

755-A

Sequence Charts



EASTERN AREA—PLANT DEPARTMENT
THE BELL TELEPHONE COMPANY OF PENNSYLVANIA
THE DIAMOND STATE TELEPHONE COMPANY

MARCH 1956

REFERENCES

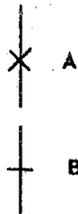
CIRCUIT	DRAWING
Central Office Trunk	SD-66503-01
Charge and Discharge	SD-80588-01
Line, Line Switch and Call Allotter	SD-66504-01
Link and Link Allotter (Original)	SD-66505-01
Link and Link Allotter (Revised)	SD-66611-01
Station and Control Key	SD-66507-01
Tie Trunk, Dial Repeating 2-way	SD-66601-01
Tone, Ringing, Alarm and Common Timing	SD-66506-01
MISCELLANEOUS FEATURES	
Class of Service Leads (N.L., L.O., R.S.)	CD-66503, para. 5 and 9 SD-66503-01 SD-66504-01
Common Ringers - Trunk and Station	CD-66503, para. 11.1 CD-66504 para. 5.34 SD-66503-01
Control Key - Modifications	CD-66504, para. 7 SD-66504-01
Emergency Trunk Service	CD-66507, para. 9 SD-66507-01
Keyless Station	CD-66504, para. 6 SD-66504-01
Line Hunting	CD-66505 or 66611, para. 14 SD-66505 or 66611-01
Pick-up Key	CD-66504, para. 5.35 SD-66504-01
Station Line Lamps	CD-66504 para. 5.34 SD-66504-01

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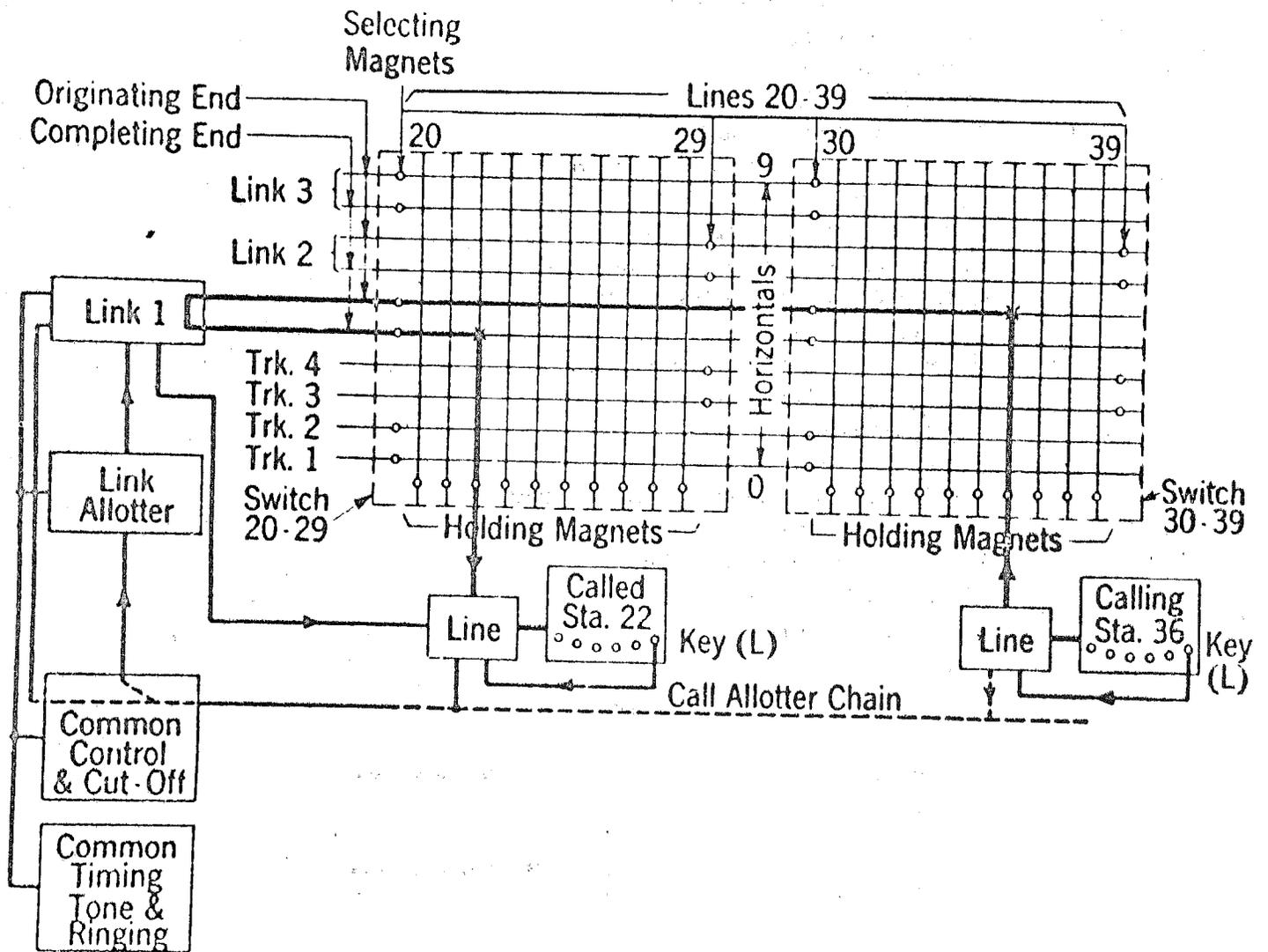
2	Typical Local Call
3	Typical Outgoing Trunk Call
4	Link Allotment
5	All Links Busy
6	Link Seizure from Key Station
7	Dialing Tens Digit
8	Dialing Units Digit
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LEGEND

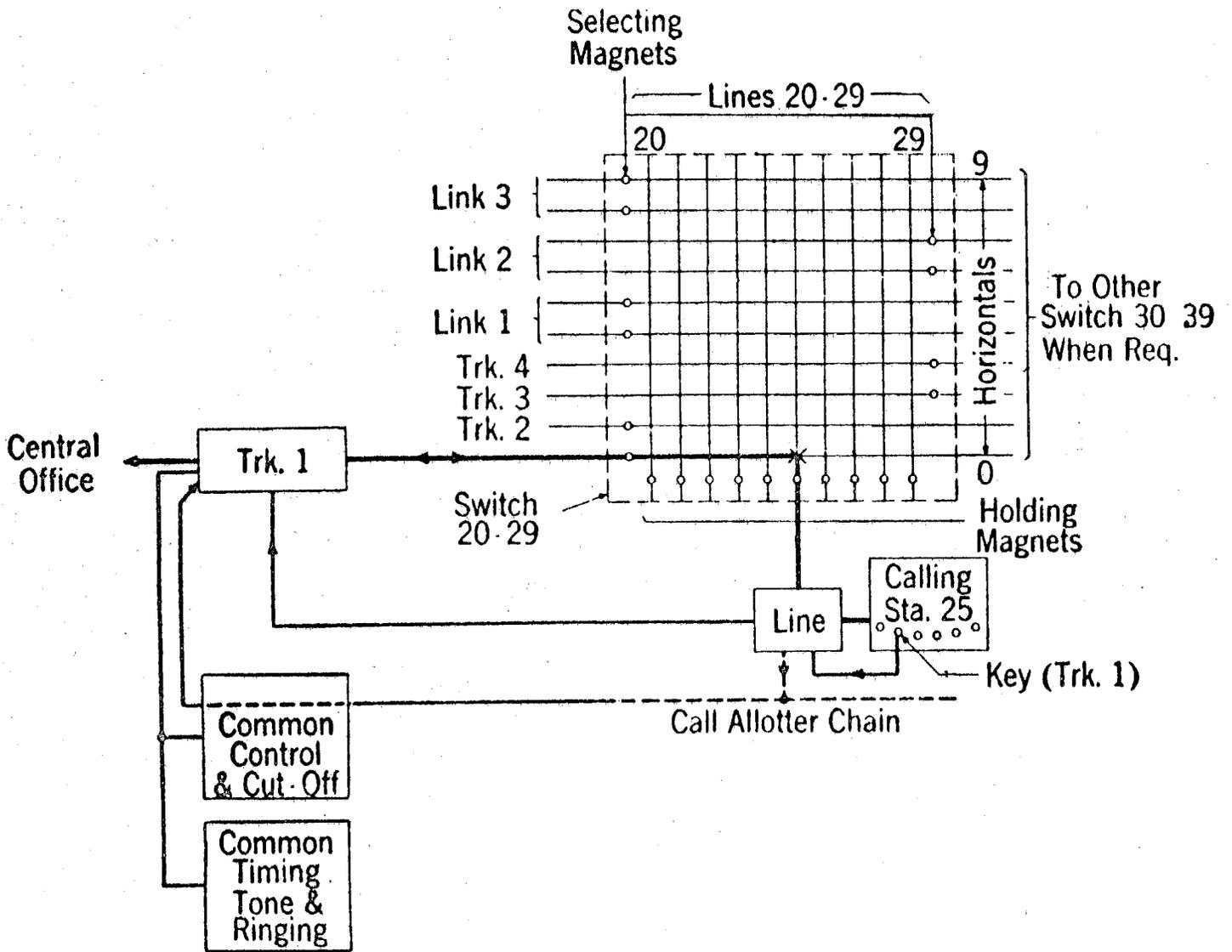


(A) Relay operates

(B) Relay releases



Typical Local Call



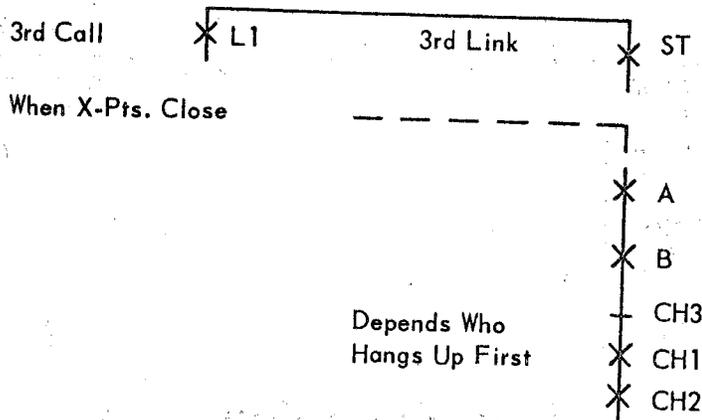
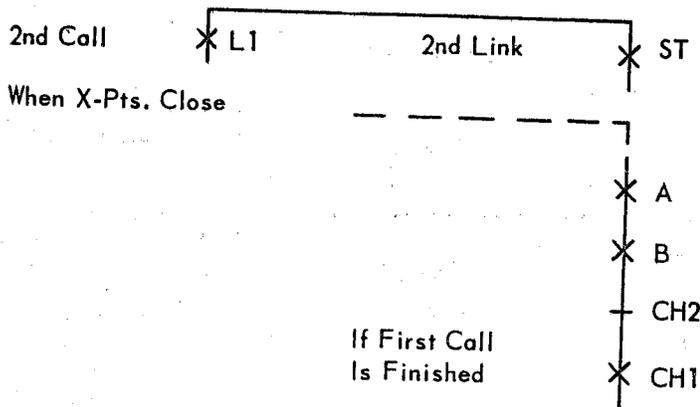
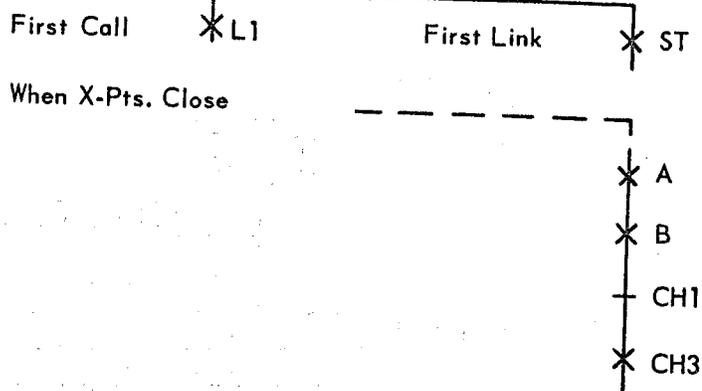
Typical Outgoing Trunk Call.

