolt</td>
<td>50-55</td>
</tr>
</tbody>
</table>

#### Installing an End Box

An end box, as shown in Figure 16, is available to isolate phases and seal the end of a run. The installation process is as follows:

1. Place the box over the end of the busway.
2. Insert the housing spacer and align it with the U-type clip and the end box mounting holes.
3. Secure the end box to the busway with the 5/16” x 2” screws provided.

#### Figure 15. Measuring Spectra busway for a field check.

#### Figure 16. Installing an end box.
Note the following points concerning busway plugs:

- Inspect the plug before installing on the busway.
- Stab fingers have been lubricated with grease, which should not be removed.
- Busway plug-in outlets are made accessible by hinging the outlet cover 180°. A high-friction hinge holds the cover open.
- An alignment pin polarizes and locates the plug in the correct position only.

**CAUTION:** Do not rest the weight of the bus plug on the alignment pin during installation. The pin must be used for alignment only. The plug must be adequately supported by independent means until all the hanger bolts are tightened.

**ATTENTION:** Le poids de la fiche-boîtier de barre omnibus ne doit pas reposer sur la tige d’alignement durant l’installation. La tige doit être utilisée uniquement pour l’alignement. La fiche-boîtier doit être soutenue adéquatement par des moyens indépendants jusqu’à ce que les boulons-vis soient serrés.

- The plug handle is originally in the shipping position. Remove the center screw and rotate the handle 90° CW to access the lock-out feature. Reinsert the screw to secure the handle. NEC requires the ON handle position to be up and the OFF handle position to be down, as shown in Figure 17.

- Plugs are interlocked, permitting engagement and disengagement with the busway only when in the OFF position.
- Place the operating handle at the desired position on the plug and secure it with the screw provided. The NEC requires the ON handle position to be up and the OFF handle position to be down.
- If plug-assist has been furnished on the plug, the operating handle may be used as a wrench to operate the mechanism.
- To install a plug where the rear plug hanger interferes with a joint cap, it is necessary to remove the break-off tabs, as shown in Figure 18.
- See the note below Figure 18 concerning the hanger hooks kit.
- On large plugs, drop rod brackets are provided for auxiliary support of the plug on horizontal runs.

**WARNING:** Perform all of the following steps to insure proper plug-to-bus engagement. Failure to do so may cause injury, death, or damage to equipment.
Spectra and Spectra II Series™ Plug-In and Feeder Busway

Installing and Removing Spectra Busway Plugs

AVERTISSEMENT: Accomplissez tout ce qui suit pour assurer un accouplement correct entre la fiche-boîtier et la barre omnibus. Le non-respect de cette directive peut entraîner des blessures, la mort ou endommager l’équipement.

- Insure that all hangers are fully seated on busway, hanger hooks are latched on the busway rail, and all bolts are tight.
- Insure that the Plug Assist pointer (if equipped) is lined up with the IN position before turning the plug ON.
- Insure that the alignment pin is in the alignment hole and extends past the busway housing on the back side by 1 3/16" ± 1/16".
- Insure that the plug-to-bus interlock (black hook) is in the busway housing slot and is free to move.
- Insure that the bus plug is parallel with the bus housing (line end to load end and across the busway rail).

Installing a Plug not Equipped with Plug-Assist
Use the following procedure, as illustrated in Figure 18.
1. Make sure the device is in the OFF position.
2. Loosen the four bolts on the hanger hooks.
3. Insert the alignment pin into the housing hole.
4. Push the stabs into full contact with the busway.
5. Engage the four hanger hooks with the busway rails and tighten the bolts.

Installing a Plug Equipped with Plug-Assist
Use the following procedure, as illustrated in Figure 18.
1. Make sure the device is in the OFF position and the plug-assist indicator is rotated fully toward the stabs-out position.
2. Loosen the four bolts on the hanger hooks.
3. Insert the alignment pin into the housing hole.
4. Engage the four hanger hooks with the busway rails. Tighten the bolts and wire the device.
5. Rotate the plug-assist indicator fully toward the stabs-in position.

Removing a Plug
First, turn the device OFF. Then follow the appropriate procedure above in reverse order.
Spectra and Spectra II Series™ Plug-In and Feeder Busway
Installing Dripproof, Splashproof, and Outdoor Busway

Figure 18. Mounting a bus plug on Spectra Series busway.

