IBM

Customer Engineering
Intermediate
Level Diagrams

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1620 Data Processing System, Model 2

PREFACE

This manual is intended for instructional purposes. It does not replace any field machine system diagrams. The diagrams enclosed within the machine should always be used for field analysis. These diagrams are intended for use with the Customer Engineering Manual of Instruction, 1620 Data Processing System, Model 2.

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IBM / CE Supplement

System/Unit 1620 Model 2

Re: Form No. 227-5857-0

This Supplement No. S27-0500

Date April 29, 1964

Previous Supplement Nos. None

This form, S27-0500, supplements the IBM 1620 Model 2 Customer Engineering Intermediate Level Diagrams manual (Form 227-5857-0). This supplement contains changes applicable to all 1620 Model 2 machines.

The pages in the 1620 Model 2 Customer Engineering Intermediate Level Diagrams manual that have been changed can be replaced with the pages in this supplement in the following manner.

REMOVE THE FOLLOWING PAGES FROM THE MANUAL:

1. Contents Page
2. Pages 10.00.02.1 and 10.00.03.1
3. Pages 10.00.08.1 and 10.00.09.1
4. Pages 10.00.20.1 and 10.00.21.1
5. Pages 10.00.30.1 and 10.00.31.1
6. Pages 10.00.34.1 and 10.01.35.1
7. Pages 10.00.40.1 and 10.00.41.1
8. Pages 10.00.52.1 and 10.00.53.1
9. Pages 10.00.54.1 and 10.00.55.1
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12. Pages 10.01.30.1 and 10.01.31.1
13. Pages 10.01.32.1 and 10.01.35.1
14. Pages 10.01.40.1 and 10.01.41.1
15. Pages 10.01.48.1 and 10.01.49.1
16. Pages 10.01.50.1 and 10.01.51.1
17. Pages 10.01.52.1 and 10.01.53.1
18. Pages 10.01.54.1 and 10.01.55.1
19. Pages 10.01.64.1 and 10.01.66.1
20. Pages 10.01.68.1 and 10.01.70.1
21. Pages 10.01.90.1 and 10.01.91.1
22. Pages 10.01.94.1 and 10.01.95.1
23. Pages 10.01.96.1 and 10.01.97.1

INSERT THE FOLLOWING PAGES INTO THE MANUAL:

1. Contents Page
2. Pages 10.00.02.1 and 10.00.03.1
3. Pages 10.00.08.1 and 10.00.09.1
4. Pages 10.00.20.1 and 10.00.21.1
5. Pages 10.00.26.1 and 10.00.26.3
6. Pages 10.00.26.5 and 10.00.26.7
7. Pages 10.00.29.1 and Blank
8. Pages 10.00.30.1 and 10.00.31.1
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12. Pages 10.00.54.1 and 10.00.55.1
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16. Pages 10.01.30.1 and 10.01.31.1
17. Pages 10.01.32.1 and Blank
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20. Pages 10.01.50.1 and 10.01.51.1
21. Pages 10.01.52.1 and 10.01.53.1
22. Pages 10.01.54.1 and 10.01.55.1
23. Pages 10.01.64.1 and 10.01.66.1
24. Pages 10.01.68.1 and 10.01.70.1
25. Pages 10.01.75.1 and 10.01.76.1
26. Pages 10.01.77.1 and Blank
27. Pages 10.01.90.1 and 10.01.91.1
28. Pages 10.01.94.1 and 10.01.95.1
29. Pages 10.01.96.1 and 10.01.97.1

After completing the above steps, file this instruction page between the Preface page (page ii) and the new Contents page (page iii) and destroy all the leaves removed from the manual. This page will serve as a revision notice.

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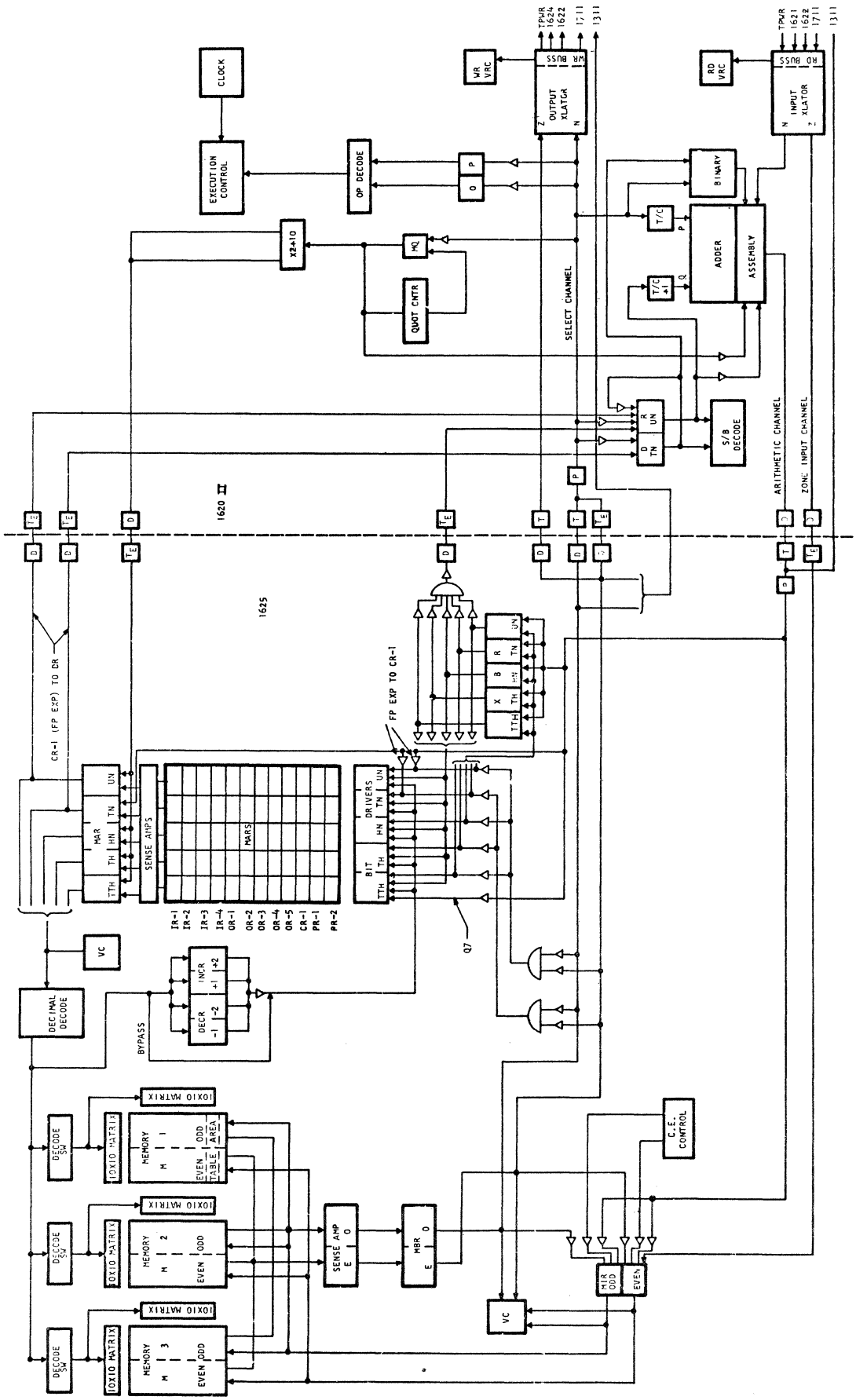
2159200 SYSTEM DIAGRAMS INDEX 1620-2 A SUFFIX REVISED THRU E/C 408563



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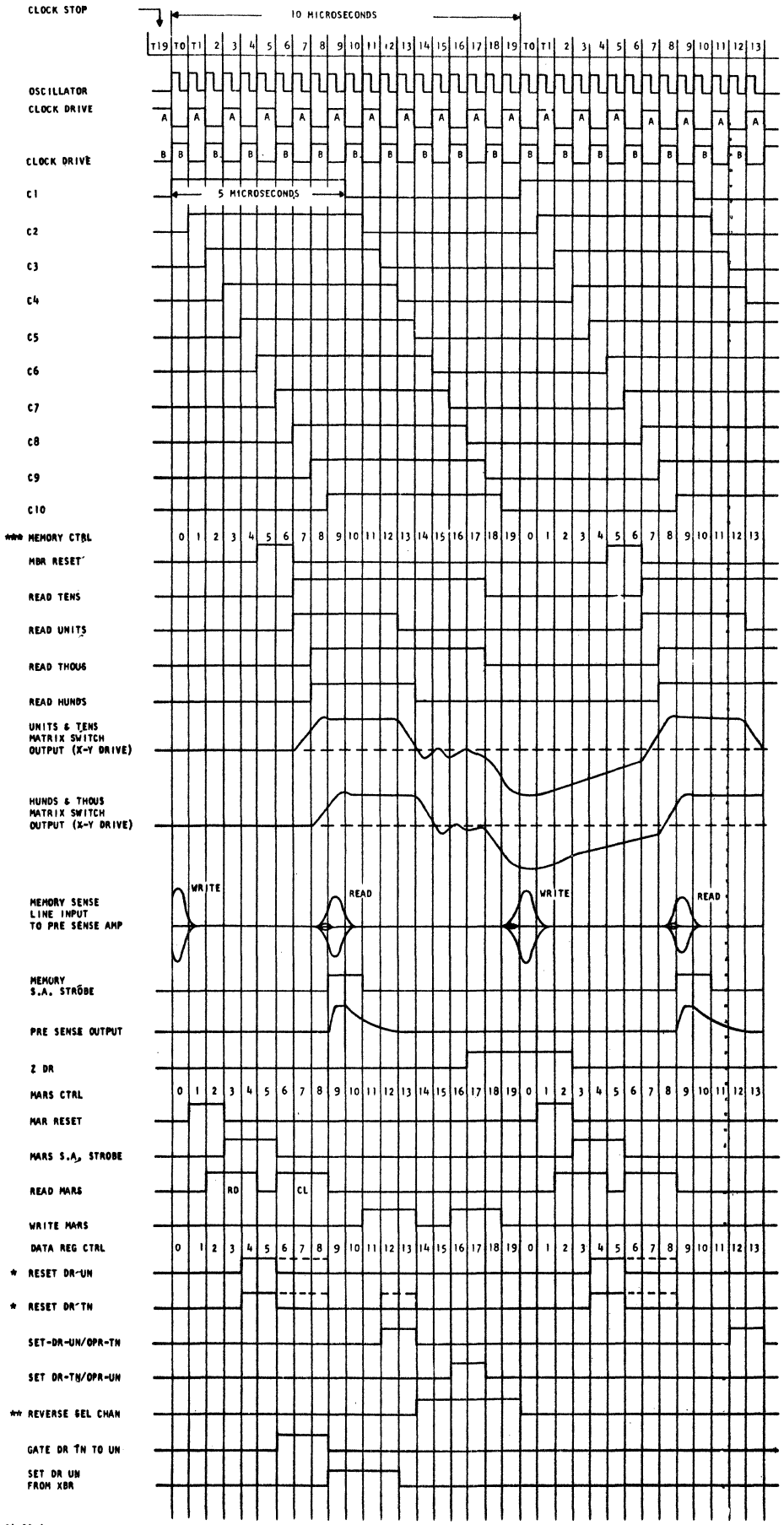
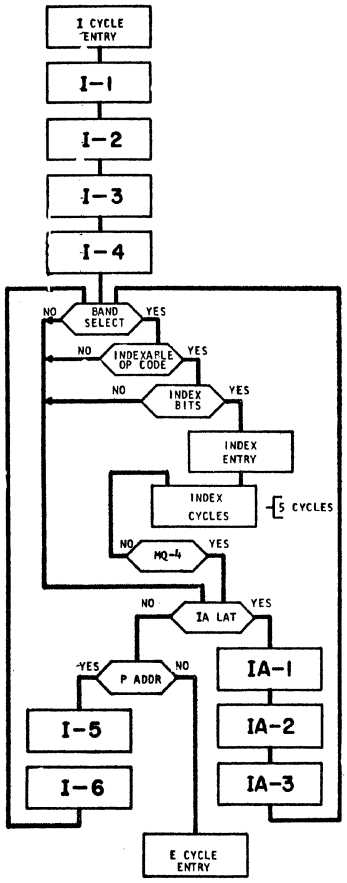


* SEE 10.01.22.1
** SEE 10.01.21.1
*** SEE CE REFERENCE MANUAL FOR TYPICAL WAVE FORMS

I CYCLES - INDEXING - IA



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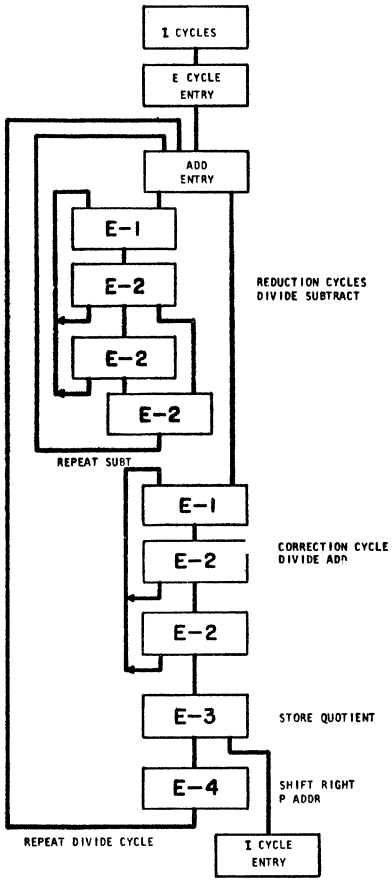
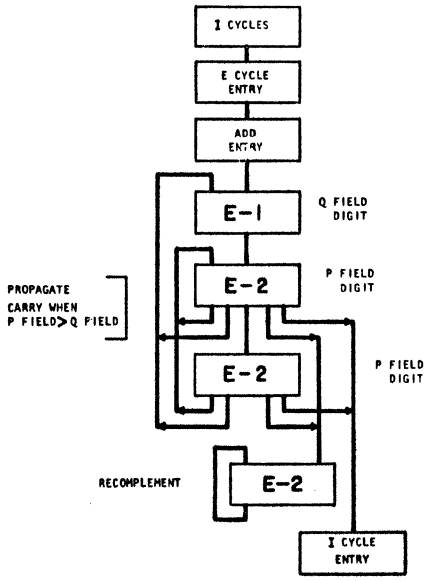


ADD - SUBTRACT - COMPARE



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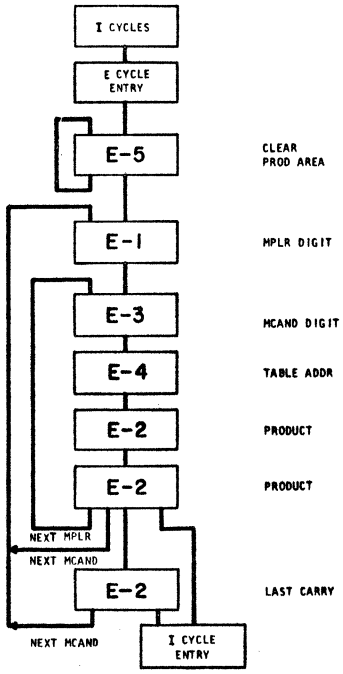
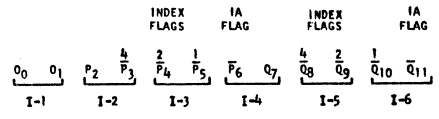


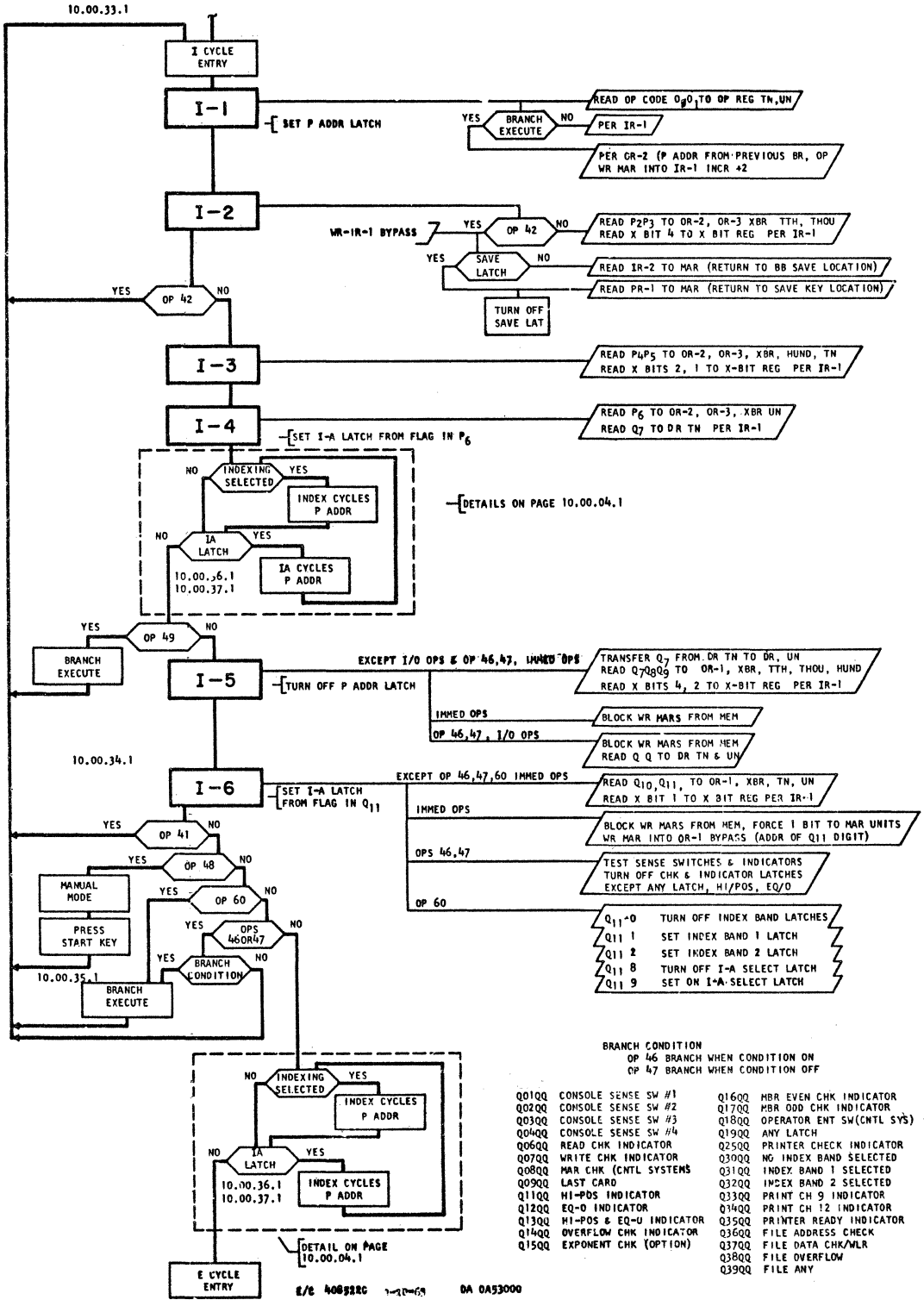


PURPOSE: STORE INSTR OP CODE, P & Q ADDR, AND FLAGS TO RESPECTIVE REGISTERS
EXECUTE THOSE OP CODES NOT REQUIRING E CYCLE
PERFORM INDEXING AND INDIRECT ADDRESSING

OP CODES EXECUTED ON I CYCLES

NON-BRANCH CODES	NOP	41	0 0 0 0 0	0 0 0 0 0 P & Q READ OUT BUT NOT USED
	H	48	0 0 0 0 0	0 0 0 0 0 P & Q READ OUT BUT NOT USED
UNCONDITIONAL BRANCH	BB	42	X X X X X	X X X X X P & Q NOT READ OUT
	B	49	P P P P P	X X X X X Q NOT READ OUT
	BS	60	P P P P P	0 0 0 0 Q_{11}
CONDITIONAL BRANCH	BI	46	P P P P P	X Q_8Q_9X X Q_8Q_9 SENSE CODES 01-19
	BNI	47	P P P P P	X Q_8Q_9X X Q_8Q_9 SENSE CODES 01-19

FUNCTION CHART	PAGE REF
I CYCLES I ENTRY I-1	10.00.30.1
I CYCLES I-2 → I-5	10.00.31.1
I CYCLES I-6	10.00.32.1
11-15 BRANCH	10.00.33.1
16 BRANCH	10.00.34.1
BRANCH EXEC	10.00.35.1
INDIRECT ADDR	10.00.36.1
	10.00.37.1
11-14 XBR LOAD	10.00.40.1
15-16 XBR LOAD	10.00.41.1
XBR SET & RESET	10.01.30.1



BRANCH CONDITION
OP 46 BRANCH WHEN CONDITION ON
OP 47 BRANCH WHEN CONDITION OFF

Q01QQ	CONSOLE SENSE SW #1	Q16QQ	MBR EVEN CHK INDICATOR
Q02QQ	CONSOLE SENSE SW #2	Q17QQ	MBR ODD CHK INDICATOR
Q03QQ	CONSOLE SENSE SW #3	Q18QQ	OPERATOR ENT SW(CNTL SYS)
Q04QQ	CONSOLE SENSE SW #4	Q19QQ	ANY LATCH
Q06QQ	READ CHK INDICATOR	Q25QQ	PRINTER CHECK INDICATOR
Q07QQ	WRITE CHK INDICATOR	Q30QQ	NO INDEX BAND SELECTED
Q08QQ	MAR CHK (CNTL SYSTEMS	Q31QQ	INDEX BAND 1 SELECTED
Q09QQ	LAST CARD	Q32QQ	INDEX BAND 2 SELECTED
Q11QQ	HI-POS INDICATOR	Q33QQ	PRINT CH 9 INDICATOR
Q12QQ	EQ-O INDICATOR	Q34QQ	PRINT CH 12 INDICATOR
Q13QQ	HI-POS & EQ-U INDICATOR	Q35QQ	PRINTER READY INDICATOR
Q14QQ	OVERFLOW CHK INDICATOR	Q36QQ	FILE ADDRESS CHECK
Q15QQ	EXPONENT CHK (OPTION)	Q37QQ	FILE DATA CHK/WLR
		Q38QQ	FILE OVERFLOW
		Q39QQ	FILE ANY

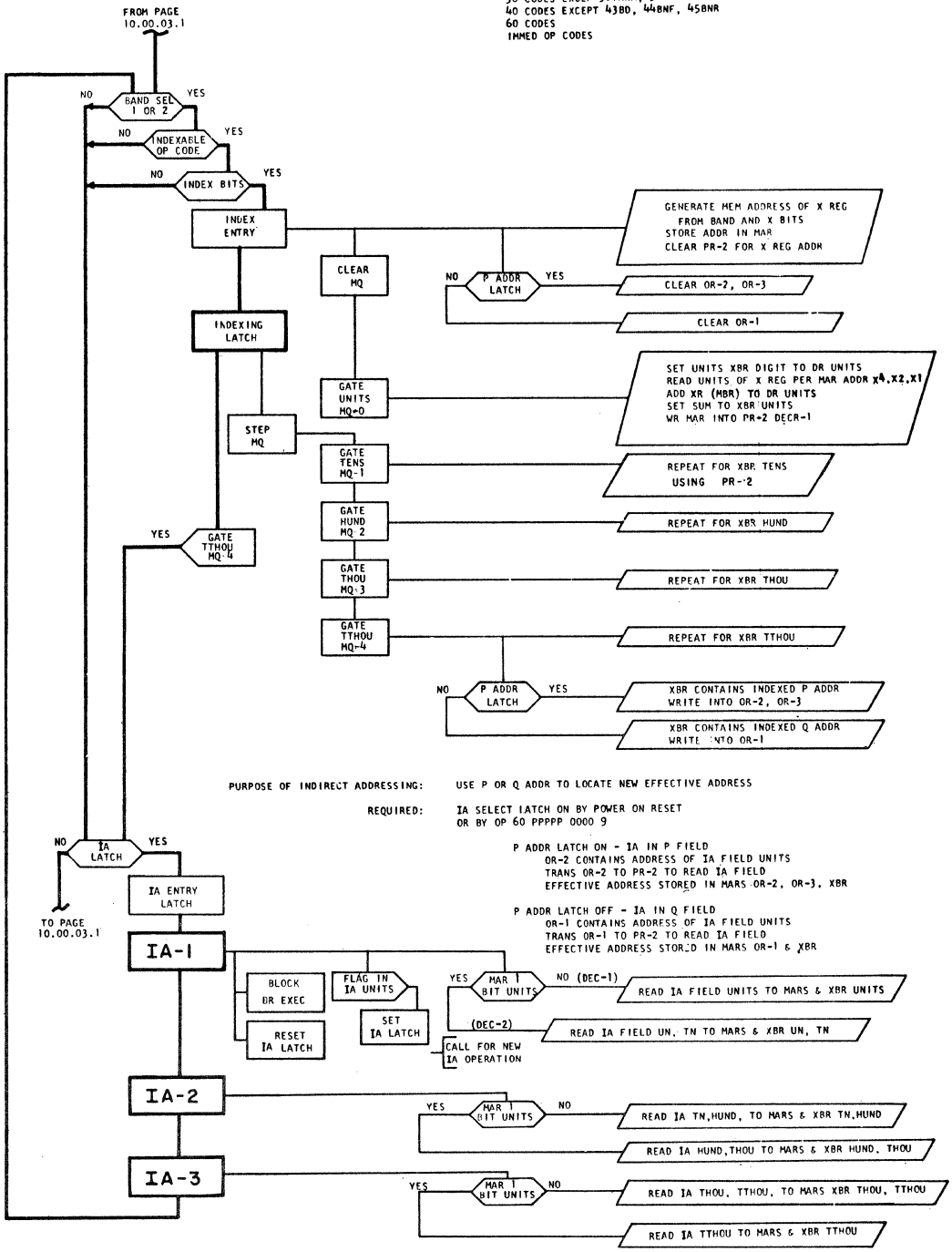
	P ADDR X BITS 4 2	IA 1 FLAG	Q ADDR X BITS 4 2	IA 1 FLAG
INDEXED INSTRUCTION:	O_0 O_1 P_2 $\bar{P}_3$ $\bar{P}_4$ $\bar{P}_5$ $\bar{P}_6$	Q_7	$\bar{Q}_8$ $\bar{Q}_9$	$\bar{Q}_{10}$ $\bar{Q}_{11}$

PURPOSE OF INDEXING: SELECT AN X REGISTER IN MEMORY BANDS 1 OR 2 WITH P OR Q X BITS
ADD CONTENTS OF SELECTED X REGISTER TO P OR Q ADDRESS IN XBR
STORE NEW EFFECTIVE ADDRESS IN MARS

REQUIRED:
1. BAND 1 OR 2 SELECTED BY OP 60 PPPPP 0000 X
2. AT LEAST ONE X BIT PRESENT
3. AN INDEXABLE OP CODE

FUNCTION CHART	PAGE REF
XBR I-A LOAD	10.00.42.1
INDEX SEL & ENTRY	10.00.43.1
INDEX CYCLES	10.00.44.1
MQ REG AND COUNTER	10.01.23.1
XBR SET & RESET	10.01.30.1

CODES WITH P ADDRESS NON INDEXABLE
34K, 41NOP, 42BB, 48H
CODES WITH Q ADDRESS NON-INDEXABLE
30 CODES EXCEP 30TRNM, 31TR
40 CODES EXCEPT 43BD, 44BNF, 45BNR
60 CODES
IMMED OP CODES



PURPOSE OF INDIRECT ADDRESSING: USE P OR Q ADDR TO LOCATE NEW EFFECTIVE ADDRESS

REQUIRED: IA SELECT LATCH ON BY POWER ON RESET
OR BY OP 60 PPPPP 0000 9

P ADDR LATCH ON - IA IN P FIELD
OR-2 CONTAINS ADDRESS OF IA FIELD UNITS
TRANS OR-2 TO PR-2 TO READ IA FIELD
EFFECTIVE ADDRESS STORED IN MARS OR-2, OR-3, XBR

P ADDR LATCH OFF - IA IN Q FIELD
OR-1 CONTAINS ADDRESS OF IA FIELD UNITS
TRANS OR-1 TO PR-2 TO READ IA FIELD
EFFECTIVE ADDRESS STORED IN MARS OR-1 & XBR

61 BX BRANCH AND MODIFY INDEX REGISTER
62 BXM BRANCH AND MODIFY INDEX REGISTER IMMED
63 BCX BRANCH CONDITIONALLY AND MODIFY INDEX REGISTER
64 BCXM BRANCH CONDITIONALLY AND MODIFY INDEX REGISTER IMMED

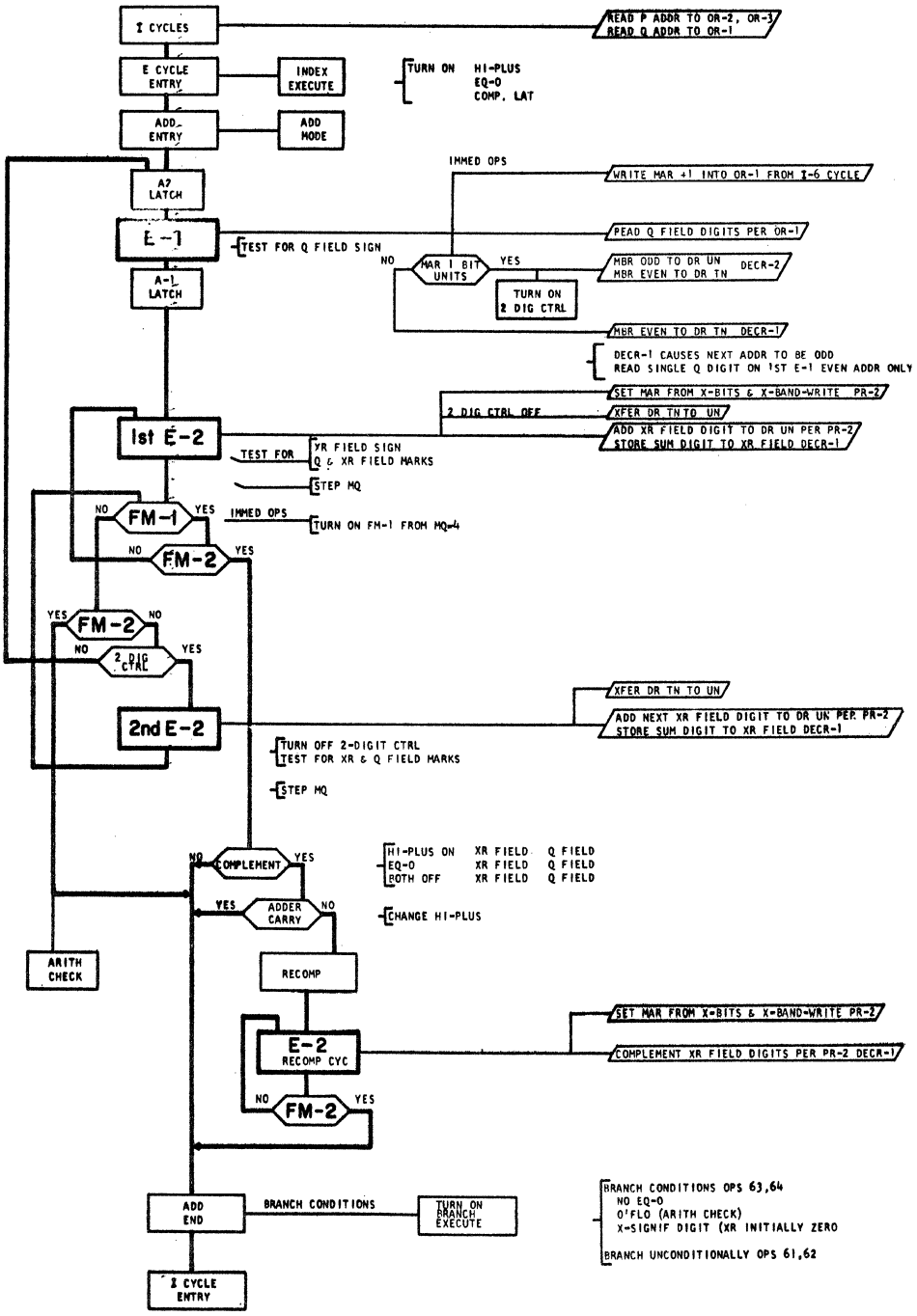
INSTRUCTION: OPS 61,63 0 0 P P P P P Q Q Q Q Q
(X-BITS)

OPS 62,64 0 0 P P P P P Q Q Q Q Q
(X-BITS SIGN)

PURPOSE: ADD Q FIELD TO SPECIFIED INDEX REGISTER OBSERVING SIGNS OF BOTH FIELDS
BRANCH TO P ADDRESS

FM-2	X	X	X	X	X	PR-2
FM-1			Q	Q	Q	OR-1
SUM	S	S	S	S	S	PR-2
RECOMP	R	R	R	R	R	PR-2

FUNCTION CHART	PAGE REF
INDEX EXEC	10.00.45.1
ADD ENTRY & MODE	10.00.56.1
ADD, SUBT, COMPARE	10.00.57.1
DR & 2 DIGIT CTRL	10.01.22.1
MQ REG & COUNTER	10.01.23.1



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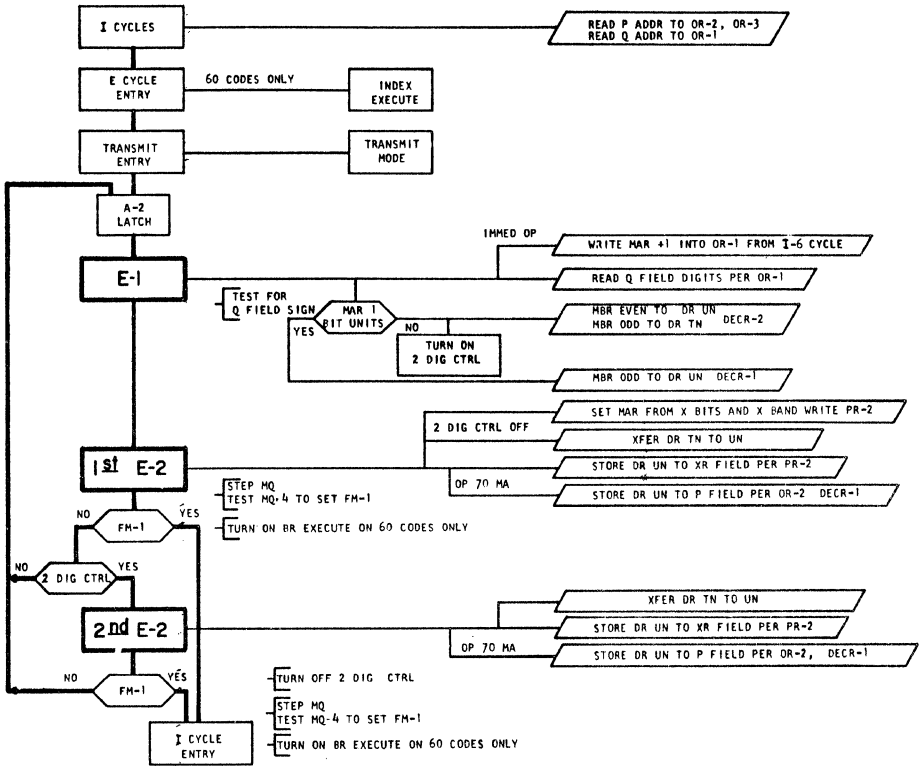
65 BLX BRANCH AND LOAD INDEX REGISTER
66 BLXM BRANCH AND LOAD INDEX REGISTER IMMED
70 MA MOVE ADDRESS

FUNCTION CHART	PAGE REF
INDEX EXEC	10.00.45.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1
MQ REG & COUNTER	10.01.23.1

INSTRUCTION: 65 P P P P P Q Q Q Q Q (X BITS)
66 P P P P P Q Q Q Q Q (X BITS, SIGN)
70 P P P P P Q Q Q Q Q

PURPOSE:
OP 65, 66 TRANSMIT 5 DIGITS AND SIGN FROM Q FIELD TO SPECIFIED XR
STORE FM ON HIGH ORDER XR, STRIP ALL OTHER FLAGS
BRANCH UNCONDITIONALLY TO P ADDR
OP 70 TRANSMIT 5 Q FIELD DIGITS TO P FIELD. LEAVE P FIELD FLAGS UNCHANGED

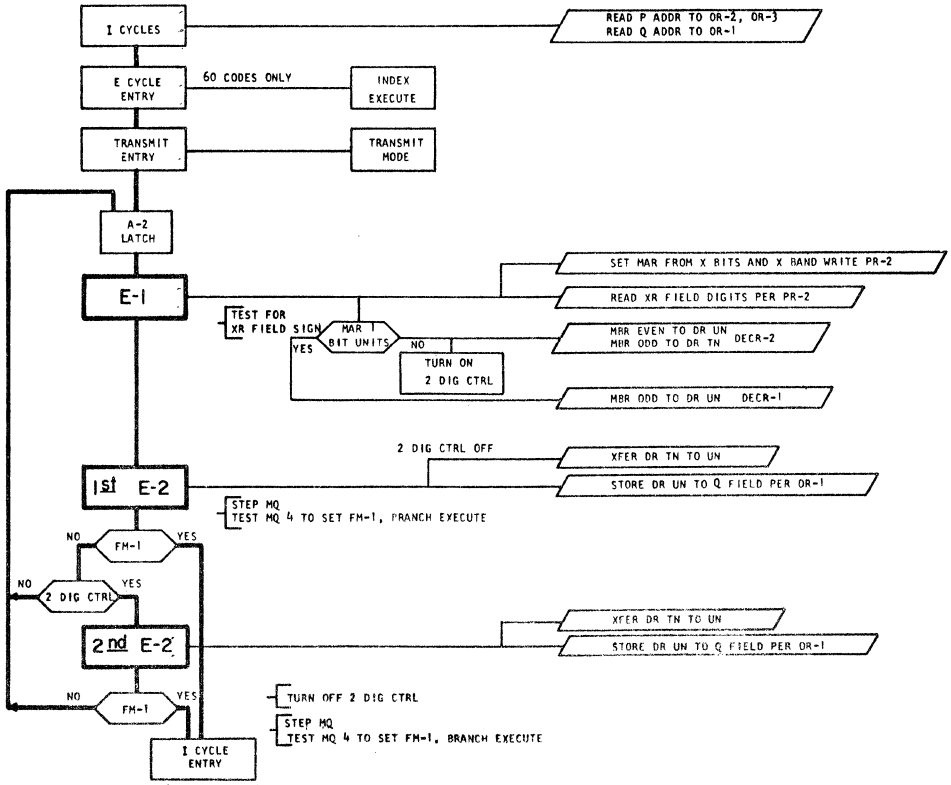


67 BSX BRANCH AND STORE INDEX REGISTER

FUNCTION CHART	PAGE REF
INDEX EXEC	10.00.45.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & DIGIT CTRL	10.01.22.1
MQ REG & COUNTER	10.01.23.1

INSTRUCTION: 67 P P P P P Q Q Q Q Q (X BITS)

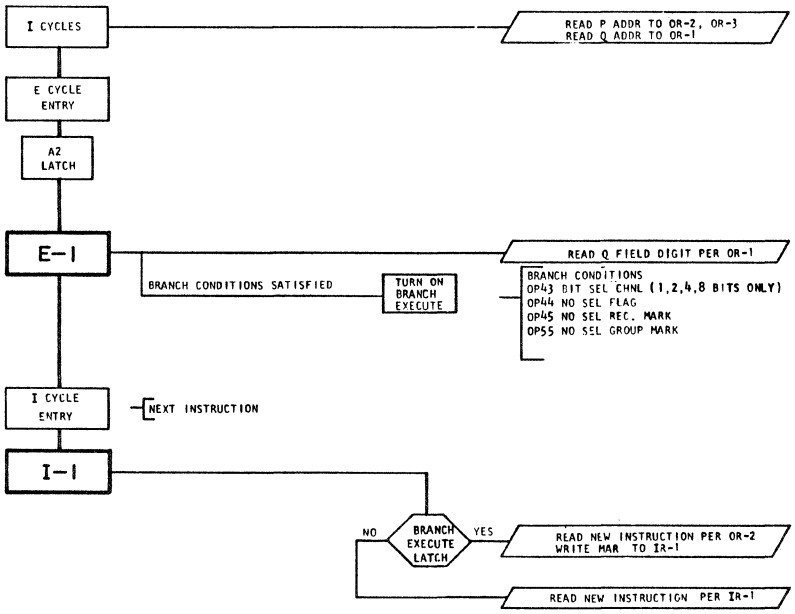
PURPOSE:
TRANSMIT SPECIFIED XR FIELD AND SIGN TO Q FIELD
FORCE FM TO HIGH ORDER Q FIELD
BRANCH UNCONDITIONALLY TO P ADDR



43 BD BRANCH ON DIGIT
44 BNF BRANCH ON NO FLAG
45 BNR BRANCH ON NO RECORD MARK
55 BNG BRANCH ON NO GROUP MARK

PURPOSE: INTERROGATE CHARACTER AT Q
IF CONDITION SATISFIED, BRANCH TO P ADDR

FUNCTION CHART	PAGE REF
OPS 43,44,45,55	10.00.51.1
BRANCH EXECUTE	10.00.35.1



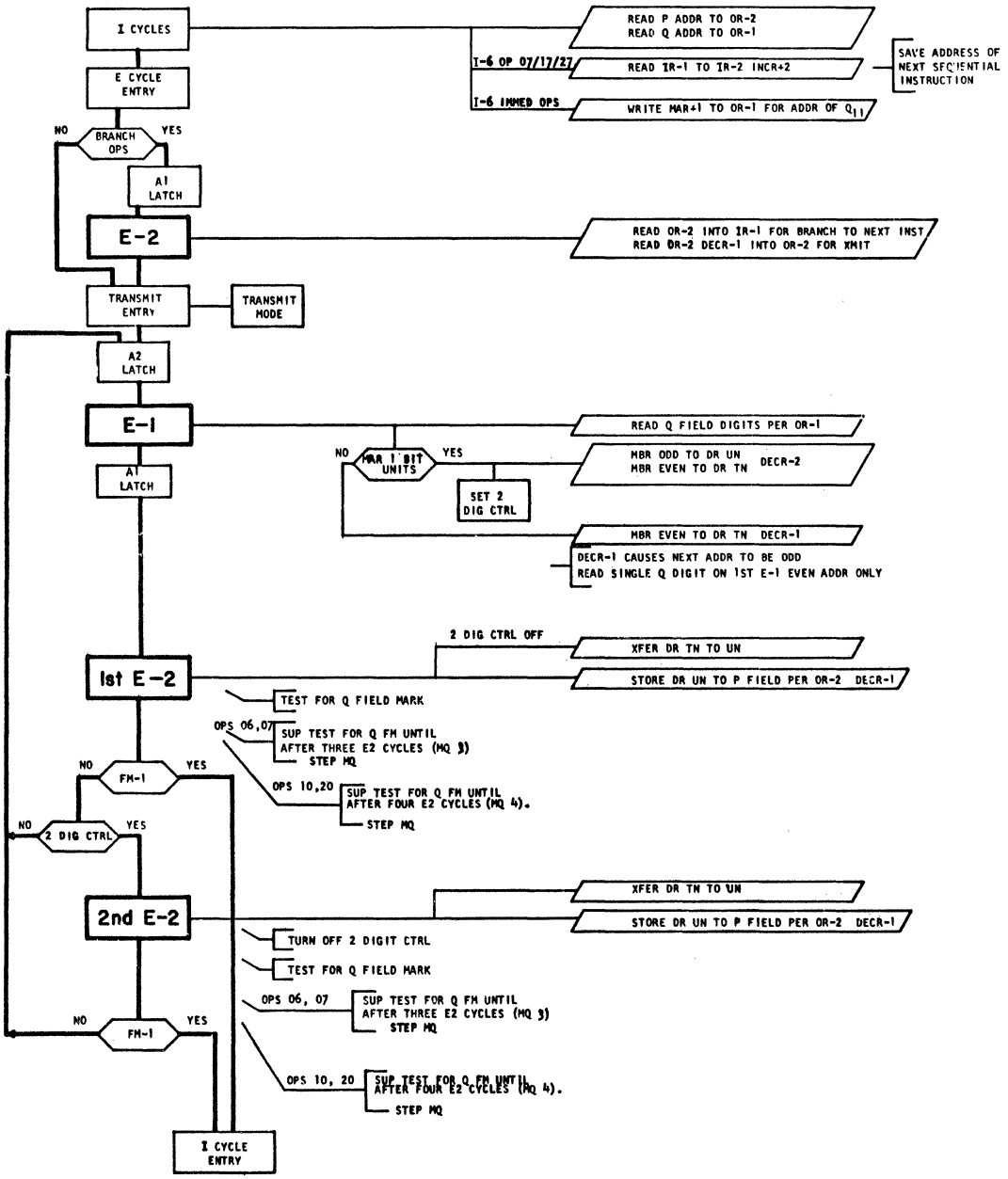
06	TFL	TRANSMIT FLOATING
26	TF	TRANSMIT FIELD
16	TFM	TRANSMIT FIELD IMMED
07	BTFL	BRANCH AND TRANSMIT FLOATING
27	BT	BRANCH AND TRANSMIT
17	BTM	BRANCH AND TRANSMIT IMMED
20	BTA	BRANCH AND TRANSMIT ADDRESS
10	BTAM	BRANCH AND TRANSMIT ADDRESS IMMED

INSTRUCTION: $0_{\sigma}0_1$ P P P P P Q Q Q Q Q — P AND Q ADDRESS LOW ORDER POSITIONS; OPERATION TERMINATED BY Q FIELD MARK

PURPOSE OF TRANSMIT: TRANSMIT Q FIELD TO P FIELD

PURPOSE OF BRANCH AND TRANSMIT: TRANSMIT FIELD AT Q ADDR TO FIELD AT P ADDR MINUS 1
SAVE ADDRESS OF NEXT SEQUENTIAL INSTRUCTION
BRANCH UNCONDITIONALLY TO LOCATION P

FUNCTION CHART	PAGE REF
XMIT OPS	10.00.52.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1



E/C 408561 12-16-63 24 0X49000

31 TR TRANSMIT RECORD

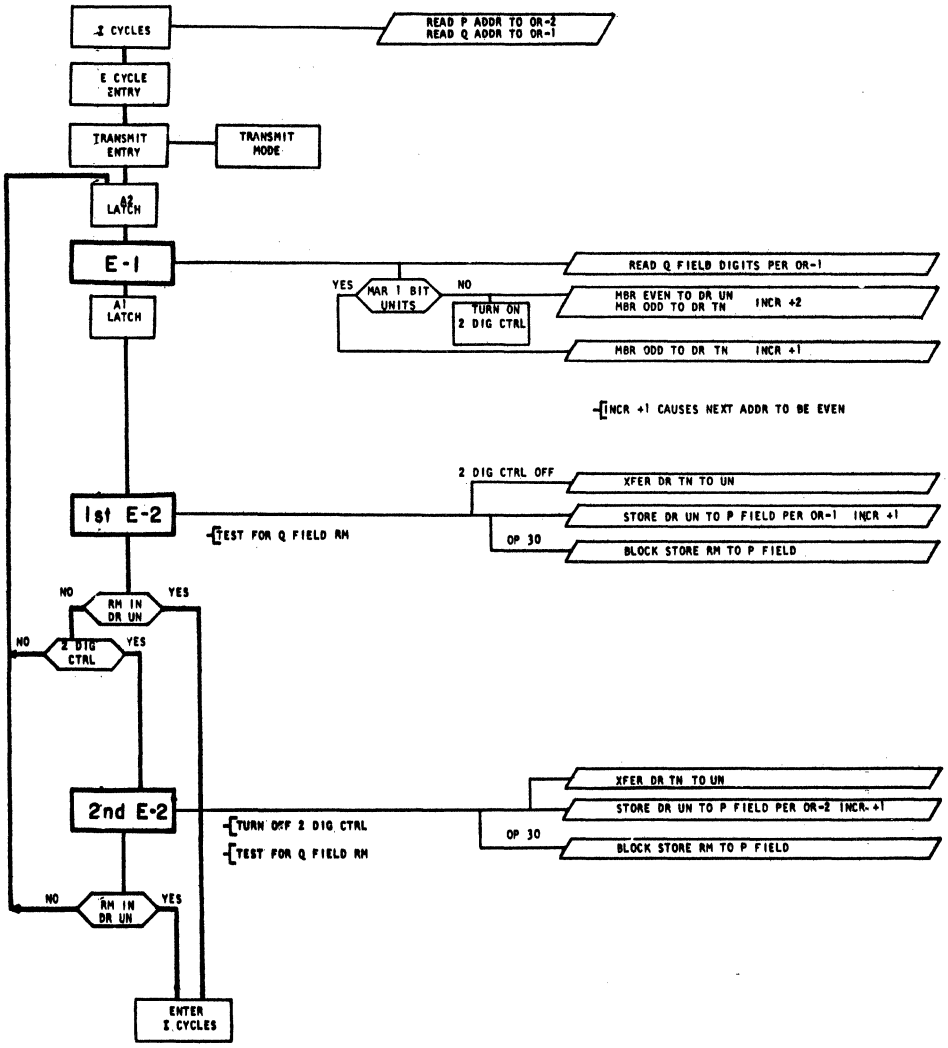
30 TRNM TRANSMIT RECORD NO RECORD MARK

INSTRUCTION: 0 0 0 1 P P P P P Q Q Q Q Q

P AND Q ADDRESS HIGH ORDER POSITIONS
OPERATION TERMINATED BY Q FIELD RECORD MARK

PURPOSE: TRANSMIT RECORD AT Q ADDR TO P ADDR
OMIT RECORD MARK IN P FIELD ON OP 30

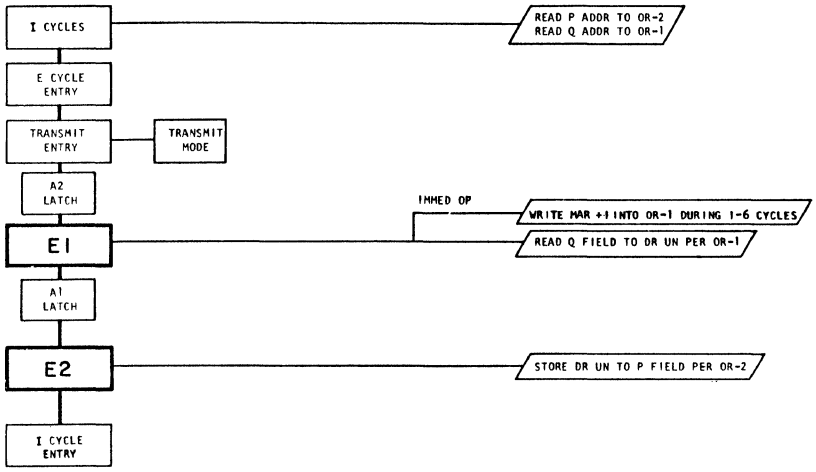
FUNCTION CHART	PAGE REF
XMIT OPS	10.00.52.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1



25 TD TRANSMIT DIGIT
15 TDM TRANSMIT DIGIT IMMED

PURPOSE: TRANSMIT SINGLE DIGIT AT Q ADDR TO P ADDR
ON IMMED OP TRANSMIT Q_{11}

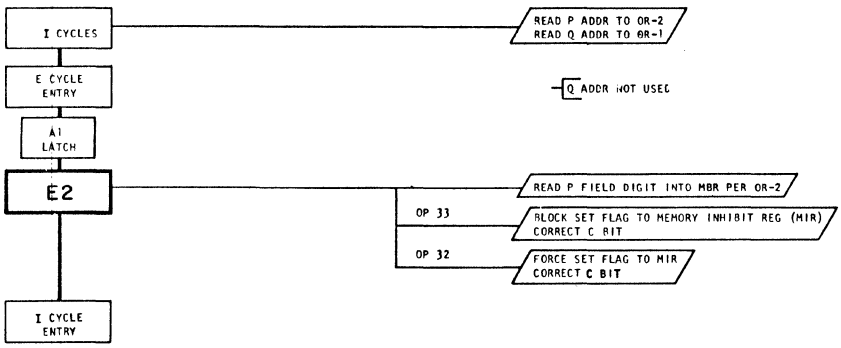
FUNCTION CHART	PAGE REF
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1



32 SF SET FLAG
33 CF CLEAR FLAG

FUNCTION CHART	PAGE REF
OPS 32, 33	10.00.55.1

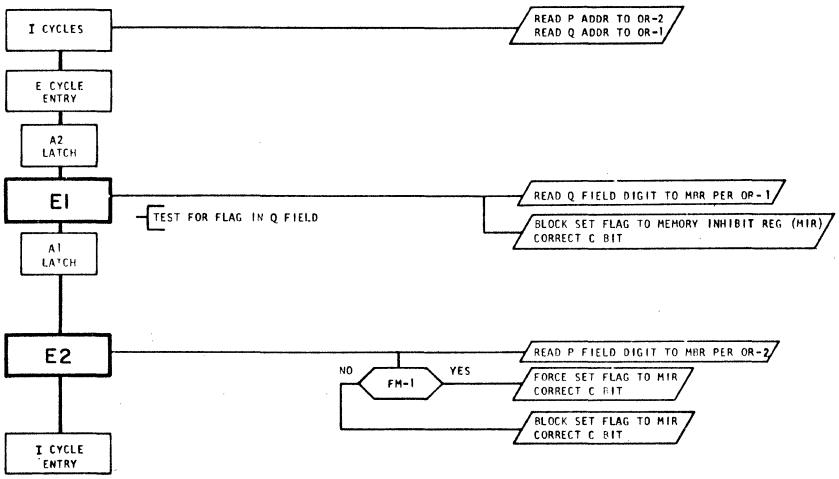
PURPOSE: STORE OR CLEAR FLAG BIT OVER DIGIT AT P ADDR



71 MF MOVE FLAG

FUNCTION CHART	PAGE REF
OP 71 MF	10.00.64.1

PURPOSE: MOVE FLAG BIT FROM Q ADDR TO P ADDR

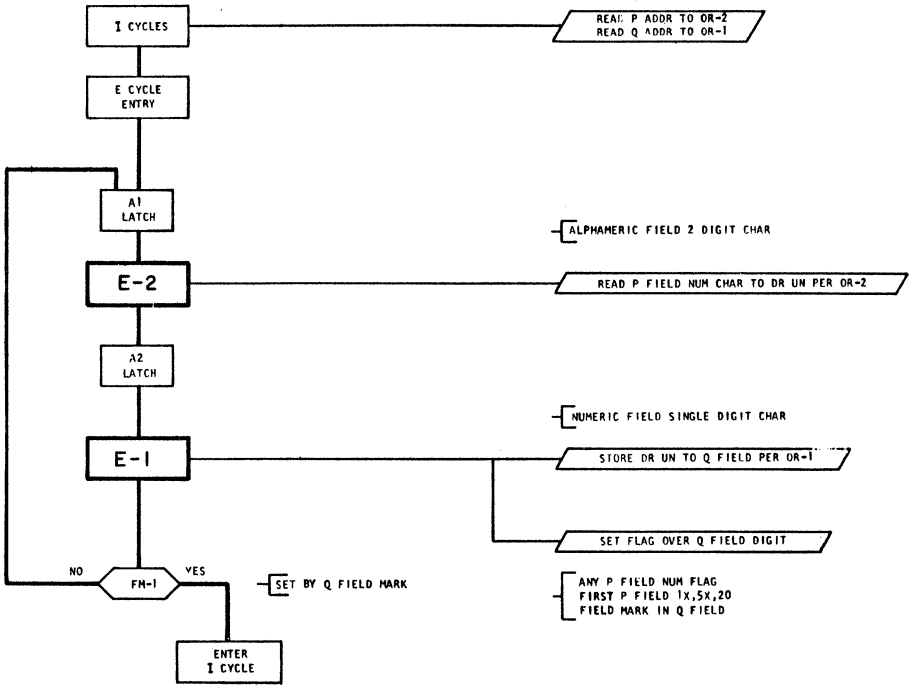


72 TNS TRANSMIT NUMERIC STRIP

FUNCTION CHART	PAGE REF
OP 72 TNS	10.00.65.1

INSTRUCTION: 72 P P P P P Q Q Q Q Q P-ODD ADDR ONLY
NUM,FIELD

PURPOSE: STRIP NUMERIC CHARACTERS FROM P FIELD AND STORE IN Q FIELD (NOTE-THIS IS ONLY OP WHEN FIELD IS MOVED FROM P TO Q)

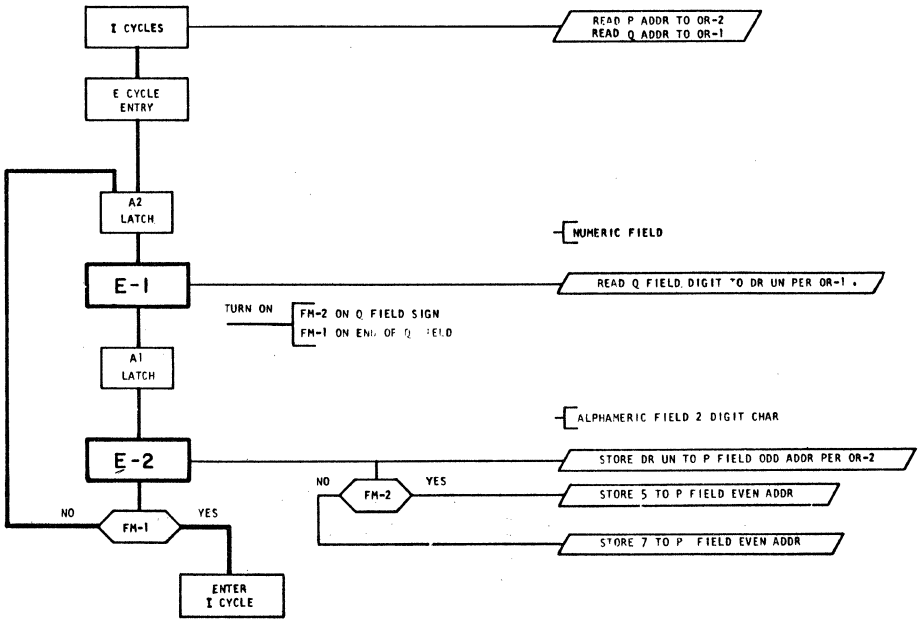


73 TNF TRANSMIT NUMERIC FILL

FUNCTION CHART	PAGE REF
OP 73 TNF	10.00.66.1

INSTRUCTION: 73 P P P P P Q Q Q Q Q P-ODD ADDR ONLY
NUM FIELD

PURPOSE: READ CONTENTS OF NUMERIC FIELD AT Q AND STORE WITH ZONE DIGITS INTO ALPHAMERIC FIELD AT P

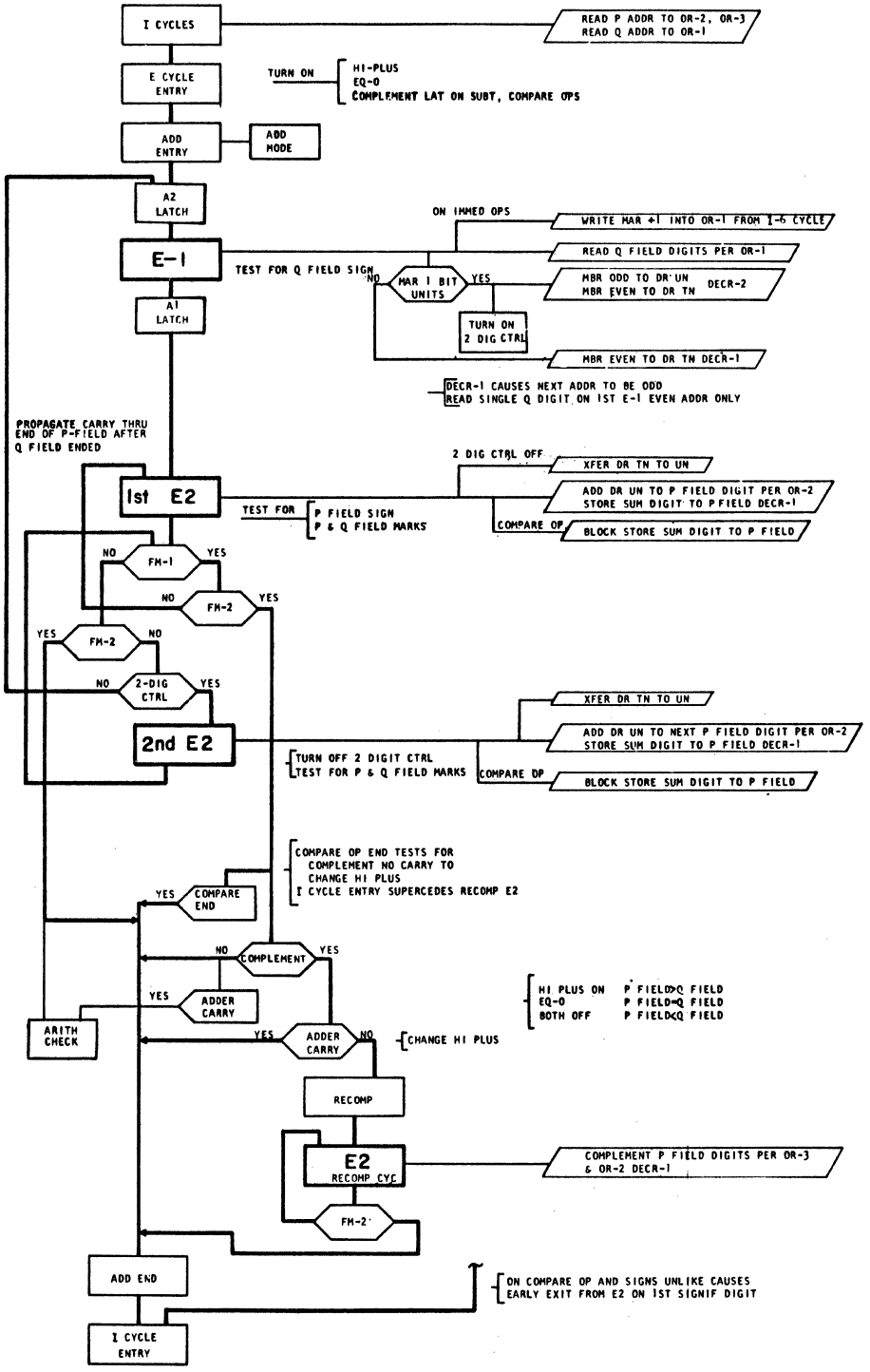


21A 11AM ADD, ADD IMMED.
22S 12SM SUBTRACT, SUBTRACT IMMED.
24C 14CM COMPARE, COMPARE IMMED.

PURPOSE OF ADD SUBT: AUGEND IN MBR FM-2 $\bar{P}$ P P $\bar{P}$ OR-2
ADDEND IN MBR FM-1 $\bar{Q}$ Q Q $\bar{Q}$ OR-1
SUM IN P FIELD $\bar{S}$ S S $\bar{S}$ OR-2
RECOMP SUM $\bar{R}$ R R $\bar{R}$ OR-3

PURPOSE OF CAMPARE: SUBTRACT Q FIELD DIGITS FROM P FIELD DIGITS
TURN OFF EQ-0 ON DIFF=0
Q & P FIELDS UNCHANGED
SIGNS UNLIKE-EARLY EXIT ON FIRST SIGNIFICANT DIGIT

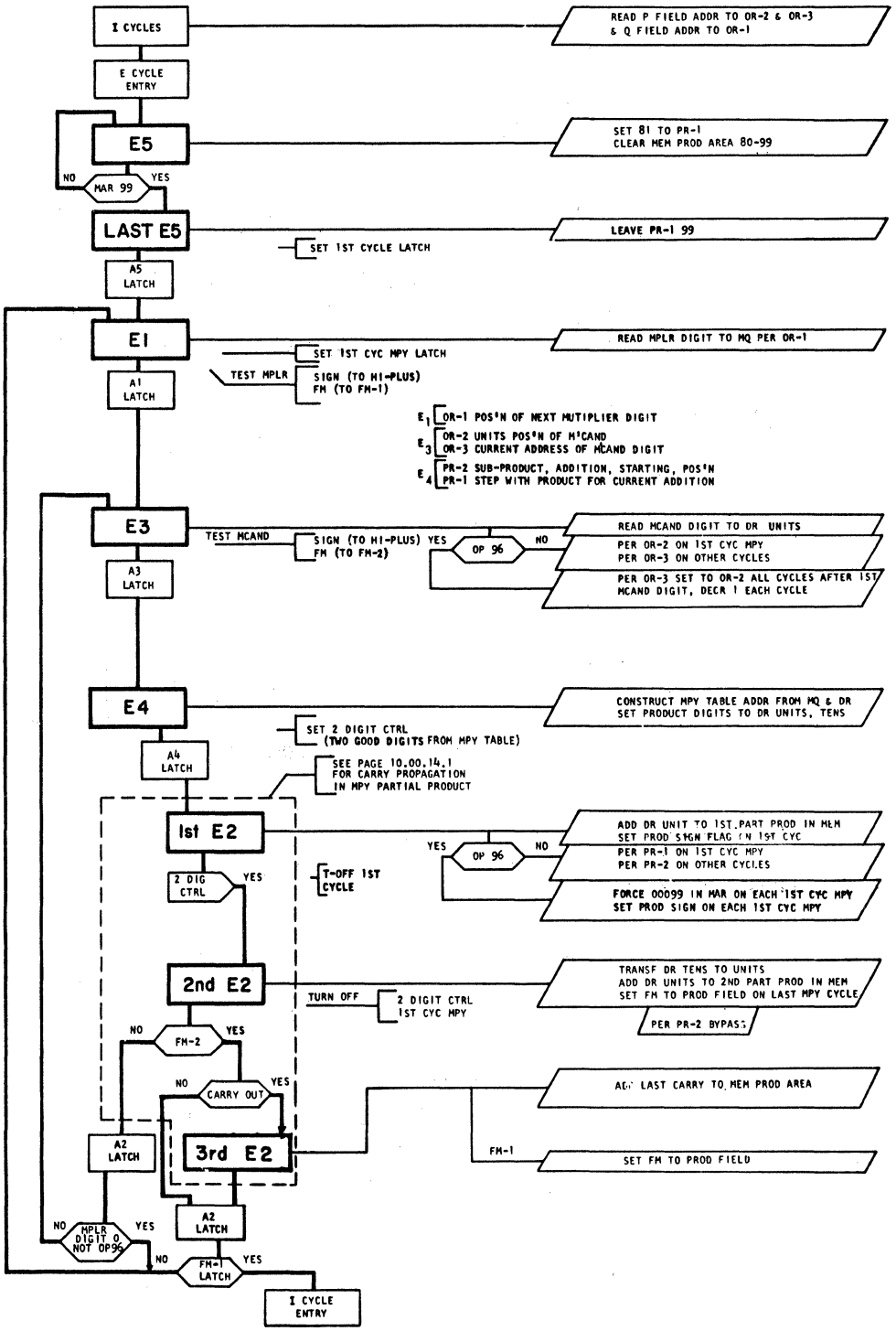
FUNCTION CHART	PAGE REF
ADD ENTRY & MODE	10.00.56.1
ADD, SUBT, COMPARE	10.00.57.1
DR & 2 DIGIT CTRL	10.01.22.1

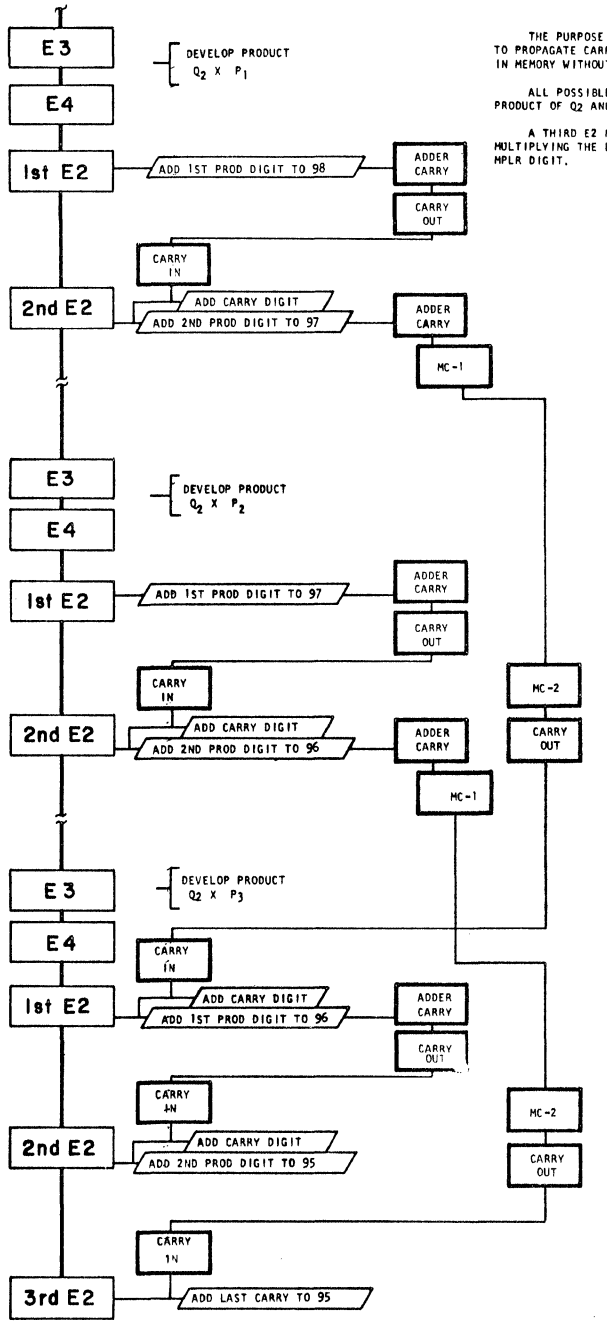


23 M MULTIPLY
13 MM MULTIPLY IMMED
96 OTD OCTAL TO DECIMAL CONVERSION

INSTRUCTION: 23 P P P P P Q Q Q Q Q
PURPOSE: MULTIPLY FIELD AT P ADDR BY FIELD AT Q ADDR
INSTRUCTION: 13 P P P P P Q Q Q Q Q
PURPOSE: MULTIPLY FIELD AT P ADDR BY Q DIGITS
INSTRUCTION: 96 P P P P P Q Q Q Q Q
PURPOSE: MULTIPLY OCTAL TO DECIMAL CONVERSION TABLE AT P ADDR BY OCTAL FIELD AT Q
CONVERSION TABLE AT P ADDR-----$\bar{5}$ 1 2 $\bar{6}$ 4 0 8 0 1

FUNCTION CHART	PAGE REF
CLEAR PROG AREA E5	10.00.58.1
MPY E1, E3, E4	10.00.59.1
MPY E2	10.00.60.1
OP 96 OTD	10.01.02.1
MQ REG & COUNTER	10.01.23.1

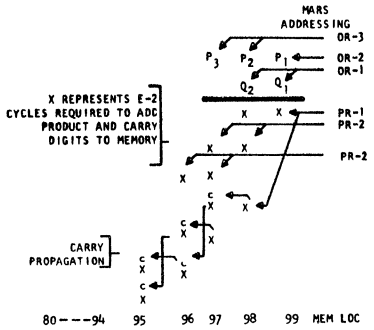


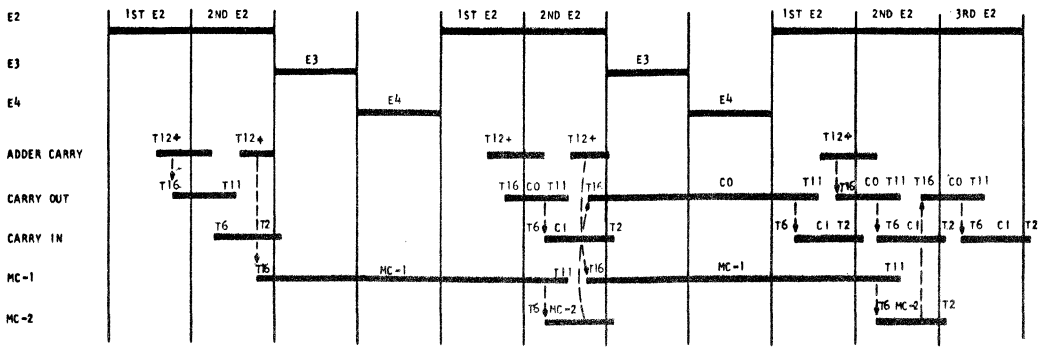


THE PURPOSE OF MC-1 AND MC-2 LATCHES IS TO PROPAGATE CARRIES ACROSS THE PARTIAL PRODUCT IN MEMORY WITHOUT USING ADDITIONAL MACHINE CYCLES.

ALL POSSIBLE CARRIES ARE SHOWN FOR THE PRODUCT OF Q_2 AND THE MCAND DIGITS.

A THIRD E2 MAY ONLY OCCUR AFTER MULTIPLYING THE LAST MCAND DIGIT BY EACH MPLR DIGIT.

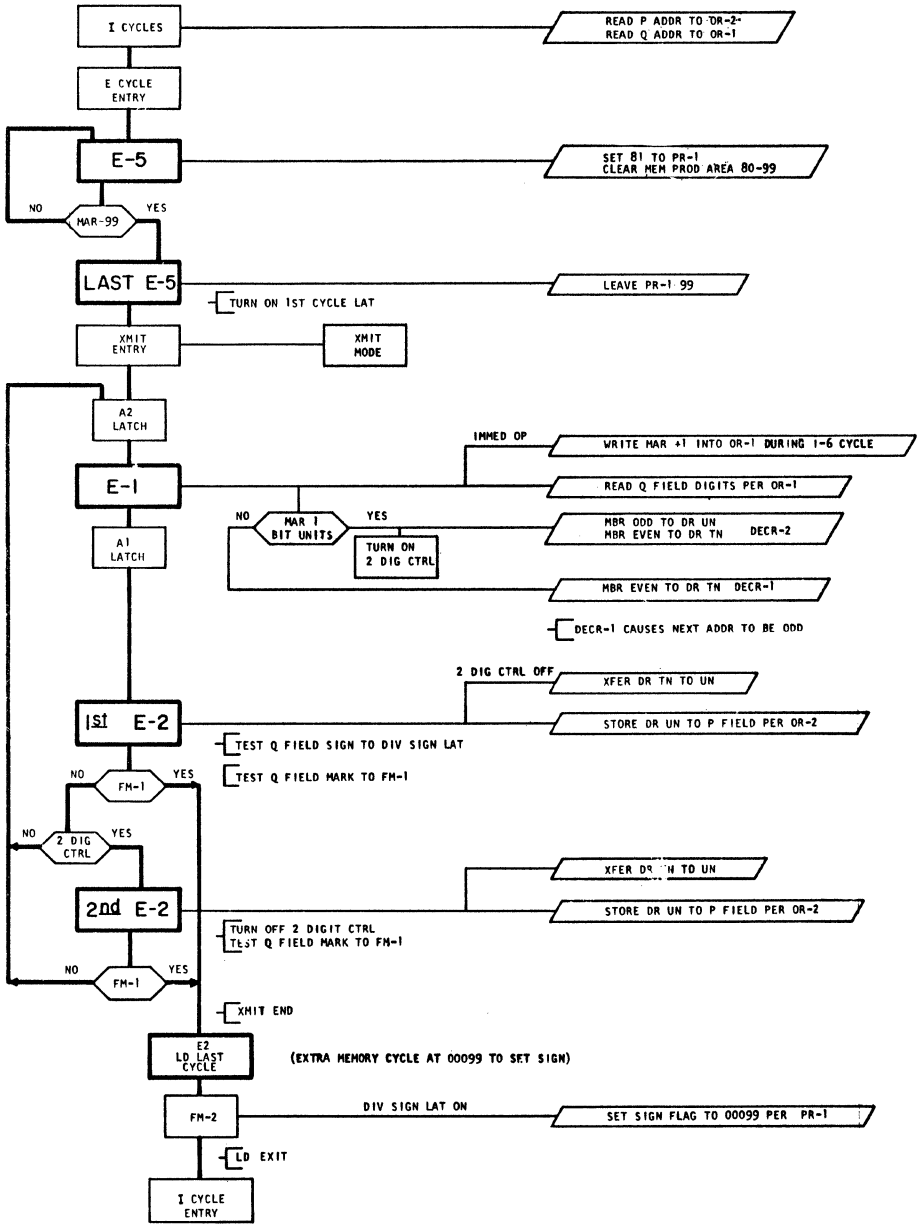




28 LD LOAD DIVIDEND
18 LDM LOAD DIVIDEND IMMED.

FUNCTION CHART	PAGE REF
CLEAR PROD AREA E5	10.00.58.1
LOAD	10.00.61.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
OR & 2 DIGIT CTRL	10.01.22.1

PURPOSE:
CLEAR PRODUCT AREA 80-99
TRANSMIT Q FIELD TO P FIELD (USUALLY WITHIN PROD AREA)
STORE Q FIELD SIGN AT 00099



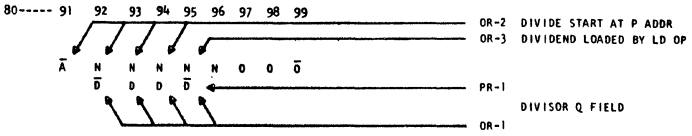
29 D DIVIDE
19 DM DIVIDE IMMED
97 DTO DECIMAL TO OCTAL CONVERSION

PURPOSE OF OP 29D, 19 DM:
SEE PAGE 10.00.17.1

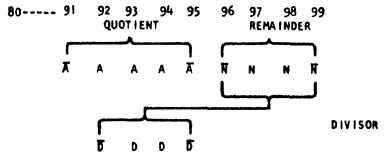
DIVIDE DIVIDEND IN PRODUCT AREA BY Q FIELD
STORE QUOTIENT IN P FIELD
LEAVE REMAINDER AT RIGHT OF QUOTIENT
REMAINDER SIGN SAME AS QUOTIENT SIGN

FUNCTION CHART	PAGE REF
ADD ENTRY & MODE	10.00.56.1
DIVIDE E1, E2	10.00.62.1
DIVIDE E3, E4	10.00.63.1
OP 97 DTO	10.01.02.1
MQ REG & COUNTER	10.01.23.1

DIGIT POSITIONS AT END OF 1ST QUOTIENT DIGIT

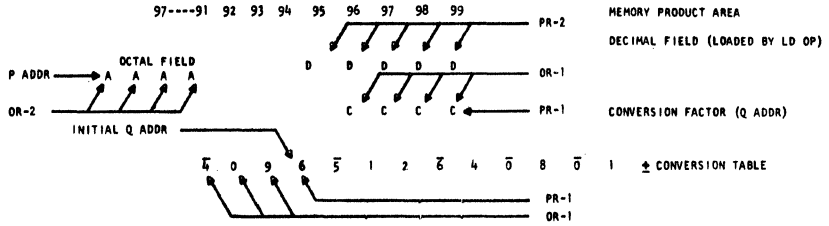


DIGIT POSITIONS AT END OF LAST DIVIDE CYCLE



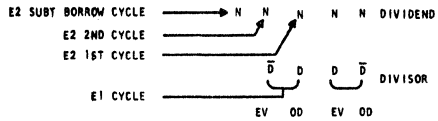
PURPOSE OF OP 97 DTO:
SEE PAGE 10.00.19.1

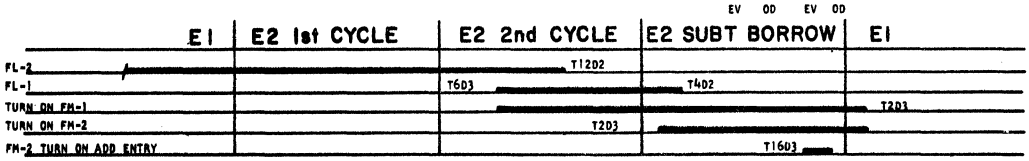
CONVERT DECIMAL FIELD AT 00099 TO OCTAL BY SUCCESSIVE SUBTRACTION
STORE OCTAL DIGITS IN P FIELD, HIGH ORDER AT P ADDR
Q ADDR LOCATES UNITS POSITION OF HIGH ORDER CONVERSION FROM TABLE



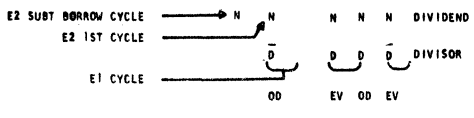
SUBTRACT BORROW CYCLES AT END OF E2 REDUCTION CYCLES

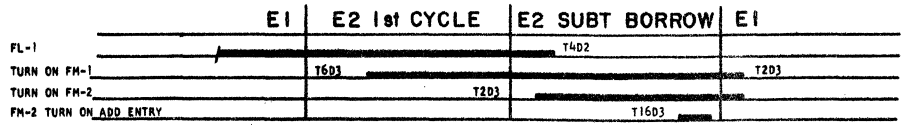
Q FIELD MARK IN EVEN ADDRESSS



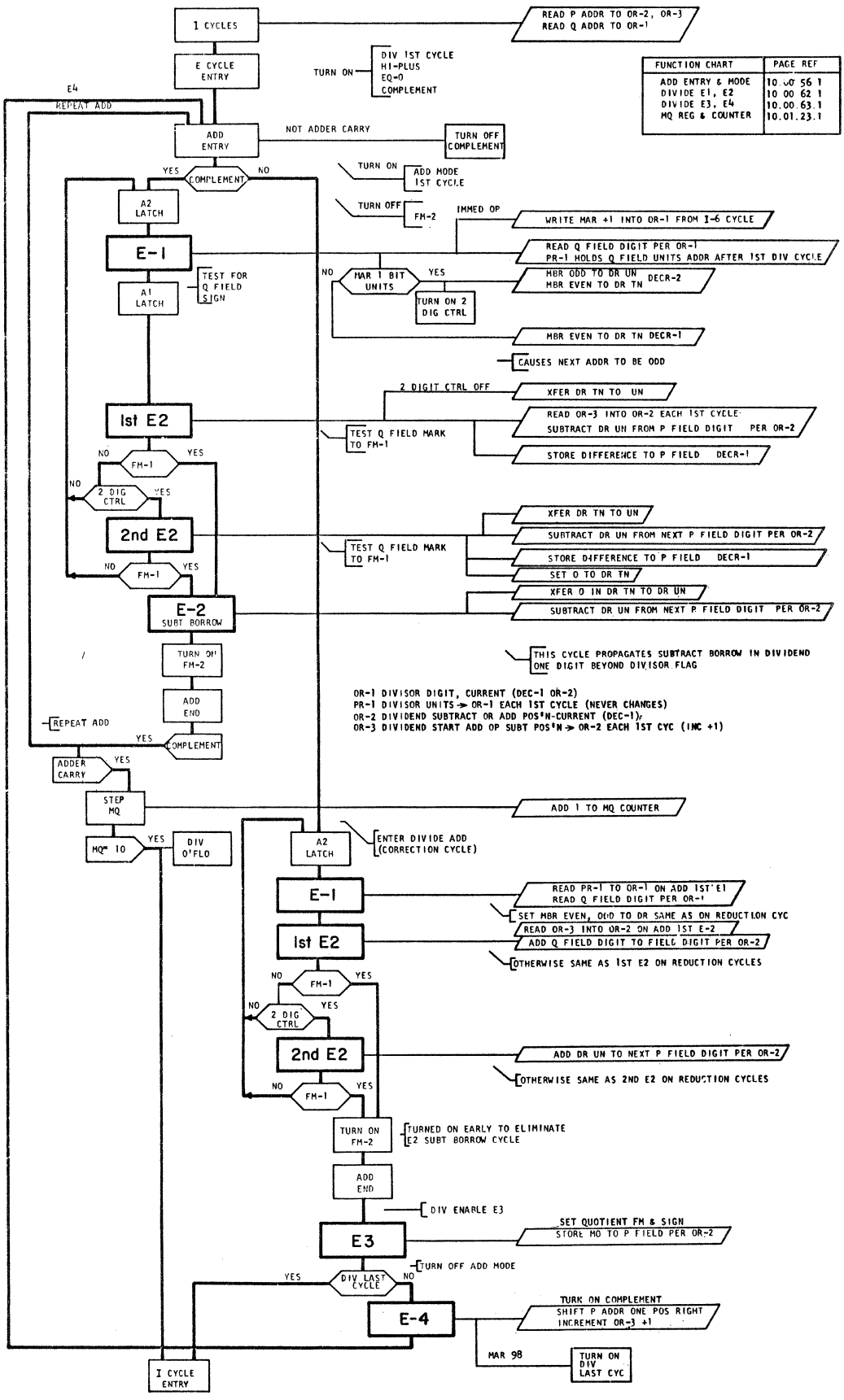


Q FIELD MARK IN ODD ADDRESS





29D DIVIDE 19DM DIVIDE IMMED



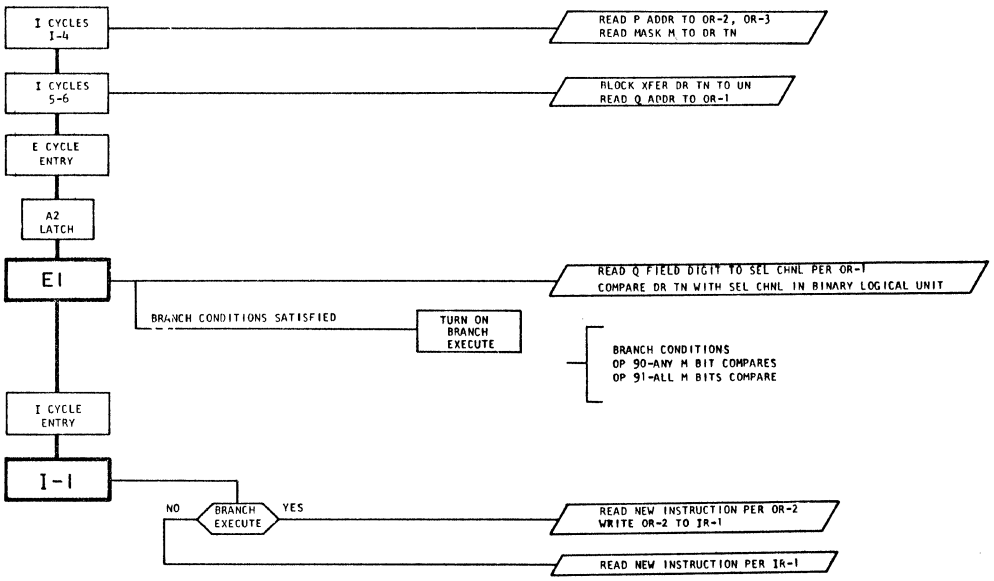
FUNCTION CHART	PAGE REF
ADD ENTRY & MODE	10.00.56.1
DIVIDE E1, E2	10.00.62.1
DIVIDE E3, E4	10.00.63.1
MQ REG & COUNTER	10.01.23.1

90 BBT BRANCH ON BIT
91 BMK BRANCH ON MASK

INSTRUCTION: 0 0 P P P P P M Q Q Q Q

PURPOSE: COMPARE Q FIELD DIGIT WITH MASK DIGIT M
OP 90 BRANCH TO P ADDR IF ANY BIT COMPARES
OP 91 BRANCH TO P ADDR IF ALL BITS COMPARE

FUNCTION CHART	PAGE REF
OPS 90, 91 BRANCH EXEC	10.01.06.1 10.30.35.1



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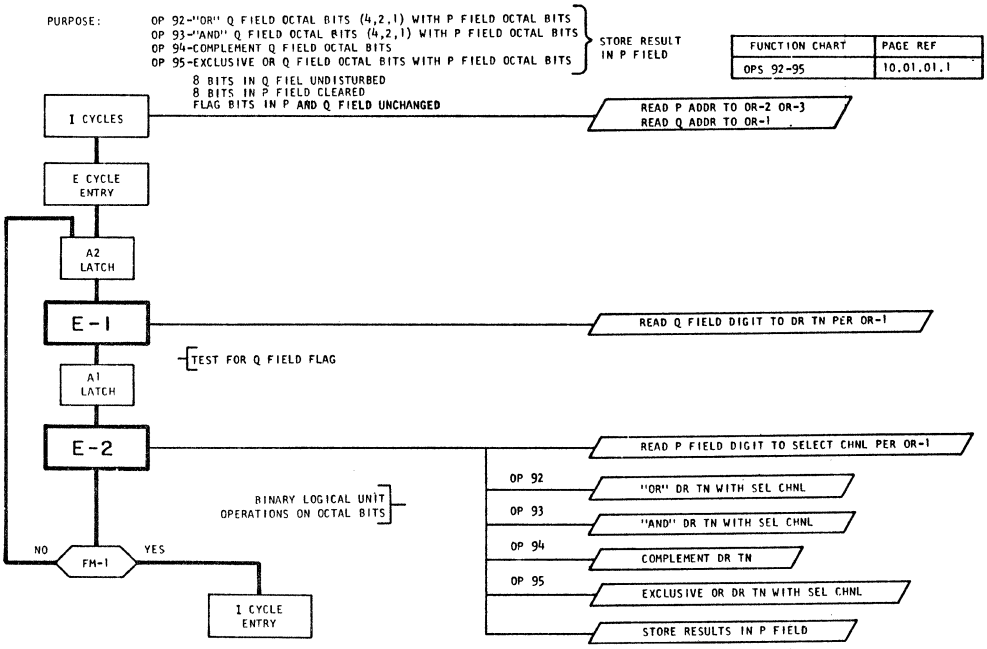
92 ORF "OR" TO FIELD
93 ANDF "AND" TO FIELD
94 CPLF COMPLEMENT TO FIELD
95 EORF EXCLUSIVE OR TO FIELD

PURPOSE:
OP 92-"OR" Q FIELD OCTAL BITS (4,2,1) WITH P FIELD OCTAL BITS
OP 93-"AND" Q FIELD OCTAL BITS (4,2,1) WITH P FIELD OCTAL BITS
OP 94-COMPLEMENT Q FIELD OCTAL BITS
OP 95-EXCLUSIVE OR Q FIELD OCTAL BITS WITH P FIELD OCTAL BITS
} STORE RESULT IN P FIELD

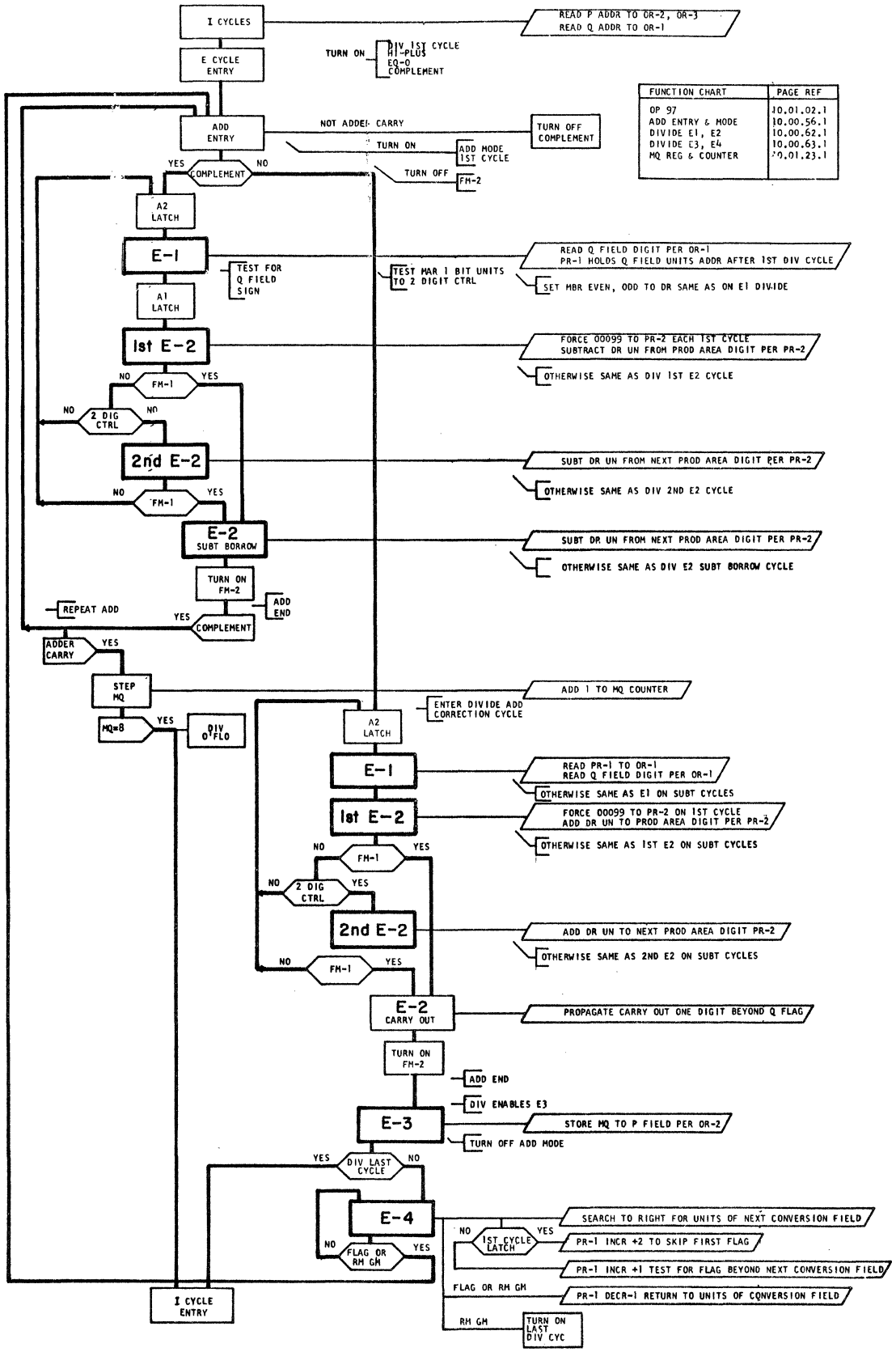
8 BITS IN Q FIEL UNDISTURBED
8 BITS IN P FIELD CLEARED
FLAG BITS IN P AND Q FIELD UNCHANGED

FUNCTION CHART	PAGE REF
OPS 92-95	10.01.01.1



97 DTO DECIMAL TO OCTAL CONVERSION

SEE PAGE 10.00.13.1 FOR OP 96 OTD OCTAL TO DECIMAL CONVERSION

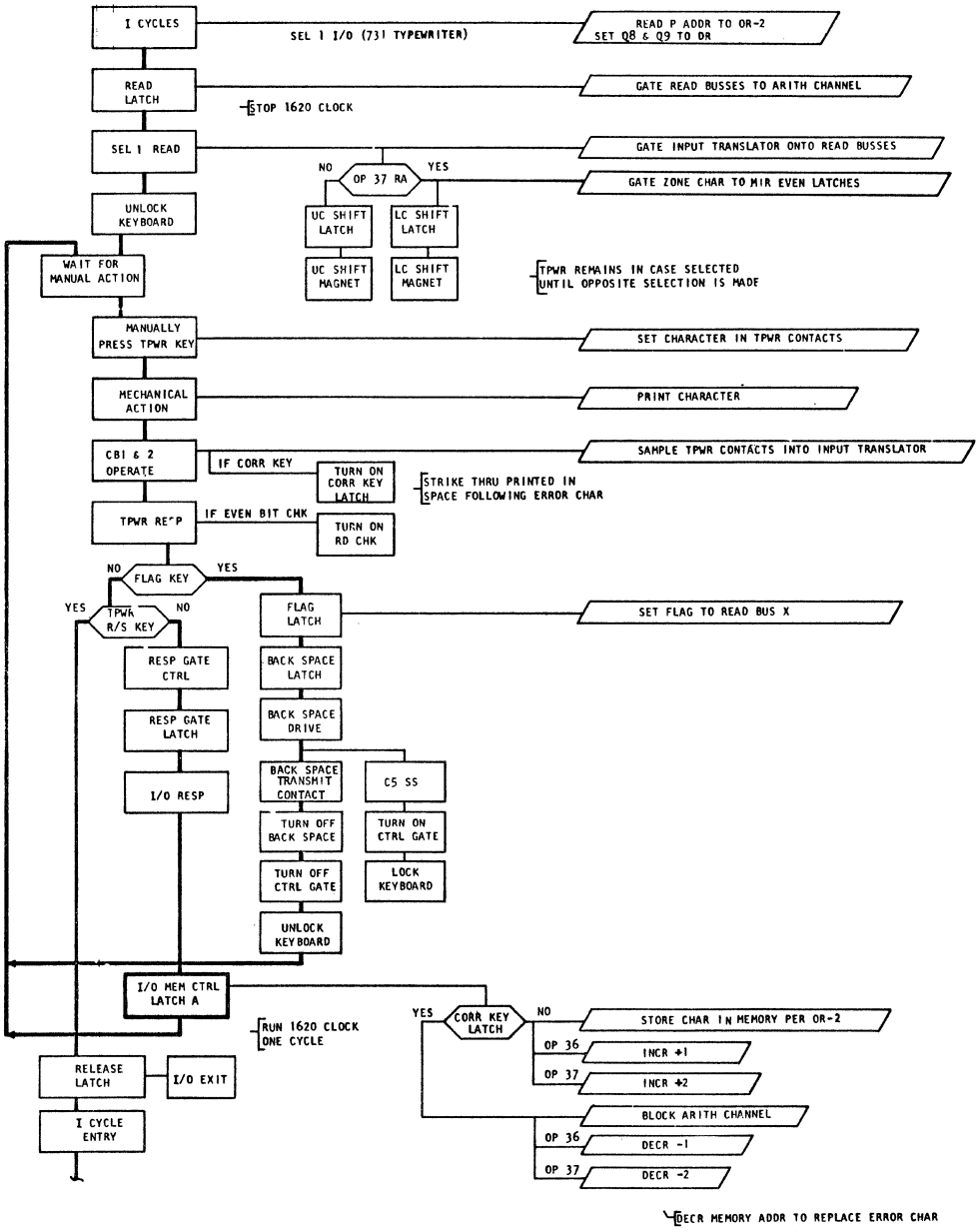


FUNCTION CHART	PAGE REF
OP 97	10.01.02.1
ADD ENTRY & MODE	10.00.56.1
DIVIDE E1, E2	10.00.62.1
DIVIDE E3, E4	10.00.63.1
MQ REG & COUNTER	10.01.23.1

36 RN READ NUMERICALLY
37 RA READ ALPHAMERICALLY

INSTRUCTION: $0_0\ 0_1\ P_2P_3P_4P_5P_6\ Q_7Q_8Q_9Q_{10}Q_{11}$ 01 SELECTS TYPEWRITER

PURPOSE: STORE CHAR MANUALLY ENTERED FROM KEYBOARD INTO MEMORY AT P ADDR AND SUCCESSIVELY HIGHER ADDR
OP 36 RN KEYBOARD IN UPPER CASE SHIFT
OP 37 RA KEYBOARD IN LOWER CASE SHIFT, TWO MEM POSITION PER CHAR P ODD & P-1 EVEN ADDR

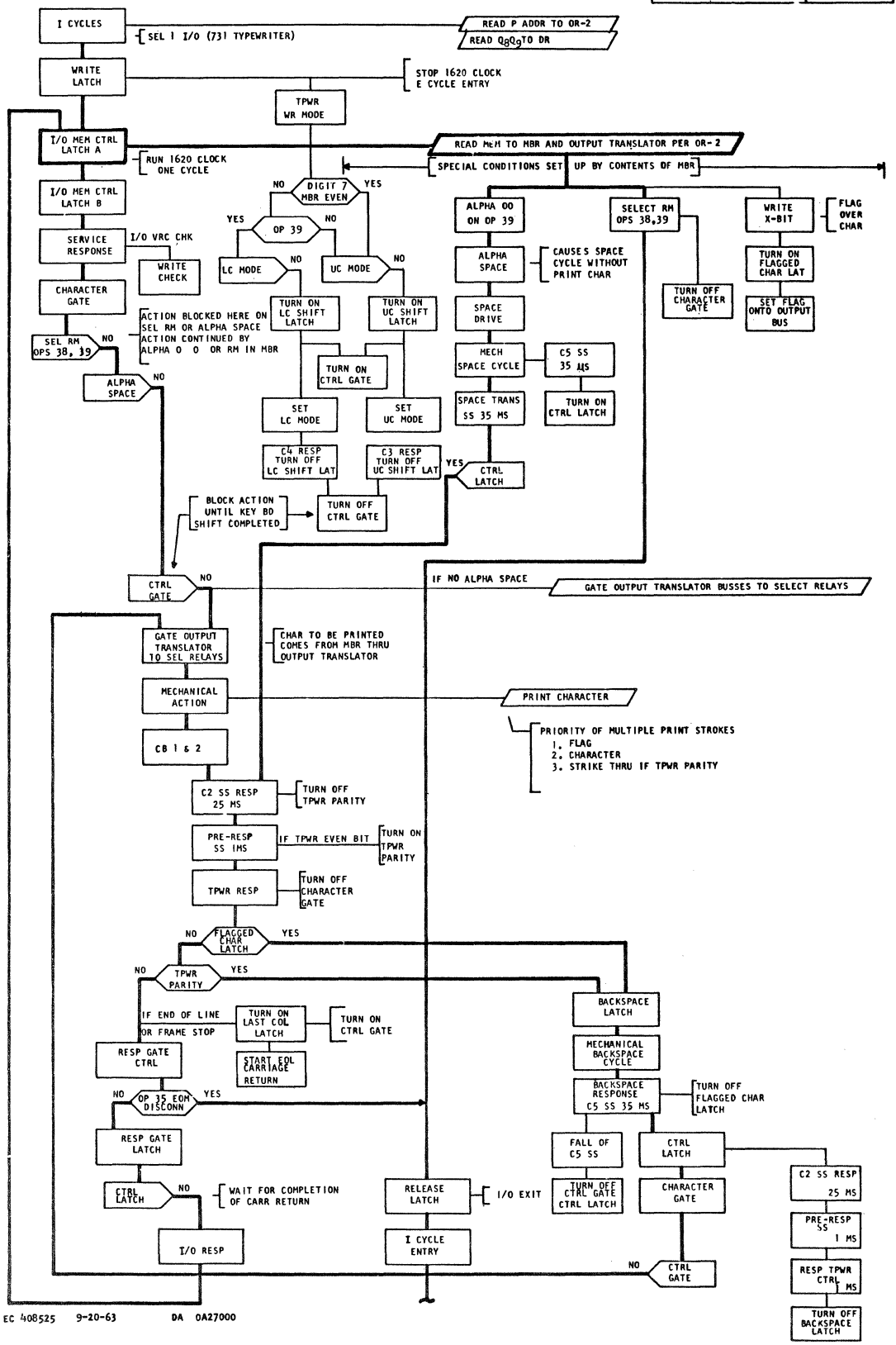


35 DN DUMP NUMERICALLY
38 WN WRITE NUMERICALLY
39 WA WRITE ALPHAMERICALLY

FUNCTION CHART	PAGE REF
RELEASE	10.01.49.1
WRITE LATCH	10.01.51.1
TYPEWRITER	10.01.52.1
RESP GATE, I/O MEM CTRL	10.01.53.1
PARITY	10.01.54.1
FLAGGED CHARACTER	10.01.55.1
TYPEWRITER CONTROL	10.01.56.1

INSTRUCTION: $0_0 0_1$ $P_2 P_3 P_4 P_5 P_6$ $Q_7 0_8 1_9 0_{10} 0_{11}$ OT SELECTS TYPEWRITER

PURPOSE: OP 35 DN - PRINT ALL CHAR, INCLUDING FLAGS FROM P ADDR TO END OF MEMORY MODULE
OP 38 WN - PRINT NUMERIC CHAR AND FLAGS FROM P ADDR TO RM
OP 39 WA - PRINT ALPHAMERIC CHAR AND FLAG FROM P ODD AND P+1 EVEN ADDR TO RM



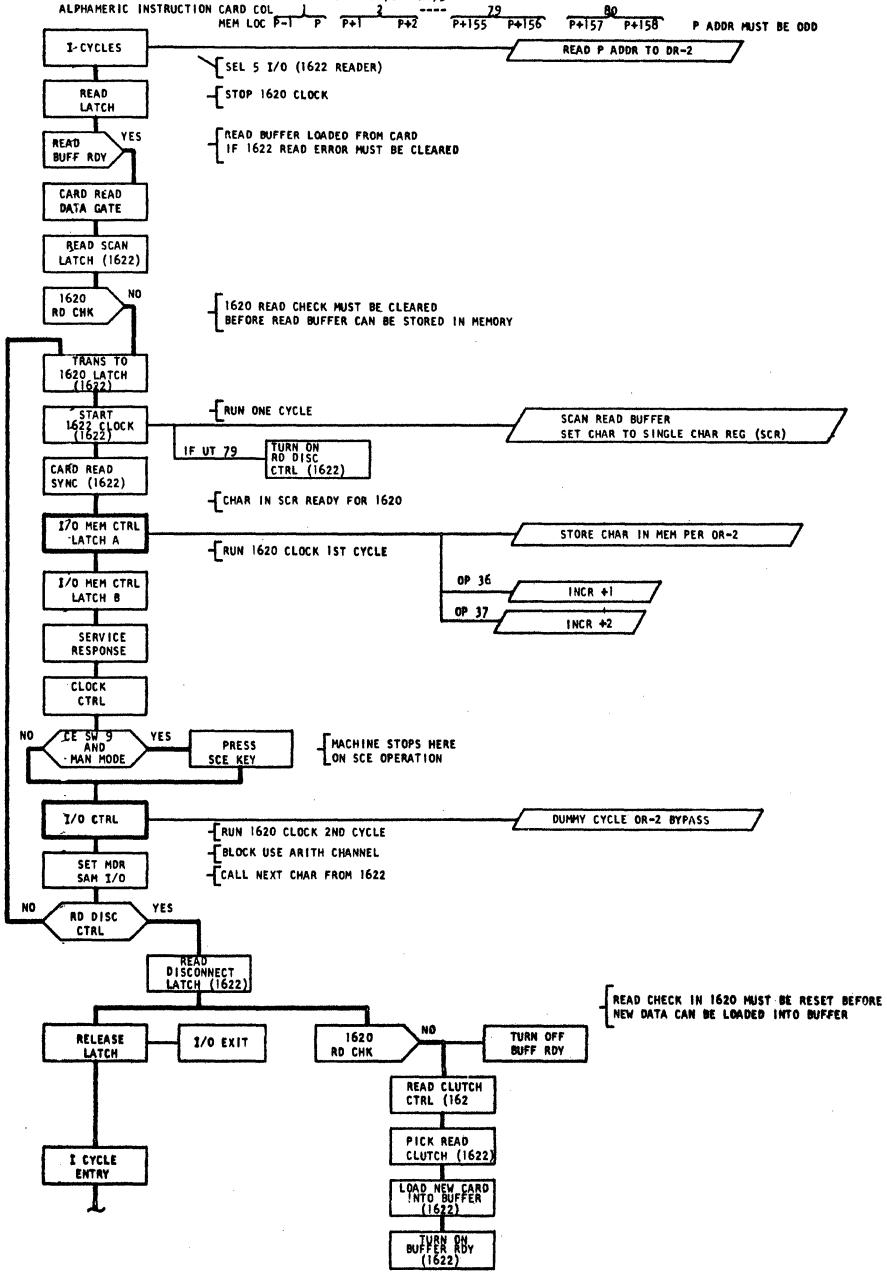
36 RN READ NUMERICALLY
37 RA REA ALPHAMERICALLY

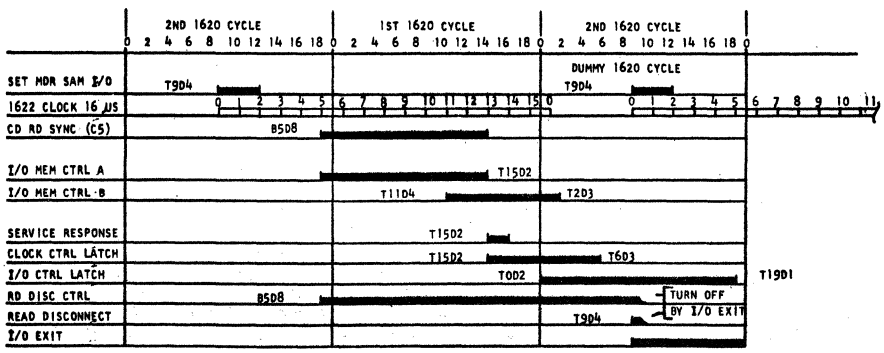
FUNCTION CHART	PAGE REF
RELEASE	10.01.49.1
READ LATCH	10.01.50.1
RESP GATE, I/O MEM CTRL	10.01.53.1
1622 CARD READER	10.01.70.1

INSTRUCTION: $0_0 0_1$ $A_2 A_3 A_4 A_5 A_6$ $Q_7 Q_8 5_9 Q_{10} Q_{11}$ 05 SELECTS 1622 READER

PURPOSE: READ 80 CHAR FROM A CARD
STORE IN MEMORY STARTING FROM P ADDR THRU SUCCESSIVELY HIGHER NUMBERED LOCATIONS

NUMERIC INSTRUCTION CARD COL 1 2 --- 79 80
MEM LOC P P+1 P+78 P+79
ALPHAMERIC INSTRUCTION CARD COL 1 2 79 80
MEM LOC P-1 P P+1 P+2 P+155 P+156 P+157 P+158 P ADDR MUST BE ODD





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35 DN DUMP NUMERICALLY
38 WN WRITE NUMERICALLY
39 WA WRITE ALPHAMERICALLY

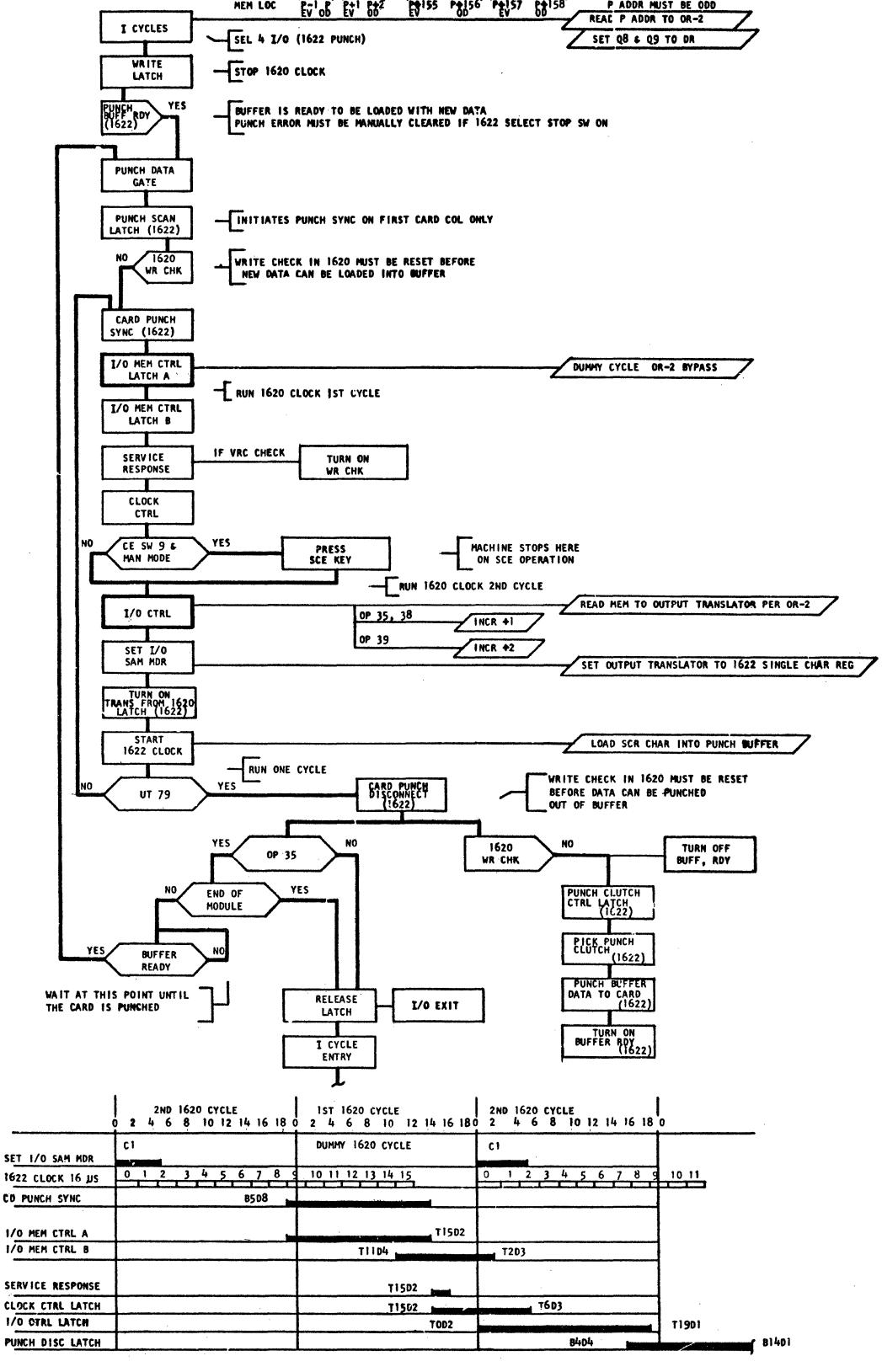
FUNCTION CHART	PAGE REF
RELEASE	10.01.49.1
WRITE LATCH	10.01.51.1
RESP GATE, I/O MEM CTRL	10.01.53.1
1622 CARD PUNCH	10.01.70.1

INSTRUCTION: $0_0 0_1$ $P_2 P_3 P_4 P_5 P_6$ $Q_7 Q_8 Q_9 Q_{10} Q_{11}$ 04 SELECTS 1622 PUNCH

PURPOSE: PUNCH 80 CHAR INTO CARD STARTING FROM P ADDR THRU SUCCESSIVELY HIGHER NUMBERED LOCATIONS IN MEMORY

NUMERIC INSTRUCTION: CARD COL 1 2 -------- 79 80 MEM ADDR=P+CC-1
MEM LOC P P+1 P+78 P+79

ALPHAMERIC INSTRUCTION: CARD COL 1 2 ------ 79 80 MEM ADDR=P+2(CC-1)
MEM LOC P-1 P EV OD | P+1 P+2 EV OD | P+155 P+156 EV OD | P+157 P+158 EV OD
P ADDR MUST BE ODD

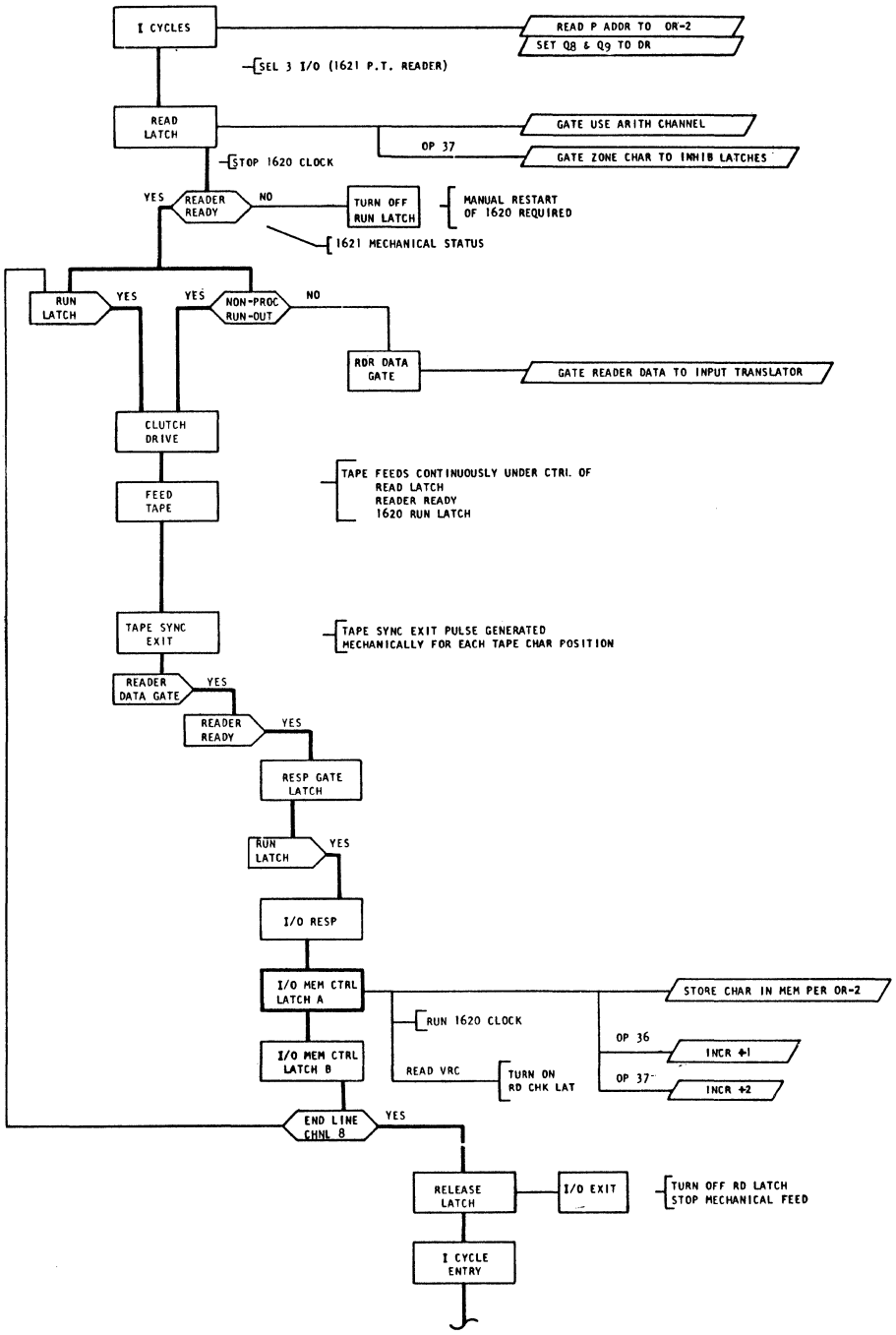


36 RN READ NUMERICALLY
37 RA READ ALPAMERICALLY

FUNCTION CHART	PAGE REF
RELEASE, R/S	10.01.49.1
READ LATCH	10.01.50.1
RESP GATE, I/O MEM CTRL	10.01.53.1
1621	10.01.66.1

INSTRUCTION: $0_0 0_1$ $P_2P_3P_4P_5P_6$ $0_7 0_8 0_9 0_{10} 0_{11}$ 03 SELECTS 1621 PAPER TAPE READER

PURPOSE: READ CHARACTERS FROM TAPE INTO MEMORY STARTING AT P ADDR
OP 37 READ ALPHAMERIC CHAR INTO P ODD AND P-1 EVEN ADDR

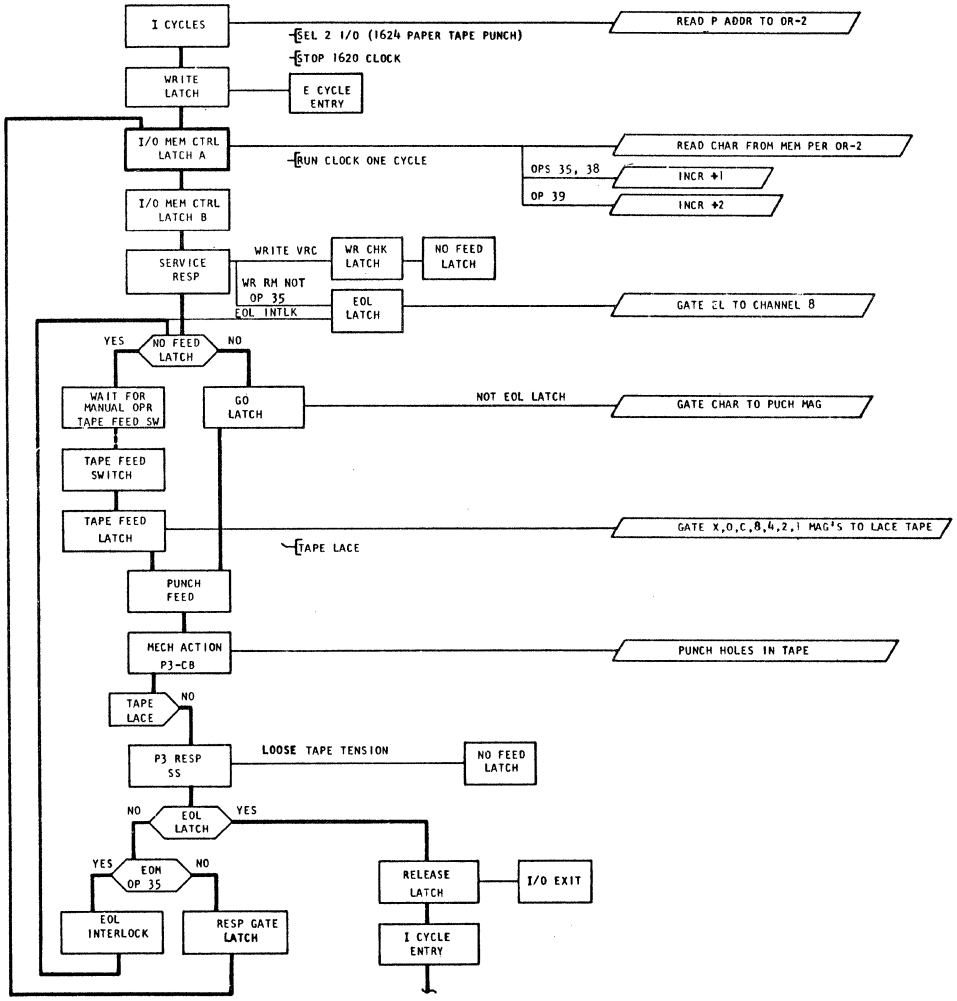


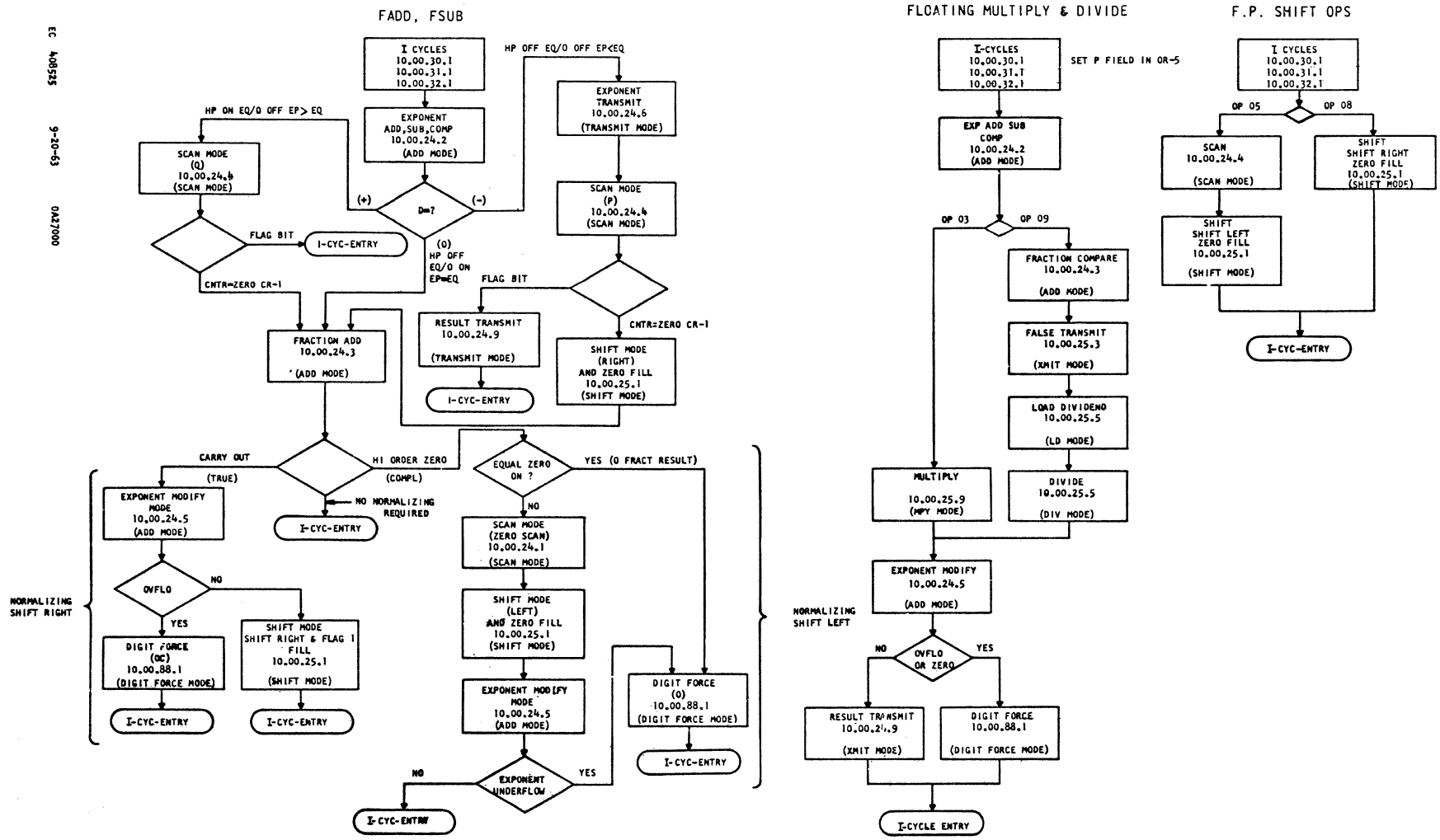
35 DN DUMP NUMERICALLY
38 WN WRITE NUMERICALLY
39 WA WRITE ALPHAMERICALLY

FUNCTION CHART	PAGE REF
RELEASE, R/S	10.01.49.1
WRITE LATCH	10.01.51.1
RESP GATE, I/O MEM CTRL	10.01.53.1
1624	10.01.68.1

INSTRUCTION: $0_0 0_1$ $P_2 P_3 P_4 P_5 P_6$ $Q_7 Q_8 3_9 Q_{10} Q_{11}$ 02 SELECTS 1624 PAPER TAPE PUNCH

PURPOSE: OP 35 DN PUNCH ALL CHAR INCLUDING FLAGS FROM P ADDR TO END OF MEMORY MODULE
OP 38 WN SAME AS OP 35 EXCEPT TERMINATE PUNCHING ON RM IN MEM
OP 39 WA PUNCH ALPHAMERIC CHAR FROM P ODD AND P-1 EVEN ADDR. TERMINATE ON RM IN MEM.




