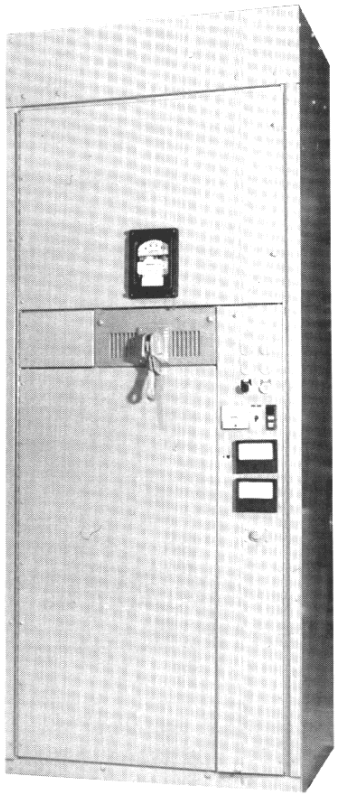
SERVICE BULLETIN **8198-4**
DECEMBER, 1981



630A, 5KV One High
Medium Voltage Controller

- Installation
- Operation
- Maintenance
- Parts Listing

SQUARE D COMPANY

P. O. Box 9247, Columbia, S. C. 29290

CONTENTS

PRECAUTIONS

Medium voltage motor controllers are provided with many safety features. Nevertheless, they control 5,000 volt rated power circuits with high fault capacity which can be dangerous. The following list of recommended **"PRECAUTIONS"** must be studied and followed during installation, operation and servicing of the equipment.

WARNING

Power must be disconnected from the controller equipment prior to performing any installation. However, the equipment has been designed to permit limited maintenance and/or testing on those components that are disconnected from the main power. When performing this work EXTREME CAUTION must be exercised in view of the presence of hazardous voltage.

1. READ THIS SERVICE BULLETIN PRIOR TO INSTALLING OR OPERATING THE EQUIPMENT.
2. IF MOTOR CONTROLLERS ARE TO BE STORED PRIOR TO INSTALLATION, THEY MUST BE PROTECTED FROM THE WEATHER AND BE KEPT FREE OF CONDENSATION AND DUST.
3. USE EXTREME CARE WHEN MOVING OR POSITIONING VERTICAL SECTIONS (EVEN IF CRATED) AS THEY CONTAIN DEVICES AND MECHANISMS WHICH MAY BE DAMAGED BY ROUGH HANDLING.
4. USE ¾ INCH PIPE ABOUT 3 FEET LONG AS A "JIFFY" BAR OR USE A SPECIAL LIFT TRUCK TO REMOVE OR INSTALL THE CONTACTOR (APPROXIMATE WEIGHT 450 POUNDS). CHECK INSTALLATION INSTRUCTIONS SUPPLIED WITH THIS BULLETIN FOR COMPLETE DETAILS.
5. BE SURE ALL ARC CHUTES AND PHASE BARRIERS ON CONTACTOR ARE IN PLACE BEFORE OPERATING CONTROLLER.
6. BE SURE CURRENT TRANSFORMER SECONDARY CIRCUIT IS COMPLETE. BE SURE CURRENT ELEMENTS ARE PROPERLY SELECTED AND INSTALLED FOR THERMAL OVERLOAD RELAYS PER THE INSTRUCTION LABEL LOCATED INSIDE THE MEDIUM VOLTAGE COMPARTMENT DOOR BEFORE OPERATING CONTROLLER.
7. ONLY AUTHORIZED PERSONNEL SHOULD BE PERMITTED TO OPERATE OR SERVICE THE CONTROLLERS.

NOTE: This service bulletin covers the servicing of basic controllers. For controllers having variations from the basic controllers, be sure to refer to the applicable controller drawings to determine how to proceed safely in performing troubleshooting and maintenance.

