



GUAM POWER AUTHORITY

ATURIDÁT ILEKTRESEDÁT GUÅHAN
P.O.BOX 2977 • HAGÁTÑA, GUAM U.S.A. 96932-2977

April 01, 2026

AMENDMENT NO.: V

TO

INVITATION FOR BID NO.: GPA-006-26

FOR

INDOOR MEDIUM VOLTAGE VACUUM CIRCUIT BREAKER

Prospective Bidders are hereby notified of the following responses to inquiries received from Bidder No. 8 dated February 13, 2026 and March 06, 2026, Bidder No.11 dated February 18, 2026 and February 24, 2026:

CHANGES:

1. Bid Opening Date is changed **FROM** 10:00 A.M., Tuesday, March 31, 2026 (CHamoru Standard Time) **TO NOW READ** 10:00 A.M., Wednesday, April 08, 2026 (CHamoru Standard Time).
2. **REMOVE** Page 3c of 41 and **REPLACE** with Page 3d of 41 (see attached)

Under **INVITATION FOR BID, INSTRUCTION TO BIDDERS**, Paragraph one has changed

FROM:

This bid shall be submitted in one (1) original and two (2) copies and sealed to the issuing office above no later than (Time) **10:00 A.M.**, (CHamoru Standard Time; ChST) Date: **March 31, 2026** and shall be publicly opened. Bid submitted after the time and date specified above shall be rejected. See attached General Terms and Conditions and Sealed Bid Solicitation for details.

*** TO NOW READ:**

This bid shall be submitted in one (1) original and two (2) copies and sealed to the issuing office above no later than (Time) **10:00 A.M.**, (CHamoru Standard Time; ChST) Date: **April 08, 2026** and shall be publicly opened. Bid submitted after the time and date specified above shall be rejected. See attached General Terms and Conditions and Sealed Bid Solicitation for details.

INCLUSIONS:

1. ATTACHMENT A: Line Item No.: 1.0
2. ATTACHMENT B: Line Item No.: 2.0
3. ATTACHMENT C: Line Item No.: 3.0
4. ATTACHMENT D: Line Item No.: 4.0

RESPONSE:

Bidder No. 8 dated 02/13/2026:

QUESTION:

1. We would like to request clarification on a concern raised by our supplier. Below is an excerpt from an email from Siemens:
"I want to make sure I am clear. You are looking for a retro-fit I roll-in replacement for a GE Magne Blast?"

The reference makes are the bottom: Siemens 15GER, National Breaker Citadel, GE VL are what are specified as acceptable?"

ANSWER:

Yes, we are looking for a roll in vacuum breaker replacement for a GE Magne Blast. We know first-hand that the Siemens 15-GER type is compatible as we have a few of these presently installed in place of the old GE Magne Blast breakers. The others appear compatible in our research, however, we would have to verify the detailed specifications of each of the items offered to confirm compatibility.

Bidder No. 8 dated 03/06/2026:

QUESTION:

1. Please confirm if the GE Power Vac has an ML-18 or ML-17 mechanism.

ANSWER:

ML-18

QUESTION:

2. Please provide nameplates for the breakers.

ANSWER:

Refer to **INCLUSIONS** 1 through 4

QUESTION:

3. We respectfully request an extension of the bid submission deadline from March 10, 2026 to March 20, 2026, as we are still awaiting quotations from our suppliers.

ANSWER:

Refer to Amendment No.: III dated March 09, 2026

Bidder No. 11 dated 02/18/2026:

QUESTION:

1. Supplier is asking this:
"are these to be replacement units? If so, any chance of pictures of the existing ones?"
Are you able to provide those photos?

ANSWER:

Refer to **INCLUSIONS** 1 through 4

Bidder No. 11 dated 02/23/2026:




QUESTION:

1. Are there any drawings available? I believe the specifications in the attached are enough to get us started on quoting the replacement breakers, but it would be great to see drawings if they have them available to help verify.

ANSWER:

Refer to **INCLUSIONS** 1 through 4

All other Terms and Conditions in the bid package shall remain unchanged and in full force.



 JHN M. BENAVENTE E.
General Manager 


INVITATION FOR BID

ISSUING OFFICE:

Guam Power Authority-Procurement Office
1st. Floor, Room 101
Gloria B. Nelson Public Service Building
688 Route 15
Mangilao, Guam 96913

Attn: JOHN M. BENAVENTE, P.E.
General Manager
c/o JAMIE LYNN C. PANGELINAN
Supply Management Administrator

 /2026

John M. BENAVENTE . DATE
General Manager 

DATE ISSUED: 02/05/2026
02/12/2026 BID INVITATION NO.: GPA-006-26
BID FOR: INDOOR MEDIUM VOLTAGE VACUUM CIRCUIT BREAKER
SPECIFICATION: SEE ATTACHED
DESTINATION: GUAM POWER AUTHORITY (DEDEDO SUPPLY WAREHOUSE)
REQUIRED DELIVERY TIME: 60 WEEKS AFTER RECEIPT OF ORDER (ARO)

INSTRUCTIONS TO BIDDERS:

INDICATE WHETHER: _____ INDIVIDUAL _____ PARTNERSHIP _____ CORPORATION
INCORPORATED IN: _____

* This bid shall be submitted in one (1) original, two (2) copies and sealed to the issuing office above no later than (Time) 10:00 A.M., (Guam CHamoru Standard Time: ChST), Date: April 08, 2026 and shall be publicly opened. Bid submitted after the time and date specified above shall be rejected. See attached General Terms and Conditions and Sealed Bid Solicitation for details.

The undersigned offers and agrees to furnish within the time specified, the articles and services at the price stated opposite the respective items listed on the schedule provided, unless otherwise specified by the bidder. In consideration to the expense of the Government in opening, tabulating, and evaluating this and other bids, and other considerations, the undersigned agrees that this bid remain firm and irrevocable within one hundred twenty (120) calendar days from the date opening to supply any or all of the items which prices are quoted.

NAME AND ADDRESS OF BIDDER: _____ SIGNATURE AND TITLE OF PERSON
AUTHORIZED TO SIGN THIS BID:

The above must be signed and returned in the bid envelope together with bid. Failure to comply will mean a disqualification and rejection of the bid.

AWARD: CONTRACT NO.: _____ AMOUNT: _____ DATE: _____

ITEM NO(S). AWARDED: _____

CONTRACTING OFFICER:

JOHN M. BENAVENTE, P.E. DATE
General Manager

To be completed pre-award:
NAME AND ADDRESS OF CONTRACTOR: _____ SIGNATURE AND TITLE OF PERSON

ATTACHMENT A

Line Item No.: 1.0

DocuSign Envelope ID: 390DC61A-AEE9-8BF3-8032-21FE64744F58



GENERAL ELECTRIC MAGNE-BLAST CIRCUIT BREAKER

TYPE AM-13 .8-500-7H

SER. NO. 287A8302-001

RATED MAX. VOLTAGE 15 KV RATED AMP. 1200 Hz 60 IMPULSE WITHSTAND 95 KV INT TIME 5 CY

RATED SHORT CIRCUIT AMPS. 18 KA RATED VOLTAGE RANGE FACTOR 1.30 CLOSE & LATCH CAPABILITY AMP. 37 KA

CLOSING COIL 6174582 G1 VOLTS 125 CLOSING AMPS. 6 D C VOLT RANGE 90-130

POTENTIAL TRIP COIL 6174582 G1 VOLTS 125 AMP 6 D C VOLT RANGE 70-140

UV TRIP COIL VOLTS CURRENT TRIP COIL MECH TYPE ML-13 DATE MFG. 1978

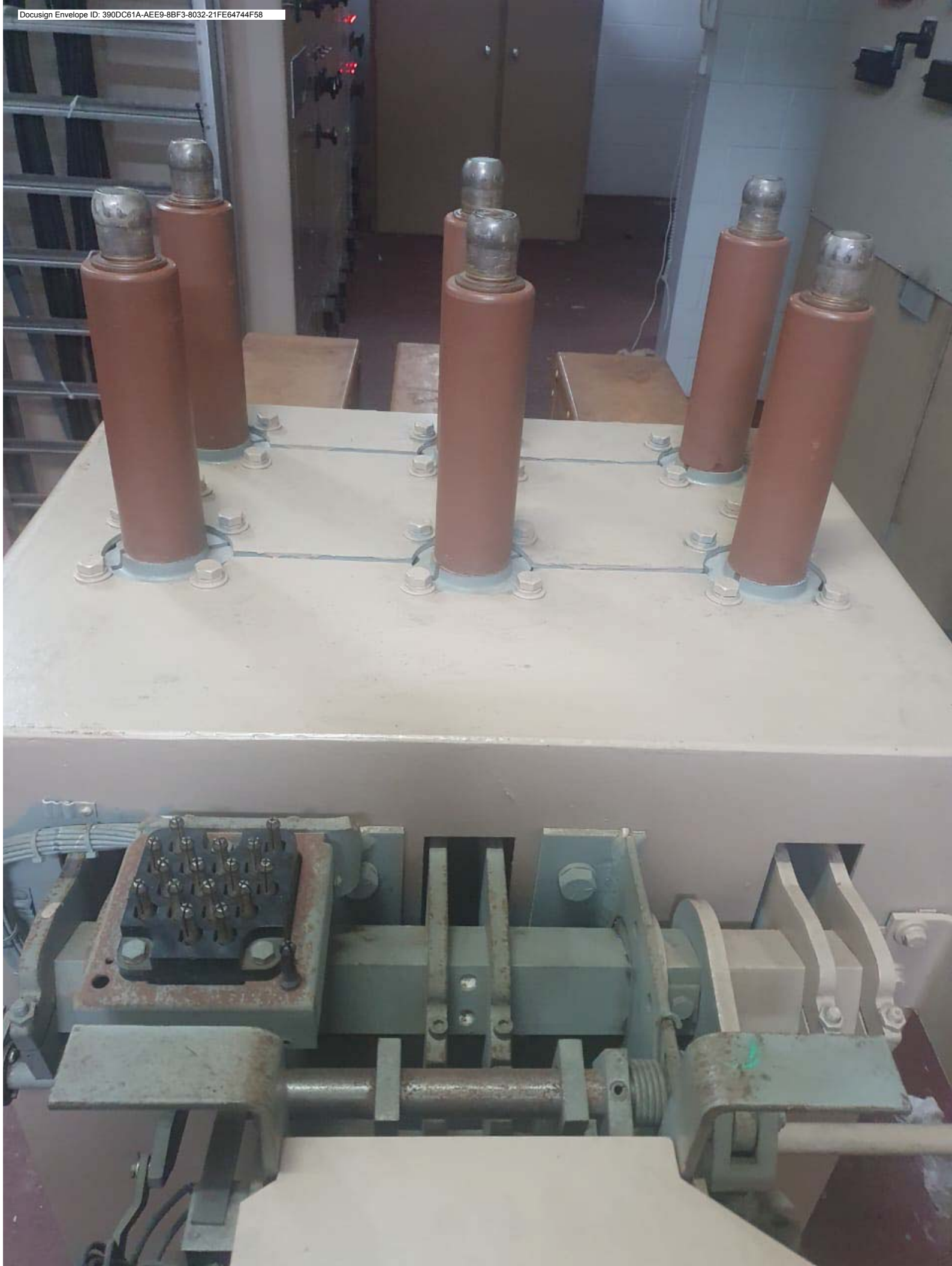
CONNECTION DIAGRAM 227A1000 P41

WT. 1450

MADE IN U.S.A.
PHILADELPHIA, PA.
NPO208A8071

CAUTION! BEFORE INSTALLING OR OPERATING READ INST. GEK-31111







SIEMENS

Sales No. **3009642064**

% DC Comp. **---** Asym Factor S **1.2**

Date **11/2022**

Type **15-GER-500-1200-37**

Weight(Lbs) **1165**

Amps **1200** Hz. **60**

Volt. Range Factor K **1.30**

Wire Diag. **18-818-967-584**

BIL (kV) **95**

Serial No. **R-3009642064A-001**

Rated Max. Volts (kV) **15.0**

Instr. Bk. No. **SGIM-9978**

Rated Short Circuit (kA) **18**

Close & Latch kA **37** rms **62** peak

Inter. Time Cyc/ms **5**

Operating Duty Cycle **O-0.3s-CO-3min-CO**

Short-Time Duration (s) **3**

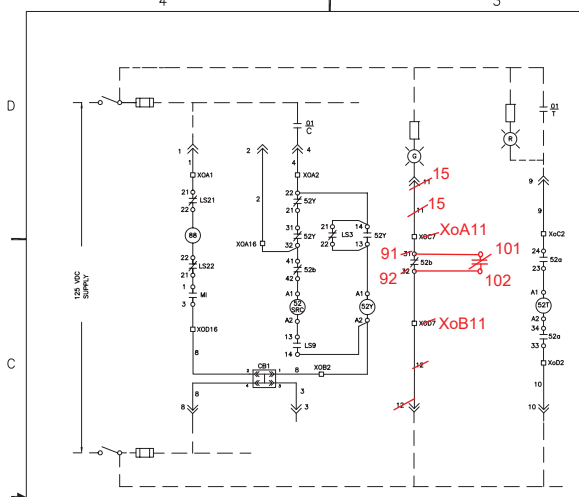
	Motor	Close	Trip
Volts Range	100-140 VDC	100-140 VDC	70-140 VDC

Amps Nominal	4.0	1.0	4.8
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Siemens Raleigh, NC, USA

18-658-024-331 rev. 17

P-253

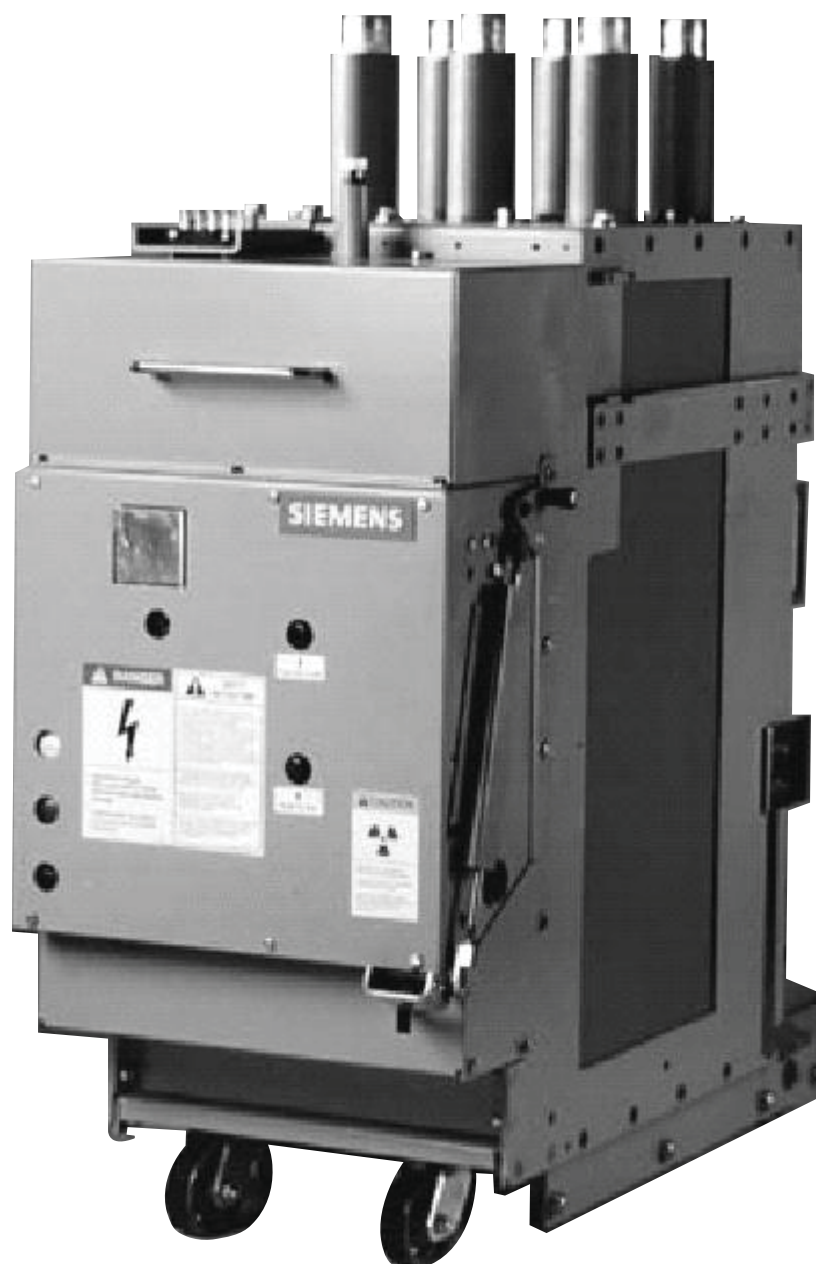


SIEMENS

Vacuum Circuit Breakers (Vehicle)

Type GER
5kV to 15kV

Instructions
Installation
Operation
Maintenance
SGIM-9978E





⚠ DANGER

Hazardous voltages and high-speed moving parts.

