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FS1

Tip, ring, sleeve

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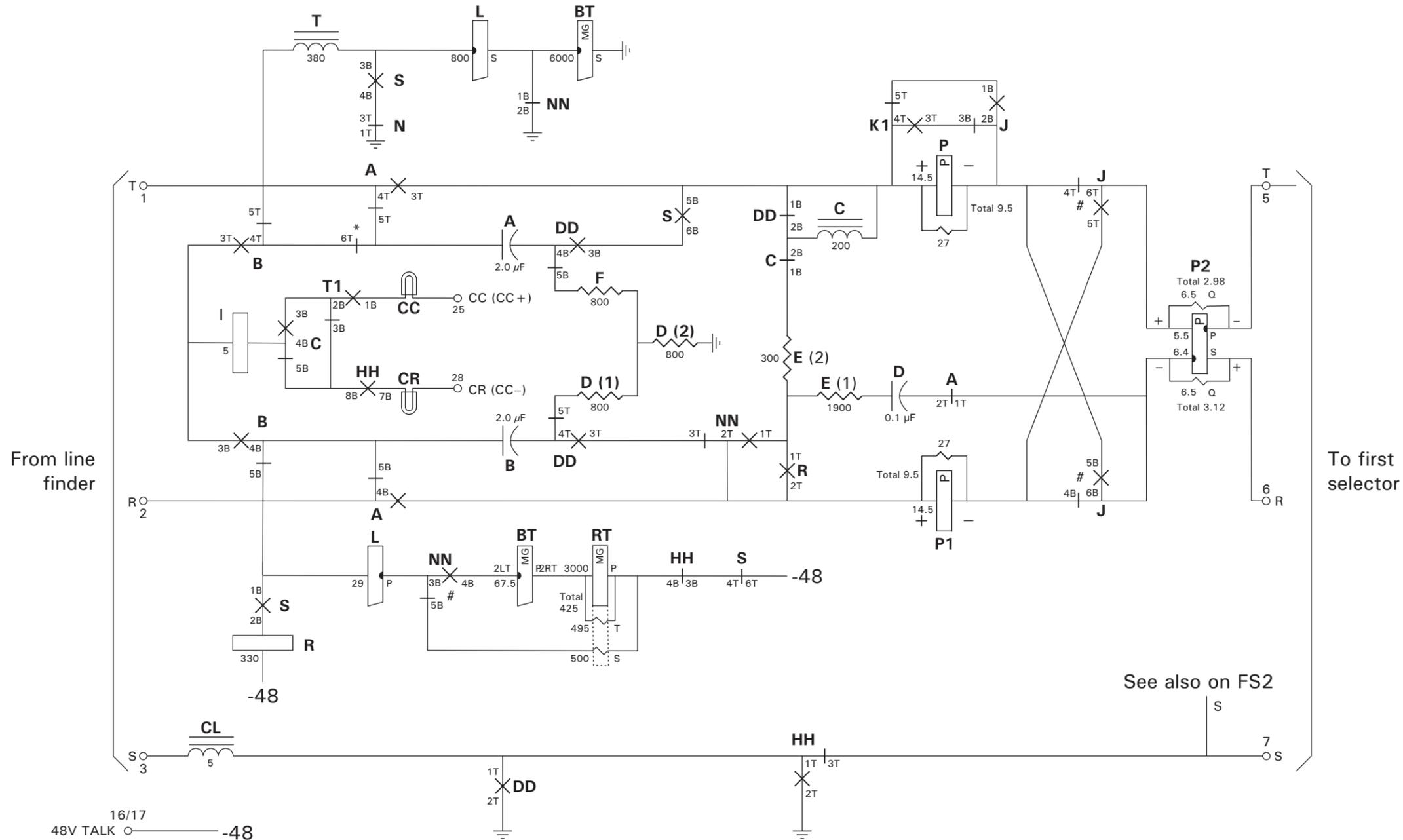
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See also on FS2

* 6T-5T breaks before 5T-4T.

"#" indicates EMB contact ("make before break").

- Terminal numbers indicated are on terminal strip A and are per Fig. 56 of SD-31592-02.

Based on BTL circuit schematic drawing SD-31592-02, Issue 38, 1982-04-15.