LINK ALLOTMENT

Line - Line Switch
Call Allotter Cct.
SD66504-01

Link
Link Allotter Cct.
SD66505-01 or SD66611-01

CH1 & CH2 - OP. - CH3 NORM.



RELAYS OPERATED

RELAYS NORMAL

LINK SELECTED

CH1
CH1 and CH2
CH1 and CH3
CH2
CH2 and CH3
CH3
-

CH2 and CH3
CH3
CH2
CH1 and CH3
CH1
CH1 and CH2
CH1, CH2 and CH3

First
First
Last
Intermediate
Intermediate
Last
None

ALL LINKS BUSY

Line, Line Switch, Call Allotter
SD-66504-01

Link, Link Allotter
SD-66505-01
SD-66611-01

Ringing, Tone
Common Timing
SD-66506-01

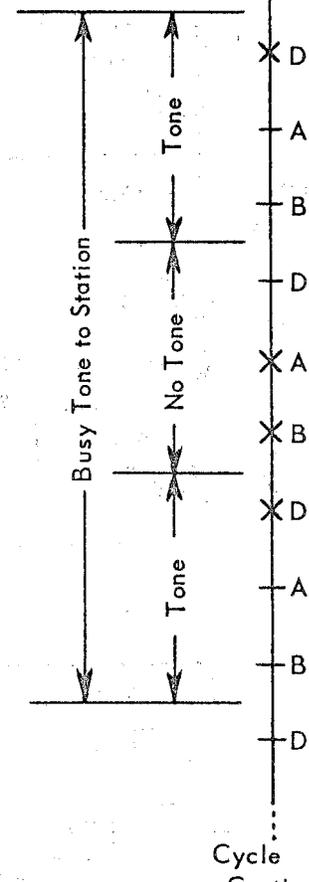
R.O.H. X L

L1 Relay Marginal
Does Not Operate

X BY

X T1

X A X T
Buzzes



Sta.
Hangs
Up. L

BY

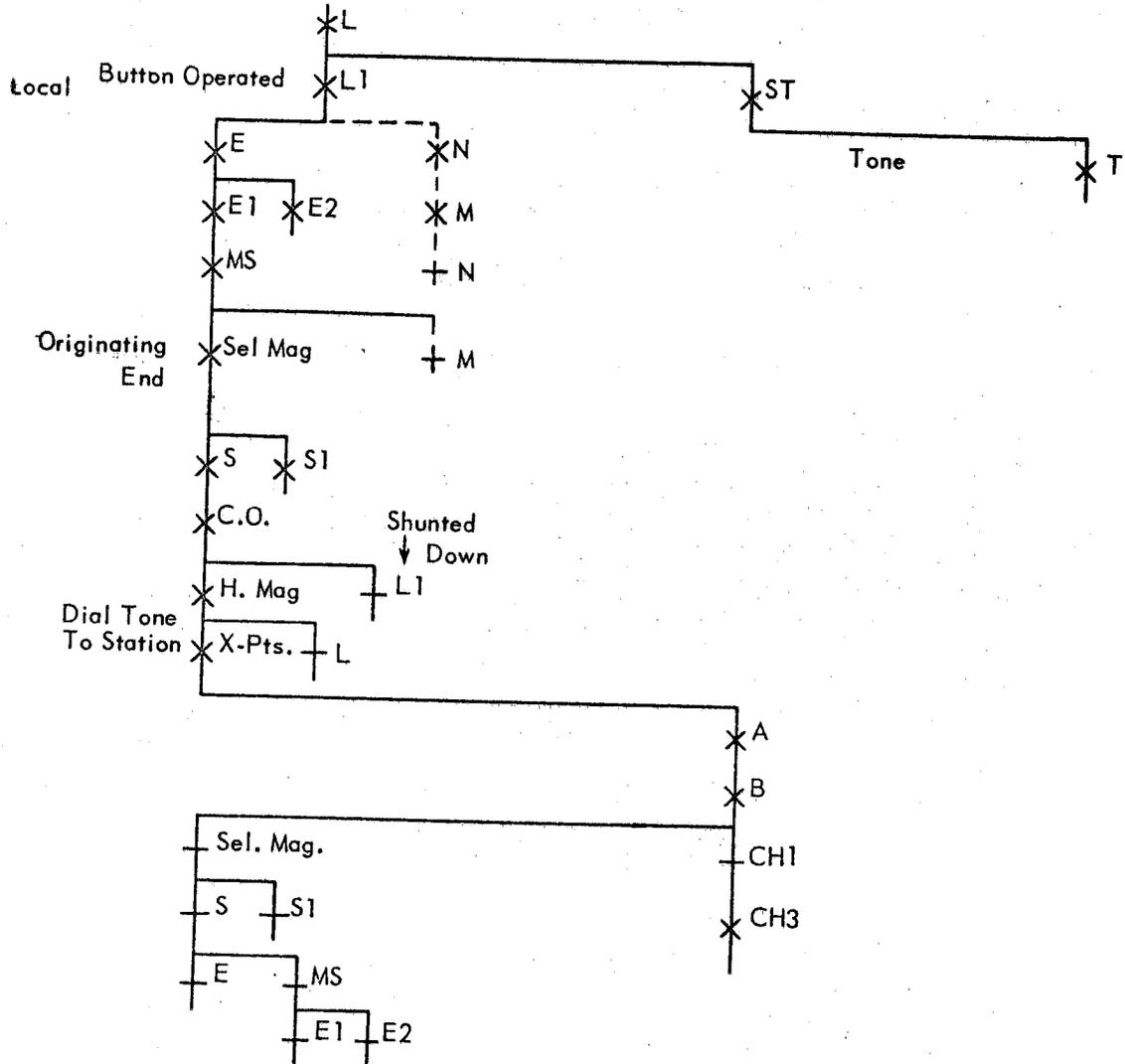
T1

A(B)(D) T

No Tone

LINK SEIZURE FROM KEY STATION

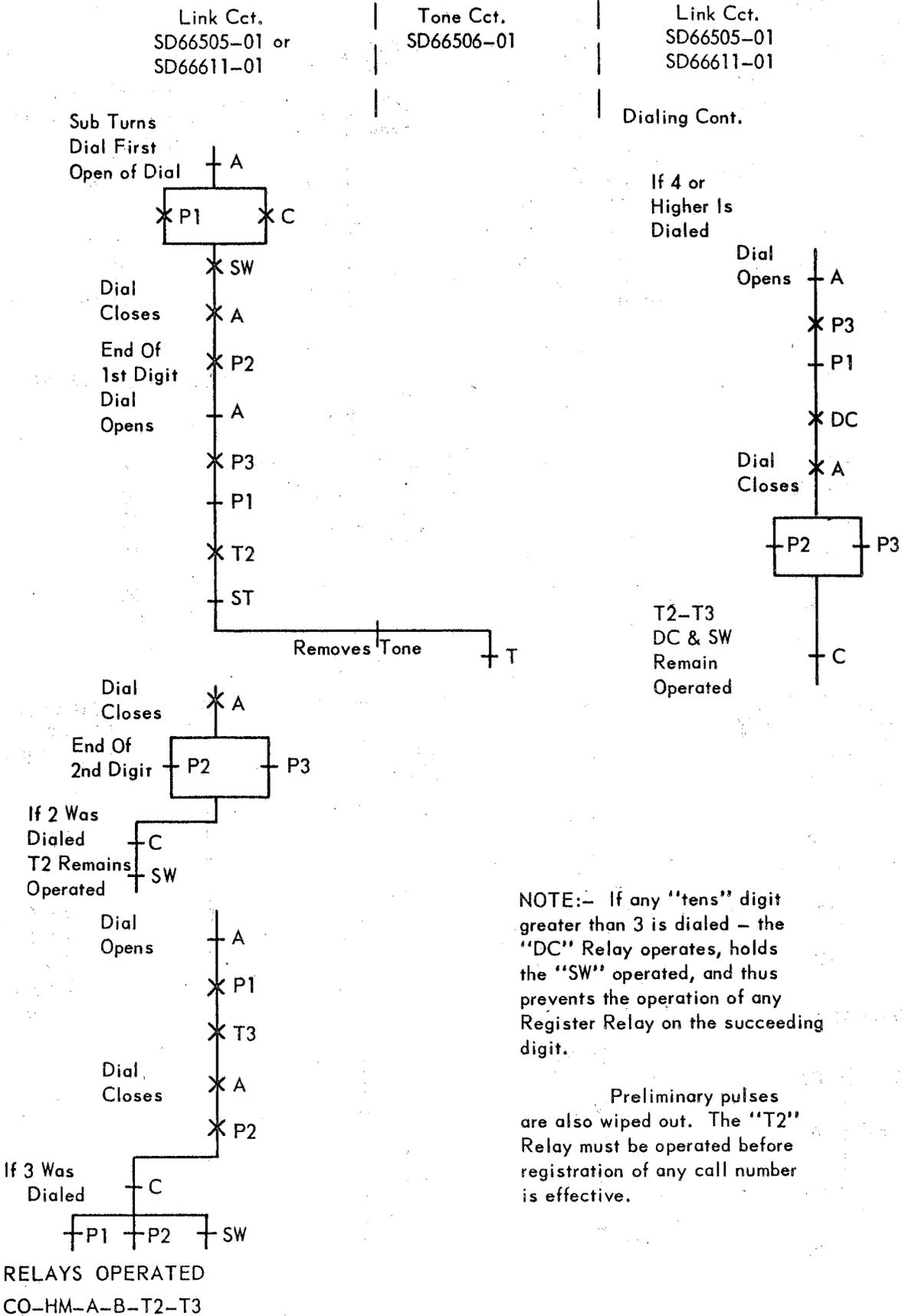
Line - Line Switch	Link	Ringing Common
Call Allotter Cct. SD 66504-01	Link Allotter Cct. SD66505-01 or SD66611-01	Timing & Tone Cct. SD66506-01
R.O.H.		



