Type VR Electrically Operated Ground and Test Device with Permissive Switch
Class 6055

Instruction Bulletin
Retain for future use.
NOTICE

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠️ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

⚠️ CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in property damage.

NOTE: Provides additional information to clarify or simplify a procedure.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified electrical personnel. This document is not intended as an instruction manual for untrained persons. No responsibility is assumed by Square D for any consequences arising out of the use of this manual.
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SECTION 1—INTRODUCTION

This bulletin provides initial device preparation, preliminary checks and operation, and maintenance instructions for the electrically operated ground and test (G&T) device. This device is an auxiliary device for use with 4.76 kV to 15.0 kV Masterclad® switchgear during initial installation and maintenance. It provides a convenient means for grounding cables/circuits when needed. It also extends the primary terminals of the switchgear through receptacles which are covered with an interlocked shutter to the front of the device, making them accessible to the operator for testing.

The G&T device can be used with switchgear assemblies of up to 49 kA symmetrical short-circuit current rating. It is designed for use in the lower circuit breaker compartment; the primary contacts fit both the 1200 A and 2000 A circuit breaker compartment contacts. The device operates on 125 Vdc control power.

This G&T device has been designed and tested per ANSI/IEEE C37.20.6 - Standard for Medium Voltage Ground and Test Devices Used in Enclosures. The following components (Figure 1) are furnished with the G&T device:

- G&T device with 1200 A/2000 A main contacts
- High voltage test plugs (Quantity 3)
- Remote control operating station

Figure 1: 3-Port Ground and Test Device (Front View)
DESCRIPTION

General

This G&T device is designed to be used for grounding or testing the upper primary contacts in a lower circuit breaker compartment only. The upper primary contacts are fully rated for testing and grounding.

The three upper primary contacts of the device are connected to each other through individual vacuum bottles to a solid copper bar, and to the ground contacts. To use this device for power frequency withstand (hi-pot) or other tests, all phases are brought to the front and connected to the test ports. A connector test plug with cable attached can be inserted in these ports for tests or measurements (Figure 3 on page 7).

NOTE: The cable is supplied by the customer.

Test Port Shutter

A test port shutter (Figure 1 on page 5) is located over the primary test ports. The shutter can be opened by pushing the handles to the right to insert test plugs or for metering. A key interlock (Lock #5) is used to lock the test port shutter in the OPEN or CLOSED position.

Remote Control Cable

A remote control cable with CLOSE (I) and OPEN (O) push buttons is furnished for operating the device from a distance.

Interlocks

Interlock brackets are provided in circuit breaker compartments that do not require a G&T device. Refer to the switchgear customer order drawings for interlock details and locations.

Permissive Switch

A three-position, permissive control transfer switch (see Figure 1 on page 5, Figure 3 on page 7, and Figure 5 on page 8) is located on the front of the device. The three positions are:

CLOSE—The circuit to the stored energy mechanism is complete; the open circuit is open; device cannot be electrically opened.

OFF—The close and open circuits are open; device cannot be electrically opened or closed.

OPEN—The open circuit is complete; the close circuit is open, and the open mechanism is free to operate; device cannot be electrically closed.

Permissive Switch Key Interlock

Lock #1

The G&T device can be operated only using the remote control unit. A permissive switch key interlock is located on the front of the device (Figure 1 on page 5), and is used to lock the device in the OFF position, electrically disabling the device.

Open Indicator Key Interlock

Lock #2

The OPEN indicator key interlock is located on the front of the device (Figure 1 on page 5). This interlock is used to mechanically block the device in the OPEN position.

Racking Block Key Interlock

Lock #3

The racking block key interlock is located on the front of the device (Figure 1 on page 5). This interlock will prevent racking of the device when engaged.

Closed Indicator Key Interlock

Lock #4

The CLOSED indicator key interlock is located on the front of the device (Figure 1 on page 5). This interlock will mechanically block the device in the CLOSED position when engaged.