**WARNING:** Be sure that the plug-assist pointer is lined up with the IN position before turning the plug on. Failure to do so may result in serious death or injury.

**AVERTISSEMENT:** Assurez-vous que le repère du mécanisme (Plug-assist pointer) qui aide à connecter la fiche boîtier est enligné avec la position IN avant de la brancher. Il y a risques de blessures graves ou de mort, si cette procédure n’est pas respectée.

**NOTE:** A hanger hooks kit, Catalog Number DP2PK, containing shorter hooks and longer screws, is available. This kit is required only when mounting bus plugs made before September 1999 onto drip-proof plug-in bus with a bar width of 3.375 inch or less and with hooks positioned on the notched joint cap. Refer to Figure 19.
Installing Dripproof, Splashproof, and Outdoor Busway

Install busway according to the instructions for indoor busway, with the following exceptions for outdoor joints. Figure 19 illustrates the assembly of a typical dripproof, splashproof, or outdoor busway joint. Sequence numbers on the figure refer to the steps below.

1. Inspect the ends of the bus and joint assembly for damage. Outdoor and splashproof joints should have green WeatherShield™ epoxy insulators. (Red insulators are for indoor and drip-proof applications.) Joint caps and shields are packed separately.

2. Maintain the proper phasing of the sections to be joined by matching up the Ø SIDE labels attached to the ends of each section. Loosen the joint bolt slightly, if necessary, and slide the sections together.

3. The joint cap can be used as a gage (reversed, with the gasket out) to set the desired length dimension across the joint.

4. The joint is 1/8" narrower than the housing ground plates and should be kept within the width of the ground plates to ensure the best seal to the joint cap gasket. The joint will be centered laterally if the tie bars are flush against the tie bar stop surfaces of the housing ground plates and the bus is in good edge-wise alignment across the joint.

5. Inspect the busway run for straightness in all planes and make any adjustments necessary for good alignment. Tighten the joint bolt to 50 lb-ft (68 N-m). If the optional Joint-Guard™ torque-indicating bolts are used, tighten the bolt until the color indicator turns fully black ±1/4 turn.

6. Set the shields in place bridging the joint. Align the edges of the shields with the edges of the housing ground plates and fasten the shields with the wire-form springs onto the spring detents, as shown in Figure 20. (To secure larger shields, first attach two diagonally opposite spring legs, slide the shield into alignment, then fasten the remaining legs.) Note that lower shields are not required and are not provided with IP43 and dripproof horizontal flat-mounted busway.

7. Attach the two joint caps (gaskets inward) with the four bolts provided. Depending on which bolt is provided, tighten the 3/8-16 x 5/8” bolts to 25 lb-ft (34 N-m) or the 5/16” x 2” bolt to 14-18 ft/lbs (19-24 N-m). Exception: 5000 ampere busway uses eight bolts per joint cap. Assembled joint caps are illustrated in Figure 21 and Figure 22.

8. During installation, megohm test at 1000 VDC the assembly occasionally to check for improperly connected joints. The resistance should not drop below one megohm per 100 feet of busway.

9. Before energizing, the complete run of bus should be megohmed at 1000 VDC. Resistance
s should not drop below one megohm per 100 feet of busway.

10. For UL Outdoor, NEMA 3R, and GM Drip-Proof rated installations: Remove **only downward-facing** weep-hole plugs and shield plugs so that condensation and accumulated moisture can drain out as suggested by these standards.

11. For IEC 529 IP43, IP54, IP65, or IP66 rated installations: Do not remove the weep-hole plugs during installation if the busway is to meet any of these water-spray ratings. Remove (and be sure to reinstall) the plugs only as a maintenance procedure to determine if water has entered the busway.

