

1VAM2205-MB Rev. A

Live-front (MES) and Dead-front (MDS) Padmount Switchgear

Instruction Bulletin: 15 kV and 25 kV



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1.0 SAFETY NOTICES



WARNING



**HAZARDOUS VOLTAGE
CAN SHOCK, BURN
OR CAUSE DEATH.**

**Do not attempt to handle, install, use or service
this product before reading instruction book**

Install the ABB Padmount Switchgear within the design limitations as described in these instructions. These padmount load interrupter switches are designed to operate within the current and voltage limitations on the switch nameplate. Do not apply these switches to systems with current and/or voltages that exceed these limits.

Follow your company's safety procedures.

Do not remove covers, open doors or work on equipment unless power has been turned off and all circuits de-energized.

For the safety of personnel performing maintenance operations on the switchgear or connecting equipment, all components should be electrically disconnected by means of a visible break, securely grounded and locked out, and tagged in accordance with personnel precautions spelled out in **ANSI Standard Z244.1 "Control of Hazardous Energy – Lockout/Tagout and Alternative Methods."**

After opening the switch, use the viewing window to ensure that all three switch blades are open. If necessary, use a flashlight to verify all three contacts are open.

Personnel doing the work should follow applicable OSHA guidelines and specifically adhere to NFPA 70E for PPE and working distance.

Every precaution should be taken to prevent electrical grounding on an energized circuit. Suitable grounding clamp leads should be used and safety grounding techniques employed. **All such grounds must be removed after testing, inspection, or maintenance prior to energizing the equipment.**

The equipment covered by this instruction book must be selected for a specific application and it must be installed, operated and maintained by qualified persons,

thoroughly trained and knowledgeable of the hazards involved. This publication is written only for such qualified persons and is not intended to be a substitute for adequate training and experience in the safety procedures for this device.

WARNING

Detailed descriptions of standard repair procedures, safety principles and service operations are not included. It is important to note this document contains some warnings and cautions against some specific service methods that could cause personal injury to service personnel, damage equipment, or render it unsafe. These warnings do not cover all conceivable ways in which service, whether or not recommended by ABB, might be performed, or the possible hazardous consequences of each conceivable way, nor could ABB investigate all such ways. Anyone using service procedures or tools, whether or not recommended by ABB, must satisfy himself thoroughly that neither personal safety, nor equipment safety, will be jeopardized by the service method or tools selected. Should further information be required or specific problems arise that are not sufficiently covered, refer the matter to an ABB service representative.

It is the responsibility of the purchaser, installer or ultimate user to ensure that warning signs are attached and all access doors and operating handles are securely locked when the gear is left unattended, even momentarily.

All information contained in this manual is based on the latest product information available at the time of printing. The right is reserved to make changes at any time without notice.

2.0 INTRODUCTION

These instructions do not purport to cover all details or variations of equipment, nor provide for every possible contingency to be met in conjunction with installation, operation or maintenance. Also, as improvements in part and assemblies are made, some parts may differ in appearance as depicted in the illustrations, however, functionality will be equivalent. Should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to ABB using the contact information provided on the last page of this booklet.

The ABB MES Series live-front and MDS Series dead-front padmount switchgear are high-voltage, three-phase equipment incorporating manually operated load interrupter switches. Together with fuse protection, the switchgear can be used to isolate, sectionalize and protect a variety of underground distribution circuits.

Satisfactory performance of the switchgear is contingent upon the correct installation and adequate maintenance and service of the product. Careful study of these instructions will permit the user to obtain maximum benefit from this equipment.

The warranty associated with this equipment is fully described in the terms and conditions provided at the time of purchase. **It should be emphasized that unless approved by ABB, no modification, alteration, change or correction should be undertaken without such express authority provided in writing.**

The following instructions contain information required to correctly install, operate and test the ABB Padmount Switchgear.

ABB contact information is listed on the back cover of this booklet.