STATION READY TO DIAL

Relays Operated
C.O.-HM-A-B-ST-T

DIALING TENS DIGIT



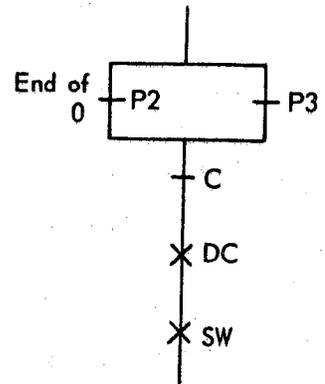
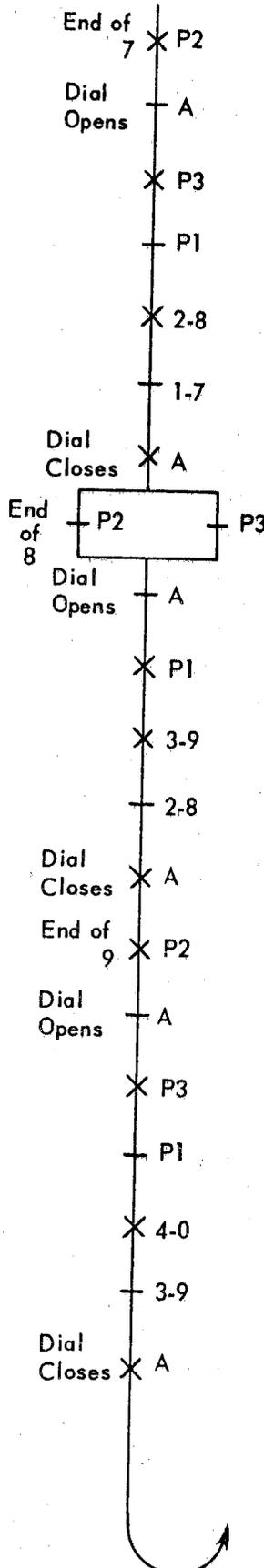
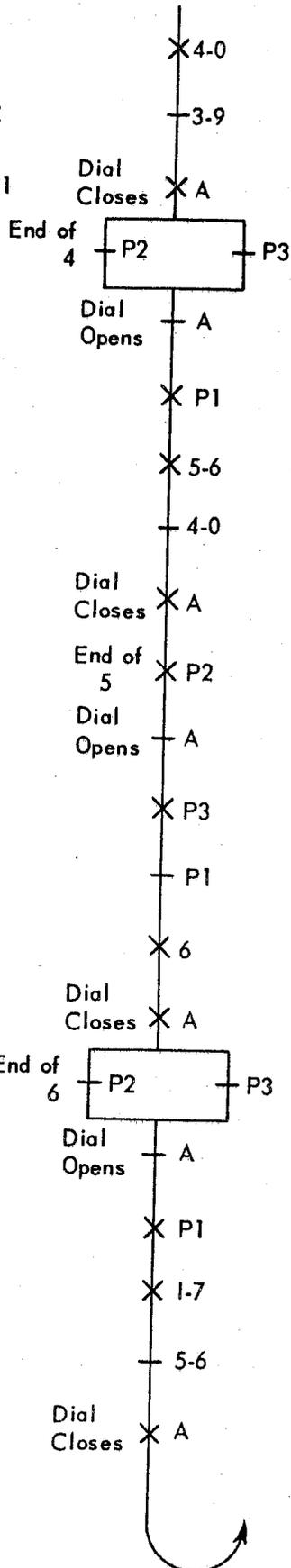
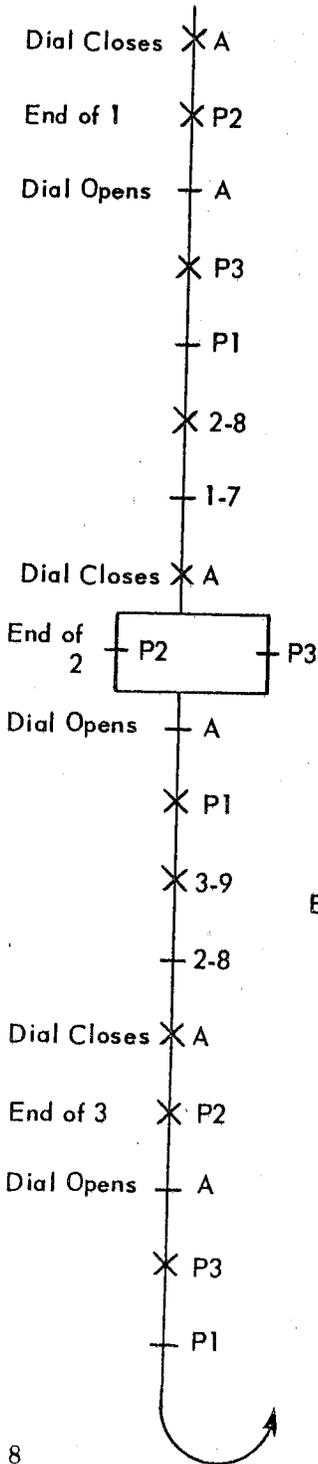
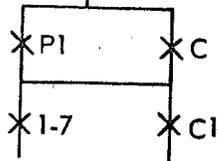
NOTE:- If any "tens" digit greater than 3 is dialed - the "DC" Relay operates, holds the "SW" operated, and thus prevents the operation of any Register Relay on the succeeding digit.

Preliminary pulses are also wiped out. The "T2" Relay must be operated before registration of any call number is effective.

DIALING UNITS DIGIT

Link, Link Allotter
SD-66505-01
SD-66611-01

First open of dial
A



RELAYS OPERATED

CO
HM
A
B
T2
T3
SW
DC
C1

DIGIT DIALED

1
2
3
4
5
6
7
8
9
0

REGISTER RELAYS OPERATED

1-7
2-8
3-9
4-0
5-6
5-6 & 6
1-7 & 6
2-8 & 6
3-9 & 6
4-0 & 6

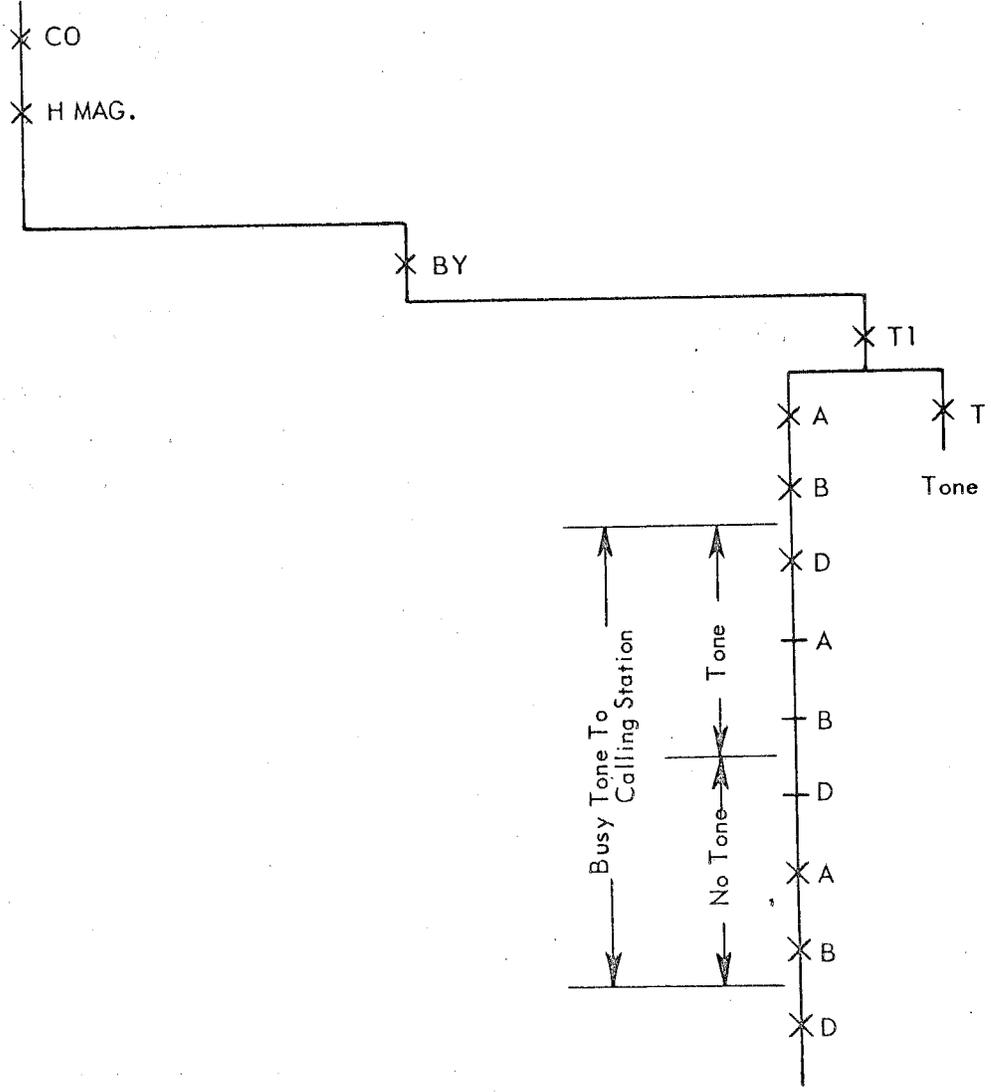
TEST OF BUSY LINES

Line, Line Switch, Call Allotter
SD66504-01

Link, Link Allotter;
SD66505-01
SD66611-01

Ringing, Tone, Common Timing
SD-66506-01

Called Station
being busy -
GRD.
on CO lead.



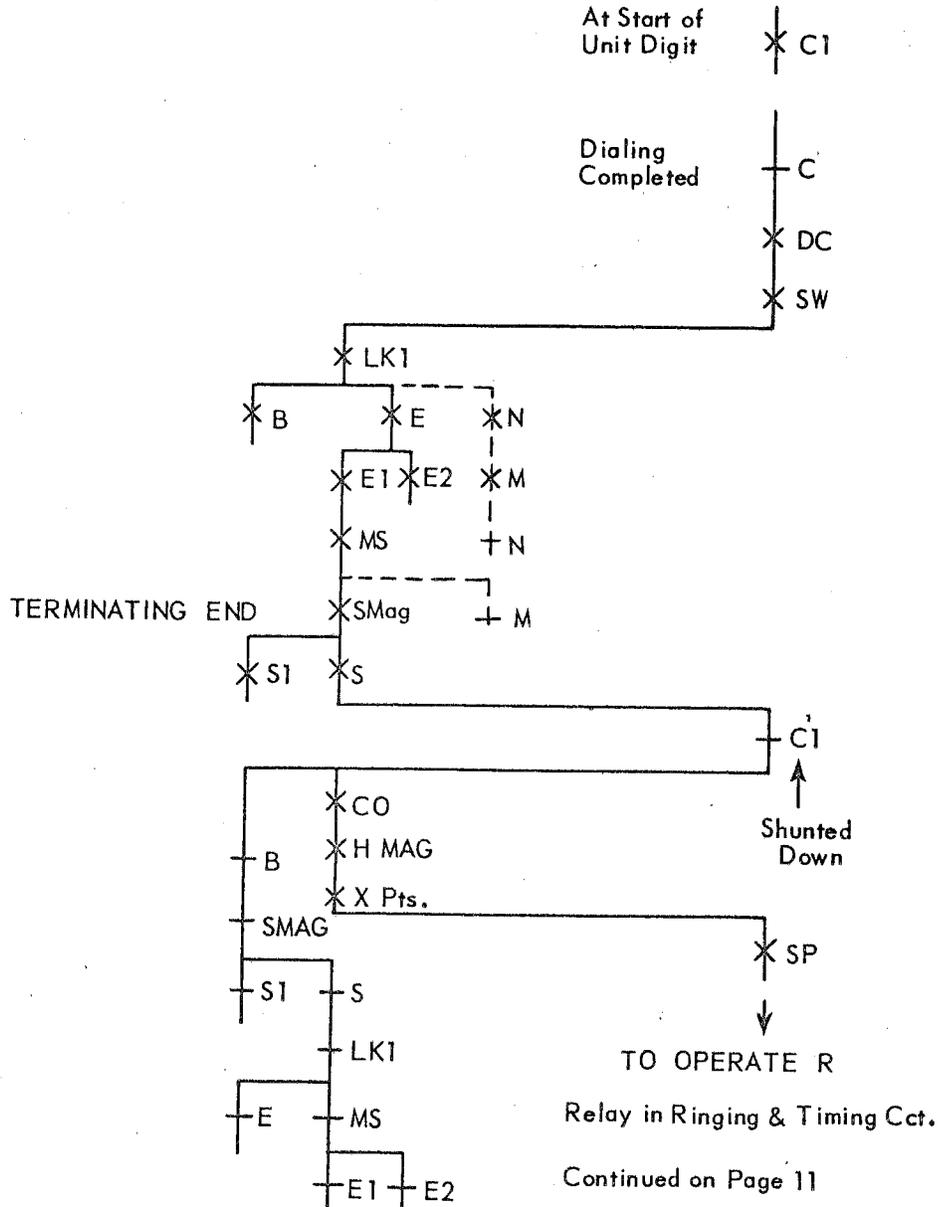
Cycle
Continues
Until
Calling Sta.
Hangs Up.

