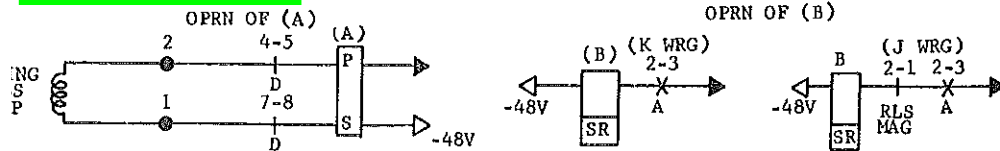
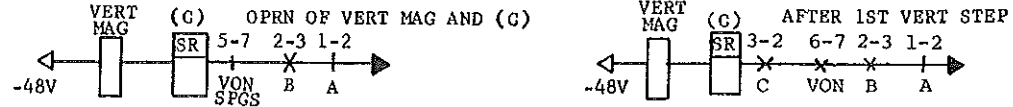


✕ MAKE CONTACTS ← -48V
 + BREAK CONTACTS ← GRD

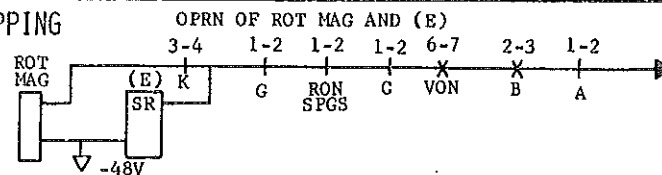
LOCAL CALL-SEIZURE



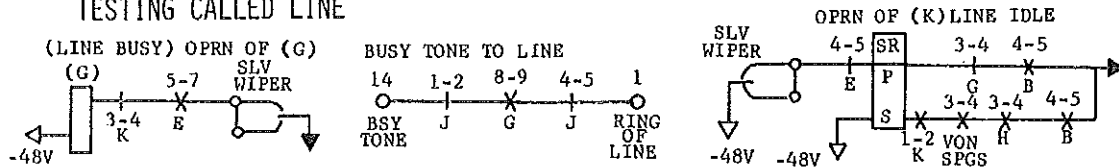
VERTICAL STEPPING



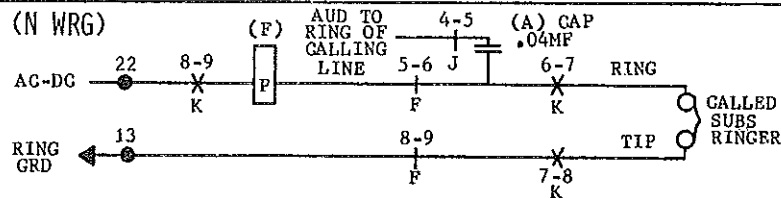
ROTARY STEPPING



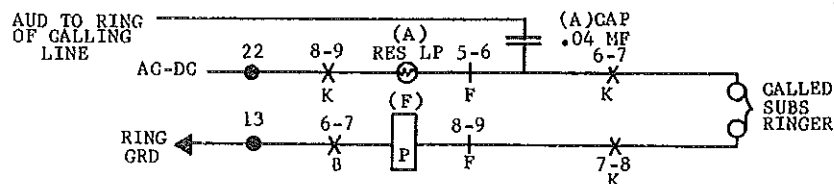
TESTING CALLED LINE



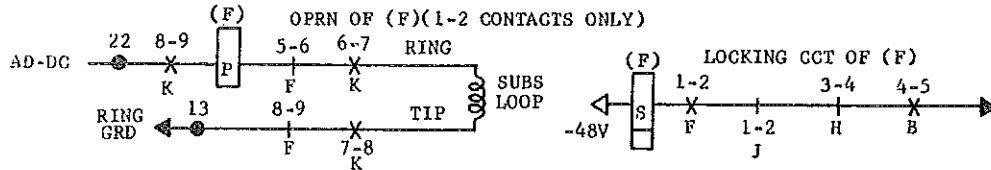
RINGING (N WRG)



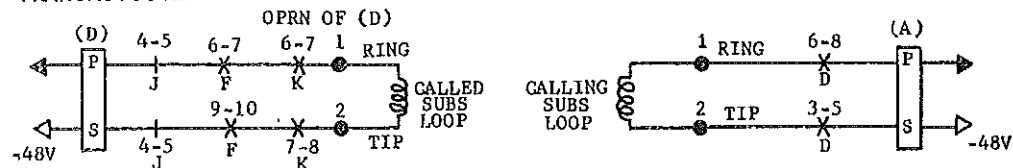
RINGING (M WRG)



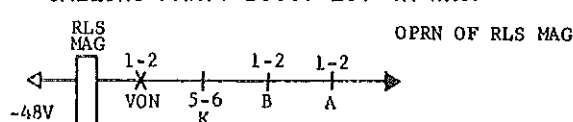
CALLED PARTY ANS.



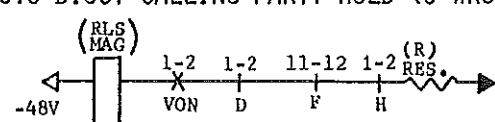
TRANSMISSION



CALLING PARTY DISC. 1ST (K WRG)



AUTO DISC. CALLING PARTY HOLD (J WRG)



SD 31739-01

Dwg. Iss 17B
CD Iss. 3D

Step by Step Systems
No.1, 350A, or 355A Offices
COMBINATION CONNECTOR CIRCUIT
1 RING

LOCAL CALL-SEIZURE

- ① A opr-Bat wdg A, 7-8 D, wdg A to Grd. ② With J wrg(Auto Disc) B opr-Bat wdg B, 2-1 RLS MAG, 3-2 A to Grd. With K wrg(No Auto Disc) B opr-Bat wdg B, 3-2 A to Grd. ③ B Grds Local Slv-Grd 4-5 B and Toll Slv-Grd 4-5 B, 3-4 H. Operated: Rlys A and B

VERTICAL STEPPING

- ① A pulses. ② VERT MAG & C opr in series-Bat VERT MAG & C, 5-7 VON SPGS, 3-2 B, 1-2 A to Grd. ③ After 1st vert step the opr path to VERT MAG & C is Bat wdg VERT MAG & C, 3-2 C, 6-7 VON, 3-2 B, 1-2 A to Grd. ④ B and C hold during pulsing. After pulsing C rls. Operated: Rlys A, B and VON SPGS

ROTARY STEPPING

- ① A pulses. ② E and ROT MAG opr in mult and RON SPGS opr-Bat ROT MAG, top 3-4 K, in mult with Bat wdg E, 2-1 G, 1-2 C, 6-7 VON, 3-2 B, 1-2 A to Grd. ③ E opr before RON SPGS break and holds during pulsing. ④ After pulsing E rls. Operated: Rlys A, B.

TESTING CALLED LINE

- ① If called line busy, G opr before E rls-Bat wdg G, bot 3-4 K, 7-5 E, S WIPER to Slv Grd. ② G locks-Bat wdg G, bot 4-3 K, 7-6 E, 5-4 G, 4-5 B to Grd. ③ BUSY TONE-top 1-2 J, 9-8 G, top 5-4 J to Ring of Line thru R Cond. Operated: Rlys A, B, G.

IDLE LINE

- ① K opr-(1-2 make) Bat S WIPER from CO Rly in Line Cct, 5-4 E, P wdg K, 3-4 G, 4-5 B to Grd. ② K locks-Bat wdg K, bot 2-1 K, 3-4 VON, 4-3 H, 4-5 B to Grd. ③ K Grds called Slv-Grd top 2-1 K to S WIPER. Operated: Rlys A, B, K

RINGING (N Wrg)

- ① AC-DC - top 8-9 K, P wdg F, 5-6 F, top 7-6 K, Ring, Loop, Tip, bot 7-8 K, 9-8 F to Ring Grd. Operated: Rlys A, B, K

RINGING (M Wrg)

- ① AC-DC top 8-9 K, A Res Lp, 5-6 F, top 7-6 K, Ring, Loop, Tip, bot 7-8 K, 9-8 F, P wdg F, 6-7 B to Ring Grd. Operated: Rlys A, B, K

CALLED PTY ANS

- ① F opr over ringing loop-1-2 make. ② F fully opr and locks-Bat S wdg, 1-2 F, bot 1-2 J, 3-4 H, 5-4 B to Grd. ③ F cuts Local Talk cct thru at 6-7, 9-10, opens Ring Cct at 5-6 and 8-9 and opens M lead at 3-4. ④ D opr to called pty loop-Bat wdg D, bot 4-5, J, 9-10 F, bot 8-7 K, Tip, Loop, Ring, top 6-7 K, 6-7 F, top 5-4 J, wdg D to Grd. Operated: Rlys A, B, D, F, K

TRANSMISSION

- ① D operated reverses talk Bat to line-Bat wdg A, 3-5 D, Tip calling loop, Ring, 8-6 D, wdg A to Grd. Operated: Rlys A, B, D, F, K

CALLING PTY DISC FIRST (K) WRG)

- ① A and B rls. ② B opens locking cct to F and K. ③ F, K rls. ④ RLS MAG opr-Bat wdg RLS MAG, 1-2 VON, bot 6-5 K, 1-2 B, 1-2 A to Grd. ⑤ Rls of VON (1-2) opens RLS MAG. Switch normal.

CALLED PTY DISC FIRST

- ① D rls and restores normal Bat polarity. ② Connection held by calling pty.

AUTO DISC CALLING PTY HOLD (J wrg)

- ① Called pty disc.-D rls. ② RLS MAG partially opr (1-2 break)-RLS BAT wdg RLS MAG, 1-2 VON, 1-2 D, 11-12 F, 1-2 H, R res to Grd Auto Disc Lead. ③ B rls (J wrg) open at 1-2 RLS MAG. ④ B opens lock cct of F and K. ⑤ B removes Grd to calling Slv and rls preceeding switches. ⑥ Loop opened to A, A rls. ⑦ RLS MAG opr same as calling pty disc.



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SD-31739-01

 — -48V
 — GRD

Figure 1 is a timing diagram for the vertical sync sequence. It consists of four horizontal timelines representing different signals over time. The top timeline, labeled (C) OPN OF VERT MAG AND (C), shows a signal starting at -48V, passing through a switch (SR), and then through a series of points labeled 5-7, 2-3, and 1-2, with a voltage level of VON. The second timeline, labeled (F) OPN OF (F), shows a signal starting at -48V, passing through a switch (S), and then through a series of points labeled 4-5, 4-5, and 1-2, with a voltage level of J. The third timeline, labeled (F) LOCKING CCT OF (F), shows a signal starting at -48V, passing through a switch (F), and then through a series of points labeled 1-2, with a voltage level of F. The fourth timeline, labeled (F) TOLL SLV GRD, shows a signal starting at -48V, passing through a switch (S), and then through a series of points labeled 4-5, 4-5, and 1-2, with a voltage level of J. The diagram illustrates the sequence of events during the vertical sync period, including the opening of the vertical magnetron and the locking of the cathode ray tube (CRT) of the field.