INTRODUCTION

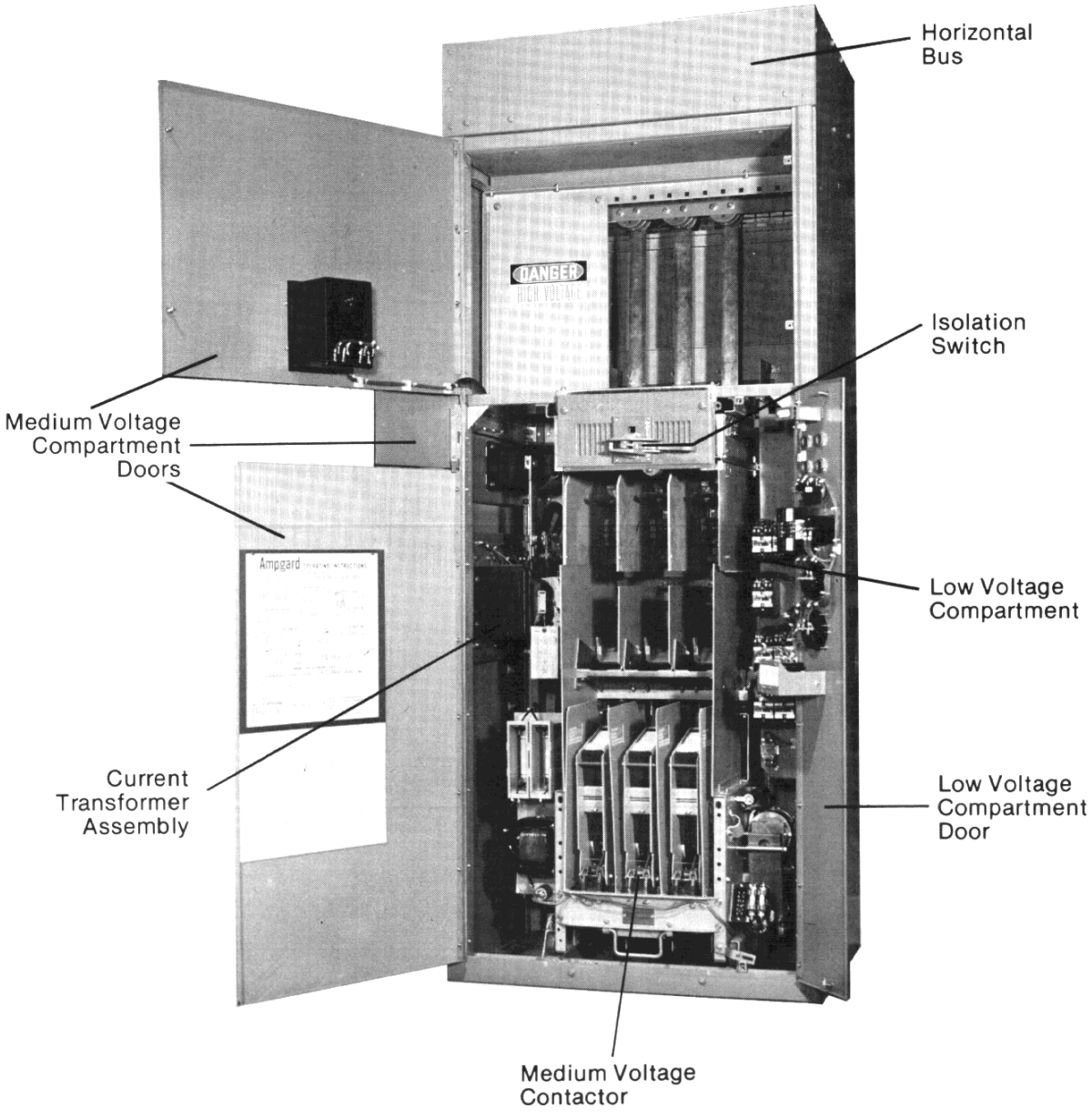
The basic 630A, 5KV full voltage non-reversing controller, including contactor, covered in this manual is manufactured by Westinghouse Corporation. Modifications are made to the low voltage control panel and power bus (optional) assemblies by Square D Company. The complete controller shown below describes the major components.

This manual includes Westinghouse Corporation Instruction Leaflets (I.L.) as supplements to provide installation instructions, start-up procedures, maintenance and repairs plus parts listing. Specific reference is made to these instruction leaflets within the text of this manual.

CAUTION

READ ALL INSTRUCTIONS BEFORE INSTALLING AND OPERATING EQUIPMENT.

LOCATION AND IDENTIFICATION OF CONTROLLER PARTS



CONTROLLER RATINGS

Refer to the nameplate on the enclosure door for detailed ratings applicable to a specific controller. Basic controller maximum ratings are per NEMA Standard ICS No. 2-324 as indicated in rating table, page 1 of Westinghouse I.L. 11-202-5.

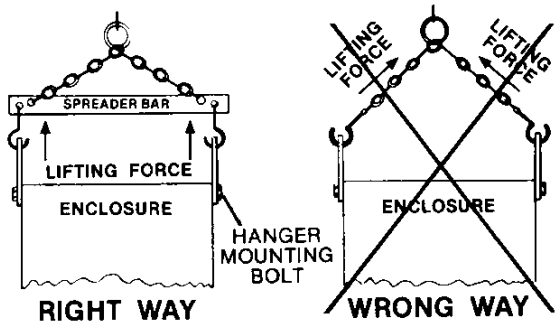
LIFTING

NEMA 1 & 12 VERTICAL SECTIONS

When lifting controller by lifting hangers, use spreader bar to keep lifting force vertical (see illustration).