Test Port Shutter Key Interlock

Lock #5

The test port shutter key interlock is located on the front of the device (Figure 1 on page 5). This interlock will lock test plugs in the CONNECTED position when engaged.
Figure 2: **Primary Test Plug Assembly**

- Cable (provided by customer)
- Primary test plug
- Set screw
- Removable pin
- Shutter

Figure 3: **Ground and Test Device (Sectional View)**

- Upper primary contact (for testing or grounding)
- Vacuum interrupter
- Ground bus
- Ground contacts
- Lifting hole
- Pull handle
- Permissive control transfer switch
- Primary test port
- Test port shutter

Figure 4: **Voltage Path Diagram**

- Primary test port
- Vacuum interrupter
- Ground contact
- Upper primary contact
Figure 5: Ground and Test Device (Side View)

Figure 6: Ground and Test Device (Rear View)
SECTION 2—SAFETY PRECAUTIONS

This section contains important safety precautions that must be followed before attempting to install, service, or maintain electrical equipment. Carefully read and follow the safety precautions outlined below.

⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Only qualified personnel familiar with medium voltage equipment are to perform work described in this set of instructions. Workers must understand the hazards involved in working with or near medium voltage circuits.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Perform such work only after reading and understanding all of the instructions in this bulletin.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume all circuits are live until they are completely de-energized, tested, grounded, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Handle this equipment carefully and install, operate, and maintain it correctly in order for it to function properly. Neglecting fundamental installation and maintenance requirements may lead to personal injury, as well as damage to electrical equipment or other property.
- Do not make any modifications to the equipment or operate the system with the interlocks removed. Contact your local Schneider Electric representative for additional instructions if the equipment does not function as described in this manual.
- Carefully inspect your work area and remove any tools and objects left inside the equipment.
- Replace all devices, doors and covers before turning on power to this equipment.
- All instructions in this manual are written with the assumption that the customer has taken these measures before performing maintenance or testing.

Failure to follow these instructions will result in death or serious injury.
SECTION 3—RECEIVING, HANDLING AND STORAGE

RECEIVING

The Ground and Test (G&T) device is shipped on a pallet. Do NOT stack G&T devices.

**CAUTION**

**HAZARD OF EQUIPMENT DAMAGE**

DO NOT STACK G&T devices. The G&T devices are not designed to support the weight of other devices.

**Failure to follow this instruction can result in equipment damage.**

Upon receipt, check the packing list against the equipment received and verify the order and shipment are complete. Claims for shortages or errors must be made in writing to Schneider Electric within 60 days after delivery. Failure to give such notice will constitute unqualified acceptance and a waiver of all such claims by the purchaser.

Immediately inspect the equipment for any damage which may have occurred in transit. If damage is found or suspected, file a claim with the carrier immediately and notify Schneider Electric. Delivery of equipment to a carrier at any of the Schneider Electric / Square D plants or other shipping points constitutes delivery to the purchaser regardless of freight payment and title. All risk of loss or damage pass to purchaser at that time.

Refer to Schneider Electric “Terms and Conditions of Sale” for details concerning claims for equipment shortages and other errors.

HANDLING

**CAUTION**

**IMPROPER LIFTING AND HANDLING OF EQUIPMENT CAN CAUSE DAMAGE**

- Do not lift the G&T device by placing forklift bars directly beneath the frame.
- Do not use the primary contacts as lifting handles.

**Failure to follow these instructions can result in injury or equipment damage.**

Use care when uncrating and handling the G&T device. Roll and maneuver the G&T device by grasping the top edge of the front cover or the pull handles (Figure 7 on page 11). Do not use the primary contacts as lifting handles. When lifting the G&T device by a hoist, use the two holes in the side of the frame (Figure 7 on page 11). The G&T device should only be lifted or moved by a forklift when the equipment is on a pallet. Do not lift the G&T device by placing forklift bars directly beneath the G&T device frame.
STORAGE

Keep the equipment in a clean, dry, corrosion-free environment protected from damage.

Figure 7: Handling Provisions
SECTION 4—INSTALLATION

PRE-INSTALLATION PROCEDURES

Follow these steps before installing the device into the switchgear.

- Verify that all primary and grounded connections are tight.
- Lightly coat all contact surfaces and primary contact fingers with Mobilgrease® 28 (Square D part # 1615-100950).
- Clean any dust and contaminates from insulated parts.
- Remove all tools and miscellaneous items left on this device before installing the device into the circuit breaker compartment.
- Check the operation of the ground and test (G&T) device. Connect both the secondary control plug and remote control cable, and operate the device a few times.

