

Type VR Electrically Operated Ground and Test Device

For Use with Masterclad™ Switchgear
4.76 kV–15 kV, 1200, 2000, 3000, 4000 A
Up to 63 kA Short Circuit Rating

Class 6055

Instruction Bulletin

6055-37

Rev. 01, 09/2015

Retain for future use.



Hazard Categories and Special Symbols

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of 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 personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol is not used with this signal word.

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

Please Note

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.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Table of Contents

Section 1—Introduction	5
Product Overview	6
Changing Contact Position	6
High Potential Ports	7
Shutter	7
Control Power Cord	7
Remote Control Cable	7
Main Spring Indicator	7
Contacts Indicator	8
TRIP OPEN Push-button	8
Schematic Drawing	8
Section 2—Safety Precautions	10
Section 3—Receiving, Handling, and Storage	11
Receiving	11
Crate Contents	11
Handling	11
Storage	12
Section 4—Installation	13
Pre-Installation Procedures	13
Mechanism Test	13
Hi-Pot (Dielectric) Test	13
Preparing the G&T Device for Connection with Load (Cable) Bus in Any Compartment	14
Installing the G&T Device into the TEST/DISCONNECT Position	15
Racking the G&T Device into the CONNECTED Position	16
Section 5—Operation and Removal	19
Interlocks	19
Key Release Unit Interlock (Key A)	19
Test Trip Interlock (Key B)	19
Shutter Interlock (Keys A and B)	19
Racking Interlock (Key C)	20
Locking Provision	20
Grounding	20
Preparing the G&T Device to be Racked Out of the CONNECTED Position after Grounding	21
Testing	21
Preparing the G&T Device to be Racked Out of the CONNECTED Position after Testing	22
Racking the G&T Device Out of the CONNECTED Position	22
Removing the G&T Device from the Circuit Breaker Compartment	24

Section 6—Maintenance..... 25

 Mechanism Test..... 25

 Hi-Pot (Dielectric) Test..... 26

Section 7—Replacement Parts..... 27

 Ordering Instructions..... 27

Section 1—Introduction

This bulletin contains instructions for receiving, handling, storing, installing, operating and maintaining the Type VR1200/2000 A, 3000 A, or 4000A, Electrically Operated Ground and Test (G&T) devices manufactured by Schneider-Electric.

This device is an auxiliary device for use with 4.76 kV to 15.0 kV Masterclad® switchgear during initial installation and normal maintenance. The device provides a convenient means for grounding the load cables or the bus. It can be used to measure resistance and to perform phasing operations. Also, the device can apply power from an external source for a high potential test or for fault location.

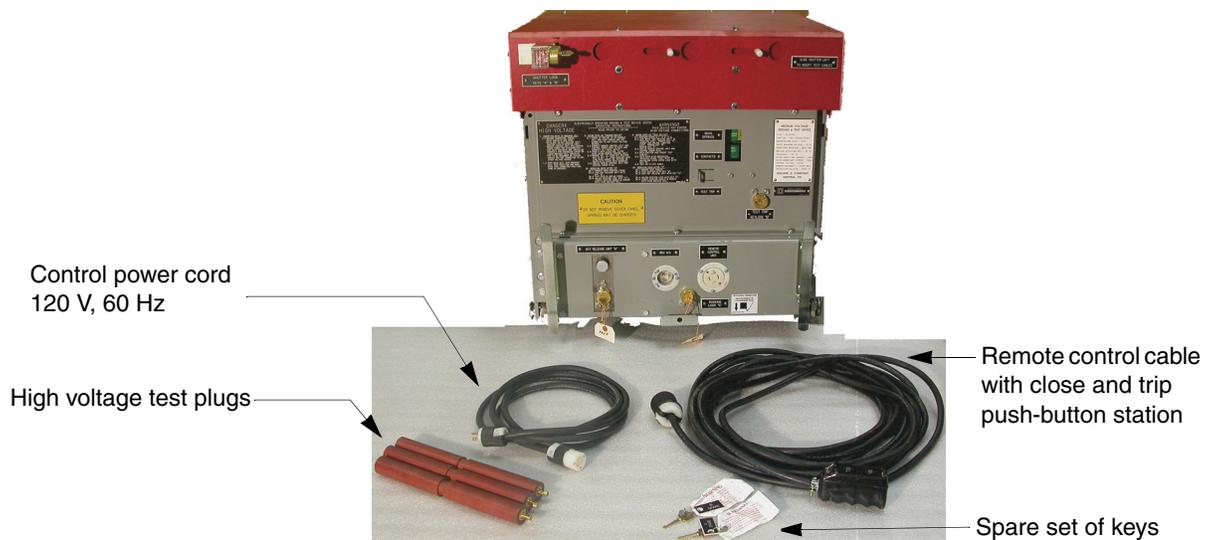
The G&T device can be used with switchgear assemblies with symmetrical short-circuit rating up to 63 kA. Two separate devices are used to meet continuous current ratings. One device will fit both the 1200 A and 2000 A circuit breaker compartments, and the other will fit only 3000 A lower circuit breaker compartments.

