1971/1980 Buffered Terminal

IBM Field Engineering

Maintenance - Diagram

Y27-0018-0

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1971/1980 Buffered Terminal

CONTENTS

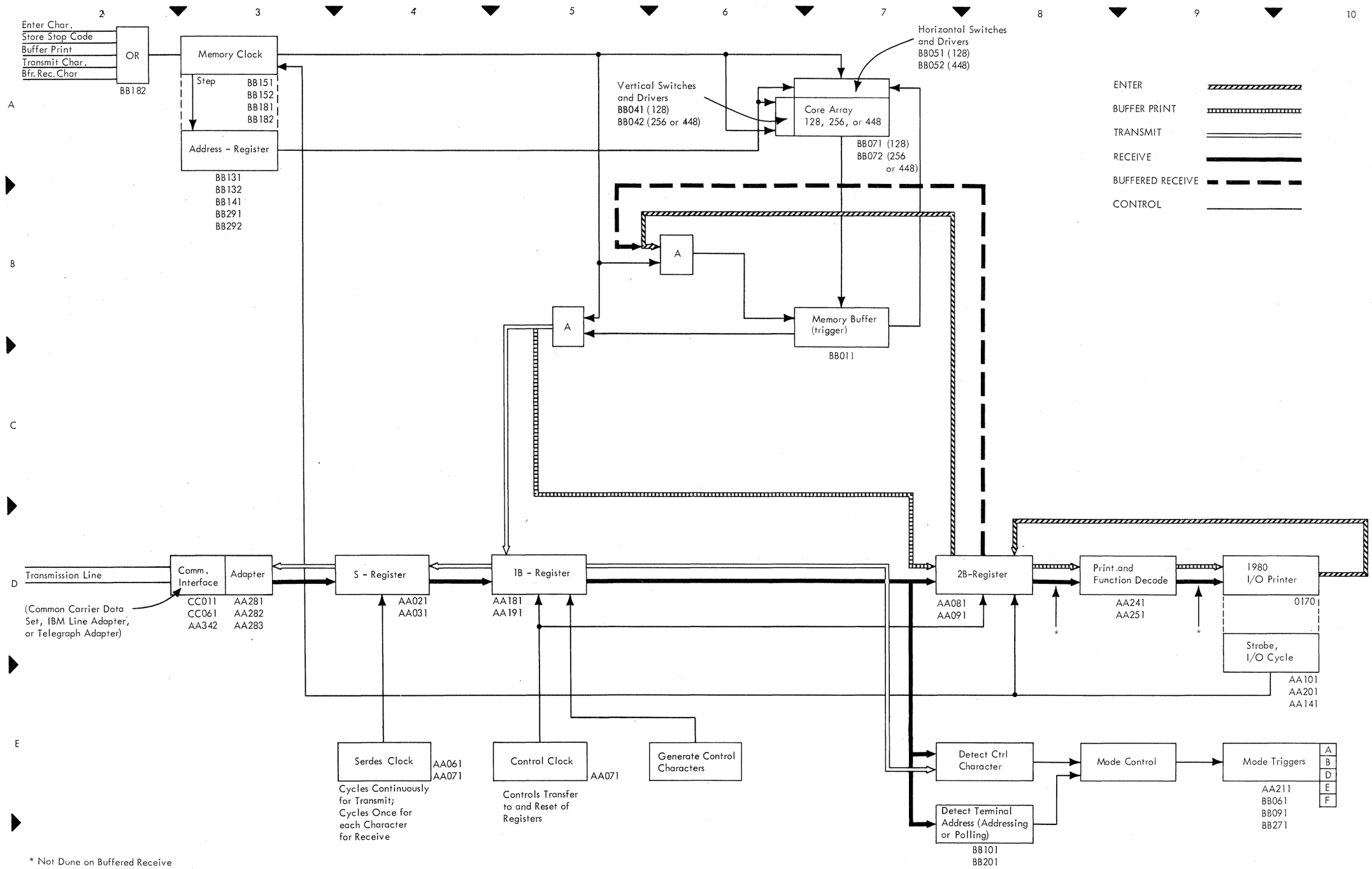


Figure UDC-1. 1971/1980 Buffered Terminal

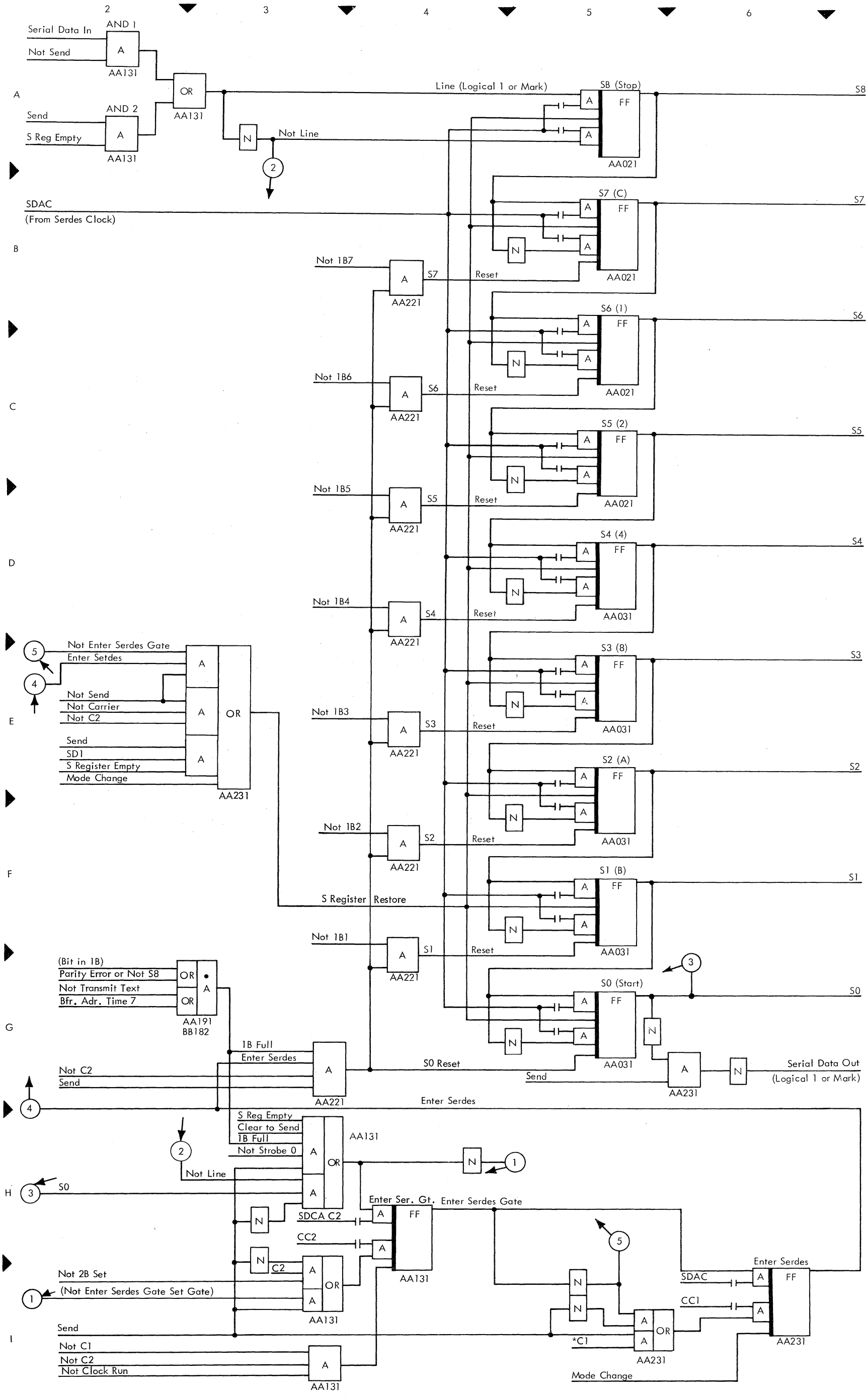
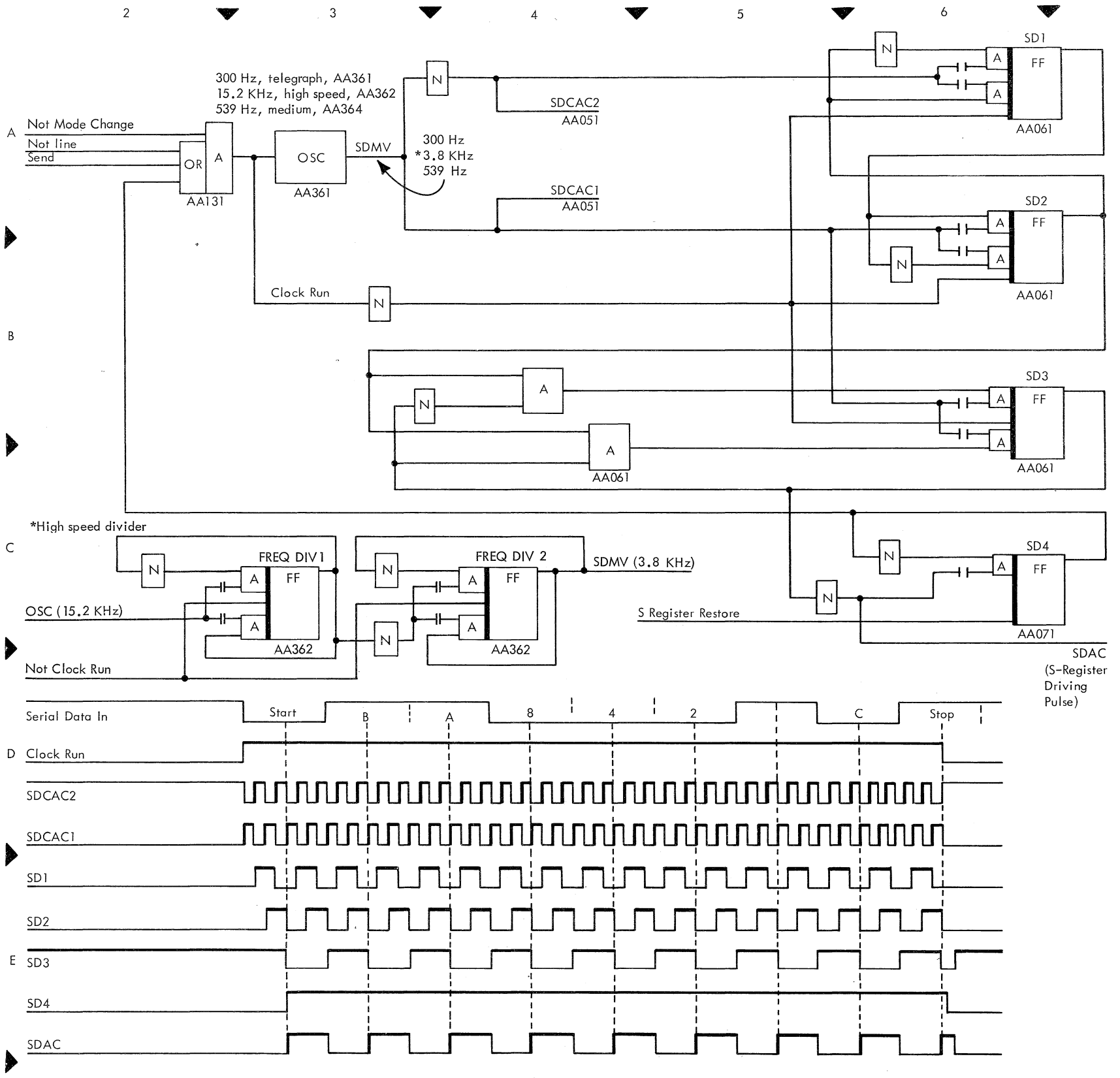
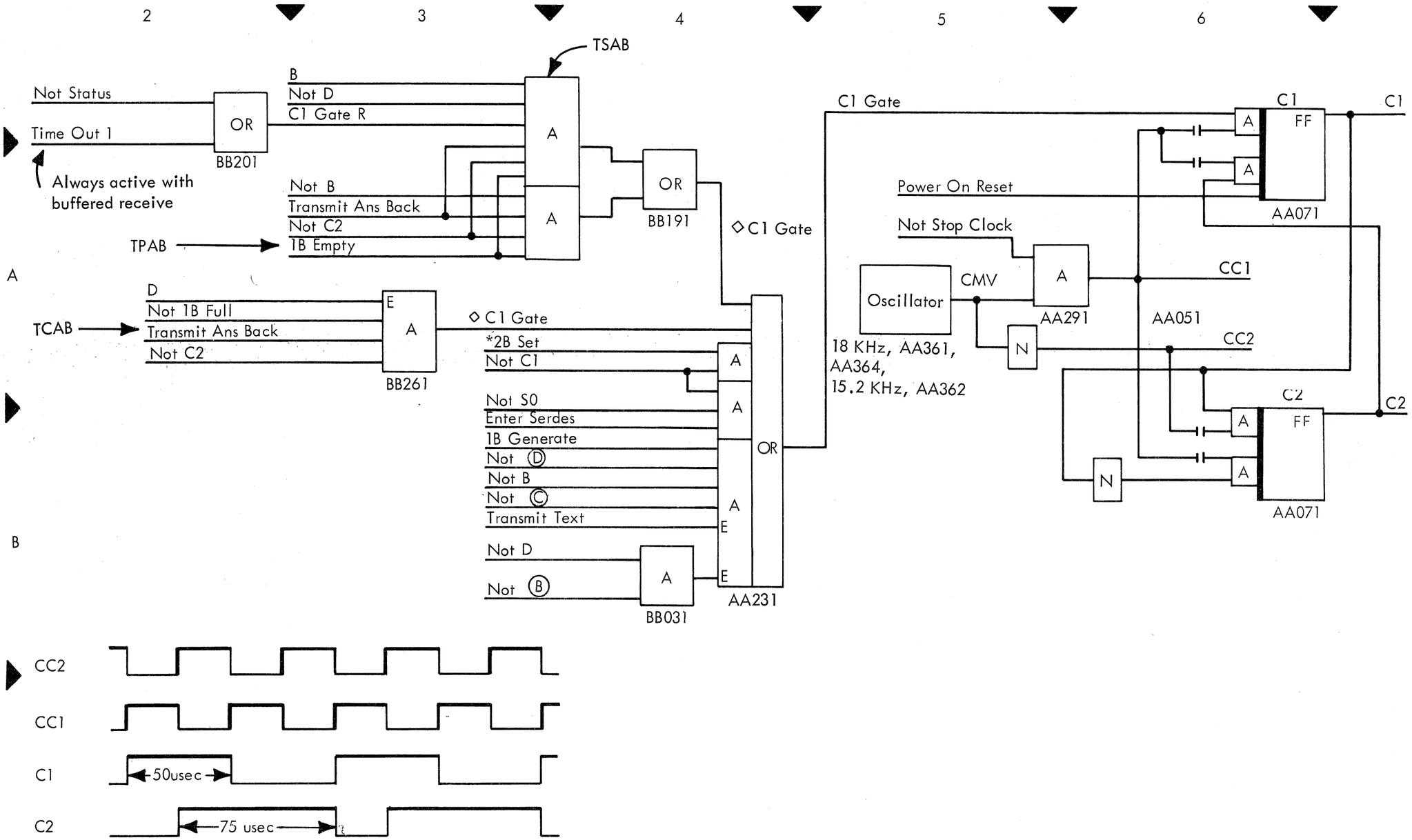


Figure FU-1. S-Register



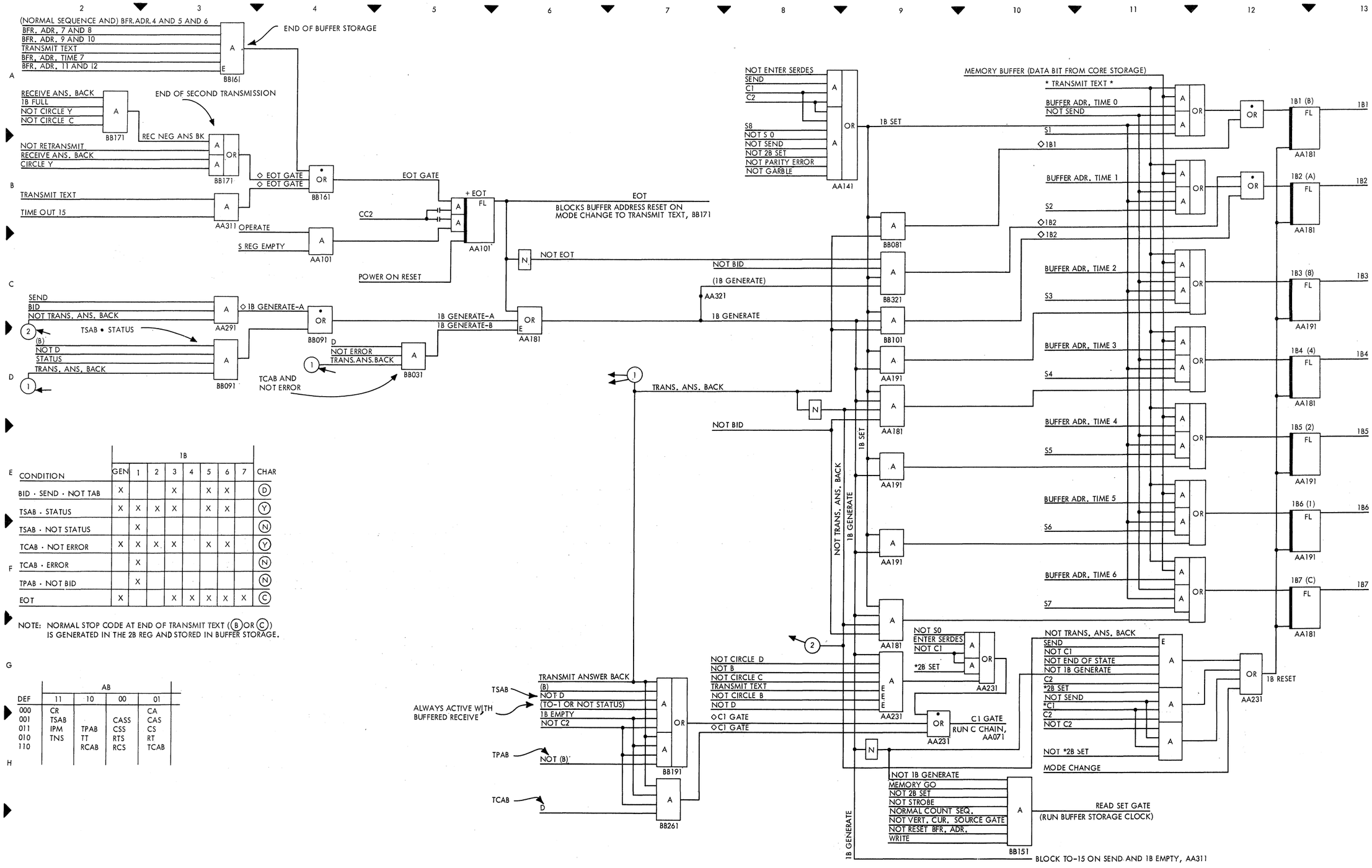
Note: Oscillator speed chosen to match normal data rate.

Figure FU-2. Serdes Clock



Note: Timing is slightly slower with 15.2 KHz oscillator. CC pulse duration is approx. 32.5 microseconds.

Figure FU-4. 1B-Register



E CONDITION	1B GEN	1	2	3	4	5	6	7	CHAR
BID · SEND · NOT TAB	X			X		X	X		(D)
TSAB · STATUS	X	X	X	X		X	X		(Y)
TSAB · NOT STATUS		X							(N)
TCAB · NOT ERROR	X	X	X	X		X	X		(Y)
F TCAB · ERROR		X							(N)
TPAB · NOT BID		X							(N)
EOT	X			X	X	X	X	X	(C)

NOTE: NORMAL STOP CODE AT END OF TRANSMIT TEXT ((B) OR (C)) IS GENERATED IN THE 2B REG AND STORED IN BUFFER STORAGE.