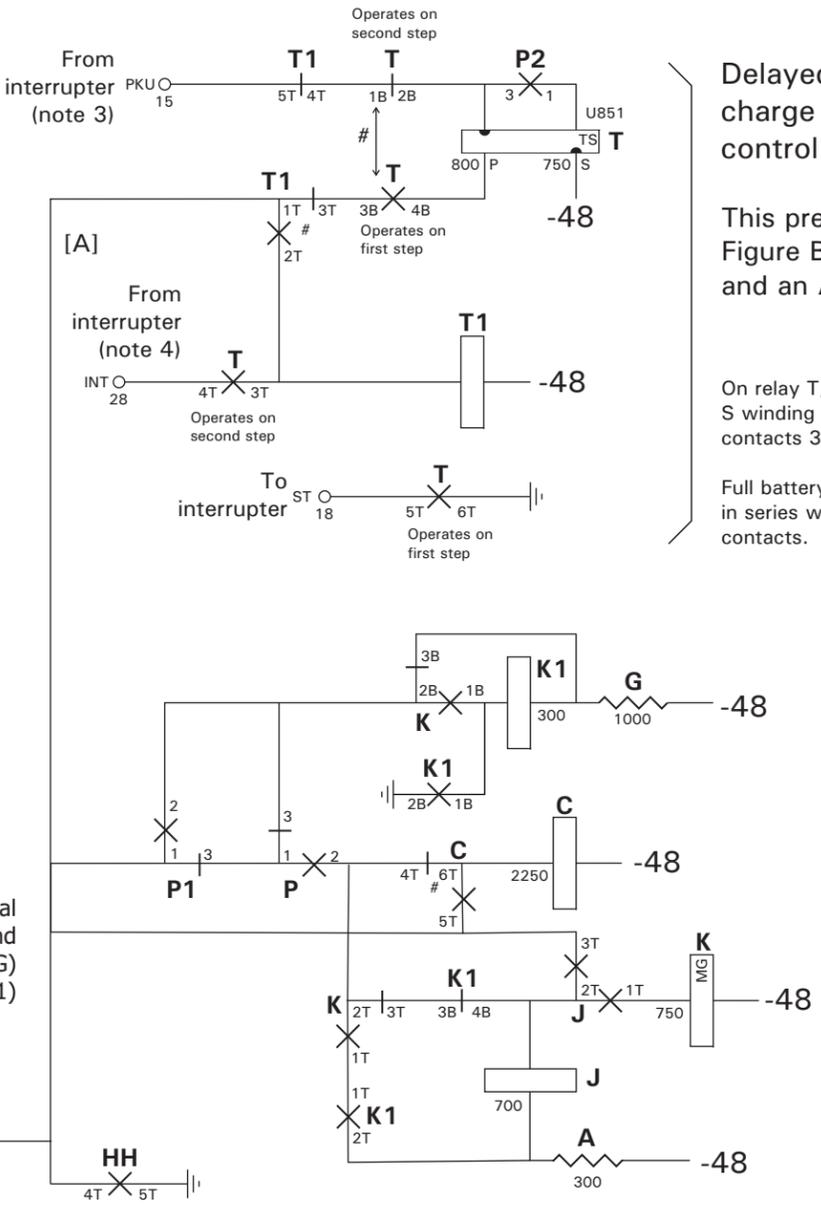
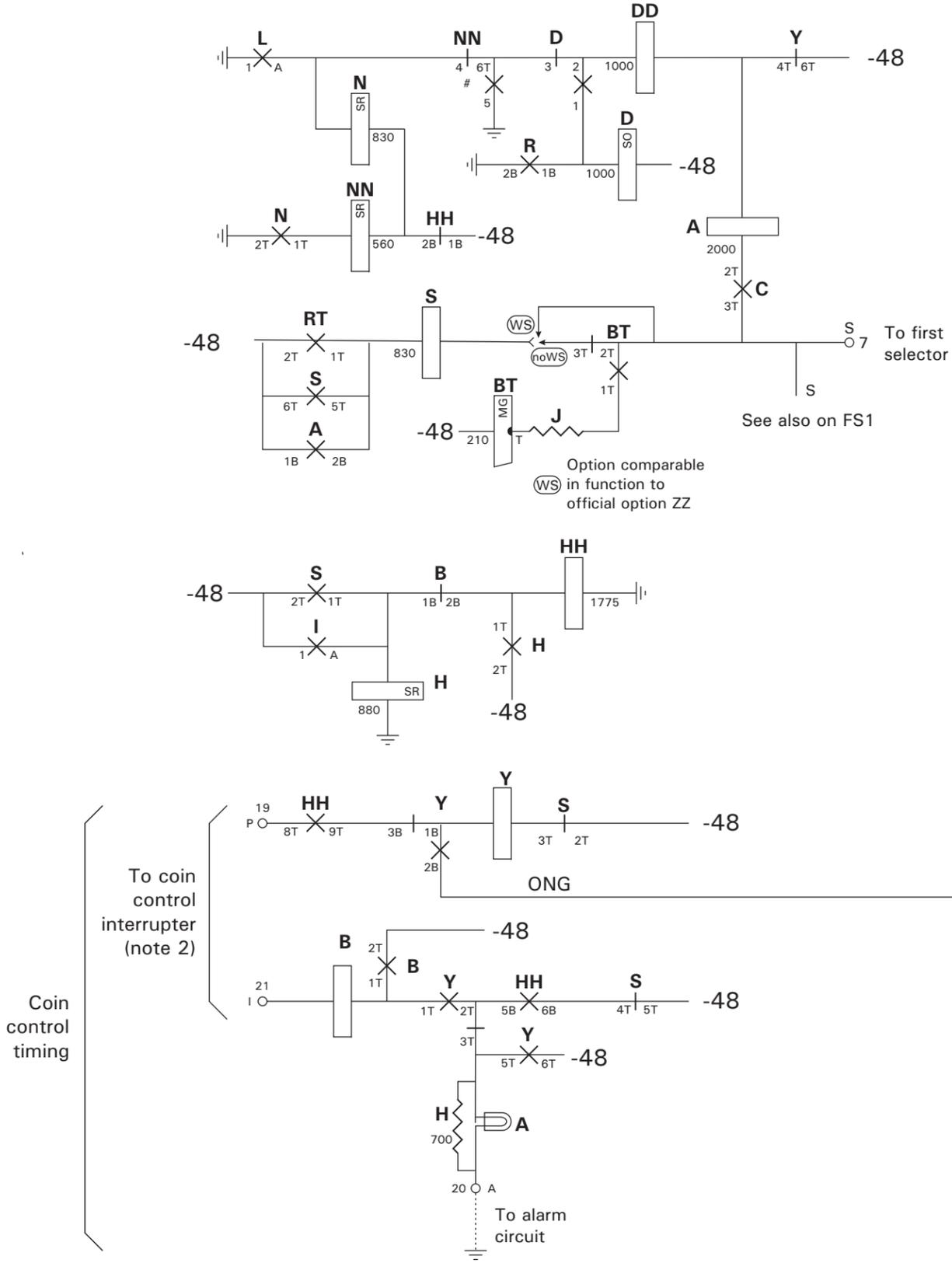
Step by step system					
SD-31592-02 prepay coin trunk					
Circuit schematic (transcription)					
document CS-SD-31592-02					
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FS2 Control logic

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Off-normal ground (ONG) (note 1)

Note 1: Identified in the SD as lead A for reference on lead "jumps". Not to be confused with several external leads A.

Note 2: P and "I" leads alternately grounded for 0.5 sec each (1.0 sec cycle).

Note 3: PKU lead grounded for 0.5 sec then open for 2.5 sec (3 sec cycle)

Note 4: INT lead grounded for 0.5 sec then open for 2.5 sec (3 sec cycle); its ground period immediately precedes that for lead PKU.

Delayed charge control
This presumes Figure B, option H and an A-lead interrupter.
On relay T, full battery on S winding will only operate contacts 3B-4B and 5T-6T
Full battery on P and S windings in series will operate all contacts.

Coin control timing
To coin control interrupter (note 2)

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Circuit schematic (transcription)

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REF1

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Reference information

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2

Major features provided

- Coin relay test
- Fraudulent ground test
- Charge delay
- Coin relay validation at disposal time
- Stuck coin test and clearance attempt

Common features not provided

- Dial tone provided before dialing enabled
- Local coin overtime charge (LCOT)
- Auxiliary coin trunk
- Lines served by rotary line switches
- Lines served by long line facilities

3

Options assumed

(Based on options known or assumed in effect on the specimen SD-31592-02 coin trunk owned by Will Sherwood)

Index of relays with basic functions

Note that many relays have multiple functions, only one of which is mentioned here.