FADD, FSUB
I CYCLES 10.00.30.1 10.00.31.1 10.00.32.1
EXPONENT ADD,SUB,COMP 10.00.24.2 (ADD MODE)
HP OFF EQ/0 OFF EP<EQ
EXPONENT TRANSMIT 10.00.24.6 (TRANSMIT MODE)
HP ON EQ/0 OFF EP> EQ
SCAN MODE (Q) 10.00.24.6 (SCAN MODE)
(+) D=? (-)
(0) HP OFF EQ/0 ON EP=EQ
SCAN MODE (P) 10.00.24.6 (SCAN MODE)
FLAG BIT
I-CYC-ENTRY
CNTR=ZERO CR-1
FRACTION ADD 10.00.24.3 (ADD MODE)
RESULT TRANSMIT 10.00.24.9 (TRANSMIT MODE)
SHIFT MODE (RIGHT) AND ZERO FILL 10.00.25.1 (SHIFT MODE)
CARRY OUT (TRUE)
HI ORDER ZERO (COMPL)
NO NORMALIZING REQUIRED
EQUAL ZERO ON ?
YES (0 FRACT RESULT)
NO
EXPONENT MODIFY MODE 10.00.24.5 (ADD MODE)
OVFLO
YES
NO
DIGIT FORCE (OC) 10.00.88.1 (DIGIT FORCE MODE)
SHIFT MODE SHIFT RIGHT & FLAG 1 FILL 10.00.25.1 (SHIFT MODE)
SCAN MODE (ZERO SCAN) 10.00.24.1 (SCAN MODE)
SHIFT MODE (LEFT) AND ZERO FILL 10.00.25.1 (SHIFT MODE)
EXPONENT MODIFY MODE 10.00.24.5 (ADD MODE)
DIGIT FORCE (0) 10.00.88.1 (DIGIT FORCE MODE)
EXPONENT UNDERFLOW
NORMALIZING SHIFT RIGHT
FLOATING MULTIPLY & DIVIDE
I-CYCLES 10.00.30.1 10.00.31.1 10.00.32.1
SET P FIELD IN OR-5
EXP ADD SUB COMP 10.00.24.2 (ADD MODE)
OP 03
OP 09
FRACTION COMPARE 10.00.24.3 (ADD MODE)
FALSE TRANSMIT 10.00.25.3 (XMIT MODE)
LOAD DIVIDEND 10.00.25.5 (LD MODE)
MULTIPLY 10.00.25.9 (MPY MODE)
DIVIDE 10.00.25.5 (DIV MODE)
EXPONENT MODIFY 10.00.24.5 (ADD MODE)
NORMALIZING SHIFT LEFT
OVFLO OR ZERO
RESULT TRANSMIT 10.00.24.9 (XMIT MODE)
DIGIT FORCE 10.00.88.1 (DIGIT FORCE MODE)
I-CYCLE ENTRY
F.P. SHIFT OPS
I CYCLES 10.00.30.1 10.00.31.1 10.00.32.1
OP 05
OP 08
SCAN 10.00.24.4 (SCAN MODE)
SHIFT SHIFT RIGHT ZERO FILL 10.00.25.1 (SHIFT MODE)
SHIFT SHIFT LEFT ZERO FILL 10.00.25.1 (SHIFT MODE)
I-CYC-ENTRY

PURPOSE OF EXP ADD,SUB:
COMBINE IN
FMUL & FDIV

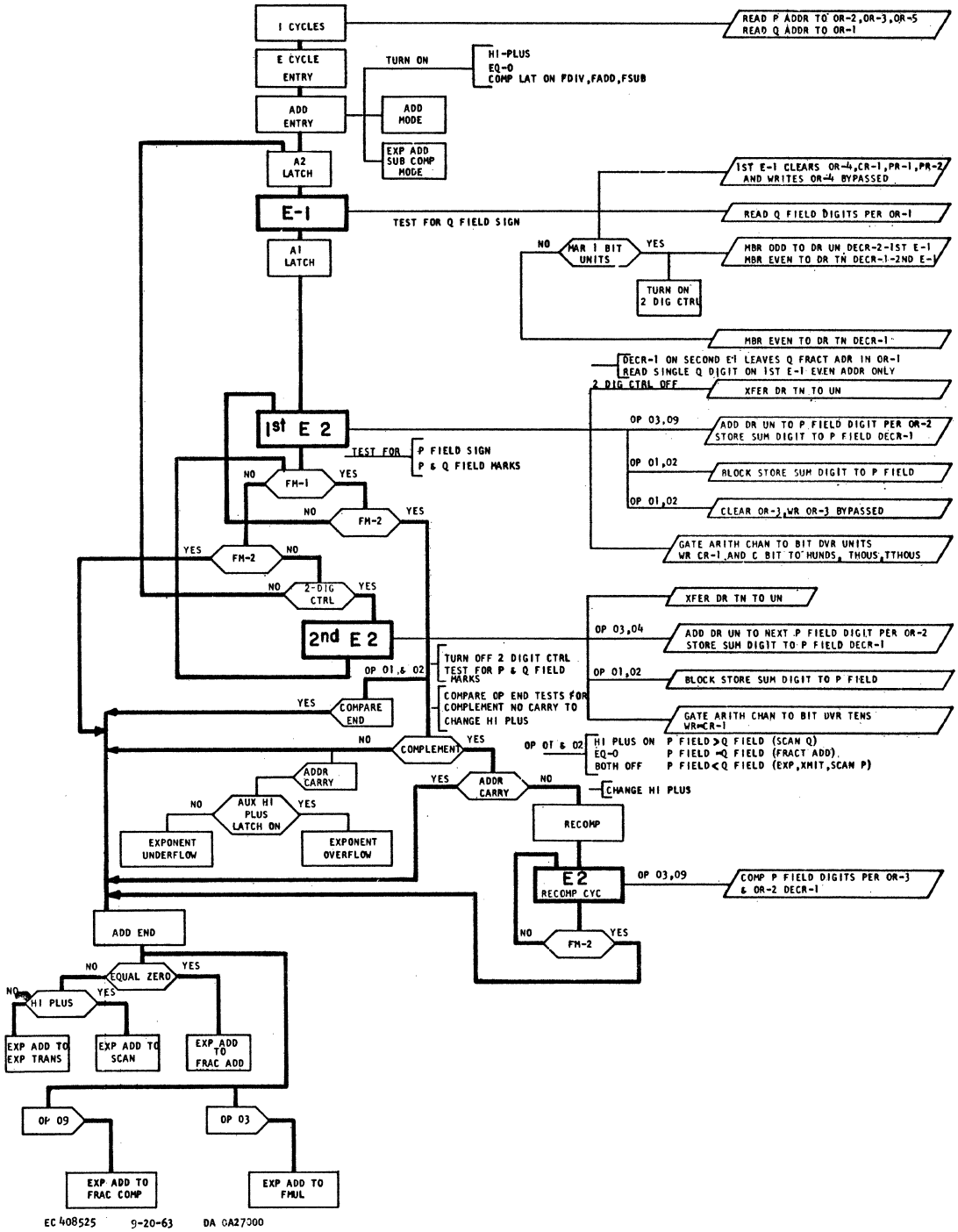
PURPOSE OF COMPARE
PLACE EXP DIFFERENCE
IN CR-1 FOR SCAN
IN FADD,FSUB

BASIC MODE CONTROL:
ADD MODE E1 2 DIG E2
MARS USED OR-1 OR-2 (OR-3)

LEAVE OR-4 Q EXP
OR-1 Q FRACT
OR-5 P EXP

OP 01,02
OR-3 P FRACT
OR-2 P FRACT
CR-1 EXP DIFFERENCE

FUNCTION CHART	PAGE REF
EXP ADD, SUB, COMP	10.00.80.1



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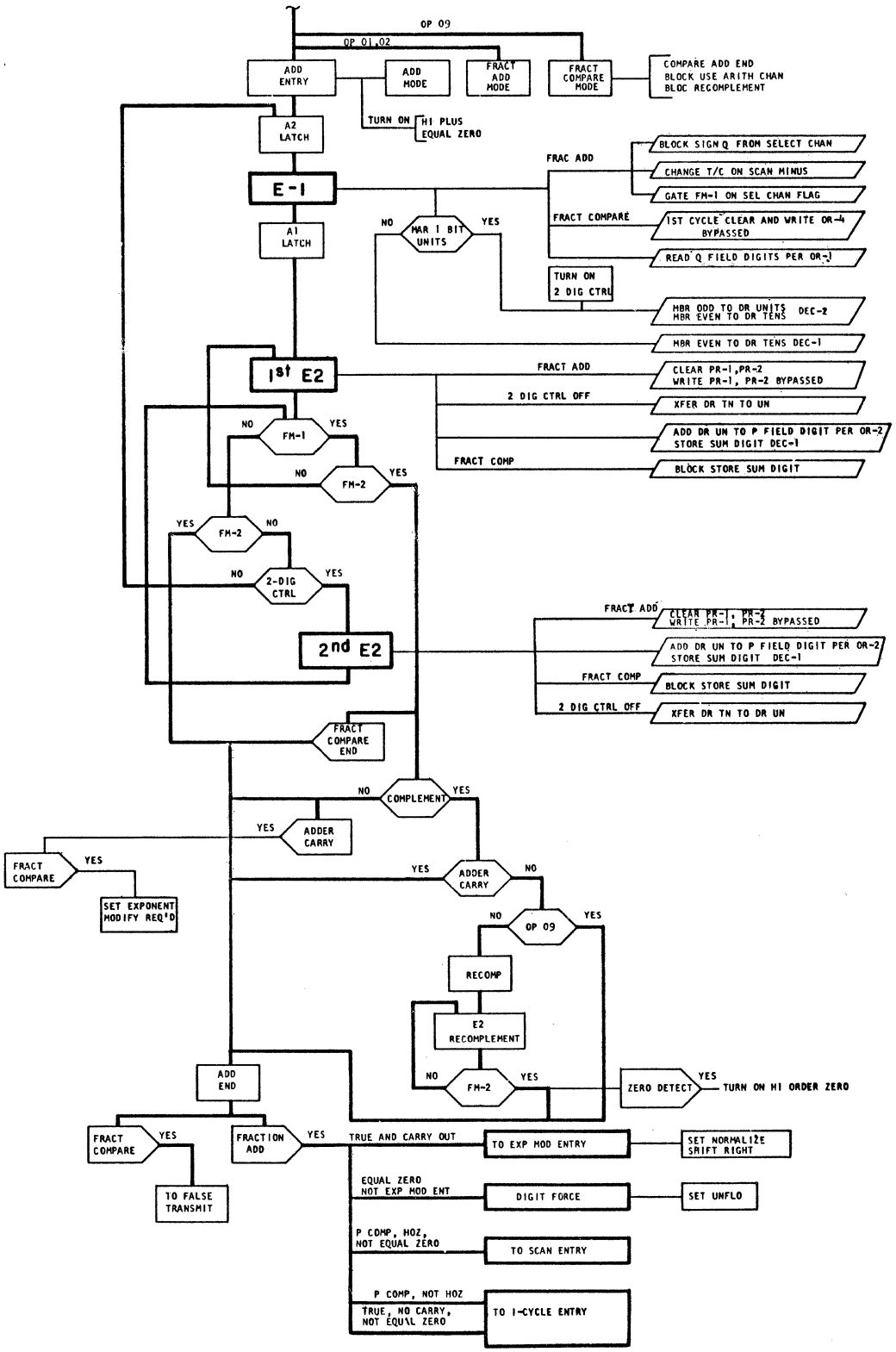
PURPOSE OF FRACTION ADD: FADD, FSUB OPS ADD THE PRESHIFTED FRACTIONS TO P FIELD
BASIC MODE CONTROL: ADD MODE E1 E2
MARS USED OP-1 OR-2 (OR-3)
LEAVE PR-1, PR-2 TO HI ORDER POS OF FRACTION

PURPOSE OF FRACTION COMPARE: FDIV OP COMPARES FRACTIONS TO DETERMINE IF EXP MOD IS REQUIRED
BASIC MODE CONTROL : ADD MODE E1 E2
MARS USED OR-1 OR-2
SAVE OR-1 IN OR-4 FOR 1ST DIV SUB CYCLE

* FUNCTION CHART	PAGE REF
FRACTION ADD MODE FRACTION COMPARE MODE	10.00.85.1 10.00.90.1



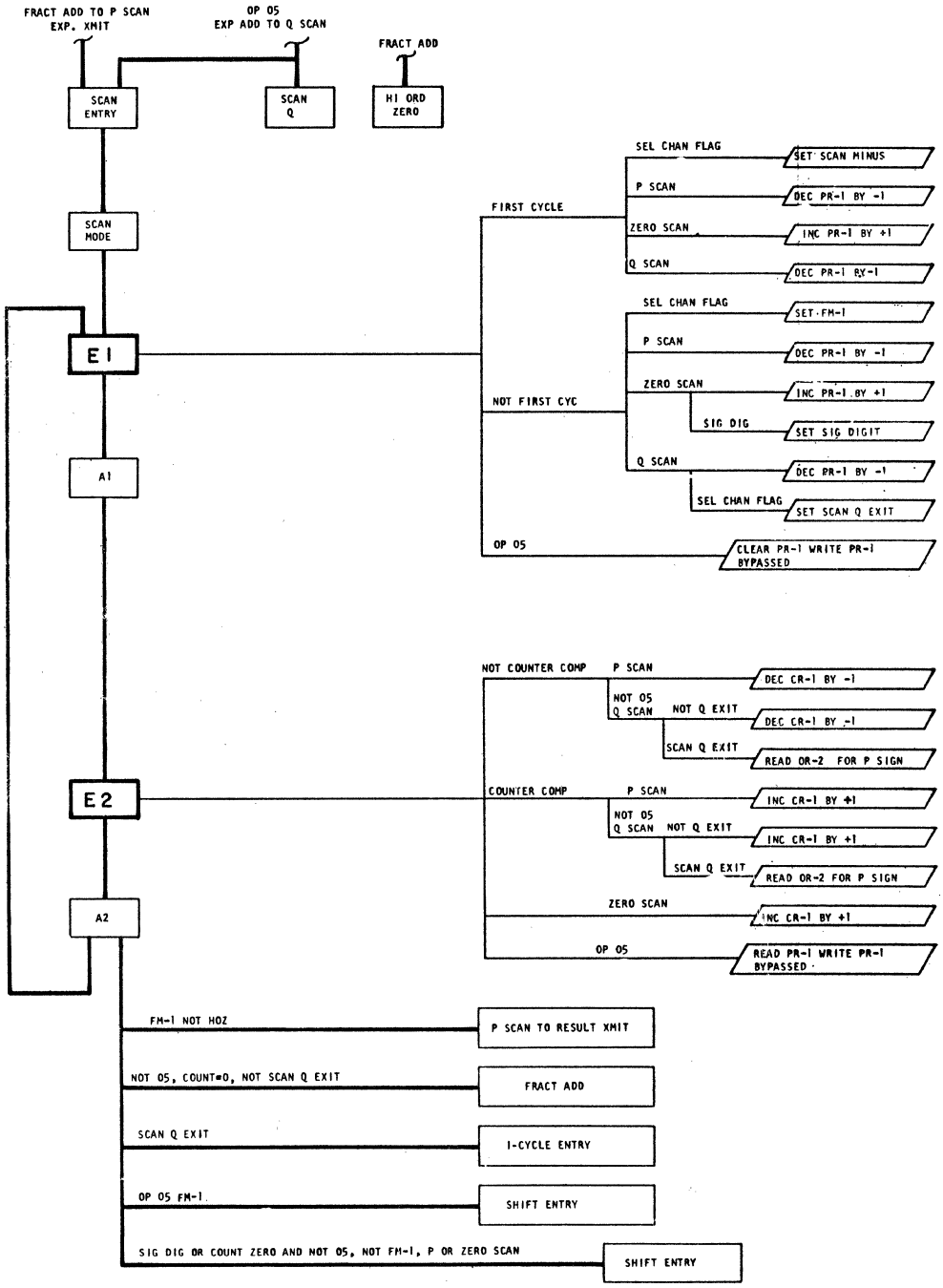
PURPOSE: 1) TO SCAN P OR Q FIELDS TO ADJUST FRACTIONS FOR ADD SUBTRACT
2) TO COUNT THE NUMBER OF LEADING ZEROS FOR NORMALIZATION
3) TO SCAN FRACTION FOR SIGN AND HI ORDER DIGIT FOR SHIFT OP

MARS USED:

	E1	E2
P OR ZERO SCAN	PR-1	CR-1
Q SCAN	OR-1	CR-1
OP 05	OR-1	PR-1

SCAN Q LATCH CONTROL FOR SCAN Q OR OP 05
HI ORDER ZERO LATCH CONTROL FOR ZERO SCAN

FUNCTION CHART	PAGE REF
SCAN MODE	10.00.82.1

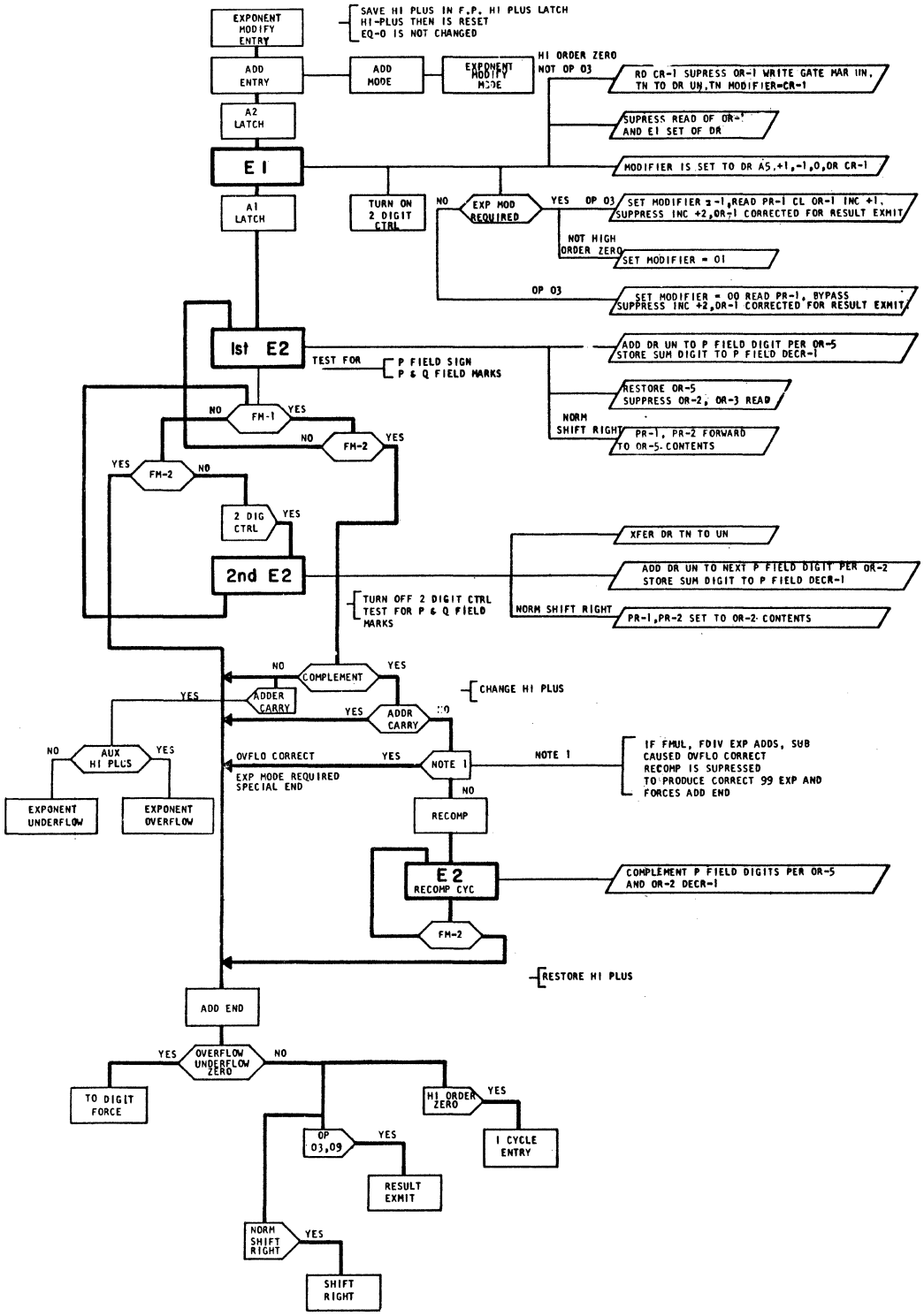


PURPOSE OF EXP MODIFY MODE:

1) MODIFY P EXP BY 0, +1, -1, OR CR-1
2) CORRECT OR-1 FOR RESULT XMIT
3) ON NORM SHIFT RIGHT LEAVE PR-1, PR-2 TO P FRACT

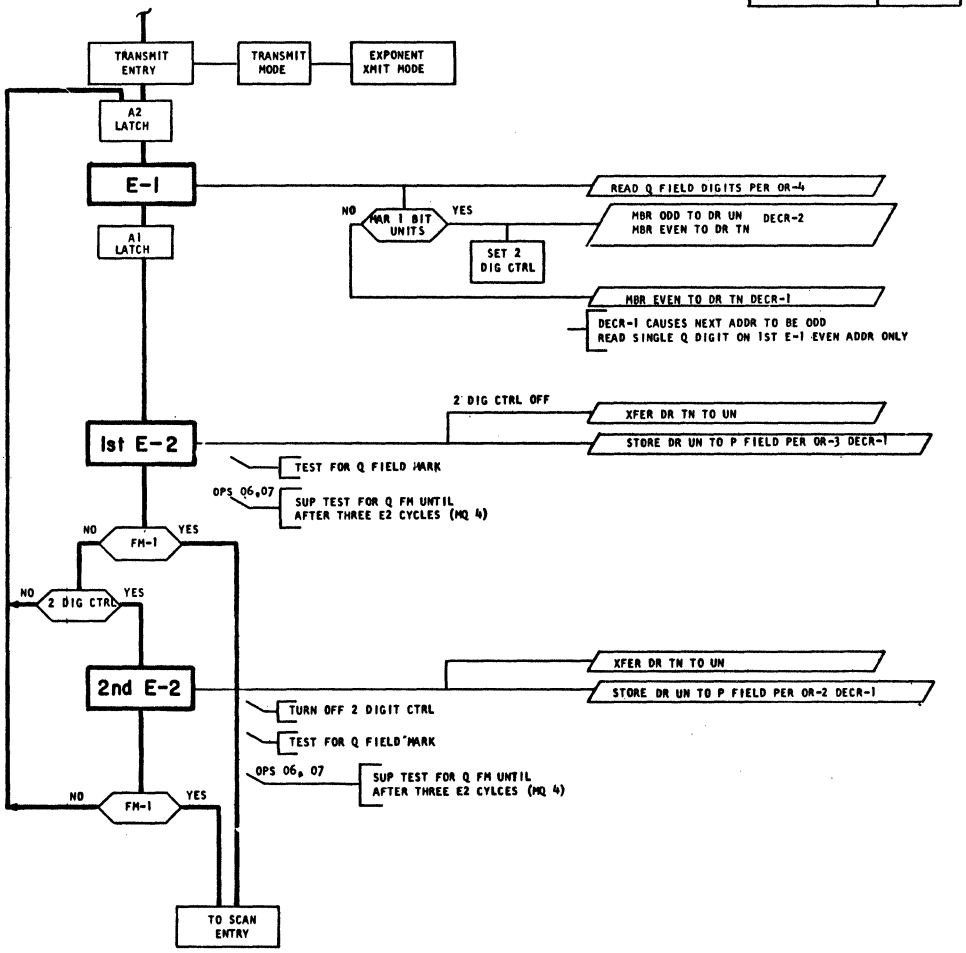
BASIC MODE CONTROLS:
ADD MODE E1, E2
MARS USED:
OP 03, PR-1, OR-2, OR-5 1ST CYC
NOT OP 03, CR-1, OR-2, OR-5 1ST CYC

FUNCTION CHART	PAGE REF
EXPONENT MODIFY ENTRY	10.00.86.1
EXPONENT MODIFY MODE	10.00.87.1



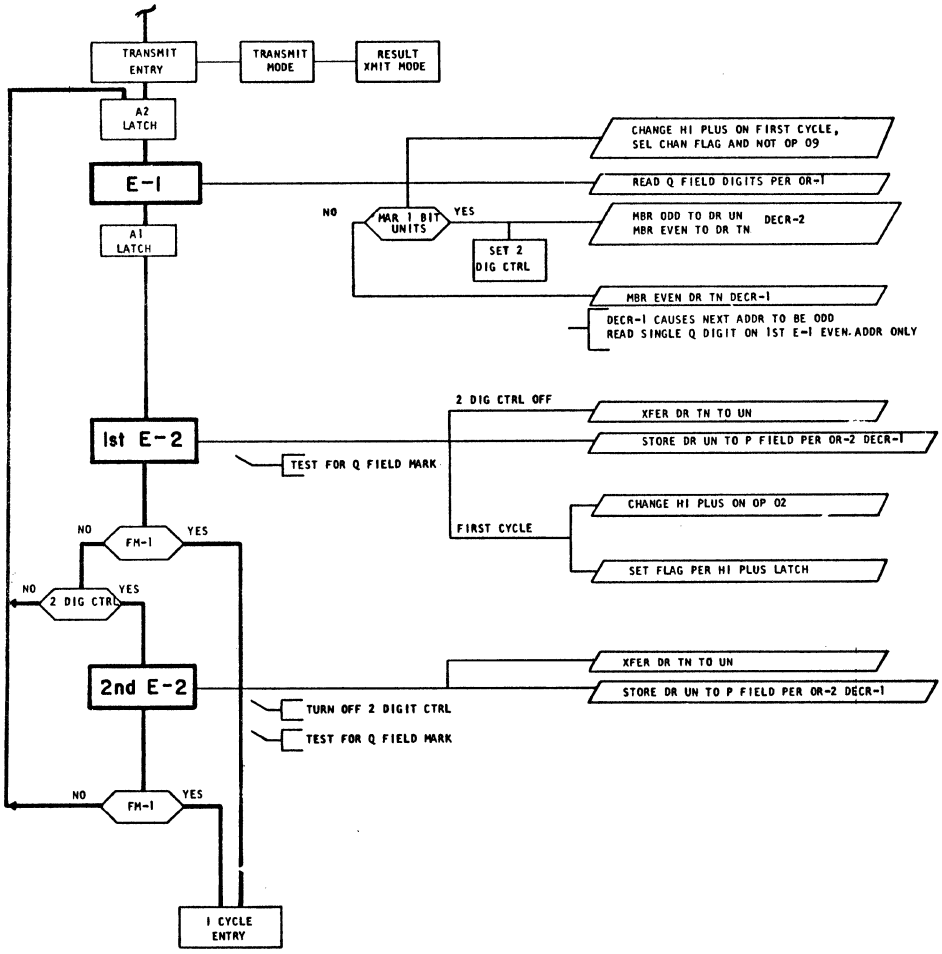
PURPOSE: TRANSMIT EXP TO P ADDRESS
BASIC TRANSMIT MODE E1 E2
MARS USED OR-4 OR-3

FUNCTION CHART	PAGE REF
EXP XMIT	10.00.81.1
XMIT OPS	10.00.52.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1



PURPOSE: TRANSMIT FRACTION RESULT TO P ADDRESS
BASIC MODE CONTROLS: TRANSMIT E1 E2
MARS USED OR-1 OR-2

FUNCTION CHART	PAGE REF
RESULT XMIT	10.00.83.1
XMIT OPS	10.00.5?.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1,E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1



PURPOSE: 1) SHIFT P FRACTION RIGHT AND ZERO FILL TO ALIGN FRACTIONS FOR ADDING

2) SHIFT FRACT ADD SUM RIGHT 1 POS AND FORCE FLAG ONE ON FRACT ADD WITH CARRY OUT

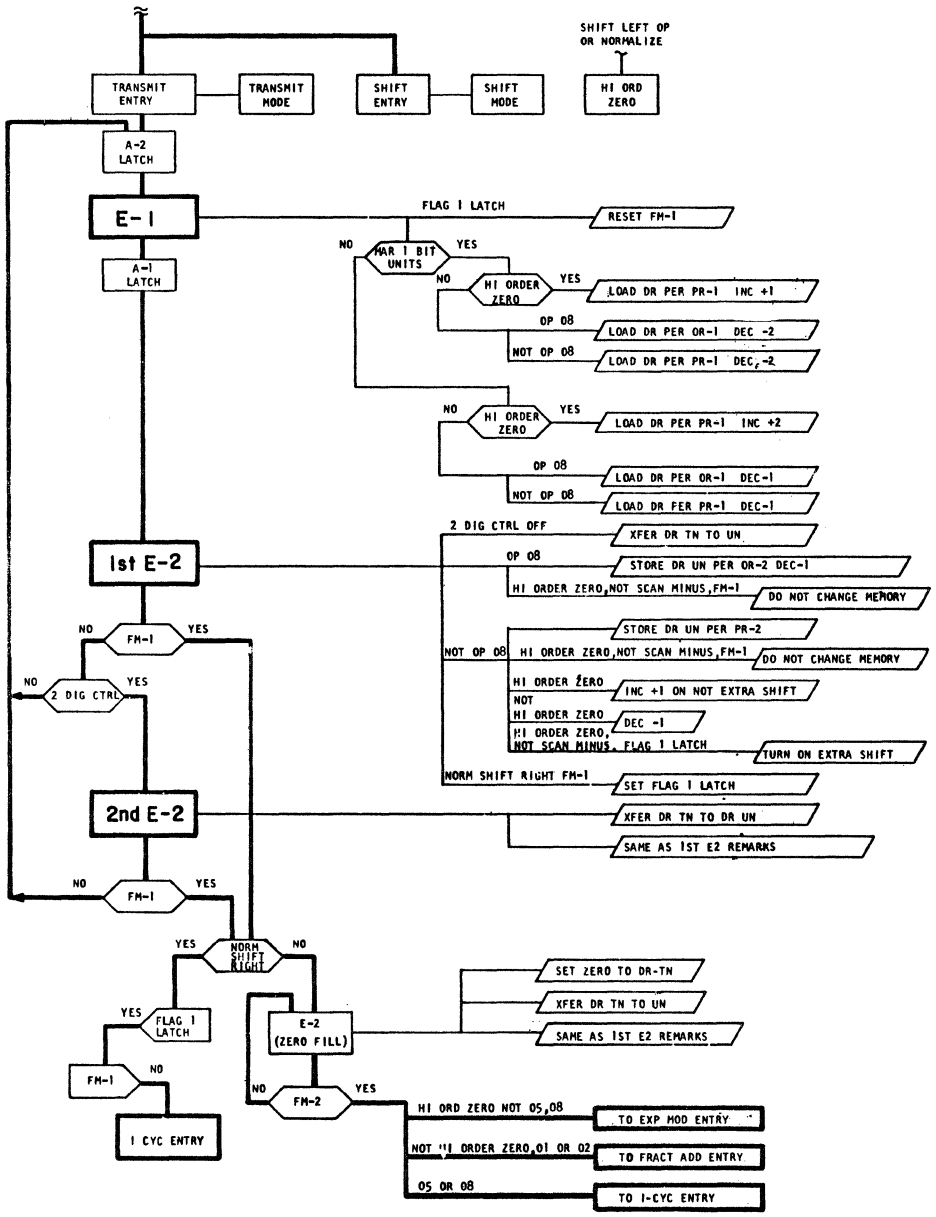
3) SHIFT UNNORMALIZED SUM LEFT TO NORMALIZE AND ZERO FILL REST OF FIELD

4) OP 05/08 SHIFT FRACTION LEFT/RIGHT AND ZERO FILL TO LENGTHEN/SHORTEN FRACTION

BASIC MODE CONTROL: TRANSMIT MODE E1 E2

MARS USED: NOT 08 PR-1 PR-2
08 OR-1 OR-2
ZERO FILL PR-2
08 OR-2

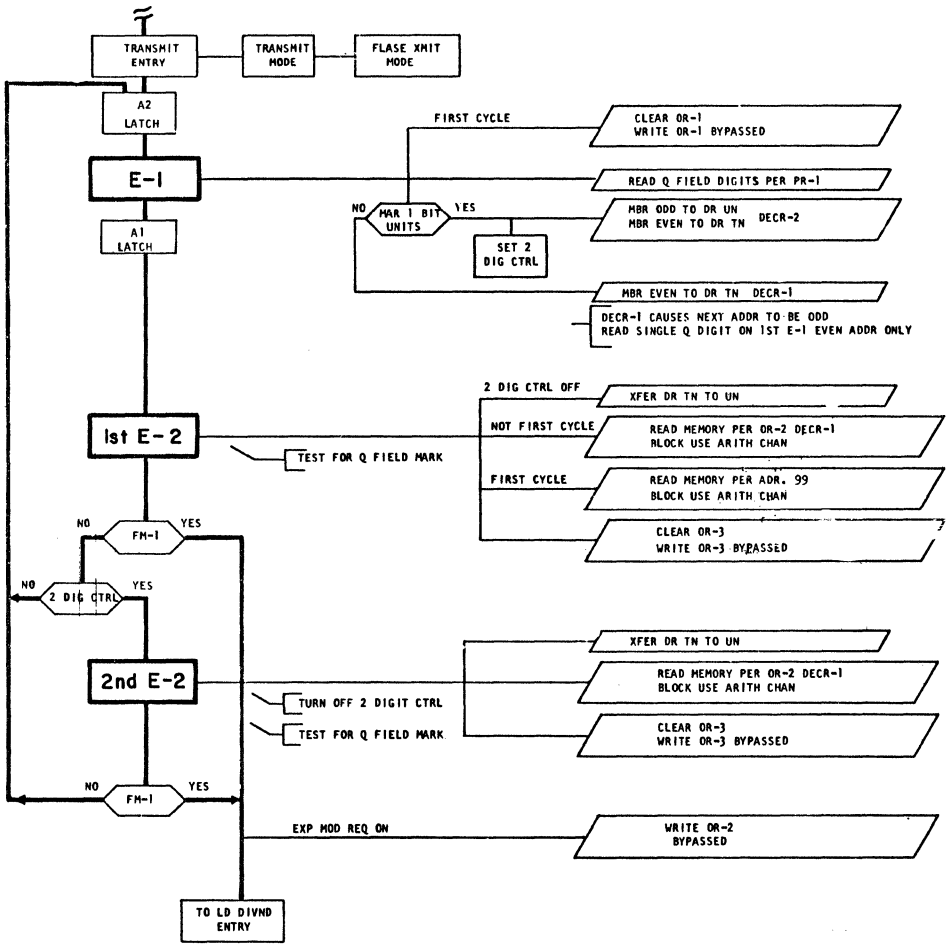
FUNCTION CHART	PAGE REF
F.P. SHIFT AND ZERO FILL	10.00.84.1



PURPOSE: DETERMINE "L" FOR LOAD DIVIDEND
BASIC MODE: XMIT E1 E2
MARS USED PR-1 OR-2

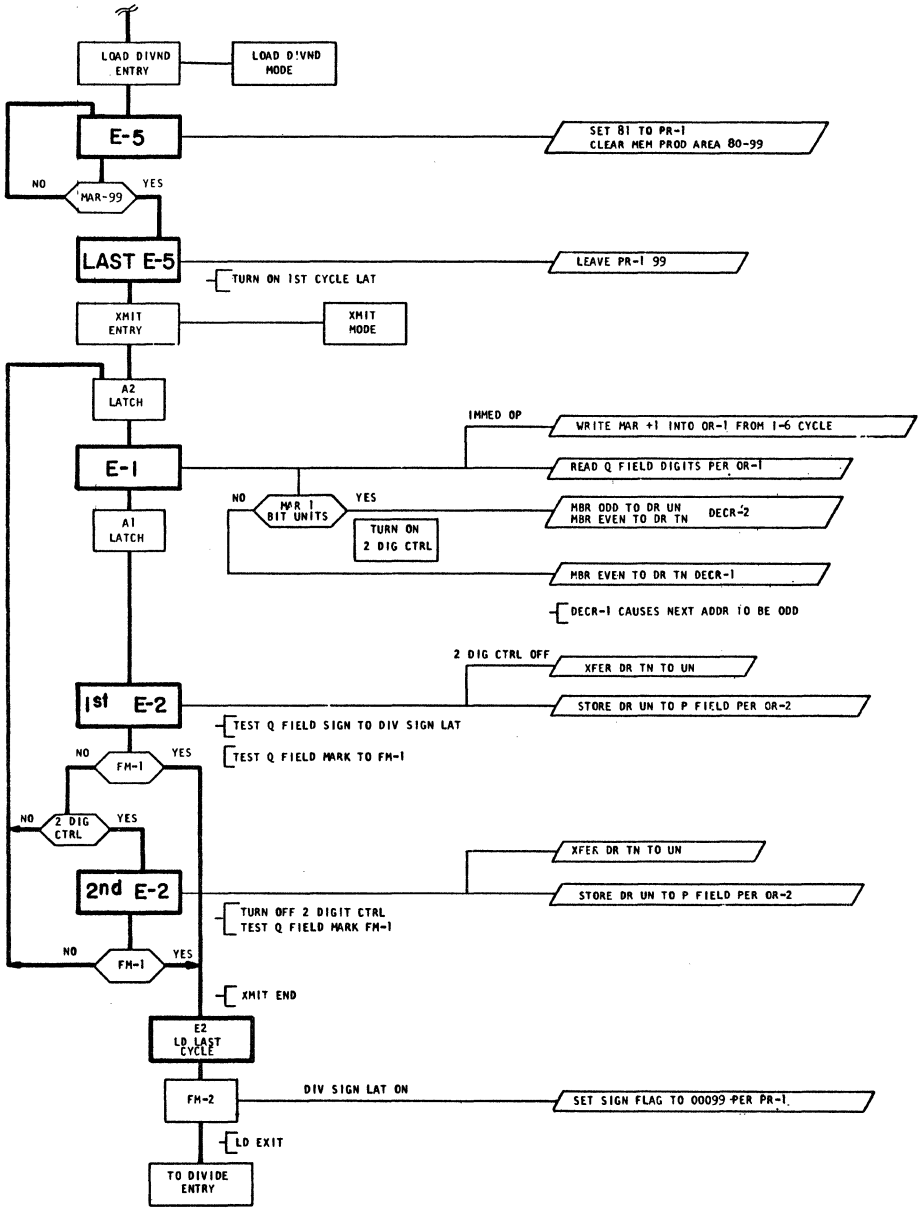
FALSE XMIT LEAVES OR-2 AT 100-L IF EXP MOD REQ
99-L IF NOT EXP MOD REQ
OR-3 AT 100-L
OR-1 IS RESTORED TO P FRACTION

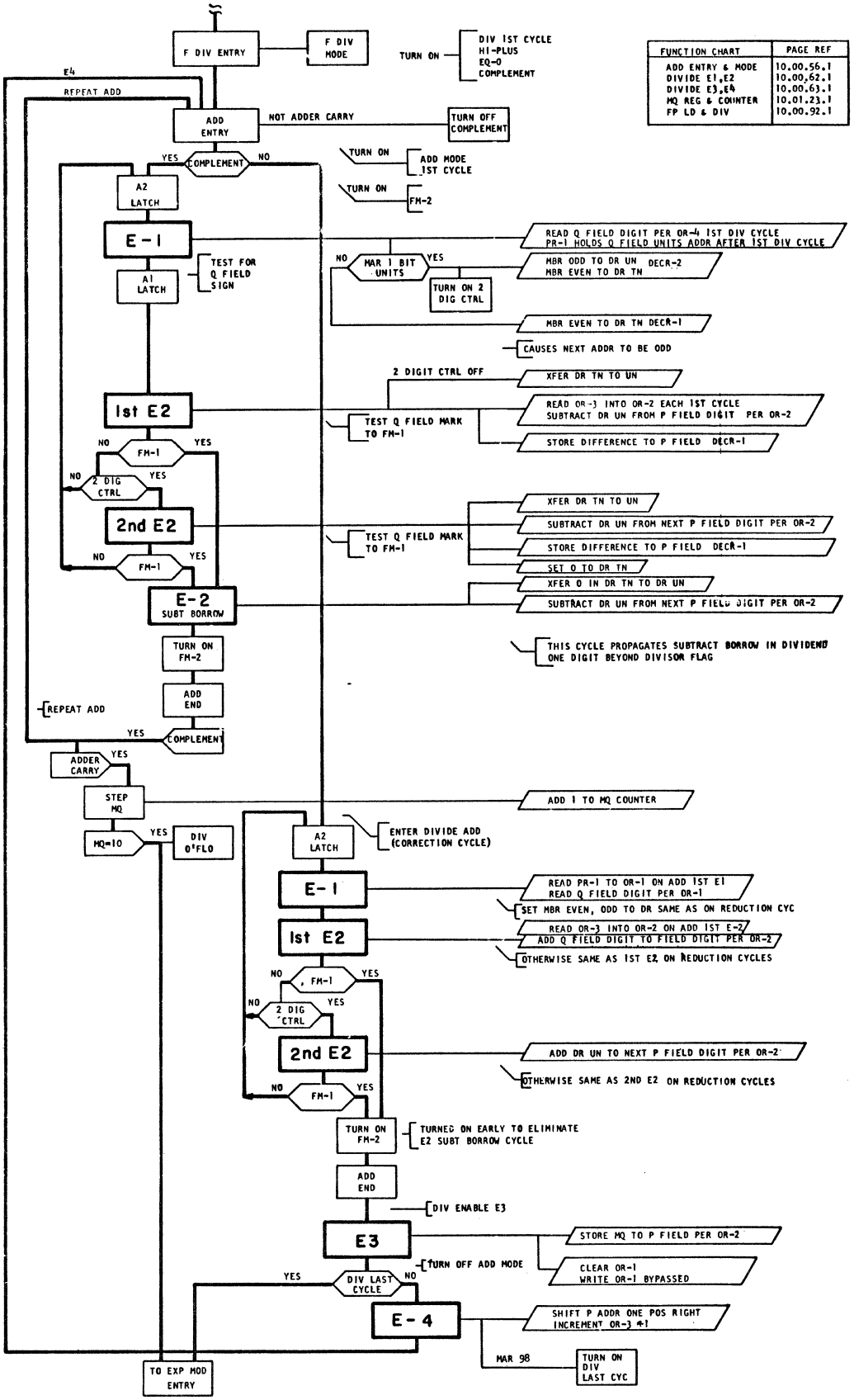
FUNCTION CHART	PAGE REF
F.P. FALSE XMIT	10.00.91.1



FUNCTION CHART	PAGE REF
CLEAR PROD AREA E5	10.00.58.1
LOAD	10.00.61.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1
F.P. LD AND DIV	10.00.92.1

PURPOSE: CLEAR PRODUCT AREA
LOAD DIVIDEND TO
PRODUCE NORMALIZED QUOTIENT

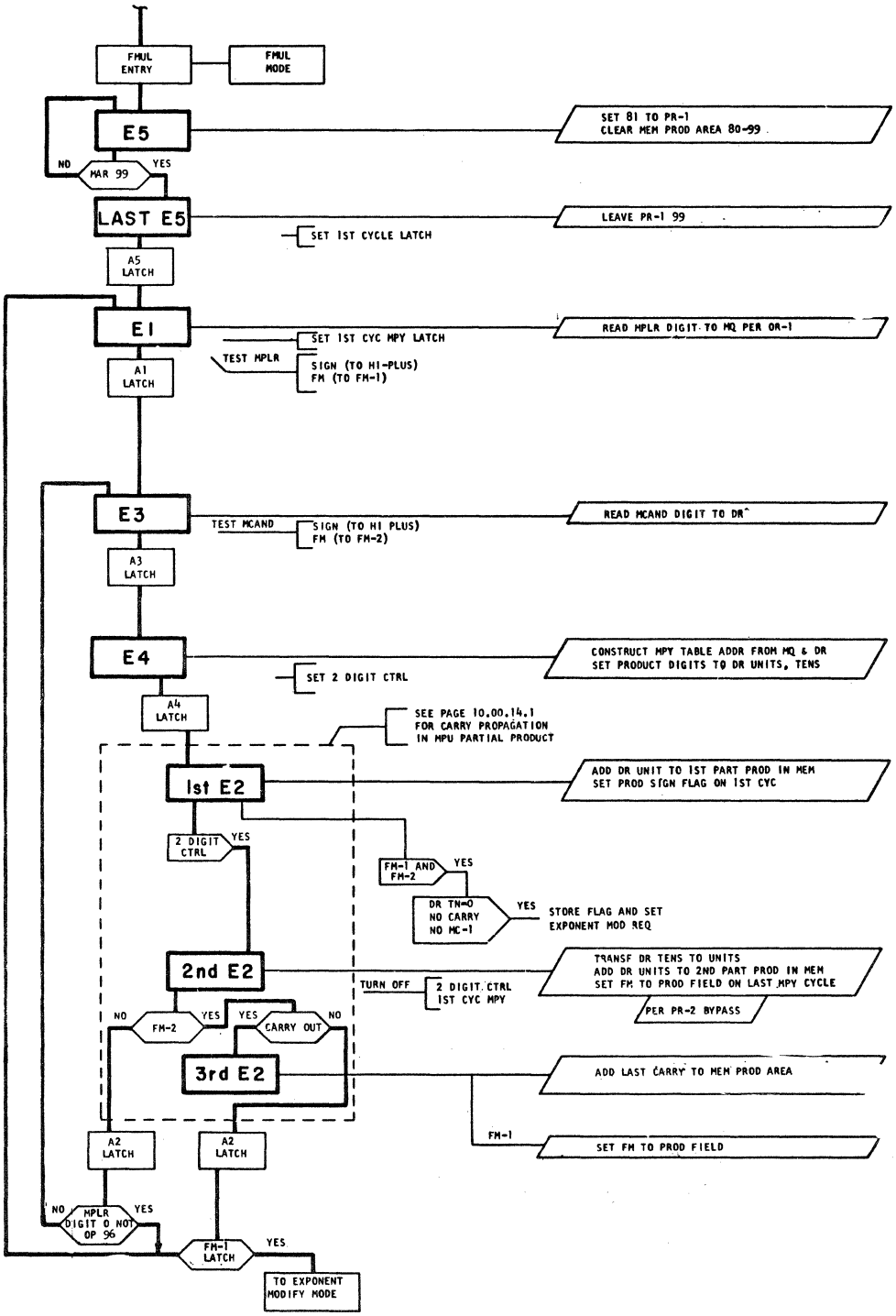




FUNCTION CHART	PAGE REF
ADD ENTRY & MODE	10.00.56.1
DIVIDE E1,E2	10.00.62.1
DIVIDE E3,E4	10.00.63.1
MQ REG & COUNTER	10.01.23.1
FP LD & DIV	10.00.92.1

PURPOSE: MULTIPLY FRACTIONS TOGETHER TO PP AREA
DETERMINE 2L OR 2L-1 PRODUCT AND IF EXP MOD IS REQD
SET FLAG ON HI ORDER DIGIT (NORMALIZE)

FUNCTION CHART	PAGE REF
FMUL	10.00.89.1
CLEAR PROD AREA E5	10.00.58.1
MPY E1, E3, E4	10.00.59.1
MPY E2	10.00.60.1
MQ REG & COUNTER	10.01.23.1
MPY PROP CARRY	10.00.13.1

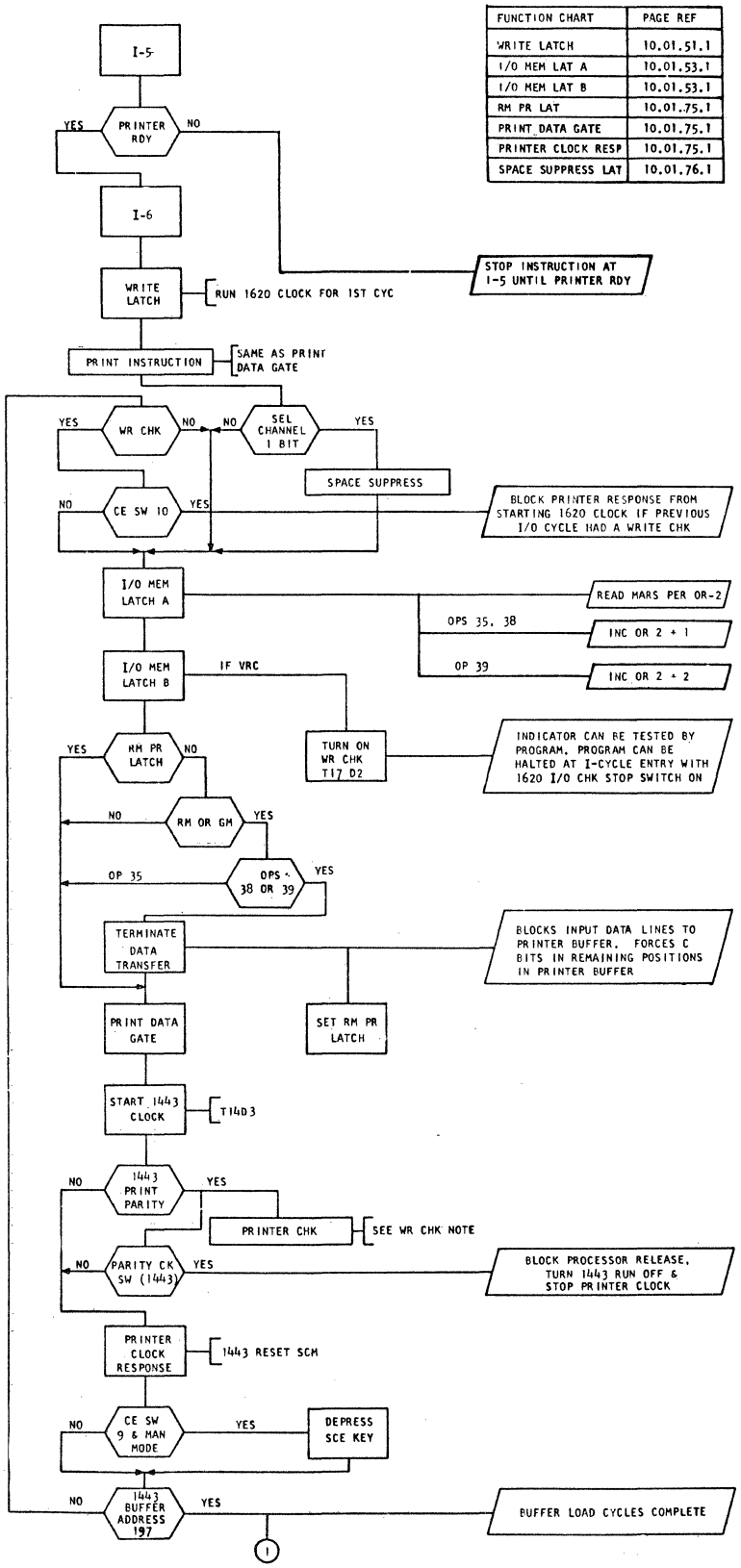


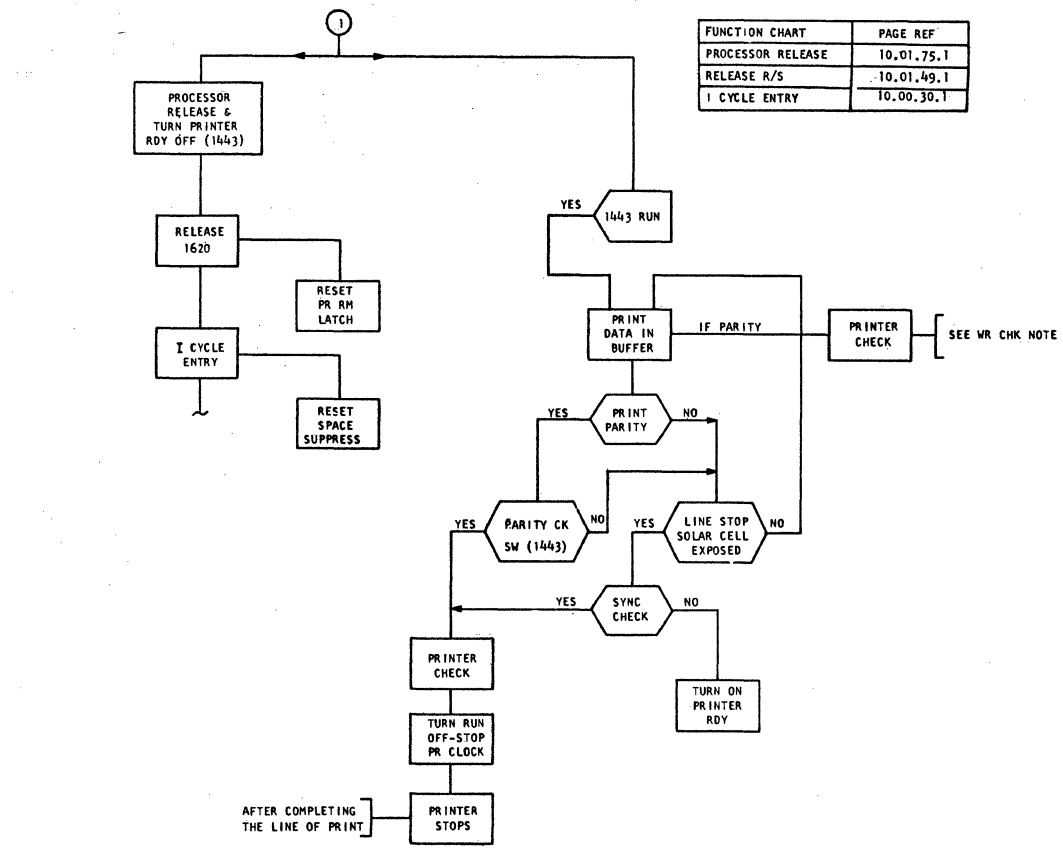
5 DN DUMP NUMERICALLY
8 WN WRITE NUMERICALLY
39 WA WRITE NUMERICALLY

INSTRUCTION: O_0 O_1 P_2 P_3 P_4 P_5 P_6 Q_7 O_8 9_9 Q_{10} Q_{11} 09 IN Q_8 & Q_9 SELECTS PRINTER

PURPOSE: TO PRINT ONE LINE (120 CHAR) FROM P ADDRESS THRU SUCCESSIVELY HIGHER LOCATIONS IN MEMORY. 1 IN Q_{11} WILL SUPPRESS THE SPACE AFTER PRINT

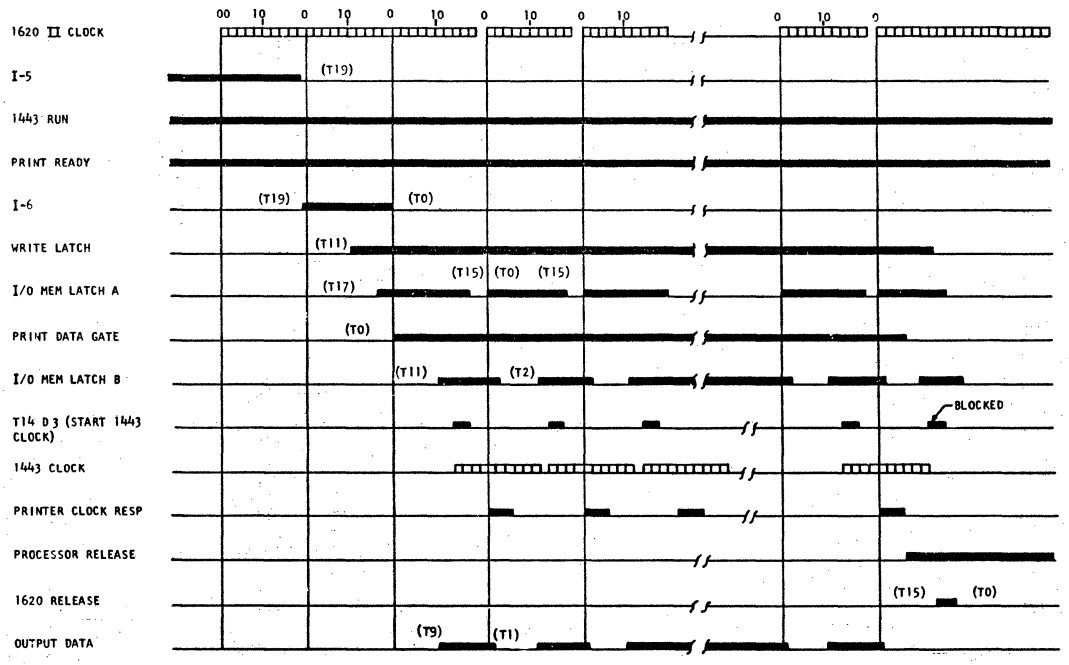
FUNCTION CHART	PAGE REF
WRITE LATCH	10.01.51.1
I/O MEM LAT A	10.01.53.1
I/O MEM LAT B	10.01.53.1
RM PR LAT	10.01.75.1
PRINT DATA GATE	10.01.75.1
PRINTER CLOCK RESP	10.01.75.1
SPACE SUPPRESS LAT	10.01.76.1





FUNCTION CHART	PAGE REF
PROCESSOR RELEASE	10.01.75.1
RELEASE R/S	10.01.49.1
I CYCLE ENTRY	10.00.30.1

PRINT WRITE TIMING (LOAD 1443 BUFFER)

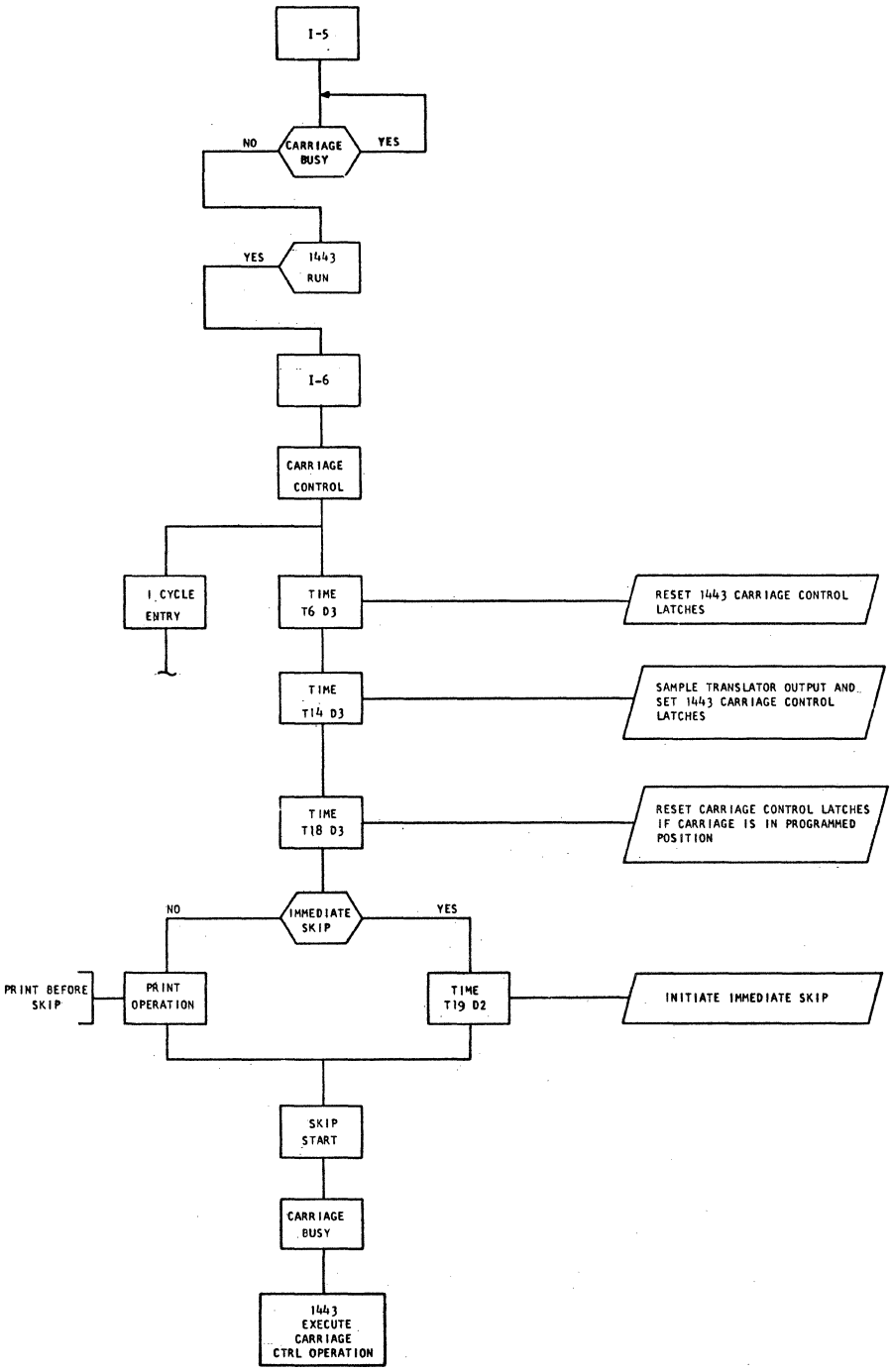


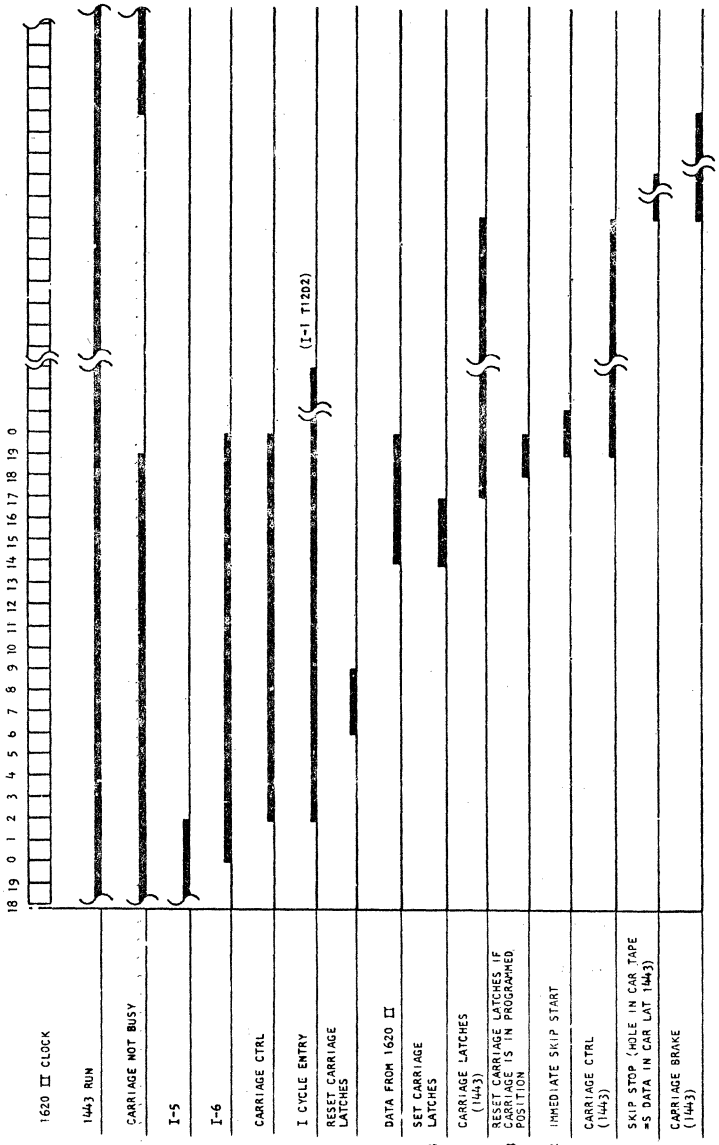
FUNCTION CHART	REF PAGE
CARRIAGE CONTROL	10.01.76.1
I CYCLE ENTRY	10.00.30.1

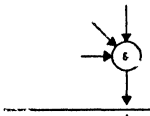
34 K CONTROL

$0_0\ 0_1\ P_2\ P_3\ P_4\ P_5\ P_6\ Q_7\ 0_8\ 9_9\ Q_{10}\ Q_{11}$ 09 SELECTS 1443 PRINTER

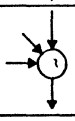
PURPOSE: CONTROL SPACE AND SKIP OPERATIONS



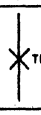

18 19 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 0
1620 II CLOCK
1443 RUN
CARRIAGE NOT BUSY
I-5
I-6
CARRIAGE CTRL
I CYCLE ENTRY
(I-1 T1202)
T603
RESET CARRIAGE LATCHES
DATA FROM 1620 II
T1403
SET CARRIAGE LATCHES
CARRIAGE LATCHES (1443)
T1803
RESET CARRIAGE LATCHES IF CARRIAGE IS IN PROGRAMMED POSITION
T.902
IMMEDIATE SKIP START
CARRIAGE CTRL (1443)
SKIP STOP (HOLE IN CAR TAPE =S DATA IN CAR LAT 1443)
CARRIAGE BRAKE (1443)



PLUS AND INVERTER FUNCTION (ALL INPUT LEGS MUST BE CONDITIONED TO +S LEVEL TO RECEIVE A -S OUTPUT LEVEL). THE LINE NAME OF EACH INPUT LEG SPECIFIES A +S LEVEL CONDITION.

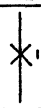


MINUS OR INVERTER FUNCTION (WHEN ONE OR MORE OF THE INPUT LEGS IS AT -S LEVEL, THE OUTPUT IS AT +S LEVEL). THE LINE NAME OF EACH INPUT LEG SPECIFIES A -S LEVEL CONDITION.



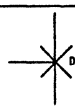
A TRIGGER OR LATCH IS TURNED ON.

A TRIGGER OR LATCH IS TURNED OFF.



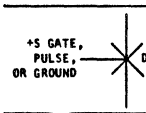
INVERTER (A -S LEVEL IS INVERTED TO A +S LEVEL, OR A +S LEVEL IS INVERTED TO A -S LEVEL.)

INTEGRATOR (+48V IS CONVERTED TO +S LEVEL WHEN THE CONTACT FEEDING THE INTEGRATOR IS CLOSED. A -S LEVEL APPEARS ON THE LINE WHEN THE CONTACT IS OPEN.)

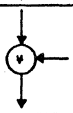


DRIVER, RELAY THYRATRON REQUIRES A +S ON BOTH INPUTS.

THIS SYMBOL IS USED WHERE TWO OR THREE CONDITIONS (+S) ARE NECESSARY TO TURN AN AND LATCH ON OR OFF. IT REPRESENTS AN INTERNAL CIRCUIT WITHIN THE LATCH RATHER THAN AN EXTERNAL AND BLOCK.



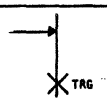
SAMPLE PULSE GENERATOR (PROVIDES A + OUTPUT PULSE FOR SETTING AC TRIGGERS. REQUIRES A + PULSE WITH A + GATE TO "FIRE".)



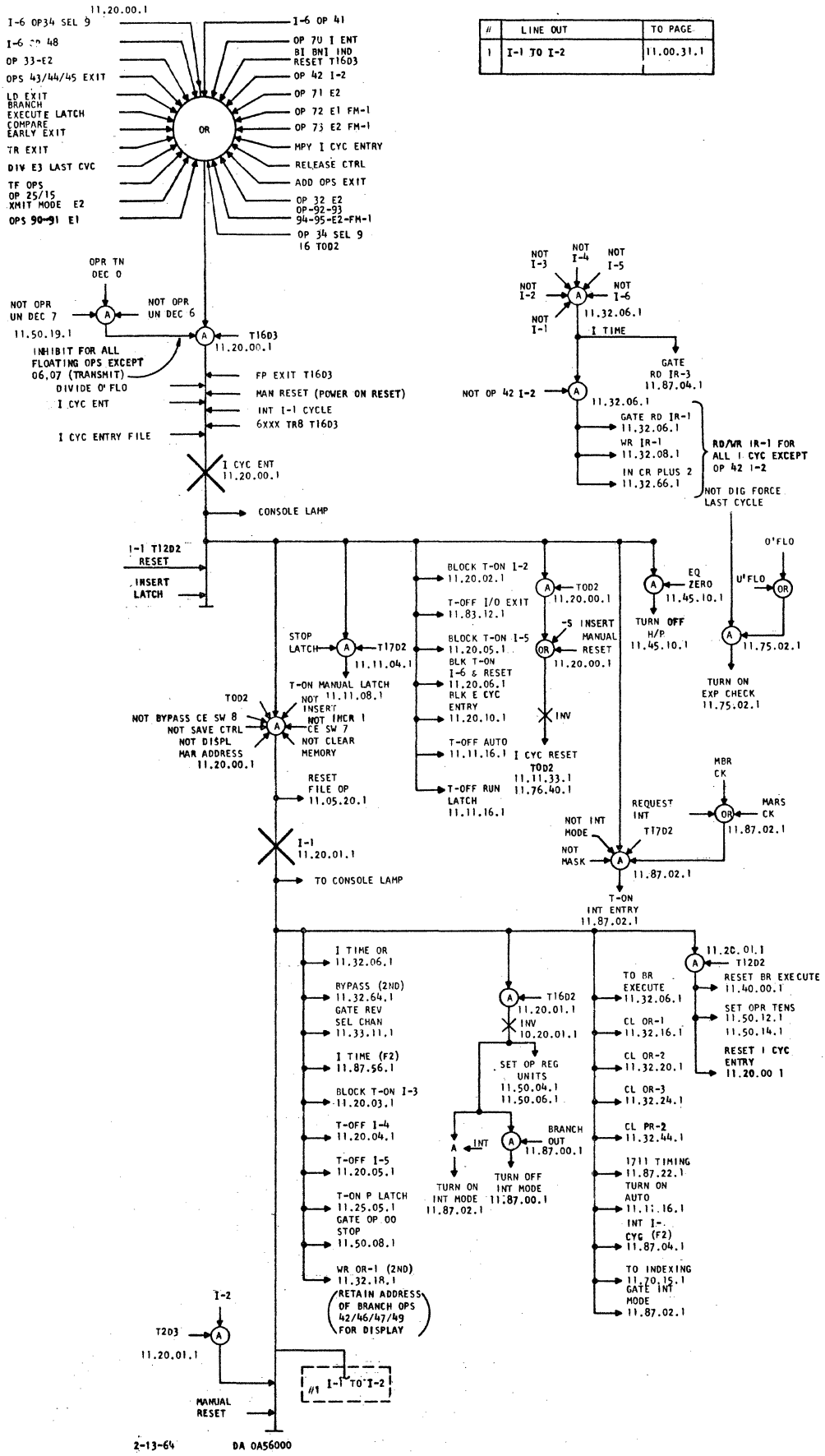
EXCLUSIVE OR (LIKE INPUTS PRODUCE A +S OUTPUT. UNLIKE INPUTS PRODUCE A -S OUTPUT.)

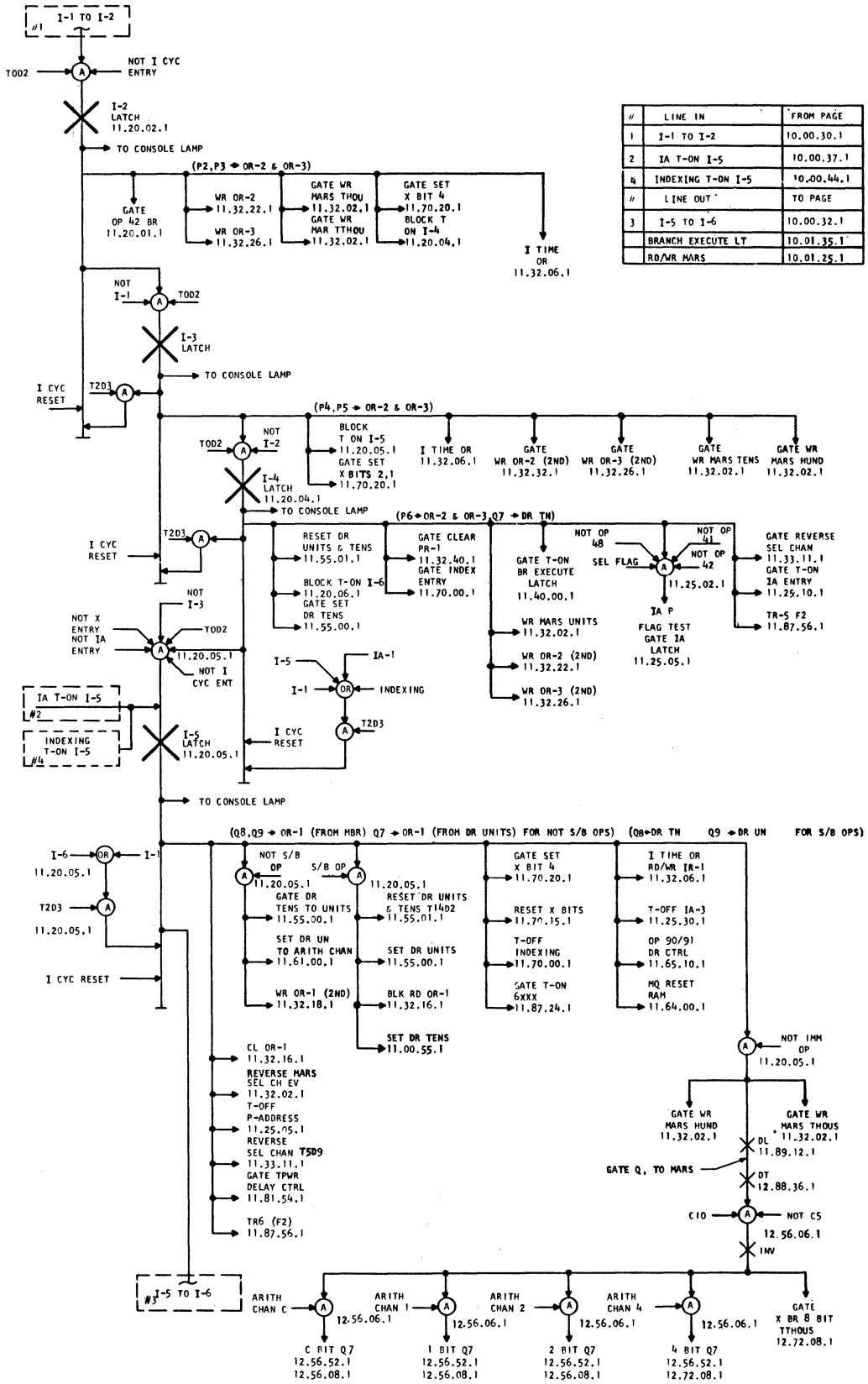
THIS SYMBOL REPRESENTS A NON-INVERTING DOT AND EMITTER FOLLOWER (AND CIRCUIT). TWO +S INPUTS PRODUCE A +S OUTPUT.

THIS SYMBOL REPRESENTS A NON-INVERTING DOT OR EMITTER FOLLOWER (OR CIRCUIT). ONE OR TWO -S INPUTS PRODUCE A -S OUTPUT.



THIS SYMBOL REPRESENTS AN OR TURN ON OF A LATCH. IT INDICATES THE ASSOCIATED CIRCUITS OF A LATCH, EXTENDERS, ETC.

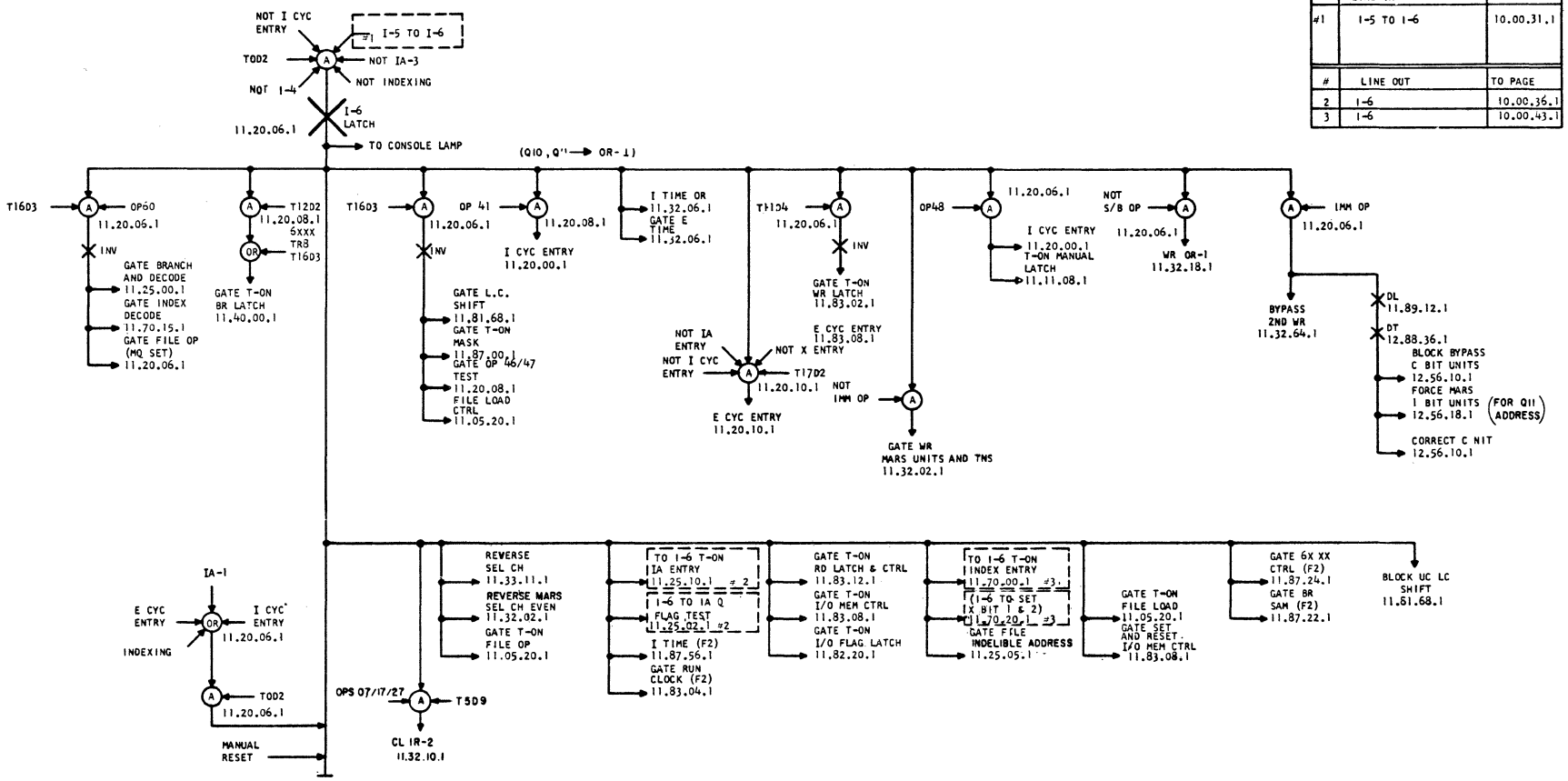

11.20.00.1
I-6 OP34 SEL 9
I-6 OP 48
OP 33-E2
OPS 43/44/45 EXIT
LD EXIT
BRANCH
EXECUTE LATCH
COMPARE
EARLY EXIT
TR EXIT
DIV E3 LAST CYC
TF OPS
OP 25/15
XMIT MODE E2
OPS 90-91 E1
OR
I-6 OP 41
OP 70 I ENT
BI BN1 IND
RESET T16D3
OP 42 I-2
OP 71 E2
OP 72 E1 FM-1
OP 73 E2 FM-1
MPY I CYC ENTRY
RELEASE CTRL
ADD OPS EXIT
OP 32 E2
OP-92-93
94-95-E2-FM-1
OP 34 SEL 9
16 TOD2
| LINE OUT | TO PAGE
1 | I-1 TO I-2 | 11.00.31.1
OPR TN
DEC 0
NOT OPR
UN DEC 7
11.50.19.1
NOT OPR
UN DEC 6
T16D3
11.20.00.1
INHIBIT FOR ALL
FLOATING OPS EXCEPT
06,07 (TRANSMIT)
DIVIDE O'FLO
I CYC ENT
I CYC ENTRY FILE
FP EXIT T16D3
MAN RESET (POWER ON RESET)
INT I-1 CYCLE
6XXX TR8 T16D3
I CYC ENT
11.20.00.1
CONSOLE LAMP
NOT
I-3
NOT
I-4
NOT
I-5
NOT
I-2
NOT
I-6
NOT
I-1
11.32.06.1
I TIME
GATE
RD IR-3
11.87.04.1
NOT OP 42 I-2
11.32.06.1
GATE RD IR-1
11.32.06.1
WR IR-1
11.32.08.1
IN CR PLUS 2
11.32.66.1
RD/WR IR-1 FOR
ALL I CYC EXCEPT
OP 42 I-2
NOT DIG FORCE
LAST CYCLE
I-1 T12D2
RESET
INSERT
LATCH
BLOCK T-ON I-2
11.20.02.1
T-OFF I/O EXIT
11.83.12.1
BLOCK T-ON I-5
11.20.05.1
BLK T-ON
I-6 & RESET
11.20.06.1
BLK E CYC
ENTRY
11.20.10.1
T-OFF AUTO
11.11.16.1
T-OFF RUN
LATCH
11.11.16.1
TOD2
11.20.00.1
-S INSERT
MANUAL
RESET
11.20.00.1
INV
I CYC RESET
TOD2
11.11.33.1
11.76.40.1
EQ
ZERO
11.45.10.1
TURN OFF
H/P
11.45.10.1
O'FLO
U'FLO
OR
11.75.02.1
TURN ON
EXP CHECK
11.75.02.1
STOP
LATCH
T17D2
11.11.04.1
T-ON MANUAL LATCH
NOT INSERT
NOT INCR 1
CE SW 7
NOT CLEAR
MEMORY
11.11.08.1
TOD2
NOT BYPASS CE SW 8
NOT SAVE CTRL
NOT DISPL
MAR ADDRESS
11.20.00.1
RESET
FILE OP
11.05.20.1
I-1
11.20.01.1
TO CONSOLE LAMP
MBR
CK
REQUEST
INT
MARS
CK
11.87.02.1
NOT INT
MODE
NOT
MASK
T17D2
11.87.02.1
T-ON
INT ENTRY
11.87.02.1
I TIME OR
11.32.06.1
BYPASS (2ND)
11.32.64.1
GATE REV
SEL CHAN
11.33.11.1
I TIME (F2)
11.87.56.1
BLOCK T-ON I-3
11.20.03.1
T-OFF I-4
11.20.04.1
T-OFF I-5
11.20.05.1
T-ON P LATCH
11.25.05.1
GATE OP 00
STOP
11.50.08.1
WR OR-1 (2ND)
11.32.18.1
(RETAIN ADDRESS
OF BRANCH OPS
42/46/47/49
FOR DISPLAY)
T16D2
11.20.01.1
INV
10.20.01.1
SET OP REG
UNITS
11.50.04.1
11.50.06.1
INT
BRANCH
OUT
11.87.00.1
TURN ON
INT MODE
11.87.02.1
TURN OFF
INT MODE
11.87.00.1
11.20.01.1
T12D2
TO BR
EXECUTE
11.32.06.1
CL OR-1
11.32.16.1
CL OR-2
11.32.20.1
CL OR-3
11.32.24.1
CL PR-2
11.32.44.1
1711 TIMING
11.87.22.1
TURN ON
AUTO
11.11.16.1
INT I-
CYC (F2)
11.87.04.1
TO INDEXING
11.70.15.1
GATE INT
MODE
11.87.02.1
RESET BR EXECUTE
11.40.00.1
SET OPR TENS
11.50.12.1
11.50.14.1
RESET I CYC
ENTRY
11.20.00.1
I-2
T2D3
11.20.01.1
#1 I-1 TO I-2
MANUAL
RESET
2-13-64
DA 0A56000

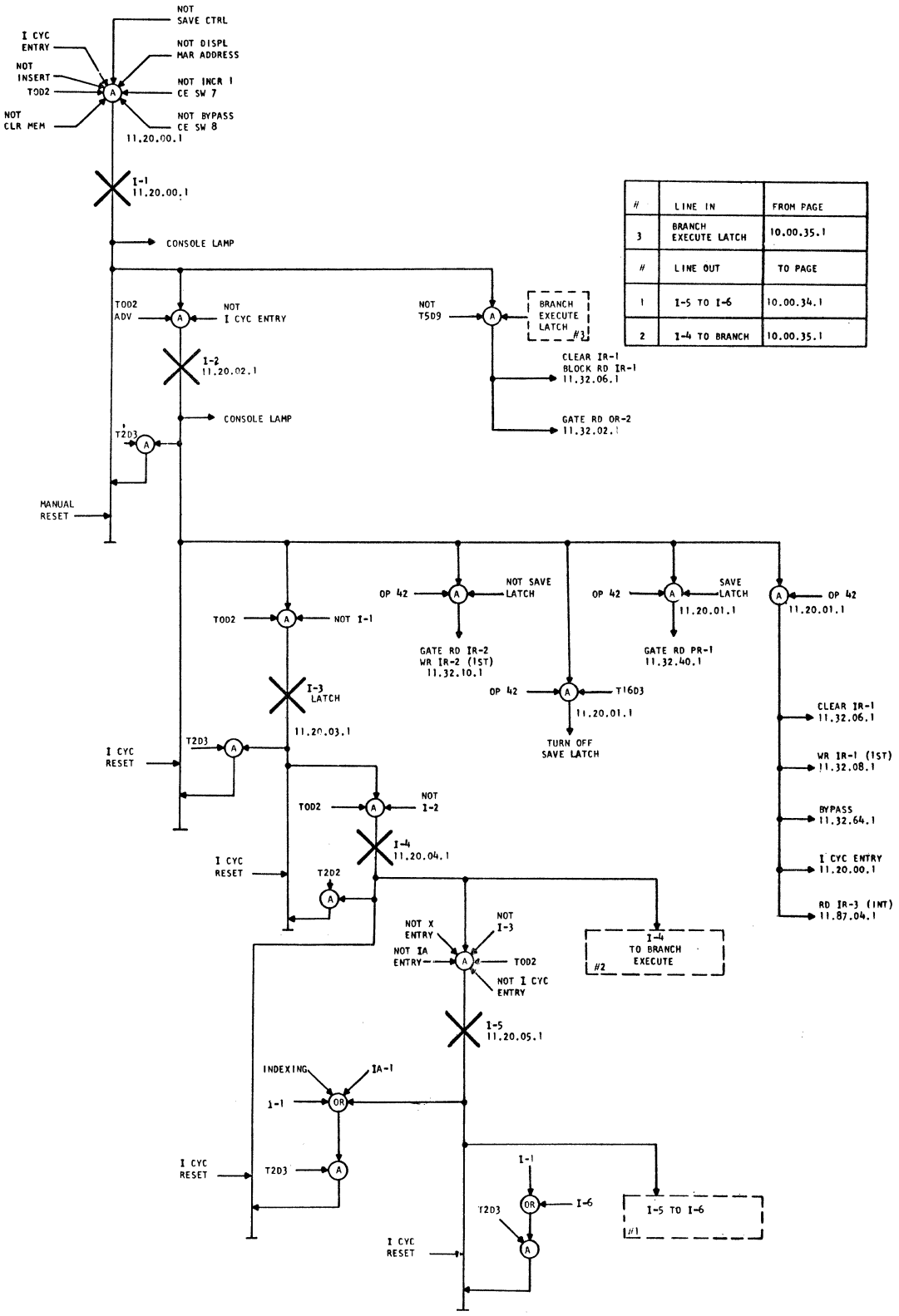


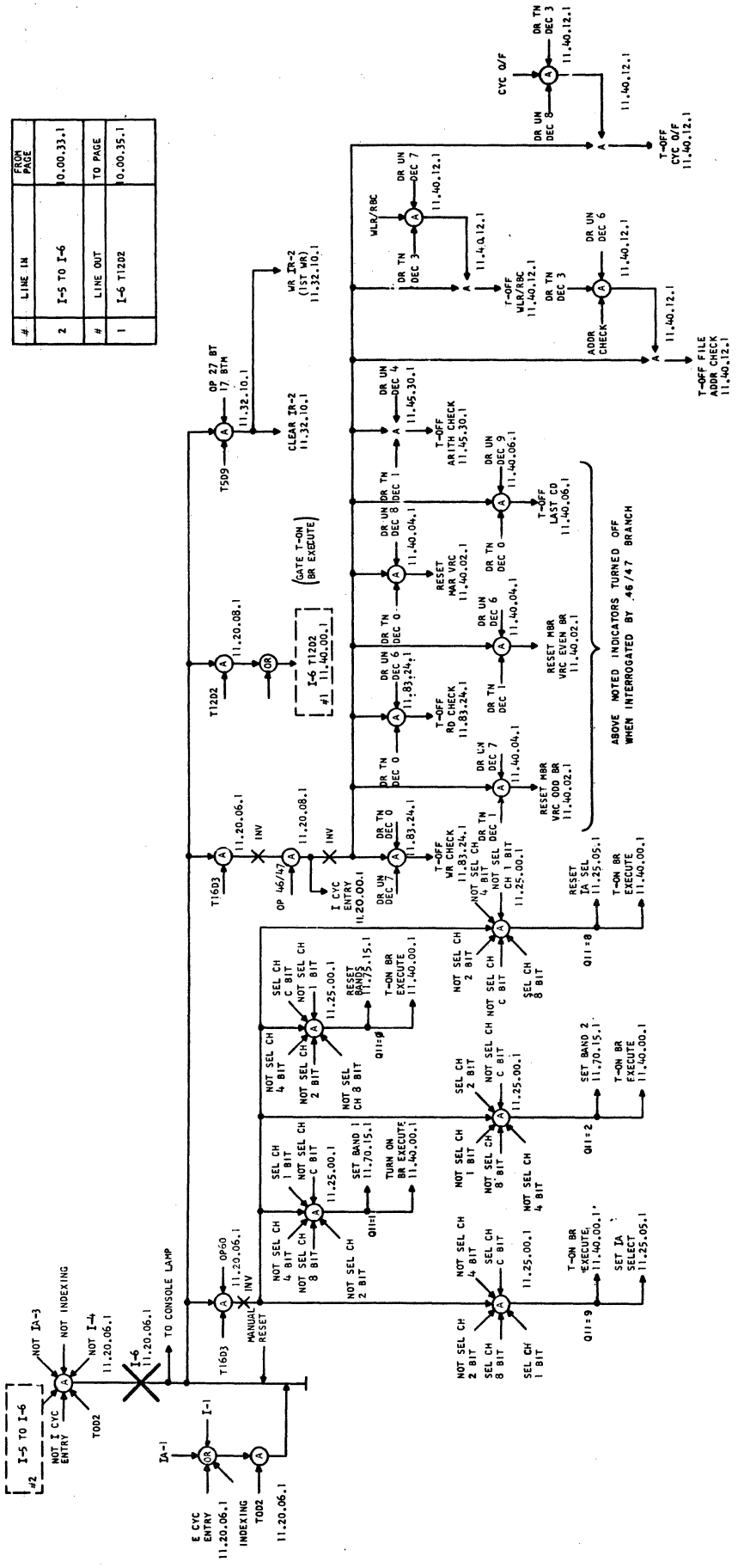
#	LINE IN	FROM PAGE
1	I-1 TO I-2	10.00.30.1
2	IA T-ON I-5	10.00.37.1
4	INDEXING T-ON I-5	10.00.44.1
#	LINE OUT	TO PAGE
3	I-5 TO I-6	10.00.32.1
	BRANCH EXECUTE LT	10.01.35.1
	RD/WR MARS	10.01.25.1

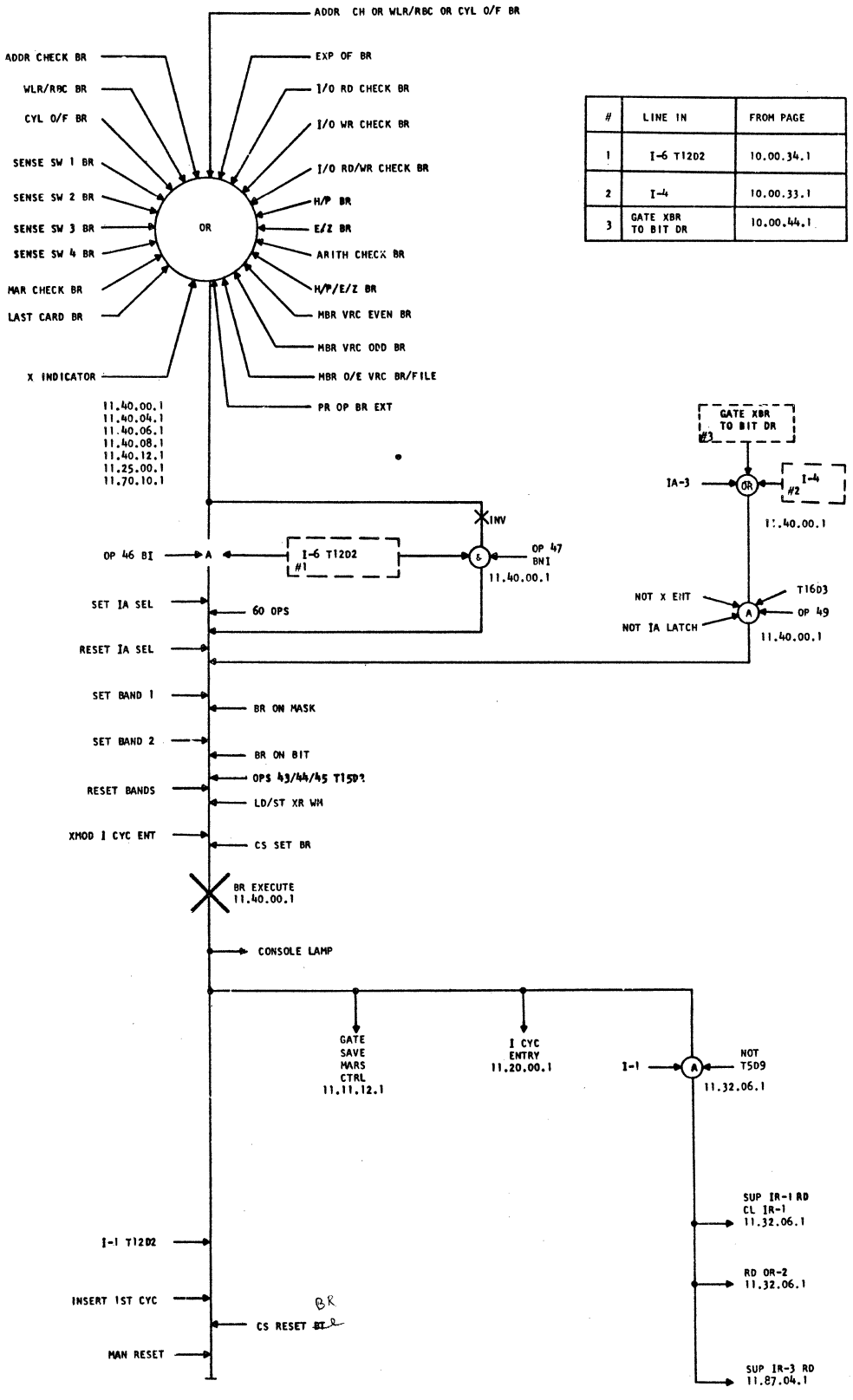
#	LINE IN	FROM PAGE
#1	1-5 TO 1-6	10.00.31.1

#	LINE OUT	TO PAGE
2	1-6	10.00.36.1
3	1-6	10.00.43.1




I CYC ENTRY
NOT INSERT
TOD2
NOT CLR MEM
NOT SAVE CTRL
NOT DISPL MAR ADDRESS
NOT INCR I CE SW 7
NOT BYPASS CE SW 8
11.20.00.1
I-1 11.20.00.1
CONSOLE LAMP
TOD2 ADV
NOT I CYC ENTRY
I-2 11.20.02.1
CONSOLE LAMP
T2D3
MANUAL RESET
NOT T5D9
BRANCH EXECUTE LATCH #3
CLEAR IR-1 BLOCK RD IR-1 11.32.06.1
GATE RD OR-2 11.32.02.1
LINE IN FROM PAGE
3 BRANCH EXECUTE LATCH 10.00.35.1
LINE OUT TO PAGE
1 I-5 TO I-6 10.00.34.1
2 I-4 TO BRANCH 10.00.35.1
OP 42
NOT SAVE LATCH
GATE RD IR-2 WR IR-2 (1ST) 11.32.10.1
OP 42
SAVE LATCH
11.20.01.1
GATE RD PR-1 11.32.40.1
OP 42
11.20.01.1
TOD2
NOT I-1
I-3 LATCH
11.20.03.1
OP 42
T16D3
11.20.01.1
TURN OFF SAVE LATCH
I CYC RESET
T2D3
CLEAR IR-1 11.32.06.1
WR IR-1 (1ST) 11.32.08.1
BYPASS 11.32.64.1
I CYC ENTRY 11.20.00.1
RD IR-3 (INT) 11.87.04.1
TOD2
NOT I-2
I-4 11.20.04.1
I CYC RESET
T2D2
NOT X ENTRY
NOT IA ENTRY
NOT I-3
TOD2
NOT I CYC ENTRY
I-4 TO BRANCH EXECUTE #2
I-5 11.20.05.1
INDEXING
IA-1
I-1
OR
I CYC RESET
T2D3
I-1
OR
I-6
T2D3
I CYC RESET
I-5 TO I-6 #1