NOTE: Use a test jumper or test cabinet for control power through the secondary control plug.

HI-POT (DIELECTRIC) TEST

When performing the hi-pot test:

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Do not exceed the voltages specified in Table 1.
- Keep all persons at least six feet (1.8 m) away from the G&T device being tested.
- Discharge to ground the primary contacts before handling. These areas can retain a static charge after a hi-pot test.

Failure to follow these instructions will result in death or serious injury.

Table 1: Hi-Pot Test Voltages

<table>
<thead>
<tr>
<th>Rating</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 kV</td>
<td>14 kV</td>
<td>20 kV</td>
</tr>
<tr>
<td>15 kV</td>
<td>27 kV</td>
<td>38 kV</td>
</tr>
</tbody>
</table>

1. To ensure that the G&T device is not damaged, perform a power frequency withstand (hi-pot) test across the open contacts of each vacuum interrupter. Gradually raise the voltage to the levels indicated in Table 1 and maintain for one minute.

2. With the ground and test device in the OPEN (O) position, perform a phase-to-ground hi-pot test for each pole. Gradually raise the voltage to the levels indicated in Table 1 and maintain for one minute.
3. Upon completing the hi-pot test, discharge the primary contact stabs to ground.

4. Verify that the device sustained the specified voltage without flashover for one minute. If the device did not sustain specified voltage without flashover for one minute, repeat the test. If satisfactory results are not achieved, contact your local Schneider Electric field sales representative.

PREPARING THE G&T DEVICE FOR INSTALLATION

Follow steps 1–4 before installing the G&T device into the circuit breaker compartment.

1. Check applicable drawings to identify the correct circuit to be grounded or tested.

2. Verify the device is in the OPEN position; check the contact position indicator on the front of the device (Figure 1 on page 5).

3. Verify the permissive control transfer switch is in the OFF position and locked using the permissive switch key interlock (Lock #1).

4. Verify the remote control operating station is disconnected and removed from the device.

INSTALLING THE DEVICE INTO THE LOWER CIRCUIT BREAKER COMPARTMENT TEST/DISCONNECT POSITION

Follow steps 1–5 to install the G&T device into the TEST/DISCONNECT position.

1. Verify that the proper circuit breaker compartment has been selected for G&T device installation.

2. Verify that the racking position indicator located at the bottom of the circuit breaker compartment door (Figure 9 on page 14) reads “TEST/DISCONNECT”.

3. Open the circuit breaker compartment door.

CAUTION

HAZARD OF EQUIPMENT DAMAGE

Check the customer order drawings and nameplates on the circuit breaker compartment to verify that the proper circuit breaker compartment is selected for installation of the G&T device.

Failure to follow this instruction can result in equipment damage.

WARNING

HAZARD OF PERSONAL INJURY OR EQUIPMENT DAMAGE

Use only a Masterclad® Series 5 lift truck to raise or lower the G&T device if it is to be used in the lower circuit breaker compartment of switchgear mounted on a raised pad.

Failure to follow this instruction can result in serious injury or equipment damage.

4. Align the G&T device rollers with the positioning rails (Figure 1 on page 5 and Figure 9 on page 14) mounted on the side walls of the circuit breaker compartment.
5. Push the G&T device into the circuit breaker compartment until the front of the device aligns with the TEST position arrows (Figure 10) located on the left positioning rail of the circuit breaker compartment.

NOTE: If the G&T device does not easily roll into the circuit breaker compartment, remove the device. Repeat steps 4 and 5. If satisfactory results are not achieved, contact your Schneider Electric field sales representative.
RACKING THE G&T DEVICE INTO THE CONNECTED POSITION

Follow steps 1–6 to rack the G&T device into the CONNECTED position.

NOTE: See “Section 5—Operation and Removal” on page 16 for correct key interlock sequence before racking device into the CONNECTED position.

WARNING

HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE

Always keep the circuit breaker compartment door closed when racking the G&T device from one position to another when switchgear is energized.

Failure to follow this instruction can result in death or serious injury.