G

DEF	AB 11	10	00	01
000	CR			CA
001	TSAB		CASS	CAS
011	IPM	TPAB	CSS	CS
010	TNS	TT	RTS	RT
110		RCAB	RCS	TCAB

H

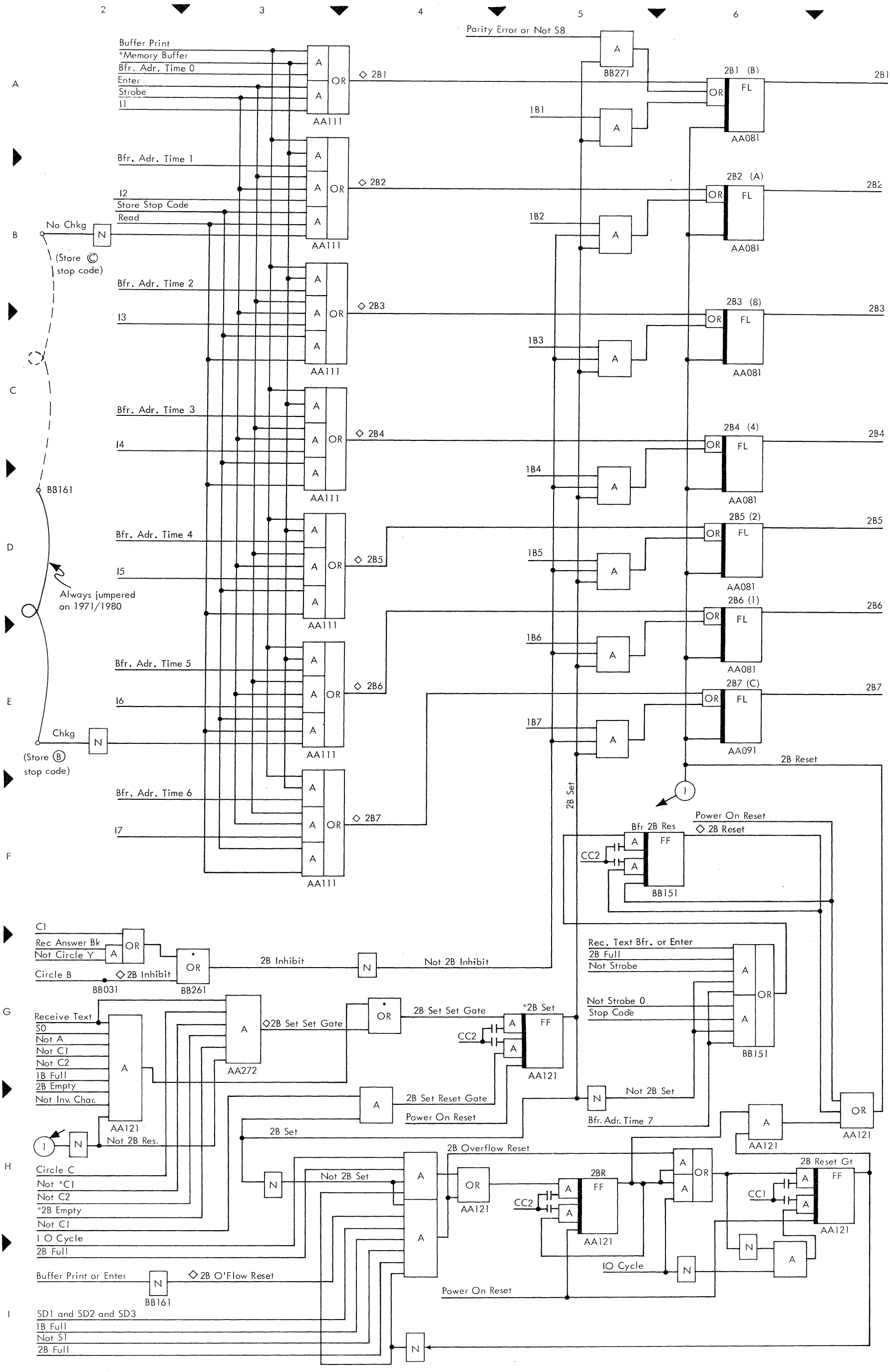


Figure FU-5. 2B-Register

Figure FU-6. Print and Function Decode

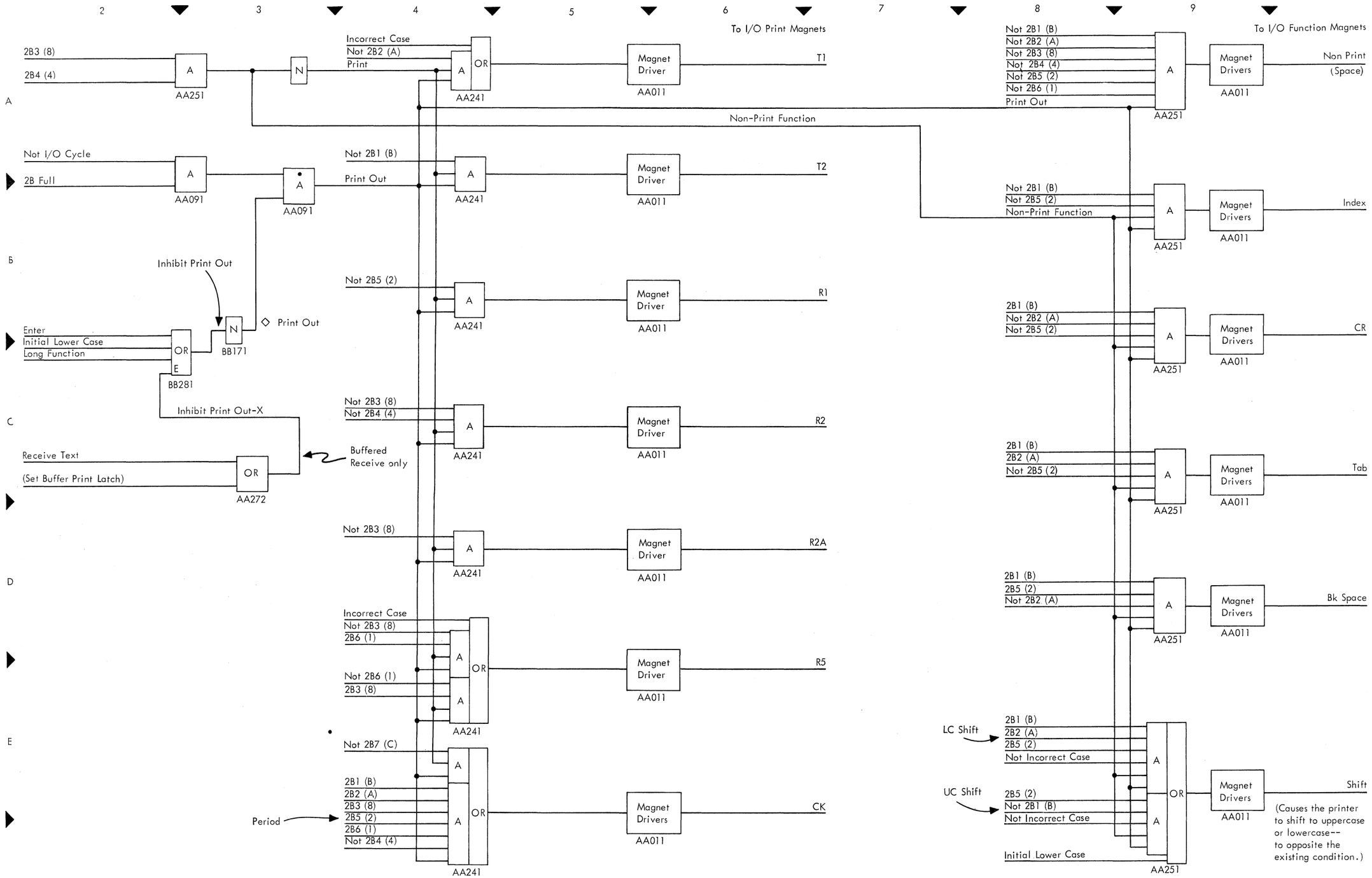
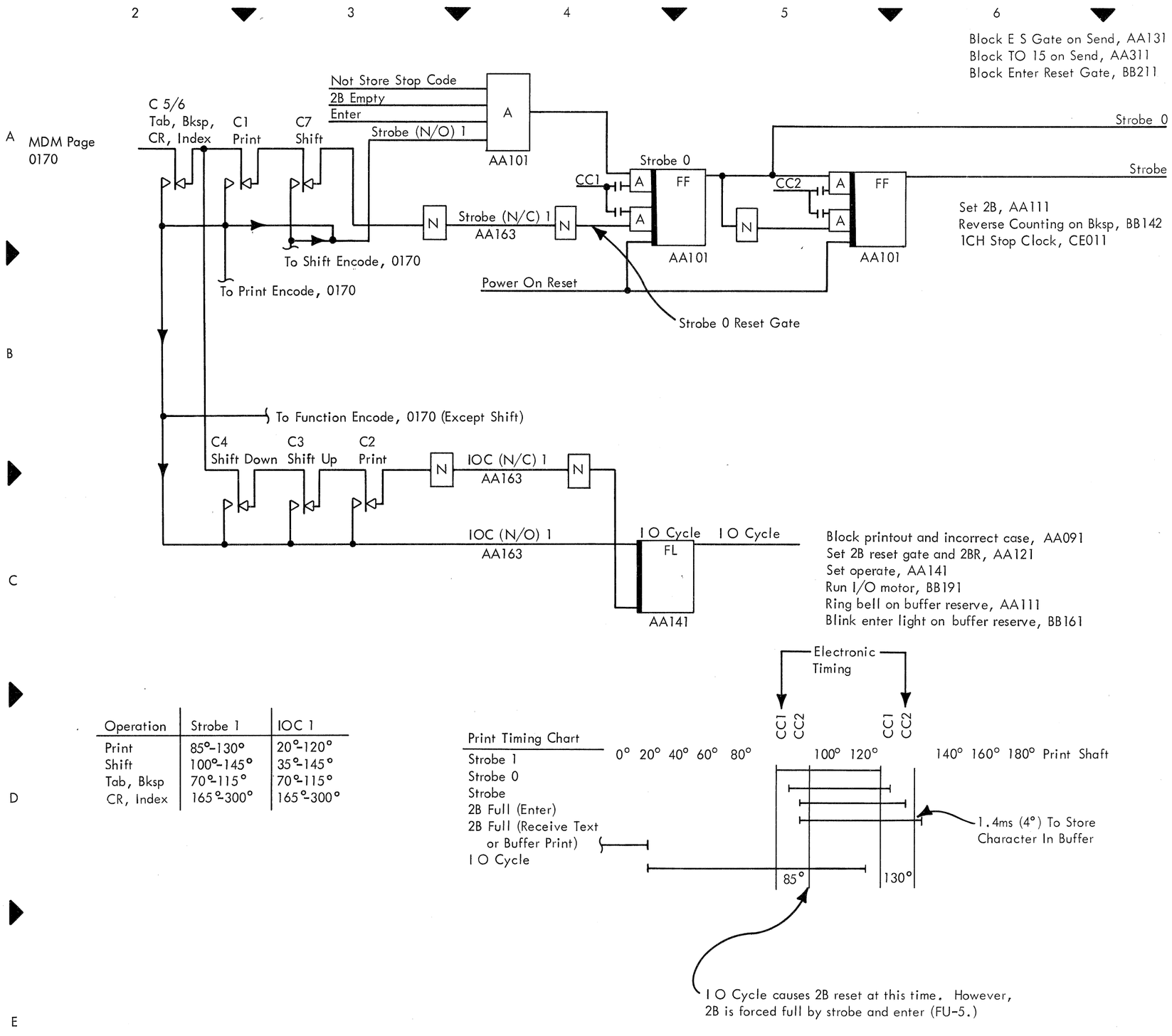


Figure FU-7. Strobe and I/O Cycle



Operation	Strobe 1	IOC 1
Print	85°-130°	20°-120°
Shift	100°-145°	35°-145°
Tab, Bksp	70°-115°	70°-115°
CR, Index	165°-300°	165°-300°

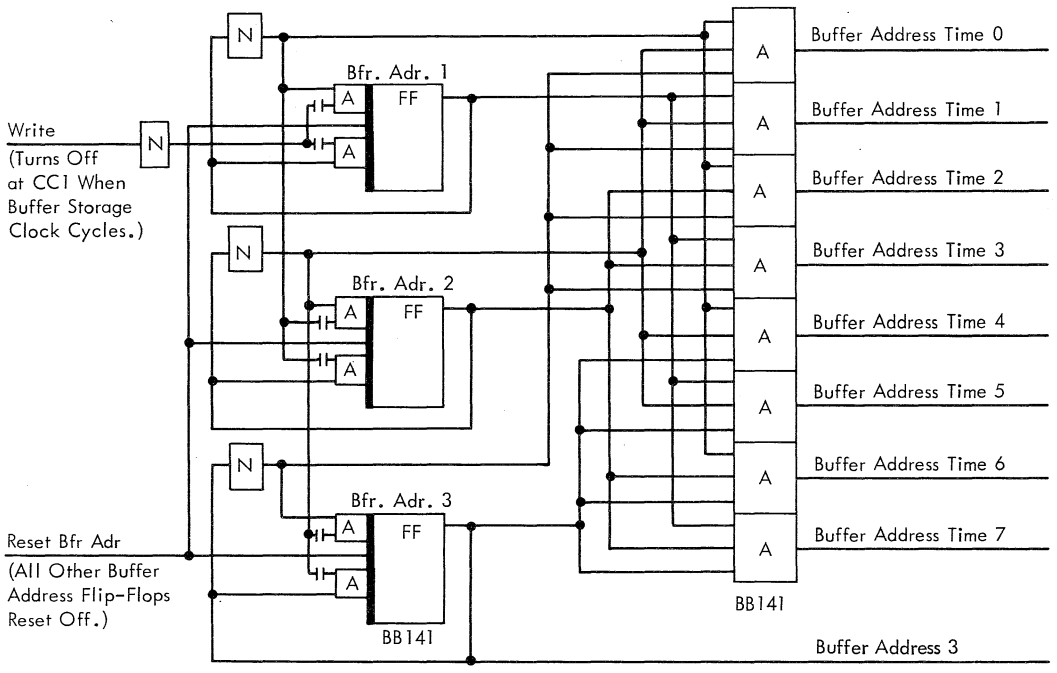


Figure FU-8. Bit Counter and Buffer Address Time Decode

Character Cycle

Not - Write Pulse	BA3	BA2	BA1	Bfr. Adr. Time	1B or 2B Register
Reset	X	X	X	7	-
1				0	1
2			X	1	2
3		X		2	3
4		X	X	3	4
5	X			4	5
6	X		X	5	6
7	X	X		6	7
8	X	X	X	7	-