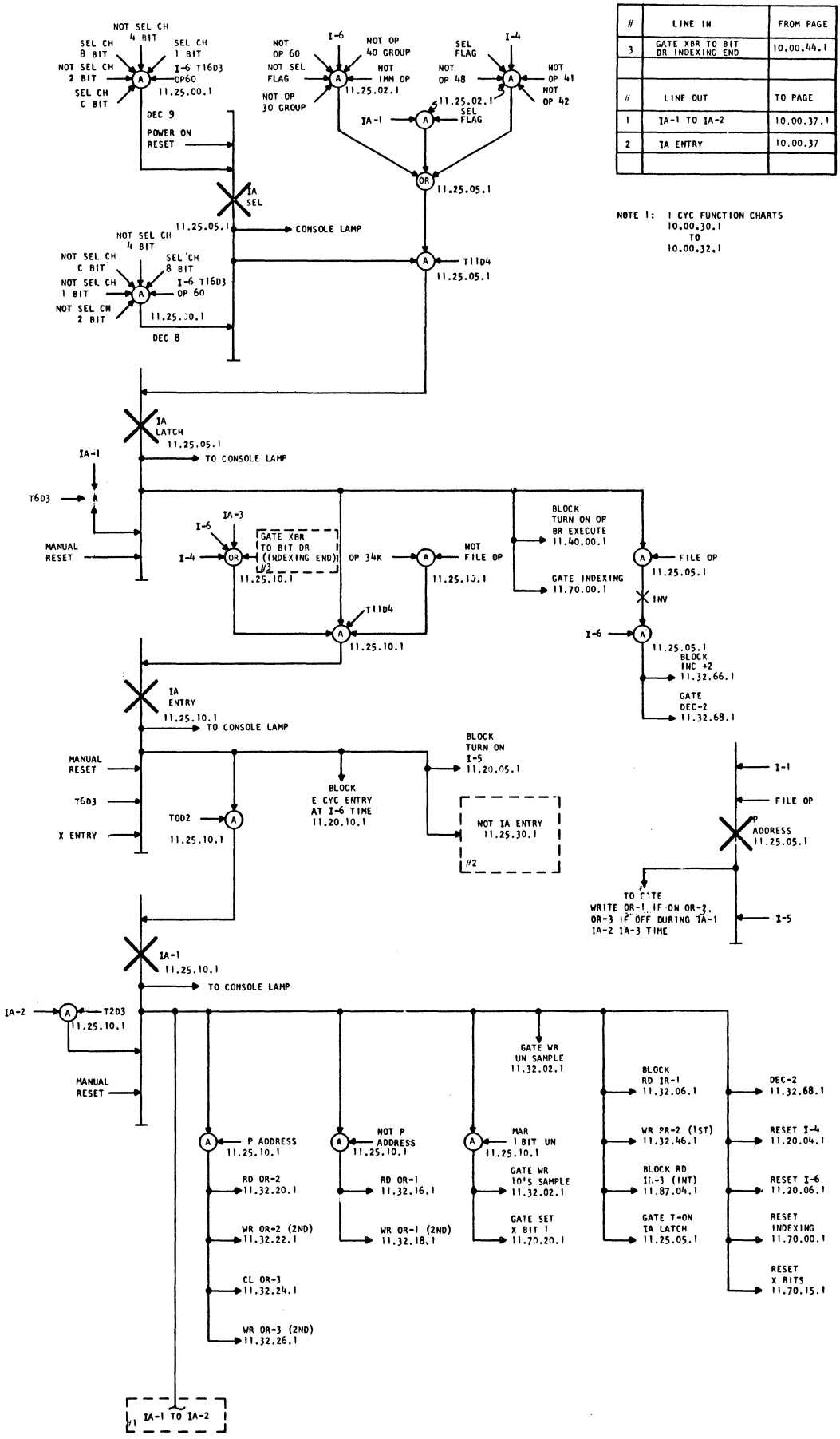

LINE IN
FROM PAGE
2 I-5 TO I-6 10.00.33.1
LINE OUT
TO PAGE
1 I-6 T1202 10.00.35.1
I-5 TO I-6 #2
NOT I CYC ENTRY
T002
NOT IA-3
NOT INDEXING
NOT I-4 11.20.06.1
I-6 11.20.06.1
TO CONSOLE LAMP
MANUAL RESET
T1603
OP50 11.20.06.1 INV
IA-1
I-1
E CYC ENTRY 11.20.06.1
INDEXING T002 11.20.06.1
T1603 11.20.06.1 INV
OP 46/47 11.20.08.1 INV
I CYC ENTRY 11.20.00.1
T1202 11.20.08.1
I-6 T1202 #1 11.40.00.1
(GATE T-ON BR EXECUTE)
T509
OP 27 BT 17 BTM 11.32.10.1
CLEAR IR-2 11.32.10.1
WR IR-2 (1ST WR) 11.32.10.1
DR UN DEC 0
DR TN DEC 0
DR UN DEC 6 11.83.24.1
T-OFF RD CHECK 11.83.24.1
DR TN DEC 1
DR UN DEC 7
DR LN DEC 7 11.40.04.1
RESET MBR VRC ODD BR 11.40.02.1
DR UN DEC 6 11.40.04.1
RESET MBR VRC EVEN BR 11.40.02.1
DR TN DEC 0
RESET MAR VRC 11.40.02.1
DR UN DEC 8 11.40.04.1
DR TN DEC 1
T-OFF LAST CD 11.40.06.1
DR UN DEC 9 11.40.06.1
DR UN DEC 4 11.45.30.1
T-OFF ARITH CHECK 11.45.30.1
ABOVE NOTED INDICATORS TURNED OFF WHEN INTERROGATED BY .46/47 BRANCH
DR TN DEC 0
DR UN DEC 7 11.83.24.1
T-OFF WR CHECK 11.83.24.1
NOT SEL CH 4 BIT
NOT SEL CH 1 BIT
SEL CH 1 BIT 11.25.00.1
RESET IA SEL 11.25.05.1
T-ON BR EXECUTE 11.40.00.1
Q11=8
NOT SEL CH 2 BIT
NOT SEL CH C BIT
SEL CH 8 BIT
NOT SEL CH 4 BIT
NOT SEL CH 2 BIT
NOT SEL CH 1 BIT
SEL CH C BIT 11.25.00.1
RESET BANDS 11.75.15.1
T-ON BR EXECUTE 11.40.00.1
Q11=9
NOT SEL CH 4 BIT
NOT SEL CH 2 BIT
NOT SEL CH 8 BIT
SEL CH 1 BIT 11.25.00.1
SET BAND 1 11.70.15.1
TURN ON BR EXECUTE 11.40.00.1
Q11=1
NOT SEL CH 2 BIT
NOT SEL CH C BIT
SEL CH 2 BIT 11.25.00.1
SET BAND 2 11.70.15.1
T-ON BR EXECUTE 11.40.00.1
Q11=2
NOT SEL CH 4 BIT
NOT SEL CH 8 BIT
SEL CH C BIT 11.25.00.1
T-ON BR EXECUTE 11.40.00.1
SET IA SELECT 11.25.05.1
Q11=4
NOT SEL CH 4 BIT
NOT SEL CH 2 BIT
NOT SEL CH 1 BIT
SEL CH 8 BIT 11.25.00.1
RESET BANDS 11.75.15.1
T-ON BR EXECUTE 11.40.00.1
Q11=8
DR TN DEC 3
DR UN DEC 8
CYC O/F
11.40.12.1
DR UN DEC 7
DR TN DEC 3
WLR/RBC
11.40.12.1
T-OFF WLR/RBC 11.40.12.1
DR UN DEC 6
ADDR CHECK
11.40.12.1
T-OFF CYC O/F 11.40.12.1
T-OFF FILE ADDR CHECK 11.40.12.1



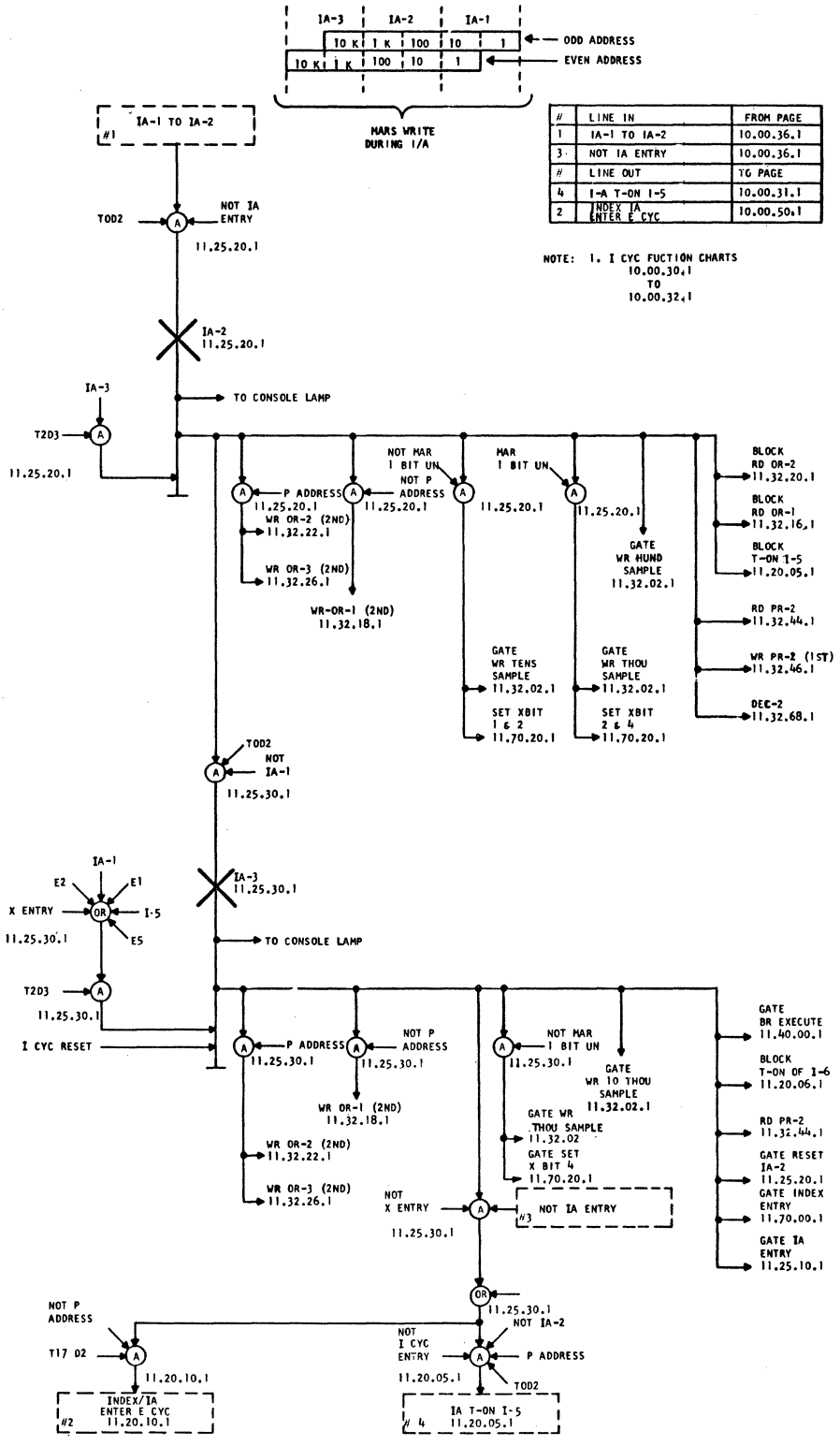
#	LINE IN	FROM PAGE
1	I-6 T12D2	10.00.34.1
2	I-4	10.00.33.1
3	GATE XBR TO BIT DR	10.00.44.1

#	LINE IN	FROM PAGE
3	GATE XBR TO BIT DR INDEXING END	10.00.44.1
#	LINE OUT	TO PAGE
1	IA-1 TO IA-2	10.00.37.1
2	IA ENTRY	10.00.37

NOTE 1: 1 CYC FUNCTION CHARTS 10.00.30.1 TO 10.00.32.1

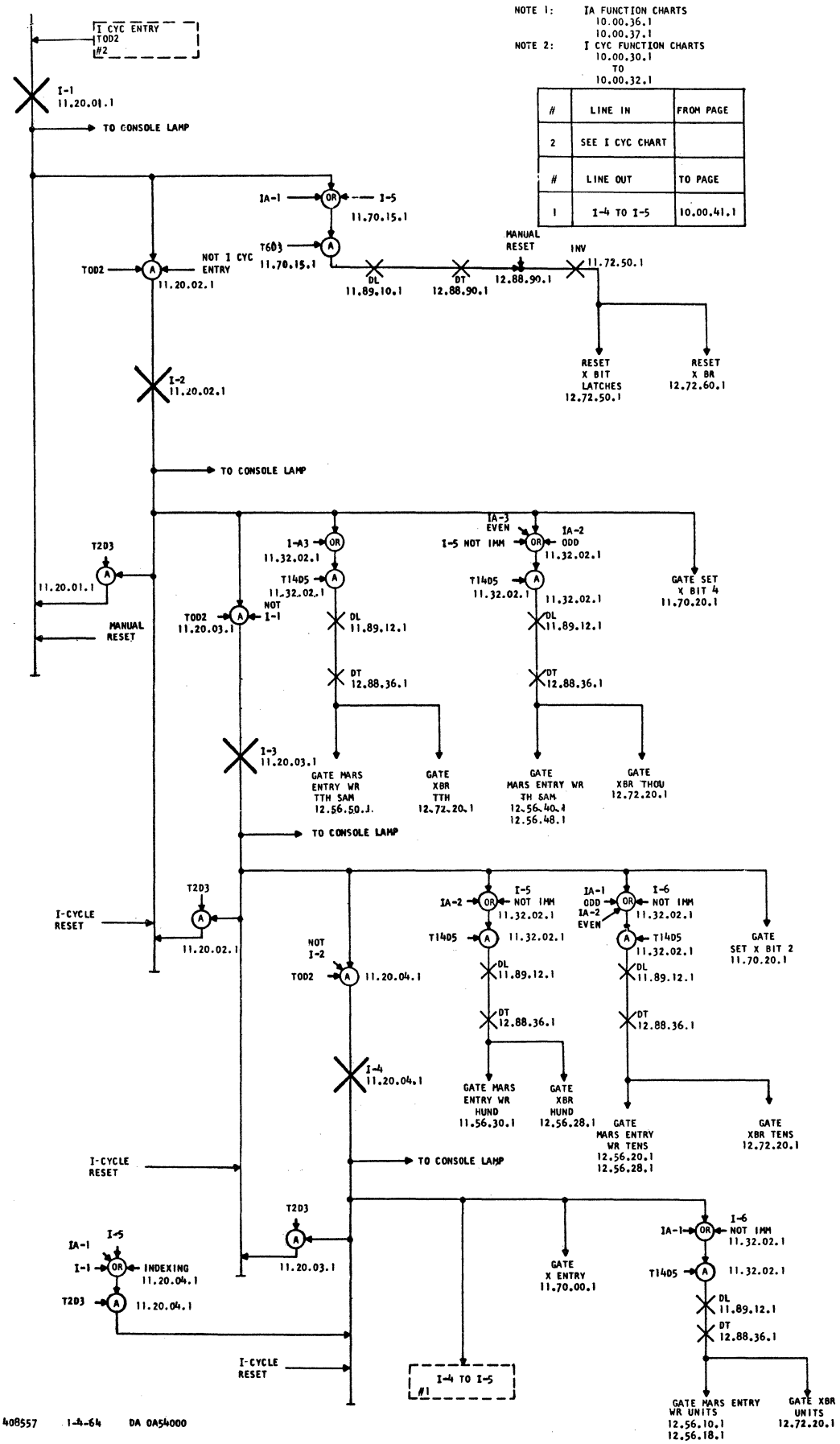


IA-2, IA-3



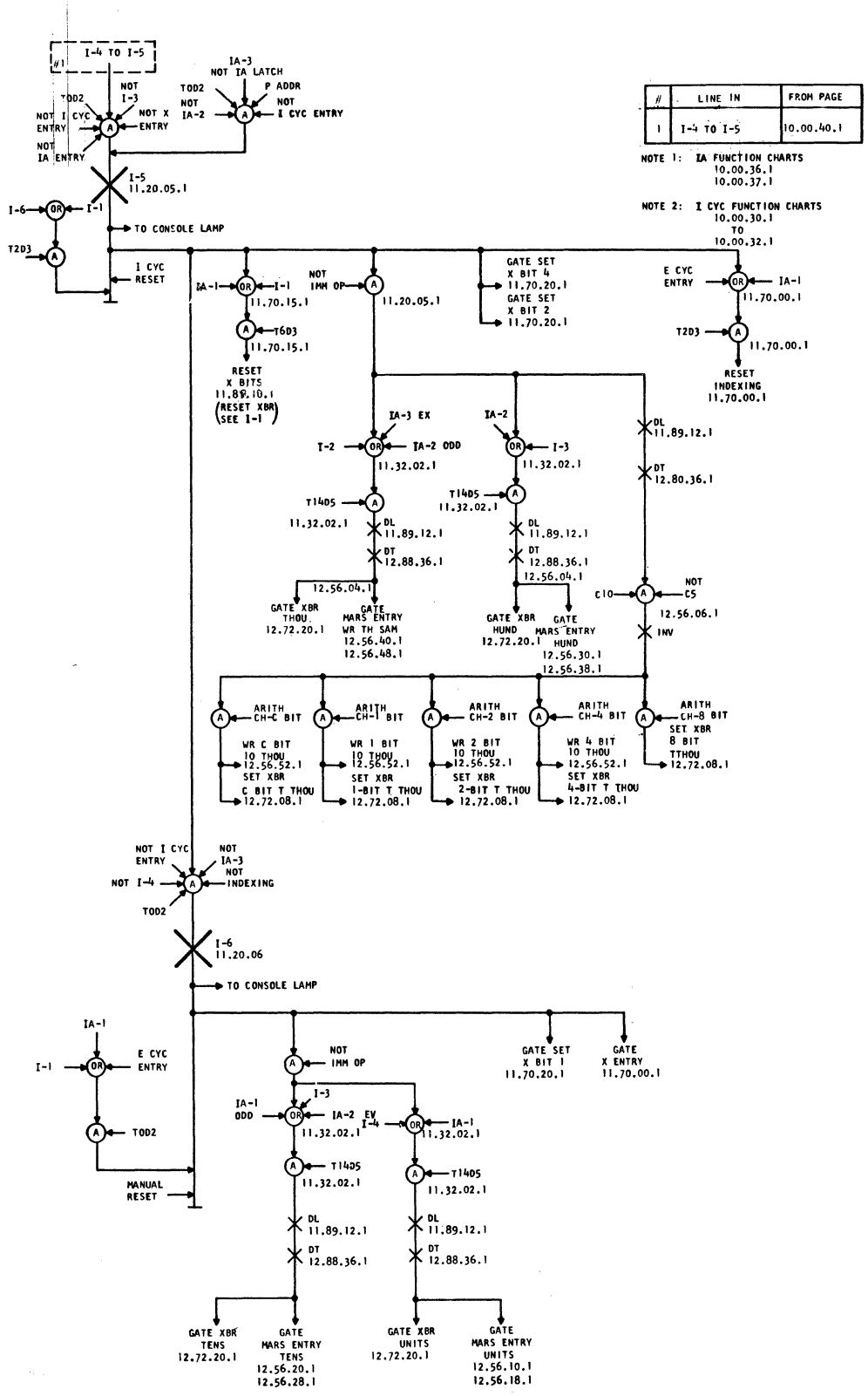
#	LINE IN	FROM PAGE
1	IA-1 TO IA-2	10.00.36.1
3	NOT IA ENTRY	10.00.36.1
#	LINE OUT	TO PAGE
4	I-A T-ON I-5	10.00.31.1
2	INDEX IA ENTER E CYC	10.00.50.1

NOTE: 1. I CYC FUCTION CHARTS 10.00.30.1 TO 10.00.32.1



E/C 408557 1-4-64 DA 0A54000

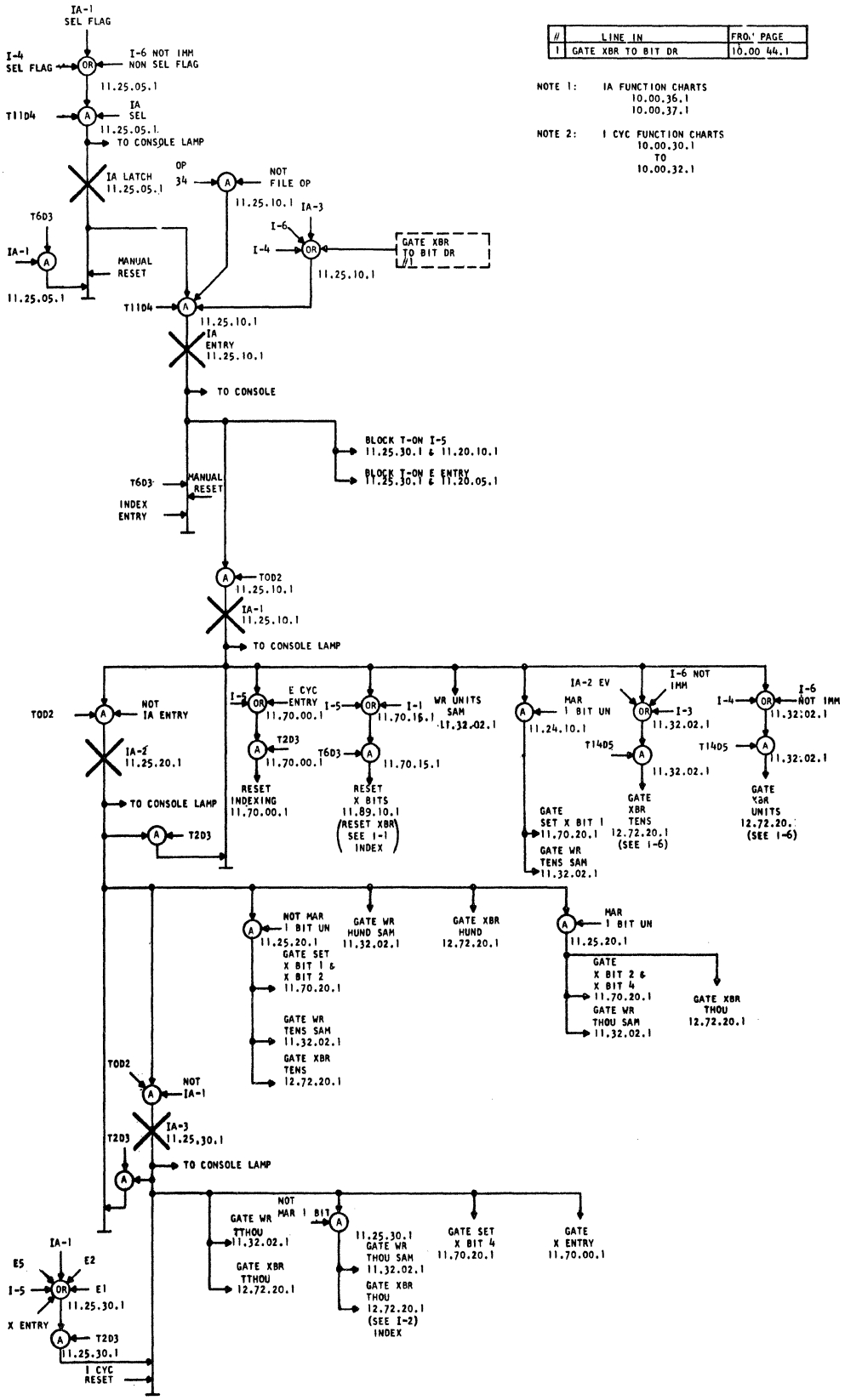
227-5857 (4-64)



#	LINE IN	FROM PAGE
1	I-4 TO I-5	10.00.40.1

NOTE 1: IA FUNCTION CHARTS
10.00.36.1
10.00.37.1

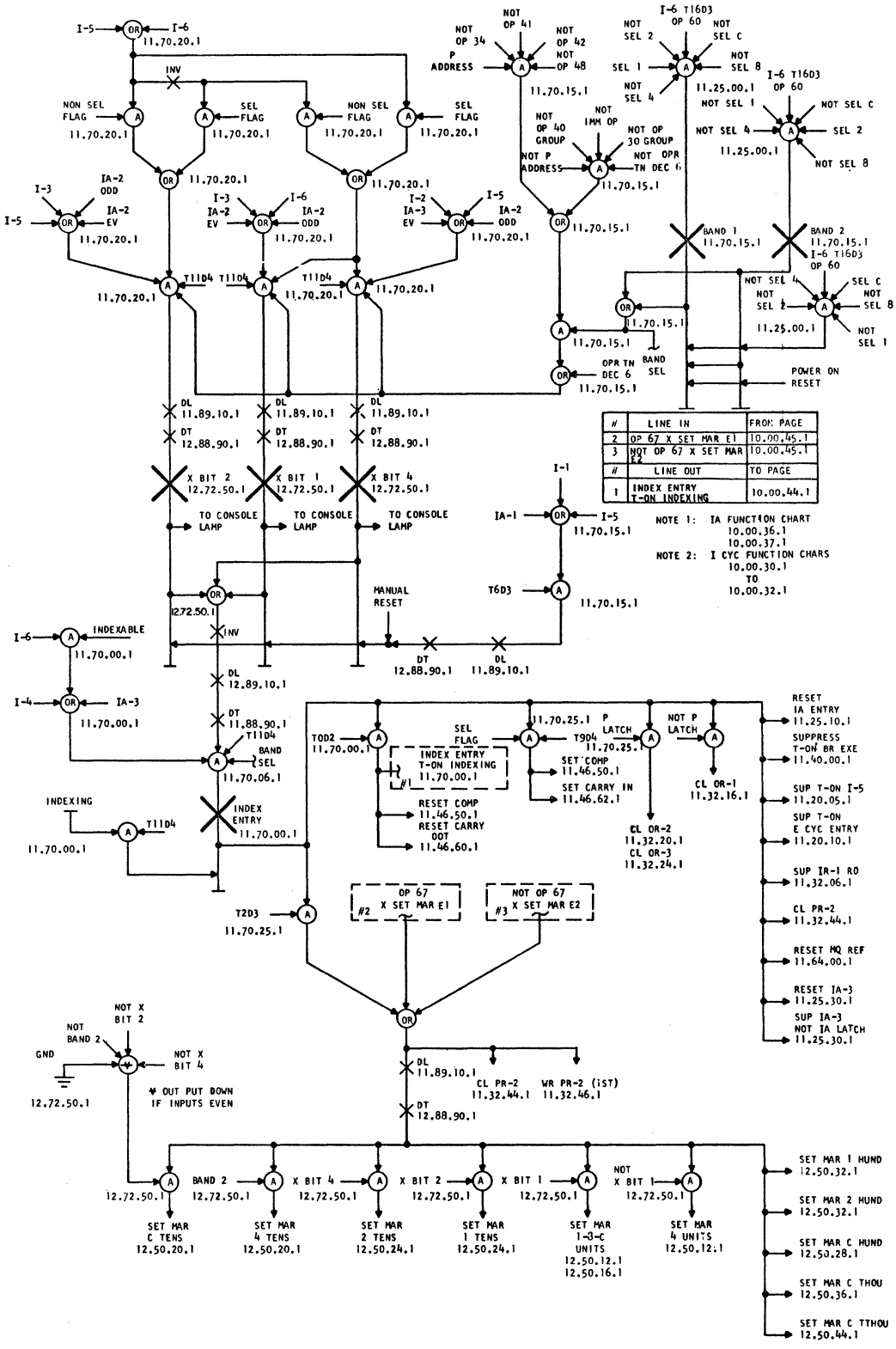
NOTE 2: I CYC FUNCTION CHARTS
10.00.30.1
TO
10.00.32.1

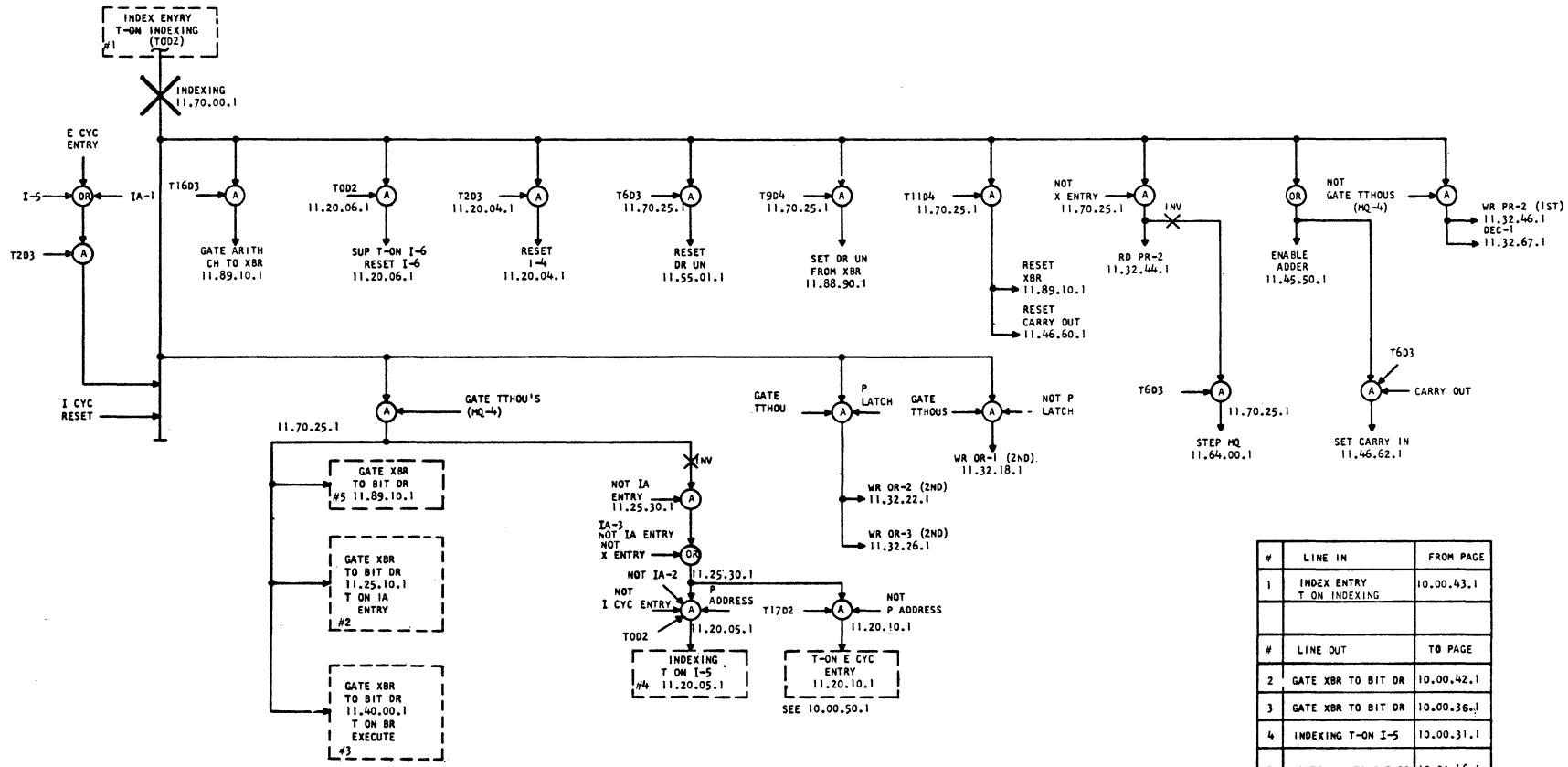


#	LINE IN	FRO.' PAGE
1	GATE XBR TO BIT DR	10.00 44.1

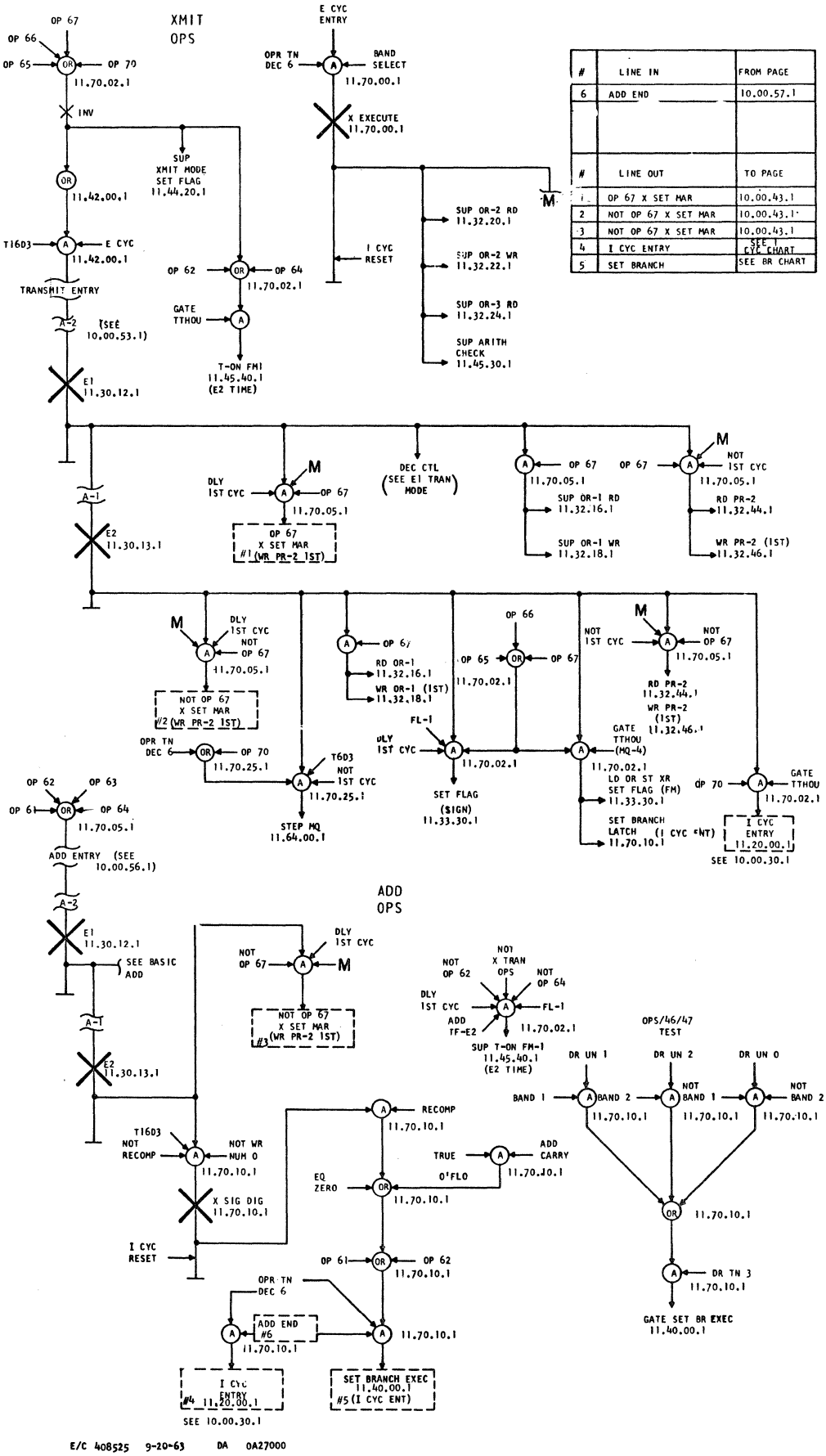
NOTE 1: IA FUNCTION CHARTS
10.00.36.1
10.00.37.1

NOTE 2: I CYC FUNCTION CHARTS
10.00.30.1
TO
10.00.32.1


I-5
I-6
11.70.20.1
INV
NON SEL FLAG
SEL FLAG
NON SEL FLAG
SEL FLAG
11.70.20.1
I-3
IA-2 ODD
IA-2 EV
I-5
I-3
IA-2 EV
I-6
IA-2 ODD
I-2
IA-3 EV
I-5
IA-2 ODD
T11D4
DL 11.89.10.1
DT 12.88.90.1
X BIT 2 12.72.50.1
X BIT 1 12.72.50.1
X BIT 4 12.72.50.1
TO CONSOLE LAMP
MANUAL RESET
12.72.50.1
INDEXABLE 11.70.00.1
IA-3 11.70.00.1
I-4
I-6
T2D3 11.70.25.1
INDEXING 11.70.00.1
INDEX ENTRY 11.70.00.1
BAND SEL 11.70.06.1
TOD2 11.70.00.1
SEL FLAG
INDEX ENTRY T-ON INDEXING 11.70.00.1
RESET COMP 11.46.50.1
RESET CARRY OUT 11.46.60.1
T9D4 11.70.25.1
SET COMP 11.46.50.1
SET CARRY IN 11.46.62.1
P LATCH
NOT P LATCH
CL OR-1 11.32.16.1
CL OR-2 11.32.20.1
CL OR-3 11.32.24.1
OP 67 X SET MAR E1 #2
NOT OP 67 X SET MAR E2 #3
RESET IA ENTRY 11.25.10.1
SUPPRESS T-ON BR EXE 11.40.00.1
SUP T-ON I-5 11.20.05.1
SUP T-ON E CYC ENTRY 11.20.10.1
SUP IR-1 RD 11.32.06.1
CL PR-2 11.32.44.1
RESET MQ REF 11.64.00.1
RESET IA-3 11.25.30.1
SUP IA-3 NOT IA LATCH 11.25.30.1
NOT X BIT 2
NOT BAND 2
GND 12.72.50.1
NOT X BIT 4
* OUT PUT DOWN IF INPUTS EVEN
DL 11.89.10.1
DT 12.88.90.1
CL PR-2 11.32.44.1
WR PR-2 (1ST) 11.32.46.1
BAND 2 12.72.50.1
X BIT 4 12.72.50.1
X BIT 2 12.72.50.1
X BIT 1 12.72.50.1
NOT X BIT 1 12.72.50.1
SET MAR C TENS 12.50.20.1
SET MAR 4 TENS 12.50.20.1
SET MAR 2 TENS 12.50.24.1
SET MAR 1 TENS 12.50.24.1
SET MAR 1-3-C UNITS 12.50.12.1 12.50.16.1
SET MAR 4 UNITS 12.50.12.1
SET MAR 1 HUND 12.50.32.1
SET MAR 2 HUND 12.50.32.1
SET MAR C HUND 12.50.28.1
SET MAR C THOU 12.50.36.1
SET MAR C TTHOU 12.50.44.1
NOT OP 34
NOT OP 41
NOT OP 42
NOT OP 48
P ADDRESS
11.70.15.1
NOT OP 40 GROUP
NOT IMM OP
NOT OP 30 GROUP
NOT P ADDRESS
NOT OPR TN DEC 6
I-6 T16D3 OP 60
NOT SEL 2
NOT SEL C
SEL 1
NOT SEL 8
NOT SEL 4
11.25.00.1
NOT SEL 1
SEL 2
BAND 1 11.70.15.1
BAND 2 11.70.15.1
I-6 T16D3 OP 60
OPR TN DEC 6
BAND SEL
POWER ON RESET
I-1
IA-1
I-5
T6D3
NOTE 1: IA FUNCTION CHART 10.00.36.1 10.00.37.1
NOTE 2: I CYC FUNCTION CHARS 10.00.30.1 TO 10.00.32.1
LINE IN FROM PAGE
2 OP 67 X SET MAR E1 10.00.45.1
3 NOT OP 67 X SET MAR E2 10.00.45.1
LINE OUT TO PAGE
1 INDEX ENTRY T-ON INDEXING 10.00.44.1

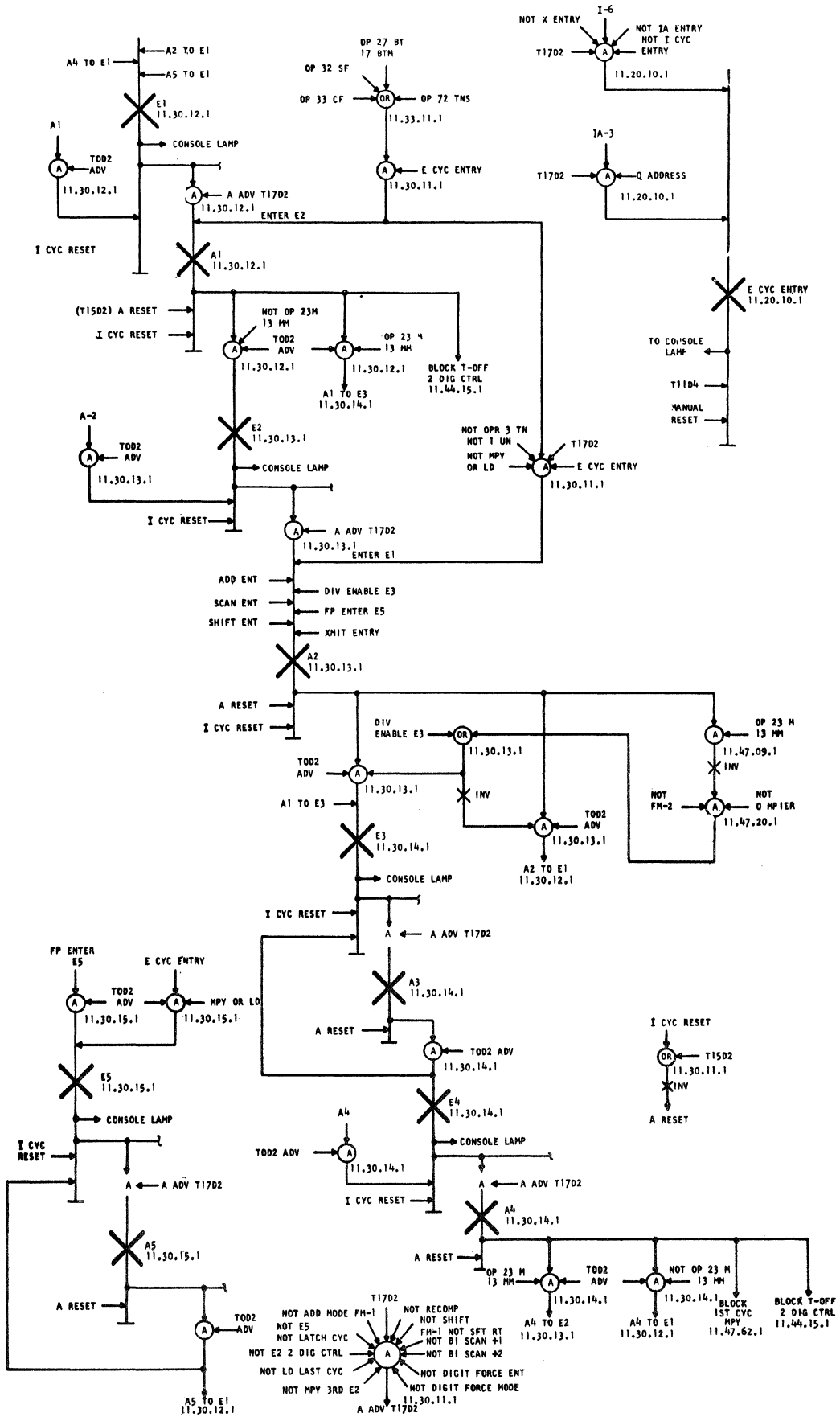


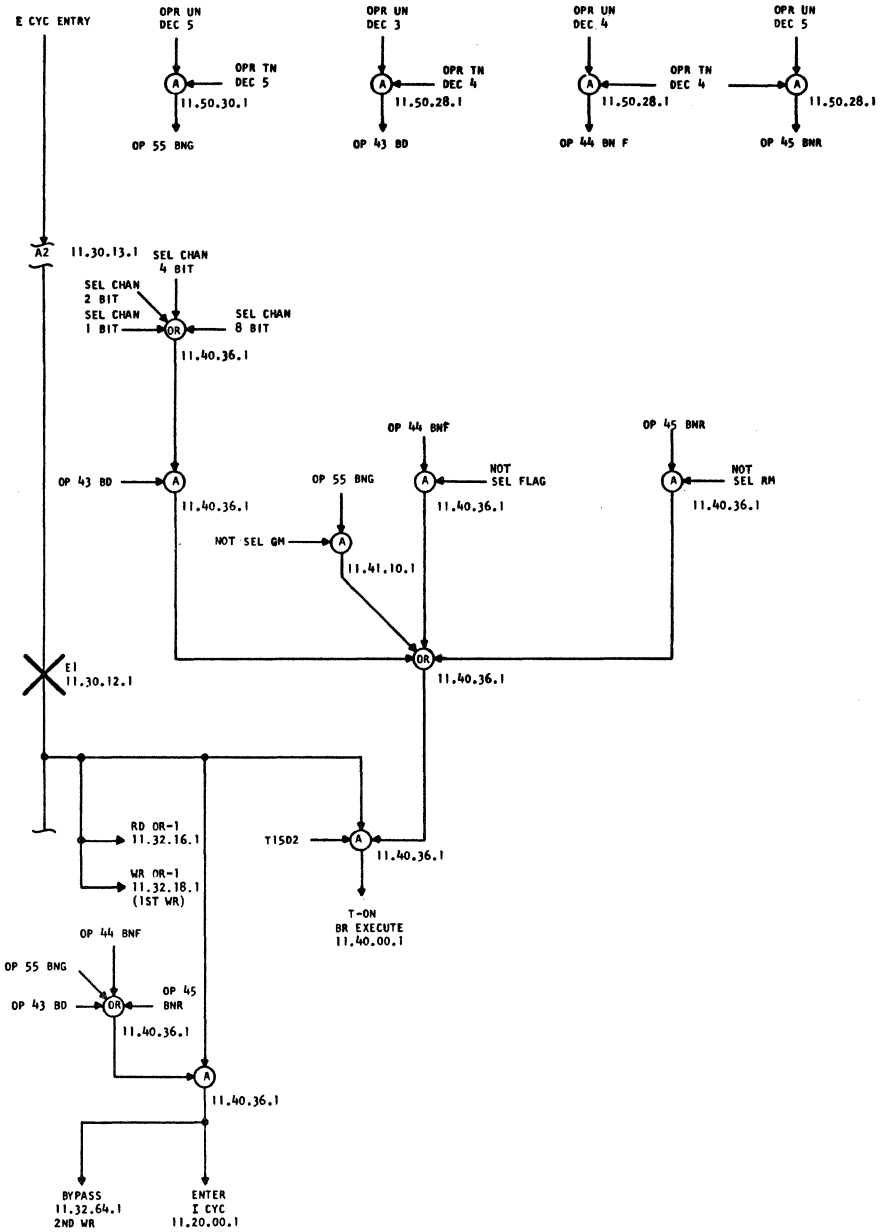
#	LINE IN	FROM PAGE
1	INDEX ENTRY T ON INDEXING	10.00.43.1
#	LINE OUT	TO PAGE
2	GATE XBR TO BIT DR	10.00.42.1
3	GATE XBR TO BIT DR	10.00.36.1
4	INDEXING T-ON I-5	10.00.31.1
5	GATE XBR TO BIT DR	10.01.46.1

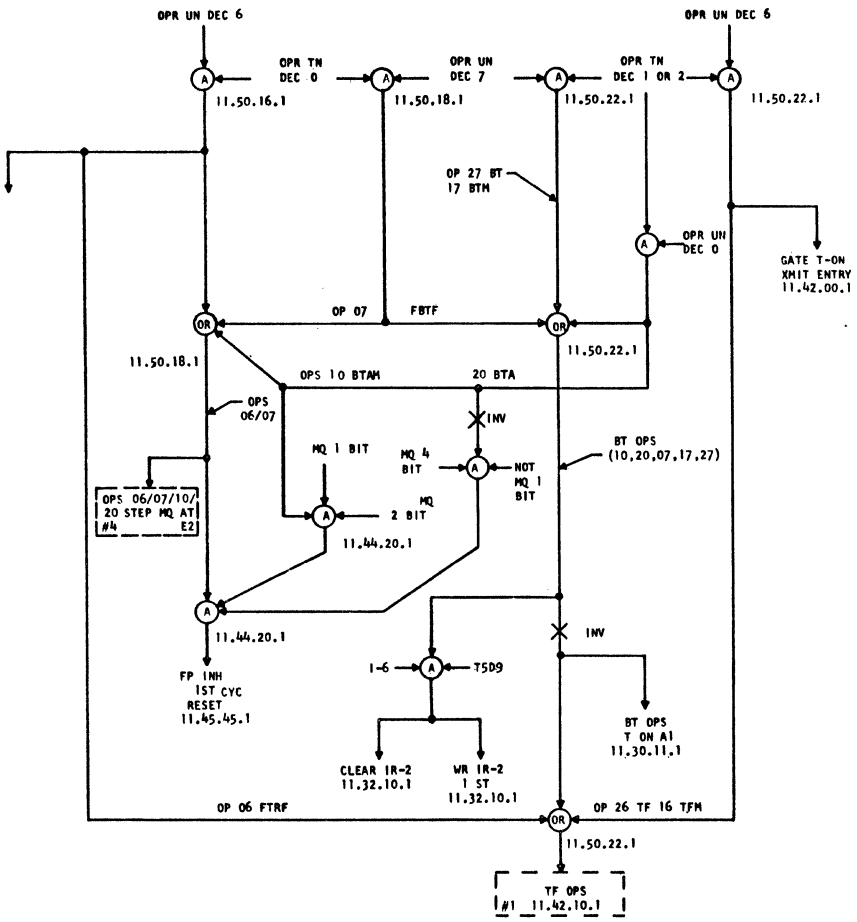


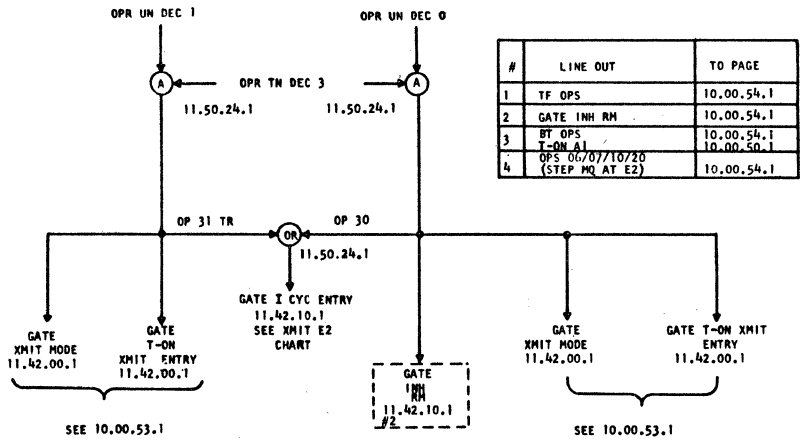
#	LINE IN	FROM PAGE
6	ADD END	10.00.57.1

#	LINE OUT	TO PAGE
1	OP 67 X SET MAR	10.00.43.1
2	NOT OP 67 X SET MAR	10.00.43.1
3	NOT OP 67 X SET MAR	10.00.43.1
4	I CYC ENTRY	SEE I CYC CHART
5	SET BRANCH	SEE BR CHART

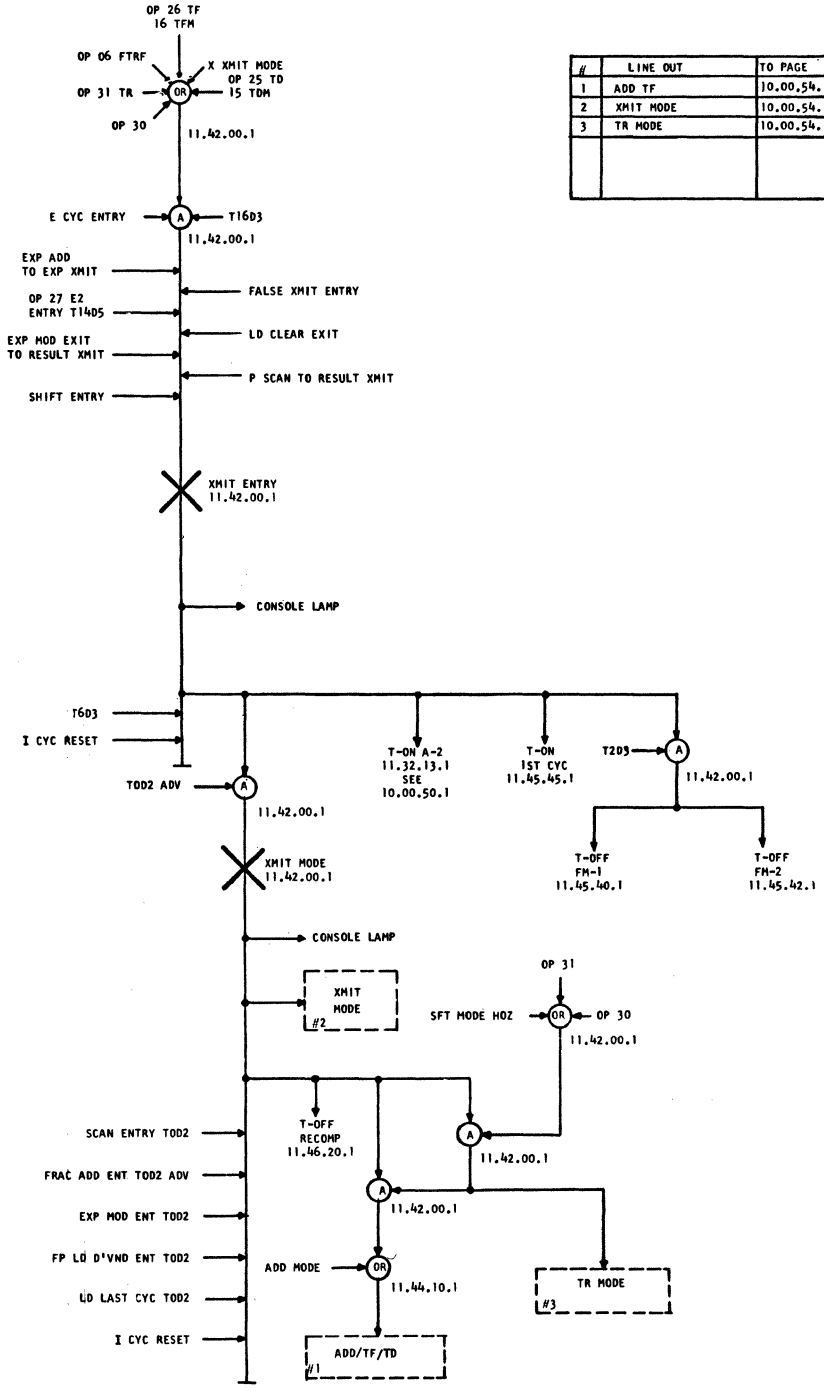

A4 TO E1
A2 TO E1
A5 TO E1
E1
11.30.12.1
CONSOLE LAMP
A1
TOD2 ADV
11.30.12.1
A ADV T17D2
11.30.12.1
I CYC RESET
A1
11.30.12.1
(T15D2) A RESET
I CYC RESET
NOT OP 23M 13 MM
TOD2 ADV
11.30.12.1
OP 23 M 13 MM
11.30.12.1
BLOCK T-OFF 2 DIG CTRL
11.44.15.1
A1 TO E3
11.30.14.1
A-2
TOD2 ADV
11.30.13.1
E2
11.30.13.1
CONSOLE LAMP
I CYC RESET
A ADV T17D2
11.30.13.1
ENTER E1
ADD ENT
SCAN ENT
SHIFT ENT
DIV ENABLE E3
FP ENTER E5
XMIT ENTRY
A2
11.30.13.1
A RESET
I CYC RESET
DIV ENABLE E3
11.30.13.1
TOD2 ADV
11.30.13.1
INV
A1 TO E3
E3
11.30.14.1
CONSOLE LAMP
I CYC RESET
A ADV T17D2
OP 23 M 13 MM
11.47.09.1
INV
NOT FM-2
NOT O MPIER
11.47.20.1
TOD2 ADV
11.30.13.1
A2 TO E1
11.30.12.1
FP ENTER E5
E CYC ENTRY
TOD2 ADV
11.30.15.1
MPY OR LD
11.30.15.1
E5
11.30.15.1
CONSOLE LAMP
I CYC RESET
A ADV T17D2
A3
11.30.14.1
A RESET
TOD2 ADV
11.30.14.1
E4
11.30.14.1
A4
TOD2 ADV
11.30.14.1
CONSOLE LAMP
I CYC RESET
A ADV T17D2
A4
11.30.14.1
A RESET
OP 23 M 13 MM
TOD2 ADV
11.30.14.1
A4 TO E2
11.30.13.1
NOT OP 23 M 13 MM
11.30.14.1
A4 TO E1
11.30.12.1
BLOCK 1ST CYC MPY
11.47.62.1
BLOCK T-OFF 2 DIG CTRL
11.44.15.1
I CYC RESET
T15D2
11.30.11.1
INV
A RESET
A5
11.30.15.1
A RESET
TOD2 ADV
A5 TO E1
11.30.12.1
T17D2
NOT ADD MODE FM-1
NOT E5
NOT LATCH CYC
NOT E2 2 DIG CTRL
NOT LD LAST CYC
NOT MPY 3RD E2
NOT RECOMP
NOT SHIFT
FM-1 NOT SFT RT
NOT BI SCAN +1
NOT BI SCAN +2
NOT DIGIT FORCE ENT
NOT DIGIT FORCE MODE
11.30.11.1
A ADV T17D2
OP 27 BT 17 BTM
OP 32 SF
OP 33 CF
OP 72 TNS
11.33.11.1
E CYC ENTRY
11.30.11.1
I-6
NOT X ENTRY
T17D2
NOT IA ENTRY
NOT I CYC ENTRY
11.20.10.1
IA-3
T17D2
Q ADDRESS
11.20.10.1
E CYC ENTRY
11.20.10.1
TO CONSOLE LAMP
T11D4
MANUAL RESET
NOT OPR 3 TN
NOT 1 UN
NOT MPY OR LD
T17D2
E CYC ENTRY
11.30.11.1


E CYC ENTRY
OPR UN DEC 5
OPR TN DEC 5
11.50.30.1
OP 55 BNG
OPR UN DEC 3
OPR TN DEC 4
11.50.28.1
OP 43 BD
OPR UN DEC 4
OPR TN DEC 4
11.50.28.1
OP 44 BN F
OPR UN DEC 5
11.50.28.1
OP 45 BNR
A2
11.30.13.1
SEL CHAN 4 BIT
SEL CHAN 2 BIT
SEL CHAN 1 BIT
SEL CHAN 8 BIT
11.40.36.1
OP 43 BD
11.40.36.1
OP 55 BNG
NOT SEL GM
11.41.10.1
OP 44 BNF
NOT SEL FLAG
11.40.36.1
OP 45 BNR
NOT SEL RM
11.40.36.1
E1
11.30.12.1
11.40.36.1
RD OR-1
11.32.16.1
WR OR-1
11.32.18.1
(1ST WR)
T15D2
11.40.36.1
T-ON
BR EXECUTE
11.40.00.1
OP 44 BNF
OP 55 BNG
OP 43 BD
OP 45 BNR
11.40.36.1
11.40.36.1
BYPASS
11.32.64.1
2ND WR
ENTER
I CYC
11.20.00.1



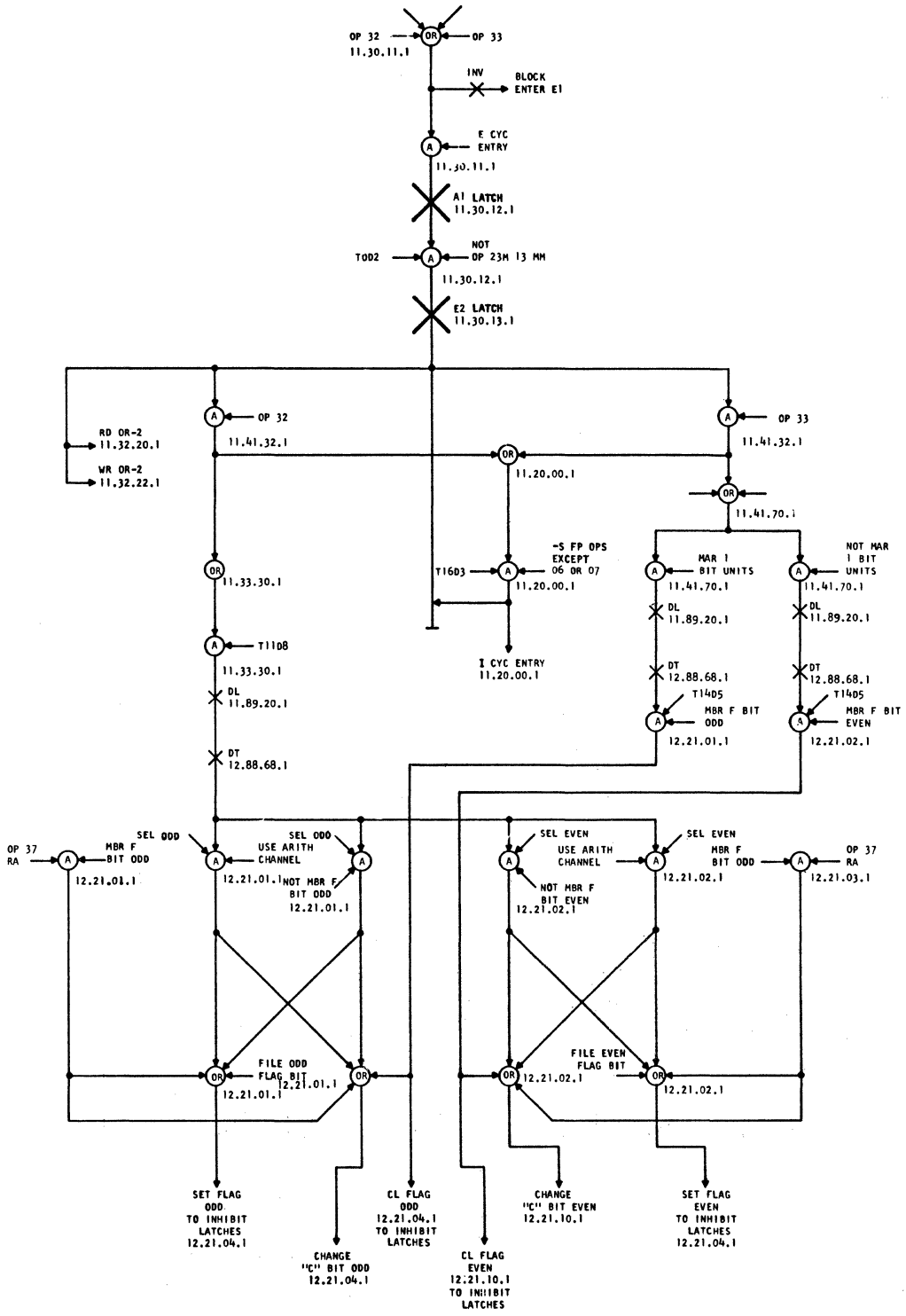


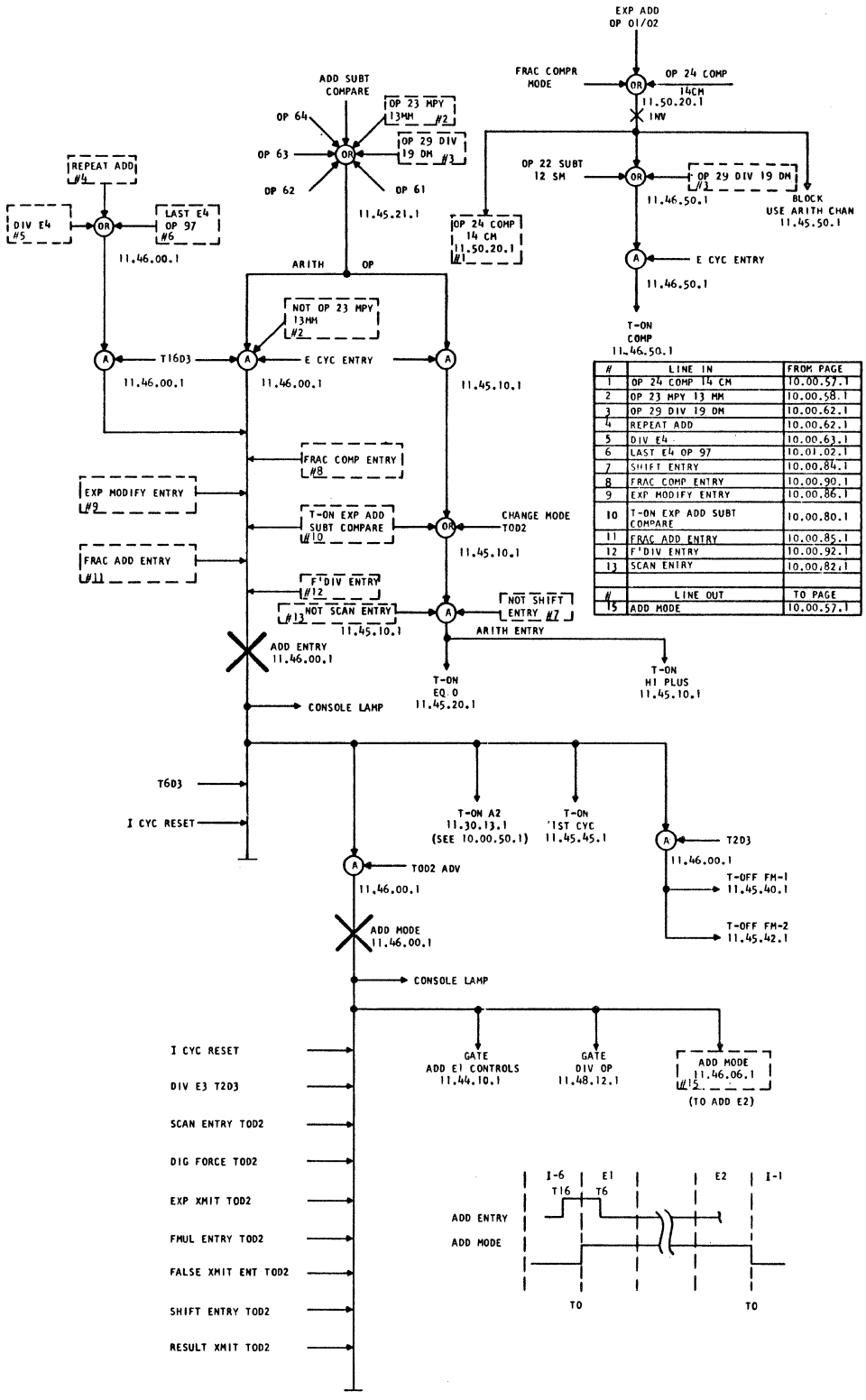
#	LINE OUT	TO PAGE
1	TF OPS	10.00.54.1
2	GATE INH RM	10.00.54.1
3	BT OPS T-ON A1	10.00.54.1 10.00.50.1
4	OPS 06/07/10/20 (STEP MQ AT E2)	10.00.54.1



#	LINE OUT	TO PAGE
1	ADD TF	10.00.54.1
2	XMIT MODE	10.00.54.1
3	TR MODE	10.00.54.1

NO.	LINE IN	FROM PAGE
1	ADD TF	10.00.53.1
2	TR MODE	10.00.53.1
3	XMIT MODE	10.00.53.1
4	TF OPS	10.00.52.1
5	OP 30	10.00.52.1
6	XMIT END LD	10.00.61.1
7	LD 1ST E2 FL-1	10.00.61.1
8	BT OPS	10.00.52.1
9	OPS 06/07/10/20	10.00.52.1
#	LINE OUT	TO PAGE
10	ADD MPY XMIT	10.00.57.1
11	OP 27 E2 T-ON XMIT ENT	10.00.53.1


OP 32
11.30.11.1
OR
OP 33
INV
BLOCK ENTER E1
A
E CYC ENTRY
11.30.11.1
A1 LATCH
11.30.12.1
TOD2
A
NOT OP 23M 13 MM
11.30.12.1
E2 LATCH
11.30.13.1
RD OR-2
11.32.20.1
WR OR-2
11.32.22.1
OP 32
11.41.32.1
OP 33
11.41.32.1
11.20.00.1
11.41.70.1
11.33.30.1
T16D3
-S FP OPS EXCEPT 06 OR 07
11.20.00.1
MAR 1 BIT UNITS
11.41.70.1
NOT MAR 1 BIT UNITS
11.41.70.1
DL
11.89.20.1
DT
12.88.68.1
T1108
11.33.30.1
I CYC ENTRY
11.20.00.1
T1405
MBR F BIT ODD
12.21.01.1
T1405
MBR F BIT EVEN
12.21.02.1
OP 37 RA
MBR F BIT ODD
12.21.01.1
SEL ODD
USE ARITH CHANNEL
12.21.01.1
NOT MBR F BIT ODD
12.21.01.1
SEL EVEN
USE ARITH CHANNEL
NOT MBR F BIT EVEN
12.21.02.1
SEL EVEN
MBR F BIT ODD
12.21.02.1
OP 37 RA
12.21.03.1
FILE ODD FLAG BIT
12.21.01.1
FILE EVEN FLAG BIT
12.21.02.1
12.21.02.1
SET FLAG ODD TO INHIBIT LATCHES
12.21.04.1
CHANGE "C" BIT ODD
12.21.04.1
CL FLAG ODD
12.21.04.1
TO INHIBIT LATCHES
CL FLAG EVEN
12.21.10.1
TO INHIBIT LATCHES
CHANGE "C" BIT EVEN
12.21.10.1
SET FLAG EVEN TO INHIBIT LATCHES
12.21.04.1

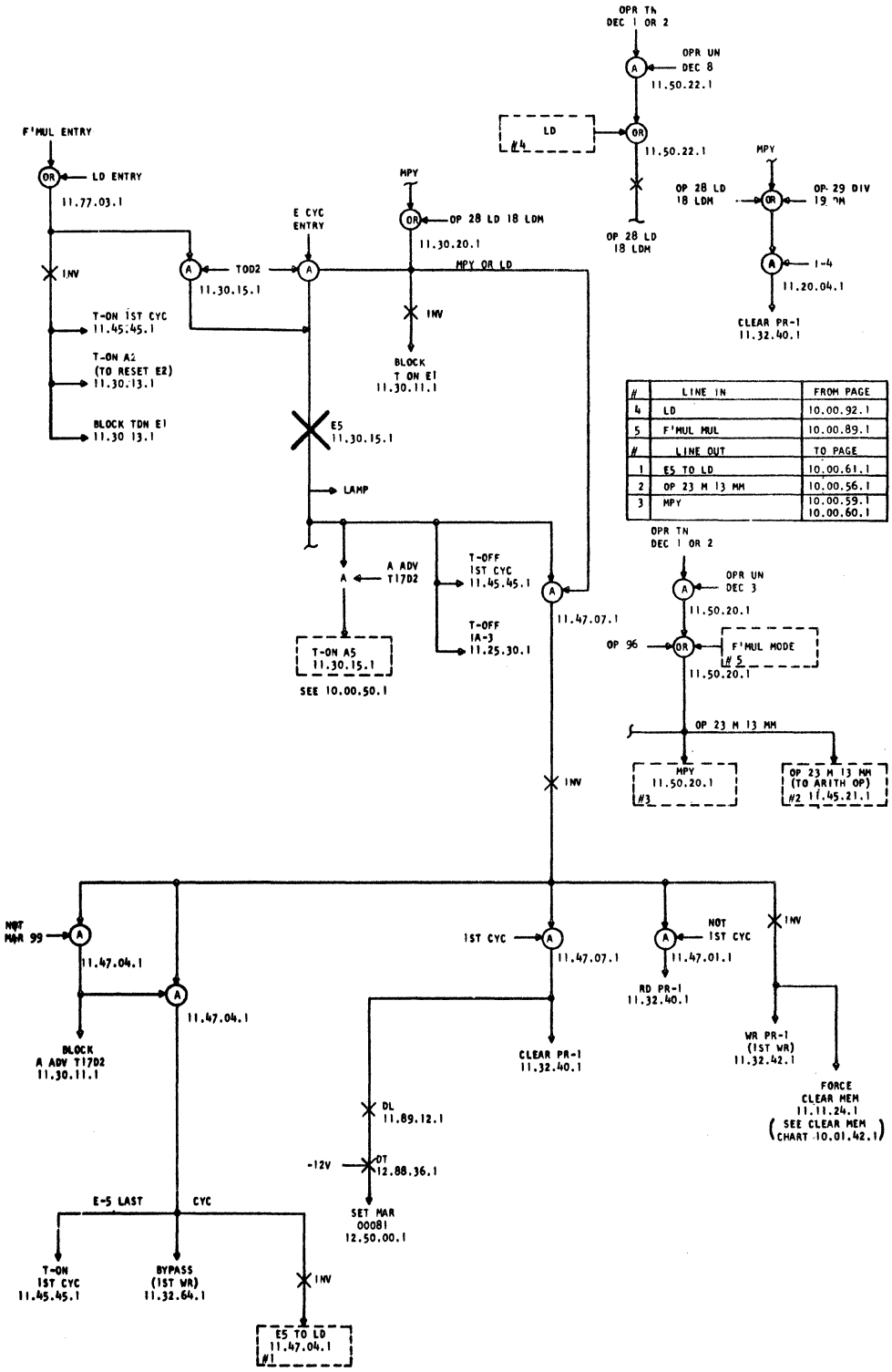


#	LINE IN	FROM PAGE
1	OP 24 COMP 14 CM	10.00.57.1
2	OP 23 MPY 13 MM	10.00.58.1
3	OP 29 DIV 19 DM	10.00.62.1
4	REPEAT ADD	10.00.62.1
5	DIV E4	10.00.63.1
6	LAST E4 OP 97	10.01.02.1
7	SHIFT ENTRY	10.00.84.1
8	FRAC COMP ENTRY	10.00.90.1
9	EXP MODIFY ENTRY	10.00.86.1
10	T-ON EXP ADD SUBT COMPARE	10.00.80.1
11	FRAC ADD ENTRY	10.00.85.1
12	F'DIV ENTRY	10.00.92.1
13	SCAN ENTRY	10.00.82.1
#	LINE OUT	TO PAGE
15	ADD MODE	10.00.57.1

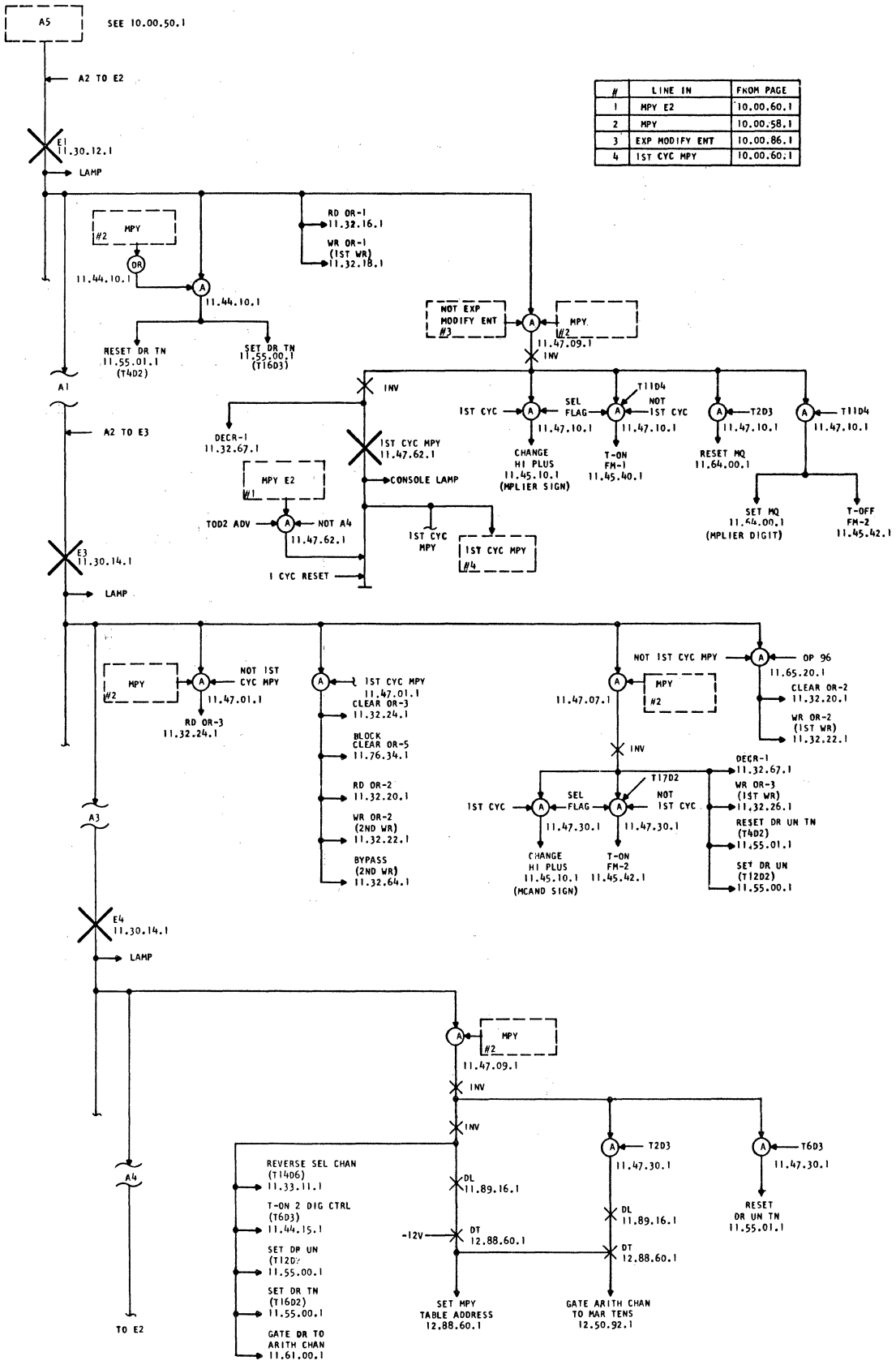
#	LINE IN	FROM PAGE
1	ADD MODE	10.00.56.1
2	FRAC ADD SCAN Q E1	10.00.35.1
3	EXP MODIFY E1	10.00.87.1
4	OP 29 DIV 19 DM	10.00.62.1
5	ADD MPY XMIT	10.00.54.1
6	OP 24 COMP 14 CM NOT F.PL	10.00.56.1
8	FORCE CF1	10.00.84.1
9	EXP MOD REQ O'FLO CORRECT	10.00.93.1
10	ADD TF	10.00.53.1
11	X EXECUTE	
#	LINE OUT	TO PAGE
12	ADD END TO INDEXING	10.00.45.1
13	ADD END TO F.P.	10.00.90.1

NOTE:
1 FLAG LATCH 1 SET WITH DR UN
FLAG LATCH 2 SET WITH DR TN
SEE DR & TWO DIG CTRL PAGE

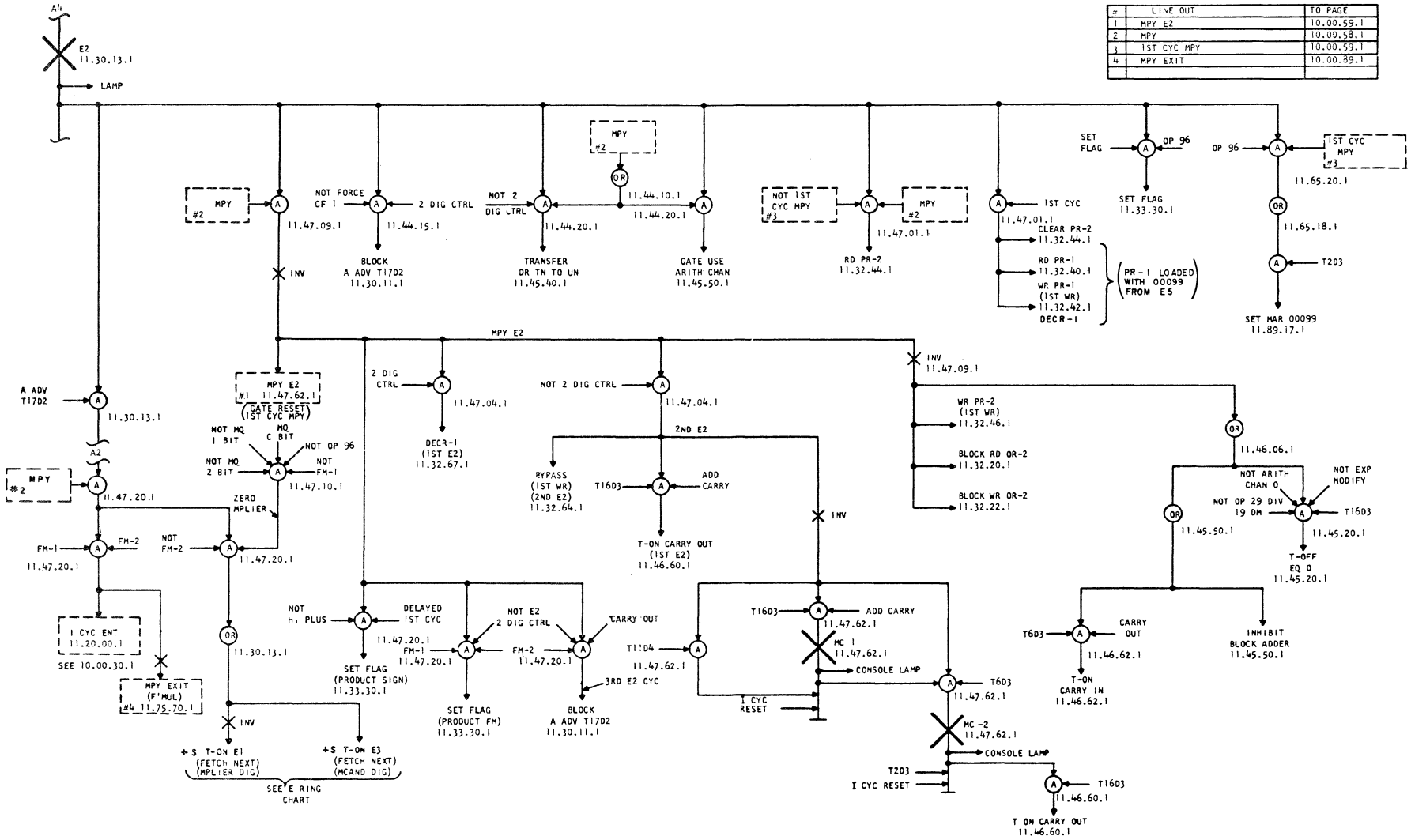
ADD ENTRY (SEE 10.00.56.1)
E2 (SEE 10.00.50.1)
A2
E1 11.30.12.1
A1 SEE 10.00.50.1
E2 11.30.13.1
ADD MPY XMIT #5
11.44.10.1
RESET DR UN TN (T4D2) 11.55.01.1
SET DR TN (T16D2) 11.55.00.1
RD OR-1 11.32.16.1
WR OR-1 (1ST WR) 11.32.18.1
NOT MAR 1 BIT UN
ADD TF #10
11.44.10.1
DECR-1 11.32.67.1
MAR 1 BIT UN 11.44.10.1
T-ON 2 DIG CTRL 11.44.15.1
DECR-2 11.32.68.1
INV
REVERSE SEL CHAN (T14D6) 11.33.11.1
SET DR UN (T12D2) 11.55.00.1
NOT RECOMP
ADD MODE #1
DLY 1ST CYC
NOT OP 29 DIV 19 DM #4
NOT FRAC ADD SCAN Q E1 #2
T9D4
NOT EXP MODIFY E1 #3
11.46.50.1
NOT COMP AUX
SEL FLAG
COMP AUX
T-ON COMP 11.46.50.1
T-ON CARRY IN 11.46.62.1
T-OFF COMP 11.46.50.1
T-OFF CARRY IN 11.46.62.1
NOT Q DET (NOT ZERO P) ARITH CHANNEL
NOT DR UN (NOT ZERO Q) DEC 0
11.45.20.1
T11D4 11.46.06.1
T-OFF CARRY OUT 11.46.60.1
A ADV T17D2 11.30.13.1
TO A2
NOT FORCE CF1 #8
ADD MODE #1
11.46.06.1
2 DIG CTRL
BLOCK A ADV T17D2 11.30.11.1
ADD TF 11.44.20.1
DECR 1 11.32.67.1 (FL-1 NOTE: 1)
INV
NOT DELAYED 1ST CYC
T6D3
T-ON FM-1 11.45.40.1
11.44.20.1
USE ARITH CHAN 11.45.50.1
ADD MPY XMIT #5
XFER DR TN TO UN (T6D3) 11.55.09.1
NOT 2 DIG CTRL 11.44.20.1
1ST CYC
INV
T6D3
COMP
11.46.62.1
T-ON CARRY IN 11.46.62.1 (FOR SUBT OP)
RD OR-2 11.32.20.1
WR OR-2 (1ST WR) 11.32.22.1
OP 24 COMP 14 CM #6
TRUE
T16D3
11.45.20.1
T OFF EQ Q 11.45.20.1
EARLY EXIT ON COMPARE
I CYC ENT 11.20.00.1 SEE 10.00.30.1
NOT OP 24 COMP 14 CM #6
ADD CARRY
NOT X EXECUTE #11
TRUE
11.45.30.1
NOT FM-1
(NOT FP)
11.45.30.1
FM-1
ADD MODE #1
11.45.40.1
BLOCK A ADV T17D2 11.30.11.1 Q FIELD SHORTER THAN P FIELD ADD Q FROM DR TO P REMAIN IN E2 TILL ADD OP TERMINATED
NOT OP 29 DIV 19 DM #4
NOT EXP MODIFY
T16D3
NOT ARITH CHAN 0
11.45.20.1
T-OFF EQ-0 11.45.20.1
T6D3
CARRY OUT
11.46.62.1
T-ON CARRY IN 11.46.62.1
INHIBIT BLOCK ADDER 11.45.50.1 (USE ADDER)
11.46.06.1
INV
DELAYED 1ST CYC
NOT OP 29 DIV 19 DM #4
SEL FLAG
NOT RECOMP
11.45.10.1
CHANGE HI PLUS 11.45.10.1
NOT OP 29 DIV 19 DM #4
11.45.50.1
DELAYED 1ST CYC
NOT HI PLUS
NOT DELAYED 1ST CYC
11.45.42.1
11.46.30.1
USE ARITH CHAN
FM-2
11.46.30.1
SET FLAG 11.33.30.1 (P FIELD MINUS)
SEL CHAN FLAG T11D2
NOT OP 29 DIV 19 DM #4
T-ON FM-2 11.45.42.1 (END OF P FIELD)
T0D2
11.46.06.1
RESET DR TN 11.55.01.1
FM-1
T2D3
11.46.06.1
SET DR TN C BIT 11.55.08.1
11.45.42.1
ADD CARRY
NOT MPY 2ND E3
T16D3
T-ON CARRY OUT 11.46.60.1
ADD END
ADD END (TO INDEXING) 11.70.10.1 #12
ADD END (TO FP) 11.46.90.1 #13
ADD SUBT COMPARE
I CYC ENTRY 11.20.00.1
(SEE 10.00.30.1)
FM-2
T16D3
11.46.90.1
INV
COMP
11.46.90.1
NOT EXP MOD REQ O'FLO CORRECT #9
NOT COMP
EXP MOD REQ O'FLO CORRECT #9
OP 24 COMP 14 CM
OP 29 DIV 19 DM #4
11.46.90.1
T-ON 1ST CYC 11.45.45.1 CHANGE HI PLUS 11.45.10.1
RECOMP 11.46.20.1
CONSOLE LAMP
NOT T5D9
1ST CYC 11.46.20.1
1ST CYC
T2D3
BLOCK RD OR-2 11.32.20.1
T OFF COMP 11.46.50.1
T-OFF FM-2 11.45.42.1
P COMP 11.46.55.1
CHANGE MODE
I CYC RESET
GATE P FIELD T/C) SEL CHAN TO ADDER 11.46.55.1
1ST CYC
T6D3
11.46.62.1
T-ON CARRY IN 11.46.62.1
1ST CYC 11.46.20.1
CLEAR OR-2 11.32.20.1
RD OR-3 11.32.24.1
I CYC RESET
XMIT MODE
CHANGE MODE
T0D2
FM-2
T16D3
NOT OPR TN DEC 0 11.45.30.1
NOT OP 29 DIV 19 DM #4
NOT ADD CARRY
NOT EXP MOD REQ #9 O'FLO CORRECT
11.46.20.1
T-ON ARITH CHECK 11.45.30.1
O'FLO CK AUTO
11.45.30.1
T-ON MANUAL 11.11.08.1
BLOCK FLAG CHANGE HI PLUS 11.45.10.1
BLOCK A ADV T17D2 11.30.11.1
BLOCK COMP CTRL 11.46.50.1



#	LINE IN	FROM PAGE
4	LD	10.00.92.1
5	F'MUL MUL	10.00.89.1
#	LINE OUT	TO PAGE
1	E5 TO LD	10.00.61.1
2	OP 23 M 13 MM	10.00.56.1
3	MPY	10.00.59.1 10.00.60.1

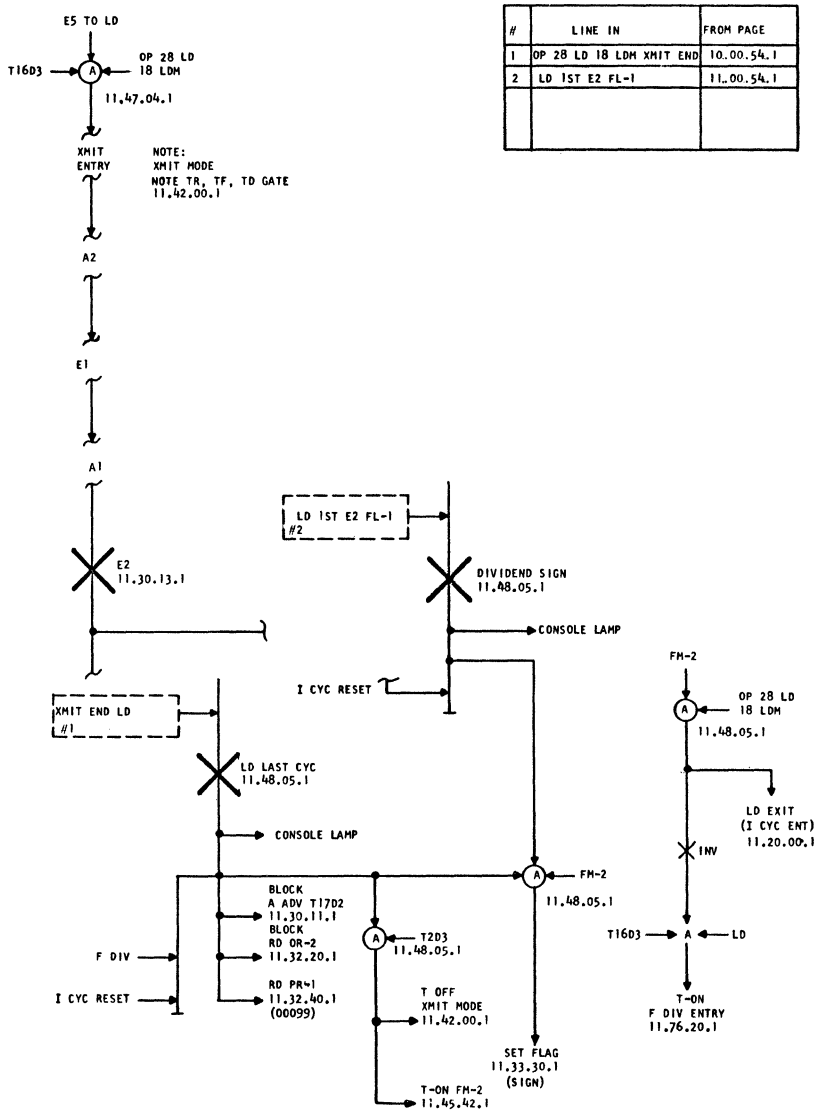


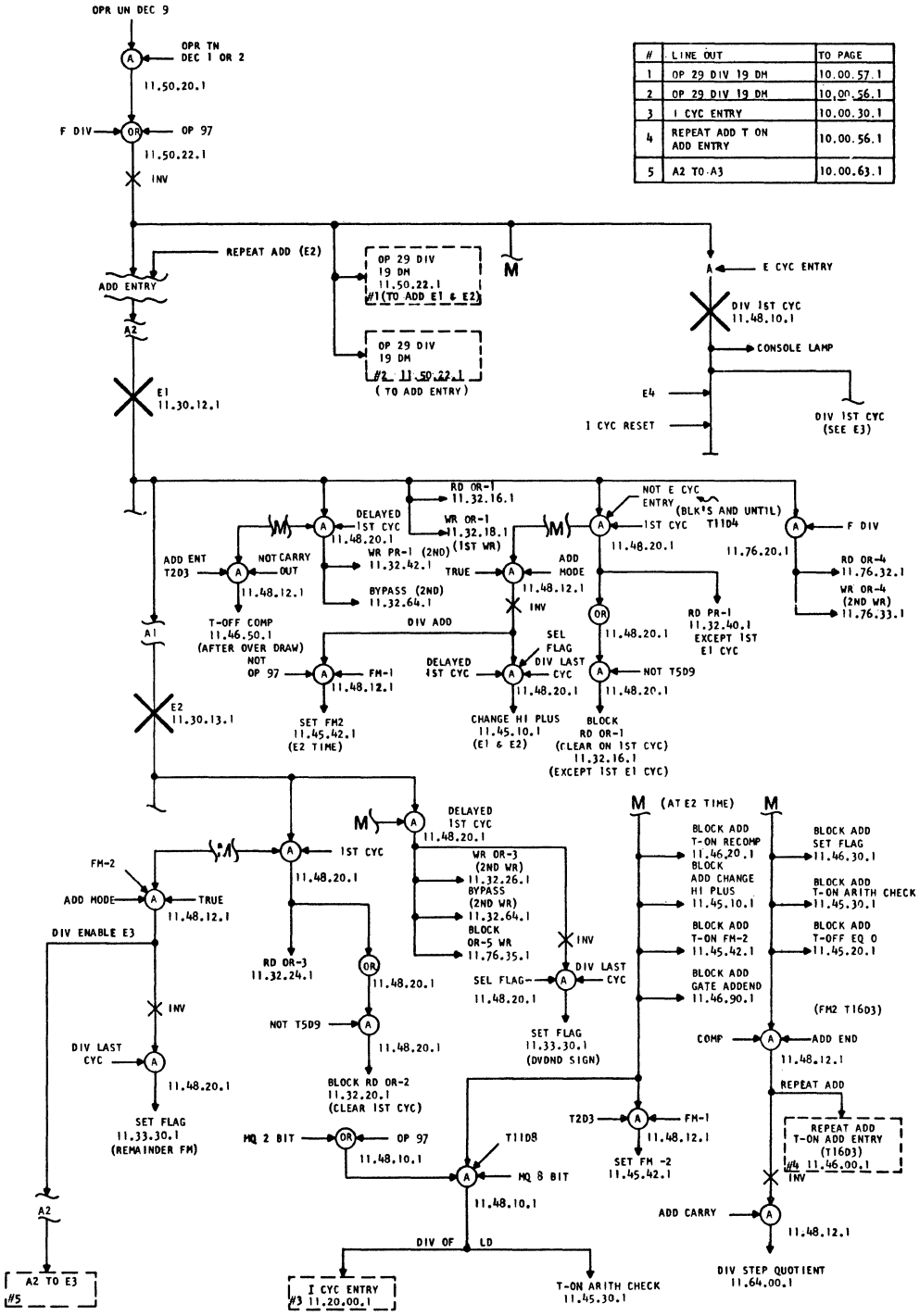
#	LINE IN	FROM PAGE
1	MPY E2	10.00.60.1
2	MPY	10.00.58.1
3	EXP MODIFY ENT	10.00.86.1
4	1ST CYC MPY	10.00.60.1



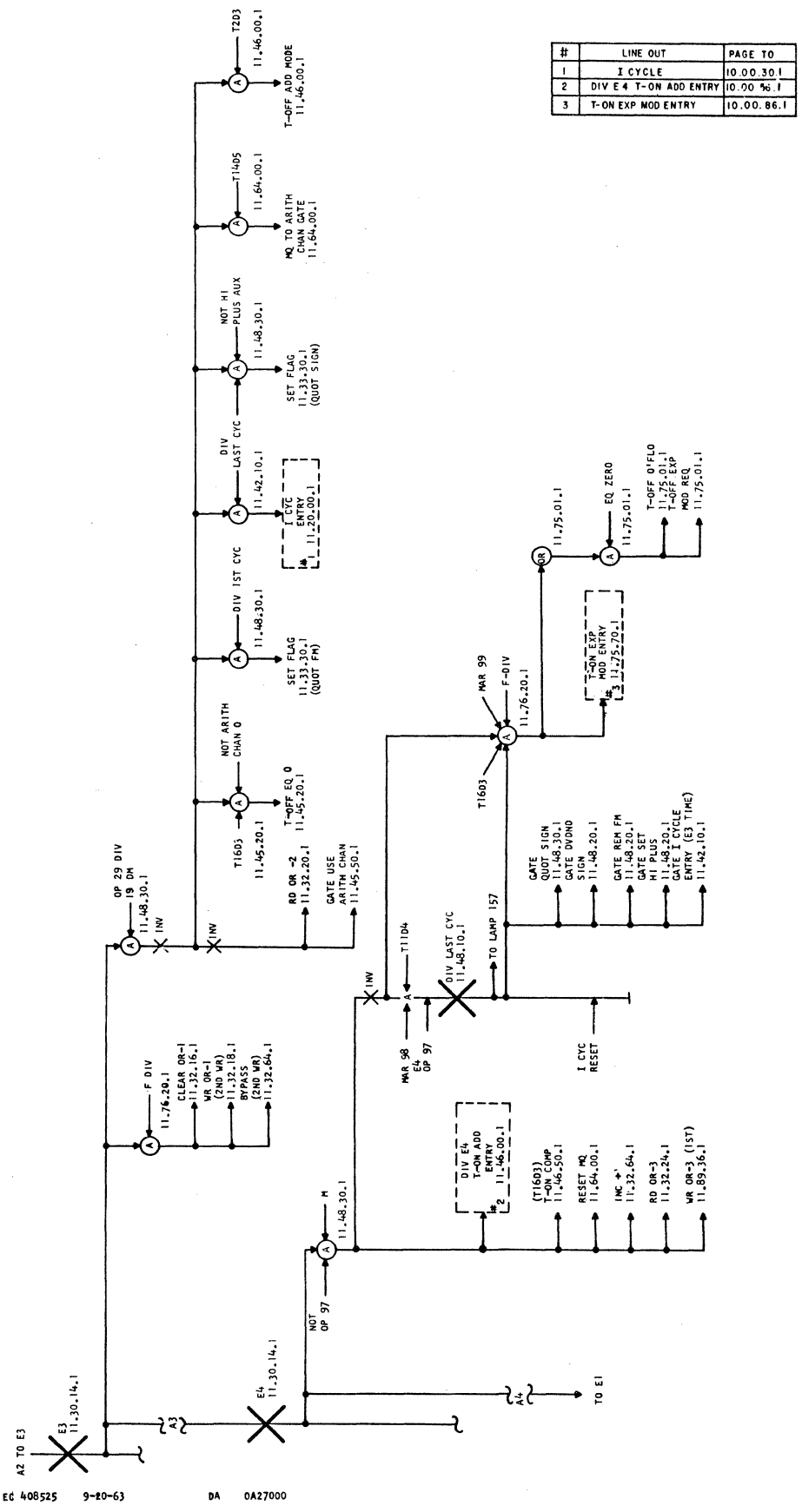
#	LINE OUT	TO PAGE
1	MPY E2	10.00.59.1
2	MPY	10.00.58.1
3	1ST CYC MPY	10.00.59.1
4	MPY EXIT	10.00.89.1

#	LINE IN	FROM PAGE
1	OP 28 LD 18 LDM XMIT END	10.00.54.1
2	LD 1ST E2 FL-1	11.00.54.1

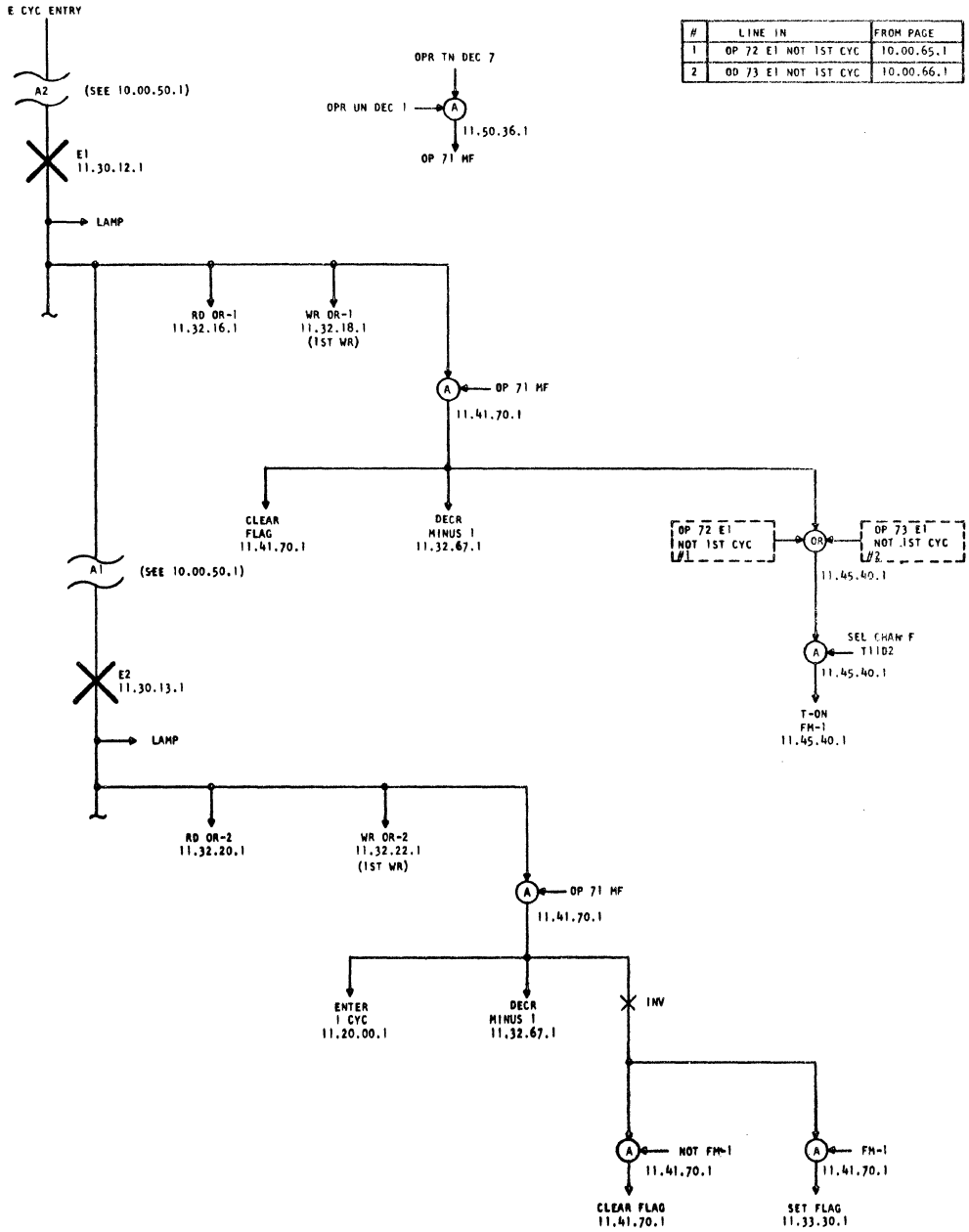




#	LINE OUT	TO PAGE
1	OP 29 DIV 19 DM	10.00.57.1
2	OP 29 DIV 19 DM	10.00.56.1
3	I CYC ENTRY	10.00.30.1
4	REPEAT ADD T ON ADD ENTRY	10.00.56.1
5	A2 TO A3	10.00.63.1

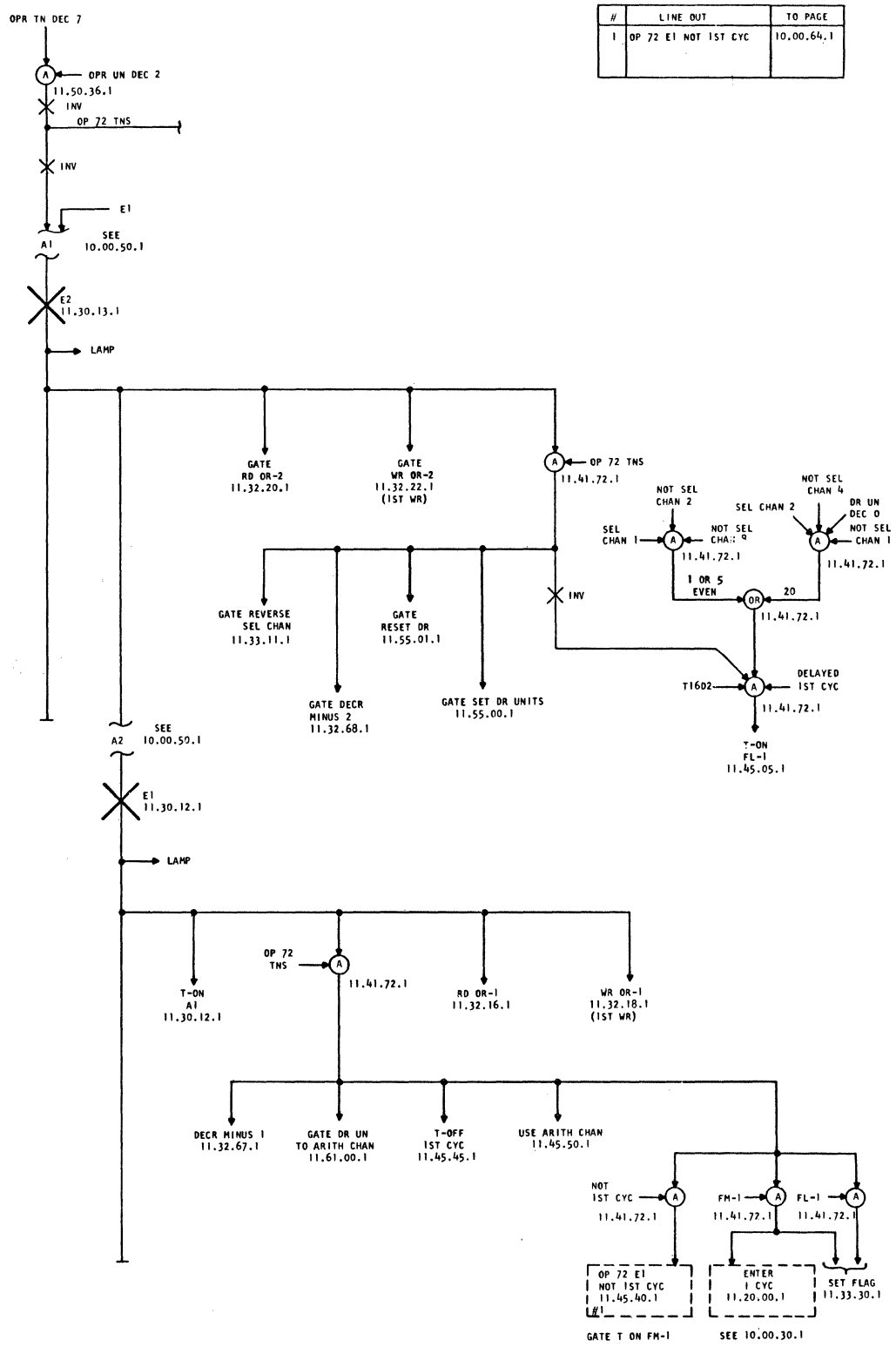


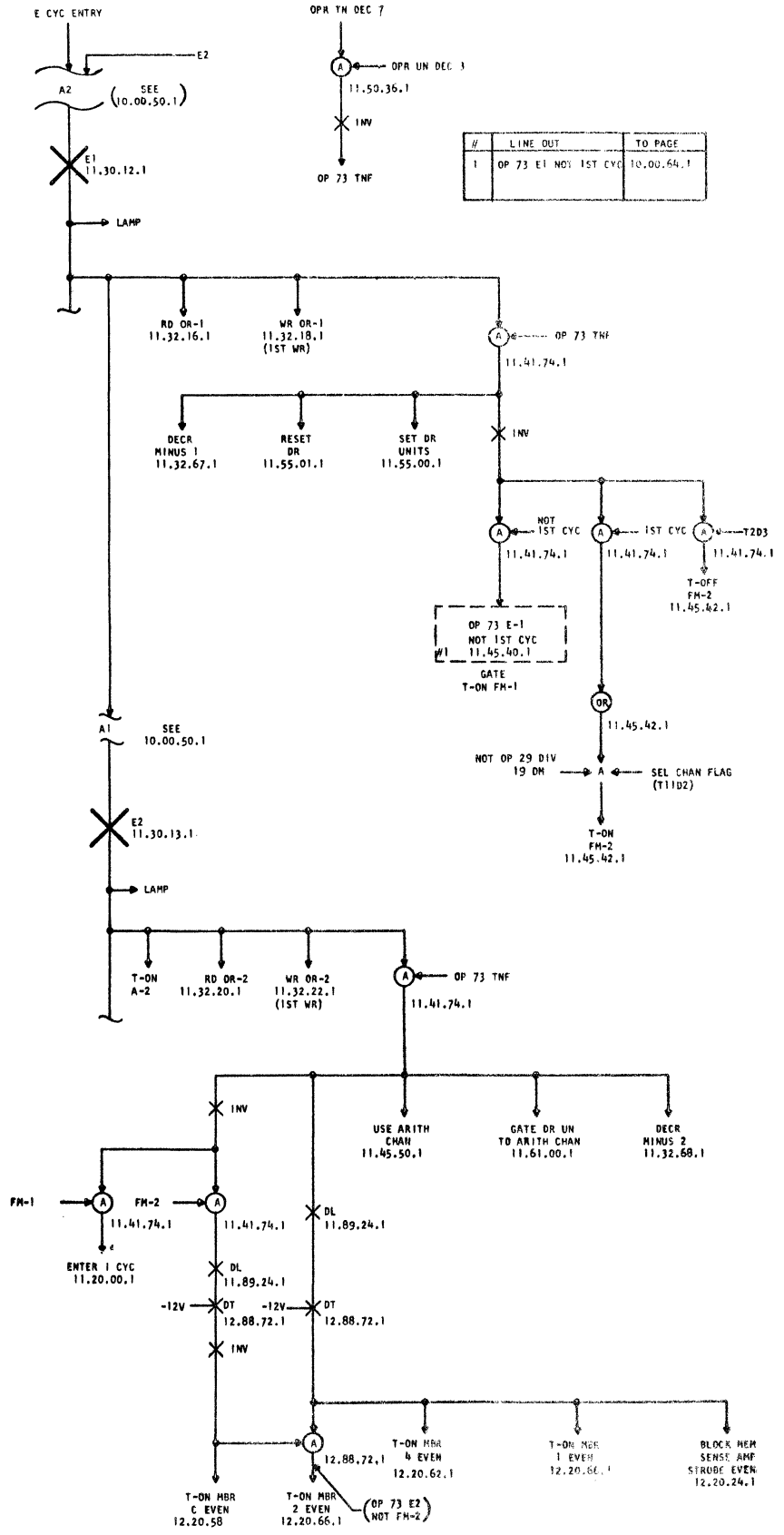
#	LINE OUT	PAGE TO
1	I CYCLE	10.00.30.1
2	DIV E 4 T-ON ADD ENTRY	10.00.96.1
3	T-ON EXP MOD ENTRY	10.00.86.1