1. Close the circuit breaker compartment door.
2. Insert the racking handle into the racking port and engage handle onto racking shaft (Figure 11).

Figure 11: Racking Handle Engaged onto Racking Shaft with G&T Device in the TEST/DISCONNECT Position

3. Turn the racking handle clockwise.
4. When the G&T device is being transported to or from the CONNECTED position, the racking position indicator will read “TRANSPORT”.
5. If the G&T device does not easily rack into the circuit breaker compartment, remove the G&T device and repeat steps 1–4 of “Installing the Device into the Lower Circuit Breaker Compartment TEST/DISCONNECT Position” on page 13. If satisfactory results are not achieved, contact your local Schneider Electric field sales office.
6. Continue turning the racking handle clockwise until the racking position indicator reads “CONNECTED”.

NOTE: When the racking position indicator reads “CONNECTED”, the G&T device is fully racked into the circuit breaker compartment and the device’s primary contacts are connected.
SECTION 5—OPERATION AND REMOVAL

USING THE G&T DEVICE AS A GROUNDING UNIT

Follow steps 1–16 to use the G&T device for grounding after installation. Also refer to “Section 4—Installation” on page 12–15.

1. Obtain key KU from the customer lock box.
2. Insert key KU into lock #1 - Keys KU and KB (Permissive Control Transfer Switch). Turn keys to lock the switch in the OFF position, electrically disabling the device. Key KU is now captive and key KB is now available in Lock #1. Figure 1 on page 5.
3. Insert key KB into Lock #2 - Keys KB and KC (Open Indicator). Turn keys to mechanically block the G&T device in the OPEN position. Key KB is now captive and key KC is now available in Lock #2. The device is now electrically disabled and mechanically blocked in the OPEN condition.
4. Insert key KC into Lock #3 - key KC only (Racking Block), turning key KC withdraws the barrel, which allows the unit to be inserted and racked into the switchgear circuit breaker compartment for the circuit breaker it is replacing.
5. Rack G&T device into circuit breaker compartment completely to the CONNECTED position using breaker racking handle.
6. Key KC can now be turned in Lock #3 to mechanically lock the device in the CONNECTED position. Key KC is now available in Lock #3 and can be removed.
7. Insert key KC into Lock #2 and turn keys. The G&T device is now mechanically unlocked and key KB is now available in Lock #2.
8. Insert key KB into Lock #1 and turn keys. The Permissive Control Transfer Switch can now be turned to enable electrical operation.
9. Verify the Permissive Control Transfer Switch is still in the OFF position.
10. Insert the Remote Control Plug into the Remote Control Unit Receptacle located on the front of the G&T device. Figure 1 on page 5. The Remote Control Operating Station consists of OPEN and CLOSED push buttons.
11. Turn the Permissive Control Transfer Switch from the OFF position to the CLOSED position.
12. From a remote and safe location, close the device using the CLOSE push button of the Remote Control Operating Station. Remove and store the Remote Control Operating Station.
13. Verify the device closed by viewing the Contact Position Indicator located on the front of the device. Figure 1 on page 5. Turn the Permissive Control Transfer Switch from the CLOSED position to the OFF position.

NOTE: If the device did not close, remove the G&T device by following steps 7–16 on page 17. Follow the installation procedures on page 12. If the device does not operate properly, contact your local Schneider Electric field sales office.

DANGER
HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE
- Use only the keys needed to properly operate the device.
- All spare keys must be placed in a secure lock box accessible to qualified personnel only.

Failure to follow these instructions will result in death or serious injury.
14. Turn Keys in Lock #1, which will electrically lock the device in the CLOSED position. Key KB is now available.

15. Insert key KB into Lock #4. Keys KB and KD (CLOSED Indicator). Turn keys to mechanically lock the G&T device in the CLOSED position. Key KB is held captive and KD is now available in Lock #4.

16. Remove key KD and return to the customer lock box.

Preparing the G&T Device to be Racked Out of the CONNECTED Position After Grounding

Follow steps 1–16 to remove the G&T device after using the G&T Device as a grounding unit.

1. Obtain key KD from the customer lock box.

2. Insert key KD into Lock #4 and turn keys. Turn keys to mechanically unblock the G&T device from the CLOSED position. Key KD is held captive and Key KB is now available in Lock #4. Figure 1 on page 5.