**Installation Tips**

- **Outdoor busway is only rated as such when it is completely and properly installed.** GE normally recommends setting and tightening joints at the nominal length and sealing each joint as the installation proceeds. The contractor should consider the weather and the need to seal each joint versus the need to make length adjustments later.
- **Use a reversed joint cap (gasket side out) as a joint-length gauging tool or align the holes in the joint and housing ground plates.**
- **Use a straight edge, string, level, plumb line, and square to set runs.**
- **Use a \( \frac{3}{4} \)-inch or 19-mm socket wrench on joint bolts, and tighten to 50 lb-ft (68 N-m).**
- Depending on which cap bolt is provided, use a \( \frac{9}{16} \)-inch (14-mm) socket wrench and tighten to 25 lb-ft (34 N-m) for the \( \frac{3}{8} \) bolts or a \( \frac{1}{2} \)-inch (12-mm) socket wrench and tighten to 14-18 lb-ft (19-24 N-m) for the \( \frac{5}{16} \) bolts.
- **Do not adjust the joint length with the shields or caps installed, as this will damage the gaskets.**
- **Cap gaskets should be replaced whenever a joint cap is removed, except that if a cap gasket has been compressed and taken a set, it may be reused if:**
  - **It is reinstalled in exactly the same location and orientation without any joint readjustment.** Use the compressed outline in the gasket to set this location.
  - **It has recovered to 80% of its original thickness within 12 hours.** In this case, it may be reused in any location as if it were new.
- **Spare gaskets are provided.**
- **Call the GE factory at (731) 645-6121 to request a free Busway Installation video or to ask questions about your installation.**
- **If any parts are damaged during shipment or installation, replacement parts should be ordered from the factory. On-site repairs of damaged parts should not be attempted.**
Figure 19. Assembly of a typical dripproof, splashproof, or outdoor busway joint. Correct and incorrect assembly of joint shields is illustrated.

Figure 20. Assembly shown without joint caps, wireform springs connected.
Spectra and Spectra II Series™ Plug-In and Feeder Busway
Installing Dripproof, Splashproof, and Outdoor Busway

Figure 21. View of completed joint assembly with joint caps installed.

Figure 22. View of completed joint assembly showing joint caps.
Installing an End Box
An end box, as shown in Figure 23, is available to isolate phases and seal the end of a run. The installation process is as follows:
1. Fasten the isolation joint to the end of the run with two screws.
2. Assemble the box over the isolation joint but do not fasten the wireform springs.
3. Loosely assemble the gasketed joint caps to set the box position to 10 1/4 inches long. Do not remove the joint cap knockouts.
4. Fasten the springs and then tighten the cap bolts.

WARNING: Failure to fasten the isolation joint with screws may result in serious injury or death.

AVERTISSEMENT: Il y a risques de blessures graves ou même de mort si le joint d'isolation n’est pas attaché avec des vis.

Figure 23. End box installed on the end of a run.
**Spectra Series™ Busway - Edge wise Outdoor Elbow Joint**

**Installation and Maintenance Instructions.**

1. Maintain phase alignment using ø side labels.
2. Do not remove joint attachment screws.
3. Align bus within limits shown in the installations torque joint bolt to 50 Lb-ft (68 N-M)
4. Set shield in place and align outside edges with edges of elbow side plates and secure springs.
5. Important: Insert hole in shield "Z" bracket over alignment pin on elbow.
6. Attach joint caps:
   7. A. Secure joint cap corner with ¼-20 screw provided
9. Torque “Set screw” to 18-20 inch Lbs then tighten “lock nut” to joint cap (4) per cap
10. Mega ohm test run before energizing.

Note: 8 – Remove lifting bracket prior to installing joint shields.

---

*Figure 24. Edge wise outdoor Elbow Joint*

*Figure 25. Edge wise outdoor Elbow Joint asm. Instructions.*
Spectra and Spectra II Series™ Plug-In and Feeder Busway

Installing Spectra II Series Busway

Spectra Series™ Busway - Flat wise Outdoor Elbow Joint

Installation and Maintenance Instructions.

1. Maintain phase alignment using ø side labels.
2. Align bus within limits shown in the installations torque joint bolt to 50 Lb-ft (68 N-M)
3. Set shield in place and align outside edges with edges of elbow side plates and secure springs.
4. Important: Attach shields to C-Brackets using 10/32 screws.
5. Attach joint caps:
   6. A. Secure joint cap corner with ¼-20 screw provided
   7. B. Torque bolts: 3/8-25 lb-ft 
      5/16-14-19 Lb-ft
8. Torque “Set screw” to 18-20 inch Lbs then tighten “lock nut” to joint cap (4) per cap
9. Mega ohm test run before energizing.

Figure 26. Flat wise outdoor Elbow Joint.

