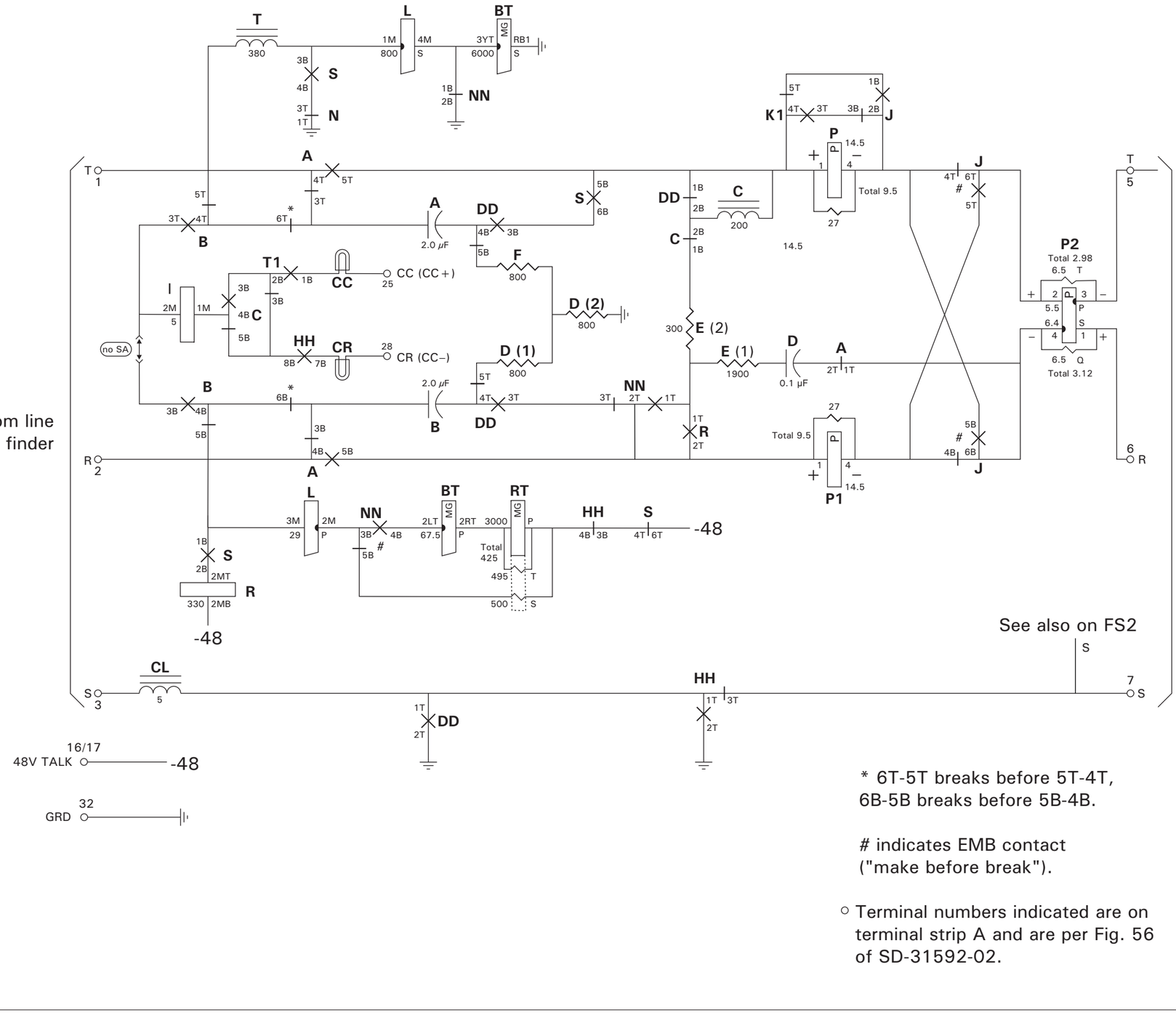
FS1

Tip, ring, sleeve

IN PROCESS
Issue 19, Draft A



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

\# 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. See figure REF1 (page 3) for figures and options assumed.

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

drawing	issue	date	type	drawn	page	of
CS-SD-31592-02	19	2024-11-18	CDR	DAK	1	16

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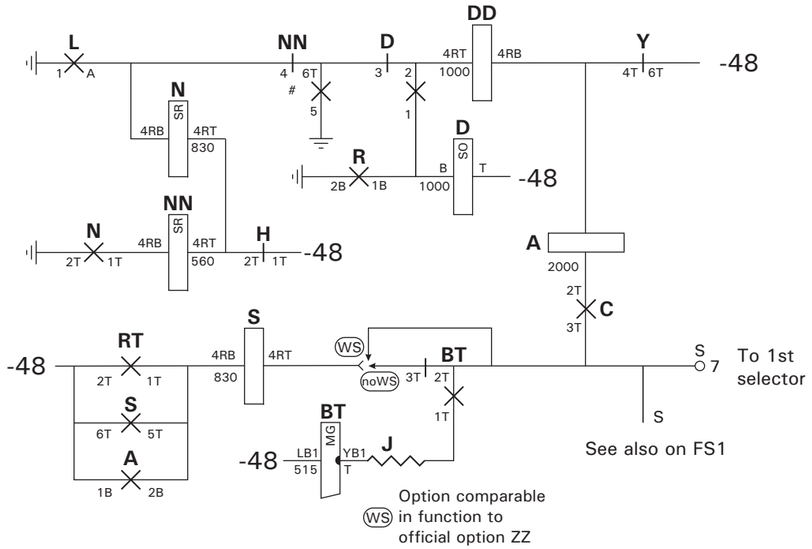
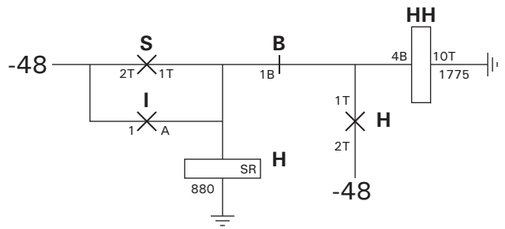
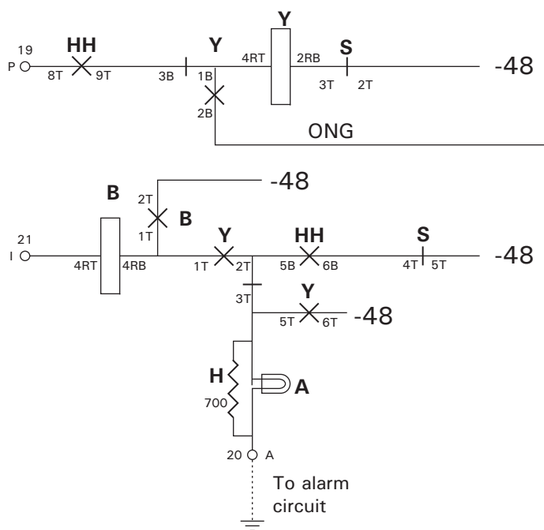
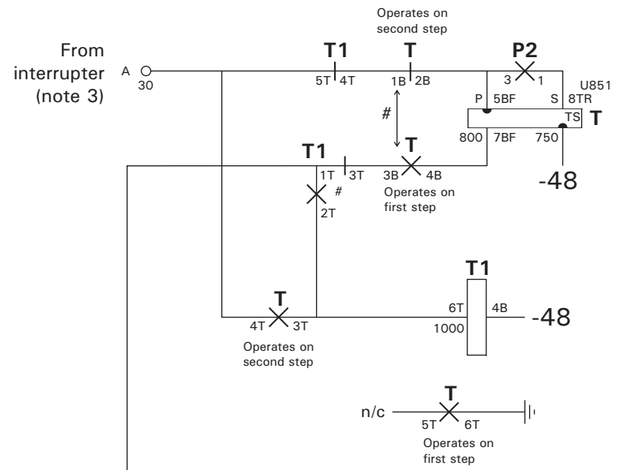
FS2