Will cause death, serious injury or equipment damage.

De-energize and ground the equipment before maintenance. Maintenance should be performed only by qualified personnel.

The use of unauthorized parts should not be used in the repair of the equipment.

Follow all safety instructions contained herein.

IMPORTANT

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

QUALIFIED PERSON

For the purpose of this manual a qualified person is one who is familiar with the installation, construction or operation of the equipment and the hazards involved. In addition, this person has the following qualifications:

- (a) **is trained and authorized** to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) **is trained** in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.
- (c) **is trained** in rendering first aid.

SUMMARY

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local sales office.

The contents of this instruction manual shall not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of Siemens Energy, Inc. The warranty contained in the contract between the parties is the sole warranty of Siemens Energy, Inc. Any statements contained herein do not create new warranties or modify the existing warranty.

Vacuum Circuit Breakers (Vehicle)

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Introduction and Safety

Introduction

The GER family of vacuum circuit breakers is designed to meet all the applicable ANSI, NEMA and IEEE standards. Successful application and operation of this equipment depends as much upon proper installation and maintenance by the user as it does upon the careful design and fabrication by Siemens.

The purpose of this Instruction Manual is to assist the user in developing safe and efficient procedures for the installation, maintenance and use of the equipment.

Contact the nearest Siemens representative if any additional information is desired.

	⚠ DANGER
	<p>Hazardous voltages and high-speed moving parts.</p> <p>Will cause death, serious injury or property damage.</p> <p>Only qualified persons thoroughly familiar with the equipment, instruction manuals and drawings should install, operate and/or maintain this equipment.</p>

Qualified Person

For the purpose of this manual a Qualified Person is one who is familiar with the installation, construction or operation of the equipment and the hazards involved. In addition, this person has the following qualifications:

- Training and authorization to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety practices.
- Training in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses, face shields, flash clothing, etc., in accordance with established safety procedures.
- Training in rendering first aid.

Signal Words

The signal words “Danger,” “Warning” and “Caution” used in this manual indicate the degree of hazard that may be encountered by the user. These words are defined as:

Danger - Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Warning - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution - indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Dangerous Procedures

In addition to other procedures described in this manual as dangerous, user personnel must adhere to the following:

1. Always work on de-energized equipment. Always de-energize a breaker, and remove it from the switchgear before performing any tests, maintenance or repair.
2. Always perform maintenance on the breaker after the spring-charged mechanisms are discharged.
3. Always let an interlock device or safety mechanism perform its function without forcing or defeating the device.

Field Service Operation

Siemens can provide competent, well-trained Field Service Representatives to provide technical guidance and advisory assistance for the installation, overhaul, repair and maintenance of Siemens equipment, processes and systems. Contact regional service centers, sales offices or the factory for details, or telephone Siemens Field Service at 1-800-241-4453.

Receiving, Handling and Storage

Introduction

This manual covers the Receiving, Handling and Storage instructions for vacuum circuit breakers shipped separately from the switchgear. This section of the manual is intended to help the user identify, inspect and protect the circuit breaker prior to its installation.

Receiving Procedure

Make a physical inspection of the shipping container before removing or unpacking the circuit breaker. Check for shipment damage or indications of rough handling by the carrier. Check each item against the manifest to identify any shortages.


Accessories such as the manual charging crank, the racking crank and the split plug jumper are shipped separately.

Shipping Damage Claims (when applicable) - Follow normal shipment damage procedures, which should include:

1. Check for visible damage upon arrival.
2. Visible damage must be noted on delivery receipt, and acknowledged with driver's signature. Notation, "Possible internal damage, subject to inspection" must be on delivery receipt.
3. Notify the Siemens Sales office immediately of any shipment damage.
4. Arrange for carrier's inspection. Do not move the unit from its unloading point.

Handling Procedure

1. Carefully remove the shipping carton from the circuit breaker. Keep the shipping pallet for later use if the breaker is to be stored prior to its installation.
2. Inspect for concealed damage. Notification to carrier must take place within 15 days to assure prompt resolution of claims.
3. The circuit breaker shall be lifted using original lifting tool or Siemens lifting tool part number 18-828-339-5XX.

	⚠ WARNING
	<p>Heavy weight. Can cause death, serious injury, or property damage.</p> <p>Use of a qualified rigger to hoist the circuit breaker.</p>

4. The palletted circuit breaker can also be moved using a properly rated fork-lift vehicle. The pallets are designed for movement by a standard fork-lift vehicle.

Storage Procedure

1. When the circuit breaker is placed on its pallet for storage, be sure the unit is securely bolted to the pallet and covered with polyethylene film at least 10 mils thick.

Indoor Storage - Whenever possible, store the circuit breaker indoors. The storage environment must be clean, dry and free of such items as construction dust, corrosive atmosphere, mechanical abuse and rapid temperature variations.

Outdoor Storage - Outdoor storage is not recommended. When no other option is available, the circuit breaker must be completely covered and protected from rain, snow, dirt and all other contaminants.

Space Heating - Space heating must be used for **both indoor and outdoor** storage to prevent condensation and corrosion. When stored outdoors, 250 watts per breaker of space heating is recommended.

Vehicle Description


Vehicle Function and Operational Interlocks

Type GER vacuum circuit breakers are comprised of the interrupter/operator module fitted to a vehicle. This interrupter/operator module is an integral arrangement of operating mechanism, dielectric system, vacuum interrupters, and means of connecting the primary circuit. The vehicle supports the interrupter/operator module, providing mobility and fully coordinated application in GE Metal-Clad type M26 and M36 switchgear.

This manual should be used jointly with the Circuit Breaker Operator manual, E50001-F710-A251-V1-4A00.

Alignment

All aspects of the circuit breaker structure which impact alignment and interchangeability are checked at the factory. Field adjustment will not normally be required, but variations in existing switchgear may require field adjustment.

	⚠ DANGER
	<p>Hazardous voltages and high-speed moving parts. Will cause death, serious injury, and property damage.</p> <p>De-energize before working on this equipment.</p> <p>Do not bypass interlocks or otherwise make interlocks inoperative.</p>

Recommended Tools

- Racking Crank: Original circuit breaker racking crank may be used.


Installing Circuit Breaker Module Into Compartment

Interlock

Trip-Free/Spring Dump Interlock

The Trip-Free/Spring Dump interlock is of primary importance in the safe and effective operation of the type GER Vertical Lift Replacement circuit breaker. This interlock provides safety to both personnel and equipment during the racking procedure, as it prevents the electrical or manual closing and/or electrical spring charging of the circuit breaker until the circuit breaker is in either the Disconnect/Test position or the Connect position.

It is important to note the Trip-Free/Spring Dump interlock on the type GER circuit breaker is functionally similar to the original manufacturer's interlock, however, there are differences among the two interlocking systems which must be discussed.

	⚠ DANGER
	<p>Inoperative or bypassed interlocks will cause death, serious personal injury and property damage.</p> <p>Mechanical and electrical interlocks are provided as integral components of this equipment to ensure safe use. Interlocks must be in operation at all times. Read this instruction manual. Know and understand correct interlock function. Check interlock function prior to inserting circuit breaker into switchgear cubicle.</p>

Differences

The original manufacturer's trip-free and spring dump interlocking is a two stage system. In this system, the spring dump is accomplished in one stage, and occurs via a ramp located on the left side of the cubicle working in concert with a linkage system. The springs are dumped as the circuit breaker is rolled in or out from the Disconnect position as the circuit breaker linkage is actuated by the cubicle mounted ramp.

The second stage of the original manufacturer's system addresses the trip-free condition of the circuit breaker. In this system the circuit breaker is held trip-free during racking via the trip roller located on the right side of the circuit breaker, working in concert with the moveable cam plate associated with the elevating mechanism. The circuit breaker is held trip-free during racking as the trip roller is displaced by the moveable cam.

Another distinct difference among the two systems is that the original manufacturer's circuit breaker must be manually "tripped" (opened) prior to attempting to rack the circuit breaker.

The trip-free/spring dump arrangement on the Siemens type GER replacement circuit breaker is integrated into a single stage interlocking system. Trip-free operation, spring dump and circuit breaker "tripping" (opening) all result from the single linkage arrangement operated by the trip-free roller located on the right side of the circuit breaker, which works in concert with the moveable car mounted in the original switchgear cubicle. There is no spring dump linkage located on the left side of the type GER circuit breaker and manual tripping of the circuit breaker prior to racking is not required as both of these functions occur instantaneously with the initiator displaced by the moveable cam in much the same manner as the original manufacturer's circuit breaker.

The function of the type GER circuit breaker trip-free/spring dump interlocking will be discussed in greater detail.

Vehicle Description

Circuit Breaker in Disconnect/Test Position (Refer to Figure 4)

Note: **Figures 1, 2, and 3** pictorially represent a 5kV-350MVA type GER circuit breaker. While the associated parts required to perform the trip-free/spring dump function vary in style and mounting among the various circuit breaker ratings available, the function achieved is identical on all type GER circuit breaker ratings.

Figure 1 is a partial representation of the circuit breaker in the Disconnect/Test position, with the circuit breaker resting on the top of the cubicle guide rails. Note: the Disconnect/Test position on the type GER circuit breaker is the same, and is the location achieved when inserting the circuit breaker fully into the cubicle to the racking position.

Note that in this position, the trip-free roller resides in the lower cavity of the cubicle mounted moveable cam, and that successful operation is dependent on the free rotation of the trip-free roller.

The enlarged view of the circuit breaker operator in **Figure 1** indicates that the circuit breaker is open, with closing springs discharged.

In this condition, parts relating to the closing and spring charging are not engaged, as is indicated by the location of pawl roller, latching pawl, pawl and pawl roller. Note also that the trip pushed cam, trip-free pushrod, interlock levers, motor cutoff switch are in their lowest position.

It is recommended that the trip-free/spring dump interlock be tested while the circuit breaker resides in the Disconnect/Test position. Follow the procedure below to verify the function of the trip-free/spring dump interlock:

1. On a de-energized bus, with the circuit breaker in the Disconnect/Test position, manually charge the circuit breaker's closing springs, and bring the circuit breaker to a CLOSED condition.
2. With the circuit breaker closed and the springs charged, attempt to rack the circuit breaker by pulling the elevating mechanism handle toward you.
3. Actuation of the elevating mechanism handle should displace the trip-free roller counterclockwise out of the lower cavity of the cubicle mounted stationary cam. The displacement of the trip-free roller should result in the

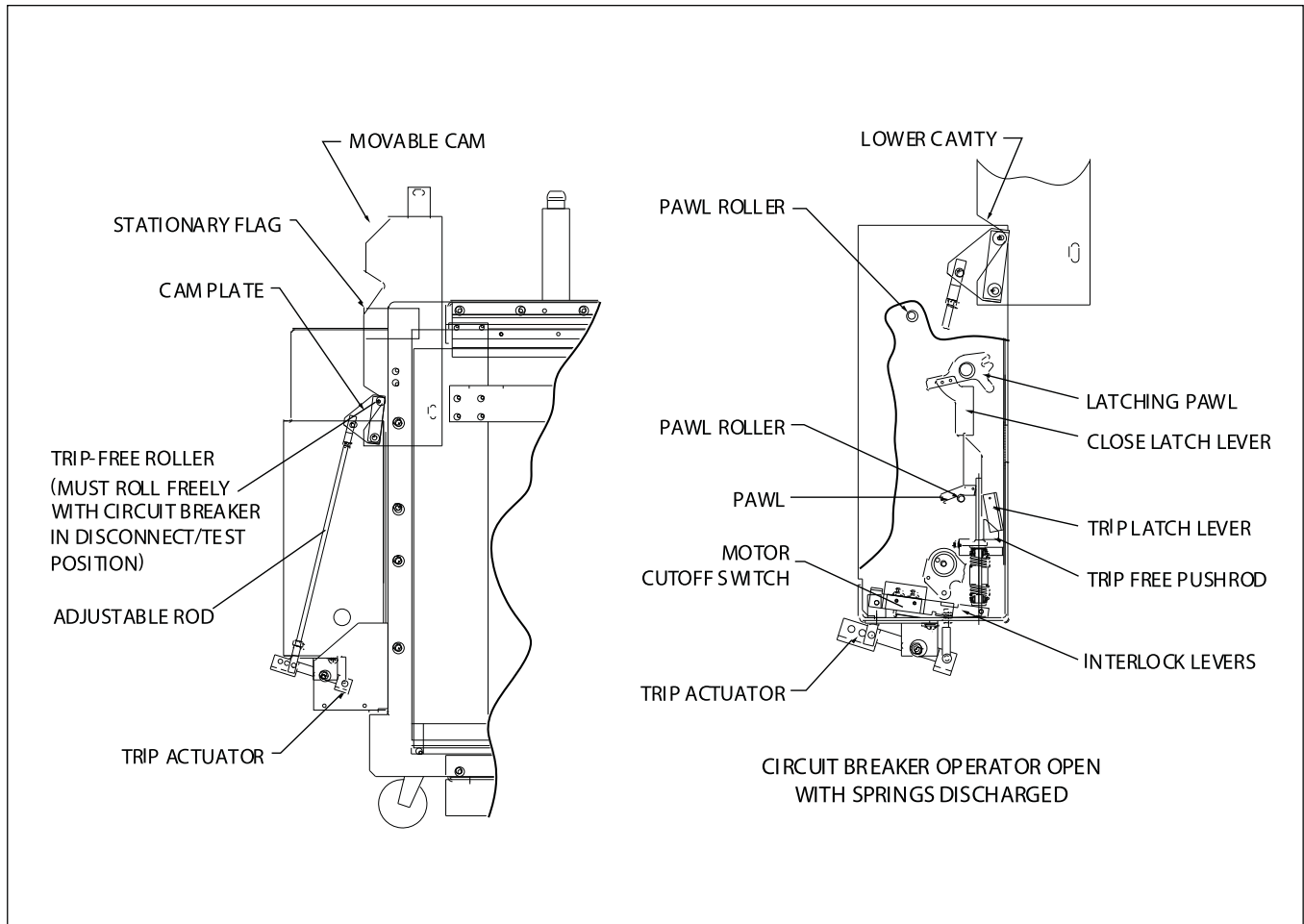


Figure 1. Trip-Free/Spring Dump Interlock (Circuit Breaker in Disconnect/Test Position)

Vehicle Description

downward displacement of the trip actuator and elevation of the lever linkage arrangement, which in turn will lift the interlock levers and elevate the trip-free pushrod. The elevation of the trip-free pushrod will actuate trip latch lever and displace the close latch lever, resulting in the discharge of the closing spring and the “tripping” (opening) of the circuit breaker prior to racking.

In short, operating the elevating mechanism handle should immediately displace the trip-free roller, resulting in the discharge of the closing spring and the opening of the circuit breaker, therefore making it impossible to rack a closed or charged circuit breaker.

Trip-Free In Racking Procedure (Refer to Figure 2)

Figure 2 is a pictorial representation of the circuit breaker during the racking procedure.

Note that in this position, as well as in any position during racking the circuit breaker from Disconnect/Test to Connect, the trip-free roller is displaced counterclockwise and “rides” along the face of the cubicle mounted moveable cam.

As shown in the enlarged view of the circuit breaker operator, the displacement of the trip-free roller results in the downward displacement of the trip actuator which in turn lifts the lever linkage, which results in the elevation of the interlock levers. The upward displacement of the interlock levers result in the opening on the normally-closed motor cutoff switch, preventing the springs from charging electrically during racking. The elevation of the interlock levers also lift the trip-free pushrod and trip pushrod cam, resulting in the displacement of the trip latch lever and close latch lever, ultimately resulting in the circuit breaker obtaining a trip-free condition.

The effectiveness of the trip-free interlock can and should be tested during the racking procedure by following the steps below:

1. On a de-energized bus, rack the circuit breaker to any position between Disconnect/Test and Connect. Release the elevating mechanism handle.
2. Attempt to electrically charge the closing spring. As the motor cutoff switch (normally closed for operation), is being held open by the displacement of the trip-free roller, no spring charging should be observed, therefore, no electrical close may be initiated.