Figure 27. Flat wise outdoor Elbow Joint asm. Instructions.
Installing Spectra II Series™ Busway

Where To Start
Start the installation, if at all possible, at the most critical point; such as a main feed box, switchboard or switchgear, an elbow, or other critical fitting or termination.

Obstructions
Where a busway run must pass through a wall or floor, an opening one-inch larger than the busway cross-section should be provided. Joints may not occur inside the walls or floors per N.E.C. A flange is available to mask the opening after the busway is installed.

Horizontal Mounting
- Overhead Support: ½” drop rods are recommended. Max. 10 foot spacing. Drop rods and other hardware must be furnished by the installer.
- Maintain a good alignment of the drop rods along the busway run.
- Avoid hanging drop rods at a busway joint.
- After the busway is secured in the hangers, adjust the hangers on the rods for correct elevation.
- Locate the Ø side down on the busway so the plugs will be properly oriented.
- Sway braces may be required to keep the run straight or to prevent rotation (furnished by the installer).

Wall or Column Support: Single rod hangers (Figure 30 and 31) may be used for mounting busway on walls or columns by the addition of an angle support furnished by the installer.

Table 10. Lowamp plug sizes (inches).

<table>
<thead>
<tr>
<th>Device</th>
<th>Plug Dimensions</th>
<th>Plug Overhang Busway Each Side</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Circuit Breakers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-Line</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>SF</td>
<td>21 ¼</td>
<td>9</td>
</tr>
<tr>
<td>Fusible Switches</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30A,60A</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>100A</td>
<td>18 ¼</td>
<td>11 ¼</td>
</tr>
<tr>
<td>200A</td>
<td>18 ¼</td>
<td>16</td>
</tr>
<tr>
<td>400A</td>
<td>18 ¼</td>
<td>20 ½</td>
</tr>
</tbody>
</table>

Door hinges at top for all plugs 400 amp and over. Others hinge at end.

Figure 28
4” minimum provides clearance for 30-100 amp fusible plugs. 7” Minimum for 200 amp fusible plugs. 8” Minimum for all other plugs. See Table 8.

Figure 29. Lowamp plug data.
Table 11 Busway Cross Section

<table>
<thead>
<tr>
<th>Bar Material</th>
<th>Rated Load</th>
<th>Dimension “A”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>225</td>
<td>3</td>
</tr>
<tr>
<td>Aluminum</td>
<td>400</td>
<td>3 3/8</td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>4</td>
</tr>
<tr>
<td>Copper</td>
<td>225</td>
<td>3</td>
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<tr>
<td></td>
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<td>3</td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>3 3/8</td>
</tr>
</tbody>
</table>

Table 12 Plug Weight (lbs)

<table>
<thead>
<tr>
<th>QMR Fusible Switches</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>100</td>
<td>28</td>
</tr>
<tr>
<td>200</td>
<td>46</td>
</tr>
<tr>
<td>400</td>
<td>135</td>
</tr>
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</table>

Table 13 Weight (lbs./ft.) – Busway

<table>
<thead>
<tr>
<th>Ampere</th>
<th>Copper 3-wire</th>
<th>Copper 4-wire</th>
<th>Aluminum 3-wire</th>
<th>Aluminum 4-wire</th>
</tr>
</thead>
<tbody>
<tr>
<td>225</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>400</td>
<td>7</td>
<td>8</td>
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<td>7</td>
</tr>
<tr>
<td>600</td>
<td>8</td>
<td>9</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>800</td>
<td>11</td>
<td>12</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

Installing End Box
- Loosen the screw on back of the end box and separate the end box cap from the end box.
- Slide the end box over the end of the busway and bolt it to the busway. Note: make sure the end box is tightly against the busway.
- Place the end box cap on the end box and bolt it to the busway.
- Tighten the screw on the back of the end box.

