

ISSUE NO. 1

RETYPE
-7-42
RAC.TORN

5-7-42
J. WLP

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10-71931
CLASS "B"
RETYPE
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1-31-47
Eg 3-2-5-47

mk
Auto.

ISSUE NO. 3

CIRCUIT EXPLANATION
OF
PAGING TRANSFER SYSTEM CIRCUITS
SELECTIVE RINGING
12 VOLTS
CIRCUIT H-61293

ABBREVIATIONS

A, B, Etc. = Relay A, B, Etc. unless otherwise specified.
Closes (opens) A,B,Etc. = Closes (opens) the circuit to A, B, Etc.

Unless otherwise specified, relays operate (release) when their circuits are closed (opened).

OPERATION

1. ESTABLISHING A LOCAL CONNECTION

The LOCAL SELECTIVE RINGING CIRCUIT is common to all telephones in the system. When a local call is initiated, A is closed over the L1 and L2 leads and the loop of the calling telephone. A closes C; opens part of an incomplete circuit to E, and the ROT magnet. C prepares a circuit to E and the ROT magnet; and prepares N and the signalling circuit. The calling party now dials the number of the desired party, opening and closing A. A follows the impulses and when at normal, closes E and the ROT magnet. E will remain operated during the series of pulses; opens the starting circuit to N; and opens the circuit to the wiper of the minor switch. The ROT magnet follows the impulses of A and rotates the wiper to the contact dialed. After dialing is completed, E will restore; close N; and close battery from the off normal springs of the minor switch to the wiper. Battery on the bank contact, that was dialed, will cause the called station to be signalled. N operates causing its weighted spring to close an intermittent circuit to G. G is slow to operate and does not operate on the intermittent circuit. When the weighted spring of N comes to rest, G operates. G opens the signalling circuit, and closes the RLS magnet. The minor switch returns to normal and opens N. N opens G. G opens the RLS magnet and prepares the signal circuit. The called party was signalled during the operate time of G. If the called party does not answer and the calling party wishes to signal again, it is only necessary to repeat the dialing. Each time the called party's number is dialed, the station will be signalled.

Transmission battery is supplied both the calling and called parties thru the winding of A.



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When both parties have disconnected, the circuits over the L1 and L2 leads of both telephones are opened, opening A. A opens C; and closes E and the ROT magnet. The minor switch will be rotated to contact #1. C opens E and the ROT magnet; and transfers battery from the signal lead and starting circuit for N to the RLS magnet. The minor switch restores to normal opening the RLS magnet.

2. COMPLETING INCOMING CALLS FROM THE CENTRAL OFFICE

To answer a call coming in over trunk #1, TRK 1 key (Fig. A or B) at the telephone over which the call is answered is operated, disconnecting that telephone from the local circuit, and connecting it to the T-1 and T-2 leads so that it is connected to trunk #1 over the "+" and "-" leads to complete the connection. Transmission battery is supplied the called party, on incoming calls, from the central office.

If the call should be answered by some one other than the particular person desired, the person answering the call may call the desired person by making a local call as described under heading number one. When the desired party answers the local call, the party which first answered the central office call informs the desired party that he is wanted on a trunk call and tells him which trunk he should answer on. The desired party then operates TRK 1 key at his telephone to pick up the trunk call (assuming the call is on trunk #1). The original party to answer the call then checks back on the trunk to see if the desired party picked up the call, and, if such is the case, hangs up to disconnect his telephone from the trunk. To transfer a call in the above manner the party answering the central office call, restores TRK 1 key at his telephone while making the local call and then reoperates it when checking to see if the desired party picked up the call. During this time, however, a bridge placed across the trunk by the key at the answering telephone holds the connection at the central office. If the incoming call is over trunk #2, then the party answering the call operates key 2 at his telephone and, by so doing, connects the "+" GRD. lead to the TA lead closing B1 (assuming the call is answered by FIG A). B1 operates and transfers the T-1 and T-2 leads to the answering telephone from the trunk #1 leads to corresponding leads of trunk #2 to complete the connection to trunk #2. The other operations may be performed the same as on trunk #1, except that B1 remains operated during transferring and restores to connect the T-1 and T-2 leads to corresponding leads of trunk #1 when the connection is released.

3. COMPLETING CALLS TO THE CENTRAL OFFICE

To make a call to the central office the calling party operates TRK 1 key or TRK 2 key, depending upon which trunk he desires to make the call over, or which trunk is free. The operation of either key disconnects the telephone from local connections; connects it to the T-1 and T-2 leads; and in the case of TRK 2 key being operated, the circuit is closed to B1 (assuming the call is initiated by FIG A) to cause the calling telephone to be connected to trunk #2. The bridge of the calling telephone across either trunk seizes a switch in the central office and prepares it for dialing, if the central office is automatic; or signals an operator, if the central office is manual.

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When the central office is automatic, the calling Party completes the connection by dialing, otherwise the operator at the central office completes the desired connection.

4. PROVIDING FOR SECRET SERVICE (Using Fig. B)

When secret service is required on a telephone, relays J, L and M are used. Only one telephone in the system may be provided with secret service in this manner and requires an additional key, making a total of three keys at this telephone.

When the incoming call is over trunk #1, TRK 1 key at the three key telephone is operated, disconnecting the telephone from the local circuit, and completing the circuit to trunk #1 over the T-1 and T-2 leads of this telephone. To make the conversation over trunk #1 secret, the Secret Service key at the telephone is now operated closing the circuit from the "+" GRD lead over the T lead to L. L operates and disconnects the leads of trunk #1 from the succeeding equipment so that no other connection can possibly be made to trunk #1 at this time, consequently the conversation is secret. If the Secret Service key is not operated as above the connection over the three key telephone is not secret and is the same as a connection over a two key telephone. When the connection is released, the circuit to L is opened allowing it to restore and make trunk #1 available to the other telephones.

When the incoming call is over trunk #2, TRK 2 key at the three key telephone (Fig. B) is operated to connect that telephone to trunk #2. When the key is operated, the circuit to M is closed over the TA lead to the "+" GRD lead. M operates; prepares the circuit to J; opens part of the incomplete circuit to L; and transfers the T-1 and T-2 leads from the trunk #1 leads to the corresponding trunk #2 leads. To make this call secret the Secret Service key is operated as before, but this time closes the circuit to J. J operates and disconnects the trunk #2 leads from the succeeding equipment making trunk #2 secret to the three key telephone. When this connection is released the circuits to M and J are opened. M restores, transfers the T-1 and T-2 leads of the three key telephone from the trunk #2 leads to the trunk #1 leads; opens part of the incomplete circuit to J; and prepares the circuit to L. J restores and connects trunk #2 thru to the succeeding equipment to make it available to the other telephones. Outgoing calls are made from this telephone in a manner similar to two key telephones and are made secret as described above.

It should be noticed that when a call is made secret on one trunk, the other trunk is still available to other telephones. This system has a capacity of three simultaneous calls consisting of two trunk calls and one local call.

5. CODE CALLING

When code calling is required, Fig. 4 is used which furnishes a code calling key. When the key is operated, battery is closed to all the stations requiring code call, operating all the station's local signallers simultaneously. The key may be operated intermittently coding the station desired.

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SPARK ABSORPTION

The non-inductive resistance windings of C, E and the ROT magnet prevent excessive sparking at the contacts of A when dialing is performed locally to signal a local party. The non-inductive windings of G prevents excessive sparking at the contacts of N. The non-inductive winding of the RLS magnet prevents excessive sparking at the off normal springs of the minor switch.

HWB:AS

(4) EJZ:cm



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