

SeT Series

SM AirSeT - 24 kV Modular Cubicles Operating DMVL-A / D / S Cubicles with Evolis Circuit Breaker

Additive to NNZ1587001 Installation and Commissioning Guide and NNZ1586901 Operation and Maintenance Guide

This document completes the NNZ1587001 and NNZ1586901 guides with the description of operations on the DMVL-A / D / S cubicles.

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Table of Contents

Foreword5

 Safety Information5

 Safety Precautions6

Description of the Evolis Circuit Breaker and the Operating Mechanism.....8

Energizing DMVL-A / D / S Cubicles 10

De-Energizing DMVL-A / D / S Cubicles 15

Circuit Breaker Off-Load Operations for DMVL-A / D / S Cubicles.....20

Maintenance and Troubleshooting23

Foreword

Safety Information

Important Information

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 documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



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



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with 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.

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

WARNING

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

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

CAUTION

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

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

NOTICE

NOTICE is used to address practices not related to physical injury.

Failure to follow these instructions can result in equipment damage.

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 its installation and has received safety training to recognize and avoid the hazards involved.

Safety Precautions

Safety Rules

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel. Civil engineering work should be performed only after reading this entire set of instructions and checking the technical characteristics of the device.
- Do not work alone.
- Turn off all power supplies of the equipment before working on or inside equipment.
- Respect the LOTO (Lock Out Tag Out) procedure.
- Do not drill into the switchgear.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Put all devices, doors, and covers back into place before turning on power to this equipment.
- Beware of potential hazards, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Never go behind the cubicle when it is energized.

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

Cleaning Instructions



DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Do not use high-pressure cleaner for cleaning the equipment.

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



CAUTION

HAZARD OF INAPPROPRIATE CLEANING

Do not use solvents or alcohol for cleaning the equipment.

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

Disposal of the Equipment at End-of-Life

This equipment contains pressurized air and compressed springs.

⚠ WARNING

HAZARD OF INCORRECT DISMANTLING OPERATION

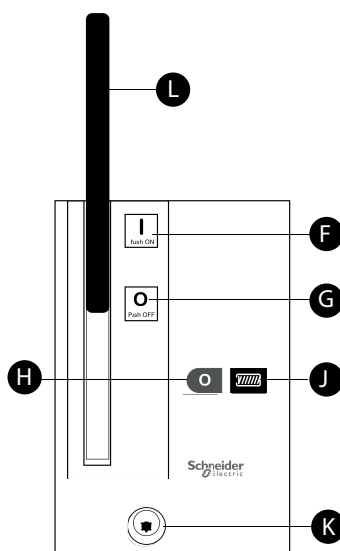
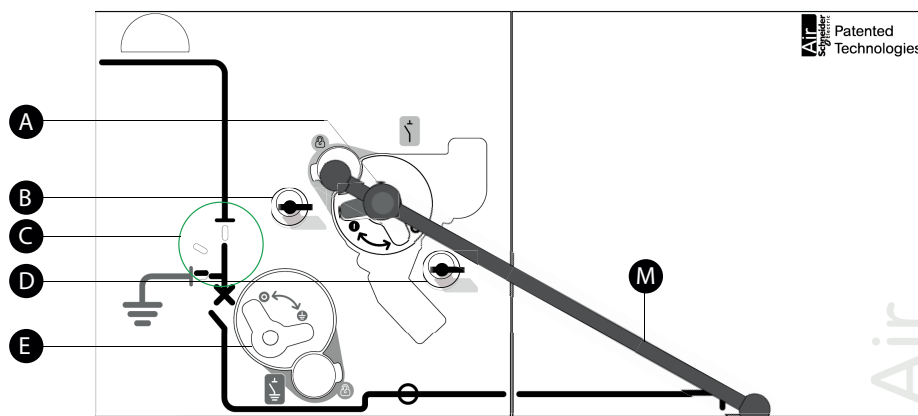
- Apply appropriate protective equipment (PPE) and follow safe work practices.
- Do not carry out any dismantling operations unless authorized.
- Air pressure contained inside the tank must be released before any end-of-life treatment.


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




Description of the Evolis Circuit Breaker and the Operating Mechanism

The DMVL-A / D / S are circuit breaker cubicles composed of one disconnecter and a circuit breaker.

NOTE: To facilitate the representation of the operations, only the DMVL-A front panel is shown as an example.



Part	ID	Item	Function
Disconnecter	A	Line disconnecter command	Insert the lever to operate the disconnecter.
	B	Open position lock	Lock the disconnecter in the open position.
	C	Disconnecter position indicator (earth/open/closed)	Show the disconnecter position.
	D	Closed position lock	Lock the disconnecter in the closed position.
	E	Earthing disconnecter command	Insert the lever to operate the earthing disconnecter.
Circuit breaker	F	Push ON button	Power on the circuit breaker.
	G	Push OFF button	Power off the circuit breaker.
	H	Open 	Show the status of the circuit breaker.

