



a PPL company

Mr. Jeff DeRouen, Executive Director  
Kentucky Public Service Commission  
211 Sower Boulevard  
Frankfort, KY 40601

RECEIVED

AUG 17 2011

PUBLIC SERVICE  
COMMISSION

August 17, 2011

**Louisville Gas and Electric  
Company**  
State Regulation and Rates  
220 W. Main Street  
PO Box 32010  
Louisville, Kentucky 40232  
www.lge-ku.com

Rick Lovekamp  
Manager, Regulatory Affairs  
T 502-627-3780  
F 502-627-3213  
Rick.Lovekamp@lge-ku.com

RE: ***In the matter of Louisville Gas and Electric Company Alleged Failure  
to Comply with KRS 278.042 and 807 KAR 5:006, Sec. 24(1)  
Case No. 2011-00097***

Dear Mr. DeRouen:

Enclosed please find the following in connection with the settlement of the above referenced matter:

- 1) a check in the amount of \$15,000.00;
- 2) substation audit reports for the three months preceding and three months following the incident. The audit reports are being supplied subject to a Petition for Confidential Protection being filed herewith;
- 3) documentation of refresher training given to all substation employees as a result of the incident, which training will be repeated on an annual basis. Please note those employees who have not attended will either attend an additional session later in the year, or do not work with switchgear equipment and accordingly do not require training.

With the submission of the above LG&E has fully complied with the obligations set forth in the Settlement Agreement. Accordingly, the additional suspended \$17,500.00 fine should be waived and the matter closed and removed from the Commission's docket pursuant to paragraph 9 of the Agreement.

Mr. Jeff DeRouen, Executive Director  
August 17, 2011

Should you require anything further, please contact me at your convenience.

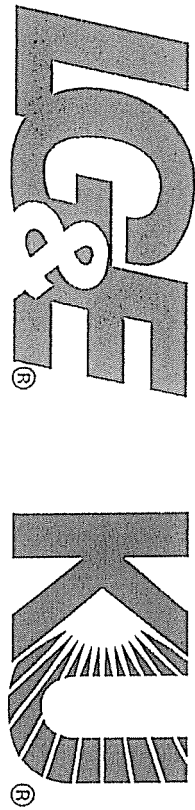
Sincerely,

A handwritten signature in black ink, appearing to read "Rick E. Lovekamp". The signature is fluid and cursive, with a prominent initial "R" and a long, sweeping underline.

Rick Lovekamp

Enclosures



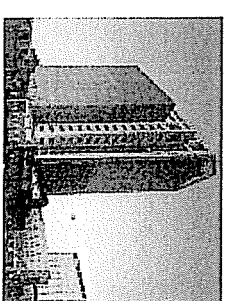
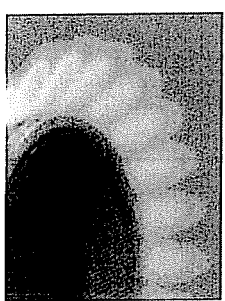
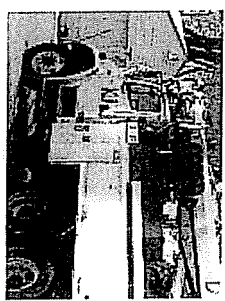
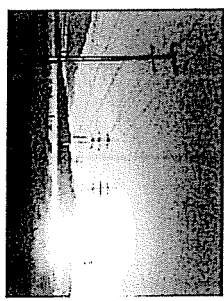
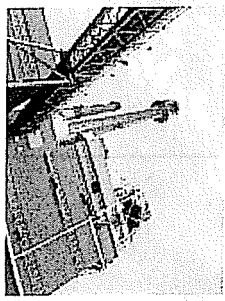


PPL companies

# SWITCHGEAR REFRESHER TRAINING

*Presented by: Tony Durbin  
Roy Montfort*

*Date: February, 2011*



# INTRODUCTION

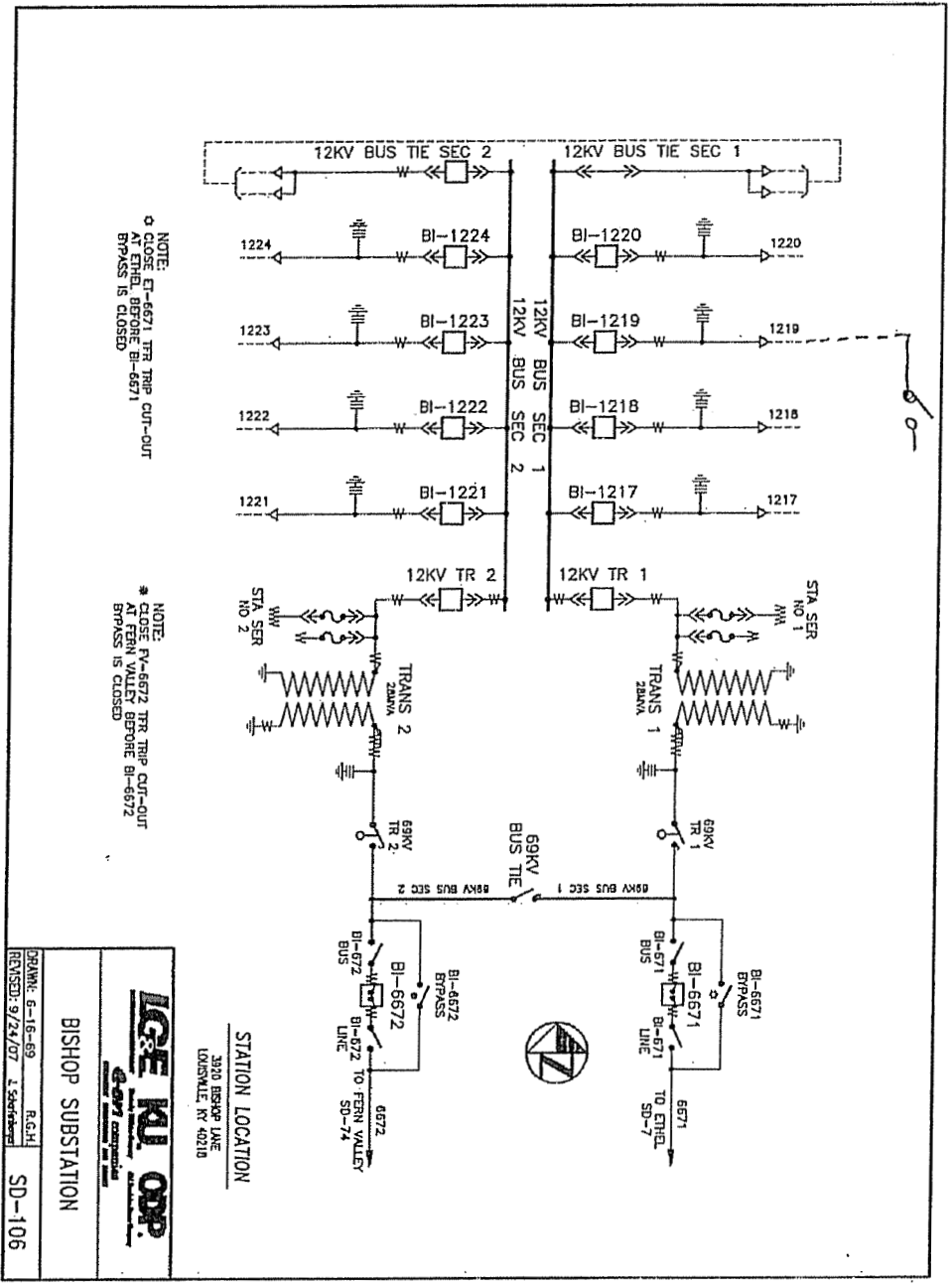
- *Metal-enclosed switchgear requires extreme caution when being worked on because of the numerous pathways for potential energization.*
- *The purpose of this training is to review the hazards associated with switchgear and provide a better understanding of the equipment.*

# TRAINING OUTLINE

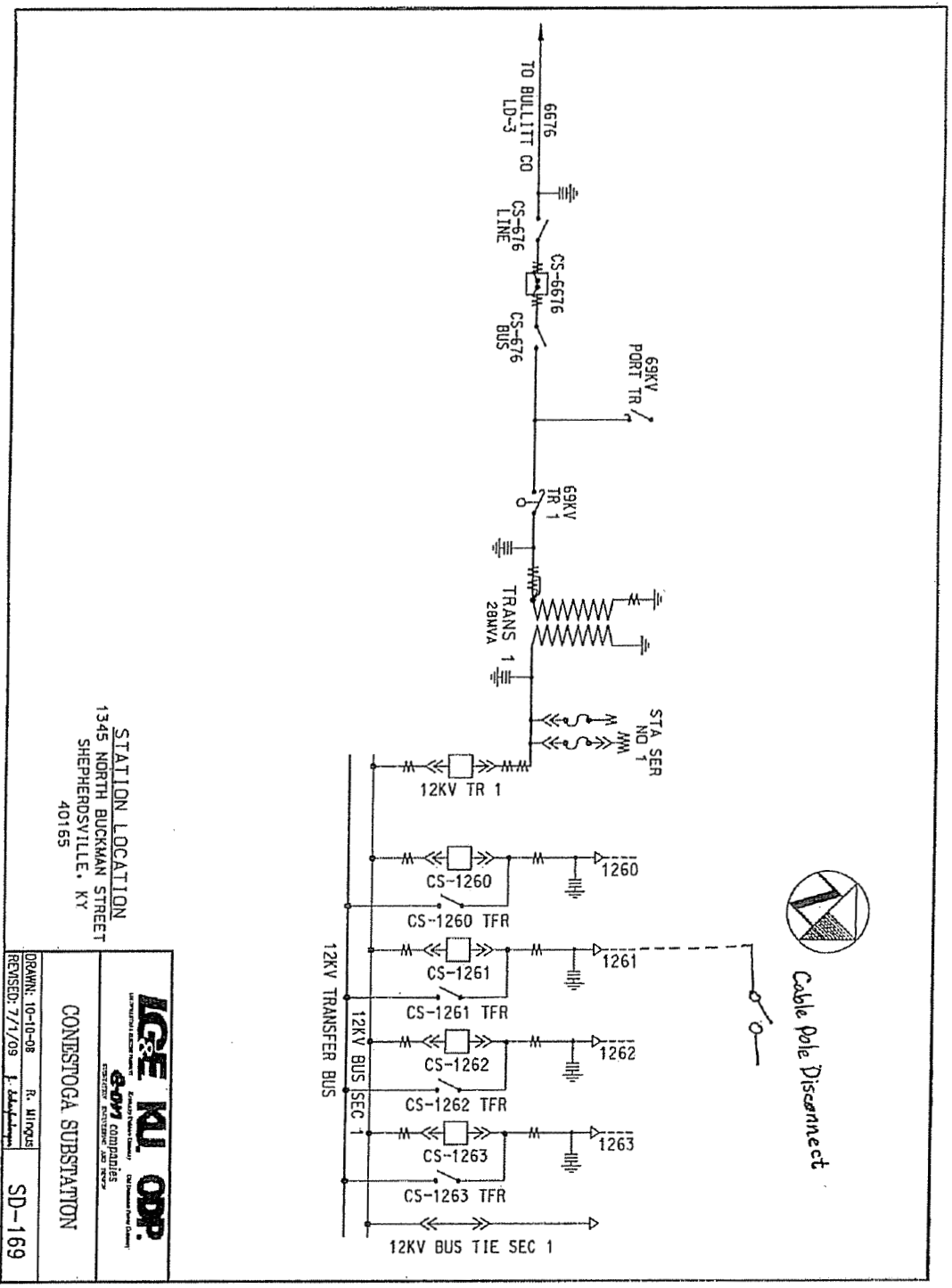
- *Switching Diagrams*
- *Physical components of Switchgear*
- *Getting a Switchgear out of service*
- *Grounding a Switchgear*
- *PPE Requirements*

# Switching Diagram without Transfer Bus

Cable Pole Disconnect

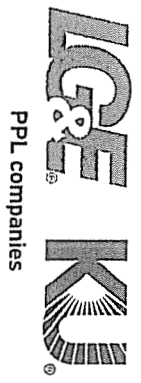


Switching Diagram with Transfer Bus



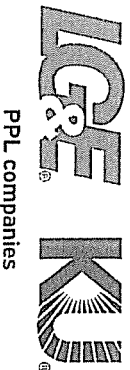
STATION LOCATION  
 1345 NORTH BUCKMAN STREET  
 SHEPHERDVILLE, KY  
 40165

**IG&E KU ODP**  
 ABB COMPATIBLE  
 CONESTOGA SUBSTATION  
 SD-169  
 DRAWN: 10-10-08 R. Minges  
 REVISED: 7/1/09 P. Minges



				Switching Diagram Blocks					Transformers			
DISCONNECTING FUSE			Disconnects & Breakers			Miscellaneous						

SDBLOCKS SYMBOLS.DWG



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# Physical Components of Switchgear

- *Transformer Connection*
- *Cubicle 1. Station Service and Pots*
- *Low-Side Breaker*
- *Feeder Breakers*
- *Bus tie breakers (and dummy)*
- *Transfer Bus and Transfer Switches*

# Transformer Connections

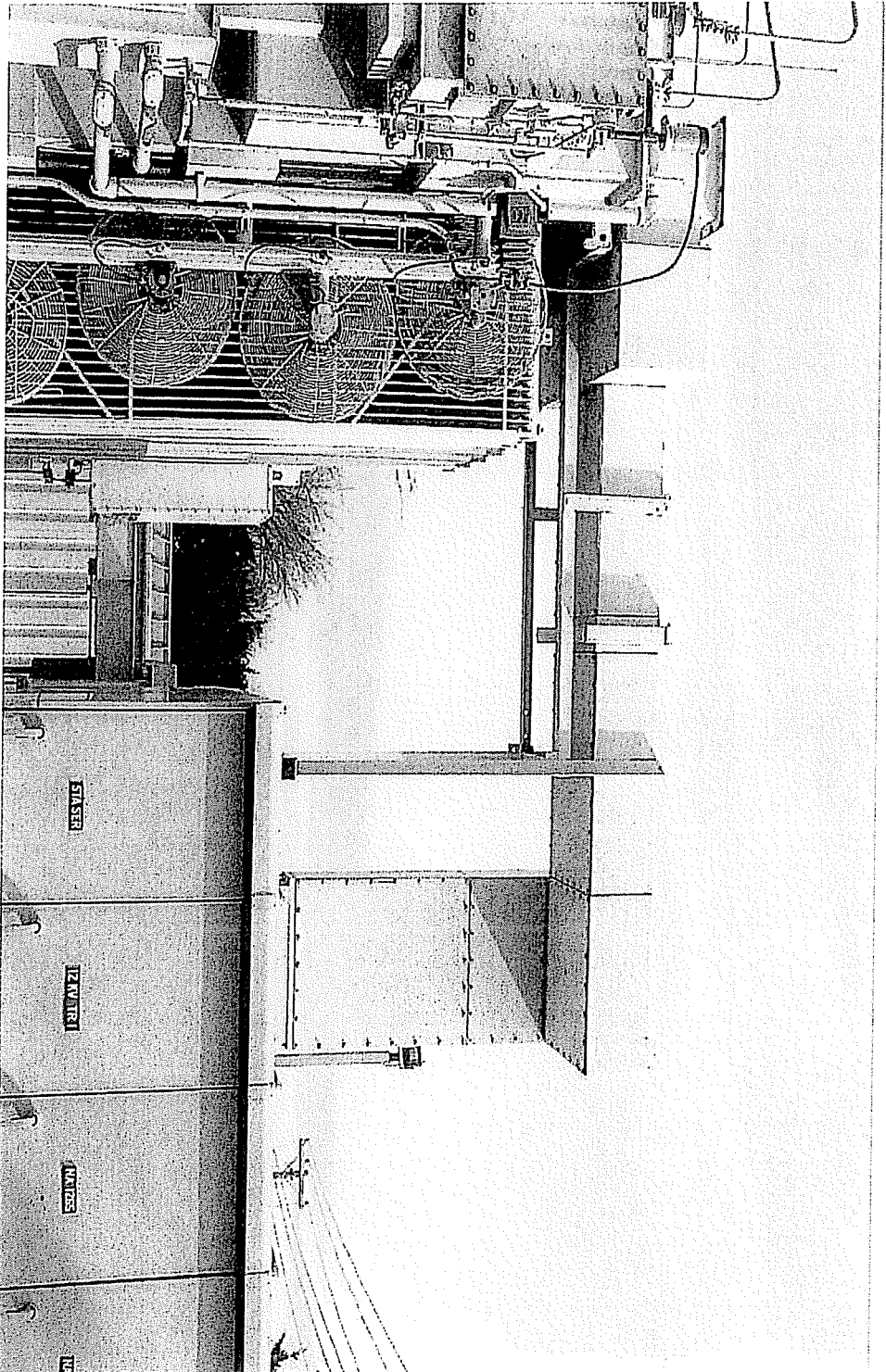
- *Bus Duct Connection*
- *Overhead Bus Connection*



# Bus Duct Connection



# Bus Duct Connection

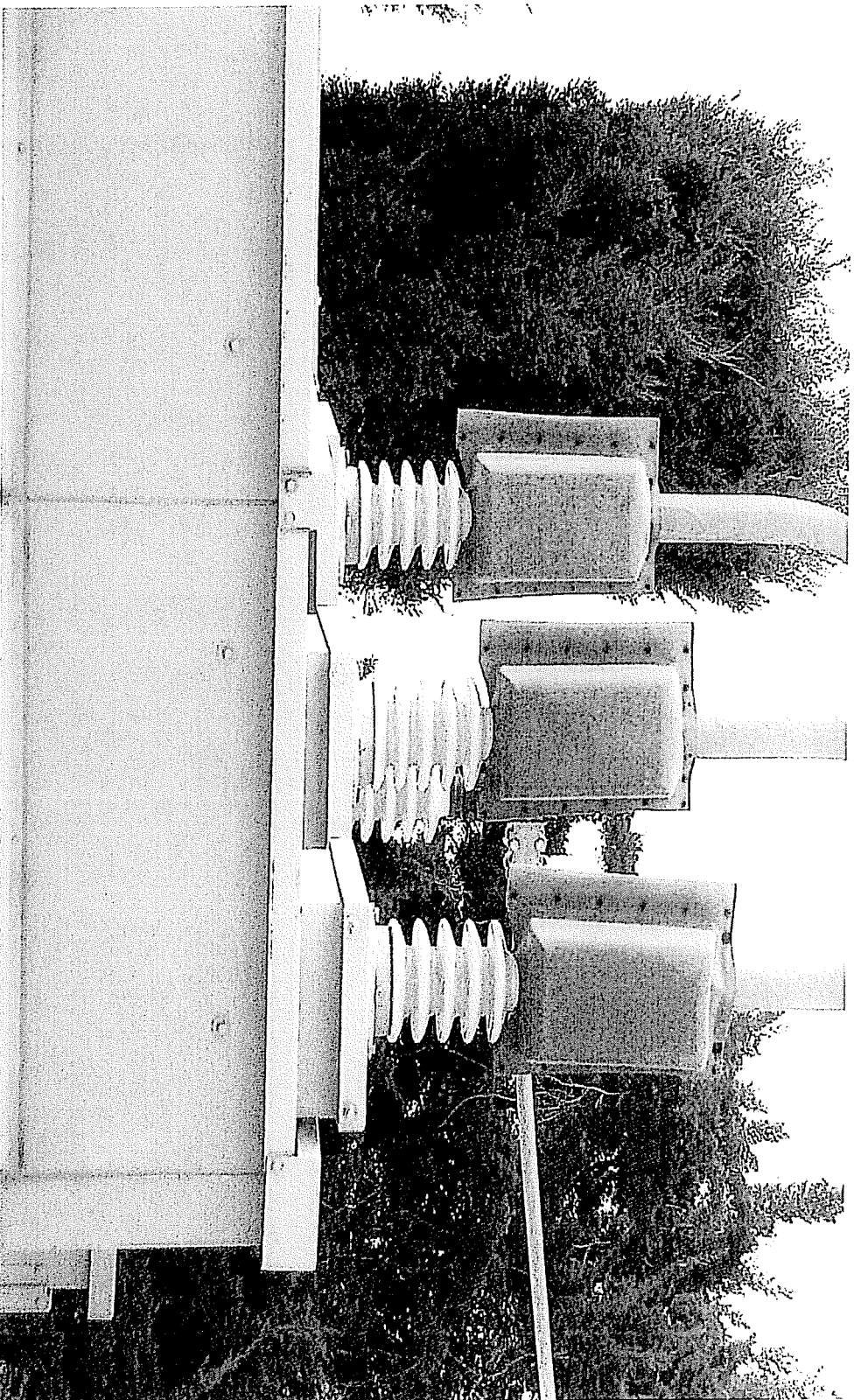


# Overhead Bus Connection to Cubicle 1.



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# Close-up of Roof Entry Bushings

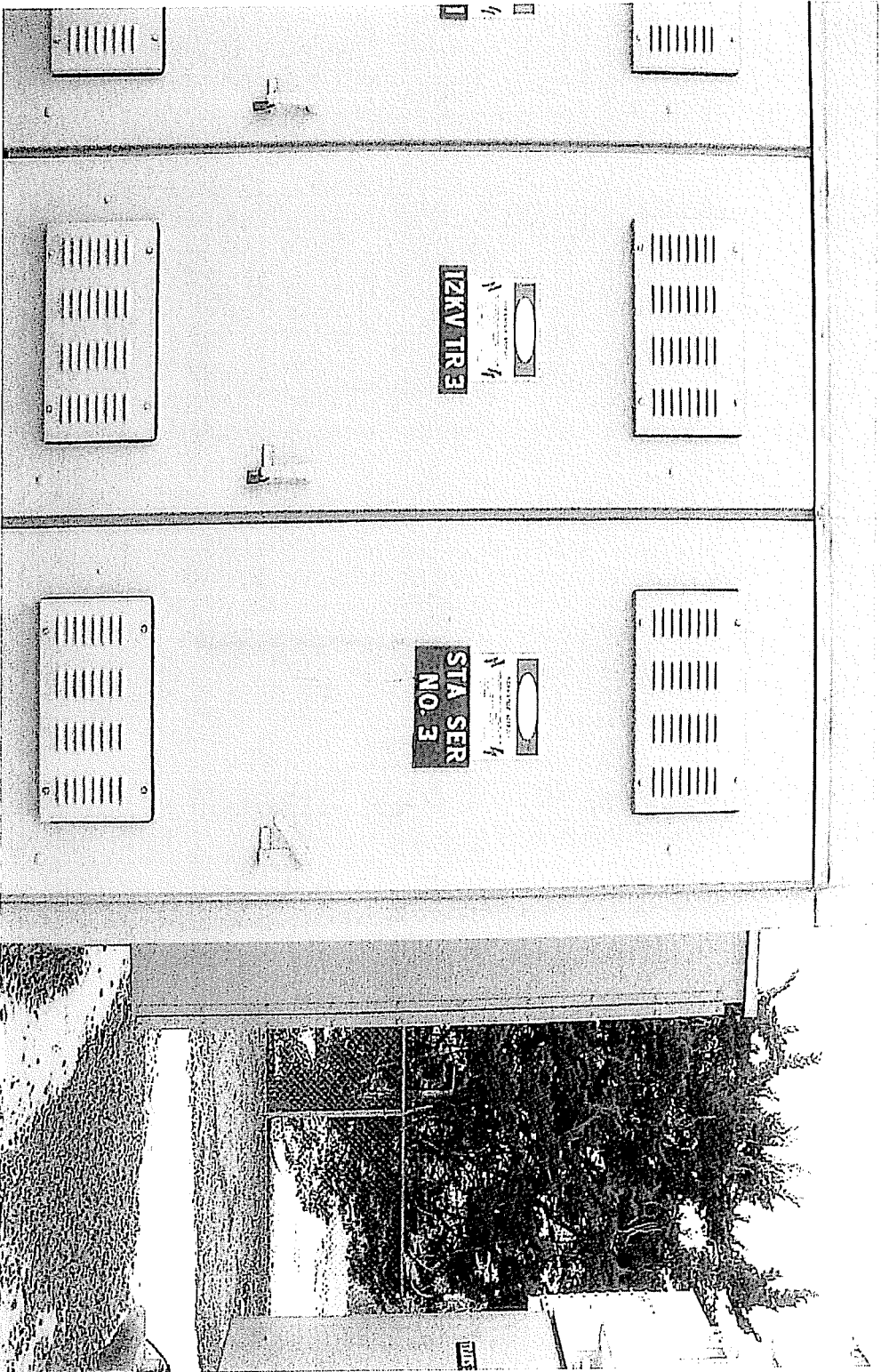


# **Cubicle 1.**

- *Station Service Transformer*
- *Pot Transformers*
- *Can be bus entry cubicle as well.*



# Cubicle 1: Station Service No. 3 (Rear Compartment)



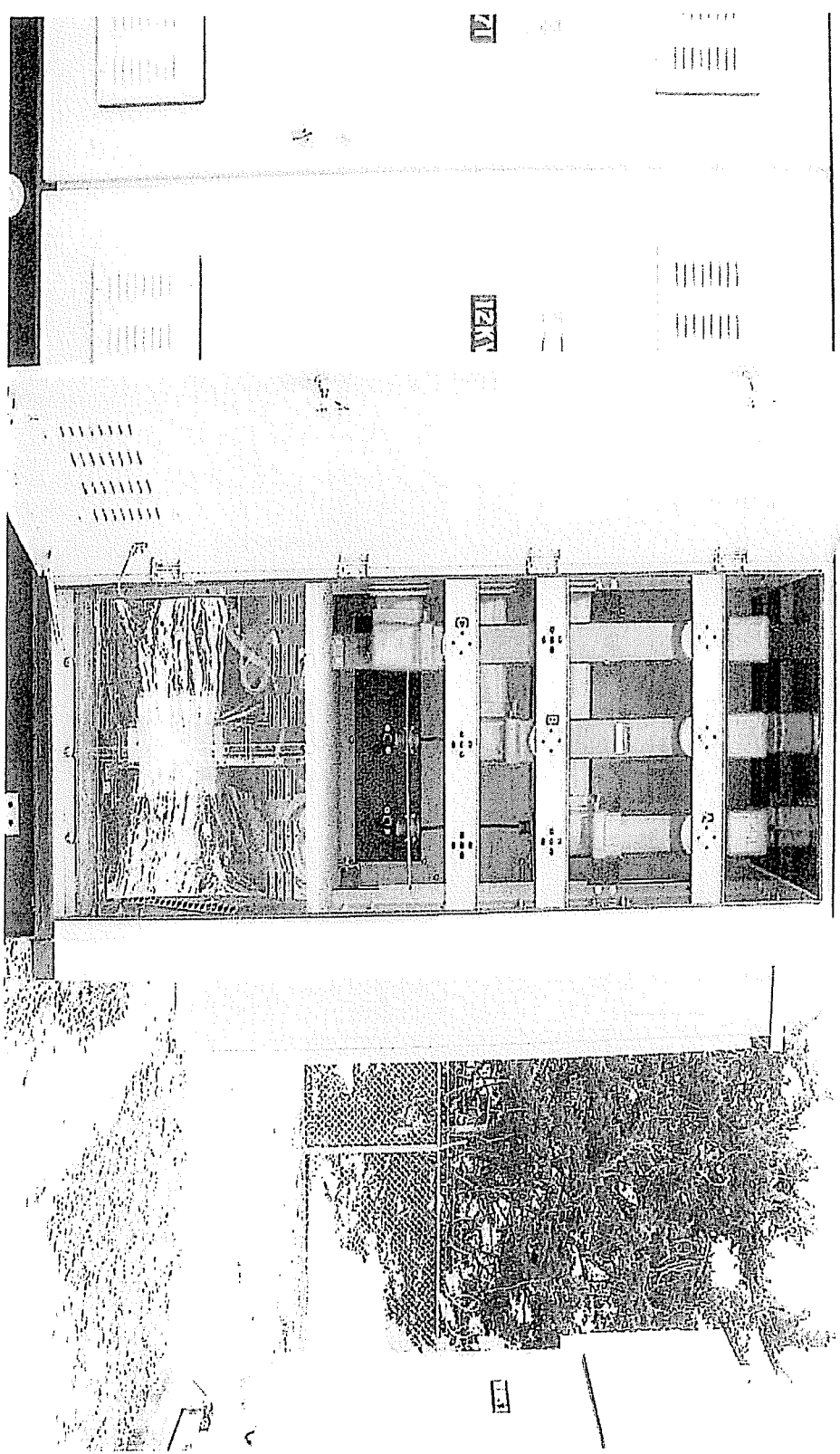
# Cubicle 1. Bus entry.



**LG&K**

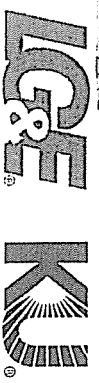
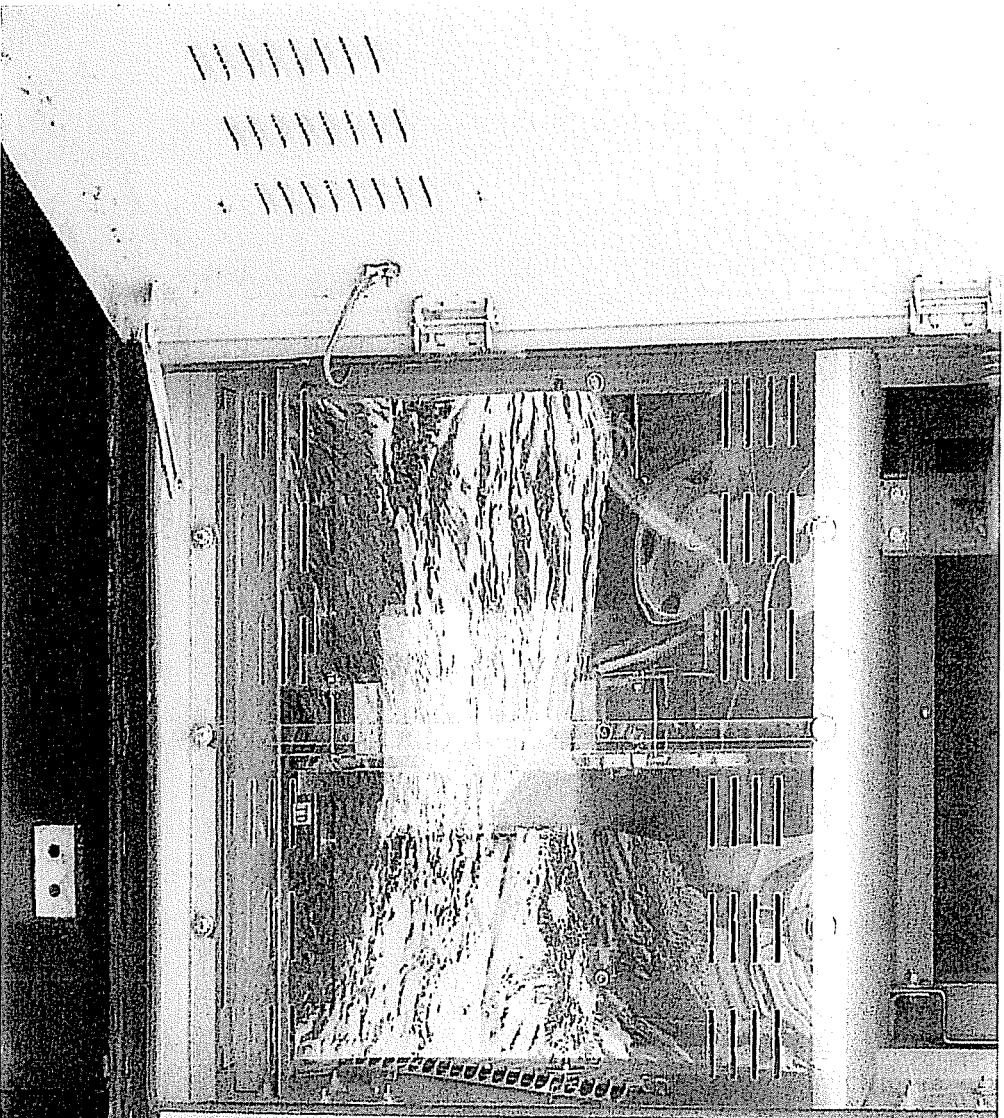
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# Cubicle 1. Station Service at Bottom.