Diagram 1 illustrates the wiring for the ROT and MAG relays. The ROT relay is connected to the -48V line through a switch (G) and a switch (K) labeled "OPRN OF (G)". The MAG relay is connected to the -48V line through a switch (J) and a switch (K) labeled "OPRN OF (J)". The wiring for the ROT relay includes a switch (G) and a switch (K) labeled "OPRN OF (G)". The wiring for the MAG relay includes a switch (J) and a switch (K) labeled "OPRN OF (J)". The wiring for the ROT relay includes a switch (G) and a switch (K) labeled "OPRN OF (G)". The wiring for the MAG relay includes a switch (J) and a switch (K) labeled "OPRN OF (J)".

[illegible]

(F) LOCKING CGT. OF (F)

1-2
X
F

"C" LEAD
GRD

-48V

S

Diagram illustrating the timing of the RING and TIP signals relative to the WIPER. The RING signal is shown as a horizontal line with a dot at 19 and 'X' marks at 5-7 (J), 6-7 (F), and 6-7 (K). The TIP signal is shown as a horizontal line with a dot at 20 and 'X' marks at 5-7 (J), 9-10 (F), and 7-8 (K). The WIPER is indicated by a bracket on the right side of the diagram.

SD 31739-01

Dwg. Iss 17B
CD Iss. 3D

Step by Step Systems
No.1, 350A, or 355A Offices

COMBINATION CONNECTOR CIRCUIT

1 RING

TOLL CALL-SEIZURE

- ① A and H opr in series-Bat wdg A and H, top 6-7 J, Toll Ring, Loop, Toll Tip, bot 7-6 J, wdg A to Grd. ② B opr- Bat wdg B (J wrg Auto Disc) 2-1 RLS MAG, 3-2 A to Grd. (K wrg no Auto Disc) B opr- Bat wdg B, 3-2 A to Grd. ③ B Grds Local Slv-Grd 4-5 B. ④ Grd on Toll Slv from Trk Cct. ⑤ C lead Grd-Grd On Toll Slv- bot 2-1 J to C Lead. ⑥ H locks-Bat wdg H, 5-4 H to Toll Slv Grd ⑦ H opens Auto Disc lead at 1-2 H. Operated: Rlys A,B,H

VERTICAL STEPPING - 1st DIGIT

- ① A pulses. ② VERT MAG & C opr in series-Bat VERT MAG and C, 5-7 VON, 3-2 B, 1-2 A to Grd. ③ After 1st vert step, VERT MAG path is- Bat VERT MAG & C, 3-2 C, 6-7 VON, 3-2 B, 1-2 A to Grd. ④ F opr-Bat S wdg F, 4-5 C, 5-4 H, bot 2-1 J to Toll Slv Grd. ⑤ F locks- Bat S wdg F, 2-1 F to Toll C lead Grd. ⑥ B and C hold during pulsing. After pulsing C rls. Operated: Rlys A,B,F,H and VON.

ROTARY STEPPING - 2nd DIGIT

- ① Same as Local side.

TESTING CALLED LINE

- ① If called line busy, G opr before E rls-Bat wdg G, bot 3-4 K, 7-5 E to S WIPER Grd. ② G locks-Bat wdg G, bot 3-4 K, 7-6 E, 5-4 G, 5-4 B to Grd. ③ J opr-Bat wdg ROT MAG, top 3-4 K, top 2-1 E, 7-6 G, wdg J, 5-4 H to Toll Slv Grd. ④ J splits Toll Slv and C lead at 1-2 J. ⑤ BUSY FLASH-top 3-2 J, 9-8 G, top 5-7 J to Toll Ring. ⑥ J holds A-Bat wdg A, P wdg H, B res, bot 3-2 J to Toll Slv Grd. Operated: A,B,F,G,H,J

IDLE LINE

- ① K opr (1-2 make)-Bat on S WIPER from CO Rly in line cct, 5-4 E, P wdg K, 3-4 G, 4-5 B to Grd. ② K locks- Bat ROT MAG and S wdg K, bot 2-1 K, 3-4 VON to Toll Slv Grd. ③ K Grds called Slv-Grd top 2-1 k to S WIPER. ④ J opr-Bat wdg ROT MAG, top 4-5 K, wdg J, 5-4 H to Toll Slv Grd. ⑤ J splits Toll Slv and C lead at bot 1-2 J. Operated: Rlys A,B,F,H,J,K

RINGING (N wrg)

- ① Grd momentarily off C lead by Trk cct. ② F rls. ③ AC-DC top 8-9 K, P wdg F, 5-6 F top 7-6 K, ring, loop, tip, bot 7-8 K, 9-8 F to Ring Grd. Operated: A, B, H, J, K.

RINGING (M wrg)

- ① Grd momentarily off C lead by Trk cct. ② F rls. ③ AC-DC top 8-9 K, A res LP, 5-6 F, top 7-6 K, Ring, Loop, Tip, bot 7-8 K, 8-9 F, P wdg F, 6-7 B to Ring Grd. Operated: A,B,H,J,K

CALLED PTY ANS

- ① F opr over ringing loop-1-2 make. ② F fully opr and locks-Bat S wdg F, 2-1 F, C lead Grd. F cuts Toll T and R leads thru-Toll Ring, top 7-5 J, 7-6 F, top 7-6 K, Ring, Loop, Tip, bot 7-8 K, 9-10 F, bot 5-7 J to Toll Tip. Operated: A,B,F,H,J,K

DISCONNECT

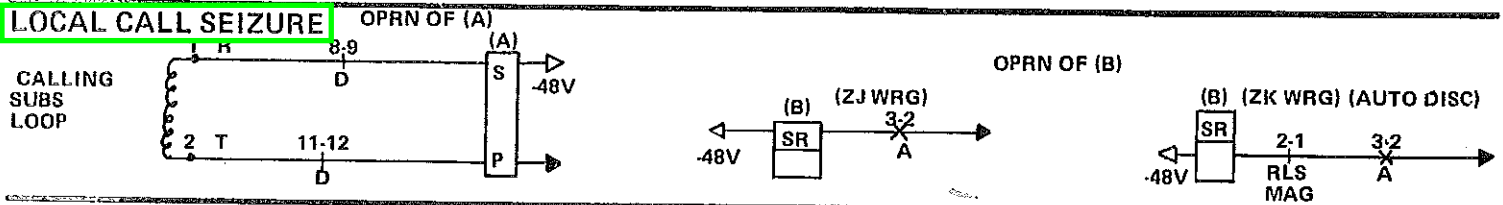
- ① Trk cct rls. ② Grd removed from Toll Slv. ③ Lock ccts opened, all rlys rls. Switch restores to normal.



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MAKE CONTACTS
 BREAK CONTACTS
 -48V
 GRD

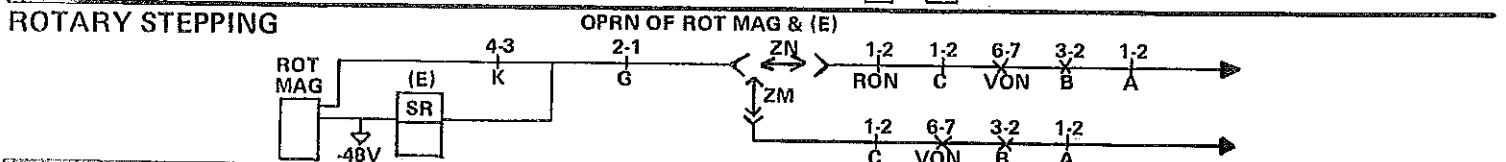
LOCAL CALL SEIZURE



VERTICAL STEPPING



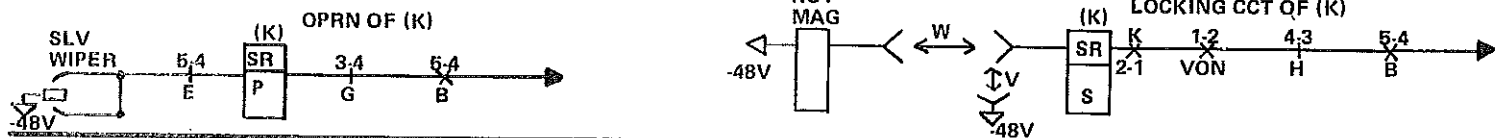
ROTARY STEPPING



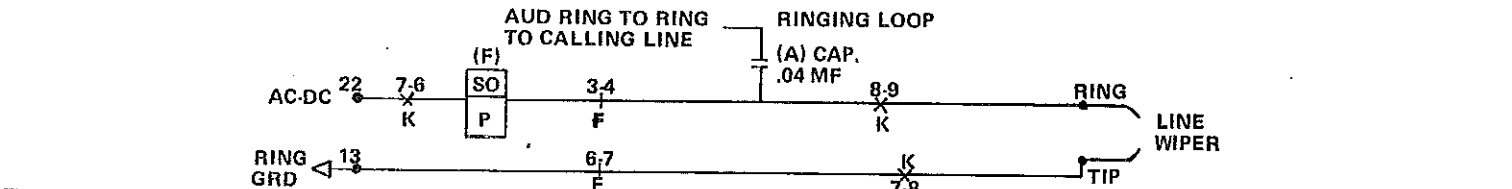
TESTING CALLED LINE (LINE BUSY)



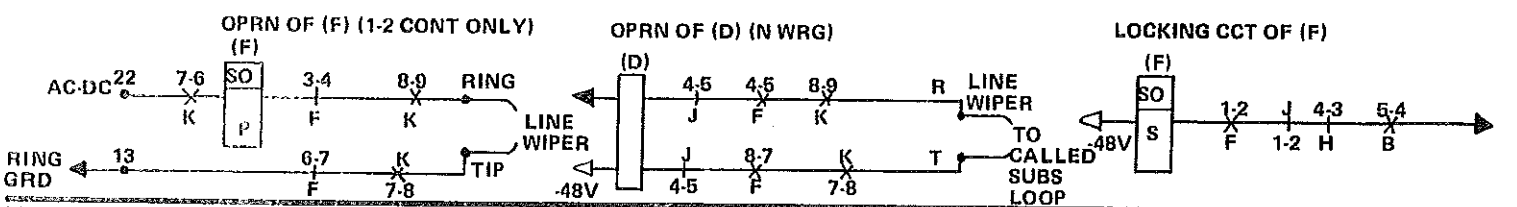
IDLE LINE



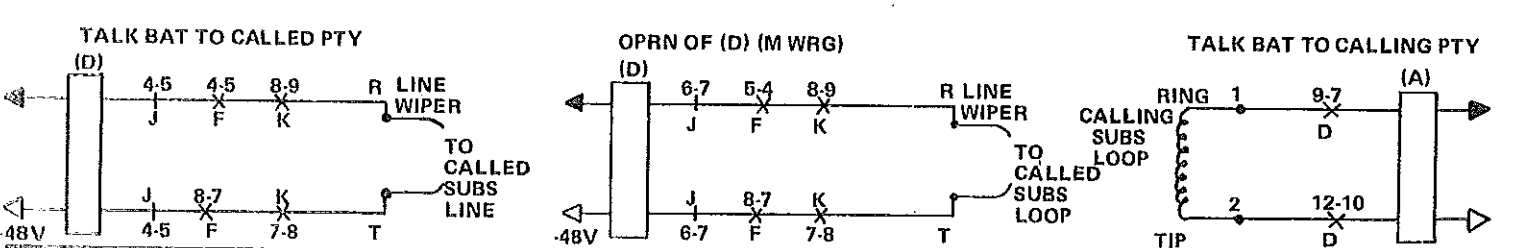
RINGING



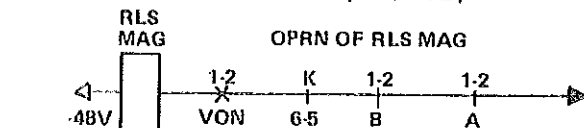
CALLED PARTY ANS



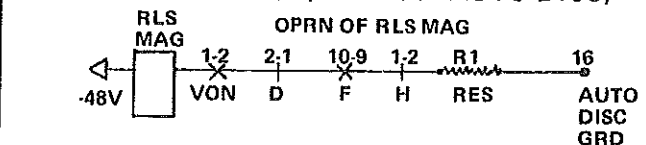
TRANSMISSION



CALLING PTY DISC 1ST (ZJ WRG)