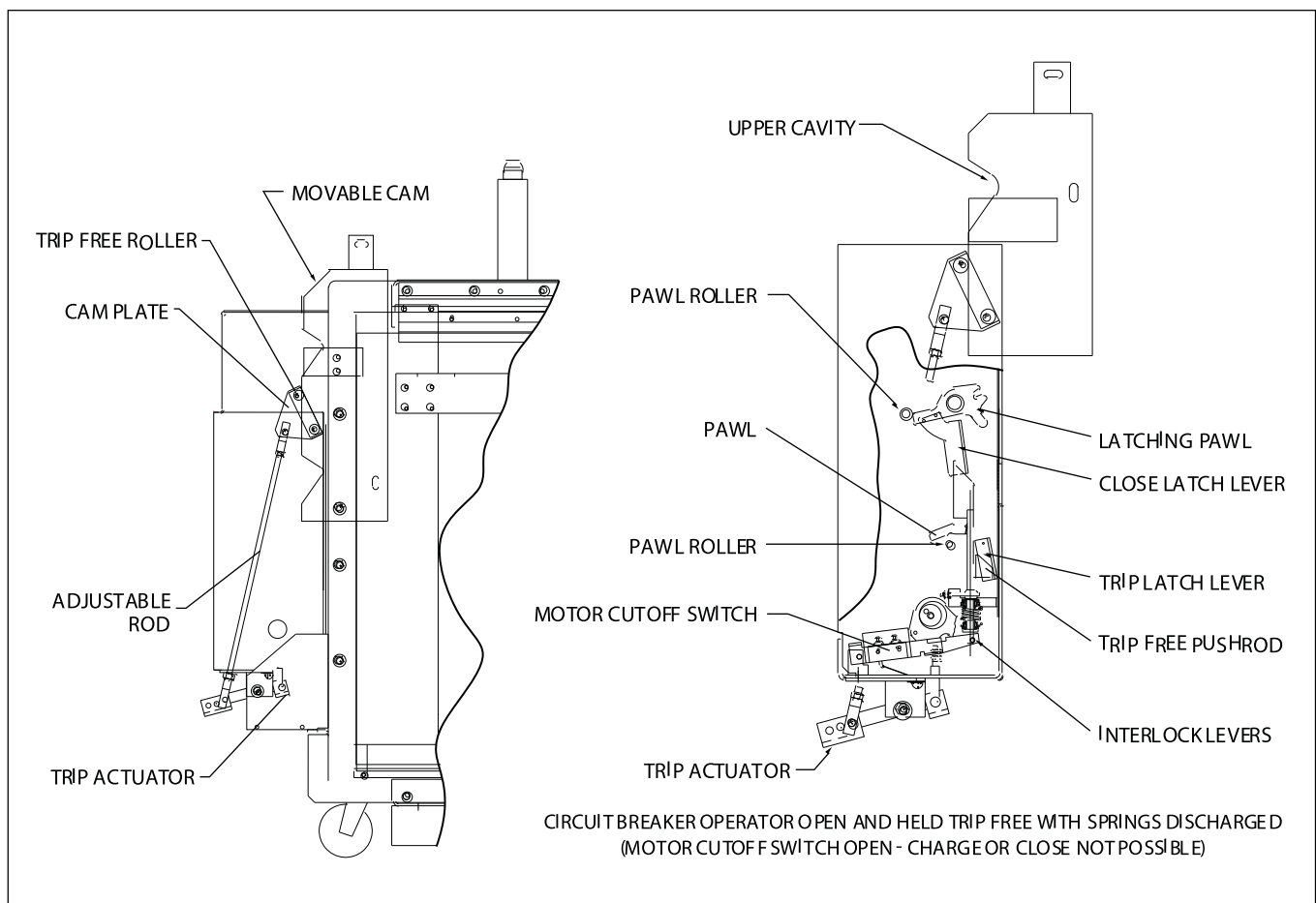


Figure 2. Trip-Free/Spring Dump Interlock (Circuit Breaker in Mid-Cycle Racking Position)

Vehicle Description

3. Attempt to manually charge the closing spring. The closing spring should extend as expected, but fail to latch in the extended position due to the displacement of the close latch lever.

As the closing spring cannot maintain a latched condition, and the trip latch lever is displaced, it is impossible to charge the springs and close the circuit breaker during the racking cycle.

Circuit Breaker in Connect Position (Refer to Figure 3)


Figure 3 is a pictorial representation of the circuit breaker in the Connect position.

Note that in this position, the trip-free roller resides in the upper cavity of the cubicle mounted moveable cam. It is important to note that there should be a 0.062" to 0.125" gap between the bottom of the trip-free roller and the top of the stationary flag associated with the cubicle mounted elevating mechanism. (Refer to section entitled "Cubicle Preparation," page 3, for cubicle adjustment)

In the Connect position with the trip-free roller residing as required in the upper cavity of the moveable cam, the circuit breaker is now free to perform all required functions.

The enlarged view of the operating mechanism shows the circuit breaker operator closed with springs charged. Note that all items displaced during the racking procedure have returned to the state required to allow the circuit breaker to be charged and latched closed.

It is important to verify that the circuit breaker will perform as expected in the fully connected position. Follow the following procedure to test the functioning of the operating mechanism in the fully connect position.

⚠ DANGER	
	<p>Hazardous voltages and high-speed moving parts. Will cause death, serious injury, and property damage.</p>
	<p>De-energize before working on this equipment.</p>
	<p>Do not bypass interlocks or otherwise make interlocks inoperative.</p>

1. On a de-energized bus, rack the circuit breaker to the fully Connect position. Successful function of the trip-free/spring dump interlock will result in the circuit breaker arriving in the Connect position in an open state with springs discharged.

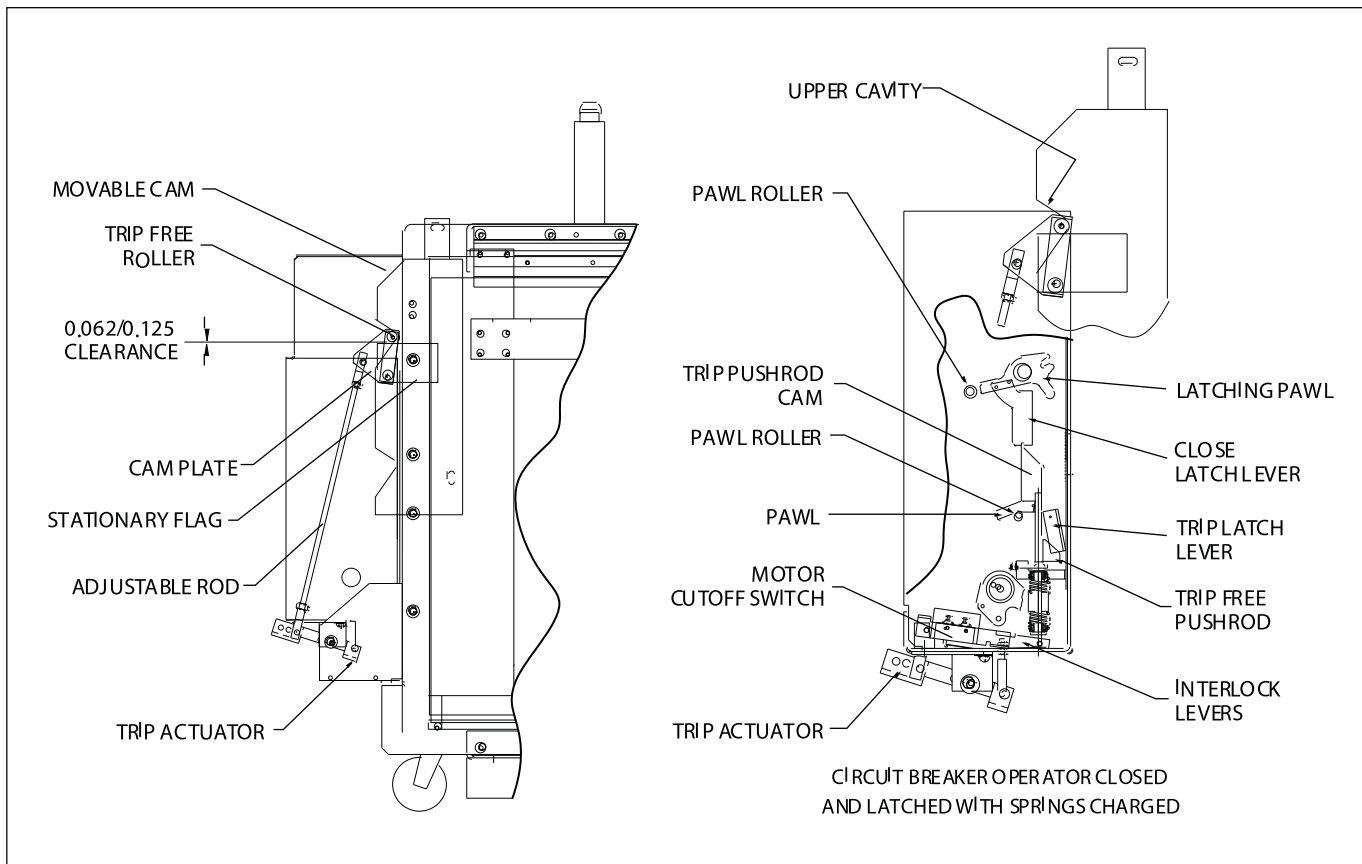


Figure 3 Trip-Free/Spring Dump Interlock (Circuit Breaker in Fully Connected Position)

Vehicle Description

2. Electrically or mechanically charge the circuit breaker.
3. With the circuit breaker charged, electrically or manually perform a close operation on the circuit breaker. The circuit breaker should latch closed, indicated by the close-open indicator (**Figure 5**, page 11).

If the circuit breaker does not latch closed and springs charge, contact local Siemens office for information.

After successful operation of the circuit breaker, it is important to verify trip-free/spring dump operation when racking the circuit breaker from Connect to the Disconnect/Test position.

To verify this function follow the following procedure:

1. With circuit breaker charged and closed, pull elevating mechanism handle. This action should displace the trip-free roller counterclockwise, resulting in the immediate discharge of the closing spring and the opening of the circuit breaker.

2. Rack the circuit breaker to a position between Connect and Disconnect/Test. Repeat steps 1, 2, and 3 listed in the procedure detailed in section entitled "Trip-Free Racking"

Should any problems arise with the trip-free/spring dump interlock, follow the adjustment procedure listed below.

Adjustment Procedure – Trip-Free/Spring Dump

If the existing manufacturer's cubicle is properly maintained and adjusted, no adjustment to the trip-free/spring dump interlock on the type GER circuit breaker should be necessary.

Should problems with this interlock arise the first step is to verify that the cubicle is arranged as required by the original manufacturer's specifications.

If problems still exist after reviewing this information and making any required adjustments to the cubicle, the trip-free/spring dump interlock can be adjusted by following the steps listed below: (Refer to **Figure 1, 2, and 3**)

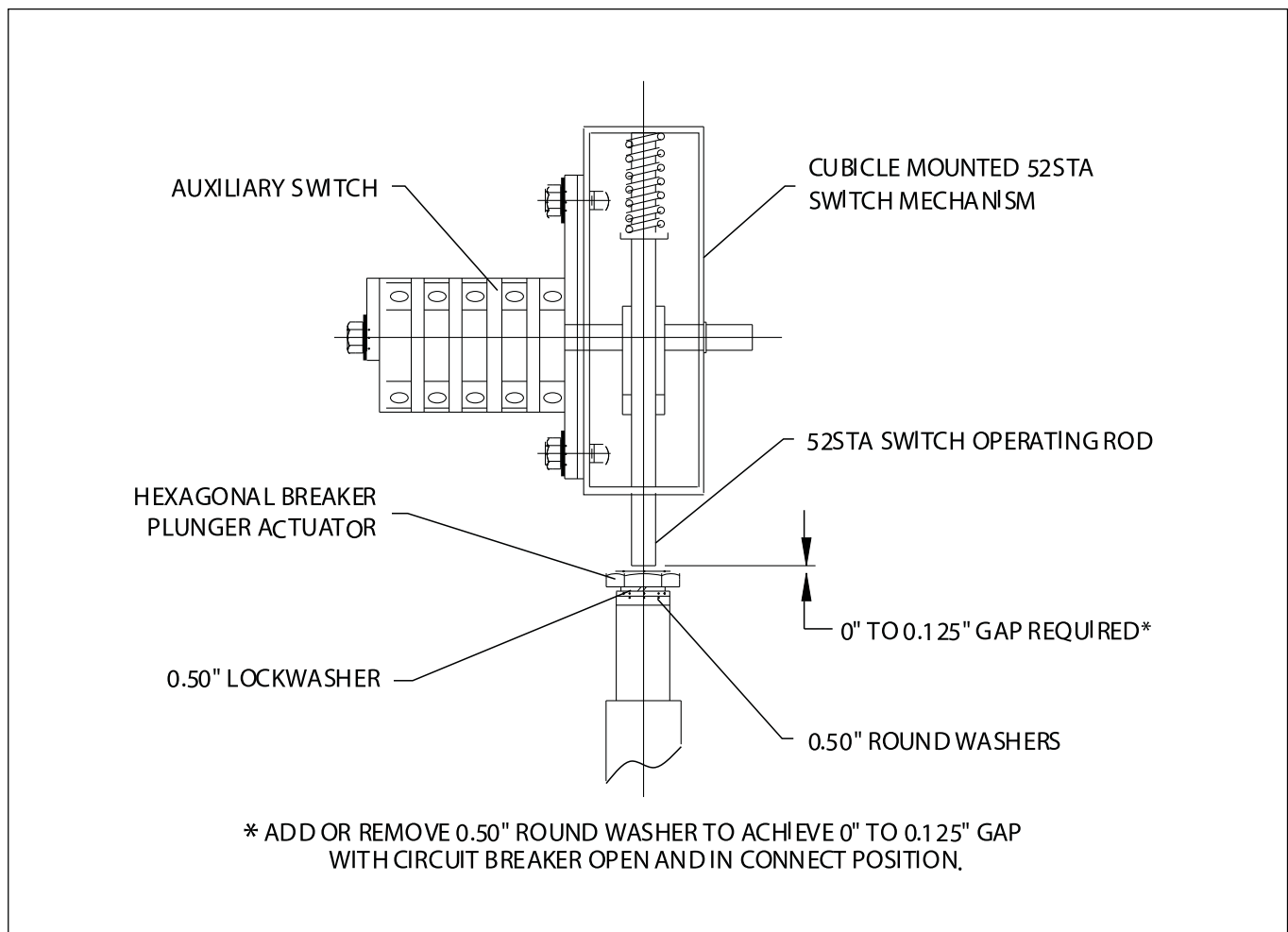


Figure 4. MOC Actuator (Circuit Breaker Connect Position)

Vehicle Description

1. Trip-free roller:

If the trip-free roller does not fit in the upper or lower cavity of the cubicle mounted moveable cam as required, or actuation of the elevating mechanism handle does not immediately discharge the springs and open the circuit breaker, the trip-free roller may be adjusted.

To adjust the location of the trip-free roller, first loosen both locking nuts located on the adjustable rod. When nuts are loosened, the trip-free roller may be adjusted in/out by turning the adjustable rod (on some models, it may be necessary to loosen the locknuts, and disassemble the upper clevis from the associated cam plate to obtain freedom of adjustment). Turning the adjustable rod will result in a radial movement (in, out, up, and down) of the cam plate and trip-free roller related to the pivot point of the cam plate.

If problems still occur after performing the above actions, contact the local Siemens office for information.

MOC Actuator (Refer to Figure 4)

Siemens recommends replacement of the original GE 52STA with a Siemens 52STA (5kV, 250MVA — P/N 18-669-255-502 and for all other ratings — P/N 18-669-255-501.)

If requested, the Siemens type GER circuit breakers can come equipped with a MOC actuator. This is provided to actuate the original manufacturer's designated 52STA auxiliary switch mounted in the existing cubicle.

The Siemens MOC actuator has a total travel from circuit breaker open to circuit breaker closed position of 1.062 ± 0.062 ". The travel applies approximately 0.94" total displacement of the cubicle mounted 52STA auxiliary switch at proper cubicle settings.

The recommended setting of the MOC actuator is described in the "MOC Actuator" Illustration, (**Figure 4**).

Continuous Current Interlock


The continuous current interlock functions to ensure that circuit breakers and cubicle of like continuous current rating are applied, and that circuit breakers with dissimilar continuous current ratings are excluded from cubicles of unlike continuous current ratings.