This 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 (see Figure 1) are furnished with the G&T device:

- control power cord
- remote control cable
- high voltage test plugs
- interlock keys, including spares

Figure 1 – Basic G&T Device



Product Overview

This section contains a basic overview of the workings of the electric G&T device and the identification of certain components. The electric G&T device consists of a basic circuit breaker frame which engages the switchgear racking mechanism. The 1200/2000 A device can be used for either the upper or lower circuit breaker compartment. The 3000 A and 4000 A device can be used only in lower compartments (see Figure 3 on page 6). Both products are intended for use with only Masterclad series switchgear manufactured by Schneider Electric.

Changing Contact Position

The reversible stabs (see Figure 2) available on all electric G&T devices can be removed and changed to the upper or lower position. Two bolts per phase must be removed to rotate the stabs.

NOTE: The appearance of the finger cluster varies depending on the G&T model.

Figure 2 – Sectional Side View

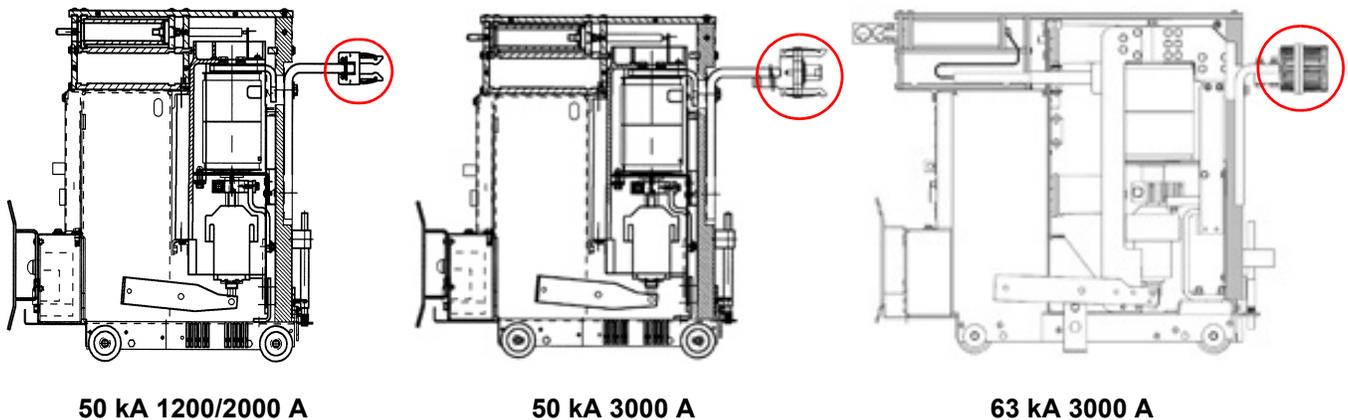


Figure 3 – 3000 A Stabs in Lower Position Only



High Potential Ports

To use this device for power frequency withstand (hi-pot) or other tests, the phases are brought to the front and connected to the three high potential ports (see Figure 4). A connector with a cable attached can be inserted into these ports for hi-pot tests or measurements. This cable is supplied by the customer.

Shutter

An interlocked shutter (see Figure 4), located over the high potential ports, can be opened only when the device is locked in the CONNECTED position and the vacuum interrupter contacts are closed. The open shutter permits the insertion of test cables and the G&T device to be tripped open.