Control logic







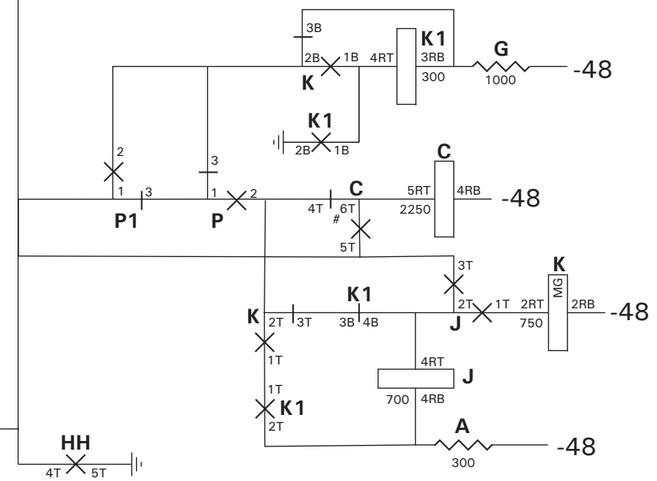


Delayed charge control

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.



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.

Shown with Figure B, option H.

Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing	issue	date	type	drawn	page	of
CS-SD-31592-02	19	2024-11-18	CDR	DAK	2	16

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REF1

Reference information

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

Options assumed

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

Fig. 1
Fig. B
Fig. D
F
G
H
P
T
TD
ZC
ZR
ZW
ZX
YA
YE
WS (option functionally comparable to ZZ)

Local option (for as-built of specimen trunk
SA

Index of relays with basic functions

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

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 - Initial coin deposit made
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

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

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	3	16

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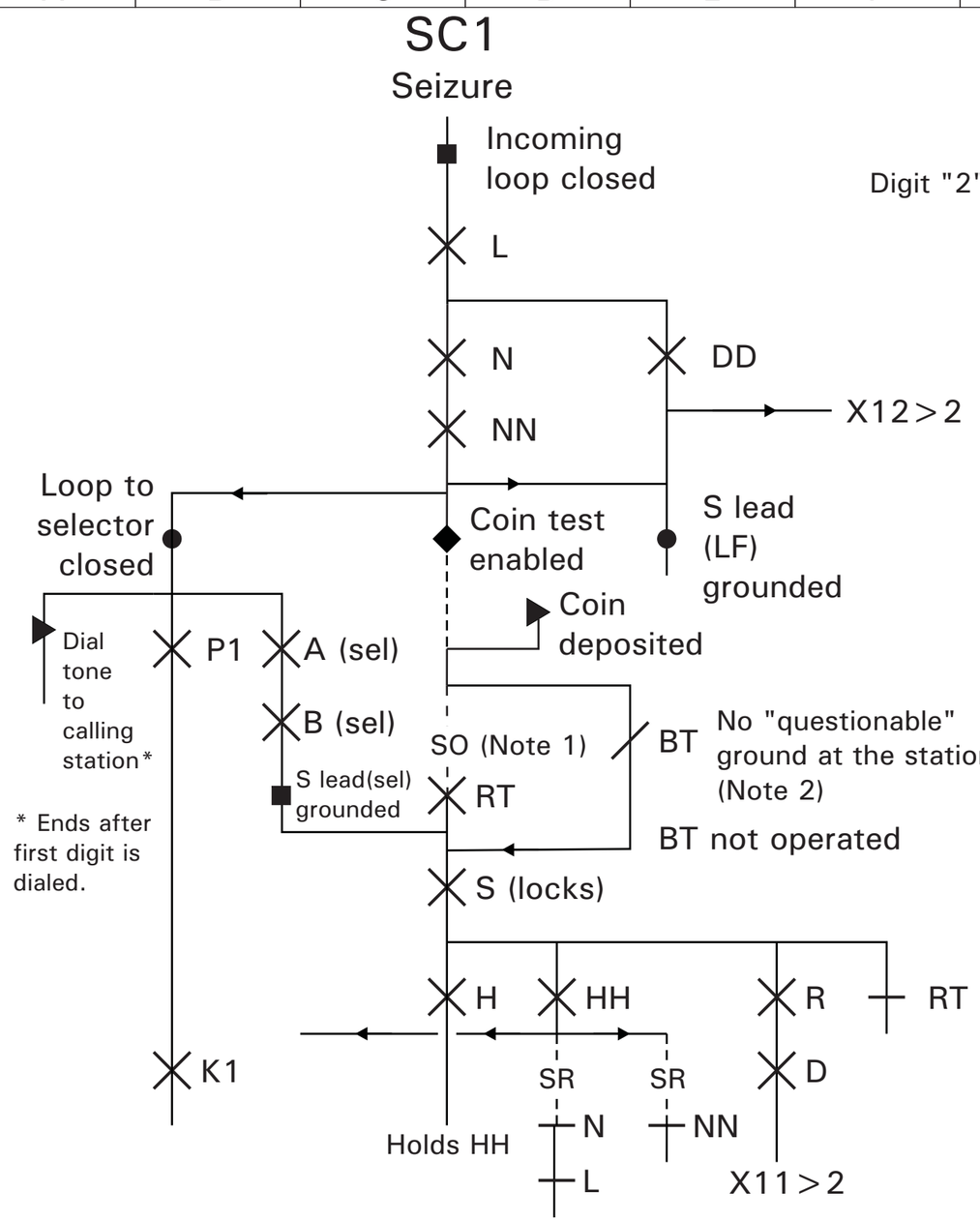