Part	ID	Item	Function
		Close 	
	J	Charging status bar Charged:  Discharged: 	Show the status of the charging operation. The mechanism closing spring is charged. The mechanism closing spring is discharged.
	K	Lock	Lock or unlock the circuit breaker.
	L	Circuit breaker lever	Charge the circuit breaker.
Accessories	M	Operating lever	Operate the disconnecter.

Terminology

- Captive key: captive keys are only released after a specific sequence of actions. They are used to help prevent the movement of mechanical parts and the operation of the device when not appropriate.
- Free key: free keys are released with a turn.

Note About the Keys

The disconnecter locks (B) and (D), and the circuit breaker lock K are identical and use the same key.

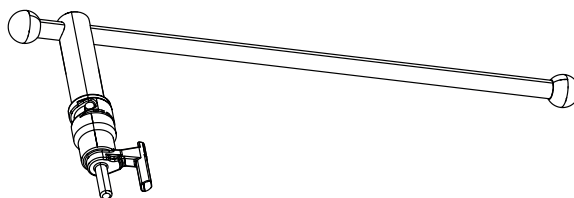
Operating Lever

NOTICE

HAZARD OF WRONG OPERATING CONDITIONS

Use the original SM AirSeT operating lever provided with the cubicle.


Failure to follow these instructions can result in equipment damage.



When ordering the SM AirSeT unit, the operating lever is delivered with the SM AirSeT unit. If the lever is missing, contact Schneider Electric.

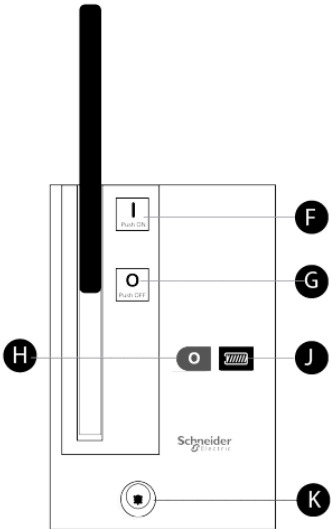
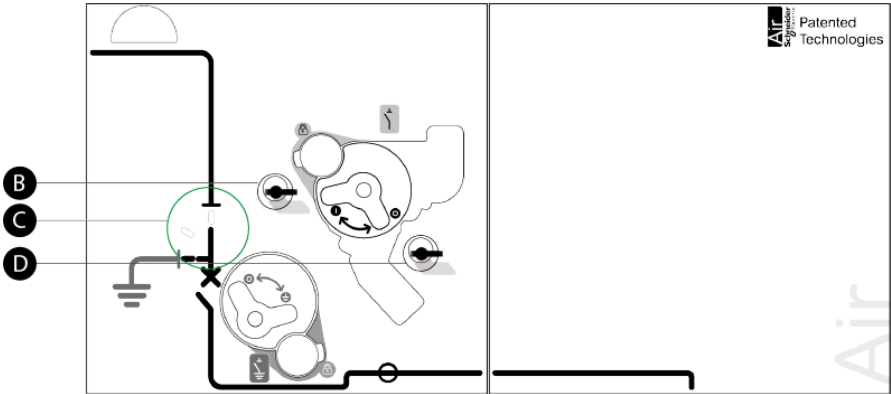
Energizing DMVL-A / D / S Cubicles

Initial state:

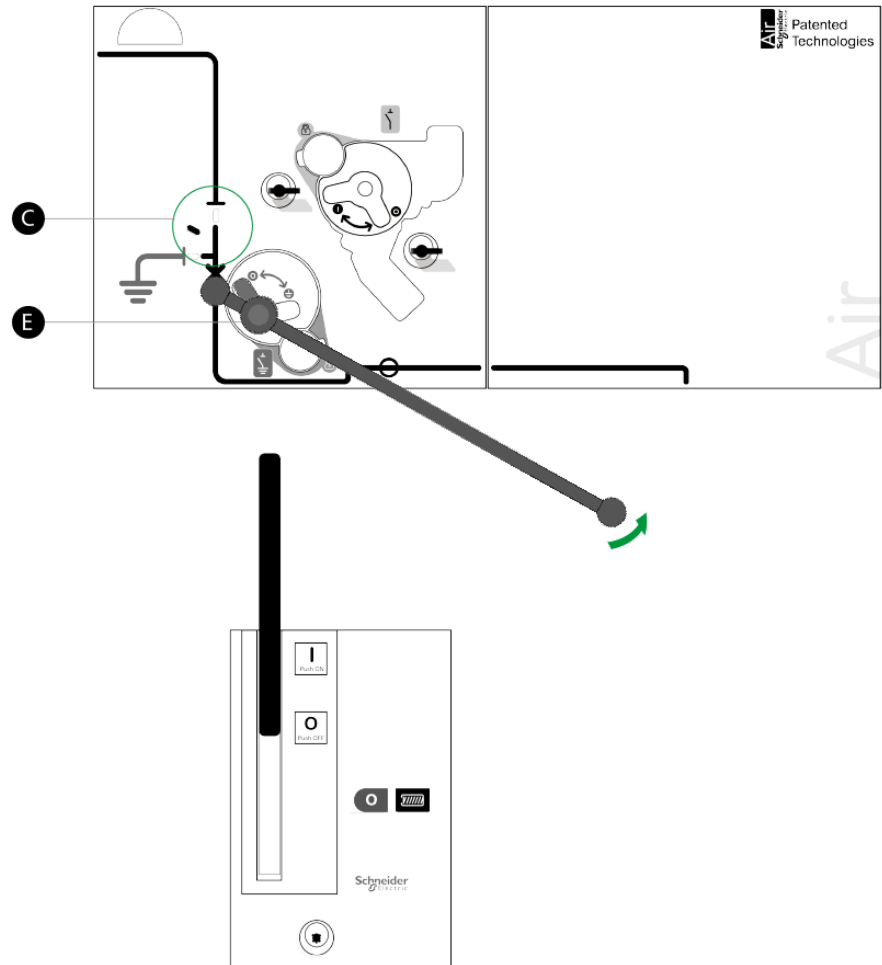
- The disconnecter position indicator (C) is in earth position.
- The circuit breaker is open (H) and discharged (J) 
- The captive key is in lock (D).
- The free key is in lock (B).

NOTE: If the free key is not in (B), the key is in (F). To release the key from (K):

If	Then
The circuit breaker is open and discharged	Remove the key from (K) directly or with 1/2 turn anti-clockwise. Insert the key in (B).
The circuit breaker is closed and discharged	<div>1. Press the circuit breaker Push OFF button (G).</div> <div>2. Turn the key in (F) 1/2 turn anti-clockwise.</div> <div>3. Remove the key and insert the key in (B).</div>
The circuit breaker is closed and charged	<div>1. Press the circuit breaker Push OFF button (G).</div> <div>2. Press the circuit breaker Push ON button (F).</div> <div>3. Press the circuit breaker Push OFF button (G).</div> <div>4. Turn the key in (K) 1/2 turn anti-clockwise.</div> <div>5. Remove the key and insert the key in (B).</div>

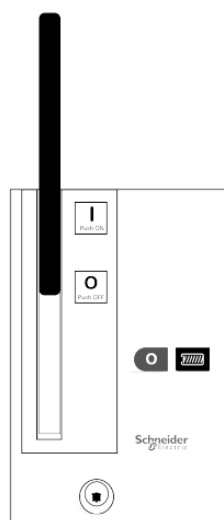
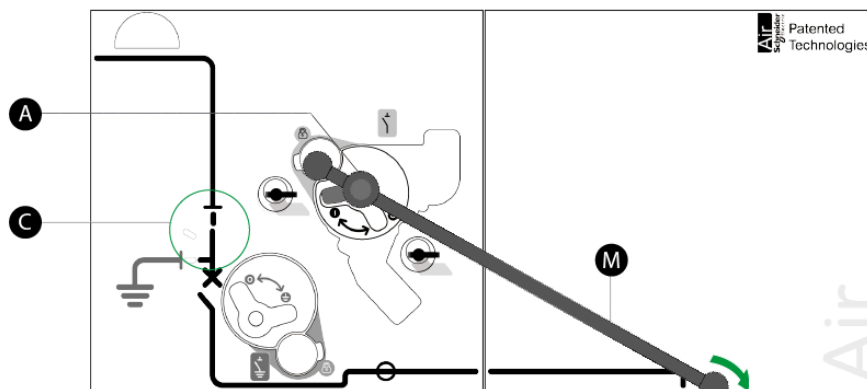


1. Open the disconnecter as follows:
 - a. Insert the operating lever in the earthing disconnecter command (**E**).
 - b. Turn anti-clockwise.
 - c. Check that the disconnecter position indicator (**C**) shows the open position.