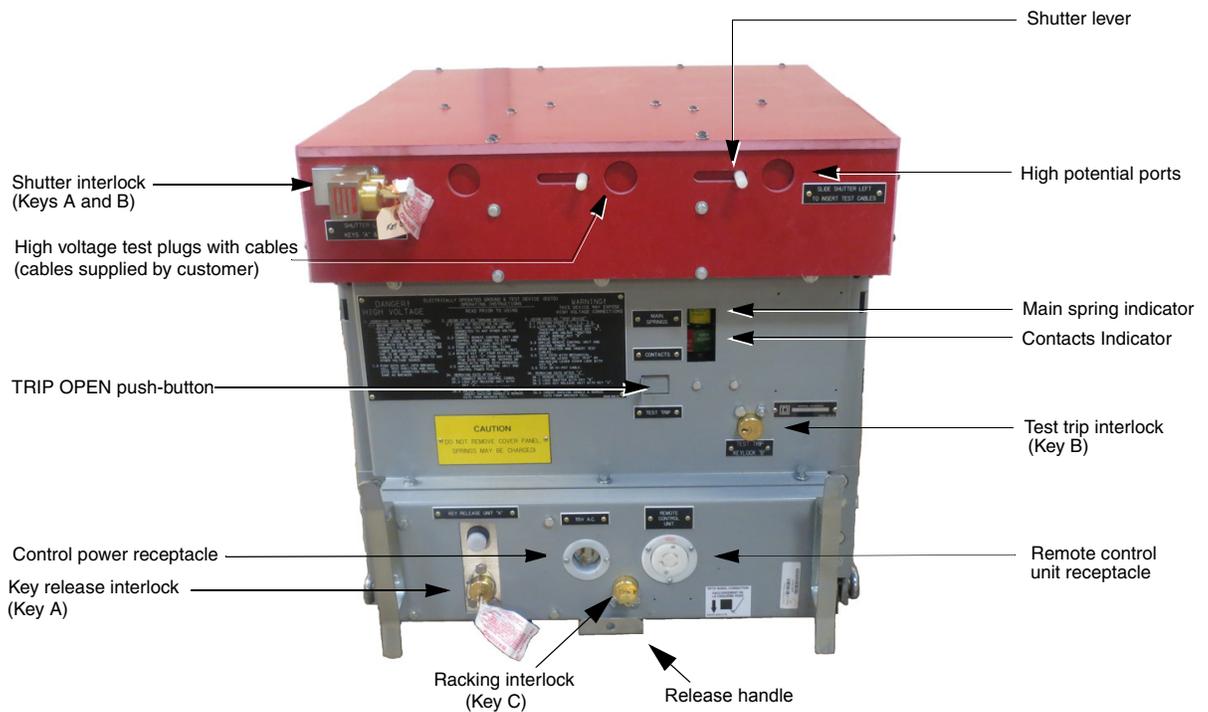
Control Power Cord

A plug and a control power cord provide remote 120 Vac, 60 Hz control power. The control power receptacle provides connection to the device.

Remote Control Cable

A remote control cable, with CLOSE (I) and TRIP (O) push-buttons, operates the device from a remote location. The remote control unit receptacle provides connection to the device.

Figure 4 – G&T Device with Test Cables Inserted



Main Spring Indicator

The main spring indicator displays the condition of the springs as either CHARGED or DISCHARGED. The indicator is red if the springs are charged and green if they are discharged (see Figure 14 on page 22).

Contacts Indicator

This indicator displays whether the vacuum interrupter contacts are OPEN (O) or CLOSED (I).

TRIP OPEN Push-button

The TRIP OPEN (O) push-button is accessed by using Key B to unlock the test trip cover (see Figure 14 on page 22). To access the push-button, unlock the test trip interlock and slide the test trip cover to the right. Then press the TRIP OPEN (O) push-button to open the contacts.

Schematic Drawing

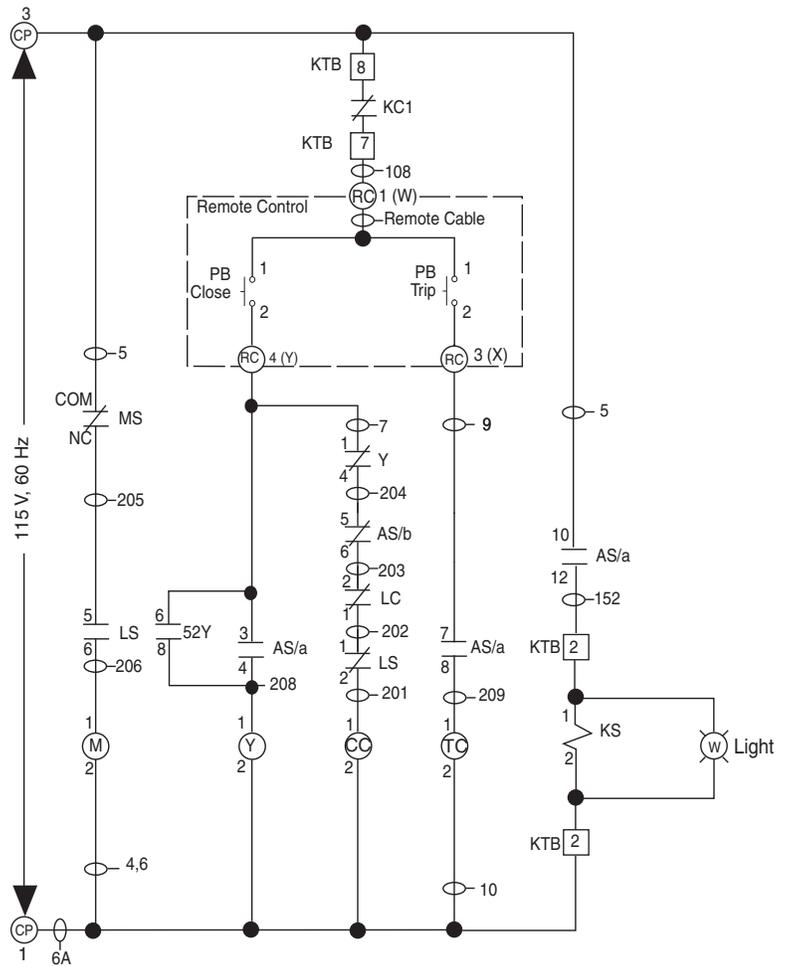
See Figure 5 on page 9. To close the device manually or electrically, the closing springs must be charged. The motor cutoff switch (MS) provides feedback to the closing circuit so that the closing springs can only be charged electrically with the device in the connected or test position. The closing circuit has continuity when the closing springs are charged and the device is open. Applying a close signal energizes the close coil (CC). It discharges the closing springs, closing the device and charging the opening springs.

