

METHOD OF OPERATION
TELEPHONE CIRCUIT

Single Ended Cord - For Listening Monitoring And Dialing - With Repeating Coil Monitoring Feature - Arranged For Machine Ringing And - 24 Induction Coil And Desk Stand - Operating Room Desk #15.

GENERAL DESCRIPTION

1. This circuit is used at the #15 operating room desk, and provides the desk operator with a means of communicating with subscribers and other operators. It is arranged for repeating coil monitoring, talking and dialing, and for tripping machine ringing. It is equipped with a ringing key, and with a flashing key. It is also provided with an operator's set and a desk stand, so arranged that the operator's set may be used, or the head receiver may be used with the desk stand transmitter.

2. When the plug of the cord is inserted in the monitoring jack, the circuit is arranged for monitoring with the keys normal. If the talking or holding key of a key ended trunk is operated at this time, the telephone set is disconnected from the monitoring circuit. To call over a jack ended ringdown trunk, the plug of the cord is inserted in the trunk jack, and the ringing key is operated. The telephone set is bridged across the trunk by the operation of the talking key. In the case of a key ended ringdown trunk, the trunk talking key and the cord ringing keys are operated. A dial is provided for completing calls through mechanical selectors.

DETAILED DESCRIPTION

3. When a call over a key ended trunk is answered, the talking key associated with lighted trunk lamp is operated to the talking position, bridging the B75 relay across the tip and ring of the trunk in series with one winding of the 54 retardation coil, and in parallel with the other winding. The B75 relay operates tripping machine ringing and closing the circuit through the E249 relay, and the special 178 relay, per D-10866, or the 178-AE relay. The E249 relay being fast in operating and slow in releasing while the special 171 or 178 AE relay is slow in operating operates first disconnecting the windings of the E106 and E179 relays, from the armature of the special 178 relay, or 178AE relay. When the special 178 or the 178 AE relay operates, the E 249 relay releases, and a circuit is closed to operate the E106 relay in series with the E179 relay. The E179 relay operated disconnects ringing current and ground from the contacts of the ringing key associated with the cord. The E106 relay operated, releases the special 178 relay or the 178 AE relay and bridges the telephone set across the tip and ring of the trunk. The circuit is arranged in this way so that the interval between the operation of the key and the operation of the E106 relay is sufficient to prevent a flow of ringing current in the receiver. The B75 relay releases quickly, preventing a subsequent flow of ringing current in the receiver, if the cord at the distant end is removed from the jack and immediately re-inserted. After the release of the special 178 relay or the 178 AE relay the E106 and E179 relays are held operated by ground on the make contact of the B75 relay through the make contact of the E106 relay.

If the trunk key is operated to the holding position, the B75, E106 and E179 relays release and ground is connected to lead B, operating the E11 relay which disconnects the telephone set from the trunk.

4. When the call is incoming over a key ended tie line, the B75 relay and the 54 D retardation coil are not bridged across the trunk, but ground is supplied to operate the E106 relay in series with the E179 relay, by the operation of the trunk talking key which connects ground to lead A.

5. The contacts of the flashing key are arranged to operate on a fixed sequence. When the key is operated, the E247 relay operates, opening the ringside of the trunk, and holding the E106 and E179 relays operated. Immediately after the operation of the E247 relay, a condenser is connected in series with the B75 relay and the 54 retardation coil, bridged across the trunk lighting the distant cord supervisory lamp. This cycle of operations reduces the click produced in the receiver, when the condenser is connected in the circuit through the B75 relay and 54 retardation coil. When the flashing key is released, the above cycle is reversed, releasing the E247 relay, and closing the ringside of the trunk. The E247 relay is made slow in releasing, to prevent the ringside of the trunk being closed until after the condenser is removed from the supervisory bridge across the tip and ring of the trunk, thereby reducing the click in the receiver.

6. A call over a jack ended trunk or tie line, is answered by inserting the plug of the cord in the jack and operating the associated talking key. The operation of the talking key, disconnects the 27F repeating coil, bridges the telephone set across the line, and operates the E249 and special 178 or 178 AE relays which function as described in paragraph 3.

7. To originate a call over a key ended trunk or tie line, the talk key associated with the trunk is operated. In the case of an automatic trunk or tie line, the operation is the same as on an incoming call. In the case of a ringdown trunk, the B75 relay is bridged across the line but does not operate until the call is answered. Therefore, the E179 relay does not operate, the operation of the cord talking key to the ringing position and connects ringing current to the trunk. Instead of ringing on the line, the call may be completed by means of the dial which opens and closes the supervisory bridge, thus producing pulses for controlling the mechanical apparatus. To originate a call over a jack ended ringdown trunk or tie line, the plug of the cord is inserted in the trunk jack. The talking key is then operated to the ringing position, lighting the trunk lamp at the distant end. When the talking key is operated to the talking position, the telephone set is bridged across the trunk. If the call is to an automatic office, instead of operating the ringing key, the talking key is operated, and the desired number is dialed.

8. When the plug of the telephone set is inserted in the telephone jack, the special E24 relay per D14054, or the E535 relay operates in series with the transmitter and the primary of the 24 induction coil. The operation of the special E24 or

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the E535 relay, disconnects the transmitter of the special 20 CM desk stand per D12746 or the 20 BU desk stand, and connects that of the head set. The head receiver may be used with the special 20 CM desk stand, by inserting the 137 plug of the 87 cord which has no transmitter, in the lower pair of telephone jacks. In this case the special E24 or E535 relay does not operate.

CIRCUIT REQUIREMENTS

	<u>OPERATE</u>	<u>NON-OPERATE</u>	<u>RELEASE</u>
B75	Through relay winding Readj. .005 amp.		Through relay winding Readj. .0025 amp.
	In parallel with one winding of 54-D re- tardation coil. Test .051 amp. Readj. .038 amp.		In parallel with one winding of 54 D retard- ation coil. Test .018 amp. Readj. .019 amp.
E11	Test .026 amp. Readj. .014 amp.	Test .0095 amp. Readj. .010 amp.	
E106	Test .029 amp. Readj. .0275 amp.	Test .014 amp. Readj. .015 amp.	
E179	Test .023 amp. Readj. .016 amp.	Test .010 amp. Readj. .011 amp.	
E247	Test .023 amp. Readj. .021 amp.		Test .0009 amp. Readj. .001 amp.
E249	Test .020 amp. Readj. .019 amp.		Open Circuit
Special E24 Coded E535	Test .0058 amp. Readj. .0055 amp.	Test .0035 amp. Readj. .0037 amp.	
Special 178 per D10866 Coded 178 AE	Test .050 amp. Readj. .047 amp.	Test .030 amp. Readj. .032 amp.	

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