WARNING: Fire and shock hazard. This heat-tracing system must be installed correctly to ensure proper operation and to prevent shock and fire. Read these important warnings and carefully follow all the installation instructions.

- To comply with Raychem requirements, agency certifications, and the National Electrical Code, and to protect against the risk of fire, ground-fault equipment protection must be used on each heating-cable circuit. Arcing may not be stopped by conventional circuit breakers.

- Approvals and performance are based on the use of Raychem-specified parts only. Do not substitute parts or use vinyl electrical tape.

- Bus wires will short if they contact each other. Keep bus wires separated.

- Components and cable ends must be kept dry before and during installation.

- The black heating-cable core and fibers are conductive and can short. They must be properly insulated and kept dry.

- Damaged bus wires can overheat or short. Do not break bus wire strands when scoring the jacket or core.

- Damaged heating-cable can cause electrical arcing or fire. Do not use metal attachments such as pipe straps or tie wire. Use only Raychem-approved tapes and cable ties to secure the cable to the pipe.

- Do not attempt to repair or energize damaged cable. Remove damaged sections at once and replace them with a new length using the appropriate Raychem splice kit. Replace damaged components.

- Use only fire-resistant insulation materials such as fiberglass wrap or flame-retardant foams.

**Note:** Pipes are shown without insulation for illustrative purposes only. All pipe installations must be fully covered with thermal insulation.
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General Information

Use of the Manual

This manual covers the installation of Raychem XL-Trace self-regulating heat-tracing cables and connections for commercial construction pipe systems in ordinary (nonhazardous) areas. The manual covers general heating-cable installation procedures and specific installation details and shows available components for the different applications. The manual also discusses controls, testing, and periodic maintenance.

This manual assumes that the proper heat-tracing design has been completed according to the XL-Trace System Application and Design Guide (H55838). Only the applications described below are approved by Raychem for XL-Trace systems when used with approved Raychem connection component systems. The instructions in this manual and the installation instructions included with the connection component kits must be followed for the Raychem warranty to apply. Contact your Raychem representative for other applications and products.

XL-Trace Applications

XL-Trace heat-tracing systems are approved and qualified for the applications listed below. See the table on page 2 for application approvals.

Freeze protection

• General water piping. Freeze protection (40°F minimum) of insulated metallic or plastic water piping.

• Sprinkler piping systems. Freeze protection (40°F minimum) of insulated metallic standpipes and sprinkler piping up to 4", not containing control valves or sprinkler heads.

Flow maintenance

• Grease lines. Flow maintenance (110°F minimum) of insulated metallic grease disposal lines.

• Fuel lines. Flow maintenance (40°F minimum) for insulated metallic piping containing #2 fuel oil.

For heating-cable applications other than those listed above, please see your Raychem representative or call Raychem at (800) 545-6258.

Safety Guidelines

The safety and reliability of any heat-tracing system depends on both the quality of the products selected and the manner in which they are designed, installed, and maintained. Incorrect handling, installation, or maintenance of any of the system components can cause underheating or overheating of the pipe or damage to the heating-cable system and may result in system failure, electric shock, or fire. The information, warnings, and instructions contained in this guide are important. Read and follow them carefully to minimize these risks and to ensure that the system performs reliably.

Throughout the guide the following symbol:

WARNING:

identifies important safety warnings that must be followed to reduce risk of fire.
Codes and Approvals

Installation of an XL-Trace heat-tracing system is governed by Article 427, Fixed Electric Heating Equipment for Pipelines and Vessels, of the National Electrical Code (NEC) and Part 1, Section 62 (Fixed Electric Space and Surface Heating) of the Canadian Electrical Code (CEC). Raychem, the NEC, and CEC all require the use of ground-fault protection equipment to reduce the risk of fire caused by damage or improper installation. All installations must also comply with applicable local codes and standards.