LINK CONNECTION TO IDLE LINE

Using Link #1 Connecting to #28

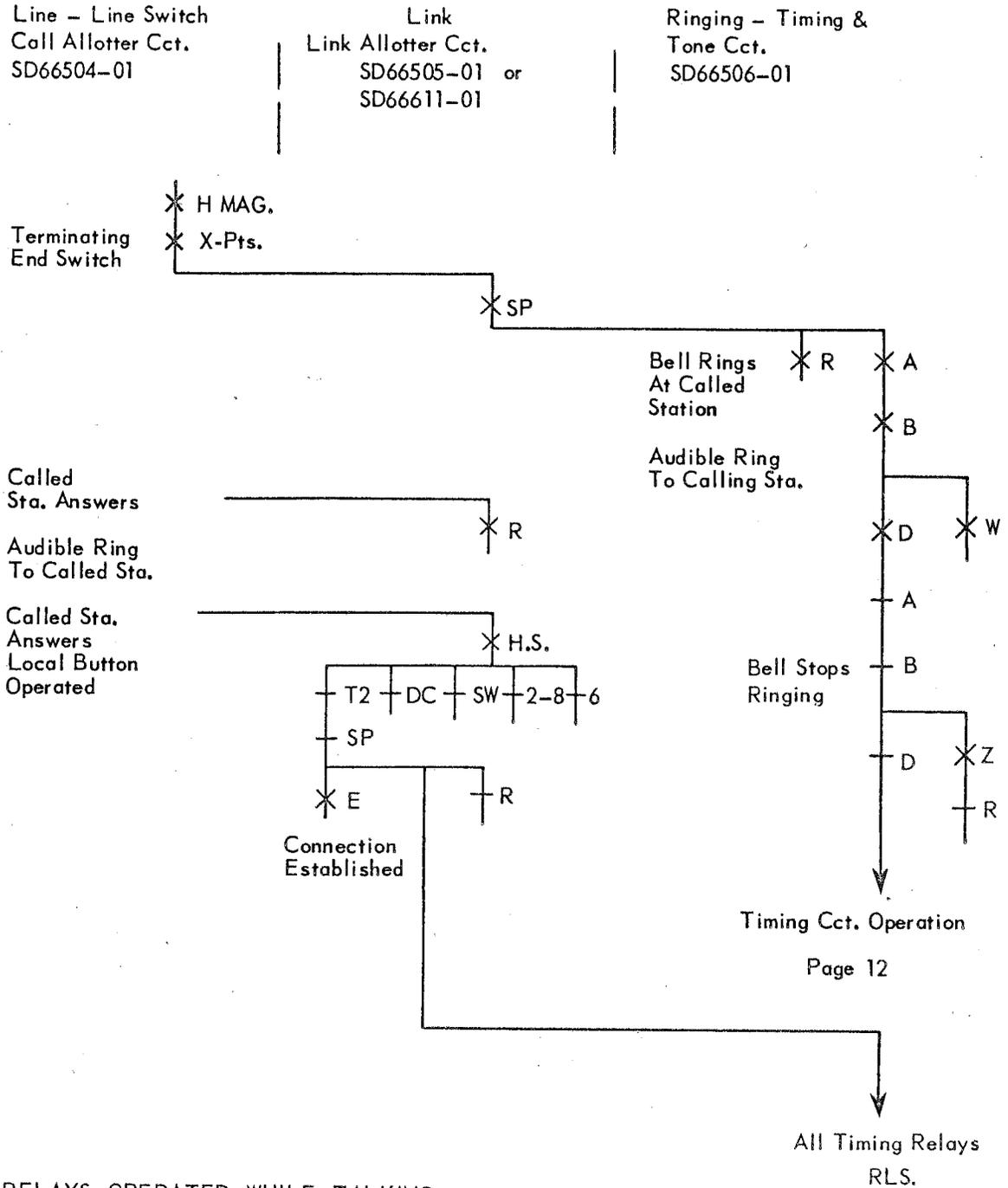
Line - Line Switch
Call Allotter Cct.
SD66504-01

Link
Link Allotter Cct.
SD66505-01 or
SD66611-01



Relays Operated During
"Ringing Period":- A-B-T2-DC
SW-2-8-6-SP-CO & HM of Both
Calling & Called Subs & R Relay
in Ringing & Timing Cct.

RINGING AND ANSWERING AT CALLED KEY STA. #28

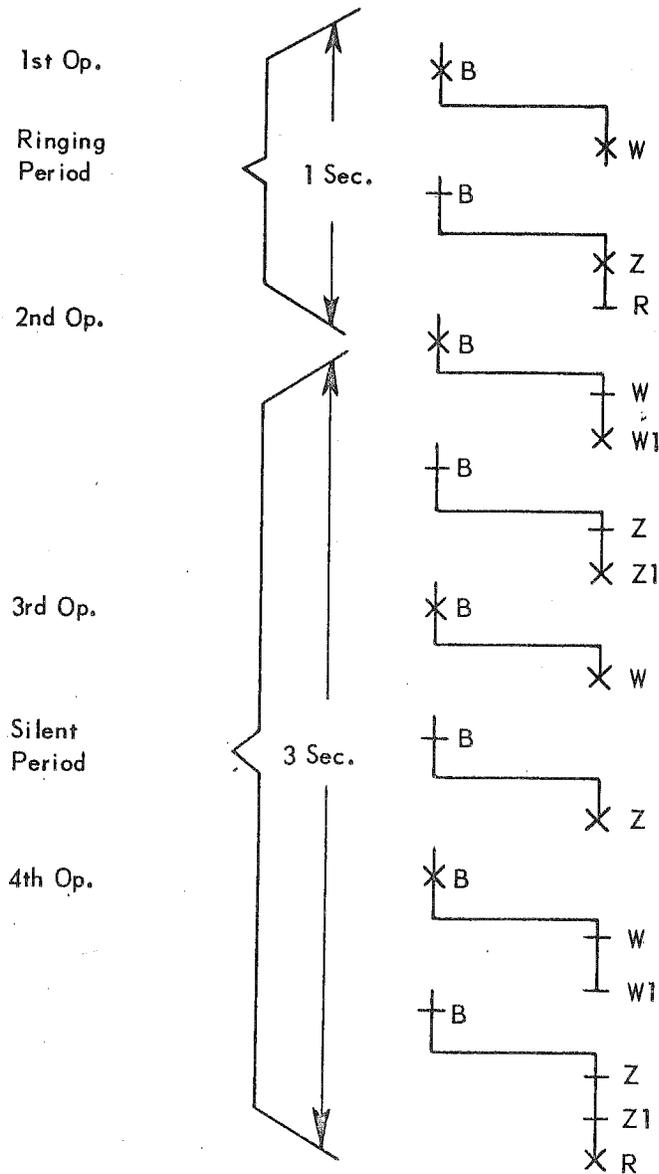


RELAYS OPERATED WHILE TALKING

E-A-B-HS-BOTH CO & HM Relays

RINGING AND ANSWERING AT CALLED KEY STA. TIMING CCT. OPERATION

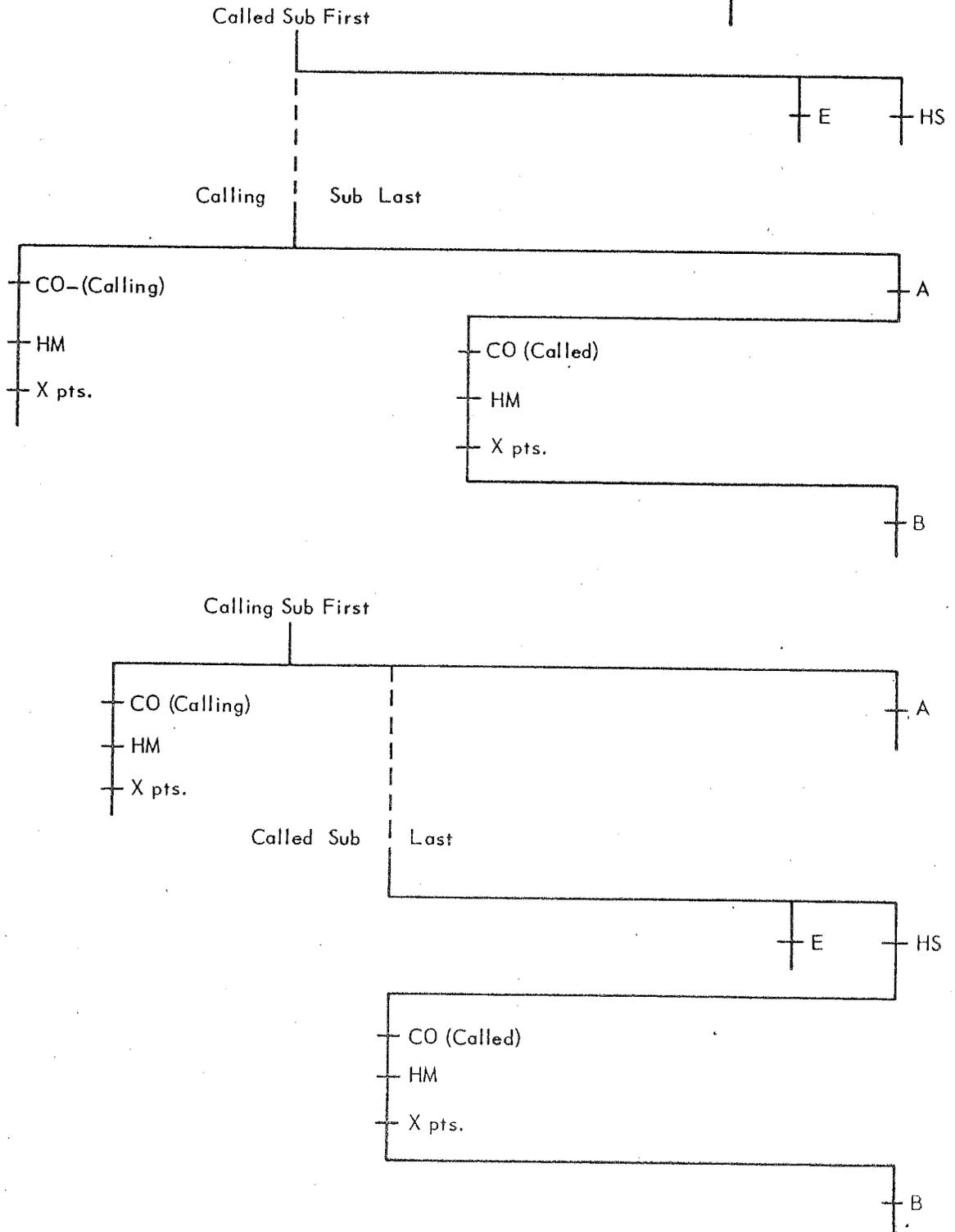
RINGING - TIMING & TONE CCT.
SD66506-011