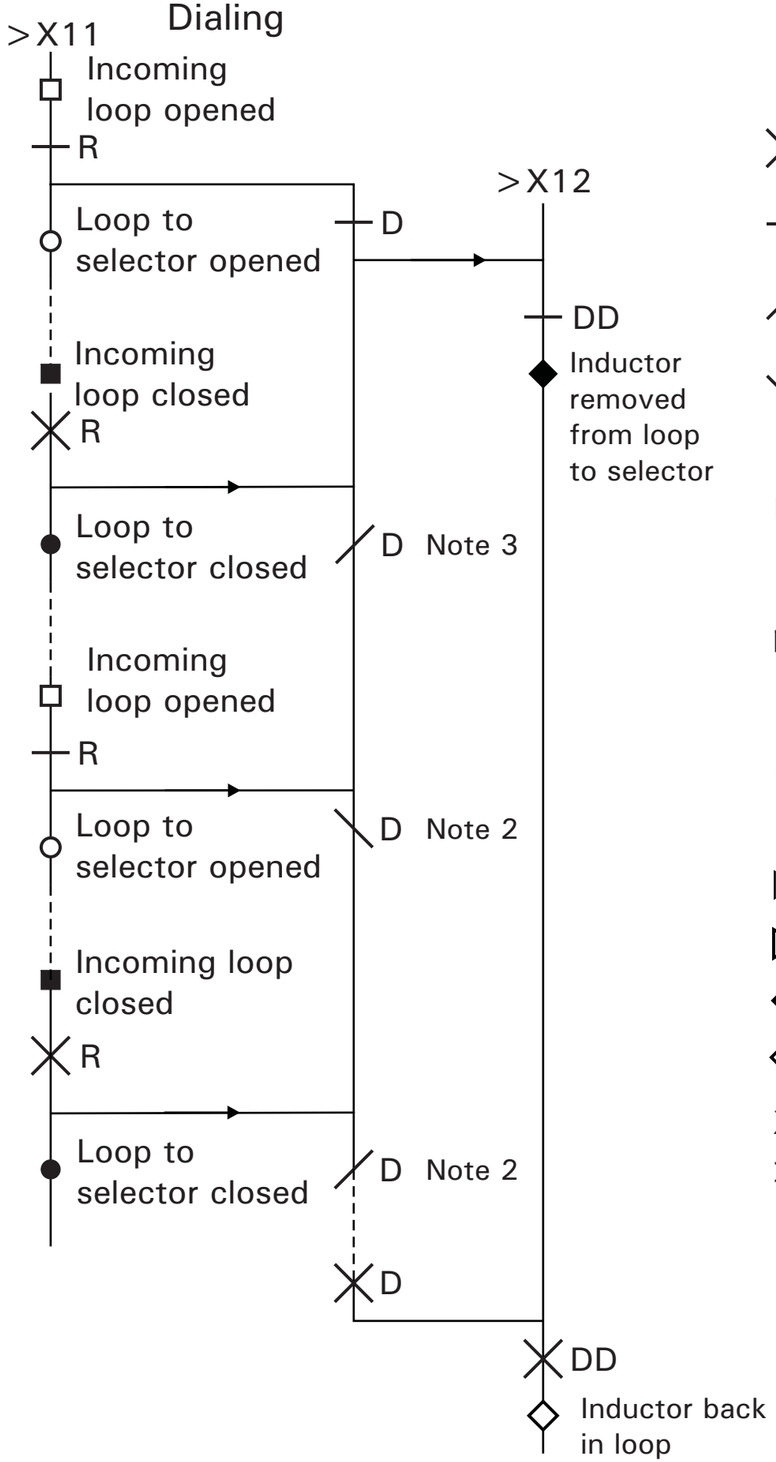

Symbols

- 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)

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.

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

drawing	CS-SD-31592-02				
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	4	16

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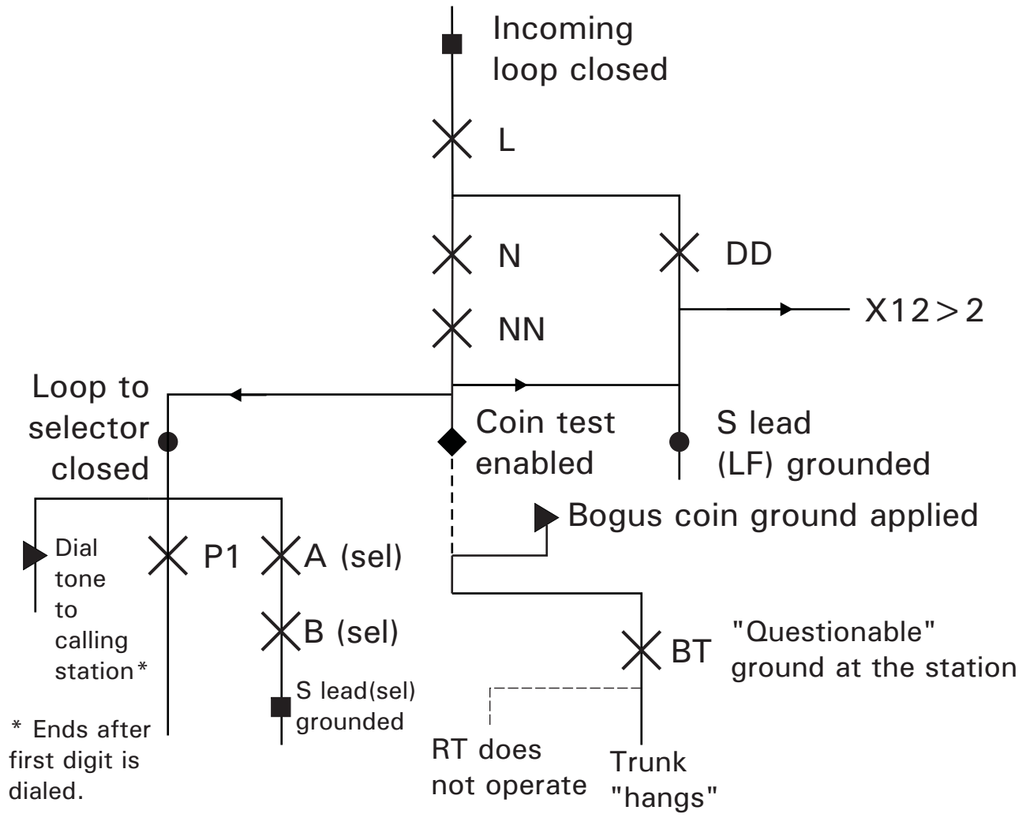
SC3

Seizure; bogus coin ground



Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	5	16

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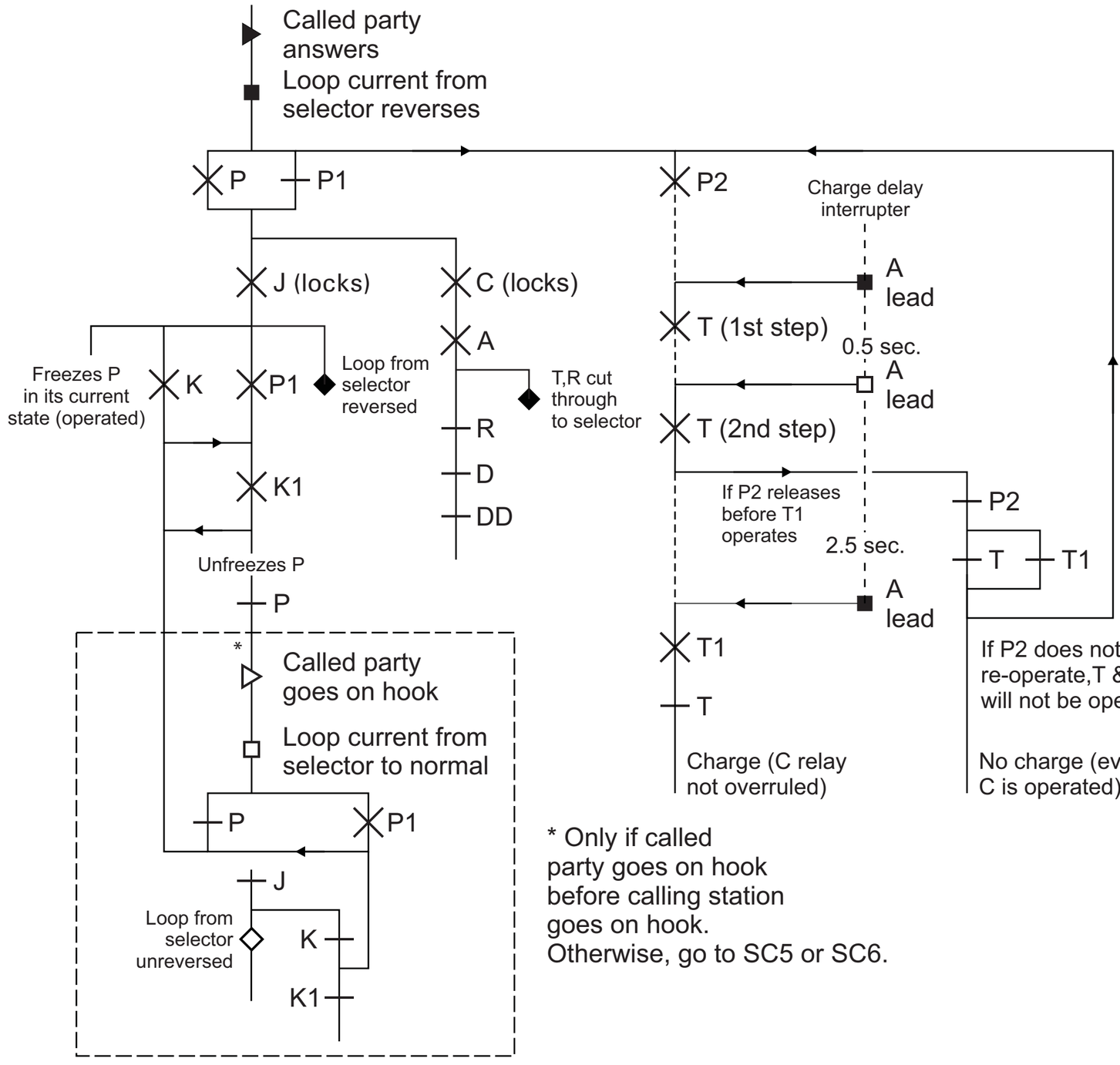
SC4