XL-Trace systems carry the following agency approvals:

<table>
<thead>
<tr>
<th></th>
<th>UL</th>
<th>ULC</th>
<th>CSA</th>
<th>FM</th>
</tr>
</thead>
<tbody>
<tr>
<td>General water piping freeze protection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Buried water pipe freeze protection</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Sprinkler piping systems</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Grease line flow maintenance (-CT only)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Fuel line flow maintenance (-CT only)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

⚠️ WARNING: To minimize the danger of fire if the heating cable is damaged or improperly installed, use a ground-fault protection device with a nominal 30-mA trip level. Electrical fault currents may be insufficient to trip a conventional circuit breaker.
Installation Guidelines

Heating Cable Storage

Store the heating-cable and components in a clean, dry place. Store them at temperatures between –40°F and 140°F (–40°C and 60°C).

Do not store the heating-cable in high-traffic areas. Protect it from mechanical damage.

Preinstallation Checks

Step 1. Check the materials received

- Verify the heating-cable catalog number and quantity against the bill of materials. The heating-cable catalog number is printed on the cable jacket, immediately following the words “HEATING CABLE.”

- Inspect the heating-cable and components for in-transit damage.

- Measure the cable insulation resistance for each reel by using the procedure outlined for Test A, in Heating Cable Testing on page 13.

Step 2. Check the pipe to be heat-traced

- Verify that the pipe has been pressure-tested, and that all equipment and supports are installed.

- Verify that any paint or coatings used on the pipe are dry.

- Walk the pipe system and plan the routing of the heating-cable on the pipe. Mark the location of power connections, splices, and tees on the pipe.

- Remove any sharp edges or burrs that could damage the heating-cable.

Step 3. Plan the installation

Compare design drawings with the actual pipe and note any differences in:

- Pipe length and pipe sizes.

- The number of valves, indicator gauges, flanges, and other components.

- The number of pipe supports. These may not be marked on the design drawing, but there should be a note indicating the amount of heating-cable designed into each circuit for pipe supports.
Heating Cable Installation

Heating-cable installation involves three basic steps:
1. Paying out the cable.
2. Attaching the cable to the pipe.
3. Wrapping heat sinks.

1. Paying out the cable

Mount the reel on a holder and place it near either end of the pipe run to be traced. Use a reel holder that pays out smoothly with little tension as shown in figure 1. Avoid jerking the cable while pulling.

Pay out the cable and loosely string it along the pipe, making sure that the cable is always next to the pipe when crossing obstacles. If the cable is on the wrong side of a crossing pipe or I-beam, you will have to reinstall it or cut and splice it.

Figure 1. Paying out the cable
2. Attaching the heating-cable

Once the heating-cable has been run for the entire section, begin fastening it to the pipe. Start at the end and work toward the reel. The additional heating-cable required for heat sinks is shown in Table 1. Refer to page 9 for the additional heating-cable required for components. The heating-cable may be installed straight, spiraled, or in multiple runs as required by the design.

---

**Table 1. Required Additional Footage of XL-Trace Heating Cable**

<table>
<thead>
<tr>
<th>Heat sinks</th>
<th>Feet per item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gate</td>
<td>4.3</td>
</tr>
<tr>
<td>Butterfly</td>
<td>2.0</td>
</tr>
<tr>
<td>Ball</td>
<td>2.6</td>
</tr>
<tr>
<td>Globe</td>
<td>3.9</td>
</tr>
<tr>
<td>Flanges</td>
<td>2.0 x pipe diameter (in feet)</td>
</tr>
<tr>
<td>Pipe supports</td>
<td>3.0 x pipe diameter (in feet)</td>
</tr>
</tbody>
</table>

Note: For applications in which more than one cable is required per foot of pipe, the correction factor applies to each run of cable.
Whenever possible, position the heating-cable on the lower section of the pipe as shown in Figure 3, to protect it from damage.

Figure 3. Positioning the heating-cable

Securing the heating-cable

**WARNING:** Damage to the heating cable can cause electrical arcing or fire. Do not use metal attachments such as pipe straps or tie wire. Use only Raychem-approved tapes or cable ties.

**Important:**
Before taping the heating-cable to the pipe, make sure all heat-tracing allowances for flanges, valves, supports, and other components have been verified.

