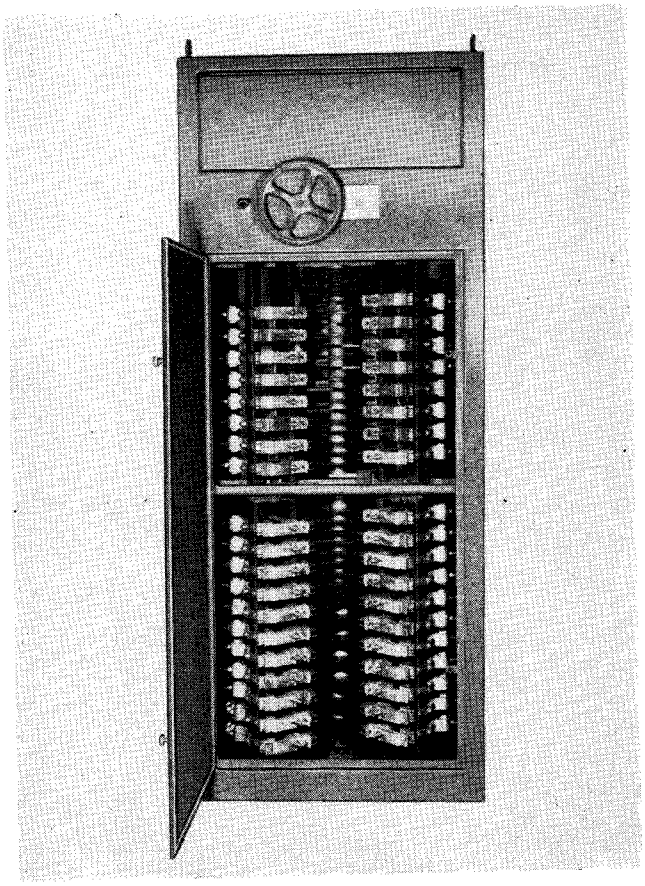
DESCRIPTION • INSTALLATION • OPERATION • MAINTENANCE

INSTRUCTIONS

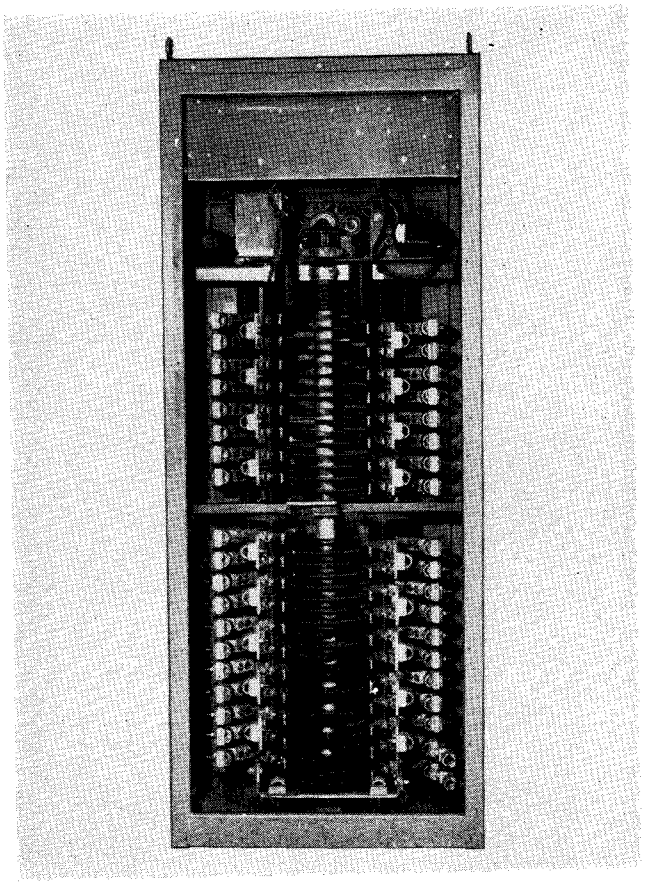
Life-Line CONTROL*

MOTOR OPERATED SECONDARY CONTROLLERS

For Wound Rotor Motors—Type SC—Class 13-300



Front View with Door Open



Rear View with Cover Removed

DESCRIPTION

These controllers are for use in the secondary only of polyphase, wound-rotor motors. They provide acceleration and speed regulation by varying the external resistance in the motor secondary winding. Separate equipment must be provided for control and protection of the motor primary.