CAUTION

BEFORE LIFTING ENCLOSURE INSPECT HANGER MOUNTING BOLTS FOR MAXIMUM THREAD ENGAGEMENT.



PRELIMINARY INSPECTION

UNCRATING

Check the packing list against the order to make sure shipment is complete and all components have been received. Contactor and all control devices are shipped installed in the vertical section.

Examine the shipping crate before unpacking the controller to make sure it has not been damaged in transit. If the shipping crate is damaged, note the area and pay particular attention when unpacking to see if contents are also damaged. If damage is found, notify the carrier. Also notify the local Square D field office of the damage claim.

Take care when unpacking not to damage contents by inserting tools into crates. Use a nail puller and wire cutter. Do not insert pry bar in crate to force open.

INSPECTION

CAUTION

DO NOT MOVE CONTACTOR UNTIL THE CONTACTOR SHIPPING RESTRAINTS ARE REMOVED. IN CASE CONTROLLER WITH CONTACTOR IN VERTICAL SECTION IS RESHIPPED TO ANOTHER LOCATION, ALL SHIPPING RESTRAINTS MUST BE REINSTALLED.

PRELIMINARY INSPECTION (cont'd)

Inspect components as follows: (see photograph, page 3 for identification and location of various parts)

a. Check visually for good condition. Inspect all parts for secure mounting and good electrical connections.
b. Check that the vertical section is not dented or otherwise damaged.
c. Check medium voltage contactor compartment door for free movement by (1) loosening thumbscrew fasteners on low voltage compartment door and opening the door, (2) moving the isolation switch handle down and rotating to right in horizontal position and (3) swinging the medium voltage compartment door open.
d. Check that wiring harnesses are securely fastened except for the control cable assembly.

CONTACTOR INSPECTION

For information pertaining to the inspection and operation of the medium voltage contactor, refer to Westinghouse I.L. 16-200-7.

INSTALLATION INSTRUCTIONS

CONTROLLER MOUNTING

Class 8198 controllers are completely front accessible. Space is required in front to remove the contactor.

See Figure 1 below for minimum dimension requirements. Make sure vertical section is level and fully supported when mounted. Vertical section should be bolted in place. If vertical section is not securely supported and level, doors may not swing properly and isolation switch may not operate properly. The vertical section may be mounted against wall on left or right side without impairing the accessibility or installation of the contactor.

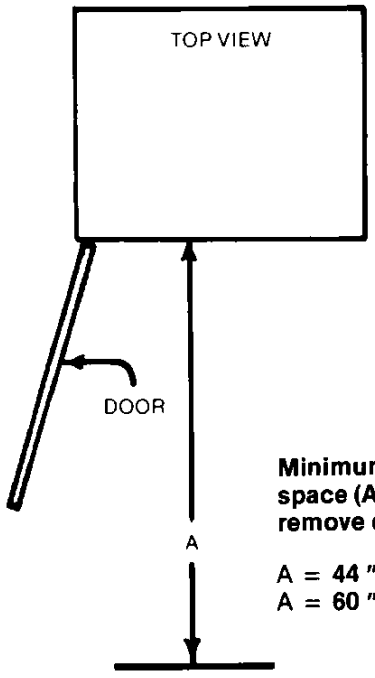


Figure 1

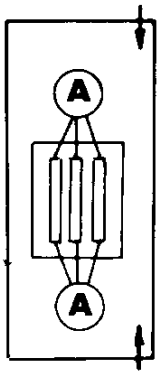
Minimum aisle space (A) to remove contactor:

A = **44** " using "Jiffy" bar.
A = **60** " using fork lift.

INSTALLATION INSTRUCTIONS

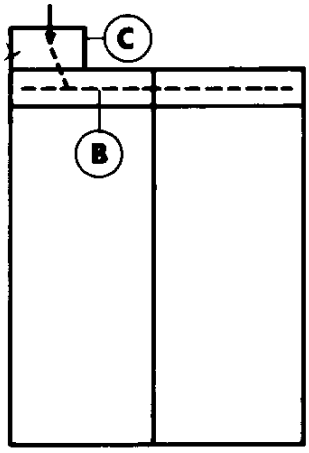
ARRANGEMENTS FOR TERMINATING LINE CABLES

Following sketches indicate arrangements available for terminating line cables. Refer to drawings furnished with the order to check the specific arrangement supplied for your equipment.