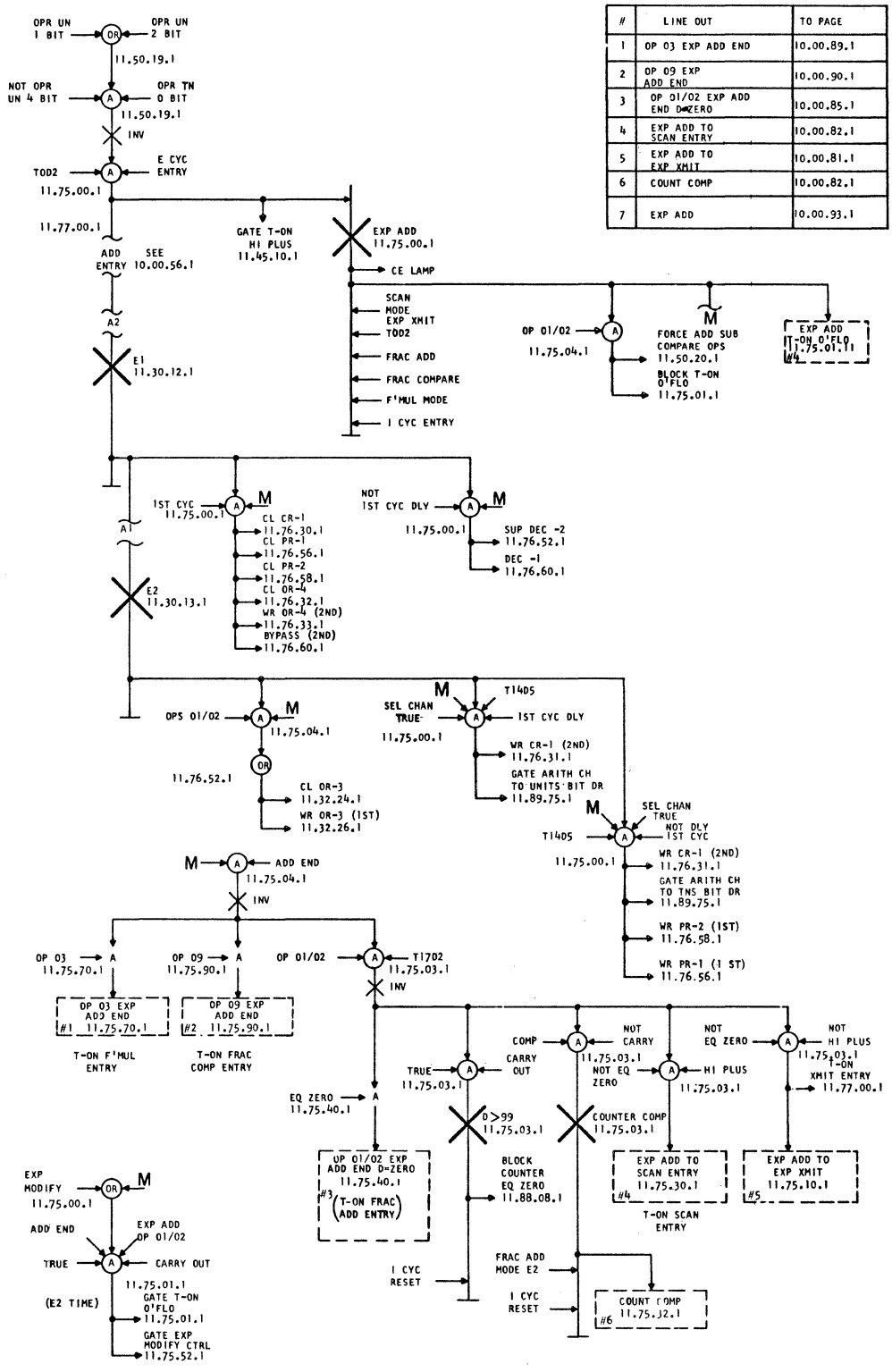


#	LINE IN	FROM PAGE
1	OP 72 E1 NOT 1ST CYC	10.00.65.1
2	OD 73 E1 NOT 1ST CYC	10.00.66.1

#	LINE OUT	TO PAGE
1	OP 72 E1 NOT 1ST CYC	10.00.64.1

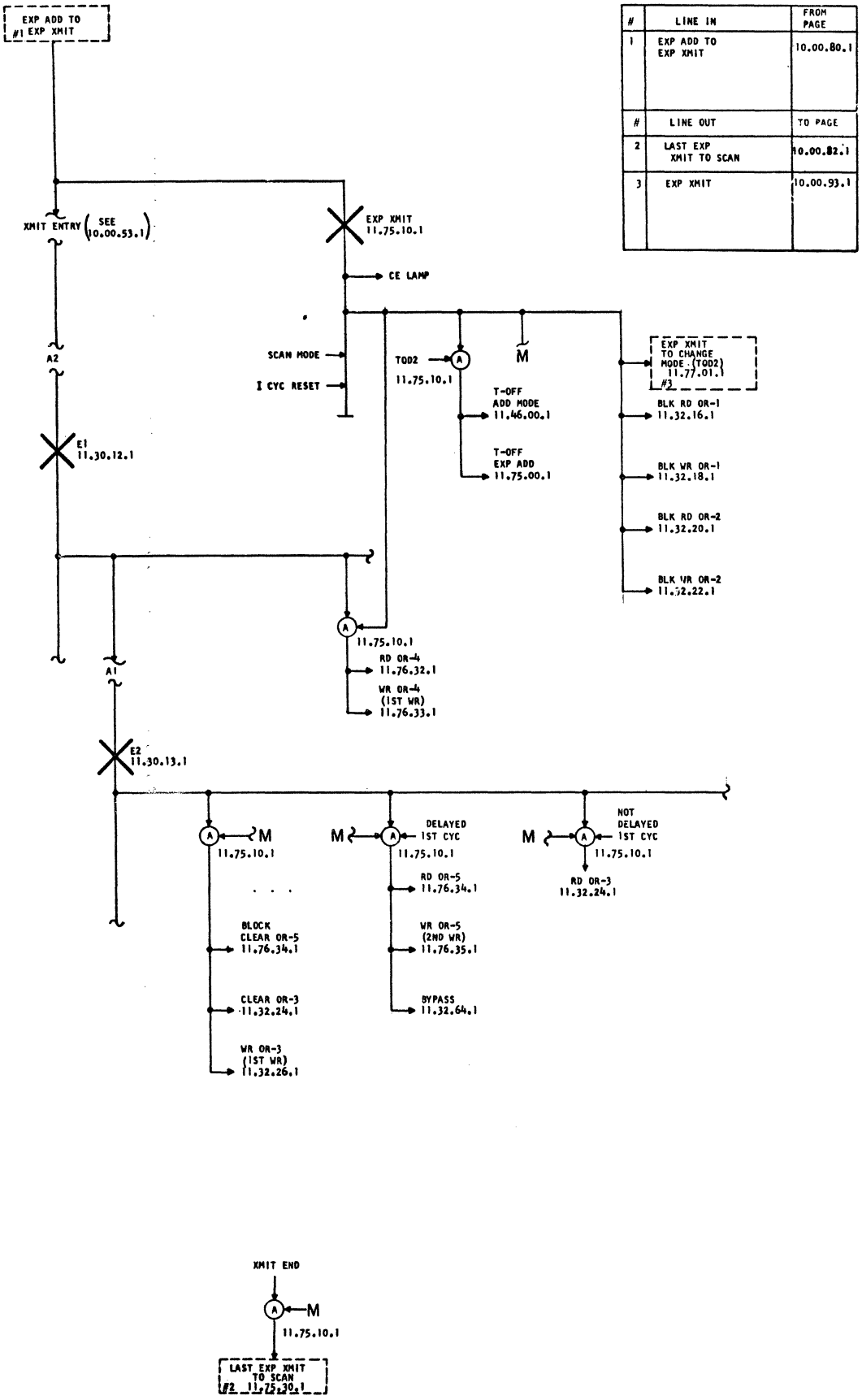



E CYC ENTRY
E2
A2
SEE (10.00.50.1)
E1 11.30.12.1
LAMP
OPR TN DEC 7
OPR UN DEC 3
11.50.36.1
INV
OP 73 TNF
| LINE OUT | TO PAGE
1 | OP 73 E1 NOT 1ST CYC | 10.00.64.1
RD OR-1 11.32.16.1
WR OR-1 11.32.18.1 (1ST WR)
OP 73 TNF 11.41.74.1
DECR MINUS 1 11.32.67.1
RESET DR 11.55.01.1
SET DR UNITS 11.55.00.1
INV
NOT 1ST CYC 11.41.74.1
1ST CYC 11.41.74.1
T2D3 11.41.74.1
T-OFF FM-2 11.45.42.1
OP 73 E-1 NOT 1ST CYC #1 11.45.40.1
GATE T-ON FM-1
OR 11.45.42.1
NOT OP 29 DIV 19 DM
SEL CHAN FLAG (T11D2)
T-ON FM-2 11.45.42.1
A1
SEE 10.00.50.1
E2 11.30.13.1
LAMP
T-ON A-2
RD OR-2 11.32.20.1
WR OR-2 11.32.22.1 (1ST WR)
OP 73 TNF 11.41.74.1
INV
USE ARITH CHAN 11.45.50.1
GATE DR UN TO ARITH CHAN 11.61.00.1
DECR MINUS 2 11.32.68.1
FM-1
FM-2
11.41.74.1
11.41.74.1
DL 11.89.24.1
ENTER 1 CYC 11.20.00.1
DL 11.89.24.1
-12V
DT 12.88.72.1
-12V
DT 12.88.72.1
INV
12.88.72.1
T-ON MBR 4 EVEN 12.20.62.1
T-ON MBR 1 EVEN 12.20.66.1
BLOCK MEM SENSE AMP STROBE EVEN 12.20.24.1
T-ON MBR C EVEN 12.20.58
T-ON MBR 2 EVEN 12.20.66.1
(OP 73 E2 NOT FM-2)

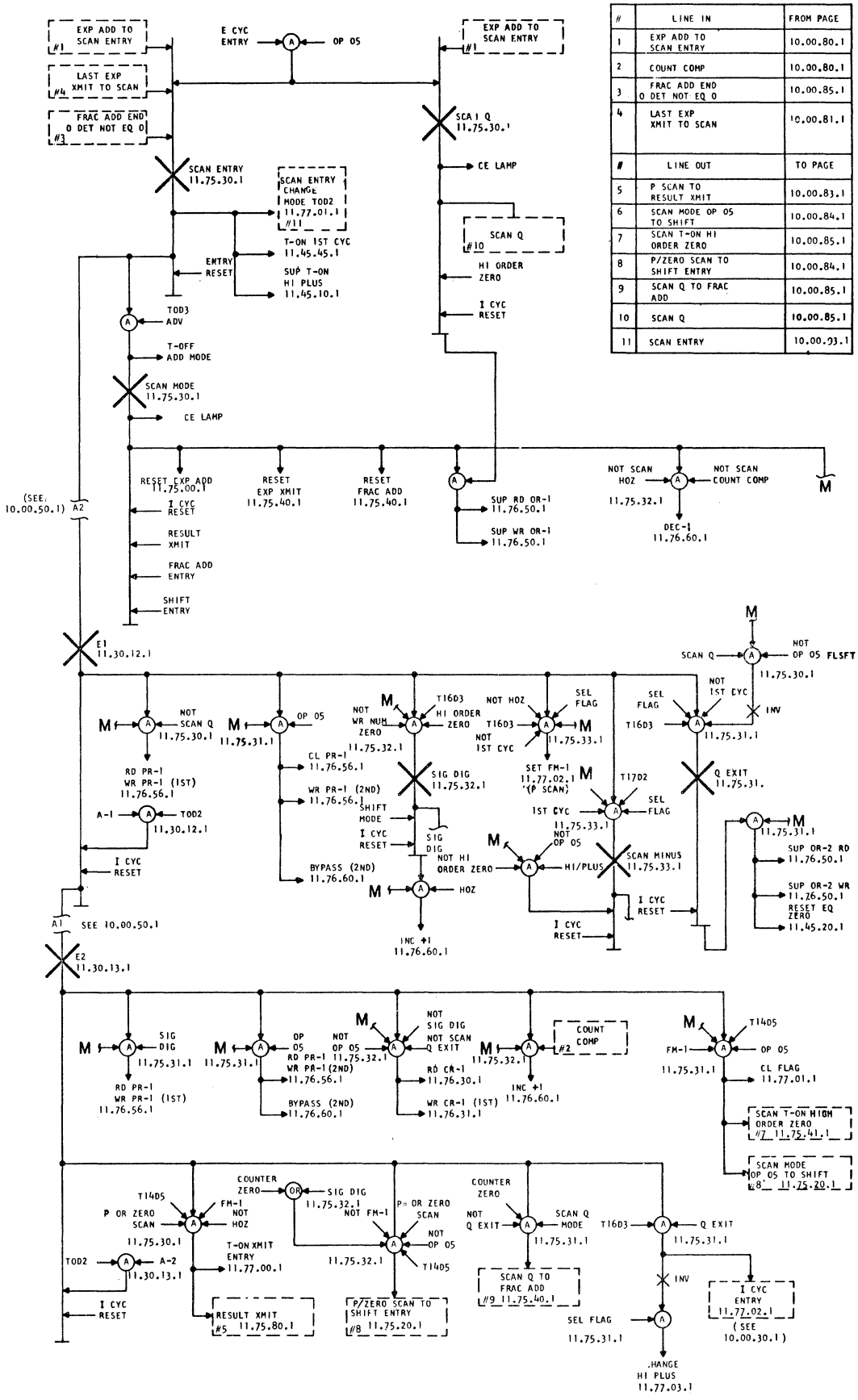


#	LINE OUT	TO PAGE
1	OP 03 EXP ADD END	10.00.89.1
2	OP 09 EXP ADD END	10.00.90.1
3	OP 01/02 EXP ADD END D=ZERO	10.00.85.1
4	EXP ADD TO SCAN ENTRY	10.00.82.1
5	EXP ADD TO EXP XMIT	10.00.81.1
6	COUNT COMP	10.00.82.1
7	EXP ADD	10.00.93.1

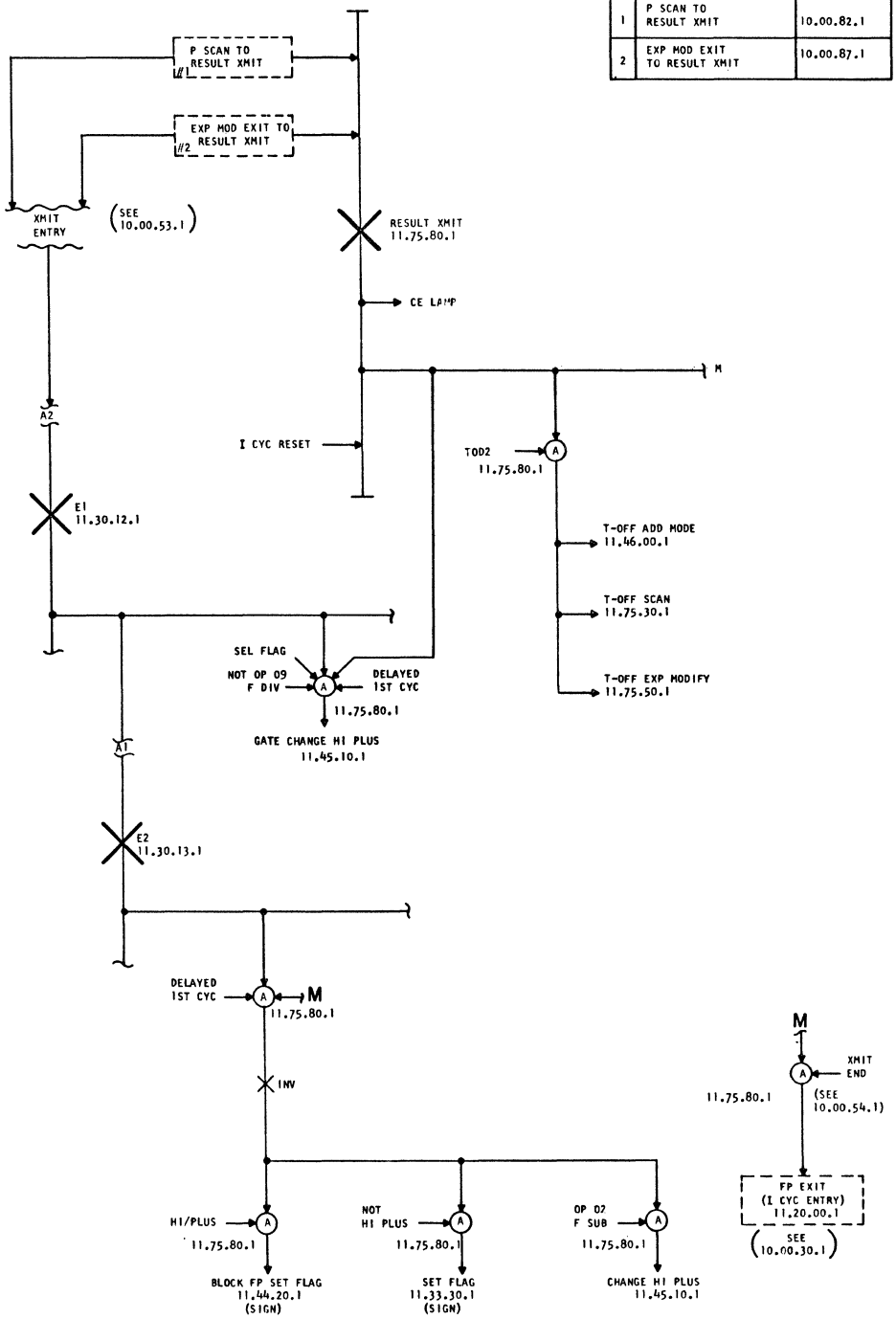
#	LINE IN	FROM PAGE
1	EXP ADD TO EXP XMIT	10.00.80.1
#	LINE OUT	TO PAGE
2	LAST EXP XMIT TO SCAN	10.00.82.1
3	EXP XMIT	10.00.93.1



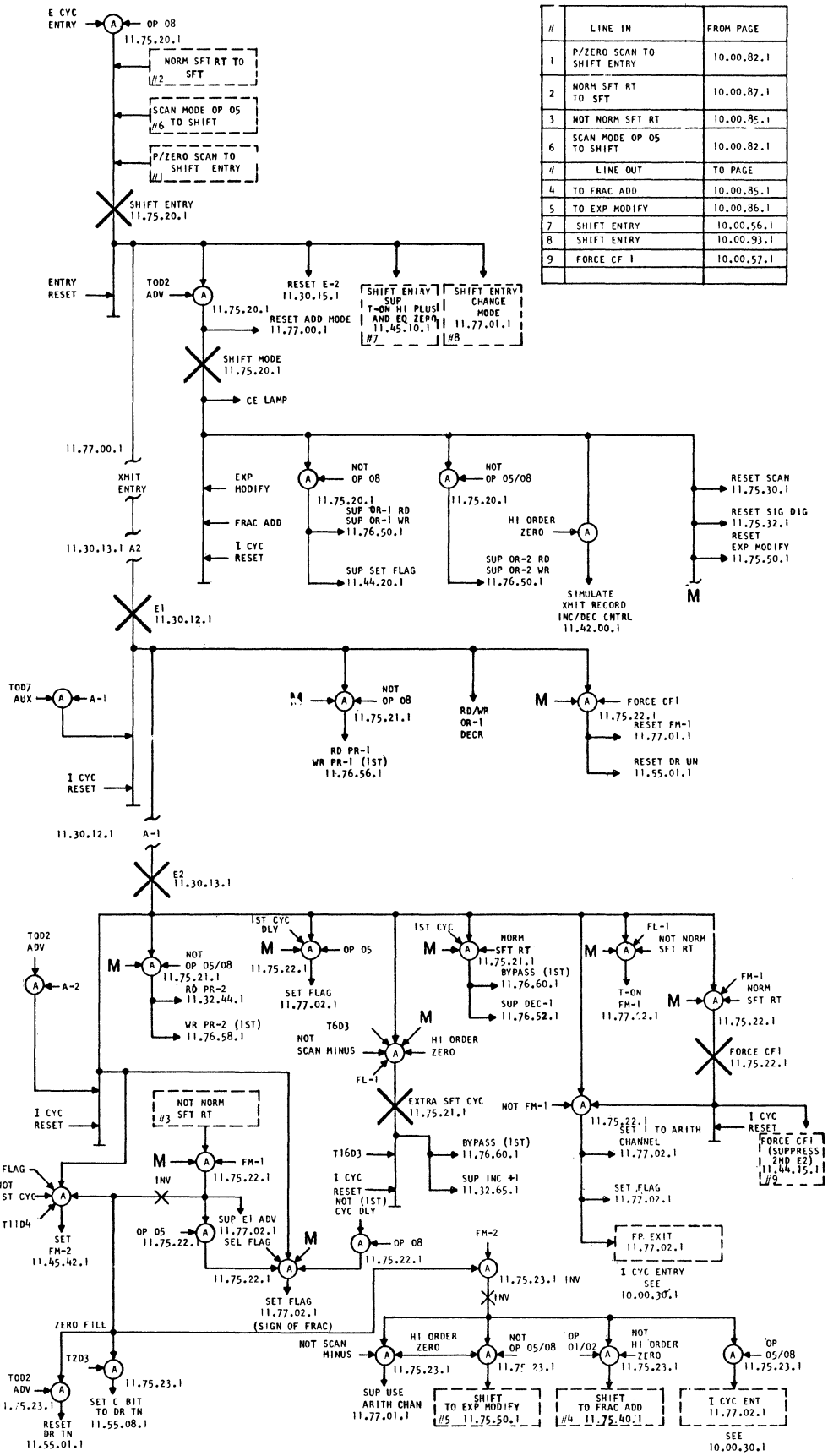
#	LINE IN	FROM PAGE
1	EXP ADD TO SCAN ENTRY	10.00.80.1
2	COUNT COMP	10.00.80.1
3	FRAC ADD END O DET NOT EQ 0	10.00.85.1
4	LAST EXP XMIT TO SCAN	10.00.81.1
#	LINE OUT	TO PAGE
5	P SCAN TO RESULT XMIT	10.00.83.1
6	SCAN MODE OP 05 TO SHIFT	10.00.84.1
7	SCAN T-ON HI ORDER ZERO	10.00.85.1
8	P/ZERO SCAN TO SHIFT ENTRY	10.00.84.1
9	SCAN Q TO FRAC ADD	10.00.85.1
10	SCAN Q	10.00.85.1
11	SCAN ENTRY	10.00.93.1



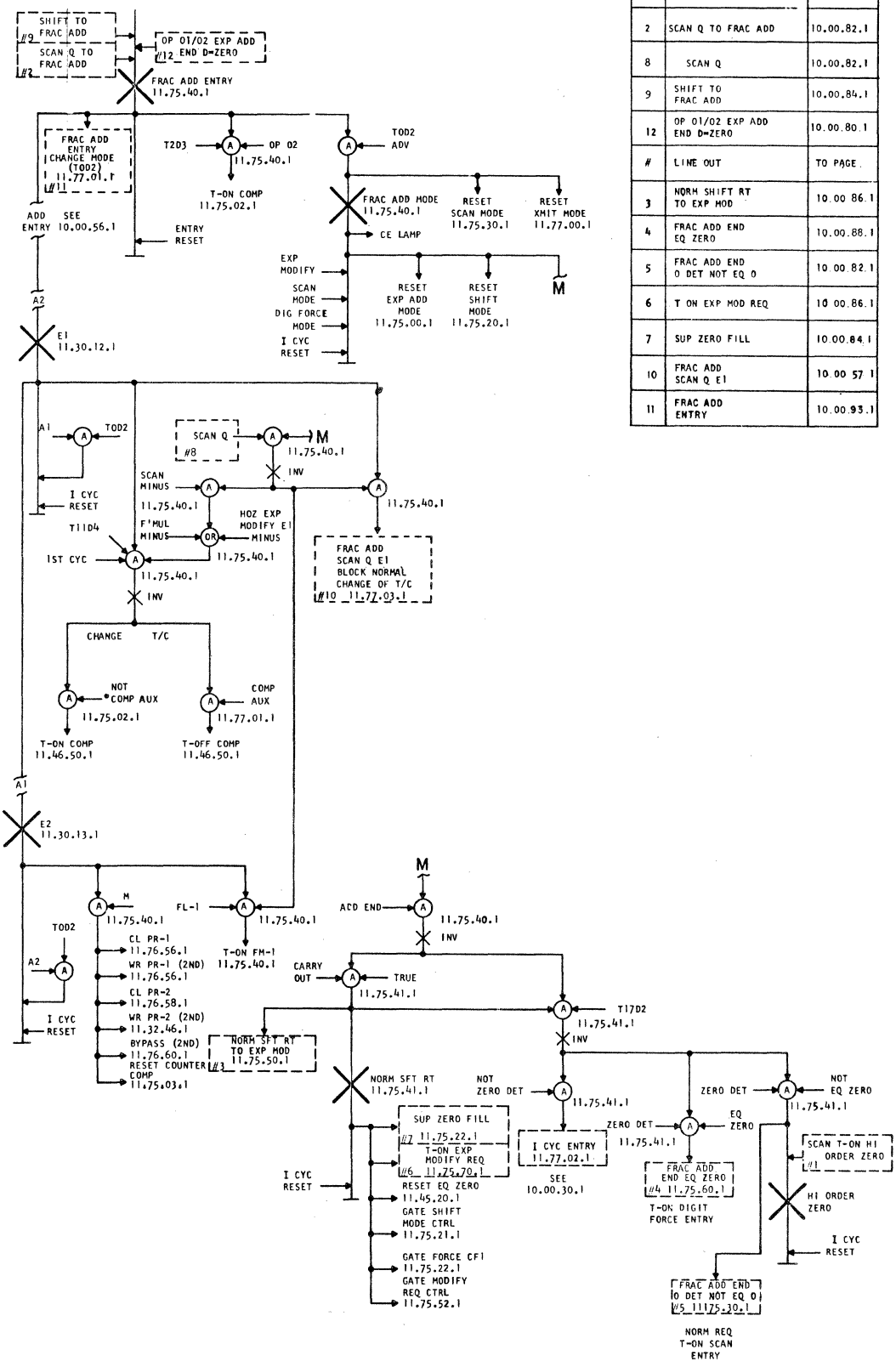
#	LINE IN	FROM PAGE
1	P SCAN TO RESULT XMIT	10.00.82.1
2	EXP MOD EXIT TO RESULT XMIT	10.00.87.1



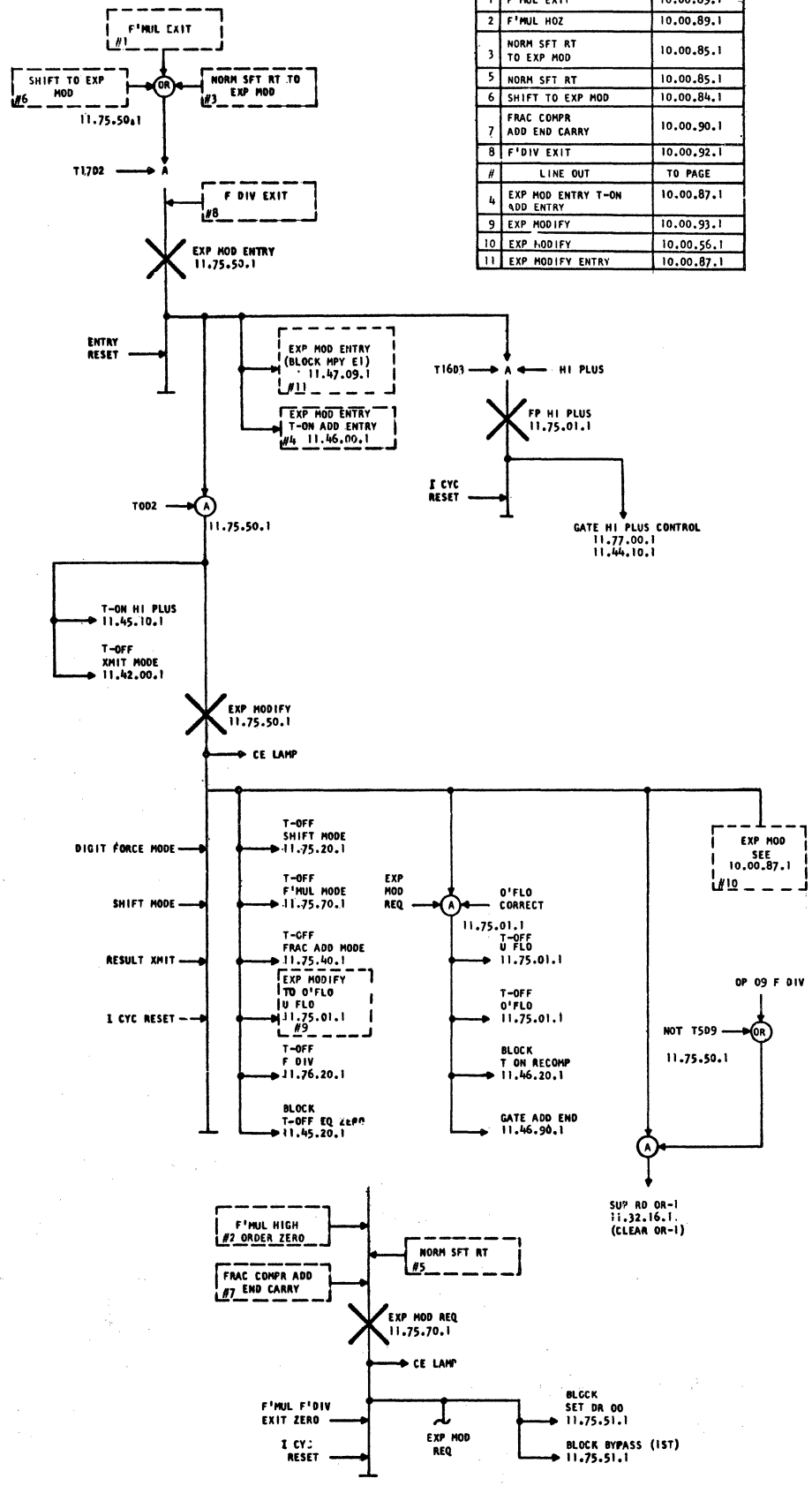
#	LINE IN	FROM PAGE
1	P/ZERO SCAN TO SHIFT ENTRY	10.00.82.1
2	NORM SFT RT TO SFT	10.00.87.1
3	NOT NORM SFT RT	10.00.85.1
6	SCAN MODE OP 05 TO SHIFT	10.00.82.1
#	LINE OUT	TO PAGE
4	TO FRAC ADD	10.00.85.1
5	TO EXP MODIFY	10.00.86.1
7	SHIFT ENTRY	10.00.56.1
8	SHIFT ENTRY	10.00.93.1
9	FORCE CF 1	10.00.57.1



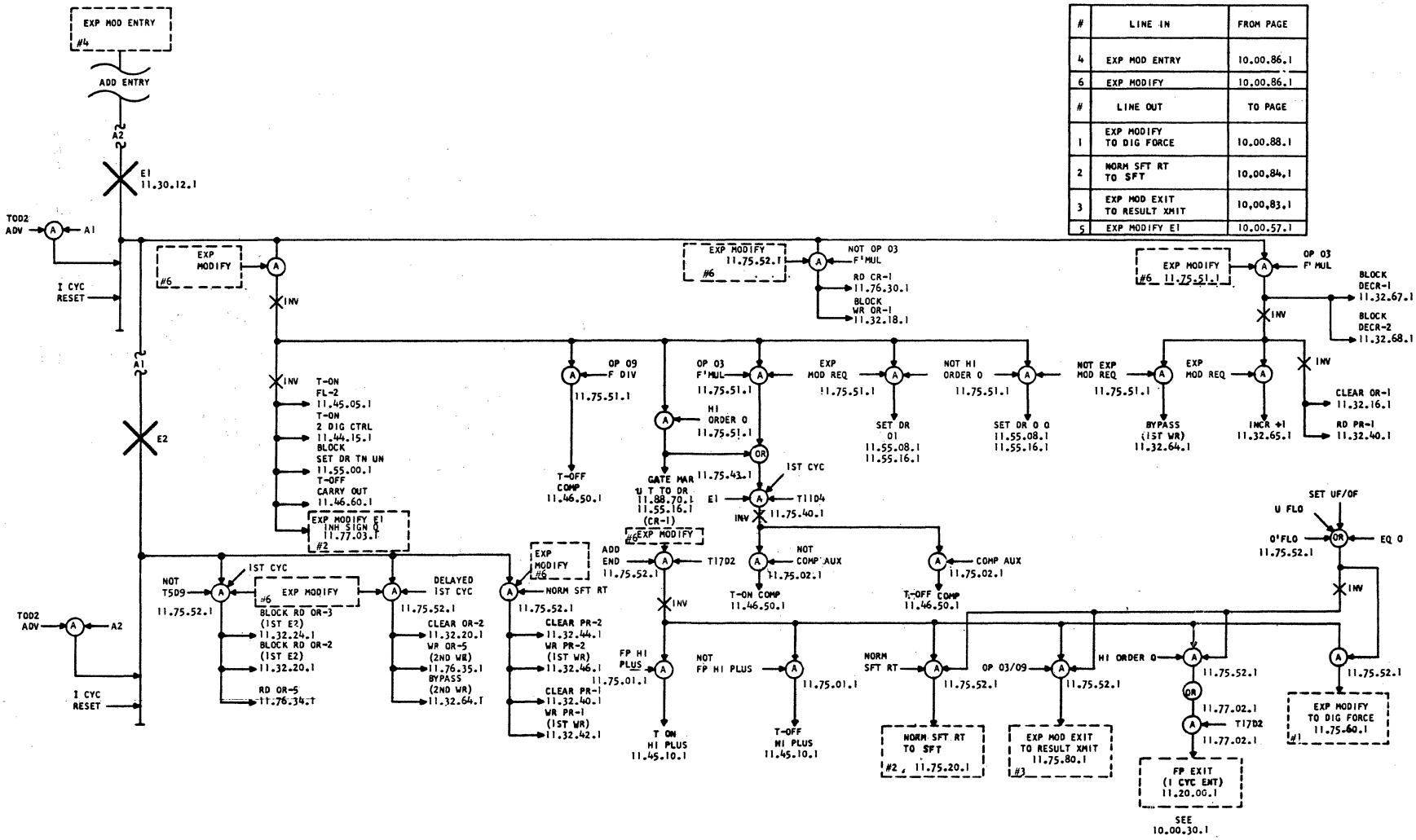
#	LINE IN	FROM PAGE
1	SCAN T ON HI ORDER ZERO	10.00.82.1
2	SCAN Q TO FRAC ADD	10.00.82.1
8	SCAN Q	10.00.82.1
9	SHIFT TO FRAC ADD	10.00.84.1
12	OP 01/02 EXP ADD END D=ZERO	10.00.80.1
#	LINE OUT	TO PAGE
3	NORM SHIFT RT TO EXP MOD	10.00.86.1
4	FRAC ADD END EQ ZERO	10.00.88.1
5	FRAC ADD END 0 DET NOT EQ 0	10.00.82.1
6	T ON EXP MOD REQ	10.00.86.1
7	SUP ZERO FILL	10.00.84.1
10	FRAC ADD SCAN Q E1	10.00.57.1
11	FRAC ADD ENTRY	10.00.93.1



#	LINE IN	FROM PAGE
1	F'MUL EXIT	10.00.89.1
2	F'MUL HOZ	10.00.89.1
3	NORM SFT RT TO EXP MOD	10.00.85.1
5	NORM SFT RT	10.00.85.1
6	SHIFT TO EXP MOD	10.00.84.1
7	FRAC COMPR ADD END CARRY	10.00.90.1
8	F'DIV EXIT	10.00.92.1
#	LINE OUT	TO PAGE
4	EXP MOD ENTRY T-ON ADD ENTRY	10.00.87.1
9	EXP MODIFY	10.00.93.1
10	EXP MODIFY	10.00.56.1
11	EXP MODIFY ENTRY	10.00.87.1



#	LINE IN	FROM PAGE
4	EXP MOD ENTRY	10.00.86.1
6	EXP MODIFY	10.00.86.1
#	LINE OUT	TO PAGE
1	EXP MODIFY TO DIG FORCE	10.00.88.1
2	NORM SFT RT TO SFT	10.00.84.1
3	EXP MOD EXIT TO RESULT XMIT	10.00.83.1
5	EXP MODIFY E1	10.00.57.1



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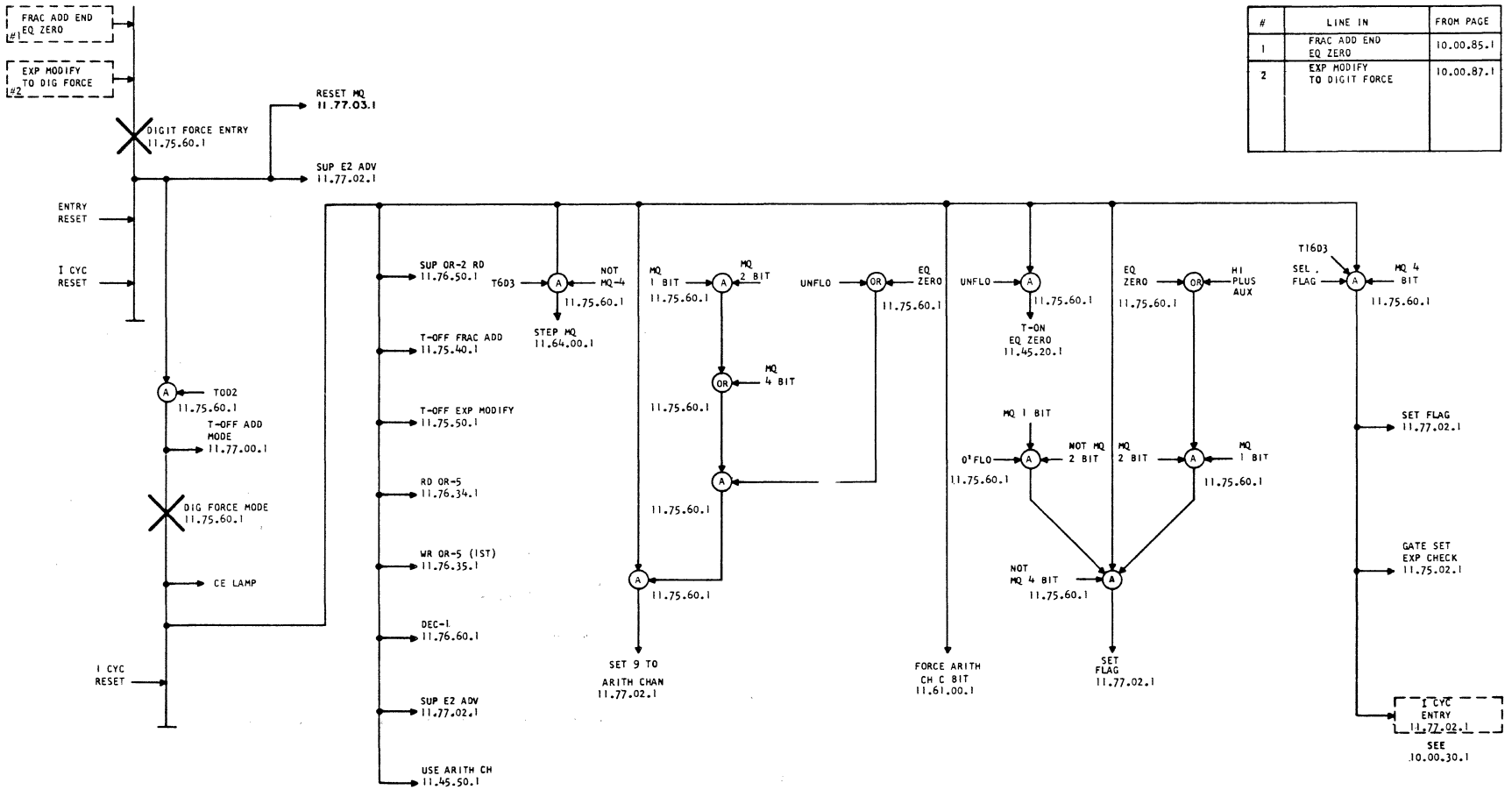
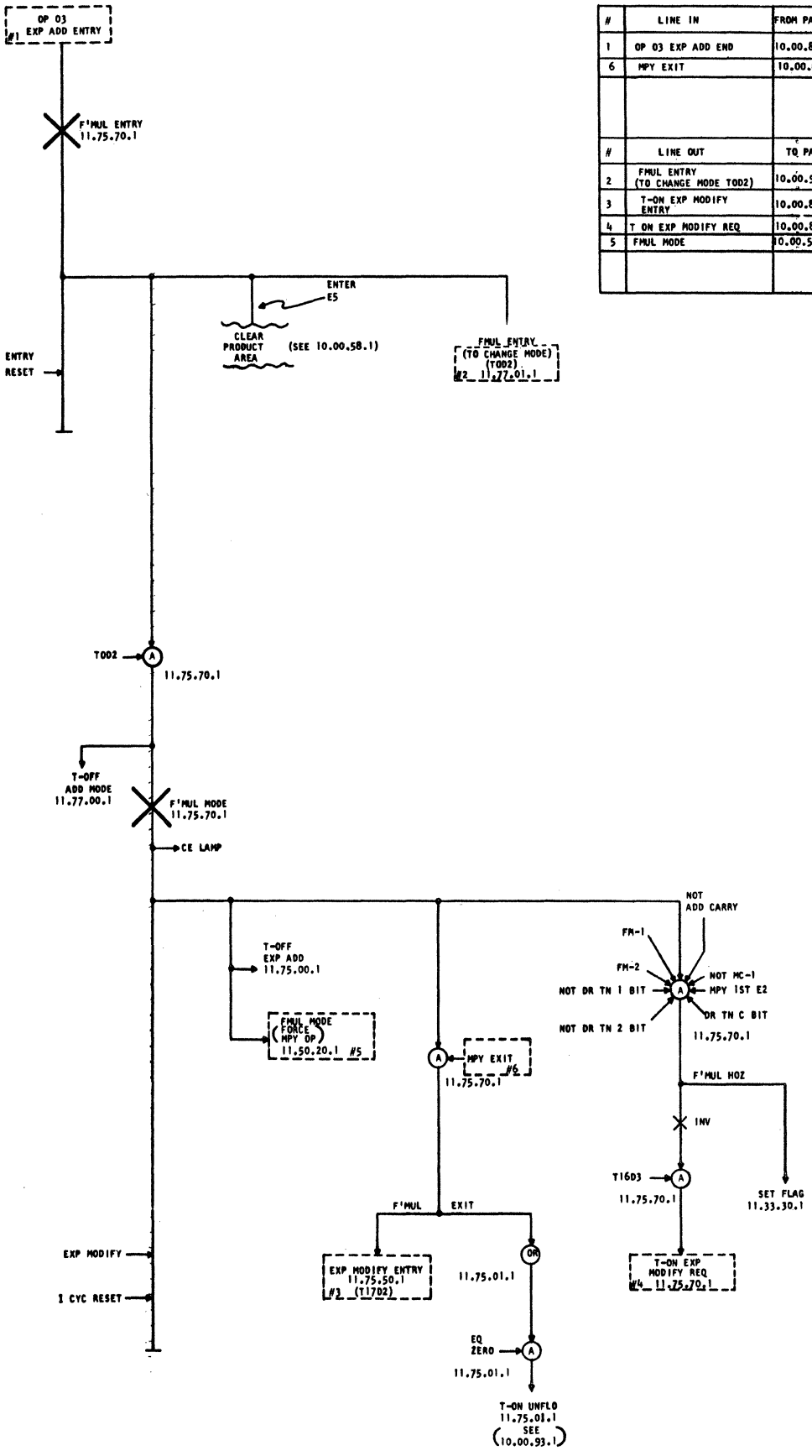
#	LINE IN	FROM PAGE
1	FRAC ADD END EQ ZERO	10.00.85.1
2	EXP MODIFY TO DIGIT FORCE	10.00.87.1

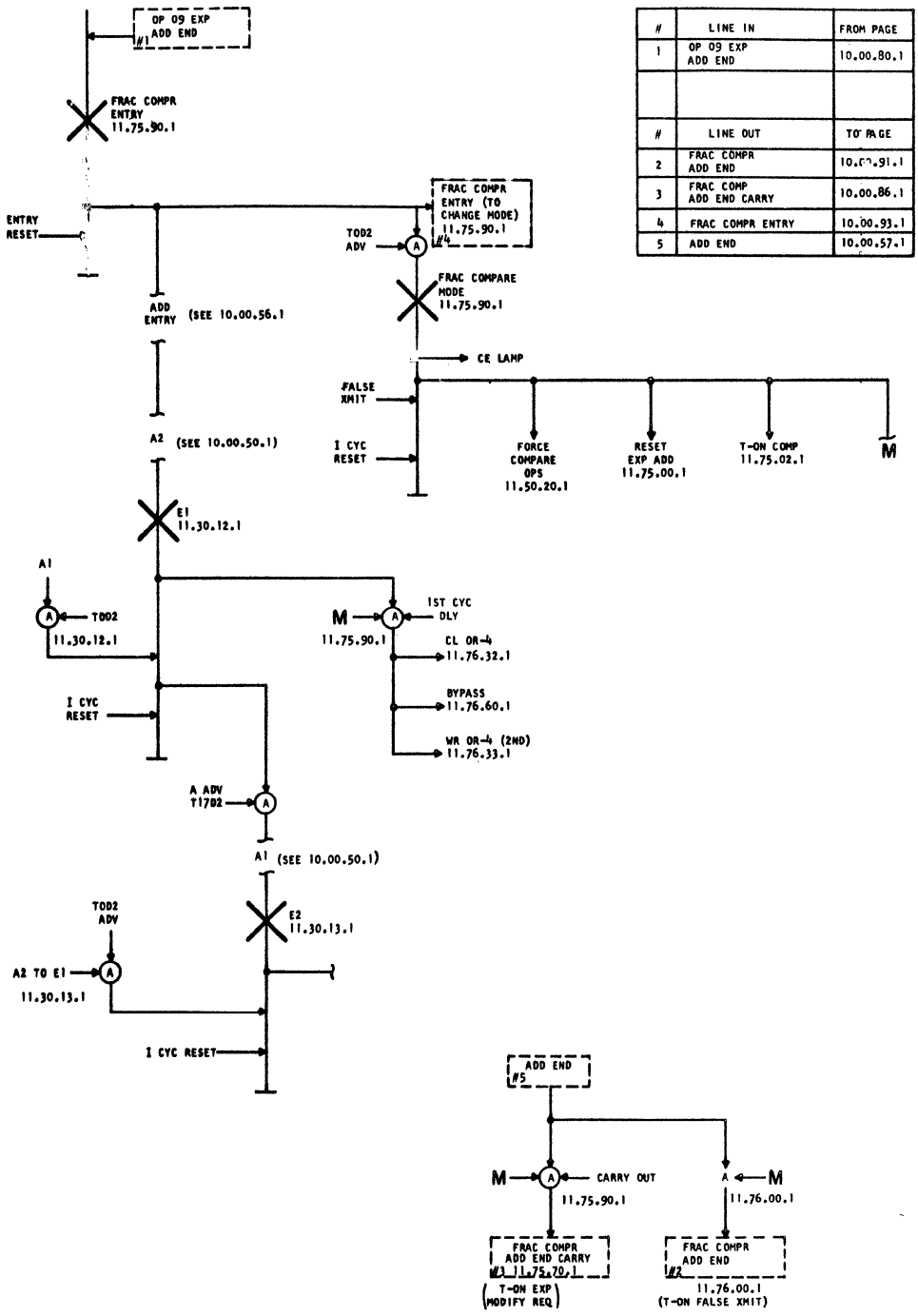


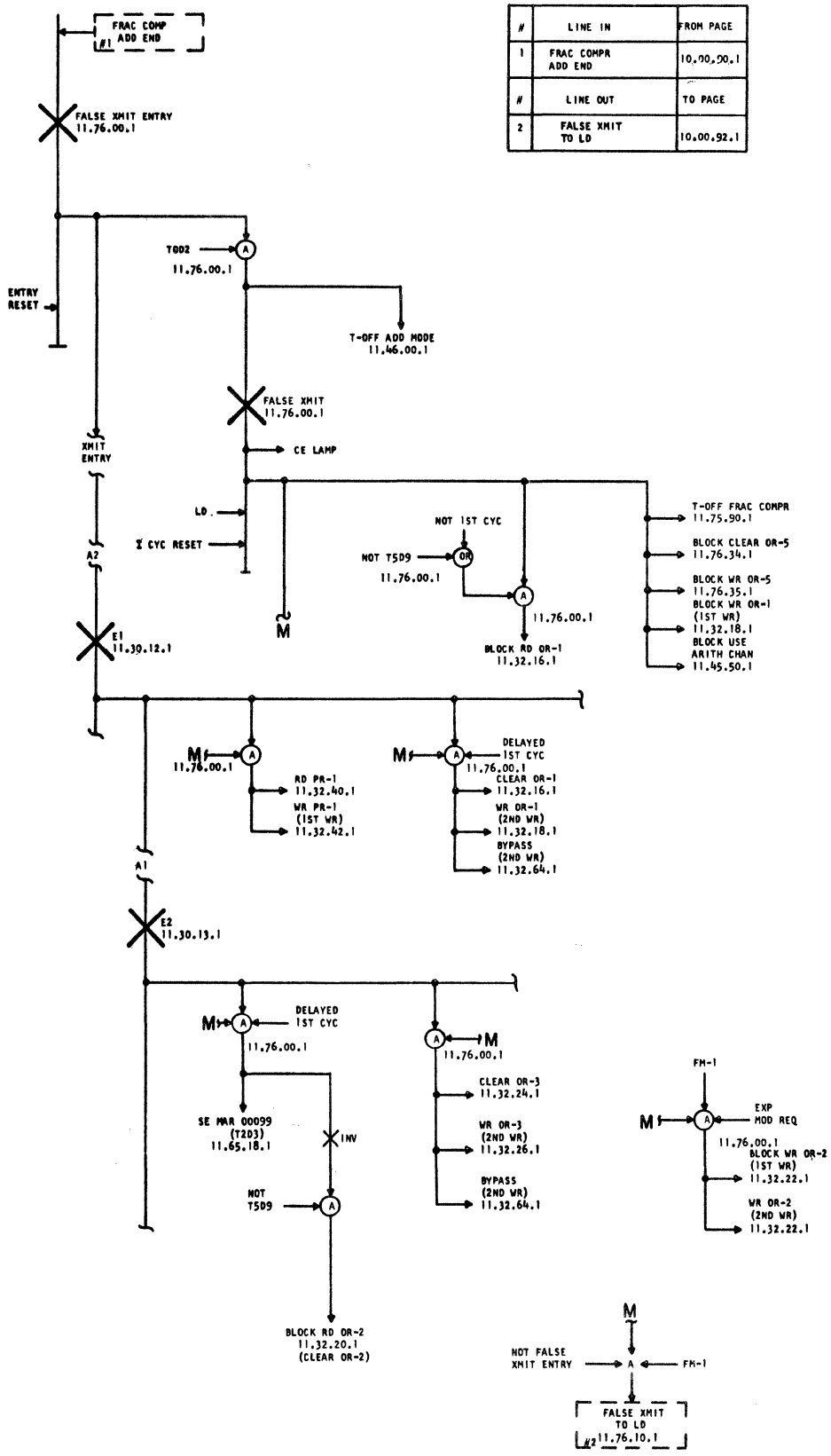
NOTE: DIGIT FORCE E2 TIME

#	LINE IN	FROM PAGE
1	OP 03 EXP ADD END	10.00.80.1
6	MPY EXIT	10.00.60.1
#	LINE OUT	TO PAGE
2	FMUL ENTRY (TO CHANGE MODE T0D2)	10.00.93.1
3	T-ON EXP MODIFY ENTRY	10.00.86.1
4	T ON EXP MODIFY REQ	10.00.86.1
5	FMUL MODE	10.00.58.1



#	LINE IN	FROM PAGE
1	OP 09 EXP ADD END	10.00.80.1
#	LINE OUT	TO PAGE
2	FRAC COMPR ADD END	10.00.91.1
3	FRAC COMP ADD END CARRY	10.00.86.1
4	FRAC COMPR ENTRY	10.00.93.1
5	ADD END	10.00.57.1

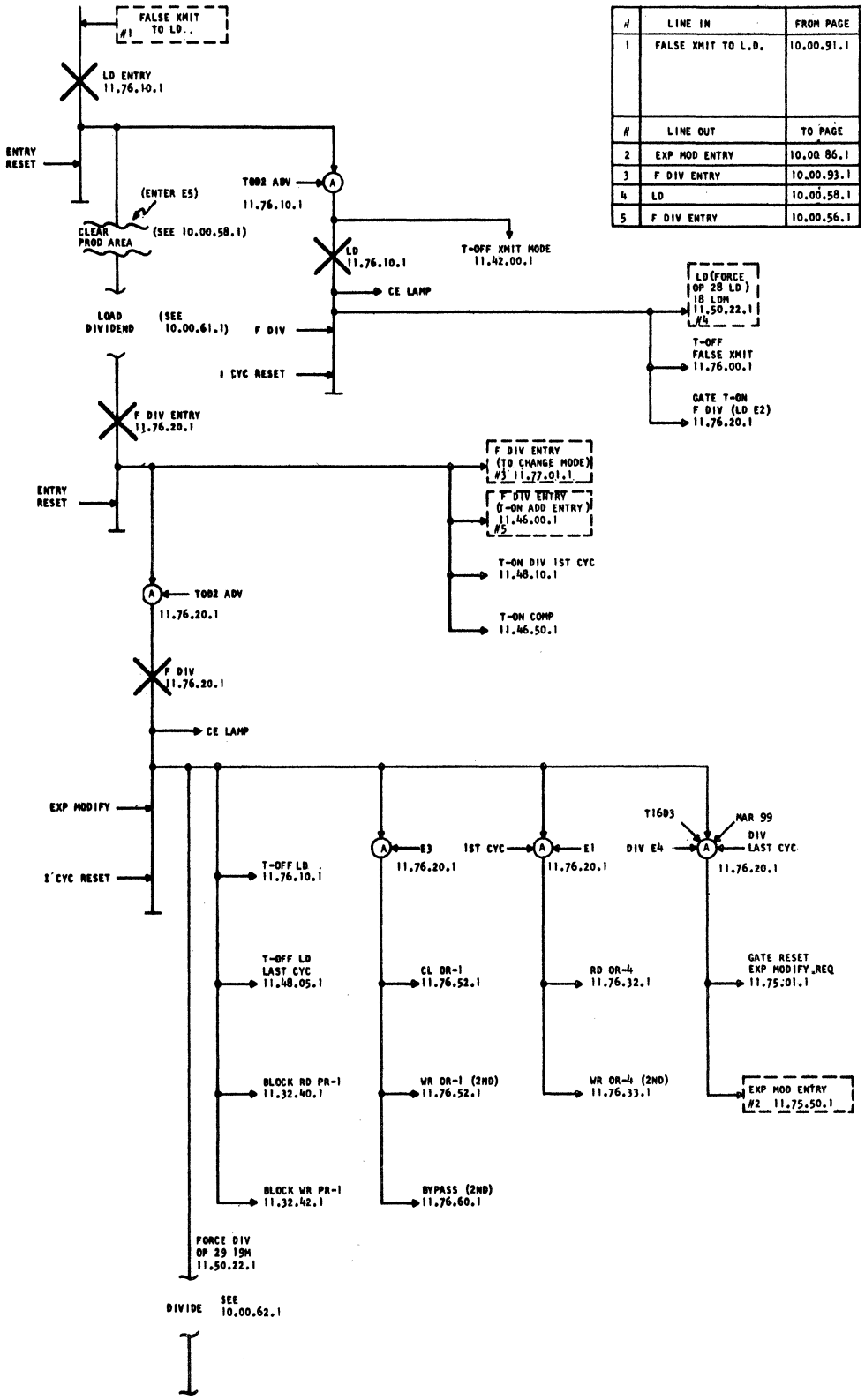




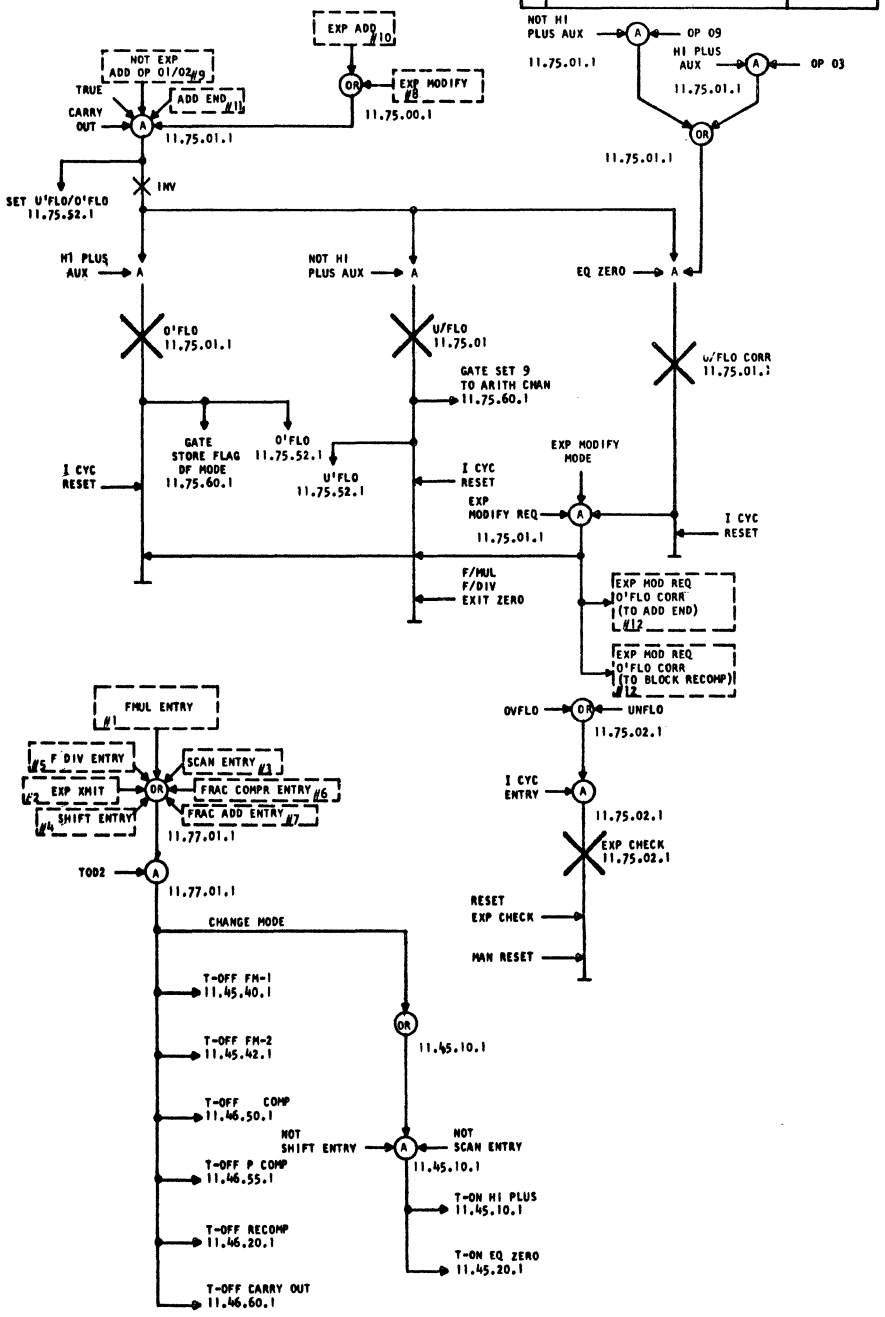
#	LINE IN	FROM PAGE
1	FRAC COMPR ADD END	10.00.90.1
#	LINE OUT	TO PAGE
2	FALSE XMIT TO LD	10.00.92.1

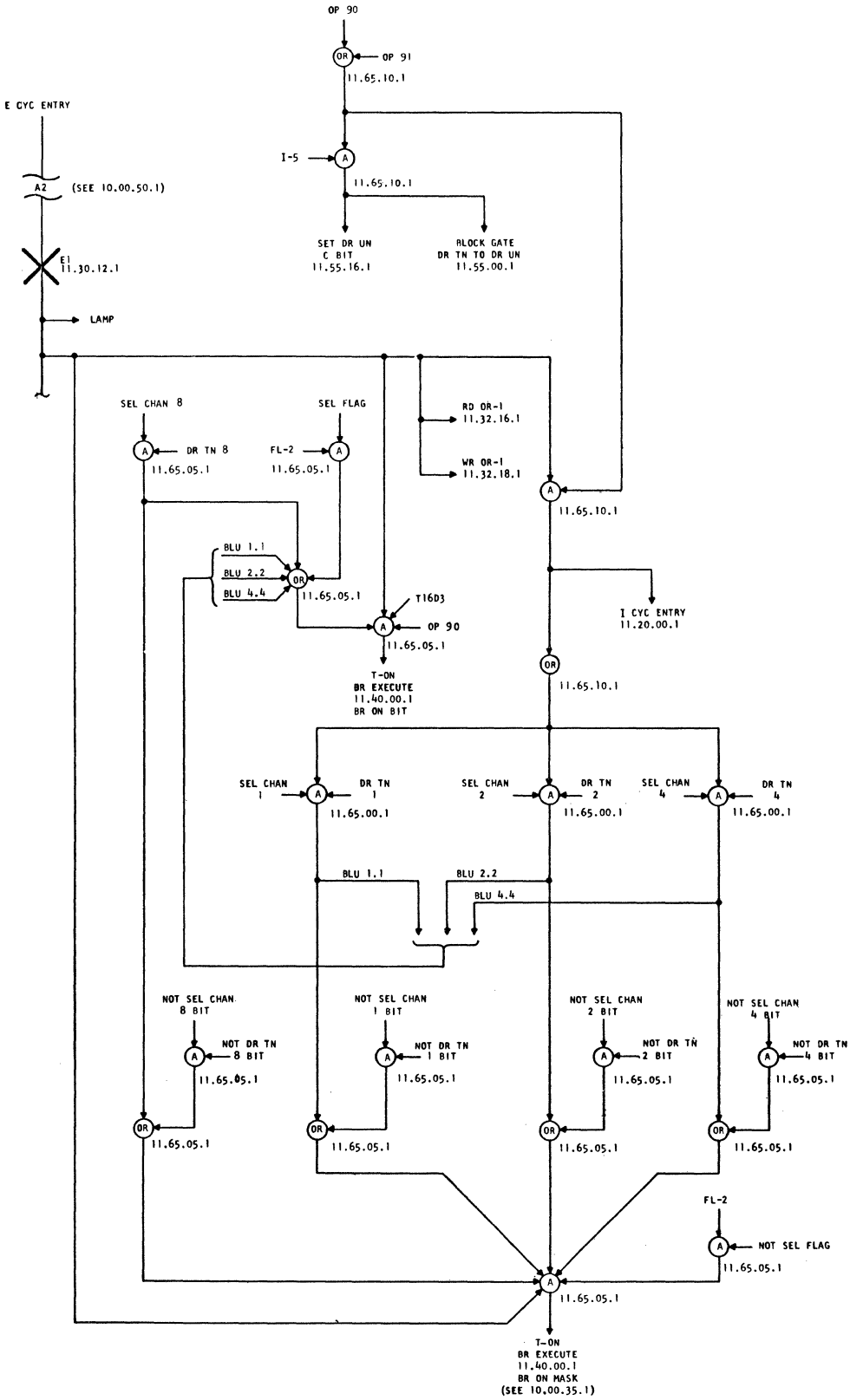
#	LINE IN	FROM PAGE
1	FALSE XMIT TO L.D.	10.00.91.1

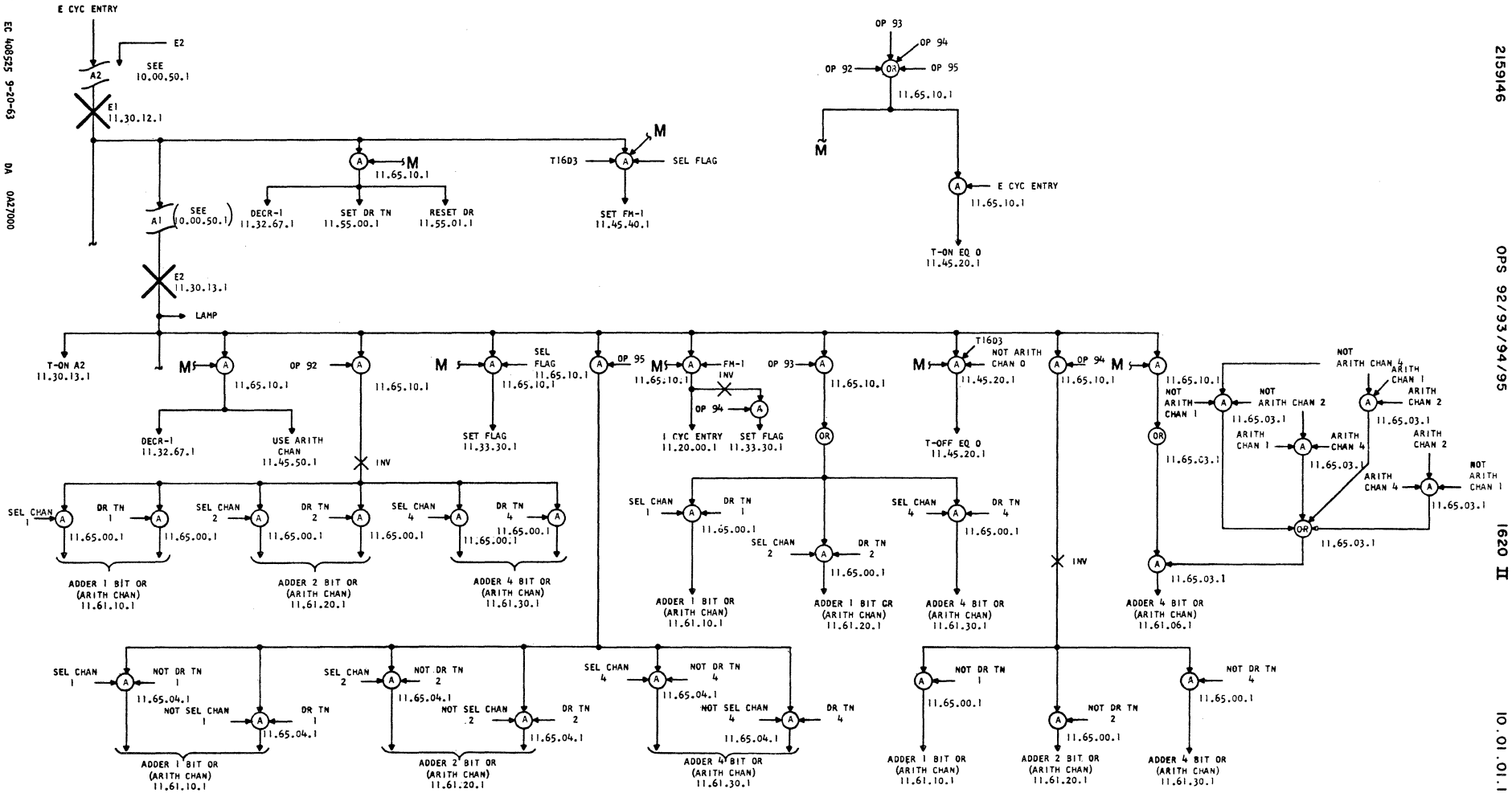
#	LINE OUT	TO PAGE
2	EXP MOD ENTRY	10.00 86.1
3	F DIV ENTRY	10.00.93.1
4	LD	10.00.58.1
5	F DIV ENTRY	10.00.56.1

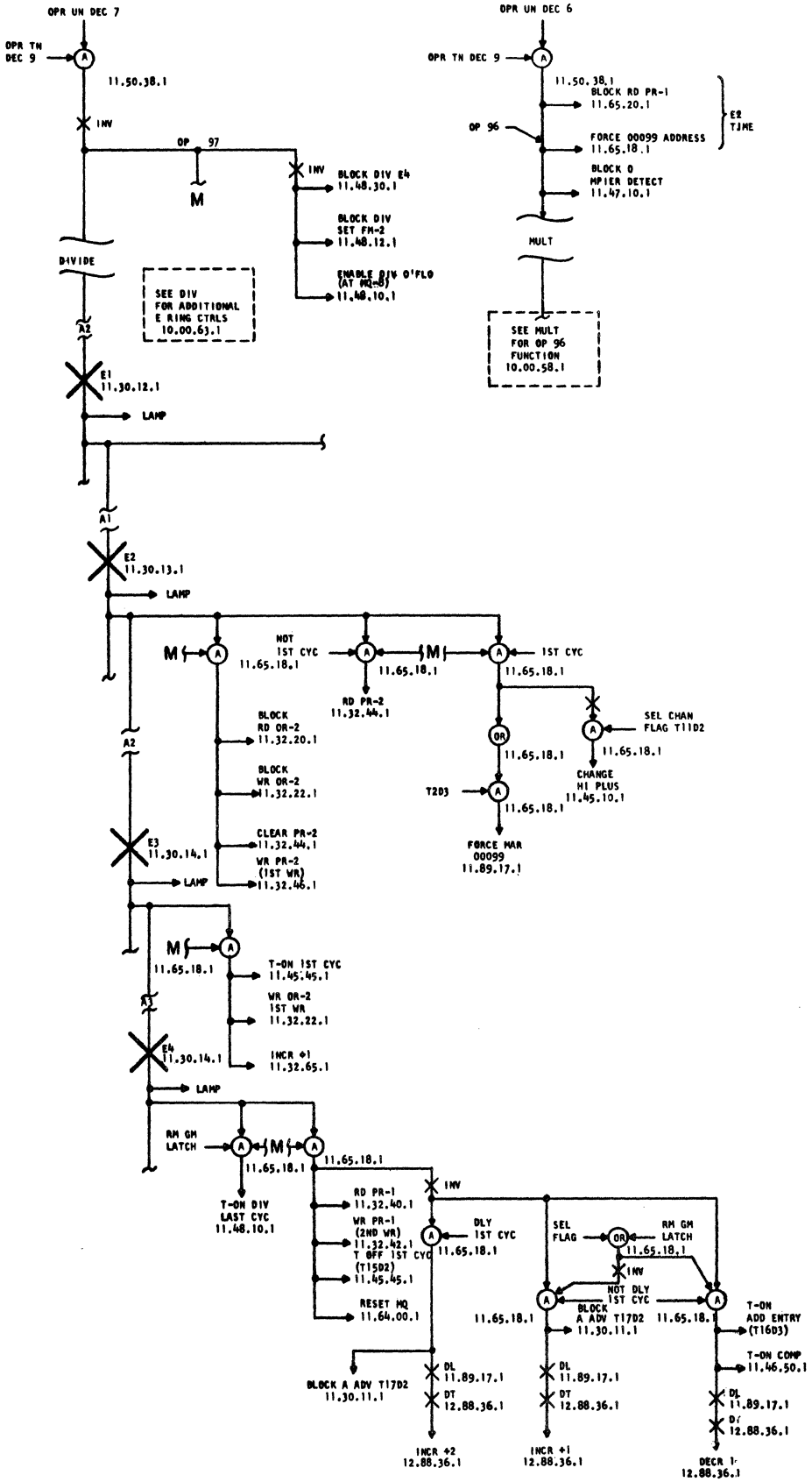


#	LINE IN	FROM PAGE
1	FMUL ENTRY	10.00.89.1
2	EXP XMIT	10.00.81.1
3	SCAN ENTRY	10.00.82.1
4	SHIFT ENTRY	10.00.84.1
5	F DIV ENTRY	10.00.92.1
6	FRAC COMPR ENTRY	10.00.90.1
7	FRAC ADD ENTRY	10.00.85.1
8	EXP MODIFY	10.00.86.1
9	EXP ADD OP 01/02	10.00.80.1
10	EXP ADD	10.00.80.1
11	ADD END	10.00.57.1
#	LINE OUT	TO PAGE
12	EXP MOD REQ O'FLO CORR	10.00.57.1

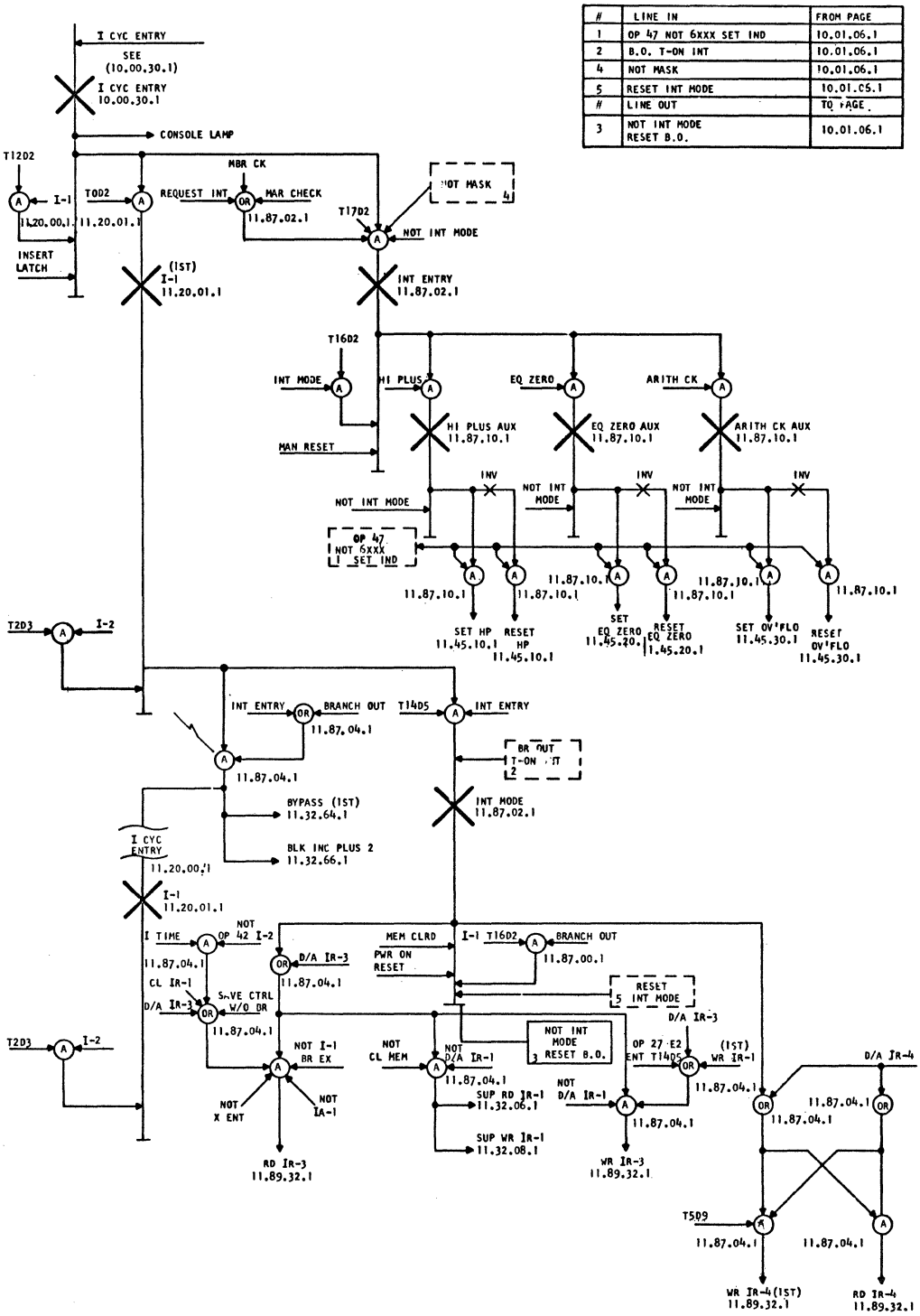


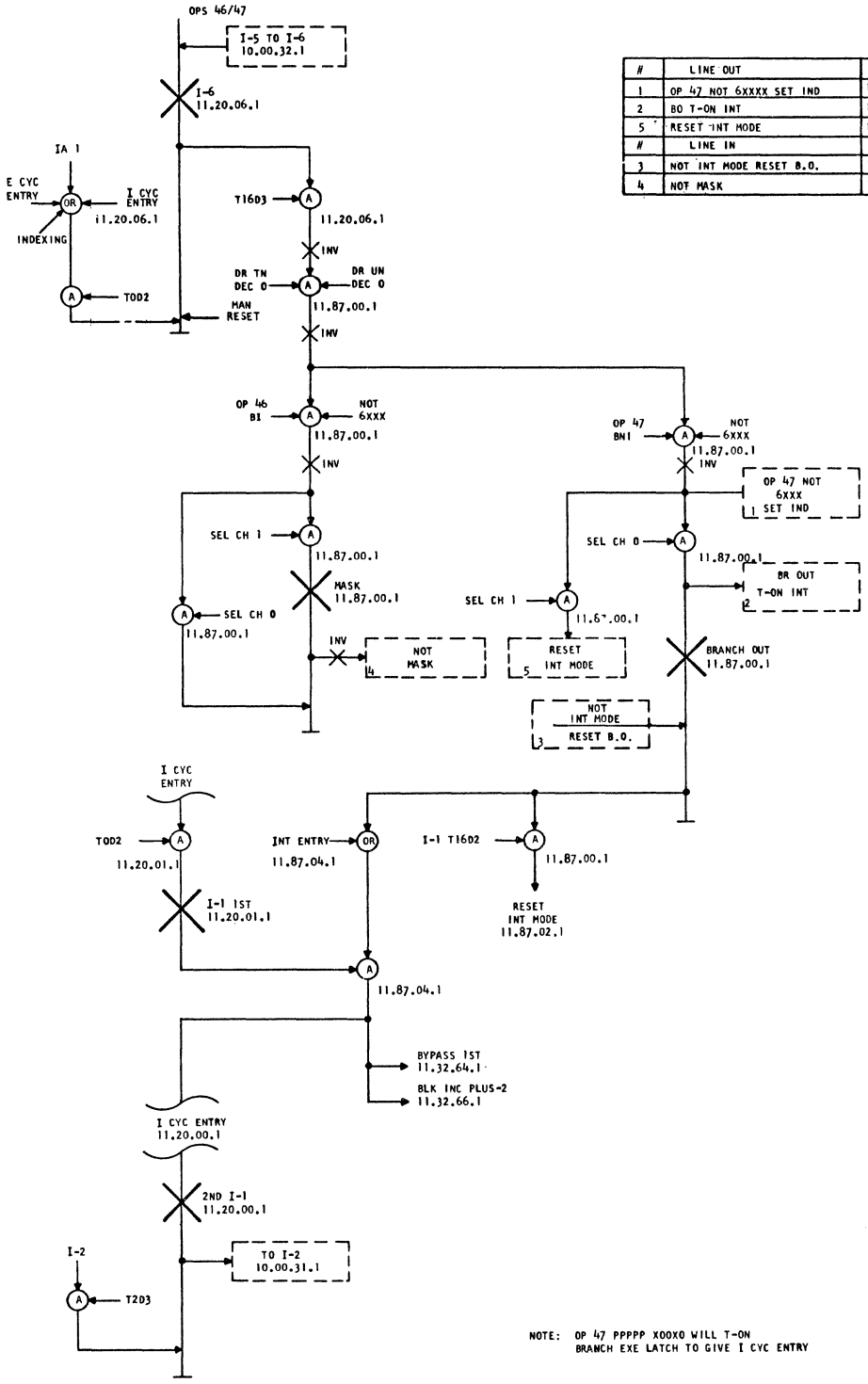

OP 90
OR
OP 91
11.65.10.1
E CYC ENTRY
I-5
A
11.65.10.1
A2
(SEE 10.00.50.1)
SET DR UN C BIT 11.55.16.1
BLOCK GATE DR TN TO DR UN 11.55.00.1
E1 11.30.12.1
LAMP
SEL CHAN 8
SEL FLAG
RD OR-1 11.32.16.1
WR OR-1 11.32.18.1
DR TN 8
11.65.05.1
FL-2
11.65.05.1
11.65.10.1
BLU 1.1
BLU 2.2
BLU 4.4
OR
11.65.05.1
T16D3
OP 90
11.65.05.1
I CYC ENTRY 11.20.00.1
T-ON BR EXECUTE 11.40.00.1 BR ON BIT
11.65.10.1
SEL CHAN 1
DR TN 1
SEL CHAN 2
DR TN 2
SEL CHAN 4
DR TN 4
11.65.00.1
BLU 1.1
BLU 2.2
BLU 4.4
NOT SEL CHAN 8 BIT
NOT DR TN 8 BIT
NOT SEL CHAN 1 BIT
NOT DR TN 1 BIT
NOT SEL CHAN 2 BIT
NOT DR TN 2 BIT
NOT SEL CHAN 4 BIT
NOT DR TN 4 BIT
11.65.05.1
FL-2
NOT SEL FLAG
11.65.05.1
T-ON BR EXECUTE 11.40.00.1 BR ON MASK (SEE 10.00.35.1)


E CYC ENTRY
E2
SEE 10.00.50.1
A2
E1 11.30.12.1
A1
SEE 10.00.50.1
E2 11.30.13.1
LAMP
DECR-1 11.32.67.1
SET DR TN 11.55.00.1
RESET DR 11.55.01.1
11.65.10.1
T16D3
SEL FLAG
SET FM-1 11.45.40.1
OP 93
OP 94
OP 92
OP 95
11.65.10.1
E CYC ENTRY
11.65.10.1
T-ON EQ 0 11.45.20.1
T-ON A2 11.30.13.1
DECR-1 11.32.67.1
USE ARITH CHAN 11.45.50.1
INV
SET FLAG 11.33.30.1
SEL FLAG 11.65.10.1
FM-1
I CYC ENTRY 11.20.00.1
SET FLAG 11.33.30.1
T-OFF EQ 0 11.45.20.1
NOT ARITH CHAN 0
NOT ARITH CHAN 1
NOT ARITH CHAN 2
NOT ARITH CHAN 4
ARITH CHAN 1
ARITH CHAN 2
ARITH CHAN 4
SEL CHAN
DR TN
NOT DR TN
NOT SEL CHAN
11.65.00.1
11.65.03.1
11.65.04.1
ADDER 1 BIT OR (ARITH CHAN) 11.61.10.1
ADDER 2 BIT OR (ARITH CHAN) 11.61.20.1
ADDER 4 BIT OR (ARITH CHAN) 11.61.30.1
ADDER 1 BIT CR (ARITH CHAN) 11.61.20.1
ADDER 4 BIT OR (ARITH CHAN) 11.61.06.1


OPR UN DEC 7
OPR TN DEC 9
11.50.38.1
INV
OP 97
M
INV
BLOCK DIV E4 11.48.30.1
BLOCK DIV SET FM-2 11.48.12.1
ENABLE DIV O'FLO (AT HQ=8) 11.48.10.1
DIVIDE
SEE DIV FOR ADDITIONAL E RING CTRLS 10.00.63.1
A2
E1 11.30.12.1
LAMP
A1
E2 11.30.13.1
LAMP
M
NOT 1ST CYC 11.65.18.1
11.65.18.1
1ST CYC 11.65.18.1
RD PR-2 11.32.44.1
BLOCK RD OR-2 11.32.20.1
BLOCK WR OR-2 11.32.22.1
CLEAR PR-2 11.32.44.1
WR PR-2 (1ST WR) 11.32.46.1
A2
E3 11.30.14.1
LAMP
OR 11.65.18.1
SEL CHAN FLAG T11D2
11.65.18.1
CHANGE HI PLUS 11.45.10.1
T203
11.65.18.1
FORCE MAR 00099 11.89.17.1
M 11.65.18.1
T-ON 1ST CYC 11.45.45.1
WR OR-2 1ST WR 11.32.22.1
A3
E4 11.30.14.1
INCR +1 11.32.65.1
LAMP
RM GM LATCH
11.65.18.1
11.65.18.1
T-ON DIV LAST CYC 11.48.10.1
INV
RD PR-1 11.32.40.1
WR PR-1 (2ND WR) 11.32.42.1
T OFF 1ST CYC (T15D2) 11.45.45.1
RESET HQ 11.64.00.1
DLY 1ST CYC 11.65.18.1
BLOCK A ADV T17D2 11.30.11.1
DL 11.89.17.1
DT 12.88.36.1
INCR +2 12.88.36.1
OPR UN DEC 6
OPR TN DEC 9
11.50.38.1
BLOCK RD PR-1 11.65.20.1
OP 96
FORCE 00099 ADDRESS 11.65.18.1
BLOCK Q MPIER DETECT 11.47.10.1
E2 TIME
MULT
SEE MULT FOR OP 96 FUNCTION 10.00.58.1
SEL FLAG
OR
RM GM LATCH 11.65.18.1
INV
NOT DLY 1ST CYC
11.65.18.1
BLOCK A ADV T17D2 11.30.11.1
11.65.18.1
T-ON ADD ENTRY (T16D3)
T-ON COMP 11.46.50.1
DL 11.89.17.1
DT 12.88.36.1
INCR +1 12.88.36.1
DL 11.89.17.1
DT 12.88.36.1
DECR 1- 12.88.36.1

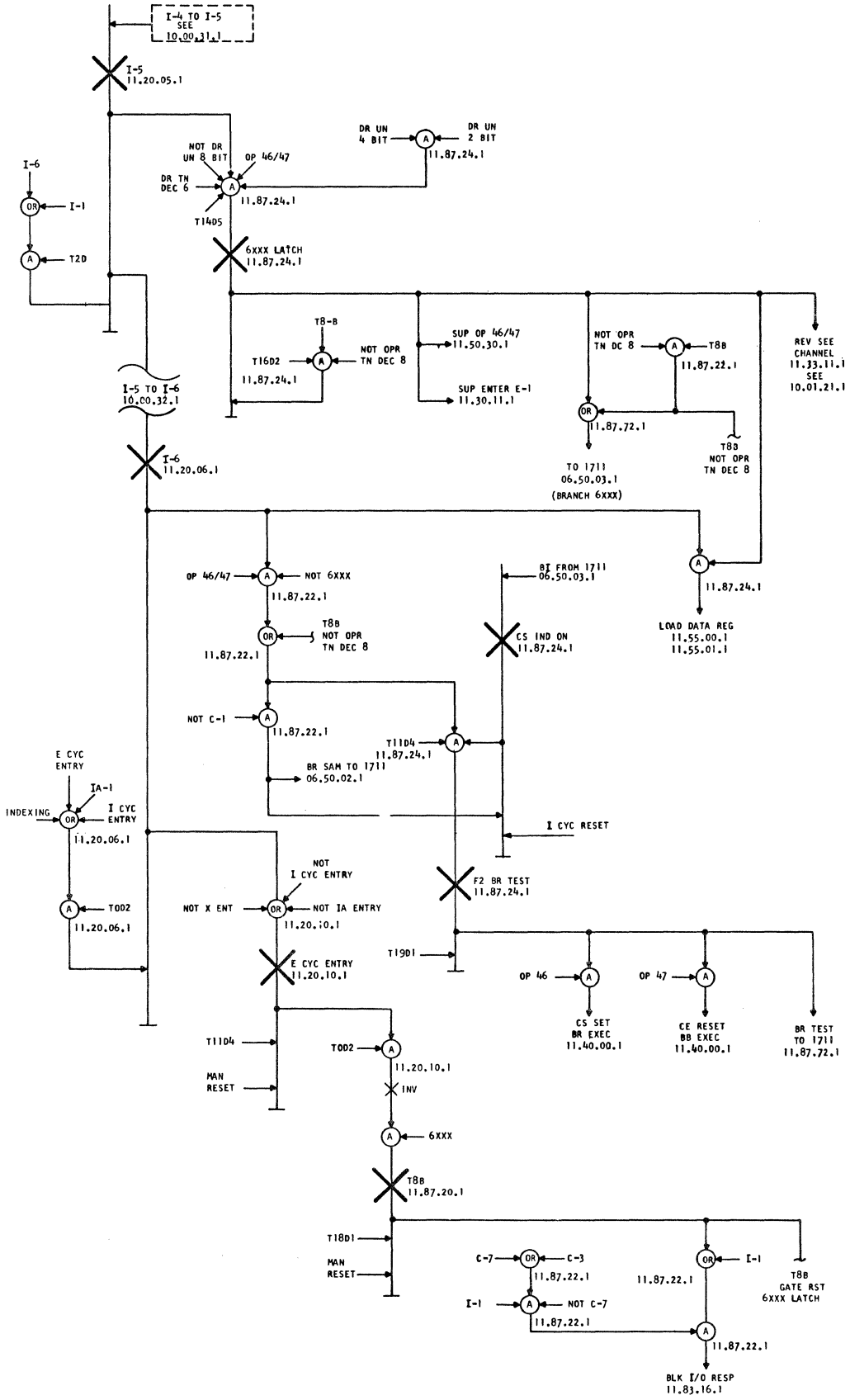
#	LINE IN	FROM PAGE
1	OP 47 NOT 6XXX SET IND	10.01.06.1
2	B.O. T-ON INT	10.01.06.1
4	NOT MASK	10.01.06.1
5	RESET INT MODE	10.01.05.1
#	LINE OUT	TO PAGE
3	NOT INT MODE RESET B.O.	10.01.06.1

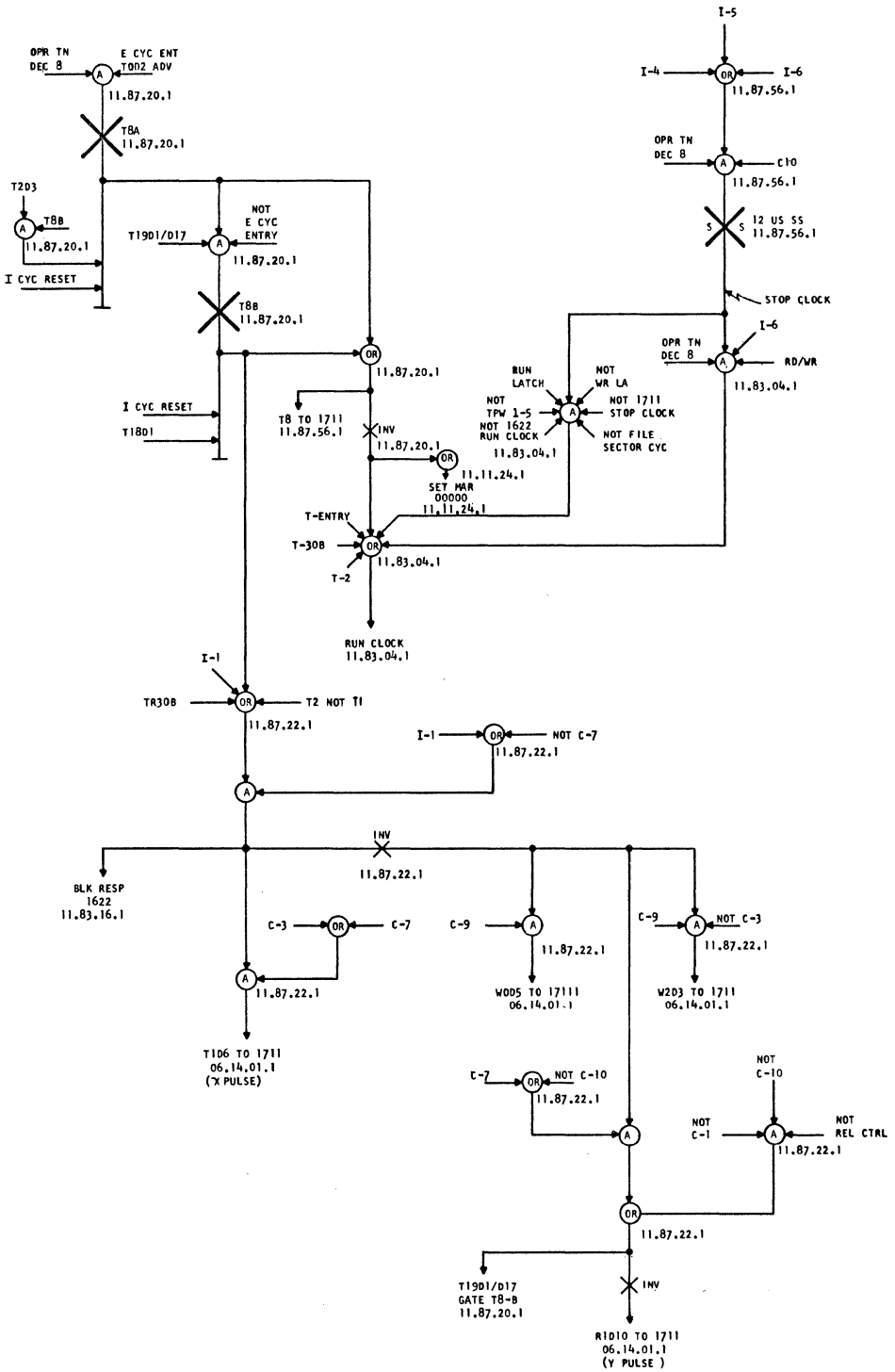


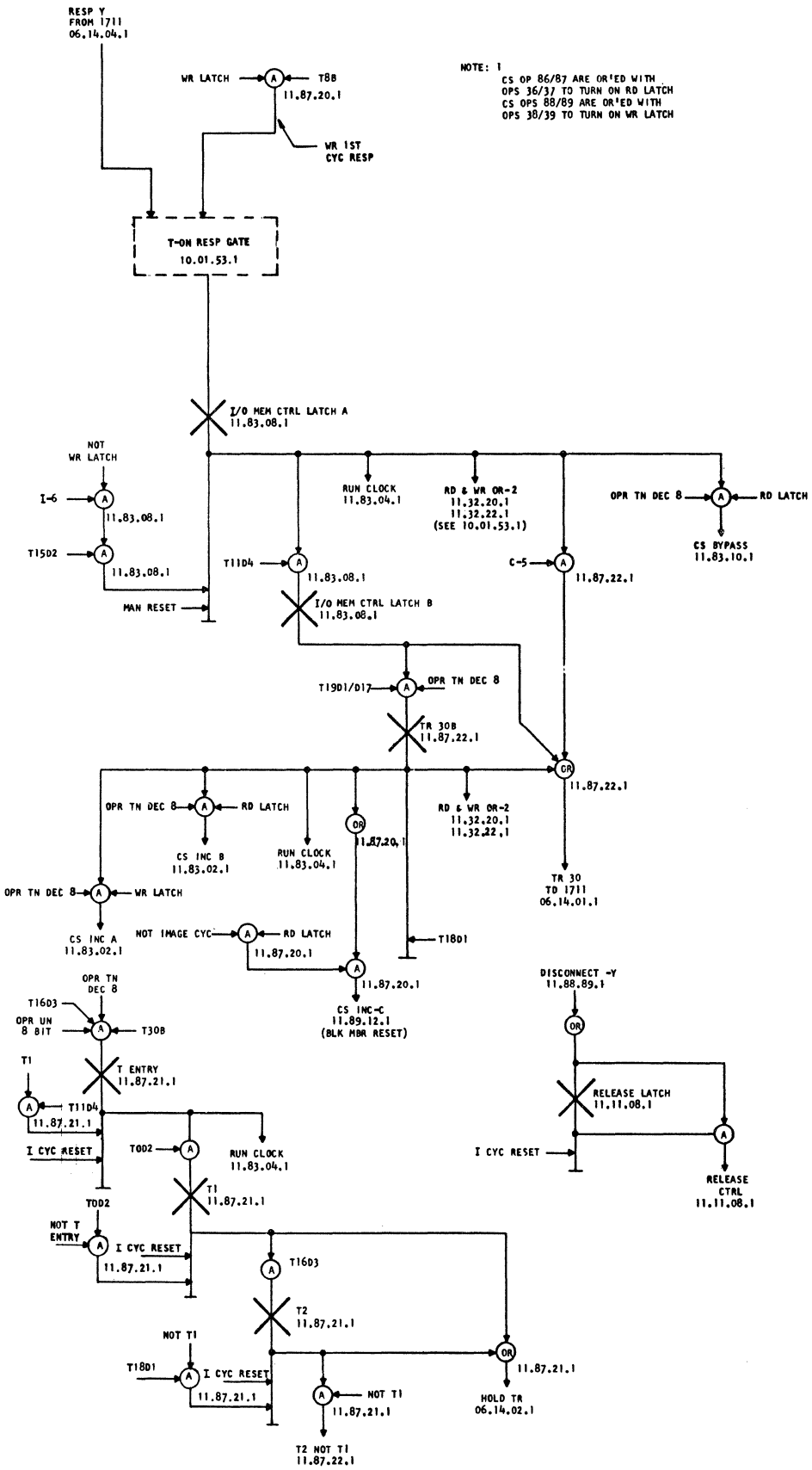


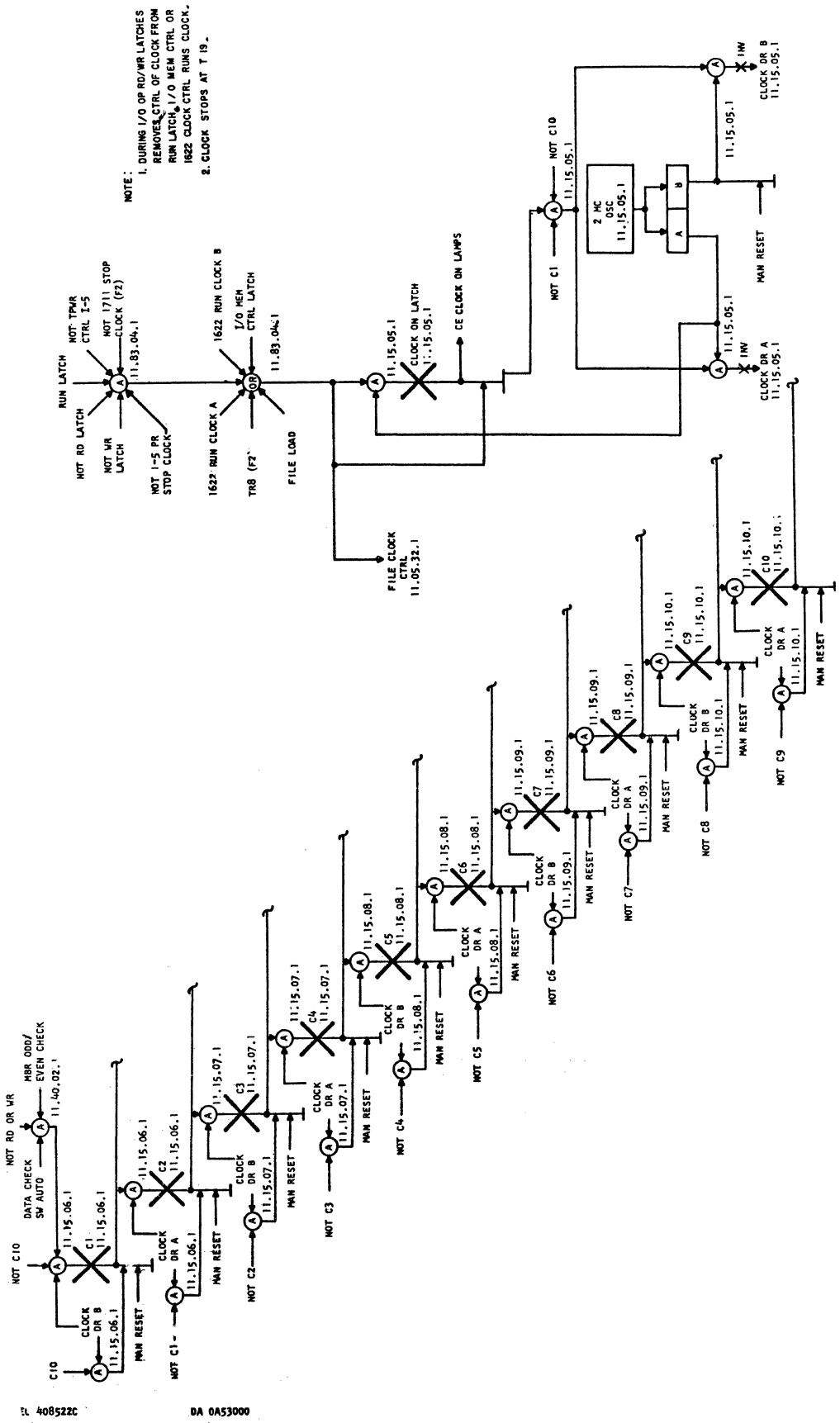
#	LINE OUT	TO PAGE
1	OP 47 NOT 6XXXX SET IND	10.01.05.1
2	BO T-ON INT	10.01.05.1
5	RESET INT MODE	10.01.05.1
#	LINE IN	FROM PAGE
3	NOT INT MODE RESET B.O.	10.01.05.1
4	NOT MASK	10.01.05.1

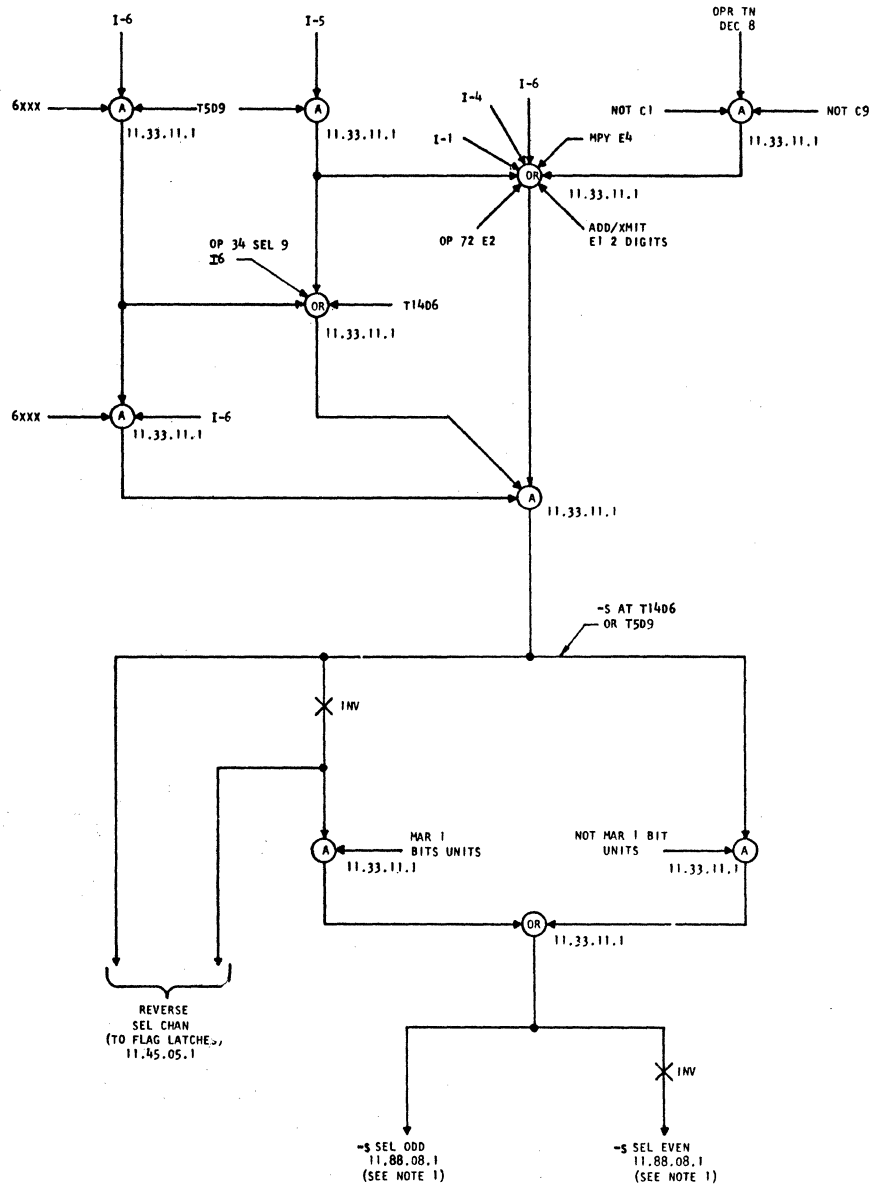
NOTE: OP 47 PPPPP XOOXO WILL T-ON BRANCH EXE LATCH TO GIVE I CYC ENTRY


I-4 TO I-5 SEE 10.00.31.1
I-5 11.20.05.1
DR UN 4 BIT
DR UN 2 BIT 11.87.24.1
NOT DR UN 8 BIT
OP 46/47
DR TN DEC 6
11.87.24.1
T1405
6XXX LATCH 11.87.24.1
I-6
I-1
T2D
T8-8
T16D2
NOT OPR TN DEC 8
11.87.24.1
SUP OP 46/47 11.50.30.1
SUP ENTER E-1 11.30.11.1
NOT OPR TN DC 8
T8B 11.87.22.1
11.87.72.1
TO 1711 06.50.03.1 (BRANCH 6XXX)
T8B NOT OPR TN DEC 8
REV SEE CHANNEL 11.33.11.1 SEE 10.01.21.1
I-5 TO I-6 10.00.32.1
I-6 11.20.06.1
OP 46/47
NOT 6XXX
11.87.22.1
T8B NOT OPR TN DEC 8
11.87.22.1
BI FROM 1711 06.50.03.1
CS IND ON 11.87.24.1
11.87.24.1
LOAD DATA REG 11.55.00.1 11.55.01.1
NOT C-1
11.87.22.1
T11D4 11.87.24.1
BR SAM TO 1711 06.50.02.1
I CYC RESET
E CYC ENTRY
IA-1
INDEXING
I CYC ENTRY
11.20.06.1
T0D2
11.20.06.1
NOT I CYC ENTRY
NOT X ENT
NOT IA ENTRY
11.20.10.1
E CYC ENTRY 11.20.10.1
F2 BR TEST 11.87.24.1
T19D1
OP 46
OP 47
CS SET BR EXEC 11.40.00.1
CE RESET BB EXEC 11.40.00.1
BR TEST TO 1711 11.87.72.1
T11D4
MAN RESET
T0D2
11.20.10.1
INV
6XXX
T8B 11.87.20.1
T18D1
MAN RESET
C-7
C-3
11.87.22.1
I-1
NOT C-7
11.87.22.1
11.87.22.1
I-1
T8B GATE RST 6XXX LATCH
11.87.22.1
BLK I/O RESP 11.83.16.1

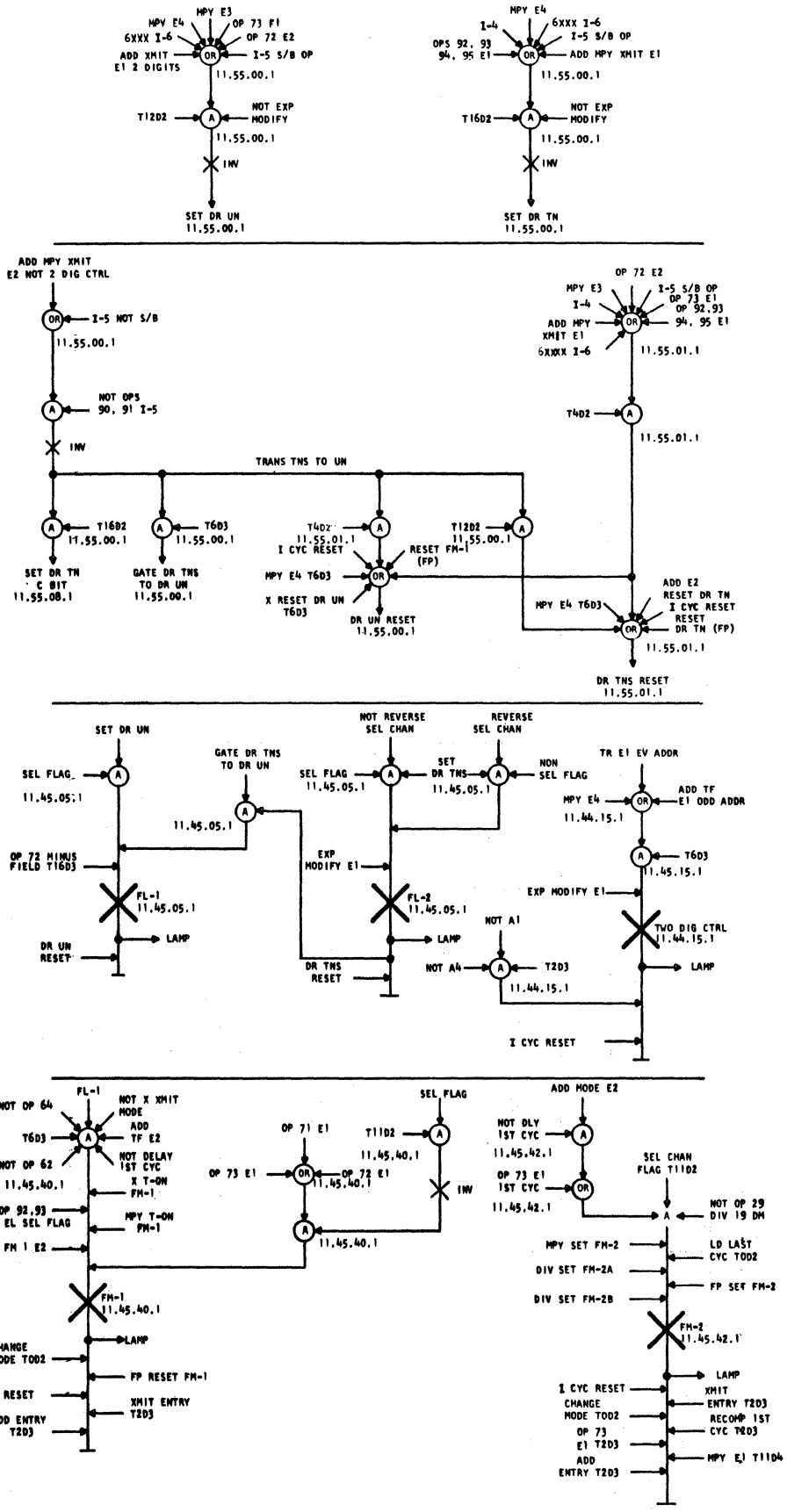

OPR TN DEC 8
E CYC ENT TOD2 ADV
11.87.20.1
T8A 11.87.20.1
T2D3
T8B
11.87.20.1
I CYC RESET
T19D1/D17
NOT E CYC ENTRY
11.87.20.1
T8B 11.87.20.1
I CYC RESET
T18D1
OR
11.87.20.1
T8 TO 1711 11.87.56.1
INV
11.87.20.1
OR
11.11.24.1
SET MAR 00000 11.11.24.1
T-ENTRY
T-30B
T-2
OR
11.83.04.1
RUN CLOCK 11.83.04.1
I-5
I-4
OR
I-6
11.87.56.1
OPR TN DEC 8
C10
11.87.56.1
S S 12 US SS 11.87.56.1
STOP CLOCK
I-6
OPR TN DEC 8
RD/WR
11.83.04.1
RUN LATCH
NOT WR LA
NOT TPW 1-5
NOT 1622 RUN CLOCK
NOT 1711 STOP CLOCK
NOT FILE SECTOR CYC
11.83.04.1
I-1
TR30B
T2 NOT T1
OR
11.87.22.1
I-1
NOT C-7
OR
11.87.22.1
A
INV
11.87.22.1
BLK RESP 1622 11.83.16.1
C-3
C-7
OR
A
11.87.22.1
T1D6 TO 1711 06.14.01.1 (X PULSE)
C-9
A
11.87.22.1
W0D5 TO 1711 06.14.01.1
C-9
NOT C-3
A
11.87.22.1
W2D3 TO 1711 06.14.01.1
C-7
NOT C-10
OR
11.87.22.1
NOT C-10
NOT C-1
NOT REL CTRL
A
11.87.22.1
OR
11.87.22.1
T19D1/D17 GATE T8-B 11.87.20.1
INV
R1D10 TO 1711 06.14.01.1 (Y PULSE)