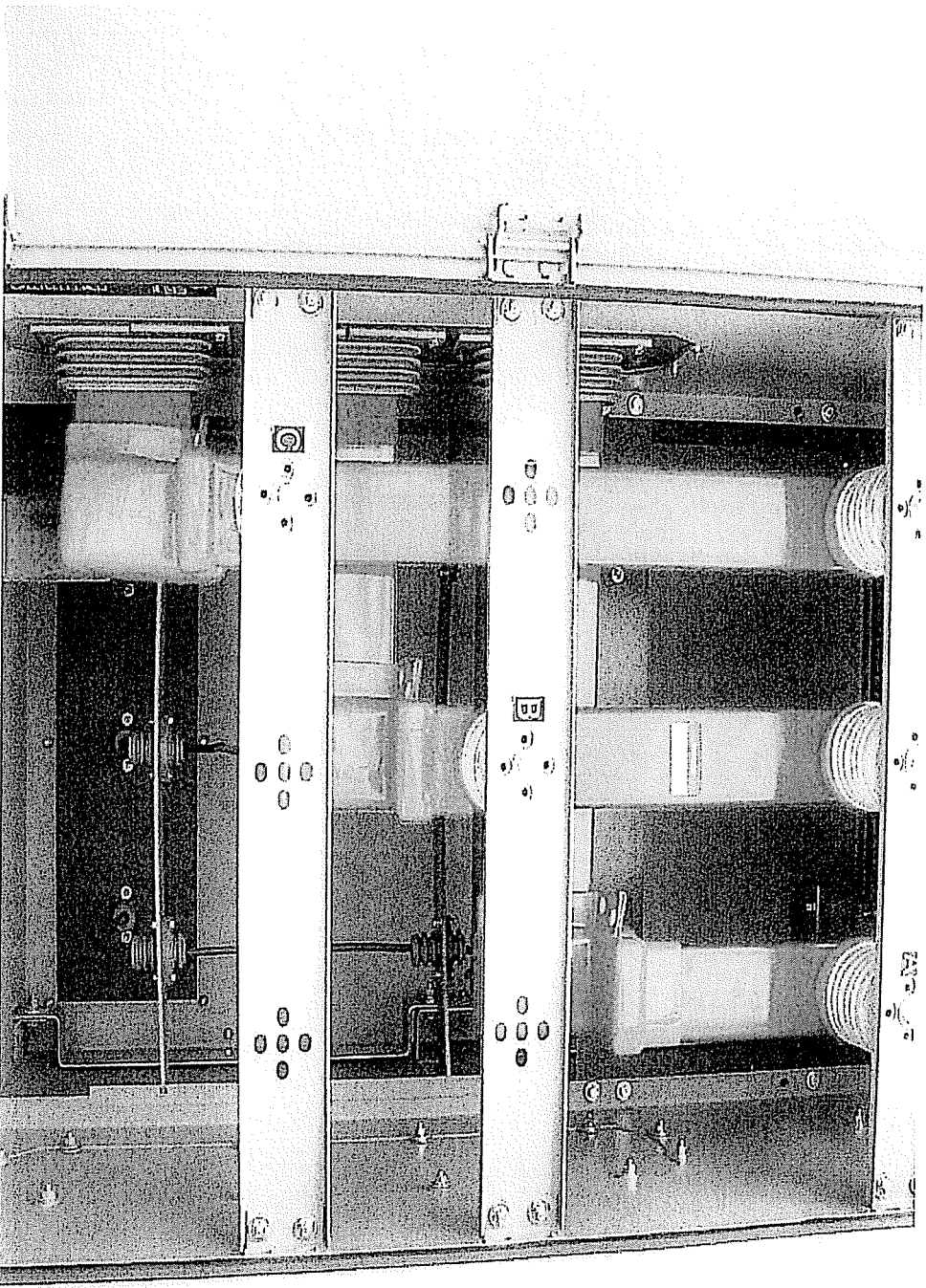


# Close-up of Station Service Transformer

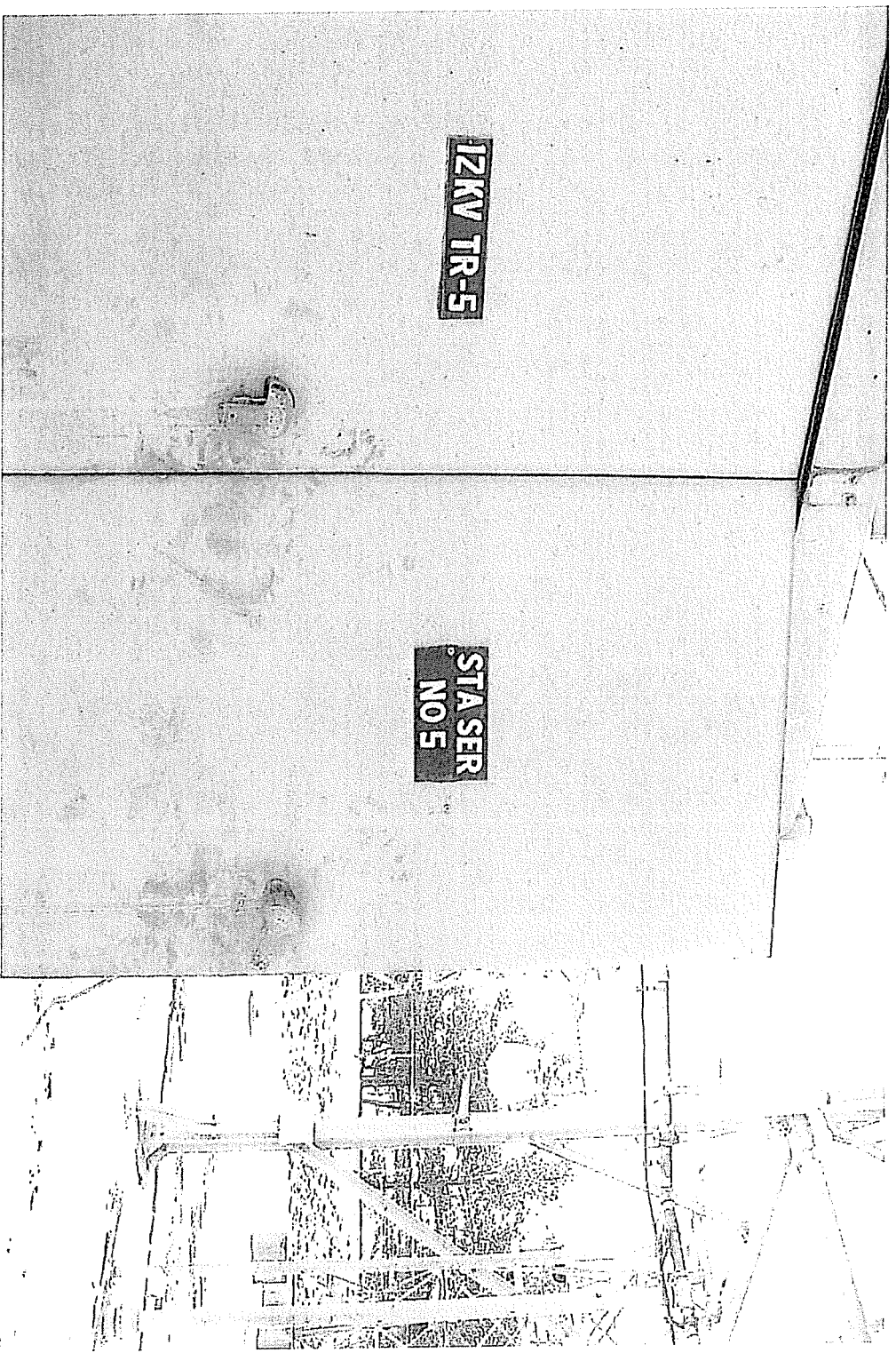


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**Close-up of Entry bus. As the bus heads to the left it will enter the low-side breaker compartment.**



# Older Style Switchgear Cubicle 1. Rear View.

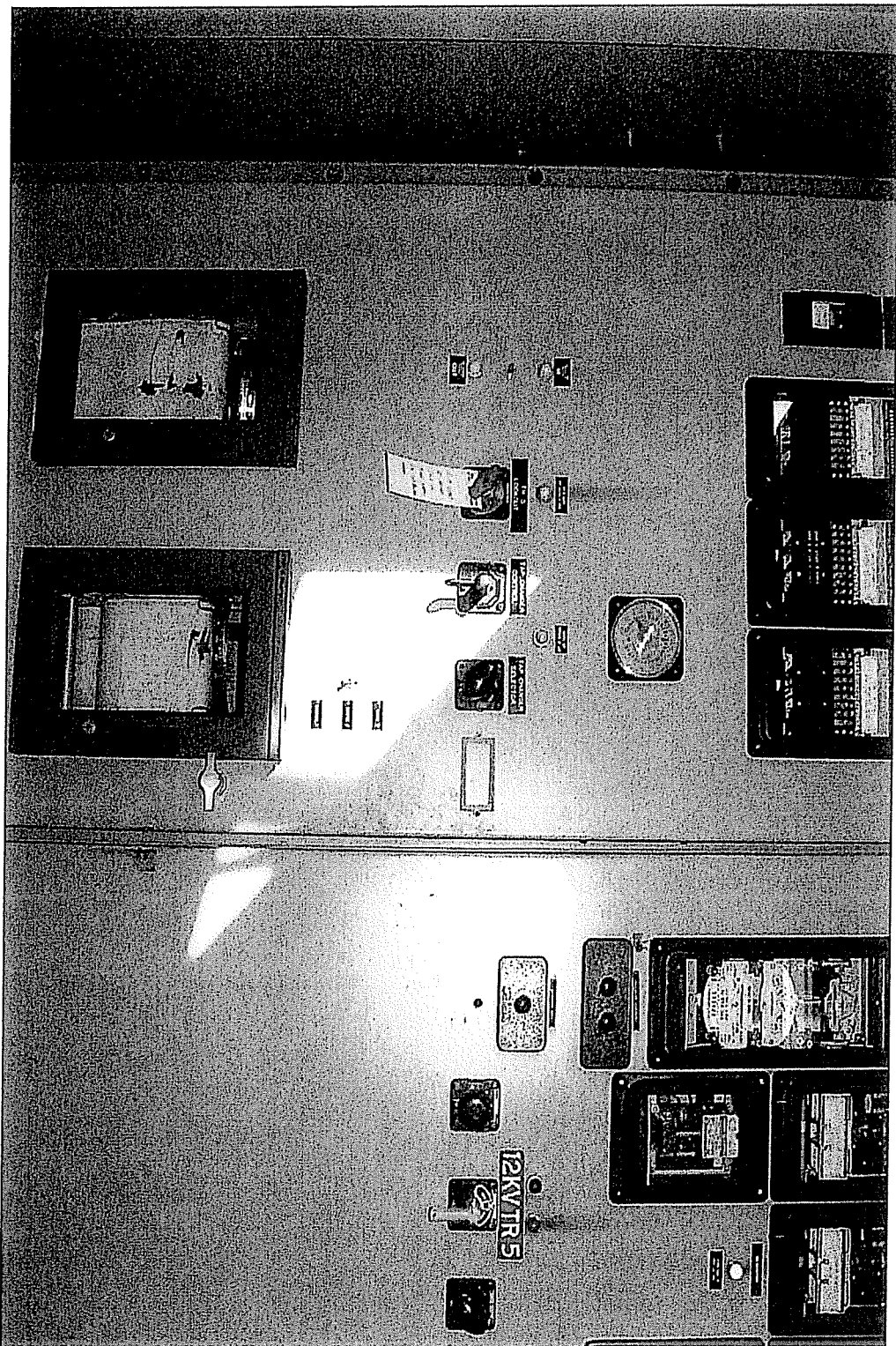


# Older Style. No barrier at Station Service Transformer

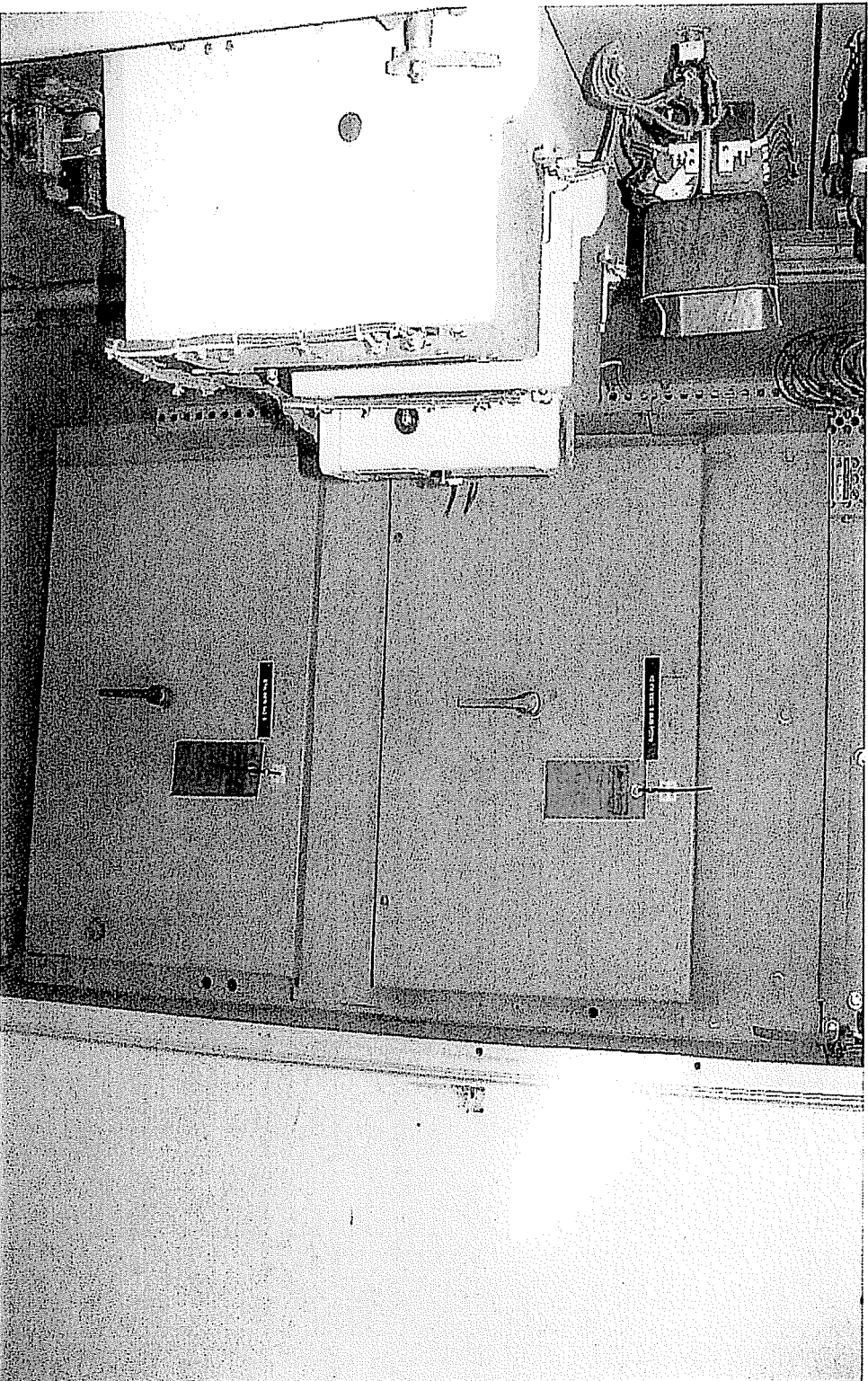




# Cubicle 1. View from inside aisle.



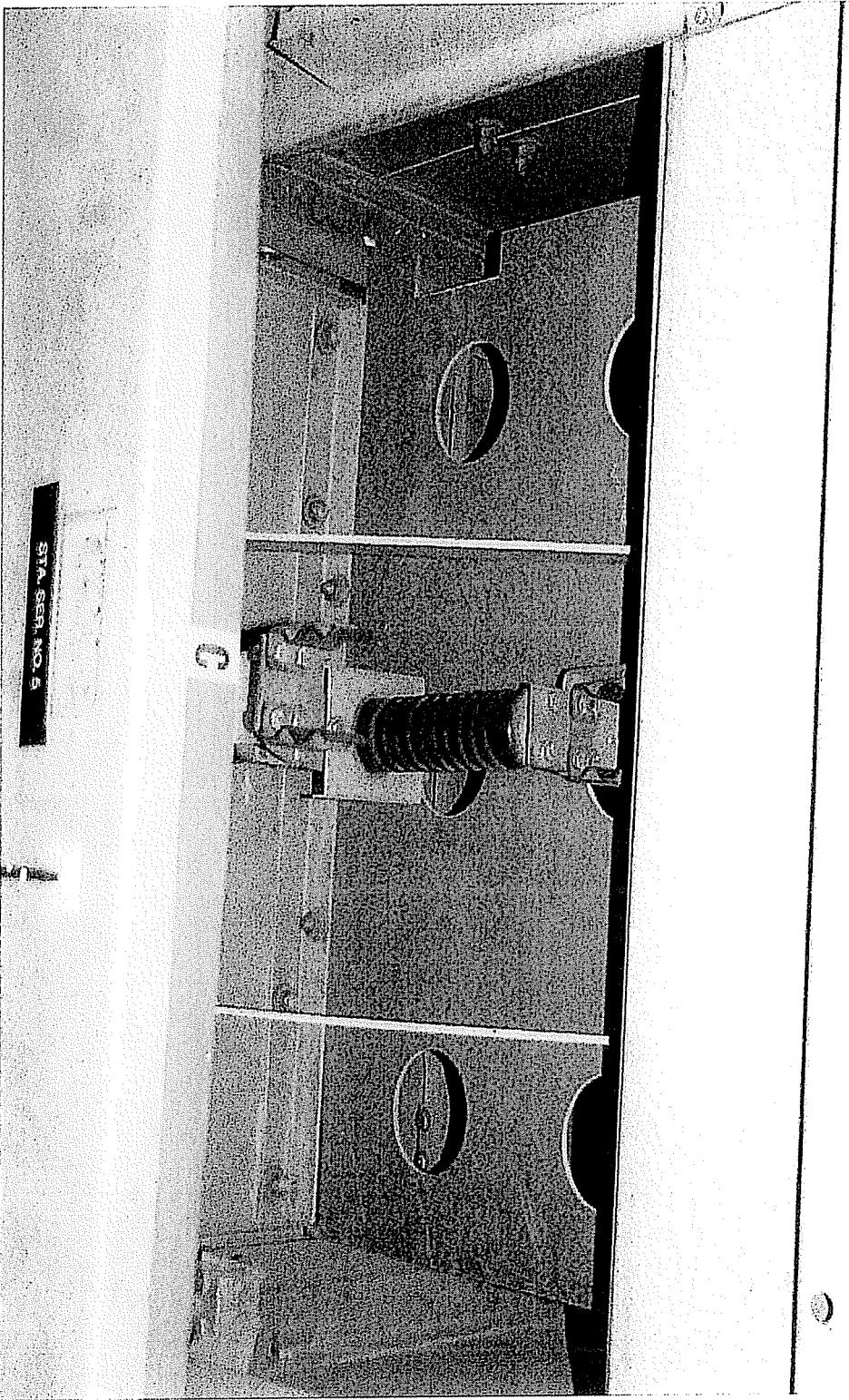
# Cubicle 1. View with interior door open



# Cubicle 1. View of Pot Transformers.

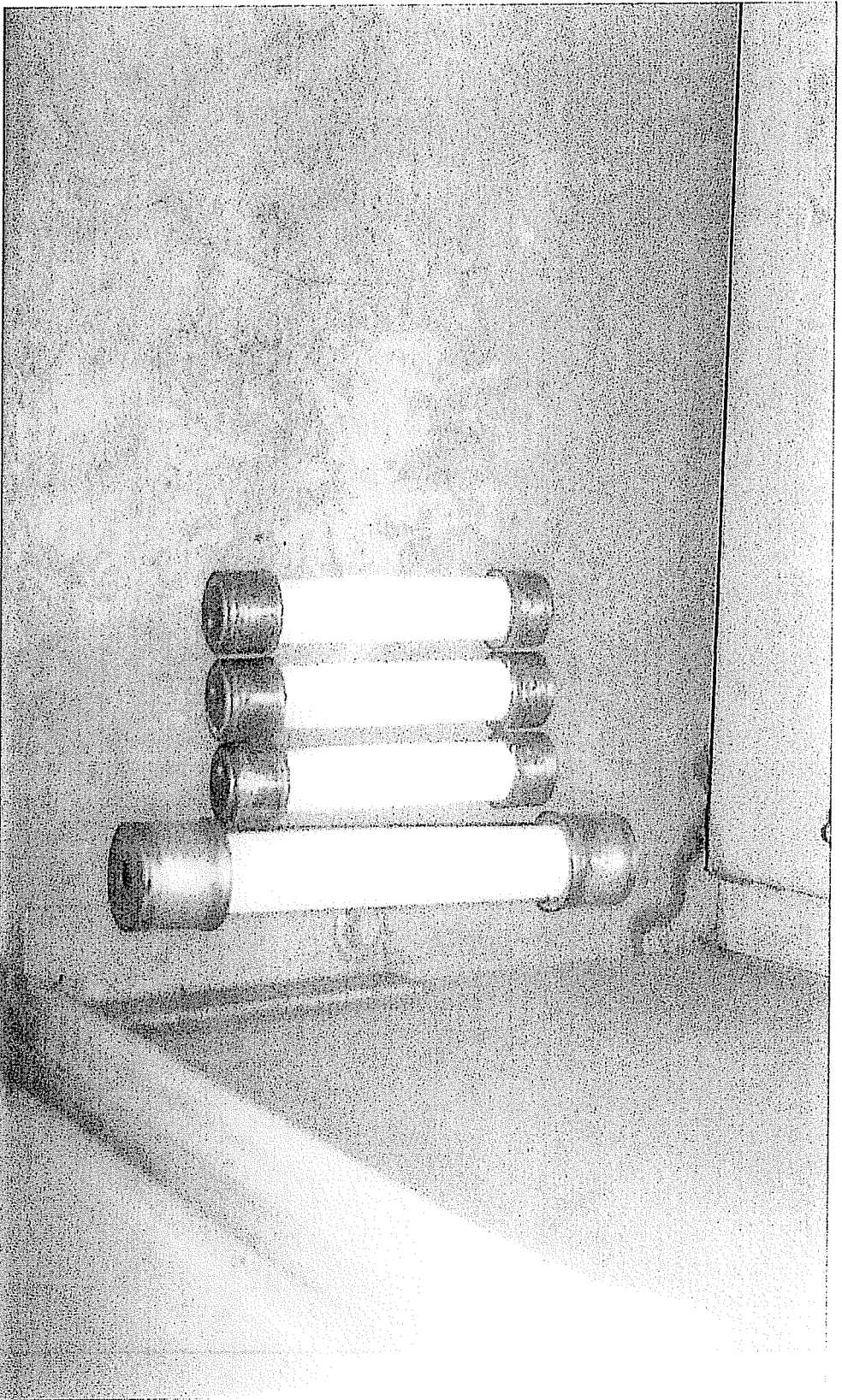


# View of Station Service Transformer Fuse

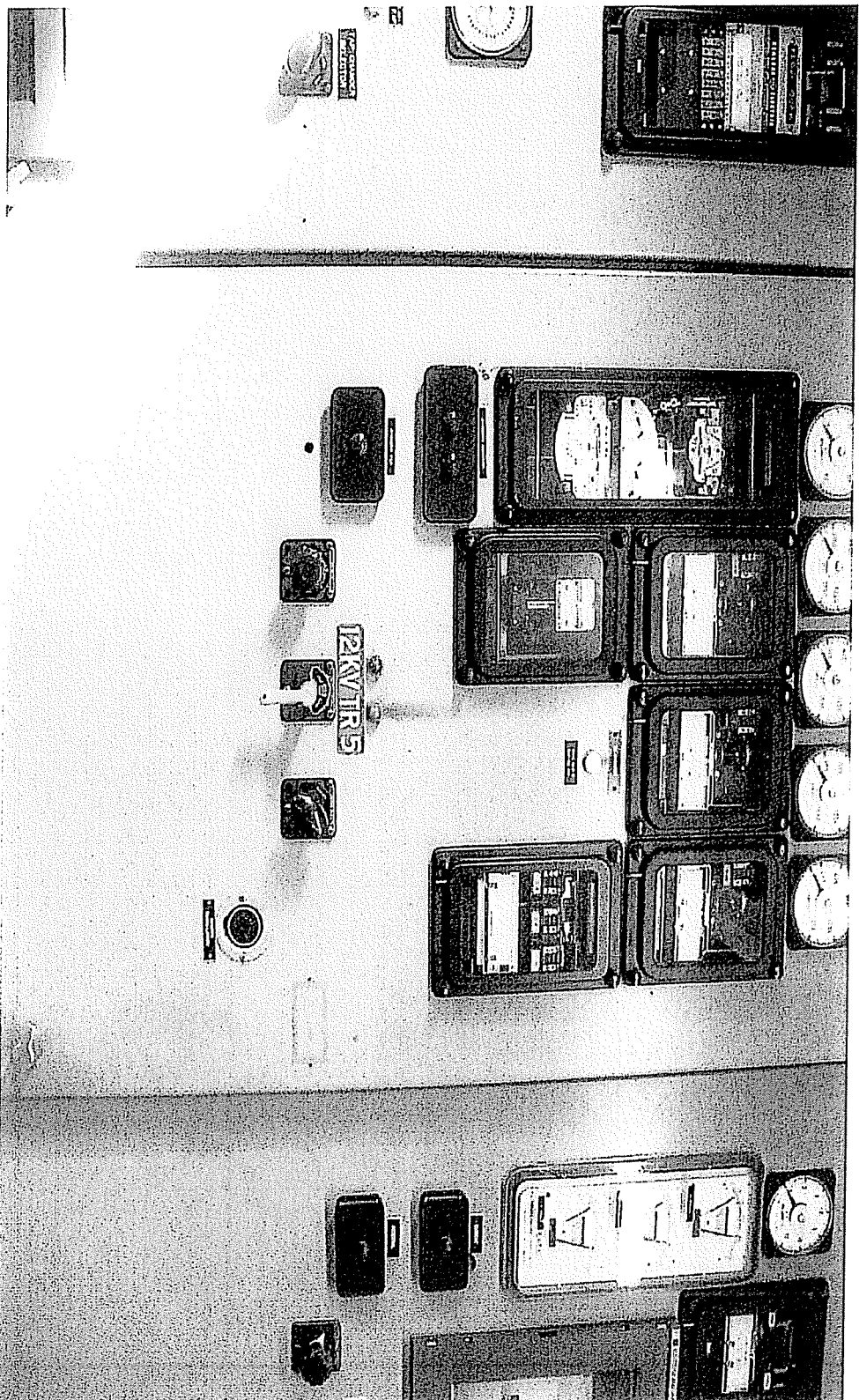




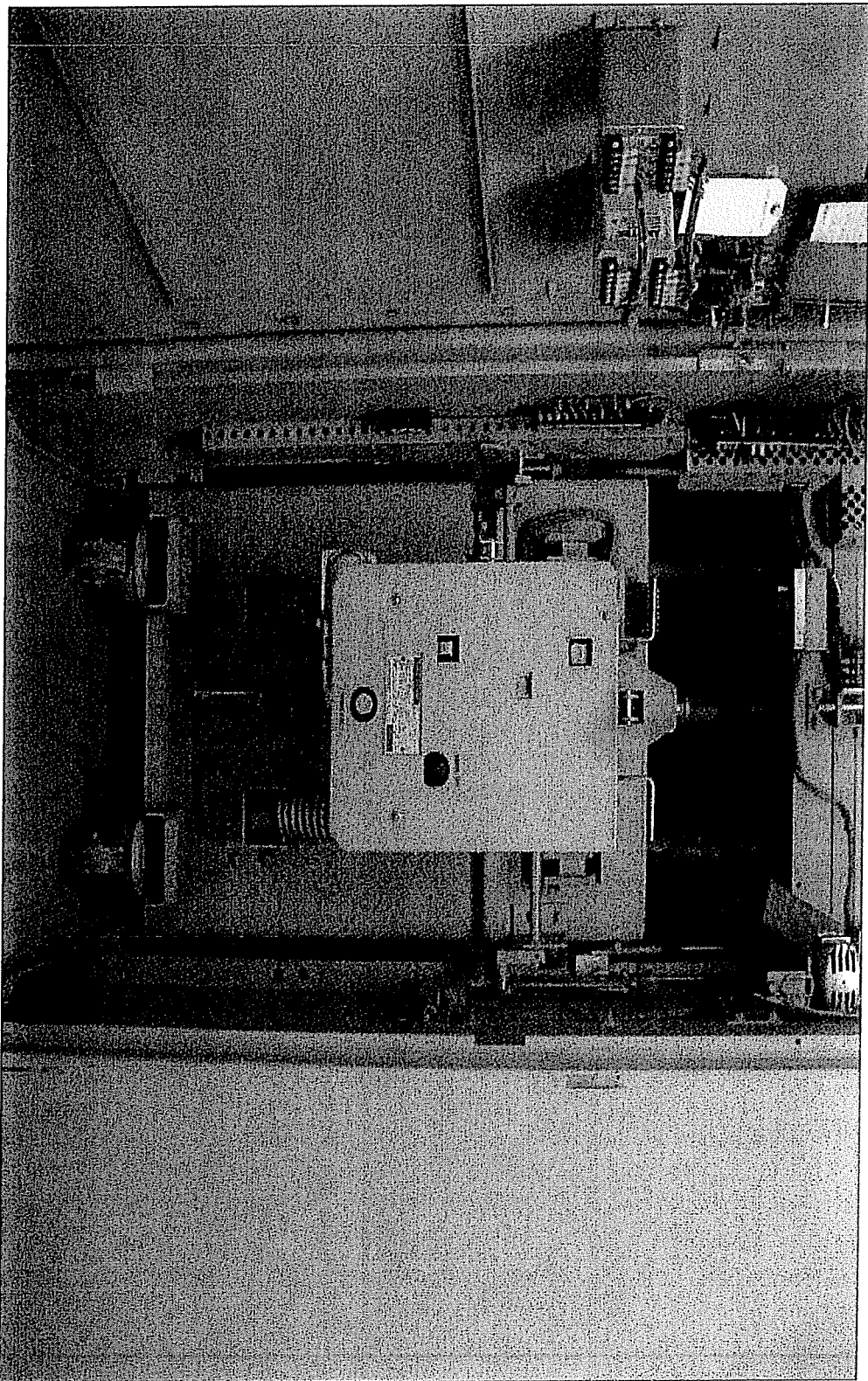
# Fuses for Potential and Station Service Transformer