When the device closes, the AS/a, AS/b, and LS change state. AS/a allows continuity in the trip circuit and actuates the anti-pump relay (Y). This sequence causes the close signal to be removed and reapplied before the device can be closed again. LS allows the closing springs to be charged.

Applying a trip signal energizes the trip coil (TC). It discharges the opening springs, and opens the device. When the device opens, AS/a and AS/b change state. AS/a contacts open when the device opens and AS/b closes when the device opens.

Figure 5 – Typical Schematic Drawing

Legend	
AS/a	Aux. switch contacts, open when device is open
AS/b	Aux. switch contacts, close when device is open
CC	Close coil
CP	Control power plug
KC1	Solenoid key release contact - opens when key is removed
KTB	Keylock terminal block
KS	Solenoid key release unit - key removable when solenoid is energized
LC	Latch check switch
LS	Spring charging motor limit switch
M	Spring charging motor
MS	Motor cutoff switch
RC	Remote control plug
TC	Trip coil
R	Red Light - on when device is closed
Y	Anti-pump relay



Section 2—Safety Precautions

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, or NOM-029-STPS-2011.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Perform such work only after reading and understanding all of the instructions contained 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, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Always practice lock-out/tag-out procedures according to OSHA requirements.
- Circuit breaker and switch contacts must be open and all springs discharged before performing maintenance work, disconnection, or removal of a circuit breaker.
- Move circuit breakers to the disconnected position before removing any access panels.
- Conduct electrical testing to confirm no short-circuits were created during installation, maintenance, or inspection.
- Never insert a circuit breaker into a circuit breaker compartment that is not complete and functional.
- The complete assembly arrangement determines if the top or bottom contacts are the line side; both can be energized when the circuit breaker is removed from the compartment.
- Disconnect all high voltage to the switchgear before accessing the horizontal bus compartment.
- Do not use liquid fire extinguishers or water on electrical fires. Before extinguishing fires within the assembly, be absolutely certain the main power source is disconnected, and the main and all feeder circuit breakers are tripped.
- 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

⚠ CAUTION
DAMAGED EQUIPMENT Do not operate any equipment that appears damaged. Failure to follow these instructions could result in injury or equipment damage.

Receiving

- Upon receipt, check the packing list against the equipment received to ensure the order and shipment are complete. Claims for shortages or errors must be made in writing to Square D within 60 days after delivery. Failure to give such notice will constitute unqualified acceptance and a waiver of all such claims by the purchaser.
- Thoroughly inspect the contents of the crate for shipping damage before it is stored or installed. The manufacturer should be informed immediately if any shipping damage is detected. File a claim with the carrier immediately and notify Square D. Delivery of equipment to a carrier at any of the 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.

For details concerning claims for equipment shortages and other errors, refer to Schneider Electric’s “Terms and Conditions of Sale”.

Crate Contents

Each crate includes:

- 120 V, 60 Hz power cord
- High voltage test plug
- Remote control cable
- Spare set of keys (2 total)
- Instruction Bulletin

Handling

⚠ WARNING
LIFTING HEAVY EQUIPMENT Keep the area below any equipment being lifted clear of all personnel and property. Failure to follow these instructions could result in death, serious injury, or equipment damage.

The G&T device may be damaged by rough handling. Handle the equipment with care.

Storage

Keep equipment in a clean, dry, and corrosion-free area to protect the device from damage. When storing, wrap the remote control cable and control power cord around the test device handles. (See Figure 6.)