Answer by called party (answer supervision received)



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

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).

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

drawing	issue	date	type	drawn	page	of
CS-SD-31592-02	19	2024-11-18	CDR	DAK	6	16

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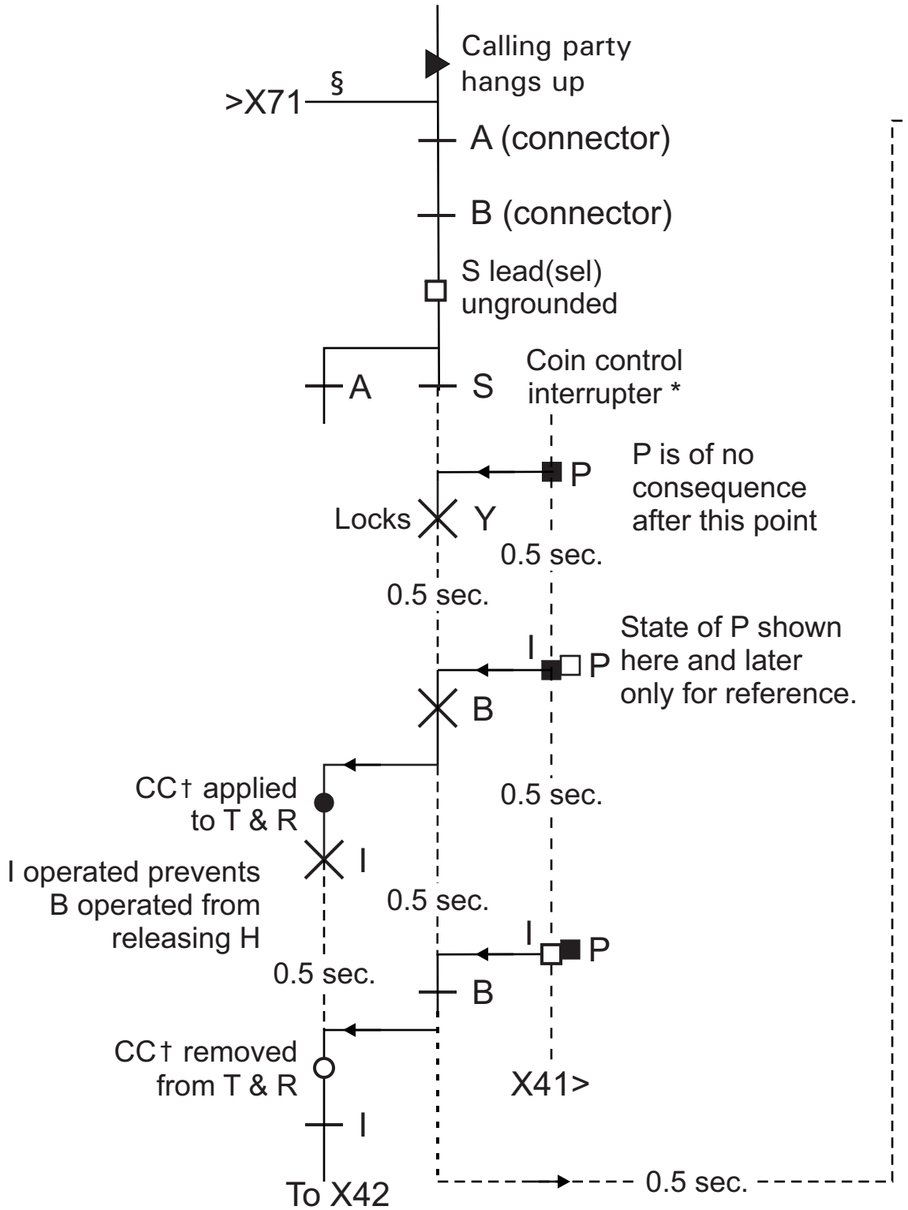
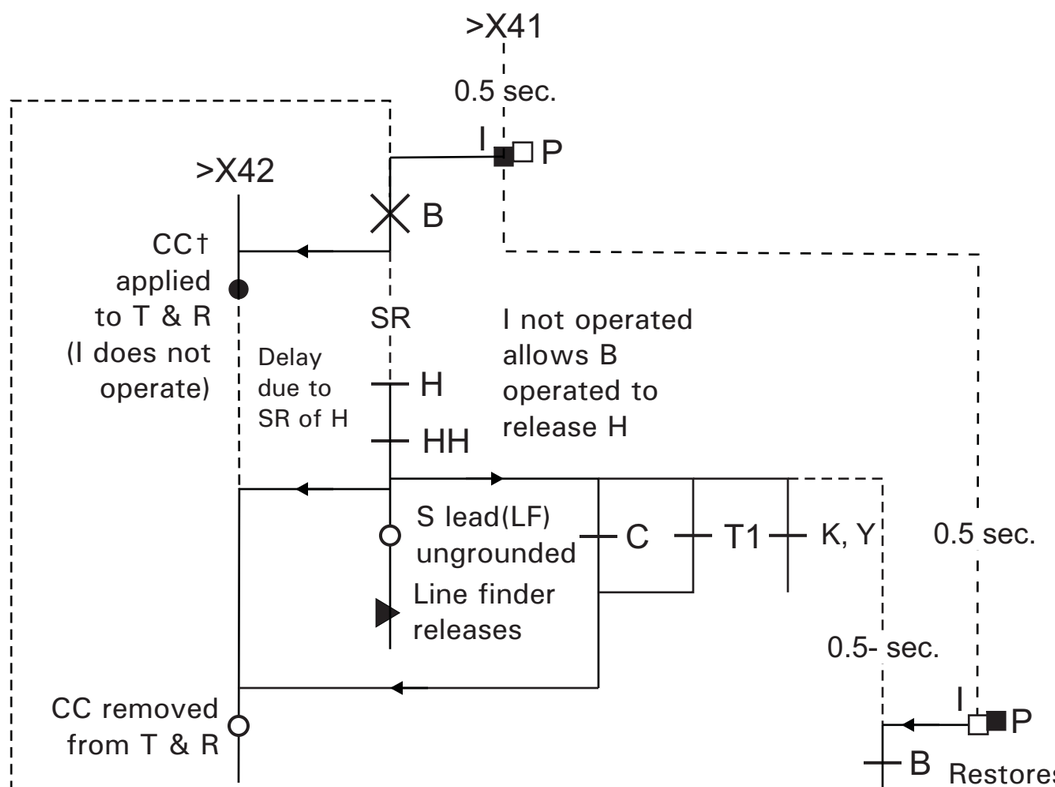
SC5