Joining Lengths
1. Remove shipping caps from bar end and discard, but retain the bolts.
2. Remove one joint cap from the two pieces to be joined, retaining the bolts. Note that joint pack may be wider than bus.
Spectra and Spectra II Series™ Plug-In and Feeder Busway

Installing Spectra II Series Busway

3. Align sections to be joined by matching up “Ø side” labels attached at ends of each section.
4. If necessary, loosen joint bolt slightly.
5. Slide sections together. Make sure that the busbars interweave the insulators as shown in Figure 36-38. NOTE: the housing ground side plates must pass between the outside insulators and the joint sides.
6. The standard distance between the housings is 9” as shown in Figure 37. However, the joint is also adjustable as shown in Figures 36-38. Simply move the sections in or out to the desired length as shown and remove the twist outs in both joint caps. See Figure 39 NOTE: Remove shipping screw to center joint when adjusting to max. and min. length.
7. Insert mounting screws into the joint cap which is already attached and tighten to align centerlines of the two bus sections.
8. Inspect busway run for the straightness in all planes, and make adjustments, if necessary, for good alignment.
9. Lubrication grease has been applied to the joint bolt head and thread to reduce friction. Do not remove this grease.
10. Tighten the joint bolt to 50 foot-pounds. When the Belleville springs on both sides are flattened, the bolt is fully torqued. The bolt head may be relocated to the opposite side of the busway if it is inaccessible.
11. Install second joint cap and tighten the joint cap screws.
12. During installation occasional meggering should reveal any improperly made assemblies. Resistance should not drop below one megohm for 100 feet of busway. Megger the complete run before energizing.

Joints With +/- .50 Inch Adjustability

To Remove the Joint or Captive Piece of Busway
Should it become necessary to isolate for testing or troubleshooting a piece or run off Spectra and Spectra II Series™ busway the joint is designed for easy removal either during or after installation.
1. De-energize the busway. Remove either joint cap.
2. Remove the shipping screw, illustrated in Figure 37.
3. Grasp the joint sides and pull toward the narrow side of the busway. A gently rocking motion may necessary to aid the joint in sliding out.
NOTE: With the joint removed the busway is segmented and section of the run away from the source is electrically isolated from the source.
4. To reinstall the joint, simply slide the joint back into place. CARE MUST BE TAKEN TO ASSURE SPLICE PLATES AND INSULATORS ARE PROPERLY POSITIONED. It is not necessary to reinstall the shipping screw.
5. Install joint cap(s), as required.
6. Megger at 1000VDC the complete run of busway before energizing.
WARNING: HAZARD AND ELECTRICAL SHOCK OR BURN! The plug must be turned OFF before installing on or removing from the busway. Failure to do so may cause serious injury or death! It is a good safety to de-energize the busway before inserting or removing bus plugs. In the United States, it is necessary to comply with all Federal and local safety procedures, including NFPA 70E 2-1.3 directing the use of appropriate PPE (Personal Protective Equipment) such as face shield, insulating gloves, and flame resistant clothing. In Canada, be sure to comply with the appropriate requirements of the Canadian Electrical Code. Only properly trained personnel may install bus plugs on or remove them from energized busway. In addition, all bus plug installation instructions must be followed completely.

Note the following points concerning busway plugs:
- Inspect the plug before installing on the busway.
- Stab fingers have been lubricated with grease, which should not be removed.
- Dripproof plug-in busway has a dripproof cover over the outlet. Unscrew the cover and reattach the cover to the left side of the outlet, using the screw on the right side of the cover. This relocates the cover so it is out of the way for plug insertion.
- The actuator bar polarizes and locates the plug in the correct position only.
- Plugs are interlocked, permitting engagement and disengagement with the busway only when in the OFF position.
- Place the operating handle at the desired position on the plug and secure it with the screw provided. The NEC requires the ON
handle position to be up and the OFF handle position to be down. If plug-assist has been furnished on the plug, the operating handle may be used as a wrench to operate the mechanism.

- To install a plug where the rear plug hanger interferes with a joint cap, it is necessary to remove the break-off tabs, as shown in the Figure 40B.
- On large plugs, drop rod brackets are provided for auxiliary support of the plug on the horizontal runs.

**CAUTION:** Make certain that the bus plug is level in all orientations with the busway after all connections are completed. Failure to level the plug could result in overheating of the plug connection.

**Installing a Plug Not Equipped with Plug-Assist**
1. Make sure the device is in the OFF position.
2. Loosen the four bolts on the hanger hooks.
3. Align the actuator bar of the bus plug with the vertical actuator bar slot on the shutter and push firmly, the shutter will open and the bus plug stabs fingers will engage the bus bars.
4. Push the stabs into the full contact with the busway.
5. Engage the four hanger hooks with the busway rails and tighten the bolts.