Figure 6 – Position of Remote Control Cable and Control Power Cord During Storage



Section 4—Installation

⚠ DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION, OR ARC FLASH

- Electrically operated G&T devices provide access to high voltage conductors. Use extreme care when using this device.
- This equipment must be installed and serviced only by qualified personnel.
- Remove all tools and miscellaneous items left on this device before installing the device into the circuit breaker compartment.

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

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 Mobil® 28 red grease (Schneider Electric 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.

Mechanism Test

Check the operation of the G&T device. Connect both the control power cord and remote control cable, then operate the device a couple of times.

Hi-Pot (Dielectric) Test

⚠ DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION, OR ARC FLASH

When performing the hi-pot test:

- Do not exceed the voltages specified in Table 1.
- Keep all people at least six feet (1.8 m) away from the circuit breaker compartment being tested.
- Discharge the main contact stabs to ground before handling. Main contact stabs can retain a static charge after a hi-pot test.

Failure to follow these instructions will cause death or serious injury.

1. Check 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 1 and maintain for one minute.

Table 1 – Hi-Pot Test Voltages

Rating	AC	DC
5 kV	14 kV	20 kV
15 kV	27 kV	38 kV

2. With the G&T device in the OPEN (O) position, perform a phase-to-ground and phase-to-phase 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 main contact stabs to the ground.
4. Verify that the device sustains the specified voltage without flash-over for one minute. If the device does not sustain specified voltage without flash-over for one minute, repeat the test. If the device does not sustain voltage without flash-over again, contact your local Schneider Electric representative.

Preparing the G&T Device for Connection with Load (Cable) Bus in Any Compartment

Follow these instructions to install the device into the circuit breaker compartment:

1. Check the schematic and the assembly drawings; confirm that the load bus is connected to the lower terminal if in the lower compartment, or to the upper terminals if in the upper compartment. If necessary, change the device's main contacts to the correct upper or lower position prior to inserting the device. See "Changing Contact Position" on page 6.

▲ CAUTION

HAZARD OF EQUIPMENT DAMAGE

Verify that the Type VR device is being installed into the proper circuit breaker compartment.

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

2. Check applicable drawings to ensure that load cables to be grounded or tested are not connected to any other voltage source.
3. Check the main contact OPEN (O) and CLOSE (I) indicators on the face of the device to verify that the contacts are open.
4. Ensure that the keys for the shutter interlock are in the correct location. Key A must be inserted in the release unit, Key B in the interlock, and Key C in the racking interlock.
5. Ensure that the remote control device and the control power cord are disconnected and removed from the device.

Installing the G&T Device into the TEST/DISCONNECT Position

⚠ CAUTION
<p>HAZARD OF EQUIPMENT DAMAGE</p> <p>Check the customer order drawings and nameplates on the circuit breaker compartment to verify that the G&T device is installed into the proper circuit breaker compartment.</p> <p>Failure to follow these instructions can result in injury or equipment damage.</p>

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

1. Check the customer order drawings and the nameplates on the circuit breaker compartment to verify that the G&T device is installed into the proper circuit breaker compartment.
2. Verify that the racking position indicator (see Figure 7) reads “TEST/DISCONNECT.”

Figure 7 – Racking Position Indicator—TEST DISCONNECT

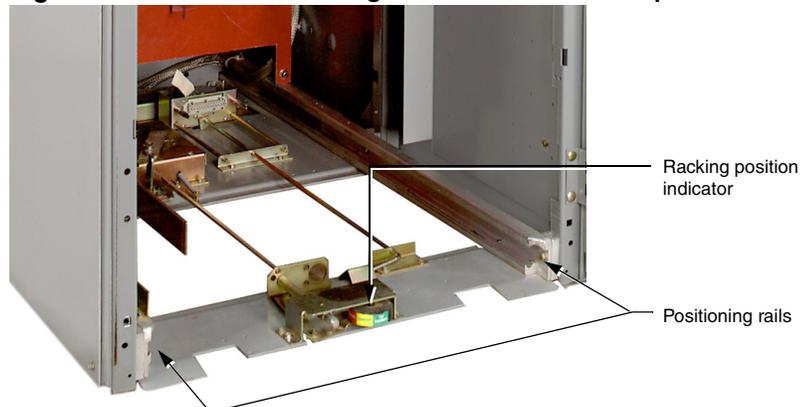


3. Open the circuit breaker compartment door.

⚠ WARNING
<p>HAZARD OF PERSONAL INJURY</p> <p>Use only a Masterclad lift truck manufactured by Schneider Electric to install a G&T device into switchgear on a raised pad, or into an upper circuit breaker compartment.</p> <p>Failure to follow this instruction could result in death or serious injury.</p>

4. Align the G&T device rollers with the positioning rails (see Figure 8) mounted on the side walls of the circuit breaker compartment.