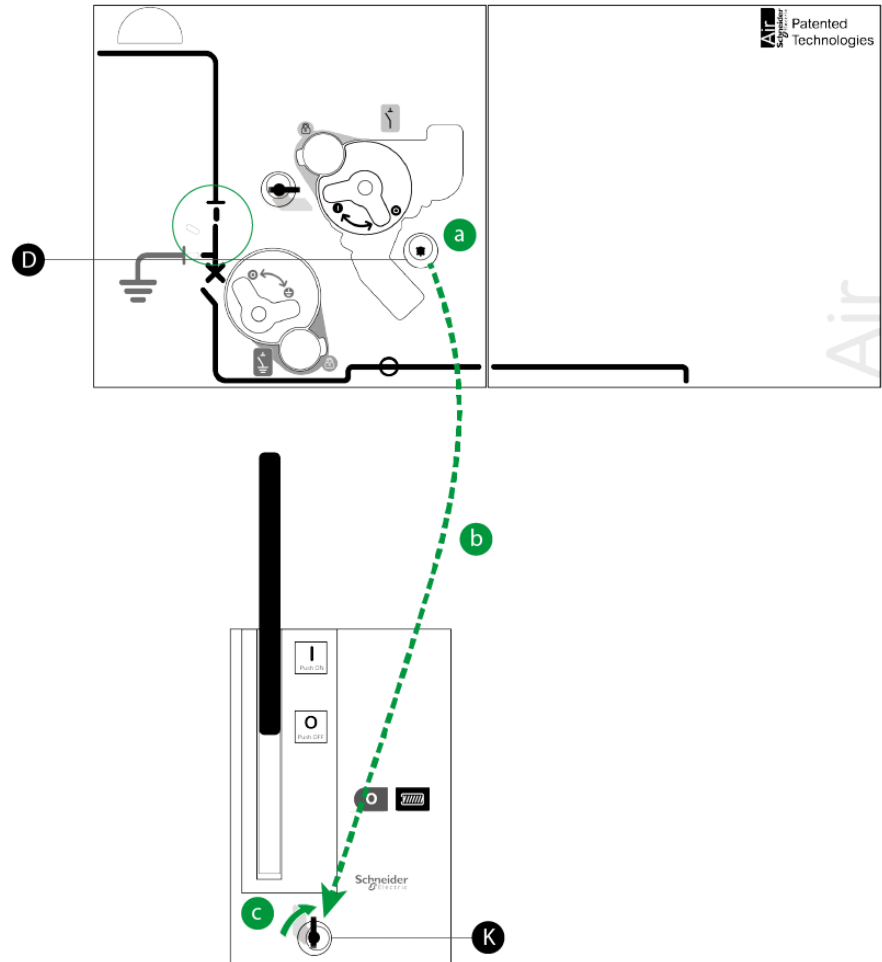


2. Close the disconnect as follows:

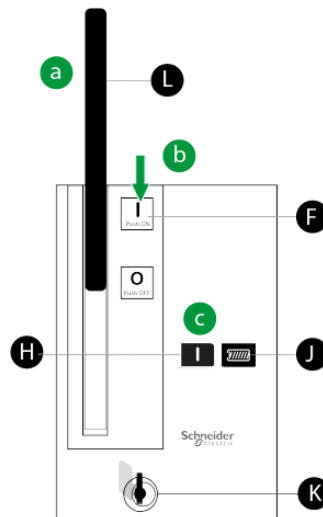
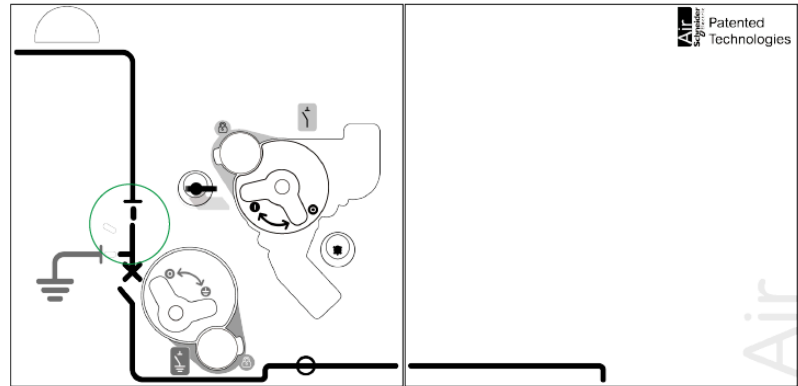
- a. Insert the operating lever in the line disconnect command (**A**).
- b. Turn clockwise.
- c. Check that the disconnect position indicator (**C**) shows the closed position.



3. Move the key to the circuit breaker as follows:
- Release the key from lock (D) with 1/4 turn clockwise.
 - Insert the free key in the circuit breaker lock (K).
 - Make a 1/2 turn clockwise to lock it.



4. Close the circuit breaker as follows:
 - a. Pull down the charging handle (**L**) several times until the lever stops being maneuverable.
 - b. Press the **Push ON** button (**F**).
 - c. Check that the circuit breaker status bar (**H**) shows the closed position.



