

2 - WIRE REPEATER CIRCUIT 18899 A-1

ONE WAY TRUNK WITH O.G. SECONDARIES TO  
W.E. CO. MANUAL TRUNKS.

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GENERAL            The functions of this switch are briefly outlined as follows:

1. Hold the switches back of it in their operated positions.
2. Repeat impulses to the switch ahead when calling an automatic subscriber.
3. Close a signal circuit to the manual operator when calling a manual board.
4. Reverse battery to the calling party when the called subscriber or the manual operator answers.
5. Remain "busy" to all calls while the operator has the make busy key operated.
6. Operate the master switch so as to pick up all idle plungers after if this trunk is cleared after the make busy key is operated.
7. Release the other switches when the calling party hangs up his receiver.

AS A REGULAR REPEATER

RELAY A            When this switch is selected A operates thru the back contacts of D; prepares a part of the loop circuit to the switch ahead; and closes the circuit to B.

RELAY B            B operates from ground at A; grounds the release trunk so as to hold the switches back of it in their operated positions; prepares the circuit to C; closes the loop circuit to the switch ahead; and closes the circuit to the 1900 ohm winding of F.

RELAY F            F will not operate when its 1900 ohm winding is energized alone. The line relay of the switch ahead operates thru the make contacts of A, the 250 ohm winding of E, the back contact of D, the 60 ohm wind-



ing of F, the back contact of C, and the make contact of B. F will not operate at this time because its two windings are polarized in opposite directions.

CHAIN  
RELAY

E operates thru its 250 ohm winding and closes the chain relay circuit. The chain relays are so connected that whenever all the trunk circuits in a group are busy a meter will operate.

IMPULSING

At each interruption of the circuit at the calling device, A drops back and closes the circuit to C. C

RELAY  
C

operates from ground at A thru the make contact of B; closes a guarding circuit to the chain relay to prevent the chain relay from restoring while the circuit to E is open; and switches the loop circuit to the switch ahead thru the make contacts of B, C, and A instead of thru the 60 ohm winding of F and the 250 ohm winding of E.

2000 OHM  
COIL

The 2000 ohm coil across the back contacts of C prevent an extra impulse from being sent to the switch ahead as C switches the loop circuit from the high resistance to the low resistance loop. This 2000 ohm coil also absorbs any "kick" from the talking condensers that might interfere with dialing.

As A operates, in response to the impulses from the dial, it opens and closes the loop circuit to the switch ahead thus relaying the impulses to the switches ahead which complete the connection.

ANSWERING

When the party called answers, battery is reversed thru the 60 ohm winding of F, and F operates, since its two windings are now polarized in the same direction.



F shunts the back contact of C and the make contact of A thru which the line circuit is taken so as to prevent the condenser "kick" from momentarily de-energizing A when battery is reversed. F also closes a circuit to D.

RELAY D

D operates from ground at F; reverses the battery to the calling party so as to operate a meter or coin collect apparatus; places another 2 M.F. condenser on each side of the line in multiple with the regular condenser so as to increase transmission; and places the 750 ohm winding of E in series with the 250 ohm winding.

RELAY E

E remains operated thru its two windings in series with the 60 ohm winding of F and line relay of the switch ahead and holds the chain relay circuit closed. The 750 ohm additional impedance is placed across the line so as to improve transmission.

TALKING

The talking circuit is now complete thru the make contacts of B and F and the four 2 M.F. condensers, one on each side of the line.

RELEASING

When the calling party hangs up his receiver, A restores and opens the circuit to B. B removes ground from the release trunk so as to allow the switches back of it to restore; and opens the loop circuit to the switches ahead so as to allow them to release. The switch is now available for other calls.

AS A REPEATER ON W.E. CO. MANUAL TRUNKS.

When this switch is connected to a manual trunk it does not repeat impulses to the manual office. As soon as this switch is selected A and B operate and



close the loop circuit to the manual office thru the 60 ohm winding of F and the 250 ohm winding of E as previously explained. This loop circuit lights a lamp SIGNALING at the manual board as a signal that the connection is desired. The operator plugs into the jack in answer to the signal and then completes the connection to the desired party.

When the called party answers, battery is reversed thru the 60 ohm winding of F. F operates and closes the circuit to D as previously explained. D reverses battery to the calling party and places the 750 ohm winding of E in series with the 250 ohm winding as additional impedance across the trunks.

RELEASE

When the calling party hangs up his receiver the connection is released as previously explained.

MAKE  
BUSY  
CIRCUIT

Lead "K" is connected to a key so that whenever an operator leaves her position she can operate this key and place ground on the release trunk of the circuit associated with her position thru the back contacts of C.

RELEASE

Lead "L" is connected to the start relay of the master switch controlling the secondary line switches associated with this trunk. When a connection is released after the make busy key has been thrown, A restores and operates C momentarily thru the make contact of B. C closes a circuit from ground at the make busy key over lead "K" (jacks 14 & 15 are jumpered) thru the make contacts of C to the master switch start relay



ver lead "L". The start relay causes the master switch to operate and pick up the idle O.G. secondary plunger just released by the calling party. This plunger and all other plungers that are released after a make busy key is thrown are picked up so as to busy all the trunks ending at the position where the make busy key is thrown and thus direct calls to some other position. B, E, F, D, and C restore in turn after the circuit to A is opened.

AUTOMATIC ELECTRIC COMPANY  
KWG- RM.....  
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