Disconnect, coin disposal, release

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





* 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)

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	7	16

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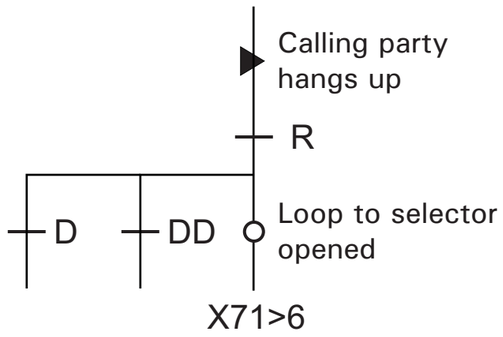
SC6

Disconnect, coin return, release

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



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.

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

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	8	16

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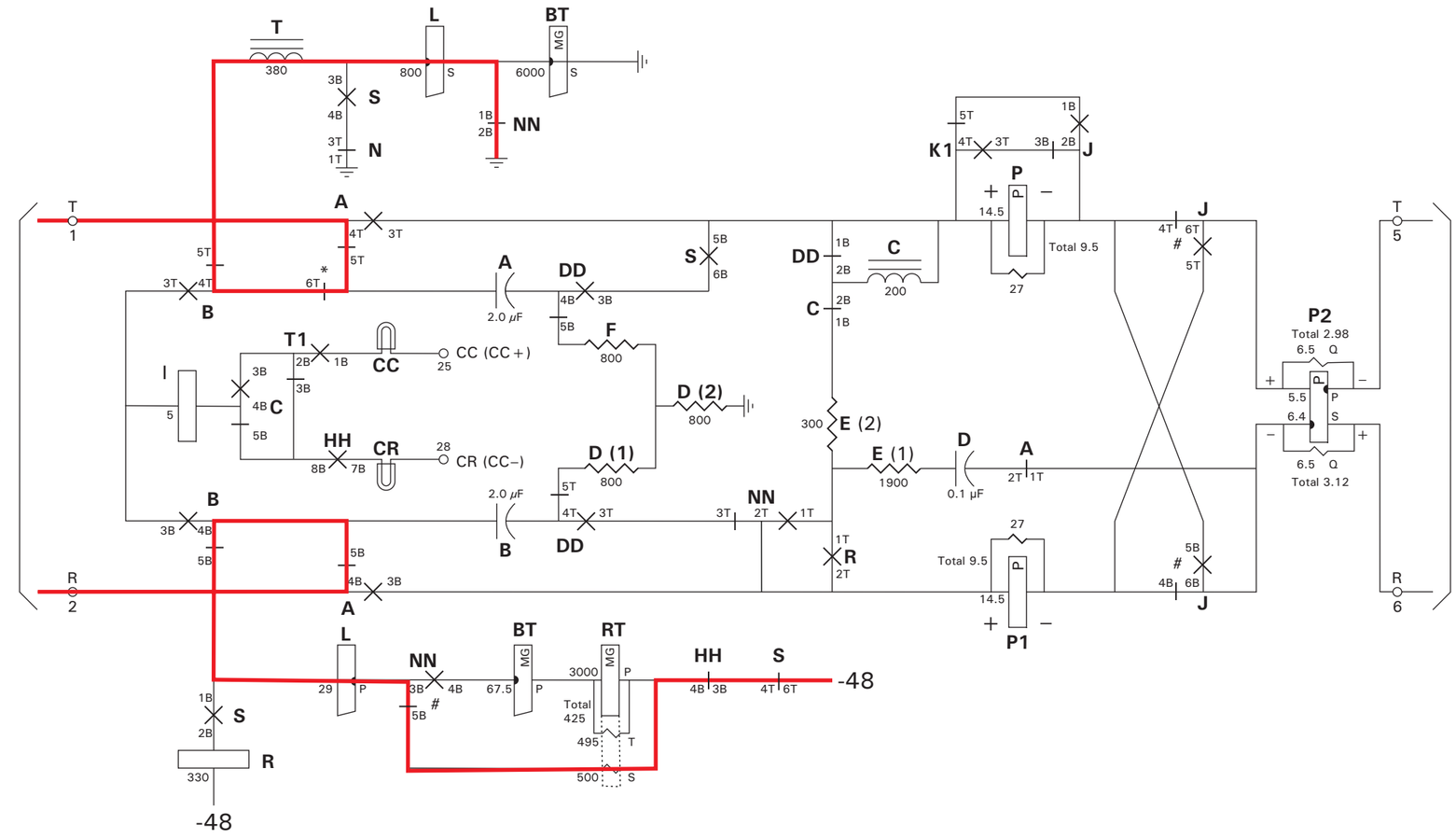
SK1

Idle and initial seizure

From line finder



To first selector

Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing	CS-SD-31592-02				
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	9	16

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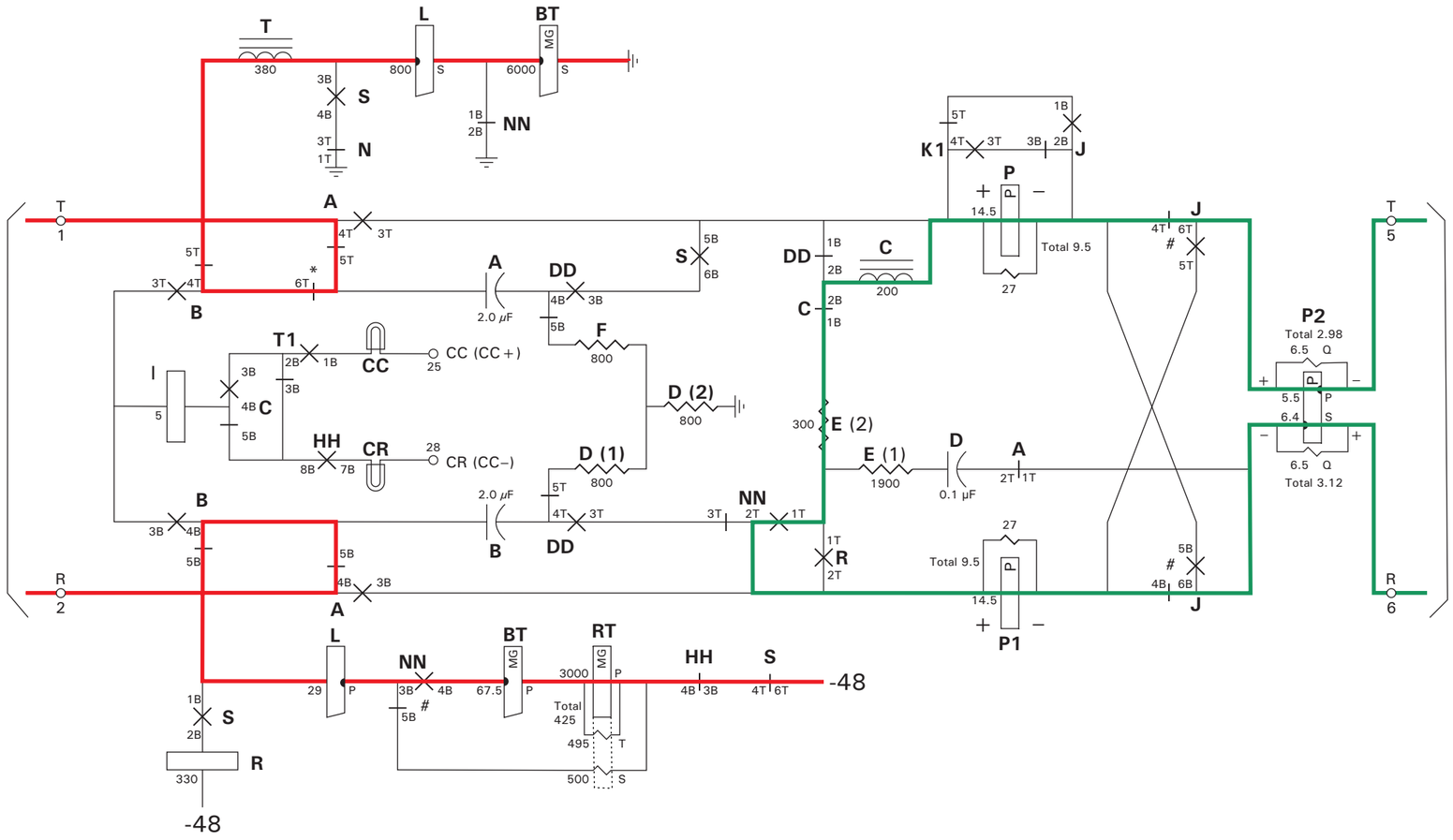
SK2