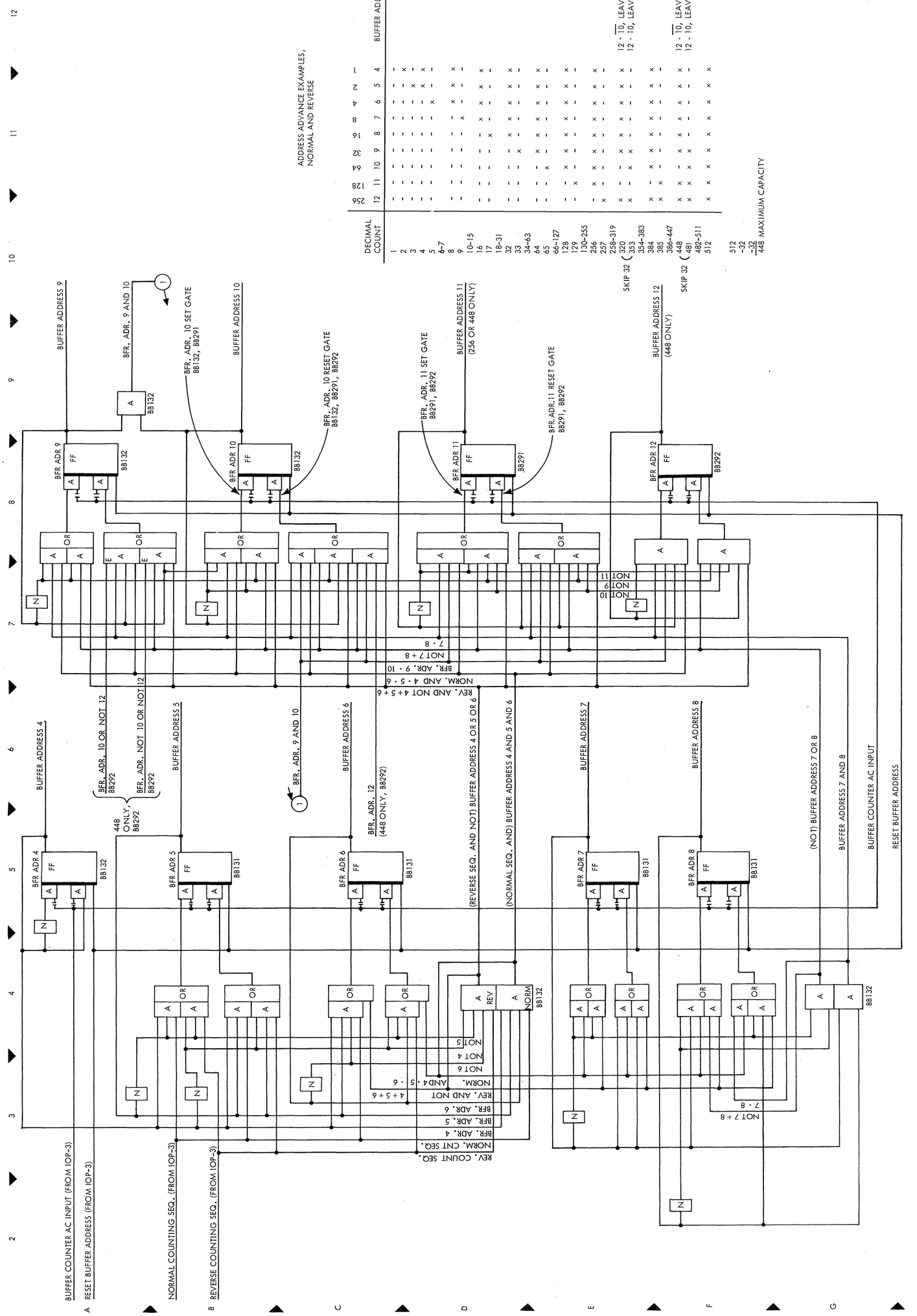


Figure FU-9. Buffer Address Register

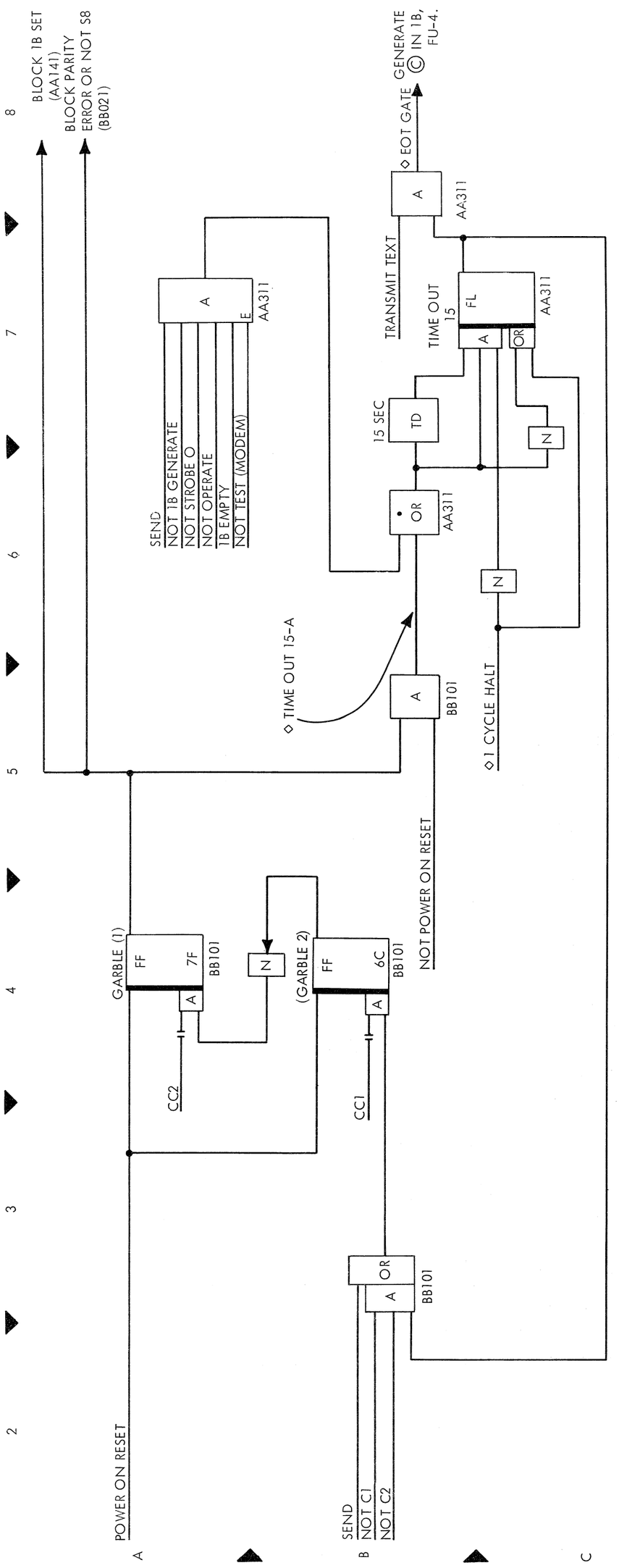


Figure FU-10. Garble and Time Out 15

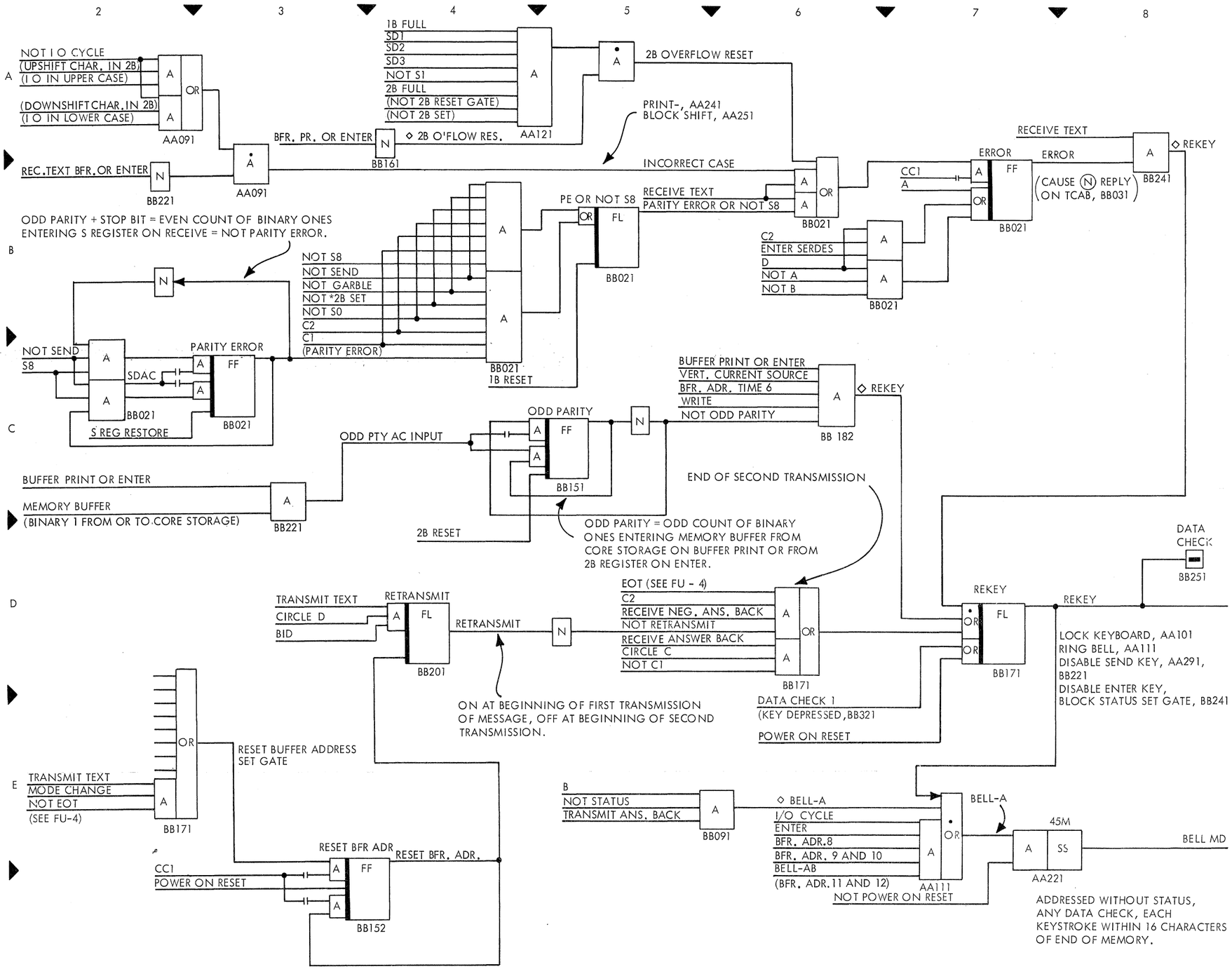


Figure FU-11. Data Check and Error

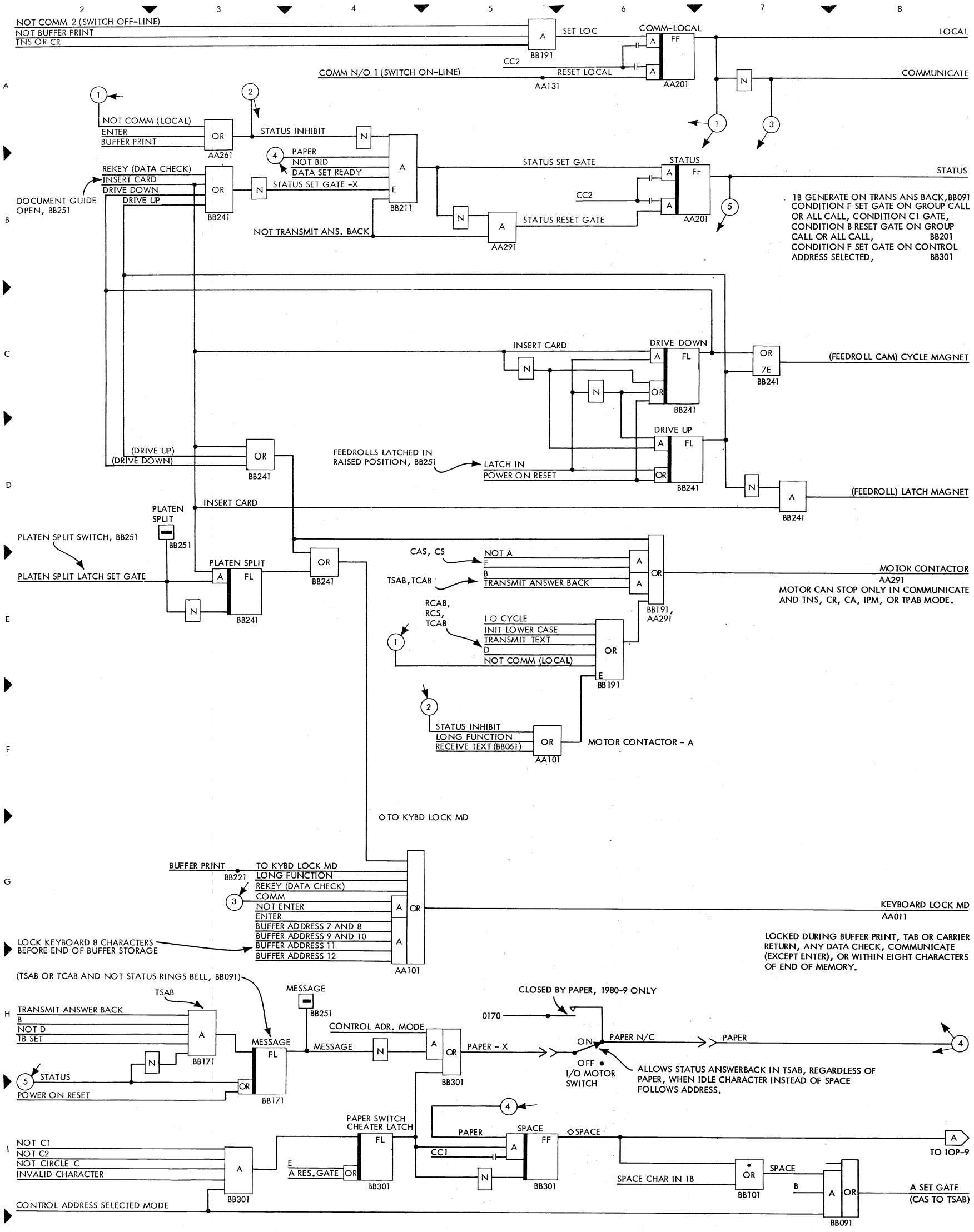


Figure FU-12. Local-Communicate, Status, and Document Insertion Circuits

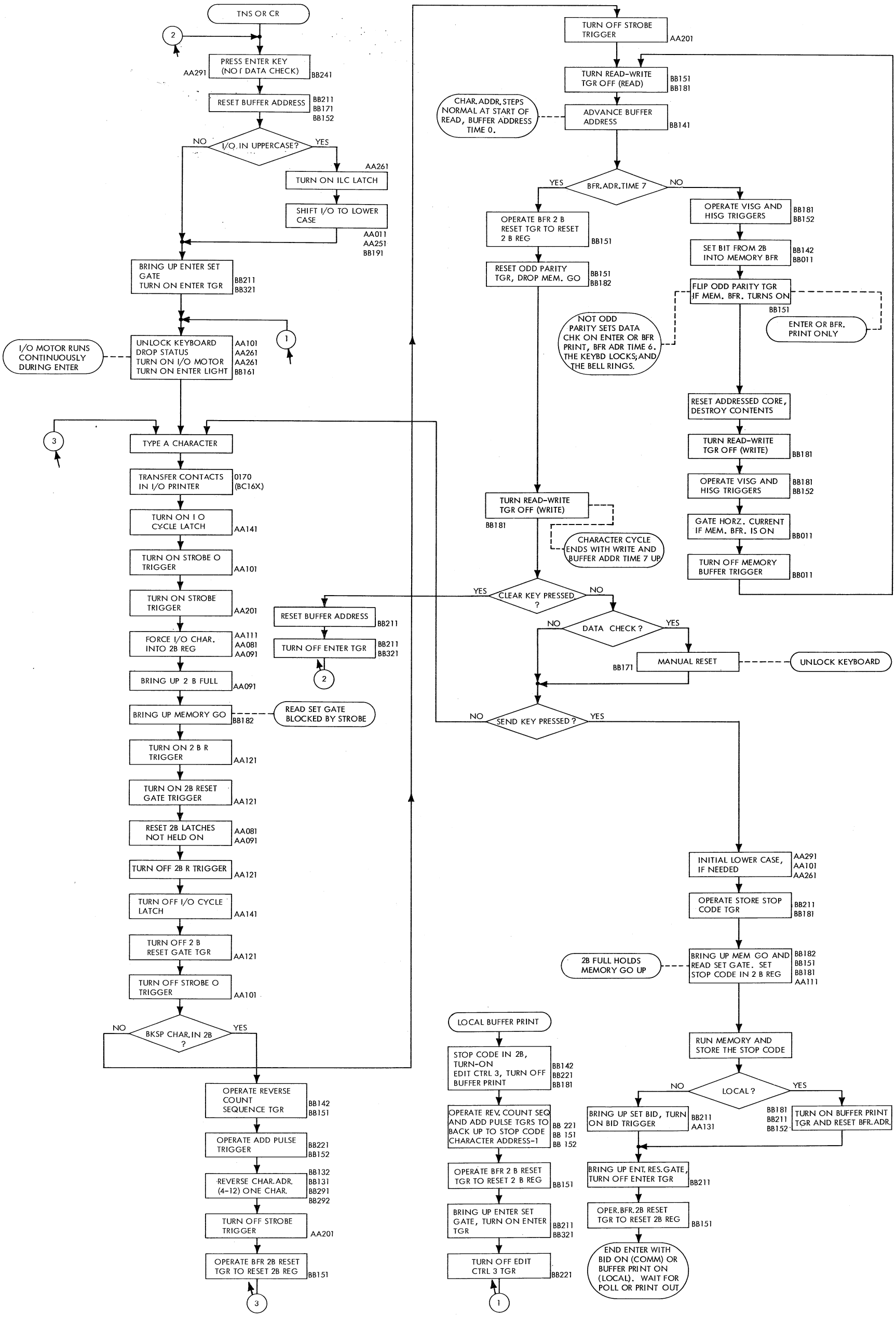
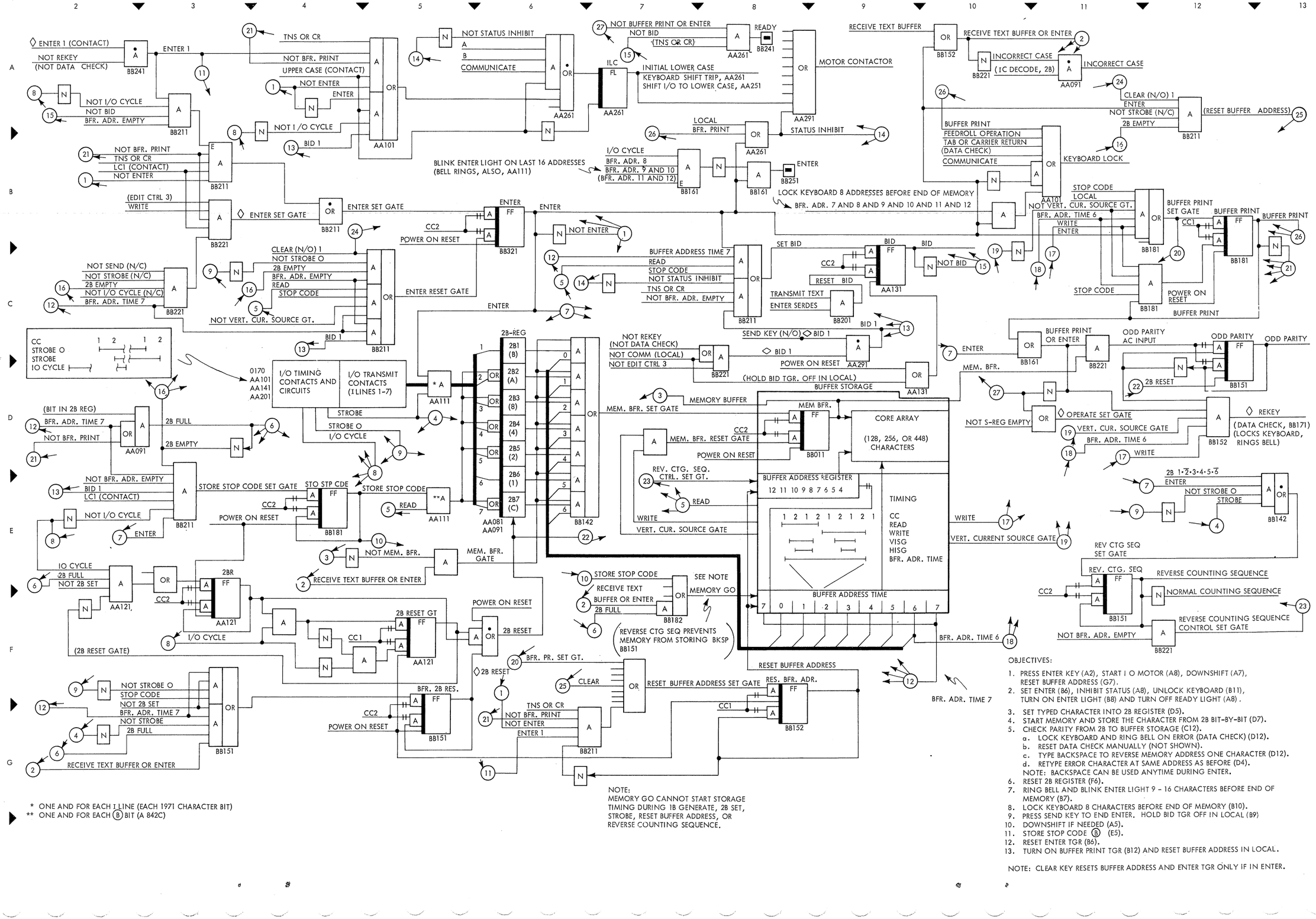


Figure IOP-1. Enter (Sheet 1 of 3)

Figure IOP-1. Enter (Sheet 2 of 3)



* ONE AND FOR EACH I LINE (EACH 1971 CHARACTER BIT)
** ONE AND FOR EACH (B) BIT (A 842C)

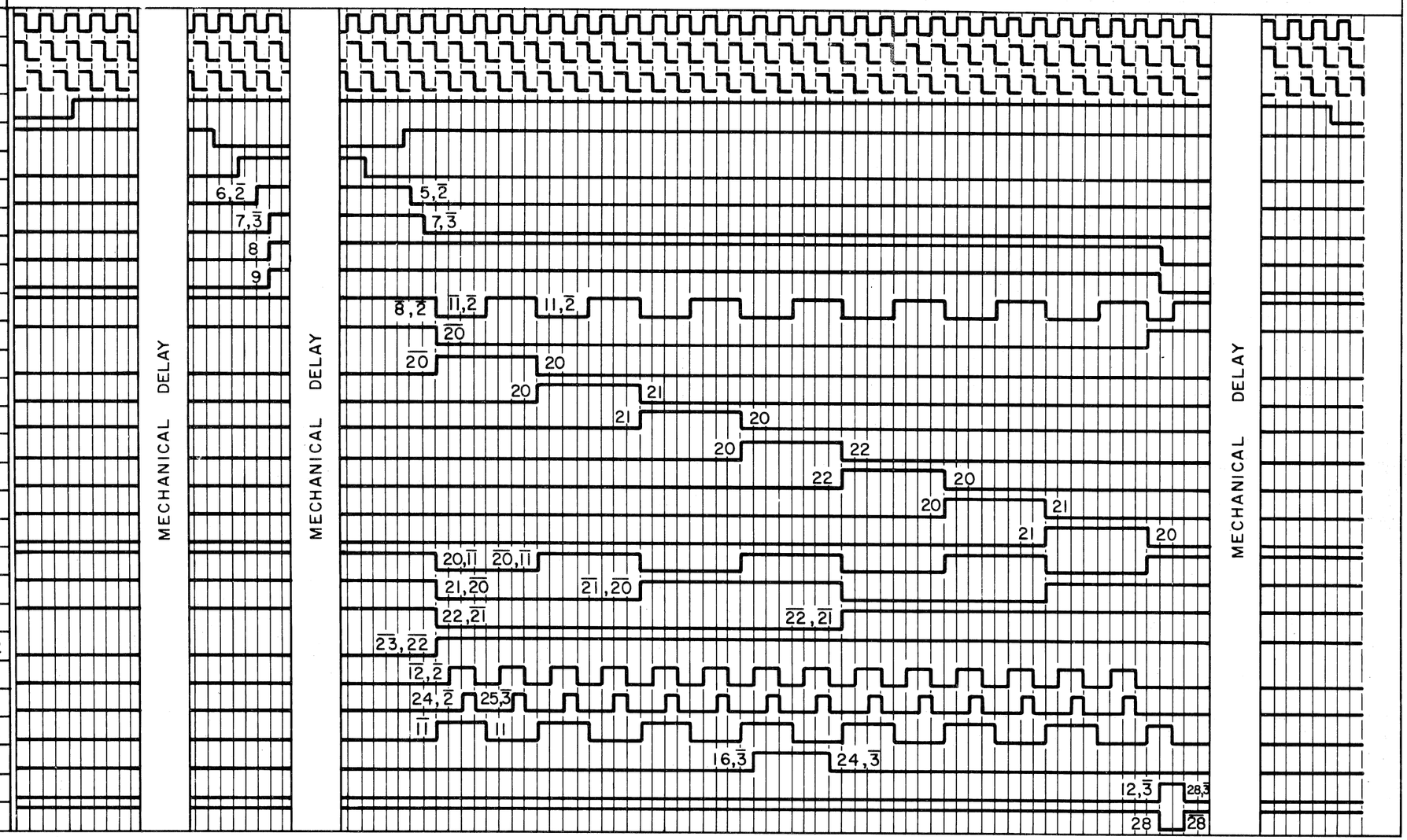
NOTE:
MEMORY GO CANNOT START STORAGE TIMING DURING 1B GENERATE, 2B SET, STROBE, RESET BUFFER ADDRESS, OR REVERSE COUNTING SEQUENCE.

OBJECTIVES:

1. PRESS ENTER KEY (A2), START I O MOTOR (A8), DOWNSHIFT (A7), RESET BUFFER ADDRESS (G7).
2. SET ENTER (B6), INHIBIT STATUS (A8), UNLOCK KEYBOARD (B11), TURN ON ENTER LIGHT (B8) AND TURN OFF READY LIGHT (A8).
3. SET TYPED CHARACTER INTO 2B REGISTER (D5).
4. START MEMORY AND STORE THE CHARACTER FROM 2B BIT-BY-BIT (D7).
5. CHECK PARITY FROM 2B TO BUFFER STORAGE (C12).
   a. LOCK KEYBOARD AND RING BELL ON ERROR (DATA CHECK) (D12).
   b. RESET DATA CHECK MANUALLY (NOT SHOWN).
   c. TYPE BACKSPACE TO REVERSE MEMORY ADDRESS ONE CHARACTER (D12).
   d. RETYPE ERROR CHARACTER AT SAME ADDRESS AS BEFORE (D4).
   NOTE: BACKSPACE CAN BE USED ANYTIME DURING ENTER.
6. RESET 2B REGISTER (F6).
7. RING BELL AND BLINK ENTER LIGHT 9 - 16 CHARACTERS BEFORE END OF MEMORY (B7).
8. LOCK KEYBOARD 8 CHARACTERS BEFORE END OF MEMORY (B10).
9. PRESS SEND KEY TO END ENTER. HOLD BID TGR OFF IN LOCAL (B9)
10. DOWNSHIFT IF NEEDED (A5).
11. STORE STOP CODE (B) (E5).
12. RESET ENTER TGR (B6).
13. TURN ON BUFFER PRINT TGR (B12) AND RESET BUFFER ADDRESS IN LOCAL.

NOTE: CLEAR KEY RESETS BUFFER ADDRESS AND ENTER TGR ONLY IF IN ENTER.

NO.	SIGNAL NAME	SP	LOGIC
1	-CMV	G6J13	AA361
2	-CC1	F1B07	AA051
3	-CC2	F1D04	AA051
4	KYBD CONTACT		
5	-STROBE N/C 1	J2D06	AA163
6	+STROBE N/O 1	J2B09	AA163
7	+STROBE 0	E2G12	AA101
8	+STROBE	E4D05	AA201
9	+2B FULL	D2B07	AA091
10	+MEMORY GO	C1G12	BB182
11	+WRITE	C1J02	BB181
12	+ BUFFER ADDRESS TIME 7	G1G04	BB141
13	+ BUFFER ADDRESS TIME 0	G1G09	BB141
14	+ BUFFER ADDRESS TIME 1	G1J05	BB141
15	+ BUFFER ADDRESS TIME 2	G1J02	BB141
16	+ BUFFER ADDRESS TIME 3	G1J04	BB141
17	+ BUFFER ADDRESS TIME 4	G1G02	BB141
18	+ BUFFER ADDRESS TIME 5	G1B10	BB141
19	+ BUFFER ADDRESS TIME 6	G1J09	BB141
20	+ BFR ADDRESS 1	G1G13	BB141
21	+ BFR ADDRESS 2	G1J07	BB141
22	+ BFR ADDRESS 3	G1G12	BB141
23	+ BFR ADDRESS 4	H1B03	BB132
24	+ VERTICAL CURRENT SOURCE GATE	C1D12	BB181
25	+ HORIZONTAL CURRENT SOURCE GATE	F1J04	BB152
26	+ READ ODD WRITE EVEN	C1J12	BB182
27	+ MEMORY BFR	A4J13	BB011
28	+ BFR 2B RESET	F1D07	BB151
29	- 2B RESET	F2G08	AA121



NOTE: IN THE ENTER MODE, TRANSFER A CHARACTER (NUMERAL 4) FROM KEYBOARD TO 2B, THEN FROM 2B TO MEMORY

Figure IOP-1. Enter (Sheet 3 of 3) Enter Numeral 4 from Keyboard to Memory

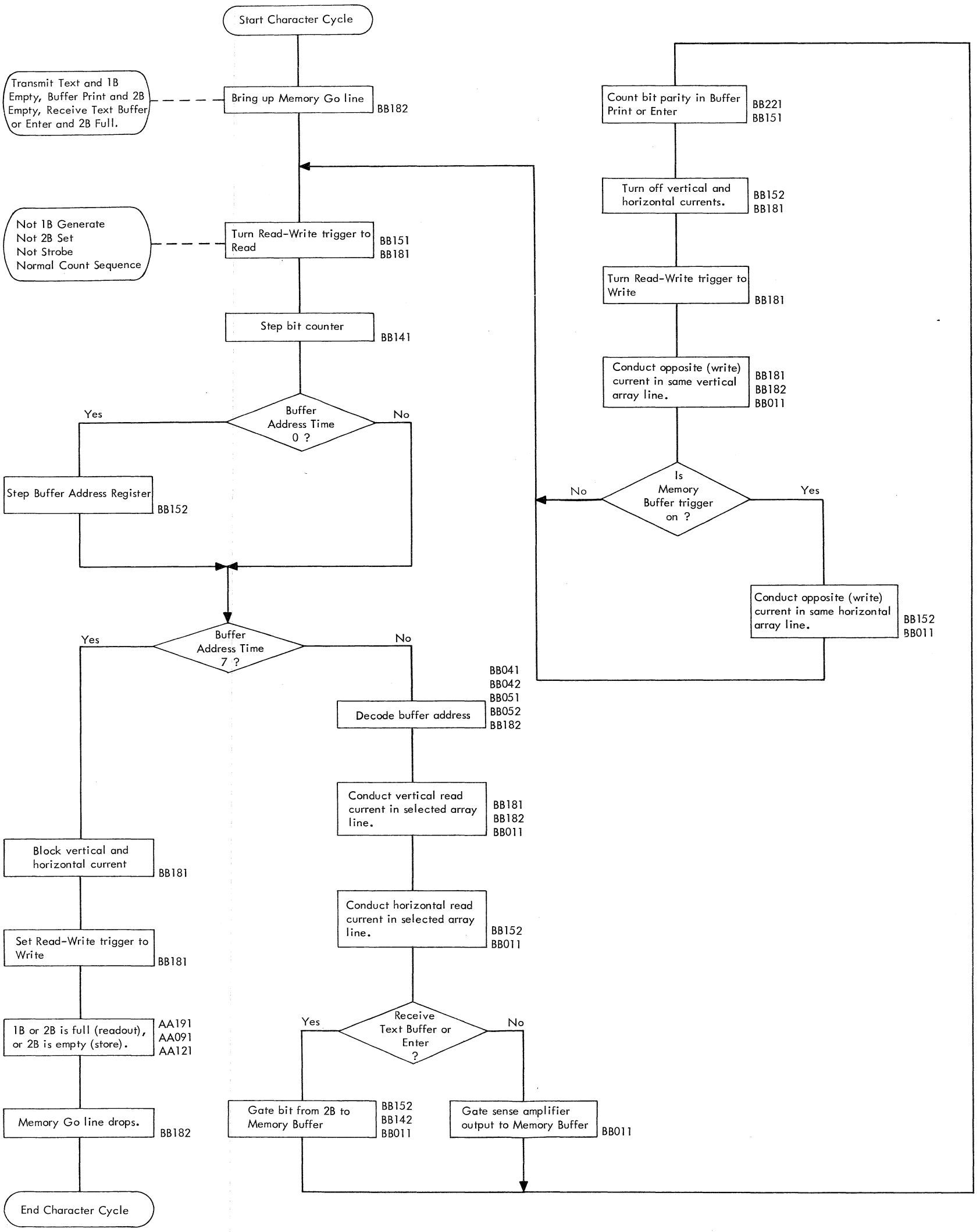


Figure IOP-2. Buffer Storage Operation (Sheet 1 of 2)

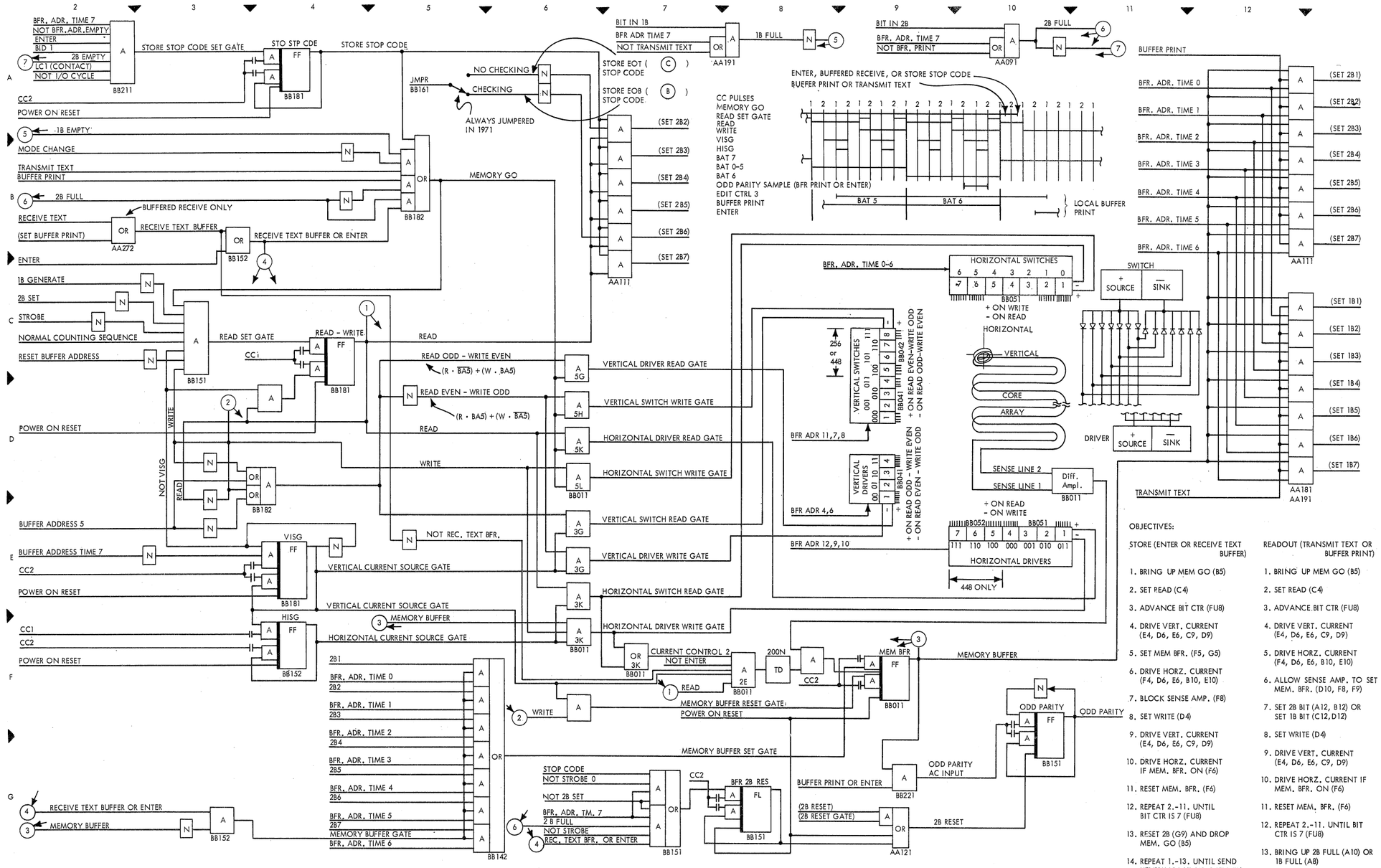
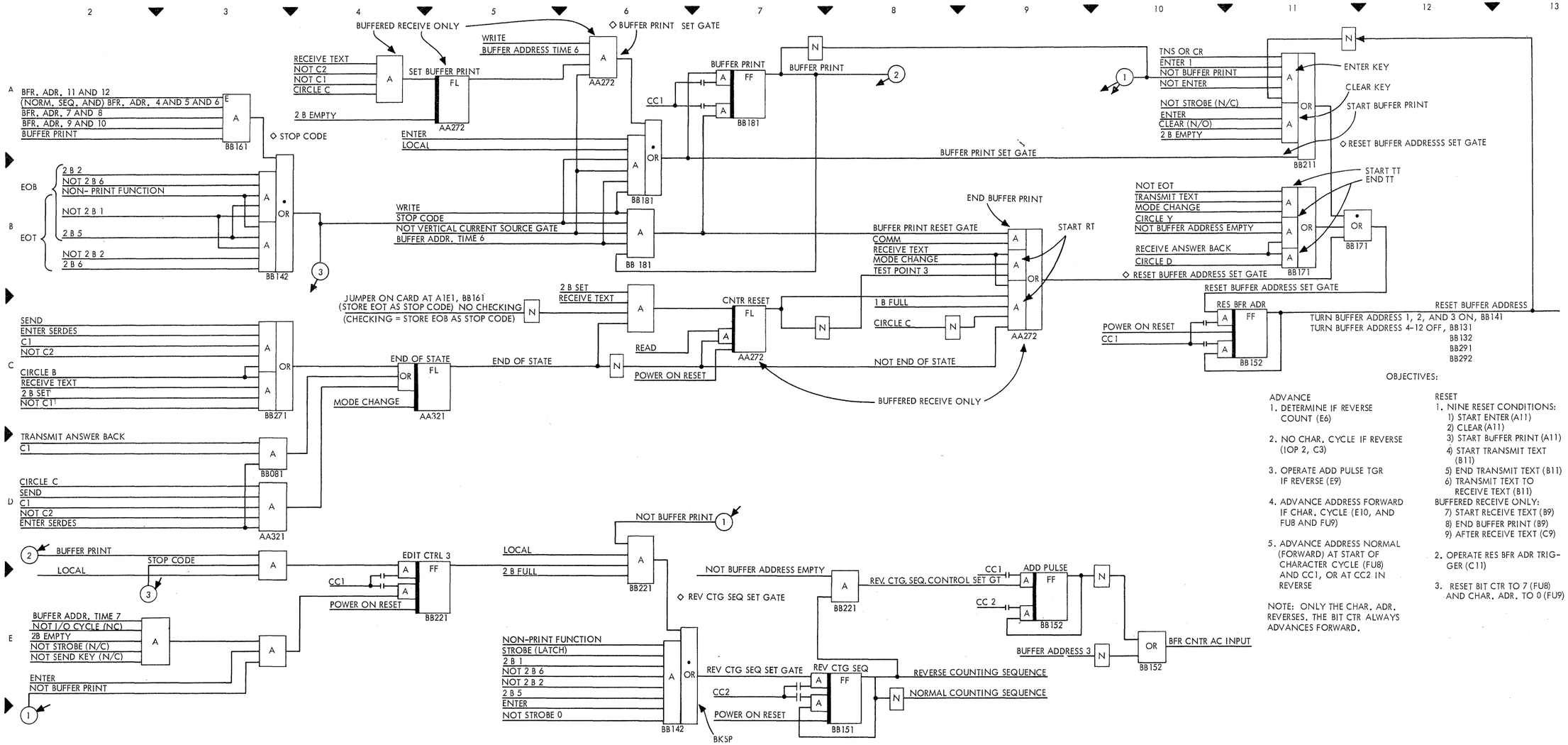