4

5

Fig. B
Fig. D
F
G
H
P
T
TD
ZC
ZR
ZW
ZX
YA
YE

L - Trunk seizure
A - Cut-through for conversation
B - Apply coin control voltage
C - Answer supervision received
I - Coin control current detect
J - Negates reversal from switch train
N - SR follower of L
NN - Closes loop to 1st selector
RT- Coin relay detect
BT - Bogus coin relay ground detect
P - Supervision reverse
P1 - Supervision normal
P2 - Supervision for charge
R - Repeats dialed pulses into selector
S - Observes sleeve from 1st selector
H - SR follower of S, holds HH
HH - Proceed (enables many things)
T - Delayed charge pickup
T1 - Delayed charge
D - SO follower of R (discerns pulse train)
DD - Grounds LF sleeve; released during dialing
K - Controls K1
K1 - Shorts P
Y - Starts coin control process

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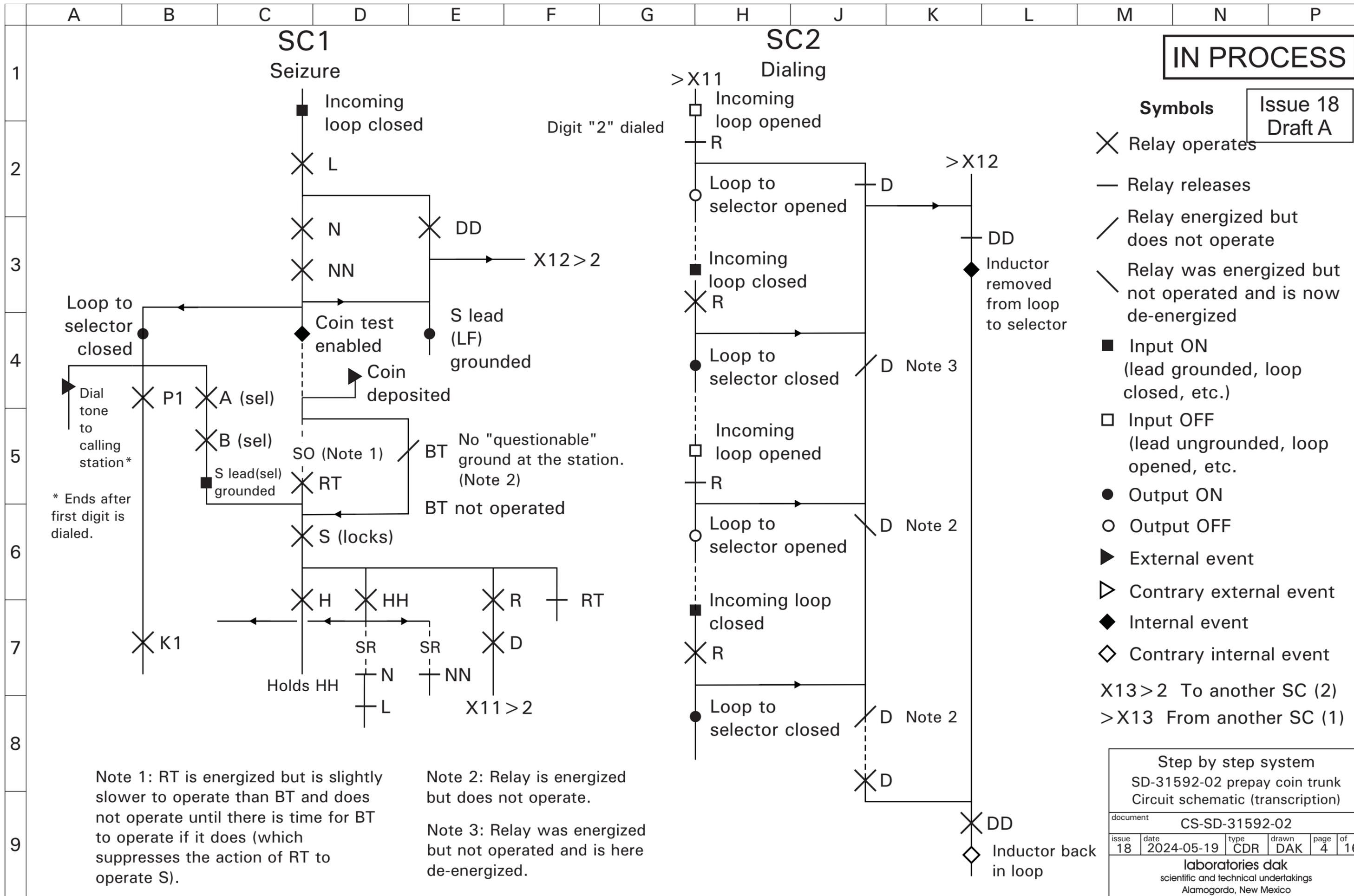
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Step by step system
SD-31592-02 prepay coin trunk
Circuit schematic (transcription)

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Symbols

- ✕ Relay operates
- Relay releases
- ⤴ Relay energized but does not operate
- ⤵ Relay was energized but not operated and is now de-energized
- Input ON (lead grounded, loop closed, etc.)
- Input OFF (lead ungrounded, loop opened, etc.)
- Output ON
- Output OFF
- ▶ External event
- ▷ Contrary external event
- ◆ Internal event
- ◇ Contrary internal event

X13 > 2 To another SC (2)
> X13 From another SC (1)

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Note 1: RT is energized but is slightly slower to operate than BT and does not operate until there is time for BT to operate if it does (which suppresses the action of RT to operate S).

Note 2: Relay is energized but does not operate.

Note 3: Relay was energized but not operated and is here de-energized.