DISCONNECTION

LINE, LINE SWITCH & CALL ALLOTTER CCT.
SD-66504-01

Link
Link Allotter Cct.
SD66505-01
SD66611-01

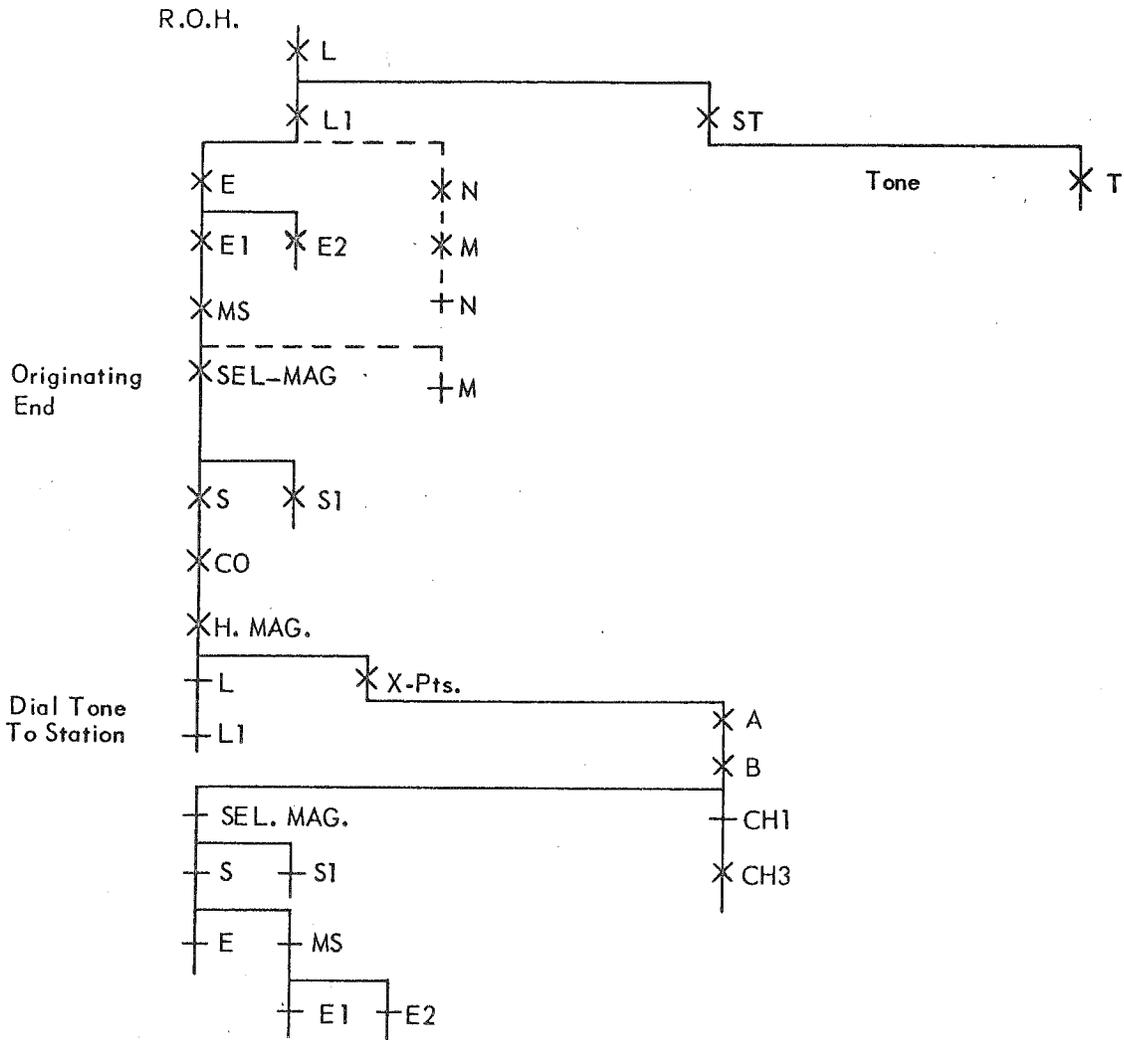


LINK SEIZURE FROM KEYLESS STA.

Line - Line Switch &
Call Allotter Cct.
SD66504-01

Link and
Link Allotter Cct.
SD66505-01
or SD66611-01

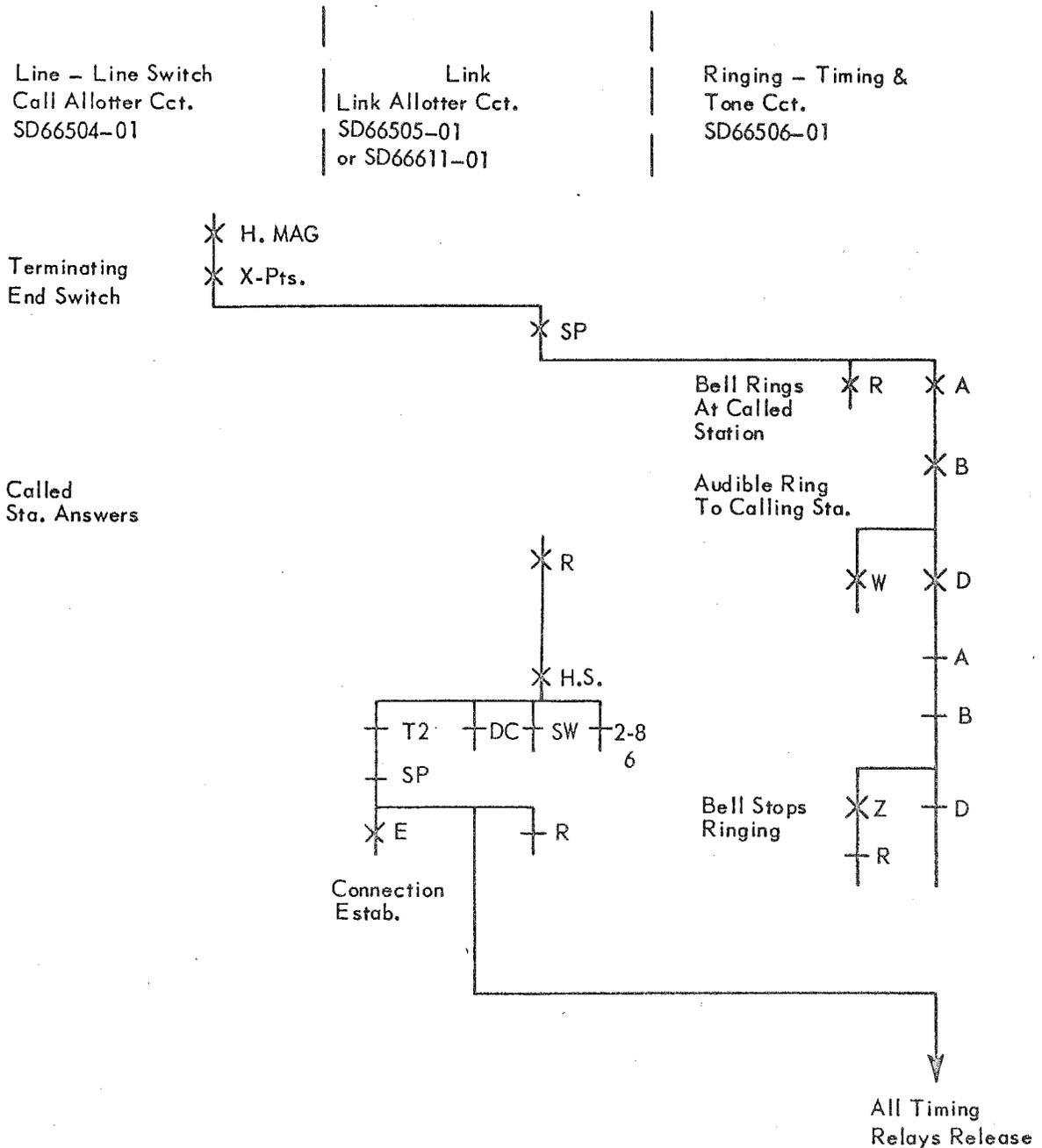
Ringing - Common
Timing & Tone Cct.
SD66506-01



STATION READY TO DIAL.
RELAYS OPERATED

C.O. - H.M. A - B - ST - T

RINGING AND ANSWERING AT CALLED KEYLESS STA. #28



RELAYS OPERATED WHILE TALKING:

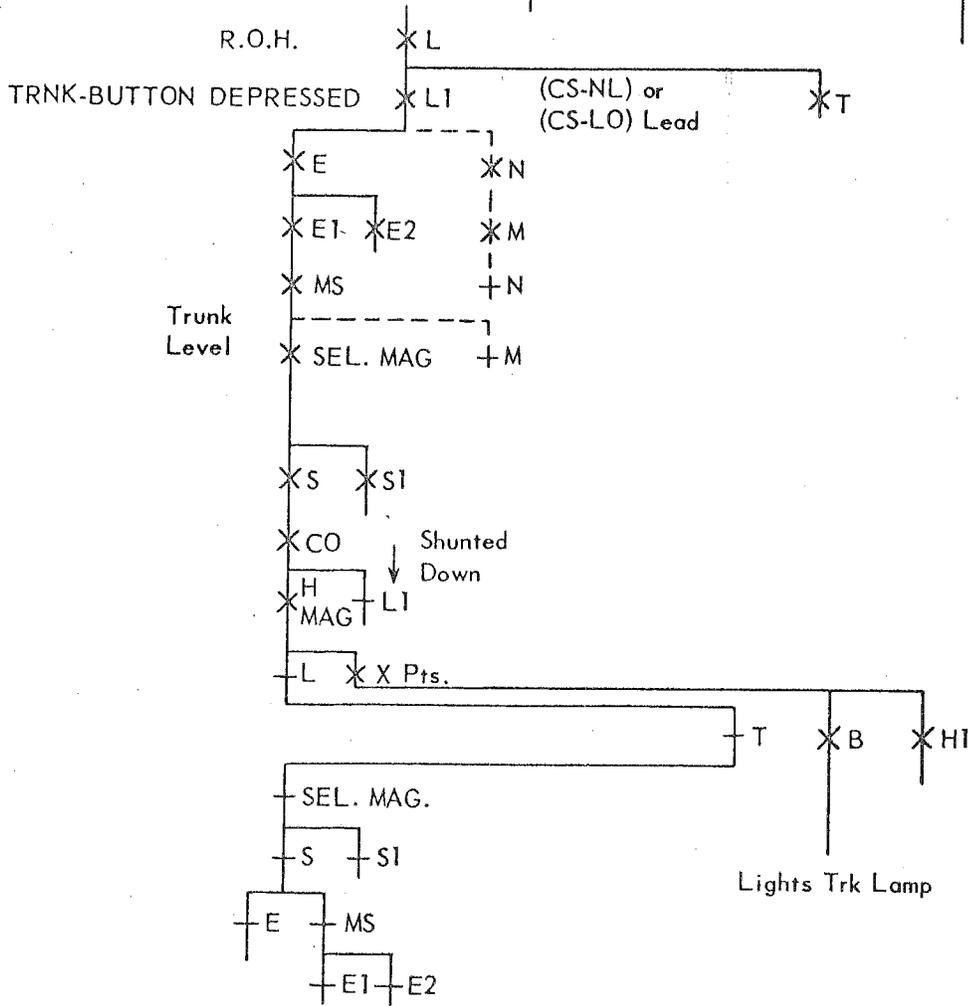
A-E-B-HS.-Both CO & HM Relays.

OUTWARD CALL TO CENTRAL OFFICE

Line-Line Switch
Call Allotter Cct.
SD 66504-01

Trunk Cct.
SD 66503-01

Ringing-Timing &
Tone Cct.
SD 66506-01

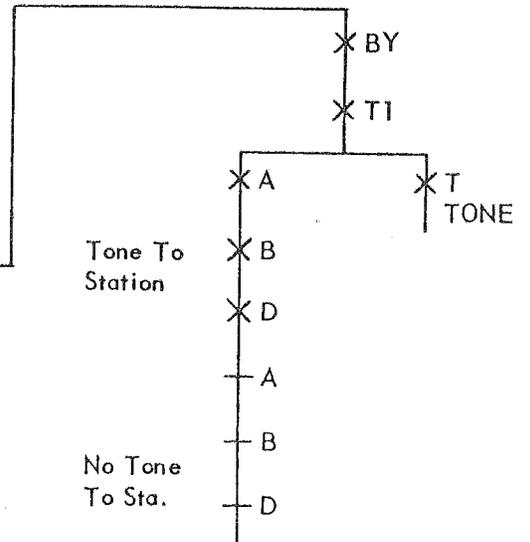


RELAYS OPERATED
WHILE TALKING:
CO-HM-HI-B

(CSLO) Sta. Attempts
To Use BSY. Trk.