# Low-Side Breaker Compartment View of Cubicle Door from Aisle.

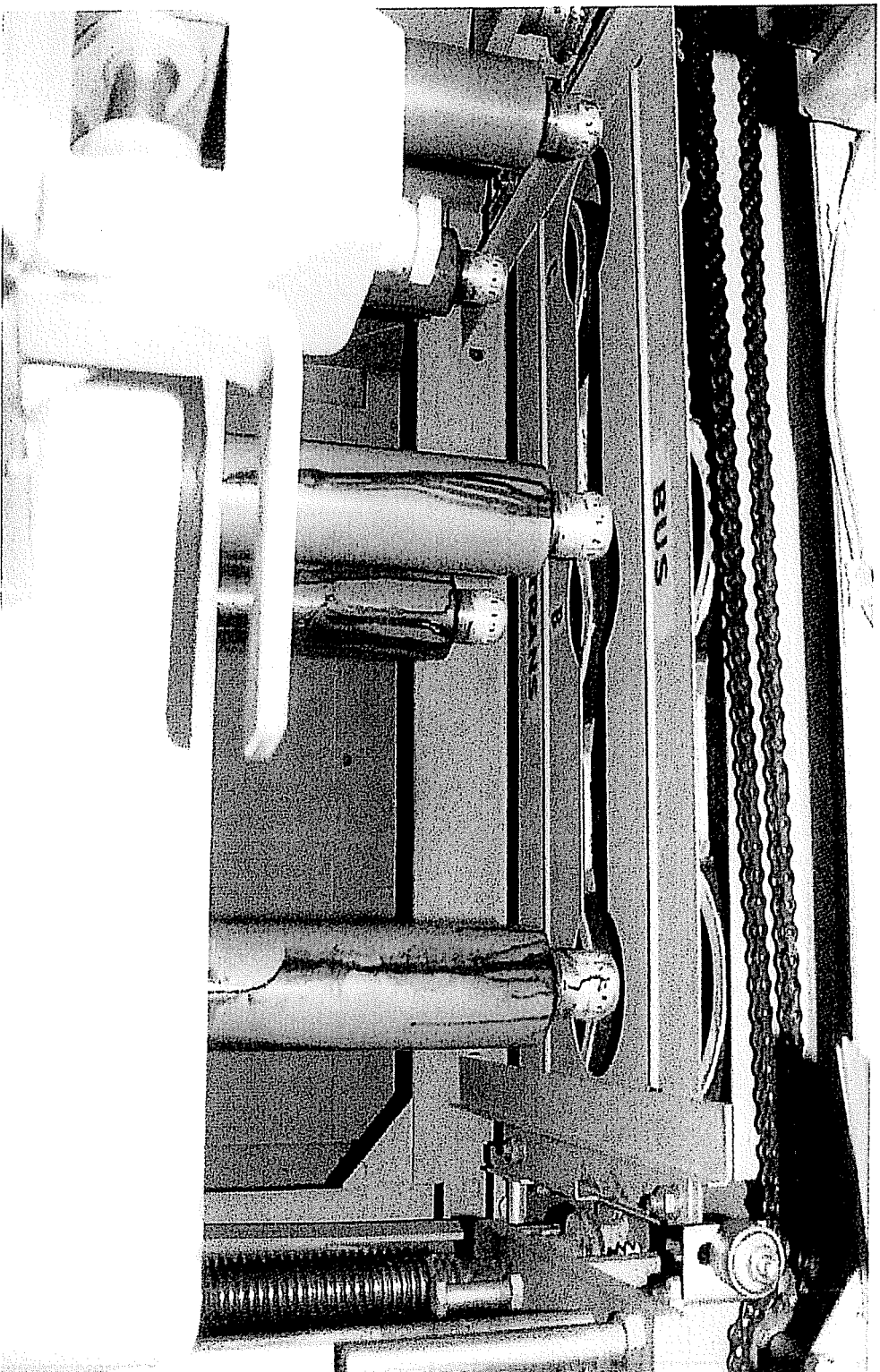


**Low-Side Breaker Cubicle. View of Breaker with Door Open. This breaker racks upward onto bus.**

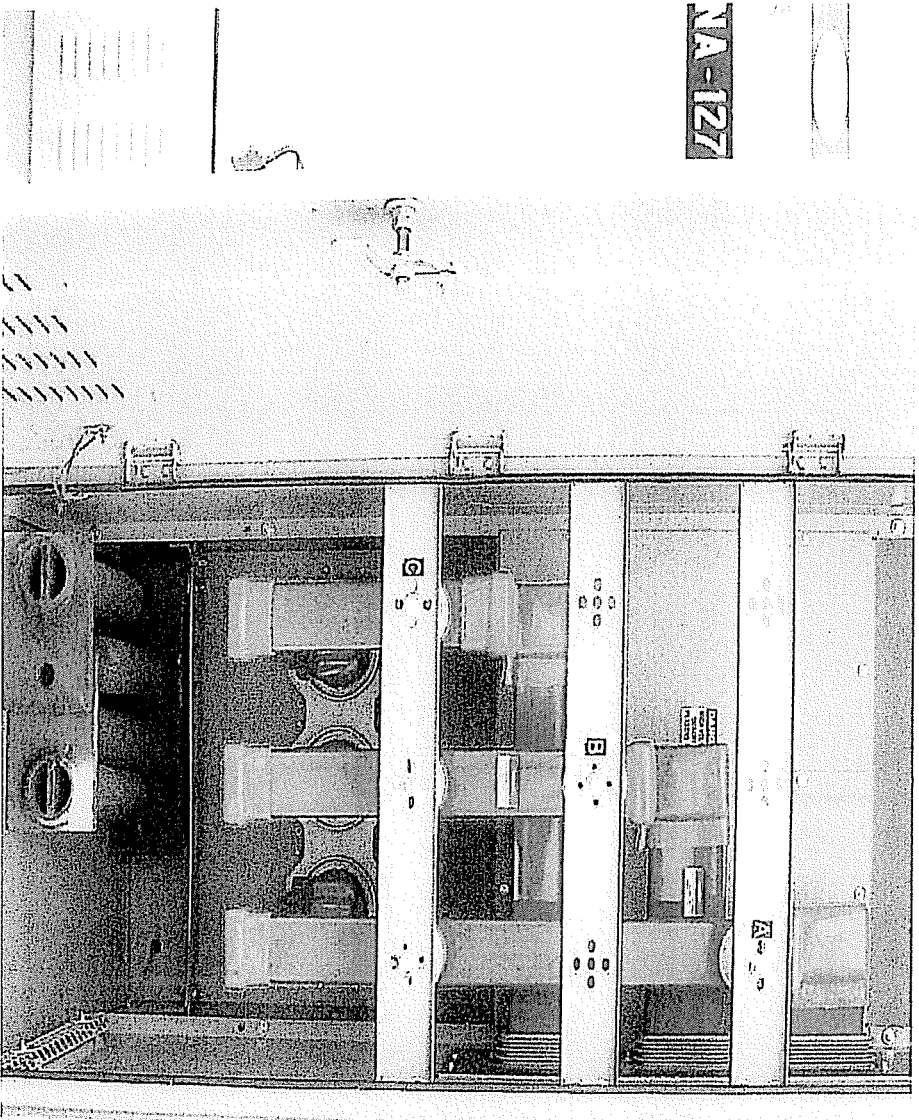




**Low Side Breaker Cubicle. View of Breaker being racked onto Bus. Notice the "BUS" and "TRANS" labels.**

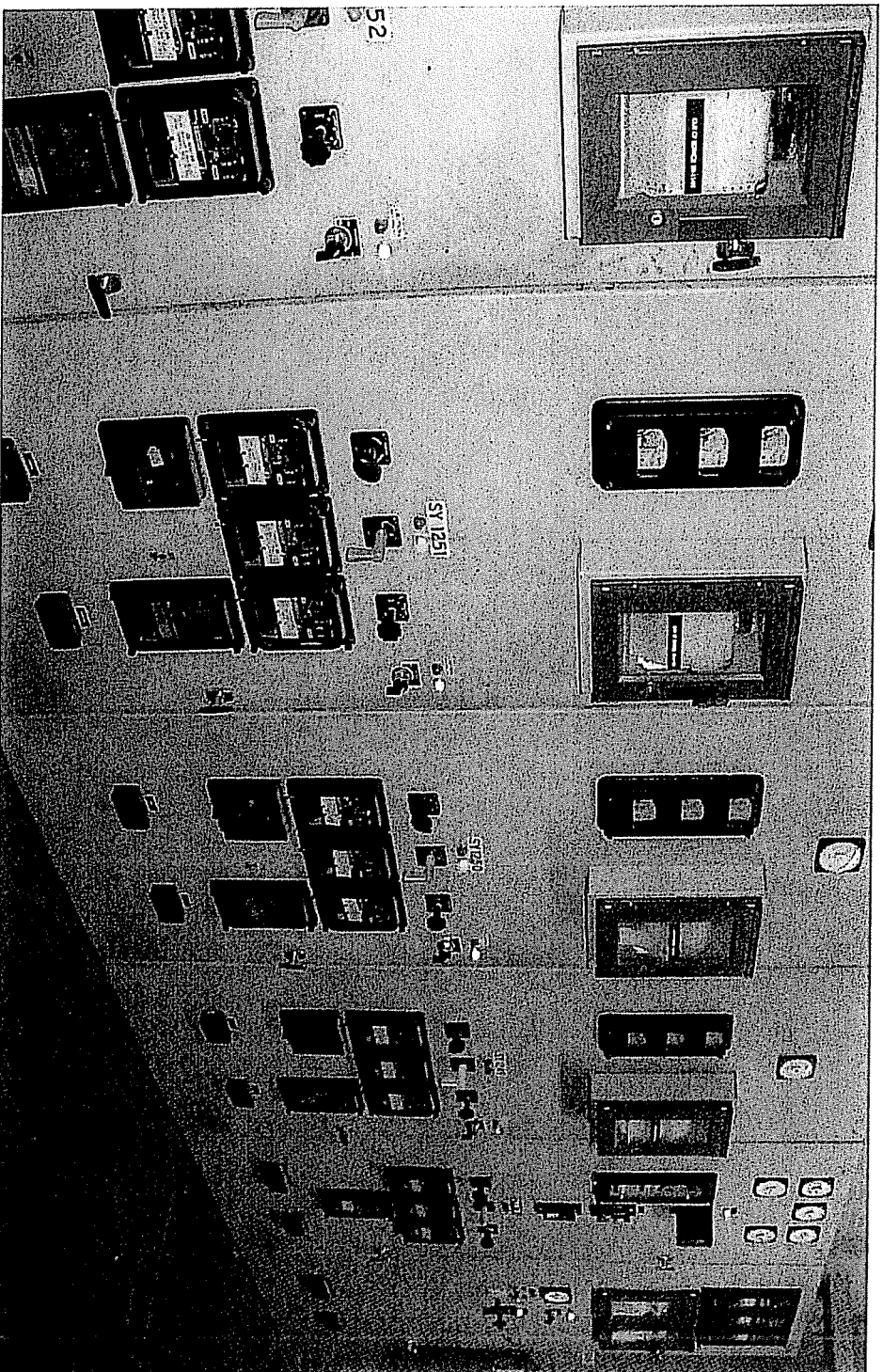


Low Side Breaker Cubicle. Rear door open. Bus enters cubicle 2 from Cubicle 1 (from the right) then attaches to Low-Side Breaker "TRANS" Bottles.

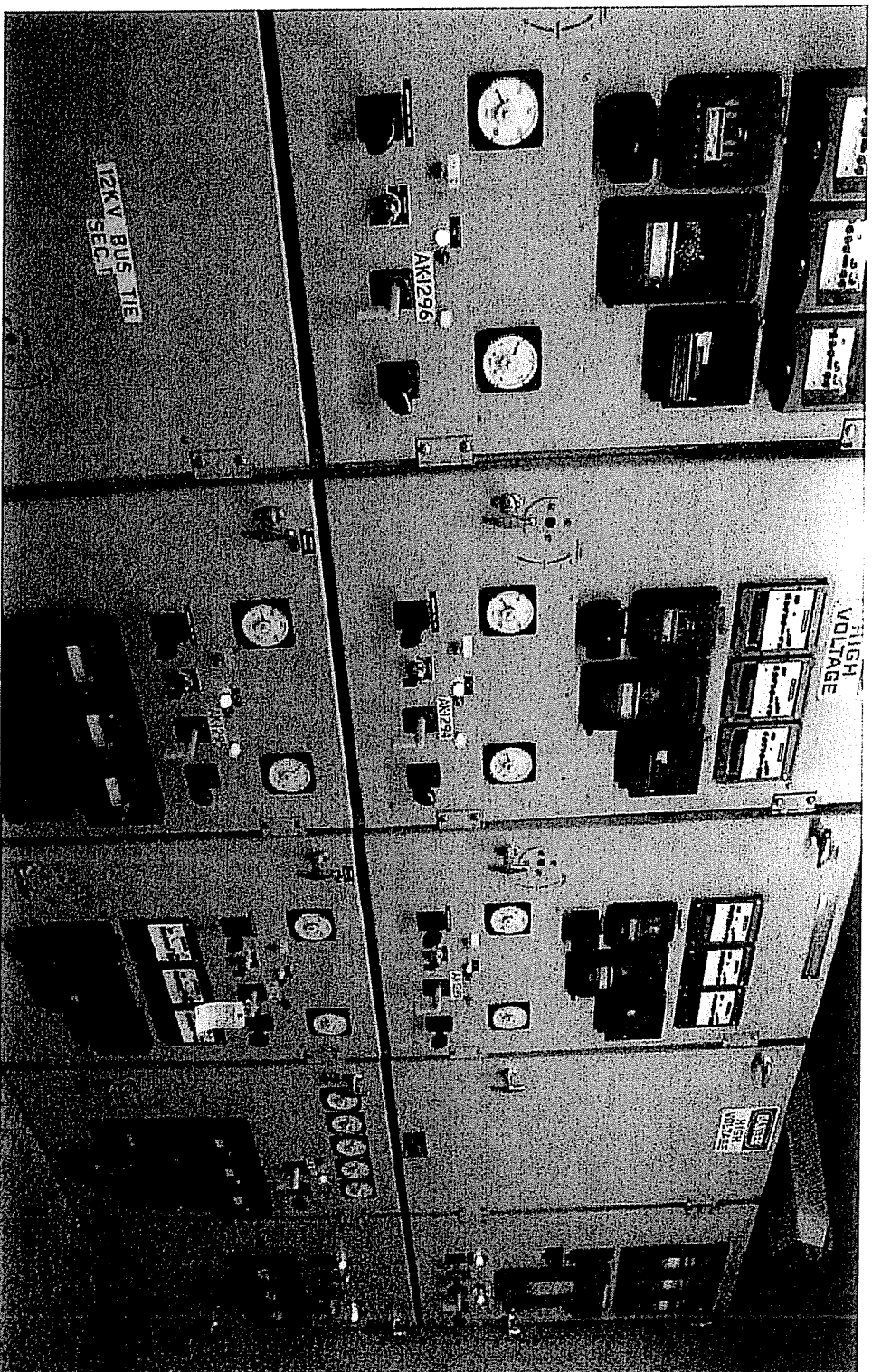


STA SE  
NO. 3

# Feeder Breaker Cubicles. Front view of Cubicle Door from aisle.

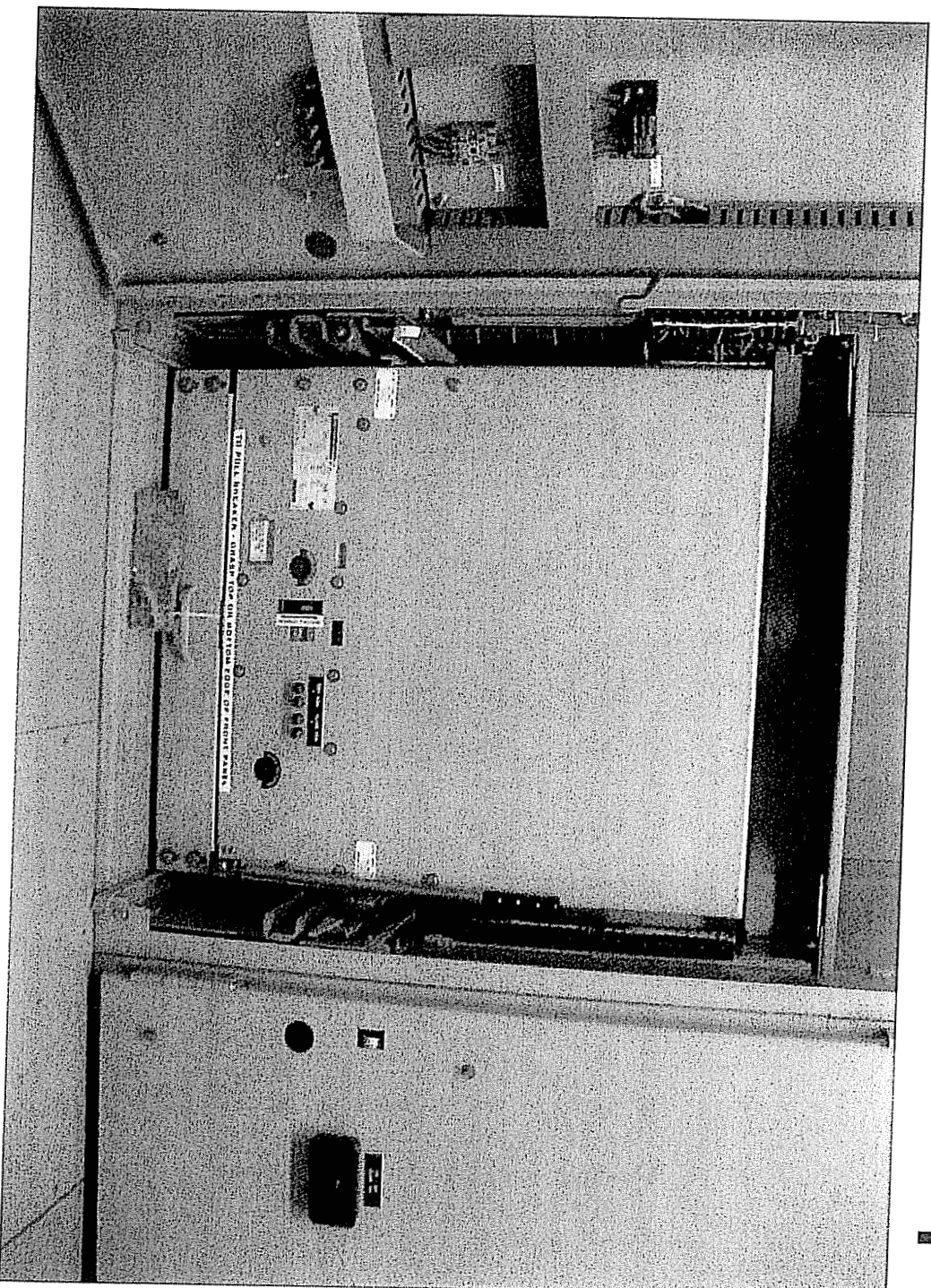


# Feeder Breaker Cubicles. Front view of Double Stacked Breakers.



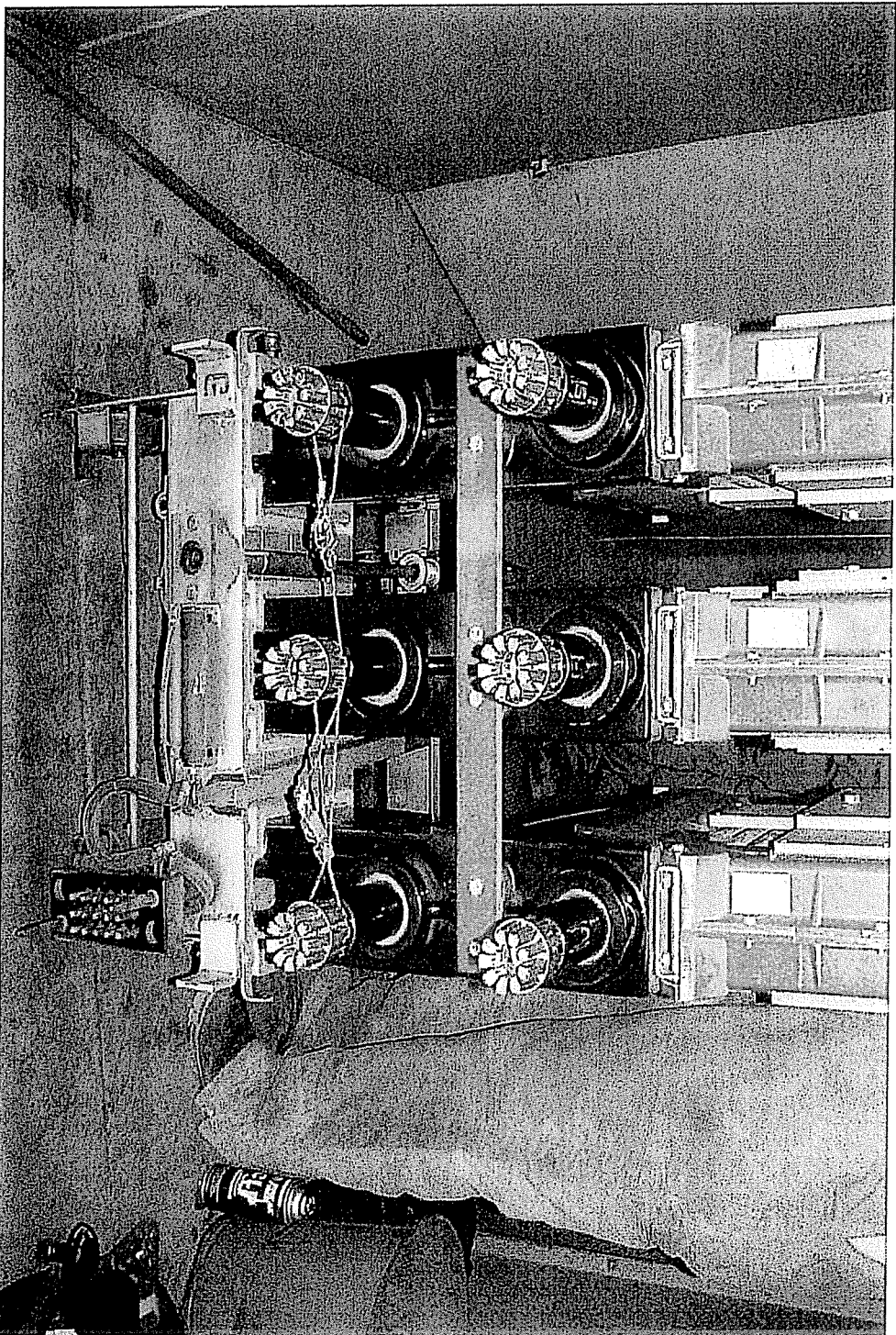


# Feeder Breaker Cubicles. View of Breaker with Cubicle Door Open.





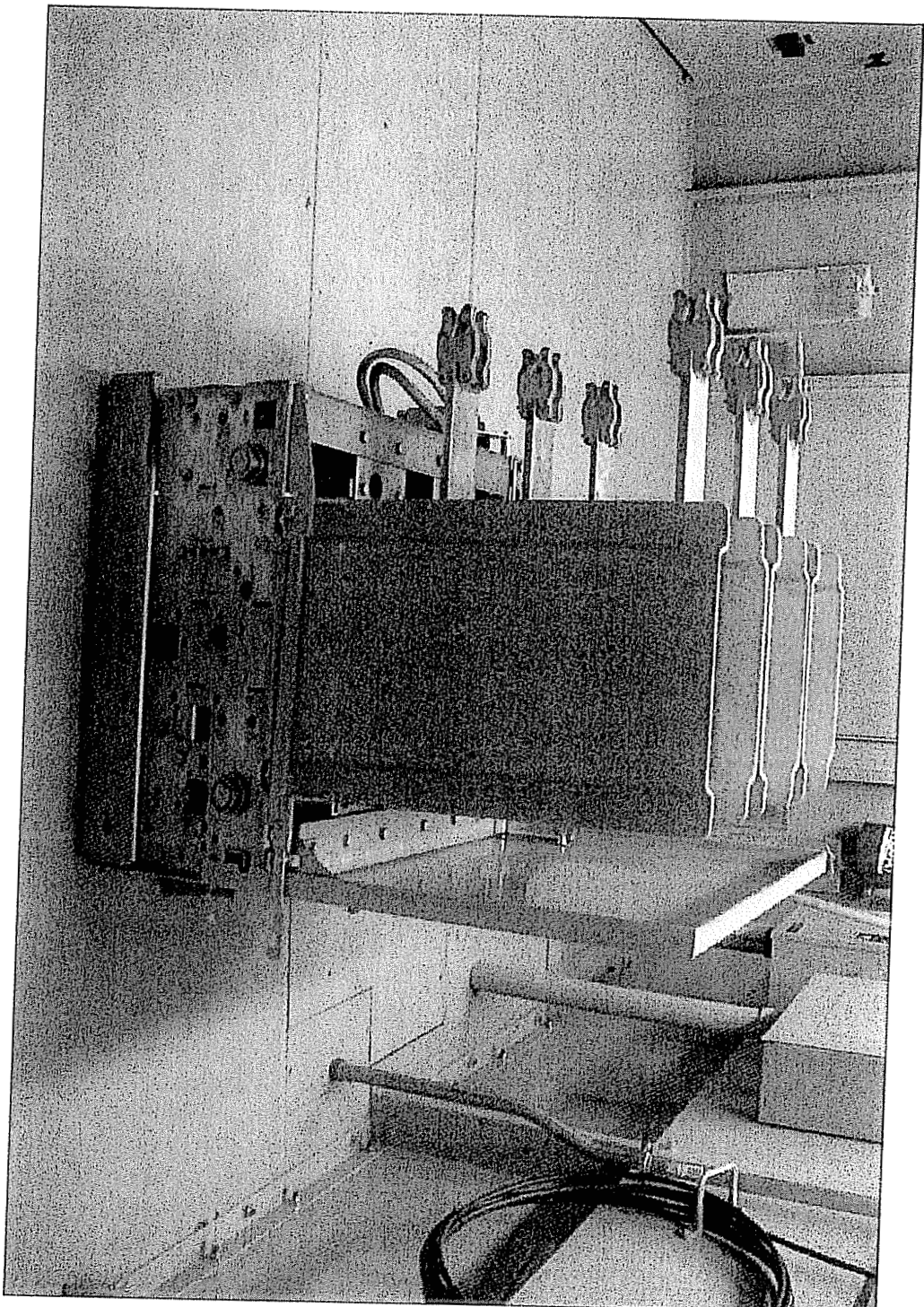
# **Feeder Breaker Cubicles. View of Breaker Stabs and Clusters.**



**LG&E KU**

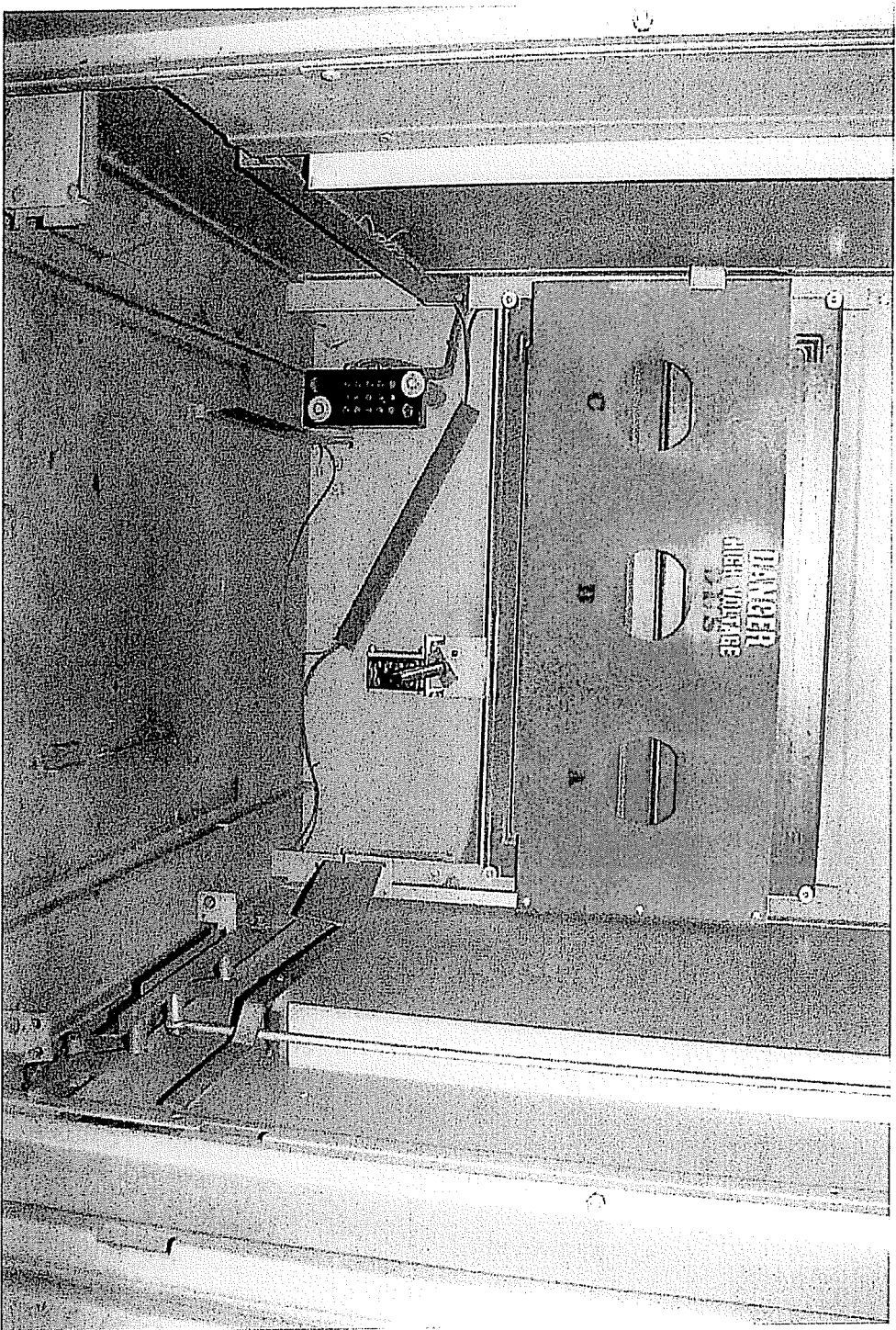
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# Feeder Breaker Cubicles. View of Breaker Stabs and Clusters.



**Feeder Breaker Cubicles.**

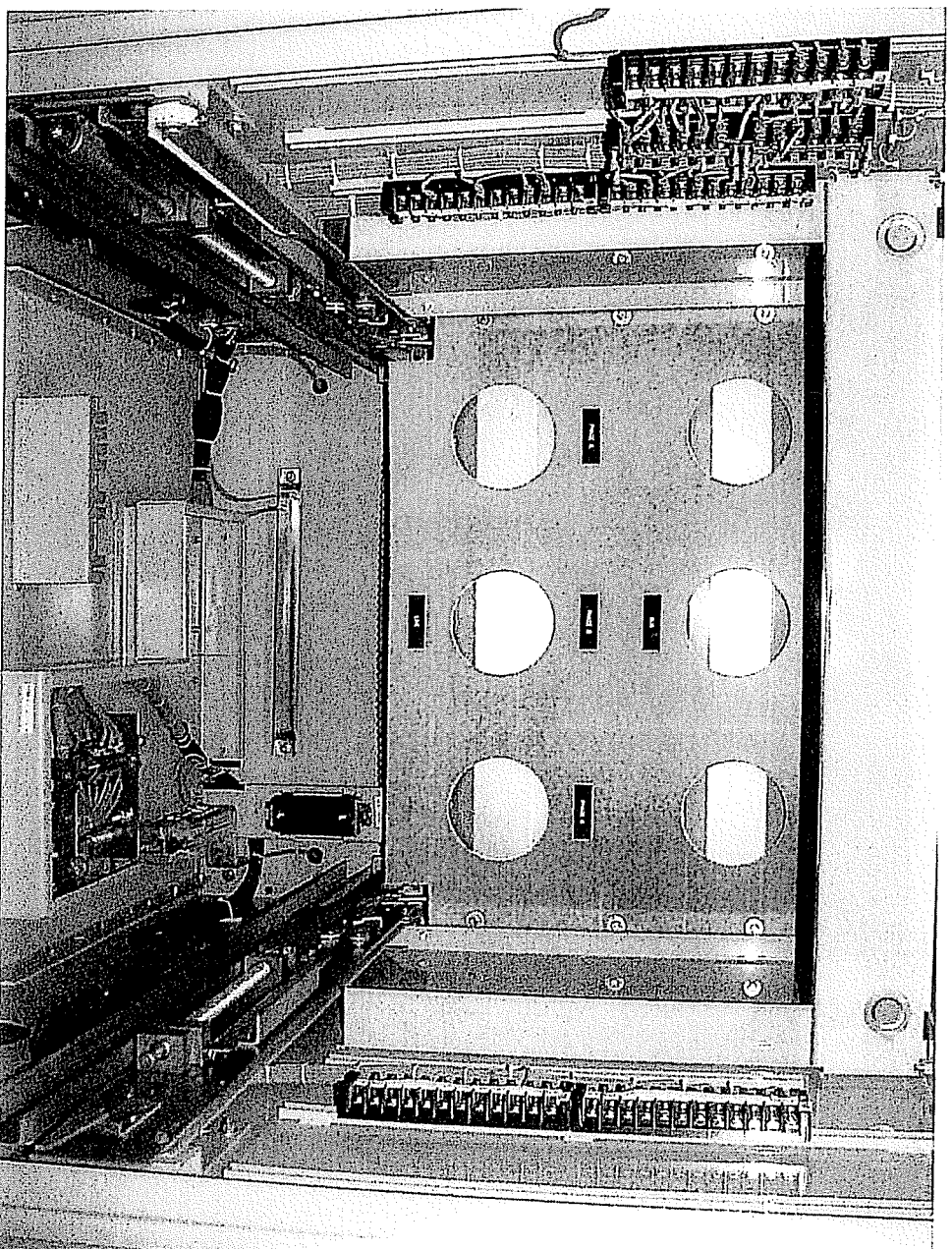
**View of Shutters. "Do not open them unless Switchgear has been completely de-energized."**