**Installing a Plug Equipped with the Plug-Assist**
1. Make sure the device is in the OFF position and the plug-assist indicator is rotated fully toward the stabs-OUT position.
2. Loosen the four bolts on the hanger hooks.
3. Align the actuator bar of the bus plug with the vertical actuator bar slot on the shutter and attach the line end hanger hooks to the bus rail and tighten.
4. Recheck alignment of actuator and vertical slot and attach load end hanger hooks to bus rail and tighten.
5. Engage bus plug by rotating the plug assist mechanism, the shutter should open and the bus stabs fingers will engage the bus bars. The pointer should indicate “Stabs-IN”.

**NOTE:** On the vertically mounted plugs, push up on the plug to remove the weight of the plug from the alignment pin before tightening the bolts in step 4.

**WARNING:** Be sure that the plug-assist pointer is lined up with the IN position before turning the plug on. Failure to do so may result in serious injury or death.

**Removing a Plug**
First turn the device OFF. Then follow the appropriate procedure above in reverse order.
Busway Maintenance Procedures

Protecting the Busway from Contamination
Be particularly careful during installation to protect the busway from contaminants. Should the busway become contaminated with water, it should be baked dry or replaced. Contact GE for instructions.

Maintenance Procedures
A periodic maintenance schedule should be established to obtain the best service from the busway. An annual check and overall maintenance procedure for the busway, busplug devices, and all connections should be followed as a minimum requirement. Equipment subject to highly repetitive operation may require more frequent maintenance.

Keep a permanent record of all maintenance work. The record should include a list of periodic checks and tests, the dates they were performed, the condition of the equipment, and any repairs or adjustments. Maintenance employees should follow all recognized safety practices, such as those contained in the National Electrical Code, OSHA, and in company or other safety regulations.

Inspecting the Busway
- The busway should be periodically inspected to spot trouble areas or changes in operating condition.
- Remove any accumulations of dust, dirt, or other foreign matter.
- Eliminate moisture from leaks or condensation dripping from pipes.
- Check for any equipment installed near the busway that might cause damage because of external heating.
- Inspect the Belleville washers at the joint to ensure that the springs are flat. Flat washers indicate that proper joint pressure is being maintained. It is not necessary to recheck the torque on joint bolts so long as the visual check is satisfactory. If the washers are not flat, it is recommended to de-energize the busway, completely loosen the joint bolt and re-tighten.

Inspecting Current-Carrying Components

WARNING: De-energize the busway before performing any of the following operations. Failure to do so may result in serious injury or death.

AVERTISSEMENT: Mettez hors tension la canalisation pour barres omnibus avant d'entreprendre n'importe laquelle des opérations suivantes. Il y a risques de blessures graves ou de mort, si cette procédure n'est pas respectée.

- To check joints covered by a shield, as shown in Figure 19, carefully pry out the rubber plug by sliding a screwdriver tip under the plug, pressing in slightly toward the hole center, and prying out. (The bolt head is usually on the side of the bus marked Ø SIDE, but the installer may have reversed the bolt). Tighten the bolt to 50 lb-ft (68 N-m). Clean the outer surface of the shield. Reinstall the rubber plug by hooking in one edge and pressing the plug in place.

NOTE: Il est important de presser plusieurs fois le centre de la fiche boîtier pour l'aligner dans le trou. On peut utiliser du savon liquide pour lubrifier la fiche boîtier si on la réinstalle.

NOTE: It is important to press the center of the plug inward several times to center it in the hole. Liquid soap can be used to lubricate the plug for re-installation.

- Carefully inspect all visible electrical joints and terminations for tightness of bolts, nuts, and other fasteners.
- Check for signs of overheating at joints, terminations, and fuse clips.
- Check for deterioration in insulating material or melting of sealing compound.
- Ensure that the condition that caused any overheating has been eliminated.
Check for missing or broken parts, proper spring tension, free movement, rust or corrosion, dirt, excessive wear, arc spatter, sooty deposits, and tracking. Clean or replace parts as required.

After Seismic event check for proper spring tension and yielding of spring hanger parts. Replace parts as required.