CALLING PTY HOLD (ZK WRG-AUTO DISC)



SD 30228-01

Dwg. Iss 38

CD Iss. 6D

Step by Step Systems
No. 1 or 350A Offices

COMBINATION CONNECTOR CIRCUIT

1 RING

LOCAL CALL-SEIZURE

① A opr-Bat wdg A, 8-9 D, Ring, Loop, Tip, 11-12 D, wdg A to Grd. ② With ZK wrg (Auto Disc) B opr-Bat wdg B, 2-1 RLS MAG, 3-2 A to Grd. With ZJ wrg (No Auto Disc) B opr-Bat wdg B, 3-2 A to Grd. ③ B Grds Local Slv-Grd 4-5 B and Toll Slv-Grd 4-5 B, 3-4 H. Operated: Rlys A and B.

VERTICAL STEPPING

① A pulses. ② VERT MAG & C opr in series — Bat wdg VERT MAG & C, 5-7 VON SPGS, 3-2 B, 1-2 A to Grd. ③ After 1st vertical step the opr path to VERT MAG & C is Bat wdg VERT MAG & C, 3-2 C, 6-7 VON SPGS, 3-2 B, 1-2 A to Grd. ④ B and C hold during pulsing. ⑤ After pulsing C rls. Operated: Rlys A, B and VON SPGS.

ROTARY STEPPING

① A pulses. ② E and ROT MAG opr in mult-Bat wdg ROT MAG, top 4-3 K in mult with Bat wdg E, 2-1 G, 1-2 RON SPGS (ZN wrg), 1-2 C, 6-7 VON SPGS, 3-2 B, 1-2 A to Grd. ③ E opr before RON SPGS break and holds during pulsing. ④ After pulsing E rls. Operated: Rlys A, B.

TESTING CALLED LINE. (Line Busy)

① If called line is busy, G opr before E rls — Bat wdg G, bot 3-4 K, 7-5 E, S Wiper to Slv Grd. ② G locks — Bat wdg G, bot 3-4 K, 7-6 E, 5-4 G, 5-4 B to Grd. ③ BUSY TONE (N wrg) — top 1-2 J, 9-8G, top 5-4 J to Ring of Line thru R Cond. Operated: Rlys A, B, G.

IDLE LINE

① K opr (Box 1-2 only)—Bat from CO Rly in Line cct over Slv WIPER, 5-4 E, P wdg K, 3-4 G, 5-4 B to Grd. ② K locks—Bat wdg ROT MAG (W wrg), S wdg K, bot 2-1 K, 1-2 VON SPGS, 4-3 H, 5-4 B to Grd. ③ K places direct Grd on the called line sleeve via it's top 1-2 contacts. Operated: Rlys A, B, K.

RINGING

① AC-DC top 7-6 K, P wdg F, 3-4 F, top 8-9 K, Ring, Loop, Tip, bot 8-7 K, 7-6 F to Gen Grd. Operated: Rlys A, B, K.

CALLED PARTY ANS.

① F opr (1-2 only) over ringing loop. ② F fully opr and locks—Bat S wdg F, 1-2 F, bot 1-2 J, 4-3 H, 5-4 B to Grd. ③ F cuts Local Talk cct thru at 4-5 and 7-8, opens Ring cct at 3-4 and 6-7. ④ D opr to called pty loop—Bat wdg D, bot 4-5 J, 8-7 F, bot 7-8 K, Tip, Loop, Ring, top 9-8 K, 4-5 F, top 5-4 J, wdg D to Grd. Operated: A, B, D, F, K.

TRANSMISSION

① D operated reverses Talk Bat to Line—Bat wdg A, 10-12 D, Tip, calling Loop, Ring, 9-7 D, wdg A to Grd. ② A furnishes Talk Bat to Calling Pty, D furnishes Talk Bat to the Called Pty. Operated: A, B, D, F, K.

CALLING PARTY DISC FIRST (ZI wrg)

① A, B rls. ② B opens locking cct to F and K. ③ F, K rls. ④ RLS MAG opr-Bat RLS MAG, 1-2 VON SPGS, bot 6-5 K, 1-2 B, 1-2 A to Grd. ⑤ Rls of VON SPGS (1-2) opens RLS MAG. Switch normal.

CALLED PARTY DISC FIRST

① D rls and restores normal Bat polarity. ② Connection held until Calling Party rls.

AUTO DISC CALLING PARTY HOLD (ZK wrg)

① Called Pty disc. ② D rls. ③ RLS MAG partially opr (1-2 break)—Rls Bat wdg RLS MAG, 1-2 VON SPGS, 2-1 D, 10-9 F, 1-2 H, R1 Res to Auto Disc Lead Grd. ④ B rls-opened at 1-2 RLS MAG. ⑤ B released opens locking cct to F and K, removes Grd to Calling Slv and rls preceeding switches. ⑥ Loop opened to A, A rls. ⑦ RLS MAG opr same as Calling Pty disc. ⑧ Switch normal.

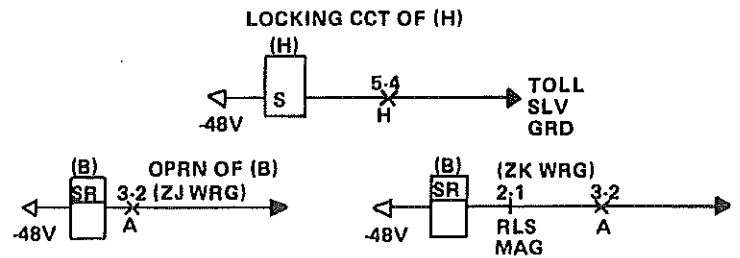
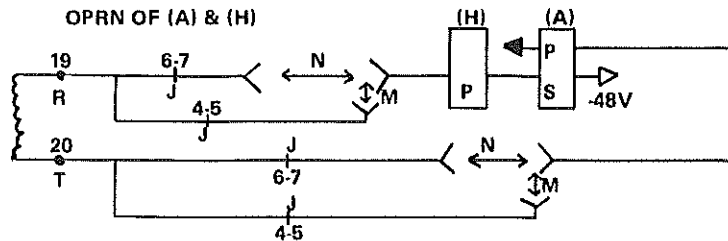


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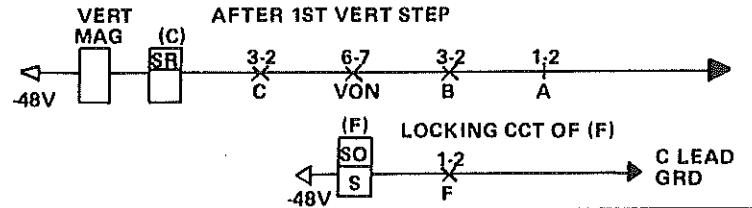
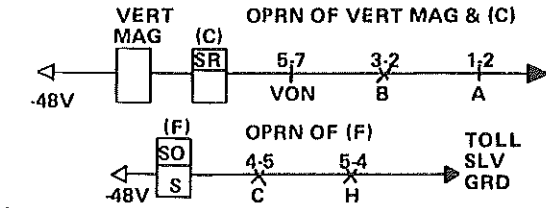
—X— MAKE CONTACTS
—|— BREAK CONTACTS

← -48V
← GRD

TOLL CALL SEIZURE

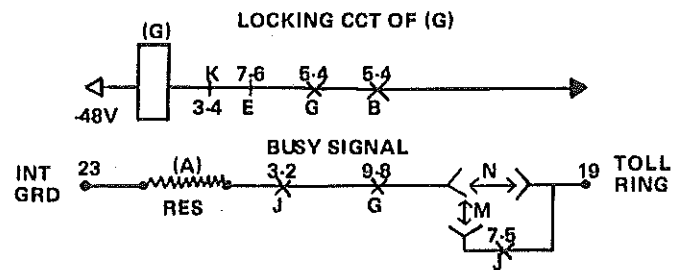
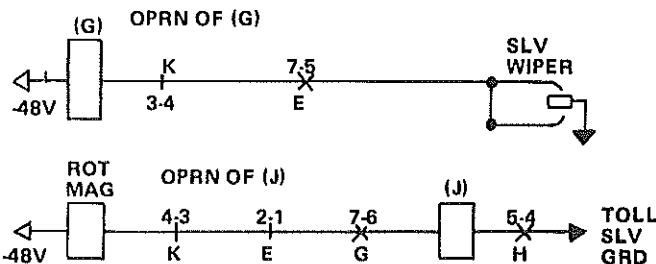


VERTICAL STEPPING

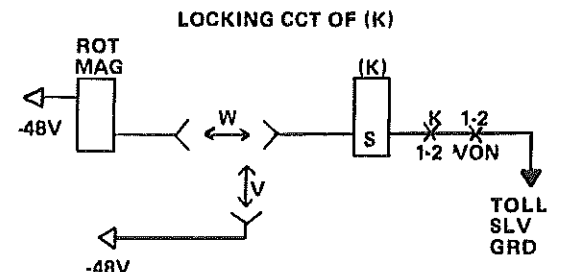
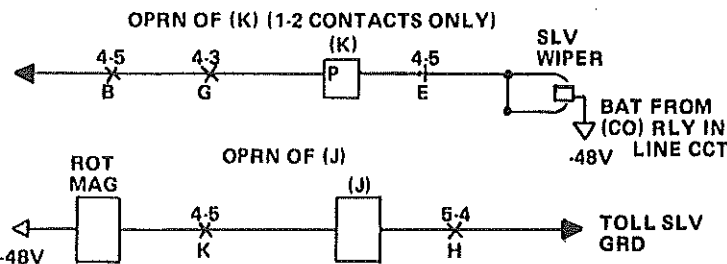


ROTARY STEPPING SAME AS LOCAL SIDE

TESTING CALLED LINE (LINE BUSY)



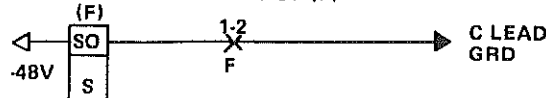
CALLED LINE IDLE



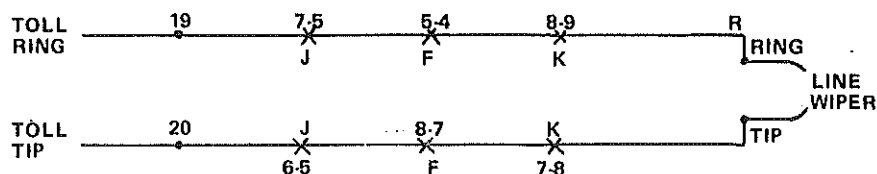
RINGING—SAME AS LOCAL SIDE

CALLED PTY ANS.