3.0 RECEIVING, HANDLING AND STORAGE

3.1 Receiving Inspection

Each padmount switch is assembled, tested, packed and shipped in new condition from the factory.

Upon receipt, inspect units immediately for damage and or missing parts. If damage is noticed, call the carrier at once for inspection and request an inspection report. File a formal claim with the carrier supported with the paid freight bill, inspection report and invoice, and notify the local ABB sales office. **This must be done within 15 days of receipt or the receiver assumes all responsibility for damage.**

Check all parts against the shipping list as they are unpacked. Wherever practical, all components such as fuses, fuse holders, end fittings, & etc. are shipped within the enclosure.

Instructions and literature packed with the switchgear should be kept with the unit.

If the switchgear is not to be placed in service immediately, it is essential that proper care be exercised in the handling and storage to ensure good operating conditions in the future. (See 3.3 Storage)

3.2 Handling

The padmount switchgear comes with two or four removable lifting brackets that attach to the sides of the cabinet and offer provisions for lifting the switchgear. Ensure the lifting brackets are securely bolted to the enclosure before lifting. Use lifting slings that are equal to or greater than the width of the enclosure. Arrange the slings to distribute the load equally as shown in Figure 1. The switchgear is shipped securely bolted to a pallet. When handling with a forklift, make sure the forks extend the full width of the pallet to prevent damage. Prior to installation, make sure your concrete pad or foundation is level and the conduit or cable entrance locations are correct.

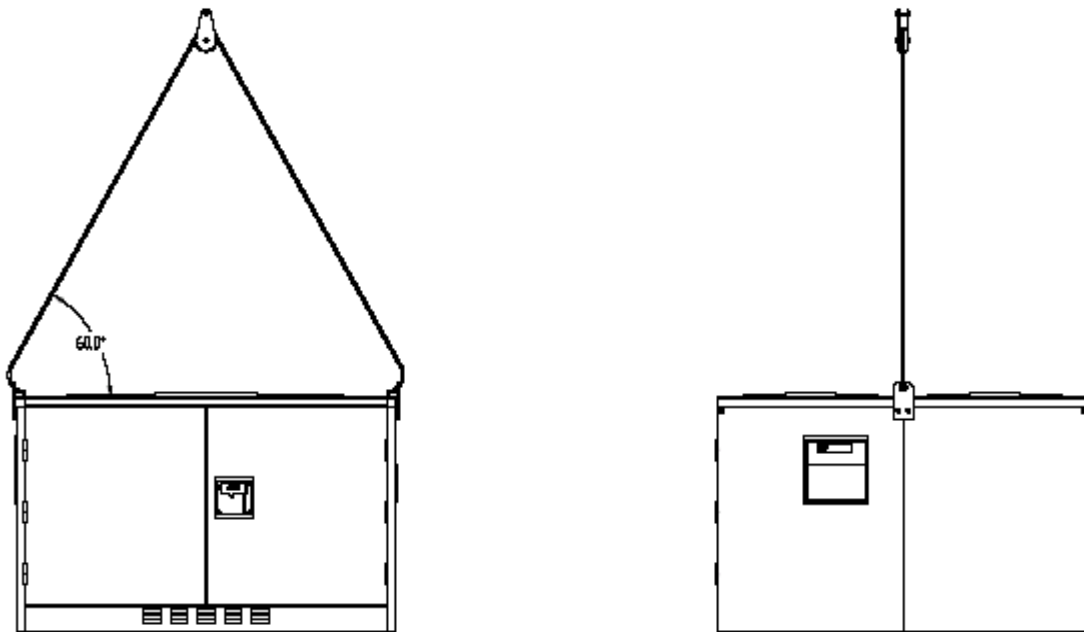


Figure 1

3.3 Storage

For prolonged storage, indoor storage is recommended. If stored outdoors, make sure all external plastic wrap and other moisture absorbing packing materials are removed and there is adequate air space between enclosures to prevent damage to the coating.