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SC3

Seizure; bogus coin ground

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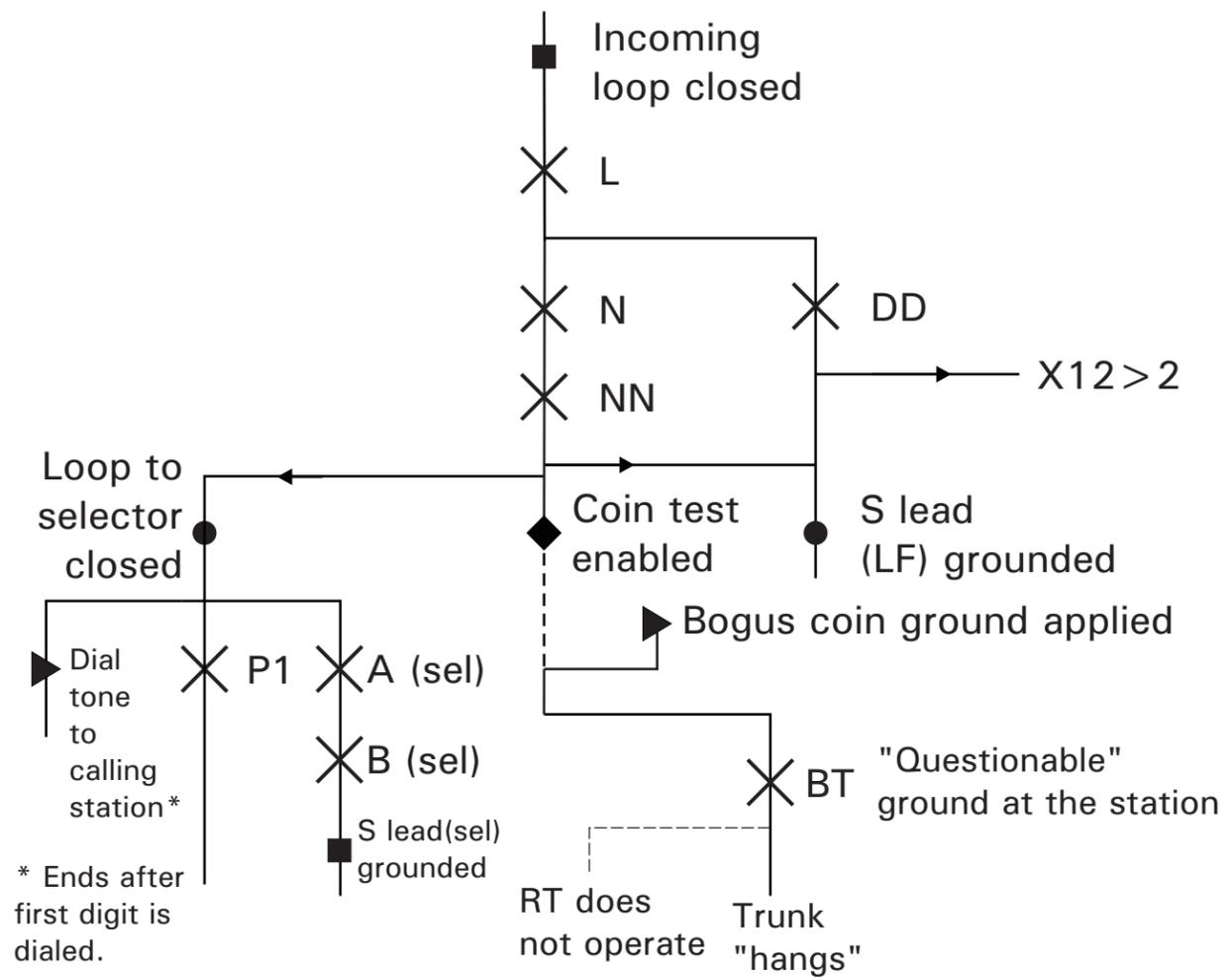
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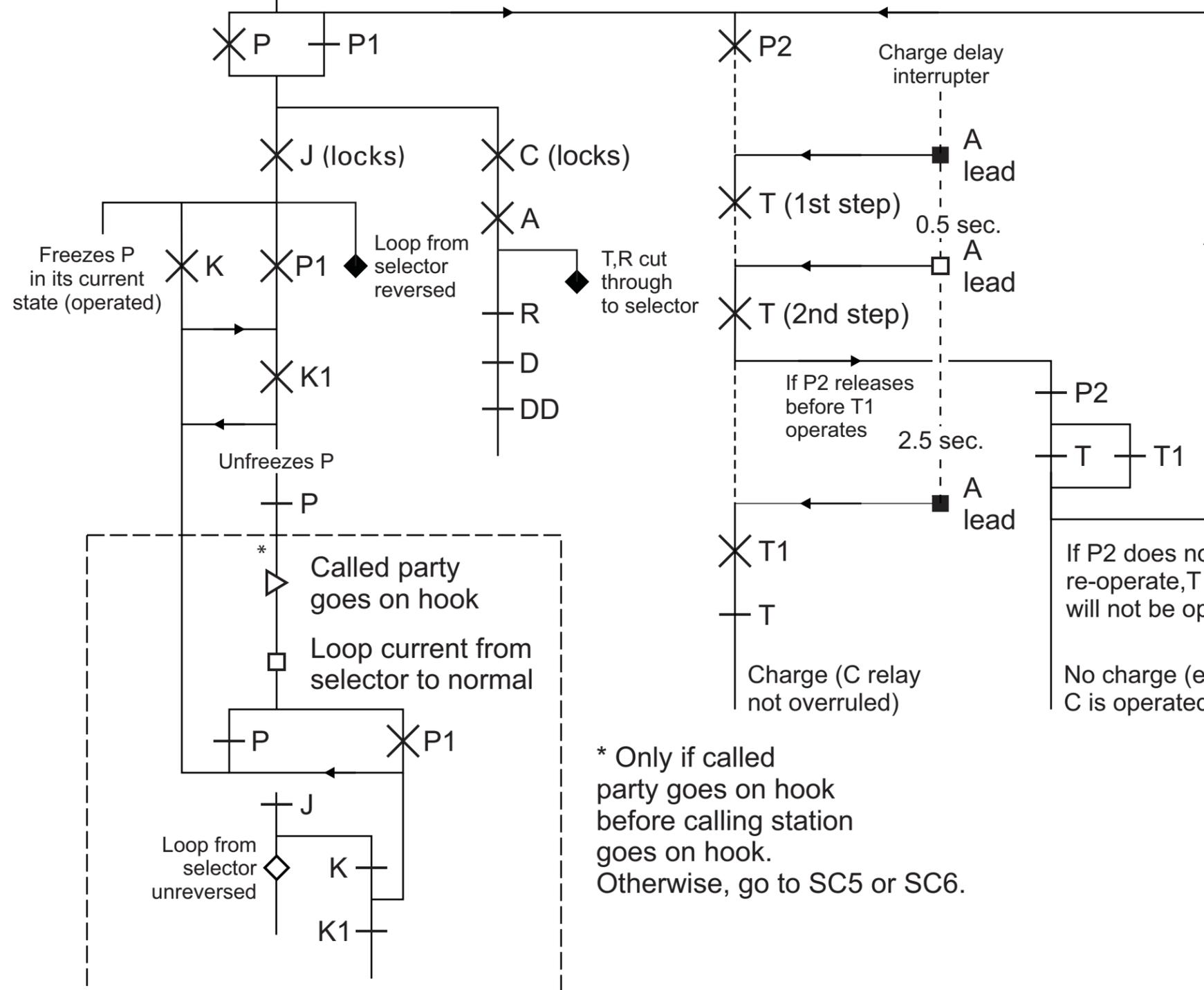
SC4

IN PROCESS

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Answer by called party (answer supervision received)

Called party answers
Loop current from selector reverses



Charge delay

The circuit will not be set up to charge for the call unless reverse battery supervision is received from the switch train continuously for about 2.5 sec (at one limit of the circuit operation) or about 5.5 seconds (at the other limit of circuit operation).