Figure IOP-2. Buffer Storage Operation (Sheet 2 of 2)

Figure IOP-3. Advance or Reset Buffer Storage Address (Normal or Reverse Sequence)



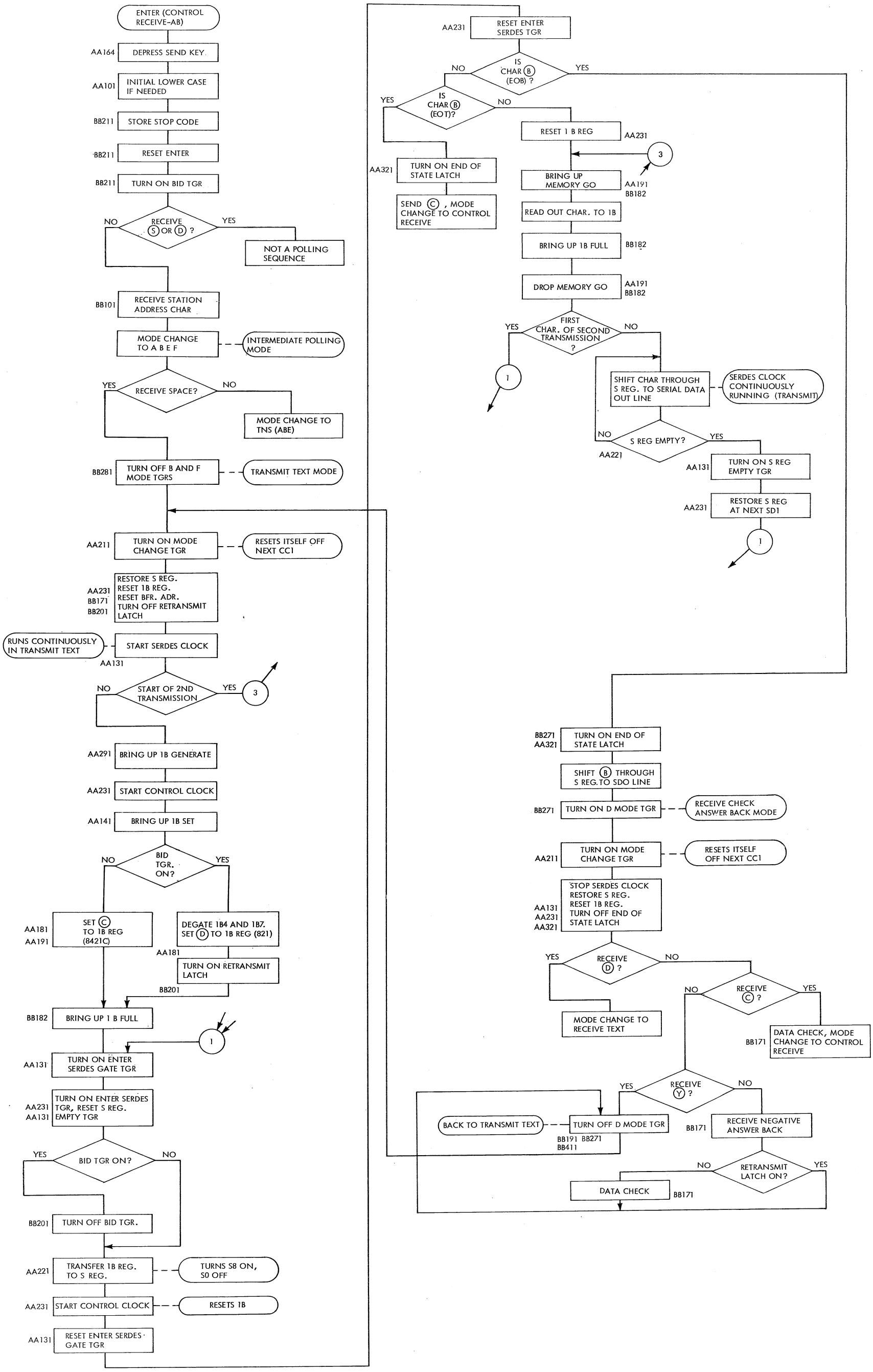
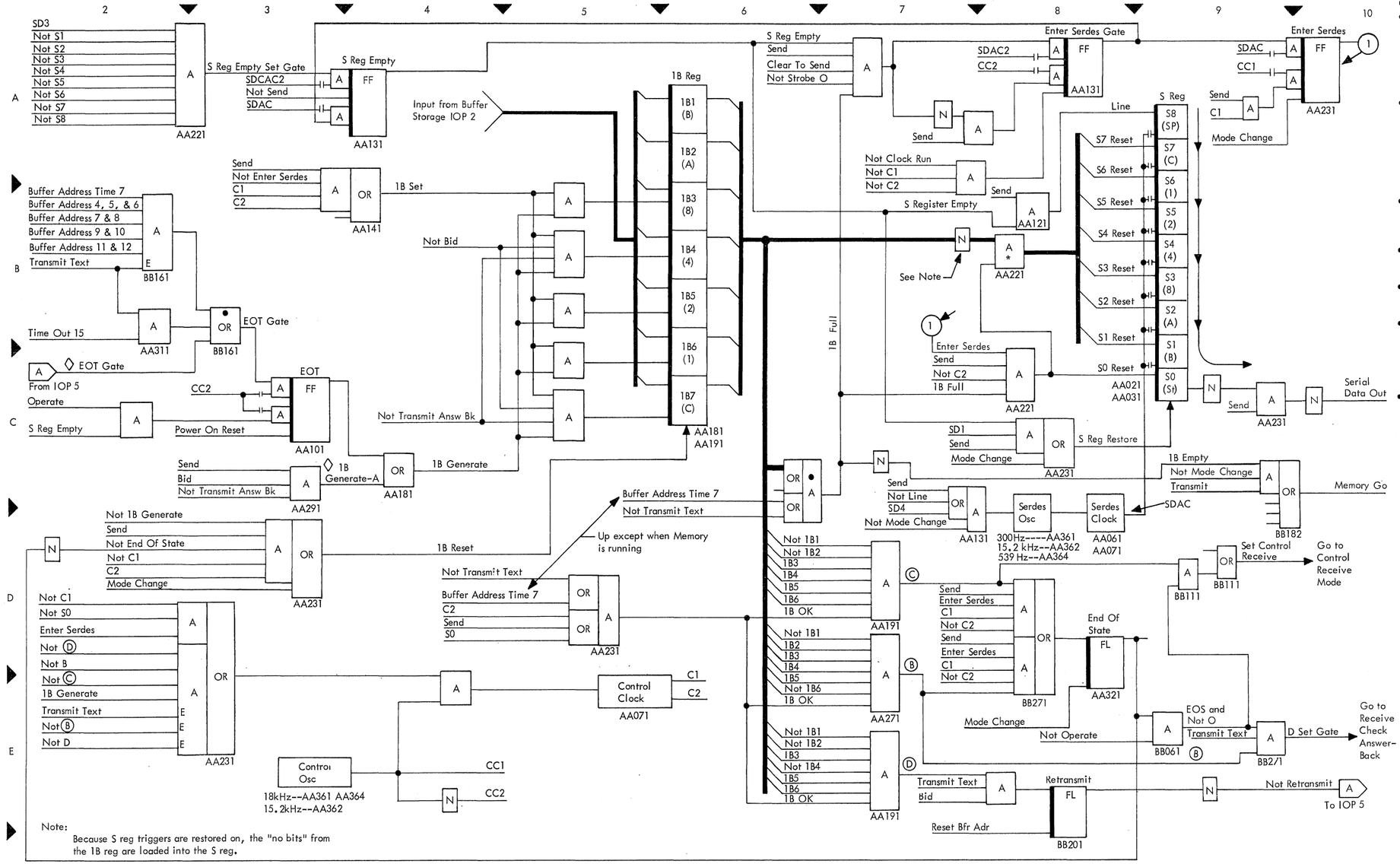


Figure IOP-4. Transmit (Sheet 1 of 3)

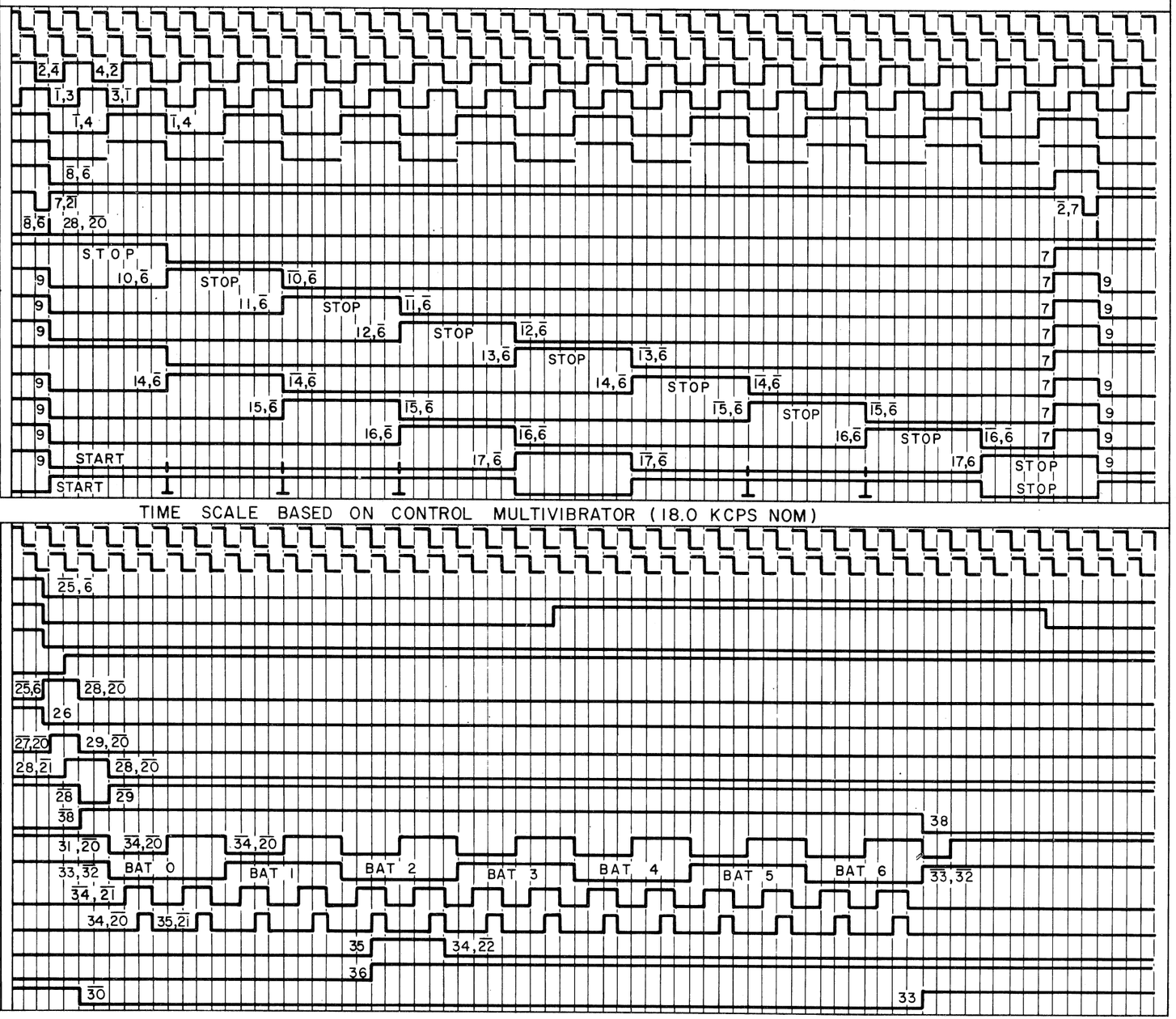
Figure IOP-4. Transmit (Sheet 2 of 3)



OBJECTIVES

- Generate (D) (8, 2, 1, bits) after successful poll:
  1. Bring up 1B Generate (C4).
  2. Start control clock (E5).
  3. Bring up 1B Set (B4).
  4. Not Transmit Answer Back blocks set of '1B4' and '1B7' (C4).
  5. Turn on 'retransmit' (E8).
- Transfer character to S register:
  1. 'S register empty' turned on by Not Send (from previous mode) or when S register emptied following transmission of previous character (A4).
  2. Turn on 'enter serdes gate' and bring up S Register Restore (A8 and C8).
  3. Turn on 'enter serdes' (A 10).
  4. Bring up S0 Reset (B8).
- Transmit character:
  1. Serdes clock runs continuously during send operations (D8).
  2. Character is shifted to Serial Data Out line
- Reset 1B register:
  1. Start control clock (E5).
  2. Bring up 1B Reset (C3).
- Load 1B from buffer storage:
  1. Bring up Memory Go (C10).
  2. Scan character to 1B (IOP 2).
- Detect final character from memory ((B)):
  1. Recognize (B) (D7).
  2. Turn on 'end of state' (D8).
  3. Prevent 1B Reset (D3).
  4. Go to receive check answer back mode (E9).
  5. Reset 1B during mode change (D3).
- Generate (C) if memory hangs up for 15 seconds, or end of memory is reached:
  1. Turn on 'EOT' (C3).
  2. Bring up 1B Generate (C4).
  3. Start control clock (E5).
  4. Bring up 1B Set (B4).
  5. Turn on '1B3', '1B4', '1B5', '1B6', and '1B7' latches (B5, C5)
  6. Go to control receive mode (D9).

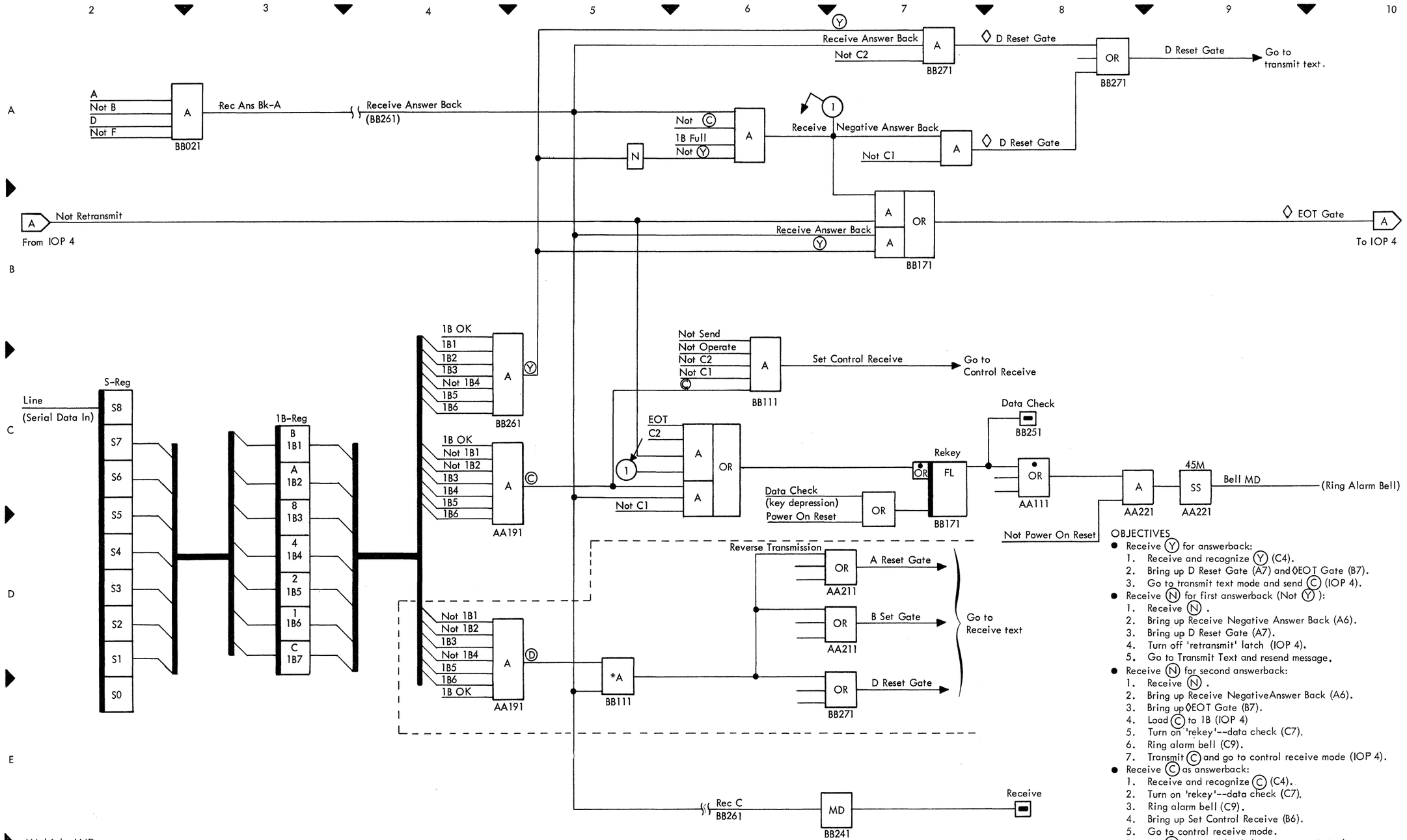
NO.	SIGNAL NAME	SP	LOGIC
1	-SDCAC1	G1D05	AA051
2	-SDCAC2	G1D04	AA051
3	+SD1	H2D05	AA061
4	+SD2	H2D04	AA061
5	+SD3	H2D02	AA061
6	-SDAC	G1D07	AA051
7	+S REG EMPTY	G2B03	AA131
8	-ENT SERDES GT	G2D06	AA131
9	+ENTER SERDES	D6J12	AA231
10	+S8	H4D07	AA021
11	+S7	H4D10	AA021
12	+S6	H4J11	AA021
13	+S5	H4B12	AA021
14	+S4	H4G02	AA031
15	+S3	H4J13	AA031
16	+S2	H4G09	AA031
17	+S1	H4J06	AA031
18	+S0	H4G07	AA031
19	+SER DATA OUT	D6B03	AA231
20	-CC1	F1B07	AA051
21	-CC2	F1D04	AA051
22	+S REG EMPTY	G2B03	AA131
23	-SDCAC1	G1D05	AA051
24	-SDAC	G1D07	AA051
25	-ENT SERDS GT	G2D06	AA131
26	+ENTER SERDS	D6J12	AA231
27	+S0	H4G07	AA031
28	+C1	H2G04	AA071
29	+C2	H2G07	AA071
30	-1B RESET	D6J09	AA231
31	+MEMORY GO	C1G12	BB182
32	WRITE	C1J02	BB181
33	+BFR ADDRESS 1	G1G13	BB141
34	+VERT CURRENT SOURCE GATE	C1D12	BB181
35	+HORZ CURRENT SOUCE GATE	F1J04	BB152
36	+MEMORY BFR	A4J13	BB011
37	1B3	D4D05	AA191
38	+1B FULL	D4B04	AA191



NOTE: TRANSFER CHARACTER (NUMBERAL 4) FROM 1B TO SERDES AND BEGIN TRANSMISSION, THEN READ FROM MEMORY (NUMERAL 8) AND STORE IN 1B.

Figure IOP-4. Transmit (Sheet 3 of 3) Transfer Character from Memory and Transmit

Figure IOP-5. Receive Check Answerback



OBJECTIVES

- Receive (Y) for answerback:
  1. Receive and recognize (Y) (C4).
  2. Bring up D Reset Gate (A7) and ◊EOT Gate (B7).
  3. Go to transmit text mode and send (C) (IOP 4).
- Receive (N) for first answerback (Not (Y)):
  1. Receive (N).
  2. Bring up Receive Negative Answer Back (A6).
  3. Bring up D Reset Gate (A7).
  4. Turn off 'retransmit' latch (IOP 4).
  5. Go to Transmit Text and resend message.
- Receive (N) for second answerback:
  1. Receive (N).
  2. Bring up Receive Negative Answer Back (A6).
  3. Bring up ◊EOT Gate (B7).
  4. Load (C) to 1B (IOP 4)
  5. Turn on 'rekey'--data check (C7).
  6. Ring alarm bell (C9).
  7. Transmit (C) and go to control receive mode (IOP 4).
- Receive (C) as answerback:
  1. Receive and recognize (C) (C4).
  2. Turn on 'rekey'--data check (C7).
  3. Ring alarm bell (C9).
  4. Bring up Set Control Receive (B6).
  5. Go to control receive mode.
- Receive (D) as answerback (reverse transmission):
  1. Receive and recognize (D) (D4).
  2. Bring up A Reset Gate, B Set Gate, and D Reset Gate (D7).
  3. Go to receive text mode.