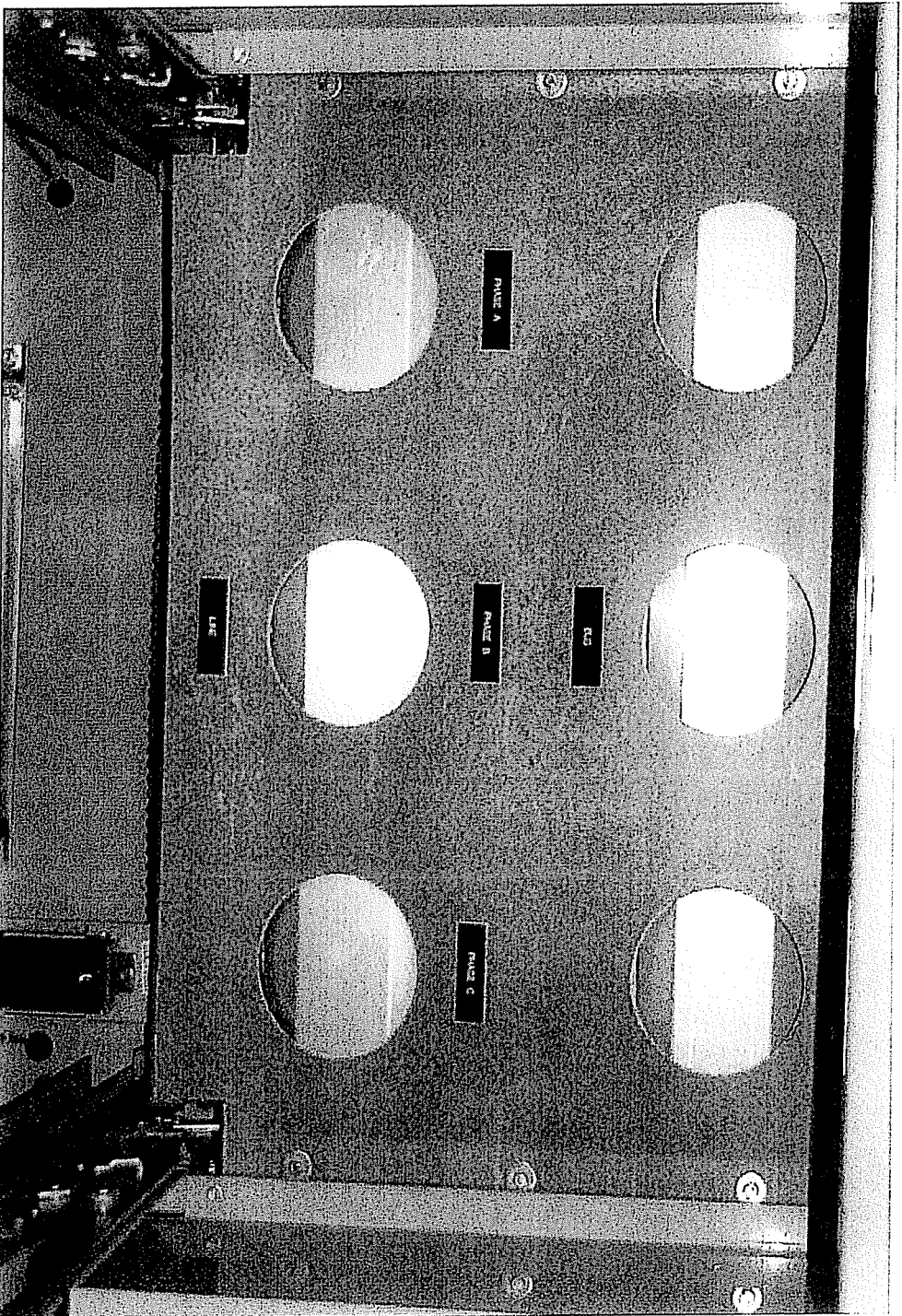
## **Feeder Breaker Cubicles.**

**View of Shutters. "Do not open them unless Switchgear has been completely de-energized."**



**Feeder Breaker Cubicles.**

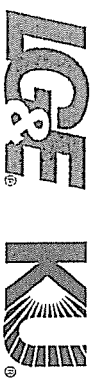
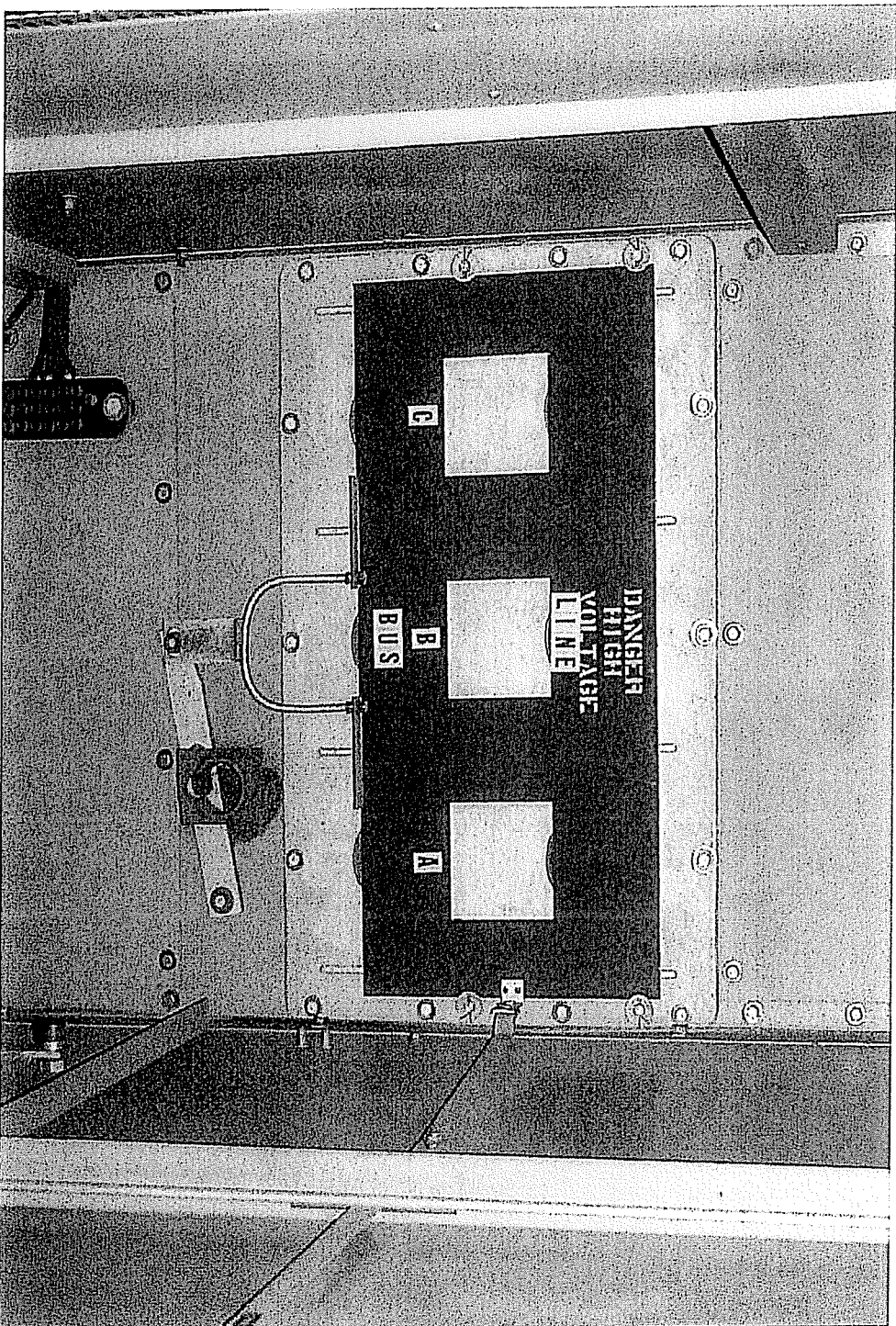
**View of Shutters. "Do not open them unless Switchgear has been completely de-energized."**



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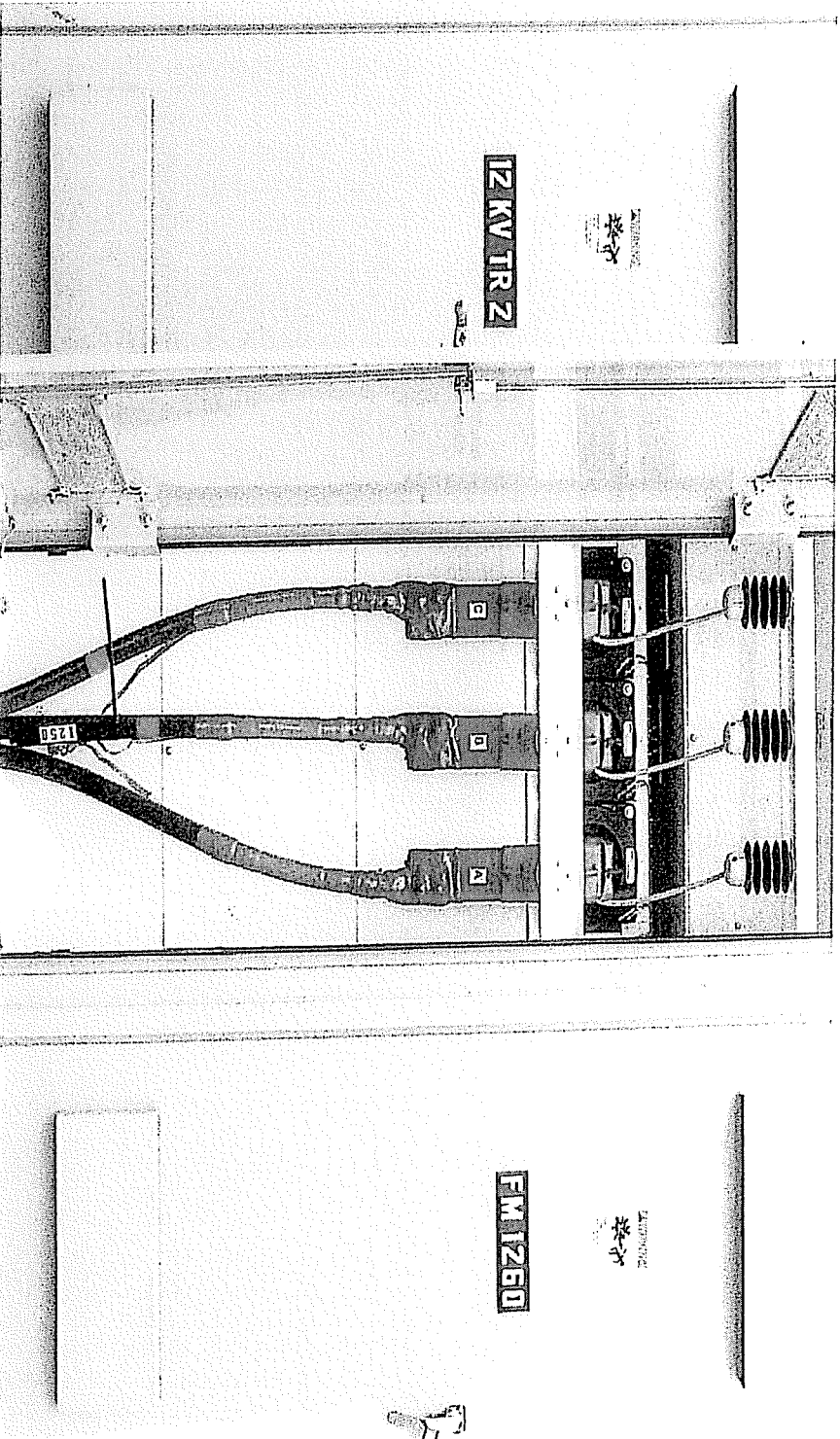
## Feeder Breaker Cubicles.

View of Shutters. "Do not open them unless Switchgear has been completely de-energized."



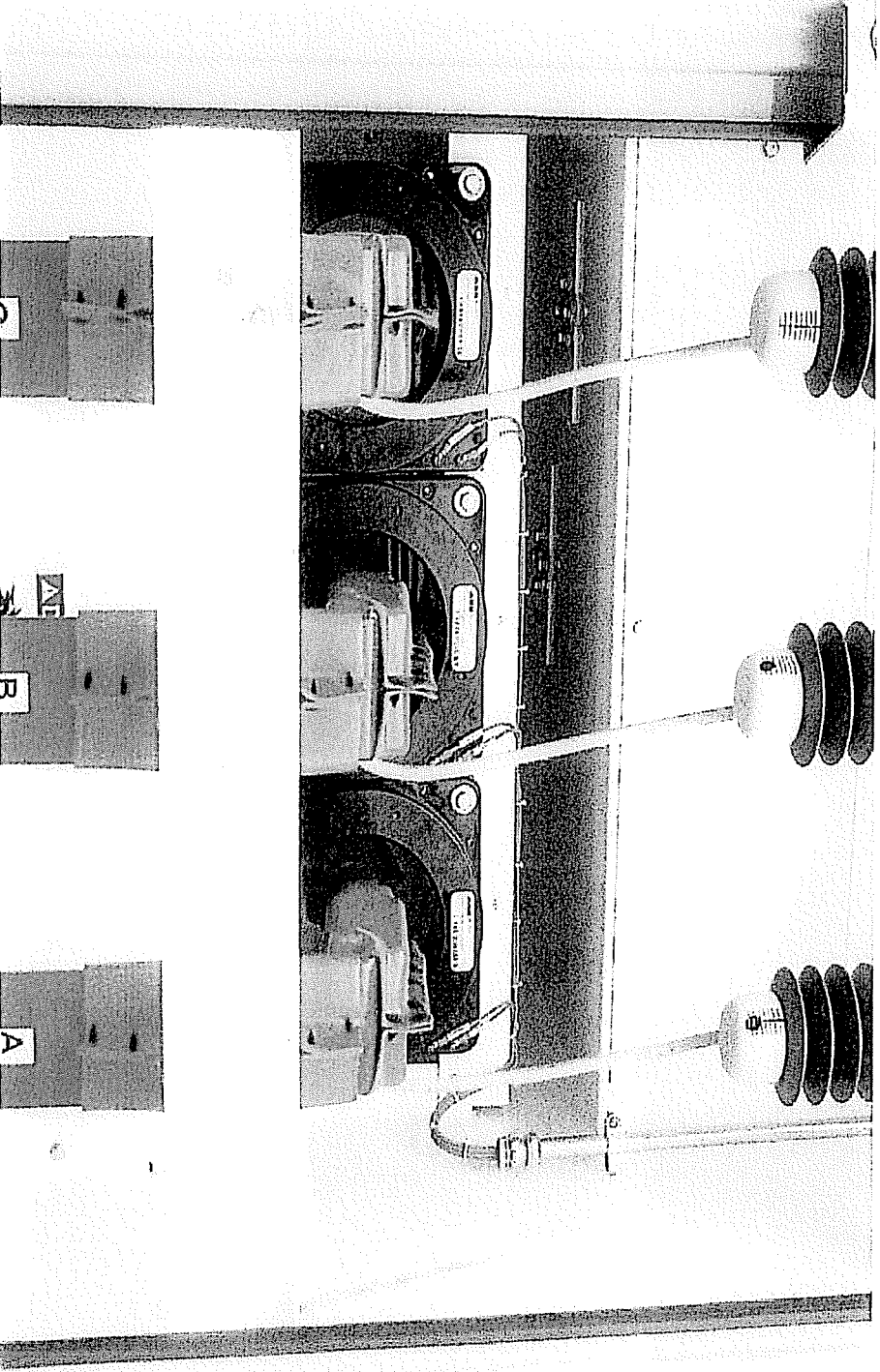
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**Feeder Breaker Cubicles. View with Rear Cable Entry compartment opened. The only way to de-energize this cable is to open (and rack out) the feeder breaker and open the cable pole disconnects for that circuit.**





**Feeder Breaker Cubicles. View with Rear Cable Entry compartment opened.**  
**Close up of CT's and surge arresters.**



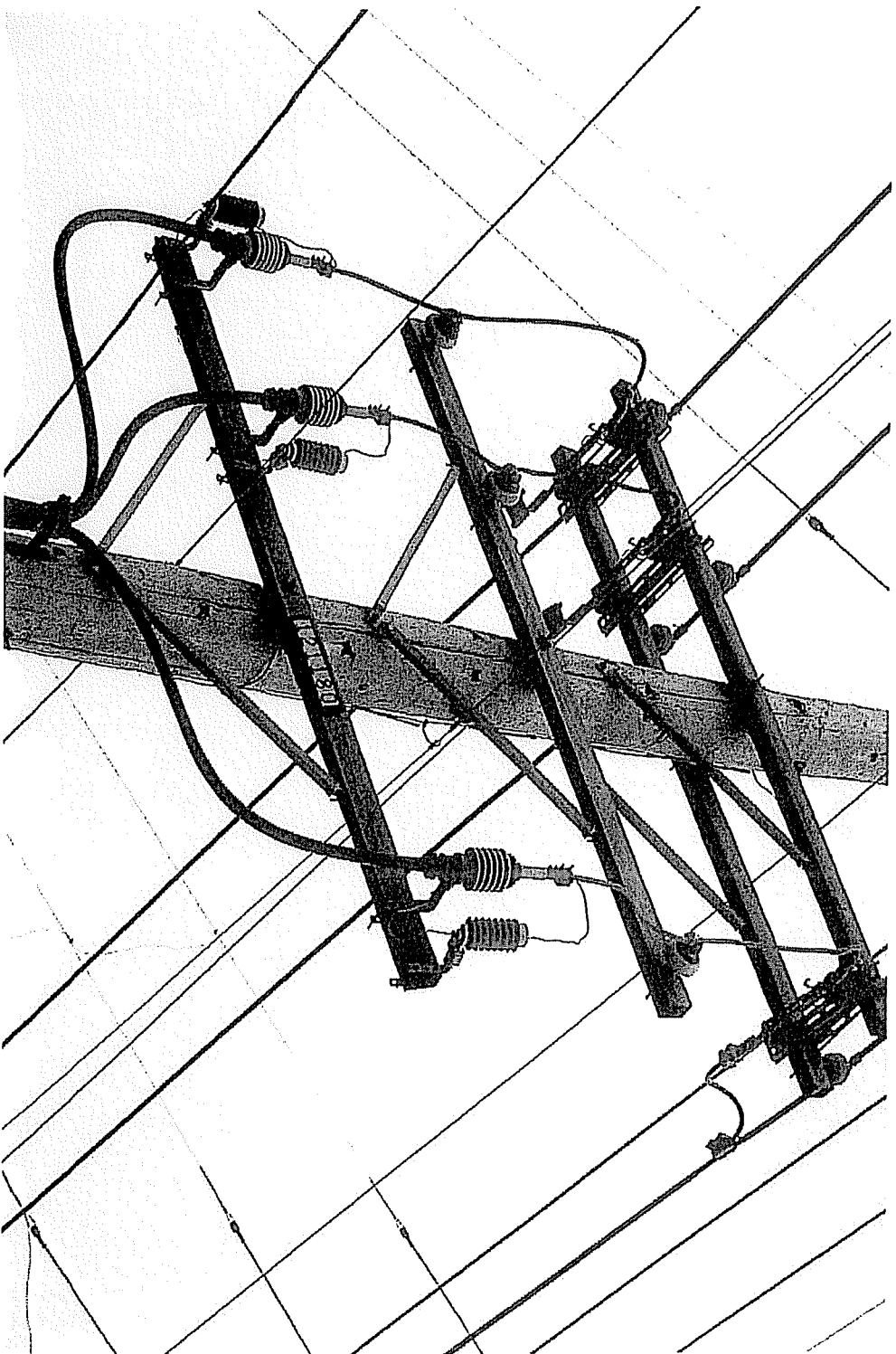


**Cable Pole Disconnects for a particular Distribution Feeder Circuit.  
Circuit identified on lateral pole.**



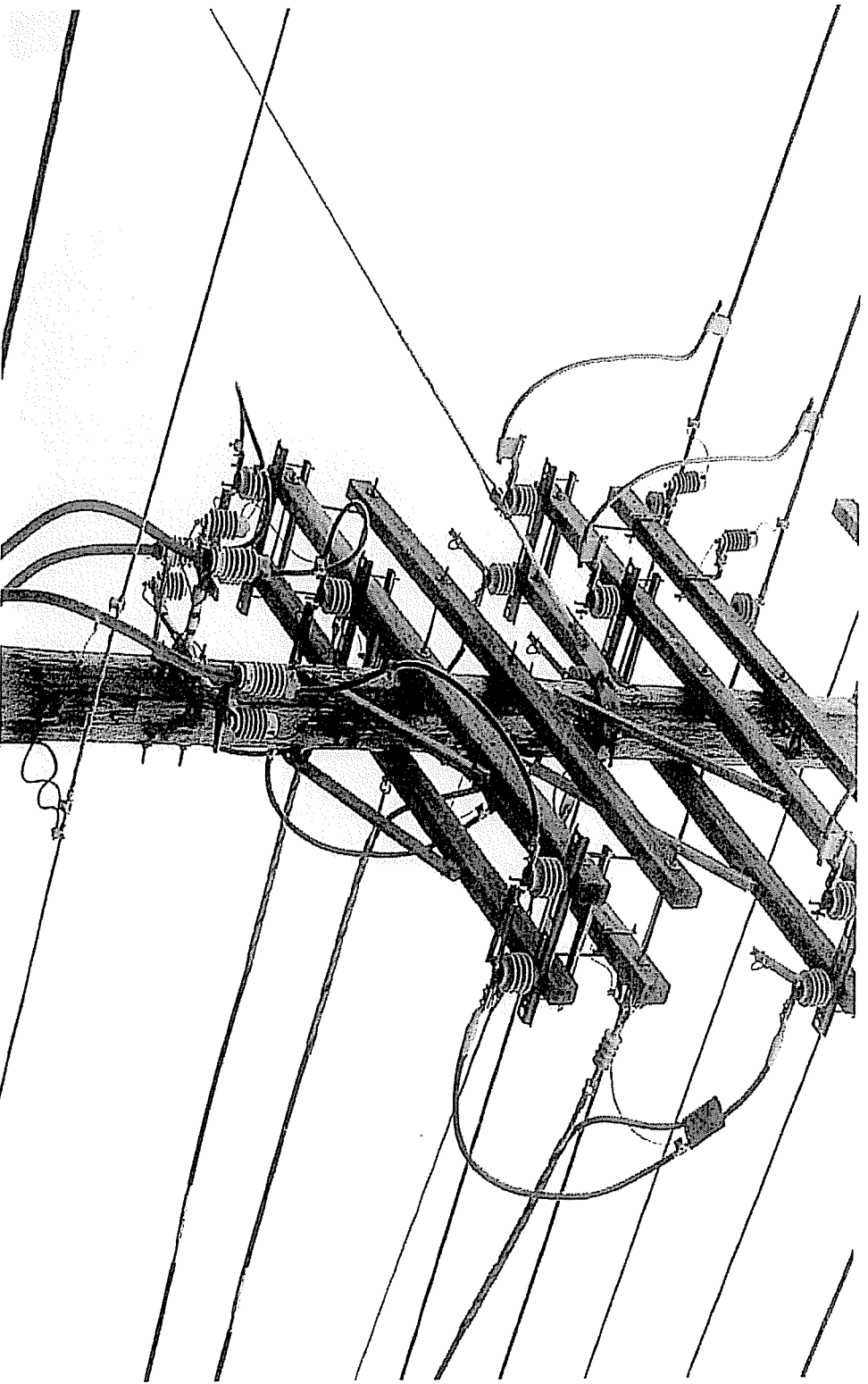
**Cable Pole Disconnects for a particular Distribution Feeder Circuit.**

**Switches are closed.**



**Cable Pole Disconnects for a particular Distribution Feeder Circuit.**

**Switches are closed. A circuit tie switch is open.**

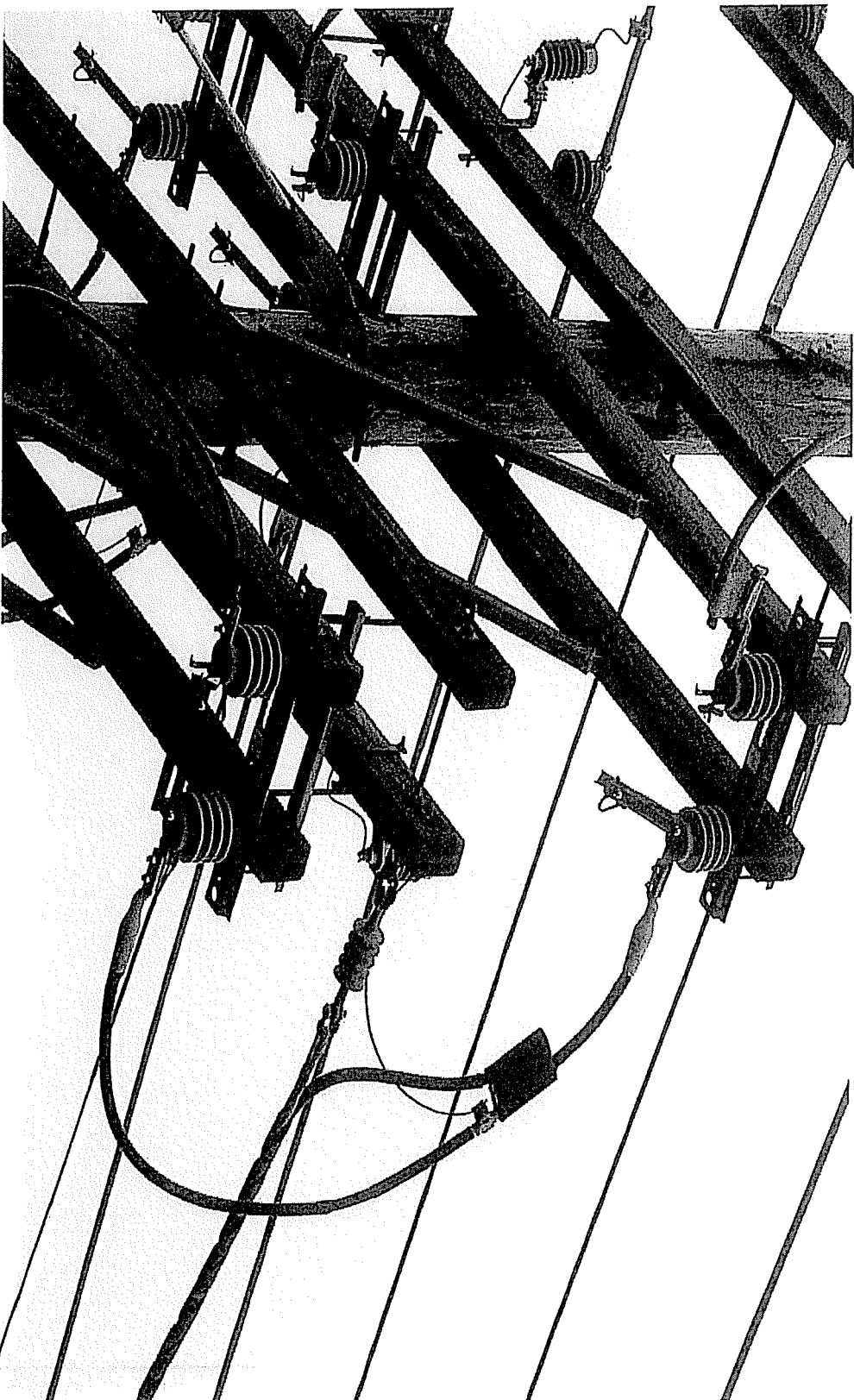


**GE**  
**& K**

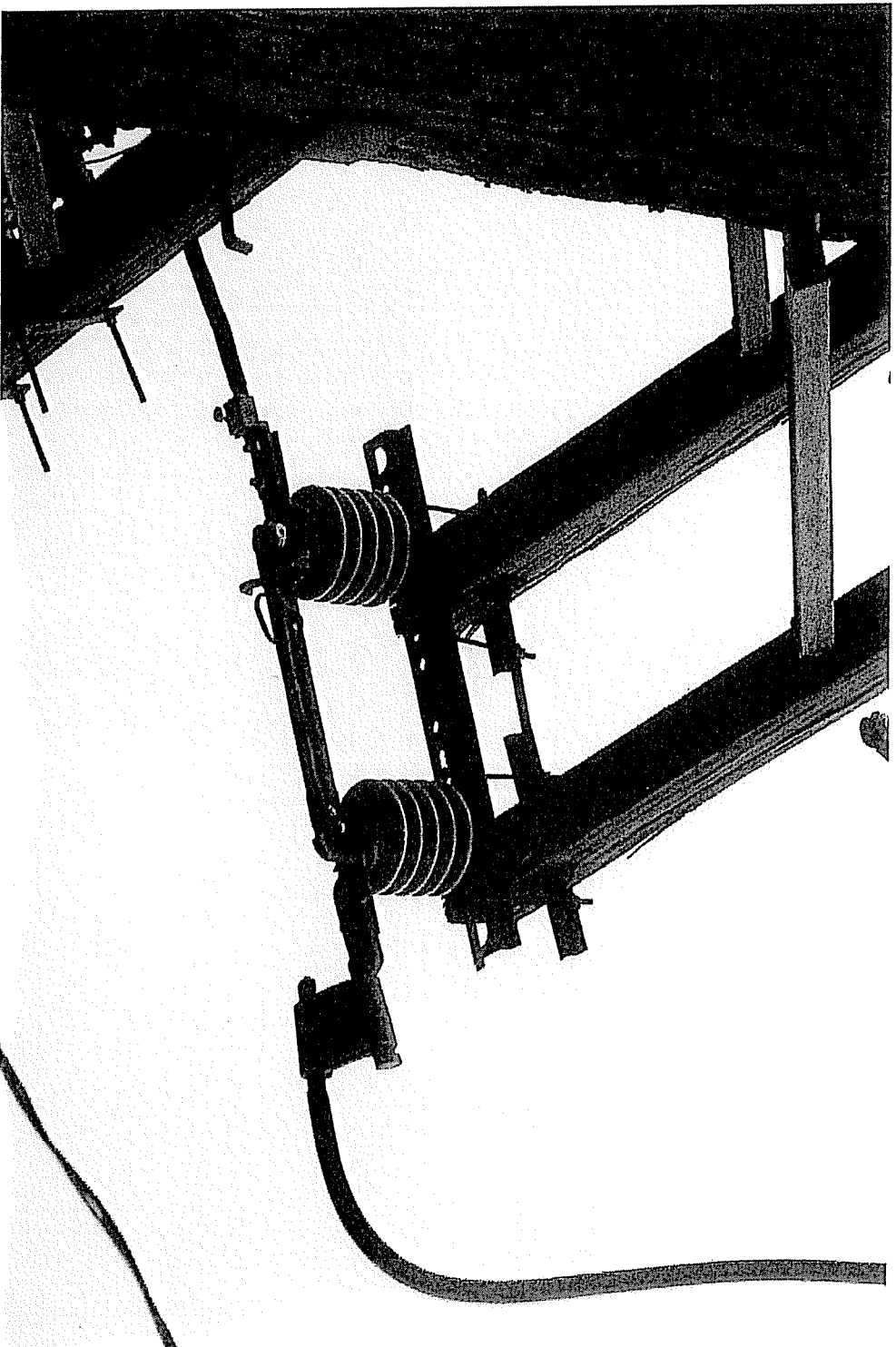
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**Cable Pole Disconnects for a particular Distribution Feeder Circuit.**

**Switches are closed. A circuit tie switch is open.**



**Cable Pole Disconnects for a particular Distribution Feeder Circuit.  
Close-up view of closed Switch.**

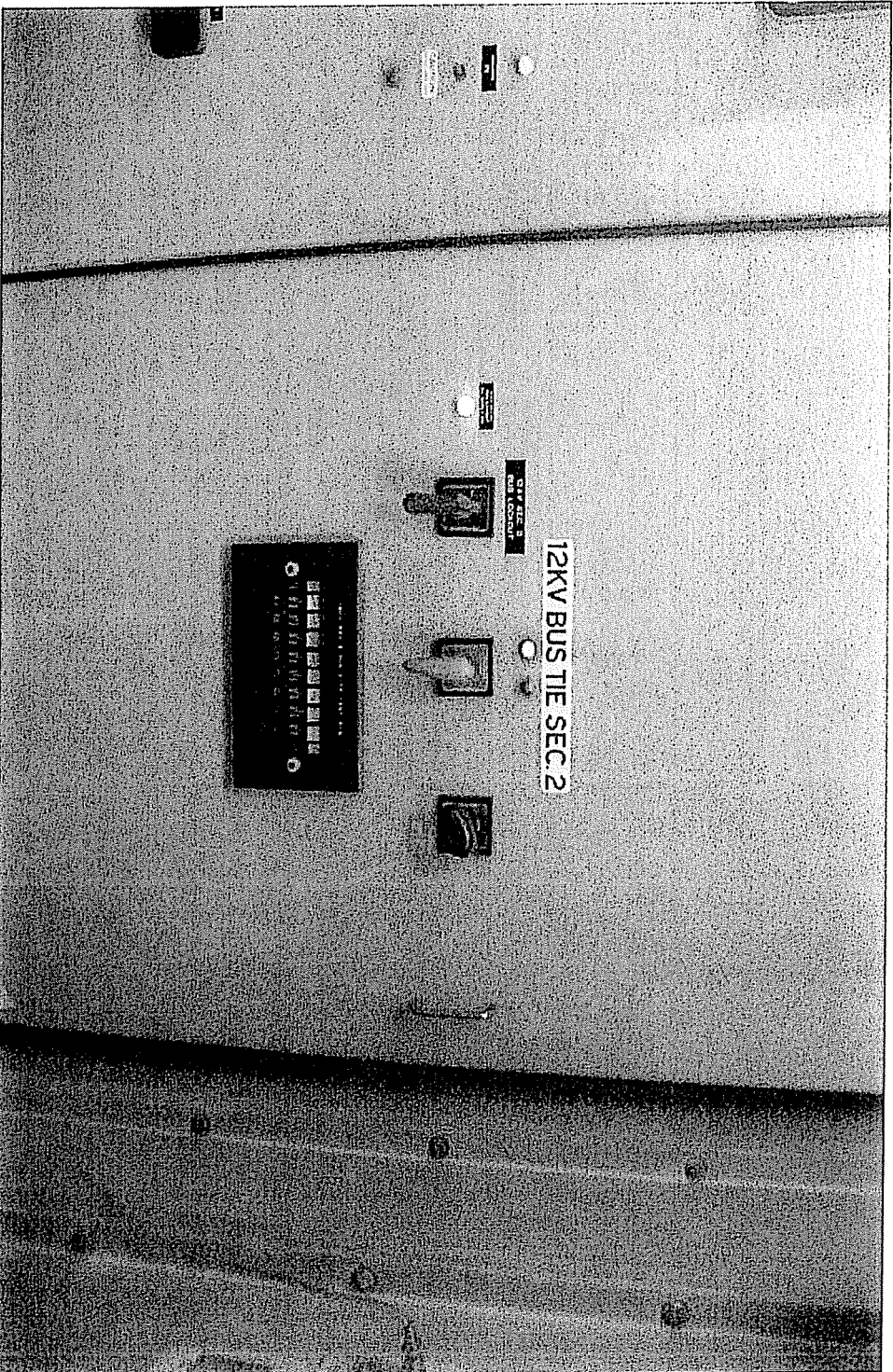


# Cable Pole Disconnects

- *Clearance for Cable Pole Disconnects comes from Distribution Control Center (DCC) only!!*
- *Phone Number for DCC: 627-3365/6/7*

# Bus Tie Breaker Cubicle.

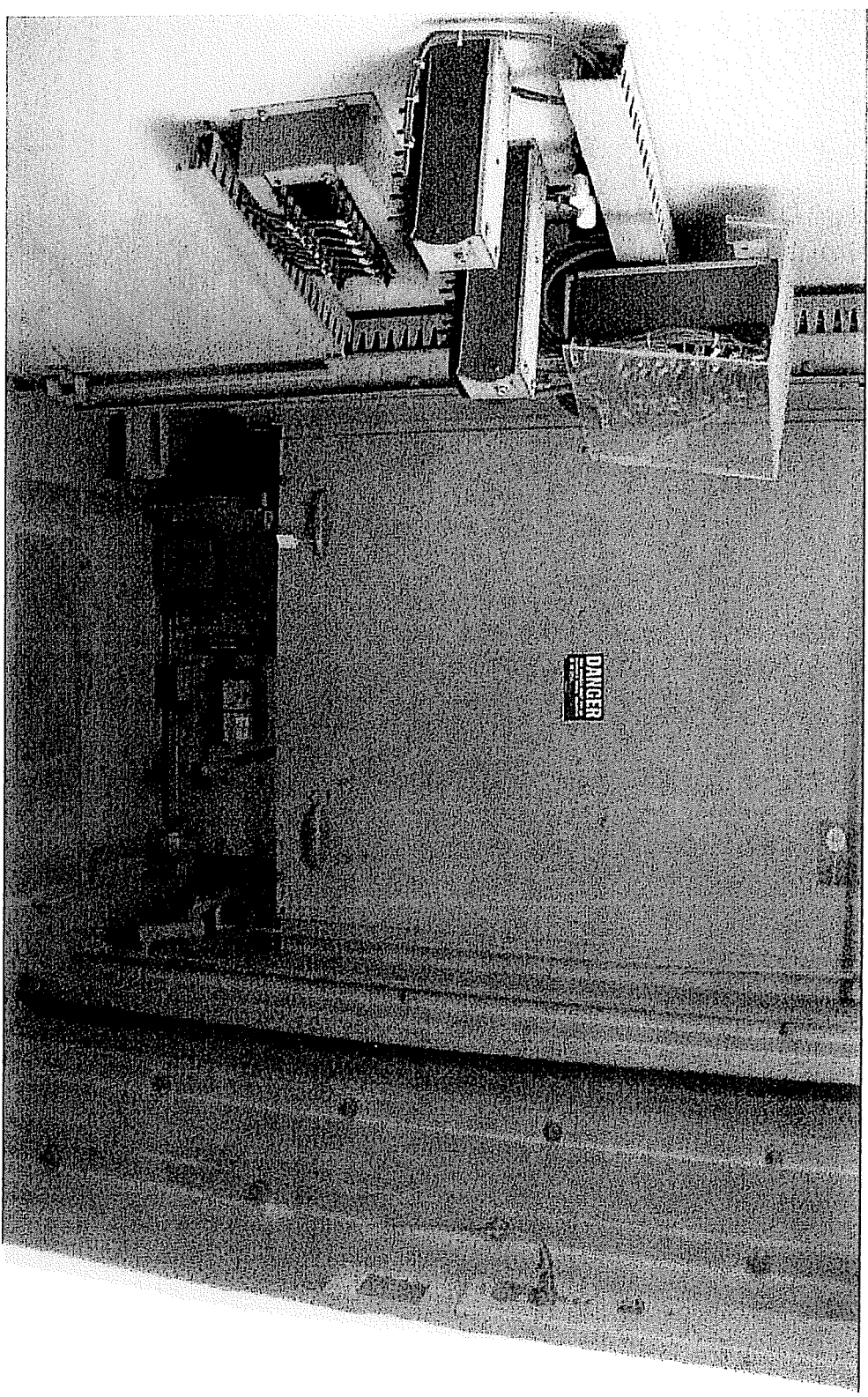
## View of Cubicle Door from Aisle.