If P2 does not re-operate, T & T1 will not be operated.

No charge (even though C is operated)

* Only if called party goes on hook before calling station goes on hook. Otherwise, go to SC5 or SC6.

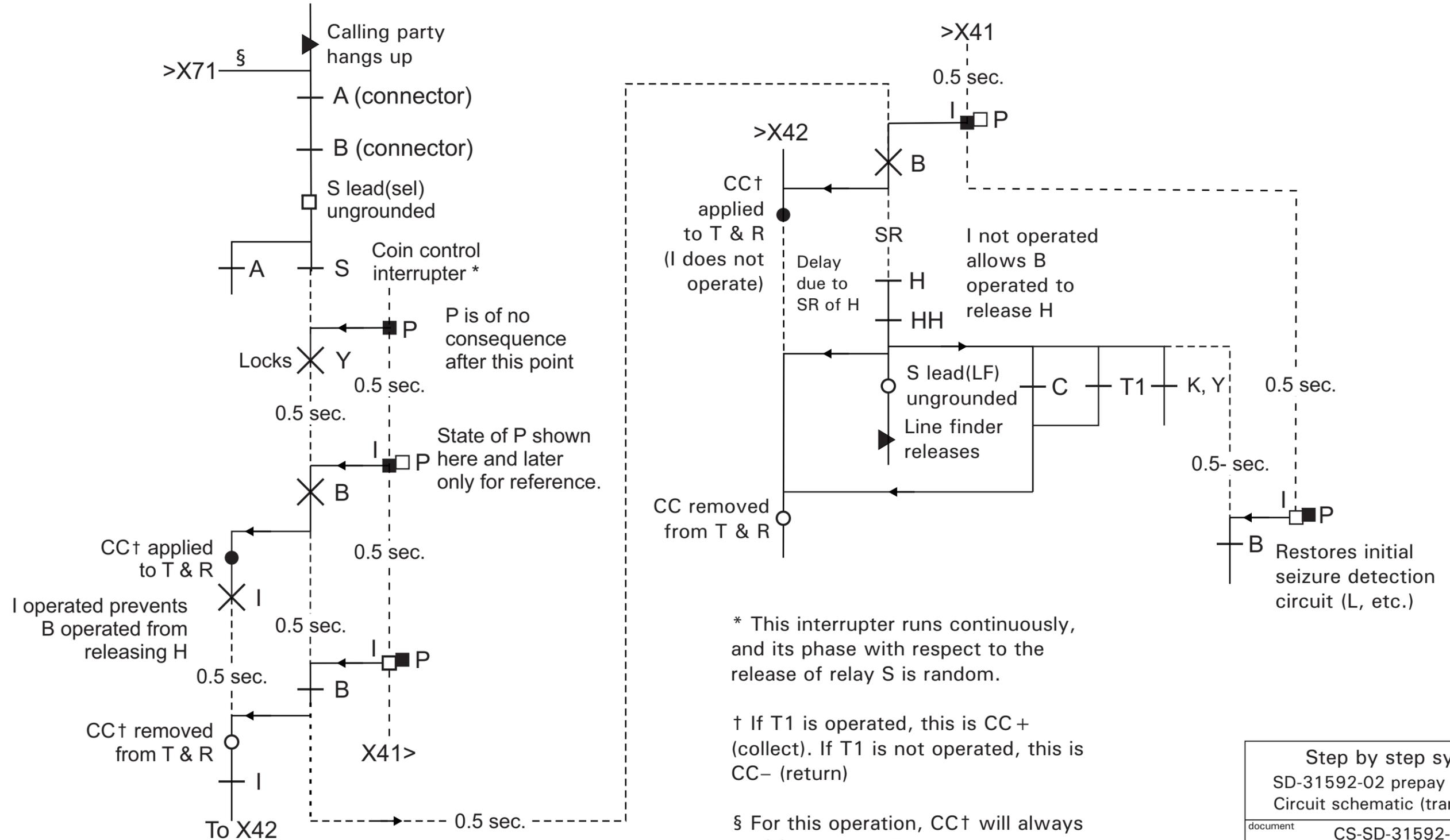
SC5

Disconnect, coin disposal, release

Assumes calling party control of connector release,
C relay operated*, calling party hangs up first

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* This interrupter runs continuously, and its phase with respect to the release of relay S is random.

† If T1 is operated, this is CC+ (collect). If T1 is not operated, this is CC- (return)

§ For this operation, CC+ will always be CC- (return). The A relay will not have been operated.

Step by step system
SD-31592-02 prepay coin trunk
Circuit schematic (transcription)

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SC6

Disconnect, coin return, release

Assumes calling party control of connector release, C relay not operated*, calling party hangs up first

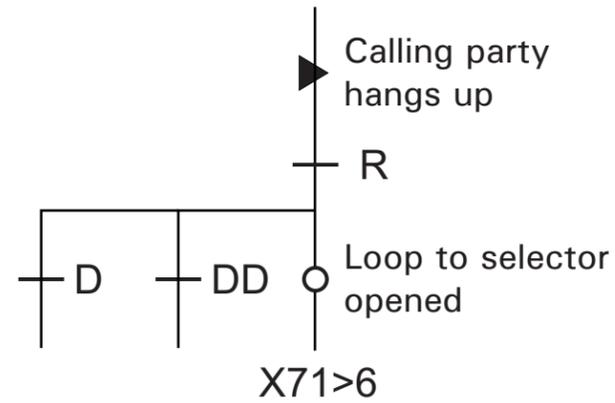
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The rest of the scenario plays out per SC6 except:

- J, K, and K1 will not have been operated
- Coin control voltage will be CC- (return) rather than CC+ (collect)

*With the C relay not operated, the call is non-chargable.

With C not operated, T1 could not be operated, so here we assume it is not operated.