Figure 8 – Masterclad Switchgear Circuit Breaker Compartment



⚠ CAUTION

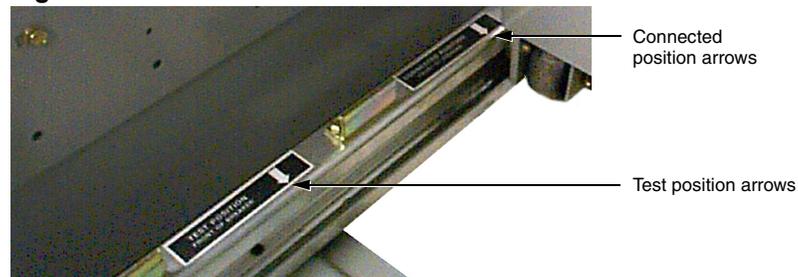
HAZARD OF EQUIPMENT DAMAGE

Never force the G&T device into the circuit breaker compartment. If a mechanism is not operating easily, inspect the equipment and the interlock status.

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

5. Push the G&T device into the circuit breaker compartment until the front of the device aligns with the test position arrows (see Figure 9) located on the bottom of the circuit breaker compartment. When the device is in the TEST/DISCONNECT position, the release handle should engage.

Figure 9 – Test Position Arrows



NOTE: If the G&T device does not easily roll into the circuit breaker compartment, remove the device. If necessary, pull the release handle to release the device from the TEST/DISCONNECT position. Repeat steps 4 and 5. If satisfactory results are not achieved, please contact your local Schneider Electric representative.

Racking the G&T Device into the CONNECTED Position

Follow steps 1–5 below to rack the G&T device into the CONNECTED position.

⚠ WARNING

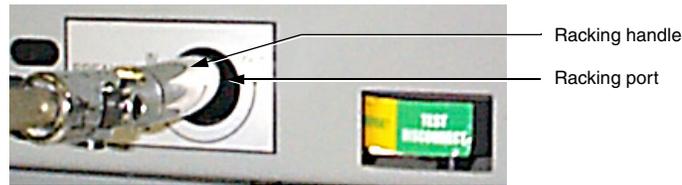
HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE

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 these instructions could 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 (see Figure 10 on page 17).

Figure 10 – Racking Handle Engaged onto Racking Shaft with Circuit Breaker in the TEST/DISCONNECT Position



⚠ WARNING

HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE

Never force the G&T device into the circuit breaker compartment. If a mechanism is not operating easily, inspect the equipment and the interlock status

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

- 3. Rotate 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". See Figure 11.

Figure 11 – Racking Position Indicator—TRANSPORT



NOTE: If the G&T device does not easily rack into the circuit breaker compartment, remove the G&T device and repeat steps 1-4. If satisfactory results are not achieved, please contact your local Schneider Electric representative.

5. Continue rotating the racking handle clockwise until the racking position indicator reads “CONNECTED”. See Figure 12.

Figure 12 – Racking Position Indicator—CONNECTED



NOTE: When the racking position indicator reads “CONNECTED”, the G&T device is fully racked into the circuit breaker compartment and the G&T primary contacts are connected.

Section 5—Operation and Removal

⚠ DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
Before performing the procedures in this section, read and understand the precautions in “Section 2—Safety Precautions” on page 10.
Failure to follow these instruction will result in death or serious injury.

Interlocks

The load connections to be grounded or tested are normally located at the bottom of the lower circuit breaker compartments or at the top of the upper circuit breaker compartments. The device’s reversible stabs can be changed to the upper or lower position for 1200 A/2000 A testing. The stabs are used in the lower position only for 3000 A/4000 A service.

The stab position interlock (see Figure 4 on page 7) located on the G&T device pivots up or down when the reversible stabs are pivoted. The stab position interlock works with an interlock bracket permanently mounted on the left circuit breaker compartment guide rail. These interlock brackets allow the G&T device to be inserted into the compartment for use in predetermined applications.

⚠ WARNING
USE ONLY THE KEYS NEEDED TO PROPERLY OPERATE THIS EQUIPMENT
<ul style="list-style-type: none">• This equipment is supplied with spare interlock keys for use during installation. The user should use only the necessary keys to properly operate the equipment and is responsible for removing the spare key(s).• Spare keys must be placed in a secure location accessible only to qualified personnel.
Failure to follow these instructions could result in death or serious injury.

Key Release Unit Interlock (Key A)

The key release unit interlock (Key A) is a solenoid-operated interlock which allows the key to be removed only when the solenoid is energized. The solenoid is energized when the G&T device contacts are closed (see Figure 4 on page 7).