**Bus Tie Breaker Cubicle.**

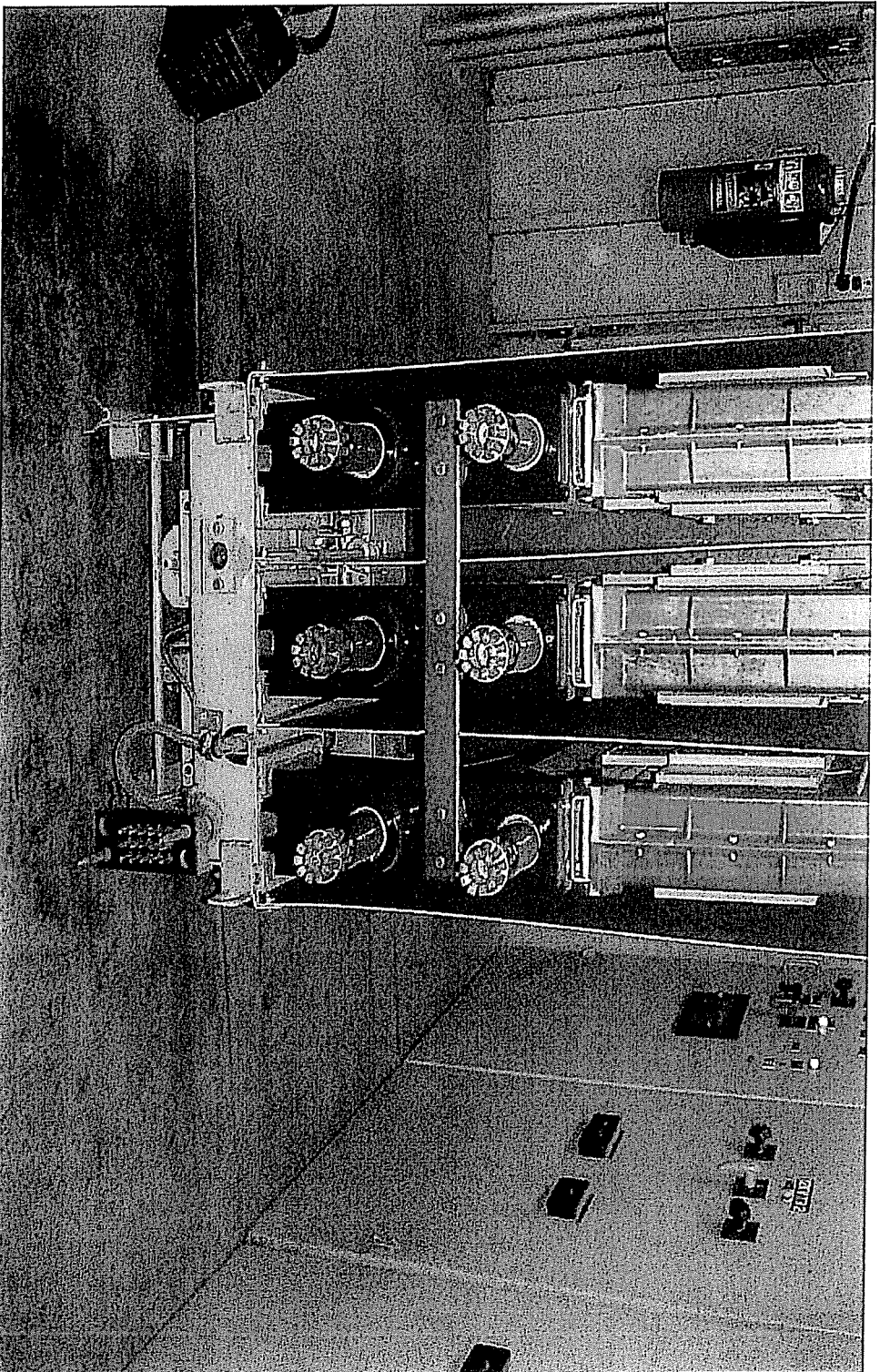
**View of breaker from Aisle with Cubicle Door open.**



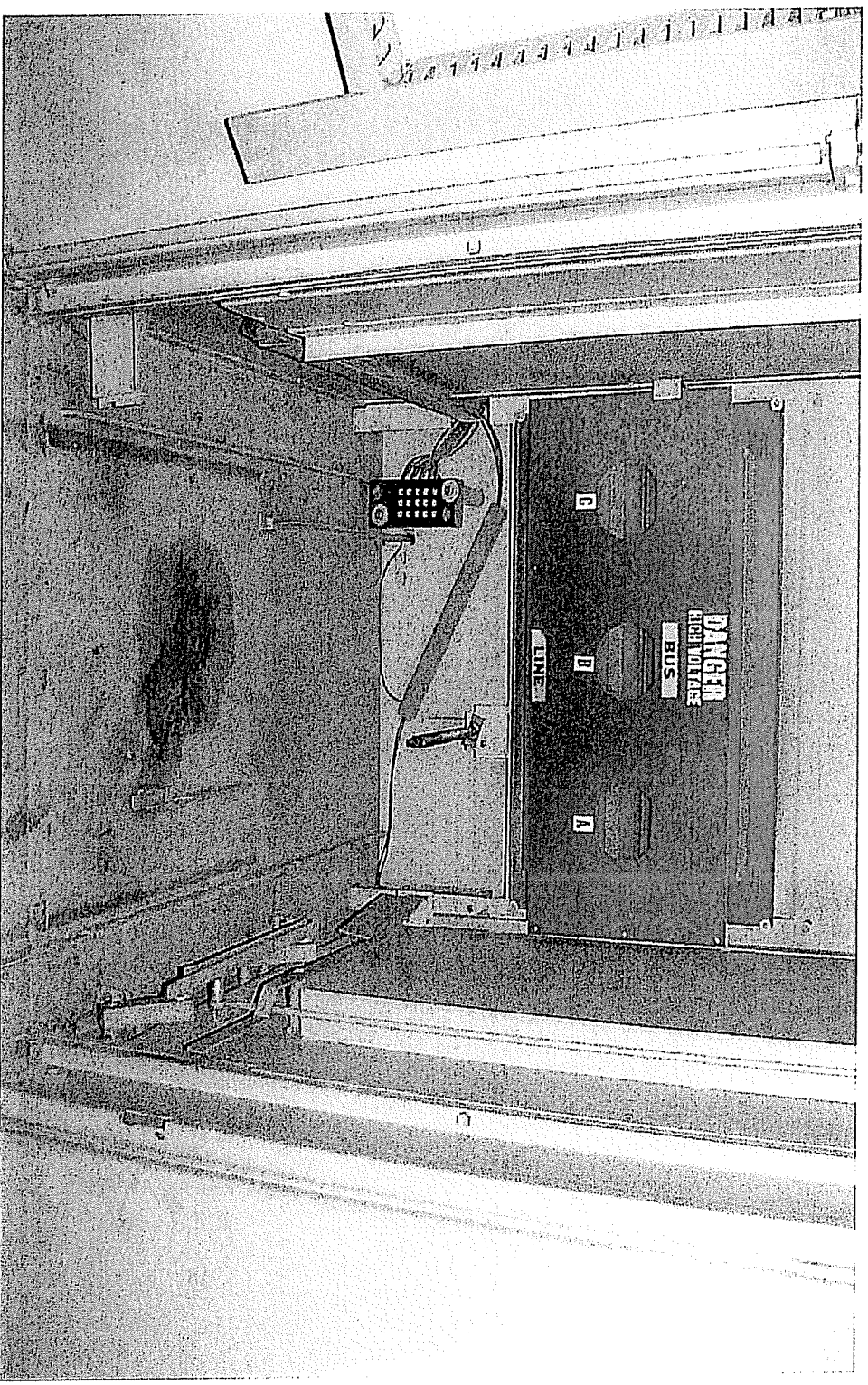


# Bus Tie Breaker Cubicle.

View of breaker removed from cubicle.



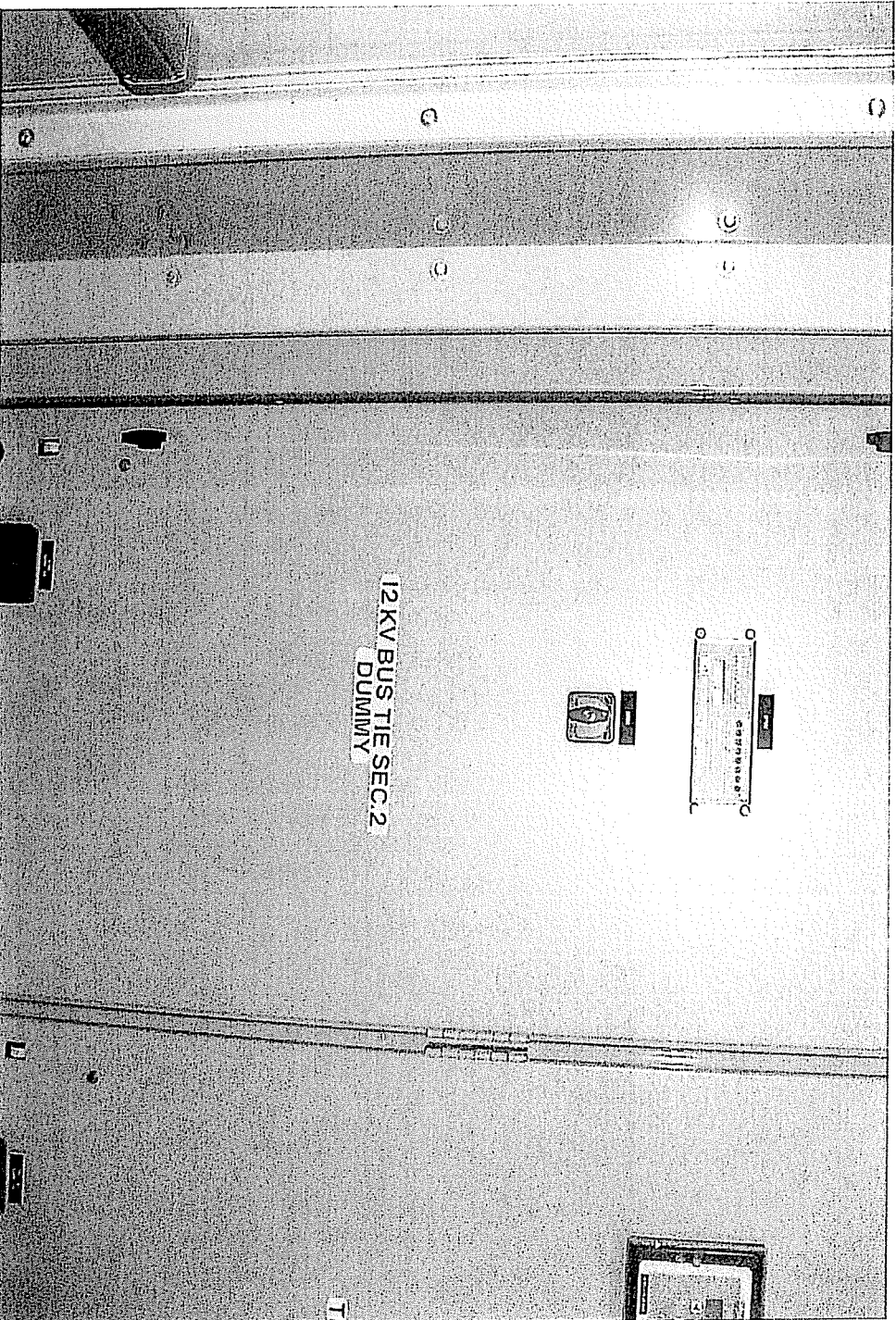
**Bus Tie Breaker Cubicle. View of Shutters with breaker removed from Cubicle. Note the "BUS" and "LINE" labels.**



## **"Dummy" Bus Tie Breaker.**

- *Often when there are two switchgears in a station, one will have a bus tie breaker, but the other gear will have a bus tie "dummy".*
- *Bus tie dummy is simply a solid link (no breaker mechanism).*
- *Dummy cannot be racked in or out unless the bus tie breaker in the other section is open at a minimum.*

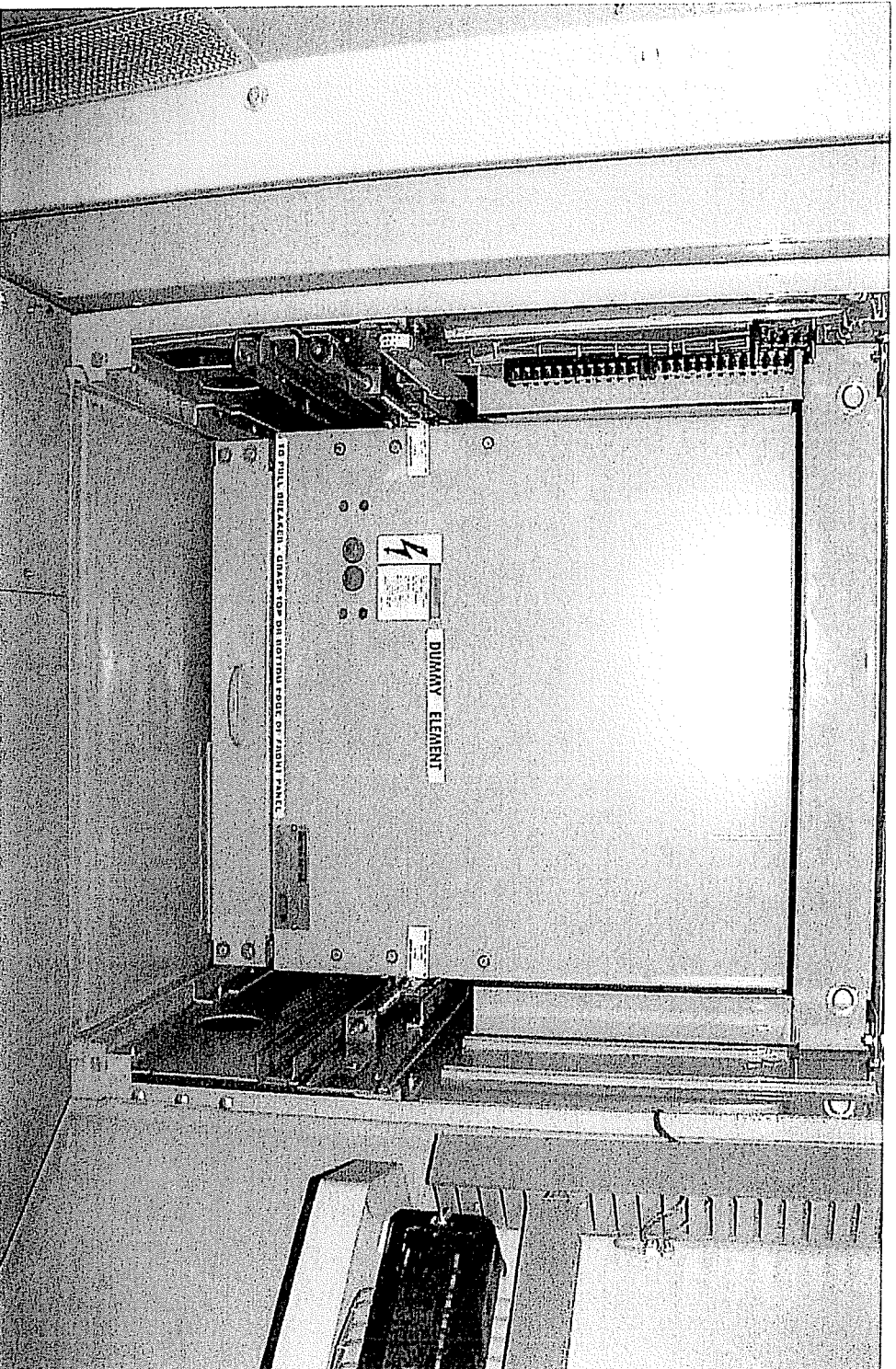
# "Dummy" Bus Tie Breaker. View of Cubicle Door from Aisle.





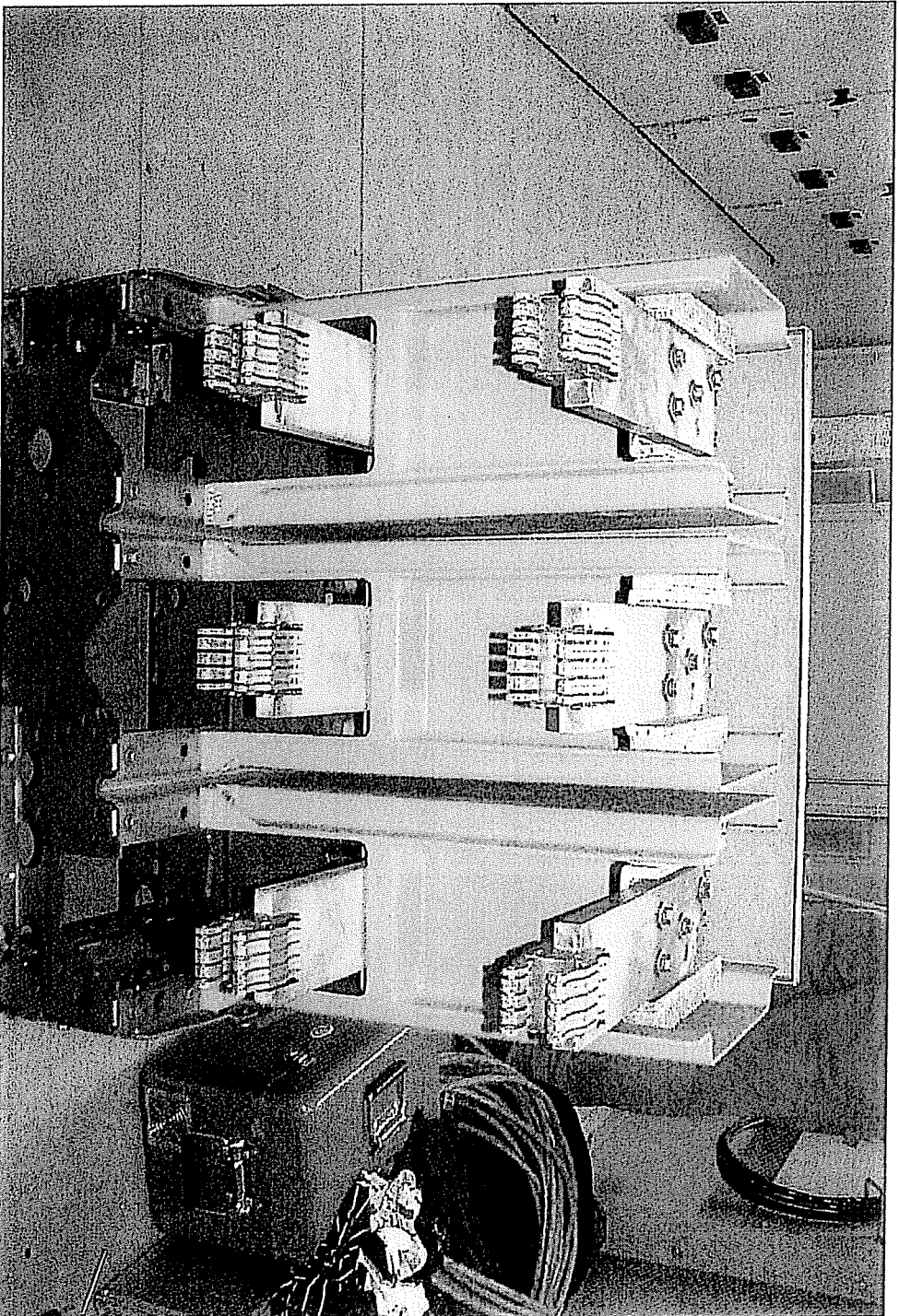
# "Dummy" Bus Tie Breaker.

View of Dummy breaker from Aisle with Cubicle Door open.



**"Dummy" Bus Tie Breaker.**

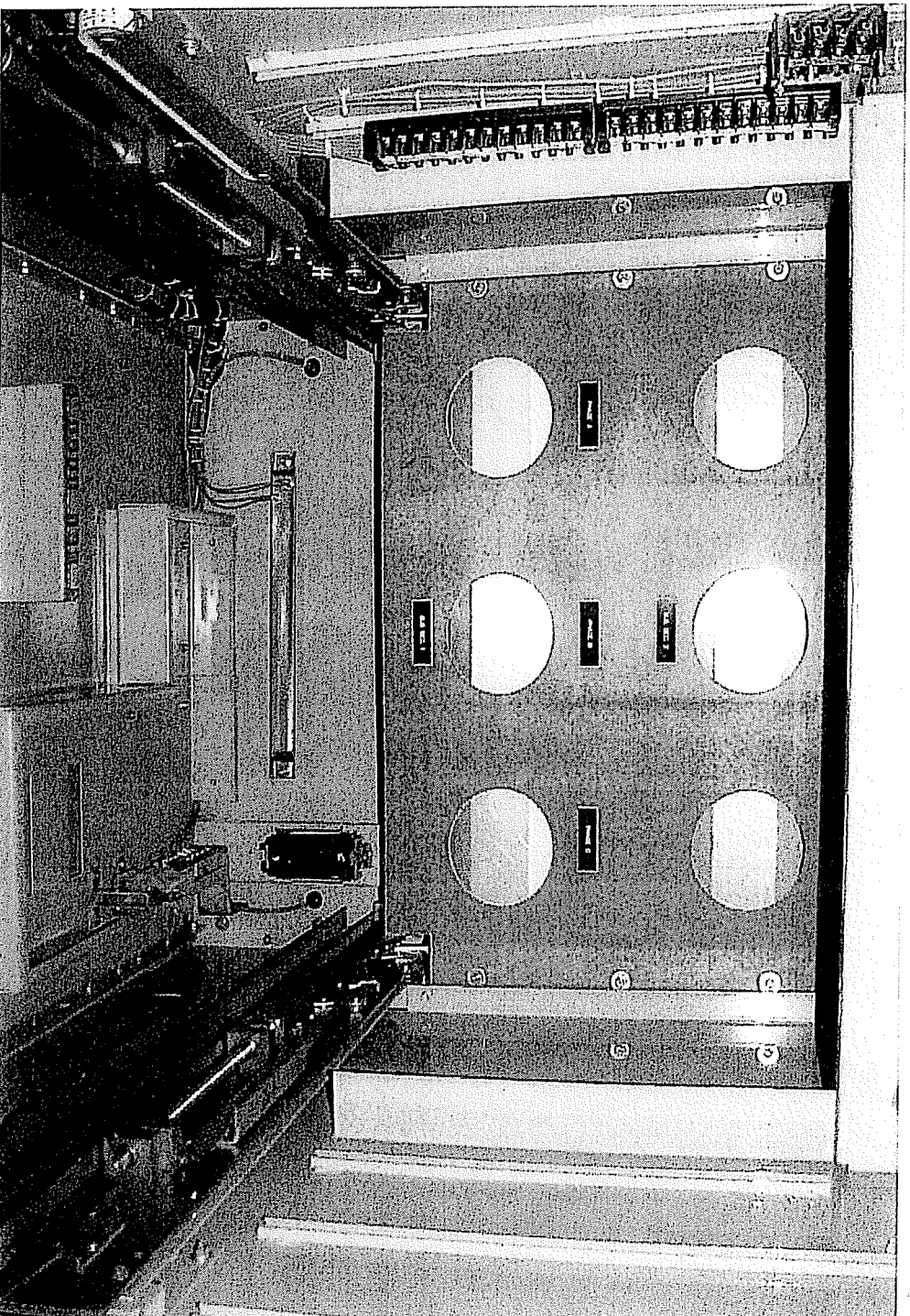
**View of Dummy breaker removed from Cubicle.**



**"Dummy" Bus Tie Breaker.**

**View of Shutter with Dummy breaker removed from Cubicle.**

**Note the "BUS SEC 1" and "BUS SEC 2" labels.**



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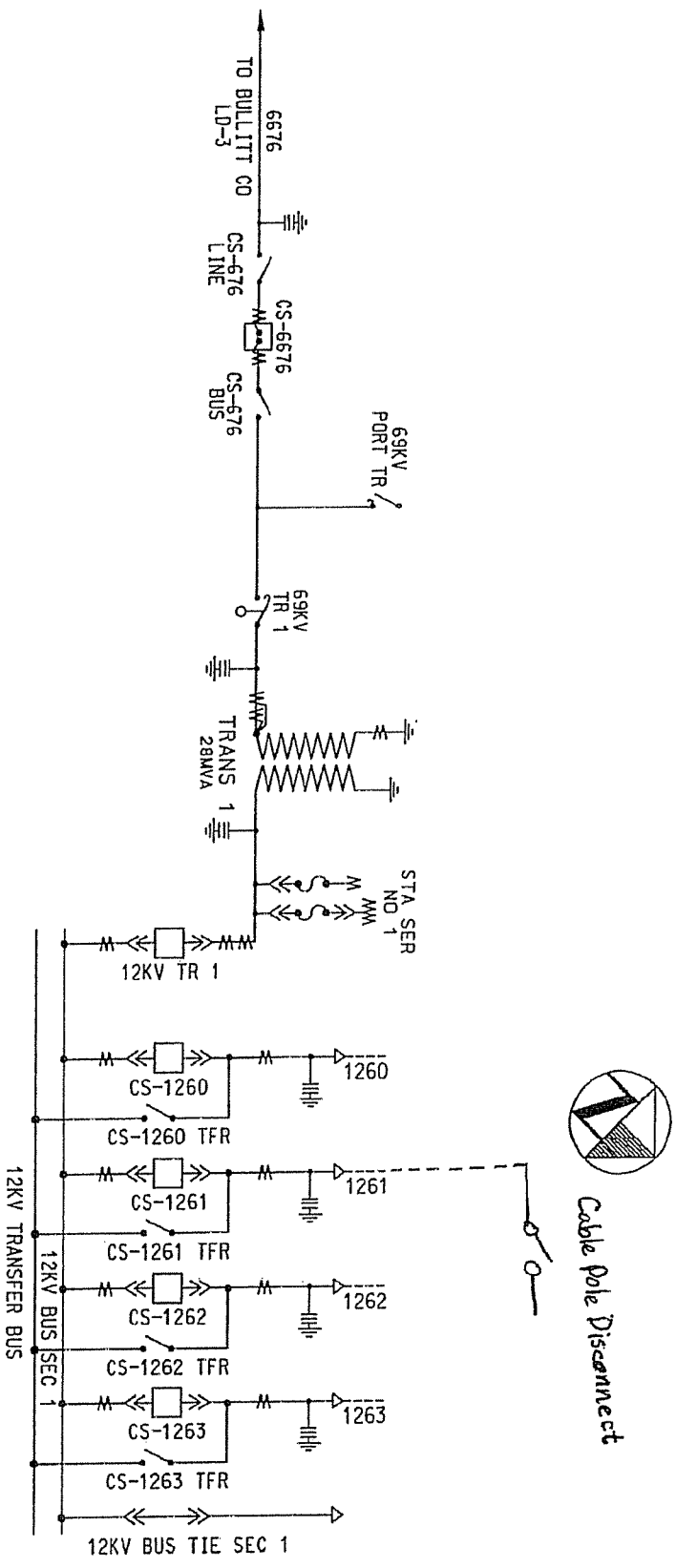
# Transfer Bus and Transfer Switches

- *New switchgears are being ordered with a transfer bus that allows circuits to be placed on transfer to another circuit so that a breaker can be taken out of service for maintenance.*

# Transfer Bus and Transfer Switches

- *On the following slide, if we wanted to take CS-1261 breaker out of service for maintenance, we could transfer that circuit to CS-1260.*
- *First step would be to close CS-1260 TFR to energize the transfer bus.*
- *Next step would be to close CS-1261 TFR to feed circuit CS-1261 from the transfer bus.*
- *Next, open CS-1261 breaker and rack out for maintenance.*
- *Note that all buswork would still be energized. Absolutely **cannot raise shutters** in this situation.*