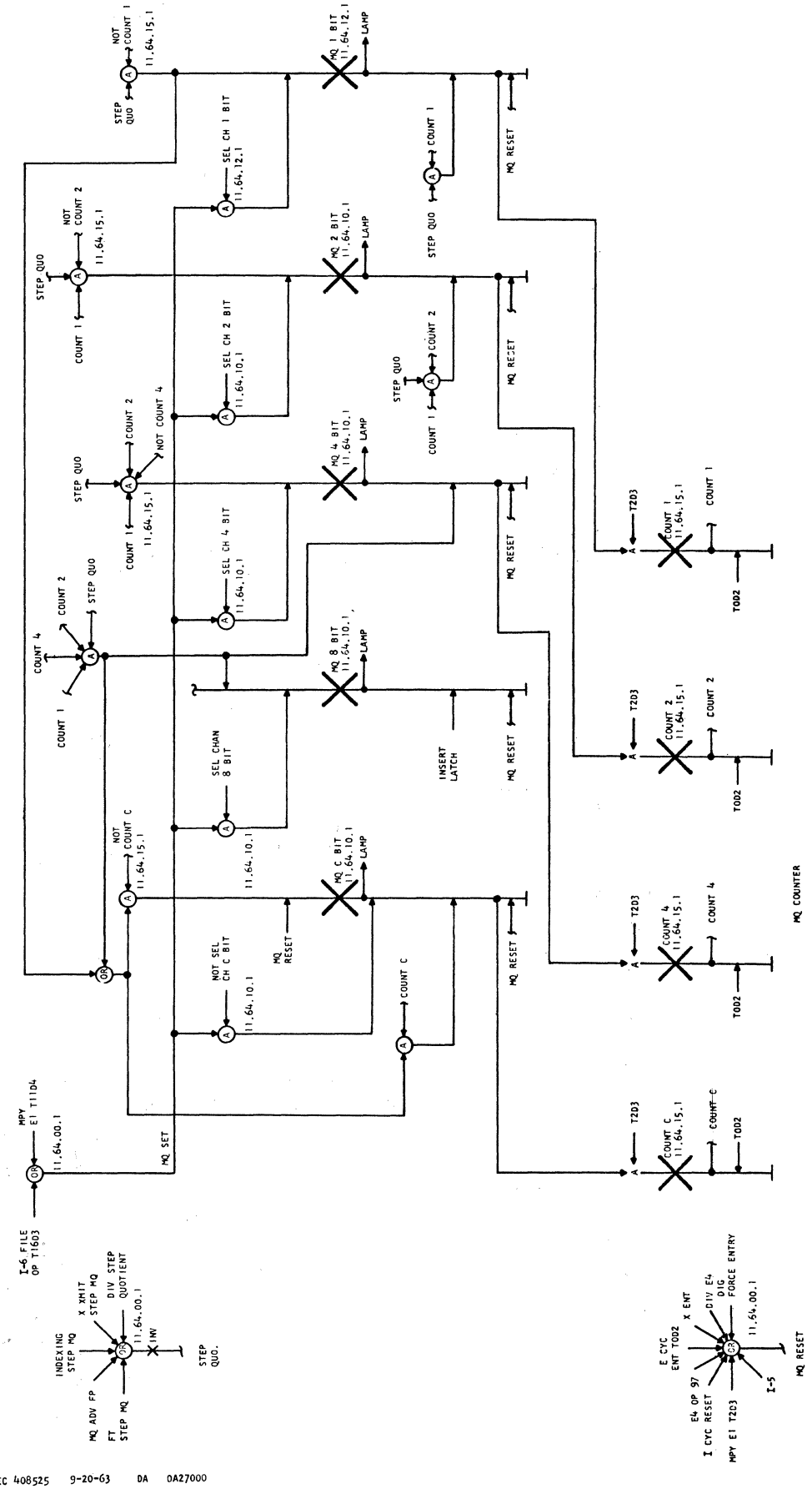

RESP Y FROM 1711 06.14.04.1
WR LATCH
T88 11.87.20.1
WR 1ST CYC RESP
NOTE: 1
CS OP 86/87 ARE OR'ED WITH OPS 36/37 TO TURN ON RD LATCH
CS OPS 88/89 ARE OR'ED WITH OPS 38/39 TO TURN ON WR LATCH
T-ON RESP GATE 10.01.53.1
I/O MEM CTRL LATCH A 11.83.08.1
NOT WR LATCH
I-6 11.83.08.1
T15D2 11.83.08.1
MAN RESET
RUN CLOCK 11.83.04.1
RD & WR OR-2 11.32.20.1 11.32.22.1 (SEE 10.01.53.1)
OPR TN DEC 8
RD LATCH
CS BYPASS 11.83.10.1
T11D4 11.83.08.1
I/O MEM CTRL LATCH B 11.83.08.1
C-5 11.87.22.1
T19D1/D17
OPR TN DEC 8
TR 30B 11.87.22.1
OR 11.87.22.1
OPR TN DEC 8
RD LATCH
CS INC B 11.83.02.1
RUN CLOCK 11.83.04.1
OR 11.87.20.1
RD & WR OR-2 11.32.20.1 11.32.22.1
TR 30 TO 1711 06.14.01.1
OPR TN DEC 8
WR LATCH
CS INC A 11.83.02.1
NOT IMAGE CYC
RD LATCH 11.87.20.1
T18D1
11.87.20.1
CS INC-C 11.89.12.1 (BLK MBR RESET)
OPR TN DEC 8
T16D3
OPR UN 8 BIT
T30B
T1
T ENTRY 11.87.21.1
T11D4 11.87.21.1
I CYC RESET
T0D2
RUN CLOCK 11.83.04.1
T1 11.87.21.1
T0D2
NOT T ENTRY
I CYC RESET 11.87.21.1
T16D3
T2 11.87.21.1
NOT T1
T18D1
I CYC RESET 11.87.21.1
NOT T1 11.87.21.1
T2 NOT T1 11.87.22.1
OR 11.87.21.1
HOLD TR 06.14.02.1
DISCONNECT -Y 11.88.89.1
OR
RELEASE LATCH 11.11.08.1
I CYC RESET
RELEASE CTRL 11.11.08.1

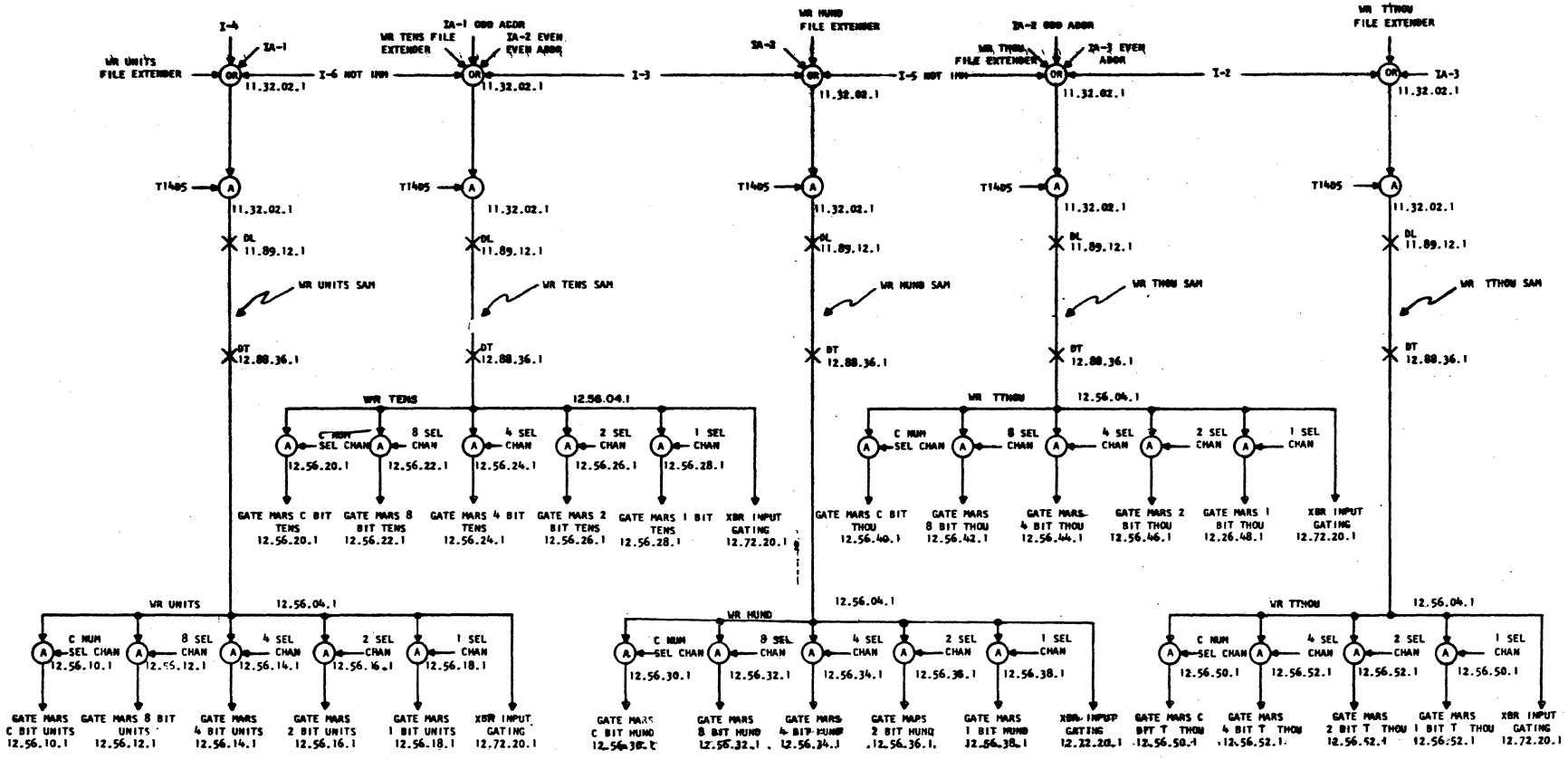

NOTE:
1. DURING I/O OP RD/WR LATCHES REMOVES CTRL OF CLOCK FROM RUN LATCH, I/O MEM CTRL OR 1622 CLOCK CTRL RUNS CLOCK.
2. CLOCK STOPS AT T 19.
RUN LATCH
NOT RD LATCH
NOT WR LATCH
NOT TPWR CTRL I-5
NOT 1711 STOP CLOCK (F2)
NOT I-5 PR STOP CLOCK
11.83.04.1
1622 RUN CLOCK A
1622 RUN CLOCK B
I/O MEM CTRL LATCH
TR8 (F2)
FILE LOAD
11.83.04.1
11.15.05.1
CLOCK ON LATCH
CE CLOCK ON LAMPS
FILE CLOCK CTRL
11.05.32.1
NOT C1
NOT C10
2 MC OSC
11.15.05.1
INV
CLOCK DR A
CLOCK DR B
MAN RESET
C10
C9
C8
C7
C6
C5
C4
C3
C2
C1
NOT C9
NOT C8
NOT C7
NOT C6
NOT C5
NOT C4
NOT C3
NOT C2
NOT C1
NOT RD OR WR
DATA CHECK SW AUTO
MBR ODD/ EVEN CHECK
11.40.02.1
11.15.06.1
11.15.07.1
11.15.08.1
11.15.09.1
11.15.10.1
C10
EL 408522C
DA 0A53000

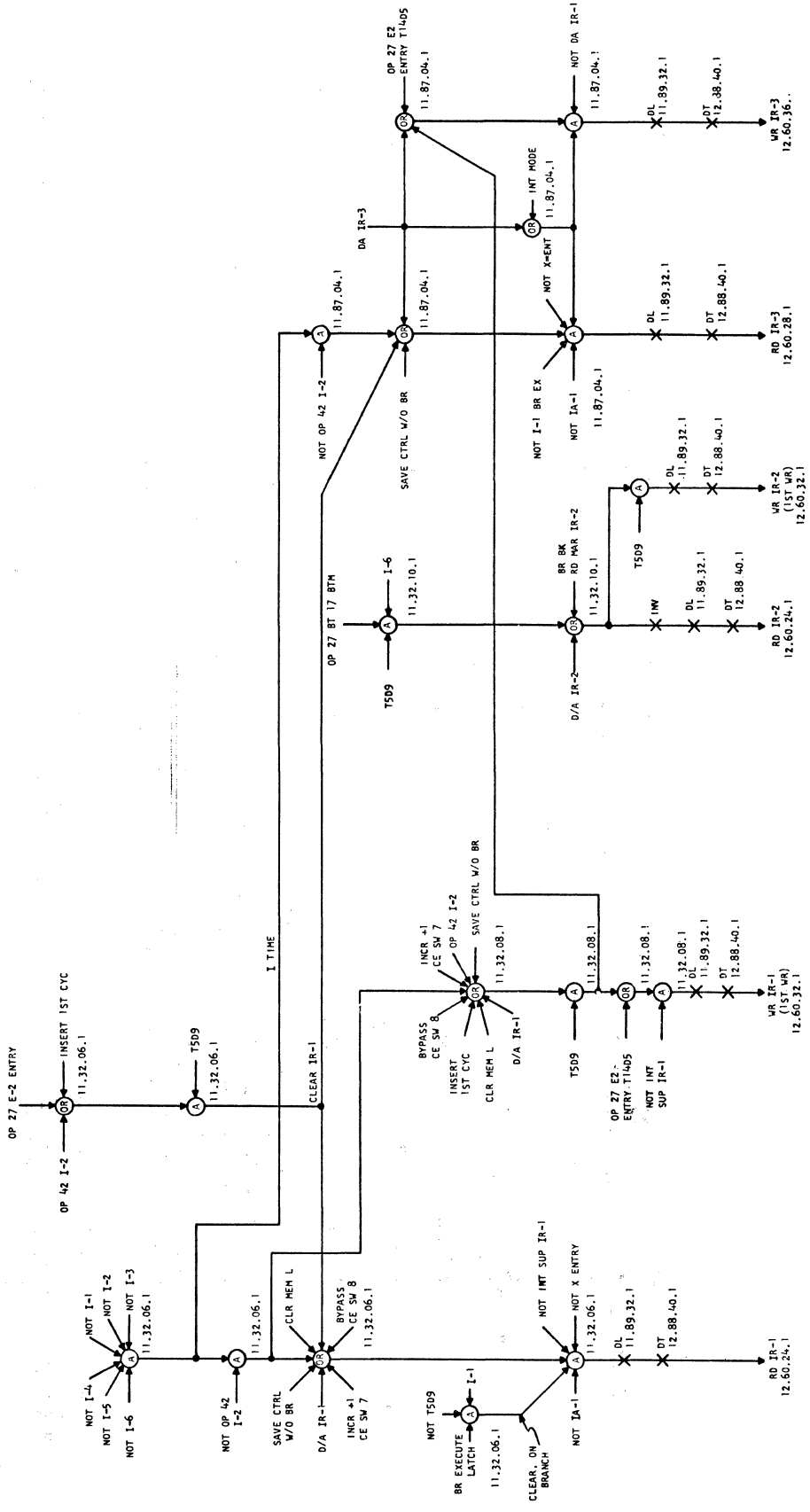


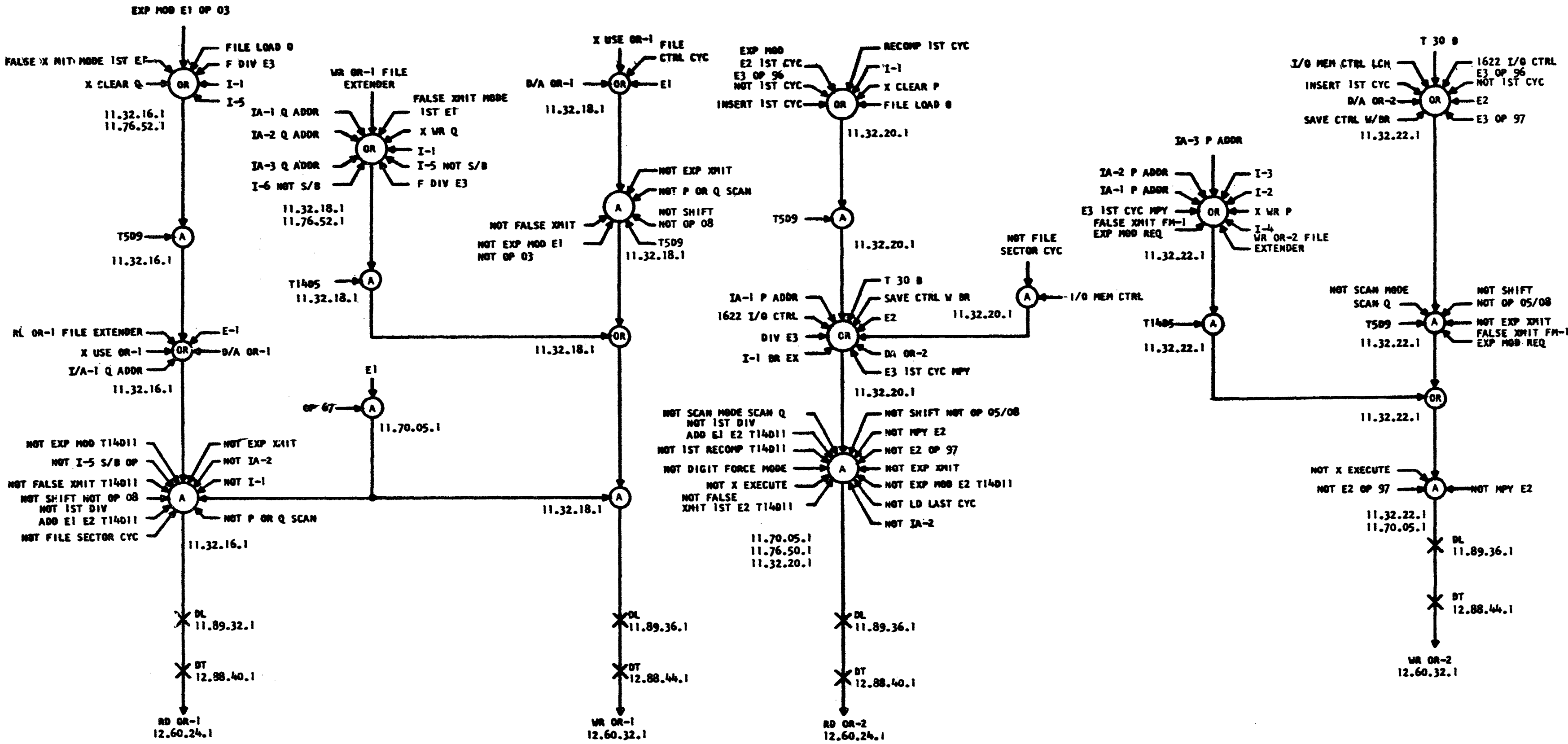
NOTE 1: SELECT FLAG IS ONLY REVERSED AT THE FLAG LATCHES. ALL OTHER SELECT FLAG LINES ARE CONTROLLED BY THE MAR ADDRESS SELECTION.


MPY E3
MPY E4
6XXX I-6
OP 73 E1
OP 72 E2
ADD XMIT E1 2 DIGITS
I-5 S/B OP
OR
11.55.00.1
T12D2
A
NOT EXP MODIFY
INV
SET DR UN 11.55.00.1
MPY E4
I-4
6XXX I-6
OPS 92, 93 94, 95 E1
I-5 S/B OP
ADD MPY XMIT E1
T16D2
SET DR TN 11.55.00.1
ADD MPY XMIT E2 NOT 2 DIG CTRL
I-5 NOT S/B
NOT OPS 90, 91 I-5
TRANS TNS TO UN
T16D2 11.55.00.1
T6D3 11.55.00.1
SET DR TN C BIT 11.55.08.1
GATE DR TNS TO DR UN 11.55.00.1
T4D2
11.55.01.1
I CYC RESET
RESET FM-1 (FP)
T12D2 11.55.00.1
MPY E4 T6D3
X RESET DR UN T6D3
DR UN RESET 11.55.00.1
OP 72 E2
MPY E3
I-4
ADD MPY XMIT E1
6XXX I-6
I-5 S/B OP
OP 73 E1
OP 92,93 94, 95 E1
11.55.01.1
T4D2
ADD E2 RESET DR TN
I CYC RESET RESET DR TN (FP)
DR TNS RESET 11.55.01.1
SET DR UN
SEL FLAG
11.45.05.1
GATE DR TNS TO DR UN
NOT REVERSE SEL CHAN
REVERSE SEL CHAN
SET DR TNS
NON SEL FLAG
TR E1 EV ADDR
ADD TF E1 ODD ADDR
MPY E4
11.44.15.1
T6D3
11.45.15.1
OP 72 MINUS FIELD T16D3
EXP MODIFY E1
FL-1 11.45.05.1
FL-2 11.45.05.1
LAMP
DR UN RESET
DR TNS RESET
NOT A1
NOT A4
T2D3
11.44.15.1
TWO DIG CTRL 11.44.15.1
I CYC RESET
FL-1
NOT OP 64
NOT X XMIT MODE
T6D3
ADD TF E2
NOT DELAY 1ST CYC
NOT OP 62
11.45.40.1
X T-ON FM-1
NOT OP 92,93 94, 95 E1 SEL FLAG
MPY T-ON FM-1
T-ON FM 1 E2
FM-1 11.45.40.1
CHANGE MODE T0D2
FP RESET FM-1
I CYC RESET
XMIT ENTRY T2D3
ADD ENTRY T2D3
OP 71 E1
OP 73 E1
OP 72 E1 11.45.40.1
T11D2
11.45.40.1
SEL FLAG
INV
ADD MODE E2
NOT DLY 1ST CYC
11.45.42.1
OP 73 E1 1ST CYC
SEL CHAN FLAG T11D2
NOT OP 29 DIV 19 DM
MPY SET FM-2
DIV SET FM-2A
DIV SET FM-2B
LD LAST CYC T0D2
FP SET FM-2
FM-2 11.45.42.1
LAMP
I CYC RESET
CHANGE MODE T0D2
OP 73 E1 T2D3
ADD ENTRY T2D3
XMIT ENTRY T2D3
RECOMP 1ST CYC T2D3
MPY E1 T11D4

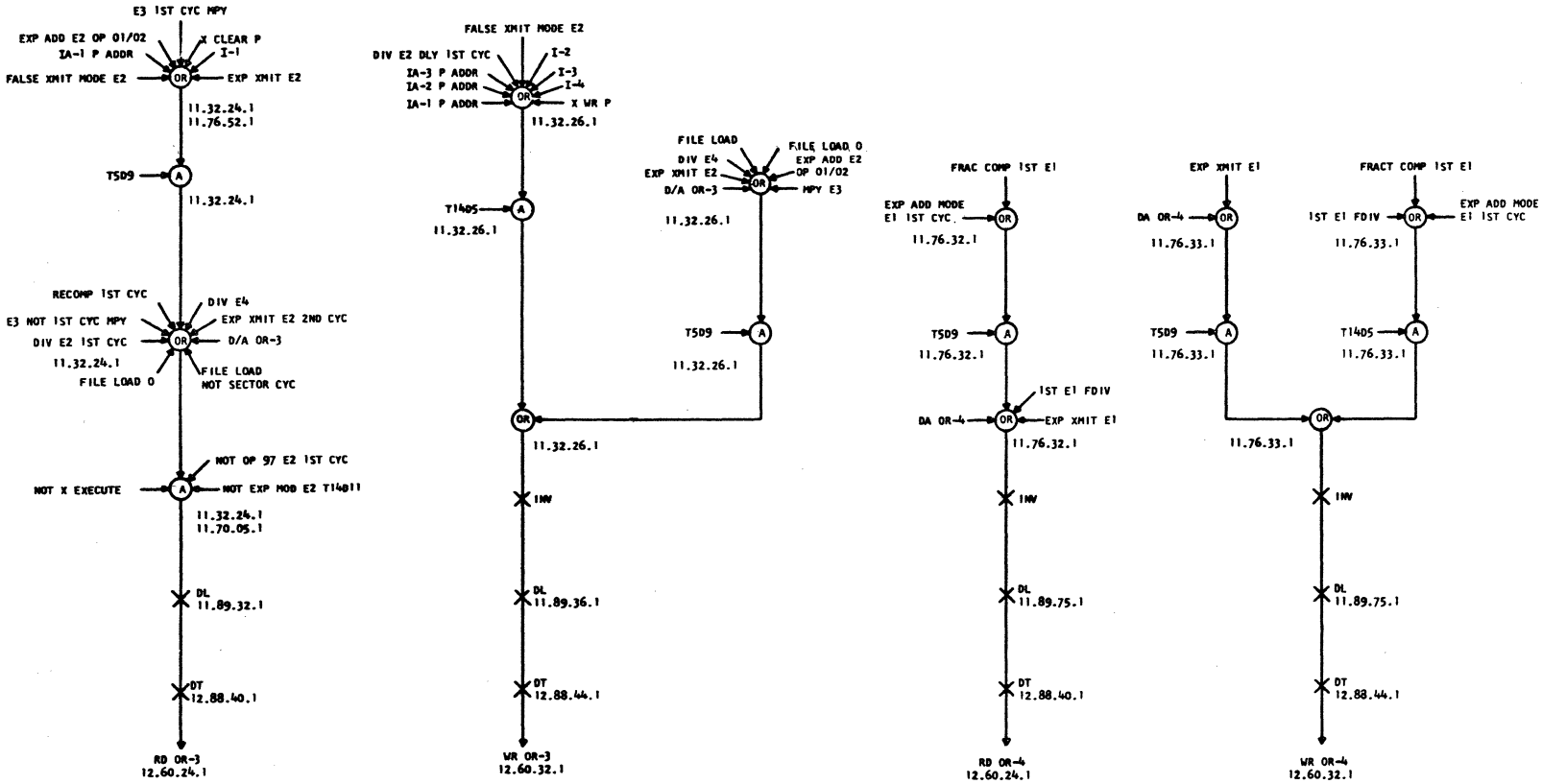

MQ COUNTER
MQ 1 BIT 11.64.12.1
MQ 2 BIT 11.64.10.1
MQ 4 BIT 11.64.10.1
MQ 8 BIT 11.64.10.1
MQ C BIT 11.64.10.1
SEL CH 1 BIT 11.64.12.1
SEL CH 2 BIT 11.64.10.1
SEL CH 4 BIT 11.64.10.1
SEL CHAN 8 BIT 11.64.10.1
NOT SEL CH C BIT 11.64.10.1
LAMP
MQ RESET
INSERT LATCH
COUNT C
MQ SET
MPY E1 T1104 11.64.00.1
I-6 FILE OP T1603
INDEXING STEP MQ
X XMIT STEP MQ
DIV STEP QUOTIENT 11.64.00.1
MQ ADV FP
FT STEP MQ
STEP QUO.
E CYC ENT T0D2
X ENT
DIV E4 DIG FORCE ENTRY 11.64.00.1
E4 OP 97
I CYC RESET
MPY E1 T2D3
I-5
T2D3
T0D2
COUNT 1 11.64.15.1
COUNT 2 11.64.15.1
COUNT 4 11.64.15.1
COUNT C 11.64.15.1
NOT COUNT 1 11.64.15.1
NOT COUNT 2 11.64.15.1
NOT COUNT 4 11.64.15.1
NOT COUNT C 11.64.15.1
STEP QUO
COUNT 1
COUNT 2
COUNT 4
COUNT C

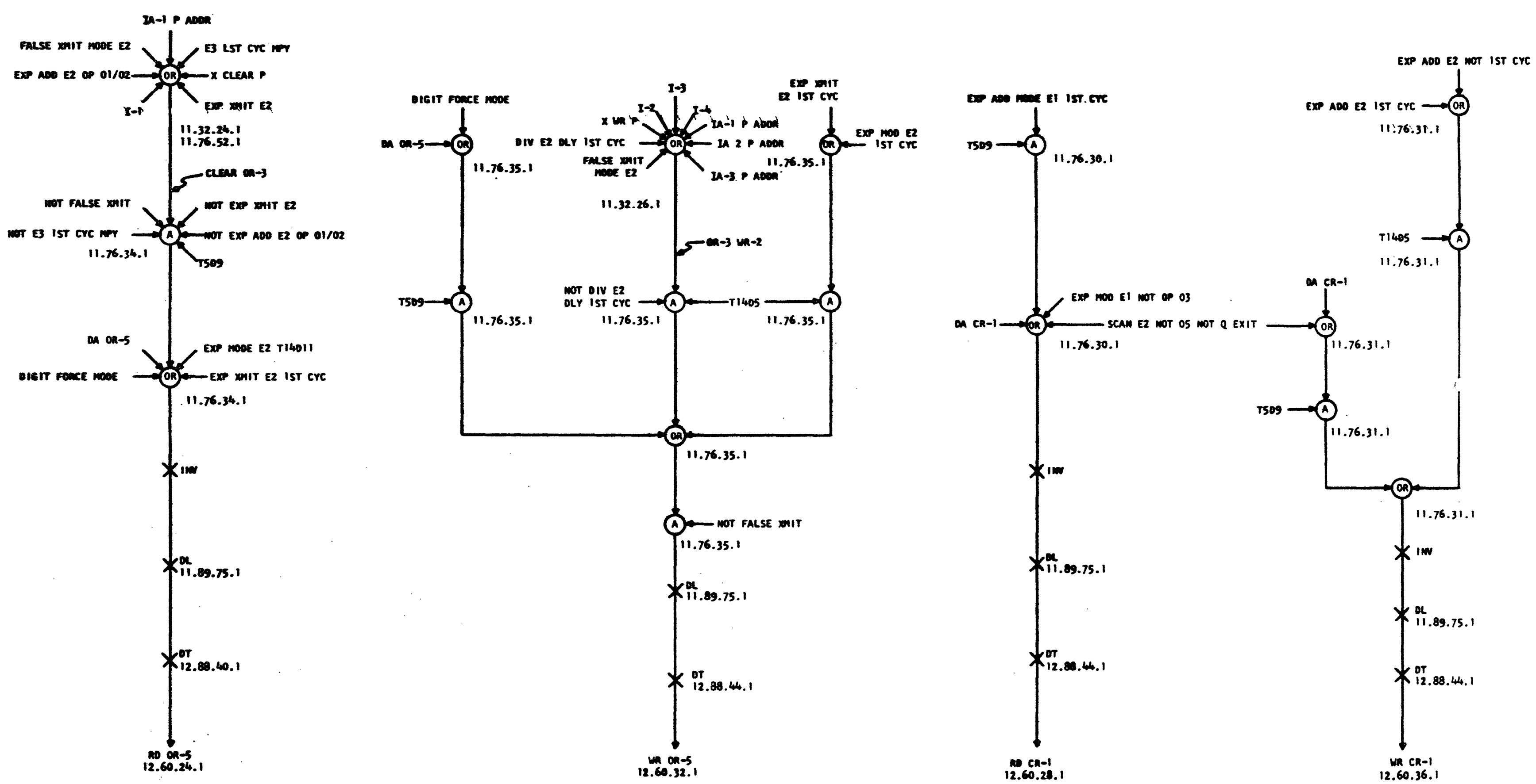

I-4
IA-1
WR UNITS FILE EXTENDER
OR
11.32.02.1
I-6 NOT USED
IA-1 ODD ADDR
WR TENS FILE EXTENDER
IA-2 EVEN ADDR
I-3
WR HUND FILE EXTENDER
IA-2
I-5 NOT USED
IA-2 ODD ADDR
WR TTHOU FILE EXTENDER
IA-3 EVEN ADDR
I-2
WR TTHOU FILE EXTENDER
IA-3
T1405
A
DL
11.89.12.1
WR UNITS SAM
WR TENS SAM
WR HUND SAM
WR TTHOU SAM
BT
12.88.36.1
WR TENS
12.56.04.1
C NUM SEL CHAN
8 SEL CHAN
4 SEL CHAN
2 SEL CHAN
1 SEL CHAN
12.56.20.1
12.56.22.1
12.56.24.1
12.56.26.1
12.56.28.1
GATE MARS C BIT TENS 12.56.20.1
GATE MARS 8 BIT TENS 12.56.22.1
GATE MARS 4 BIT TENS 12.56.24.1
GATE MARS 2 BIT TENS 12.56.26.1
GATE MARS 1 BIT TENS 12.56.28.1
XBR INPUT GATING 12.72.20.1
WR TTHOU
12.56.04.1
C NUM SEL CHAN
8 SEL CHAN
4 SEL CHAN
2 SEL CHAN
1 SEL CHAN
GATE MARS C BIT THOU 12.56.40.1
GATE MARS 8 BIT THOU 12.56.42.1
GATE MARS 4 BIT THOU 12.56.44.1
GATE MARS 2 BIT THOU 12.56.46.1
GATE MARS 1 BIT THOU 12.26.48.1
XBR INPUT GATING 12.72.20.1
WR UNITS
12.56.04.1
C NUM SEL CHAN
8 SEL CHAN
4 SEL CHAN
2 SEL CHAN
1 SEL CHAN
12.56.10.1
12.56.12.1
12.56.14.1
12.56.16.1
12.56.18.1
GATE MARS C BIT UNITS 12.56.10.1
GATE MARS 8 BIT UNITS 12.56.12.1
GATE MARS 4 BIT UNITS 12.56.14.1
GATE MARS 2 BIT UNITS 12.56.16.1
GATE MARS 1 BIT UNITS 12.56.18.1
XBR INPUT GATING 12.72.20.1
12.56.04.1
WR HUND
C NUM SEL CHAN
8 SEL CHAN
4 SEL CHAN
2 SEL CHAN
1 SEL CHAN
12.56.30.1
12.56.32.1
12.56.34.1
12.56.36.1
12.56.38.1
GATE MARS C BIT HUND 12.56.30.1
GATE MARS 8 BIT HUND 12.56.32.1
GATE MARS 4 BIT HUND 12.56.34.1
GATE MARS 2 BIT HUND 12.56.36.1
GATE MARS 1 BIT HUND 12.56.38.1
XBR INPUT GATING 12.72.20.1
WR TTHOU
12.56.04.1
C NUM SEL CHAN
4 SEL CHAN
2 SEL CHAN
1 SEL CHAN
12.56.50.1
12.56.52.1
12.56.52.1
12.56.50.1
GATE MARS C BIT T THOU 12.56.50.1
GATE MARS 4 BIT T THOU 12.56.52.1
GATE MARS 2 BIT T THOU 12.56.52.1
GATE MARS 1 BIT T THOU 12.56.52.1
XBR INPUT GATING 12.72.20.1

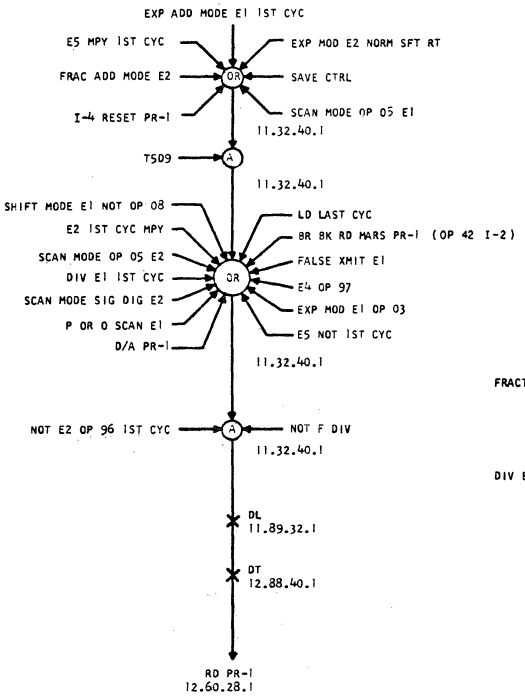

OP 27 E-2 ENTRY
OP 42 I-2
INSERT 1ST CYC 11.32.06.1
T509 11.32.06.1
I TIME
CLEAR IR-1
NOT I-1
NOT I-2
NOT I-3
NOT I-4
NOT I-5
NOT I-6
11.32.06.1
NOT OP 42 I-2
SAVE CTRL W/O BR
CLR MEM L
D/A IR-1
BYPASS CE SW 8
INCR +1 CE SW 7
NOT T509
BR EXECUTE LATCH
I-1
CLEAR, ON BRANCH
NOT INT SUP IR-1
NOT X ENTRY
NOT IA-1
DL 11.89.32.1
DT 12.88.40.1
RD IR-1 12.60.24.1
OP 27 E2 ENTRY T1405
11.87.04.1
NOT DA IR-1
WR IR-3 12.60.36..
DA IR-3
INT MODE
NOT X-ENT
NOT I-1 BR EX
RD IR-3 12.60.28.1
NOT OP 42 I-2
SAVE CTRL W/O BR
OP 27 BT 17 BTM
I-6
11.32.10.1
T509
D/A IR-2
BR BK RD MAR IR-2
IW
RD IR-2 12.60.24.1
WR IR-2 (1ST WR) 12.60.32.1
INCR +1 CE SW 7
OP 42 I-2
SAVE CTRL W/O BR
BYPASS CE SW 8
INSERT 1ST CYC
CLR MEM L
D/A IR-1
11.32.08.1
OP 27 E2 ENTRY T1405
NOT INT SUP IR-1
WR IR-1 (1ST WR) 12.60.32.1

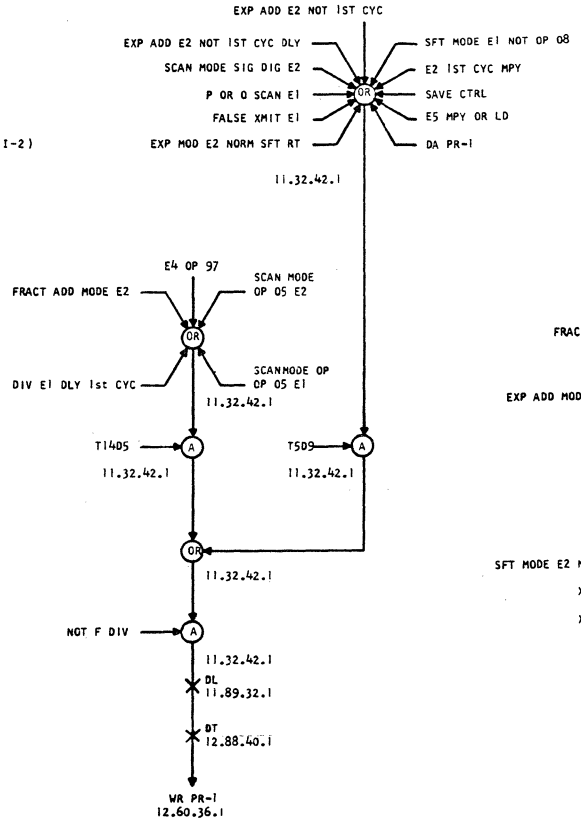


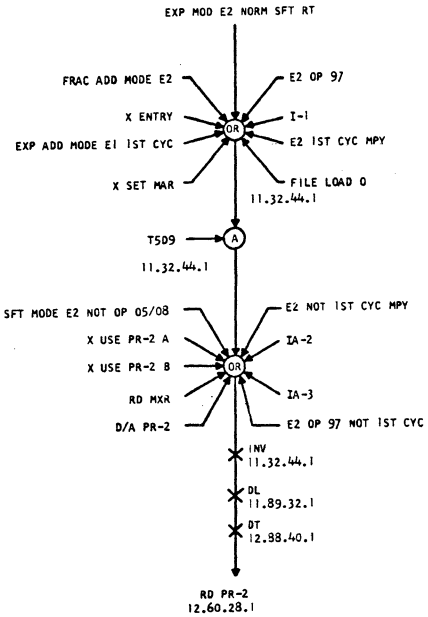
EXP MOD E1 OP 03
FALSE X MIT MODE 1ST E1
X CLEAR Q
FILE LOAD 0
F DIV E3
I-1
I-5
OR
11.32.16.1
11.76.52.1
T509
A
11.32.16.1
RD OR-1 FILE EXTENDER
X USE OR-1
I/A-1 Q ADDR
E-1
D/A OR-1
11.32.16.1
NOT EXP MOD T14011
NOT I-5 S/B OP
NOT FALSE XMIT T14011
NOT SHIFT NOT OP 08
NOT 1ST DIV
ADD E1 E2 T14011
NOT FILE SECTOR CYC
NOT EXP XMIT
NOT IA-2
NOT I-1
NOT P OR Q SCAN
11.32.16.1
DL
11.89.32.1
DT
12.88.40.1
RD OR-1
12.60.24.1
WR OR-1 FILE EXTENDER
FALSE XMIT MODE 1ST E1
IA-1 Q ADDR
IA-2 Q ADDR
IA-3 Q ADDR
I-6 NOT S/B
X WR Q
I-1
I-5 NOT S/B
F DIV E3
11.32.18.1
11.76.52.1
T1405
11.32.18.1
E1
OP 67
11.70.05.1
X USE OR-1
FILE CTRL CYC
B/A OR-1
E1
11.32.18.1
NOT EXP XMIT
NOT P OR Q SCAN
NOT SHIFT
NOT OP 08
T509
NOT FALSE XMIT
NOT EXP MOD E1
NOT OP 03
11.32.18.1
11.32.18.1
11.32.18.1
DL
11.89.36.1
DT
12.88.44.1
WR OR-1
12.60.32.1
EXP MOD
E2 1ST CYC
E3 OP 96
NOT 1ST CYC
INSERT 1ST CYC
RECOMP 1ST CYC
I-1
X CLEAR P
FILE LOAD 0
11.32.20.1
T509
11.32.20.1
IA-1 P ADDR
1622 I/O CTRL
DIV E3
I-1 OR EX
T 30 B
SAVE CTRL W OR
E2
DA OR-2
E3 1ST CYC MPY
11.32.20.1
NOT FILE SECTOR CYC
I/O MEM CTRL
11.32.20.1
NOT SCAN MODE SCAN Q
NOT 1ST DIV
ADD E1 E2 T14011
NOT 1ST RECOMP T14011
NOT DIGIT FORCE MODE
NOT X EXECUTE
NOT FALSE XMIT 1ST E2 T14011
NOT SHIFT NOT OP 05/08
NOT MPY E2
NOT E2 OP 97
NOT EXP XMIT
NOT EXP MOD E2 T14011
NOT LD LAST CYC
NOT IA-2
11.70.05.1
11.76.50.1
11.32.20.1
DL
11.89.36.1
DT
12.88.40.1
RD OR-2
12.60.24.1
IA-3 P ADDR
IA-2 P ADDR
IA-1 P ADDR
E3 1ST CYC MPY
FALSE XMIT FM-1
EXP MOD REQ
I-3
I-2
X WR P
I-4
WR OR-2 FILE EXTENDER
11.32.22.1
T1405
11.32.22.1
T 30 B
I/O MEM CTRL LCH
INSERT 1ST CYC
D/A OR-2
SAVE CTRL W/OR
1622 I/O CTRL
E3 OP 96
NOT 1ST CYC
E2
E3 OP 97
11.32.22.1
NOT SCAN MODE SCAN Q
T509
NOT SHIFT
NOT OP 05/08
NOT EXP XMIT
FALSE XMIT FM-1
EXP MOD REQ
11.32.22.1
11.32.22.1
NOT X EXECUTE
NOT E2 OP 97
NOT MPY E2
11.32.22.1
11.70.05.1
DL
11.89.36.1
DT
12.88.44.1
WR OR-2
12.60.32.1

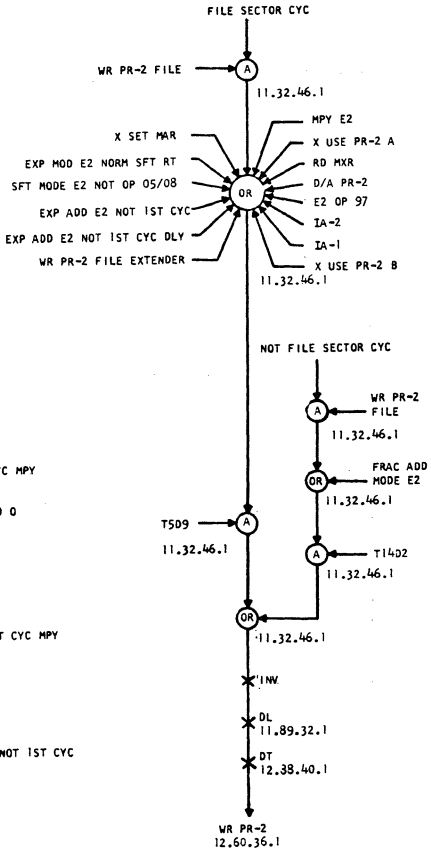

E3 1ST CYC MPY
EXP ADD E2 OP 01/02
IA-1 P ADDR
X CLEAR P
I-1
FALSE XMIT MODE E2
OR
EXP XMIT E2
11.32.24.1
11.76.52.1
T5D9
A
11.32.24.1
RECOMP 1ST CYC
E3 NOT 1ST CYC MPY
DIV E2 1ST CYC
11.32.24.1
FILE LOAD 0
DIV E4
EXP XMIT E2 2ND CYC
D/A OR-3
FILE LOAD
NOT SECTOR CYC
NOT OP 97 E2 1ST CYC
NOT X EXECUTE
NOT EXP MOD E2 T1401
11.32.24.1
11.70.05.1
DL
11.89.32.1
DT
12.88.40.1
RD OR-3
12.60.24.1
FALSE XMIT MODE E2
DIV E2 DLY 1ST CYC
IA-3 P ADDR
IA-2 P ADDR
IA-1 P ADDR
I-2
I-3
I-4
X WR P
11.32.26.1
T1405
11.32.26.1
FILE LOAD
DIV E4
EXP XMIT E2
D/A OR-3
FILE LOAD 0
EXP ADD E2
OP 01/02
MPY E3
11.32.26.1
T5D9
11.32.26.1
INV
DL
11.89.36.1
DT
12.88.44.1
WR OR-3
12.60.32.1
FRAC COMP 1ST E1
EXP ADD MODE
E1 1ST CYC.
11.76.32.1
T5D9
11.76.32.1
1ST E1 FDIV
DA OR-4
EXP XMIT E1
11.76.32.1
INV
DL
11.89.75.1
DT
12.88.40.1
RD OR-4
12.60.24.1
EXP XMIT E1
DA OR-4
11.76.33.1
T5D9
11.76.33.1
FRACT COMP 1ST E1
1ST E1 FDIV
EXP ADD MODE
E1 1ST CYC
11.76.33.1
T1405
11.76.33.1
11.76.33.1
INV
DL
11.89.75.1
DT
12.88.44.1
WR OR-4
12.60.32.1

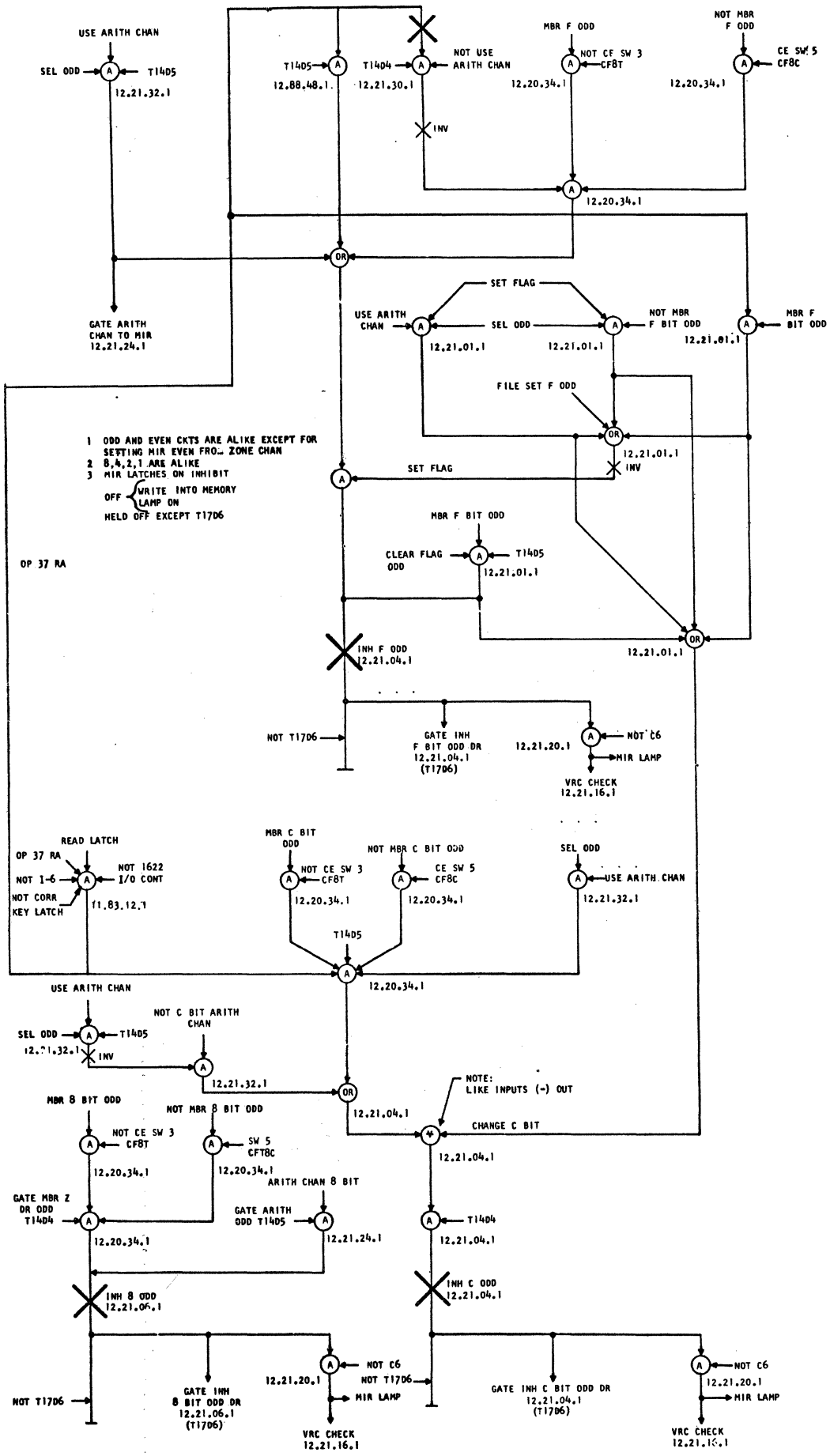

IA-1 P ADDR
FALSE XMIT MODE E2
E3 1ST CYC MPY
EXP ADD E2 OP 01/02
X CLEAR P
EXP XMIT E2
11.32.24.1
11.76.52.1
CLEAR OR-3
NOT FALSE XMIT
NOT EXP XMIT E2
NOT E3 1ST CYC MPY
NOT EXP ADD E2 OP 01/02
11.76.34.1
T509
DA OR-5
EXP MODE E2 T14011
DIGIT FORCE MODE
EXP XMIT E2 1ST CYC
11.76.34.1
INV
DL 11.89.75.1
DT 12.88.40.1
RD OR-5 12.60.24.1
DIGIT FORCE MODE
DA OR-5
11.76.35.1
T509
11.76.35.1
I-3
I-2
I-4
X WR P
IA-1 P ADDR
DIV E2 DLY 1ST CYC
IA 2 P ADDR
FALSE XMIT MODE E2
IA-3 P ADDR
11.32.26.1
OR-3 WR-2
NOT DIV E2 DLY 1ST CYC
T1405
11.76.35.1
EXP XMIT E2 1ST CYC
EXP MOD E2 1ST CYC
11.76.35.1
11.76.35.1
NOT FALSE XMIT
11.76.35.1
DL 11.89.75.1
DT 12.88.44.1
WR OR-5 12.60.32.1
EXP ADD MODE E1 1ST CYC
T509
11.76.30.1
EXP MOD E1 NOT OP 03
DA CR-1
SCAN E2 NOT 05 NOT Q EXIT
11.76.30.1
INV
DL 11.89.75.1
DT 12.88.44.1
RD CR-1 12.60.28.1
EXP ADD E2 NOT 1ST CYC
EXP ADD E2 1ST CYC
11.76.31.1
T1405
11.76.31.1
DA CR-1
11.76.31.1
T509
11.76.31.1
11.76.31.1
INV
DL 11.89.75.1
DT 12.88.44.1
WR CR-1 12.60.36.1

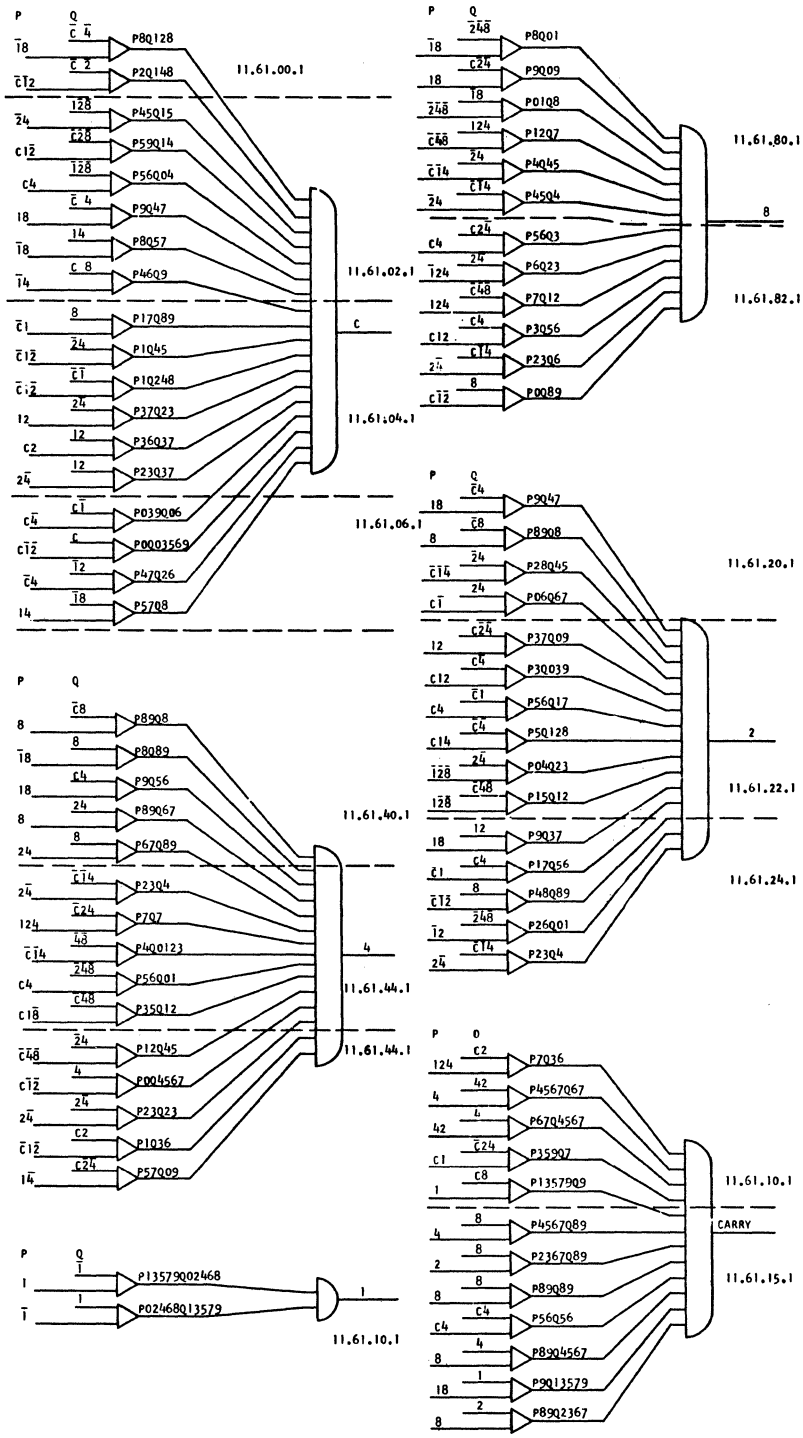

EXP ADD MODE E1 1ST CYC
E5 MPY 1ST CYC
EXP MOD E2 NORM SFT RT
FRAC ADD MODE E2
SAVE CTRL
I-4 RESET PR-1
SCAN MODE OP 05 E1
11.32.40.1
T509
11.32.40.1
SHIFT MODE E1 NOT OP 08
LD LAST CYC
E2 1ST CYC MPY
8R 8K RD MARS PR-1 (OP 42 I-2)
SCAN MODE OP 05 E2
FALSE XMIT E1
DIV E1 1ST CYC
E4 OP 97
SCAN MODE SIG DIG E2
EXP MOD E1 OP 03
P OR Q SCAN E1
E5 NOT 1ST CYC
D/A PR-1
11.32.40.1
NOT E2 OP 96 1ST CYC
NOT F DIV
11.32.40.1
DL
11.89.32.1
DT
12.88.40.1
RD PR-1
12.60.28.1

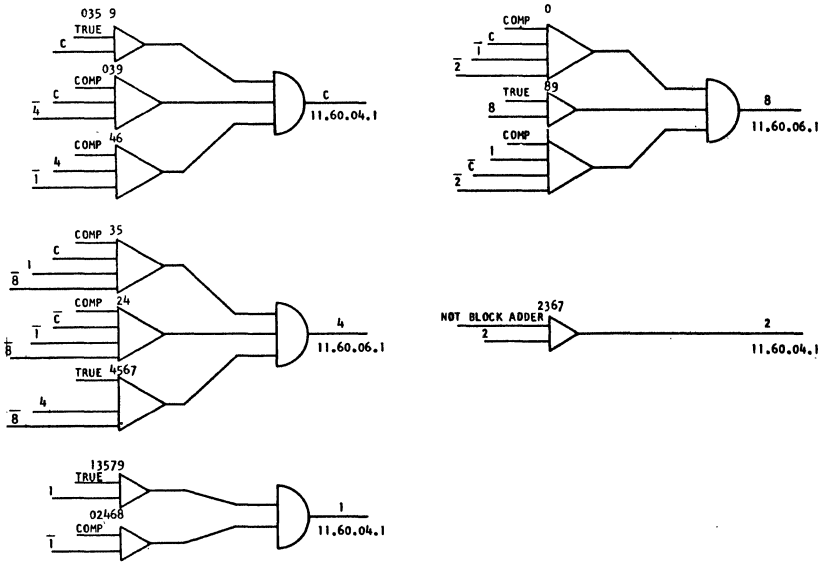

EXP ADD E2 NOT 1ST CYC
EXP ADD E2 NOT 1ST CYC DLY
SFT MODE E1 NOT OP 08
SCAN MODE SIG DIG E2
E2 1ST CYC MPY
P OR Q SCAN E1
SAVE CTRL
FALSE XMIT E1
E5 MPY OR LD
EXP MOD E2 NORM SFT RT
DA PR-1
11.32.42.1
E4 OP 97
FRACT ADD MODE E2
SCAN MODE OP 05 E2
DIV E1 DLY 1st CYC
SCANMODE OP OP 05 E1
11.32.42.1
T1405
11.32.42.1
T509
11.32.42.1
11.32.42.1
NOT F DIV
11.32.42.1
DL
11.89.32.1
DT
12.88.40.1
WR PR-1
12.60.36.1


EXP MOD E2 NORM SFT RT
FRAC ADD MODE E2
E2 OP 97
X ENTRY
I-1
EXP ADD MODE E1 1ST CYC
E2 1ST CYC MPY
X SET MAR
FILE LOAD 0
11.32.44.1
T509
11.32.44.1
SFT MODE E2 NOT OP 05/08
E2 NOT 1ST CYC MPY
X USE PR-2 A
IA-2
X USE PR-2 B
IA-3
RD MXR
D/A PR-2
E2 OP 97 NOT 1ST CYC
INV
11.32.44.1
DL
11.89.32.1
DT
12.88.40.1
RD PR-2
12.60.28.1

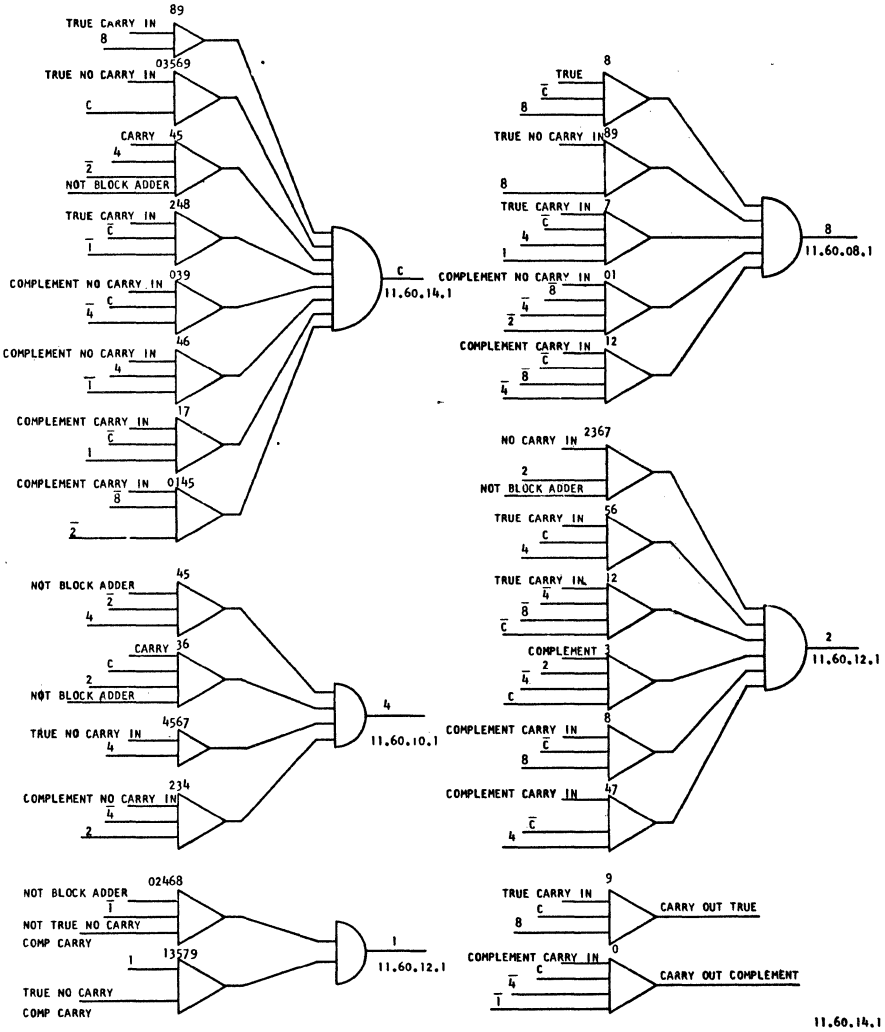

FILE SECTOR CYC
WR PR-2 FILE
11.32.46.1
MPY E2
X SET MAR
X USE PR-2 A
EXP MOD E2 NORM SFT RT
RD MXR
SFT MODE E2 NOT OP 05/08
D/A PR-2
E2 OP 97
EXP ADD E2 NOT 1ST CYC
IA-2
EXP ADD E2 NOT 1ST CYC DLY
IA-1
WR PR-2 FILE EXTENDER
X USE PR-2 B
11.32.46.1
NOT FILE SECTOR CYC
WR PR-2 FILE
11.32.46.1
FRAC ADD MODE E2
11.32.46.1
T509
11.32.46.1
T1402
11.32.46.1
11.32.46.1
INV
DL
11.89.32.1
DT
12.38.40.1
WR PR-2
12.60.36.1


USE ARITH CHAN
SEL ODD
T1405
12.21.32.1
T1405
12.88.48.1
T1404
12.21.30.1
NOT USE ARITH CHAN
INV
MBR F ODD
NOT CF SW 3 CF8T
12.20.34.1
NOT MBR F ODD
CE SW 5 CF8C
12.20.34.1
12.20.34.1
OR
GATE ARITH CHAN TO MIR
12.21.24.1
SET FLAG
USE ARITH CHAN
SEL ODD
NOT MBR F BIT ODD
MBR F BIT ODD
12.21.01.1
12.21.01.1
12.21.01.1
FILE SET F ODD
OR
12.21.01.1
INV
SET FLAG
1 ODD AND EVEN CKTS ARE ALIKE EXCEPT FOR SETTING MIR EVEN FRO... ZONE CHAN
2 8,4,2,1 ARE ALIKE
3 MIR LATCHES ON INHIBIT
OFF WRITE INTO MEMORY LAMP ON
HELD OFF EXCEPT T1706
OP 37 RA
MBR F BIT ODD
CLEAR FLAG ODD
T1405
12.21.01.1
OR
12.21.01.1
INH F ODD
12.21.04.1
NOT T1706
GATE INH F BIT ODD DR
12.21.04.1
(T1706)
12.21.20.1
NOT C6
MIR LAMP
VRC CHECK
12.21.16.1
READ LATCH
OP 37 RA
NOT 1-6
NOT CORR KEY LATCH
NOT 1622 I/O CONT
11.83.12.1
MBR C BIT ODD
NOT CE SW 3 CF8T
12.20.34.1
NOT MBR C BIT ODD
CE SW 5 CF8C
12.20.34.1
SEL ODD
USE ARITH CHAN
12.21.32.1
T1405
12.20.34.1
USE ARITH CHAN
SEL ODD
T1405
12.21.32.1
INV
NOT C BIT ARITH CHAN
12.21.32.1
OR
12.21.04.1
NOTE: LIKE INPUTS (-) OUT
CHANGE C BIT
12.21.04.1
MBR 8 BIT ODD
NOT CE SW 3 CF8T
12.20.34.1
NOT MBR 8 BIT ODD
SW 5 CF8C
12.20.34.1
ARITH CHAN 8 BIT
GATE MBR Z DR ODD T1404
12.20.34.1
GATE ARITH ODD T1405
12.21.24.1
T1404
12.21.04.1
INH 8 ODD
12.21.06.1
INH C ODD
12.21.04.1
NOT T1706
GATE INH 8 BIT ODD DR
12.21.06.1
(T1706)
12.21.20.1
NOT C6
NOT T1706
MIR LAMP
VRC CHECK
12.21.16.1
GATE INH C BIT ODD DR
12.21.04.1
(T1706)
12.21.20.1
NOT C6
MIR LAMP
VRC CHECK
12.21.16.1


P
Q
P8Q128
P2Q148
P45Q15
P59Q14
P56Q04
P9Q47
P8Q57
P46Q9
11.61.00.1
11.61.02.1
C
11.61.04.1
P17Q89
P1Q45
P1Q248
P37Q23
P36Q37
P23Q37
P039Q06
P0003569
P47Q26
P5708
P
Q
P8Q01
P9Q09
P01Q8
P12Q7
P4Q45
P45Q4
P56Q3
P6Q23
P7Q12
P3Q56
P2306
P0089
11.61.80.1
8
11.61.82.1
P
Q
P9Q47
P8908
P28Q45
P06Q67
11.61.06.1
11.61.20.1
P37Q09
P3Q039
P56Q17
P5Q128
P04Q23
P15Q12
2
11.61.22.1
P9Q37
P17Q56
P48Q89
P26Q01
P23Q4
11.61.24.1
P
Q
P8908
P8Q89
P9Q56
P89Q67
P67Q89
P23Q4
P7Q7
P4Q0123
P56Q01
P35Q12
11.61.40.1
4
11.61.44.1
11.61.44.1
P12Q45
P004567
P23Q23
P1036
P57Q09
P
Q
P13579Q02468
P02468Q13579
1
11.61.10.1
P
Q
P7Q36
P4567Q67
P67Q4567
P35Q07
P1357Q9
11.61.10.1
CARRY
P4567Q89
P2367Q89
P89Q89
P56Q56
P8Q4567
P9Q13579
P89Q2367
11.61.15.1

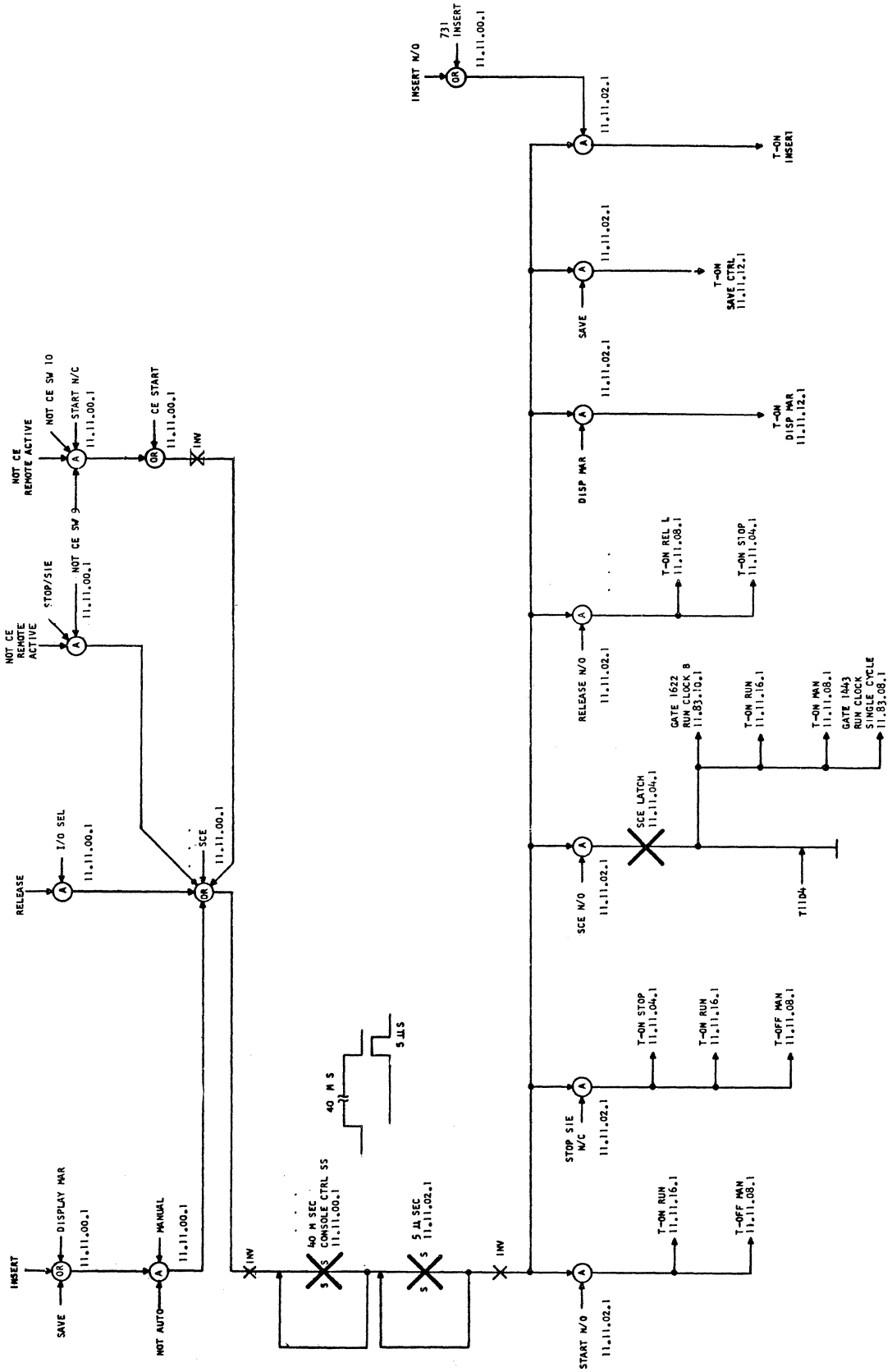


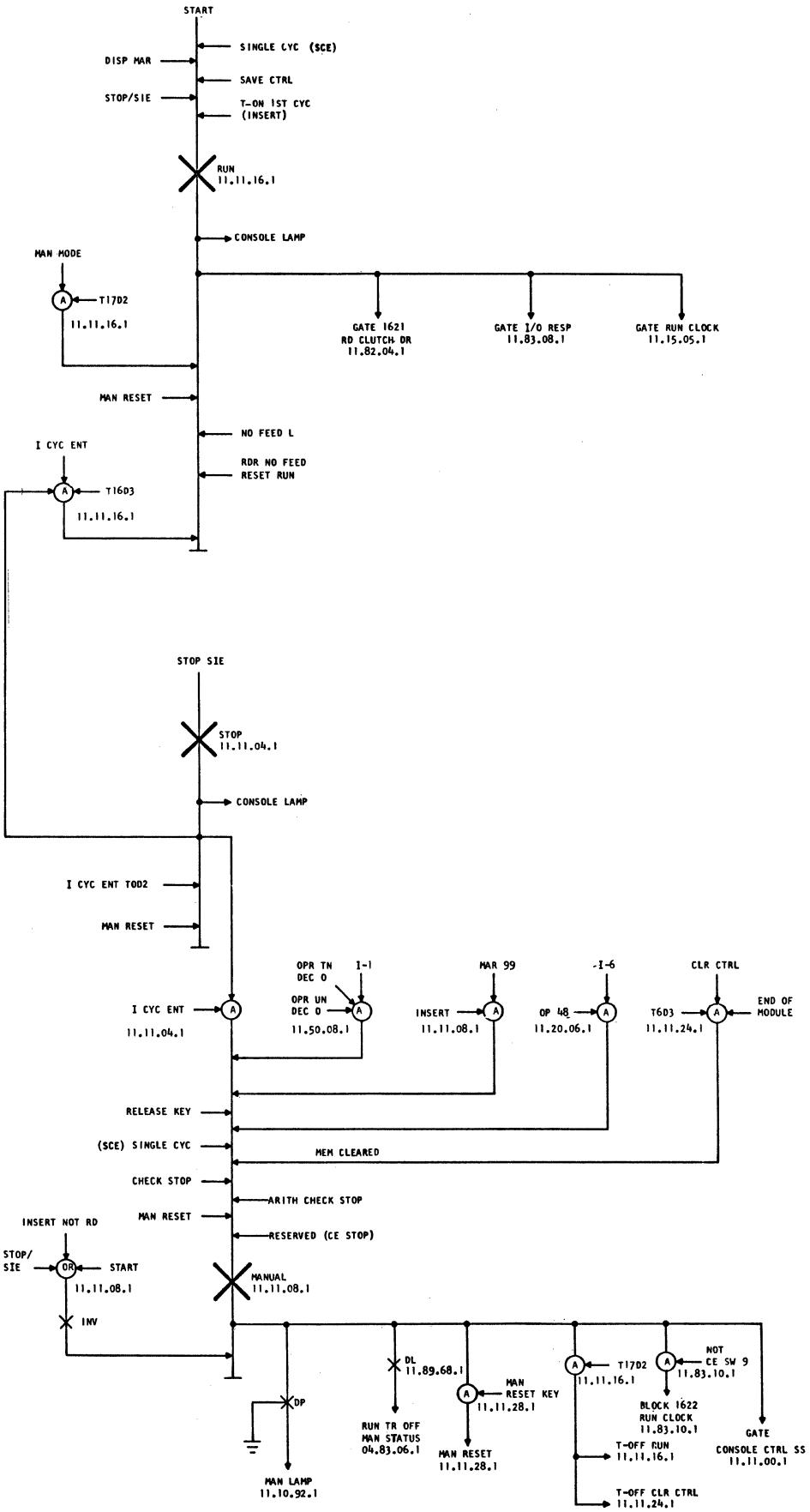
P CHANNEL T/C NETWORK

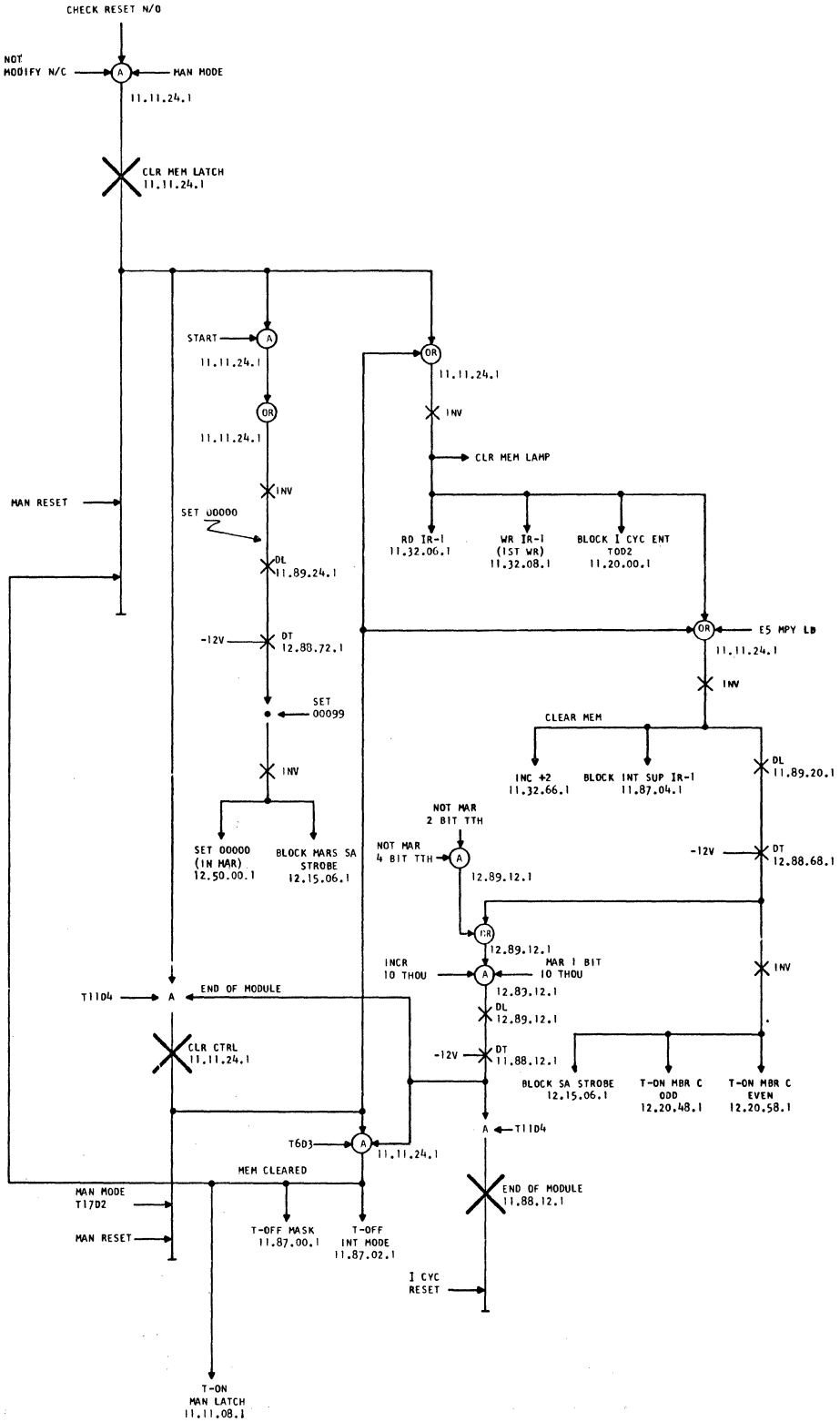


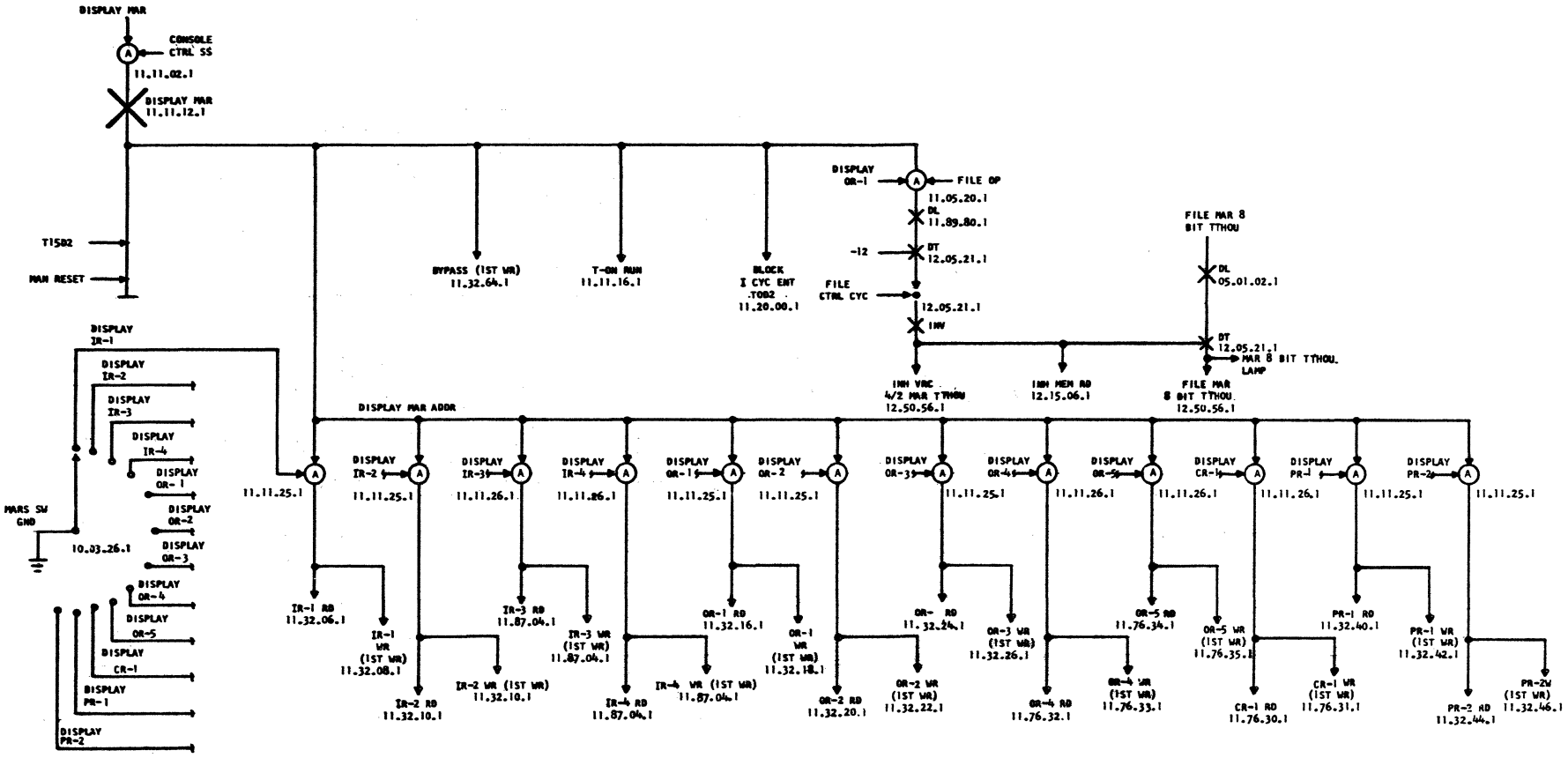
Q CHANNEL T/C NETWORK

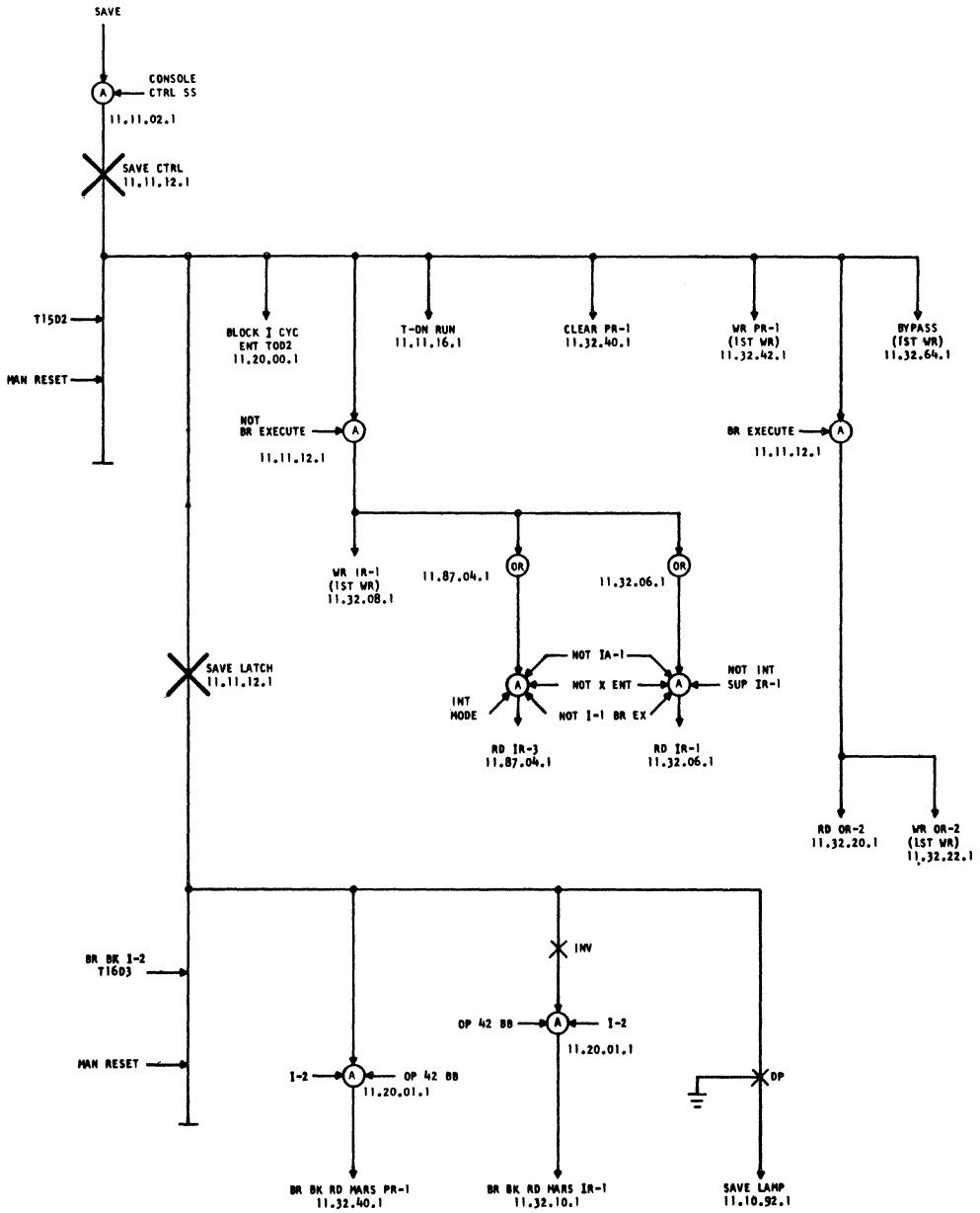
EC 408525 9-20-63 DA 0A27000

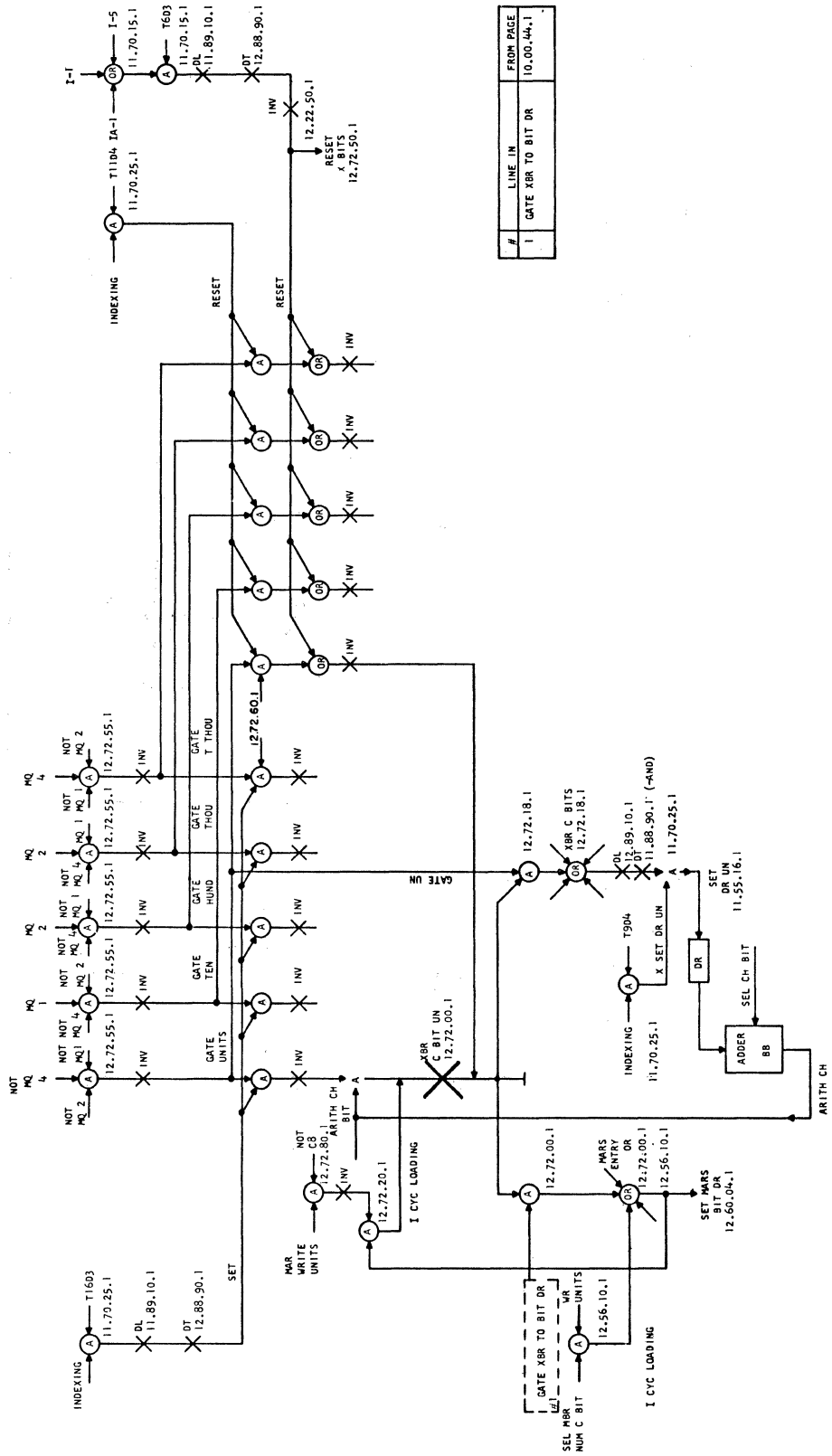

INSERT N/O
731 INSERT
11.11.00.1
11.11.02.1
T-ON INSERT
SAVE
T-ON SAVE CTRL 11.11.12.1
DISP MAR
T-ON DISP MAR 11.11.12.1
RELEASE N/O
T-ON REL L 11.11.08.1
T-ON STOP 11.11.04.1
SCE N/O
SCE LATCH 11.11.04.1
GATE 1622 RUN CLOCK B 11.83.10.1
T-ON RUN 11.11.16.1
T-ON MAN 11.11.08.1
GATE 1443 RUN CLOCK SINGLE CYCLE 11.83.08.1
T1104
STOP SIE N/C
T-ON STOP 11.11.04.1
T-ON RUN 11.11.16.1
T-OFF MAN 11.11.08.1
START N/O
NOT CE REMOTE ACTIVE
NOT CE SW 10
START N/C 11.11.00.1
CE START 11.11.00.1
INV
STOP/SIE
NOT CE SW 9
NOT CE 11.11.00.1
RELEASE
I/O SEL 11.11.00.1
SCE 11.11.00.1
INSERT
DISPLAY MAR 11.11.00.1
SAVE
MANUAL 11.11.00.1
NOT AUTO
40 M S
40 M SEC CONSOLE CTRL SS 11.11.00.1
5 μS
5 μS SEC 11.11.02.1

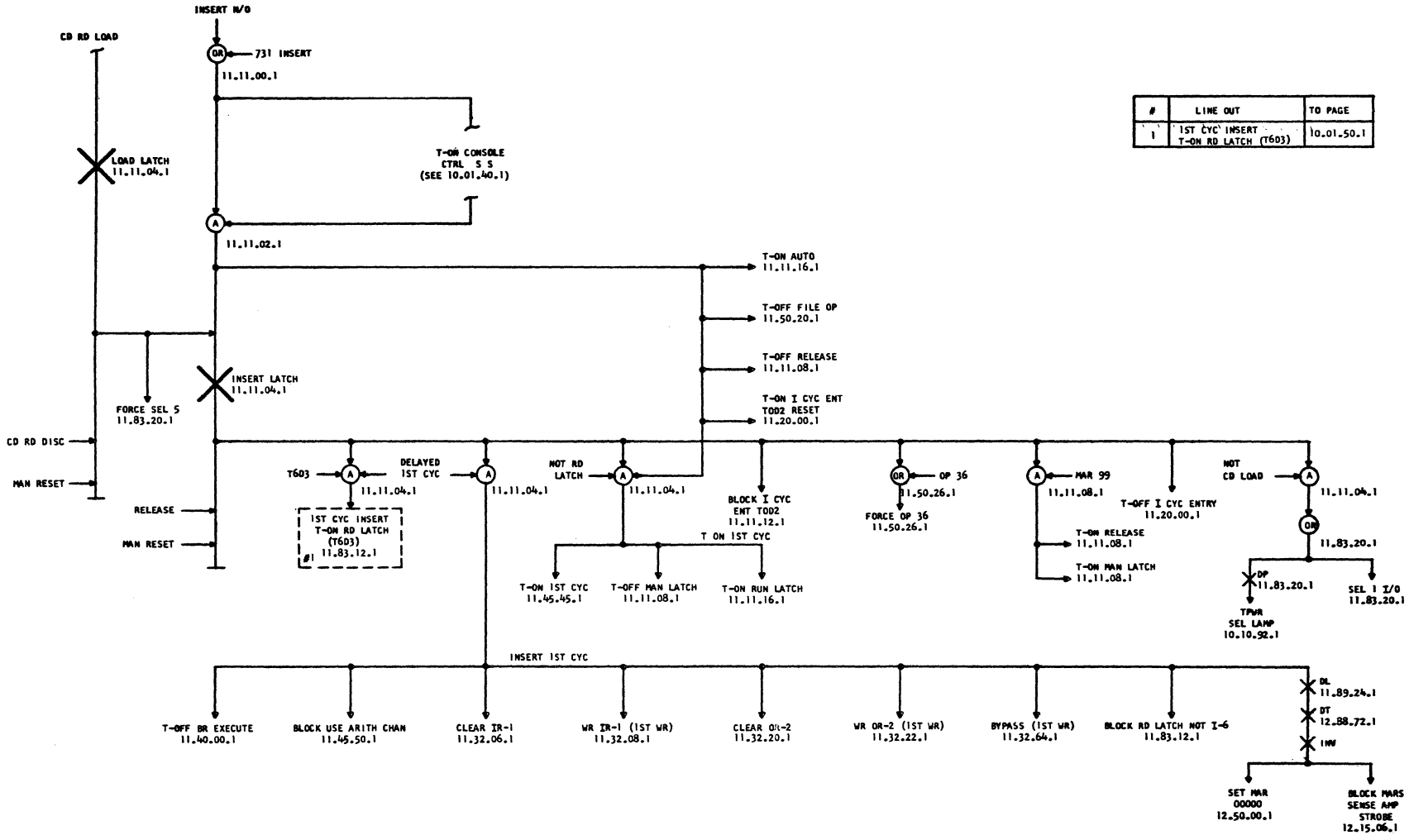

START
SINGLE CYC (SCE)
DISP MAR
SAVE CTRL
STOP/SIE
T-ON 1ST CYC (INSERT)
RUN 11.11.16.1
CONSOLE LAMP
MAN MODE
A
T17D2
11.11.16.1
GATE 1621 RD CLUTCH DR 11.82.04.1
GATE I/O RESP 11.83.08.1
GATE RUN CLOCK 11.15.05.1
MAN RESET
NO FEED L
I CYC ENT
RDR NO FEED RESET RUN
T16D3
11.11.16.1
STOP SIE
STOP 11.11.04.1
CONSOLE LAMP
I CYC ENT T0D2
MAN RESET
OPR TN DEC 0
I-1
OPR UN DEC 0
11.50.08.1
MAR 99
INSERT
11.11.08.1
-I-6
OP 48
11.20.06.1
CLR CTRL
T6D3
11.11.24.1
END OF MODULE
I CYC ENT
11.11.04.1
RELEASE KEY
(SCE) SINGLE CYC
MEM CLEARED
CHECK STOP
ARITH CHECK STOP
MAN RESET
RESERVED (CE STOP)
INSERT NOT RD
STOP/ SIE
OR
START
11.11.08.1
MANUAL 11.11.08.1
INV
DL 11.89.68.1
RUN TR OFF MAN STATUS 04.83.06.1
MAN RESET KEY 11.11.28.1
MAN RESET 11.11.28.1
DP
MAN LAMP 11.10.92.1
T17D2 11.11.16.1
NOT CE SW 9 11.83.10.1
BLOCK 1622 RUN CLOCK 11.83.10.1
GATE CONSOLE CTRL SS 11.11.00.1
T-OFF RUN 11.11.16.1
T-OFF CLR CTRL 11.11.24.1


CHECK RESET N/O
NOT MODIFY N/C
MAN MODE
11.11.24.1
CLR MEM LATCH 11.11.24.1
START
11.11.24.1
OR
11.11.24.1
INV
CLR MEM LAMP
MAN RESET
SET 00000
DL 11.89.24.1
RD IR-1 11.32.06.1
WR IR-1 (1ST WR) 11.32.08.1
BLOCK I CYC ENT TOD2 11.20.00.1
-12V
DT 12.88.72.1
E5 MPY LB
SET 00099
CLEAR MEM
INC +2 11.32.66.1
BLOCK INT SUP IR-1 11.87.04.1
DL 11.89.20.1
SET 00000 (IN MAR) 12.50.00.1
BLOCK MARS SA STROBE 12.15.06.1
NOT MAR 2 BIT TTH
NOT MAR 4 BIT TTH
12.89.12.1
-12V
DT 12.88.68.1
INCR 10 THOU
MAR 1 BIT 10 THOU
12.89.12.1
DL 12.89.12.1
T1104
END OF MODULE
CLR CTRL 11.11.24.1
-12V
DT 11.88.12.1
BLOCK SA STROBE 12.15.06.1
T-ON MBR C ODD 12.20.48.1
T-ON MBR C EVEN 12.20.58.1
T1104
T603
11.11.24.1
MEM CLEARED
MAN MODE T1702
MAN RESET
T-OFF MASK 11.87.00.1
T-OFF INT MODE 11.87.02.1
END OF MODULE 11.88.12.1
I CYC RESET
T-ON MAN LATCH 11.11.08.1

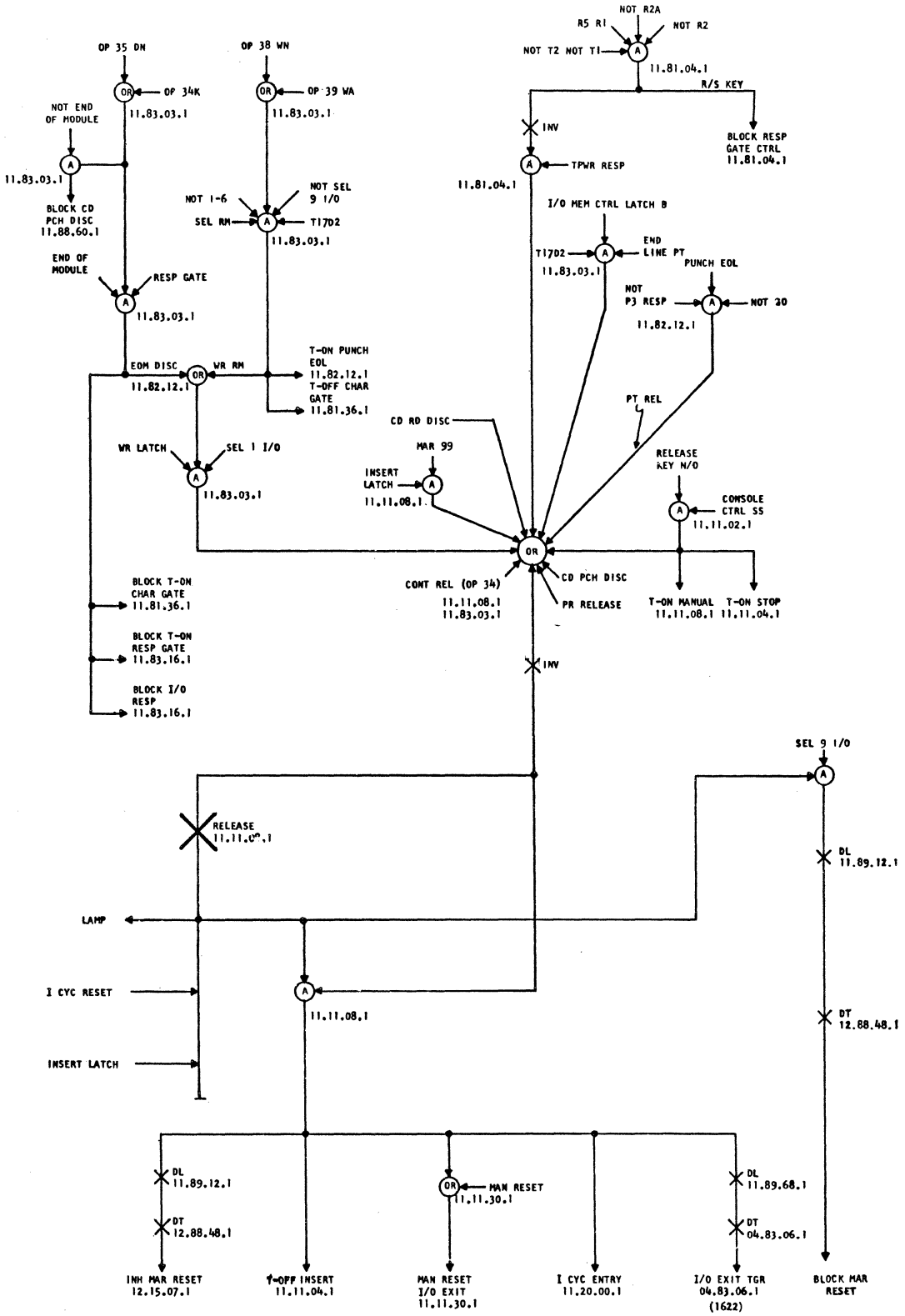

DISPLAY MAR
CONSOLE CTRL SS
11.11.02.1
DISPLAY MAR
11.11.12.1
T1582
MAR RESET
BYPASS (1ST WR)
11.32.64.1
T-ON RUN
11.11.16.1
BLOCK I CYC ENT .TOD2
11.20.00.1
DISPLAY OR-1
FILE OP
11.05.20.1
DL
11.89.80.1
-12
DT
12.05.21.1
FILE CTRL CYC
12.05.21.1
INV
INH VRC 4/2 MAR TTHOU
12.50.56.1
INH MEM RD
12.15.06.1
FILE MAR 8 BIT TTHOU
DL
05.01.02.1
DT
12.05.21.1
MAR 8 BIT TTHOU LAMP
FILE MAR 8 BIT TTHOU
12.50.56.1
DISPLAY IR-1
DISPLAY IR-2
DISPLAY IR-3
DISPLAY IR-4
DISPLAY OR- 1
DISPLAY OR-2
DISPLAY OR-3
DISPLAY OR-4
DISPLAY OR-5
DISPLAY CR-1
DISPLAY PR-1
DISPLAY PR-2
MARS SW GND
10.03.26.1
DISPLAY MAR ADDR
11.11.25.1
IR-1 RD
11.32.06.1
IR-1 WR (1ST WR)
11.32.08.1
IR-2 RD
11.32.10.1
IR-2 WR (1ST WR)
11.32.10.1
IR-3 RD
11.87.04.1
IR-3 WR (1ST WR)
11.87.04.1
IR-4 RD
11.87.04.1
IR-4 WR (1ST WR)
11.87.04.1
OR-1 RD
11.32.16.1
OR-1 WR (1ST WR)
11.32.18.1
OR-2 RD
11.32.20.1
OR-2 WR (1ST WR)
11.32.22.1
OR- RD
11.32.24.1
OR-3 WR (1ST WR)
11.32.26.1
OR-4 RD
11.76.32.1
OR-4 WR (1ST WR)
11.76.33.1
OR-5 RD
11.76.34.1
OR-5 WR (1ST WR)
11.76.35.1
CR-1 RD
11.76.30.1
CR-1 WR (1ST WR)
11.76.31.1
PR-1 RD
11.32.40.1
PR-1 WR (1ST WR)
11.32.42.1
PR-2 RD
11.32.44.1
PR-2W (1ST WR)
11.32.46.1


SAVE
A
CONSOLE CTRL SS
11.11.02.1
SAVE CTRL
11.11.12.1
T15D2
MAN RESET
BLOCK I CYC ENT TOD2
11.20.00.1
T-ON RUN
11.11.16.1
CLEAR PR-1
11.32.40.1
WR PR-1 (1ST WR)
11.32.42.1
BYPASS (1ST WR)
11.32.64.1
NOT BR EXECUTE
11.11.12.1
BR EXECUTE
11.11.12.1
WR IR-1 (1ST WR)
11.32.08.1
OR
11.87.04.1
OR
11.32.06.1
SAVE LATCH
11.11.12.1
NOT IA-1
NOT X ENT
NOT I-1 BR EX
INT MODE
NOT INT SUP IR-1
RD IR-3
11.87.04.1
RD IR-1
11.32.06.1
RD OR-2
11.32.20.1
WR OR-2 (1ST WR)
11.32.22.1
BR BK I-2
T16D3
MAN RESET
INV
OP 42 BB
I-2
11.20.01.1
I-2
OP 42 BB
11.20.01.1
DP
BR BK RD MARS PR-1
11.32.40.1
BR BK RD MARS IR-1
11.32.10.1
SAVE LAMP
11.10.92.1


I-1
I-5
11.70.15.1
T603
11.70.15.1
DL
11.89.10.1
DT
12.88.90.1
INV
12.22.50.1
RESET X BITS
12.72.50.1
T1104 IA-1
11.70.25.1
INDEXING
RESET
RESET
INV
12.72.60.1
GATE T THOU
GATE THOU
GATE HUND
GATE TEN
GATE UNITS
NOT MQ 4
NOT MQ 2
NOT MQ 1
MQ 1
MQ 2
MQ 4
12.72.55.1
GATE UN
12.72.18.1
XBR C BITS
12.72.18.1
DL
DT
12.89.10.1
11.88.90.1 (-AND)
11.70.25.1
T904
X SET DR UN
INDEXING
11.70.25.1
SET DR UN
11.55.16.1
DR
SEL CH BIT
ADDER
BB
ARITH CH
XBR C BIT UN
12.72.00.1
ARITH CH BIT
NOT C8
12.72.80.1
INV
12.72.20.1
I CYC LOADING
MAR WRITE UNITS
12.72.00.1
MARS ENTRY OR
12.72.00.1
12.56.10.1
SET MARS BIT DR
12.60.04.1
I GATE XBR TO BIT DR
SEL MBR NUM C BIT
WR UNITS
12.56.10.1
I CYC LOADING
T1603
11.70.25.1
DL
11.89.10.1
DT
12.88.90.1
INDEXING
SET
| LINE IN | FROM PAGE
1 | GATE XBR TO BIT DR | 10.00.44.1

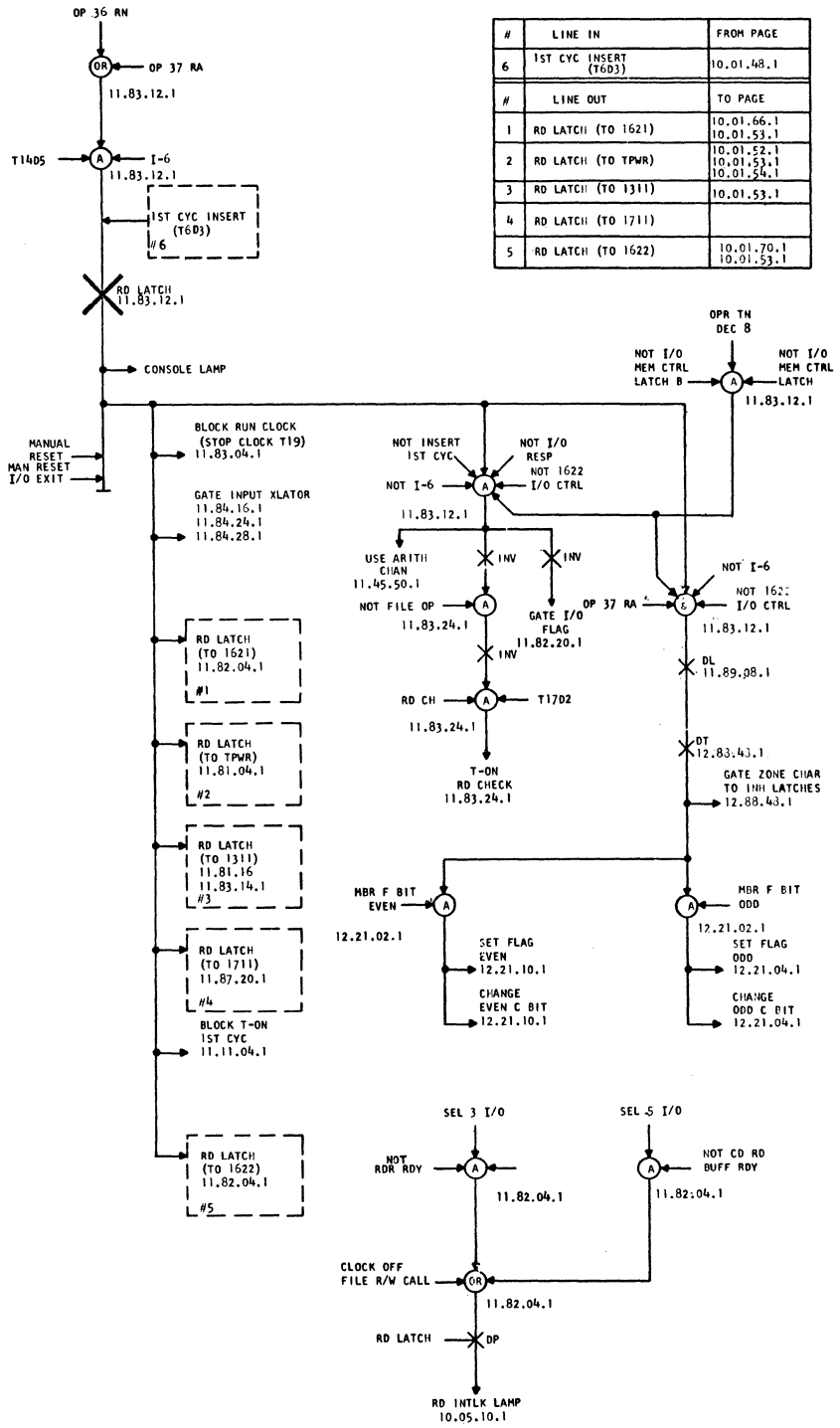


#	LINE OUT	TO PAGE
1	1ST CYC INSERT T-ON RD LATCH (T603)	10.01.50.1

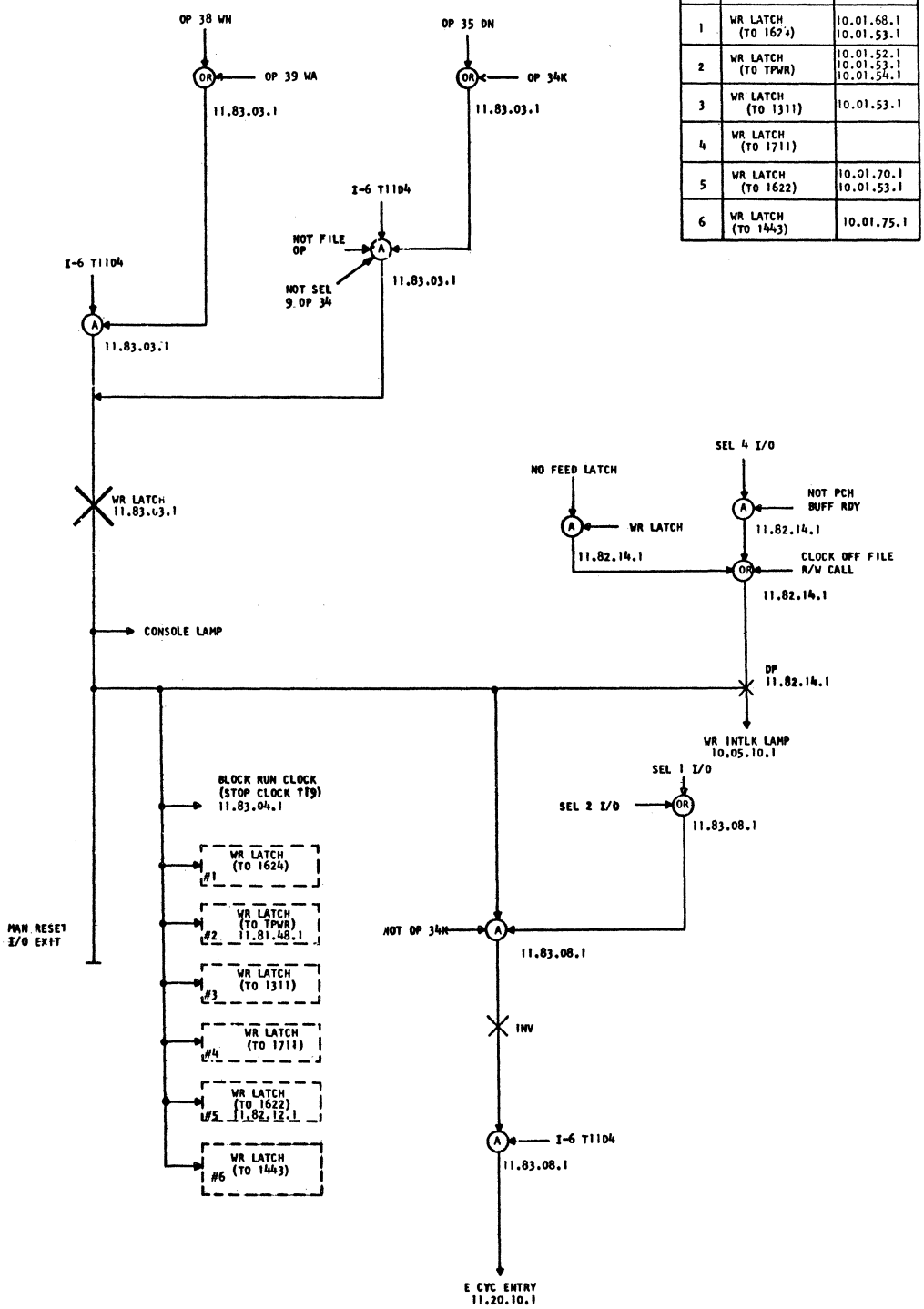

OP 35 DN
OP 38 WN
OR
OP 34K
OP 39 WA
11.83.03.1
NOT END OF MODULE
A
11.83.03.1
BLOCK CD PCH DISC 11.88.60.1
NOT 1-6
SEL RM
NOT SEL 9 I/O
T17D2
END OF MODULE
RESP GATE
EOM DISC
WR RM
11.82.12.1
T-ON PUNCH EOL 11.82.12.1
T-OFF CHAR GATE 11.81.36.1
WR LATCH
SEL 1 I/O
BLOCK T-ON CHAR GATE 11.81.36.1
BLOCK T-ON RESP GATE 11.83.16.1
BLOCK I/O RESP 11.83.16.1
NOT R2A
R5 R1
NOT R2
NOT T2 NOT T1
11.81.04.1
R/S KEY
INV
TPWR RESP
BLOCK RESP GATE CTRL 11.81.04.1
I/O MEM CTRL LATCH B
END LINE PT
PUNCH EOL
NOT P3 RESP
NOT 20
11.82.12.1
PT REL
CD RD DISC
MAR 99
INSERT LATCH
11.11.08.1
RELEASE KEY N/O
CONSOLE CTRL SS 11.11.02.1
CONT REL (OP 34)
CD PCH DISC
PR RELEASE
T-ON MANUAL 11.11.08.1
T-ON STOP 11.11.04.1
SEL 9 I/O
RELEASE
DL 11.89.12.1
LAMP
I CYC RESET
INSERT LATCH
DT 12.88.48.1
DL 11.89.12.1
DT 12.88.48.1
MAN RESET 11.11.30.1
DL 11.89.68.1
DT 04.83.06.1
INH MAR RESET 12.15.07.1
T-OFF INSERT 11.11.04.1
MAN RESET I/O EXIT 11.11.30.1
I CYC ENTRY 11.20.00.1
I/O EXIT TGR 04.83.06.1 (1622)
BLOCK MAR RESET