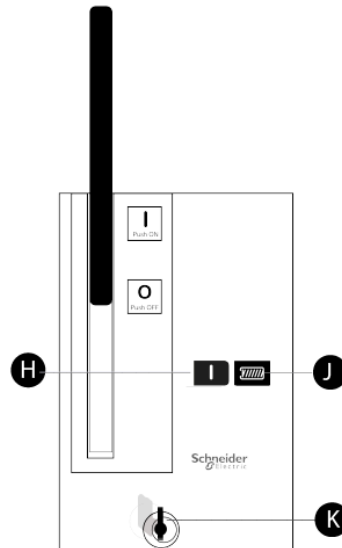
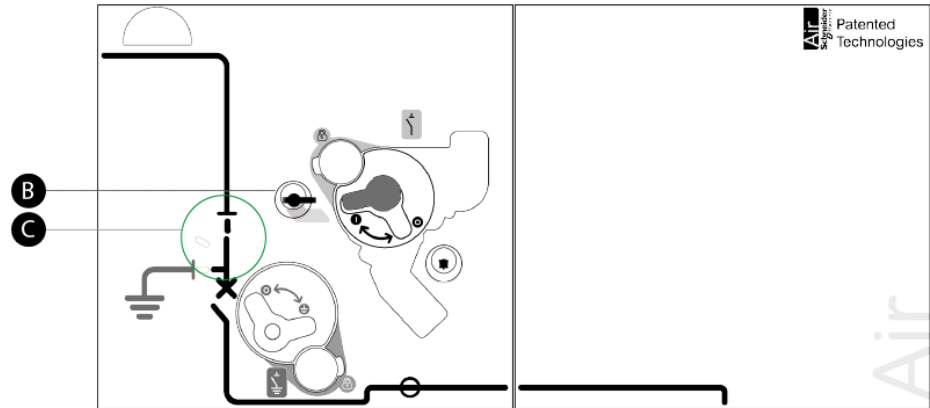
Final state:

- The disconnector position indicator (**C**) is in closed position.
- The circuit breaker is closed (**H**) and discharged (**J**).
- The 2 keys are captive in lock (**B**) and in circuit breaker lock (**K**).

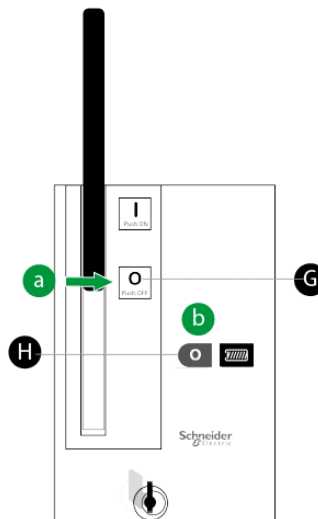
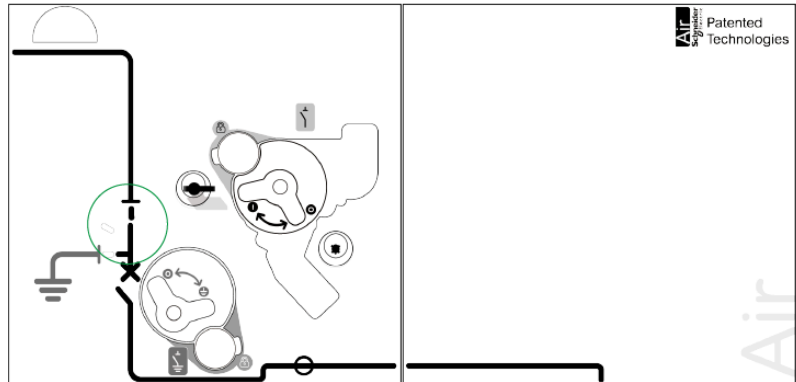
De-Energizing DMVL-A / D / S Cubicles

Initial state:

- The disconnecter position indicator (**C**) is in closed position.
- The circuit breaker is closed (**H**) and discharged (**J**).
- The 2 keys are captive in lock (**B**) and circuit breaker lock (**K**).