# Switching Diagram with Transfer Bus

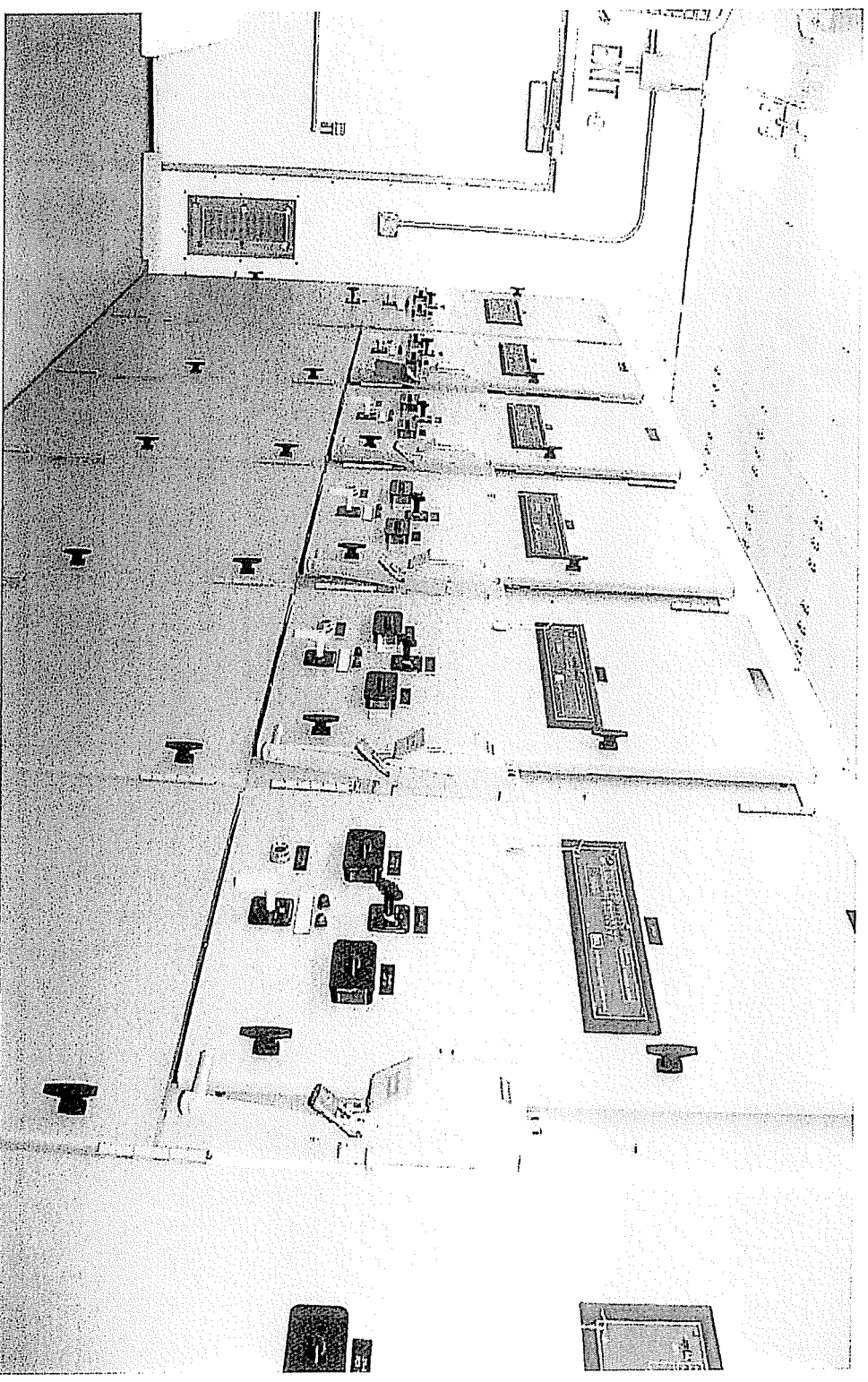


STATION LOCATION  
 1345 NORTH BUCKMAN STREET  
 SHEPHERDVILLE, KY  
 40165

	<p><b>CONESTOGA SUBSTATION</b></p>
DRAWN: 10-10-08 R. MINGUS REVISED: 7/1/09 J. MINGUS	<p>SD-169</p>

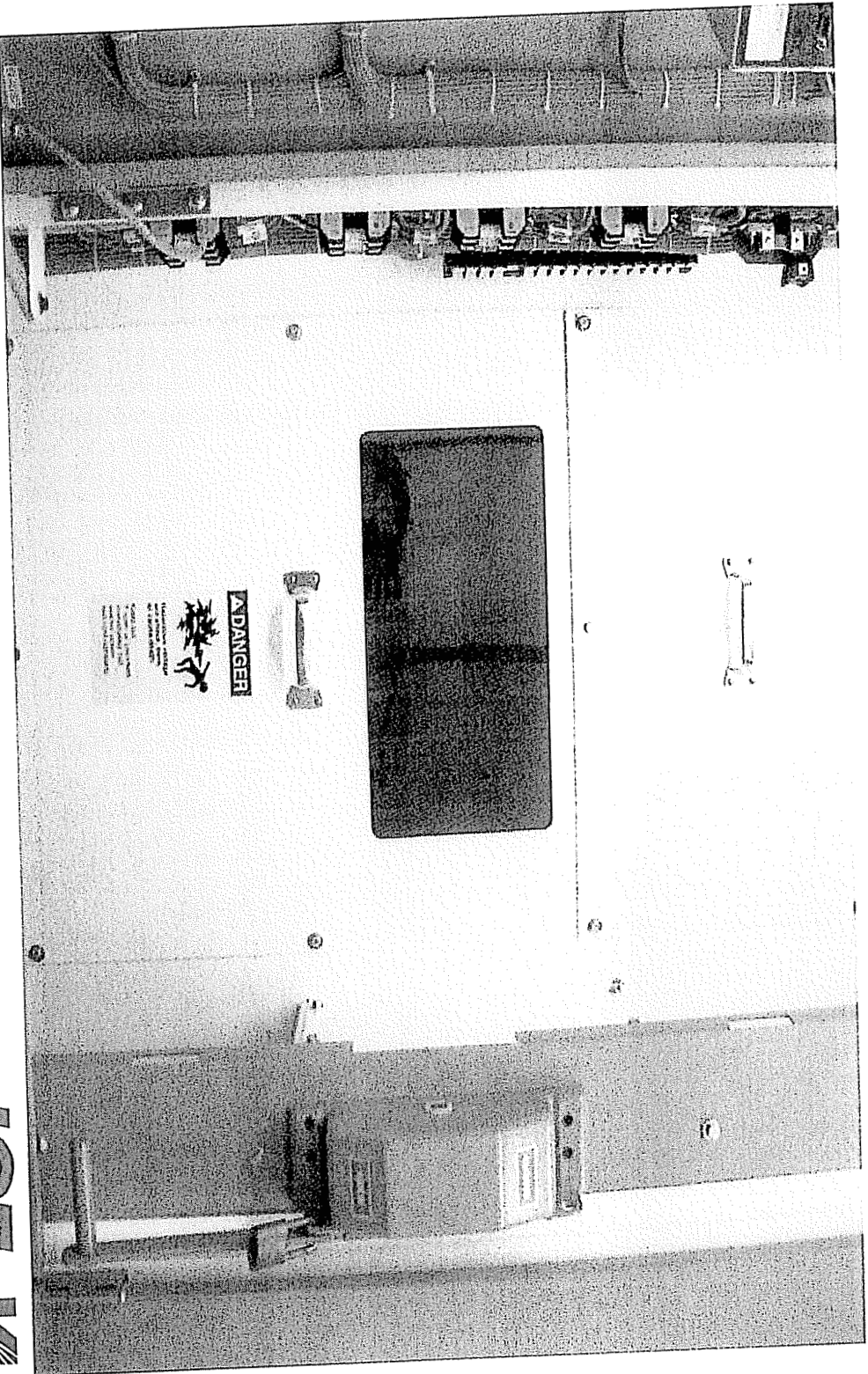
# Transfer Bus and Transfer Switches

Front view of Switchgear Cubicles with Transfer Switches at top, circuit breakers in lower portions of cubicles.



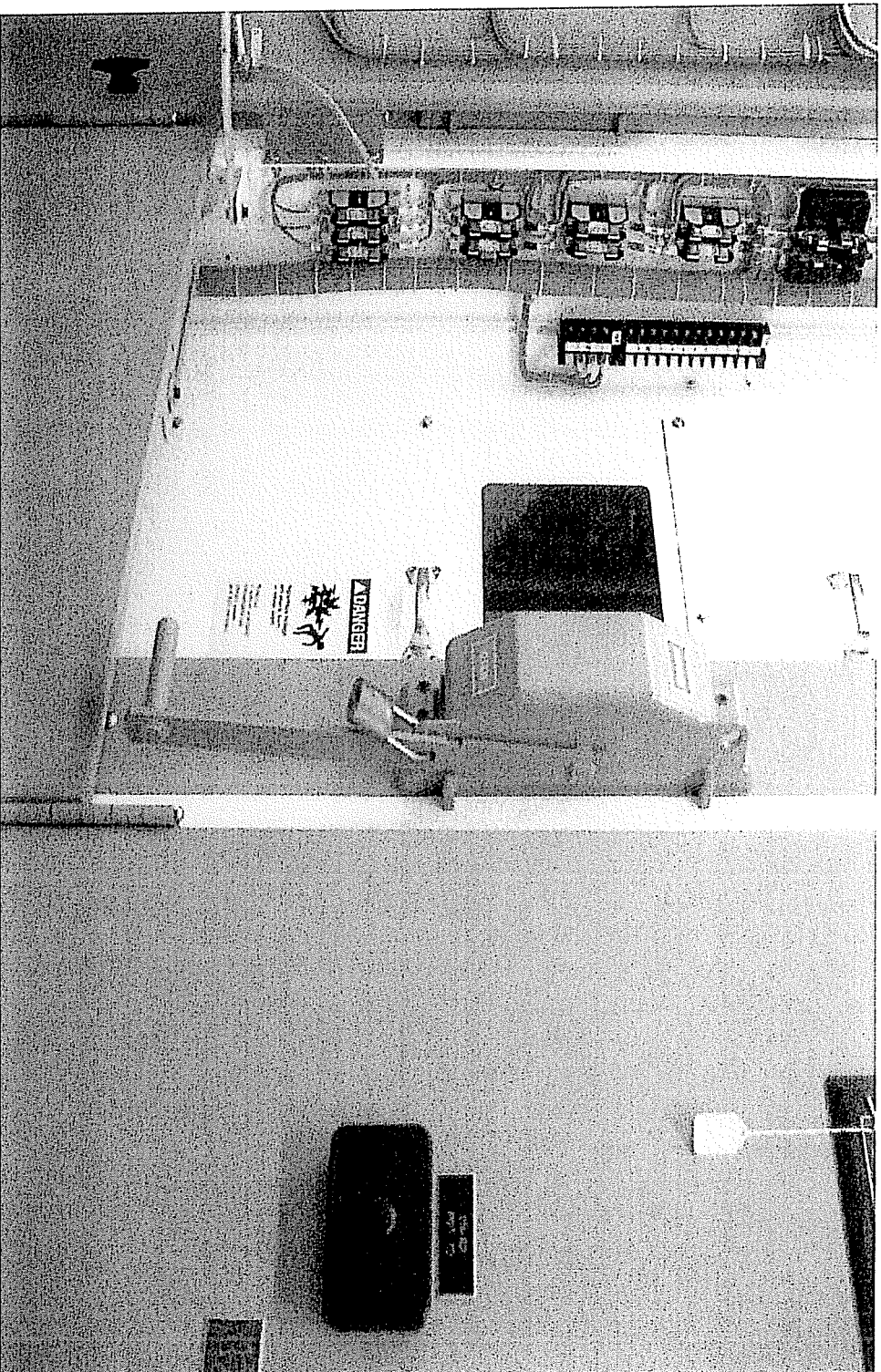
# Transfer Bus and Transfer Switches

Front view of a Switchgear Cubicle with Door open



# Transfer Bus and Transfer Switches

View Showing Transfer Switch Locked "Open"





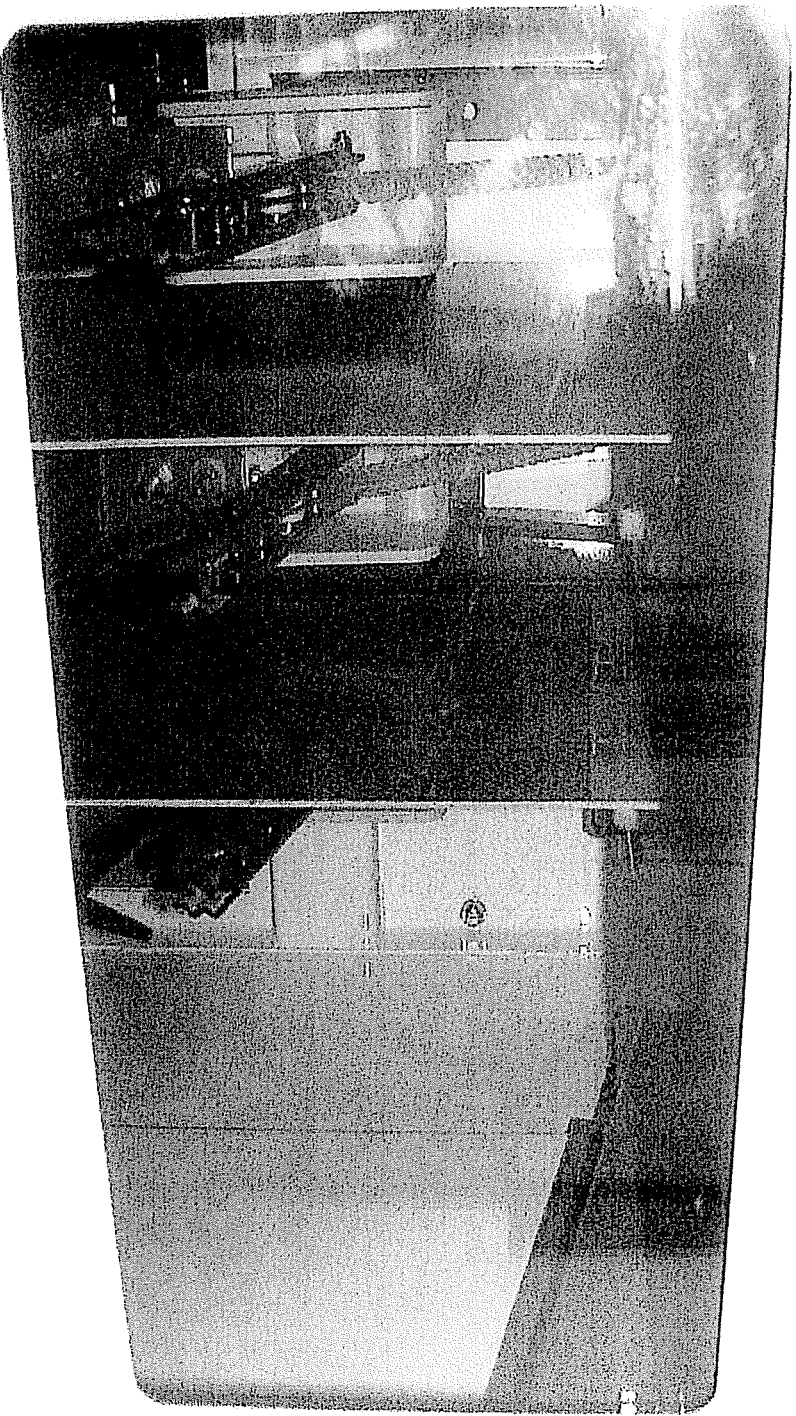
# Transfer Bus and Transfer Switches

View of Switch Mechanism through window



# Transfer Bus and Transfer Switches

## View of Switch Window



# Physical Diagrams

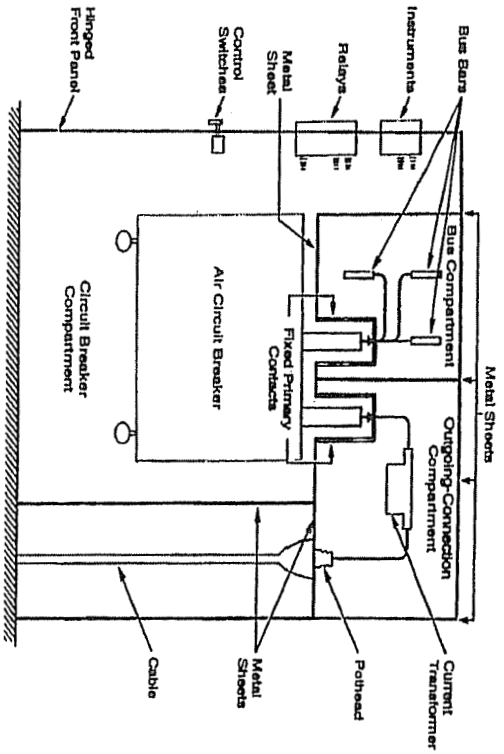
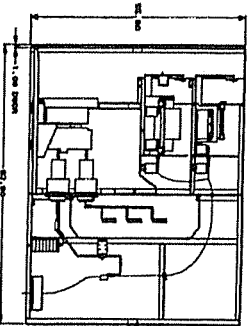


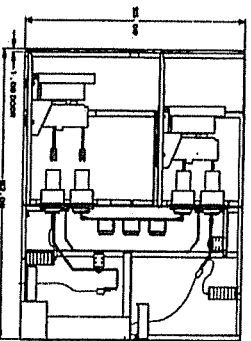
FIGURE 1  
Metal-Clad Switchgear for Distribution Voltages

# Physical Diagrams

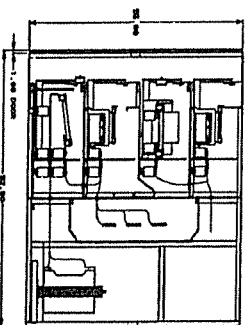
36" w Sections with Standard Dimensions



One high (main or feeder) arrangement with auxiliary drawout units behind the relay/meter door.  
 Note: For 3000A applications, the compartment above the 3000A breaker is blank except for relays, control switches, and other instruments.



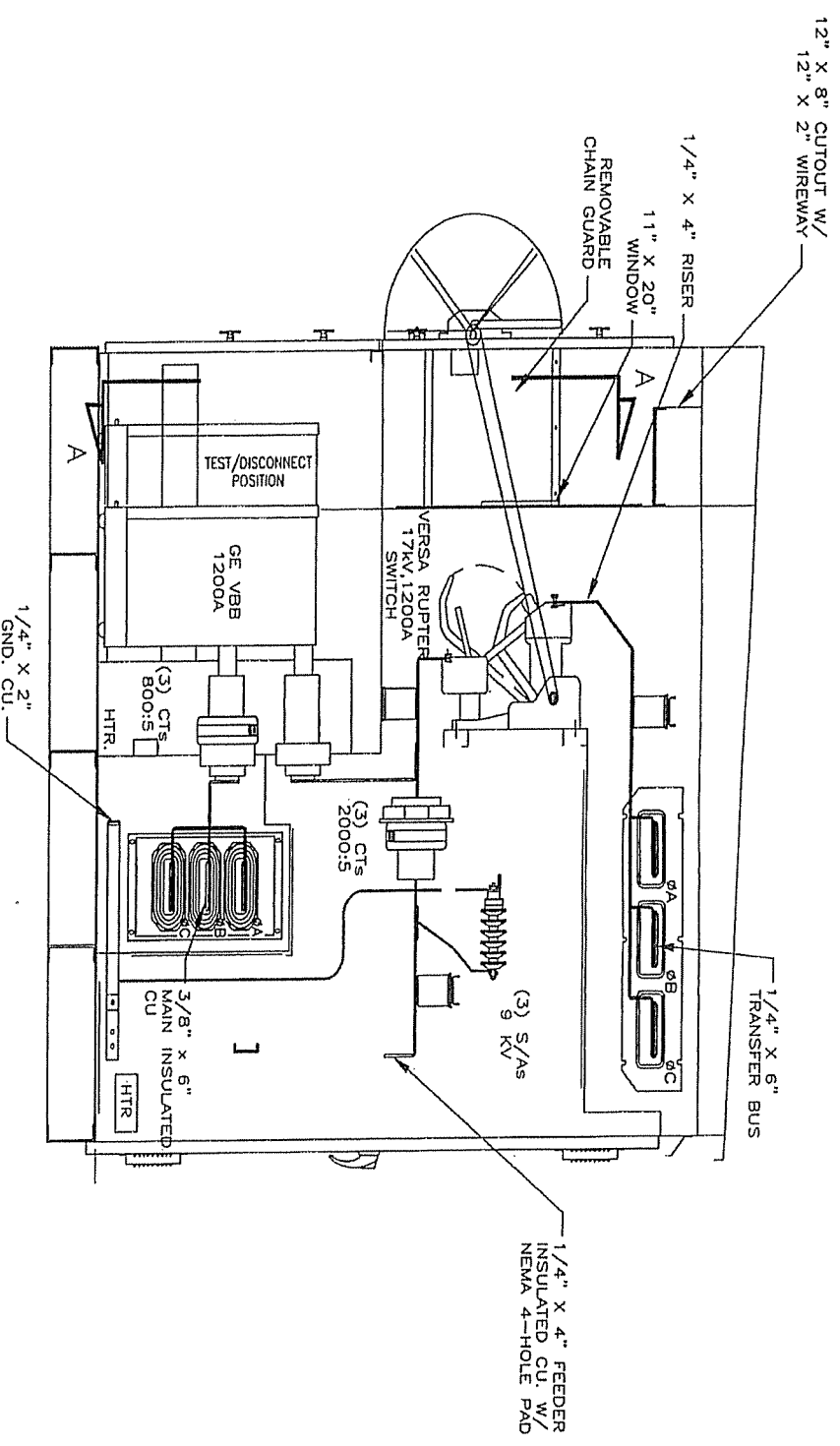
Two high feeder section arrangement—1200/1200A or 1200/2000A. Top or bottom cable entry.



Auxiliary section with up to four drawout units—VTs, CPT (to 15 kVA), primary fuse truck for (rear) fixed-mtd. CPT to 50 kVA-10; 45 kVA-30.

# Section View of Feeder Cell with Transfer Bus

Notice Feeder Circuit Cable connects to TOP of Breaker Cell



UNITS—4,—5, &—6  
1200A FEEDERS



# MASTERCLAD™ BREAKERS COMPARTMENT FEATURES

Control Wiring

Call Switch—  
T-O-C

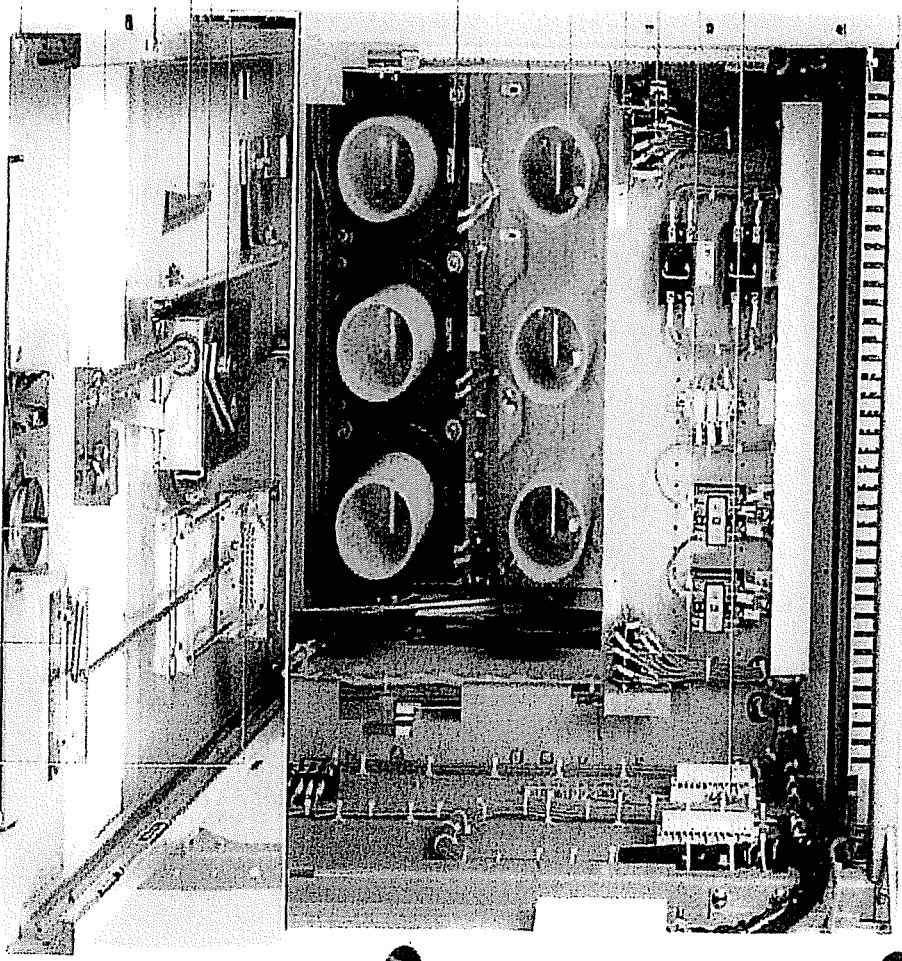
Auxiliary  
Switch—A-O-C

Auxiliary  
Switch  
Actuator

Insulating  
Brushing Around  
Stationary Main  
Bus Contact

Current  
Transformers

- Racking
- Trip/Spring
- Discharge
- Interlock
- Ground Bus
- Breaker
- Rating Block
- Breaker
- Removal
- Latch Cam
- Shutter
- Locking
- Provisions—  
Padlock/Key
- Interlock
- Breaker
- Alignment
- Walls



Breaker Compartment Floor Details  
(Highlighted View)

- Breaker  
Position  
Indicator
- Secondary  
control plug  
handle used  
for test  
position only.
- Secondary  
Control  
Receptacle

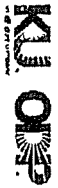


Square D Model/Clad Switchgear is designed and manufactured  
in a facility that is Quality System Registered by Underwriters  
Laboratories, Inc. to ISO 9001.

# Obtaining Clearances for Switchgear

- *Clearance for Substation Equipment granted by Transmission System Operation (TSO) in Simpsonville. (502) 333-6702.*
- *Clearance for Cable Pole Disconnects comes from Distribution Control Center (DCC) only!! Phone Number for DCC: 627-3365/6/7*

# Job Briefing



Job Briefing



DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

WR # or Incident # if trouble call \_\_\_\_\_

LOCATION OF JOB: \_\_\_\_\_

DESCRIPTION OF WORK: \_\_\_\_\_

\_\_\_\_\_

Check each briefing component covered

HAZARDS ASSOCIATED WITH THE JOB

WORK PROCEDURES INVOLVED

ANY SPECIAL PRECAUTIONS TO BE TAKEN

ALL ENERGY SOURCE CONTROLS

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

Substation work requires the following items to be covered:

LOCATION OF ENERGIZED EQUIPMENT IN OR ADJACENT TO THE WORK AREA

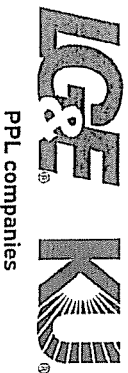
LIMITS OF ANY DE-ENERGIZED WORK AREA

BRIEFING PERFORMED BY: \_\_\_\_\_

INITIALS OF EMPLOYEE'S PRESENT: \_\_\_\_\_

Reminder: Job briefings shall be maintained for 90 days and then may be destroyed. If an accident occurs, a copy of the job briefing shall be filed with the incident report.

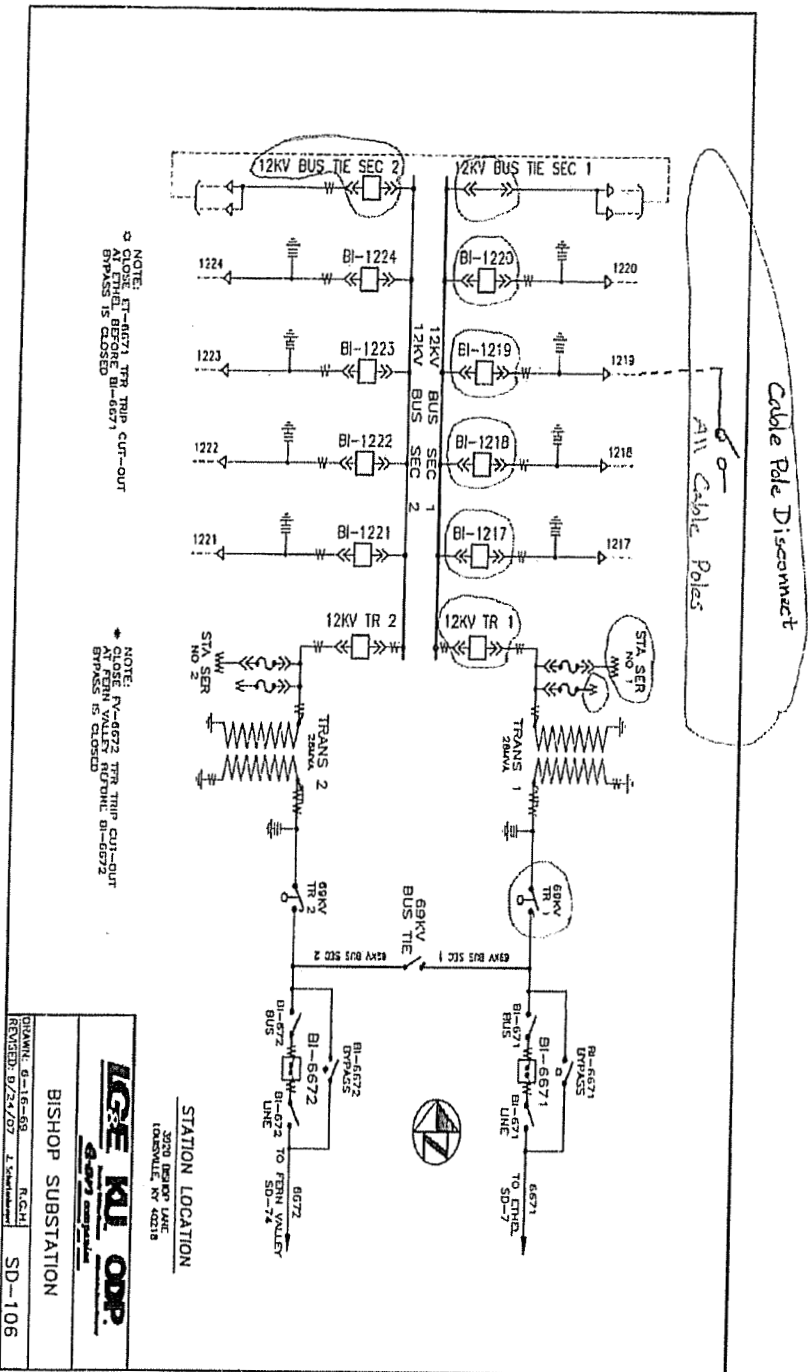
REVISED 7-2009



# Requesting Switchgear Outages

Ex #1: Need to get 12KV BUS SEC 1 out

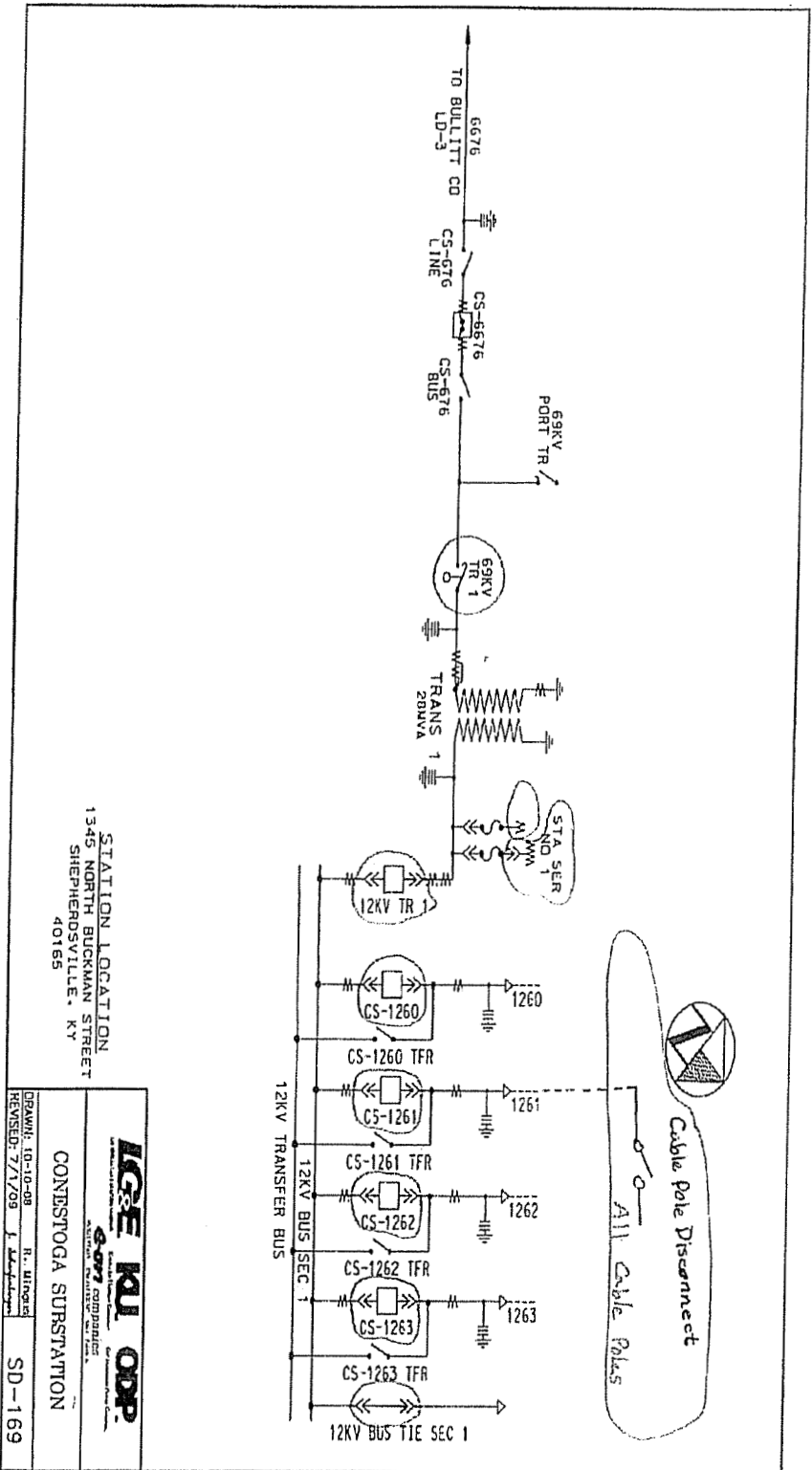
Switching Diagram without Transfer Bus



# Requesting Switchgear Outages

Ex #2: Need to get 12KV BUS SEC 1 out

Switching Diagram with Transfer Bus

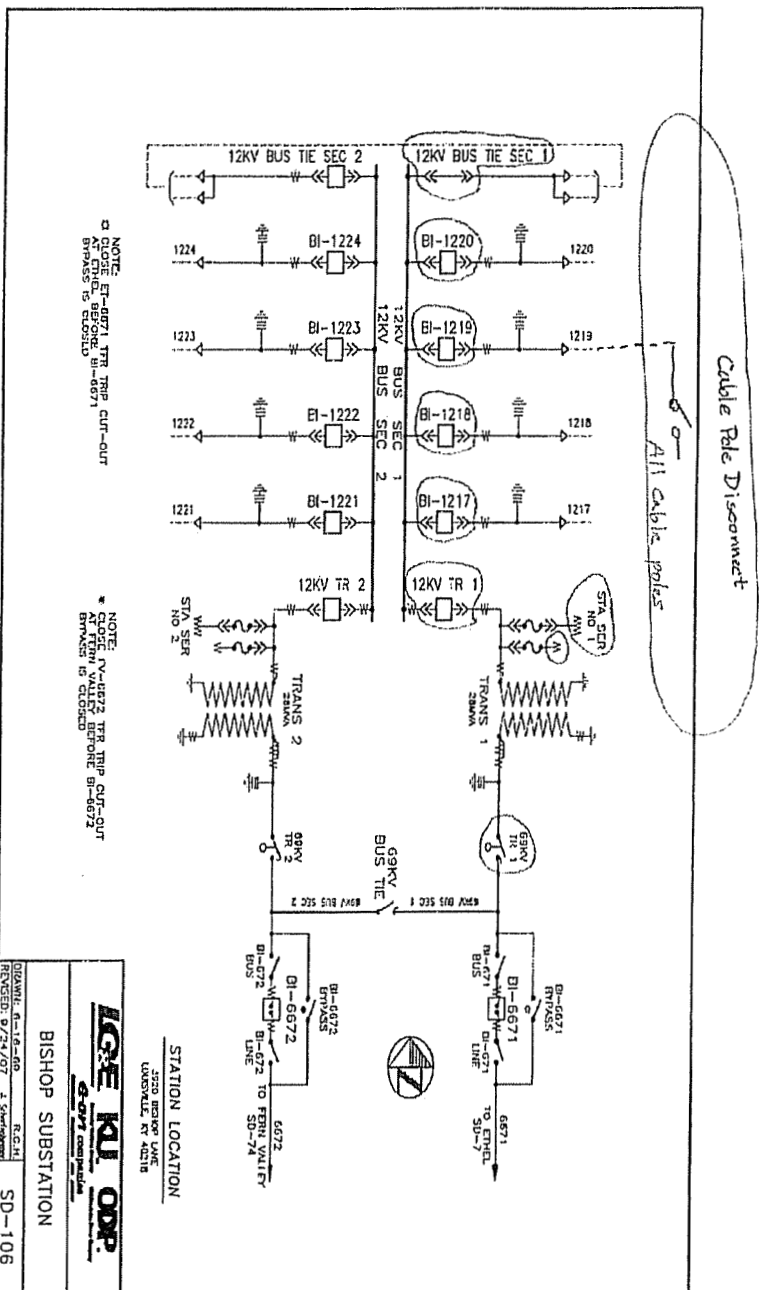




# Requesting Switchgear Outages

Ex #3: Is anything wrong with this request? If so, what will still be energized?

