

RING BACK SWITCH CIRCUIT 18838 A

FOUR PARTY SEMI-SELECTIVE

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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. Start the interrupter.
3. Execute the rotary movement of the shaft under control of the calling device.
4. Keep the wipers disconnected during rotation so as not to interfere with the lines over which they rotate.
5. Select the proper code call for ringing.
6. Either release or hold up other switches during conversation.
7. Operate an alarm signal if the release circuit remains closed.

When a party on a party line desired to call some one on his own line, he calls the number listed on his ring back card and hangs up his receiver. When his bell stops ringing, he again removes his receiver and talks. The last digit of this set of numbers is different for each party on the line.

LINE
RELAY
A

When this switch is selected, A* operates and closes the circuit to B thru the back contact of E. B opens the

RELEASE
RELAY
E

release circuit; grounds the release trunk so as to hold the switches back of it in their operated positions; and prepares the impulsing circuit.

IMPULSING

At each interruption of the circuit at the calling device, A drops back and operates the rotary magnet in series with C thru the make contact of E. The rotary magnet steps the wipers around to the called number.

ROTARY
MAGNET

*NOTE: A.B. etc., refer to relays A.B. etc.,

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ROTARY
SPARK
COND.

A 1/2 M.F. condenser in series with a 10 ohm resistance to ground, connected to the make contact of B, prevents excessive sparking at the impulse springs of A.

OFF
NORMAL
SPRINGS

The off normal springs close on the first rotary step and operate G.

RELAY
C

C holds the circuit to D open during impulsing. After the last impulse, C drops back (not having dropped back during interruptions on account of its slow release action) and prepares the circuit to D.

When the calling party hangs up his receiver, A falls back and closes the circuit to D thru the make contacts of B and G and the back contacts of C and E.

RELAY
D

D opens the circuit to A; closes a part of the line circuit; closes a circuit to B, so B cannot restore and release the switch; grounds the interrupter start lead so as to start the ringing interrupter; and closes the pick up lead thru to H. As soon as the ringing interrupter starts it operates a relay on the ring back equipment which grounds the pick up lead thus operating H.

RELAY
H

H locks itself to ground at B; and closes the line circuit thru to the wipers.

RINGING

The proper code call ringing is placed on the lines from the ring back relay equipment (ckt. 18839) thru the 200 phm winding of F and the make contacts of D and H. The code call placed on the line is determined by the number called. The last digit of the number is different for each party on the line.

RELAY
F

F is marginal and will not pull up with the ringing current in series with the ringers and condensers across

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the line. The copper sleeve and slug over the core of F give it a greater range of adjustment and also reduce the impedance to the ringing current. When either party raises his receiver F operates thru the telephone loop and closes the circuit to E.

RELEASE

E opens the circuits to D and B and locks itself to ground at the off normal springs. B restores; removes ground from the release trunk thus allowing the switches back of it to release; and closes the release circuit from ground at A thru the make contact of G.

RELEASE
MAGNET

The release magnet releases the switch. When the shaft returns to normal the circuit to G is opened at the off normal springs. G restores and opens the circuit to the release magnet. A 500 ohm resistance wound on top of and in multiple with the release magnet prevents excessive sparking at the make contact of G.

RELEASE
SPARK
COIL

RELEASE
SIGNAL
RELAY

The battery to the release magnet is taken thru a slow acting relay associated with the shelf so that in case the release circuit remains closed an alarm will be given. This relay is slow acting so that in case the number of calls is to be registered a meter can be operated.

STRAP
"X"

If the selectors associated with this switch use the dial tone it is necessary to hold them locked up during conversation so as to prevent dial tone being placed on the line. The back contact of E thru which the circuit to B is taken is then strapped by "X".

When E operates it opens the circuit to D but the circuit to B remains closed by means of X. D restores and closes the circuit to A. A operates and closes the circuit to B thru the strap "X". B remains operated and

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holds up the switches back of it during conversation.
When the parties hang up, A and B restore and close the
release circuit thru the make contact of G/ The
release takes place as before explained.