Western Electric Co., Incorporated,
Engineering Dept.,
New York

Issue 5 - BT-438538.
Replacing all previous issues.
May 31, 1921.

No Form

METHOD OF OPERATION
SIGNAL CIRCUIT
Fuse Alarm - With Drop or Lamp Signal - Machine Switching System.
SOUTHWESTERN BELL TELEPHONE COMPANY

GENERAL DESCRIPTION

1. This drawing shows miscellaneous fuse alarms for use in a full mechanical power driven system.

DETAILED DESCRIPTION

CIRCUIT BREAKER ALARM:

2. This circuit is used to give a visual and audible signal when a circuit breaker releases. The release of the circuit breaker allows the special E5 relay per D-20218 (CB-3) to operate, lighting the pilot lamp at the power board, operating the B9 relay (CA) and the B9 relay (A1). The operation of the B9 relay (CA) lights the pilot lamp at the monitoring board, while the operation of the B9 (AI) closes a circuit through the AC bell, giving an additional audible signal. When the circuit breaker is closed, all operated relays release and the circuit is restored to normal.

CHARGING FUSE ALARM:

3. This circuit is used to give a visual and audible signal when a charging fuse functions. When a fuse in either charging lead operates, the B66 relay (CHG-1) operates, lighting the associated lamp and operating the B9 relay (A) in series with the B9 relay (AI). The operation of the B9 relay (A) lights the pilot lamp at the monitoring board, while the operation of the B9 relay (AI) rings the associated AC bell. When the fuse is replaced all operated relays release and the circuit is restored to normal.

DISCHARGE FUSE ALARM:

4. This circuit is used to give a visual and audible signal when a discharge fuse functions on either 24 or 48 volt battery. When a discharge fuse operates, the special E5 relay per D-20218 (LVD-2) operates, lighting the associated lamp and operating the B9 relays (DA) and DB), ringing the 10-D bell, and lighting the pilot lamp at the monitoring board. When a fuse is replaced, all operated relays release, restoring the circuit to normal.

DISTRIBUTING PANEL FUSE ALARM:

5. This circuit is used to give a visual and audible signal when a ditri-

buting panel fuse functions on either 24 or 48 volt battery. When a distributing panel fuse operates, the 56-C drop operates, closing a circuit to operate the special E31 relay per D-20679 which rings the 10-D bell and lights the pilot lamp at the monitoring board. When the fuse is replaced the operated drop and relay release, restoring the circuit to normal.

PHASE FAILURE ALARM:

6. This circuit is used to give a visual and audible signal upon phase failure, Phase failure causes the B147 relay (PH) to release, lighting the associated lamp and operating the B9 relays (PHA) and (AI). The operation of the B9 relay (PHA) lights the pilot lamp at the monitoring board while the operation of the B9 relay (AI) rings the AC bell. When the fuse is restored, the circuit affected returns to normal, operating the B147 relay (PH) which releases the B9 relays (PHA) and (AI) thereby extinguishing the lamps and silencing the bell.

MORSE CHARGING AND DISCHARGING FUSE ALARM:

7. This circuit is used to give a visual signal when a Morse charging or discharging fuse operates. The operation of the fuse operates the B9 relay in series with the associated lamp which lights, thereby lighting the pilot lamp at the monitoring board. When the fuse is replaced the B9 relay releases, restoring the circuit to normal.

VOLTAGE ALARM:

8. This circuit is used to give a visual and audible signal when the voltage exceeds or drops below the required limits. When the voltage exceeds or drops below the required limits the 30 Weston relay operates, closing a circuit through the 149-D relay which also operates. The 149-D relay by its operation lights the associated lamp and operates the B9 relays (VB) and AI). The operation of the B9 relay (VB) lights the voltage alarm lamp at the monitoring board while the operation of the B9 relay (AI) rings the AC bell. When the voltage has been regulated, all operated relays release and the circuit is restored to normal.

RINGING MACHINE ALARM:

9. This circuit is used to give a visual and audible alarm when ringing voltage fails. When ringing voltage fails, the B10 relay (PU) operates, closing a circuit through the associated lamp which lights, to operate the B9 relay in series with the B9 relay (AI). The operation of the B9 relay lights the "Pick Up" lamp at the monitoring board while the B9 relay (AI) rings the AC bell. When ringing voltage is restored to normal, all operated relays release, restoring the circuit to normal.

CIRCUIT REQUIREMENTS

	OPERATE	NON-OPERATE	RELEASE
149-D (VA)	Test .016 amp. Readj. .010 amp.		Test .0015 amp. Readj. .003 amp.
B9	After a soak of approximately .3 amp. Test .063 amp. Readj. .054 amp.		After a soak of approximately .3 amp. Test .003 amp. Readj. .006 amp.
B10 (PU)	After a soak of approximately .3 amp. Test .024 amp. Readj. .022 amp.		After a soak of approximately .3 amp. Test .001 amp. Readj. .002 amp.
B66 (CHG)	Test .011 amp. Readj. .0015 amp.		Test .0003 amp. Readj. .0005 amp.
B147 (PH)	Test .0014 amp. Readj. .001 amp.		Test .0003 amp. Readj. .0003 amp.
Spl. E5 D-20218 (Coded E462) (CB-3, LDV-2)	In 21 volt circuit: Test .014 amp. Readj. .007 amp. In 45 volt circuit: Test .025 amp. Readj. .007 amp.		For 21 and 45 volt circuits: Test .0004 amp. Readj. .0008 amp.
Spl. E31 D-20679 Coded E458) (PA)	Test .016 amp. Readj. .011 amp.		Test .0008 amp. Readj. .0015 amp.

CIRCUIT REQUIREMENTS

	OPERATE	NON-OPERATE	RELEASE
56-C Drop	In 21 volt circuit. Test .013 amp. Readj. .0055 amp. In 45 volt circuit. Test .024 amp. Readj. .0055 amp.		
30 Weston Type	Adjust to meet circuit conditions.		

ENG.--WHL-VL.
6/29/21.

CH'D.--WJT-CWP.

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