(OPRN) OF (F) CONT. 1-2 ONLY SAME AS LOCAL SIDE
LOCKING CCT OF (F)



TRANSMISSION PATH (N WRG)



COMBINATION CONNECTOR CCT

SD 30228-01 – ISS 38

CD 30228-01 – ISS 60

TOLL CALL SEIZURE (N wrg)

- ① A and H opr in series—Bat wdg A and H, top 6-7 J, Toll Ring, loop, Toll Tip, bot 6-7 J, wdg A to Grd.
- ② B opr (ZK wrg)—Bat wdg B, 2-1 RLS MAG, 3-2 A to Grd. ③ B Grds Local Slv-Grd 4-5 B. ④ Grd on Toll Slv from Trunk cct. ⑤ C lead Grd from Trk. C & S leads tied at bot 1-2 J. ⑥ H locks-Bat S wdg H, 5-4 H to Toll Slv Grd. ⑦ H opens Auto Disc lead at 1-2 H. Operated: Rlys A, B, H.

VERTICAL STEPPING

- ① Opr of VERT MAG and C same as Local side. ② F opr-Bat S wdg F, 4-5 C, 5-4 H to Toll Slv Grd.
- ③ F locks-Bat S wdg F, 1-2 F to C lead Grd. Operated: Rlys A, B, F, H.

ROTARY STEPPING

- ① Same as Local side.

TESTING CALLED LINE (Line busy)

- ① Opr and lock cct of G same as Local side. ② J opr-Bat wdg ROT MAG, 4-3 K, 2-1 E, 7-6 G, wdg J, 5-4 H to Toll Slv Grd. ③ J splits Toll Slv and C lead at 1-2 J. ④ Busy Flash to Operator-(N wrg)-Interrupted Grd pulses Jack 23, A res, 3-2 J, 9-8 G, Jack 19 to Toll Ring. ⑤ J holds A opr-Bat wdg A, P wdg H, B res, top 3-2 J to Toll Slv Grd. Operated: Rlys A, B, F, G, H, J.

CALLED LINE IDLE

- ① K opr-(Bot 1-2 only)-Bat on Slv WIPER from CO Rly in Line cct, 5-4 E, P wdg K, 3-4 G, 5-4 B to Grd.
- ② K locks-(W wrg)—Bat wdg ROT MAG, S wdg K, bot 1-2 K, 1-2 VON SPGS to Toll Slv Grd. ③ K Grds Called Line Slv via its top 1-2 contacts. ④ J opr-Bat wdg ROT MAG, top 4-5 K, wdg J, 5-4 H to Toll Slv Grd. ⑤ J splits Toll Slv and C lead at bot 1-2 J. Operated: Rlys A, B, F, H, J, K.

RINGING

- ① When Toll opr rings, Grd is removed from C Lead by Trunk Cct. ② F rls. ③ Ringing path same as Local side. Operated: A, B, H, J, K.

CALLED PARTY ANS

- ① F opr (1-2 only) over Ringing Loop. ② F fully opr and locks—Bat S wdg F, 1-2 F to C lead Grd.
- ③ F cuts Toll T and R leads thru (N wrg)—Toll Ring, top 7-5 J, 5-4 F, top 8-9 K, Ring, Loop, Tip, bot 8-7 K, 7-8 F, bot 5-7 J to Toll Tip. Operated: A, B, F, H, J, K.

DISCONNECT

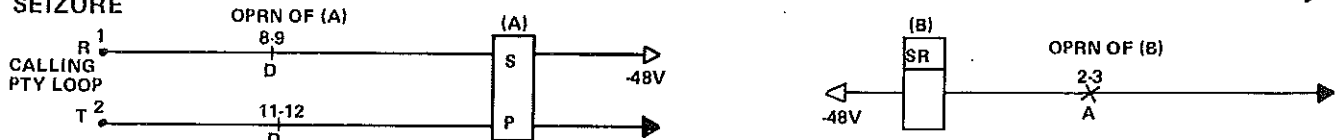
- ① Trk cct rls. ② Grd removed from Toll Slv and C leads. ③ Lock ccts opened, all rlys release, Switch restores to normal.



120 Liberty Street/Council Grove, Kansas 66846

MAKE CONTACTS
 BREAK CONTACTS
 -48V
 GRD

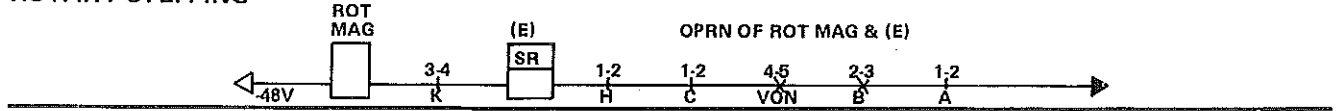
SEIZURE



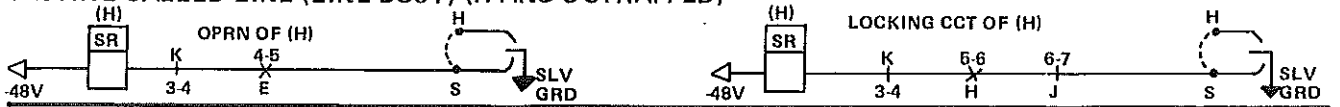
VERTICAL STEPPING



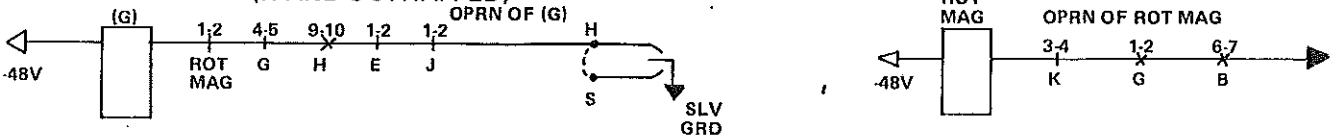
ROTARY STEPPING



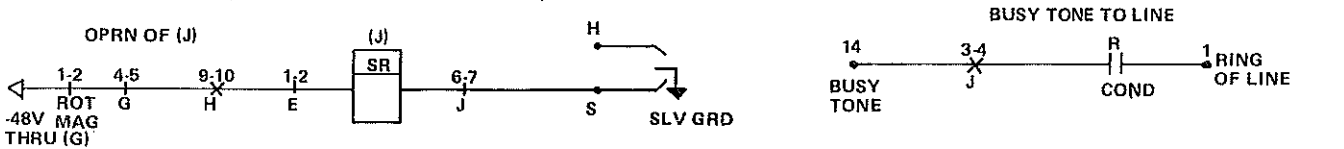
TESTING CALLED LINE (LINE BUSY) (H AND S STRAPPED)



ROTARY HUNTING (H AND S STRAPPED)



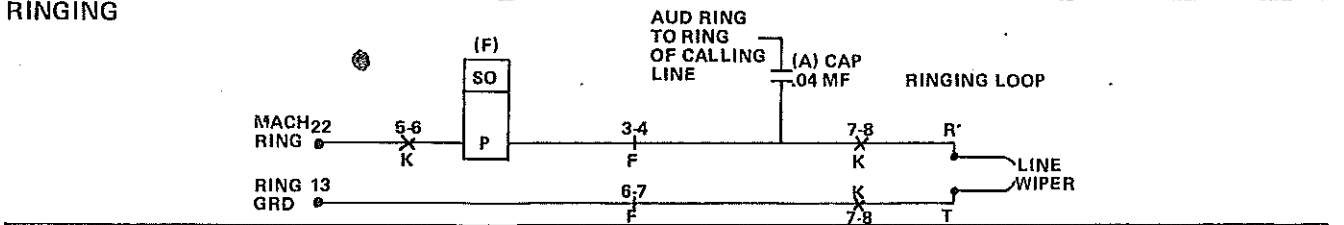
LAST LINE BUSY (H AND S NOT STRAPPED)



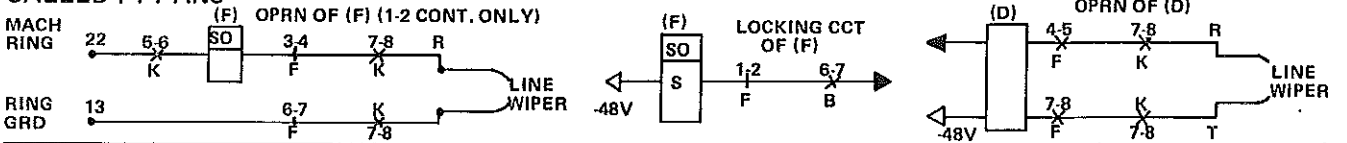
IDLE LINE



RINGING



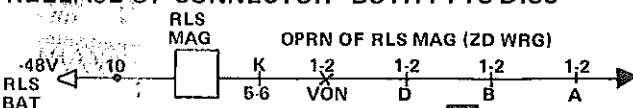
CALLED PTY ANS



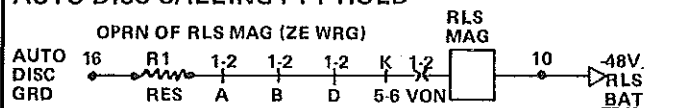
TRANSMISSION (ZZ WRG)



RELEASE OF CONNECTOR—BOTH PTYS DISC



AUTO DISC CALLING PTY HOLD



CONNECTOR CIRCUIT

Local Rotary Hunting

1 Ring

SEIZURE

① A opr-Bat S wdg A, 8-9 D, Ring, Loop, Tip, 11-12 D, P wdg A to Grd. ② B opr-Bat wdg B, 2-3 A to Grd. ③ B returns Grd via it's 4-5 to the Slv lead to hold the preceeding switches operated. Operated: Rlys A, B.