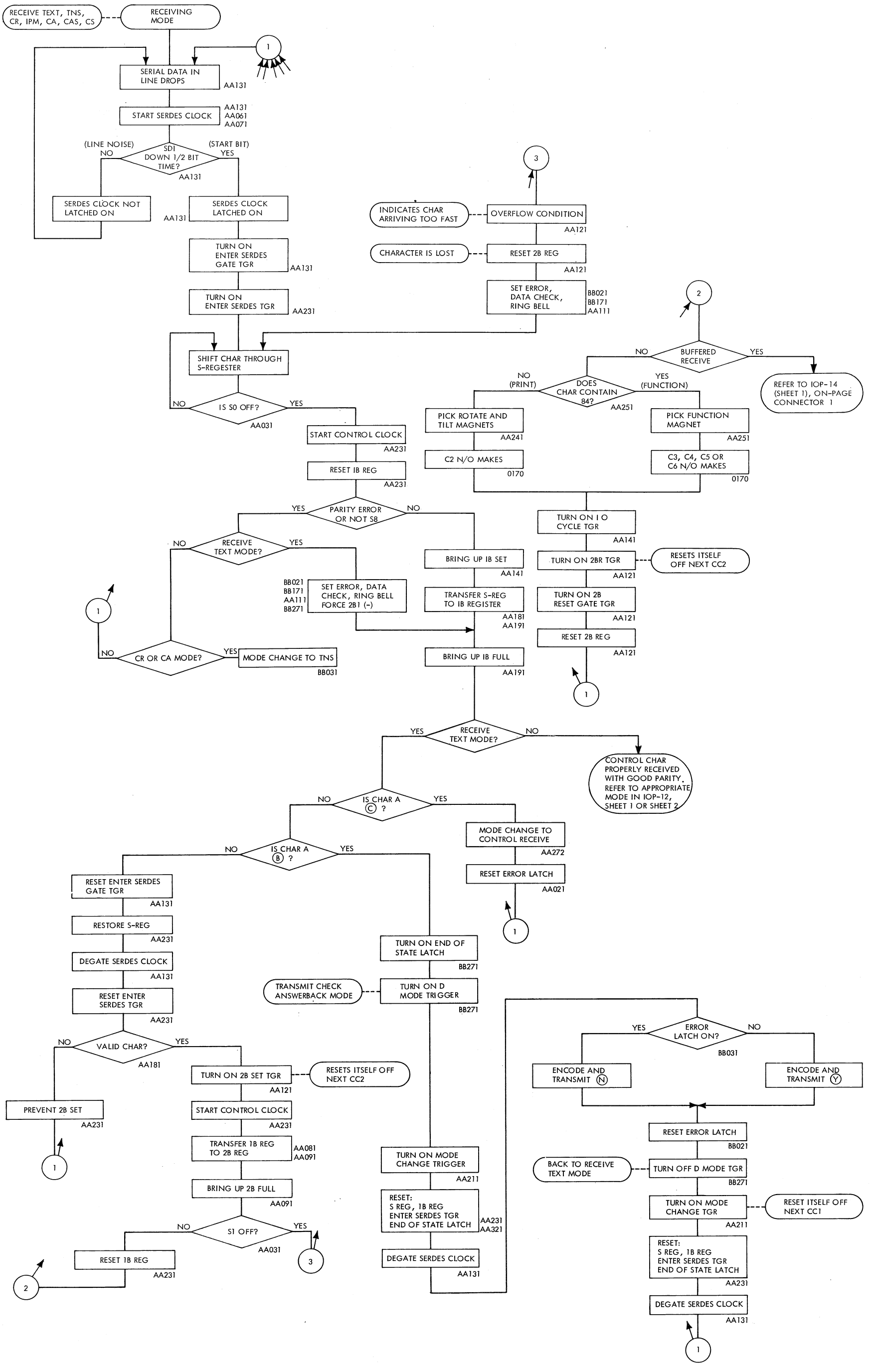
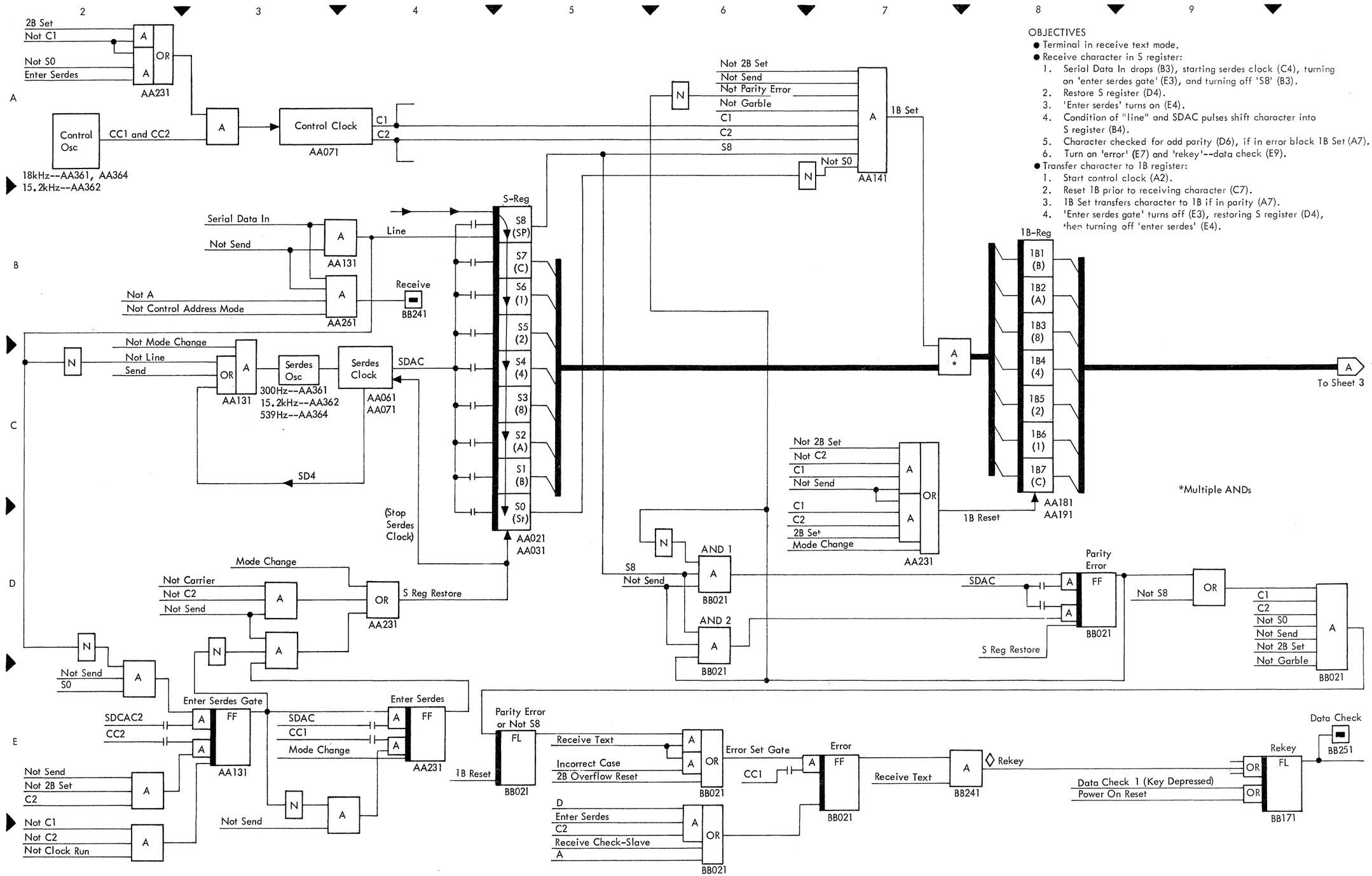
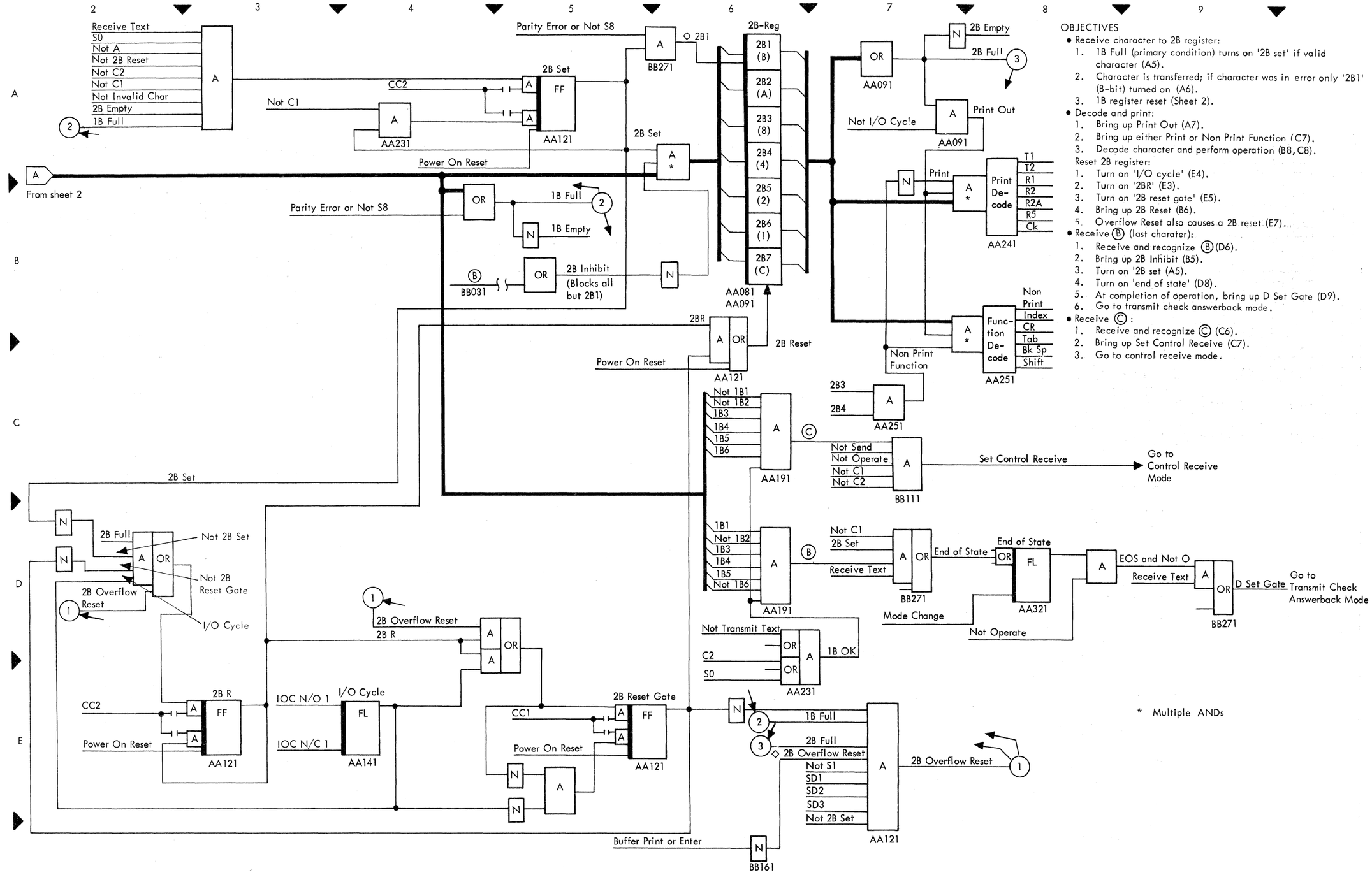


Figure IOP-6. Receive (Sheet 1 of 5)

Figure IOP-6. Receive (Sheet 2 of 5)





OBJECTIVES

- Receive character to 2B register:
  1. 1B Full (primary condition) turns on '2B set' if valid character (A5).
  2. Character is transferred; if character was in error only '2B1' (B-bit) turned on (A6).
  3. 1B register reset (Sheet 2).
- Decode and print:
  1. Bring up Print Out (A7).
  2. Bring up either Print or Non Print Function (C7).
  3. Decode character and perform operation (B8, C8).

  Reset 2B register:
  1. Turn on 'I/O cycle' (E4).
  2. Turn on '2BR' (E3).
  3. Turn on '2B reset gate' (E5).
  4. Bring up 2B Reset (B6).
  5. Overflow Reset also causes a 2B reset (E7).
- Receive (B) (last charater):
  1. Receive and recognize (B) (D6).
  2. Bring up 2B Inhibit (B5).
  3. Turn on '2B set (A5).
  4. Turn on 'end of state' (D8).
  5. At completion of operation, bring up D Set Gate (D9).
  6. Go to transmit check answerback mode.
- Receive (C):
  1. Receive and recognize (C) (C6).
  2. Bring up Set Control Receive (C7).
  3. Go to control receive mode.

Figure IOP-6. Receive (Sheet 3 of 5)

NO	SIGNAL NAME	SP	LOGIC
1	+LINE	G2GØ7	AA131
2	+CLOCK RUN	G2JØ5	AA131
3	+SDMV	G6JØ7	AA361
4	+SD 1	H2DØ5	AAØ61
5	+SD 2	H2DØ4	AAØ61
6	+SD 3	H2DØ2	AAØ61
7	+SD 4	H2BØ7	AAØ71
8	-SDCAC 1	G1DØ5	AAØ51
9	-SDCAC 2	G1DØ4	AAØ51
10	-SDAC	G1DØ7	AAØ51
11	+S 8	H4DØ7	AAØ21
12	+S 7	H4D1Ø	AAØ21
13	+S 6	H4J11	AAØ21
14	+S 5	H4B12	AAØ21
15	+S 4	H4GØ2	AAØ31
16	+S 3	H4J13	AAØ31
17	+S 2	H4GØ9	AAØ31
18	+S 1	H4JØ6	AAØ31
19	+SØ	H4GØ7	AAØ31
20	-CMV	G6J13	AA361
21	-CC1	F1BØ7	AAØ51
22	-CC2	F1DØ4	AAØ51
23	+C1	H2GØ4	AAØ71
24	+C2	H2GØ7	AAØ71
25	-ENTER SERDES GATE	G2DØ6	AA131
26	+ENTER SERDES	D6J12	AA231
27	-S REGISTER RESTORE	D6DØ9	AA231
28	-1B RESET	D6JØ9	AA231
29	+1B SET	J6GØ8	AA141
30	+1B FULL	D4BØ4	AA191

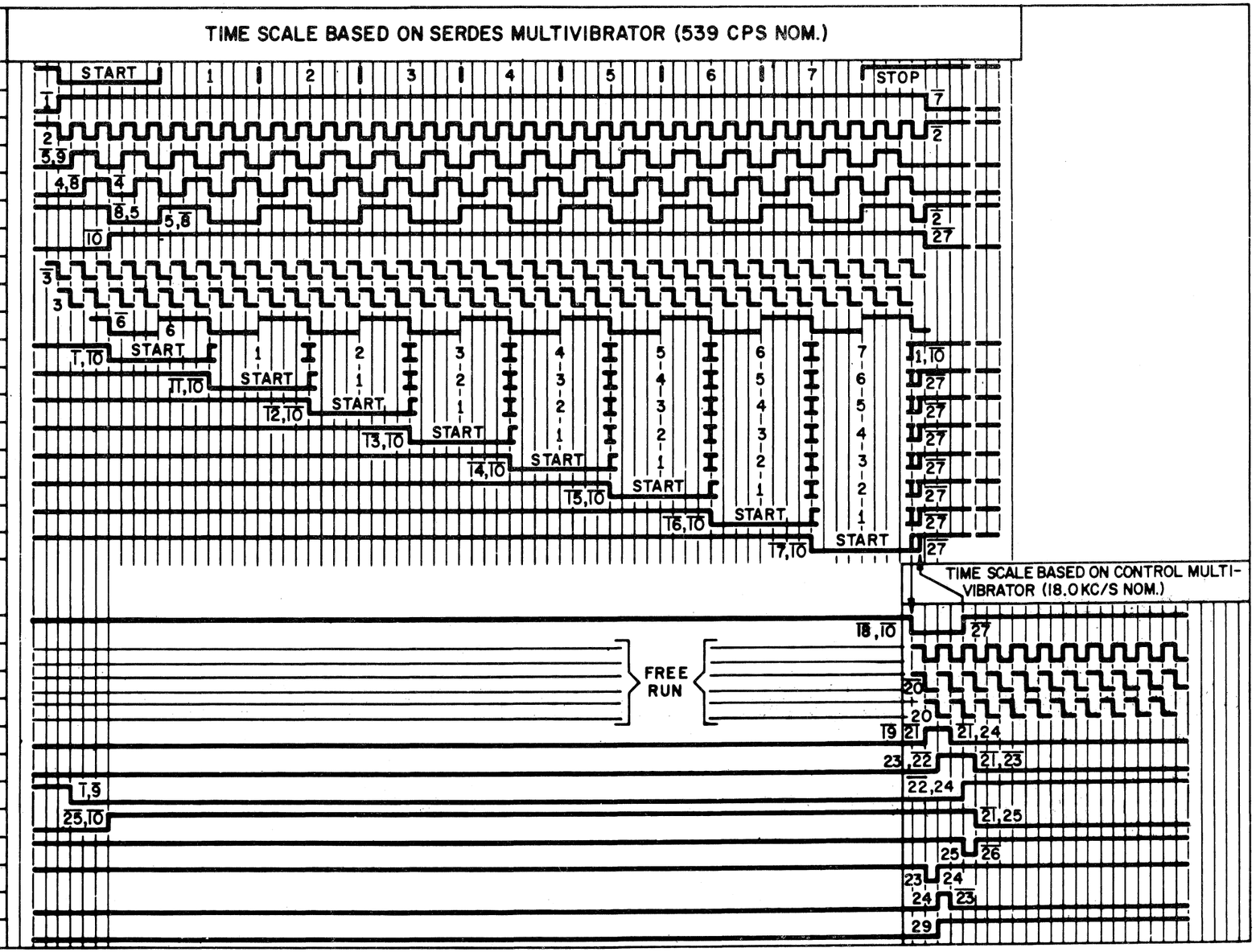


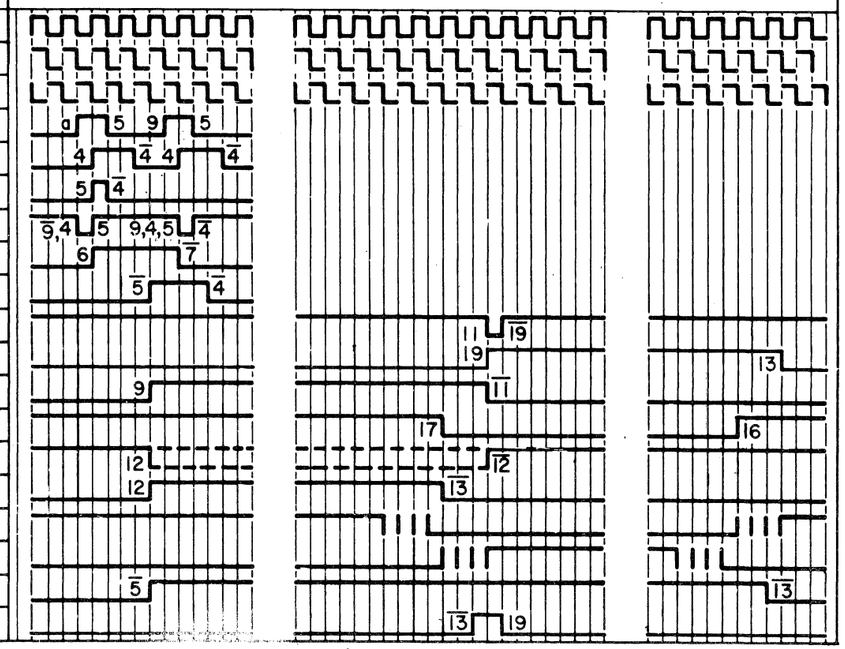
Figure IOP-6. Receive (Sheet 4 of 5) Deserialize Character and Transfer to 1B Register

Figure IOP-6. Receive (Sheet 5 of 5)

NOTE: TRANSFER A CHARACTER FROM 1B TO 2B AND PRINT IN THE RECEIVE MODE

NO.	SIGNAL NAME	SP	LOGIC
1	-CMV	G6J13	AA361
2	-CC1	F1B07	AA051
3	-CC2	F1D04	AA051
4	+C1	H2G04	AA071
5	+C2	H2G07	AA071
6	+1B SET	J6G08	AA141
7	-1B RESET	D6J09	AA231
8	+1B FULL	D4B04	AA191
9	+2B SET	D4D11	AA191
10	-2B RESET	F2G08	AA121
11	+2B RESET GATE	F2G07	AA121
12	+2B FULL	D2B07	AA091
13	-IO CYCLE	J6G03	AA141
14	+PRINT	F4B09	AA251
15	+PRINT OUT	D2D11	AA091
16	-IOC N-C1	J2B07	AA163
17	+IOC N-O1	J2B10	AA163
18	+OPERATE	J6J11	AA141
19	+2 BR	F2J09	AA121

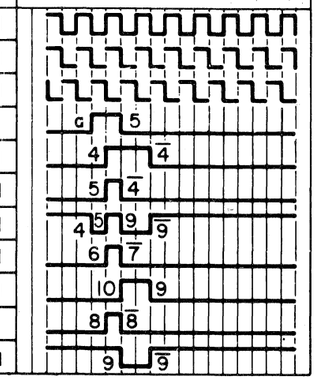
TIME SCALE BASED ON CONTROL MULTIVIBRATOR



a. THE FINAL GATE CONDITION FOR C1 IS – S Ø

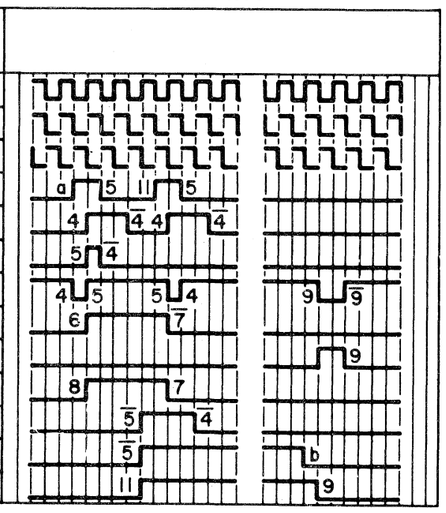
NOTE: CHANGE MODES ON RECEIPT OF A CONTROL CHARACTER WITHOUT PRINTING

NO.	SIGNAL NAME	SP	LOGIC
1	-CMV	G6J13	AA361
2	-CC1	F1B07	AA051
3	-CC2	F1D04	AA051
4	+C1	H2G04	AA071
5	+C2	H2G07	AA071
6	+1B SET	J6G08	AA141
7	-1B RESET	D6J09	AA231
8	+1B FULL	D4B04	AA191
9	+MODE CHANGE	E4J02	AA211
10	CONTROL FUNCT.		
11	-S REG. RESTORE	D6D09	AA231



NOTE: CHANGE MODES ON RECEIPT OF A CONTROL CHARACTER AFTER PRINTING

NO.	SIGNAL NAME	SP	LOGIC
1	-CMV	G6J13	AA361
2	-CC1	F1B07	AA051
3	-CC2	F1D04	AA051
4	+C1	H2G04	AA071
5	+C2	H2G07	AA071
6	+1B SET	J6G08	AA141
7	-1B RESET	D6J09	AA231
8	+1B FULL	D4B04	AA191
9	+MODE CHANGE	E4J02	AA211
10	CONTROL FUNCT.		
11	+2B SET	D4D11	AA191
12	+OPERATE	J6J11	AA141
13	+END OF STATE	F6D11	AA321



b IO CYCLE GOING TO ZERO IS THE FINAL GATING CONDITION ALLOWING OPERATE TO BE RESET BY CC2

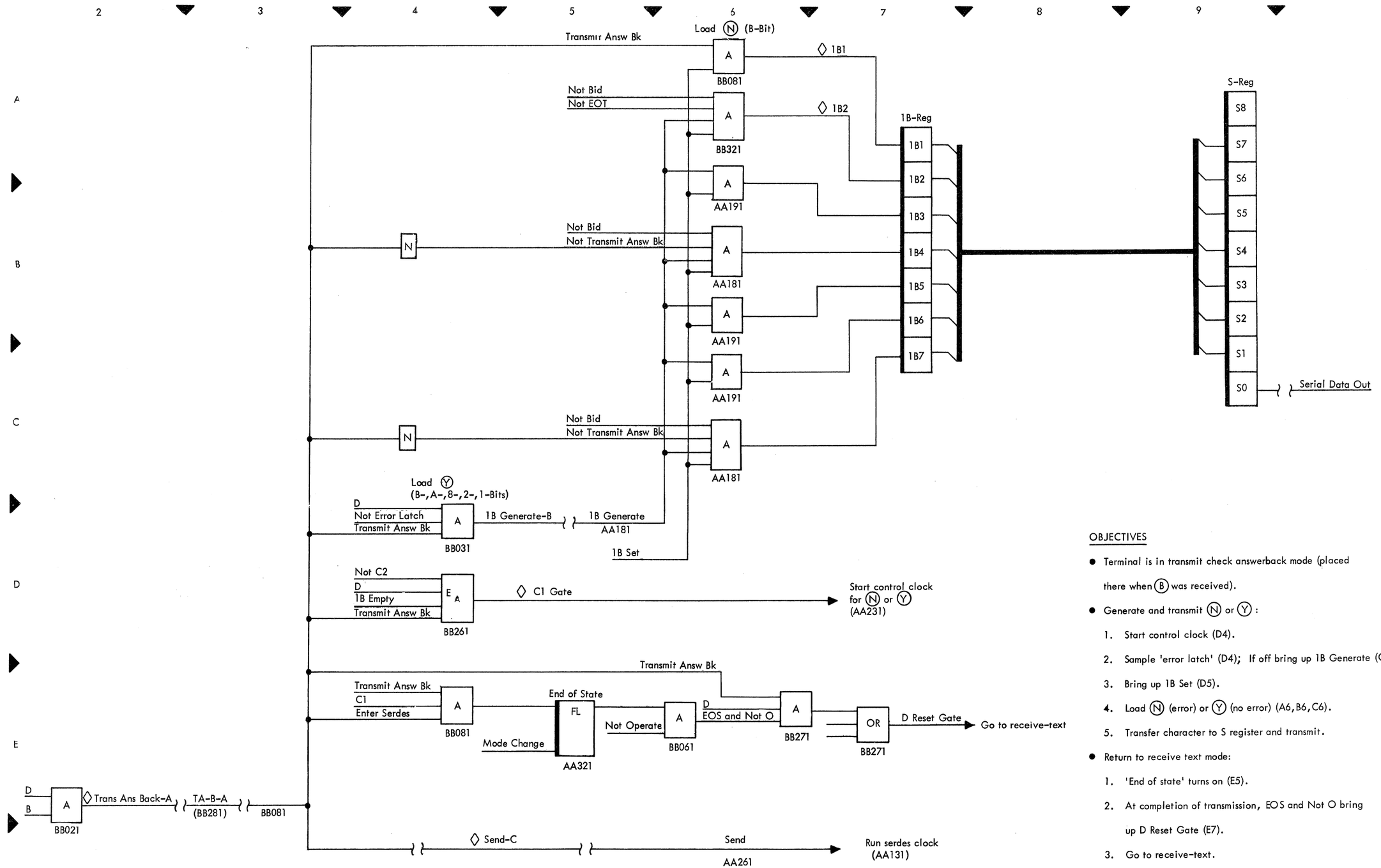
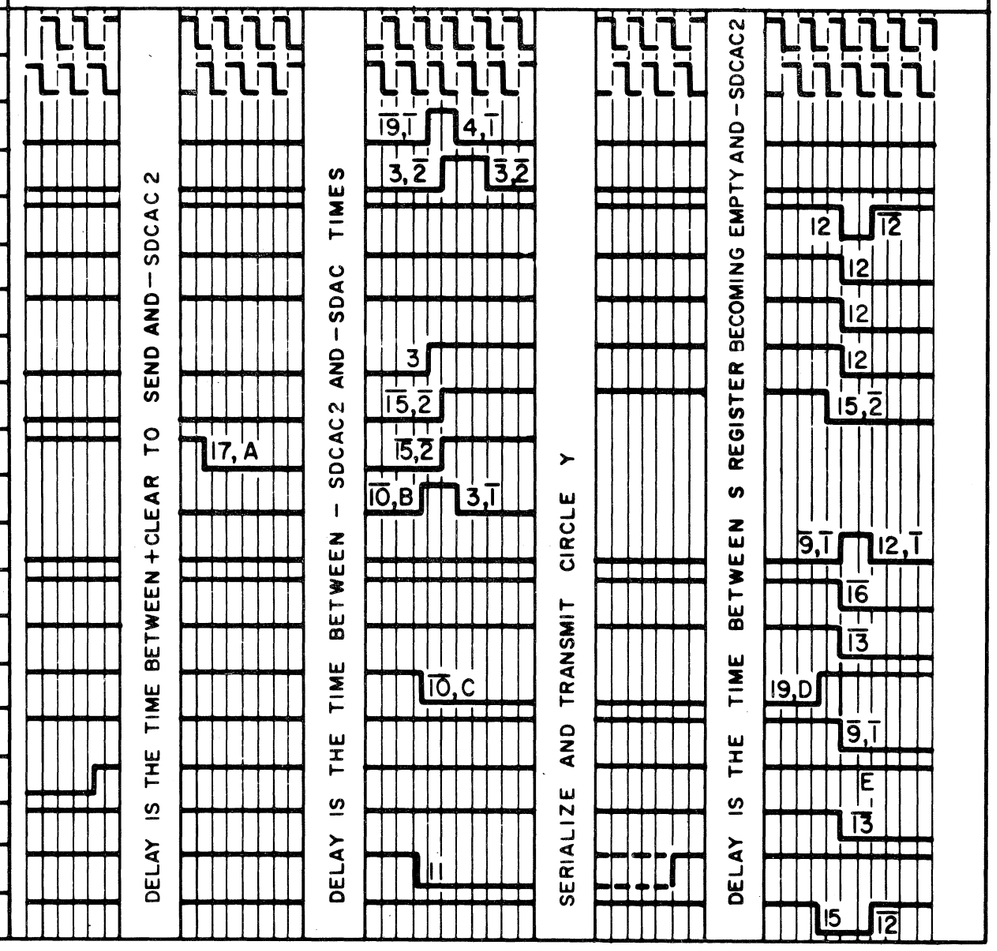