The continuous current interlocks applied on the type GER circuit breakers are designed to match in detail and mounting location those of the interlocks applied on the original manufacturer's circuit breaker.

Maintenance

Introduction and Maintenance Intervals

Periodic inspections and maintenance are essential to obtain safe and reliable operation of the circuit breaker as well as the switchgear.

	⚠ DANGER
	<p>Hazardous voltages and high-speed moving parts.</p>
	<p>Will cause death, personal injury, and property damage.</p>
	<p>De-energize before working on this equipment. Read instruction manuals, observe safety instructions, and limit use to qualified personnel.</p>

When circuit breakers and/or the switchgear are operated under "Usual Service Conditions," maintenance and lubrication is recommended at ten year intervals or at the number of operations indicated in **Table 2**. "Usual" and "Unusual" service conditions for Medium Voltage Metal-Clad Switchgear are defined in ANSI C37.20.2, section 8.1. Generally, "usual service conditions" are defined as an environment in which the equipment is not exposed to excessive dust, acid fumes, damaging chemicals, salt air, rapid or frequent changes in temperature, vibration, high humidity, and extremes of temperature.

The definition of "usual service conditions" is subject to a variety of interpretations. Because of this, you are best served by adjusting maintenance and lubrication intervals based on your experience with the equipment in the actual service environment.

Regardless of the length of the maintenance and lubrication interval, **Siemens recommends that circuit breakers and switchgear should be inspected and exercised annually.**

Recommended Maintenance and Lubrication

Periodic maintenance and lubrication should include all the tasks shown in **Table 1**. Recommended procedures for each of the listed tasks are provided in this section of the manual.

⚠ WARNING
<p>Failure to properly maintain the equipment could result in death, serious injury or product failure, and can prevent successful functioning of connected apparatus.</p>
<p>Instructions should be carefully reviewed, understood, and followed.</p>
<p>The maintenance tasks in Table 1 must be performed regularly.</p>

Table 1: Maintenance Tasks

<ul style="list-style-type: none"> • Checks of the primary power path • Cleanliness check • Primary disconnect contact cleanliness and lubrication • Fastener check • Wiring and terminals check • Secondary disconnect check • Automatic spring charging interlock system check • Electrical close and trip check • High potential test • Insulation test • Inspection and cleaning of insulation • Functional tests • Interlock mechanism cleanliness and lubrication • MOC Actuator System inspection and lubrication • Electrical control checks • Circuit Breaker Operator tasks as detailed in manual E50001-F710-A251-V1-4A00
--

The list of tasks in **Table 1** does not represent an exhaustive survey of maintenance steps necessary to ensure safe operation of the equipment. Particular applications may require further procedures. Should further information be desired or should particular problems arise which are not covered sufficiently for the Purchaser's purposes, the matter should be referred to the local Siemens sales office.

⚠ DANGER
<p>The use of unauthorized parts in the repair of the equipment, or tampering by unqualified personnel will result in dangerous conditions which will cause death, serious injury or equipment damage.</p>
<p>Follow all safety instructions contained herein.</p>

Removal from Switchgear

Prior to performing any inspection or maintenance checks or tests, the circuit breaker must be removed from the switchgear. The Installation and Initial Functional Tests section describes the removal procedure in detail. Principal steps are repeated here for information and guidance, but without the details of the preceding section.

Maintenance

1. The first step is to de-energize the circuit breaker. Pressing the Open pushbutton opens the circuit breaker prior to removal from the switchgear (Refer to Circuit Breaker Operator / Manual SG-9918.)
2. The second step in the removal procedure is to de-energize control power to the circuit breaker. Open the control power disconnect device.
3. Rack the circuit breaker to the Disconnect/Test position.
4. Perform the spring discharge check. This is done by first pressing the red Open pushbutton. Second, press the black Close pushbutton. Third, press the red Open pushbutton again, and observe the spring condition indicator. It should read Discharge (Refer to Circuit Breaker Operator / Manual E50001-F710-A251-V1-4A00.)
5. Remove the circuit breaker from the switchgear. Refer to the preceding installation section of this manual for special instructions and precautions regarding removal of a circuit breaker which is not at floor level.

Checks of the Primary Power Path

The primary power path consists of the three vacuum interrupters and the six primary studs. These components are checked for cleanliness and condition (**Figure 6**). The vacuum interrupters are discussed in the Circuit breaker Operator Manual E50001-F710-A251-V1-4A00.

Note: Maximum Contact Resistance is read from primary bus stab to primary bus stab. A value of 30 micro-ohms should be added to the maximum contact resistance specified in Circuit Breaker Operator Manual E50001-F710-A251-V1-4A00.

Cleanliness Check

Figure 6 is a side view of the GER Circuit Breaker with the insulating barriers removed (furnished on certain models only) to show the vacuum interrupter and the primary studs.

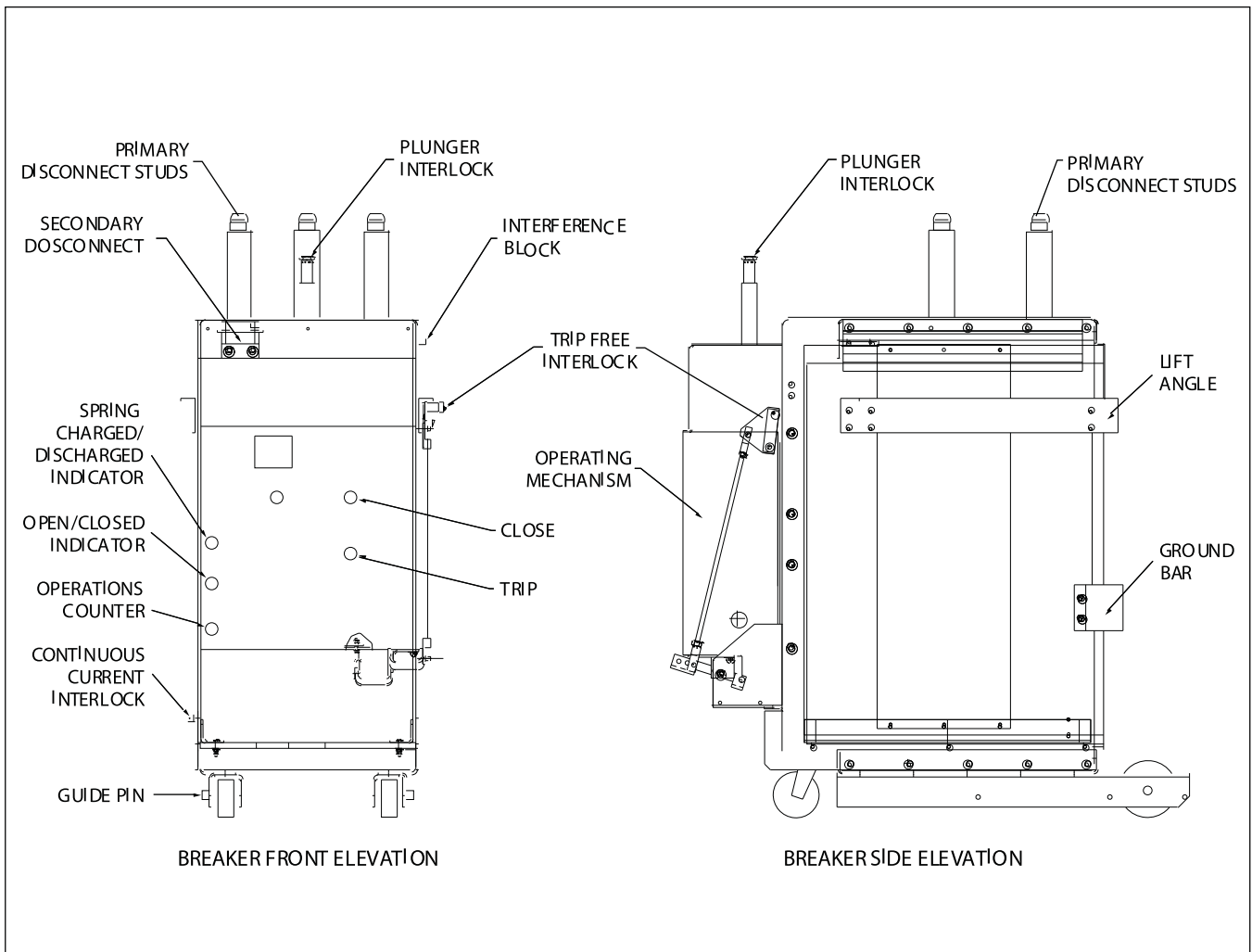


Figure 5. Continuous Current Interlock (Circuit Breaker in Connect Position)

Maintenance

All of these components must be clean and free of dirt or foreign objects. Use a dry lint-free cloth. For stubborn dirt, use a clean cloth saturated with denatured alcohol (except for the vacuum interrupters). For stubborn dirt on a vacuum interrupter use a damp cloth and then thoroughly dry using a dry lint-free cloth.

The phase barriers are attached to the circuit breaker to provide suitable electrical insulation between the vacuum interrupter primary circuits and the housing.

Always re-install the phase barriers carefully to the original location prior to inserting the circuit breaker in the housing.

Primary Disconnects

When the primary studs are mated with the switchgear's primary disconnects, there is forceful contact distributed over a wide area. This maintains low current flow per individual contact finger.

Inspect the contact fingers (cubicle mounted) for any evidence of burning or pitting that would indicate weakness of the contact finger springs.

Inspect the primary studs for physical integrity and absence of mechanical damage.

Inspect the flexible connectors that connect the bottom movable contacts of the vacuum interrupters to the lower

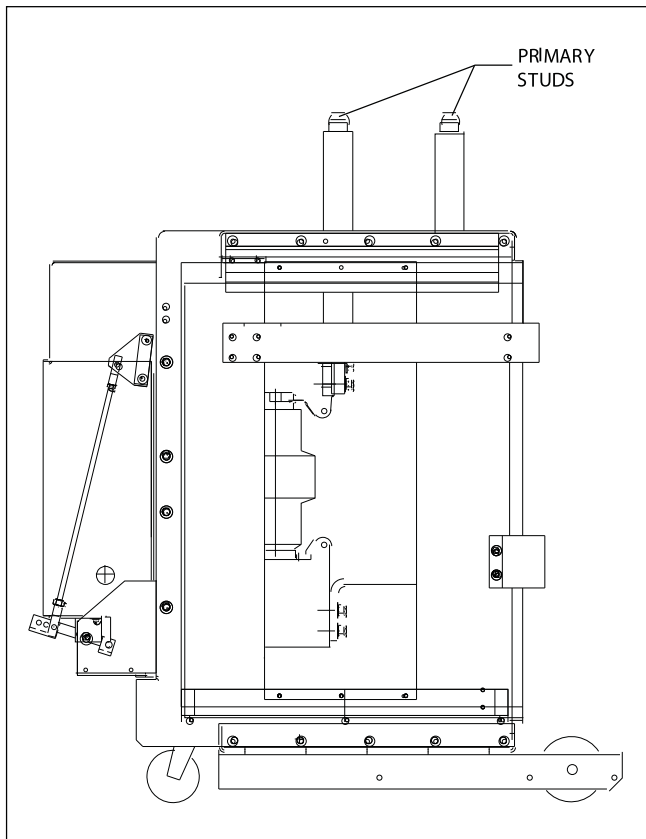


Figure 6. Primary Power Path

primary copper bars for tightness and absence of mechanical damage, burning, or pitting.

Using a clean cloth saturated with denatured alcohol, clean old lubricant from primary studs, and apply contact lubricant in a very thin layer.

Fastener Check

Inspect all fasteners for tightness. Both lock-nuts and retaining rings are used. Replace any fasteners that appear to have been frequently removed and replaced.

Interlock Mechanism

Wipe interlock mechanism clean and apply lubricate on sliding, rotating, and articulating surfaces.

MOC Actuator System

MOC Actuator System should be inspected — refer to Table 2, "Periodical Maintenance and Lubrication Tasks"

Maintenance of the circuit breaker MOC actuator system DOES NOT mitigate the requirement to maintain cubicle mounted MOC system components. These shall be maintained in accordance with the OEM's recommendations.

Electrical Control Checks

Check of the Wiring and Terminals

1. Physically check all of the switchgear wiring for evidence of abrasion, cuts, burning or mechanical damage.
2. Check all terminals to be certain they are solidly attached to their respective device.

Electrical Close and Trip Check (Control Power Required)

A check of the circuit breaker control circuits shall be performed. This check is made with the circuit breaker energized by control power either from the switchgear or an external control power source.

1. Once the circuit breaker springs are charged, move the switchgear Close/Trip switch to the Close position. There should be both the sound of the circuit breaker closing and indication that the circuit breaker contacts are closed by the main contact status indicator.
2. As soon as the circuit breaker has closed, the automatic spring charging process is repeated.
3. After a satisfactory close operation is verified, move the switchgear Close/Trip switch to the Trip position. Verify by both sound and contact position that the contacts are open.
4. After a satisfactory open operation is verified, hold the circuit breaker manual Trip button and apply and maintain an electrical Close signal. The circuit breaker should close, immediately trip, the close spring should charge, and the circuit breaker should not attempt to close.

Completion of these checks demonstrates satisfactory operation of auxiliary switches, internal relays and solenoids.

Maintenance

Table 2. Periodic Maintenance and Lubrication Tasks

Sub-Assembly	Item	Inspect For	Lubrication Interval
Primary Power Path	Primary Studs/Disconnects	1. Lubrication of contact surfaces.	10 years 100 racking operations
		2. Tightness of nuts (torque 1/2" Grade 5 bus hardware to 50 ft-lbs) and other locking devices.	
Electrical Controls	Wiring	1. Mechanical damage or abrasion	10 years 10,000 operations
	Terminals and Connectors	1. Tightness and absence of mechanical damage	
	Close and Trip Solenoids, Anti-Pump Relay, Auxiliary Switches, Secondary Disconnect	1. Automatic charging 2. Close and trip with control power	
High Potential Test	Primary Circuit to Ground and between Primary Disconnects	1. 60 second withstand, refer to Circuit Breaker Operator Manual E50001-F710-A251-V1-4A00 for ratings.	
	Control Circuit to Ground	1. 60 second withstand, refer to Circuit Breaker Operator Manual E50001-F710-A251-V1-4A00 for ratings.	
Insulation	Barriers and all Insulating Components	1. Cleanliness 2. Cracking, crazing, tracking, or other sign of deterioration	
Interrupter Operator Mechanism	Refer to Circuit Breaker Operator Manual.		
Interlock Mechanism	1. Cleanliness 2. Lubrication of sliding, rotating, and articulating surfaces. Apply Apply Klueber Isoflex Topas L32 (part # 3AX11333H), Anderol 732 aerosol synthetic fluid grease (part number 15-172-816-058) or Beacon #325 (part # 15-337-131-001)		10 years 100 racking operations
MOC Actuator System (Refer Figure 4)	1. Excessive wear and/or mechanical damage any mechanical joint. 2. Loose hardware, clip pins and cotter pins. 3. Lubricate as needed. Apply Klueber Isoflex Topas L32 (part # 3AX11333H), Anderol 732 aerosol synthetic fluid grease (part number 15-172-816-058) or Beacon #325 (part # 15-337-131-001). 4. Proper gap on the MOC Actuator. Refer to Figure 4, MOC Actuator, for details.		10 years 5,000 operations

SIEMENS

Siemens Energy, Inc.
7000 Siemens Rd.
Wendell, NC 27591



ATTACHMENT B

Line Item No.: 2.0



P-202

SQUARE D COMPANY
VACARC™ AC HIGH VOLTAGE VACUUM CIRCUIT BREAKER

CAT No.	SN		MO	
MAXIMUM VOLTAGE	KV RMS	RATED CONT. AMPS	KMP RMS	MOV
RATED INT. AMPS	KA RMS	MAXIMUM INT. AMPS	KA RMS	RATED FREQ.
INT. TIME	CV	CLOSE & LATCH	KA RMS	INT. LBS.
FULL RANGE	KV	DATE		
CLOSING COIL	AMP	VOLTAGE RANGE		
TRIP COIL	AMP	VOLTAGE RANGE		
CHARGING MOTOR		AUX. CONTACTS		