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document CS-SD-31592-02					
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SK1

Idle and initial seizure

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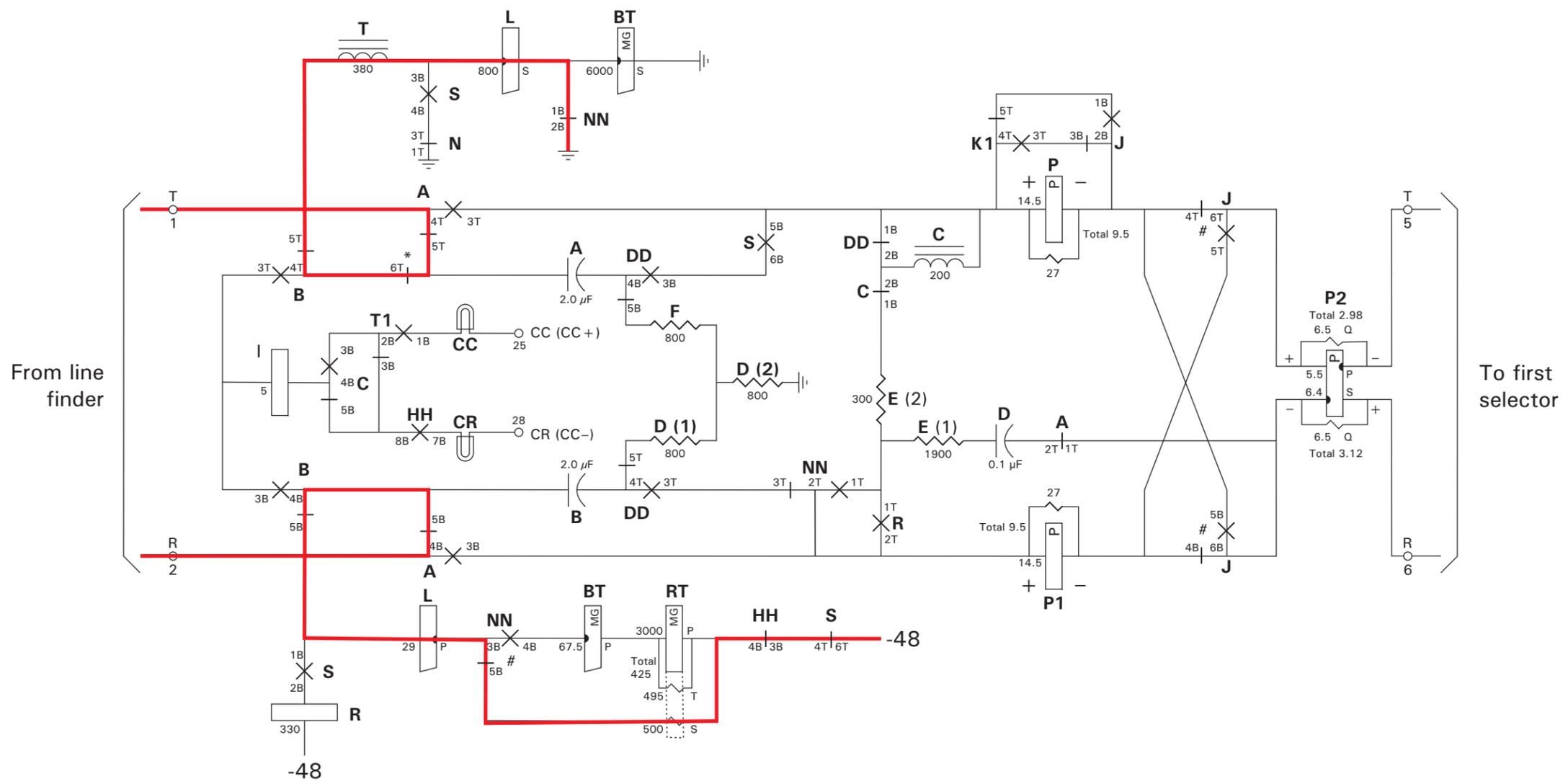
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From line
finder

To first
selector

Step by step system
SD-31592-02 prepay coin trunk
Circuit schematic (transcription)

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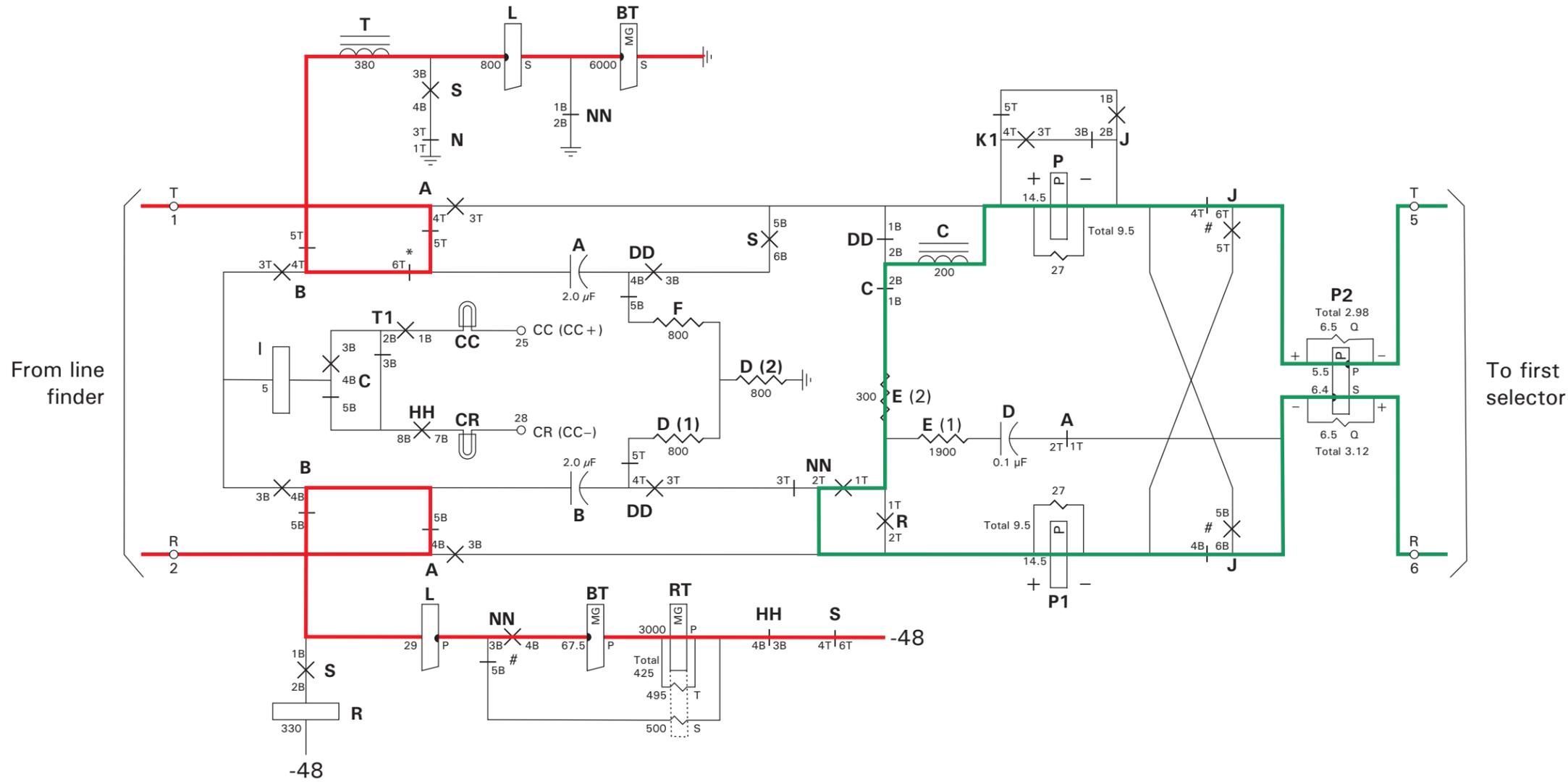
SK2

Selector seizure and coin relay test

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To first selector

Coin relay test is satisfied by RT operating but not BT.