Figure IOP-7. Transmit Check Answerback (Sheet 1 of 2)

OBJECTIVES

- Terminal is in transmit check answerback mode (placed there when (B) was received).
- Generate and transmit (N) or (Y):
  1. Start control clock (D4).
  2. Sample 'error latch' (D4); If off bring up 1B Generate (C5).
  3. Bring up 1B Set (D5).
  4. Load (N) (error) or (Y) (no error) (A6,B6,C6).
  5. Transfer character to S register and transmit.
- Return to receive text mode:
  1. 'End of state' turns on (E5).
  2. At completion of transmission, EOS and Not O bring up D Reset Gate (E7).
  3. Go to receive-text.

NO.	SIGNAL NAME	SP	LOGIC
1	-CC1	F1B07	AA051
2	-CC2	F1D04	AA051
3	+C1	H2G04	AA071
4	+C2	H2G07	AA071
5	-IB RESET	D6J09	AA231
6	+IB FULL	D4B04	AA191
7	+CIRCLE Y	F3D04	BB261
8	+END OF STATE	F6D11	AA321
9	+OPERATE	J6J11	AA141
10	-ENTER SERDES GATE	G2D06	AA131
11	+ENTER SERDES	D6J12	AA231
12	+MODE CHANGE	E4J02	AA211
13	+TRANS ANS BACK	C3D12	BB081
14	+SEND	C2G07	AA261
15	+S REGISTER EMPTY	G2B03	AA131
16	+D	A1B13	BB271
17	+CLEAR TO SEND	G2B13	AA131
18	+IB GENERATE	E6B12	AA181
19	+SO	H4G07	AA031
20	-S REGISTER RESTORE	D6D09	AA231



TRANSMIT A (Y) IN TRANSMIT CHECK ANSWER BACK, AND CHANGE MODES TO RECEIVE TEXT.

A. -ENTER SERDES GATE IS SET BY -SDAC 2.
B. +ENTER SERDES IS SET BY -SDAC.
C. +S REGISTER EMPTY IS SET BY -SDAC.
D. +S REGISTER EMPTY IS SET BY -SDCAC2
E. -SEND WILL CAUSE CLEAR TO SEND TO FALL BUT IT WILL BE DELAYED.

Figure IOP-7. Transmit Check Answerback (Sheet 2 of 2)

OBJECTIVES
- Receive (C):
  1. Receive and recognize (C) (A4).
  2. Bring up Set Control Receive (B5).
- Receive (S):
  1. Receive and recognize (S) (C4).
  2. Bring up A Reset Gate--control address mode (D6).
- Receive Terminal Address:
  1. Recognize address character--station (G4)--Group (F4)--All Call (C4).
  2. Bring up F Set Gate--control-address/selected mode (G6, F6, D6).
- If all -call or group address determine if master or slave:
  1. Bring up B Reset Gate if jumpered for slave (E6).
- Receive Space:
  1. Receive and recognize Space (H4).
  2. Bring up A Set Gate if master--Transmit status answerback (H6).
  3. Bring up E Set Gate if slave--control selected slave mode (G6).
- Receive (D) after positive answerback:
  1. Receive and recognize (D) (I4).
  2. Bring up F Reset Gate--receive text mode (I6).

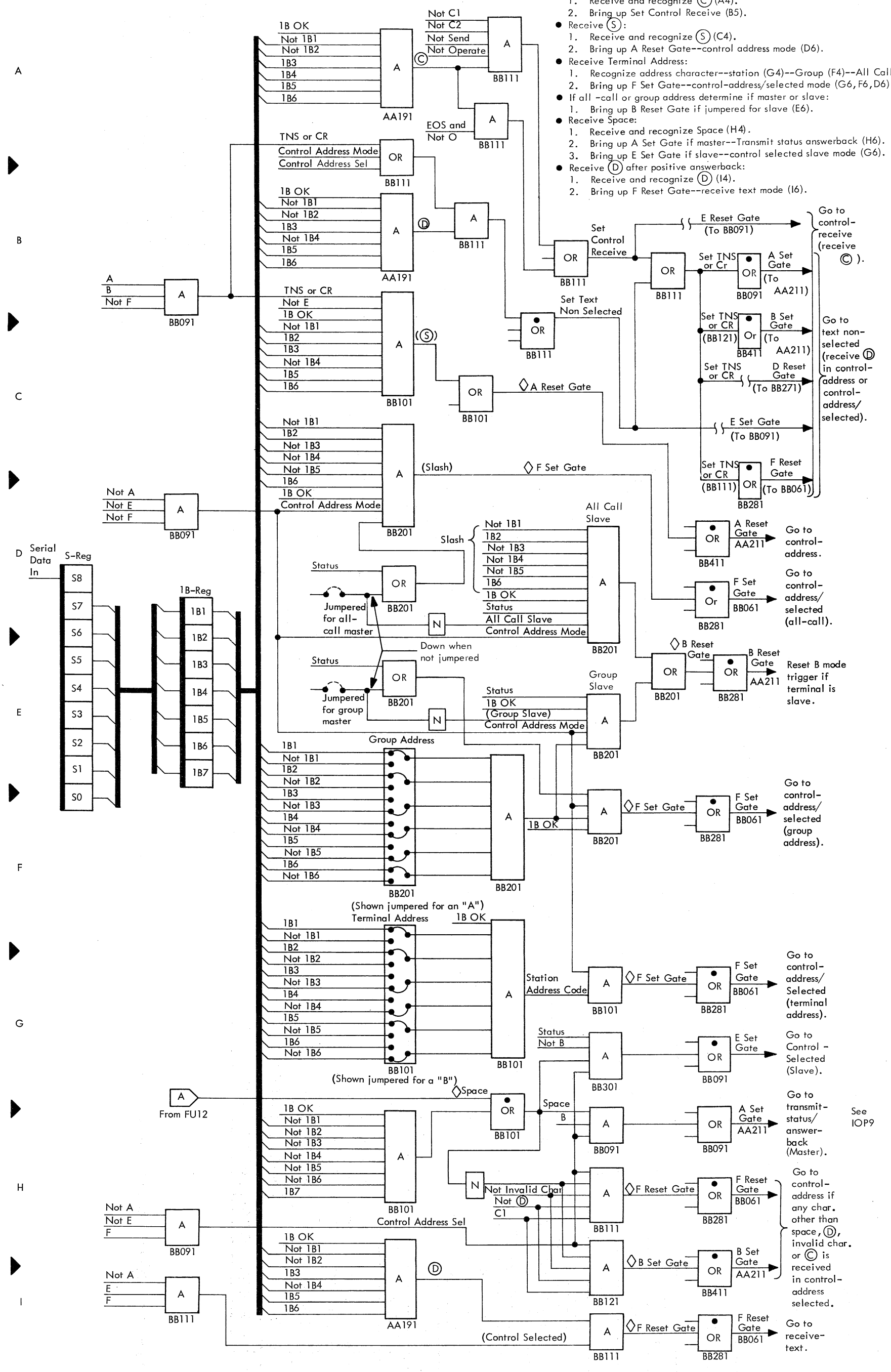
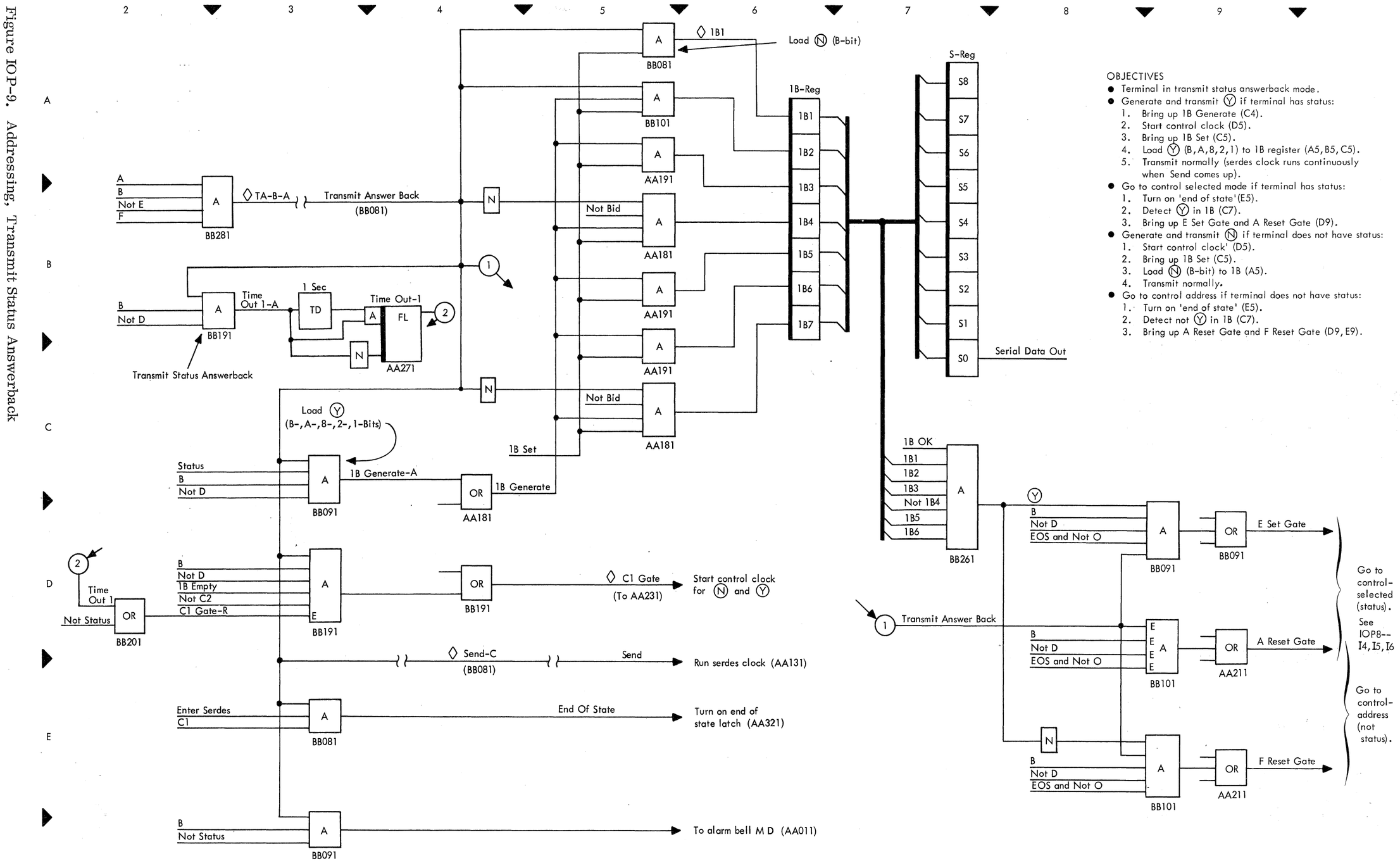


Figure IOP-8. Receive Addressing Character Sequence (Master or Slave)

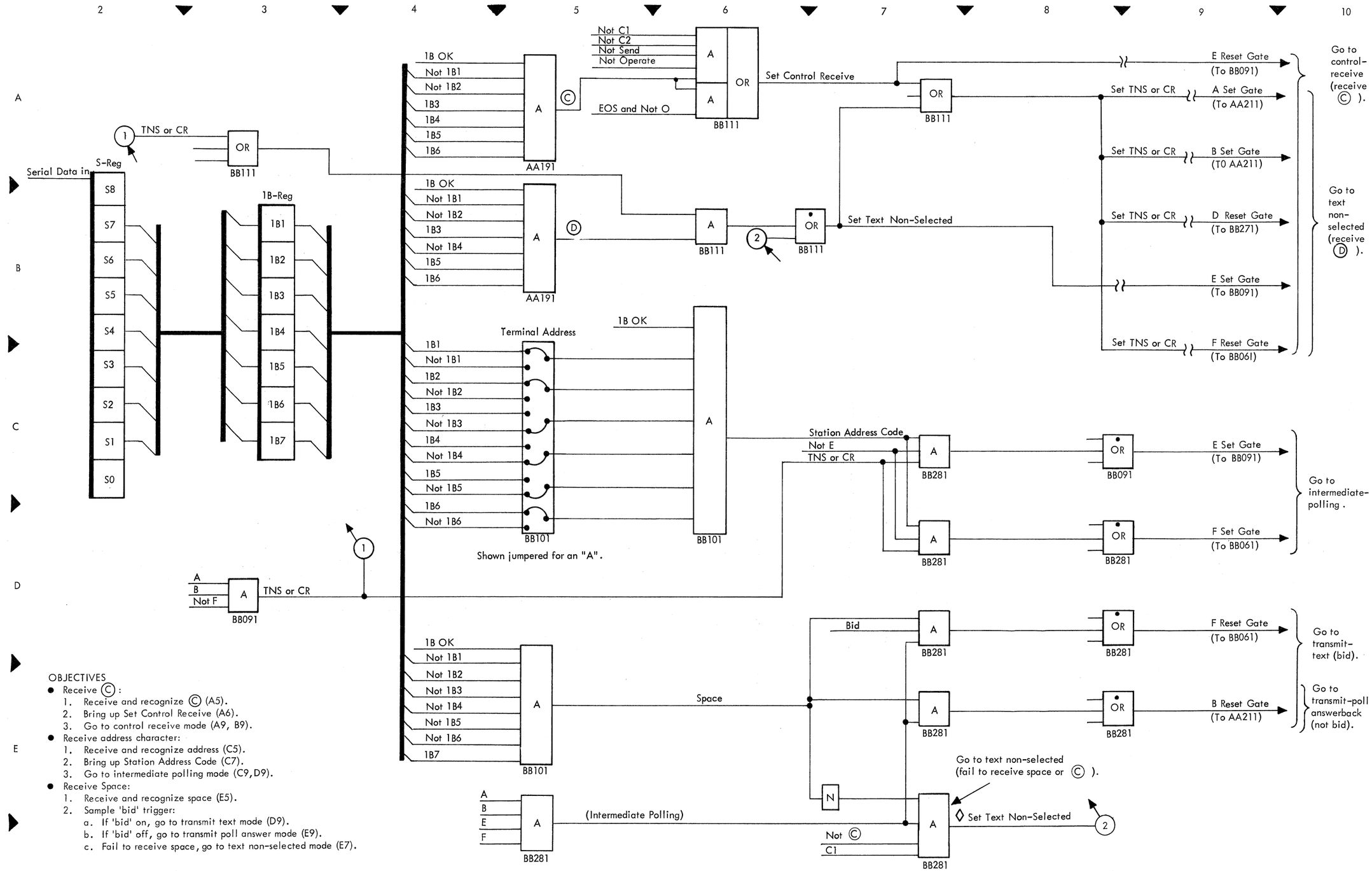


OBJECTIVES

- Terminal in transmit status answerback mode.
- Generate and transmit Ⓨ if terminal has status:
  1. Bring up 1B Generate (C4).
  2. Start control clock (D5).
  3. Bring up 1B Set (C5).
  4. Load Ⓨ (B,A,8,2,1) to 1B register (A5,B5,C5).
  5. Transmit normally (serdes clock runs continuously when Send comes up).
- Go to control selected mode if terminal has status:
  1. Turn on 'end of state'(E5).
  2. Detect Ⓨ in 1B (C7).
  3. Bring up E Set Gate and A Reset Gate (D9).
- Generate and transmit Ⓝ if terminal does not have status:
  1. Start control clock' (D5).
  2. Bring up 1B Set (C5).
  3. Load Ⓝ (B-bit) to 1B (A5).
  4. Transmit normally.
- Go to control address if terminal does not have status:
  1. Turn on 'end of state' (E5).
  2. Detect not Ⓨ in 1B (C7).
  3. Bring up A Reset Gate and F Reset Gate (D9, E9).

Figure IOP-9. Addressing, Transmit Status Answerback

Figure IOP-10. Receive Polling Character Sequence



OBJECTIVES

- Receive Ⓒ :
  1. Receive and recognize Ⓒ (A5).
  2. Bring up Set Control Receive (A6).
  3. Go to control receive mode (A9, B9).
- Receive address character:
  1. Receive and recognize address (C5).
  2. Bring up Station Address Code (C7).
  3. Go to intermediate polling mode (C9,D9).
- Receive Space:
  1. Receive and recognize space (E5).
  2. Sample 'bid' trigger:
     a. If 'bid' on, go to transmit text mode (D9).
     b. If 'bid' off, go to transmit poll answer mode (E9).
     c. Fail to receive space, go to text non-selected mode (E7).