Switching Diagram without Transfer Bus



# Requesting Switchgear Outages

**EX #3: Answer.**

- *We forgot to ask for the 12KV BUS TIE SEC 2 breaker.*
- *In the 12KV BUS TIE SEC 1 Dummy cubicle, one set of bottles behind the shutters will still be energized. (They are typically labeled as either "LINE" or "12KV BUS SEC 2").*

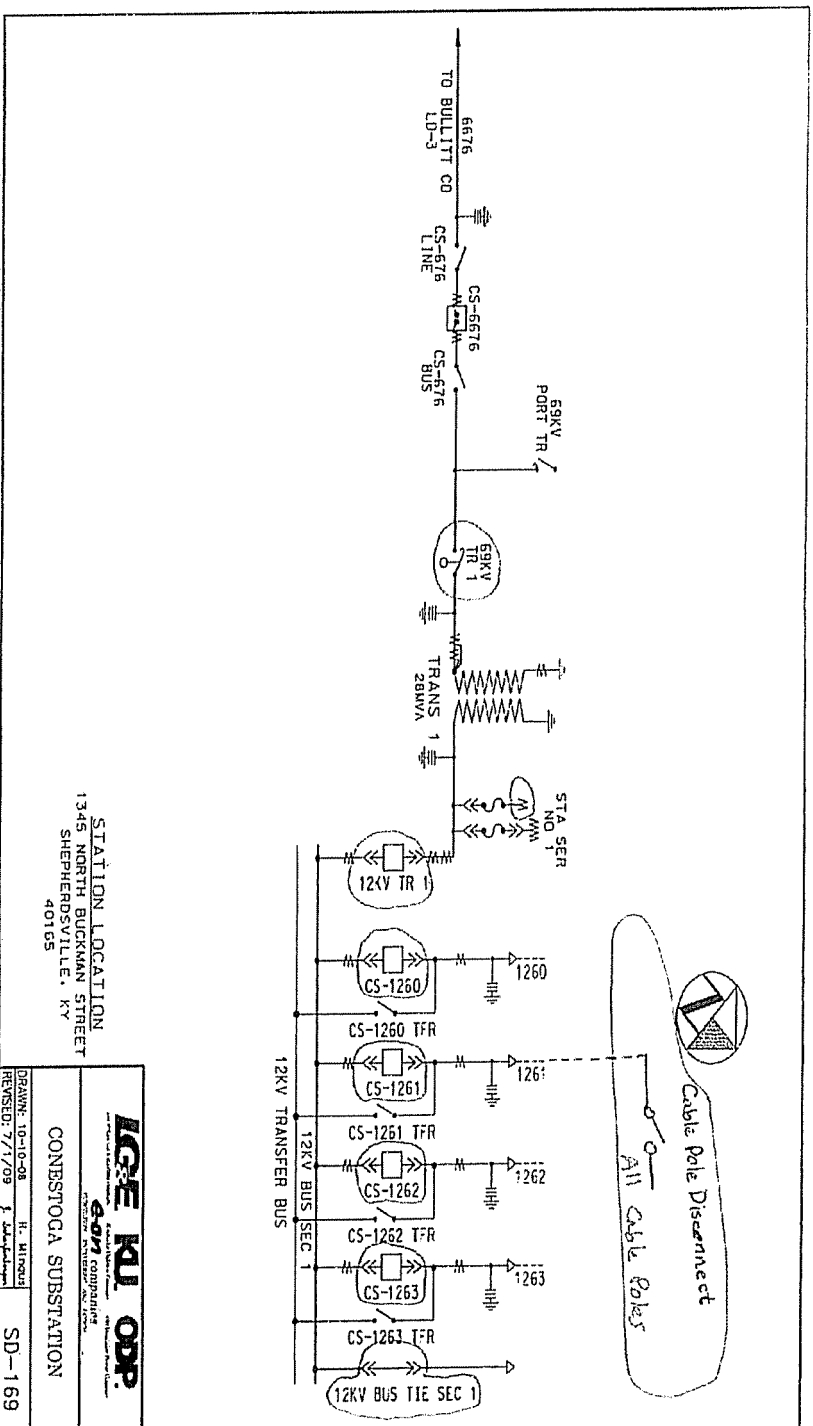


PPL companies

# Requesting Switchgear Outages

Ex #4: Is anything wrong with this request? If so, what will still be energized?

Switching Diagram with Transfer Bus



# Requesting Switchgear Outages

**Ex #4: Answer.**

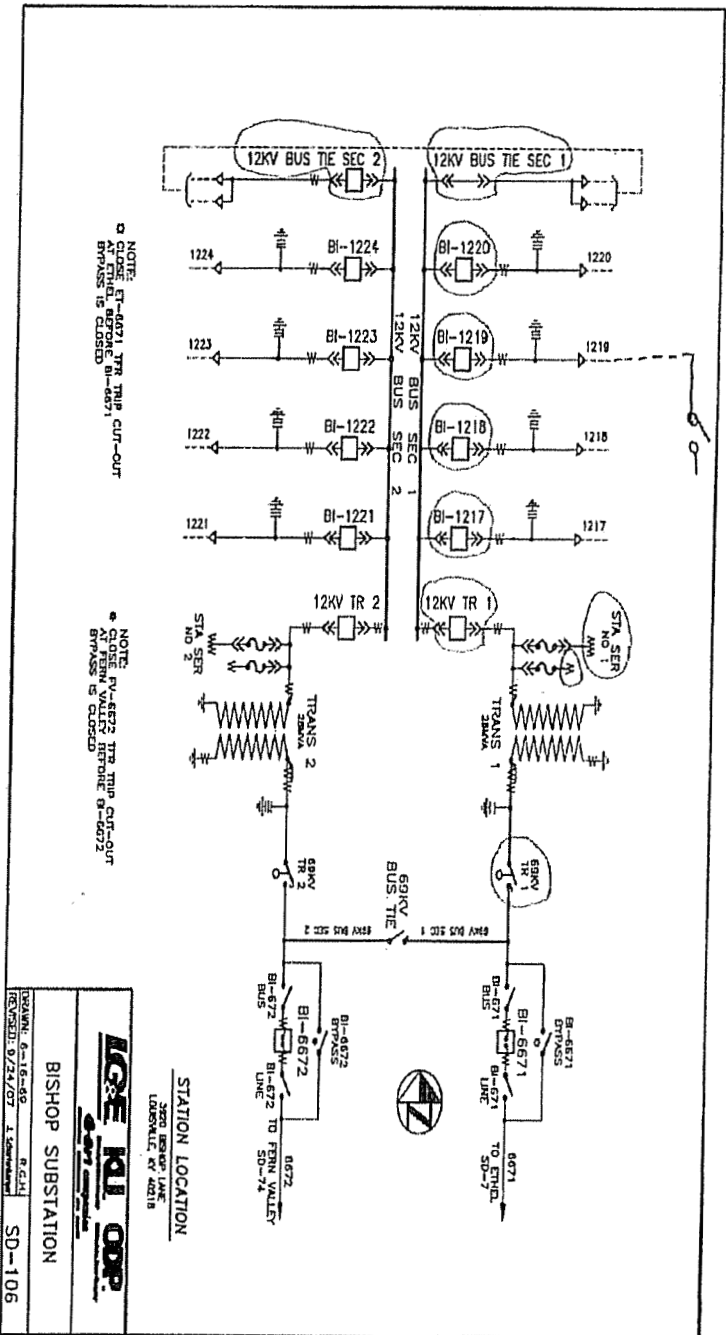
- *We forgot to ask for STATION SERVICE NO 1 fuses to be removed.*
- *Since Station Service Transformers are sometimes tied to other transformers (in adjacent Switchgear or external to station), this could potentially cause a back feed onto the buswork between TRANS 1 and 12KV TR 1 breaker.*
- *This buswork would all be energized including one set of bottles in the low-side breaker compartment. These bottles are normally labeled "TRANS".*
- *High Side of TRANS 1 would also be energized.*

# Requesting Switchgear Outages

Ex #5: Is anything wrong with this request? If so, what will still be hot?

Switching Diagram without Transfer Bus

Cable Pde Disconnect





# Requesting Switchgear Outages

**EX #5: Answer.**

- *We forgot to ask for all of the cable pole disconnects to be opened.*
- *All of the feeder cables coming into the rear Switchgear compartments will be energized.*
- *This means that the bottles labeled as "LINE" in the feeder breaker compartments will be energized.*

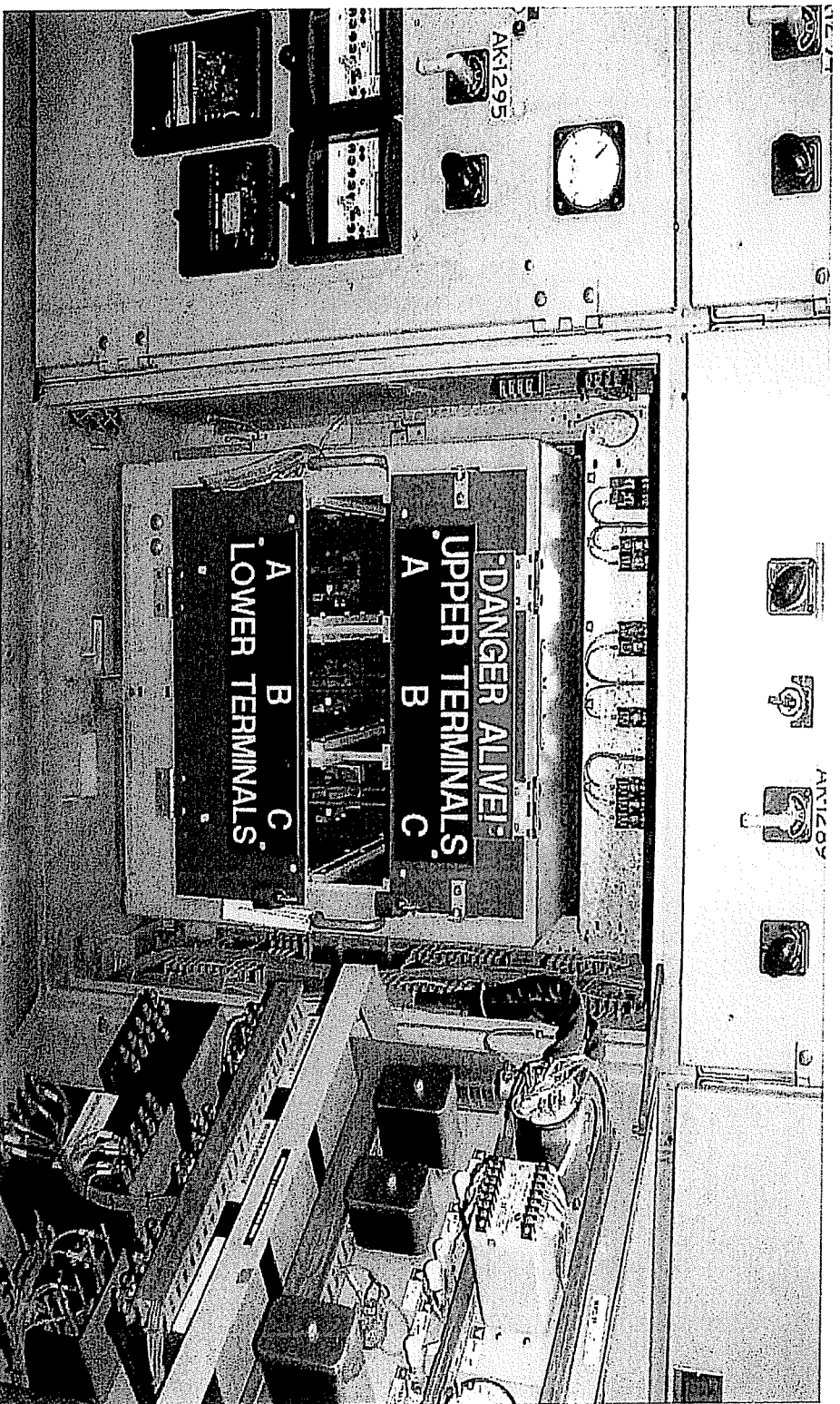
# Grounding a Switchgear

**Use Extreme Caution when using a G&T Device.**

- *Do not use a Ground and Test (G&T) Device unless you have a **thorough** understanding.*
- *These devices can be set up to ground through either the top or the bottom breaker drawout connections.*
- *If not done correctly, you could be placing a ground on an energized bus or feeder circuit!!*

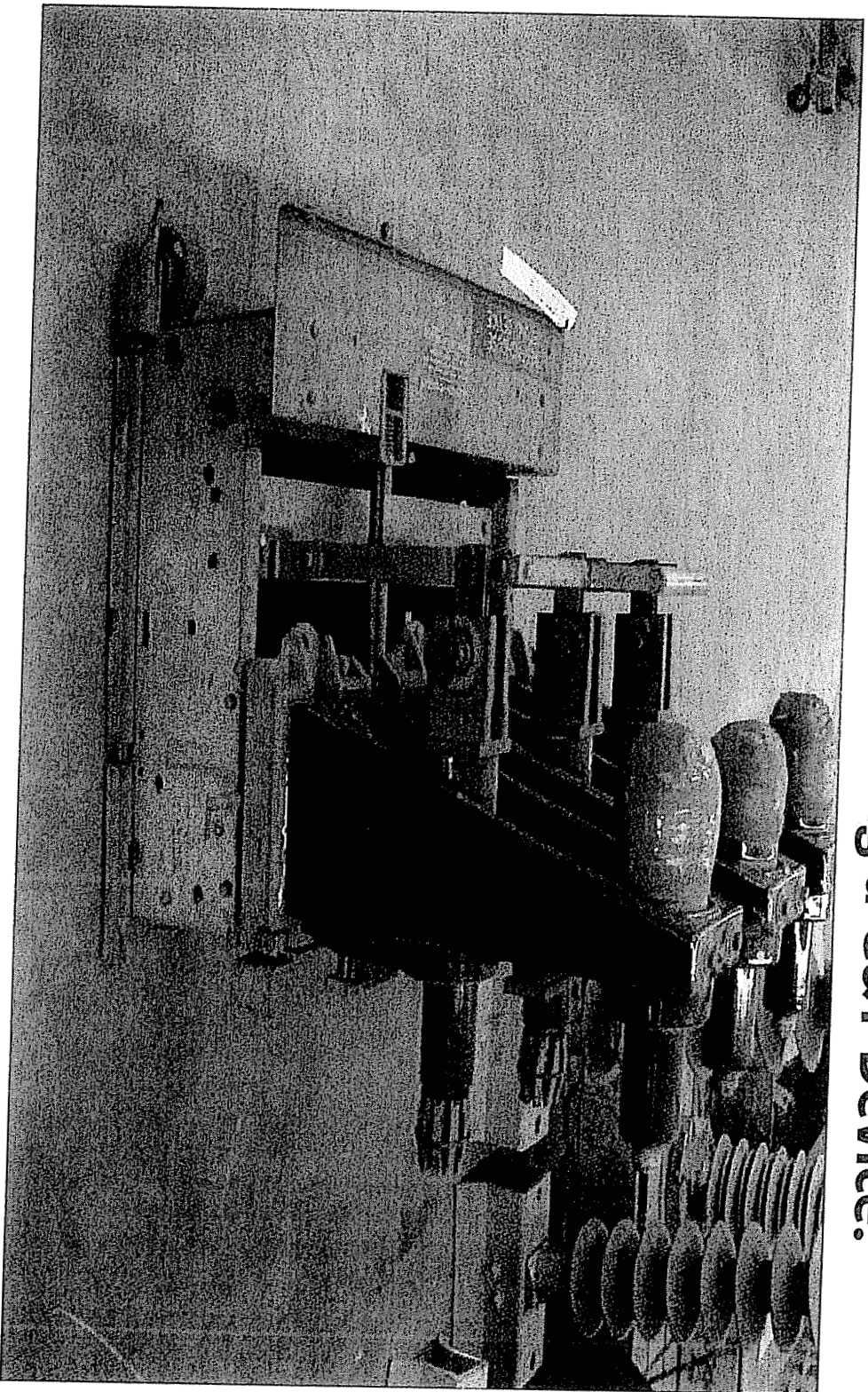
# Grounding a Switchgear

Use Extreme Caution when using a G&T Device.



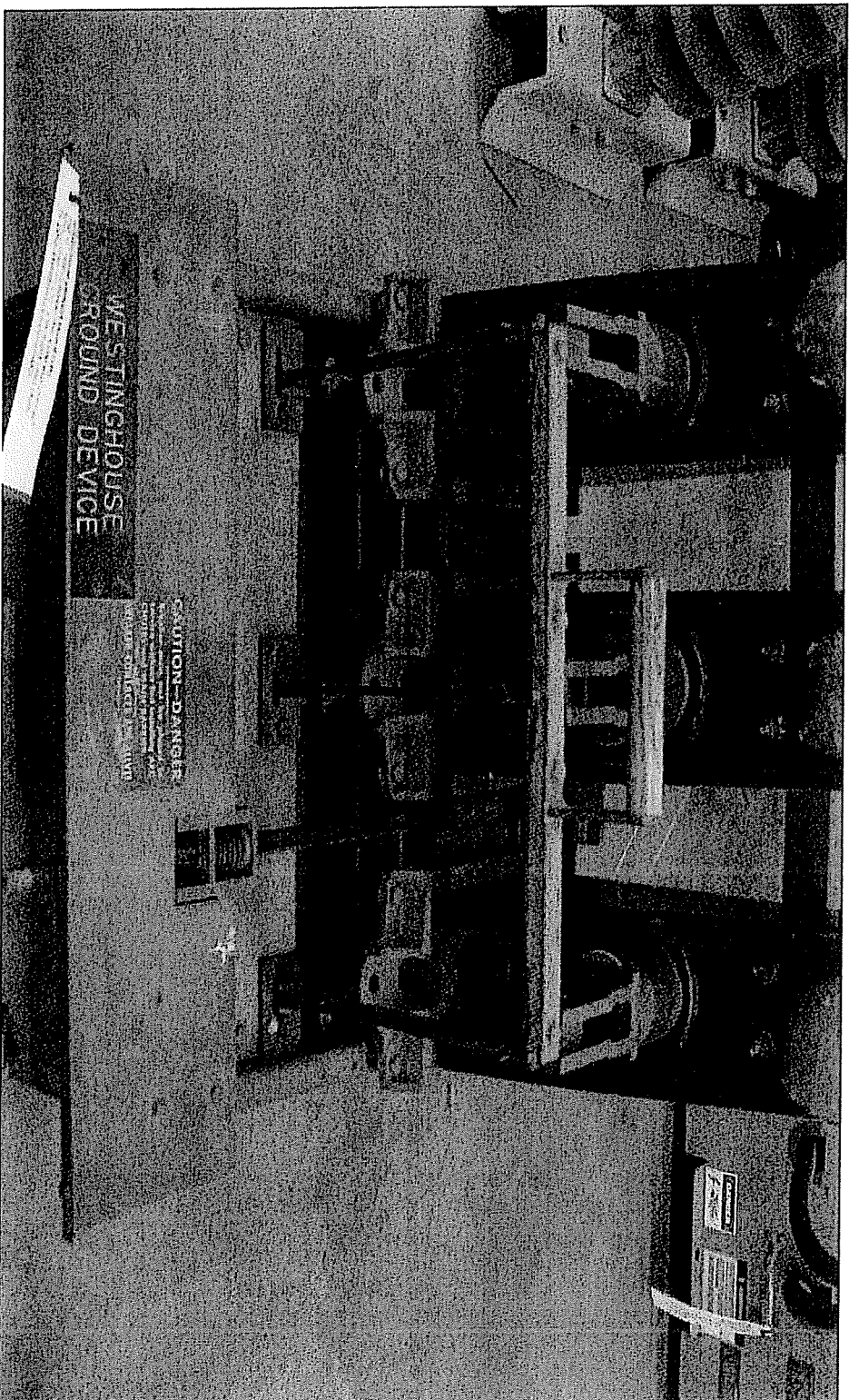
# Grounding a Switchgear

Use Extreme Caution when using a G&T Device.



# Grounding a Switchgear

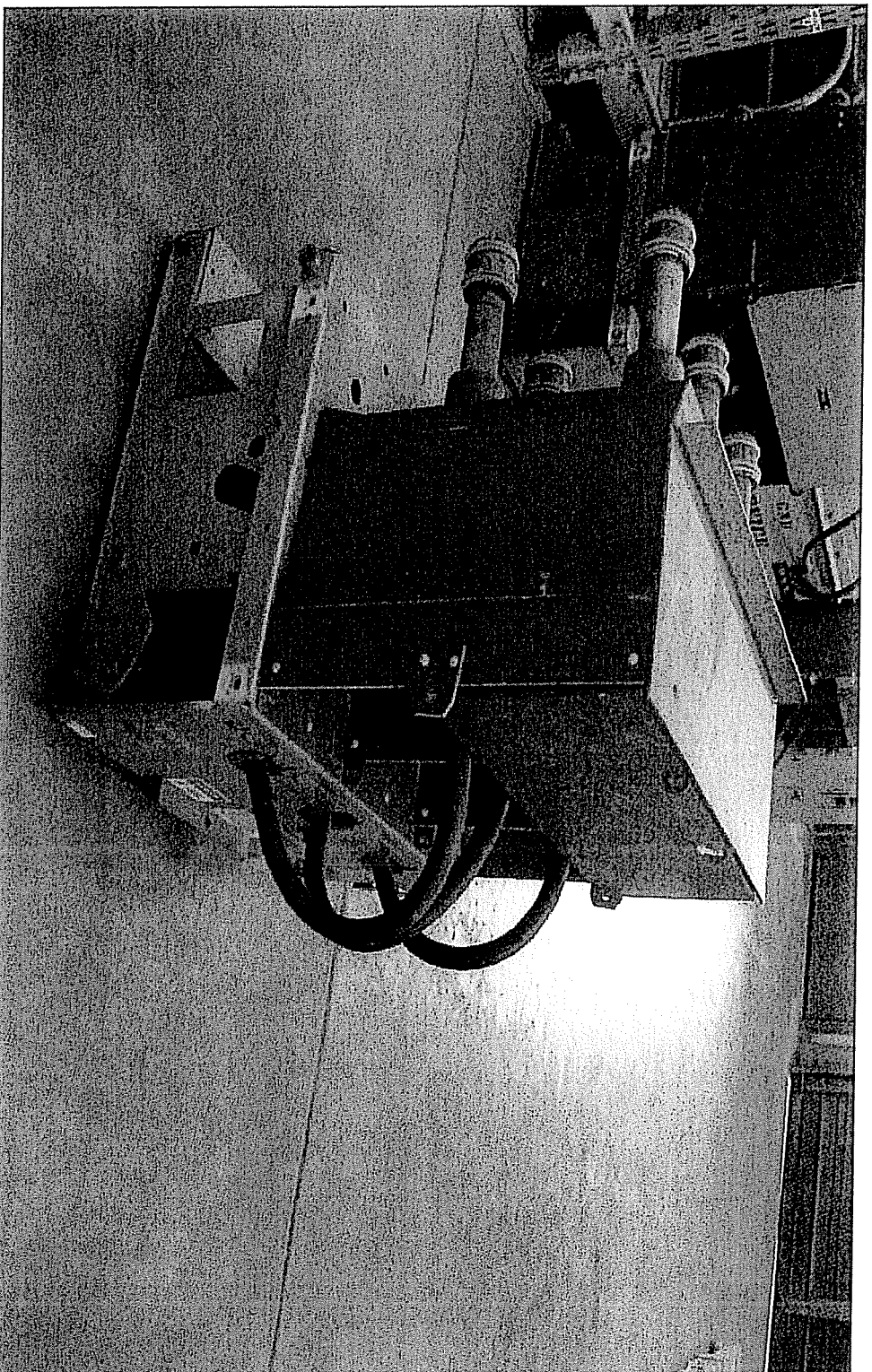
Use Extreme Caution when using a G&T Device.





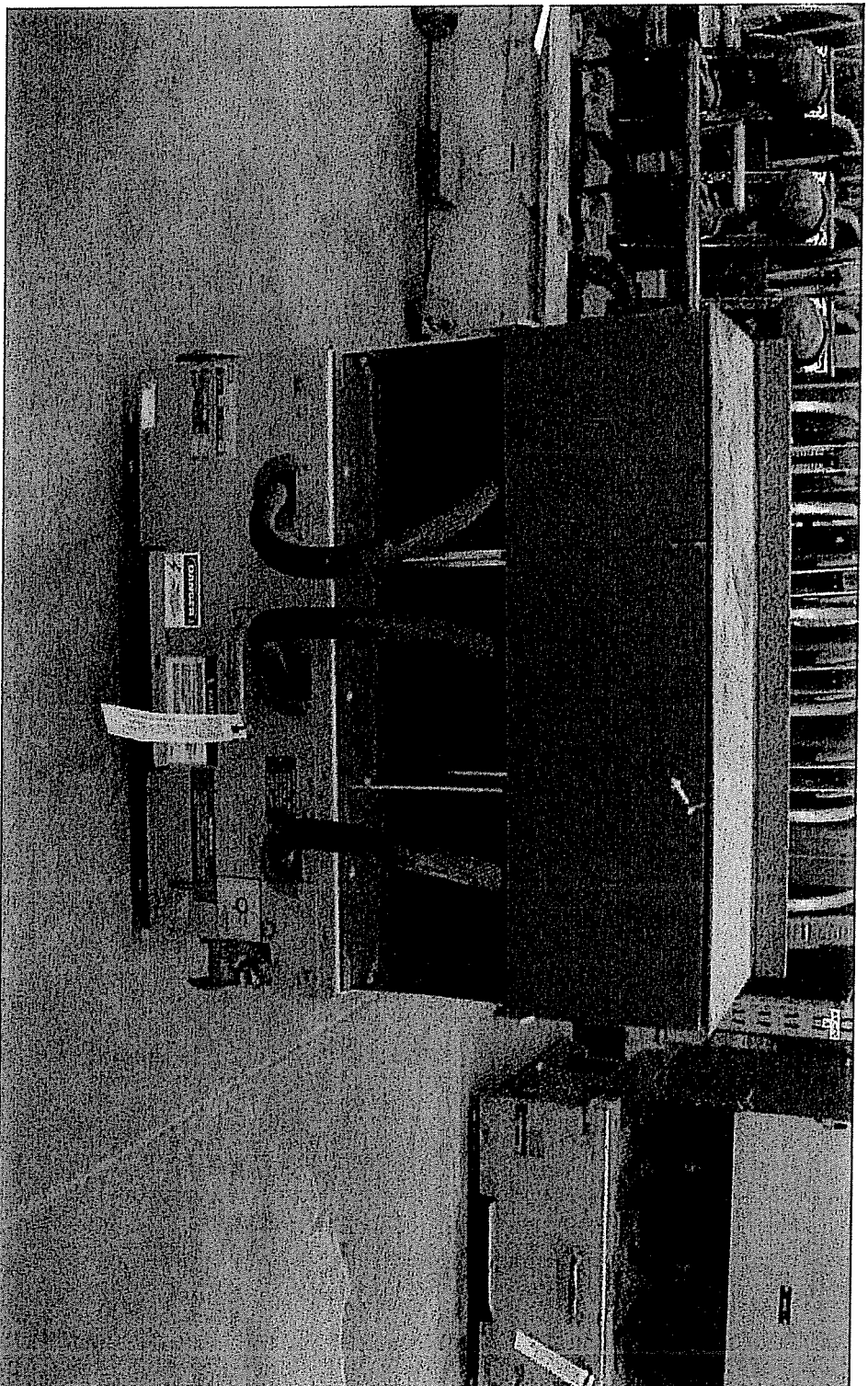
# Grounding a Switchgear

Use Extreme Caution when using a G&T Device.