The type SC controller is an enclosed, self-supporting assembly of cam actuated contactors arranged for sequential operation in pairs from a common shaft. Contactor units having ratings of 300, 600, or 1000 amperes at 1000 volts maximum are actuated by individual cams providing quick make and break operation. Pure silver contact inlays assure excellent current conductivity and avoid heating. Separate copper arcing contacts prevent burning or pitting of main contact surfaces.

The controller operating mechanism consists of a pilot motor, gear reduction unit, and a Geneva gear for angular positioning of the controller cam shaft. The driving motor is DC operated and a transformer and rectifier is used when only AC control power is available.

The control relays, contactors, transformer, rectifier, and terminal blocks are mounted on a panel behind the upper front removable cover.

A handwheel for emergency manual operation and a position indicator are mounted on the front of the enclosure.

*Trade-Mark

NEW INFORMATION

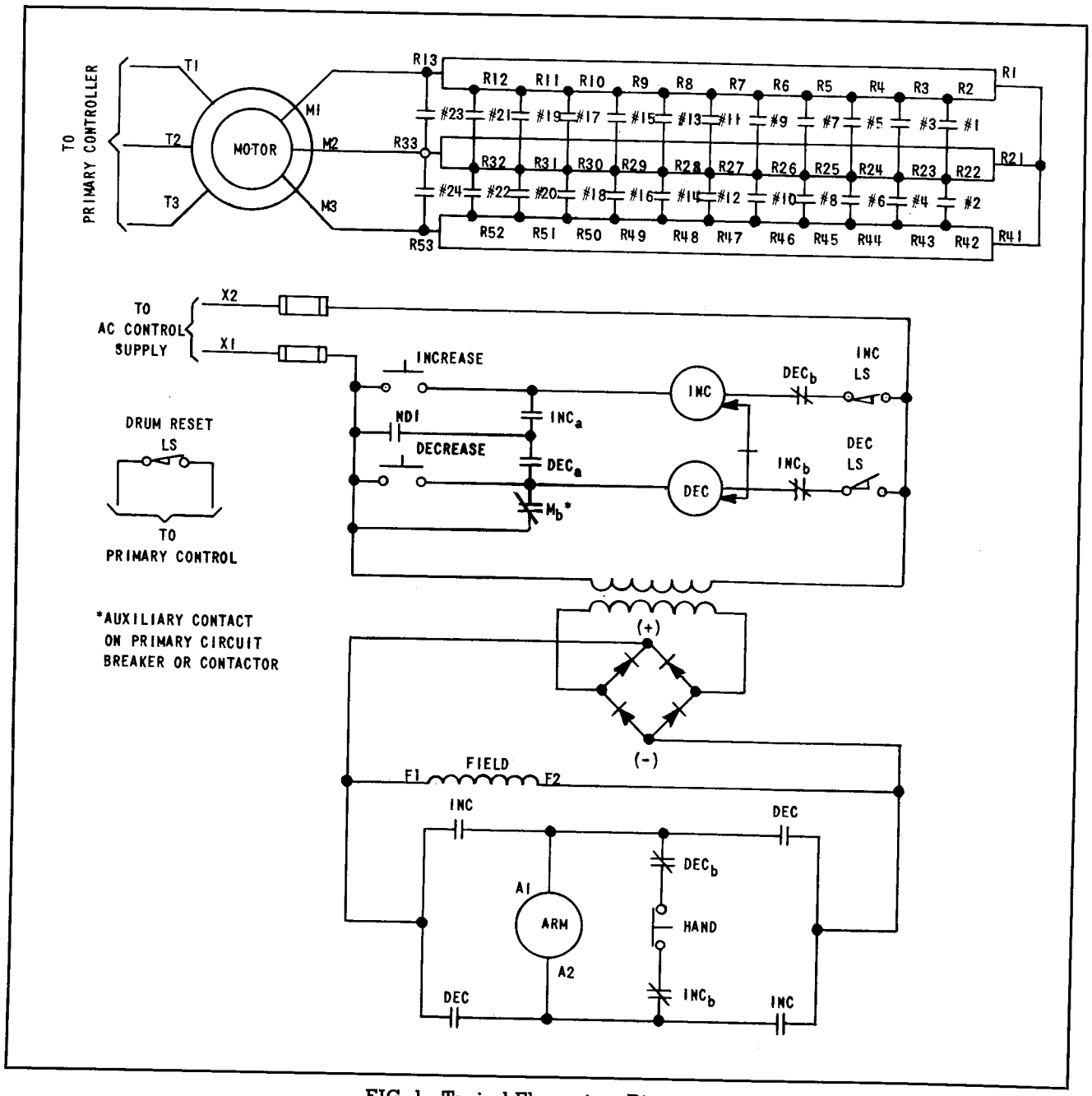


FIG. 1. Typical Elementary Diagram

INSTALLATION

The location of the controller should provide protection, accessibility, and ventilation. The foundation should be level and rigid and the controller securely bolted to this foundation.

Remove blocks and ties from all relays and contactors and with a clean dry rag, wipe the contact and magnet surfaces. Operate all contactors and relays manually to be sure that they are free of friction, the contact surfaces seat properly, and the various springs work properly.

With the handwheel, operate the controller through its range and check the sequence and operation of the cam actuated contacts.

The power supply and motor characteristics should agree with the controller nameplate rating. Connect the controller according to the wiring diagram furnished with the controller. The National Electric Code or other applicable code should be followed for installation. The control connections should be made first and sequence of operation checked electrically before load is applied to the main contacts.

OPERATION

Remote control is obtained from either a momentary contact pushbutton or switch or a suitable contact type automatic regulator. Referring to the typical diagram Fig. 1, with the motor stopped, auxiliary contact Mb is closed. If the controller is in a position such that any of the contactor units are closed, the DEC L.S. will be closed and the RESET L.S. open to insure that full secondary resistance is available before the motor can be started.

Operation of the master switch establishes a circuit to the directional contactor which energizes the pilot motor. Notching contact ND1 is located on the operating head and closes after the Geneva driver starts to turn. The Geneva gear is so arranged that for each revolution of the driver the cam shaft is moved one full position or point, thus providing step-by-step action with approximately one second time delay between stops. Contact ND1 remains closed until the camshaft has moved to a new position and the main contact is firmly made. This notching contact insures that the controller completes its movement to the next step even if the master switch circuit is opened.