3. Insert key KB into Lock #1 and turn keys. The Permissive Control Transfer Switch can now be turned.

4. Turn Permissive Control Transfer Switch from OFF position to OPEN position. The device is now electrically enabled.

5. Insert Remote Control Plug into the Remote Control Unit Receptacle located on the front of the G&T device.

6. From a remote and safe location, open the device using the OPEN push button of the Remote Control Operating Station. Remove and store Remote Control Operating Station.

7. Turn the Permissive Control Transfer Switch from the OPEN position to the OFF position.

8. Turn keys in lock #1. This locks the Permissive Control Transfer Switch in the OFF position electrically disabling the device. Key KU is now captive and key KB is now available in Lock #1.

9. Insert key KB into Lock #2 and turn keys. This mechanically blocks the G&T device in the OPEN position. Key KB is now captive and key KC is now available in Lock #2. The device is now electrically disabled and mechanically blocked in the OPEN condition.

10. Insert key KC into Lock #3. Turning key KC withdraws the lock barrel, which will allow the unit to be racked out of the switchgear circuit breaker compartment.

11. Rack G&T device out of the circuit breaker compartment completely to the DISCONNECTED position using circuit breaker racking handle. Follow the steps of “Racking the G&T Device Out of the Connected Position After Grounding or Testing” on page 20. The G&T device can now be removed from the cubicle.

12. Key KC can now be turned in Lock #3 to mechanically lock the G&T device from the DISCONNECTED position. Key KC is now available in Lock #3 and can be removed.

13. Insert key KC into Lock #2 and turn keys. The G&T is now mechanically unlocked and key KB is now available in Lock #2.

14. Verify that the Permissive Control Transfer Switch is still in the OFF position.

15. Insert key KB into Lock #1 and turn keys. Key KU is now available in Lock #1; unit is electrically disabled and mechanically blocked in the OPEN position.

16. Remove key KU and return to the customer lock box.
# USING THE G&T DEVICE AS A TEST UNIT

<table>
<thead>
<tr>
<th>DANGER</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH</td>
</tr>
<tr>
<td>• Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.</td>
</tr>
<tr>
<td>• Turn OFF all power supplying this equipment before using this equipment as a test unit.</td>
</tr>
<tr>
<td>• Always use a properly rated voltage sensing device to confirm power is off.</td>
</tr>
</tbody>
</table>

Failure to follow these instructions will result in death or serious injury.

Follow steps 1–15 to use the G&T device for phasing, high potential tests, or taking measurements after installation. (See “Section 4—Installation” on page 12). Also refer to Figure 1 on page 5 during the following procedure.

1. Complete steps 1–14 as indicated in “Using the G&T Device as a Grounding Unit” on page 16.
2. Insert key KB into Lock #4 - Keys KB & KD (Closed Indicator). Turn keys to mechanically lock the G&T device in the CLOSED position. Key KB is held captive and Key KD is now available in Lock #4. Figure 1 on page 5.
3. Insert key KD into Lock #5 - Key KD only (Test Port Shutter). Turn key KD to unlock Test Port Shutter.
4. Slide the shutter right to access the test ports. Insert test probes into the test ports until fully connected.
5. Slide the shutter left to captivate the test probes. Turn key KD to lock the shutter in place. Probes are now locked in CONNECTED position and captivated by the shutter. Key KD is now available in Lock #5.
6. Insert key KD into Lock #4 and turn keys to unlock the device from the mechanically CLOSED position. Key KD is now captive and key KB is available in Lock #4.
7. Insert key KB into Lock #1 and turn keys. The Permissive Control Transfer Switch can now be turned to enable electrical operation.
8. Turn the Permissive Control Transfer Switch from the OFF position to the OPEN position.
10. From a remote and safe location, open the device using the OPEN push button of the Remote Control Operating Station. Remove and store Remote Control Operating Station.
11. Turn the Permissive Control Transfer Switch from the OPEN position to the OFF position.
12. Turn keys in lock #1. This locks the switch in the OFF position, electrically disabling the device in the OPEN position. Key KU is now captive and key KB is now available in Lock #1.
13. Insert key KB in Lock #2. Turn keys to mechanically block the G&T device in the OPEN position. Key KC is now available.
14. Remove key KC and return to the customer lock box. The device is now mechanically blocked OPEN and electrically disabled.
15. The G&T device is now available for testing.

**DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Turn OFF all power supplying this equipment before using this equipment as a test unit.
- Always use a properly rated voltage sensing device to confirm power is off.

Failure to follow these instructions will result in death or serious injury.
Preparing the G&T Device to be Racked Out of the CONNECTED Position After Testing

Follow steps 1–14 to remove the device from the lower circuit breaker compartment after testing is complete:

1. Obtain key KC from the customer lock box and insert into Lock #2 and turn keys (Figure 1 on page 5). Key KB is now available.
2. Insert key KB into Lock #1 and turn keys. The Permissive Control Transfer Switch can now be operated.
3. Verify that the Permissive Control Transfer Switch is still in the OFF position.
4. Insert Remote Control Plug into the Remote Control Unit Receptacle located on the front of the G&T device.
5. Turn the Permissive Control Transfer Switch from the OFF position to the CLOSE position.
6. From a remote and safe location, close the device using the CLOSE push button of the Remote Control Operating Station. Remove and store Remote Control Operating Station.
7. Verify the device is closed by viewing the Contact Position Indicator located on the front of the device. Turn the Permissive Control Transfer Switch from the CLOSE position to the OFF position.

**NOTE:** If the device did not close, remove the G&T device by following steps 7–16 on page 17. Next follow the installation procedures on page 12. If the device does not operate properly, contact your local Schneider Electric field sales office.

8. Turn keys in Lock #1. This will electrically lock the device in the CLOSE position. Key KB is now available.
9. Insert key KB into Lock #4 and turn keys. This will mechanically lock the G&T device in the CLOSED position. Key KB is held captive and Key KD is now available in Lock #4.
10. Insert key KD into Lock #5 and turn to unlock the Test Port Shutter.
11. Slide the shutter right to fully open the test ports. Key KD is held captive and cannot be turned with test ports in the fully OPEN position.
12. Remove the test probes from the test ports.
13. Slide shutter left to close test ports. Key KD can now be turned and removed. With key KD removed test port shutters are locked CLOSED.
14. Key KD can now be stored if further grounding is required, or can be inserted into Lock #4 to obtain key KB if proceeding with removal of grounds. If removal of grounds is required, proceed to step 2 of “Preparing the G&T Device to be Racked Out of the CONNECTED Position After Grounding” on page 17.

**DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- The shutter over the three high voltage test ports can be opened to give access to the 15 kV test contacts.
- Only qualified personnel, following users operation procedures, should operate this ground and test device.

**Failure to follow these instructions will result in death or serious injury.**
RACKING THE G&T DEVICE OUT OF THE CONNECTED POSITION AFTER GROUNDING OR TESTING

The G&T device can be racked out of the CONNECTED position using the racking mechanism located on the floor of the circuit breaker compartment. Follow steps 1–5 to rack the G&T device out of the CONNECTED position.

1. Close the circuit breaker compartment door.
2. Insert the racking handle into the racking port and engage handle onto racking shaft. See Figure 8 on page 14.
3. Turn the racking handle counterclockwise.
4. When the ground and test (G&T) device is being transported to or from the CONNECTED position, the racking position indicator will read “TRANSPORT”.
   NOTE: If the G&T device does not easily rack out of the circuit breaker compartment, check the interlock status. If satisfactory results are not achieved, contact your Schneider Electric field sales office.
5. Continue turning the Racking Handle counterclockwise until the racking position indicator reads “TEST/DISCONNECT”.
   NOTE: When the racking position indicator reads “TEST/DISCONNECT”, the G&T device is fully racked out of the circuit breaker compartment and the G&T’s primary contacts are disconnected.

WARNING
HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE
Always keep the circuit breaker compartment door closed when racking the G&T device from one position to another when switchgear is energized.
Failure to follow this instruction can result in death or serious injury.

WARNING
HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE
Never force the ground and test (G&T) device into the circuit breaker compartment. If the racking mechanism is not operating easily, inspect the equipment and the interlock status.
Failure to follow this instruction can result in death, serious injury or equipment damage.