VERTICAL STEPPING

① A pulses. ② VERT MAG and C opr in series—Bat VERT MAG & C, 3-5 VON SPGS, 2-3 B, 1-2 A to Grd. ③ After the 1st vertical step the operating path for the VERT MAG & C is thru 4-5 VON SPGS. ④ B and C hold during pulsing. ⑤ After pulsing C rls. Operated: Rlys A, B.

ROTARY STEPPING

① A pulses. ② ROT MAG & E opr in series—Bat ROT MAG, top 3-4 K, wdg E, 1-2 H, 1-2 C, 4-5 VON SPGS, 2-3 B, 1-2 A to Grd. ③ E holds during pulsing. ④ After pulsing E rls. Operated: Rlys A, B.

TESTING CALLED LINE (Line Busy)

① If the first line in the group is busy, H opr (before E rls)—Bat wdg H, bot 3-4 K, 4-5 E, to Grd on Slv. ② H locks (when E rls)—Bat wdg H, bot 3-4 K, 5-6 H, 6-7 J to Slv Grd. Operated: Rlys A, B, H.

ROTARY HUNTING (Bank Terminals H and S strapped)

① G opr—1-2 ROT MAG, 4-5 G, 9-10 H, 1-2 E, 1-2 J to Grd on H lead, strapped to Slv. ROT MAG opr—Bat ROT MAG, top 3-4 K, 1-2 G, 6-7 B to Grd. ② G rls when ROT MAG opr. ③ If S and H wipers find next line busy, H remains operated, G re-operates, ROT MAG operates to step the switch until an idle line or the last line in the group is reached. Operated: Rlys A, B, H and G (If Term busy)

LAST LINE BUSY (No S and H strap on last line)

① H held opr from Grd on Slv. ② G non opr, no Grd on H lead. ③ J opr—Bat 1-2 ROT MAG, 4-5 G, 9-10 H, 1-2 E, wdg J, to Grd on S Wiper. ④ J locks to Grd at 6-7 B and holds H opr. ⑤ J puts Busy Tone back to the calling Line-Busy Tone Jack 14, 3-4 J, R Cond to Ring of the Line. Operated: A, B, H, J.

IDLE LINE

① K opr—Bat on Slv Wiper, 3-4 E, P wdg K, 3-4 H, 4-5 B to Grd to close bot 1-2 only. ② K puts Grd on Slv Wiper thru top 1-2 of K. ③ K fully opr and locks—Bat S wdg K, bot 1-2 K, 6-7 B to Grd. Operated: Rlys A, B, K.

RINGING

① Mach Ringing, Jack 22, top 5-6 K, p wdg F, 3-4 F, top 7-8 K, Ring, Loop, Tip, bot 7-8 K, 6-7 F, Jack 13 to Ring Grd.

CALLED PARTY ANS

① F opr (1-2 only) over the Ringing Loop. ② F fully opr and locks—Bat S wdg F, 1-2 F, 6-7 B to Grd. ③ F cuts the Talk leads thru at 4-5 and 7-8 and opens the Ringing Cct at 3-4 and 6-7. ④ D opr—Bat wdg D, 7-8 F, bot 7-8 K, Tip, Loop, Ring, top 7-8 K, 4-5 F, wdg D to Grd. Operated: A, B, D, K.

TRANSMISSION (ZZ wrg)

① D operated reverses Talk Bat to Calling Line—Bat S wdg A, 10-12 D, to Tip. Grd, P wdg A, 7-9 D to Ring. ② D furnishes Talk Bat to the Called Line—Bat wdg D, 7-8 F, bot 7-8 K, to Tip. Grd wdg D, 4-5 F, top 7-8 K to Ring.

RELEASE OF CONNECTOR (Both Stations Disc) (ZD wrg)

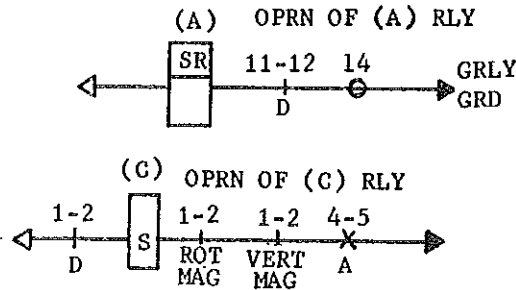
① If the Called Station disc first, D rls. ② When the Calling Station disc, A, B, F, K rls. ③ With B rls, Grd removed from S lead and preceeding switches return to normal. ④ RLS MAG opr—Bat RLS MAG, bot 5-6 K, 1-2 VON SPGS, 1-2 D, 1-2 B, 1-2 A to Grd. ⑤ Switch restores to normal.

AUTO DISC CALLING PARTY HOLD (ZE wrg)

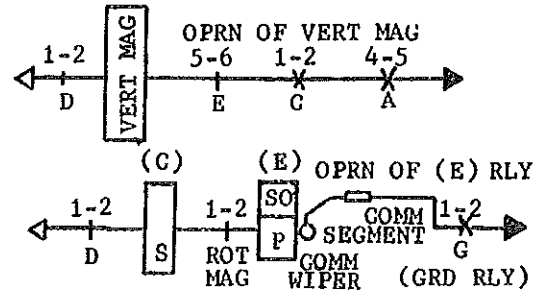
① Grd Auto Disc Lead, Jk16, RI Res, 9-10 F, 4-5 D, 1-2 VON SPGS, wdg RLS MAG, Jk 10 to Rls Bat, partially operates The RLS MAG to open it's 1-2 contacts. ② With ZE wrg B rls. With B rls, the preceeding switches return to normal. ③ A rls. ④ RLS MAG opr—Rls Bat Jk 10, wdg RLS MAG, 1-2 VON SPGS, bot 5-6 K, 1-2 D, 1-2 B, 1-2 A to Grd. ⑤ Switch returns to normal.



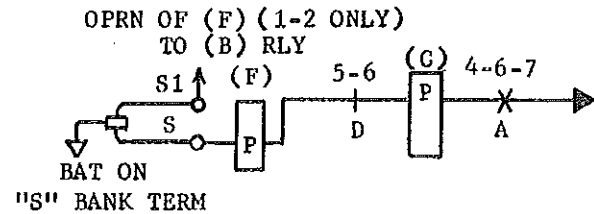
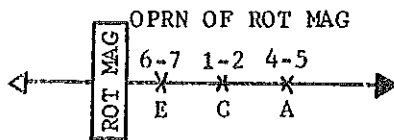
VERTICAL STEPPING



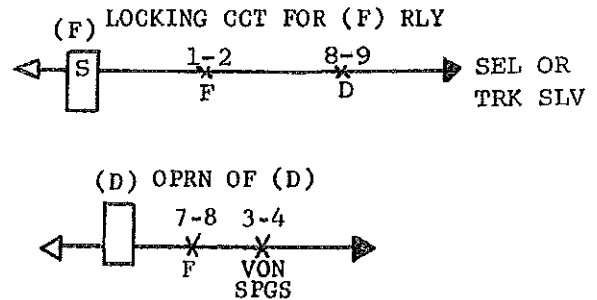
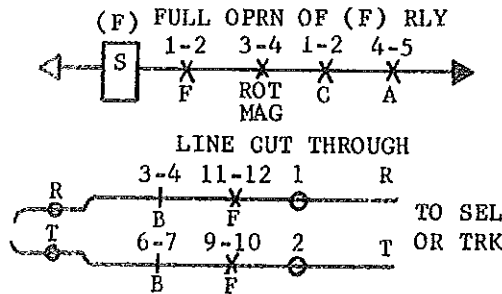
—X— MAKE CONTACTS ← -48V
—|— BREAK CONTACTS ← GRD



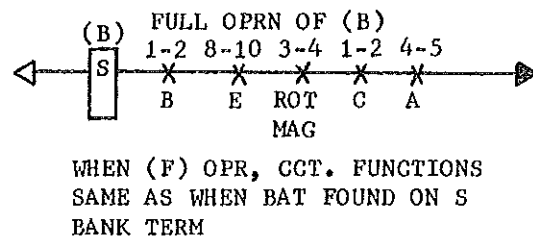
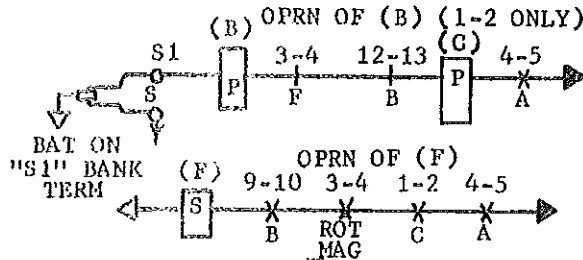
ROTARY STEPPING



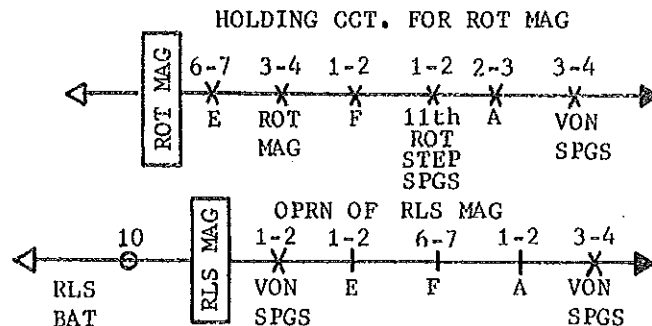
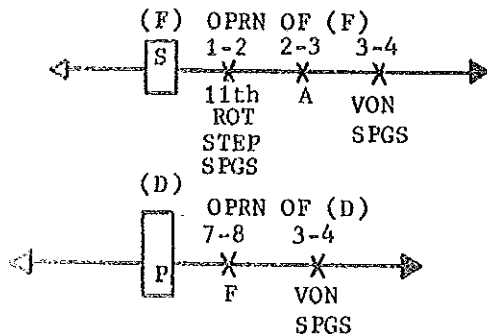
CUT THROUGH TO CALLING LINE-BAT ON S BANK TERM



CUT THROUGH TO CALLING LINE-BAT ON S1 BANK TERM



CALLING LINE NOT FOUND OR FALSE GRD ON START LEAD



FINDING LINE OR TRUNK

Vertical Stepping

① With Calling Station off hook-Bat on Line Finder Bank Slv from Line Cct. ② Grp Rly G opr from Line Cct. Grd over G lead. ③ G Grds A lead to Commutator Segment corresponding to level of line or trunk. ④ G Grds Start lead. ⑤ Aopr-Bat wdg A, 11-12 D, Switch Jack 14 to Grd. ⑥ A Grds S lead-Grd 4-6-7 A to S lead toward Selector or Trunk Cct. ⑦ C opr-Bat 1-2 D, S wdg C, 1-2 ROT MAG, 1-2 VERT MAG, 4-5 A to Grd. ⑧ VERT MAG opr-Bat 1-2 D, wdg VERT MAG, 5-6 E, 2-1 C, 5-4 A to Grd. ⑨ VERT MAG opens C which opens VERT MAG. ⑩ Vertical stepping continues until Commutator Wiper reaches segment GRD by G. ⑪ E opr in series with C-Bat 1-2 D, S wdg C, 1-2 ROT MAG, P wdg E to Commutator Grd. ⑫ C holds over operating path of E. ⑬ E trans stepping from VERT MAG to ROT MAG. from 5-6 to 7-6 E.