OPERATIONS



CONTACTS



MAIN SPRINGS



MANUAL CHARGING

Date of Last PM : 4-23-21
 P-202
 Counter Reading : 1169



GA COUPLING
 1/2" NPT BLUSH
 STANDARD SETTING
 1/2" NPT
 1/2" NPT
 1/2" NPT
 1/2" NPT

SQUARE D COMPANY

VACARC™ AC HIGH VOLTAGE VACUUM CIRCUIT BREAKER

CAT No. **VAD3-15050-12** S/N **900933** F/O **I/P 960**

MAXIMUM VOLTAGE	15 KV RMS	RATED CONT. AMPS	1200 AMP RMS	NOM MVA	500
RATED INT. AMPS	18 KA RMS	MAXIMUM INT. AMPS	23 KA RMS	RATED FREQ.	60
INT. TIME	3 CY.	CLOSE & LATCH	37 KA RMS ASYM.	WT. LBS.	350
FULL WAVE BIL	95 KV PK	DATE MFR.	9/90		

CLOSING COIL	125VDC	@	2 AMPS	VOLTAGE RANGE	100-140
TRIP COIL	125VDC	@	14 AMPS	VOLTAGE RANGE	70-110
CHARGING MOTOR	125VDC	AUX. CONTACTS	3 a	3 b	

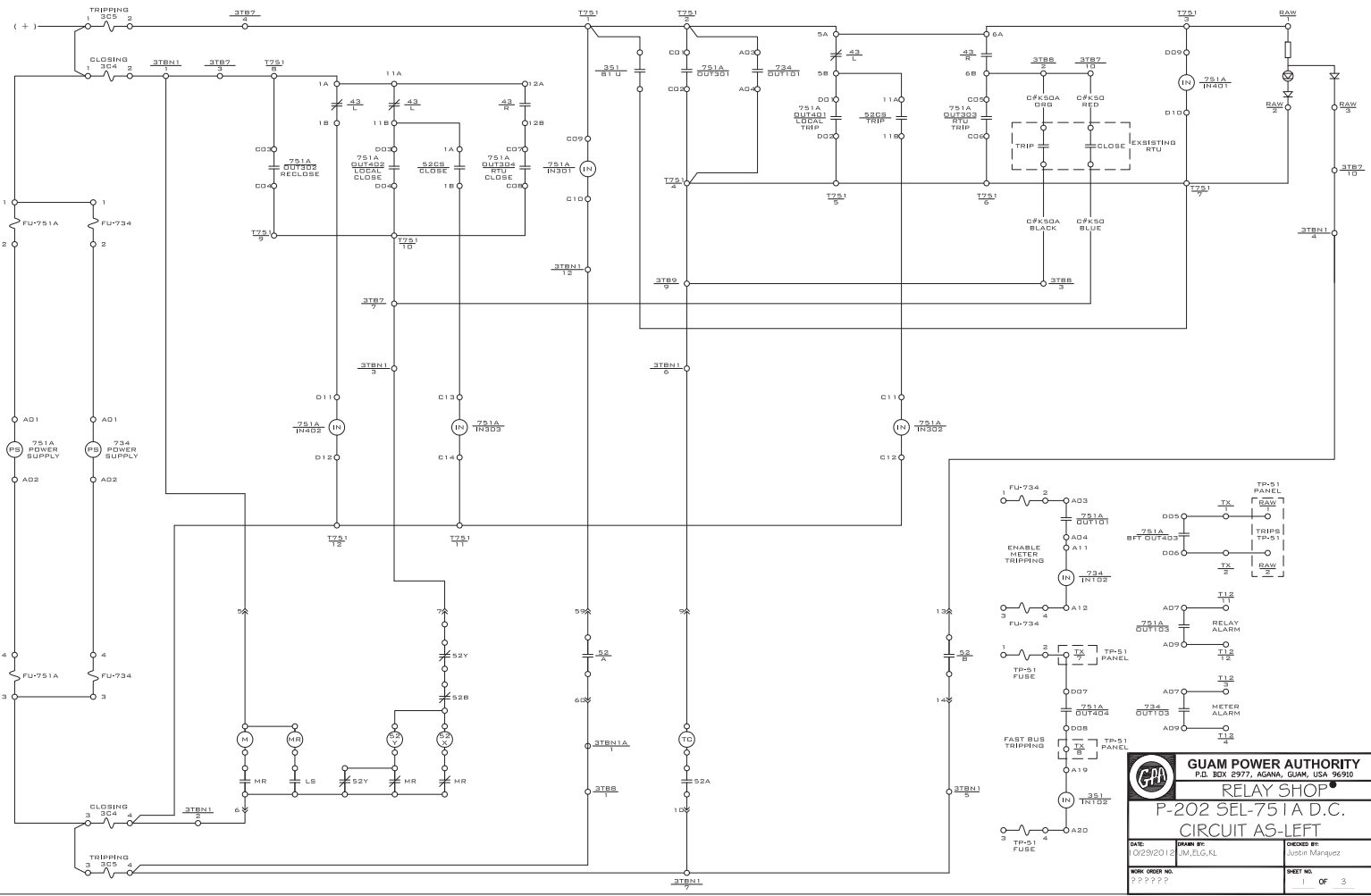





CAUTION

KEEP

DS C



 GUAM POWER AUTHORITY P.O. BOX 5977, AGANA, GUAM, USA 96910		
RELAY SHOP		
P-202 SEL-751A D.C. CIRCUIT AS-LEFT		
DATE: 9/29/2012	DRAWN BY: JM,ELG,KL	CHECKED BY: Justin Marquez
WORK ORDER NO. ??????	SHEET NO. 1 OF 3	

ATTACHMENT C

Line Item No.: 3.0



LUBRICATION INFORMATION

1. ALL OILS AND GREASES MUST BE IDENTIFIED BY FACTORY FOR A
SPECIFIC MODEL AND YEAR.

2. IF MANUAL MAINTENANCE IS REQUIRED:
A. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
B. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
C. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
D. USE ONLY THE OILS AND GREASES LISTED IN THE
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M. USE ONLY THE OILS AND GREASES LISTED IN THE
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O. USE ONLY THE OILS AND GREASES LISTED IN THE
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P. USE ONLY THE OILS AND GREASES LISTED IN THE
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Q. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
R. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
S. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
T. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
U. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
V. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
W. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
X. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
Y. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.
Z. USE ONLY THE OILS AND GREASES LISTED IN THE
OPERATING MANUAL.

LIFT
PLUNGER
TO
OPEN

LIFT
PLUNGER
TO
CLOSE

DHP

Model	30-224	30-224	30-224
Year	84	84	84
Serial	1	1	1
Part No.	1	1	1
Rev.	1	1	1
Drawn	1	1	1
Checked	1	1	1
Approved	1	1	1
Date	1	1	1

DANGER
EXPOSED LIVE PARTS. HAZARD
OF ELECTRICAL BURN OR SHOCK
DO NOT REMOVE BARRIER
WHILE BREAKER IS IN CELL

75/125 AMP BUS
CIRCUIT BREAKER
1000V AC

MO
LUBRICATION
INFORMATION

75/125 AMP BUS
CIRCUIT BREAKER
1000V AC







Type DHP Porcelline

AIR Circuit Breaker

150 **DHP** 300

Shop Order	3483721	Ser.	11424
Date	NOV/88	IB	32-253-4A Brk. Wt. 1450
Continuous Amps.	1200	Hertz	60
Rated Short Circuit KA			18
Interrupting Time	5 Cycles		
Motor Volts	125 DC	Mech. S.E.	
Close Volts	90-130 DC	Amps.	5
Trip Volts	70-140 DC	Amps.	5
		C & L KA	37
		Max. Kv	15
		K-Factor	130
		BIL Kv	95

MADE IN CANADA

Westinghouse Canada Inc.
Hamilton, Canada

207P603H01

DH-P DRAWOUT ELEMENT

**SHOP ORDER
STYLE NO.
BASIC BKR.
ARC CHUTE
BARRIER**

34B3721-45

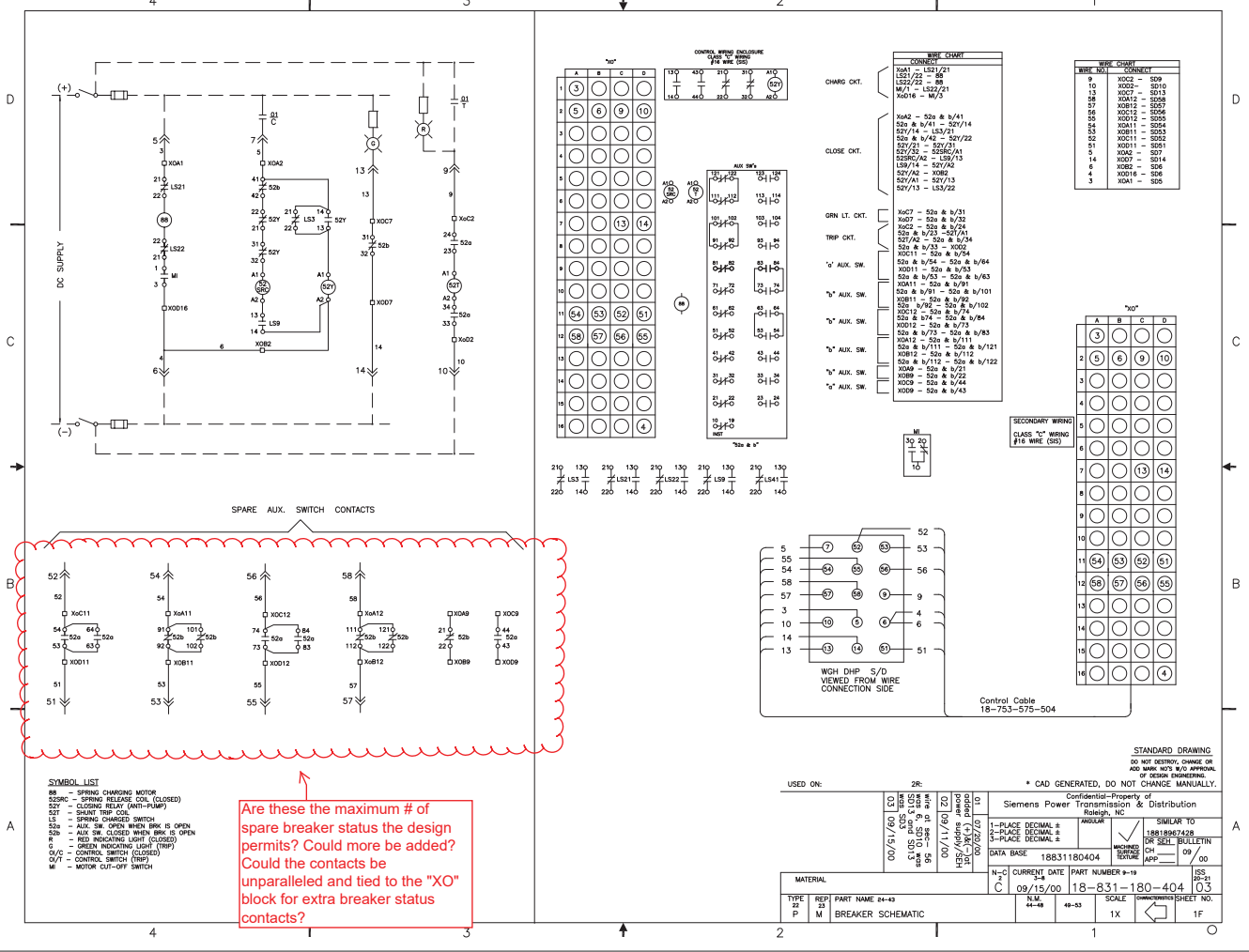
2707C35G02

232PD34901

P - 7
PO # 21800
Date Installed - October 04, 2016
Work Order # 442058

SIEMENS		Date	10/2015	Serial No.	30167390	
% DC Comp.	<input type="checkbox"/>	Asym. Factor	1.2	Weight (lbs)	660	
Type	15-DPR-500-1200-37					
Amps	1200	Nr.	60	Volt Range Factor K	1.30	
Wire Dia.	18-831-180-404		BI (kV)	95		
Serial No.	R-30167390B-004		Rated Max Volts (kV)	15.0		
Instr. Bk No.	SGIM-9908		Rated Short Circuit (kA)	18		
Close & Latch	37	rms	162	peak	Inter. Time Cycle (ms)	5
Operating Duty Cycle	0-0.3s C0-3min C0		Short-Time Duration (s)	3		
Volts Range-Motor		Close	Trip			
100-140 VDC		100-140 VDC	70-140 VDC			
Amps Normal	4.0	1.0	4.8			
Siemens Raleigh, NC USA		18-658-024-231 rev. 10				





Are these the maximum # of spare breaker status the design permits? Could more be added? Could the contacts be unparallelled and tied to the "XO" block for extra breaker status contacts?

- SYMBOL LIST**
- 88 - SPRING CHARGING MOTOR
 - 825RC - SPRING RELEASE COIL (CLOSED)
 - 827 - CLOSING RELAY (ANTI-PUMP)
 - 827 - SAFETY TRIP COIL
 - LS - SPRING CHARGED SWITCH
 - 826 - AUX SW OPEN WHEN BRK IS OPEN
 - 826 - AUX SW CLOSED WHEN BRK IS OPEN
 - R - RED INDICATING LIGHT (CLOSED)
 - G - GREEN INDICATING LIGHT (TRIP)
 - Q/T - CONTROL SWITCH (CLOSED)
 - M - MOTOR CUT-OFF SWITCH

CONTROL WIRE ENCLASURE (SEE WIRE 500)

A	B	C	D
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
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757	758	759	760
763	764	765	766
769	770	771	772
777	778	779	780
783	784	785	786
789	790	791	792
797	798	799	800
803	804	805	806
809	810	811	812
817	818	819	820
823	824	825	826
829	830	831	832
837	838	839	840
843	844	845	846
849	850	851	852
857	858	859	860
863	864	865	866
869	870	871	872
877	878	879	880
883	884	885	886
889	890	891	892
897	898	899	900
903	904	905	906
909	910	911	912
917	918	919	920
923	924	925	926
929	930	931	932
937	938	939	940
943	944	945	946
949	950	951	952
957	958	959	960
963	964	965	966
969	970	971	972
977	978	979	980
983	984	985	986
989	990	991	992
997	998	999	1000

WIRE CHART

WIRE NO.	CONNECT
X0A1 - LS2/21	
LS2/22 - 88	
M/1 - LS2/21	
X0D16 - M/5	
X0A2 - 520 & b/41	
520 & b/42 - 527/14	
527/15 - LS3/21	
527/16 - 527/22	
527/17 - 527/23	
527/18 - 527/24	
525RC/42 - LS3/13	
LS3/14 - 527/13	
527/12 - 527/13	
527/11 - LS3/22	
X0C7 - 520 & b/31	
X0C7 - 520 & b/32	
X0C7 - 520 & b/34	
520 & b/23 - 527/11	
527/12 - 520 & b/24	
520 & b/43 - X0C2	
X0C11 - 520 & b/14	
520 & b/54 - 520 & b/64	
X0D11 - 520 & b/53	
520 & b/63 - 520 & b/63	
X0E11 - 520 & b/101	
520 & b/92 - 520 & b/102	
520 & b/74 - 520 & b/94	
X0D12 - 520 & b/73	
520 & b/75 - 520 & b/93	
X0M12 - 520 & b/111	
520 & b/112 - 520 & b/121	
X0B12 - 520 & b/112	
520 & b/113 - 520 & b/122	
X0A9 - 520 & b/21	
X0B9 - 520 & b/22	
X0C9 - 520 & b/44	
X0D9 - 520 & b/43	

WIRE CHART

WIRE NO.	CONNECT
8	X0C2 - SD9
9	X0C3 - SD10
13	X0C7 - SD13
58	X0A12 - SD38
57	X0B12 - SD37
56	X0C12 - SD36
55	X0D12 - SD35
54	X0E12 - SD34
53	X0F12 - SD33
52	X0G12 - SD32
51	X0H12 - SD31
50	X0I12 - SD30
14	X0D7 - SD14
6	X0B9 - SD6
4	X0D16 - SD4
3	X0A1 - SD3

WIRE CHART

A	B	C	D
1	2	3	4
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SIEMENS

Vacuum Circuit Breakers (Vehicle)

Type DPR
4.16kV to 15kV

Instructions
Installation
Operation
Maintenance
SGIM-9908D





⚠ DANGER

Hazardous voltages and high-speed moving parts.

Will cause death, serious injury or equipment damage.

De-energize and ground the equipment before maintenance. Maintenance should be performed only by qualified personnel.

The use of unauthorized parts should not be used in the repair of the equipment.

Follow all safety instructions contained herein.