#	LINE IN	FROM PAGE
6	1ST CYC INSERT (T6D3)	10.01.48.1

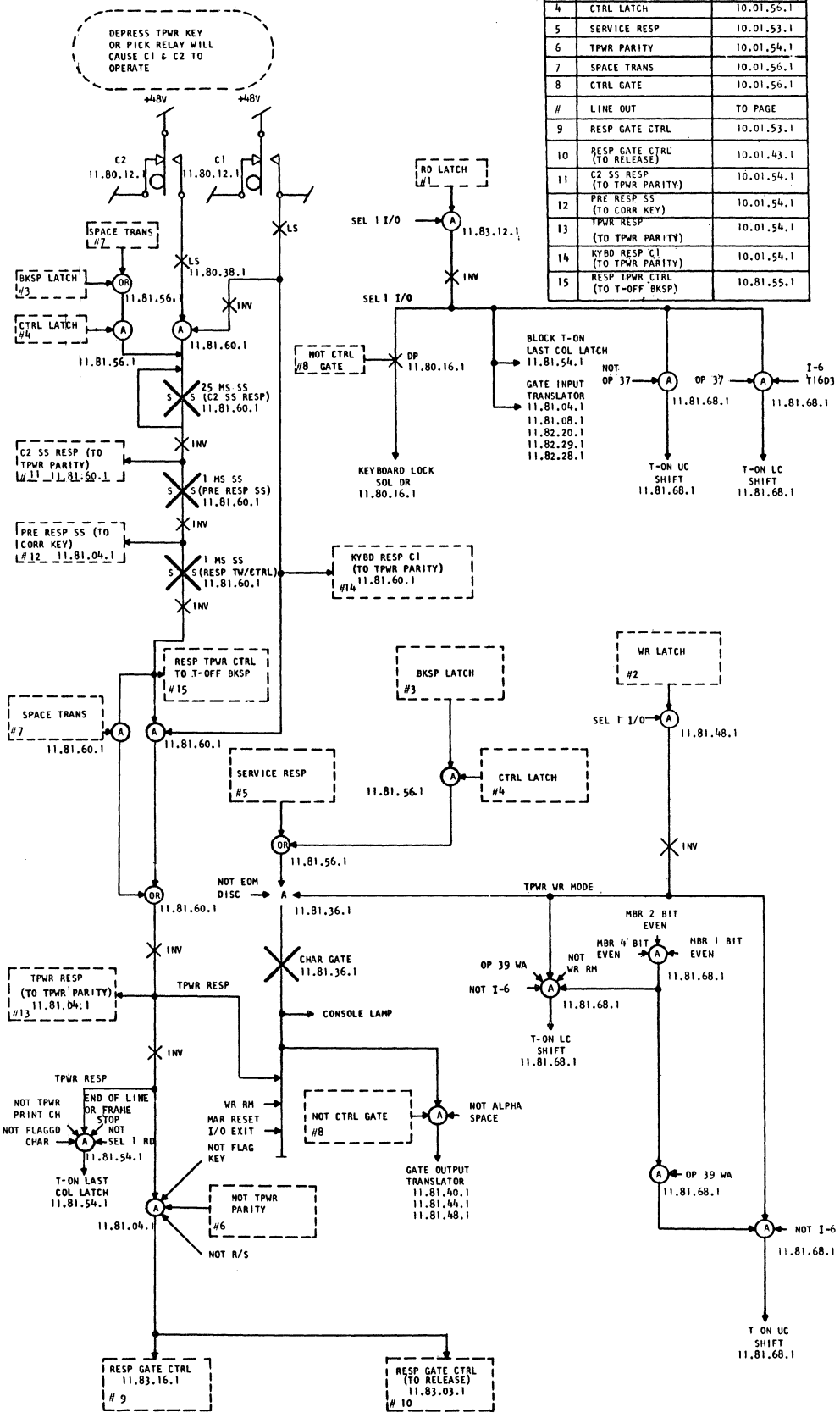
#	LINE OUT	TO PAGE
1	RD LATCH (TO 1621)	10.01.66.1 10.01.53.1
2	RD LATCH (TO TPWR)	10.01.52.1 10.01.53.1 10.01.54.1
3	RD LATCH (TO 1311)	10.01.53.1
4	RD LATCH (TO 1711)	
5	RD LATCH (TO 1622)	10.01.70.1 10.01.53.1



#	LINE OUT	TO PAGE
1	WR LATCH (TO 1624)	10.01.68.1 10.01.53.1
2	WR LATCH (TO TPWR)	10.01.52.1 10.01.53.1 10.01.54.1
3	WR LATCH (TO 1311)	10.01.53.1
4	WR LATCH (TO 1711)	
5	WR LATCH (TO 1622)	10.01.70.1 10.01.53.1
6	WR LATCH (TO 1443)	10.01.75.1



#	LINE IN	FROM PAGE
1	RD LATCH	10.01.50.1
2	WR LATCH	10.01.51.1
3	BKSP LATCH	10.01.55.1
4	CTRL LATCH	10.01.56.1
5	SERVICE RESP	10.01.53.1
6	TPWR PARITY	10.01.54.1
7	SPACE TRANS	10.01.56.1
8	CTRL GATE	10.01.56.1
#	LINE OUT	TO PAGE
9	RESP GATE CTRL	10.01.53.1
10	RESP GATE CTRL (TO RELEASE)	10.01.43.1
11	C2 SS RESP (TO TPWR PARITY)	10.01.54.1
12	PRE RESP SS (TO CORR KEY)	10.01.54.1
13	TPWR RESP (TO TPWR PARITY)	10.01.54.1
14	KYBD RESP C1 (TO TPWR PARITY)	10.01.54.1
15	RESP TPWR CTRL (TO T-OFF BKSP)	10.81.55.1



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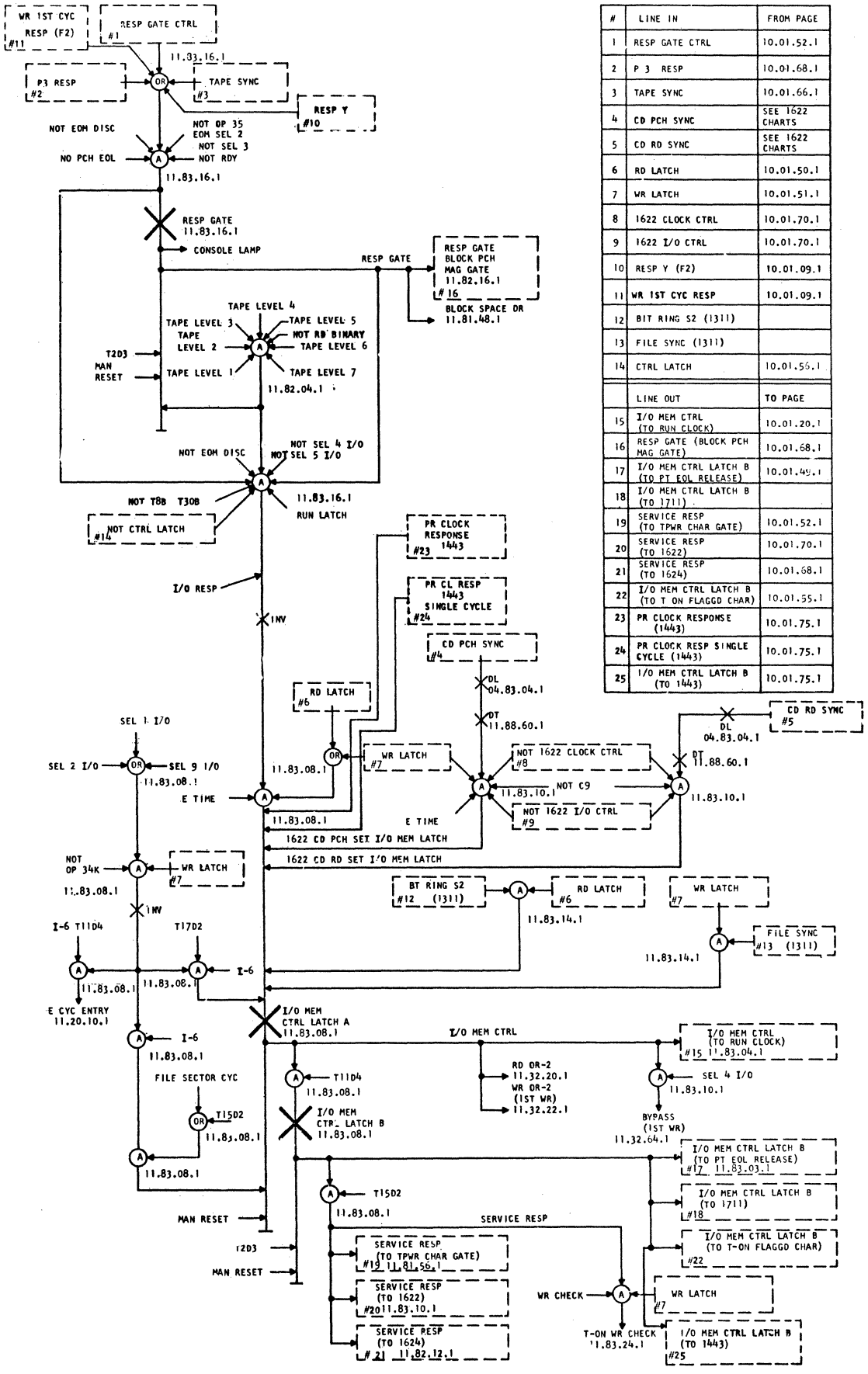
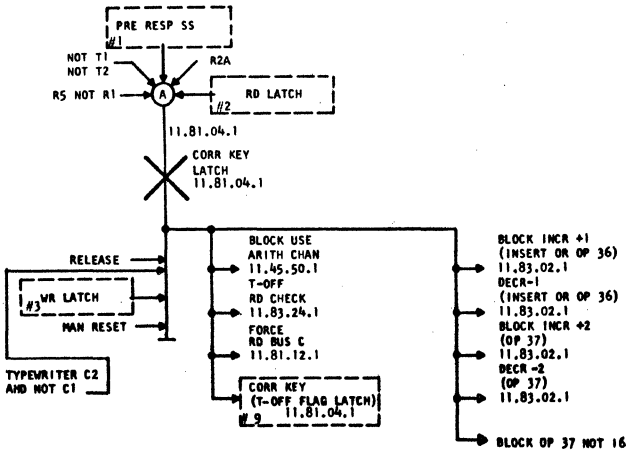
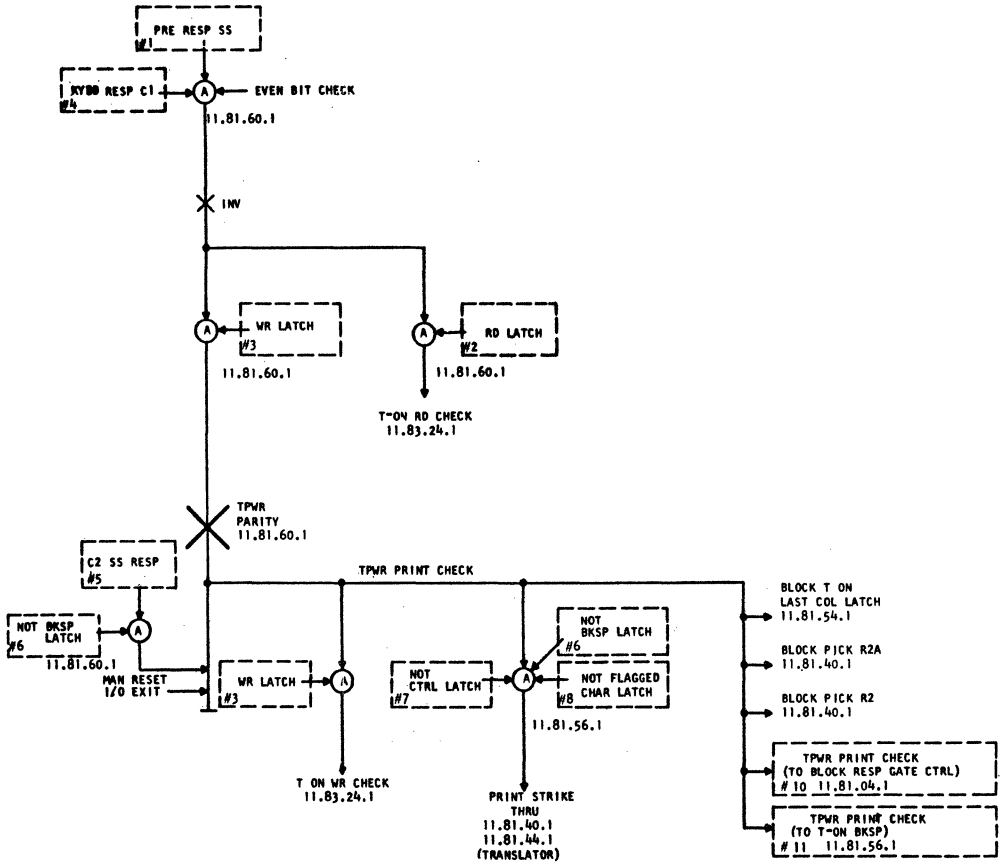


#	LINE IN	FROM PAGE
1	RESP GATE CTRL	10.01.52.1
2	P 3 RESP	10.01.68.1
3	TAPE SYNC	10.01.66.1
4	CD PCH SYNC	SEE 1622 CHARTS
5	CD RD SYNC	SEE 1622 CHARTS
6	RD LATCH	10.01.50.1
7	WR LATCH	10.01.51.1
8	1622 CLOCK CTRL	10.01.70.1
9	1622 I/O CTRL	10.01.70.1
10	RESP Y (F2)	10.01.09.1
11	WR 1ST CYC RESP	10.01.09.1
12	BIT RING S2 (1311)	
13	FILE SYNC (1311)	
14	CTRL LATCH	10.01.56.1
	LINE OUT	**TO PAGE**
15	I/O MEM CTRL (TO RUN CLOCK)	10.01.20.1
16	RESP GATE (BLOCK PCH MAG GATE)	10.01.68.1
17	I/O MEM CTRL LATCH B (TO PT EOL RELEASE)	10.01.49.1
18	I/O MEM CTRL LATCH B (TO 1711)	
19	SERVICE RESP (TO TPWR CHAR GATE)	10.01.52.1
20	SERVICE RESP (TO 1622)	10.01.70.1
21	SERVICE RESP (TO 1624)	10.01.68.1
22	I/O MEM CTRL LATCH B (TO T ON FLAGGD CHAR)	10.01.55.1
23	PR CLOCK RESPONSE (1443)	10.01.75.1
24	PR CLOCK RESP SINGLE CYCLE (1443)	10.01.75.1
25	I/O MEM CTRL LATCH B (TO 1443)	10.01.75.1



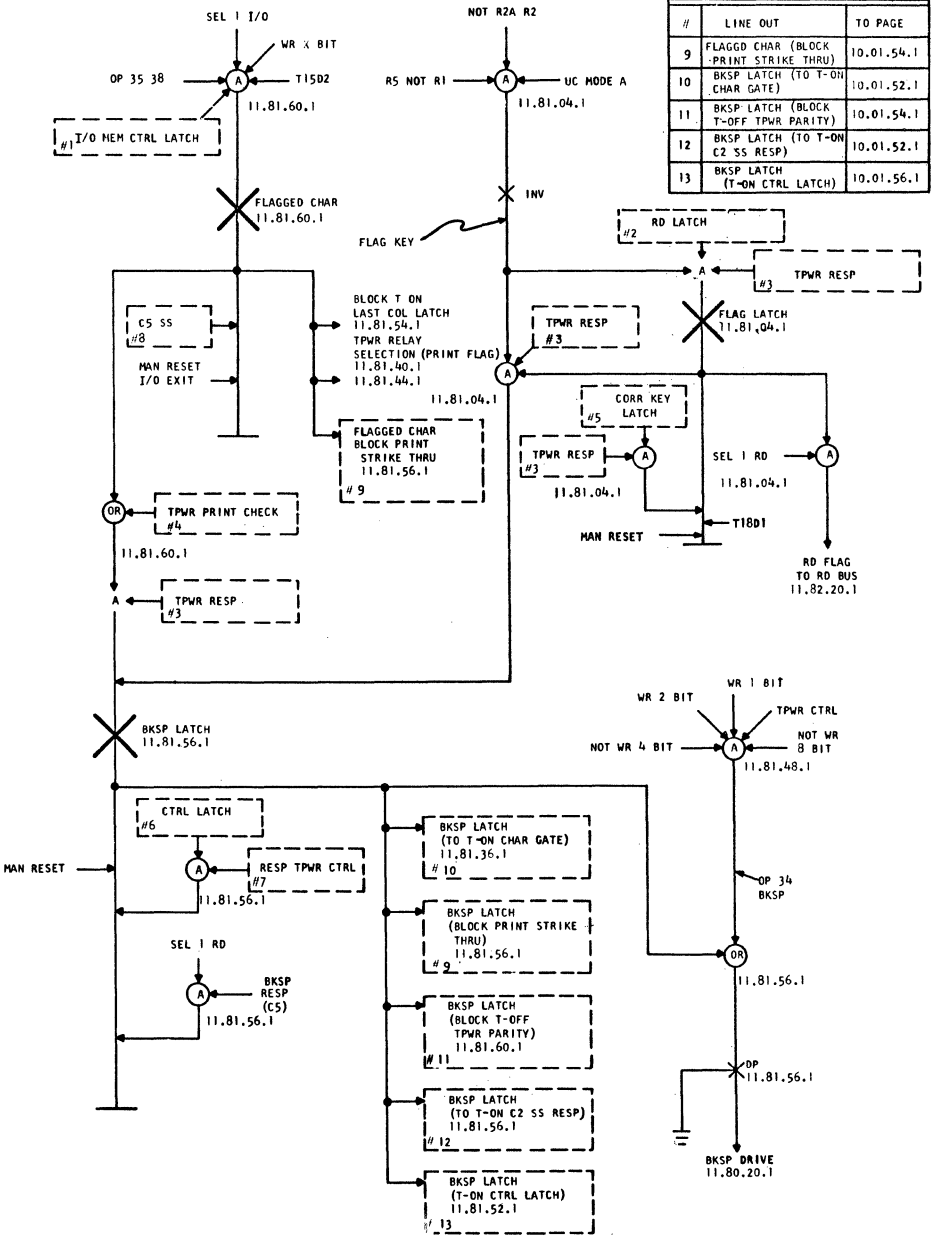
#	LINE IN	FROM PAGE
1	PRE RESP SS	10.01.52.1
2	RD LATCH	10.01.50.1
3	WR LATCH	10.01.51.1
4	KYBD RESP C1	10.01.52.1
5	C2 SS RESP	10.01.52.1
6	BKSP LATCH	10.01.55.1
7	CTRL LATCH	10.01.56.1
8	FLAGGED CHAR LATCH	10.01.55.1
	LINE OUT	**TO PAGE**
9	CORR KEY (T-OFF FLAG LATCH)	10.01.55.1
10	TPWR PRINT CHECK (TO BLOCK RESP GATE CTRL)	10.01.52.1
11	TPWR PRINT CHECK (TO T-ON BKSP)	10.01.05.1

TPWR PARITY



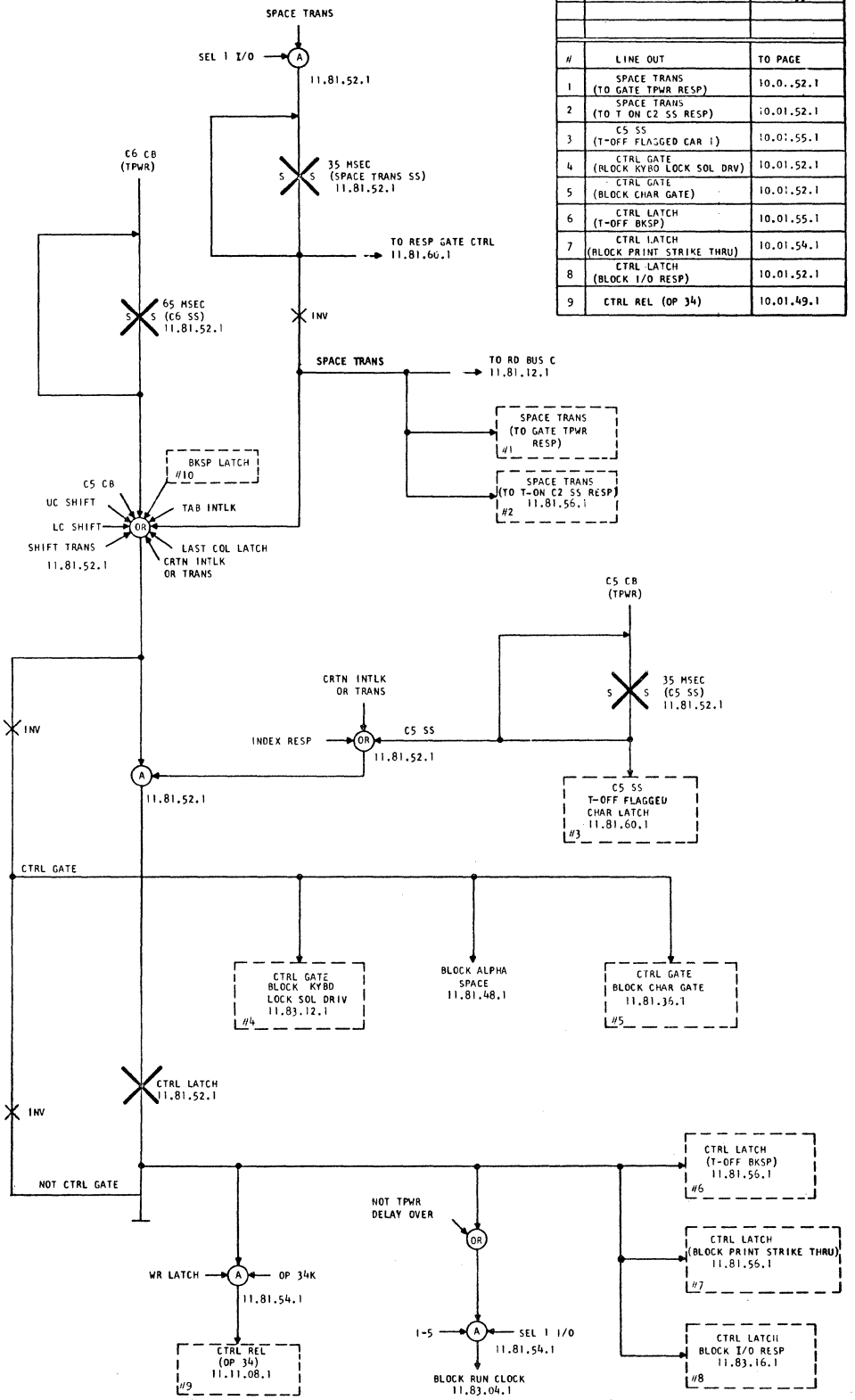
#	LINE IN	FROM PAGE
1	I/O MEM CTRL LATCH B	10.01.53.1
2	RD LATCH	10.01.50.1
3	TPWR RESP	10.01.52.1
4	TPWR PRINT CHECK	10.01.54.1
5	CORR KEY LATCH	10.01.54.1
6	CTRL LATCH	10.01.53.1
7	RESP TPWR CTRL	10.01.52.1
8	C5 SS	10.01.56.1

#	LINE OUT	TO PAGE
9	FLAGGD CHAR (BLOCK PRINT STRIKE THRU)	10.01.54.1
10	BKSP LATCH (TO T-ON CHAR GATE)	10.01.52.1
11	BKSP LATCH (BLOCK T-OFF TPWR PARITY)	10.01.54.1
12	BKSP LATCH (TO T-ON C2 SS RESP)	10.01.52.1
13	BKSP LATCH (T-ON CTRL LATCH)	10.01.56.1



#	LINE IN	FROM PAGE
10	BKSP LATCH	10.01.55.1

#	LINE OUT	TO PAGE
1	SPACE TRANS (TO GATE TPWR RESP)	10.0..52.1
2	SPACE TRANS (TO T ON C2 SS RESP)	10.01.52.1
3	C5 SS (T-OFF FLAGGED CAR I)	10.01.55.1
4	CTRL GATE (BLOCK KYBD LOCK SOL DRV)	10.01.52.1
5	CTRL GATE (BLOCK CHAR GATE)	10.01.52.1
6	CTRL LATCH (T-OFF BKSP)	10.01.55.1
7	CTRL LATCH (BLOCK PRINT STRIKE THRU)	10.01.54.1
8	CTRL LATCH (BLOCK I/O RESP)	10.01.52.1
9	CTRL REL (OP 34)	10.01.49.1



TILT CONTACTS TRANSFERRED

0	0
1	0
0	1
1	1

T1 T2

UPPER CASE

	R/S	—			@			0	≠		—	R/S				@	+	(		≠	=	0
					≠		1			8	/	T	V	X	Y	≠	S	U	W	Z	,	1
4	6				.	5	7	3			J	L	N	P	Q	*	K	M	O	R	$	2
									2	9	A	C	E	G	H	)	B	D	F	1	.	3
-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	

LOWER CASE

TILT LATCHES SELECTED

1	1
0	1
1	0
0	0

T1 T2

ROTATE MOTION

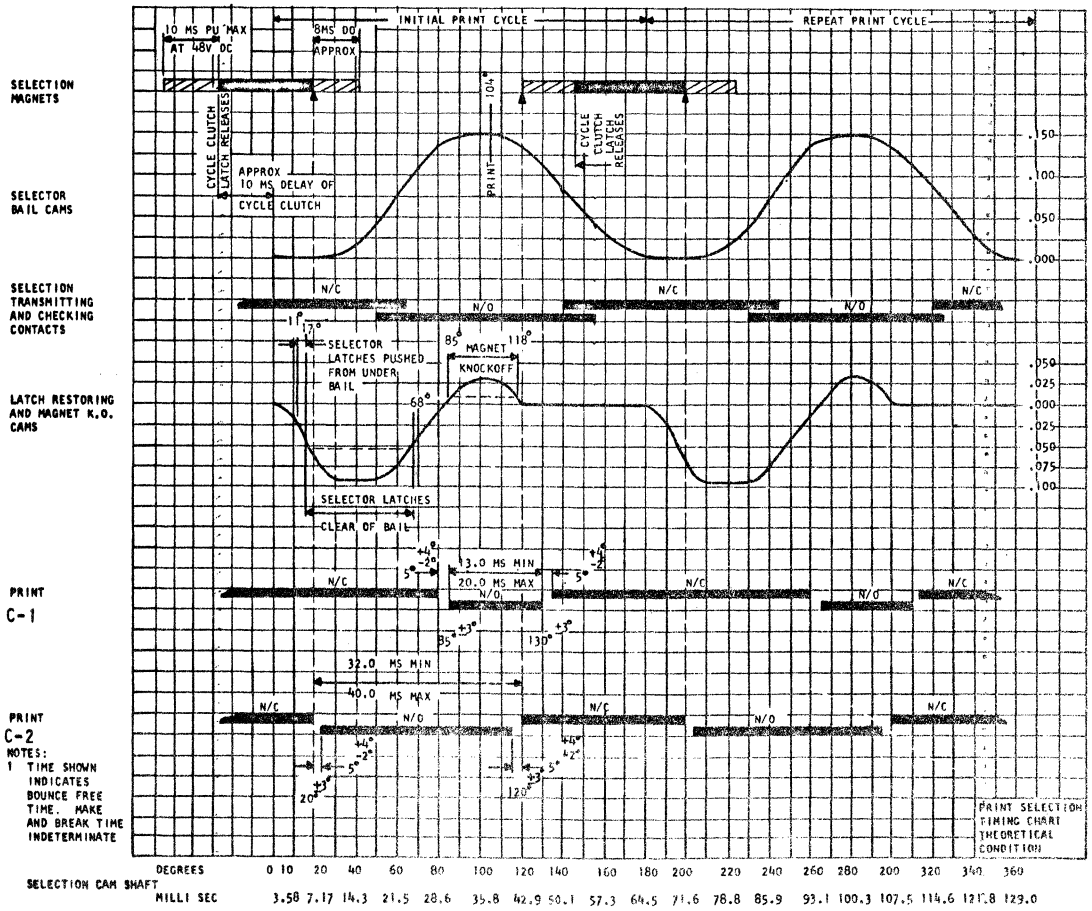
ROTATE LATCHES SELECTED

2A	1	1	1	1	0	0	1	1	1	0	0	1	1	1	1	0	0	1	1	1	0	0
2	1	1	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0
1	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
-5	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0

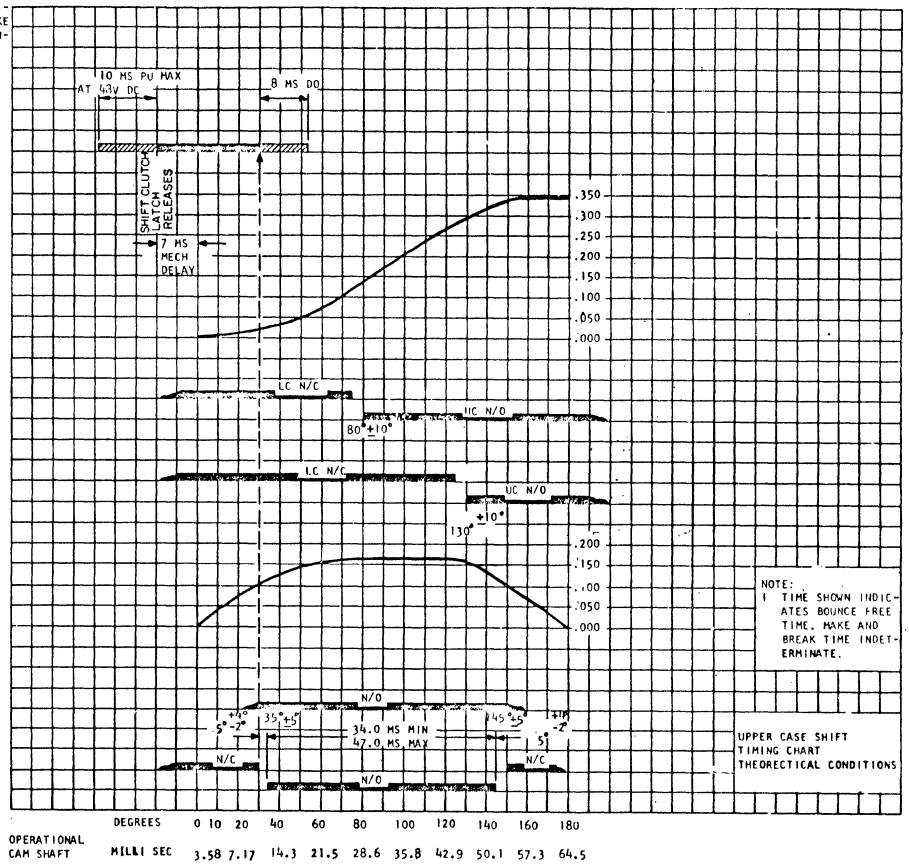
ROTATE CONTACT TRANSFERRED

2A	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	1	1	0	0	0	1	1
2	0	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1
1	0	1	0	1	0	1	1	0	1	0	1	0	1	0	1	0	1	1	0	1	0	1
-5	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0

TYPE ELEMENT 731 C1 C2 TIMING



NOTE 1: TIME SHOWN INDICATES BOUNCE FREE TIME MAKE AND BREAK TIME INDETERMINATE



UPPER CASE SHIFT MAGNET

UPPER CASE SHIFT CAM

#1 MODE CONTACTS

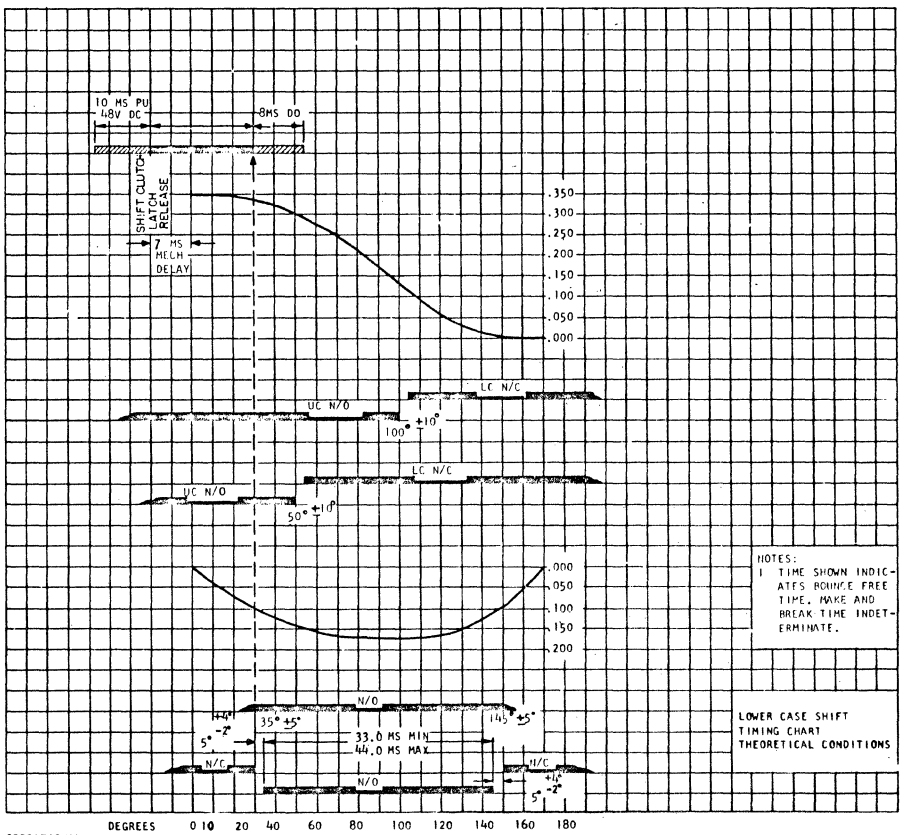
#2 MODE CONTACTS

UPPER CASE CONTACT ACTUATOR

UPPER CASE SHIFT CONTACTS (SEE NOTE 1)

UPPER CASE SHIFT FEEDBACK C-3

OPERATIONAL CAM SHAFT	DEGREES	0	10	20	40	60	80	100	120	140	160	180
	MILLI SEC	3.58	7.17	14.3	21.5	28.6	35.8	42.9	50.1	57.3	64.5	



LOWER CASE SHIFT MAGNET

LOWER CASE SHIFT CAM

#1 MODE CONTACTS

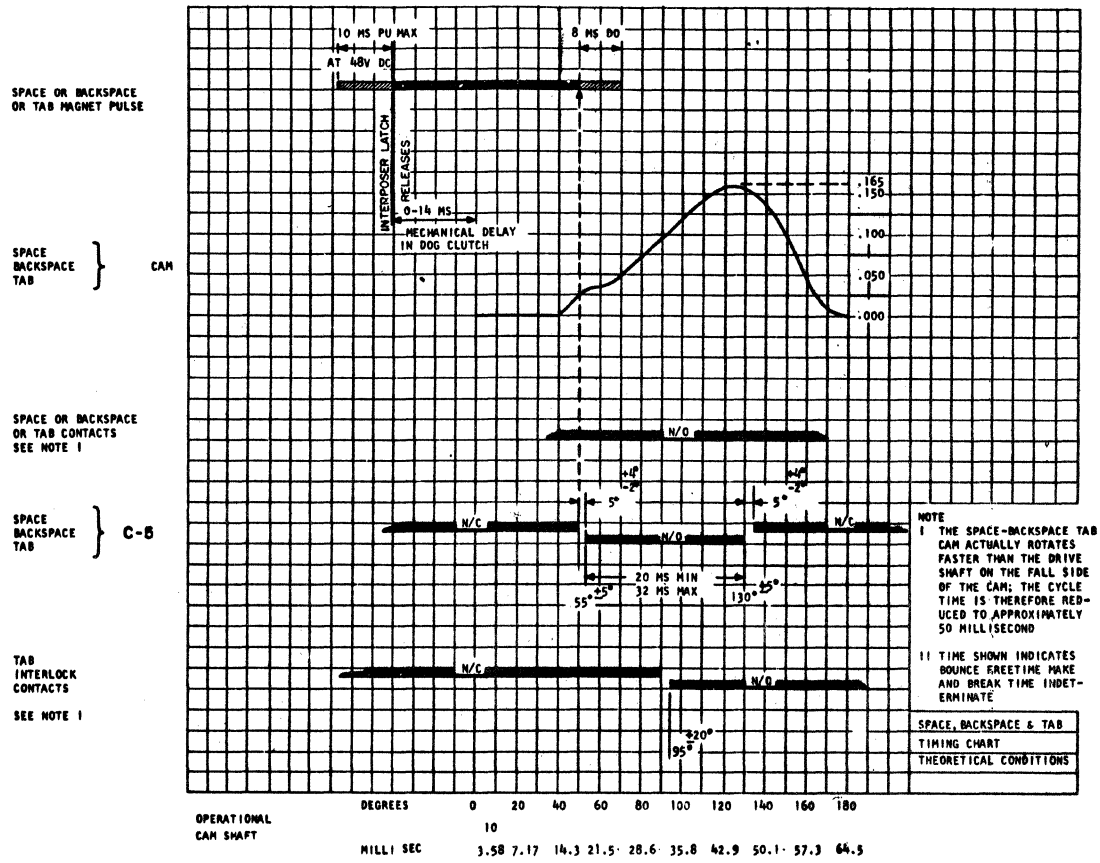
#2 MODE CONTACTS

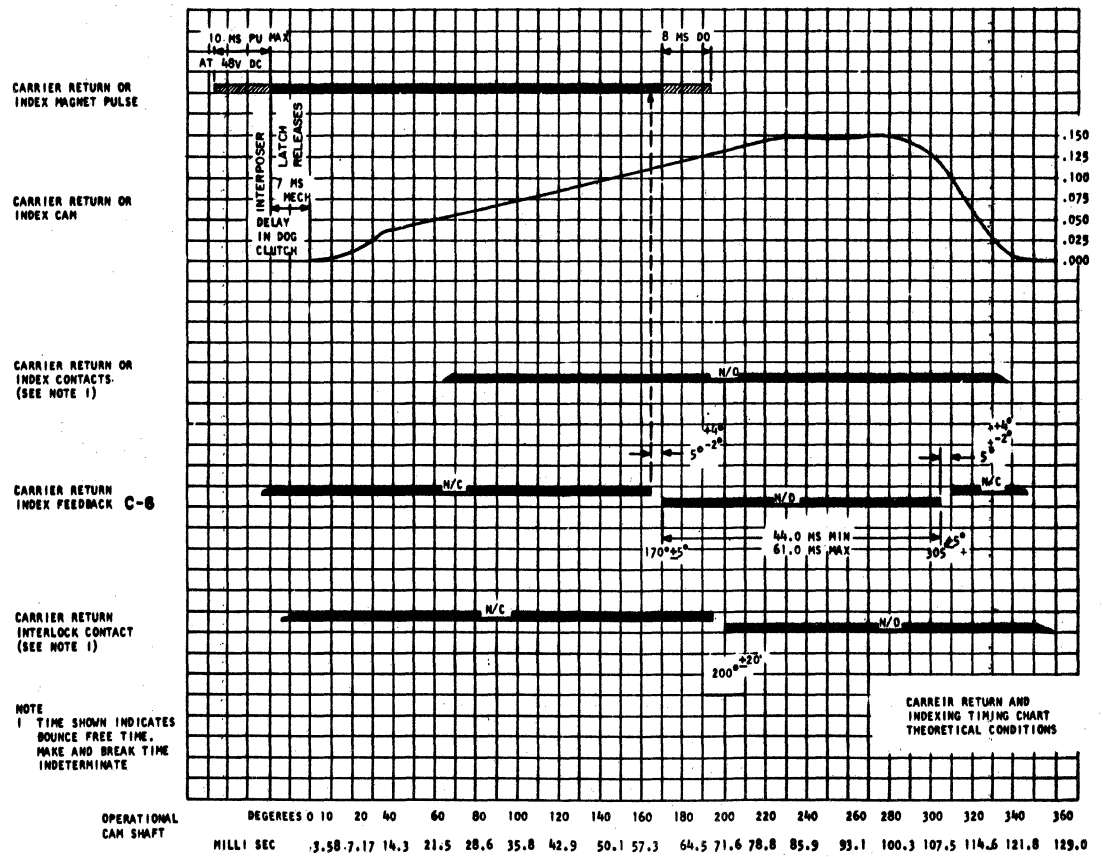
LOWER CASE CONTACT ACTUATOR

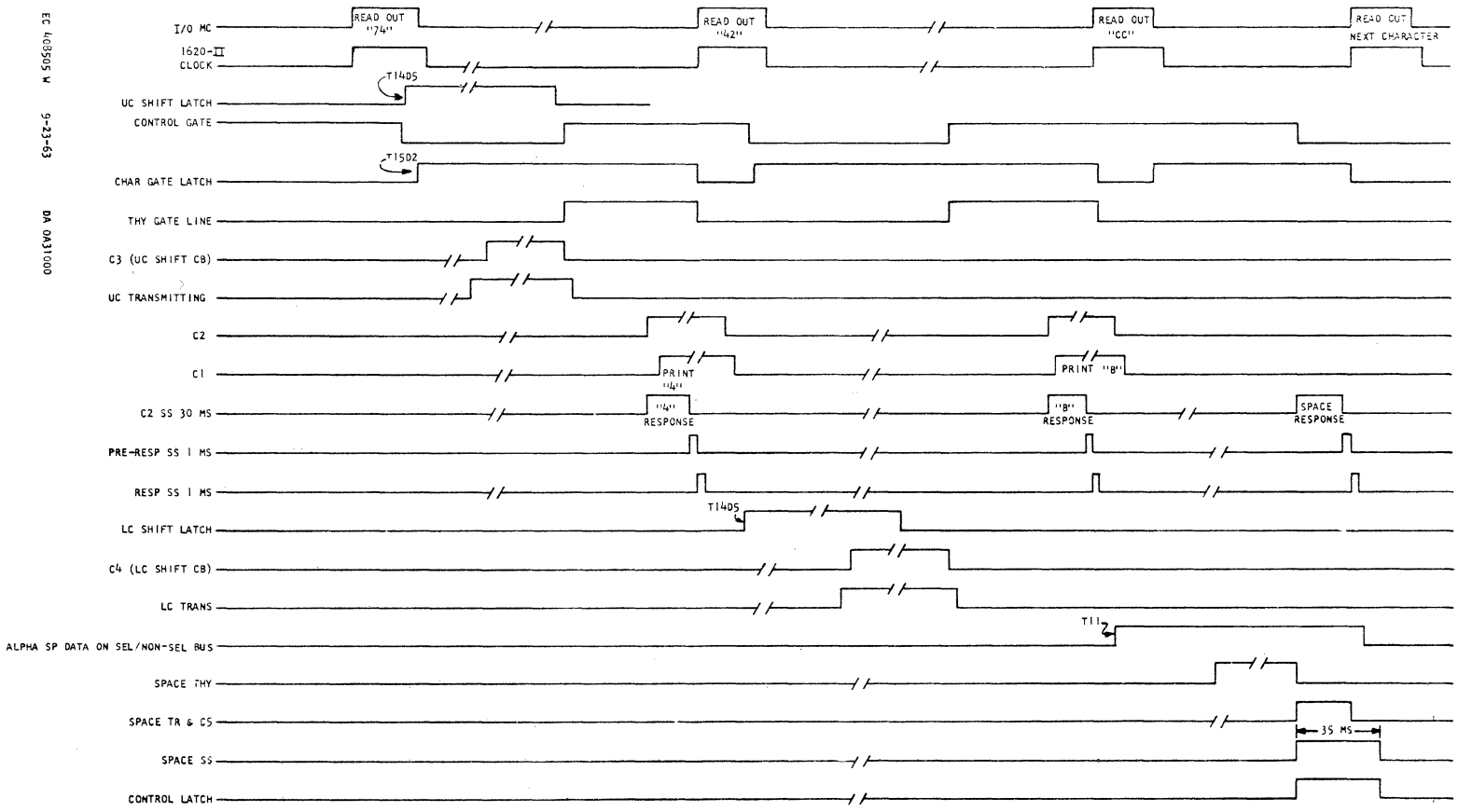
LOWER CASE SHIFT CONTACTS (SEE NOTE 1)

LOWER CASE SHIFT FEEDBACK C-4

OPERATIONAL CAM SHAFT	DEGREES	0	10	20	40	60	80	100	120	140	160	180
	MILLI SEC	3.58	7.17	14.3	21.5	28.6	35.8	42.9	50.1	57.3	64.5	


SPACE OR BACKSPACE OR TAB MAGNET PULSE
10 MS PU MAX AT 48V DC
8 MS DO
INTERPOSER LATCH RELEASES
0-14 MS MECHANICAL DELAY IN DOG CLUTCH
SPACE BACKSPACE TAB } CAM
.165
.150
.100
.050
.000
SPACE OR BACKSPACE OR TAB CONTACTS SEE NOTE I
N/O
N/C
SPACE BACKSPACE TAB } C-5
+4° -2°
5°
20 MS MIN 32 MS MAX
55° ±5°
130° ±5°
TAB INTERLOCK CONTACTS SEE NOTE I
320°
95°
NOTE
I THE SPACE-BACKSPACE TAB CAM ACTUALLY ROTATES FASTER THAN THE DRIVE SHAFT ON THE FALL SIDE OF THE CAM; THE CYCLE TIME IS THEREFORE REDUCED TO APPROXIMATELY 50 MILLISECOND
II TIME SHOWN INDICATES BOUNCE FREETIME MAKE AND BREAK TIME INDETERMINATE
SPACE, BACKSPACE & TAB
TIMING CHART
THEORETICAL CONDITIONS
OPERATIONAL CAM SHAFT
DEGREES 0 10 20 40 60 80 100 120 140 160 180
MILLI SEC 3.58 7.17 14.3 21.5 28.6 35.8 42.9 50.1 57.3 64.5


CARRIER RETURN OR INDEX MAGNET PULSE
10 MS PU MAX AT 48V DC
8 MS DO
INTERPOSER LATCH RELEASES
7 MS MECH DELAY IN DOG CLUTCH
CARRIER RETURN OR INDEX CAM
.150
.125
.100
.075
.050
.025
.000
CARRIER RETURN OR INDEX CONTACTS (SEE NOTE I)
N/O
N/C
CARRIER RETURN INDEX FEEDBACK C-6
+4° -2°
5°
44.0 MS MIN 61.0 MS MAX
170° ±5°
305° ±5°
CARRIER RETURN INTERLOCK CONTACT (SEE NOTE I)
200° +20°
NOTE
I TIME SHOWN INDICATES BOUNCE FREE TIME. MAKE AND BREAK TIME INDETERMINATE
CARREIR RETURN AND INDEXING TIMING CHART THEORETICAL CONDITIONS
OPERATIONAL CAM SHAFT
DEGEREES 0 10 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360
MILLI SEC 3.58 7.17 14.3 21.5 28.6 35.8 42.9 50.1 57.3 64.5 71.6 78.8 85.9 93.1 100.3 107.5 114.6 121.8 129.0



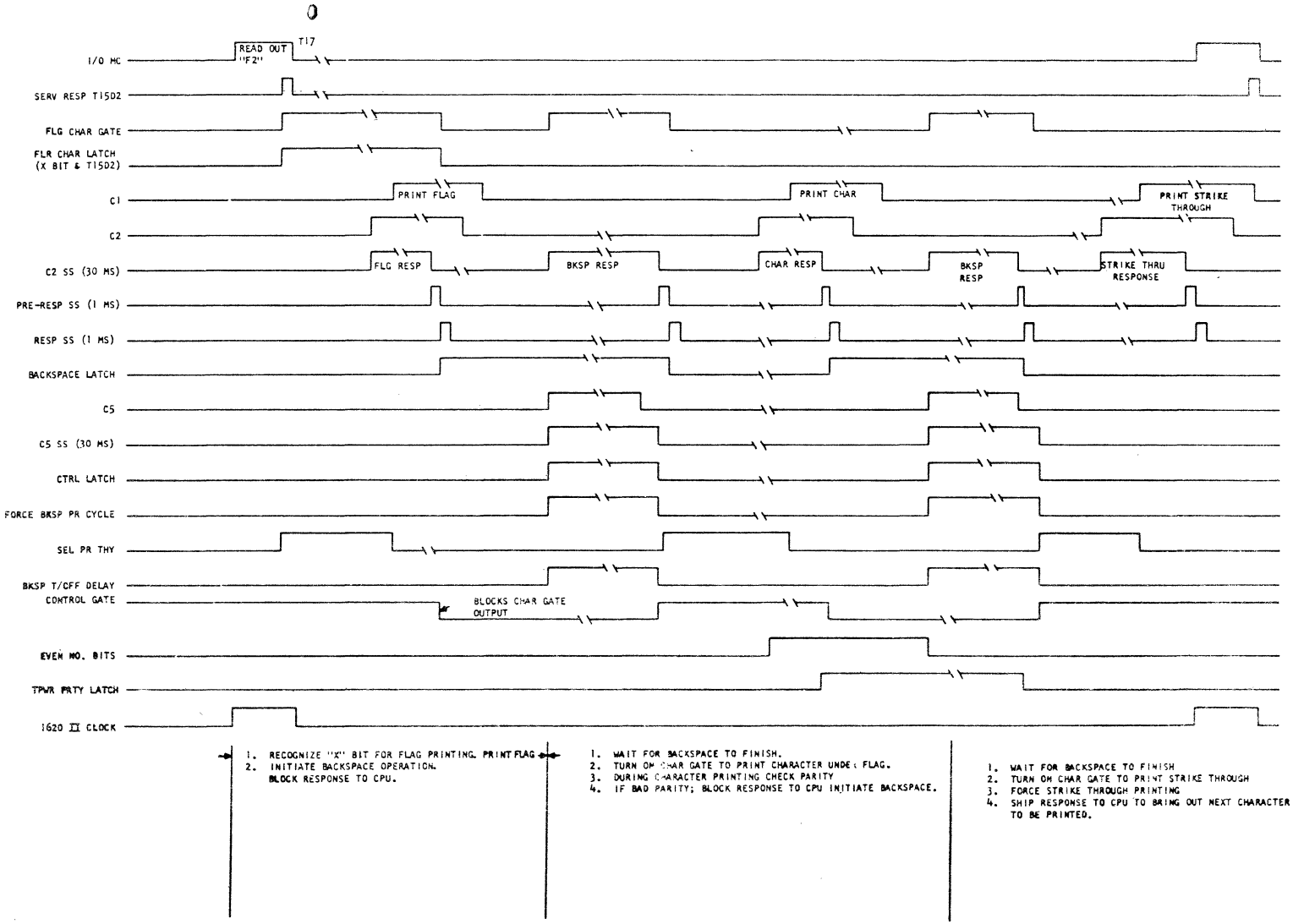
OPERATION: WRITE ALPHA. INITIALLY IN LOWER CASE MODE. SHIFT TO UPPER CASE PRINT "4" SHIFT TO LOWER CASE PRINT "8" ALPHA SPACE AND READ OUT NEXT CHARACTER FROM MEMORY

1. READ OUT UPPER CASE MODE CHARACTER
2. INITIATE SHIFT TO UPPER CASE
3. WAIT FOR TYPE ELEMENT TO SHIFT
4. PRINT "4" AS PER MBR DATA

1. READ OUT LOWER CASE MODE CHARACTER
2. INITIATE SHIFT TO LOWER CASE
3. WAIT FOR TYPE ELEMENT TO SHIFT
4. PRINT "8" AS PER MBR DATA

1. READ OUT ALPHA SPACE DATA
2. BLOCK OUTPUT OF CHAR GATE LATCH TO KEEP FROM GATING SELECTION THYRATIONS WITH ALPHA DATA
3. ENERGIZE SPACE SOLENOID
4. INITIATE RESPONSE WITH SPACE TRANSMITTING CONTRACTS TO CPU
5. RESPONSE STARTS CPU CLOCK TO READ OUT NEXT MEMORY POSITION

OPERATION: PRINT INVALID PARITY FLAGGED CHARACTER

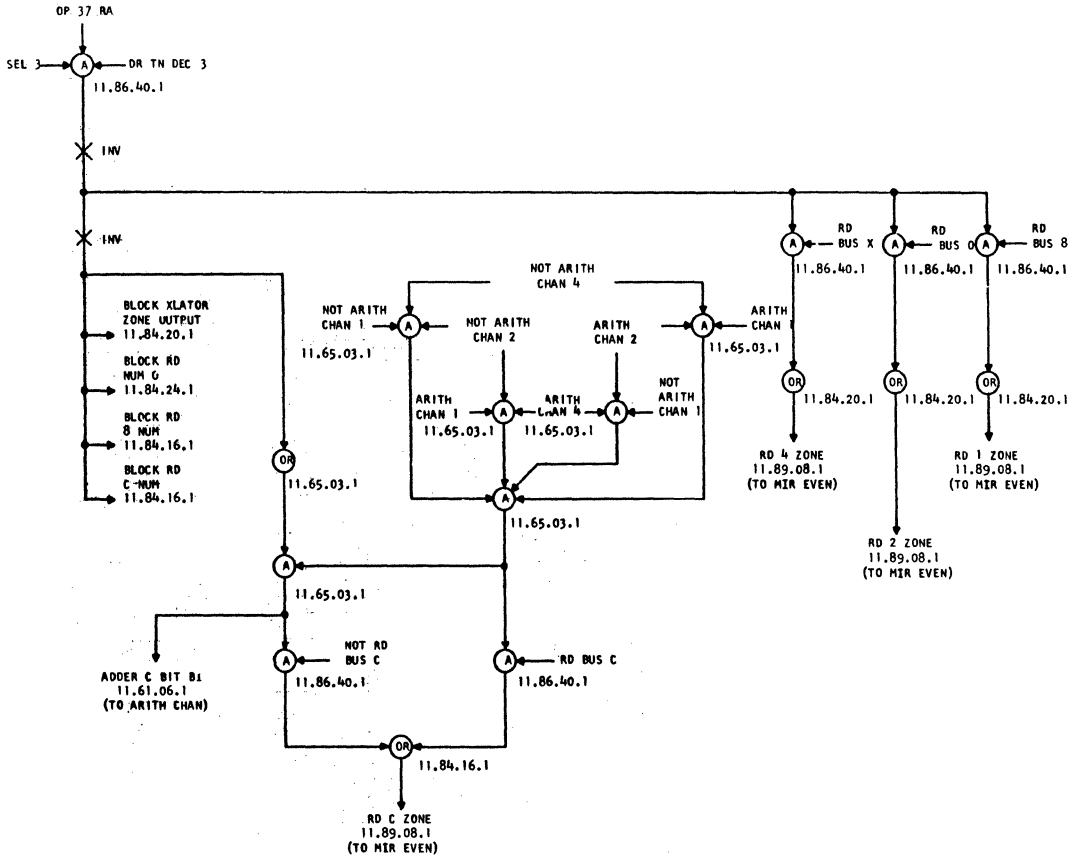


1. RECOGNIZE "X" BIT FOR FLAG PRINTING. PRINT FLAG
2. INITIATE BACKSPACE OPERATION. BLOCK RESPONSE TO CPU.

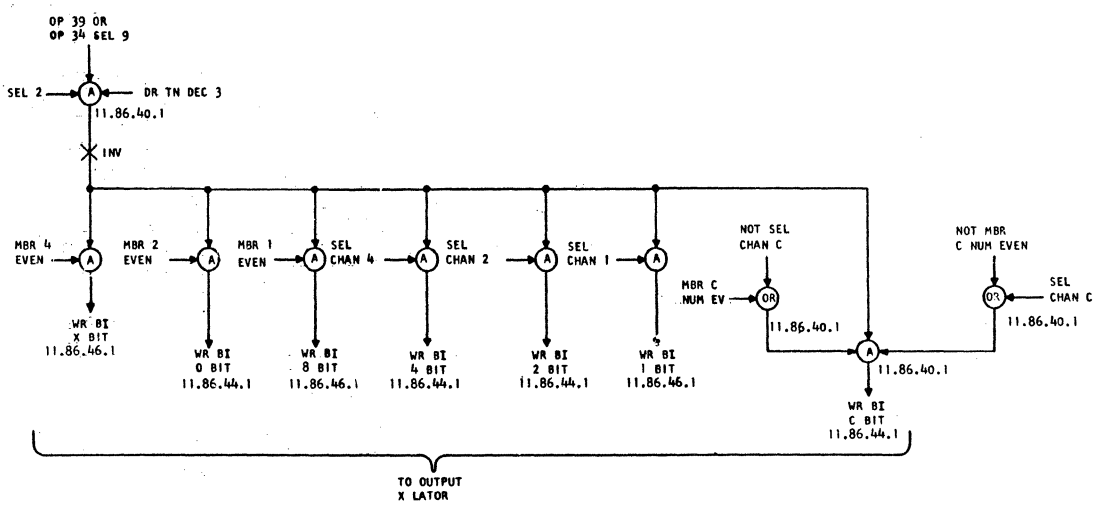
1. WAIT FOR BACKSPACE TO FINISH.
2. TURN ON CHAR GATE TO PRINT CHARACTER UNDER FLAG.
3. DURING CHARACTER PRINTING CHECK PARITY
4. IF BAD PARITY; BLOCK RESPONSE TO CPU INITIATE BACKSPACE.

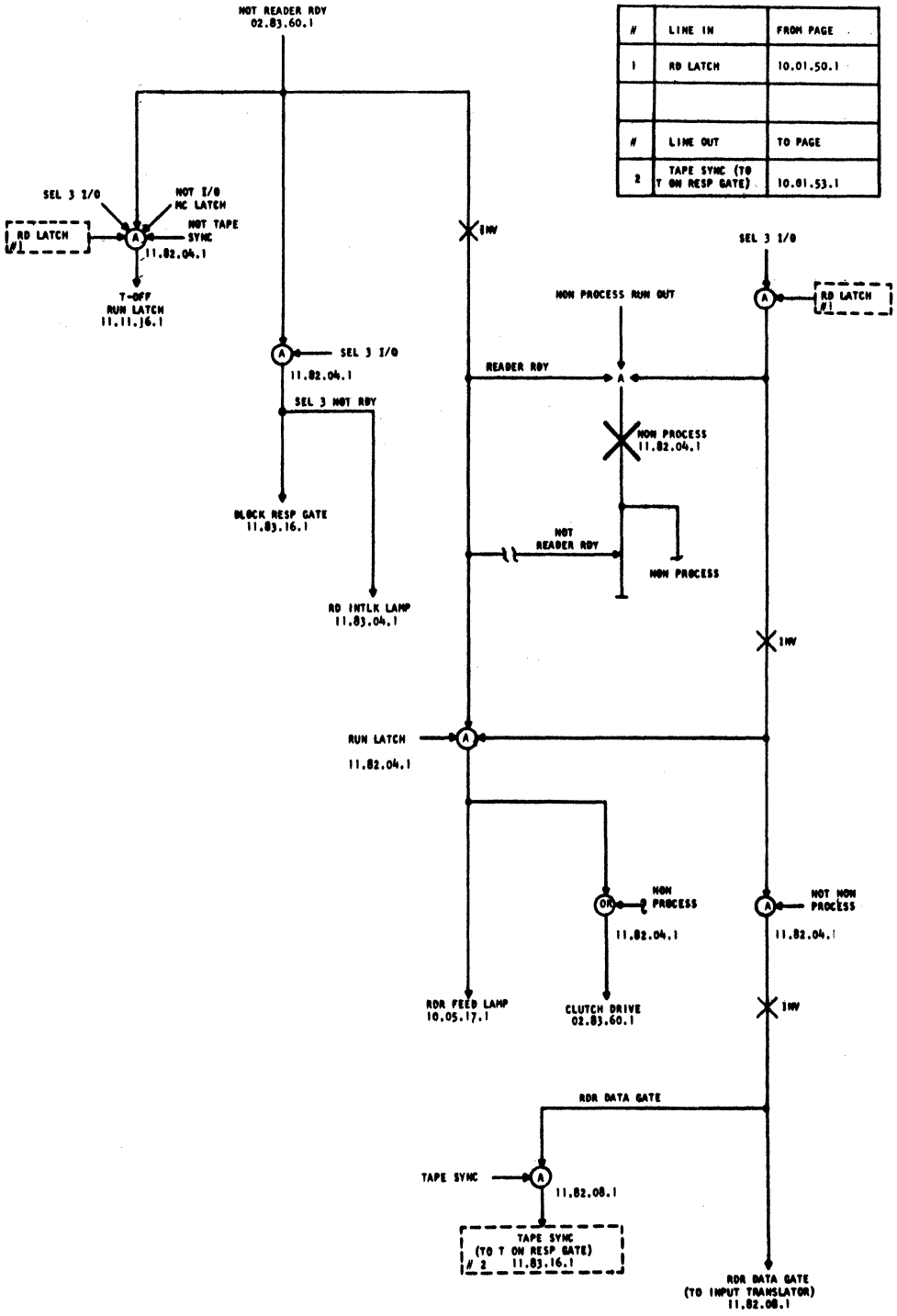
1. WAIT FOR BACKSPACE TO FINISH
2. TURN ON CHAR GATE TO PRINT STRIKE THROUGH
3. FORCE STRIKE THROUGH PRINTING
4. SHIP RESPONSE TO CPU TO BRING OUT NEXT CHARACTER TO BE PRINTED.

RD BINARY
37 XXXXX 03300



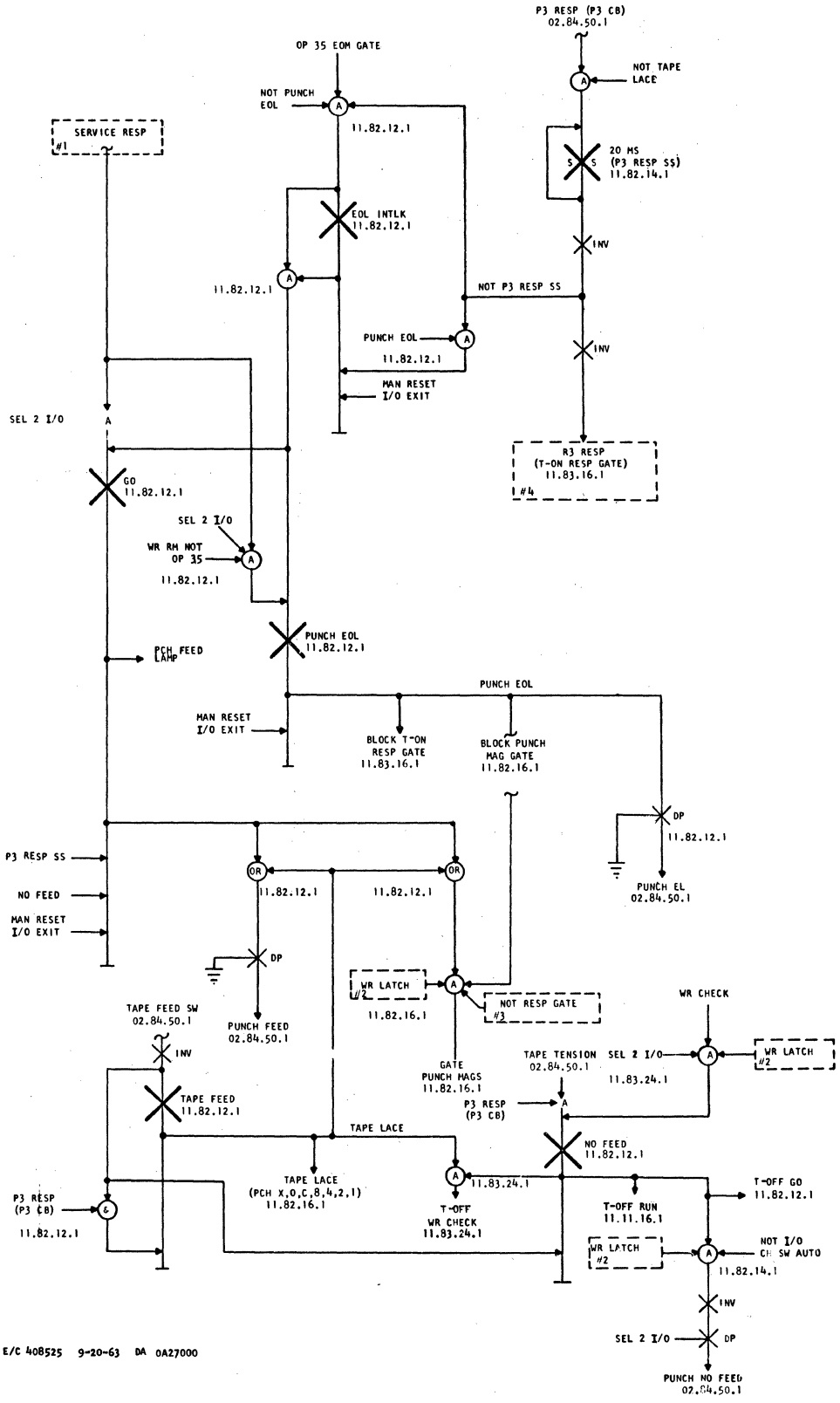
WR BINARY
39 XXXXX 03200

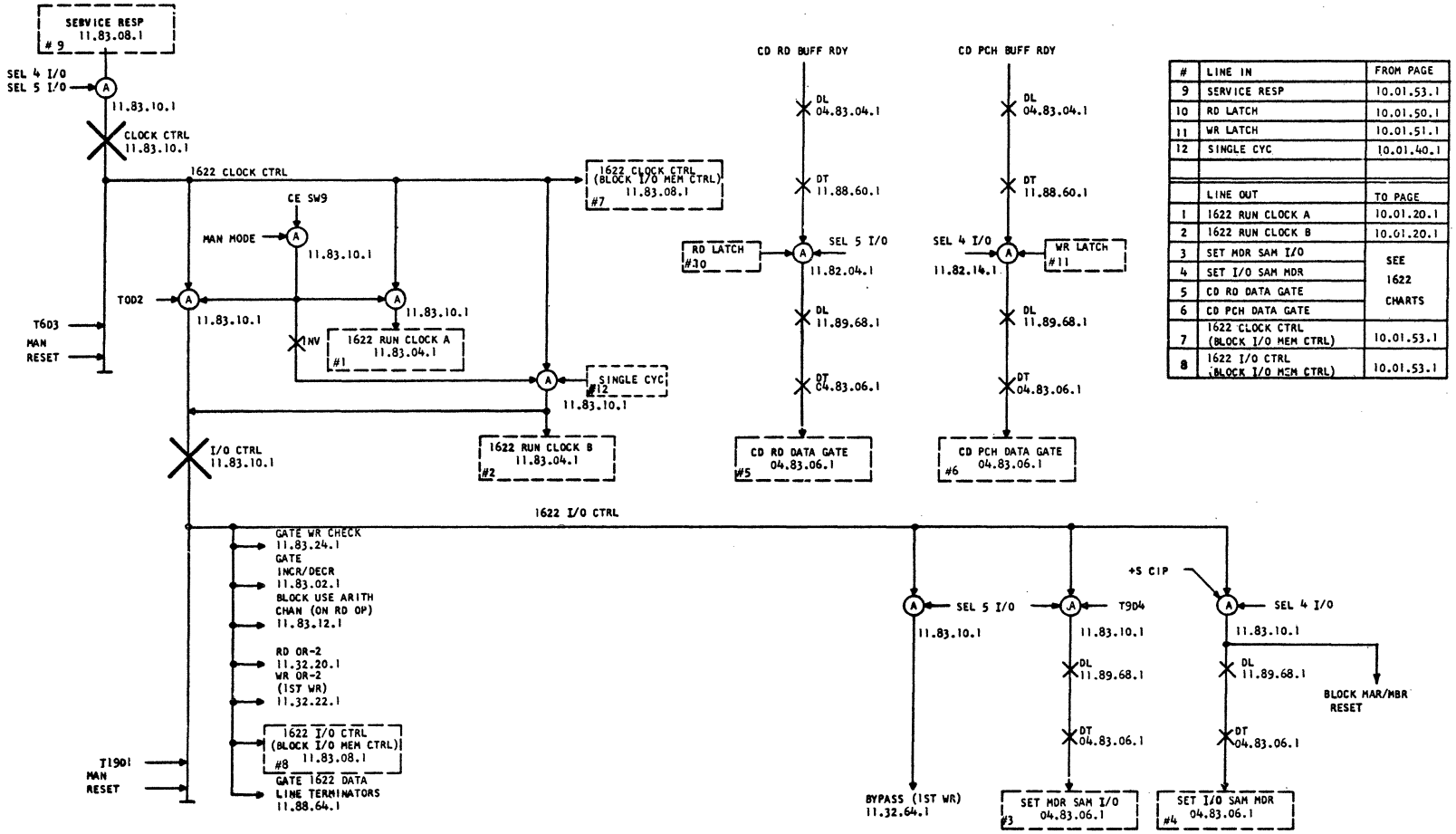




#	LINE IN	FROM PAGE
1	RD LATCH	10.01.50.1
#	LINE OUT	TO PAGE
2	TAPE SYNC (TO T ON RESP GATE)	10.01.53.1

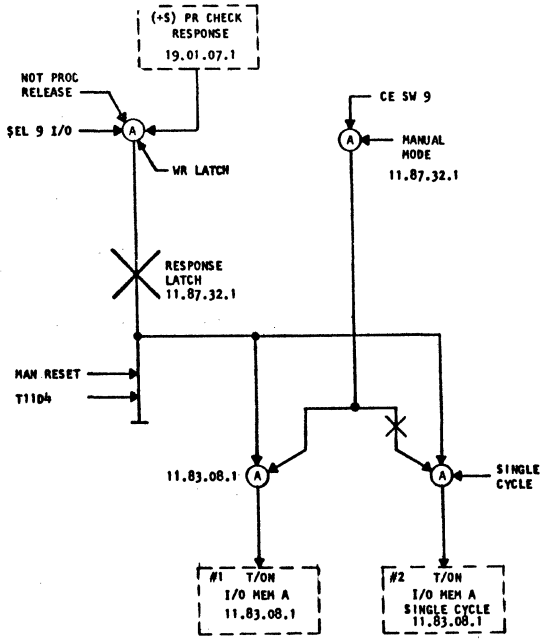
#	LINE IN	FROM PAGE
1	SERVICE RESP	10.01.53.1
2	WR LATCH	10.01.51.1
3	RESP GATE	10.01.53.1
#	LINE OUT	TO PAGE
4	P3 RESP (T-ON RESP GATE)	10.01.53.1





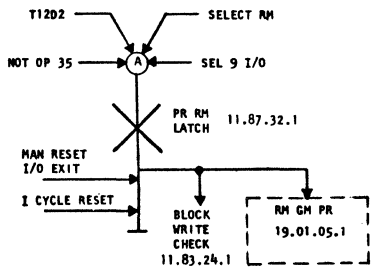
#	LINE IN	FROM PAGE
9	SERVICE RESP	10.01.53.1
10	RD LATCH	10.01.50.1
11	WR LATCH	10.01.51.1
12	SINGLE CYC	10.01.40.1
	LINE OUT	TO PAGE
1	1622 RUN CLOCK A	10.01.20.1
2	1622 RUN CLOCK B	10.01.20.1
3	SET MDR SAM I/O	SEE 1622 CHARTS
4	SET I/O SAM MDR	
5	CD RD DATA GATE	
6	CD PCH DATA GATE	
7	1622 CLOCK CTRL (BLOCK I/O MEM CTRL)	10.01.53.1
8	1622 I/O CTRL (BLOCK I/O MEM CTRL)	10.01.53.1

CLOCK CONTROL

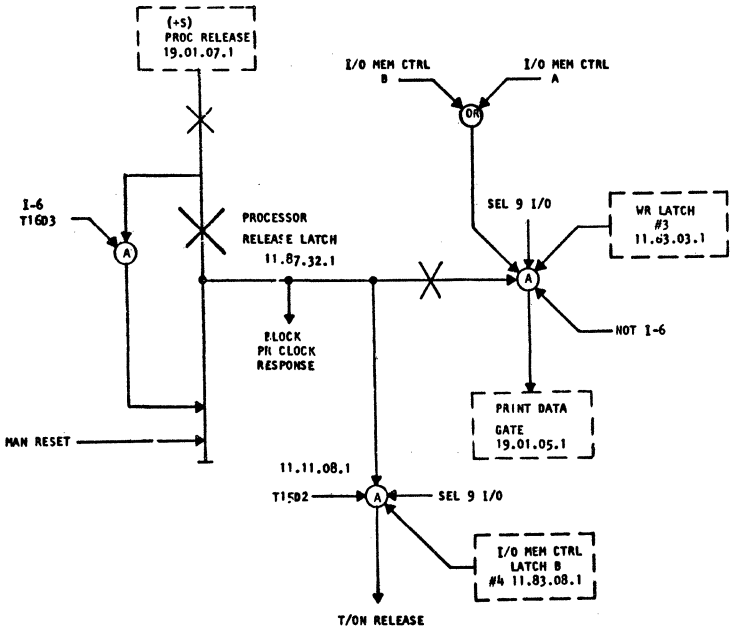


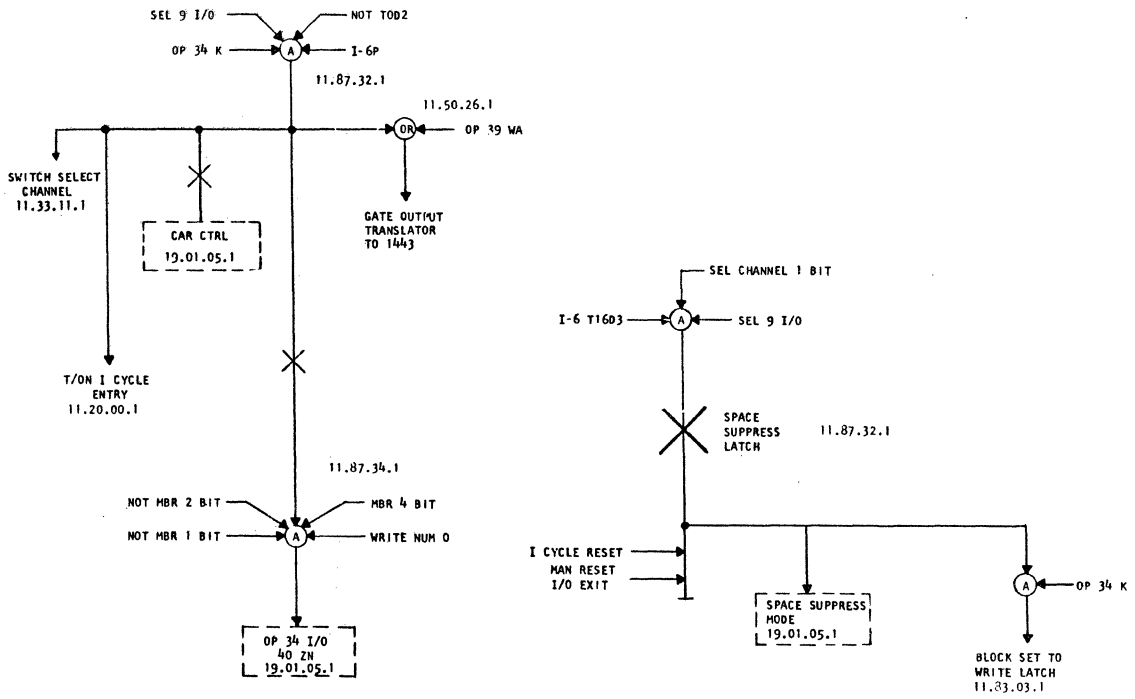
#	LINE IN	FROM PAGE
1	T/ON I/O MEM A	10.01.53.1
2	T/ON I/O MEM A SINGLE CYCLE	10.01.53.1
3	WRITE LATCH	10.01.51.1
4	I/O MEM CTRL LATCH B	10.01.53.1

END DATA TRANSFER



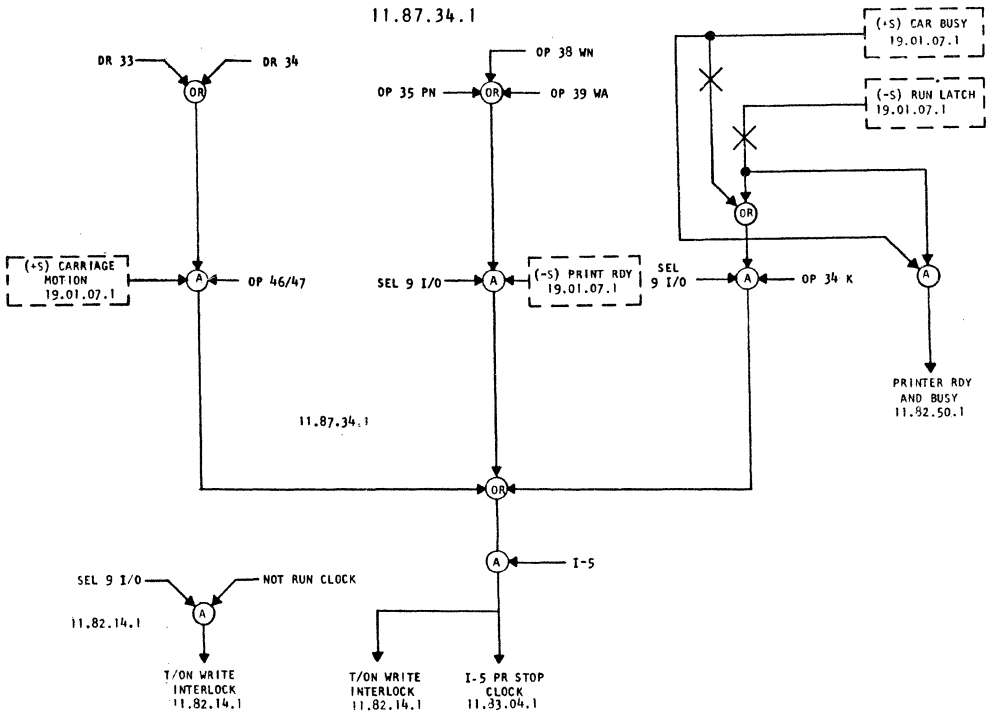
1443 RELEASE

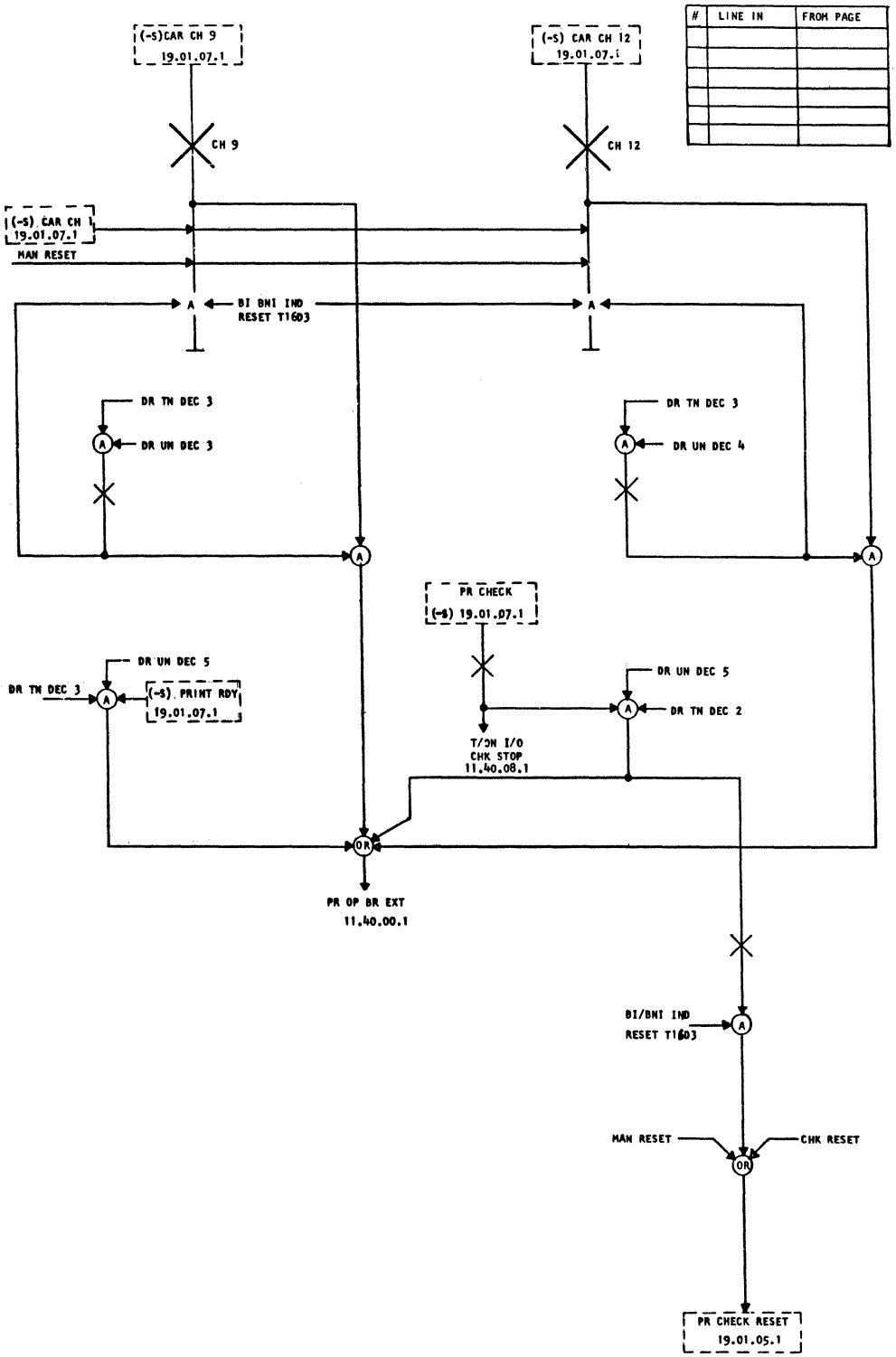


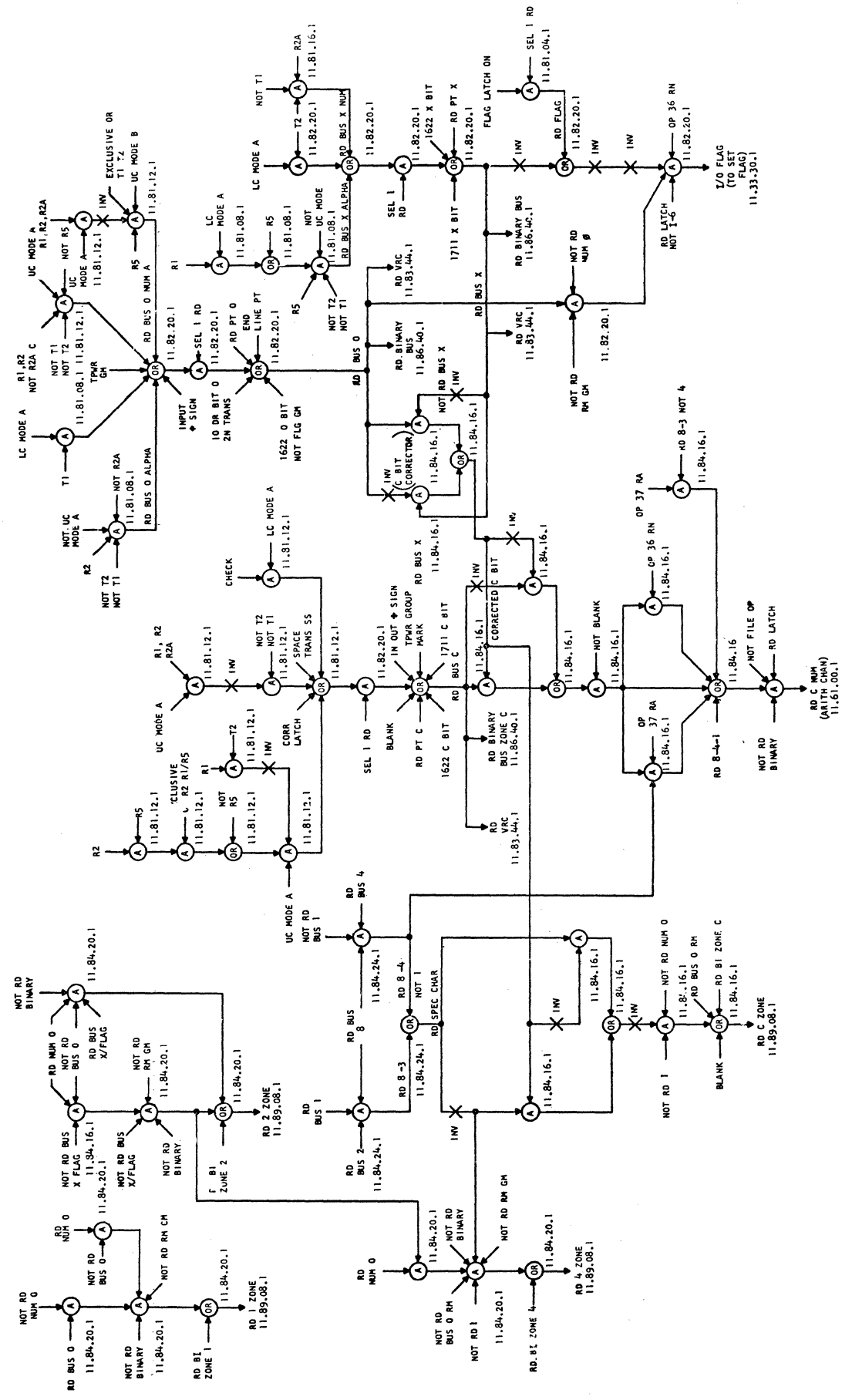


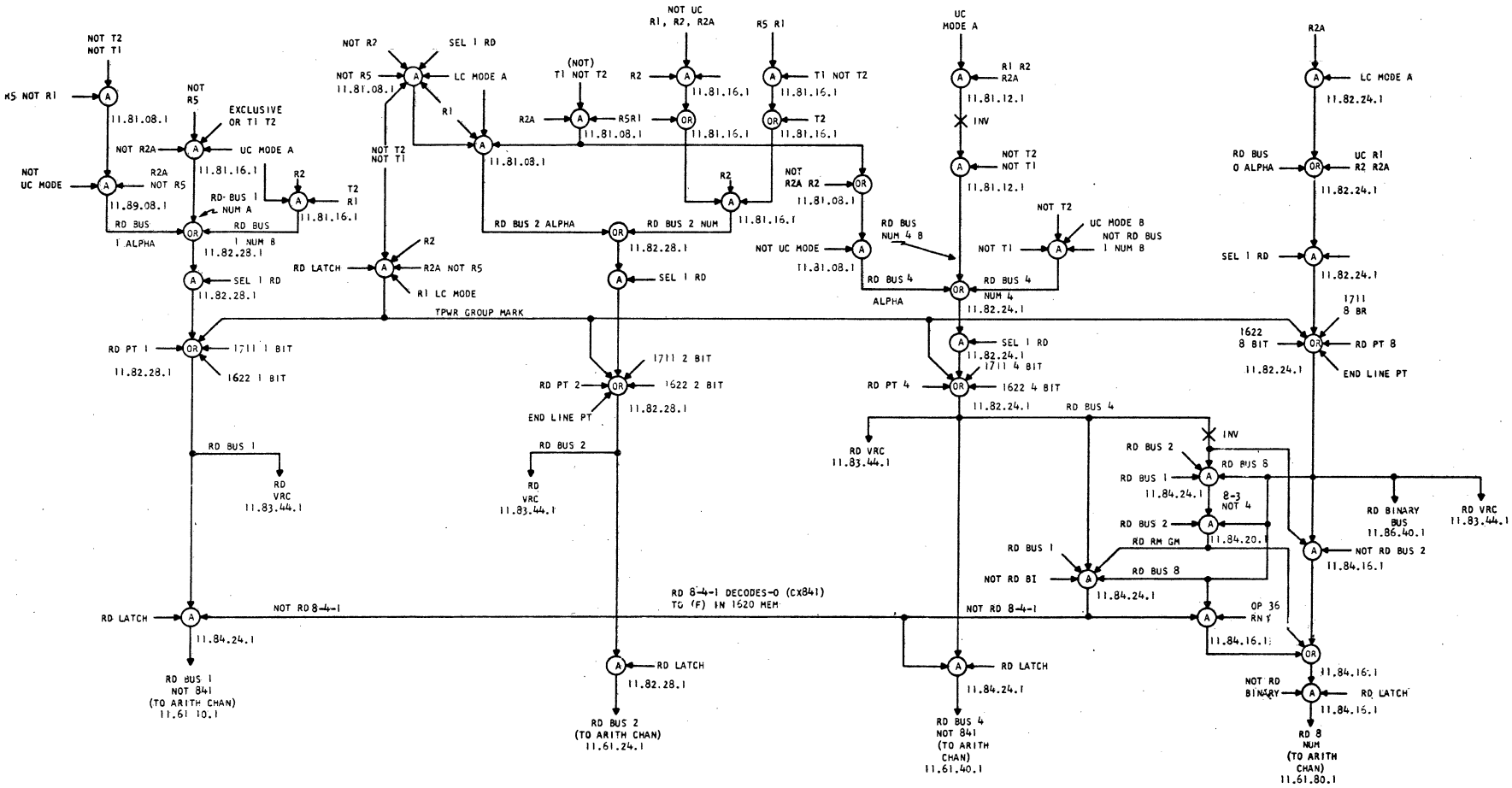
PRINTER INTERLOCK

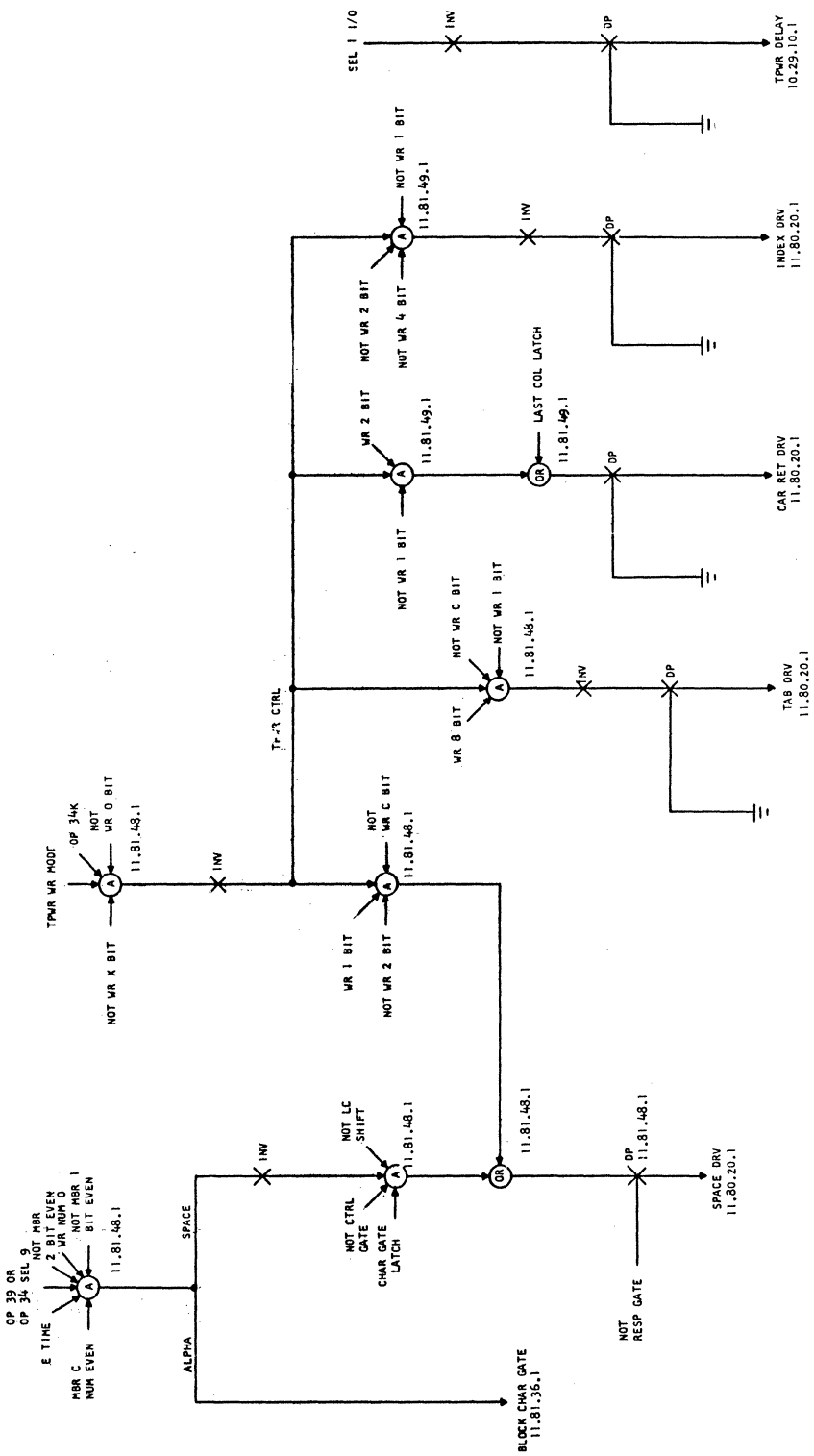
11.87.34.1



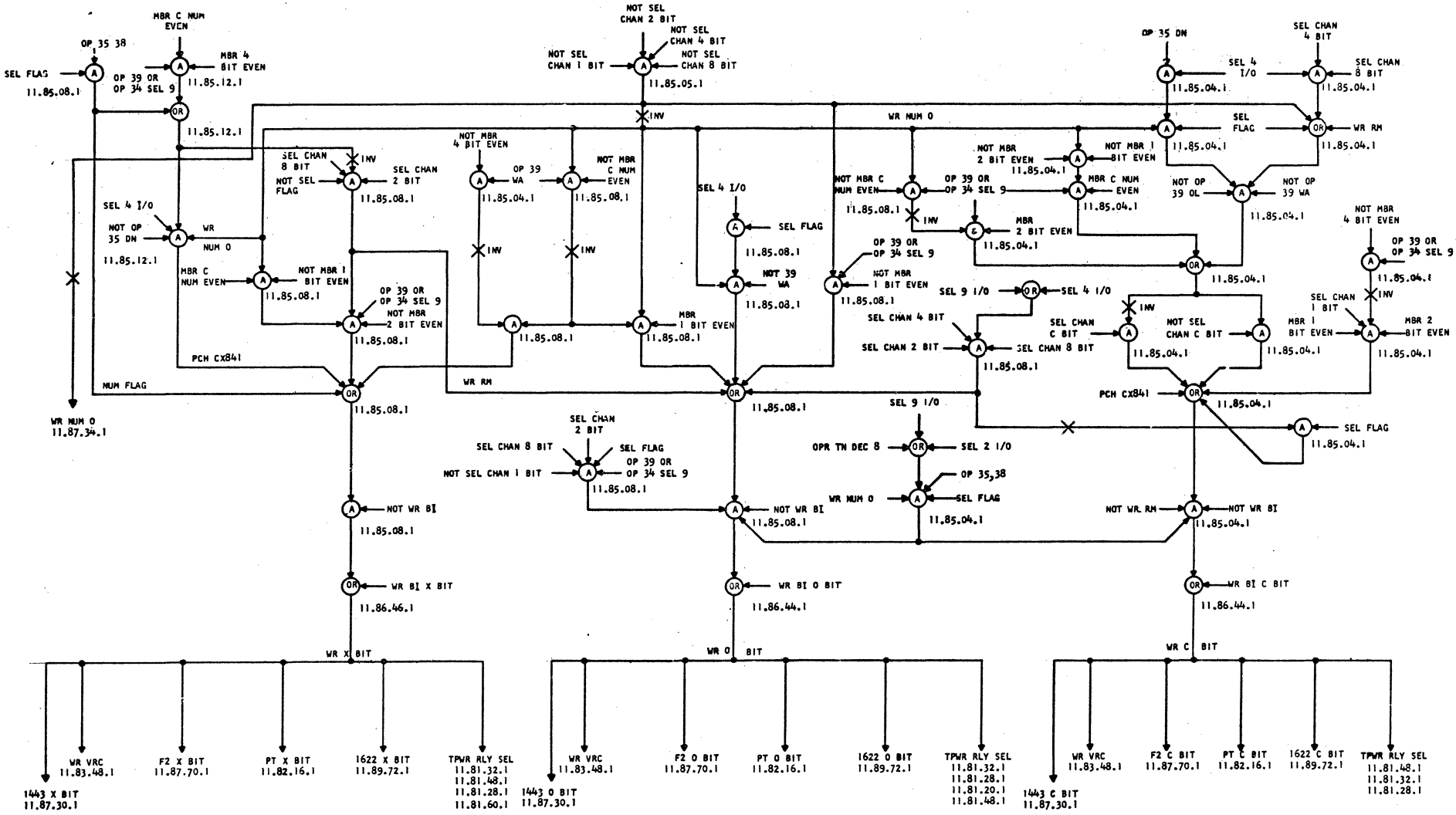

(-S)CAR CH 9
19.01.07.1
(-S) CAR CH 12
19.01.07.1
CH 9
CH 12
LINE IN FROM PAGE
(-S) CAR CH 1
19.01.07.1
MAN RESET
A
BI BNI IND
RESET T1603
DR TN DEC 3
DR UN DEC 3
DR TN DEC 3
DR UN DEC 4
PR CHECK
(-S) 19.01.07.1
DR UN DEC 5
DR TN DEC 3
(-S) PRINT RDY
19.01.07.1
DR UN DEC 5
DR TN DEC 2
T/ON I/O
CHK STOP
11.40.08.1
OR
PR OP BR EXT
11.40.00.1
BI/BNI IND
RESET T1603
MAN RESET
CHK RESET
OR
PR CHECK RESET
19.01.05.1

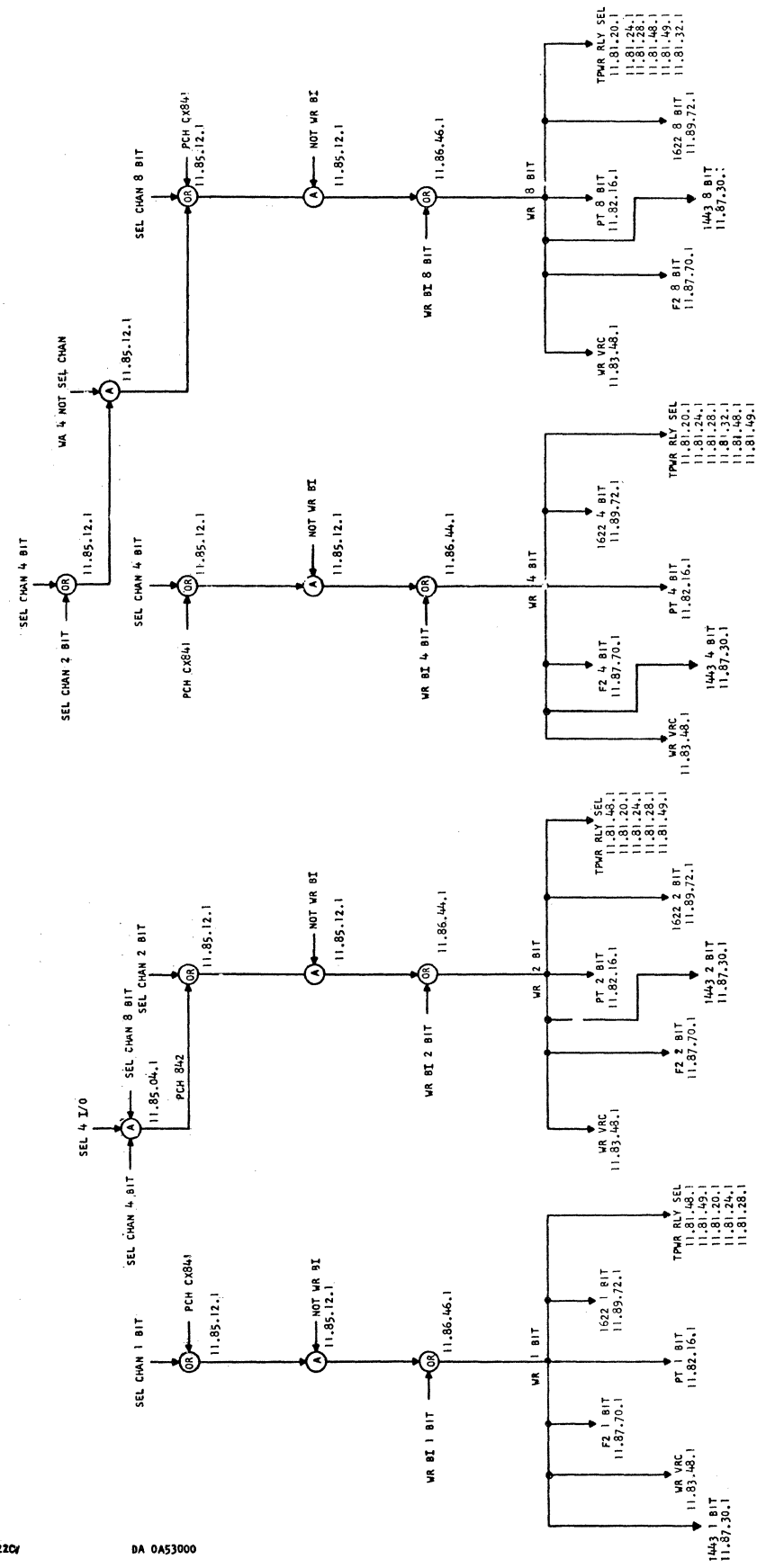


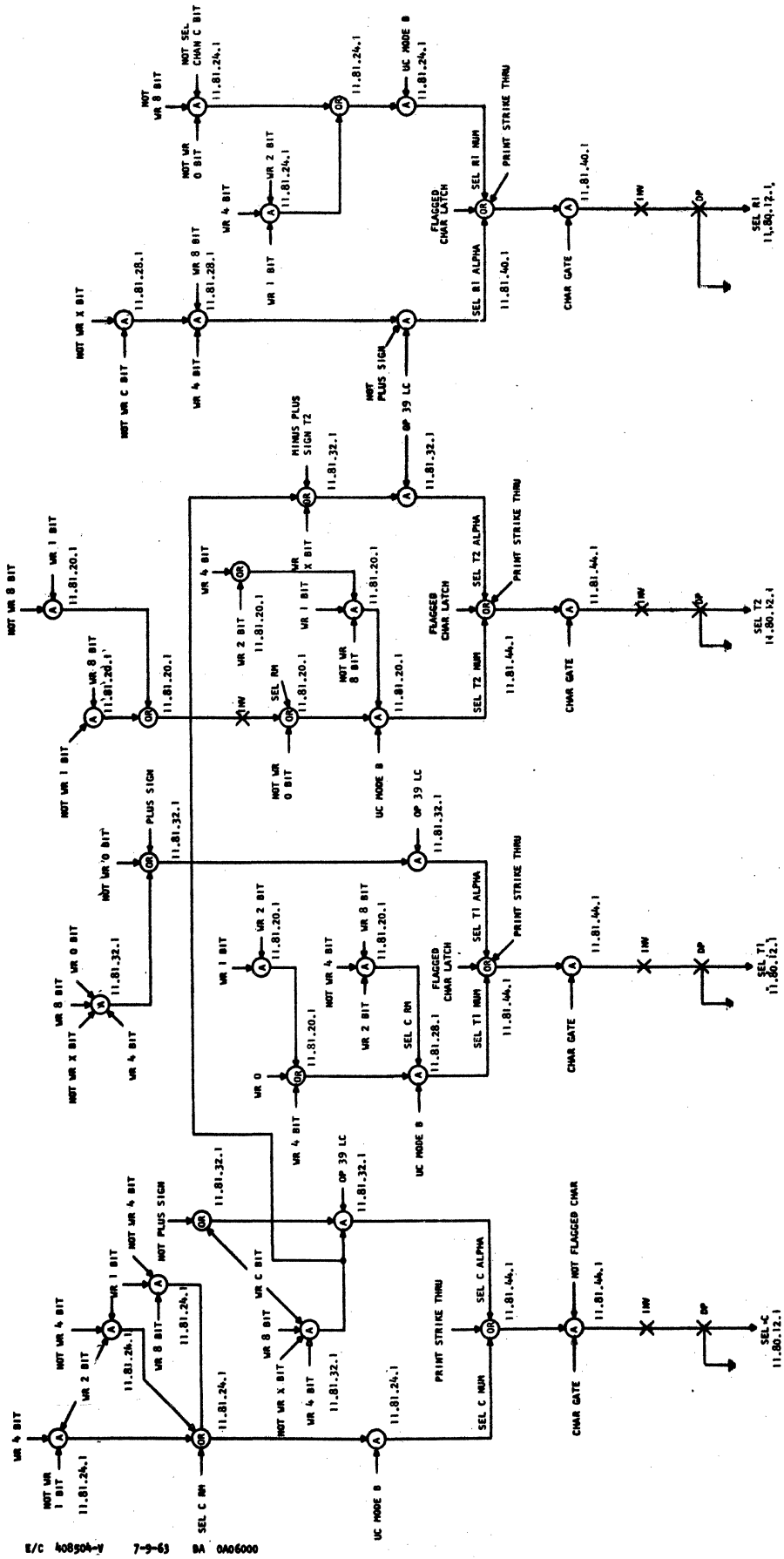

NOT T2
NOT T1
R5 NOT R1
11.81.08.1
NOT
R5
EXCLUSIVE
OR T1 T2
NOT R2A
UC MODE A
11.81.16.1
NOT
UC MODE
R2A
NOT R5
11.89.08.1
RD BUS
1 ALPHA
RD BUS 1
NUM A
RD BUS
1 NUM B
11.82.28.1
SEL 1 RD
11.82.28.1
R2
T2
R1
11.81.16.1
NOT R2
SEL 1 RD
NOT R5
11.81.08.1
LC MODE A
R1
11.81.08.1
NOT T2
NOT T1
RD LATCH
R2A NOT R5
R1 LC MODE
(NOT)
T1 NOT T2
R2A
R5R1
11.81.08.1
NOT UC
R1, R2, R2A
R2
11.81.16.1
R5 R1
T1 NOT T2
11.81.16.1
T2
11.81.16.1
R2
11.81.16.1
RD BUS 2 ALPHA
RD BUS 2 NUM
11.82.28.1
SEL 1 RD
11.82.28.1
NOT
R2A R2
11.81.08.1
NOT UC MODE
11.81.08.1
RD BUS
NUM 4 B
RD BUS 4
ALPHA
UC
MODE A
R1 R2
R2A
11.81.12.1
INV
NOT T2
NOT T1
11.81.12.1
NOT T2
UC MODE B
NOT T1
NOT RD BUS
1 NUM B
RD BUS 4
NUM 4
11.82.24.1
SEL 1 RD
11.82.24.1
R2A
LC MODE A
11.82.24.1
RD BUS
0 ALPHA
UC R1
R2 R2A
11.82.24.1
SEL 1 RD
11.82.24.1
1711
8 BR
1622
8 BIT
RD PT 8
END LINE PT
11.82.24.1
TPWR GROUP MARK
RD PT 1
1711 1 BIT
1622 1 BIT
11.82.28.1
RD PT 2
1711 2 BIT
1622 2 BIT
END LINE PT
11.82.28.1
SEL 1 RD
11.82.24.1
1711 4 BIT
RD PT 4
1622 4 BIT
11.82.24.1
RD BUS 4
RD BUS 1
RD
VRC
11.83.44.1
RD BUS 2
RD
VRC
11.83.44.1
RD VRC
11.83.44.1
INV
RD BUS 2
RD BUS 8
RD BUS 1
11.84.24.1
8-3
NOT 4
RD BUS 2
RD RM GM
11.84.20.1
RD BUS 1
NOT RD BI
RD BUS 8
11.84.24.1
RD BINARY
BUS
11.86.40.1
RD VRC
11.83.44.1
NOT RD BUS 2
11.84.16.1
RD LATCH
NOT RD 8-4-1
RD 8-4-1 DECODES-0 (CX841)
TO (F) IN 1620 MEM
NOT RD 8-4-1
OP 36
RN Y
11.84.16.1
11.84.24.1
RD BUS 1
NOT 841
(TO ARITH CHAN)
11.61.10.1
RD LATCH
11.82.28.1
RD BUS 2
(TO ARITH CHAN)
11.61.24.1
RD LATCH
11.84.24.1
RD BUS 4
NOT 841
(TO ARITH
CHAN)
11.61.40.1
11.84.16.1
NOT RD
BINARY
RD LATCH
11.84.16.1
RD 8
NUM
(TO ARITH
CHAN)
11.61.80.1