4.0 GENERAL DESCRIPTION

ABB Padmount Switches are applied in the control and switching of power distribution systems having nominal A.C. voltage ratings from 2.4 kV to 25 kV. They are capable of switching 200 and 600 amperes. When used in conjunction with fuses, they will afford overload, short circuit and disconnect services. These switches are used: on the primary of transformers for their protection and isolation; for the protection and isolation of single circuit systems; for the protection, isolation and sectionalizing of multi-circuit systems.

4.1 Applicable Industry Standards

IEEE C37.74	Standard Requirements for Subsurface, Vault and Pad-Mounted Load-Interrupter Switchgear and Fused Load-Interrupter Switchgear for Alternating Current Systems up to 38 kV (including referenced standards)
IEEE C57.12.28	Standard for Pad-Mounted Equipment – Enclosure Integrity
IEEE C57.12.29	Standard for Pad-Mounted Equipment – Enclosure Integrity for Coastal Environments

5.0 INSTALLATION

Installation of Padmount Switchgear must only be done with de-energized switchgear. When installing the switchgear: (a) Protect workers adequately from live parts with barriers, screens, etc., (b) Observe National Electrical Safety Code ANSI C2, Rule 124 for guarding live parts and OSHA regulations.

5.1 Access to Interior

A penta-head socket or wrench is required to gain access to the interior of the enclosure. The padlock (if installed) must be removed first and the handle pivoted out to the operating position. The penta-head (or optional hex-head) security bolt can then be retracted until it spins freely, releasing the door latching mechanism. Turn the handle counter-clockwise to operate the latch mechanism and open the door. To close the doors, make sure the left hand door is closed before closing and latching the right hand door. The security bolt must be re-engaged and fully seated before the folding handle can be closed and padlock re-installed.

An automatic door stay (wind lock) secures the door in the open position when servicing the switchgear. Lift up on the arm to release and close the door. To remove the doors completely, remove the nut from the door end of the arm and lift the door off the hinge pins.

5.2 Removal of Shipping Materials

Before any installation of Padmount Switchgear, a careful check should be made to ensure that all materials included for shipping purposes have been removed. Switches are shipped closed to avoid shipping damage. Open switches in accordance with outlined instructions. Before any installation work is done, consult and study all drawings furnished by ABB.

Mats, screens, railings, etc., which are external to the switchgear and may be required to meet local codes, must be furnished by the purchaser or enduser.

5.3 Barrier Removal (MES Live-front only)

The standard barrier system used in the MES Series live-front switchgear is designed to be easily removed to provide improved access during installation, terminating cables, or when servicing the gear. Use the following procedure to remove the inter-phase barriers:

1. Cut the ty-wraps used to secure the dual purpose front hanging barriers during shipment.
2. Remove and store the dual purpose barriers on the hanger brackets on the exterior doors or another clean location.
3. Remove the clear viewing windows at the top of each switch compartment by pressing up on the spring retainer above each window.
4. Cut the shipping ty-wraps and remove the retainer strips and interlocking barrier spreaders across the top and bottom of each barrier assembly.
5. Align the phase barrier with the notch in the metal bracket above the barriers.
6. Lift up and pull out to remove the phase barriers as shown in figure 2.



Figure 2

7. Reverse the above procedure to re-install the barriers.

Make sure to keep the barriers clean and dry to prevent tracking and arcing.

5.4 Preparation of Foundation (Anchoring)

The foundation must be strong enough to prevent sagging due to the weight of the switchgear structure. The impact loading is approximately 1.1 times the static load.