Selector seizure and coin relay test

From line finder



To first selector

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

Step by step system					
SD-31592-02 prepay coin trunk					
Circuit schematic (transcription)					
drawing CS-SD-31592-02					
issue 19	date 2024-11-18	type CDR	drawn DAK	page 10	of 16

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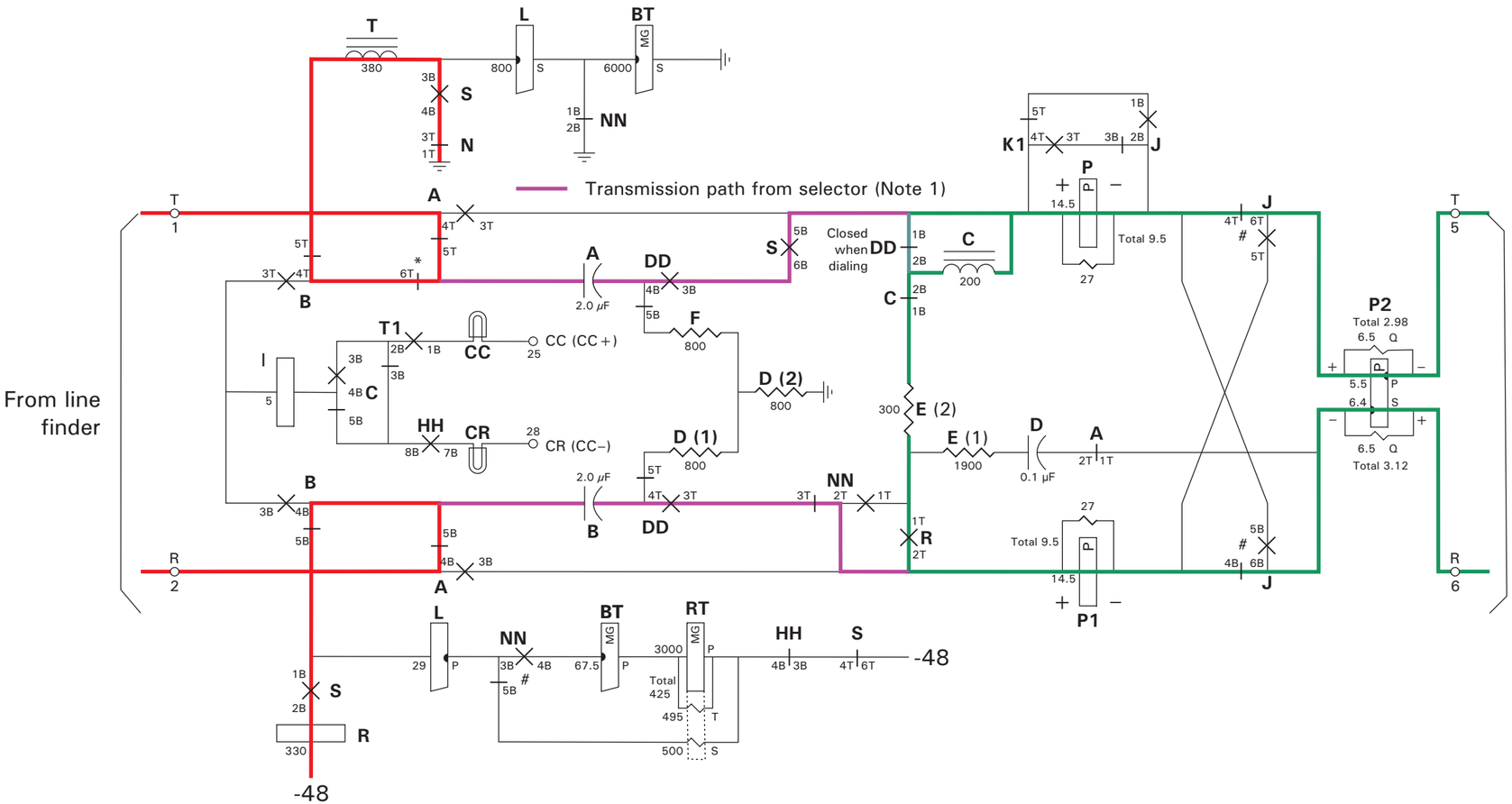
SK3

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.