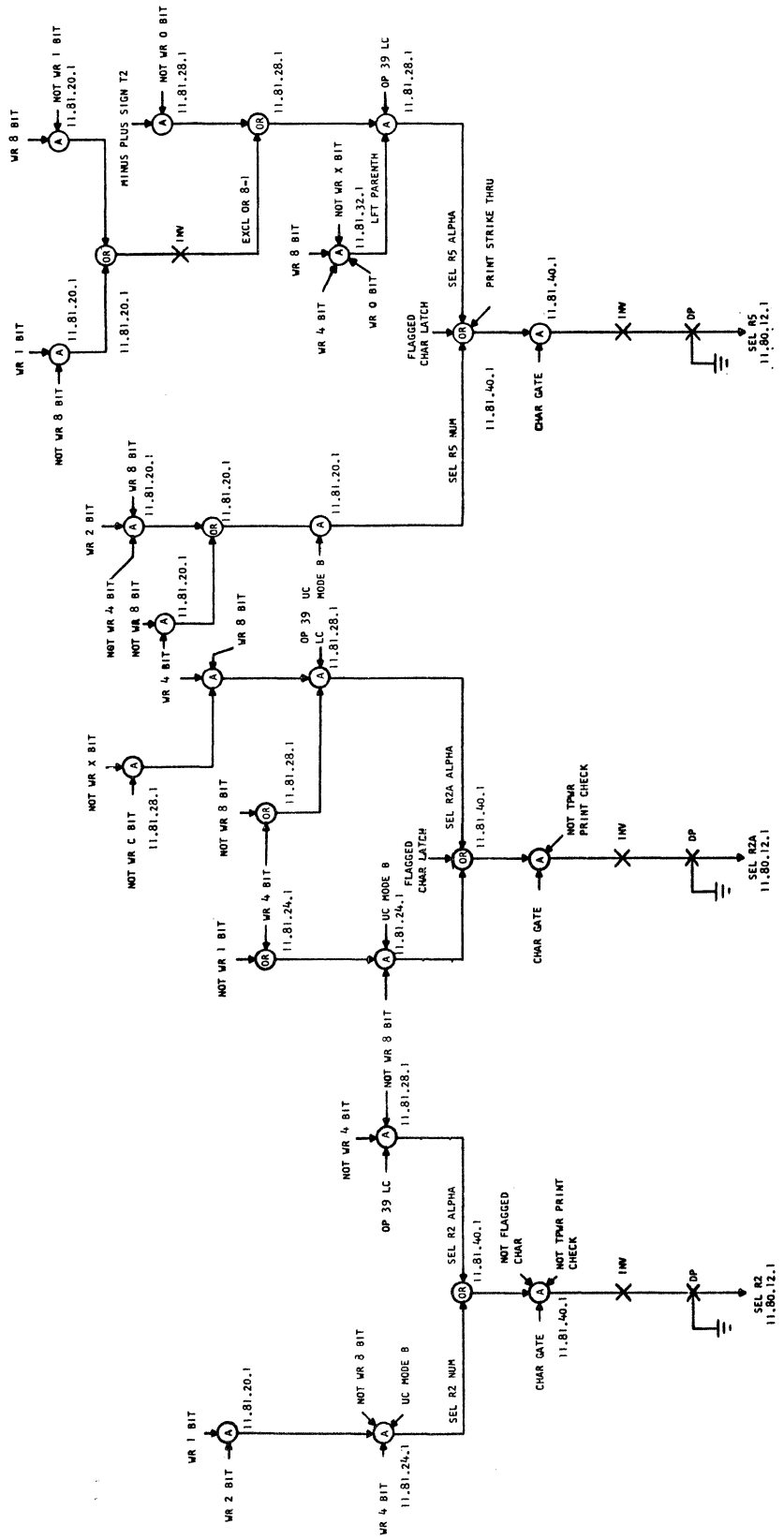


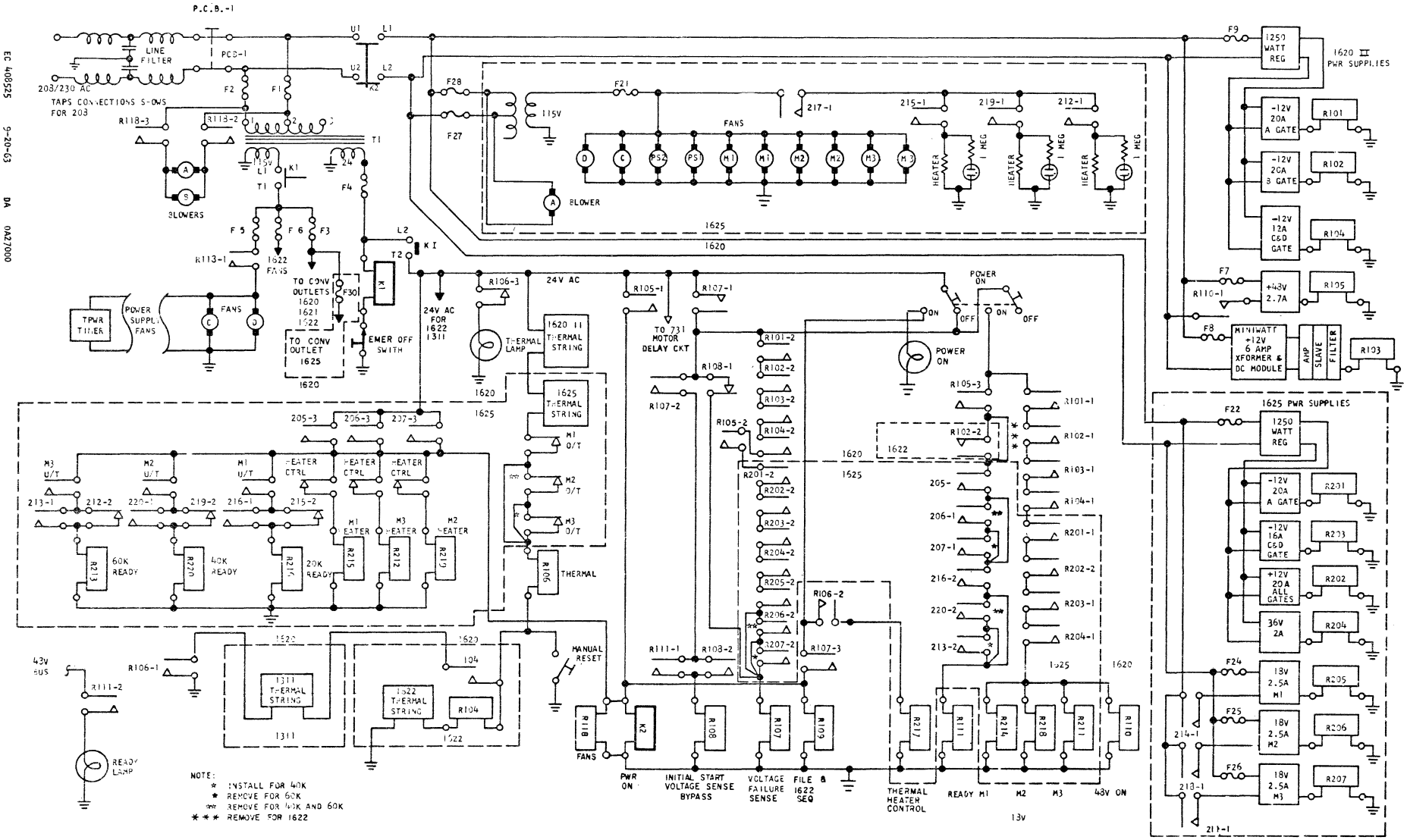
E/C 4U3522CV DA CA53000


SEL FLAG
11.85.08.1
OP 35 38
MBR C NUM EVEN
MBR 4 BIT EVEN
OP 39 OR OP 34 SEL 9
11.85.12.1
NOT SEL CHAN 1 BIT
NOT SEL CHAN 2 BIT
NOT SEL CHAN 4 BIT
NOT SEL CHAN 8 BIT
11.85.05.1
INV
WR NUM 0
OP 35 DN
SEL 4 I/O
SEL CHAN 4 BIT
SEL CHAN 8 BIT
11.85.04.1
SEL FLAG
WR RM
SEL CHAN 8 BIT
NOT SEL FLAG
SEL CHAN 2 BIT
NOT MBR 4 BIT EVEN
OP 39 WA
NOT MBR C NUM EVEN
SEL 4 I/O
NOT OP 35 DN
WR NUM 0
MBR C NUM EVEN
NOT MBR 1 BIT EVEN
OP 39 OR OP 34 SEL 9
NOT MBR 2 BIT EVEN
PCH CX841
NUM FLAG
WR RM
MBR 1 BIT EVEN
NOT 39 WA
SEL FLAG
NOT MBR C NUM EVEN
NOT MBR 2 BIT EVEN
NOT MBR 1 BIT EVEN
MBR C NUM EVEN
MBR 2 BIT EVEN
NOT OP 39 OL
NOT OP 39 WA
SEL 9 I/O
SEL 4 I/O
SEL CHAN 4 BIT
SEL CHAN 2 BIT
SEL CHAN 8 BIT
SEL CHAN C BIT
NOT SEL CHAN C BIT
MBR 1 BIT EVEN
MBR 2 BIT EVEN
NOT MBR 4 BIT EVEN
SEL CHAN 1 BIT
PCH CX841
SEL CHAN 2 BIT
SEL CHAN 8 BIT
NOT SEL CHAN 1 BIT
SEL FLAG
OP 39 OR OP 34 SEL 9
OPR TN DEC 8
SEL 2 I/O
OP 35,38
WR NUM 0
NOT WR BI
NOT WR RM
WR BI X BIT
WR BI 0 BIT
WR BI C BIT
11.86.46.1
11.86.44.1
WR X BIT
WR 0 BIT
WR C BIT
1443 X BIT 11.87.30.1
WR VRC 11.83.48.1
F2 X BIT 11.87.70.1
PT X BIT 11.82.16.1
1622 X BIT 11.89.72.1
TPWR RLY SEL 11.81.32.1 11.81.48.1 11.81.28.1 11.81.60.1
1443 0 BIT 11.87.30.1
WR VRC 11.83.48.1
F2 0 BIT 11.87.70.1
PT 0 BIT 11.82.16.1
1622 0 BIT 11.89.72.1
TPWR RLY SEL 11.81.32.1 11.81.28.1 11.81.20.1 11.81.48.1
1443 C BIT 11.87.30.1
WR VRC 11.83.48.1
F2 C BIT 11.87.70.1
PT C BIT 11.82.16.1
1622 C BIT 11.89.72.1
TPWR RLY SEL 11.81.48.1 11.81.32.1 11.81.28.1

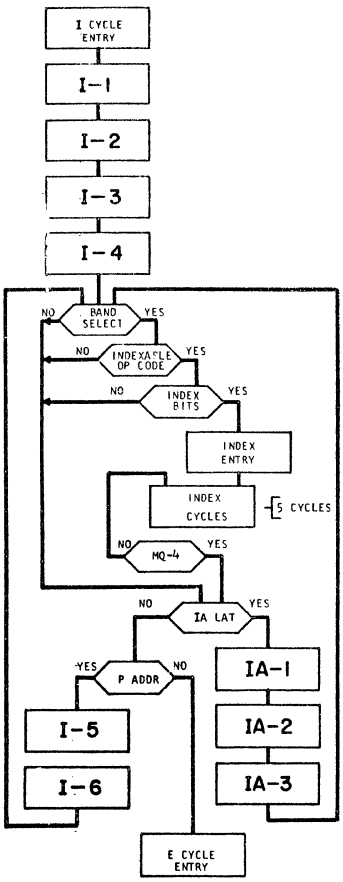

SEL CHAN 4 BIT
SEL CHAN 2 BIT
WA 4 NOT SEL CHAN
11.85.12.1
SEL CHAN 8 BIT
PCH CX841
NOT WR BI
WR BI 8 BIT
11.86.46.1
WR 8 BIT
PT 8 BIT
11.82.16.1
1622 8 BIT
11.89.72.1
TPWR RLY SEL
11.81.20.1
11.81.24.1
11.81.28.1
11.81.48.1
11.81.49.1
11.81.32.1
1443 8 BIT
11.87.30.1
F2 8 BIT
11.87.70.1
WR VRC
11.83.48.1
SEL CHAN 4 BIT
PCH CX841
WR BI 4 BIT
WR 4 BIT
PT 4 BIT
1622 4 BIT
F2 4 BIT
1443 4 BIT
SEL 4 I/O
11.85.04.1
PCH 842
SEL CHAN 8 BIT
SEL CHAN 2 BIT
WR BI 2 BIT
WR 2 BIT
PT 2 BIT
1622 2 BIT
F2 2 BIT
1443 2 BIT
SEL CHAN 1 BIT
SEL CHAN 4 BIT
WR BI 1 BIT
WR 1 BIT
PT 1 BIT
1622 1 BIT
F2 1 BIT
1443 1 BIT


SEL R1 11.80.12.1
SEL T2 11.80.12.1
SEL T1 11.80.12.1
SEL C 11.80.12.1
E/C 408504-Y 7-9-63 BA 0A06000

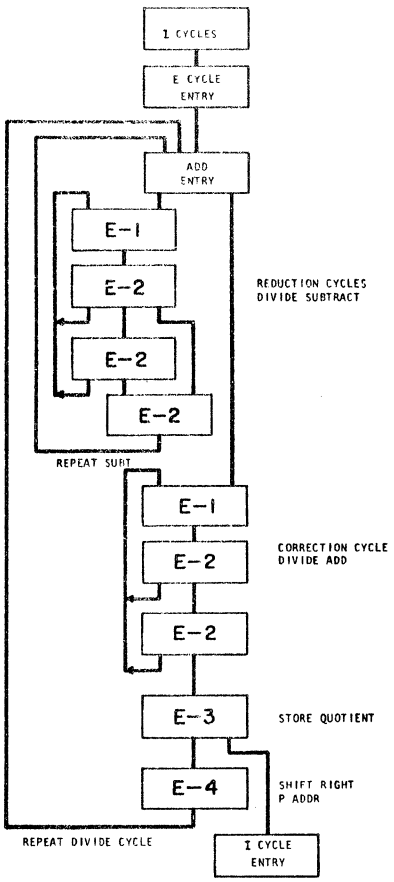

WR 8 BIT
NOT WR 1 BIT
11.81.20.1
MINUS PLUS SIGN T2
NOT WR 0 BIT
11.81.28.1
11.81.28.1
OP 39 LC
11.81.28.1
WR 1 BIT
NOT WR 8 BIT
11.81.20.1
11.81.20.1
INV
EXCL OR 8-1
WR 8 BIT
WR 4 BIT
NOT WR X BIT
11.81.32.1
LFT PARENTH
WR 0 BIT
FLAGGED CHAR LATCH
SEL R5 ALPHA
PRINT STRIKE THRU
11.81.40.1
INV
DP
SEL R5 11.80.12.1
SEL R5 NUM
11.81.40.1
CHAR GATE
WR 2 BIT
WR 8 BIT
11.81.20.1
11.81.20.1
11.81.20.1
NOT WR 4 BIT
NOT WR 8 BIT
11.81.20.1
WR 4 BIT
WR 8 BIT
OP 39 LC
UC MODE 8
11.81.28.1
NOT WR X BIT
NOT WR C BIT
11.81.28.1
NOT WR 8 BIT
11.81.28.1
SEL R2A ALPHA
11.81.40.1
FLAGGED CHAR LATCH
NOT TPWR PRINT CHECK
INV
DP
SEL R2A 11.80.12.1
CHAR GATE
NOT WR 1 BIT
WR 4 BIT
11.81.24.1
UC MODE 8
11.81.24.1
NOT WR 8 BIT
NOT WR 4 BIT
NOT WR 8 BIT
11.81.28.1
OP 39 LC
SEL R2 ALPHA
11.81.40.1
NOT FLAGGED CHAR
NOT TPWR PRINT CHECK
INV
DP
SEL R2 11.80.12.1
CHAR GATE
11.81.40.1
WR 1 BIT
WR 2 BIT
11.81.20.1
NOT WR 8 BIT
UC MODE 8
WR 4 BIT
11.81.24.1
SEL R2 NUM


P.C.B.-1
LINE FILTER
PCB-1
203/230 AC
TAPS CONNECTIONS SHOWS FOR 203
BLOWERS
TPWR TIMER
POWER SUPPLY FANS
FANS
TO CONV OUTLETS 1620 1621 1622
TO CONV OUTLET 1625
EMER OFF SWITH
24V AC FOR 1622 1311
THERMAL LAMP
1620 II THERMAL STRING
1625 THERMAL STRING
TO 731 MOTOR DELAY CKT
POWER ON
M3 U/T
M2 U/T
M1 U/T
HEATER CTRL
60K READY
40K READY
20K READY
M1 HEATER
M3 HEATER
M2 HEATER
M1 O/T
M2 O/T
M3 O/T
THERMAL
MANUAL RESET
43V BUS
READY LAMP
1311 THERMAL STRING
1522 THERMAL STRING
BLOWER
HEATER
1 MEG
1250 WATT REG
1620 II PWR SUPPLIES
-12V 20A A GATE
-12V 20A B GATE
-12V 12A C&D GATE
+43V 2.7A
MINIWATT +12V 6 AMP XFORMER & DC MODULE
AMP SLAVE FILTER
1625 PWR SUPPLIES
-12V 20A A GATE
-12V 16A C&D GATE
+12V 20A ALL GATES
36V 2A
18V 2.5A M1
18V 2.5A M2
18V 2.5A M3
PWR ON
INITIAL START VOLTAGE SENSE BYPASS
VOLTAGE FAILURE SENSE
FILE & 1622 SEQ
THERMAL HEATER CONTROL
READY M1 M2 M3 43V ON
13V
NOTE:
* INSTALL FOR 40K
* REMOVE FOR 60K
** REMOVE FOR 40K AND 60K
*** REMOVE FOR 1622

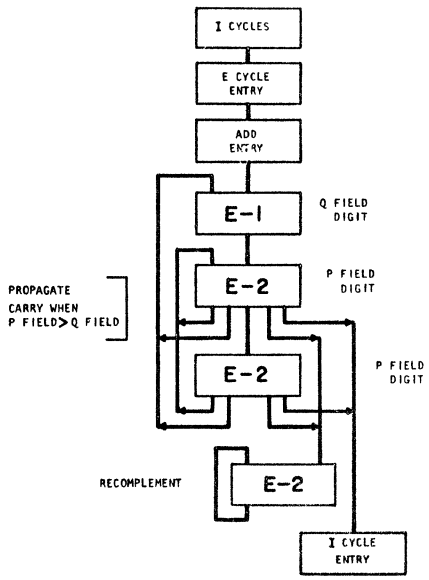
I CYCLES - INDEXING - IA



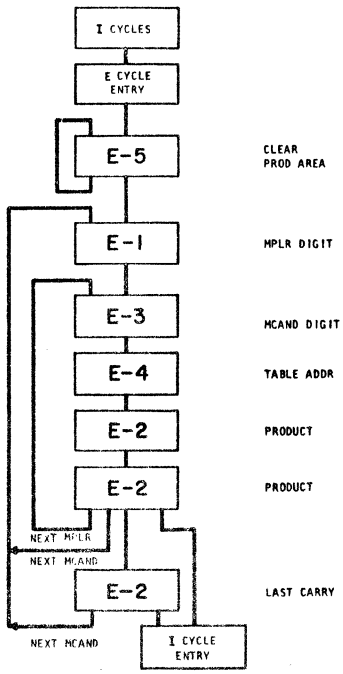
DIVIDE



ADD - SUBTRACT - COMPARE



MULTIPLY



INDEX FLAGS | IA FLAG | INDEX FLAGS | IA FLAG

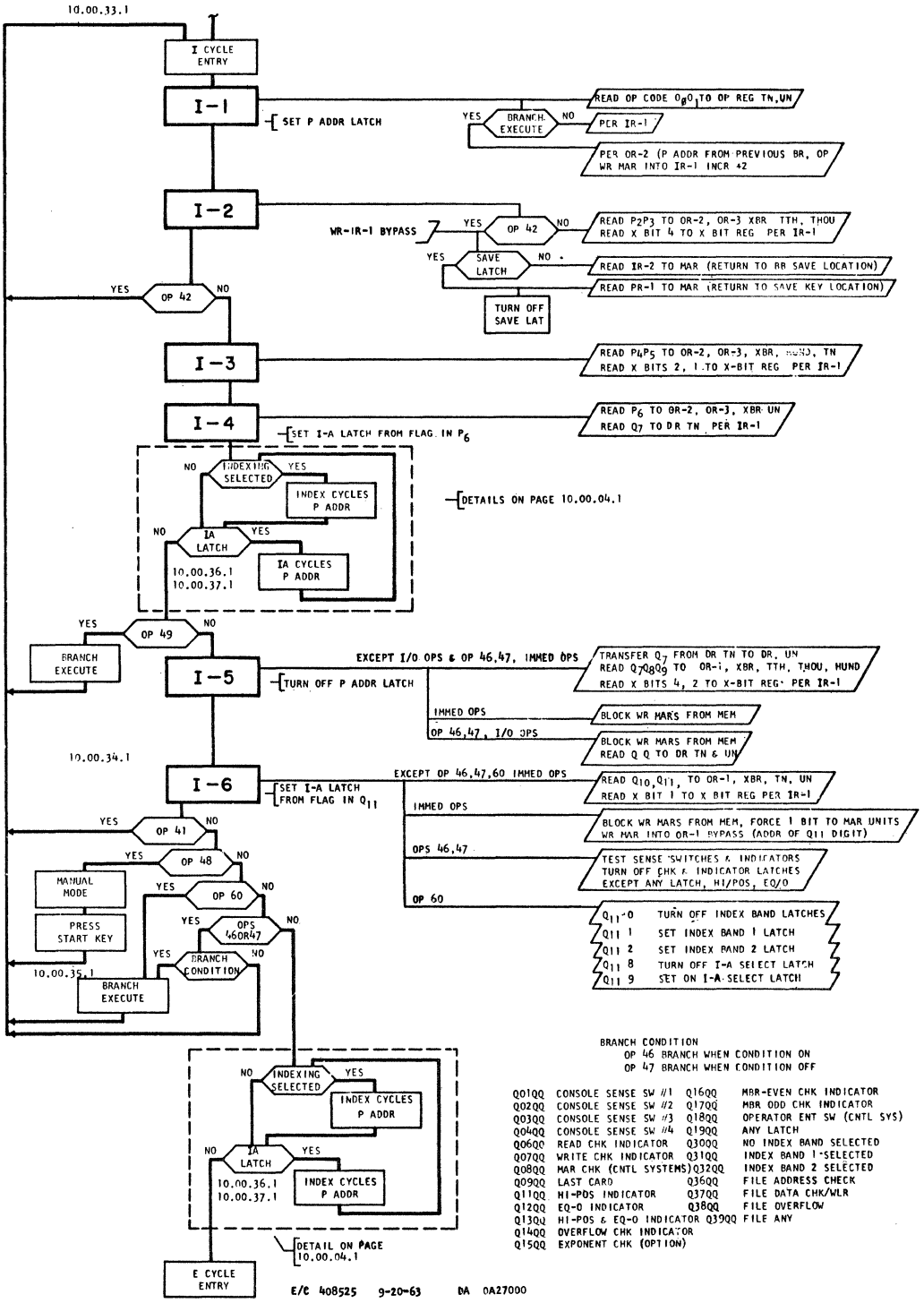
O_0 O_1	P_2 $\overline{P_3}$	$\overline{P_4}$ $\overline{P_5}$	$\overline{P_6}$ Q_7	$\overline{Q_8}$ $\overline{Q_9}$	$\overline{Q_{10}}$ $\overline{Q_{11}}$
I-1	I-2	I-3	I-4	I-5	I-6

PURPOSE: STORE INSTR OP CODE, P & Q ADDR, AND FLAGS TO RESPECTIVE REGISTERS
EXECUTE THOSE OP CODES NOT REQUIRING E CYCLE
PERFORM INDEXING AND INDIRECT ADDRESSING

OP CODES EXECUTED ON I CYCLES

NON-BRANCH CODES	NOP	41	0 0 0 0 0	0 0 0 0 0 P & Q READ OUT BUT NOT USED
	H	48	0 0 0 0 0	0 0 0 0 0 P & Q READ OUT BUT NOT USED
UNCONDITIONAL BRANCH	BB	42	X X X X X	X X X X X P & Q NOT READ OUT
	B	49	P P P P P	X X X X X Q NOT READ OUT
	BS	60	P P P P P	0 0 0 0 Q_{11}
CONDITIONAL BRANCH	BI	46	P P P P P	X Q8Q9X X Q8Q9 SENSE CODES 01-19
	BNI	47	P P P P P	X Q8Q9X X Q8Q9 SENSE CODES 01-19

FUNCTION CHART	PAGE REF
I CYCLES I ENTRY I-1	10.00.30.1
I CYCLES I-2 → I-5	10.00.31.1
I CYCLES I-6	10.00.32.1
11-15 BRANCH	10.00.33.1
16 BRANCH	10.00.34.1
BRANCH EXEC	10.00.35.1
INDIRECT ADDR	10.00.36.1
	10.00.37.1
11-14 XBR LOAD	10.00.40.1
15-16 XBR LOAD	10.00.41.1
XBR SET & RESET	10.01.30.1



06 TFL TRANSMIT FLOATING
26 TF TRANSMIT FIELD
16 TFM TRANSMIT FIELD IMMED

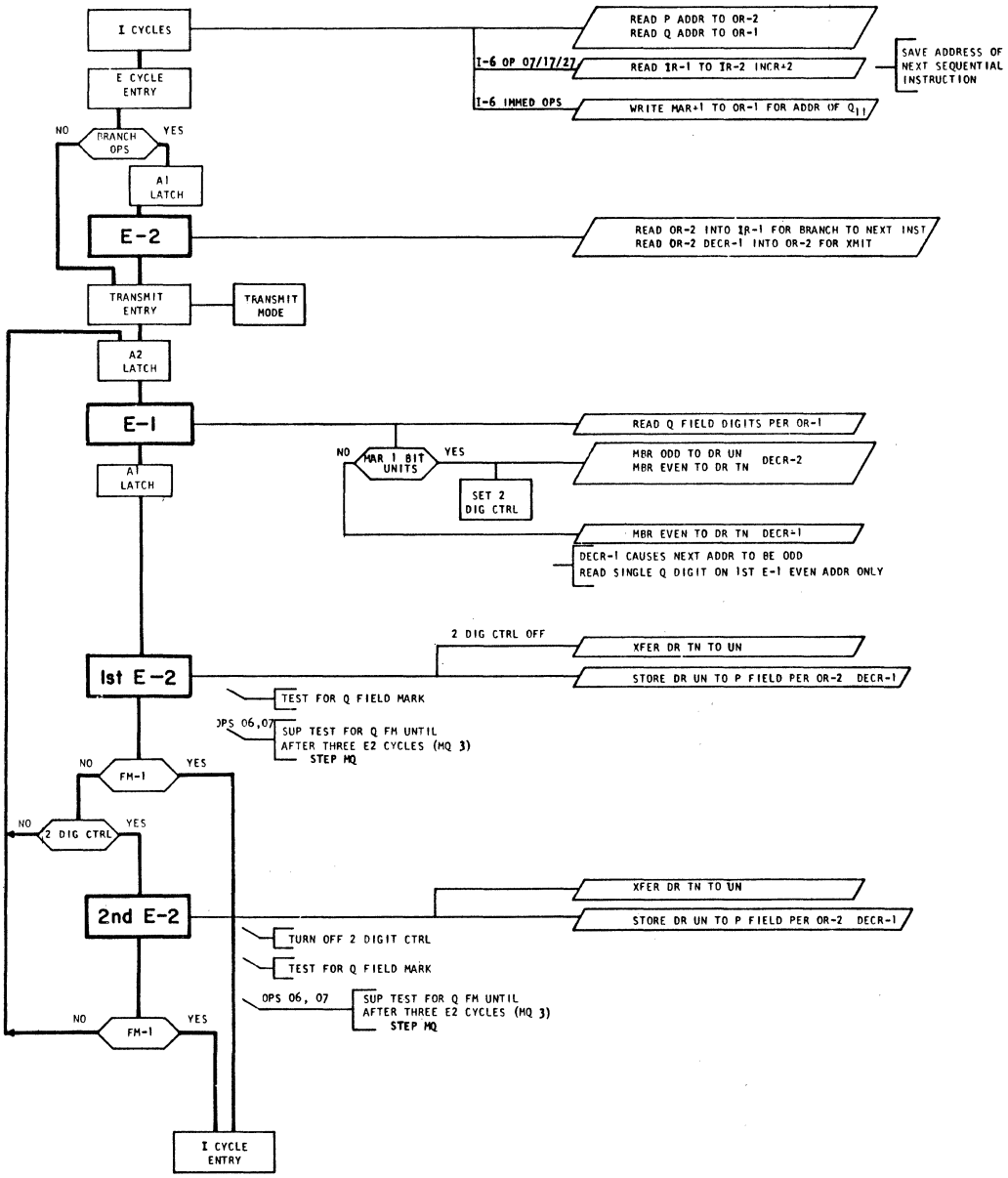
07 BTFL BRANCH AND TRANSMIT FLOATING
27 BT BRANCH AND TRANSMIT
17 BTM BRANCH AND TRANSMIT IMMED

INSTRUCTION: 0 ø/1 P P P P P Q Q Q Q Q — P AND Q ADDRESS LOW ORDER POSITIONS; OPERATION TERMINATED BY Q FIELD MARK

PURPOSE OF TRANSMIT: TRANSMIT Q FIELD TO P FIELD

PURPOSE OF BRANCH AND TRANSMIT: TRANSMIT FIELD AT Q ADDR TO FIELD AT P ADDR MINUS 1
SAVE ADDRESS OF NEXT SEQUENTIAL INSTRUCTION
BRANCH UNCONDITIONALLY TO LOCATION P

FUNCTION CHART	PAGE REF
XMIT OPS	10.00.52.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1



31 TR TRANSMIT RECORD

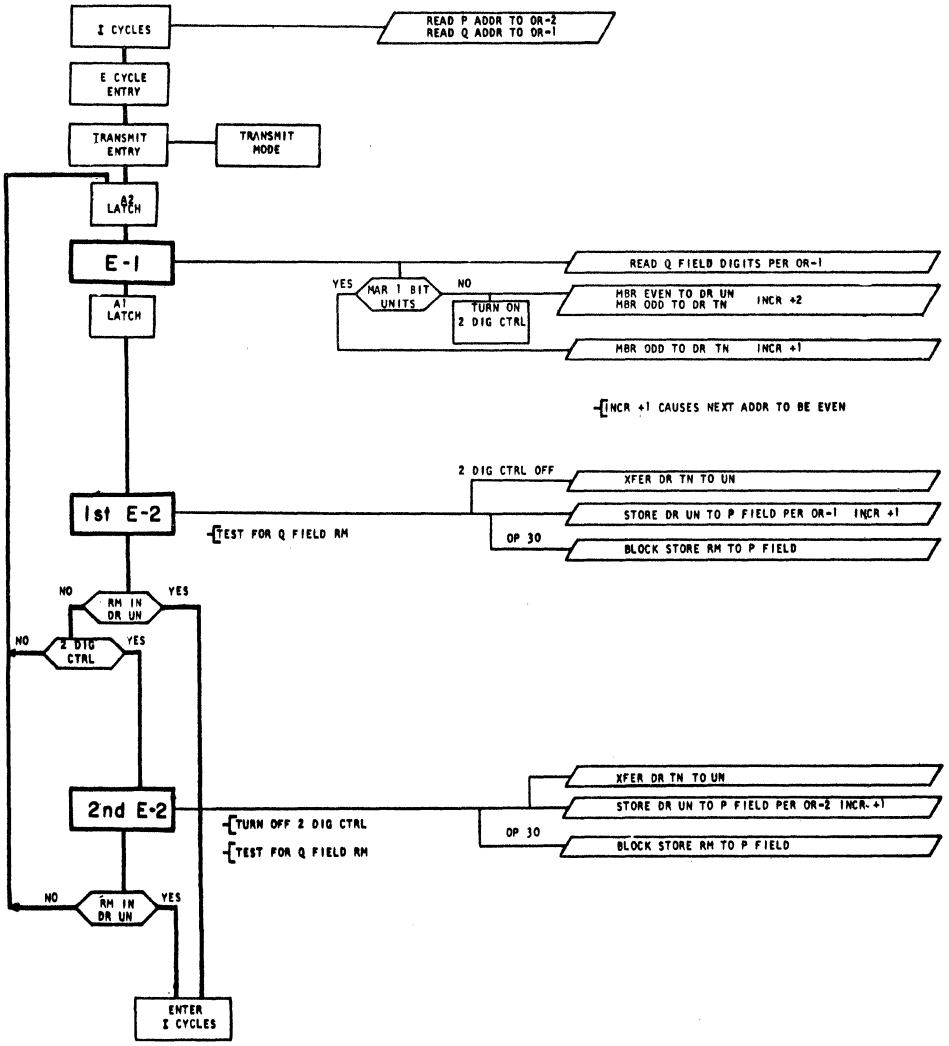
30 TRNM TRANSMIT RECORD NO RECORD MARK

INSTRUCTION: $0_0 0_1$ P P P P P Q Q Q Q Q

P AND Q ADDRESS HIGH ORDER POSITIONS
OPERATION TERMINATED BY Q FIELD RECORD MARK

PURPOSE: TRANSMIT RECORD AT Q ADDR TO P ADDR
OMIT RECORD MARK IN P FIELD ON OP 30

FUNCTION CHART	PAGE REF
XMIT OPS	10.00.52.1
XMIT ENTRY & MODE	10.00.53.1
XMIT E1, E2	10.00.54.1
DR & 2 DIGIT CTRL	10.01.22.1



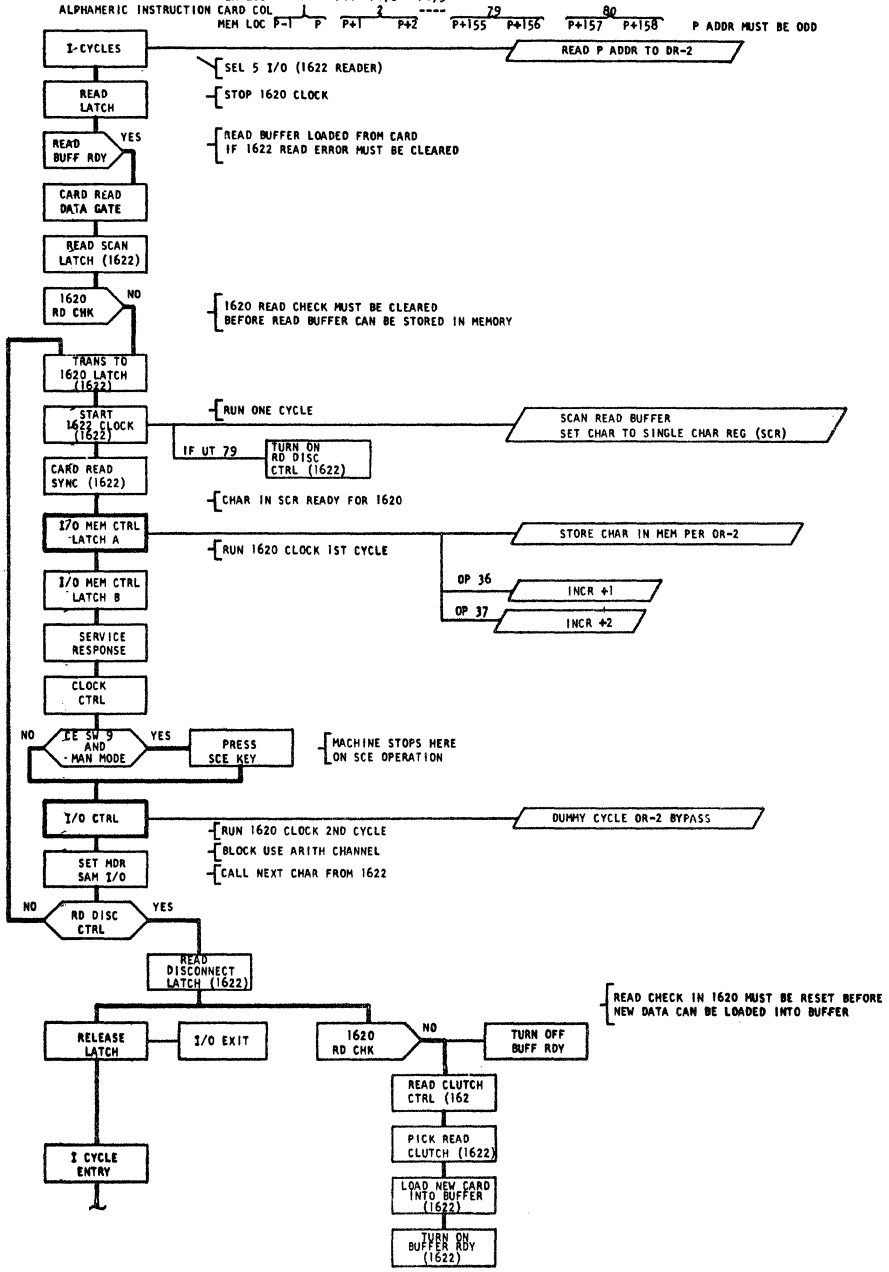
36 RN READ NUMERICALLY
37 RA REA ALPHAMERICALLY

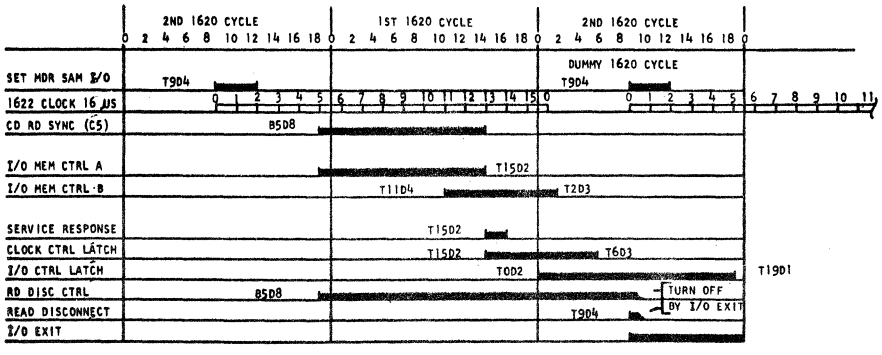
FUNCTION CHART	PAGE REF
RELEASE	10.01.49.1
READ LATCH	10.01.50.1
RESP GATE, I/O MEM CTRL	10.01.53.1
1622 CARD READER	10.01.70.1

INSTRUCTION: $0_0 0_1$ $B_2 B_3 B_4 B_5 B_6$ $Q_7 0_8 5_9 Q_{10} Q_{11}$ **05** SELECTS 1622 READER

PURPOSE: READ 80 CHAR FROM A CARD
STORE IN MEMORY STARTING FROM P ADDR THRU SUCCESSIVELY HIGHER NUMBERED LOCATIONS

NUMERIC INSTRUCTION CARD COL 1 2 --- 79 80
MEM LOC P P+1 P+78 P+79
ALPHAMERIC INSTRUCTION CARD COL 1 2 --- 79 80
MEM LOC P-1 P P+1 P+2 P+155 P+156 P+157 P+158 P ADDR MUST BE ODD





35 DN DUMP NUMERICALLY
38 WN WRITE NUMERICALLY
39 WA WRITE ALPHAMERICALLY

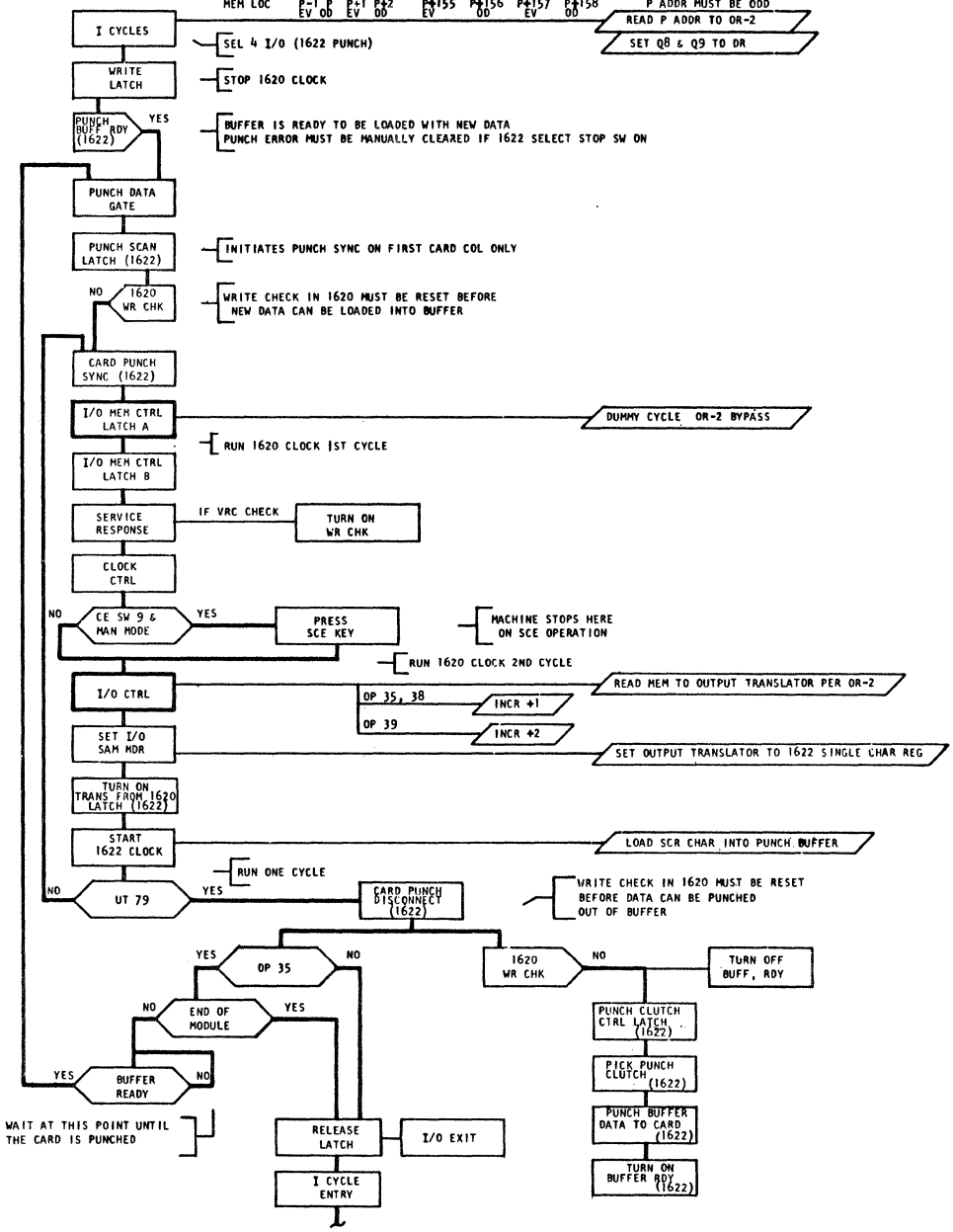
FUNCTION CHART	PAGE REF
RELEASE	10.01.49.1
WRITE LATCH	10.01.51.1
RESP GATE, I/O MEM CTRL	10.01.53.1
1622 CARD PUNCH	10.01.70.1

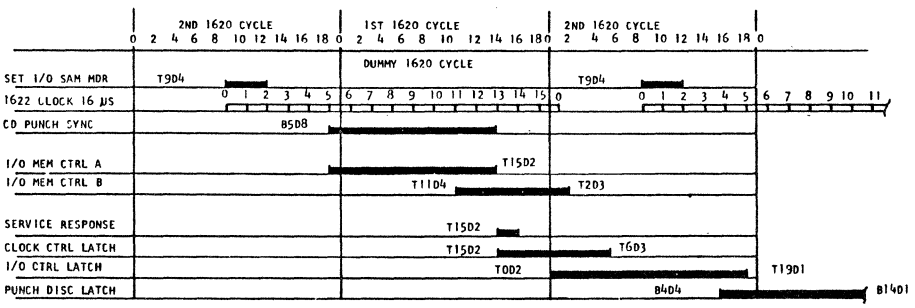
INSTRUCTION: $0_0 0_1$ $P_2 P_3 P_4 P_5 P_6$ $Q_7 Q_8 Q_9 Q_{10} Q_{11}$ 04 SELECTS 1622 PUNCH

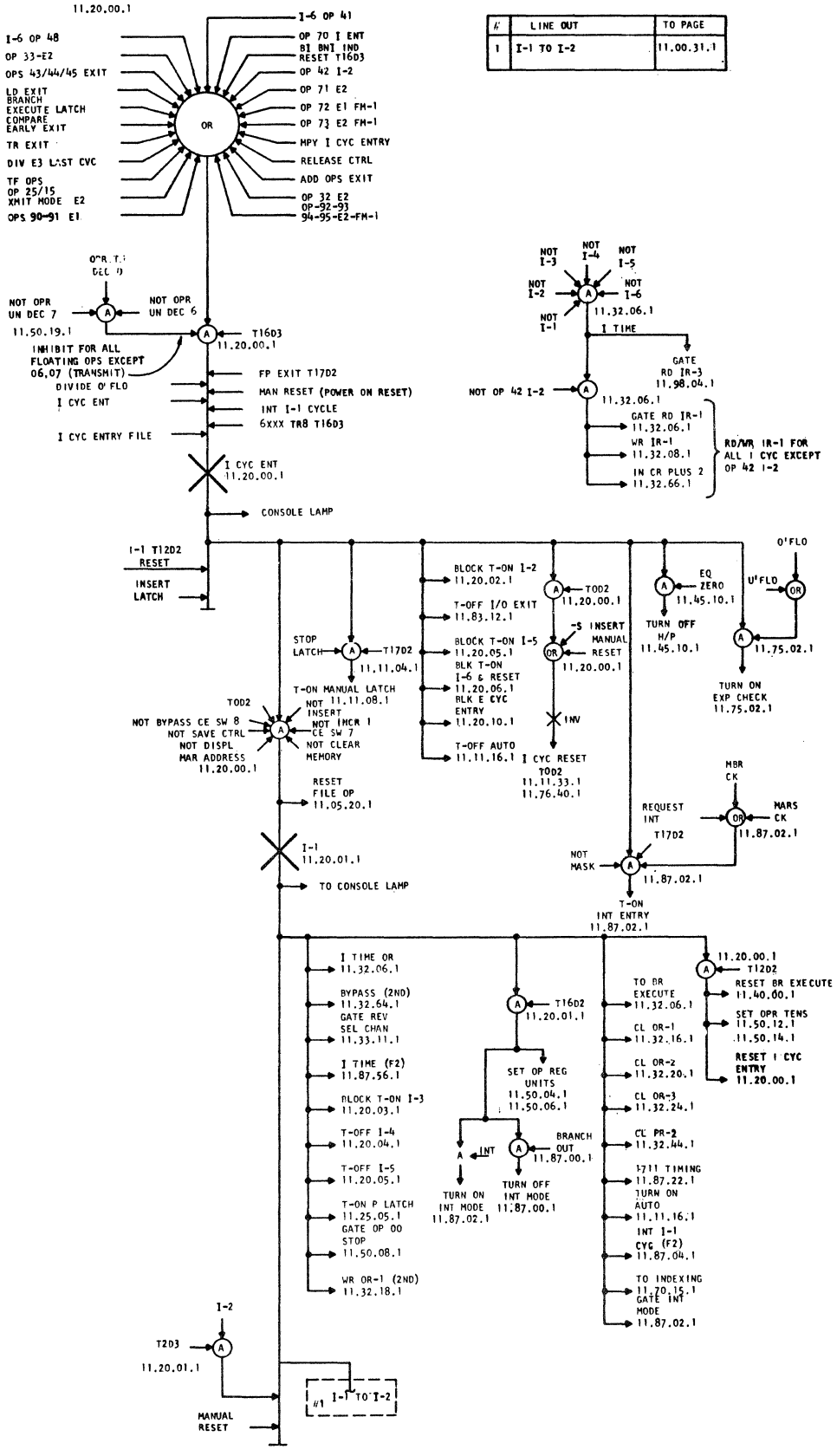
PURPOSE: PUNCH 80 CHAR INTO CARD STARTING FROM P ADDR THRU SUCCESSIVELY HIGHER NUMBERED LOCATIONS IN MEMORY

NUMERIC INSTRUCTION: CARD COL 1 2 -------- 79 80; MEM LOC P P+1 P+78 P+79; MEM ADDR=P+CC-1

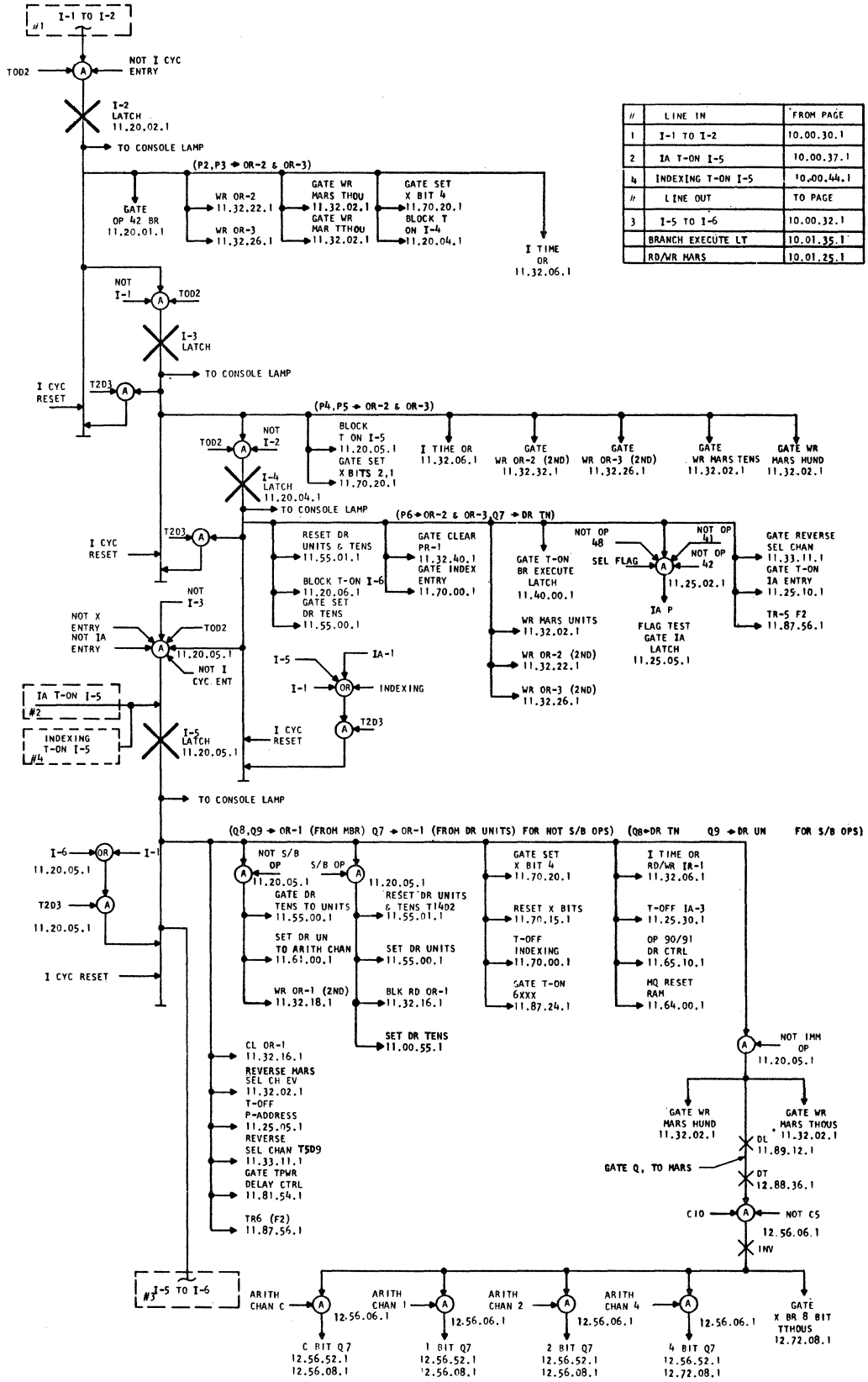
ALPHAMERIC INSTRUCTION: CARD COL 1 2 ----- 79 80; MEM LOC P-1 P EV OD, P+1 P+2 OD, P+155 P+156 EV OD, P+157 P+158 EV OD; MEM ADDR=P+2(CC-1); P ADDR MUST BE ODD





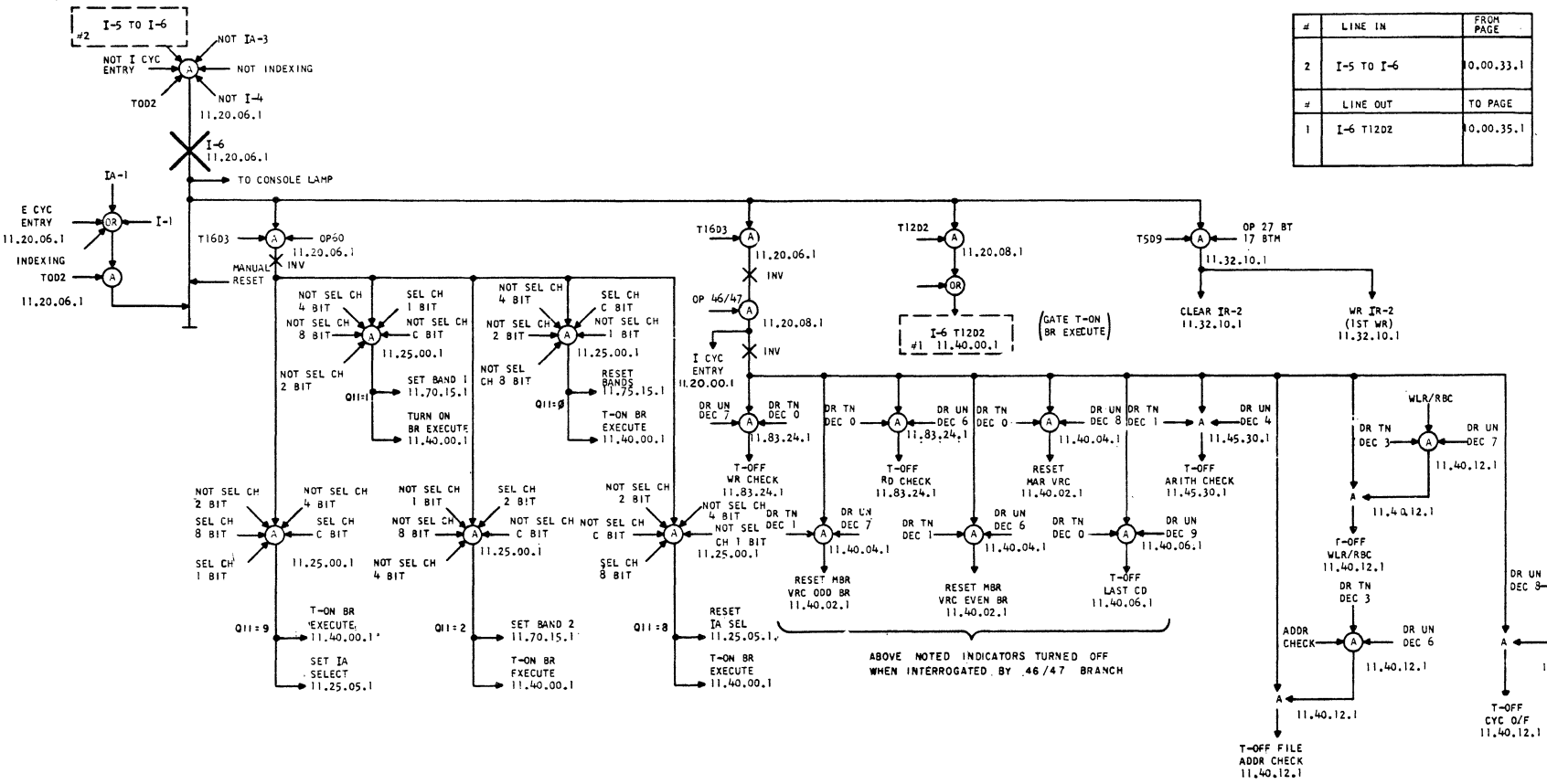


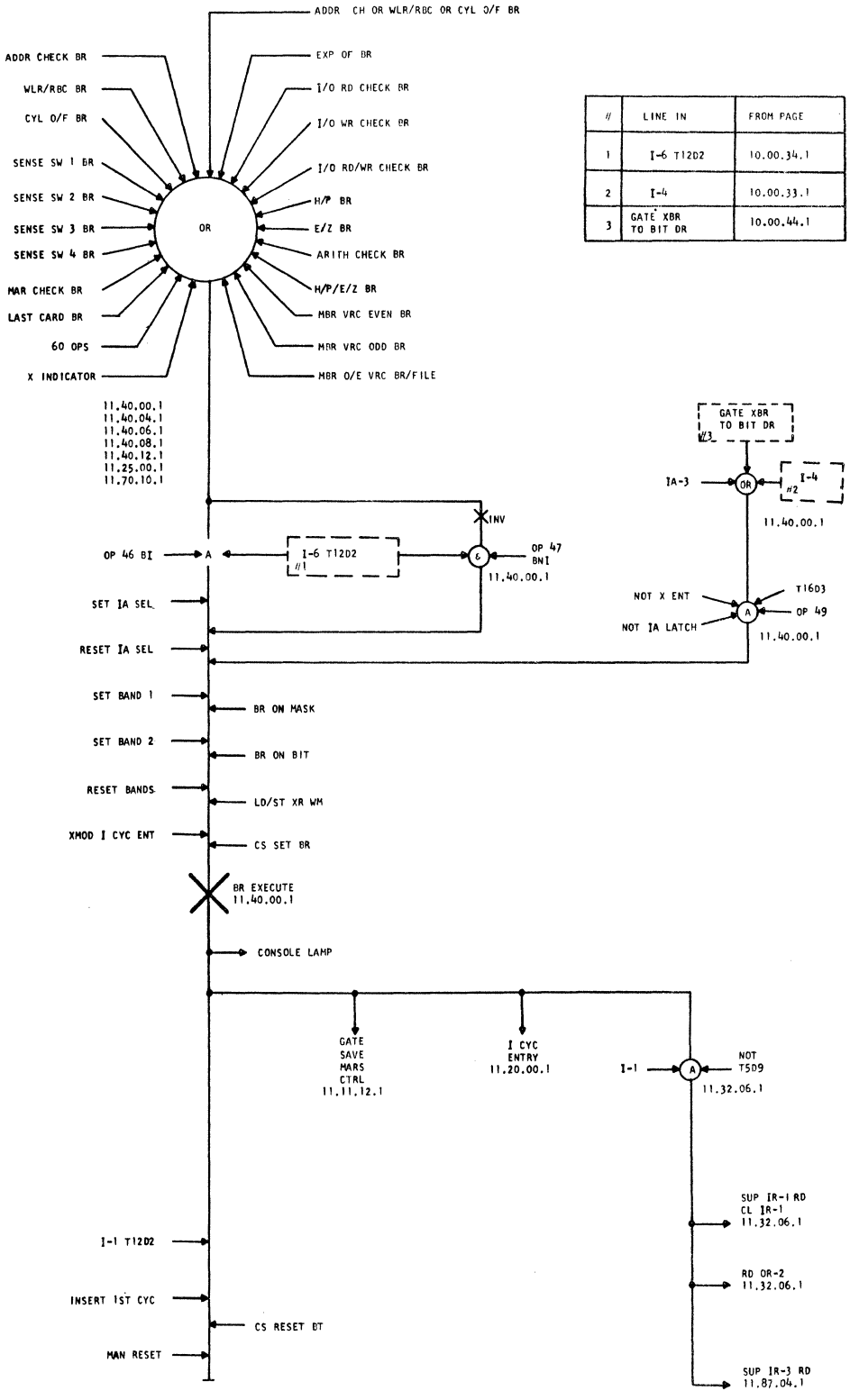
#	LINE OUT	TO PAGE
1	I-1 TO I-2	11.00.31.1



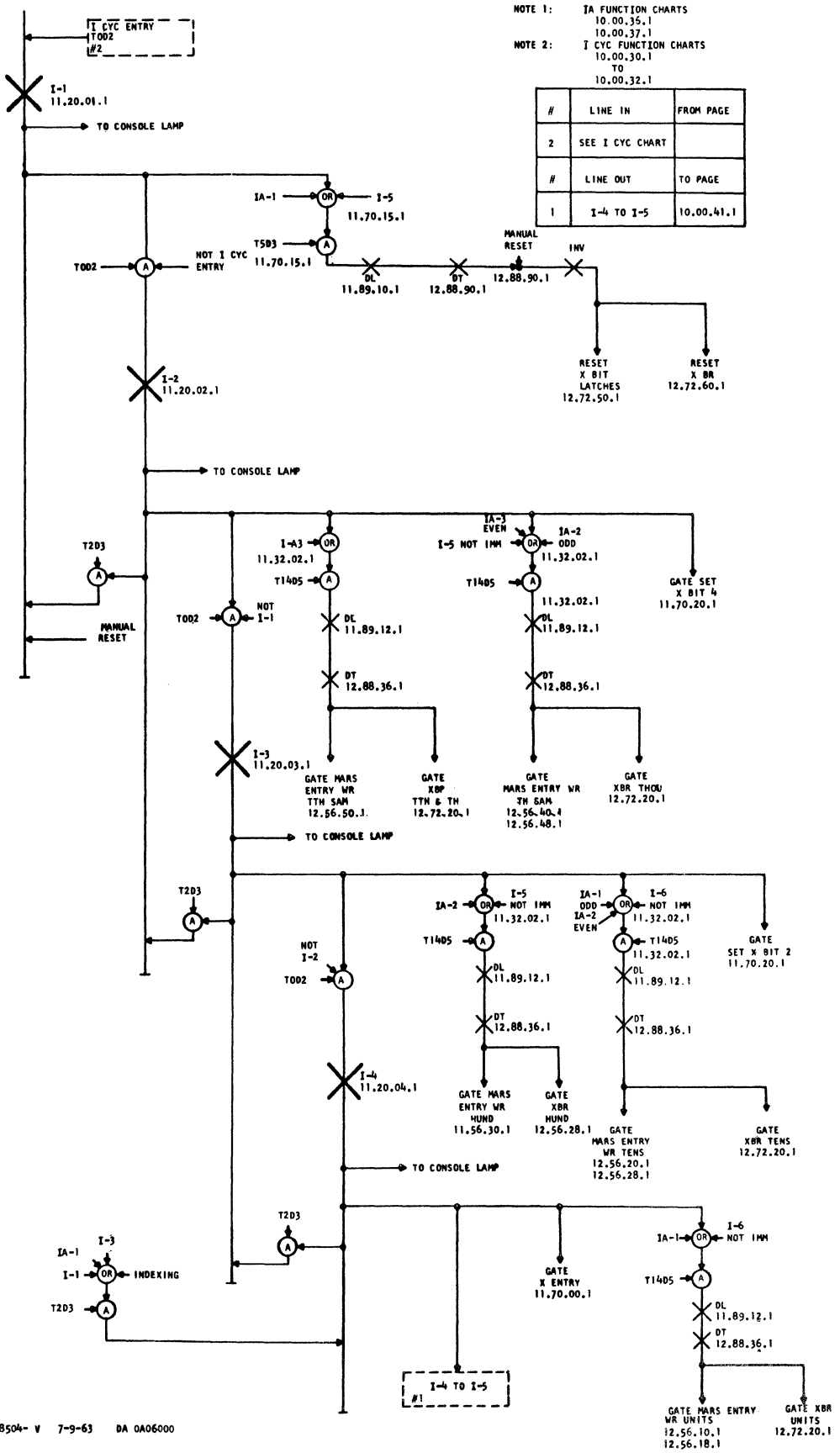
#	LINE IN	FROM PAGE
1	I-1 TO I-2	10.00.30.1
2	IA T-ON I-5	10.00.37.1
4	INDEXING T-ON I-5	10.00.44.1
#	LINE OUT	TO PAGE
3	I-5 TO I-6	10.00.32.1
	BRANCH EXECUTE LT	10.01.35.1
	RD/WR MARS	10.01.25.1

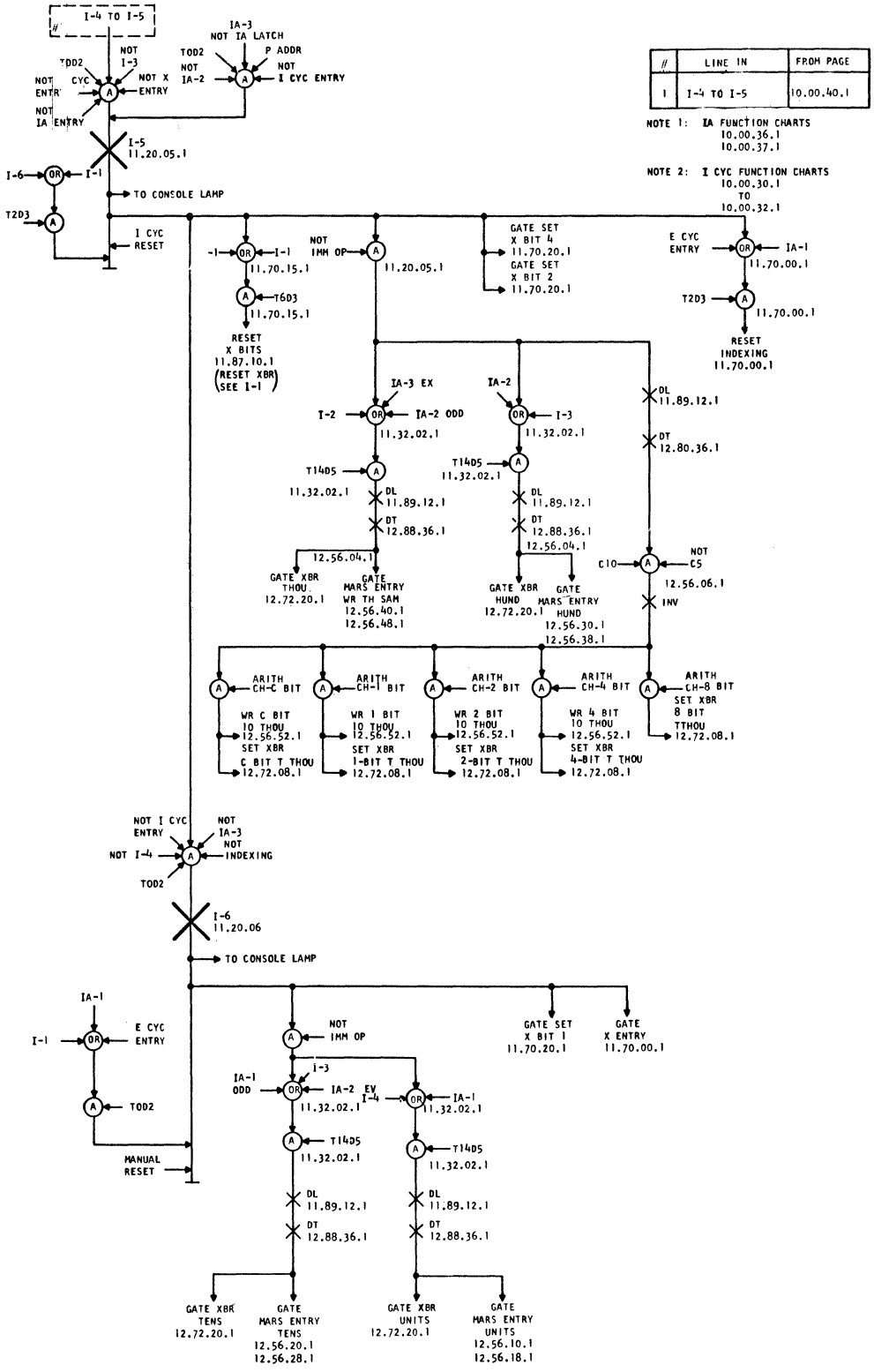
#	LINE IN	FROM PAGE
2	I-5 TO I-6	10.00.33.1
#	LINE OUT	TO PAGE
1	I-6 T12D2	10.00.35.1





#	LINE IN	FROM PAGE
1	I-6 T12D2	10.00.34.1
2	I-4	10.00.33.1
3	GATE XBR TO BIT DR	10.00.44.1

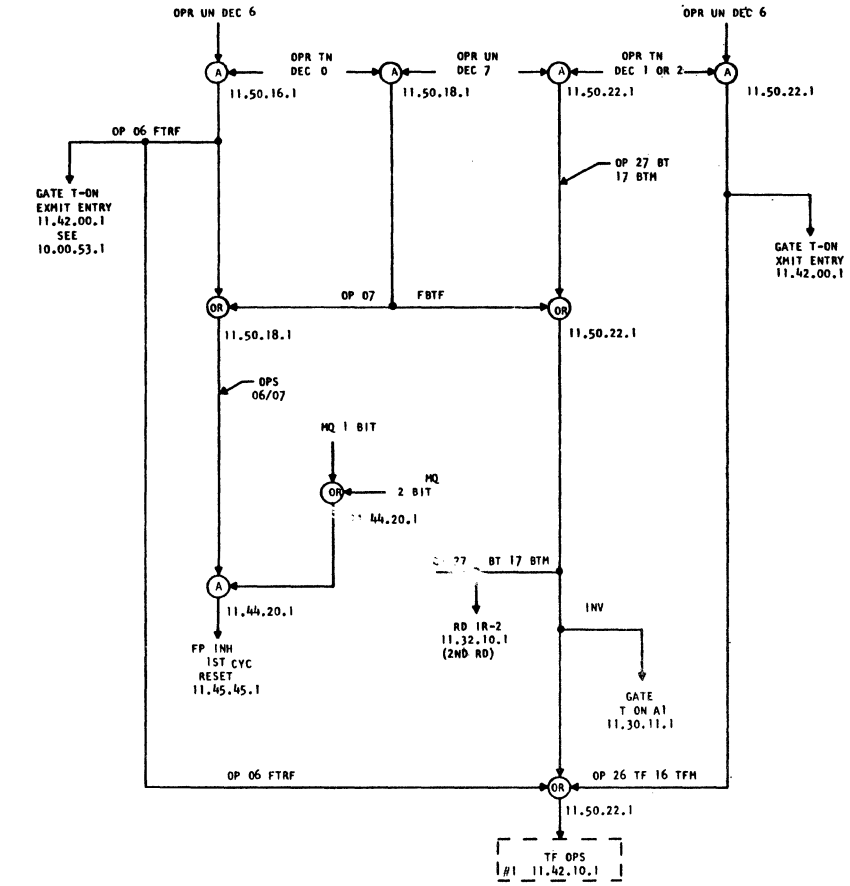

NOTE 1: IA FUNCTION CHARTS 10.00.35.1 10.00.37.1
NOTE 2: I CYC FUNCTION CHARTS 10.00.30.1 TO 10.00.32.1
LINE IN FROM PAGE
2 SEE I CYC CHART
LINE OUT TO PAGE
1 I-4 TO I-5 10.00.41.1
I CYC ENTRY TOD2 #2
I-1 11.20.01.1
TO CONSOLE LAMP
IA-1
I-5 11.70.15.1
T5D3
TOD2
NOT I CYC ENTRY
DL 11.89.10.1
DT 12.88.90.1
MANUAL RESET
12.88.90.1
INV
RESET X BIT LATCHES 12.72.50.1
RESET X BR 12.72.60.1
I-2 11.20.02.1
TO CONSOLE LAMP
T2D3
MANUAL RESET
I-A3 11.32.02.1
T14D5
TOD2
NOT I-1
DL 11.89.12.1
DT 12.88.36.1
IA-3 EVEN
I-5 NOT IMM
IA-2 ODD 11.32.02.1
GATE SET X BIT 4 11.70.20.1
I-3 11.20.03.1
GATE MARS ENTRY WR TTH SAM 12.56.50.1
GATE XBR TTH & TH 12.72.20.1
GATE MARS ENTRY WR TH SAM 12.56.40.4 12.56.48.1
GATE XBR THOU 12.72.20.1
TO CONSOLE LAMP
T2D3
IA-2
I-5 NOT IMM 11.32.02.1
T14D5
NOT I-2
TOD2
GATE MARS ENTRY WR HUND 11.56.30.1
GATE XBR HUND 12.56.28.1
IA-1 ODD
IA-2 EVEN
I-6 NOT IMM 11.32.02.1
GATE SET X BIT 2 11.70.20.1
GATE MARS ENTRY WR TENS 12.56.20.1 12.56.28.1
GATE XBR TENS 12.72.20.1
I-4 11.20.04.1
TO CONSOLE LAMP
T2D3
IA-1
I-3
I-1
INDEXING
T2D3
GATE X ENTRY 11.70.00.1
I-4 TO I-5 #1
GATE MARS ENTRY WR UNITS 12.56.10.1 12.56.18.1
GATE XBR UNITS 12.72.20.1

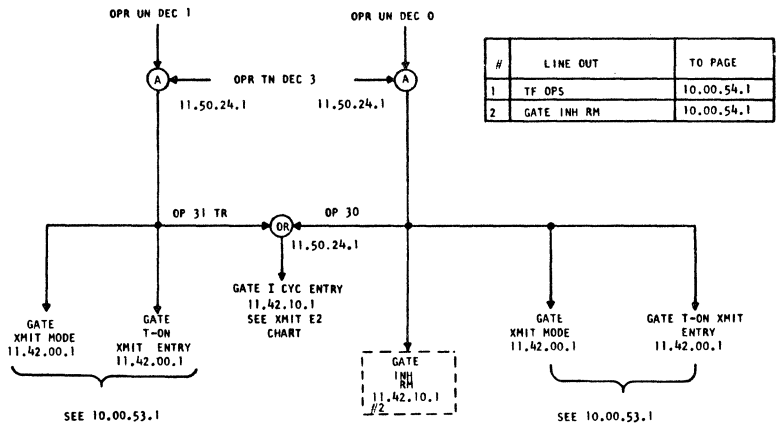


#	LINE IN	FROM PAGE
1	I-4 TO I-5	10.00.40.1

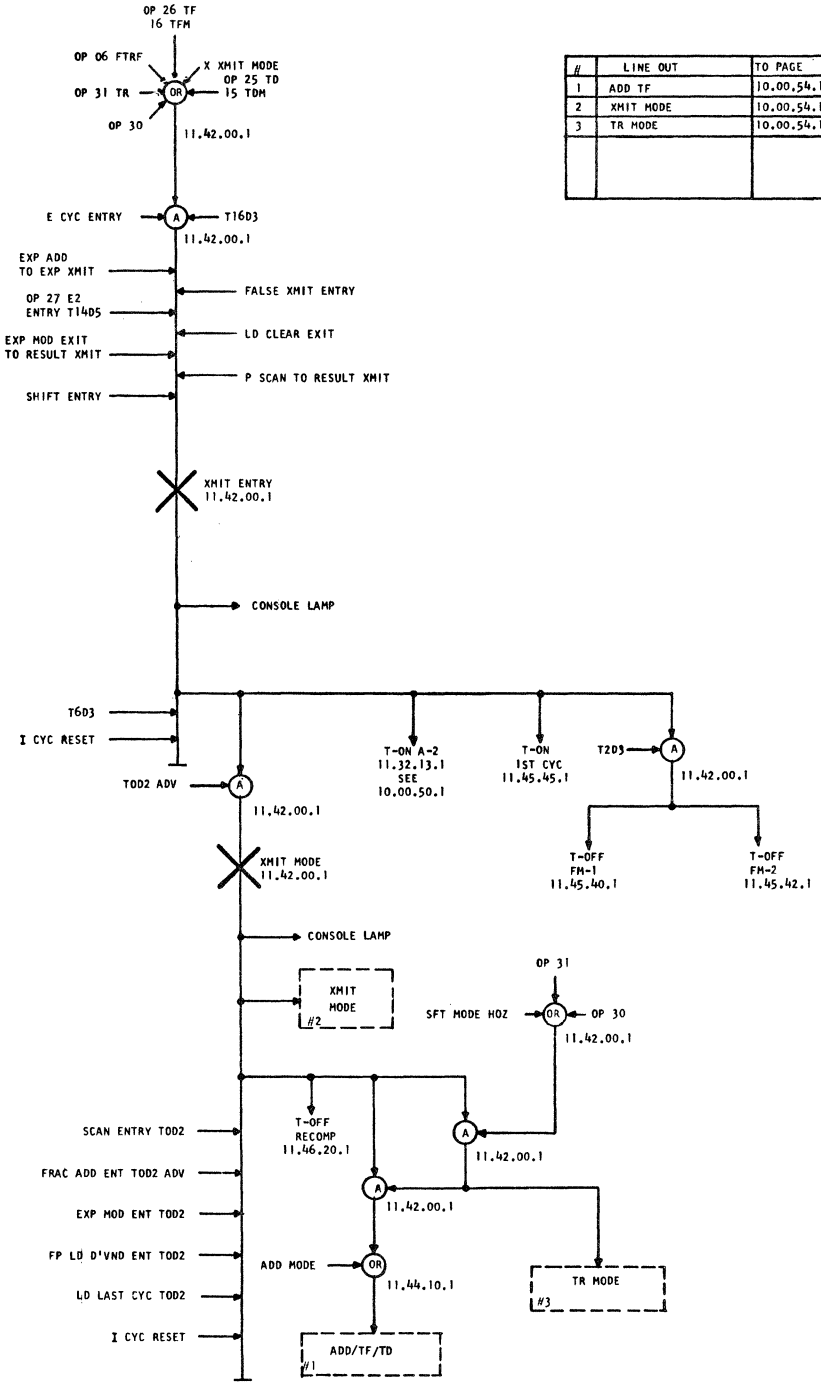
NOTE 1: IA FUNCTION CHARTS
10.00.36.1
10.00.37.1

NOTE 2: I CYC FUNCTION CHARTS
10.00.30.1
TO
10.00.32.1



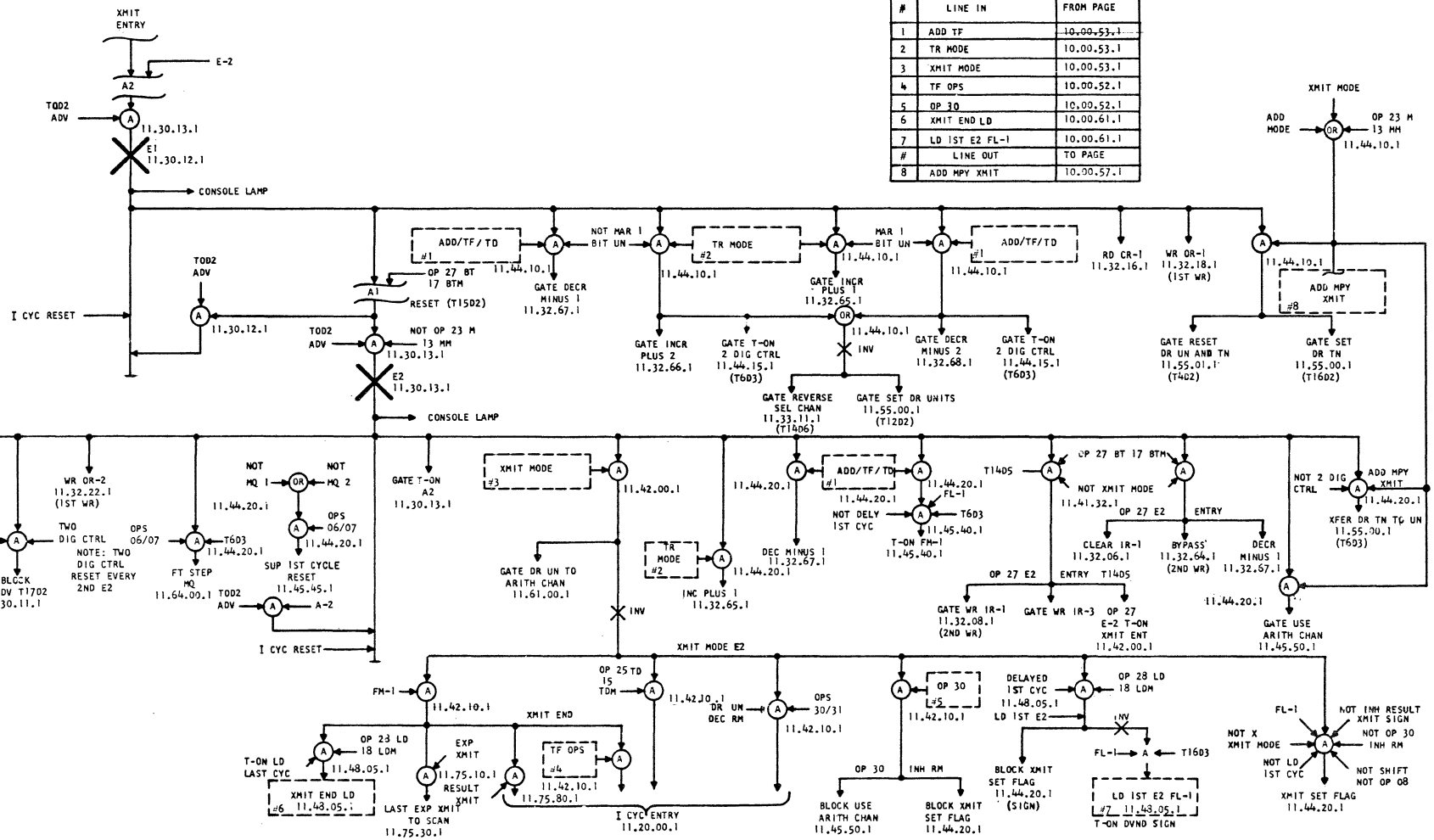


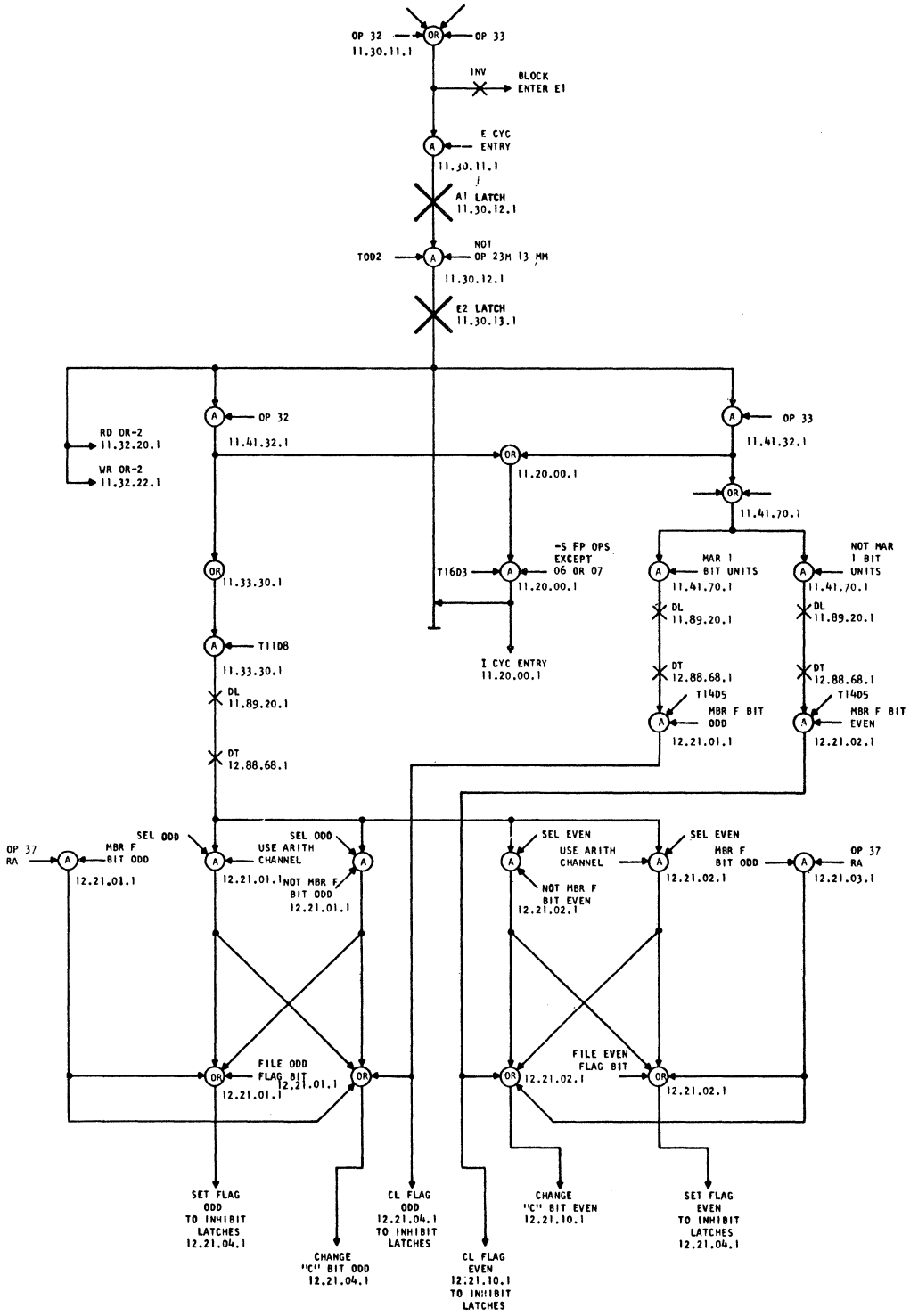
#	LINE OUT	TO PAGE
1	TF OPS	10.00.54.1
2	GATE INH RM	10.00.54.1



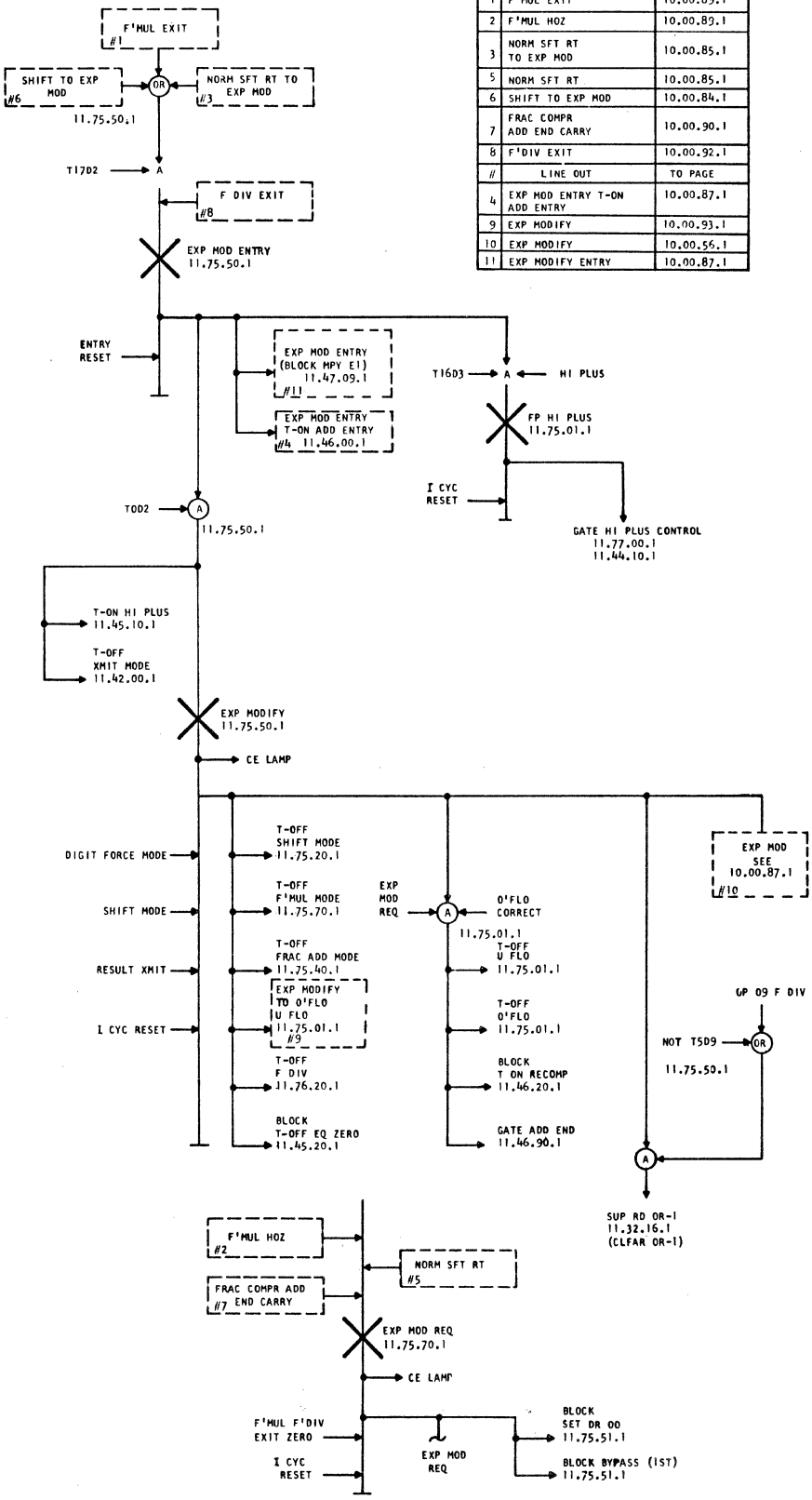
#	LINE OUT	TO PAGE
1	ADD TF	10.00.54.1
2	XMIT MODE	10.00.54.1
3	TR MODE	10.00.54.1

#	LINE IN	FROM PAGE
1	ADD TF	~~10.00.53.1~~
2	TR MODE	10.00.53.1
3	XMIT MODE	10.00.53.1
4	TF OPS	10.00.52.1
5	OP 30	10.00.52.1
6	XMIT END LD	10.00.61.1
7	LD 1ST E2 FL-1	10.00.61.1
#	LINE OUT	TO PAGE
8	ADD MPY XMIT	10.00.57.1

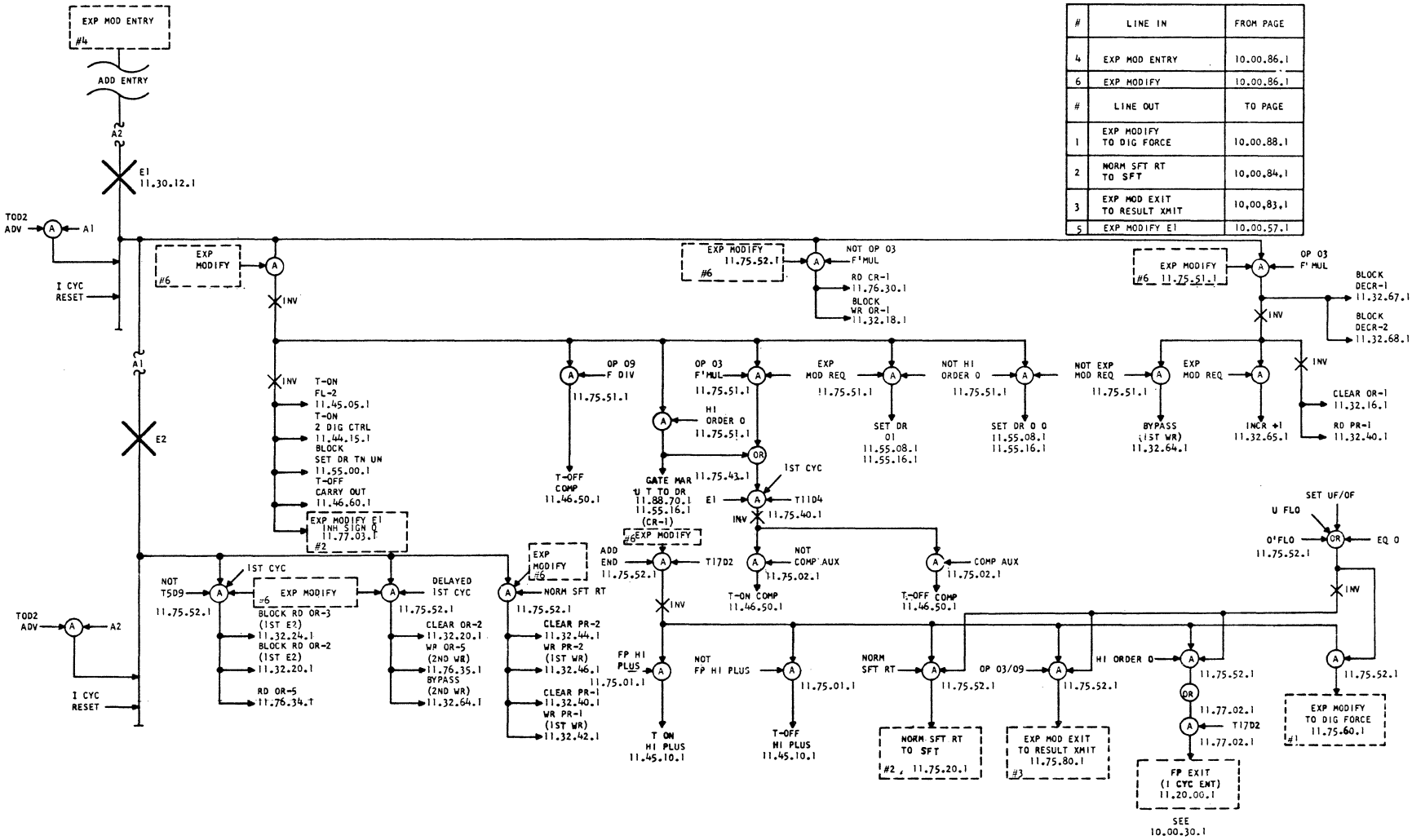


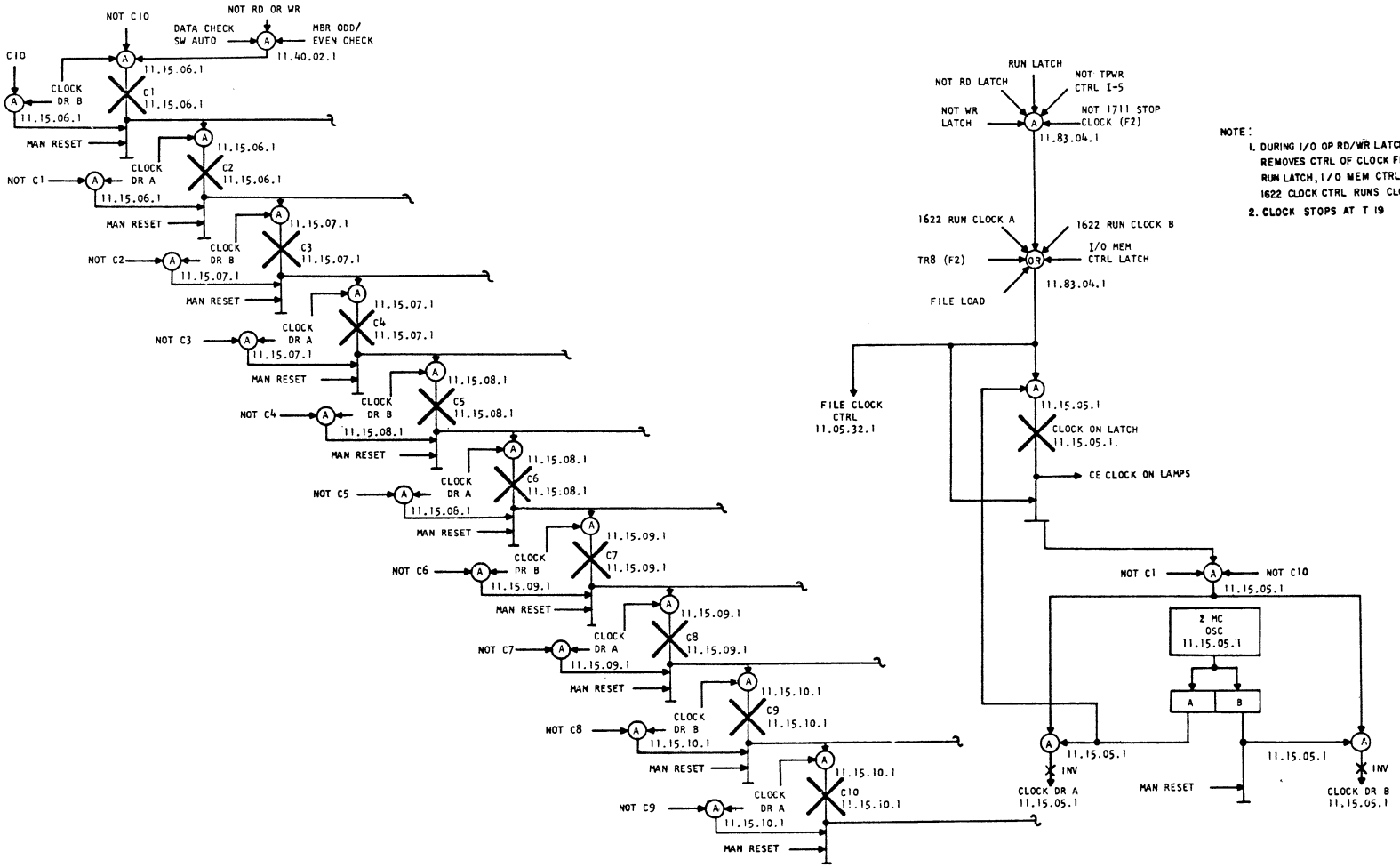

OP 32
11.30.11.1
OR
OP 33
INV
BLOCK ENTER E1
A
E CYC ENTRY
11.30.11.1
A1 LATCH
11.30.12.1
TOD2
NOT OP 23M 13 MM
11.30.12.1
E2 LATCH
11.30.13.1
RD OR-2
11.32.20.1
WR OR-2
11.32.22.1
OP 32
11.41.32.1
OP 33
11.41.32.1
11.20.00.1
11.41.70.1
11.33.30.1
T16D3
-S FP OPS EXCEPT 06 OR 07
11.20.00.1
I CYC ENTRY
11.20.00.1
MAR 1 BIT UNITS
11.41.70.1
NOT MAR 1 BIT UNITS
11.41.70.1
DL
11.89.20.1
T11D8
11.33.30.1
DT
12.88.68.1
T14D5
MBR F BIT ODD
12.21.01.1
MBR F BIT EVEN
12.21.02.1
OP 37
RA
MBR F BIT ODD
12.21.01.1
SEL ODD
USE ARITH CHANNEL
12.21.01.1
NOT MBR F BIT ODD
12.21.01.1
SEL EVEN
USE ARITH CHANNEL
NOT MBR F BIT EVEN
12.21.02.1
SEL EVEN
MBR F BIT ODD
12.21.02.1
OP 37
RA
12.21.03.1
FILE ODD FLAG BIT
12.21.01.1
FILE EVEN FLAG BIT
12.21.02.1
SET FLAG ODD TO INHIBIT LATCHES
12.21.04.1
CHANGE "C" BIT ODD
12.21.04.1
CL FLAG ODD
12.21.04.1
TO INHIBIT LATCHES
CL FLAG EVEN
12.21.10.1
TO INHIBIT LATCHES
CHANGE "C" BIT EVEN
12.21.10.1
SET FLAG EVEN TO INHIBIT LATCHES
12.21.04.1

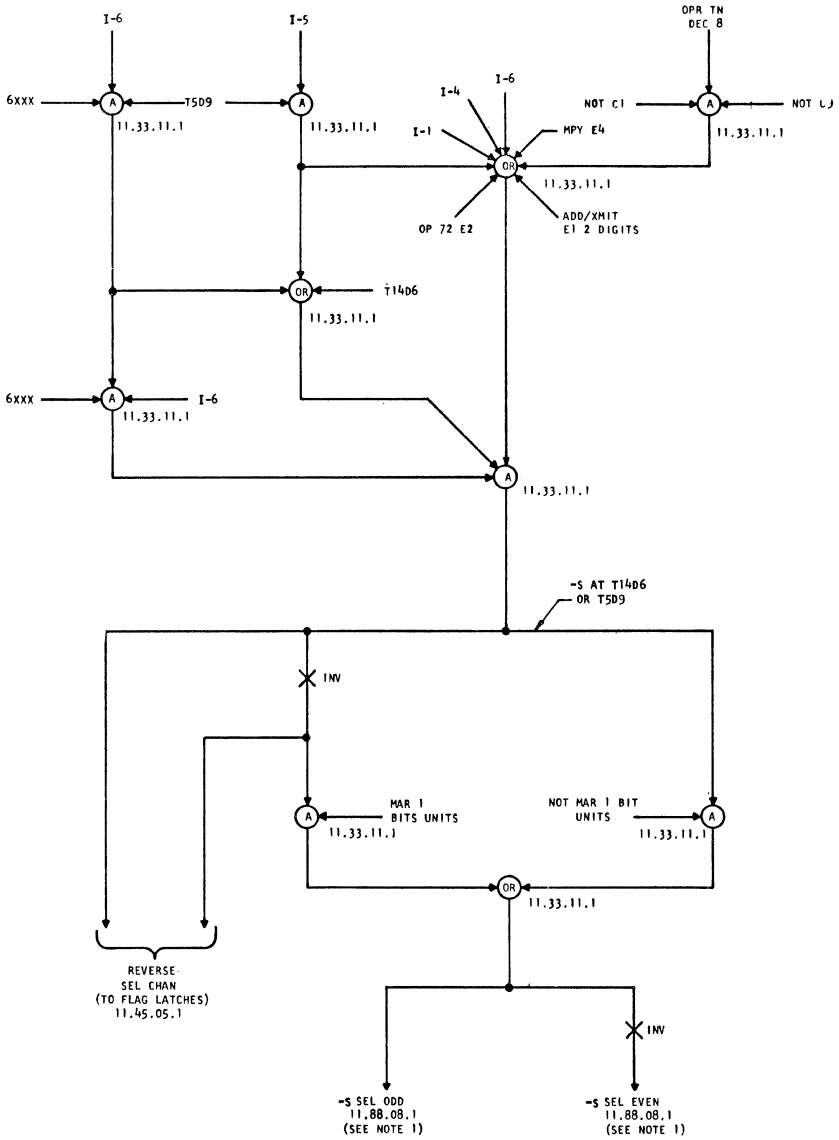
#	LINE IN	FROM PAGE
1	F'MUL EXIT	10.00.89.1
2	F'MUL HOZ	10.00.89.1
3	NORM SFT RT TO EXP MOD	10.00.85.1
5	NORM SFT RT	10.00.85.1
6	SHIFT TO EXP MOD	10.00.84.1
7	FRAC COMPR ADD END CARRY	10.00.90.1
8	F'DIV EXIT	10.00.92.1
#	LINE OUT	TO PAGE
4	EXP MOD ENTRY T-ON ADD ENTRY	10.00.87.1
9	EXP MODIFY	10.00.93.1
10	EXP MODIFY	10.00.56.1
11	EXP MODIFY ENTRY	10.00.87.1



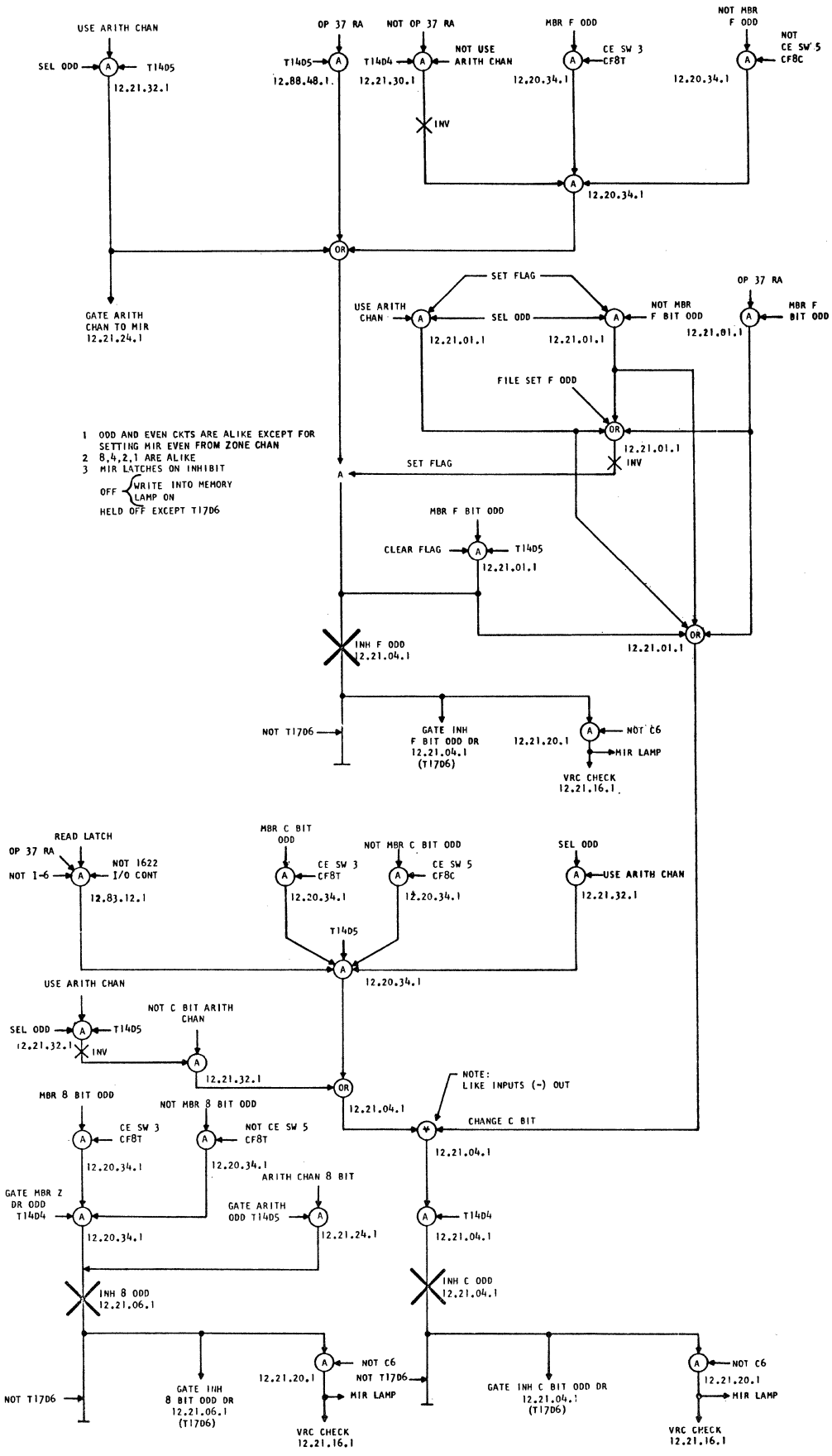
#	LINE IN	FROM PAGE
4	EXP MOD ENTRY	10.00.86.1
6	EXP MODIFY	10.00.86.1
#	LINE OUT	TO PAGE
1	EXP MODIFY TO DIG FORCE	10.00.88.1
2	NORM SFT RT TO SFT	10.00.84.1
3	EXP MOD EXIT TO RESULT XMIT	10.00.83.1
5	EXP MODIFY E1	10.00.57.1

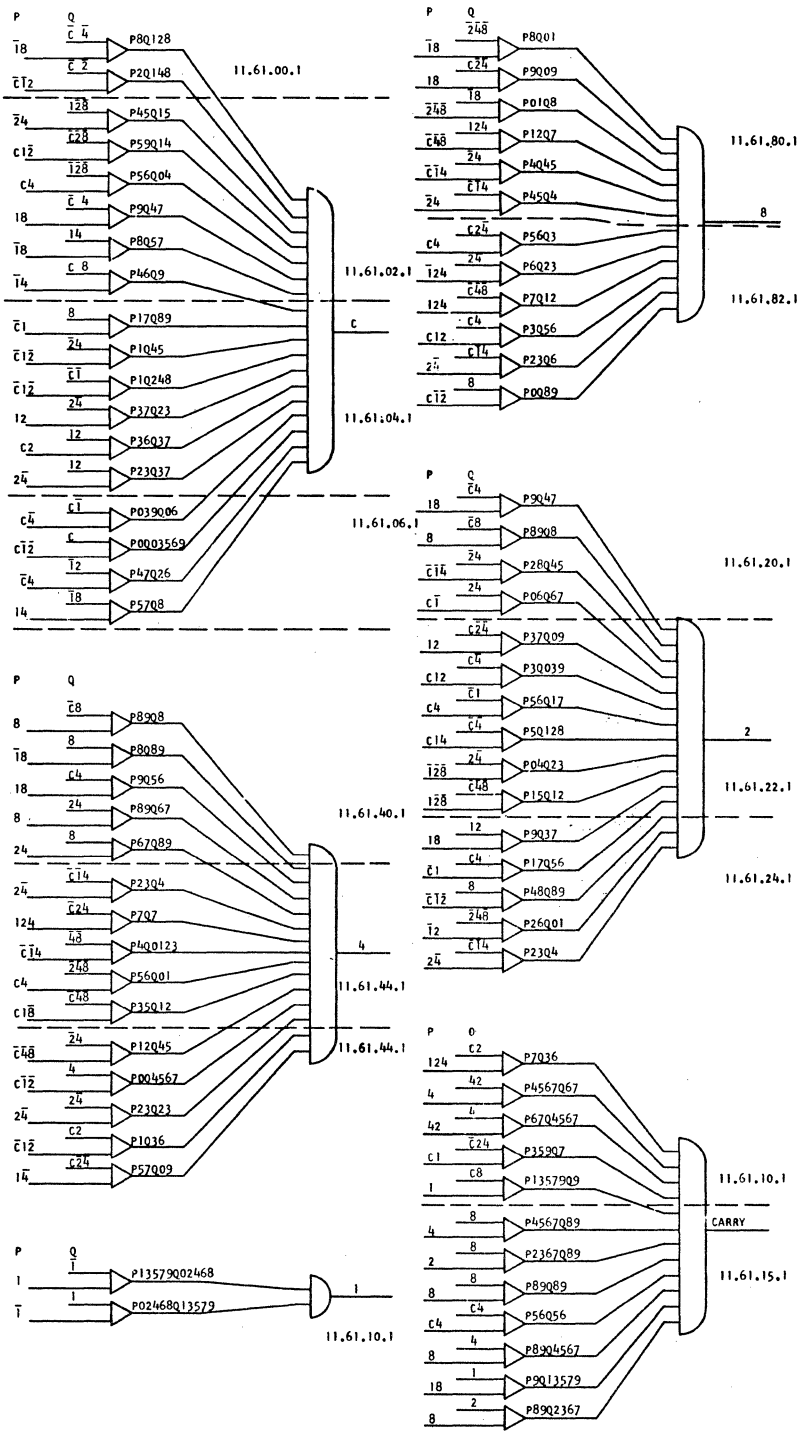


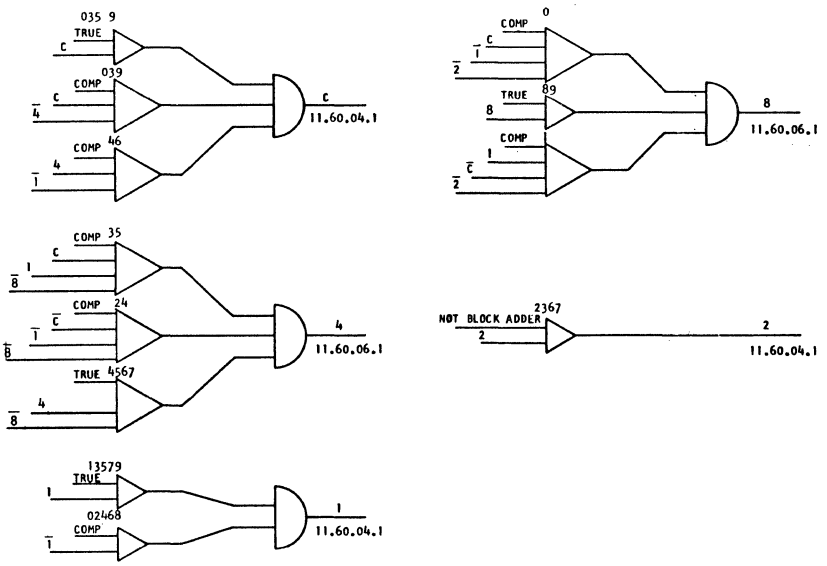

NOT C10
NOT RD OR WR
DATA CHECK SW AUTO
MBR ODD/ EVEN CHECK
11.40.02.1
C10
CLOCK DR B
11.15.06.1
C1
11.15.06.1
MAN RESET
CLOCK DR A
C2
NOT C1
CLOCK DR B
C3
NOT C2
CLOCK DR A
C4
NOT C3
CLOCK DR B
C5
NOT C4
CLOCK DR A
C6
NOT C5
CLOCK DR B
C7
NOT C6
CLOCK DR A
C8
NOT C7
CLOCK DR B
C9
NOT C8
CLOCK DR A
C10
NOT C9
RUN LATCH
NOT RD LATCH
NOT TPWR CTRL I-5
NOT WR LATCH
NOT 1711 STOP CLOCK (F2)
11.83.04.1
1622 RUN CLOCK A
1622 RUN CLOCK B
TR8 (F2)
I/O MEM CTRL LATCH
FILE LOAD
FILE CLOCK CTRL 11.05.32.1
CLOCK ON LATCH 11.15.05.1
CE CLOCK ON LAMPS
NOT C1
NOT C10
2 MC OSC 11.15.05.1
A
B
INV
CLOCK DR A 11.15.05.1
CLOCK DR B 11.15.05.1
NOTE:
1. DURING I/O OP RD/WR LATCHES REMOVES CTRL OF CLOCK FROM RUN LATCH, I/O MEM CTRL OR 1622 CLOCK CTRL RUNS CLOCK
2. CLOCK STOPS AT T 19



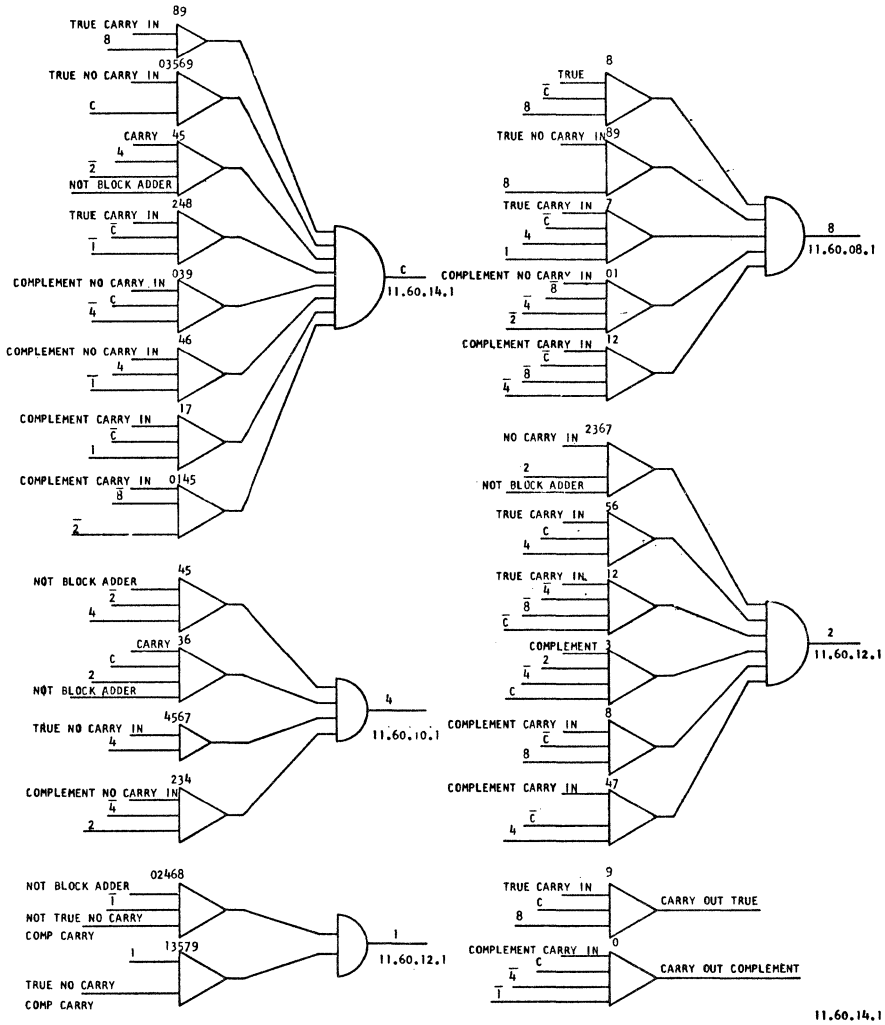
NOTE 1: SELECT FLAG IS ONLY REVERSED AT THE FLAG LATCHES. ALL OTHER SELECT FLAG LINES ARE CONTROLLED BY THE MAR ADDRESS SELECTION.