IMPORTANT

The information contained herein is general in nature and not intended for specific application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation, and maintenance of the equipment purchased. Siemens reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in this publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

QUALIFIED PERSON

For the purpose of this manual a qualified person is one who is familiar with the installation, construction or operation of the equipment and the hazards involved. In addition, this person has the following qualifications:

- (a) **is trained and authorized** to de-energize, clear, ground, and tag circuits and equipment in accordance with established safety practices.
- (b) **is trained** in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses or face shields, flash clothing, etc., in accordance with established safety practices.
- (c) **is trained** in rendering first aid.

SUMMARY

These instructions do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local sales office.

The contents of this instruction manual shall not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of Siemens Energy, Inc. The warranty contained in the contract between the parties is the sole warranty of Siemens Energy, Inc. Any statements contained herein do not create new warranties or modify the existing warranty.

Vacuum Circuit Breakers (Vehicle)

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Introduction and Safety

Introduction

The DPR family of vacuum circuit breakers is designed to meet all the applicable ANSI, NEMA and IEEE standards. Successful application and operation of this equipment depends as much upon proper installation and maintenance by the user as it does upon the careful design and fabrication by Siemens.

The purpose of this Instruction Manual is to assist the user in developing safe and efficient procedures for the installation, maintenance and use of the equipment.

Contact the nearest Siemens representative if any additional information is desired.

	▲ DANGER
	<p>Hazardous voltages and high-speed moving parts.</p> <p>Will cause death, serious injury or property damage.</p> <p>Only qualified persons thoroughly familiar with the equipment, instruction manuals and drawings should install, operate and/or maintain this equipment.</p>

Qualified Person

For the purpose of this manual a Qualified Person is one who is familiar with the installation, construction or operation of the equipment and the hazards involved. In addition, this person has the following qualifications:

- Training and authorization to energize, de-energize, clear, ground and tag circuits and equipment in accordance with established safety practices.
- Training in the proper care and use of protective equipment such as rubber gloves, hard hat, safety glasses, face shields, flash clothing, etc., in accordance with established safety procedures.
- Training in rendering first aid.

Signal Words

The signal words “Danger,” “Warning” and “Caution” used in this manual indicate the degree of hazard that may be encountered by the user. These words are defined as:

Danger - Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Warning - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution - indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Dangerous Procedures

In addition to other procedures described in this manual as dangerous, user personnel must adhere to the following:

1. Always work on de-energized equipment. Always de-energize a circuit breaker, and remove it from the switchgear before performing any tests, maintenance or repair.
2. Always perform maintenance on the circuit breaker after the spring-charged mechanisms are discharged.
3. Always let an interlock device or safety mechanism perform its function without forcing or defeating the device.

Field Service Operation

Siemens can provide competent, well-trained Field Service Representatives to provide technical guidance and advisory assistance for the installation, overhaul, repair and maintenance of Siemens equipment, processes and systems. Contact regional service centers, sales offices or the factory for details, or telephone Siemens Field Service at 1-800-241-4453.

Receiving, Handling and Storage

Introduction

This manual covers the Receiving, Handling and Storage instructions for circuit breakers shipped separately from the switchgear. This section of the manual is intended to help the user identify, inspect and protect the circuit breaker prior to its installation.

Receiving Procedure

Make a physical inspection of the shipping container before removing or unpacking the circuit breaker. Check for shipment damage or indications of rough handling by the carrier. Check each item against the manifest to identify any shortages.


Accessories such as the manual charging crank, the racking crank and the split plug jumper are shipped separately.

Shipping Damage Claims (when applicable) - Follow normal shipment damage procedures, which should include:

1. Check for visible damage upon arrival.
2. Visible damage must be noted on delivery receipt, and acknowledged with driver's signature. Notation, "Possible internal damage, subject to inspection" must be on delivery receipt.
3. Notify the Siemens Sales office immediately of any shipment damage.
4. Arrange for carrier's inspection. Do not move the unit from its unloading point.

Handling Procedure

1. Carefully remove the shipping carton from the circuit breaker. Keep the shipping pallet for later use if the circuit breaker is to be stored prior to its installation.
2. Inspect for concealed damage. Notification to carrier must take place within 15 days to assure prompt resolution of claims.
3. Each circuit breaker should be appropriately lifted, using lifting sling rated for at least 2,000 lbs. Circuit breaker shall be lifted by Upper "B" phase post insulator.

	WARNING
	<p>Heavy weight. Can cause death, serious injury, or property damage.</p> <p>Use of a qualified rigger to hoist the circuit breaker.</p>

4. The palletted circuit breaker can also be moved using a properly rated fork-lift vehicle. The pallets are designed for movement by a standard fork-lift vehicle.

Storage Procedure

1. When the circuit breaker will be placed on its pallet for storage, be sure the unit is securely bolted to the pallet and covered with polyethylene film at least 10 mils thick.

Indoor Storage - Whenever possible, store the circuit breaker indoors. The storage environment must be clean, dry and free of such items as construction dust, corrosive atmosphere, mechanical abuse and rapid temperature variations.

Outdoor Storage - Outdoor storage is not recommended. When no other option is available, the circuit breaker must be completely covered and protected from rain, snow, dirt and all other contaminants.

Space Heating - Space heating must be used for **both indoor and outdoor** storage to prevent condensation and corrosion. When stored outdoors, 250 watts per circuit breaker of space heating is recommended.

Vehicle Description

Vehicle Function and Operational Interlocks

Type DPR circuit breakers are comprised of the interrupter/operator module fitted to a vehicle. This interrupter/operator module is an integral arrangement of operating mechanism, dielectric system, vacuum interrupters, and means of connecting the primary circuit. The vehicle supports the interrupter/operator module, providing mobility and fully coordinated application in Westinghouse type DHP switchgear.

This manual should be used jointly with the Circuit Breaker Operator manual, SGIM-9918.

Alignment

All aspects of the circuit breaker structure which impact alignment and interchangeability are checked at the factory. Field adjustment will not normally be required, but variations in existing switchgear may require field adjustment.

The basic operation is for the nut to turn onto the screw which is mounted on the rear wall of the cubicle. Since the nut is securely fastened to the chassis, it pulls the circuit breaker into the CONNECTED position.

The guide tube is slotted lengthwise for a distance about equal to the travel of the circuit breaker. The leveringing shaft has 2 rectangular keys welded to it which slide in the guide tube slot. Thus, as the leveringing shaft is rotated the guide tube and nut are also rotated. As the nut consequently moves on the screw, by clockwise rotation, the screw extends farther and farther toward the front of the circuit breaker, pushing the leveringing shaft with it. Consequently the leveringing shaft stands still relative to the screw and other cubicle parts, including the door. Thus, the end of the leveringing shaft is always the same distance behind the door, whether the circuit breaker is in the TEST or CONNECTED position, or in between.


As the circuit breaker is levered in, the keys on the leveringing shaft move toward the end of the guide tube slot. As the rear key comes out of the slot, the leveringing shaft turns freely and the circuit breaker moves no further. The end of the guide tube is shaped like a steep-pitch one-turn screw thread so that when the leveringing shaft is rotated counterclockwise, the rear key will catch and enter the slot, and rotate the guide tube and nut, and the circuit breaker will be withdrawn.

The leveringing interlock is designed to prevent moving the circuit breaker into or out of the CONNECTED position if the circuit breaker contacts are in the closed position. The leveringing interlock consists essentially of a movable key which can enter the elongated keyway in the front part of the leveringing shaft. The key is spring-operated by the closing and opening movement of the circuit breaker contact linkage. When the circuit breaker is in the closed position, a force is applied through a spring to the key, to make it enter the keyway on the leveringing shaft. The leveringing shaft may be left in any position so that the keyway may not line up with the key. However, since the key is pressing against the shaft, it will snap into the keyway on the first rotation of the shaft as the keyway comes in line with the key.

Thus, the leveringing shaft cannot be rotated any further and no more movement of the circuit breaker can occur as long as it is in the closed position.

If you try to turn the leveringing shaft as hard as possible while the circuit breaker is closed, the leveringing shaft pin, where the leveringing-in crank is attached, will be broken. This protects the internal parts of the interlock against mechanical damage and prevents unintentional withdrawing or insertion of the circuit breaker while it is closed, which is very dangerous.

If the pin is broken it should become clear that the circuit breaker must be opened before it is withdrawn and the broken pin must be replaced.

	⚠ DANGER
	Hazardous voltages and high-speed moving parts. Will cause death, serious injury, and property damage.
	De-energize before working on this equipment. Do not by-pass interlocks or otherwise make interlocks inoperative.

Recommended Tools

- Racking Crank: Original circuit breaker racking crank may be used.

Installing Circuit Breaker Into Cubicle

Note: CLOCKWISE ROTATION of racking crank for inserting circuit breaker. COUNTERCLOCKWISE ROTATION of racking crank for removal of circuit breaker.

Levering Device and Circuit Breaker Interlock

Figure 1a shows the two extreme positions of the leveringing device. The main parts of the device are **Figure 1b**:

1. The nut
2. The guide tube
3. The leveringing shaft
4. The leveringing interlock

These are part of the chassis assembly. The nut is fastened securely to the guide tube and is housed in a casting fastened to the extreme rear of the chassis as shown in **Figure 1c**.

Vehicle Description

Floor Interlock and Operating Lever

The circuit breaker interlocking system prevents closing the circuit breaker while the circuit breaker is being levered into or out of the CONNECTED position.

This is done by the Floor Interlock and the Automatic Tripping Lever (**Figure 2**). In operation, the rear end of this lever is pushed upward by a floor cam on the very first movement of the circuit breaker from the TEST position toward the CONNECTED position, or from the CONNECTED position toward the TEST position.

The lifting of the Tripping Lever, through its connected linkage, lifts the tripping-trigger, and the floor cam holds it in this tripped position as long as the circuit breaker is not at one of its limits of travel. If there is an attempt to close the circuit breaker while it is not completely in the CONNECTED or TEST positions, the mechanism will cause a trip free operation and the circuit breaker contacts will not close.

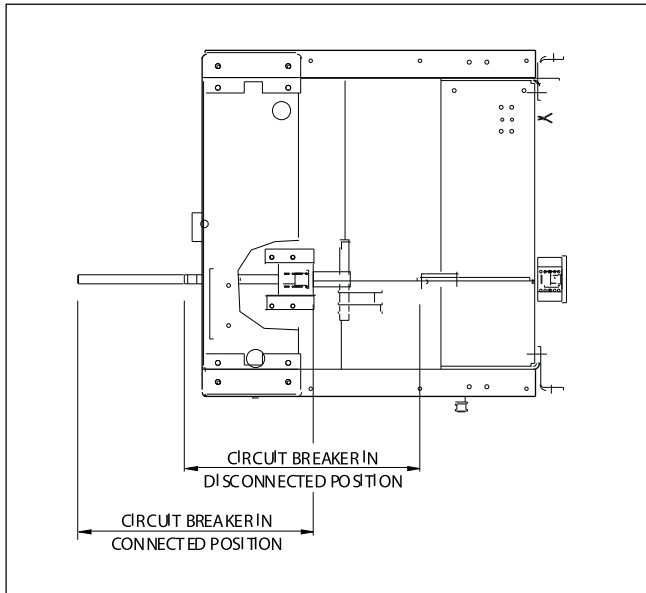


Figure 1a. Positions of the Levering Device

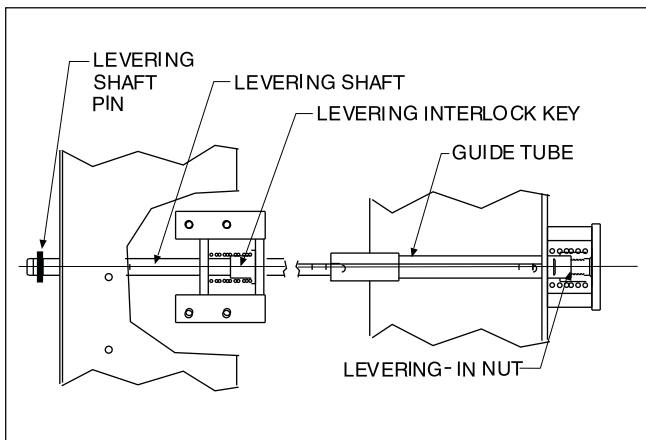


Figure 1b. Levering Device

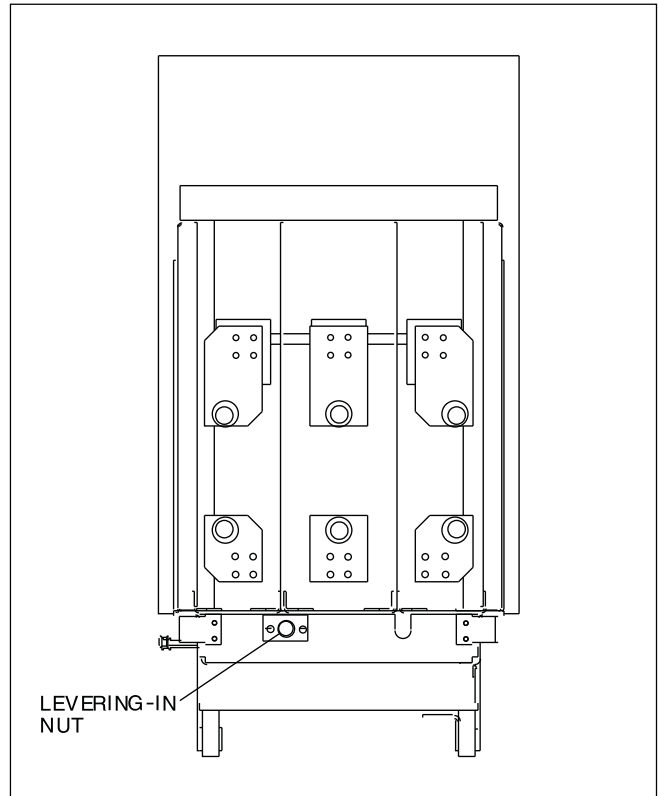


Figure 1c. Vehicle Rear View

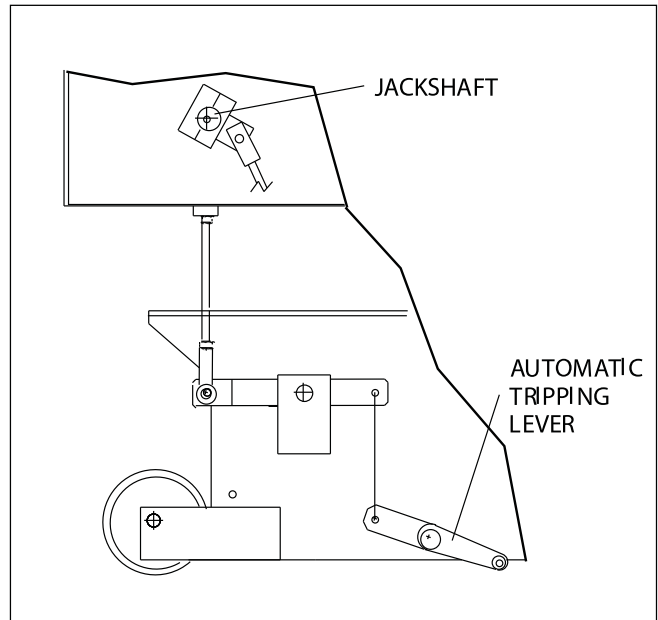


Figure 2. Floor Interlock and Operating Lever

Vehicle Description

Automatic Floor Tripping and Closing Spring Release

CAUTION

The closing spring, if charged, will automatically discharge when the circuit breaker is withdrawn from the switchgear.

The Floor Interlock and Automatic Tripping Lever activates the tripping trigger as the circuit breaker is withdrawn from the cubicle Test position. This, together with the automatic floor closing spring release, acts to discharge the closing spring and trips the circuit breaker as it is withdrawn from the cubicle.

Secondary Contacts

The 15 point secondary contact block is mounted on a slideable plate on the inside of the left hand chassis side plate. This sliding plate is operated by a round folding rod with a "T" handle, extending from the L.H. upper corner of the mechanism panel. Above this rod is the secondary contact levering handle. When the circuit breaker is in the TEST position, the secondary contact block is normally disconnected and in the forward position against the rear of the chassis.

When you wish to operate the circuit breaker electrically while it is in the TEST position, the folding rod is lifted to the horizontal position enough to unhook it from the panel, and then pushed to the rear until the cross-pin engages with the slots of the levering handle, as shown in **Figure 3**. The handle is then pressed down to make final engagement of the secondary contacts.

