600 A 15 kV class bushing adapter for T-OP™ II connector system (including LRTP and bushing extender)

General
Eaton converts its standard Cooper Power™ series 600 A deadbreak interface to a standard 200 A loadbreak interface with our 600 A, 15 kV Class bushing adapter for our T-OP II connector systems allowing for safe testing and grounding. It meets all the requirements of IEEE Std 386™-2006 standard – “Separable Insulated Connector Systems” and is 200 A three-phase switching and three-phase fault close rated.

The 600 A, 15 kV class bushing adapter is a factory assembled loadbreak reducing tap plug (LRTP) and bushing extender. Included separately with the bushing adapter kit is an extended length copper alloy stud. Used with Eaton’s Cooper Power series 200 A insulated protective cap, M.O.V.E. arrester, grounding elbow or loadbreak elbow connector; a bushing adapter provides a fully shielded, submersible, separable connection that meets the requirements of IEEE Std 386™-2006 standard.

LRTP/bushing extender
An LRTP and a bushing extender can be purchased separately and assembled into a bushing adapter. The LRTP provides a means for live testing and visibly grounding and separating 600 A “T” type terminators.

The LRTP has a continuous copper/copper alloy current path from the female contact to the stationary threads. No aluminum current carrying components are used. The LRTP also has an ablative arc interrupter with excellent de-ionizing properties. The body is molded of high quality peroxide cured EPDM insulation and has a molded semiconductive EPDM shield. Three molded drain wire tabs are provided to allow attachment of a drain lead to ensure deadfront construction.
**Installation**

The bushing adapter is installed on a de-energized 600 A interface with an extended length copper alloy stud (see Figure 4), provided with the bushing adapter kit, using a combined operating and test/torque tool (see Figure 8). Refer to Service Information Section S600-59-1 for additional installation instructions.

**Note:** The installation of the adapter can also be accomplished using a separate operating and testing tool (see Figure 6) and torque tool (see Figure 7) or 5/16” hex rod (see Figure 9).

**LRTP/bushing extender**

When an LRTP is purchased separately from the bushing extender, it has a factory installed alignment segment. The alignment segment of the LRTP is threaded into the copper threaded insert of the bushing extender. When proper torqueing and seating of the LRTP is achieved, the alignment segment shear pin disengages the alignment segment for removal. The assembled LRTP and bushing extender is equivalent to the bushing adapter. (Refer to Service Information Section S600-59-1 for additional installation instructions.)

**Production tests**

Tests are conducted in accordance with IEEE Std 386™-2006 standard.

- **ac 60 Hz 1 Minute Withstand**
  - 34 kV
- **Minimum Corona Voltage Level**
  - 11 kV

Tests are conducted in accordance with Eaton requirements.

- **Physical Inspection**
- **Periodic Dissection**
- **Periodic Fluoroscopic Analysis**

**Table 1. Voltage Ratings and Characteristics**

<table>
<thead>
<tr>
<th>Description</th>
<th>kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Voltage Class</td>
<td>15</td>
</tr>
<tr>
<td>Maximum Rating Phase-to-Phase (LRTP 200 A interface only)</td>
<td>14.4</td>
</tr>
<tr>
<td>Maximum Rating Phase-to-Ground</td>
<td>8.3</td>
</tr>
<tr>
<td>ac 60 Hz 1 Minute Withstand</td>
<td>34</td>
</tr>
<tr>
<td>dc 15 Minute Withstand</td>
<td>53</td>
</tr>
<tr>
<td>BIL and Full Wave Crest</td>
<td>95</td>
</tr>
<tr>
<td>Minimum Corona Voltage Level</td>
<td>11</td>
</tr>
</tbody>
</table>

Voltage ratings and characteristics are in accordance with IEEE Std 386™-2006 standard.
Ordering information

To order 15 kV Class bushing adapter kits and loadbreak reducing tap plugs for T-OP II connector system, see Table 3.

Table 3. LRTP and Bushing Adapter Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bushing Adapter (Fig. 1)</td>
<td>DBA615</td>
</tr>
<tr>
<td>Loadbreak Reducing Tap Plug (Fig. 2)</td>
<td>LRTP615</td>
</tr>
<tr>
<td>Bushing Extender (Fig. 3)</td>
<td>DBE625</td>
</tr>
</tbody>
</table>

Each Bushing Adapter Kit contains:
- Bushing Adapter
- Copper Alloy Stud
- Shipping Cap (not for energized operation)
- Silicone Lubricant
- Installation Instruction Sheet

Each LRTP Kit contains:
- Loadbreak Reducing Tap Plug
- Copper Alloy Stud
- Shipping Cap (not for energized operation)
- Silicone Lubricant
- Installation Instruction Sheet
Figure 5. Catalog Number TWRENCH.
The T-Wrench is used to install the Loadbreak Reducing Tap Plug into the Bushing Extender.

Table 5. Tools and Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating and Testing Tool with Cap (Fig. 6)</td>
<td>OT615</td>
</tr>
<tr>
<td>Torque Tool (Fig. 7)</td>
<td>TQHD625</td>
</tr>
<tr>
<td>T-Wrench (Fig. 5)</td>
<td>TWRENCH</td>
</tr>
<tr>
<td>Combined Operating and Test/Torque Tool (Fig. 8)</td>
<td>OTTQ615</td>
</tr>
<tr>
<td>5/16” Hex Shaft with 3/8” Socket Drive Tool (Fig. 9)</td>
<td>HD625</td>
</tr>
</tbody>
</table>

The Operating and Testing Tool is used with a hotstick to test for circuit de-energization and to install and remove a 15 kV Class LRTP equipped connector from an apparatus tap. The standard tool is equipped with a molded EPDM rubber cap to ensure tool seating and gripping of the T-OP II connector.

Figure 6. Catalog Number OT615.

The Torque Tool is required to check the torque of a 15 kV Class T-OP II deadbreak connector or bushing adapter when it is installed on a 600 A bushing interface. It is precision calibrated and shotgun stick operable.

Figure 7. Catalog Number TQHD625.

The combination Operating and Test/Torque Tool is used with a hotstick to test for circuit de-energization and to install and remove a 15 kV Class LRTP equipped connector from an apparatus tap. The standard tool is equipped with a molded EPDM rubber cap and torque limiter to allow proper tool seating and gripping of the T-OP II connector. It also ensures that the connector has been properly torqued into the mating bushing.

Figure 8. Catalog Number OTTQ615.

Figure 9. Catalog Number HD625.
5/16” Hex Shaft with 3/8” socket drive tool.

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