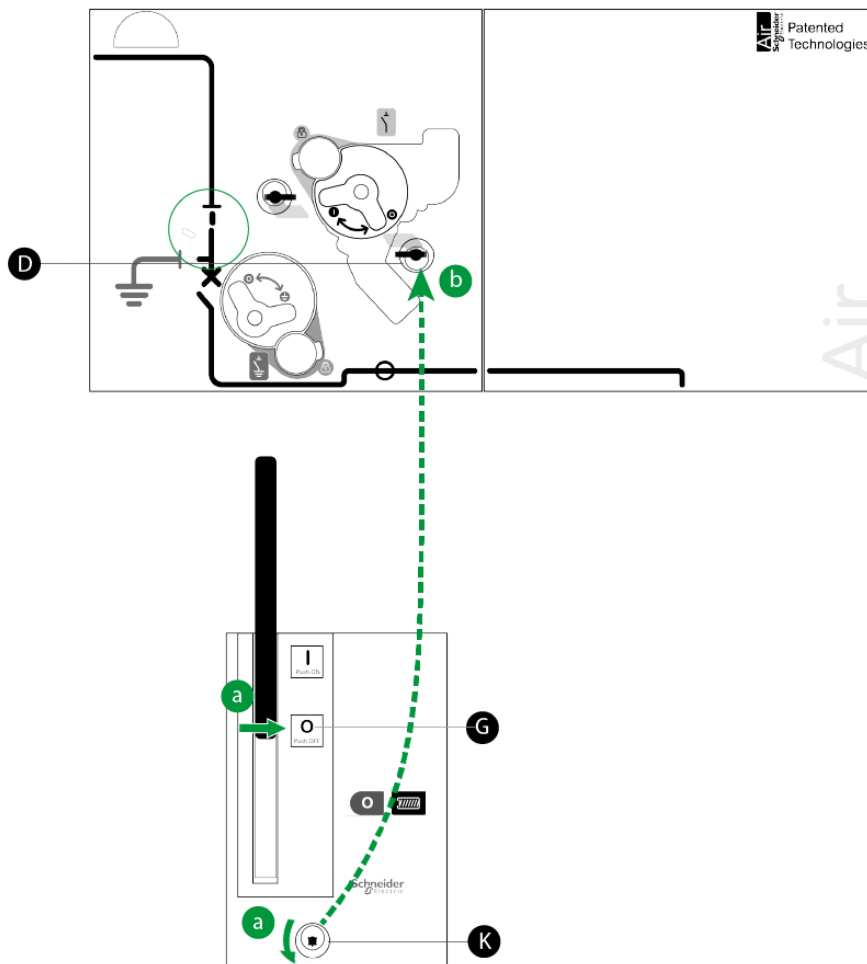


1. Open the circuit breaker as follows:
 - a. Open the circuit breaker by pressing the circuit breaker **Push OFF** button (**G**)
 - b. Check that the circuit breaker charging status (**H**) shows the open position.



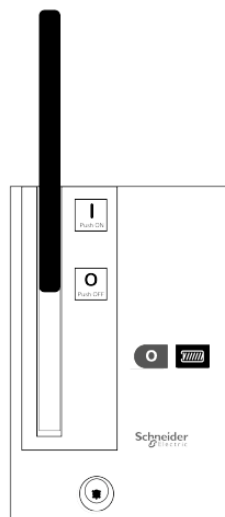
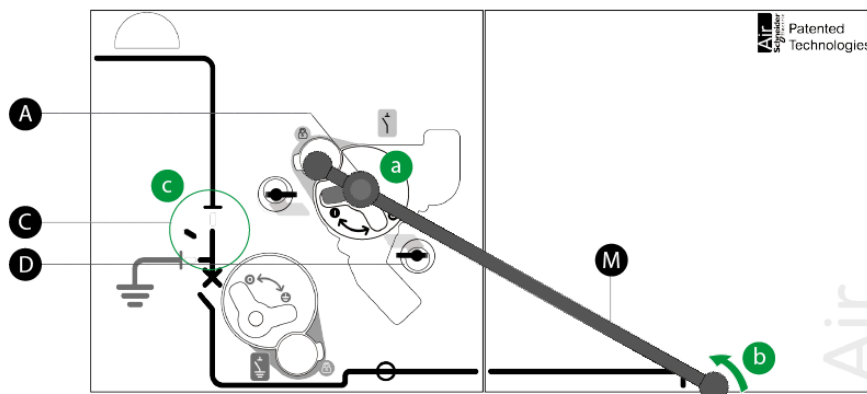
2. Move the key from the circuit breaker to the disconnecter as follows:

- a. Press the circuit breaker **Push OFF** button (**G**) again, while turning the key 1/2 turn anti-clockwise in the circuit breaker lock (**K**).
- b. Insert the key vertically in lock (**D**). The key automatically makes a 1/4 turn anti-clockwise.