Suitable means must be provided by the purchaser for anchoring the equipment to the pad or foundation. It is essential that the pad or foundation be level to avoid distortion of the switchgear structure and the equipment be properly aligned prior to final anchoring. The recommended pad size should be 4-6" minimum larger than the switchgear footprint shown in the assembly drawing and/or product brochure. Steel shims should be used for final leveling of the switchgear, if necessary. Care should be taken to provide a smooth, hard and level pad under and in front of the units to facilitate installation. **If the pad is not level and flush with the base channels, it will be difficult to align the equipment and open the doors.** Once the switchgear is level, anchor the enclosure to the pad using the anchor holes in the mounting brackets located inside each corner of the switchgear. After the switchgear is leveled and anchored to the pad, caulk around the bottom of the enclosure with a permanent weatherproof caulking compound to prevent entry of moisture, contamination or varmints.

Before replacing doors, carefully inspect bus work and phase barriers to ensure that no tools or other objects are accidentally left inside the unit. Always be sure that all switch hardware is in place and tightened properly. **Never energize the switch without the barriers installed and in place and compartments closed.**

5.5 Cable Connections

ABB Padmount Switchgear is provided either with bolted cable terminations, referred to as live-front, or elbow terminations, referred to as dead-front. Both types of equipment provide safe and reliable performance based on the utility's or user's experience with the specific type of equipment.

CAUTION

External sources of power supplied to this switchgear may cause back-feed to the high voltage bus. Care must be taken by disconnecting the back-feed source and safety grounding the terminations before working on the switchgear.

Before making up the cable connections, the phasing of each cable should be determined in accordance with the connection diagram, and the cables tagged accordingly. The cable manufacturer's instructions should be followed when performing cable terminations and during the installation of the cable. The terminating devices (where required) should be installed pursuant to the terminator manufacturer's instructions.

5.5.1 Live-front Terminations (MES)

Cable terminations in live-front switchgear are made with bolted lug connections and stress cone style cable terminators. Termination space is provided in the cubicle for bottom entry. It is essential that the connections be clean and securely

bolted with hardware torqued to hardware specifications, since the conductivity of the joints is proportional to the applied pressure. Belleville spring washers are recommended to ensure positive contact pressure. Adequate electrical clearance must be maintained between cables, energized parts and grounded metal parts. according to the following electrical clearance guide in Table 1.

Minimum electrical clearances

VOLTAGE CLASS (kV)	BIL (kV)	PHASE-TO-GROUND (INCHES)	PHASE-TO-PHASE (INCHES)	LIVE PART TO BARRIER	TERM SKIRT TO BARRIER
15	95	6.00	7.00	1.00	0.50
25	125	8.00	8.50	2.00	1.25

Table 1

When positioning the cable terminations, make sure the lugs are flat against the termination pad and bolt holes are in alignment before installing the bolts. **It is the installer's responsibility to correctly position and adequately support cables such that insulators or bus connections do not carry excessive strain from the cables.** Optional cable supports are available from ABB.

5.5.2 Dead-front Terminations (MDS)

On dead-front switchgear, the switch terminals are supplied with 600 ampere bushings and fuse terminals are supplied with 200 ampere bushing wells with interfaces conforming to IEEE Standard 386. The appropriate bushing inserts and separable connectors (elbows) must be furnished and installed by the user. (Note: As an option, bushing inserts can be installed at the factory).

Remove all shipping covers from the bushings and bushing wells prior to installation of the inserts and elbows. Bushing inserts should be grounded to the grounding tab adjacent to the bushing well with a short ground wire

Before installing the 200 ampere elbows in the fuse compartment, make sure the cables are correctly positioned in the cable guide to prevent the cable from interfering with the operation of the fuse access door.

WARNING

Before energizing the switchgear, make sure that shipping caps on all bushings and bushing wells have been replaced with elbows or voltage rated insulating caps or plugs. Failure to do so can cause a flashover and serious injury.

5.6 Lightning Protection

It will be the responsibility of the purchaser to provide suitable lightning arrestors to protect the switchgear from damage due to lightning. A variety of optional arrester mounting provisions and arresters are available from ABB for inclusion on live-front (MES) switchgear products. Consult the product guide for selection of available options. Most can be ordered for field installation. Distribution class arresters for installation in padmount switchgear should be ordered without isolators or insulated support brackets.