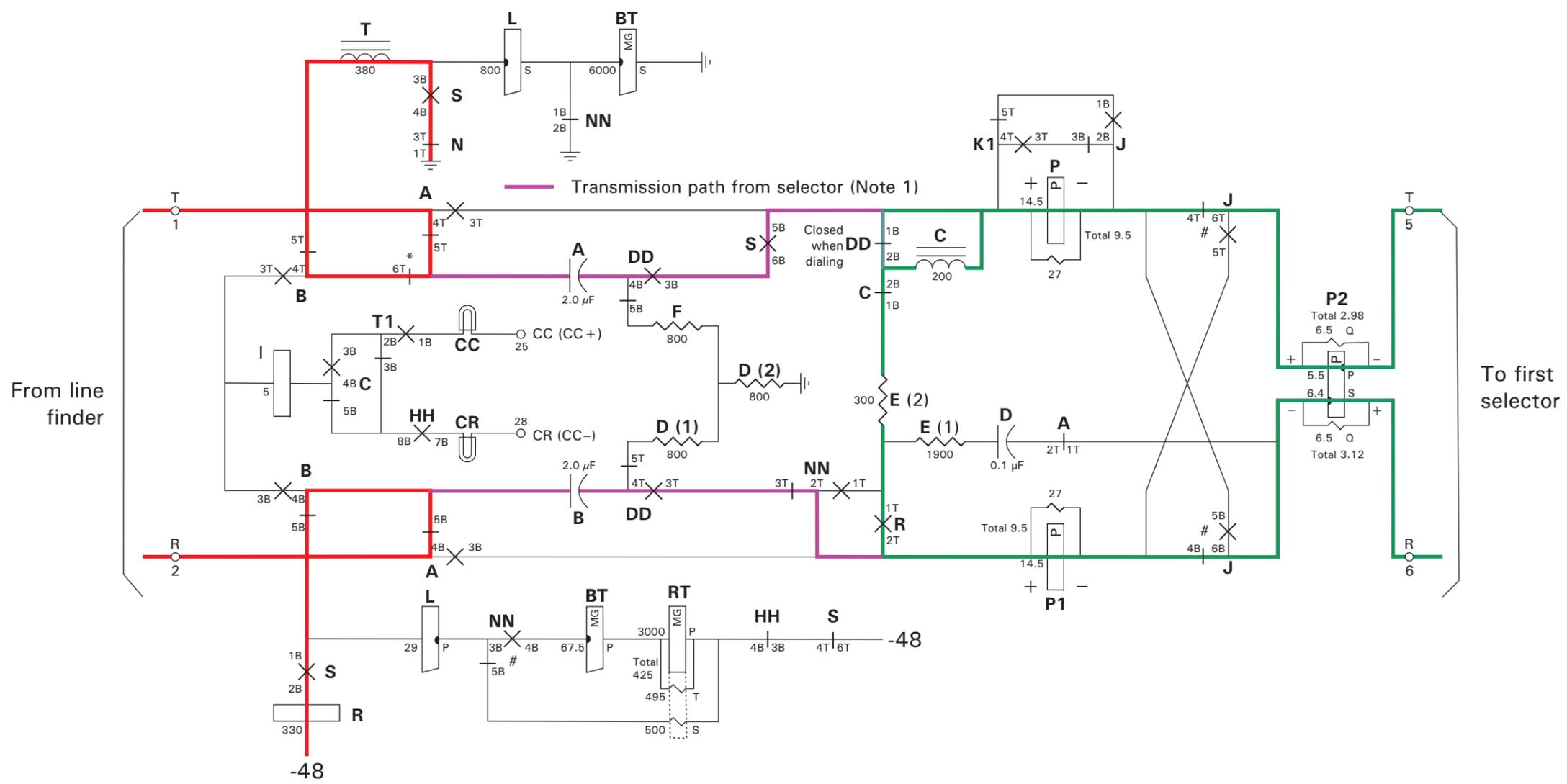
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SK3

Coin relay test satisfied—ready to dial/dialing
and connection complete but answer supervision never received



Note 1: Initially allows dial tone from first selector to be heard at calling line. Dial tone disappears after the first digit is dialed and the connection advances into a second selector. During dialing and afterwards, but before answer supervision is received, the purple path provides for the calling line to hear call progress tones. If the called line answers but there is no answer supervision ("free" call) this path provides transmission between the parties.

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SK5

Coin collect ("live" interval)

