Quick-Break Control Mechanism

for

Westinghouse Liquid Insulated High Voltage Network Switch

INSTRUCTIONS

GENERAL

The quick-break control mechanism consists of an auxiliary mechanism mounted in the Westinghouse liquid insulated HV network grounding disconnecting switch and operated in conjunction with an auxiliary switch on the low voltage network protector. The mechanism permits the operation of the main network switch so as to break the transformer exciting current but prevents the accidental grounding of an energized feeder.

CONSTRUCTION

This mechanism is located inside the switch chamber on the transformer and is operated by a lever located on the face of the switch operating mechanism housing. The parts are shown on Fig. 1 and 2 and the electrical connections in Fig. 3. Fig. 1 shows the switch operating mechanism with the grounding switch in the "open" position and the lever on the quick-break (QB) position. Fig. 2 is an internal view of the control mechanism housing with parts in the same relative positions as in Fig. 1.

The electrical interlock coil is connected directly to the auxiliary switch E Fig. 4 on the network protector B and is also connected through the mercury switch D, which is a part of the quick-break control mechanism, to the L.V. side of the transformer. Fig. 4 shows a schematic diagram of connections.

INSTALLATION

The quick-break control mechanism is shipped as part of the complete network transformer. It cannot be readily installed in the field on existing network transformers.

OPERATION

The lever on shaft B, Fig. 1, should be kept in the quick-break position except when it is desired to ground the incoming feeder. This lever should be moved only when the main switch is in the the transformer position. Access to the lever is prevented by a guard-sector on the main operating handle when the switch C, Fig. 4, is in the open position.

To Break the Transformer Exciting Current and Remove the Transformer from the Feeder when Breaker A Is Closed.

1. Place the auxiliary switch lever in the quick-break position. The mercury switch D is now "open".
2. Remove the load from the transformer by placing the network protector B in its "open" position. This automatically opens the network protector auxiliary switch E and de-energizes the interlock coil of the quick-break control mechanism. The transformer switch C can now be moved freely between open and transformer positions but is kept from the ground position by the mechanical stops on Shafts A and B as shown in Fig. 2.

To Ground Incoming Feeder

1. The network protector B must be placed in the "open" position; auxiliary switch E is now open and the incoming feeder must be de-energized (breaker A open). With the switch C in its "transformer" position, the auxiliary switch control lever should be moved to the "ground" position. In this position the mercury switch D is closed and the circuit to the L.V. side of the transformer is completed.
2. The main switch C may now be

Desired Operation of Switch from Transformer Position	Position of Mercury Switch as indicated by Lever on Mechanism	Position of Network Protector, Auxiliary Switch and Protector
To Break Exciting Current	Quick-Break	Open
To Ground Feeder	Ground	Open

FIG. 3—TABULATION OF POSITIONS OF AUXILIARY SWITCHES FOR OPERATION OF TRANSFORMER SWITCH.

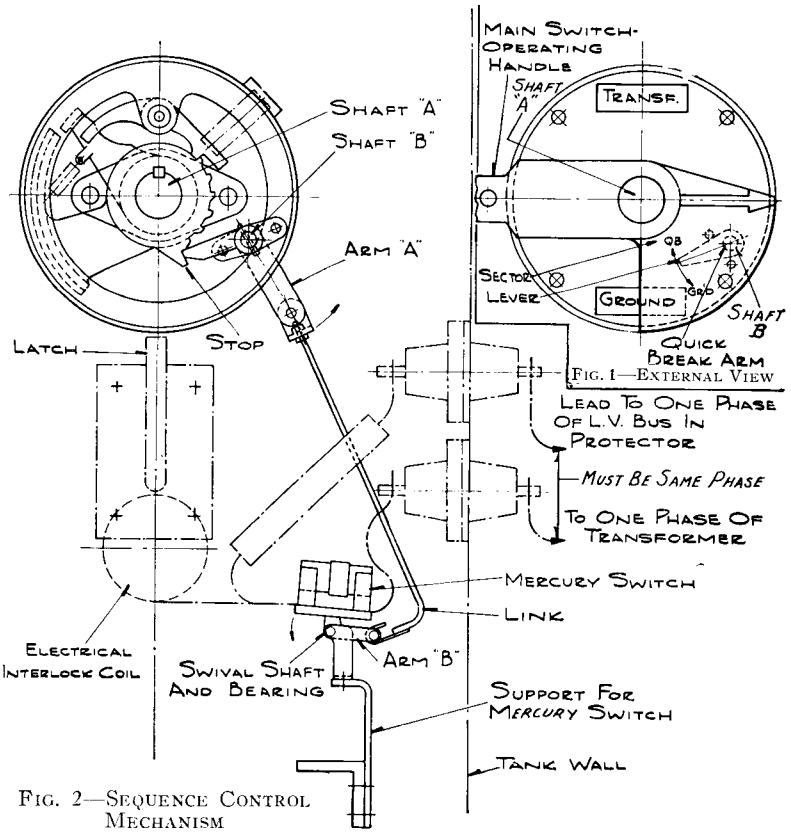

FIG. 1—EXTERNAL VIEW

FIG. 2—SEQUENCE CONTROL MECHANISM

Quick-Break Control Mechanism For Westinghouse Liquid Insulated High Voltage Network Switch—Continued