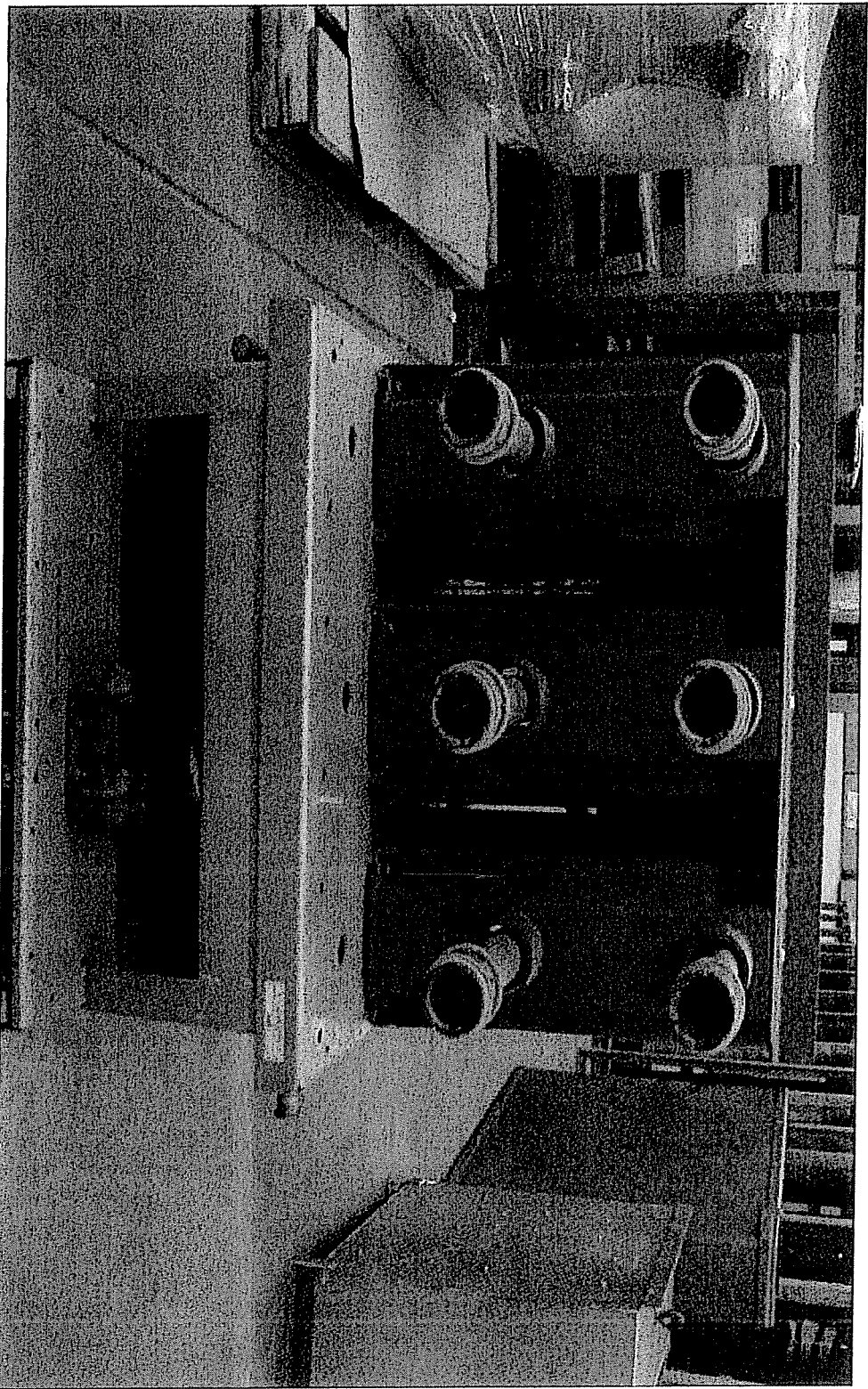
# Grounding a Switchgear

Use Extreme Caution when using a G&T Device.



# Grounding a Switchgear

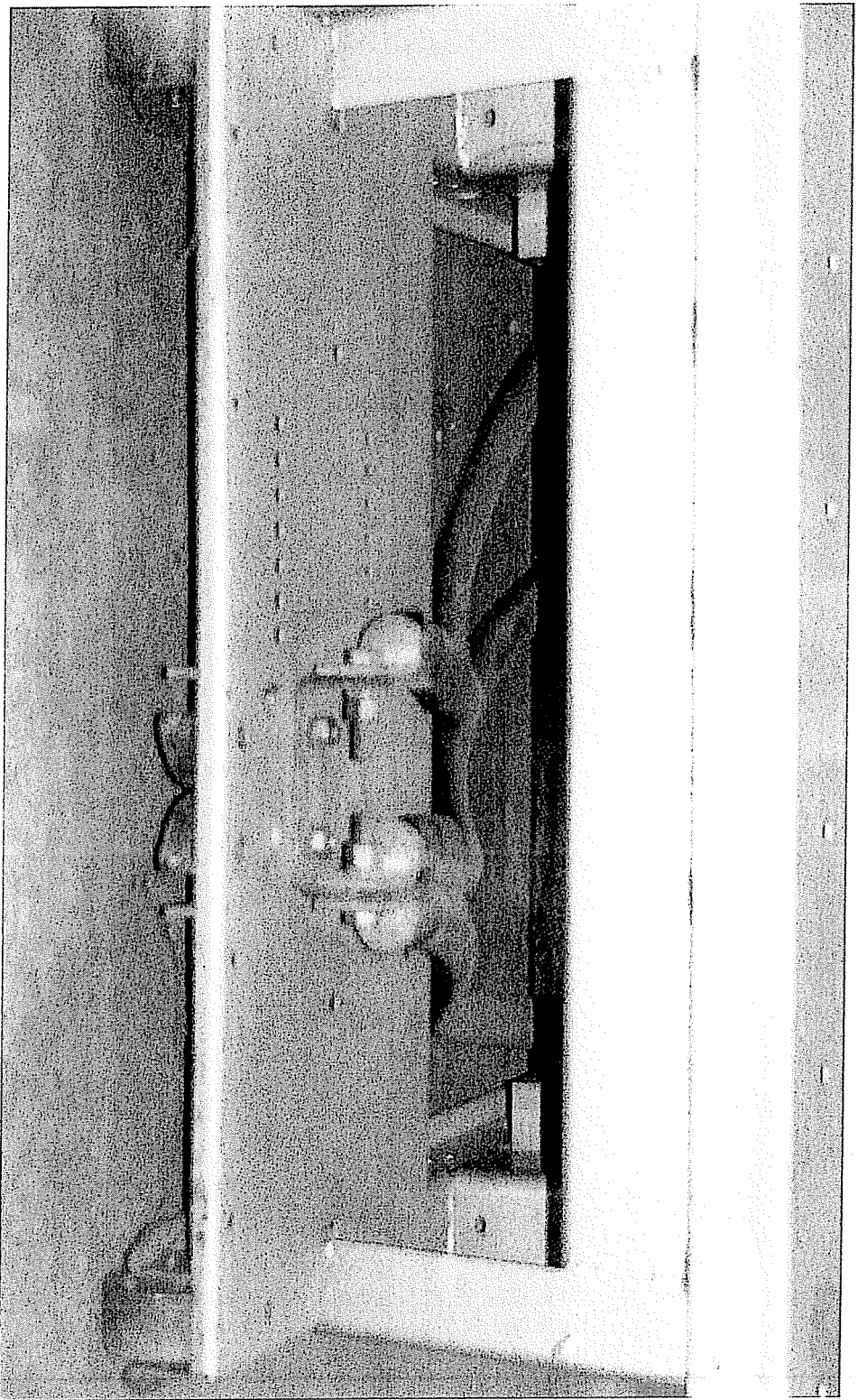
Use Extreme Caution when using a G&T Device.





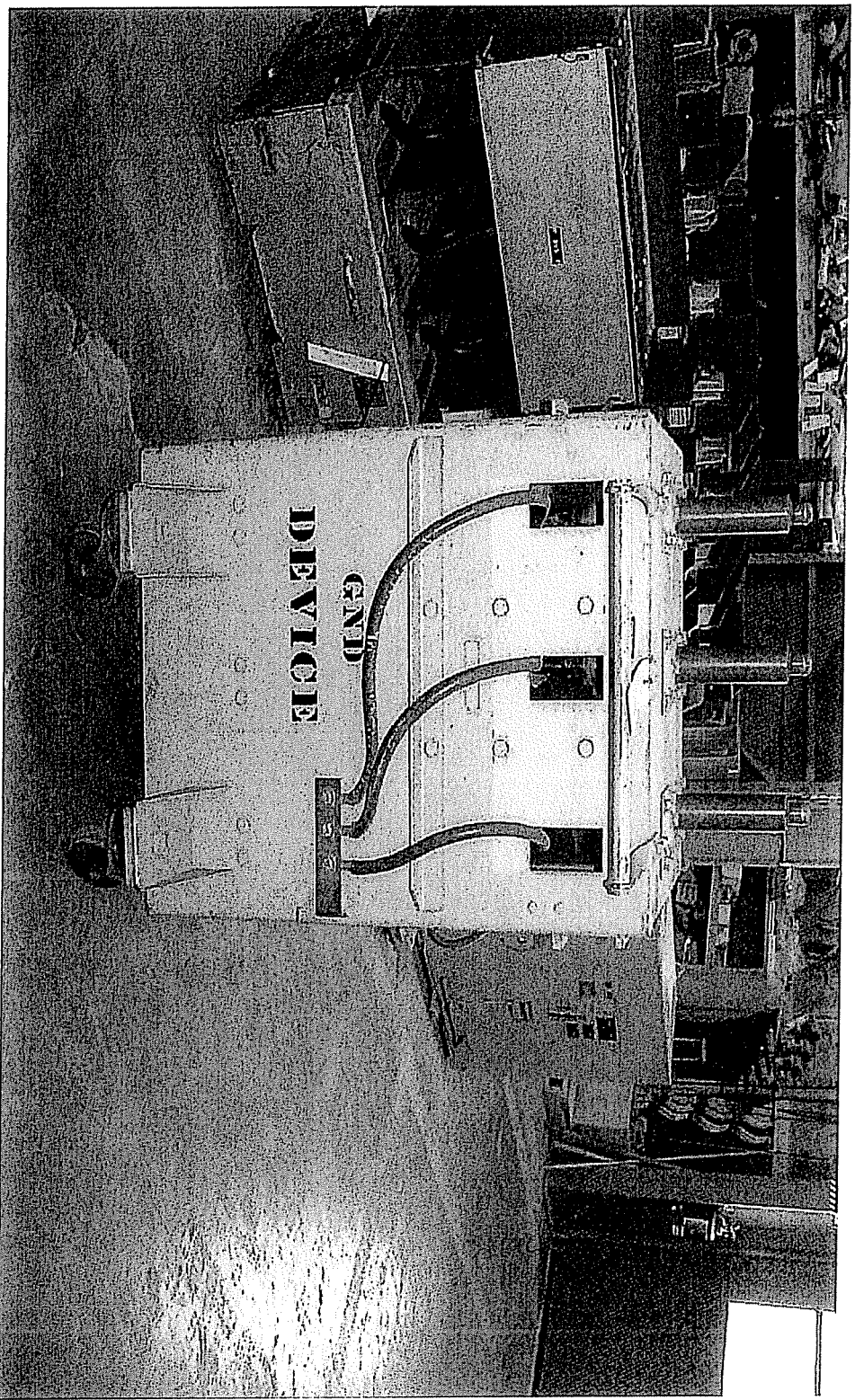
# Grounding a Switchgear

Use Extreme Caution when using a G&T Device.



# Grounding a Switchgear

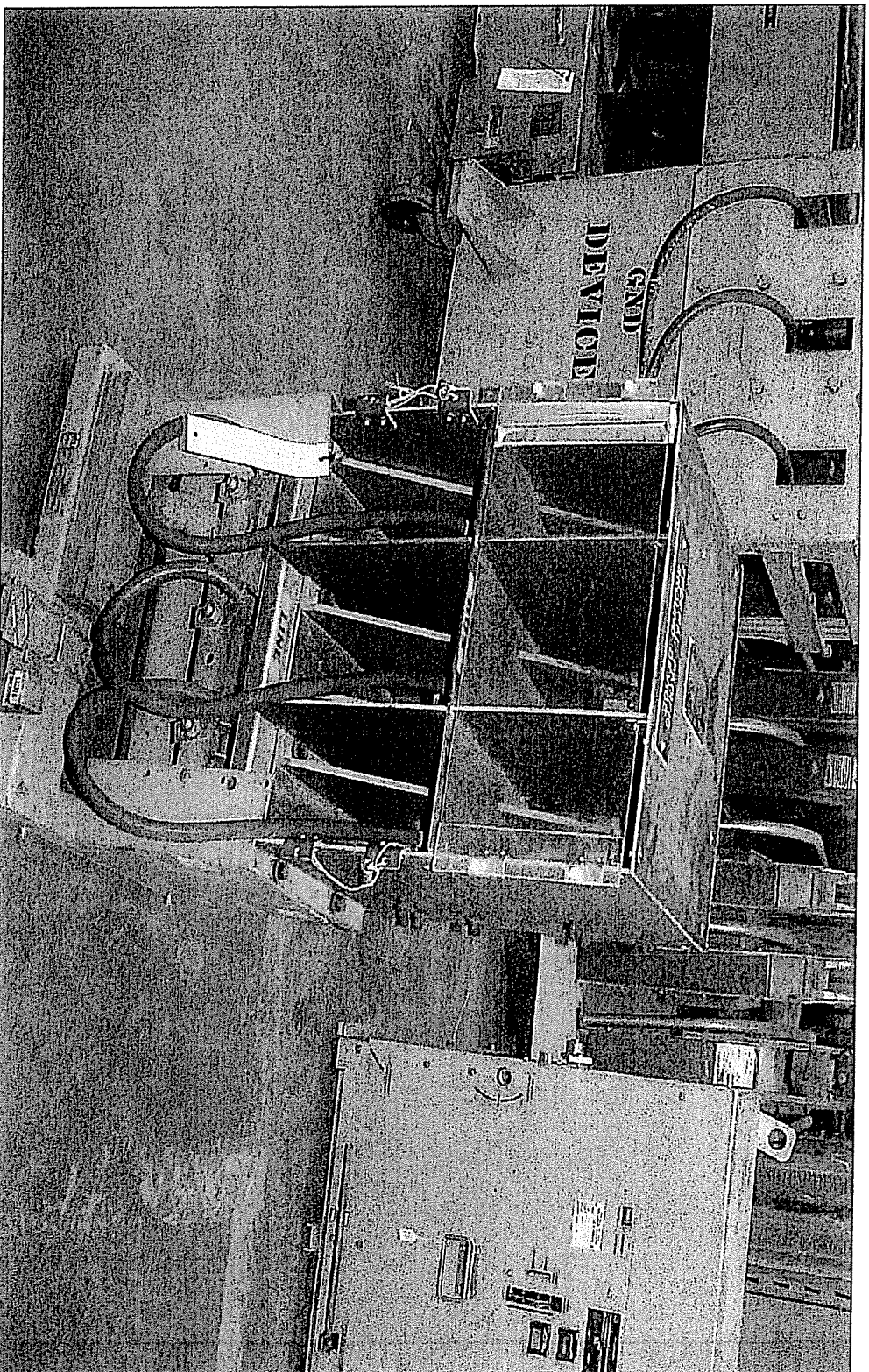
Use Extreme Caution when using a G&T Device.





# Grounding a Switchgear

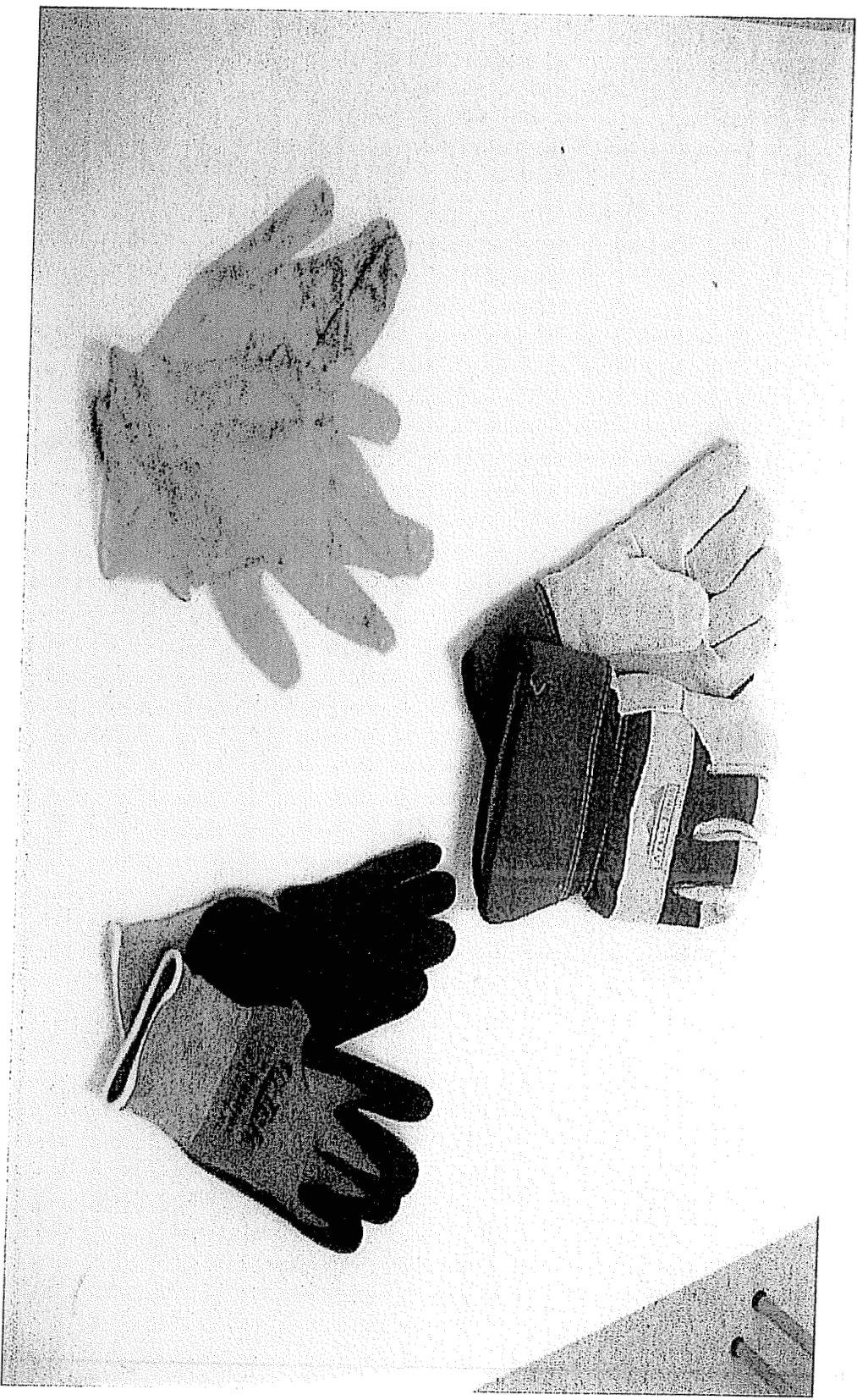
Use Extreme Caution when using a G&T Device.



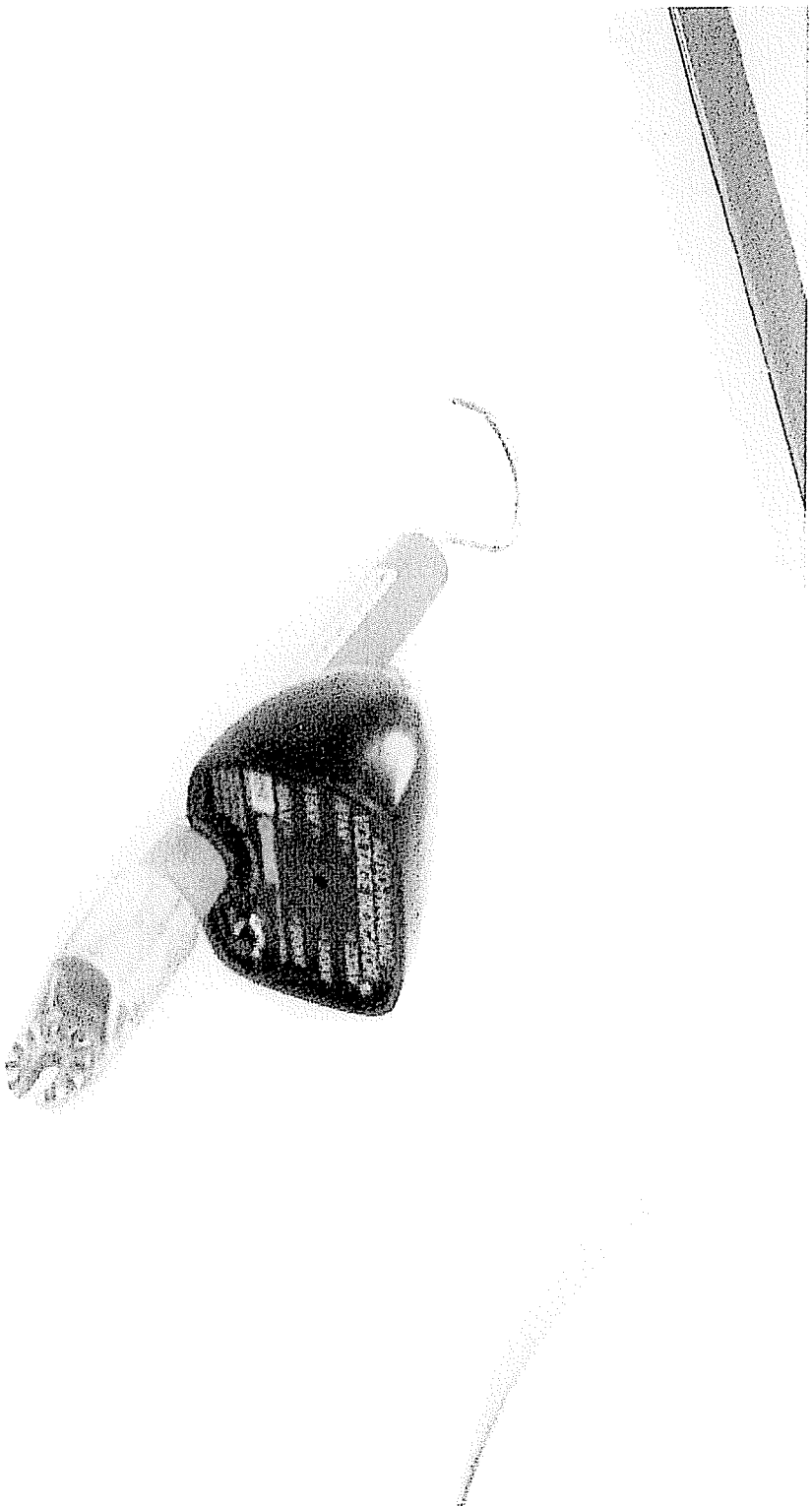
# PPE Requirements for working in Switchgear



# PPE Requirements for working in Switchgear



# PPE Requirements for working in Switchgear



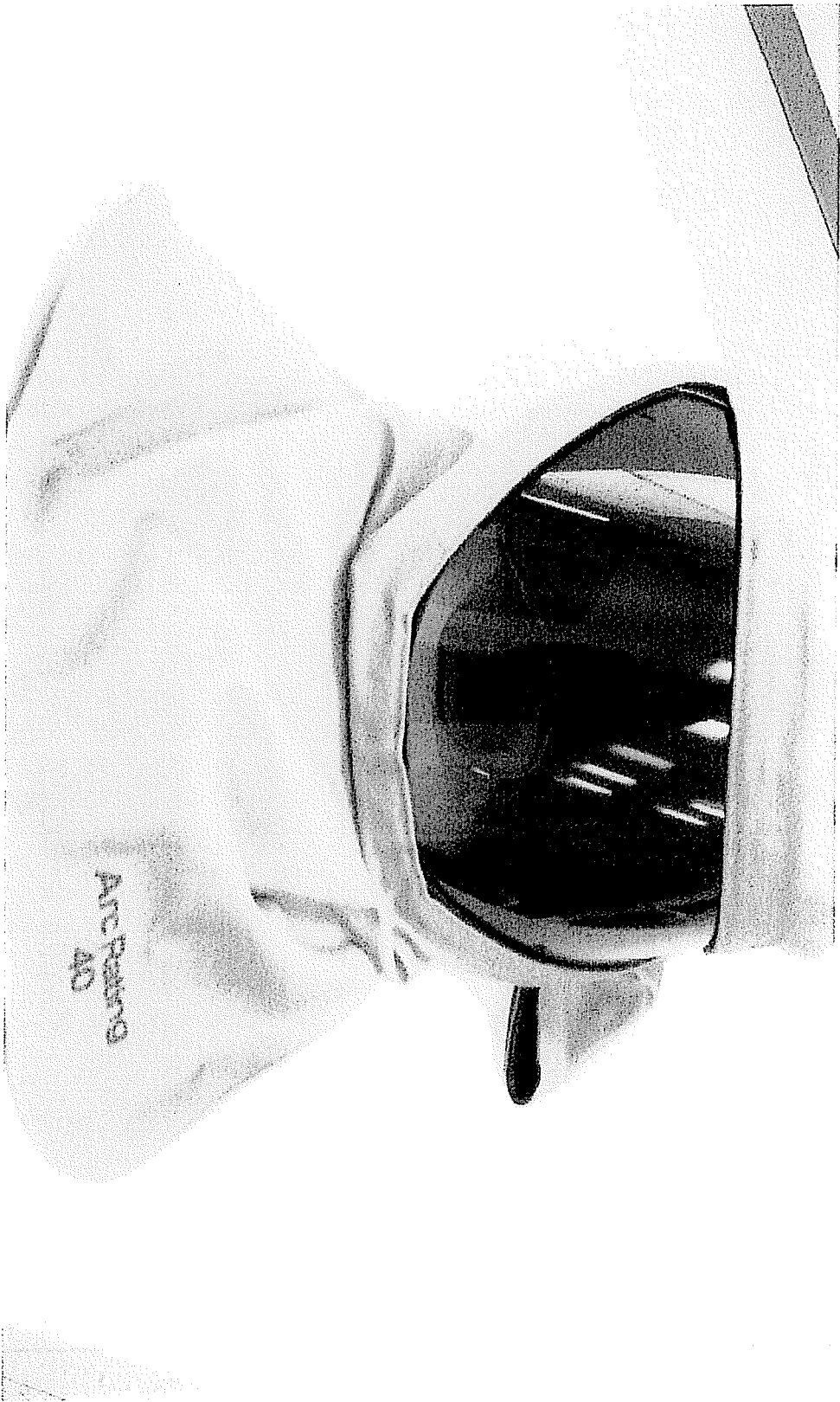


# PPE Requirements for working in Switchgear

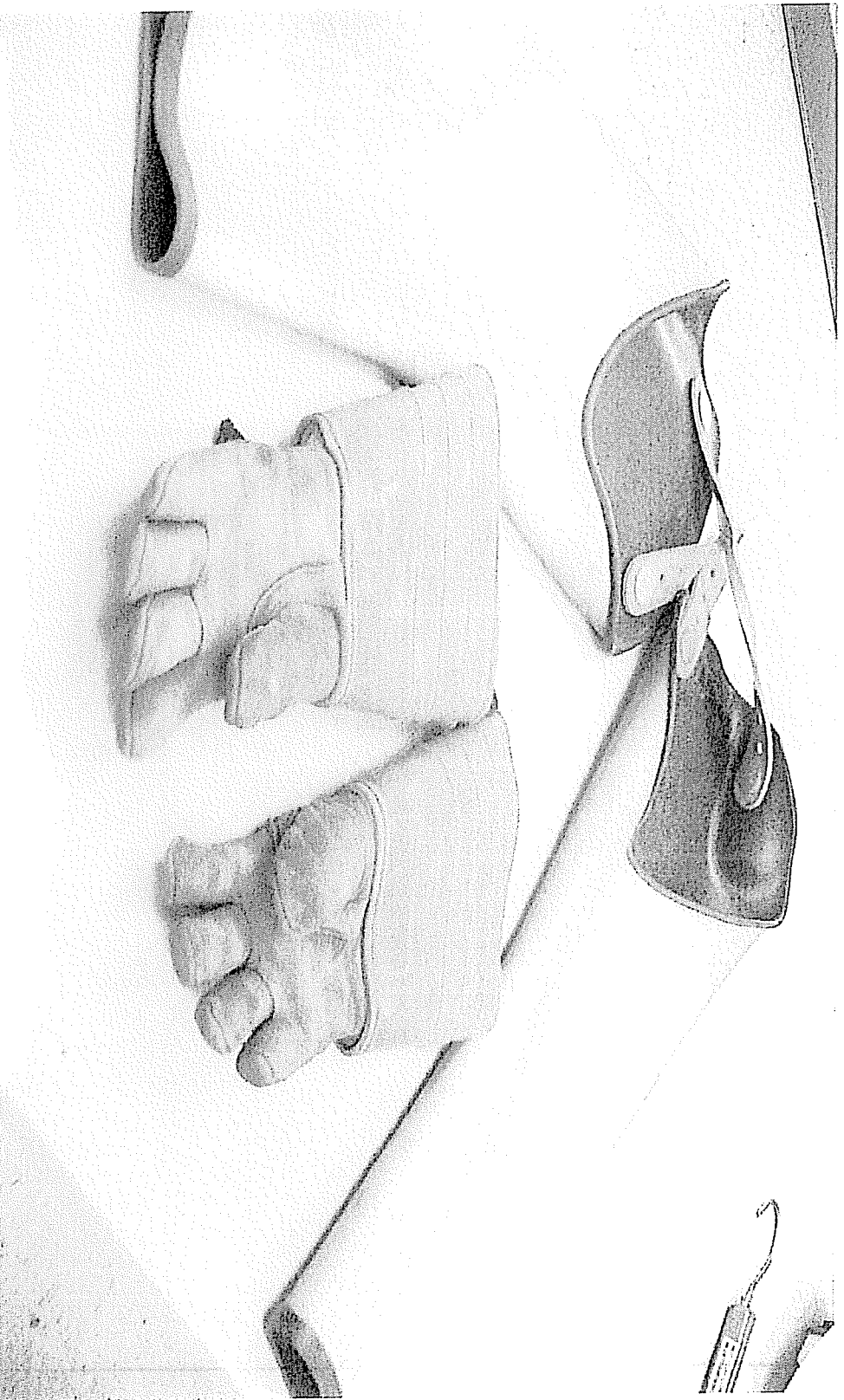




# PPE Requirements for working in Switchgear



# PPE Requirements for working in Switchgear



# Switchgear Refresher Training

- *Thanks for your attention.*
- *Any Questions?*
- *Comments?*

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

AUG 17 2011

PUBLIC SERVICE  
COMMISSION

In the Matter of:

LOUISVILLE GAS AND ELECTRIC )  
COMPANY )

CASE NO. 2011-00097

\_\_\_\_\_)  
ALLEGED FAILURE TO COMPLY )  
WITH KRS 278.042 and 807 KAR 5:006, Sec. 24(1) )

PETITION OF LOUISVILLE GAS AND ELECTRIC COMPANY  
FOR CONFIDENTIAL PROTECTION OF CERTAIN INFORMATION  
PROVIDED IN RESPONSE TO THE COMMISSION'S ORDER OF JULY 22, 2011

Louisville Gas and Electric Company ("LG&E" or the "Company") pursuant to 807 KAR 5:001, Section 7, respectfully petitions the Commission to classify as confidential and protect from public disclosure certain safety audit reports. These documents, in their entirety, contain critical energy infrastructure information and private personal information about some Company employees or contractors, such as their names, telephone numbers, and employee identification numbers. For reasons involving homeland security and personal privacy, the Company respectfully requests that the Commission grant confidential protection to these documents.

In further support of this Motion, the Company states as follows:

1. Under the Kentucky Open Records Act, the Commission is entitled to withhold from public disclosure information confidentially disclosed to it to the extent that open disclosure would "have a reasonable likelihood of threatening the public safety by exposing a vulnerability in preventing, protecting against, mitigating, or responding to a terrorist act and limited to: ... (f) infrastructure records that expose a vulnerability referred to in this subparagraph

through the disclosure of the location, configuration, or security of critical systems, including public utility critical systems. These critical systems shall include but not be limited to information technology, communication, electrical, fire suppression, ventilation, water, wastewater, sewage, and gas systems and (g) the following records when their disclosure will expose a vulnerability referred to in this subparagraph: detailed drawings, schematics, maps, or specifications of structural elements, floor plans, and operating, utility, or security systems of any building or facility owned, occupied, leased, or maintained by a public agency.” *See* KRS 61.878(1)(m)1. Succinctly put, the information contained in the attached safety audit reports may provide detailed information about the Company’s distributions system; as such, the disclosure of which could threaten the public safety generally.

2. Under the Kentucky Open Records Act, the Commission is also entitled to withhold from public disclosure, “Public records containing information of a personal nature where the public disclosure thereof would constitute a clearly unwarranted invasion of personal privacy.” *See* KRS 61.878(1)(a). Concerning such personal and private information, the Kentucky Attorney General has “affirmed agency denial of access to a public employee’s home address, home telephone number, date of birth, and social security number. *See*, for example, OAG 79-275; OAG 87-37; OAG 90-60; OAG 91-81; 94-ORD-91.”<sup>1</sup>

3. The information contained these reports contains the addresses, telephone numbers and employee identification numbers of several of the Company’s employees. This information is private personal information that ought to be protected from disclosure to the public, in accordance with the Attorney General’s opinions cited above.

4. The information for which the Company is seeking confidential treatment is not known outside of the Company, is not disseminated within the Companies except to those

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<sup>1</sup> In re: June Britton/Lexington-Fayette Urban County Government, KY OAG 00-ORD-090 at 3-4 (April 3, 2000).



employees with a legitimate business need to know and act upon the information, and is generally recognized as confidential and proprietary information in the energy industry.

5. If the Commission disagrees with this request for confidential protection, it must hold an evidentiary hearing (a) to protect the Company's due process rights and (b) to supply the Commission with a complete record to enable it to reach a decision with regard to this matter. Utility Regulatory Commission v. Kentucky Water Service Company, Inc., Ky. App., 642 S.W.2d 591, 592-94 (1982).

6. The Company is filing with the Commission one copy of the Confidential Information identified as confidential.

**WHEREFORE**, Louisville Gas and Electric Company respectfully requests that the Commission grant confidential protection to these documents, in their entirety.

Dated: August <sup>17</sup>~~16~~, 2011

Respectfully submitted,



Allyson K. Sturgeon  
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LG&E and KU Energy LLC  
220 West Main Street  
Louisville, Kentucky 40202  
Telephone: (502) 627-2088

Counsel for Louisville Gas and Electric  
Company