Use one of the following Raychem attachment methods to secure the heating-cable onto the pipe: GT-66 or GS-54 glass cloth tape, AT-180 aluminum tape, or cable ties.

**A. Glass cloth adhesive tape**
- GT-66 (66-foot roll) general-purpose tape for installation at 40°F (5°C) and above. Apply at 1-foot intervals.
- GS-54 (54-foot roll) general-purpose tape for installation below 40°F (5°C). Apply at 1-foot intervals.

**B. AT-180 aluminum tape**
- Required for plastic pipe applications to ensure proper power output of cable.
- Tape lengthwise over the heating-cable as required by the design drawing or specification (see Figure 4).
- Recommended for heat-tracing pump bodies or odd-shaped equipment, or as called out in the design drawing as a heat-transfer aid.
- Install at temperatures above 32°F (0°C).

**C. Cable ties**
- Recommended in applications where the pipe surface prevents proper tape adhesion.
- Use plastic cable ties only.
- Cable ties must be hand-tightened only to prevent damage to heating-cable!
3. Wrapping the heat sinks

Once the straight sections are secured the heating-cable can be secured to the heat sinks. Attach the heating-cable to the heat sinks according to Figure 5 below.

Welded pipe shoe (side view)

Flange

Loop length is twice the diameter of the pipe.

Elbow

Dead leg tee

For pipe diameters of 2” and larger, the heating cable should be installed on the outside (long) radius of the elbow.

Pressure gauge

Split-case centrifugal pump

Do not trace motor.

Valve (typical)

Figure 5. Wrapping methods
Heating Cable Connections

General Requirements

All XL-Trace systems require a power connection and end seal kit. Splice and tee kits are used as required. Use Table 2 (for above-ground applications) and Table 3 (for below-ground applications) to select the appropriate components.

- When practical, mount connection kits on top of the pipe. Electrical conduit leading to power connection kits must have low-point drains installed to avoid condensation entry into the heating system. All heating-cable connections must be mounted above grade level.

**WARNING:** Component approvals and performance are based on the use of specified parts only. Do not use substitute parts or vinyl electrical tape. Follow Installation Instructions provided with each kit.

Aboveground Piping

Table 2. Components and Accessories

Use this table for general aboveground piping, sprinkler piping, and grease and fuel lines. Develop a bill of materials from the components listed below. Allow extra heating-cable for ease of component installation.

**Components**

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Description</th>
<th>Std. Pkg.</th>
<th>Heating-cable allowance*</th>
</tr>
</thead>
<tbody>
<tr>
<td>RayClic-PC 1,4</td>
<td>Power connection and end seal kit; use 1 per circuit.</td>
<td>1</td>
<td>2 ft (0.6 m)</td>
</tr>
<tr>
<td>RayClic-S 1,3,4</td>
<td>Splice used to join two sections of heating-cable.</td>
<td>1</td>
<td>2 ft (0.6 m)</td>
</tr>
<tr>
<td>RayClic-T 1,3</td>
<td>Tee kit with end seal; use as needed for pipe branches.</td>
<td>1</td>
<td>2 ft (0.6 m)</td>
</tr>
<tr>
<td>FTC-HST 2</td>
<td>Low-profile splice/tee; use as needed for pipe branches.</td>
<td>2</td>
<td>3 ft (0.9 m)</td>
</tr>
<tr>
<td>RayClic-E 4</td>
<td>Replacement end seal.</td>
<td>1</td>
<td>0.3 ft (0.1 m)</td>
</tr>
</tbody>
</table>

*For ease of component installation, allow extra heating-cable.