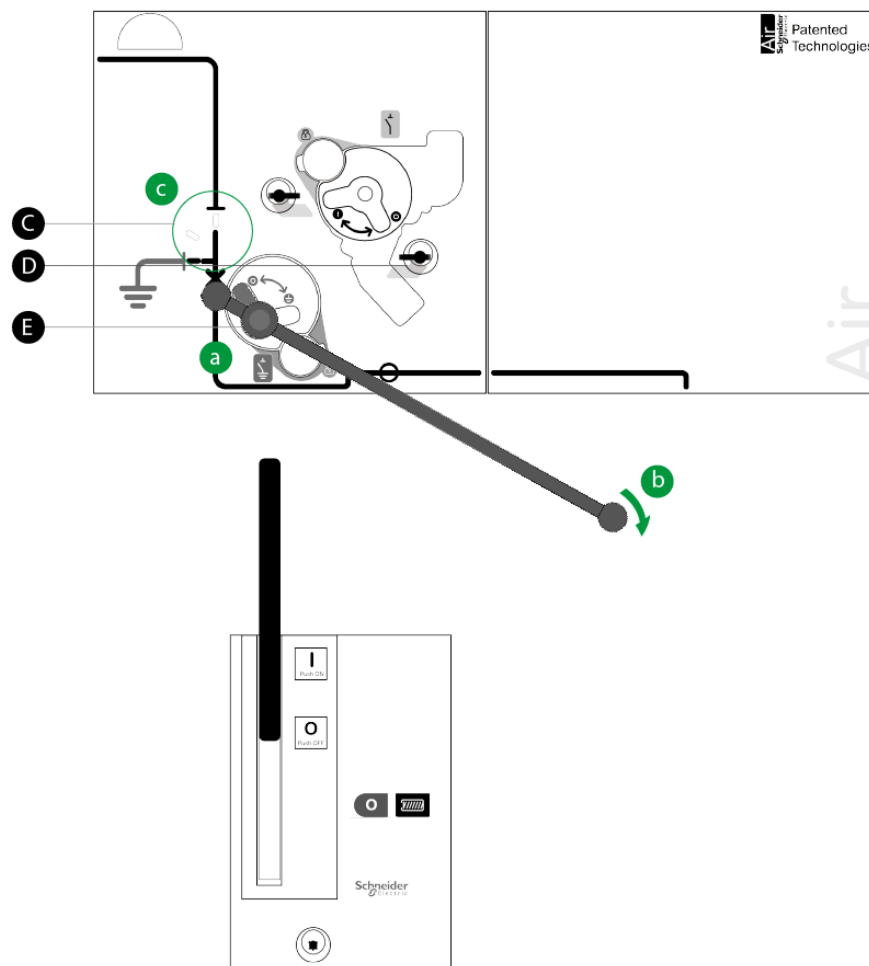
3. Open the disconnecter as follows:

- a. Insert the operating lever in the line disconnecter command (**A**).
- b. Turn anti-clockwise.
- c. Check that the disconnecter position indicator (**C**) shows the open position.



4. Earth the disconnector as follows:

- a. Insert the operating lever in the earthing disconnector command (**E**).
- b. Turn clockwise.
- c. Check that the disconnector position indicator (**C**) shows the earth position.



Final state:

- The disconnector position indicator (**C**) is in earth position.
- The circuit breaker is open (**H**) and discharged (**J**).
- The captive key is in lock (**D**).
- The free key is in lock (**B**).

The door can be open.

⚠ CAUTION

HAZARD OF INAPPROPRIATE HANDLING

When the door is open:

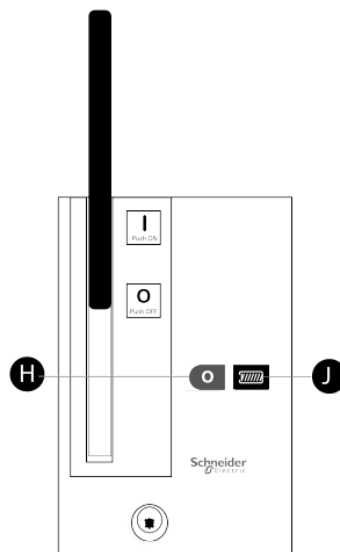
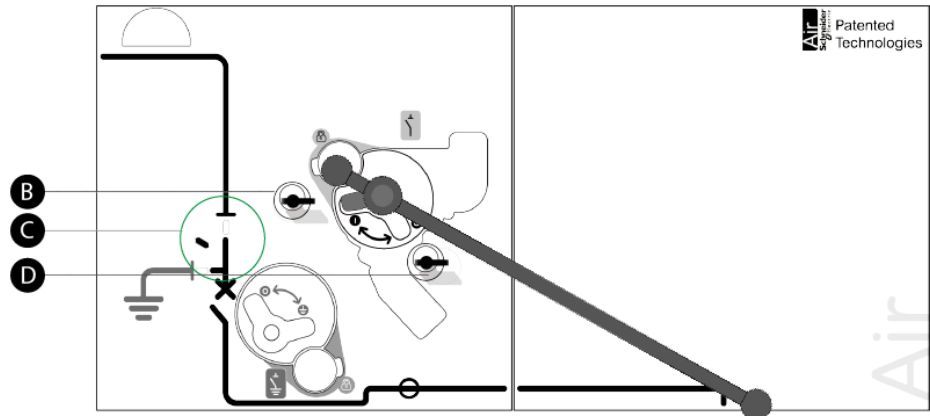
- Wear the appropriate personal protective equipment (PPE).
- Do not touch the circuit breaker mechanism.