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

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	11	16

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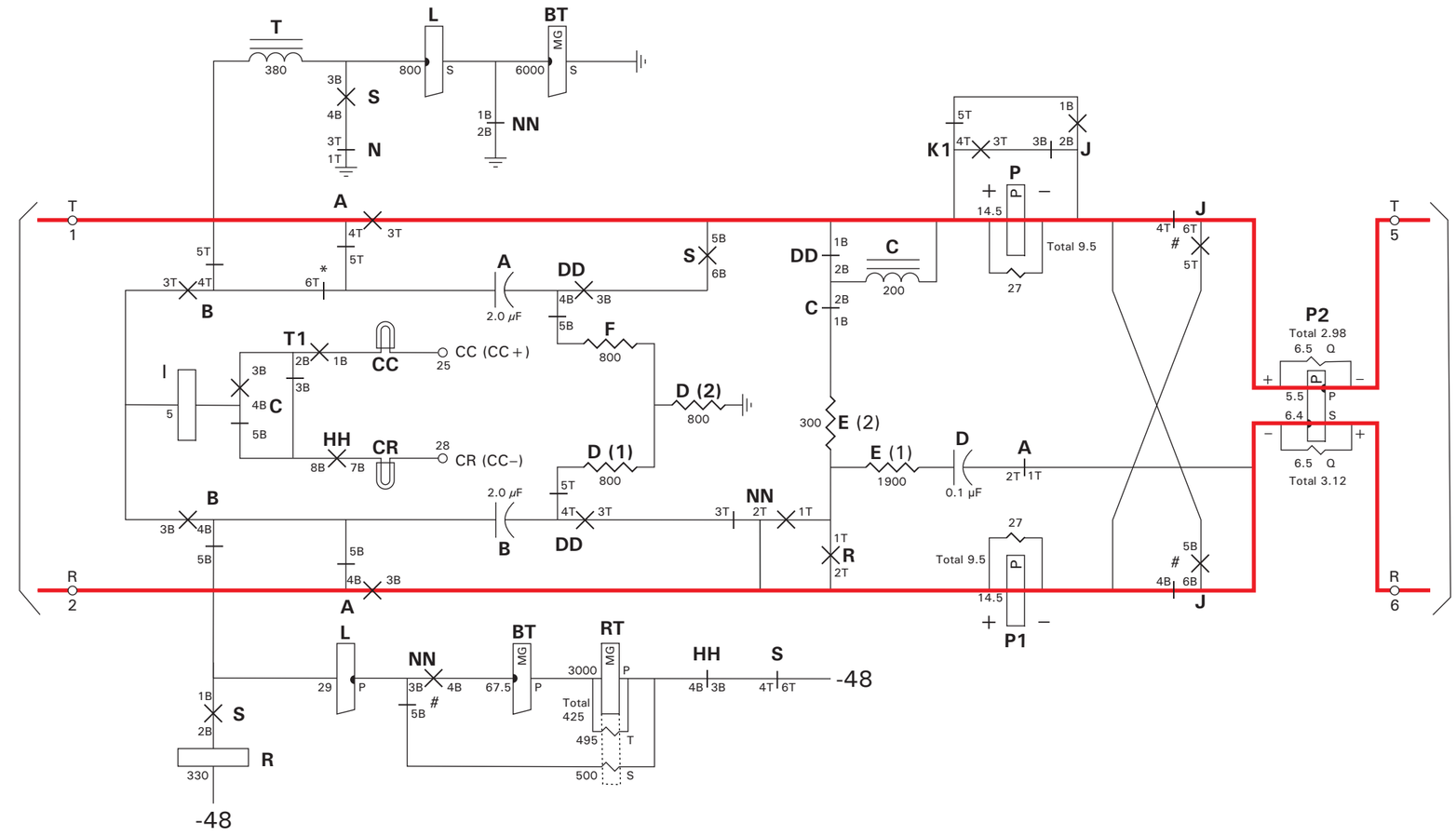
SK4

Cut-through (occurs after answer supervision received)

From line finder

To first selector



Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing	CS-SD-31592-02				
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	12	16

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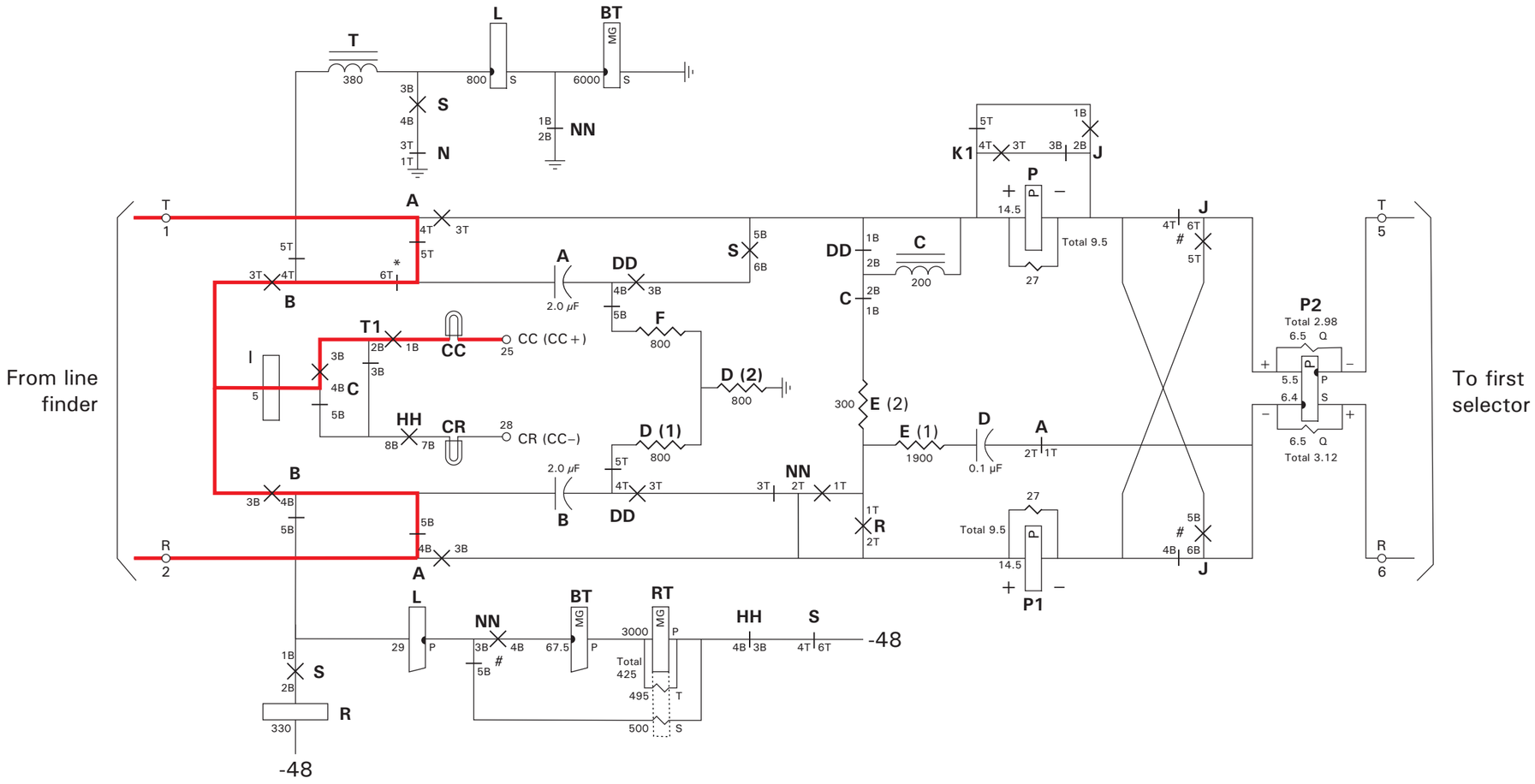
SK5

Coin collect ("live" interval)



	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1														
2														
3														
4														
5														
6														
7														
8														
9														

Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing	issue	date	type	drawn	page	of
CS-SD-31592-02	19	2024-11-18	CDR	DAK	13	16