**Accessories**

<table>
<thead>
<tr>
<th>Catalog no.</th>
<th>Description</th>
<th>Std. pkg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETL</td>
<td>&quot;Electric Traced&quot; label (use 1 label per 10 feet of pipe).</td>
<td>10 labels</td>
</tr>
<tr>
<td>GT-66</td>
<td>Glass cloth adhesive tape for attaching cable to pipe at 40°F (5°C) or above. See Table 4.</td>
<td>66 ft</td>
</tr>
<tr>
<td>GS-54</td>
<td>Glass cloth adhesive tape for attaching cable to pipe above −40°F (−40°C). See Table 4.</td>
<td>54 ft</td>
</tr>
<tr>
<td>AT-180</td>
<td>Aluminum tape. Required for attaching cable to plastic pipe (use 1 foot of tape per foot of heating-cable).</td>
<td>180 ft</td>
</tr>
<tr>
<td>RayClic-SB-04</td>
<td>Pipe mounting bracket. Required for grease and fuel line splices and tees.</td>
<td>1 ea</td>
</tr>
</tbody>
</table>

1 Powered splice, powered tee, and cross (tee with three legs) connections are also available. 2 Not permitted with grease or fuel lines. 3 For grease and fuel lines, install tees and splices on pipe mounting bracket (RayClic-SB-04). 4 F grease and fuel lines install end seal off the pipe in junction box.
**Buried Piping**

![Diagram of buried piping system](image)

**Table 3. Components and Accessories**

Use this table for buried water piping and grease lines. Note that all connections must be above ground, and no splices/tees are allowed. Develop a bill of materials from the components listed below.

<table>
<thead>
<tr>
<th>Components</th>
<th>Catalog No.</th>
<th>Description</th>
<th>Std. pkg.</th>
<th>Heating cable allowance*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FTC-XC</td>
<td>Power connection and end seal kit. Junction box supplied by customer. Use 1 per circuit + conduit lengths.</td>
<td>1</td>
<td>2 ft (0.6 m)</td>
</tr>
<tr>
<td></td>
<td>RayClic-E</td>
<td>Replacement end seal.</td>
<td>1</td>
<td>0.3 ft (0.1 m)</td>
</tr>
</tbody>
</table>

*For ease of component installation, allow extra heating-cable.

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Catalog no.</th>
<th>Description</th>
<th>Std. pkg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETL</td>
<td>“Electric Traced” label (use 1 label per 10 feet of pipe).</td>
<td>10 labels</td>
<td></td>
</tr>
<tr>
<td>GT-66</td>
<td>Glass cloth adhesive tape for attaching cable to pipe at 40°F (5°C) or above. See Table 4.</td>
<td>66 ft</td>
<td></td>
</tr>
<tr>
<td>GS-54</td>
<td>Glass cloth adhesive tape for attaching cable to pipe above –40°F (–40°C). See Table 4.</td>
<td>54 ft</td>
<td></td>
</tr>
<tr>
<td>AT-180</td>
<td>Aluminum tape. Required for attaching cable to plastic pipe (use 1 foot of tape per foot of heating-cable).</td>
<td>180 ft</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4. Quantity of Glass Cloth Adhesive Tape Required (attach at 1-foot intervals)**

<table>
<thead>
<tr>
<th>Pipe size (in)</th>
<th>&lt;2</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feet of pipe per GT-66 roll</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>25</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Feet of pipe per GS-54 roll</td>
<td>49</td>
<td>41</td>
<td>33</td>
<td>20</td>
<td>16</td>
<td>12</td>
</tr>
</tbody>
</table>
Temperature Controls

The most common type of control system is a thermostat. Though more sophisticated control systems are available, this section deals with thermostats only. Refer to the appropriate MoniTrace installation instructions if required.

- Make sure that the heating-cable load you are connecting is within the rating of the thermostat switch. Check the design drawings for the heating-cable load.
- The electrical conduit that feeds wiring to the thermostat must have a low-point drain so condensation will not enter the thermostat enclosure.
- Make sure that the line voltage you are connecting to the thermostat is correct. For proper wiring, follow the installation instructions enclosed with the thermostat.

Ambient-Sensing Thermostats

Ambient-sensing thermostats energize the circuit when the ambient temperature drops below the set point.

- Mount the thermostats above grade level and out of sunlight.
- Mount the thermostat where it will be exposed to the coldest temperature and the highest wind.

Line-Sensing Thermostats

Line-sensing thermostats sense the pipe temperature by means of a bulb attached to the pipe and connected to the thermostat body via a capillary tube.