Megohm test at 1000 VDC the system before re-energizing. The resistance should not be below 1 megohm per 100 feet of busway.

For general instructions regarding handling, installation, operation, and maintenance or busway systems rated at 600 volts or less, see NEMA Publication BU1.

Additional procedures for inspection, thermal scanning, safety practices, and maintenance are described in ANSI/NFPA Standard 70B, “Recommended Practice for Electrical Equipment Maintenance” available from the National Fire Protection Association, Quincy, Massachusetts.
## Spectra and Spectra II Series™ Plug-In and Feeder Busway

### Busway Installation Checklist

<table>
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<th>GE Job Number</th>
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1. Was there any shipping damage? Report any minor damage or missing parts to the factory.  
   Be sure to include the item number. ☐ No

2. Proper storage before actual installation.  
   a. Were bus components kept clean and dry? ☐ Yes  
   b. Were bus components exposed to corrosive fumes, liquids, salts, or concrete materials? ☐ No

3. Have you read this installation instruction book? ☐ Yes

   a. Were bus components kept clean and dry? ☐ Yes  
   b. Were bus components exposed to corrosive fumes, liquids, salts, or concrete materials? ☐ No  
   c. Was there any mechanical damage due to handling? ☐ No

5. Did each piece of bus get a pre-installation megohm test?  
   (Individual pieces should megohm test as infinite resistance. Consult the factory if you experience a lower reading.) ☐ Yes

6. Mounting and support.  
   a. Is each 10 feet of bus run supported, including any vertical sections? (Closer supporting may be required, based on job specifications.) ☐ Yes  
   b. Does any support interfere with a bus joint? ☐ No  
   c. Are any bus terminations to other equipment used as support? (Busway weight should not bear on equipment, such as switchgear, switchboards, or transformers.) ☐ No

7. Is the bus installed level and plumb? ☐ Yes

8. Was a periodic megohm test performed as this run was installed? (After every two or three items or as critical items are installed. Joints should be tightened for all megohm testing.) ☐ Yes

9. Has the bus been inspected for proper phasing? ☐ Yes

10. Are all joint bolts properly tightened to 50 lb-ft (68 N-m) torque? ☐ Yes

11. On vertically mounted bus using spring hangers, were the correct settings verified? (See Figure 6 in the installation instructions.) ☐ Yes

12. Did you check for proper clearances for the bus at floors, walls, ceilings, other bus, and trades? (Never use cement to seal between the bus and floors or walls.) ☐ Yes

13. Have all shipping screws been removed from expansion lengths? ☐ Yes

14. Have nonrigid hangers been used beyond the free end of expansion lengths (except at the farthest end) to allow the busway to expand toward the expansion box? ☐ Yes

15. Was all foreign material removed from the installed bus? ☐ Yes

16. Was a final megohm test performed when all bus was installed? (Record readings on the separate sheet provided.) ☐ Yes
Outdoor and Dripproof Bus

17. Verify the orientation of weep holes. Are all open weep holes in joint caps, elbows and shields facing downward? (Do not remove shield plugs or weep-hole plugs in top or side positions.) ☐ Yes

18. Are all drain holes clear in both bus and joint caps? (All construction debris removed.) ☐ Yes

19. Were joints assembled within the width of the housing ground plates? (See outdoor step 4.) ☐ Yes

20. Are 3/8” joint cap bolts properly tightened to 25 ft-lb (34 N-m), and all 5/16” joint cap bolts tightened to 14-18 ft-lb (19-24 N-m)? ☐ Yes

21. Were shields aligned at the edges of housing ground plates and all springs seated properly? ☐ Yes

22. Were isolation joints screwed in place before end boxes (when present) were installed? ☐ Yes

23. Were joint cap knockouts left in to set end boxes to 10 1/4 inches, as shown in Figure 23 of DEH-40087? ☐ Yes

Note: Please list any exceptions made to this checklist and any other comments related to the installation of this run of bus:

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

This checklist is intended to insure a sound installation of GE busway. It is not intended to cover all items related to the installation, successful startup, and long-term use of the product and in no way relieves the contractor of his obligation to meet all specification and code requirements.

Installation Contractor

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

Signed ___________________________  Date ___________________________
# Pre-Energizing Megohm Readings

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These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser’s purposes, the matter should be referred to the GE Company.