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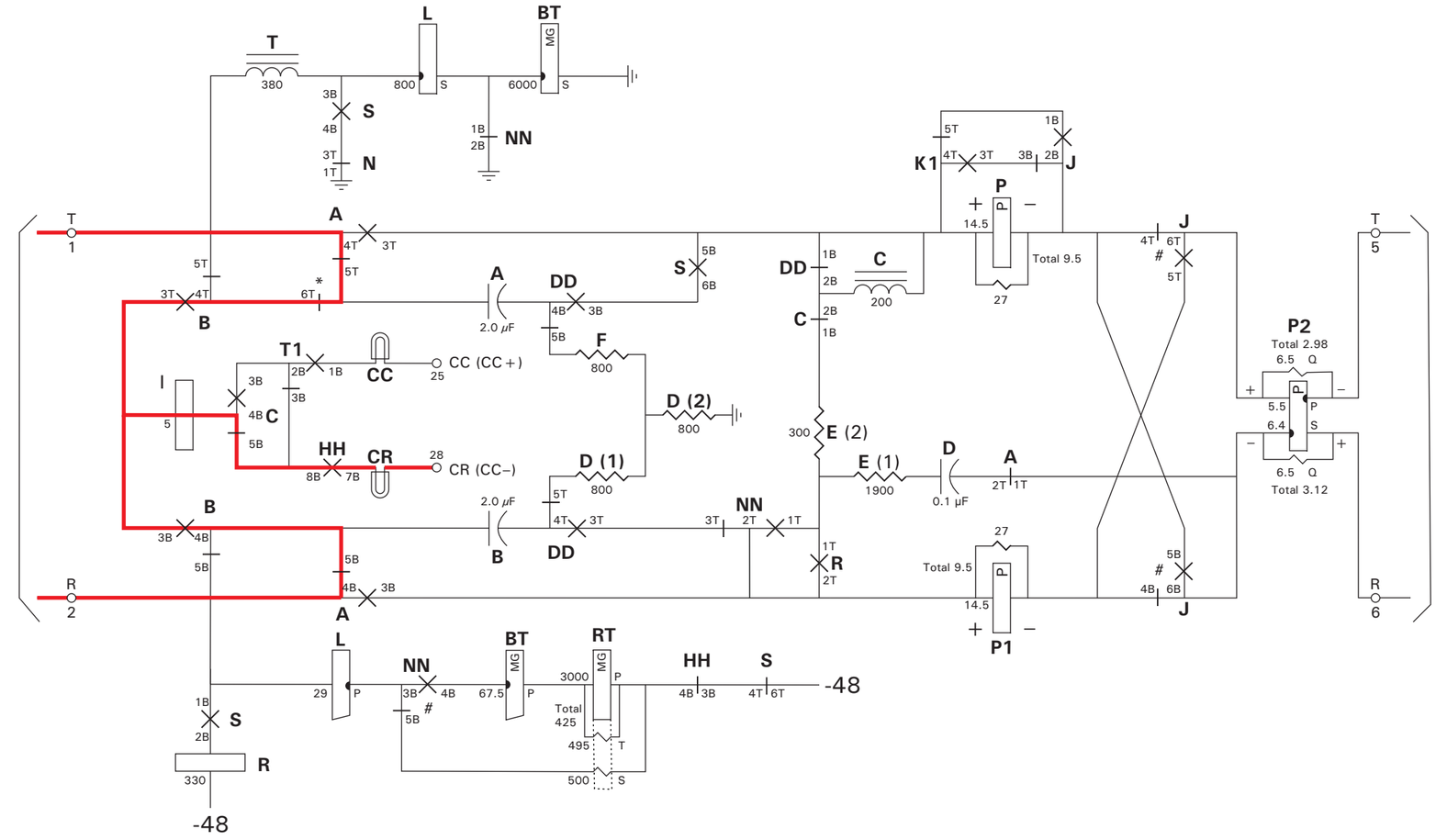
SK6

Coin return ("live" interval)

From line finder

To first selector



	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1														
2														
3														
4														
5														
6														
7														
8														
9														

Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	14	16

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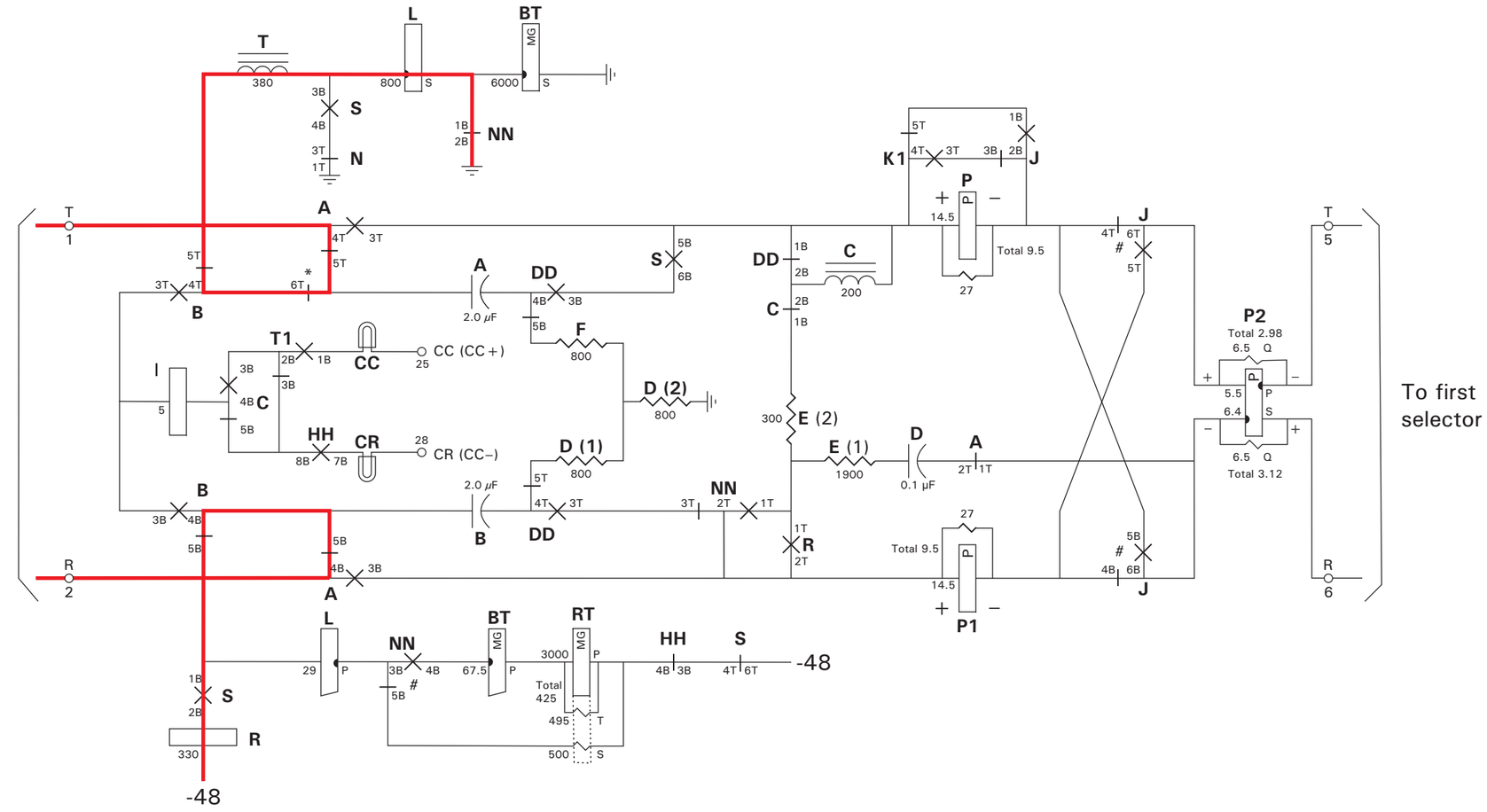
SK7

Coin collect/return ("dead" interval)



	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1														
2														
3														
4														
5														
6														
7														
8														
9														

Step by step system

SD-31592-02 prepay coin trunk

Circuit schematic (transcription)

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	15	16

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Issue record

Issue	Date	Changes
19	IN PROCESS	Added coil terminal numbers to most relays. Changed organization name style in title block to current standard
18	2024-05-19	Reference grid changed to current standard. Minor corrections made on several SC figures. Corrected some contact spring numbers. Minor graphic changes.
17	2023-04-22	Add reference grid coordinates.

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

drawing					
CS-SD-31592-02					
issue	date	type	drawn	page	of
19	2024-11-18	CDR	DAK	16	16

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