WARNING
HAZARD OF PERSONAL INJURY OR EQUIPMENT DAMAGE
Use only a Masterclad® Series 5 lift truck to raise or lower the G&T device if it is to be used in the lower circuit breaker compartment of switchgear mounted on a raised pad.
Failure to follow this instruction can result in serious injury or equipment damage.

NOTE: Use a Masterclad® Series 5 lift truck to lift the G&T device if it is to be inserted into or removed from a switchgear that is mounted on a raised pad. For Masterclad Series 5 lift truck instructions refer to Bulletin No. 6055-30, Masterclad® Metal-Clad Indoor Switchgear.
SECTION 6—MAINTENANCE

WARNING

HAZARD OF PERSONAL INJURY OR EQUIPMENT DAMAGE

Before performing any maintenance or repair work, always remove the ground and test device completely from the circuit breaker compartment.

Failure to follow this instruction can result in death or equipment damage.

Proper maintenance of the ground and test (G&T) device is necessary for satisfactory operation. Perform the following checks before the device is used:

1. Visually inspect the entire ground and test device for loose parts or connections.
2. Lightly coat the contact surfaces and primary contact fingers with Mobilgrease® 28 or approved equivalent.
3. Use a clean dry cloth to ensure that the insulation is free from dust and contaminants.

G&T DEVICE TESTING

If the device has been stored for extended periods, perform the following tests before using the device.

Mechanism Test

Check the operation of the ground and test device. Using a test cabinet or test jumper, connect both the secondary control plug and remote control plug; then operate the device a few times.

Hi-Pot (Dielectric) Test

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

When performing the hi-pot test:

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Do not exceed the voltages specified in Table 2.
- Keep all people at least six feet (1.8 m) away from the G&T device being tested.
- Discharge to ground the primary contacts before handling. These areas can retain a static charge after a hi-pot test.

Failure to follow these instructions will result in death or serious injury.

1. To ensure that the device is not damaged, perform a power frequency withstand (hi-pot) test across the open contacts of each vacuum interrupter. Gradually raise the voltage to the levels indicated in Table 2 and maintain for one minute.
2. With the ground and test device in the OPEN (O) position, perform a phase-to-ground hi-pot test for each pole. Gradually raise the voltage to the levels indicated in Table 2 and maintain for one minute.
3. Upon completing the hi-pot test, discharge the primary contact stabs to ground.
4. Verify that the device sustained the specified voltage without flashover for one minute. If the device did not sustain specified voltage without flashover for one minute, repeat the test. If the device fails to sustain voltage without flashover again, contact your local Schneider Electric, representative.

Table 2: Hi-Pot Test Voltages

<table>
<thead>
<tr>
<th>Rating</th>
<th>AC</th>
<th>DC</th>
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<tbody>
<tr>
<td>5 kV</td>
<td>14 kV</td>
<td>20 kV</td>
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<tr>
<td>15 kV</td>
<td>27 kV</td>
<td>38 kV</td>
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<tr>
<td>DATE</td>
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Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.
California Proposition 65 Warning—Nickel Compounds and Bisphenol A (BPA)

Advertencia de la Proposición 65 de California—compuestos de níquel y Bisfenol A (BPA)

Avertissement concernant la Proposition 65 de Californie—composés de nickel et Bisphénol A (BPA)

⚠️ WARNING: This product can expose you to chemicals including Nickel compounds, which are known to the State of California to cause cancer, and Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

⚠️ ADVERTENCIA: Este producto puede exponerle a químicos incluyendo compuestos de níquel, que son conocidos por el Estado de California como causantes de cáncer, y Bisfenol A (BPA), que es conocido por el Estado de California como causante de defectos de nacimiento u otros daños reproductivos. Para mayor información, visite www.P65Warnings.ca.gov.

⚠️ AVERTISSEMENT: Ce produit peut vous exposer à des agents chimiques, y compris composés de nickel, identifiés par l’État de Californie comme pouvant causer le cancer, et Bisphénol A (BPA) reconnus par l’État de Californie comme pouvant causer des malformations congénitales ou autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter www.P65Warnings.ca.gov.