Test Trip Interlock (Key B)

The test trip interlock provides access to the TRIP OPEN (O) push-button when Key B is inserted and rotated.

Shutter Interlock (Keys A and B)

The shutter interlock locks the shutter in the CLOSED (I) position restricting access to the high potential ports. Both the A and B Keys are needed to open the shutter for testing or phasing purposes (see Figure 4 on page 7).

Racking Interlock (Key C)

The racking interlock (see Figure 4 on page 7) locks the device in the CONNECTED and CLOSED (I) position to prevent inadvertent racking of the device while in use.

Locking Provision

The rack and pinion mechanism located in the compartment floor can be locked with a padlock.

Grounding

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Check the customer order drawings and nameplates on the circuit breaker compartment to verify that the G&T device is installed into the proper circuit breaker compartment.
- Before grounding 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.
- Use appropriate personal protection equipment when exposed to energized conductors.

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

Follow these steps to operate the device as a grounding device:

1. To charge the springs, connect the control power cord to the electrically operated G&T device; plug the power cord into a 115 Vac outlet. This activates the mechanism motor that will charge the operating springs.
2. Connect the remote control device to the G&T device, and extend the remote control cable to its full length.
3. Stand to the side (do not stand directly in front of the G&T device compartment), and close the device using the remote control.

NOTE: The contact indicator will move to the CLOSED (–) position. The load bus is now grounded.

4. Remove Key A from the key release unit and Key C from the racking interlock.
NOTE: With these Keys removed, the electrically operated ground and test device cannot be tripped or racked out.
5. Unplug the remote control cable and the control power cord from the device.

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

If the G&T device is used only for grounding purposes, follow these steps to remove the device from the circuit breaker compartment after use:

1. Connect both the remote control cable and the control power cable to the device.
2. Unlock the key release unit with Key A.
3. Trip the device by pressing the OPEN button on the remote control.
4. Unplug both cords.
5. Unlock the racking interlock with Key C.

The device is now ready to be racked out. See “Racking the G&T Device Out of the CONNECTED Position” on page 22 for instructions.

Testing

If the device is used for high potential tests or to take other measurements, follow these steps:

1. Verify that the G&T device is in the correct circuit breaker compartment and that the intended load bus or main bus is de-energized.
2. Connect the control power cord to the electrically operated ground and test; plug the power cord into a 120 Vac outlet. This charges the breaker springs.
3. Connect the remote control cable to the G&T device. Use the remote control to close the test device. The load bus is now grounded.
4. Remove Key A from the key release unit and Key C from the racking interlock.

NOTE: With these Keys removed, the electrically operated ground and test device cannot be tripped or racked out.

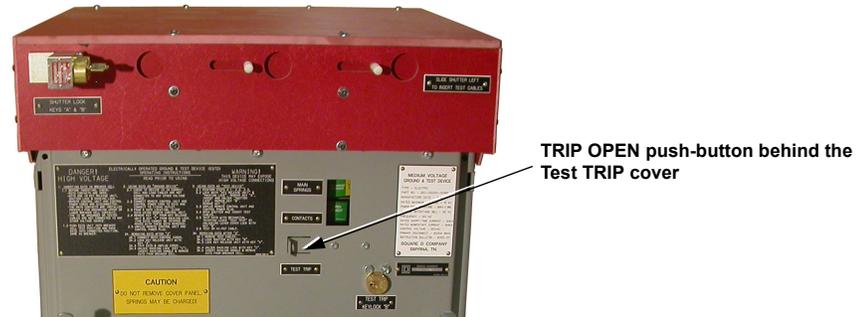
5. Unplug the remote control cable and the control power cord from the device.
6. Open the shutter interlock with Key A. Insert the test cables into the high potential ports (see Figure 4 on page 7). The test cables are fully connected if the shutter aligns with the groove of the test plug.

Figure 13 – Opening the Shutter to Insert and Engage Test Plugs with Cables



- To open the G&T device, unlock the test trip interlock with Key B. Slide open the TEST TRIP cover. Open (trip) the unit by pressing the TRIP OPEN push-button. The test cables are now ready for hi-pot or other testing.

Figure 14 – Tripping the Device with the TRIP OPEN Push-button Behind the TEST TRIP Level



TRIP OPEN push-button behind the Test TRIP cover

Preparing the G&T Device to be Racked Out of the CONNECTED Position after Testing

After cable testing is complete, follow the steps below to remove the device from the circuit breaker compartment.

- Remove the test cables.
- Lock the shutter interlock with Key B.
- Lock key release unit with Key A.
- Unlock racking interlock with Key C.