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

Circuit Breaker Off-Load Operations for DMVL-A / D / S Cubicles

Initial state:

- The disconnector position indicator (**C**) is in earth or open position.
- The circuit breaker is open (**H**) and discharged (**J**).
- The captive key is in lock (**D**).
- The free key is in lock (**B**).



1. Move the key from the disconnecter to the circuit breaker as follows:
 - a. Release the key from lock (B) with 1/4 turn anti-clockwise.
 - b. Insert the key in the circuit breaker lock (K). Make 1/2 turn clockwise.



2. Operate the circuit breaker as follows:
 - a. Pull down the charging handle (L) several times until the lever stops being maneuverable.
 - b. Press the circuit breaker **Push ON** button (F) to close it. Refer to Step 4 of Energizing DMVL-A / D / S Cubicles, page 14
 - c. Press the circuit breaker **Push OFF** button (G) to open it. Refer to Step 1 of De-energizing DMVL-A / D / S, page 16.

⚠ CAUTION

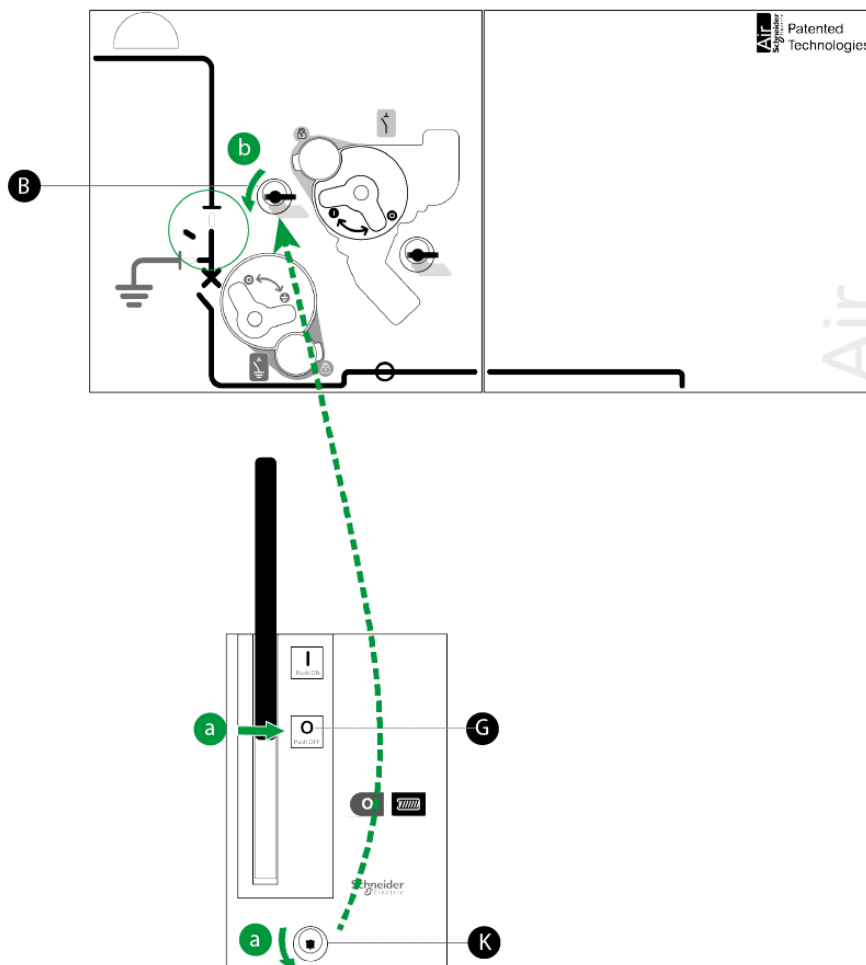
HAZARD OF INAPPROPRIATE HANDLING

If the door is open:

- Wear the appropriate personal protective equipment (PPE).
- Do not touch the circuit breaker mechanism.

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

3. Move the key from the circuit breaker to the disconnecter as follows:
 - a. Press the circuit breaker **Push OFF** button (**G**), while turning the key 1/2 turn anti-clockwise in (**K**)
 - b. Insert the key in the lock (**B**). The key automatically makes a 1/4 turn clockwise.



Maintenance and Troubleshooting

For more information about maintenance and troubleshooting, refer to NNZ1586901 Operating and Maintenance Guide.

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