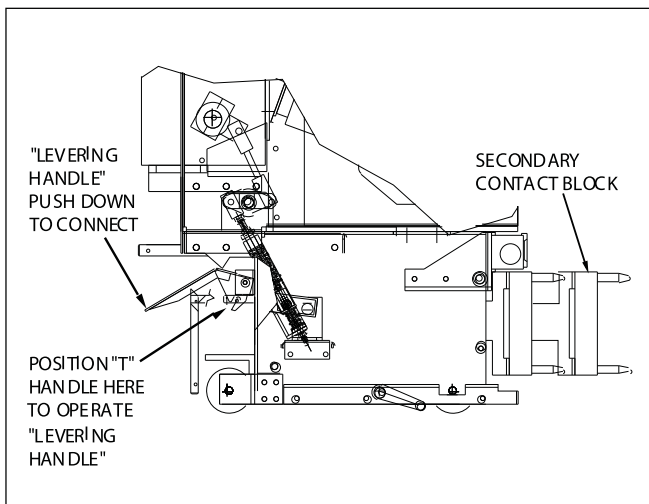


Figure 3. Secondary Contact Operation

Rail Latch (Figure 4)

The purpose of the rail latch is as follows.

1. The rail latch prevents accidental damage to the cubicle levering device screw or the levering-in nut on the circuit breaker. Without this rail latch, the levering device screw and possibly the levering-in nut would be damaged if the

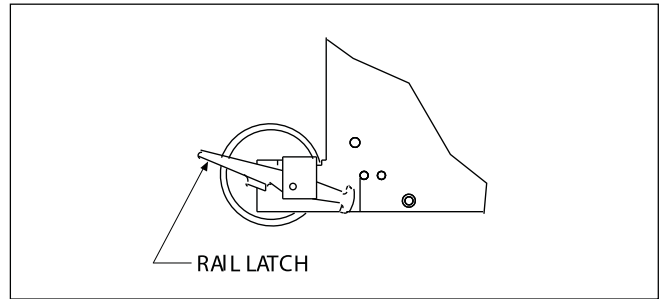


Figure 4. Rail Latch

circuit breaker were pushed into the cubicle so as to bump the levering-in nut hard against the end of the levering device screw.

2. The rail latch holds the circuit breaker in the TEST position. In order to lever the circuit breaker in to the CONNECTED position, press down rail latch (conveniently performed by foot) and push the circuit breaker 1/4 to 3/8 inch so as to get the levering device nut against the screw.

Continuous Current Interlock

The continuous current interlock functions to ensure circuit breaker and cubicle of like continuous current ratings are applied, and that circuit breakers with dissimilar continuous current ratings are excluded from cubicles of unlike current ratings.

Removing Circuit Breaker from Cubicle

CAUTION

The circuit breaker may open and its closing spring may discharge as it is withdrawn from the cubicle. It depends on whether the circuit breaker was left closed or open, or whether the spring was left charged or discharged.

To remove the circuit breaker from the operating position, trip the circuit breaker open, and engage the levering crank on the levering device shaft. Turn the crank counterclockwise until the crank rotates freely. Pull the circuit breaker toward the front of the cubicle until the rail latch engages the slot in the rail. The circuit breaker is now secured in the TEST position.

To remove the circuit breaker from the cubicle, press down on the rail latch to free the circuit breaker from the rail. Pull the circuit breaker out of the cubicle.

Control Cable Box

The type DPR circuit breaker employs a plug-in cable which completes circuit breaker electrical connections between the mechanism housing and the vehicle's secondary disconnects.

Insulating Barriers


Insulating barriers are required for use on type DPR circuit breakers.

Interphase and exterior barriers are removed or inserted vertically and are bolted to vehicle assembly.

Maintenance

Introduction and Maintenance Intervals

Periodic inspections and maintenance are essential to obtain safe and reliable operation of the circuit breaker as well as the switchgear.

	⚠ DANGER
	Hazardous voltages and high-speed moving parts.
	Will cause death, personal injury, and property damage.
	De-energize before working on this equipment.
	Read instruction manuals, observe safety instructions, and limit use to qualified personnel.

When circuit breakers and/or the switchgear are operated under "Usual Service Conditions," maintenance and lubrication is recommended at ten year intervals or at the number of operations indicated in **Table 3**. "Usual" and "Unusual" service conditions for Medium Voltage Metal-Clad Switchgear are defined in ANSI C37.20.2, section 8.1. Generally, "usual service conditions" are defined as an environment in which the equipment is not exposed to excessive dust, acid fumes, damaging chemicals, salt air, rapid or frequent changes in temperature, vibration, high humidity, and extremes of temperature.

The definition of "usual service conditions" is subject to a variety of interpretations. Because of this, you are best served by adjusting maintenance and lubrication intervals based on your experience with the equipment in the actual service environment.

Regardless of the length of the maintenance and lubrication interval, **Siemens recommends that circuit breakers and switchgear should be inspected and exercised annually.**

Recommended Maintenance and Lubrication

Periodic maintenance and lubrication should include all the tasks shown in **Table 1**. Recommended procedures for each of the listed tasks are provided in this section of the manual.

⚠ WARNING
Failure to properly maintain the equipment could result in death, serious injury or product failure, and can prevent successful functioning of connected apparatus.
Instructions should be carefully reviewed, understood, and followed.
The maintenance tasks in Table 1 must be performed regularly.

Table 1 — Maintenance Tasks

<ul style="list-style-type: none"> • Circuit Breaker Operator tasks • Checks of the primary power path <ul style="list-style-type: none"> - Cleanliness check - Primary disconnects • Fastener check • Electrical control checks <ul style="list-style-type: none"> - Wiring and terminals check - Secondary disconnect check - Automatic spring charging check - Electrical close and trip check • Vacuum integrity check • High potential test • Insulation and contact resistance tests • Inspection and cleaning of circuit breaker insulation • Racking mechanism • MOC actuator system <ul style="list-style-type: none"> - Cubicle MOC forces - Pantograph setup • Floor interlock and operating lever • Functional tests • Periodic maintenance intervals

The list of tasks in **Table 1** does not represent an exhaustive survey of maintenance steps necessary to ensure safe operation of the equipment. Particular applications may require further procedures. Should further information be desired or should particular problems arise which are not covered sufficiently for the Purchaser's purposes, the matter should be referred to the local Siemens sales office.

⚠ DANGER
The use of unauthorized parts in the repair of the equipment, or tampering by unqualified personnel will result in dangerous conditions which will cause death, serious injury or equipment damage.
Follow all safety instructions contained herein.

Removal from Switchgear

Prior to performing any inspection or maintenance checks or tests, the circuit breaker must be removed from the switchgear. The Installation and Initial Functional Tests section describes the removal procedure in detail. Principal steps are repeated here for information and guidance, but without the details of the preceding section.

1. The first step is to de-energize the circuit breaker. Pressing the Trip pushbutton opens the circuit breaker prior to removal from the switchgear (Refer to Circuit Breaker Operator / Manual SG-9918).

Maintenance

2. The second step in the removal procedure is to de-energize control power to the circuit breaker. Open the control power disconnect device.
3. Rack the circuit breaker to the "DISCONNECT" position.
4. Perform the spring discharge check. This is done by first pressing the red Trip pushbutton. Second, press the black Close pushbutton. Third, press the red Trip pushbutton again, and observe the spring condition indicator. It should read Discharged (Refer to Circuit Breaker Operator / Manual SGIM-9918).
5. Remove the circuit breaker from the switchgear.

Circuit Breaker Operator Tasks

Perform tests as described in manual SGIM-9918.

Checks of the Primary Power Path

Refer to Circuit Breaker Operator Manual SGIM-9918.

Cleanliness Check

Refer to Circuit Breaker Operator Manual SGIM-9918.

In addition to the circuit breaker operator, **Figure 5** shows a side view of the circuit breaker with the insulating barriers removed in order to show the upper and lower primary disconnects.

These components must be clean and free of dirt and any foreign objects. Use a dry lint free cloth. For stubborn dirt, use a clean cloth saturated with denatured alcohol (except for the vacuum interrupters). For stubborn dirt on a vacuum interrupter use a damp cloth and then thoroughly dry using a dry lint free cloth.

The phase barriers are plates of glass polyester insulating material which are attached to the circuit breaker to provide suitable electrical insulation between the vacuum interrupter primary circuits and the switchgear.

Always re-install the phase barriers carefully to their original location prior to inserting the circuit breaker into the switchgear.

Primary Disconnects

Figure 5 is a side view of the circuit breaker showing the upper and lower primary disconnects.

Inspect the primary disconnect arms for physical integrity and absence of mechanical damage. Any evidence of burning or pitting would indicate weakness of the contact finger springs.

Using a clean cloth saturated with denatured alcohol, clean old lubricant from primary disconnects, and apply contact lubricant (part #15-172-791-214) in a thin layer.

Fastener Check

Inspect all fasteners for tightness. Replace any fasteners that appear to have been frequently removed, show damage or are missing.

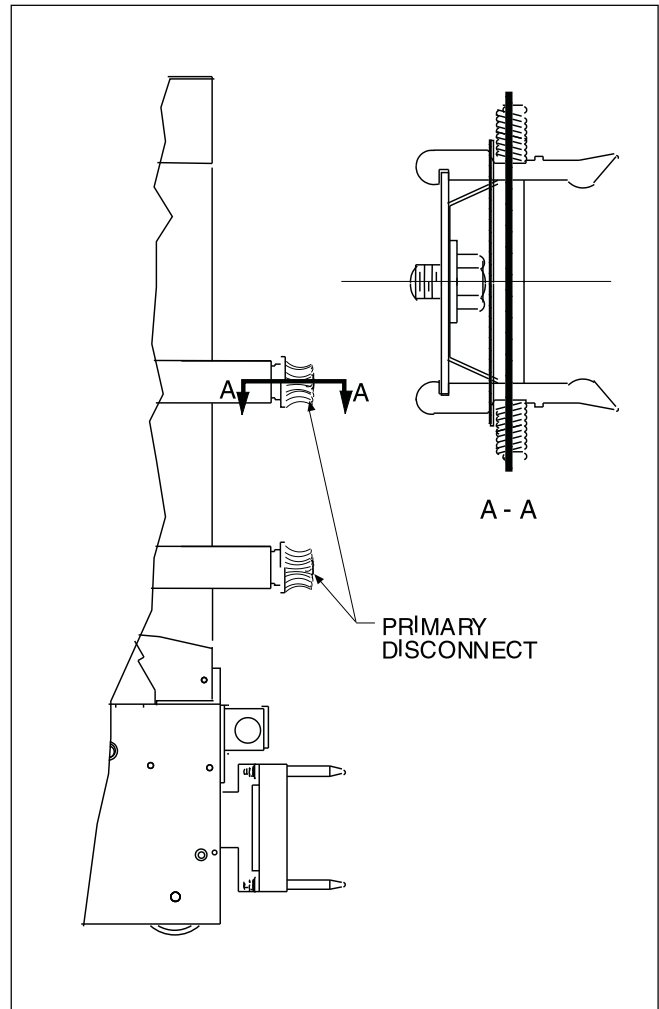


Figure 5. Primary Power Path

Electrical Control Checks:

Wiring and Terminals Check

Refer to Circuit Breaker Operator Manual SGIM-9918.

Secondary Disconnect Check

In addition to checking the terminals of the secondary disconnect, ensure that secondary disconnect assembly moves freely and is aligned for proper engagement.

Automatic Spring Charging Check

Refer to Circuit Breaker Operator Manual SGIM-9918.

Electrical Close and Trip Check

Refer to Circuit Breaker Operator Manual SGIM-9918.

Vacuum Integrity Check

Refer to Circuit Breaker Operator Manual SGIM-9918.

High Potential Test

Refer to Circuit Breaker Operator Manual SGIM-9918.

Maintenance

Insulation and Contact Resistance Test

Refer to Circuit Breaker Operator Manual SGIM-9918.

Note: Maximum Contact Resistance is read from primary bus stab to primary bus stab with primary disconnects removed. A value of 13 micro-ohms should be added to the maximum contact resistance specified in the Circuit Breaker Operator Manual SGIM-9918.

Inspection and Cleaning of Circuit Breaker Insulation

Refer to Circuit Breaker Operator Manual SGIM-9918.

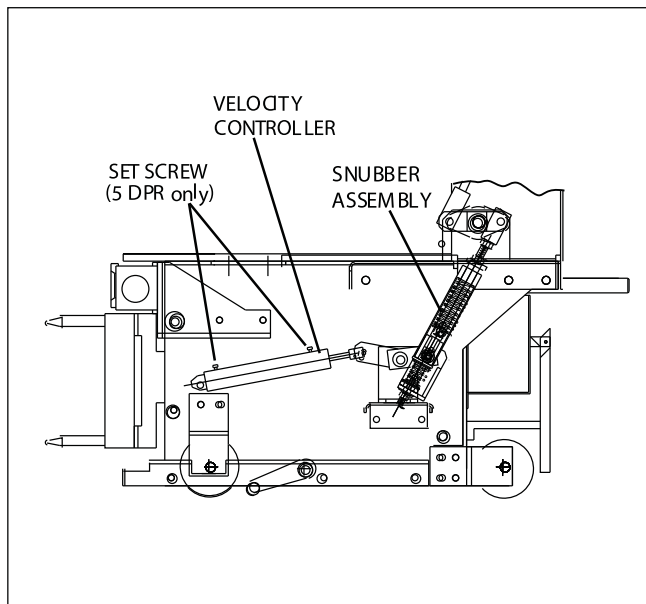


Figure 6. Velocity Controller and Snubber Assembly

Racking Mechanism

Remove existing lubricant from racking mechanism. Apply Klueber IsoflexTopas L32 grease (part # 3AX11333H) or Beacon #325 (part # 15-337-131-001) to the sliding, rotating and articulating surfaces. For inaccessible surfaces, Anderol 732 aerosol synthetic fluid grease (part # 15-172-816-058) may be used.

MOC Actuator System

Refer to **Figure 6 & 7**.

MOC actuator system shall be maintained and lubricated as following:

1. Visually inspect to confirm that the velocity controller is not leaking oil.
2. Verify that both setscrews on the velocity controller are tight (5 DPR only).
3. Verify velocity controller rod resistance. Remove shoulder bolt, washer and stop nut, and verify rod resistance by pushing rod "in" and "out." Re-assemble the velocity controller assembly.
4. Check snubber for visual damage (broken clips and loose hardware).
5. Verify and adjust cubicle MOC components as needed to match pantograph reference dimensions shown in **Figure 7**.
6. Lubricate cubicle pantograph. Apply Klueber IsoflexTopas L32 (part # 3AX11333H), Beacon #325 (part # 15-337-131-001) or Anderol 732 aerosol synthetic fluid grease (part # 15-172-816-058) to pantograph area of MOC actuator pin interface (CONNECT and TEST {if available} positions).

Maintenance of the circuit breaker MOC actuator system DOES NOT mitigate the requirements to maintain cubicle mounted MOC system components. These shall be maintained in accordance with IEEE C37.59 and the original equipment manufacturer's recommendations.

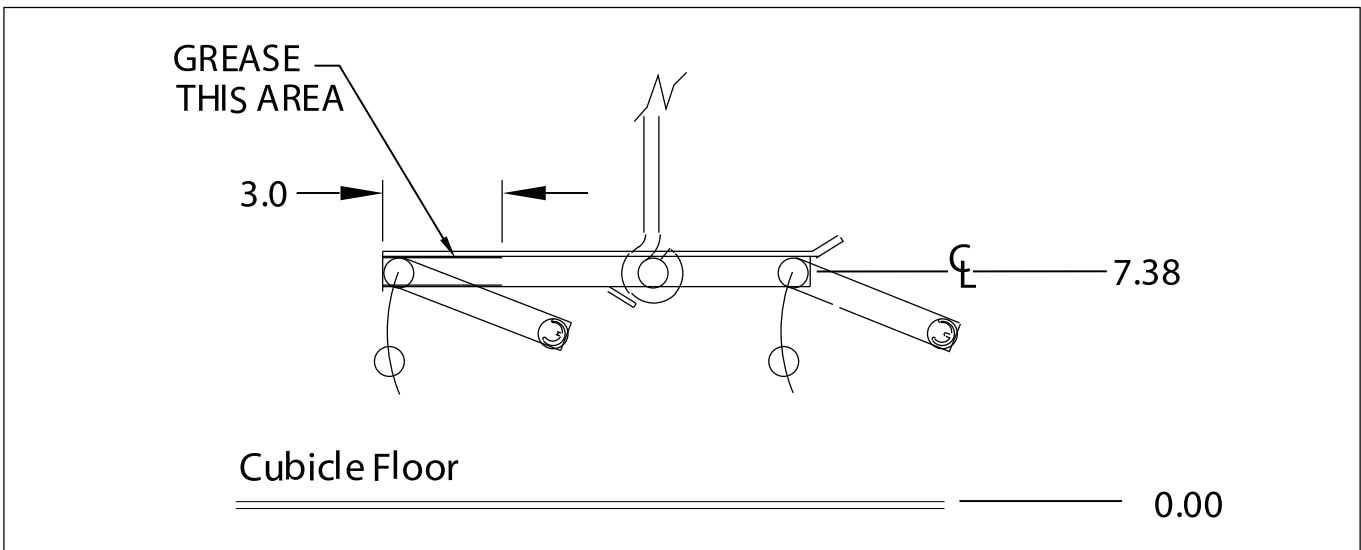


Figure 7. Cubicle Pantograph Setup

Maintenance

Cubicle MOC Forces

Reference **Table 2** for the nominal and maximum forces required to operate the cubicle MOC's. The force measurement is made by operating the cubicle pantograph. The force is measured when operating the pantograph at the location corresponding to the MOC actuator pin interface with the pantograph when the circuit breaker is in the Connect position.