(B-HI Operated
Trk. Lamp Lighted)

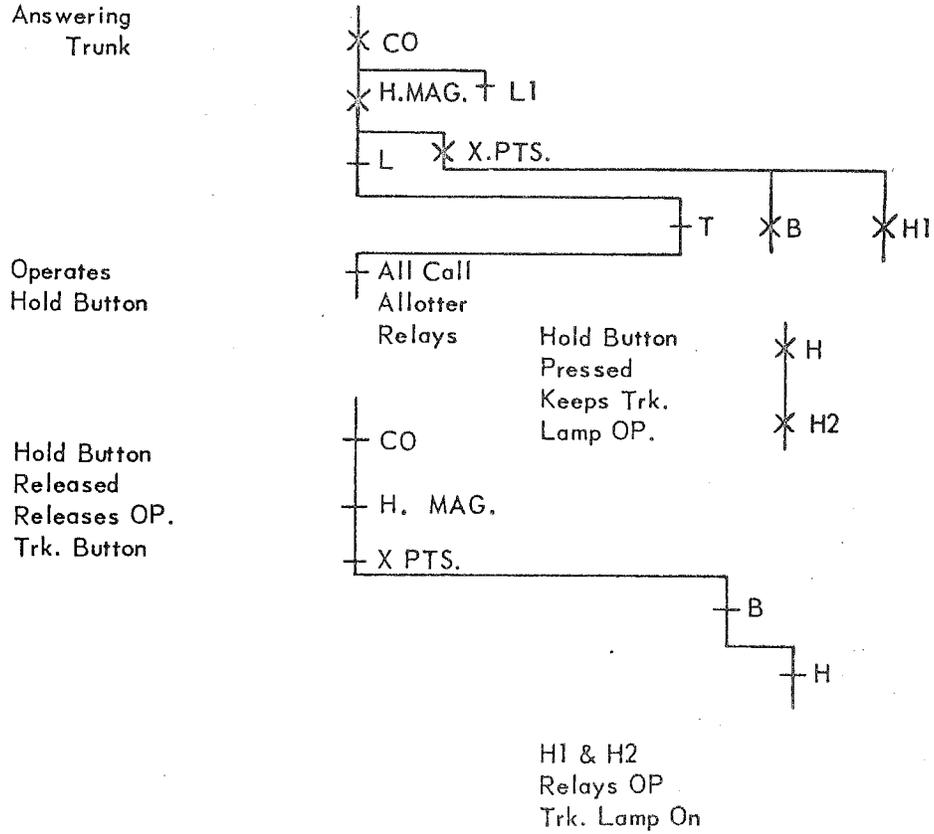
L1 Relay Marg.
Will Not Op.



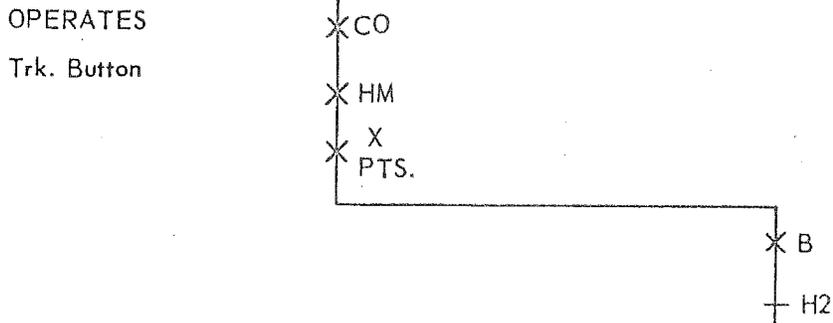
HOLDING TRUNK CALL

Line-Line Switch
Call Allotter Cct.
SD 66504-01

Trunk Cct.
SD 66503-01



RESEIZURE OF HELD TRUNK



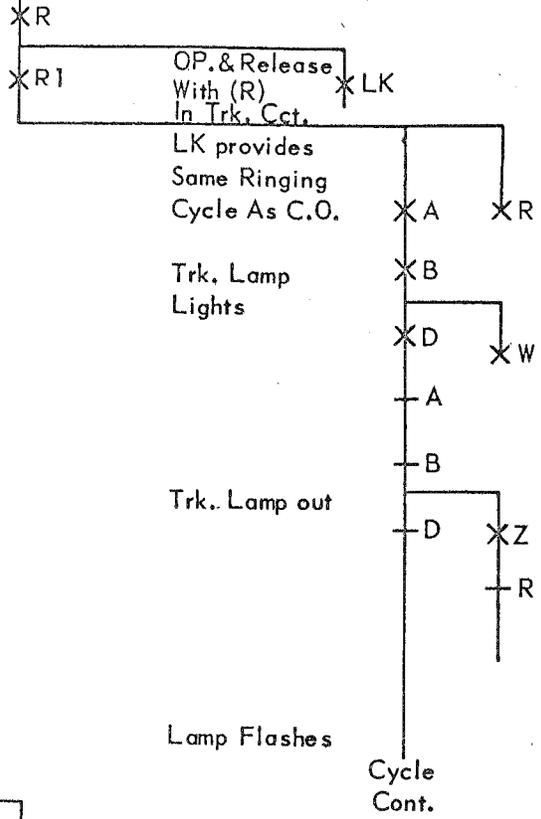
INCOMING CALLS FROM CENTRAL OFFICE

Line-Line Switch
Call Allotter Cct.
SD 66504-01

Trunk
Cct.
SD66503-01

Ringing Timing &
Tone
Cct.
SD 66506-01

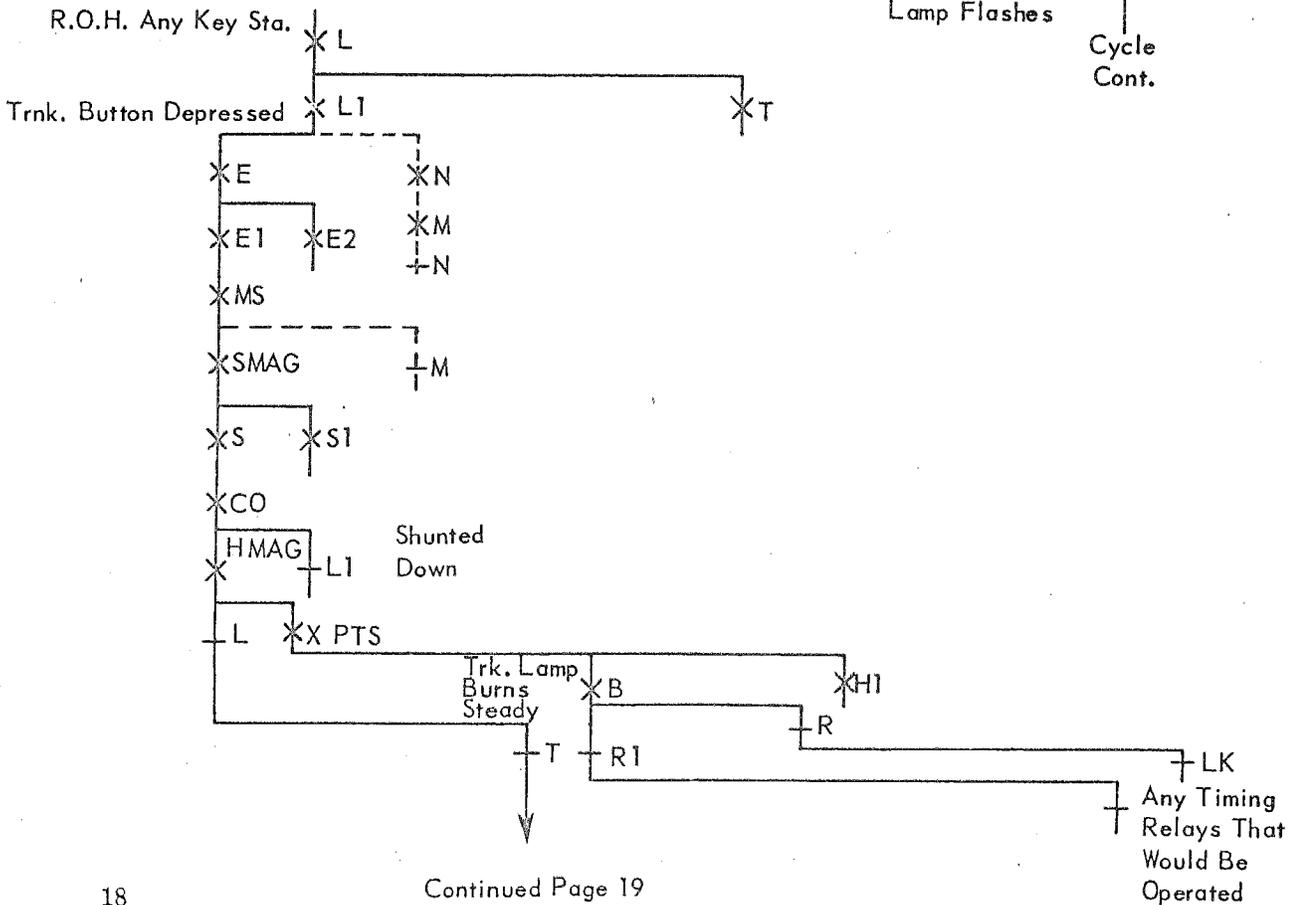
Ringing Cur. T & R
OP. & Release
With Gen. Cycle