When the controller has moved one full step, the notching contact opens; however if the master switch is still closed, the camshaft will continue to turn until the end position is reached or the master switch contact opened. Both limit switches and a mechanical stop prevent operation of the controller beyond the end position.

Normally closed contacts on the directional contactors provide a dynamic braking path for the pilot motor to definitely limit the drift of the Geneva driver when the motor is de-energized. A HAND pushbutton is provided to open this braking circuit and eliminate the motor retarding torque which would be produced when manually operating the controller with the handwheel.

Remote position indication, when supplied, is by means of a contact dial (tap switch) or a synchrotie transmitter. The contact dial has a movable arm which rotates and completes a circuit to stationary contacts according to the position of the camshaft. The synchrotie transmitter also rotates and provides the receiver with intelligence of the camshaft position. For connections and operation of these and other optional features which can be provided with the SC controllers, refer to the specific diagram furnished with the controller.

MAINTENANCE

The operating mechanism uses sealed, pre-lubricated ball bearings which will not require re-lubrication for an extended period of operation. The thrust bearing at the bottom of the cam shaft is provided with a fitting for pressure gun lubrication. This thrust bearing should be checked and lubricated periodically. The pilot motor sleeve bearings should also be checked and oiled at regular intervals depending on the frequency of use.

The controller should be kept clean and the tightness of all connections maintained. Lubricants should be used sparingly and carefully kept from contacts and electrical connections.

The main contacts with silver inlays should not be filed or dressed. The stationary and moving arcing contacts should be inspected periodically. The arcing contacts should be replaced when with the main contacts closed, the gap between the moving main and arcing contacts becomes less than 1/16 inch.

The main contact pressure measured at the roller is 22 to 27 pounds to open the contacts. The main contact open gap is 7/16 $\pm$ 1/32 inch.

For additional information and instructions relating to specific devices, refer to the instruction literature in the following table:

Type N-130 Reversing Contactor	IL 10288
Type ND-130 Reversing Contactor	IL 11115
Type AM Timing Relay	IL 10234
Type AMD Timing Relay	IL Later
Synchrotie	IL 10234

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