Racking the G&T Device Out of the CONNECTED Position

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

⚠ DANGER

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 these instructions will result in death or serious injury.

- Close the circuit breaker compartment door.
- Insert the racking handle into the racking port and engage handle onto racking shaft.

⚠ WARNING**HAZARD OF BODILY INJURY OR EQUIPMENT DAMAGE**

Never force the G&T device out of the circuit breaker compartment. If a mechanism is not operating easily, inspect the equipment and the interlock status.

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

3. Rotate the racking handle counterclockwise. See Figure 15.

Figure 15 – Racking Position Indicator—CONNECTED



4. When the G&T device is being transported to or from the CONNECTED position, the racking position indicator will read "TRANSPORT". See Figure 16.

Figure 16 – Racking Position Indicator—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, please contact your local Schneider Electric representative.

5. Continue rotating the racking handle counterclockwise until the racking position indicator reads "TEST/DISCONNECT". See Figure 17.

Figure 17 – Racking Position Indicator—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.

Removing the G&T Device from the Circuit Breaker Compartment

Follow steps number 1–5 below to remove the G&T device from the circuit breaker compartment.

1. Open the circuit breaker compartment door.
2. Pull the G&T device's release handle to release the device from the TEST/DISCONNECT position. See Figure 17.

WARNING

HAZARD OF PERSONAL INJURY

Use only a Masterclad lift truck manufactured by Schneider Electric to remove a G&T device from switchgear on a raised pad or out of an upper circuit breaker compartment.

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

3. Pull the G&T device out of the circuit breaker compartment.

NOTE: If removing the G&T device from switchgear on a raised pad, or from an upper circuit breaker compartment, a Square D Masterclad lift truck must be used. For instructions on using lift truck, refer to Schneider Electric document number 6055-30.

4. Close the circuit breaker compartment door.
5. If storing equipment, store accessories or spare parts with the device. Close all doors and cover the equipment to protect it from dust and contaminants.

Section 6—Maintenance

▲ WARNING

HAZARD OF PERSONAL INJURY OR EQUIPMENT DAMAGE

Before performing any maintenance or repair work, always remove the G&T device completely from the circuit breaker compartment.

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

Proper maintenance of the G&T device is necessary for satisfactory operation. Perform the following checks each time before the device is used:

1. Visually inspect the entire G&T device for loose parts or connections.
2. Lightly coat the contact surfaces and primary contact fingers with grease (Mobil® 28 red grease or approved equivalent).
3. Use a clean dry cloth to remove dust and contaminants.

If the device is stored for a long period of time, perform a mechanism and Hi-Pot test before using the device.

Mechanism Test

Check the operation of the G&T device. Connect both the control power cord and remote control cable, and operate the device a one or two times.

Hi-Pot (Dielectric) Test

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

When performing the hi-pot test:

- Do not exceed the voltages specified in Table 2.
- Keep all people at least six feet (1.8 m) away from the circuit breaker compartment being tested.
- Discharge the main contact stabs to ground before handling. Main contact stabs can retain a static charge after a hi-pot test.

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

Check 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.

Table 2 – Hi-Pot Test Voltages

Rating	AC	DC
5 kV	14 kV	20 kV
15 kV	27 kV	38 kV

1. With the G&T device in the OPEN (O) position, perform a phase-to-ground and phase-to-phase hi-pot test for each pole. Gradually raise the voltage to the levels indicated in Table 2 and maintain for one minute.
2. Upon completing the hi-pot test, discharge the main contact stabs to ground.
3. Verify that the device sustains the specified voltage without flash-over for one minute. If the device does not sustain specified voltage without flash-over for one minute, repeat the test. If the device does not sustain voltage without flash-over again, please contact your local Schneider Electric representative.

Section 7—Replacement Parts

Table 3 lists factory-recommended replacement parts. Each replacement part is shipped with complete assembly and adjustment instructions.

Ordering Instructions

When ordering replacement parts:

- Always specify the complete rating information, G&T device serial number, and factory order number.
- Specify part number, description of part, and operating voltage for electrical components.

Table 3 – Replacement Parts

Description	Replacement Kit Number	Rated Voltage
Charging Motor and Gear Box Assembly	46040-476-51	120 Vac
Anti-Pump Relay	46040-477-53	120 Vac
Removable Contact 12/2kA	46008-510-50	—
Removable Contact 3kA	46008-511-51	—
Ground Contact	46040-546-50	—
Latch Check Switch	46049-416804	—
Auxiliary Switch	46040-484-50	—
Motor Limit Switch	46040-485-50	—
Motor Cutoff Switch	46040-486-50	—
Closing Coil	46040-478-63	120 Vac

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6055-37, 09/2015



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.

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