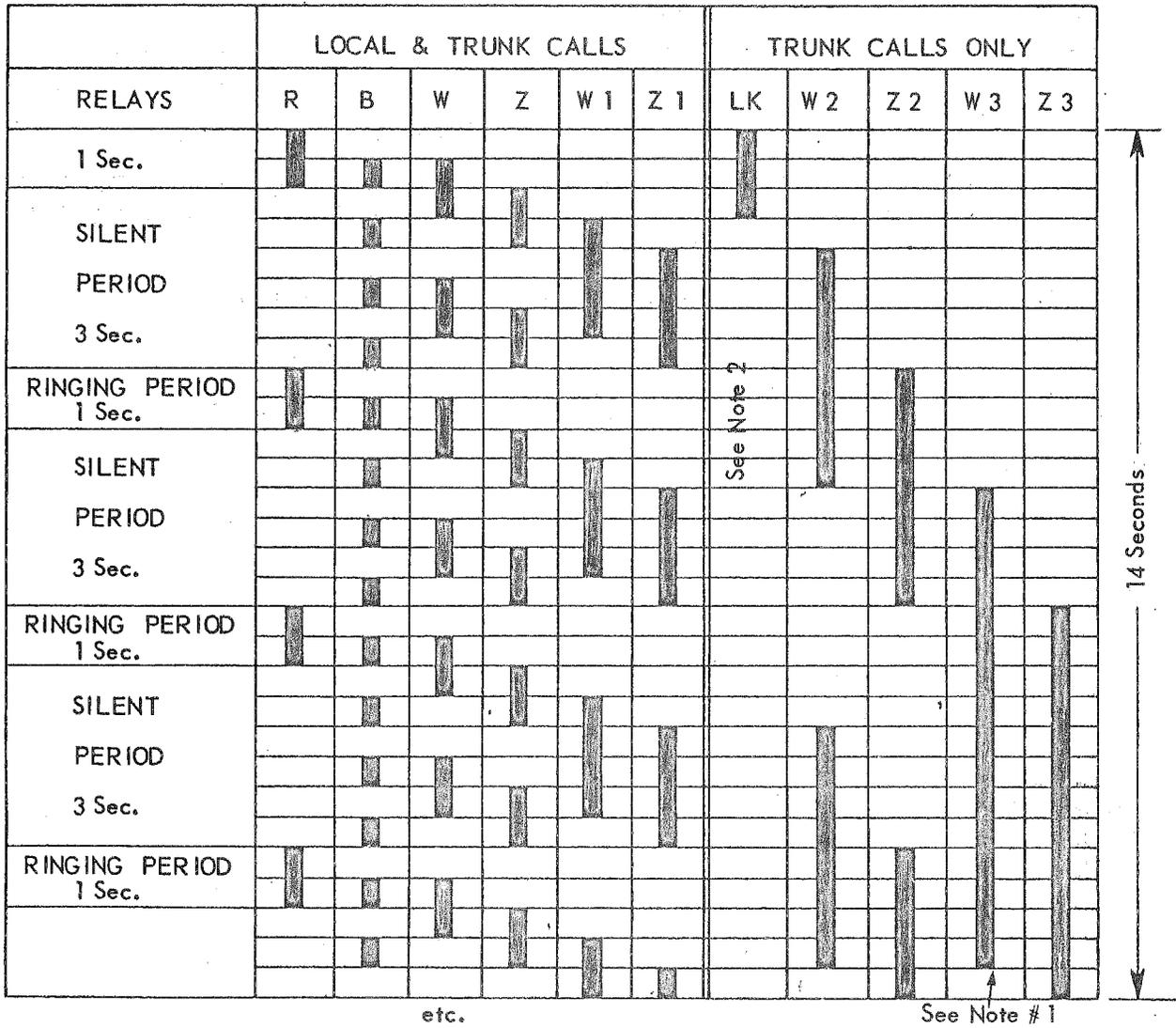
Trk. Lamp out

Lamp Flashes

Cycle Cont.



TIMING INTERVALS



Note #1 Release of W 3, releases R 1 in Trunk Circuit, which in turn releases all timing relays.

Note #2 After a Trunk Call is abandoned, the "R" Relay in the Trunk Circuit releases, which in turn releases the "LK" Relay in the timing circuit.

CONTROL KEY OPERATION

CD66504-01

NOTE - The purpose of the "Control Key" is to provide two-way service between a Central Office and a 755-A P.B.X. Keyless Station.

The principal functions of the "Control Key" are as follows:-

1. Opens path of "CO" Relay to release local X-points of Keyless Station.
2. Opens "L" & "G" Leads to prevent Keyless Station from seizing a Link Cct.
3. Completes operating path of "L1" Relay (Keyless Station), & "T" Relay (Trunk Cct.).
4. Places ground on "CO" Lead (Keyless Station) during the release of the local X-points, & the operation of the trunk X-points.

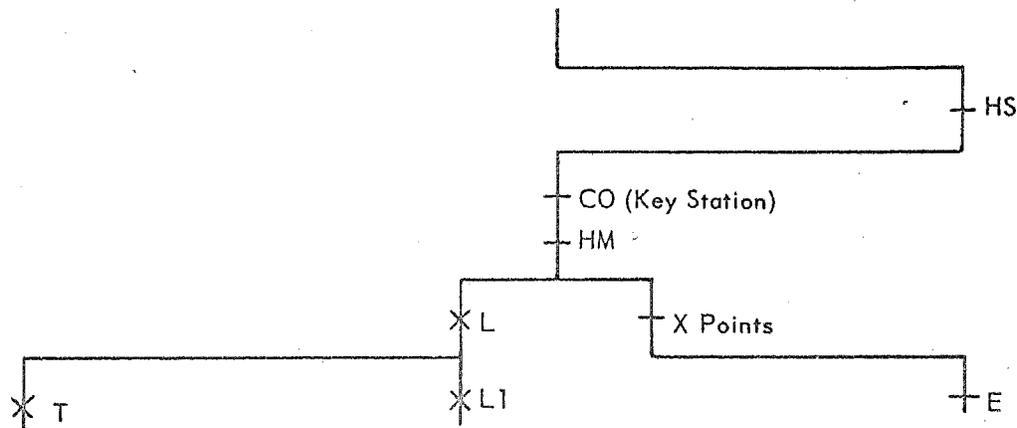
Trunk Cct.
SD66503-01

Line - Line Switch
Call Allotter Cct.
SD66504-01

Link
Link Allotter
SD66505-01 - SD66611-01

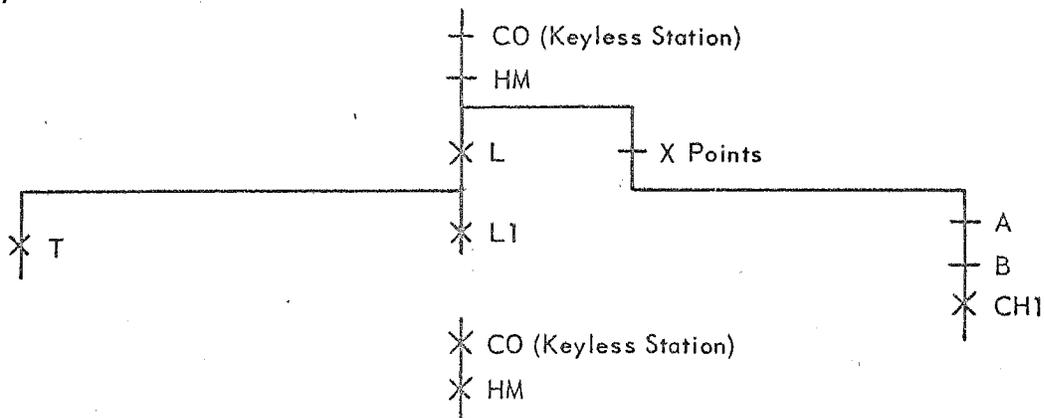
KEYLESS STATION ORIGINATES OUTGOING TRUNK CALL

1. Keyless Station calls "Controlling" Key Station for assistance in making Trunk call. The "CO" Relay of the Keyless Station is held operated thru the normal control key contacts, "A" & "SW" Leads, & operated "A" & "B" Relays of the Link Cct.
2. Key Station depresses Trunk Key, which automatically releases the Local Key.



FUNCTIONS SAME AS ANY TRUNK CALL

3. After Key Station dials the desired call No., the "Control Key" is operated momentarily. This opens the "L" Lead of the Keyless Station; grounds the "CO" Lead of the Keyless Station; & opens "A" Lead of the Keyless Station.



X-points of Trunk
closed thru to Keyless Station.

4. Control Key is released, & the Key Station hangs up, which releases X-points of Key Station & places Trunk Cct. in control of Keyless Station.

MODIFICATIONS NECESSARY FOR CONTROL KEYLESS STATION

S.D.66504-012 - S.D.66504-013

AT EQUIPMENT CABINET

Remove R-W wire from bottom #4 contact of LI relay. Place a R-B-W wire from #4 bottom contact of LI relay to #3 contact at cross points of station to be controlled, then strap to #3 contact of same station on all trunk levels.

Remove wiring at #4 cross points of controlled station.

Place wires from "N" punchings of the CS terminal block to the #4 swinging contact of the cross points of controlled station, one wire to each trunk.

Strap "H" and "L" leads of the controlled station, at the station terminal block.

Place wires from terminals 43, 44, 45 and 46 of the misc. connecting block to the #3 swinging contact of the controlling station cross points in trunks 1, 2, 3 and 4.

Connect the "SW" lead of the controlled station from #0 contact at the cross points to terminal 37 of the misc. connecting block.

Remove R-W wire at #0 contact of controlled station cross points.

Connect "A" lead from #4 bottom contact of the LI relay of controlled station to terminal 38 of the misc. connecting block.

AT CONTROL KEY OF CONTROLLING STATION

Place the following wires to the corresponding terminal numbers of the control key at the controlling station:

Wires 1, 2, 3 and 4 from terminals 1, 2, 3 and 4 on the controlled station terminal strip.

Wires 5, 6, 7 and 8 from terminals 43, 44, 45 and 46 on the misc. terminal strip.

Wires 9 and 10 from terminals 37 and 38 on misc. terminal strip.

Wire 12 from the "G" punching at the controlled station terminal strip.

Wire 11 from the "L" punching at the controlled station terminal strip.

Wire 13 from terminal 12 at misc. terminal strip.

Wire 14 is "L" lead from sub-set of controlling station.

PICK UP FEATURE KEY STATION

Including the use of "Trunk Key", or "Separate Key",
and "Line Lamp".

Line - Line Switch & Call Allotter Circuit
SD66504-012 - SD66504-013

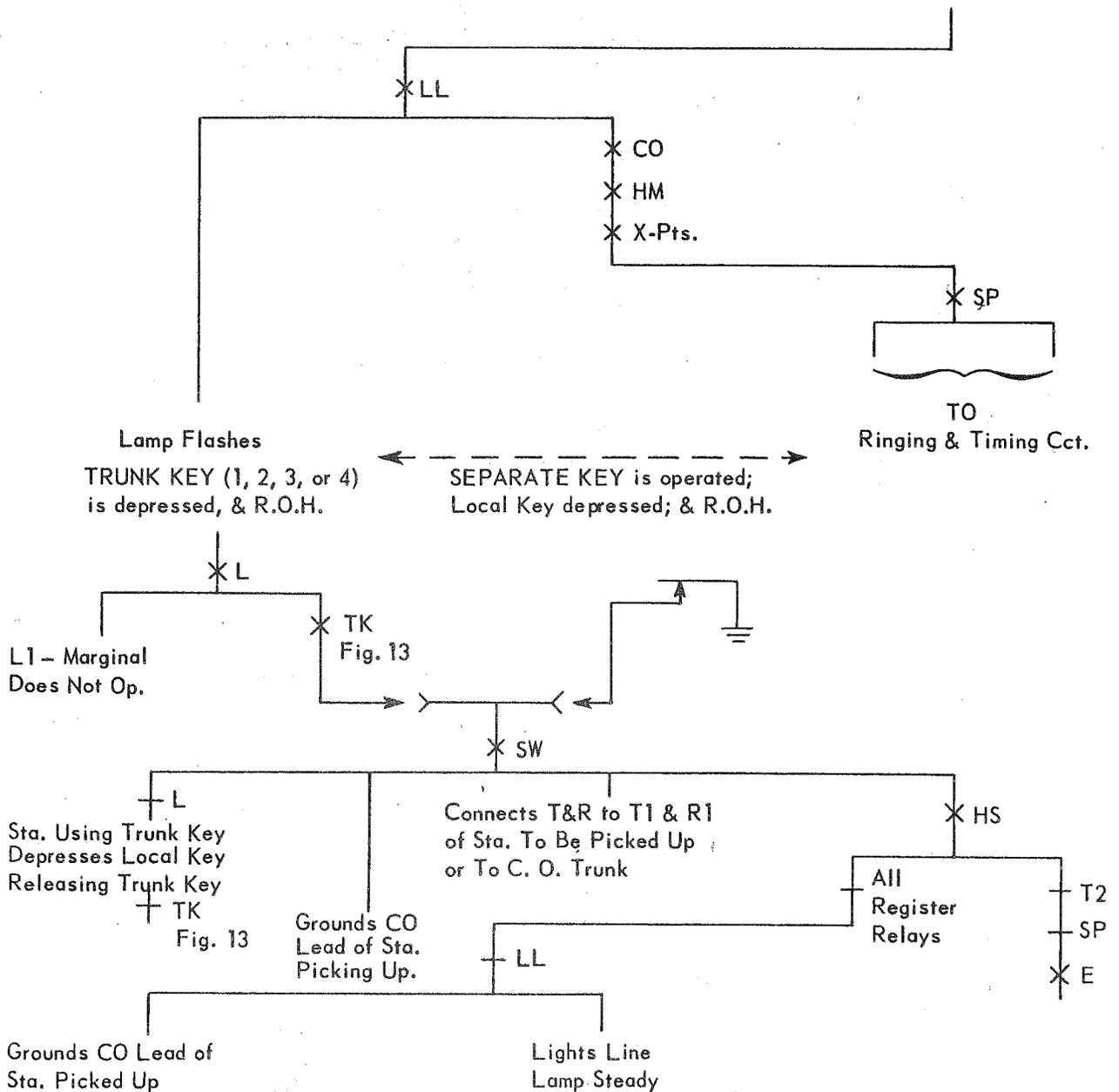
Link Circuit
SD66611-01 or
SD66505-01

Consult T-66504-14 and T-66504-15
for Wiring information.