Table 2 – Cubicle MOC Forces

	MOC operator force
1Tier	20 +/- 5 lbs
2Tier	40 +/- 5 lbs
3Tier	60 +/- 5 lbs

Pantograph Setup

Reference **Figure 7** for the setup of the cubicle pantograph. This figure matches the original equipment manufacturer's setup.

The cubicle maintenance details for the Cubicle MOC forces and the Pantograph setup are provided for reference only.

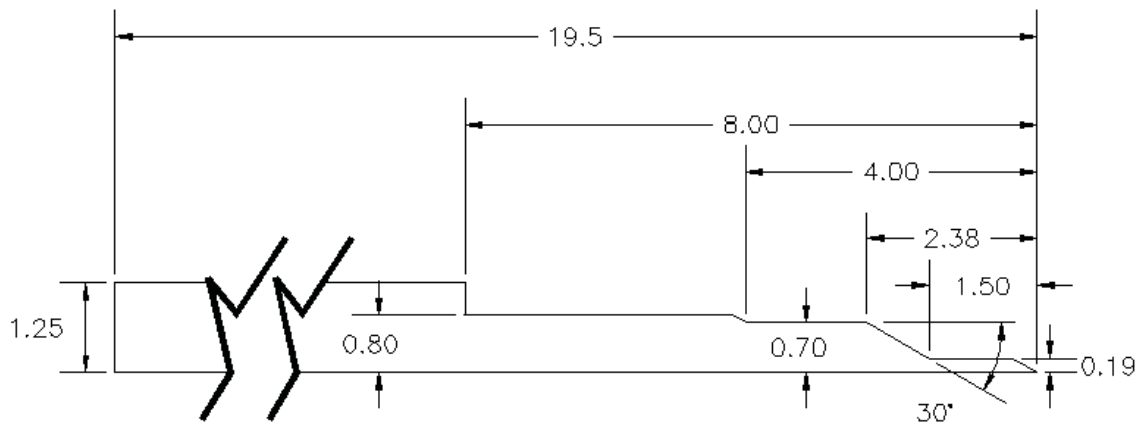
Maintenance

Floor Interlock and Operating Lever Adjusting Instructions

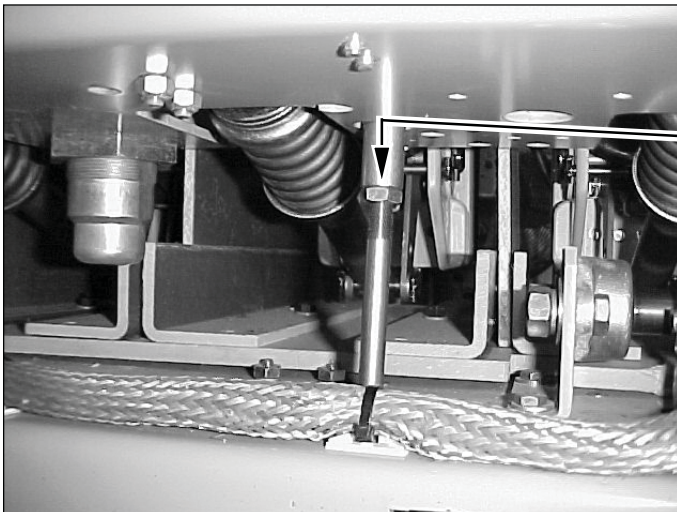
The circuit breaker must be open and discharged prior to removing any covers.

Tools required:

- 1/2 inch wrench or socket (5DPR only)
- 7/16 inch wrench or socket
- 9/16 inch open end wrench
- Midsize flat tip screwdriver
- Adjustment tool 18-671-185-059



Adjustment tool 18-671-185-059, Steel Bar, 0.38 x 1.25 x 19.5 inches



Step 1

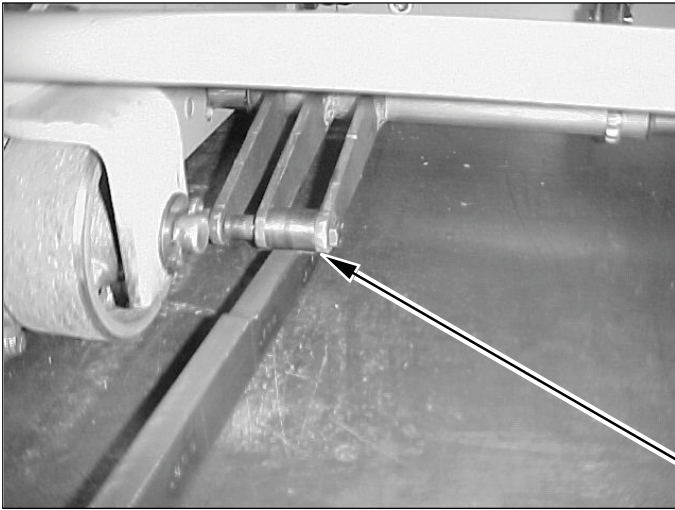
Move circuit breaker on to a smooth flat surface

Loosen hex-jam nut using a 9/16 inch wrench on indicated clevis by turning it counterclockwise.

Turning the 3/8 inch rod counterclockwise moves the roller down (decreasing clearance between floor and roller).

Turning the 3/8 inch rod clockwise moves the roller up (increasing clearance between floor and roller).

Maintenance



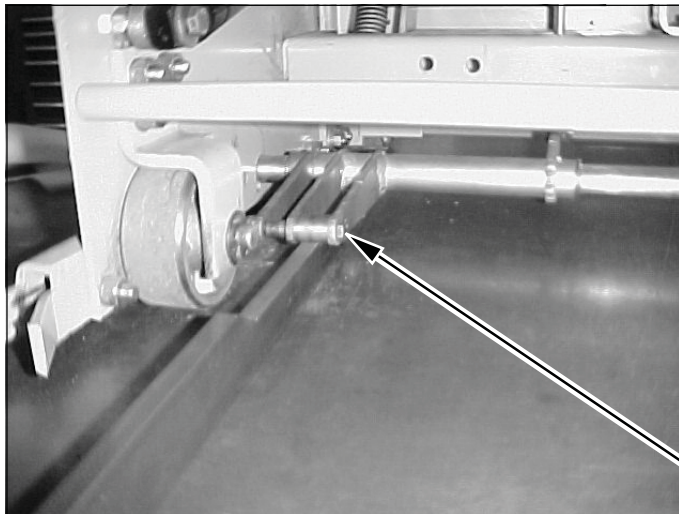
With the circuit breaker closing spring discharge roller (large roller) displaced 0.19 inches above the floor using the adjustment tool, the roller should have some resistance to rotation but must be able to be rotated manually.

Note: This is an initial setting and may be changed per these instructions.

Step 2

Tighten the 9/16 inch jam-nut on the indicated clevis. (Nut is shown in step 1)

0.19 inch step.



Step 3

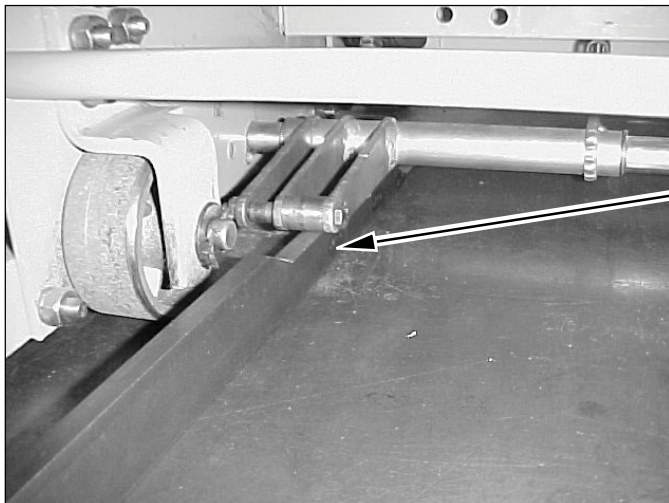
Charge the circuit breaker closing spring until it is latched and the closing spring indicator reads CHARGED.

Step 4

Roll the circuit breaker closing spring discharge roller (large roller) onto the 0.70 inch step of the adjustment tool.

The circuit breaker closing spring should discharge, the circuit breaker indicator should indicate OPEN and the spring indicator should read DISCHARGED.

0.70 inch step.

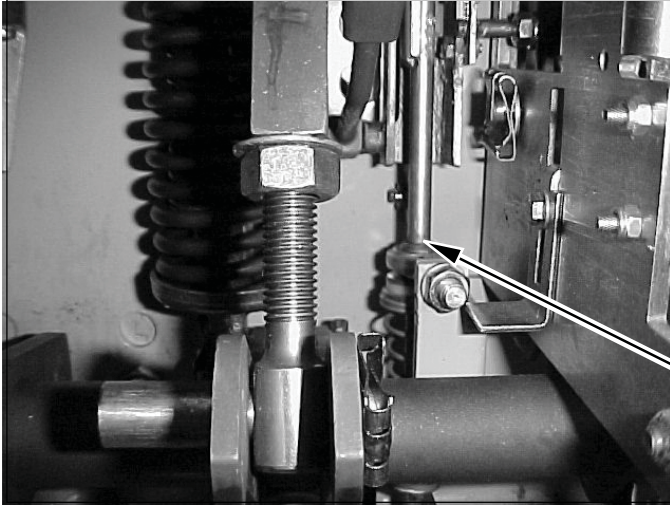


Step 5

Roll the circuit breaker closing spring discharge roller (large roller) onto the 0.80 inch step of the adjustment tool and then off the tool.

0.80 inch step.

Maintenance

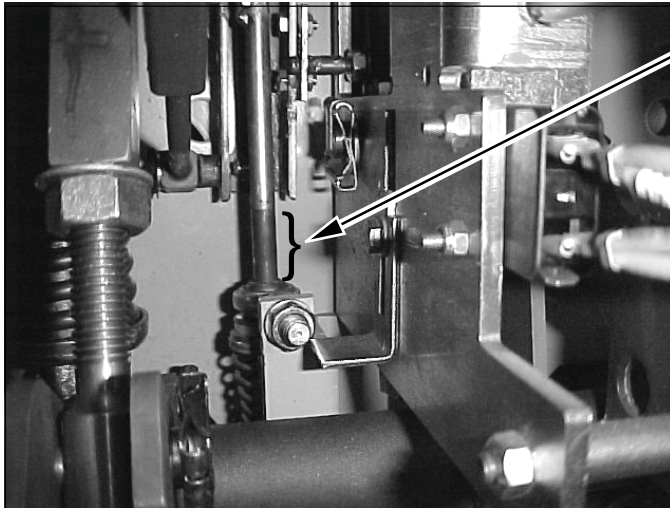


Step 6

Verify that the actuating push rod fully rests to its original position by observing the grease wipe on the actuating push rod at the eyebolt.

(Push rod shown with the circuit breaker rolled off the adjustment tool.)

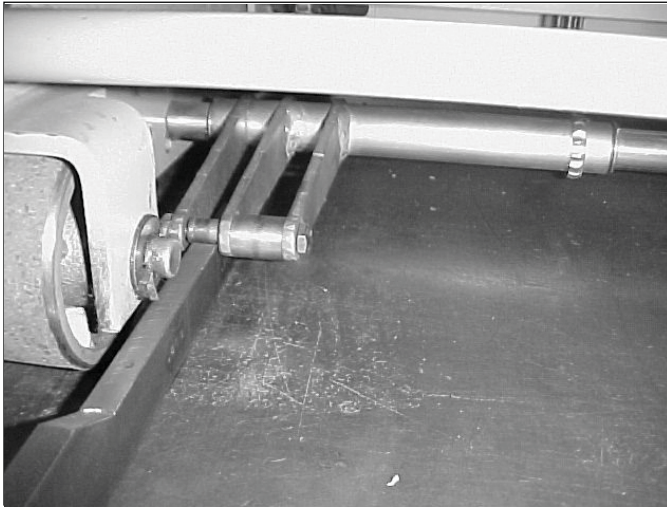
No grease wipe should be shown! This confirms that the rod is at its reset position.



Attention: Grease wipe visible after removal of adjustment tool indicates that the actuating push rod has not reset!

(Push rod shown with the circuit breaker rolled on to the 0.80 inch step of the adjustment tool.)

Maintenance



Step 7

Roll the circuit breaker trip roller (smaller roller located towards the outer edge of the circuit breaker) onto the 0.70 inch step of the adjustment tool.

Step 8

Charge circuit breaker closing spring until it is latched and closing spring indicator reads CHARGED.

Step 9

Attempt to close the circuit breaker by pressing the black close button on the front of the circuit breaker. Verify that circuit breaker is trip-free (closing spring will discharge but circuit breaker jackshaft should not rotate).

Step 10

To ensure proper adjustment of the Floor Interlock and Operating Lever repeat steps 3 to 9 a minimum of 2 times.

If the results cannot be achieved, loosen the hex-jam nut on the 3/8 inch rod of the indicated clevis with the 9/16 inch wrench and turn the rod half a turn counterclockwise. Tighten hex-jam nut, then repeat steps 3 through 9.

If the expected results in steps 3 through 9 still cannot be obtained, repeat step 10 until steps 3 through 9 can be successfully completed.

Note: The minimum height of the spring discharge interlock roller (large roller) from the floor shall not be less than 0.05 inches with the roller having some resistance to rotation but still able to be rotated manually.

Functional Tests

Refer to Circuit Breaker Operator Manual SGIM-9918.

Periodic Maintenance Intervals

Refer to Circuit Breaker Operator Manual SGIM-9918 and **Table 3**.

Table 3 — Periodic Lubrication Interval

Item	Lubrication Interval
Primary Disconnect-contact surfaces	100 racking operations or 10 years
Racking Mechanism	
MOC Actuator System	1000 operations or 10 years

SIEMENS

Siemens Energy, Inc.
7000 Siemens Rd.
Wendell, NC 27591

ATTACHMENT D

Line Item No: 4.0





UMA324800086
 DYNPROTDEU
 P-111 CKT. BREAKER

GE Switchgear

Power/Vac® Circuit Breaker
 Ratings Nameplate

Manufactured for GE
 Houston, Texas, U.S.A
 713.790.1700

Type	VE1 15.5-500-3		Serial No.	0129A9293-001-08	
RATED MAX VOLTAGE	15 kV	RATED CURRENT	1200 AMPS	60 Hz	IMPULSE WITHSTAND
RATED SHORT CIRCUIT AMPS	15 kA	RATED VOLTAGE RANGE FACTOR	1.30	CLOSE & LATCH CAPABILITY AMP	37 kA
CLOSE COIL	125VDC	CLOSING AMPS	6.0	VOLT RANGE	100-140
TRIP COIL	125VDC	TRIPPING AMPS	5.9	VOLT RANGE	70-140
TRIP COIL	125VDC	TRIPPING AMPS	5.9	VOLT RANGE	70-140
CHARGING MOTOR	125VDC	NO RATING			
CONNECTION DIAGRAM	WT 470 1b5	MECH TYPE	M1-18	DATE MFG	04-07
VAC.INTER.TYPE	30E1	REQ:	PS03B1	SO:	944067
ORDERING NO.	2V8N1552A220201A2		NO RATING		
CAUTION: BEFORE INSTALLING OR OPERATING READ INSTRUCTIONS		GEK86132	Powell Electrical Group		

MANUAL SL
 CLOSE ACCE
 REAKER MUST B
 REMOVED FROM
 QUIPMENT. SEE
 INST. BOOK

TO PULL BREAKER - GR







Figure 18 Typical wiring diagram for ML-18 and ML-18H mechanisms