Note: Dead-front switchgear is not available with factory installed arresters or arrester mounting provisions. Elbow style arresters are available from a variety of manufacturers for installation on 200 ampere load break “Reducing Tap Plugs” interfaced with the incoming 600 ampere elbow connectors.

5.7 Fault Indicator Provisions (Optional)

Optional fault indicator mounting provisions are available factory installed from ABB. The standard option includes viewing windows installed in each switch compartment door with a universal fault indicator mounting plate on the inside of the door. As an alternate, ABB can provide plugged holes for installing LED style fault indicators.

5.8 Fuse Installation

CAUTION

Fuses supplied by ABB are not installed when shipped. They must be installed in the final installation. The installer must verify that all fuses, holders, etc. are securely placed in their stationary live parts, and that fuses are latched and/or locked in place where latching or locking accommodations are provided.

Since there are a wide variety of fuses available, refer to a proper fuse instruction book from the fuse manufacturer for detailed assembly, installation and operation instructions. It is the responsibility of the installer to properly install fuses, holders, end fittings, etc. according the fuse manufacturers instructions.

See "**Maintenance**" section for re-fusing instructions.

5.9 Grounding

The ground connection pads are welded to the frame near the bottom. They are arranged so that connections to the ground can be made in any compartment. Ground connections are made in the lower position of the cable entrance compartment. The switchgear must be grounded by a conductor with a current carrying capacity equal to that of the maximum momentary rating of the switchgear. It is very important that the equipment be adequately grounded to protect the operator from injury when short circuits or other abnormal

occurrences take place and to ensure that all parts of the equipment, other than live parts, are at ground potential.

Grounding rods or bars are provided in all compartments for connecting safety grounding devices during installation or service as well as cable shield drain wires.

5.10 Interlocks

Key interlocks if provided must be operated in accordance with customer practices and shall not be disabled. Typical interlocks that may be supplied are: (1) that access to the power fuses cannot be obtained unless the interrupter switches are open, and (2) that the interrupter switches cannot be closed while the power fuses are accessible. Interlocks should be checked for proper operation before power is applied to the switchgear. In order to maintain the integrity of key interlock systems, duplicate keys should be destroyed or retained in a place accessible only to authorized personnel. Interlocks shall be operated and verified for correct operation prior to energizing the equipment. These shall be inspected on a yearly basis or per customer required period.

WARNING

Duplicate keys must be destroyed or retained in a place accessible to authorized personnel only, before any part of the equipment is energized. Failure to do so or defeating any part of the key interlock scheme can provide access to the equipment or permit operating errors, which can result in property damage, injury or death.

6.0 PRE-OPERATIONAL INSPECTION AND TESTING

6.1 Production Tests

The following standard production tests are conducted on all padmount switchgear prior to shipment to check the quality and uniformity of the workmanship and materials used in the manufacture:

1. Circuit resistance tests to verify that all contact points have been properly aligned and current transfer points properly assembled.
2. Power-frequency withstand voltage (Hi-Pot) tests to make sure the insulators, bushings and other components will withstand system operating voltages per the following table for one minute:

VOLTAGE CLASS (kV)	IMPULSE BIL (kV)	60 HZ WITHSTAND (kV)	DC WITHSTAND (kV)
15	95	34	53
25	125	40	78

Table 2

3. Mechanical operation of all switches to ensure the switch position indicators and main contacts are in the correct position for both the open and closed positions.

6.2 Pre-operational Check

Field Power-frequency withstand voltage (Hi-Pot) should be performed at 75% of value listed above. This is to confirm insulators, bushings and other components did not fail during shipment and installation.