Rotary Stepping

① ROT MAG opr.-Bat ROT MAG, 7-6 E, 2-1 C, 5-4 A to Grd. ② Rotary stepping continues until a Slv Wiper finds Bank Term connected to Bat from Line Cct. ③ If S Wiper finds Bat on Bank Term, F opr (1-2 only)-Bat S Wiper, P wdg F, 5-6 D, P wdg C, 7-6-4 A to Grd. ④ C holds over its P wdg to prevent further stepping.

Cut Through to calling Line or Trunk

① F fully opr-Bat S wdg F, 2-1 F, 4-3 ROT MAG, 2-1 C, 5-4 A to Grd. ② D opr-Bat wdg D, 7-8 F, 3-4 VON SPGS to Grd. ③ F locks-bat, S wdg F, 1-2 F, 8-9 D to GRD on the SEL or TRK sleeve. ④ F cuts T and R leads through via 6-7, 3-4 B and 9-10, 11-12 F to Selector or trunk. ⑤ D transfers ,,IN.. Start lead from Switch Jack 14, 12-11 D and wdg A to "IN" Start lead from Switch Jack 14. 12-11 D and wdg A to "OUT" Start lead Jack 16, 10-12 D and S wdg D. ⑥ A,C,E, rls. ⑦ If S1 Wiper finds Bat on Bank Term, B opr (1-2 only)-Bat S1 Wiper, P wdg B, 3-4 F, 12-13 B, P wdg C, 7-6-4 A to Grd. ⑧ B fully opr-Bat S wdg B, 2-1 B, 10-8 E, 4-3 ROT MAG, 2-1 C, 5-4 A to Grd. ⑨ B transfers T-R-S Wipers to T1-R1-S1 Wipers through 8-7, 5-4, 11-13 B. ⑩ F opr-Bat S wdg F, 9-10 B, 3-4 ROT MAG, 2-1 C, 5-4 A to Grd. ⑪ When F opr, cct functions same as when Bat is on S Wiper.

Release before Cut Through

① G rls, A rls. ② RLS MAG opr-Rls Bat Jack 10, wdg RLS MAG, 1-2 VON SPGS, 2-1 E, 6-7 F, 1-2 A, 4-3 VON SPGS to Grd.

Calling Line not found or false Grd on Start lead

① Switch advances to 11th rotary step. ② F opr-Bat S wdg F, 2-1 11th ROT STEP SPGS, 3-2 A, 4-3 VON SPGS to Grd. ③ ROT MAG holds to prevent further stepping-Bat wdg ROT MAG, 7-6 E, 3-4 ROT MAG, 1-2 F, 2-1 11th Rot Step Spgs, 3-2 A, 4-3 VON SPGS to Grd. ④ D opr-Bat P wdg D, 7-8 F, 4-3 VON SPGS to Grd. ⑤ A rls, F rls. ⑥ RLS MAG opr-Rls Bat Jack 10, wdg RLS MAG, 1-2 VON SPGS, 2-1 E, 6-7 F, 1-2 A, 4-3 VON SPGS to Grd.

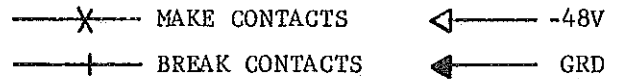
Release after Cut Through to Calling Line or Trunk.

① F rls. ② RLS MAG opr-Rls Bat Jack 10, wdg RLS MAG, 1-2 VON SPGS, 2-1 E, 6-7 F, 1-2 A, 4-3 VON SPGS to Grd.

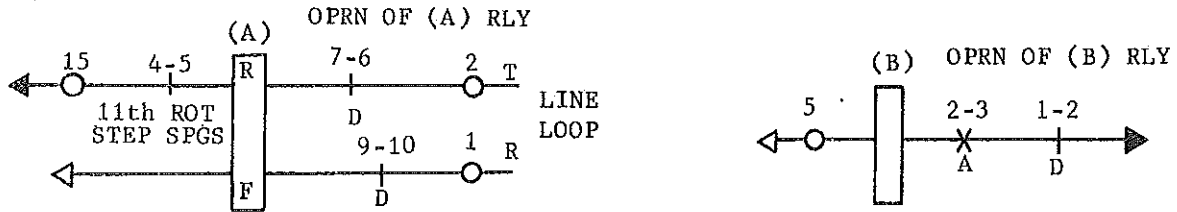


3 WIRE SELECTOR

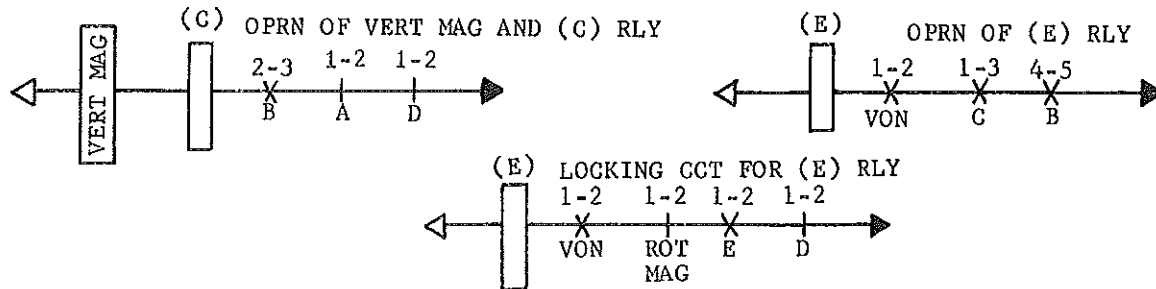
SD-30200-01



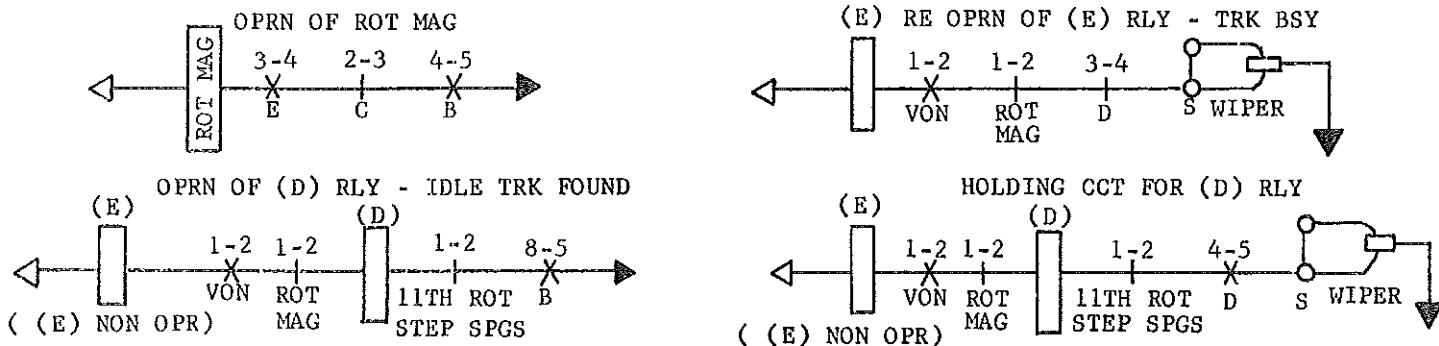
SEIZURE



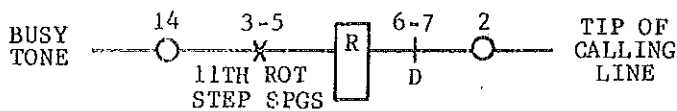
VERTICAL STEPPING



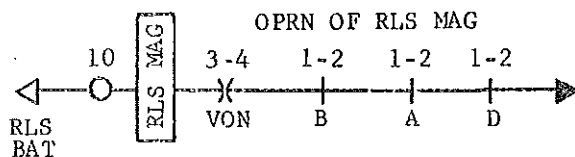
ROTARY STEPPING



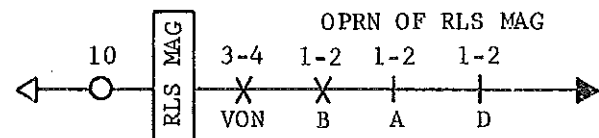
ALL TRKS BUSY



RLS BEFORE CUT THROUGH



RLS AFTER CUT THROUGH



3 Wire Selector Circuit

SD 30200-01 Issue 24D
CD 30200-01 Issue 5D

SEIZURE

- ① Loop on Switch, A opr-Bat F wdg A, 9-10 D, Ring, Jk 1, Loop, Tip, Jk 2, 7-6 D, R wdg A, 5-4 11th ROT STEP SPGS, Jk 15 to Grd. ② B opr- Bat Jk 5, wdg B, 2-3 A, 1-2 D to Grd. ③ B Grds S lead to hold preceeding cct-Grd 5-4 B to S lead.

Vertical Stepping

- ① A pulses ② B holds during pulsing. ③ VERT MAG and C opr-Bat wdg VERT MAG, wdg C, 3-2 B, 1-2 A, 1-2 D to Grd. ④ C holds during vertical stepping. ⑤ E opr-Bat wdg E, 2-1 VON SPGS, 1-3 C, 4-5 B to Grd. ⑥ E locks-Bat wdg E, 2-1 VON SPGS, 1-2 ROT MAG, 1-2 E, 1-2 D to Grd. C rls at end of vertical step.

Rotary Stepping

- ① ROT MAG opr-Bat ROT MAG, 3-4 E, 2-3 C, 4-5 B to Grd. ② E rls when ROT MAG operates. ③ ROT MAG rls when E rls. ④ Wipers reach Bank Term. ⑤ If Grd on Bank Term, E re-operates - Bat wdg E, 2-1 VON SPGS, 1-2 ROT MAG, 3-4 D to Grd on S Wiper. ⑥ Stepping continues until idle Bank Term reached.

Idle Trunk Seized

- ① D opr-Bat wdg E, 2-1 VON SPGS, 1-2 ROT MAG, wdg D, 1-2 11th ROT STEP SPGS, 4-5 B to Grd. (E remains non-opr) ② D cuts T-R-S through to trunk beyond- Ring Jk 1, 9-11 D to Ring Wiper, Tip Jk 2, 7-8 D to Tip Wiper, S Jk 9, 4-5 D to S Wiper. ③ D holds-Grd on S wiper from succeeding trunk, 4-5 D, 1-2 11th ROT STEP SPGS, wdg D, 1-2 ROT MAG, 1-2 VON SPGS, wdg E to Bat before B rls. ④ D opens operating path to A. ⑤ A, B rls.

All Trunks Busy.