- Install the sensing bulb on the pipe at a 90-degree angle from the heating-cable so that the heating-cable does not thermally interfere with the sensing bulb. Be sure the sensing bulb is firmly attached with aluminum tape to the pipe in order to get good thermal contact between the bulb and the pipe.
- Locate the bulb at least 3 feet (1 meter) from any heat sinks, such as valves, pipe supports, and pumps. Ideally, the bulb should be located at the end of the heating-cable circuit.
- Be sure that you have set the control to the proper temperature.
- Mount the thermostat on a nearby wall or support, or install a mounting stanchion. Thermostats must be mounted above grade level. In all cases, protect the capillary tube from physical damage. To prevent damage, mount the thermostat and the capillary tube where they will be away from foot and equipment traffic.
- To prevent water entry, seal the insulation where the capillary tube exits the insulation.
Wiring Schematic for Thermostat

The following is a typical wiring schematic for a thermostat.

**Figure 6. Heat-tracing control**

**Figure 7. Contactor control**
Heating Cable Testing

Insulation resistance testing is a reliable indicator of the electrical integrity of the system when all the installation instructions are properly followed.

Insulation resistance testing is recommended at seven stages during the installation process and as part of regularly scheduled maintenance. Accordingly, perform the testing:

- Before installing the cable
- Before installing components
- Before installing the thermal insulation
- After installing the thermal insulation
- Prior to initial start-up
- As part of the regular system inspection
- After any maintenance or repair work

Insulation Resistance Testing

Insulation resistance testing is done to ensure that the heating-cable jacket is not damaged. If the heating-cable jacket is damaged, it must be repaired. A damaged Heating Cable—powered or unpowered—can be a safety hazard and will shorten the life of the heating cable.

Insulation resistance testing (with a megohmmeter) should be conducted at three voltages: 500, 1000, and 2500 Vdc. Significant problems may go undetected if testing is done only at 500 or 1000 volts.

Figure 7. Measuring the cable insulation resistance

Test A: Inner Dielectric Jacket Integrity Test. Measure the resistance between the heating-cable bus wires and the braid at all three voltages, as indicated in the steps below.

Test B: Outer Jacket Integrity Test. Measure the insulation resistance between the braid and the metal pipe at all three voltages, as indicated in the steps below.

Procedure:
1. Disconnect power to the circuit and lock out power to the thermostat, if installed.
2. Disconnect the power connection at the junction box.
3. Connect the negative (–) lead to the heating-cable metallic braid.
4a. Connect the positive (+) lead to both heating-cable bus wires simultaneously.
4b. Connect the positive (+) lead to metallic pipe.
5. Turn on the megohmmeter and set the voltage to 500 Vdc; apply the voltage for 1 minute. Record the insulation resistance in the Inspection Record (see Appendix).
6. Repeat Step 5 at 1000 and 2500 Vdc.
7. Turn off the megohmmeter.
8. Discharge phase connections to ground with a suitable grounding rod if the megohmmeter does not self-discharge. Disconnect the megohmmeter.
9. Reconnect the heating cable if it passes.
Insulation Resistance Criteria

A clean, dry, properly installed circuit should measure thousands of megohms, regardless of the heating cable length or measuring voltage (500–2500 Vdc). The following criteria are provided to assist you in determining the acceptability of an installation where optimum conditions may not apply:

* All insulation resistance values should be greater than 1000 megohms.
* In each case the needle should move steadily toward the \( \infty \) resistance mark. Any erratic movement indicates a problem. (Be sure the megohmmeter is operating properly).
* Insulation resistance values from Test A, for any particular circuit, should not vary more than 25 percent as a function of measuring voltage. A decreasing reading indicates there is a high-resistance fault.
* Insulation resistance values from Test B, for any particular circuit, should not vary more than 25 percent as a function of measuring voltage.
* If any of the above conditions is not met, consult the Troubleshooting diagram on the next page.
Troubleshooting