Care must be exercised to make sure the padmount switchgear is disconnected from the power system while preliminary tests are being conducted. If disconnecting means are not available, line leads should be disconnected. All internal connections should be examined to ensure they have not been loosened or damaged during shipment or installation, and all bolted connections and joints should be tightened to ensure good contact. If spring washers are used under bolt head and nuts, they should be tightened in accordance with manufacturer's instructions.

CAUTION

Instructions and safety precautions under section entitled "Maintenance" must be strictly observed.

After equipment has been installed and all connections made, it should be tested and inspected before being put in service. Check area for foreign materials, tools, etc. that may have been placed on or near the high voltage parts. Wipe down and clean all barriers, bus insulators, bushings, switches, etc. with a clean dry cloth. Although the equipment and devices have been completely tested at the factory, a final test should be made to be sure that the equipment has been properly installed and that all connections are correct and have not loosened in transportation.

7.0 OPERATION

7.1 Description

The powerful opening and closing spring of the stored energy mechanism on ABB's VersaRupter switch provides for quick make (rated fault closing) and quick break (rated load interruption). The switch mechanism shaft is driven by a removable side mounted handle. As the handle is rotated, the opening spring is "charged". As the operator continues to rotate the handle, the charged spring is driven over-center and releases its energy into rotating the operating shaft to open the switch. The switch blades will not move, in either a closing or opening direction, until the closing spring causes rotation in the operating shaft. It should be noted that once the spring is moved over-center, the operator has no further control of the opening and closing operation. The rated fault closing and load interrupting performance of the switch are independent of the operating procedure.

Access to the operating handle for the switches is via a small door on the side of each switch compartment that is secured with a padlock, as well as a penta-head (or optional hex-head) security bolt. The padlock must be removed to gain access to the bolt. When the bolt is fully retracted, the door can be opened to gain access to the folding switch operator handle which is tethered to the pocket with a chain. Large "Open" and "Closed" stickers indicate the position of the switch. Rotate handle in the direction indicated to open or close the switch. Provisions are included to lock the switch in either the open or closed position. **Make sure the access door is closed, re-secured and padlocked before leaving the switchgear unattended.**

8.0 MAINTENANCE

CAUTION

Before any checking or maintenance of switchgear after it has been installed, the following must be observed: Only qualified persons may operate, inspect or maintain power switchgear. It is the responsibility of the purchaser, installer, or ultimate user to insure that the warning voltage signs are provided. Make sure all access doors and operating handles are securely locked by qualified people when the gear is left unattended.

DANGER HAZARDOUS VOLTAGE

Do not open or work on equipment unless power has been turned off and all circuits de-energized and disconnected. Disconnect, de-energize, lock-out and properly ground circuit(s) before working on equipment.

8.1 Periodic Checking

The load interrupter switches should be examined and checked after one year in service. Thereafter, switches should be inspected every five years or sooner when conditions require inspection (such as numerous operations, polluted atmosphere or overloading of the switch). All switches should occasionally be opened and closed several times in succession, not exceeding their rated duty.

8.2 Cleaning

All switches, including insulators and operating arms should be thoroughly cleaned periodically by wiping with a clean cloth to prevent accumulations of dust. A mild detergent can be used to remove excessive contamination from insulators, barriers and painted surfaces. Dry thoroughly after washing. After cleaning, a light coat of lubricant (non-corrosive, high-temperature grease such as Isoflex Topaz NB52) should be applied to the contact surfaces. Do not use "cup" or other grease which may harden upon exposure to air.

Do not use any solvents or Alcohol based cleaners when cleaning switches.

8.3 Contacts

Check to determine that the blades make good contact. **Important - this is a sliding joint. Over tightening can cause the switch not to open and also cause severe damage to the mechanism.** A contact resistance reading between the upper and lower switch terminal pads should be taken and should be between 50 to 70 micro ohms. If values are less than 50 micro ohms, loosen the bolt at the pivot point of the blades approximately 1/6 of a turn. Check resistance again and continue to loosen bolt until resistance is between 50-70 micro ohms and the switch freely opens and closes.