- ① Switch rotates to 11th rotary step. ② 11th ROT STEP SPGS opr. ③ Busy Tone to calling line - Busy Tone Jk 14, 3-5 11th ROT STEP SPGS, R wdg A, 6-7 D, Jk 2 to Tip of calling line.

Release before Cut Through

- ① When calling end disconnects, A, B, rls. ② RLS MAG opr- Rls Bat Jk 10, wdg RLS MAG, 4-3 VON SPGS, 1-2 B, 1-2 A, 1-2 D to Grd. ③ Switch returns to normal.

Release after Cut Through

- ① Calling loop opened. ② Grd removed from S Wiper by the trunk beyond. ③ D rls. ④ RLS MAG opr- Rls Bat Jk 10, wdg RLS MAG, 4-3 VON SPGS, 1-2 B, 1-2 A, 1-2 D to Grd. ⑤ Switch restores to normal.



120 Liberty Street/Council Grove, Kansas 66846

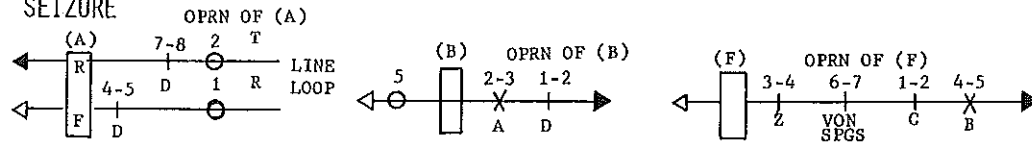
DIGIT ABSORBING SELECTOR

DWG ISSUE 16D
CD ISSUE 4D

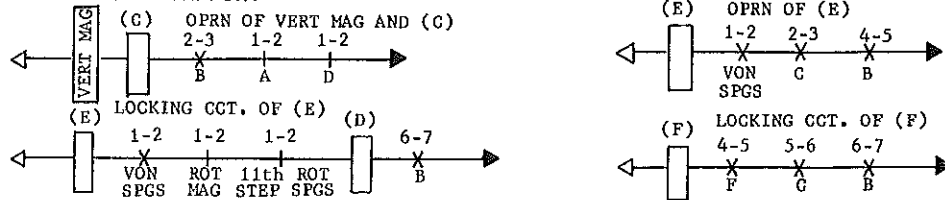
SD-30976-01

—X— MAKE CONTACTS
—|— BREAK CONTACTS
◀ —48V
◀ —GRD

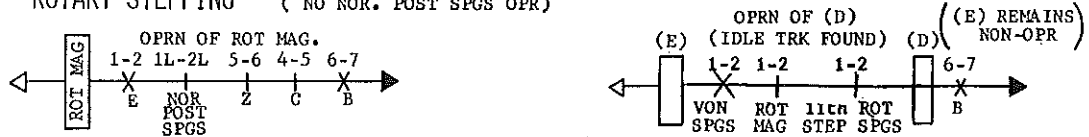
SEIZURE



VERTICAL STEPPING

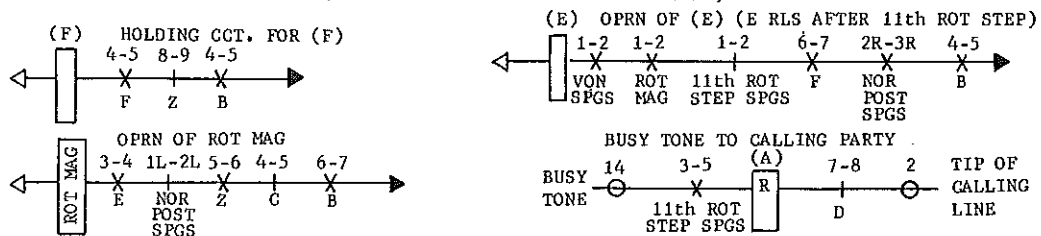


ROTARY STEPPING (NO NOR. POST SPGS OPR)



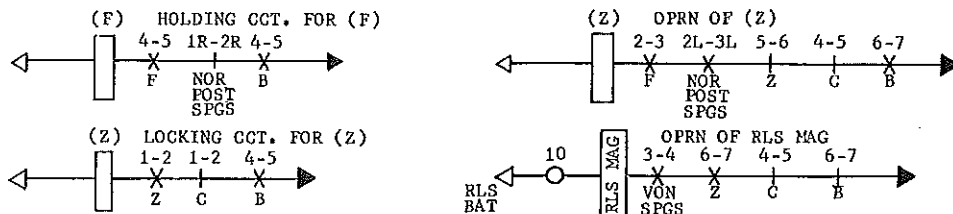
NORMAL POST SPRING OPERATION

RIGHT NOR. POST ONLY OPR. (SWITCH ROTATES TO 11th ROTARY STEP)



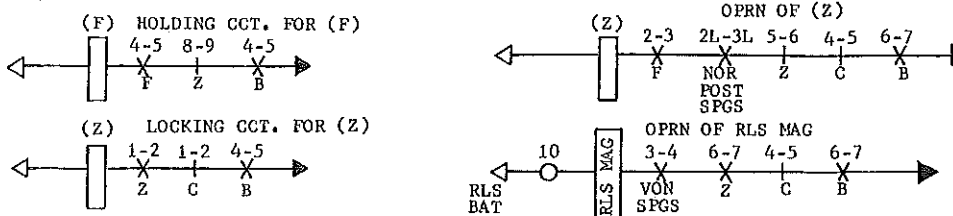
LEFT NORMAL POST SPRINGS ONLY OPERATE

(SWITCH ABSORBS REPEATEDLY)



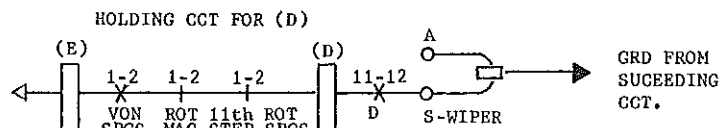
LEFT AND RIGHT NORMAL POST SPRINGS OPERATE

(SWITCH ABSORBS ONCE ONLY)

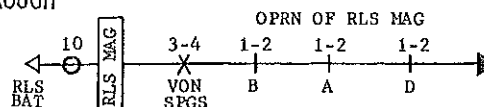


TRUNK SEIZED

(E) REMAINS
NON-OPR



RELEASE AFTER CUT-THROUGH



120 Liberly Street/Council Grove, Kansas 66846

SEIZURE

- ① Loop on Switch-A opr-Bat F wdg A, 4-5 D, Ring, loop, Tip, 8-7 D, R wdg A to Grd. ② B opr-Bat Switch Jack 5, wdg B, 2-3 A, 1-2 D to Grd. ③ B Grds Sleeve lead to hold preceding circuits-Grd 6-7 B, Jack 9 to S lead. ④ F opr-Bat wdg F, 3-4 Z, 6-7 VON SPGS, 1-2 C, 4-5 B to Grd.

VERTICAL STEPPING

- ① A pulses, B holds. ② VERT MAG and C opr-Bat wdg VERT MAG, wdg C, 2-3 B, 1-2 A, 1-2 D to Grd. ③ C holds during pulsing. ④ E opr-Bat wdg E, 1-2 VON SPGS, 3-2 C, 5-4 B to Grd. ⑤ E locks-Bat wdg E, 1-2 VON SPGS, 1-2 KOT MAG, 1-2 11th ROT STEP SPGS, wdg D, 7-6 B to Grd. ⑥ C holds F opr-Bat wdg F, 5-4 F, 5-6 C, 7-6 B to Grd. ⑦ With A option C returns Grd via it's contacts 7-8, Switch Jack 16 to P lead to preceding Trunk Cct. for Tip Test of Calling Line.

ROTARY TRUNK HUNTING AND NORMAL POST SPRING OPERATION

No Normal Post Springs Operated. (Switch operates as regular Selector)

- ① At the end of digit C rls. ② ROT MAG opr- Bat wdg ROT MAG, 2-1 E, 1L-2L N.P. SPGS, 5-6 Z, 4-5 C, 7-6 B to Grd. ③ E rls when ROT MAG opr ④ ROT MAG rls when E rls. ⑤ Wipers reach Bank Term. ⑥ If Sleeve Bank Term Grounded, E re-opr-Grd Slv Wiper, 1L-10 D, 10-11 B, 1-2 11th ROT STEP SPGS, 1-2 ROT MAG, 1-2 VON SPGS, wdg E to Bat. ⑦ Stepping continues until idle term reached or wipers step off bank. ⑧ If Sleeve Bank Term idle, D opr-shunt removed from wdg D -(no Grd on Slv Wiper)-Grd 6-7 B, wdg D, 1-2 11th ROT STEP SPGS, 1-2 ROT MAG, 1-2 VON SPGS, wdg E to Bat. (E remains non-opr).

Right Normal Post Springs only Operated (Switch rotates to all trunks busy pos. Unless once only absorption previously occurred)

- ① At the end of digit C rls. ② F held opr-Bat wdg F, 4-5 F, 8-9 Z, 4-5 B to Grd. ③ E opr-Bat wdg E, 1-2 VON SPGS, 1-2 ROT MAG, 1-2 11th ROT STEP SPGS 6-7 F, 2R-3R N.P. SPGS, 5-4 B to Grd. ④ ROT MAG opr-BAT ROT MAG, 4-3 E, 1L-2L N.P. SPGS, 5-6 Z, 4-5 C, 7-6 B to Grd. ⑤ Switch steps to 11th rotary position-Grd 4-5 B, 2R-3R N.P. SPGS, 6-7 F, 1-2 11th ROT STEP SPGS, 1-2 ROT MAG, 1-2 VON SPGS, wdg E to Bat. ⑥ 11th ROT STEP SPGS opr, E rls. ⑦ Busy Tone Jk 14, 3-5 11th ROT STEP SPGS, R wdg A, 7-8 D to Tip of Calling Line.

Left Normal Post Springs only Operated. (Switch absorbs repeatedly)

- ① At the end of digit C rls. F held opr-Bat wdg F, 4-5 F, 1R-2R N.P. SPGS, 5-4 B to Grd. ② Z opr-Bat wdg Z, 2-3 F, 3L-2L N.P. SPGS, 6-5 Z, 4-5 C, 7-6 B to Grd. ③ Z locks-Bat wdg Z, 2-1 Z, 1-2 C, 5-4 B to Grd. ④ RLS MAG opr-Rls Bat Jk 10, wdg RLS MAG, 3-4 VON SPGS, 6-7 Z, 4-5 C, 7-6 B to Grd. ⑤ Switch restores to normal. ⑥ At beginning of next digit C opr, Z rls. ⑦ Switch operates as required.