INSTRUCTIONS—Continued

moved from the "transformer" position to the "ground" position. But if the transformer is energized from a re-energized feeder or the auxiliary switch E of the network protector is not open, the electrical interlock will pick up and prevent movement of the main switch from the "transformer" position. If the incoming feeder is not energized the switch can be moved to the "ground" position, thus grounding the incoming feeder.

MAINTENANCE

For maintenance of the switch operating mechanism refer to I.L. 3203. The quick-break operating mechanism requires very little maintenance. The packing gland should be inspected at least once every six months and tightened if there is any sign of a leak. The inspection plate located on the side of the housing is removed to make this inspection. The gland can be tightened through this opening, using a wrench for a ¼" hex bolt.

Repacking the Gland

If, after a period of service, the packing becomes worn and it is impossible to tighten the gland sufficiently to stop leaks, it will be necessary to repack the gland. Lower the oil level in the switch chamber to a point below the gland.

Remove the operating lever from the main shaft A after driving out the taper pin. Also, remove lever for quick-break operating mechanism from shaft B in a similar manner.

The face plate on the operating mechanism can not be taken off by removing only the screws which hold it in place. Drive the taper pin out of the latch and remove the latch from shaft B. Remove the bolts which hold the gland and slide the gland off of the shaft. Remove the old packing, using a sharp hooked instrument and replace with a ring of new packing. Replace gland and bolt down snugly. Re-assemble the latch and the face plate. The operating levers should be fastened back in place making sure that they are in their proper location.

The mechanism is carefully adjusted and set at the factory for proper operation. The adjustment of the mercury switch should not be changed as this would affect the operation of the interlock coil.

The following instructions are given in case it is necessary to dismantle the mechanism and re-adjust the mercury switch.

Set the lever to point to the prick-punch mark located between the QB and "Ground" positions. Disconnect interlock lead from bushing and interlock coil from ground. Connect coil of interlock to a 125 volt source.

CAUTION—Do not make connection at interlock bushing since this would energize the transformer.

Then adjust link by turning nuts on Arm A until interlock coil just picks up. Lock link in this position by screwing nuts down tightly.

Renewal Parts

Gland Packing is Style 893290-A, and the mercury switch is Style 1166161. If any other parts are required, refer to Figs. 1 and 2, indicate parts wanted and give serial number of the transformer.

Order renewal parts from nearest Westinghouse Electric and Mfg. Co. Office.

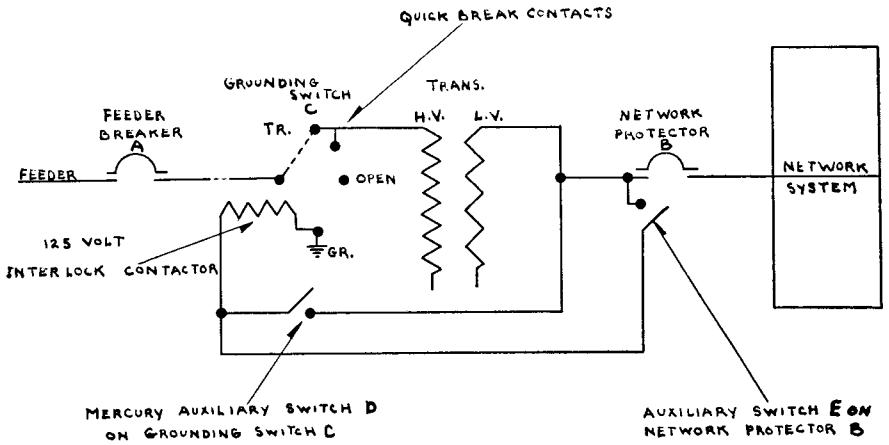

FIG. 4—SCHEMATIC DIAGRAM OF CIRCUIT FOR DISCONNECTING OF GROUNDING SWITCH, HAVING PROVISION FOR BREAKING TRANSFORMER EXCITING CURRENT.

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