Switches are provided with silver to silver contacts. These contacts do not tarnish like copper, but they should be "wiped" clean occasionally, especially if the switch has not been operated for some time. This can be done by opening and closing the switch several times in succession. **Do not attempt to grind the blades with powered emery or other abrasives.** Such practice inevitably results in poor contact and overheating.

8.4 Insulator and Barriers

It is necessary that insulator surfaces be kept clean. This is absolutely essential, particularly when the switches are located where cement dust, metallic dust, salt spray, acid fumes and other unfavorable environmental conditions exist. A light detergent is recommended for cleaning the insulators. **Do not use any solvents or Alcohol based cleaners when cleaning switches.**

Make absolutely sure that proper ventilation and other precautions are

provided when using any chemical cleaner. Discard and replace any insulators showing signs of treeing or tracking.

8.5 Insulation Check

When making an annual check, all insulation should be carefully examined for tracking. Special attention must be given to areas where the conductor lays near a barrier. Examine the surface for cracks or streaked discoloration. When tracking is found the insulation involved must be replaced.

8.6 Bus and Conductor Check

Inspect the bus and connections carefully every year for evidence of overheating. It is desirable to measure the resistance to ground with a meter (or use a megger of proper voltage) and between phases of the insulation of bus and connections. A record should be kept of this reading. Weakening of the insulation from one maintenance period to the next period can be recognized from the recorded readings. At recording time, the record should include the temperature, the humidity and the date.

8.7 Operating Shaft

The operating shaft connects the stored energy mechanism to the switch operating arms. The shaft is integral with the switch assembly and is bearing mounted. No adjustments are necessary.

8.8 Drawbars

Each main blade of the switch is connected to the throw arms of the main operating shaft by an insulating drawbar. These drawbars should be examined during each normal maintenance procedure for signs of contamination buildup, cracking or damage to either end of the drawbar. Blow or wipe off contamination.

8.9 High Potential Tests

Field Power-frequency withstand voltage (Hi-Pot) should be performed at 75% of value listed above in table 2. This is recommended whenever periodic field inspection is made.

8.10 Bus Section

Check that all bus connection bolts and cable connection bolts are tight and torqued per hardware specification.

After cleaning, megger and record the resistance to ground and between phases of the insulation of buses and connections. Since definite limits cannot be given for satisfactory insulation resistance values, a record should be kept of the reading. Weakening of the insulation from one maintenance period to

the next can be recognized from the recorded readings. The readings should be taken under similar conditions each time and the record should include temperature and humidity.

8.11 Overall Switchgear

- a. Remove or reverse lifting brackets after installation.
- b. Check to see that all anchor bolts and bolts in the structure are tight.
- c. Check the ground bus connection and mounting bolts for tightness.
- d. Clean and inspect all painted surfaces. Retouch where necessary. (See section 10.0)
- e. Check for foreign items such as tools, loose nuts and bolts that are not normally part of the equipment.
- f. Look for indications of moisture:
 - (1) Staining
 - (2) Tracking over insulators
 - (3) Rust
 - (4) Paint crazing or bubbles
- g. Inspect for indications of partial discharge (corona):
 - (1) Ozone odors
 - (2) Tracking on bus supports and insulators
 - (3) Cracking or sparking noises
 - (4) Components glowing in the dark
- h. Check for indications of overheating:
 - (1) Cracked or crazed insulation
 - (2) Discolored bus insulation, paint, etc.
- j. Check for cleanliness