Cold Pipe

- Is circuit breaker tripped?
  - Yes
    - Will the circuit breaker reset?
      - Yes
        - Test the insulation resistance of the heating cable (see page 13).
      - No
        - Is there any visible damage?
          - Yes
            - Repair heating cable.
          - No
            - Test the insulation resistance of the heating cable (see page 13).
              - Does it pass?
                - Yes
                  - Call Tyco Thermal Controls at:
                    - United States
                      - (800) 545-6258
                    - Canada
                      - (800) 545-6258
                    - Argentina
                      - (54 11) 4 814-5000
                - No
                  - Repair heating cable damage.
              - No
                - Will the circuit breaker reset?
                  - Yes
                    - Stop
                  - No
                    - Is the correct heating cable installed per design?
                      - Yes
                        - Install the correct heating cable.
                      - No
                        - Split into multiple circuits.
            - No
              - Is the correct voltage being supplied to the cable?
                - Yes
                  - Test the insulation resistance of the heating cable (see page 13).
                - No
                  - Supply the correct voltage.
            - No
              - Is the correct voltage indicated at the cable ends?
                - Yes
                  - Fix, repair, or replace the insulation.
                - No
                  - Is the thermal insulation wet, not adequate or missing?
                    - Yes
                      - Fix, repair, or replace the insulation.
                    - No
                      - Split into multiple circuits.
            - No
              - Has the minimum ambient for the design been exceeded?
                - Yes
                  - Revise design, add insulation, or change heating cable.
                - No
                  - Repair heating cable damage.

- No
  - Is the correct heating cable installed per design?
    - Yes
      - Supply the correct voltage.
    - No
      - Test the insulation resistance of the heating cable (see page 13).
        - Does it pass?
          - Yes
            - Call Tyco Thermal Controls at:
              - United States
                - (800) 545-6258
              - Canada
                - (800) 545-6258
              - Argentina
                - (54 11) 4 814-5000
          - No
            - Is the correct heating cable installed per design?
              - Yes
                - Install the correct heating cable.
              - No
                - Split into multiple circuits.
      - No
        - Is the correct voltage being supplied to the cable?
          - Yes
            - Supply the correct voltage.
          - No
            - Test the insulation resistance of the heating cable (see page 13).
              - Does it pass?
                - Yes
                  - Call Tyco Thermal Controls at:
                    - United States
                      - (800) 545-6258
                    - Canada
                      - (800) 545-6258
                    - Argentina
                      - (54 11) 4 814-5000
                - No
                  - Repair heating cable damage.
            - No
              - Is the correct voltage indicated at the cable ends?
                - Yes
                  - Fix, repair, or replace the insulation.
                - No
                  - Is the thermal insulation wet, not adequate or missing?
                    - Yes
                      - Fix, repair, or replace the insulation.
                    - No
                      - Split into multiple circuits.
              - No
                - Has the minimum ambient for the design been exceeded?
                  - Yes
                    - Revise design, add insulation, or change heating cable.
                  - No
                    - Repair heating cable damage.
## Appendix: Inspection Record

### Raychem

#### INSPECTION RECORD

<table>
<thead>
<tr>
<th>Job Name:</th>
<th>Area Type:</th>
<th>Inspected:</th>
<th>Date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Circuit #</th>
<th>Visual inspection inside connection boxes for signs of loose connections, moisture, overheating, corrosion, and other problems.</th>
<th>Circuit #</th>
<th>Circuit #</th>
<th>Circuit #</th>
<th>Circuit #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Provided electrical connection, protected by 30-mA GFPD.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Damaged or wet thermal insulation; damaged, missing, or cracked lagging or weatherproofing; gaps in caulking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>End seal, covered splices, and tees properly labeled on insulation cladding.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thermostats checked for moisture, corrosion, set point, switch operation, capillary damage, and protection.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Megohmmeter test</th>
<th>Ohms</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test A 500 V</td>
<td>1000</td>
<td>2500 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test B 500 V</td>
<td>1000</td>
<td>2500 V</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power check</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit voltage</td>
<td>Panel</td>
<td>Power connection</td>
<td>Circuit end</td>
<td></td>
</tr>
<tr>
<td>Circuit amps after 10 min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipe temperature (°F)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power = Volts x Amps/feet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>