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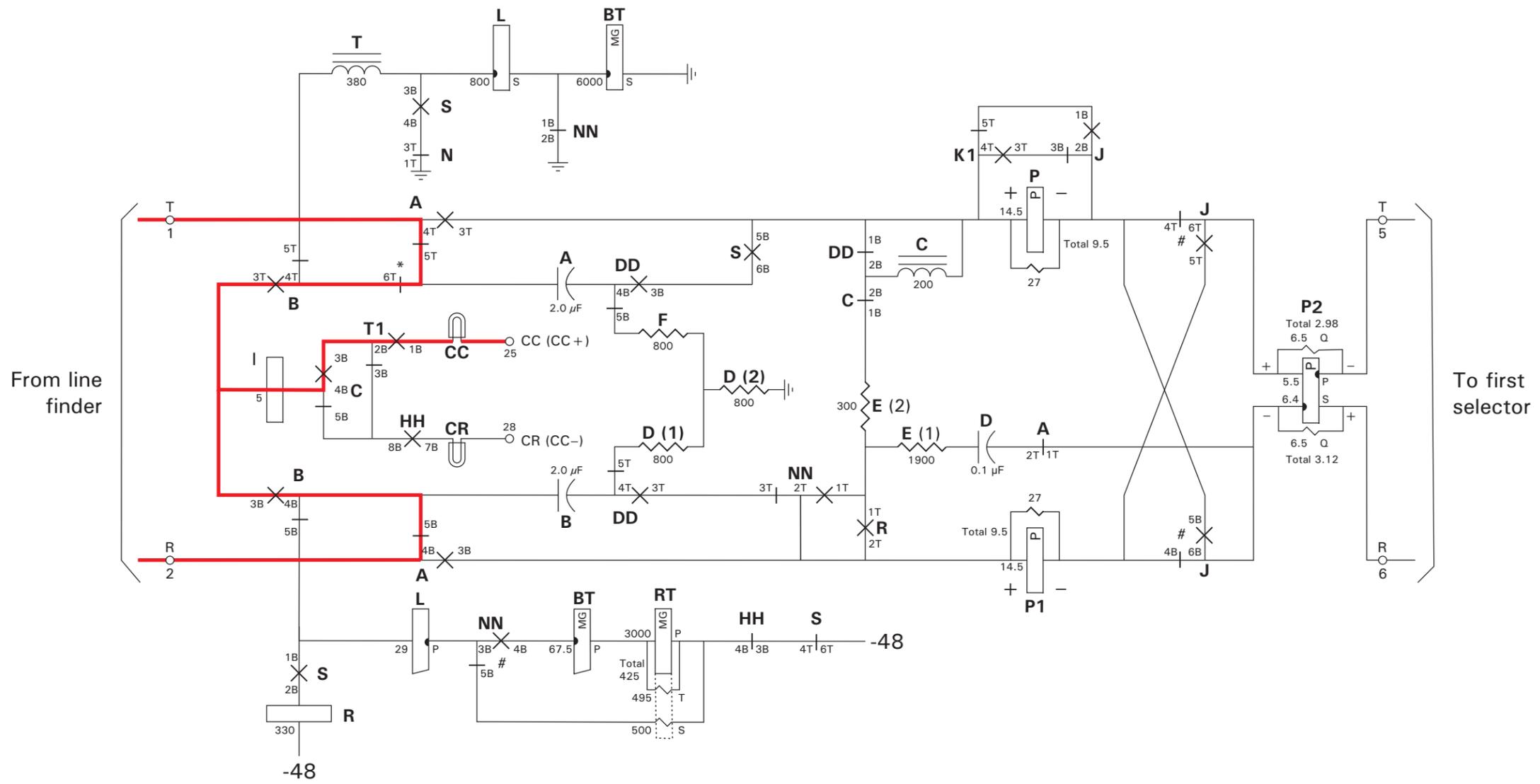
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To first selector

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SK6

Coin return ("live" interval)

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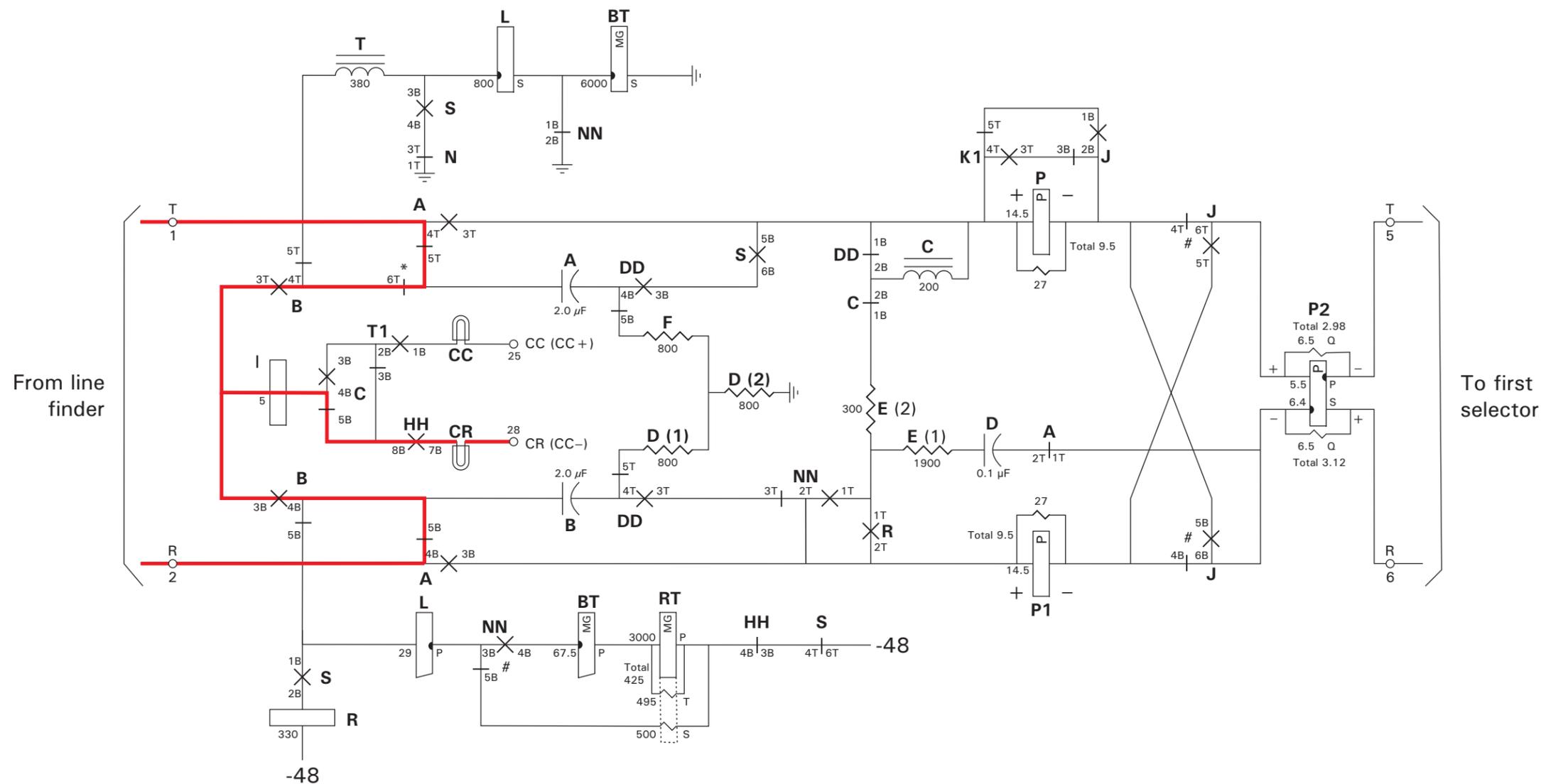
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Issue record

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Issue	Date	Changes
18	2024-05-19	IN PROCESS. Reference grid changed to current standard. Minor corrections made on several SC figures. Minor graphic changes.
17	2023-04-22	Add reference grid coordinates.

Step by step system SD-31592-02 prepay coin trunk Circuit schematic (transcription)					
document					
CS-SD-31592-02					
issue	date	type	drawn	page	of
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