Local Call Terminating
on Sta. To Be Picked Up.

+ C1

Ground Thru Register
Relays to CO Lead.



NOTE:

For "Trunk Key" - use
Figs. 8, 9, 12, & 13; Wiring
"H", "F", & "X"; & Remove
Wiring "Y".

For "Separate Key" use
Figs. 8, 9, & 12; Wiring
"H", "F", & "X"; Remove
Wiring "Y".

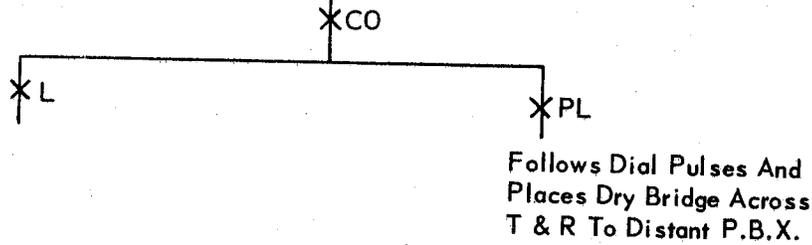
TIE TRUNK - 2 WAY DIAL

Tie Trunk Circuit
SD66601-01

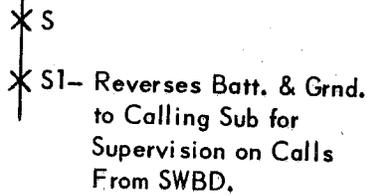
Line-Line Sw.-
Call Allotter.
SD-66504-012
Figs. 10 & 11

OUTGOING CALL

755-A Station Dials Tie Line # (26). Operated
"HM" of Tie Line places Battery on "LL" Lead.



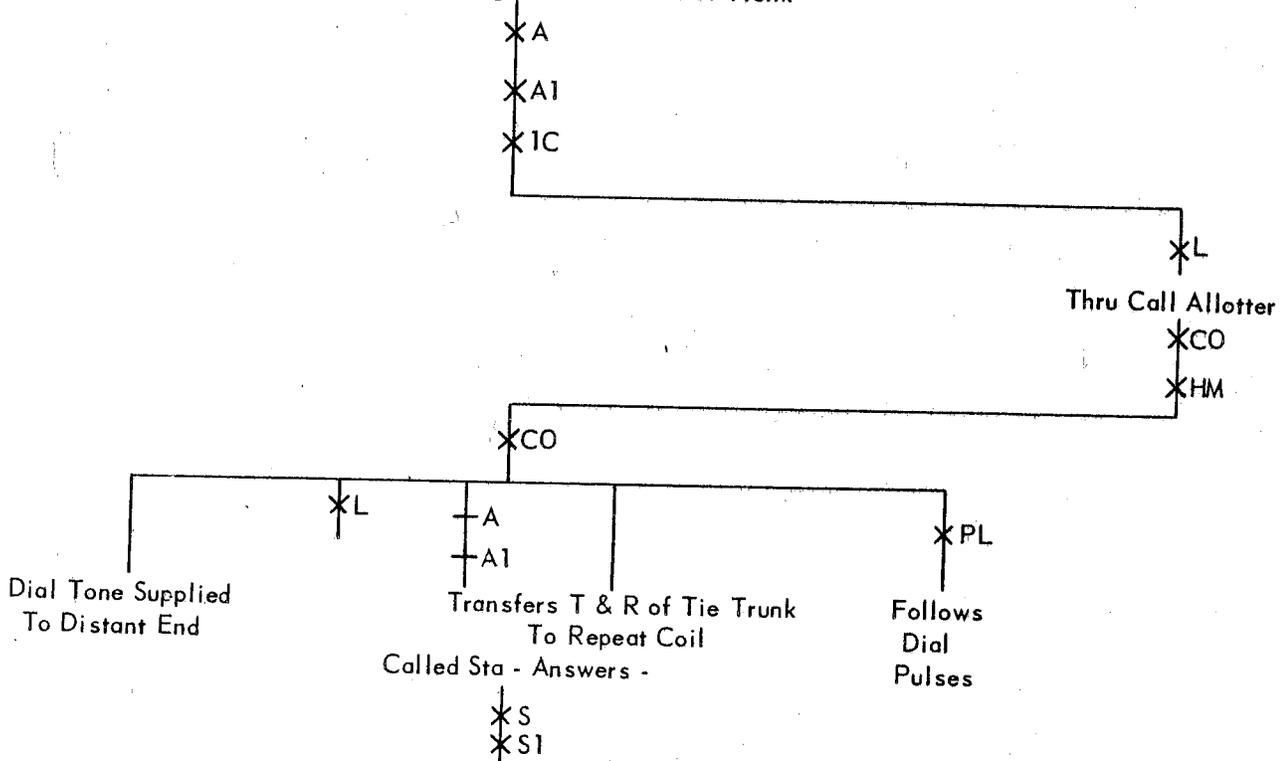
Called Sub Answers



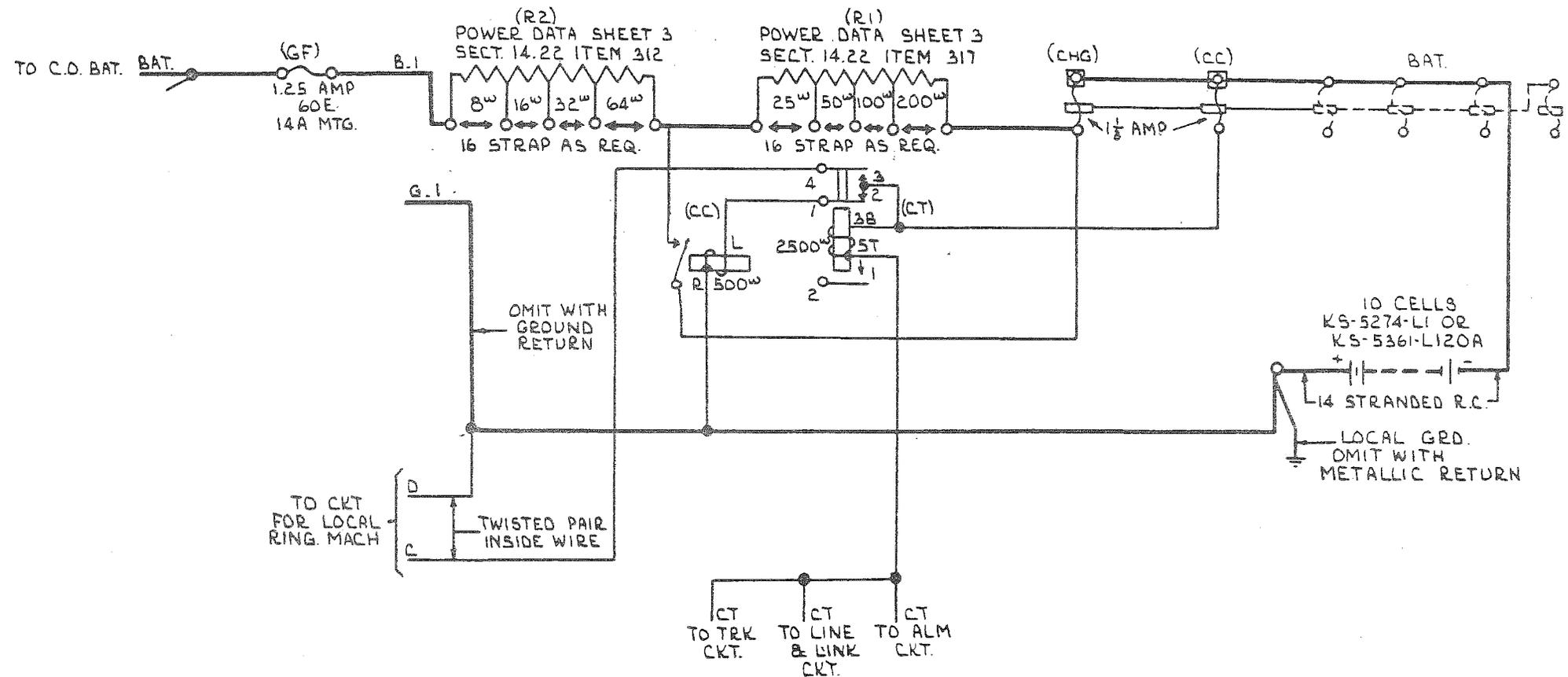
RELAYS OPERATED WHILE TALKING-CO-L-PL-S-S1

INCOMING CALL

Operator or Subscriber at distant end, places
low resistance dry bridge across T & R of Trunk



Relays Operated While Talking - CO-IC-PL-L-S-S1



CHARGE AND DISCHARGE CIRCUIT
WITH RELAY FOR CHARGE CONTROL

How To Use This Telephone

To make or answer an inside call—Depress "LOCAL" button before using telephone.

To make an outside call—Depress a "TRUNK" button before calling. If you find the trunk busy, select another one. Be sure that no outside party is waiting on a trunk, before selecting another; answer and dispose of any unanswered incoming call you encounter, or operate "HOLD" button if trunk is held for transfer on a call previously answered elsewhere.

To answer a call from outside—Depress "TRUNK" button indicated by tone of bell or flashing trunk lamp before answering.

Inside and outside calls received simultaneously—Answer inside call first.

To hold an outside connection while making another call—Ask party to hold the line. Depress "HOLD" button. Then proceed with other call. Return to first connection by depressing button on that trunk.

To transfer a call from outside—Hold, as above. Call desired extension and ask called party to answer on trunk you are holding.

When he agrees, hang up; if he is not available, report fact to calling party.

To signal the operator on an established outside connection—Flash slowly.

To establish an inside conference connection—Limited to three phones. Call first party to make sure he is available. Then call second party and inform him of your intention. Ask him to hang up, and answer again when his bell has rung at least twice.

Then without hanging up, dial the first number again.

System out of Order—At telephone No. _____ there is an emergency key which connects to the central office. This permits maintaining outside service at that telephone until trouble can be corrected.

An alarm bell is provided to indicate burning out of fuse. To silence bell, operate key associated with it.

Report any trouble immediately to the Telephone Company.

How To Control Outside Calls For _____

Incoming calls—Hold as on any transfer. Call desired telephone, announce call and ask called party not to hang up. Return to incoming call and operate control key for called telephone until you hear a click (about 1 second). Release key, if necessary inform parties that they are connected, and hang up.

If desired party is not available, report the fact to calling party.

Outgoing calls—Ask calling party not to hang up. Then select idle trunk and make call.* Immediately operate control key for calling telephone until you hear a click (about 1 second). Release key and hang up.

*You must dial outside dial calls before operating control key; either you or calling party can give orders to an operator.

After a call to or from a controlled telephone—Your telephone is free for other calls.

