Western Electric Co., Incorporated,
Equipment Engineering Branch, Hawthorne.

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METHOD OF OPERATION
TRUNK CIRCUIT

Two Way - To Final Multiple And Line Switch - Trouble Desk and Chief Switchman's Desk - Full Mechanical Power Driven System.

GENERAL DESCRIPTION

1. This circuit is used as a two-way trunk between the final multiple and line switch, and the trouble and chief switchman's desk. It is arranged for a flashing lamp signal on incoming calls and a steady busy signal after the desk attendant answers. It is also arranged for flashing with the trunk key in order to speed up the work of the attendant at the desk.

DETAILED DESCRIPTION

OPERATION

INCOMING CALL

2. When the tip, ring and sleeve terminals of this trunk are seized by a final selector, ringing current from the incoming selector operates the L relay through one of its windings. The S relay operates over the sleeve of the trunk from battery supplied in the final selector. The L relay operated, locks from battery on the armature of the CO relay, make contact and winding of the L relay to ground through the auxiliary signal circuit. It also closes a circuit from battery through an interrupter, make contact of the L relay, break contact of the CO relay to ground through the trunk lamp causing the trunk lamp to flash. When the call is answered by the operation of the listening key, a circuit is closed from ground on lead S in the associated telephone circuit, through the make contact of the talking key, winding of the B relay, to battery through the 350 ohm winding of the CO relay, causing the B and CO relays to operate. The operation of the B relay short circuits the 1 m.f. condenser, thus bridging the operating winding of the L relay across the tip and ring of the trunk, causing a relay in the incoming selector circuit to operate and trip the ringing current. The operation of the CO relay, disconnects interrupted battery and connects direct battery to the trunk lamp, thus changing the signal from a flashing to a steady light. The CO relay operated, locks from battery on its right armature and make contact through its 500 ohm winding, to ground on the armature of the S relay.

3. Should the listening key be restored to normal before the final selector releases, the trunk, the circuit through the B relay is opened, causing the relay to release. The CO relay is held operated through its 500 ohm winding

in turn holding the trunk lamp lighted until the trunk terminals are released by the final selector. When the final selector disconnects, the S relay releases, opening the holding circuit through the CO relay, which releases, extinguishing the lamp and restoring the circuit to normal.

OUTGOING CALLS

4. On outgoing calls, a listening key is operated to the talking position operating the B and CO relays. The CO relay operated, lights the trunk lamp as a busy signal. The operation of the B relay shunts the 1 m.f. condenser, bridging the 450 ohm winding of the L relay across the tip and ring of the trunk, causing the associated line switch to function and connect battery on the sleeve, operating the S relay. The S relay operated, closes the locking circuit holding the CO relay operated. During the dialing period in the telephone circuit, ground is removed from the S lead, releasing the B relay, which removes the short circuit from the 1 m.f. condenser, thereby allowing the dialed impulses to pass through the line switch. When dialing is completed, the B relay reoperates, again short circuiting the 1 m.f. condenser. When the listening key is restored to normal, the B relay releases, thereby removing the winding of the L relay from across the tip and ring of the trunk. When the line switch returns to normal, battery is removed from the S lead, releasing the S relay in turn releasing the CO relay and extinguishing the lamp, thus restoring the circuit to normal.

5. The listening key has a hold position to which it may be operated if it is desired to hold the trunk. With the listening key in the holding position, a circuit is closed from ground on its spring, through its make contact, winding of the B relay, to battery through the 350 ohm winding of the CO relay, holding the relays operated as described under "Incoming Calls".

CIRCUIT REQUIREMENTS

	OPERATE		NON-OPERATE		RELEASE	
B139 (S)	Test	.0008 amp.			Test	.0002 amp.
	Readj.	.0007 amp.			Readj.	.0002 amp.
E157 (CO) 350 ohm winding.	Test	.035 amp.	Test	.015 amp.		
	Readj.	.024 amp.	Readj.	.016 amp.		
500 ohm winding.	Test	.038 amp.				
E163 (B)	Test	.038 amp.	Test	.019 amp.		
	Readj.	.029 amp.	Readj.	.020 amp.		
G18 (L) Inner Wdg.	Test	.019 amp.			Test	.009 amp.
	Readj.	.018 amp.			Readj.	.010 amp.
Outer Wdg.	Test	.020 amp.				

ENG.--TML-VL.
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CHK'D.--WHL.

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