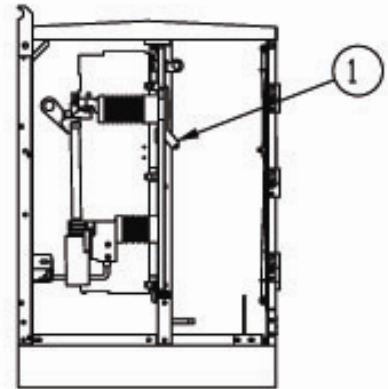


Figure 3

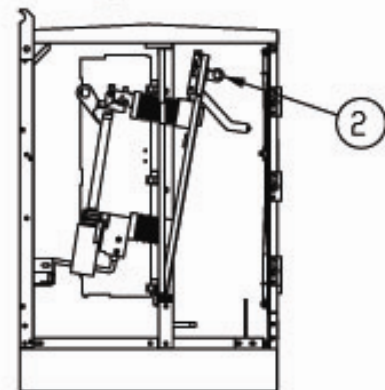


Figure 4

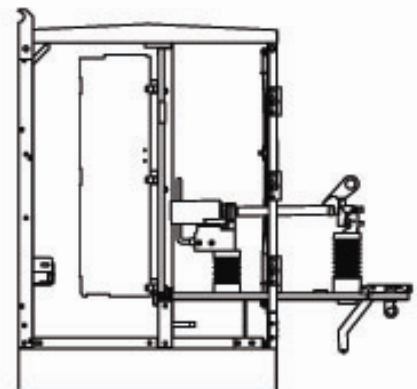


Figure 5

9.0 RE-FUSING

CAUTIONS

Re-fusing of high-voltage switchgear should be performed only by qualified persons, observing the following precautions. These recommendations may differ from standard operating procedures and safety practices of certain electric utility companies. Where such discrepancy exists, the electric utilities should follow their operating procedures.

1. Adhere to prescribed safety rules at all times.
2. Wear approved and periodically tested rubber gloves, hard hat, safety glasses and flash clothing.
3. Perform operations only in the presence of other qualified persons.
4. Always assume terminals are energized unless proved otherwise by both visual evidence of open circuit and by grounding.

9.1 Live-Front Switchgear (MES)

Fuses in live-front switchgear are single phase loadbreak switching devices and should always be operated using a “grappler” tool attached to a universal hot stick at least 6’ long. Refer to separate fuse manufacturer’s instruction bulletin for proper operation and re-fusing procedure in addition to proper OSHA regulations NPFA 70E and other applicable standards.

9.2 Dead-Front Switchgear (MDS)

Follow the following procedure for replacing or inspecting fuses in dead-front switchgear. Always use an appropriate shotgun style hot stick when opening and closing the fuse door:

Disengage Fuse

1. Disconnect loadbreak elbow connector and insert in stand-off bushing in adjacent parking stand.
2. Raise mechanical interlock arm (Item 1) to unlock fuse access door (Figure 3).
3. Pull out on fuse door release eye (Item 2) to de-energize fuse assembly (Figure 4)
4. Slowly pivot fuse door out and down into full open position. (Figure 5)
5. Inspect and replace fuses per fuse manufacturer’s instructions.

Re-Engage Fuse

1. Attach the hot stick to the release eye (Item 2) and pivot the fuse door back to the position shown in Figure 4.
2. Push fuse door in firmly to ensure contact is fully engaged.
3. Lower mechanical interlock (Item 1) down into locked position. (Figure 3)
4. Re-connect loadbreak elbow to bushing.

10.0 COATING MAINTENANCE

Damage to the coating during transportation or installation should be repaired immediately to ensure long term performance from the switchgear enclosure.

A small bottle of touch up paint is furnished with each switch product. Small scratches or abrasions should be touched up as soon as possible.

Follow the following procedure for more extensive repairs:

- A. Sand marred or scraped areas with medium sandpaper (100-120 grit).
- B. Make certain area is clean and free of grease or oil.
- C. Apply two coats of all purpose primer with a flat brush or small spray gun.
- D. Feather paint into unmarred portion with light strokes of the brush or light passes with the spray gun.
- E. When primer has dried, apply two coats of finish paint in the same manner.
- F. Small narrow scratches may be best covered, using an artist's brush to fill in the scratched area.
- G. If time allows, give the primer additional drying time and sand between coats.



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