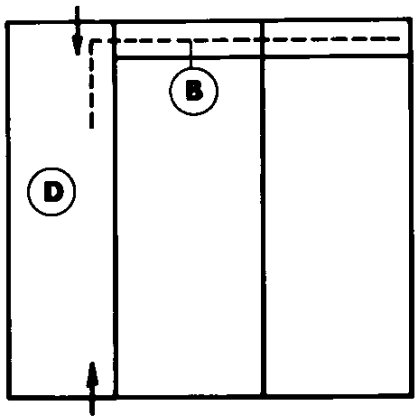
Single vertical section without horizontal power bus.

1. Cable entry from top or bottom.
2. Line cable terminations on terminals (A).
3. For detailed installation instructions see Westinghouse I.L. 11-202-5.



Two or more vertical sections bussed together by horizontal power bus (B).

1. Cable entry from top only.
2. Line cable terminations in pull box (C).



Two or more vertical sections bussed together by horizontal power bus (B).

1. Cable entry from top or bottom.
2. Line cable terminations in incoming line cable compartment (D).*

* This compartment may be full 100" high or an overhang extending about 50" down from top.

POWER AND GROUND BUS CONNECTIONS BETWEEN SHIPPING SECTIONS

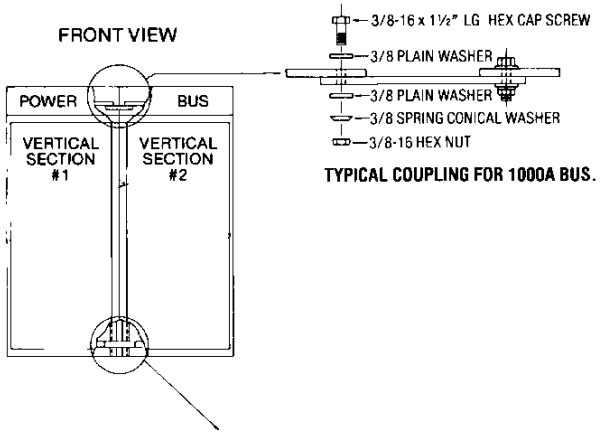
If motor control center consists of two or more shipping sections, power bus and ground bus splice bars will be supplied and should be added after sections are firmly in place. Necessary hardware is included to secure the buses together. Refer to the instructions included with splice bars for details.

CAUTION

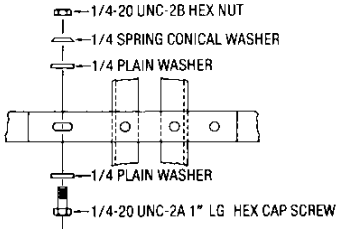
BEFORE PROCEEDING, BE SURE INCOMING LINE IS DE-ENERGIZED.

Tighten each ⅜" bolt to 220 inch pounds (power bus)

Tighten each ¼" bolt to 60 inch pounds (ground bus)



TYPICAL COUPLING FOR 1000A BUS.



COUPLING FOR GROUND BUS.

CONTACTOR

For removing contactor and isolation switch from the vertical section and to reinstall them after making line and load cable connections, refer to Westinghouse Installation Instructions 200PO26H01. For contactor description and operation refer to Westinghouse I.L. 16-200-7; and for renewal parts data, check Westinghouse publication 16-200A7.

INSTALLATION INSTRUCTIONS

VERTICAL SECTION

For installation, description of components, safety interlocks, start-up precautions, maintenance and repair, refer to Westinghouse I.L. 11-202-5. NOTE: DIMENSIONS SHOWN ON PAGE 2 OF I.L. 11-202-5 ARE NO LONGER APPLICABLE. FOR MOUNTING AND INSTALLATION DIMENSIONS REFER TO THE OUTLINE DRAWING SUPPLIED WITH THE EQUIPMENT.

Renewal parts data for isolating switch is given in Westinghouse publication LFM-7.

WARNING

BEFORE PROCEEDING, BE SURE INCOMING LINE IS DE-ENERGIZED

ACCESS TO MEDIUM VOLTAGE COMPARTMENT

For access to medium (high) voltage compartment refer to item C page 4 under inspection. Access under abnormal conditions can be gained by referring to page 7 of Westinghouse I.L. 11-202-5.

ACCESS TO LOW VOLTAGE COMPARTMENT

Normally, if access to the low voltage compartment is attempted while the controller is energized, it will automatically shut down because interlock switch (A) opens. Qualified personnel may, however, bypass the interlock in the following manner:

1. Insert a small tool through the hole (B) on the low voltage door which depresses a switch.

WARNING

WHEN DOOR IS OPENED LIVE TERMINALS WILL BE EXPOSED.

2. While holding this switch depressed, open the low voltage compartment door until the interlock switch (A) inside low voltage compartment door can be operated by pulling. After activating switch, tool may be removed.
3. To close while energized, hold door switch depressed with small tool; close the door and tighten the door fasteners; then remove the tool.