Left and Right Normal Post Springs operate (Switch absorbs once only)

- ① At the end of digit C rls, F held operated-Bat wdg F, 5-4 F, 8-9 Z, 5-4 B to Grd. ② Z opr-Bat wdg Z, 3-2 F, 2L-3L N.P. SPGS, 6-5 Z, 4-5 C, 7-6 B to Grd. ③ F rls. ④ Z locks-Bat wdg Z, 1-2 Z, 1-2 C, 5-4 B to Grd. ⑤ RLS MAG opr-Rls Bat Jk 10, wdg RLS MAG, 3-4 VON SPGS, 6-7 Z, 4-5 C, 7-6 B to Grd. ⑥ Switch returns to normal. ⑦ Operating path for F opened at 3-4 Z and 1R-2R N.P. SPGS. ⑧ C opr on next digit holding F rls. ⑨ Switch hunts for idle trunk.

Trunk Seized

- ① With D operated, T-R is disc. from A, T-R-S extended to succeeding cct.-Tip, 8-9 D to Tip Wiper, Ring, 5-6 D to Ring Wiper, Slv, 12-11 D to Slv Wiper. ② A,B,F rls. ③ Grd 2-3 D, 8-9 B, Jk 3 to M lead to operate Peg Count Register. ④ D held opr- Grd on S wiper from succeeding cct, 11-12 D, wdg D, 1-2 11th ROT STEP SPGS, 1-2 ROT MAG, 1-2 VON SPGS, wdg E to Bat. (E non-opr)

All Trunks Busy

- ① Switch steps off Bank Terms, 11th ROT STEP SPGS opr. ② D rls. ③ Busy Tone JK 14, 3-4 11th ROT STEP SPGS, R wdg A, 7-8 D, Jk 2 to Tip of Calling Line. ④ When calling end disconnects, A rls, B rls. ⑤ RLS MAG opr- Rls Bat Jk 10, wdg RLS MAG, 3-4 VON SPGS, 1-2 B, 1-2 A, 1-2 D to Grd. ⑥ Switch restores to normal.

Busy Flash (K option)

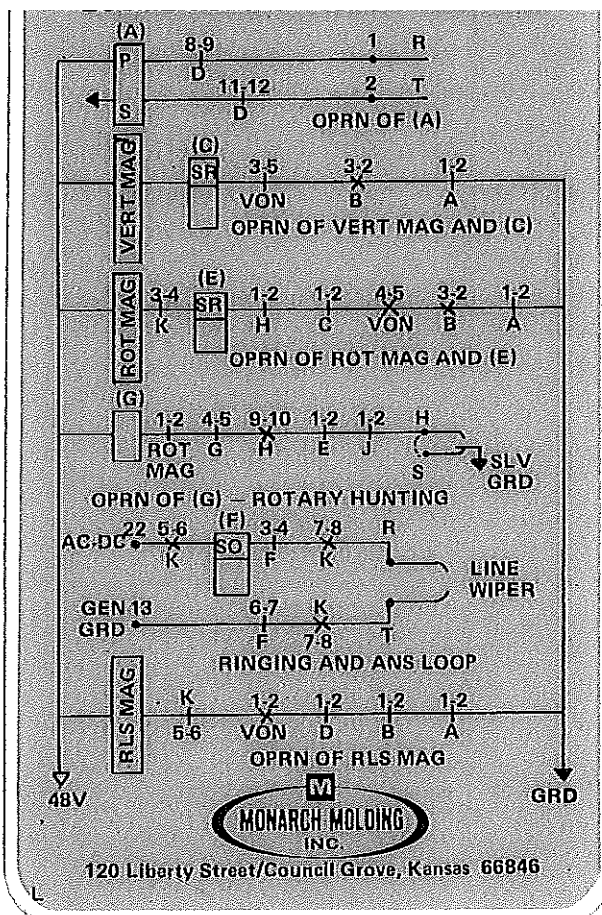
- ① 120 IPM Jk 7, 6-7 11th ROT STEP SPGS, Jk 13 to F lead through associated trunk cct. to return "Paths Busy Flash" to the Operator.

Release after Cut Through

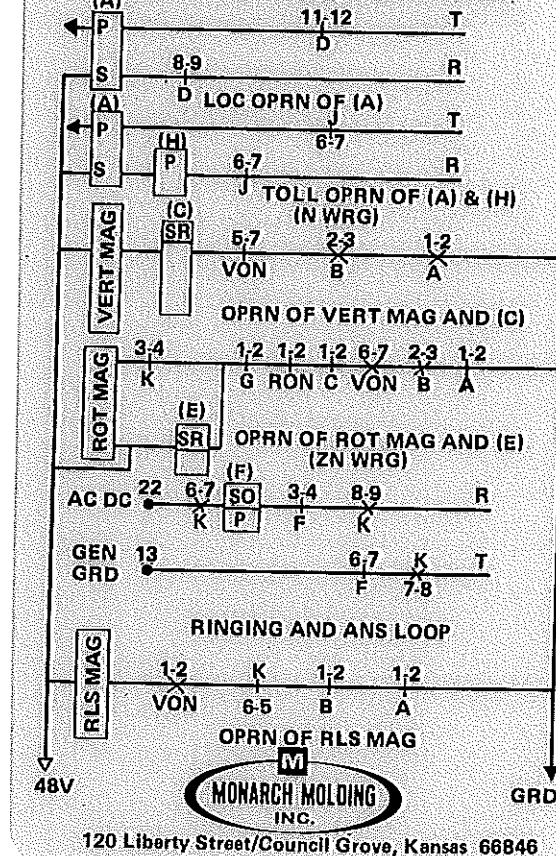
- ① When the calling end disconnects, Grd off S Wiper. ② A, B, D rls. ③ RLS MAG opr-Rls Bat Jk 10, wdg RLS MAG, 3-4 VON SPGS, 1-2 B, 1-2 A, 1-2 D to Grd. ④ Switch restores to normal.



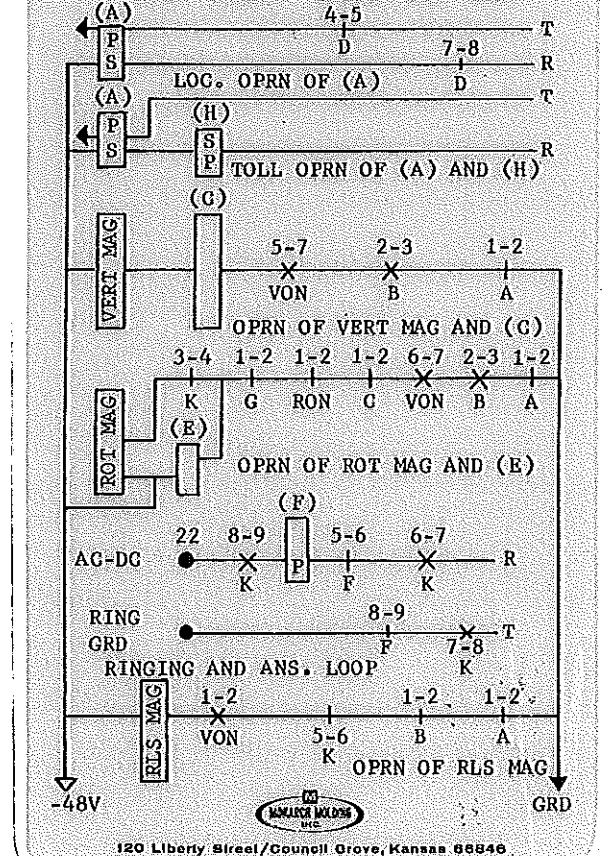
SD-30215-01
LOCAL CONN, ROTARY HUNTING



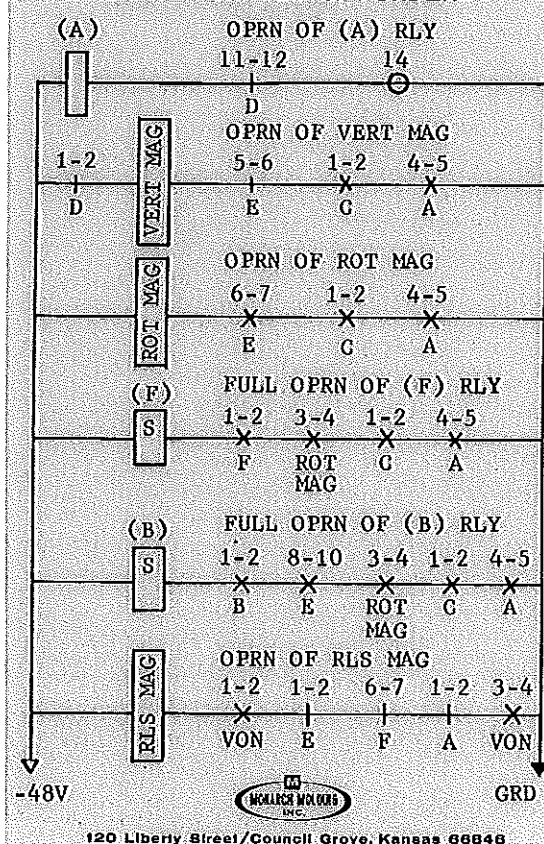
SD 30228-01 ISS 38
COMB. CONN. LOCAL & TOLL



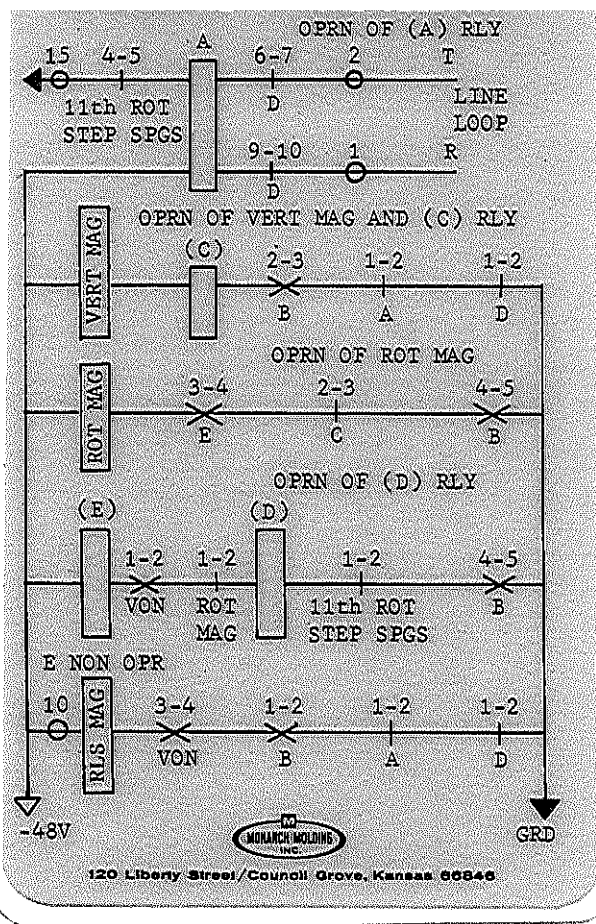
SD-31739-01
COMB. CONN. LOCAL AND TOLL



SD-31530
200 POINT LINE FINDER



SD-30200-01 3-WIRE SELECTOR



SD-30976-01 DIGIT ABSORBING SELECTOR

