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1928

CIRCUIT EXPLANATION
OF
LOCAL P.L.A.X. CONNECTOR
CIRCUIT H-51303-A

USE WITH
PRINT

FUNCTIONS

1. HOLD THE SWITCHES BEHIND OPERATED AND MAKE ITSELF BUSY.
2. CONNECT THE WIPERS TO THE DIALED LINE.
 - 2.1 Start the ringing and busy machine.
3. TEST THE DIALED LINE.
4. SWITCH THRU TO A FREE LINE.
 - 4.1 Make the line busy.
5. RING THE DIALED STATION.
 - 5.1 Give the dialing party the ring back tone.
6. COMPLETE THE CONNECTION WHEN THE CALL IS ANSWERED.
 - 6.1 Remove the generator from the dialing and dialed lines.
 - 6.2 Reverse the battery on the dialing line.
 - 6.3 Supply transmission battery to the dialing and dialed lines.
7. RELEASE WHEN THE LAST PARTY DISCONNECTS.
 - 7.1 Allow the switches behind to release when the dialing party disconnects.
 - 7.2 Make itself free when the last party disconnects.
 - 7.3 Give an alarm if it fails to release.
8. PREVENT INTRUSION ONTO A BUSY LINE.
 - 8.1 Give the dialing party the busy tone.
 - 8.2 Allow the connection to release and make itself free when the dialing party disconnects.

OPERATION

1. SEIZURE

When this switch is seized, 'A' is energized over the line. 'A' operates and closes the circuit to B. B operates and grounds the release trunk, to hold the switches behind operated and to make this switch busy.

2. CONNECTING THE WIPERS TO THE DIALED LINE

VERTICAL MOVEMENT OF THE SHAFT

'A' follows the impulses of the first series from the dial and, thru its back contact, closes the circuit to C and the vertical magnet. C operates and prepares another circuit to the vertical magnet. The vertical magnet raises the shaft, moving the wipers to the dialed level. Due to their slow release actions, B and C remain operated during impulsing.

The off normal springs operate on the first step of the shaft transfer the impulsing circuit thru a make contact of C; and ground the MOT.ST. lead to start ringing and busy machine.

After the last impulse of this series, C restores and transfers the impulsing circuit from the vertical magnet to the rotary magnet.

*NOTE: A, B, ETC. REFER TO RELAYS A, B, ETC.

MOTOR
START

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ROTARY MOVEMENT OF THE SHAFT

A follows the impulses of the second series from the dial and, thru its back contact, closes the circuits to E and the rotary magnet. E operates; opens a part of the incomplete circuit to the 125 ohm winding of K so that K will not operate and open the impulsing circuit when the R.T. wiper passes over free lines; connects J thru to the R.T. wiper; and short circuits the back contact of J thru which the impulsing circuit is taken so that this circuit will not be opened when J operates as the R.T. wiper passes over busy lines. The rotary magnet rotates the shaft, moving the wipers to the dialed line. Due to its slow release action, E remains operated during impulsing.

3. TESTING THE DIALED LINE

When the dialed line is busy, the circuit to J is closed from ground on the R.T. wiper thru a make contact of E. The operation of this switch when a busy line is encountered is explained under heading number eight.

When the dialed line is free, E, on restoring (after the series of impulses to the rotary magnet), closes the circuit to the 125 ohm winding of K in series with the bridge cut-off relay in the dialed lineswitch over the R.T. wiper. K is slow to operate so that the bridge cut-off relay will operate first, thereby eliminating the possibility of the dialed lineswitch seizing a trunk.

4. DIALED LINE FREE

K, on operating, closes its locking circuit; opens parts of the incomplete circuits to J and the rotary magnet so that they will not operate if the circuit to A is again interrupted; replaces the indirect ground on the R.T. wiper (which makes the dialed line busy) with direct ground; places interrupted generator current on the dialed line; and places the ring back tone current on the dialing line.

5. RINGING THE DIALED STATION

The interrupted grounded generator current completes a circuit thru the ringer and condenser at the dialed station to battery thru the 200 ohm winding of F, causing the bell at the dialed station to ring intermittently. The copper sleeve and slug of F prevent the generator current from causing F to operate.

RING BACK TONE

Part of the generator current completes a circuit thru the M condenser and the telephone at the dialing station, to give the dialing party the ring back tone.

6. COMPLETING THE CONNECTION WHEN THE CALL IS ANSWERED

When the receiver at the dialed telephone is removed, the direct current circuit to the 200 ohm winding of F is closed thru the loop at the dialed station. F operates; closes the circuit to its locking winding; removes the generator current from the dialing and dialed lines; and closes the circuit to D thru the loop at the dialed station.

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REVERSING THE BATTERY ON THE DIALING LINE

D operates; reverses the battery on the dialing line so that a meter or coin collector will be operated, if such service is used; and places a multiple locking ground on the locking circuits to F and K.

TRANSMISSION

Transmission battery is supplied to the dialing and dialed lines thru A and D respectively.

7. RELEASINGDIALING PARTY REPLACES RECEIVER BEFORE DIALED PARTY

When the receiver at the dialing telephone is replaced first, the circuit to A is opened. A restores; opens the circuit to B; and closes the circuit to K. E operates and removes the ground on the R.T. wiper from the release trunk to allow the switches behind to release. B, on restoring, removes a multiple ground from the release trunk; opens the circuit to E (E, on restoring, grounds the release trunk from ground on the R.T. wiper, to make this switch busy); and opens the multiple locking circuits to F and K.

When the receiver at the dialed telephone is replaced, the circuit to D is opened. D restores; opens the locking circuits to F and K (K, on restoring, removes the ground from the release trunk, to make this switch free); and closes the circuit to the release magnet. The release magnet operates, allowing the shaft to return to normal and restore the off normal springs. The off normal springs open the circuit to the release magnet; and removes ground from the MOT.ST. lead to stop the ringing and busy machine.

DIALED PARTY REPLACES RECEIVER BEFORE DIALING PARTY

When the receiver at the dialed telephone is replaced first, D restores; and opens the multiple locking circuits to F and K. The entire connection is held until the receiver at the dialing telephone is replaced.

When the receiver at the dialing telephone is replaced, A restores and allows B to restore. B removes the ground from the release trunk, to allow the switches behind to release and to make this switch free; opens the locking circuits to F and K; and closes the circuit to the release magnet, to cause this switch to release.

RELEASE ALARM

The battery to the release magnet is taken thru a supervisory relay, to give an alarm if the shaft fails to restore the off normal springs.

8. DIALED LINE BUSY

When the dialed line is busy, J operates; opens a part of the incomplete circuits to E and the rotary magnet so that they will not

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operate if the circuit to A is again interrupted; opens a part of the incomplete circuit to the 125 ohm winding of K, to prevent K from operating if the dialed line becomes free; and places the busy tone current on the dialing line, to give the dialing party the busy tone. E, on restoring (after the series of impulses to the rotary magnet), closes the locking circuit to J so that J cannot restore (if the dialed line becomes free) and cause this switch to switch thru to the line.

RELEASING

When the receiver at the dialing telephone is replaced, A restores and allows B to restore. B removes the ground from the release trunk; opens the locking circuit to J; and closes the circuit to the release magnet, to cause this switch to release.

SPARK ABSORPTION

A condenser to ground, connected to a contact of B, prevents excessive sparking at the break contact of A. The non-inductive resistance winding of the release magnet prevents excessive sparking at the off normal release springs.

CPC:AEH

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