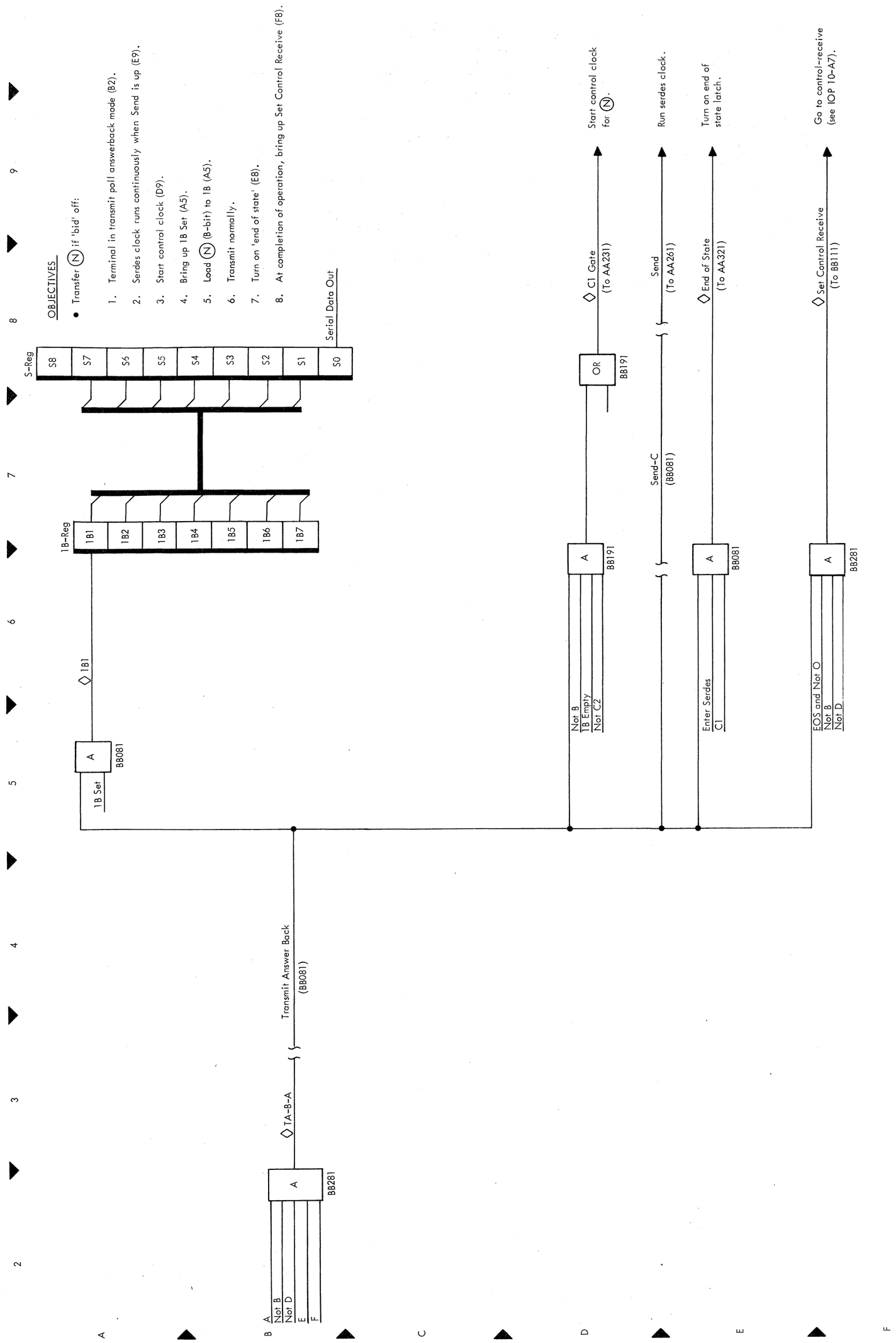


Figure IOP-11. Polling, Transmit Poll Answerback

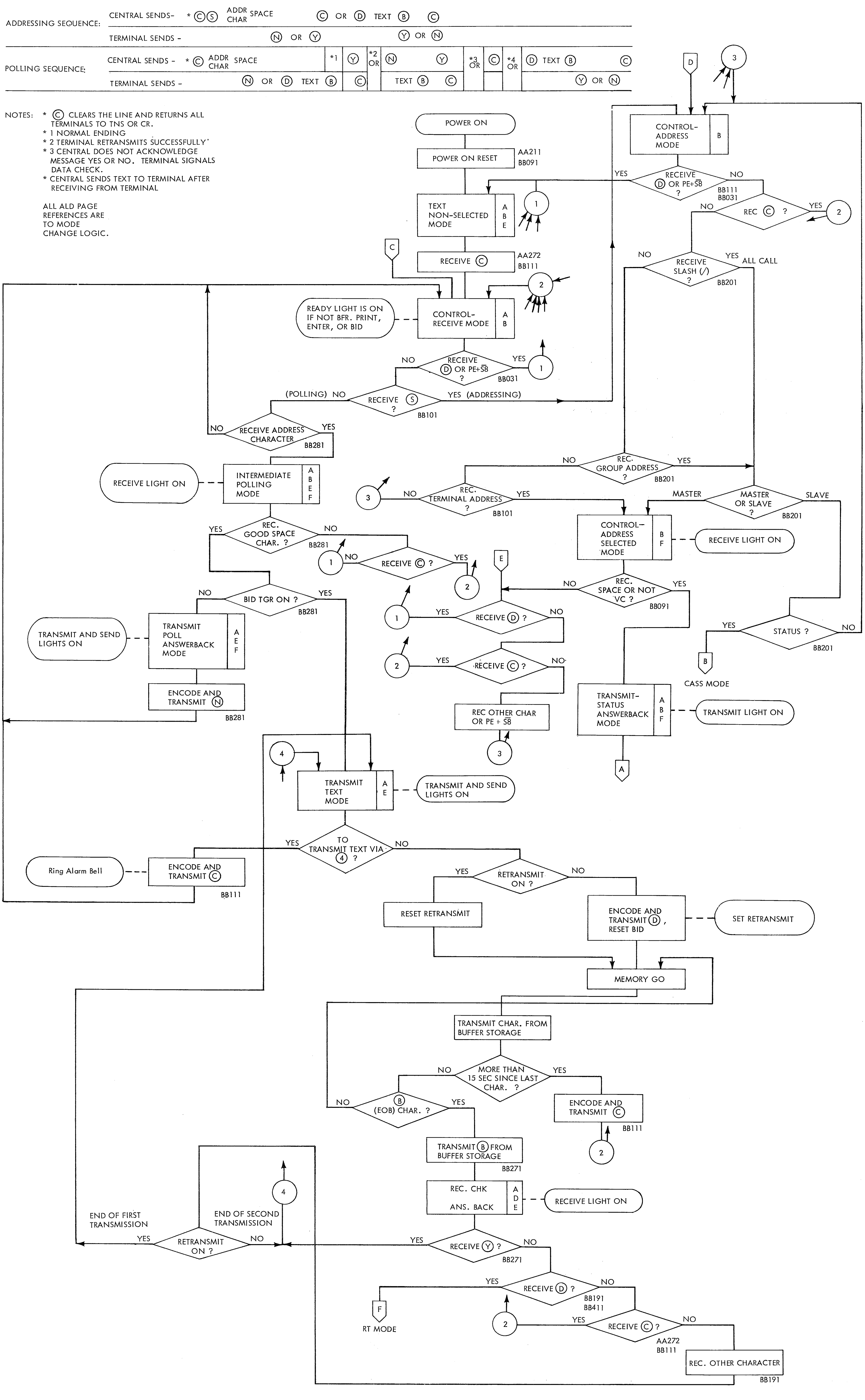
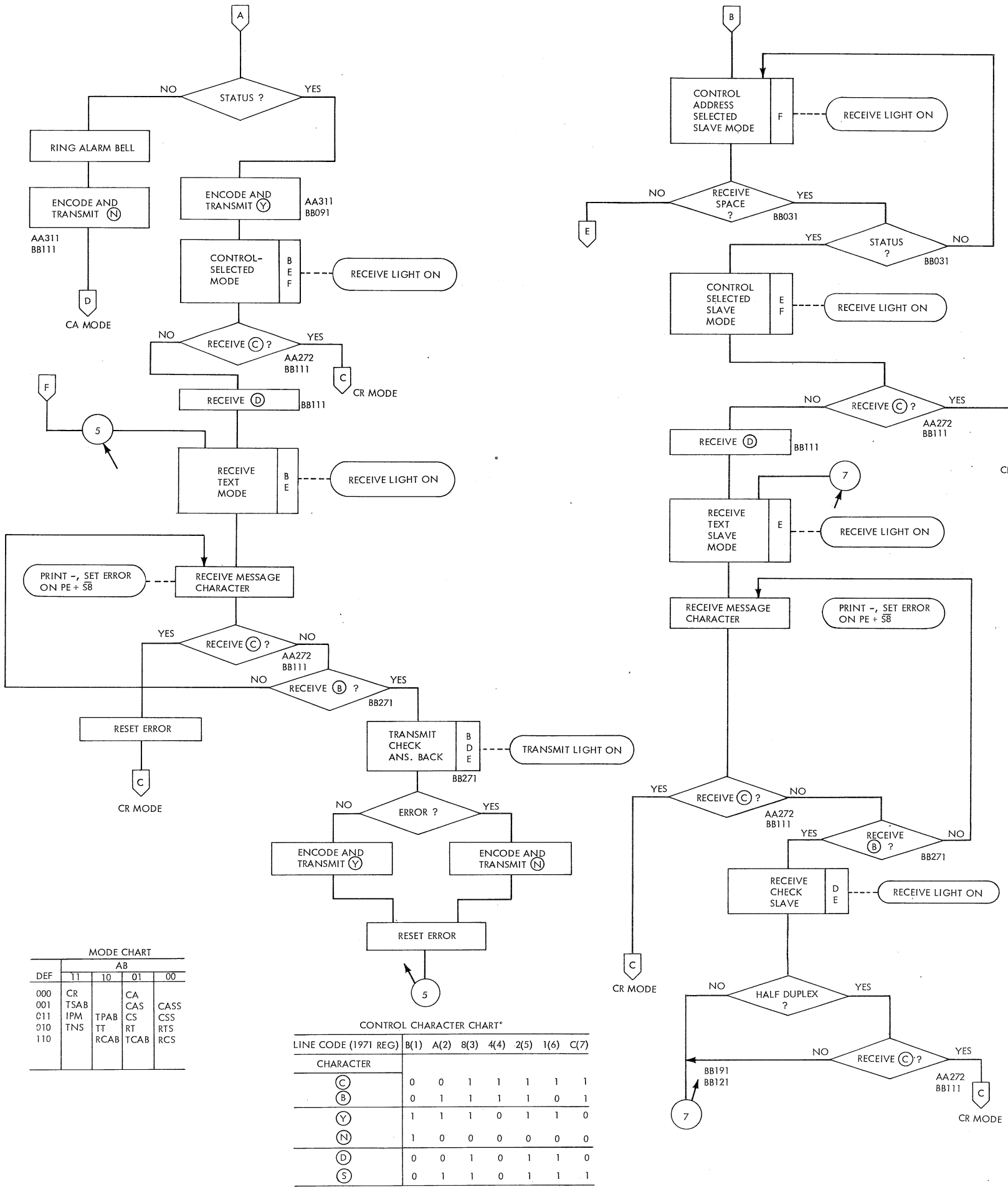


Figure IOP-12. Mode Control (Sheet 1 of 4)



MODE CHART

DEF	AB 11	10	01	00
000	CR		CA	
001	TSAB		CAS	CASS
011	IPM	TPAB	CS	CSS
010	TNS	TT	RT	RTS
110		RCAB	TCAB	RCS

CONTROL CHARACTER CHART*

LINE CODE (1971 REG)	B(1)	A(2)	8(3)	4(4)	2(5)	1(6)	C(7)
CHARACTER							
(C)	0	0	1	1	1	1	1
(B)	0	1	1	1	1	0	1
(Y)	1	1	1	0	1	1	0
(N)	1	0	0	0	0	0	0
(D)	0	0	1	0	1	1	0
(S)	0	1	1	0	1	1	1

Figure IOP-12. Mode Control (Sheet 2 of 4)

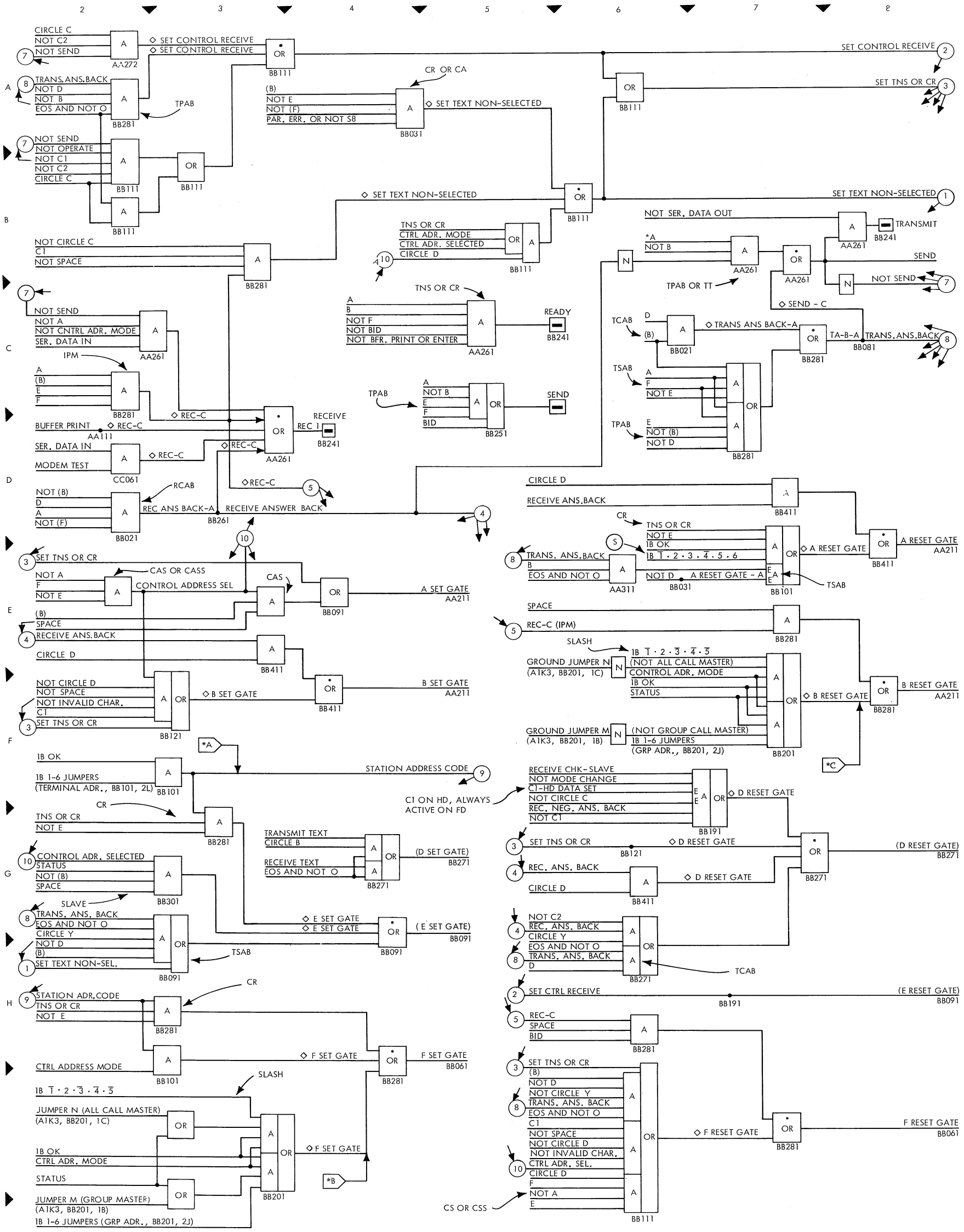
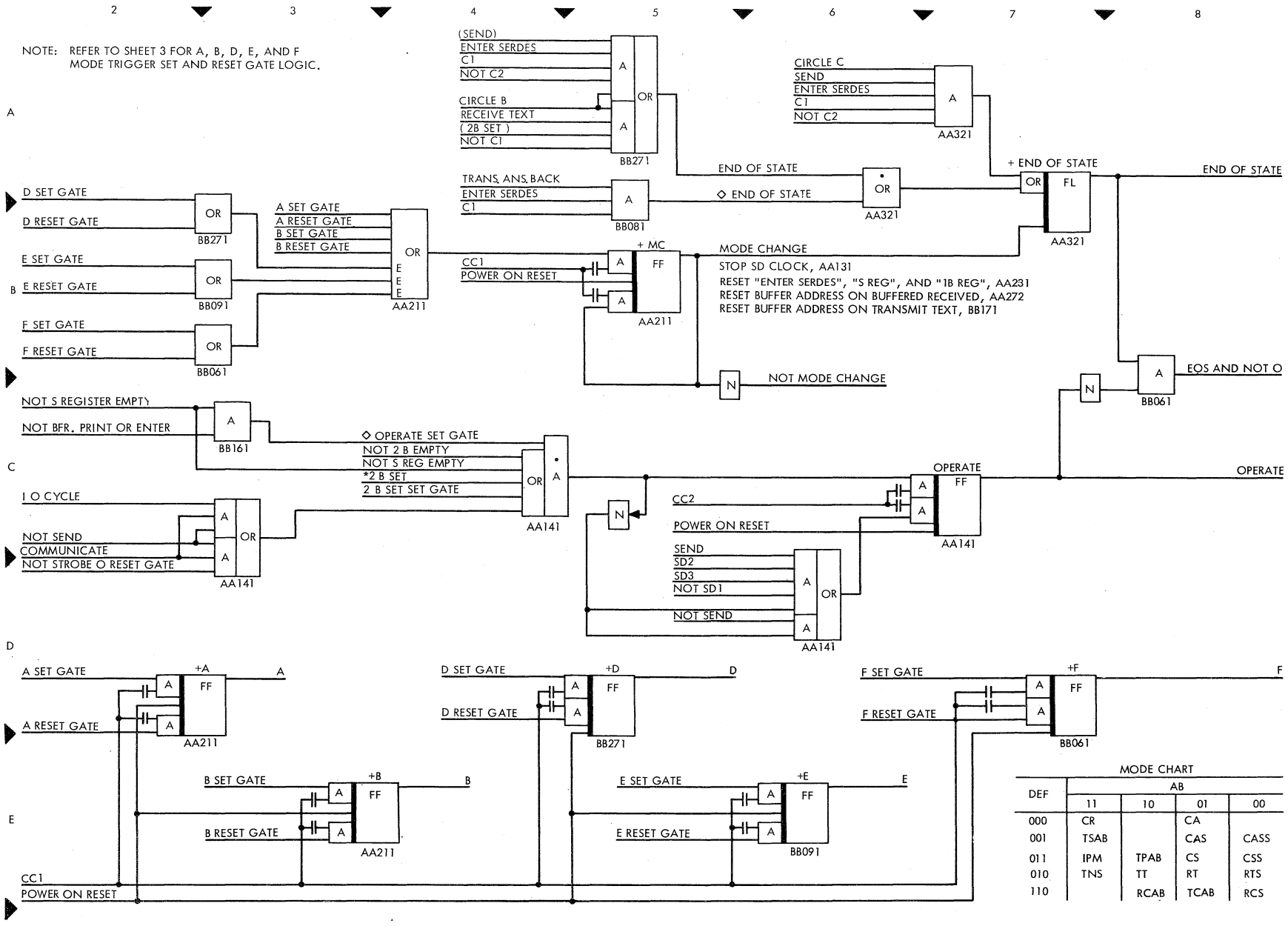
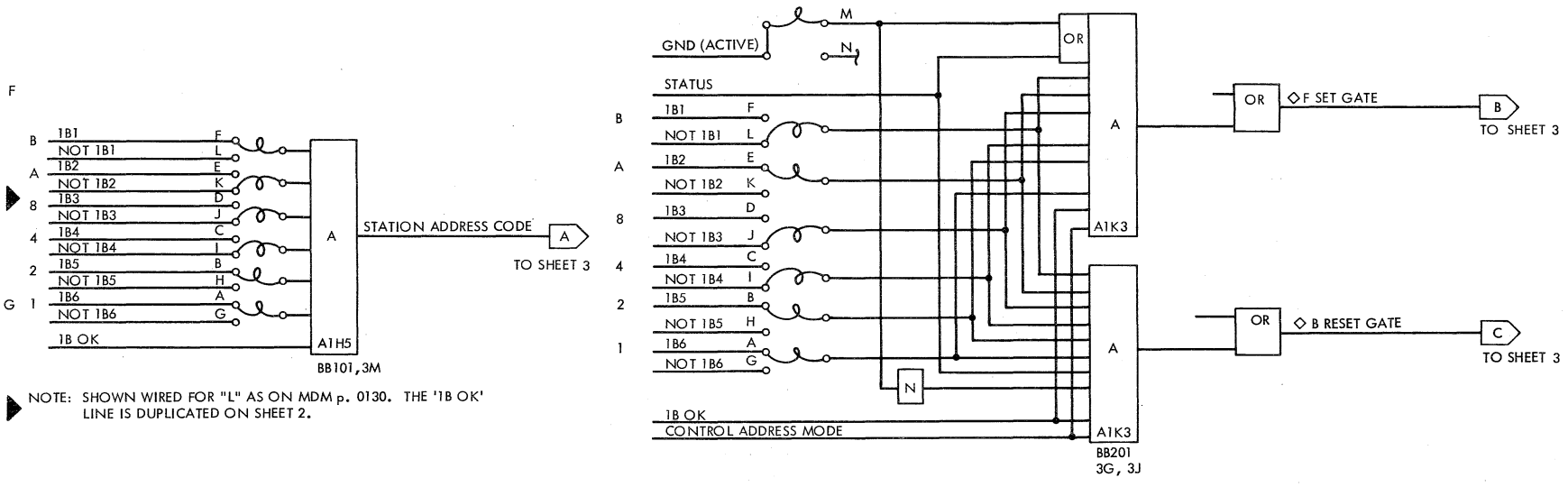


Figure IOP-12. Mode Control (Sheet 3 of 4)





H OBJECTIVES:

1. SET END OF STATE (IF NEEDED) (SHEET 4, A7)
2. TURN OFF OPERATE TGR AT END OF OPERATION (SHEET 4, C6)
3. BRING UP MODE TRIGGER SET OR RESET GATE (S) (SHEET 3)
4. TURN ON MODE CHANGE TGR (SHEET 4, B5) AND CHANGE MODE TRIGGERS (SHEET 4)
5. RESET END OF STATE (SHEET 4, B7), TURN OFF MODE CHANGE TGR (SHEET 4, B5)

POSSIBLE MODE CHANGES IN ORDER OF POSSIBLE OCCURENCE STARTING FROM TNS:

(MODE ABBREVIATIONS -- TNS - TEXT NON-SELECTED
CR - CONTROL RECEIVE
IPM - INTERMEDIATE POLLING MODE
TPAB - TRANSMIT POLL ANSWER BACK
TT - TRANSMIT TEXT
RCAB - RECEIVE CHECK ANSWERBACK
CA - CONTROL ADDRESSS
CAS - CONTROL ADDRESS SELECTED
CASS - CONTROL ADDRESS SELECTED SLAVE
TSAB - TRANSMIT STATUS ANSWERBACK
CS - CONTROL SELECTED
CSS - CONTROL SELECTED SLAVE
RT - RECEIVE TEXT
RTS - RECEIVE TEXT SLAVE
TCAB - TRANSMIT CHECK ANSWERBACK
RCS - RECEIVE CHECK SLAVE)

NOTE: ALL REFERENCES TO COORDINATES ARE ON SHEET 3, EXCEPT AS NOTED. EACH MODE IS FOLLOWED BY THE MODE TRIGGER CONFIGURATION IN PARENTHESES.

	FROM	TO	CAUSE	EOS?	COORDINATES
READY	TNS (ABE)	CR (AB)	RECEIVE Ⓒ (EOT)		A2
	CR (AB)	IPM (ABEF)	RECEIVE ADDRESS CHAR.		F3, G3, H3
	CR (AB)	TNS (ABE)	RECEIVE Ⓓ (START TEXT)		B5
	CR (AB)	TNS (ABE)	RECEIVE PAR. ERROR OR S8		A4
TRANSMIT SETUP	IPM (ABEF)	TPAB (AEF)	RECEIVE SPACE WITH BID OFF		E7
	TPAB (AEF)	CR (AB)	SEND Ⓝ (NEGATIVE)	YES	A2
	IPM (ABEF)	TNS (ABE)	RECEIVE NOT SPACE OR PE OR NOT S8		B3
	IPM (ABEF)	CR (AB)	RECEIVE Ⓒ		
TRANSMIT	IPM (ABEF)	TT (AE)	RECEIVE SPACE WITH BID ON		E7, H6
	TT (AE)	CR (AB)	15 SEC T-O, SEND Ⓒ (EOT)	YES	(4, A7), (3, B2)
	TT (AE)	RCAB (ADE)	SEND B (END TEXT)	YES	G4
	RCAB (ADE)	CR (AB)	RECEIVE Ⓒ (EOT)		A2
	RCAB (ADE)	RT (BE)	RECEIVE Ⓓ (START TEXT)		G6, D7, E3
	RCAB (ADE)	TT (AE)	RECEIVE Ⓨ (AFFIRMATIVE)		G6
	RCAB (ADE)	TT (AE)	REC. NEG. ANSBK. (NOT Ⓨ, Ⓓ, Ⓒ)		F7
	TT (AE)	CR (AB)	SEND Ⓒ (EOT)	YES	(4, A7), (3, B2)

	FROM	TO	CAUSE	EOS?	COORDINATES
RECEIVE SETUP	CR (AB)	CA (B)	RECEIVE Ⓢ		D7
	CA (B)	CR (AB)	RECEIVE Ⓒ		A2
	CA (B)	TNS (ABE)	RECEIVE Ⓓ		B5
	CA (B)	TNS (ABE)	REC. PAR. ERROR OR NOT S8		A4
	CA (B)	CAS (BF)	RECEIVE ADDRESS CHAR.		H2
	CA (B)	CASS (F)	RECEIVE ADDRESS CHAR.		H2, E7, F7
	CAS (BF)	CA (B)	RECEIVE PE OR NOT S8, OR REC.		16
	CASS (F)	CA (B)	VC THAT IS NOT Ⓒ, Ⓓ, OR SPACE		16, F2
	CAS (BF)	CR (AB)	RECEIVE Ⓒ		A2
	CASS (F)	CR (AB)	RECEIVE Ⓒ		A2
	CAS (BF)	TNS (ABE)	RECEIVE Ⓓ		B5
	CASS (F)	TNS (ABE)	RECEIVE Ⓓ		B5
RECEIVE-MASTER	CAS (BF)	TSAB (ABF)	RECEIVE SPACE OR NOT VC		E3
	TSAB (ABF)	CA (B)	NOT STATUS, SEND Ⓝ	YES	E7, 16
	TSAB (ABF)	CS (BEF)	STATUS, SEND Ⓨ	YES	E3, G2
	CS (BEF)	CR (AB)	RECEIVE Ⓒ		A2
	CS (BEF)	RT (BE)	RECEIVE Ⓓ (BEGIN TEXT)		16
	RT (BE)	TCAB (BDE)	RECEIVE Ⓑ (END TEXT)	YES	G4
	TCAB (BDE)	RT (BE)	SEND Ⓨ OR Ⓝ	YES	H6
	RT (BE)	CR (AB)	RECEIVE Ⓒ		A2
RECEIVE-SLAVE	CASS (F)	CSS (EF)	RECEIVE SPACE OR NOT VC WITH STATUS		G2
	CSS (EF)	CR (AB)	RECEIVE Ⓒ		A2
	CSS (EF)	RTS (E)	RECEIVE Ⓓ (BEGIN TEXT)		16
	RTS (E)	RCS (DE)	RECEIVE Ⓑ (END TEXT)	YES	G4
	RCS (DE)	RTS (E)	FULL DUPLEX - AUTOMATIC		F6
	RCS (DE)	RTS (E)	HALF DUPLEX - RECEIVE NOT Ⓒ		F6
	RCS (DE)	CR (AB)	HALF DUPLEX - RECEIVE Ⓒ		A2
	RTS (E)	CR (AB)	RECEIVE Ⓒ		A2

Figure IOP-12. Mode Control (Sheet 4 of 4)