USE ARITH CHAN
SEL ODD
T14D5
12.21.32.1
OP 37 RA
T14D5
12.88.48.1
NOT OP 37 RA
T14D4
12.21.30.1
NOT USE ARITH CHAN
INV
MBR F ODD
CE SW 3 CF8T
12.20.34.1
NOT MBR F ODD
NOT CE SW 5 CF8C
12.20.34.1
12.20.34.1
OR
GATE ARITH CHAN TO MIR
12.21.24.1
SET FLAG
USE ARITH CHAN
SEL ODD
12.21.01.1
12.21.01.1
NOT MBR F BIT ODD
OP 37 RA
MBR F BIT ODD
12.21.01.1
FILE SET F ODD
OR
12.21.01.1
INV
SET FLAG
1 ODD AND EVEN CKTS ARE ALIKE EXCEPT FOR SETTING MIR EVEN FROM ZONE CHAN
2 8,4,2,1 ARE ALIKE
3 MIR LATCHES ON INHIBIT
OFF WRITE INTO MEMORY
LAMP ON
HELD OFF EXCEPT T17D6
MBR F BIT ODD
CLEAR FLAG
T14D5
12.21.01.1
INH F ODD
12.21.04.1
OR
12.21.01.1
NOT T17D6
GATE INH F BIT ODD DR
12.21.04.1
(T17D6)
12.21.20.1
NOT C6
MIR LAMP
VRC CHECK
12.21.16.1
READ LATCH
OP 37 RA
NOT 1-6
NOT 1622 I/O CONT
12.83.12.1
MBR C BIT ODD
CE SW 3 CF8T
12.20.34.1
NOT MBR C BIT ODD
CE SW 5 CF8C
12.20.34.1
SEL ODD
USE ARITH CHAN
12.21.32.1
T14D5
12.20.34.1
USE ARITH CHAN
SEL ODD
T14D5
12.21.32.1
INV
NOT C BIT ARITH CHAN
12.21.32.1
OR
12.21.04.1
NOTE: LIKE INPUTS (-) OUT
CHANGE C BIT
12.21.04.1
MBR 8 BIT ODD
CE SW 3 CF8T
12.20.34.1
NOT MBR 8 BIT ODD
NOT CE SW 5 CF8T
12.20.34.1
ARITH CHAN 8 BIT
GATE MBR Z DR ODD T14D4
12.20.34.1
GATE ARITH ODD T14D5
12.21.24.1
T14D4
12.21.04.1
INH 8 ODD
12.21.06.1
INH C ODD
12.21.04.1
NOT T17D6
GATE INH 8 BIT ODD DR
12.21.06.1
(T17D6)
12.21.20.1
NOT C6
NOT T17D6
MIR LAMP
VRC CHECK
12.21.16.1
GATE INH C BIT ODD DR
12.21.04.1
(T17D6)
12.21.20.1
NOT C6
MIR LAMP
VRC CHECK
12.21.16.1

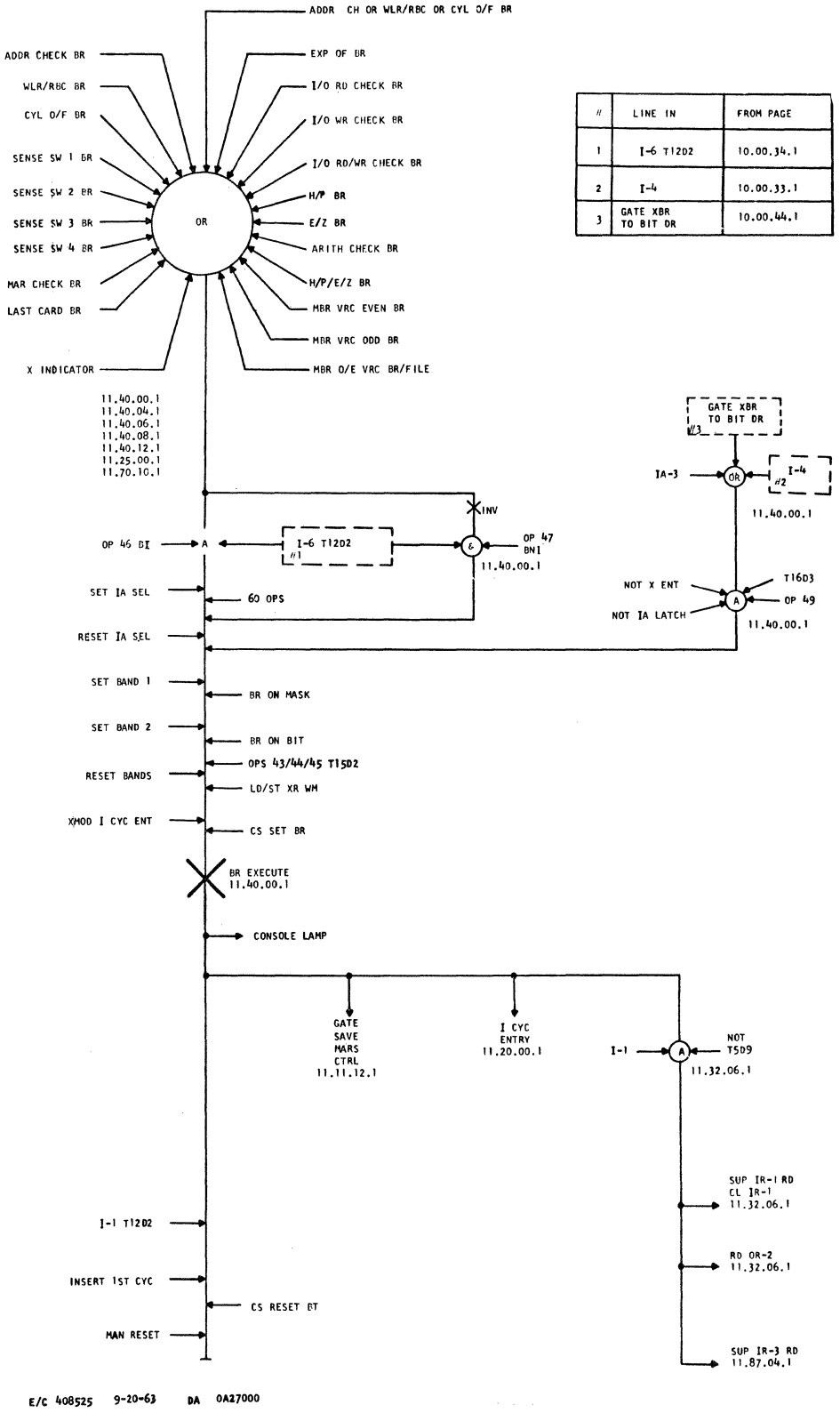

P
Q
P8Q128
P2Q148
P45Q15
P59Q14
P56Q04
P9Q47
P8Q57
P46Q9
11.61.00.1
11.61.02.1
C
P17Q89
P1Q45
P1Q248
P37Q23
P36Q37
P23Q37
P039Q06
P0003569
P47Q26
P5708
11.61.04.1
P8Q01
P9Q09
P01Q8
P12Q7
P4Q45
P45Q4
P56Q3
P6Q23
P7Q12
P3Q56
P23Q6
P00Q89
11.61.80.1
8
11.61.82.1
11.61.06.1
P9Q47
P8Q08
P28Q45
P06Q67
P37Q09
P3Q039
P56Q17
P5Q128
P04Q23
P15Q12
11.61.20.1
2
11.61.22.1
11.61.24.1
P9Q37
P17Q56
P48Q89
P26Q01
P23Q4
11.61.40.1
P8Q08
P8Q89
P9Q56
P89Q67
P67Q89
P23Q4
P7Q7
P4Q0123
P56Q01
P35Q12
4
11.61.44.1
11.61.44.1
P12Q45
P004567
P23Q23
P1Q36
P57Q09
P13579Q02468
P02468Q13579
1
11.61.10.1
P7Q36
P4567Q67
P67Q4567
P35Q7
P1357Q9
11.61.10.1
CARRY
P4567Q89
P2367Q89
P89Q89
P56Q56
P89Q4567
P9Q13579
P89Q2367
11.61.15.1



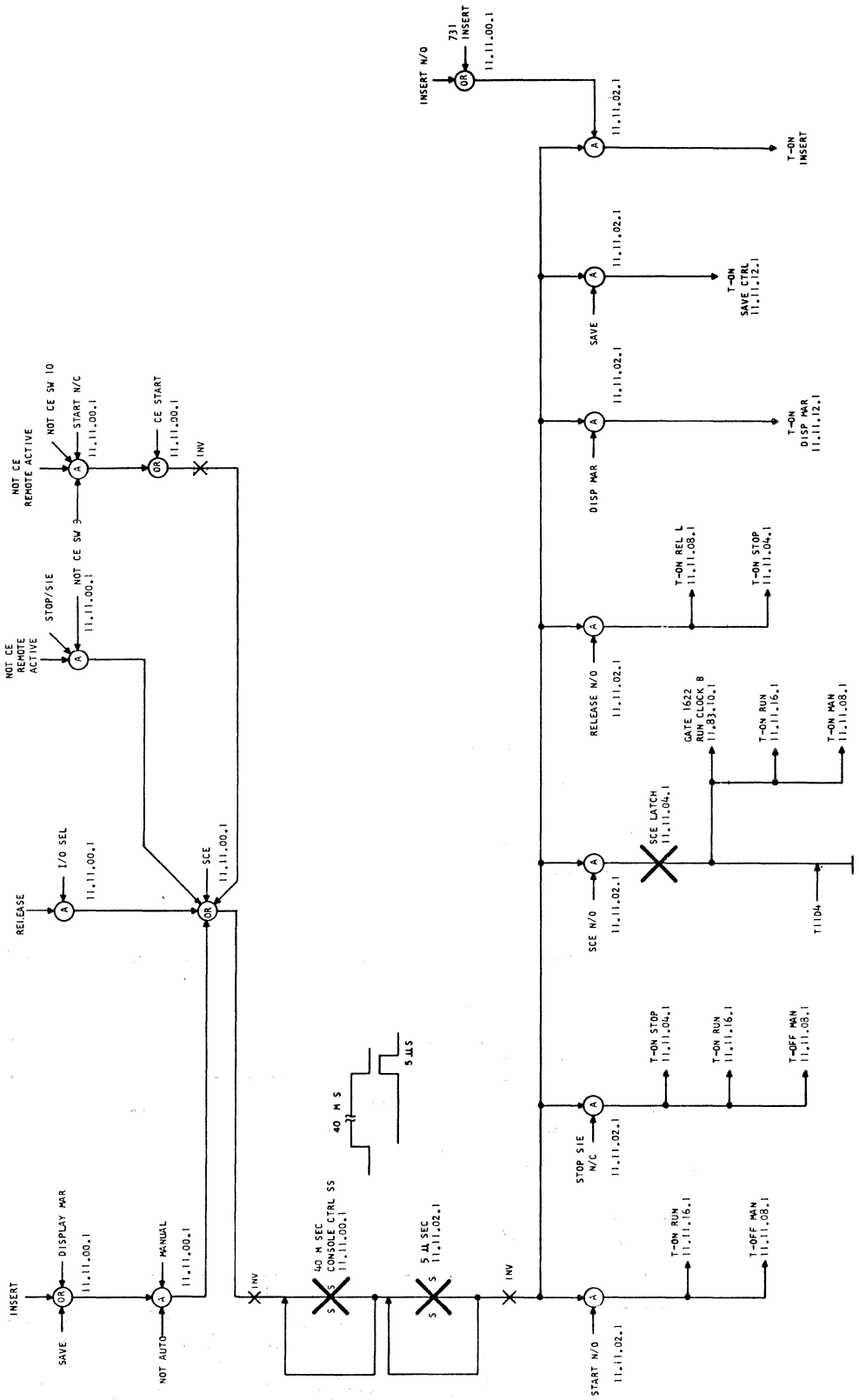
P CHANNEL T/C NETWORK

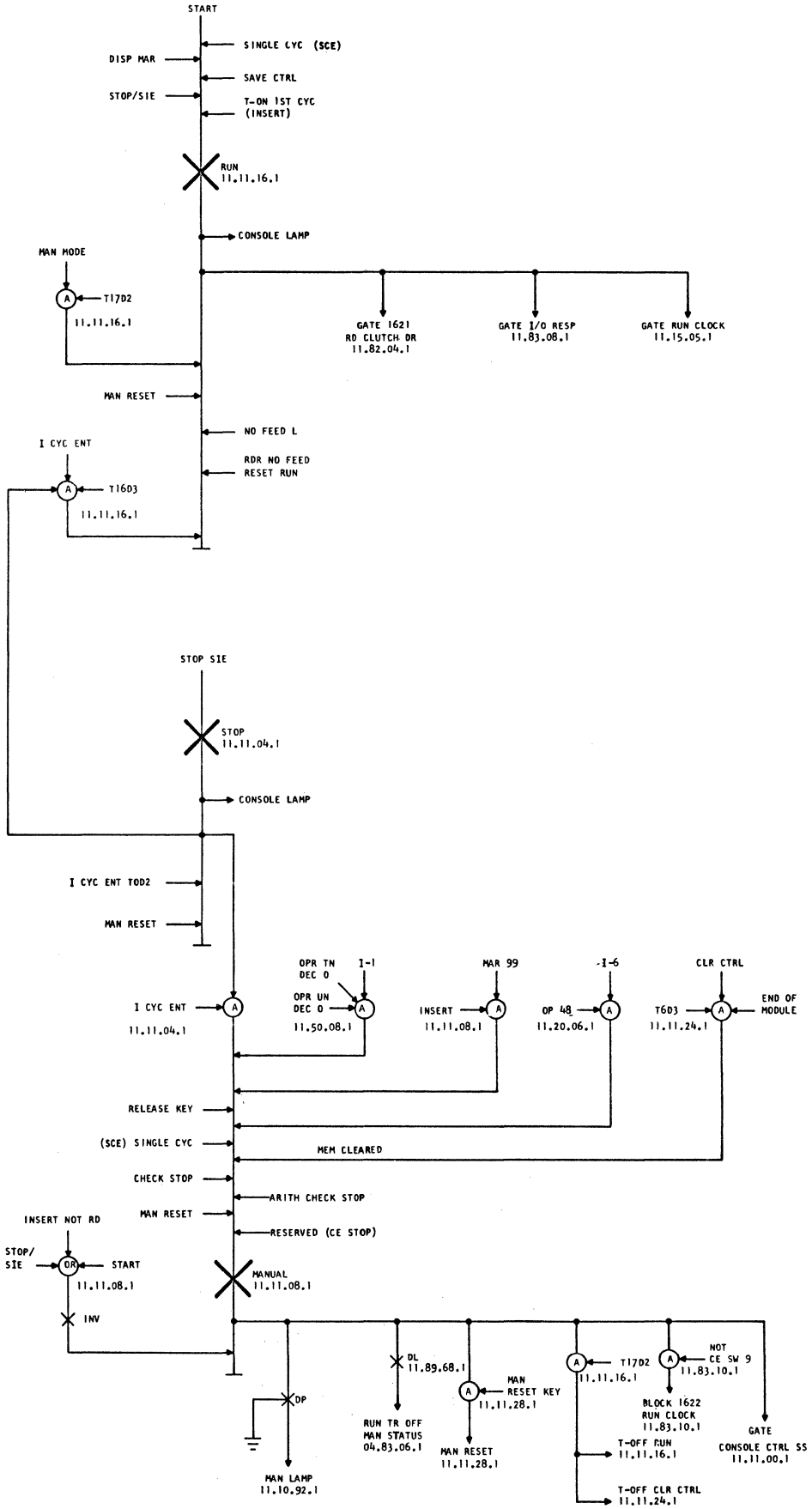


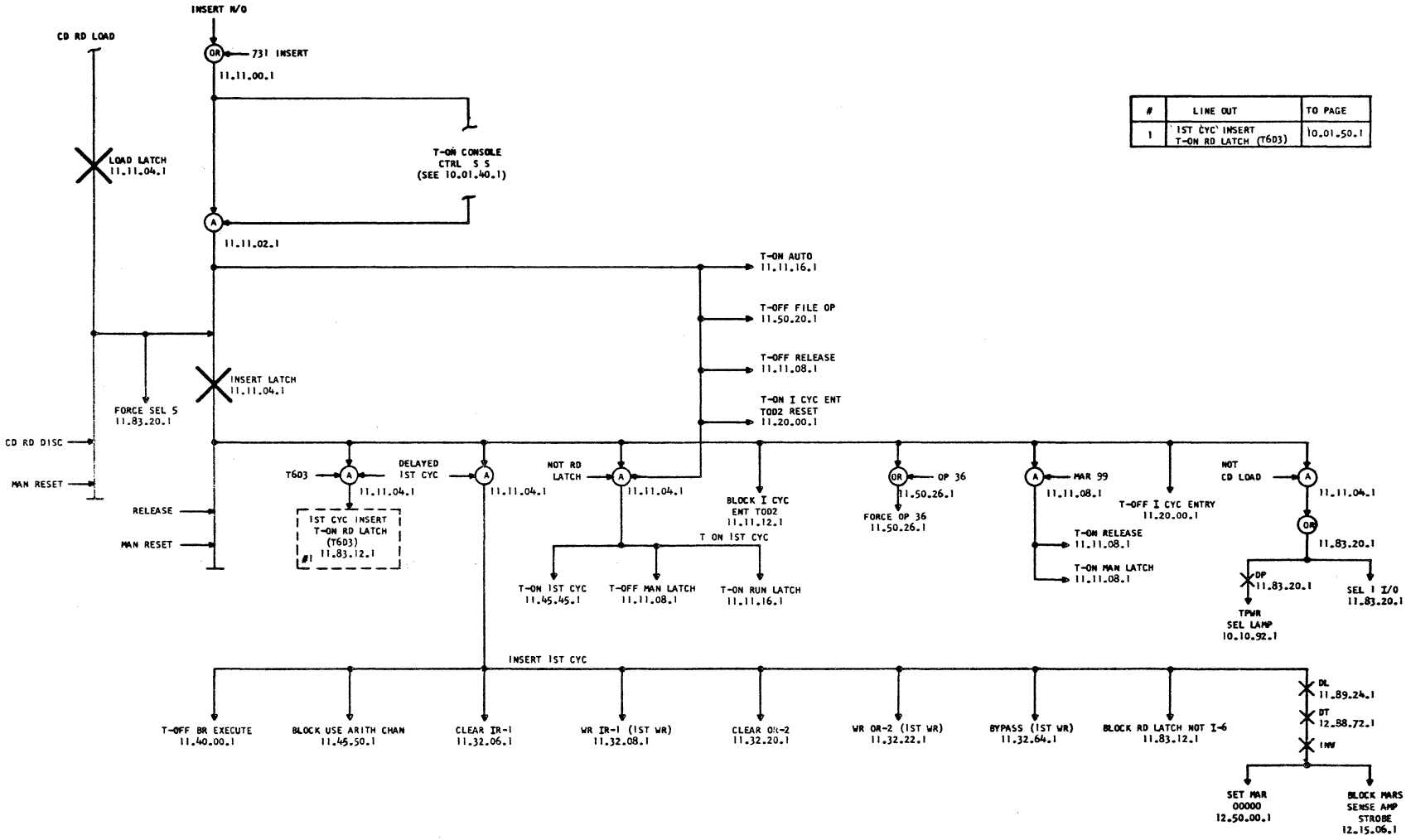
Q CHANNEL T/C NETWORK



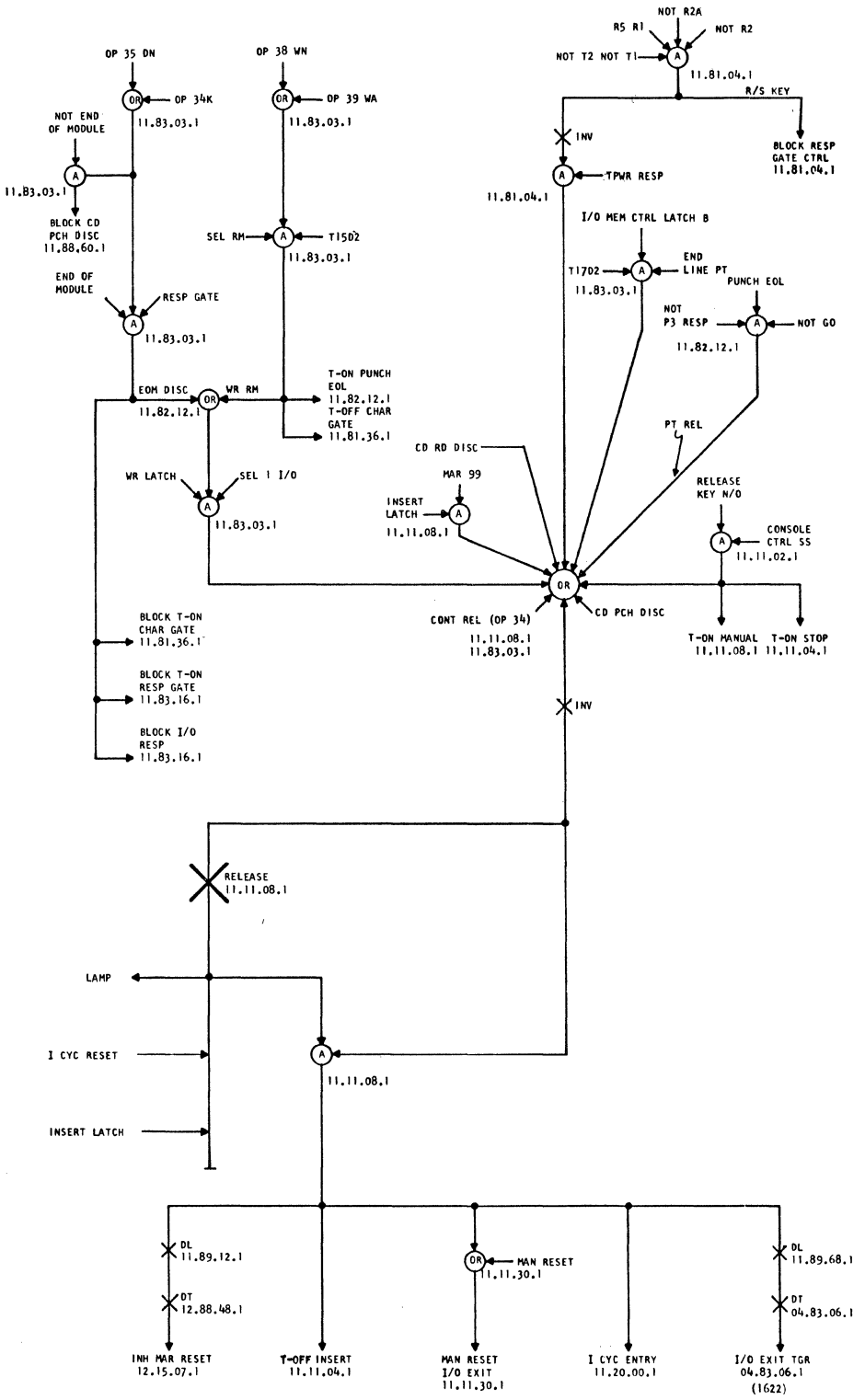
E/C 408525 9-20-63 DA 0A27000


INSERT N/O
731 INSERT
11.11.00.1
11.11.02.1
T-ON INSERT
SAVE
T-ON SAVE CTRL 11.11.12.1
DISP MAR
T-ON DISP MAR 11.11.12.1
RELEASE N/O
T-ON REL L 11.11.08.1
T-ON STOP 11.11.04.1
GATE 1622 RUN CLOCK B 11.83.10.1
T-ON RUN 11.11.16.1
T-ON MAN 11.11.08.1
SCE N/O
SCE LATCH 11.11.04.1
T1104
STOP SIE N/C
T-ON STOP 11.11.04.1
T-ON RUN 11.11.16.1
T-OFF MAN 11.11.08.1
START N/O
T-ON RUN 11.11.16.1
T-OFF MAN 11.11.08.1
INSERT
SAVE
DISPLAY MAR 11.11.00.1
NOT AUTO
MANUAL 11.11.00.1
INV
40 M SEC CONSOLE CTRL SS 11.11.00.1
5 µS
40 M S
5 µ SEC 11.11.02.1
INV
REL.EASE
I/O SEL 11.11.00.1
SCE 11.11.00.1
NOT CE REMOTE ACTIVE
STOP/SIE
NOT CE SW 9 11.11.00.1
NOT CE REMOTE ACTIVE
NOT CE SW 10
START N/C 11.11.00.1
CE START 11.11.00.1
INV


START
SINGLE CYC (SCE)
DISP MAR
SAVE CTRL
STOP/SIE
T-ON 1ST CYC (INSERT)
RUN 11.11.16.1
CONSOLE LAMP
MAN MODE
A
T17D2
11.11.16.1
GATE 1621 RD CLUTCH OR 11.82.04.1
GATE I/O RESP 11.83.08.1
GATE RUN CLOCK 11.15.05.1
MAN RESET
NO FEED L
I CYC ENT
RDR NO FEED RESET RUN
T16D3
11.11.16.1
STOP SIE
STOP 11.11.04.1
CONSOLE LAMP
I CYC ENT T0D2
MAN RESET
OPR TN DEC 0
1-1
OPR UN DEC 0
11.50.08.1
I CYC ENT
11.11.04.1
MAR 99
INSERT
11.11.08.1
-1-6
OP 48
11.20.06.1
CLR CTRL
T6D3
11.11.24.1
END OF MODULE
RELEASE KEY
(SCE) SINGLE CYC
MEM CLEARED
CHECK STOP
ARITH CHECK STOP
MAN RESET
RESERVED (CE STOP)
INSERT NOT RD
STOP/ SIE
OR
START
11.11.08.1
INV
MANUAL 11.11.08.1
DP
MAN LAMP 11.10.92.1
DL 11.89.68.1
RUN TR OFF MAN STATUS 04.83.06.1
MAN RESET KEY 11.11.28.1
MAN RESET 11.11.28.1
T17D2 11.11.16.1
NOT CE SW 9 11.83.10.1
BLOCK 1622 RUN CLOCK 11.83.10.1
T-OFF RUN 11.11.16.1
T-OFF CLR CTRL 11.11.24.1
GATE CONSOLE CTRL SS 11.11.00.1

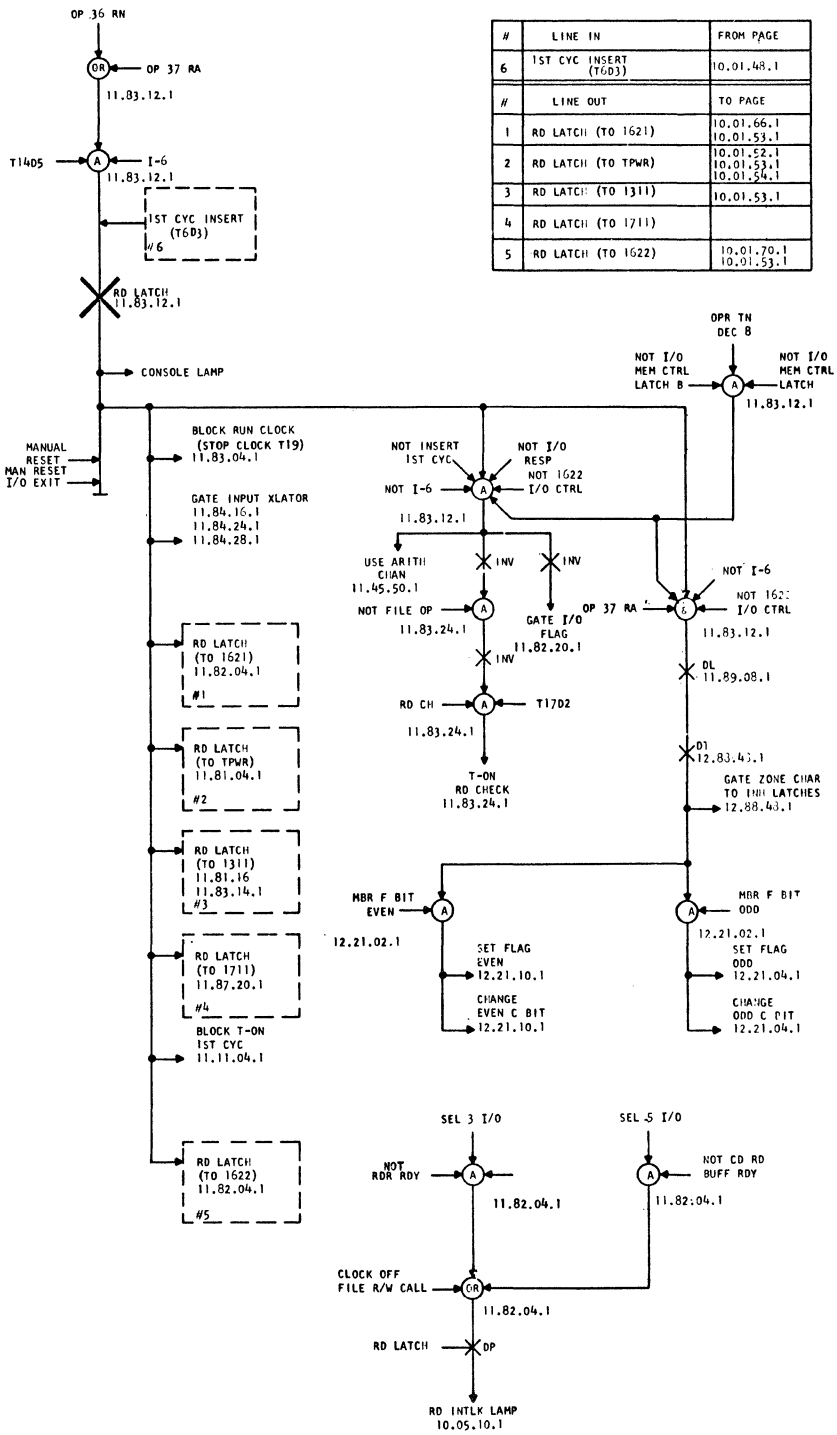


#	LINE OUT	TO PAGE
1	1ST CYC INSERT T-ON RD LATCH (T603)	10.01.50.1

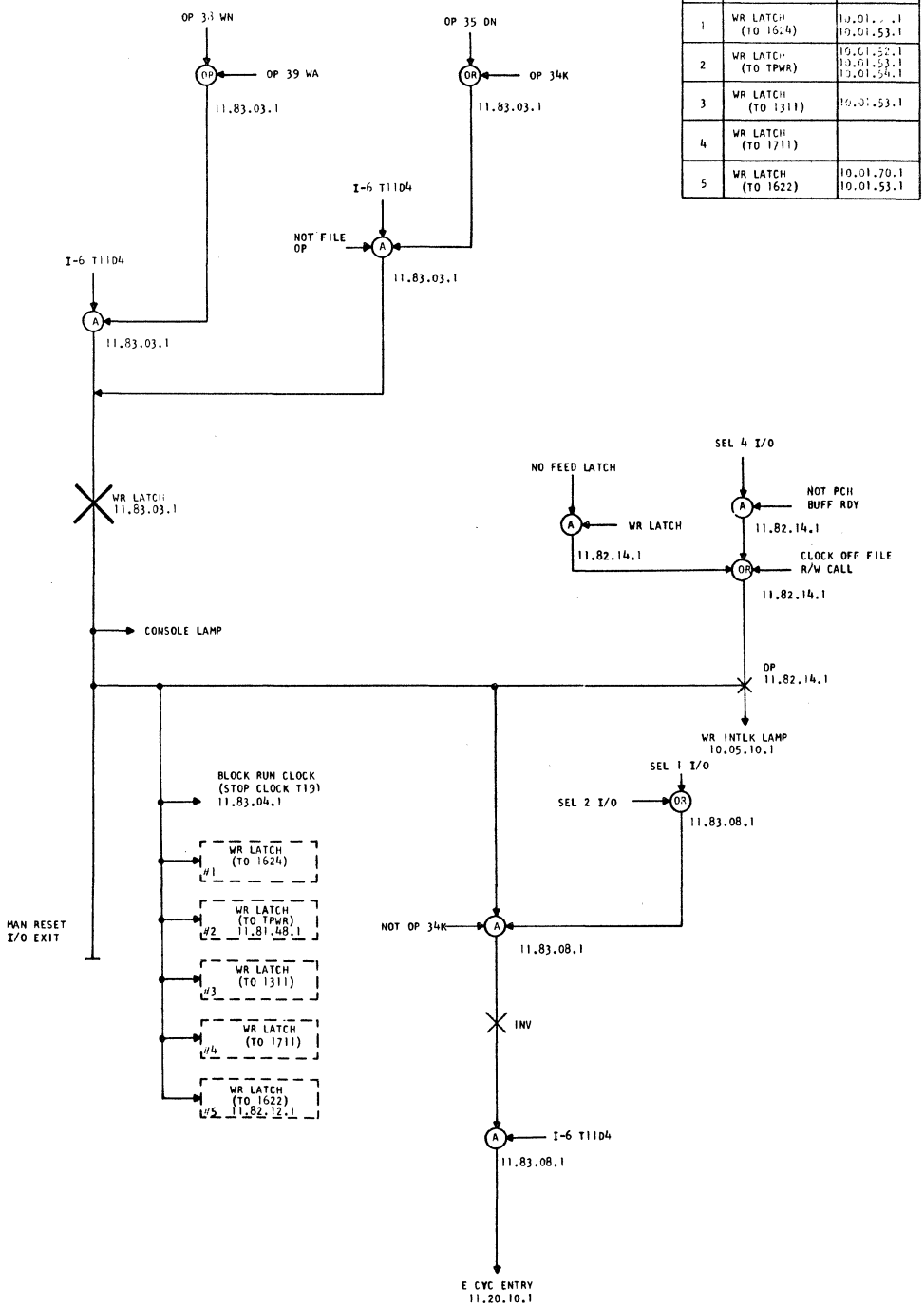

OP 35 DN
OP 38 WN
OR
OP 34K
11.83.03.1
OP 39 WA
11.83.03.1
NOT END OF MODULE
A
11.83.03.1
BLOCK CD PCH DISC 11.88.60.1
SEL RM
T1502
11.83.03.1
END OF MODULE
RESP GATE
11.83.03.1
EOM DISC
11.82.12.1
WR RM
T-ON PUNCH EOL 11.82.12.1
T-OFF CHAR GATE 11.81.36.1
WR LATCH
SEL 1 I/O
11.83.03.1
BLOCK T-ON CHAR GATE 11.81.36.1
BLOCK T-ON RESP GATE 11.83.16.1
BLOCK I/O RESP 11.83.16.1
NOT R2A
R5 R1
NOT R2
NOT T2 NOT T1
11.81.04.1
R/S KEY
BLOCK RESP GATE CTRL 11.81.04.1
INV
TPWR RESP
11.81.04.1
I/O MEM CTRL LATCH B
T1702
END LINE PT
11.83.03.1
PUNCH EOL
NOT P3 RESP
NOT GO
11.82.12.1
PT REL
CD RD DISC
MAR 99
INSERT LATCH
11.11.08.1
RELEASE KEY N/O
CONSOLE CTRL SS
11.11.02.1
OR
CONT REL (OP 34)
11.11.08.1
11.83.03.1
CD PCH DISC
T-ON MANUAL 11.11.08.1
T-ON STOP 11.11.04.1
INV
RELEASE
11.11.08.1
LAMP
I CYC RESET
INSERT LATCH
A
11.11.08.1
DL
11.89.12.1
DT
12.88.48.1
INH MAR RESET
12.15.07.1
T-OFF INSERT
11.11.04.1
DR
MAN RESET
11.11.30.1
MAN RESET I/O EXIT
11.11.30.1
I CYC ENTRY
11.20.00.1
DL
11.89.68.1
DT
04.83.06.1
I/O EXIT TGR
04.83.06.1
(1622)

#	LINE IN	FROM PAGE
6	1ST CYC INSERT (T6D3)	10.01.48.1

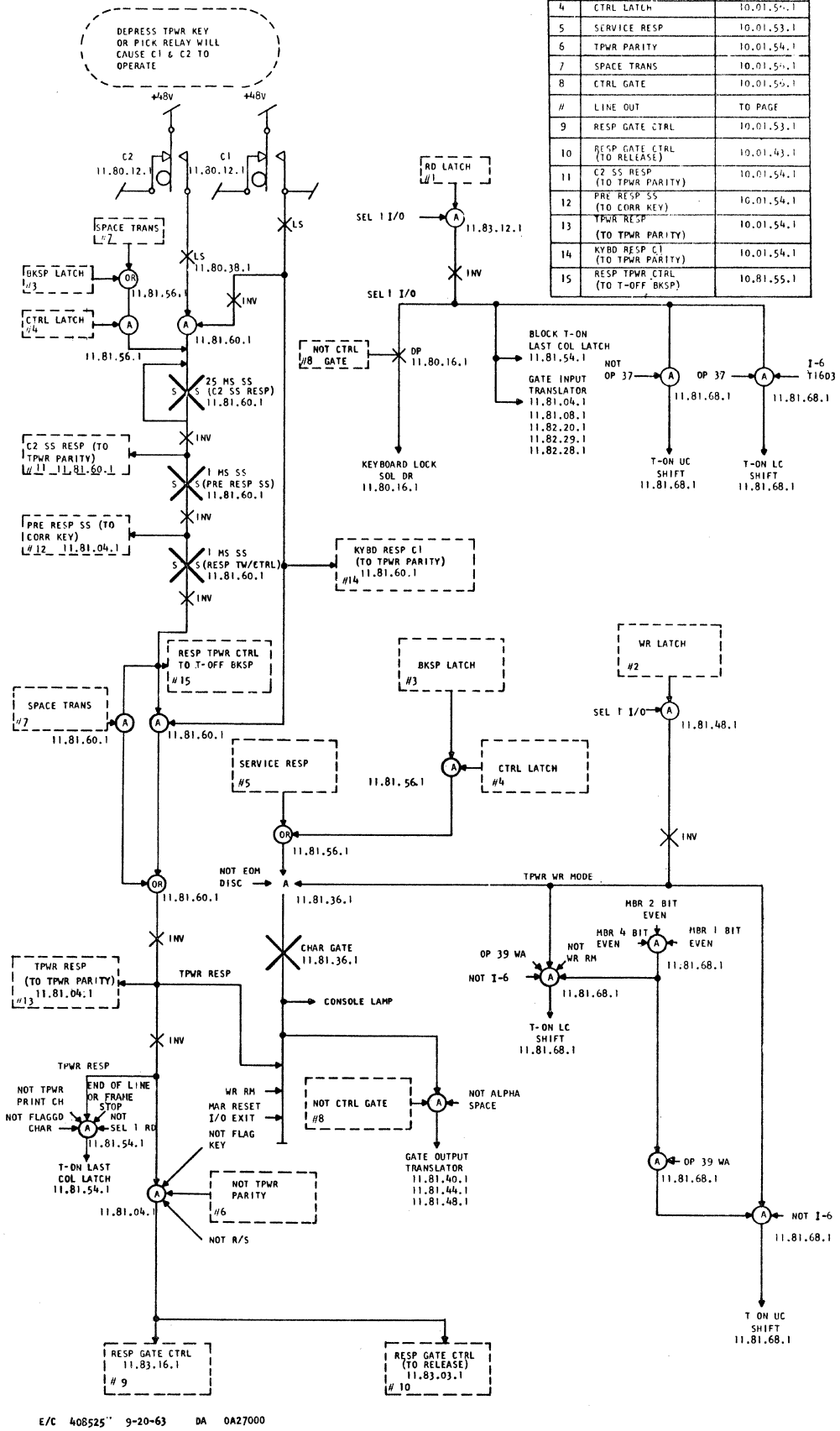
#	LINE OUT	TO PAGE
1	RD LATCH (TO 1621)	10.01.66.1 10.01.53.1
2	RD LATCH (TO TPWR)	10.01.52.1 10.01.53.1 10.01.54.1
3	RD LATCH (TO 1311)	10.01.53.1
4	RD LATCH (TO 1711)	
5	RD LATCH (TO 1622)	10.01.70.1 10.01.53.1

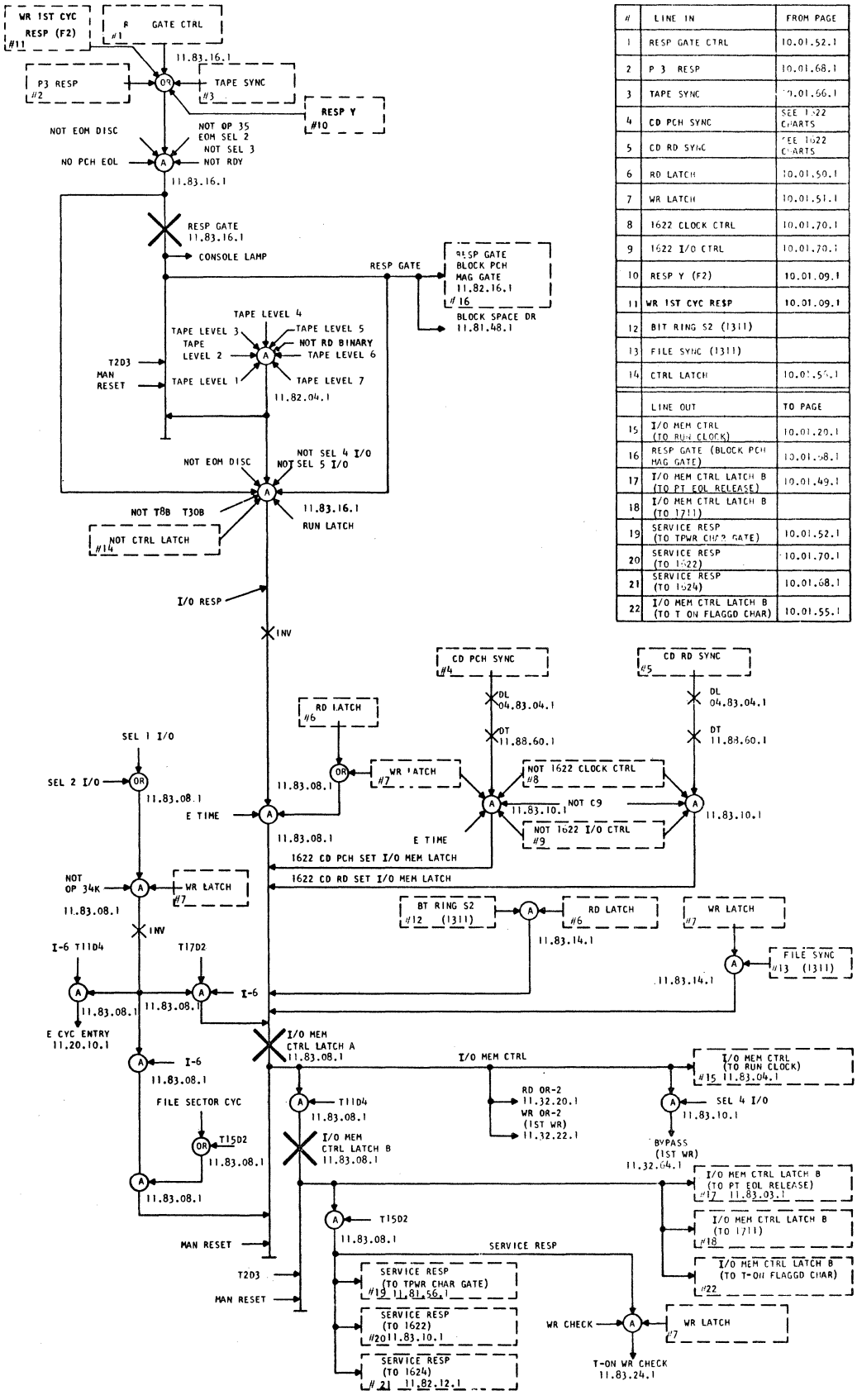


#	LINE OUT	TO PAGE
1	WR LATCH (TO 1624)	10.01.[illegible].1 10.01.53.1
2	WR LATCH (TO TPWR)	10.01.52.1 10.01.53.1 10.01.54.1
3	WR LATCH (TO 1311)	10.01.53.1
4	WR LATCH (TO 1711)	
5	WR LATCH (TO 1622)	10.01.70.1 10.01.53.1

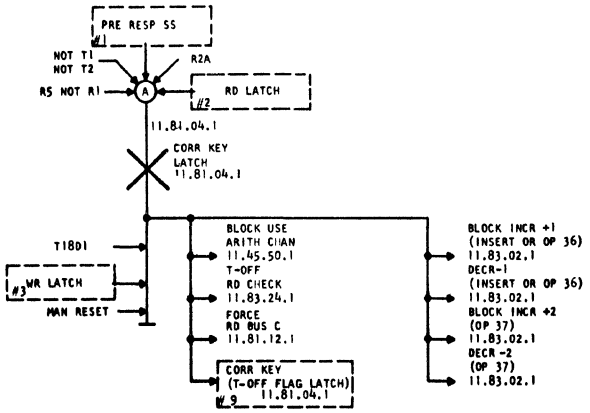


#	LINE IN	FROM PAGE
1	RD LATCH	10.01.50.1
2	WR LATCH	10.01.51.1
3	BKSP LATCH	10.01.55.1
4	CTRL LATCH	10.01.54.1
5	SERVICE RESP	10.01.53.1
6	TPWR PARITY	10.01.54.1
7	SPACE TRANS	10.01.55.1
8	CTRL GATE	10.01.55.1
#	LINE OUT	TO PAGE
9	RESP GATE CTRL	10.01.53.1
10	RESP GATE CTRL (TO RELEASE)	10.01.43.1
11	C2 SS RESP (TO TPWR PARITY)	10.01.54.1
12	PRE RESP SS (TO CORR KEY)	10.01.54.1
13	TPWR RESP (TO TPWR PARITY)	10.01.54.1
14	KYBD RESP C1 (TO TPWR PARITY)	10.01.54.1
15	RESP TPWR CTRL (TO T-OFF BKSP)	10.81.55.1



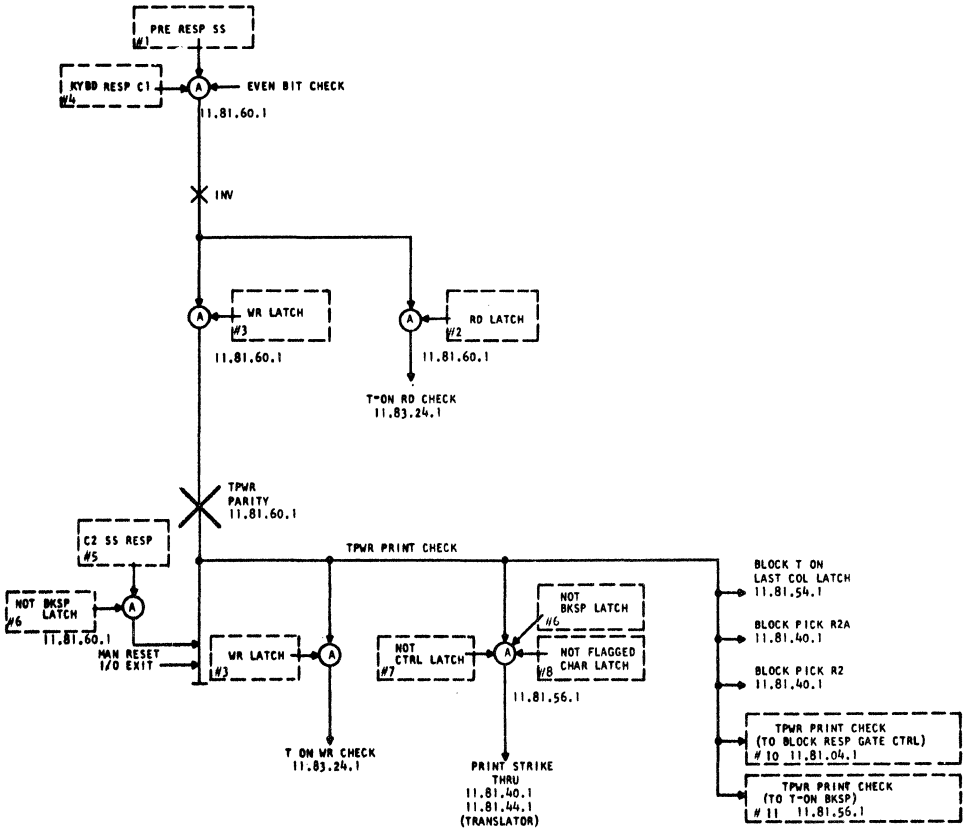


#	LINE IN	FROM PAGE
1	RESP GATE CTRL	10.01.52.1
2	P 3 RESP	10.01.68.1
3	TAPE SYNC	10.01.66.1
4	CD PCH SYNC	SEE 1622 CHARTS
5	CD RD SYNC	SEE 1622 CHARTS
6	RD LATCH	10.01.50.1
7	WR LATCH	10.01.51.1
8	1622 CLOCK CTRL	10.01.70.1
9	1622 I/O CTRL	10.01.70.1
10	RESP Y (F2)	10.01.09.1
11	WR 1ST CYC RESP	10.01.09.1
12	BIT RING S2 (1311)	
13	FILE SYNC (1311)	
14	CTRL LATCH	10.01.54.1
	LINE OUT	**TO PAGE**
15	I/O MEM CTRL (TO RUN CLOCK)	10.01.20.1
16	RESP GATE (BLOCK PCH MAG GATE)	10.01.98.1
17	I/O MEM CTRL LATCH B (TO PT EOL RELEASE)	10.01.49.1
18	I/O MEM CTRL LATCH B (TO 1711)	
19	SERVICE RESP (TO TPWR CHAR GATE)	10.01.52.1
20	SERVICE RESP (TO 1622)	10.01.70.1
21	SERVICE RESP (TO 1624)	10.01.68.1
22	I/O MEM CTRL LATCH B (TO T ON FLAGGD CHAR)	10.01.55.1



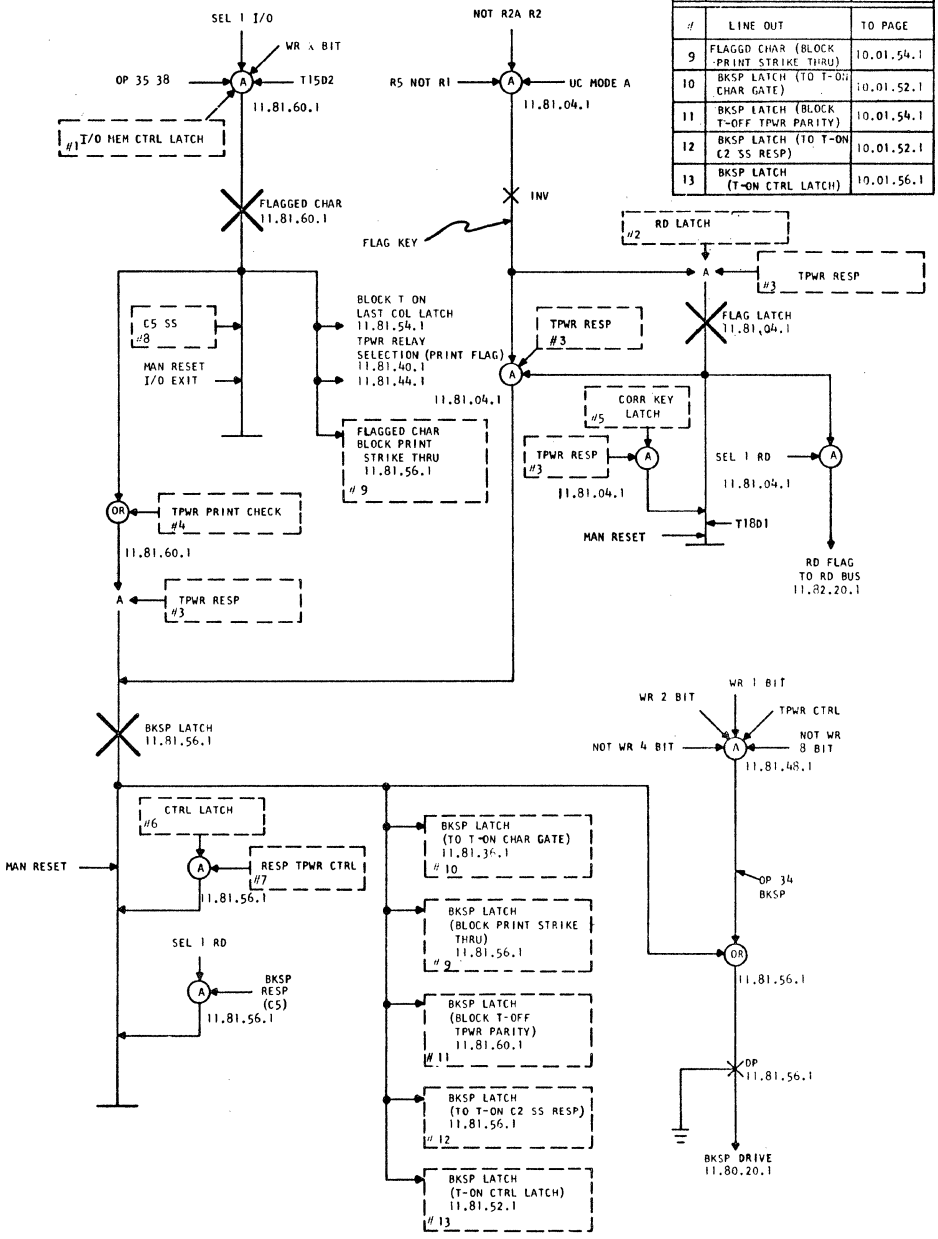
#	LINE IN	FROM PAGE
1	PRE RESP SS	10.01.52.1
2	RD LATCH	10.01.50.1
3	WR LATCH	10.01.51.1
4	KYBD RESP C1	10.01.52.1
5	C2 SS RESP	10.01.52.1
6	BKSP LATCH	10.01.55.1
7	CTRL LATCH	10.01.56.1
8	FLAGGED CHAR LATCH	10.01.55.1
	LINE OUT	TO PAGE
9	CORR KEY (T-OFF FLAG LATCH)	10.01.55.1
10	TPWR PRINT CHECK (TO BLOCK RESP GATE CTRL)	10.01.52.1
11	TPWR PRINT CHECK (TO T-ON BKSP)	10.01.05.1

TPWR PARITY

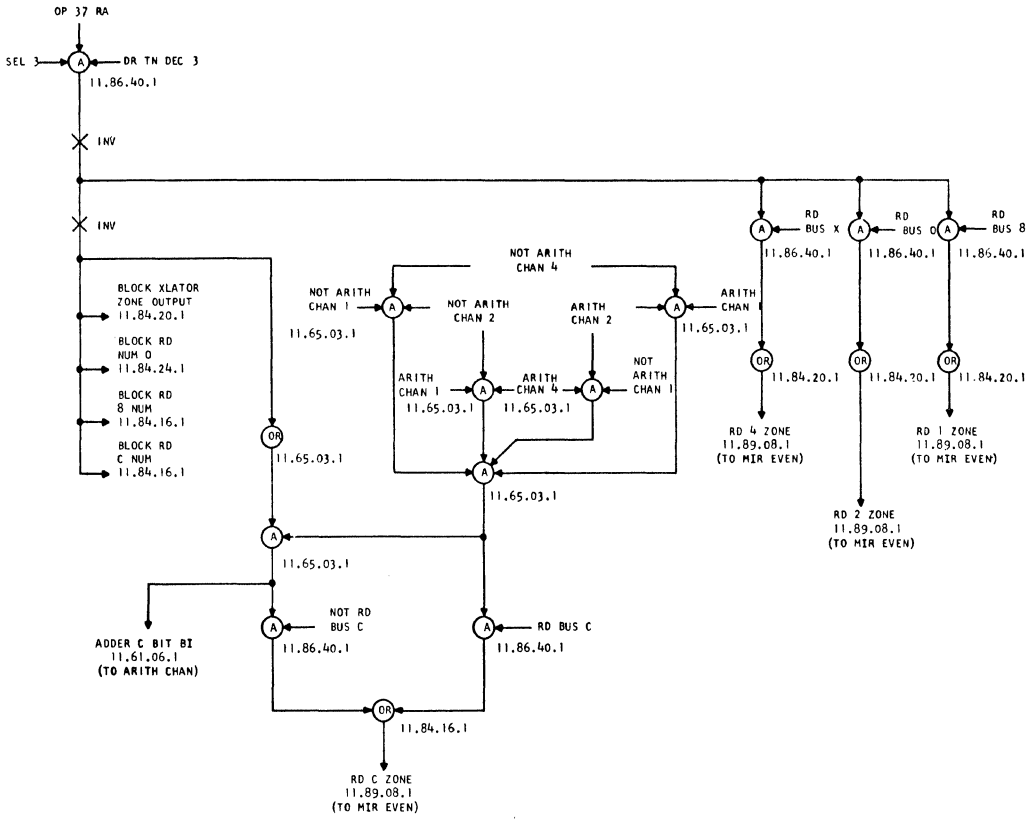


#	LINE IN	FROM PAGE
1	I/O MEM CTRL LATCH B	10.01.53.1
2	RD LATCH	10.01.50.1
3	TPWR RESP	10.01.52.1
4	TPWR PRINT CHECK	10.01.54.1
5	CORR KEY LATCH	10.01.54.1
6	CTRL LATCH	10.01.55.1
7	RESP TPWR CTRL	10.01.52.1
8	C5 SS	10.01.56.1

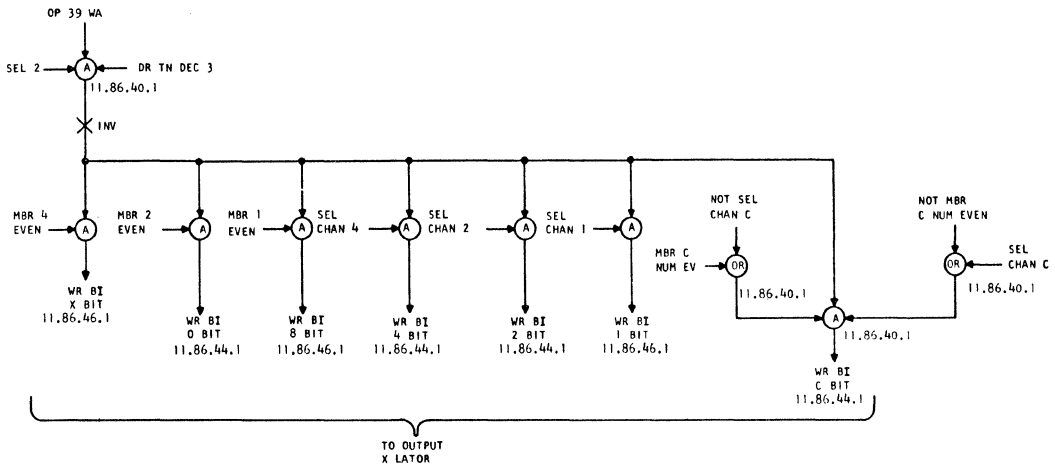
#	LINE OUT	TO PAGE
9	FLAGGD CHAR (BLOCK PRINT STRIKE THRU)	10.01.54.1
10	BKSP LATCH (TO T-ON CHAR GATE)	10.01.52.1
11	BKSP LATCH (BLOCK T-OFF TPWR PARITY)	10.01.54.1
12	BKSP LATCH (TO T-ON C2 SS RESP)	10.01.52.1
13	BKSP LATCH (T-ON CTRL LATCH)	10.01.56.1

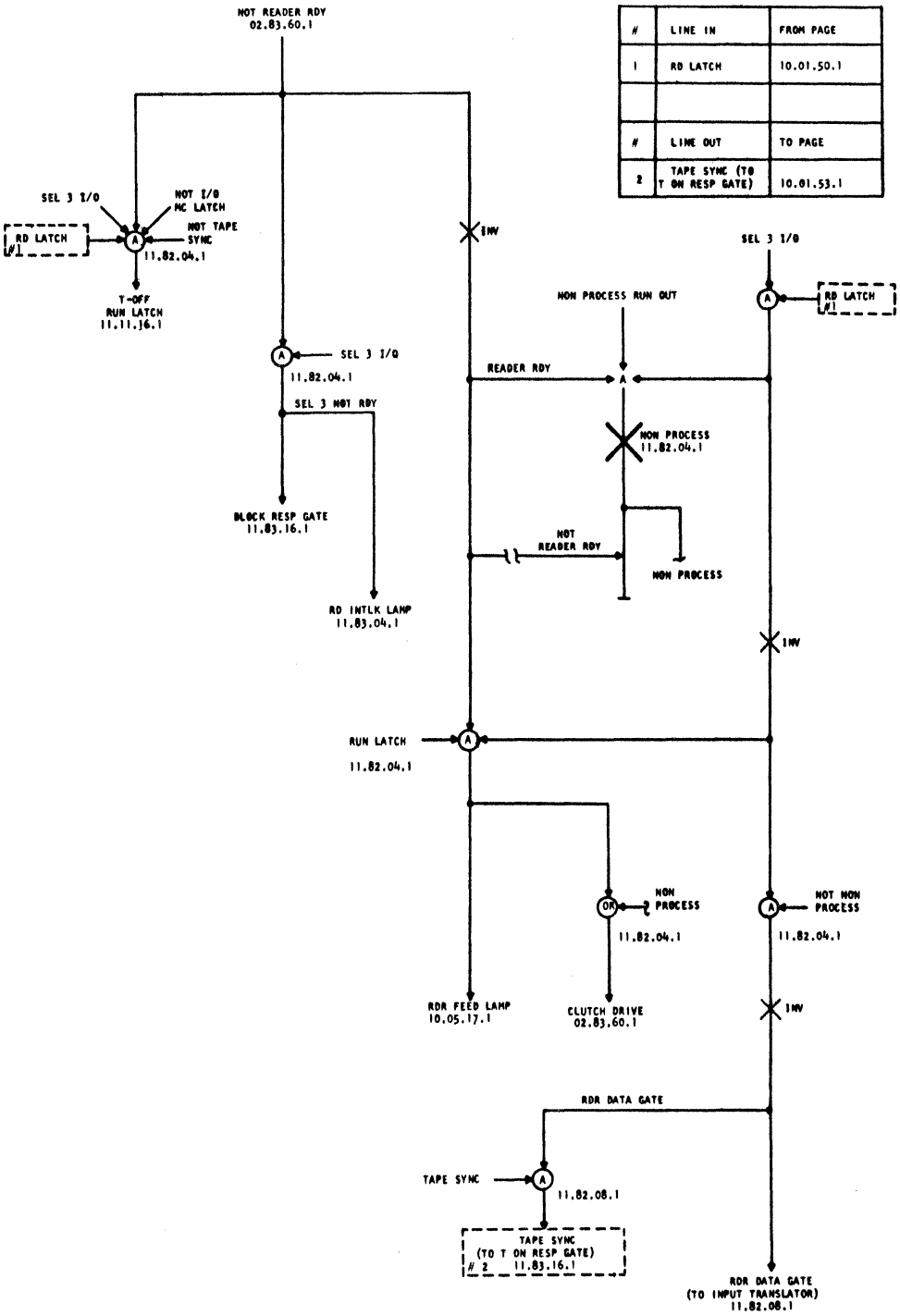


RD BINARY
37 XXXXX 03300



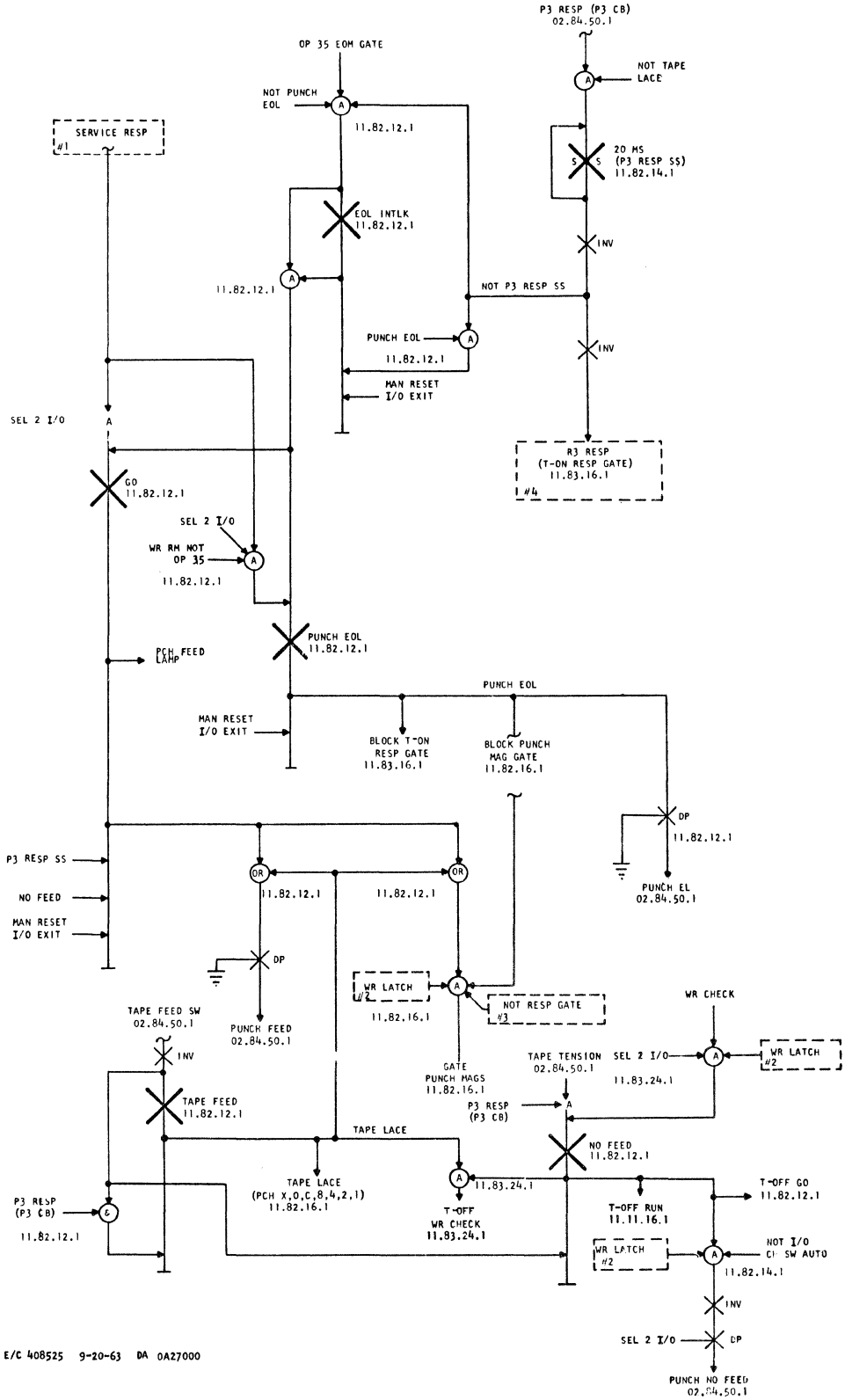
WR BINARY
39 XXXXX 03200





#	LINE IN	FROM PAGE
1	RD LATCH	10.01.50.1
#	LINE OUT	TO PAGE
2	TAPE SYNC (TO T ON RESP GATE)	10.01.53.1

#	LINE IN	FROM PAGE
1	SERVICE RESP	10.01.53.1
2	WR LATCH	10.01.51.1
3	RESP GATE	10.01.53.1
#	LINE OUT	TO PAGE
4	P3 RESP (T-ON RESP GATE)	10.01.53.1



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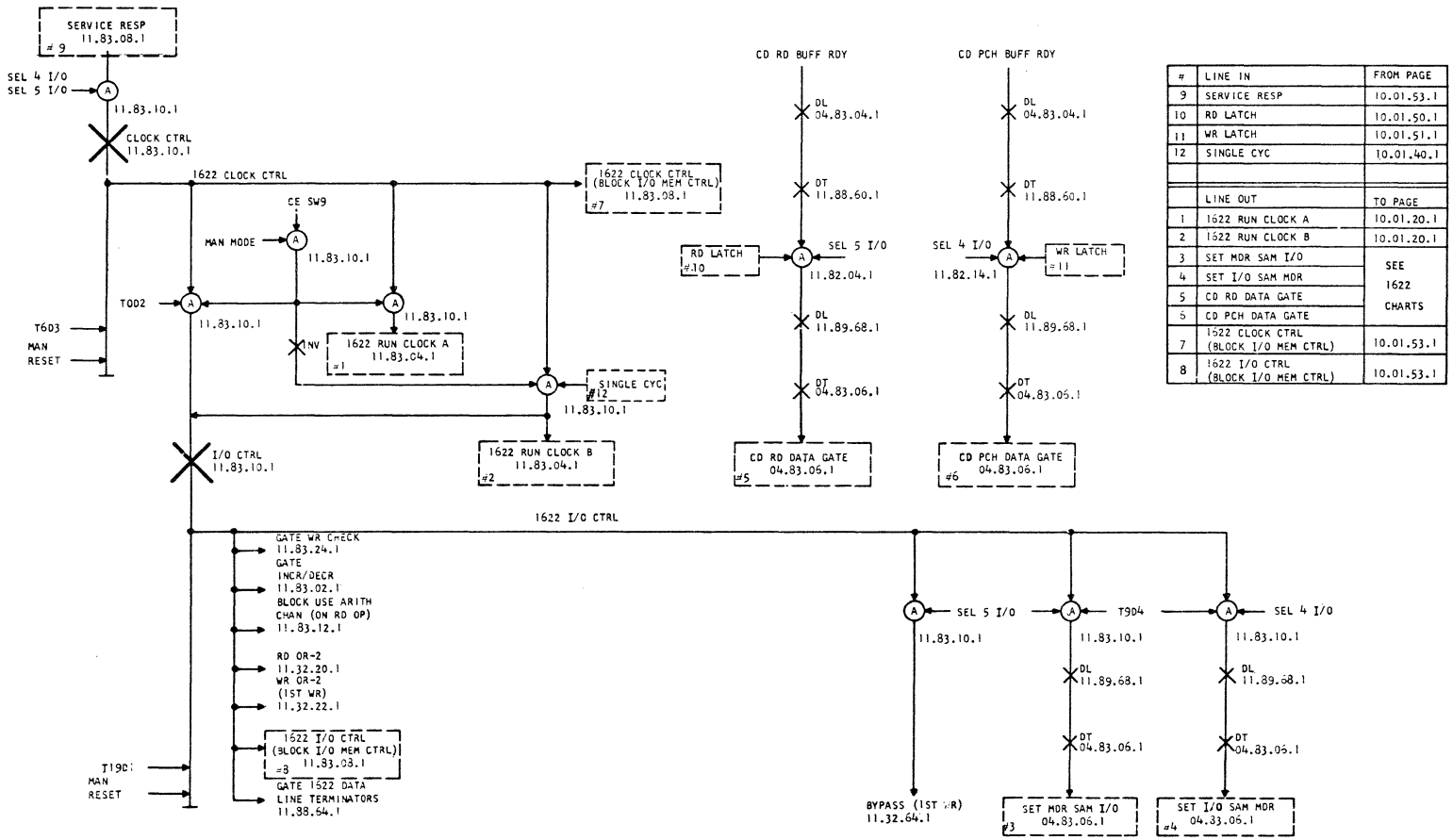
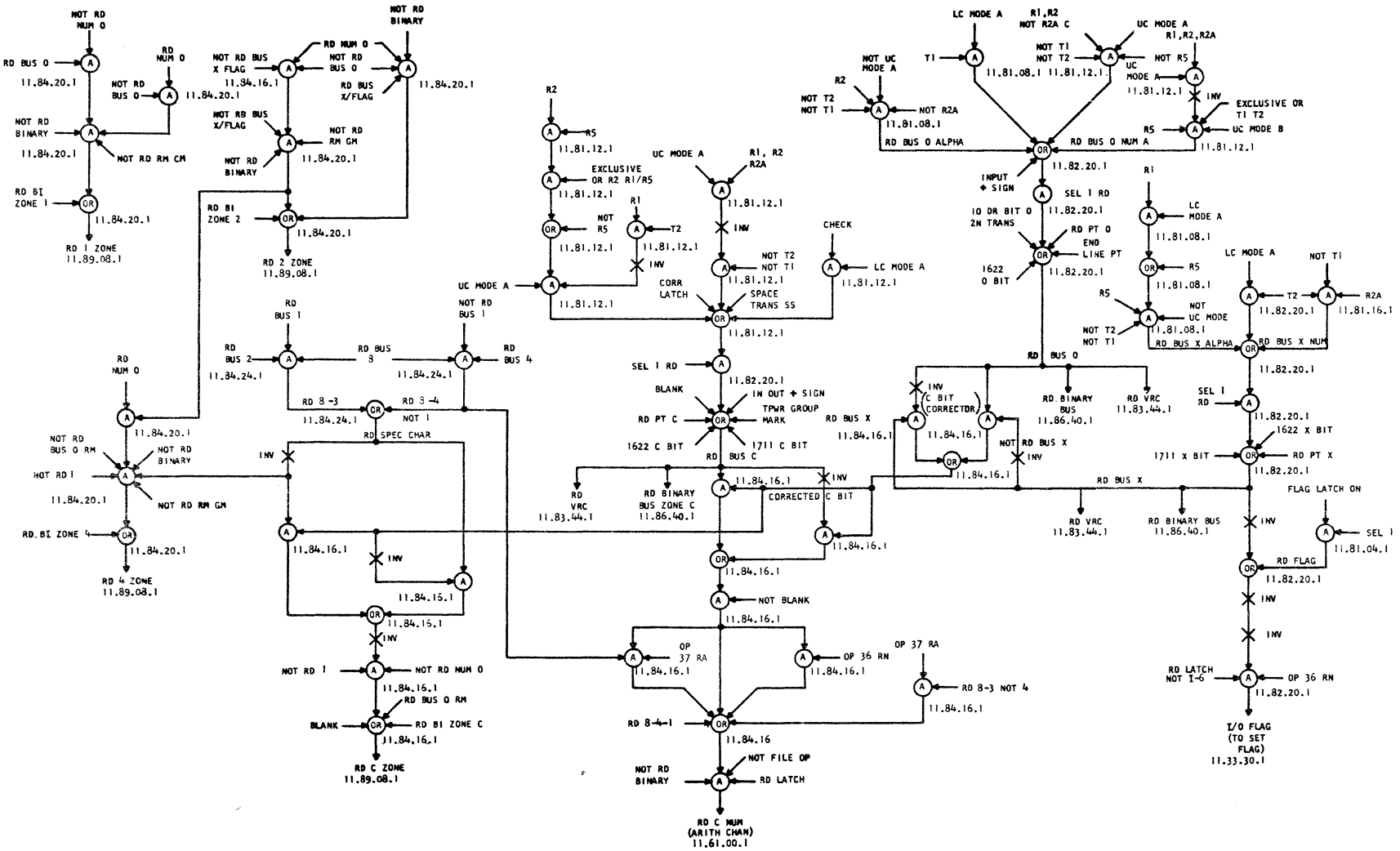
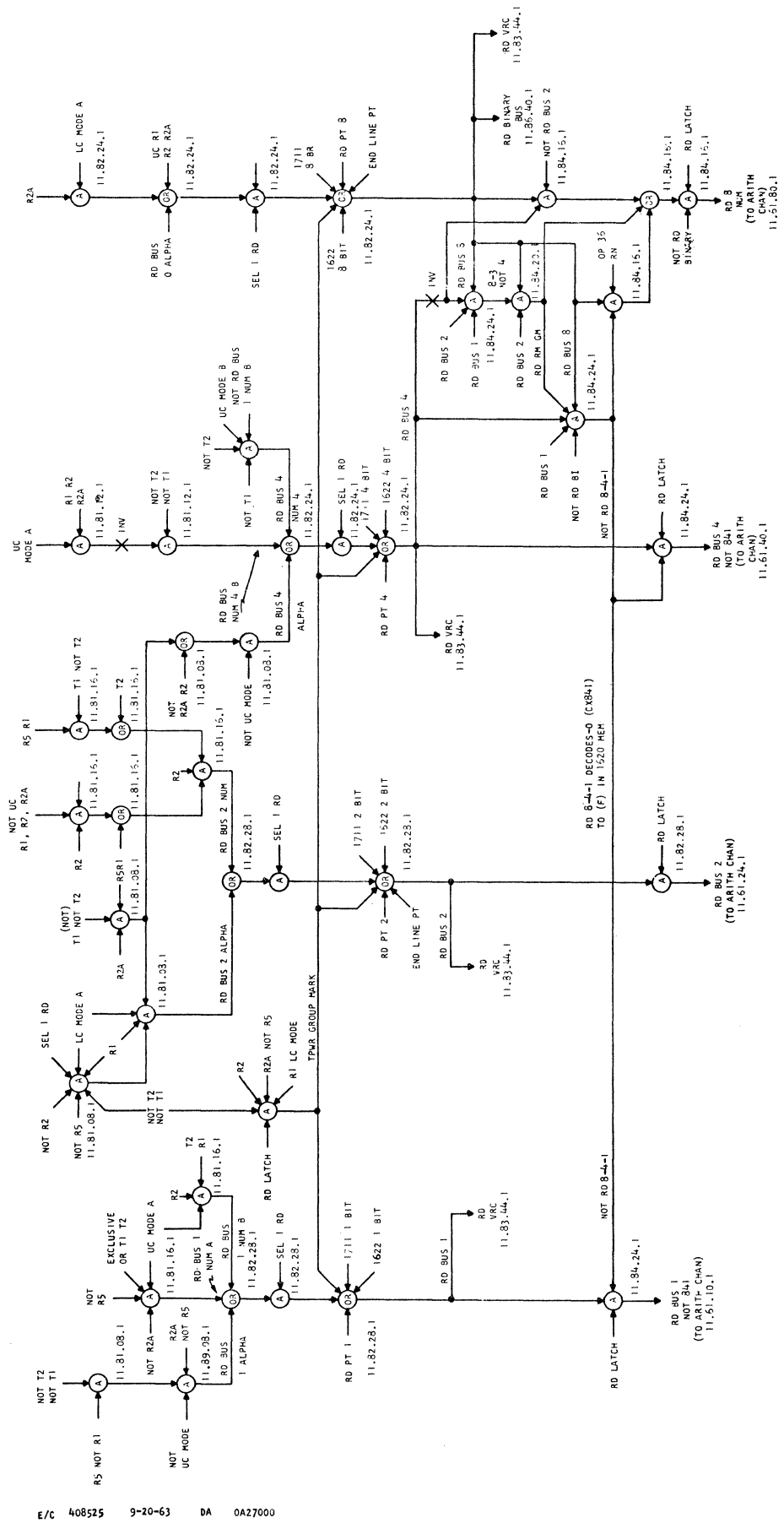
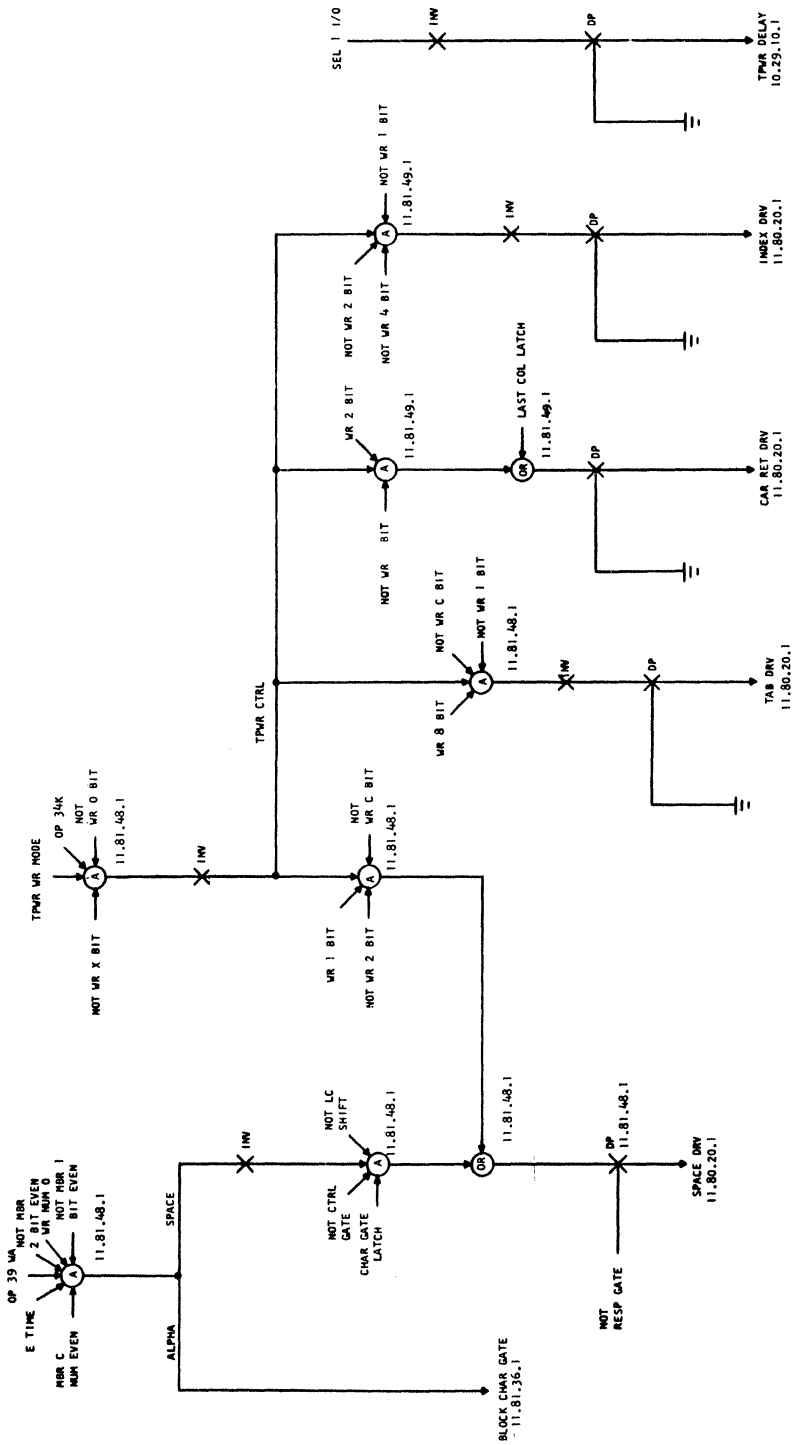
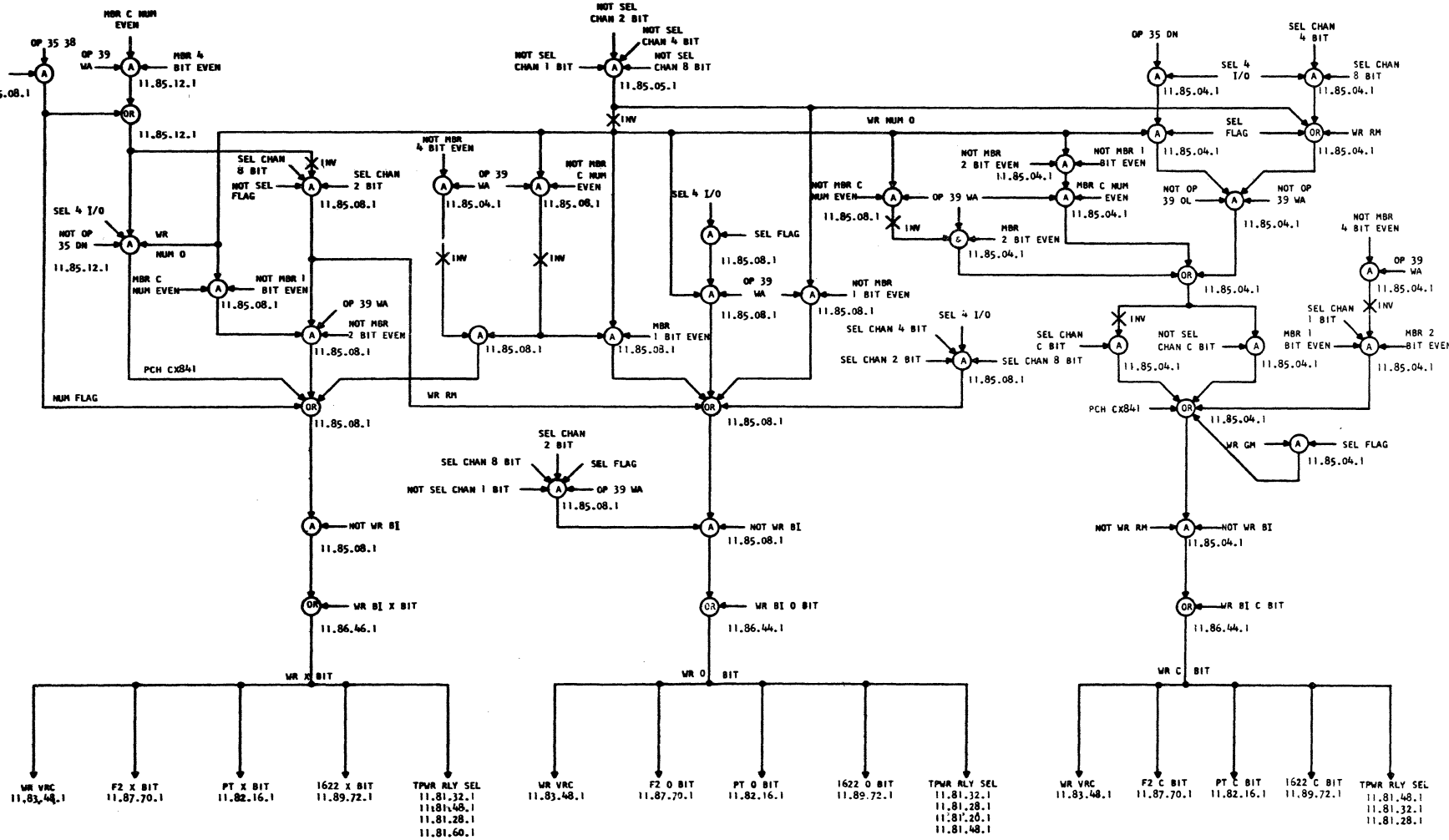


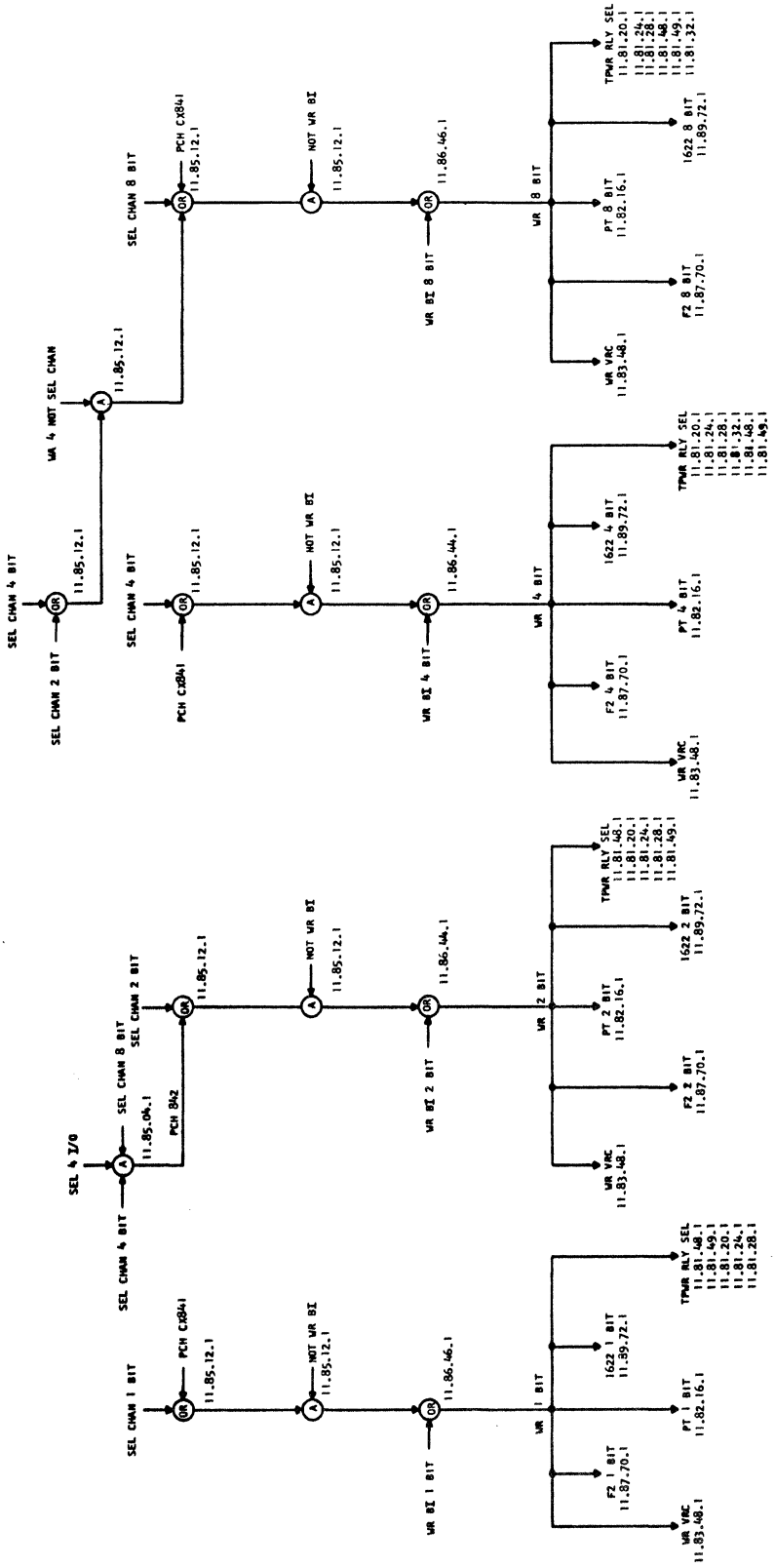
#	LINE IN	FROM PAGE
9	SERVICE RESP	10.01.53.1
10	RD LATCH	10.01.50.1
11	WR LATCH	10.01.51.1
12	SINGLE CYC	10.01.40.1
	LINE OUT	TO PAGE
1	1622 RUN CLOCK A	10.01.20.1
2	1622 RUN CLOCK B	10.01.20.1
3	SET MDR SAM I/O	SEE 1622 CHARTS
4	SET I/O SAM MDR	
5	CD RD DATA GATE	
6	CD PCH DATA GATE	
7	1622 CLOCK CTRL (BLOCK I/O MEM CTRL)	10.01.53.1
8	1622 I/O CTRL (BLOCK I/O MEM CTRL)	10.01.53.1

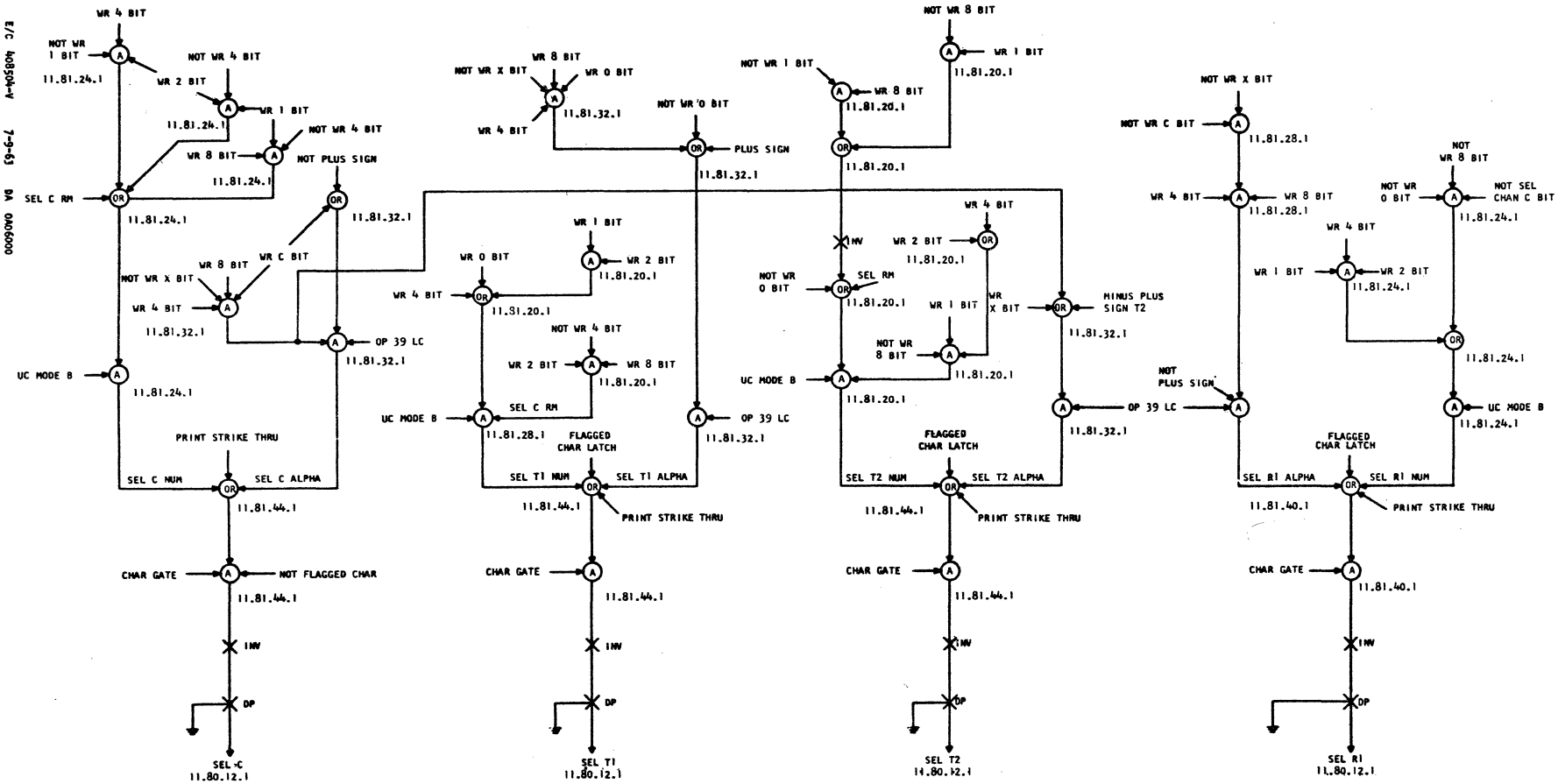

NOT RD NUM 0
RD BUS 0
11.84.20.1
RD NUM 0
NOT RD BUS 0
NOT RD BINARY
NOT RD RM CM
RD BI ZONE 1
RD 1 ZONE 11.89.08.1
NOT RD BUS X FLAG
RD NUM 0
NOT RD BUS 0
NOT RD BINARY
RD BUS X/FLAG
NOT RB BUS X/FLAG
NOT RD RM GM
RD BI ZONE 2
RD 2 ZONE 11.89.08.1
RD BUS 1
RD BUS 2
RD BUS 3
NOT RD BUS 1
RD BUS 4
11.84.24.1
RD 8-3
RD 8-4
NOT 1
RD SPEC CHAR
NOT RD BUS 0 RM
NOT RD 1
NOT RD RM GM
RD BI ZONE 4
RD 4 ZONE 11.89.08.1
INV
NOT RD 1
NOT RD NUM 0
RD BUS 0 RM
BLANK
RD BI ZONE C
RD C ZONE 11.89.08.1
R2
R5
11.81.12.1
EXCLUSIVE OR R2 R1/R5
NOT R5
R1
T2
CORR LATCH
UC MODE A
R1, R2 R2A
NOT T2 NOT T1
SPACE TRANS SS
CHECK
LC MODE A
SEL 1 RD
11.82.20.1
BLANK
IN OUT + SIGN
RD PT C
TPWR GROUP MARK
1622 C BIT
1711 C BIT
RD BUS C
RD VRC 11.83.44.1
RD BINARY BUS ZONE C 11.86.40.1
CORRECTED C BIT
NOT BLANK
OP 37 RA
OP 36 RN
RD 8-4-1
RD 8-3 NOT 4
NOT FILE OP
NOT RD BINARY
RD LATCH
RD C NUM (ARITH CHAN) 11.61.00.1
NOT UC MODE A
R2
NOT T2 NOT T1
NOT R2A
11.81.08.1
RD BUS O ALPHA
LC MODE A
R1,R2 NOT R2A C
T1
NOT T1 NOT T2
11.81.08.1 11.81.12.1
UC MODE A R1,R2,R2A
NOT R5
UC MODE A
EXCLUSIVE OR T1 T2
UC MODE B
RD BUS O NUM A
INPUT + SIGN
SEL 1 RD
10 OR BIT O 2N TRANS
RD PT O END LINE PT
1622 O BIT
RD BUS O
INV C BIT CORRECTOR
RD BINARY BUS 11.86.40.1
RD VRC 11.83.44.1
NOT RD BUS X
RD BUS X
RD BUS X ALPHA
RD BUS X NUM
NOT UC MODE
SEL 1 RD
1622 X BIT
1711 X BIT
RD PT X
FLAG LATCH ON
RD FLAG
RD LATCH NOT I-6
OP 36 RN
I/O FLAG (TO SET FLAG) 11.33.30.1


R2A
LC MODE A
11.82.24.1
UC R1
R2 R2A
11.82.24.1
RD BUS
0 ALPHA
SEL 1 RD
1711
8 BR
RD PT 8
END LINE PT
1622
8 BIT
RD VRC
11.83.44.1
RD BINARY
BUS
11.86.40.1
NOT RD BUS 2
11.84.16.1
RD LATCH
11.84.16.1
RD 8
NUM
(TO ARITH
CHAN)
11.51.80.1
NOT RD
BINARY
OP 35
RN
11.84.16.1
INV
RD BUS 5
RD BUS 1
11.84.24.1
8-1
VOT 4
11.84.22.1
RD BUS 2
RD RM GM
RD BUS 8
11.84.24.1
RD BUS 1
NOT RD 81
NOT RD 8-4-1
RD BUS 4
UC MODE B
NOT RD BUS
1 NUM B
NOT T2
NOT T1
11.81.12.1
NOT T1
RD BUS 4
NUM 4
11.82.24.1
SEL 1 RD
11.82.24.1
1711 4 BIT
1622 4 BIT
11.82.24.1
RD BUS 4
RD PT 4
RD VRC
11.83.44.1
RD LATCH
11.84.24.1
RD BUS 4
NOT RD 8-4-1
(TO ARITH
CHAN)
11.61.40.1
UC
MODE A
R1 R2
R2A
11.81.12.1
INV
RD BUS
NUM 4 B
RD BUS 4
ALPHA
NOT R2A R2
11.81.03.1
NOT UC MODE
11.81.03.1
T1 NOT T2
11.81.15.1
T2
11.81.15.1
R5 R1
R2
11.81.15.1
NOT UC
R1, R2, R2A
11.81.15.1
R2
R5R1
11.81.38.1
(NOT)
T1 NOT T2
R2A
11.81.03.1
RD BUS 2 ALPHA
RD BUS 2 NUM
11.82.28.1
SEL 1 RD
1711 2 BIT
1622 2 BIT
11.82.23.1
RD PT 2
END LINE PT
RD BUS 2
RD
VRC
11.83.44.1
RD 8-4-1 DECODES-0 (CX841)
TO (F) IN 1620 MEM
RD LATCH
11.82.23.1
RD BUS 2
(TO ARITH CHAN)
11.61.24.1
SEL 1 RD
LC MODE A
R1
NOT R2
NOT R5
11.81.08.1
NOT T2
NOT T1
R2
R2A NOT R5
R1 LC MODE
TPWR GROUP MARK
RD LATCH
T2
R1
11.81.16.1
R2
EXCLUSIVE
OR T1 T2
UC MODE A
11.81.16.1
NOT
R5
RD BUS 1
NUM A
RD BUS
1 NUM B
11.82.28.1
SEL 1 RD
11.82.28.1
1711 1 BIT
1622 1 BIT
RD PT 1
11.82.28.1
RD BUS 1
RD
VRC
11.83.44.1
NOT RD 8-4-1
RD LATCH
11.84.24.1
RD BUS 1
NOT 8-4-1
(TO ARITH CHAN)
11.61.10.1
NOT T2
NOT T1
R5 NOT R1
11.81.08.1
NOT R2A
R2A
NOT R5
11.89.08.1
RD BUS
1 ALPHA
NOT
UC MODE


SEL 1 I/O
INV
DP
TPWR DELAY
10.29.10.1
NOT WR 1 BIT
11.81.49.1
INDEX DRV
11.80.20.1
NOT WR 2 BIT
NOT WR 4 BIT
LAST COL LATCH
WR 2 BIT
OR
CAR RET DRV
11.80.20.1
NOT WR C BIT
NOT WR 1 BIT
11.81.48.1
TAB DRV
11.80.20.1
WR 8 BIT
TPWR CTRL
OP 34K
NOT WR 0 BIT
TPWR WR MODE
NOT WR X BIT
WR 1 BIT
NOT WR 2 BIT
NOT LC SHIFT
NOT CTRL GATE
CHAR GATE LATCH
SPACE DRV
11.80.20.1
NOT RESP GATE
OP 39 WA
E TIME
NOT MBR 2 BIT EVEN WR NUM 0
NOT MBR 1 BIT EVEN
MBR C NUM EVEN
SPACE
ALPHA
BLOCK CHAR GATE
11.81.36.1


MBR C NUM EVEN
OP 35 38
SEL FLAG
11.85.08.1
OP 39 WA
MBR 4 BIT EVEN
11.85.12.1
11.85.12.1
SEL CHAN 8 BIT
NOT SEL FLAG
INV
SEL CHAN 2 BIT
11.85.08.1
NOT MBR 4 BIT EVEN
OP 39 WA
11.85.04.1
NOT MBR C NUM EVEN
11.85.08.1
INV
INV
SEL 4 I/O
NOT OP 35 DN
11.85.12.1
WR NUM 0
MBR C NUM EVEN
NOT MBR 1 BIT EVEN
11.85.08.1
OP 39 WA
NOT MBR 2 BIT EVEN
11.85.08.1
11.85.08.1
MBR 1 BIT EVEN
11.85.08.1
PCH CX841
NUM FLAG
WR RM
11.85.08.1
11.85.08.1
SEL 4 I/O
SEL FLAG
11.85.08.1
OP 39 WA
11.85.08.1
NOT MBR 1 BIT EVEN
11.85.08.1
SEL 4 I/O
SEL CHAN 4 BIT
SEL CHAN 2 BIT
SEL CHAN 8 BIT
11.85.08.1
SEL CHAN 2 BIT
SEL CHAN 8 BIT
SEL FLAG
NOT SEL CHAN 1 BIT
OP 39 WA
11.85.08.1
NOT WR BI
11.85.08.1
NOT WR BI
11.85.08.1
WR BI X BIT
11.86.46.1
WR BI 0 BIT
11.86.44.1
WR X BIT
WR 0 BIT
WR VRC 11.83.48.1
F2 X BIT 11.87.70.1
PT X BIT 11.82.16.1
1622 X BIT 11.89.72.1
TPWR RLY SEL 11.81.32.1 11.81.48.1 11.81.28.1 11.81.60.1
WR VRC 11.83.48.1
F2 0 BIT 11.87.70.1
PT 0 BIT 11.82.16.1
1622 0 BIT 11.89.72.1
TPWR RLY SEL 11.81.32.1 11.81.28.1 11.81.20.1 11.81.48.1
OP 35 DN
SEL 4 I/O
11.85.04.1
SEL CHAN 4 BIT
SEL CHAN 8 BIT
11.85.04.1
SEL FLAG
11.85.04.1
WR RM
11.85.04.1
NOT MBR 2 BIT EVEN
11.85.04.1
NOT MBR 1 BIT EVEN
MBR C NUM EVEN
11.85.04.1
NOT OP 39 OL
NOT OP 39 WA
11.85.04.1
NOT MBR C NUM EVEN
11.85.08.1
OP 39 WA
INV
MBR 2 BIT EVEN
11.85.04.1
11.85.04.1
NOT MBR 4 BIT EVEN
OP 39 WA
11.85.04.1
SEL CHAN C BIT
NOT SEL CHAN C BIT
11.85.04.1
11.85.04.1
SEL CHAN 1 BIT
INV
MBR 1 BIT EVEN
MBR 2 BIT EVEN
11.85.04.1
PCH CX841
11.85.04.1
WR GM
SEL FLAG
11.85.04.1
NOT WR RM
NOT WR BI
11.85.04.1
WR BI C BIT
11.86.44.1
WR C BIT
WR VRC 11.83.48.1
F2 C BIT 11.87.70.1
PT C BIT 11.82.16.1
1622 C BIT 11.89.72.1
TPWR RLY SEL 11.81.48.1 11.81.32.1 11.81.28.1


SEL 4 I/O
SEL CHAN 4 BIT
SEL CHAN 1 BIT
SEL CHAN 2 BIT
SEL CHAN 8 BIT
PCH CX842
PCH CX841
11.85.04.1
11.85.12.1
11.85.46.1
11.86.44.1
11.86.46.1
NOT WR BI
WR BI 1 BIT
WR BI 2 BIT
WR BI 4 BIT
WR BI 8 BIT
WR 4 NOT SEL CHAN
WR 1 BIT
WR 2 BIT
WR 4 BIT
WR 8 BIT
PT 1 BIT
PT 2 BIT
PT 4 BIT
PT 8 BIT
11.82.16.1
1622 1 BIT
1622 2 BIT
1622 4 BIT
1622 8 BIT
11.89.72.1
F2 1 BIT
F2 2 BIT
F2 4 BIT
F2 8 BIT
11.87.70.1
WR VRC
11.83.48.1
TPWR RLY SEL
11.81.48.1
11.81.49.1
11.81.20.1
11.81.24.1
11.81.28.1
11.81.32.1
11.81.44.1
11.81.48.1
11.81.49.1


WR 4 BIT
NOT WR 1 BIT
11.81.24.1
NOT WR 4 BIT
WR 2 BIT
WR 1 BIT
11.81.24.1
NOT WR 4 BIT
WR 8 BIT
11.81.24.1
NOT PLUS SIGN
SEL C RM
11.81.24.1
11.81.32.1
WR C BIT
WR 8 BIT
NOT WR X BIT
WR 4 BIT
11.81.32.1
OP 39 LC
11.81.32.1
UC MODE B
11.81.24.1
PRINT STRIKE THRU
SEL C NUM
SEL C ALPHA
11.81.44.1
CHAR GATE
NOT FLAGGED CHAR
11.81.44.1
INV
DP
SEL C
11.80.12.1
WR 8 BIT
NOT WR X BIT
WR 0 BIT
WR 4 BIT
11.81.32.1
NOT WR 0 BIT
PLUS SIGN
11.81.32.1
WR 1 BIT
WR 0 BIT
WR 2 BIT
11.81.20.1
WR 4 BIT
11.31.20.1
NOT WR 4 BIT
WR 2 BIT
WR 8 BIT
11.81.20.1
UC MODE B
SEL C RM
11.81.28.1
FLAGGED CHAR LATCH
OP 39 LC
11.81.32.1
SEL T1 NUM
SEL T1 ALPHA
11.81.44.1
PRINT STRIKE THRU
CHAR GATE
11.81.44.1
INV
DP
SEL T1
11.80.12.1
NOT WR 8 BIT
WR 1 BIT
11.81.20.1
NOT WR 1 BIT
WR 8 BIT
11.81.20.1
11.81.20.1
WR 4 BIT
INV
WR 2 BIT
11.81.20.1
NOT WR 0 BIT
SEL RM
11.81.20.1
WR 1 BIT
WR X BIT
MINUS PLUS SIGN T2
11.81.32.1
NOT WR 8 BIT
11.81.20.1
UC MODE B
11.81.20.1
OP 39 LC
11.81.32.1
FLAGGED CHAR LATCH
SEL T2 NUM
SEL T2 ALPHA
11.81.44.1
PRINT STRIKE THRU
CHAR GATE
11.81.44.1
INV
DP
SEL T2
14.80.12.1
NOT WR X BIT
NOT WR C BIT
11.81.28.1
WR 4 BIT
WR 8 BIT
11.81.28.1
NOT WR 8 BIT
NOT WR 0 BIT
NOT SEL CHAN C BIT
11.81.24.1
WR 4 BIT
WR 1 BIT
WR 2 BIT
11.81.24.1
11.81.24.1
NOT PLUS SIGN
OP 39 LC
UC MODE B
11.81.24.1
FLAGGED CHAR LATCH
SEL R1 ALPHA
SEL R1 NUM
11.81.40.1
PRINT STRIKE THRU
CHAR GATE
11.81.40.1
INV
DP
SEL R1
11.80.12.1

1620 Model 2 System

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International Business Machines Corporation
Data Processing Division
112 East Post Road, White Plains, N. Y. 10601