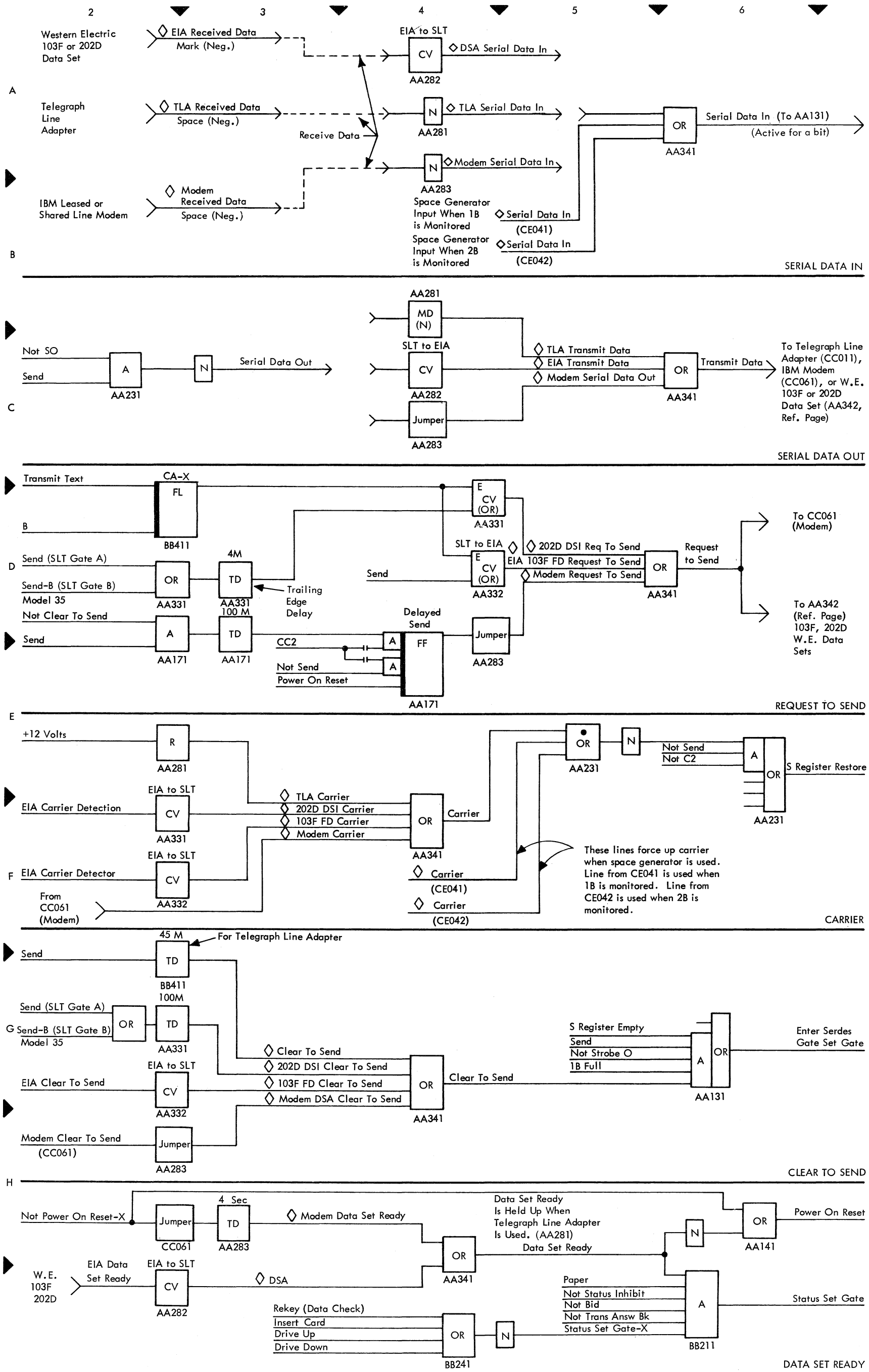


Figure IOP-13. Terminal to Line Adapter Interface (Sheet 1 of 2)

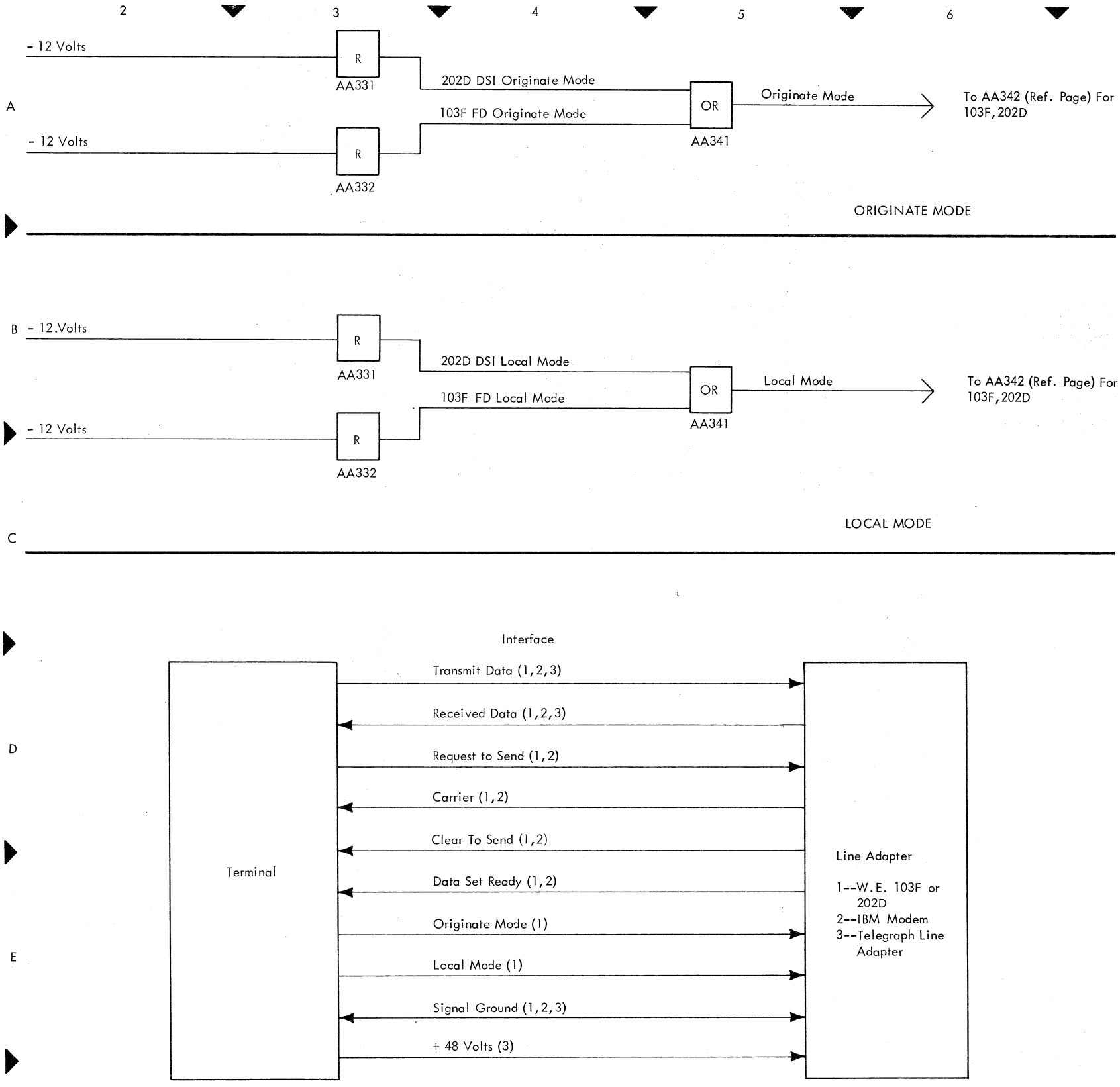
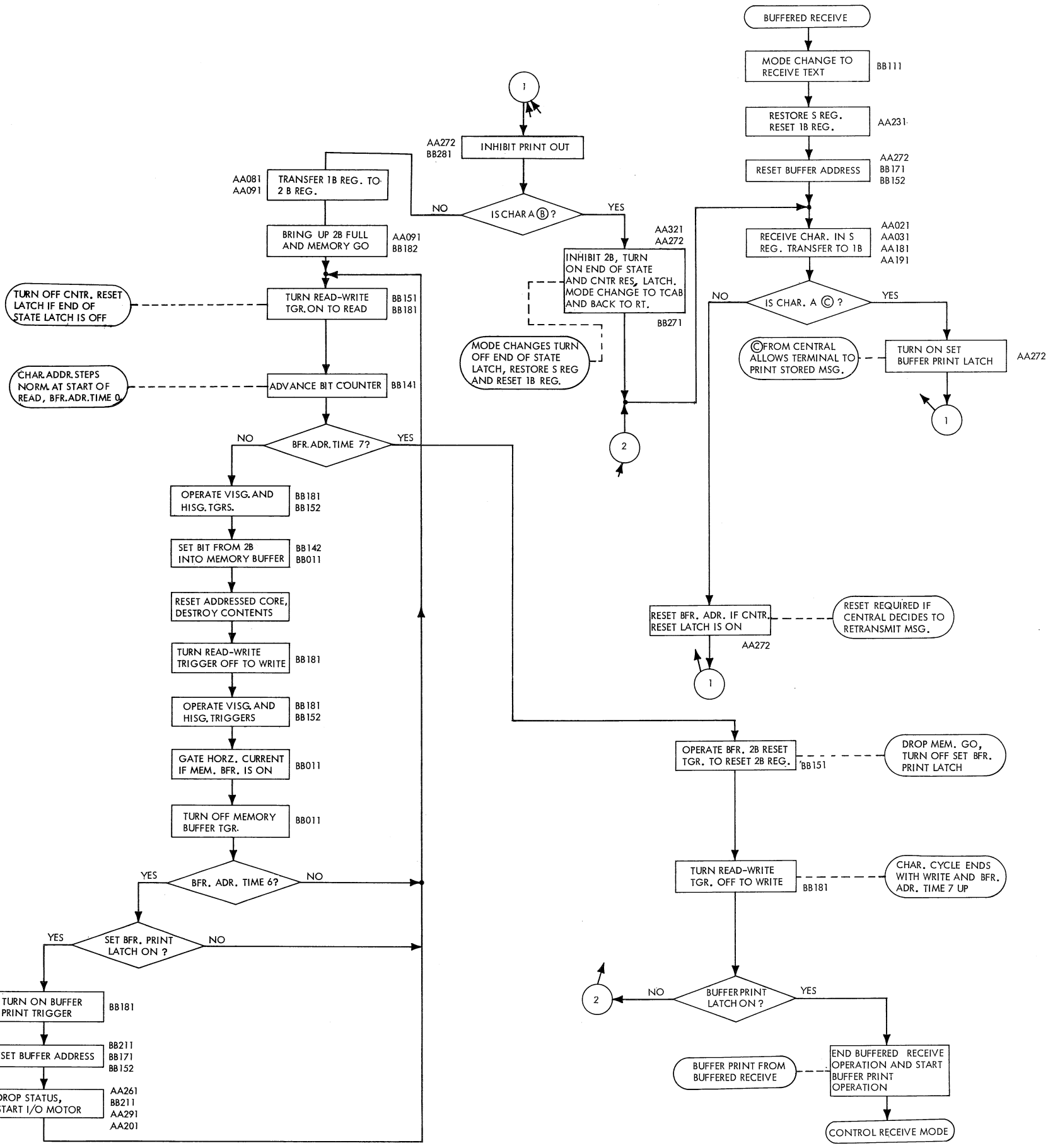


Figure IOP-13. Terminal to Line Adapter Interface (Sheet 2 of 2)



NOTE:
REFER TO IOP-6 FOR MORE DETAILED INFORMATION ON RECEIVE CIRCUITS.

Figure IOP-14. Buffered Receive (Sheet 1 of 2)

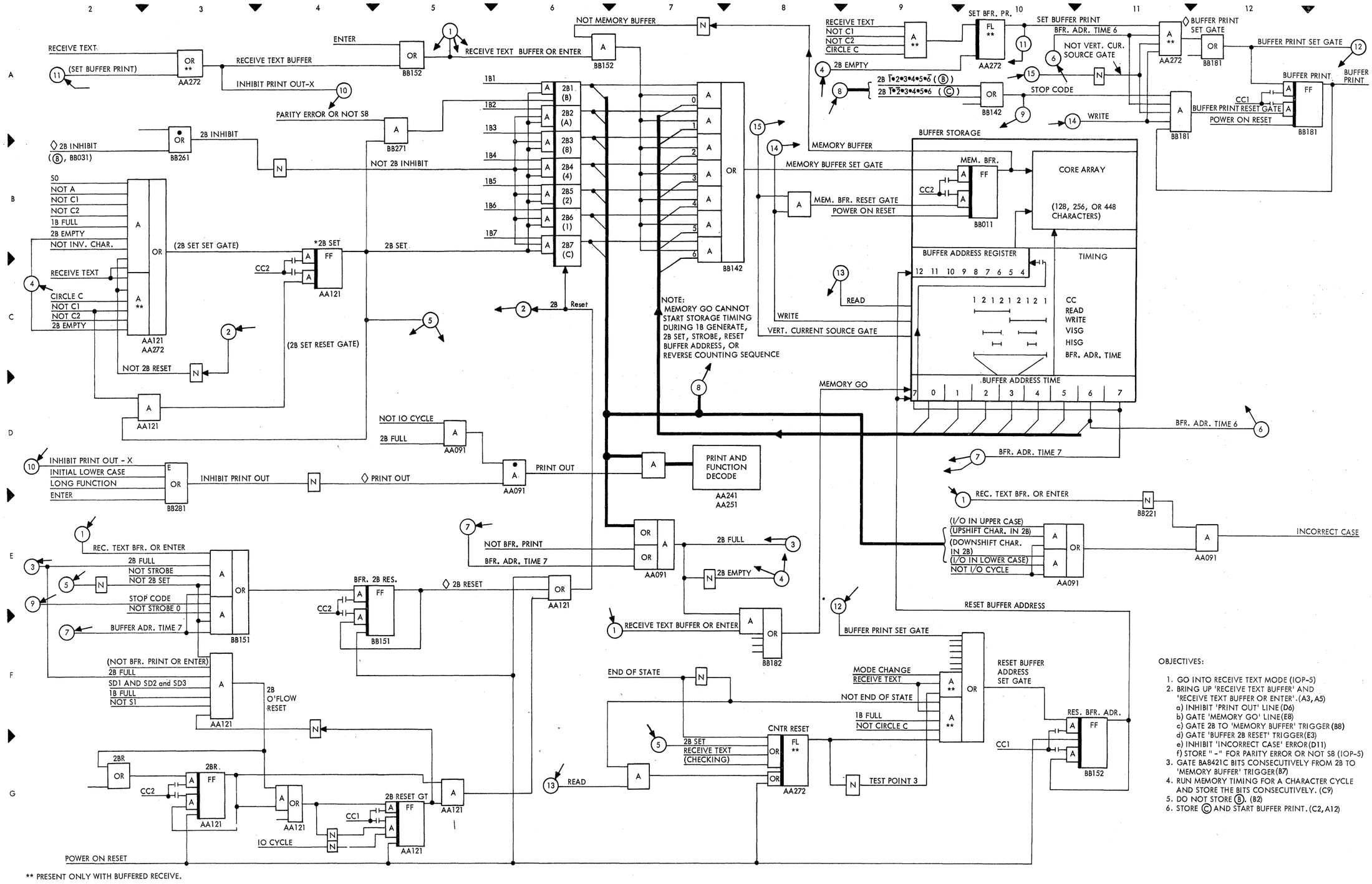


Figure IOP-14. Buffered Receive (Sheet 2 of 2)

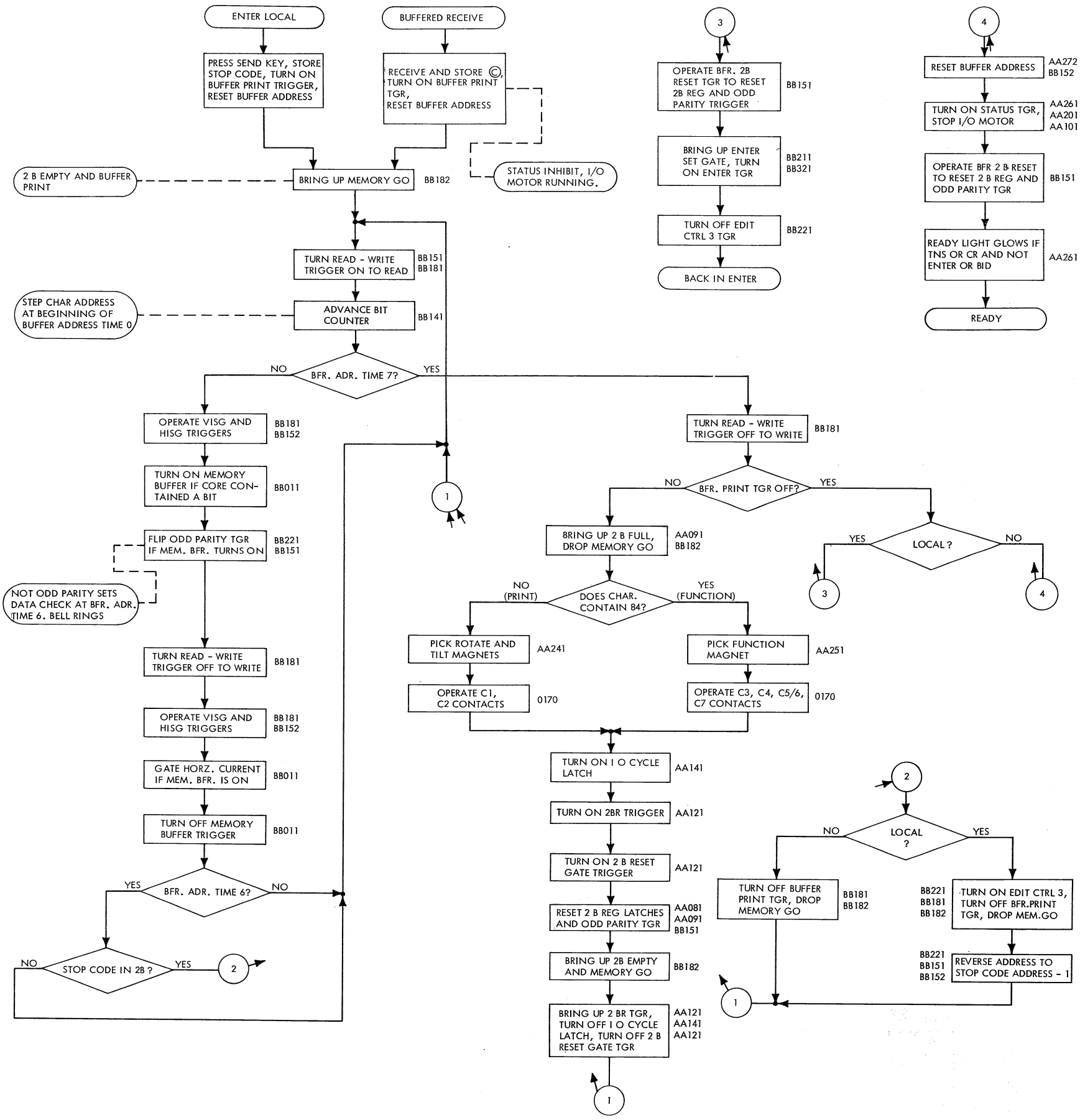
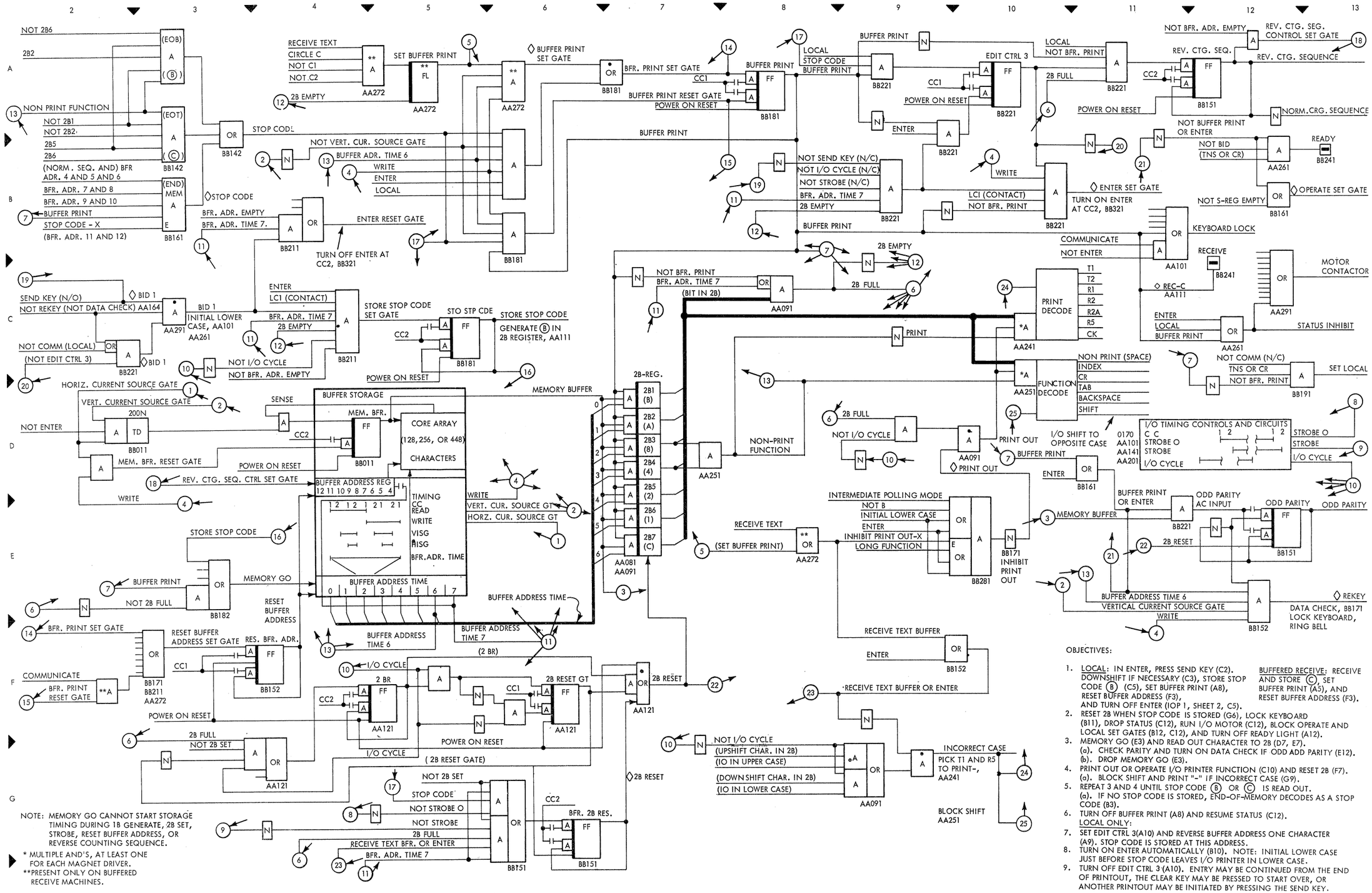


Figure IOP-15. Buffer Print (Sheet 1 of 2)

Figure IOP-15. Buffer Print (Sheet 2 of 2)



OBJECTIVES:

1. LOCAL: IN ENTER, PRESS SEND KEY (C2). DOWNSHIFT IF NECESSARY (C3), STORE STOP CODE (B) (C5), SET BUFFER PRINT (A8), RESET BUFFER ADDRESS (F3), AND TURN OFF ENTER (IOP 1, SHEET 2, C5). BUFFERED RECEIVE: RECEIVE AND STORE (C), SET BUFFER PRINT (A5), AND RESET BUFFER ADDRESS (F3).
2. RESET 2B WHEN STOP CODE IS STORED (G6), LOCK KEYBOARD (B11), DROP STATUS (C12), RUN I/O MOTOR (C12), BLOCK OPERATE AND LOCAL SET GATES (B12, C12), AND TURN OFF READY LIGHT (A12).
3. MEMORY GO (E3) AND READ OUT CHARACTER TO 2B (D7, E7).
   (a). CHECK PARITY AND TURN ON DATA CHECK IF ODD ADD PARITY (E12).
   (b). DROP MEMORY GO (E3).
4. PRINT OUT OR OPERATE I/O PRINTER FUNCTION (C10) AND RESET 2B (F7).
   (a). BLOCK SHIFT AND PRINT "-" IF INCORRECT CASE (G9).
5. REPEAT 3 AND 4 UNTIL STOP CODE (B) OR (C) IS READ OUT.
   (a). IF NO STOP CODE IS STORED, END-OF-MEMORY DECODES AS A STOP CODE (B3).
6. TURN OFF BUFFER PRINT (A8) AND RESUME STATUS (C12).
   LOCAL ONLY:
7. SET EDIT CTRL 3(A10) AND REVERSE BUFFER ADDRESS ONE CHARACTER (A9). STOP CODE IS STORED AT THIS ADDRESS.
8. TURN ON ENTER AUTOMATICALLY (B10). NOTE: INITIAL LOWER CASE JUST BEFORE STOP CODE LEAVES I/O PRINTER IN LOWER CASE.
9. TURN OFF EDIT CTRL 3 (A10). ENTRY MAY BE CONTINUED FROM THE END OF PRINTOUT, THE CLEAR KEY MAY BE PRESSED TO START OVER, OR ANOTHER PRINTOUT MAY BE INITIATED BY PRESSING THE SEND KEY.

READER'S COMMENT FORM

1971/1980 Buffered Terminal
FEMDM

Y27-0018-0

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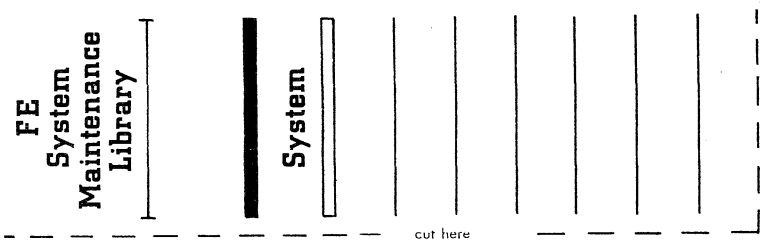

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